

CAPITOLA COMMUNITY CENTER IMPROVEMENT PROJECT

BUILDING PERMIT & ENVIRONMENTAL HEALTH COMMENT RESPONSE SET
(Updated Delta 2)

SUPPLEMENTAL DOCUMENTS:

Reviewed for Code Compliance

10/03/2024

HAZARDOUS MATERIALS REPORTS:

CSG CONSULTANTS, INC.

- A Asbestos Sampling Report
- B Lead Paint Inspection Report
- C Microbial Report

PROJECT CUTSHEETS

- 1 Lighting Fixtures
- 2 AEP Span
- 3 Polystick XFR
- 4 H-Shield
- 5 AHU-1
- 6 Baby Change Station
- 7 Dex-O-Tex Product Data
- 8 AEC Dimiseable Partition
- 9 Door Accessories
- 10 EF-1
- 11 *Elkay ez H2O (Revised Delta 1)*
- 12 LG AHU
- 13 Marmoleum Flooring
- 14 SCRC Sierra Series
- 15 Safecoat Polyureseal
- 16 Restroom Accessories
- 17 Sun Tunnel
- 18 Water Heater
- 19 Zero Sightline Series
- 20 Nichiha
- 21 OSS Perk Filter
- 22 Oldcastle Glazing Specification
- 23 RSIC-1 Acoustic Wall Channel
- 24 Kitchen Equipment Specifications (Added Delta 1)
- 25 SZS Consulting Group Draft ADA Transition Plan (Added Delta 1)
- 26 EVCS Blink Series-8
- 27 *Schier SV10 (Added Delta 2)*



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Code Compliance

Signed JM for EM

Date 10/16/2024

Permit # 20240180



December 7, 2023

Kailash Mozumder
City Of Capitola
420 Capitola Avenue
Capitola, CA, 95010

Re: Asbestos Survey
4400 Jade Street, Capitola
Benchmark Project #: E23-2476-ASU
On Site Technician: Jeremy Oliverio
Capitola Community Center

ASBESTOS PRESENT

Dear Kailash Mozumder,

In accordance with our verbal agreement, Benchmark conducted an asbestos renovation/demolition survey of suspect asbestos containing materials (ACM) at 4400 Jade Street, Capitola on November 28, 2023. Benchmark inspected materials in general accordance with the Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) building demolition requirements.

The property located at 4400 Jade Street consists of the Capitola Community Center. Benchmark understood that the facility will be undergoing renovation/remediation activities in pre-designated areas only. As such, suspect asbestos containing materials located in the following areas were sampled.

Location of Samples Collected:

- Meeting Room C
- Meeting Room B
- Meeting Room A
- Exterior
- Hall
- Men’s Restroom
- Storage/Office
- Kitchen
- Roof

Suspect materials observed on the property site were:

- 12”x12” with Mastic
- Resilient Sheet Flooring with Mastic
- Basecove Mastic
- Stucco
- Wallboard/Joint Compound
- Texture
- Resilient Sheet Flooring with Mastic
- Basecove/Mastic
- Roof System
- *Mastic on Roof*
- *Mastic on HVAC*

Asbestos Present
Asbestos Present



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E23-2476-ASU

Environmental Engineering, Consulting, Testing and Training
Corporate Office: 3732 Charter Park Drive, Ste. A San Jose, CA 95136
408-448-7594 * 408-448-3849 (Fax) ▪ www.benchmarkenvironmental.com

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Code Compliance
Signed *JM for EM*
Date: 12/16/2024
Permit # 20241180

Asbestos sampling was performed by trained technician Jeremy Oliverio working under the supervision of Certified Asbestos Consultant (CAC) Terri MacFarlane (CAC #00-2747). The survey was conducted in general accordance with procedures described by the Environmental Protection Agency in 40 CFR 763 (AHERA) guidelines to determine the presence of exposed or accessible suspect asbestos-containing materials (ACM).

Bulk asbestos samples obtained from the building(s) were analyzed in the laboratory using Polarized Light Microscopy (PLM) with dispersion staining. The results of these analyses are presented in the Findings and Observations - Asbestos Laboratory Analytical Results Table.

Findings:

The following table provides information on the asbestos containing materials identified.

Material Description	Location	Percent Asbestos	Friable/Non-Friable	Category/Condition (RACM/Cat I/Cat II) (Good/Fair/Poor)	Estimated Quantity*
Mastic on Roof	Exterior	5% Chrysotile	Non-Friable	CAT I/Good	TBD by the Contractor
Mastic on HVAC	Exterior	2% Chrysotile	Non-Friable	CAT I/Poor	

*This is a field estimate only. All quantities should be confirmed prior to removal.

Asbestos Containing Materials (ACM)

The laboratory results (see attached) indicated that the aforementioned samples contained asbestos. A material is considered by the EPA to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

Removal and disposal of asbestos containing materials (ACM) must be performed in accordance with Monterey Bay Air Resources District (MBARD) and California-Occupational Safety and Health Administration (CAL/OSHA) notification and work practice requirements. Applicable fees for removal and disposal may apply based upon quantity of asbestos being removed.

Assumed Asbestos Containing Materials (AACM):

Only the aforementioned materials were sampled during the course of this assignment. All other building materials are assumed to contain asbestos until sampled.

Synopsis/Recommendations

If the asbestos containing materials and/or asbestos containing construction materials are to be removed or disturbed, such activities must be conducted by a licensed asbestos abatement contractor.

- Asbestos containing waste must be bagged, labeled and disposed of at facility licensed to accept asbestos waste.
- A post removal verification inspection should be conducted following the removal of the asbestos containing materials.

The laboratory that conducted the analysis was EMSL Analytical Inc., located in Santa Clara California, 3501 Thomas Road, Unit 9 Santa Clara CA 95054 (408) 913-2714 NVLAP # 600318-0 (certificate attached). The laboratory will only hold bulk asbestos samples for 30 days.

- Appendix A: General Information/Methodology
- Appendix B: PLM Laboratory Results
- Appendix C: Laboratory and Benchmark Technician Certifications
- Appendix D: Diagram of Sample Locations



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Date: 05/16/2024
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E23-2476-ASU

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Appendix E: Digital Images

We appreciate this opportunity to provide professional services for this project. If we can be of further assistance, or if you have any questions concerning this report, please do not hesitate to contact our office at (408) 448-7594.

Sincerely,

Benchmark Environmental Engineering



Terri MacFarlane, CAC #00-2747
Vice President



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Date 09/16/2024 _____
Permit # 2254180 _____

Regulated Asbestos Containing Materials (RACM)

The asbestos containing materials identified are Category I non-friable ACM that has become, or is likely to become friable as the result of significant fire damage, and therefore are considered Regulated Asbestos Containing Materials (RACMs).

Materials are considered by the EPA to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%). Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies.

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection and identification for asbestos on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

EPA groups asbestos containing materials (ACM) into three (3) types:

- Friable ACM – Asbestos containing materials that can reduce to powder by hand pressure such as, thermal system insulation (TSI), acoustical ceiling material.
- Category I non-friable ACM - asbestos-containing resilient floor coverings or VAT, asphalt roofing products, packings and gaskets.
- Category II non-friable ACM – any material, excluding Category I materials, that when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

It is possible for any of the above types of ACM to become Regulated Asbestos Containing Materials (RACMs) under the Standard. RACMs are defined as:

- Friable ACM
- Category I non-friable ACM that has become friable.
- Category I non-friable ACM that has been or will be subjected to sanding, grinding, cutting, or abrading
- Category II non-friable ACM which has already been or is likely to become crumbled, pulverized, or reduced to powder by mechanical forces expected to act on the materials during demolition/renovation operations as covered by the Standard.

Methodology

General References

Inspection, sampling, and assessment procedures were performed in general accordance with the guidelines published by the EPA in 40 CFR Part 763 Subpart E, October 30, 1987. The survey consisted of three major activities: visual inspection, sampling, and analysis. Although these activities are listed separately, they are integrated tasks.

Visual Inspection

An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

Homogenous Material Classification

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time.

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Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted.

Sampling Procedures

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect ACM. EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous material.

Samples of surfacing material for asbestos were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985). Samples of miscellaneous materials were taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

Methods of Analysis

Asbestos- Polarized Light Microscopy (PLM)

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (Chrysotile, Amosite, Crocidolite, Anthophyllite, and Actinolite/Tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and non-fibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the interim method of the determination of asbestos in bulk insulation, Federal Register, Volume 47, No. 103, May 27, 1982. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials.

Laboratory Quality Control Program

EMSL Analytical Inc., located in Santa Clara California, performed the analysis. EMSL maintains an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials



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JW for EM

Date: 09/16/2024

Permit # 2224180



EMSL Analytical, Inc.

3501 Thomas Road, Unit 9 Santa Clara, CA 95054

Tel/Fax: (408) 913-2714 / (408) 913-2715

<http://www.EMSL.com> / santaclaralab@EMSL.com

EMSL Order: 472301089

Customer ID: BENC55

Customer PO:

Project ID:

Attention: Wendy Johnson
Benchmark Environmental Engineering,UPIN
3732 Charter Park Drive
Suite A
San Jose, CA 95136

Phone: (800) 988-7424

Fax: (408) 448-3849

Received Date: 11/29/2023 10:26 AM

Analysis Date: 11/30/2023

Collected Date: 11/28/2023

Project: E23-2476-ASU-LI-MVI - 4400 JADE ST. CAPITOLA, CA. 95010

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1B-Vinyl Floor Tile 472301089-0001	MEETING RM C (WHITE/GREY) - 12X12 W/ MASTIC	Gray Non-Fibrous Homogeneous	HA: 1	80% Matrix 20% Non-fibrous (Other)	None Detected
1B-Mastic 472301089-0001A	MEETING RM C (WHITE/GREY) - 12X12 W/ MASTIC	Yellow Non-Fibrous Homogeneous	HA: 1	80% Matrix 20% Non-fibrous (Other)	None Detected
2B-Vinyl Floor Tile 472301089-0002	MEETING RM B (WHITE/GREY) - 12X12 W/ MASTIC	White Non-Fibrous Homogeneous	HA: 1	80% Matrix 20% Non-fibrous (Other)	None Detected
2B-Mastic 472301089-0002A	MEETING RM B (WHITE/GREY) - 12X12 W/ MASTIC	Yellow Non-Fibrous Homogeneous	HA: 1	80% Matrix 20% Non-fibrous (Other)	None Detected
3B-Sheet Flooring 472301089-0003	MEETING RM C - CLOSET (BLUE/TAN) - RSF / MASTIC	Blue Fibrous Homogeneous	HA: 2	10% Cellulose 90% Non-fibrous (Other)	None Detected
3B-Mastic 472301089-0003A	MEETING RM C - CLOSET (BLUE/TAN) - RSF / MASTIC	Yellow Non-Fibrous Homogeneous	HA: 2	80% Matrix 20% Non-fibrous (Other)	None Detected
4B-Sheet Flooring 472301089-0004	MEETING RM B - CLOSET (BLUE/TAN) - RSF / MASTIC	Blue Fibrous Homogeneous	HA: 2	10% Cellulose 70% Matrix 20% Non-fibrous (Other)	None Detected
4B-Mastic 472301089-0004A	MEETING RM B - CLOSET (BLUE/TAN) - RSF / MASTIC	Yellow Non-Fibrous Homogeneous	HA: 2	80% Matrix 20% Non-fibrous (Other)	None Detected
5B-Basecove 472301089-0005	MEETING RM B - WALL 1 (BLUE) - BASECOVE MASTIC	Blue Non-Fibrous Homogeneous	HA: 3	80% Matrix 20% Non-fibrous (Other)	None Detected
5B-Mastic 472301089-0005A	MEETING RM B - WALL 1 (BLUE) - BASECOVE MASTIC	Beige Non-Fibrous Homogeneous	HA: 3	80% Matrix 20% Non-fibrous (Other)	None Detected
6B-Basecove 472301089-0006	MEETING RM A - WALL 2 - BASECOVE MASTIC	Blue Non-Fibrous Homogeneous	HA: 3	80% Matrix 20% Non-fibrous (Other)	None Detected
6B-Mastic 472301089-0006A	MEETING RM A - WALL 2 - BASECOVE MASTIC	Beige Non-Fibrous Homogeneous	HA: 3	80% Matrix 20% Non-fibrous (Other)	None Detected



None Detected
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Date: 11/30/2023

Permit # 2024110

Initial report from: 11/30/2023 18:42:44



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Tel/Fax: (408) 913-2714 / (408) 913-2715

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EMSL Order: 472301089
Customer ID: BENC55
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
7B 472301089-0007	EXTERIOR - STUCCO	Gray Non-Fibrous Homogeneous	HA: 4	80% Matrix 20% Non-fibrous (Other)	None Detected
8B 472301089-0008	EXTERIOR - STUCCO	Gray Non-Fibrous Homogeneous	HA: 4	20% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
9B-Wallboard 472301089-0009	HALL - WALL 4 - WALLBOARD / J.C.	White Non-Fibrous Homogeneous	HA: 5	80% Matrix 20% Non-fibrous (Other)	None Detected
9B-Joint Compound 472301089-0009A	HALL - WALL 4 - WALLBOARD / J.C.		HA: 5		Layer Not Present
10B-Wallboard 472301089-0010	MENS RESTROOM - WALL 3 - WALLBOARD / J.C.	Brown Non-Fibrous Homogeneous	HA: 5	80% Gypsum 20% Non-fibrous (Other)	None Detected
10B-Joint Compound 472301089-0010A	MENS RESTROOM - WALL 3 - WALLBOARD / J.C.		HA: 5		Layer Not Present
11B 472301089-0011	HALL - WALL 4 - TEXTURE	White Non-Fibrous Homogeneous	HA: 6	80% Matrix 20% Non-fibrous (Other)	None Detected
12B 472301089-0012	MENS RESTROOM - WALL 3 - TEXTURE	White Non-Fibrous Homogeneous	HA: 6	80% Matrix 20% Non-fibrous (Other)	None Detected
13B-Texture 472301089-0013	STORAGE/OFFICE - WALL 3 - TEXTURE	White Non-Fibrous Homogeneous	HA: 6	80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
13B-Wallboard 472301089-0013A	STORAGE/OFFICE - WALL 3 - TEXTURE	White Non-Fibrous Homogeneous	HA: 6	80% Gypsum 20% Non-fibrous (Other)	None Detected
14B-Sheet Flooring 472301089-0014	KITCHEN - FLOOR (GREY) - RSF / MASTIC	Blue Fibrous Homogeneous	HA: 7	10% Cellulose 90% Non-fibrous (Other)	None Detected
14B-Mastic 472301089-0014A	KITCHEN - FLOOR (GREY) - RSF / MASTIC	Tan Non-Fibrous Homogeneous	HA: 7	80% Matrix 20% Non-fibrous (Other)	None Detected
15B-Sheet Flooring 472301089-0015	KITCHEN - FLOOR (GREY) - RSF / MASTIC	Gray Fibrous Homogeneous	HA: 7	10% Cellulose 70% Matrix 20% Non-fibrous (Other)	None Detected
15B-Mastic 472301089-0015A	KITCHEN - FLOOR (GREY) - RSF / MASTIC	Yellow Non-Fibrous Homogeneous	HA: 7	80% Matrix 20% Non-fibrous (Other)	None Detected



None Detected
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 Signed: JH for EM
 Date: 09/16/2024
 Permit #: 2024180

Initial report from: 11/30/2023 18:42:44



EMSL Analytical, Inc.

3501 Thomas Road, Unit 9 Santa Clara, CA 95054

Tel/Fax: (408) 913-2714 / (408) 913-2715

<http://www.EMSL.com> / santaclaralab@EMSL.com

EMSL Order: 472301089
Customer ID: BENC55
Customer PO:
Project ID:

Analyst(s)

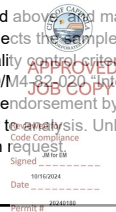
Aimee Hartwig (18)

Christian Albayaide (18)

Jonathan Nomura, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-33-020 Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Santa Clara, CA NVLAP Lab Code 600318-0



Initial report from: 11/30/2023 18:42:44



Please Include Sample Locations on Laboratory Report

472301089

Email Lab Receipts & Reports To: labs@benchmarkenvironmental.com

BULK CHAIN OF CUSTODY

Page: 1 of 3

Project #: E23-2476-ASU-LI-MVI Date: 11-28-23 Technician: J. OLIVERIO

Project Address: 4400 JADE ST. CAPITOLA, CA. 95010

Sample Number	Location	Homogenous Group # or Measurement	Material Type or Component	Results To Be Reported As
1B	(WHITE/GREY) MEETING RM C	①	12x12 W/MASTIC	
2B	MEETING RM B	↓	↓	
3B	(BLUE/TAN) MEETING RM C - CLOSET	②	PSF/ MASTIC	
4B	MEETING RM B - CLOSET	↓	↓	
5B	(BLUE) MEETING RM B - WALL 1	③	BASECOVE MASTIC	
6B	MEETING RM A - WALL 2	↓	↓	
7B	EXTERIOR	④	STUCCO	
8B	↓	↓	↓	
9B	HALL - WALL 4	⑤	WALLBOARD/ J.C	
10B	MENS RESTROOM - WALL 3	↓	↓	

Project Type (X box) <input checked="" type="checkbox"/> Asbestos Bulk <input type="checkbox"/> Lead-Based Paint Bulk <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Clearance (Lead) <input type="checkbox"/> Mold/Fungus <input type="checkbox"/> Sewage Screen (Baseline) <input type="checkbox"/> Sewage Screen (Post-Remediation) <input type="checkbox"/> Other: _____	Type of Analysis (X box) <input checked="" type="checkbox"/> PLM/Bulk (EPA 600) <input type="checkbox"/> EPA SW 846-7420 FLAA <input type="checkbox"/> Dust Wipe (<i>Ghost Wipes</i>) <input type="checkbox"/> Soil (Lead) <input type="checkbox"/> Paint Chip <input type="checkbox"/> Water (Lead) <input type="checkbox"/> Qualitative (MUG) E.Coli/Coliforms <input type="checkbox"/> Direct Microscopic Exam <input type="checkbox"/> Other: _____	TAT (X box) <input type="checkbox"/> Same Day/Rush <input checked="" type="checkbox"/> Date Needed: <u>12/4/23</u>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------



Relinquished By: [Signature] Received By: Jonathan Norrwa Date/Time: 11/29/23
 Rev 2017 10:26 AM

472301089

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BULK CHAIN OF CUSTODY

Page: 2 of 3

Project #: E23-2476-ASU-LI-MVI Date: 11-28-23 Technician: J.O.

Project Address: 4400 JADE ST. CAPITOLA, CA. 95010

Sample Number	Location	Homogenous Group # or Measurement	Material Type or Component	Results To Be Reported As
11B	HALL - WALL 4	(6)	TEXTURE	
12B	MENS RESTROOM - WALL 3			
13B	STORAGE/OFFICE - WALL 3			
14B	KITCHEN - FLOOR (GREY)	(7)	RSF/MASTIC	
15B	-			
16B	KITCHEN - WALL 4 (GREY)	(8)	BASECOVE/MASTIC	
17B	KITCHEN WALL 4			
18B	EXTERIOR - ROOF	(9)	ROOF SYSTEM	
19B				
20B	EXTERIOR - ROOF	(10)	MASTIC ON ROOF	

Project Type (X box)

- Asbestos Bulk
- Lead-Based Paint Bulk
- Risk Assessment
- Clearance (Lead)
- Mold/Fungus
- Sewage Screen (Baseline)
- Sewage Screen (Post-Remediation)
- Other: _____

Type of Analysis (X box)

- PLM/Bulk (EPA 600)
- EPA SW 846-7420 FLAA
- Dust Wipe (*Ghost Wipes*)
- Soil (Lead)
- Paint Chip
- Water (Lead)
- Qualitative (MUG) E.Coli/Coliforms
- Direct Microscopic Exam
- Other: _____

TAT (X box)

- Same Day/Rush
- Date Needed: 12/4/23

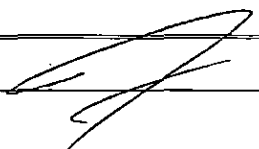


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Signed _____

18102021

Relinquished By: 

Received By: JCN

Date/Time: 11/29/23
10:26 am

M & C Environmental Training

Asbestos Contractor/Supervisor
Refresher Training Course

Jeremy Oliverio

Has successfully completed the Asbestos Contractor/Supervisor Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., P.O. Box 6419, Concord, California Tel. # (510) 499 - 5646

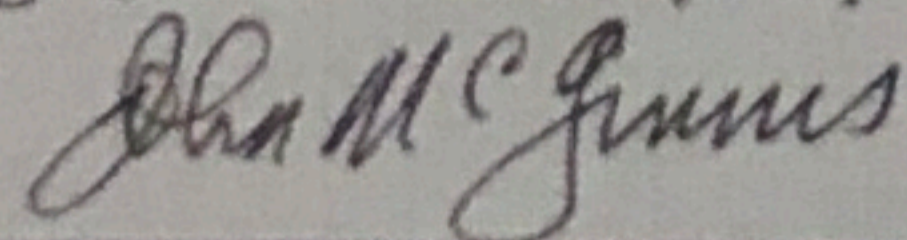
Course Approval Number: CA-003-04

Location: Concord, California

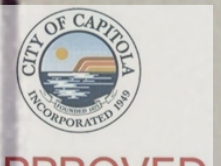
Expiration: January 27, 2024

Dates: January 27, 2023

Director of Training: John McGinnis



Certificate Number **52151 SR**



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Code Compliance

Signed: _____

Date: 10/15/2024

Permit # 2024110

State of California
Division of Occupational Safety and Health

Terri MacFarlane
Certified Asbestos Consultant – Certification Number 00-2747

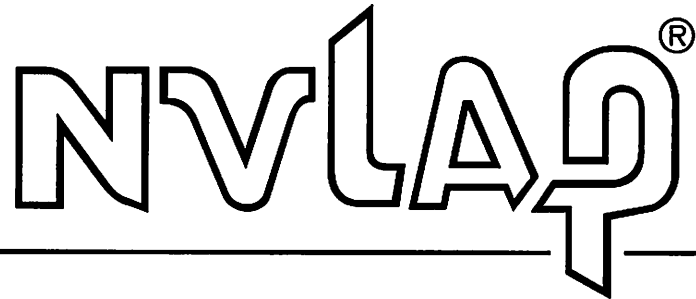


Expiration Date: 05/03/2024

Reliable Resource in a Changing Environment



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600318-0

EMSL Analytical, Inc.
Santa Clara, CA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

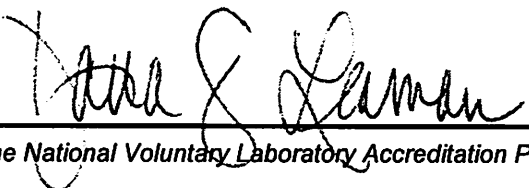
Asbestos Fiber Analysis

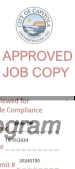
*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2023-01-01 through 2023-12-31

Effective Dates




For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

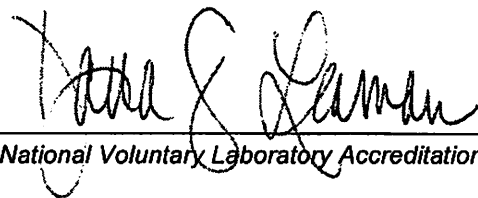
EMSL Analytical, Inc.
3501 Thomas Road
Unit 9
Santa Clara, CA 95054
Jonathan Nomura
Phone: 408-913-2714
Email: jnomura@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 600318-0

Bulk Asbestos Analysis

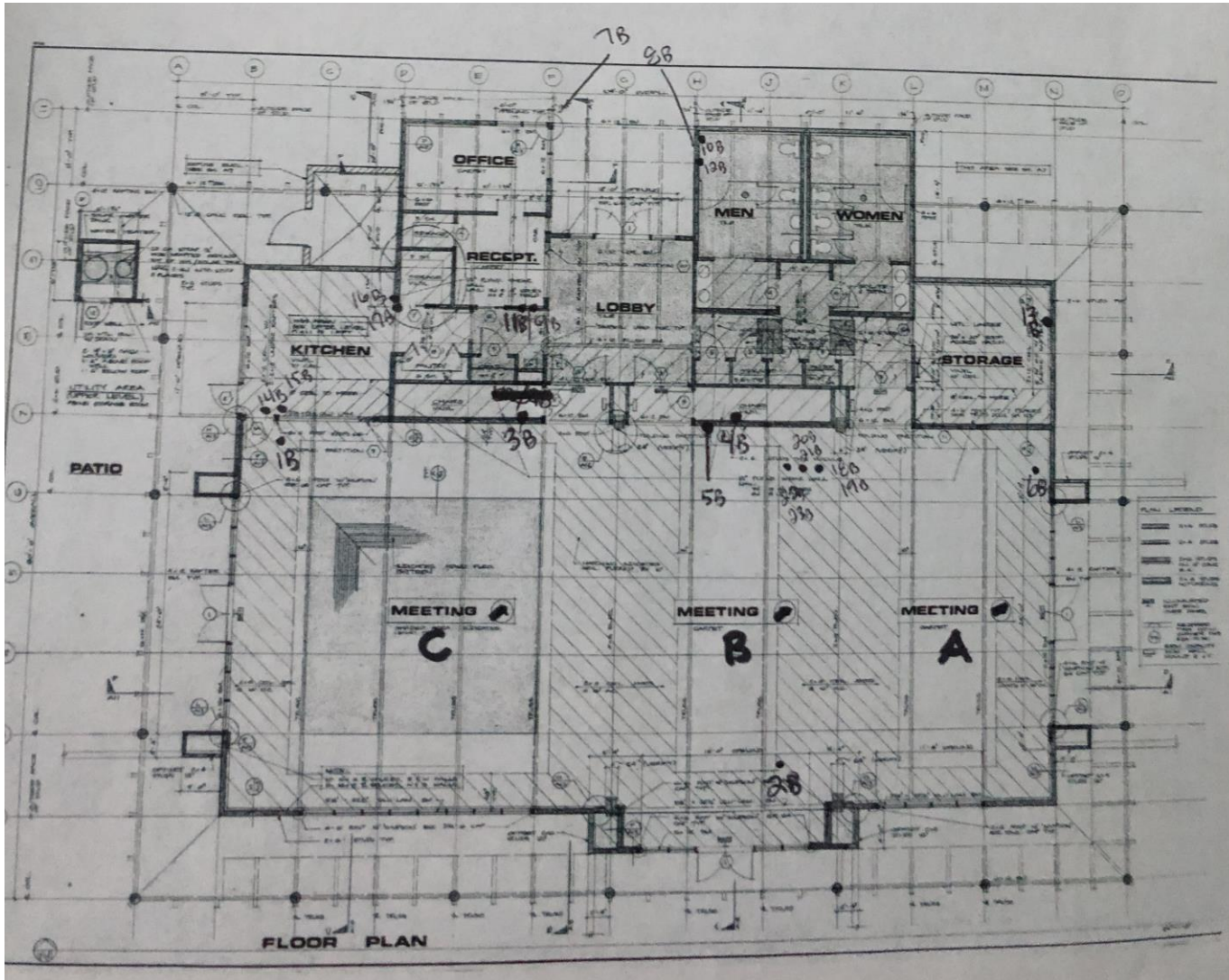
<u>Code</u>	<u>Description</u>
18/A01	EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials



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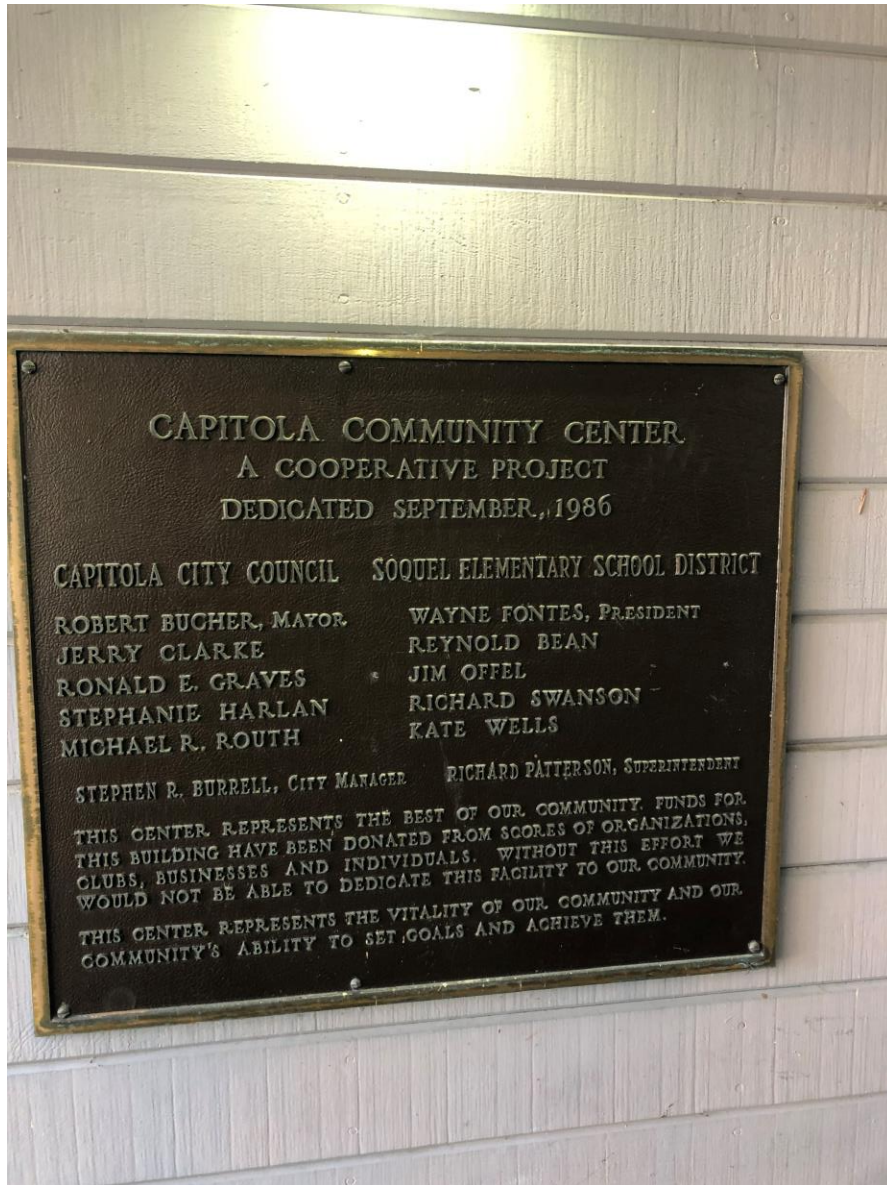
For the National Voluntary Laboratory Accreditation Program

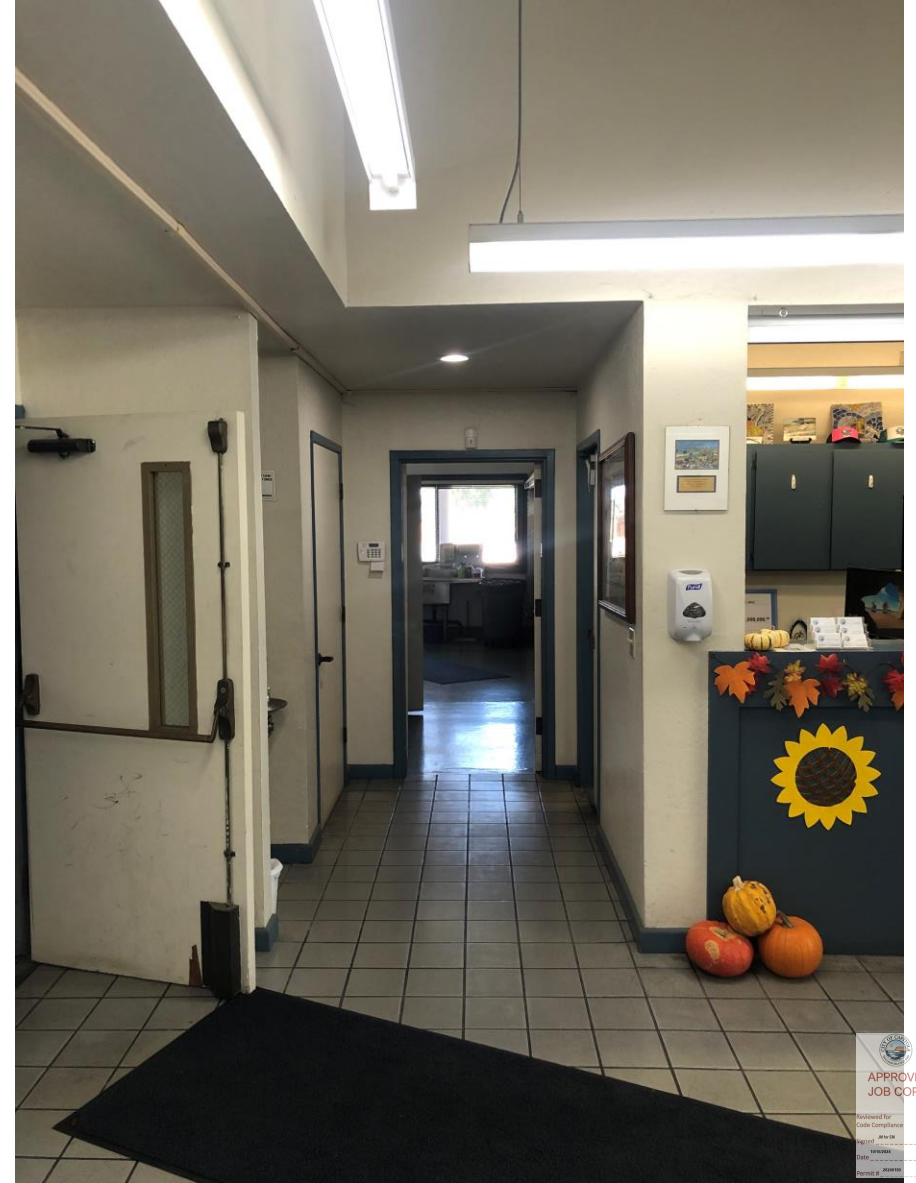
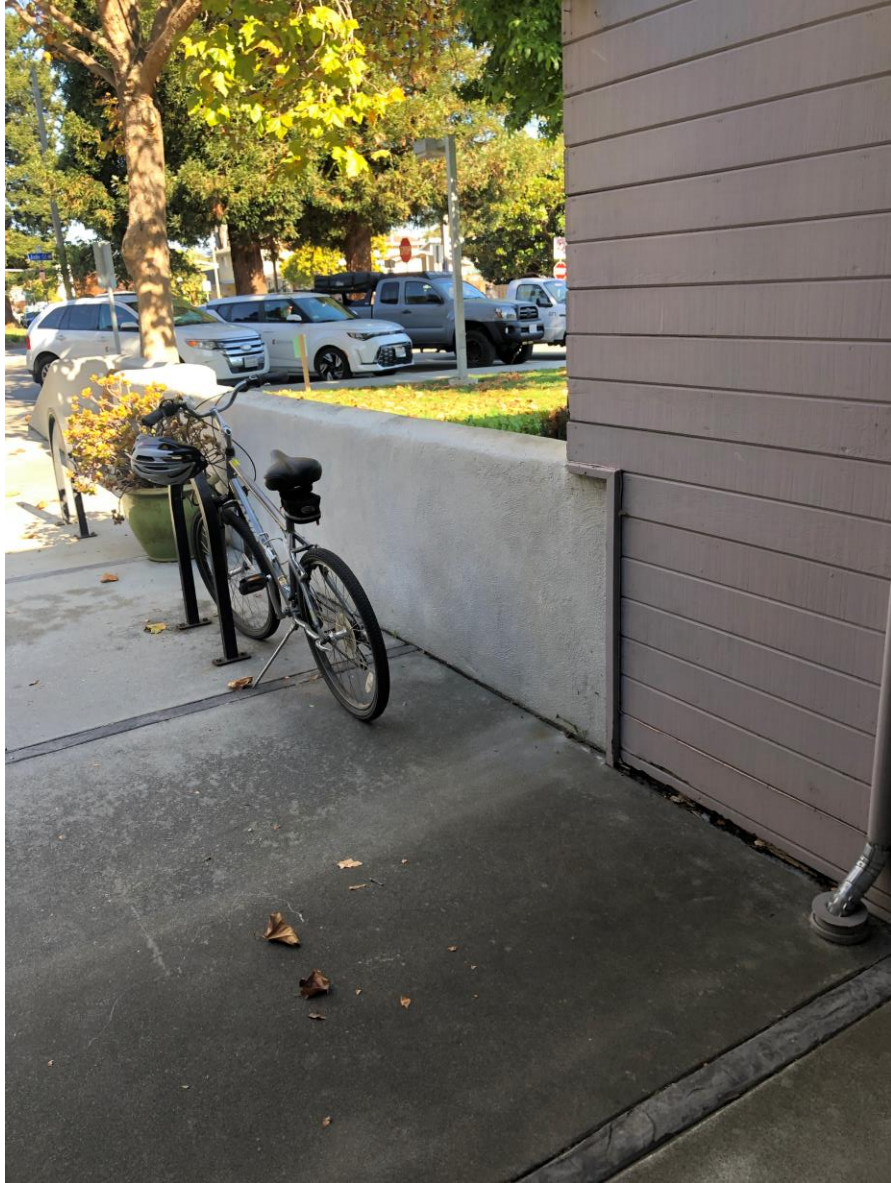
Reviewed for
Signed _____
Date: 10/16/2021
Permit # 2018155



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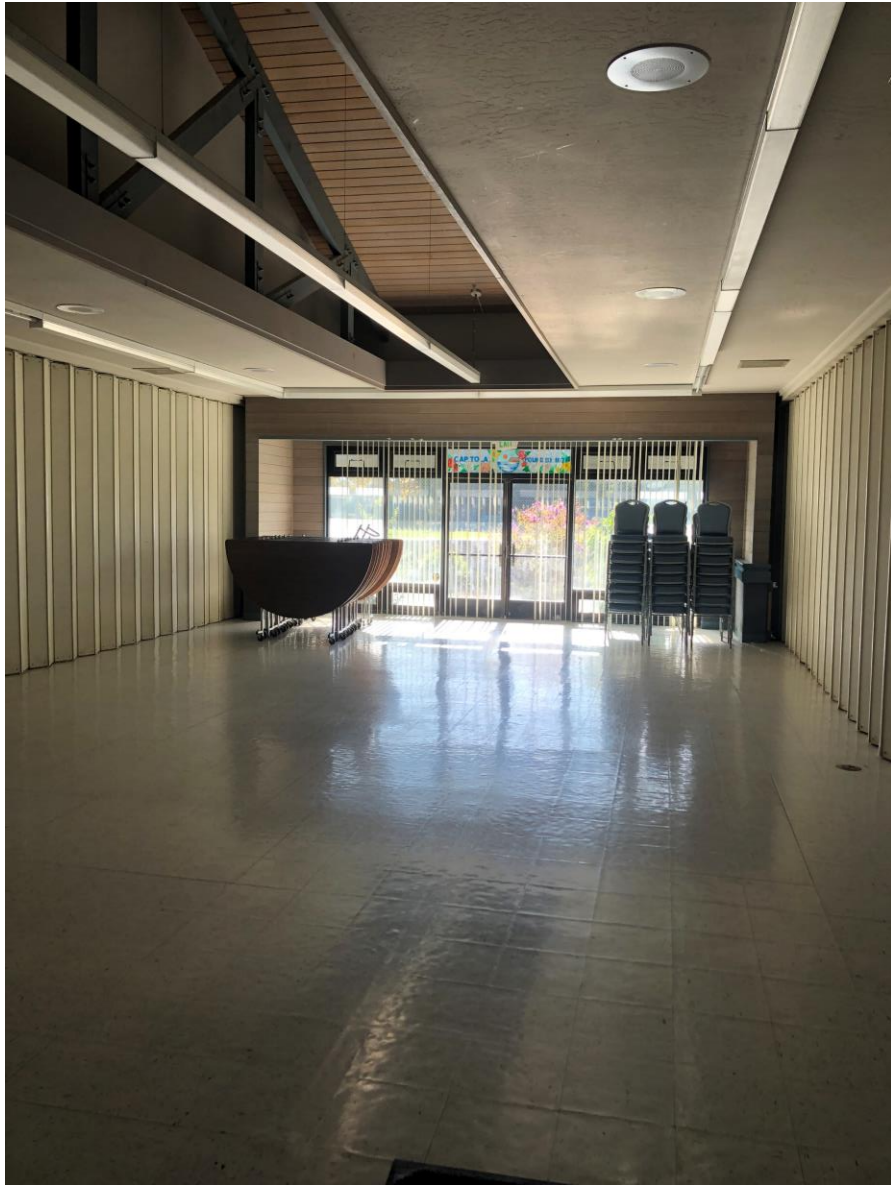
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Title: _____
Date: _____
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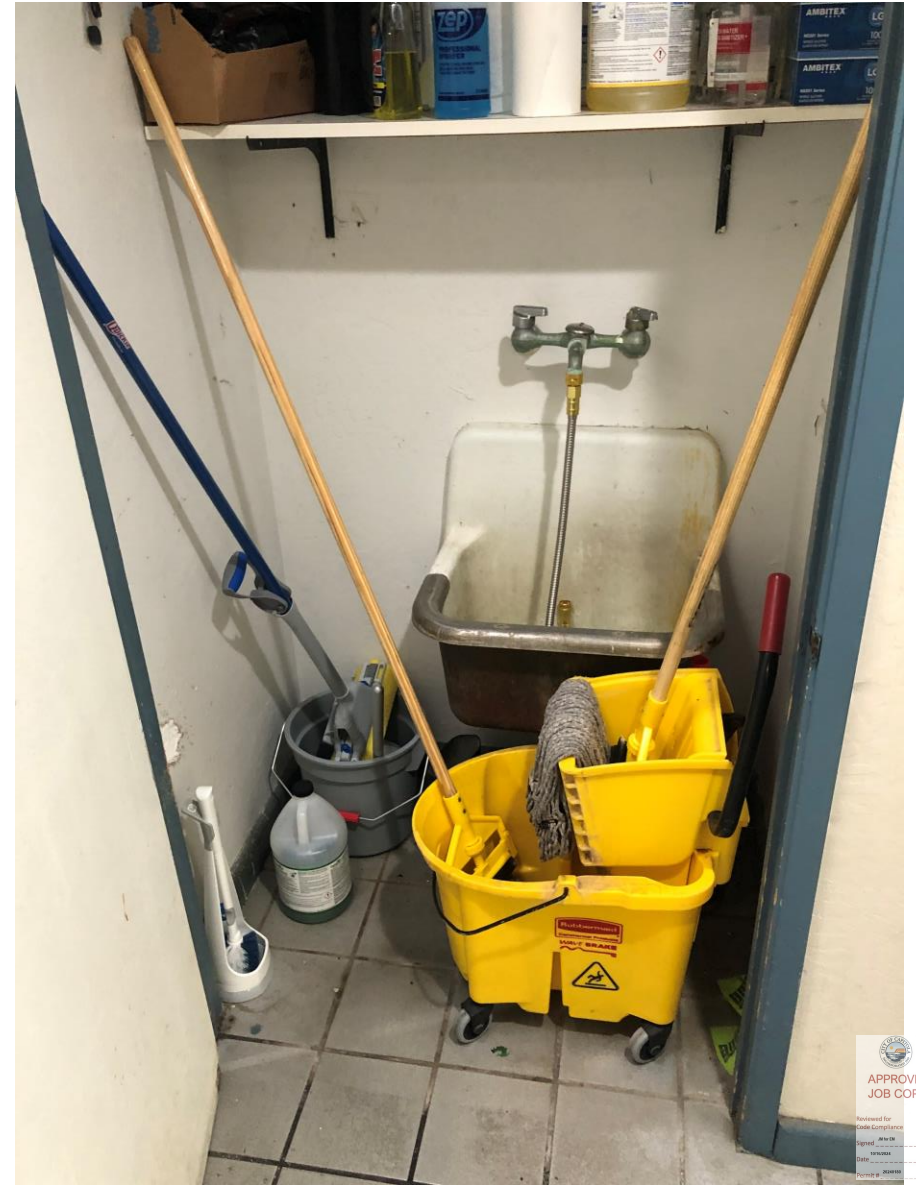














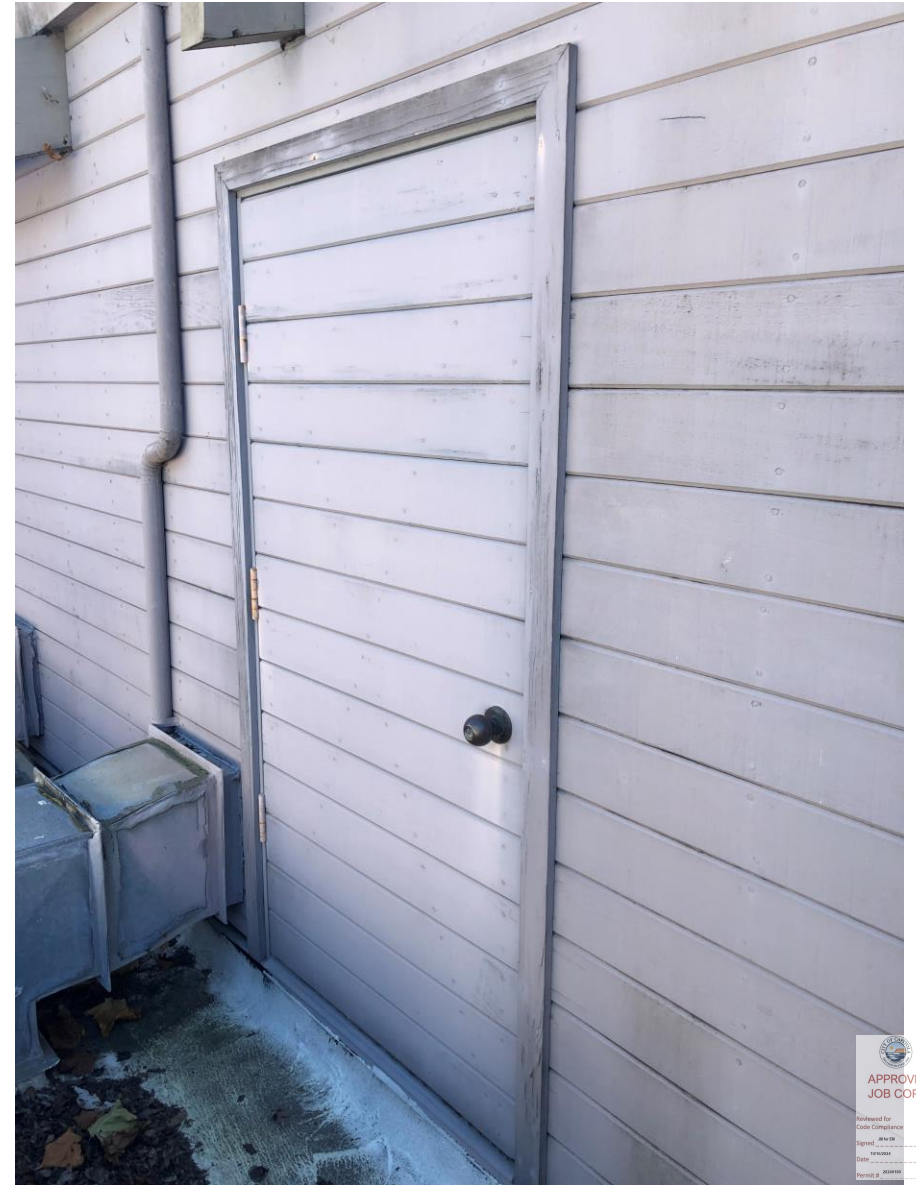

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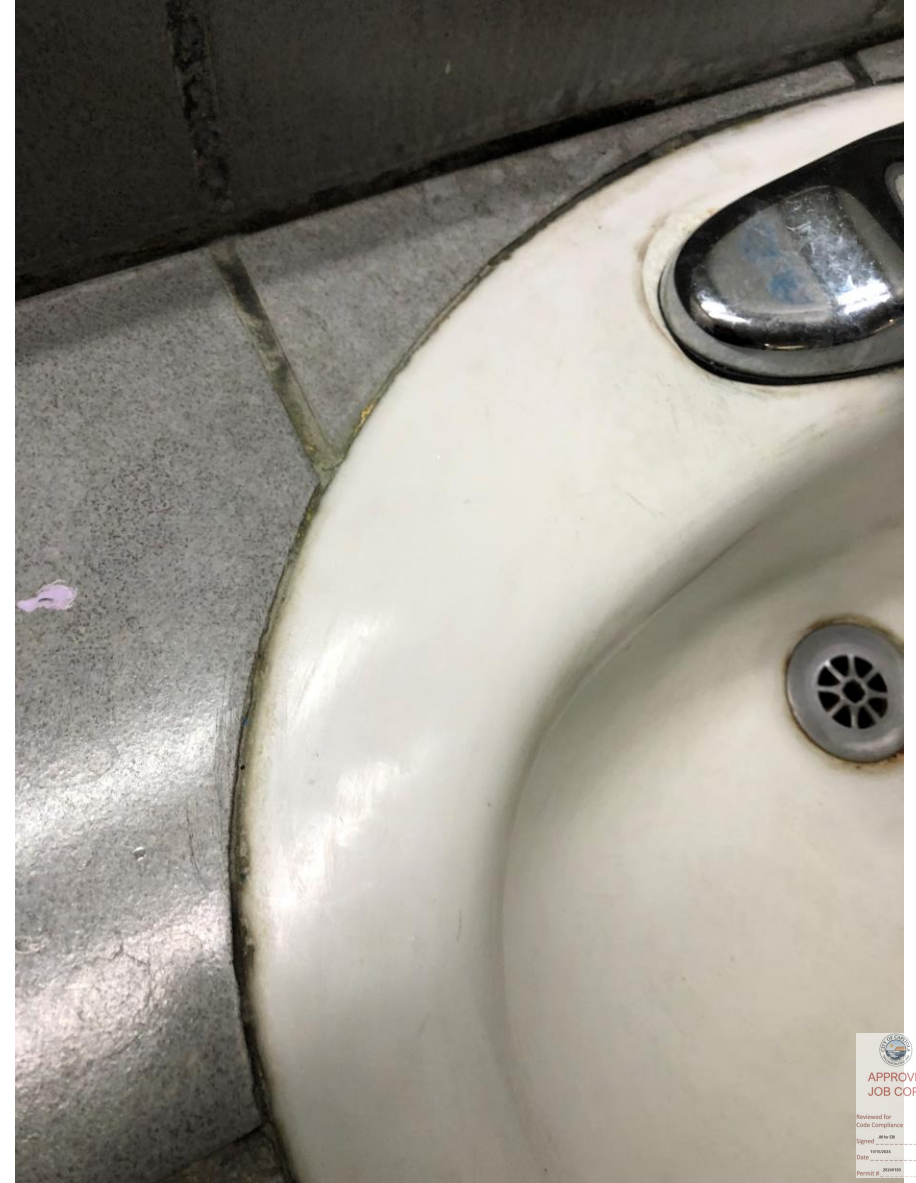
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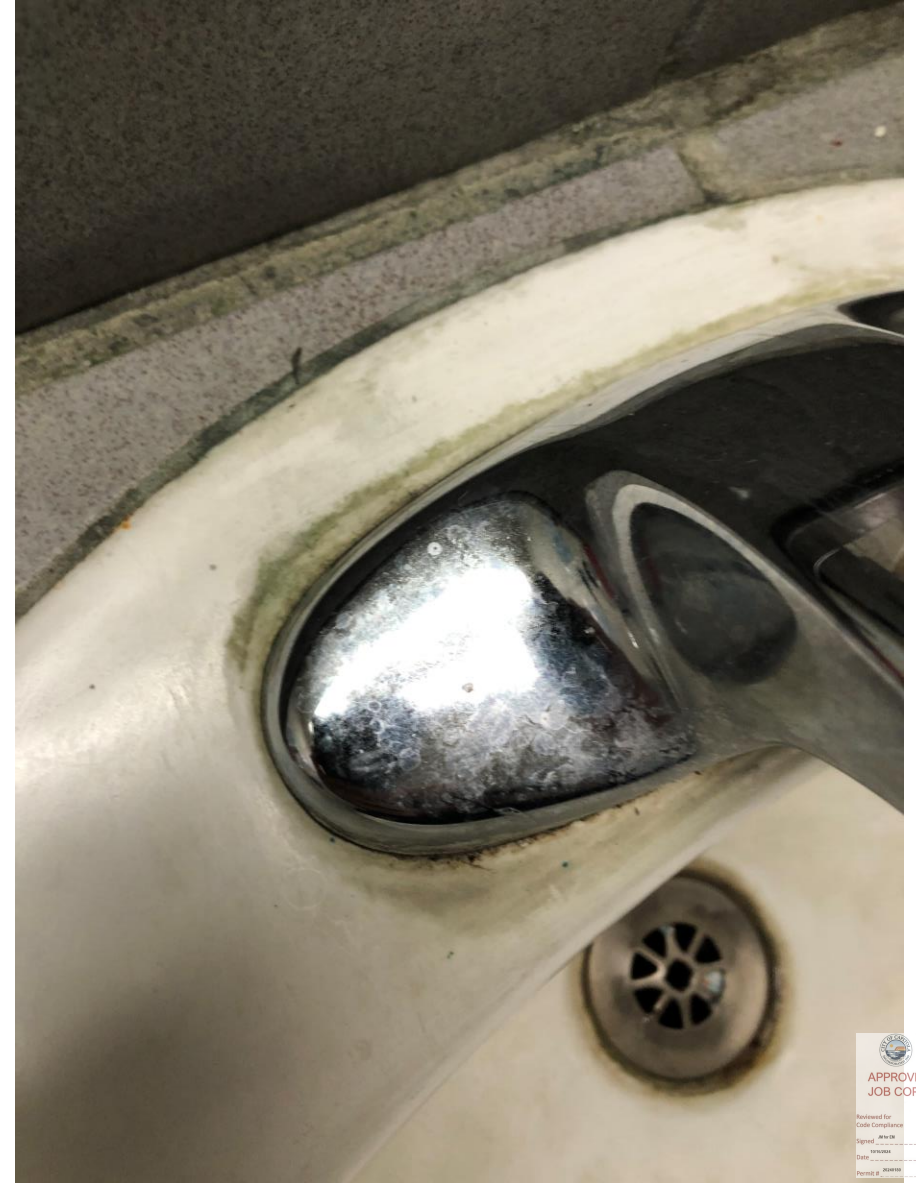
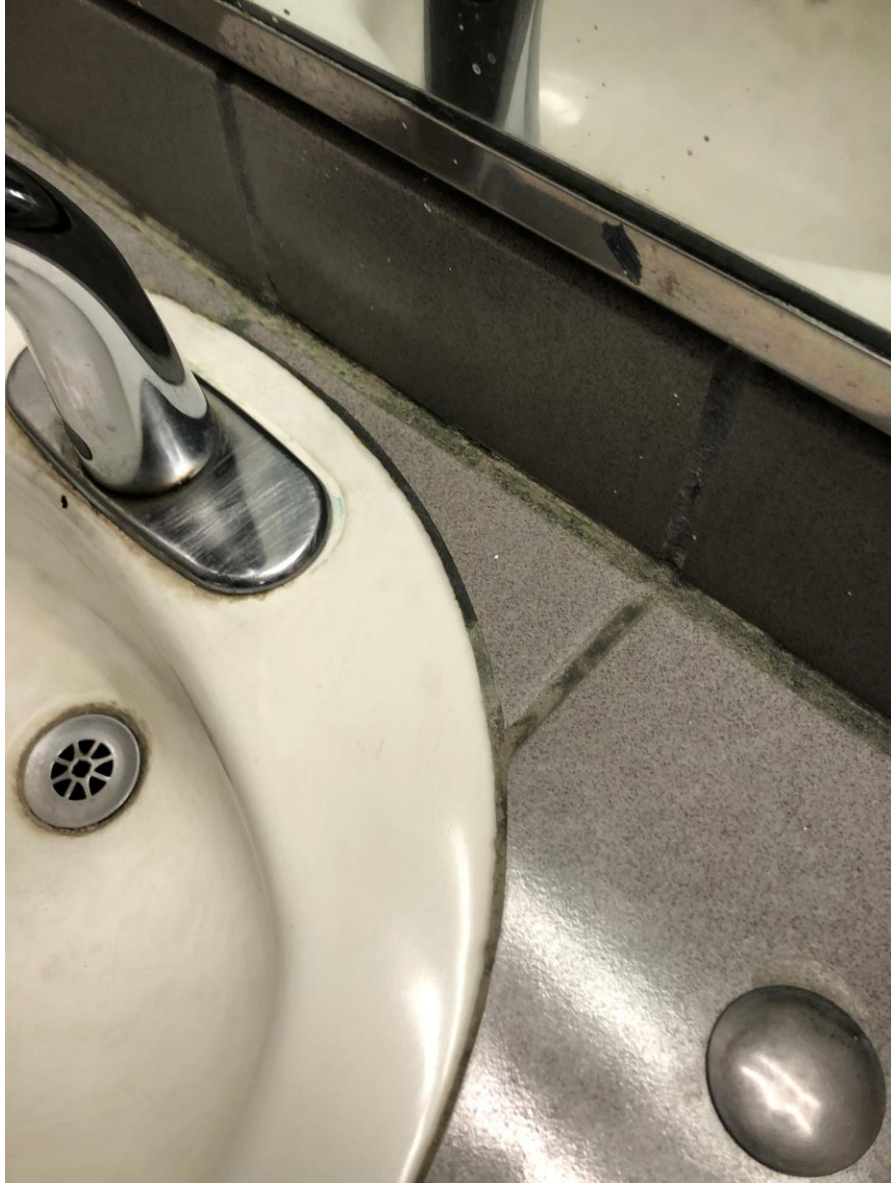
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Location	%/ by weight/ppm*	Lead Based Paint (Yes/No)	Worker Protection (Yes/No)
Roof Parapet Wall #1 (Brown)	0.013% 130 PPM	No	No
Meeting Room C – Closet, Wall #4 (Gray)	<0.006% <60 PPM	No	No
Meeting Room C – Door Frame, Wall #1 (Blue)	<0.007% <70 PPM	No	No
Janitor Closet – Wall #2 (White)	<0.006% <60 PPM	No	No
Rafter Tails – Wall #2 (Brown)	<0.006% <60 PPM	No	No

*ppm=parts per million

- The paint chip samples collected *were below* both the EPA/HUD level of 0.50% (5,000ppm) and the Cal-OSHA level of 0.06% (600 PPM) lead by weight.

Based upon the sample results, worker protection regarding lead-based paint is not required.

General:

- Appendix A General References
- Appendix B XRF Results
- Appendix C: Certification/Lead Hazard Evaluation Form
- Appendix D: Diagram

Benchmark is pleased to provide our services to you for this project. Please contact our office at 800-988-7424 if you have any questions or concerns.

Sincerely,
Benchmark Environmental Engineering



Terri MacFarlane
Vice President



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General Reference

Inspection, sampling, and assessment procedures were performed in general accordance with the guidelines published by The Department of Housing and Urban Development's (HUD) 1995 Guidelines, Chapter 7 Paint Inspection, and Chapter 5 Risk Assessment. The survey consisted of three major activities: visual inspection, sampling, and analysis. Although these activities are listed separately, they are integrated tasks.

Visual Inspection

A Department of Public Health Lead Inspector/Risk Assessor for the State of California performed the inspection. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed.

Sampling Process

Following the walkthrough, the inspector selected sample areas of exposed or accessible materials identified as suspect Lead-Based Paint. State and Federal Guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous material.

Sampling Procedures Lead-Based Paint Inspection (X-Ray Fluorescence (XRF) Analysis)

XRF instruments measure lead-in-paint by directing high energy X-rays and gamma rays into the paint, causing the lead atoms in the paint to emit X-rays which are detected by the instrument and converted to a measurement of the amount of lead in the paint. The EPA approved technology allows for measurement of X-rays without scraping or samples preparation to characterize substrate or matrix effects. Sci-aps X550 analyzer is combined with a microprocessor system that enables field-testing with a high degree of quality control and speed. Sample locations, descriptions, conditions, and measurement results are automatically recorded by the instrument and easily downloaded to a PC or laptop.

All results were compared to the State and Federal Guidelines:

1.0 mg/cm² = XRF-Lead-based Paint

Hazard Rankings for Lead-Based Paint Inspection

The HUD Guidelines have established hazard ranking criteria for conducting lead-based paint inspections. A visual assessment is applied to each surface inspected/assayed. There are three (3) hazard rankings applied to surfaces/component condition

Intact: No deterioration of paint or surface coatings observed on surfaces or components
Deteriorated: Any paint coating on a damaged or deteriorated surface, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligating, cracking or otherwise becoming separated from the substrate.

Quality Control Program

Benchmark Environmental Engineering utilizes only CDPH approved inspectors, which are certified to use radioactive instruments. The Sci-Aps analyzer has on-board calibration routines, which continuously operate, and self-correct to minimized sampling error. This is known as substrate correcting software.

Analytical

SGS/Forensic Analytical located in Hayward, California performed the laboratory analysis. Their ELAP number is #101762. Samples are analyzed by Flame Atomic Absorption in accordance with EPA's



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“Standard Operating Procedures for Lead in Paint by Hotplate or Microwave based Acid digestion and Atomic Absorption or Inductively Coupled Plasma Emission Spectrometry” (1991), EPA/600/8-91/213, NTIS Document No. PB92-114172. Samples are prepared by hotplate digestion with nitric acid and hydrogen peroxide, and analyzed by Flame AA.

Laboratory Quality Control Program

SGS/Forensic Analytical maintains an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

Warranty

Benchmark Environmental Engineering warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-related construction risk assessments and inspections pursuant to the scope of work required on this Project.

The work included inspection of accessible materials. BENCHMARK did not inspect or sample inaccessible areas such as behind walls or within ductwork, and did not dismantle any part of the structure to inspect inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to Benchmark's inspectors shall be presumed to be lead-based paint



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Capitola Community Center
 4400 Jade St.
 Capitola CA

XRF Spread Sheet
 Exterior Only

City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Calibrations and Exterior									
Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
703	Calibration	*	*	*	*	*	1.1	Positive	11/28/2023 11:21
704	Calibration	*	*	*	*	*	1.1	Positive	11/28/2023 11:21
705	Calibration	*	*	*	*	*	1.2	Positive	11/28/2023 11:22
706	Calibration	*	*	*	*	*	1.2	Positive	11/28/2023 11:22
707	Lobby	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:35
708	Lobby	Window Frame	1	Wood	Intact	Blue	0	Negative	11/28/2023 11:36
709	Lobby	Baseboard	1	Wood	Intact	Blue	0	Negative	11/28/2023 11:36
710	Lobby	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:37
711	Lobby	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:37
712	Lobby	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:37
713	Lobby	Door Casing	3	Metal	Intact	Blue	0	Negative	11/28/2023 11:38
714	Lobby	Door Casing	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:38
715	Lobby	Door Casing	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:39
716	Hallway	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:40
717	Hallway	Baseboard	1	Wood	Intact	Blue	0	Negative	11/28/2023 11:42
718	Hallway	Ceiling	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:43
719	Hallway	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:43
720	Hallway	Door Casing	1	Metal	Intact	Blue	0	Negative	11/28/2023 11:44
721	Hallway	Door Casing	2	Metal	Intact	Blue	0	Negative	11/28/2023 11:44
722	Hallway	Door	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:44
723	Hallway	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:45
724	Hallway	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:45
725	Hallway	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:45
726	Hallway	Door Casing	3	Metal	Intact	Blue	0	Negative	11/28/2023 11:46
727	Hallway	Closet Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:46
728	Hallway	Floor	3	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 11:47
729	Hallway	Wall	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:48
730	Hallway	Door	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:48
731	Hallway	Door Casing	4	Metal	Intact	Blue	0	Negative	11/28/2023 11:48
732	Storage Room	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:50
733	Storage Room	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:51
734	Storage Room	Window Sill	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:51
735	Storage Room	Window Sill	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:52
736	Storage Room	Baseboard	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:52



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Capitola Community Center
 4400 Jade St.
 Capitola CA

XRF Spread Sheet
 Exterior Only

City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
737	Storage Room	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:53
738	Storage Room	Ceiling	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:53
739	Storage Room	Wall	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:53
740	Storage Room	Door	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:54
741	Storage Room	Door Casing	4	Metal	Intact	Blue	0	Negative	11/28/2023 11:54
742	Meeting Rm A	Door Casing	1	Metal	Intact	Blue	0	Negative	11/28/2023 11:55
743	Meeting Rm A	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 11:55
744	Meeting Rm A	Wall	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 11:56
745	Meeting Rm A	Ceiling	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 11:56
746	Meeting Rm A	Chair Rail	1	Wood	Intact	Blue	0	Negative	11/28/2023 11:56
747	Meeting Rm A	Trim	1	Wood	Intact	Blue	0	Negative	11/28/2023 11:57
748	Meeting Rm A	Wall	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 11:57
749	Meeting Rm A	Wall	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 11:58
750	Meeting Rm A	Chair Rail	2	Wood	Intact	Blue	0	Negative	11/28/2023 11:58
751	Meeting Rm A	Window Frame	2	Wood	Intact	Blue	0	Negative	11/28/2023 11:59
752	Meeting Rm A	Window Frame	3	Wood	Intact	Blue	0	Negative	11/28/2023 11:59
753	Meeting Rm A	Window Sill	3	Wood	Intact	Blue	0	Negative	11/28/2023 11:59
754	Meeting Rm A	Chair Rail	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:00
755	Meeting Rm A	Wall	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:00
756	Meeting Rm A	Wall	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:00
757	Meeting Rm B	Wall	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:02
758	Meeting Rm B	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:02
759	Meeting Rm B	Door Casing	1	Metal	Intact	Blue	0	Negative	11/28/2023 12:02
760	Meeting Rm B	Chair Rail	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:03
761	Meeting Rm B	Ceiling	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:03
762	Meeting Rm B	Ceiling Molding	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:03
763	Meeting Rm B	Ceiling	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:04
764	Meeting Rm B	Wall	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:05
765	Meeting Rm B	Chair Rail	2	Wood	Intact	Blue	0	Negative	11/28/2023 12:06
766	Meeting Rm B	Chair Rail	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:06
767	Meeting Rm B	Window Frame	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:07
768	Meeting Rm B	Wall	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:07
769	Meeting Rm B	Ceiling	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:07
770	Meeting Rm B	Chair Rail	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:08
771	Meeting Rm B	Wall	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:08
772	Meeting Rm C	Ceiling	1	Drywall	Intact	Brown/Beige	0	Negative	11/28/2023 12:10



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XRF Spread Sheet
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City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
773	Meeting Rm C	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:10
774	Meeting Rm C	Door Casing	1	Metal	Intact	Blue	0	Negative	11/28/2023 12:11
775	Meeting Rm C	Chair Rail	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:11
776	Meeting Rm C	Wall	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:12
777	Meeting Rm C	Wall	1	Drywall	Intact	Grey	0	Negative	11/28/2023 12:13
778	Meeting Rm C	Wall	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:14
779	Meeting Rm C	Wall	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:15
780	Meeting Rm C	Chair Rail	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:15
781	Meeting Rm C	Window Frame	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:16
782	Meeting Rm C	Window Sill	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:16
783	Meeting Rm C	Window Frame	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:16
784	Meeting Rm C	Chair Rail	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:17
785	Meeting Rm C	Floor	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:18
786	Kitchen	Floor	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:19
787	Kitchen	Ceiling	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:19
788	Kitchen	Door Casing	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:19
789	Kitchen	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:23
790	H20 Htr Closet	Wall	1	Drywall	Intact	Grey	0	Negative	11/28/2023 12:24
791	Kitchen	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:24
792	Kitchen	Door	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:25
793	Kitchen	Door Casing	2	Metal	Intact	Blue	0	Negative	11/28/2023 12:25
794	Kitchen	Closet Door	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:25
795	Kitchen	Shelf	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:26
796	Kitchen	Shelf Support	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:26
797	Kitchen	Shelf Support	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:27
798	Kitchen	Shelf	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:28
799	Kitchen	Cabinet	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:28
800	Kitchen	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:28
801	Kitchen	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:29
802	Kitchen	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:29
803	Kitchen	Door Casing	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:30
804	Kitchen	Window Sill	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:30
805	Kitchen	Window Frame	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:31
806	Kitchen	Wall	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:31
807	Reception	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:32
808	Reception	Door Frame	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:33



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Capitola Community Center
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XRF Spread Sheet
 Exterior Only

City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
809	Reception	Door	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:33
810	Reception	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:33
811	Reception	Shelf	2	Wood	Intact	Blue	0	Negative	11/28/2023 12:34
812	Reception	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:35
813	Reception	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:35
814	Reception	Door Casing	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:35
815	Reception	Cabinet	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:36
816	Reception	Door Casing	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:36
817	Reception	Door	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:36
818	Office	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:38
819	Office	Window Frame	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:38
820	Office	Window Sill	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:39
821	Office	Window Sill	2	Wood	Intact	Blue	0	Negative	11/28/2023 12:39
822	Office	Window Frame	2	Wood	Intact	Blue	0	Negative	11/28/2023 12:39
823	Office	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:39
824	Office	Cabinet	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:40
825	Office	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:40
826	Office	Door	3	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:40
827	Office	Door Casing	3	Wood	Intact	Blue	0	Negative	11/28/2023 12:41
828	Office	Door Casing	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:41
829	Office	Header/Beam	4	Wood	Intact	Blue	0	Negative	11/28/2023 12:44
830	Office	Ceiling	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:45
831	Women Bath	Wall	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:48
832	Women Bath	Header/Beam	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:49
833	Women Bath	Ceiling	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:49
834	Women Bath	Ceiling Molding	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:49
835	Women Bath	Wall	1	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:50
836	Women Bath	Wall	2	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:50
837	Women Bath	Floor	2	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:50
838	Women Bath	Wall	2	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:50
839	Women Bath	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:51
840	Women Bath	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:51
841	Women Bath	Wall	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:51
842	Women Bath	Door	4	Metal	Intact	Blue	0	Negative	11/28/2023 12:52
843	Women Bath	Wall	4	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:52
844	Women Bath	Door	4	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:53



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Capitola Community Center
 4400 Jade St.
 Capitola CA

XRF Spread Sheet
 Exterior Only

City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
845	Women Bath	Door Casing	4	Metal	Intact	Blue	0	Negative	11/28/2023 12:53
846	Men Bath	Wall	1	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:55
847	Men Bath	Wall	1	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:56
848	Men Bath	Header/Beam	1	Wood	Intact	Blue	0	Negative	11/28/2023 12:56
849	Men Bath	Ceiling	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 12:57
850	Men Bath	Ceiling Molding	1	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:57
851	Men Bath	Wall	2	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:57
852	Men Bath	Wall	2	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 12:58
853	Men Bath	Door	2	Metal	Intact	Blue	0	Negative	11/28/2023 12:58
854	Men Bath	Door	2	Wood	Intact	White/Offwhite	0	Negative	11/28/2023 12:58
855	Men Bath	Door Casing	2	Metal	Intact	Blue	0	Negative	11/28/2023 12:59
856	Men Bath	Wall	3	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 12:59
857	Men Bath	Wall	4	Drywall	Intact	White/Offwhite	0	Negative	11/28/2023 13:00
858	Men Bath	Wall	4	Tile/Masonry	Intact	Grey	0	Negative	11/28/2023 13:00
859	Exterior	Wall	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:33
860	Exterior	Window Frame	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:34
861	Exterior	Header/Beam	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:34
862	Exterior	Wall	1	Stucco	Intact	White/Offwhite	0	Negative	11/28/2023 13:34
863	Exterior	Rafter Tails	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:35
864	Exterior	Gutter	1	Metal	Intact	Brown/Beige	0	Negative	11/28/2023 13:36
865	Exterior	Downspout	1	Metal	Intact	Brown/Beige	0	Negative	11/28/2023 13:36
866	Exterior	Fascia	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:37
867	Exterior	Eaves	1	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:37
868	Exterior	Column/Post	1	Stucco	Intact	Brown/Beige	0	Negative	11/28/2023 13:38
869	Exterior	Column/Post	2	Stucco	Intact	Brown/Beige	0	Negative	11/28/2023 13:38
870	Exterior	Wall	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:39
871	Exterior	Window Frame	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:39
872	Exterior	Window Sill	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:39
873	Exterior	Trim	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:39
874	Exterior	Header/Beam	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:40
875	Exterior	Rafter Tails	2	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:40
876	Exterior	Wall	2	Stucco	Intact	White/Offwhite	0	Negative	11/28/2023 13:41
877	Exterior	Wall	3	Stucco	Intact	White/Offwhite	0	Negative	11/28/2023 13:43
878	Exterior	Column/Post	3	Stucco	Intact	Brown/Beige	0	Negative	11/28/2023 13:44
879	Exterior	Header/Beam	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:44
880	Exterior	Wall	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:45



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Capitola Community Center
 4400 Jade St.
 Capitola CA

XRF Spread Sheet
 Exterior Only

City of Capitola-Kailash Mosumder
 420 Capitol Avenue
 Capitola CA

Data ID #	Room Type	Component	Wall #	Substrate	Condition	Color	PbC	Result	Date/Time
881	Exterior	Window Frame	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:45
882	Exterior	Window Sill	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:45
883	Exterior	Trim	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:45
884	Exterior	Wall	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:46
885	Exterior	Rafter Tails	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:47
886	Exterior	Rafter Tails	3	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:47
887	Exterior	Header/Beam	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:48
888	Exterior	Column/Post	4	Stucco	Intact	Brown/Beige	0	Negative	11/28/2023 13:48
889	Exterior	Wall	4	Stucco	Intact	White/Offwhite	0	Negative	11/28/2023 13:48
890	Exterior	Window Frame	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:49
891	Exterior	Gutter	4	Metal	Intact	Brown/Beige	0	Negative	11/28/2023 13:49
892	Exterior	Downspout	4	Metal	Intact	Brown/Beige	0	Negative	11/28/2023 13:49
893	Exterior	Window Sill	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:51
894	Exterior	Door Frame	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:51
895	Exterior	Gate	4	Wood	Intact	Brown/Beige	0	Negative	11/28/2023 13:51
896	Calibration	*	*	*	*	*	1.1	Positive	11/28/2023 14:00
897	Calibration	*	*	*	*	*	1.1	Positive	11/28/2023 14:01
898	Calibration	*	*	*	*	*	1.2	Positive	11/28/2023 14:01
899	Calibration	*	*	*	*	*	1.1	Positive	11/28/2023 14:01



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Metals Analysis of Paints

(AIHA-LAP, LLC Accreditation, Lab ID #101762)

Benchmark Environmental
Project Manager
3732-A Charter Park Drive

San Jose, CA 95136

Client ID: 3565
Report Number: M255938
Date Received: 11/29/23
Date Analyzed: 12/01/23
Date Printed: 12/04/23
First Reported: 12/04/23

Job ID / Site: E23-2476-LPC - 4400 Jade Street Capitola
Date(s) Collected: 11/28/23

SGSFL Job ID: 3565
Total Samples Submitted: 5
Total Samples Analyzed: 5

Sample Number	Lab Number	Analyte	Result	Result Units	Reporting Limit*	Method Reference
E23-2476-11-28-1PC	30931262	Pb	0.013	wt%	0.007	EPA 3050B/7000B
Comment: ROOF PARAPET WALL #1 BROWN Additional Result: 130 ppm						
E23-2476-11-28-2PC	30931263	Pb	< 0.006	wt%	0.006	EPA 3050B/7000B
Comment: MEETING RM C CLOSET WALL #4 GRAY Additional Result: < 60 ppm						
E23-2476-11-28-3PC	30931264	Pb	< 0.007	wt%	0.007	EPA 3050B/7000B
Comment: MEETING RM C DOOR FRAME WALL #1 BLUE Additional Result: < 70 ppm						
E23-2476-11-28-4PC	30931265	Pb	< 0.006	wt%	0.006	EPA 3050B/7000B
Comment: JANITOR CLOSET WALL #2 WHITE Additional Result: < 60 ppm						
E23-2476-11-28-5PC	30931266	Pb	< 0.006	wt%	0.006	EPA 3050B/7000B
Comment: RAFTER TAIL WALL #2 BROWN Additional Result: < 60 ppm						

* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.



Kevin Poon, Laboratory Supervisor, Hayward Laboratory

Analytical results and reports are generated by SGS Forensic Laboratories at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by SGS Forensic Laboratories to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by SGS Forensic Laboratories. The client is solely responsible for the use and interpretation of test results and reports requested from SGS Forensic Laboratories. SGS Forensic Laboratories is not able to assess the degree of hazard resulting from materials analyzed. SGS Forensic Laboratories reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Any modifications that have been made to referenced test methods are documented in SGS Forensic Laboratories' Standard Operating Procedures Manual. Sample results have not been blank corrected. Quality control and sample receipt condition were acceptable unless otherwise noted.

Note* Sampling data used in this report was provided by the client as noted on the associated chain of custody form.

Signed _____
Date: 12/04/23
Permit # 2254183



BENCHMARK

3732 Charter Park Drive, Ste. A San Jose CA 95136
408-448-7594 / 408-448-3849 (fax)

Please Include Sample Locations on Laboratory Report

Email Lab Receipts & Reports To: labs@benchmarkenvironmental.com

BULK CHAIN OF CUSTODY

Page: 1 of 1

Project #: E23-2476-LPC Date: 11/28/23 Technician: JOB

Project Address: 4400 Jade Street Capitola

Sample Number	Location	Group # or Measurement	Material Type or Component	Results To Be Reported As
E23-2476-11-28 1PL	Roof Parapet wall #1 (Brown)	2" x 2"	Paint Chip	% By wt + ppm
2PL	meeting Rm C closet wall #4 (Gray)	↓	↓	↓
3PL	meeting Rm C door frame wall #1 (Blue)			
4PL	Janitor closet wall #2 (white)			
5PL	Rafter Tail wall #2 (Brown)			

- Project Type (X box)**
- Asbestos Bulk
 - Lead-Based Paint Bulk
 - Risk Assessment
 - Clearance (Lead)
 - Mold/Fungus
 - Sewage Screen (Baseline)
 - Sewage Screen (Post-Remediation)
 - Other: _____

- Type of Analysis (X box)**
- PLM/Bulk (EPA 600)
 - EPA SW 846-7420 FLAA
 - Dust Wipe (*Ghost Wipes*)
 - Soil (Lead)
 - Paint Chip
 - GFAA Water (Lead)
 - Qualitative (MUG) E.Coli/Coliforms
 - Direct Microscopic Exam
 - Other: _____

- TAT (X box)**
- Same Day/Rush
 - Date Needed: 12/4/23

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Received By: _____

Date/Time: _____

LEAD HAZARD EVALUATION REPORT

Section 1 – Date of Lead Hazard Evaluation _____

Section 2 – Type of Lead Hazard Evaluation (Check one box only)

Lead Inspection Risk assessment Clearance Inspection Other (specify) _____

Section 3 – Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]		City	County	Zip Code
Construction date (year) of structure	Type of structure <input type="checkbox"/> Multi-unit building <input type="checkbox"/> School or daycare <input type="checkbox"/> Single family dwelling <input type="checkbox"/> Other _____		Children living in structure? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know	

Section 4 – Owner of Structure (if business/agency, list contact person)

Name		Telephone number		
Address [number, street, apartment (if applicable)]		City	State	Zip Code

Section 5 – Results of Lead Hazard Evaluation (check all that apply)

No lead-based paint detected
 Intact lead-based paint detected
 Deteriorated lead-based paint detected
 No lead hazards detected
 Lead-contaminated dust found
 Lead-contaminated soil found
 Other _____

Section 6 – Individual Conducting Lead Hazard Evaluation

Name		Telephone number		
Address [number, street, apartment (if applicable)]		City	State	Zip Code
CDPH certification number	Signature <i style="font-size: 1.2em;">Rob LoGrasso</i>		Date	

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 – Attachments

- A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
- B. Each testing method, device, and sampling procedure used;
- C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector
 Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:
 California Department of Public Health
 Childhood Lead Poisoning Prevention Branch Reports
 850 Marina Bay Parkway, Building P, Third Floor
 Richmond, CA 94804-6403
 Fax: (510) 620-5656





State of California
Department of Public Health

John R. LoGrasso
Lead Inspector/Assessor - Certification Number LRC-00006770
Project Monitor - Certification Number LRC-00006769

	STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH			
LEAD-RELATED CONSTRUCTION CERTIFICATE				
INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:	
 John LoGrasso	Lead Inspector/Assessor	LRC-00006770	6/29/2024	
	Lead Project Monitor	LRC-00006769	6/29/2024	
<p>Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD</p>				

Expiration Date: 6/29/2024

Reliable Resource in a Changing Environment



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Date: 06/29/2024
Permit # 2204180



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

SGS Forensic Laboratories

3777 Depot Rd, Suite 409, Hayward, CA 94545-2761

Laboratory ID: LAP-101762

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs, LLC (AIHA LAP) accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

<input checked="" type="checkbox"/>	INDUSTRIAL HYGIENE	Accreditation Expires: July 01, 2025
<input checked="" type="checkbox"/>	ENVIRONMENTAL LEAD	Accreditation Expires: July 01, 2025
<input checked="" type="checkbox"/>	ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires: July 01, 2025
<input type="checkbox"/>	FOOD	Accreditation Expires:
<input type="checkbox"/>	UNIQUE SCOPES	Accreditation Expires:
<input type="checkbox"/>	BERYLLIUM FIELD/MOBILE	Accreditation Expires:

Specific Field(s) of Testing/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision21: 05/15/2023

Date Issued: 08/01/2023



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AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

SGS Forensic Laboratories
 3777 Depot Rd, Suite 409, Hayward, CA 94545-2761

Laboratory ID: LAP-101762
 Issue Date: 08/03/2023

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 03/01/1990

IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)	-	NIOSH 7400	Air
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	40 CFR 763, Sub. E, Appendix E	Bulk Materials
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	EPA 600/M4-82-020, 1982	Bulk Materials
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	EPA 600/R-93/116, 1993	Bulk Materials
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	EPA 600/R-93/116	Bulk Materials
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	EPA AHERA - 40 CFR Part 763	Air
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	NIOSH 7402	Air
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	Yamate Level 1	Air
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	Yamate Level 2	Air
Miscellaneous Core	Gravimetric	-	NIOSH 0500	Total Dust
Miscellaneous Core	Gravimetric	-	NIOSH 0600	Respirable Dust
Spectrometry Core	Atomic Absorption	FAA	NIOSH 7082	Air
Spectrometry Core	Atomic Absorption	FAA	OSHA ID-121	Air, Wipe, Bulk
Spectrometry Core	Infrared	-	ASTM D7948	Air
Spectrometry Core	Infrared	-	NIOSH 7602	Air
Spectrometry Core	Infrared	-	NIOSH 7603	Air





A complete listing of currently accredited IHLAP laboratories is available on the AIHA LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



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AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

SGS Forensic Laboratories

3777 Depot Rd, Suite 409, Hayward, CA 94545-2761

Laboratory ID: LAP-101762

Issue Date: 08/03/2023

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 06/26/1995

Component, parameter or characteristic tested	Technology sub-type/Detector	Method	Method Description <i>(for internal methods only)</i>
Airborne Dust	AA	NIOSH 7082	N/A
		OSHA 121	N/A
Paint	AA	EPA SW-846 3050B	N/A
		EPA SW-846 7000B	N/A
		OSHA 121	N/A
Settled Dust by Wipe	AA	NIOSH 7082	N/A
		OSHA 121	N/A
Soil	AA	EPA SW-846 3050B	N/A
		EPA SW-846 7000B	N/A
		OSHA 121	N/A

A complete listing of currently accredited ELLAP laboratories is available on the AIHA LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



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AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

SGS Forensic Laboratories
3777 Depot Rd, Suite 409, Hayward, CA 94545-2761

Laboratory ID: LAP-101762
Issue Date: 08/03/2023

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

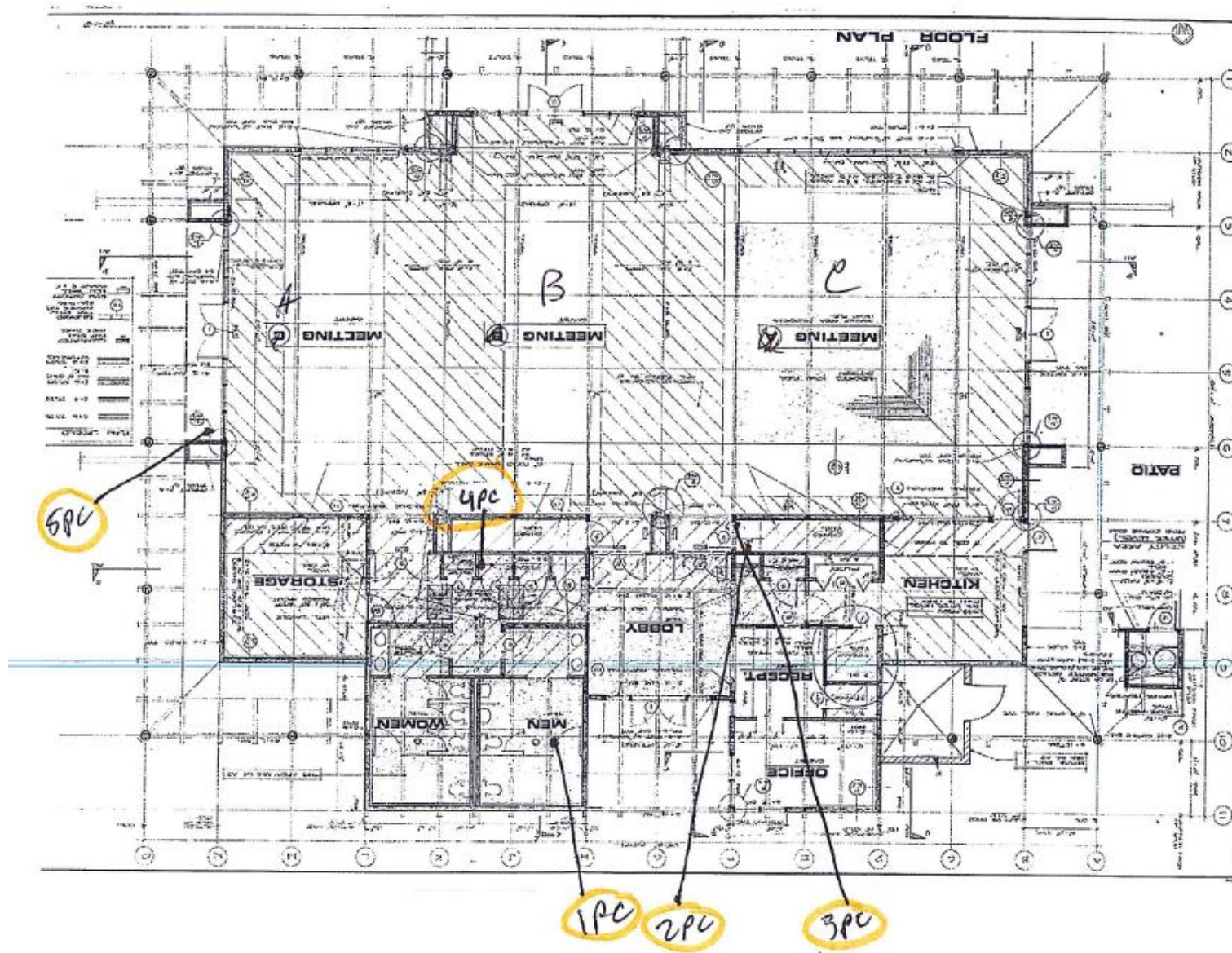
Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 11/01/2003

EMLAP Scope Category	Field of Testing (FOT)	Component, parameter or characteristic tested	Method	Method Description (for internal methods only)
Bacterial	Legionella	Bulks (liquid or solid)	SOP IAQ 213	Recovery of Legionellae from Water Samples
Bacterial	Legionella	Bulks (liquid or solid)	SOP IAQ 214	Recovery of Legionellae from Swab Samples
Fungal	Air - Culturable	Air	SOP IAQ 100	Analysis of Viable Air Samples for Identification of Fungal Mycota
Fungal	Air - Direct Examination	Spore Trap	SOP IAQ 101	Analysis of Non-Viable Air Samples for Identification of Fungal Mycota
Fungal	Bulk - Culturable	Bulks (liquid or solid)	SOP IAQ 103	Analysis of Viable Bulk Samples for Identification of Fungal Mycota
Fungal	Bulk - Direct Examination	Bulks (liquid or solid)	SOP IAQ 102	Analysis of Non-Viable Bulk Samples for Identification of Fungal Mycota
Fungal	Surface - Culturable	Bulks (liquid or solid)	SOP IAQ 103	Analysis of Viable Bulk Samples for Identification of Fungal Mycota
Fungal	Surface - Direct Examination	Bulks (liquid or solid)	SOP IAQ 102	Analysis of Non-Viable Bulk Samples for Identification of Fungal Mycota
Molecular	qPCR - Legionella	Speciation of Legionella	SOP IAQ 305	Amplification of genomic DNA by Polymerase Chain Reaction (PCR)
Molecular	qPCR - Mold Specific qPCR	Speciation of Fungi	SOP IAQ 305	Amplification of genomic DNA by Polymerase Chain Reaction (PCR)



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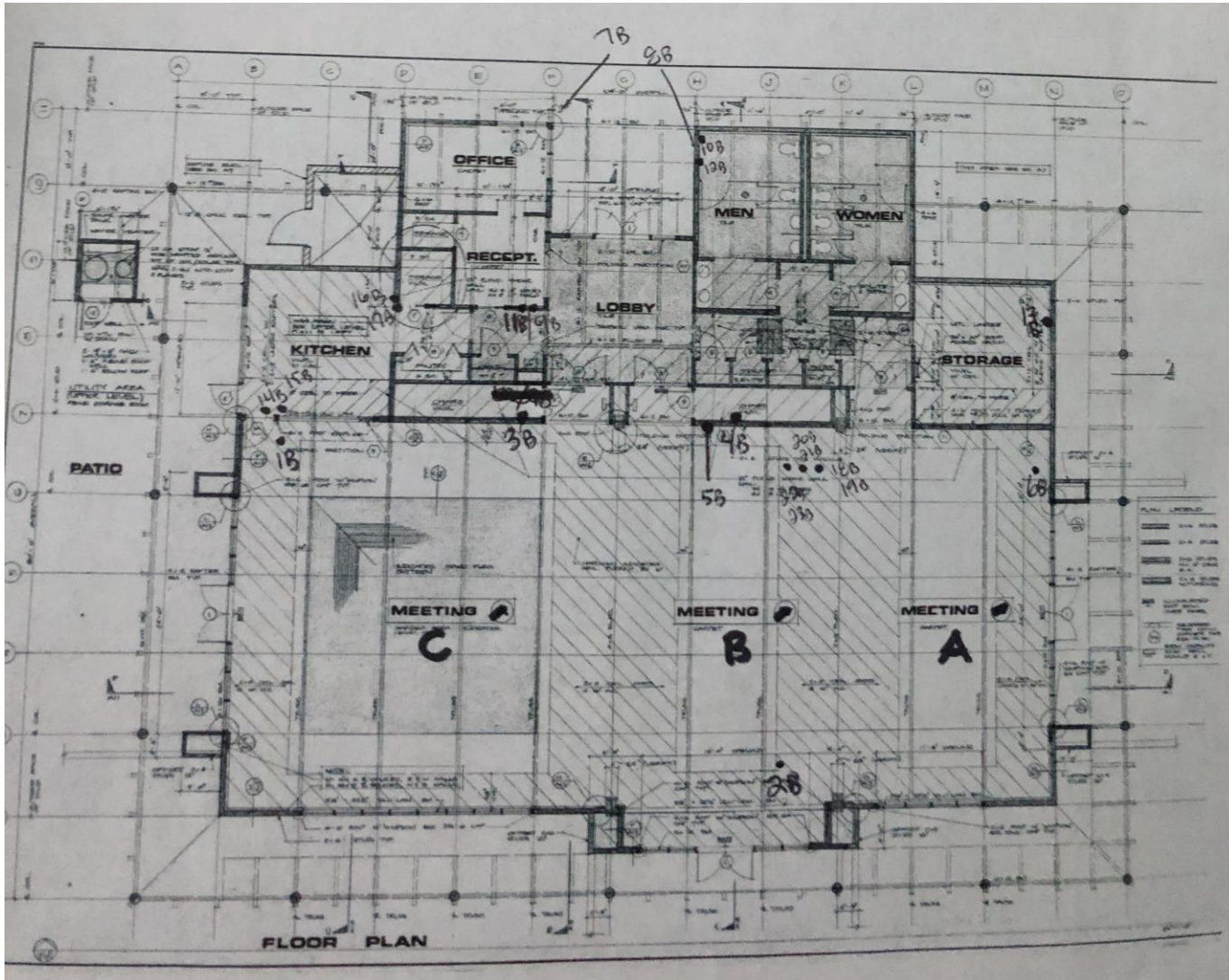


Key:

#PC – Sample Locations



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Title _____
Date _____
Project # _____



December 6, 2023

Kailash Mozumder
City Of Capitola
420 Capitola Avenue
Capitola, CA, 95010

Re: Mold Visual Inspection
4400 Jade Street, Capitola
Benchmark Project #: E23-2476-MVI
Onsite Technician: Jeremy Oliverio/Rob LoGrasso
Capitola Community Center

Visual Mold Investigation- Remediation is not Required

Dear Kailash Mozumder:

Thank you for contacting Benchmark regarding the project located at 4400 Jade Street, Capitola. A site visit was conducted November 28, 2023 per your request by Rob LoGrasso and Jeremy Oliverio.

Assessments on this date were based on visual site conditions that existed on the date of Benchmark's site visit. No determinations, evaluations, or conclusions, regarding indoor air quality and/or overall microbial bioburden were made, expressed or implied, by Benchmark.

Background

This property is the community center of Capitola. It has been reported of no known leaks or issues but is set of some upgrades soon and the city would like to have the structure inspected. Benchmark has been requested to conduct a mold visual inspection and provide a scope of work if needed.

Findings¹

Men's Bathroom:

- A musty/ mildew odor was noticeable upon entering the room.
- Discoloration was observed at the sink counter top and sink.
- No elevated moisture was detected.

Women's Bathroom:

- A musty/ mildew odor was noticeable upon entering the room.
- Discoloration was observed at the sink counter top and sink.
- No elevated moisture was detected.

Storage Room/ Back Office:

- A stain was observed on the carpet from a water jug leak from over a year ago.
- Dust was observed at the window track/ sill/ frame.
- No elevated moisture was detected.

¹ Wall designations: Wall #1- entry wall, #2- left of entry wall, #3- opposite of entry wall, #4- right of entry wall

E23-2476-MVI

Meeting Room A:

- No elevated moisture was detected.
- No discoloration was observed.

Hallway:

- No elevated moisture was detected.
- No discoloration was observed.

Janitor Closet:

- Slightly elevated moisture was detected above the sink.
- Slight musty odor was noticeable upon opening door.
- Discoloration was observed at the sink.

Art Supply Closet:

- Staining/ discoloration was observed at the ceiling.
- No elevated moisture was detected.

Meeting Room B:

- No elevated moisture was detected.
- No discoloration was observed.

Meeting Room A:

- No elevated moisture was detected.
- No discoloration was observed.

Lobby:

- No elevated moisture was detected.
- No discoloration was observed.

Kitchen:

- Discoloration/ dust were observed at the blinds and window track/ frame/ sill at wall #3.
- Discoloration was observed at the sink drain.

Water Heater Closet:

- No elevated moisture was detected.
- No discoloration was observed.

Reception Office:

- No elevated moisture was detected.
- No discoloration was observed.

Front Offices:

- No elevated moisture was detected.
- No discoloration was observed.

Recommendations

Professional Remediation is not being required at this time of inspection.

Men's Bathroom:

- Surface clean/ disinfect the counter top and sink due to discoloration.

Women's Bathroom:

- Surface clean/ disinfect the counter top and sink due to discoloration.

E23-2476-MVI



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Date: 09/16/2024

Page 2

Storage/Back Office:

- Specialize clean/ disinfect the carpet due to staining.

Janitor Closet:

- Monitor the wall over the sink in place due to possible over splash.
- Surface clean/ disinfect the sink due to discoloration.

Art Supply Closet:

- Surface clean/ disinfect the ceiling due to staining/ discoloration. Prime and paint the ceiling after cleaning.

Kitchen:

- Surface clean/ disinfect the blinds at wall #3 due to discoloration/ dust.
- Surface clean/ disinfect the sinks due to discoloration.

General:

- Surface clean/ disinfect ALL of the windows tracks/ sills/ frame due to dust.
- Consider placing HEPA air filtration devices throughout to eliminate the current odors

Benchmark is pleased to provide our services to you for this project. Please contact our office at 408-448-7594 if you have any questions or concerns.

Sincerely,

Benchmark Environmental Engineering



Terri MacFarlane
Vice President



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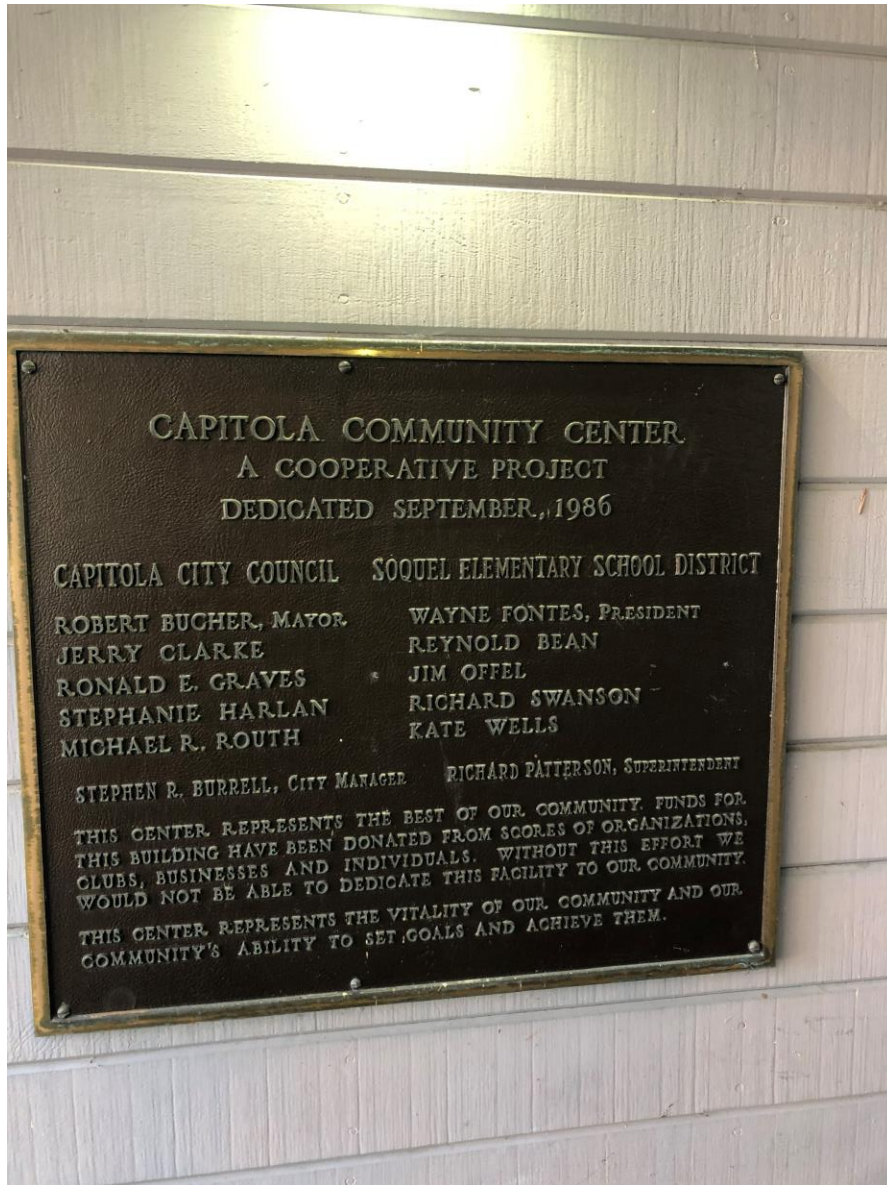
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Code Compliance

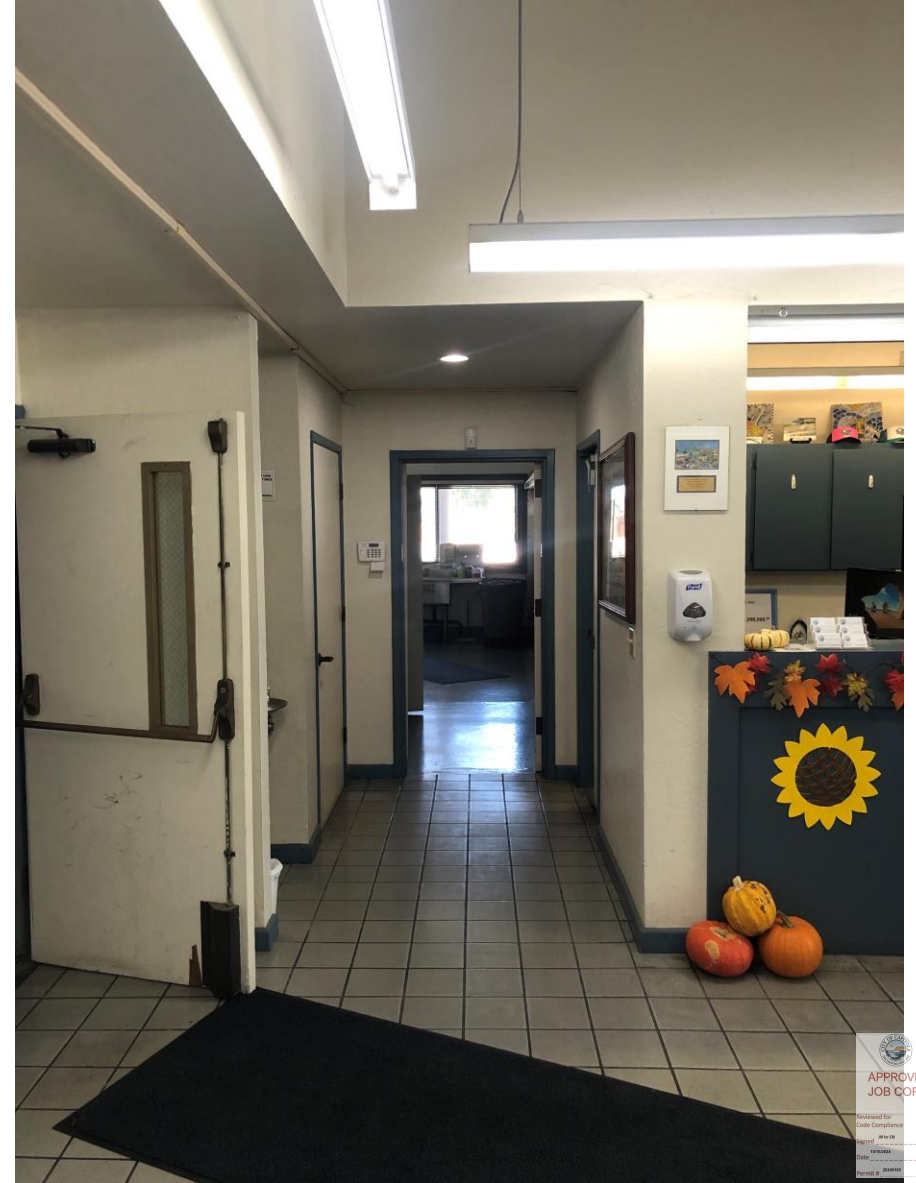
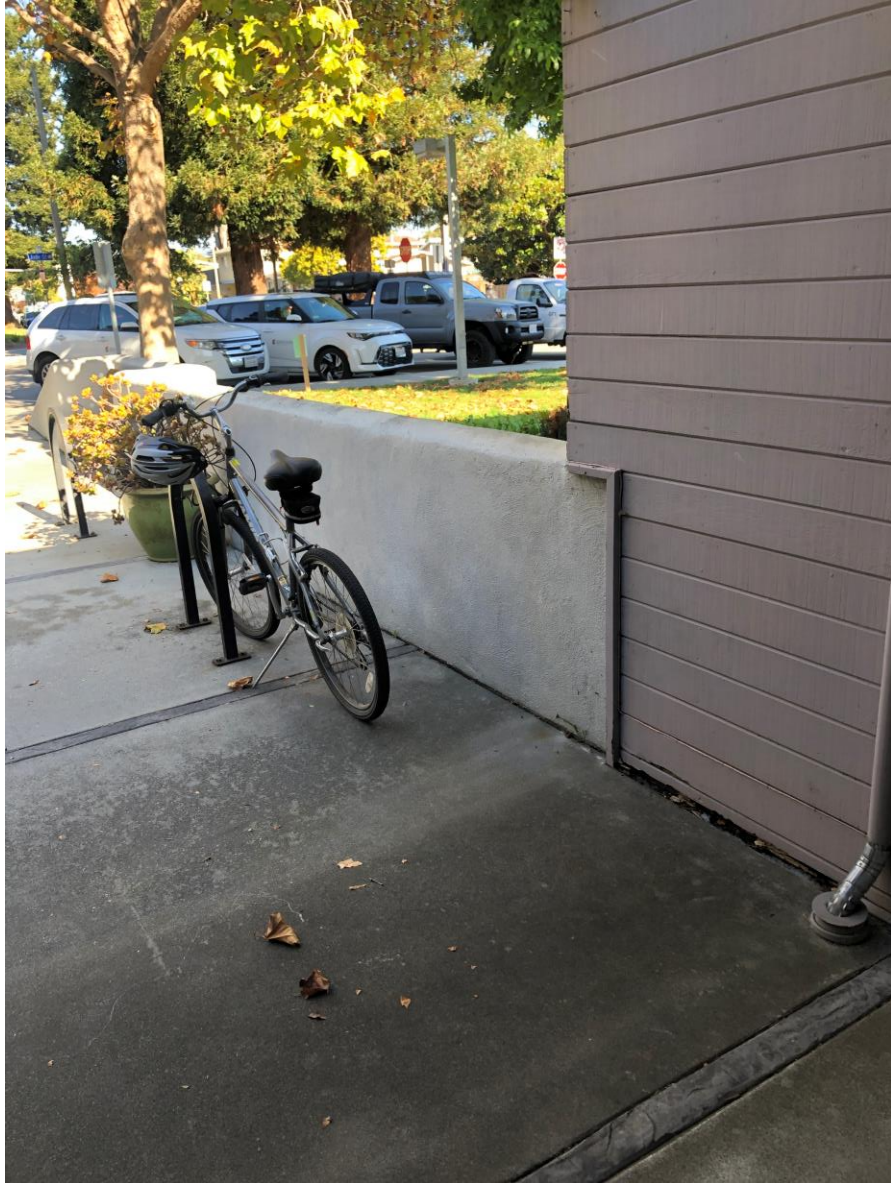
Signed JW/TM

Date 09/16/2024

Page 3

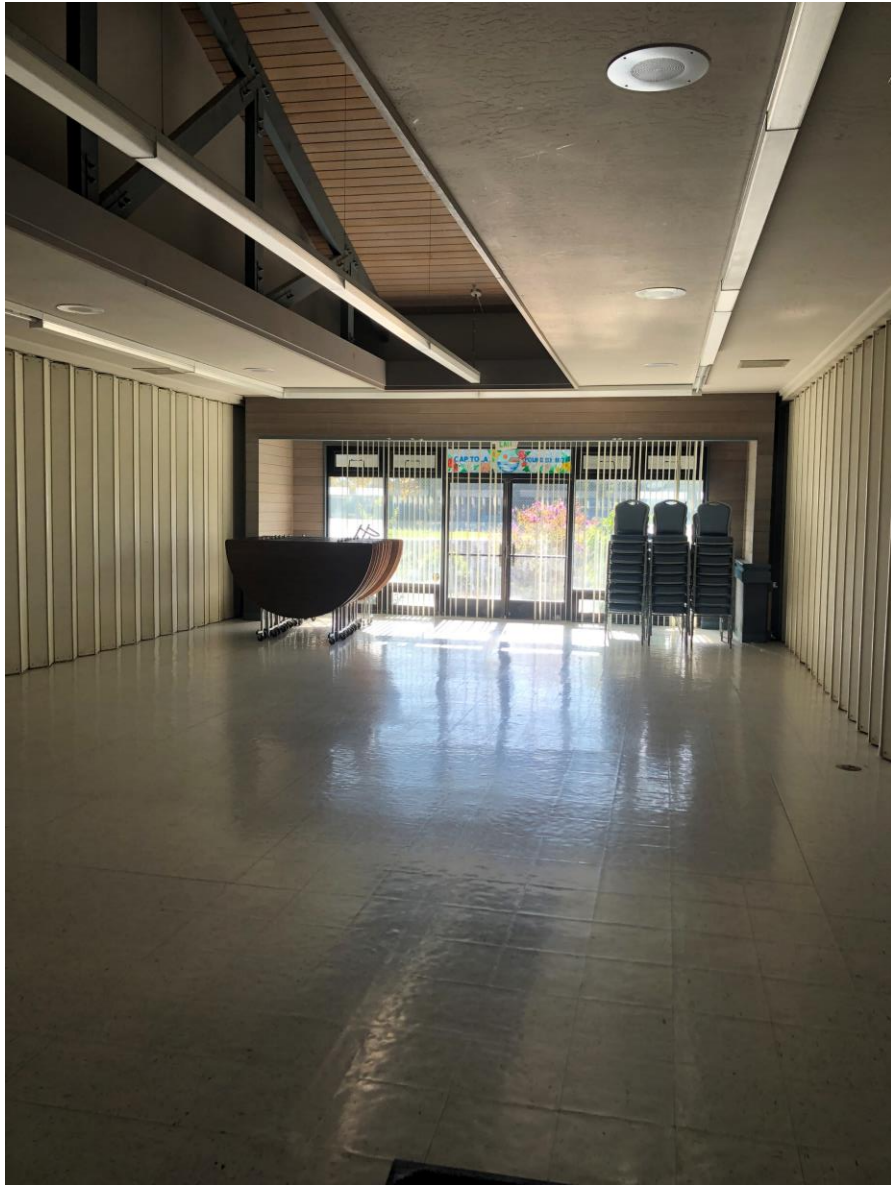
E23-2476-MVI












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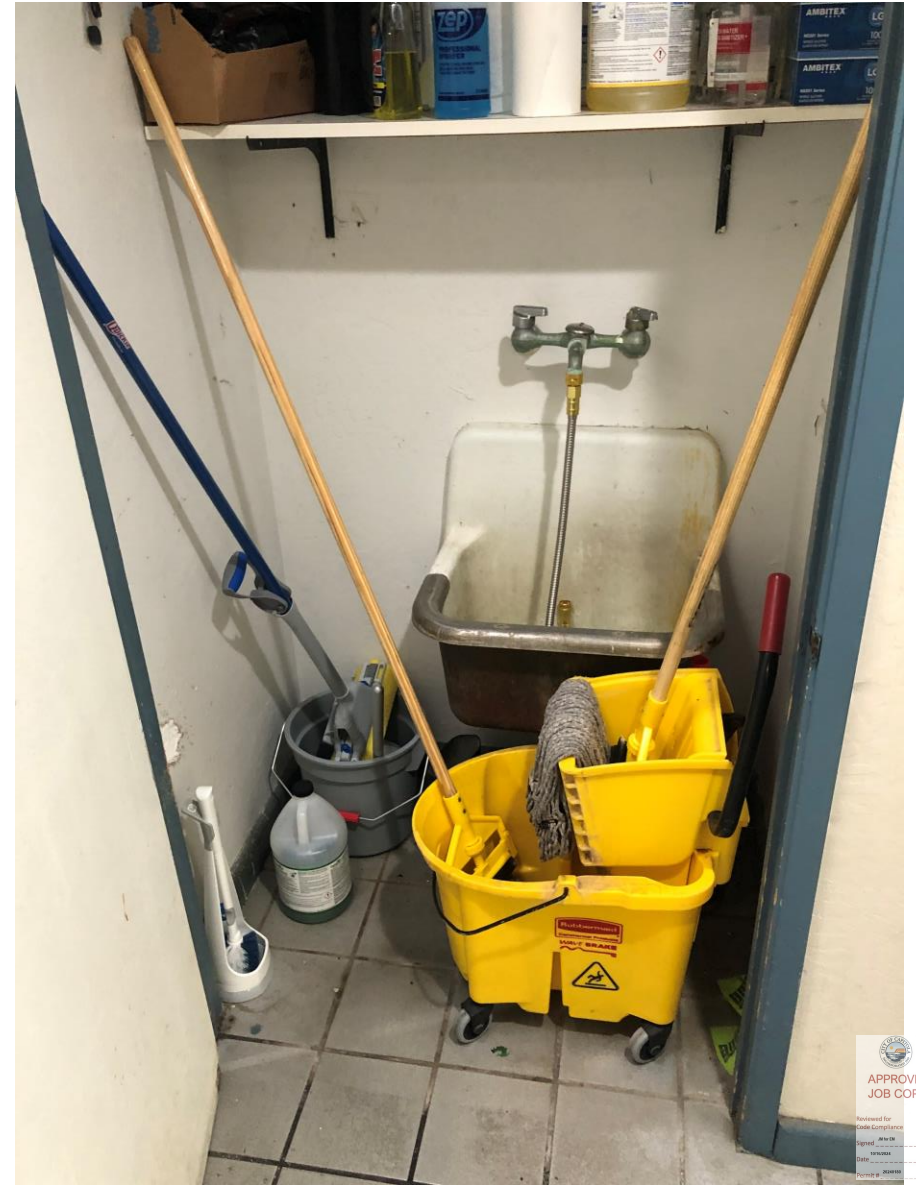
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Title _____
Permit # _____





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Reviewed for Code Compliance	DATE
Signed	BY
DATE	
Form #	201001



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Page # 20/20







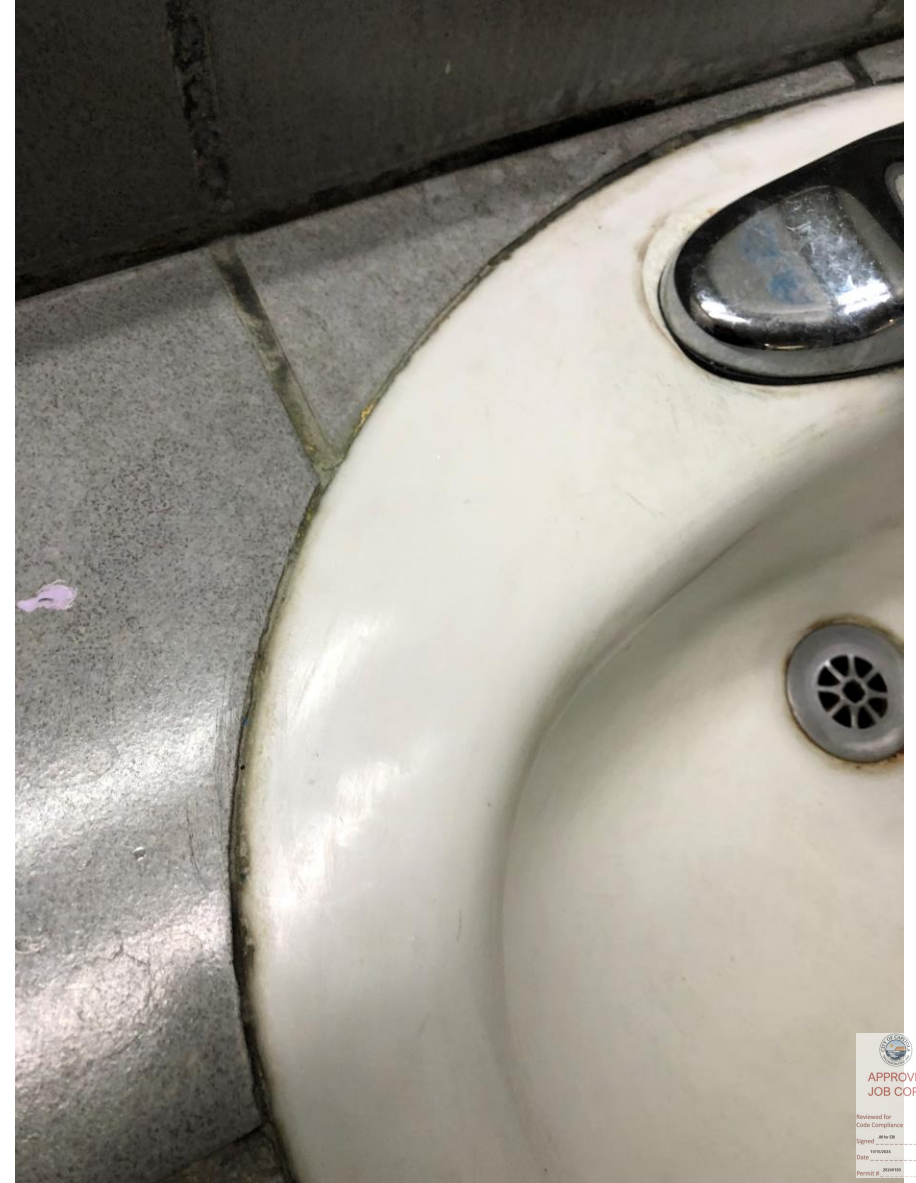

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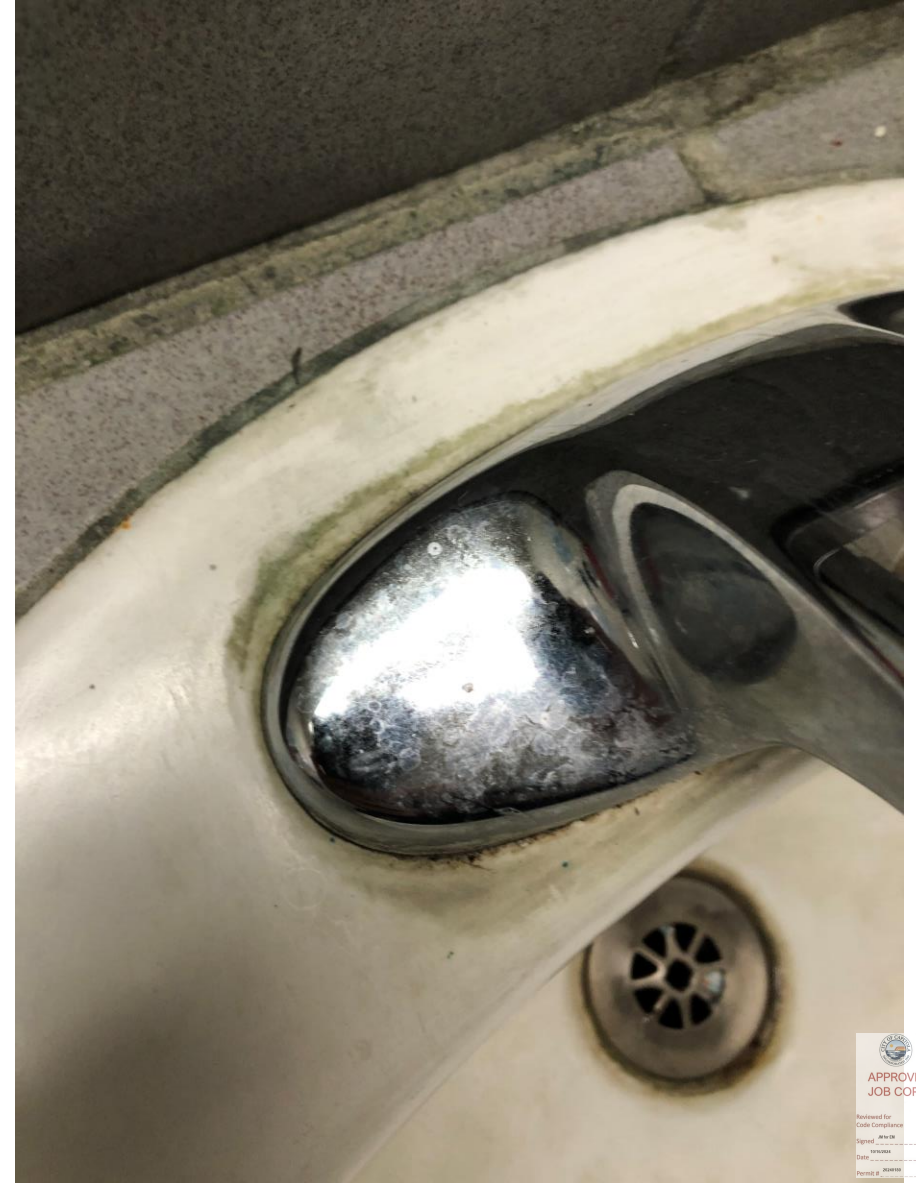
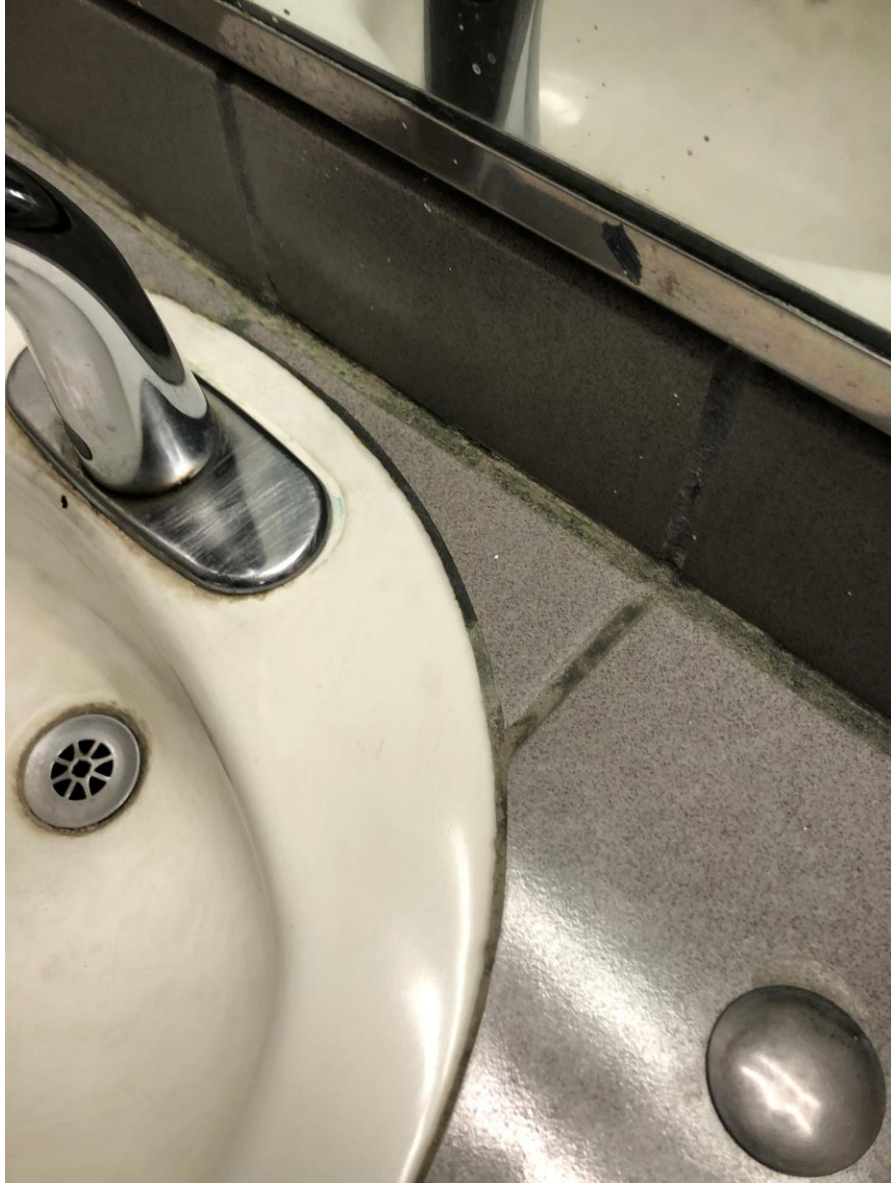









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CAPITOLA COMMUNITY CENTER REMODEL PROJECT

PROJECT CUTSHEETS

- 1 Lighting Fixtures
- 2 AEP Span
- 3 Polystick XFR
- 4 H-Shield
- 5 AHU-1
- 6 Baby Change Station
- 7 Dex-O-Tex Product Data
- 8 AEC Dimiseable Partition
- 9 Door Accessories
- 10 EF-1
- 11 Elkay ez H2O
- 12 LG AHU
- 13 Marmoleum Flooring
- 14 SCRC Sierra Series
- 15 Safecoat Polyureseal
- 16 Restroom Accessories
- 17 Sun Tunnel
- 18 Water Heater
- 19 Zero Sightline Series
- 20 Nichiha
- 21 OSS Perk Filter



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Permit # 2204160

LIGHTING FIXTURES

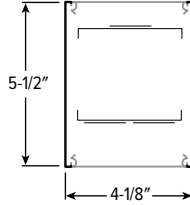


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Date 09/16/2024
Permit # 20241180

MX4UD LED

4" Continuous Up/Down – Suspended



CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Create elegant spaces with a seamless, continuous row of illumination
- Flat and proud lenses give designers a variety of looks
- Moveable mounting hardware easily slides along the length of the fixture providing variable mounting points
- High-performance up to 119 lm/W
- Linear extrusion contains snap-in light rails for ease of installation and maintenance
- Attractive source of direct and indirect lighting
- Versatile MX4 system includes recessed, surface, suspended and in-wall mounting, see hew.com
- Corner configurations available, see Product Builder at hew.com/product-builder
- Diffuse acrylic lens provides uniform illumination for visual comfort
- Wireless in-fixture control solutions available
- Available with BIOS® SkyBlue® technology to support proper daytime circadian stimulus
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING – Extruded aluminum with die-cast end plates.
- SHIELDING – Extruded, flat, diffuse acrylic lens.
- FINISH – Textured matte white polyester TGIC powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- ELECTRICAL – High-quality mid-power LED boards. L70 >60,000 hours per IES TM-21. 25°C maximum ambient operating temperature.
- MOUNTING – Suspended. 1/16" diameter adjustable steel leveling aircraft cable and mounting hardware necessary for grid and hardpan ceiling applications provided.
- LISTINGS –
 - cCSAus certified as luminaire suitable for dry or damp locations.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: MX4UD - 12'00 - L8/835U/L8/835D - A/F - AC/D48 - OPTIONS - CONTROL/DIM - UNV

SERIES ILLUMINATED LENGTH

MX4UD Lengths specified in feet and inches using 4" increments, 2' minimum.
Example: 12'00 = 12'-0"

Product Builder

Easily build shapes & simplify ordering with the Williams Linear Product Builder at hew.com/product-builder^[1]



LUMEN PACKAGE (EXAMPLE: L8/835U/L8/835D)

Specify lumen packages: **U** for Uplight and **D** for Downlight

LUMENS ^[4]	CRI	CCT	U or D
L8 800lm	8 80	27 2700K	U Uplight
L12 1200lm	9 90 ^[5]	30 3000K	D Downlight
L15 1500lm		35 3500K	
		40 4000K	
		50 5000K	

SHIELDING UP

A Flat, semi-diffuse acrylic
F Flat, diffuse acrylic^[2]

SHIELDING DOWN

F Flat, diffuse acrylic
P Proud, diffuse acrylic with 5/16" drop^[3]

MOUNTING (EXAMPLE: AC/D48)^[6]

Prefix	Type	Length
AC/	D 1" grid & hardpan	24 24"
	N 9/16" grid	48 48"
	S Slot grid	96 96"

OPTIONS^[7]

See page 3 for FINISH OPTIONS.

EM/10WRM	Remote mount 10-watt emergency battery ^[8]
ASYD	Downlight asymmetric distribution ^[9]
ASYU	Uplight asymmetric distribution ^[10]
ASYUD	Up and down light asymmetric distribution ^[11]
(L__)	Additional lower lumen packages available ^[12]

Example: 600 lumens = MX4UD-12'00-L8/835U/L8/835D-(L6U/L6D)

CONTROL^[13]

See page 6 for ADDITIONAL CONTROL OPTIONS.

–	None
AVI-LVFA	Avi-on wireless fixture control ^[14]
AVI-LVFA-CS2-PIR	Avi-on wireless fixture control with PIR motion and daylight sensor ^[15]
AWNRR	Lutron Athena wireless node integral fixture control, RF only ^[16]
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing ^[17]

DRIVER

See page 4 for ADDITIONAL DRIVER OPTIONS.

DIM	Driver with external dimming wires. Up and down switch and dim together
DA	Driver with 12V auxiliary power without external dimming wires. Up and down switch together ^[18]
DSR	Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch together ^[19]

VOLTAGE

120	120V
277	277V
UNV	120-277V ^[20]

NOTES

- See page 3 for CORNER DETAILS.
- Recommended for use in applications where fixture will be viewed from above. Decreases lumen output.
- See page 3 for SHIELDING DETAILS. Not available with corner configurations. Lumens per foot output based on A Shielding Up and F Shielding Down, 80 CRI/3500K CCT. Actual performance may vary ± 5%. See page 2 for FIXTURE PERFORMANCE DATA. Additional lumen packages available, see Options.
- Extended lead times may apply. Consult factory for availability.
- See page 3 for MOUNTING DETAILS.
- See Technical Info for Power Entry details.
- See page 3 for CROSS SECTIONS.
- Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- (L4U/L4D) lumen package minimum. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- Sensor recommended for use in downlight orientation only. Reduces portion of lit fixture, consult factory. See page 4 for SENSOR & NODE PLACEMENT DETAILS. See page 5 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS.
- DA Driver only.
- DA Driver only.
- DA and DSR Drivers only.
- DA and DSR Drivers only.
- Avi-on and Lutron Athena Controls only.
- Lutron Athena Controls only.
- Not available with EM batteries, control sensors, DA, or DSR Drivers.



MX4UD^{LED} 4" Continuous Up/Down – Suspended

FIXTURE PERFORMANCE DATA

	PER FOOT		
	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L8	1683	14.2	119
L12	2370	21.9	108
L15	2885	27.6	105

MULTIPLIER TABLES

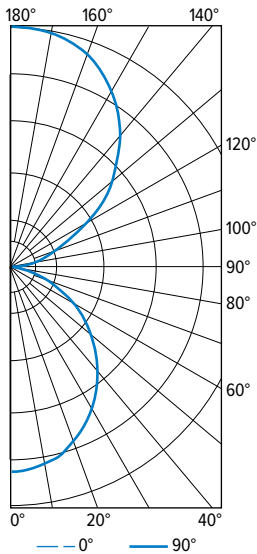
	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.97
	3000K	0.99
	3500K	1.00
	4000K	1.03
90 CRI	2700K	0.82
	3000K	0.83
	3500K	0.84
	4000K	0.86
	5000K	0.90

ASY OPTION	
WATTAGE	EFFICACY (lm/W)
1.02	0.98

- Photometrics tested in accordance with IESNA LM-79. Results based on Results based on A Shielding Up and F Shielding Down, 80 CRI/3500K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier tables to calculate additional options.

PHOTOMETRY

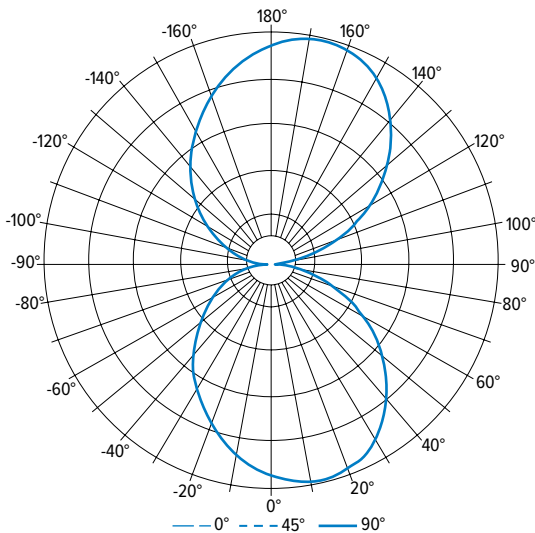
MX4UD-4'00-L8/835U/L8/835D-A/F-DIM Total Luminaire Output: 6732 lumens; 56.8 Watts | Efficacy: 119 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1155	1155	1155	1155	1155	
5	1175	1163	1135	1133	1145	109
15	1123	1113	1091	1075	1081	309
25	1026	1018	984	974	974	457
35	879	873	847	829	821	531
45	708	706	682	666	634	526
55	533	521	497	489	483	449
65	338	330	318	312	312	318
75	161	153	145	149	141	161
85	28	24	18	22	24	36
90	6	6	12	6	6	
95	58	68	70	62	56	71
105	201	217	219	197	173	222
115	400	427	447	394	360	411
125	654	676	696	638	596	594
135	938	948	950	905	861	712
145	1149	1153	1161	1109	1085	711
155	1302	1306	1312	1270	1246	595
165	1380	1384	1398	1360	1344	388
175	1396	1403	1429	1390	1370	133
180	1398	1398	1398	1398	1398	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	875	13
0 - 40	1406	21	
0 - 60	2380	35	
0 - 90	2894	43	
90 - 120	704	11	
90 - 130	1298	19	
90 - 150	2721	40	
90 - 180	3838	57	
0 - 180	6732	100	

MX4UD-4'00-L8/835U/L8/835D-ASYUD-DIM-UNV Total Luminaire Output: 6501 lumens; 58.4 Watts | Efficacy: 111 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1153	1153	1153	1153	1153	
5	1149	1175	1188	1175	1149	109
15	1101	1185	1221	1185	1101	311
25	1011	1135	1187	1135	1011	468
35	881	1024	1083	1024	881	556
45	726	868	922	868	726	566
55	560	684	730	684	560	507
65	384	481	516	481	384	387
75	203	275	300	275	203	227
85	50	86	100	86	50	68
90	5	26	39	26	5	
95	51	89	103	89	51	71
105	210	284	310	284	210	234
115	397	497	533	497	397	400
125	578	706	754	706	578	524
135	750	897	952	897	750	584
145	910	1057	1118	1057	910	574
155	1044	1172	1226	1172	1044	483
165	1137	1223	1260	1223	1137	321
175	1186	1213	1226	1213	1186	112
180	1189	1189	1189	1189	1189	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	887	14
0 - 40	1443	22	
0 - 60	2516	39	
0 - 90	3198	49	
90 - 120	704	11	
90 - 130	1228	19	
90 - 150	2386	37	
90 - 180	3302	51	
0 - 180	6501	100	



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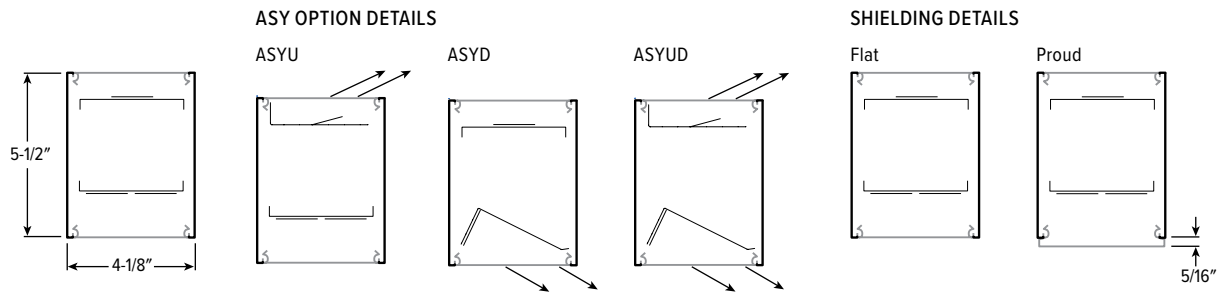
Signed _____
09/16/2024

Date: _____
Permit # _____



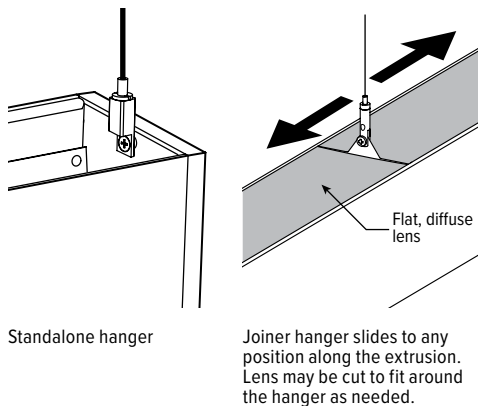
MX4UD^{LED} 4" Continuous Up/Down – Suspended

CROSS SECTIONS

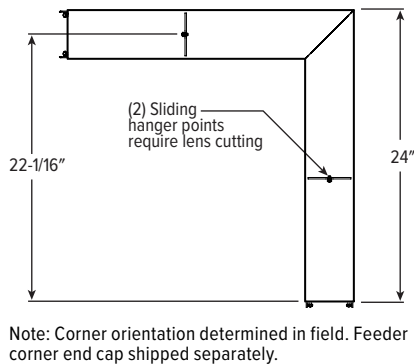


MOUNTING DETAILS

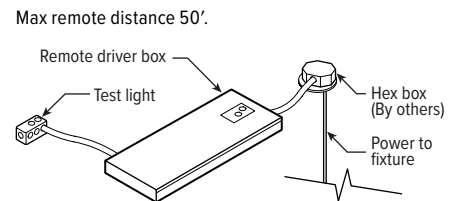
INDIRECT HANGER DETAILS



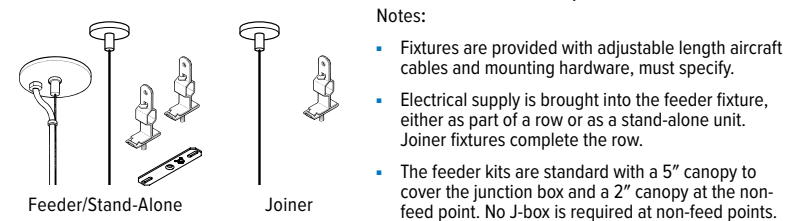
CORNER DETAILS



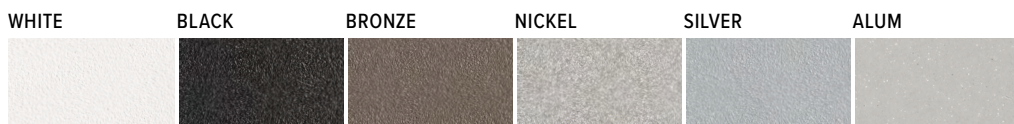
REMOTE MOUNT BATTERY



STANDARD HARDWARE FOR SUSPENDED PRODUCT (Grid and Hardpan)



FINISH OPTIONS



For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.



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MX4UD LED

4" Continuous Up/Down – Suspended

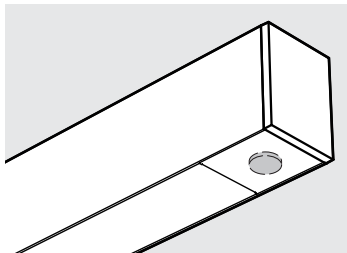
ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder.

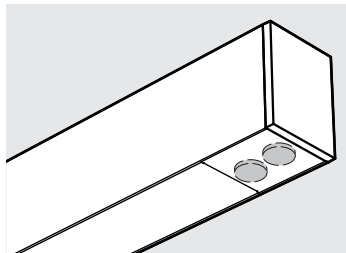
CATALOG NUMBER	DESCRIPTION
DRV	Driver prewired for non-dimming applications; entire fixture switches together
DIM	Dimming driver prewired for 0-10V low voltage applications; entire fixture switches and dims together
DRVU/DRVD	Driver prewired for non-dimming applications; up and down portions switch separately
DRVU/DIMD	Driver prewired for non-dimming applications; up and down portions switch separately; 0-10V on down portion only
DIMU/DRVD	Up and down portions switch separately; dimming driver prewired for 0-10V low voltage applications on up portion only
DIMU/DIMD	Dimming driver prewired for 0-10V low voltage applications; up and down portions switch and dim separately
DRVDIMU	Entire fixture switches together; dimming driver prewired for 0-10V low voltage applications on up portion only
DRVDIMD	Entire fixture switches together; dimming driver prewired for 0-10V low voltage applications on down portion only
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DIM LINEU/DIM LINED	Line voltage switching and line voltage dimming; up and down portions switch separately
DIM LINEU/DRVD	Up and down portions switch separately; line voltage dimming on up portion only
DRVU/DIM LINED	Up and down portions switch separately; line voltage dimming on down portion only
DA	Driver with 12V auxiliary power without external dimming wires. Up and down switch together.
DA-U/D	Driver with 12V auxiliary power without external dimming wires. Up and down switch separately.
DSR	Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch together.
DSR-U/D	Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch separately.

SENSOR & NODE PLACEMENT DETAILS

AVI-LVFA | WS-FS | WS-LMFS



AWNDR | AWNS



SEE NEXT PAGE FOR CONTROL DETAILS



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MX4UD LED

4" Continuous Up/Down – Suspended

AVI-ON BLUE TOOTH WIRELESS CONTROL DETAILS

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Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platform security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning
Mobile App



Zone Scanner
Web App



Commissioning
Pro App

ACCESSORIES

WALL STATIONS	AVI-2401AC Scene controller - numbered 1-4, 120-277VAC
	AVI-2402BAT Dimmer controller - numbered 1-4, battery powered
	AVI-2401AC-2 Dimmer with presets - percentages, 120-277VAC
	AVI-2402BAT-2 Dimmer with presets - percentages, battery powered
	AVI-2401AC-3 On/off/dimming, 120-277VAC
	AVI-2402BAT-3 On/off/dimming, battery powered

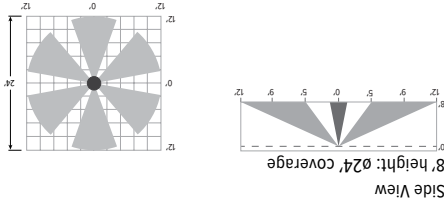
SYSTEM COMPONENTS

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Avi-ons is under license. Other trademarks and logos are registered trademarks owned by their respective owners.

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' - 10'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 50°C
RELATIVE HUMIDITY	10 to 80% non-condensing
IP RATING	IP20
MANUFACTURER	Avi-On

AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor. DA Driver only.

SENSOR COVERAGE PATTERNS



SENSOR DETAIL



MX4UD^{LED} 4" Continuous Up/Down – Suspended

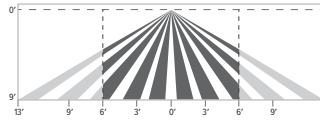
ADDITIONAL CONTROL OPTIONS

AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing. DA and DSR Drivers only.

SPECIFICATIONS	
TYPE	Radio Frequency
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	Clear Connect gateway – Type X with app (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS

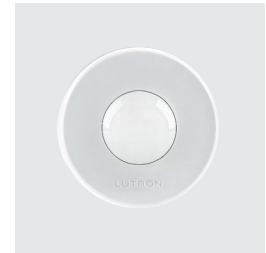
9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: ø1-1/8"

ATHENA CONTROL OPTIONS

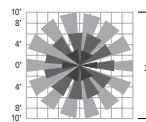
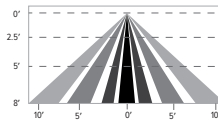
CATALOG NUMBER	DESCRIPTION
AWNRR	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNRR-BL	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.
AWNS-BL	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.

OCCWS-FS-305-L6-PP-120/277 Wattstopper PIR motion and daylight hold off sensor with power pack, 120/277V

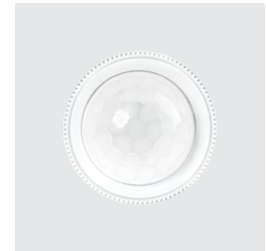
SPECIFICATIONS	
TYPE	PIR Motion + Daylight Hold Off
MOUNTING HEIGHT	8'
LENS	Indoor, non-wet location use
DETECTION ANGLE	360°
TEMPERATURE RANGE	-40° to 55°C
RELATIVE HUMIDITY	5% to 95%, non-condensing
COMMISSIONING	Dials under lens

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



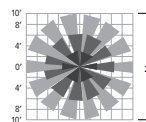
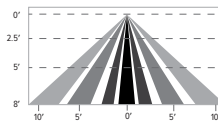
Dimensions: ø1-5/16"

OCCWS-LMFS-601-PP-120/277 Wattstopper PIR motion and daylight sensor with power pack, 120/277V

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
LENS	Up to 300 sq/ft coverage
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 50°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"



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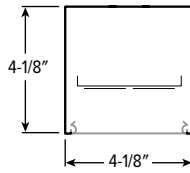
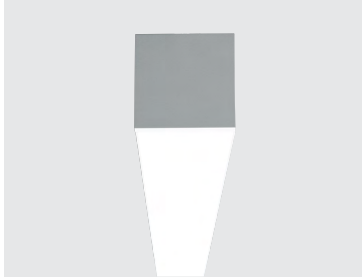
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MX4S LED 4" Continuous – Surface



CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Create elegant spaces with a seamless, continuous row of illumination
- Flat and proud lenses give designers a variety of looks
- High-performance up to 113 lm/W
- Linear extrusion contains snap-in light rails for ease of installation and maintenance
- Versatile MX4 system includes recessed, surface, suspended and in-wall mounting, see hew.com
- Corner configurations available, see Product Builder at hew.com/product-builder
- Diffuse acrylic lens provides uniform illumination for visual comfort
- Wireless in-fixture control solutions available
- Available with BIOS® SkyBlue® technology to support proper daytime circadian stimulus
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING – Extruded aluminum with die-cast end plates.
- SHIELDING – Extruded, flat, diffuse acrylic lens.
- FINISH – Textured matte white polyester TGIC powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- ELECTRICAL – High-quality mid-power LED boards. L70 >60,000 hours per IES TM-21.
- MOUNTING – Surface.
- LISTINGS –
 - cCSAus certified as luminaire suitable for dry or damp locations.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: MX4S - 12'00 - L8/835 - F - OPTIONS - CONTROL/DIM - UNV

SERIES ILLUMINATED LENGTH

MX4S Lengths specified in feet and inches using 4" increments, 2' minimum.
Example: 12'00 = 12'-0"

Product Builder

Easily build shapes & simplify ordering with the Williams Linear Product Builder at hew.com/product-builder ^[1]



LUMENS ^[2]	CRI	CCT	SHIELDING	OPTIONS ^[3]
L8 800lm	8 80	27 2700K	F Flat, diffuse acrylic	See page 3 for FINISH OPTIONS.
L12 1200lm	9 90 ^[4]	30 3000K	P Proud, diffuse acrylic with 5/16" drop ^[5]	EM/10W 10-watt emergency battery ^[6]
L15 1500lm		35 3500K		EM/10WRM Remote mount 10-watt emergency battery ^[7]
		40 4000K		ASY Asymmetric distribution ^[8]
		50 5000K		(L...) Additional lower lumen packages available ^[9] Example: 600 lumens = MX4S-12'00-L8/835-(L6)

CONTROL ^[10]

See page 5 for ADDITIONAL CONTROL OPTIONS.

–	None
AVI-LVFA	Avi-on wireless fixture control ^[11]
AVI-LVFA-CS2-PIR	Avi-on wireless fixture control with PIR motion and daylight sensor ^[12]
AWNRR	Lutron Athena wireless node integral fixture control, RF only ^[13]
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing ^[14]

DRIVER

See page 6 for ADDITIONAL DRIVER OPTIONS.

DIM	Driver with external dimming wires
DRV	Driver without external dimming wires
DA	Driver with 12V auxiliary power, without external dimming wires ^[15]
DSR	Sensor-ready driver without external dimming wires (D4i DALI-2) ^[16]

VOLTAGE

120	120V
277	277V
UNV	120-277V
347	347V ^[17]

NOTES

- See page 3 for FIXTURE DETAILS.
- Lumens per foot output based on F Shielding, 80 CRI/3500K CCT. Actual performance may vary ± 5%. See page 2 for FIXTURE PERFORMANCE DATA. Additional lumen packages available, see Options.
- See Technical Info for [Power Entry](#) details.
- Extended lead times may apply. Consult factory for availability.
- See page 2 for CROSS SECTIONS. Not available with corner configurations.
- L8 and L12 only. Not available with fixtures less than 4'.
- See page 3 for FIXTURE DETAILS.
- Available with F shielding only. Creates uneven lens illumination. See page 2 for CROSS SECTIONS.
- (L4) lumen package minimum. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- Reduces portion of lit fixture, consult factory. See page 3 for SENSOR & NODE PLACEMENT DETAILS. See page 4 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS.
- DA driver only.
- DA driver only.
- DA and DSR Drivers only.
- DA and DSR Drivers only.
- Avi-on and Lutron Athena Controls only.
- Lutron Vive and Athena Controls only.
- Not available with EM batteries, control sensors, DA, or DSR Drivers.



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MX4S LED 4" Continuous – Surface

FIXTURE PERFORMANCE DATA

	PER FOOT		
	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L8	824	7.3	113
L12	1175	10.8	109
L15	1439	13.5	107

- Photometrics tested in accordance with IESNA LM-79. Results based on F shielding, 80 CRI/3500K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier tables to calculate additional options.

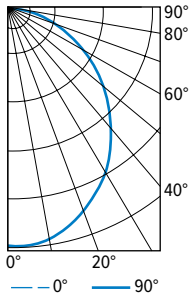
MULTIPLIER TABLES

	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.97
	3000K	0.99
	3500K	1.00
	4000K	1.03
	5000K	1.06
90 CRI	2700K	0.82
	3000K	0.83
	3500K	0.84
	4000K	0.86
	5000K	0.90

ASY OPTION	
WATTAGE	EFFICACY (lm/W)
1.03	0.97

PHOTOMETRY

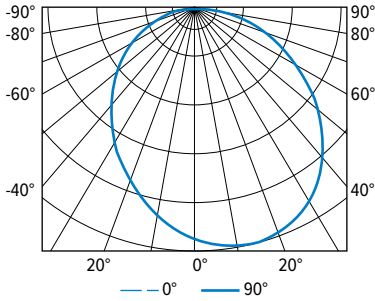
MX4S-4'00-L8/835-F-DIM Total Luminaire Output: 3296 lumens; 29.2 Watts | Efficacy: 113 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
	0°	45°	90°	
0	894	894	894	
5	913	887	878	123
15	882	846	832	348
25	789	764	746	512
35	684	651	639	597
45	555	530	510	597
55	415	395	371	513
65	270	254	243	368
75	127	122	121	192
85	20	25	23	45
90	0	0	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	983	30
0 - 40	1580	48	
0 - 60	2690	82	
0 - 90	3296	100	
0 - 180	3296	100	

MX4S-4'00-L8/835-F-ASY Total Luminaire Output: 3197 lumens; 29.2 Watts | Efficacy: 109 lm/W | 80 CRI; 3500K CCT

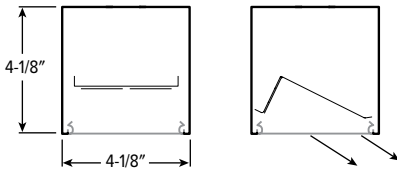


VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1153	1153	1153	1153	1153	
5	1149	1175	1188	1175	1149	109
15	1101	1185	1221	1185	1101	311
25	1011	1135	1187	1135	1011	468
35	881	1024	1083	1024	881	556
45	726	868	922	868	726	566
55	560	684	730	684	560	507
65	384	481	516	481	384	387
75	203	275	300	275	203	227
85	50	86	100	86	50	67
90	2	13	19	13	2	

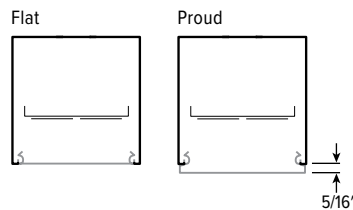
LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	887	28
0 - 40	1443	45	
0 - 60	2516	79	
0 - 90	3197	100	
0 - 180	3197	100	

CROSS SECTIONS

ASY OPTION DETAILS



SHIELDING DETAILS



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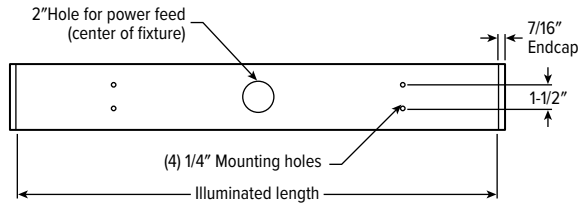
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MX4S LED 4" Continuous – Surface

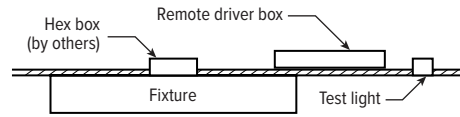
FIXTURE DETAILS

BACK VIEW



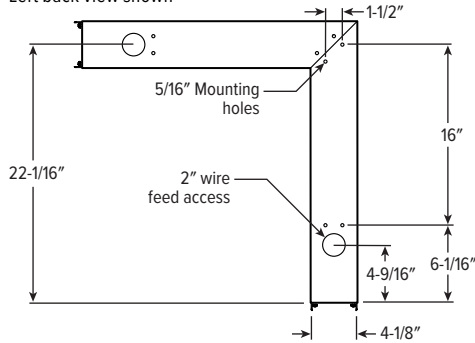
REMOTE MOUNT BATTERY

Max remote distance 50'.



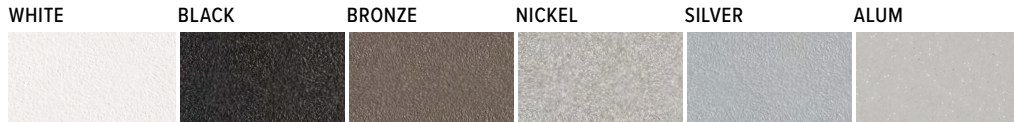
CORNER DETAILS

Left back view shown



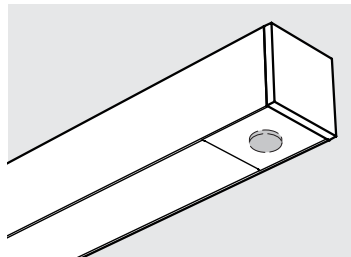
Note: Corner orientation determined in field. Feeder corner end cap shipped separately.

FINISH OPTIONS



For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.

SENSOR & NODE PLACEMENT DETAILS



SEE NEXT PAGE FOR CONTROL DETAILS



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MX4S LED 4" Continuous – Surface

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App

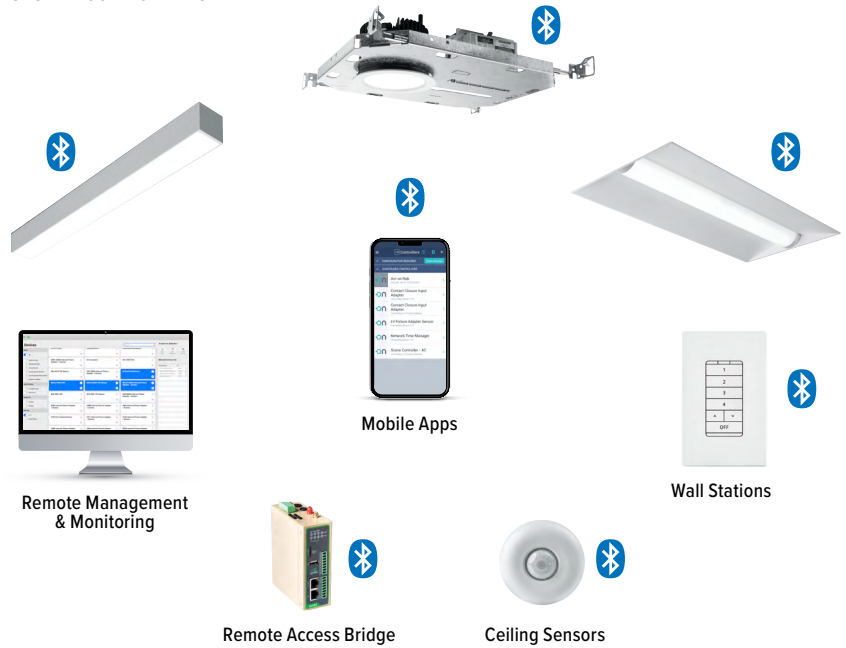


Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Avi-on is under license. Other trademarks and trade names are those of their respective owners.

ACCESSORIES

WALL STATIONS	
AVI-2401AC	Scene controller - numbered 1-4, 120-277VAC
AVI-2402BAT	Scene controller - numbered 1-4, battery powered
AVI-2401AC-2	Dimmer with presets - percentages, 120-277VAC
AVI-2402BAT-2	Dimmer with presets - percentages, battery powered
AVI-2401AC-3	On/off/dimming, 120-277VAC
AVI-2402BAT-3	On/off/dimming, battery powered

NETWORK	
AVI-RAB-LTE	Remote access bridge
AVI-KIT-NTM	Network time manager with battery backup
CEILING MOUNT SENSORS	
AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

For load controllers and additional accessory info, see hew.com/avi-on

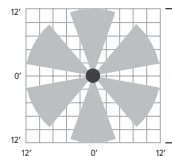
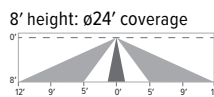
AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor. DA Driver only.

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 10'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 50°C
RELATIVE HUMIDITY	10 to 80% non-condensing
IP RATING	IP20
MANUFACTURER	Avi-On



SENSOR COVERAGE PATTERNS

Side View



SENSOR DETAIL



Dimensions: 13/16" x 2-1/4"



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MX4S LED 4" Continuous – Surface

ADDITIONAL CONTROL OPTIONS

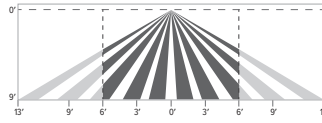
AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing. DA and DSR Drivers only.

SPECIFICATIONS	
TYPE	Radio Frequency
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	Clear Connect gateway – Type X with app (iOS or Android)
MANUFACTURER	Lutron



SENSOR COVERAGE PATTERNS

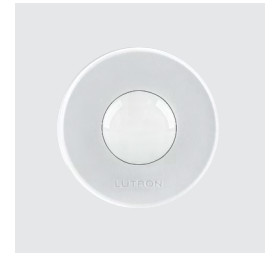
9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: ø1-1/8"

ATHENA CONTROL OPTIONS

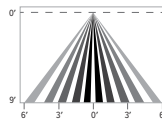
CATALOG NUMBER	DESCRIPTION
AWNDR	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power
AWNDR-BL	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish
AWNS-BL	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish

VDO Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC). DSR or LDE Drivers only. LDE drivers require driver interface

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS

9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: 2-11/16" x 1"

VIVE CONTROL OPTIONS

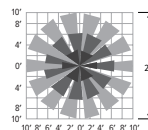
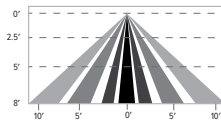
CATALOG NUMBER	DESCRIPTION
VRF	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF), for use with sensor-ready driver
VDO	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC), for use with sensor-ready driver
VRF/DBI	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver
VDO/DBI	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver

OCCWS-FS-305-L6-PP-120/277 Wattstopper PIR motion and daylight hold off sensor with power pack, 120/277V

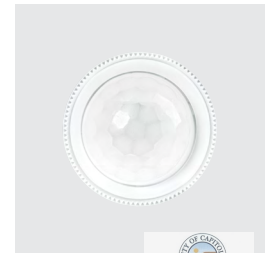
SPECIFICATIONS	
TYPE	PIR Motion + Daylight Hold Off
MOUNTING HEIGHT	8'
LENS	Indoor, non-wet location use
DETECTION ANGLE	360°
TEMPERATURE RANGE	-40° to 55°C
RELATIVE HUMIDITY	5% to 95%, non-condensing
COMMISSIONING	Dials under lens

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"



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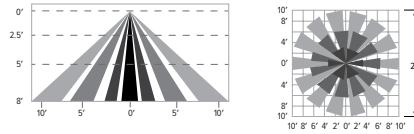
MX4S LED 4" Continuous – Surface

OCCWS-LMFS-601-PP-120/277 Wattstopper PIR motion and daylight sensor with power pack, 120/277V

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
LENS	Up to 300 sq/ft coverage
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 50°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"

ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder.

CATALOG NUMBER	DESCRIPTION
DRV	Driver prewired for non-dimming applications
DIM	Dimming driver prewired for 0-10V low voltage applications
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DA	Driver with 12V auxiliary power
DSR	Sensor-ready driver (D4i DALI-2)
SD40	40% step-dimming driver
SD50	50% step-dimming driver
DALI	DALI dimming driver
LDE1	Lutron Hi-lume 1% EcoSystem dimming LED driver



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6DR LED 6" Downlight – Round

FEATURES

TrimLock®

- Innovative TrimLock reflector retention system ensures trim remains flush with ceiling plane
- Wide range of lumen options for general illumination
- Beam angles ranging from 10° narrow to 65° wide for tailored performance
- Industry-leading efficacies as high as 116 lm/W
- New construction mounting pan, IC-rated, or pan-less remodel kit available
- Fully room-side accessible
- Die-cast trim includes flush, regressed or angled lens
- Sloped adapter accommodates vaulted ceilings
- Optional non-conductive lens for shower applications
- IP65-rated die-cast trim includes easy-to-clean flush lens
- Open reflector with nine finishes complements any interior style
- Available on QuickShip
- Wireless in-fixture control solutions available

SPECIFICATIONS

- HOUSING** – Die-cast aluminum trim housing with forged aluminum heat sink. Galvanized steel splice compartment with driver mounting plate/enclosure. Swing-out mounting arms field adjust for ceiling thickness from 1/2" – 2-1/4".
- TRIMLOCK** – Innovative TrimLock reflector retention system ensures the trim remains flush with the ceiling plane.
- OPEN REFLECTOR** – Low-iridescent anodized aluminum. Clear semi-specular finish standard.
- LENSED TRIM** – Die-cast aluminum frame with micro-prismatic, acrylic lens.
- ELECTRICAL** – High-performance Class 2 C.O.B. LED array. Modular quick-connect plug for easy field-connection of LED light assembly to driver. Reported L70>55,000 hours. Reported L90>55,000 hours. Estimated L70 = 200,000 hours.
- MOUNTING** – Recessed. 20 ga. galvanized steel mounting pan for new construction or IC-rated enclosure. Remodel kit option includes receiver bracket hardware. Minimum 24" O.C. marked spacing required for L60 - L80 lumen packages.
- LISTINGS** –
 - cCSAus conforms to UL STD 1598; Certified to CAN/CSA STD C22.2 No. 250.0 for dry and damp locations. LED light assembly conforms to UL 2108 for remote installation.
 - Suitable for wet location under covered ceiling when specified with WET/CC or TD options.
 - ENERGY STAR® certified in select configurations, see www.energystar.gov
 - IC-rated for direct contact with insulation when specified with I Mounting Type.
 - City of Chicago Environmental Air approved when specified with CP option.
 - Complies with ASTM-E283 when specified with ATH option.
 - RoHS compliant.
 - Title 24 (JAB) compliant in select configurations, see www.cacertappliances.energy.ca.gov.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY** – 5-year limited warranty, see hew.com/warranty.

FIXTURE PERFORMANCE DATA

OPEN REFLECTOR TRIM TYPE

	DIST.	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L10	W	1014	8.7	117
	M	982	8.7	113
	N	1003	8.7	115
L15	W	1497	13.8	109
	M	1495	13.8	108
	N	1528	13.8	111
L20	W	1988	19.0	105
	M	1983	19.1	104
	N	2026	19.1	106
L30	W	3062	26.9	114
	M	3003	26.9	112
	N	3000	26.9	112
L40	W	4094	36.5	112
	M	4016	36.4	110
	N	4011	36.4	110
L50	W	5014	43.9	114
	M	4935	43.9	112
	N	5047	43.9	115
L60	W	6043	54.0	112
	M	5948	54.0	110
	N	6083	54.0	113
L70	W	7008	67.8	103
	M	6898	67.8	102
	N	7055	67.8	104
L80	W	8018	79.8	101
	M	7891	79.8	99
	N	8071	79.8	101

FLUSH LENS TRIM TYPE

	DIST.	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L10	W	774	8.7	89
	M	910	8.7	105
	N	909	8.7	105
L15	W	1178	13.8	85
	M	1385	13.8	100
	N	1384	13.8	100
L20	W	1562	19.5	80
	M	1837	19.1	96
	N	1836	19.5	94
L30	W	2335	26.9	87
	M	2782	26.9	103
	N	2718	26.9	101
L40	W	3122	36.5	86
	M	3720	36.4	102
	N	3635	36.4	100
L50	W	3824	43.9	87
	M	-	-	-
	N	-	-	-
L60	W	4609	54.0	85
	M	-	-	-
	N	-	-	-
L70	W	5345	67.8	79
	M	-	-	-
	N	-	-	-
L80	W	6115	79.8	77
	M	-	-	-
	N	-	-	-

REGRESSED LENS TRIM TYPE

	DIST.	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L10	W	716	8.7	82
	M	883	8.7	102
	N	897	8.7	103
L15	W	1090	13.8	79
	M	1344	13.8	97
	N	1366	13.8	99
L20	W	1445	19.5	74
	M	1782	19.1	93
	N	1812	19.5	93
L30	W	2160	26.9	80
	M	2699	26.9	100
	N	2683	26.9	100
L40	W	2889	36.5	79
	M	3609	36.4	99
	N	3587	36.4	99
L50	W	3537	43.9	81
	M	-	-	-
	N	-	-	-
L60	W	4264	54.0	79
	M	-	-	-
	N	-	-	-
L70	W	4945	67.8	73
	M	-	-	-
	N	-	-	-
L80	W	5657	79.8	71
	M	-	-	-
	N	-	-	-

MULTIPLIER TABLES

	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.92
	3000K	0.98
	3500K	1.00
	4000K	1.01
	5000K	1.02

90 CRI	2700K	0.76
	3000K	0.79
	3500K	0.82
	4000K	0.84
	5000K	0.88

	REFLECTOR FINISH	
	CATALOG NUMBER	CONVERSION FACTOR
O TRIM	CS	1.00
	SG ¹	0.92
	GD	0.93
	CG	0.96
	PW	0.86
	SPC	1.02
	RG	0.88
	WH ¹	0.89
	BL ¹	0.47

R TRIM	WH	1.00
	CS	0.98
	BL	0.79

	TRIM	
	CATALOG NUMBER	CONVERSION FACTOR
S	0.85	
AD	0.85	
PD	0.85	
TD	0.75	
WET/CC ²	0.85	

- Distribution will also be affected, consult factory.
- Use multiplier when specified with O Trim Type.
 - Photometrics tested in accordance with IESNA LM-79. Results based on O trim type, W distribution, CS finish, 80 CRI/3500K CCT, wattage for 120V input, and 25°C ambient temperature. Actual performance may vary +/-5%.
 - To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
 - Use multiplier tables to calculate additional options.



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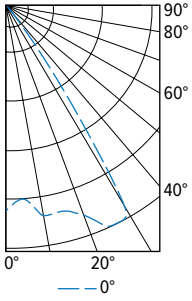
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6DR LED 6" Downlight – Round

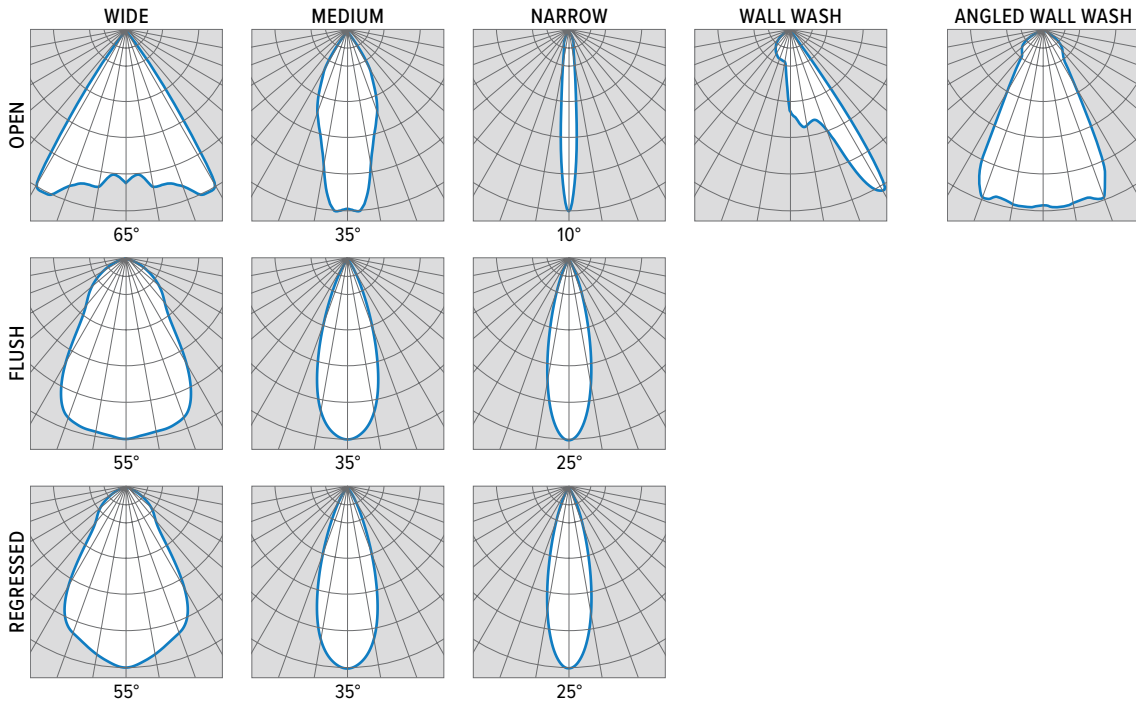
PHOTOMETRY

6DR-TL-L20/835-DIM-UNV-OW-OF-CS Report #: 20687; 12/12/18 | Total Luminaire Output: 1988 lumens; 19.0 Watts | Efficacy: 104.6 lm/W | 80 CRI; 3500K CCT

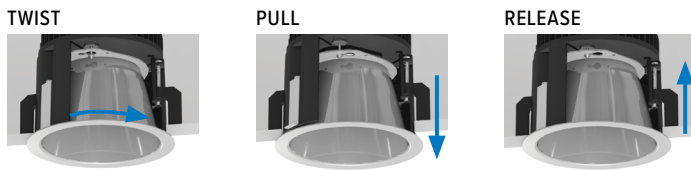


CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE	ZONAL LUMENS
		0°	
	0	1672	
	5	1579	151
	15	1735	492
	25	1982	917
	35	604	380
	45	46	36
	55	13	12
	65	2	2
	75	0	0
	85	0	0
	90	0	0

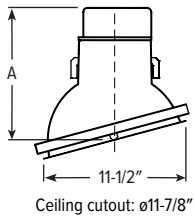
LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 40	1939	98
	0 - 60	1987	100
	0 - 90	1988	100
	0 - 180	1988	100



TRIMLOCK DETAILS



SLOPED CEILING ADAPTOR DETAILS



LUMENS	A (HEIGHT)						PLENUM HEIGHT
	5°	10°	15°	20°	25°	30°	
L10 - L40	10-11/16"	10-7/8"	10-15/16"	10-7/8"	10-13/16"	10-5/8"	11-1/4"
L50 - L80	11-7/16"	11-9/16"	11-5/8"	11-5/8"	11-1/2"	11-1/4"	12"

15° Shown

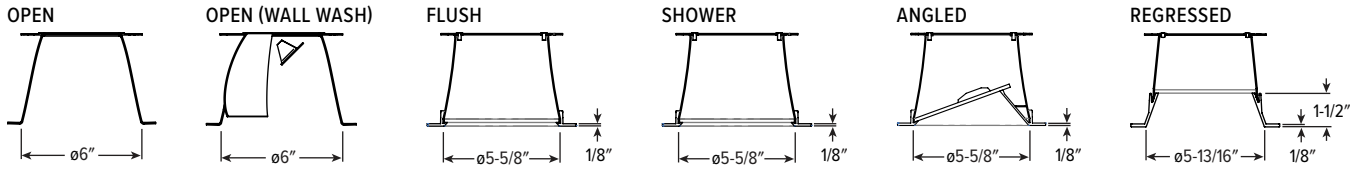


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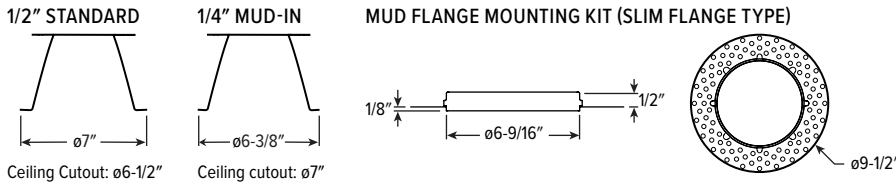
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6DR LED 6" Downlight – Round

TRIM TYPE DETAILS



FLANGE TYPE DETAILS



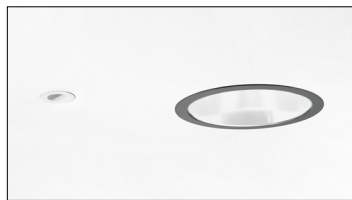
EMERGENCY BATTERY OPTIONS

Additional limitations apply, see page 1. Specify CEC in the option code when California Energy Commission regulations are required.

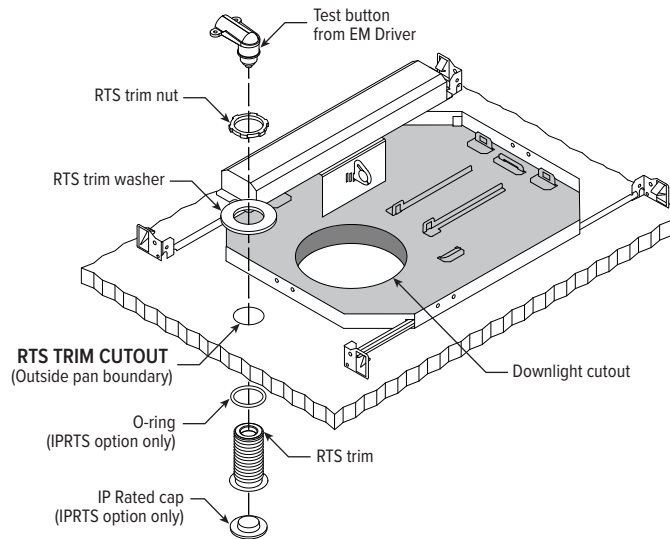
CATALOG NUMBER	DESCRIPTION
EM/7W	7-watt emergency battery ^[1]
EM/7W/RTS	7-watt emergency battery with regressed test switch ^[2]
EM/7W/IPRTS	7-watt emergency battery with IP65 rated regressed test switch
EM/10W	10-watt emergency battery ^[1]
EM/10W/RTS	10-watt emergency battery with regressed test switch ^[2]
EM/10W/IPRTS	10-watt emergency battery with IP65 rated regressed test switch

- 1 Not available with S Trim Type or IP Option.
- 2 Not available with S Trim Type, IP or WET/CC Options.

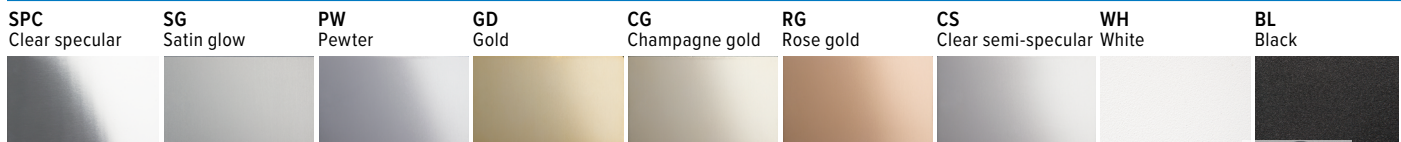
REGRESSED TEST SWITCH DETAILS



Shown Installed



REFLECTOR FINISH DETAILS



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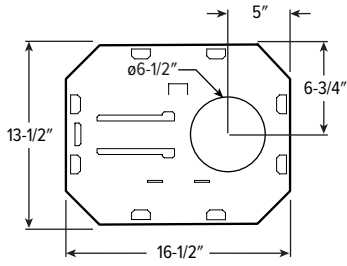
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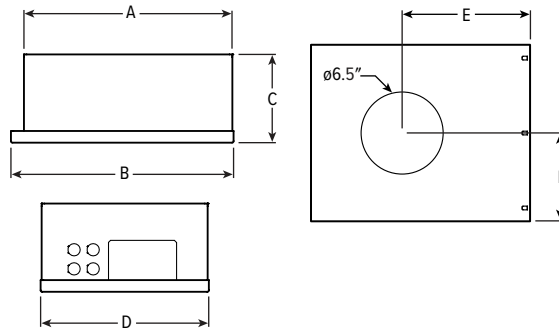
6DR LED 6" Downlight – Round

MOUNTING TYPE DETAILS

NEW CONSTRUCTION

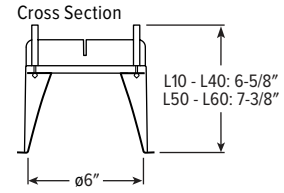


IC-RATED

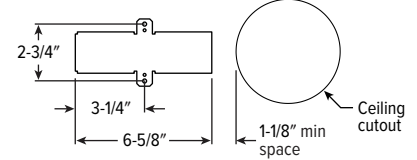


LUMENS	LENGTH					
	A	B	C	D	E	F
L10 - L20	15-3/16"	16"	6-3/8"	12-1/8"	9-1/2"	6-1/16"
L30	16-5/8"	17-1/2"	7-7/8"	14"	10-1/4"	7"

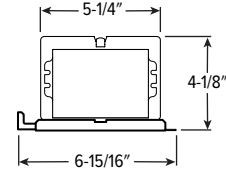
REMODEL



Receiver Bracket



Driver and Junction Box



APERTURE ADAPTOR ORDERING INFO

ORDERING EXAMPLE: 4DR - GR - 0575 - WHT			
SERIES	CATALOG NUMBER	CEILING CUTOUT	FINISH
4AR 6AR	GR	Specify ceiling cutout in 1/8" increments. Example: 5.75" = 0575	CS Clear semi-specular powder coat
4DR 6DR			WH White texture powder coat
4DS 6DS			BL Black texture powder coat
4PR 6PR			
4PS 6PS			
8DR			
		See Kit Components for application limits.	

For use with remodel downlights. Additional finishes available, consult factory.
For limitations and instructions, see hew.com/aperture-adaptor.pdf



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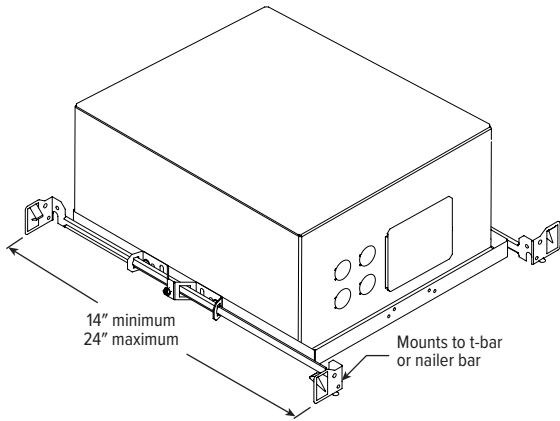
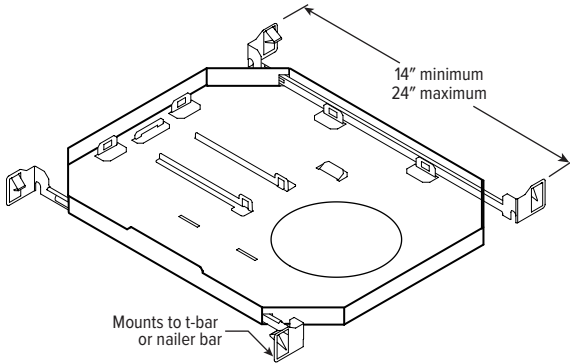
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6DR LED 6" Downlight – Round

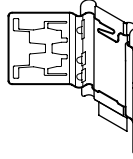
MOUNTING HARDWARE DETAILS

F1 Integral 2-position fixed pan bracket, universal bar hanger included

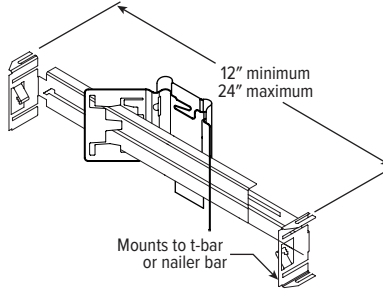


F1 with I Mounting Type

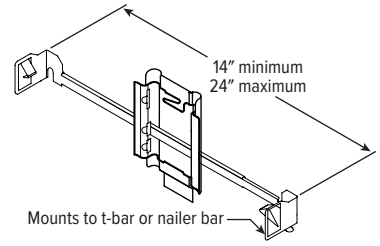
BA1 Adjustable butterfly pan bracket, bar hanger not included (N Mounting Type only)



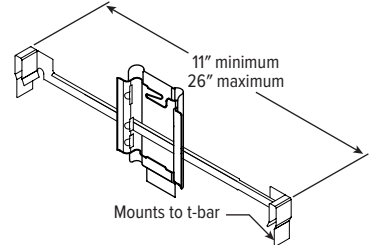
BA2 Adjustable butterfly pan bracket, heavy-duty universal bar hanger included (N Mounting Type only)



CA1 Adjustable caterpillar pan bracket, universal bar hanger included (N Mounting Type only)



CA2 Adjustable caterpillar pan bracket, t-bar hanger included (N Mounting Type only)



SEE NEXT PAGE FOR CONTROL DETAILS.



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6DR LED 6" Downlight – Round

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App

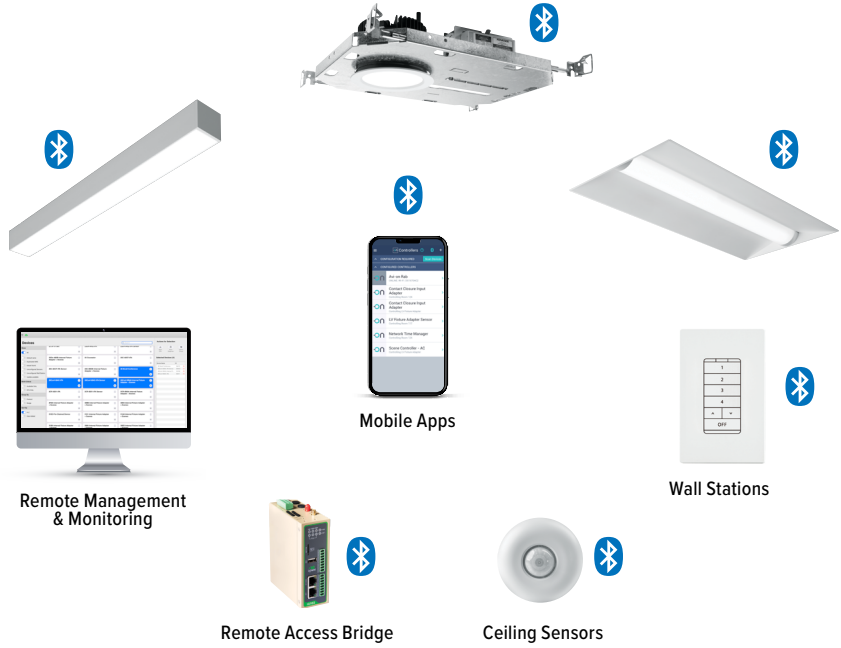


Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



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ACCESSORIES

WALL STATIONS	
AVI-2401AC	Scene controller - numbered 1-4, 120-277VAC
AVI-2402BAT	Scene controller - numbered 1-4, battery powered
AVI-2401AC-2	Dimmer with presets - percentages, 120-277VAC
AVI-2402BAT-2	Dimmer with presets - percentages, battery powered
AVI-2401AC-3	On/off/dimming, 120-277VAC
AVI-2402BAT-3	On/off/dimming, battery powered

NETWORK	
AVI-RAB-LTE	Remote access bridge
AVI-KIT-NTM	Network time manager with battery backup
CEILING MOUNT SENSORS	
AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

For load controllers and additional accessory info, see hew.com/avi-on

ADDITIONAL CONTROL/DRIVER OPTIONS

Lumen restrictions apply: L40 max for DMX driver, L40 max for Lutron drivers, L15 min to L60 max for DIM LINE driver. R mounting type requires top access with DMX controls. R Mounting Type requires 12" minimum plenum depth when specified with VRF/DBI controls. 347V may require stepdown transformer, see product builder at hew.com/product-builder. I Mounting Type not available with Lutron controls.

CATALOG NUMBER	DESCRIPTION
AVI-LVFA/DA	Avi-on wireless fixture control for use with driver with 12V auxiliary power
AWNDR/DA	Lutron Athena wireless node integral fixture control, RF only, for use with driver with 12V auxiliary power
VRF/DBI/LDE1	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF) and digital link interface, with Lutron Hi-lume 1% EcoSystem dimming LED driver
FCJS/DIM	Lutron Vive PowPak wireless fixture control with dimming driver
FCJS/DIM1	Lutron Vive PowPak wireless fixture control with 1% dimming driver
DIM	Dimming driver prewired for 0-10V low voltage applications
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible at 120V only)
DALI	DALI dimming driver
DMX	0.1% dimming driver for DMX controls
LDE1	Lutron Hi-lume 1% EcoSystem dimming LED driver



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ENVIROSEAL™

Food Processing Luminaires

FES SERIES

PRODUCT FEATURES:

- » Ceiling or wall mount – 12"×24", 12"×36", 12"×48", 12"×72", 12"×96"
- » One-piece 20-gauge housing with UV-stabilized polycarbonate lens
- » IP65 option available
- » For Hazardous applications please refer to the HES series



PROJECT INFORMATION

Job Name _____

Fixture Type _____

Catalog Number _____

Approved by _____

SPECIFICATIONS:

HOUSING: One-piece, seam-welded 20-gauge CRS. Base provided with two-point mounting holes and one wireway hole. Lens is positioned in baseplate channels and retained with stainless steel fastener(s). Base mounts flush to ceiling or wall surface.

LENS/GASKET: UV-stabilized, pearlescent or clear polycarbonate. Smooth exterior, linear prismatic interior. Nominal thickness .125". Linear silicone gasket to seal doorframe to housing.

FINISH: Brushed stainless steel finish (#4B) or white TGIC polyester powder coat – 5-stage pre-treatment; Salt spray test: 1,000 hours; Reflectance: 92%.

SOCKETS: Shock-resistant sockets with internal locking collar to ensure positive lamp retention.

HARDWARE: Two Type 302 stainless steel Phillips head fasteners secure lens in housing channel.

ELECTRICAL: LED: Available 3000K, 3500K, 4000K and 5000K color temperatures, 82 CRI. 120-277VAC or 347VAC, 50/60Hz electrical input with serviceable high power factor electronic, constant-current driver (<20% THD, >0.95 PF). Standard 0-10V dimming with 1-100% range and dim-to-dark capabilities (non dim-to-dark with 347V); max source current 330µA. LE: Class P ballast. Fluorescent electronic 120/277 or 347 voltage ballasts, high power factor. Optional one-lamp 90 minute nickel-cadmium battery pack (EL) includes inverter charger, test switch and charging indicator lamp.

SENSOR & CONTROLS: Optional sensor available with compatible third party controls. To see the full list of compatible controls, [click here](#).

PHOTOMETRICS: Photometry tested to the IESNA LM-79-08 standard by an ILAC/ISO17025 accredited laboratory. For additional photometric data, please go to [www.kenall.com](#).

WARRANTY: Limited five (5) year LED warranty. [Peace of Mind Guarantee against breakage](#).

LISTINGS: UL and CUL listed for Wet Location – ceiling mount covered ceiling. UL and CUL listed for Damp Location – horizontal wall mount. Optional UL certified IP65 in compliance with IEC 60598 (IP65 Option) – ceiling mount. NSF2 Splash/Non-Food Zone. Rated for use in FED-STD 209E/Class 1 (ISO 3) Cleanrooms.



ORDERING INFORMATION (Ex: FES12-48-45L50K-DCC-1-DV-2H-PP-FS)

Model	Length	Lamp Qty/Type	Ballast/Driver Type	Ballast/Driver Qty	Voltage	Housing	Lens Type	Options
-------	--------	---------------	---------------------	--------------------	---------	---------	-----------	---------

FES12		Lamp Qty/Type Continued		8' Lengths (Lamp Qty per 4' Cross Section)		Housing Options	
Nominal Length		4' Lengths		1-45L30K	45 Watt 3000K LED	2H	20-Ga CRS; Painted
24	2'	1-45L30K	45 Watt 3000K LED	1-45L35K	45 Watt 3500K LED	P5H	20-Ga 304SS; Painted
36	3'	1-45L35K	45 Watt 3500K LED	1-45L40K	45 Watt 4000K LED	5H	20-Ga 304SS; Brushed
48	4'	1-45L40K	45 Watt 4000K LED	1-45L50K	45 Watt 5000K LED	PXH	20-Ga 316SS; Painted
72	6'	1-45L50K	45 Watt 5000K LED	1-67L30K	67 Watt 3000K LED	XH	20-Ga 316SS; Brushed
96	8'	1-67L30K	67 Watt 3000K LED	1-67L35K	67 Watt 3500K LED		
		1-67L35K	67 Watt 3500K LED	1-67L40K	67 Watt 4000K LED	Lens Type	
Lamp Qty/Type		1-67L40K	67 Watt 4000K LED	1-67L50K	67 Watt 5000K LED	PP	Pearlescent Polycarbonate
2' Lengths		1-90L30K	90 Watt 3000K LED	1-90L35K	90 Watt 3500K LED	CP*	Clear Polycarbonate
2-14	F14T5	1-90L40K	90 Watt 4000K LED	1-90L40K	90 Watt 4000K LED	Options	
3-14	F14T5	1-90L50K	90 Watt 5000K LED	1-90L50K	90 Watt 5000K LED	LEL	LED Emergency Battery Backup (45L lamp type only; n/a with 347V)
4-14	F14T5	2-28	F28T5	2-28	F28T5	EL* ‡	Standard Lumen EL Pack (450 lumens) (n/a LED)
2-24	F24T5HO	3-28	F28T5	3-28	F28T5	PEL* ‡	High Lumen EL Pack (1100 lumens) (n/a LED)
3-24	F24T5HO	4-28	F28T5	4-28	F28T5	SEL* ‡	Specified EL Pack (n/a LED)
4-24	F24T5HO	2-32	F32T8	2-32	F32T8	FS	Single Fuse & Holder (n/a with 347V)
2-17	F17T8	3-32	F32T8	3-32	F32T8	HC^	Row Mount Hub Connector(see KO option)
3-17	F17T8	4-32	F32T8	4-32	F32T8	KO^	Continuous Row Mount – .875" diameter knockout in end caps (see HC option for Kenall supplied attachment connector)
4-17	F17T8	2-54	F54T5HO	2-54	F54T5HO	PM^▲	Pendant Mount (damp locations only) – suspension hardware by others
		3-54	F54T5HO	3-54	F54T5HO	IP65**●	UL certified IP65 Listing (Ceiling Mount)
3' Lengths		4-54	F54T5HO	4-54	F54T5HO	TR	Tamper Resistant Torx with center pin fastener
2-21	F21T5	6' Lengths		Ballast/Driver Type			
3-21	F21T5	2-72	F72T8HO (2)	DCC	Dimming Constant Current (LED)		
4-21	F21T5			IS	Elec <10% THD Instant Start (T8)		
2-25	F25T8			RS	Elec <10% THD Rapid Start (T5, T5HO, T8, T8HO, Biax)		
3-25	F25T8			SB	Specified Ballast		
4-25	F25T8						
2-39	F39T5HO			Ballast/Driver Quantity			
3-39	F39T5HO			1	One		
4-39	F39T5HO			2	Two		

Voltage	
DV	120-277 Volts
347	347 Volt



www.kenall.com | P: 800-4-Kenall | F: 262-891-9701 | 10200 55th Street Kenosha, Wisconsin 53144, USA

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Food Processing Luminaires

For additional photometry, go to www.kenall.com

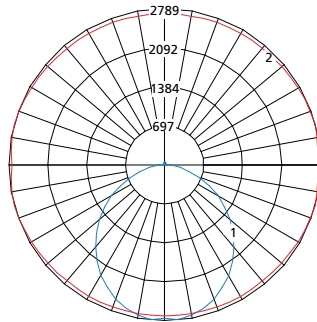
FES SERIES

PERFORMANCE

Lamp Type	Initial Delivered Lumens		Input Power (W)	Drive Current (mA)	Estd. L70 LED Life (hrs)
	@ 25°C (lm)	Efficacy (lm/W)			
45L30K	4,751	97	49	100	80,000
45L35K	4,898	100			
45L40K	5,065	103			
45L50K	5,198	106			
67L30K	7,360	101	73	75	80,000
67L35K	7,587	104			
67L40K	7,846	107			
67L50K	8,053	110			
90L30K	9,436	96	98	100	60,000
90L35K	9,728	99			
90L40K	10,060	103			
90L50K	10,325	105			

Displayed information above is for PP lens type. Info subject to change. Visit www.kenall.com for IES files and additional information.

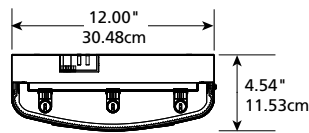
Model: ES12-48-67L40K-DCC-DV-2H-PP



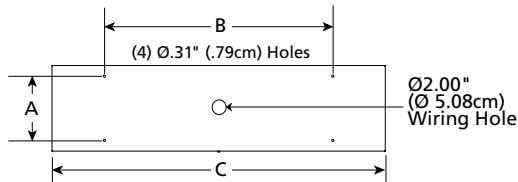
Max Candela = 2789 Located At Horizontal Angle = 15, Vertical Angle = 5
 1 - Vertical Plane Through Horizontal Angles (15 - 195) (Through Max. Cd.)
 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

DIMENSIONAL DATA

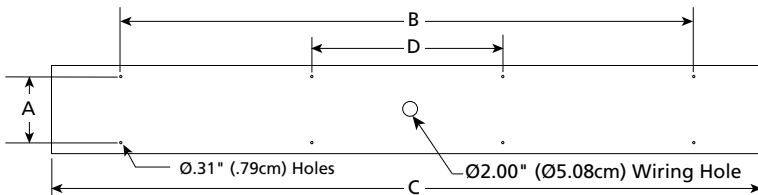
CROSS SECTION



BASEPLATE



96" BASEPLATE



DIMENSIONAL DATA (IN INCHES)

	A	B	C	D
FES1224 – T5	9.00	16.00	23.25	
FES1224 – T8	9.00	16.00	24.75	
FES1236 – T5	9.00	20.00	35.00	
FES1236 – T8	9.00	20.00	36.75	
FES1248 – T5	9.00	32.00	46.75	
FES1248 – T8	9.00	32.00	48.75	
FES1248 – LED	9.00	32.00	48.75	
FES1272 – T8	9.00	56.00	72.75	
FES1248 – T5	9.00	32.00	46.75	
FES1248 – T8	9.00	32.00	48.75	
FES1296 – T5	9.00	78.00	92.87	26.00
FES1296 – T8	9.00	78.00	96.87	26.00
FES1296 – LED	9.00	78.00	96.87	26.00



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FES12-072722

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

LE Series

RECESSED MOUNTING EDGE-LIT LED EXIT SIGN

FEATURES

- Easy to install
- Extruded aluminum construction
- Available in six color finishes: white, black, satin aluminum, satin brass, chrome, and dark bronze
- Long-life LED lamps
- Molded acrylic plaque
- Clear acrylic plaque standard
- Ceiling, wall or end mounted models for recessed installations
- Red or green letter models
- Universal rough-in box
- 120/277 VAC, 60 Hz. operation
- AC On Indicator Light



Ceiling Mount

RELATED PRODUCTS

- [LES](#)
- [Replacement battery - 0120894](#)



SPECIFICATIONS

APPLICATION

- The LE Series provides bright, even letter illumination in an energy-saving LED edge-lit exit sign configuration
- AC or Emergency operation with optional Spectron® self-test/self-diagnostic circuitry.
- Special Wording ("SW") option allows customizing the stencil field to convey important information

CONSTRUCTION

- Water-clear injection-molded acrylic EXIT plaque is available with clear, white or mirror backgrounds
- High strength extruded aluminum trim available in six finishes
- Exit face design in single or double face with red or green letters. Custom printed directional chevron arrows
- Standard EXIT stencil with 6" letters and 3/4" stroke. Rough-in kit: galvanized steel, .036 (20 Ga.) housing, .060 (16 Ga.) mounting bars

INSTALLATION

- Universal rough-in box accommodates recessed installation of all models in wall, ceiling or end-mount applications
- All mounting hardware is fully concealed

ILLUMINATION

- Exit face illumination is provided by energy saving, long life red or green LEDs
- Exceeds UL 924 requirements for brightness and uniformity
- 10 year LED life

COMPLIANCES

- UL 924 Listed
- NFPA 70
- NFPA 101
- CEC T20 Compliant

WARRANTY

- 5 year warranty
- See [HLI Standard Warranty](#) for additional information

KEY DATA	
Power Factor, Average	0.95 (lagging)
Wattage Range	2.2-5.0
Battery Type	Sealed Nickel Cadmium
Reported Life (Hours)	60,000
Input Current Range	120/277 VAC, 60 Hz

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____

LE Series

RECESSED MOUNTING EDGE-LIT LED EXIT SIGN

ORDERING GUIDE

Example: LEWDRRNE

CATALOG #

LE									
Model	Mounting	Faces	Letter Color	Directional Arrows	Finish	Operation	Self-Diagnostic	Options	
LE	Edge-lit Exit	C Ceiling Mount W Wall Mount E End Mount	S Single D Double* <small>* Not for use with wall mounted models</small>	R Red G Green	X No Arrows EXIT R Right Arrow* EXIT> L Left Arrow* <EXIT D Double Arrows <EXIT> C L/R Arrows** <Exit/Exit> <small>* Not for use with double face models. Use "C" L/R arrow designator ** Double face models only. Provides reversible right or left arrow indicator</small>	N Satin Aluminum W White C Chrome B Black S Satin Brass Z Dark Bronze	A AC Only E Emergency	Blank None I Spectron® self-testing/self-diagnostic electronics ¹	SW See available special wording choices on page 3 ^{9,10} 2C 2 Circuit Operation ^{2,5} 24K 220-240VAC, 60Hz. operation ⁸ XK Recessed mount exit sign less rough-in-kit ^{6,8} W White plaque background M Mirror-plaque background ⁷

Accessories (Order Separately)

- URK** Universal Rough-in Kit
- URK2C** Universal 2-circuit rough-in kit^{12,3}

- 1 For use with AC models only.
- 2 Rough-in kit may not be ordered separately on models specified with -24K option
- 3 Must be ordered in conjunction with -2C option on exit sign

To order Rough-in kit only for field installation, add "XK" option suffix to exit model number and order "URK" or "URK2C" kit separately.

Notes:

- 1 For use with emergency models only
- 2 For use with AC models only
- 4 For emergency illumination of sign from remote 6-24VDC power sources.
- 6 Allows ordering of rough-in kit separately for recessed mount (LE) models. See "Accessories"
- 7 For use with single face models only. Standard on double face models.
- 8 Rough-in kit may not be ordered separately on models specified with -24K option.
- 9 Specify special wording code from page 3 when ordering. Example: SW41
- 10 Some special wording signs not available with directional arrows

ELECTRONICS

Available with AC, emergency and Spectron® self-test/self-diagnostic electronics option. Emergency and self-diagnostic models equipped with isolation transformer and fully automatic constant current solid state charger with sealed maintenance-free nickel-cadmium battery. All emergency models with 90-minute run-time. All components mounted inside housing. Includes test switch and AC-on indicator. Transient/surge protection, low voltage disconnect and AC lock-out features included. Battery re-charge within UL time standards. Includes pre-stripped AC input pigtail leads.

POWER CONSUMPTION (120/277VAC)

Model	Single Face	Double Face
Red AC Only	2.2 watts	3.4 watts
Green AC Only	2.5 watts	4.0 watts
Red Emergency	3.3 watts	4.5 watts
Green Emergency	3.6 watts	5.0 watts

* Wattage figures include LED lamps, transformer and electronics power requirements.

Power Factor, Average: .8 (lagging)

Battery Type: Maintenance-free sealed nickel cadmium battery

AC Input: 120/277VAC, 60 Hz. (all models)

Operating Temperature Range: 20°C to 30°C (68°F to 86°F)



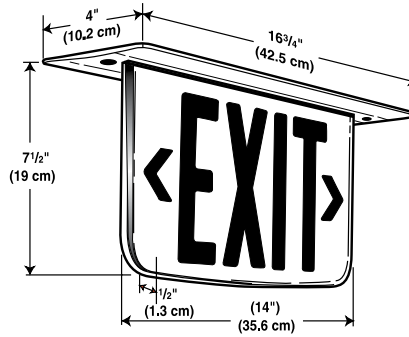
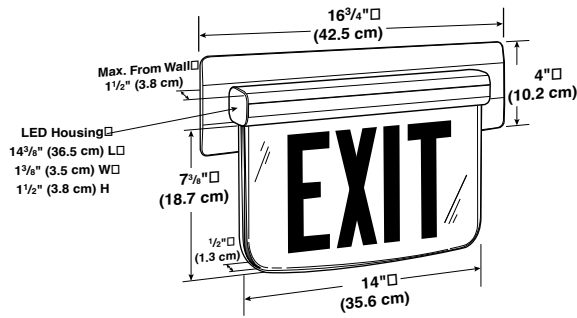
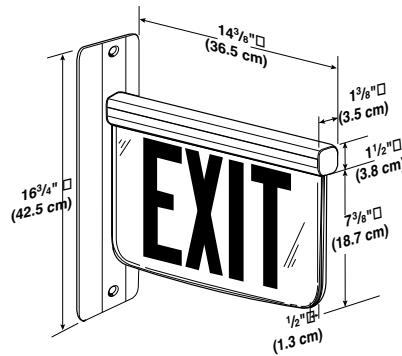
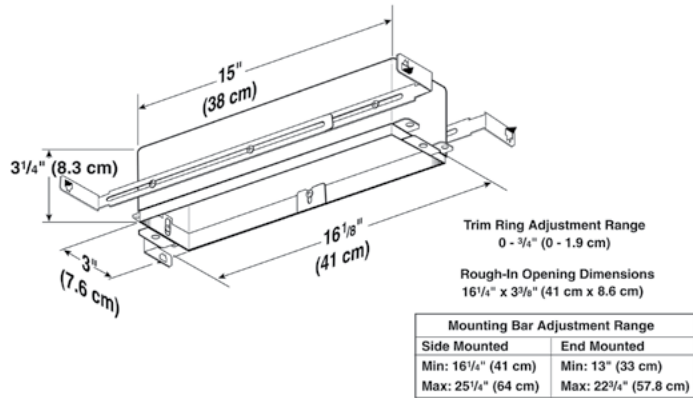
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LE Series

RECESSED MOUNTING EDGE-LIT LED EXIT SIGN

DIMENSIONS



MOUNTING OPTIONS



Ceiling Mount



End Mount



Wall Mount



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LE Series

RECESSED MOUNTING EDGE-LIT LED EXIT SIGN

SPECIAL WORDING

LE Series architectural recessed LED edge-lit exit signs feature an option for standard or custom special-wording. The images below represent standard special-worded signs available for the LE Series. The artwork and silk-screening for the standard signs shown below were previously developed therefore pricing for these special-worded signs do not incur a setup charge.

If your special-worded requirements do not appear on this page, please contact the factory to request your custom special-wording sign. Custom special wording signs incur a one time set-up charge for each development.

STANDARD SPECIAL WORDING SIGNS WITH DIRECTIONAL ARROWS



SW118



SW41 (Arabic/Exit)



SW13



SW10



SW69



SW11

STANDARD SPECIAL WORDING SIGNS WITHOUT DIRECTIONAL ARROWS



SW4



SW3



SW31



SW2

STANDARD SPECIAL WORDING SIGNS

Category	Special Wording Number	Description
EXIT	SW 2	NOT AN EXIT
	SW 142	EXIT (TEXT IS INVERTED)
	SW 144	EXIT (W/ WHEELCHAIR SYMBOL)
DO NOT ENTER	SW 3	IN USE
EVACUATION	SW 10	AREA OF REFUGE
	SW 11	AREA OF REFUGE WITH WHEELCHAIR SYMBOL
	SW 13	AREA OF RESCUE ASSISTANCE WITH WHEELCHAIR SYMBOL
	SW 48	STAIRS
	SW 117	TO AREA/OF REFUGE
	SW 149	AREA OF RESCUE
LABORATORY	SW 4	X-RAY IN USE
	SW 21	BEAM ON
	SW 28	MRI IN USE
	SW 31	LASER IN USE
	SW 62	RADIATION IN USE
	SW 57	CT IN USE
	SW 166	TESTING IN PROGRESS
RESTROOM/FACILITIES	SW 30	ROOM IN USE
	SW 118	HANDICAPPED (SYMBOL ONLY)
	SW 167	RESTROOM OCCUPIED
	SW 168	ELEVATOR
	SW 169	MEN (NO ARROWS/CHEVRONS)
INTERNATIONAL EXITS	SW 41	ARABIC/ EXIT
	SW 69	SALIDA
	SW 165	SALIDA (INVERTED TEXT)
AREA/ALERTS	SW 9	ON AIR
	SW 178	EMERGENCY CALL STATION

NOTE: Special worded signs do not meet letter size requirements of UL 924.



Special Wording Option



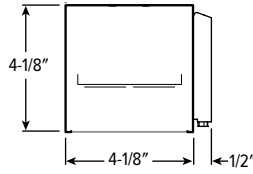
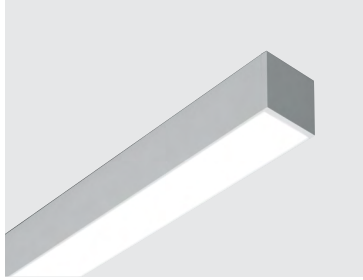
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CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Create elegant spaces with a seamless, continuous row of illumination
- Flat and proud lenses give designers a variety of looks
- Fixture attaches to wall bracket for simple installation
- High-performance up to 117 lm/W
- Linear extrusion contains snap-in light rails for ease of installation and maintenance
- Versatile MX4 system includes recessed, surface, suspended and in-wall mounting, see hew.com
- Diffuse acrylic lens provides uniform illumination for visual comfort
- Wireless in-fixture control solutions available
- Available with BIOS® SkyBlue® technology to support proper daytime circadian stimulus
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING – Extruded aluminum with die-cast end plates.
- SHIELDING – Extruded, flat, diffuse acrylic lens.
- FINISH – Textured matte white polyester TGIC powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- ELECTRICAL – High-quality mid-power LED boards. L70 >60,000 hours per IES TM-21. 25°C maximum ambient operating temperature.
- MOUNTING – Wall mount. Powder coated, die-formed C.R.S. receiving bracket mounted to fixture which attaches to galvanized, wall mounted bracket.
- LISTINGS –
 - cCSAus certified as luminaire suitable for dry or damp locations.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: MX4W - 12'00 - L8/835 - F - OPTIONS - CONTROL/DIM - UNV

SERIES	ILLUMINATED LENGTH	LUMENS ⁽¹⁾	CRI	CCT	SHIELDING
MX4W⁽²⁾	Lengths specified in feet and inches using 4" increments, 2' minimum. Example: 12'00 = 12'-0"	L8 800lm	8 80	27 2700K	F Flat, diffuse acrylic
		L12 1200lm	9 90 ⁽³⁾	30 3000K	P Proud, diffuse acrylic with 5/16" drop ⁽⁴⁾
		L15 1500lm		35 3500K	
PRODUCT BUILDER				40 4000K	
Simplify ordering & layout design with the Williams Linear Product Builder at hew.com/product-builder				50 5000K	

OPTIONS⁽⁵⁾

See page 3 for FINISH OPTIONS.

EM/10W	10-watt emergency battery ⁽⁷⁾
EM/10WRM	Remote mount 10-watt emergency battery ⁽⁸⁾
ASY	Asymmetric distribution ⁽⁹⁾
(L__)	Additional lower lumen packages available ⁽¹⁰⁾ Example: 600 lumens = MX4W-12'00-L8/835-(L6)

CONTROL⁽⁶⁾

See page 5 for ADDITIONAL CONTROL OPTIONS.

–	None
AVI-LVFA	Avi-on wireless fixture control ⁽¹¹⁾
AVI-LVFA-CS2-PIR	Avi-on wireless fixture control with PIR motion and daylight sensor ⁽¹²⁾
AWNR	Lutron Athena wireless node integral fixture control, RF only ⁽¹³⁾
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing ⁽¹⁴⁾

DRIVER

See page 6 for ADDITIONAL DRIVER

OPTIONS.

DRIVER	VOLTAGE
DIM Driver with external dimming wires	UNV 120-277V
DRV Driver without external dimming wires	347 347V ⁽¹⁷⁾
DA Driver with 12V auxiliary power, without external dimming wires ⁽¹⁵⁾	
DSR Sensor-ready driver without external dimming wires (D4i DALI-2) ⁽¹⁶⁾	

NOTES

- ¹ Lumens per foot output based on F Shielding, 80 CRI/3500K CCT. Actual performance may vary +/-5%. See page 2 for FIXTURE PERFORMANCE DATA. Additional lumen packages available, see Options.
- ² Up or down orientation is determined during installation.
- ³ Extended lead times may apply. Consult factory for availability.
- ⁴ See page 3 for CROSS SECTIONS.
- ⁵ See Technical Info for [Power Entry](#) details.
- ⁶ Sensor recommended for use in downlight orientation only. Reduces portion of lit fixture, consult factory. See page 3 for SENSOR & NODE PLACEMENT DETAILS. See page 4 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS.
- ⁷ Not available with fixtures less than 4'.
- ⁸ See page 3 for FIXTURE DETAILS.
- ⁹ Available with F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- ¹⁰ (L4) lumen package minimum. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- ¹¹ DA driver only.
- ¹² DA and DSR Drivers only.
- ¹³ DA and DSR Drivers only.
- ¹⁴ DA and DSR Drivers only.
- ¹⁵ Avi-on and Lutron Athena Controls only.
- ¹⁶ Lutron Vive and Athena Controls only.
- ¹⁷ Not available with EM batteries, control sensors, DA, or DSR Drivers.



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MX4W LED 4" Continuous – Wall

FIXTURE PERFORMANCE DATA

	DOWN (PER FOOT)			UP (PER FOOT)		
	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L8	824	7.3	113	851	7.3	117
L12	1175	10.8	109	1187	10.8	110
L15	1440	13.5	107	1440	13.5	107

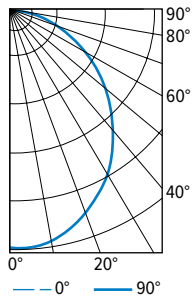
- Photometrics tested in accordance with IESNA LM-79. Results based on F shielding, 80 CRI/3500K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%.
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier tables to calculate additional options.

MULTIPLIER TABLES

	COLOR TEMPERATURE		ASY OPTION	
	CCT	CONVERSION FACTOR	WATTAGE	EFFICACY (lm/W)
80 CRI	2700K	0.97	1.03	0.97
	3000K	0.99		
	3500K	1.00		
	4000K	1.03		
	5000K	1.06		
90 CRI	2700K	0.82		
	3000K	0.83		
	3500K	0.84		
	4000K	0.86		
	5000K	0.90		

PHOTOMETRY

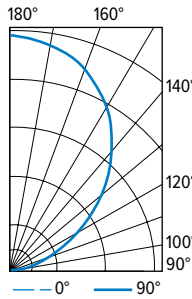
MX4WD-4'00-L8/835-F-DIM Total Luminaire Output: 3296 lumens; 29.2 Watts | Efficacy: 113 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
	0°	45°	90°	
0	1302	1302	1302	
5	1329	1292	1278	123
15	1284	1232	1211	348
25	1149	1113	1087	512
35	996	948	931	597
45	808	771	742	597
55	604	576	540	513
65	394	370	354	368
75	185	178	177	192
85	29	36	33	45
90	0	0	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	983	30
	0 - 40	1580	48
	0 - 60	2690	82
	0 - 90	3296	100
	0 - 180	3296	100

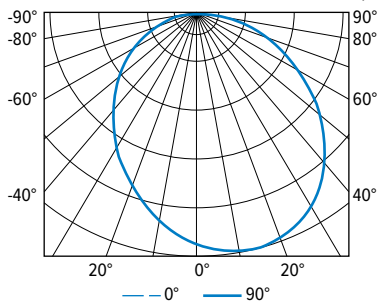
MX4WU-4'00-L8/835-F-DIM Total Luminaire Output: 3404 lumens; 29.2 Watts | Efficacy: 117 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
	0°	45°	90°	
90	0	0	0	
95	20	19	17	29
105	161	123	103	138
115	382	285	242	298
125	643	516	431	477
135	933	818	688	624
145	1189	1112	1006	681
155	1389	1315	1261	603
165	1498	1456	1419	410
175	1557	1519	1501	144
180	1540	1540	1540	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	90 - 120	465	14
	90 - 130	941	28
	90 - 150	2247	66
	90 - 180	3404	100
	0 - 180	3404	100

MX4WD-4'00-L8/835-F-ASY Total Luminaire Output: 3197 lumens; 29.2 Watts | Efficacy: 109 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1153	1153	1153	1153	1153	
5	1149	1175	1188	1175	1149	109
15	1101	1185	1221	1185	1101	311
25	1011	1135	1187	1135	1011	468
35	881	1024	1083	1024	881	556
45	726	868	922	868	726	566
55	560	684	730	684	560	507
65	384	481	516	481	384	387
75	203	275	300	275	203	227
85	50	86	100	86	50	67
90	2	13	19	13	2	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	887	28
	0 - 40	1443	45
	0 - 60	2516	79
	0 - 90	3197	100
	0 - 180	3197	100



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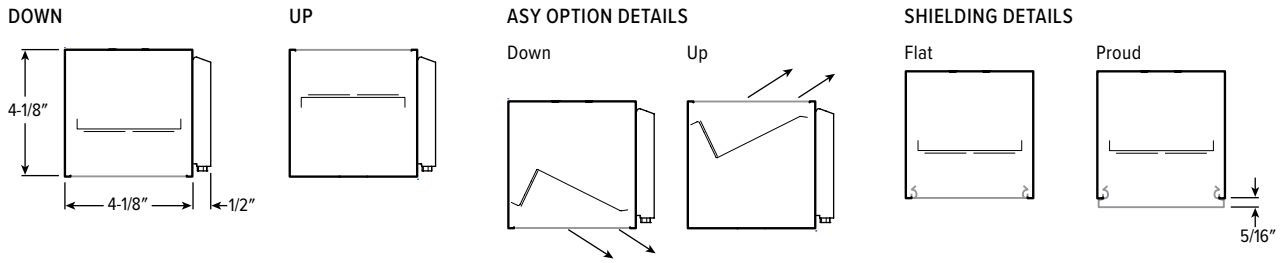
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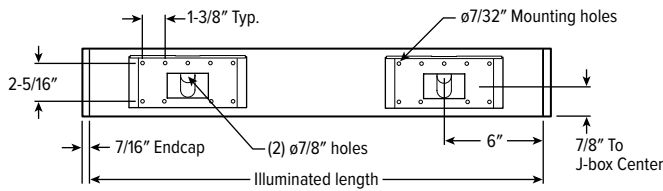
MX4W LED 4" Continuous – Wall

CROSS SECTIONS



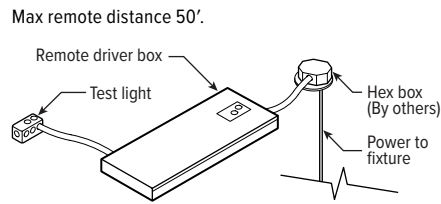
FIXTURE DETAILS

BACK VIEW

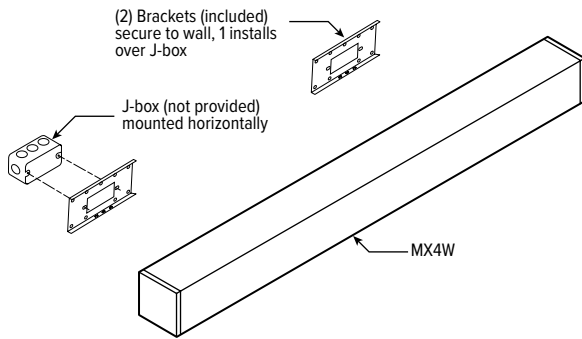


Standalone and feeder fixtures receive two mounting brackets. Joiner fixtures connect to feeder fixtures and receive one mounting bracket.

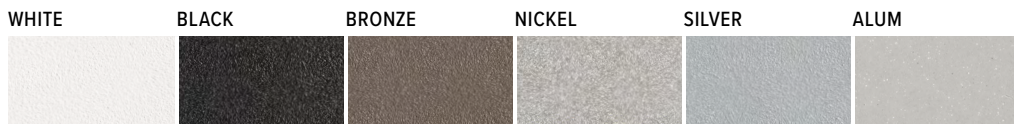
REMOTE MOUNT BATTERY



MOUNTING

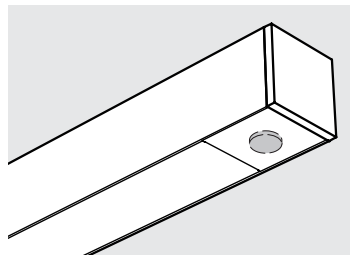


FINISH OPTIONS



For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.

SENSOR & NODE PLACEMENT DETAILS



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MX4W LED 4" Continuous – Wall

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App

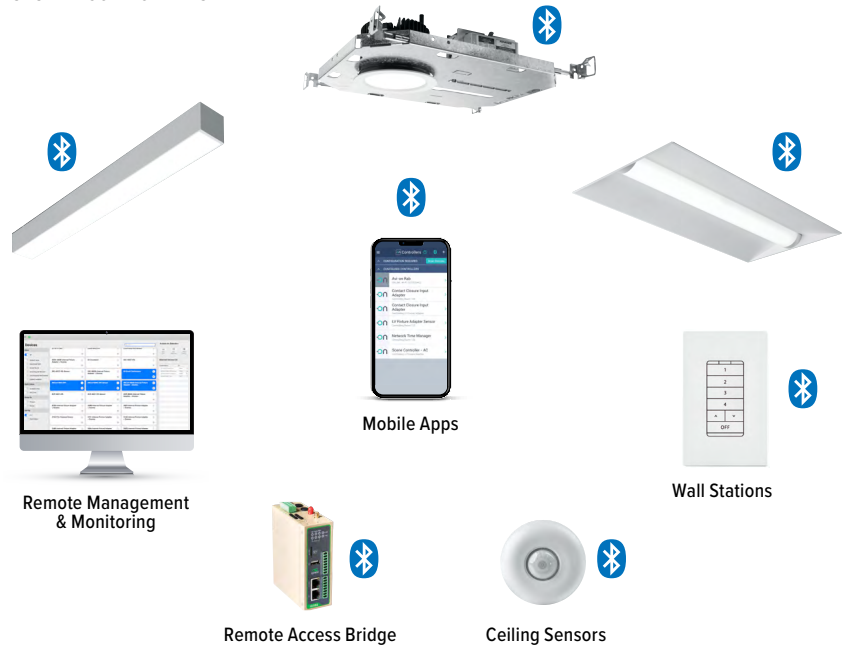


Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



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ACCESSORIES

WALL STATIONS

AVI-2401AC	Scene controller - numbered 1-4, 120-277VAC
AVI-2402BAT	Scene controller - numbered 1-4, battery powered
AVI-2401AC-2	Dimmer with presets - percentages, 120-277VAC
AVI-2402BAT-2	Dimmer with presets - percentages, battery powered
AVI-2401AC-3	On/off/dimming, 120-277VAC
AVI-2402BAT-3	On/off/dimming, battery powered

NETWORK

AVI-RAB-LTE	Remote access bridge
AVI-KIT-NTM	Network time manager with battery backup

CEILING MOUNT SENSORS

AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

For load controllers and additional accessory info, see hew.com/avi-on

AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor. DA Driver only.

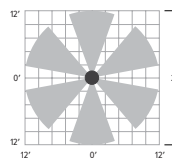
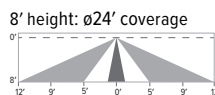
SPECIFICATIONS

TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 10'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 50°C
RELATIVE HUMIDITY	10 to 80% non-condensing
IP RATING	IP20
MANUFACTURER	Avi-On



SENSOR COVERAGE PATTERNS

Side View



SENSOR DETAIL



Dimensions: 13/16" x 2-1/4"



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MX4W LED 4" Continuous – Wall

ADDITIONAL CONTROL OPTIONS

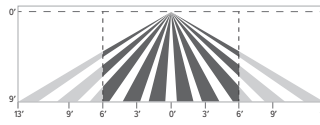
AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing. DA and DSR Drivers only.

SPECIFICATIONS	
TYPE	Radio Frequency
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	Clear Connect gateway – Type X with app (iOS or Android)
MANUFACTURER	Lutron



SENSOR COVERAGE PATTERNS

9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: ø1-1/8"

ATHENA CONTROL OPTIONS

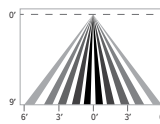
CATALOG NUMBER	DESCRIPTION
AWNDR	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power
AWNDR-BL	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish
AWNS-BL	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish

VDO Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC). DSR or LDE Drivers only. LDE drivers require driver interface

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS

9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: 2-11/16" x 1"

VIVE CONTROL OPTIONS

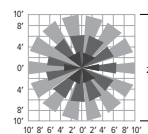
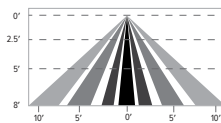
CATALOG NUMBER	DESCRIPTION
VRF	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF), for use with sensor-ready driver
VDO	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC), for use with sensor-ready driver
VRF/DBI	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver
VDO/DBI	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver

OCCWS-FS-305-L6-PP-120/277 Wattstopper PIR motion and daylight hold off sensor with power pack, 120/277V

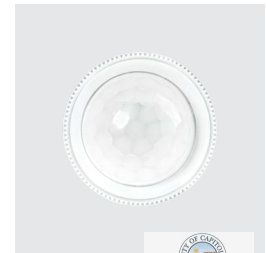
SPECIFICATIONS	
TYPE	PIR Motion + Daylight Hold Off
MOUNTING HEIGHT	8'
LENS	Indoor, non-wet location use
DETECTION ANGLE	360°
TEMPERATURE RANGE	-40° to 55°C
RELATIVE HUMIDITY	5% to 95%, non-condensing
COMMISSIONING	Dials under lens

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"



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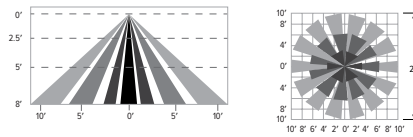
MX4W^{LED} 4" Continuous – Wall

OCCWS-LMFS-601-PP-120/277 Wattstopper PIR motion and daylight sensor with power pack, 120/277V

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
LENS	Up to 300 sq/ft coverage
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 50°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"

ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder.

CATALOG NUMBER	DESCRIPTION
DRV	Driver prewired for non-dimming applications
DIM	Dimming driver prewired for 0-10V low voltage applications
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DA	Driver with 12V auxiliary power
DSR	Sensor-ready driver (D4i DALI-2)
SD40	40% step-dimming driver
SD50	50% step-dimming driver
DALI	DALI dimming driver
LDE1	Lutron Hi-lume 1% EcoSystem dimming LED driver



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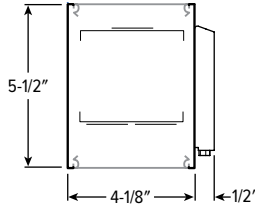
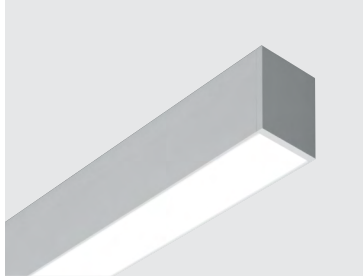
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MX4WUD LED 4" Continuous Up/Down – Wall



CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Create elegant spaces with a seamless, continuous row of illumination
- Flat and proud lenses give designers a variety of looks
- Fixture attaches to wall bracket for simple installation
- High-performance up to 119 lm/W
- Linear extrusion contains snap-in light rails for ease of installation and maintenance
- Attractive source of direct and indirect lighting
- Versatile MX4 system includes recessed, surface, suspended and in-wall mounting, see hew.com
- Diffuse acrylic lens provides uniform illumination for visual comfort
- Wireless in-fixture control solutions available
- Available with BIOS® SkyBlue® technology to support proper daytime circadian stimulus
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING – Extruded aluminum with die-cast end plates.
- SHIELDING – Extruded, flat, diffuse acrylic lens.
- FINISH – Textured matte white polyester TGIC powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- ELECTRICAL – High-quality mid-power LED boards. L70 >60,000 hours per IES TM-21. 25°C maximum ambient operating temperature.
- MOUNTING – Wall mount. Powder coated, die-formed C.R.S. receiving bracket mounted to fixture which attaches to galvanized, wall mounted bracket.
- LISTINGS –
 - cCSAus certified as luminaire suitable for dry or damp locations.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: MX4WUD - 12'00 - L8/835U/L8/835D - A/F - OPTIONS - CONTROL/DIM - UNV

SERIES	ILLUMINATED LENGTH	LUMEN PACKAGE (EXAMPLE: L8/835U/L8/835D)																								
MX4WUD	Lengths specified in feet and inches using 4" increments, 2' minimum. Example: 12'00 = 12'-0"	Specify lumen packages: U for Uplight and D for Downlight																								
	PRODUCT BUILDER Simplify ordering & layout design with the Williams Linear Product Builder at hew.com/product-builder																									
		<table border="1"> <thead> <tr> <th>LUMENS ⁽¹⁾</th> <th>CRI</th> <th>CCT</th> <th>U or D</th> </tr> </thead> <tbody> <tr> <td>L8 800lm</td> <td>8 80</td> <td>27 2700K</td> <td>U Uplight</td> </tr> <tr> <td>L12 1200lm</td> <td>9 90 ⁽²⁾</td> <td>30 3000K</td> <td>D Downlight</td> </tr> <tr> <td>L15 1500lm</td> <td></td> <td>35 3500K</td> <td></td> </tr> <tr> <td></td> <td></td> <td>40 4000K</td> <td></td> </tr> <tr> <td></td> <td></td> <td>50 5000K</td> <td></td> </tr> </tbody> </table>	LUMENS ⁽¹⁾	CRI	CCT	U or D	L8 800lm	8 80	27 2700K	U Uplight	L12 1200lm	9 90 ⁽²⁾	30 3000K	D Downlight	L15 1500lm		35 3500K				40 4000K				50 5000K	
LUMENS ⁽¹⁾	CRI	CCT	U or D																							
L8 800lm	8 80	27 2700K	U Uplight																							
L12 1200lm	9 90 ⁽²⁾	30 3000K	D Downlight																							
L15 1500lm		35 3500K																								
		40 4000K																								
		50 5000K																								

SHIELDING UP	SHIELDING DOWN	OPTIONS ⁽³⁾
A Flat, semi-diffuse acrylic	F Flat, diffuse acrylic	See page 3 for FINISH OPTIONS.
F Flat, diffuse acrylic ⁽⁴⁾	P Proud, diffuse acrylic with 5/16" drop ⁽⁵⁾	EM/10WRM Remote mount 10-watt emergency battery ⁽⁶⁾
		ASYD Downlight asymmetric distribution ⁽⁷⁾
		ASYU Uplight asymmetric distribution ⁽⁸⁾
		ASYUD Up and down light asymmetric distribution ⁽⁹⁾
		(L__) Additional lower lumen packages available ⁽¹⁰⁾ Example: 600 lumens = MX4WUD-12'00-L8/835U/L8/835D-(L6U/L6D)

CONTROL ⁽¹¹⁾	DRIVER	VOLTAGE
See page 5 for ADDITIONAL CONTROL OPTIONS.	See page 6 for ADDITIONAL DRIVER OPTIONS.	120 120V
– None		277 277V
AVI-LVFA Avi-on wireless fixture control ⁽¹²⁾	DIM Driver with external dimming wires. Up and down switch and dim together	UNV 120-277V
AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor ⁽¹³⁾	DA Driver with 12V auxiliary power without external dimming wires. Up and down switch together ⁽¹⁶⁾	347 347V ⁽¹⁸⁾
AWNRR Lutron Athena wireless node integral fixture control, RF only ⁽¹⁴⁾	DSR Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch together ⁽¹⁷⁾	
AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing ⁽¹⁵⁾		

NOTES

- ¹ Lumens per foot output based on A Shielding Up and F Shielding Down, 80 CRI/3500K CCT. Actual performance may vary ± 5%. See page 2 for FIXTURE PERFORMANCE DATA.
- ² Additional lumen packages available, see Options.
- ³ Extended lead times may apply. Consult factory for availability.
- ⁴ See Technical Info for Power Entry details.
- ⁵ Recommended for use in applications where the fixture will be viewed from above. Decreases lumen output.
- ⁶ See page 3 for CROSS SECTIONS.
- ⁷ See page 3 for FIXTURE DETAILS.
- ⁸ Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- ⁹ Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- ¹⁰ Available with A and F shielding only. Creates uneven lens illumination. See page 3 for CROSS SECTIONS.
- ¹¹ Lumen package minimum. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- ¹² Sensor recommended for use in downlight orientation only. Reduces portion of lit fixture, consult factory. See page 3 for SENSOR & NODE PLACEMENT DETAILS. See page 4 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS.
- ¹³ DA Driver only.
- ¹⁴ DA and DSR Drivers only.
- ¹⁵ DA and DSR Drivers only.
- ¹⁶ Avi-on and Lutron Athena Controls only.
- ¹⁷ Lutron Athena Controls only.
- ¹⁸ Not available with EM batteries, control sensors, DA, or DSR Drivers.



MX4WUD LED 4" Continuous Up/Down – Wall

FIXTURE PERFORMANCE DATA

	PER FOOT		
	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
L8	1683	14.2	119
L12	2370	21.9	108
L15	2885	27.6	105

- Photometrics tested in accordance with IESNA LM-79. Results based on A Shielding Up and F Shielding Down, 80 CRI/3500K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%.
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier tables to calculate additional options.

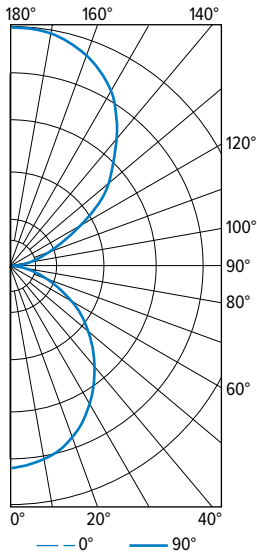
MULTIPLIER TABLES

	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.97
	3000K	0.99
	3500K	1.00
	4000K	1.03
	5000K	1.06
90 CRI	2700K	0.82
	3000K	0.83
	3500K	0.84
	4000K	0.86
	5000K	0.90

ASY OPTION	
WATTAGE	EFFICACY (lm/W)
1.02	0.98

PHOTOMETRY

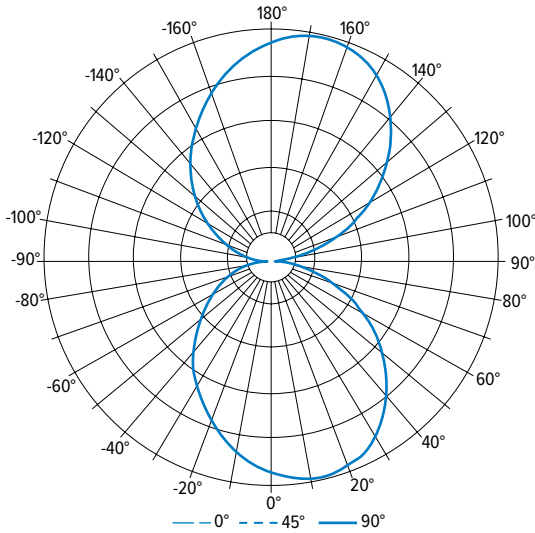
MX4WUD-4'00-L8/835U/L8/835D-A/F-DIM Total Luminaire Output: 6732 lumens; 56.8 Watts | Efficacy: 119 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1155	1155	1155	1155	1155	
5	1175	1163	1135	1133	1145	109
15	1123	1113	1091	1075	1081	309
25	1026	1018	984	974	974	457
35	879	873	847	829	821	531
45	708	706	682	666	634	526
55	533	521	497	489	483	449
65	338	330	318	312	312	318
75	161	153	145	149	141	161
85	28	24	18	22	24	36
90	6	6	12	6	6	
95	58	68	70	62	56	71
105	201	217	219	197	173	222
115	400	427	447	394	360	411
125	654	676	696	638	596	594
135	938	948	950	905	861	712
145	1149	1153	1161	1109	1085	711
155	1302	1306	1312	1270	1246	595
165	1380	1384	1398	1360	1344	388
175	1396	1403	1429	1390	1370	133
180	1398	1398	1398	1398	1398	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	875	13
0 - 40	1406	21	
0 - 60	2380	35	
0 - 90	2894	43	
90 - 120	704	11	
90 - 130	1298	19	
90 - 150	2721	40	
90 - 180	3838	57	
0 - 180	6732	100	

MX4WUD-4'00-L8/835U/L8/835D-ASYUD-DIM-UNV Total Luminaire Output: 6501 lumens; 58.4 Watts | Efficacy: 111 lm/W | 80 CRI; 3500K CCT



VERTICAL ANGLE	HORIZONTAL ANGLE					ZONAL LUMENS
	0°	45°	90°	135°	180°	
0	1153	1153	1153	1153	1153	
5	1149	1175	1188	1175	1149	109
15	1101	1185	1221	1185	1101	311
25	1011	1135	1187	1135	1011	468
35	881	1024	1083	1024	881	556
45	726	868	922	868	726	566
55	560	684	730	684	560	507
65	384	481	516	481	384	387
75	203	275	300	275	203	227
85	50	86	100	86	50	68
90	5	26	39	26	5	
95	51	89	103	89	51	71
105	210	284	310	284	210	234
115	397	497	533	497	397	400
125	578	706	754	706	578	524
135	750	897	952	897	750	584
145	910	1057	1118	1057	910	574
155	1044	1172	1226	1172	1044	483
165	1137	1223	1260	1223	1137	321
175	1186	1213	1226	1213	1186	112
180	1189	1189	1189	1189	1189	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	887	14
0 - 40	1443	22	
0 - 60	2516	39	
0 - 90	3198	49	
90 - 120	704	11	
90 - 130	1228	19	
90 - 150	2386	37	
90 - 180	3302	51	
0 - 180	6501	100	



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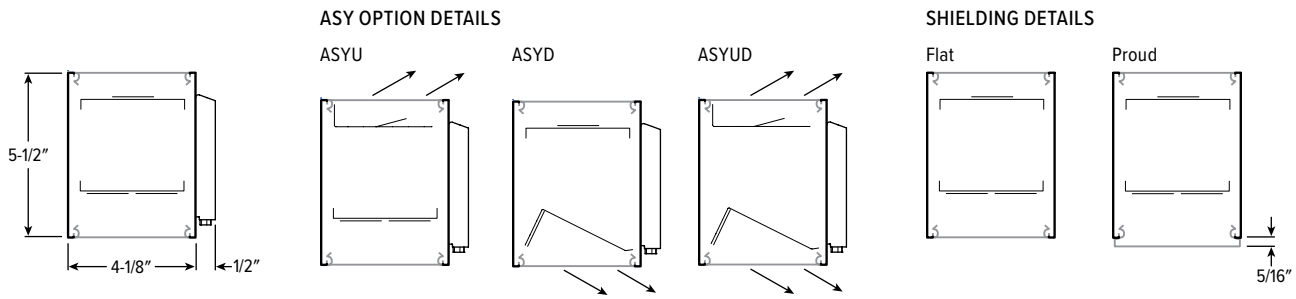
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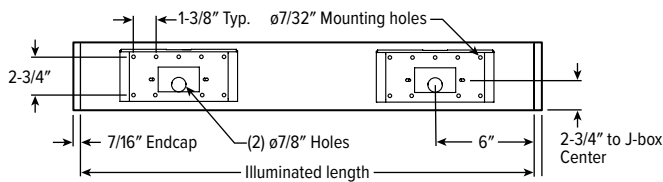
MX4WUD LED 4" Continuous Up/Down – Wall

CROSS SECTIONS



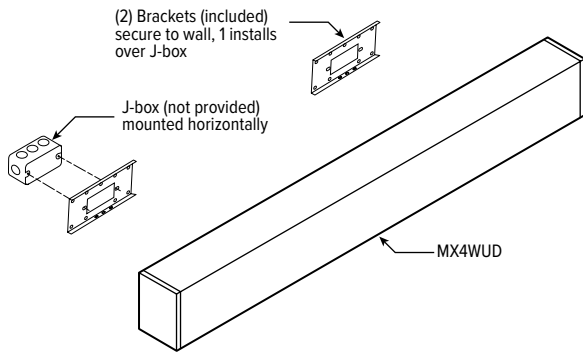
FIXTURE DETAILS

BACK VIEW



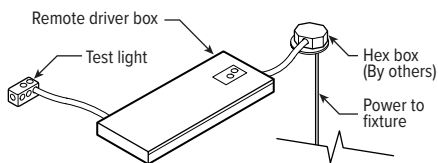
Standalone and feeder fixtures receive two mounting brackets. Joiner fixtures connect to feeder fixtures and receive one mounting bracket.

MOUNTING

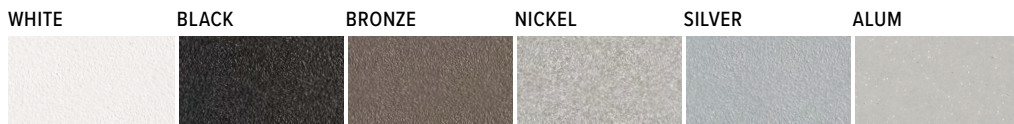


REMOTE MOUNT BATTERY

Max remote distance 50'.



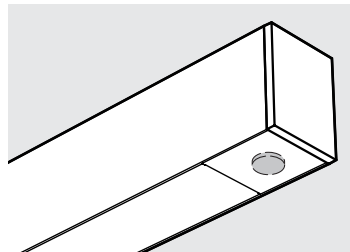
FINISH OPTIONS



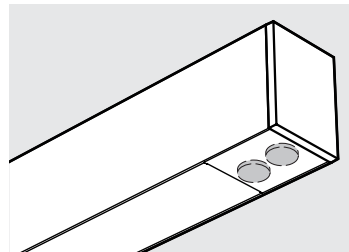
For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.

SENSOR & NODE PLACEMENT DETAILS

AVI-LVFA | WS-FS | WS-LMFS



AWN-R | AWNS



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MX4WUD LED 4" Continuous Up/Down – Wall

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small offices to large warehouses
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App

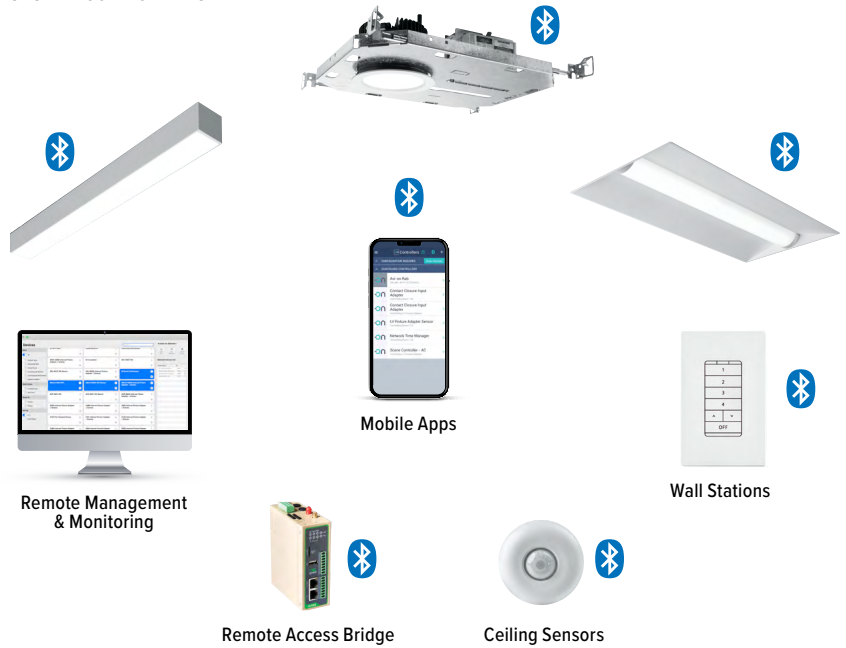


Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Avi-on is under license. Other trademarks and trade names are those of their respective owners.

ACCESSORIES

WALL STATIONS

AVI-2401AC	Scene controller - numbered 1-4, 120-277VAC
AVI-2402BAT	Scene controller - numbered 1-4, battery powered
AVI-2401AC-2	Dimmer with presets - percentages, 120-277VAC
AVI-2402BAT-2	Dimmer with presets - percentages, battery powered
AVI-2401AC-3	On/off/dimming, 120-277VAC
AVI-2402BAT-3	On/off/dimming, battery powered

NETWORK

AVI-RAB-LTE	Remote access bridge
AVI-KIT-NTM	Network time manager with battery backup

CEILING MOUNT SENSORS

AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

For load controllers and additional accessory info, see hew.com/avi-on

AVI-LVFA-CS2-PIR Avi-on wireless fixture control with PIR motion and daylight sensor. DA Driver only.

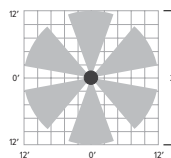
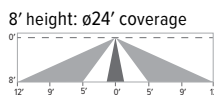
SPECIFICATIONS

TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 10'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 50°C
RELATIVE HUMIDITY	10 to 80% non-condensing
IP RATING	IP20
MANUFACTURER	Avi-On



SENSOR COVERAGE PATTERNS

Side View



SENSOR DETAIL



Dimensions: 13/16" x 2-1/4"



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MX4WUD ^{LED} 4" Continuous Up/Down – Wall

ADDITIONAL CONTROL OPTIONS

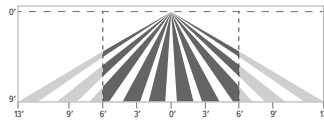
AWNS Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing. DA and DSR Drivers only.

SPECIFICATIONS	
TYPE	Radio Frequency
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	Clear Connect gateway – Type X with app (iOS or Android)
MANUFACTURER	Lutron



SENSOR COVERAGE PATTERNS

9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: ø1-1/8"

ATHENA CONTROL OPTIONS

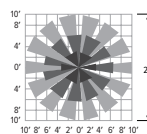
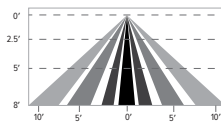
CATALOG NUMBER	DESCRIPTION
AWNDR	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNS	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power.
AWNDR-BL	Lutron Athena wireless node integral fixture control, RF only, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.
AWNS-BL	Lutron Athena wireless node integral fixture control, RF with daylight and occupancy sensing, for use with D4i DALI-2 or driver with 12V auxiliary power, black finish.

OCCWS-FS-305-L6-PP-120/277 Wattstopper PIR motion and daylight hold off sensor with power pack, 120/277V

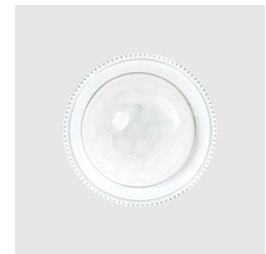
SPECIFICATIONS	
TYPE	PIR Motion + Daylight Hold Off
MOUNTING HEIGHT	8'
LENS	Indoor, non-wet location use
DETECTION ANGLE	360°
TEMPERATURE RANGE	-40° to 55°C
RELATIVE HUMIDITY	5% to 95%, non-condensing
COMMISSIONING	Dials under lens

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



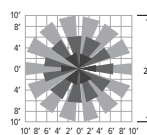
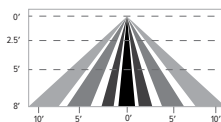
Dimensions: ø1-5/16"

OCCWS-LMFS-601-PP-120/277 Wattstopper PIR motion and daylight sensor with power pack, 120/277V

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
LENS	Up to 300 sq/ft coverage
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 50°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)

SENSOR COVERAGE PATTERNS

8' height: ø20' coverage



SENSOR DETAIL



Dimensions: ø1-5/16"



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MX4WUD ^{LED} 4" Continuous Up/Down – Wall

ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder.

CATALOG NUMBER	DESCRIPTION
DRV	Driver prewired for non-dimming applications; entire fixture switches together
DIM	Dimming driver prewired for 0-10V low voltage applications; entire fixture switches and dims together
DRVU/DRVD	Driver prewired for non-dimming applications; up and down portions switch separately
DRVU/DIMD	Driver prewired for non-dimming applications; up and down portions switch separately; 0-10V on down portion only
DIMU/DRVD	Up and down portions switch separately; dimming driver prewired for 0-10V low voltage applications on up portion only
DIMU/DIMD	Dimming driver prewired for 0-10V low voltage applications; up and down portions switch and dim separately
DRVDIMU	Entire fixture switches together; dimming driver prewired for 0-10V low voltage applications on up portion only
DRVDIMD	Entire fixture switches together; dimming driver prewired for 0-10V low voltage applications on down portion only
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DIM LINEU/DIM LINED	Line voltage switching and line voltage dimming; up and down portions switch separately
DIM LINEU/DRVD	Up and down portions switch separately; line voltage dimming on up portion only
DRVU/DIM LINED	Up and down portions switch separately; line voltage dimming on down portion only
DA	Driver with 12V auxiliary power without external dimming wires. Up and down switch together.
DA-U/D	Driver with 12V auxiliary power without external dimming wires. Up and down switch separately.
DSR	Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch together.
DSR-U/D	Sensor-ready driver without external dimming wires (D4i DALI-2). Up and down switch separately.



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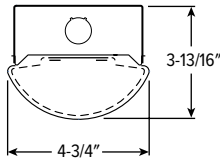
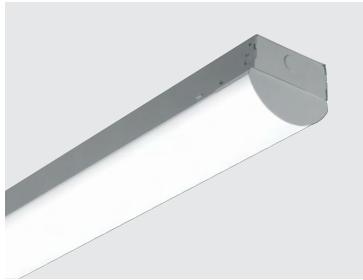
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CATALOG #: _____

TYPE: _____

PROJECT: _____



FEATURES

- Diffuse acrylic lens enhances uniformity and minimizes glare
- High-performance up to 154 lm/W
- 40°C max ambient operating temperature
- Diverse selection of mounting accessories for surface and suspended applications
- Channel connector furnished for continuous row applications (included with 8' units only)
- Special reflectors are available for precise light distribution
- Optional wireguard provides added protection
- Wireless in-fixture control solutions available
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING** – 22-gauge die-formed C.R.S.
- FINISH** – 92% minimum average reflective white polyester powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
- SHIELDING** – Linear ribbed diffuse acrylic
- ELECTRICAL** – High-quality mid-power LED boards. L70 at 60,000 hours. 40°C maximum ambient operating temperature. 50°C maximum ambient operating temperature with HA Option, lumen restrictions apply.
- MOUNTING** – Surface (ceiling or wall) or suspended (hanging hardware required).
- LISTINGS** –
 - cETLus conforms to UL STD 1598. Certified to CAN/CSA STD C22.2 No. 250.0. Suitable for damp locations.
 - DesignLights Consortium qualified product. Not all versions of this product may be DLC qualified, see the DLC Qualified Products List at designlights.org/OPL.
 - Complies with the Buy American Act and other federal regulations. Request certification at hew.com/baa.
- WARRANTY** – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: 76R - 4 - L52/840 - OPTIONS - CONTROL/DIM - UNV

ORDERING INFO

SERIES	LENGTH ^[1]	LUMENS ^[2]	CRI	CCT	OPTIONS ^[3]	
76R	4 4'	L30	3,000lm	8 80	27 2700K	EM/10W 10-watt emergency battery ^[8]
		L52	5,200lm	9 90 ^[7]	30 3000K	(L__) Additional lower lumen packages available ^[9]
	8 8' ^[4]	L72	7,200lm		35 3500K	Example: 8,000 nominal lumens = 76R-8-L104/835-(L80)
		L94	9,400lm ^[5]		40 4000K	QC__ Quick-connect wiring harness. ^[10]
		L60	6,000lm		50 5000K	WG-76R11 11-gauge white powder coat wireguard
		L104	10,400lm			WG-76R14 14-gauge white powder coat wireguard
		L144	14,400lm			SS-12 Single stem and canopy, 12" ^[11]
		L188	18,800lm ^[6]			SWS-12 Swivel stem and canopy, 12" ^[12]
						GAT GAT fastener (T-bar clip)
						VBV (2) Y-hangers
				VBV-2 (2) Y-hangers with 2' chains		
				SMH-76R Surface mount hanger		
				SHS-76R Surface mount hanger for grid ceilings		
				HA High ambient operating temperature, 50°C ^[13]		

AIRCRAFT CABLES (EXAMPLE: ACFL/D48) ^[14]

Prefix	Type	Length
ACFL/	Feeder D 1" grid & hardpan	24 24"
ACJL/	Joiner N 9/16" grid	48 48"
	S Slot grid	96 96"

CONTROL ^[15]

See page 5 for ADDITIONAL CONTROL OPTIONS.

–	None
AVI-LVFA	Avi-on wireless fixture control ^[16]
AVI-LVFA-PIR-ELB	Avi-on wireless fixture control with PIR motion and daylight sensor, end mount ^[17]
AWNRR	Lutron Athena wireless node integral fixture control, RF only ^[18]

DRIVER

See page 6 for ADDITIONAL DRIVER OPTIONS.

DIM	Driver with external dimming wires
DRV	Driver without external dimming wires
DA	Driver with 12V auxiliary power, without external dimming wires ^[19]
DSR	Sensor-ready driver without external dimming wires ^[20]

VOLTAGE

120	120V
277	277V
UNV	120-277V
480	480V with stepdown transformer ^[21]

NOTES

- For actual length, see page 2 for FIXTURE DETAILS.
- Lumen output based on 80 CRI/4000K CCT. Actual performance may vary +/-5%, see page 2 for FIXTURE PERFORMANCE DATA.
- See page 3 for FINISH OPTIONS. Custom colors available upon request. See page 3 for MOUNTING DETAILS. See page 3 for SPECIAL REFLECTOR OPTIONS..
- Ships with (2) 4' lenses.
- 30°C maximum ambient operating temperature.
- 30°C maximum ambient operating temperature.
- Extended lead times may apply. Consult factory for availability.
- 30° maximum ambient operating temperature.
- Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package.
- See page 2 for QUICK-CONNECT OPTIONS.
- Two stem sets required. One additional stem set required for each row mounted fixture.

- Two stem sets required. One additional stem set required for each row mounted fixture.
- L72 max for 4', L144 max for 8'. Not available with EM batteries.
- VBV hanger(s) included. Units specified with aircraft cable require cord. See page 3 for MOUNTING DETAILS.
- See page 3 for SENSOR & NODE PLACEMENT DETAILS. See page 4 for AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS.
- DA Driver only.
- DA Driver only.
- DA and DSR Drivers only.
- Avi-on and Lutron Athena Controls only.
- Lutron Vive and Athena Controls only.
- Not available with EM batteries, DA, or DSR.



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76R LED Round Lens Strip

FIXTURE PERFORMANCE DATA

	LED PACKAGE	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
4'	L30	3067	20.3	151
	L52	5261	35.8	147
	L72	7212	50.2	144
	L94	9418	68.6	137
8'	L60	6134	39.8	154
	L104	10523	69.5	151
	L144	14425	100.5	144
	L188	18836	137.1	137

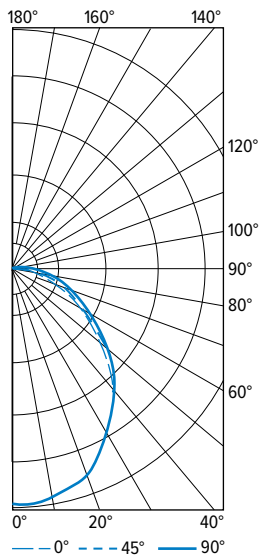
MULTIPLIER TABLE

	COLOR TEMPERATURE	
	CCT	CONVERSION FACTOR
80 CRI	2700K	0.94
	3000K	0.96
	3500K	0.97
	4000K	1.00
	5000K	1.03
90 CRI	2700K	0.77
	3000K	0.79
	3500K	0.80
	4000K	0.83
	5000K	0.86

- Photometrics tested in accordance with IESNA LM-79. Results based on 80 CRI/4000K CCT, average wattage for 120V through 277V input, and 25°C ambient temperature. Actual performance may vary +/-5%
- To calculate lumen output in emergency mode, multiply the battery wattage by the efficacy.
- Use multiplier table to calculate additional options.

PHOTOMETRY

76R-4-L94/840 Total Luminaire Output: 9418 lumens; 68.6 Watts | Efficacy: 137.3 lm/W | 80 CRI; 4000K CCT

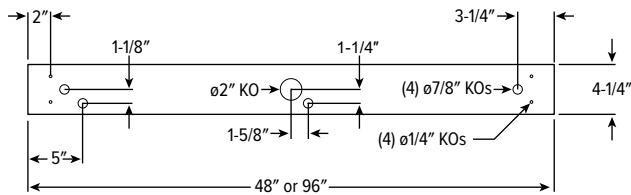


VERTICAL ANGLE	HORIZONTAL ANGLE			ZONAL LUMENS
	0°	45°	90°	
0	3041	3041	3041	
5	3067	3019	3010	288
15	2910	2905	2926	821
25	2599	2674	2746	1231
35	2171	2340	2469	1458
45	1676	1928	2113	1478
55	1177	1490	1706	1311
65	715	1046	1284	1023
75	358	701	908	711
85	71	445	633	446
90	0	347	516	
95	0	274	442	273
105	0	166	305	168
115	0	105	210	102
125	0	65	141	58
135	0	41	90	31
145	0	8	50	13
155	0	0	37	6
165	0	0	12	1
175	0	0	0	0
180	0	0	0	0

	ZONE	LUMENS	% FIXTURE
LUMEN SUMMARY	0 - 30	2339	25
	0 - 40	3798	40
	0 - 60	6586	70
	0 - 90	8766	93
	90 - 120	543	6
	90 - 150	645	7
	90 - 180	652	7
	0 - 180	9418	100

FIXTURE DETAILS

BACKVIEW



QUICK-CONNECT OPTIONS

Note: Quick-connect wiring required for row mounting. All QC harnesses contain (5) 16ga conductors plus ground.

DESIGNATION	NUMBER OF 16GA WIRES FACTORY CONNECTED (EXCLUDING GROUND)	WIRE COLOR/POWER SUPPLY FACTORY CONNECTIONS	TYPICAL USE
QCBW	2	Black, White	On/off switching (DRV) or line voltage dimming (DIM LINE)
QCRW	2	Red, White	Alternating circuits on/off switching (DRV) or line voltage dimming (DIM LINE)
QCBRW	3	Black, Red, White	On/off switching (DRV) or line voltage dimming when equipped with EM battery packs
QCBW/PK	4	Black, White, Purple, Pink	Single circuit with 0-10V low voltage dimming (DIM)
QCRW/PK	4	Red, White, Purple, Pink	Alternating circuits on/off switching with 0-10V low voltage dimming (DIM)
QCBRW/PK	5	Black, Red, White, Purple, Pink	On/off switching when equipped with EM battery packs and 0-10V dimming (DIM)
QCBW/RPK	5	Black, White, Red, Purple, Pink	On/off switching with 0-10v dimming and 0-10v tunable using shared common
QCUU	N/A	N/A	QC harness passes through fixture, but is not connected to it

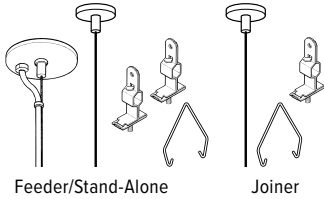
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 Permit #: 20240180



76R LED Round Lens Strip

MOUNTING DETAILS

STANDARD HARDWARE FOR SUSPENDED PRODUCT (Grid and Hardpan)



Notes:

- Fixtures are provided with adjustable length aircraft cables, (2) VBY hangers and mounting hardware, must specify.
- Electrical supply is brought into the feeder fixture, either as part of a row or as a stand-alone unit. Joiner fixtures complete the row.
- The feeder kits are standard with a 5" canopy to cover the junction box and a 2" canopy at the non-feed point. No J-box is required at non-feed points.

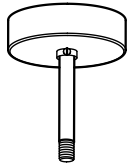
CORD FOR SUSPENDED PRODUCT

Units specified with aircraft cable require cord. Please specify cord type using ordering information below. Long fixture rows may require multiple feed points based on 18ga conductor size.

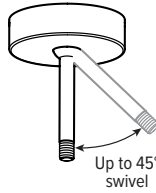
EXAMPLE: S2438D/W				
CORD TYPE	LENGTH	# OF COND. ⁽¹⁾	WIRE SIZE	COLOR
S	24 24"	3	8D 18ga	/W White
	48 48"	4		/B Black
	96 96"	5		
		6		

¹ Includes (2) 22ga purple & pink dimming conductors

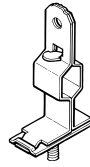
SS-12



SWS-12



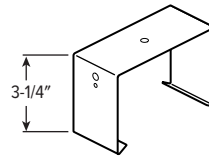
GAT



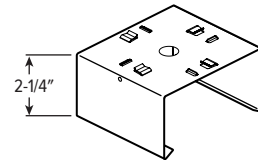
VBY OR VBY 2



SMH-76R

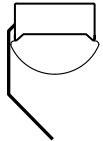


SHS-76

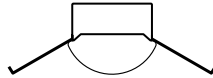


SPECIAL REFLECTOR OPTIONS

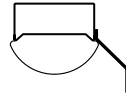
R1015



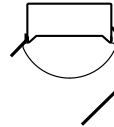
R1172



R1324



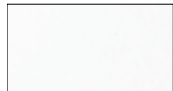
R1684



Clear polycarbonate reflector aligners for continuous row applications are supplied with reflectors.

FINISH OPTIONS

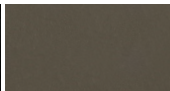
WHITE



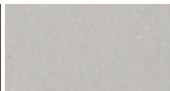
BLACK



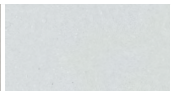
BRONZE



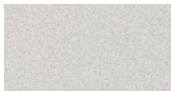
NICKEL



SILVER

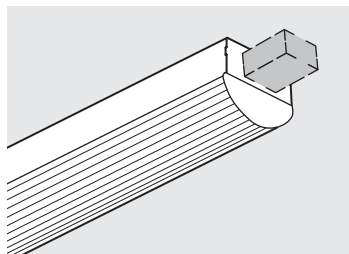


ALUM



For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.

SENSOR & NODE PLACEMENT DETAILS



SEE NEXT PAGE FOR CONTROL DETAILS.



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76R LED Round Lens Strip

AVI-ON BLUETOOTH WIRELESS CONTROL DETAILS

FEATURES

Simple

- Gateway-free distributed control
- Factory pre-commissioning
- Contractor friendly installation
- Occupancy/vacancy/daylight sensing

Scalable

- Virtually unlimited network size
- Spans small areas to large garages
- Flexible control strategies

Secure

- Optional cloud connectivity
- UL IoT platinum security rating
- DLC 5.0 compliant

COMMISSIONING & INSTALLATION TOOLS

Avi-on mobile apps provide intuitive, quick installation and commissioning. Pro tools are available to qualified installers. Live commissioning training and on-site or remote support by Avi-on must be ordered separately through Avi-on.



Commissioning Mobile App



Zone Scanner Web App



Commissioning Pro App

SYSTEM COMPONENTS



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Avi-on is under license. Other trademarks and trade names are those of their respective owners.

ACCESSORIES

WALL STATIONS

AVI-2401AC	Scene controller - numbered 1-4, 120-277VAC
AVI-2402BAT	Scene controller - numbered 1-4, battery powered
AVI-2401AC-2	Dimmer with presets - percentages, 120-277VAC
AVI-2402BAT-2	Dimmer with presets - percentages, battery powered
AVI-2401AC-3	On/off/dimming, 120-277VAC
AVI-2402BAT-3	On/off/dimming, battery powered

NETWORK

AVI-RAB-LTE	Remote access bridge
AVI-KIT-NTM	Network time manager with battery backup

CEILING MOUNT SENSORS

AVI-KIT-SEN-DUCM	PIR motion and ultrasonic sensor kit
AVI-KIT-SEN-ICM	PIR motion and photocell sensor kit

For load controllers and additional accessory info, see hew.com/avi-on

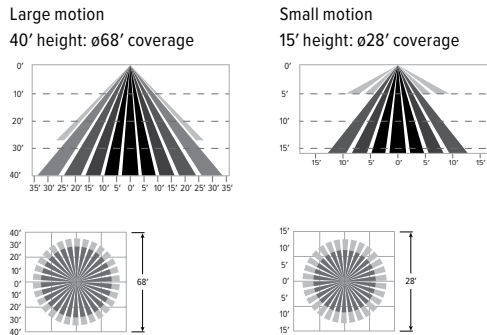
AVI-LVFA-PIR-ELB Avi-on wireless fixture control with PIR motion and daylight sensor, end mount. DA Driver only.

SPECIFICATIONS

TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 45'
LENS	Single lens detects high and low bay motion.
DETECTION ANGLE	360°
TEMPERATURE RANGE	-30° to 70°C
RELATIVE HUMIDITY	90 to 95% at 30°C
COMMISSIONING	App (iOS or Android)
SYSTEM REQUIREMENTS	Avi-on wireless fixture controls plus desktop and mobile apps
MANUFACTURER	Avi-On



SENSOR COVERAGE PATTERNS



SENSOR DETAIL



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76R LED Round Lens Strip

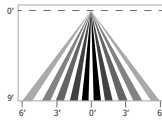
ADDITIONAL CONTROL OPTIONS

VDO Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC). DSR or LDE Drivers only. LDE drivers require driver interface

SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 12'
DETECTION ANGLE	360°
TEMPERATURE RANGE	0° to 55°C
RELATIVE HUMIDITY	0 to 90%, non-condensing
COMMISSIONING	App (iOS or Android)
MANUFACTURER	Lutron

SENSOR COVERAGE PATTERNS

9' height: ø12' coverage



Motion Sensor Coverage

CEILING HEIGHT	COVERAGE AREA (SQ FT)
8'	114
9'	144
10'	178
12'	256

SENSOR DETAIL



Dimensions: 2-11/16" x 1"

VIVE CONTROL OPTIONS

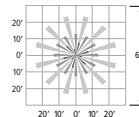
CATALOG NUMBER	DESCRIPTION
VRF	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF), for use with sensor-ready driver
VDO	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC), for use with sensor-ready driver
VRF/DBI	Lutron Vive integral fixture control, RF only (DFCSJ-OEM-RF) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver
VDO/DBI	Lutron Vive integral fixture control, RF with daylight and occupancy sensor (DFCSJ-OEM-OCC) and digital link interface, for use with Lutron Hi-lume 1% EcoSystem dimming LED driver

OCCWS-FSP-311B-L_120/277 Wattstopper PIR motion and daylight sensor, 120/277V. Must specify lens: L2, L3, or L7

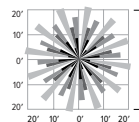
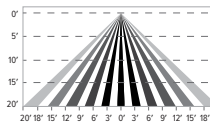
SPECIFICATIONS	
TYPE	PIR Motion + Daylight
MOUNTING HEIGHT	8' – 40'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-40° to 75°C
COMMISSIONING	App (iOS or Android)

SENSOR COVERAGE PATTERNS

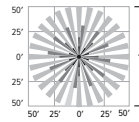
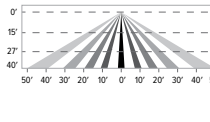
L2 8' height: ø48' coverage



L3 20' height: ø40' coverage



L7 40' height: ø100' coverage



SENSOR DETAIL

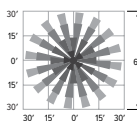
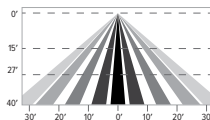


OCCLV-OSFHU-ITW-120-347 Leviton PIR motion sensor, 120-347V.

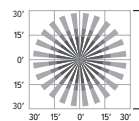
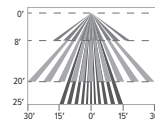
SPECIFICATIONS	
TYPE	PIR Motion
MOUNTING HEIGHT	8' – 40'
LENS	Interchangeable high bay, low bay or aisle mask
DETECTION ANGLE	360°
TEMPERATURE RANGE	-10° to 71°C
RELATIVE HUMIDITY	20% to 90% non-condensing

SENSOR COVERAGE PATTERNS

High bay
40' height: ø60' coverage



Low bay
25' height: ø60' coverage



SENSOR DETAIL



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76R LED Round Lens Strip

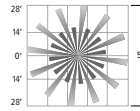
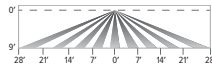
OCCSS LSXR-10-120-277 Sensor Switch PIR motion sensor, 120-277V

OCCSS LSXR-10-347/480 Sensor Switch PIR motion sensor, 347/480V

SPECIFICATIONS	
TYPE	PIR Motion
MOUNTING HEIGHT	7' – 15'
DETECTION ANGLE	360°
TEMPERATURE RANGE	-10° to 60°C
RELATIVE HUMIDITY	Up to 90% non-condensing

SENSOR COVERAGE PATTERNS

9' height: ø56' coverage



SENSOR DETAIL



ADDITIONAL DRIVER OPTIONS

Note: Lumen restrictions apply, consult product builder at hew.com/product-builder.

CATALOG NUMBER	DESCRIPTION
DRV	Driver prewired for non-dimming applications
DIM	Dimming driver prewired for 0-10V low voltage applications
DIM1	1% dimming driver prewired for 0-10V low voltage applications
DIM LINE	Line voltage dimming driver (TRIAC and ELV compatible, 120V only)
DIM TRC	Line voltage dimming driver (TRIAC compatible, 120V only)
DA	Driver with 12V auxiliary power
DSR	Sensor-ready driver (D4i DALI-2)
SD40	40% step-dimming driver
SD50	50% step-dimming driver
DALI	DALI dimming driver
LDE1	Lutron Hi-lume 1% EcoSystem dimming LED driver



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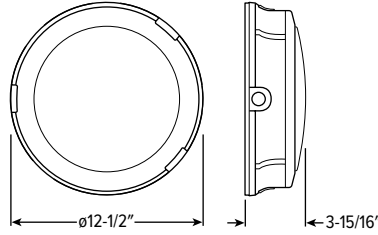
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Date: 05/16/2024

Permit # _____



WLRD LED Bulkhead Wall Pack – Round



CATALOG #: _____

TYPE: _____

PROJECT: _____

FEATURES

- Three frame styles provide decorative appearance for effective accent and security lighting
- Energy-saving alternative to traditional HID fixtures
- Polycarbonate opal vandal-resistant lens eliminates LED hot spots
- 8' – 20' mounting heights
- Optional energy-saving photocells and occupancy sensor available
- Maximize energy savings with efficacies as high as 111 lm/W

ORDERING EXAMPLE: WLRD0 - L22/840 - BZ - OPTIONS - DIM - UNV

ORDERING INFO

SERIES	STYLE ^[1]	LUMENS ^[2]	CRI	CCT	FINISH	OPTIONS ^[3]
WLRD	O Open	L22 2,200lm	8 80	30 3000K	BZ Bronze	SF Single fuse
	C Cutoff			40 4000K		DF Double fuse
	G Grid			50 5000K		SP10 10kV surge protection ^[4]
					WHT White	PC Photocell, 120-277V
						P14 Pencil Photocell, 120-277V
						OCC-S2X Integral occupancy and motion sensor with dimming ^[5]
						EM/6W 6-watt emergency battery ^[6]

SPECIFICATIONS

- HOUSING – Die-cast gasketed aluminum enclosure. Nickel-plated stainless steel hardware.
- OPTICAL – Type IV wide forward throw distribution.
- THERMAL – Integral heat sink. Operating temperature -40°C to 50°C.
- LENS – Polycarbonate opal lens.
- LED DRIVER – 0-10V integral dimming driver.
- ELECTRICAL – 120-277V input range; 50-60Hz; power factor >0.90; THD<20%. 2kV standard surge protection. L70 = 187,000 hours at 25°C.
- FINISH – Textured bronze powder coat over a chromate conversion coating.
- MOUNTING – Surface mount.
- LISTINGS – CSA listed for wet locations, ANSI/UL 1598, 8750; IP66 sealed LED compartment.
- WARRANTY – 5-year limited warranty, see hew.com/warranty.

DRIVER	VOLTAGE
DIM Dimming driver ^[7]	UNV 120-277V
	347 347V ^[8]

NOTES

- See page 2 for FIXTURE DETAILS.
- Lumen output based on 4000 CCT. Actual lumens may vary +/-5%, see page 2 for FIXTURE PERFORMANCE DATA.
- Fixtures ordered with factory-installed photocell or motion sensor controls are internally wired for switching and/or 1-10V dimming within the housing.

- In addition to 2kV standard surge protection, total of 12kV.
- For mounting heights 8'-40', 120-277V only.
- 90 minutes emergency operation; ambient operating temperature range: 10°C to 50°C.
- Prewired for 0-10V low voltage applications.
- Extended lead times may apply. Consult factory for availability.



WLRD LED Bulkhead Wall Pack – Round

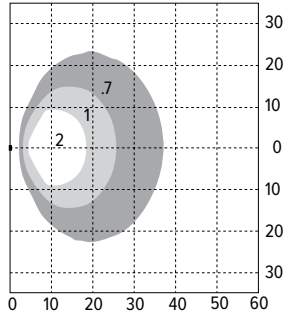
FIXTURE PERFORMANCE DATA

STYLE	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
Open	2230	20	111.5
Cutoff	1858		92.5
Grid	1897		94.9

- Photometrics tested in accordance with IESNA LM-79. Results shown are based on 25°C ambient temperature.
- Wattage shown is average for 120V through 277V input.
- Results based on 4000K, 80 CRI, actual lumens may vary +/-5%
- Use multiplier table to calculate additional options.

FOOTCANDLE DISTRIBUTIONS

OPEN

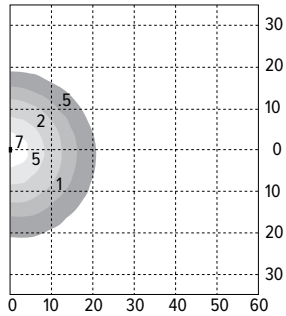


Footcandle calculations based on standard building reflectance of .10 with a ground reflectance of .0 and a light loss factor of .90.

Fixture installed at 10' mounting height.

- Efficacy: 112 lm/W
- Flux: 2230 lm
- CRI: 80
- CCT: 4000K
- BUG Ratings: B1-U1-G0

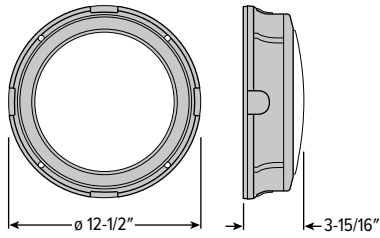
CUTOFF



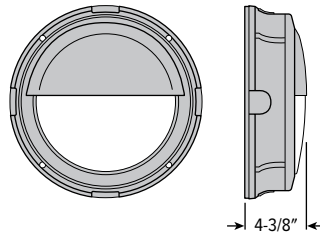
- Efficacy: 93 lm/W
- Flux: 1858 lm
- CRI: 80
- CCT: 4000K
- BUG Ratings: B1-U1-G0

FIXTURE DETAILS

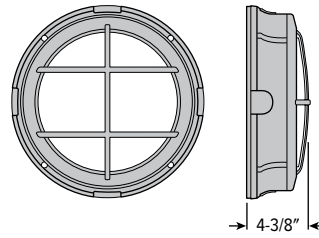
OPEN



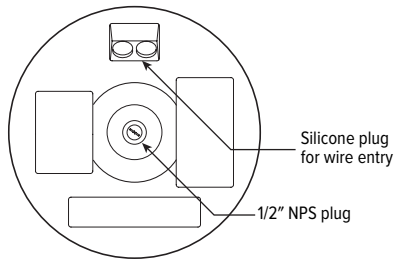
CUTOFF



GRID



BACKVIEW



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Permit # _____



Dura Tech® 5000/Dura Tech® mx with Substrate 40 Year Limited Warranty

AEP Span, a division of ASC Profiles LLC ("ASC") provides the following limited warranty to the Building Owner stated on the face of this limited warranty for installed Dura Tech 5000/Dura Tech mx coated metal panels (the "Product").

Warranty. Subject to the terms and conditions contained in this limited warranty, ASC warrants that:

- (1) The paint on the Product will not, for a period of 40 years after installation (but not longer than 40 years 6 months from application of the coating):
 - (a) Crack, flake or peel (loss of adhesion) to an extent that is apparent on ordinary outdoor visual observation. Slight crazing or cracking, which may occur during fabrication of the building parts, and spangle cracking are not covered under this limited warranty.
 - (b) Change color more than 5 Hunter delta-E units as determined by ASTM method D-2244-02. Color change shall be measured on an exposed painted surface that has been cleaned of surface soils and chalk, and the corresponding values measured on the original or unexposed painted surface. Color changes may not be uniform on surfaces that are not equally exposed to the sun and elements and ASC does not warrant that color changes will be uniform.
 - (c) Chalk in excess of ASTM D-4214-98 method A D659 number 8 when properly maintained as described in this limited warranty.
- (2) For ZINCALUME® or GALVALUME® the substrate will not for period of 25 years after shipment, rupture, fail structurally or perforate due to exposure to normal atmospheric conditions. This limited warranty excludes any accumulations of red rust which occurs at breaks for discontinuities in the surface, such as field cut edges, and shall not apply to metal penetration, cuts or shears made at any time after product leaves ASC.

Exclusions and limitations.

- (1) This limited warranty applies only to Product installed on buildings within the Continental United States, Alaska, Canada, Hawaii and Mexico.
- (2) This limited warranty applies only to the Building Owner stated in on the face of this limited warranty, and is not transferable and not assignable to any other person or entity. This limited warranty will not inure to the benefit of any other party and will terminate automatically upon any change of control of the Building Owner.
- (3) This limited warranty does not cover industrial applications such as steel mills, power generating stations, oil fields, oil refineries, ore mines, chemical plants, paper mills, or other unusual environmental exposure. Customer is required to consult with ASC before any installation takes place on industrial applications and ASC reserves the right to determine whether or not the Products will be covered by this limited warranty.
- (4) This limited warranty will be null and void unless the Product has been paid for in full.
- (5) Corrosion or loss of paint adhesion as a result of embossing or perforating the Product is not covered by this limited warranty.
- (6) This limited warranty does not apply to areas that are sheltered from rainfall or that do not provide drainage.
- (7) This limited warranty does not apply in the event of deterioration to the Product caused directly or indirectly by contact with fasteners including deterioration of the Product caused by galvanic corrosion/dissimilar metals.
- (8) This limited warranty does not cover (A) Product that has bends (i) less than 2T radius for sheet thickness of .0299" and thinner and (ii) less than 4T radius for sheet thickness of .0300" and thicker and (B) forming of the material that incorporates stretching or severe reverse bending, or that subjects the coating to alternate compression and tension.
- (9) This limited warranty does not cover any Product located 30 miles or less from the Halema'uma'u or Pu'u'o'o Kilauea volcano vents on Island of Hawaii.
- (10) This limited warranty does not cover any Product located within 1000 feet of a saltwater and/or marine environment.
- (11) Corrosion, loss of adhesion, color changes or any other damage as a result of cleaning the Product with abrasive or chemical cleaners is not covered by this limited warranty. This Product must not be cleaned with abrasive or chemical cleaners.
- (12) Failure of Purchaser to comply with the Installation Information and Maintenance sections herein shall make this limited warranty null and void.
- (13) This limited warranty does not cover damages or conditions resulting from circumstances beyond ASC's control, including, without limitation, the following:
 - (a) Acts of God, falling objects, explosions, external forces, or fire;
 - (b) Unusual or aggressive atmospheres such as those where the Product is exposed to or contaminated with harmful or corrosive chemicals or salt spray;
 - (c) Fallout or exposure to corrosive fumes, ash or cement dust;
 - (d) Standing or ponding water on the Product;
 - (e) Significant differences in insulation below the coated metal panel;
 - (f) Failure to store or install Product in a way that allows for adequate circulation;
 - (g) Condensation or other contamination or damage attributable to improper shipping, packaging, handling, processing or installation;
 - (h) Failures or damage resulting from edge corrosion;
 - (i) Scratching or abrading during or after installation;
 - (j) Prolonged contact with or removal of vegetation, dirt or gravel;
 - (k) Sustained exposure to animals or animal waste;
 - (l) Where the Product is in contact with, or subject to runoff from lead, copper, CCA, ACQ, CA,

pressure treated, green or wet lumber, or wet insulation or other treated lumber (outdoor wood) or fire retardant impregnated or treated wood shakes;

- (m) Mishandling of the Product, including abuse, alteration, modification, improper use or storage;
- (n) Damage from snow or ice removal or aggressive pressure washing; and
- (o) Damages or conditions at the point(s) and adjacent areas where materials or items such as snow guards or solar panels are attached or adhered to the Product.

Notification of claim; Right of ASC to inspect. ASC must be notified within 20 days after discovery of any alleged condition giving rise to a claim, and ASC and its representatives must be allowed an opportunity to inspect and if required, obtain a sample of the Product. Upon request by ASC, the purchaser shall provide identification of the Products involved in the claim, including the date of installation and order number. All decisions regarding the existence of conditions affecting this limited warranty will be made by ASC and will be final and binding on all parties. The party notifying ASC of any defect or claim will reimburse all of ASC's third party expenses incurred in connection with the investigation of a defect or claim if it is later determined that ASC is not responsible for the problem underlying the defect or claim. In no event will the original warranty period set forth above be extended by a warranty claim.

To make a claim or obtain service under this limited warranty, the Building Owner must call ASC at 1-800-360-2477 or submit your claim in writing to ASC Profiles 2110 Enterprise Blvd., West Sacramento, CA 95691. Attn: Claims Administrator.

Installation information. The Product must be installed to prevent standing water and condensation. The roof pitch must not be less than 1/4:12. Responsibility for selection of suitable long-lasting fasteners to be used with the Product rests solely with the Building Owner or the installer it chooses. Although ASC may provide information to aid in selection of fasteners, the provision of such information by ASC will not constitute an endorsement or warranty of performance of the Product with those fasteners under any conditions.

Maintenance. The Product must regularly be washed, either by sweet or tap water or by cleaning with 1/3 cup of Tide® detergent or other common detergent containing less than 0.5% phosphate dissolved in one gallon of water. A clear water rinse should follow immediately. The Product must not be cleaned with abrasive or chemical cleansers. Cleaning must include the underside of any panel overhang where the underside is exposed to the weather. If Product is installed in a mild marine environment, less than 1 mile and greater than 1000 feet from breaking surf, Product must be washed two times per year.

General terms and conditions; Disclaimer of all other warranties. This warranty is limited and is non-transferable. The Building Owner's sole and exclusive remedy against ASC will be repair or replacement of the defective Product, or a refund the purchase price, at the sole option of ASC. THIS LIMITED WARRANTY IS ASC'S SOLE AND EXCLUSIVE WARRANTY REGARDING THE PRODUCT AND IS IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY OF QUALITY. ALL WARRANTIES OTHER THAN THIS LIMITED WARRANTY (INCLUDING ALL IMPLIED WARRANTIES LISTED IN THE PREVIOUS SENTENCE) ARE EXPRESSLY EXCLUDED AND DISCLAIMED. TO THE EXTENT LOCAL LAW PROVIDES THAT ANY IMPLIED WARRANTIES MAY BE NOT EXCLUDED OR DISCLAIMED, THOSE WARRANTIES ARE LIMITED IN DURATION TO THE SHORTER OF (i) THE DURATION OF THE EXPRESS WARRANTY PROVIDED IN THIS LIMITED WARRANTY OR (ii) THE SHORTEST DURATION REQUIRED BY LOCAL LAW.

IN NO CASE WILL ASC BE LIABLE TO ANY PERSON OR ENTITY FOR PROPERTY DAMAGE OR PERSONAL INJURY IN TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY), CONTRACT, WARRANTY, OR OTHERWISE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, CONSEQUENTIAL OR OTHER DAMAGES OR LOSSES, INCLUDING BUT NOT LIMITED TO DAMAGE FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS TO THE BUILDING OR ITS CONTENTS OR ANY OTHER LOSS, REGARDLESS OF THE CAUSE OF SUCH DAMAGE AND WHETHER OR NOT CAUSED BY OR RESULTING FROM THE NEGLIGENCE OF ASC, EVEN IF ASC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES. ASC'S TOTAL LIABILITY FOR ALL CLAIMS OF ANY KIND WILL NOT EXCEED THE PURCHASE PRICE PAID TO ASC FOR THE PRODUCT IN QUESTION.

No representative, dealer, reseller, employee, installer or any other person is authorized to make, modify or change this limited warranty or make any other warranty, representation or promise on behalf of ASC with respect to the Product. No term or condition other than those stated in this limited warranty and no agreement or understanding, whether oral or written, in any way purporting to modify or change this limited warranty will be binding on ASC, unless made in writing and signed by the President of ASC.

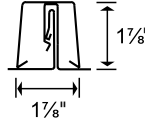
Choice of law. This limited warranty and disputes arising hereunder or pursuant to matters contemplated by this limited warranty shall be interpreted in accordance with the laws of the State of California.

This warranty applies to Products invoiced on or after September 1, 2019. For products invoiced prior to that date, the warranty in effect at that time the material is originally invoiced shall apply.

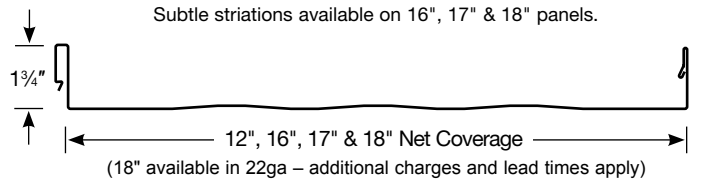
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Reviewed for
Credit Management
DATE: 09/11/19
20241810
Permit #

Design Span hp is a performance-rated structural standing seam, concealed fastener metal roof system with net coverage of 12", 16", 17" & 18".

Design Span hp is excellent as a roof over metal or wood decking, and as a fascia or mansard over plywood or supports.



Optional wide batten cap offers a clean bold look.



Section Properties									
Width	Gauge	Base Steel Thickness (in)	Yield (ksi)	Tensile (ksi)	Wt. (lbs/ft ²)	I+ (in ⁴ /ft)	S+ (in ³ /ft)	I- (in ³ /ft)	S- (in ³ /ft)
12"	24	0.0232	50	65	1.45	0.1185	0.0820	0.0762	0.0586
	22	0.0294	50	65	1.83	0.1522	0.1080	0.0997	0.0771
16"	24	0.0232	50	65	1.34	0.0943	0.0624	0.0593	0.0440
	22	0.0294	50	65	1.68	0.1213	0.0825	0.0773	0.0580
17"	24	0.0232	50	65	1.31	0.0901	0.0589	0.0562	0.0414
	22	0.0294	50	65	1.65	0.1158	0.0779	0.0734	0.0546
18"	24	0.0232	50	65	1.30	0.0858	0.0557	0.0533	0.0391
	22	0.0294	50	65	1.63	0.1104	0.0737	0.0696	0.0515

NOTE: The hybrid positive moment of inertia, I, presented for determining deflection is: $(2I_{\text{Effective}} + I_{\text{Gross}})/3$

standard features

- Offered in 12", 16", 17" & 18" widths (18" in 22ga available special order).
- Factory applied sealant is a standard offer.
- Custom manufactured sheet lengths from 5'-3" to 45'-0".
- Subtle striations between ribs on 16" and wider panels.
- Available in 24ga and 22ga in standard finishes - Refer to AEP Span Color Charts for full range of color options, prints, textures, finishes and paint systems.
- Recommended minimum slope of 2:12. Inquire for slopes below 2:12.
- Tested in accordance with UL580-Class 90 & ASTM E1592.
- Has been tested for air infiltration per ASTM E1680, and water infiltration per ASTM E1646.
- Snap-together panel means no field seaming is required.
- Panel evaluated by accredited third party. All structural performance data is contained within an IBC/IRC 2015 code compliance report.



optional features

- Short cut sheets from 6'-0" to 1'-0". Additional fees and lead times may apply.
- Longer lengths available from 70'-0" (Tacoma, WA facility) to 100'-0" (Fontana, CA facility). Additional fees and lead times may apply.
- Additional wide batten cap option offers a clean bold look with the structural capacity and weather resistance of regular Design Span hp.
- Factory notching available for turn under at the eave.
- 18" width available. Additional fees and lead times may apply.



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09/16/2024

12" Design Span hp									
Gauge	Span	Cond.	Allowable Inward Loads (lbs/ft ²) per Span (ft.-in.)						
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	Single Span	W/Ω	409	262	182	134	102	81	65
		L/180	-	-	-	-	-	-	-
	Double Span	W/Ω	285	184	128	94	72	57	46
		L/180	-	-	-	-	-	-	-
	Triple Span	W/Ω	353	228	160	118	90	71	58
		L/180	-	-	-	-	-	-	-
22	Single Span	W/Ω	539	345	240	176	135	106	86
		L/180	-	-	-	-	-	-	-
	Double Span	W/Ω	377	243	169	124	96	76	61
		L/180	-	-	-	-	-	-	-
	Triple Span	W/Ω	468	302	211	155	119	94	76
		L/180	-	-	-	-	-	-	-

Gauge	Allowable Outward Loads (lbs/ft ²) per Span (ft.-in.)								
	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	82	76	71	67	63	59	56	52	48
22	82	76	71	67	63	59	56	52	48

16" Design Span hp									
Gauge	Span	Cond.	Allowable Inward Loads (lbs/ft ²) per Span (ft.-in.)						
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	Single Span	W/Ω	309	199	138	102	78	62	50
		L/180	-	-	-	-	-	-	-
	Double Span	W/Ω	214	138	96	71	54	43	34
		L/180	-	-	-	-	-	-	-
	Triple Span	W/Ω	265	171	119	88	67	53	43
		L/180	-	-	-	-	-	-	-
22	Single Span	W/Ω	412	263	183	134	103	81	66
		L/180	-	-	-	-	-	-	-
	Double Span	W/Ω	245	183	127	93	72	57	45
		L/180	-	-	-	-	-	-	-
	Triple Span	W/Ω	278	223	158	117	90	70	57
		L/180	-	-	-	-	-	-	-

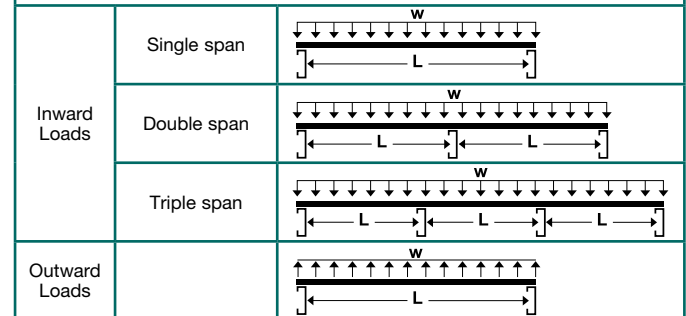
Gauge	Allowable Outward Loads (lbs/ft ²) per Span (ft.-in.)								
	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	49	42	36	30	29	29	29	28	28
22	74	66	58	49	49	48	47	47	46

17" and 18" Design Span hp									
Gauge	Span	Cond.	Allowable Inward Loads (lbs/ft ²) per Span (ft.-in.)						
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	Single Span	f	275	178	124	91	70	55	44
		L/180	-	-	-	-	-	-	-
	Double Span	f	190	123	86	62	48	38	31
		L/180	-	-	-	-	-	-	-
	Triple Span	f	236	152	107	78	60	47	38
		L/180	-	-	-	-	-	-	-
22	Single Span	f	368	235	164	120	92	73	59
		L/180	-	-	-	-	-	-	-
	Double Span	f	218	163	113	83	64	50	40
		L/180	-	-	-	-	-	-	-
	Triple Span	f	247	198	141	103	79	63	51
		L/180	-	-	-	-	-	-	-

Gauge	Allowable Outward Loads (lbs/ft ²) per Span (ft.-in.)								
	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
24	48	42	35	29	29	28	28	28	27
22	67	59	51	43	43	42	42	41	41

LOADING TABLE LEGEND

W/Ω - Allowable panel strength
 L - Span (Inches)
 L/180 - Load limited by a deflection of 1/180 of the span
 W - Distributed load



NOTES:

- The information in these tables applies to uniform loads only.
- Upper values based on allowable panel strength.
Bottom values based on allowable service load deflection of L/180.
- "-" denotes that capacities are limited by panel strength vs. deflection.
- Steel conforms to ASTM A792 (ZINCALUME[®]) 50,000 psi minimum yield.
- Values are based on AISI S100-07/S2-10.
- Maximum allowable outward load capacities are shown and dependent upon fastener-to-substrate capacities. Refer to IAPMO-UES report #ER-0309 for specific product capacities.

Specifications subject to change without notice.



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JM for SM

Signed _____

Date: _____

Customer Service Center
Tacoma, WA

Phone: 800-733-4955

Fax: 253-272-0791

For most current versions of literature please visit
www.aepspan.com

Design Span[®] hp

Installation Guide

- Table of Contents -

<i>Section</i>	<i>Page</i>
<i>General Notes</i>	<i>i</i>
<i>Panel Information</i>	<i>1</i>
<i>Clip Information</i>	<i>2</i>
<i>Eave</i>	<i>3</i>
<i>Eave - with Gutter</i>	<i>4</i>
<i>Eave Hem</i>	<i>5</i>
<i>Eave - Wide Batten</i>	<i>6</i>
<i>Fascia Transition / Wall</i>	<i>7</i>
<i>Fascia Transition (3D)</i>	<i>8</i>
<i>Fascia Transition – Wide Batten</i>	<i>9</i>
<i>Gable</i>	<i>10</i>
<i>Side Wall (Rake Wall)</i>	<i>11</i>
<i>Side Wall (Alt. Details)</i>	<i>12</i>
<i>Ridge / Hip</i>	<i>13</i>
<i>Ridge / Hip (Wide Batten)</i>	<i>14</i>
<i>Ridge - Vented</i>	<i>15</i>
<i>Head Wall</i>	<i>16</i>
<i>Eave - High</i>	<i>17</i>
<i>Slope Transition</i>	<i>18</i>
<i>Valley</i>	<i>19</i>
<i>Roof Penetrations</i>	<i>20</i>
<i>Roof Curb (Side Wall Flashing)</i>	<i>21</i>
<i>Roof Curb (Uphill / Downhill Detail)</i>	<i>22</i>
<i>Snow Drag Loads</i>	<i>Appendix A</i>
<i>Drag Load Resistance</i>	<i>Appendix B</i>



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Permit # 2204180

General Notes

The attached installation details are intended to be a design aid and do not depict all situations. Modifications are the responsibility of the designer/user and should take into account climate conditions such as wind and snow, governing code requirements, and the actual usage and maintenance of the structure.

Flashings:

Where possible, flashings should be lapped away from prevailing winds. Certain flashings should be supported if it is likely that equipment (ladder, etc.) will be used against them or if foot traffic is anticipated. Check with AEP Span any time you intend to specify a prefinished flashing in a gauge or finish different than the roof panels. It is good practice to specify that all flashings be of the same material (gauge, color, finish) as the roof panels to ensure long-term durability. Field-painted flashings rarely equal the durability and color fastness of factory baked-on paint systems. The enclosed details have minimized the use of exposed fasteners where possible. The edges of flashings have also been shown hemmed to strengthen and to minimize the exposure of cut edges.

Flashing design and fabrication is generally the responsibility of the contractor. For convenience, we have provided some flashing drawings on our website at <http://www.aepspan.com/roof/prodDetailad08.html?id=35>. Applicable Design Span[®] hp flashing part numbers are referenced within this installation guide.

Substrates:

Design Span[®] hp roofing panels can be used over solid substrates or over spaced supports.

Slope Requirements:

Panels should be used on slopes of 2:12 or greater. Inquire for slopes below 2:12.

Panel Attachment:

Consult the Design Span[®] hp fastener attachment schedule or contact your AEP Span representative for proper clip spacing and fastener size, type, and quantities to meet the project's wind uplift (negative) load requirements. The details in this guide show two fasteners per clip. A minimum of two fasteners is always recommended although three fasteners may be required based on panel load requirements.

Condensation, Insulation, & Ventilation:

It is the designer's responsibility to determine the need and composition of condensation control materials including insulation and vapor retarders, as well as ventilation requirements. Metal roofing is susceptible to condensation and its control should be carefully considered. Applications over rigid insulation may require solid blocking/framing for installation of perimeter flashings and drag load fasteners.

Underlayments:

Prior to installation, an underlayment material may be installed over the roof substrate. The designer should select and specify an appropriate material. The specified material must have a non-abrasive top surface that will not mar, scratch, or abrade the underside of the metal panels and flashings.



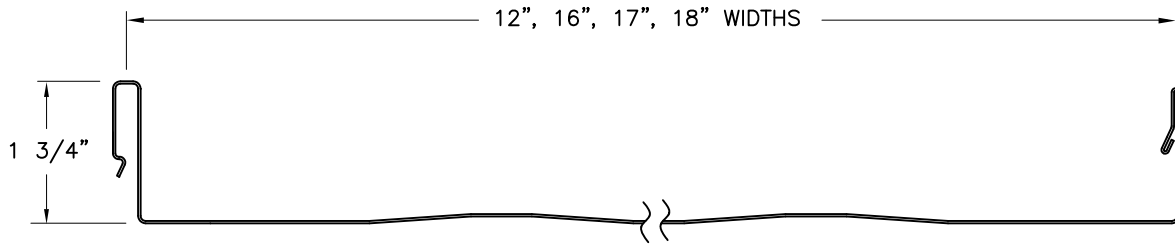
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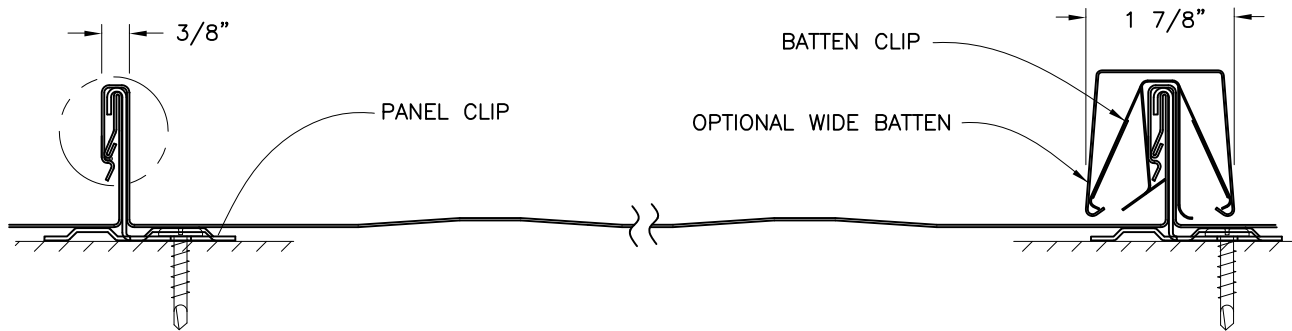
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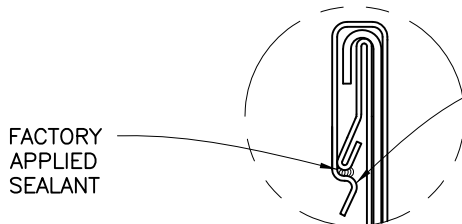
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DESIGN SPAN HP PANEL



INSTALLED VIEW



NOTE: BE CERTAIN THAT ADJOINING PANELS FULLY ENGAGE ('SNAP') TO ACHIEVE RATED PANEL PERFORMANCE.



DESIGN SPAN HP



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PANEL INFORMATION

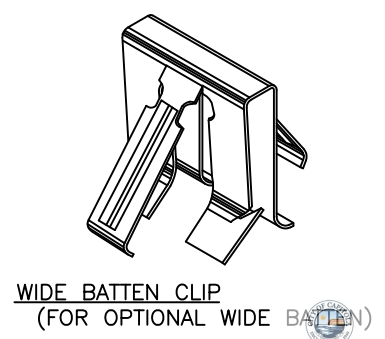
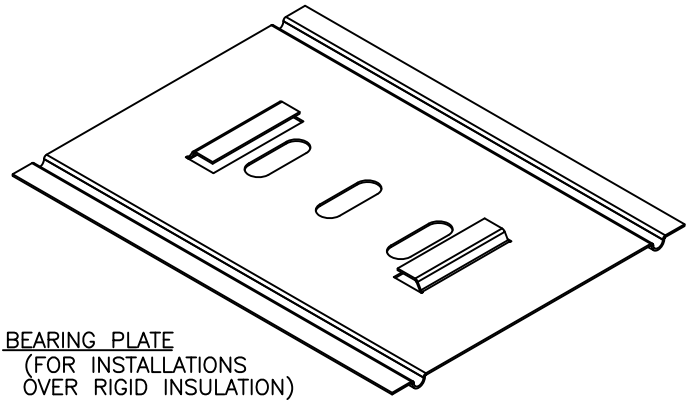
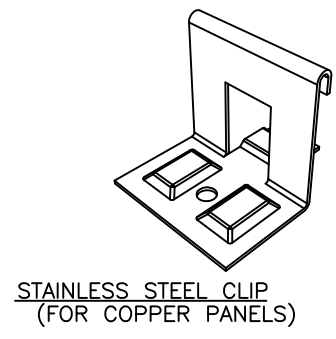
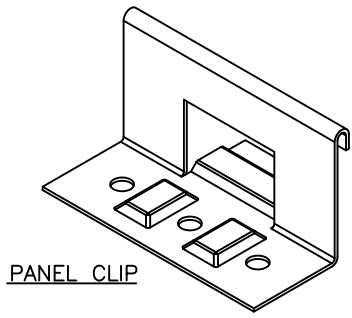
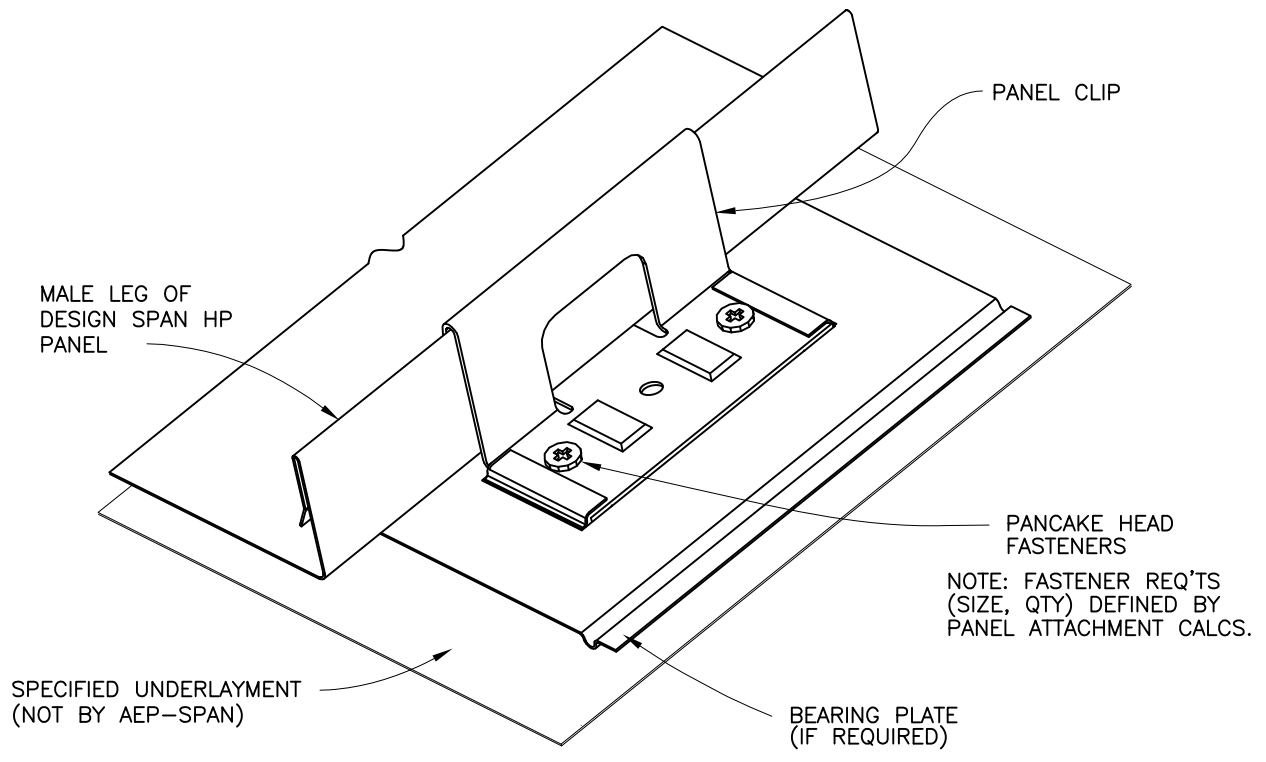
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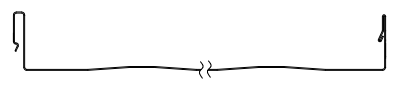
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DS-01



DESIGN SPAN HP



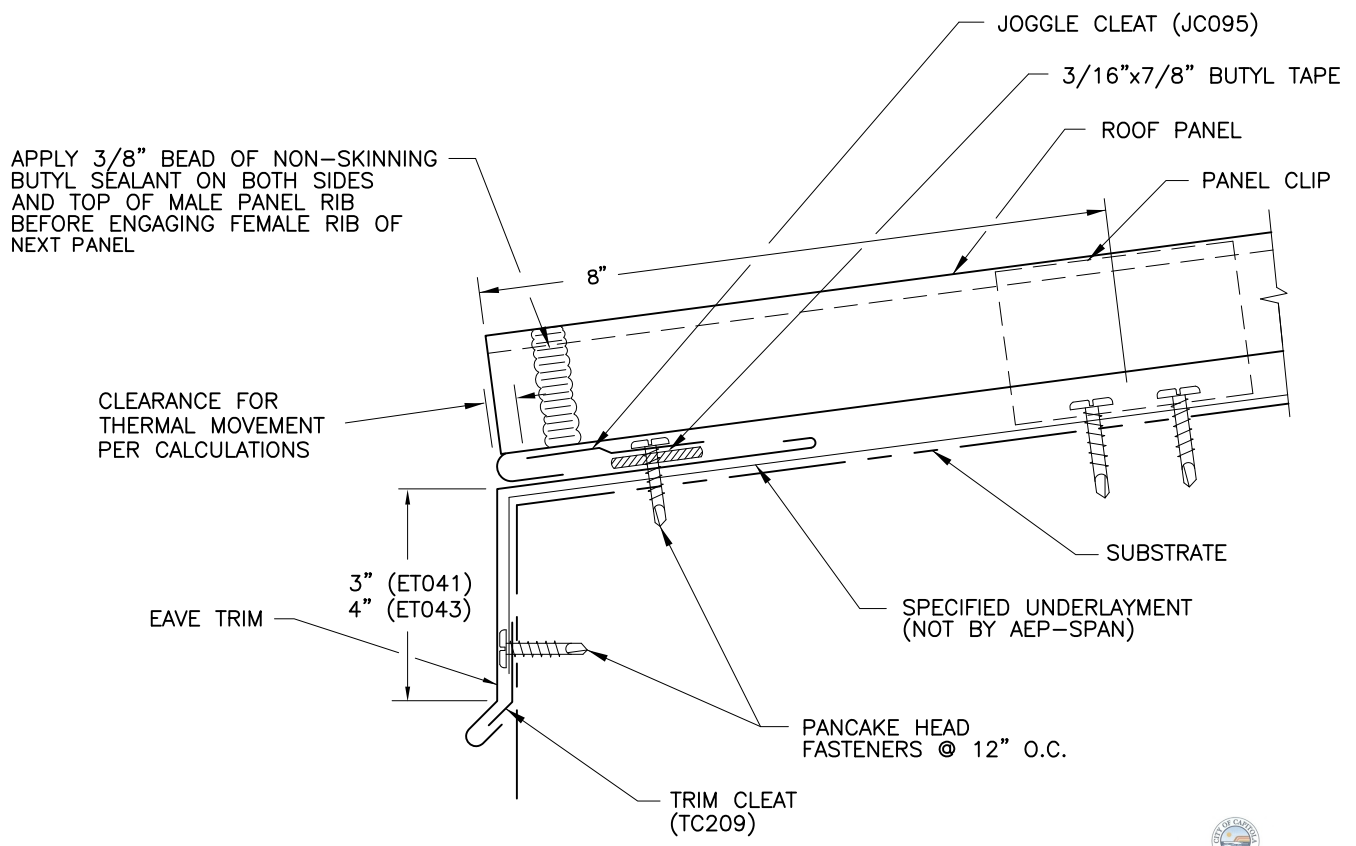
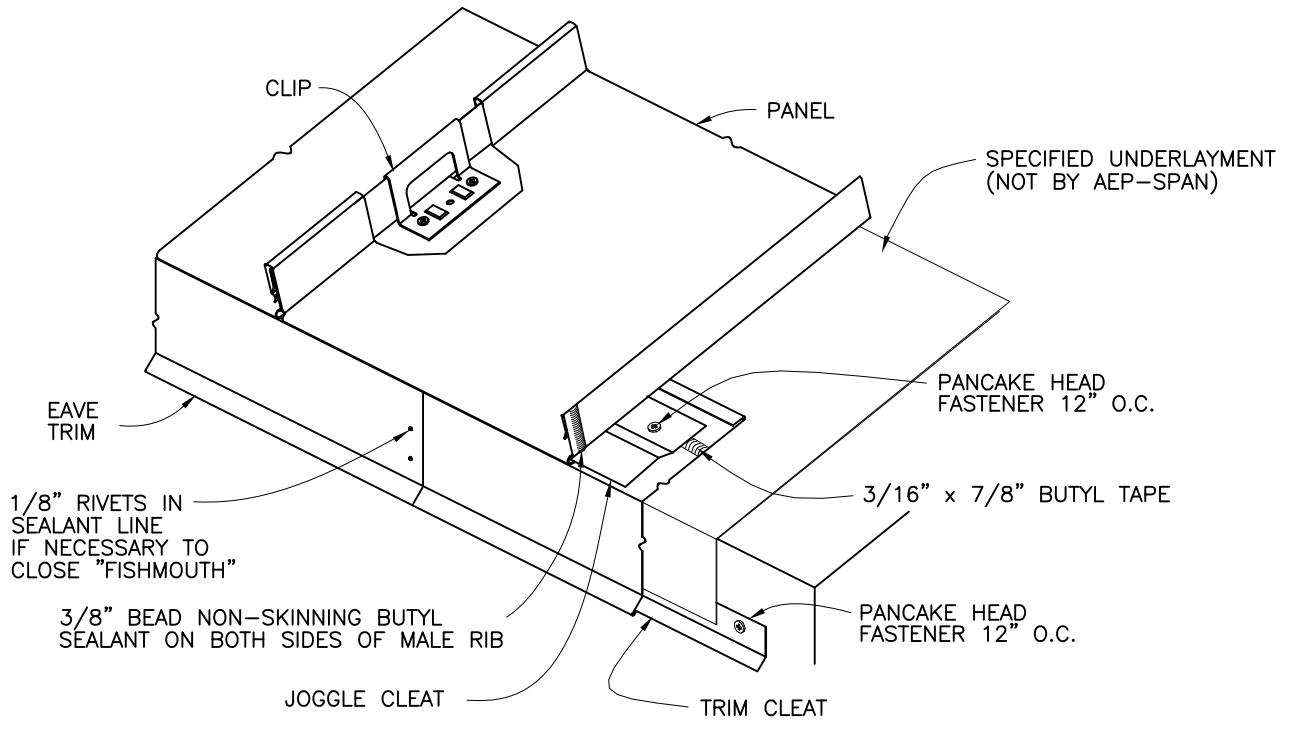
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CLIP INFORMATION



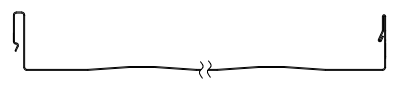
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DS-02



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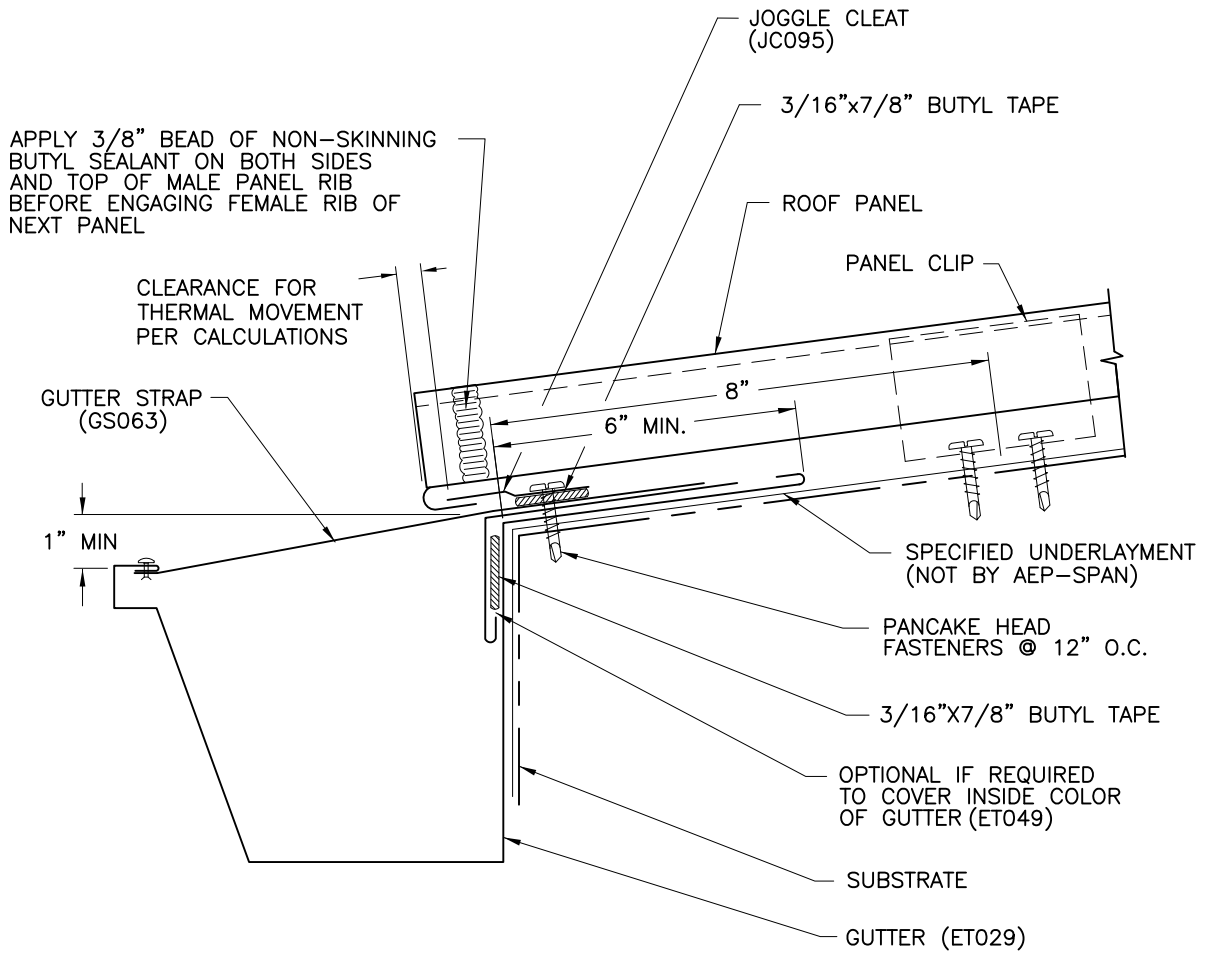
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DS-03



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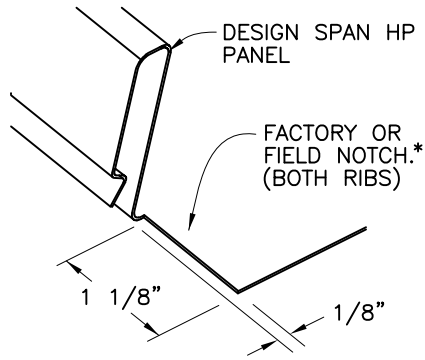
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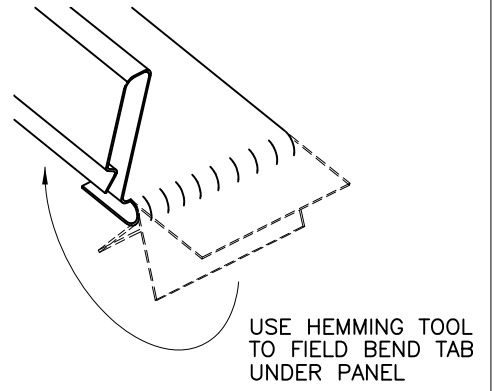
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DS-04

STEP 1

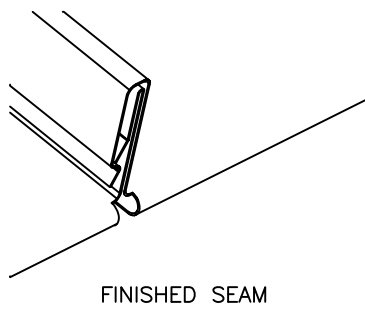
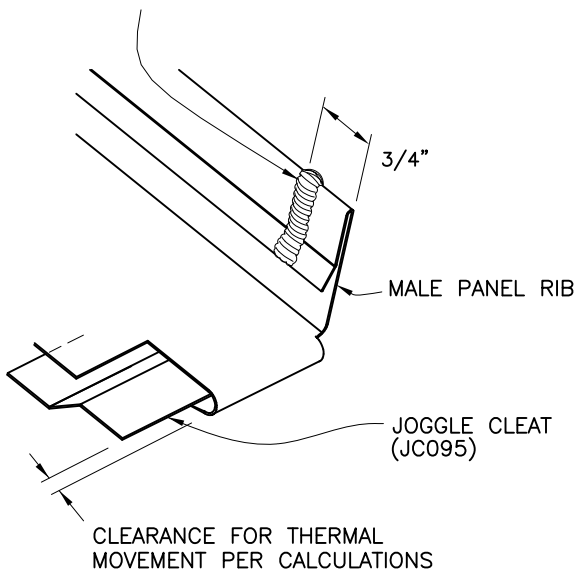


STEP 2



STEP 3

APPLY 3/8" BEAD OF NON-SKINNING BUTYL SEALANT ON BOTH SIDES AND TOP OF MALE PANEL RIB BEFORE ENGAGING FEMALE RIB OF NEXT PANEL



NOTE:
STANDARD FACTORY NOTCH IS 1-1/8". LONG LENGTH PANEL INSTALLATIONS REQUIRE GREATER FIELD NOTCHING DEPTH.



DESIGN SPAN HP



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EAVE HEM

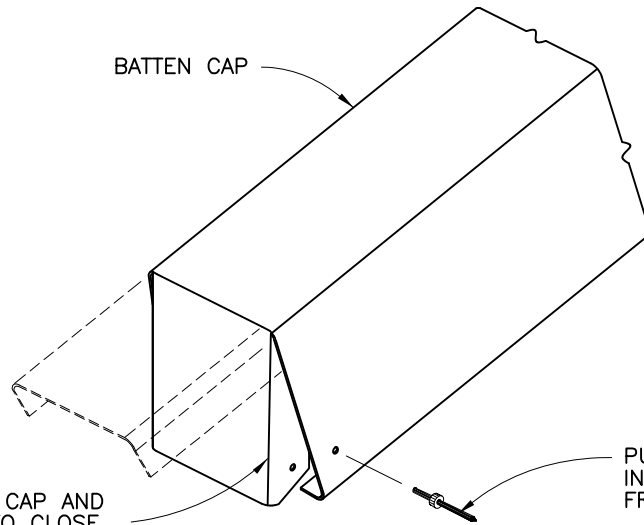
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Date: 09/16/2024

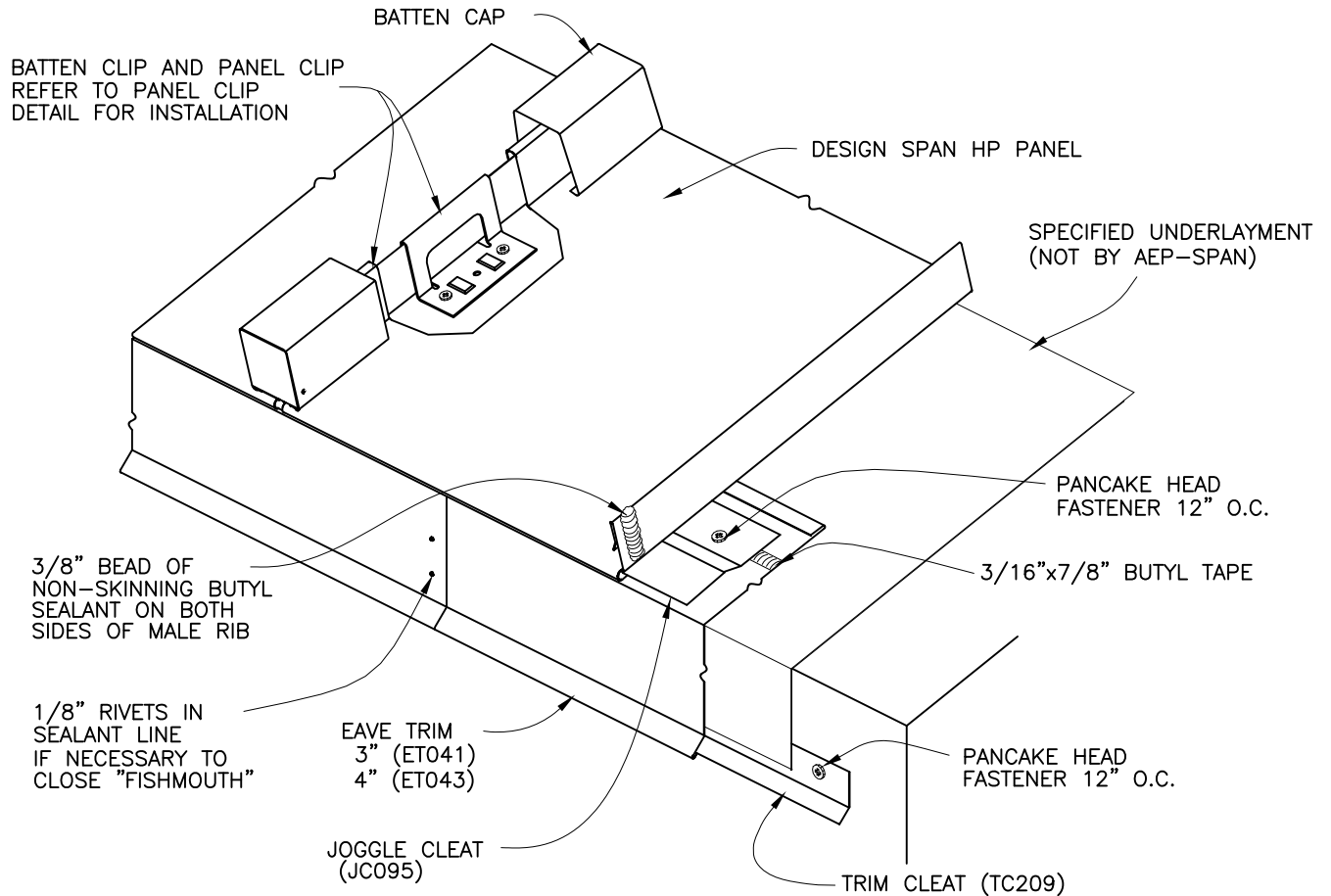
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DS-05



FIELD NOTCH CAP AND BEND OVER TO CLOSE OFF END OF BATTEN CAP.

PULL SIDES IN AND INSTALL 1/8" RIVET FROM EACH SIDE



BATTEN CLIP AND PANEL CLIP REFER TO PANEL CLIP DETAIL FOR INSTALLATION

DESIGN SPAN HP PANEL

SPECIFIED UNDERLAYMENT (NOT BY AEP-SPAN)

PANCAKE HEAD FASTENER 12" O.C.

3/16"x7/8" BUTYL TAPE

3/8" BEAD OF NON-SKINNING BUTYL SEALANT ON BOTH SIDES OF MALE RIB

1/8" RIVETS IN SEALANT LINE IF NECESSARY TO CLOSE "FISHMOUTH"

EAVE TRIM 3" (ET041) 4" (ET043)

PANCAKE HEAD FASTENER 12" O.C.

JOGGLE CLEAT (JC095)

TRIM CLEAT (TC209)



DESIGN SPAN HP



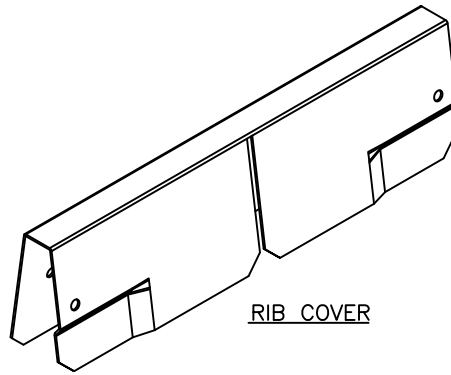
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DS-06



RIB COVER

APPLY CURING SEALANT TO BOTH SIDES OF RIB PRIOR TO INSTALLING RIB COVER

RIB COVER

PANEL CLIP

DESIGN SPAN HP PANEL

DESIGN CAUTION:
 ROOF SLOPE TRANSITIONS SUCH AS FASCIAS MAY ESTABLISH AN UNWANTED POINT OF PANEL FIXITY. CONTACT YOUR AEP SPAN REPRESENTATIVE FOR ASSISTANCE.

1/8" RIVET BOTH SIDES

FIELD CUT PANEL RIBS AND BEND OVER EDGE. SEAL OPEN ENDS OF ROOF PANEL RIBS WITH CURING SEALANT BEFORE INSTALLING RIB COVER

DESIGN SPAN HP PANEL

SPECIFIED UNDERLAYMENT (NOT BY AEP-SPAN)

PANEL CLIP (CONTACT AEP-SPAN FOR CLIP LOCATION & SPACING)

SUBSTRATE

PANCAKE HEAD FASTENERS

1/4" MIN. CLEARANCE FOR WEEPAGE

FIELD NOTCH AND HEM 1" (OPTIONAL FACTORY PANEL NOTCH)

DRIP FLASHING (DF009)

SHOULD BE MINIMUM 1/4" GREATER THAN PANEL RIB HEIGHT.

NOTE:
 THE USE OF THIS DETAIL IS NOT RECOMMENDED IN SNOW CLIMATES.



DESIGN SPAN HP

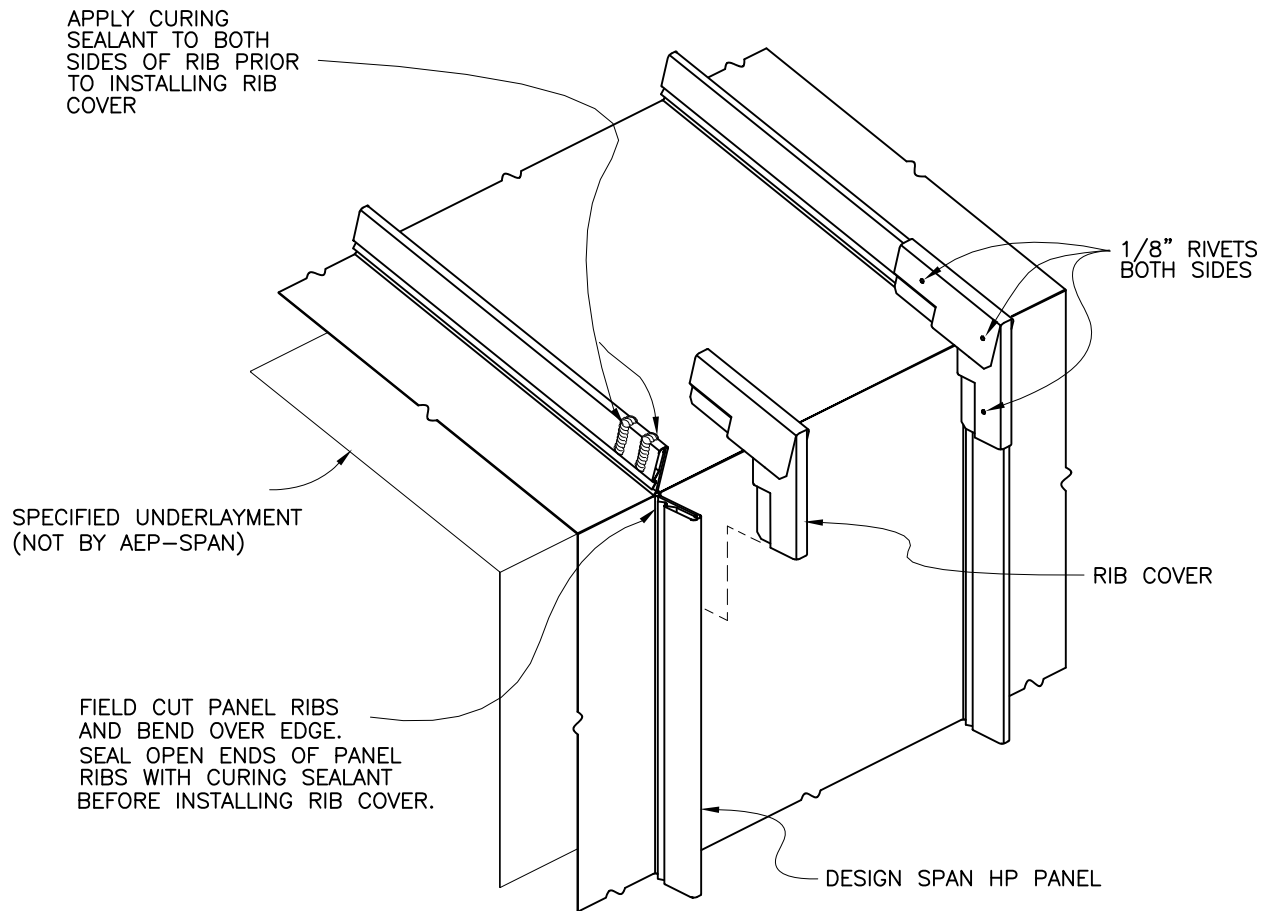


FASCIA TRANSITION / WALL

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DS-07

DESIGN CAUTION:
 ROOF SLOPE TRANSITIONS SUCH AS FASCIAS MAY ESTABLISH AN UNWANTED POINT OF PANEL FIXITY. CONTACT YOUR AEP SPAN REPRESENTATIVE FOR ASSISTANCE.



NOTE:
 THE USE OF THIS DETAIL IS NOT RECOMMENDED IN SNOW CLIMATES.



DESIGN SPAN HP



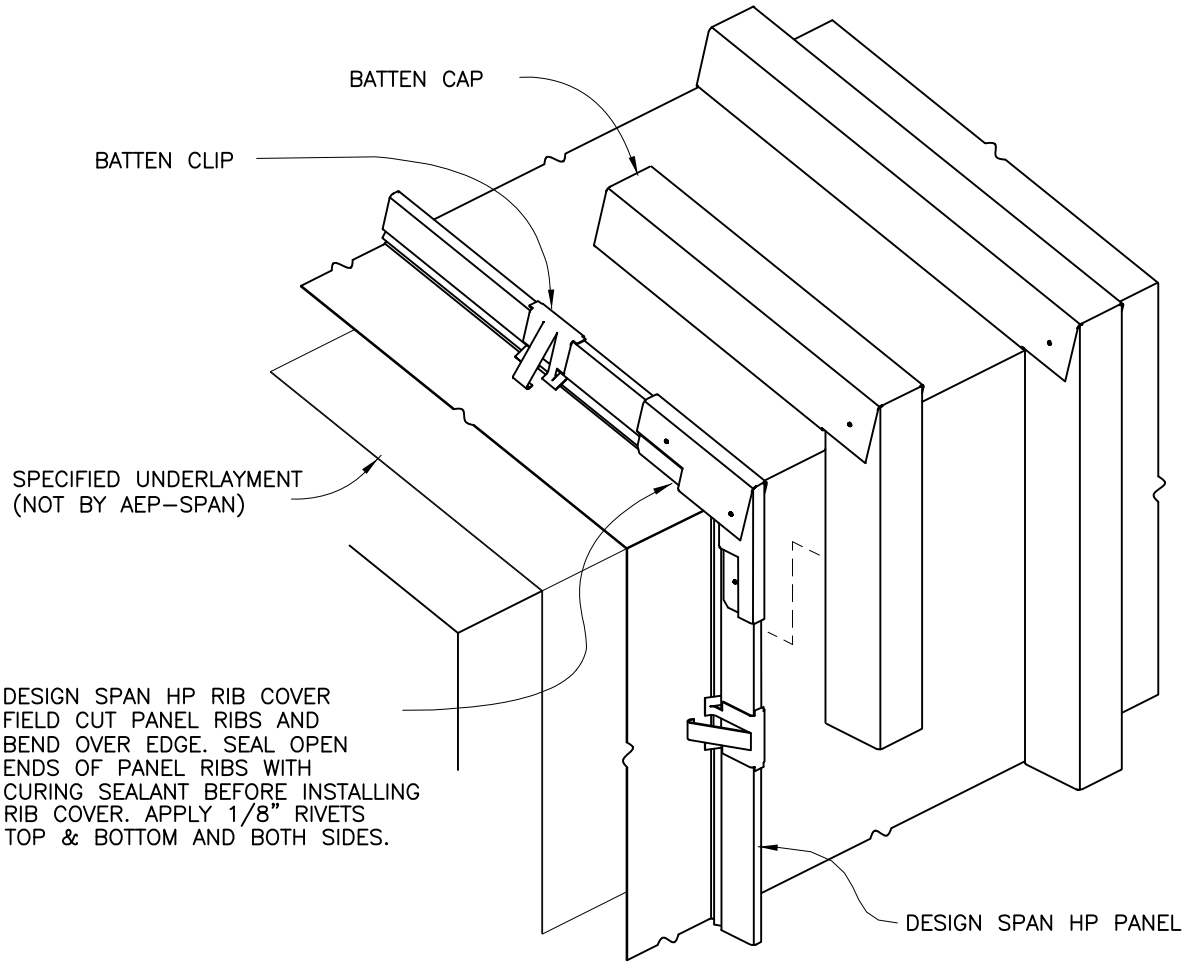
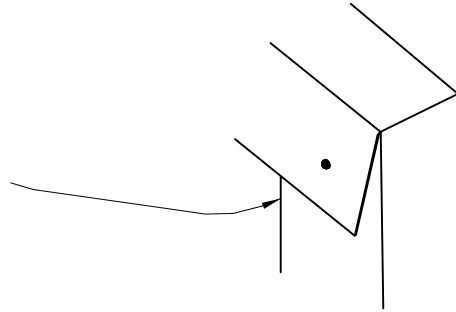
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 FASCIA TRANSITION
 Code Compliance

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 Date

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DS-08

FIELD CUT SIDES OF BATTEN CAP. NOTCH BOTTOM LEGS OF UPPER PORTION OF BATTEN CAP AS REQUIRED (VARIES PER ROOF SLOPE). BEND LOWER PORTION OF BATTEN CAP INTO PLACE. FASTEN IN PLACE WITH 1/8" RIVETS, BOTH SIDES.



DESIGN CAUTION:
ROOF SLOPE TRANSITIONS SUCH AS FASCIAS MAY ESTABLISH AN UNWANTED POINT OF PANEL FIXITY. CONTACT YOUR AEP SPAN REPRESENTATIVE FOR ASSISTANCE.



DESIGN SPAN HP

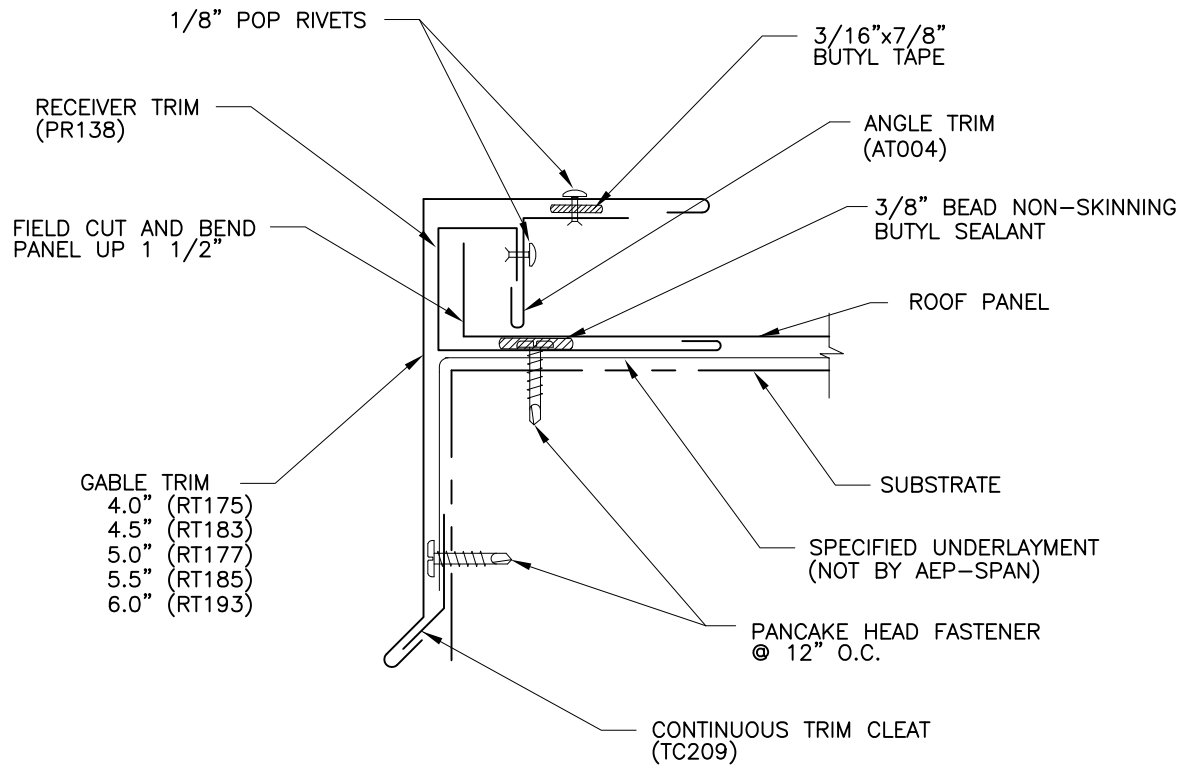


FASCIA TRANSITION
(WIDE BATTEN)

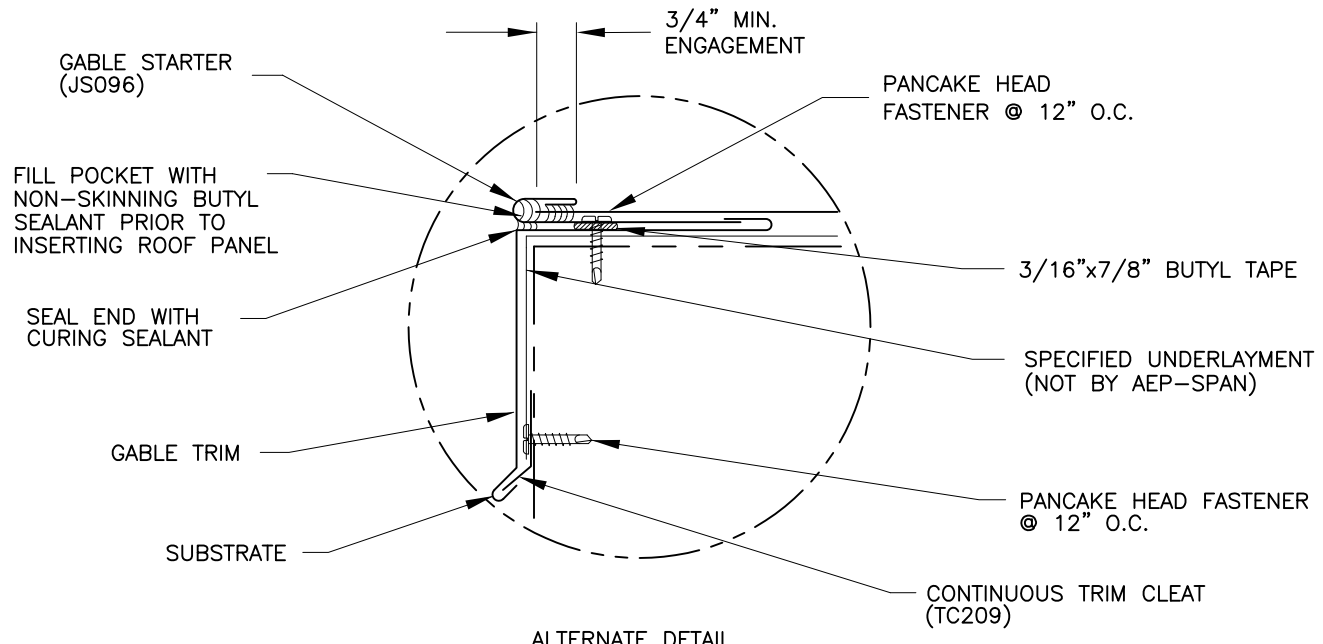
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DS-09



NOTE:
FIELD CUT FIRST AND
LAST PANELS TO
EQUAL WIDTH



ALTERNATE DETAIL



DESIGN SPAN HP



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GABLE

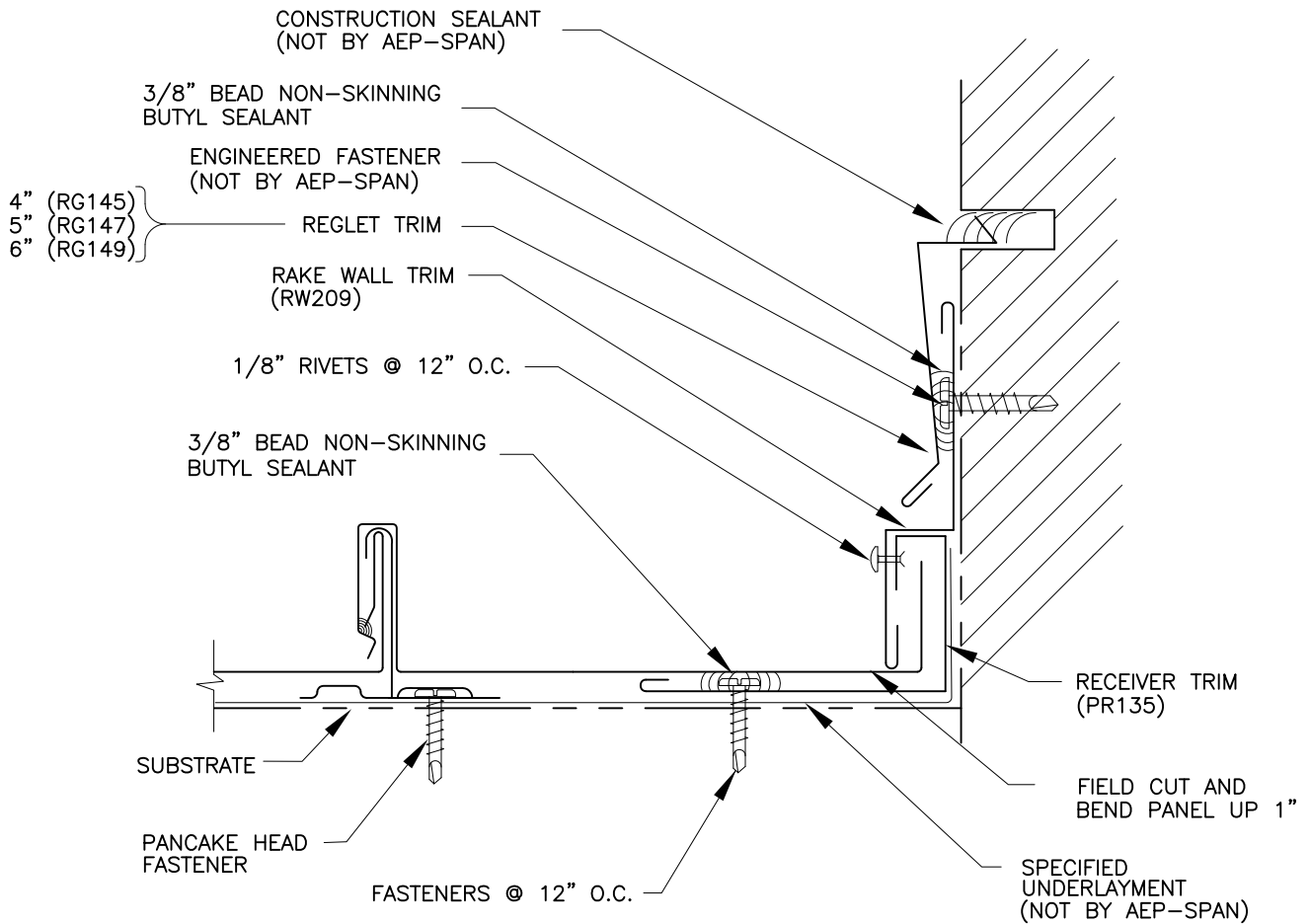
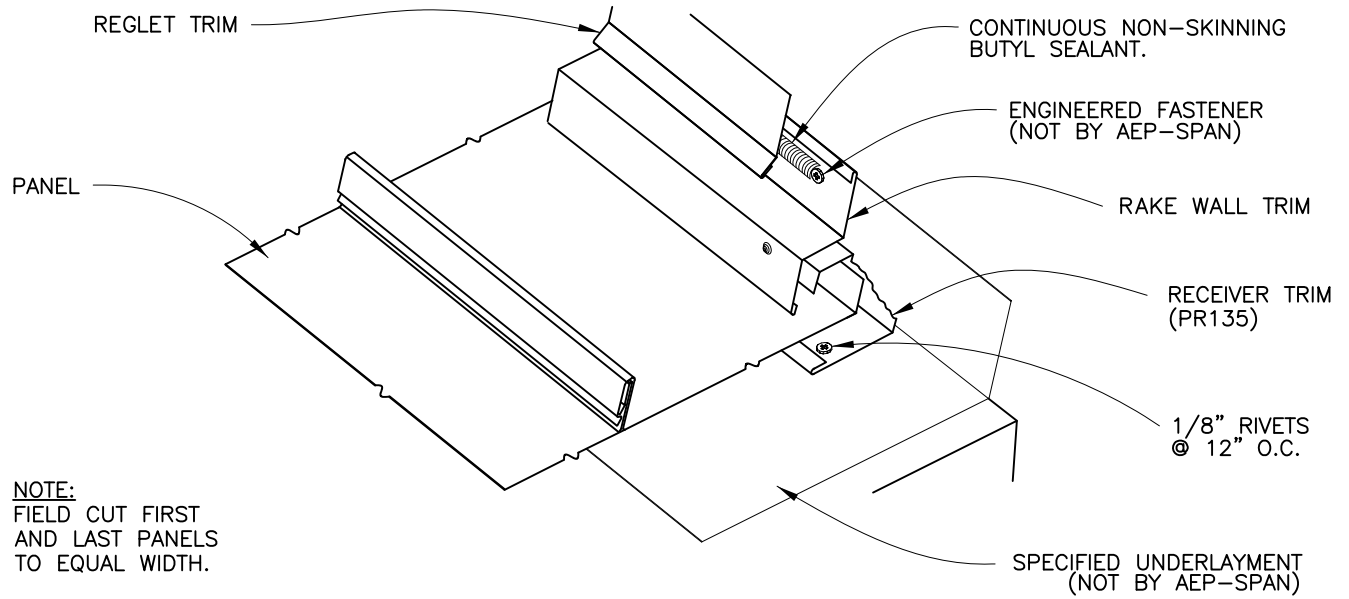
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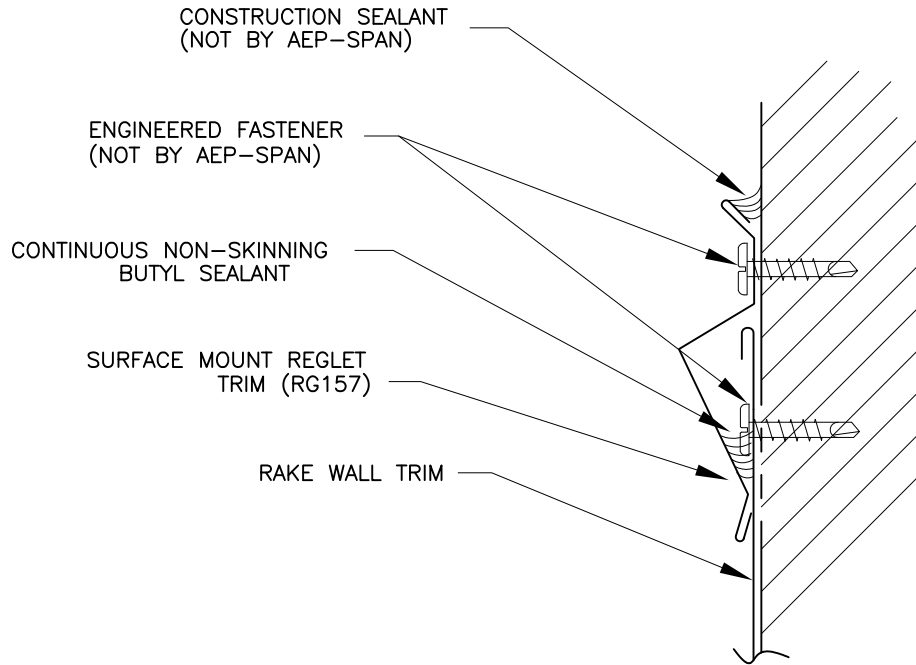


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**SIDE WALL
(RAKE WALL)**

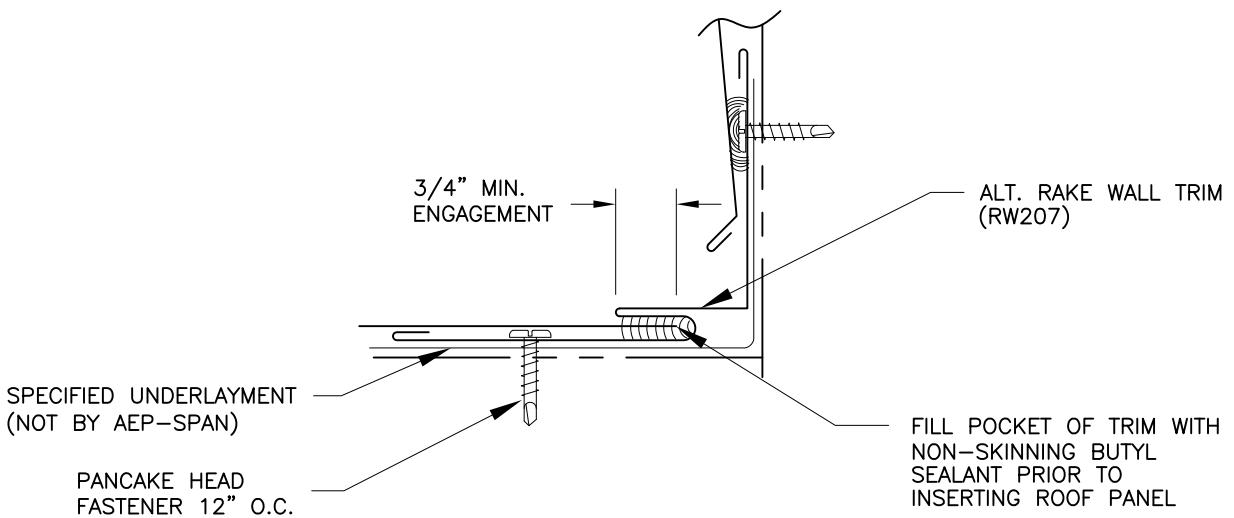
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Date

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ALTERNATE UPPER DETAIL



ALTERNATE LOWER DETAIL



DESIGN SPAN HP



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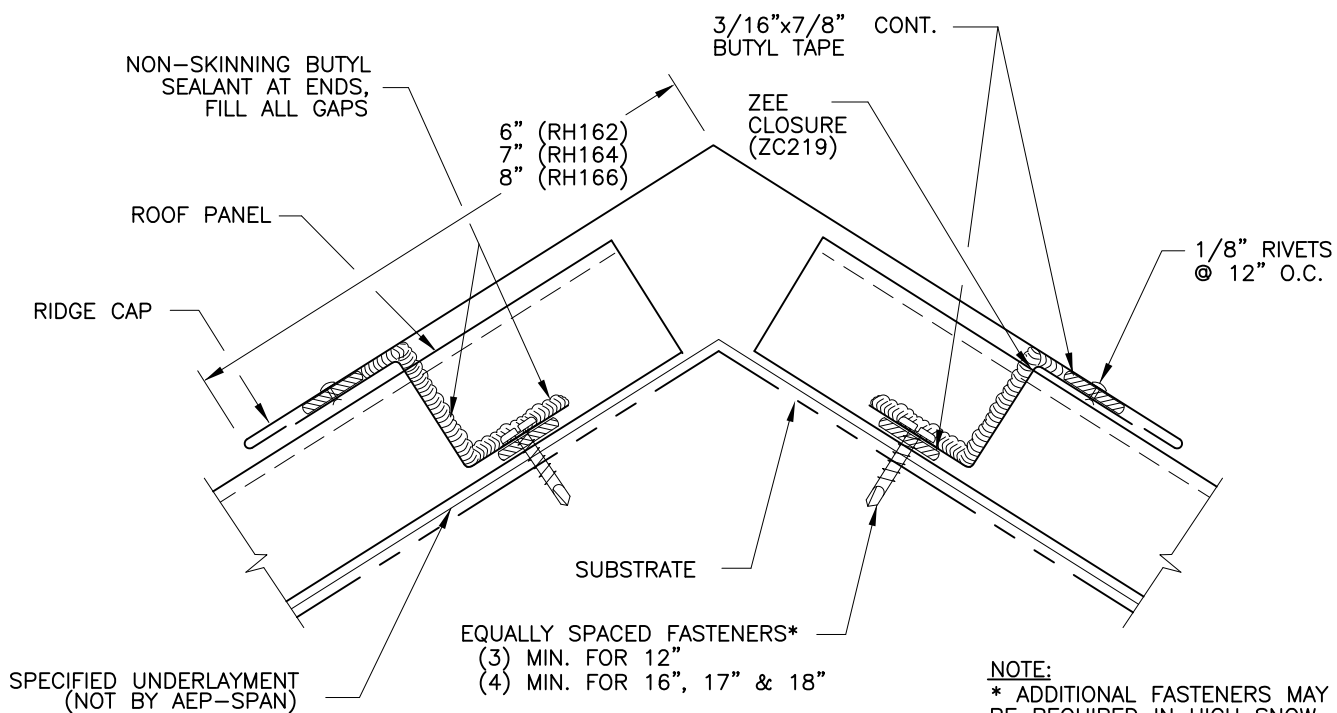
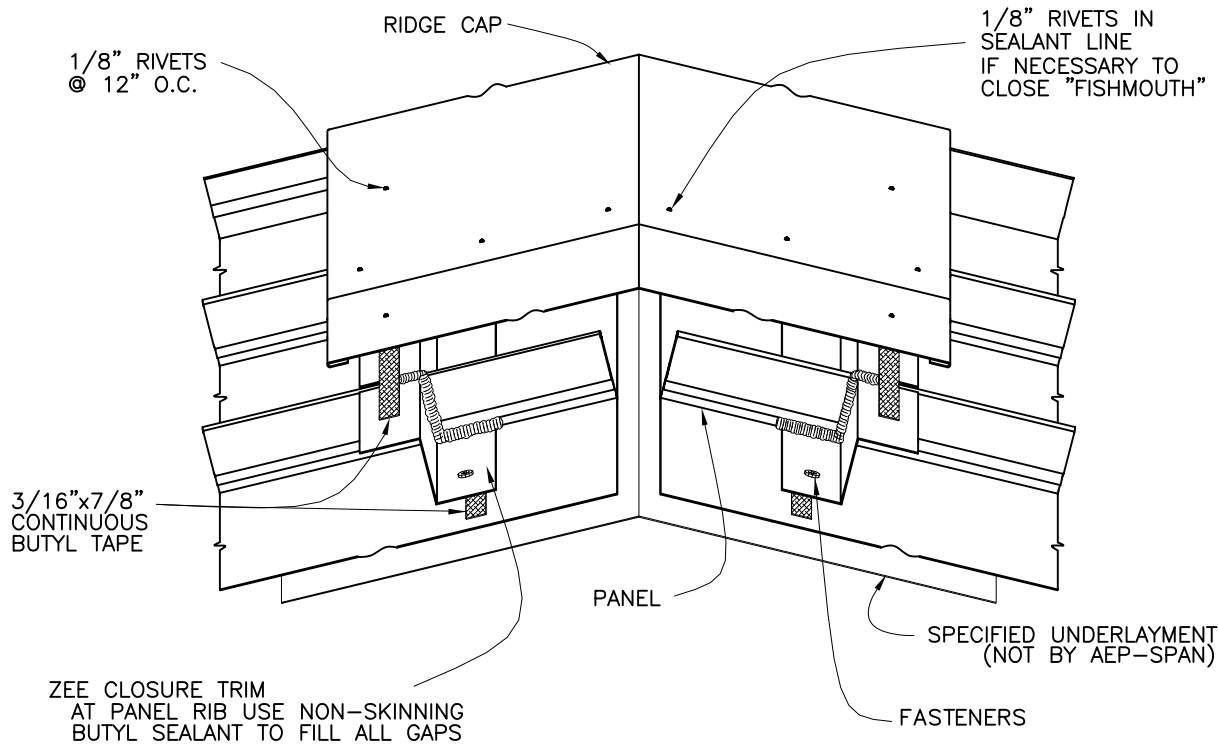
SIDE WALL
(ALT. DETAILS)

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Date _____

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DS-12



DESIGN SPAN HP



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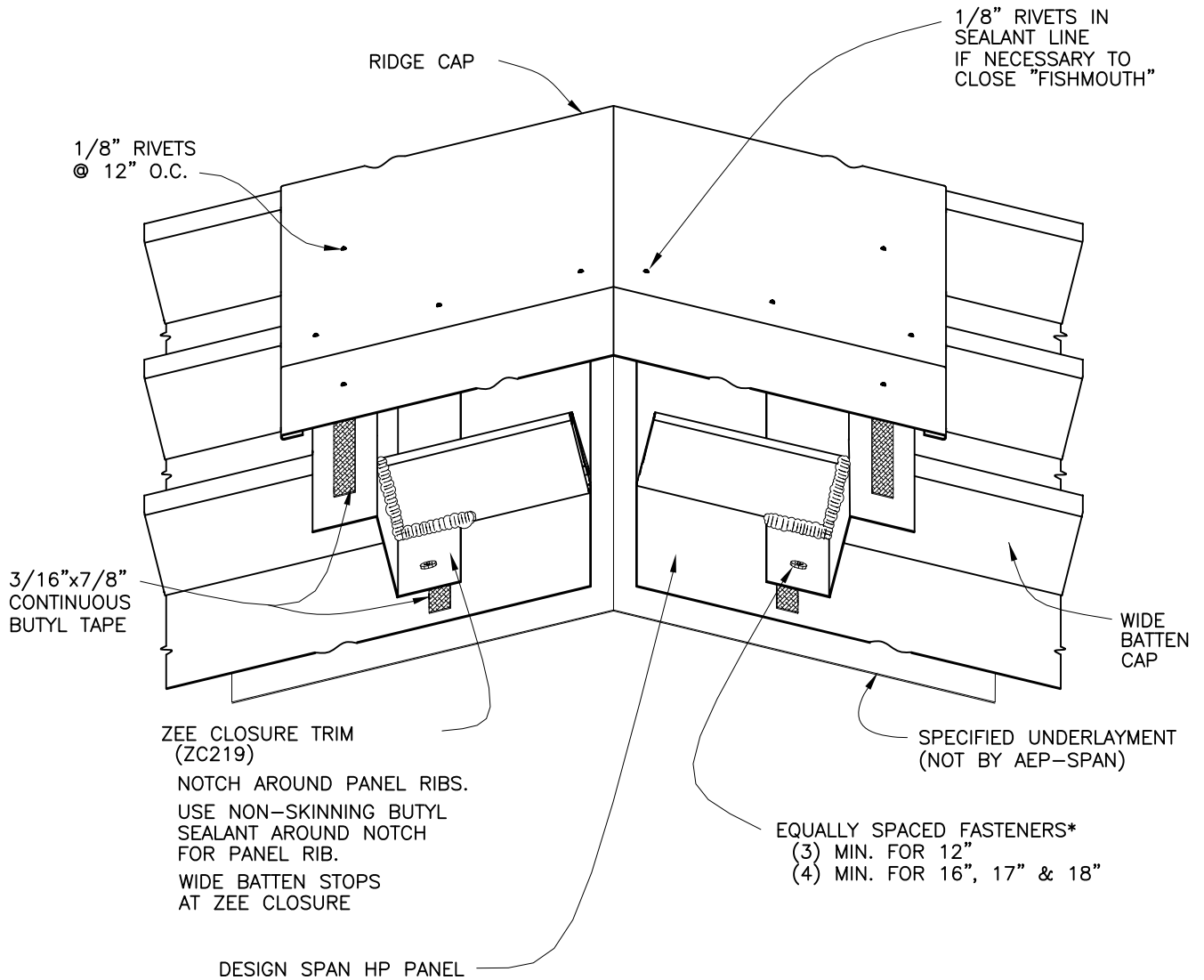
RIDGE / HIP
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Date _____

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2024180

DS-13



NOTE:
* ADDITIONAL FASTENERS MAY BE REQUIRED IN HIGH SNOW LOAD AREAS. SEE APPENDIX.



DESIGN SPAN HP

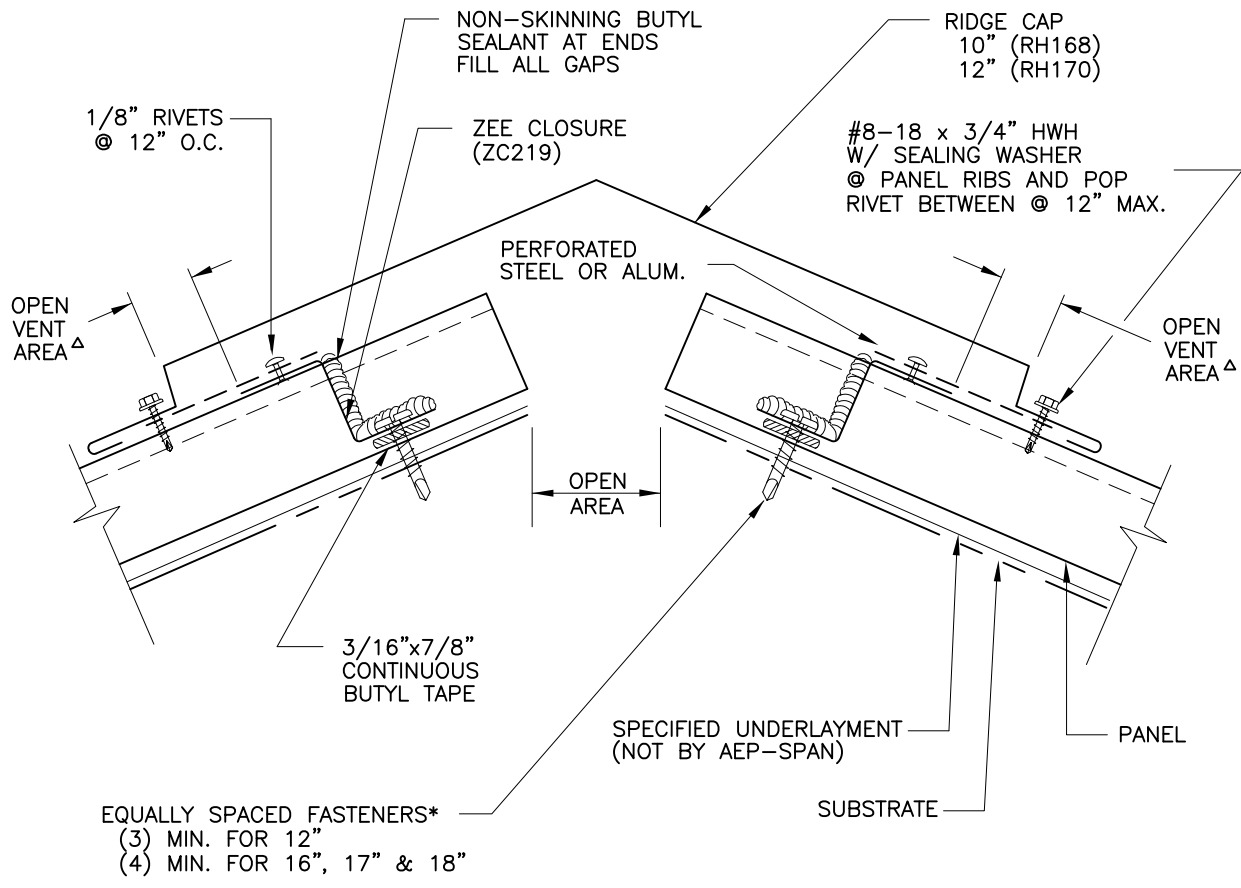


**RIDGE / HIP
(WIDE BATTEN)**

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Date: _____
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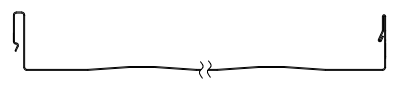
DS-14



NOTES:
 Δ CUSTOMER MUST PROVIDE VENT AREA REQUIREMENTS
 * ADDITIONAL FASTENERS MAY BE REQUIRED IN HIGH SNOW LOAD AREAS. SEE APPENDIX.



DESIGN SPAN HP

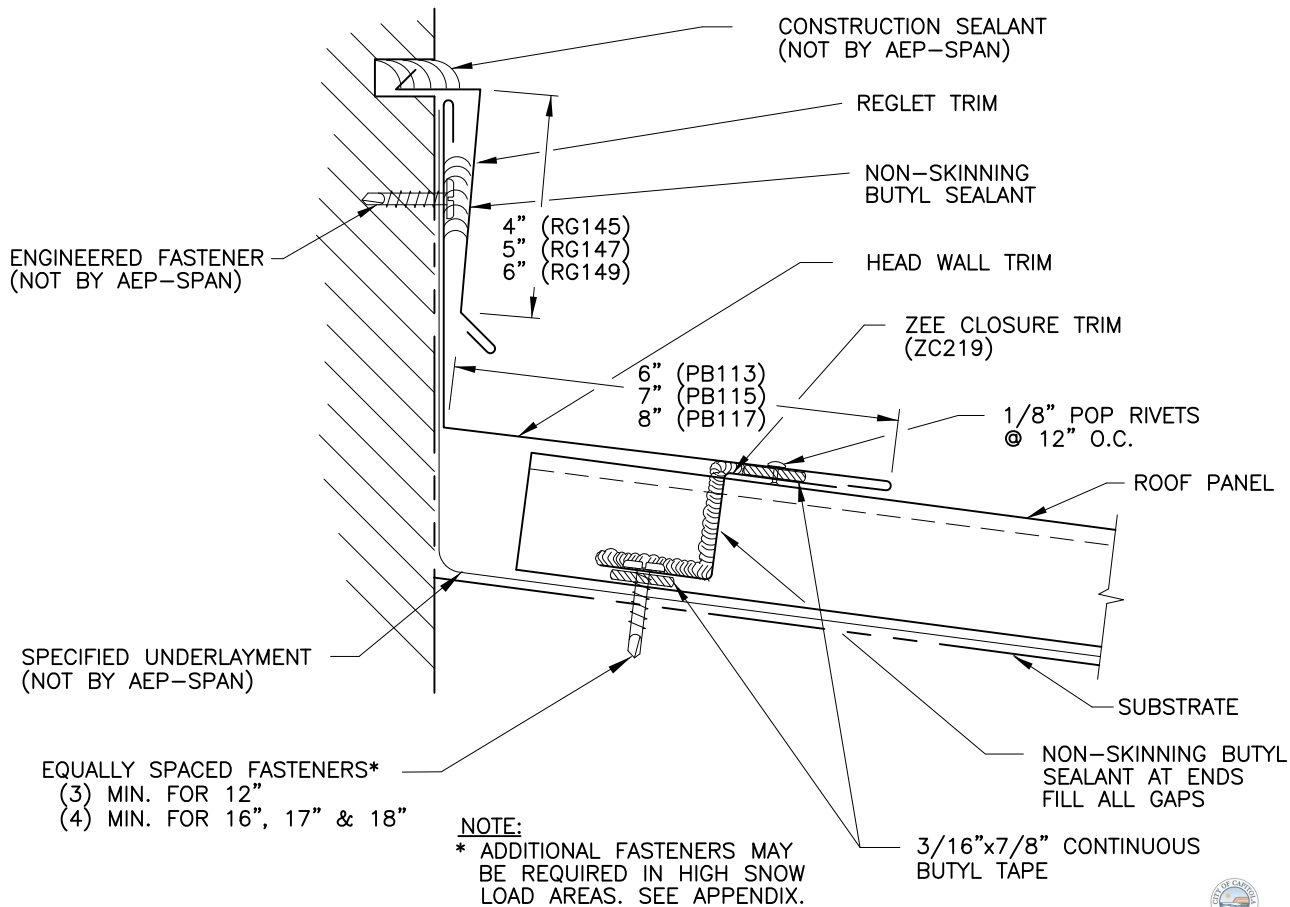
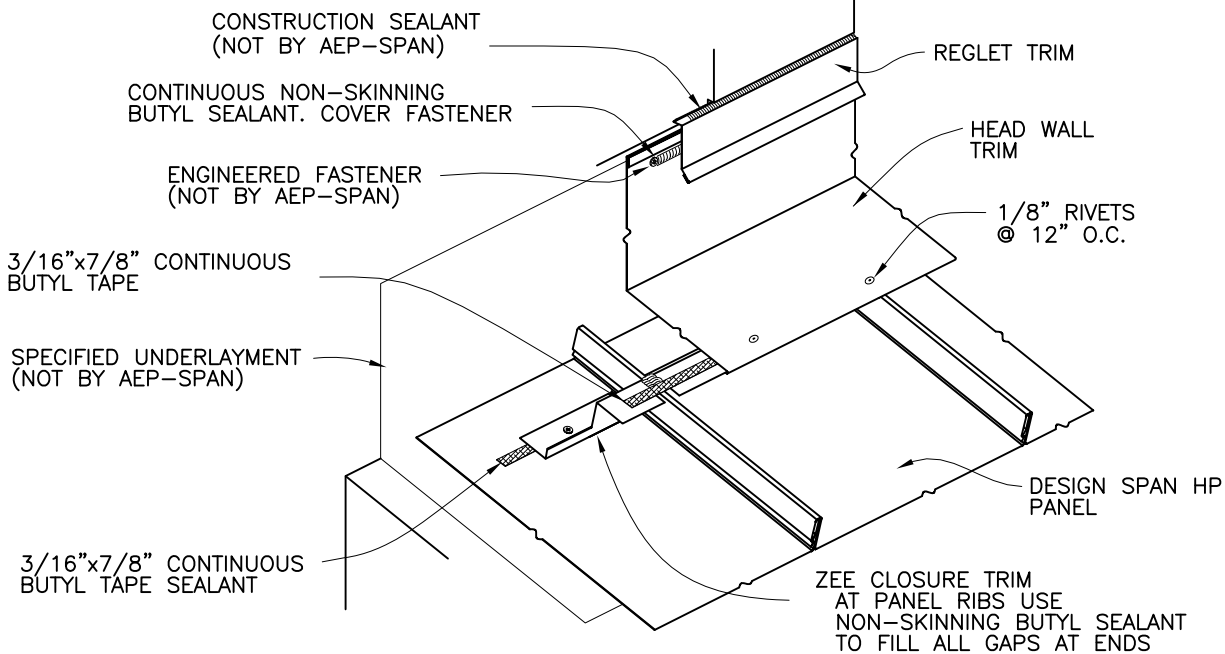


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RIDGE - VENTED
Code Compliance

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Date _____

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DS-15



DESIGN SPAN HP



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HEAD WALL

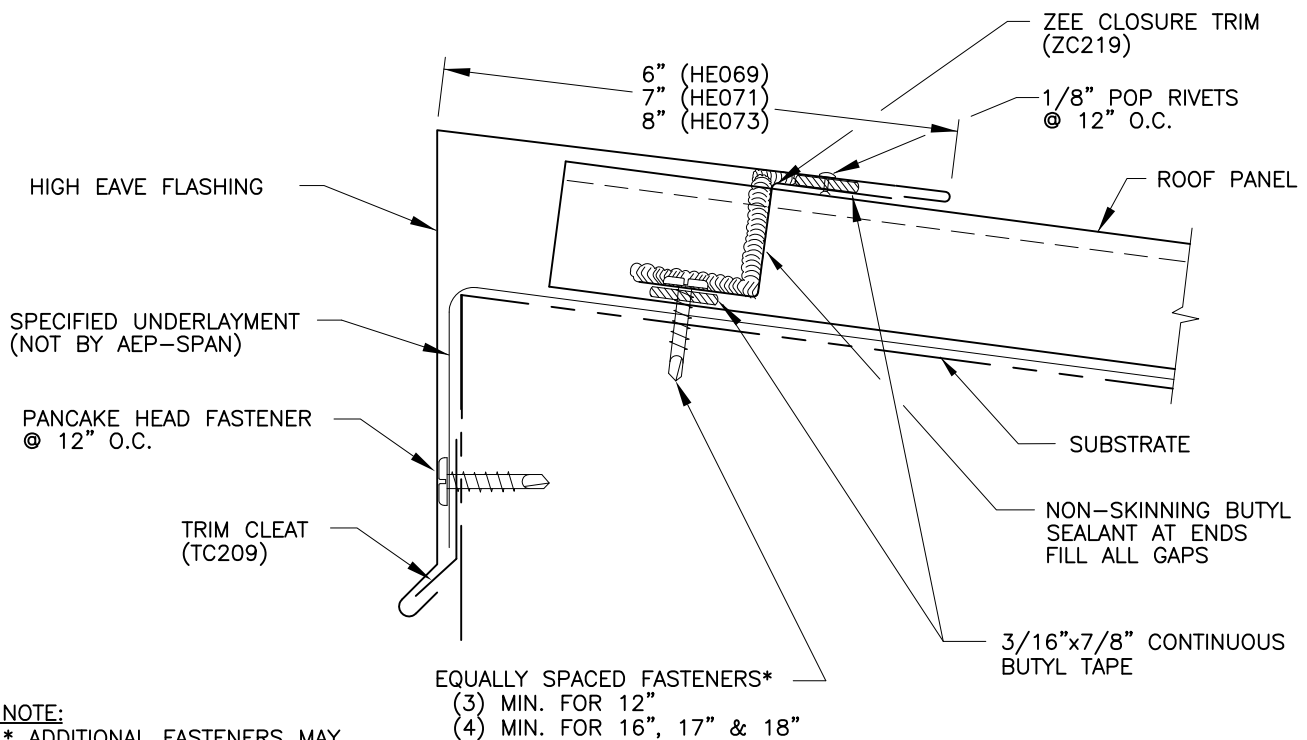
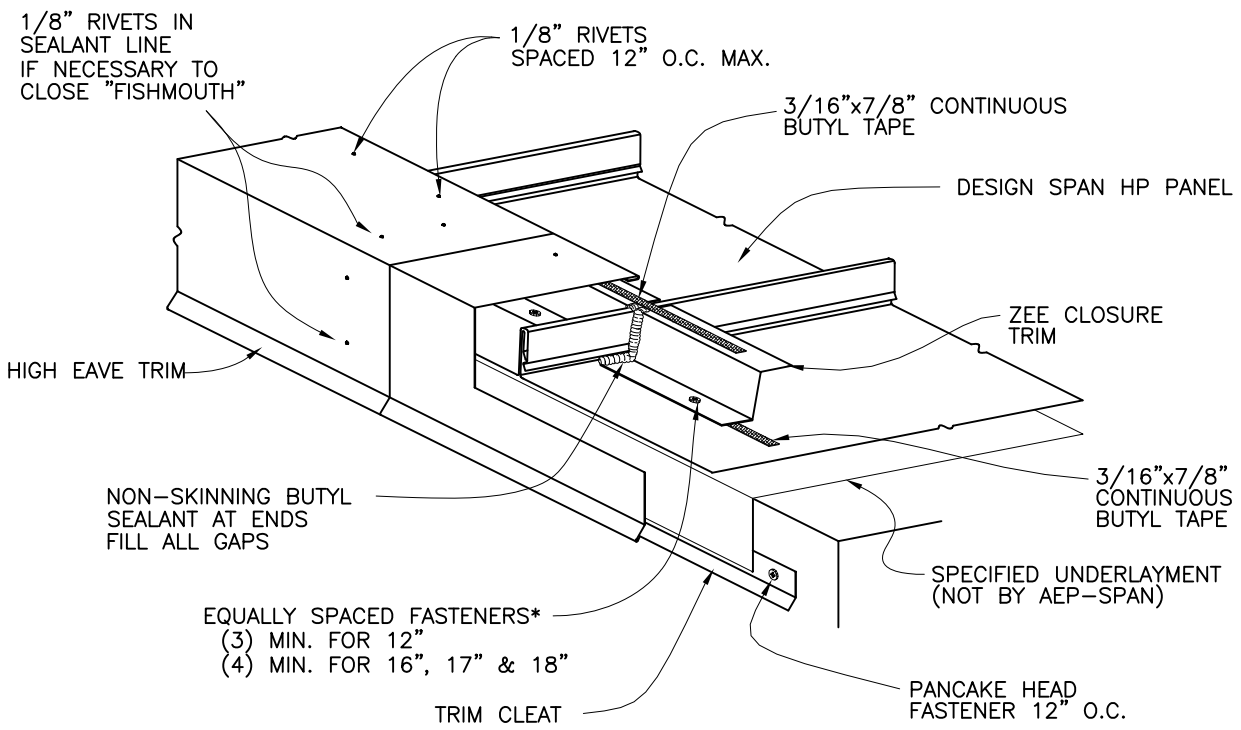
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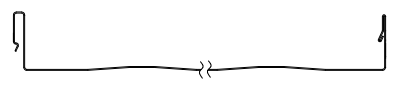
DS-16



NOTE:
* ADDITIONAL FASTENERS MAY BE REQUIRED IN HIGH SNOW LOAD AREAS. SEE APPENDIX.



DESIGN SPAN HP



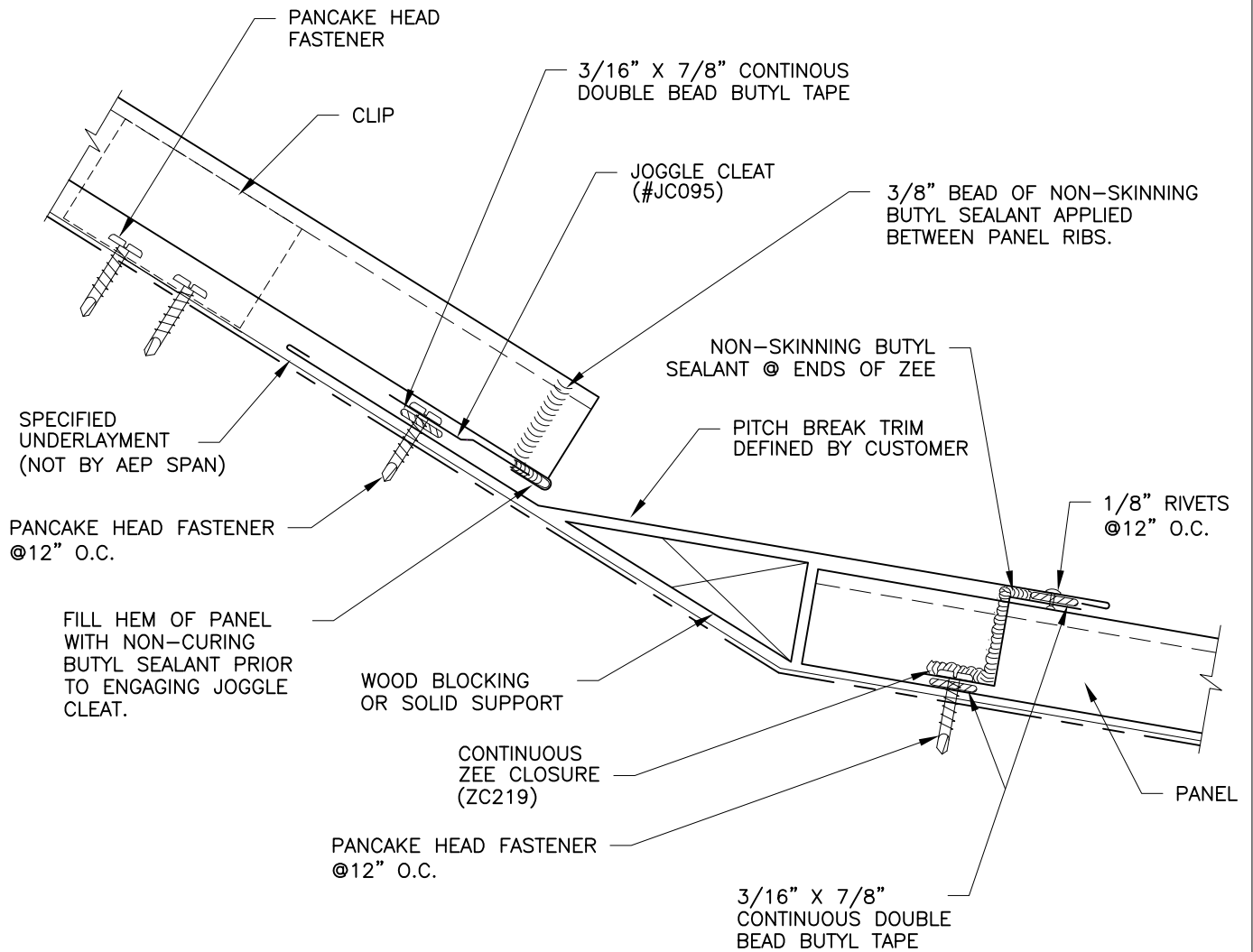
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EAVE - HIGH
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DS-17



NOTE:
 REFER TO EAVE & RIDGE DETAILS FOR FURTHER INFORMATION ON PROPER PANEL TERMINATIONS.



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SLOPE TRANSITION

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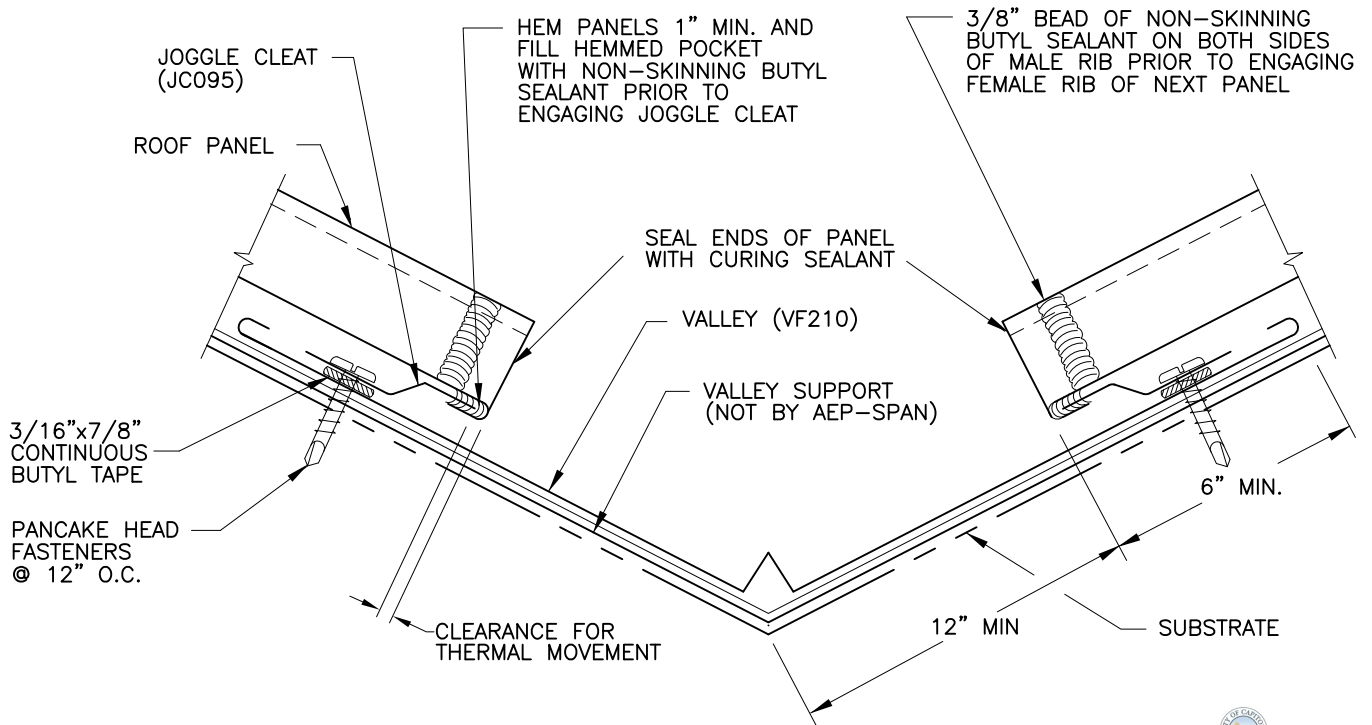
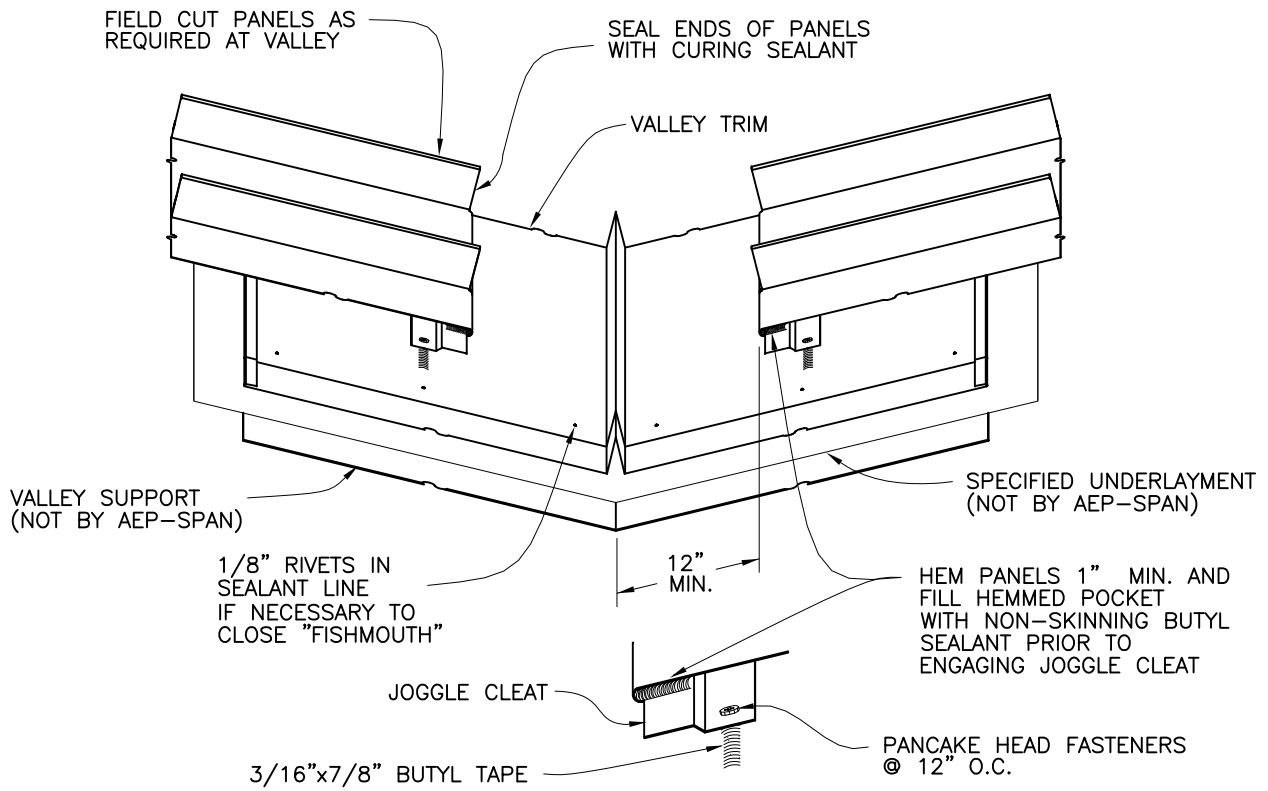
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DS-18



DESIGN SPAN HP





DESIGN SPAN HP



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VALLEY

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Code Compliance

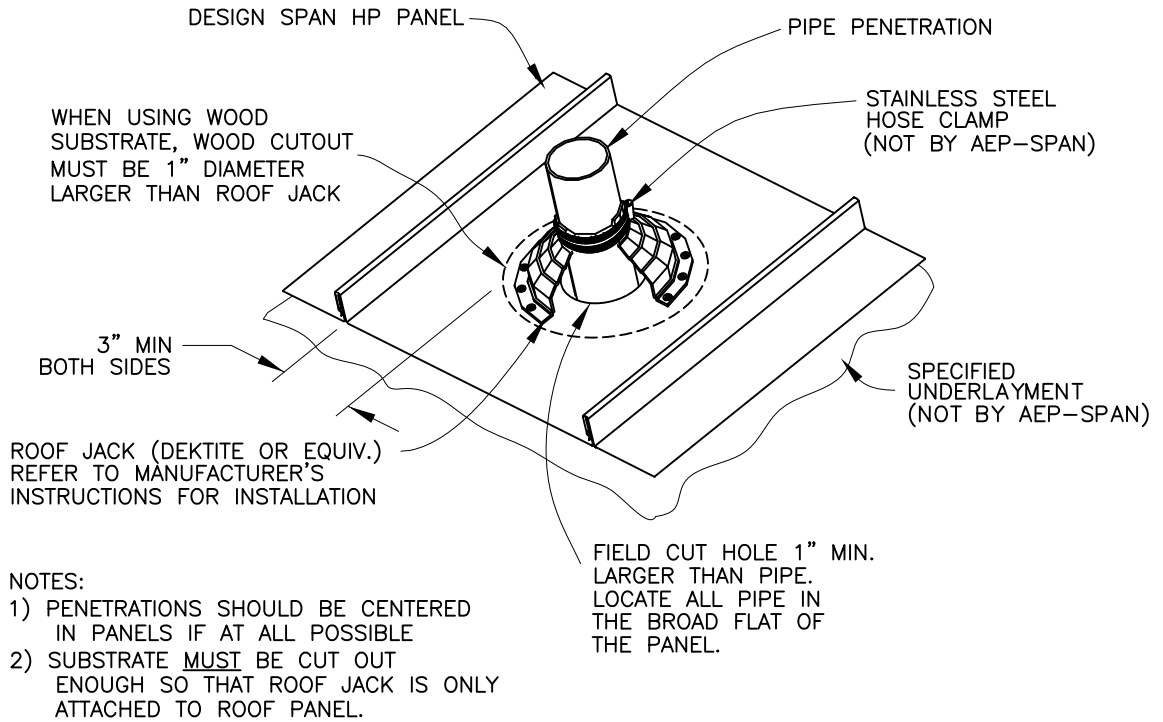
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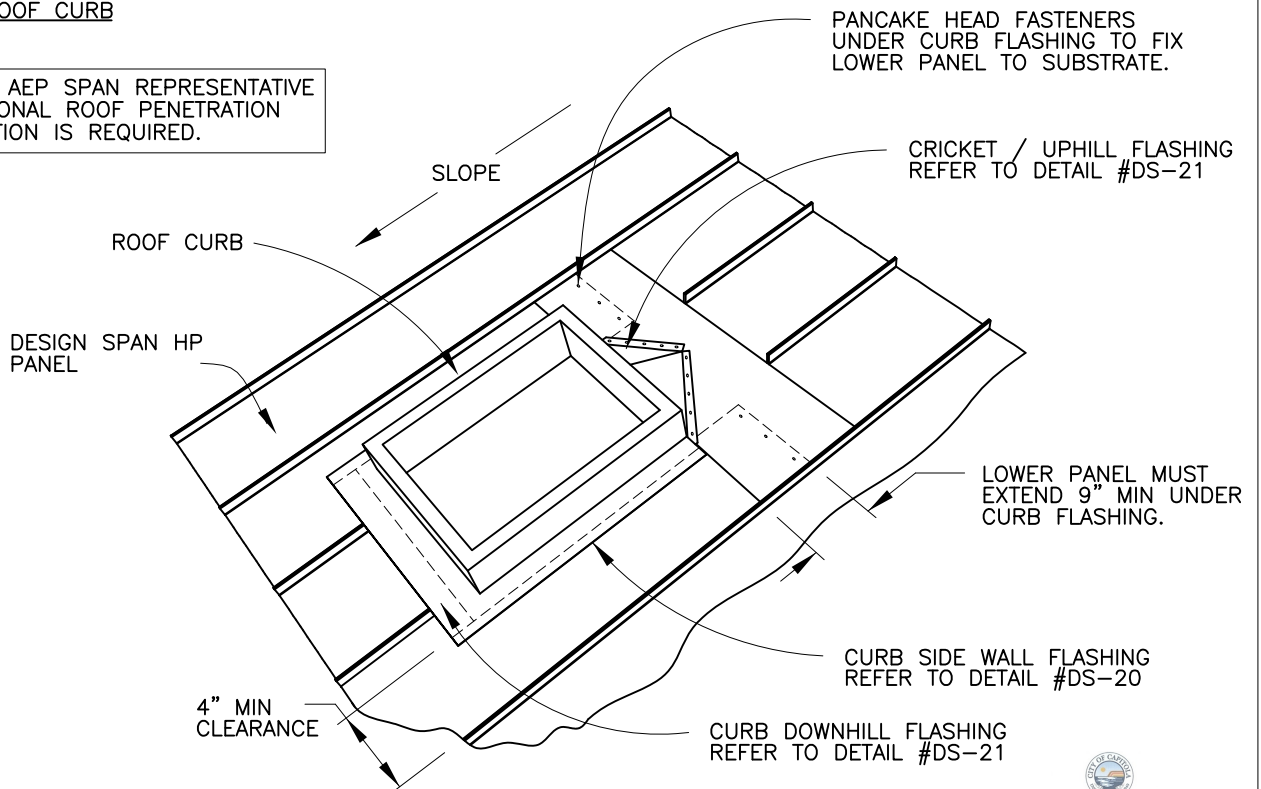
DS-19

ROOF JACK



ROOF CURB

CONTACT AEP SPAN REPRESENTATIVE IF ADDITIONAL ROOF PENETRATION INFORMATION IS REQUIRED.

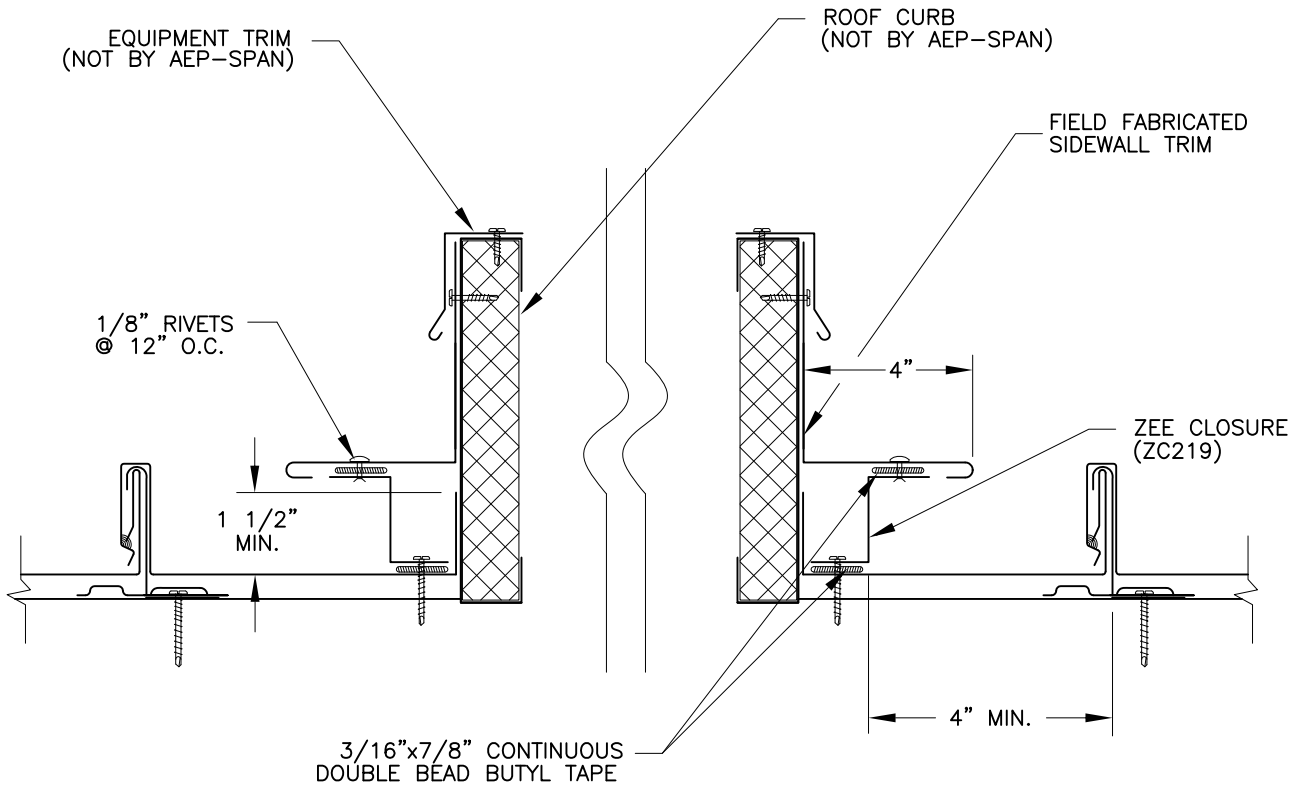


DESIGN SPAN HP

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ROOF PENETRATIONS

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DS-20



DESIGN SPAN HP



ROOF CURB (SIDE WALL FLASHING)



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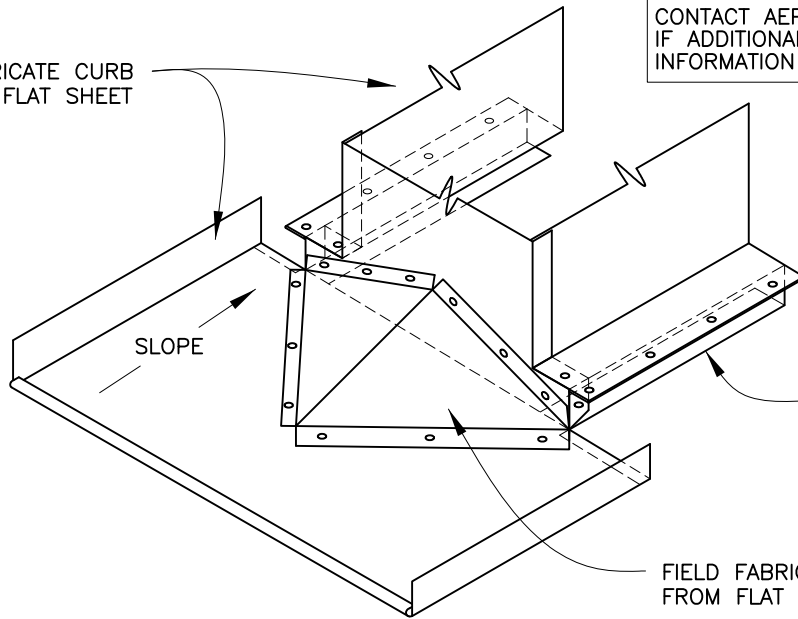
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DS-21

FIELD FABRICATE CURB
FLASHINGS FROM FLAT SHEET

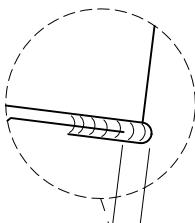
CONTACT AEP SPAN REPRESENTATIVE
IF ADDITIONAL ROOF PENETRATION
INFORMATION IS REQUIRED.



SLOPE

STANDARD ZEE
CLOSURE

FIELD FABRICATE CRICKET
FROM FLAT SHEETS



EQUIPMENT TRIM
(NOT BY AEP-SPAN)

CLEARANCE FOR
THERMAL MOVEMENT
PER CALCULATIONS

FASTENER
(NOT BY AEP-SPAN)

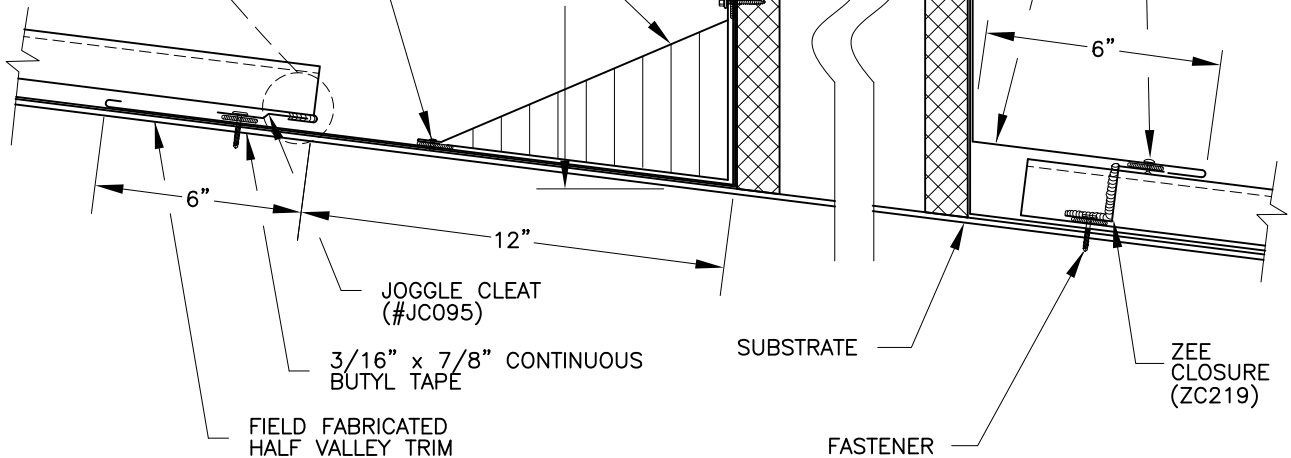
CRICKET TO BE
FIELD FABRICATED
FROM FLAT STOCK

FIELD FABRICATED
HEADWALL TRIM

1/8" RIVET
@ 12" O.C.

FASTENER
(NOT BY AEP-SPAN)

8" MIN



6"

12"

6"

JOGGLE CLEAT
(#JC095)

3/16" x 7/8" CONTINUOUS
BUTYL TAPE

SUBSTRATE

ZEE
CLOSURE
(ZC219)

FIELD FABRICATED
HALF VALLEY TRIM

FASTENER

NOTE:
CURBS 24" WIDE OR GREATER REQUIRE USE OF CRICKETS.
CRICKETS OPTIONAL ON NARROWER CURBS.



DESIGN SPAN HP



ROOF CURB (UPHILL /
DOWNHILL DETAIL)

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DS-22

Appendix A: Snow Drag Loads (lbs/lft of panel)

12" Design Span hp

Slope	Ground Snow Load, P_g (psf)								
	25	30	35	40	45	50	55	60	65
2:12	5.0	5.9	7.0	8.0	9.0	9.9	10.9	12.0	12.9
3:12	7.4	8.8	10.3	11.7	13.2	14.6	16.1	17.7	19.1
4:12	9.6	11.5	13.4	15.2	17.2	19.1	21.1	23.0	24.9
5:12	11.6	13.9	16.3	18.6	20.9	23.2	25.7	28.0	30.3
6:12	13.6	16.2	19.0	21.7	24.3	27.1	29.8	32.4	35.2
7:12	15.2	18.3	21.3	24.4	27.5	30.5	33.5	36.5	39.7
8:12	16.8	20.1	23.5	26.9	30.3	33.5	36.9	40.3	43.7
9:12	18.2	21.8	25.4	29.0	32.7	36.3	39.9	43.6	47.2
10:12	19.4	23.2	27.1	31.0	34.8	38.7	42.6	46.5	50.3
11:12	20.4	24.6	28.7	32.7	36.8	40.9	45.0	49.0	53.1
12:12	21.4	25.7	29.9	34.2	38.5	42.8	47.1	51.3	55.7

16" Design Span hp

Slope	Ground Snow Load, P_g (psf)								
	25	30	35	40	45	50	55	60	65
2:12	6.7	8.0	9.3	10.6	12.0	13.3	14.6	16.0	17.2
3:12	9.8	11.7	13.7	15.6	17.7	19.6	21.5	23.5	25.4
4:12	12.7	15.2	17.9	20.4	23.0	25.5	28.1	30.6	33.2
5:12	15.5	18.6	21.7	24.8	28.0	31.0	34.1	37.3	40.3
6:12	18.0	21.7	25.3	28.9	32.4	36.1	39.7	43.3	46.9
7:12	20.3	24.4	28.4	32.5	36.5	40.7	44.8	48.8	52.9
8:12	22.4	26.9	31.3	35.8	40.3	44.8	49.2	53.7	58.2
9:12	24.2	29.0	33.9	38.7	43.6	48.4	53.2	58.1	62.9
10:12	25.8	31.0	36.2	41.3	46.5	51.7	56.7	62.0	67.2
11:12	27.2	32.7	38.1	43.6	49.0	54.5	60.0	65.5	70.9
12:12	28.6	34.2	39.9	45.6	51.3	57.0	62.8	68.5	74.2

Notes:

- To determine drag load forces per panel, multiply the tabulated value by the panel length. Then refer to Appendix B for fastener schedule.
- Values assume Ground Snow Load (P_g) is provided. Drag Loads may be reduced if actual Roof Snow Loads (E_s), per ASCE-7, are provided by customer.
- For roof slopes and snow loads greater than listed above, please contact your AEP Span representative.



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Permit # 2204180

Appendix B:

Drag Load Resistance

Fastener Type	Substrate	Capacity (lbs)	Number of Fasteners per Panel								
			2	3	4	5	6	7	8	9	10
#12-14 x 1" SD HWH	16ga Steel min.	234	468	702	936	1170	1404	1638	1872	2106	2340
1/4-14 x 7/8" Lap SD HWH	22ga Steel min.	184	368	552	736	920	1104	1288	1472	1656	1840
#14 x 1" Type A Mill. Point HWH	1/2" Plywood min.	128	256	384	512	640	768	896	1024	1152	1280
#14 x 1" Type A Mill. Point HWH	2x Douglas Fir	57	114	171	228	285	342	399	456	513	570
#10-16 x 1" SD Pancake Head	16ga Steel min.	206	412	618	824	1030	1236	1442	1648	1854	2060
#10-16 x 1" SD Pancake Head	22ga Steel min.	154	308	462	616	770	924	1078	1232	1386	1540
#10-12 x 1" Type A Pancake Head	1/2" Plywood min.	108	216	324	432	540	648	756	864	972	1080
#10-12 x 1" Type A Pancake Head	2x Douglas Fir	54	108	162	216	270	324	378	432	486	540

Example:

16" Design Span hp attached to 1/2" plywood.
 4:12 slope
 30psf snow load
 40ft maximum panel length
 #10-12 pancake head fasteners used

- From Appendix A, find the drag load per linear foot of panels: 4:12 & 30psf snow load = 15.2 lbs/ft
- Multiply the load by the panel length = 15.2lbs/ft X 40ft = 608lbs drag load per panel.
- Find the drag load in Appendix B.
 The nearest value is 648 lbs for Qty=6, #10-12 x 1" type A pancake head fasteners.

Notes:

- Contact your AEP Span representative if there are any questions regarding the use of these appendices.
- Fasteners must be located a minimum of 1" from each other and from the end of the panel.



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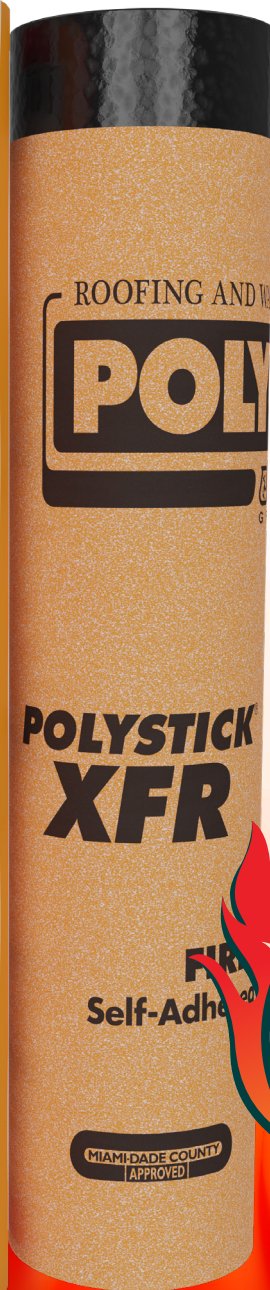
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Permit # 2024180

POLYGLASS®



POLYSTICK® XFR

FIRE RESISTANT SELF-ADHERED ROOF UNDERLAYMENT



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Date: 10/16/2024

Permit # 2224155

Polystick XFR – Fire Resistant Self-Adhered Roof Underlayment

Polyglass Polystick XFR is a dual-purpose fire resistant and self-adhered waterproofing underlayment. Many fire rated underlayment products on the market today tout both waterproofing and fire resistance but fall short on one or the other. Polyglass combines two patented technologies to achieve the highest levels of performance in both categories. Utilizing ADESO® dual-compound self-adhered technology, Polystick XFR features a 80 mils combined elastomeric modified bitumen upper compound and an aggressive self-adhesive compound on the bottom to provide proven waterproofing protection; while Polyglass' patent pending Burn-Shield Technology® offers fire resistance capable of achieving the highest level of fire ratings.

The result is a product which helps in achieving superior waterproofing and UL Class A fire protection in a single layer*, instead of the typical solution requiring multiple layers to achieve the same result. This translates to labor and material cost savings which ultimately benefits the building owner and contractor. The building occupants can enjoy the peace of mind knowing that Polystick XFR is providing safety and protection of their possessions.

Features & Benefits

- Superior protection against fire spread/penetration and ember resistance in systems tested under UL 790
- Helps achieve UL Class A for Combustible Decks using a single layer*
- Robust 80 mils (2 mm) of waterproofing rubberized asphalt
- Self-Adhered with split release film for ease of application
- Fiberglass reinforced for added strength and dimensional stability
- Skid-resistant top surface with max 180 days exposure
- Dedicated side lap for consistently strong seams
- Approved for applications up to 265°F
- Up to 30 year warranty
(Reference Polyglass Warranties Terms & Conditions)



Applicable Standards

- ASTM D1970
- UL Classified
- ICC ESR-1697
- Florida Building Code
- Miami-Dade County Approved
- Texas Department of Insurance
- Listed by California State Fire Marshall



“Fire has met its match!”



UL Class A*

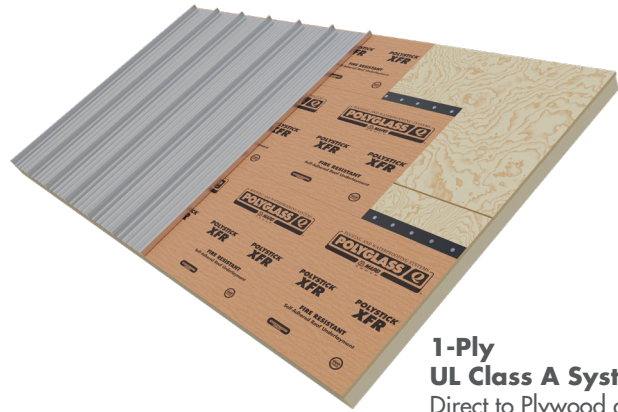
A Polystick XFR underlayment provides added fire protection to a building when installed under asphalt shingles, clay/concrete tiles or metal roofing.

Underwriters Laboratories (UL) is the most widely respected testing agency for fire ratings and the "Class A" designation is the highest achievable classification, meaning that a roofing assembly has passed spread of flame, intermittent flame and burning brand tests. Class A fire ratings are required in many municipalities across the country by code. Even if the code authorities do not require Class A, specifiers and building owners may want a Class A roof system for their building to provide safety and protect their possessions.

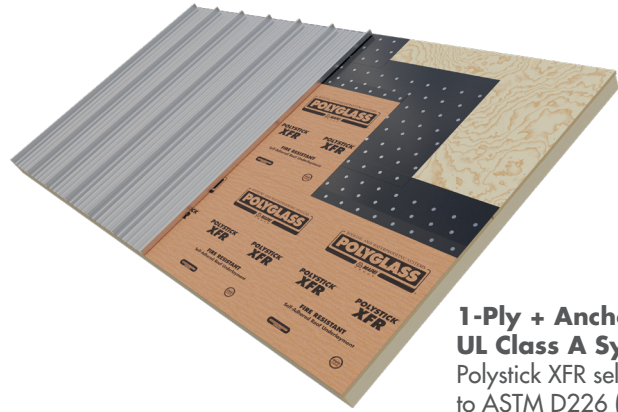
A **clay or concrete tile** is a Class A roof covering by itself but Polystick XFR may still be desirable to increase ember resistance as a component of a Class A system under UL 790.

If you use Class A **asphalt glass fiber mat shingles** for your roof covering then you will automatically get a Class A rating for your system if you utilize Polystick XFR as an underlayment.

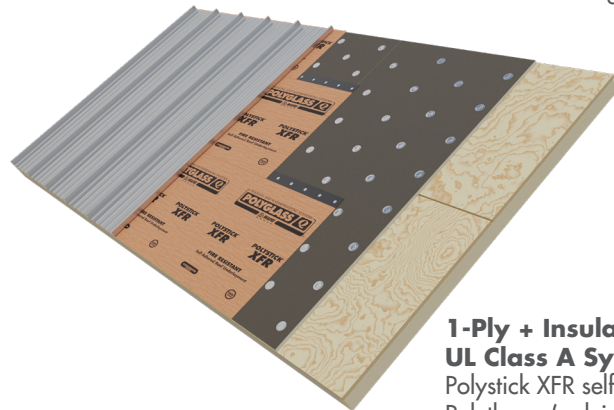
Metal has many great qualities as a roof covering but for all intents and purposes it is not fire resistant. Why? Because metal transmits heat from an exterior fire source to the combustible roof deck very efficiently and therefore a fire resistant sheet is needed to help it achieve a UL Class A fire rating. By simply installing Polystick XFR under a UL Listed **aluminum, steel or copper covering**, the roof system achieves Class A.*



**1-Ply
UL Class A System:**
Direct to Plywood deck application of self-adhered Polystick XFR under Standing Seam metal



**1-Ply + Anchor Sheet
UL Class A System:**
Polystick XFR self-adhered to ASTM D226 (II) 30# Felt anchor sheet onto Plywood under Standing Seam metal



**1-Ply + Insulation
UL Class A System:**
Polystick XFR self-adhered to Polytherm (polyiso insulation) onto Plywood under Standing Seam metal

Polystick XFR Fire-Resistant Underlayment under Metal - UL Class A Rating Layer Requirements*					
Deck	Anchor Sheet (optional)	Insulation (optional)	Second Ply (optional)	Underlayment	Roof Covering
Plywood (15/32"), spaced sheathing or 7/16" OSB	ASTM D226 (II) 30# Felt	Polytherm Polyiso	Polystick XFR	Polystick XFR	UL Listed copper panels or steel standing seam panels, stone coated shingles, 26 gauge minimum
Deck	Anchor Sheet (optional)	Insulation (optional)	Second Ply (required)	Underlayment	Roof Covering
Plywood (15/32"), spaced sheathing or 7/16" OSB	ASTM D226 (II) 30# Felt	Polytherm Polyiso	Polystick XFR	Polystick XFR	UL Listed aluminum panels, 0.032" min.

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Date: 05/16/2024
Part No: 2241410

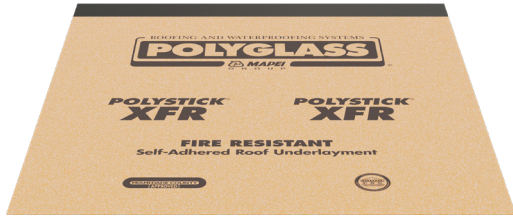


* Unlimited Slope. Refer to published UL product listings (TGFR.R25992) for specific fire rated assemblies.

Material and Labor Cost Savings

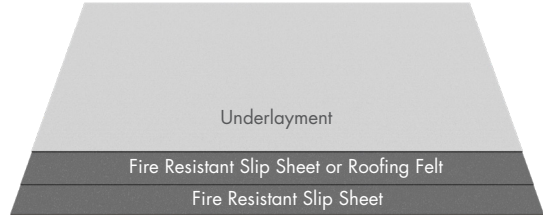
Polystick XFR provides superior water and fire protection in a single layer, instead of the typical solution requiring multiple layers to achieve the same result. This translates to labor and material cost savings which ultimately benefits the building owner and contractor. Here is an example of how Polystick XFR stacks up against a competitor's solution to achieve a UL Class A assembly under metal roofing.*

Polyglass XFR Typical 1-ply System



On a wood deck with metal covering.

Competitors Traditional 3-Ply Solution



On a wood deck with metal covering.

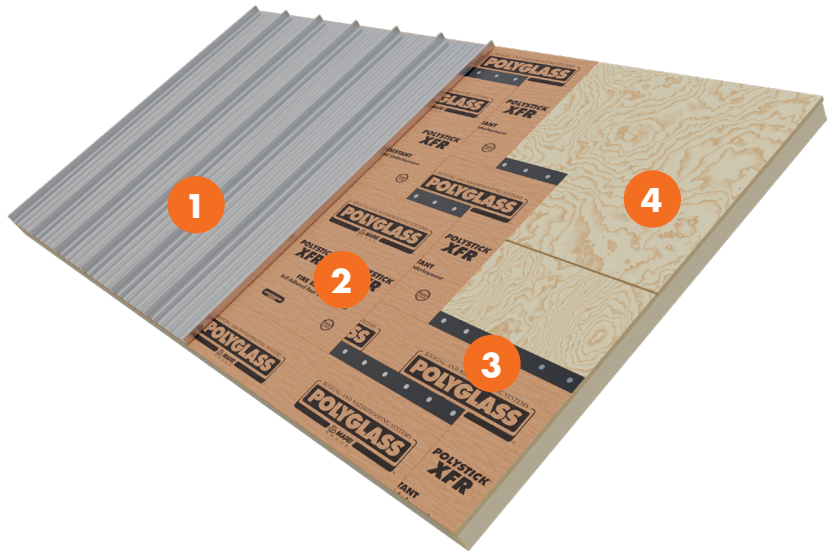
Warranty

Polystick XFR comes with a standard 10 Year Limited Material Warranty or a 10 year Polystick Labor & Material Warranty, when installed by a Polyglass Registered Contractor.

Polyglass also offers an enhanced 30 year 2-Ply Polystick Labor & Material Warranty, when two plies of Polystick XFR are used and installed by a Polyglass Registered Contractor.

2-Ply UL Class A 30 Year System:

- 1** Standing Seam Metal
- 2** Polystick XFR
- 3** Polystick XFR
- 4** Plywood Deck



POLYGLASS U.S.A., Inc.

1111 West Newport Center Drive, Deerfield Beach, FL 33442
 pgmarketing@polyglass.com • Customer Service: (800) 222-9782

polyglass.us



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H-SHIELD



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Date 10/16/2024

Permit # 2524180

HUNTER



H-SHIELD NB

INSTALLATION AND DESIGN CRITERIA GUIDE



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H-SHIELD NB

Flat Polyisocyanurate Insulation Manufactured On-Line to Oriented Strand Board

H-Shield NB is a rigid roof insulation composite panel composed of a closed cell polyisocyanurate foam core manufactured on-line to a fiber reinforced facer on one side and 7/16" on the other. H-Shield NB can also be manufactured off-line bonded to 5/8" OSB, 5/8" plywood, or 3/4" plywood.

APPLICATIONS

- Heavyweight Shingles
- Standing Seam Metal Roof Systems
- Tile
- Slate
- Single-Ply Roof Systems - Ballasted, Mechanically Attached, Fully Adhered. (For high wind speed warranty – see individual Single-Ply manufacturer approvals and listings)
- Suitable for new construction and re-roofing on both commercial and residential projects

PANEL CHARACTERISTICS

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- A superior combination of high insulating properties and a nailable surface
- Incorporates APA-TECO Rated Exposure 1 OSB and Plywood
- The edges of the wood panels are rabbeted to allow for expansion and contraction of the wood. The foam edges shall be installed tightly to achieve thermal integrity across the entire roof deck. Available as a non-rabbeted panel upon special request.
- Available in ASTM C1289 Type V, Grade 2 (20 psi)
- Available foam size is 47.5"x95.5" when manufactured on-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Available in foam size is 48"x96" when manufactured off-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Multiple Substrate Types Available:
OSB: 7/16" or 5/8" **Plywood:** 5/8" or 3/4" CDX or Fire-Treated

POTENTIAL LEED CREDITS FOR POLYISO USE

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

Indoor Environmental Quality

- Thermal Comfort



H-SHIELD NB THERMAL VALUES

Long Term Thermal Resistance Values are based on ASTM C 1289

Thickness†		LTTR R-Value	Flute Spanability
(inches)	(mm)		
1.50	38	6.3	4 3/8"
2.00	51	9.2	4 3/8"
2.50	64	12.0	4 3/8"
3.00	76	15.0	4 3/8"
3.50	89	18.0	4 3/8"
4.00	102	21.1	4 3/8"

†Thickness is calculated with 7/16" OSB.

H-Shield NB is manufactured in the sizes listed above with additional sizes on our packaging and weights chart. R-values other than those listed can be achieved by installing a multi layer system consisting of an additional layer of flat polyiso under H-Shield NB.

CODES AND COMPLIANCES

- ASTM C 1289 Type V, Grade 2 (20 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved
- Hail Rating: SH-1, VSH

UNDERWRITERS LABORATORIES INC CLASSIFICATIONS

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 1208
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies



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UL CLASSIFIED FOR USE IN CANADA

- Refer to UL Directory of Products Certified for Canada for details

FACTORY MUTUAL APPROVALS

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions. Refer to FM Approval's RoofNav for details on specific systems

TYPICAL PHYSICAL PROPERTY DATA

Polyiso Foam Core Only

Physical Property	Test Method	Value
Compressive Strength	ASTM D 1621	20 psi (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa•s•m ²))
Water Absorption	ASTM C 209	<1% volume
Flame Spread*	ASTM E 84	< 75
Smoke Developed*	ASTM E 84	< 450
Service Temperature		-100° to 250°F (-73°C to 122°C)

*Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Hunter Panels Technical Department

WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Store above ground on pallets and cover with breathable tarpaulins. Install only as much Polyiso as can be covered the same day with the completed roofing system. Do not leave exposed. Hunter Panels will not be responsible for specific designs by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site, or for improper storage and handling.

INSTALLATION - SINGLE-PLY SYSTEMS

Shingles, Tiles, Slate, Metal and Membrane Roofing

H-Shield NB is installed wood side up over steel, plywood, or structural roof decks. Hunter SIP NB Panel Fasteners are required to secure the H-Shield NB to the steel or plywood deck. Wood blocking, if necessary, should be equal in thickness to the H-Shield NB and should be installed along the eaves and rake edges of the roof. The roofing system is then installed according to the manufacturer's recommendations. H-Shield NB may be adhered to a 1/2" per ft. max slope properly prepared cementitious deck (with a full mopping of Type III or Type IV asphalt or a low rise adhesive) only when manufactured online. **All H-Shield NB manufactured off-line must be mechanically attached.**

The Use of Synthetic Underlayments

The use of synthetic underlayments is becoming an industry norm (for steep slope applications). Hunter Panels strongly suggests the use of a synthetic underlayment under asphalt shingles unless otherwise specified by the shingle manufacturer. Synthetic underlayments provide excellent water resistance and absorb no moisture.

Vapor Retarders

In building construction, vapor retarders are used to inhibit or block the passage of moisture into roofing assemblies. Vapor barriers also serve as air barriers to limit the movement of moisture-laden air from the interior to the exterior. This is especially important during the construction phase where excessive moisture drive is present. To determine whether a vapor retarder is necessary, we recommend that calculations on the building's interior relative humidity, interior temperature conditions, and outside temperature fluctuations during the various seasons be performed prior to the completion of the design. Excessive moisture migration can cause unwanted condensation that will potentially damage the system or infiltrate the occupied space. Hunter Panels strongly suggests the use of a vapor retarder with a perm value of 0.5 or less on all projects except in extreme cooling conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location within the assembly. This criteria varies with geographical location and is therefore specific to each project.

Fastening Guidelines

Hunter Panels requires the use of the Hunter Panels SIP SD Panel Fastener for steel deck applications, the SIP WD for plywood deck applications, and SIP HD for heavy duty steel decks. Additional information on fasteners and fastening patterns are available on our website at www.hunterpanels.com.

Review manufacturer's specifications and details for complete installation information.



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LOW SLOPE FM 1-90 FASTENING PATTERNS FOR H-SHIELD NB

Less than 1/2:12

ROOF TYPES

- Single Ply Membranes
- Standing Seam Metal

DECK TYPES FOR 16 FASTENER LAYOUT

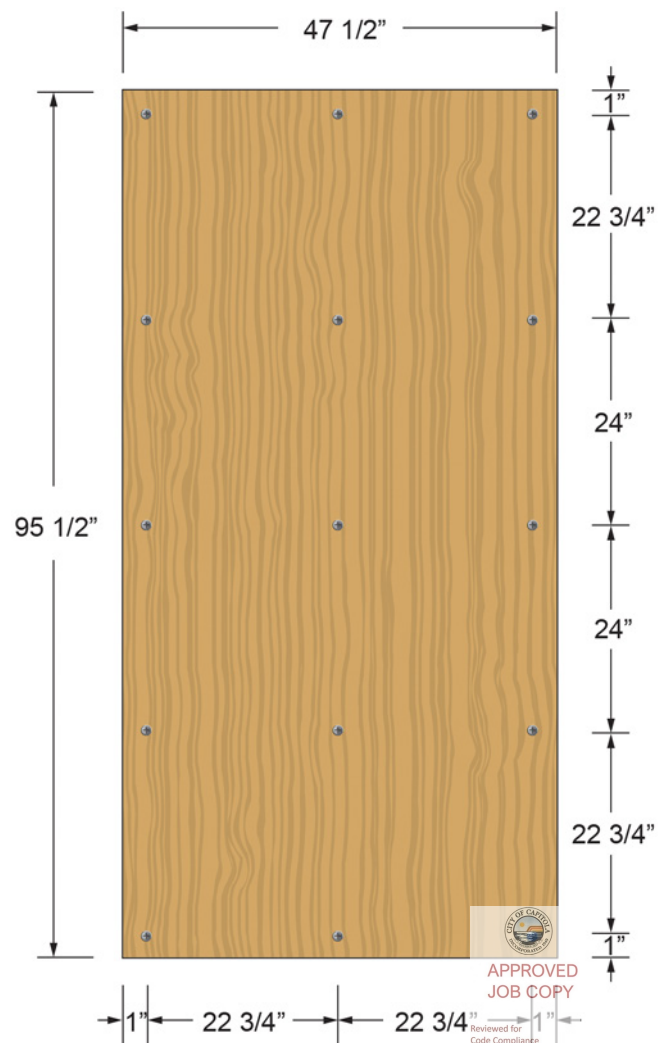
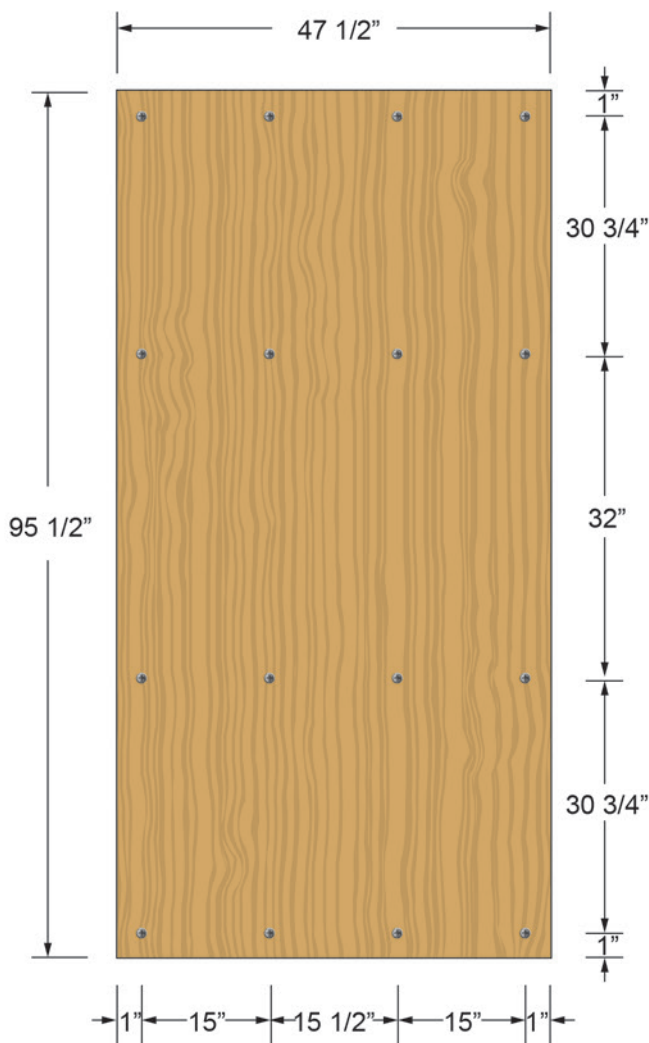
- Wood (over 16" or 32" OC framing)
- Steel
- Concrete

DECK TYPES FOR 15 FASTENER LAYOUT

- Wood (over 24" OC framing)
- Concrete

NOTES

- H-Shield NB must be fastened into a structural roof deck. H-Shield NB is not a structural panel and should not be installed directly to framing.
- Fasteners must be FM approved.
- For slate and tile roofs, contact manufacturer for recommendations.
- The fastening patterns below meet FM 1-60 and 90 requirements in low slope applications where applicable.
- For UL-90 rated assemblies under select metal roof systems, please contact the Standing Seam Metal manufacturer for approved fasteners.
- Additional fastening options at RoofNav.com




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STEEP SLOPE FASTENING PATTERNS FOR H-SHIELD NB

3:12 to 12:12

ROOF TYPES

- Shingles
- Slate
- Tile
- Standing Seam Metal

DECK TYPES

- Wood
- Steel

NOTES

- H-Shield NB must be fastened into a structural roof deck. H-Shield NB is not a structural panel and should not be installed directly to framing.
- For slate and tile roofs, contact manufacturer for recommendations.
- For UL-90 rated assemblies under select metal roof systems, please contact the Standing Seam Metal manufacturer for approved fastener, plate and fastening pattern.
- For a complete fastening guide please contact Hunter Panels or refer to DrJ TER 2101-01.
- For fastening pattern images, please contact Hunter Panels or refer to the H-Shield NB Steep Slope Fastening Pattern Guide on our website.



Approved. Sealed. Code Compliant.

Technical Evaluation Report
TER 2101-01
TRUFAST® SIP Fasteners for Use in
Vented and Non-Vented Nailable
Insulation Panels in Roofing
Applications

Altenloh, Brinck & Co. US, Inc.

Products:
SIPTP, SIPLD

Issue Date:
May 6, 2021
Revision Date:
March 16, 2022
Subject to Renewal:
April 1, 2023



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Reviewed for
Code Compliance

Signed _____

Date: 05/16/2024

Permit # 2224180

WOOD DECKS

Fastener Information - SIP WD

The Hunter Panels SIP WD Fastener is intended to mechanically attach Cool-Vent and H-Shield NB to plywood substrates. The Hunter Panels SIP WD Fastener has the following features:

- FM approved—plates not required
- Pull-out values for plywood
- Star/spider head eliminates need for washer and offers dramatically increased pull-out value
- Multiple bits included in each pail
- 100% American made
- Fast, one-step installation
- No pre-drilling

Test Description	Typical Value
Pull-through (lbs)	630
Pull-out (lbs):	
1/2" plywood	442
5/8" plywood	459
3/4" plywood	710
Douglas Fir (1" pen.)	768

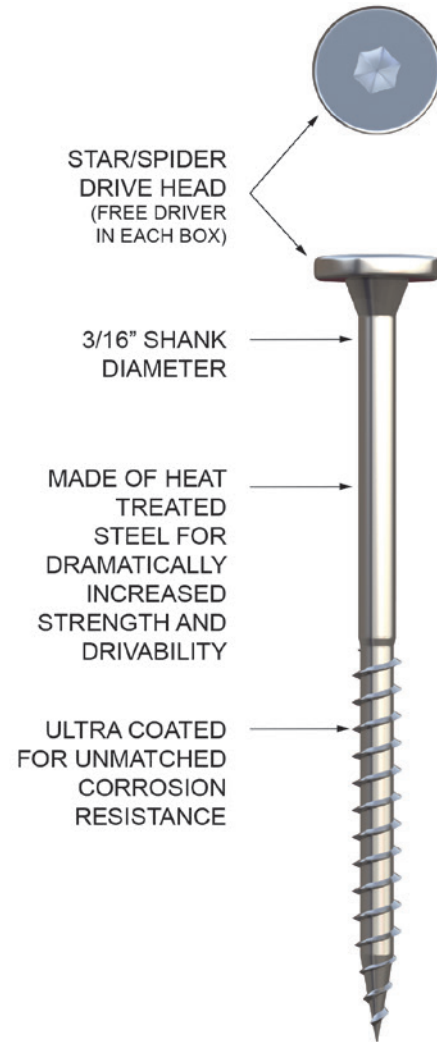
Fasteners should never be struck with a hammer during installation.

PHYSICAL DATA CHART

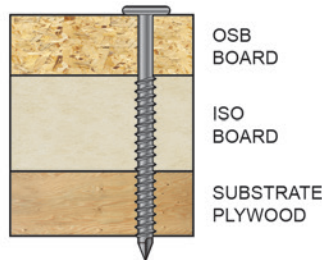
Head Diameter	.625"
Thread Diameter	.240"
Shank Diameter	.190"
Fastener Length	3.5", 4", 4.5", 5", 5.5", 6", 6.5", 7", 7.5", 8", 9", 10", 11", 12", 13", 14"

* 1" Penetration into solid sawn T&G

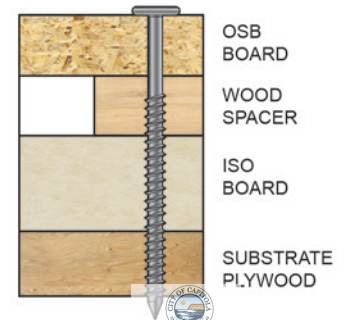
* 3/4" penetration beyond underside of board when fastening into OSB and plywood decks.



H-SHIELD NB



COOL-VENT



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5/16/2024

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STEEL DECKS

Fastener Information - SIP SD

The Hunter Panels SIP SD Fastener is intended to mechanically attach Cool-Vent and H-Shield NB to 18 - 22 gauge corrugated steel decking. The Hunter Panels SIP SD Fastener has the following features:

- FM approved—plates not required
- Pull-out values for steel
- Star/spider head eliminates need for washer and offers dramatically increased pull-out value
- Multiple bits included in each pail
- 100% American made
- Fast, one-step installation
- No pre-drilling when used on a steel deck

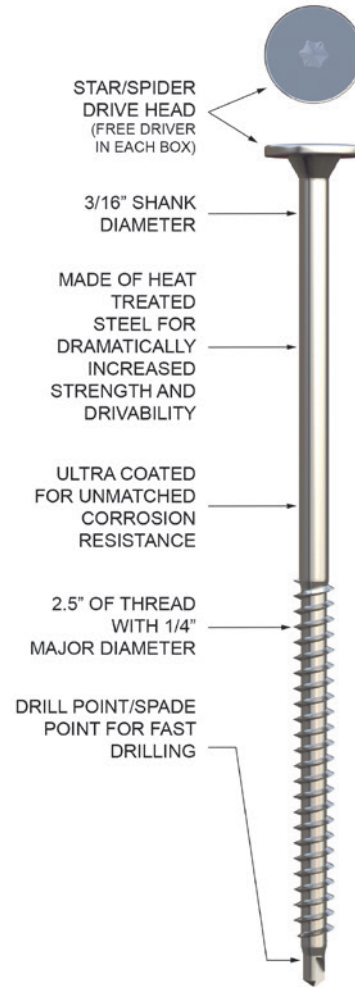
Test Description	Typical Value
Pull-through (lbs)	630
Pull-out (lbs):	
22 gauge metal	510
18 gauge metal	920

Fasteners should never be struck with a hammer during installation.

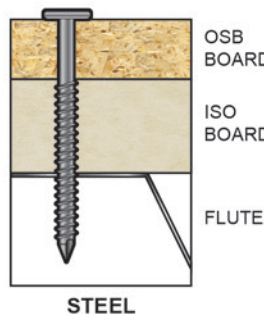
PHYSICAL DATA CHART

Head Diameter	.625"
Thread Diameter	.240"
Shank Diameter	.190"
Fastener Length	3.5", 4", 4.5", 5", 5.5", 6", 6.5", 7", 7.5", 8", 9", 10", 11", 12", 13"

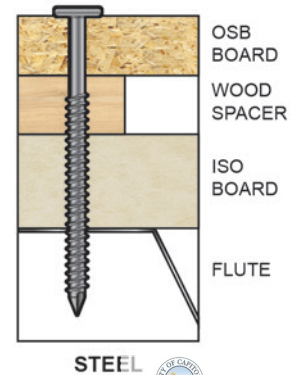
Minimum 3/4" penetration through steel decking.



H-SHIELD NB



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Date: 09/16/2024

Part # 2524180

HEAVY DUTY STEEL DECKS

Fastener Information - SIP HD

Hunter Panels SIP HD Fastener is intended to mechanically attach Cool-Vent or Hunter NB to 16 gauge or greater corrugated steel decking. Hunter Panels SIP HD Fastener has the following features:

- FM approved—plates not required
- Pull-out values for steel
- Star/spider head eliminates need for washer and offers dramatically increased pull-out value
- Multiple bits included in each pail
- 100% American made
- Fast, one-step installation
- SIP/HD is for 16 gauge or thicker steel deck
- No pre-drilling

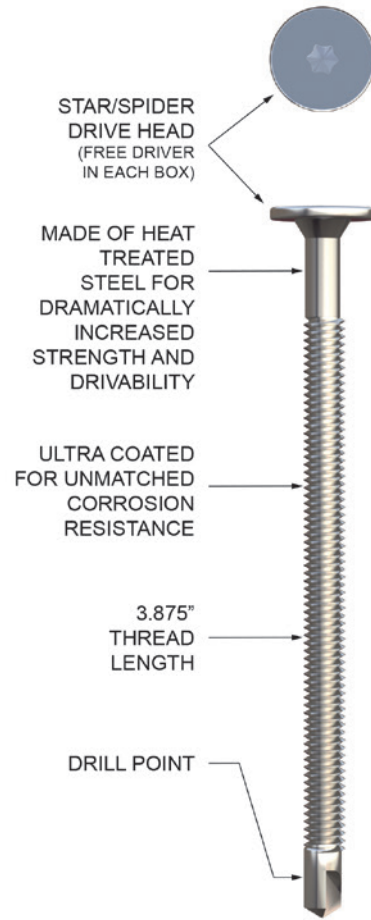
Test Description	Typical Value
Pull-through (lbs)	630
Pull-out (lbs):	
Structural Steel 16 ga	770

Fasteners should never be struck with a hammer during installation.

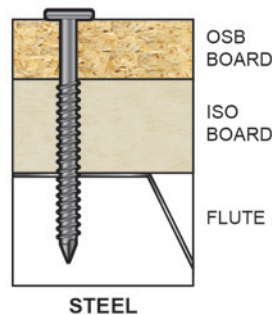
PHYSICAL DATA CHART

Head Diameter	.625"
Thread Diameter	3.875"
Shank Diameter	.212"
Fastener Length	4.5", 6.0", 8.0"

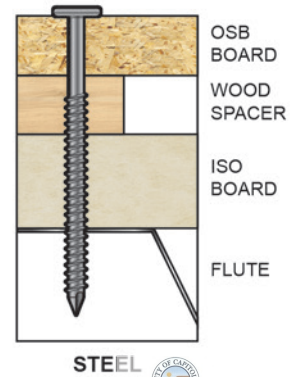
Minimum 3/4" penetration through steel decking.



H-SHIELD NB



COOL-VENT



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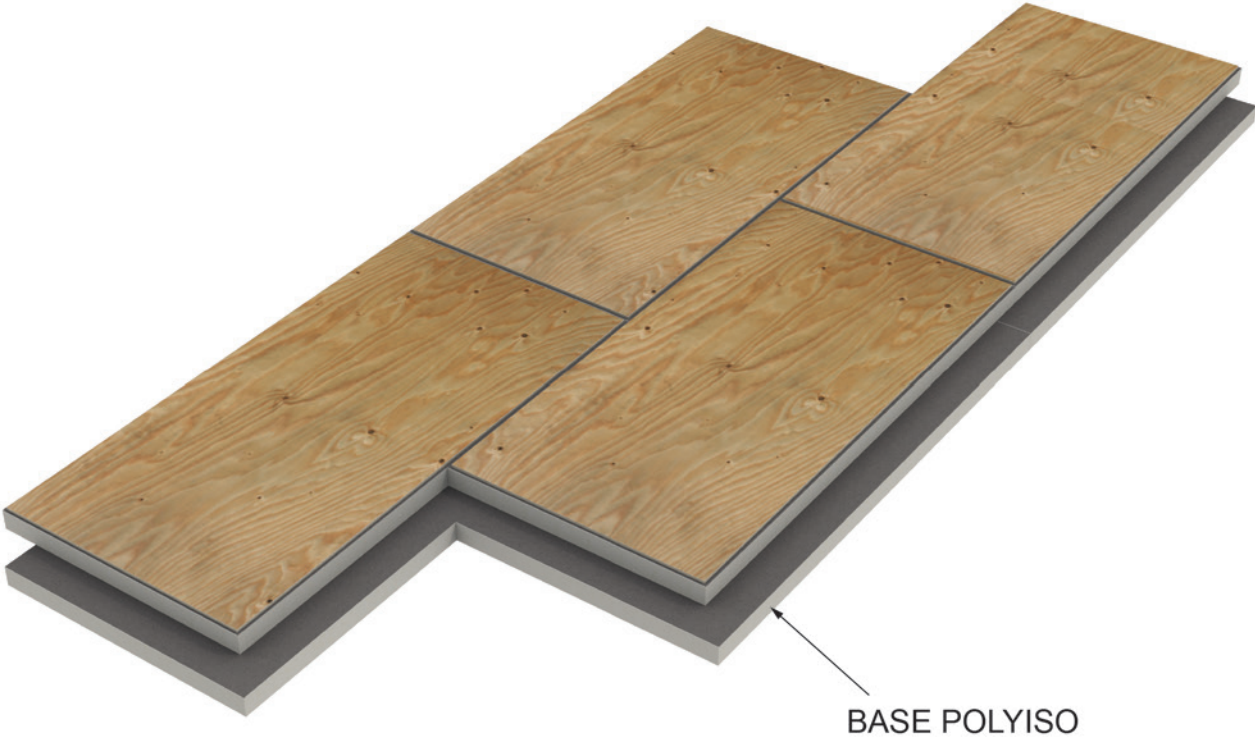
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SUGGESTED LAYOUT FOR MULTI-LAYER SYSTEM

H-Shield NB over flat polyiso

NOTES

- Recommend a minimum of 6" stagger on all sides of the base layer and subsequent layers of polyiso being installed in a multi-layer system.



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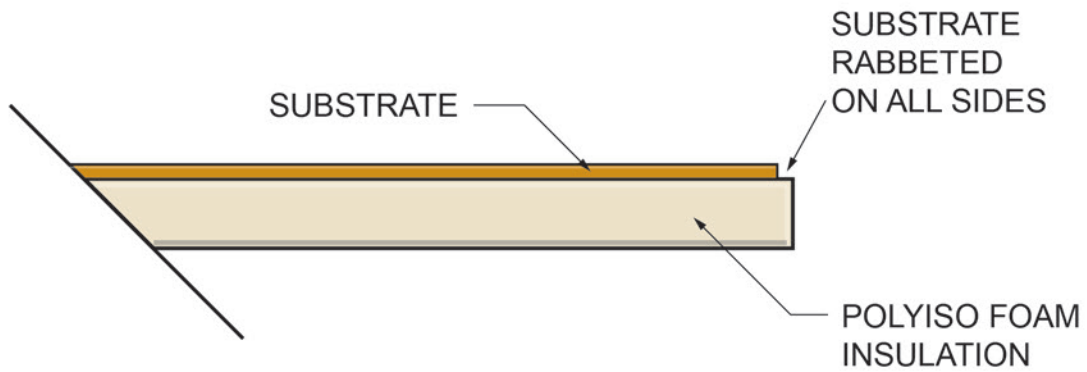
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Date 09/16/2024
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RABBETED EDGE DETAIL

NOTES

Rabbeted Edge Definition

- The wood substrate on H-Shield NB is rabbeted (routed) back on all four sides to allow for expansion of the wood substrate.



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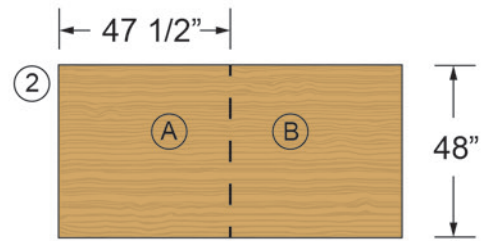
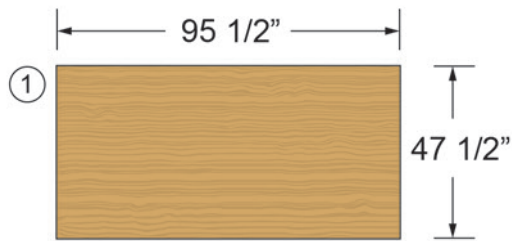
Date _____

Permit # _____

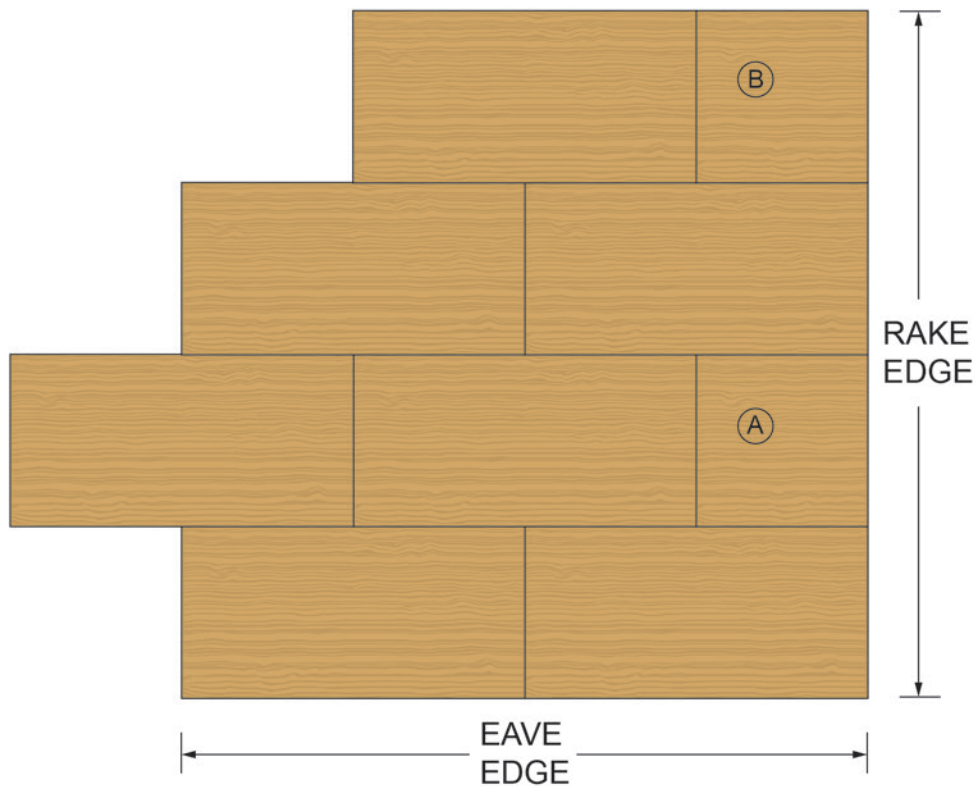
GETTING STARTED

NOTES

- Stagger rows by following H-Shield NB layout above. When H-Shield NB is cut into two equal halves, no waste occurs.



NO WASTE



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EAVE AND RAKE EDGE BLOCKING DETAIL

NOTES

Eave Edge

- Pressure treated blocking to the panel thickness of H-Shield NB shall be installed along the eave & rake edges.



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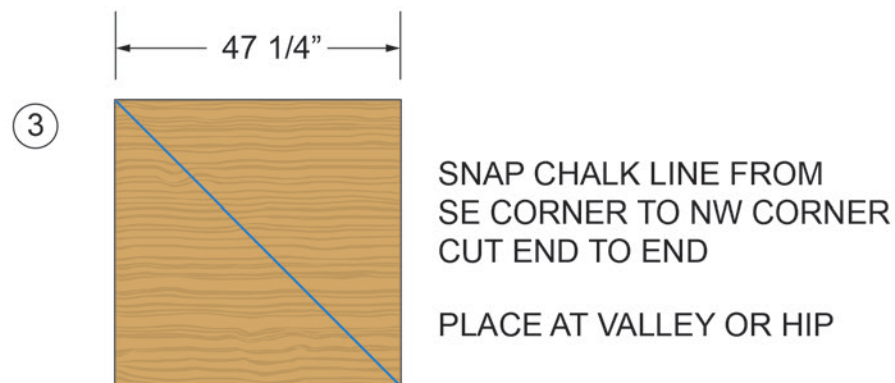
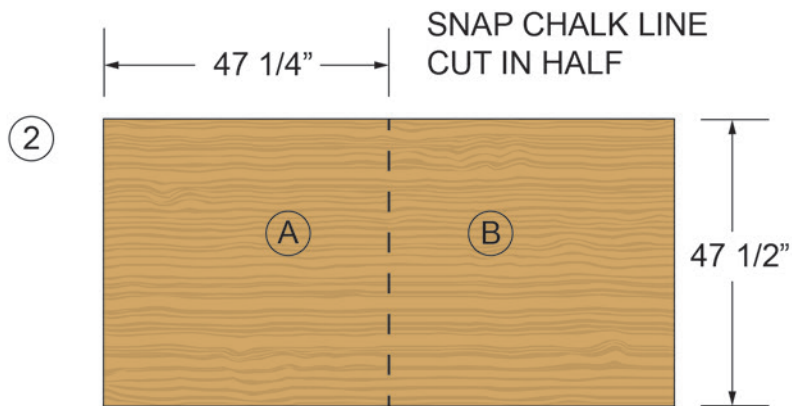
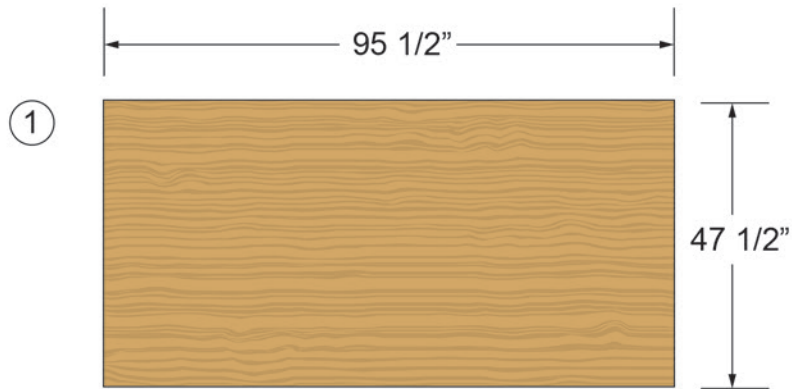
Date: 05/16/2024

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HIP AND VALLEY CUTTING

NOTES

- For valleys and hips, cut a piece of H-Shield NB in half, snap a chalk line from SE to NW corner and cut end to end.



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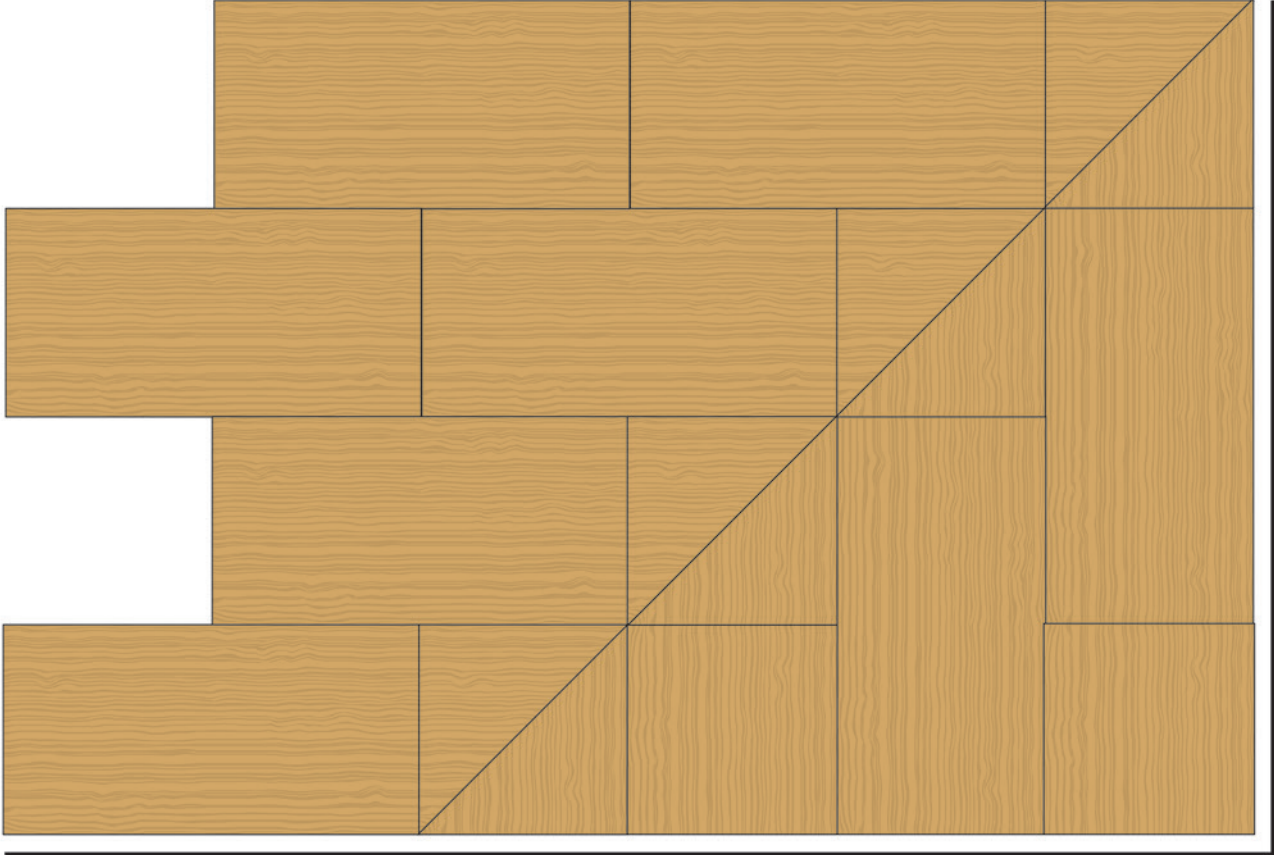
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JW for EM

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HIP AND VALLEY DETAIL



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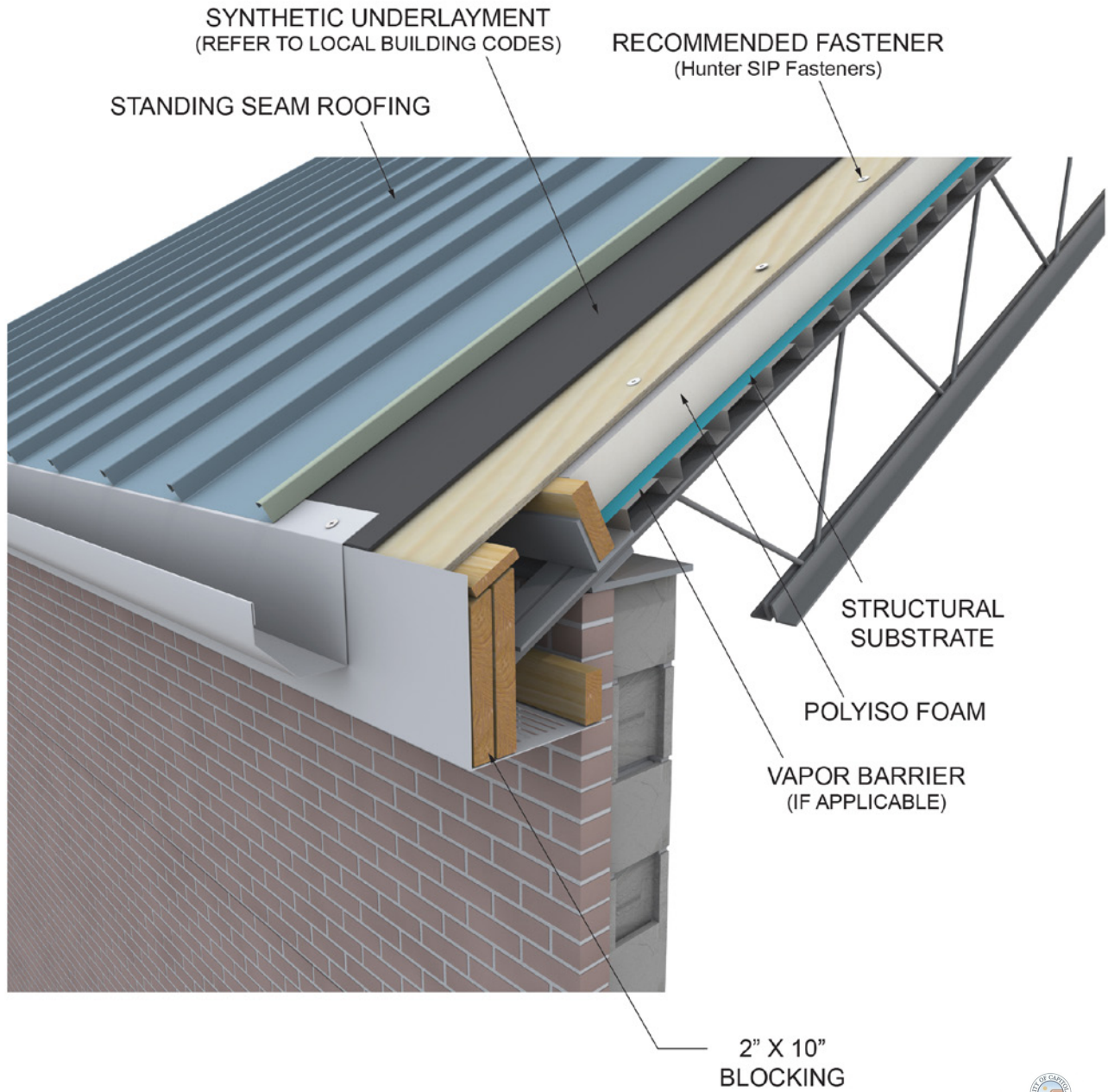
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EAVE DETAIL 1 (TYP)

Steel Deck

NOTES

- Fasten H-Shield NB panels into top flutes of steel deck



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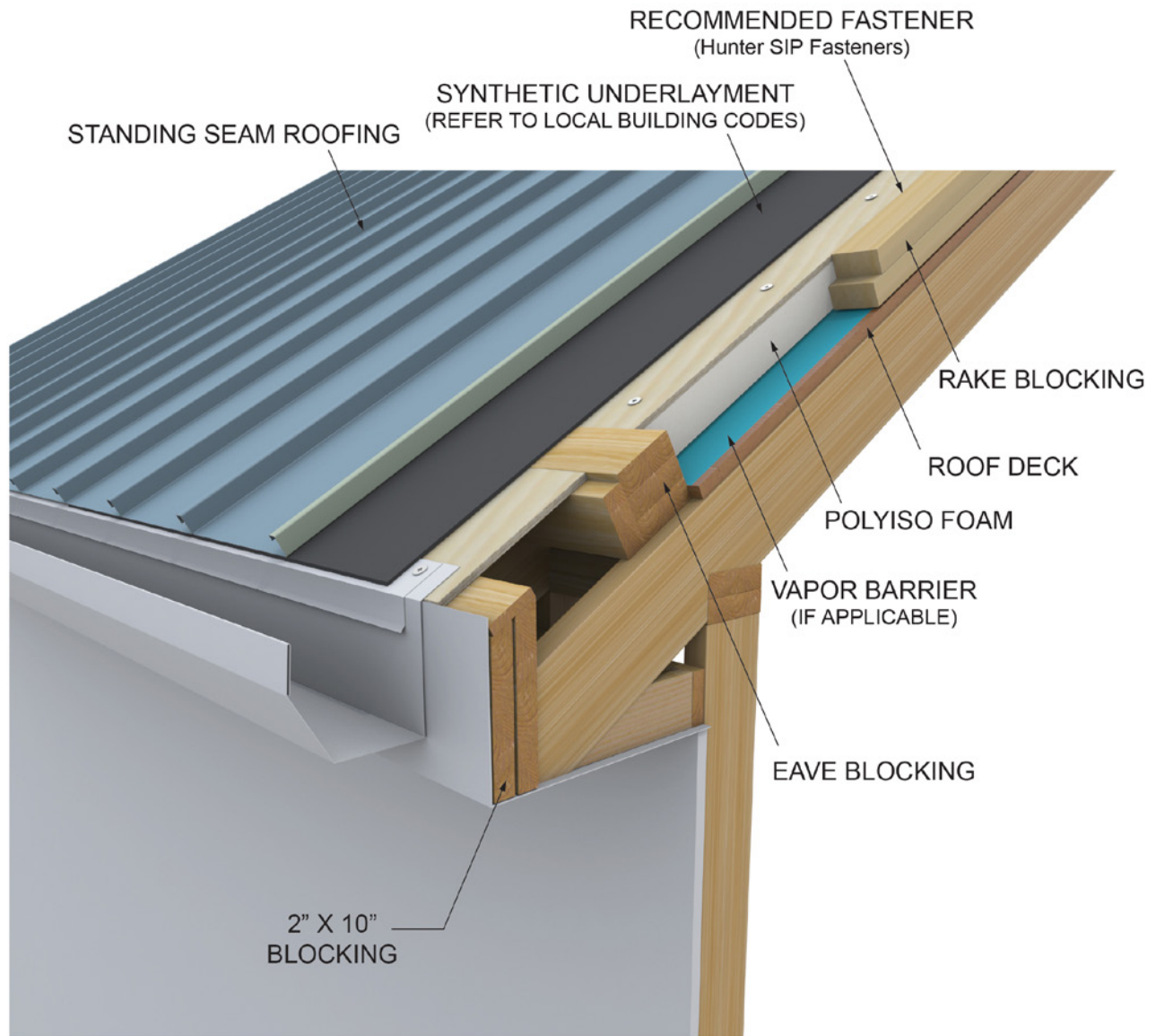
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EAVE DETAIL 2 (TYP)

Wood Deck



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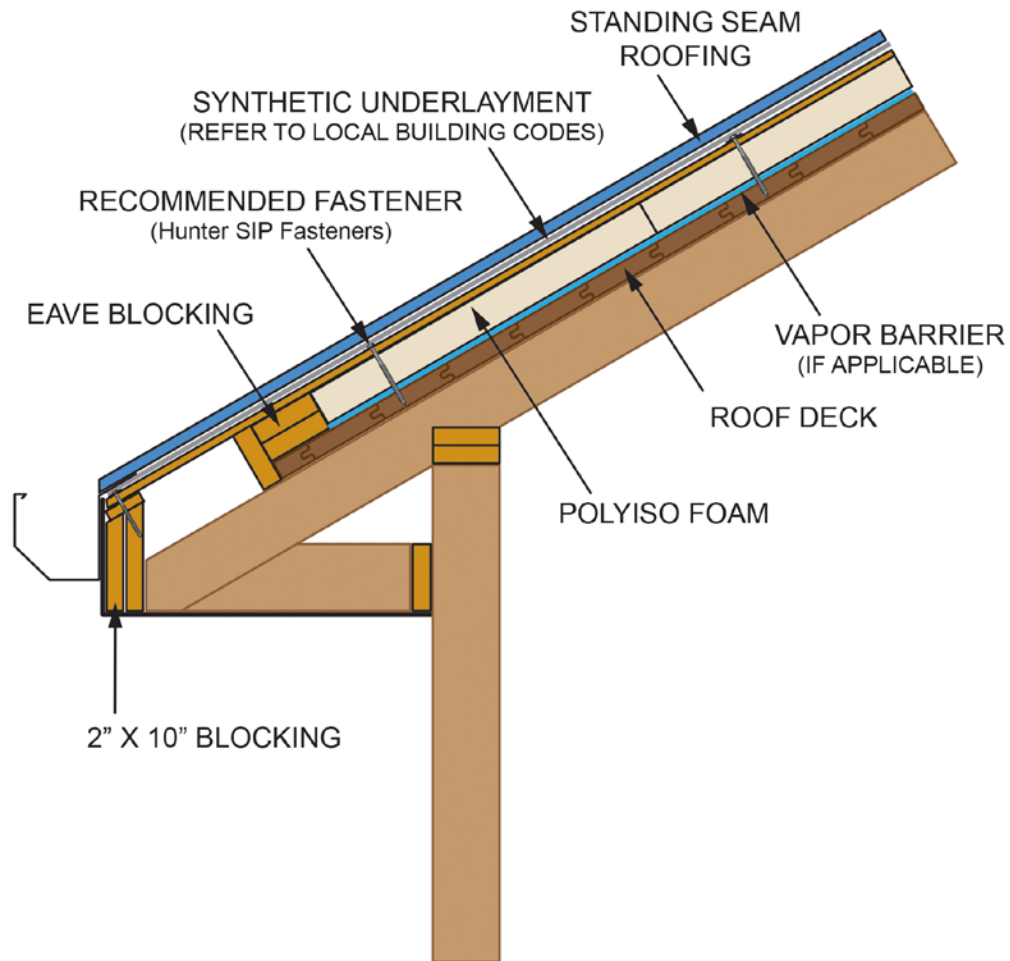
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EAVE DETAIL 2 (TYP)

Wood Deck



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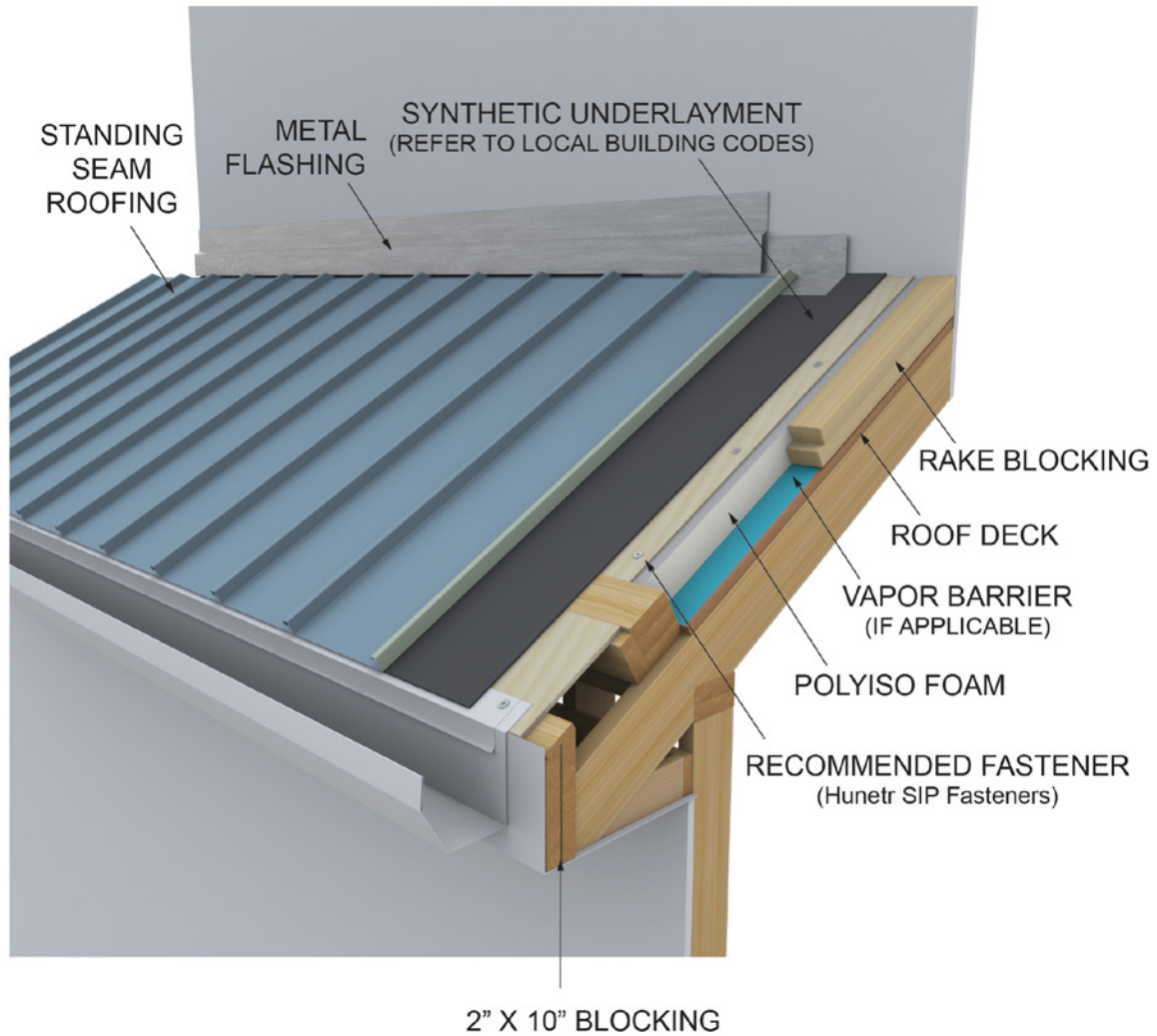
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ROOF / WALL DETAIL



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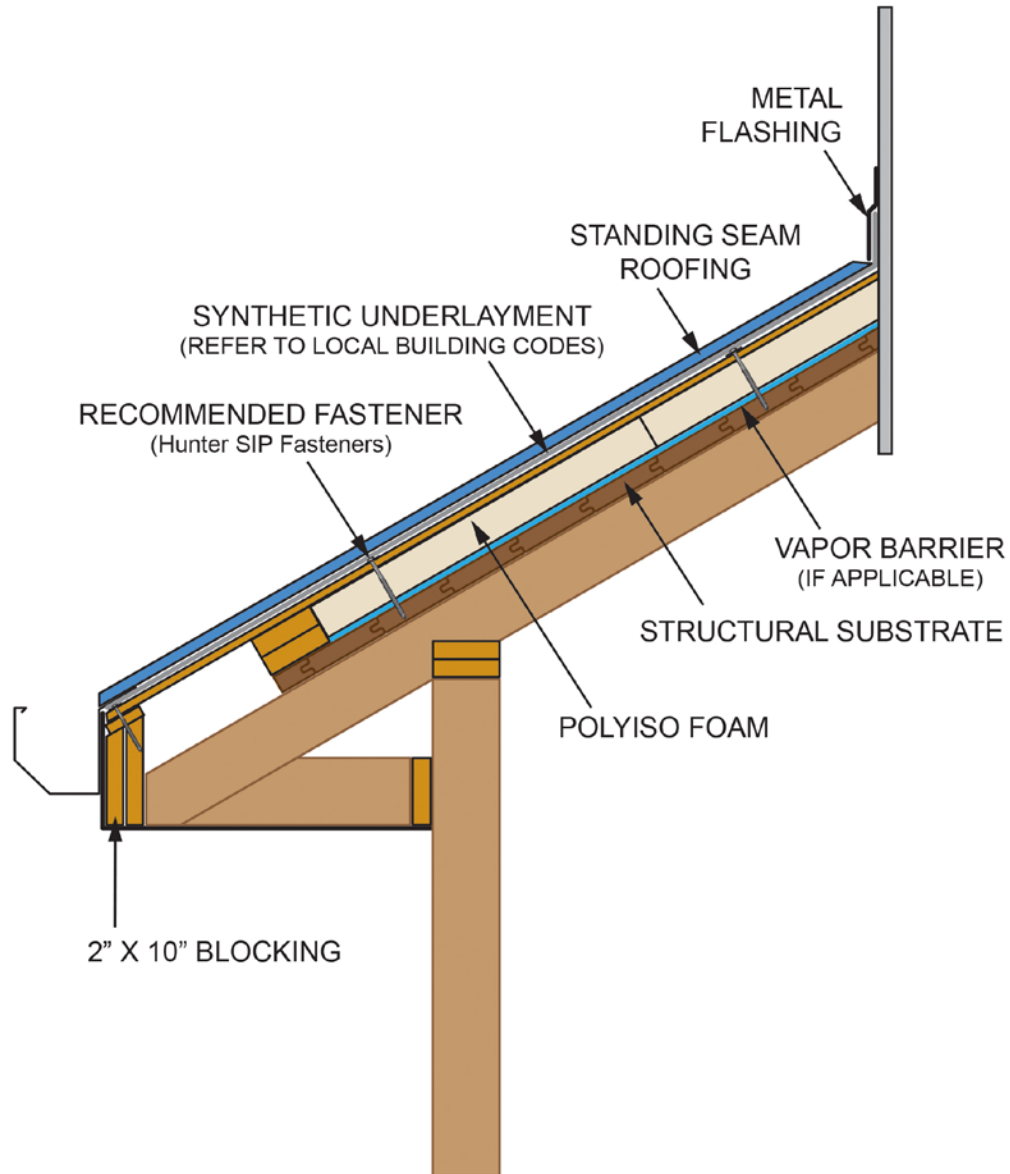
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ROOF / WALL DETAIL



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Permit # 2524150

DESIGN CRITERIA GUIDE

1. CONSTRUCTION GENERATED MOISTURE
2. VAPOR DIFFUSION RETARDERS
3. MULTI-LAYERED ROOF INSULATION
4. FASTENER REQUIREMENTS
5. USE OF SYNTHETIC UNDERLAYMENTS
6. SHINGLE CONSIDERATION



1. CONSTRUCTION GENERATED MOISTURE

Buildings under construction are susceptible to water and or moisture intrusion from the unfinished portions of the roof or adjacent components of the building. Some of the most common sources of moisture drive are:

- Pouring of a concrete floor or other masonry work in an enclosed building
- The use of heaters or "salamanders" to provide more comfortable conditions or help cure the freshly poured concrete.
- The use of oil burning heaters
- The use of paint, plaster and other water based construction materials

Effects of moisture generated during construction on the roofing system can cause the following conditions:

- Water accumulation in the steel deck flutes causing corrosion and possible intrusion into the building
- Condensed moisture can promote microorganism growth
- Moisture drawn into the roof system may have a deleterious effect on the physical properties of the roof insulation (i.e. dimensional stability, thermal properties)

Adherence to good construction practices can minimize some or all of the above-mentioned conditions. Adequate ventilation should be provided at all times for enclosed construction to limit moisture drive through the underside of the roof deck. The use of multilayered roof insulation assemblies will enhance thermal performance as well as restrict the transport of moisture into the roof system. During roof construction, the completed roof section should be tied off each day to protect the new roof from water entry.

2. VAPOR DIFFUSION RETARDERS

In building construction, vapor retarders are used to inhibit or block the passage of moisture into roofing assemblies. Vapor barriers also serve as air barriers to limit the movement of moisture-laden air from the interior to the exterior. This is especially important during the construction phase where excessive moisture drive is present. To determine whether a vapor retarder is necessary, we recommend that calculations on the building's interior relative humidity, interior temperature conditions and outside temperature fluctuations during the various seasons be performed prior to the completion of the design. Excessive moisture migration can cause unwanted condensation that will potentially damage the system or infiltrate the occupied space.

Hunter Panels strongly suggests the use of a vapor retarder with a perm value of 0.5 or less on all projects except in extreme cooling conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location within the assembly. This criteria varies with geographical location and is therefore specific to each project.

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Date: 09/16/2024
Permits # 20241150

WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Store above ground on pallets and cover with breathable tarpaulins. Install only as much Polyiso as can be covered the same day with the completed roofing system. Do not leave exposed. Hunter Panels will not be responsible for specific designs by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site, or for improper storage and handling.

WARRANTY

Hunter Panels will not be responsible for leakage, damage or failure of any kind caused by improper application or design, structural movement, accident or natural hazard, defective membrane or improper maintenance.

Hunter Panels warrants that its polyisocyanurate foam will conform to its published physical properties, federal specifications and ASTM standards. Hunter Panels does not warrant the performance or physical properties of the wood substrate incorporated into the H-Shield NB assembly.

Hunter Panels will not be liable for incidental or consequential damages to the structure, its contents or occupancy.

Hunter Panels makes no warranties or guarantees of any kind expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose except as stated herein.



3. MULTI-LAYERED ROOF INSULATION

Multi-layering of polyiso in any roof application installed with staggered joints offers a number of advantages and is considered good roofing practice because doing so:

- Minimizes thermal loss at the joints of the insulation, prevents thermal bridging
- Prevents moisture from inside of the structure from condensing on the underside of the finished roof system

4. FASTENER REQUIREMENTS

To ensure optimal performance, Hunter Panels requires the use of the Hunter SIP SD or Hunter SIP HD for steel deck applications, and the Hunter SIP WD for plywood deck applications.

5. USE OF SYNTHETIC UNDERLAYMENTS

The use of synthetic underlayments is becoming the industry norm for steep slope roofing assemblies. Hunter Panels **strongly suggests** the use of a synthetic underlayment under asphalt shingles unless the shingle manufacturer has specifically eliminated it. Synthetic underlayments offer several key advantages over traditional asphalt felt:

- Larger rolls with fewer laps and less nailing
- Lighter weight for easier handling and quicker installation
- May be left exposed for longer periods of time without organic deterioration
- Synthetic reinforced polypropylene wicks the moisture and provides excellent water resistance
- Some manufacturers of synthetic underlayment offer products with prolonged exposure to UV rays, greater fire resistance, tear strength and puncture resistance

Hunter Panels does not recommend the use of 15# and 30# roofing felt as an underlayment to asphalt shingles on our H-Shield NB product. Use of these felt products will void any and all claims regarding a H-Shield NB assembly. Hunter Panels cannot be responsible for claims arising out of aesthetic anomalies caused by roofing felts in the assembly.

6. SHINGLE CONSIDERATION

The roof covering is one of the most important considerations of any low slope or steep slope application. In most steep slope roofing projects, however, the visual appeal or aesthetic look plays almost as large a role as the true performance and physical properties of the shingle. Please confirm that your shingle manufacturer does not require a ventilated roof system. If a vented system is required, Cool-Vent panels can be substituted.

Please go to www.hunterpanels.com for the latest product literature, specifications and other documents relating to this product.



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Date: 09/16/2024

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AHU-1



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Date 09/16/2024

Permit # 2204160



Split System Rating

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00

Air Handling Unit Tag: AHU-1

~~Condensing Unit Tag: CU-1~~

Job Information

Job Name: Capitola Community Center
Job Number: Job #2021040762
Site Altitude: 0 ft
Refrigerant: R-410A

Unit Information

Approx. Weights AHU/CU: 800 / 1068 lbs. (±5%)
Supply CFM/ESP: 4400 / 0.45 in. wg.
Outside CFM: 1000
Ambient Temperature: 87 °F DB / 63 °F WB
Return Temperature: 75 °F DB / 62 °F WB

Static Pressure

External: 0.45 in. wg.
Coil: 0.44 in. wg.
Filters Clean: 0.42 in. wg.
Dirt Allowance: 0.15 in. wg.

Economizer: 0.00 in. wg.
Heating: 0.00 in. wg.
Cabinet: 0.00 in. wg.
Total: 1.45 in. wg.

Cooling Section

	Gross	Net
Total Capacity:	119.49	114.45 MBH
Sensible Capacity:	113.75	108.71 MBH
Latent Capacity:	5.74 MBH	
Mixed Air Temp:	77.73 °F DB	62.23 °F WB
Entering Air Temp:	77.73 °F DB	62.23 °F WB
Lv Air Temp (Coil):	53.43 °F DB	52.42 °F WB
Lv Air Temp (Unit)	54.46 °F DB	52.85 °F WB
Evap Suction Temp:	44.33 °F	
Supply Air Fan:	2 x RN185D70 @ 0.90 BHP Ea.	
SA Fan RPM / Width:	1534 / 2.898"	
DX Coil:	10.3 ft ² / 4 Rows / 14 FPI	
DX Face Velocity:	428.1 fpm	

Heating Section

Primary Heat Type: Heat Pump
Total Capacity: 95.4 MBH
OA Temp: 34.0 DB / 33.0°F WB
RA Temp: 68.0 °F DB / 58.0 °F WB
Entering Air Temp: 68.0 DB / 58.0 °F WB
Leaving Air Temp: 88.1 DB / 65.1°F WB
Auxiliary Heating Type*: **No Heat**

Rating Information

Application EER @ Op. Conditions: 11.0 Condensing Unit EER @ Op. Conditions: 13.5
Application COP @ Op. Conditions: 2.79

AH Electrical Data

Rating: 208/3/60 Minimum Circuit Amp: 10
Unit FLA: 9 Maximum Overcurrent: 15

CU Electrical Data

Rating: 208/3/60 Minimum Circuit Amp: 44
Unit FLA: 39 Maximum Overcurrent: 60

	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	1		208	3			16.9
Compressor 2:	1		208	3			16.9
Condenser Fans:	2	0.33	208	1	1075	2.8	
Supply Fan:	2	2.00	208	3	1760	4.5	

*Motor heat is not included.

Condensing Unit Connection Sizes

System	Suction Line	Liquid Line
1	0.88"	0.5"
2	0.88"	0.5"



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Permit #: 20240160



Heat Pump Unit Rating

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AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00

Air Handling Unit Tag: AHU-1

CFA-011-B-A-8-DJ0EL:0-00-00-00-AN0-L-DE00-00A0A00-0A000DB

Condensing Unit Tag: CU-1

Job Information

Job Name:
OA CFM:

Capitola Community Center
1000

Job Number:
SA CFM:

Job #2021040762
4400

Performance Data Table

Outside Air		Mixed Air		Leaving Air		Heat Pump Capacity	Heat Pump Integrated Capacity	Heating COP
DB °F	WB °F	DB °F	WB °F	DB °F	WB °F	MBH	MBH	
62.0	56.2	66.6	57.6	95.2	67.5	136.5	136.5	4.84
57.0	51.6	65.5	56.6	91.6	65.9	125.2	125.2	4.65
52.0	47.1	64.4	55.7	88.4	64.4	115.4	115.4	4.46
47.0	42.6	63.2	54.9	85.4	63.1	106.5	106.5	4.27
42.0	38.0	62.1	54.1	82.5	61.8	98.5	98.5	4.09
37.0	33.5	61.0	53.3	77.2	59.7	91.4	78.5	3.39
32.0	28.8	59.8	52.6	75.2	58.7	85.1	74.4	3.31
27.0	24.3	58.7	51.9	73.2	57.7	79.3	70.3	3.22
22.0	19.7	57.6	51.2	71.2	56.8	73.8	66.3	3.13
17.0	15.0	56.4	50.5	*	*	*	*	*
12.0	10.4	55.3	49.9	*	*	*	*	*
7.0	5.7	54.1	49.3	*	*	*	*	*
2.0	0.1	53.0	48.6	*	*	*	*	*

*Invalid operating point - Compressor operating outside of operating envelope.



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Line Sizing Information

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1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00
Air Handling Unit Tag: AHU-1

CFA-011-B-A-8-DJ0EL:0-00-00-00-AN0-L-DE00-00A0A00-0A000DB
Condensing Unit Tag: CU-1

Job Information

Job Name: Capitola Community Center Job Number: Job #2021040762

Suction Line Data

Elbow Qty: 4 Line Length: 30'
Flow Direction of Suction Line: Down

Pipe OD	Equiv. Length	Temp. Loss (°F)	Velocity (fpm)	Min Tons For Oil Return	Qty. of Req. Traps
"	'				

Liquid Line Data

Elbow Qty: 4 Line Length: 30'
Vertical Lift: 10'

Pipe OD	Equiv. Length	Temp. Loss (°F)	Velocity (fpm)	Min Subcooling For Vertical Lift
"	'			



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Refrigeration Accessories

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1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00
Air Handling Unit Tag: AHU-1

CFA-011-B-A-8-DJ0EL:0-00-00-00-AN0-L-DE00-00A0A00-0A000DB
Condensing Unit Tag: CU-1

Job Information

Job Name: Capitola Community Center Job Number: Job #2021040762

Factory Supplied / Factory Installed

Quantity	Description	Part #:	Location

Factory Supplied / Field Installed

Quantity	Description	Part #:	Location
-	N/A	-	-

Field Supplied / Field Installed

Quantity	Description	Part #:	Location
-	P-Trap(s)		AHU

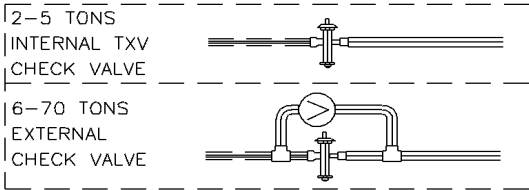


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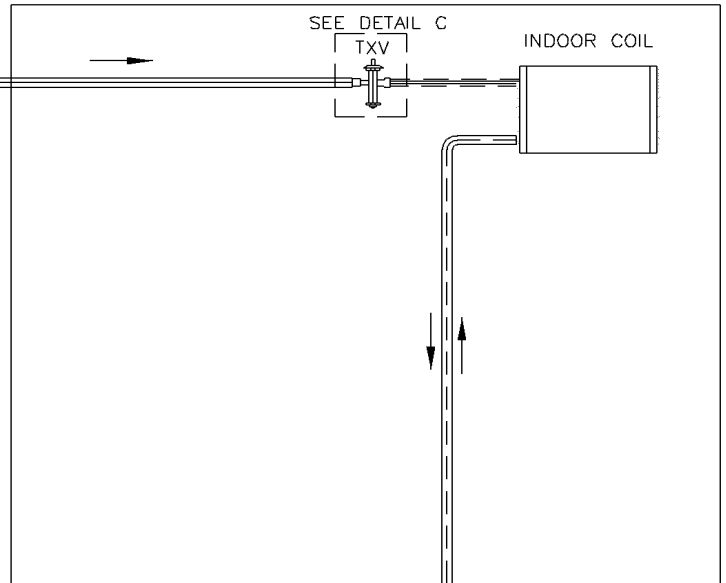
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Signed _____
Date 4/23/2024
Permit # 20241180

- ▲ SHUTOFF VALVE
- ≡≡≡ DISCHARGE LINE
- ≡≡≡ LIQUID LINE
- ≡≡≡ SUCTION LINE
- ≡≡≡ HOT GAS LINE

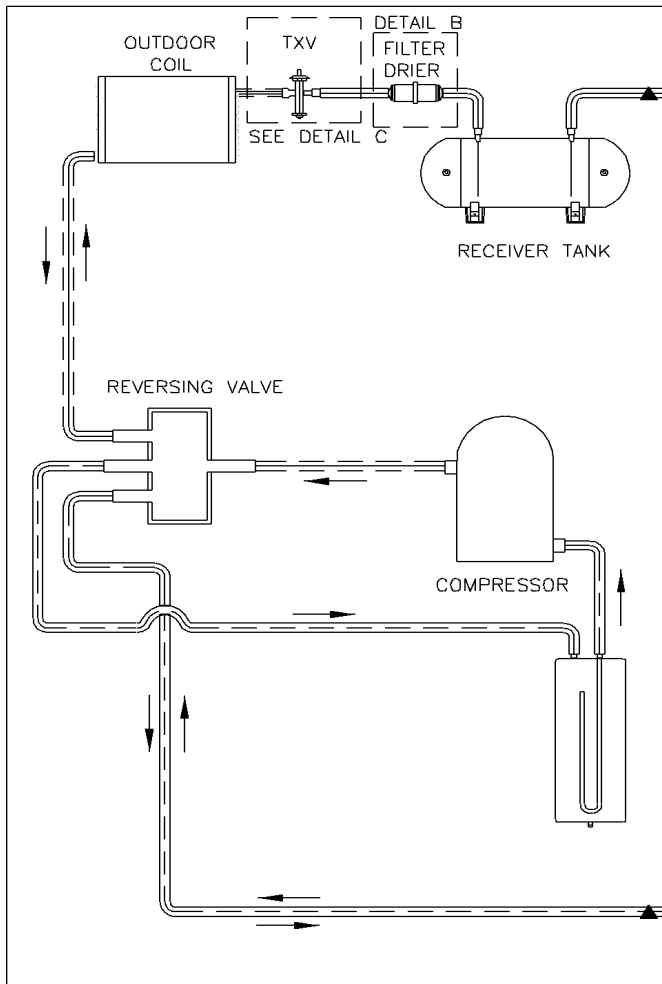
DETAIL C



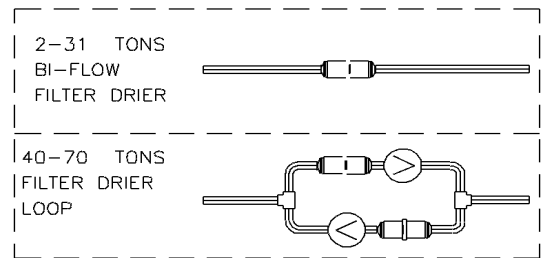
AIR HANDLING UNIT



OUTDOOR UNIT



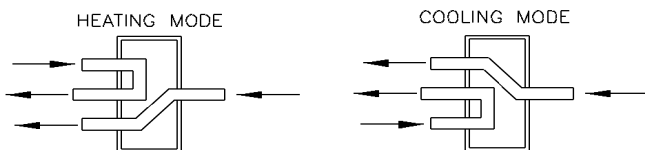
DETAIL B



LIQUID LINE - COOLING MODE
LIQUID LINE - HEATING MODE

SUCTION LINE - COOLING MODE
DISCHARGE LINE - HEATING MODE

INSTALL DISCHARGE LINE OIL TRAPS EVERY 12 FT OF VERTICAL RISE, OR AS DETAILED IN JOB SUBMITTAL FIELD SUPPLIED, FIELD INSTALLED



AAON INC.

PIPING SCHEMATIC DIAGRAM

HEAT PUMP

SUCTION DOWN

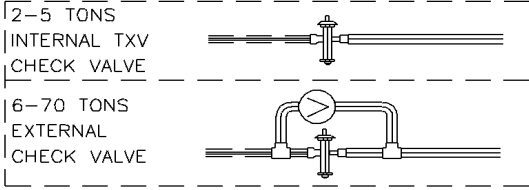


DATE	DRAWING NUMBER HP -	REV
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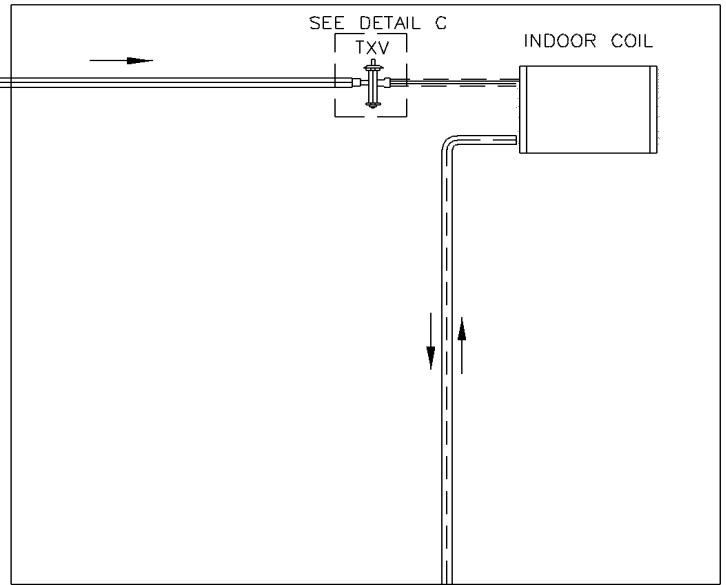
Circuit #: 1

- ▲ SHUTOFF VALVE
- ≡≡≡ DISCHARGE LINE
- ≡≡≡ LIQUID LINE
- ≡≡≡ SUCTION LINE
- ≡≡≡ HOT GAS LINE

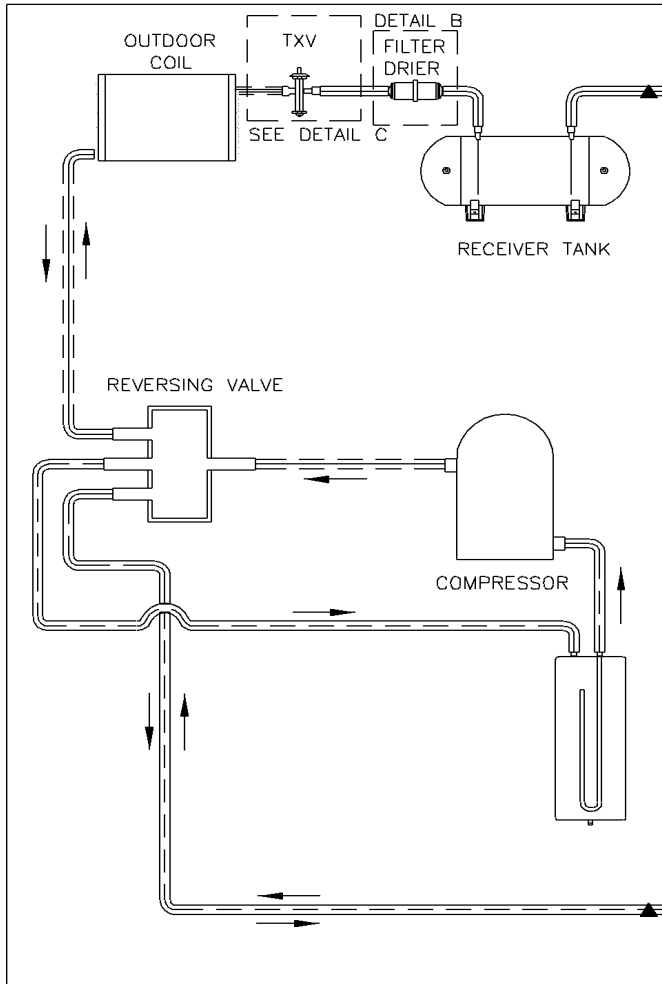
DETAIL C



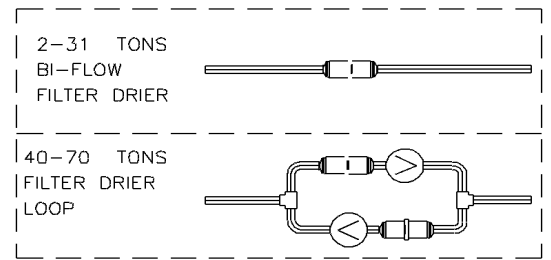
AIR HANDLING UNIT



OUTDOOR UNIT



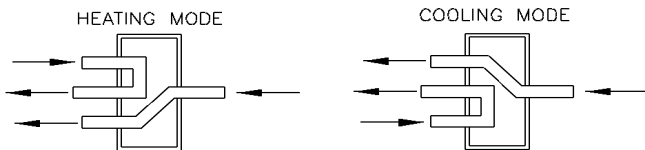
DETAIL B



LIQUID LINE - COOLING MODE
LIQUID LINE - HEATING MODE

SUCTION LINE - COOLING MODE
DISCHARGE LINE - HEATING MODE

INSTALL DISCHARGE LINE OIL TRAPS EVERY 12 FT OF VERTICAL RISE, OR AS DETAILED IN JOB SUBMITTAL FIELD SUPPLIED, FIELD INSTALLED



AAON INC.

PIPING SCHEMATIC DIAGRAM

HEAT PUMP

SUCTION DOWN



DATE	DRAWING NUMBER HP -	REV
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Circuit #: 2



18.5" STAR Plenum

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

JOB INFORMATION:

Job Name: Capitola Community Center
Job Tag: AHU-1
Rep Firm:
Date: 04/23/2023
04/23/2023

WHEEL SPECIFICATION:

Max RPM: 2,700
Diameter x Qty: 18.5 in. x 2
CFM: 2200
Tip Speed: 7,430 FPM
Inertia: 7,430 FPM

OPERATING CONDITIONS:

Air Flow: 4,400 CFM
Static Pressure: 1.45 in. Wg.
Plenum DP: 0.00 in. Wg.
Inlet Grill DP: 0.00 in. Wg.
TSP: 1.45 in. Wg.
Site Altitude: 0.00 Ft
TSP @ Sea Level: 1.45 in. Wg.

MOTOR SELECTION:

Rated HP / Bypass: 2 x 2 / No
Frame Size: 143TC
Nominal RPM: 1760
VAC/PH/HZ: 208/3/60
Efficiency: Premium / 0.907
Enclosure Type: ODP
Max Inertial Load: 27 WR²

FAN PERFORMANCE:

RPM: 1534
BHP: 0.90
Efficiency: 55.9%
In/Out Velocity: / FPM
Plenum Out Velocity: 50 FPM

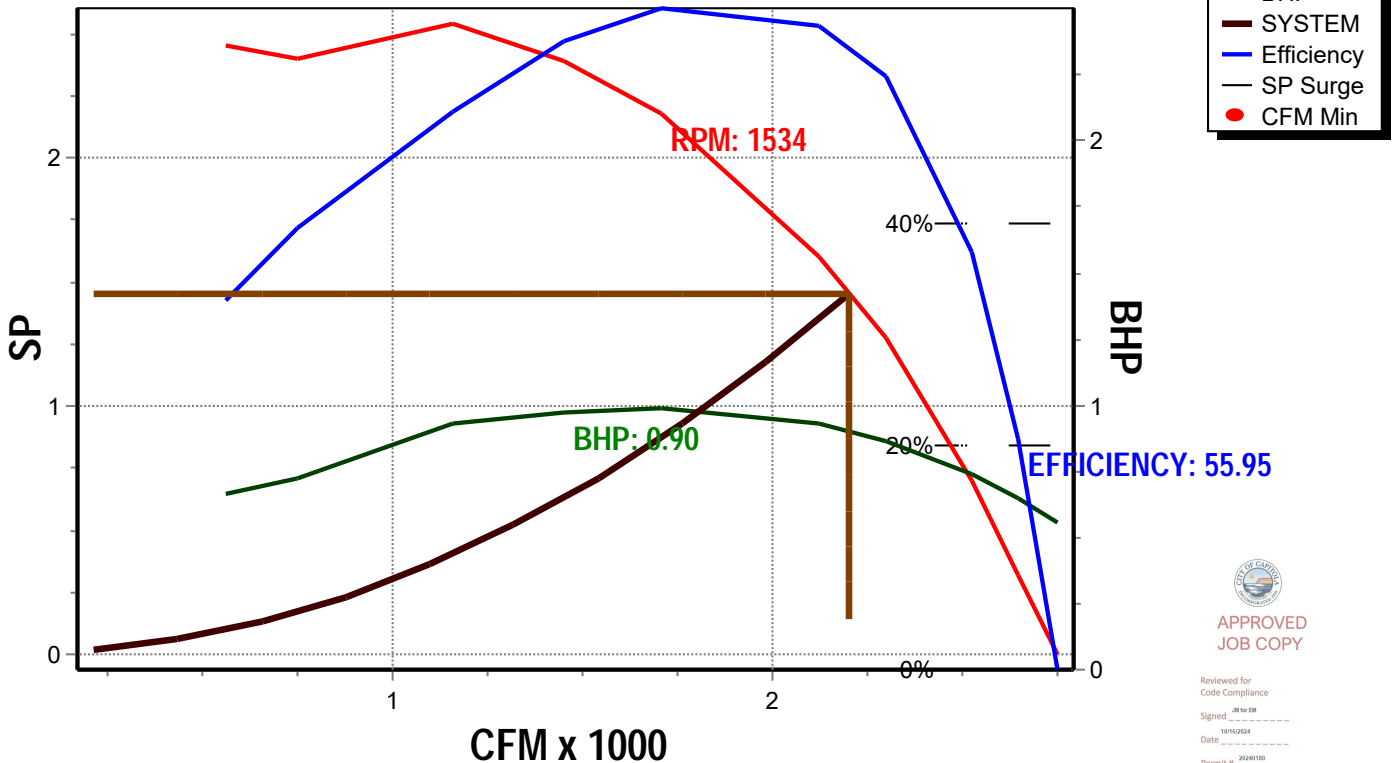
FAN SOUND POWER x 2 Fans (In/Out):

Octave Band:	(Re 10 ⁻¹² watts)							
	1	2	3	4	5	6	7	8
	85	83	86	83	76	75	72	66
	85	83	86	83	76	75	72	66

SOUND POWER A-Weighted: 86 / 86 dB

Max Duct SP with Blocked Airway: 2.5 in. Wg. @ 1534 rpm

Supply Fan Model: RN185D70 @ 1534 RPM and 100% Width Design Conditions: 2200 CFM @ 1.45" SP



- RPM
- BHP
- SYSTEM
- Efficiency
- SP Surge
- CFM Min



Reviewed for Code Compliance
Signed: JRM by JRM
Date: 10/16/2024
Permit #: 20240160



Unit Submittal

203 Gum Springs Road - Longview, TX 75602 - Ph. (903) 236-4403 Fax (903) 236-4463
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00

Tag: AHU-1

Job Name:
Job Number:

Capitola Community Center
Job #2021040762

Unit Submittal For:
Unit Submittal Date:

April 23, 2023

	Base Option	Description
H	Series	Horizontal Unit
3	Generation	Third Generation
D	Unit Size	Up to 6,000 cfm
R	Unit Orientation	Right Hand Connections - Front Discharge, Back Intake (Horizontal)
B	Revision	Second Revision
8	Voltage	208V/3Ø/60Hz
0	Corrosion Protection	None
1	Cooling Type	R-410A DX Cooling
4	Cooling Rows	4 Row Coil
2	Cooling Stages	Two Circuits - Interlaced Coil
D	Cooling FPI	14 fpi
0	Heating Type	No Heating
0	Heating Designation	No Heating
0	Heating Stages	Standard

	Feature Option	Description
F	1A. SA Blower Configuration	2 Blowers + 2 Perm Magnet AC TEFC Motors + 2 VFDs
4	1B. SA Blower Model	18.5" Backward Curved Plenum, 70% Width
2	1C. SA Blower Motor	2 hp
E	1D. SA Blower Control/Control Vendor	VCC-X Orion Controls System
C	2. Refrigeration Options	Heat Pump
C	3. Special Controls	VAV Controller - VAV Cool + CV Heat
0	4. Additional Controls 1	Standard - None
L	5A. Mixing Box - RA Damper Position	Left Hand (Front OA Damper Required)
F	5B. Mixing Box - OA Damper Position	Front
E	5C. Damper Control	Fully Modulating Actuator - Sensible Limit
0	6A. Filter Box - Pre Filter Box	Standard - None
H	6B. Filter Box - Unit Filter	2" Pleated - 30% Eff. + 4" Pleated - 85% Eff. - MERV 13
0	6C. Filter Box - Final Filter Box	Standard - None
A	7. Filter Options	Magnehelic Gauge
0	8. Coil Coating	Standard - None
A	9. Expansion Valve	Thermal Expansion Valves
0	10. Expansion Valve Controls	None
A	11. External Paint	AAON Gray Paint
V	12. Tonnage	11 ton Capacity
0	13. Energy Recovery Type	Standard - None
0	14A. Power Options	Standard Power Block
0	14B. Electrical Rating	Standard
0	15. Control Panel	Internal Control Panel (Top or Bottom Blower Access Required)
0	16. Shipping Splits	Standard (No Shipping Split)
0	17. Energy Recovery Cabinet	Standard - None
0	18. Preheat	Standard - None
0	19. Exhaust Fan	Standard - None
E	20. Crating	Shipping Shrink Wrap
D	21. Additional Controls 2	High Condensate Level Switch
0	22. Warranty	Standard - 1 Year Parts
0	23. Type	Standard


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 Date: 5/16/2024
 Permit # 20240160



VCCX Components

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

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H3-DRB-8-0-142D-000:F42E-CC0-LFE-0H0-A0A0AV0-00-00000ED00

Tag: AHU-1

Job Name:

Capitola Community Center

VCCX For:

Job Number:

Job #2021040762

VCCX Date:

April 23, 2023

Hardware Included For VCCX Controller

Part #	Included Parts	Assigned Channel	BACnet Point
ASM01698	VCCX2 CONTROLLER		
ASM01643	Space Temp Sensor	VCCX control point AI 1	AI:12
ASM01643	Space Temp Slide Adjust	VCCX control point AI 2	AI:8
R82890	Supply Temp Sensor - Field Installed	VCCX control point AI 3	AI:9
R82890	Return Temp Sensor	VCCX control point AI 4	AI:14
R81550	Outside Temp Sensor	VCCX control point AI 7	AI:16
P87100	Duct Static Pressure Sensor	VCCX control point AI 8	AI:21
	Economizer	VCCX control point AO 2	AI:30
	Safety Shut Down	VCCX control point BI 8	BI:26
	Morning Warm-Up	Configured Relay Point	BI:47



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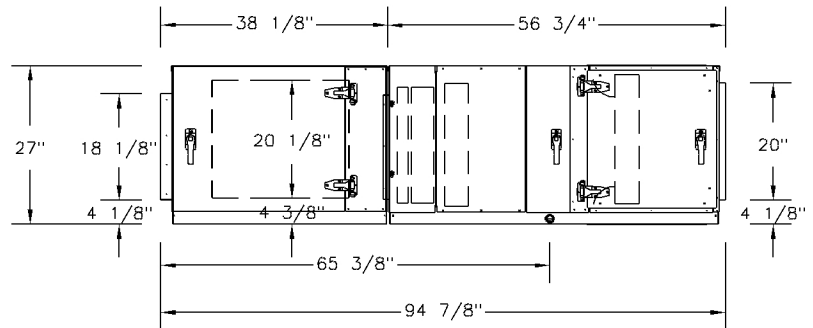
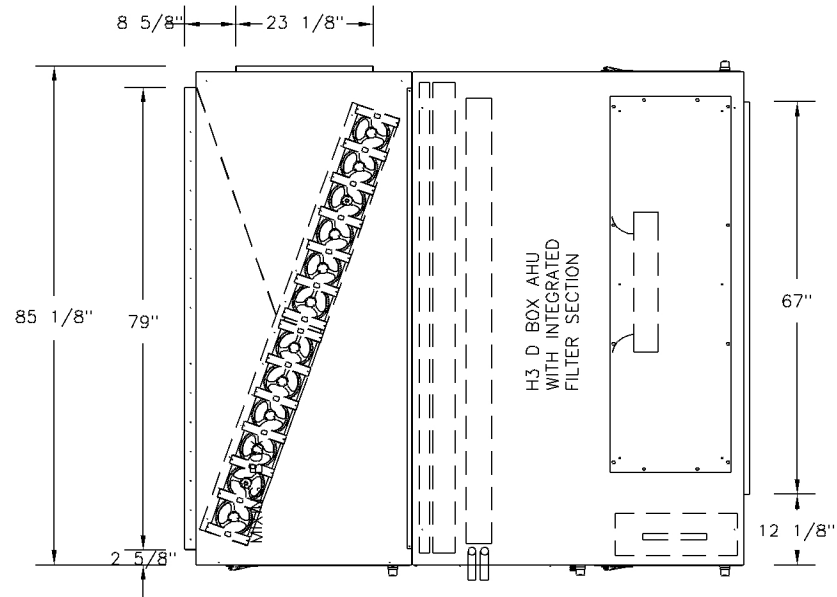
Reviewed for
Code Compliance

Signed _____

Date: 10/16/2024

Permit # 20240160

FAN ACCESS IS REQUIRED THROUGH THE TOP OR BOTTOM OF THE UNIT.
 THE REQUIRED CLEARANCE IS THE UNIT HEIGHT.



Configurator: H3-DRB-8-0-142D-000:F42E-CC0-LFE-OHO-AOAOAV0-00-00000ED00 UNIT TAG: AHU-1
 JOB NAME: Capitola Community Center

PURCHASER:

PURCHASE ORDER:

SERIAL NO.: v1.13.0.0
 DATE: 4/23/2023

Rep Contact:

Ordered By:

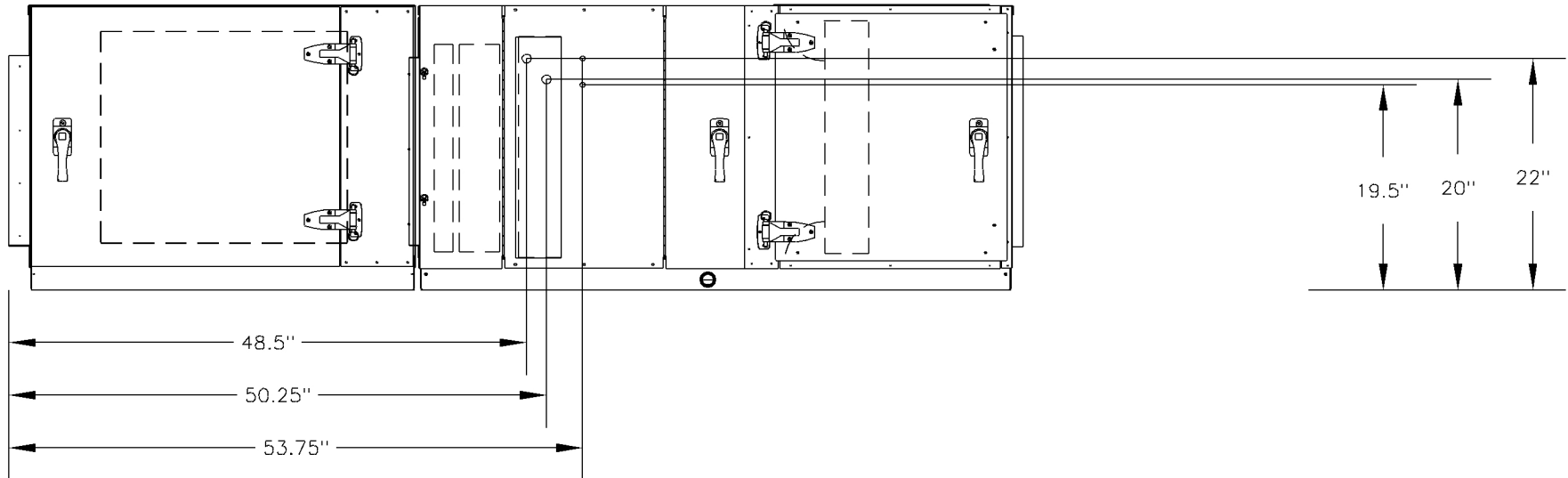
Engineer:

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 Code Compliance

DATE: 4/23/2023

CONNECTION LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE. THE ACTUAL LOCATIONS MAY SHIFT SLIGHTLY DURING MANUFACTURING.



Configurator: H3-DRB-8-0-142D-000:F42E-CC0-LFE-OHO-A0AOAV0-00-00000ED00 UNIT TAG: AHU-1
 JOB NAME: Capitola Community Center

PURCHASER:

PURCHASE ORDER:

SERIAL NO.: v1.13.0.0

Rep Contact:

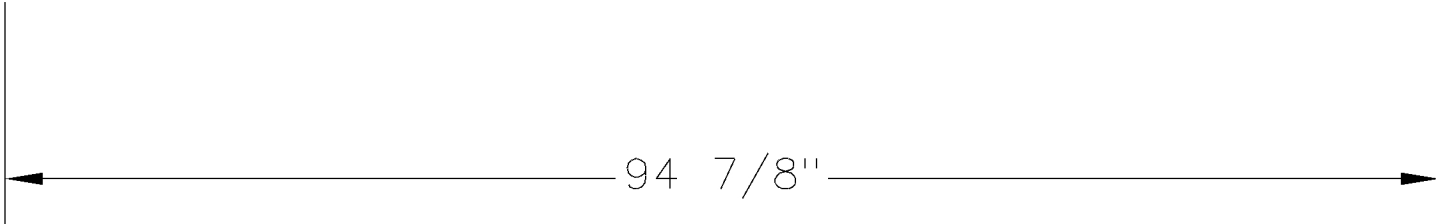
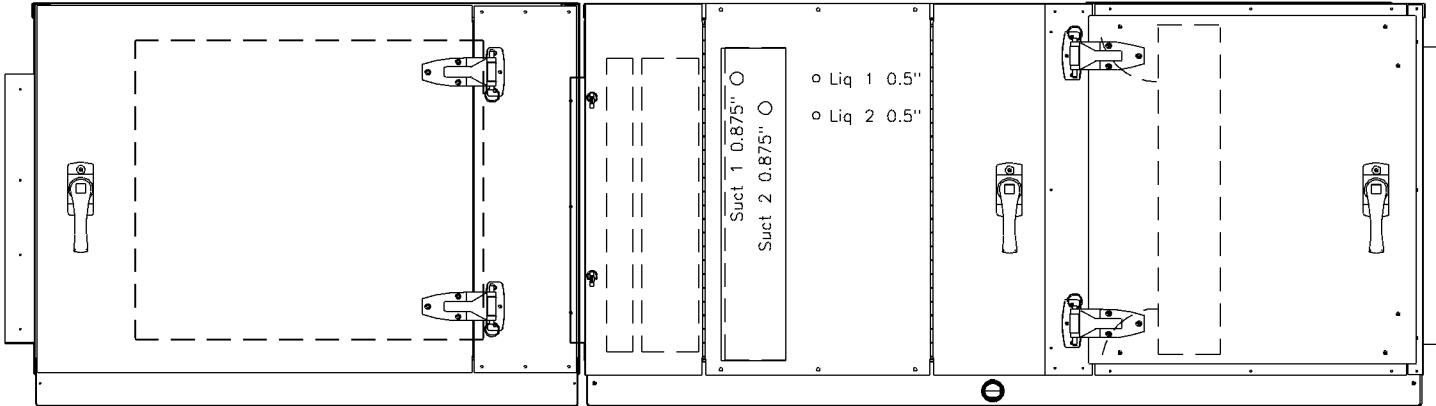
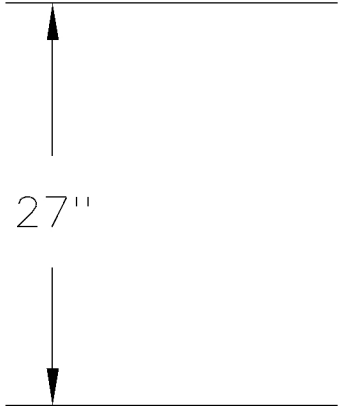
Ordered By:

Engineer:

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Reviewed for Code Compliance

DATE: 4/23/2023



Configurator: H3-DRB-8-0-142D-000:F42E-CC0-LFE-OHO-A0AOAV0-00-00000ED00 UNIT TAG: AHU-1
JOB NAME: Capitola Community Center

PURCHASER:

PURCHASE ORDER:

SERIAL NO.: v1.13.0.0
DATE: 4/23/2023

Rep Contact:

Ordered By:

Engineer:

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Reviewed for Code Compliance
DATE: 4/23/2023



Unit Submittal

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

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Tag: CU-1

Job Name:
Job Number:

Capitola Community Center
Job #2021040762

Unit Submittal For:
Unit Submittal Date:

April 23, 2023

	Base Option	Description
CF	Generation	CF - Condensing Unit
A	Major Rev	Major Revision
011	Unit Size	Eleven
B	Series	B Cabinet
A	Revision	Minor Revision
8	Voltage	208V/3Ø/60Hz
D	Compressor Style	R-410A Variable Capacity Scroll Comp
J	Condenser Style	Air-Source Heat Pump (Fin and Tube)
0	Configuration	Standard
E	Coating	Polymer E-Coated Condenser Coil
L	Staging	2 Variable Refrig Systems

	Feature Option	Description
0	1. Unit Orientation	Vertical Condenser Discharge with End Control Panel
0	2A. Refrigeration Control	Standard
0	2B. Blank	Standard
0	3A. Refrigeration Options	Standard
0	3B. Blank	Standard
0	4. Refrigeration Accessories	Standard
0	5. Blank	Standard
A	6A. Unit Disconnect Type	Single Point Power Non-Fused Disconnect
N	6B. Disconnect Size	100 Amps
0	6C. Blank	Standard
L	7. Accessories	Phase & Brown Out Protection + Suction Pressure Transducer on Each Refrigeration System
D	8A. Control Sequence	VAV Unit Controller - VAV Cool + CAV Heat
E	8B. Control suppliers	VCC-X (Main Controller in Air Handling Unit)
0	8C. Control Supplier Options	Standard
0	8D. BMS Connection and Diagnostics	Standard
0	9. Blank	Standard
0	10. Blank	Standard
A	11. Maintenance Accessories	115VAC Convenience Outlet - Factory Wired
0	12. Code Options	Standard ETL U.S.A. Listing
A	13. Air Cooled Condenser Accessories	Condenser Coil Guards
0	14. Blank	Standard
0	15. Blank	Standard
0	16. Electrical Options	Standard
A	17. Shipping Options	Crating
0	18. Blank	Standard
0	19. Blank	Standard
0	20. Cabinet Material	Standard - Galvanized Steel Cabinet
D	21. Warranty	Extended Compressor Warranty - Years 2-5
B	22. Paint and SPAs	Premium AAON Gray Paint Exterior



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Permit # 20240160



VCCX Components

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.332 (SN: 5727216-RJB4D76S)

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CFA-011-B-A-8-DJ0EL:0-00-00-00-AN0-L-DE00-00A0A00-0A000DB

Tag: CU-1

Job Name:

Capitola Community Center

VCCX For:

Job Number:

Job #2021040762

VCCX Date:

April 23, 2023

Hardware Included For VCCX Controller

Part #	Included Parts	Assigned Channel	BACnet Point
ASM02201	DIGITAL REFRIGERATION MODULE		
R57800	Comp Discharge Temp A	RSMD point TEMP1	AI:66
R57800	Comp Discharge Temp B	RSMD point TEMP2	AI:67
V38391	Suction Pressure Sensor A	RSMD point AI1	AI:48
V38391	Suction Pressure Sensor B	RSMD point AI3	AI:54
G017740	O.D. Coil Defrost Temp Switch	RSMD point BIN3	BI:81
	Comp Status Input A	RSMD point BIN1	BI:77
	Comp Status Input B	RSMD point BIN2	BI:78
	Emergency Shutdown	RSMD point BIN4	BI:83
	Condenser Enable A	RSMD Fixed Relay point	BI:86
	Comp Enable A	RSMD Fixed Relay point	BI:84
	Comp Enable B	RSMD Fixed Relay point	BI:85
	Condenser Enable B	RSMD Fixed Relay point	BI:87
	Comp Cir Reversing Valve	RSMD Fixed Relay point	BI:88



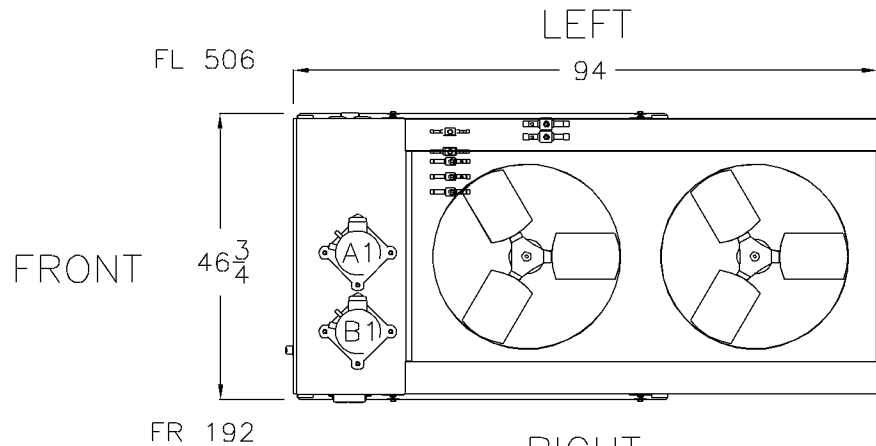
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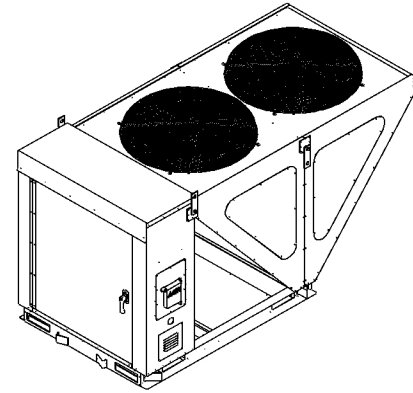
Date: 10/16/2024

Permit # 20240160

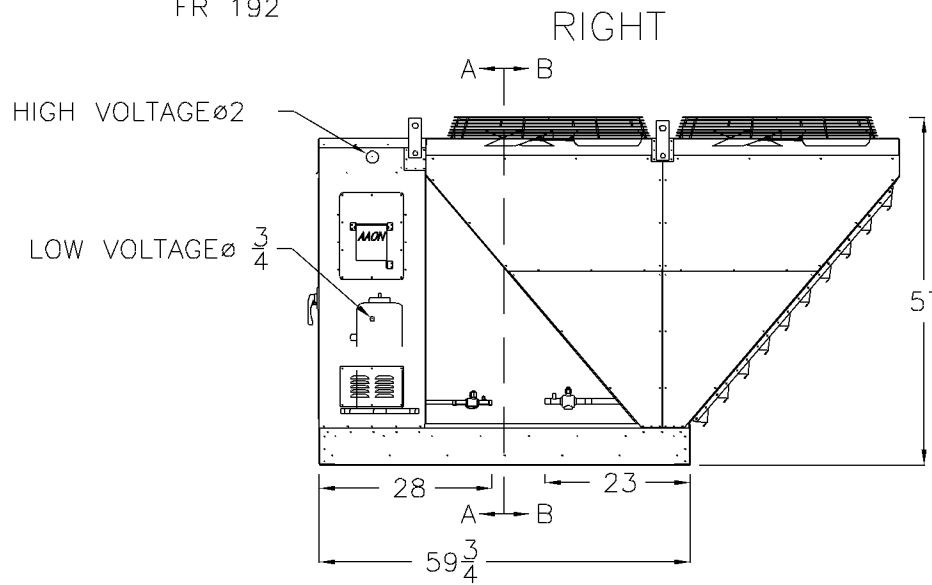


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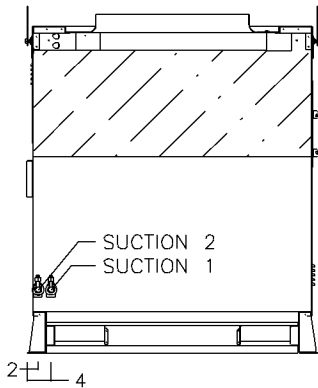
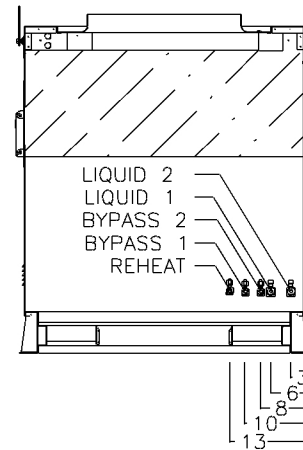


BR 102



SECTION A-A

SECTION B-B



CONFIGURABLE OPTIONS SHOWN

All dimensions are in units of inches



Job Name: Capitola Community Center				Unit Tag: CU-1	
Configurator: CFA-011-B-A-8-DJOEL:0-00-00-00-AN0-L-DE00-00A0A00-0A000DB					
Shipping Weight: 1068 (±5%)			Operating Weight: 1068 (±5%)		
Clearances:	Compressor End: 36	Left: 30	Right: 36	Piping Connection End: 6	Top: 6
Date: 4/23/2023			Software Ver. 4.332		v2.6.0.0



BABY CHANGE STATION



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Code Compliance
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Date _____
Permit # _____

Needs Met.



KB300 Baby Changing Stations

A Platform of Products to **Meet Your Every Need**



Needs Met.

As the world's most recognized brand of baby changing stations, families and business owners have trusted Koala Kare for over 35 years to meet their needs. Our products help architects, business owner-operators and anyone tasked with managing public facilities make their restrooms friendly to children and caregivers. Our mission to create safe, innovative, high-quality, and durable products is always top of mind.



Superior Craftsmanship and Thoughtful Design

The **KB300 platform** has set a new standard for baby changing stations. By working closely with both architects and end-users, Koala Kare has created a new line of eight expertly-crafted, innovative baby changing stations.

Whether your visual aesthetic calls for stainless steel recessed-mounted or plastic surface-mounted units, the **KB300 platform** has a baby changing station for your restroom aesthetic and budget.

All **KB300 platform** products are designed to withstand frequent use thanks to an enhanced integral steel frame and have been tested to have minimal deflection with 200 lbs of center-loaded static weight. Koala Kare partners with **Microban®** to integrate powerful product protection into our baby changing stations that helps inhibit the growth of stain- and odor-causing bacteria on product surfaces. Along with amenities like an improved liner dispenser and an external stainless steel bag hook, KB300 units support an increased focus on hygiene to satisfy end-users.



KB310-SSRE Horizontal Baby Changing Station



KB311-SSRE Vertical Baby Changing Station

Committed to Compliance

At Koala, we understand the importance of providing safe and compliant childcare products for your patrons with children. That's why **KB300 platform** changing stations have been designed to meet a comprehensive range of global accessibility requirements including ASTM, EN, and ADA standards. Designing to meet these standards helps improve ease-of-use for users with disabilities and supporting the desire for safe, compliant child accommodations for your restroom.



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High-Traffic Solutions



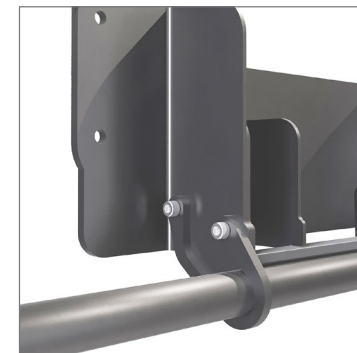
KB310-SSRE — High-Traffic Restroom

Recessed Models Save Space in High-Traffic Restrooms

Owners and operators of public establishments understand the demand for high-quality childcare accommodations to satisfy patrons. The horizontal KB310 and vertical KB311 stainless steel baby changing stations are the ideal choice for commercial restrooms that need a design-centric product that will meet this demand without protruding into high-traffic areas and occupying much-needed restroom space..

Product Highlights

- Deep-drawn, uniform grain stainless steel body provides a beautiful aesthetic
- Recessed-mounted to tuck away easily when not in use
- Matches other stainless steel restroom accessories



integral frame designed to withstand frequent use.



Includes external stainless steel bag hook to safely stow diaper bags off the floor and in close proximity for the caregiver's use.



KB310-SSRE Horizontal Recessed-Mounted



KB311-SSRE Vertical Recessed-Mounted

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Date 10/16/2024
Permit # 20240101

Design-Driven Solutions



KB300-01SS — Design-Driven Restroom

Design Solutions for High-end Restrooms

A new standard for restroom design has emerged — one that demands visually pleasing design, a variety of colors and finishes, and the durability to withstand commercial use. The KB300 platform of baby changing stations doesn't just meet today's standard — it exceeds it. Whether your project specifies a high-end, aesthetically impressive restroom or demands versatility in color without compromising on overall style, the Koala Kare KB300 platform has a baby changing station for your business that will provide for the needs of your customers with children.

Product Highlights

- KB310 and KB311 units feature a one-piece, stainless steel body for an impressive visual aesthetic
- KB300-SS and KB301-SS provide an elegant upgrade to the full plastic and match other bathroom stainless steel accessories and fixtures
- KB300 and KB301 are available in three color combinations



KB310-SSRE Horizontal — KB311-SSRE Vertical Recessed-Mounted



KB300-00 Horizontal — KB301-00 Vertical Surface Mounted



KB310-MBLK Horizontal — KB311-MBLK Vertical Recessed-Mounted



KB300-01SS Horizontal — KB301-01SS Vertical Surface Mounted

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Code Compliance
DATE: 10/16/2024
Permit #: 20240115

Small-Space Solutions

Space-Saving Design for Small Restroom Environments

For small space restrooms, accommodating the needs of your customers with children can be a challenge. Every square inch of space counts. The KB300 platform offers a selection of four vertically-constructed units that are the perfect complement to small restrooms without compromising on design.

Product Highlights

- Vertical units include all KB300 platform patron amenities, including the enhanced integral steel frame and improved liner dispenser
- Surface and recessed-mounted options provide design flexibility
- Variety of colors and finishes available to match your restroom's visual aesthetic



KB301-05SS — Small Space Restroom



KB311-SSRE Vertical
Recessed-Mounted



KB311-SSWM Vertical
Surface-Mounted



KB301-05SS Vertical
Surface-Mounted



KB301-01SS Vertical
Surface-Mounted



Technical Specifications



KB310-SSRE

Unit Dimensions:
41 5/16" W x 26 7/32" H
(1050 mm x 666 mm)

Depth (closed):
2 23/32" (69 mm)

Extension (open):
17 13/32" (442 mm)

Shipping Weight:
80 lbs

COLOR OPTIONS

-  Stainless Steel
-  Matte Black



KB311-SSRE

Unit Dimensions:
26 7/32" W x 41 5/16" H
(666 mm x 1050 mm)

Depth (closed):
2 23/32" (69 mm)

Extension (open):
32 27/32" (834 mm)

Shipping Weight:
73 lbs

COLOR OPTIONS

-  Stainless Steel
-  Matte Black



KB300-SS

Unit Dimensions:
35 15/16" x 20 3/4"
(897 mm x 527.5 mm)

Depth (closed):
4" (101.6 mm)

Extension (open):
21 3/16" (538mm)

Shipping Weight:
37 lbs

COLOR OPTIONS

-  Grey-01
-  White Granite-05



KB301-SS


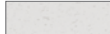
Unit Dimensions:
20 3/4" x 35 7/8"
(527.5 mm x 911 mm)

Depth (closed):
4" (101.6 mm)

Extension (open):
36 5/8" (930 mm)

Shipping Weight:
36 lbs

COLOR OPTIONS

-  Grey-01
-  White Granite-05



KB310-SSWM

Unit Dimensions:
41 15/32" W x 26 11/32" H
(1050 mm x 669 mm)

Depth (closed):
6 25/32" (172 mm)

Extension (open):
21 1/4" (540 mm)

Shipping Weight:
78 lbs

COLOR OPTIONS

-  Stainless Steel
-  Matte Black



KB311-SSWM

Unit Dimensions:
26 11/32" W x 41 15/32" H
(669 mm x 1050 mm)

Depth (closed):
6 25/32" (172 mm)

Extension (open):
32 27/32" (834 mm)

Shipping Weight:
76 lbs

COLOR OPTIONS

-  Stainless Steel
-  Matte Black



KB300

Unit Dimensions:
35 15/16" x 20 3/4"
(897 mm x 527.5 mm)

Depth (closed):
4" (101.6 mm)

Extension (open):
21 3/16" (538mm)

Shipping Weight:
33 lbs

COLOR OPTIONS

-  Beige-00
-  Grey-01
-  White Granite-05



KB301

Unit Dimensions:
20 3/4" x 35 7/8"
(527.5 mm x 911 mm)

Depth (closed):
4" (101.6 mm)

Extension (open):
36 5/8" (930 mm)

Shipping Weight:
32 lbs

COLOR OPTIONS

-  Beige-00
-  Grey-01
-  White Granite-05

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Our History of Anticipating and Meeting Needs

Koala Kare has been committed to being an innovator in childcare accommodations for 35 years. Our expert designers understand that our baby changing stations should be designed to build trust and loyalty with the caregivers who use them.

Microban Product Protection

Koala Kare partners with Microban®, a global specialist in antimicrobial technologies, to integrate powerful product protection into our baby changing stations. The best way to avoid stains and odors from microbes is to prevent growth in the first place, and Koala Kare uses Microban® to protect baby changing stations by inhibiting the growth of stain- and odor-causing bacteria on product surfaces.

External Bag Hook

KB300 platform baby changing stations are shipped with an external stainless steel bag hook that arrives ready to be installed on your restroom wall. Koala Kare’s external bag hook satisfies patrons by offering a secure, hygienic place to store belongings instead of on the restroom floor.

Warranty Information

Koala Kare warrants that baby changing stations will be free from defects in material and workmanship under normal use and service, with proper maintenance, for a period of five (5) years.

Maintenance

Koala Kare communicates directly with baby changing station owners to help keep our products in good working order. Our comprehensive maintenance and replacement parts program is easy to access at Koalabear.com/maintenance-matters and helps owners keep their products clean and safe.



Koala Kare Products
6982 S. Quentin Street
Centennial, CO 80112

Koalabear.com

For more details, including technical data sheets and ADA information, visit koalabear.com/needs-met



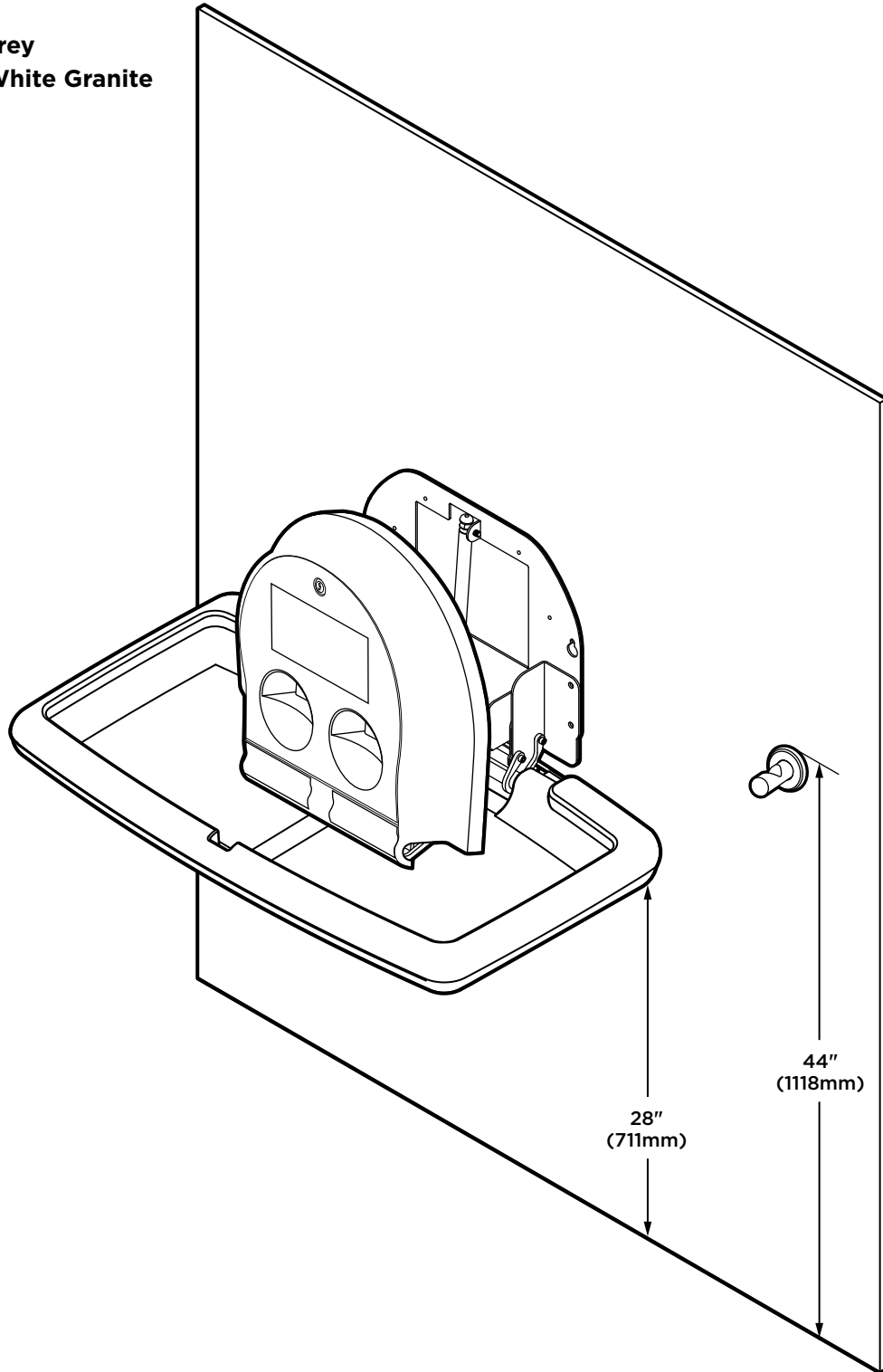


KB300-SS Baby Changing Station

Technical Data Sheet

Color

- KB300-01SS Grey
- KB300-05SS White Granite



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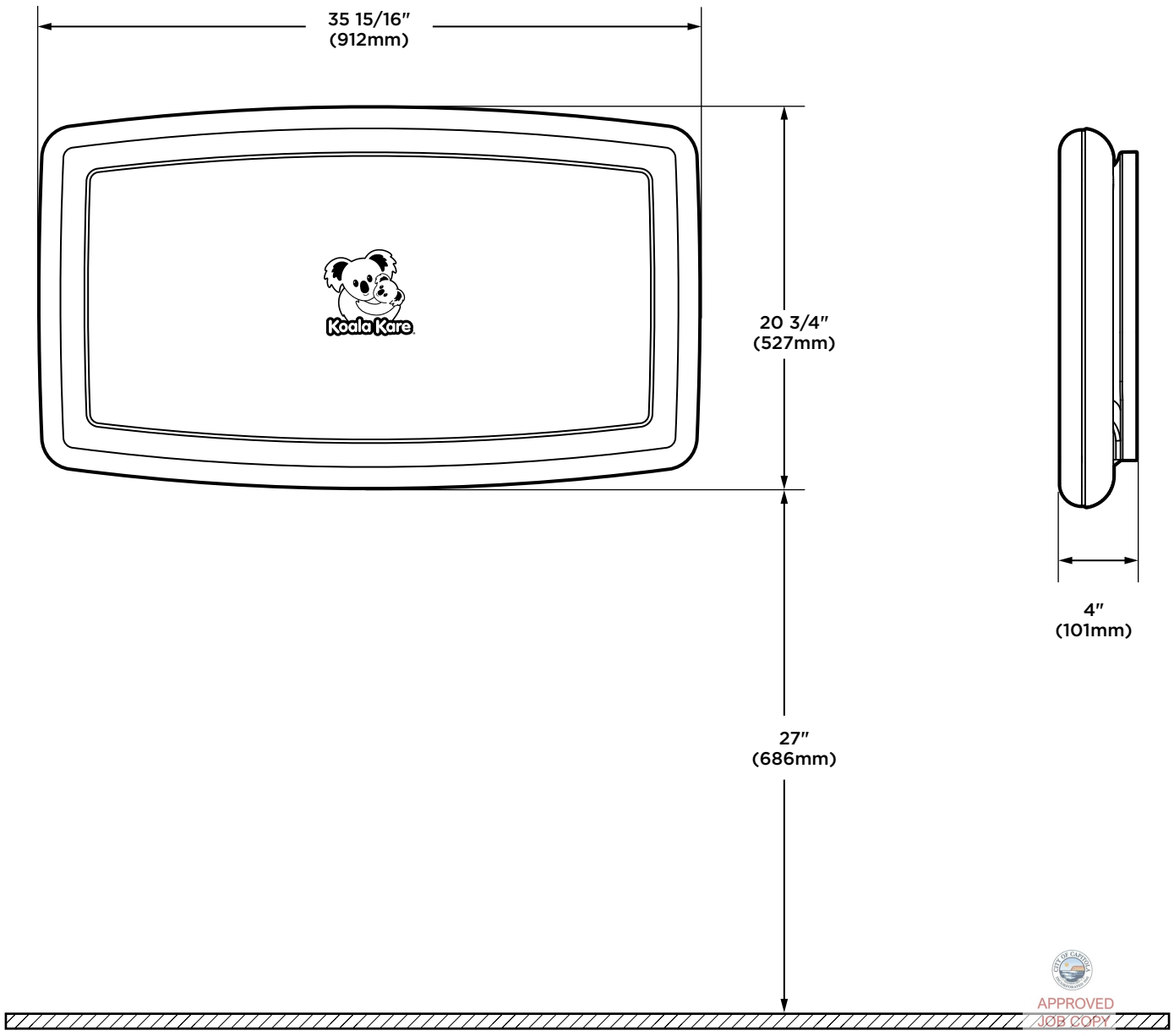
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*Diagrams are not to scale.



KB300-SS Baby Changing Station

Closed Position



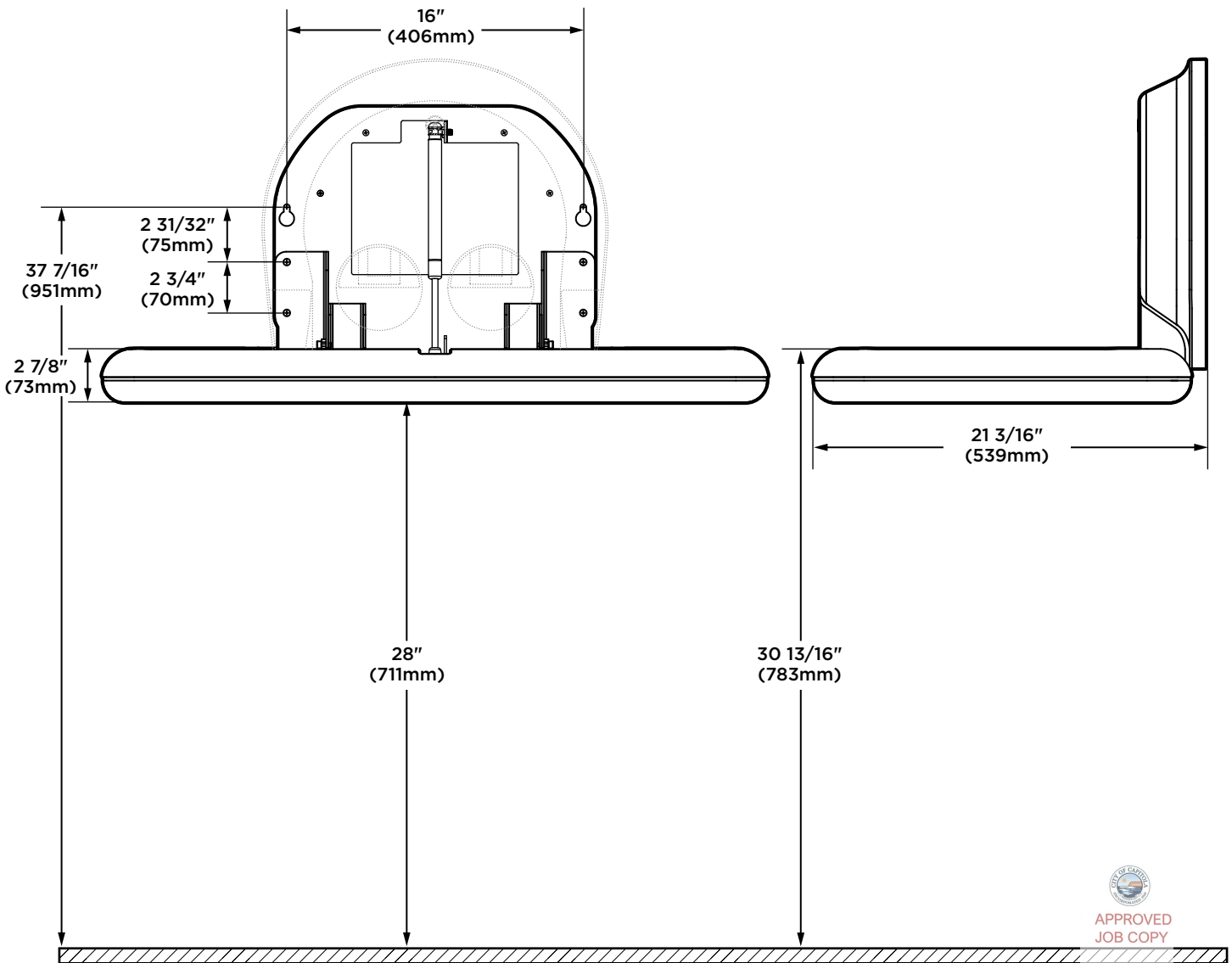
*Diagrams are not to scale.

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KB300-SS Baby Changing Station

Open Position



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JH for EM

Date: 09/16/2024

Permit # 20241180

*Diagrams are not to scale.



KB300-SS Baby Changing Station Information

Material

Injection-molded polypropylene with Microban® antimicrobial additive embedded into the bed surface. Type 304 brushed stainless steel finish veneer. Reinforced steel-on-steel hinge mechanism and metal mounting chassis with mounting hardware included. Labeled usage instructions and safety messages in four languages. Optional Braille label available. Contoured changing surface area is 535 sq. in (3452 sq. cm) and comes complete with impervious TPU safety strap and solid stainless steel external bag hook. Dual cavity liner dispenser holds approximately 50 KB150-99 bed liners.

Note: For EN 12221:2008+A1:2013 compliant units a safety strap can not be provided with the unit. Should you require one, it can be ordered separately P/N 310-44-KIT.

Operation

Concealed pneumatic cylinder and metal mounting chassis provides controlled, slow opening and closing of bed. Polypropylene is easy to clean and resists odors and bacterial growth. Complies with ASTM static load performance requirements when properly installed. Internal liner dispenser with integrated spring tab dispensed one liner at a time.

Warning: To ensure that the unit supports the intended loads, baby changing stations must be properly installed according to the manufacturer's instructions.

Specification

Baby changing station body shall be durable, injection-molded polypropylene. Design of unit shall be surface-mounted. Front surface of unit shall have a 304 brushed stainless steel finish veneer. Unit shall be equipped with a pneumatic cylinder for controlled opening and closing of bed. Bed shall be secured to metal mounting chassis with a concealed steel-on-steel hinge. No hinge structure shall be exposed on interior or exterior surfaces. Unit shall have mounting hardware included. Unit shall have Microban® antimicrobial embedded into plastic material on the changing surface. Unit shall comply with ADA regulations when properly installed. Bed shall have smooth concave changing area with a safety strap and external stainless steel hook for bags or purse provided.

The design and manufacture of Koala products is intended to be compliant with the 2010 ADA Standards for Accessible Design and the 2009 ICC A117.1, Accessible and Usable Buildings and Facilities. Unit shall conform to ASTM F2285-04(16) Standard Safety Performance Specification for Diaper Changing Tables for Commercial Use, ANSI Z535.4 Product Safety Signs and Labels, EN 12221:2008+A1: 2013. Unit shall have a built-in Liner Dispenser for use with 3-ply chemical free biodegradable bed liners, instructional graphics and safety messages in 4 languages. Unit shall be backed by manufacturer's 5-year limited warranty on materials and workmanship and include a provision for replacement caused by vandalism.

Unit shall be manufactured in the U.S.A.

ADA Requirements

Additional information on how this product complies with ADA requirements can be found in the *KB300 & KB301 Baby Changing Stations Accessibility Compliance* document on www.koalabear.com.

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet. The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions without notice.

Koala Kare Products
A Division of Bobrick

6982 South Quentin Street, Centennial, CO 80112-3945

Main: 303.539.8300 | **Toll Free:** 888.733.3456 | **Fax:** 303.539.8399

Website: koalabear.com | **Email:** customerservice@koalabear.com



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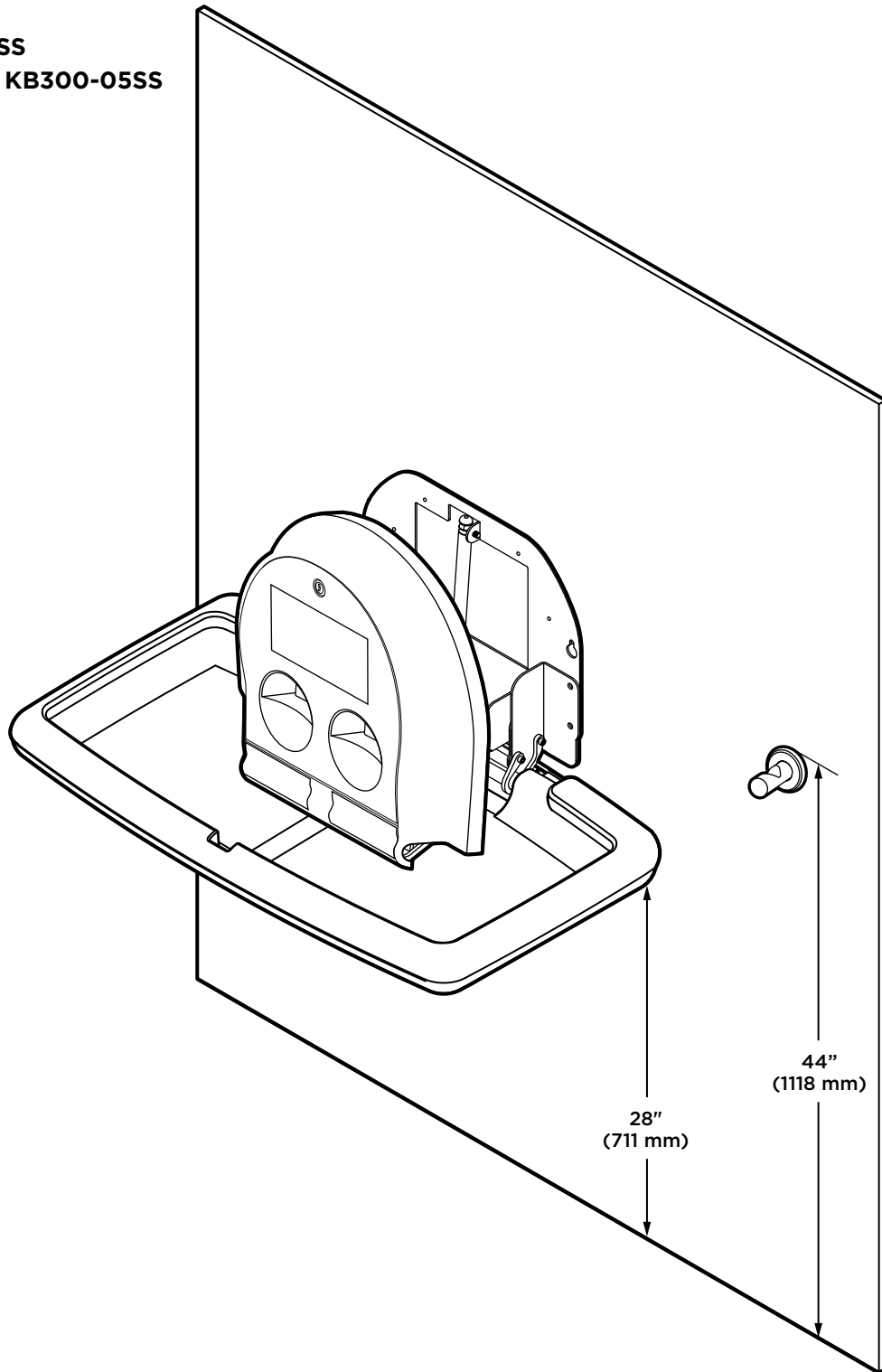


Cambiador para bebés KB300-SS

Ficha de datos técnicos

Color

- Gris KB300-01SS
- Granito blanco KB300-05SS



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Date: _____

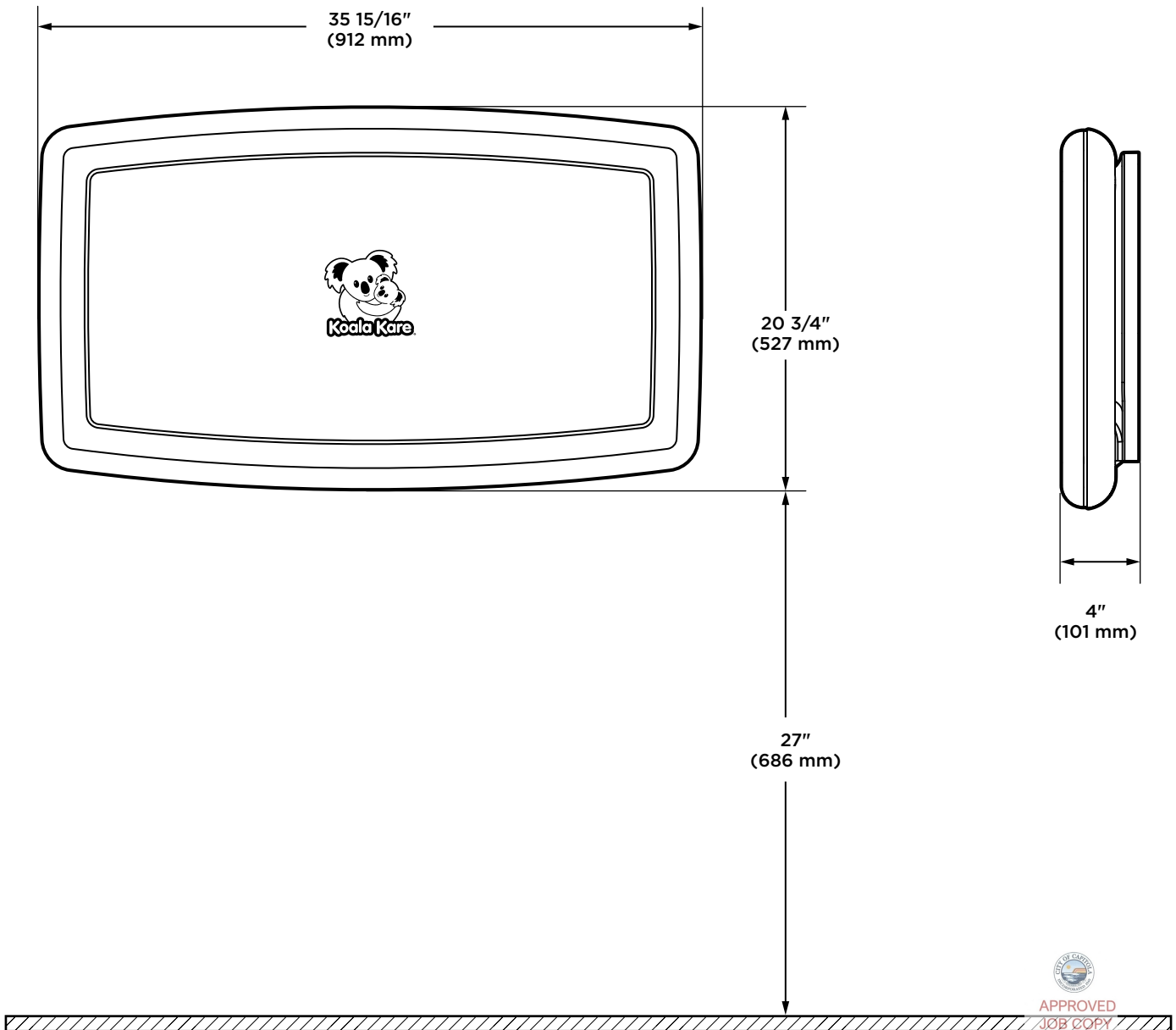
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*Los diagramas no están a escala.



Cambiador para bebés KB300-SS

Posición cerrada



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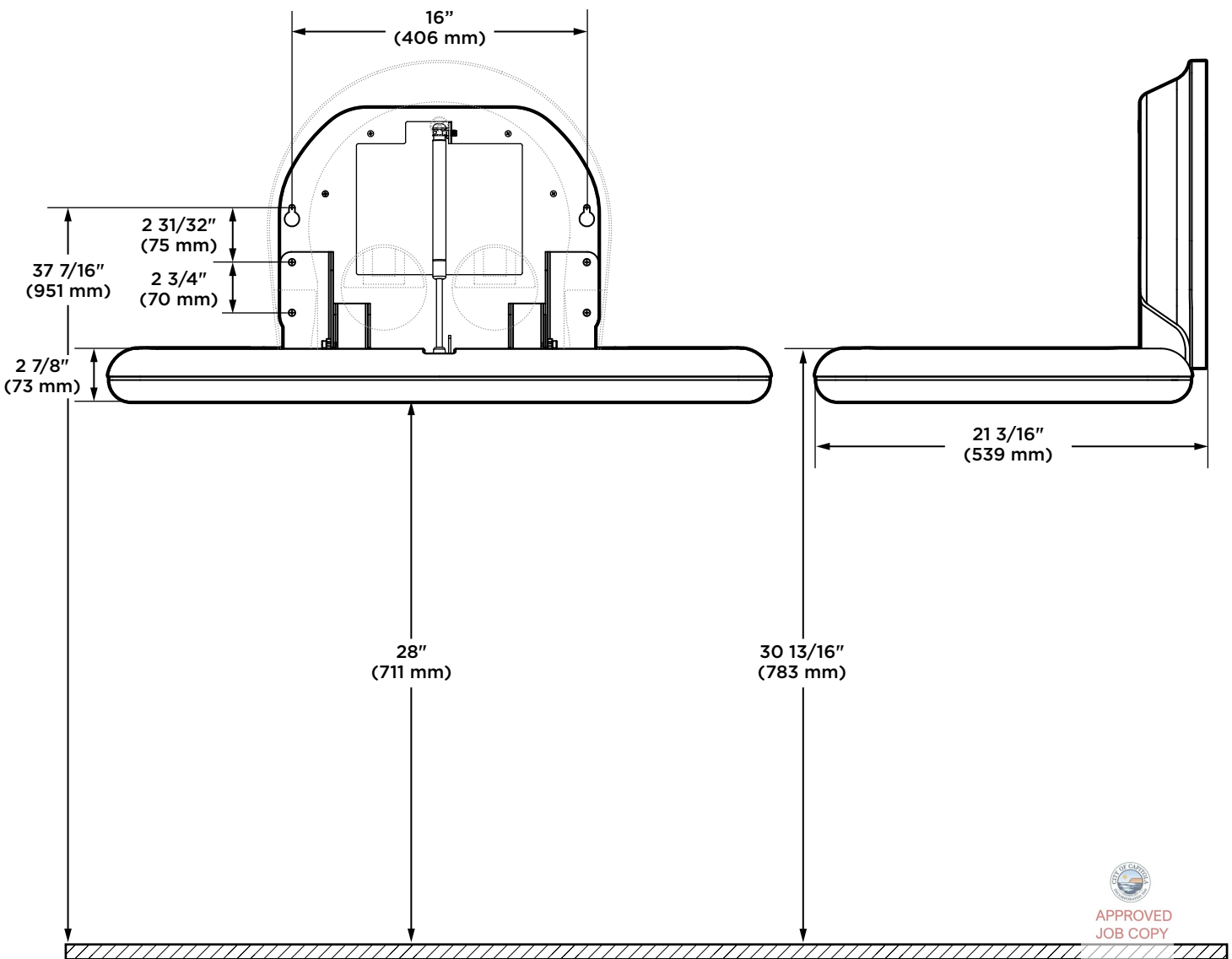
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*Los diagramas no están a escala.



Cambiador para bebés KB300-SS

Posición abierta



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JH for EM

Date: 05/16/2024

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*Los diagramas no están a escala.



Cambiador para bebés KB300-SS

Información

Material

Polipropileno moldeado a inyección con aditivo antimicrobiano Microban® incorporado en la superficie de la plataforma. Terminación de acero inoxidable tipo 304 bruñido. Mecanismo con bisagra de acero sobre acero y chasis de montaje metálico con tornillería de montaje. Instrucciones de uso etiquetadas y mensajes de seguridad en cuatro idiomas. Etiqueta opcional en Braille disponible. El área de la superficie para cambiar al bebé con contorno es de 535 in2 (3452 cm2) e incluye una correa de seguridad de TPU impermeable y un gancho externo macizo de acero inoxidable para el bolso. El dispensador de protectores de dos cavidades puede alojar hasta aproximadamente 50 protectores para la plataforma KB150-99.

Nota: Para las unidades que cumplen con EN 12221:2008+A1:2013, no se puede proporcionar una correa de seguridad con la unidad. Si necesita uno, se puede pedir por separado P/N 310-44-KIT.

Funcionamiento

El cilindro neumático oculto y el chasis de montaje metálico ofrecen una apertura y un cierre controlados y lentos de la plataforma. El polipropileno es fácil de limpiar y resiste olores y crecimiento bacteriano. Cumple los requisitos de desempeño para cargas estáticas de ASTM cuando está instalado correctamente. El dispensador de protectores interno con lengüeta a resorte integrada dispensa de a un protector por mes.

Advertencia: Para asegurar que la unidad sostenga las cargas previstas, los cambiadores deben instalarse correctamente según las instrucciones del fabricante.

Especificaciones

El cuerpo del cambiador para bebés es de polipropileno resistente moldeado a inyección. El diseño de la unidad es montado en superficie. La superficie frontal de la unidad tiene una terminación de acero inoxidable 304 bruñido. La unidad está equipada con un cilindro neumático para abrir y cerrar la plataforma de manera controlada. La plataforma está fija al chasis de montaje metálico con una bisagra de acero sobre acero oculta. No hay ninguna estructura de bisagra expuesta en las superficies interior ni exterior. La unidad incluye la tornillería de montaje. La unidad tiene el antimicrobiano Microban® incorporado en el material plástico de la superficie para cambiar al bebé. Cuando se instala correctamente, la unidad cumple las normas de la ley ADA. La plataforma tiene un área cóncava para cambiar al bebé con una correa de seguridad y un gancho de acero inoxidable externo para el bolso.

Está previsto que el diseño y la fabricación de los productos Koala cumplan las normas para el diseño accesible de 2010 de la ley ADA e ICC A117.1 Edificios e instalaciones accesibles y utilizables 2009. La unidad cumple la especificación de desempeño estándar en seguridad de ASTM para las mesa para cambiar pañales para uso comercial, F2285-04(16), y de letreros y etiquetas de advertencia de los productos ANSI Z535.4, EN 12221:2008+A1: 2013. La unidad tiene un dispensador de protectores incorporado para utilizarse con protectores biodegradables de 3 pliegues y sin químicos para la plataforma, gráficos instructivos y mensajes de seguridad en 4 idiomas. La unidad cuenta con el respaldo de la garantía limitada del fabricante durante 5 años para material y mano de obra e incluye una disposición para el reemplazo causado por el vandalismo.

La unidad se fabrica en los EE. UU.

Requisitos según la ADA

Hay información adicional sobre las maneras en que este producto cumple con la ADA en el documento titulado *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (Cumplimiento de la accesibilidad de los cambiadores para bebés KB300 y KB301) en www.koalabear.com.

Las ilustraciones y las descripciones que se incluyen corresponden a la producción a la fecha de esta ficha de datos técnicos. El fabricante se reserva el derecho de hacer modificaciones y mejoras en los diseños y en las dimensiones sin previo aviso, algo que lleva a cabo de cuando en cuando.

Koala Kare Products
Una división de Bobrick

6982 South Quentin Street, Centennial, CO 80112-3945

Principal: 303.539.8300 | **Llamada gratuita:** 888.733.3456 | **Fax:** 303.539.8399

Sitio web: koalabear.com | **Correo electrónico:** customerservice@koalabear.com



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303.539.8399

Date

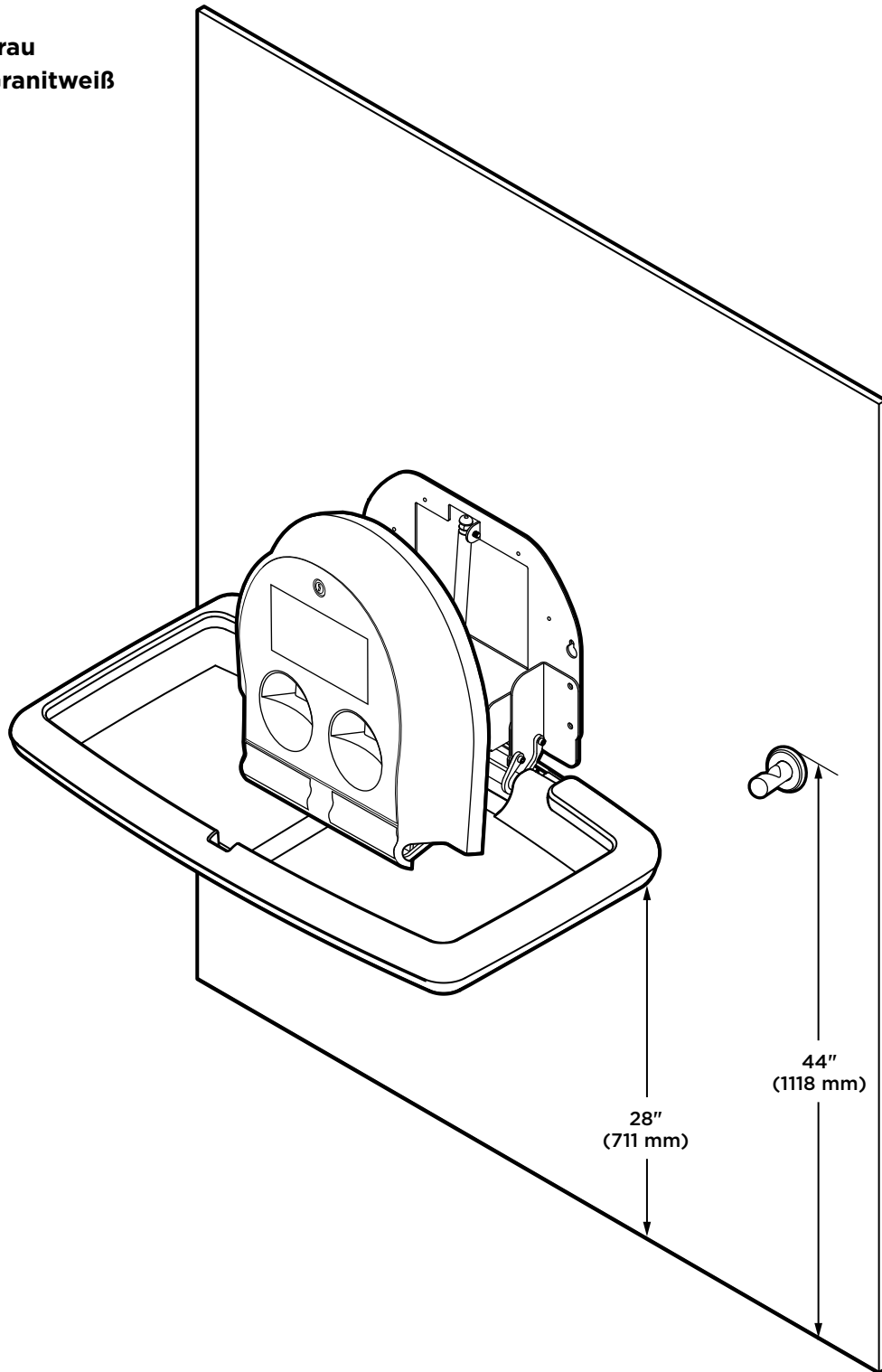


KB300-SS Babywickeltisch

Technisches Datenblatt

Farbe

- KB300-01SS Grau
- KB300-05SS Granitweiß



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Code Compliance

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JEFFREY S. CLAYTON

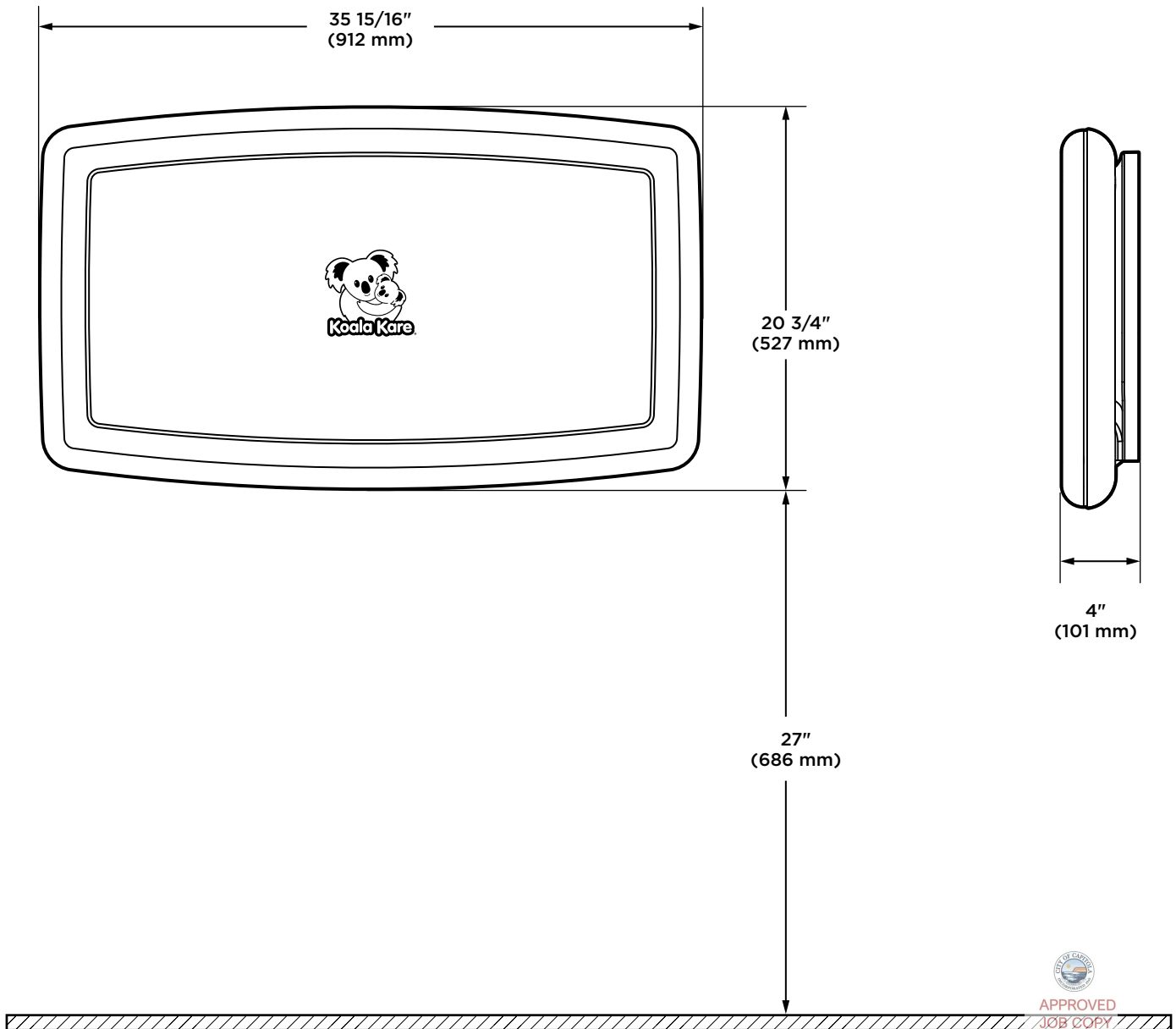
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05/16/2024

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KB300-SS Babywickeltisch

Geschlossene Position



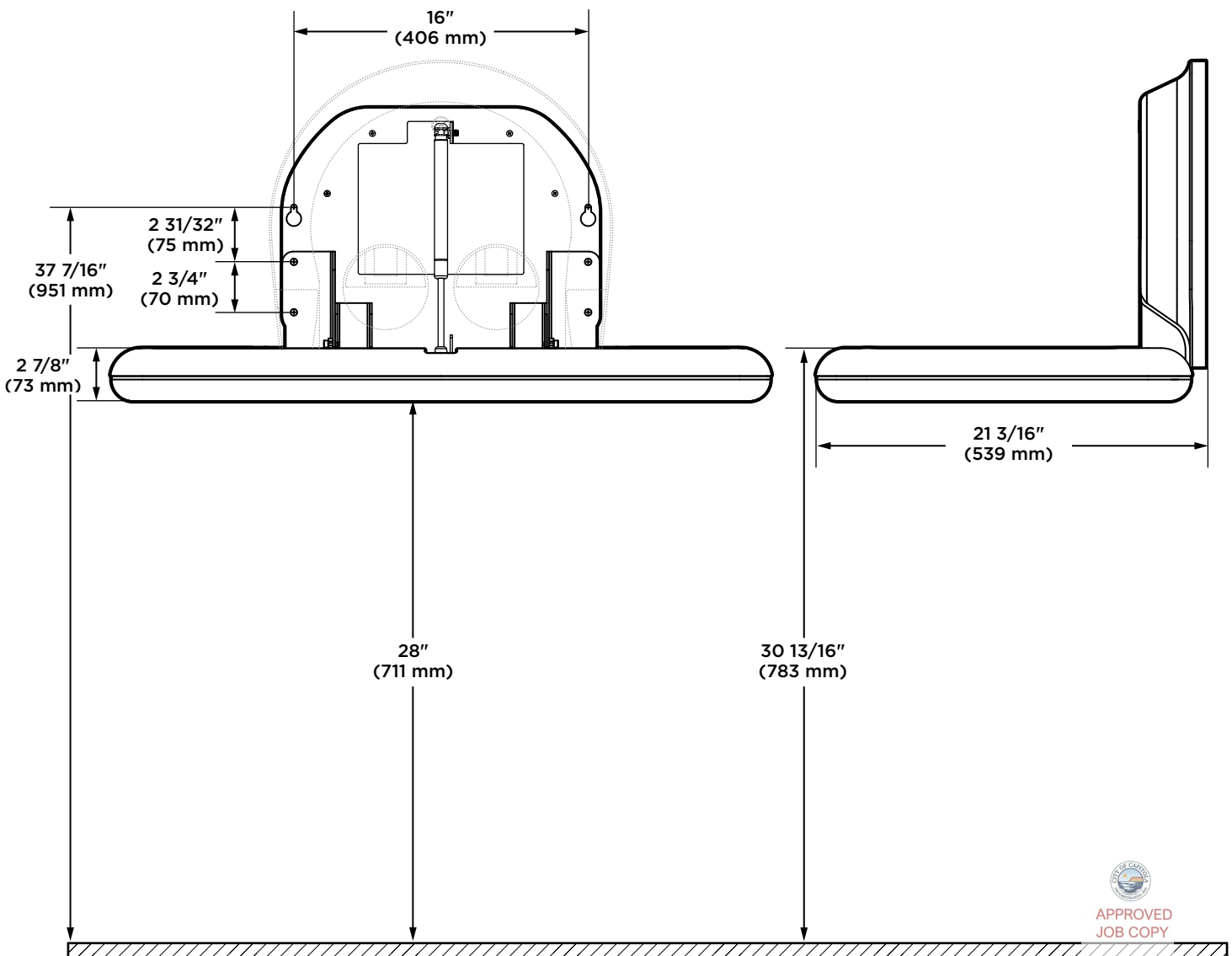
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KB300-SS Babywickeltisch

Geöffnete Position



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JW for SM

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KB300-SS Babywickeltisch

Informationen

Material

Spritzgegossenes Polypropylen mit Microban®-antimikrobiellen Zusatzstoffen in der Bettoberfläche. Blende aus gebürstetem Edelstahl CrNi18-8 (1.4310). Verstärkte Stahl-auf-Stahl-Scharniere und Metallchassis mit Befestigungsteilen enthalten. Mit Benutzeranweisungen und Sicherheitshinweisen in vier Sprachen. Optionale Kennzeichnung in Blindenschrift verfügbar. Konturierte Wickeloberfläche misst 3452 cm² und umfasst undurchlässigen TPU-Sicherheitsgurt und externen Beutelhaken aus Edelstahl. Integrierter Auflagenspender, der ca. 50 KB150-99 Hygieneauflagen fasst.

Hinweis: Für EN 12221:2008+A1:2013 konforme Geräte kann kein Sicherheitsgurt mit dem Gerät geliefert werden. Sollten Sie einen benötigen, kann dieser separat bestellt werden P/N 310-44-KIT.

Bedienung

Konstruktion mit verdecktem pneumatischem Zylinder und Metallchassis ermöglicht ein reguliertes, langsames Öffnen und Schließen des Betts. Polypropylen ist pflegeleicht und ist beständig gegen Geruch und Bakterienwachstum. Bei vorschriftsmäßiger Anbringung entspricht die Wickelstation den ASTM-Anforderungen für statische Belastung. Interner Überzugspender mit integrierter federbelasteter Raste spendet pro Betätigung einen Überzug.

Warnung: Um zu gewährleisten, dass die Einheit den beabsichtigten Belastungen standhält, müssen Babywickelstationen gemäß der Herstelleranleitung installiert werden.

Technische Beschreibung

Babywickelstation, robustes, spritzgegossenes Polypropylen. Die Einheit ist zur Aufputzmontage vorgesehen. Die Vorderseite der Einheit ist mit einer Blende aus gebürstetem Edelstahl 304 versehen. Die Einheit ist mit einem pneumatischen Zylinder zum geregelten Öffnen und Schließen des Betts ausgerüstet. Das Bett wird mit einem verdeckten Stahl-auf-Stahl-Scharnier am Metallchassis befestigt. Kein Teil der Scharnierkonstruktion liegt an inneren oder äußeren Oberflächen frei. Der Einheit liegen Befestigungsteile bei. Das Kunststoffmaterial auf der Wickeloberfläche ist mit antibakteriellem Microban®-Schutz ausgerüstet. Die Einheit entspricht bei vorschriftsmäßiger Installation den ADA-Bestimmungen. Das Bett hat einen glatten, konkaven Wickelbereich mit einem Sicherheitsgurt und einem externen Haken für Beutel oder Taschen.

Design und Herstellung der Koala-Produkte erfolgt gemäß den 2010 ADA Standards for Accessible Design und 2009 ICC A117.1, Accessible and Usable Buildings and Facilities. Die Einheit entspricht den folgenden Normen: ASTM F2285-04(16) Standard Safety Performance Specification for Diaper Changing Tables for Commercial Use, ANSI Z535.22 Product Safety Signs and Labels, EN 12221:2008+A1 2013. Die Einheit hat einen integrierten Auflagenspender zur Verwendung mit 3-lagigen, chemikalienfreien, biologisch abbaubaren Hygieneüberzügen, Anleitungsabbildungen und Sicherheitshinweise in 4 Sprachen. Für die Einheit wird eine 5-jährige beschränkte Herstellergarantie für Material- und Herstellungsfehler und eine 5-jährige Ersatzgarantie für Vandalismus gewährt.

Die Einheit wird in den USA hergestellt.

ADA-Anforderungen

Zusätzliche Informationen dazu, wie dieses Produkt die ADA-Anforderungen erfüllt, sind im Dokument *KB300 & KB301 Baby Changing Stations Accessibility Compliance* (KB300 & KB301 Babywickeltische – Erfüllung der Vorgaben für eine barrierefreie Bedienung) auf www.koalabear.com zu finden.

Die Abbildungen und Beschreibungen in diesem Datenblatt beziehen sich auf Produkte, wie sie zu dem in diesem technischen Datenblatt angegebenen Datum hergestellt wurden. Der Hersteller behält sich das Recht vor, von Zeit zu Zeit Änderungen und Verbesserungen an Konstruktion und an den Abmessungen vorzunehmen.

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A Division of Bobrick

6982 South Quentin Street, Centennial, CO 80112-3945

Zentrale: 303.539.8300 | **Gebührenfrei:** 888.733.3456 | **Fax:** 303.539.8399

Website: koalabear.com | **E-Mail:** customerservice@koalabear.com



DEX-O-TEX

Product Description Sheet

Quik-Glaze

Polyaspartic Topcoat
Typical Thickness 7-15 mils



Advanced Floor
and Waterproof
Systems since
1938

www.dexotex.com

1/22

DESCRIPTION

Dex-O-Tex Quik-Glaze is a state of the art, high solids, Low Odor, and UV stable aliphatic polyaspartic topcoat.

WHERE TO USE

Some typical floor applications include: Cold storage areas, food service preparation areas, beverage service areas, decorative entry foyers, high traffic areas, promenade decks, labs, pharmaceutical production, and areas exposed to chemical use.

ADVANTAGES

- Fast Cure
- Low Odor
- Clear
- High Build
- High Elongation
- High tear strength
- Excellent UV resistance
- Excellent abrasion resistance
- Chemical resistant
- CDPH 1350 approval
- Antimicrobial additive available

FINISH OPTIONS

See Standard Epoxy and Urethane Color Chart available at www.dexotex.com
Also available in custom colors with different skid resistant profiles

PHYSICALS	METHOD	RESULTS
VOC in g/L	40 CRF 60 appendix A7 Method 24	Clear Gloss 50 g / L
Percent Solids		95%
Tear Strength	ASTM D624, Die C	879 lbs. / in
Taber Abrasion	ASTM D4060	33 mg loss
Tensile Elongation	ASTM D412	30%
Impact Resistance	ASTM D2794	160 in / lbs.
Tensile Elongation	ASTM D-638	15% at 73 Degrees and 50% RH
Tensile Strength	ASTM D412	2,050 psi
Flexibility	ASTM D1737	passes
Hardness	ASTM D2240 Shore A	85-90
Gloss	ASTM D523	90+ for Clear Gloss
Coefficient of Friction	ASTM D2047	0.67 dry & 0.82 wet
Microbial Resistance	ASTM G21	Passes Rating 1
Dynamic Coefficient of Friction (Wet/Dry)	ASTM A326.3	APPROVED COPY
Chemical Resistance	See chemical resistance chart	

The above physical properties were measured in accordance with the referenced standards. Results may vary based upon statistical variations on mixing methods and equipment, application methods, environment, and actual site conditions and curing conditions. All sample preparation and testing are conducted in a laboratory environment and actual performance on job site may vary from these values based on actual site conditions.

Installed by Factory Trained Dex-O-Tex Applicators Only

**Crossfield
Products Corp.**

California
3000 E. Harcourt St.
Rancho Dominguez,
90221
(310) 886-9100

Texas
128 Industrial Dr.
Cibolo, 78108
(210) 888-0449

New Jersey
140 Valley Rd.
Roselle Park, 07204
(908) 245-2800

DEX-O-TEX

Product Description Sheet



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Systems since
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(210) 888-0449

New Jersey
140 Valley Rd.
Roselle Park, 07204
(908) 245-2800

Tek-Crete SL-B

Urethane Concrete with Sand Broadcast
Typical Thickness 3/16" – 1/4"

DESCRIPTION

Tek-Crete SL-B is a three-component system consisting of a urethane resin, hardener, and aggregate. The Material is placed and allowed to self-level, then followed by a broadcast and required sealer coat.

WHERE TO USE

Typically used in industrial and institutional service environments including Pharmaceutical, Bio-Tech, Health Care, Food Processing, Beverage, Aerospace, Processing, Electronics and Food Service.

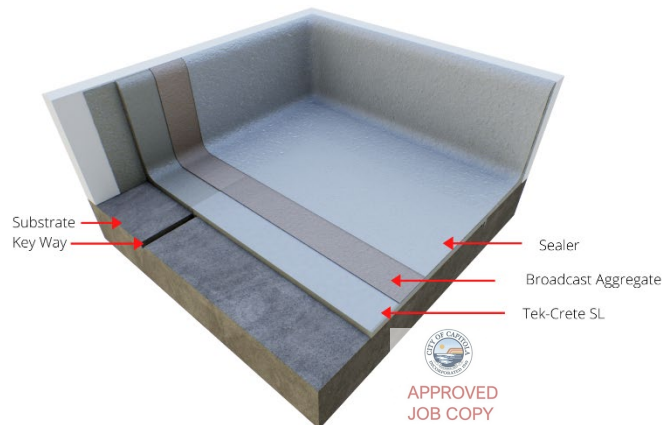
ADVANTAGES

- Moisture tolerant
- High durability and impact resistant
- Easy to clean oil, grease, and other contaminants
- Excellent chemical resistance
- Environmentally friendly, low odor during installation and cure
- Rapid cure and quick return to service
- Slip resistant
- LEED credit points may be available
- Anti-Microbial properties to fight bacteria, fungi, mold and mildew growth

FINISH OPTIONS

See Dex-O-Tex Epoxy Color Chart or Tek-Crete Sealer CP Color chart depending on selected topcoat.

	Product	Thickness
Skim Coat (Optional)	Tek-Crete Skim Coat	15 Mills
Base Coat	Tek-Crete SL	3/16" – 1/4"
Aggregate	Aggregate	Varies
Sealer	Tek-Crete Sealer CP or Quik-Glaze	Varies



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Permit # 2204180

Installed by Factory Trained Dex-O-Tex Applicators

PHYSICALS	METHOD	RESULTS
VOC in g/L	40 CFR 60, Appendix A-7, method 24	0 g/L
Compressive Strength	ASTM C579	6,100 psi
Tensile Strength	ASTM C307	1,000 psi
Flexural	ASTM C580	2,000 psi
Hardness	ASTM D2240, Shore D	85-90
Thermal Coefficient of Linear Expansion	ASTM C531	1.4 x 10 ⁻⁵
Density	ASTM C905 (lbs. /ft ³)	130 lbs. /ft ³
Water Absorption	MIL-D-3134	0.64%
Flammability	ASTM E648	>1.07 watts/cm ²
Adhesion	ASTM D4541	100% concrete failure
Microbial Resistance	ASTM G21	Passes

The above physical properties were measured in accordance with the referenced standards. Results may vary based upon statistical variations on mixing methods and equipment, application methods, environment, and actual site conditions and curing conditions. All sample preparation and testing are conducted in a laboratory environment and actual performance on job site may vary from these values based on actual site conditions.

CARE AND MAINTENANCE

See care and maintenance form, [click here](#), or available at www.dexotex.com

CHEMICAL RESISTANCE

See chemical resistance chart, [click here](#), or available at www.dexotex.com

SURFACE PREPERATION

- Prepare in accordance with SSPC SP-13 Surface to be free of dirt, dust, grease, oil, paint and any other contaminants.
- Inspect substrate to verify proper preparation before applying any materials.
- New concrete, porous concrete or concrete with elevated moisture content can emit excess moisture off gassing, which can cause pinhole and other defect in the coating during curing. Testing and mitigation should be done to detect this condition before application of the product.

LIMITATIONS

- Not recommended for use over flexible substrates, including plywood, wood, flexible diamond plate, flexible wall panels, etc.
- Withstands moisture levels up to 20 lbs./1000 sq ft/24 hours and up to 99% RH.
- Can be applied to green concrete in 3-5 days once the surface can be mechanically prepped to a CSP of 2-3 per ICRI recommendations.
- Tek-Crete SL-B may vary from the color charts, sample or mockup in texture, profile and final appearance.
- Sloping, smoothing or leveling compounds, crack repair or isolation, waterproof membranes or other supplementary items may be required for proper installation at an additional cost. Consult with Crossfield Products Corp. for specific recommendations.

WARRANTY

All sales are subject to the Crossfield Terms and Conditions effective on the date the purchase order is received. The Terms and Conditions are incorporated herein in full by this reference. The Terms and Conditions are set forth at (www.dexotex.com) and will also be sent by mail or fax to the purchaser upon request. By placing an order, the Buyer acknowledges that it has read and agrees to the provisions of the Terms and Conditions.

Crossfield Products Corp.

California
3000 E. Harcourt St.
Rancho Dominguez,
90221
(310) 886-9100

Texas
128 Industrial Dr.
Cibolo, 78108
(210)888-0449

New Jersey
140 Valley Rd.
Roselle Park, 07204
(908) 245-2800



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JF for EM

Date _____
05/16/2024

Permit # _____
2254180

Installed by Factory Trained Dex-O-Tex Applicators

DEX-O-TEX

Product Description Sheet



Advanced Floor
and Waterproof
Systems since
1938

www.dexotex.com

2/21

Crossfield
Products Corp.

California
3000 E. Harcourt St.
Rancho Dominguez,
90221
(310) 886-9100

Texas
128 Industrial Dr.
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(210)888-0449

New Jersey
140 Valley Rd.
Roselle Park, 07204
(908) 245-2800

Flex-Glaze

Wall Coat System
Typical Thickness 24 mils

DESCRIPTION

Flex-Glaze is a flexible, high-build, two-component epoxy resin wall coating system coated with a two component polyaspartic topcoat. Flex-Glaze provides a seamless, durable, chemically resistant wall coating solution with exceptional cleanability and aesthetic appeal.

WHERE TO USE

Flex-Glaze is impervious and offers excellent resistance to chemical attack, staining and abrasion. It was designed to be used in clean rooms, bio- and high-tech areas to create an environmental envelop that isolates and contains the contents of the use area.

ADVANTAGES

- Seamless
- UV Stable
- Provides a continuous membrane
- Superior chemical resistance
- Impact resistance
- Anti-microbial additive available
- Flex-Glaze bonds well to any smooth, clean dry and sound substrate, including but not limited to, dry wall, green board, gypsum sheet rock, cement plaster, concrete, plywood, HD particleboard and cement backer board
- LEED Points may be available

FINISH OPTIONS

See Wall Coating Color Chart available at www.dexotex.com

PHYSICALS	METHOD	RESULTS
VOC	40 CRF 60 Appendix A7 Method 24	1 g/L
Compressive Strength	ASTM D695	8,000 psi
Tensile Strength	ASTM D412	1,250 psi
Water Absorption	MIL-D-3134	<.05%
Surface Hardness	ASTM D2250 Shore D	80-85
Adhesion	ASTM D952	Exceeds internal strength of backing system
Mircrobrial Resistance (with additive)	ASTM G21	Passes Rating 1

The above physical properties were measured in accordance with the referenced standards. Results may vary based upon statistical variations on mixing methods and equipment, application methods, environment, and actual site conditions and curing conditions. All sample preparation and testing are conducted in a laboratory environment and actual performance on job site may vary from these values based on actual site conditions.

Installed by Factory Trained Dex-O-Tex Applicators 

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Date: 05/16/2024
Permit # 2254180

AEC DIMISEABLE PARTITION



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Code Compliance

Signed JM for EM

Date 09/16/2024

Permit # 22241140

WORLD CLASS OPERABLE WALLS



advanced
equipment

C O R P O R A T I O N

Established 1957



WORLD CLASS® - ALPHA® SERIES

All welded, all steel panels designed to last the life of your building.

Panel heights to 60 ft (18.3m)
Panel widths to 60 inches (1.52m)



Discover Advanced Equipment's Measurable Performance

- 42 NIC guaranteed when SPECIFIED (ASTM E 336-97)
 - One hand operation on 12" (305mm) radius turn tracks
 - Proof load testing of panel construction (ASTM E-72)
 - Proof load testing of trolley plate anchorage
 - 10-year limited warranty that does not exclude "normal wear and tear"
 - Low maintenance cost, no replacement cost
- www.advancedequipment.com

Compare ALPHA's features with its competitors:

1. 14 ga. (0.075" 1.9mm) steel top rail.
2. Minimum 16 ga. (0.060" 1.52mm) steel frame members.
3. 16 ga. (0.060" 1.52mm) or 14 ga. (0.075" 1.9mm) steel FACE SHEETS WELDED TO FRAME MEMBERS with max. weld spacing of 8" (203mm).
4. 16 ga. (0.060" 1.52mm) steel stiffeners welded to interior surface of panel faces (no gypsum board).
5. 1/2 in. (12.7mm) or 3/4 in. (19mm) thick trolley plates welded into top rail. Anchorage withstands 10,000 pound (4545 kg) tensile load applied via pendant bolt.
6. 1 in. (25.4mm) thick absorptive sound baffle inside of frame members.
7. Fiberglass absorptive fill.
8. Mechanical, retractable bottom seals with travel range from 2 inches (51mm) standard to 6 in. (152mm).
9. Built-in handle for bottom seal activation*.
10. Protective, tongue and groove, extruded aluminum edge trim** with acoustical seals.
11. Optional edge trim-finish wraps around vertical edge and is secured under edge trim** that does not overlap panel face.
12. Multi-fin, fixed top seal.

*Individual panel operation

**Anodized or powder coated



While gypsum board has many uses, it is not a structural material. Buyers may unintentionally be investing in products that have an inherently short life span when accepting wall panels that utilize composite face sheets of thin sheet metal glued to gypsum board and then assembled to welded steel frames. The strength of these panels relies on the strength of the glue-bond between the paper skin and the core of the gypsum board. Contrast the impact resistance and short service life of these panels with ALPHA®, all steel, all welded panels whose life is to be measured in decades.



Front Cover Photo

I2 Technologies, Inc. Dallas, TX.

ALPHA® panel, curved, electrically operated wall with group panels joined to create three wall elements. Wall elements are stacked when stored. Architect: The Lauck Group.

San Francisco Airport Marriott

Installed in August of 1985; Refurbished in June of 2006.

Manual and electric operation.

All panels reused and provided with new 10 year warranty.

Tracks reused and provided with new extended warranties.



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Date _____

Permit # _____

Be it **ELECTRIC** or **MANUAL** operation, AEC offers a wide range of panel constructions and tracks designed to fit your specific need and budget. For life-of-the-building durability select one of the **ALPHA®** panel constructions.

DWspec™

DWspec™ provides Architects and Specification Developers with a fully interactive tool for developing operable wall specifications. As a Web-based application, DWspec requires no special software or downloads. DWspec produces one specification for your project even if your project has several walls each with differing characteristics. The user need not be familiar with Advanced Equipment products or their individual characteristics in order to produce a valid, error-free specification.

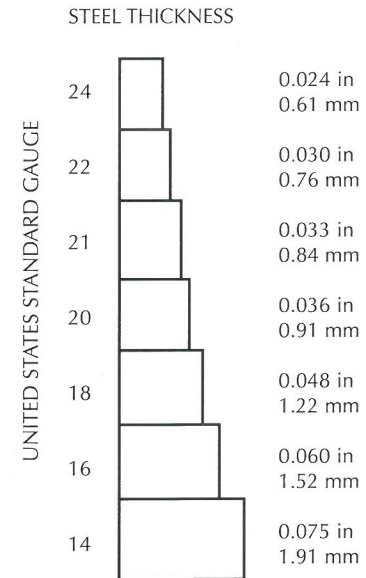
www.advancedequipment.com

for

Operable Wall Specifications as easy as 1,2,3...



Sheraton, Imperial Ballroom, Seattle, WA.
ALPHA® welded steel panels with fabric finish and powder coated trim.



APROX. THICKNESS. INCHES AND MILLIMETERS (NTS)

Thicker steel used by AEC produces superior panel strength.

	PANEL TYPE	WEIGHT #/SQ. FT	WEIGHT KG/M2	S.T.C.	N.I.C.*	N.R.C.	PANEL THICKNESS	MAXIMUM WIDTH	MAXIMUM HEIGHT	PANEL FACE SHEET
ALPHA	S	8.5	41.6	53	42	-	3.5" (89mm)	60" (1.52M)	35FT (10.7M)	16-Ga. Steel or optional 14-Ga.
	T	9.1	44.5	54	42	-	3.5" (89mm)	60" (1.52M)	35FT (10.7M)	Minimum 16-Ga. Steel
	U	9.7	47.5	53	42	-	4" (102mm)	60" (1.52M)	60FT (18.3M)	14-Ga. Steel
	P	12	58.7	49	42	0.65	4" (102mm)	60" (1.52M)	60FT (18.3M)	14-Ga. Perforated Steel
	X	10	48.9	53	42	-	3.5" (89mm)	60" (1.52M)	35FT (10.7M)	14 or 16-Ga. Steel (1-Hr fire)
SIGMA	A	5.9	28.9	49	40	-	3.5" (89mm)	54" (1.37M)	24FT (7.3M)	Minimum 20-Ga. Steel
	B	6.4	31.3	50	41	-	3.5" (89mm)	54" (1.37M)	24FT (7.3M)	Minimum 20-Ga. Steel
	C	6.9	33.8	51	41	-	3.5" (89mm)	54" (1.37M)	24FT (7.3M)	Minimum 18-Ga. Steel
	D	7.4	36.2	52	42	-	3.5" (89mm)	54" (1.37M)	24FT (7.3M)	Minimum 18-Ga. Steel

N.I.C.* when tested in accordance with ASTM E 336-97; Deduct 2 points when using ASTM E 336-05.

With the exception of "X" (fire rated), all ALPHA and SIGMA panels are suitable for electric operation.

With the exception of "X" (fire rated), all ALPHA and SIGMA panel constructions are available as curved panels.

ALPHA & SIGMA panels are one-piece steel weldments with face sheets welded to frame.

Maximum heights are for individual panel operation and may be less for hinged groups or electric operation.

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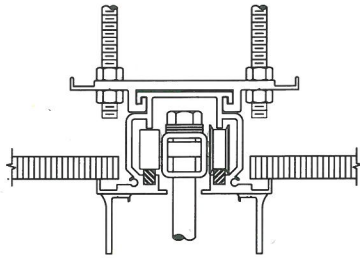
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Date _____

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SUPERTRACK® -

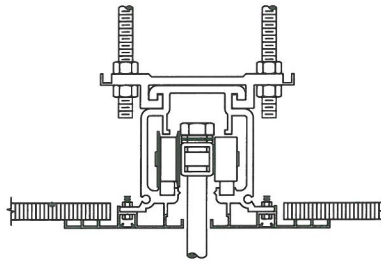
Advanced Equipment's family of extended warranty tracks produce easy, reliable, long term service with virtually no maintenance. These tracks are furnished with a 5 or 10-year warranty period that does not exclude *normal wear and tear*. Specify tracks #1a, #8 or #8b.



#1a 900-pound trolley capacity

Composite track: Aluminum case with CR steel bar running surface. Manual or electric operation.

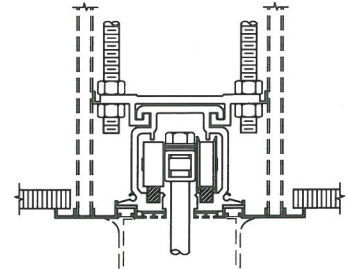
5-YEAR WARRANTY



#8 1700-pound trolley capacity

Composite track: Aluminum case with CR steel bar running surface. Manual or electric operation.

10-YEAR WARRANTY

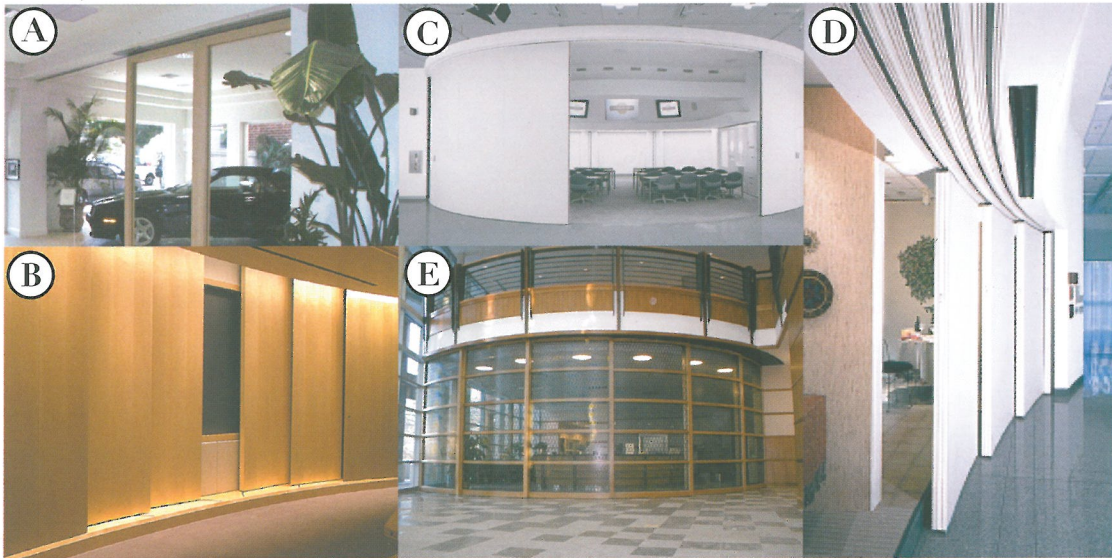


#8b 1500-pound trolley capacity

Composite track: Aluminum case with CR steel bar running surface. Manual or electric operation.

10-YEAR WARRANTY

Custom walls to fit your design needs



COMPANY PROFILE

Engaging in the design, manufacture, installation and service of operable walls throughout its 50-year history, Advanced Equipment Corporation is the most senior Company in this field.

Concurrent with our design and manufacturing experience, Advanced Equipment developed special purpose machinery to facilitate exceptionally high standards of product quality and precision. An obvious further benefit is the production efficiency permitting these superior quality operable walls to be furnished at competitive prices.

A. Welded steel frame with factory applied lumber finish: double glazing: manual operation.
B. VISION® rear projection screen shield: electrically operated: microprocessor controlled: synchronous belt drive: welded, curved steel panels: curved track. VISION is coplanar with room wall when extended. Depicted project has field applied wood veneer finish.

C&D. Curved ALPHA® panels: curved extruded aluminum track: electric operation: powder coated panel trim and track.
E. Electrically operated: curved, welded tubular steel frames with lumber finish: curved aluminum track. Water jet cut aluminum grill with custom powder coat finish.

ADVANCED EQUIPMENT CORPORATION

2401 WEST COMMONWEALTH AVENUE

FULLERTON, CA 92833

PHONE 714-635-5350 FAX 714-525-6083

WEB SITE: www.advancedequipment.com

EMAIL: sales@aecorp.net

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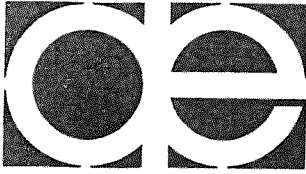
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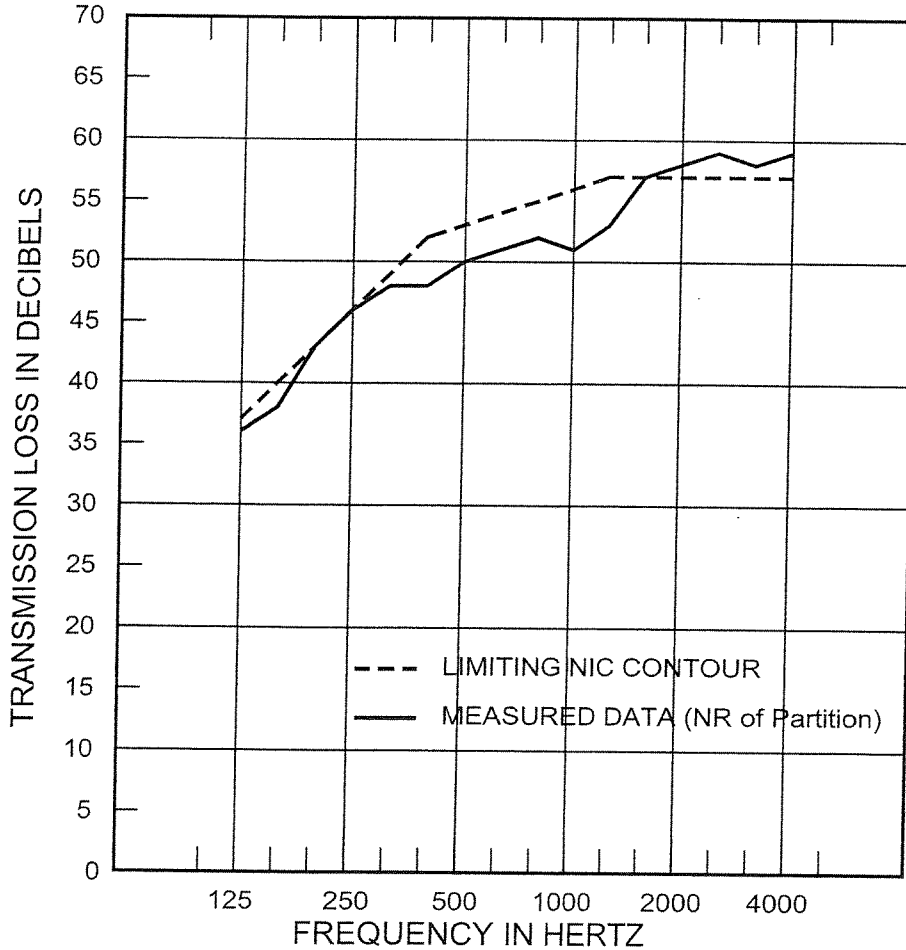
5/11/2024



**advanced[®]
equipment**
CORPORATION

**OPERABLE WALL
LABORATORY
TEST REPORT**

REFERENCE: WESTERN ELECTRO-ACOUSTIC LABORATORY, INC. REPORT #TL07-591



DESCRIPTION

THE TEST SPECIMEN WAS A FULLY OPERABLE ADVANCED EQUIPMENT CORPORATION CONSTRUCTION IN A 14' X 9' TEST OPENING.

**TYPE "E" PANEL
Sigma Series**

PROCEDURE

THE PROCEDURES FOR THIS TEST CONFORM TO THE PROVISION AND REQUIREMENTS OF A.S.T.M. E90-04, STANDARD METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS.

RESULTS

THE SOUND TRANSMISSION CLASS RATING DETERMINED IN ACCORDANCE WITH A.S.T.M. E-413 WAS:

STC 53

1/3 OCT BND CNTR FREQ	125	160	200	250	315	400	500	630	800
TL IN DB	36	38	43	46	48	48	50	51	52
95% CONFIDENCE IN dB	1.47	0.89	0.76	1.80	0.52	.036	0.38	0.29	0.44
DEFICIENCIES	(1)	(2)	(0)	(0)	(1)	(4)	(3)	(3)	(3)

1/3 OCT BND CNTR FREQ	1000	1250	1600	2000	2500	3150	4000	5000	
TL IN DB	51	53	57	58	59	58	59	62	
95% CONFIDENCE IN dB	0.38	0.39	0.36	0.56	0.55	0.31	0.32	0.50	
DEFICIENCIES	(5)	(4)	(0)						

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STC
53
(26)

SPECIMEN AREA: 126 SQ. FT.
TEMPERATURE: 76.3 DEG. F

RELATIVE HUMIDITY: 34 %
TEST DATE: October 01, 2007

SIGMA[®] SERIES | E PANEL CONSTRUCTION



SIGMA
 INCOMBUSTIBLE STEEL, QUALITY, STRENGTH,
 PERFORMANCE, AND VALUE at competitive prices.

**ROBOTICALLY FUSION
 WELDED**

- MINIMUM 16 - GAUGE STEEL FACE.
- FACE SHEET WELDED TO FRAME.
- PROTECTIVE VERTICAL EDGE TRIM
 or
 FINISH WRAPPED AROUND EDGE.
- LIGHT WEIGHT.

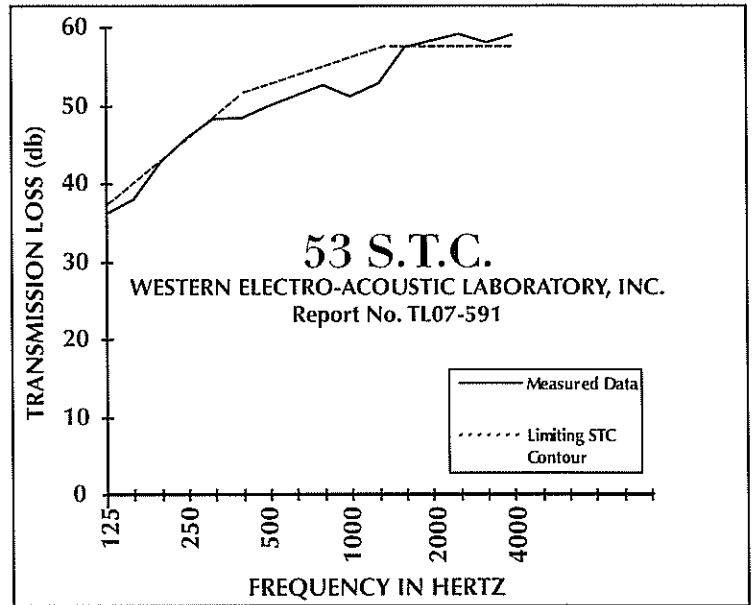
MANUAL OR ELECTRIC OPERATION.

PANEL HEIGHT: 35' max.

PANEL WIDTH: 54" max. but do not exceed
 width of finish fabric.

PANEL WEIGHT: 7.9 pounds per square foot.

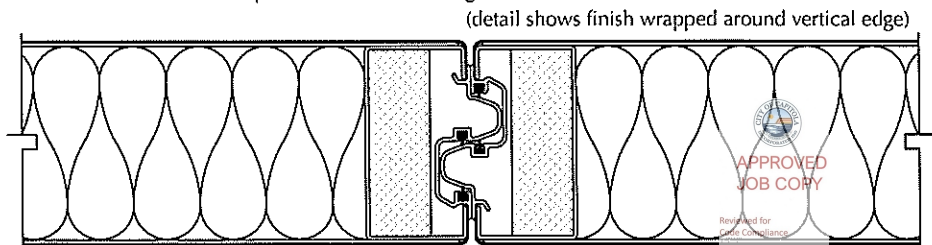
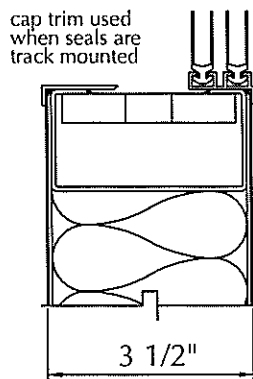
40 N.I.C.
 GUARANTEED WHEN SPECIFIED
 TESTED IN ACCORDANCE WITH ASTM E336-05.
 42 N.I.C. IN ACCORDANCE WITH ASTM E336-97



SPECIFICATIONS

PANEL CONSTRUCTION: Acoustical panel is approximately 3½" inches thick. Panel faces are minimum 16-gauge CR steel sheet. Face sheets are robotically fusion welded to 16-gauge, vertical and 14-gauge, horizontal steel frame members. Steel panel faces are permanently stiffened by steel members welded to interior surfaces. Interior cavity is filled with appropriate sound attenuating material. Panel weight is approximately 7.5 pounds per square foot. Entire perimeter of panel is encased in aluminum alloy trim. Panel is a steel weldment with one-piece face sheets.

ACOUSTICAL PERFORMANCE: Operable wall with this panel construction shall serve as an effective barrier with a sound transmission class rating of 53 S.T.C. based on a full-scale laboratory test in accordance with ASTM-E90 and conducted at a NVLP acoustic laboratory. Certification of such laboratory tests shall be furnished upon written request. Operable wall shall achieve a minimum 40 N.I.C. when field sound tested in accordance with ASTM E-336-05, or 42 N.I.C. with ASTM E-336-97 provided that the surrounding building construction is compatible with this rating.

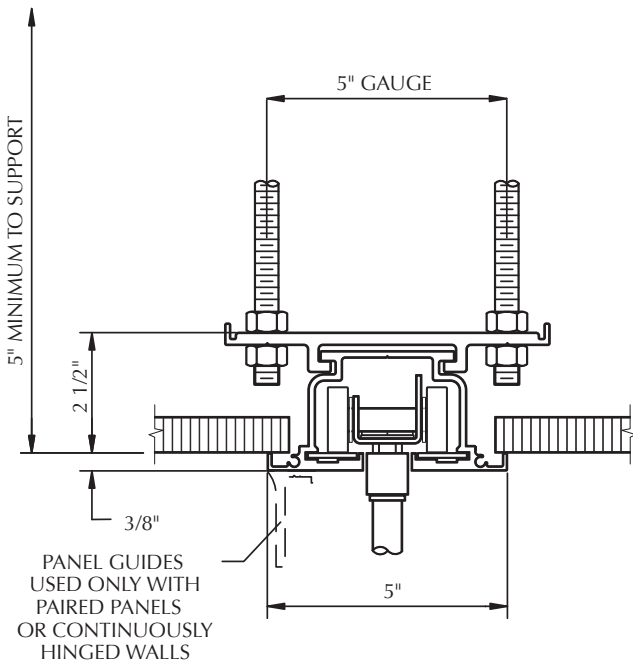


(detail shows finish wrapped around vertical edge)

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 Date: 08/10/2014
 Permit #

2|TRACK| COMPOSITE TRACK STEEL RUNNING SURFACE



2 YEAR WARRANTY

#2 Track is intended for straight runs with Paired panels, or using curves, "y"s, or switches for remotely stored INDIVIDUAL panels.

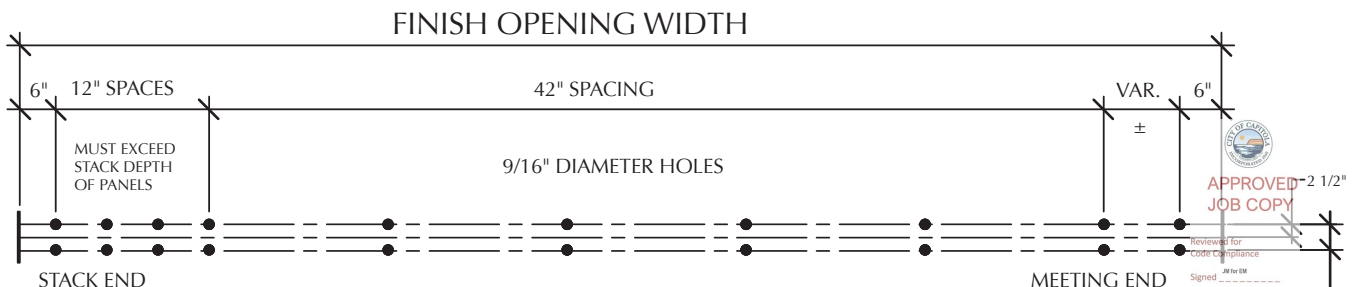
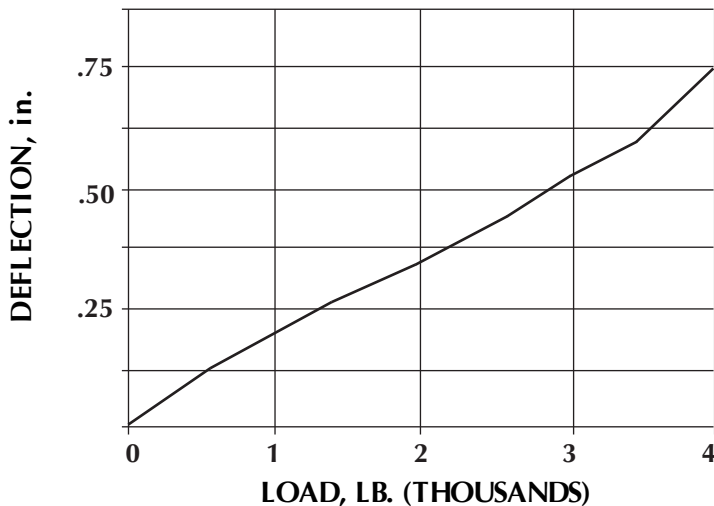
For use with Panels not exceeding 20' in height.

SPECIFICATIONS

TRACK: Suspension system shall include Advanced #2 composite track consisting of extruded aluminum case and steel running surface. Aluminum alloy track brackets shall interlock with top flange of track and be spaced to limit local track deflection to 0.09 inches. Bracket spacing not to exceed 48" O.C. Brackets attached to structure with pairs of 1/2 inch diameter steel hanger rods. Approximate weight of track system is 6.0#/ Lin. Ft. Track shall have minimum of 2.07 inch-to-the-fourth Moment of Inertia. Independent testing laboratory results shall be supplied to the architect upon request showing that a track/trolley/ bracket/hanger rod assembly sustains a load of 3,000 pounds at mid-point of 42-inch simple span without damage.

TROLLEYS: Trolleys to have four all-steel wheels with sealed prelubricated ball bearings. Pendant bolt to be steel with minimum 5/8" diameter and attached to panel through a steel plate mounted internally with panel frame. Individual trolley capacity is 600 pounds.

LOAD vs DEFLECTION



HANGER ROD SPACING TEMPLATE

Five Knuckle Standard Weight Series

Recommended for standard weight, medium frequency doors, or doors with closing devices.

- Use for common flush door/frame/wall applications
- For Beveled Edge, where doors are beveled on hinge side, specify TA4314 or TA4714
- For available finishes see page 28

TA2314
TA2714



No.	ANSI Cross Reference	Base Material	Weight
TA2314	A5112	Stainless	STD
TA2314	A2112	Brass	STD
TA2714	A8112	Steel	STD

Specifications

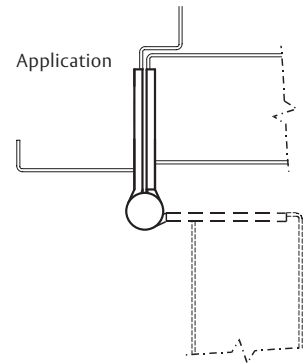
Inches	mm	Gauge	No. of Holes	Fasteners	
				Machine	Wood
3 1/2" x 3 1/2"*	88.9 x 88.9	.123	6	1/2 x 10-24	1 x 10
4" x 4"*	101.6 x 101.6	.130	8	1/2 x 12-24	1 1/4 x 12
4 1/2" x 4"	114.3 x 101.6	.134	8	1/2 x 12-24	1 1/4 x 12
4 1/2" x 4 1/2"	114.3 x 114.3	.134	8	1/2 x 12-24	1 1/4 x 12
5" x 4 1/2"*	127 x 114.3	.146	8	1/2 x 12-24	1 1/4 x 12
5" x 5"*	127 x 127	.146	8	1/2 x 12-24	1 1/4 x 12
6" x 6"*	152.4 x 152.4	.160	10	1/2 x 1/4-20	1 1/2 x 14

* Not available in Brass base material.

Options:

Code	Description	Code	Description	Code	Description
NRP	Non-Removable Pin	GT	Grooved Tip*	CC-18	Concealed Circuit – 2, 4, 6, 8 or 10 wire available (2-18AWG wires and the remainder 28AWG wires)
TB	Ball Bearing	LT	Lined Tip*	MM	Magnetic Monitoring
TCA	Concealed Bearing	RT	Round Tip*	QC	ElectroLynx® Hinge – 4, 8 or 12 wire available
RC	Round Corner – 1/4" radius furnished unless specified otherwise	ST	Steeple Tip		
HT	Hospital Tip	SSF	Safety Stud Feature		
BT	Ball Tip	CC	Concealed Circuit – 4, 8, or 12 wire available		
FT	Flat Tip*				

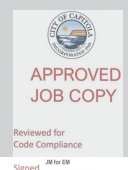
*Not available on 3-1/2" and 6" sizes



McKinney Hinge Pin Door Stop

- Recommended for high-use or high impact doors with McKinney T2714 or TA2714 hinges
- Protects against damage to doors and walls
- Runs the full length of the hinge

Part number	Description	Finish
76305	Hinge Pin Stop for MacPro MP79 & MPB79	26D
76306	Hinge Pin Stop for McKinney T2714 & TA2714	26D



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Opening Solutions

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and more open world

800-346-7707 | www.assaabloydooraccessories.us
Check the web site for the up-to-date catalog

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Five Knuckle Standard Weight Series

Recommended for standard weight, medium frequency doors, or doors with closing devices.

- Use for common flush door/frame/wall applications
- For Beveled Edge, where doors are beveled on hinge side, specify TA4314 or TA4714
- For available finishes see page 28

TA2314
TA2714



No.	ANSI Cross Reference	Base Material	Weight
TA2314	A5112	Stainless	STD
TA2314	A2112	Brass	STD
TA2714	A8112	Steel	STD

Specifications

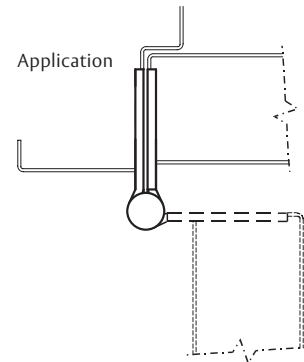
Inches	mm	Gauge	No. of Holes	Fasteners	
				Machine	Wood
3 1/2" x 3 1/2"*	88.9 x 88.9	.123	6	1/2 x 10-24	1 x 10
4" x 4"*	101.6 x 101.6	.130	8	1/2 x 12-24	1 1/4 x 12
4 1/2" x 4"	114.3 x 101.6	.134	8	1/2 x 12-24	1 1/4 x 12
4 1/2" x 4 1/2"	114.3 x 114.3	.134	8	1/2 x 12-24	1 1/4 x 12
5" x 4 1/2"*	127 x 114.3	.146	8	1/2 x 12-24	1 1/4 x 12
5" x 5"*	127 x 127	.146	8	1/2 x 12-24	1 1/4 x 12
6" x 6"*	152.4 x 152.4	.160	10	1/2 x 1/4-20	1 1/2 x 14

* Not available in Brass base material.

Options:

Code	Description	Code	Description	Code	Description
NRP	Non-Removable Pin	GT	Grooved Tip*	CC-18	Concealed Circuit – 2, 4, 6, 8 or 10 wire available (2-18AWG wires and the remainder 28AWG wires)
TB	Ball Bearing	LT	Lined Tip*	MM	Magnetic Monitoring
TCA	Concealed Bearing	RT	Round Tip*	QC	ElectroLynx® Hinge – 4, 8 or 12 wire available
RC	Round Corner – 1/4" radius furnished unless specified otherwise	ST	Steeple Tip		
HT	Hospital Tip	SSF	Safety Stud Feature		
BT	Ball Tip	CC	Concealed Circuit – 4, 8, or 12 wire available		
FT	Flat Tip*				

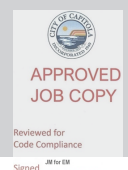
*Not available on 3-1/2" and 6" sizes



McKinney Hinge Pin Door Stop

- Recommended for high-use or high impact doors with McKinney T2714 or TA2714 hinges
- Protects against damage to doors and walls
- Runs the full length of the hinge

Part number	Description	Finish
76305	Hinge Pin Stop for MacPro MP79 & MPB79	26D
76306	Hinge Pin Stop for McKinney T2714 & TA2714	26D



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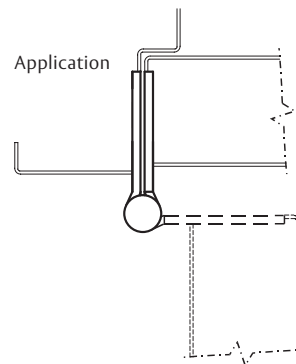
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Five Knuckle Heavy Weight Full Mortise Series

Recommended for use on high frequency and/or heavy wood or metal doors in schools, hospitals or other public buildings where heavy traffic is experienced.

- Heavy weight hinges should be used on all extra heavy doors or those exposed to high frequency use
- T4A3386- Stainless steel base or available in brass base material polished
- T4A3786- Steel base material
- For Beveled Edge, where doors are beveled on hinge side, specify T4A4386 or T4A4786
- For available finishes see page 28

T4A3386
T4A3786



Note: 8" x 6" and 8" x 8" have six bearings. Specify T6B3386 or T6B3786.

No.	ANSI Cross Reference	Base Material	Weight
T4A3386	A5111	Stainless	HVY
T4A3386	A2111	Brass	HVY
T4A3786	A8111	Steel	HVY

Specifications

Inches	mm	Gauge	No. of Holes	Fasteners	
				Machine	Wood
4 1/2" x 4"	114.3 x 101.6	.180	8	1/2 x 12-24	1 1/4 x 12
4 1/2" x 4 1/2"	114.3 x 114.3	.180	8	1/2 x 12-24	1 1/4 x 12
5" x 4 1/2"	127 x 114.3	.190	8	1/2 x 12-24	1 1/4 x 12
5" x 5"*	127 x 127	.190	8	1/2 x 12-24	1 1/4 x 12
6" x 5"*	152.4 x 127	.203	10	1/2 x 1/4-20	1 1/2 x 14
6" x 6"*	152.4 x 152.4	.203	10	1/2 x 1/4-20	1 1/2 x 14
8" x 6"***	203.2 x 125.4	.203	16	1/2 x 1/4-20	1 1/2 x 14
8" x 8"****	203.2 x 203.2	.203	16	1/2 x 1/4-20	1 1/2 x 14

- * Not available in brass base material.
- ** Available in steel only.
- *** Available in stainless steel only.
- **** FT tips not offered on 6" and 8" sizes, BT and ST not offered on 8" sizes.

Options:

Code	Description
NRP	Non-Removable Pin
T4B	Ball Bearing
TCA	Concealed Bearing
RC	Round Corner – 1/4" radius furnished unless specified otherwise
HT	Hospital Tip
BT****	Ball Tip
FT****	Flat Tip
ST****	Steeple Tip
SSF	Safety Stud Feature
RB	Raised Barrel*
QC	ElectroLynx® Hinge – 4, 8 or 12 wire available
CC	Concealed Circuit – 4, 8 or 12 wire available
CC-18	Concealed Circuit – 2, 4, 6, 8 or 10 wire available (2-18AWG wires and the remainder 28AWG wires)
MM	Magnetic Monitoring

* Refer to page SP-3 for Raised Barrel.

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What is PemkoHinge®?

PemkoHinge® consists of two full-height, paired and geared leaves. Each geared leaf rotates evenly from top to bottom riding on proprietary polymer blended bearings. The geared leaves and bearings are held together by a full-length channel cap. This assembly retains the smooth, clean lines of the door and frame, while easily supporting heavy vertical loads.

PemkoHinge®

SECURITY, SAFETY, PRIVACY, LOW WEAR AND TEAR

PemkoHinge® Attributes:

- With a continuous hinge, typical alignment problems (such as door sag and binding) are eliminated
- The continuous hinge distributes load stress uniformly along the full length of the door and frame
- The gear design of the continuous hinge ensures symmetrical operation of each leaf
- 1/2 lb. or less operating force required to operate most doors, regardless of size
- Low operating force feature makes continuous hinges ideal for doors used by the physically challenged
- The continuous hinge, when installed on standard steel doors and frames, requires no additional reinforcement. However, hinge preps must have fillers installed for proper operation
- A high degree of security can be achieved for exterior openings or restricted spaces by using a continuous hinge. With the geared construction and the full-length channel cap, the common gap between the door and frame is sealed, which provides security against prying
- In addition, the continuous full-height hinge cap protects against pinching fingers in doors in public areas, particularly those where children are present
- Sight proof design of the continuous hinge provides privacy for lavatories, executive offices, or file rooms

PemkoHinge® Superior Design:

- PemkoHinge® has increased critical stress points of the hinge leaf extrusions providing additional strengths and rigidity to the completed product
- PemkoHinge® bearing design eliminates premature wear, guarantees proper alignment, and requires fewer bearings to carry more weight. The bearing is produced for Pemko using a chemical composition and injection process that provides a stronger, more accurately formed bearing
- PemkoHinge® is designed with inter-meshing gear segments in the hinge which provide 50% more bearing surface resulting in less wear
- PemkoHinge® goes through the anodizing process after completing all machining. This means the machined aluminum surfaces that are in direct contact with the bearing have a smoother, harder surface, thereby reducing wear
- PemkoHinge® maintains uniform bearing spacing for the full length of the hinge even when lengths exceed 10'
- PemkoHinge® uses #12-24 size fasteners with #10 head (#12 Tek fasteners available upon request)
- PemkoHinge® commercial models are ideal for use on lead lined doors (i.e. hospital X-ray rooms), without requiring special screw locations

How To Order (Hinge Part Designations)

Example: D | SPFM | 85 | SLI | HD1

Finishes		Hinge Types		Lengths	Hinge Options		Capacity	
BL	Black Anodized	FM	Full-Mortise	79	"blank"	Standard	"blank"	Standard Duty
C	Clear Anodized	FS	Full-Surface	83	CP	Center Pivot	HD1	Heavy Duty, Grade 1
D	Dark Bronze Anodized	HS	Half-Surface	85	RG	Raised Gear	HD3	Heavy Duty, Grade 3
G	Gold Anodized	RS138	Full-Mortise Residential: 1 ³ / ₈ "	95	SF	Safety		
PW	Painted White	RS175	Full-Mortise Residential: 1 ³ / ₄ "	120	SL	Short Leaf (residential only)		
SN	Satin Nickel Anodized	SPFM	Special Full-Mortise		SLF	Short Leaf Flush		
		WT_FM	Wide Throw Full-Mortise		SLI	Short Leaf Inset		
		WT_HS	Half-Surface					

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BHMA Certification Program

This program was developed to establish product classifications through performance testing. Three grades (1, 2 and 3) of product classifications were established for continuous hinges, with three weight groups (150, 300 and 600) for each grade: Grade 3 being the lowest and Grade 1 being the highest classification. Each classification and weight group has a set of established cycle requirements and wear characteristics, with a minimum for vertical and lateral wear to establish a listing under a weight and grade classification, after the set number of cycles is completed.

Maximum Vertical Wear Allowable:

Grade 3 = 0.105"

Grade 2 = 0.030"

Grade 1 = 0.020"

Maximum Lateral Wear Allowable:

All Grades = 0.062"

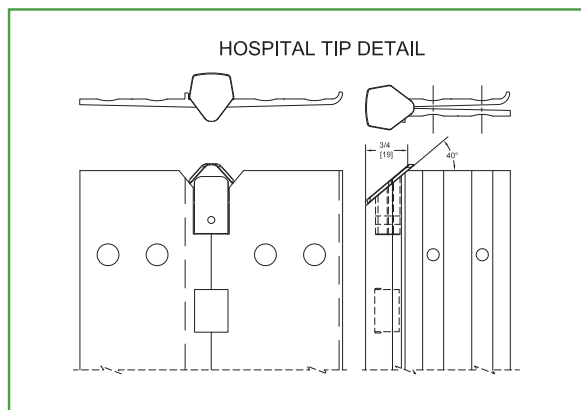
Cycle requirements range from Grade 3-600 requiring 100,000 cycles through Grade 1-150 requiring 2.5 million cycles.

For more information on certification testing or other product certification programs, please contact Pemko Customer Service.



Hospital Tip

A special modification is available for certain hinges which provides a Hospital Tip Cap at the top of the gear cap, leaving no opening. A 45° angled cut on the gear cap and leaf covers provides a safe environment for hospitals and correctional facilities.



Cycle Requirements - Per BHMA Standard ANSI/BHMA A156.26-2012

- Standard Duty Hinges (excluding _RS175 & _RS138) conform to Grade 3-150 and Grade 3-300
- HD3 Hinges conform to Grade 3-150, Grade 3-300, and Grade 3-600
- HD1 Hinges conform to Grade 2-150, Grade 1-300, and Grade 1-600
- 1100 Series and X-Series Hinges conform to Grade 1-150

Weight Bearing - Per BHMA Standard ANSI/BHMA A156.26-2012

- This information pertains to all commercial models
- Heavier weight can be carried; please contact Customer Service for applications other than those listed in the chart
- Special hinge reinforcements are not required as hollow metal door and frame manufacturers' standard are acceptable. Removal of hinge reinforcements in the door and frame is not advised. Hinge preps must have fillers installed

UL Fire Labeled 1½ & 3 Hour



- All models designated with these symbols are tested and certified by Underwriters Laboratories Inc.® (U.S.A. and Canada) to standards UL10B, UL10C and UBC7.2 (positive pressure) for a 1½-Hour Fire Listing for all 4'0" x 10'0" and 8'0" x 10'0" door and frame assemblies. Fire listing certifications apply to all approved hollow metal and wood door assemblies in drywall or masonry wall construction
- Special FirePins™ are only required on 3-Hour assemblies. Please refer to page 95 for illustrations and information regarding the application of Pemko FirePins™

- All hinges are supplied with standard fastener kits. Replacement kits/individual fasteners may be purchased separately
- TEK/TORX fasteners may be purchased separately. Full-mortise hinges require 40 each; half-surface hinges require 20 each; full-surface hinges require 12 each
- All half-surface and full-surface hinges are supplied with a snap cover for the door leaf. Replacement snap covers may be purchased separately
- Rain caps may be purchased separately



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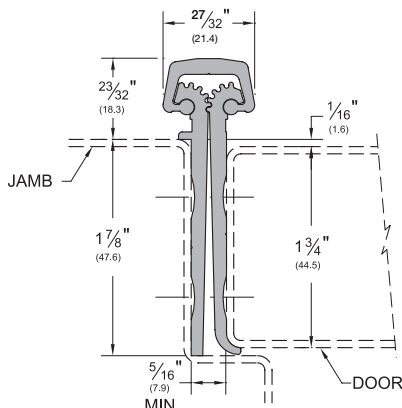
Full Mortise Hinges

- Full-Mortise units are designed mainly for new door applications and are applied to the frame rabbet and door edge to conceal both leaves

Full Mortise

_FM

STANDARD FINISHES: C, D

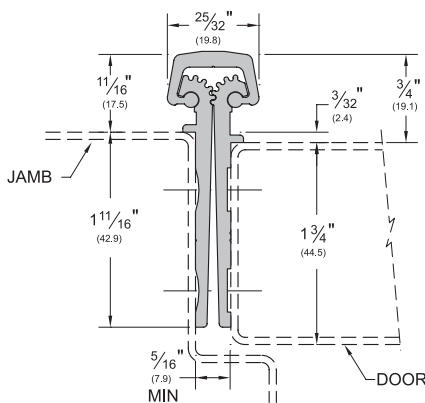


Full Mortise Short Leaf Inset

- Designed for use with doors which range between 1 3/4" to 2 1/4"
- Designed for use with hollow metal doors and frames where the inset conforms to S.D.I. specifications for aligning doors and frames

_FM_SLI

STANDARD FINISHES: C, D

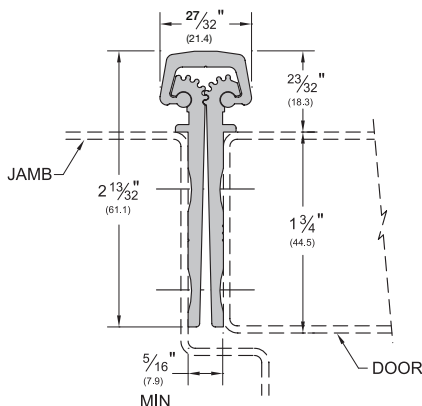


Full Mortise Short Leaf Flush

- Designed for use with doors which range between 1 3/4" to 2 1/4"
- Also used for bifold applications to keep the faces of the doors flush (not illustrated)

_FM_SLF

STANDARD FINISHES: C, D



OPTIONAL FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)

BL (Black Anodized) C (Gold Anodized)

PW (Painted White) and SN (Satin Nickel) are special finishes available upon request.

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Automatic Flush Bolts No. 2840 (Automatic Top Bolt Only) No. 2842 (Set) (replaces the No. 1840 and No. 1842)

- Material:** Brass, stainless steel
- Finishes:** US3, US4, US10, US10B, US26, US26D, US32D
- Fastener:** No. 2842: 20 ea. #8 x 3/4" FH combo screws, 2 ea. #6-8 plastic anchors
No. 2840: 10 ea. #8 x 3/4" FH combo screws. NOTE: No plastic anchor required for top only
- Features:**
- For Fire Rated Metal Doors labeled A, B, C, D & E up to 4'w x 8'h
 - Non-handed
 - Fully automatic— opening active door retracts top and bottom bolts
 - Override feature prevents damage to doors or bolts if bolt heads are blocked from entering strikes
 - Bolt head rods are adjustable up to 1 1/2"
 - Thermal lock automatically locks the inactive door under high heat conditions due to fire
- Options:** No. 2842 can be used with the No. 570 Dust Proof Strike (shown on page E4).

No.	Size	Weight	ANSI A156.3
2840	1" x 6 3/4"	1.2 lbs.	Type 25
2842	1" x 6 3/4"	2.4 lbs.	Type 25



Combination Flush Bolts No. 2805 (Self Latching Top Bolt Only) No. 2845 (Set) (replaces No. 1805 and No. 1845)

- Material:** Brass, stainless steel
- Finishes:** US3, US4, US10, US10B, US26, US26D, US32D
- Fastener:** Top: 8 ea. #8 x 3/4" FH combo screws. NOTE: No plastic anchor required for top only.
Bottom (No. 2845 only) 18 ea. #8 x 3/4" FH combo screws, 2 ea. #6-8 plastic anchors.
- Features:**
- For Fire Rated Metal Doors labeled A, B, C, D & E up to 4'w x 8'h
- Top Bolt**
- Automatically engages when the inactive door closes. When the active door is opened, the inactive door stays latched at the top until the top bolt is released by pressing the plunger button on the bolt face
- Bottom Bolt (No. 2845 only)**
- Non-handed
 - Fully automatic — opening active door retracts bottom bolt
 - Override feature prevents damage to door or bolt if bolt head is blocked from entering strike
 - Bolt head rod is adjustable up to 1 1/2"
 - Thermal lock automatically locks the inactive door under high heat conditions due to fire
- Options:** No. 2845 can be used with the No. 570 Dust Proof Strike (shown on page E4)

No.	Size	Weight	ANSI A156.3
2805	1" x 6 3/4"	1.2 lbs.	Type 27
2845	1" x 6 3/4"	2.4 lbs.	Type 27

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Lever Extension Flush Bolt With Bottom Fire Bolt No. 557 x 19BFB

- Material:** Flush bolt – brass
Bottom fire bolt – stainless steel
- Finishes:** Available in standard architectural finishes (see page 9)
- Fastener:** 7 ea. #8 x 3/4" FH combo screws
4 ea. #8 - 32 x 1/2" FH MS
4 ea. #8 counter sunk washer
- Features:**
- For Fire Rated Plastic & Wood Covered Fire Doors measuring up to 4'w x 9'h rated up to 20 minutes
 - 3/4" bolt throw, 3/4" backset; door strength maintained by corner reinforcing plate
 - When door is subjected to 230°F the plug and black plastic cover will melt allowing the bolt to project, locking the leaves together
 - Bottom fire bolt eliminates need for floor prep
 - Oversize fire bolt strike hole allows for slight door misalignment

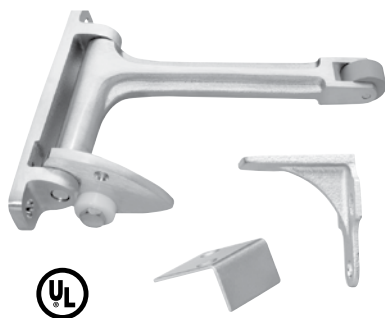
No.	Size	Weight
557 x 19BFB	Top bolt: 1" x 6 3/4" Bottom bolt: 1 3/16" dia.	0.9 lbs.



Dust Proof Strike No. 570

- Material:** Brass
- Finishes:** Available in standard architectural finishes (see page 9)
- Fastener:** Adjustment nut
Spanner wrench
2 ea. #8 x 1 OH SMS, 2 ea. plastic anchors
2 ea. #8 - 32 x 3/4" OH MS, 2 ea. lead anchors
- Features:**
- Works with all Rockwood manual and automatic flush bolts
 - Removable face plate for use with thresholds
 - Adjustable height for carpeted areas

No.	Size	Weight	ANSI A156.16
570	Face plate: 1 3/8" x 2 7/8" Barrel: 7/8" dia. x 2" depth	0.4 lbs.	L04021



Gravity Door Coordinator No. 576

- Material:** Cast brass
- Finishes:** Available in standard architectural finishes (see page 9).
- Fastener:** Body: 2 ea. #10 x 1" FH SMS, 2 ea. #10 - 24 x 1" FH MS
Strike: 5 ea. #8 x 1" FH SMS
- Other:**
- For use on door sizes:
 - with Astragal on active door – 18" to 48"
 - with Astragal on inactive door – 18" to 34"
 - with Astragal on both doors – 18" to 30"
 - The overlap of the astragal is maximum 7/8" with door hung on standard hinges. Customer must contact the factory for all other astragal situations
- Features:** Non-handed reversible. Prevents the active door from closing until the inactive door is closed



No.	Size	Projection	Weight	ANSI A156.16
576	1" x 5 7/16"	7"	2.2 lbs.	Type 21

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7800/8200 Series Mortise Locks



Certification Compliance

ANSI/BHMA		Certified to ANSI/BHMA A156.13 Series 1000 Operational Grade 1 and Security Grade 1 with all standard trims. Note: LFIC (Removable) Cylinders and SFIC Cylinders do not meet Security Grade 1 requirements.
ADA		Meets A117.1 Accessibility Code. Meets BOMA International 4.13.8 Complies with American Disability Act; Consult local authorities
UL-cUL		UL and cUL Listed to US and Canadian safety standards for A label 4 x 10 single and 8 x 10 double (3 hour fire door) and lesser class doors, stamped letter F and UL symbol on armored front indicate listing
Positive Pressure		Meets ANSI/UL 10C, Positive Pressure Fire Test of Door Assemblies
California		California State Reference Code (Formerly Title 19, California State Fire Marshal Standard) All levers with returns comply; levers return to within 1/2" (13mm) of door face
Tornado and Hurricane Codes		See below

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

Windstorm Certifications: Florida Building Codes & UL Listings

SARGENT Manufacturing's products meet building codes that require hurricane, windstorm and FEMA certifications, including some of the most stringent building codes as specified in the Florida Building Code, Miami Dade Code and the International Building Code. Listed below are certifications and standards met by the 7800/8200 lock.

Florida Building Code: FL2998

UL Certification Directory: ZHEM.R21744 – Latching Hardware

ANSI/SDI A250.13	"Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies"
ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996 (2009)	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
(TAS) 201	"Impact Test Procedures"*
(TAS) 202	"Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure"
(TAS) 203	"Criteria for Testing Products Subject to Cyclic Wind Pressure Loading"**

UL Certification Directory: ZHLL.R21744 – Products for Use in Windstorm-rated Assemblies

Certifications to meet assembly requirements are done in conjunction with doors from ASSA ABLOY Group companies CECO DOOR and CURRIES.

ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"



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* Any undated reference to a code or standard appearing in this catalog shall be interpreted as referring to the latest edition of that code or standard.

** Published in the 7th Edition (2020), "Florida Building Code" (FBC), State Product Approval Number FL2998

Features

8200/R8200/7800 Series Mortise Locks

Maximum Flexibility

- Fast and easy installation. Lock is easily re-handed without removing parts or opening the lock case
- Aesthetic design. Many escutcheon and lever styles available to match a wide range of styles
- Many standard architectural grade finishes, including Polished Nickel (US14) & Satin Nickel (US15) finishes
- 54 functions including 4 electrical functions. The most in the industry for a broad range of applications
- Versatile. Offered for door thicknesses ranging from 1-3/8" (35mm) to 6" (152mm)
- Available with vandalism deterrent trim and/or secure fastener options Torx® and spanner screws for high abuse conditions
- Available with push/pull trim, perfect for hospital applications
- Status indicator options provide peace of mind on the locked/unlocked status of a door

Innovation

- First in the industry to offer a multi-functional lockbody that embodies 8 functions in 1 lockbody
- Easy operation. Only 30° of lever rotation required to retract latchbolt
- Lever springs contained inside of the lock case for easier installation
- SARGENT's revolutionary MicroShield® available. This antimicrobial silver-based finish coating permanently suppresses the growth of bacteria, algae, fungus, mold and mildew. EPA and NSF approved and FDA listed
- Broad offering of electro-mechanical configurations offer higher security for the most demanding access/egress control applications featuring Electrolynx® quick connectors

Security

- Multiple security trim options available: free-wheeling, security escutcheon and anti-vandal pull trim
- Security key systems available (Degree, Signature, Keso, Keso F1, & XC)



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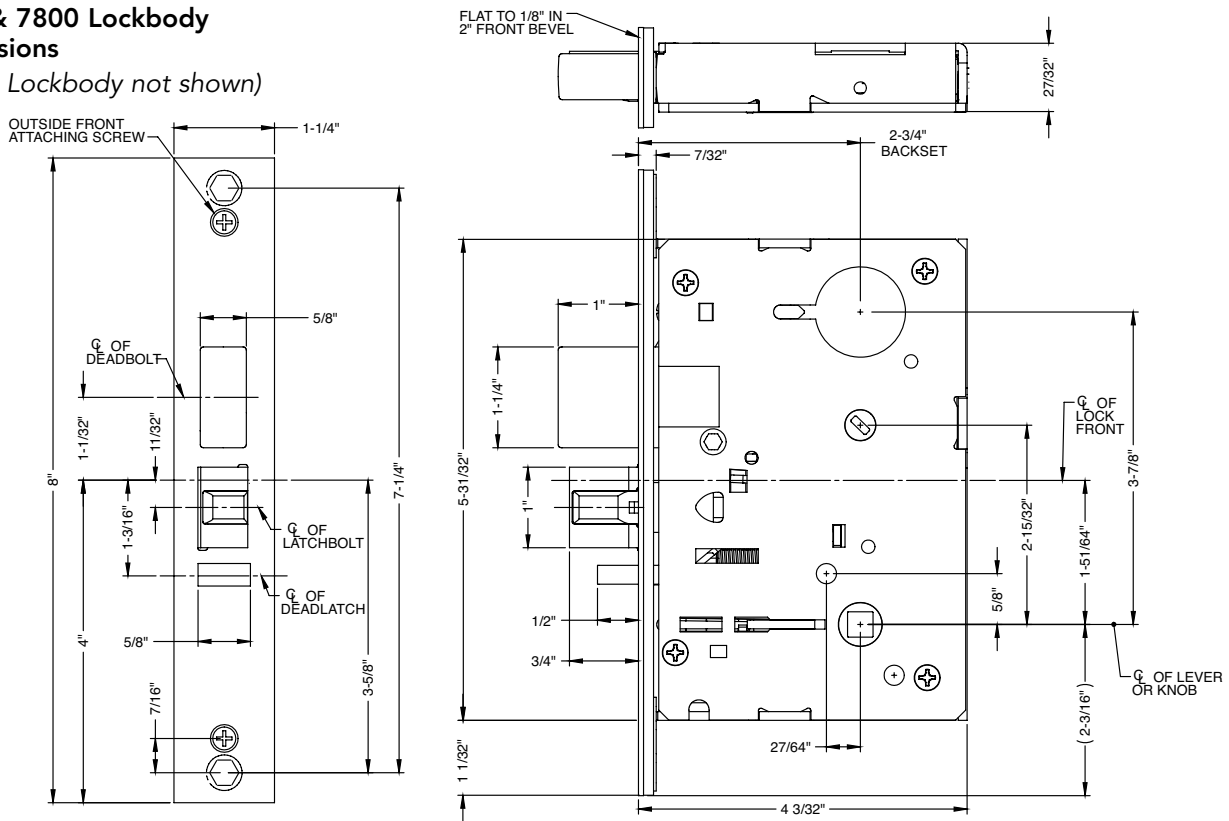
Features

8200/R8200/7800 Series Mortise Locks

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8200 & 7800 Lockbody Dimensions

(R8200 Lockbody not shown)



Note: R8200 and 8200 lockbodies are dimensionally the same except for the through-bolt locations

Explanation of the 8200/7800 Lockbody types:

Lockbody Type ¹	Trim Available x Lockbody type	Standard 8200 Door Prep	Through Bolted Trim	Multi-function lockbody available	How to order lockbody only
8200	Lever x Rose/Escutcheon	Yes	Yes	Yes	82 x Function x Finish ³
7800	Knob x Rose/Escutcheon	Yes	Yes	Yes	78 x Function x Finish ³
R8200	Simpli™ roseless trim	No	Yes ²	Yes	R82 x Function x Finish ³
8200 for ALP	ALP Push/Pull Trim	Yes	Yes	Yes	Six Digit Part # determined by function*
7800 PT	PT Push/Pull Trim	Yes	Yes	Yes	Six Digit Part # determined by function*

¹ Lockbodies can only be used with the specified trim

² Through Bolt locations are different from standard trim, special door prep required

³ **Note:** Cylinder and trim not included. Outside front, strike and screw pack are included

* See Price book; **Note:** Outside Fronts, Strikes, Cylinders and Trim are NOT included

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Indicators

7800/8200 Series Mortise Locks



Applications

7800/8200 Series indicators can be used in a variety of applications and are most commonly used to identify occupancy or display the locked/unlocked status of a room.

- Restrooms
- Quiet rooms
- Nursing mother's rooms
- Classroom doors



Features

- Inside, outside or both sides of the door
- Sectional or escutcheon trim
- Available with 35 different functions – including thumbturn functions
- Viewing window 25% larger than competition
- Patented curved design for viewing at multiple angles
- Window located prominently above the cylinder
- Highly reflective viewing window for increased safety
- Optional directional engraving available – must specify handing
- Retrofittable for existing applications

Functions

Indicators are available with the following 7800 and 8200* Series functions. See pages 19-28 for details.

05	37	52
12	38	56
20	39	57
21	40	58
22	41	59
24	42	65
25	43	66
26	45	67
28	46	68
29	47	NAC-PHR-82281
30	50	NAC-PHR-82285
36	51	

* Indicators can retrofit to 8200 series mortise locks manufactured from the year 2002 to present.

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Indicators

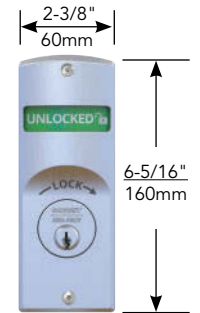
7800/8200 Series Mortise Locks



Sectional Trim

- Surface mounted
- Torx security screws provided
- Compatible with select sectional trim rose designs: O, LN, E, TR, CR, CO, TO, E2, E3
- Compatible with all thumbturn designs
- Available with optional directional arrow engraving
- Not compatible with BHW, BHL, or BHD trims

Specify option code when ordered with lock. See page 35 for indicator codes.



Retrofit/Upgrade Kits

Retrofit/upgrade kits are available for existing applications only. Each kit includes single side indicator plate with mechanism, screw pack, plastic template and instructions.

To order retrofit/upgrade kits only, specify by model number below based upon function and mounting location. Door thickness and indicator option code must also be specified with kit.

Kits are handed and easily field reversible. All units are shipped from the factory with a default handing. Handing must be field verified and adjusted as needed per product installation instructions.

Retrofit/upgrade kits with directional engraving must include lock handing and lock function details.

See page 36 for how to order examples. **Note: Indicators for both sides of door require two kits.**

	Model #	Used with Functions	Available Option Codes	Indicator Location*
	SA190	20, 21, 22, 24, 25, 26, 28, 29, 30, 39, 40, 41, 43, 45, 46, 47, 50, 51, 52, PHR-NAC-82281	Outside Trim: V10, V20, V30, V40, V50, V60 Inside Trim: V01, V03, V04, V06	Inside and/or Outside per Function
	SA191	36, 56, 57, 58, 67		
	SA192	05, 37, 38, 42, 59		
	SA193	65, 66, 68	V10, V20, V30, V40, V50, V60	Outside
	SA194	21, 24, 25, 28, 43, 45, 47, 50, 51, 66, 68, PHR-NAC-82281, PHR-NAC-82285	V01, V03, V04, V06	Inside
	SA196	12, 56, 57, 58, 65, 67		
	SA198	05		
	SA197	12, 30, PHR-NAC-82285	Outside Trim: V10, V20, V30, V40, V50, V60 Inside Trim: V01, V03, V04, V06	Inside or Outside per Function

*When indicators are required on both sides of the door, 2 upgrade kits must be ordered, one kit for each side.



Indicators

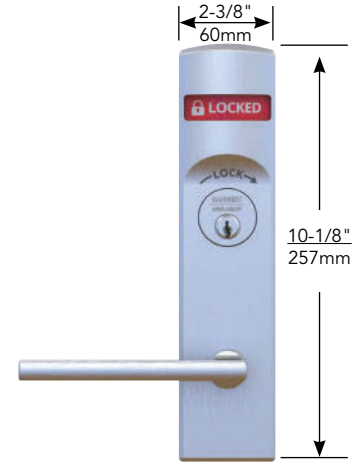
7800/8200 Series Mortise Locks



Escutcheon Trim

- Unique escutcheon (VN1) for both inside and outside of door for indicator functions
- Non-indicator functions provide with standard escutcheons as ordered, i.e. LE1, LE2, LE3, LE4, LW1, LS or WT
- Through-bolted
- Torx security screws optional
- Compatible with all thumbturn designs
- Available with optional directional arrow engraving
- Not compatible with select knob/lever designs: C, MK, MT, H001, H002, H003, H004, H005, H006, H007, H008, H009, H010, H011

Specify option code when ordered with lock. See page 35 for indicator option codes.



Trim Kits

Complete trim kits are available to retrofit/upgrade existing applications.

Trim kit includes levers and escutcheons with mechanism for both sides of door, screw pack, door marker and instructions.

To order trim kit only, specify by adding option code IS and the indicator option code (see pg. 35 for codes) to the complete order string. The IS option code will be used for all trim kits for the VN1 escutcheon with indicators. Both inside and outside will be supplied.

Option Code	Functions
IS	All functions*

*Escutcheon indicator trim kits available for all functions as listed on page 32

Note: Escutcheon applications require both sides of the door to have the unique VN1 escutcheon. Kits will be provided as a set.

How to Order Example

Option Codes	Function	Escutcheon	Lever	Door Thickness	Hand	Finish
IS-V04-	8256*	VN1	L	1-3/4"	RH	26D

* The function of the existing lock is required so the proper escutcheons can be provided.

Office & Inner Entry Lock x escutcheon trim x inside indicator - Unlocked/Locked – Red/White x trim only.

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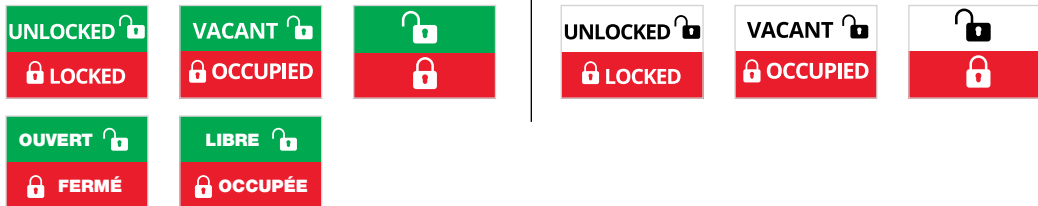
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Indicators

7800/8200 Series Mortise Locks

Indicator Option Codes

7800/8200 Series indicator option codes are designed to convey wording, color and side of door desired in one simple code. To order, specify option code for complete locksets and/or retrofit/upgrade trim kits.



Single Indicator			
Option Code	Outside Wording	Inside Wording	Color
V10	Unlocked/Locked	No Indicator	Green/Red
V10F	Ouvert/Fermé	No Indicator	Green/Red
V20	Vacant/Occupied	No Indicator	Green/Red
V20F	Libre/Occupée	No Indicator	Green/Red
V30	Icons Only	No Indicator	Green/Red
V40	Unlocked/Locked	No Indicator	White/Red
V50	Vacant/Occupied	No Indicator	White/Red
V60	Icons Only	No Indicator	White/Red
V01	No Indicator	Unlocked/Locked	Green/Red
V01F	No Indicator	Ouvert/Fermé	Green/Red
V03	No Indicator	Icons Only	Green/Red
V04	No Indicator	Unlocked/Locked	White/Red
V06	No Indicator	Icons Only	White/Red
Double Indicator			
Option Code	Outside Wording	Inside Wording	Color
V11	Unlocked/Locked	Unlocked/Locked	Green/Red
V11F	Ouvert/Fermé	Ouvert/Fermé	Green/Red
V21	Vacant/Occupied	Unlocked/Locked	Green/Red
V21F	Libre/Occupée	Ouvert/Fermé	Green/Red
V33	Icons Only	Icons Only	Green/Red
V44	Unlocked/Locked	Unlocked/Locked	White/Red
V54	Vacant/Occupied	Unlocked/Locked	White/Red
V66	Icons Only	Icons Only	White/Red
Engraving			
Option Code	Outside	Inside	Wording
EMA	Engraving	No Engraving	"Lock" with arrow
EMB	No Engraving	Engraving	"Lock" with arrow
EMC	Engraving	Engraving	"Lock" with arrow

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Indicators

7800/8200 Series Mortise Locks

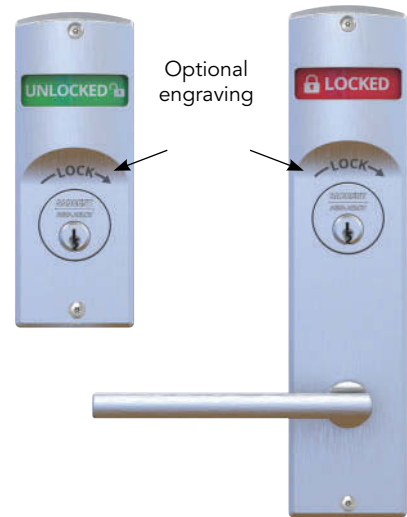


Engraving Options

- Laser engraving with "LOCK" and directional arrow
- Only available in the following finishes: 3, 4, 14, 15, 26, 26D, 32, 32D
- Available with MicroShield®
- Door handing must be specified

Option Code	Description
EMA	Engraving located on outside of door
EMB	Engraving located on inside of door
EMC	Engraving located on inside and outside of door

Note: Engraving is available as an option for all functions when ordered with an indicator. Option codes must be specified with complete lock and/or retrofit (upgrade) kits/trim. EMC is not available with sectional trim upgrade kits.



How to Order Examples

Complete with Lock

Sectional Trim

Option Code	Function	Rose	Lever	Hand	Finish
V04	8238	O	L	RH	26D

Escutcheon Trim

Option Code	Function	Escutcheon	Lever	Hand	Finish
V54 x EMB	8265	VN1	L	RH	26D

Privacy Bedroom/Bath function x escutcheon trim x double indicator - Vacant/Occupied – Red/White (Outside) Unlocked/Locked – Red/White (Inside)

Retrofit (Upgrade)/Trim Kit Only

Sectional Trim*

Option Code	Model #	Door Thickness	Finish
V04	SA190	1-3/4"	26D

Keyed function indicator for sectional trim x single indicator inside – Unlocked/Locked – Red/White

* When indicators are required on both sides of the door, 2 upgrade kits must be ordered, one kit for each side. All units are shipped from the factory with a default handing. Handing must be field verified and adjusted as needed per product installation instructions.

Escutcheon Trim

Option Codes	Function	Escutcheon	Lever	Door Thickness	Hand	Finish
IS-V04-	8256**	VN1	L	1-3/4"	RH	26D

Office & Inner Entry Lock x escutcheon trim x inside indicator - Unlocked/Locked – Red/White x trim only.

** The function of the existing lock is required so the proper escutcheons can be provided.



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Sectional Trim Only Indicators

The following indicators are available with sectional trim only and have different features and options than the indicators found on pages 32-36. To order the following sectional indicators with locksets, specify option codes 49- or 50-.

49- Option Visual Status Indicator for Non Secure Applications

- Designed to work with Classroom security functions
- Red/White indicator plate standard
- Mounts on inside of door
- Functions and Roses available:
 - 30, 36 & 37 Functions with 7800, 8200 and R8200 locks, CR, L, LN, TR, E & O Roses
 - 26, 29, 38, 39, 40 and 41 Functions with 7800, 8200, and R8200 locks & LN Roses Only
- As retrofit, order 185C x finish

Inside Only



185C

49- Option Occupancy Indicator with Emergency Release

- Ideal for restrooms or conference rooms where easy determination of use needs to be made
- OCC/VAC indicator plate standard
- Mounts on outside of door
- Emergency coin operated release standard
- Functions and Roses available:
 - 65, 66, 68 Functions with 7800, 8200, and R8200 locks, CR, E, L, LN, O & TR Roses
- As retrofit, order 185P x finish



185P

50- Option Secured Indicator Rose

- Non-handed with lever and mounting posts field reversible
- VAC/OCC indicator plate standard
- Mounts on outside of door
- Available for the following functions: 24, 25, 26, 28, 29, 30, 36, 37, 38, 39, 40, 41, 43, 45, 50, 51, 52, 57, 58, 67 - with Rose Trim only
- Patent pending and/or patent www.assaabloydss.com/patents
- Not available with Roseless trim (R8200)
- For retrofit, order 185S x suffix x finish:



Suffix	Door Thickness
-1	1-3/8" (35mm)
-2	1-3/4" (44mm)
-3	2" (51mm)
-4	2-1/4" (57mm)

Note: For 49- and 50- Options, key will not retract latch when used with 37 and 38 functions



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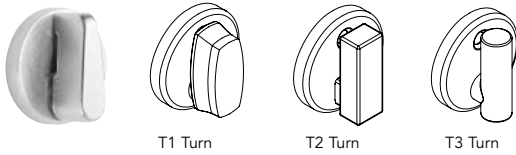
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Thumbturn Designs

8200/R8200/7800 Series Mortise Locks

130KB Round Backplate

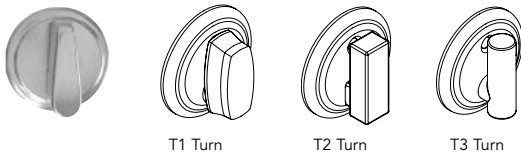
(Shown with Standard Turn)



- Round backplate supplied standard with L, O, LN roses and R8200 roseless trim
- Standard turn automatically supplied with sectional trim for R8200 & 8200 locks
- Specify T1, T2 or T3 as an option for decorative turns
- 1-1/2" (38mm) round brass or stainless steel plate
- Meets ADA Requirements

130KT Traditional Backplate

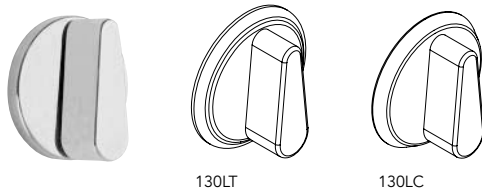
(Shown with Standard Turn)



- Dual radii edge backplate supplied standard with TO and TR roses
- Standard turn automatically supplied with sectional trim for R8200 & 8200 locks
- Specify T1, T2 or T3 as an option for decorative turns
- 1-3/4" (44mm) round brass plate
- Meets ADA Requirements

130LB Large Round Backplate

(Shown with Large ADA Turn)



- Available with R8200 & 8200 with sectional trim
- 40% larger than standard thumbturn
- Specify LB as an option for ADA turn
- 2" (51mm) round brass, zinc, or stainless steel plate & turn
- 130LT - Traditional backplate, 130LC — Contemporary backplate
- Meets ADA Requirements

126 T-Turn

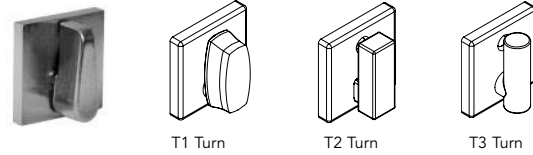
(7892 function only)



- 2-3/16" (56mm) round stainless steel backplate
- 2-3/8" (61mm) tall thumbturn
- Available in brass or bronze finishes only
- Surface mounted with three screws
- Order as "SST" trim with 7892 function

130KA Square Backplate

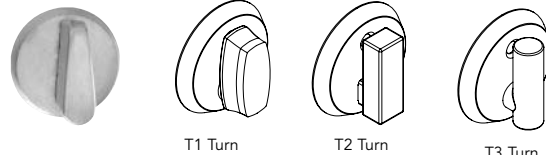
(Shown with Standard Turn)



- Square backplate supplied standard with E, E2, E3 or E4 roses
- Standard turn automatically supplied with sectional trim for R8200 & 8200 locks
- Specify T1, T2 or T3 as an option for decorative turns
- 1-1/2" (38mm) round brass or stainless steel plate
- Meets ADA Requirements

130KC Contemporary Backplate

(Shown with Standard Turn)



- Beveled edge backplate supplied standard with CO and CR roses
- Standard turn automatically supplied with sectional trim for R8200 & 8200 locks
- Specify T1, T2 or T3 as an option for decorative turns
- 1-3/4" (44mm) round brass or stainless steel plate
- Meets ADA Requirements

130KBHA Turn for use with 8200 Mortise BHW, ALP, BHL and BHD Trim



- 3-3/4" x 2-1/2" rectangular shape
- Stainless steel housing
- Meets ADA and OMH Requirements

130W Round Backplate

(Shown with Standard Turn)



- Used with 7800 with sectional trim
- 1-1/2" (38mm) round brass or stainless steel plate



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Emergency Releases & Accessories

8200/R8200/7800 Series Mortise Locks

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Emergency Releases

184KB Emergency Release (used with R8200 & 8200 with sectional trim)



- 1-1/2" (38mm) round brass, bronze or stainless steel plate
- For 65, 66 and 68 functions only

Studio Collection Emergency Release

- 184KC Emergency Release Contemporary
- 184KT Emergency Release – Traditional

184W Emergency Release (used with 7800 with sectional trim)



- 1-1/2" (38mm) round brass, bronze or stainless steel plate
- For 65, 66 and 68 functions only

184KA Emergency Release (used with E rose)



- 1-1/2" (38mm) square brass, bronze or stainless steel plate
- For 65, 66 and 68 functions only

Emergency Key 14-0057



- Carbon steel
- For 65, 66 and 68 functions only
- Must be ordered separately

184KBHA Emergency Release (used with BHW, ALP, BHL and BHD trim)



- 3-3/4" x 2-1/2" rectangular shape
- Stainless steel housing
- Meets ADA and OMH Requirements

Accessories

130KBCVR Cap



- Thumbturn plate
- Covers hole in door when thumb turn is no longer needed

82-4023 Cap



- 2" round
- Covers hole for levers and roses

Door Thickness	Part Number
1-3/8"	82-4022
1-3/4"	82-4023
2"	82-4024
2-1/4"	82-4025

Trim One Side Kit

Refer to page 51 for a complete list of kits



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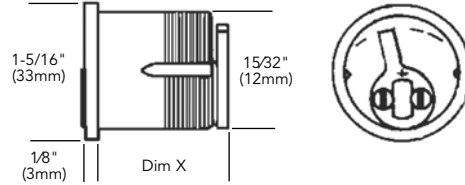
Cylinder Lengths (Dim X)

Cylinder No.	41	42	43	44	46	48	50	52	54	56
Dim X Length Under Cylinder Head	1-1/8" (29mm)	1-1/4" (32mm)	1-3/8" (35mm)	1-1/2" (38mm)	1-3/4" (44mm)	2" (51mm)	2-1/4" (57mm)	2-1/2" (64mm)	2-3/4" (70mm)	3" (76mm)

40 Series Type Cylinder



- Cylinder body: Solid brass
- Cap: Brass, bronze or stainless steel
- All functions take a Standard Cam Functions
- Standard Cam 13-0664
- 16 & 92 Inside Cam -105
- 50 Hotel Cam -115 supplied standard with all Hotel Function Cylinders



7850/8250 Function Hotel Cylinder



- When door is locked by deadbolt, only emergency key is able to unlock
- Must request emergency key separately (7268EMK x reg #)
- Supplied with Cam suffix -115 for Hotel Functions

10- Option Signature Series



- The protected system offers the building owner full control over duplication of keys. Highly pick-resistant cylinders
- 10-63- Option — Signature cylinder with Large Format Interchangeable Cores

78- Option Exposed Barrel



- Standard for use only with SARGENT Escutcheon Trims KE3, KE4, LE3, LE4
- Available 6-Pin standard or 7-Pin optional
- NOT available with 50-, 60-, 70- or other specialty or higher security options
- See function table for cam required
- Not available in 50 function
- Plug finishes: 4, 15 (similar to 26 finish)

F1-82- and 82- Option KESO



- The system offers the building owner full control over duplication of keys
- Highly pick-resistant cylinders
- Expanded levels of masterkeying
- F1-83- & 83- Option — Keso removable core
- 84- Option — Keso construction core cylinder

124 Series Mortise Cylinder Turn Lever



- Turn lever: Brass, bronze or aluminum
- Cap: Brass, bronze or stainless steel
- Must be ordered separately

11- Option XC Key System



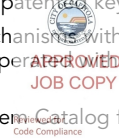
- Key system works with existing SARGENT keyway adding increased security
- 11- XC standard cylinder
- 11-63- Large format interchangeable core
- 11-73- Small format interchangeable core

DG1, DG2, DG3 - Degree Series



- Utility patented, bump resistant and requires the use of a patented key
- All three locking mechanisms within the same system to be operated with just one key
- See Degree Key System Catalog for available options

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Cylinders & Rosettes

8200/R8200/7800 Series Mortise Locks

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51- Option Old Style Removable Core



- Available for **existing systems only** Permanent Removable Cores
- Control key used to remove core, must request control key separately

60- or 70- Option Plastic Construction Core



- For doors that do not require key locking during the construction period
- Operate with coin or flat screw driver
- For use with LFIC (removable) (60-Option) or SFIC (70-Option) core

63- Option Large Format Interchangeable (Removable) Core



- Allows immediate removal of the core. Virtually unlimited key changes
- Available 10-63-, 11-60-, 11-63- & 11-64-
- For disposable core, see 70- Option
- 64- Option- LFIC 6-Pin construction core
- Control key used to remove core, must request control key separately

7300B Interchangeable Core



- Small Format Interchangeable Core (SFIC)
- SARGENT Interchangeable Core cylinders and MasterKey Systems are available for increased security through quick change of keying. It is unnecessary to remove a cylinder
- SARGENT 7300B Interchangeable Cores are available in SARGENT 4A and 4B keyways, as well as the following standard competitor keyways: A, B, C, D, E, F, G, H, J, K, L, M
- For disposable core, see 70- Option
- 65-73 Option — 6-Pin SFIC uncombined
- 65-73-7P Option — 7-Pin SFIC - uncombined
- 70- Option — Disposable SFIC
- 72- Option — Construction SFIC
- 11-72- Construction core provided for use with 11-7300 cylinder housing 11-70- temporary plastic core prepared to accept 11-7300 core
- 73- Option — 6-Pin SFIC, SARGENT 4A, 4B keyways
- 73-7P Option — 7-Pin SFIC, SARGENT 4A, 4B keyways
- Control key used to remove core (ordered separately)

1SB Cylinder Collar



- Standard for 7800 BHD, 8200 BHL & BHW mortise locks
- Stainless steel
- 1-29/32" diameter
- Available in 4 sizes
- Projection from door:

1SB-1	5/16" (8mm)
1SB-2	7/16" (11mm)
1SB-3	9/16" (14mm)
1SB-4	11/16" (16mm)
- Finishes: 32, 32D

21- Option Lost Ball Construction System

- The SARGENT construction keying system protects the building owner by providing temporary masterkeying during the construction period

1KB Rosette with 8200 & R8200 sectional trim



- Used with mortise cylinders and No. 90 blocking rings when cylinders project from door
- Furnished standard with L, O, LN, CO, CR, TO and TR roses
- Brass, bronze or stainless steel
- 1-1/2" (38mm) diameter, includes compression spring
- Finishes: 3, 4, 10, 10B, 10BE, 10BL, 20D, 26, 26D, 32, 32D, BSP, WSP
- Projection from door:

1KB-1	5/16" (8mm) — Standard
1KB-2	7/16" (11mm)
1KB-3	9/16" (14mm)
1KB-4	11/16" (16mm)

1KA Rosette with 8200 sectional trim



- Used with mortise cylinders
- Furnished standard with the E, E2, E3 and E4 roses
- Brass, bronze or stainless steel
- 1-1/2" (38mm) Square, includes compression spring
- Projection from door:

1KA-1	5/16" (8mm) — Standard
1KA-2	7/16" (11mm)
1KA-3	9/16" (14mm)
1KA-4	11/16" (16mm)
- Finishes: 3, 4, 10, 10B, 10BE, 10BL, 20D, 26, 26D, 32, 32D, BSP, WSP

No. 97 Rosette



- Standard for cylinders ordered separately from hardware
- Standard for 7800 knob mortise & 4870 deadbolt
- Brass, bronze or stainless steel
- 1-11/16" diameter (43mm), 9/32" (7mm) projection, includes compression spring
- Finishes: 3, 4, 10, 10B, 10BE, 10BL, 20D, 32, 32D, BSP, WSP

No. 90 Blocking Ring



- Used with 1KB rosettes as spacer when mortise cylinder projects from face of door
- Brass, bronze or stainless steel
- Finishes: 3, 4, 10, 10B, 10BE, 10BL, 20D, 26, 26D, 32, 32D, BSP, WSP

1KB-5 Cylinder Retaining Cap



- Required for double cylinder functions on LS Escutcheon only
- Steel or stainless steel
- 1-15/32" (37mm) diameter
- 9/16" (14mm) projection
- Finishes: 3, 4, 9, 10, 10B, 10BE, 10BL, 20D, 26, 26D, 32, 32D, BSP, WSP

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41

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Rosette Requirements & Cams

8200/R8200/7800 Series Mortise Locks

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Single Cylinder

Sectional Trim (CO, CR, L, LN, O, PT, SL, SN, TO, TR)

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KB-2	1KB-1	1KB-1	N/A
42	1KB-3	1KB-2	1KB-2	1KB-1
43	1KB-4	1KB-3	1KB-3	1KB-3

Double Cylinder

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KB-3	1KB-2	1KB-1	N/A
42	1KB-4	1KB-3	1KB-2	1KB-1
43	97-0352	1KB-4	1KB-3	1KB-2

Sectional Trim (E, E2, E3, E4)

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KA-2	1KA-1	1KA-1	N/A
42	1KA-3	1KA-2	1KA-2	1KA-1
43	1KA-4	1KA-3	1KA-3	1KA-3

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KA-3	1KA-2	1KA-1	N/A
42	1KA-4	1KA-3	1KA-2	1KA-1
43		1KA-4	1KA-3	1KA-2

Escutcheon Trim (CE, KE1, KE2, KW1, LE1, LE2, LW1, TE)

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KB-1	Cylinder Only	Cylinder Only	Cylinder Only
42	1KB-2	1KB-1	Cylinder Only	Cylinder Only
43	1KB-3	1KB-1	1KB-1	Cylinder Only

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KB-2	90 1/8	Cylinder Only	Cylinder Only
42	1KB-3	1KB-2	1KB-1	Cylinder Only
43	1KB-4	1KB-3	1KB-2	90 1/8

Escutcheon Trim (WT)

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	97	Cylinder Only	Cylinder Only	Cylinder Only
42	1SB-2	97	Cylinder Only	Cylinder Only
43	1SB-3	97	97	Cylinder Only

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1SB-2	97	Cylinder Only	Cylinder Only
42	1SB-3	1SB-2	97	Cylinder Only
43	1SB-4	1SB-2	1SB-2	97

Specialty Hardware (BHW, BHL, BHD, ALP)

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1SB-2	1SB-1	1SB-1	N/A
42	1SB-3	1SB-2	1SB-2	1SB-1
43	1SB-4	1SB-3	1SB-3	1SB-3

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1SB-3	1SB-2	1SB-1	N/A
42	1SB-4	1SB-3	1SB-2	1SB-1
43	1SB-4	1SB-4	1SB-3	1SB-2

Sectional and Escutcheon Trim with V Series Indicators

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	Cylinder Only	Cylinder Only	N/A	N/A
42	1KB-1	Cylinder Only	Cylinder Only	N/A
43	1KB-2	1KB-1	Cylinder Only	Cylinder Only

Cylinder Size	Door Thickness			
	1-3/8"	1-3/4"	2"	2-1/4"
41	1KB-1	Cylinder Only	N/A	N/A
42	1KB-1	1KB-1	Cylinder Only	N/A
43	1KB-2	1KB-1	1KB-1	Cylinder Only

Cylinder Cams For Mortise Locks

SARGENT Conventional Cylinders

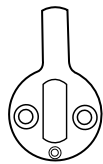
- Standard



Std Cam
(13-0664)
for all functions except for 50 and the Inside cam for 16 & 92 function locks



-105 Cam
(13-0665)
16 & 92 Function Inside Cylinder Cam



-115 Cam
(13-2045)
50 Function Hotel Cam, supplied with 50 function cylinders



Std 6300 Cam
for all functions except for 50 and the Inside cam for 16 & 92 function locks



-105 Cam
for 6300 Series 16 & 92 function I/S Cylinder



-115 Cam
for 6300 Series 50 (Hotel) function, supplied with 50 function cylinders

SARGENT Large Format Interchangeable Core Cylinders

- 6300 Cams are factory installed and are not removable
- 6300 Cams are not sold separately
- Specify required Cam as a suffix: 63-44-105 cam
- For Standard Cam: no suffix is required

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See Cylinder catalogs for additional information

42

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ADA and Handicap Warning

8200/R8200/7800 Series Mortise Locks

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ADA and Handicap Warning

Lever Return to Door



- Lever designs H002, H005, H006, H016, J, L, MX, MW, MZ, ND, NF, NJ, NS, NU, P
- Lever returns within 1/2" (13mm) of door face or less
- Meets ADA Compliance for national codes

Tactile Handicapped Warning



- Abrasive Coating: Options 85-, 86- & 87-
 - Complete lever abrasive coated
- Milled 1/16" Grooves: Options 75-, 76- & 77-
 - B, E, J, L, P and W Levers — Grooves on backside surface of lever
 - F Lever — Grooves on top and bottom surface of lever

Standard Thumbturn



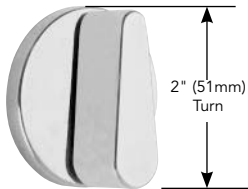
- Meets ADA Compliance for national codes
 - Order as: 130KB, 130KC, 130KT, 130W or 130KA x finish
- See page 38 for design

Tactile Handicapped Warning



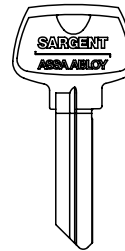
- Knurled B & C Knobs available ; options 75-, 76-, & 77-
- Knobs are NOT ADA compliant

LB - Thumbturn



- Meets the tougher local ADA requirements
 - 40% larger than standard thumb turn
 - Order as: 130LB, 130LC or 130 LT x finish
- See page 38 for design

Keys



- Large key bows are available in Sargent C family of keyways
- Standard key bows can have attachments added to increase the grip area
- Keys are NOT ADA compliant

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Mechanical Options

8200/R8200/7800 Series Mortise Locks

Mechanical Options:

Available mechanical options by lock type

Categories	How to Specify	Detailed Description	8200	R8200	7800
1-3/8" Door	1-	1-1/16" (27mm) wide front for 1-3/8" (35mm) doors (not available with RX-Option) (1- for 93 + 94 function is a special order)	X	—	X
Add Strength	3-	Stainless steel hubs with in the mortise lock	X	—	—
Strike Option	23-	4-7/8" (124mm) ANSI flat lip strike	X	X	X
	OBS-	Open back strike	X	X	X
	WBS-	Wrought box strike	X	X	X
Thick Doors	31-	For doors 1-7/8" (48mm) to 2-1/4" (57mm) thick — see cylinder options for limitations on door thickness. When ordering the following information is required: Location of lock within the door, door thickness -IF paneled -must specify panel thickness & panel location (inside or outside of the door) For doors thicker than 2-1/4" — consult factory.	X	X	X
Security Fasteners	36-	6 Lobe head security screws (Torx® type)	X	—	X
	37-	Spanner head security screw (not available with Studio levers)	X	—	X
Visual Indicators	49-	Visual Status Indicator or Occupancy indicator with emergency release (not available with escutcheon trim)	X	X	X
	50-	Secured indicator rose (available with rose trim only)	X	—	X
	V10	Single Indicator Outside - Unlocked/Locked - Green/Red	X	—	X
	V20	Single Indicator Outside - Vacant/Occupied - Green/Red	X	—	X
	V30	Single Indicator Outside - Icons Only - Green/Red	X	—	X
	V40	Single Indicator Outside - Unlocked/Locked - White/Red	X	—	X
	V50	Single Indicator Outside - Vacant/Occupied - White/Red	X	—	X
	V60	Single Indicator Outside - Icons Only - White/Red	X	—	X
	V01	Single Indicator Inside - Unlocked/Locked - Green/Red	X	—	X
	V03	Single Indicator Inside - Icons Only - Green/Red	X	—	X
	V04	Single Indicator Inside - Unlocked/Locked - White/Red	X	—	X
	V06	Single Indicator Inside - Icons Only - White/Red	X	—	X
	V11	Double Indicator - Unlocked/Locked - Green/Red (Outside) Unlocked/Locked - Green/Red (Inside)	X	—	X
	V21	Double Indicator - Vacant/Occupied - Green/Red (Outside) Unlocked/Locked - Green/Red (Inside)	X	—	X
	V33	Double Indicator - Icons Only - Green/Red (Outside) Icons Only - Green/Red (Inside)	X	—	X
	V44	Double Indicator - Unlocked/Locked - White/Red (Outside) Unlocked/Locked - White/Red (Inside)	X	—	X
	V54	Double Indicator - Vacant/Occupied - White/Red (Outside) Unlocked/Locked - White/Red (Inside)	X	—	X
	V66	Double Indicator - Icons Only - White/Red (Outside) Icons Only - White/Red (Inside)	X	—	X
	EMA	Outside Engraving with "Lock" and Directional Arrow	X	—	X
	EMB	Inside Engraving with "Lock" and Directional Arrow	X	—	X
EMC	Engraving Both Sides with "Lock" and Directional Arrow	X	—	X	
Visual Indicators - French	V10F	Single Indicator Outside - Ouvert/Fermé - Green/Red	X	—	X
	V20F	Single Indicator Outside - Libre/Occupée - Green/Red	X	—	X
	V01F	Single Indicator Inside - Ouvert/Fermé - Green/Red	X	—	X
	V11F	Double Indicator - Ouvert/Fermé - Green/Red (outside) Ouvert/Fermé - Green/Red (inside)	X	—	X
	V21F	Double Indicator - Ouvert/Fermé - Green/Red (outside) Libre/Occupée - Green/Red (inside)	X	—	X

* Available on 15, 26D, and 32D Finishes only

** Not available in combination



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Mechanical Options

8200/R8200/7800 Series Mortise Locks



Categories	How to Specify	Detailed Description	8200	R8200	7800
Electrical Options	DX-	Deadbolt monitoring — Monitor deadbolt position (not available with LX-)	X	X	X
	LX-	Latchbolt monitor — Monitors latchbolt position (not available with deadbolt functions)	X	X	X
	RX-**	Request to Exit — Monitors each lever independently (not available with LB-option)	X	X	X
	TL-	SARGuide illuminated inside WT trim with the word EXIT illuminated (4-1/2" pocket depth required)	X	—	—
Lever/Knob Combination	68-	8200 Lock furnished w/lever handle outside x knob inside (not available with the AV-Option or FE Trim)	X	—	—
	69-	8200 Lock furnished w/lever handle inside x knob outside (not available with the AV-Option or FE Trim)	X	—	—
Lead Lining	74-2	Lead lining or wrapping available with sectional trim only (not available with DX-or LX-Options)	X	—	X
Tactile Warnings	75-	Tactile Warning — Milled levers or knurled knobs. Inside trim only (not available with Studio & Coastal levers, the A lever & K, N & D knobs)	X	—	X
	76-	Tactile Warning — Milled levers or knurled knobs. Outside trim only (not available with Studio & Coastal levers, the A lever & K, N & D knobs)	X	—	X
	77-	Tactile Warning — Milled levers or knurled knobs. Inside & outside trim (not available with Studio & Coastal levers, the A lever & K, N & D knobs)	X	—	X
	85-3	Tactile Warning — Abrasive coating inside trim only (not available with D knobs)	X	X	X
	86-3	Tactile Warning — Abrasive coating outside trim only (not available with D knobs)	X	X	X
	87-3	Tactile Warning — Abrasive coating inside & outside trim (not available with D knobs)	X	X	X
Anti-Vandal Trim	AV-	Anti-Vandal pull trim (not available with LS & FE trim and Options 1-, 31-, 49-, 50-, 68-, 69-, 76-, 77-, 86-, 87-, DX-or SG-)	X	—	X
Finish Protection	CPC-	Clear Powder Coat (available for 32 & 32D finishes)	X	X	X
	SG-1	MicroShield® antimicrobial clear powder coat	X	X	X
Thumbturns (See page 38)	LB-	ADA Extra large thumbturn; backplate matches rose design chosen	X	X	X
	T1-	Decorative thumbturn; backplate matches rose design chosen	X	X	—
	T2-	Decorative square thumbturn; backplate matches rose design chosen	X	X	—
	T3-	Decorative cylinder thumbturn; backplate matches rose design chosen	X	X	—

- 1 Available on 15, 26D, and 32D Finishes only
- 2 Not available in combination
- 3 Entire lever surface provided with abrasive coating

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Cylinder Options

8200/R8200/7800 Series Mortise Locks

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Cylinder Options:

Categories	How to Specify	Detailed Description	Cylinder Sizes Available
Conventional Cylinder		SARGENT Conventional Cylinders supplied standard	41-44,46,48,50,52,54,56
Degree Key System	DG1-	SARGENT Degree Key System Level 1 (bump resistant with patented keys)	41-44, 46
	DG1-21-*	Degree Level 1 Construction Master Keying	41-44, 46
	DG1-60-	Degree Level 1 Removable Disposable Construction Core	41-44, 46
	DG1-63-	Degree Level 1 Removable Core	41-44, 46
	DG1-64-	Degree Level 1 Removable Construction Keyed LFIC	41-44, 46
	DG1-65-*	Degree Level 1 Unassembled/Uncombined Core	41-44, 46
	DG1-78-*	Degree Level 1 Exposed Plug (for use with LE3/LE4 escutcheons only)	41-43
	DG2-+*	SARGENT Degree Key System Level 2 (geographically exclusive; bump and pick resistant)	41-44, 46
	DG2-21-*	Degree Level 2 Construction Master Keying	41-44, 46
	DG2-60-*	Degree Level 2 Removable Disposable Construction Core	41-44, 46
	DG2-63-*	Degree Level 2 Removable Core	41-44, 46
	DG2-64-*	Degree Level 2 Removable Construction Keyed LFIC	41-44, 46
	DG2-65-*	Degree Level 2 Unassembled/Uncombined Core	41-44, 46
	DG3-+*	SARGENT Degree Key System Level 3 (geographically exclusive; UL437 certified; bump and pick resistant)	41-44, 46
	DG3-21-*	Degree Level 3 Construction Master Keying	41-44, 46
	DG3-60-*	Degree Level 3 Removable Disposable Construction Core	41-44, 46
DG3-63-*	Degree Level 3 Removable Core	41-44, 46	
DG3-64-*	Degree Level 3 Removable Construction Keyed LFIC	41-44, 46	
Signature Key System	10-*	SARGENT Signature Key System (not available with other key systems)	41-44,46,48,50,52,54,56
	10-21-*	SARGENT Signature Construction Key System (Lost Ball)	41-44,46,48,50,52,54,56
Signature Large Format Interchangeable Core (Removable Core)	10-63-*	SARGENT Signature LFIC (removable) Core Cylinder	42, 43, 44 & 46
XC- Key System	11-*	XC Key System (not available with other key systems, unless specified)	41-44,46,48,50,52,54,56
	11-21-*	XC- Construction Key System (Lost Ball)	41-44,46,48,50,52,54,56
XC- Large Format Interchangeable Core (Removable Core)	11-60-*	Hardware to accept XC- Permanent LFIC (removable core), disposable plastic core provided	42, 43, 44 & 46
	11-63-*	Hardware provided with XC- LFIC (removable core) cylinder (Includes masterkeying, grand masterkeying)	42, 43, 44 & 46
	11-64-*	Hardware provided with keyed construction core to accept XC- LFIC (removable) permanent core ordered separately	42, 43, 44 & 46
XC- Small Format Interchangeable Cores	11-70-7P-*	Hardware to accept XC- SFIC (7-Pin) XC- permanent cores, disposable plastic core provided	43 & 46
	11-72-7P-*	Hardware to accept XC- SFIC (7-Pin keyed construction core provided) cylinder permanent core ordered separately	43 & 46
	11-73-7P-*	Hardware provided with XC- Small format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)	43 & 46
	11-65-73-7P-*	Hardware provided to accept XC- Uncombined 7-Pin SFIC (permanent) core (packed loose)	43 & 46
Construction Key System	21-*	SARGENT Lost Ball Construction keying for conventional, XC and Signature Series (N/A with 63- or 73-)	—
	22-*	SARGENT Construction Split Key System for conventional cylinders (existing systems only) (N/A with 10-, 11-, 63- or 73-)	—
Old Style Removable Core	51-*	Removable core cylinder (Old style) provided (existing systems only)	142, 143, 144, 146
	52-*	Removable construction core (Old style) permanent core ordered separately (existing systems only)	142, 143, 144, 146

* Options not available with 50 function lockout cylinder

+ Not available with R8200 Series

Note: Interchangeable core and removable core cylinders do not meet Security Grade 1 requirements

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47

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Cylinder Options

8200/R8200/7800 Series Mortise Locks

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Cylinder Options:

Categories	How to Specify	Detailed Description	Cylinder Sizes Available
Large Format Interchangeable Core	60-	Hardware to accept SARGENT permanent LFIC (removable core), disposable plastic core provided (permanent cores ordered separately)	42, 43, 44 & 46
	63-	Hardware provided with LFIC (removable core) cylinder - (Includes masterkeying, grand masterkeying)	42, 43, 44 & 46
	64-	Hardware provided with Keyed construction core to accept LFIC (removable) permanent core (ordered separately)	42, 43, 44 & 46
Small Format Interchangeable Cores	70-*	Hardware to accept 6- or 7-Pin SFIC permanent cores, disposable plastic core provided	43 & 46
	72-*	Hardware to accept 6- or 7-Pin SFIC (keyed construction core provided) cylinder (permanent core ordered separately)	43 & 46
	73-*	Hardware provided with 6-Pin SFIC (Includes masterkeying, grand masterkeying)	43 & 46
	65-73-*	Hardware provided to accept uncombined 6-Pin SFIC (permanent) core — (packed loose for field keying)	43 & 46
	65-73-7P-*	Hardware provided to accept uncombined 7-Pin SFIC (permanent) core — (packed loose for field keying)	43 & 46
	73-7P-*	Hardware provided with Small Format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)	43 & 46
Keso & Keso F1	81-*	Hardware provided with housings to accept Keso (83) & Keso F1 (F1-83-) removable cores (permanent cores ordered separately)	172-174,176
	82-	Hardware provided with SARGENT Keso security cylinder	71-74,76
	F1-82-	Hardware provided with SARGENT Keso F1 security cylinder (patented)	71-74,76
	83-*	Hardware provided with SARGENT Keso security removable core cylinder	172-174,176
	F1-83-*	Hardware provided with SARGENT Keso F1 security removable core cylinder (patented)	172-174,176
	84-*	Hardware provided with SARGENT Keso construction cores (permanent cores ordered separately)	172-174,176
Additional Security	BR-	Bump resistant cylinder (available with conventional & conventional XC cylinders only)	—
Less Cylinder	LC-	Less cylinder – SARGENT supplies standard blocking rings for 1-1/8" cylinders (for longer cylinders order collars/rings separately)	—
Schlage Keyways	SC-^	Schlage C keyway cylinder, 0 bitted	#41 Only
	SE-^	Schlage E keyway cylinder, 0 bitted	#41 Only

^ Options not available with Freewheeling Trim

* Options not available with 50 function lockout cylinder

Note: When using Interchangeable Core Cylinders, the ANSI/BHMA Cylinder Grade determines the grade of the lock, even if the lock is certified ANSI/BHMA Grade 1 with a standard cylinder

Cylinder Length	SARGENT Cylinder Sizes	Keso Cylinder Sizes	Keso R/C Cylinder Sizes
1-1/8"	#41	#71	N/A
1-1/4"	#42	#72	#172
1-3/8"	#43	#73	#173
1-1/2"	#44	#74	#174
1-3/4"	#46	#76	#176
2"	#48	N/A	N/A
2-1/4"	#50	N/A	N/A
2-1/2"	#52	N/A	N/A
2-3/4"	#54	N/A	N/A
3"	#56	N/A	N/A



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How To Order, Finishes, Packaging & Security Screw Chart

8200 Series Mortise Locks

How to Order 8200, R8200 & 7800 Series Mortise Locks

10- Options*	82 Series	71 Function	12VDC Voltage	TR Roses/ Escutcheons	MJ Trim	15 Finish	RHR Hand
For all available options see Pages 45-48	82 R82 78 Mortise Lock	Pages 19-28 for Details	12VDC 24VDC	Pages 10-13 (With R8200, specify "R" for roseless design)	Levers — Pages 8-12 FW Trim — Page 14, Push/Pull Trim — Page 18, Knobs — Page 15	Page 49	RHR
			Must be specified for Functions 70, 71, 72 & 73				RH
							LHR
							LH

* Multiple options can be selected

Finishes

Standard Levers & Knobs	BHW Trim	BHL Trim	BHD Trim	Studio Collection Lever Trim	8200 Coastal Series™ Trim and 8200 Freewheeling Trim	7800 Push/Pull Trim	Description	ANSI/BHMA
03				03	03	03	Polished brass, clear coated	605
04				04	04	04	Satin brass, clear coated	606
09				09	09	09	Polished bronze, clear coated	611
10				10	10	10	Satin bronze, clear coated	612
10B				10B	10B	10B	Oxidized bronze, oil rubbed	613
10BE				10BE	10BE		Dark oxidized satin bronze, equivalent	(613E)
10BL				10BL	10BL		Oxidized satin, bronze, clear coated	614
14				14	14		Polished nickel, clear coated	618
15 *				15 *	15 *		Satin nickel, clear coated	619
20D				20D	20D		Statuary dark bronze, clear coated	624
26				26	26		Polished chrome	625
26D *				26D *	26D *		Satin chrome	626
32	32	32	32	32		32	Polished stainless steel	629
32D *	32D *	32D *	32D *	32D *		32D *	Satin stainless steel	630
BSP				BSP	BSP		Black suede powder coat	—
WSP				WSP	WSP		White suede powder coat	—

* MicroShield® — optional designate SG- option (Available on 15, 26D, and 32D Finishes only)
Split Finishes — specify outside finish first, then inside finish example: US26D (outside) / US04 (inside)

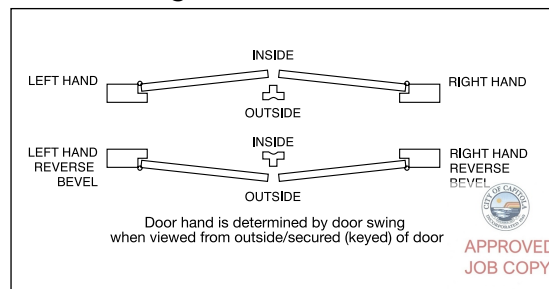
6 Lobe & Spanner Bit packs

Part Number	Descriptions
82-3855	6 Lobe Bit Pack 6 bits
82-3856	(sizes- T8, T9, T10, T15, T20, T25, T27) 9/32" Driver Spanner Bit Pack 5 bits (sizes- 6, 8, 10, 12, 14) 1/4" Driver

Packaging

8205 x LNL	approx. 6.1 lbs. (2.7kg)/box	6 boxes/case
8205 x WTL	approx. 7.2 lbs. (3.1kg)/box	6 boxes/case

Door Handing



* Multiple options available
Wrought Box Strike optional — must order lockset as WBS- option

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Coastal Series™ & Standard Trim

8200/R8200/7800 Mortise Locks

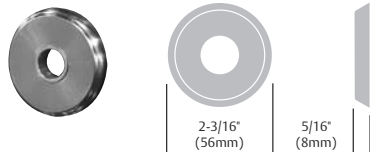
SARGENT®

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Coastal Series Roses & Escutcheons

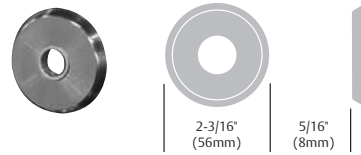
TR Traditional Rose

- Dual radii edge



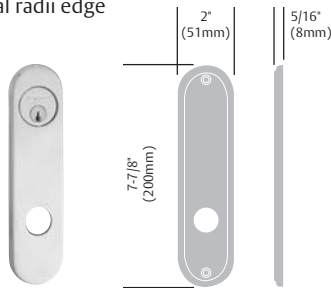
CR Contemporary Rose

- Beveled edge



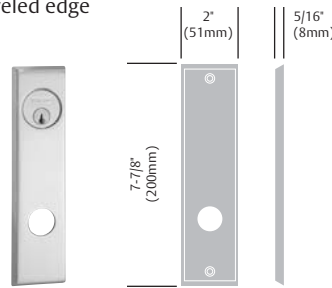
TE Traditional Escutcheon

- Dual radii edge



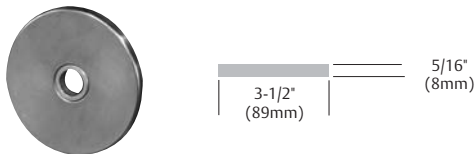
CE Contemporary Escutcheon

- Beveled edge

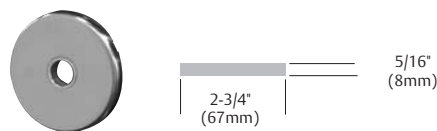


Standard Roses

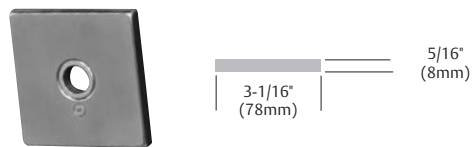
L Rose



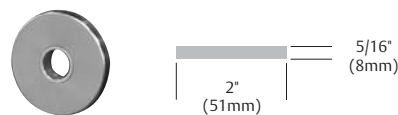
O Rose



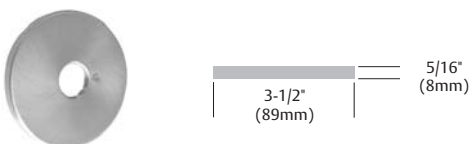
E Rose



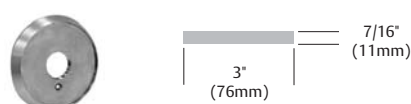
LN Rose



SL Rose



BH Rose



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Date: 03/16/2024
Permit # 2024160

Coastal Series™ & Standard Levers

8200 Mortise Locks

SARGENT®

ASSA ABLOY

Coastal Series (8200 & R8200 Series)

Features

- All levers meet ADA compliance for national codes
- Not available with CO and TO roses
- Levers are solid cast brass
- Finishes available – 3, 4, 9, 10, 10B, 10BE, 10BL, 14, 15, 20D, 26, 26D, BSP, WSP
- All lever height (+/- 1/16") measurements represent total distance from door face

<p>G - Gulfport™ (Handed)</p>			<p>S - Sanibel™ (Handed)</p>		
<p>R - Rockport™</p>			<p>Y - Yarmouth™ (Handed)</p>		

Standard Levers (8200 Series Only)

Features

- All levers meet ADA compliance for national codes
- Solid forged or cast
- Lever designs J, L and P have lever returns within 1/2" (13mm) or less of door face and meet California State Reference Fire Code
- All lever height (+/- 1/16") measurements represent total distance from door face

<p>A (Handed)</p>			<p>J</p>		
<p>B</p>			<p>L</p>		
<p>E</p>			<p>P</p>		
<p>F</p>			<p>W</p>		

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Functions & Descriptions

8200/R8200/7800 Mortise Locks

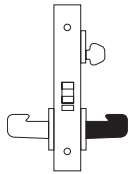
SARGENT®

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Single Cylinder without Deadbolt

*‡04 Storeroom or Closet

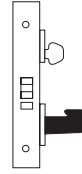
8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim outside locked at all times
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F07**

‡*31 Utility

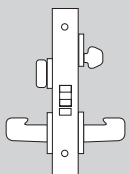
8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim outside is always locked
- No inside trim or cylinder
- A Multi-Function 8200/R8200/7800 Lockbody
- Auxiliary deadlatch

*05 Office or Entry

8200, R8200 & 7800



- Key outside retracts latchbolt, also locks & unlocks outside trim
- Trim inside always retracts latchbolt, trim outside remains locked
- Thumbturn inside locks & unlocks outside trim
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F04**

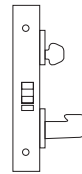
The Multi-Function Advantage with rose trim:

1. Lock will accommodate 04, 05, 15 & 37 functions without additional parts.
2. By adding an additional cylinder, lock will accommodate 38 function.
3. By adding a Trim One Side Kit, lock will accommodate 06, 13, 31 & 36 functions.

NOTE: Office/Entry Function with toggle is a 55 function.

*‡36 Closet

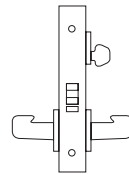
8200, R8200 & 7800



- Key locks and unlocks trim
- No inside trim or cylinder
- A Multi-Function 8200/R8200/7800 Lockbody
- Auxiliary dead latch

*‡37 Classroom

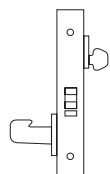
8200, R8200 & 7800



- Key outside retracts latchbolt, also locks & unlocks outside trim
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F05**

06 Storeroom or Service

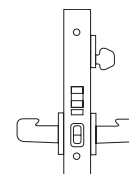
8200, R8200 & 7800



- No trim outside, cylinder only
- Key outside retracts latchbolt
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- Same as 04 Function without trim outside

55 Office or Entry

8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim inside always retracts latchbolt, outside trim remains locked
- Trim outside is locked & unlocked by the toggle only
- Auxiliary deadlatch



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Permit # 2024180

*8200 Available with Freewheeling Trim

‡ 7800 Available with Push/Pull Trim



If shaded, knob or lever
rigid at all times

‡ **CAUTION:** Not recommended for use on any door used for Life Safety egress

Functions & Descriptions

8200/R8200/7800 Mortise Locks

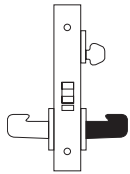
SARGENT®

ASSA ABLOY

Single Cylinder without Deadbolt

*‡04 Storeroom or Closet

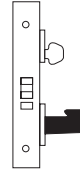
8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim outside locked at all times
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F07**

‡*31 Utility

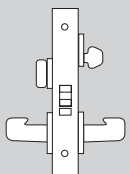
8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim outside is always locked
- No inside trim or cylinder
- A Multi-Function 8200/R8200/7800 Lockbody
- Auxiliary deadlatch

*05 Office or Entry

8200, R8200 & 7800



- Key outside retracts latchbolt, also locks & unlocks outside trim
- Trim inside always retracts latchbolt, trim outside remains locked
- Thumbturn inside locks & unlocks outside trim
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F04**

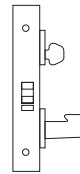
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NOTE: Office/Entry Function with toggle is a 55 function.

*‡36 Closet

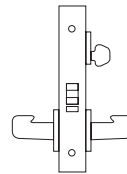
8200, R8200 & 7800



- Key locks and unlocks trim
- No inside trim or cylinder
- A Multi-Function 8200/R8200/7800 Lockbody
- Auxiliary dead latch

*‡37 Classroom

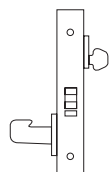
8200, R8200 & 7800



- Key outside retracts latchbolt, also locks & unlocks outside trim
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- **ANSI F05**

06 Storeroom or Service

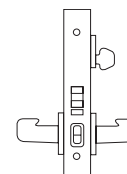
8200, R8200 & 7800



- No trim outside, cylinder only
- Key outside retracts latchbolt
- Trim inside always retracts latchbolt
- Auxiliary deadlatch
- A Multi-Function 8200/R8200/7800 Lockbody
- Same as 04 Function without trim outside

55 Office or Entry

8200, R8200 & 7800



- Key outside retracts latchbolt
- Trim inside always retracts latchbolt, outside trim remains locked
- Trim outside is locked & unlocked by the toggle only
- Auxiliary deadlatch



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JW for EM

Date: 09/16/2024

Permit # 2024180

*8200 Available with Freewheeling Trim

‡ 7800 Available with Push/Pull Trim



If shaded, knob or lever
rigid at all times

‡ **CAUTION:** Not recommended for use on any door used for Life Safety egress

80 Series Exit Device



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Date: 09/16/2024

Permit # 22548180

Windstorm Certifications

80 Series

SARGENT®

ASSA ABLOY

Windstorm Certifications: Florida Building Codes & UL Listings

SARGENT Manufacturing's products meet building codes that require hurricane, windstorm and FEMA certifications, including some of the most stringent building codes as specified in the Florida Building Code, Miami Dade Code and the International Building Code. Listed below are certifications and standards met by the 80 Series lock.

Florida Building Code: FL2998

UL Certification Directory: ZHEM.R21744 – Latching Hardware

ANSI/SDI-BHMA A250.13	"Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies"
ANSI/ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
(TAS) 201	"Impact Test Procedures"*
(TAS) 202	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
(TAS) 203	"Criteria for Testing Products Subject to Cyclic Wind Pressure Loading"*

* Published in the "Florida Building Code"

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

UL Certification Directory: ZHLL.R21744 – Products for Use in Windstorm-rated Assemblies

Certifications to meet assembly requirements are done in conjunction with doors from ASSA ABLOY Group companies CECO DOOR and CURRIES.

ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
AAMA/WDMA/CSA 101/1.S.2/A440	"Standard/Specification for Windows, Doors, and Unit Skylights"
FEMA Publication 320 (2014)	"Taking Shelter From the Storm: Building a Safe Room for Your Home or Small Business", investigated with respect to impact and pressure requirements only.
FEMA Publication 361 (2015)	"Design and Construction Guidance for Community Safe Rooms", investigated with respect to impact and pressure requirements only.
ICC 500 (2014)	"ICC/NSSA Standard for the Design and Construction of Storm Shelters", investigated with respect to impact and pressure testing. Minimum missile impact speeds vary with the design wind speed desired for a particular product. The information below correlates design wind speed to the minimum missile speeds as discussed in Table 305.1.1 of ICC 500

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.



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Date 03/16/2024
Permit # 2024180

Cylinder Information for Exit Devices

Cylinder Chart: Exit Device Series x Function		ET Trim (700 Series Auxiliary Control)		PTB, PSB, STS, MAL, MSL, FLL, FSL, FLW, FSW	
		Door Thickness	1-3/4" (44mm)	2-1/4" (57mm)	1-3/4" (44mm)
Narrow Stile Mortise Exit Device	8304	46	48	41	43
	8313/8343	41	41	Not Available	
	8344	46	48	Not Available	
	8363	Not Available		41	43
	8375/8376	46	48	Not Available	
Narrow Stile CVR Exit Device	All 8400	41	41	Not Available	
Narrow Stile Rim Exit	8504	34	34	Not Available	
	8513/8543	41	41	Not Available	
Concealed Vertical Rod Exit Devices	All LP/LR/LS8600	41	Not Available		
	All SP/PP/PR8600	41	Not Available		
	All AD, MD & WD8600	41	41	Not Available	
Surface Vertical Rod Exit Devices	8706/8713/8743/8746	41	41	Not Available	
	8762/8763	Not Available		34	34
	All SP/PP/PR8700	41	N/A	Not Available	
Rim Exit Devices	8804	34	34	34	34
	8806/8813/8843/8846	41	41	Not Available	
	8816	34/*44	34/*44	Not Available	
	8844	34	34	Not Available	
	8863	Not Available		34	34
	8866	Not Available		34/*44	34/*44
	8875/8876/8877	34	34	Not Available	
	8904	46	48	41	43
Mortise Lock Exit Devices	8913/8943	41	41	Not Available	
	8916	*34/46	*34/48	Not Available	
	8944	46	48	Not Available	
	8963	Not Available		41	43
	8966	Not Available		*41/34	*43/34
	8975/8976	46	48	Not Available	

*** Inside Cylinders**

Chart shows cylinder type and size for conventional SARGENT cylinders.

Note: Cylinder sizes & types are limited, as noted: SC- & SE- cylinders are available in size 41
60-, 63- & 64- cylinders are available in sizes 42, 43, 44 & 46
70-, 11-70-, 72-, 11-72-, 73- & 11-73 cylinders are available in sizes 43 & 46

Note: The 8888's Lever & Rose Trim cylinder standard is the standard SARGENT 10 Line cylinder (13-3266)

Note: 41 Cylinder is 1-1/8" in length; For each additional digit, the cylinder is a 1/8" longer. Example: 42 is 1-1/4"; 43 is 1-3/8" and 46 is 1-3/4"

Note: SARGENT supplies standard blocking rings. Specify if using competitor cylinders



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Mullions: Aluminum, Steel and Electrified

80 Series

Aluminum Mullions			
Product Designation	650A	980	L980
Description	Removable	Removable	Lockable
Material	Aluminum	Aluminum	Aluminum
Standard Finish	US28/Satin Anodized Aluminum	Prime Coat	Aluminum Prime Coat
Options	Specify "650A x 10B" for 313AN to match 10B	Specify "980A" for Anodized US28/ Satin Aluminum	Specify: "L980A" Anodized Aluminum Specify: "L980A x10B" for 313AN to match 10B
Stk Size	96"	96"	96"
Max Stk Height	120"	120"	120"
Pre-prepped	658 Strikes Included	No	No
Cylinder Size	Not Required	Not Required	#41
Shape	1-1/2" x 2-1/2"	T Shaped 2-1/2" x 3"	T Shaped 2-1/2" x 3"
Misc. Information and Accessories	Includes 651 Stabilizers and imbedded Weather Stripping Top Retainer 94-2050 Bottom Retainer 94-2051	Top Retainer - 511 Bottom Retainer - 502 Adapter for narrow transom: 507 - Aluminum Prime Coated 507A - Anodized Aluminum	All Cylinder Options Available Wall Mount Kit 98-2578 Top Ret Pack 98-2526 Bottom Ret Pack 98-2525 Cylinder Kit 980C1*

Electrified
EL980
Electrical Lockable
Steel
Gray Paint
Wall Mounting Kit: 98-2580 Top Ret Pack :98-2559
96"
120"
No
#46 Only
Rectangular 2" x 3"
For use with Electric Strikes and Monitoring, Quick Connect Wiring Supplied Cylinder Kit 980C2*

*Note: Cylinder Kits must be ordered separately

Steel Mullions					
Product Designations	HC980	980S	L980S	HCL980	12-HD980
Description	Hurricane Code	Standard Mullion	Lockable	Lockable Hurricane Code	Heavy Duty
Material	Steel	Steel	Steel	Steel	Steel
Fire Rated	Specify 12-HC980	Specify 12-980	Specify 12-L980	Specify 12-HCL980	Specify 12-HD980
Fire Rated Max Height	96"	96"	96"	96"	120"
Finish	Gray Paint	Gray Paint	Gray Paint	Gray Paint	Gray Paint
Stk Size	96"	96"	96"	96"	120"
Max Stk Height	96"	120"	120"	96"	120"
Pre-prepped	No	No	No	No	No
Cylinder Size	Not Required	Not Required	#41 Std (#42 & #43 available)	#41 Std (#42 & #43 available)	Not Required
Shape	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"
Misc. Information	Designed for severe wind load conditions due to hurricanes or windstorms. Tested to Dade County Protocols & ASTM Standards	For 12-8800 - Channel Iron & Malleable iron top & bottom retainers.	Fire rated for 8'0" x 8'0" paired openings	See Notes Below	12-HD980 is for pair of doors over 8'0" to 10'0" for use with 2-8800 Rim Exits includes two piece strikes
Accessories	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601	Top Ret Pack - 98-2190 Bottom Ret Pack - 98-2191 Top Retainer Shim Kit - 601	Wall Mounting Kit - 98-2579 Top Ret Pack - 98-2559 Bottom Ret Pack - 98-2556 Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	- Top Retainer Pack: 98-2593 - Bottom Retainer Pack: 98-2594 - Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601

*Note: Cylinder Kits must be ordered separately

Note for HC980/12-HC980 Mullions:

- Designed for severe wind load conditions due to hurricanes or tornadoes
- Tested to Dade County protocols and ANSI 250.13 ASTM Standards and FEMA 361
- 12- Fire labeled version
- Replacement lock kits are available for lockable mullions Part numbers for each model are listed in the price book

HCL980 Mullion Information

- Model 12-HC-L980 may be supplied for doors UL fire APPROVED and including 3 hrs not exceeding 8 ft in width and height
- Meets the following standards: ANSI 250.13, ASTM F330 for Code Compliance, ASTM 1886, ASTM 1996, TAS 201, TAS 202 & TAS 203
- Designed for use with UL Classified HC8810, HC8800 and 12-HC8800 rim exit devices



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Mullion Accessories and Stabilizers

80 Series

Mullion Accessories

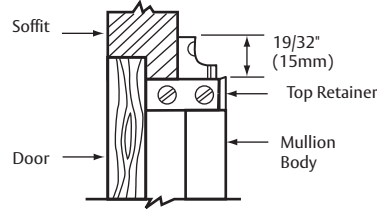
RK980

Latchbolt assembly retrofit kit with top and bottom retainers for 980 aluminum mullion



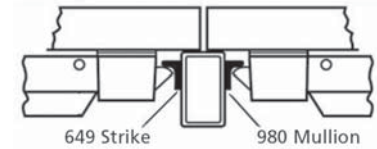
507 Narrow Transom Bars Adapter

- Available with 980 and 980A
- Required when soffit is 1-1/4" (32mm) to 2" (51mm) wide
- Order as a: 507 for 980 mullion or 507A for 980A mullion



980S Mullion Application

- All steel mullions are 2" x 3"

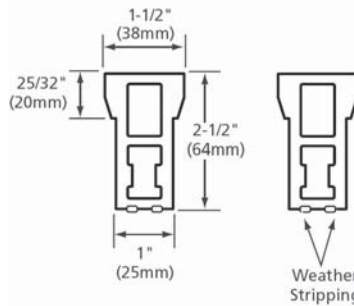


651 Mullion Stabilizer Kit

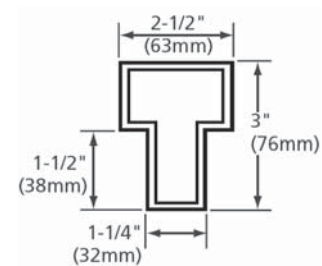


- Stabilizer block
- Furnished standard w/650A Mullion
- Order as a 651 Kit

650A Mullion



980 Mullion & L980 Lockable Mullion

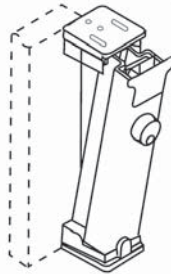


980C1 Cylinder Mullion Kit



- Lockable mullions only
- Aluminum and steel
- Includes cylinder and collar
- Available in 26D & 10B finish

Lockable Mullion



Lockable Mullion Cylinder Kit Options*

L980, L980A, L980S & HC-L980 mullions are available with these options: 10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82-, F1-82-, 83-, F1-83-, 84-, SC- & SE-.

EL980 mullion is available with these options:

10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82- & F1-82-.

*Lockable mullions are shipped without cylinders. Order Cylinder Mullion Kit separately.

980C2 Cylinder Kit



- Lockable mullions
- Electrified only
- Includes cylinder and collar
- Available in 26D finish only

Mullion Weights & Packaging

Product	Avg Wt	Case
Exit Device with Trim	15 lbs	1 ea
980 Mullion	18 lbs	1 ea
12-980 Mullion	40 lbs	1 ea
650A Mullion	18 lbs	1 ea



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JW for SM

Date: 05/16/2024

Permit # 2024180

Mechanical Options and Descriptions

80 Series

Mechanical Options:

Categories	How to Specify	Detailed Description
Fire Rated	12-	UL Fire Label Exit hardware (not available with 16- & HK-)
SVR Bolt	14-	Sliding bolt bottom case for 8700
Cylinder Dogging	16-	Cylinder lockdown with # 41 Cylinder & # 97 Ring (not available with 12-, 57, 59-, AL- or BT- Option)
	LD-	Less dogging for non fire rated devices
Less Touch Pad	19-	Pushbar without Lexan touchpad (not available TL-)
8900/8300 Strike	23-	4-7/8" (124mm) ANSI flat lip strike (for 8900 & 8300 Series Mortise Lock Exit Devices)
Thick Doors	31-	Doors over 1-3/4" and/or Panels (Specify door thickness, panel thickness & location as required) Not available for HC8700, FM8700, PP, PR & SP8700, PP, PR & SP8600, LP, LR & LP8700 Extended lip strike supplied for 8300 & 8900 Series
	36-	Six lobe security head screws
Security Fasteners	37-	Spanner head screws
	43-	Flush End Cap (Not available with LP, LR & LS Devices)
Indicator	49-	Indicator (Available on 8816 and 8866 functions only)
Electrical Options	53-	Latchbolt monitoring switch (not available with 59-, GL-, HC-, WS- or on FM8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	54-	Monitors ET Lever movement with Internal micro switch in ET Control
	55-	Request to Exit - Signal Switch in Rail (not available with 59- & FM8700)
	56-	Remote Latch Retraction (not available 57-, 58-, 59-, AL- or BT- Option)
	56-HK-	Remote Latch Retraction with manual Hex Key dogging (not available 12-, 57-, 58-, 59-, AL- or BT- Option)
	57-	Delayed Egress (Electromagnetic Lock required & purchased separately) (not available 16-, 53-, 56-, 56-HK, 58-, 59-, AL, Bc-59- or BT, GL, TL Prefixes) (NB, 54- are available on request)
	58-	Electric Rail Dogging (Not available 56- & 59-)
	59-	Electroguard® Self Contained Delayed Egress Device (not available with 16-, 53-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS Option Prefixes, PP/PR/SP8600, LP/LR/LS8600 Exit Devices) (NB, 54- are available upon request)
	AL-	Alarmed Exit (Not available 16-, 56-, 57-, 59-, BT-, GL-, HC- & WS-)
	BC-59-	Electroguard® Boca Code (Door Status Switch required) (not available with 16-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS- Options and on NB8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	TL-	SARGuide Electro-Luminescent Touchpad (not available 19-, 85-, 87- & PL-)
Tactile Warning Options	76-	Tactile Warning - Milled Outside Lever (not available with Studio & Coastal Levers and the A Lever)
	85-	Tactile Warning - Abrasive strip on Push Rail (Not available with PL- & TL-)
	86-	Tactile Warning - Abrasive coating on Outside Lever
	87-	Tactile Warning - Abrasive strip on Push Rail & Abrasive coating on Outside Lever (not available with PL- & TL-)
Finish Protection	CPC-	Clear Powder Coat (Available for 32 & 32D Finishes)
	SG-	MicroShield® antimicrobial clear powder coat (only available with 15, 26D and 32D finishes)
Top Rod Only	NB-	Less Bottom Rod & Bolt (for SVR & CVR Devices)
Guarded Latch	GL-	Guarded Latch for Rim Exit Devices (not available 53-, 56-, 59-, AL-, HC- & WS-)
SARGuide	PL-	SARGuide™ PL – Photoluminescent Coated Push Rail – (Touchpad eliminated) (not available 85, 87 & TL-)
Through Bolts	TB-	Through Bolts for 8300, 8500, 8600, 8700, 8800 & 8900 Devices
Rail Force	5CH-	5lb. Pressure Release (8800 only)



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Date: 09/16/2024

Permit # 2024180

Cylinder Options and Descriptions

80 Series

SARGENT[®]

ASSA ABLOY

Cylinder Options:

Conventional Cylinder	-	SARGENT Conventional Cylinders Supplied Standard (Unless Otherwise Specified)
Degree Key System	DG1-	SARGENT Degree Key System Level 1 (bump resistant with patented keys)
	DG1-21-	Degree Level 1 Construction Master Keying
	DG1-60-	Degree Level 1 Removable Disposable Construction Core
	DG1-63-	Degree Level 1 Removable Core
	DG1-64-	Degree Level 1 Removable Construction Keyed LFIC
	DG1-65-	Degree Level 1 Unassembled/Uncombined Core
	DG2-	SARGENT Degree Key System Level 2 (geographically exclusive; bump and pick resistant)
	DG2-21-	Degree Level 2 Construction Master Keying
	DG2-60-	Degree Level 2 Removable Disposable Construction Core
	DG2-63-	Degree Level 2 Removable Core
	DG2-64-	Degree Level 2 Removable Construction Keyed LFIC
	DG2-65-	Degree Level 2 Unassembled/Uncombined Core
	DG3-	SARGENT Degree Key System Level 3 (geographically exclusive; UL437 certified; bump and pick resistant)
	DG3-21-	Degree Level 3 Construction Master Keying
	DG3-60-	Degree Level 3 Removable Disposable Construction Core
DG3-63-	Degree Level 3 Removable Core	
DG3-64-	Degree Level 3 Removable Construction Keyed LFIC	
DG3-65-	Degree Level 3 Unassembled/Uncombined Core	
Signature Key System	10-	SARGENT Signature Key System (Not Available with other Key Systems)
	10-21-	SARGENT Signature Construction Key System (Lost Ball)
Signature- LFIC	10-63-	SARGENT Signature Large Format Interchangeable Core Cylinder (Removable)
XC- Key System	11-	XC Key System (Not available with other Key systems unless specified)
	11-21-	XC- Construction Key System (Lost Ball)
XC- Large Format Interchangeable Core (Removable Core)	11-60-	Device to accept XC- Permanent Large Format Interchangeable Core, Disposable plastic Core- provided
	11-63-	Device provided with XC- Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	11-64-	Device provided with Keyed construction core to accept XC- Permanent Large Format Interchangeable Core (ordered separately)
XC- Small Format Interchangeable Core	11-70-7P-	Device to accept XC- SFIC (7-Pin) XC- Permanent Cores, plastic disposable core provided
	11-72-7P-	Device to accept XC- SFIC (7-Pin Keyed Construction Core provided) cylinder Permanent core ordered separately
	11-73-7P-	Device provided with XC- Small Format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)
	11-65-73-7P-	Device provided to accept XC- Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose)
Construction Key Systems	21-	SARGENT Lost Ball Construction Keying for Conventional, XC and Signature Series (N/A with 63- or 73-)
	22-	SARGENT Construction Split Key System for Conventional Cylinders (Existing Systems Only) (N/A with 10-, 11-, 63- or 73-)
Old Style Removable Core	51-	Removable Core Cylinder (Old Style) provided (existing systems only)
	52-	Removable Construction Core (Old Style) Permanent core ordered separately (existing systems only)
Large Format Interchangeable Core (Removable Core)	60-	Device to accept SARGENT Permanent Large Format Interchangeable Core, Disposable plastic Core provided (Permanent Cores ordered separately)
	63-	Device provided with Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	64-	Device provided with Keyed construction core to accept Permanent Large Format Interchangeable Core (ordered separately)
Small Format Interchangeable Core	70-	Device to accept 6- or 7-Pin SFIC Permanent Cores, plastic disposable core provided
	72-	Device to accept 6- or 7-Pin SFIC (6-Pin Keyed Construction Core provided) Cylinder (Permanent Core ordered separately)
	73-	Device provided with 6-Pin SFIC (Includes masterkeying, grand masterkeying)
	65-73-	Device provided to accept Uncombined 6-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	65-73-7P-	Device provided to accept Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	73-7P-	Device provided with Small Format 7-Pin Interchangeable Core (Includes masterkeying, grand masterkeying)
Keso & Keso F1	81-	Device provided with housings to accept Keso (83) & Keso F1 (F1-83-) removable cores. (Permanent Cores ordered separately)
	82-	Device provided with SARGENT Keso Security Cylinder
	F1-82-	Device provided with SARGENT Keso F1 Security Cylinder (Patented)
	83-	Device provided with SARGENT Keso Security Removable Core cylinder
	F1-83-	Device provided with SARGENT Keso F1 Security Removable Core cylinder (Patented)
Added Security	84-	Device provided with SARGENT Keso Construction Cores (Permanent Cores ordered separately)
	BR-	Bump Resistant Cylinder (Available with Conventional & Conventional XC Cylinders Only)
Less Cylinder	LC-	Less Cylinder - SARGENT supplies standard blocking rings for 1-1/8" Cylinders (For longer cylinders order collars/rings separately)
Schlage Keyways	SC-	Schlage C keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
	SE-	Schlage E keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
Lever to Accept Schlage	SF-	L Lever to accept MEDECO KeyMark Large Format Interchangeable and Schlage Full Size Interchangeable Core (Supplied Less Cylinder, but with tailpiece needed) (Available for 88-KLL & 88-CLL)

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Note: For V-10 Cylinders and information, contact ASSA

76

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ASSA ABLOY, the global leader in door opening solutions

90641 03/19

AD8400 and NB-AD8400 Narrow Stile Concealed Vertical Rod Exit Device for Aluminum Doors

80 Series

SARGENT®

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AD8400 Series

Concealed Vertical Rod Exit Device for Aluminum Doors

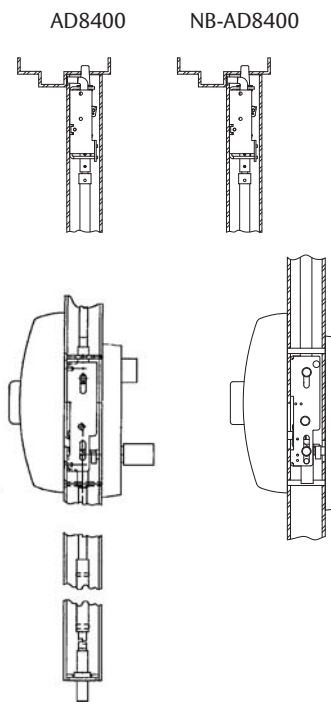


AD8400 & NB-AD8400 Features

- Designed for narrow stile aluminum door applications (e.g., full glass doors)
- Concealed rods for security and aesthetics
- UL10C (Fire) and UL305 (Panic) listed
- Specify NB- for less bottom rod
- NB- device allows free access for wheelchairs and carts. No bottom strike eliminates tripping potential
- All functions determined by outside trim
- Devices are ANSI/BHMA A156.3 - Grade 1

Specifications for AD8400 & NB-AD8400 Exit

Door Type	Hollow or extruded aluminum doors
Door Thickness	1-3/4" (44mm) minimum thickness. For doors over 1-3/4" to 2-1/4" thick, specify thickness and order as 31-
Stile	1-3/4" (44mm) minimum stile width required. Stile must be hollow with inside dimension of at least 1-3/8" (35mm) square
Rail sizes as determined by door width	Rails are available in 4 sizes, use door width to determine size needed. Rails will be factory cut to size, if door width is supplied <ul style="list-style-type: none"> • E Rail for 24" to 32" door widths • F Rail for 33" to 36" door widths • J Rail for 37" to 42" door widths • G Rail for 43" to 48" door widths
Strike	640 Strike for Top & Bottom
Dogging Feature	Hex key dogging standard on non fired rated devices; specify 16- for cylinder dogging (#41 cylinder supplied)
Electric Options	AL- Alarm PL- SARGuide™ Photoluminescent Coated TL- SARGuide™ Illuminated Touchpad 53- LX Latchbolt Monitor 54- Outside Lever Monitoring 55- Request-to-Exit Signal - Rail Monitoring 56- Remote Latch Retraction 57- Delay Egress & Electromagnets 58- Electric Dogging 59- Electroguard – Self Contained Delayed Egress
Mounting Fasteners	Supplied standard with machine screws
Top Bolt	Stainless steel
Device Centerline from Finished Floor	41" (1041mm) for Standard Applications 38" (965mm) for elementary schools
Door/Opening Height	Must be specified - 120" (3048mm) Max Door Opening
Center Case Dimensions	8-3/8" (213mm) x 2-5/8" (67mm)
Projection	Pushbar Neutral – 3" (76mm) Pushbar Depressed – 2-1/8" (54mm)
Fire Exit Hardware	Not Available



Note: AD8400 can be used as NB- Device by simply not installing the bottom rod/bolt

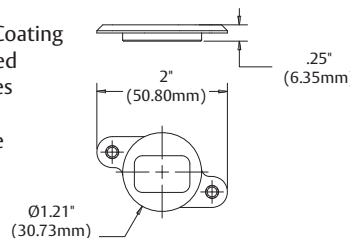
100 Series Aux Control

- Available as an 06 or 13 function
- Supplied with a SARGENT #41 Mortise Cylinder
- Can be used with any SARGENT Mortise Key System



639/640 Strike Kits

- Steel with Black Nylon Coating
- Machine Screws Supplied
- 640 Kit contains 2 strikes (Top & Bottom)
- 639 Kit contains 1 strike (Top Only)



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AD8400 and NB-AD8400

Functions and Trims for Aluminum Doors

80 Series

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How to order: Options Series Function Rail Lgth Trim Hand Outside Finish Inside Finish Door Width Door Height AFF
55- AD84 13 F ETL RHR 26D 32D 36" 84" 41"

700 Series ET Trim



Exits with ET Trim, specify lever design after the ET designation (e.g., ETL)

Lever Designs for ET Controls

A, B, E, F, J, L, P, W
Also available with Coastal Series & Studio Collection Levers

ET Designation with Suffix (Used to order ET without device)

8400 & NB-8400 Series: 706-4, 710-4, 713-4, 715-4, 740-4, 743-4, 746-4, 773-4, & 774-4

Freewheeling Trim

The lever rotates when the door is locked preventing excessive force from being applied to the horizontal lever

Electrified ET Trim

Voltage must be specified for the following functions: 73 and 74.
Specify: 12VDC or 24VDC

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info (1-3/4" Door)	ANSI Type 6 AD8400 Panic
06	09	Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8406 x ET_
10	01	No outside operation (No Cylinder)*	AD8410
10	02	No outside operation (No Cylinder)* ET Control is used as Pull Only	AD8410 x ET_
13	08	Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8413 x ET_
15	14	Passage Only (No cylinder)	AD8415 x ET_
40	02	Freewheeling Trim - No outside operation (No Cylinder)* Dummy Trim	AD8440 x ET_
43	08	Freewheeling Trim - Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8443 x ET_
46	09	Freewheeling Trim - Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8446 x ET_
73		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever (No Cylinder)* Specify: 12VDC or 24VDC	AD8473 x ET_
74		Electrified ET Trim - Fail Secure Power Off, Locks Lever (No Cylinder)* Specify: 12VDC or 24VDC	AD8474 x ET_

Note: Exit devices are available in all standard finishes, except 14, 15, 26 & 26D. With these finishes, exit devices are supplied in 32 or 32D to match accordingly. 32 or 32D is automatically supplied when 26 or 26D is specified. For nickel finishes, specify 14/32 or 15/32D to receive nickel finished trims and stainless exit devices.

Note: AFF means Above Finished Floor, center line of rail Above Finished Floor

* Cylinder Override is available with a 106 Aux Control

Example Order: AD8473F 12V x ETMG x 106 x RHR x 32D x 36" w x 84" h

100 Series Auxiliary Control* & 862 Pull



100 Series Aux.
Control



862 Pull

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info	AD8400 Panic
06	12	Key unlocks Turn, Turn retracts latch/ Turn relocks when key is removed #41 Cylinder Supplied	AD8410 x 106
10	02	862 Pull Only (Optional Pulls: 863 & 864)	AD8410 x 862 Pull
13	11	Key Outside Unlocks/locks Turn #41 Cylinder Supplied	AD8410 x 113

Note: When ordering 8400 Series Exit Device x 100 Series Aux. Control, specify 10 Function for the exit.

Example: AD8410F x 106 x RHR x 32D x 42" x 90"

Options

AD8400

Mechanical Options:

16-
19-
31-
36-
37-
43-
53-
54-
55-
56-
56-HK-
57-
58-
59-
5CH-
BC-59-

76-
85-
86-
87-
AL-
BT-
CPC-
LD-
NB-
PL-
*SG-
TL-

Cylinder Options:

10-
10-21-
10-63-
11-
11-21-
11-60-
11-63-
11-64-
11-70-7P-
11-72-7P-
11-73-7P-
11-65-73-7P-
21-
22-
51-
52-
60-
63-
64-
70-
72-
73-
65-73-
65-73-7P-
73-7P-
81-
82-
F1-82-
83-
F1-83-
84-
BR-
LC-
SC-
SE-

* Only available with
15, 26D and 32D
finishes

Available Finishes

SARGENT Finishes	BHMA Finishes
03	605
04	606
09	611
10	612
10B	613
10BE	613E
10BL	614
10BL4	618
26	619
26D	624
32	625
32D	626
BSP	629
WSP	630
	—

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WSP

Auxiliary Controls

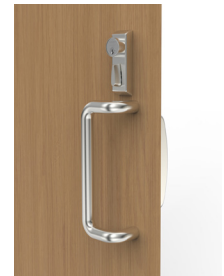
PE80 Series Exit Device

Auxiliary Controls

P100 Series



- Used with concealed vertical rod devices (PE8400 and PE8600)
- Engages with Auxiliary Control Link Assembly on vertical rod
- Wood doors require unit to be mounted approximately 4-5/8" above chassis centerline
 - See template MEDT70 for more details)
- Metal doors require unit to be mounted approximately 7-5/16" above chassis centerline
 - See template MEDT7 for more details)



Wood

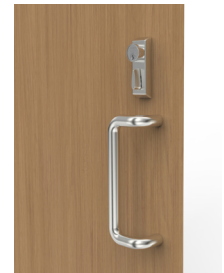


Metal

P300 Series



- Used with surface vertical rod devices (PE8700)
- Engages with Inside Rod Actuator Assembly
- Metal and Wood door applications are mounted at same position above chassis centerline
- See template [#4214](#) for more details



Inside Rod Actuator Assembly



- Used with surface vertical rod devices (PE8700)
- Attaches to top rod and engages with P300 Series Auxiliary Control
- Packed standard with P306 and P313 Auxiliary Controls
- Part # 97-2378
- See template [#4214](#) for more details



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AD8400 and NB-AD8400 Narrow Stile Concealed Vertical Rod Exit Device for Aluminum Doors

80 Series

SARGENT®

ASSA ABLOY

AD8400 Series

Concealed Vertical Rod Exit Device for Aluminum Doors

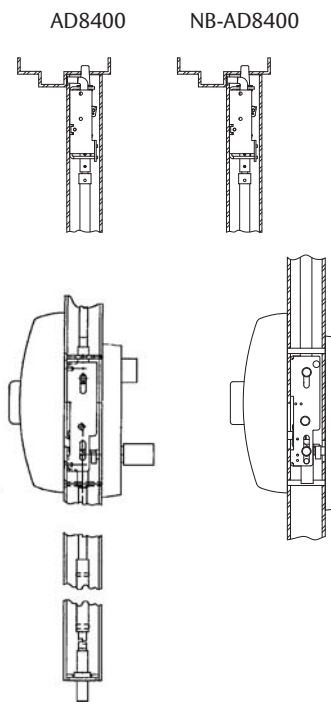


AD8400 & NB-AD8400 Features

- Designed for narrow stile aluminum door applications (e.g., full glass doors)
- Concealed rods for security and aesthetics
- UL10C (Fire) and UL305 (Panic) listed
- Specify NB- for less bottom rod
- NB- device allows free access for wheelchairs and carts. No bottom strike eliminates tripping potential
- All functions determined by outside trim
- Devices are ANSI/BHMA A156.3 - Grade 1

Specifications for AD8400 & NB-AD8400 Exit

Door Type	Hollow or extruded aluminum doors
Door Thickness	1-3/4" (44mm) minimum thickness. For doors over 1-3/4" to 2-1/4" thick, specify thickness and order as 31-
Stile	1-3/4" (44mm) minimum stile width required. Stile must be hollow with inside dimension of at least 1-3/8" (35mm) square
Rail sizes as determined by door width	Rails are available in 4 sizes, use door width to determine size needed. Rails will be factory cut to size, if door width is supplied <ul style="list-style-type: none"> • E Rail for 24" to 32" door widths • F Rail for 33" to 36" door widths • J Rail for 37" to 42" door widths • G Rail for 43" to 48" door widths
Strike	640 Strike for Top & Bottom
Dogging Feature	Hex key dogging standard on non fired rated devices; specify 16- for cylinder dogging (#41 cylinder supplied)
Electric Options	AL- Alarm PL- SARGuide™ Photoluminescent Coated TL- SARGuide™ Illuminated Touchpad 53- LX Latchbolt Monitor 54- Outside Lever Monitoring 55- Request-to-Exit Signal - Rail Monitoring 56- Remote Latch Retraction 57- Delay Egress & Electromagnets 58- Electric Dogging 59- Electroguard – Self Contained Delayed Egress
Mounting Fasteners	Supplied standard with machine screws
Top Bolt	Stainless steel
Device Centerline from Finished Floor	41" (1041mm) for Standard Applications 38" (965mm) for elementary schools
Door/Opening Height	Must be specified - 120" (3048mm) Max Door Opening
Center Case Dimensions	8-3/8" (213mm) x 2-5/8" (67mm)
Projection	Pushbar Neutral – 3" (76mm) Pushbar Depressed – 2-1/8" (54mm)
Fire Exit Hardware	Not Available



Note: AD8400 can be used as NB- Device by simply not installing the bottom rod/bolt

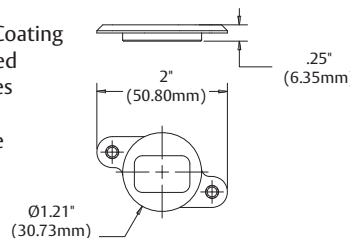
100 Series Aux Control

- Available as an 06 or 13 function
- Supplied with a SARGENT #41 Mortise Cylinder
- Can be used with any SARGENT Mortise Key System



639/640 Strike Kits

- Steel with Black Nylon Coating
- Machine Screws Supplied
- 640 Kit contains 2 strikes (Top & Bottom)
- 639 Kit contains 1 strike (Top Only)



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AD8400 and NB-AD8400

Functions and Trims for Aluminum Doors

80 Series

SARGENT®

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How to order: Options Series Function Rail Lgth Trim Hand Outside Finish Inside Finish Door Width Door Height AFF
 55- AD84 13 F ETL RHR 26D 32D 36" 84" 41"

700 Series ET Trim



Exits with ET Trim, specify lever design after the ET designation (e.g., ETL)

Lever Designs for ET Controls

A, B, E, F, J, L, P, W
 Also available with Coastal Series & Studio Collection Levers

ET Designation with Suffix (Used to order ET without device)

8400 & NB-8400 Series: 706-4, 710-4, 713-4, 715-4, 740-4, 743-4, 746-4, 773-4, & 774-4

Freewheeling Trim

The lever rotates when the door is locked preventing excessive force from being applied to the horizontal lever

Electrified ET Trim

Voltage must be specified for the following functions: 73 and 74. Specify: 12VDC or 24VDC

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info (1-3/4" Door)	ANSI Type 6 AD8400 Panic
06	09	Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8406 x ET_
10	01	No outside operation (No Cylinder)*	AD8410
10	02	No outside operation (No Cylinder)* ET Control is used as Pull Only	AD8410 x ET_
13	08	Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8413 x ET_
15	14	Passage Only (No cylinder)	AD8415 x ET_
40	02	Freewheeling Trim - No outside operation (No Cylinder)* Dummy Trim	AD8440 x ET_
43	08	Freewheeling Trim - Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8443 x ET_
46	09	Freewheeling Trim - Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8446 x ET_
73		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever (No Cylinder)* Specify: 12VDC or 24VDC	AD8473 x ET_
74		Electrified ET Trim - Fail Secure Power Off, Locks Lever (No Cylinder)* Specify: 12VDC or 24VDC	AD8474 x ET_

Note: Exit devices are available in all standard finishes, except 14, 15, 26 & 26D. With these finishes, exit devices are supplied in 32 or 32D to match accordingly. 32 or 32D is automatically supplied when 26 or 26D is specified. For nickel finishes, specify 14/32 or 15/32D to receive nickel finished trims and stainless exit devices.

Note: AFF means Above Finished Floor, center line of rail Above Finished Floor

* Cylinder Override is available with a 106 Aux Control

Example Order: AD8473F 12V x ETMG x 106 x RHR x 32D x 36" w x 84" h

100 Series Auxiliary Control* & 862 Pull



100 Series Aux. Control



862 Pull

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info	AD8400 Panic
06	12	Key unlocks Turn, Turn retracts latch/ Turn relocks when key is removed #41 Cylinder Supplied	AD8410 x 106
10	02	862 Pull Only (Optional Pulls: 863 & 864)	AD8410 x 862 Pull
13	11	Key Outside Unlocks/locks Turn #41 Cylinder Supplied	AD8410 x 113

Note: When ordering 8400 Series Exit Device x 100 Series Aux. Control, specify 10 Function for the exit.

Example: AD8410F x 106 x RHR x 32D x 42" x 90"

Options

AD8400

Mechanical Options:

16-
19-
31-
36-
37-
43-
53-
54-
55-
56-
56-HK-
57-
58-
59-
5CH-
BC-59-

76-
85-
86-
87-
AL-
BT-
CPC-
LD-
NB-
PL-
*SG-
TL-

Cylinder Options:

10-
10-21-
10-63-
11-
11-21-
11-60-
11-63-
11-64-
11-70-7P-
11-72-7P-
11-73-7P-
11-65-73-7P-
21-
22-
51-
52-
60-
63-
64-
70-
72-
73-
65-73-
65-73-7P-
73-7P-
81-
82-
F1-82-
83-
F1-83-
84-
BR-
LC-
SC-
SE-

* Only available with 15, 26D and 32D finishes

Available Finishes

SARGENT Finishes	BHMA Finishes
03	605
04	606
09	611
10	612
10B	613
10BE	613E
10BL	614
10BL4	618
26	619
26D	624
32	625
32D	626
BSP	629
WSP	630
	—

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Date: 09/16/2024

Permit # 22261618

WSP

80 Series Exit Device



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Date: 09/16/2024
Permit # 22548180

Windstorm Certifications

80 Series

SARGENT[®]

ASSA ABLOY

Windstorm Certifications: Florida Building Codes & UL Listings

SARGENT Manufacturing's products meet building codes that require hurricane, windstorm and FEMA certifications, including some of the most stringent building codes as specified in the Florida Building Code, Miami Dade Code and the International Building Code. Listed below are certifications and standards met by the 80 Series lock.

Florida Building Code: FL2998

UL Certification Directory: ZHEM.R21744 – Latching Hardware

ANSI/SDI-BHMA A250.13	"Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies"
ANSI/ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
(TAS) 201	"Impact Test Procedures"*
(TAS) 202	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
(TAS) 203	"Criteria for Testing Products Subject to Cyclic Wind Pressure Loading"*

* Published in the "Florida Building Code"

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

UL Certification Directory: ZHLL.R21744 – Products for Use in Windstorm-rated Assemblies

Certifications to meet assembly requirements are done in conjunction with doors from ASSA ABLOY Group companies CECO DOOR and CURRIES.

ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
AAMA/WDMA/CSA 101/1.S.2/A440	"Standard/Specification for Windows, Doors, and Unit Skylights"
FEMA Publication 320 (2014)	"Taking Shelter From the Storm: Building a Safe Room for Your Home or Small Business", investigated with respect to impact and pressure requirements only.
FEMA Publication 361 (2015)	"Design and Construction Guidance for Community Safe Rooms", investigated with respect to impact and pressure requirements only.
ICC 500 (2014)	"ICC/NSSA Standard for the Design and Construction of Storm Shelters", investigated with respect to impact and pressure testing. Minimum missile impact speeds vary with the design wind speed desired for a particular product. The information below correlates design wind speed to the minimum missile speeds as discussed in Table 305.1.1 of ICC 500

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.


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Cylinder Information for Exit Devices

Cylinder Chart: Exit Device Series x Function		ET Trim (700 Series Auxiliary Control)		PTB, PSB, STS, MAL, MSL, FLL, FSL, FLW, FSW	
Door Thickness		1-3/4" (44mm)	2-1/4" (57mm)	1-3/4" (44mm)	2-1/4" (57mm)
Narrow Stile Mortise Exit Device	8304	46	48	41	43
	8313/8343	41	41	Not Available	
	8344	46	48	Not Available	
	8363	Not Available		41	43
	8375/8376	46	48	Not Available	
Narrow Stile CVR Exit Device	All 8400	41	41	Not Available	
Narrow Stile Rim Exit	8504	34	34	Not Available	
	8513/8543	41	41	Not Available	
Concealed Vertical Rod Exit Devices	All LP/LR/LS8600	41	Not Available		
	All SP/PP/PR8600	41	Not Available		
	All AD, MD & WD8600	41	41	Not Available	
Surface Vertical Rod Exit Devices	8706/8713/8743/8746	41	41	Not Available	
	8762/8763	Not Available		34	34
	All SP/PP/PR8700	41	N/A	Not Available	
Rim Exit Devices	8804	34	34	34	34
	8806/8813/8843/8846	41	41	Not Available	
	8816	34/*44	34/*44	Not Available	
	8844	34	34	Not Available	
	8863	Not Available		34	34
	8866	Not Available		34/*44	34/*44
	8875/8876/8877	34	34	Not Available	
	8904	46	48	41	43
Mortise Lock Exit Devices	8913/8943	41	41	Not Available	
	8916	*34/46	*34/48	Not Available	
	8944	46	48	Not Available	
	8963	Not Available		41	43
	8966	Not Available		*41/34	*43/34
	8975/8976	46	48	Not Available	

* Inside Cylinders

Chart shows cylinder type and size for conventional SARGENT cylinders.

Note: Cylinder sizes & types are limited, as noted: SC- & SE- cylinders are available in size 41

60-, 63- & 64- cylinders are available in sizes 42, 43, 44 & 46

70-, 11-70-, 72-, 11-72-, 73- & 11-73 cylinders are available in sizes 43 & 46

Note: The 8888's Lever & Rose Trim cylinder standard is the standard SARGENT 10 Line cylinder (13-3266)

Note: 41 Cylinder is 1-1/8" in length; For each additional digit, the cylinder is a 1/8" longer. Example: 42 is 1-1/4"; 43 is 1-3/8" and 46 is 1-3/4"

Note: SARGENT supplies standard blocking rings. Specify if using competitor cylinders



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Mullions: Aluminum, Steel and Electrified

80 Series

Aluminum Mullions			
Product Designation	650A	980	L980
Description	Removable	Removable	Lockable
Material	Aluminum	Aluminum	Aluminum
Standard Finish	US28/Satin Anodized Aluminum	Prime Coat	Aluminum Prime Coat
Options	Specify "650A x 10B" for 313AN to match 10B	Specify "980A" for Anodized US28/ Satin Aluminum	Specify: "L980A" Anodized Aluminum Specify: "L980A x10B" for 313AN to match 10B
Stk Size	96"	96"	96"
Max Stk Height	120"	120"	120"
Pre-prepped	658 Strikes Included	No	No
Cylinder Size	Not Required	Not Required	#41
Shape	1-1/2" x 2-1/2"	T Shaped 2-1/2" x 3"	T Shaped 2-1/2" x 3"
Misc. Information and Accessories	Includes 651 Stabilizers and imbedded Weather Stripping Top Retainer 94-2050 Bottom Retainer 94-2051	Top Retainer - 511 Bottom Retainer - 502 Adapter for narrow transom: 507 - Aluminum Prime Coated 507A - Anodized Aluminum	All Cylinder Options Available Wall Mount Kit 98-2578 Top Ret Pack 98-2526 Bottom Ret Pack 98-2525 Cylinder Kit 980C1*

Electrified
EL980
Electrical Lockable
Steel
Gray Paint
Wall Mounting Kit: 98-2580 Top Ret Pack :98-2559
96"
120"
No
#46 Only
Rectangular 2" x 3"
For use with Electric Strikes and Monitoring, Quick Connect Wiring Supplied Cylinder Kit 980C2*

*Note: Cylinder Kits must be ordered separately

Steel Mullions					
Product Designations	HC980	980S	L980S	HCL980	12-HD980
Description	Hurricane Code	Standard Mullion	Lockable	Lockable Hurricane Code	Heavy Duty
Material	Steel	Steel	Steel	Steel	Steel
Fire Rated	Specify 12-HC980	Specify 12-980	Specify 12-L980	Specify 12-HCL980	Specify 12-HD980
Fire Rated Max Height	96"	96"	96"	96"	120"
Finish	Gray Paint	Gray Paint	Gray Paint	Gray Paint	Gray Paint
Stk Size	96"	96"	96"	96"	120"
Max Stk Height	96"	120"	120"	96"	120"
Pre-prepped	No	No	No	No	No
Cylinder Size	Not Required	Not Required	#41 Std (#42 & #43 available)	#41 Std (#42 & #43 available)	Not Required
Shape	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"
Misc. Information	Designed for severe wind load conditions due to hurricanes or windstorms. Tested to Dade County Protocols & ASTM Standards	For 12-8800 - Channel Iron & Malleable iron top & bottom retainers.	Fire rated for 8'0" x 8'0" paired openings	See Notes Below	12-HD980 is for pair of doors over 8'0" to 10'0" for use with 2-8800 Rim Exits includes two piece strikes
Accessories	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601	Top Ret Pack - 98-2190 Bottom Ret Pack - 98-2191 Top Retainer Shim Kit - 601	Wall Mounting Kit - 98-2579 Top Ret Pack - 98-2559 Bottom Ret Pack - 98-2556 Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	- Top Retainer Pack: 98-2593 - Bottom Retainer Pack: 98-2594 - Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601

*Note: Cylinder Kits must be ordered separately

Note for HC980/12-HC980 Mullions:

- Designed for severe wind load conditions due to hurricanes or tornadoes
- Tested to Dade County protocols and ANSI 250.13 ASTM Standards and FEMA 361
- 12- Fire labeled version
- Replacement lock kits are available for lockable mullions Part numbers for each model are listed in the price book

HCL980 Mullion Information

- Model 12-HC-L980 may be supplied for doors UL fire APPROVED and including 3 hrs not exceeding 8 ft in width and height
- Meets the following standards: ANSI 250.13, ASTM F330 for Code Compliance, ASTM 1886, ASTM 1996, TAS 201, TAS 202 & TAS 203
- Designed for use with UL Classified HC8810, HC8800 and 12-HC8800 rim exit devices



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Mullion Accessories and Stabilizers

80 Series

Mullion Accessories

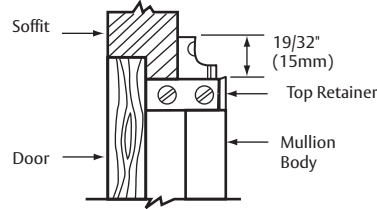
RK980

Latchbolt assembly retrofit kit with top and bottom retainers for 980 aluminum mullion



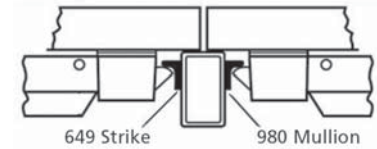
507 Narrow Transom Bars Adapter

- Available with 980 and 980A
- Required when soffit is 1-1/4" (32mm) to 2" (51mm) wide
- Order as a: 507 for 980 mullion or 507A for 980A mullion



980S Mullion Application

- All steel mullions are 2" x 3"

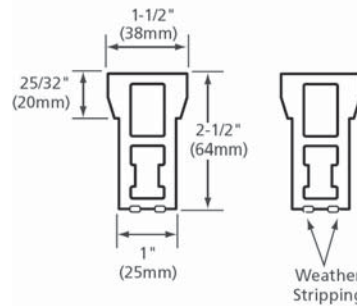


651 Mullion Stabilizer Kit

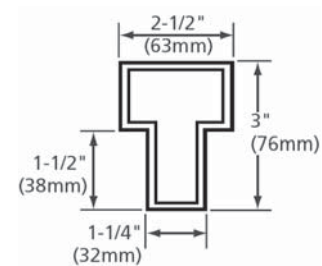


- Stabilizer block
- Furnished standard w/650A Mullion
- Order as a 651 Kit

650A Mullion



980 Mullion & L980 Lockable Mullion

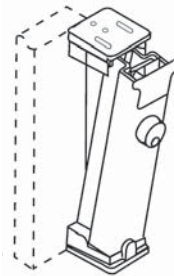


980C1 Cylinder Mullion Kit



- Lockable mullions only
- Aluminum and steel
- Includes cylinder and collar
- Available in 26D & 10B finish

Lockable Mullion



Lockable Mullion Cylinder Kit Options*

L980, L980A, L980S & HC-L980 mullions are available with these options: 10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82-, F1-82-, 83-, F1-83-, 84-, SC- & SE-.

EL980 mullion is available with these options:

10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82- & F1-82-.

*Lockable mullions are shipped without cylinders. Order Cylinder Mullion Kit separately.

980C2 Cylinder Mullion Kit



- Lockable mullions
- Electrified only
- Includes cylinder and collar
- Available in 26D finish only

Mullion Weights & Packaging

Product	Avg Wt	Case
Exit Device with Trim	15 lbs	1 ea
980 Mullion	18 lbs	1 ea
12-980 Mullion	40 lbs	1 ea
650A Mullion	18 lbs	1 ea



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Mechanical Options and Descriptions

80 Series

Mechanical Options:

Categories	How to Specify	Detailed Description
Fire Rated	12-	UL Fire Label Exit hardware (not available with 16- & HK-)
SVR Bolt	14-	Sliding bolt bottom case for 8700
Cylinder Dogging	16-	Cylinder lockdown with # 41 Cylinder & # 97 Ring (not available with 12-, 57, 59-, AL- or BT- Option)
	LD-	Less dogging for non fire rated devices
Less Touch Pad	19-	Pushbar without Lexan touchpad (not available TL-)
8900/8300 Strike	23-	4-7/8" (124mm) ANSI flat lip strike (for 8900 & 8300 Series Mortise Lock Exit Devices)
Thick Doors	31-	Doors over 1-3/4" and/or Panels (Specify door thickness, panel thickness & location as required) Not available for HC8700, FM8700, PP, PR & SP8700, PP, PR & SP8600, LP, LR & LP8700 Extended lip strike supplied for 8300 & 8900 Series
	36-	Six lobe security head screws
Security Fasteners	37-	Spanner head screws
	43-	Flush End Cap (Not available with LP, LR & LS Devices)
Indicator	49-	Indicator (Available on 8816 and 8866 functions only)
Electrical Options	53-	Latchbolt monitoring switch (not available with 59-, GL-, HC-, WS- or on FM8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	54-	Monitors ET Lever movement with Internal micro switch in ET Control
	55-	Request to Exit - Signal Switch in Rail (not available with 59- & FM8700)
	56-	Remote Latch Retraction (not available 57-, 58-, 59-, AL- or BT- Option)
	56-HK-	Remote Latch Retraction with manual Hex Key dogging (not available 12-, 57-, 58-, 59-, AL- or BT- Option)
	57-	Delayed Egress (Electromagnetic Lock required & purchased separately) (not available 16-, 53-, 56-, 56-HK, 58-, 59-, AL, Bc-59- or BT, GL, TL Prefixes) (NB, 54- are available on request)
	58-	Electric Rail Dogging (Not available 56- & 59-)
	59-	Electroguard® Self Contained Delayed Egress Device (not available with 16-, 53-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS Option Prefixes, PP/PR/SP8600, LP/LR/LS8600 Exit Devices) (NB, 54- are available upon request)
	AL-	Alarmed Exit (Not available 16-, 56-, 57-, 59-, BT-, GL-, HC- & WS-)
	BC-59-	Electroguard® Boca Code (Door Status Switch required) (not available with 16-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS- Options and on NB8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	TL-	SARGuide Electro-Luminescent Touchpad (not available 19-, 85-, 87- & PL-)
Tactile Warning Options	76-	Tactile Warning - Milled Outside Lever (not available with Studio & Coastal Levers and the A Lever)
	85-	Tactile Warning - Abrasive strip on Push Rail (Not available with PL- & TL-)
	86-	Tactile Warning - Abrasive coating on Outside Lever
	87-	Tactile Warning - Abrasive strip on Push Rail & Abrasive coating on Outside Lever (not available with PL- & TL-)
Finish Protection	CPC-	Clear Powder Coat (Available for 32 & 32D Finishes)
	SG-	MicroShield® antimicrobial clear powder coat (only available with 15, 26D and 32D finishes)
Top Rod Only	NB-	Less Bottom Rod & Bolt (for SVR & CVR Devices)
Guarded Latch	GL-	Guarded Latch for Rim Exit Devices (not available 53-, 56-, 59-, AL-, HC- & WS-)
SARGuide	PL-	SARGuide™ PL – Photoluminescent Coated Push Rail – (Touchpad eliminated) (not available 85, 87 & TL-)
Through Bolts	TB-	Through Bolts for 8300, 8500, 8600, 8700, 8800 & 8900 Devices
Rail Force	5CH-	5lb. Pressure Release (8800 only)



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Cylinder Options and Descriptions

80 Series

SARGENT[®]

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Cylinder Options:

Conventional Cylinder	-	SARGENT Conventional Cylinders Supplied Standard (Unless Otherwise Specified)
Degree Key System	DG1-	SARGENT Degree Key System Level 1 (bump resistant with patented keys)
	DG1-21-	Degree Level 1 Construction Master Keying
	DG1-60-	Degree Level 1 Removable Disposable Construction Core
	DG1-63-	Degree Level 1 Removable Core
	DG1-64-	Degree Level 1 Removable Construction Keyed LFIC
	DG1-65-	Degree Level 1 Unassembled/Uncombined Core
	DG2-	SARGENT Degree Key System Level 2 (geographically exclusive; bump and pick resistant)
	DG2-21-	Degree Level 2 Construction Master Keying
	DG2-60-	Degree Level 2 Removable Disposable Construction Core
	DG2-63-	Degree Level 2 Removable Core
	DG2-64-	Degree Level 2 Removable Construction Keyed LFIC
	DG2-65-	Degree Level 2 Unassembled/Uncombined Core
	DG3-	SARGENT Degree Key System Level 3 (geographically exclusive; UL437 certified; bump and pick resistant)
	DG3-21-	Degree Level 3 Construction Master Keying
	DG3-60-	Degree Level 3 Removable Disposable Construction Core
DG3-63-	Degree Level 3 Removable Core	
DG3-64-	Degree Level 3 Removable Construction Keyed LFIC	
DG3-65-	Degree Level 3 Unassembled/Uncombined Core	
Signature Key System	10-	SARGENT Signature Key System (Not Available with other Key Systems)
	10-21-	SARGENT Signature Construction Key System (Lost Ball)
Signature- LFIC	10-63-	SARGENT Signature Large Format Interchangeable Core Cylinder (Removable)
XC- Key System	11-	XC Key System (Not available with other Key systems unless specified)
	11-21-	XC- Construction Key System (Lost Ball)
XC- Large Format Interchangeable Core (Removable Core)	11-60-	Device to accept XC- Permanent Large Format Interchangeable Core, Disposable plastic Core- provided
	11-63-	Device provided with XC- Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	11-64-	Device provided with Keyed construction core to accept XC- Permanent Large Format Interchangeable Core (ordered separately)
XC- Small Format Interchangeable Core	11-70-7P-	Device to accept XC- SFIC (7-Pin) XC- Permanent Cores, plastic disposable core provided
	11-72-7P-	Device to accept XC- SFIC (7-Pin Keyed Construction Core provided) cylinder Permanent core ordered separately
	11-73-7P-	Device provided with XC- Small Format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)
	11-65-73-7P-	Device provided to accept XC- Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose)
Construction Key Systems	21-	SARGENT Lost Ball Construction Keying for Conventional, XC and Signature Series (N/A with 63- or 73-)
	22-	SARGENT Construction Split Key System for Conventional Cylinders (Existing Systems Only) (N/A with 10-, 11-, 63- or 73-)
Old Style Removable Core	51-	Removable Core Cylinder (Old Style) provided (existing systems only)
	52-	Removable Construction Core (Old Style) Permanent core ordered separately (existing systems only)
Large Format Interchangeable Core (Removable Core)	60-	Device to accept SARGENT Permanent Large Format Interchangeable Core, Disposable plastic Core provided (Permanent Cores ordered separately)
	63-	Device provided with Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	64-	Device provided with Keyed construction core to accept Permanent Large Format Interchangeable Core (ordered separately)
Small Format Interchangeable Core	70-	Device to accept 6- or 7-Pin SFIC Permanent Cores, plastic disposable core provided
	72-	Device to accept 6- or 7-Pin SFIC (6-Pin Keyed Construction Core provided) Cylinder (Permanent Core ordered separately)
	73-	Device provided with 6-Pin SFIC (Includes masterkeying, grand masterkeying)
	65-73-	Device provided to accept Uncombined 6-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	65-73-7P-	Device provided to accept Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	73-7P-	Device provided with Small Format 7-Pin Interchangeable Core (Includes masterkeying, grand masterkeying)
	81-	Device provided with housings to accept Keso (83) & Keso F1 (F1-83-) removable cores. (Permanent Cores ordered separately)
Keso & Keso F1	82-	Device provided with SARGENT Keso Security Cylinder
	F1-82-	Device provided with SARGENT Keso F1 Security Cylinder (Patented)
	83-	Device provided with SARGENT Keso Security Removable Core cylinder
	F1-83-	Device provided with SARGENT Keso F1 Security Removable Core cylinder (Patented)
	84-	Device provided with SARGENT Keso Construction Cores (Permanent Cores ordered separately)
Added Security	BR-	Bump Resistant Cylinder (Available with Conventional & Conventional XC Cylinders Only)
Less Cylinder	LC-	Less Cylinder - SARGENT supplies standard blocking rings for 1-1/8" Cylinders (For longer cylinders order collars/rings separately)
Schlage Keyways	SC-	Schlage C keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
	SE-	Schlage E keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
Lever to Accept Schlage	SF-	L Lever to accept MEDECO KeyMark Large Format Interchangeable and Schlage Full Size Interchangeable Core (Supplied Less Cylinder, but with tailpiece needed) (Available for 88-KLL & 88-CLL)

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Note: For V-10 Cylinders and information, contact ASSA

76

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ASSA ABLOY, the global leader in door opening solutions

90641 03/19

AD8500 Narrow Design Rim Exit Device for Aluminum Doors

80 Series

SARGENT®

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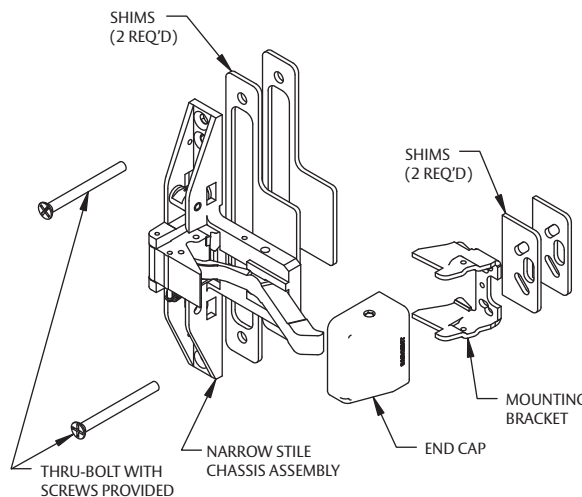
AD8500 Series
Narrow Design Rim Exit Device

Specifications for AD8500 Series Exit

Door Type	Aluminum Doors
Door Thickness	1-3/4" (44mm) minimum thickness. For doors over 1-3/4" to 2 1/4" thick, specify thickness and order as 31-
Stile	2" (114mm) minimum stile (Less Trim)
Rail sizes as determined by door width	Rails are available in 4 sizes, use door width to determine size needed. Rails will be factory cut to size, if door width is supplied <ul style="list-style-type: none"> • E Rail for 24" to 32" door widths • F Rail for 33" to 36" door widths • J Rail for 37" to 42" door widths • G Rail for 43" to 48" door widths
Strike	657 Strike, Supplied standard for panic devices 656 Strike, Supplied standard for panic devices 649 Strike, Supplied standard for fired rated devices Optional Strikes – 649, 658 Standard with 650A Mullion
Dogging Feature	Hex key dogging standard; specify 16- for cylinder dogging (#41 cylinder supplied)
Electric Options	AL- Alarm PL- SARGuide™ Photoluminescent Coated TL- SARGuide™ Illuminated Touchpad 53- LX Latchbolt Monitor 54- Outside Lever Monitoring 55- Request-to-Exit Signal - Rail Monitoring 56- Remote Latch Retraction 57- Delay Egress & Electromagnets 58- Electric Dogging 59- Electroguard – Self Contained Delayed Egress
Mounting Fasteners	Supplied standard with wood and machine screws Available with through-bolts and mortise (sex) nuts
Latch Bolt	Stainless steel, 3/4" (19mm) throw
Device Centerline from Finished Floor	41" (1041 mm) for Standard Applications
Center Case Dimensions	8-5/16" (211mm) x 1-1/16" (27mm)
Projection	Pushbar Neutral – 3" (77mm) Pushbar Depressed – 2-1/8" (54mm)

535 Kit for Windstorm Applications (WS-AD8500)

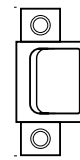
- Two Chassis Shims and Two End Cap Shims
- Shims are 1/8" for a total height of 1/4"
- 649 Strike Pack
- 651 Stabilizer Kit



AD8500 Features

- Designed for narrow stile applications (e.g., aluminum frame full glass doors)
- Single and double doors with mullion
- Single point rim latching device
- Quiet operation and solid security
- Devices are ANSI/BHMA A156.3 - Grade 1
- Available Windstorm-rated; order WS-

657 Standard Strike for 8500



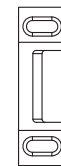
- Surface applied or mortised
- For use on frames with blade stop or integral stop
- Black nylon coated

651 Mullion Stabilizer Kit



- Stabilizer block
- Furnished standard w/650A Mullion
- Order as a 651 Kit

656 Mullion Strike



- Surface applied
- Use with 980 mullions
- Black nylon coated

604 Wear Plate Kit



- Surface applied
- Accommodates all sizes of door frame face



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Date: 05/16/2024

Permit # 2024110

AD8500 Narrow Design Rim Exit Device Functions & Trim

80 Series



How to order:	Options F1-83-56	Series AD85	Function 13	Rail Lgth F	Trim ETL	Hand RHR	Outside Finish 15	Inside Finish 32D	Door Width 36"
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700 Series ET Trim



Exits with ET Trim, specify lever design after the ET designation (e.g., ETL)

Lever Designs for ET Controls

A, B, E, F, J, L, P, W

Also available with Coastal Series & Studio Collection Levers

ET Designation with Suffix (Used to order ET without device)

AD8500 Series: 704, 706-8, 710, 713-8, 715-8, 740, 743-8, 744, 746-8, 773-8 & 774-8

Freewheeling Trim

The lever rotates when the door is locked preventing excessive force from being applied to the horizontal lever

Electrified ET Trim

Voltage must be specified for the following functions: 73 and 74. Specify: 12VDC or 24VDC

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info. (1-3/4" Door)	ANSI Type 4 AD8500 Panic
04*	03	Night Latch Key Retracts Latch #34 Cylinder Supplied	AD8504 x ET_
06	09	Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8506 x ET_
10	01	No outside operation (No Cylinder)	AD8510
10	02	No outside operation (No Cylinder) ET Control is used as Pull Only	AD8510 x ET_
13	08	Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8513 x ET_
15	14	Passage Only (No cylinder)	AD8515 x ET_
40	02	Freewheeling Trim - No outside operation (No Cylinder) Dummy Trim	AD8540 x ET_
43	08	Freewheeling Trim - Key Outside Unlocks/locks Trim #41 Cylinder Supplied	AD8543 x ET_
44	03	Freewheeling Trim - Key Retracts Latch #34 Cylinder Supplied	AD8544 x ET_
46	09	Freewheeling Trim - Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	AD8546 x ET_
73		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever (No Cylinder)**	AD8573 x ET_
74		Electrified ET Trim - Fail Secure Power Off, Locks Lever (No Cylinder)**	AD8574 x ET_

Note: Exit devices are available in all standard finishes, except 14, 15, 26 & 26D. With these finishes, exit devices are supplied in 32 or 32D to match accordingly. 32 or 32D is automatically supplied when 26 or 26D is specified. For nickel finishes, specify 14/32 or 15/32D to receive nickel finished trims and stainless exit devices

* Consult factory when using with cylinders from other manufacturers

** Cylinder override is not available with AD8500 Series Devices

Options
AD8500
Mechanical Options:
12- 16- 19- 31- 36- 37- 43- 53- 54- 55- 56- 56-HK- 57- 58- 59- 5CH- BC-59- 76- 85- 86- 87- AL- BT- CPC- GL- LD- PL- *SG- TL- WS-
Cylinder Options:
10- 10-21- 10-63- 11- 11-21- 11-60- 11-63- 11-64- 11-70-7P- 11-72-7P- 11-73-7P- 11-65-73-7P- 21- 22- 51- 52- 60- 63- 64- 70- 72- 73- 65-73- 65-73-7P- 73-7P- 81- 82- F1-82- 83- F1-83- 84- BR- LC- SC- SE-


* Only available with 15, 26D and 32D finishes

Trim designations

Series



AD8500 Panic

Pull Trim Section	SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info. (1-3/4" Door)
 862 Pull	04	03	Night Latch Key Retracts Latch #34 Cylinder Supplied
	10	02	862 Pull Only (Optional Pulls: 863 & 864)

Available Finishes

SARGENT Finishes	BHMA Finishes
03	605
04	606
09	611
10	612
15	613
20D	613E
26D	614
32	618
32D	619
32D	624
32D	625
32D	626
32D	629
32D	630
BSP	-
WSP	-

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Date: 32
Permit #: 32D

BSP
WSP

80 Series Exit Device



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Date: 09/16/2024
Permit # 22548180

Cylinder Information for Exit Devices

Cylinder Chart: Exit Device Series x Function		ET Trim (700 Series Auxiliary Control)		PTB, PSB, STS, MAL, MSL, FLL, FSL, FLW, FSW	
		Door Thickness	1-3/4" (44mm)	2-1/4" (57mm)	1-3/4" (44mm)
Narrow Stile Mortise Exit Device	8304	46	48	41	43
	8313/8343	41	41	Not Available	
	8344	46	48	Not Available	
	8363	Not Available		41	43
	8375/8376	46	48	Not Available	
Narrow Stile CVR Exit Device	All 8400	41	41	Not Available	
Narrow Stile Rim Exit	8504	34	34	Not Available	
	8513/8543	41	41	Not Available	
Concealed Vertical Rod Exit Devices	All LP/LR/LS8600	41	Not Available		
	All SP/PP/PR8600	41	Not Available		
	All AD, MD & WD8600	41	41	Not Available	
Surface Vertical Rod Exit Devices	8706/8713/8743/8746	41	41	Not Available	
	8762/8763	Not Available		34	34
	All SP/PP/PR8700	41	N/A	Not Available	
Rim Exit Devices	8804	34	34	34	34
	8806/8813/8843/8846	41	41	Not Available	
	8816	34/*44	34/*44	Not Available	
	8844	34	34	Not Available	
	8863	Not Available		34	34
	8866	Not Available		34/*44	34/*44
	8875/8876/8877	34	34	Not Available	
	8904	46	48	41	43
Mortise Lock Exit Devices	8913/8943	41	41	Not Available	
	8916	*34/46	*34/48	Not Available	
	8944	46	48	Not Available	
	8963	Not Available		41	43
	8966	Not Available		*41/34	*43/34
	8975/8976	46	48	Not Available	

* Inside Cylinders

Chart shows cylinder type and size for conventional SARGENT cylinders.

Note: Cylinder sizes & types are limited, as noted: SC- & SE- cylinders are available in size 41

60-, 63- & 64- cylinders are available in sizes 42, 43, 44 & 46

70-, 11-70-, 72-, 11-72-, 73- & 11-73 cylinders are available in sizes 43 & 46

Note: The 8888's Lever & Rose Trim cylinder standard is the standard SARGENT 10 Line cylinder (13-3266)

Note: 41 Cylinder is 1-1/8" in length; For each additional digit, the cylinder is a 1/8" longer. Example: 42 is 1-1/4"; 43 is 1-3/8" and 46 is 1-3/4"

Note: SARGENT supplies standard blocking rings. Specify if using competitor cylinders



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Mullions: Aluminum, Steel and Electrified

80 Series

Aluminum Mullions			
Product Designation	650A	980	L980
Description	Removable	Removable	Lockable
Material	Aluminum	Aluminum	Aluminum
Standard Finish	US28/Satin Anodized Aluminum	Prime Coat	Aluminum Prime Coat
Options	Specify "650A x 10B" for 313AN to match 10B	Specify "980A" for Anodized US28/ Satin Aluminum	Specify: "L980A" Anodized Aluminum Specify: "L980A x10B" for 313AN to match 10B
Stk Size	96"	96"	96"
Max Stk Height	120"	120"	120"
Pre-prepped	658 Strikes Included	No	No
Cylinder Size	Not Required	Not Required	#41
Shape	1-1/2" x 2-1/2"	T Shaped 2-1/2" x 3"	T Shaped 2-1/2" x 3"
Misc. Information and Accessories	Includes 651 Stabilizers and imbedded Weather Stripping Top Retainer 94-2050 Bottom Retainer 94-2051	Top Retainer - 511 Bottom Retainer - 502 Adapter for narrow transom: 507 - Aluminum Prime Coated 507A - Anodized Aluminum	All Cylinder Options Available Wall Mount Kit 98-2578 Top Ret Pack 98-2526 Bottom Ret Pack 98-2525 Cylinder Kit 980C1*

Electrified
EL980
Electrical Lockable
Steel
Gray Paint
Wall Mounting Kit: 98-2580 Top Ret Pack :98-2559
96"
120"
No
#46 Only
Rectangular 2" x 3"
For use with Electric Strikes and Monitoring, Quick Connect Wiring Supplied Cylinder Kit 980C2*

*Note: Cylinder Kits must be ordered separately

Steel Mullions					
Product Designations	HC980	980S	L980S	HCL980	12-HD980
Description	Hurricane Code	Standard Mullion	Lockable	Lockable Hurricane Code	Heavy Duty
Material	Steel	Steel	Steel	Steel	Steel
Fire Rated	Specify 12-HC980	Specify 12-980	Specify 12-L980	Specify 12-HCL980	Specify 12-HD980
Fire Rated Max Height	96"	96"	96"	96"	120"
Finish	Gray Paint	Gray Paint	Gray Paint	Gray Paint	Gray Paint
Stk Size	96"	96"	96"	96"	120"
Max Stk Height	96"	120"	120"	96"	120"
Pre-prepped	No	No	No	No	No
Cylinder Size	Not Required	Not Required	#41 Std (#42 & #43 available)	#41 Std (#42 & #43 available)	Not Required
Shape	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"
Misc. Information	Designed for severe wind load conditions due to hurricanes or windstorms. Tested to Dade County Protocols & ASTM Standards	For 12-8800 - Channel Iron & Malleable iron top & bottom retainers.	Fire rated for 8'0" x 8'0" paired openings	See Notes Below	12-HD980 is for pair of doors over 8'0" to 10'0" for use with 2-8800 Rim Exits includes two piece strikes
Accessories	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601	Top Ret Pack - 98-2190 Bottom Ret Pack - 98-2191 Top Retainer Shim Kit - 601	Wall Mounting Kit - 98-2579 Top Ret Pack - 98-2559 Bottom Ret Pack - 98-2556 Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	- Top Retainer Pack: 98-2593 - Bottom Retainer Pack: 98-2594 - Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601

*Note: Cylinder Kits must be ordered separately

Note for HC980/12-HC980 Mullions:

- Designed for severe wind load conditions due to hurricanes or tornadoes
- Tested to Dade County protocols and ANSI 250.13 ASTM Standards and FEMA 361
- 12- Fire labeled version
- Replacement lock kits are available for lockable mullions Part numbers for each model are listed in the price book

HCL980 Mullion Information

- Model 12-HC-L980 may be supplied for doors UL fire APPROVED and including 3 hrs not exceeding 8 ft in width and height
- Meets the following standards: ANSI 250.13, ASTM F330 for Code Compliance, ASTM 1886, ASTM 1996, TAS 201, TAS 202 & TAS 203
- Designed for use with UL Classified HC8810, HC8800 and 12-HC8800 rim exit devices



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Mullion Accessories and Stabilizers

80 Series

Mullion Accessories

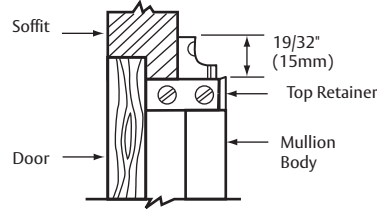
RK980

Latchbolt assembly retrofit kit with top and bottom retainers for 980 aluminum mullion



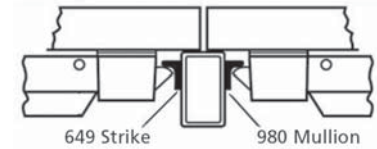
507 Narrow Transom Bars Adapter

- Available with 980 and 980A
- Required when soffit is 1-1/4" (32mm) to 2" (51mm) wide
- Order as a: 507 for 980 mullion or 507A for 980A mullion



980S Mullion Application

- All steel mullions are 2" x 3"

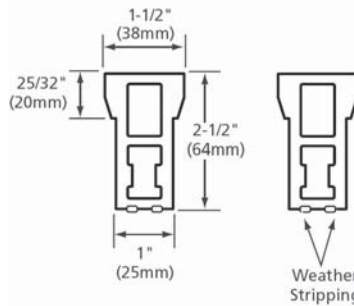


651 Mullion Stabilizer Kit

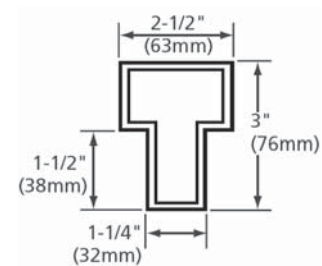


- Stabilizer block
- Furnished standard w/650A Mullion
- Order as a 651 Kit

650A Mullion



980 Mullion & L980 Lockable Mullion

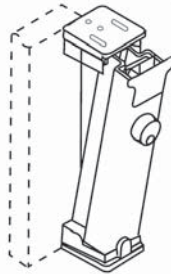


980C1 Cylinder Mullion Kit



- Lockable mullions only
- Aluminum and steel
- Includes cylinder and collar
- Available in 26D & 10B finish

Lockable Mullion



Lockable Mullion Cylinder Kit Options*

L980, L980A, L980S & HC-L980 mullions are available with these options: 10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82-, F1-82-, 83-, F1-83-, 84-, SC- & SE-.

EL980 mullion is available with these options:

10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82- & F1-82-.

*Lockable mullions are shipped without cylinders. Order Cylinder Mullion Kit separately.

980C2 Cylinder Mullion Kit



- Lockable mullions
- Electrified only
- Includes cylinder and collar
- Available in 26D finish only

Mullion Weights & Packaging

Product	Avg Wt	Case
Exit Device with Trim	15 lbs	1 ea
980 Mullion	18 lbs	1 ea
12-980 Mullion	40 lbs	1 ea
650A Mullion	18 lbs	1 ea



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Mechanical Options and Descriptions

80 Series

Mechanical Options:

Categories	How to Specify	Detailed Description
Fire Rated	12-	UL Fire Label Exit hardware (not available with 16- & HK-)
SVR Bolt	14-	Sliding bolt bottom case for 8700
Cylinder Dogging	16-	Cylinder lockdown with # 41 Cylinder & # 97 Ring (not available with 12-, 57, 59-, AL- or BT- Option)
	LD-	Less dogging for non fire rated devices
Less Touch Pad	19-	Pushbar without Lexan touchpad (not available TL-)
8900/8300 Strike	23-	4-7/8" (124mm) ANSI flat lip strike (for 8900 & 8300 Series Mortise Lock Exit Devices)
Thick Doors	31-	Doors over 1-3/4" and/or Panels (Specify door thickness, panel thickness & location as required) Not available for HC8700, FM8700, PP, PR & SP8700, PP, PR & SP8600, LP, LR & LP8700 Extended lip strike supplied for 8300 & 8900 Series
	36-	Six lobe security head screws
Security Fasteners	37-	Spanner head screws
	43-	Flush End Cap (Not available with LP, LR & LS Devices)
Indicator	49-	Indicator (Available on 8816 and 8866 functions only)
Electrical Options	53-	Latchbolt monitoring switch (not available with 59-, GL-, HC-, WS- or on FM8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	54-	Monitors ET Lever movement with Internal micro switch in ET Control
	55-	Request to Exit - Signal Switch in Rail (not available with 59- & FM8700)
	56-	Remote Latch Retraction (not available 57-, 58-, 59-, AL- or BT- Option)
	56-HK-	Remote Latch Retraction with manual Hex Key dogging (not available 12-, 57-, 58-, 59-, AL- or BT- Option)
	57-	Delayed Egress (Electromagnetic Lock required & purchased separately) (not available 16-, 53-, 56-, 56-HK, 58-, 59-, AL, Bc-59- or BT, GL, TL Prefixes) (NB, 54- are available on request)
	58-	Electric Rail Dogging (Not available 56- & 59-)
	59-	Electroguard® Self Contained Delayed Egress Device (not available with 16-, 53-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS Option Prefixes, PP/PR/SP8600, LP/LR/LS8600 Exit Devices) (NB, 54- are available upon request)
	AL-	Alarmed Exit (Not available 16-, 56-, 57-, 59-, BT-, GL-, HC- & WS-)
	BC-59-	Electroguard® Boca Code (Door Status Switch required) (not available with 16-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS- Options and on NB8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	TL-	SARGuide Electro-Luminescent Touchpad (not available 19-, 85-, 87- & PL-)
Tactile Warning Options	76-	Tactile Warning - Milled Outside Lever (not available with Studio & Coastal Levers and the A Lever)
	85-	Tactile Warning - Abrasive strip on Push Rail (Not available with PL- & TL-)
	86-	Tactile Warning - Abrasive coating on Outside Lever
	87-	Tactile Warning - Abrasive strip on Push Rail & Abrasive coating on Outside Lever (not available with PL- & TL-)
Finish Protection	CPC-	Clear Powder Coat (Available for 32 & 32D Finishes)
	SG-	MicroShield® antimicrobial clear powder coat (only available with 15, 26D and 32D finishes)
Top Rod Only	NB-	Less Bottom Rod & Bolt (for SVR & CVR Devices)
Guarded Latch	GL-	Guarded Latch for Rim Exit Devices (not available 53-, 56-, 59-, AL-, HC- & WS-)
SARGuide	PL-	SARGuide™ PL – Photoluminescent Coated Push Rail – (Touchpad eliminated) (not available 85, 87 & TL-)
Through Bolts	TB-	Through Bolts for 8300, 8500, 8600, 8700, 8800 & 8900 Devices
Rail Force	5CH-	5lb. Pressure Release (8800 only)



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Cylinder Options and Descriptions

80 Series

SARGENT[®]

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Cylinder Options:

Conventional Cylinder	-	SARGENT Conventional Cylinders Supplied Standard (Unless Otherwise Specified)
Degree Key System	DG1-	SARGENT Degree Key System Level 1 (bump resistant with patented keys)
	DG1-21-	Degree Level 1 Construction Master Keying
	DG1-60-	Degree Level 1 Removable Disposable Construction Core
	DG1-63-	Degree Level 1 Removable Core
	DG1-64-	Degree Level 1 Removable Construction Keyed LFIC
	DG1-65-	Degree Level 1 Unassembled/Uncombined Core
	DG2-	SARGENT Degree Key System Level 2 (geographically exclusive; bump and pick resistant)
	DG2-21-	Degree Level 2 Construction Master Keying
	DG2-60-	Degree Level 2 Removable Disposable Construction Core
	DG2-63-	Degree Level 2 Removable Core
	DG2-64-	Degree Level 2 Removable Construction Keyed LFIC
	DG2-65-	Degree Level 2 Unassembled/Uncombined Core
	DG3-	SARGENT Degree Key System Level 3 (geographically exclusive; UL437 certified; bump and pick resistant)
	DG3-21-	Degree Level 3 Construction Master Keying
	DG3-60-	Degree Level 3 Removable Disposable Construction Core
DG3-63-	Degree Level 3 Removable Core	
DG3-64-	Degree Level 3 Removable Construction Keyed LFIC	
DG3-65-	Degree Level 3 Unassembled/Uncombined Core	
Signature Key System	10-	SARGENT Signature Key System (Not Available with other Key Systems)
	10-21-	SARGENT Signature Construction Key System (Lost Ball)
Signature- LFIC	10-63-	SARGENT Signature Large Format Interchangeable Core Cylinder (Removable)
XC- Key System	11-	XC Key System (Not available with other Key systems unless specified)
	11-21-	XC- Construction Key System (Lost Ball)
XC- Large Format Interchangeable Core (Removable Core)	11-60-	Device to accept XC- Permanent Large Format Interchangeable Core, Disposable plastic Core- provided
	11-63-	Device provided with XC- Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	11-64-	Device provided with Keyed construction core to accept XC- Permanent Large Format Interchangeable Core (ordered separately)
XC- Small Format Interchangeable Core	11-70-7P-	Device to accept XC- SFIC (7-Pin) XC- Permanent Cores, plastic disposable core provided
	11-72-7P-	Device to accept XC- SFIC (7-Pin Keyed Construction Core provided) cylinder Permanent core ordered separately
	11-73-7P-	Device provided with XC- Small Format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)
	11-65-73-7P-	Device provided to accept XC- Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose)
Construction Key Systems	21-	SARGENT Lost Ball Construction Keying for Conventional, XC and Signature Series (N/A with 63- or 73-)
	22-	SARGENT Construction Split Key System for Conventional Cylinders (Existing Systems Only) (N/A with 10-, 11-, 63- or 73-)
Old Style Removable Core	51-	Removable Core Cylinder (Old Style) provided (existing systems only)
	52-	Removable Construction Core (Old Style) Permanent core ordered separately (existing systems only)
Large Format Interchangeable Core (Removable Core)	60-	Device to accept SARGENT Permanent Large Format Interchangeable Core, Disposable plastic Core provided (Permanent Cores ordered separately)
	63-	Device provided with Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	64-	Device provided with Keyed construction core to accept Permanent Large Format Interchangeable Core (ordered separately)
Small Format Interchangeable Core	70-	Device to accept 6- or 7-Pin SFIC Permanent Cores, plastic disposable core provided
	72-	Device to accept 6- or 7-Pin SFIC (6-Pin Keyed Construction Core provided) Cylinder (Permanent Core ordered separately)
	73-	Device provided with 6-Pin SFIC (Includes masterkeying, grand masterkeying)
	65-73-	Device provided to accept Uncombined 6-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	65-73-7P-	Device provided to accept Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	73-7P-	Device provided with Small Format 7-Pin Interchangeable Core (Includes masterkeying, grand masterkeying)
	81-	Device provided with housings to accept Keso (83) & Keso F1 (F1-83-) removable cores. (Permanent Cores ordered separately)
Keso & Keso F1	82-	Device provided with SARGENT Keso Security Cylinder
	F1-82-	Device provided with SARGENT Keso F1 Security Cylinder (Patented)
	83-	Device provided with SARGENT Keso Security Removable Core cylinder
	F1-83-	Device provided with SARGENT Keso F1 Security Removable Core cylinder (Patented)
	84-	Device provided with SARGENT Keso Construction Cores (Permanent Cores ordered separately)
Added Security	BR-	Bump Resistant Cylinder (Available with Conventional & Conventional XC Cylinders Only)
Less Cylinder	LC-	Less Cylinder - SARGENT supplies standard blocking rings for 1-1/8" Cylinders (For longer cylinders order collars/rings separately)
Schlage Keyways	SC-	Schlage C keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
	SE-	Schlage E keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
Lever to Accept Schlage	SF-	L Lever to accept MEDECO KeyMark Large Format Interchangeable and Schlage Full Size Interchangeable Core (Supplied Less Cylinder, but with tailpiece needed) (Available for 88-KLL & 88-CLL)

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Note: For V-10 Cylinders and information, contact ASSA

76

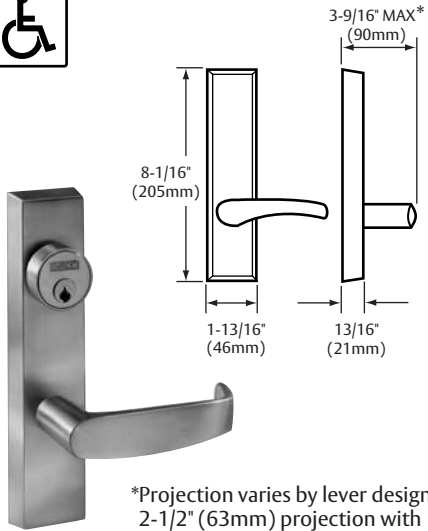
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ASSA ABLOY, the global leader in door opening solutions



ET Trim, Levers and Pulls
80 Series

ET Lever Controls

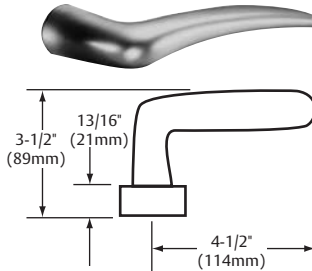


*Projection varies by lever design. 2-1/2" (63mm) projection with L Lever

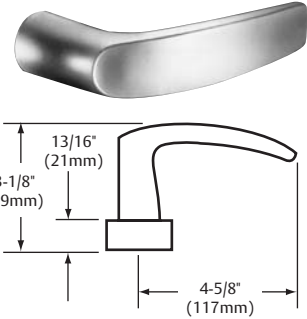
Note: ET suffixes required when ordering ET trim without an exit device, see page 74 for complete details

A Lever

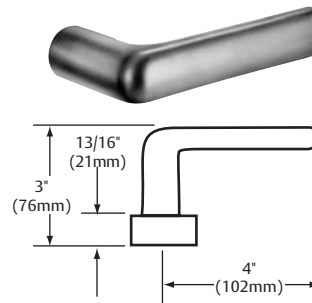
- Handed



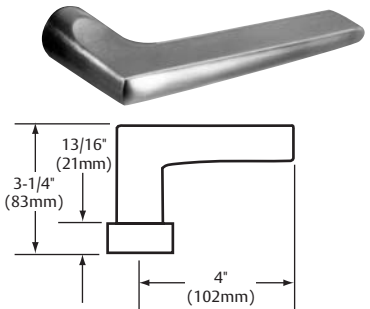
B Lever



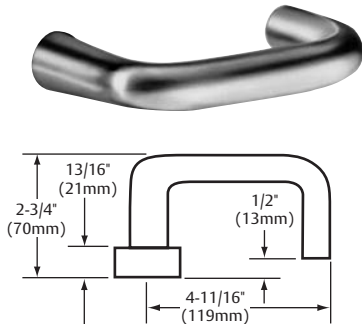
E Lever



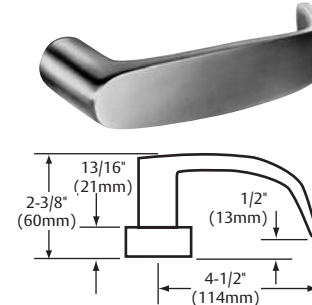
F Lever



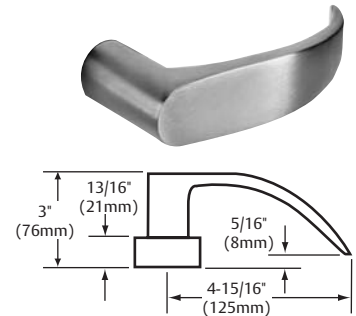
J Lever*



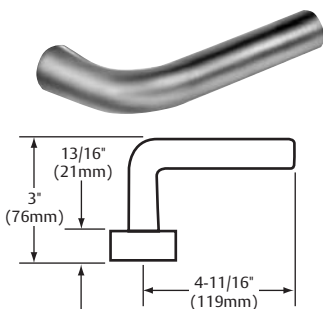
L Lever*



P Lever*

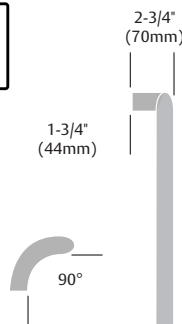


W Lever

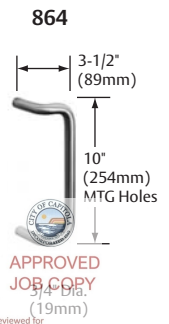
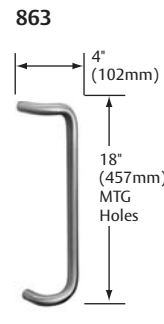
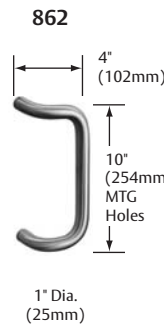


* Lever returns within 1/2" (13mm) of door face

Pulls



SIDE PROFILE



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3/4" Dia.
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NB-8700 Top Latch Surface Vertical Rod Exit Device

80 Series

SARGENT®

ASSA ABLOY



Features

- Single point top latching
- Top latchbolt projection adjustable through center case
- ANSI/BHMA A156.3 - Grade 1
- UL10C (Fire) and UL305 (Panic) Listed
- Tripping potential removed - no bottom strike
- Rods are 1/2" (13mm) brass, bronze or stainless steel

Specifications for NB-8700 Series Exit

Door Type	Wood or metal doors
Door Thickness	1-3/4" (44mm) minimum thickness. For doors over 1-3/4" to 2-1/4" thick, specify thickness and order as 31-
Stile	4-1/2" (114mm) minimum stile with trim and 3-1/2" (44mm) minimum stile without trim
Rail sizes as determined by door width	Rails are available in 4 sizes, use door width to determine size needed. Rails will be factory cut to size, if door width is supplied <ul style="list-style-type: none"> • E Rail for 24" to 32" door widths, No cutting required for 32" door • F Rail for 33" to 36" door widths, No cutting required for 36" door • J Rail for 37" to 42" door widths, No cutting required for 42" door • G Rail for 43" to 48" door widths, No cutting required for 48" door
Strike	646 Top Strike (Panic and Fire Rated)
Dogging Feature	Hex key dogging standard on non fire rated devices; specify 16- for cylinder dogging (#41 cylinder supplied)
Electric Options	AL- Alarm PL- SARGuide Photoluminescent Coated TL- SARGuide Illuminated Touchpad 53- LX Latchbolt Monitor 54- Outside Lever Monitoring 55- Request-to-Exit Signal - Rail Monitoring 56- Remote Latch Retraction 57- Delay Egress & Electromagnets 58- Electric Dogging 59- Delayed Egress
Mounting Fasteners	Supplied standard with wood and machine screws Available with through-bolts and mortise (sex) nuts
Top Bolt	Stainless steel
Device Centerline from Finished Floor	41" (1041mm) for Standard Applications
Door/Opening Height	Must be specified - 120" (3048mm) Max Door Opening
Center Case Dimensions	8-3/8" (213mm) x 2-5/8" (67mm)
Projection	Pushbar Neutral – 3" (76 mm) Pushbar Depressed – 2-1/8" (54 mm)
Fire Exit Hardware	See Chart – Page 6

NB-300 Series Aux Control

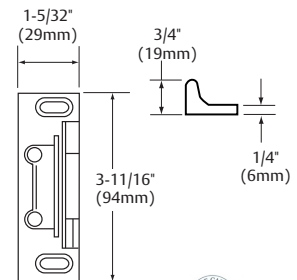
- Available as an 06 or 13 function
- Supplied with SARGENT #41 Mortise Cylinder
- NB-300 is mounted in-line with the exit chassis



Note: NB 300 Series Controls only work with NB8710 Devices

646 Top Strike

- Standard for both Panic & Fire (12-) Hardware
- Surface applied
- Fire Rated
- Black nylon coated



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90641 03/19

16

1-800-727-5477 • www.sargentlock.com

ASSA ABLOY, the global leader in door opening solutions

NB-8700 Functions and Trims

80 Series

How to order:	Options 12-	Series NB-87	Function 13	Rail Lgth F	Trim ETL	Hand RHR	Outside Finish 26D	Inside Finish 32D	Door Width 36"	Door Height 84"	AFF 41"
----------------------	-----------------------	------------------------	-----------------------	-----------------------	--------------------	--------------------	------------------------------	-----------------------------	--------------------------	---------------------------	-------------------

700 Series ET Trim



Exits with ET Trim, specify lever design after the ET designation (e.g., ETL)

Lever Designs for ET Controls

A, B, E, F, J, L, P, W
Also available with Coastal Series & Studio Collection Levers

ET Designation with Suffix (Used to order ET without device)

NB-8700 Series: 706-8, 710, 713-8, 715-8, 740, 743-8, 746-8, 773-8 & 774-8

Freewheeling Trim

The lever rotates when the door is locked preventing excessive force from being applied to the horizontal lever

Electrified ET Trim

Voltage must be specified for the following functions: 73 and 74. Specify: 12VDC or 24VDC

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info (1-3/4" Door)	ANSI Type 2 NB-8700 (Panic & Fire)
06	09	Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied	NB-8706 x ET_
10	01	No outside operation (No Cylinder)	NB-8710
10	02	No outside operation (No Cylinder) ET Control is used as Pull Only	NB-8710 x ET_
13	08	Key Outside unlocks/locks trim #41 Cylinder Supplied	NB-8713 x ET_
15	14	Passage Only (No cylinder)	NB-8715 x ET_
40	02	Freewheeling Trim - No outside operation (No Cylinder) Dummy Trim	NB-8740 x ET_
43	08	Freewheeling Trim - Key Outside Unlocks/locks Trim #41 Cylinder Supplied	NB-8743 x ET_
46	09	Freewheeling Trim - Key unlocks Trim, Trim retracts latch/ relocks when key is removed #41 Cylinder Supplied	NB-8746 x ET_
73		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever (No Cylinder)*	NB-8773 x ET_
74		Electrified ET Trim - Fail Secure Power Off, Locks Lever (No Cylinder)*	NB-8774 x ET_


Note: Exit devices are available in all standard finishes, except 14, 15, 26 & 26D. With these finishes, exit devices are supplied in 32 or 32D to match accordingly. 32 or 32D is automatically supplied when 26 or 26D is specified. For nickel finishes, specify 14/32 or 15/32D to receive nickel finished trims and stainless exit devices

Note: AFF means Above Finished Floor, center line of rail Above Finished Floor

Note: 12-NB8700 devices require thermal pins

Note: 12-NB Applications require thermal pin. Thermal Pin supplied when ordered as a 12-NB Device.

* Cylinder override is not available with NB-8700 Series Devices

NB-300 Series Auxiliary Control	SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info (1-3/4" Door)	NB-8700 Panic & Fire
	06	12	Key unlocks Turn, Turn retracts latch/ Turn relocks when key is removed #41 Cylinder Supplied	NB-8710 x 306
NB300 Series Aux. Control	13	11	Key Outside Unlocks/locks Turn #41 Cylinder Supplied	NB-8710 x 313

Note: When ordering NB-8700 Series Exit Device x 300 Series Aux. Control, specify 10 Function for the exit. Example: NB-8710F x NB-306 x RHR x 32D x 42" x 90"

Note: NB-300 Series auxiliary controls are only used with NB-8710 Devices.

Auxiliary controls, ordered less hardware, for use with NB-8710 are specified as a NB-306 or NB-313 x finish.

Options

NB-8700

Mechanical Options:

- 12-
- 16-
- 19-
- 31-
- 36-
- 37-
- 43-
- 53-
- 54-
- 55-
- 56-
- 56-HK-
- 57-
- 58-
- 59-
- 5CH-
- 76-
- 85-
- 86-
- 87-
- AL-
- BT-
- CPC-
- LD-
- PL-
- *SG-
- TB-
- TL-

Cylinder Options:

- 10-
- 10-21-
- 10-63-
- 11-
- 11-21-
- 11-60-
- 11-63-
- 11-64-
- 11-70-7P-
- 11-72-7P-
- 11-73-7P-
- 11-65-73-7P-
- 21-
- 22-
- 51-
- 52-
- 60-
- 63-
- 64-
- 70-
- 72-
- 73-
- 65-73-
- 65-73-7P-
- 73-7P-
- 81-
- 82-
- F1-82-
- 83-
- F1-83-
- 84-
- BR-
- LC-
- SC-
- SE-

* Only available with 15, 26D and 32D finishes

Available Finishes

SARGENT Finishes	BHMA Finishes
03	605
04	606
09	611
10	612
11	613
12	613E
13	614
14	618
15	619
20D	624
26	625
26D	626
32	629
32D	630
BSP	—
WSP	—



80 Series Exit Device



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Date: 09/16/2024
Permit # 22548180

Windstorm Certifications

80 Series

SARGENT[®]

ASSA ABLOY

Windstorm Certifications: Florida Building Codes & UL Listings

SARGENT Manufacturing's products meet building codes that require hurricane, windstorm and FEMA certifications, including some of the most stringent building codes as specified in the Florida Building Code, Miami Dade Code and the International Building Code. Listed below are certifications and standards met by the 80 Series lock.

Florida Building Code: FL2998

UL Certification Directory: ZHEM.R21744 – Latching Hardware

ANSI/SDI-BHMA A250.13	"Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies"
ANSI/ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
(TAS) 201	"Impact Test Procedures"*
(TAS) 202	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
(TAS) 203	"Criteria for Testing Products Subject to Cyclic Wind Pressure Loading"*

* Published in the "Florida Building Code"

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

UL Certification Directory: ZHLL.R21744 – Products for Use in Windstorm-rated Assemblies

Certifications to meet assembly requirements are done in conjunction with doors from ASSA ABLOY Group companies CECO DOOR and CURRIES.

ASTM E330	"Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference"
ANSI/ASTM E1886	"Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials"
ASTM E1996	"Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes"
AAMA/WDMA/CSA 101/1.S.2/A440	"Standard/Specification for Windows, Doors, and Unit Skylights"
FEMA Publication 320 (2014)	"Taking Shelter From the Storm: Building a Safe Room for Your Home or Small Business", investigated with respect to impact and pressure requirements only.
FEMA Publication 361 (2015)	"Design and Construction Guidance for Community Safe Rooms", investigated with respect to impact and pressure requirements only.
ICC 500 (2014)	"ICC/NSSA Standard for the Design and Construction of Storm Shelters", investigated with respect to impact and pressure testing. Minimum missile impact speeds vary with the design wind speed desired for a particular product. The information below correlates design wind speed to the minimum missile speeds as discussed in Table 305.1.1 of ICC 500

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Sargent Manufacturing Company makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.


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Cylinder Information for Exit Devices

Cylinder Chart: Exit Device Series x Function		ET Trim (700 Series Auxiliary Control)		PTB, PSB, STS, MAL, MSL, FLL, FSL, FLW, FSW	
		Door Thickness	1-3/4" (44mm)	2-1/4" (57mm)	1-3/4" (44mm)
Narrow Stile Mortise Exit Device	8304	46	48	41	43
	8313/8343	41	41	Not Available	
	8344	46	48	Not Available	
	8363	Not Available		41	43
	8375/8376	46	48	Not Available	
Narrow Stile CVR Exit Device	All 8400	41	41	Not Available	
Narrow Stile Rim Exit	8504	34	34	Not Available	
	8513/8543	41	41	Not Available	
Concealed Vertical Rod Exit Devices	All LP/LR/LS8600	41	Not Available		
	All SP/PP/PR8600	41	Not Available		
	All AD, MD & WD8600	41	41	Not Available	
Surface Vertical Rod Exit Devices	8706/8713/8743/8746	41	41	Not Available	
	8762/8763	Not Available		34	34
	All SP/PP/PR8700	41	N/A	Not Available	
Rim Exit Devices	8804	34	34	34	34
	8806/8813/8843/8846	41	41	Not Available	
	8816	34/*44	34/*44	Not Available	
	8844	34	34	Not Available	
	8863	Not Available		34	34
	8866	Not Available		34/*44	34/*44
	8875/8876/8877	34	34	Not Available	
	8904	46	48	41	43
Mortise Lock Exit Devices	8913/8943	41	41	Not Available	
	8916	*34/46	*34/48	Not Available	
	8944	46	48	Not Available	
	8963	Not Available		41	43
	8966	Not Available		*41/34	*43/34
	8975/8976	46	48	Not Available	

*** Inside Cylinders**

Chart shows cylinder type and size for conventional SARGENT cylinders.

Note: Cylinder sizes & types are limited, as noted: SC- & SE- cylinders are available in size 41

60-, 63- & 64- cylinders are available in sizes 42, 43, 44 & 46

70-, 11-70-, 72-, 11-72-, 73- & 11-73 cylinders are available in sizes 43 & 46

Note: The 8888's Lever & Rose Trim cylinder standard is the standard SARGENT 10 Line cylinder (13-3266)

Note: 41 Cylinder is 1-1/8" in length; For each additional digit, the cylinder is a 1/8" longer. Example: 42 is 1-1/4"; 43 is 1-3/8" and 46 is 1-3/4"

Note: SARGENT supplies standard blocking rings. Specify if using competitor cylinders



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Mullions: Aluminum, Steel and Electrified

80 Series

Aluminum Mullions			
Product Designation	650A	980	L980
Description	Removable	Removable	Lockable
Material	Aluminum	Aluminum	Aluminum
Standard Finish	US28/Satin Anodized Aluminum	Prime Coat	Aluminum Prime Coat
Options	Specify "650A x 10B" for 313AN to match 10B	Specify "980A" for Anodized US28/ Satin Aluminum	Specify: "L980A" Anodized Aluminum Specify: "L980A x10B" for 313AN to match 10B
Stk Size	96"	96"	96"
Max Stk Height	120"	120"	120"
Pre-prepped	658 Strikes Included	No	No
Cylinder Size	Not Required	Not Required	#41
Shape	1-1/2" x 2-1/2"	T Shaped 2-1/2" x 3"	T Shaped 2-1/2" x 3"
Misc. Information and Accessories	Includes 651 Stabilizers and imbedded Weather Stripping Top Retainer 94-2050 Bottom Retainer 94-2051	Top Retainer - 511 Bottom Retainer - 502 Adapter for narrow transom: 507 - Aluminum Prime Coated 507A - Anodized Aluminum	All Cylinder Options Available Wall Mount Kit 98-2578 Top Ret Pack 98-2526 Bottom Ret Pack 98-2525 Cylinder Kit 980C1*

Electrified
EL980
Electrical Lockable
Steel
Gray Paint
Wall Mounting Kit: 98-2580 Top Ret Pack :98-2559
96"
120"
No
#46 Only
Rectangular 2" x 3"
For use with Electric Strikes and Monitoring, Quick Connect Wiring Supplied Cylinder Kit 980C2*

*Note: Cylinder Kits must be ordered separately

Steel Mullions					
Product Designations	HC980	980S	L980S	HCL980	12-HD980
Description	Hurricane Code	Standard Mullion	Lockable	Lockable Hurricane Code	Heavy Duty
Material	Steel	Steel	Steel	Steel	Steel
Fire Rated	Specify 12-HC980	Specify 12-980	Specify 12-L980	Specify 12-HCL980	Specify 12-HD980
Fire Rated Max Height	96"	96"	96"	96"	120"
Finish	Gray Paint	Gray Paint	Gray Paint	Gray Paint	Gray Paint
Stk Size	96"	96"	96"	96"	120"
Max Stk Height	96"	120"	120"	96"	120"
Pre-prepped	No	No	No	No	No
Cylinder Size	Not Required	Not Required	#41 Std (#42 & #43 available)	#41 Std (#42 & #43 available)	Not Required
Shape	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"	Rectangular 2" x 3"
Misc. Information	Designed for severe wind load conditions due to hurricanes or windstorms. Tested to Dade County Protocols & ASTM Standards	For 12-8800 - Channel Iron & Malleable iron top & bottom retainers.	Fire rated for 8'0" x 8'0" paired openings	See Notes Below	12-HD980 is for pair of doors over 8'0" to 10'0" for use with 2-8800 Rim Exits includes two piece strikes
Accessories	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601	Top Ret Pack - 98-2190 Bottom Ret Pack - 98-2191 Top Retainer Shim Kit - 601	Wall Mounting Kit - 98-2579 Top Ret Pack - 98-2559 Bottom Ret Pack - 98-2556 Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	- Top Retainer Pack: 98-2593 - Bottom Retainer Pack: 98-2594 - Top Retainer Shim Kit - 601 Cylinder Kit - 980C1*	Top Ret Pack - 98-2599 Bottom Ret Pack - 98-2600 Top Retainer Shim Kit - 601

*Note: Cylinder Kits must be ordered separately

Note for HC980/12-HC980 Mullions:

- Designed for severe wind load conditions due to hurricanes or tornadoes
- Tested to Dade County protocols and ANSI 250.13 ASTM Standards and FEMA 361
- 12- Fire labeled version
- Replacement lock kits are available for lockable mullions Part numbers for each model are listed in the price book

HCL980 Mullion Information

- Model 12-HC-L980 may be supplied for doors UL fire APPROVED and including 3 hrs not exceeding 8 ft in width and height
- Meets the following standards: ANSI 250.13, ASTM F330 for Code Compliance, ASTM 1886, ASTM 1996, TAS 201, TAS 202 & TAS 203
- Designed for use with UL Classified HC8810, HC8800 and 12-HC8800 rim exit devices



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Mullion Accessories and Stabilizers

80 Series

Mullion Accessories

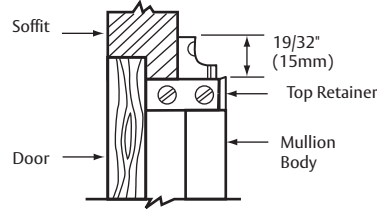
RK980

Latchbolt assembly retrofit kit with top and bottom retainers for 980 aluminum mullion



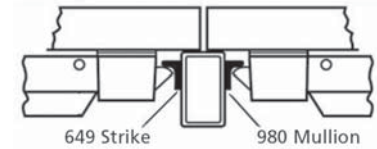
507 Narrow Transom Bars Adapter

- Available with 980 and 980A
- Required when soffit is 1-1/4" (32mm) to 2" (51mm) wide
- Order as a: 507 for 980 mullion or 507A for 980A mullion



980S Mullion Application

- All steel mullions are 2" x 3"

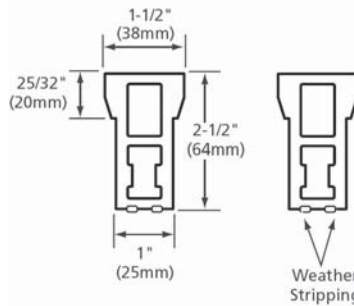


651 Mullion Stabilizer Kit

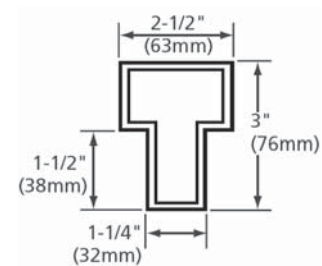


- Stabilizer block
- Furnished standard w/650A Mullion
- Order as a 651 Kit

650A Mullion



980 Mullion & L980 Lockable Mullion

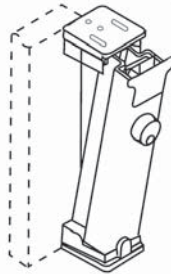


980C1 Cylinder Mullion Kit



- Lockable mullions only
- Aluminum and steel
- Includes cylinder and collar
- Available in 26D & 10B finish

Lockable Mullion



Lockable Mullion Cylinder Kit Options*

L980, L980A, L980S & HC-L980 mullions are available with these options: 10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82-, F1-82-, 83-, F1-83-, 84-, SC- & SE-.

EL980 mullion is available with these options:

10, 10-21-, 10-63-, 11-, 11-21-, 11-60, 11-63-, 11-64-, 11-72-7P-, 11-65-73-7P-, 11-73-7P-, 21-, 22-, 60-, 63-, 64-, 70, 72-, 73-, 65-73-, 65-73-7P-, 73-7P-, 81-, 82- & F1-82-.

*Lockable mullions are shipped without cylinders. Order Cylinder Mullion Kit separately.

980C2 Cylinder Mullion Kit



- Lockable mullions
- Electrified only
- Includes cylinder and collar
- Available in 26D finish only

Mullion Weights & Packaging

Product	Avg Wt	Case
Exit Device with Trim	15 lbs	1 ea
980 Mullion	18 lbs	1 ea
12-980 Mullion	40 lbs	1 ea
650A Mullion	18 lbs	1 ea



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JW for SM

Date: 05/16/2024

Permit # 2024180

Mechanical Options and Descriptions

80 Series

Mechanical Options:

Categories	How to Specify	Detailed Description
Fire Rated	12-	UL Fire Label Exit hardware (not available with 16- & HK-)
SVR Bolt	14-	Sliding bolt bottom case for 8700
Cylinder Dogging	16-	Cylinder lockdown with # 41 Cylinder & # 97 Ring (not available with 12-, 57, 59-, AL- or BT- Option)
	LD-	Less dogging for non fire rated devices
Less Touch Pad	19-	Pushbar without Lexan touchpad (not available TL-)
8900/8300 Strike	23-	4-7/8" (124mm) ANSI flat lip strike (for 8900 & 8300 Series Mortise Lock Exit Devices)
Thick Doors	31-	Doors over 1-3/4" and/or Panels (Specify door thickness, panel thickness & location as required) Not available for HC8700, FM8700, PP, PR & SP8700, PP, PR & SP8600, LP, LR & LP8700 Extended lip strike supplied for 8300 & 8900 Series
	36-	Six lobe security head screws
Security Fasteners	37-	Spanner head screws
	43-	Flush End Cap (Not available with LP, LR & LS Devices)
Indicator	49-	Indicator (Available on 8816 and 8866 functions only)
Electrical Options	53-	Latchbolt monitoring switch (not available with 59-, GL-, HC-, WS- or on FM8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	54-	Monitors ET Lever movement with Internal micro switch in ET Control
	55-	Request to Exit - Signal Switch in Rail (not available with 59- & FM8700)
	56-	Remote Latch Retraction (not available 57-, 58-, 59-, AL- or BT- Option)
	56-HK-	Remote Latch Retraction with manual Hex Key dogging (not available 12-, 57-, 58-, 59-, AL- or BT- Option)
	57-	Delayed Egress (Electromagnetic Lock required & purchased separately) (not available 16-, 53-, 56-, 56-HK, 58-, 59-, AL, Bc-59- or BT, GL, TL Prefixes) (NB, 54- are available on request)
	58-	Electric Rail Dogging (Not available 56- & 59-)
	59-	Electroguard® Self Contained Delayed Egress Device (not available with 16-, 53-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS Option Prefixes, PP/PR/SP8600, LP/LR/LS8600 Exit Devices) (NB, 54- are available upon request)
	AL-	Alarmed Exit (Not available 16-, 56-, 57-, 59-, BT-, GL-, HC- & WS-)
	BC-59-	Electroguard® Boca Code (Door Status Switch required) (not available with 16-, 55-, 56-, 57-, 58-, AL-, BT-, GL-, HC- & WS- Options and on NB8700, PP/PR/SP8600 & LP/LR/LS8600 Exit Devices)
	TL-	SARGuide Electro-Luminescent Touchpad (not available 19-, 85-, 87- & PL-)
Tactile Warning Options	76-	Tactile Warning - Milled Outside Lever (not available with Studio & Coastal Levers and the A Lever)
	85-	Tactile Warning - Abrasive strip on Push Rail (Not available with PL- & TL-)
	86-	Tactile Warning - Abrasive coating on Outside Lever
	87-	Tactile Warning - Abrasive strip on Push Rail & Abrasive coating on Outside Lever (not available with PL- & TL-)
Finish Protection	CPC-	Clear Powder Coat (Available for 32 & 32D Finishes)
	SG-	MicroShield® antimicrobial clear powder coat (only available with 15, 26D and 32D finishes)
Top Rod Only	NB-	Less Bottom Rod & Bolt (for SVR & CVR Devices)
Guarded Latch	GL-	Guarded Latch for Rim Exit Devices (not available 53-, 56-, 59-, AL-, HC- & WS-)
SARGuide	PL-	SARGuide™ PL – Photoluminescent Coated Push Rail – (Touchpad eliminated) (not available 85, 87 & TL-)
Through Bolts	TB-	Through Bolts for 8300, 8500, 8600, 8700, 8800 & 8900 Devices
Rail Force	5CH-	5lb. Pressure Release (8800 only)



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Date: 09/16/2024
Permit # 2024180

Cylinder Options and Descriptions

80 Series

SARGENT[®]

ASSA ABLOY

Cylinder Options:

Conventional Cylinder	-	SARGENT Conventional Cylinders Supplied Standard (Unless Otherwise Specified)
Degree Key System	DG1-	SARGENT Degree Key System Level 1 (bump resistant with patented keys)
	DG1-21-	Degree Level 1 Construction Master Keying
	DG1-60-	Degree Level 1 Removable Disposable Construction Core
	DG1-63-	Degree Level 1 Removable Core
	DG1-64-	Degree Level 1 Removable Construction Keyed LFIC
	DG1-65-	Degree Level 1 Unassembled/Uncombined Core
	DG2-	SARGENT Degree Key System Level 2 (geographically exclusive; bump and pick resistant)
	DG2-21-	Degree Level 2 Construction Master Keying
	DG2-60-	Degree Level 2 Removable Disposable Construction Core
	DG2-63-	Degree Level 2 Removable Core
	DG2-64-	Degree Level 2 Removable Construction Keyed LFIC
	DG2-65-	Degree Level 2 Unassembled/Uncombined Core
	DG3-	SARGENT Degree Key System Level 3 (geographically exclusive; UL437 certified; bump and pick resistant)
	DG3-21-	Degree Level 3 Construction Master Keying
	DG3-60-	Degree Level 3 Removable Disposable Construction Core
DG3-63-	Degree Level 3 Removable Core	
DG3-64-	Degree Level 3 Removable Construction Keyed LFIC	
DG3-65-	Degree Level 3 Unassembled/Uncombined Core	
Signature Key System	10-	SARGENT Signature Key System (Not Available with other Key Systems)
	10-21-	SARGENT Signature Construction Key System (Lost Ball)
Signature- LFIC	10-63-	SARGENT Signature Large Format Interchangeable Core Cylinder (Removable)
XC- Key System	11-	XC Key System (Not available with other Key systems unless specified)
	11-21-	XC- Construction Key System (Lost Ball)
XC- Large Format Interchangeable Core (Removable Core)	11-60-	Device to accept XC- Permanent Large Format Interchangeable Core, Disposable plastic Core- provided
	11-63-	Device provided with XC- Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	11-64-	Device provided with Keyed construction core to accept XC- Permanent Large Format Interchangeable Core (ordered separately)
XC- Small Format Interchangeable Core	11-70-7P-	Device to accept XC- SFIC (7-Pin) XC- Permanent Cores, plastic disposable core provided
	11-72-7P-	Device to accept XC- SFIC (7-Pin Keyed Construction Core provided) cylinder Permanent core ordered separately
	11-73-7P-	Device provided with XC- Small Format 7-Pin interchangeable core (Includes masterkeying, grand masterkeying)
	11-65-73-7P-	Device provided to accept XC- Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose)
Construction Key Systems	21-	SARGENT Lost Ball Construction Keying for Conventional, XC and Signature Series (N/A with 63- or 73-)
	22-	SARGENT Construction Split Key System for Conventional Cylinders (Existing Systems Only) (N/A with 10-, 11-, 63- or 73-)
Old Style Removable Core	51-	Removable Core Cylinder (Old Style) provided (existing systems only)
	52-	Removable Construction Core (Old Style) Permanent core ordered separately (existing systems only)
Large Format Interchangeable Core (Removable Core)	60-	Device to accept SARGENT Permanent Large Format Interchangeable Core, Disposable plastic Core provided (Permanent Cores ordered separately)
	63-	Device provided with Large Format Interchangeable Core Cylinder - (Includes masterkeying, grand masterkeying)
	64-	Device provided with Keyed construction core to accept Permanent Large Format Interchangeable Core (ordered separately)
Small Format Interchangeable Core	70-	Device to accept 6- or 7-Pin SFIC Permanent Cores, plastic disposable core provided
	72-	Device to accept 6- or 7-Pin SFIC (6-Pin Keyed Construction Core provided) Cylinder (Permanent Core ordered separately)
	73-	Device provided with 6-Pin SFIC (Includes masterkeying, grand masterkeying)
	65-73-	Device provided to accept Uncombined 6-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	65-73-7P-	Device provided to accept Uncombined 7-Pin SFIC (Permanent) Core - (Packed Loose for field keying)
	73-7P-	Device provided with Small Format 7-Pin Interchangeable Core (Includes masterkeying, grand masterkeying)
	81-	Device provided with housings to accept Keso (83) & Keso F1 (F1-83-) removable cores. (Permanent Cores ordered separately)
Keso & Keso F1	82-	Device provided with SARGENT Keso Security Cylinder
	F1-82-	Device provided with SARGENT Keso F1 Security Cylinder (Patented)
	83-	Device provided with SARGENT Keso Security Removable Core cylinder
	F1-83-	Device provided with SARGENT Keso F1 Security Removable Core cylinder (Patented)
	84-	Device provided with SARGENT Keso Construction Cores (Permanent Cores ordered separately)
Added Security	BR-	Bump Resistant Cylinder (Available with Conventional & Conventional XC Cylinders Only)
Less Cylinder	LC-	Less Cylinder - SARGENT supplies standard blocking rings for 1-1/8" Cylinders (For longer cylinders order collars/rings separately)
Schlage Keyways	SC-	Schlage C keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
	SE-	Schlage E keyway cylinder, 0 bitted (not available with: 8904, 8916, 8944, 8975, 8976, 8866, 8304, 8344, 8375 & 8376)
Lever to Accept Schlage	SF-	L Lever to accept MEDECO KeyMark Large Format Interchangeable and Schlage Full Size Interchangeable Core (Supplied Less Cylinder, but with tailpiece needed) (Available for 88-KLL & 88-CLL)

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Note: For V-10 Cylinders and information, contact ASSA

76

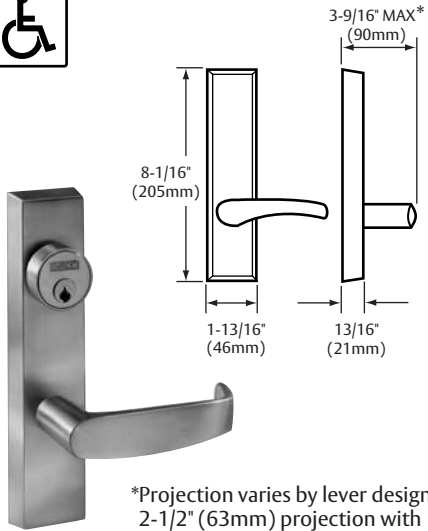
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ET Trim, Levers and Pulls
80 Series

ET Lever Controls

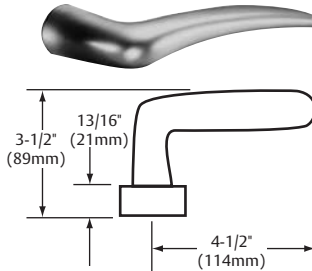


*Projection varies by lever design.
2-1/2" (63mm) projection with
L Lever

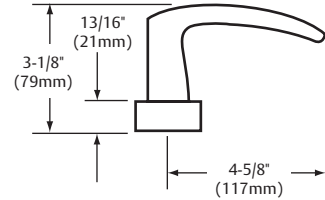
Note: ET suffixes required when ordering ET
trim without an exit device, see page 74 for
complete details

A Lever

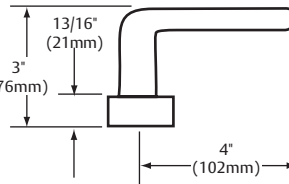
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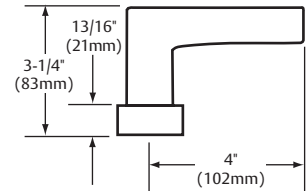
B Lever



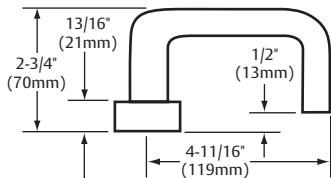
E Lever



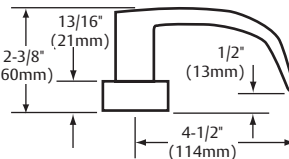
F Lever



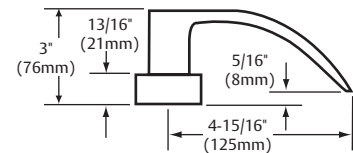
J Lever*



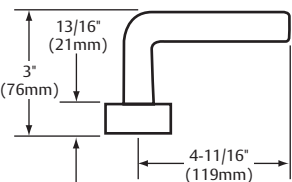
L Lever*



P Lever*

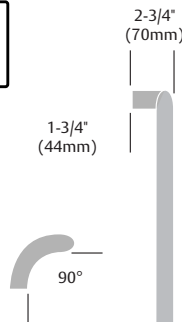


W Lever

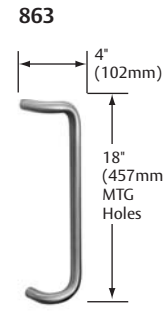
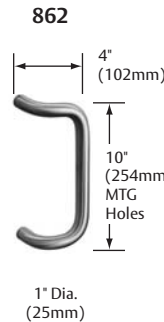


* Lever returns within 1/2" (13mm) of door face

Pulls



SIDE PROFILE



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8800 Rim Exit Device

80 Series

8800 Series Rim Exit Device



8800 Features

- Designed for standard width stile applications on wood and metal doors
- Also available as an HC8800 or WS8800 for hurricane-resistant applications, see Hurricane-Resistant section of this catalog
- Single point rim latching device
- Single door & double door applications with mullions
- Quiet operation and solid security
- ANSI/BHMA A156.3 - Grade 1
- UL10C (Fire) and UL305 (Panic) Listed

Specifications 8800 Series Rim Exit Device

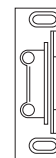
Door Type	Metal Doors
Door Thickness	1-3/4" (44mm) minimum thickness. For doors over 1-3/4" to 2 1/4" thick, specify thickness and order as 31-
Rail sizes as determined by door width	Rails are available in 4 sizes, use door width to determine size needed. Rails will be factory cut to size, if door width is supplied <ul style="list-style-type: none"> • E Rail for 24" to 32" door widths, No cutting required for 32" door • F Rail for 33" to 36" door widths, No cutting required for 36" door • J Rail for 37" to 42" door widths, No cutting required for 42" door • G Rail for 43" to 48" door widths, No cutting required for 48" door
Strike	649 Standard Black Nylon Coated
Optional Strikes	642, 644 and 613
Dogging Feature	Hex key dogging standard on non fired rated devices; specify 16- for cylinder dogging (#41 cylinder supplied)
Electric Options	AL- Alarm PL- SARGuide Photoluminescent Coated TL- SARGuide Illuminated Touchpad
	49- Indicator 53- LX Latchbolt Monitor 54- Outside Lever Monitoring 55- Request-to-Exit Signal - Rail Monitoring 56- Remote Latch Retraction 57- Delay Egress & Electromagnets 58- Electric Dogging 59- Electroguard – Self Contained Delayed Egress
Mounting Fasteners	Supplied standard with wood and machine screws Available with through-bolts and mortise (sex) nuts
Latch Bolt	Stainless steel, 3/4" (19mm) throw
Device Centerline from Finished Floor	41" (1041 mm) for Standard Applications
Center Case Dimensions	8-3/8" (213mm) x 2-5/8" (67mm)
Projection	Pushbar Neutral – 3" (76 mm) Pushbar Depressed – 2-1/8" (54 mm)
Fire Exit Hardware	See Chart – Page 6

49- Lock/Unlock Indicator Option



- Displays whether the door has been secured by the inside cylinder.
- Red icon indicates locked
- White icon indicates unlocked
- Dogging overrides 49- functionality (must order less dogging)
- Available on 8816 and 8866 functions only

649 Strike



- Supplied standard for panic & fire rated openings
- Surface applied
- Black nylon coated

688 Trim Retrofit Kit



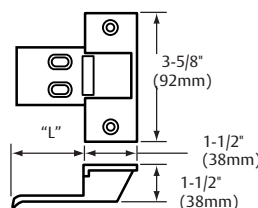
- 688 Trim Retrofit kit allows an 8800* Series rim exit with an ET to replace Von Duprin's 98/99 Series exit with trim with minimal door prep.

*Except for 16 function

- Order as: 688 Kit

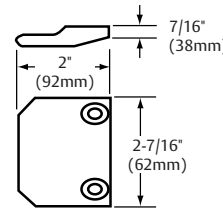
Alternate Strikes For 8800 Rim Devices

642 Strike



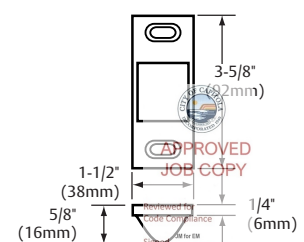
- Mortised. Dimension "L" equals door thickness plus 1/2" (13mm). Black nylon coated on lip only

644 Strike



- Surface applied. For use on pairs of doors without mullion. Ductile Iron. Black nylon coated


613 Strike



- Half mortised. Black nylon coated

8800 Functions and Trims

80 Series

Options F1-83-56	Series 88	Function 13	Rail Lgth F	Trim ETL	Hand RHR	Outside Finish 26D	Inside Finish 32D	Door Width 36"	Options 8800
700 Series ET Trim									
 <p>Exits with ET Trim, specify lever design after the ET designation (e.g., ETL)</p>									
SARGENT Function Numbers		ANSI Function Numbers		Description & Cylinder Info (1-3/4" Door)			ANSI Type 1 8800 Panic & Fire		Options 8800
04	03	Night Latch Key Retracts Latch #34 Cylinder Supplied			8804 x ET_		Mechanical Options: 12- 16- 19- 31- 36- 37- 43- 53- 54- 55- 56- 56-HK- 57- 58- 59- 5CH- BC-59- 76- 85- 86- 87- AL- BT- CPC- GL- LD- PL- **5G- TB- TL- Cylinder Options: 10- 10-21- 10-63- 11- 11-21- 11-60- 11-63- 11-64- 11-70-7P- 11-72-7P- 11-73-7P- 11-65-73-7P- 21- 22- 51- 52- 60- 63- 64- 70- 72- 73- 65-73- 65-73-7P- 73-7P- 81- 82- F1-82- 83- F1-83- 84- BR- LC- *SC- *SE-		
06	09	Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied			8806 x ET_				
10	01	No outside operation (No Cylinder)			8810				
10	02	No outside operation (No Cylinder) ET Control is used as Pull Only			8810 x ET_				
13	08	Key Outside Unlocks/locks Trim #41 Cylinder Supplied			8813 x ET_				
15	14	Passage Only (No cylinder)			8815 x ET_				
16	10	Key Outside Retracts Latch; Key Inside Unlocks/Locks O/S Trim O/S #34 Cylinder & I/S #44 Cylinder Supplied			8816 x ET_				
40	02	Freewheeling Trim - No outside operation (No Cylinder) Dummy Trim			8840 x ET_				
43	08	Freewheeling Trim - Key Outside Unlocks/locks Trim #41 Cylinder Supplied			8843 x ET_				
44	03	Freewheeling Trim - Key Retracts Latch #34 Cylinder Supplied			8844 x ET_				
46	09	Freewheeling Trim - Key unlocks Trim, Trim retracts latch/ Trim relocks when key is removed #41 Cylinder Supplied			8846 x ET_				
73		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever (No Cylinder)			8873 x ET_				
74		Electrified ET Trim - Fail Secure Power Off, Locks Lever (No Cylinder)			8874 x ET_				
75		Electrified ET Trim - Fail Safe Power Off, Unlocks Lever, Key Retracts Latch #34 Cylinder Supplied			8875 x ET_				
76		Electrified ET Trim - Fail Secure Power Off, Locks Lever, Key Retracts Latch #34 Cylinder Supplied			8876 x ET_				

Lever Designs for ET Controls

A, B, E, F, J, L, P, W

Also available with Coastal Series & Studio Collection Levers

ET Designation with Suffix (Used to order ET without device)

8800 Series: 704, 706-8, 710, 713-8, 715-8, 716, 740, 743-8, 744, 746-8, 773-8, 774-8, 775-8 & 776-8

Freewheeling Trim

The lever rotates when the door is locked preventing excessive force from being applied to the horizontal lever

Electrified ET Trim

Voltage must be specified for the following functions: 73, 74, 75 and 76. Specify: 12VDC or 24VDC

Note: Exit devices are available in all standard finishes, except 14, 15, 26 & 26D. With these finishes, exit devices are supplied in 32 or 32D to match accordingly. 32 or 32D is automatically supplied when 26 or 26D is specified. For nickel finishes, specify 14/32 or 15/32D to receive nickel finished trims and stainless exit devices

Pull & Thumbpiece Trim Section

Trim Designations

- Use three letter designations (Ex "PTB") when ordering the Exit Device with trim
- Use the six digit designation (Ex "866-MAL") when ordering trim without an Exit Device, always specify finish

Series



8800
Panic & Fire

* Options are not available with 8816
** Only available with 15, 26D and 32D finishes

SARGENT Function Numbers	ANSI Function Numbers	Description & Cylinder Info. (1-3/4" Door)	Trim Designations						Series	Available Finishes
04	03	Night Latch Key Retracts Latch #34 Cylinder Supplied	814-FSL*	814-FSW*	814-MSL*	814-PSB*	814-ST5	862 Pull	8804 x Trim Designation	SARGENT Finishes 03 04 09 10 10B BHMA Finishes 605 606 611 612 613 613E 614 618 619 624 625 626 629 630 WSP
10	02	No O/S Operation or Cylinder (Pull Only)	810-FLL	810-FLW	810-MAL	810-PTB	810-ST5	862 Pull	8810 x Trim Designation	
28	15	Passage Only (No cylinder)	828-FLL	828-FLW	828-MAL	828-PTB	828-ST5	N/A	8828 x Trim Designation	
63	05	Key Outside Unlocks/ Locks Thumbpiece #34 Cylinder Supplied	866-FLL	866-FLW	866-MAL	866-PTB	866-ST5	N/A	8863 x Trim Designation	
66	07	Key Outside Retracts Latch; Key Inside Unlocks/Locks O/S Trim O/S #34 & I/S #44	866-FLL	866-FLW	866-MAL	866-PTB	866-ST5	N/A	8866 x Trim Designation	

* FSL, FSW, MSL and PSB trims are used with (HC- & 12-) 8888 and 8804 only and are the same as FLL, FLW, MAL and PTB pulls except for cylinder hole located 3/8" (9mm) lower.
Note: Thumbpiece trims for 63 and 66 function devices are identical and are identified as 66 function when trim is ordered separately.
Note: FLW & FSW trims are not available in 32(629) or 32D(630).
Note: Pulls and thumb piece trims are not available in 14, 15, 26 or 26D.



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Signed JM for EM

Date 09/16/2024

Permit # 2024160

Accessories

ITEM	ACCESSORY	DESCRIPTION
	157D Torx® security bit	<ul style="list-style-type: none"> Tamper resistant Torx® R20 insert bit.
	310-2-3 Astragal strike latch guard	<ul style="list-style-type: none"> Designed to prevent tampering with the latchbolt, and the latchbolt keeper. Prevents one door from being opened before the other.
	2001-1 Wire-in bridge rectifier	<ul style="list-style-type: none"> Converts AC to unfiltered DC. Rated 35 V, 2 Amp. Not recommended for 1006 Electric Strike.
	2001M Plug-in bridge rectifier	<ul style="list-style-type: none"> Converts AC to unfiltered DC. Rated 35 V, 1 Amp. Includes MOV and self-resettable fuse Not recommended for 1006 Electric Strike.
	2004M ElectroLynx® adapter	<ul style="list-style-type: none"> Adapter between existing electric strikes and ElectroLynx® connectors.
	2005M3 SMART Pac® III <i>Addition of Smart Pac to any electric strike extends the 5 year no-fault warranty to a 10 year no-fault warranty.</i>	<ul style="list-style-type: none"> In-line power controller able to receive input voltages from 12- 32V AC or DC. Built-in bridge rectifier. Reduces initial voltage by 25% to extend the life of the electric strike. Includes built-in resettable fuse, MOV, voltage regulation and input voltage level indicating and unit status. For use with 1006, input voltage must be DC.
	2006M Plug-in buzzer	<ul style="list-style-type: none"> Audible operation indicator at 24 VDC, 75db at 11-3/4".
	2007M Plug-in pigtail connectors	<ul style="list-style-type: none"> With 4" wire leads.



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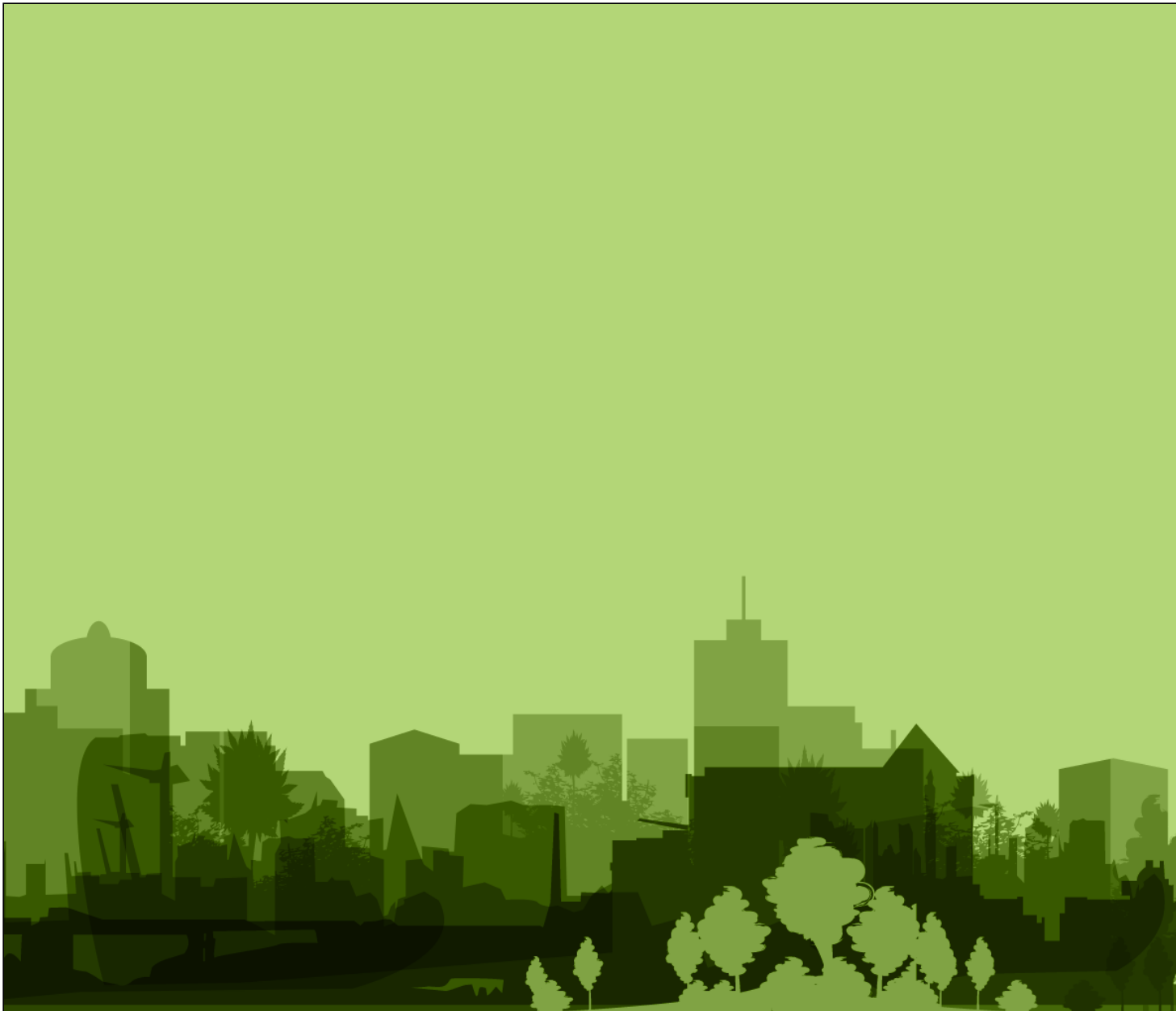
Accessories

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	2006M Plug-in buzzer	<ul style="list-style-type: none"> Audible operation indicator at 24 VDC, 75db at 11-3/4".
	2007M Plug-in pigtail connectors	<ul style="list-style-type: none"> With 4" wire leads.



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Electric Strikes


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Date 09/16/2024
Permit # 2204160

1600 Electric Strike

Works with all brands of cylindrical and mortise locksets, with or without a deadbolt



Also available in a Complete One Box Solution

The 1600 Series electric strike accommodates up to a 1" deadbolt with enhanced vertical cavity spacing.

The 1600 Series Electric Strike sets a new standard in the industry by offering dynamic integrated adjustability and field configurable options compatible with any cylindrical or mortise lock. The modular design of the platform makes stocking and installing easier with interchangeable faceplates and accessories. For the first time, the aesthetics of an electric strike are complementary to other surrounding door hardware and blend in with the opening due to the fully finished design, available in eight finishes.

Features

Standard Features

- Stainless steel construction
- Tamper resistant
- Static strength 1,500 lbs
- Dynamic strength 70 ft-lbs
- Endurance 1 million cycles
- Field selectable fail safe/fail secure
- Non-handed
- Interchangeable faceplates and accessories
- Field replaceable components
- Fully finished faceplate, keeper, case and trim
- Field adjustable integrated shim
- Strike body depth 1-5/8" [41.3mm]
- SecuriCare five-year, no-fault, no questions asked warranty

Optional Features

- LM Lock monitor
- DLM Dual lock monitors
- LMS Lock monitor and strike monitor
- DLMS Dual lock monitors and strike monitor

Accessories

- 157 Torx screws
- HESCUT-MTK Metal template kit
- 1600-104-xxx Lip extension trim adapter (finish to match)
- 1600-106-xxx 1006 adapter and trim enhancer kit (finish to match)
- OPT-1SRK Spring replacement kit
- OPT-1LM Single lock monitor
- OPT-1DLM Dual lock monitors
- MOD-1SOL Solenoid replacement module

For easy 3D instructions, download the BILT mobile app



Grade 1



SecuriCare Warranty



Mortise Locks with Deadbolt



Mortise Locks without Deadbolt



Cylindrical Locksets



Field Selectable (Fail secure / Fail safe)



Dual Voltage 12/24



PoE Friendly



Fire Rated



Windstorm Resistant



Outdoor Rated



Burglary Rated



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1600 Electric Strike

Specifications

Certifications

- ANSI/BHMA A156.31, Grade 1
- UL 1034 burglary-resistant listed and suitable for outdoor use
- UL 294 listed
- RoHS compliant
- UL 10C fire rated, 3-hour single door (fail secure only)
- UL 10C fire rated, 1-1/2 hour double door (fail secure only)
- CAN/ULC-S104 fire door conformant
- NFPA-252 fire door compliant
- ASTM-E152 fire door compliant
- California Fire Marshal listed
- ANSI/SDI A250.13 windstorm resistant
- Florida Building Code approved TAS 201, 202, 203
- ANSI-ASTM E330

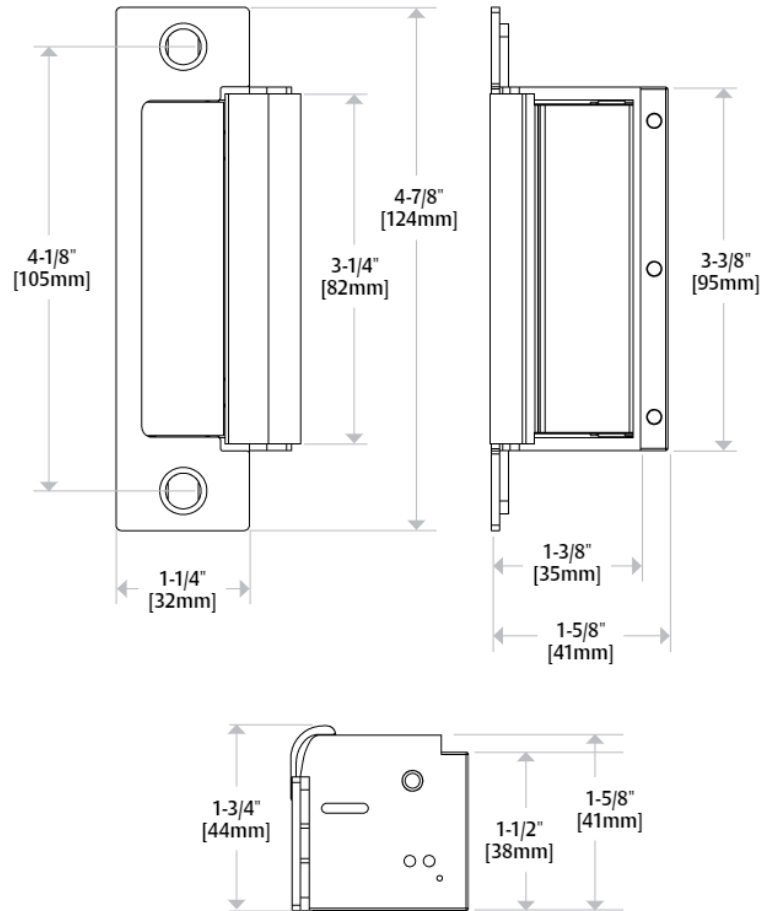
Frame Application

- Metal
- Wood

Electrical (DC Continuous Duty)

- Dual voltage 12/24 VDC/VAC
- 240 mA at 12 VDC/120 mA at 24 VDC
- PoE friendly

Dimensions



How to Order

SERIES	MODEL	FINISH*	OPTION (S)
1600	- CS	- 630	- LM
1600 Universal Electric Strike	(blank) Electric strike body only, faceplates ordered separately	605 Bright Brass	(blank) No Monitor
	CS* Complete Electric Strike; includes 1LB faceplate kit for latchbolts and 1DB faceplate kit for deadbolts	606 Satin Brass	LM Lock Monitor
	CLB* Complete Electric Strike for Latchbolt Locks; includes 1LB faceplate kit for latchbolts	612 Satin Bronze	DLM Dual Lock Monitor
	CDB* Complete Electric Strike for Deadbolt Locks; includes 1DB faceplate kit for deadbolts	613 Bronze Toned	LMS Lock Monitor and Strike Monitor
		613E Dark Oxidized Satin Bronze Powder	DLMS Dual Lock Monitors and Strike Monitor
		629 Bright Stainless Steel	
		630 Satin Stainless Steel	
		BSP Black Suede Powder	

*Complete Pacs are only available in the 630 finish

NOTE: Electric strike compatibility is determined at time of electric strike product release. ASSA ABLOY is not responsible for incompatibility of products that have changed in design or craftsmanship by their respective manufacturers. When compatibility is a concern, contact Customer Support for assistance.



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Long door pulls are an artful and functional solution for any door. We offer both straight and offset versions. Most often used as full height, these pulls are available in three diameters and any length from 3 feet to over 8 feet long; see price list for more information. Specify a mid-post on full height pulls to provide the most rigid grip where heavy doors or high wind loads are present.

MegaTek™
long door pulls



Straight Pulls - Square Ends

Pull No.	Diameter	CTC
RM3300	1"	36" to 96"
RM3301	1½"	36" to 96"
RM3302	1½"	36" to 96"



Straight Pulls - Round Ends

Pull No.	Diameter	CTC
RM3320	1"	36" to 96"
RM3321	1½"	36" to 96"
RM3322	1½"	36" to 96"



Straight Pulls - Bent Ends

Pull No.	Diameter	CTC
RM3340	1"	36" to 96"
RM3341	1½"	36" to 96"
RM3342	1½"	36" to 96"

Base Metals: Aluminum (except offset models), brass, bronze, stainless steel

Options: • For optional mid-post, suffix the product number with "MP" (example: RM3301MP).
• Over 96" available on select finishes.



Offset Pulls - Square Ends

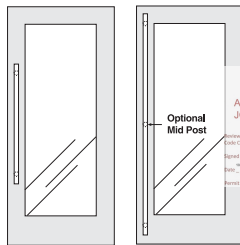
Pull No.	Diameter	CTC
RM3310	1"	36" to 96"
RM3311	1½"	36" to 96"
RM3312	1½"	36" to 96"



Offset Pulls - Round Ends

Pull No.	Diameter	CTC
RM3330	1"	36" to 96"
RM3331	1½"	36" to 96"
RM3332	1½"	36" to 96"

Application Suggestions



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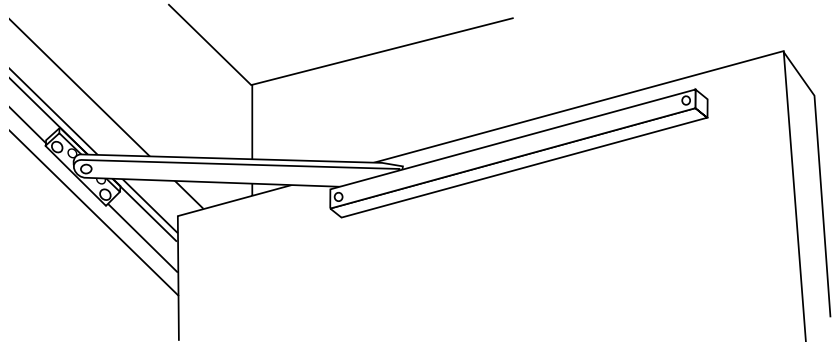
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Surface Mount – Interior – Medium Traffic Doors

Product Description & Features

- Single acting doors
- Non-handed
- Slide track design
- Recommended for medium traffic, medium weight doors
- Degree of opening fully adjustable and can be adapted to changing needs
- Heavy shock absorber spring provides compression before deadstop
- Can be ordered specifically as a stop, friction stay, or hold open.
- Multi-function unit is shipped as a stop. Can be converted to a hold open or friction in field. 5012-PKG (Adapter kit) included
- Complete screw packet with thru-bolts for door, wood and machine screws for frame
- Torx® screws optional for security applications, but heavy-duty units should be considered for high-security applications
- Standard architectural finishes
- Durable slider cam and shock block
- 110° maximum opening
- 3/4" square channel
- Stop function UL listed for fire door assemblies
- For pull side mounting or flush and rabbeted mounting on push side use angle jamb bracket adapter 5258
- Hanging means other than standard butts or offset pivots require special templating and pricing. Consult factory



Checkmate®
Stops & Holders

Door Opening Chart (in inches)

Butts Offset Pivots	Center Hung Pivots	Model Number			
		Friction	H.O.	Stop	Multi
*18 - 24	21 - 26-1/2	10-116	10-126	10-136	10-146
24-1/16 - 30	26-9/16 - 32	10-216	10-226	10-236	10-246
30-1/16 - 36	32-1/16 - 38	10-316	10-326	10-336	10-346
36-1/16 - 42	38-1/16 - 45	10-416	10-426	10-436	10-446
42-1/16 - 48	45-1/16 - 48	10-516	10-526	10-536	10-546

*Butt hung only on this size door. No swing clear hinges.

ANSI No.			
Shipping Weight 3.5 lbs.	Friction	H.O.	Stop
	C05532	C05542	C05542

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Options

Less Spring – Suffix LS

Heavy duty slide track type stops have a spring in the end of the channel that keeps the slider from deadstopping. If these units are being used with electromechanical closer, where the door must deadstop, the LS option is needed. For non-adjustable models 1 and 9 only.

Angle Jamb Bracket Adapter – Standard-duty models suffix 5258 (non-handed) Heavy-duty models suffix 5458 (LH) or 5459 (RH)

When surface mounted units are mounted on a rabbeted door on the push side, flush door and transom on the push side, or in a reverse installation on the pull side of the door a special bracket is needed. Note that not all models can be mounted on the pull side of the door (See specific model numbers in catalog.)

Security Screws – Suffix Torx

Security screws can be supplied for exposed fasteners.



5258



5458

Certifications

All Rixson Checkmate® overhead stops and holders are in compliance with ANSI/BHMA 156.8, Grade 1 and 2 Standards. See individual products for sub sections. See individual models for UL Listing.



Limited Warranty

Rixson Checkmate® stops and holders are warranted for 2 years for defect. See Rixson price book for specific details of the limited warranty

Specifications

All overhead stops and holders shall be from a single manufacturer.

Standard-duty models used for interior or low to medium traffic doors.

Heavy-duty models used for exterior or high traffic doors or doors subject to abuse.

For extremely abusive areas or high winds use double lever arm type.

Coordinate deadstop and/or hold open location with concealed floor closers.

Checkmate products provide hold open and/or deadstop.



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CATALOG

SURFACE CLOSERS



ASSA ABLOY

Experience a safer
and more open world



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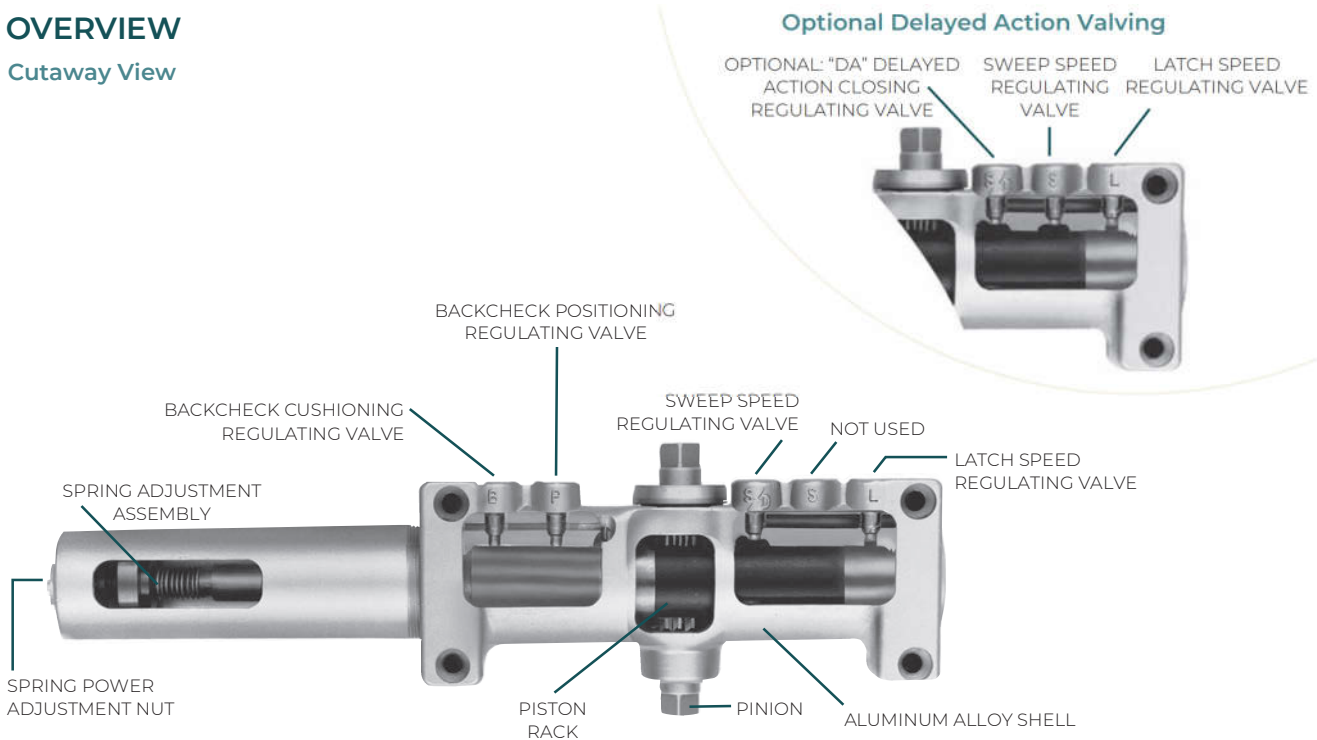
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7500 SERIES





INSTITUTIONAL DOOR CLOSER

OVERVIEW

Cutaway View



CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1 certified 
- UL / cUL listed for use on fire rated doors 
- UL10C listed for positive pressure fire test
- 7500 door closers are designed to comply with requirements for the Americans with Disabilities Act (A.D.A) and ANSI standard A117.1 
- This product is manufactured in an ISO 9001, ISO 14001 facility
- Health product declaration and UL certified environmental product declaration
- GreenCircle certified environmental facts 

CAUTION: Door Closers for Low Opening Force Applications:


Door closers installed in openings required to meet the requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door based on opening or site conditions.



An Environmental Product Declaration (EPD) documents the cradle-to-grave life cycle of a product and how it affects the environment. An important aspect of EPD® is to provide

the basis of a fair comparison of products and services by its environmental performance. EPDs can reflect the continuous environmental improvement of products and services over time and are able to communicate and add up relevant environmental information along a product's supply chain.

Windstorm

7500 door closers are UL certified for inswing and outswing single and pair (up to 8'0" x 8'0") door assemblies to ICC 500 for Storm Shelters. Additionally, the 7500 meets FEMA 361 guidelines. 7500 is part of a complete ASSA ABLOY tornado and hurricane shelter solutions utilizing Ceco StormPro 361, Curries StormPro 361, Fleming F5 doors and frames and McKinney SP hinges. 

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Part No. 2258150

7500 SERIES

INSTITUTIONAL DOOR CLOSER

EXPLANATION OF FEATURES

Aluminum Alloy Housing

Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interactive steel components and operating conditions.

Rack & Pinion Operation

Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not interfere.

Non-handed

With few exceptions all series 7500 door closers are non-handed and can be installed on either right or left hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options will require that the hand of the closer be specified.

Sweep Speed Control Valve

Allows adjustment of door speed from the door's full open position down to approximately 10° from the closed position.

Latch Speed Control Valve

Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

Tri-Style® Packing

7500 comes with screws, brackets and soffit plates to allow for regular, top jamb, and parallel arm installations.

Adjustable Backcheck Cushion Valve

Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted limits.

Adjustable Backcheck Position Valve

Allows the door opening position, where backcheck cushioning begins, to be adjusted to a greater

door angle, up to a maximum of 20° farther (approximately 95°).

Standard Molded Cover

Molded of high-impact U.L. listed material and covers the entire closer body assembly. This cover is non-handed for all applications.

Warranty

These closers carry a limited 30-year warranty against defect, and life of the building on the aluminum housing.

Closer Fluid

NorGlide® closer fluid is a specially formulated multi-viscosity hydraulic fluid that contains lubricity and anti-oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and brass components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

DOOR CLOSER POWER OPTIONS

Series 7500 Multi-Sized Door Closer

Adjustable through the entire power range of door closer sizes 1 through 6, as outlined in ANSI/BHMA standard A156.4.

The series 7500 also conforms to the minimum opening force requirements of the Americans with Disabilities Act (A.D.A.) and ANSI/BHMA standard A117.1 for interior doors.

Extra Power

For applications that require additional closing power to overcome stack pressure, high wind, unbalanced HVAC and other issues that can prevent the doors from closing, model 7706EP is available.

Model 7706EP offers as much as 22 lbs. of closing force (not adjustable, arm mounting (RA, TJ or PA) and degree of swing determine the exact lbs.) Non-ADA doors only.

Corrosion-Resistant Door Closer

The series 7500SS door closers with molded plastic cover are available for use where corrosive conditions exist. This series is provided with brass adjustment valves, a 440 grade stainless steel pinion shaft, an all-aluminum body and bronze closer arm bushings; all other components are of 302/303 grade stainless steel. Fasteners are 8-18 stainless steel. This product is available for standard regular arm, top jamb and parallel arm, non-hold open, applications only.

Optional Metal Cover

This steel cover is non-handed for regular and parallel arm applications, but is handed for top jamb applications.

Cover is available in sprayed or architectural plated finishes.

Security Cover

Supplied standard with all series 7570 door closers. This deep drawn steel cover is handed for all



applications. The cover is fastened to the closer body at two points on top and to the door closer body stand-offs at two points on the bottom.

Optional ABS Cover

Consult factory for details.



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EXPLANATION OF FEATURES

Enhanced Backcheck

This feature provides adjustable backcheck intensity beginning at approximately 15° of the door opening cycle. It is intended for use in situations where the standard backcheck beginning at approximately 75° of door opening allows too much unrestricted door travel to obtain control of the door without the fear of peripheral damage to the door closer, door, frame, hinges or pivots; or adjacent walls or structures. This feature is most frequently used in schools and detention facilities. Specify suffix EBC.

Adjustable Delayed Action Closing

An optional hydraulic feature that adds a third speed range to the closing cycle. This feature becomes effective when the door is opened and released at any point beyond 70°. The amount of time delay depends upon the combination of the angle of door release and valve adjustment. The valve can be adjusted with a 1/8" (3mm) hex key from no delay time up to maximum delay times of:

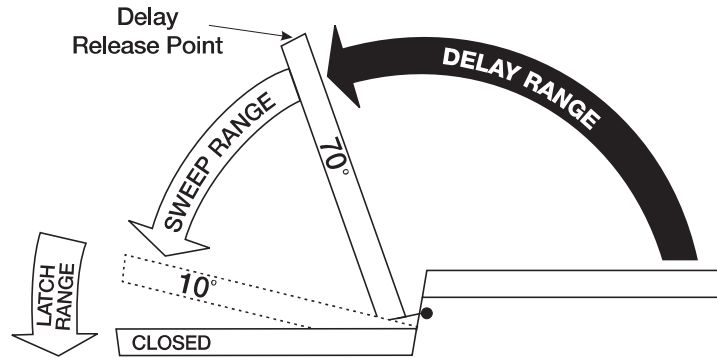
Door Opened and Released at	Approximate Time of Delay Cycle
180°	4-5 minutes
120°	2-3 minutes
90°	25-30 seconds

Pressure Relief Safety Valve

The delayed action hydraulic system contains a pressure relief valve. Any time the door is forced toward the closed direction while it is in the closing cycle, the valve will open and permit the door to close. This prevents damage to door, frame and closer.

Suggested Applications

Delayed Action closing allows slow-moving traffic to clear the opening before the door closer's normal closing cycle begins. This



feature can be helpful in health care facilities such as hospitals and nursing homes. It provides sufficient time for persons on crutches or in wheelchairs to pass through a door without concern of it closing. At the same time, it can accommodate the facility's staff with movement of food service carts, beds, and other wheeled traffic.

Use of delayed action closers on many doors throughout industrial and commercial buildings can also assist the flow of traffic. Locations where additional time to clear the opening is advantageous are doors between office and factory/warehouse facilities, doors to workshops or laboratories, to kitchen and food processing areas, etc.

OPTIONAL FEATURES – ARMS

Non-Hold Open

Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus®, CloserPlus Spring™ or Unitrol® arms.

Hold Open

Achieved by means of ball and detent/roller. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

Door Opening Degrees

Arm Function	Regular Top Jamb Parallel Arm	Parallel Rigid Arm	CloserPlus® Parallel Arm	CloserPlus Spring™ Parallel Arm	Unitrol® Parallel Arm	Unitrol® Top Jamb	Low Profile Regular, Parallel	Slide Track
Non-Hold Open	✓	✓	85° to 110°	85° to 110°	85° to 110°	85° to 110°	✓	85° to 110°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 180°	85° to 180°	✓	85° to 110°

✓=180° trim and template permitting

7500 SERIES INSTITUTIONAL DOOR CLOSER

APPLICATIONS



Non-hold open arm shown

Regular Arm

This is the only pull-side application where a double lever arm is used. It is the most power efficient application for a door closer. Sufficient frame, door and/or ceiling clearance must be considered.

Since the arm assembly projects directly out from the frame, this application may present an aesthetics issue or be prone to vandalism.



Parallel Arm

This application provides the most appealing design appearance for a surface-mounted door closer having a double lever arm. This also makes it beneficial in vandalism-prone areas. It is on the push side of the door and the arm assembly extends almost parallel to the door. In the closed position, there is very little or no hardware projecting beyond the frame face in most situations.

Due to the geometry of the arm it is approximately 25% less power-efficient than a regular arm application. The entire closer and arm assembly are mounted below the frame stop, requiring a top rail clearance on the door of between 6-5/8" (168mm), when using a low profile arm, to 7-1/4" (184mm), when using the hold open arm.



Non-hold open arm shown

Top Jamb

For efficiency reasons this application provides the best alternative to the regular arm application. There must be sufficient frame face and/or ceiling clearance for this application. It requires a top rail on the door of just 2-1/8" (54mm). This application provides the best door control for doors in exterior walls that swing out of a building.

The entire door closer and arm assembly project from the frame, similar to the regular arm application, where matters of appearance and malicious abuse can be of concern. Consideration must be given to depth of frame reveal.



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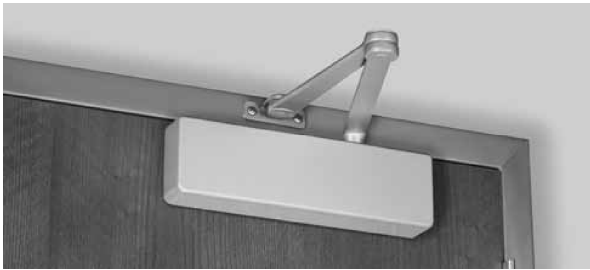
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7500 SERIES INSTITUTIONAL DOOR CLOSER

APPLICATIONS



Regular Rigid Heavy-Duty Arm

This double lever arm features a non-adjustable secondary arm. Orbitally riveted joints prevent tampering or disassembly. Prefix "R" to model number. **Available non-hold open only.**



Parallel Rigid Offset Arm

Non-hold open arm shown

This heavy-duty parallel rigid arm provides additional vertical clearance. It is well suited for applications where weather-stripping or other hardware prevents the use of the standard Parallel Rigid (PR) soffit plate. The non-hold open and hold arms allow 1-1/4" clearance. When used in conjunction with a 6891 spacer block, the PRO arm provides 1-7/8" clearance to accommodate the use of a surface overhead stop/holder.



Unitrol® Parallel Arm



Unitrol® Top Jamb

Unitrol® Arm

Can be used for either parallel arm or top jamb applications. Unitrol arms combine the features of a double lever arm overhead door stop/holder with the backcheck feature of the door closer to reduce door stopping shock loads to a minimum. The Unitrol uses a compression spring buffer at the soffit plate/arm shoe that will absorb 30 lbs. of force, 5° prior to the door's dead stop. Coupled with the door closer's backcheck feature, this arm provides the most controlled stop available with a surface door closer.

For parallel arm applications there are three different length arm assemblies. Each length is designed for a specific range of door widths to provide precise door control. This further lessens the dead stop impact on the door's hinges/pivots.

Only available in painted finishes.



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7500 SERIES

INSTITUTIONAL DOOR CLOSER

APPLICATIONS



Pull Side



Low Profile Pull Side



Push Side



Low Profile Push Side

Slide Track

Whether pull or push side mounted, slide track applications provide the designer with the smoothest lines available in a surface mounted door closer. The single lever arm allows components to be located in a stack configuration to minimize projection and eliminate obtrusive arm angles. The arm geometry reduces door closer power efficiency by approximately 25% from that of a regular arm.

A variation of the standard slide track application is available for pocket doors, where it is desirable to have the door closer completely concealed when the door is in the 90° open position. See page 26 for details.

Standard Unit:

- Adjustable 85° to 110° (hold open and non-hold open). Track is supplied with a spring buffered stop. An auxiliary stop, by others, is recommended.
 - Specify if hold open unit is required.
 - 180° swing (non-hold open, pull side only) is also available. This track assembly requires that a door stop, by others, be supplied to stop the door.



Regular Arm - Regular Arm allows closer to be installed where there is as little as 1" (25mm) of frame face or ceiling clearance.



Parallel Arm - Parallel Arm allows closer to be installed 1/2" (13mm) higher up on door than standard parallel arm application.

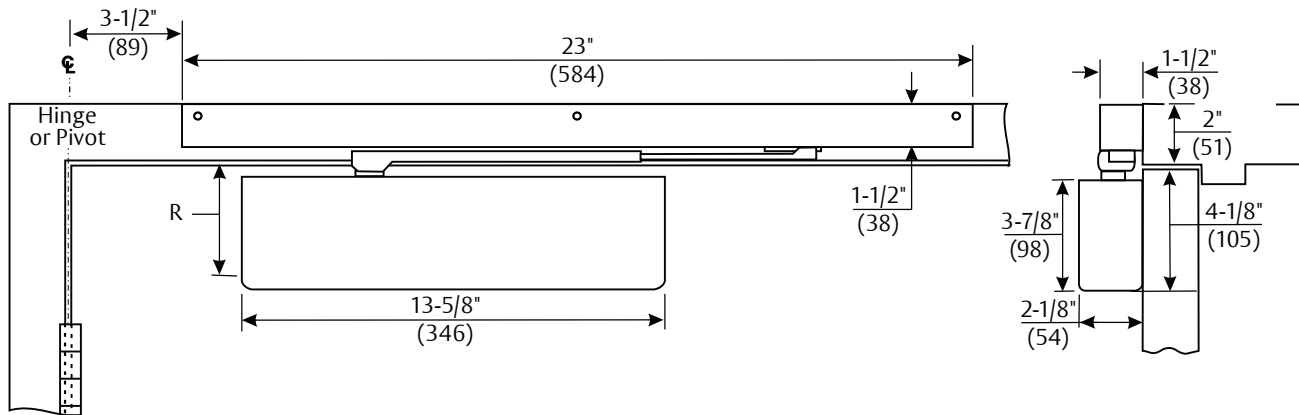
Low Profile Arm

Supplied with 7580 series door closers for non-hold open installations only. Low profile arms have a reduced height elbow joint and a straight main arm. This enables the door closer to be installed in less vertical space.

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- 7500 Series
- 7570 Series
- 8000 Series
- 1600 Series
- 2800ST Series
- 9300 Series
- 78-BF Series
- 1700 Series
- 210 Series
- 160 Series
- 9500 Series
- 9540 Series
- 410 Series

PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm)
Minimum Top Rail of Door
with Frame Stop

Without Drop Plate	With 7786 Drop Plate
3-1/2" (89)	2-5/8" (67)

Model Number

Non-Hold Open	Hold Open
7500ST	7500STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)
exterior 32"-38" (81-97cm)



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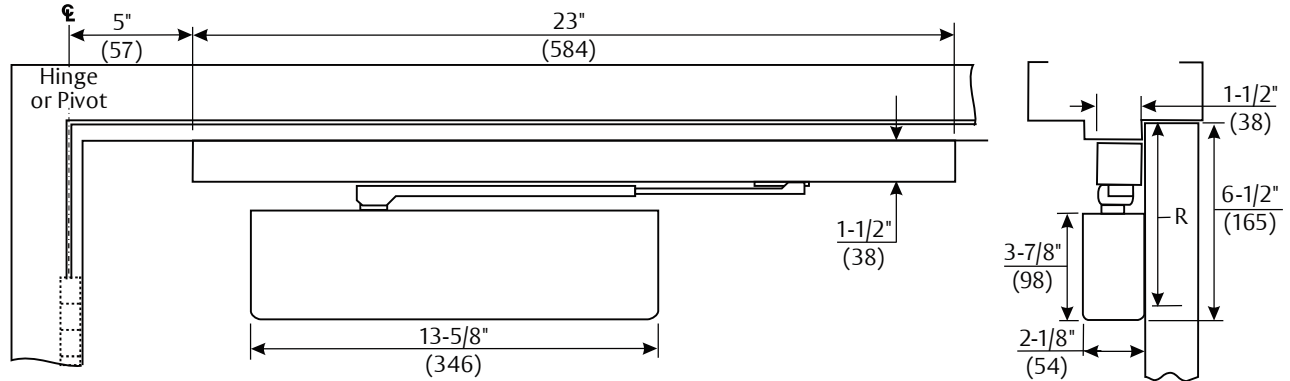
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7500 SERIES

INSTITUTIONAL DOOR CLOSER

PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	With 7786 Drop Plate
6" (152)	2-5/8" (67)

Model Number	
Non-Hold Open	Hold Open
PS7500ST	PS7500STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)
exterior 32"-38" (81-97cm)



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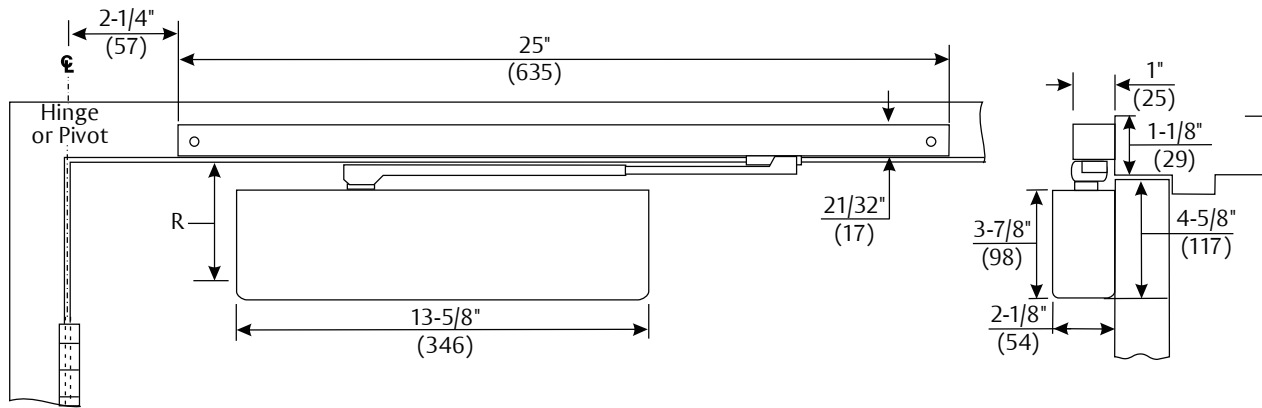
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LOW PROFILE PULL SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop

Without Drop Plate	With 7786 Drop Plate
3-1/2" (89)	2" (51)

Model Number

Non-Hold Open	Hold Open
7540ST	7540STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)



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Date: _____

Revision: _____

Part No: _____

Part No: _____

Part No: _____

Part No: _____

Part No: _____

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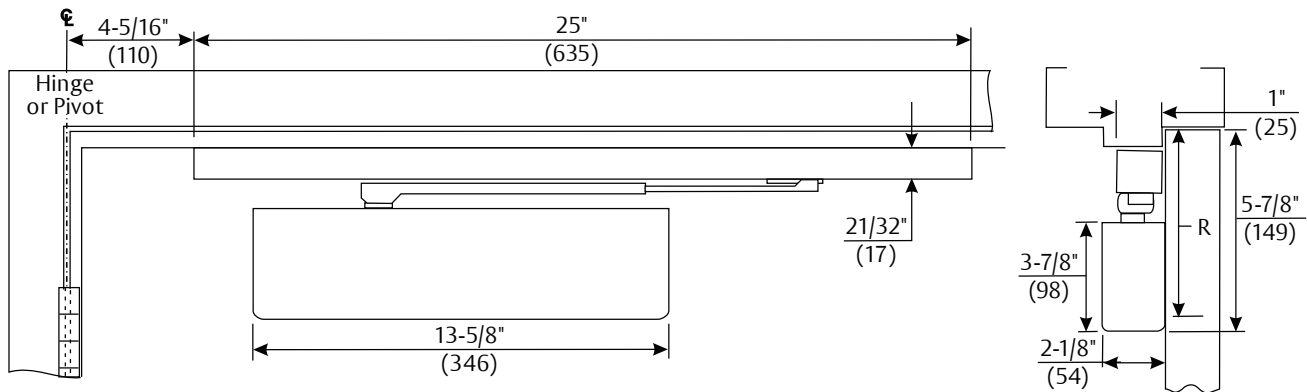
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7500 SERIES

INSTITUTIONAL DOOR CLOSER

LOW PROFILE PUSH SIDE SLIDE TRACK



Mounting holes for closer body are spaced 2-3/8" (60mm) vertically x 6-3/4" (171mm) horizontally.

R (inches/mm) Minimum Top Rail of Door with Frame Stop	
Without Drop Plate	With 7786 Drop Plate
5-1/4" (133)	3-5/8" (92)

Model Number	
Non-Hold Open	Hold Open
PS7540ST	PS7540STH

Notes:

- Door closers are set at midpower range from the factory
- Measurements are inches/mm unless noted
- Standard door widths: interior 32"-48" (81-122cm)



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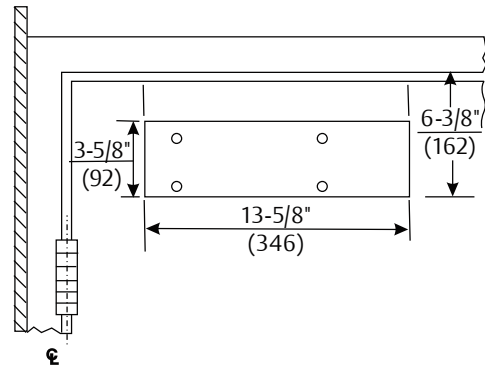
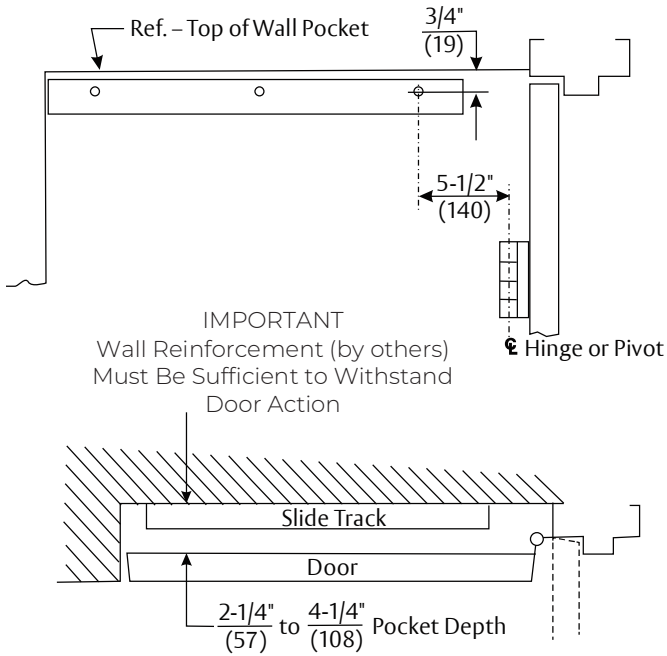
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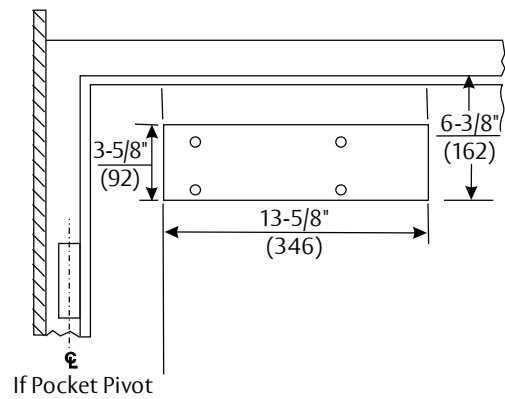
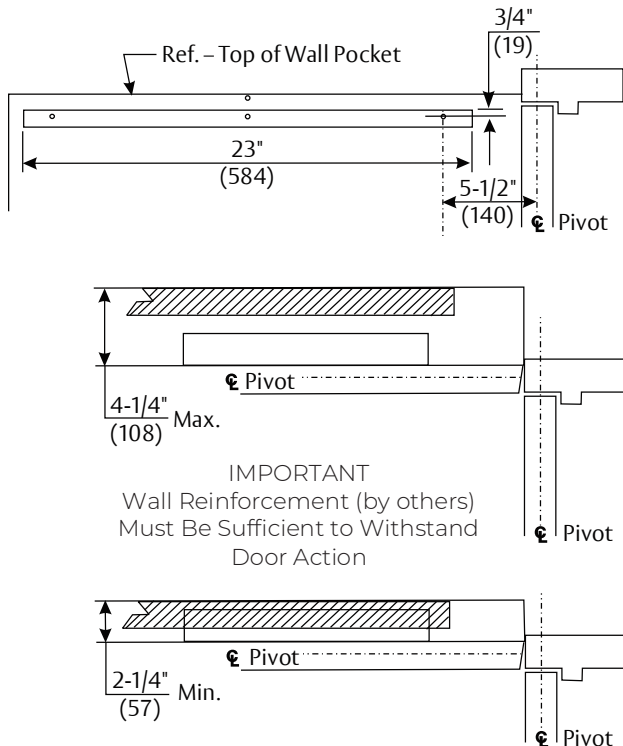
7500 SERIES

INSTITUTIONAL DOOR CLOSER

POCKET DOOR 7706EPSTP



7706EPSTP Closers
Slide Track for 90° Wall Pocket
Installation
For Pocket Depths 2-1/4" to 4-1/4"
(57mm to 108mm)



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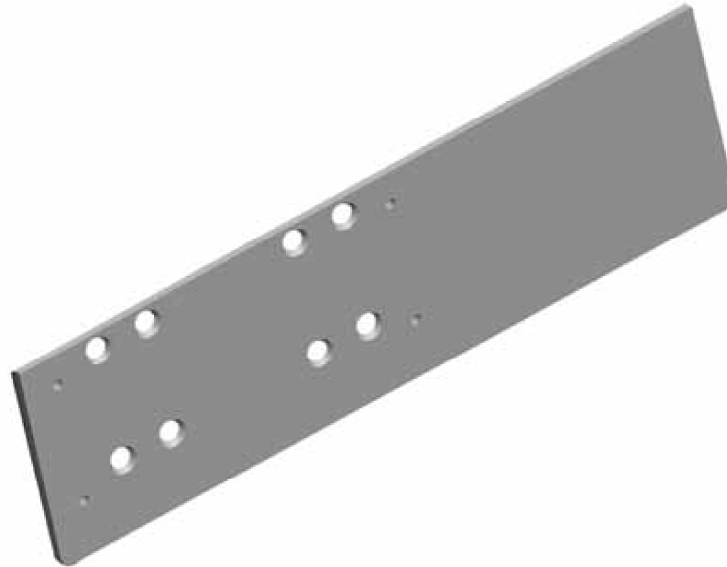
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JW for IBC

Date: _____
09/16/2024

7500 SERIES

INSTITUTIONAL DOOR CLOSER

RETROFIT PLATE



The retrofit plates allow the 7500 door closers to replace the 4040 or 4010 closers without modifying the existing hole pattern in the door. The plates will work with regular and parallel arm applications.

Model Number	Replaces
RP75-4040	LCN-4040XP
RP75-4010	LCN-4010, 4011

Notes:

- The location of the arm shoe on the frame will change, therefore the frame must be patched.



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Signed JM for EM

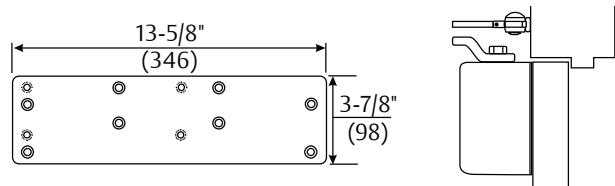
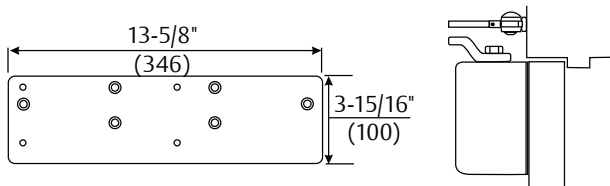
Date 05/16/2024

Permit # 22041180

7500 SERIES INSTITUTIONAL DOOR CLOSER

REGULAR ARM

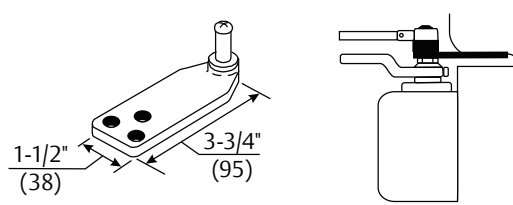
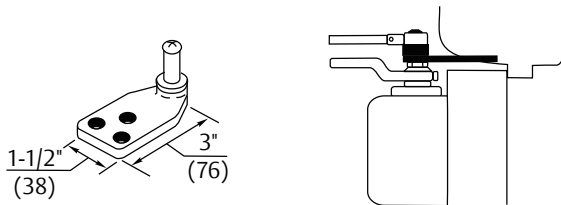
Closer Mounting Plate



Narrow Top Rail - 7786 Drop Plate: For use where the narrow top rail of the door prevents the closer from being mounted directly to the door surface. This drop plate must be used for closer mounted on a top rail between 1-7/8" and 3-3/8" (48 and 86mm) in height.

Overhead Door Holder - 7786OH Drop Plate: For use when the presence of a surface or concealed overhead door holder prevents normal mounting of closer body due to interference between closer's mounting screws and door holder track. This drop plate's mounting screws are located on the door surface 2-3/8" down from the frame rabbet allowing room for placement of the surface mounted or overhead concealed door stop/holder.

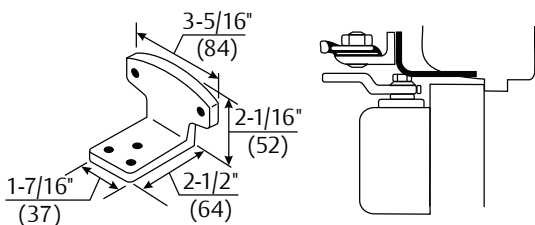
Brackets for Non-Hold Open Arms



Molded/Bull Nose Trim - 2403B Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard non-hold open shoe. The bracket is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a frame rabbet up to 2" (51mm) deep.

Molded/Bull Nose Trim - 2403-3/4 Bracket: This bracket is similar to - but longer than - the 2403B bracket. It is designed to accommodate frame rabbets from 2" to 2-7/8" (51 to 73mm) deep.

Brackets for Non-Hold Open Arms



Molded/Bull Nose Trim - 80 Bracket: For use where the door frame has molded or bull nose trim which will not accept a standard hold open shoe. It is mortised into the frame rabbet, and projects beyond the face of the frame. It will accommodate a rabbet up to 2" (51mm) deep. This bracket is used in combination with the standard hold open mounting shoe.

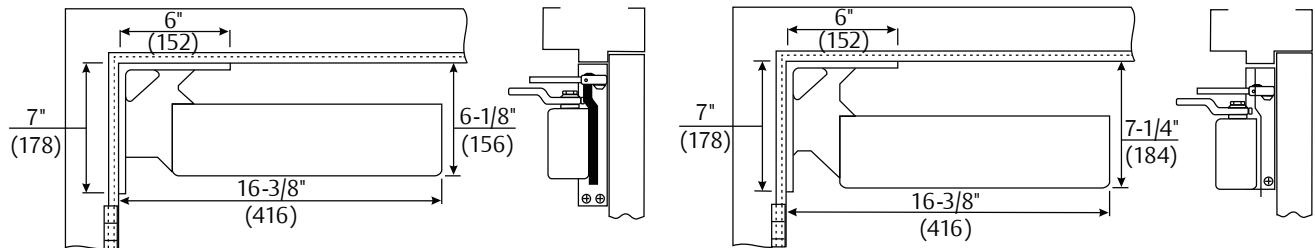


7500 SERIES

INSTITUTIONAL DOOR CLOSER

REGULAR ARM

Corner Brackets for Closer Mounting

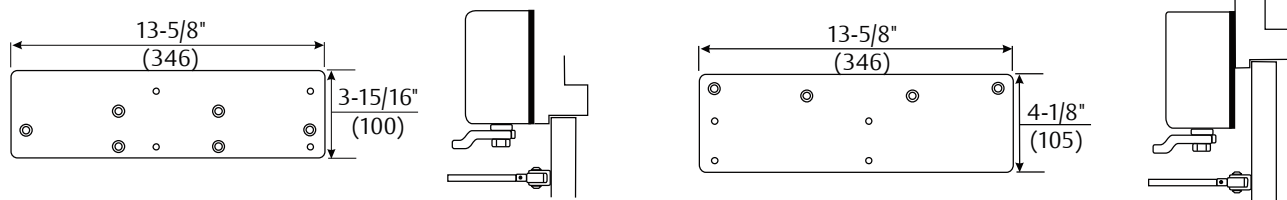


Mounting Opposite Hinge Side - 7798 Standard Drop Corner Bracket: For use where it is desired to mount a regular arm non-hold open closer.

Extra-Drop Mounting Opposite Hinge Side - 7797 Corner Bracket: For use where it is desired to mount a regular arm hold open closer, or where it is necessary for a regular arm non-hold open closer to clear a separate overhead door holder. This bracket drops the closer 1-1/8" (29mm) lower than the 7798 Corner Bracket.

TOP JAMB

Closer Mounting Plates



Narrow Frame - 7786 Back Plate: For use where a narrow frame face prevents the closer from being mounted directly to the frame. This back plate must be used for closer mounted on a frame between 1-7/8" and 3-1/8" (48 and 79mm) in height.

Low Ceiling Clearance - Overhead Door Holder - 7787 Drop Plate: For use where the ceiling clearance is between 1-7/8" and 3-7/8" (48 and 98mm) or where a surface or concealed overhead door holder prevents normal top jamb mounting. This plate drops the closer and allows the arm mounting screws to clear the bottom of the door holder. This places the centerline of the arm mounting screws at 3-1/8" (79mm) from the top of the door.

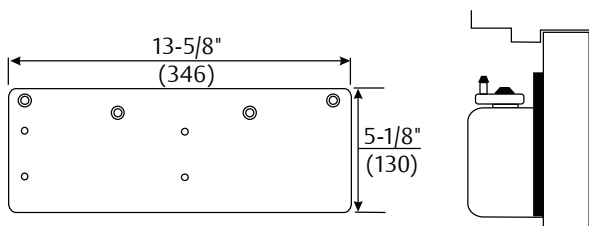


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Date: 09/16/2024

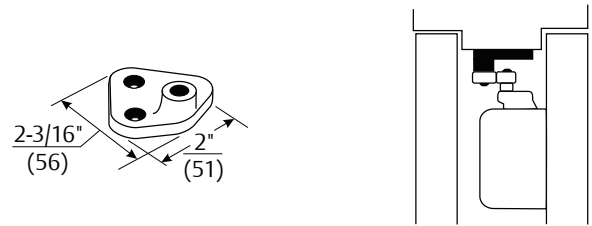
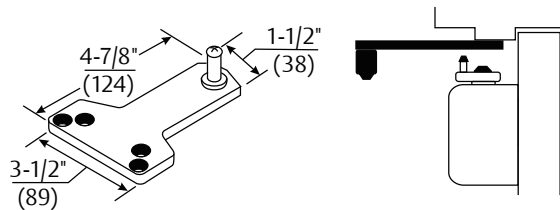
PARALLEL ARM

Closer Mounting Plate



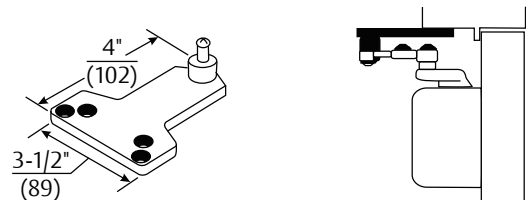
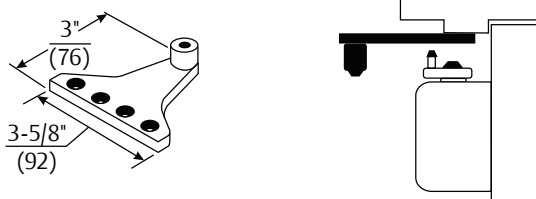
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.

Brackets for Non-Hold Open Arms



Standard Installation - 1618 Soffit Plate: Supplied standard with parallel arm closers. It can be mounted where the frame soffit is as narrow as 1" (25mm). Specify 1618A-SS for stainless steel soffit plate.

Mounting between Doors - 2018 Soffit Bracket: For use where insufficient space between companion doors does not permit use of other soffit plates. This bracket permits mounting of the closer between doors with as little as 3" (76mm) of header space. Permits closer arm to clear up to 5/8" (16mm) high stop.



Narrow Frame/Removable Stop - 2018B Soffit Plate: For use where a narrow frame or frame with removable stop does not permit use of the standard soffit plate. This soffit plate may be mounted on the frame soffit or the frame rabbet where the stop does not exceed 5/8" (16mm) in height. All of the screw holes are in a straight line, requiring as little as 1-1/4" (32mm) of frame reveal to mount bracket and maintain good closer arm geometry. Where the frame soffit is as wide as 2" (51mm), this soffit plate may be used to clear weather-stripping that is up to 1-3/8" (35mm) wide and 5/8" (16mm) in height.

Blade/Applied Stop - 2018D Soffit Plate: For use where a blade or applied stop does not permit installation of the standard soffit plate. Mounts to either the frame soffit or rabbet. Since this soffit plate projects 7/8" (22mm) less than a standard soffit plate, it requires a minimum frame reveal of 1-1/2" (38mm). Permits closer to clear up to 5/8" (16mm) stop.



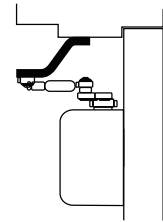
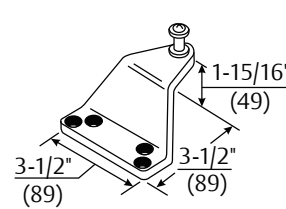
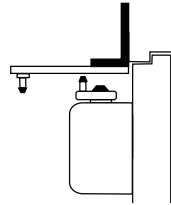
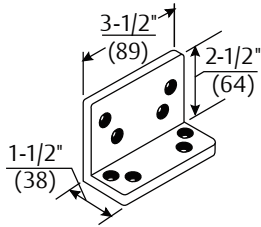
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Code Compliance
Signed _____
Date: 05/16/2024

7500 SERIES

INSTITUTIONAL DOOR CLOSER

PARALLEL ARM

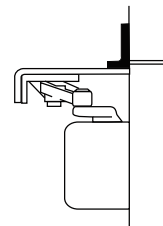
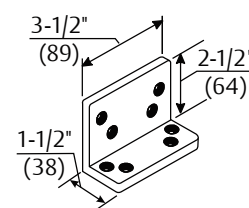
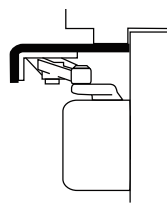
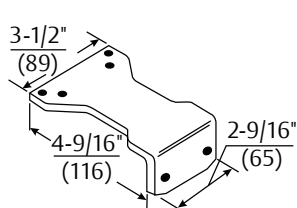
Brackets for Non-Hold Open Arms (continued)



Flush Transom - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of a soffit plate. Used in combination with the 1618 soffit plate, or may be used in combination with the 2018S soffit plate when it is necessary for the closer arm to clear a separate overhead door holder.

Extra-Clearance - 2018S Offset Soffit Plate: For use where the need for additional clearance prevents use of the standard soffit plate. This plate mounts to the frame soffit to provide up to 2" (51mm) of clearance when a separate overhead door holder is used. Standard mounting requires a 2-5/8" (67mm) wide frame soffit. It may also be used where unusually high frame stops or weather-stripping prevent the use of other soffit plates.

Brackets for Hold Open Arms



Parallel Hold Open - 1628H Adapter Plate: Supplied standard with all parallel arm hold open closers. It can also be used to convert regular arm or top jamb hold open arms to parallel arm installation. It can be mounted where the frame soffit is as narrow as 1" (25mm).

Flush Transom Hold Open - 2022 Angle Bracket: For use where rabbeted or flush transom conditions prevent installation of the standard 1628H hold open adapter plate. It is used in combination with the 1628H adapter plate.



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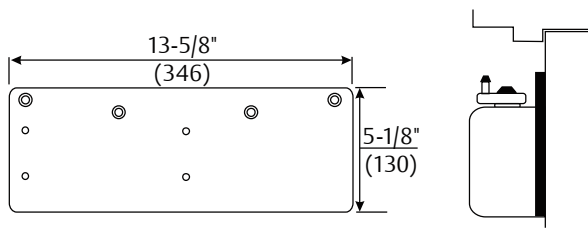
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Date 05/16/2024

Permit # 2204180

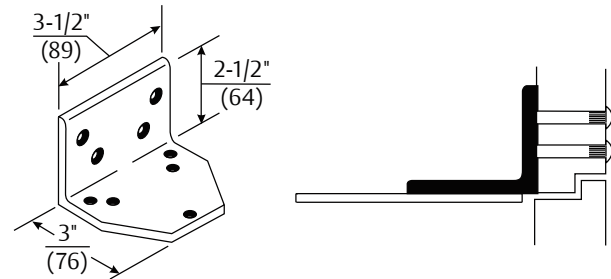
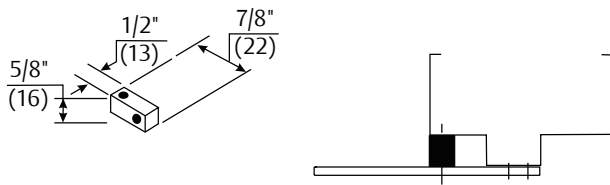
PARALLEL RIGID ARM

Closer Mounting Plate



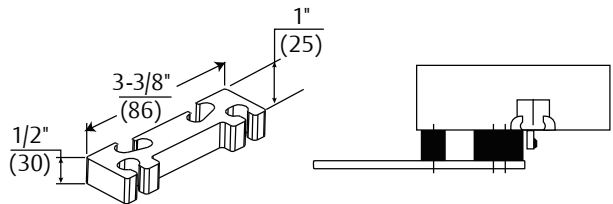
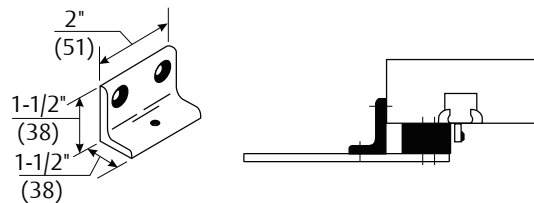
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.

Brackets for Non-Hold Open Arms & Hold Open Arms



Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all parallel rigid arm closers.

Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frames where the frame stop does not exceed 5/8" (11mm) in height.

Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.



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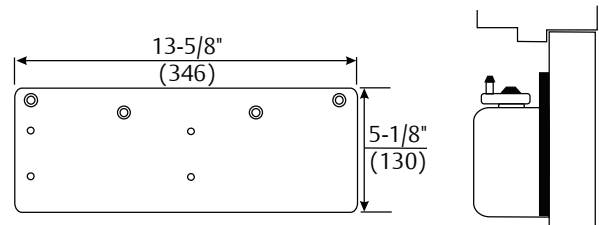
7500 SERIES

INSTITUTIONAL DOOR CLOSER

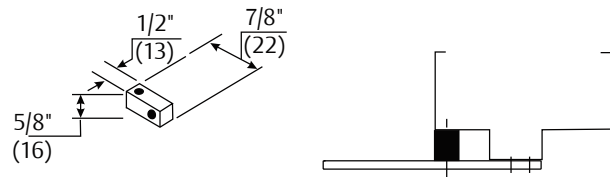
CLOSERPLUS® ARMS

Closer Mounting Plate

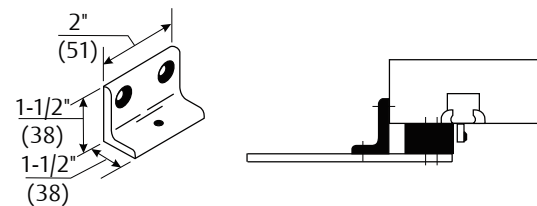
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-1/2" (64mm) in height.



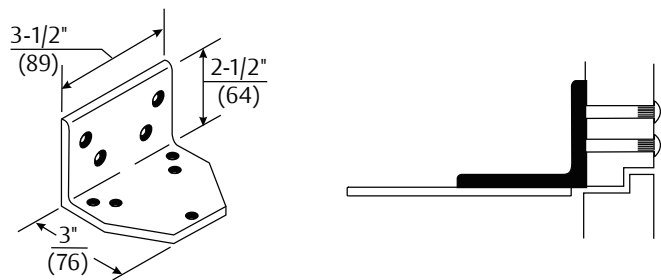
Brackets for Non-Hold Open Arms & Hold Open Arms



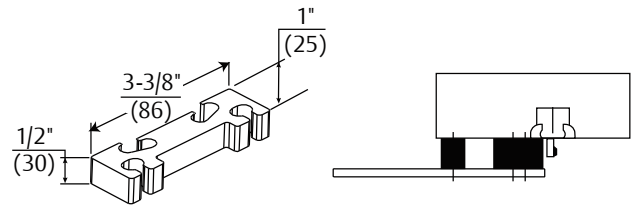
Standard - 2019S Spacer Block: For use where a narrow frame soffit does not provide adequate support for the soffit plate. Supplied as standard with all parallel rigid arm closers.



Narrow Frame - 6890 Support Bracket: For use where the frame is narrow, and the soffit plate cannot be mounted directly to the frame soffit or rabbet. Used in combination with the 6891 Spacer Block on blade stop frames to provide extra support and needed clearance of the blade stop. Used on frames where the frame stop does not exceed 5/8" (11mm) in height.



Flush Rabbeted Transom - 2019L Angle Bracket: For use where flush transom conditions prevent mounting of the standard soffit plate. This bracket is used in combination with the standard soffit plate.



Clearance/Support Blade Stop - 6891 Spacer Block: For use where the door frame has a blade stop and the soffit plate must be mounted on the frame rabbet. This accessory is used in combination with the standard spacer block to provide clearance of the blade stop.



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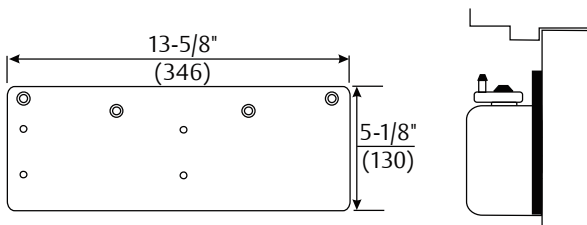
Signed _____
JW for SR

Date: 05/16/2024

Permit # 2024110

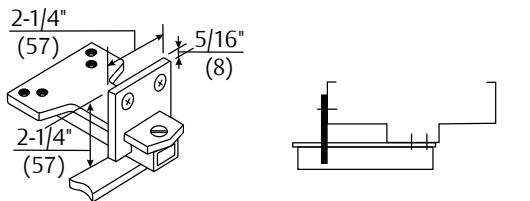
UNITROL® ARM

Closer Mounting Plate (for Parallel Arm)



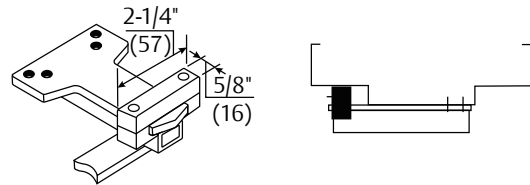
Narrow Top Rail - 7788 Drop Plate: For use where a narrow top rail prevents the closer from being mounted directly to the door surface. This drop plate can be used to mount a closer on a top rail as narrow as 2-3/8" (60mm) in height.

Soffit Plate Reinforcing Brackets (for Parallel Arm)

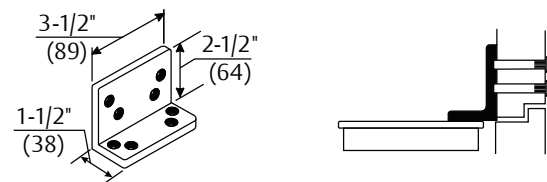


Additional Support - 6190 Reinforcing Bracket:

Standard for use with all Parallel Arm Unitrol Door Controls. Provides additional support to the soffit plate on installations with door frame reveals from 1-7/8" to 4-5/8" (48 to 117mm).

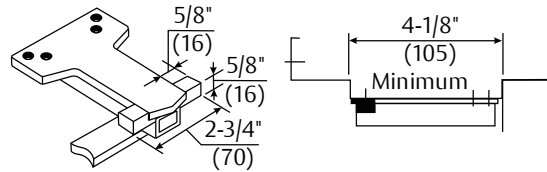


Wide Frame - 6191 Reinforcing Kit: Optional for use with all Parallel Arm Unitrol Door Controls. Used to support the soffit plate on installations with wide frames. Clamps may be used with or without the spacer block, depending on frame conditions.

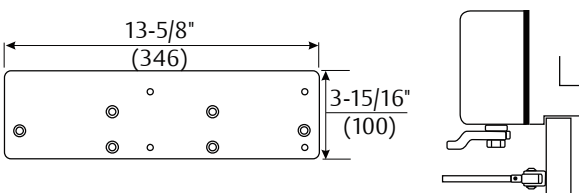


Flush Rabbeted Transom - 2022 Angle Bracket:

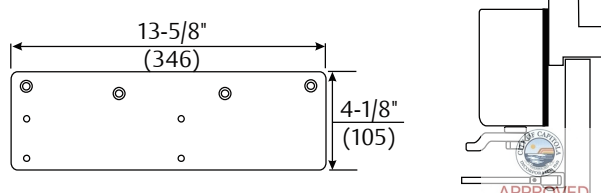
Optional for use with all Parallel Arm Unitrol Door Controls. For use where rabbeted or flush transom conditions prevent installation of the soffit plate assembly. This bracket fastens to the overhead transom to provide a mounting surface for the soffit plate assembly.



Closer Mounting Plate (for Top Jamb)



Standard Installation - 7786 Back Plate: Can be mounted where a frame face is as narrow as 1-5/8" (41mm) in height.

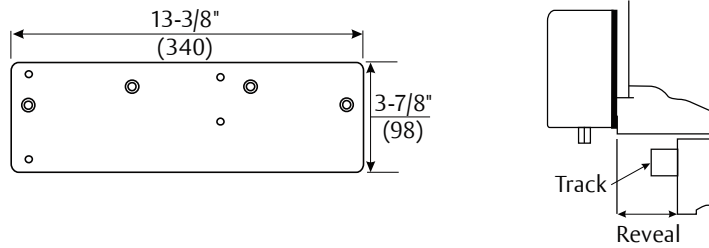


Minimum Ceiling Clearance - 7787 Drop Plate: For use where the ceiling clearance is as little as 1-5/8" (48mm).

7500 SERIES

INSTITUTIONAL DOOR CLOSER

SLIDE TRACK



Slide Track - 7786JP Back Plate: Required for frames with standard 2" (51mm) profile face. Without plate, minimum 4" (102mm) face frame required.



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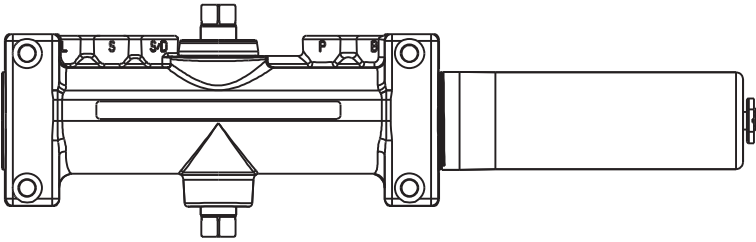
Date 05/16/2024

Permit # 20241180

- 7500 Series
- 7570 Series
- 8000 Series
- 1600 Series
- 2800ST Series
- 9300 Series
- 78-BF Series
- 1700 Series
- 210 Series
- 160 Series
- 9500 Series
- 9540 Series
- 410 Series

7500 SERIES INSTITUTIONAL DOOR CLOSER

DOOR CLOSER BODY ASSEMBLIES



Model Number	Description
7500LAP	Multi-Size Closer Body
7500SSLAP	Corrosion Resistant Closer Body

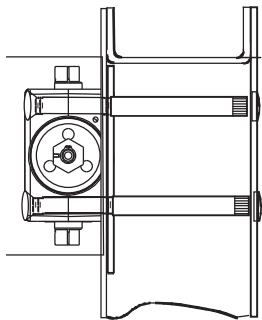
LAP = Less All Parts

Torx® Screw Pack	
Arm Type	Model Number
Regular, Top Jamb & Parallel	TX47
Parallel Rigid, CloserPlus® CloserPlus Spring™	PRTX47
Regular Rigid Heavy-Duty	RTX47
Unitrol® Arm	UNITX47
Slide Track	STTX47

Closer Series	Cover Material	Model No.	Dimensions (Inches/mm)
7500	Plastic	7700P & 7700PG	13-3/4 (349) x 4" (102) x 2-1/8" (54)
	Metal	7700M	13-5/8" (346) x 3-7/8" (98) x 2-3/16" (56)

STEEL DOOR APPLICATION

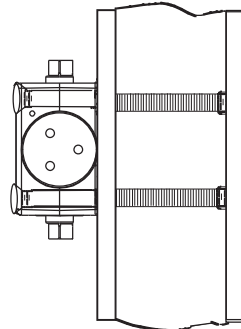
Sleeve Nut: "SN" (4 per pack) or
Sleeve Nut & Screw: "SNB" (4 per pack)



Door Thickness	SN's	SNB's
1-3/4"	SN-134	SNB134-47
2"	NA	SNB200-47
2-1/4"	SN-214	SNB214-47
S.S. SNB'S 1-3/4" (Stainless Steel)	SN-134SS	SNB134SS-47

ALUMINUM AND WOOD DOOR APPLICATION (ALUMINUM DOOR SHOWN)

Through-Bolt & Grommet Nut:
"TBCN" (4 per pack)



Door Thickness	SN's
1-3/8"	TBCN138-47
1-3/4"	TBCN134-47



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Date: 05/16/2024

7500 SERIES

INSTITUTIONAL DOOR CLOSER

FINISHES

Norton Rixson offers waterborne acrylic, polyester powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required. Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

Specify BHMA Designation	Description	Specify BHMA Designation	Description	Complements the following finishes
600 ¹	Prime Coat	689	Aluminum	628, 625, 629, 630, 651, 652
605 ²	Bright Brass	690	Statuary Bronze	640, 613
606 ²	Satin Brass	691	Dull Bronze	612, 637, 639
611 ²	Bright Bronze	693	Black	315
612 ²	Satin Bronze	694	Medium Amber	313
613E	Dark Oxidized Satin Bronze - Equivalent	696	Gold	605, 606, 632, 633
619 ²	Satin Nickel	BSP	Black Suede Powder	
625 ²	Bright Chrome	WSP	White Suede Powder	
626 ²	Satin Chrome			

- 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.
 - Plated finish
- Closer bodies and plastic covers are available in waterborne acrylic finishes. Arms and metal covers are available in powder coat or plated finishes.
 - When a plated finish is ordered, arm and cover will be plated unless "cover only" is specified.



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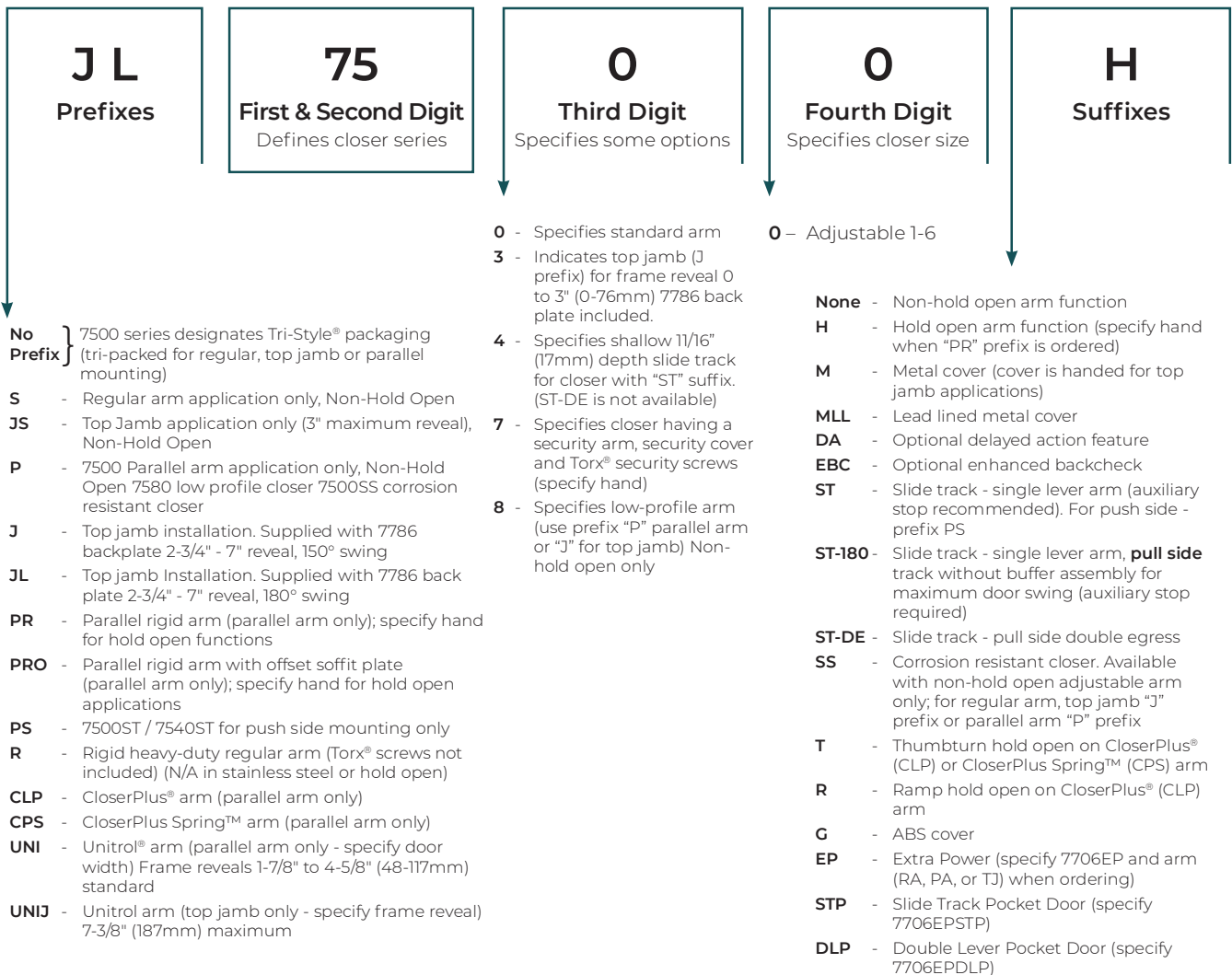
Date: 09/16/2024

7500 SERIES

INSTITUTIONAL DOOR CLOSER

HOW TO ORDER

NOTE: For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.



NOTE:

- Before installing a door closer, verify the accessibility, fire, and life-safety requirements that are in effect. This includes the mounting height and projection into the clear opening. Check the adopted state and local building codes and consult the Authority Having Jurisdiction (AHJ)
- To maintain the warranty and ensure proper operation of the product, follow the installation instructions & templates and install on the inside of the building.
- Consult NFPA 80 for the hinge requirements on a fire door.
- Failure to use fasteners supplied with closer may void factory warranty.
- Optional fasteners are available for a variety of applications. Consult the door and frame manufacturer to ensure the proper fasteners are used to maintain certifications.
- Sizing charts are based on 1-3/4" x 7" standard weight doors swinging to 110°. Other application conditions (e.g. larger door heights or weight) may require larger size closer. Adjusting the spring power to meet the low opening force requirements of the Americans With Disabilities Act or ANSI/BHMA Standard A117.1, may not provide adequate closing power to dependably close and latch the door in some conditions (i.e. air movement from wind gusts or building stack pressure).



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6300 SERIES

LOW ENERGY POWER OPERATORS

INTRODUCTION

The Norton Rixson 6300 Series Low Energy Operator offers a broad set of intelligent functions, such as power close, latch assist and obstruction detection to safely secure a variety of moderate to high traffic openings.

A unique design with one of the slimmest profiles available allows the 6300 to blend more seamlessly with the frame while fitting challenging applications with minimal header space. A modular design, simple controls, and new WiFi interface via a mobile device make for easy installation and setup.



FEATURES

- Push and pull side mounting
- Non-handed
- Activated by wall switch, hands-free and RF devices
- Door size: min width 36", max width 48", max weight 200 lbs.
- Aesthetically pleasing, slim profile
- Modular design
- Adjustable opening force
- Adjustable closing power
- LCD screen
- WiFi Interface*
- 2 year limited warranty



SMART

- Latch assist ensures door closes to secure facility
- Occupant safety enhanced by Obstruction Detection, Power Assist and Push & Go functions
- Customizable inputs and outputs for accessories, including security override and fire safety

SIMPLE

- Modular design allows for one-person installation
- Heavy-duty back plate serves as template simplifying and speeding installation
- Unit learns door properties (approximate weight) during installation for easy programming and set-up
- Easy to use controls simplify setup
- Easy setup via a mobile device
- USB port allows for quick software updates

GOOD LOOKING

- Unique design with slim profile blends seamlessly with frame
- Low profile easily fits applications with minimal header space

* No connection to building's WiFi is required



6300 SERIES

LOW ENERGY POWER OPERATORS

FUNCTIONS

- Adjustable Hold Open
 - Amount of time a door will stay in the full open position after an activation
- Blow Open for Smoke Ventilation
 - Door opens when signal is received from alarm system allowing air or smoke to flow through opening
 - Door will stay open until signal from alarm system is stopped
- Emergency Interface Relay (fire panel input)
 - Door closes and ignores any activation input until signal is discontinued
- Infinite Hold Open
 - Door will hold open at set position until power is turned off
- Latch Assist
 - At closed position, after an activation, the door is pulled in
 - After the door has closed, the door is pulled in to assist with latch release engagement
- Obstruction Detection
 - Open: door closes if it hits an obstruction while opening
 - Close: door will reverse to open position if it hits an obstruction while closing
 - Close (Selectable - stop on stall): door will stop once it hits an obstruction and will rest against the obstruction until removed
- Open Delay
 - Delays operator opening for locking hardware
- Outside Wall Switch Disable
 - When contact is closed, outside wall switch is disabled
- Power Assist
 - Senses the door is being opened manually and applies small amount of power to assist user in opening the door with force less than 5 lbs.
 - Door opens only as far as it is moved manually, then closes once released
- Power Close
 - Additional force to assist door closing between 7° and 2°
- Presence Detector Input
 - Input for external sensor to detect presence at door open or close position only
- Push & Go
 - As the door is manually opened, the operator “senses” movement and opens door to the full-open – position
- Selector Mode Switch
 - Off - Disables signal inputs unless Blow Open is activated
 - On - Activates signal inputs
 - Hold Open - Activates the unit (unless blow closed is activated on 6300) to the hold open position
- Vestibule Delay
 - When the wall switch is pressed, first door in vestibule will open. Second door will open once vestibule door delay has expired. Delay is adjustable.



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6300 SERIES

LOW ENERGY POWER OPERATORS


ELECTRICAL DATA

- Power input 120 VAC, 3A, 60Hz
- Current draw 1.5A
- Power output 24VDC @ 1.3A max draw (less accessories)

SPECIFICATIONS

Door Control (interior) (exterior) closing force shall be adjustable to ensure adequate closing control. Door Operator shall simulate conventional door closer opening and closing forces unless the power operator motor is activated. Door Operator shall have electronic backcheck to cushion the door speed if door is opened violently. [(Door Operator shall be AUTOMATICALLY ACTIVATED by either a slight push or pull in the direction of opening swing - Push & Go.) (Door Operator shall be SELECTIVELY ACTIVATED by external initiating device, i.e. wall switch, etc.) (Door Operator shall be both AUTOMATICALLY ACTIVATED and SELECTIVELY ACTIVATED.)) Operator shall have selectable latch boost to provide additional closing force to overcome conditions that may prevent door from latching. Unit shall have delay switches for motor

CERTIFICATIONS

- ANSI/BHMA A156.19 certified 
- UL325/991 certified
- UL10C listed for positive pressure fire test
- Complies with requirements for the Americans with Disabilities Act (A.D.A)
- Manufactured in an ISO 9001 and ISO 14001 certified facility

activation, electric lock interfacing, and hold open time. Units shall interface with latch retraction exit devices or similar products and have 24VDC @ 1.3A maximum (less accessories) output for connection of electric strike, lock, radio frequency receiver, etc. Unit shall have a three-position Selector Mode Switch that will permit the unit to be switched "ON" to monitor for function inputs, switch to "H/O" for infinite hold open function or switched "OFF" which will disable function inputs allowing unit to be used as a manual door closer. Unit shall be U.L. Listed for automatic closing door. The Unit shall be adjustable to provide compliance with the requirements of the Americans with Disabilities Act (ADA). Unit shall be certified by BHMA to meet A156.19 requirements. Unit shall meet UL325/991, UL10C standards.



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6300 SERIES

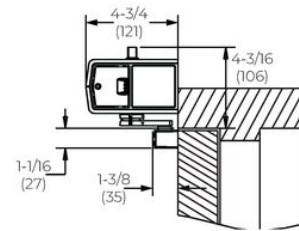
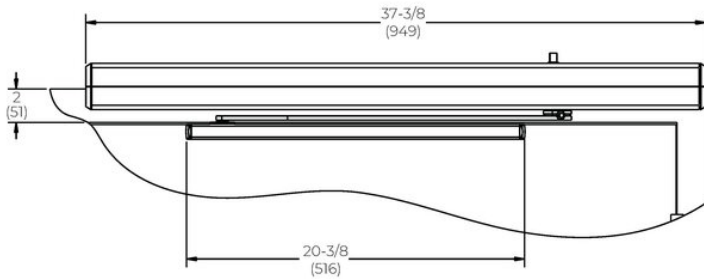
LOW ENERGY POWER OPERATORS

APPLICATIONS



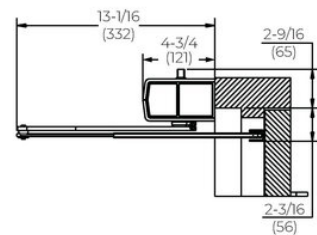
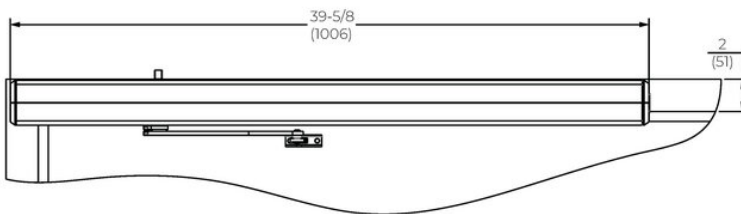
6311

HINGE (PULL) SIDE OF DOOR
RIGID ARM AND SLIDE TRACK



6332

STOP (PUSH) SIDE OF DOOR
STANDARD-DUTY DOUBLE LEVER ARM



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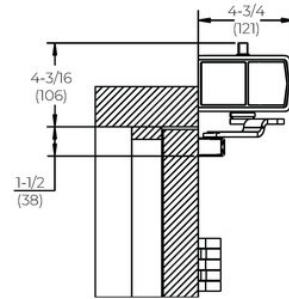
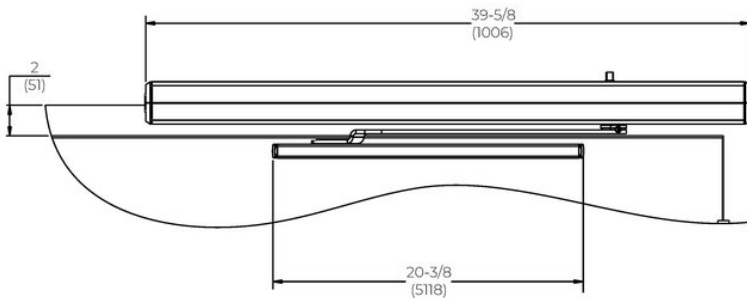
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6352 Shown
DOUBLE EGRESS ARM (PULL)
SIDE OF DOOR



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6300 SERIES

LOW ENERGY POWER OPERATORS

6341, 6342 - UNIVERSAL UNITS

INCLUDE:

- Operator
- Cover
- Push and pull arms



operator



push arm (6330-1)

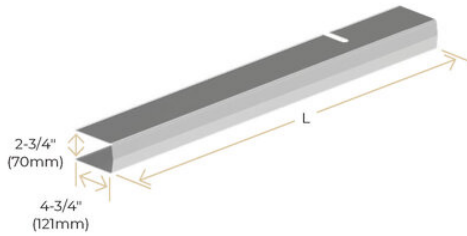


pull arm (6310-1)



PRODUCT COMPARISON

Model	Mounting		Arms			Overall Length (L)	Compatible with 585 Presence Detector	Cover spans full frame (36" door only)	Can be used on a pair of 36" doors
	Pull Side	Push Side	Rigid Arm & Slide Track	Double Lever	Double Egress				
6311	•		•			37-3/8"	Yes	No	Yes
6331		•		•					
6341	•	•	•	•					
6351	•				•				
6312	•		•			39-5/8"		Yes	No
6332		•		•					
6342	•	•	•	•					
6352	•				•				


TECHNICAL INFORMATION

Model	Door Opening	Reveal Range	Minimum Top Rail	Minimum Ceiling Clearance*	Frame Width	Door Width	Door Weight
6311 6312	Up to 180°	1/8"	1-1/8"	2-1/4" standard; 1-1/2" with field modification [^]	Minimum 2"	Minimum 36" Maximum 48"	250 lbs
6331 6332	110° to 135° (depending on reveal)	1/8" to 6-3/4"	2-1/4"	5/8" standard; 0" with field modification [^]			
6341 6342	Refer to 6311/6312 or 6331/6332 information						
6351 6352	Up to 130°	1/8" to 2-3/4"	1-1/2"	2-1/4" standard; 1-1/2" with field modification [^]			

*Based on units mounted on 2" frame

[^]Consult factory

NOTES:

- For additional information, the 6300 Series Instruction Manual is available online.



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6300 SERIES

LOW ENERGY POWER OPERATORS

6300 KITS

Hands-Free Kits



6341K2 (37-3/8")

6342K2 (39-5/8")

Kit includes:

- Operator
- Cover
- Push and Pull Arms
- (2) 700 Wave-to-Open Switches

ADA Kits



6341K3 (37-3/8")

6342K3 (39-5/8")

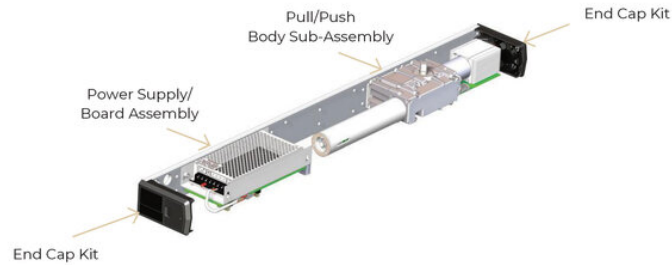
Kit includes:

- Operator
- Cover
- Push and Pull Arms
- (2) ADA1019-2 Switches
- (2) 548 Transmitters
- 539 Receiver

6300 SERIES

LOW ENERGY POWER OPERATORS

PARTS LIST



Parts

Part Number	Description	For Models
6300LAP	Pull/Push Body Sub-Assembly	All models
6300CM2	Power Supply / Board Assembly	All models
6300CAB2	Cable Kit	All models
6300COV	39-5/8" Cover	6312, 6332, 6342, 6352
6300COV2	37-3-8" Cover	6311, 6331, 6341, 6351

Miscellaneous Parts

Part Number	Description	For Models
6300END	End Cap Kit (included both end caps)	All models
6300SP	Screw Pack	All models

ARM AND TRACK ASSEMBLIES



- 6310-1** Arm and Track Assembly
- 6310-1W** Arm Assembly
- 7100-1T** Track Assembly



- 6330-1** Arm Assembly
- 6330-1W** Main Arm & Rod
- 6620-12** Adjusting Tube & Shoe



- 6350-1L** Arm and Track Assembly (LH)
- 6350-1R** Arm and Track Assembly (RH)
- 6350-1LW** Arm Assembly (LH)
- 6350-1RW** Arm Assembly (RH)
- 7100-1T** Track Assembly



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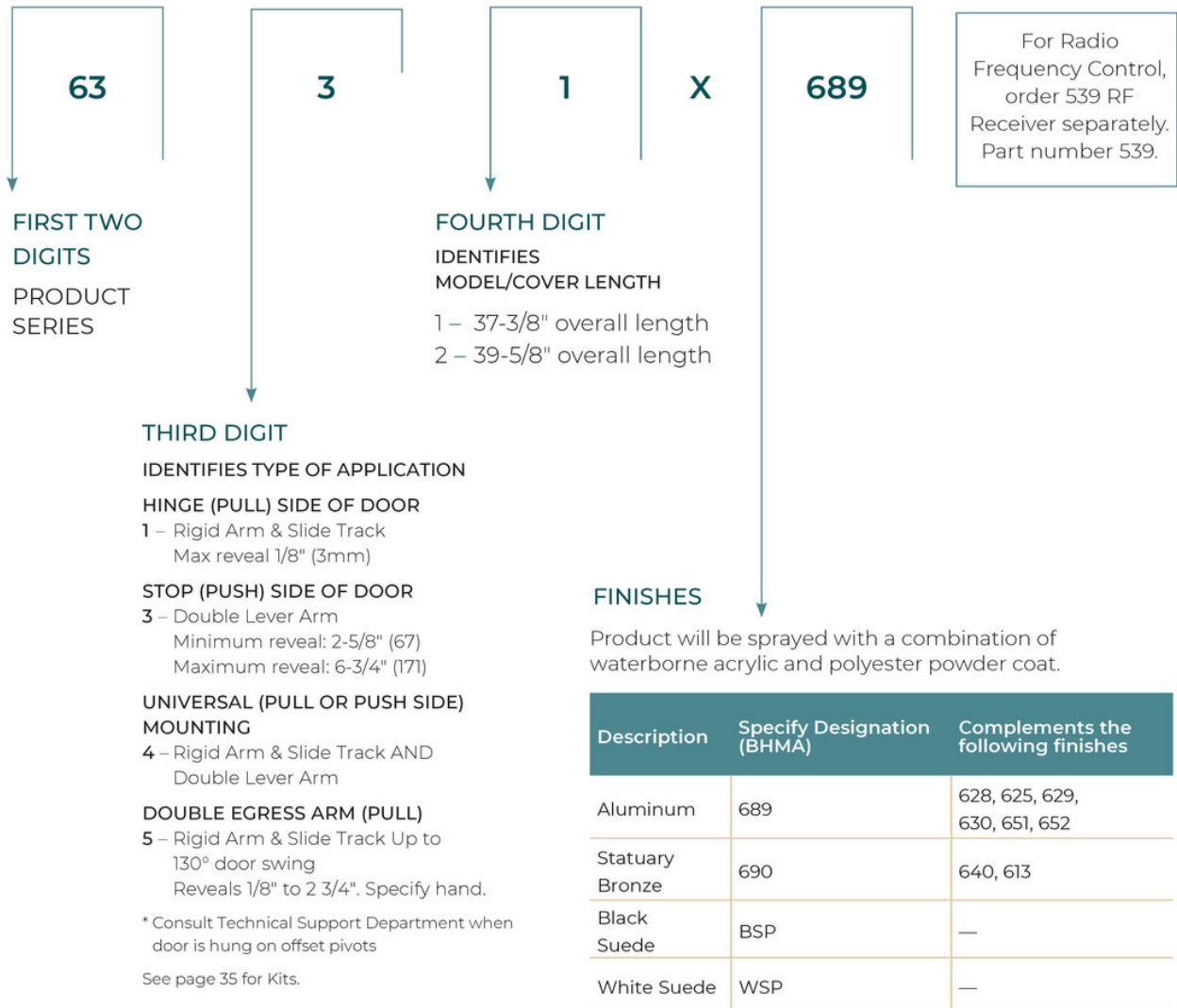
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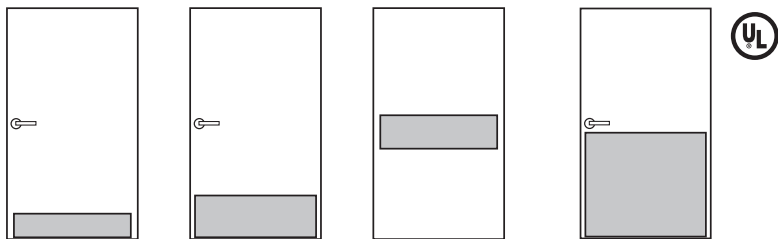
6300 SERIES

LOW ENERGY POWER OPERATORS

HOW TO ORDER

Note: All transmitters (wall switches or key fob) must be ordered separately.





Mop Plate
Up to 6" h x 48" w

Kick Plate
6" to 12" h x 48" w

Stretcher Plate
6" to 12" h and up
to 48" w

Armor Plate
Up to 48" h x 48" w and
available in most finishes



Width of Plates:

Push Side: 2" less than door width.

Pull Side: 1½" less than door width.

NFPA 80 STANDARDS — 2-4.5 Protection Plates:

Factory-installed protection plates shall be installed in accordance with the listing of the door. Field-installed protection plates shall be labeled and installed in accordance with their listing.

Exception: Labeling is not required where the top of the protection plate is not more than 16" (406 mm) above the bottom of the door.

OPTIONAL Self-Drilling TEK Screws: Cuts door plate installation time in half.

Metal Door Plate – Economy Duty No. K1038

Material: .038" aluminum, stainless steel

Finishes: US32D

Fastener: #6 x 5/8" OH SMS

Ordering: Specify height x width x finish code. Add any options

Weight: 8" x 34" = 3.2 lbs

- Options:**
- SA – self-adhesive mounting
 - TORX – security Torx screws
 - TEK – self-drilling screws
 - Cutouts for locks, louvers, or windows (see worksheets on pages C14-C15 for details on how to order)

Metal Door Plate - Standard Duty No. K1050

Material: .050" Stainless Steel

Finishes: US32D

Fastener: #6 x 5/8" OH SMS

Ordering: Size High Width

8x34BEV.32D 8" 34"

10x34BEV.32D 10" 34"

34x34BEV.32D 34" 34"

- Options:**
- Beveled Edge and Counter Sink included
 - One day shipping available
 - Door markings are not available on quick ship

Metal Door Plate – Standard Duty No. K1050, K1050F

Material: .050" aluminum, brass, bronze, stainless steel

Finishes: US10BE, US32D, US32DMS

Fastener: #6 x 5/8" OH SMS

Ordering: Specify height x width x finish code. Add any options

Weight: 8" x 34" = 4.0 lbs

ANSI: J101 - metal armor plate, J102 - metal kick plate, J103 - metal stretcher & mop plate

- Options:**
- SA – self-adhesive mounting
 - TEK – self-drilling screws
 - Beveled 3 or 4 edges, specify B3E or B4E
 - Cutouts for locks, louvers, or windows (see worksheets on pages C14-C15 for details on how to order)
 - Heavy bevel available, specify HVBEV
 - Screw mounting (K1050F) and UL listed for use on 90-minute label wood doors and 3-hour label metal doors
 - CSK – countersunk holes
 - TORX – security Torx screws



Windstorm Plate – K1050WS

Material: .050" Aluminium, Brass, Bronze, Stainless Steel

Finishes: Standard Architectural Finishes

Fastener: #10x5/8" Pan Head Tek Screws

Ordering: Part # when ordering is K1050WS

All plates are UL and Windstorm rated

- Options:**
- Cutouts for locks, louvers or windows
 - Rounded Corners
 - Heavy Bevel
 - Screw Mount only



Certified to the below standards:

- ICC-500 (2014)

- FEMA Guideline 320 (2014)

- FEMA Guideline 361 (2015)

Part of windstorm assembly cards: ZHLA.45, ZHLA.46, ZHLA.47, ZHLA.51, ZHLA.53, ZHLA.54



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No. 471

Door Stops No. 470, 471

- Material:** Cast brass with DuraFlex bumper
- Finishes:** Available in standard architectural finishes (see page 9)
- Options:** Exterior pack screw packs, stainless steel plated to match — use EXP suffix (470xEXP) when ordering

No.	Fastener	Base	Height	Weight	ANSI A156.16
470	3 ea. #12 x 1 ¹ / ₄ " FH WS; 3 ea. plastic anchors	2 ¹ / ₂ " dia.	3"	0.7 lbs.	L02121
471	1 ea. ⁵ / ₁₆ - 18 x 1 ³ / ₄ " stud, lead anchor; #8 x ³ / ₄ " OH SMS, plastic anchor	2 ¹ / ₂ " dia.	3"	0.7 lbs.	L02131



No. 473

Door Stops with Keepers No. 472, 473

- Material:** Cast brass with DuraFlex bumper
- Finishes:** Available in standard architectural finishes (see page 9)
- Other:** Keeper size 1" w x 1³/₄" h
- Options:** Exterior pack screw packs, stainless steel plated to match — use EXP suffix (472 x EXP) when ordering

No.	Fastener	Base	Height	Weight	ANSI A156.16
472	3 ea. #12 x 1 ¹ / ₄ " FH WS; 3 ea. plastic anchors Keeper: 2 ea. #12 x 1 ¹ / ₄ " FH WS; 2 ea. plastic anchors	2 ¹ / ₂ " dia.	3 ³ / ₄ "	0.9 lbs.	L01361
473	⁵ / ₁₆ - 18 x 1 ³ / ₄ " stud, lead anchor; #8 x ³ / ₄ " OH SMS, plastic anchor Keeper: 2 ea. #12 x 1 ¹ / ₄ " FH WS; 2 ea. plastic anchors	2 ¹ / ₂ " dia.	3 ³ / ₄ "	0.9 lbs.	L01371



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Solid Cast Wall Stops No. 400, 401, 402

- Material:** Cast brass with DuraFlex bumper
Finishes: Available in standard architectural finishes (see page 9)
Features: Concealed mounting, convex bumper. Back plate prevents damage to wall

No.	Bumper	Fastener	Size	Projection	Weight	ANSI A156.16
400	Convex	#6 x 1 1/2" FH SMS, plastic toggle	2 7/16" dia.	1"	3.3 lbs./10	L02101
401	Convex	#8 x 1" RH WS, plastic anchor	2 7/16" dia.	1"	3.3 lbs./10	L02101
402	Convex	#8 - 32 x 1" TH MS, lead anchor	2 7/16" dia.	1"	3.3 lbs./10	L02101



Solid Cast Wall Stops No. 403, 404, 405

- Material:** Cast brass with DuraFlex bumper
Finishes: Available in standard architectural finishes (see page 9)
Features: Concealed mounting, concave bumper. Back plate prevents damage to wall

No.	Bumper	Fastener	Size	Projection	Weight	ANSI A156.16
403	Concave	#6 - 1 1/2" FH SMS, plastic toggle	2 7/16" dia.	1"	3.3 lbs./10	L02251
404	Concave	#8 x 1" RH WS, plastic anchor	2 7/16" dia.	1"	3.3 lbs./10	L02251
405	Concave	#8 - 32 x 1" TH MS, lead anchor	2 7/16" dia.	1"	3.3 lbs./10	L02251



Wrought Wall Stops No. 406

- Material:** Wrought brass, bronze, and stainless steel with DuraFlex bumper
Finishes: Available in standard architectural finishes (see page 9)
Features:
 - Concealed mounting, convex bumper. Back plate prevents damage to wall
 - Accepted by the New York State Office of Mental Health (OMH) for use in high risk areas

No.	Bumper	Fastener	Size	Projection	Weight	ANSI A156.16
406	Convex	#8 x 1 1/4" TH SMS, plastic toggle	2 1/2" dia.	3/4"	1.8 lbs./10	L02101



Wrought Wall Stops No. 409

- Material:** Wrought brass, bronze, and stainless steel with DuraFlex bumper
Finishes: Available in standard architectural finishes (see page 9)
Features:
 - Concealed mounting, concave bumper. Back plate prevents damage to wall
 - Accepted by the New York State Office of Mental Health (OMH) for use in high risk area**Options:** DuraFlex bumper available in standard gray or optional black

No.	Bumper	Fastener	Size	Projection	Weight	ANSI A156.16
409	Concave	#8 x 1 1/4" TH SMS, plastic toggle	2 1/2" dia.	3/4"	1.8 lbs./10	L02251



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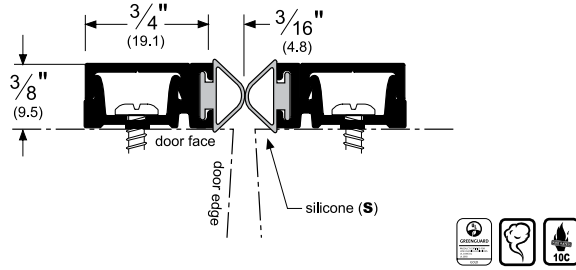
Split Astragals with Snap Covers – Concealed Fasteners

- Snap cover helps prevent vandalism and adds an attractive finished look by concealing the fasteners

- Replacement snap cover part number is _29316. Please specify finish and length when ordering.

29310_S

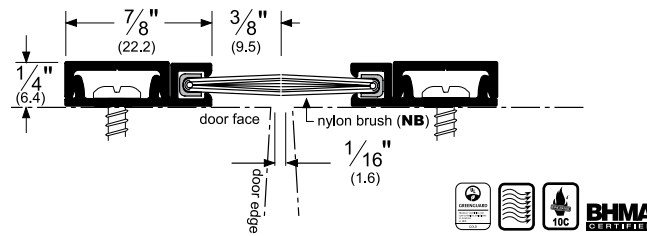
AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
S4 (BL, GR)
ANSI: **R3E734**



29324_NB

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P516041 (BL, GR)

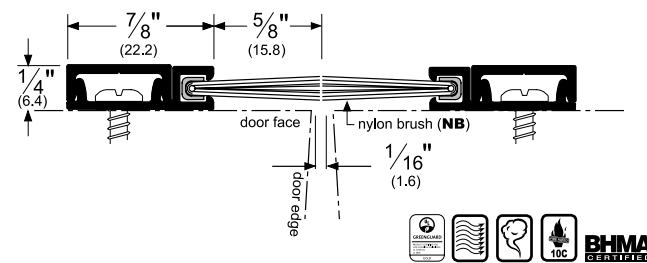
NOTE: Brush should mesh from 1/32" to 1/16".



29326_NB

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P516062 (BL, GR, W)

NOTE: Brush should mesh from 1/32" to 1/16".



Alternate Inserts For 29310

29310_PK

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
PK4 (BL, GR)
ANSI: **R3G734**



29310_P

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P2 (BL, GR)



29310_V

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
EV41 (BL, GR, W)



Alternate Inserts For 29324

29324_SB

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P3 (BL, GR)

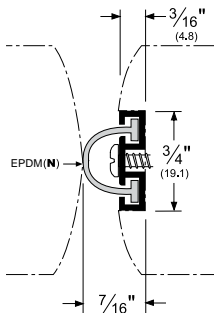


Meeting Stile Gasketing

- These products do not work well on beveled-edge pairs of doors

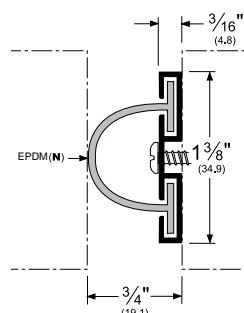
313_N

AVAILABLE FINISHES:
A, D, G
REPLACEMENT INSERT:
E1 (BL, GR)



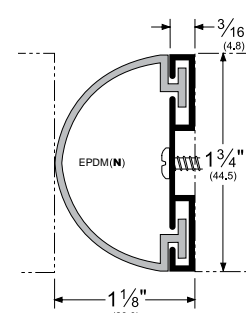
314_N

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
E3 (BL, GR)



358_N

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
E6 (BL, GR)



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AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
A (Mill Finish Aluminum) **C** (Clear Anodized) **D** (Dark Bronze Anodized) **G** (Gold Anodized)
Special finishes available upon request



Kerf-In Weatherstrip (Cont.)

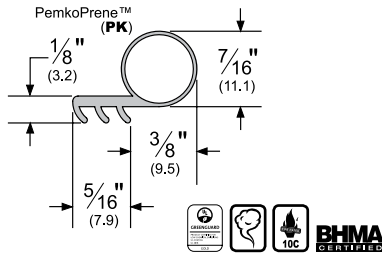
PK52

AVAILABLE FINISHES: **BL, W**

ANSI: **ROG154**

AVAILABLE LENGTHS: **18', 20', 300'**

- Minimum space between the door face and the stop is $\frac{1}{16}$ "; maximum space is $\frac{3}{8}$ "

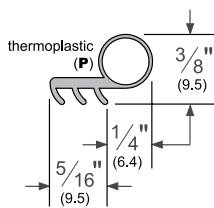


P50

AVAILABLE FINISHES: **BL, W**

AVAILABLE LENGTHS: **17', 25', 250'**

- Minimum space between the door face and the stop is $\frac{1}{16}$ "; maximum space is $\frac{1}{16}$ ".
- Thermoplastic elastomer formulation will not transmigrate; remains flexible to -60°F

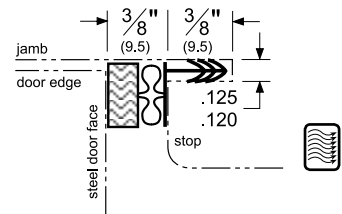


MAG349

AVAILABLE FINISHES: **D, W**

AVAILABLE LENGTHS: **37", 85", 96", 121"**

- Minimum space between the door face and the stop is $\frac{3}{8}$ "; maximum space is $\frac{7}{16}$ ".
- Magnetic kerf-in weatherstrip features a magnetic strip encased by a UV-stable TPE cover
- Use for steel-faced door and wood frame applications
- Can be trimmed in the field and corner-mitered

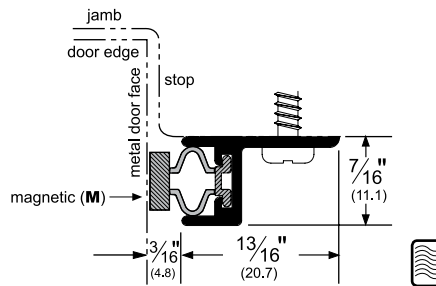


Magnetic Kerf-In Weatherstrip

2815_M

AVAILABLE FINISHES: **C, D, G**

REPLACEMENT INSERT: **2815MAG**



Adhesive Perimeter Gasketing

For more information on these perimeter gasketing products, please see the Adhesive Gasketing section.

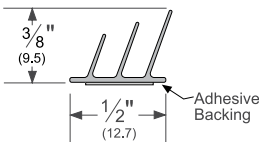
S773

AVAILABLE FINISHES: **BL, D, GR, W**

AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 250', 500'**

ANSI: **ROE154, ROE155**

- Triple-fin design blocks light and sound from infiltrating a room
- Product designed as hospitality gasketing (see more hospitality products in the Hospitality Products section)
- Seal begins compressing at $\frac{3}{8}$ "; compresses to seal up to a $\frac{1}{16}$ " gap



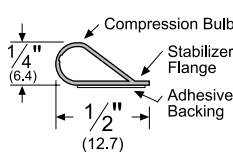
S88

AVAILABLE FINISHES: **BL, C, D, GR, TAN, W**

AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 204', 510'**

ANSI: **ROE154, ROE155**

- Seal begins compressing at $\frac{1}{4}$ "; compresses to seal up to a $\frac{1}{16}$ " gap
- Available with perforations for Behavioral Health applications. Substitute "P" in place of "S" to order this option.



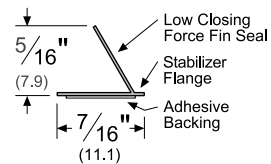
S44

AVAILABLE FINISHES: **BL, C, D, GR, W**

AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 204', 510'**

ANSI: **ROE154, ROE155**

- Designed for tighter frames.
- Demonstrates extremely low closing force.
- Seal begins compressing at $\frac{9}{16}$ "; compresses to seal up to a $\frac{1}{16}$ " gap
- Available with perforations for Behavioral Health applications. Substitute "P" in place of "S" to order this option.



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NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)

Adhesive Gasketing Colors: **BL** (Black) **C** (Clear) **D** (Dark Brown) **GR** (Light Gray) **TAN** (Tan) **W** (White)

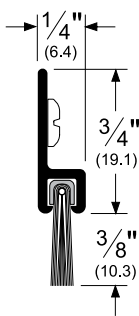
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180° Aluminum Retainers (Cont.)

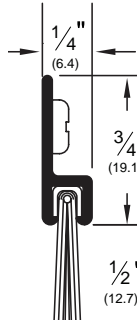
18041_NB

AVAILABLE FINISHES:
C, D, G, PW, SN
REPLACEMENT INSERT:
P516041 (BL, GR)
ANSI: **R3A134, R3A164, R3A734**



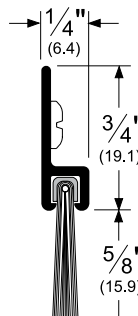
18050_NB

AVAILABLE FINISHES:
C, D, G, PW, SN
REPLACEMENT INSERT:
P516050 (BL, GR)
ANSI: **R3A434, R3A734**



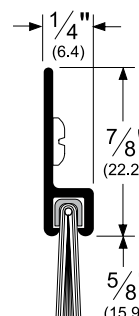
18061_NB

AVAILABLE FINISHES:
C, D, G, PW, SN
REPLACEMENT INSERT:
P516062 (BL, GR, W)
ANSI: **R3A434, R3A734**



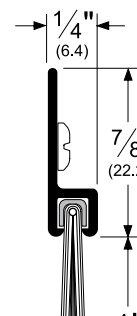
18062_NB

AVAILABLE FINISHES:
C, D, G, PW
REPLACEMENT INSERT:
P38062 (BL, GR, W)
ANSI: **R3A434**



18100_NB

AVAILABLE FINISHES:
C, D, G, PW
REPLACEMENT INSERT:
P38100 (BL, GR)
ANSI: **R3A434**



Alternate Inserts For 18041

18041_SB

AVAILABLE FINISHES: **C, D, G, SN**
REPLACEMENT INSERT: **P3 (BL, GR)**

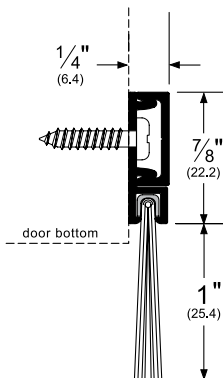


180° Concealed Fastener Retainers

- Aluminum snap cover conceals mounting screws to provide a clean aesthetic appearance
- Replacement snap cover is item _29316; when ordering, identify finish and length
- Cover snaps securely into place to deter vandalism

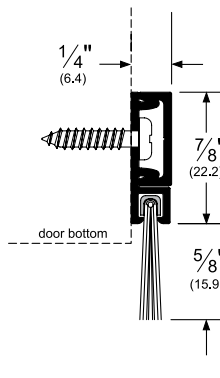
293100_NB

AVAILABLE FINISHES:
C, D
REPLACEMENT INSERT:
P516100 (BL, GR, W)
ANSI: **R3A434**



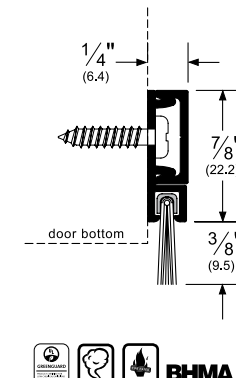
29326_NB

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P516062 (BL, GR, W)
ANSI: **R3A434**



29324_NB

AVAILABLE FINISHES:
C, D, G
REPLACEMENT INSERT:
P516041 (BL, GR)
ANSI: **R3A434**



Alternate Insert For 29324

29324_SB

AVAILABLE FINISHES: **C, D**
REPLACEMENT INSERT: **P3 (BL, GR)**



NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
C(Clear Anodized) **D**(Dark Bronze Anodized) **G**(Gold Anodized) **PW**(Painted White) **SN**(Satin Nickel Anodized)
Special finishes available upon request

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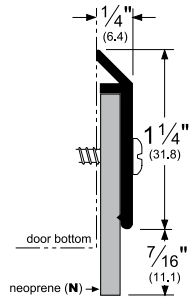
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Door Bottom Sweeps

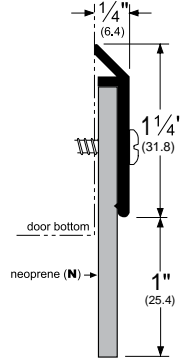
315_N

AVAILABLE FINISHES: **B, C, D, G, PW, SN**
REPLACEMENT INSERT: **N8 (BL, GR)**
ANSI: **R3B434, R3B435**



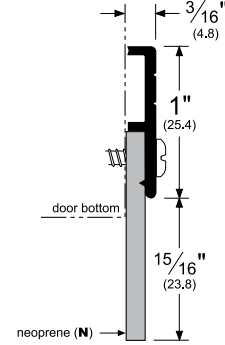
3151_N

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **N9 (BL)**
ANSI: **R3B434**



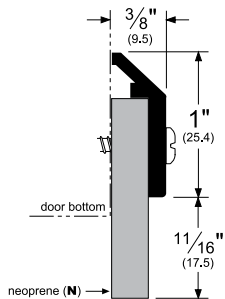
321_N

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **N8 (BL)**
ANSI: **R3B434, R3B435**



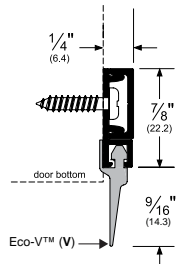
368_N

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **N10 (BL)**
ANSI: **R3B434, R3B435**



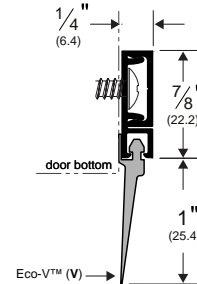
29326_V

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **EV65 (BL, GR, W)**
ANSI: **R3D434**



293100_V

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **EV54 (BL, GR, W)**
ANSI: **R3D434**



NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
B (Mill Finish Extruded Bronze [Brass]) **BDG** (Bright Dip Gold Anodized) **C** (Clear Anodized)
D (Dark Bronze Anodized) **G** (Gold Anodized) **PW** (Painted White) **SN** (Satin Nickel Anodized)

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Saddle Thresholds (Cont.)

276_

AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, WSP**
 ANSI (aluminum): **J32100, J32130, J39100, J39130, J39135, J39150**
 ANSI (brass): **J12100, J12130, J19100, J19130, J19135, J19150**



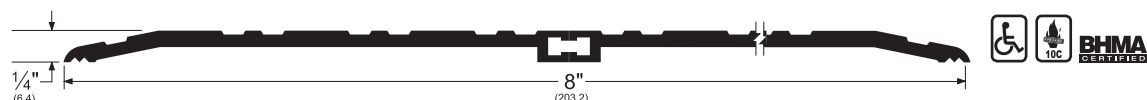
2748_

AVAILABLE FINISHES: **10BE, A, BSP, D, G, WSP**
 ANSI (aluminum): **J32100, J32130, J39100, J39130, J39135, J39150**



274x4_

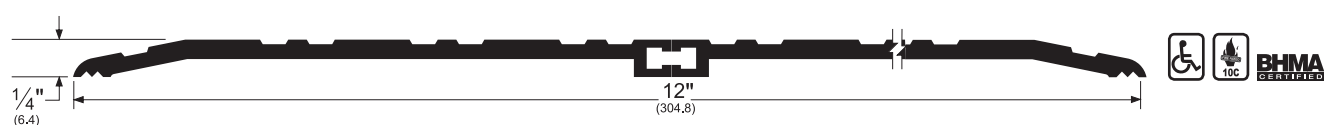
AVAILABLE FINISH: **B**
 ANSI (brass): **J12100, J12130, J19100, J19130, J19135, J19150**



Welded on bottom.

2746x6_

AVAILABLE FINISHES: **10BE, A, BSP, D, G, WSP**
 ANSI (aluminum): **J32100, J32130**



Welded on bottom.

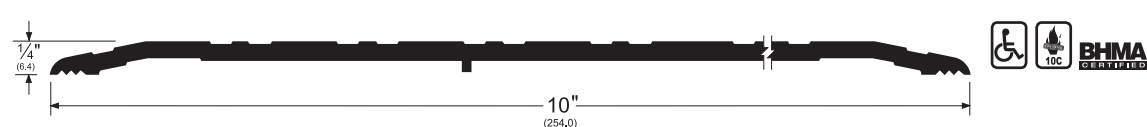
2749_

AVAILABLE FINISHES: **10BE, A, BSP, D, G, WSP**
 ANSI (aluminum): **J32100, J32130**



2750_

AVAILABLE FINISHES: **10BE, A, BSP, D, G, WSP**
 ANSI (aluminum): **J32100, J32130**



Includes two support legs (only one shown due to break in drawing)

NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
10BE (Stain Bronze Powder Coated Aluminum) **A** (Mill Finish Aluminum) **B** (Mill Finish Extruded Bronze [Brass])
BSP (Black Suede Powder Coated Aluminum) **D** (Dark Bronze Anodized) **G** (Gold Anodized)
WSP (White Suede Powder Coated Aluminum)

NOTE: **G** is available with limited inventory

800-824-3018 | www.assaabloydooraccessories.us

Check the web site for the up-to-date catalog

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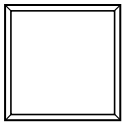
Signed _____

Date: 11/20/24

Permit # 2254180

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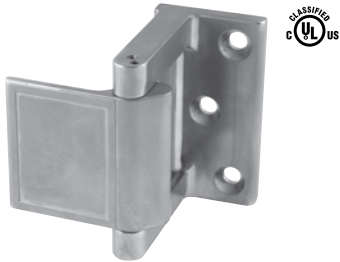
Experience a safer
and more open world



Wall Guard No. 606

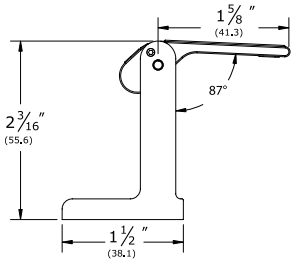
- Material:** Clear rubber
Other: Sold in sheets of 55
Features: Self-adhesive mounting

No.	Fastener	Size	Weight
606	Self-adhesive back	1" x 1"	0.4 lbs./55

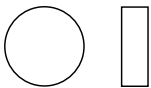


Privacy Door Latch No. PDL (formerly 607)

- Material:** Zinc die cast
Finishes: BRS, DBRS, STNN, CRM, DCRM, ORB
Features:
- ADA compliant
 - Enhanced in room privacy
 - Easy to install
 - For use with UL Classified fire doors for use with hollow metal steel composite type fire doors rated up to and including 3 hrs Wood composite type fire doors rated up to and including 1½ hrs and 20 minutes without hose stream



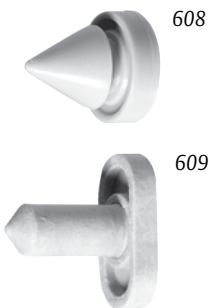
No.	Fastener	Size	Weight
PDL	#12 x 1¼" FH SMS	1½" x 2 ¹³ / ₁₆ "	0.75 lbs.



Door Silencer No. 608CA

- Material:** Clear rubber
Other: Sold in packages of 300
Features: Self-adhesive mounting

No.	Fastener	Size	Weight
608CA	¾" dia. x 1/8"	Metal or wood	0.2 lbs./300



Door Silencers No. 608, 609

- Material:** DuraFlex gray rubber
Other: Sold in packages of 100

No.	Size	Frame Type	Weight	ANSI A156.16
608	½" dia. x 5/8"	Metal	1.3 lbs./500	L03011
609	¾" x ¾"	Wood	1.3 lbs./500	L03021



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 Date: 05/16/2024
 Permit #: 22541450

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CATALOG

ELECTRIFIED CLOSERS AND HOLDERS



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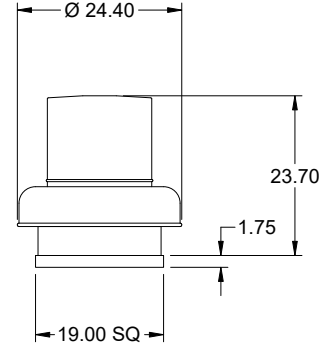
Date 05/16/2024

Permit # 2024180

Model: G-100-VG

Direct Drive Centrifugal Roof Exhaust Fan

Previously: G-103-VG



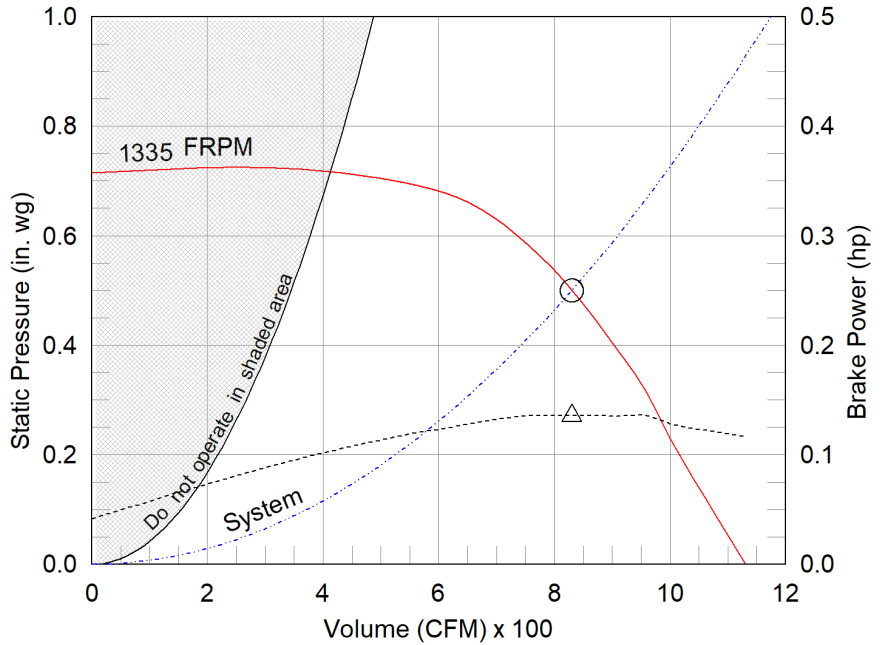
OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	830
Actual Volume (CFM)	830
Total External SP (in. wg)	0.5
Fan RPM	1335
Operating Power (hp)	0.14
Elevation (ft)	164
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Tip Speed (ft/min)	3,887
Static Eff. (%)	48

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	922

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Notes:

All dimensions shown are in units of in.
 *NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.
 MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
 LwA - A weighted sound power level, based on ANSI S1.4
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
 Sones - calculated using ANSI/AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	71	75	69	63	55	53	48	41	66	54	7.1



Model: G-100-VG

Direct Drive Centrifugal Roof Exhaust Fan

Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor
Control - Dial for balancing
Standard Curb Cap Size - 19 Square
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-1, Toggle, Shipped with Unit
Junction Box Mounted & Wired
Coated with Hi-Pro Polyester, Concrete Gray-RAL 7023, Fan And Attached Acc
Birdscreen: Galvanized, nom. 84% Free Area
Unit Warranty: 1 Yr (Standard)
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.

If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.



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Date: 09/26/2024

20241010

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per ANSI/AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.



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Date: 09/16/2024

20241101

PRODUCT SPECIFICATIONS

Elkay ezH2O® Bottle Filling Station & Versatile Bi-Level ADA Cooler Filtered Non-Refrigerated Light Gray. Features shall include Antimicrobial*, Filtered, Green Ticker™, Hands Free, Laminar Flow, Real Drain, Visual Filter Monitor. Furnished with Flexi-Guard® Safety Bubbler. Electronic Bottle Filler Sensor with Electronic Front and Side Bubbler Pushbar activation. Product shall be Wall Mount (On Wall), for Indoor applications, serving 2 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120.



Special Features:	Antimicrobial, Filtered, Green Ticker™, Hands Free, Laminar Flow, Real Drain, Visual Filter Monitor
Finish:	Light Gray Granite
Power:	115V/60Hz
Bubbler Style:	Flexi-Guard® Safety Bubbler
Activation by:	Electronic Bottle Filler Sensor with Electronic Front and Side Bubbler Pushbar
Mounting Type:	Wall Mount (On Wall)
Chilling Capacity:	Non-refrigerated
Full Load Amps	1.1
Rated Watts:	15
Dimensions (L x W x H):	36-3/4" x 19" x 39-1/16"
Approx. Shipping Weight:	82 lbs.
Installation Location:	Indoor
No. of Stations Served:	2

Special Note: Installs with stainless steel back panel (1000004920); accessory to enhance design & ease of installation.

- Visual Filter Monitor: LED Filter Status Indicator for when filter change is necessary.
- Filter is certified to NSF 42 and 53 for lead, cyst, particulate, chlorine, taste and odor reduction. 3,000 gal. capacity.
- Green Ticker: Informs user of number of 20 oz. plastic water bottles saved from waste.
- Laminar flow provides clean fill with minimal splash.
- Key plastic components are manufactured with silver ion antimicrobial agent helping to provide clean, stain- and odor-free surfaces.
- Real Drain System eliminates standing water.

*Antimicrobial claims are in reference to components manufactured antimicrobial agents, helping to provide clean, stain- and odor-free surfaces.

Included with Product: Water Cooler (LZSTLDDWSLC), Bottle Filler (LZWSR), Filter

▼ Ships in multiple boxes.

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PRODUCT COMPLIANCE

- ADA & ICC A117.1
- ASME A112.19.3/CSA B45.4
- CAN/CSA C22.2 No. 120
- GreenSpec®
- NSF/ANSI 42, 53, 61 (Q≤1), 372 (lead free), & 401
- UL 399



Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

[Installation Instructions \(PDF\) - 1000002243](#)

Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

[Warranty \(PDF\)](#)

PART: _____ QTY: _____

PROJECT: _____

CONTACT: _____

DATE: _____

NOTES: _____

APPROVAL: _____



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Optional Accessories		
51300C	WaterSentry [®] Lead + Microplastics NSF/ANSI Certified Filter (Bottle Fillers) Spec Sheet (PDF)	
LKAPREZL	Elkay Cane Apron for EZ Gray Spec Sheet (PDF)	
MLP200	In-wall Carrier for Bi-level On-wall Bottle Fillers Coolers & Fountains Spec Sheet (PDF)	
98551C	WaterSentry Filter Mounting Cover (Gray Granite) Spec Sheet (PDF)	



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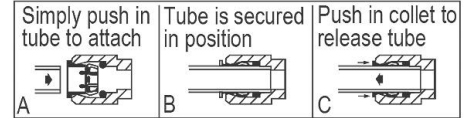
IMPORTANT! INSTALLER PLEASE NOTE :

This water cooler has been designed and built to provide water to the user which has not been altered by materials in the cooler waterways. The grounding of electrical equipment such as telephone, computer, etc. to water lines is a common procedure. The grounding may be in the building but may also occur away from the building. This grounding can cause electrical feedback into a water cooler creating an electrolysis which creates a metallic taste or causes an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown below.

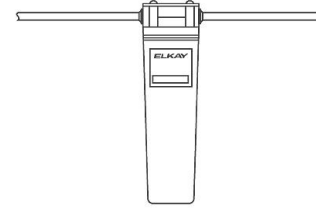
NOTICE

This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system. Bottle filler unit on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.

OPERATION OF QUICK CONNECT FITTINGS

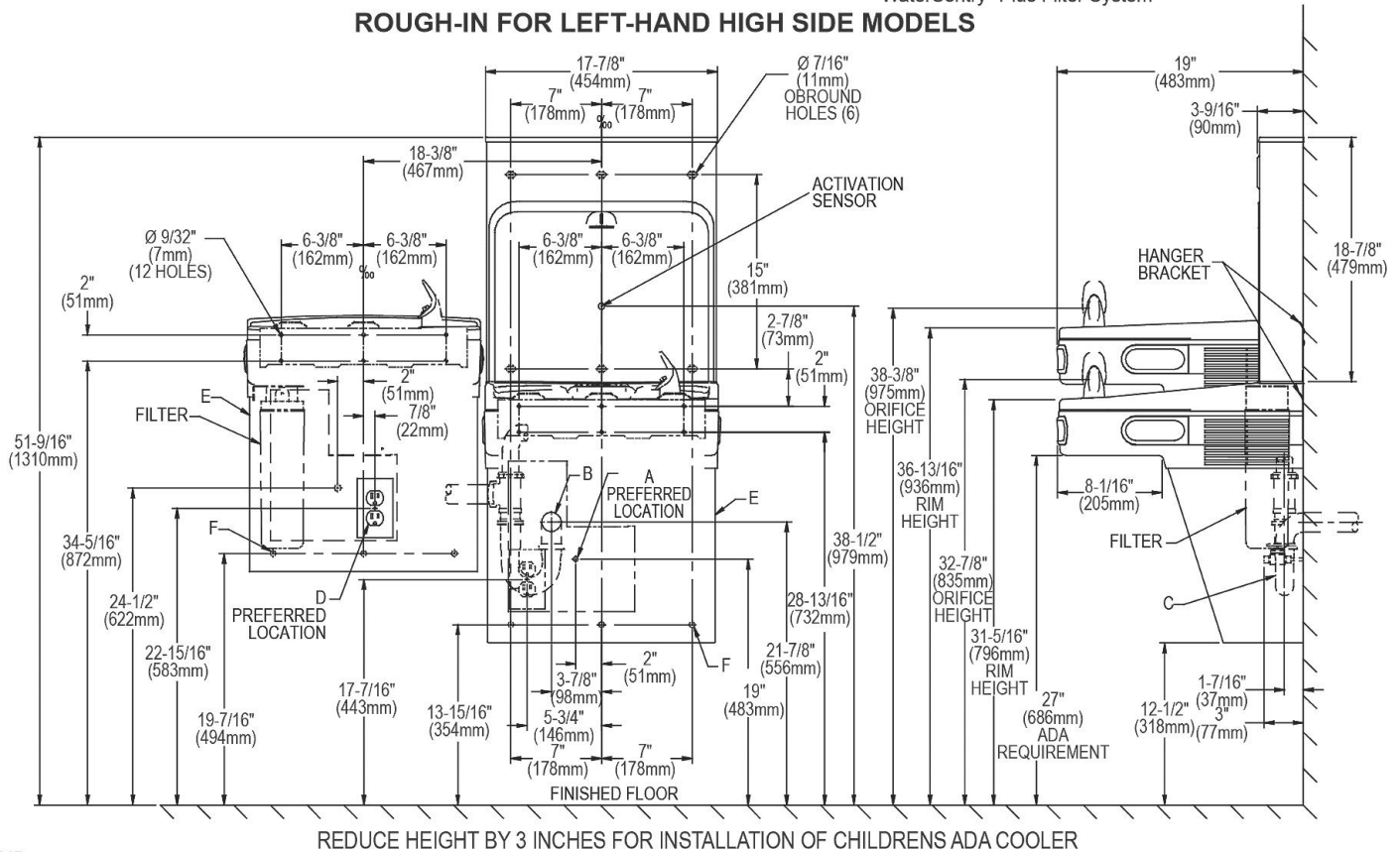


Pushing tube in before pulling it out helps to release tube



WaterSentry[®] Plus Filter System

ROUGH-IN FOR LEFT-HAND HIGH SIDE MODELS



LEGEND:

- A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
 - B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
 - C = 1-1/2" Trap (not furnished).
 - D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
 - E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
 - F = 7/16" (11mm) Bolt Holes for fastening to wall.
- Note : New Installations Must Use Ground Fault Circuit Interrupter (GFCI).



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In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

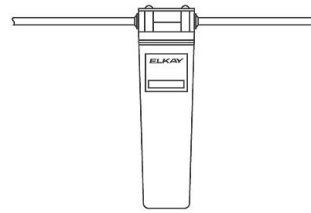
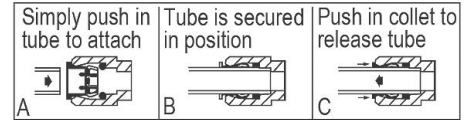
**IMPORTANT!
INSTALLER PLEASE NOTE :**

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NOTICE

This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system. Bottle filler unit on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.

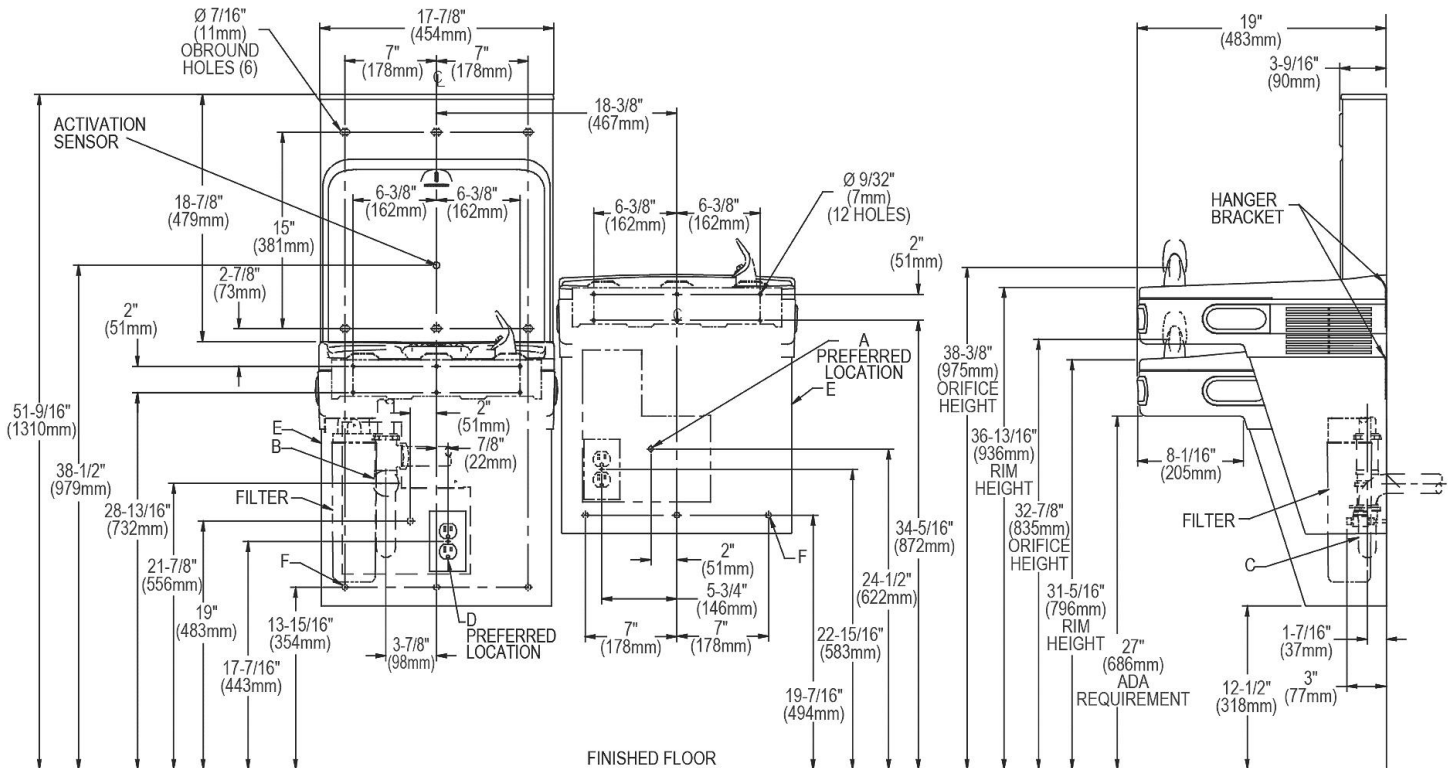
OPERATION OF QUICK CONNECT FITTINGS



WaterSentry® Plus Filter System

Pushing tube in before pulling it out helps to release tube

ROUGH-IN FOR RIGHT-HAND HIGH SIDE MODELS



REDUCE HEIGHT BY 3 INCHES FOR INSTALLATION OF CHILDRENS ADA COOLER

LEGEND:

- A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
- B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
- C = 1-1/2" Trap (not furnished).
- D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
- E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
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Note : New Installations Must Use Ground Fault Circuit Interrupter (GFCI).



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Date: 10/19/2023

For: File Resubmit
 Approval Other _____

PO No.:

Architect:

GC:

Engr: Axiom Engineers / Colebreit

Mech:

Rep: DMG North - San Francisco Bay Area
 (Company)

Matthew Alvarez
 (Project Manager)



ARUM121BTE5
 Multi V™ 5 with LGRED° 208-230V ODU
 10 Ton Single Frame Heat Pump and Heat Recovery

Performance:

Cooling Mode:

Nominal Capacity (Btu/h)	119,700
Power Input (kW)	7.72

Heating Mode:

Nominal Capacity (Btu/h)	135,000
Power Input (kW)	9.20

Rated capacity is certified under AHRI Standard 1230. Ratings are subject to change without notice. Current certified ratings are available at www.ahridirectory.org.

Electrical:

Frame	ARUM121BTE5
Power Supply (V/Hz/Ø) ¹	208-230/60/3
MOP (A)	40
MCA (A)	30.9
Rated Amps (A)	26.3
Compressor A (A)	18.3
Compressor B (A)	-
Fan (A)	8.0

Piping:²

Frame	ARUM121BTE5
Refrigerant Charge (lbs.)	23.2
Liquid (in., O.D.)	1/2 Braze
High Pressure Vapor (Heat Recov only; in., O.D.)	3/4 Braze
Low Pressure Vapor (in., O.D.)	1-1/8 Braze

Standard Features:

- Advanced Smart Load Control
- Intelligent Heating
- HiPOR (High Pressure Oil Return)
- Smart Oil Control
- Night Quiet Operation
- Fault Detection and Diagnosis
- Active Refrigerant Control
- Variable Heat Path Exchanger
- Subcooling and Vapor Injection Control
- Liquid Cooled Inverter Controller
- Advanced Comfort Cooling

Optional Accessories:

- Air Guide - ZAGDKA52A
- Hail Guard Kit - ZHGDKA52A
- Low Ambient Baffle Kit - ZLABKA52A, Control Kit - PRVC2 (1 per system)
- Base Pan Heater - ZPLT1A52A

****Cooling range with the Low Ambient Baffle Kit (sold separately) is -9.9°F to +122°F and is achieved only when all indoor units are operating in cooling mode. Does not impact heat recovery system synchronous operating range.**

Operating Range:

Cooling (°F DB)**	5 - 122
Heating (°F WB)	-22 - 61
Synchronous	
Cooling Based (°F DB)	14 - 81
Heating Based (°F WB)	14 - 61

Unit Data:

Refrigerant Type	R410A
Refrigerant Control	EEV
Max. Number of Indoor Units ³	20
Sound Pressure ⁴ dB(A)	59.0
Weight	
Frame	ARUM121BTE5
Net (lbs.)	507
Shipping (lbs.)	534
Communication Cable (No x AWG) ⁵	2 x 18
Heat Exchanger Coating	Black Coated Fin™

Compressor:

Type	HSS DC Scroll
Quantity	1
Oil / Type	PVE / FVC68D

Fan:

Type	Propeller
Quantity	2
Motor Drive	Brushless Digitally Controlled Direct
Air Flow Rate (rated/max, CFM)	8,400 / 11,300

Notes:

1. Power wiring cable size must comply with the applicable local and national codes. Cables terminate at each frame.
2. For main pipe segment size, refer to the LATS Multi V tree diagram.
3. The combination ratio must be between 50-130%.
4. Sound pressure levels are tested in an anechoic chamber under ISO Standard 3745 for the combination of outdoor units.
5. Communication cable between ODU and IDUs must be 2-conductor, 18 AWG, twisted, stranded, and shielded. Ensure the communication cable shield is properly grounded to the Main ODU chassis only. Do not ground the communication cable at any other point. Wiring must comply with all applicable local and national codes.
6. Acceptable operating voltage: 187V - 253V
7. Fan ESP (in wg) selectable range is 0.16 to 0.32.



ARUM121BTE5

Multi V™ 5 with LGRED® 208-230V ODU

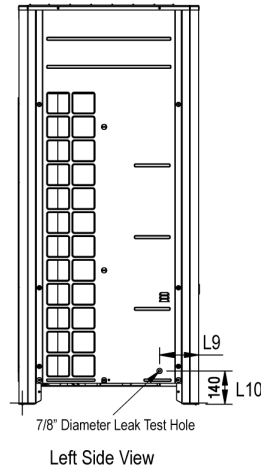
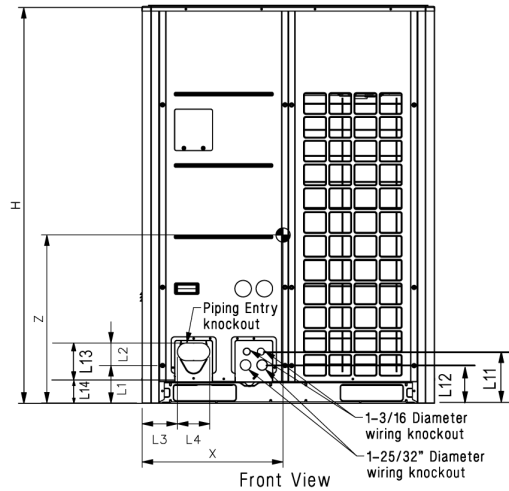
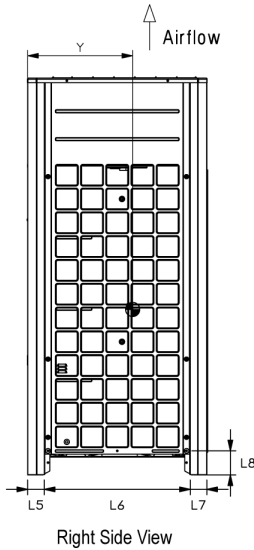
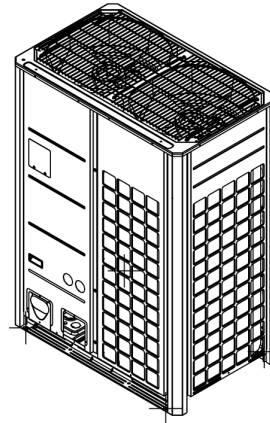
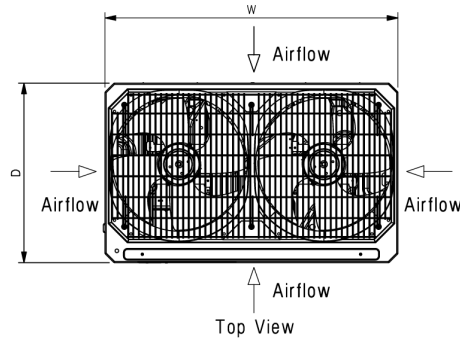
10 Ton Single Frame Heat Pump and Heat Recovery



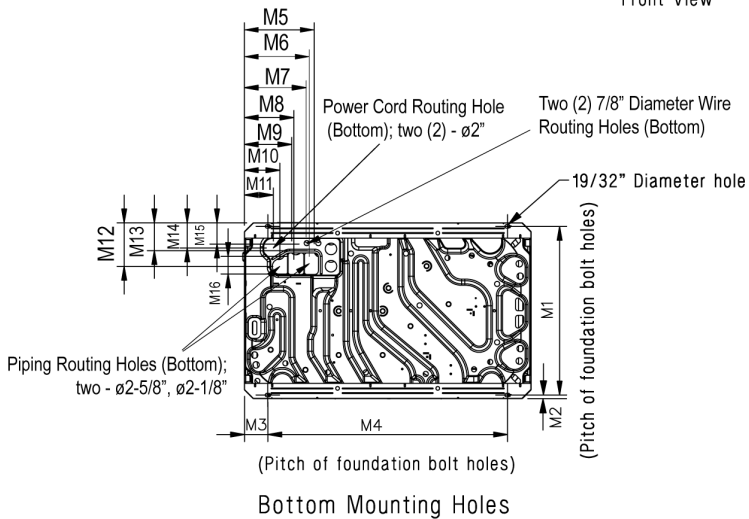
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Date: 10/19/2023

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W	48-13/16"
H	66-17/32"
D	29-29/32"
L1	6-5/16"
L2	3-3/4"
L3	5-29/32"
L4	5-13/32"
L5	2-25/32"
L6	24-9/32"
L7	2-25/32"
L8	4-1/32"
L9	6-1/2"
L10	5-9/16"
L11	8-5/8"
L12	6-7/16"
L13	9-15/16"
L14	3-5/8"



M1	28-25/32"
M2	5/8"
M3	3-15/16"
M4	40-15/16"
M5	11-15/16"
M6	11-1/16"
M7	10-1/2"
M8	8-7/16"
M9	8-1/8"
M10	6-1/16"
M11	4-15/16"
M12	7-1/2"
M13	4-13/16"
M14	4-5/16"
M15	3-5/8"
M16	3"

Center of Gravity

X	23-7/32"
Y	15-5/8"
Z	25-9/16"

All dimensions have a tolerance of ± 0.25 in.



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ARUM121BTE5
 Multi V™ 5 with LGRED° 208-230V ODU
 10 Ton Single Frame Heat Pump and Heat Recovery



Tag No.: _____

Date: 10/19/2023

PO No.: _____

AHRI Data:

Reference Number	Indoor Type	Cooling Capacity (95°F)	EER (95°F)	IEER	SCHE	High Heating Capacity (47°F)	High COP (47°F)	Low Heating Capacity (17°F)	Low COP (17°F)
205281462	Ducted Indoor Units	114,000	12.50	24.60	26.40	129,000	3.46	84,000	2.53
202516176	Non-Ducted Indoor Units	114,000	13.10	29.60	31.00	129,000	3.97	84,000	2.74



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 Permit # 2024180



Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring¹

This standard is issued under the fixed designation F710; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the determination of the acceptability of a concrete floor for the installation of resilient flooring.

1.2 This practice includes suggestions for the construction of a concrete floor to ensure its acceptability for installation of resilient flooring.

1.3 This practice does not cover the adequacy of the concrete floor to perform its structural requirements.

1.4 This practice covers the necessary preparation of concrete floors prior to the installation of resilient flooring.

1.5 This practice does not supersede in any manner the resilient flooring or adhesive manufacturer’s written instructions. Consult the individual manufacturer for specific recommendations.

1.6 Although carpet tiles, carpet, wood flooring, coatings, films, and paints are not specifically intended to be included in the category of resilient floor coverings, the procedures included in this practice may be useful for preparing concrete floors to receive such finishes.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. See , 7.1.1, and 7.1.2 for specific warning statements.*

1.8 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 ASTM Standards:²

¹ This practice is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.40 on Practices.

Current edition approved May 15, 2011. Published June 2011. Originally approved in 1981. Last previous edition approved in 2008 as F710 – 08. DOI: 10.1520/F0710-11.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

C472 Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete

D4259 Practice for Abrading Concrete

D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

D4397 Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

E1155 Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers

E1486 Test Method for Determining Floor Tolerances Using Waviness, Wheel Path and Levelness Criteria

E1745 Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

F141 Terminology Relating to Resilient Floor Coverings

F710 Practice for Preparing Concrete Floors to Receive Resilient Flooring

F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

NOTE 1—Specifications and test methods for cements and other related materials are found in ASTM Volume 04.01. Specifications and test methods for concretes and related materials are found in ASTM Volume 04.02.

2.2 ACI Guides:³

302.1R-06 Guide for Concrete Floor and Slab Construction
117R Standard Tolerances for Concrete Construction and Materials

2.3 Resilient Floor Covering Institute (RFCI):⁴

Recommended Work Practices for the Removal of Resilient Floor Coverings

2.4 Other Standards:

³ Available from American Concrete Institute, 19150 Redford Station, Detroit, MI 48219.

⁴ Resilient Floor Covering Institute, 966 Hungerford Drive, Rockville, MD 20850.



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MASTERSPEC Guide Spec Section 03 30 00 “Cast-In-Place Concrete”⁵

3. Terminology

3.1 *Definitions*— For definitions of terms used in this practice, see Terminology F141.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *mat*, as in “mat test”—a sample of vapor-retardant sheet resilient floor finish material or equivalent.

3.2.2 *moisture vapor emission*—a term used by the flooring industry in the U.S. to measure moisture emission from concrete floors in lb/1000 ft² · 24 h (56.51 μg/(s · m²)) using the anhydrous calcium chloride test.

4. General Guidelines

4.1 The installation of a permanent, effective moisture vapor retarder with a minimum thickness of 0.010 in. and a permeance of 0.1 y, as described in Specification E1745 is required under all on- or below-grade concrete floors. The use of such a moisture vapor retarder, provided its integrity has not been compromised, reduces potential severity of water vapor penetration. Every concrete floor slab on- or below-grade to receive resilient flooring shall have a water vapor retarder (often improperly called a vapor barrier) installed directly below the slab.

4.2 The surface of concrete floors to receive resilient flooring shall be dry, clean, smooth, and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Non-chemical methods for removal, such as abrasive cleaning or bead-blasting, including methods described in Practice D4259 may be used on existing slabs with deleterious residues.

4.2.1 **Warning**—Hydraulic cement used in concrete construction may contain trace amounts of free crystalline silica. Prolonged exposure to airborne free crystalline silica may be a health hazard. Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

4.2.2 **Warning**—See 7.1.1 and 7.1.2 for warnings regarding asbestos and lead paint.

4.3 Surface cracks, grooves, depressions, control joints or other non-moving joints, and other irregularities shall be filled or smoothed with latex patching or underlayment compound recommended by the resilient flooring manufacturer for filling or smoothing, or both. Patching or underlayment compound shall be moisture-, mildew-, and alkali-resistant, and, for commercial installations, shall provide a minimum of 3000 psi compressive strength after 28 days, when tested in accordance with Test Method C109/C109M or Test Method C472, whichever is appropriate.

⁵ Available from MASTERSPEC, AIA Master Systems, King Street Station, 225 Reinekers Lane, Suite 215, Alexandria, VA 22314-2875.

4.3.1 Joints such as expansion joints, isolation joints, or other moving joints in concrete slabs shall not be filled with patching compound or covered with resilient flooring. Consult the resilient flooring manufacturer regarding the use of an expansion joint covering system.

4.4 The surface of the floor shall be cleaned of all loose material by scraping, brushing, vacuuming, or other methods, or a combination thereof, as recommended by the resilient flooring manufacturer, immediately before commencing installation of resilient flooring.

4.5 Many resilient floorings may not be installed over concrete when residual asphalt adhesive residue is present. Consult the resilient flooring manufacturer’s written recommendations concerning use of resilient flooring products in these situations.

4.6 Concrete floors shall be smooth to prevent irregularities, roughness, or other defects from telegraphing through the new resilient flooring. The surface of concrete floors shall be flat to within the equivalent of 3/16 in. (3.9 mm) in 10 ft, (as described in ACI 117R, or as measured by the method described in Test Method E1155 or any industry-recognized method specified) and within the equivalent of 1/32 in. (0.8 mm) in 12 in. (305 mm). See X1.7 for more information regarding flatness measurement methods.

4.7 *Acclimation*—Because of the role acclimation plays in a successful installation, most resilient flooring manufacturers recommend or require that their flooring products, sundry supplies (adhesives, coatings, welding rods, etc.) and the area to receive the resilient flooring are properly conditioned. Consult floor covering and sundry manufacturers for appropriate temperature and humidity range for the products to be installed and the geographic area where the job site is located. General recommendations are for the installation area and materials listed above to be maintained at a minimum of 65°F (18.3°C) and a maximum of 85°F (29.4°C) for 48 h before, during and for 48 h after completion of the installation. Relative humidity level extremes should also be avoided because of their influence on proper drying and curing of patching compounds and adhesives. General recommended humidity control level is between 35 – 55 %. If a system other than the permanent HVAC source is utilized, it must provide proper control of both temperature and humidity to recommended or specific levels for the appropriate time duration.

5. Testing Procedures

5.1 *Moisture Testing*—All concrete slabs shall be tested for moisture regardless of age or grade level. For the preferred moisture testing method and limits, consult the written instructions from the floor covering manufacturer, the adhesive manufacturer, the patching/underlayment manufacturer, or combination thereof. In the absence of manufacturer’s guidelines, refer to Table 1.

TABLE 1 ASTM Test Methods for Concrete Moisture Reading

Test Method	Maximum Limit
F1869	3 lb/1000 ft ² (170 μg/m ²) per 24 h
F2170	75%



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5.1.1 Consult the resilient flooring manufacturer, the adhesive manufacturer, the underlayment manufacturer's written instructions, or combination thereof, for their acceptable test methods. If these instructions are in conflict, the most stringent requirements shall apply.

5.2 *pH Testing*—Concrete floors shall be tested for pH prior to the installation of resilient flooring. Levels of pH shall not exceed the written recommendations of the resilient flooring manufacturer or the adhesive manufacturer, or both.

5.2.1 To test for pH at the surface of a concrete slab, use wide range pH paper, its associated pH chart, and distilled or deionized water. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 in. (25 mm) in diameter. Allow the puddle to set for 60 ± 5 s, then dip the pH paper into the water. Remove immediately, and compare to chart to determine pH reading. Other pH testing methods such as pH pencils or pH meters, or both, are available and may be used to measure pH. Readings below 7.0 and in excess of 10.0 have been known to affect resilient flooring or adhesives, or both. Refer to resilient flooring manufacturer's written instructions for guidelines on acceptable testing methods and acceptable pH levels. See X1.4 for more information about pH levels in concrete slabs.

6. Preparation of New Concrete Floors

6.1 New concrete slabs shall be properly cured and dried or treated before installation of resilient flooring. Drying time before slabs are ready for moisture testing will vary depending on atmospheric conditions and mix design. See X1.3 for more information. Floors containing lightweight aggregate or excess water, and those which are allowed to dry from only one side, such as concrete over a moisture vapor retarder or concrete on metal deck construction, may need a much longer drying time and should not be covered with resilient flooring unless the moisture vapor emission rate or the percentage of internal relative humidity meets the manufacturer's installation specifications.

7. Preparation of Existing Concrete Floors

7.1 The resilient flooring manufacturer shall be consulted regarding the necessity of removal of old resilient flooring, adhesive residue, paint, or other surface contaminants. If old resilient flooring, paint, or adhesive residue is to be removed, follow 7.1.1 and 7.1.2:

7.1.1 **Warning**—Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, paint, asphaltic cutback

adhesives, or other adhesives. These products may contain asbestos fibers or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a nonasbestos-containing material, presume that it contains asbestos. Regulations may require that the material be tested to determine asbestos content. The Resilient Floor Covering Institute's (RFCI's) recommended work practices for removal of existing resilient floor coverings should be consulted for a defined set of instructions addressed to the task of removing all resilient floor covering structures.

7.1.2 **Warning**—Certain paints may contain lead. Exposure to excessive amounts of lead dust presents a health hazard. Refer to applicable federal, state, and local laws and guidelines for hazard identification and abatement of lead-based paint published by the U.S. Department of Housing and Urban Development⁶ regarding appropriate methods for identifying lead-based paint and removing such paint, and any licensing, certification, and training requirements for persons performing lead abatement work.

7.2 *Adhesive Removers*—There are a number of commercial adhesive removers that will properly remove adhesive residue from a subfloor, however, there are concerns that these products may adversely effect the new adhesive and new floor covering. The Resilient Floor Covering Institute's (RFCI's) recommended work practices for removal of existing resilient floor coverings and the resilient flooring manufacturer's written instructions should be consulted for a defined set of instructions which should be followed if existing adhesives must be removed.

8. Installation on Radiant Heated Floors

8.1 Most resilient flooring can be installed on radiant heated slabs providing the maximum temperature of the surface of the slab does not exceed 85°F (29°C) under any condition of use. Consult the resilient flooring manufacturer for specific recommendations.

9. Keywords

9.1 adhesive removers; cement; concrete floors; installation; moisture; moisture vapor emissions; pH testing; preparation; resilient flooring; rubber; slabs

⁶ *Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing*, U.S. Department of Housing and Urban Development, Washington, DC, 1990.



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APPENDIXES
(Nonmandatory Information)
X1. CONCRETE COMPOSITION AND PRACTICES

X1.1 *General*—This brief information on concrete composition and practices is provided to help specifiers, resilient flooring installers, and resilient flooring manufacturers understand the properties of concrete. A concrete slab is not an inert substrate. It is a complex mixture of organic and inorganic substances whose properties and condition will affect the performance of a floor covering placed on its surface. Surface flatness, strength, joints, alkalinity, permeability, and many other concrete properties will have a significant effect on the long-term appearance and performance of resilient flooring.

X1.1.1 Concrete used for most floors is a mixture of hydraulic cement, fine aggregate (sand), coarse aggregate (stone), water and admixtures. In addition to these batch ingredients, chemical admixtures can be used to control the setting time, rate of strength development, workability, air entrainment, and other properties of concrete. For example, water-reducing admixtures can increase the slump of fresh concrete without adding additional water. Pozzolanic admixtures such as fly ash or ground granulated blast furnace slag are sometimes present as a partial replacement for the cement.

X1.1.2 Lightweight concrete, less than 115 lb/ft³ (1841 kg/m³), may have such low compressive strength that it is unsuitable for covering with resilient flooring unless 1 in. (25 mm) or more of standard weight concrete, generally 140 lb/ft³ (2241 kg/m³) or more, is used as a topping.

X1.2 *Water-Cement Ratio*—The most important factor affecting concrete properties is the water-cement ratio. This is the ratio of the mass of water to the mass of cement in a standard volume of concrete. For a given concrete mix design, as the water-cement ratio is increased, most concrete properties are affected negatively. Of special interest to the floor covering industry, compressive and flexural strengths are decreased, permeability is increased, and drying times are lengthened. Moderate to moderately low water-cement ratios (0.40 to 0.45) can be used to produce floor slabs that can easily be placed, finished, and dried, and which will have acceptable permeability to moisture. Floor slabs with water-cement ratios above 0.60 take an exceedingly long time to dry and cause adhesives or floor coverings, or both, to fail due to high moisture permeability.

X1.3 *Curing and Drying New Concrete:*

X1.3.1 Freshly placed concrete sets and gains strength by the chemical reaction of water with the silicate and aluminate materials in the cement. As long as water is available during the planned curing period, the concrete will continue to gain strength and decrease its permeability. Various ways concrete is cured include cover curing with paper or plastic sheets or other methods which aid in retaining some moisture in the concrete, thus retarding the rate of drying. Resilient flooring and adhesive manufacturer's specifications often prohibit the use of

membrane forming curing compounds as they can interfere with the bond of the adhesive to the concrete.

X1.3.2 Membrane forming curing compounds, in many cases, form a surface film of oil, wax, resins, or a combination thereof, that tend to lengthen the drying time of the concrete, obstruct the bond between the concrete surface and the adhesive and/or the patching or underlayment compound to the concrete, or may trap moisture in the concrete which will be released at a future date, or both, causing adhesive failure or other problems related to excess water vapor between the flooring and the slab. In all cases where curing compounds have been used, the resilient flooring or adhesive manufacturer, or both, shall be consulted.

X1.3.3 Excess water is always present beyond the amount of water required for cement hydration. As the cement continues to hydrate, excess water must be permitted to flow out of the concrete, generally by evaporation at the top surface, during a planned drying period following curing. A 4 in. (100 mm) thick slab, allowed to dry from only one side, batched at a water-cement ratio of 0.45, typically requires approximately 90 to 120 days to achieve a moisture vapor emission rate (MVER) of 3 lb/1000 ft² (170 μg/m²) per 24 h (the resilient flooring industry standard MVER). The importance of using a moderate to moderately low water-cement ratio for floors to receive resilient flooring cannot be overemphasized.

X1.4 *Alkalinity*—As Portland cement hydrates, calcium hydroxide and other alkaline hydroxides are formed. The pH of wet concrete is extremely alkaline, typically around pH 12 to 13. The surface of a concrete slab will naturally react with atmospheric carbon dioxide to produce calcium carbonate in the hydraulic cement paste, which reduces the pH of the surface. Results in the range of pH 8 to 10 are typical for a floor with at least a thin layer of carbonation (approximately 0.04 in. (1 mm)). Abrasive removal (shotblasting, sanding, or grinding) of a thin layer of concrete can remove this carbonated layer and expose more highly alkaline concrete below. Additional pH tests, waiting time, application of patching compound or underlayment, or a combination thereof, might be required after abrasive removal of the concrete surface. If the carbonated layer is removed and the pH of the concrete surface is above 10, consult the flooring and/or adhesive manufacturer for additional recommendations.

X1.5 *Efflorescence*—Accumulation of salts on a concrete slab can be due to moisture movement vertically through the slab from bottom to top or horizontally inward from exposed edges of slabs on or below grade. Such salts can cause problems by destroying adhesive bond, displacing floor coverings, and staining. The most common efflorescence is a white powdery deposit of calcium carbonate which has a pH of close to neutral (7.0). Sulfate compounds can accumulate due to moisture migration, especially in parts of California. These

compounds are not deleterious themselves but indicate that excessive moisture may be moving through the slab and should be addressed before installing a resilient floor covering.

X1.6 Moisture Retarders:

X1.6.1 The installation of a permanent, effective moisture vapor retarder with a minimum thickness of 0.010 in., and a permeance of 0.1y, as described in Specification E1745 is required under all on- or below-grade concrete floors. The use of such a moisture vapor retarder, provided its integrity has not been compromised, reduces potential severity of water vapor penetration. Every concrete floor slab on- or below-grade to receive resilient flooring should have a water vapor retarder (often improperly called a vapor barrier) installed directly below the slab.

X1.6.2 Slab curling problems can arise when a slab dries at a differential rate – faster at the top while remaining wet at its lower surface. Curling is exacerbated by conditions such as hot, dry, windy weather following placement, inadequate curing, and excessively high water-cement ratio. Differential stresses due to shrinkage at the top and restraint at the bottom cause upward curling of the slab leading to uncontrolled cracking. Placing concrete directly on top of a moisture retarder reduces the possibility of outflow of excess batch water at the bottom of the slab, perhaps increasing the possibility of curling. Measurement of slab curling is not reflected in FF and FL measurements. See ACI 302.1R-06 for specific slab curling measuring techniques.

X1.7 Flatness and Levelness of Concrete Floors to Receive Resilient Flooring:

X1.7.1 History:

X1.7.1.1 For over 50 years, concrete floor surface tolerances were typically measured and described by the maximum gap allowed under a 10-ft (3-m) long straightedge placed anywhere on the floor. This manual method was difficult, especially for large areas, and often results were deceptive, too stringent, and not reproducible. Clearly, a better measurement technique was needed.

X1.7.1.2 During the 1970s and 1980s, sophisticated instruments were developed to measure floor flatness, particularly in response to the need for producing superflat floors to control the sway of moving forklifts in warehouses with high storage racks and narrow aisles. There are two accepted measurement methods using such instruments today. One is described in Test Method E1155. The other measurement method is described in Test Method E1486.

X1.7.2 The F-Number System:

X1.7.2.1 The American Concrete Institute now recommends that flatness and levelness be described using the F-Number System as outlined in ACI 302.1R-06 and ACI 117R. This system identifies two numbers: F_F controls local surface bumpiness (or waviness) by limiting the magnitude of successive 1-ft (300-mm) slope changes. F_L controls overall levelness (or pitch) by limiting differences in the average of 10-ft (3-m) elevations along sample measurement lines.

X1.7.2.2 ACI 117R (commentary) states, “None of the conventional concrete placement techniques in use today can adequately compensate for form or structure deflections that

occur during the concrete placement and, for this reason, it is inappropriate to specify levelness tolerances on unshored floor construction.” For concrete slabs receiving resilient floor covering, therefore, it is most important to describe limits of floor flatness.

X1.7.2.3 As stated in ACI 302.1R-06, “In practice, F_F and F_L values generally fall between 12 and 45. The scale is linear, so that relative flatness/levelness of two different floors will be in proportion to the ratio of their F-numbers. For example, an F_F 30/ F_L 24 floor is exactly twice as flat and twice as level as an F_F 15/ F_L 12 floor.” While there is no direct equivalent between F-numbers and straightedge tolerances, ACI 117R does give a rough correlation between the two systems, as shown in Table X1.1.

X1.7.3 Guidelines for F-Number Subfloor Finish Tolerances Under Resilient Floors:

X1.7.3.1 ACI 302.1R gives F-number results that can be achieved by following various slab construction procedures. It recommends that slabs to receive thin-set flooring with moderate or heavy traffic have composite flatness and levelness of F_F 35/ F_L 25. However, it also advises that the selection of the proper F_F / F_L tolerances for a new project is best made by measurement of a similar satisfactory existing floor.

X1.7.3.2 MASTERSPEC Guide Spec Section 03 30 00, Evaluations, has a guide to floor flatness and levelness tolerances for various floor use categories. It recommends a minimum F_F 20/ F_L 17 for subfloors receiving thin coverings that will not mask the subfloor condition. Smooth, glossy, resilient flooring may require higher FF/FL values to minimize potential telegraphing.

X1.7.4 Waviness Index—Another more recent measurement method is described in Test Method E1486. This test method was developed primarily to measure floor surface wavelengths from 2 ft (600 mm) to 10 ft (3 m)—those that most affect forklift rideability at typical speeds on floors designed for random vehicular traffic. Proponents of this test method have submitted proposed guidelines to ACI Committee 117 suggesting tolerance standards. These guidelines include the recommendation that concrete floors with vinyl tile covering be specified with a surface waviness index (SWI_{2-10}) of 0.10 in. (2.5 mm). This is approximately equivalent in the tested area to F_F 28/ F_L 20 and to a 1/4-in. (6.4-mm) gap permitted under a 10-ft (3-m) straightedge.

X1.7.5 Remedial Measures—ACI 302.1R-06 identifies precautions, influencing factors, construction environment, and measurement timeliness relative to maintaining flatness and levelness tolerances. It suggests: “Remedial measures for slabs on ground might include grinding, planing, surface repair, retopping, or removal and replacement. For suspended slabs,

TABLE X1.1 Rough Correlations Between F-Numbers and Straightedge Tolerances

F-number (F_F)	Gap Under an Uneveled 10-ft (3-m) Straightedge
12	1/2 in. (12.7 mm)
20	3/16 in. (7.9 mm)
25	1/4 in. (6.4 mm)
32	3/16 in. (4.8 mm)
50	1/8 in. (3.2 mm)

remedial measures are generally limited to grinding or use of an underlayment or topping material. Contract documents should clearly identify the acceptable corrective method(s) to be used.”

X1.7.6 Limitation of Measurement Methods:

X1.7.6.1 One important reason for specifying flatness tolerance for concrete slabs to receive resilient floor tile is to attempt to minimize tile runoff and gapping due to slab surface waviness. F_F numbers and waviness index numbers necessary to accomplish this have not been determined. However, experience shows that floors with a maximum 1/4-in. (6.4-mm) gap under an unlevelled 10-ft (3-m) straightedge tend to lessen the tendency for tile runoff.

X2. SYNOPSIS OF OTHER METHODS OF EVALUATING MOISTURE CONDITIONS OF CONCRETE FLOORS TO RECEIVE RESILIENT FLOOR COVERINGS (formerly contained in E1907)

X2.1 Summary of Section

X2.1.1 This section describes four procedures, commonly referred to as “tests,” or “practices” used in the construction industry to provide an indication of the presence of moisture. These procedures are non-mandatory. They may assist in screening for potential moisture issues. Section 5 of this document contains the current industry accepted procedures to quantify moisture acceptability of a concrete slab to receive resilient flooring.

X2.1.2 Unless otherwise indicated, these practices are applicable to slabs on grade, slabs below grade, and slabs above grade (see Terminology F141).

X2.2 Polyethylene Sheet Test

X2.2.1 *Summary of Method*—This method uses a vapor-retardant plastic sheet sealed to the floor as a vapor trap to determine if excessive moisture is present. This method is described by Test Method D4263.

X2.2.2 Although developed for coating systems preparation, it is also sometimes used in the flooring industry.

X2.2.3 Materials:

X2.2.3.1 Transparent polyethylene sheet, Specification D4397, minimum 4 mils (0.1 mm) thick.

X2.2.3.2 Adhesive tape that will adhere to the floor and the sheet, such as duct tape, 2 in. (50 mm) wide.

X2.2.4 Procedure:

X2.2.4.1 Tape a plastic sheet approximately 18 by 18 in. (460 by 460 mm) tightly to the concrete surface making sure all edges are sealed.

X2.2.4.2 After a minimum of 16 h,⁷ remove the plastic sheet and inspect the underside of the sheet and the concrete surface for presence of moisture.

X2.2.5 *Calculation and Interpretation of Results*—Presence of visible liquid water indicates concrete is insufficiently dry for application of finishes. However, lack of visible liquid

⁷ Although Test Method D4263 specifies 16 h, some authorities recommend a minimum of 24 h.

X1.7.6.2 Thin, applied resilient floor coverings can exhibit show-through of very small subfloor irregularities and roughness. Methods that indicate surface flatness by measuring elevations at 12-in. (300-mm) or larger increments cannot reflect surface imperfections that occur at smaller intervals. Only visual inspection will show surface defects such as concrete trowel marks, small protrusions, or pits. Resilient flooring finishing techniques and products that give increased glossiness will accentuate the telegraphing of such subfloor unevenness or texture. Therefore, specifications for slabs to receive resilient flooring should address the issue of small-scale smoothness, even if only from a qualitative point of view.

water does not ensure that the concrete is sufficiently dry for the application of finishes. Quantitative testing Per F710 is necessary.

X2.3 Mat Test

X2.3.1 Summary of Method:

X2.3.1.1 This method uses a sample of vapor retardant floor finish material and a water-based adhesive to predict the behavior of resilient floor covering adhesives over a limited time period.

X2.3.1.2 A variation of this procedure (known as the short term “bond” test) beyond the scope of this document can be used to test for bond between substrate and resilient floor coverings.

X2.3.2 Materials:

X2.3.2.1 Latex multipurpose or water soluble adhesive intended for use with resilient flooring products. It is not necessary to use the type of floor finish product intended for application in this procedure, since the sheet product simply provides a vapor-retardant surface which has sufficient rigidity and weight to remain in place during the procedure.

X2.3.2.2 Sheet vinyl, or similar resilient vapor-retardant resilient flooring sheet product.

X2.3.2.3 Adhesive tape that will adhere to the floor and the sheet, such as duct tape, 2 in. (50 mm) wide.

X2.3.3 *Preparation*—Prepare number of mats as required approximately 24 by 24 in. (600 by 600 mm).

X2.3.4 *Procedure*—Apply adhesive to an area 24 by 24 in. (600 by 600 mm). While the adhesive is wet, place the mat, surface or face down, immediately into the adhesive. Seal the perimeter edges using tape. The face is placed down to avoid absorption of water in the adhesive by the backing.

X2.3.5 Calculation or Interpretation of Results:

X2.3.5.1 After 72 h, make a visual inspection to determine the condition of the adhesive.

X2.3.5.2 If the adhesive is partially or completely dissolved, is still wet, or has little bond, there is too much moisture present to proceed with the installation of flooring material.

X2.3.5.3 If the mat is firmly bonded or removal of the mat reveals the adhesive to be stringy and with good adhesion, the



level of moisture present may be low enough that quantification of moisture level per Section 5 is in order.

X2.4 Electrical Resistance Test

X2.4.1 *Summary of Method*—Determines the relative moisture content by measuring the electrical conductivity of concrete between the meter probes.⁸ Conductivity varies in proportion to moisture content. Uses proprietary meters and interpretive methods provided by meter manufacturers. This procedure provides a relatively quick way to obtain an approximation of the relative moisture content of concrete.

X2.4.2 *Apparatus*—Suitable instrument to measure the conductivity between two electrodes which are placed in contact with the concrete floor surface or placed into two pre-drilled holes 1 in. (25 mm) deep into the concrete floor.

X2.4.3 *Preparation, Calibration and Standardization of Apparatus*—Follow instrument manufacturer’s instructions.

X2.4.3.1 To use one type of instrument, it is necessary to drill holes in the slab to receive pins. Another type can be used with or without drilling holes, but the readings will be more accurate if holes are drilled and the pins are driven into the holes. Care shall be taken to avoid contact between the probes and any metal incorporated into the slab.

X2.4.4 *Calculation or Interpretation of Results:*

X2.4.4.1 Generic data to correlate measured electrical resistance to acceptable moisture conditions are not available at this time; however, instrument manufacturers generally publish guides for this purpose specific to the instruments they manufacture. When results indicate potential high moisture level, quantify results per Section 5.

X2.4.4.2 Although a high reading (good conductance) typically indicates high relative moisture content, a low reading (poor conductance) does not necessarily indicate more than surface dryness, as the concrete may have a higher relative moisture content below the surface. Conversely, a concrete with low relative moisture content but containing metal fibers could cause a high reading.

⁸ The most detailed information on this test comes from British Standards Institution (BSI) BS 5325:1983 British Standard Code of Practice for Installation of Textile Floor Coverings and BS 8203:1987 British Standard Code of Practice for Installation of Sheet and Tile Flooring.

X2.4.4.3 Confirmation measurements can be made by taking readings at a number of locations which are then covered by a vapor retarder material such as polyethylene sheeting, then taking subsequent readings 24 h later after removing the covers. Where the second reading significantly exceeds the first, it indicates that the concrete may have a high MVER.

X2.5 Electrical Impedance Test

X2.5.1 *Summary of Method*—Uses proprietary meters and interpretive methods provided by meter manufacturers to determine the relative moisture content of concrete by measuring both conductance and capacitance. A non-destructive way to determine the potential relative moisture content of concrete is by measuring the electrical AC impedance. Impedance is an alternating current measurement combining both resistance and capacitance while at the same time overcoming the separate limitations of each (single-line measurement with resistance and shallow depth of penetration of signal with capacitance). With impedance measurement, a field is set up consisting of an area under the footprint of the instrument electrodes. The depth of the signal penetration will vary depending on the material content of the slab and the relative moisture content, generally varying from 0.75 in. (20 mm) to 2.0 in. (50 mm).

X2.5.2 *Apparatus*—An electrical impedance meter specifically developed and calibrated for concrete moisture measurement.

X2.5.3 *Preparation, Calibration and Standardization of Apparatus*—See instrument manufacturer’s instructions.

X2.5.4 *Procedure*—Follow instrument manufacturer’s instructions. Typically, the meter is placed on the concrete slab with its electrodes pressed in direct contact with the surface. When the meter is switched on, low frequency signals are transmitted into the slab, measuring the change in impedance brought about by potential moisture. The impedance is converted to a moisture reading displayed on the instrument dial. Holes in the slab are typically not required.

X2.5.5 *Calculation or Interpretation of Results*—See instrument manufacturer’s instructions. Instructions for calibration of instruments are provided by instrument manufacturers. Readings typically indicate potential moisture.



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X3. EFFECTS OF MOISTURE

X3.1 Introduction

X3.1.1 The effect on floor coverings from residual moisture in concrete slabs or moisture passing through concrete slabs from underlying soil has been understood and documented prior to the early 1950s when the RMA (Resilient Manufacturers Association) developed a moisture test method widely adopted by the flooring industry.⁹

X3.1.2 Concrete floors may appear dry from a visual examination but actually have a deleterious level of water vapor in, emitting from, or passing through a slab.

X3.2 Adverse Impacts

X3.2.1 Excessive water or water vapor in or emitting from concrete slabs can result in the following adverse impacts:

X3.2.1.1 Adhesive failure.

X3.2.1.2 Spalling and cratering of concrete surfaces. As moisture emits from or passes through a slab, it can carry with

⁹ Resilient Floor Covering Institute (RFCI) Addressing Moisture Related Problems Relevant to Resilient Floor Coverings Installed Over Concrete (Rockville, MD: Resilient Floor Covering Institute, November 1995). p. 6.

it alkaline salts from the ground or the concrete itself which are left behind as the water evaporates. The vapor from salt-bearing ground water is incapable of carrying salts through the concrete, but alkaline salt can build up cyclically at the top of the slab profile due to chemically-pure vapor attracting salts through osmosis.

X3.2.1.3 Fungal growth and odors.

X3.3 Design and Construction-Related Sources of Excessive Water in Concrete Floors

X3.3.1 *Artificial sources*—are typically caused by construction or operation of a building, such as:

X3.3.1.1 *Irrigation*—Mitigate by considering planting that requires low water use and minimizing watering. Exterior grading should provide good runoff or percolation.

X3.3.1.2 *Service conditions*, such as frequent floor cleaning wash-downs. Mitigate by modifying maintenance requirements or providing a waterproof barrier between finish and slab.

X3.3.2 *Natural sources*—are those that existed at the site prior to construction but may be exacerbated by the design of the building or the construction process.

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General Installation Guidelines

Jobsite Conditions

- Areas to receive material should be clean, fully enclosed and weather tight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. These conditions **MUST** be established at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.
- Substrate evaluation and preparation should not begin until a stable, conditioned environment has been established as described in this section.

NOTE: Site conditions can dramatically affect the performance of the adhesive. Temperature, ambient relative humidity, substrate porosity and air circulation will determine the open, working and curing time of the adhesive. Not respecting these limits can result in an installation failure.

- Areas to receive flooring must have adequate lighting to allow for proper inspection and preparation of the substrate, installation of the flooring and final inspection.
- Installation should not begin until the work of all other trades has been completed, especially overhead trades.
- Substrates to receive Forbo flooring products must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrate must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of flooring to the concrete or cause a discoloration of the flooring from below.
- Ensure that all recommendations for substrates as described in the **Substrate Evaluation and Preparation section** of the Forbo Installation Guide are met prior to beginning the installation. Beginning the installation is an implied acceptance of site conditions and liability for any failure directly related to inadequate site conditions becomes the responsibility of the installer and/or flooring contractor.
- Always conduct adhesive mat bond tests as described in the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide before beginning the installation. Bond testing will aid in identifying both the working characteristics of the adhesive, such as the appropriate open and working time for the site conditions, and also any potential bonding problems to the substrate.
- Always conduct moisture tests on **ALL** concrete substrates, regardless of age or grade level. For additional information, please refer to the **Moisture Testing section** of the Forbo Installation Guide.
- Determine the moisture vapor emission rate (MVER) of the concrete by testing conducted in strict accordance with the latest version of ASTM F 1869. The MVER of the concrete must not exceed the requirements of the Forbo adhesive being used. Refer to the **Adhesives section** of the Forbo Installation Guide for adhesive specifications.
- Determine the internal relative humidity of the concrete by testing conducted in strict accordance with the latest version of ASTM F 2170. The internal relative humidity of the concrete must not exceed the requirements of the Forbo adhesive being used. Refer to the **Adhesives section** of the Forbo Installation Guide for adhesive specifications.
- The concrete surface pH must be tested and must not exceed the requirements of the Forbo adhesive being used. Refer to the **Adhesives section** of the Forbo Installation Guide for adhesive specifications.
- The open time and working time of adhesives will vary depending on site conditions such as ambient temperature and humidity, the porosity of the substrate and air circulation. For additional information, refer to the **Adhesives section** of the Forbo Installation Guide.
- Take pride in your work and be Professional at all times.



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General Installation Guidelines

Material Storage & Handling

- Areas where materials are to be stored must be a stable and conditioned environment as described in the **Jobsite Conditions section** of the Forbo Installation Guide.
- Avoid excessive heat or cold. Protect all materials from freezing and store indoors at temperatures ranging from 65° – 95° F (18.33° - 35.0° C).
- All materials (flooring, adhesives, welding rod, wall base, installation accessories) should be acclimated to these conditions for a minimum of 48 hours prior to installation.
- Material should be delivered to the job site in original, unopened packaging, with all labels intact.
- Store all rolls standing upright (with the exception of Coral®), labels up, and ensure that the color, roll and batch numbers can be easily read.

NOTE: Forbo sheet products may be shipped laying on a pallet. To avoid damage to the material, stand the rolls upright for storage immediately once received (with the exception of Coral®).

- Sheet materials should always be stored and transported rolled face out on a heavy tube and wrapped for protection.
- Marmoleum® and linoleum sheet rolls must be stored standing upright. This includes Walton, Bulletin Board and Desktop.
- Marmoleum® Modular cartons should be stacked no more than 5 cartons high for the 9.8" x 9.8" (25 cm x 25 cm) tiles, 9.8" x 19.69" (25 cm x 50 cm) planks or 9.8" x 39.37" (25 cm x 100 cm) planks and no more than 10 cartons high for the 19.69" x 19.69" (50 cm x 50 cm) tiles.
- MCT cartons should be stacked no more than 9 cartons high.
- Allura® cartons should be stacked no more than 6 cartons high for the 39.4" x 5.9" (100cm x 15cm) planks, no more than 15 cartons high for the 47.2" x 7.9" (120 cm x 20 cm) planks, no more than 18 cartons high for the 59.1" x 11" (150 cm x 28 cm) planks, no more than 18 cartons high for the 70.9" x 11" (180 cm x 32 cm) planks and no more than 16 cartons high for the 19.7" x 19.7" (50 cm x 50 cm) planks.
- Allura Flex® cartons should be stacked no more than 12 cartons high for the 39.4" x 7.9" (100 cm x 20 cm) planks, no more than 11 cartons high for the 47.2" x 7.9" (120 cm x 20 cm) planks, no more than 18 cartons high for the 59.1" x 11" (150 cm x 28 cm) planks and no more than 12 cartons high for the 19.7" x 19.7" (50cm x 50 cm) planks.
- Colorex® SD/EC cartons should be stacked no more than 18 cartons high.
- Flotex® sheet rolls must be stored standing upright.

NOTE: Storing Flotex® sheet rolls laying down can result in pile crush. Forbo will not honor claims relating to pile crush if the rolls were stored laying down.

- Flotex® Modular cartons should be stacked no more than 16 cartons high.
- Coral® sheet rolls should be stored laying flat.
- Coral® Modular cartons should be stacked no more than 7 cartons high.
- Marmoleum® Wall Panels should always be stored laying flat.
- Material must always be visually inspected prior to installation. If there are any questions regarding the quality of material, contact your local Forbo representative or Forbo's Product Support & Education Services **PRIOR** to installation.

NOTE: Any costs (including labor) associated with the replacement of material that was installed with visual defects that could have been seen prior to installation are not covered under warranty.



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General Installation Guidelines

Installation Direction & Sequence

- All material should be from the same batch. If material from more than one batch is to be used, the job should be planned so that different batch numbers are not installed side by side.
- Optimal color and shade match for all Forbo sheet flooring products is achieved only when seaming the trimmed factory edge to trimmed factory edge with the sheets oriented in the recommended direction.
NOTE: When installing Flotex® sheet products, butt factory edges for seaming.
- When installing sheet products, install all rolls in consecutive order. Follow Forbo's specified tolerances during sequencing to avoid shading throughout the installation. Cuts from individual rolls should be installed in the sequence from which they are cut from the roll.
- When installing modular products, install cartons in consecutive order. Follow Forbo's specified tolerances during sequencing and shuffle tiles from several cartons to avoid shading throughout the installation.

Marmoleum® & Linoleum products

- When installing Marmoleum® & linoleum sheet products, all sheets must be installed in the same direction. Always install rolls in consecutive order. Follow Forbo's specified tolerances during sequencing to avoid shading throughout the installation.
- For Marmoleum® Real, Vivace, Fresco, Decibel, Concrete, Sport, Ohmex, Linoflex and MCS, the tolerance in the sequence of roll numbers should not exceed 50.
- For Marmoleum® Striato, Piano and Graphic, the tolerance in the sequence of roll numbers should not exceed 20.
- For Walton, Bulletin Board and Desktop, the rolls must be installed in consecutive order.
- Marmoleum® Modular and MCT in the square format have a directional pattern and should be installed in alternating directions (quarter turned). Marmoleum® Modular in the rectangular format can be installed in any direction. The tolerance in the sequence of carton numbers should not exceed 100. Tolerance in the sequence of carton numbers for 10" x 10" should not exceed 200.
- Marmoleum® Click has an interlocking system and must all be installed in the same direction, with material from the same batch.

Project Vinyl Products

- All Forbo sheet vinyl products must be installed with adjacent sheets reversed *except* Eternal Wood. Eternal Wood **MUST** be installed with all sheets in the same direction.
- For Eternal Material and Wood, the tolerance in the sequence of roll numbers should not exceed 50.
- For all Eternal Step products, the tolerance in the sequence of roll numbers should not exceed 20.
- Colorex® SD/EC tile must be installed with arrows on the back running in the same direction, with material from the same batch.
- Allura and Allura Flex must be installed with all arrows on the back running in the same direction, with material from the same batch.

Flotex® High Performance Carpet products

- When installing Flotex® sheet products, all sheets must be installed in the same direction and all rolls must be installed in consecutive order.
- Always install Flotex® sheet and monolithic tile installations lengthwise in corridors.
- Flotex® Modular has a directional pattern which may be installed either with the arrows running in the same direction, alternating directions (quarter turned) or in opposite directions (half turned). Always confirm the recommended Flotex® Modular installation direction before beginning the installation. For additional information, refer to the **Installation: Flotex® Modular Flooring section** of the Forbo Installation Guide. All material installed should be from the same batch and the same dye lot.

Coral® Entrance Flooring

- The pile of Coral® Entrance Flooring has a directional pattern and must be installed with the arrows in the same direction. All rolls must be installed in consecutive order.
- Coral® Duo should be installed with the lines running perpendicular to the traffic direction.
- Coral® Modular must be installed with all arrows on the back in the same direction, with material from the same batch.



General Installation Guidelines

Third Party Products

Third party products may be required in the installation and care of Forbo products. Forbo does not manufacture these products and their performance is beyond Forbo's control. Forbo does not offer recommendations for the use of these products. Instructions for the proper use and application of such products should come from their manufacturer. Any warranty for their performance is the responsibility of that manufacturer. Forbo does not test or evaluate products manufactured by others for performance, compatibility or any other quality. Such inquiries must be directed to the manufacturer of the product. It is the user's responsibility to investigate and research the performance characteristics and warranty information for any product being considered for use.

Any mention in the Forbo Installation Guide of products not manufactured or supplied by Forbo does not constitute an endorsement or warranty of those products by Forbo. Any such mention of third party products is intended for the sole purpose of establishing a comparative standard of quality and should not be interpreted as suggesting that those products are the only products suitable for a particular purpose. There may be other third party products available that are equally suitable.

Forbo's Installation Guide contains additional information and is available for download at www.forboflooringNA.com. For a hard copy, or for additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839.



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Substrate Evaluation & Preparation Guidelines

Proper substrate evaluation and preparation is a critical component of all successful floor covering installations.

The condition of the substrate has a significant impact on the final appearance as well as the performance of the floor covering.

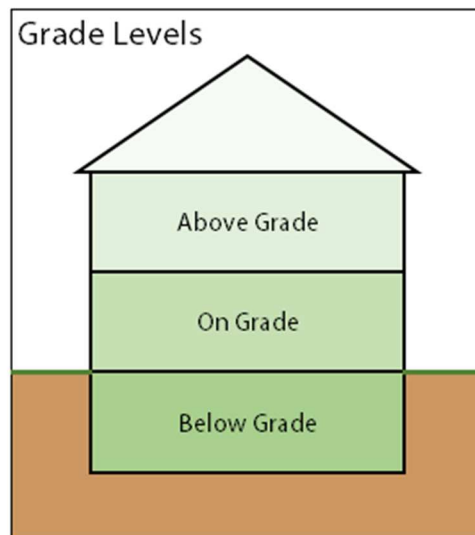
Substrates to receive Forbo products must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrates must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of flooring to the concrete or cause a discoloration of the flooring from below.

Substrate evaluation and preparation should not begin until a stable, conditioned environment has been established as described in the **Jobsite Conditions section** of the Forbo Installation Guide.

NOTE: The results of moisture testing, pH testing, porosity and adhesive mat bond testing are directly influenced by the environment in which the tests are conducted. Results of tests conducted prior to establishing a stable, conditioned interior environment should not be relied upon for determining if suitable conditions exist for installation.

Terminology

(Refer to the latest version of ASTM F 141.)



Above Grade – Above the surface of the ground, as related to floor location, above a well-ventilated space with at least 18” (457.2 mm) between the bottom of the lowest horizontal structural member and any point of the ground.

On Grade – In contact with the ground, as related to floor location, in contact with the ground or with less than 18” (457.2 mm) of well-ventilated space between the bottom of the lowest horizontal structural member and any point of the ground.

Below Grade – Below the surface of the ground, as related to floor location, part or all of the floor is below the ground.

Subfloor – The structural layer intended to provide support for design loadings which may receive resilient floor coverings directly if the surface is suitable or indirectly via an underlayment if its surface is not suitable.

Substrate – The underlying support surface upon which the flooring is installed.

Underlayment – A material placed under resilient floor, or other finished flooring, to provide a suitable installation surface.

Flooring System – All components associated with the installation of flooring materials including, but not limited to, subfloors, substrates, patching and leveling materials, primers or other coatings, moisture control products, adhesives, welding rods and installation accessories (transitions, base, etc.).



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Substrate Evaluation & Preparation Guidelines

Substrate Evaluation: Flooring Substrates

Concrete Substrates

(Refer to the latest version of ASTM F 710.)

- The surface of concrete floors to receive resilient flooring must be dry, clean, smooth, and structurally sound. They must be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below.
- Concrete substrates shall be cured per the concrete manufacturer’s recommendations. They must have a minimum compressive strength of 3,000 psi and a minimum dry density of 150 pounds per cubic foot.
- The installation of a permanent, effective moisture vapor retarder is required under all on or below grade concrete floors. The vapor retarder shall be puncture and tear resistant with a minimum thickness of 0.010” and a permeance of 0.1 y. (Refer to the latest version of ASTM E 1745.) Every concrete floor slab on or below grade to receive resilient flooring shall have a water vapor retarder (often improperly called a vapor barrier) installed directly below the slab.
- Surface cracks, grooves, depressions, control joints or other non-moving joints, and other irregularities must be filled or smoothed with a suitable Portland based patching compound recommended for use under commercial resilient flooring products. Refer to the **Substrate Preparation section** of this guide for additional information.

Thick Poured Lightweight Cellular Concrete Underlayment

(Refer to the latest version of ASTM F 2471.)

- Lightweight cellular concrete underlayment shall be structurally sound, rigid, smooth, flat, clean, and permanently dry. The surface must be free of all foreign materials including, but not limited to, dust, paint, grease, oils, and solvents, curing and hardening compounds, sealers, asphalt and adhesive residue.
- Lightweight cellular concrete underlayment shall have a minimum compressive strength of 2,000 psi for use over wood subfloors and 3,000 psi for use over concrete subfloors, with a minimum density of 110 pounds per cubic foot.
- Lightweight cellular concrete underlayment is not suitable for use on concrete slabs on or below grade due to potential moisture problems unless there is an effective moisture vapor retarder installed directly below the slab. The vapor retarder shall be puncture and tear resistant with a minimum thickness of 0.010” and a permeance of 0.1 y. (Refer to the latest version of ASTM E 1745.)
- Imperfections such as chips, spalls, cracks, and joints must be repaired using suitable patching and leveling materials. Always follow the manufacturer’s recommendations for the use and application of these products. Refer to the **Substrate Preparation section** of the Forbo Installation Guide for additional information.
- **NOTE: Additional steps may be necessary to ensure that substrates are not excessively porous or dusty. Such conditions can impact the adhesive performance. Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system and that a secure bond can be achieved. It is strongly suggested to contact the concrete manufacturer for specific recommendations when installing resilient flooring over this type of underlayment. Any performance, compatibility or other qualities are the responsibility of the concrete manufacturer, not Forbo.**

Thick Poured Lightweight Gypsum Concrete Underlayment

(Refer to the latest version of ASTM F 2419.)

- Lightweight gypsum concrete underlayment shall be structurally sound, rigid, smooth, flat, clean, and permanently dry. The surface must be free of all foreign materials including, but not limited to, dust, paint, grease, oils, and solvents, curing and hardening compounds, sealers, asphalt and adhesive residue.
- Lightweight gypsum concrete underlayment shall have a minimum compressive strength of 2,000 psi for use over wood subfloors and 3,000 psi for use over concrete subfloors, with a minimum density of 105 pounds per cubic foot.
- Lightweight gypsum concrete underlayment is not suitable for use on concrete slabs on or below grade due to potential moisture problems unless there is an effective moisture vapor retarder installed directly below the slab. The vapor retarder shall be puncture and tear resistant with a minimum thickness of 0.010” and a permeance of 0.1 y. (Refer to the latest version of ASTM E 1745.)
- Imperfections such as chips, spalls, cracks, and joints must be repaired using suitable patching and leveling materials. Always follow the manufacturer’s recommendations for the use and application of these products. Refer to the **Substrate Preparation section** of the Forbo Installation Guide for additional information.
- **NOTE: Additional steps may be necessary to ensure that substrates are not excessively porous or dusty. Such conditions can impact the adhesive performance. Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system and that a secure bond can be achieved. It is strongly suggested to contact the concrete manufacturer for specific recommendations when installing resilient flooring over this type of underlayment. Any performance, compatibility or other qualities are the responsibility of the concrete manufacturer, not Forbo.**



Substrate Evaluation & Preparation Guidelines

Wood Substrates

(Refer to the latest version of ASTM F 1482.)

- Wood substrates must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The wood surface must be free of all foreign materials including, but not limited to, dust, paint, grease, oils, solvent, inks, sealers, asphalt, adhesive residue, mold, mildew and other foreign materials that might prevent adhesive bond or cause staining of the flooring.
- Wood substrates must be double construction with a minimum total thickness of 1". All wood substrates must have at least 18" of well-ventilated air space below.
- Forbo products should not be installed over wooden substrates built on sleepers over on or below grade concrete floors without first taking adequate precautions to ensure the structural integrity of the system and to prevent moisture migration from the concrete slab. Proper planning and design will minimize the potential for flooring system failures generally associated with this type of construction.

Strip Wood/Plank Flooring

Because of the expansion and contraction of strip and plank flooring during seasonal changes, 1/4" or thicker underlayment panels must be installed over these types of floors.

Underlayment Panels

- Underlayment panels are used to correct deficiencies in the subfloor and to provide a smooth, sound surface on which to adhere flooring. Underlayment panels should be acclimated to site conditions as prescribed by the underlayment manufacturer. In lieu of specific recommendations, ensure panels are acclimated to site conditions for a minimum of 48 hours prior to installation.
- Underlayment panels must be a minimum of 1/4" (6.35mm) nominal thickness with one fully sanded face, and recommended for use as underlayment for fully adhered resilient flooring. Underlayment panels must be free of any foreign material that may prohibit a secure bond or cause the discoloration of resilient flooring as defined by the latest version of ASTM F1482.
- Installation of Forbo products is NOT recommended over particle board/chip board, tempered hardboard, Luan plywood, fire retardant plywood, or pressure treated plywood.
- Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system and to ensure that a secure bond can be achieved. Please refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.
- **NOTE: The use of a skim coat of patching material over wooden substrates may cause more problems than it resolves, especially in the joint areas. Moisture from patching materials may be absorbed by the wood, causing the wood fibers to swell and may cause the panel surface and/or joints to telegraph through the newly installed floor covering. Proper installation of a wooden subfloor and underlayment panels is critical to the successful installation of resilient flooring. Regardless of the type or brand of underlayment used, any problems or failures directly related to the performance of the underlayment is the responsibility of the underlayment manufacturer and/or installation contractor, not Forbo. Always follow the panel manufacturer's recommendations for panel installation and preparation.**

Existing Resilient Flooring

Forbo products installed over an existing resilient flooring system may be more susceptible to indentation due to the PSI rating of the existing material. There is also the possibility that the existing flooring may telegraph through the new flooring. Forbo products may be installed over a single layer of non-cushioned resilient flooring provided it meets the following conditions:

- Where an existing resilient flooring system is installed over concrete that is on, above and below grade, moisture test results must not exceed the requirements of the existing resilient flooring system or the product to be installed. Refer to the **Moisture Testing section** of the Forbo Installation Guide for additional information.
- The substrate and underlayment must meet the requirements of the existing and the new floor covering.
- The existing flooring must be fully adhered and properly bonded.
- The existing flooring must not be embossed or textured.
- All cuts, gouges, dents, and other damage must be repaired with flooring material that is the same or similar to the existing, or with patching materials suitable for that purpose. Always follow the manufacturer's recommendations for use and application of patching materials.
- All waxes and finishes must be removed from the existing resilient flooring, and the surface rinsed with clean water. After cleaning, pH tests should be conducted to ensure all chemical residues have been removed.
- When installing over existing non-porous floors, the adhesive may be slow to set up. The addition of a minimum 1/8" blotter layer of an appropriate patching or leveling compound is recommended.
- The use of embossing levelers is not recommended for commercial installations.
- Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system and that a secure bond can be achieved. Please refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide for additional information.
- The responsibility for determining if the existing resilient flooring is suitable to be installed over rests solely with the installer and flooring contractor. If there is any doubt as to its suitability, the existing flooring should be removed or an acceptable underlayment installed over it.



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Substrate Evaluation & Preparation Guidelines

WARNING!

Do not sand, dry sweep, dry scrape, drill, saw, bead blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt or asphaltic “cut-back” adhesives. These products may contain either asbestos fibers or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. The RFCI’s recommended work practices for removal of resilient floor coverings are a defined set of instructions which should be followed if you must remove existing resilient floor covering structures.

Poured Floors (Epoxy, Polymeric, Seamless)

Forbo products may be installed over most poured floors provided it meets the following conditions:

- Where poured flooring is installed over concrete that is on, above and below grade, moisture test results must not exceed the requirements of the existing flooring or the product to be installed. Refer to the **Moisture Testing section** of the Forbo Installation Guide for additional information.
- The poured floor must be totally cured and well bonded to the concrete. It must be free of any residual solvent and/or petroleum derivatives.
- Loose, damaged areas and irregularities must be repaired with a patching compound suitable for that purpose. Always follow manufacturer’s recommendations for use and application of patching materials.
- The texture must be smooth. Sand or wet stone the surface to remove any grit and texture.
- All waxes and finishes must be removed from the existing flooring, and the surface rinsed with clean water. After cleaning, pH tests should be conducted to ensure all chemical residues have been removed.
- When installing over existing non-porous floors, the adhesive may be slow to set up. The addition of a minimum 1/8” blotter layer of an appropriate patching or leveling compound is recommended.
- Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system, and to ensure that a secure bond can be achieved. Please refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.
- The responsibility for determining if the existing flooring is suitable to be installed over rests solely with the installer and flooring contractor. If there is any doubt as to its suitability, the existing flooring should be removed or an acceptable underlayment installed over it.

Radiant Heated Floors

Forbo flooring products may be installed over radiant heated floors providing the maximum surface temperature of the substrate does not exceed 85° F (29° C) under any condition of use. To enable a secure bond of the adhesive to the substrate, the radiant heating system should be turned off, or set to the lowest temperature, for a minimum of 48 hours prior to installation of the Forbo flooring product. The temperature of the substrate must not exceed 65° F (18.3° C) during the installation of the flooring material. If necessary, an alternate heating source should be used to maintain the room temperature at a minimum of 65° F (18.3° C) prior to, during, and for 72 hours after installation. The temperature of the radiant heating system can be increased 72 hours following the installation. When raising the floor temperature, do so gradually so the substrate and flooring material can adapt to the temperature change together. A rapid temperature change could result in bonding problems.

For additional information, contact Forbo’s Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.



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Substrate Evaluation & Preparation Guidelines

Substrate Evaluation: Alternative Substrates

Forbo products can be installed on many types of alternative substrates. Substrates to receive Forbo products must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrates must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the substrate, the adhesion of the Forbo product to the substrate or cause a discoloration of the material. Due to the chemical composition of some alternative substrate materials, reactions between the substrate and adhesive may be possible. Materials such as sealants, plasticizers, factory coatings or fire retardants may cause potential bonding issues. It is strongly recommended to contact the manufacturer of the substrate materials and secure any guarantees for suitability of the substrate in combination with the installation of the Forbo product. The following guidelines will help ensure a successful installation of Forbo products over alternative substrates:

- Ensure that all recommendations for jobsite conditions as outlined in Forbo’s installation guidelines are met prior to beginning the installation. For additional information, refer to the **Jobsite Conditions section** of the Forbo Installation Guide.
- Forbo adhesives should be used as long as all published Forbo installation recommendations are followed.
- Always conduct adhesive mat bond tests before beginning the installation to identify the working characteristics of the adhesive as well as any potential bonding issues.
- Any alternative substrate must be of a gauge or thickness to eliminate flexing or movement as well as provide structural integrity for the finished material.

Metal Substrates

- All substrates must be free of contaminants that may cause staining or interfere with the adhesive bond. For metal substrates, this includes possible oils or corrosion. Degreasing and/or abrading the surface may be necessary to remove these contaminants. When performing these procedures, always use appropriate personal protective equipment and follow all local safety regulations. Surfaces which exhibit rust build up or any disintegration of metal may indicate moisture, chemical exposures or reactions which may result in bond failure. When such signs are present, the source of the contamination should be identified and the substrate repaired prior to proceeding with the installation. Ensure that any residual contaminants are completely removed from the substrate prior to installation. Most metal substrates are smooth and non-porous. Abrading the surface may improve the adhesive bond to the substrate. As metal substrates are non-porous, an extended open time may be necessary prior to placing the material. The flooring material must remain in contact with the adhesive while the adhesive is drying and curing. For additional information on each Forbo Flooring product, refer to the **Adhesive Bond Testing section** of the Forbo Installation Guide.
- Regardless of the specific type of substrate that is being installed over, the final determination of suitability for that purpose is the responsibility of the installer and/or flooring contractor.

Refrigerated and Freezer spaces

All installations in refrigerated or freezer spaces require the use of Forbo 660 adhesive.



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Substrate Evaluation & Preparation Guidelines

Substrate Evaluation: Wall Substrates

Many Forbo products can be successfully installed directly on walls. The following guidelines will help ensure a successful installation:

- All wall substrates must be compression and deformation resistant, permanently dry and clean. They must be sound, smooth, rigid, flat dry, and free of all foreign materials including but not limited to dust, grease, oils, solvent, adhesive residue, mold, mildew or any substance that could prevent achieving a secure bond.
- If walls are concrete, please refer to the **Concrete Substrates section** of the Forbo Installation Guide.
- It is not recommended to install Forbo products over any existing wall covering material such as but not limited to paper or vinyl.
- Ensure that all recommendations for jobsite conditions as outlined in Forbo's installation guidelines are met prior to beginning the installation. For additional information, refer to the **Jobsite Conditions section** of the Forbo Installation Guide.
- Fill in irregularities on non-smooth walls such as grout lines on block, joints on sheetrock and plywood with a suitable patching compound designed for that purpose.
- Lightly sand oil painted surfaces. Remove any existing wall covering and sand off any adhesive residue.
- When performing these procedures, always use appropriate personal protective equipment and follow all local safety regulations.
- Using a primer/sealer will provide a uniform porosity over the entire surface of the wall, reduce the absorbency of porous substrates, improve bond over dry surfaces, and improve the working characteristics of the adhesive. When choosing a primer/sealer, always choose products of the highest quality and always follow the manufacturer's recommendations for use and application. Any liability for the performance of primer/sealers rests solely with the user and/or manufacturer of the product, not Forbo.
- Always conduct adhesive mat bond tests before beginning installation. Bond testing will aid in identifying both the working characteristics of the adhesive (open time and working time) for the site conditions, and also any potential bonding issues. For additional information, refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.
- Regardless of the specific type of substrate that is being installed over, the final determination of suitability for that purpose is the responsibility of the installer and/or installation contractor.

Drywall Substrates

- Drywall substrates must be securely fastened and finished in accordance with the latest version of ASTM C 840, minimum of level 3.
- Drywall must be primed with a high quality primer/sealer.
- Existing drywall finishes must be in good condition and well secured. Glazed or glossy surfaces should be fully sanded using coarse grit sandpaper. Textured surfaces must be sanded smooth and/or smoothed using appropriate materials, and primed with a high quality sealer/primer. Do not install over existing paper or vinyl wallcovering materials.
- Regardless of the specific type of substrate that is being installed over, the final determination of suitability for that purpose is the responsibility of the installer and/or installation contractor.

Wood Panels Substrates

- Underlayment panels must be a minimum of 1/4" (6.35mm) nominal thickness with one fully sanded face, and recommended for use as underlayment for fully adhered resilient flooring. Underlayment panels must be free of any foreign material that may prohibit a secure bond or cause the discoloration of resilient flooring as defined by the latest version of ASTM F 1482.
- Installation of Forbo flooring products is NOT recommended over particle board/chip board, tempered hardboard, Luan plywood, fire retardant plywood, or pressure treated plywood.
- Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system and to ensure that a secure bond can be achieved. For additional information, refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.
- Regardless of the specific type of substrate that is being installed over, the final determination of suitability for that purpose is the responsibility of the installer and/or installation contractor.
- For additional information, refer to **Underlayment Panels section** of the Forbo Installation Guide.



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Substrate Evaluation & Preparation Guidelines

Testing

Moisture Testing

In order to ensure that the moisture condition of concrete substrates is within acceptable limits, it is essential that moisture testing be conducted on ALL concrete substrates regardless of age or grade level, including those where resilient flooring has already been installed. Moisture testing should only be conducted once a stable, conditioned environment as described under the **Jobsite Conditions section** of the Forbo Installation Guide has been established.

The environment in which the tests are conducted directly influences moisture test results. Results of tests conducted prior to establishing a stable, conditioned interior environment should not be relied upon when determining if suitable conditions exist for the installation of resilient flooring materials. Changes in the interior environment subsequent to such testing may cause concrete moisture conditions to change and lead to installation failures.

Forbo recommends the following two moisture tests be performed by a certified concrete moisture testing professional on ALL concrete surfaces regardless of age or grade level:

Calcium Chloride Moisture Vapor Emission Testing

The moisture vapor emission rate (MVER) of concrete substrates should be determined by testing conducted in strict accordance with the latest version of ASTM F 1869. This test method is used to obtain a quantitative value indicating the rate of moisture vapor emission from the surface of a concrete floor and whether or not that substrate is acceptable to receive resilient floor covering. The moisture vapor emission rate only reflects the condition of the concrete floor at the time of the test. The MVER from the concrete must not exceed the requirements of the Forbo adhesive being used.

In order to obtain accurate test results when performing calcium chloride moisture vapor emission tests, you must:

- Perform tests in a controlled environment. The test site should be at the same temperature and humidity expected during normal use. If this is not possible, then the test conditions must be $75 \pm 10^{\circ}\text{F}$ ($23.9^{\circ} \pm 5.5^{\circ}\text{C}$) and $50 \pm 10\%$ relative humidity. Maintain these conditions 48 hours prior to, and during testing.
- Properly prepare the concrete surface. Any potential impediment to moisture vapor emissions (such as sealers, curing compounds, adhesive residue, excessively finished, etc.) must be completely removed prior to testing.
- Ensure an airtight seal between the test dome and the concrete surface.
- Use the correct formula when calculating the test results.
- Accurately document and report the testing data.
- Perform three (3) tests for the first 1,000 square feet (100 square meters) and at least one additional test for each additional 1,000 square feet (100 square meters).

In situ (Internal) Relative Humidity Testing

The internal relative humidity of concrete substrates should be determined by testing conducted in accordance with the latest version of ASTM F 2170. This test method is used to obtain a quantitative determination of the percentage of relative humidity in concrete slabs. The internal relative humidity of the concrete must not exceed the requirements of the Forbo adhesive being used. Moisture test results indicate the moisture condition of the slab only at the time of the test. In order to obtain accurate test results when performing in situ relative humidity tests, you must:

- Follow the test equipment manufacturer's guidelines for proper use.
- Perform tests in a controlled environment. Concrete floor slabs shall be at service temperature and the occupied air space above the floor slab shall be at service temperature and service relative humidity for at least 48 hours before making relative humidity measurements in the concrete slab.
- Ensure that the holes are drilled to the proper depth, adequately cleaned and/or that the test sleeve has been inserted properly and is adequately sealed.
- Ensure the test equipment has been acclimated to site conditions.
- Use test equipment that is properly calibrated. Test equipment should have an accuracy of $\pm 3\%$ and be calibrated on a regular basis.
- Properly document and report the testing data.
- Perform three (3) tests for the first 1,000 square feet (100 square meters) and at least one additional test for each additional 1,000 square feet (100 square meters).

As noted, these two testing methods measure different components of the overall concrete moisture condition. The in situ relative humidity test is gaining favor in the floor covering industry and many consider the MVER as unimportant. It is Forbo's position, however, that comprehensive evaluation enables a better understanding of the overall moisture condition of concrete substrates, and therefore enables a better informed judgment when decisions must be made.

A minimum of three (3) tests of each type should be conducted for the first 1,000 square feet (100 square meters). On projects over 1,000 square feet (100 square meters), an additional test of each type should be conducted for each additional 1,000 square feet (100 square meters) of area. A diagram of the area showing the location of each test and the corresponding test results should be submitted to the architect, general contractor and end-user prior to the installation of the flooring material. If any test result exceeds the limitations specified, the installation **SHOULD NOT PROCEED** until the problem has been corrected. The installation of Forbo products where moisture

Substrate Evaluation & Preparation Guidelines

conditions exceed specified limits may result in partial or complete failure. Failure to follow this recommendation is an implied acceptance of site conditions by the flooring contractor/installer.

Forbo recommends conducting both of the following moisture tests on gypsum surfaces:

Polyethylene Sheet Test

This test is performed by securing a vapor-retardant plastic sheet to the gypsum surface for a period of 72 hours. Presence of visible liquid water on the underside of the plastic sheet or the appearance of a wet or damp surface indicates that the gypsum is insufficiently dry for the application of floor coverings.

Electronic Surface Moisture Meter

(Refer to the latest version of ASTM F 2659.)

This test is performed by using a surface moisture meter (such as Delmhorst or Tramex) to measure the relative level of moisture of the gypsum. Depending on the amount of moisture present, the meter will give a measurement ranging from “wet” to “dry.”

NOTE: If these methods of testing indicate the possible presence of elevated moisture, further investigative testing is recommended. Refer back to the product manufacturer for additional information. All guidelines and recommendations from the product manufacturer should be strictly followed.

pH Testing

(Refer to the latest version of ASTM F 710.)

It is essential that pH tests be conducted on all concrete floors regardless of age or grade level. During the curing and drying of concrete and as moisture migrates through the concrete, it will dissolve alkali salts that are contained in the concrete. When the moisture reaches the surface of the concrete it evaporates, leaving behind an alkali salt residue on the surface. These alkali salts may cause several installation and material problems, such as adhesive failure, discoloration, shrinkage, and softening of the floor covering.

Testing the concrete pH should be done in several locations throughout the area to receive flooring. As a rule of thumb, conduct pH tests at each calcium chloride test location as the calcium chloride tests are removed.

To test for pH at the surface of a concrete slab, use wide range pH paper, its associated pH chart, and distilled or deionized water. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1” (25mm) in diameter. Allow the puddle to set for 60 ± 5 seconds and then dip the pH paper into the water. Remove immediately and compare to chart to determine pH reading. Other pH testing methods such as pH pencils or pH meters, or both, are available and may be used to measure pH.

If the pH exceeds the limitation of the specified adhesive, it must be reduced prior to beginning the installation. Lightly abrading the surface and vacuuming up the residue will often reduce the concrete surface pH. Damp mopping with neutral pH cleaner properly diluted with clean water can be used to reduce the pH level on the surface of the concrete. When damp mopping, do not flood the floor. Ensure that all water or slurry is removed from the substrate with a wet vacuum. Allow the substrate to fully dry before proceeding with any installation procedures. Retest to assure the pH has been reduced. If pH levels remain high, please contact Forbo’s Product Support & Education Services for additional information.

For additional information about the moisture and pH tolerance levels of the Forbo adhesives, refer to the **Adhesive section** of the Forbo Installation Guide.

IMPORTANT: The Forbo limited warranty covers manufacturing defects only. Failures that are the direct result of circumstances beyond the control of Forbo, including substrate moisture related failures, are NOT covered under warranty. The recommendations in the Forbo Installation Guide are intended to inform the users of Forbo products about reliable installation methods as well as some of the potential risks that could lead to installation failure. The purpose of these guidelines is to provide the necessary information to best ensure a successful installation. Moisture test results reflect the concrete moisture condition at the time of testing only. The absence of an acceptable vapor retarder under the slab, changes in the environment, or other circumstances beyond Forbo’s control, may result in changes of the moisture condition of the concrete subsequent to the time of testing. Forbo’s warranty shall not be extended to cover damage or failures caused by moisture conditions in excess of specified limits that occur after the time of initial testing or installation.

Substrate Porosity

Substrate porosity has a significant influence on the working characteristics of adhesives (open time and working time). It is important for installers to recognize and understand this relationship so that adhesives are used properly. Where the substrate is non-porous, overly porous, or substrate porosity is inconsistent, adjustments will have to be made to installation procedures.

It is the installer’s responsibility to recognize the working characteristics of the adhesive for any given situation, and make any necessary adjustments in preparation or installation techniques that may be required to achieve a secure bond.

An easy way to determine the porosity of the substrate is to use a drinking straw or an eye-dropper and place a row of water drops on the surface of the substrate. If the drops are not absorbed into the substrate within 60 seconds, the substrate should be considered non-porous.



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Substrate Evaluation & Preparation Guidelines

Non-Porous

When the substrate is non-porous, the adhesive may require an extended open time. There must be **100% wet transfer** of adhesive to the material backing in order to achieve a secure bond. **100% wet transfer is a continuous film of adhesive when wet on both the backing of the material and the substrate, with no trace of trowel marks or ridges.** For additional information, refer to the **Adhesives section** of the Forbo Installation Guide.

If a substrate is non-porous, a curing compound, hardener, sealer, or other bond inhibiting material may be present. Conducting adhesive mat bond tests will aid in identifying such contaminants.

Non-porous substrates can be made porous by either mechanically abrading or placing a blotter layer of a minimum thickness of 1/8" (3.175mm) of an appropriate patching or leveling compound.

Overly Porous

When a substrate is overly porous, the adhesive may have a shortened open time and may require that the adhesive be applied incrementally. There must be **100% wet transfer** of adhesive to the material backing in order to achieve a secure bond. **100% wet transfer is a continuous film of adhesive when wet on both the backing of the material and the substrate, with no trace of trowel marks or ridges.** For additional information, refer to the **Adhesives section** of the Forbo Installation Guide. Overly porous substrates may require the application of a primer.

Primers

The use of a primer may be necessary to improve adhesive bond to non-porous substrates such as terrazzo, existing resilient flooring, or power troweled concrete. A primer may also be necessary to reduce the porosity of overly porous substrates or to create a uniform porosity.

All guidelines and recommendations from the manufacturer of the product chosen should be strictly followed.

Regardless of the type or brand of primer chosen, any liability for the performance of the primer rests with the product manufacturer and/or applicator, not Forbo.

Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system, and to ensure that a secure bond can be achieved.

For additional information, refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.

Adhesive Mat Bond Testing

Adhesive mat bond testing can identify potential bonding problems and is essential for ensuring the integrity of the flooring system prior to the installation. Adhesive mat bond tests should be conducted using the adhesive(s) and material(s) to be used on the project **after** all remediation and/or preparation work has been completed.

Conduct adhesive mat bond tests by adhering 3' x 3' squares of material, following Forbo's installation guidelines, in various locations throughout the area where flooring is to be installed. Although the number of tests required may vary, enough tests should be performed to allow an evaluation of the entire area where material will be installed. This will help identify the effects of the site specific conditions that will influence the open time and working time of the adhesive. There are four main site conditions that influence open time and working time of adhesives: porosity of the substrate, ambient temperature, ambient humidity and air flow. Be sure to conduct bond tests on **ALL** substrates, including but not limited to; concrete, thick poured lightweight cellular concrete underlayment, thick poured lightweight Gypsum concrete underlayment, wood, metal, existing resilient, anywhere patching and/or leveling materials, moisture control systems or primers have been used. Wait a minimum of 72 hours before removing the test squares.

NOTE: Some substrates may require additional time to achieve an adequate bond before removing the test squares.



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Substrate Evaluation & Preparation Guidelines

Failure Modes in Adhesive Mat Bond Testing

The results of adhesive mat bond testing are a measure of the resistance of the floor covering to separation from the substrate when force is applied. This result allows for the determination of the failure mode. Three type of adhesive mat bond failure seen most frequently are substrate failure, adhesion failure or cohesive failure.

Substrate Failure

This failure mode is expressed when the substrate or flooring material is weaker than the adhesive and cohesive bonds. It is characterized by either the material breaking apart and/or the substrate being separated into pieces or destroyed. This typically indicates high bond strength.

Adhesion Failure

This failure mode is expressed when the bond between the substrate or flooring material and the adhesive is broken. It is characterized by all or most of the adhesive releasing from the substrate or from the material. This typically indicates the presence of a contaminant, very low porosity of the substrate or incorrect installation of the material into the adhesive.

Cohesive Failure

This failure mode is expressed when the bond between the molecules within the adhesive is forced to failure because the external force being applied exceeds the cohesive bond. This typically indicates high bond strength.

There are very few industry specific pass/fail criteria defined in standards for adhesive mat bond tests. Expected adhesion testing results are often predetermined by and agreed upon by the parties concerned. These results can include but are not limited to:

- The required force to remove the test samples being deemed adequate to provide satisfactory performance of the flooring system for its intended purpose.
- The perceived bond strength.
- The determination of the failure mode and its impact on the flooring system.

Tests results are based on the adhesive layer being fully cured. The following is what the anticipated results should be for all Forbo products;

Forbo 660 Two-Component Polyurethane Adhesive

Many Forbo products can be installed using Forbo 660 adhesive. When using Forbo 660 adhesive, the point of failure during bond testing should be in the material. **The anticipated result is that the material will be destroyed when removing the sample.**

Marmoleum® & Linoleum Products (including Corkment, Bulletin Board and Desktop)

When evaluating adhesive mat bond tests using Forbo L 885, Sustain 885m, Sustain 1195 or L 910W adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. **The anticipated failure mode should be either substrate or cohesive.**

NOTE: Adhesive mat bond testing for Marmoleum® Ohmex uses Forbo C 930 adhesive. Proper bonding will produce the same result as any other Marmoleum® sheet product.

Marmoleum® Decibel

When evaluating adhesive mat bond tests using Forbo L 885, Sustain 885m or Sustain 1195 adhesive, significant force should be required to remove the test sample. The bond failure should occur within the polyolefin backing and the jute when the test sample is removed. **The anticipated failure mode should be either substrate or cohesive.**

Marmoleum® Modular & MCT

When evaluating adhesive mat bond tests using Forbo T 940, Sustain 885m or Sustain 1195 adhesive, significant force should be required to remove the test sample. The impression of the tile backing should be readily seen in the adhesive layer. The tile should be fully embedded in the adhesive with no appearance of trowel ridges. The adhesive layer should remain substantially on the substrate with the tile separating from the adhesive bed. **The anticipated failure mode should be either substrate or cohesive.**

Eternal

When evaluating adhesive mat bond tests using Forbo V 885 adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. **The anticipated failure mode should be either substrate or cohesive.**



Substrate Evaluation & Preparation Guidelines

Allura

When evaluating adhesive mat bond tests using Forbo T940 or Sustain 885m adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. **The anticipated failure mode should be either substrate or cohesive.**

Allura Flex

When evaluating adhesive mat bond tests using Forbo FRT 950 adhesive, light to moderate force should be required to remove the test sample. **The anticipated failure mode should be adhesion (between the material and the adhesive).**

Colorex®

When evaluating adhesive mat bond tests using Forbo C 930, T 940 or Sustain 885m adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. **The anticipated failure mode should be either substrate or cohesive.**

Flotex® Sheet

When evaluating adhesive mat bond tests using Forbo FRS 885, Sustain 885m or Sustain 1195 adhesive, significant force should be required to remove the test sample. **The anticipated failure mode should be either substrate (within the two cushioned backings on the material) or cohesive.**

Flotex® Tile

Standard Installation (with Releasable Adhesive): When evaluating adhesive mat bond tests using Forbo FRT 950 adhesive, light to moderate force should be required to remove the test sample. **The anticipated failure mode should be adhesion (between the material and the adhesive).**

Permanent Installation: When evaluating adhesive mat bond tests using Forbo FRS 885, Sustain 885m or Sustain 1195 adhesive, significant force should be required to remove the test sample. The bond failure should occur within the adhesive layer when the test sample is removed. There should be approximately the same amount of adhesive on the substrate and the material backing. **The anticipated failure mode should be either substrate or cohesive.**

Coral®

When evaluating adhesive mat bond tests using Forbo 660 adhesive, significant force should be required to remove the test sample. Removing the test sample should destroy the material. **The anticipated failure mode should be either substrate or cohesive.**

It is the installer’s responsibility to identify and correct potential bonding issues, ensuring an optimal bond can be achieved *prior* to beginning the installation.

For additional information, contact Forbo’s Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.



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Substrate Evaluation & Preparation Guidelines

Substrate Preparation

Vacuuming the substrate with a commercial vacuum is the preferred method of removing dirt and dust. Damp mopping can be used to remove fine dust from concrete substrates. When damp mopping, do not flood the floor. Ensure that all water or slurry is removed from the substrate with a wet vacuum. Allow the substrate to fully dry before proceeding with any installation procedures. A clean substrate enables a secure bond between the substrate and the floor covering.

Patching and Leveling Materials

(Refer to the latest version of ASTM F 2678.)

There are two main categories of patching and leveling materials available in the marketplace. One category is calcium sulfate/ plaster/ gypsum based compounds, and the other is Portland cement based compounds.

There are a wide range of patching and leveling materials currently available for the purpose of smoothing and patching substrate irregularities, and their quality and performance will vary. The user of such products should research performance specifications and warranties, and choose only the highest quality materials when installing Forbo flooring products. All guidelines and recommendations from the manufacturer of the product chosen should be strictly followed.

Regardless of the type or brand of patching or leveling material used, any liability for the performance of the patching or leveling material rests with the product manufacturer and/or applicator, not Forbo.

Always conduct adhesive mat bond tests prior to the installation to ensure the integrity of the flooring system, and to ensure that a secure bond can be achieved. For additional information, refer to the **Adhesive Mat Bond Testing section** of the Forbo Installation Guide.

Adhesive Residue

WARNING REGARDING COMPLETE ADHESIVE REMOVAL: Some solvent based asphaltic “cut-back” adhesives may contain asbestos fibers that are not readily identifiable. Do not use power devices which create asbestos dust in removing these adhesives. The inhalation of asbestos dust may cause asbestosis or other serious bodily harm. Smoking greatly increases the risk of serious bodily harm.

Forbo does **not** recommend the use of solvents or adhesive removers to remove adhesive residue. Any solvent or adhesive remover residue left within the substrate may affect the new adhesive and new floor covering. Where existing asphaltic (cut-back) or other types of adhesives are present, they must be dealt with in one of three ways:

- If the adhesive is non-asbestos containing, it may be mechanically removed down to a residual staining. This can be achieved by grinding, bead blasting, scarifying, scraping, etc.
- The adhesive residue* may be encapsulated with a suitable patching or leveling compound. Follow the patching or leveling manufacturer’s recommendations for intended use and application.
- The adhesive residue* may be encapsulated with a suitable product designed for the purpose of encapsulating adhesive residue. Follow manufacturer’s recommendations for intended use and application.

**Adhesive residue is defined as residual staining that is left after all adhesive has been scraped away down to the concrete surface.*

Concrete Joints

Expansion and Isolation Joints

Expansion and isolation joints in concrete are designed to allow for the expansion and contraction of the concrete. All movable joints must be honored in order to eliminate buckling and telegraphing in the finished resilient flooring caused by movement in the concrete. Expansion joint products designed for use with resilient floorings must be used at all movable joints.

Construction and Control Joints (Saw Cuts)

All such non-moving joints should be properly cleaned and prepared using suitable fillers and/or patching and leveling materials. Always follow the manufacturer’s recommendations for the use and application of these products. For additional information, refer to the **Substrate Preparation section** of the Forbo Installation Guide.

NOTE: Trenches and repairs must be treated as new concrete. For recommended practices, refer to the **Substrate Evaluation section** of the Forbo Installation Guide.



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Substrate Evaluation & Preparation Guidelines

Forbo Limited Warranty

Forbo warrants that our products and their recommended adhesives will be free from manufacturing defects. Failures that are the direct result of circumstances beyond the control of Forbo, such as movement in the concrete and/or moisture coming from the joint subsequent to the installation of resilient flooring materials causing buckling or telegraphing of the joint are NOT covered under warranty. The recommendations in the Forbo Installation Guide are intended to inform the users of Forbo products about reliable installation methods as well as some of the potential risks that could lead to installation failure. The purpose of this information is to provide the necessary information to ensure a successful installation.

Additional Resources

Reference documents for proper specification requirements are:

- ASTM C 840 – Standard Specification for Application and Finishing of Gypsum Board.
- ASTM E 1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
- ASTM F 141 – Standard Terminology Relating to Resilient Floor Coverings
- ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- ASTM F 1482 – Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
- ASTM F 1869 – Standard Test Method for Measuring Moisture Vapor Emissions Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- ASTM F 2419 – Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
- ASTM F 2471 – Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
- ASTM F 2659 – Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and other Floor Slabs and Screeds Using a Non- Destructive Electronic Moisture Meter
- ASTM F 2678 - Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring

Forbo’s Installation Guide contains additional information and is available for download at www.forboflooringNA.com. For a hard copy, or for additional information, contact Forbo’s Product Support & Education Services at 1-800-842-7839.



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Technical Data

SierraSeries® Solid Color Reinforced Composite Maximum Height Partitions and Screens

2090 SERIES

Specify Product Application:

- Toilet Partitions
- Dressing Compartments
- Shower Dividers
- Urinal Screens

Specify Series Required:

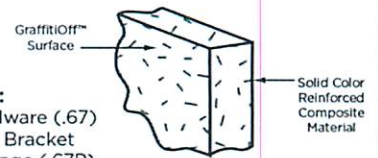
- Floor-Anchored
- Overhead-Braced
- Post-to-Ceiling (Screens only)
- Floor-to-Ceiling Anchored
- 2091 Series
- 2092 Series
- 2093 Series
- 2096 Series

Gap-Free:

- 2091G Series
- 2092G Series
- 2096G Series

Hardware Options:

- Institutional Hardware (.67)
- Institutional Wall Bracket with Standard Hinge (.67P)



STANDARD-SIZE COMPONENTS:

Stiles: For compartments — 7", 8"^{1/2}, 10", 12", 16", 18", 20", or 24" (178, 203, 254, 305, 406, 457, 508, or 610mm) wide; for screens — 6" (152mm) wide. Floor-anchored — 75 3/16" (1910mm) high in any increment; overhead-braced — 83" (2108mm) high; floor-to-ceiling anchored — height as required.

Doors: 71 3/4" (1822mm) high. Inswing doors are standard for 22" to 37" (559-940mm) widths in whole-inch increments. Outswing^b doors are standard for 25" to 37" (635-940mm) widths in whole-inch increments.

Panels: For compartments — Up to 84" (2134mm) wide; 71 3/4" (1822mm) high. For ceiling-hung and post-to-ceiling screens — 24", 36", 48", or 60" (610, 914, 1219, or 1524mm) wide; 71 3/4" (1822mm) high. **Note:** If the width of the panel exceeds 60" (1524mm) the panel will be two pieces and require an H Channel to obtain 71 3/4" (1822mm) height requirement.

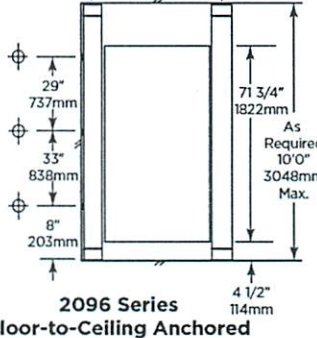
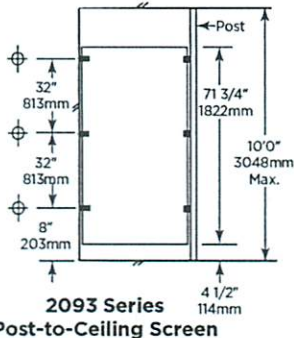
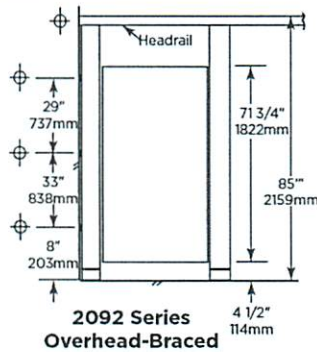
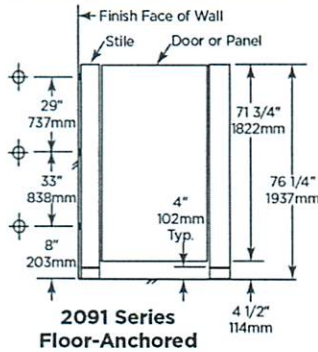
Posts: For 2093 Series post-to-ceiling screens only. 1 1/4" (32mm) square. 10' (3048mm); cut to required height in field.

^a Minimum 8" (203mm) wide stile is required for all maximum-height compartments.

^b Use outswing doors to comply with local codes requiring access for physically Disabled persons.

COMPARTMENT AND SCREEN ELEVATIONS

Important Note: Check ADA code for 9" toe clearance requirements in accessible compartments. Refer to our Planning Guide for Accessible Restrooms for more information



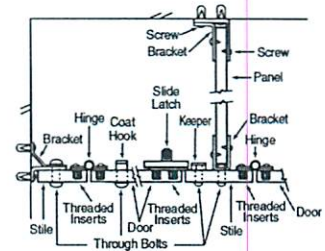
⊕ These mounting points require backing. For suggested backing methods, Bobrick Advisory Bulletins TB-32 for Ceiling-Hung Partitions or TB-46 for Floor-Anchored and Overhead-Braced Partitions are available upon request or on our web site bobrick.com

TYPICAL HARDWARE DETAILS

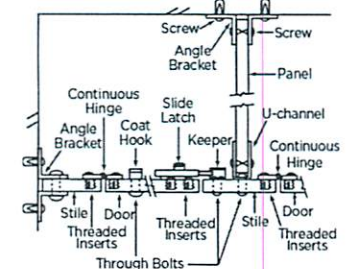
Standard gaps are provided at all walls and between components to allow for hardware attachment.

Wall gaps are standard 1/2" to 1"

Heavy-Duty Hardware (standard)

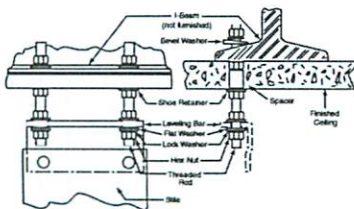


Institutional Hardware (.67 option)



TYPICAL INSTALLATION DETAILS

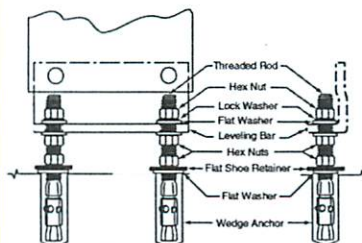
Ceiling Leveling Device



Front

Side

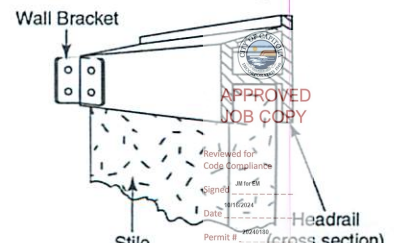
Floor Leveling Device



Front

Side

Overhead-Bracing



MATERIALS:

Stiles — 3/4" (19mm) thick, SCRC with GraffitiOff™ surface thermoset and integrally fused into one homogenous piece. Surface, edge, core are to be the same color. *Stiles for 2096 Series floor-to-ceiling anchored units have a leveling device at each end.

Leveling Device: 7 gauge, 3/16" (5mm) thick, corrosion-resistant, chromate-treated, double zinc-plated steel angle leveling bar bolted to stile; furnished with 3/8" (10mm) stainless steel diameter threaded wedge anchor, hex nuts, lock washer, flat washers, and shoe retainers.

Shoe: 18-8, Type-304, 22-gauge (0.8mm) stainless steel with satin finish; 4" (102mm) high.

Panels — 1/2" (13mm) thick, SCRC with GraffitiOff surface thermoset and integrally fused into one homogeneous piece. Surface, edge, core are to be the same color.

Wall Posts — 1" x 1-1/2" (25 x 38mm) tubing; 18-8, Type-304, 16-gauge (1.6mm) stainless steel with satin-finish. 72" (1829mm) high, pre-drilled for door hardware.

Doors — 3/4" (19mm) thick, SCRC with GraffitiOff surface thermoset and integrally fused into one homogeneous piece. Surface, edge, core are to be the same color.

Edges — SCRC is a natural material comprised of wood chips, dyes and resins with a melamine surface. Edges lack a melamine surface and may discolor in environments with significant UV lighting. Discoloration of edges, should it occur, is not covered under warranty.

Urinal Screens — 1/2" (13mm) thick, SCRC with GraffitiOff surface thermoset and integrally fused into one homogeneous piece. Surface, edge, core are to be the same color.

Posts-to-Ceiling (for 2093 Series screens only) — 1-1/4" (32mm) square tubing; 18-8, Type-304, 18-gauge (1.2mm) stainless steel with satin finish. Floor and ceiling connections are constructed of 18-8, Type-304, heavy-gauge stainless steel. Furnished in 10' 0" (3048mm) lengths; to be cut in field to job specifications.

Headrail (for 2092 Series compartments only) — Extruded anodized aluminum. Enclosed construction with sloping top. Face has raised grip-resistant edge.

Designer's Notes: Headrails with integral shower curtain tracks and curtain carrier packet is available for compartments without doors. Optional vinyl curtains are available.

Heavy-Duty Hardware (standard) — Hinge, door latch, door keeper, clothes hook, mounting brackets and door handle are constructed of 18-8, Type-304, heavy-gauge stainless steel with satin finish. Threaded inserts are factory installed for securing hinges and door latch. Theft-resistant, stainless steel pin-in-head Torx screws are furnished for door hardware and all mounting brackets. Barrel hinge is adjustable to adjust door swing of unoccupied toilet compartment from partially open to fully closed. Toilet compartment door is locked from inside by sliding door latch into keeper. Threaded inserts are factory installed to secure door hinges and latch. Track of door latch prevents inswing door from swinging out beyond stile; on outswing door, the door keeper prevents it from swinging in beyond stile. Mounting screws for stile to panel bracket, latch keeper, and coat hook connections are through-bolted. Door handles and latch have operable parts that are operable with one hand and do not require tight grasping, pinching, or twisting of the wrist; and comply with ADA Sections 404.2.7 and 309.4. The force required to activate the operable parts shall be 5 pounds (22.2N) maximum.

Institutional Hardware (.67 option) — Hinge, door latch, door keeper, clothes hook, mounting brackets and door handle are constructed of 18-8, Type-304, heavy-gauge stainless steel with satin finish: one-piece, full-height hinge is 16 gauge (1.6mm); one-piece door keeper is 11 gauge (3.2mm); one-piece, full-height U-channels and angle bracket are 18 gauge (1.2mm). U-channels secure panels to stiles, and angle brackets secure panels and stiles to walls. Door latch slides on a shock-resistant nylon track. A locked compartment may be opened from outside by lifting door to disengage latch from keeper. Theft-resistant, stainless steel pin-in-head, torx screws are furnished for door hardware, U-channels, and angle brackets. Doors are equipped with a gravity type self-closing hinge. Threaded inserts are factory installed to secure door hinge and latch. Mounting screws for stile-to-panel brackets and latch keeper connections are through-bolted. Track of door latch prevents inswing door from swinging out beyond stile; on outswing door, the door keeper prevents it from swinging in beyond stile. Door handle and latch have operable parts that are operable with one hand and do not require tight grasping, pinching, or twisting of the wrist; and comply with ADA Sections 404.2.7 and 309.4. The force required to activate the operable parts shall be 5 pounds (22.2N) maximum.

To specify Institutional hardware, add suffix .67 to series number. Example: specify 2092.67 for overhead-braced, maximum-privacy partitions furnished with Institutional hardware, including factory-installed threaded inserts for door hardware attachment. The Institutional Hinge (.67 option) depends on the weight of the door to return the hinge to its closed position, which may result in door slamming.

INSTALLATION:

Bobrick installation instructions are packed with each shipment and are available also in advance on request.

Notes:

1. Ceiling-hung and floor-to-ceiling toilet compartments require structural members (not furnished by Bobrick) in ceiling. For suggested types of ceiling support systems, see Bobrick Advisory Bulletin TB-32.
2. Wall backing is required to secure the mounting brackets of panels, stiles, and wall posts. For suggested wall backing, see Bobrick Advisory Bulletin TB-46.
3. Floor-anchored stiles are furnished with expansion shields and threaded rods. The expansion shields require minimum 2" (50mm) penetration into minimum 3" (75mm) thick structural concrete.
4. Bobrick stainless steel partition-mounted washroom accessories are available for mounting in panels between two compartments. See current Bobrick Restroom Accessory Catalog for description of accessories. Cutouts in panels can be pre-cut for Bobrick models at factory if location and size of all cutouts and Bobrick model numbers are furnished at time of order.
5. When the cam has been set at the desired free resting position, "either closed or open" the top of the affixed components will be aligned.
6. Note: If the width of the panel exceeds 60" (1524mm) the panel will be two pieces and require an H Channel to obtain 71 3/4" (1822mm) height requirement.

GUARANTEE:

Bobrick toilet partitions including all hardware and mounting brackets are guaranteed to be free from defects in material and workmanship for a period of one year from date of purchase. Any products returned to Bobrick under this guarantee will be repaired or replaced at no charge. **25-Year Warranty:** Bobrick extends a twenty-five-year limited warranty from date of purchase for SierraSeries Solid Color Reinforced Composite (SCRC) partition panels, doors, and stiles against breakage, delamination and corrosion when materials are properly installed, and normally used.

SPECIFICATION:

Maximum-Height Water- and Fire-Resistant, Solid Color Reinforced Composite (SCRC) _____ (insert one product application: toilet partition, dressing compartment, shower divider, urinal screen) shall be _____ (insert one series: floor-anchored, overhead-braced, post-to-ceiling, floor-to-ceiling anchored) _____ (insert one series for Gap-Free: floor-anchored, overhead-braced, floor-to-ceiling anchored). Stiles, panels and doors shall be constructed of SCRC with GraffitiOff surface thermoset and integrally fused into one homogeneous piece. Surface, edges and core are to be same color. SCRC material shall be covered by a 25-year limited warranty against breakage, corrosion, and delamination. Stiles and doors shall be 3/4" (19mm) thick; panels shall be 1/2" (13mm) thick. All units shall meet ICC and NFPA Class B or UBC Class II, ASTM E 84 Fire-Resistance Standards. Stiles shall have leveling device that is concealed by a one-piece, Type-304, satin-finish stainless steel shoe that is 4" (102mm) high. Stiles, panels and doors shall be _____ (insert color name and number from current Bobrick Toilet Partition catalog). Headrails for overhead-braced compartments shall be anodized aluminum with satin finish. All door hardware and mounting brackets shall be Type-304 stainless steel with satin finish. All doors shall be supplied with three hinges. Threaded inserts shall be factory installed for securing door hinges and latch. Theft-resistant, stainless steel pin-in-head Torx screws shall be furnished for door hardware and all mounting brackets. Through bolts shall be used for securing latch keeper, clothes hook and panel-to-stile brackets. Doors shall be equipped with a self-closing hinge. Hinges shall be adjustable to hold doors of unoccupied compartments partially open or fully closed. Hinges shall allow locked compartment to be opened in emergency from outside by lifting door to disengage latch from keeper. A clothes hook shall be furnished for each door.

***To specify Institutional hardware, replace end of specification paragraph with: .67 option All door hardware, U-channels, and angle brackets shall be Type-304 stainless steel with satin finish: one-piece, full-height hinges shall be 16 gauge (1.6mm); one-piece door keepers shall be 11 gauge (3.2mm); one-piece, full-height U-channels and angle brackets shall be 18 gauge (1.2mm). U-channels shall be furnished to secure panels to stiles, and angle brackets furnished to secure panels and stiles to walls. Doors shall be equipped with a self-closing hinge. Theft-resistant, stainless steel pin-in-head, torx screws shall be furnished for door hardware, U-channels, and angle brackets. Through bolts shall be used for securing latch keeper and panel-to-stiles brackets. Threaded inserts shall be factory installed to secure all door hinges and latch.*

Maximum-Height Water- and Fire-Resistant, Solid Color Reinforced Composite (SCRC) _____ (insert one product application: Toilet Partitions, Dressing Compartments, Shower Dividers, Urinal Screens) shall be _____ Series (insert series number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



SAFETY DATA SHEET

Polyureseal BP Gloss

1. PRODUCT AND COMPANY IDENTIFICATION

DATE ISSUED :	9/25/2017
SDS REF. No :	5006/150

PRODUCT NAME: SAFECOAT POLYURESEAL BP GLOSS

PRODUCT CODE: 5006

SYNONYMS:

CAS NUMBER:

PRODUCT USE: CLEAR COATING

MANUFACTURER

American Formulating & Manufacturing
3251 Third Avenue
San Diego, CA,
(619) 239-0321

24 HR. EMERGENCY TELEPHONE NUMBER

CHEMTREC (US Transportation): (800)424-9300
CHEMTREC (International Transportation) : 1(202)483-7616

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE : Liquid

IMMEDIATE CONCERNS : May cause eye, skin and respiratory tract irritation. May cause asphyxiation, or brain, lung or other organ injury if inhaled, swallowed or absorbed by the skin.

POTENTIAL HEALTH EFFECTS

EYES : Use chemical safety goggles and/or full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas.

SKIN : Liquid may be irritating to the skin. Prolonged or repeated contact can result in drying of the skin which may result in skin irritation and dermatitis (rash). Liquid not likely to be absorbed through the skin.

SKIN ABSORPTION : Liquid is moderately irritating to the skin. Prolonged or repeated contact can result in drying of the skin which may result in skin irritation and dermatitis (rash). Liquid not likely to be absorbed through the skin.

INGESTION : Ingestion may cause irritation and damage to mucous membranes.

INHALATION : Vapors may be irritating to the nose, throat, and respiratory tract. Prolonged inhalation may cause headaches or nausea.

CHRONIC : No chronic health concerns known.

CARCINOGENICITY :

This material is not currently known to have carcinogenic properties.

MUTAGENICITY :

This material is not known to have mutagenic effects on genetic material.



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Page 1



SAFETY DATA SHEET

Polyureseal BP Gloss

REPRODUCTIVE TOXITY

REPRODUCTIVE EFFECTS : This material is not known to cause any reproductive system damage.

TERATOGENIC EFFECTS :

This material is not known to contain any teratogenic substances.

IRRITANCY:

This material may cause irritation to the eyes, skin, and respiratory tract. Use correct PPE when handling this material.

CLASSIFICATION :

PICTOGRAMS :



SIGNAL WORD : WARNING

HAZARD STATEMENTS :

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

- PRECAUTIONARY STATEMENTS :** P264 Wash thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

REPORTABLE COMPONENTS	CAS NUMBER	WEIGHT PERCENT
Modified Polyurethane Dispersion	Mixture	75-80
Dipropylene glycol methyl ether	34590-94-8	10-15
Water	7732-18-5	5-10
Acrylic Emulsion Copolymer	Mixture	<4

No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

THE FORMULATION OF THIS PRODUCT DOES NOT CONTAIN CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM."


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Date: 05/16/2024
Permit # _____
Page 2



SAFETY DATA SHEET

Polyureseal BP Gloss

4. FIRST AID MEASURES

EYES : Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek medical aid if irritation persists.

SKIN : Flush skin with soap and water while removing contaminated clothing. If irritation occurs, seek immediate medical attention. Do not reuse clothing or shoes until thoroughly cleaned.

INGESTION : Do not induce vomiting, and seek immediate medical attention. Do not attempt to give any liquids if victim is unconscious.

INHALATION : Immediately remove victim to fresh air. If victim is not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Seek immediate medical attention.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

SYMPTOMS : No further relevant information available.

EFFECTS : No further relevant information available.

NOTES TO PHYSICIAN : If the victim is a child, give no more than 1 glass of water and 15cc (1 tablespoon) syrup of ipecac. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage should be considered following intubation with a cuffed endotracheal tube.

5. FIRE FIGHTING MEASURES

FLASH POINT AND METHOD : Not applicable

AUTO-IGNITION TEMPERATURE :

SUITABLE EXTINGUISHING MEDIA : Use water fog, "alcohol" foam, dry chemical, or CO₂.

UNSUITABLE EXTINGUISHING MEDIA : None known.

FIRE FIGHTING PROCEDURES : Clear the fire area of unprotected personnel. Do not enter confined fire space without full bunker gear; including a positive pressure NIOSH approved SCBA. Cool fire exposed containers with water. If water is used, fog nozzles are preferred.

UNUSUAL FIRE AND EXPLOSION HAZARD : Material can splatter above 100C/212F. Dried product can burn.

COMBUSTION PRODUCTS : Unknown



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Date: 05/16/2024

Permit # _____



SAFETY DATA SHEET Polyureseal BP Gloss

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES : Ventilate area of leak or spill for at least 24 hours or until it has been declared safe. Stop the leak if there is no risk involved. Clean-up personnel require protective clothing and respiratory protection from vapors. Absorb liquid with inert material. Only specially trained or qualified personnel should handle the emergency.

ENVIRONMENTAL PRECAUTIONS

- WATER SPILL** : Keep material out of storm sewers and ditches which lead to waterways.
LAND SPILL : Contact applicable authorities and determine applicable regulations based on SDS information.
AIR RELEASE : Contact applicable authorities and determine applicable regulations based on SDS information.

PERSONAL PRECAUTIONS : For non-emergency personnel:

PROTECTIVE EQUIPMENT : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

EMERGENCY PRECAUTIONS : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

METHOD OF CLEANING UP : Clean up spills immediately and dispose of waste safely.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING : Avoid Freezing. Avoid contact with bacteria, fungus, or other microorganisms. Keep container closed when not in use to avoid skinning and microorganism contamination.

CONDITIONS FOR SAFE STORAGE, INCLUDING INCOMPATIBILITIES : KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition.

8. EXPOSURE CONTROLS\PERSONAL PROTECTION

OSHA TABLE COMMENTS:

NL = Not Listed



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Date: 05/16/2024

Permit # _____



SAFETY DATA SHEET

Polyureseal BP Gloss

EXPOSURE LIMITS : None

ENGINEERING CONTROLS : Provide exhaust ventilation sufficient to keep the airborne concentration of this product below its exposure limits. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE : Use chemical safety goggles and/or full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas.

SKIN : Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

RESPIRATORY : If exposure may or does exceed occupational exposure limits (Section 8) use a NIOSH approved respirator to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

WORK HYGIENIC PRACTICES : Use good personal hygiene when handling this product. Wash hands after use, before eating, drinking, smoking, or using the toilet.

OTHER USE PRECAUTIONS : Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

COMMENTS : May be harmful or fatal if swallowed. May irritate body tissues. Use with adequate ventilation. Avoid breathing vapor. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE : Liquid

COLOR : Clear

ODOR : Mild

EVAPORATION RATE : Slower than ether

BOILING POINT : 212F



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Permit # _____



SAFETY DATA SHEET

Polyureseal BP Gloss

VAPOR DENSITY : Heavier than air

VOLATILE ORGANIC COMPOUNDS: Coatings: 260 g/l Material: 99 g/l
(VOC Theoretical – As Packaged)

HAZARDOUS AIR POLLUTANTS (HAP's) : N/A
(HAP's Theoretical – As Packaged)

SOLUBILITY IN WATER : Dilutable

DENSITY (LB/GAL) : 8.60

EVAPORATION RATE: N/A

SPECIFIC GRAVITY: 1.03

10. STABILITY AND REACTIVITY

STABILITY : Yes

HAZARDOUS POLYMERIZATION : Will not occur.

CONDITIONS TO AVOID : Avoid Freezing

POLYMERIZATION : Avoid heat, flame, and other sources of ignition.

HAZARDOUS DECOMPOSITION PRODUCTS: None known

INCOMPATIBLE MATERIALS : None known

POSSIBILITY OF HAZARDOUS REACTIONS : None under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY VALUES :

TOXICOLOGICAL INFORMATION

LD50 Dermal	Rabbit - > 5,000 mg/kg
LD50 Oral	Rat - > 5,000 mg/kg



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Date: _____

Permit # _____

Page 6



SAFETY DATA SHEET

Polyureseal BP Gloss

SIGNS AND SYMPTOMS OF OVEREXPOSURE : None identified

ACUTE EFFECTS :

EYE : Causes Serious Eye Irritation

SKIN : Causes skin irritation. Allergic reactions are possible.

INHALATION : Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

INGESTION : Harmful if swallowed.

TARGET ORGAN : Data Not Available

CHRONIC EFFECTS : Relevant data not available.

SYMPTOMS OF RELATED

PHYSICAL : Data Not Available

CHEMICAL : Data Not Available

TOXICOLOGICAL CHARACTERISTICS : Data Not Available

DELAYED AND IMMEDIATE EFFECTS : Data Not Available

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No further relevant information available

PERSISTENCE AND DEGRADABILITY : No further relevant information available

BIO-ACCUMULATIVE POTENTIAL : BP_BIAP

MOBILITY : No further relevant information available

OTHER ADVERSE EFFECTS : No further relevant information available

ECOLOGICAL INFORMATION



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Date: 05/16/2024

Permit # _____



SAFETY DATA SHEET

Polyureseal BP Gloss

EC0	Daphnia magna (Water flea) - 101 mg/l - 48 h
EC50	Daphnia magna (Water flea) - > 100 mg/l - 96 h
LC50 Fish	- other fish - > 100 mg/l - 96 h

13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT/PACKAGING DISPOSAL : The preferred options for disposal are to send to licensed reclaimers, or to permitted incinerators. Any disposal practice must be in compliance with federal, state, and local regulations. Do not dump into sewers, ground, or any body of water.

WASTE TREATMENT OPTIONS AND RECOMMENDATIONS : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

WASTE CODE/WASTE DESIGNATIONS ACCORDING TO EWC/AVV : Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

SAFE HANDLING : Dispose of in accordance with federal, state, provincial, and local regulations. Local requirements may vary, consult your sanitation department or state-designated environmental protection agency for more disposal options.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

TECHNICAL NAME : Not regulated as a hazardous material by DOT.

UN NUMBER : N/A



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Permit # _____

Date: 05/16/2024

Page 8



SAFETY DATA SHEET

Polyureseal BP Gloss

ICAO/IATA : Not regulated

IMDG/IMO : Not regulated

UN PROPER SHIPPING NAME : N/A

TRANSPORT HAZARD CLASS : N/A

PACKING GROUP : N/A

MARINE POLLUTANT : N/A

SPECIAL PRECAUTIONS : N/A

***** American Formulating & Manufacturing verifies that the material was supplied and shipped in the proper packages in accordance with DOT and federal regulations that are applicable to the mode of transportation selected. The shipper must verify that the packaging supplied is acceptable to be re-shipped in per the federal regulations applicable to the mode of transportation for reshipment. Regulations may change depending on mode of transportation selected.*****

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: This product is not listed.

FIRE : Yes **PRESSURE GENERATING** : No

REACTIVITY : No **ACUTE** : Yes **CHRONIC** : Yes

313 REPORTABLE INGREDIENTS: To the best of our knowledge, this product is not listed as a toxic chemical.

302/304 EMERGENCY PLANNING

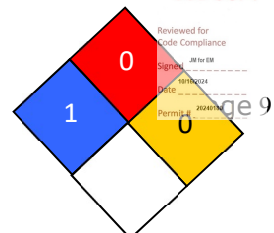
EMERGENCY PLAN: To the best of our knowledge, this product is not listed as a toxic chemical.

OTHER REGULATION : No Data Available

16. OTHER INFORMATION

HMIS RATING	
Health :	1

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Flammability :	0
Reactivity :	0
Personal Protection :	B

REVISION INDICATOR : N/A

MANUFACTURER DISCLAIMER : To the best of our knowledge, all information, recommendations, and suggestions appearing herein concerning this product are taken from raw material sources or based upon data believed to be reliable. Although reasonable care has been taken in the preparation of this information American Formulating & Manufacturing extends no guarantees, express or implied, makes no representations and assumes no responsibility as to the accuracy, reliability or completeness of the information presented. American Formulating & Manufacturing assumes no liability arising out of the use of the product by others.

Legend

ACGIH: American Conference of Governmental Industrial Hygienists
CAS No.: Chemical Abstract Service Registry Number
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
CPR: Controlled Product Regulations (Canada)
DOT: Department of Transportation (U.S.)
EPA: Environmental Protection Agency (U.S.)
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
HEPA: High-Efficiency Particulate Air
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods code
LPP: Limité Permissible Ponderado (Chile)
NIOSH: National Institute of Occupational Safety and Health (U.S.)
NFPA: National Fire Protection Association (US)
NTP: National Toxicology Program (US)
OSHA: Occupational Safety and Health Administration (U.S.)
PEL: Permissible Exposure Limit
SARA: Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit (15 minute Time Weighted Average)
STOT: Specific Target Organ Toxicity (GHS Classification)
TLV: Threshold Limit Value
TSCA: Toxic Substances Control Act (U.S.)
TWA: Time Weighted Average (exposure for 8-hour workday)
U.S.: United States
VOC: Volatile Organic Compounds
WHMIS: Canadian Workplace Hazardous Materials Information System



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Permit # 2254180

Installation Guidelines

COVERAGE: One gallon covers approximately 350 SF.

USE ON:

Unfinished (or properly prepared and sanded previously finished) floors, wooden furniture and cabinetry. **Available in gloss, satin and matte.**

LIMITATIONS:

Safecoat sealers are made without formaldehyde preservatives. Do not contaminate. Store in air-tight containers. Do not use when indoor temperature is below 55 degrees F. Do not freeze.

Thick application, high humidity or conditions other than normal will cause Safecoat to dry and cure more slowly.

SURFACE PREPARATION:

Clean surfaces of dirt, grease, mildew and oil. Previously sealed surfaces should be sanded to promote adhesion **(all gloss must be removed). Wet sanding is recommended.**

Surface should be completely dry before application. **Always spot test for adhesion over prior coatings.**

APPLICATION:

Before using, roll the Safecoat Polyureseal BP container well, then apply as is. Stir product thoroughly every 20 minutes during application. Apply with a brush, pad or airless sprayer. When sealing dark surfaces and a matte sheen is desired, apply Safecoat gloss coats prior to finishing with matte.

Spraying Guidelines

Safecoat Finish	Acrylacq		Polyureseal BP	
	HVLP	Airless	HVLP	Airless
Equipment				
Substrate temperature	70-75°	70-75°	70-75°	70-75°
Coating temperature	70-75°	70-75°	70-75°	70-75°
Pot pressure	← If applicable 15-25 Lbs. →			
Tip	← 9/1000 - 13/1000 →			
Spray pattern	← FULL →			
Distance from surface	← 10-12" →			
Dry time between coats	At ambient temperatures, 30-60 minutes Cooler temperatures or higher humidity will double dry times			

CLEAN UP:

Clean tools and equipment while they are still wet with a warm soapy water solution.

DRYING/CURING TIME:

Sandable and recoatable after 2-4 hours under normal drying conditions. Humid conditions will extend these cure times significantly. The product will continue to cure and become harder over a 2 week period or longer if humid. It's best to wait to move furniture for at least 2-4 days before opening to foot traffic. Normal application conditions include a dry surface, access to fresh air flow, humidity 35-65%, and temperatures above 55 degrees F.

HEALTH PRECAUTIONS:

As with all coatings and sealers, keep container tightly closed and out of the reach of children. Do not take internally. Keep from freezing. Always use adequate ventilation.

PHYSICAL DATA

Physical Description: Milky, dries clear
 % Volatile by Volume: 71.25%
 Solubility in Water: Dilutable
 % Volatile by Weight: 67.68%
 VOC Material: See product SDS
 VOC Material less H2O: See product SDS

HAP's (Hazardous Air Pollutants) zero

If you are chemically sensitive, always test for personal tolerance.

Test samples available through your AFM retailer.



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LIMITED LIABILITY: Liability, whether express or implied, is limited solely to replacement of product shown to be defective when applied in accordance with instructions and shall under no circumstances include liability for labor costs or consequential damages. It is the user's responsibility to determine the suitability and safety of the product for its intended use. This limited warranty may not be modified or extended by manufacturer's representatives, distributors, or dealers of AFM products. We particularly recommend that users always test in small inconspicuous areas before application to the entire surface.

American Formulating and Manufacturing 3251 Third Ave., San Diego, CA 92103 www.afmsafecoat.com.

Installation Guidelines

WATER BASED/COVERAGE: One gallon covers approximately 350 SF.

APPLICATION HIGHLIGHTS:

If you are unsure of any surface, testing with small samples is absolutely necessary, Remove chipped or peeling coatings before application. All wood surfaces should be freshly sanded. Use 60,80,100 or 120 max. grit sandpaper on old wood as needed. Lightly sand newer wood with 120 grit to remove planer marks and open the pores. Lightly sand non-porous surfaces, stained or painted surfaces with 120 grit or 000/0000 steel wool to provide tooth. Always clean the surface with a mild neutral pH cleaner that leaves no residue.

Do not use a tack cloth that contains solvents.

Never apply over conventional stains or sealers that are not fully cured as unwanted reactions may occur. Full curing may take 2-6 weeks.

Polyureseal BP is made strictly for indoor use.

Polyureseal BP can be applied over the following surfaces:

Wooden floors both soft and hardwood species.

Polyureseal BP should not be applied over the following surfaces:

Concrete countertops, Formica type countertops, ceramic or porcelain tile, ABS or PVC plastics, glass, fiberglass, vinyl laminate flooring.

Do not use if this product has been frozen in the container. Normal shelf life is three years but proper sealing and storage can sometimes result in longer times.

Do not use it if it looks strange or smells like spoiled food. Trust your nose.

Optimum environmental conditions:

Temperatures 55-80 degrees F

Humidity 35-65%

Good ventilation

For best adhesion:

Apply 3-4 thin coats over wood surfaces instead of thick coats to build the finish. Fewer coats may be used over non-porous surfaces. Be patient and allow to dry in between coats. It is recommended to do a light sanding between coats to improve inter-coat adhesion.

High humidity above 65% can slow dry times by a factor of 2 times. Cooler temperatures can also slow dry time.

For best appearance:

For the best surface clarity, multiple coats of gloss is best. Multiple coats of matte or satin will result in a slightly cloudy appearance (3-4%)

However, for a matte finish with clarity, use gloss coats as the “primer” coats with the final coat being the matte or satin. Use good quality synthetic brush, paint pad etc.

To reduce hazardous emissions and VOCs.

Polyureseal BP in a three coat application can be used to block some VOC emissions of some but not all products.

Polyureseal BP will not block emissions from organic odors such as pet urine, smoke, air fresheners or fabric softeners.

Testing is absolutely required. Be sure to allow adequate dry time in between coats.

Good ventilation will help accelerate dry times and reduce emissions.

If you are chemically sensitive, always test for personal tolerance.

Sample orders can be made through your AFM retailer.

LIMITED LIABILITY: Liability, whether express or implied, is limited solely to replacement of product shown to be defective when applied in accordance with instructions and shall under no circumstances include liability for labor costs or consequential damages. It is the user's responsibility to determine the suitability and safety of the product for its intended use. This limited warranty may not be modified or extended by manufacturer's representatives, distributors, or dealers of AFM products. We particularly recommend that users always test in small inconspicuous areas before application to the entire surface. **American Formulating and Manufacturing** 3251 Third Ave., San Diego, CA 92103 www.afmsafecoat.com.

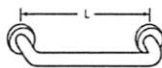
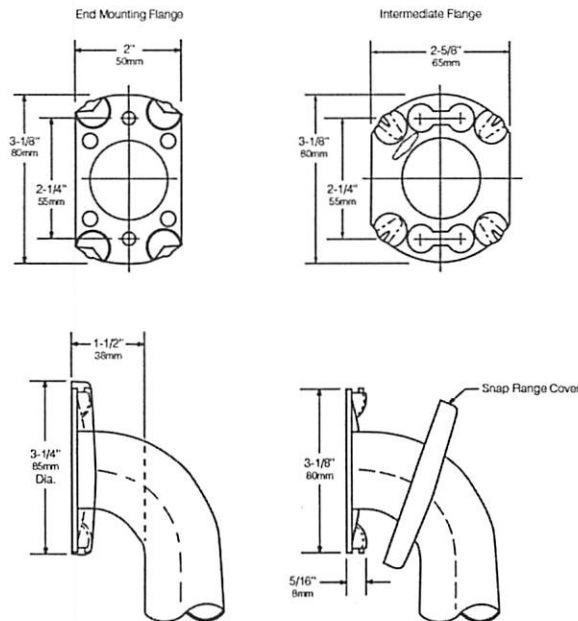
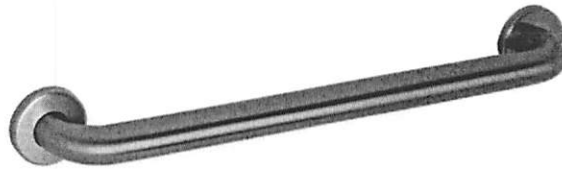
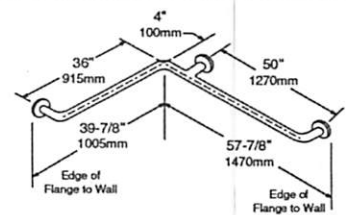
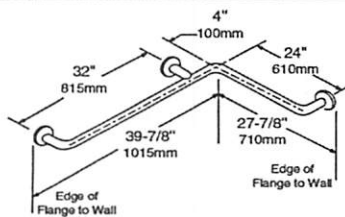
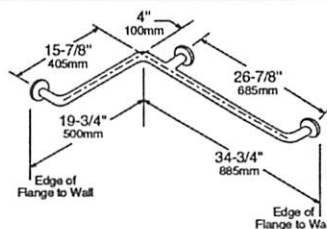
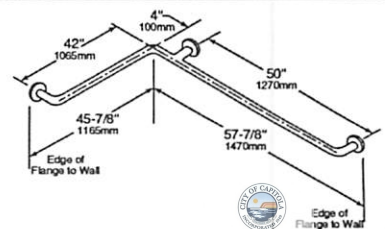


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BOBRICK**Technical Data****1½" (38mm) DIAMETER
STAINLESS STEEL GRAB
BARS WITH SNAP FLANGE****B-6806
SERIES**

Specify Finish Required:

- Satin-finish, slip-resistant surface
 Peened surface; add suffix .99 to model number

**HORIZONTAL****VERTICAL****TWO-WALL WHEELCHAIR
COMPARTMENT****B-6806 x 12, 18, 24, 30, 36, 42, 48****B-68137****HORIZONTAL TUB / SHOWER
COMPARTMENT BAR 24 x 36****B-68616****HORIZONTAL TWO-WALL BAR
for Shower Stall****B-6861****TWO-WALL APPROVED
TOILET COMPARTMENT BAR 42 x 54****B-6855**Approved for
ADA Compliance

Signed _____

Date 10/10/2024

Permit # 20240109

continued ...

MATERIALS:

Grab Bar — 18-8 S, type-304, 18-gauge (1.2mm) stainless steel tubing with satin-finish, slip-resistant surface. 1-1/2" (38mm) outside diameter. Ends are heliarc welded to flanges. Clearance between the grab bar and wall is 1-1/2" (38mm).

Concealed Mounting Flanges — 18-8 S, type-304, 11-gauge (3.2mm) thick, stainless steel plate; end flanges 2" x 3-1/8" (50 x 80mm) with holes for attachment to wall. Intermediate flanges 2-5/8" x 3-1/8" (65 x 80mm) wide x 3-1/8" (80mm) diameter.

Snap Flange Covers — 18-8 S, type-304, 22-gauge (0.8mm) drawn stainless steel with satin-finish. 3-1/4" (85mm) diameter x 1/2" (13mm) deep. Each cover snaps over mounting flange to conceal mounting screws.

STRENGTH:

Bobrick grab bars that provide 1-1/2" (38mm) clearance from wall can support loads in excess of 900 pounds (408kg) if properly installed. Other grab bar configurations can support loads in excess of 250 pounds (113kg) if properly installed, complying with accessible design (including ADAAG in the U.S.A.) for structural strength

Safety Warning: Grab bars are no stronger than the anchors and walls to which they are attached and, therefore, must be firmly secured in order to support the loads for which they are intended. To avoid potential injury, the building owner or maintenance personnel should remove the grab bar from service if the grab bar is not adequately secured to wall or if there is any observed damage to the welds.

INSTALLATION:

Provide concealed anchor device or backing as specified or required in accordance with local building codes before wall is finished. Fasten concealed mounting flanges to anchor device or backing with at least two screws opposing each other in each flange. Snap flange covers over each mounting flange to conceal mounting screws. Concealed anchor devices and mounting screws are not included with Bobrick grab bars and must be specified as an accessory.

For Grab Bars with an Intermediate Flange(s), Pull Snap-Flange Covers away from mounting flanges. Place grab bar in desired mounting location. Use intermediate flange as a template to mark location of mounting screws at intermediate flange only. Mark screw locations at the center of the slot in the middle of the double-keyhole shaped mounting holes (2) in the intermediate flange. Remove grab bar from wall. Drive the intermediate flange mounting screws into wall at marked locations. Note: Make sure to leave a space of just over 1/8" (3.17mm) between the underside of the screw head and the wall. Install grab bar on the wall by placing the round ends of the intermediate flange double-keyhole shaped mounting holes over the mounting screws (2) are located in the middle of the flange slots. Install the mounting screws into the wall at the end flanges and secure tightly. Tighten the mounting screws at the intermediate flange. Press all snap-flange covers into place to conceal mounting flanges.

Note: Recommend use of 1/4" or #14 sheet metal or wood screws to install Intermediate Flange. #12 screws may also be used.

Important Notes:

1. **Mounting Kits** — Bobrick offers a mounting kit for installing grab bars; one Bobrick mounting kit is required for each flange.

Mounting Kit No.	Description
252-30	Consists of # (3) 14 x 2½" type-304 stainless steel, Phillips round-head, sheet-metal screws.

2. **Grab Bar Fastener** — Bobrick offers a grab bar fastening system that secures all Bobrick grab bar series; one Bobrick fastener is required for each flange. Install grab bar without backing in wall requires minimum 5/8" (16mm) thick painted or tiled drywall.

WingIt™ Fastener No.	Description
251-4	Consists of 10–32 x 5/16" round-head, Phillips 18/8 stainless steel screws. (1) WingIt grab bar fastener.

3. **Optional Anchor Device** — Bobrick grab bar anchor device includes stainless steel machine screws to be used for attaching grab bars to anchors. one Bobrick concealed anchor device is required for each flange.

Optional Anchor No.	Description
2583	Anchor for 3/4" to 1" (19-25mm) panel 1 anchor required for each flange.
2586	Anchor for 1/2" to 1" (13mm) panel 1 anchor required for each flange.

SPECIFICATION:

Grab bar shall be type-304 stainless steel with satin-finish, slip-resistant surface. Grab bar shall have 18-gauge (1.2mm) wall thickness and 1-1/2" (38mm) outside diameter. Clearance between the grab bar and wall shall be 1-1/2" (38mm). Concealed mounting flanges shall be 11-gauge (3.2mm) thick stainless steel plate, 2" x 3-1/8" (50 x 80mm), and equipped with at least two screw holes for attachment to wall. Flange covers shall be 22 gauge (0.8mm), 3-1/4" (85mm) diameter x 1/2" (13mm) deep, and shall snap over mounting flange to conceal mounting screws and/or WingIt fasteners. Ends of grab bar shall pass through concealed mounting flanges and be heliarc welded to form one structural unit. Grab bar shall comply with accessible design (including ADAAG in the U.S.A.) for structural strength.

Grab Bar shall be Model _____ (insert model number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



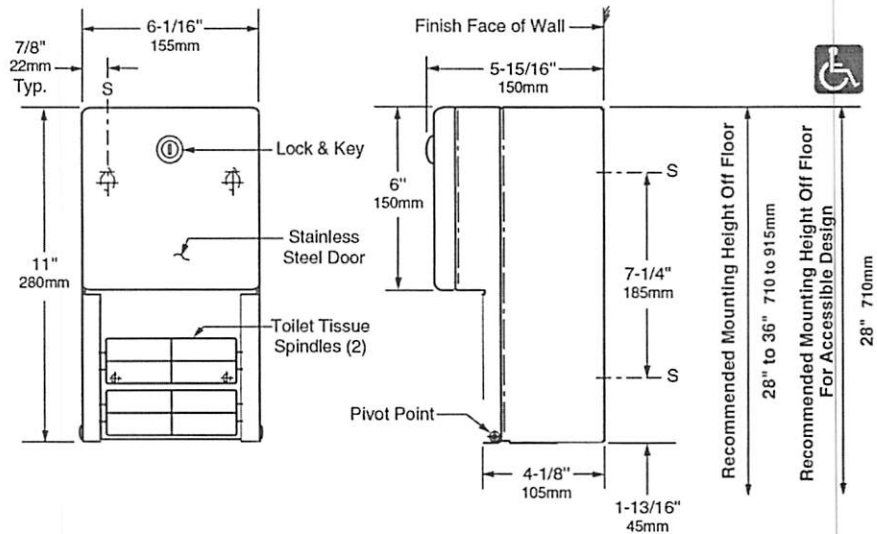
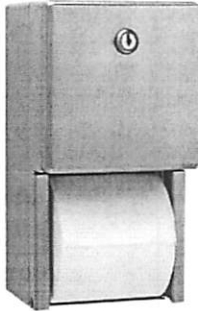
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Reviewed for
Code Compliance

Signed _____

Date 10/10/2024

Permit # 20240100

BOBRICK**Technical Data****SURFACE-MOUNTED
MULTI-ROLL TOILET
TISSUE DISPENSER****B-2888****MATERIALS:**

Cabinet — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish.

Door — 18-8, type-304, 22-gauge (0.8mm) stainless steel with 18-gauge (1.2mm) stainless steel door frame. Exposed surfaces have satin finish. Front of door is drawn, one-piece, seamless construction. Secured to cabinet with two rivets. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.

Dispensing Mechanism, Inner Housing and Cam — 18-8, type-304, 18-gauge (1.2mm) stainless steel.

Spindles (2) — Heavy-duty, one-piece, molded ABS. Theft-resistant. Retained in dispensing mechanism when door is locked.

OPERATION:

Unit holds two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Tissue rolls are loaded and locked into dispensing mechanism. Extra roll automatically drops in place when bottom roll is depleted. Depleted rolls can only be removed after unlocking door.

INSTALLATION:

For partitions with particleboard or other solid core, secure with four #10 x 5/8" (4.8 x 16mm) sheet-metal screws (not furnished) at points indicated by an S, or provide through-bolts, nuts, and washers.

For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.

For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws or provide 3/16" (5mm) toggle bolts or expansion bolts.

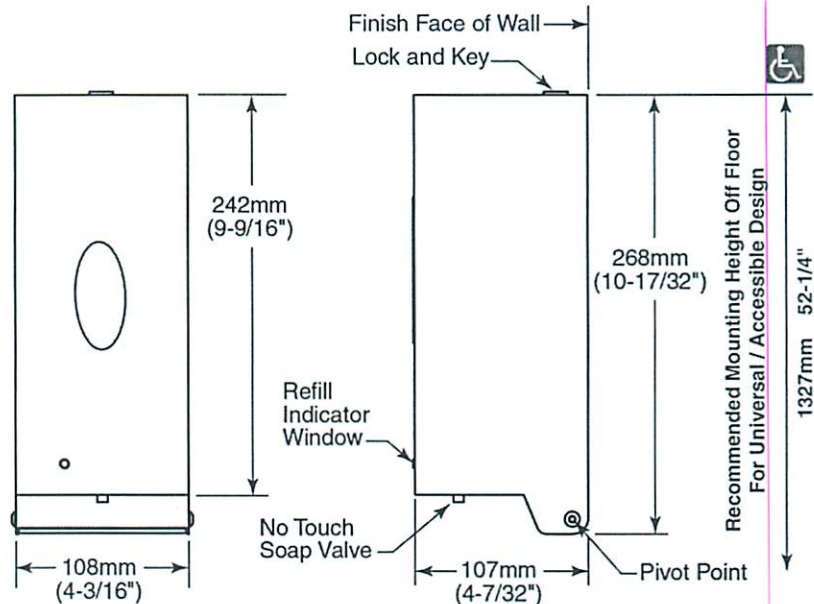
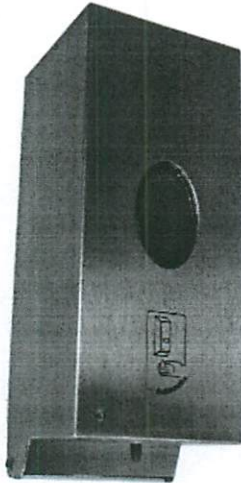
SPECIFICATION:

Surface-mounted multi-roll toilet tissue dispenser shall be type-304 stainless steel with all-welded construction, including dispensing mechanism, inner housing and cam; exposed surfaces shall have satin finish. Front of toilet tissue dispenser door shall be drawn, one-piece, seamless construction. Door shall be secured to cabinet with two rivets and equipped with a tumbler lock keyed like other Bobrick washroom accessories. Unit shall dispense two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Extra roll shall automatically drop in place when bottom roll is depleted. Unit shall be equipped with two theft-resistant, heavy-duty, one-piece, molded ABS spindles.

Surface-Mounted Multi-Roll Toilet Tissue Dispenser shall be Model B-2888 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



Permit # 2010100

BOBRICK**Technical Data****AUTOMATIC
WALL-MOUNTED
SOAP DISPENSER****B-2012****MATERIALS:**

Housing — Welded 18-8, Type-304, 18-gauge (1.0 mm) stainless steel with satin-finish. Plastic back plate incorporates mounting screw holes and mounting tape. Equipped with concealed mounting, clear acrylic refill-indicator window and key lock. Refillable, plastic container. Capacity: 850 ml (30-fl oz).

Valve — No-touch, sensor-activated valve suitable for liquid soap, alcohol gel, liquid alcohol, hand sanitizers and iodine.

Spare Part — Replace 2012-18-S silicone tube pump every three to six months, depending on usage, if using the dispenser with alcohol-based solutions.

OPERATION:

To fill the dispenser, remove the lid and fill with liquid hand soap. Dispenses liquid hand soaps of viscosities ranging from 1-3,000 cps. After filling soap container, DO NOT TIGHTEN lid. Air flow is necessary inside the container for dispensing. To activate the dispenser, place hand under spout for approximately one second. Sensing range comes at factory setting of 60mm (2-1/2"). The sensing range set by the factory is recommended for optimal performance. Window indicates when refill is required. The locked, hinged housing opens for re-filling only with special key provided. Requires three (3) Alkaline "C" Cell Batteries, 1.5V (not included). Blue indicator light signals "IN USE". Flashing blue light signals "LOW BATTERY." CE Certified.

INSTALLATION:

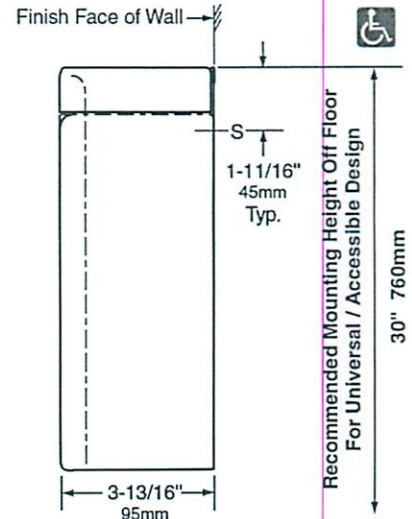
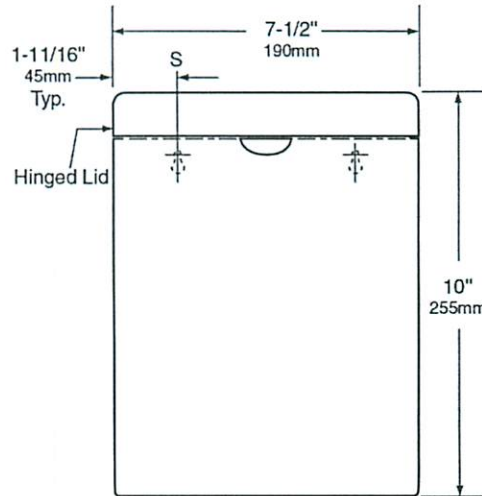
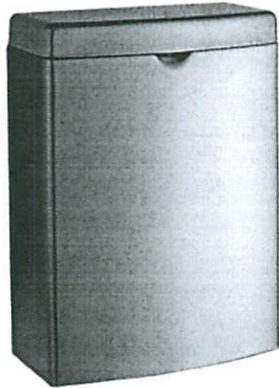
Install dispenser at least 200 mm (8") from any projection or horizontal surface which may interfere with the operation of the automatic sensor. Mount the dispenser to the wall by using the enclosed screws and wall plugs. The prepared mounting tape may also be used.

Make sure the wall surface is cleaned and in good condition to ensure proper mating of the dispenser to the wall. Install three (3) Alkaline "C" Cell Batteries, 1.5V and replace battery cover. After filling soap container, DO NOT TIGHTEN lid. Air flow is necessary inside the container for dispensing. Remove and discard plastic cap from nozzle tip. Plastic dispensing tube may require massaging to prime the unit. Housing must be closed for dispenser to function.

SPECIFICATION:

Automatic wall-mounted soap dispenser shall be Type-304 stainless steel with satin-finish. Corrosion-resistant valve shall dispense a variety of liquid soaps, iodine based soaps, and alcohol based liquid or gel hand sanitizers. Valve shall be sensor-activated and not require contact with the dispenser to function. Lockable housing shall be equipped with a clear acrylic refill-indicator window and be hinged for refilling and maintenance. Container shall have a capacity of 850 ml (30-fl oz). Unit shall have CE Certification.

Surface-Mounted Sensor-Operated Soap Dispenser shall be Model B-2012 of Bobrick Washroom Equipment, Inc., 10000 Clinton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

BOBRICK**Technical Data****ConturaSeries®
SURFACE-MOUNTED
SANITARY NAPKIN DISPOSAL****B-270****MATERIALS:**

Container — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish. Integral finger depression for opening cover. Front of container has same degree of arc as front of cover and other Bobrick ConturaSeries washroom accessories. Radius on side edges of container match corners and edges of cover and other ConturaSeries accessories.

Cover — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. Drawn, one-piece, seamless construction. Front of cover has same degree of arc as front of container and other Bobrick Contura Series washroom accessories. Radius on corners and edges of cover match side edges of container and other Contura Series accessories. Secured to container with a full-length stainless steel piano-hinge.

OPERATION:

Cover flips up for disposal of sanitary napkins and for servicing container.

INSTALLATION:

For partitions with particle-board or other solid core, secure with two #8 x 3/4" (4.2 x 19mm) sheet-metal screws (not furnished) at all points indicated by an S, or provide through-bolts, nuts, and washers.

For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

For masonry walls, provide fiber plugs or expansion shields for use with sheet-metal screws, or provide 3/16" (5mm) toggle bolts or expansion bolts.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.

SPECIFICATION:

Surface-mounted sanitary napkin disposal shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Front of sanitary napkin disposal shall have same degree of arc and match other Bobrick ConturaSeries accessories in the washroom. Radius on corners and edges of sanitary napkin disposal shall complement other Bobrick ConturaSeries washroom accessories. Cover shall be drawn, one-piece, seamless construction and secured to container with a full-length stainless steel piano-hinge. Container shall have integral finger depression for opening cover.

Surface-Mounted Sanitary Napkin Disposal shall be Model B-270 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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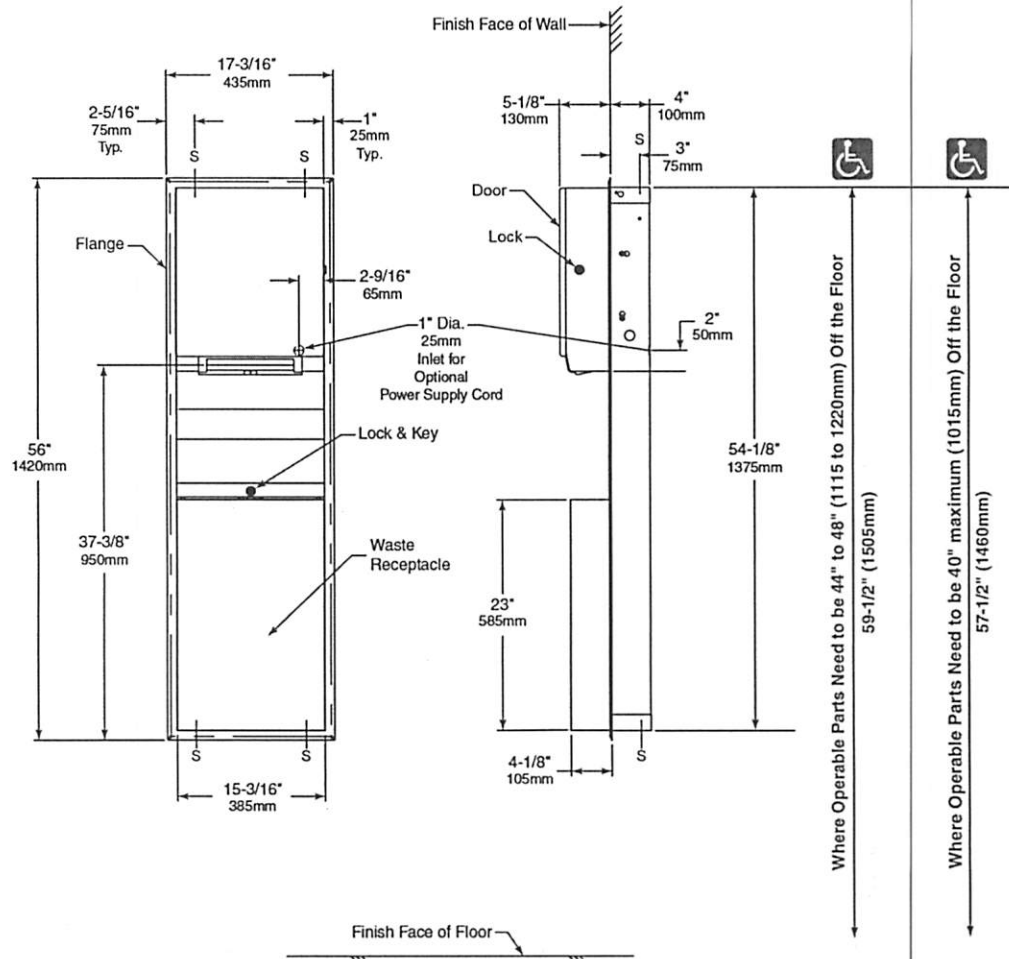
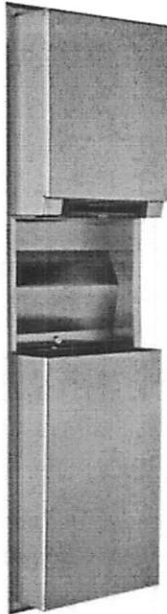
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**ClassicSeries®
RECESSED CONVERTIBLE
AUTOMATIC UNIVERSAL ROLL
PAPER TOWEL DISPENSER
AND WASTE RECEPTACLE**

B-3974



Rough Wall Opening
16" (405mm) wide
54-3/4" (1390mm) high
4" (102mm) minimum
recessed depth

MATERIALS:

Cabinet — 18-8, Type-304, heavy-gauge stainless steel. Welded construction. Exposed surfaces have satin-finish. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.

Flange — 18-8, Type-304, 22-gauge (0.8mm) stainless steel with satin-finish. Drawn and beveled, one-piece, seamless construction.

Door — 18-8, Type-304, 20-gauge (0.9mm) stainless steel with satin-finish. Drawn, one-piece, seamless construction. Secured to cabinet with full-length, stainless steel piano-hinge. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.

Automatic Roll Towel Dispenser — Durable, high-impact resin materials. Accepts universal standard-core, non-perforated rolls up to 8" (205mm) wide, 8" (205mm) diameter. 800 ft (244 m) long. Dispenses one towel per dispense and can be set to dispense paper towels at three different lengths. Accommodates up to 3-1/2" (90mm) diameter stub roll with automatic transfer to full roll.

Waste Receptacle — 18-8, Type-304, 22-gauge (0.8mm) stainless steel with satin finish. Edges hemmed for safe handling. Secured to cabinet with a tumbler lock keyed like other Bobrick washroom accessories. Capacity: 12-gal. (45.5-L).

Reviewed for Code Compliance
 Signed _____
 Date _____
 Permit # _____
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OPERATION:

Electronic sensor automatically dispenses towel when hands are placed under the towel opening. Intuitive LED light directs patrons to dispense area. Dispenses universal, 1-1/2" to 2" (38 to 51mm) diameter core, up to 8" (205mm) diameter, 8" (205mm) wide non-perforated, non-proprietary rolls. LED light at the towel opening flashes green when dispenser is ready to dispense, flashes orange, indicating low battery, flashes red if not ready to dispense or in need of service. Towel length can be set to 9" (230mm), 12" (305mm), 15" (380mm). Optional "Paper Saver" feature allows a shorter second sheet to dispense immediately after the first sheet. The "Paper Saver" feature has two second sheet length options: 25% shorter sheet length or 12.5% shorter sheet length. The battery pack power source holds 4 "D" size alkaline batteries (not furnished). Dispenser includes a 3-1/2" (90mm) diameter stub roll feature. When the stub roll is depleted, main roll automatically starts dispensing without the need to open the dispenser.

To empty waste receptacle, unlock with key provided.

NOTE: LinerMate™ sold as an optional accessory to accommodate disposable trash liners. LinerMate eliminates unsightly trash liner overhang and facilitates installation and removal of disposable trash liners in the 12-gallon (45.5 L) waste receptacle.

Options:

- Folded Towel Dispenser Module convertible in field: order Bobrick Part No. 3944-52.
- Mechanical (Non-Automatic) Universal Touch-Free Roll Towel Dispenser Module convertible in field: order Bobrick Part No. 3961-50.
- 18-gallon (68 L) Waste Receptacle: order Bobrick Part No. 368-60.
- LinerMate for 12-gal (45.5 L) waste only: order Bobrick Part No. 3944-134.

POWER REQUIREMENTS:

Dispenser is powered by 4 "D" size alkaline batteries (not furnished) or an external 6-volt AC to DC switching power supply. Power supply is an optional accessory: order Bobrick AC Adapter Kit Part No. 3974-57. (For non-U.S. compatible plugs, order Part No. 3974-58).

INSTALLATION:

Provide framed rough wall opening 16" wide x 54-3/4" high (405 x 1390mm). Minimum recessed depth required to finish face of wall is 4" (102mm). Allow clearance for construction features that may protrude into rough wall opening from opposite wall. Coordinate with mechanical engineer to avoid pipes, vents, and conduits. If unit projects above top of wainscot, provide channel or other filler to eliminate gap between flange and finish face of wall. Mount unit in wall opening with shims between framing and cabinet at all points indicated by an S, then secure unit with #8 x 1-1/4" (4.2 x 32mm) sheet-metal screws (not furnished).

Open battery cover at the front of the dispenser and install 4 "D" size alkaline batteries. Select sheet length and "Paper Saver" mode using the switches to the right of the batteries. Load paper towel using the instructions on the dispenser.

Electrical supply for use with 6-volt AC to DC power supply must be installed per applicable building codes.

SPECIFICATION:

Recessed convertible automatic universal roll paper towel dispenser and waste receptacle shall be Type-304 stainless steel with welded construction; exposed surfaces shall have satin-finish. Flange shall be drawn and beveled, one-piece, seamless construction. Door shall be secured to cabinet with a full-length stainless steel piano-hinge and equipped with a concealed tumbler lock keyed like other Bobrick washroom accessories. No-touch dispenser, equipped with an intuitive LED light to direct patrons to the dispense area, dispenses universal, 1-1/2" to 2" (38 to 51mm) diameter core, up to 8" (205mm) diameter, 8" (205mm) wide, non-perforated, non-proprietary paper towel rolls. 800 ft (244 m) long. Dispenser automatically dispenses towel when hands are placed under the towel opening. Dispenser can be powered by 4 "D" size alkaline batteries or an optional 6-volt AC to DC power supply. Equipped with switches that allow paper length to be set at 9" (230mm), 12" (305mm) or 15" (380mm) and "Paper Saver" feature that provides a shorter second sheet with options of 25% shorter and 12.5% shorter. LED light at the towel opening flashes green when dispenser is ready to dispense, flashes orange, indicating low battery, flashes red if not ready to dispense or in need of service. Automatic transfer shall dispense stub roll up to 3-1/2" (90mm) diameter before new main roll is automatically dispensed. Removable waste receptacle shall be secured to cabinet with a tumbler lock, edges hemmed for safe handling, and shall have a minimum capacity of 12-gal. (45.5-L).

Recessed Convertible Automatic Universal Roll Paper Towel Dispenser And Waste Receptacle shall be Model B-3974 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Limited, United Kingdom.



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Signed _____

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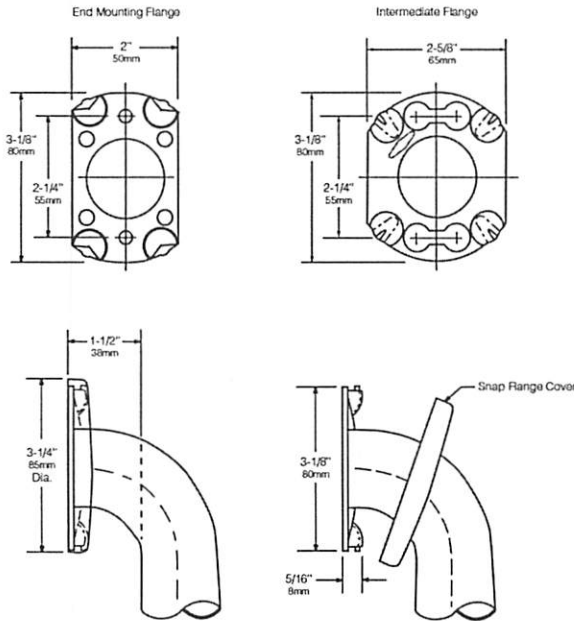
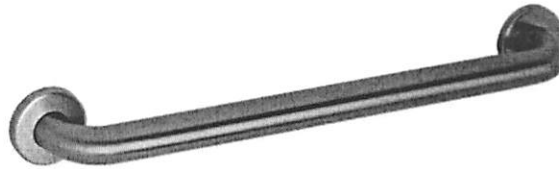
Technical Data

**1½" (38mm) DIAMETER
STAINLESS STEEL GRAB
BARS WITH SNAP FLANGE**

**B-6806
SERIES**

Specify Finish Required:

- Satin-finish, slip-resistant surface
- Peened surface; add suffix .99 to model number



<p>HORIZONTAL</p>	<p>VERTICAL</p>	<p>TWO-WALL WHEELCHAIR COMPARTMENT</p>
<p>B-6806 x 12, 18, 24, 30, 36, 42, 48</p>		<p>B-68137</p>
<p>HORIZONTAL TUB / SHOWER COMPARTMENT BAR 24 x 36</p>	<p>HORIZONTAL TWO-WALL BAR for Shower Stall</p>	<p>TWO-WALL TOILET COMPARTMENT BAR 42 x 54</p>
<p>B-68616</p>	<p>B-6861</p>	<p>B-68137</p>
<p>Approved for Compliance Signed: _____ Date: 10/10/2024 Permit #: 20240109</p>		

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet. The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

continued ...

MATERIALS:

Grab Bar — 18-8 S, type-304, 18-gauge (1.2mm) stainless steel tubing with satin-finish, slip-resistant surface. 1-1/2" (38mm) outside diameter. Ends are heliarc welded to flanges. Clearance between the grab bar and wall is 1-1/2" (38mm).

Concealed Mounting Flanges — 18-8 S, type-304, 11-gauge (3.2mm) thick, stainless steel plate; end flanges 2" x 3-1/8" (50 x 80mm) with holes for attachment to wall. Intermediate flanges 2-5/8" x 3-1/8" (65 x 80mm) wide x 3-1/8" (80mm) diameter.

Snap Flange Covers — 18-8 S, type-304, 22-gauge (0.8mm) drawn stainless steel with satin-finish. 3-1/4" (85mm) diameter x 1/2" (13mm) deep. Each cover snaps over mounting flange to conceal mounting screws.

STRENGTH:

Bobrick grab bars that provide 1-1/2" (38mm) clearance from wall can support loads in excess of 900 pounds (408kg) if properly installed. Other grab bar configurations can support loads in excess of 250 pounds (113kg) if properly installed, complying with accessible design (including ADAAG in the U.S.A.) for structural strength

Safety Warning: Grab bars are no stronger than the anchors and walls to which they are attached and, therefore, must be firmly secured in order to support the loads for which they are intended. To avoid potential injury, the building owner or maintenance personnel should remove the grab bar from service if the grab bar is not adequately secured to wall or if there is any observed damage to the welds.

INSTALLATION:

Provide concealed anchor device or backing as specified or required in accordance with local building codes before wall is finished. Fasten concealed mounting flanges to anchor device or backing with at least two screws opposing each other in each flange. Snap flange covers over each mounting flange to conceal mounting screws. Concealed anchor devices and mounting screws are not included with Bobrick grab bars and must be specified as an accessory.

For Grab Bars with an Intermediate Flange(s), Pull Snap-Flange Covers away from mounting flanges. Place grab bar in desired mounting location. Use intermediate flange as a template to mark location of mounting screws at intermediate flange only. Mark screw locations at the center of the slot in the middle of the double-keyhole shaped mounting holes (2) in the intermediate flange. Remove grab bar from wall. Drive the intermediate flange mounting screws into wall at marked locations. **Note:** Make sure to leave a space of just over 1/8" (3.17mm) between the underside of the screw head and the wall. Install grab bar on the wall by placing the round ends of the intermediate flange double-keyhole shaped mounting holes over the mounting screws (2) are located in the middle of the flange slots. Install the mounting screws into the wall at the end flanges and secure tightly. Tighten the mounting screws at the intermediate flange. Press all snap-flange covers into place to conceal mounting flanges.

Note: Recommend use of 1/4" or #14 sheet metal or wood screws to install Intermediate Flange. #12 screws may also be used.

Important Notes:

- Mounting Kits** — Bobrick offers a mounting kit for installing grab bars; **one Bobrick mounting kit is required for each flange.**

Mounting Kit No.	Description
252-30	Consists of # (3) 14 x 2½" type-304 stainless steel, Phillips round-head, sheet-metal screws.

- Grab Bar Fastener** — Bobrick offers a grab bar fastening system that secures all Bobrick grab bar series; **one Bobrick fastener is required for each flange.** Install grab bar without backing in wall requires minimum 5/8" (16mm) thick painted or tiled drywall.

WingIt™ Fastener No.	Description
251-4	Consists of 10–32 x 5/16" round-head, Phillips 18/8 stainless steel screws. (1) WingIt grab bar fastener.

- Optional Anchor Device** — Bobrick grab bar anchor device includes stainless steel machine screws to be used for attaching grab bars to anchors. **one Bobrick concealed anchor device is required for each flange.**

Optional Anchor No.	Description
2583	Anchor for 3/4" to 1" (19-25mm) panel 1 anchor required for each flange.
2586	Anchor for 1/2" to 1" (13mm) panel 1 anchor required for each flange.

SPECIFICATION:

Grab bar shall be type-304 stainless steel with satin-finish, slip-resistant surface. Grab bar shall have 18-gauge (1.2mm) wall thickness and 1-1/2" (38mm) outside diameter. Clearance between the grab bar and wall shall be 1-1/2" (38mm). Concealed mounting flanges shall be 11-gauge (3.2mm) thick stainless steel plate, 2" x 3-1/8" (50 x 80mm), and equipped with at least two screw holes for attachment to wall. Flange covers shall be 22 gauge (0.8mm), 3-1/4" (85mm) diameter x 1/2" (13mm) deep, and shall snap over mounting flange to conceal mounting screws and/or WingIt fasteners. Ends of grab bar shall pass through concealed mounting flanges and be heliarc welded to form one structural unit. Grab bar shall comply with accessible design (including ADAAG in the U.S.A.) for structural strength.

Grab Bar shall be Model _____ (insert model number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



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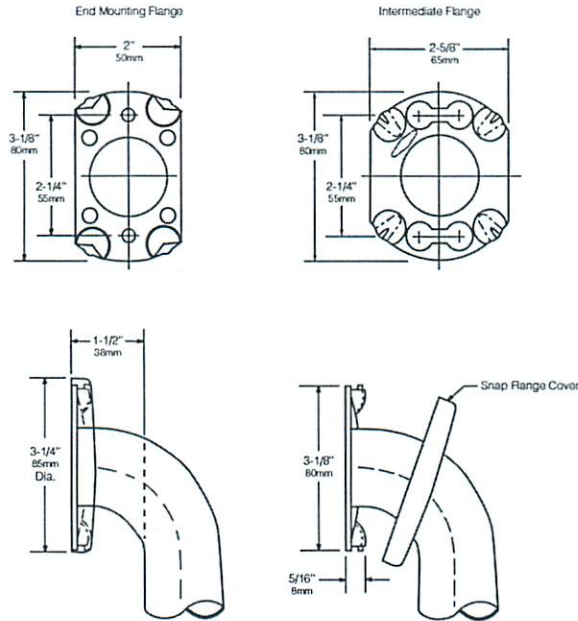
Technical Data

**1½" (38mm) DIAMETER
STAINLESS STEEL GRAB
BARS WITH SNAP FLANGE**

**B-6806
SERIES**

Specify Finish Required:

- Satin-finish, slip-resistant surface
- Peened surface; add suffix .99 to model number



<p>HORIZONTAL</p>	<p>VERTICAL</p>	<p>TWO-WALL WHEELCHAIR COMPARTMENT</p>
<p>B-6806 x 12, 18, 24, 30, 36, 42, 48</p>		<p>B-68137</p>
<p>HORIZONTAL TUB / SHOWER COMPARTMENT BAR 24 x 36</p>	<p>HORIZONTAL TWO-WALL BAR for Shower Stall</p>	<p>TWO-WALL TOILET COMPARTMENT BAR 42 x 54</p>
<p>B-68616</p>	<p>B-6861</p>	<p>B-68617</p>

The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet. The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

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continued ...

MATERIALS:

Grab Bar — 18-8 S, type-304, 18-gauge (1.2mm) stainless steel tubing with satin-finish, slip-resistant surface. 1-1/2" (38mm) outside diameter. Ends are heliarc welded to flanges. Clearance between the grab bar and wall is 1-1/2" (38mm).

Concealed Mounting Flanges — 18-8 S, type-304, 11-gauge (3.2mm) thick, stainless steel plate; end flanges 2" x 3-1/8" (50 x 80mm) with holes for attachment to wall. Intermediate flanges 2-5/8" x 3-1/8" (65 x 80mm) wide x 3-1/8" (80mm) diameter.

Snap Flange Covers — 18-8 S, type-304, 22-gauge (0.8mm) drawn stainless steel with satin-finish. 3-1/4" (85mm) diameter x 1/2" (13mm) deep. Each cover snaps over mounting flange to conceal mounting screws.

STRENGTH:

Bobrick grab bars that provide 1-1/2" (38mm) clearance from wall can support loads in excess of 900 pounds (408kg) if properly installed. Other grab bar configurations can support loads in excess of 250 pounds (113kg) if properly installed, complying with accessible design (including ADAAG in the U.S.A.) for structural strength

Safety Warning: Grab bars are no stronger than the anchors and walls to which they are attached and, therefore, must be firmly secured in order to support the loads for which they are intended. To avoid potential injury, the building owner or maintenance personnel should remove the grab bar from service if the grab bar is not adequately secured to wall or if there is any observed damage to the welds.

INSTALLATION:

Provide concealed anchor device or backing as specified or required in accordance with local building codes before wall is finished. Fasten concealed mounting flanges to anchor device or backing with at least two screws opposing each other in each flange. Snap flange covers over each mounting flange to conceal mounting screws. Concealed anchor devices and mounting screws are not included with Bobrick grab bars and must be specified as an accessory.

For Grab Bars with an Intermediate Flange(s), Pull Snap-Flange Covers away from mounting flanges. Place grab bar in desired mounting location. Use intermediate flange as a template to mark location of mounting screws at intermediate flange only. Mark screw locations at the center of the slot in the middle of the double-keyhole shaped mounting holes (2) in the intermediate flange. Remove grab bar from wall. Drive the intermediate flange mounting screws into wall at marked locations. Note: Make sure to leave a space of just over 1/8" (3.17mm) between the underside of the screw head and the wall. Install grab bar on the wall by placing the round ends of the intermediate flange double-keyhole shaped mounting holes over the mounting screws (2) are located in the middle of the flange slots. Install the mounting screws into the wall at the end flanges and secure tightly. Tighten the mounting screws at the intermediate flange. Press all snap-flange covers into place to conceal mounting flanges.

Note: Recommend use of 1/4" or #14 sheet metal or wood screws to install Intermediate Flange. #12 screws may also be used.

Important Notes:

1. **Mounting Kits** — Bobrick offers a mounting kit for installing grab bars; one Bobrick mounting kit is required for each flange.

Mounting Kit No.	Description
252-30	Consists of # (3) 14 x 2 1/2" type-304 stainless steel, Phillips round-head, sheet-metal screws.

2. **Grab Bar Fastener** — Bobrick offers a grab bar fastening system that secures all Bobrick grab bar series; one Bobrick fastener is required for each flange. Install grab bar without backing in wall requires minimum 5/8" (16mm) thick painted or tiled drywall.

WingIt™ Fastener No.	Description
251-4	Consists of 10-32 x 5/16" round-head, Phillips 18/8 stainless steel screws. (1) WingIt grab bar fastener.

3. **Optional Anchor Device** — Bobrick grab bar anchor device includes stainless steel machine screws to be used for attaching grab bars to anchors. one Bobrick concealed anchor device is required for each flange.

Optional Anchor No.	Description
2583	Anchor for 3/4" to 1" (19-25mm) panel 1 anchor required for each flange.
2586	Anchor for 1/2" to 1" (13mm) panel 1 anchor required for each flange.

SPECIFICATION:

Grab bar shall be type-304 stainless steel with satin-finish, slip-resistant surface. Grab bar shall have 18-gauge (1.2mm) wall thickness and 1-1/2" (38mm) outside diameter. Clearance between the grab bar and wall shall be 1-1/2" (38mm). Concealed mounting flanges shall be 11-gauge (3.2mm) thick stainless steel plate, 2" x 3-1/8" (50 x 80mm), and equipped with at least two screw holes for attachment to wall. Flange covers shall be 22 gauge (0.8mm), 3-1/4" (85mm) diameter x 1/2" (13mm) deep, and shall snap over mounting flange to conceal mounting screws and/or WingIt fasteners. Ends of grab bar shall pass through concealed mounting flanges and be heliarc welded to form one structural unit. Grab bar shall comply with accessible design (including ADAAG in the U.S.A.) for structural strength.

Grab Bar shall be Model _____ (insert model number) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

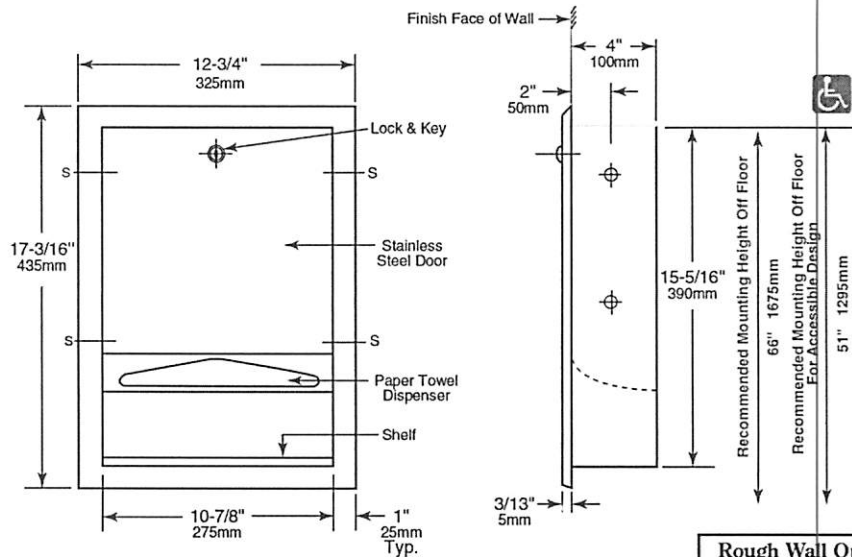
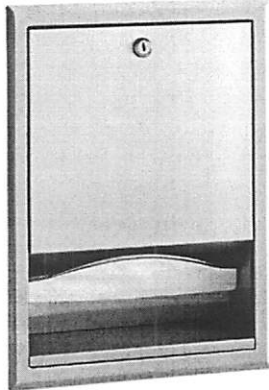


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BOBRICK**Technical Data**

RECESSED PAPER TOWEL DISPENSER

B-359



Rough Wall Opening 11-1/4" (285mm) wide 15-5/8" (395mm) high 4" (102mm) minimum recessed depth

MATERIALS:

Cabinet — 18-8, type-304, heavy-gauge stainless steel. All-welded construction. Exposed surfaces have satin finish.

Flange — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. Drawn, one-piece, seamless construction.

Door — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. Double-pan-back construction is warp-resistant. Secured to cabinet with a welded, full-length stainless steel piano-hinge. Equipped with a stainless steel cable door-swing limiter and tumbler lock keyed like other Bobrick washroom accessories.

Paper Towel Dispenser — 18-8, type-304, 22-gauge (0.8mm) stainless steel. Dispenses C-fold or multifold paper towels. Capacity: 350 C-fold or 475 multifold paper towels.

Shelf — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish.

Optional: Order Bobrick Part No. 369-130 TowelMate® Accessory Module has towel guide angle with 90 degree return to prevent paper towels from falling forward out when door is opened for servicing. TowelMate Accessory Support Rod allows dispenser to dispense paper towels one at a time without tabbing, tearing, bulging, sagging and bunching.

OPERATION:

Paper towel dispenser will dispense C-fold or multifold paper towels without adjustment or use of adapters.

INSTALLATION:

Provide framed rough wall opening 11-1/4" wide x 15-5/8" high (285 x 395mm). Minimum recessed depth required to finish face of wall is 4" (102mm). Allow clearance for construction features that may protrude into rough wall opening from opposite wall. Coordinate with mechanical engineer to avoid pipes, vents, and conduits in wall. Mount unit in wall opening with shims between framing and cabinet at all points indicated by an S, then secure unit with #8 x 1-1/4" (32mm) sheet-metal screws (not furnished by manufacturer).

SPECIFICATION:

Recessed paper towel dispenser shall be type-304 stainless steel with all-welded construction; exposed surfaces have satin finish. Flange shall be drawn, one-piece, seamless construction. Door shall be secured to cabinet with a welded, full-length, stainless steel piano-hinge and equipped with a stainless steel cable door-swing limiter and tumbler lock keyed like other Bobrick washroom accessories. Shelf shall be stainless steel with satin finish. Paper towel dispenser shall dispense 350 C-fold or 475 multifold paper towels without additional adapters or trays.

Recessed Paper Towel Dispenser shall be Model B-359 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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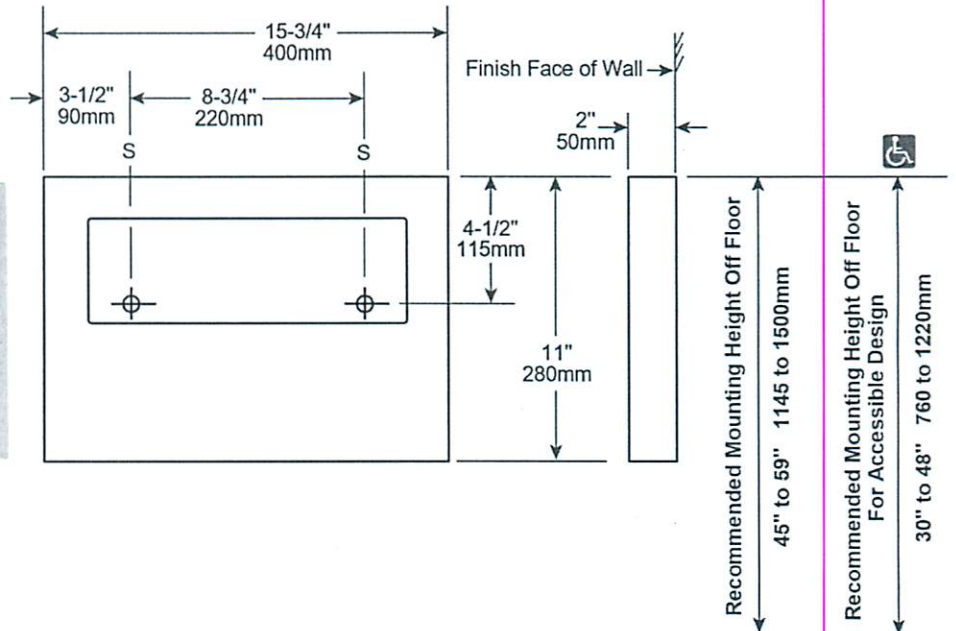
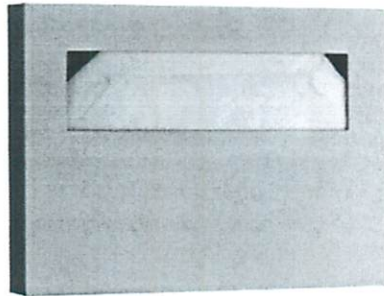


ClassicSeries® SURFACE-MOUNTED SEAT-COVER DISPENSER

B-221

Specify Finish Required

- Stainless Steel, Satin Finish
- Matte Black Finish, please use model no. B-221.MBLK



MATERIALS:

18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. All-welded construction with beveled opening.

OPERATION:

Dispenses single- or half-fold paper toilet seat covers from beveled opening. Dispenser fills from bottom through concealed opening. Capacity: 250 toilet seat covers or one box.

INSTALLATION:

Mount unit on wall or toilet partition with two flat-head screws, not furnished by manufacturer, at points indicated by an S. For plaster or dry wall construction, provide concealed backing that complies with local building codes, then secure unit with flat-head screws not furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with screws, not furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

Note: Provide a 5" (125mm) minimum clearance from bottom of dispenser to top of any horizontal projection to provide room for filling dispenser from bottom.

SPECIFICATION:

Surface-mounted toilet-seat-cover dispenser shall be type-304, 22-gauge (0.8mm) stainless steel with all-welded construction; exposed surfaces shall have satin finish. Dispenser shall have a concealed opening in bottom for filling. Capacity shall be 250 paper toilet seat covers or one box.

Surface-Mounted Seat-Cover Dispenser shall be Model B-221 of Bobrick Washroom Equipment, Inc., 300 Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

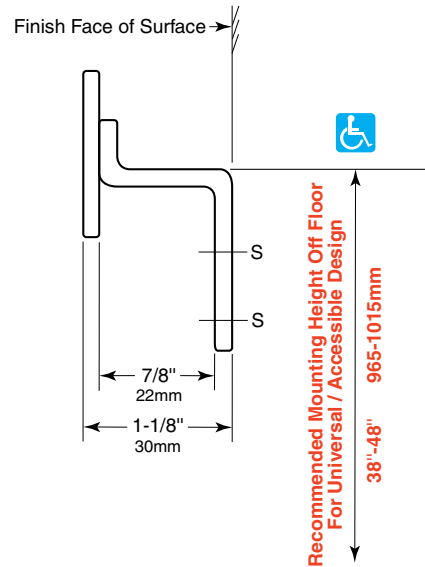
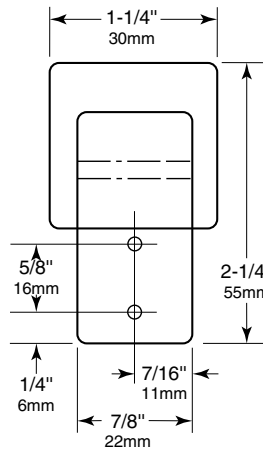
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Technical Data

STAINLESS STEEL CLOTHES HOOK

B-233



MATERIALS:

18-8, type-304, 11-gauge (3.2mm) stainless steel with satin finish. All-welded construction.

INSTALLATION:

Mount hook on wall using sheet-metal screws, furnished by manufacturer, at points indicated by an S. For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with screws furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with screws furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

SPECIFICATION:

Clothes hook shall be type-304, 11-gauge (3.2mm) stainless steel with satin finish and all-welded construction.

Stainless Steel Clothes Hook shall be Model B-233 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



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SUNTUNNEL



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Date 09/16/2024

Permit # 22241480



Products

Replacement

Technical Resources

Inspiration

Support



Home > Tubular > Commercial Sun Tunnel > Sun Tunnel Type

Type of Commercial Sun Tunnels

Self-Flashed TGC



TGC 014 0000 Impact Modified Acrylic Dome
TGC 014 1000 Impact Polycarbonate Dome

- Lower profile dome
- Low profile pan flashing
- Flexi Loc™ tunnel system
- 16" tunnel extension
- Roof pitch 0°-60°



TGC 022 3000 Impact Modified Acrylic Dome
TGC 022 5000 Impact Polycarbonate Dome

- High profile SunCurve
- Low profile pan flashing
- Flexi Loc™ tunnel system
- 16" tunnel extension
- Roof pitch 0°-60°

Curb Mount TCC



TCC 014 0000 Impact Modified Acrylic Dome
TCC 014 1000 Impact Polycarbonate Dome

- Lower profile dome
- Low profile curb mount flashing
- Flexi Loc™ tunnel system
- 16" tunnel extension
- Roof pitch 0°-60°



TCC 022 3000 Impact Modified Acrylic Dome
TCC 022 5000 Impact Polycarbonate Dome

- High profile SunCurve
- Low profile curb mount flashing
- Flexi Loc™ tunnel system
- 16" tunnel extension
- Roof pitch 0°-60°



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Products

Replacement

Technical Resources

Inspiration

Support

- Dome Unit Skylights
- Glass Unit Skylights
- Structural Skylights
- Tubular Daylighting Device
- Translucent Wall System
- Canopy

About

- VELUX Commercial
- Privacy Statement
- Legal Notice
- Cookie Policy

- Case Studies
- Continuing Education
- Brochures
- Commercial Blog
- Design Assistance
- Technical Resources

Contact

- Find a Commercial Rep
- Contact VELUX



loading



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Products

Replacement

Technical Resources

Inspiration

Support

TGC Size Code

Size

Type

Dome

TGC 014 0000

14"

Acrylic

Low Profile

TGC 014 1000

14"

Impact

Low Profile

TGC 022 3000

22"

Acrylic

High Profile SunCurve

TGC 022 5000

22"

Impact

High Profile SunCurve

TCC Sizing Options

TCC Size Code

Size

Type

Dome

TCC 014 0000

14"

Acrylic

Low Profile

TCC 014 1000

14"

Impact

Low Profile

TCC 022 3000

22"

Acrylic

High Profile SunCurve

TCC 022 5000

22"

Impact

High Profile SunCurve

TMC Sizing Options

TMC Size Code

Size

Type

Dome

TMC 014 0000

14"

Acrylic

Low Profile

TMC 014 1000

14"

Impact

Low Profile

Products

Dome Unit Skylights

Glass Unit Skylights

Inspiration

Case Studies

Continuing Education



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BY: JIM

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FORCE™ 90+

96% Efficient Power Direct Vent Commercial Gas Water Heaters

The 100,000 BTU Force™ 90+ light-duty commercial gas water heater is equipped with a fully submerged, spiral-shaped condensing heat exchanger and 50 gallons of storage capacity. This design provides much greater heat transfer surface than a standard straight flue tube, resulting in 96% thermal efficiency and higher hot water output than comparable 80% efficient water heaters. With a 22" diameter, the Force™ 90+ can be installed in less space than a 75-gallon unit yet delivers greater recovery and lower operating costs. The Force 90 is ENERGY STAR® Qualified.



Series 124/125

Power Direct Vent Design for Installation Versatility

- Modular blower, with 120V, 60Hz electrical system (5 amps or less)
- Can be vented vertically thru-the-roof or horizontally thru-the wall.
Vents using PVC, CPVC or ABS pipe.
2" pipe allows vent runs up to 45 equivalent feet
3" pipe allows vent runs up to 128 equivalent feet
- Optional concentric vent and sidewall termination kits available

Available in Natural Gas or Propane

Side-Mounted Taps for Recirculating Systems

- Hot and cold "side taps" allow the Force™ 90+ to be used for "combination" systems for water heating plus space heating, radiant floor heating or other applications requiring a recirculating hot water loop
- Plugs for recirculating taps are factory installed

Advanced Electronic Control

- Large LCD display
- Precise temperature control
- Advanced diagnostics
- iCOMM™ Compatible and can be monitored from remote locations.
Call 1.888.WATER02 for more information.



Glasslined Tank with Two Magnesium Anode Rods

- Provides superior protection against corrosion
- Commercial-grade glass lining protects all "water side" tank surfaces plus inside of internal heat exchanger exposed to condensate

Top-Fired Low NOx Burner

- Reduces NOx emissions and complies with SCAQMD Rule 1146.2, and other Air Quality Management Districts with similar requirements for low NOx emissions

CSA Certified and ASME Rated T&P Relief Valve

Maximum Hydrostatic Working Pressure: 150 psi

Meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1

GAS-FIRED



Three-Year Limited Tank Warranty

- Consult written warranty shipped with water heater or contact State Water Heater for complete warranty information



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SOLID.STATE.



FORCE™ 90+

96% Efficient Power Direct Vent Commercial Gas Water Heaters

SPECIFICATIONS

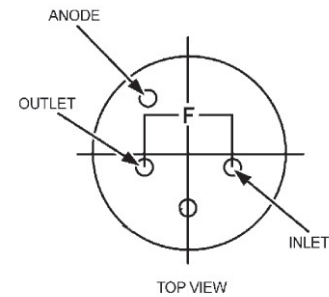
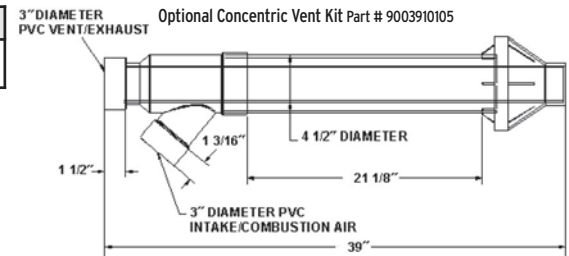
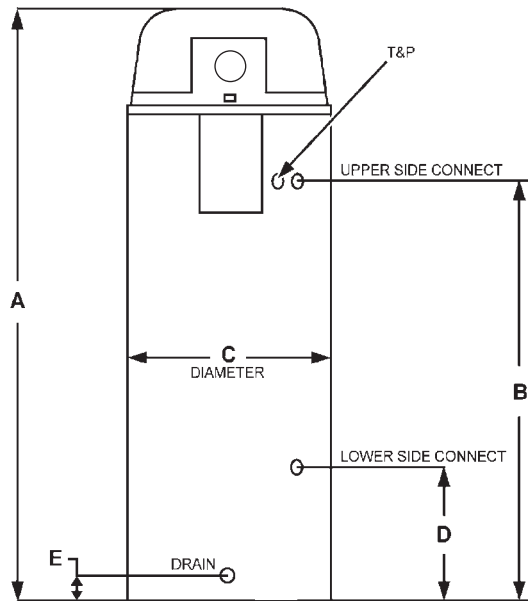
MODEL NUMBER	BTU INPUT PER HOUR	TANK SIZE GALLONS	RECOVERY-GALLONS PER HOUR AT DEGREE RISE			SHIPPING WEIGHT LBS.
			40°F	100°F	140°F	
SHE50 100NE	100,000	50	291	116	83	255

All models—Maximum Supply Pressure: 14 inches w.c. (3.48 kPa) Minimum Supply Pressure Natural Gas: 3.5 inches w.c. (.87 kPa). Minimum Pressure Propane: 8.0 inches w.c. (1.99 kPa). Minimum Pressure must be maintained under both load and no-load (static and dynamic) conditions.

DIMENSIONS

SHE50 100NE	A	B	C	D	E	F
INCHES	66-3/4	49-1/4	22	15-3/4	3	8

Top inlet and outlet: 3/4" male NPT
Side inlet and outlet: 3/4" female NPT
Gas inlet: 1/2" NPT



*INSTALL IN ACCORDANCE WITH LOCAL CODES.

SUGGESTED SPECIFICATION

(Natural or Propane) gas water heater(s) shall be State Force™ 90+ model SHE50 100NE, with 96% thermal efficiency, a storage capacity of 50 gallons, an input rating of 100,000 BTU per hour, a recovery rating of 116 gallons per hour at 100°F rise and a maximum hydrostatic working pressure of 150 psi. Water heater(s) shall be of power direct vent design, using 2 or 3" PVC, CPVC or ABS pipe for horizontal and/or vertical vent runs. Water heater(s) shall have: 1: Glasslined steel tank construction and a spiral-shaped heat exchanger placed entirely inside the tank, which shall be glasslined on the flue gas side to protect against acidic condensate. 2: Advanced electronic control with large LCD display and advanced diagnostics. Water heaters shall incorporate the iCOMM™ system for remote monitoring, leak detection and fault alert. 3: A 3-year limited warranty against tank leaks. Water heater(s) shall meet the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1.

For complete information on limited warranties, consult written warranty or contact the State Customer Care Center at 1-800-365-0024.

State Industries, Inc. reserves the right to make product changes or improvements without prior notice.



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For more information on State Water Heaters, contact:
State Water Heaters
500 Tennessee Waltz Parkway
Ashland City, TN 37015
800-365-0024 Toll-free USA
www.statewaterheaters.com

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Revised June 2013

SCGSS01108

Zero Sightline—Series 30P

Product Data

Description

AAMA CATEGORY – Architectural

AAMA/W Designation – AW-75

Configuration – Outward Projected, Outswing Casement

Series – 30P

AAMA Air, Water & Structural Testing

Test Size – AAMA 101 for Designation and/or Configuration

Allowable Air – MAX 0.10 CFM/LF @ 6.24

Uniform Load Deflection – 75 PSF

Water – 15 PSF

Uniform Load Structural – 112.5 PSF

CRF & 'U' Value

CRF Class – CRF 55

U-Value Class – .44-.65

Construction – Frame

Minimum Wall Thickness – 0.125"

Minimum Wall Thickness @ Fasteners – 0.125"

Depth – 3"

Fabrication – Mitered, Epoxied and Crimped

Design – Flat or CW Insert Leg

w/Alum Corner Blocks

Construction – Primary Operable

Minimum Wall Thickness – 0.125"

Minimum Wall Thickness @ Fasteners – 0.125"

Depth – 3"

Design – Flush w/Frame, Tubular

Fabrication – Mitered, Epoxied and Crimped w/Alum Corner Blocks

Thermal Barrier

Separation – 1/4"

Design – Poured In Place Polyurethane

Optional Window Components

Screens – Flat Or Wicket

Hardware

As Specified – Select From Hardware Section

Weather-Stripping

Primary Operable –Two Rows, Dual Durometer, Compression EPDM

Glazing – Operable Units

Location – Factory or Field

Method – Structural Silicone

Finish

As Specified – Anodized or Painted

Warranty

As Specified – 2, 5 or 10 Years



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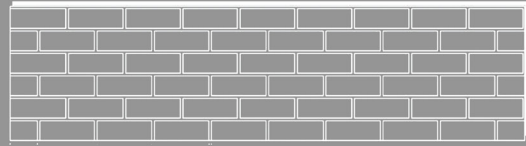
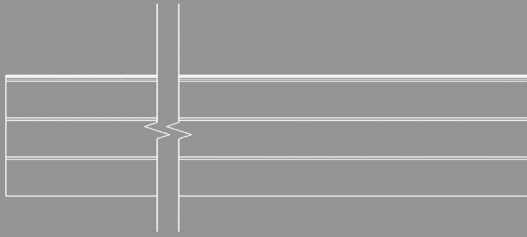
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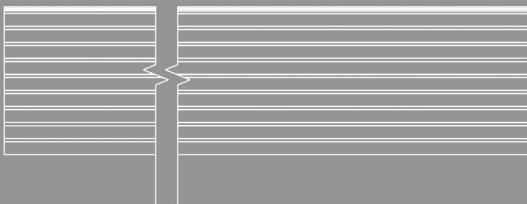




NICHIHA ARCHITECTURAL WALL PANELS

DESIGN REVIEW GUIDE

AWP 1818
AWP 3030 - HORIZONTAL
AWP 3030 - VERTICAL




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AWP DESIGN GUIDE

TABLE OF CONTENTS



NICHIHA RAINSCREEN	3
PRODUCTS	4
NICHIHA DETAIL FINDER	5
PLANNING AND LAYOUT	6

7	CONTINUOUS INSULATION
8	ARCHITECTURAL LAYOUT
10	HORIZONTAL REQUIREMENTS
12	VERTICAL REQUIREMENTS
14	TECHNICAL REQUIREMENTS



Always install products in accordance with the latest installation guidelines and all applicable building codes and other laws, rules, regulations and ordinances. Review all installation instructions and other applicable product documents before installation. This design guide does not include Stacked Stone or Ledge Stone products.



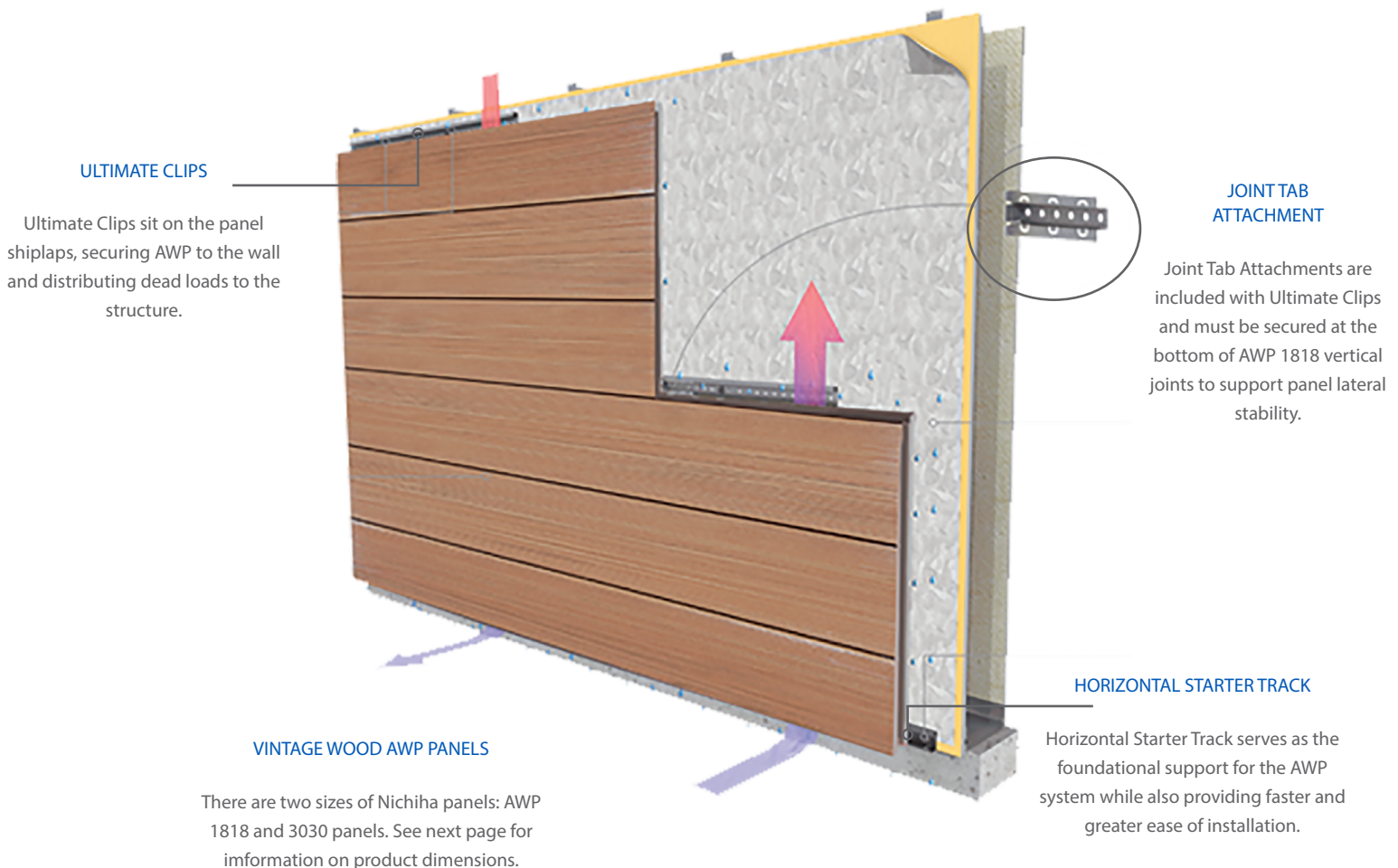
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Permit # 22241180



THE NICHIIHA RAINSCREEN

Moisture intrusion in a wall system can be the cause of building defects, as well as health ailments for the building's occupants, making rainscreens a very important tool in water mitigation. Rather than attacking the symptoms of moisture intrusion, rainscreens tackle the source –the forces that drive water into the building shell. Nichiha's concealed installation system creates a 10mm (3/8") drainage and ventilation plane behind our panels.



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THE PRODUCTS

Before you jump into the design process, we recommend taking a minute to familiarize yourself with the dimensions of Nichiha's family of Architectural Wall Panels.

AWP1818

Horizontal Installation Allowed
Stacked or Staggered Layout Only

Dimensions: 17-7/8" [H] x 71-9/16" [L]
455mm [H] x 1818mm [L]
Thickness (unless noted): 5/8" (16mm)

Architectural Block+
Canyon Brick
Illumination+
Miraia
PlymouthBrick
Novenary Tile 7/8" (21 mm) Thickness
SandStone 3/4" (18mm) Thickness
Tuff Block+
VintageBrick 3/4" (18mm) Thickness
VintageWood
Corbosa
Riftsawn
Natura (New!)
Latura V-Groove (New!)

AWP3030

Horizontal or Vertical Installation Allowed
Stacked Layout Only

Dimensions: 17-7/8" [H] x 119-5/16" [L]
455mm [H] x 3030mm [L]
Thickness: 5/8" (16mm)

EmpireBlock
Illumination*
IndustrialBlock
Ribbed
RoughSawn
VintageWood
Latura V-Groove

+ Factory Joint profiles of Illumination 1818 and ArchitecturalBlock differ from TuffBlock's, which has a wide perimeter reveal.

* Illumination 3030 panels have a wider, soft-U factory joint profile.

Only panels of the same dimension and thickness may be used directly together without separation via control and/or compression joints.

Custom color finish of Illumination, Ribbed, TuffBlock panels requires a lead-time.

Contact a Sales Representative for more information.




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- CanyonBrick
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- Illumination
- IndustrialBlock
- LedgeStone

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VintageWood AWP-1818

A dimension detail of an individual VintageWood-1818 panel.

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VintageWood AWP-3030

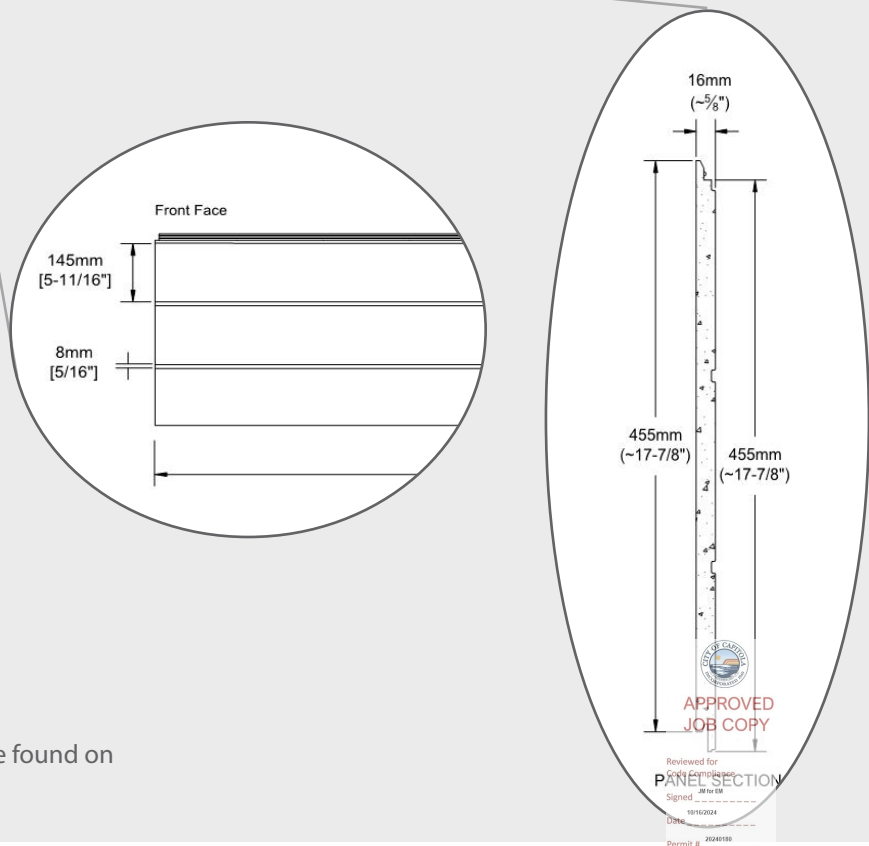
A dimension detail of an individual VintageWood-3030 panel.

[PDF](#)
[DWG](#)

The architectural detail finder will help you with your specification, filter down to what you need. Not sure what you need to filter by? Grab all the details or search on the top.

On the architectural detail finder you'll find anything from installation over continuous insulation, various different types of wall framing and even panel dimension and clip dimension. Looking for a specific product? We've got details for more than just our AWP panels on the site.

Individual, dimensioned panel profiles can be found on Nichiha's Detail Finder at: nichiha.com/architectural-details



PLANNING & LAYOUT

The Nichiha system works most efficiently when full panels are used.

Designing panel layouts symmetrically from the inside-out will help to create less product waste. It is important to keep in mind the actual metric dimensions when considering the modular panel layout, including placement of control and compression joints, and also with respect to sizing window and door openings.

Detailing around openings involves a number of variables such as the depth of the opening and the overall thickness of the wall assembly. For example, a continuous insulation and furring condition with recessed windows will necessitate a jamb, head, and sill return material/finish. Depending on the dimensions, Nichiha factory Corners or cut panels may be used at jambs, or an alternate material such as metal may be necessary. Nichiha Corners and panel segments may not be used for head and sill return conditions. Please reach out to Nichiha Technical for detailing recommendations.

VERTICAL CONTROL/EXPANSION JOINT REQUIREMENTS

On walls wider than 30 feet, when using AWP1818 panels and metal trim outside corners, Vertical Control/Expansion Joints (Double Flange Sealant Backers) are required within 2 to 12 feet of outside corners (on both sides of corner) and then approximately every 30 feet thereafter.

When using AWP1818 panels and Nichiha factory Corners, control joints are required at the factory Corner and then approximately every 30 feet thereafter.

When using AWP3030 panels installed horizontally, vertical control joints or H-molds are required at each vertical joint. Panels may not be butted together and these vertical joints may not be split up or staggered.

Control/Expansion Joints are 10mm (3/8") wide.


HORIZONTAL/COMPRESSION JOINT REQUIREMENTS

Metal Framed projects taller than three stories/45 feet:
Place compression joints approximately every 25 feet.

Wood Framed projects three stories or taller:
Compression Joints required at each floor.

Compression Joint requirements:
Compression Joint Flashing - heavy gauge z-shaped metal flashing or similar, 1/2" (min.) gap between panels at floor lines/plate, and Starter Track.




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CONTINUOUS INSULATION

Nichiha AWP (horizontal) may be installed directly over up to one inch of foam plastic insulation such as polyiso or EPS over wood or gypsum sheathing. Insulation compressive strength of 25 psi or greater is strongly recommended. Continuous insulation (c.i.) thicker than one inch and mineral wool c.i. of any thickness must be paired with a furring or other solution to satisfy the *Framing & Sheathing Requirements* set out in the AWP install guides and is subject to a required Technical Review process. Refer to the guides for complete installation requirements and instructions. This guide is not intended to prohibit options or furring combinations not covered herein. Please contact the Technical Department for assistance.

Exterior Continuous Insulation Requirements Greater than 1 inch	<h3>Horizontal Panel Installation</h3> <p>Shaped Metal Furrings (Z, hat channel, C, etc.), Min. 18 ga.</p> <p>2x P.T. Lumber</p> <p>Energy Code Option</p> <p>Aligned vertically at 16" o.c. (max)</p>	<h3>Vertical Panel Installation</h3> <p>a. Furring for vertical panels requires either 18 ga shaped metal furring aligned vertically with an additional layer of Min. 7/16" (11mm) APA Rated OSB or Plywood required for Ultimate Clip fastening</p> <p>b. Another option for furring for vertical panels is a furring grid the first layer will need to be 18 ga shaped furring aligned vertically, the second layer can be shaped 18 ga metal furring or 2X lumber aligned horizontally at 16" OC.</p> <p>c. Horizontal furring can be used as a direct attachment. The Furring must be metal and 18 ga spaced ay 16" OC. If Z furring is used at the starter track a hat channel will be needed. No wood furring allowed.</p>	<h3>Energy Code Friendly Options</h3> <p>Engineered third party systems</p> <p>Cascadia Clips CL Talon FERO Cladding Support ISO Clip Knight Wall CI and HCI Systems SmartCI Green Girt</p>
--------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

IBC 2021 Table 2603.12.2

The model building code for 2015 includes information in Chapter 26 about foam plastic insulation/sheathing and furring minimum fastening requirements. Table 2603.12.2 shows various configurations depending upon framing gauge and spacing, fastener size and spacing, thickness of insulation and cladding weight. As an example, according to the table, 3 inches is the maximum thickness of foam sheathing on which a furring can be added directly on top, spaced at 16" o.c. and fastened with #8 screws every 12"-16" (into 18 gauge wall framing), that can support a cladding weight of 3 psf.



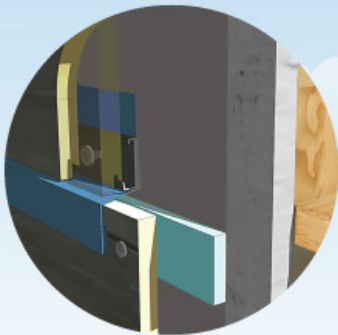
*Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 4 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to the structure. Refer to IBC 2015 Table 2603.12.2 for more info.

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WINDOW SILL

Face fasten 1" from cut edges with
10mm Spacer at framing/furring @
16" o.c.



COMPRESSION JOINT

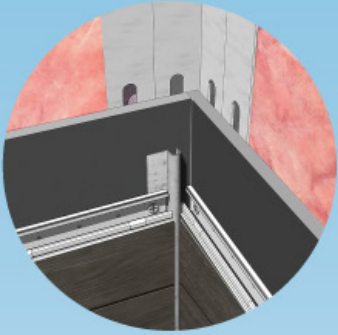
Add compression joint flashing at min.
1/2" breaks between course at floor
framing for multi-story applications



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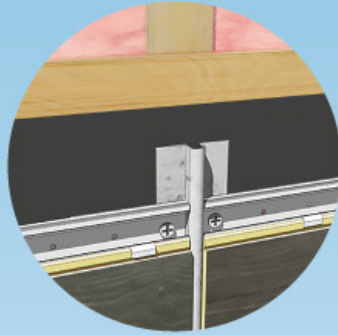
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LAYOUT WITH NICHIIHA



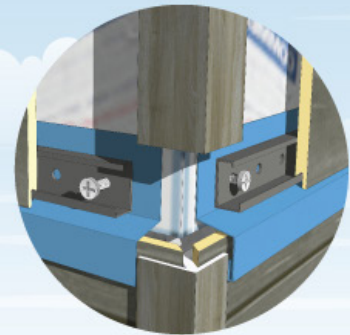
INSIDE CORNER

Butt line-of-sight panels to corner.
On opposite wall, add Single Flange Sealant Backer and caulk or use Inside Corner metal trim.



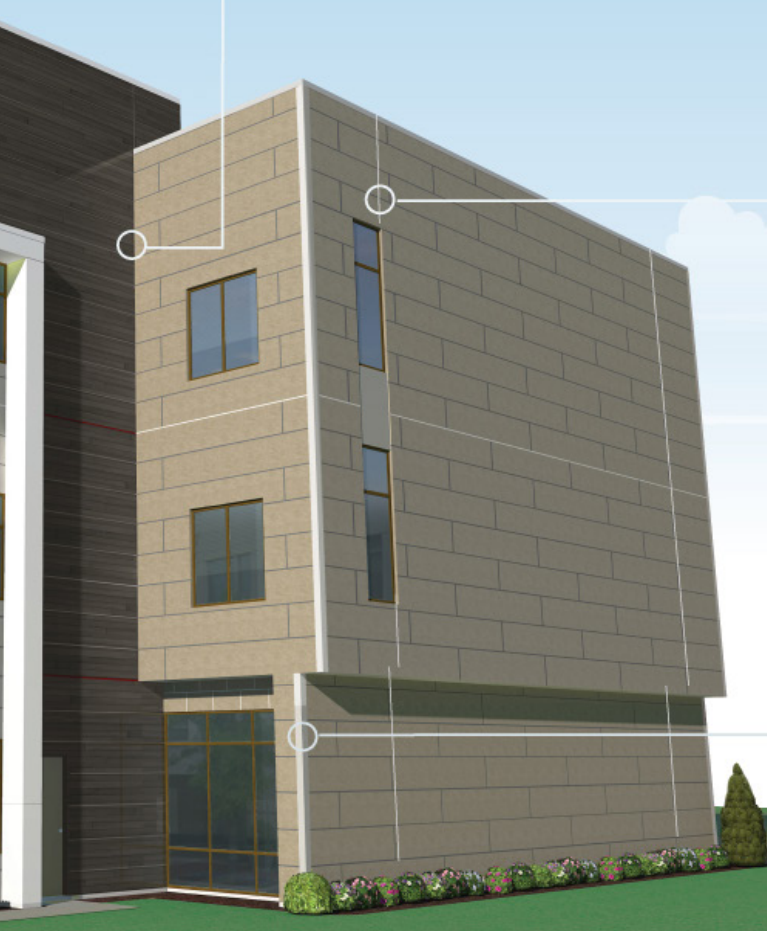
VERTICAL CONTROL JOINT

Often aligned with window jambs, Double Flange Sealant Backer is fastened to framing/furring, wood sheathing, or blocking.



OUTSIDE CORNER

- Factory Corners with 3-1/2" Face Returns
- Corner Key Trim
- Open Outside Corner
- Fiber Cement Trim Boards



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HORIZONTAL DESIGN REQUIREMENTS

AWP1818 - HORIZONTAL

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for most panels (JEL788 for SandStone, VintageBrick, and CinderBlock only) - 2-1/2 clips per panel edge | 10mm (~3/8") rain screen
- Joint Tab Attachments required between panels at vertical factory joints
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) on 30'+ walls with metal trim outside corners: 2'-12' from edges + every ~30' thereafter
- Vertical Control/Expansion Joints with Nichiha Corners plus every ~30' thereafter
- Vertical Control/Expansion Joints every ~30' on walls with no outside corners.
- Horizontal/Compression Joints: **Wood Framing** three stories or more = joint at every floor
- Horizontal/Compression Joints: **Metal Framing** over three stories/45' = joint about every 25'
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" above hardscape and decking, 1" above roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16-21mm | 5/8" -7/8"
- Total Wall System Depth – 26-31mm | 1-1/32" - 1-7/32"

See table for Framing & Sheathing Requirements
Reference page 3 for panel thickness

HORIZONTAL CONTINUOUS INSULATION REQUIREMENTS

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Exterior Continuous Insulation Requirements</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Greater than 1 inch</p>	<p>Horizontal Panel Installation</p> <p>Shaped Metal Furrings (Z, hat channel, C, etc.), Min. 18 ga.</p> <p>2x P.T. Lumber</p> <p>Energy Code Option</p> <p>Aligned vertically at 16" o.c. (max)</p>	<p>Energy Code Friendly Options</p> <p>Engineered third party systems</p> <p>Cascadia Clips CL Talon™ FERO Cladding Support ISO Clip Knight Wall CI and HCI Systems SmartCI Green Girt</p>
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AWP3030 - HORIZON-

- Ultimate Horizontal Starter Track - *always level*
- Ultimate Clip II – JEL778 for all 3030mm panels - 4 clips per panel edge | 10mm (~3/8") rain screen
- Vertical Control/Expansion Joints (Double Flange Sealant Backer) or H-Mold trim at each vertical joint
- Stacked layout only - no staggering of vertical joints
- Horizontal/Compression Joints: **Wood Framing**
three stories or more = joint at every floor
- Horizontal/Compression Joints: **Metal Framing**
over three stories/45' = joint about every 25'
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Horizontally cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" above hardscape and decking, 1" above roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16mm | 5/8"
- Total Wall System Depth – 26mm | 1-1/32"

See table for Framing & Sheathing Requirements

HORIZONTAL AWP FRAMING & SHEATHING REQUIREMENTS

WALL TYPES			SHEATHING
Metal Studs	18 gauge min.	16" o.c. max.	Min. 7/16+" OSB/Plywood 1/2" or 5/8" Gypsum
Wood Studs	2X Lumber	16" o.c. max.	Min. 7/16+" OSB/Plywood 1/2" or 5/8" Gypsum
Concrete Furring is required	18 ga shaped metal or P.T. 2X Lumber	16" o.c. max.	N/A
SIPs	Per SIP Standard (sips.org)		
PEMB	24 gauge up to -31.41 PSF 22 gauge up to -39.29 PSF	#10 fastener @12" o.c., with deflection L/120 #10 fastener @12" o.c., with deflection L/120	 APPROVED JOB COPY

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VERTICAL DESIGN REQUIREMENTS



AWP3030 - VERTICAL

- Ultimate Vertical Starter Track - *always level and continuous, bearing the dead loads of vertical AWP3030 - no staggering*
- Ultimate Clip II – JEL778 for all 3030mm panels - 4 clips per panel edge | 10mm (~3/8") rain screen
- Vertical Control/Expansion Joints not required
- Horizontal/Compression Joints after each course
- Don't span floors
- Sealant Joints (Single Flange Sealant Backer) or Inside Corner trim at inside corners
- Vertically cut edges require face fastening with Spacer
- MIN. Clearances: 6" above soil grade, 2" over hardscape and decking, 1" over roof
- 1/4" clearance between the panel edge and flashings
- Panel Thickness – 16mm | 5/8"
- Total Wall System Depth – 26mm | 1-1/32"
- Structural Sheathing Method or Custom Stud/Furring Spacing Method required for installation

See table for Framing & Sheathing requirements

WALL TYPES			SHEATHING
Metal Studs	18 gauge min.	16" o.c. max.	Min. 7/16+" OSB/Plywood
Wood Studs	2X Lumber	16" o.c. max.	Min. 7/16+" OSB/Plywood
Concrete Furring is required	18 ga shaped metal or P.T. 2X Lumber	17-7/8" o.c. max plus additional 9" o.c. Furring at Starter Track	N/A
SIPs	Per SIP Standard (sips.org) and Starter Track		
PEMB	Not intended for this application		



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TECHNICAL



STANDARD REQUIREMENTS

Let's start with the basics. Each of the following criteria must be met in order for Nichiha Architectural Wall Panels to perform as intended.

- Refer to Intertek CCRR-0299 (make the crr text a hyperlink to document) for product building code compliance certification as well as wind load engineering requirements.
- Continuous Insulation — refer to [Technical Bulletin - AWP and Continuous Insulation](#) and the [installation guides](#)
- Vapor Permeable Weather Resistive Barriers — required over stud walls and SIPs. CMU/concrete - defer to local code. Sheathings and C.I. with integrated code compliant WRB are acceptable
- Flashing/Furring/Corners/Trim — See install guide for various options
- Minimum Clearances — a minimum of 6" above soil grade, 2" above hard surfaces, 1" above roofing, or per local building codes
- Single Flange Sealant Backers — at inside corners, along window & door jambs and transition points with other cladding
- Double Flange Sealant Backers — Vertical Control/Expansion joints, Non-90-Degree Corners and at Nichiha Corners
- Sealants — refer to [Technical Bulletin - Sealants](#)
- 10mm Spacer — required at all face fastening locations
- Face fastening — every 12-16" o.c. to framing/furring spaced min. 1" distance from the panel edge
- Fasteners must penetrate: Wood Studs a min. 1", Metal Studs a min. 1/2" with three threads needed for grab
- Fasteners — must be stainless steel or corrosion resistant: such as, hot dipped zinc or ceramic coated - pan, wafer, or hex head required for clip and track fastening
- Equipment/Mechanical Screens - must be fully enclosed wall system
- Soffit applications limited to install guide parameters and are not covered by warranty



ADDITIONAL REQUIREMENTS

- Structural Insulating Panels (SIPs)
- Nail-base insulation sheathings
- Continuous Insulation (C.I.) greater than one inch in thickness
- Insulated Concrete Forms (ICFs) require additional measures.
- Retrofits and atypical applications

All require a technical review by Nichiha to evaluate feasibility via our Technical Design Review (TDR) process. Submission of a TDR does not imply or guarantee project approval.



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TECHNICAL DESIGN REVIEWS

If your project meets any of the criteria listed below, or you simply wish to take advantage of the service, your Nichiha Sales Representative can connect you to Technical Department staff for a Technical Design Review. It's our way of assuring that your project will be implemented without the slightest hitch. Refer to nichiha.com/

- Any project of more than three stories or 45 feet
- Those located in high wind coastal areas (Exposure Categories C and D with Basic Wind Speed in excess of 130 mph (Vult))
- Those with any wall assembly not described in the *Framing & Sheathing Requirements*
- *Continuous Insulation* projects (thicker than 1")

NOs

Even *the power of possibilities* has limitations. If your project includes any of the following attributes, contact Nichiha Technical Services for clarification and advice. Refer also to nichiha.com/resources/technical-bulletins.

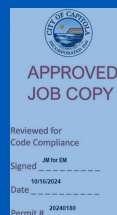
- No Radius/Curved Walls, Sloped/Tilted Walls
- No existing or new masonry w/o furring
- No remodels over hard coat & synthetic stucco/ EIFS
- No Pre Engineered Metal Building retrofits. New construction only with horizontal installation, no vertical installation allowed
- Do not use AWP on open screen walls
- Do not cut panels to less than 4" in width or length
- Do not use AWP on modular structures that are factory-constructed and then transported to a final site (Installation on site is allowed)
- For Vertical Panels: do not span floors with panels. Place compression joints at each floor line. No staggering of joints

DETAILS

For complete offerings of AutoCAD and Revit details visit nichiha.com/architectural-details

For Installation hardware, accessories and full installation requirements/details visit: nichiha.com/resource-center

TechnicalServices@nichiha.com | Phone: 866-424-4421



THE POWER OF POSSIBILITIES AND PARTNERSHIPS

The way we see it, we're in this together. Our mutual success is the only real success. If you have questions or concerns let your Nichiha Sales Representative know and they'll do everything they can to keep your project moving in the right direction... up.

If you're not sure who your local sales representative is, visit nichiha.com/rep and we'll direct you to the representative closest to you.



Silica Dust Warning: NICHHA products may contain some amounts of crystalline silica [a.k.a. sand, silicon dioxide], which is a naturally occurring mineral. The amount will vary from product to product. Inhalation of crystalline silica into the lungs and repeated exposure to silica can cause health disorders, such as silicosis, lung cancer, or death depending upon various factors. To be conservative, Nichiha recommends that whenever cutting, sawing, sanding, sniping or abrading the product, users observe Safety Instructions. For further information or questions, please consult the SDS, your employer, or visit www.osha.gov/SLTC/silicacrystalline/index.html and www.cdc.gov/niosh/topics/silica. The MSDS for Nichiha products are available at www.nichiha.com, at your local Nichiha dealer or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, SDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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ARCHITECTURAL WALL PANELS | AWP1818, AWP3030 |

MARCH 2021

Horizontal Installation Guide



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AWP1818, AWP3030 HORIZONTAL INSTALLATION GUIDE

TABLE OF CONTENTS

GENERAL	2
Limitations, Technical Reviews	4
Safety	4
Framing & Sheathing	5
Continuous Insulation	6
Weather Resistive Barriers	8
Storage & Handling	8
Fasteners	9
HARDWARE & ACCESSORIES	10
GENERAL PANEL & ACCESSORY BASICS	12
Panel Selection	12
Sealing Cut Panel Edges	12
Planning & Layout	13
Compatibility Between Panel Types	14
Cutting Ultimate Clips	15
Face Fastening	15
Sealant	16
Sealant Joints/Caulking	16
INSTALLING THE STARTER TRACK	17
Panels Below Starter & Sloped Grade	18
Large Openings	19
AWP1818 INSTALLATION	20
VERTICAL CONTROL/EXPANSION JOINTS	23
AWP3030 INSTALLATION	24
HORIZONTAL/COMPRESSION JOINTS	27
CORNERS & OPENINGS	28
Inside Corners	28
Window Sills	29
Window/Door Jambs	30
Window/Door Headers	31
Outside Corners	32
PENETRATIONS, & ATTACHMENTS	35
LAST COURSE	36
GABLE & OVERHANG	37
SOFFITS & ANGLED WALLS	38
CLEANING & MAINTENANCE	42
Cleaning Panels	42
Paint Touch-Up	42
Removal of Exterior Acrylic Latex Paint	42
Other Paint & Graffiti Removal	43
Repairing Minor Damage	43
Panel Replacement	44

GENERAL

This guide is intended to enable successful installation of Nichiha's 1818mm and 3030mm Architectural Wall Panels (AWP 1818, AWP 3030) in a horizontal orientation. Spanish and French versions are available. Further installation information and technical resources such as animated instructional videos, Technical Bulletins, three-part specifications, product testing and certifications, architectural details in AutoCAD, Revit, and PDF versions, and other technical documents are available on our website: nichiha.com/resource-center.

Install products in accordance with the latest installation guidelines and all applicable building codes and other laws, rules, regulations, and ordinances. Review all installation instructions and other applicable product documents before installation. *This install guide's effective date is March 2021.*

PRODUCT INSPECTION

Inspect all products thoroughly prior to installation. Do not install any product which may have been damaged in shipment or appears to have a damaged or irregular finish. Should you have a question or problem with your order, contact your local dealer or Nichiha Customer Service, toll-free, at 1.866.424.4421. Keep the products dry prior to installation. It is best to store the products indoors, otherwise keep them covered. Do not stack pallets more than two high.



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BASICS OF THE AWP SYSTEM

There are two sizes of Nichiha panels: AWP 1818 and AWP 3030. There are unique aspects to both sizes. When installing either size, be sure to follow the dedicated instructions specific to them in this guide, distinguished by a color code and page headers/footers. The bulk of this guide is non-coded and applicable to all AWP.

AWP 1818 metric dimensions (in millimeters) are 455 (h) x 1,818 (l) x 16, 18, or 21 (t). Imperial equivalents (in inches) are 17-7/8 (h) x 71-9/16 (l) x 5/8, 3/4 or 7/8 (t).

AWP 1818 edges are shiplapped on all sides and a factory sealant gasket is included on the top and right edges. When the panels fit together, all factory joints are sealed. This enables stacked or staggered panel layouts for AWP 1818. **Joint Tab Attachments** are required at vertical joints. **AWP 1818 must be installed horizontally.**

AWP 3030 metric dimensions (in millimeters) are 455 (h) x 3,030 (l) x 16 (t). Imperial equivalents (in inches) are 17-7/8 (h) x 119-5/16 (l) x 5/8 (t).

AWP 1818

71-9/16" (1818mm) W x 17-7/8" (455mm) H



top shiplap
(with sealant gasket)

3/8" (10mm) right shiplap
(with sealant gasket)

AWP 3030

WIDTH: 119-5/16" (3030mm)



top shiplap
(with sealant gasket)

flat vertical edges

AWP 3030 edges are shiplapped only on the top and bottom, with the top edge including a sealant gasket. Vertical edges for AWP 3030 are flat, requiring sealant backers or metal trim and allowing only a stacked layout. *The flat, vertical edges are never butted directly together, nor staggered.* AWP 3030 may be installed horizontally or vertically.

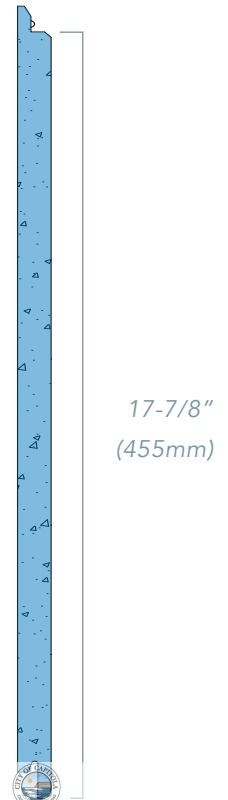
Refer also to *Compatibility Between Panel Types* on page 14 and the *AWP 3030 Vertical Install Guide*.

AWP ATTACHMENT HARDWARE

Ultimate Clips and Starter Track engage the top and/or bottom panel edges, holding the panels off the substrate surface by 10mm (~3/8") and creating a closed-joint, drained/back-ventilated rainscreen system with concealed fastening.

SYSTEM THICKNESS

For the overall thickness of the AWP system, add the 10mm rainscreen channel to the thickness of the panel (16, 18, or 21mm) for a total system depth of 26, 28, or 31mm.



17-7/8"
(455mm)

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Dimensions are measured from the edges of the panel face, which includes the left edge of the panel only and bottom shiplaps (all panels).

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LIMITATIONS, TECHNICAL REVIEWS & SPECIAL APPLICATIONS

Natural limitations on product usage are inherent to any cladding product's design, physical characteristics, and attachment system. Nichiha AWP are intended as a low-to-mid-rise cladding product.

Any project of more than three stories or 45 feet (13.7m), as well as those located in high wind coastal areas (Exposure Categories C and D with Basic Wind Speed in excess of 130 mph), or those with any wall assembly not described in *Framing & Sheathing Requirements*, require a technical review by Nichiha to evaluate feasibility via our Technical Design Review process.

By evaluating a project's unique criteria and design, we can reference independently test-derived and calculated wind load performance data for our products to determine whether and how the panels can safely be installed on the project. Contact your local rep or Nichiha technical department for details or to initiate a Technical Design Review.

AWP are not to be used in any applications/uses not specified or described in this installation guide or other Nichiha technical documents. Any such use shall not be backed by the manufacturer's product warranty.

Do not use AWP on open screen walls.

Insulated Concrete Forms (ICFs) require [additional measures](#).

Installation of AWP products on modular structures that are factory-constructed and then transported to a final site are not approved without full technical review; and further, excluded from the Limited Product Warranty, per Section 2.F.

For all applications in this guide, AWP shall be installed horizontally - level and perpendicular to wall framing.

If in doubt, please contact Nichiha Technical Services for assistance.

SAFETY

As with any natural stone, masonry, or concrete based product, when cutting, drilling, sawing, sanding, or abrading fiber cement cladding, proper safety measures must be taken due to the potential for airborne silica dust, an OSHA-identified hazardous substance that can pose serious medical risks.

Always wear safety glasses and a NIOSH/OSHA approved respirator with a rating of N, O, or P 100. Carefully follow the respirator manufacturer's instructions as well as applicable governmental safety regulations concerning silica. Refer to Nichiha's SDS for more information.

Always cut fiber cement panels outside and with a dust-collecting HEPA vacuum system. Do not cut the products in an enclosed area.

Use a dust-reducing circular saw with diamond-tipped or carbide-tipped fiber cement saw blades.

Always clean panels after cutting. Fiber cement dust can potentially bind to the panel finish. HEPA vacuuming is best, with care taken not to damage the panel finish.



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FRAMING & SHEATHING REQUIREMENTS

Prior to Nichiha installation, closely inspect the exterior wall substrate and correct any problems. Walls that are out of plumb, for example, can negatively impact the installation quality of AWP. Nichiha Spacer may be used in conjunction with panel attachment hardware if necessary to ensure an even substrate.

Nichiha AWP cladding may be installed on flat walls only. No curved surfaces. Refer to pages 38-41 concerning soffits and forward-leaning (non-vertical) applications. Wood or steel framing, concrete/masonry with furring, Structural Insulating Panels (SIP), and pre-engineered metal buildings (PEMB) must meet the following requirements:

Refer to our third party building code certifications and/or state and local approvals for allowable wind design pressures: nichiha.com/resource-center.

WOOD STUDS

Size: minimum 2x4 studs
Spacing: 16" (406mm) o.c. max
Sheathing: exterior grade minimum 7/16" (11mm) plywood/OSB (APA rated), 1/2" (13mm) or 5/8" (16mm) gypsum

METAL STUDS

Gauge: minimum 18
Spacing: 16" (406mm) o.c. max
Sheathing: exterior grade minimum 7/16" (11mm) plywood/OSB (APA rated), (13mm) or 5/8" (16mm) gypsum

CONCRETE/MASONRY

Furring is required for installation of AWP over concrete and masonry structures.

Wood Furring: pressure treated lumber 2x4, oriented vertically, spaced 16" (406mm) o.c. max

Metal Furring: hat channel, c-stud, or z-furring, minimum 18 gauge, oriented vertically, spaced 16" o.c. (406mm) max.

STRUCTURAL INSULATING PANELS (SIP) AND STRUCTURAL INSULATED SHEATHING (NAILBASE)

SIPs should be constructed in accordance with the manufacturer's instructions and local building codes.

The horizontal framing elements of SIPs allow for Starter Tracks and face fasteners to be secured to solid framing.

Install *nailbase sheathing* in accordance with the manufacturer instructions and load tables. AWP installation specifics over nailbase insulated sheathings depend upon the nailbase type and thickness.

Contact the Technical Department for assistance with these substrates.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Metal buildings must be new construction. No direct retrofits/remodels.

Limit the metal siding/skin deflection to L/120.



50 ksi metal panels must have ribs spaced no more than 12" (305mm) o.c. with metal gauge determined by allowable wind design pressures:

Projects with allowable design pressures in excess of the table values may not utilize AWP directly over PEMB metal panels.

METAL PANEL GAUGE	ALLOWABLE PRESSURE
24 gauge	-31.41 psf
22 gauge	-39.29 psf

Additional special installation requirements for PEMBs are discussed in the *Fasteners, Installing the Starter Track, and Panel Installation* sections to follow.



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CONTINUOUS INSULATION

Where exterior/continuous insulation is used, *horizontal* AWP may be installed directly over up to 1" (25mm) of foam plastic insulation on wood or gypsum sheathing. For such applications, a minimum compressive strength of 25 psi insulation is highly recommended. Thicker insulations require a structural solution to provide attachment points for AWP such as a furring grid or third-party specialized system. Mineral wool c.i. of any thickness requires a furring.

Also refer to the Technical Bulletin: *Continuous Insulation and AWP* as well as the architectural details available at nichiha.com/resource-center. Please contact Nichiha Technical Services for further assistance.

AWP OVER C.I. ATTACHMENT REQUIREMENTS

When adding furring* to enable AWP installation over c.i., the following general criteria are applicable:

AWP-1818 and AWP-3030 Horizontal Applications

1. Shaped metal furrings (Z, hat channel, C, etc.)
 - Minimum 18 gauge
 - Aligned vertically
 - Spaced 16" (406mm) o.c. (max)

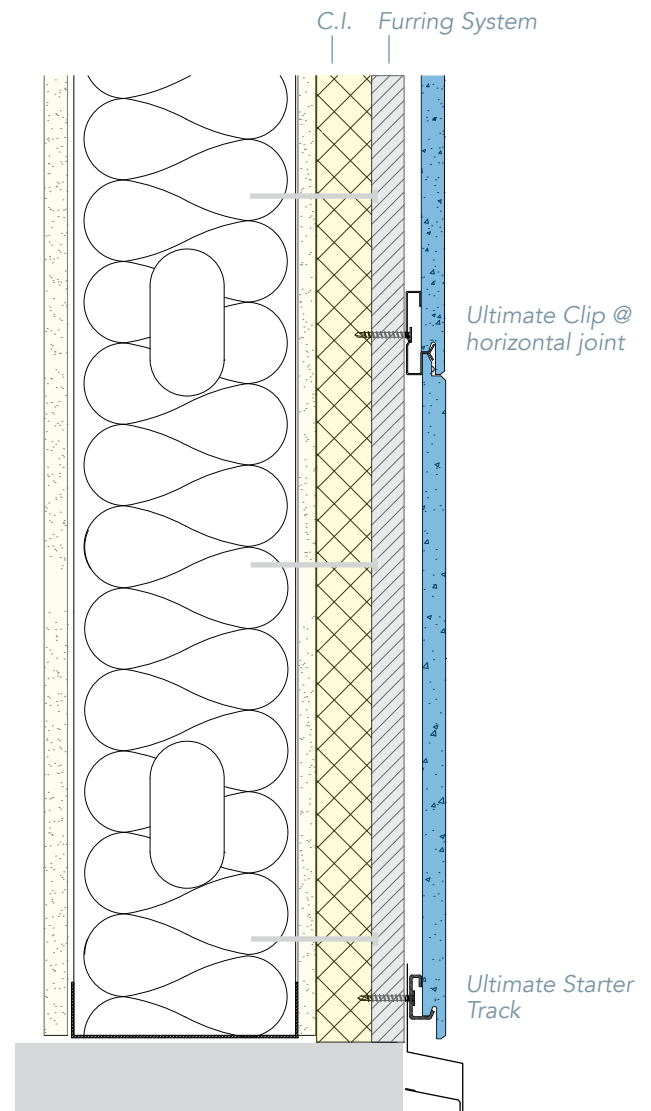
- or -

2. Pressure treated lumber (Do not use strips of wood sheathing as furring.)
 - Minimum 2x (1.5") thickness
 - Aligned vertically
 - Spaced 16" (406mm) o.c. (max)

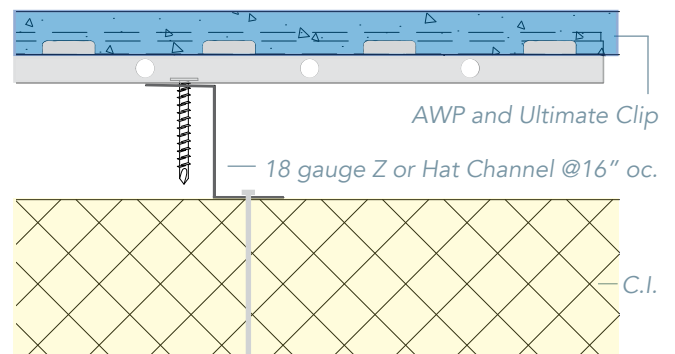
- or -

3. A combination of horizontal (spaced per engineer's design) with a second, outermost layer of vertical furring (16" (406mm) o.c.)

*Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 5 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to structure. Refer to IBC 2015 Table 2603.12.2 for more info.



Section view: AWP System on vertical furring



Plan view: AWP System on vertical furring



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ACCESSORY ATTACHMENTS

Nichiha Double and Single Flange Sealant Backers and metal trims, such as H-Mold and Corner Key, must be fastened to furring, blocking, or 18 gauge flat stock/brake metal. Sealant backers must be fastened every 12-14" (305-356mm) vertically, so any use of flat stock must accommodate this fastening schedule.

Outside corners may be wrapped with 18 gauge flat stock fabricated to fit the corner. Attach the stock to furring on both sides of the corner. Corner Clips are used to secure Nichiha factory panel Corners and may be fastened to the flat stock wrapping, as can metal trim corners.

IBC 2015 TABLE 2603.12.2

The model building code for 2015 includes information in Chapter 26 about foam plastic insulation/sheathing and furring minimum fastening requirements. Table 2603.12.2 shows various configurations depending upon framing gauge and spacing, fastener size and spacing, thickness of insulation and cladding weight. As an example, according to the table, 3 inches (76mm) is the maximum thickness of foam sheathing on which a furring can be added directly on top, spaced at 16" (406mm) o.c. and fastened with #8 screws every 12" - 16" (305-406mm) (into 18 gauge wall framing), that can support a cladding weight of 3 psf.

ENERGY CODE FRIENDLY MARKET OPTIONS

A number of engineered third party systems exist that are designed to solve the conflicts between energy code compliance and the safe installation of exterior claddings over continuous insulation.

Nichiha has direct experience with these products:

Bracket and rail systems:

[Cascadia Clips®](#)

[FERO Cladding Support](#)

[ISO Clip](#)

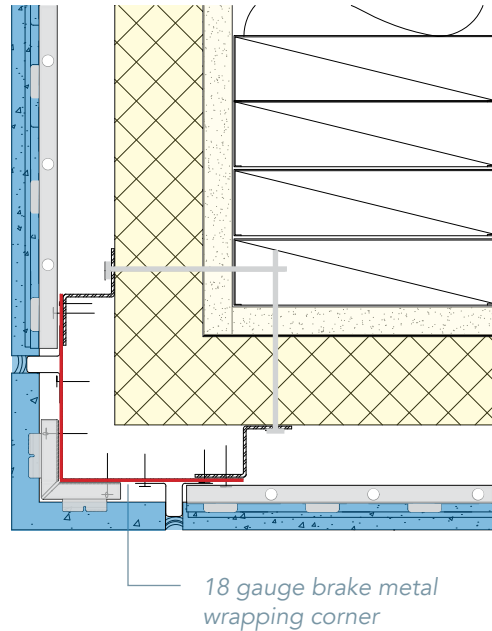
[Knight Wall MFI®](#)

[CL-TALON®](#)

[Hunter Xci Ply](#)

[Knight Wall CI®](#) and [HCl™ Systems](#)

[SMARTci GreenGirts](#)



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WEATHER RESISTIVE BARRIERS

A weather resistive barrier (WRB) is required when installing Nichiha panels over stud walls and SIPs. For CMU/concrete and PEMB assemblies, Nichiha defers to local code requirements. Use an approved WRB as defined by the 2015 IBC. Refer to local building codes. Fluid applied WRBs are acceptable.

A permeable WRB is highly recommended when installing Nichiha panels for residential applications.

A permeable WRB is required for all commercial applications.

Sheathings and insulations with an integrated code-compliant WRB such as ZIP System® and DensElement™ are acceptable.

All openings, corners, and transitions must have appropriate flashing to prevent moisture penetration.

Follow moisture management best practices, WRB manufacturer's guidelines, window manufacturer instructions, and all local building codes. *Nichiha assumes no responsibility for moisture infiltration.*

STORAGE AND HANDLING

AWP are a finished product and care must be taken to protect them against damage prior to and during installation. Panels must be stored flat and kept dry. Ensure panels are completely dry before installing them. Refer to the storage information included on product pallets. Do not stack pallets more than two high.

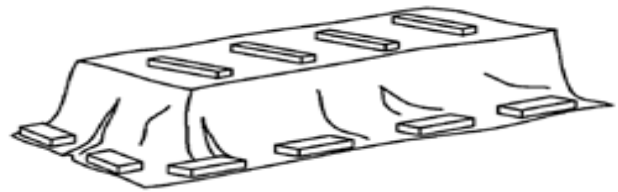
Panels **MUST** be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.

Direct contact between the panels and the ground must be avoided at all times. It is necessary to keep panels clean during installation process.

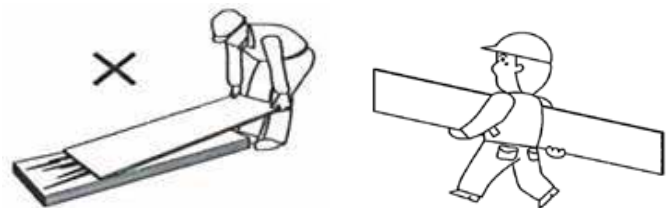
Cut the panels with the face down.

Always clean panels with a HEPA-filtered vacuum after cutting. *Dust can bind to the finish.*

When sidewalks are poured after AWP installation, take steps to cover/protect panels near grade. Cement dried on AWP cannot be removed.



Always cover pallets with a breathable tarp or store indoors!



Don't unpackage and re-stack panels!
Always carry panels on edge!



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FASTENERS

Fasteners must be corrosion resistant. Stainless steel or corrosion resistant screws such as hot-dipped zinc or ceramic coated are recommended. Comply with all local building codes for fastener requirements.

Number 10, pan-head screws (HD .365" (9.3mm)) were used as clip fasteners for AWP wind load testing. The minimum size for Ultimate Clip, Starter Track fasteners is #8. Clip and track screws must have a pan, wafer, or hex type full head.

Min. Number 7 or larger screws with a bugle or flat head (min. head diameter 0.255" (6.5mm)) are appropriate for face fastening locations. Fasteners must penetrate framing or furring per the minimum requirements below. Refer to the *Face Fastening Best Practices* section on page 17 for face fastening procedure.

WOOD STUDS

Fasteners must penetrate solid structure by a minimum of 1" (25mm).

METAL STUDS

Screws must penetrate solid structure by a minimum of 1/2" (13mm). Three threads are needed for effective grab.



CONCRETE/ MASONRY

Furring to Masonry: Fastener type, size, and spacing to be determined under direction of an engineer and in accordance with local building codes.

AWP to Furring: Screws must penetrate wood furring a minimum of 1" (25mm) or steel by 1/2" (13mm).

STRUCTURAL INSULATING PANELS (SIP) STRUCTURAL INSULATED SHEATHING (NAILBASE)

Min. one inch (25mm), full-thread, corrosion resistant wood screws must be used for Ultimate Clips. Longer screws accommodating minimum stud penetrations may be needed for Starter Track and face fastening.

SIPs: Fasten Starter Track every 16" (406mm) max to the sill plate.

Nailbase: Fasten Starter Track every 16" (406mm) into framing with longer screws or every 12" (305mm) max to the wood sheathing (nailbase) alone.

Double fastening per each Ultimate Clip (minimum of 4 screws per clip) is required as there are fewer or no studs to secure the system. Additional screws may be needed in high wind locations. Contact the Technical Department for guidance.

Face fasteners below windows and at the top of the wall are secured at 16" (406mm) o.c. max. to the framing at such locations.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

The PEMB wind load/panel gauge table (see *Framing & Sheathing Requirements*) is contingent upon use of #10-16 x 1" (25mm) pan head, S/D screws.

Fasteners must be spaced at no more than 12" (305mm) o.c. into metal panel ribs.



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INSTALLATION HARDWARE & ACCESSORIES



ULTIMATE HORIZONTAL STARTER TRACK

Horizontal Starter Track serves as the foundational support for the AWP system while also providing faster and greater ease of installation.

Horizontal Panels: Starter Track FA 700

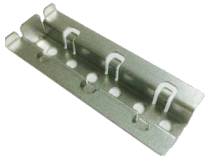


ULTIMATE CLIP II

Ultimate Clips sit on the panel shiplaps, securing AWP to the wall and distributing dead loads to the structure. Together, Ultimate Clips and Starter Track hold the back surface of the panels off the substrate to create a 10mm (3/8") rainscreen space.

JEL 778 CLIP Compatible with all AWP (except SandStone and VintageBrick)

JEL 788 CLIP Compatible *only* with SandStone and VintageBrick



Joint Tab Attachments are included with Ultimate Clips and must be secured within a clip at the bottom of *each AWP 1818 vertical joint* to support panel lateral stability. Fasteners are included for use with the Joint Attachments only.

CORNER CLIP



Corner Clips sit on the shiplaps of Nichiha Corners, securing them to the wall and supporting their weight in cooperation with Starter Track.

JE 777C Compatible with all AWP Corners (except SandStone, VintageBrick)

JE 787C Compatible with SandStone, VintageBrick Corners

CORRUGATED SPACER



At termination points where Panel Clips cannot be used, Nichiha Corrugated Spacer is required to maintain the rainscreen space and prevent panel deflection at face fastening locations such as window sills and headers.

FS 1010 SPACER – 10mm

FS 1005 SPACER - 5mm



NICHIHA CORNERS

Nichiha Corners are manufactured mitered panel corners available in the same finishes as horizontally oriented AWP. Corners have 3-1/2" (89mm) returns (face dimension). Corners are not available for Miraia panels.



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SEALANT BACKERS

Nichiha Sealant Backers provide exact spacing for expansion and termination joints and the recommended depth of sealant (75-80%).

They provide faster installation than a foam backer rod and require less sealant. At sealant joints, use a sealant that complies with ASTM C920, Class 35 (min.). Refer to the *Sealant* section on page 19 for more information.

Single Flange Sealant Backer: FHK 1015 – 10 mm

Double Flange Sealant Backer: FH 1015 – 10 mm

METAL TRIM OPTIONS

Nichiha metal trim provides aesthetically pleasing design options for corners, openings, and transitions, as well as vertical joints.

TRIM**	APPLICATIONS
Corner Key	Outside Corners
H-Mold	Vertical Joints - AWP 3030
Open Outside Corner	Outside Corners
J-Mold	Terminations
Inside Corner	Inside Corners

** Be sure to order and use trim channels sized to the appropriate AWP thickness.

ESSENTIAL FLASHING SYSTEM	APPLICATIONS
Starter*	Base/Clearance Concealment
Compression Joint	Horizontal/Compression Joints
Overhang*	Fascia-to-Soffit Transitions

* Inside and outside corner segments are available.



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GENERAL PANEL & ACCESSORY BASICS

All trim, Single and Double Flange Sealant Backer should be installed before panels. Refer to *Inside Corners, Doors, & Windows* and *Vertical Expansion Joints* sections respectively.

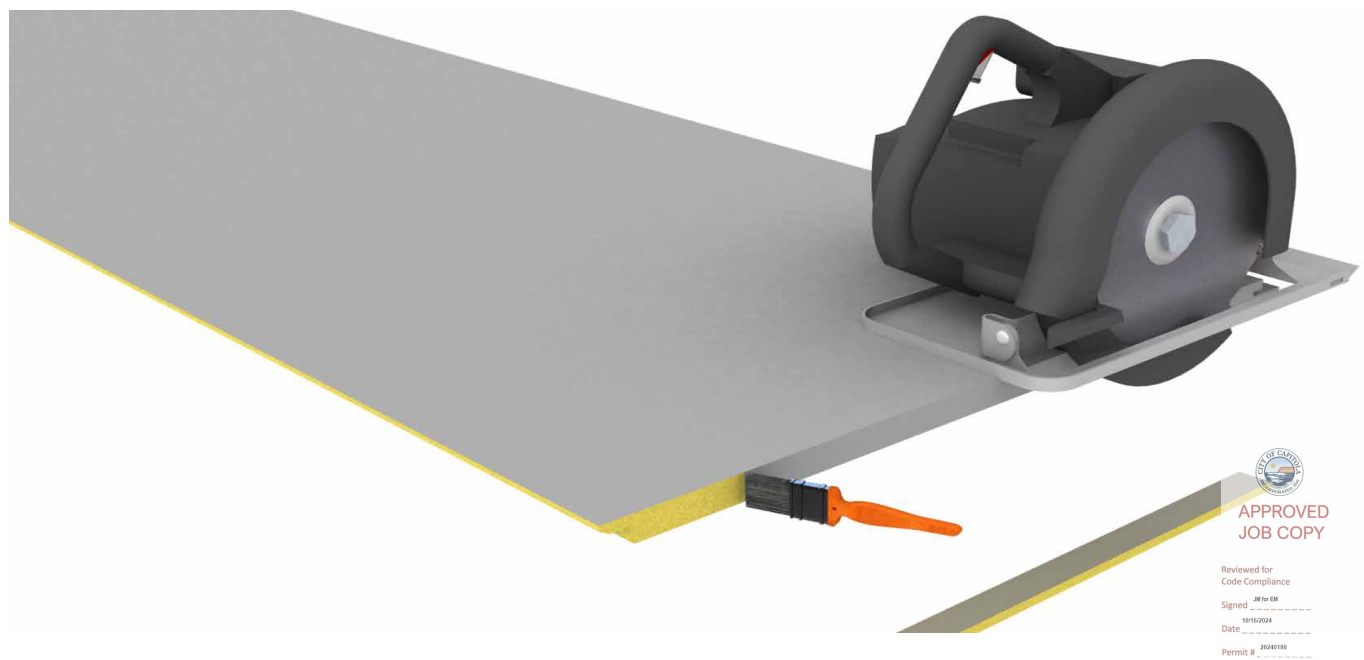
PANEL SELECTION

Nichiha AWP are packaged with two panels in a pack, which are placed on pallets consisting of two stacks. Due to alternating patterns of texture and color between individual panels as well as how the panels are manufactured and packaged, it is best to install all panels from each individual stack before taking and installing panels from the second stack on the same pallet. Do not alternate installing from one stack and the second, which may result in undesirable patterns.

SEALING CUT PANEL EDGES

When cutting AWP, it is best to cut with the panel face down, except when cutting brick finish panels as it is easier to follow the simulated mortar lines on their face.

Cut and exposed panel edges must be primed or sealed with fiber cement sealer (e.g. DryLock®) or latex paint such as Kilz Premium® or Kilz Max®. Do not use Color Xpressions touch up paint for edge sealing as there will not be sufficient supply for larger projects. *Be sure to clean panels with a clean, dry soft cloth or HEPA vacuuming after cutting to prevent dust from bonding to the finish.*



PLANNING & PANEL LAYOUT

To ensure a successful installation, it is important to first plan how the panels will be laid out, where compression and control joints will be located, and line of sight regarding inside corners decided. Refer to *Compatibility Between Panel Types* on page 18 for additional product relationship information.

Reminder: AWP actual dimensions are metric: 455mm (h) x 1,818mm or 3030mm (l). Imperial equivalents: 17-7/8" (h) x 71-9/16" or 119-5/16" (l).

LAYOUTS

AWP 1818 can be installed in a stacked bond or a staggered bond application. Refer to the illustrations on Page 22. AWP 3030 must only be installed with a stacked bond layout. *AWP 3030 may not be staggered.* See the layout illustration on page 26.

VERTICAL CONTROL/EXPANSION JOINTS (PAGE 23)

10mm (3/8") sealant joints account for thermal expansion in the lateral dimension. These are often, where possible, aligned with window or door jambs, downspouts, or other features in order to minimize their appearance. Depending on sheathing type, additional framing, furring, or blocking may be required.

HORIZONTAL/COMPRESSION JOINTS (PAGE 27)

Minimum 1/2" (13mm) horizontal, flashed break detail to allow for building compression at floor lines.

INSIDE CORNER LINE OF SIGHT (PAGE 28)

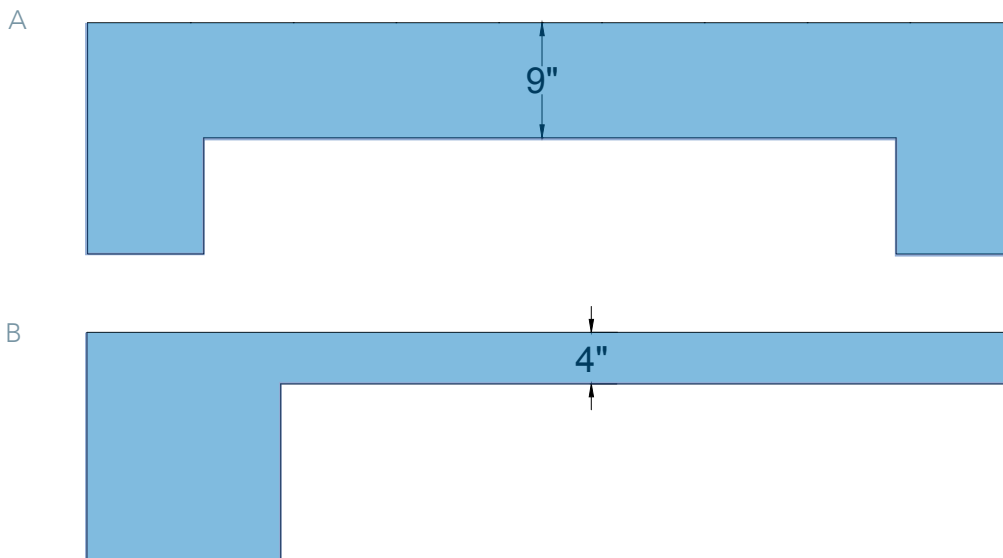
Sealant joints at inside corners can be placed out of view from the primary line of sight of a wall. Place the sealant joint on the less-viewed corner wall. Alternatively, Inside Corner metal trim may be used.

CUT PANELS

In general, it is best to avoid cutting AWP to short or narrow strips and segments of less than 9" (229mm). The hard minimum width or height is 4" (102mm). Adjust the layout or use alternate materials when needed to avoid cutting AWP smaller than 4" (102mm).

Specifically, when an individual panel is wider than a window or other opening and is used over the head or under the sill, do not cut it to less than 9" (229mm) in height. (image A)

When an opening is wider than an individual panel and two or more are needed to cap over the header or cup the sill, do not cut the panel to less than 4" (102mm) in height. (image B)



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COMPATIBILITY BETWEEN PANEL TYPES

NICHIHA AWP 1818 VERSUS AWP 3030

AWP 1818 have shiplap edges on all four sides and the panels joint directly with each other. The vertical joints may be aligned or staggered with each course. Because of their shape, AWP 1818 can only be installed horizontally.

AWP 3030 have shiplap edges only on the long dimension (3030mm (119-5/16")). The short edges (455mm (17-7/8")) are square cut. This enables a vertical installation option for AWP 3030 with a different Starter Track (FA710T). However, it also requires all vertical joints to align when the panels are installed horizontally. This means an AWP 3030 layout can *only* be stacked. The vertical joints must use the Double Flange Sealant Backer with sealant or H-Mold Trim.

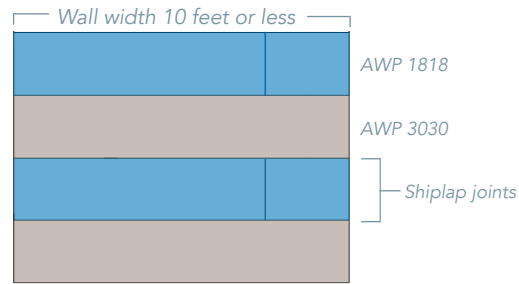
The difference of the vertical edge jointing means AWP 1818 and AWP 3030 can only be matched directly together in a mixed arrangement on walls 10 feet or less in width so that AWP3030 will not require any vertical joints. (Elevation A)

On walls wider than 10 feet (3048mm), the two sizes can be used together with AWP 3030 grouped *below* the AWP 1818 or separated as like groups via vertical trim or sealant backer joints. They can be fitted directly together at horizontal joints only. Vertical edges are not compatible and a trim or sealant backer is required. (Elevation B)

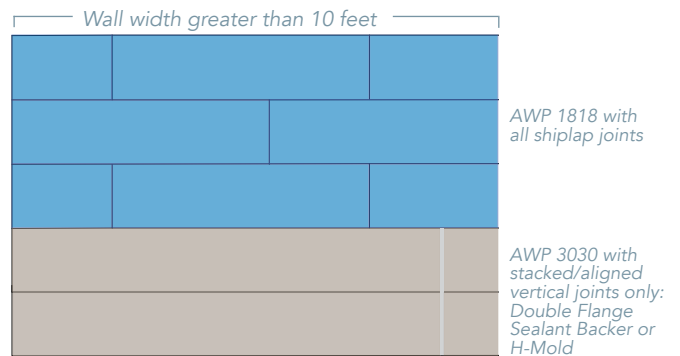
AWP 1818 THICKNESSES

SandStone and VintageBrick (18mm) require use of the JEL788 Ultimate Clip, which accounts for a thicker panel edge. All other panels, including Novenary Tile (21mm) and RiftSawn (18mm) are designed with edges compatible with the JEL788 Ultimate Clip. Because of the difference in edge thicknesses and required clips, SandStone and VintageBrick cannot be jointed directly with any other AWP profiles. These two panels must be separated from all other panel types by Horizontal/Compression Joints and Vertical Control/Expansion Joints.

Novenary Tile (21mm) panels joint normally with any 16mm-thick AWP 1818 on all four sides.



A) 16mm & 21mm AWP 1818 and AWP 3030 mixed on walls ten feet or less in width.



B) 16mm & 21mm AWP 1818 and AWP 3030 together on walls wider than ten feet. 1818's grouped on top with 3030's below only.

AWP1818 JOINT PROFILES

V-Groove: Architectural Block, Illumination 1818

Split V-Groove: TuffBlock, EmpireBlock, IndustrialBlock

Soft U: Illumination 3030

Implications: Illumination 3030 meeting Illumination 1818 or ArchitecturalBlock at a corner will result in different neighboring joint aesthetics. The same is true where TuffBlock may neighbor Illumination 1818 or ArchitecturalBlock.



These are joint profiles for Illumination 1818 or ArchitecturalBlock (left) with a V-Groove joint versus TuffBlock (right) with a Split-V-Groove.



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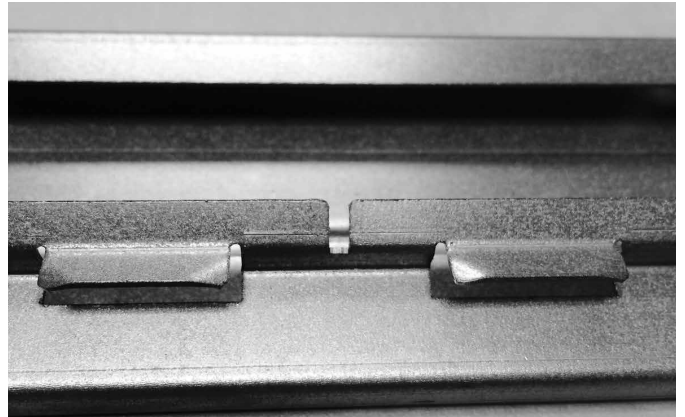
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CUTTING ULTIMATE CLIPS

JEL778/788 Panel Clips are 26" (660mm) long. Where full length clips can be used, they are required. However, there may be conditions where clips must be cut to accommodate panels or corner pieces in smaller areas or segments such as narrow columns, pilasters, or insets, recessed openings, or small areas between windows.

Notches on the upward panel engagement flanges indicate where clips can be cut evenly into thirds. These 1/3 segments can be further reduced evenly into two or four pieces each with weep holes serving as dividing points. The smallest segment must include at least one downward panel engagement flange. Always use the widest clip segment possible.

Cut with a non-ferrous saw blade on a band or chop saw.



FACE FASTENING BEST PRACTICES

To minimize the appearance of face fasteners, utilize the following steps:

Apply low adhesive tape such as painters tape to the panel at face fastening locations.

Pre-drill panels 1" (25mm) from the cut edge to be face fastened. Use a countersink drill bit with chamfer matching the head diameter of the bugle-head type screws to be used for face fastening.

Fill counter-sunk fastener holes with an exterior patching compound, such as MH Ready Patch® and later dab touch-up paint with cotton swabs or an artist brush.

Remove the painter's tape only after applying the patch and touch up paint.



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SEALANT

Sealants to be used with AWP must match the following requirements:

- Comply with ASTM C920
- Have a Class of 35, 50, or 100/50 (minimum 35% joint movement)
- Be a polyurethane, polyurethane hybrid, or Adfast Adseal 4580
- Provide two-sided adhesion at joints (Nichiha sealant backers are light gauge steel with galvalume and fluorine coatings.)

OSI® QUAD® may not be used for Nichiha expansion joints because it is a class 25 product.

- QUAD® MAX is acceptable since it is a Class 50

Refer to the Technical Bulletin: *Sealants* available at Nichiha.com/resource-center.

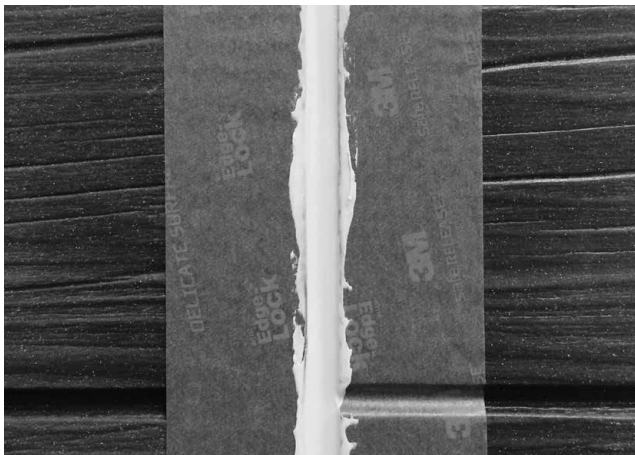
SEALANT JOINTS/CAULKING

Fasten Single Flange Sealant Backers at inside corners (one wall at corner), along window and door jambs, and transition points with other cladding. Fasten to framing, blocking or plywood/OSB sheathing at 12-14" (305-356mm) o.c. with the 3/8" (10mm) bump/sealant portion butting the corner or jamb.

Sealant complying with ASTM C920, Class 35 (min.) is required where Single and/or Double Flange Sealant Backer is used.

Refer to the sealant manufacturer's instructions or requirements.

1. Place low-adhesive tape (masking or painter's) over the panel along the areas requiring sealant joints for a clean caulk line.
2. Fill the gap between the panels with a color-matched/coordinating sealant which complies with the ASTM C920, Class 35 (min.) standard. Nichiha Sealant Backers allow for the proper depth of sealant (75-80%).
3. Before removing tape, press the surface of the sealant with a caulk spatula or similar tool to ensure an even surface.
4. Remove masking tape before sealant cures. If excess sealant adheres to panel, remove completely using a putty knife or soft cloth.



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STARTER TRACK:

INSTALLING THE HORIZONTAL ULTIMATE STARTER TRACK - ALL APPLICATIONS

MINIMUM CLEARANCES

The Horizontal Ultimate Starter Track must be level and positioned to enable a minimum panel clearance of 6" (152mm) above finished soil grade or per local building codes (*the National Building Code of Canada requires minimum 200mm clearance*). Use a laser level to verify. When installing over a hard surface such as driveways or sidewalks, a 2" (51mm) panel edge clearance is acceptable.

Keep AWP at least 1" (25mm) above steep slope roofs. Otherwise, follow roofing manufacturer instructions and water management best practices.

The AWP bottom face edge will extend 3/4" (18mm) below the Starter Track.

Essential Starter Flashing may be installed prior to the Starter Track to conceal the clearance gap above hard scape and decking. *Follow the WRB manufacturer instructions or local code with respect to flashing details for waterproofing.* Beginning with outside and inside corner segments, fasten the Flashing at each stud location or every 10" (254mm) to sill plate. Fasten Flashing inside and outside corner segments to framing on both sides, keeping at least 1" (25mm) from vertical edges. Main segments will slide into/overlap the corner segments.

Position Flashing and/or Starter Track to leave 1/4" (6mm) clearance between the panel edge and Flashing. This is also true for horizontal transitions to other claddings and finishes.

STARTER TRACK INSTALLATION

The Starter Track must be installed using corrosion resistant screws. Refer to page 9 for fastener specifications.

Locate and mark the studs. Terminate Starter Track 1/2" (13mm) short of inside and outside corners unless metal trim is used. With corner metal trims, terminate the Starter Track within 1/2" (13mm) of the trim's fastening flanges.

WOOD & METAL STUDS OR FURRING

Starter Track must be secured at every stud line. Max. 16" (406mm) o.c.

CONCRETE/MASONRY

When installing over concrete construction, the wall must be furred out with pressure treated lumber or metal hat channel. Starter Track must be secured at each furring location. Max. 16" (406mm) o.c.

STRUCTURAL INSULATING PANELS (SIP)

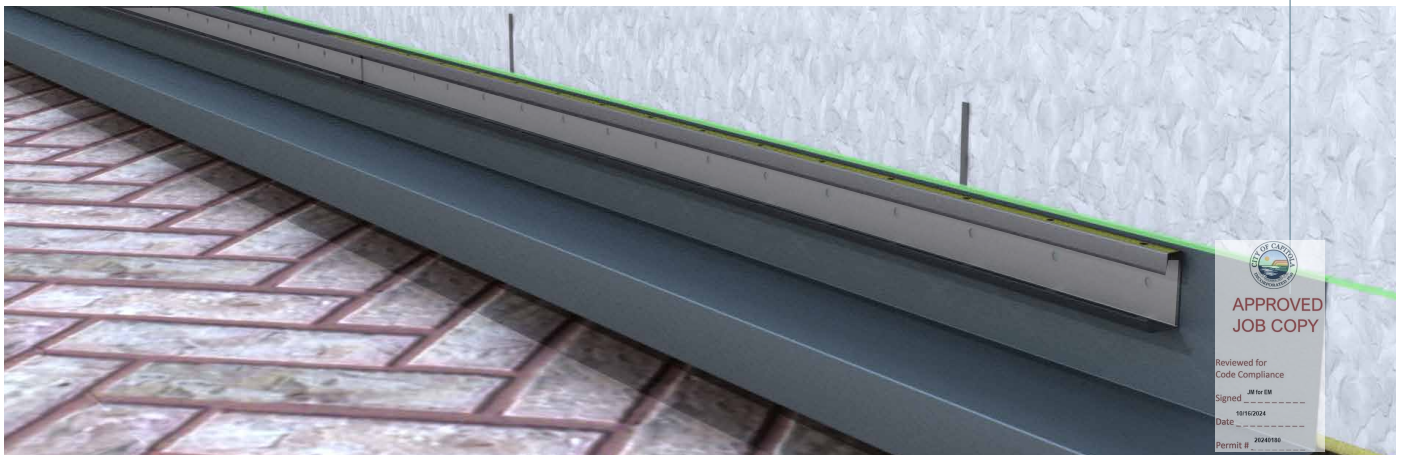
Secure Starter Track every 16" (406mm) o.c. max. to the sill plate.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Fasten Starter Track at every metal panel rib at 12" (305mm) o.c. max.

Essential Starter Flashing

Always follow waterproofing best practices with respect to WRBs and metal flashings or trim.



PANELS BELOW STARTER TRACK

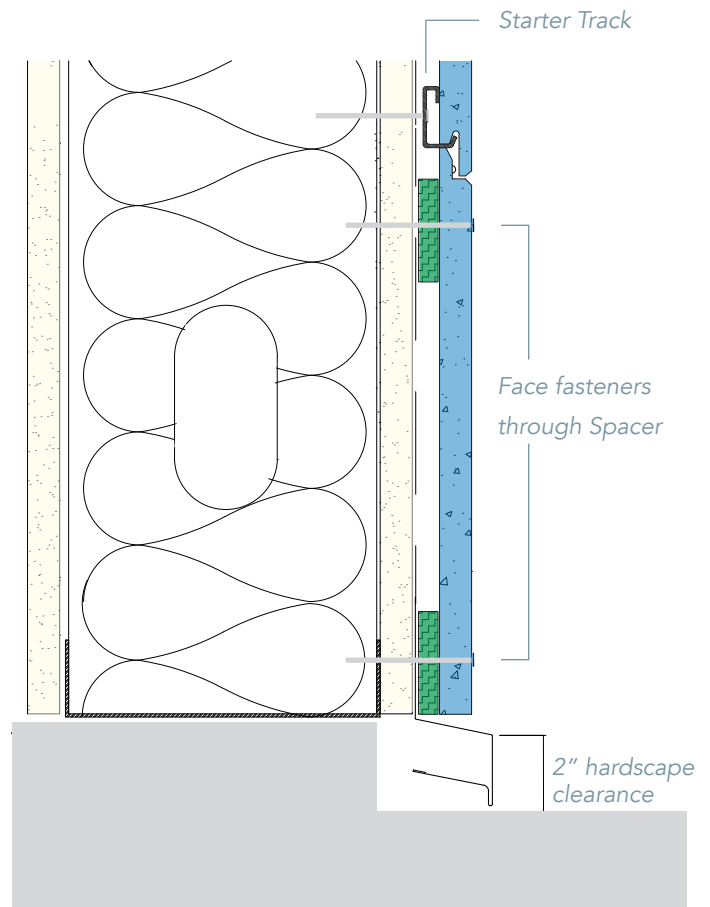
When panel layouts necessitate a partial panel at the bottom of the wall, it is best to add the cut panel below the Starter Track course. This also true for sloped grade conditions.

Begin with Starter Track at lowest possible continual level line and install it as directed in this guide. To clad below Starter Track:

Add FS1010 Spacer below the Starter Track and at the termination point at the wall base.

Cut the bottom edge of the partial panel. Insert the top shi lap under the Starter Track. This will form the appearance of a regular horizontal joint with the bottom shi lap of the panel on the Starter Track.

Face fasten the bottom edge of the panel, one inch up from the cut edge. Also face fasten the top edge of this panel as shown in the drawing.



Cut, fill-in panel below Starter Track

SLOPED GRADE & MULTIPLE PANEL COURSES

Below the Starter, if installing more than one course of panels, install the full-sized course up under the Starter and fasten upside-down Panel Clips underneath, with every framing/furring member covered by a clip. It is necessary to pre-drill new fastener holes for clips used upside-down. Face fasten the top edge of the fill-in panel through corrugated Spacer. Keep fasteners 1" (25mm) from panel edges.

Add the next course and fasten upside-down clips unless that panel course is the final/terminal, cut/scribed one. Face-fasten the bottom/cut course with backing corrugated Spacer.

At outside corners using Nichiha Corners and Corner Clips, the same procedure can be followed.

Maintain minimum clearances above grade: 2" (51mm) above hardscape, 6" (152mm) above soil (200mm in Canada). Paint, prime, or otherwise seal all cut, exposed panel edges. Clean panels after cutting with a clean, dry cloth to remove dust.

If installing over a masonry/CMU foundation, furring is required. This should be taken into consideration when planning the depth of the exterior wall and cladding above so that the entire wall will have a uniform depth.



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STARTER TRACK ABOVE LARGE OPENINGS

Large openings (full panel width or wider) such as storefront windows or garages should be taken into account with respect to Starter Track placement. Utilize Starter Track above these large openings to best support the weight of the panels above and for ease of installation.

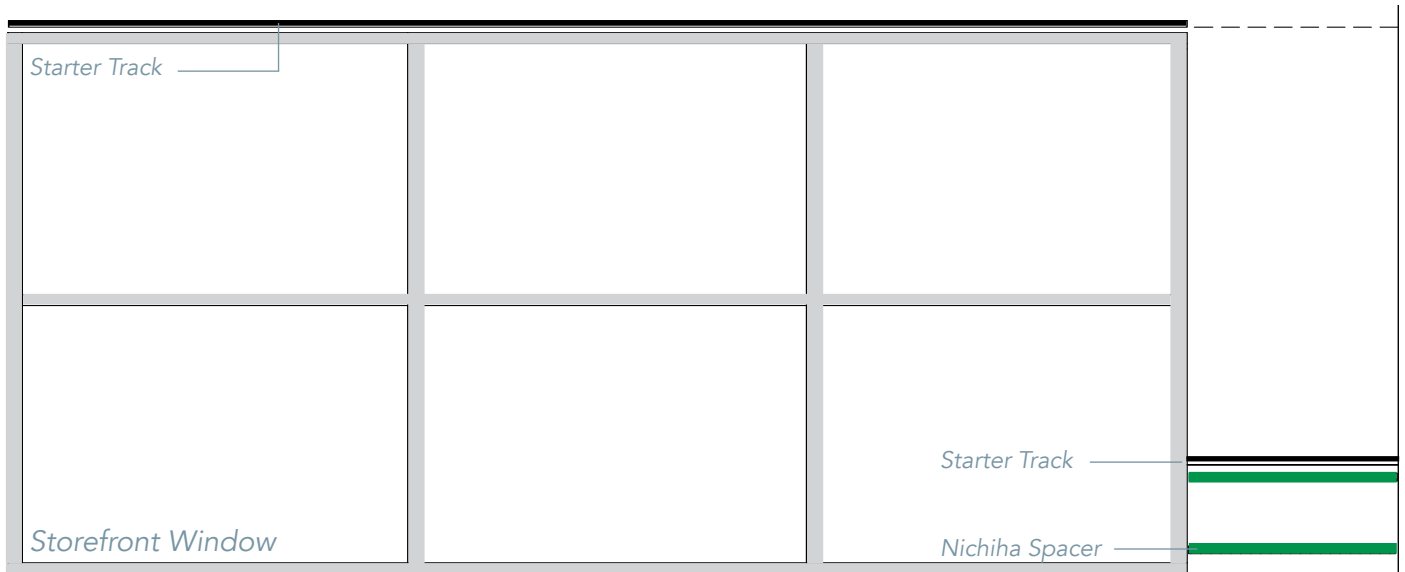
Install Starter Track above the opening with the normal procedure. Also refer to *Window/Door Headers*. Remember AWP are all 17-7/8" (455mm) tall and the bottom shiplapped edges hang below Starter Track by about 3/4" (18mm).

Maintain at least 1/4" (6mm) clearance for panel edges above horizontal flashings, storefront frames, trim, etc.

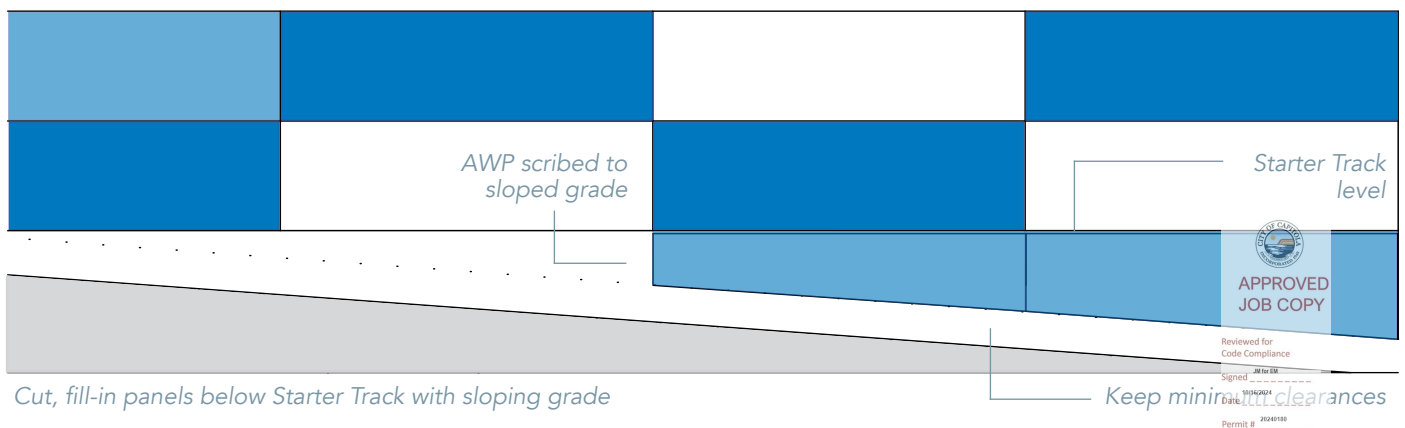
Establish a level line from the bottom of the header Starter Track out to the side on both ends with a laser level.

Use this line to measure down the wall (each side of the large opening) to attach the wall base Starter Track so that the panels will meet at the proper height with respect to the head of the large opening.

Use the *Panels Below Starter Track* procedure for adding fill-in panels below the wall base Starter Track(s).



Make strategic use of Starter Track above and flanking large openings to course and align horizontal joints of AWP.



AWP 1818

PANEL INSTALLATION

AWP installation proceeds by working from left to right. Refer to page 9 for fastener specifications.

WOOD, METAL, CONCRETE / MASONRY WITH FURRING

For AWP 1818, trim off the left side ship-lapped edge so the panel will fit against an already installed Inside Corner metal trim, Sealant Backer, or Outside Corner metal trim. If starting at an inside corner, predetermine which wall will include the Single Flange Sealant Backer for an inside corner detail. Consider the location to minimize the visibility of the sealant joint line. Clad the higher visibility wall without the sealant joint first so that the adjoining wall panels can terminate to it with the Single Flange Sealant Backer detail. Or use Inside Corner metal trim.

Set the first panel into the Starter Track and secure the top edge with a Panel Clip, placing the first clip about one inch (25mm) from the left edge of the panel. Fasten the clip at each stud location the clip reaches. Every clip will cover 2-3 studs and must be fastened to each. (Figure 21-a,b)

Proceed along the panel to the right, placing another clip 4-5 inches (102-127mm) from the end of the previously installed clip so that the second clip is roughly centered over the panel middle but DO NOT skip any studs. Fasten clips at each stud location.

Place the second panel next to the first, making sure the shiplap joint fits tightly together.

A rubber mallet or block of wood may be used to seat the panels firmly in place and tighten to the left. Do not hammer directly anywhere on the panels as direct contact may cause cracks, gouges, or chipping. (Figure 21c)

Place a clip on top of this vertical joint. Vertical joints must be spanned with a clip covering the top edge of where the panels meet. Fasten the clip to each stud it reaches. Do not skip any studs. Each long panel edge should be supported by about 2.5 clips. (Figure 21d)

Verify the first course of panels is level. Large commercial buildings require checking level around the entire building.

Start the second row in the same fashion as the first, but, in addition to the previous steps, add the **Vertical Joint Tab Attachment** against the bottom right hand corner of each panel. The Attachment seats inside the panel clip, with tabs that fit on clip's rainscreen flange. Fasten the Attachment to the panel clip with the provided fastener. (Figure 21e)

Fit panels tightly together on both horizontal and vertical joints, ensuring the panel edges are properly butted together.

Complete the second and remaining non-terminal rows in the same way, with the Vertical Joint Tab Attachments at the base of each vertical joint. Terminal rows such as under *Compression Joints* or at the *Last Course* are covered in subsequent sections of this guide.

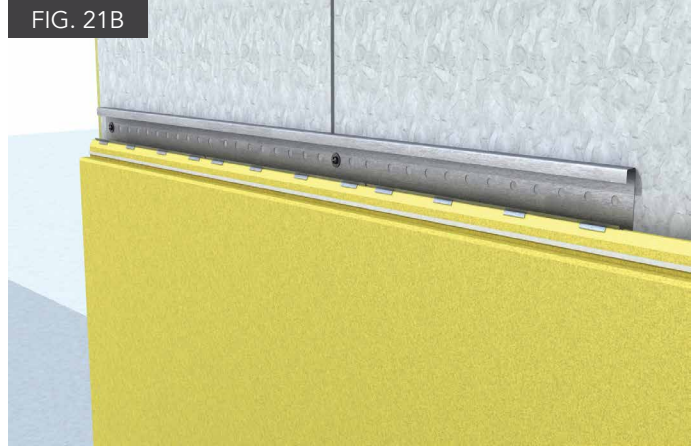
Vertical Control/Expansion Joints may be required on walls wider than 30 feet (9.14m). Refer to page 23.

Horizontal/Compression Joints may be required on structures taller than three stories or 45 feet (13.72m). Refer to page 27.



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STRUCTURAL INSULATING PANELS (SIP)

In general, the steps mirror those for stud wall applications. However, double fastening per each panel clip (minimum of 4 screws per clip) is required as there are fewer or no studs to secure the system.

There must be about 2.5 clips per AWP 1818 edge, with vertical joints spanned by Panel Clips and the Joint Tab Attachment seated in and fastened to the Panel Clip at the lower right corner of each panel.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

Refer again to general requirements concerning PEMB installations in the *Framing and Sheathing Requirements* section.

With metal panel ribs spaced no more than 12" (305mm) o.c., install AWP in the same manner as with stud wall applications but with Panel Clips fastened to each rib they reach. Screws (#10x1" (25mm)) applied at no more than 12" (305mm) o.c.

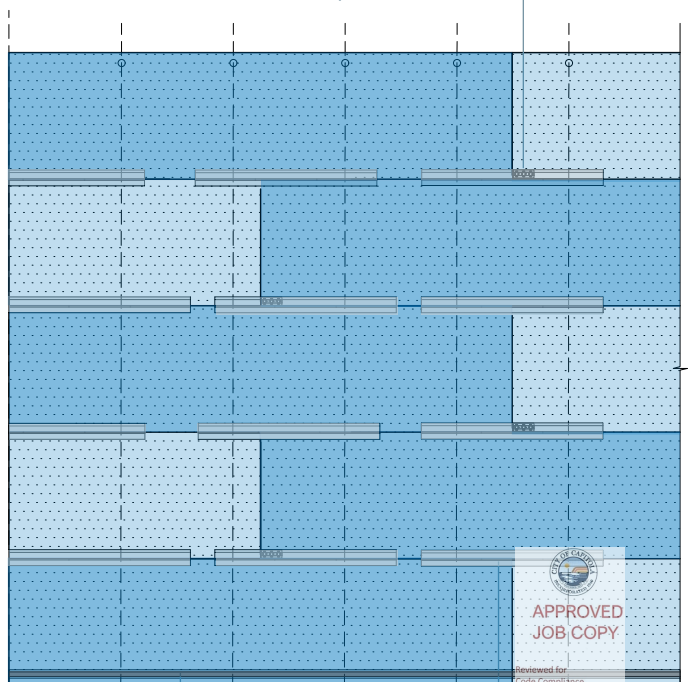
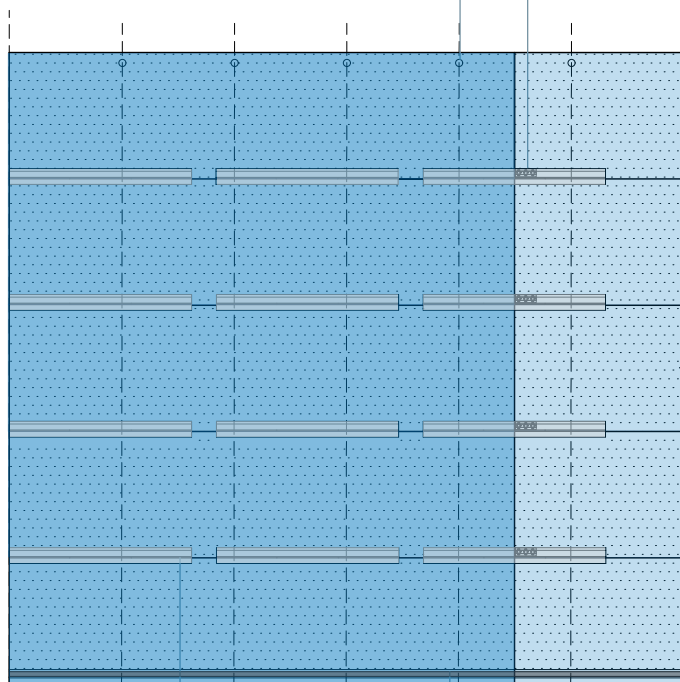
There must be about 2.5 clips per AWP 1818 edge, with vertical joints spanned by Panel Clips and the Joint Tab Attachment seated in and fastened to the clip at the lower right corner of each panel.

STACKED AND STAGGERED PANEL LAYOUTS AWP 1818

Centerline of Framing/Furring Members
(Spacing Shown at 16" (406mm) O.C.)

Face Fasten at Horizontal Terminations

Joint Tab Attachment
at bottom right corner of each panel



Ultimate Clip
Stacked Panel Layout

Ultimate Horizontal Starter Track
Staggered Panel Layout

VERTICAL CONTROL/ EXPANSION JOINTS

AWP 1818

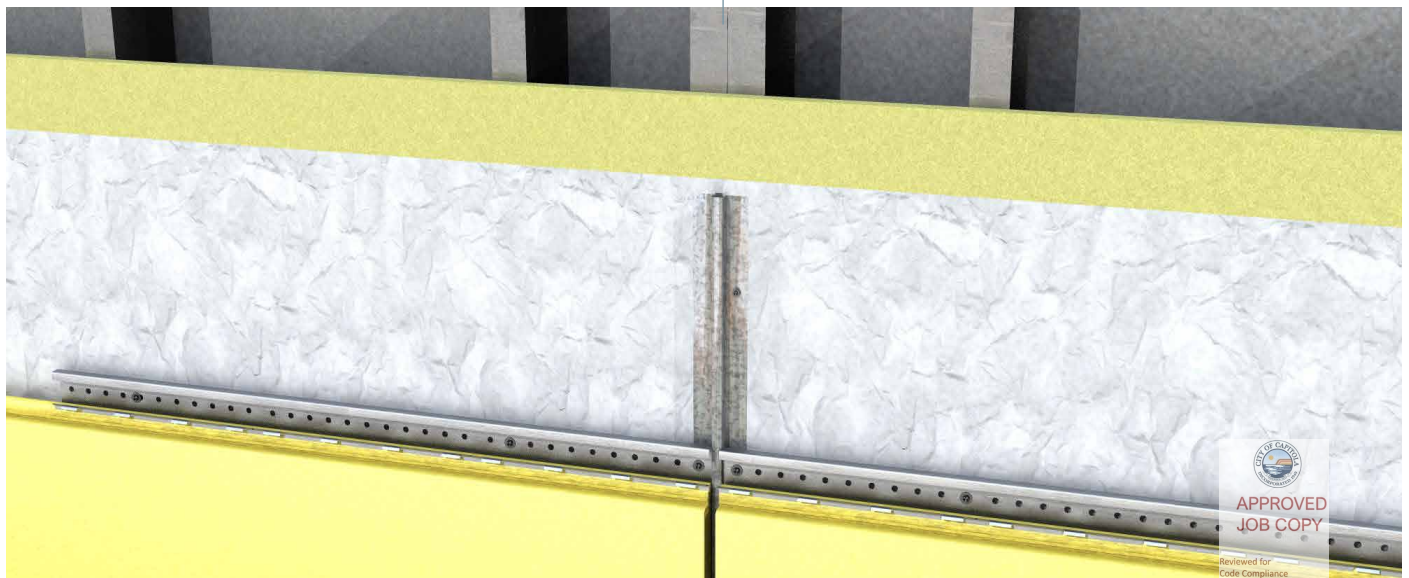
When using metal trim outside corners on walls wider than 30 feet (9.14m), Vertical Control/Expansion Joints (Double Flange Sealant Backers) are required within 2-12 feet (610-3,658mm) of both sides of outside corners and then approximately every 30 feet (9.14m) thereafter. Where cut panel edges terminate to trim channels, ensure the edges butt in moderate contact with them.

Projects using Nichiha Corners (see Figures on page 31) satisfy the 2'-12' Rule but still require expansion joints roughly every 30 feet (9.14m) beyond the Corner joints.

For example, a 60-foot (18.3m) wall with two outside corners would require three vertical control joints: one near each outside corner and one towards the center.

Install Double Flange Sealant Backer to butt up against the panels at pre-determined locations and secure the joint to substrate on one side (the right side flange) every 12"-14" (305-356mm). Sealant Backers must be fastened to plywood/OSB sheathing, framing/furring members (added if necessary to pre-planned joint locations), or blocking. The 17-7/8" (455mm) edges must be cut, fully removing the shiplaps.

Add framing/blocking to fasten Sealant Backers as necessary



H-Mold trim may not be used as a *substitute* for required AWP 1818 expansion joints. It may otherwise be used for design and layout purposes. Contact the Technical Department for H-Mold and AWP 1818 questions.

SEALANT APPLICATION (1818 & 3030)

Apply low-adhesive tape along the panel edges at Double Flange joints to protect panel finishes from sealant and for a smoother look when the sealant is applied and tape removed.

Apply ASTM C920, Class 35 (min.) compliant sealant into the expansion joint, starting at the bottom and pushing sealant into the gap.

Follow the contour of the panel edges so that the sealant depth always matches the face edge/depth of the panels.



AWP 3030 HORIZONTAL INSTALLATION

AWP installation proceeds by working from left to right. AWP 3030 may only be installed in a stacked bond. Refer to layout illustration on page 26. Refer to page 9 for fastener specifications.

WOOD, METAL, CONCRETE / MASONRY WITH FURRING

For AWP 3030, the left and right panel edges are flat and do not require initial cutting.

The panel will fit against an already installed Inside Corner metal trim, Sealant Backer, or outside corner trim. If starting at an inside corner, predetermine which wall will include the Single Flange Sealant Backer for an inside corner detail. Consider the location to minimize the visibility of the sealant joint line. Clad the higher visibility wall without the sealant joint first so that the adjoining wall panels can terminate to it with the Single Flange Sealant Backer detail. Or utilize Inside Corner metal trim.

Set first panel into the Starter Track and secure the top edge with an Ultimate Clip, placing the first clip about one inch (25mm) from the left edge of the panel. Fasten clip at each stud location the clip reaches. Every clip will cover 2-3 studs and must be fastened to each. (Figure 25a)

Proceed along the panel to the right, placing another clip 3-4 inches (76-102mm) from the end of the previously installed clip. DO NOT skip any studs. Fasten clips at each stud location. Each AWP 3030 long edge must be covered by four clips. (Figure 25b)

Since AWP 3030 do not have shiplaps on their short edges, a control joint or H-Mold trim detail is needed at each vertical joint. **Do not butt vertical edges directly.** The vertical joint is continuous and not split up or staggered.

Fasten the Double Flange Sealant Backer at vertical joints between panels. Fasten Sealant Backer on the right side flange every 12-14 inches (305-356mm) to framing, blocking, or plywood/OSB sheathing.

Install the next panel right up to the Double Flange Sealant Backer and secure it with clips at each stud location. The sealant joint is 10mm (3/8") wide. (Figure 25c,d)

Alternatively, H-Mold metal trim can be used at vertical joints for horizontal AWP 3030. This trim, as well as Nichiha Sealant Backer must be fastened to plywood/OSB sheathing, framing, furring, or blocking. Fasten metal trim every 12-16" (305-406mm) in a staggered fashion on alternating flanges.

For H-Mold, leave a no more than a 1/8" (3.2mm) gap between the edge of the panel and the center flange of the trim. (Figure 25e)

Verify the first course of panels is level. Large commercial buildings require checking level around the entire building.

Complete the second and remaining non-terminal rows in the same way. Fit panels tightly together on horizontal joints, ensuring the panel edges are properly butted together. A rubber mallet or block of wood may be used to seat the panels firmly in place and tighten downward.

The **Joint Tab Attachments** are not used with AWP 3030. Terminal rows such as under *Horizontal/Compression Joints* or at the *Last Course* are discussed in subsequent sections of this guide.



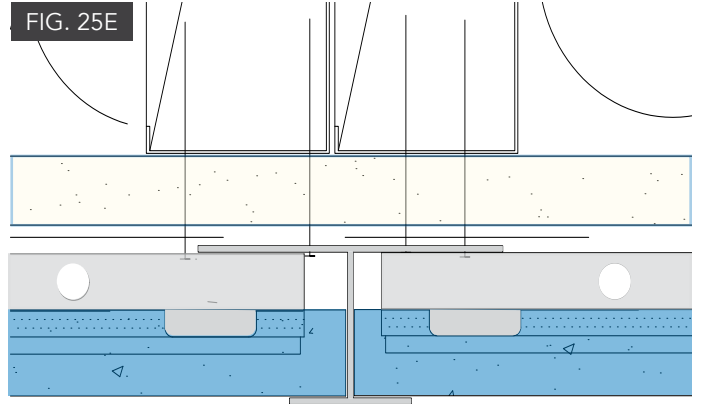
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H-Mold as the AWP-3030 vertical joint detail



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STRUCTURAL INSULATING PANELS (SIP)

In general, the steps mirror those for stud wall applications. However, double fastening per each Panel Clip (minimum of four screws, evenly spaced per clip) is required as there are fewer or no studs to secure the system. There must be four clips per AWP 3030 edge.

PRE-ENGINEERED METAL BUILDINGS (PEMB)

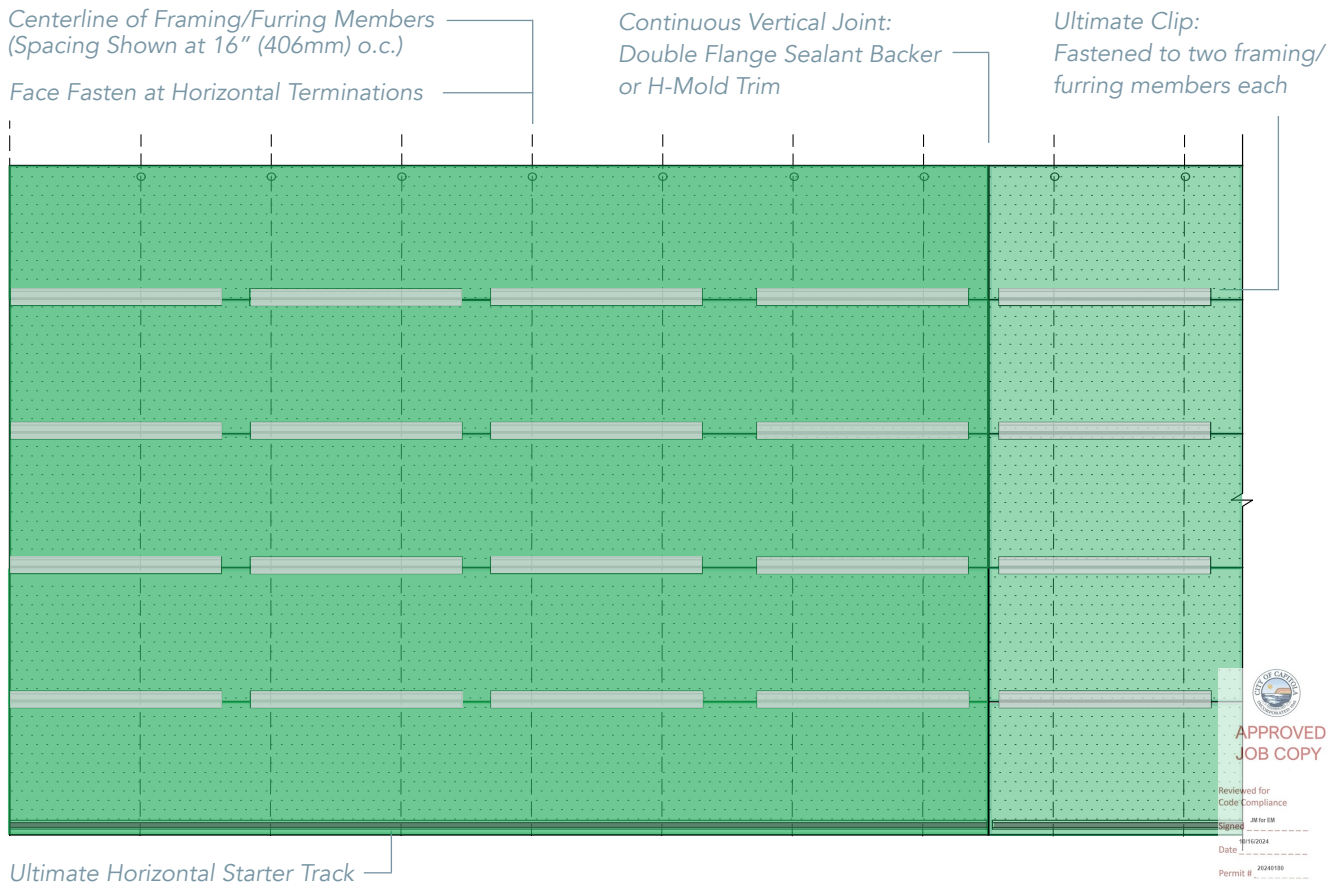
Refer again to general requirements concerning PEMB installations in the **Framing and Sheathing Requirements** section.

With metal panel ribs spaced no more than 12" (305mm) o.c., install AWP in the same manner as with stud wall applications but with Panel Clips fastened to each rib they reach. Screws (#10 x 1" (25mm)) applied at no more than 12" (305mm) o.c.

There must be four clips per AWP 3030 long edge.

STACKED PANEL LAYOUT ONLY - AWP 3030

AWP 3030 must be installed with continuous vertical joints. No panel staggering is permitted.



HORIZONTAL/ COMPRESSION JOINTS

ALL APPLICATIONS

Project designers must account for building compression when planning the cladding layout and incorporate horizontal/compression joints as appropriate. Nichiha is not liable for panel damage due to building compression. In general, Nichiha recommends such joints at each floor level.

With metal framing projects of more than three stories or 45 feet (13.7m), add a compression joint approximately every 25 feet (7.62m), located at the floor line(s) nearest this distance.

For wood framing projects of three stories or more, a compression joint is required at each floor.

Locate compression joints at floor lines.

Please contact the Nichiha Technical Department for assistance.

INSTALLING A HORIZONTAL COMPRESSION JOINT

Install Essential Compression Joint Flashing or a heavy gauge z-shaped metal flashing or drip cap over the top edge of the course of panels terminating under the horizontal compression joint location.

Fasten the Flashing at each stud location. Follow relevant WRB manufacturer instructions and local code for moisture management best practices and detailing for flashings.

The top ship-lapped edge of the bottom panel is cut and secured by face fastening (1" (25mm) below panel cut edge) to framing every 16" o.c. (406mm) with 10mm Spacer behind.

Install Starter Track above the flashing such that the next course of panels sit at least 1/2 inch (13mm) above the course below. Remember the bottom ship-lapped edge of panels extend 3/4" (18mm) below the Starter Track, so the Starter will need to be installed at least 1-1/4" (31mm) above the edge of the panel course below the joint.

Check for level.

Continue to install panels according to these guidelines with compression joints at the appropriate elevation(s).



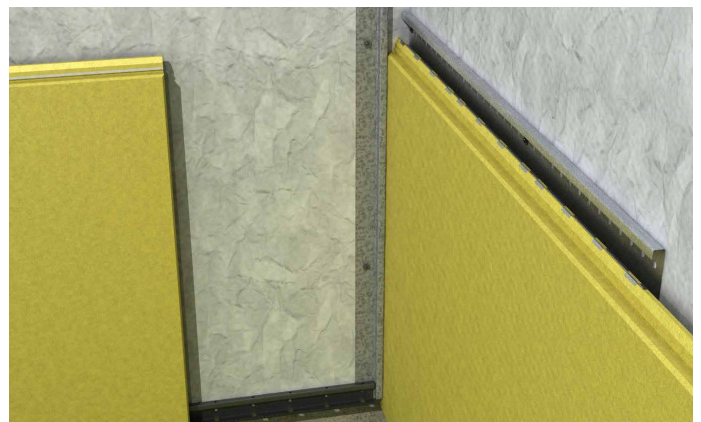
CORNERS & OPENINGS

ALL APPLICATIONS

Appropriate flashing and moisture management best practices must be used to prevent moisture penetration at all inside corners, doors, and windows. Follow moisture management best practices, WRB manufacturer's guidelines, window/door manufacturer instructions, and all local building codes. *Nichiha assumes no responsibility for moisture infiltration.*

Nichiha Cut and exposed panel edges must be primed or sealed with fiber cement sealer or paint.

As necessary, add trim, jamb/sill extenders, and/or other flashings at corners, windows, doors, and other openings prior to AWP installation.



INSIDE CORNERS

SINGLE FLANGE SEALANT BACKER

Decide the primary line of sight in order to minimize visibility of the sealant joint.

Install the panel (ship-lapped edges at the joint will need to be cut off) on the front wall (more visible) first. Ensure these panels are butted up in moderate contact to the inside corner wall.

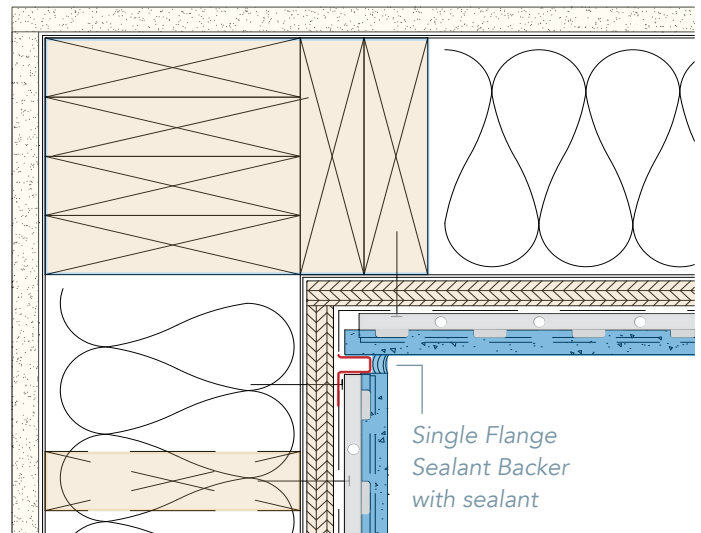
Next, fasten the Single Flange Sealant Backer every 12-14" (305-356mm), onto the side wall, right up against the front wall panel faces.

Install the side wall panel directly against the sealant backer and secure with Panel Clips. Fill space with sealant.

INSIDE CORNER METAL TRIM

Install Nichiha Inside Corner metal trim directly against the inside corner sheathing. Fasten metal trim to corner framing/furring every 12-16" (305-406mm) in a staggered fashion on alternating flanges.

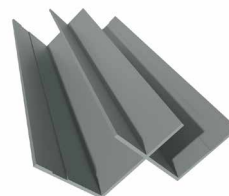
If installing AWP 1818, remove the left/right shiplapped edges, treating the cuts, and install panels normally, butting to the Inside Corner trim in moderate contact.



Plan view section at an inside corner

TRIM BOARDS

Install trim boards at inside corner first and butt the flat panel edges to Single Flange Sealant Backer. Add ASTM C920, Class 35 (min.) compliant sealant to the gap.



Inside Corner Trim



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WINDOW SILLS

FACE FASTENING

For recessed windows, add the window manufacturer's sill flashing/extension attachments or other flashing cap where the panels will terminate so that the top edges are covered or capped at the sill.

As needed to match the window width, remove the panel top ship-lapped edge, cutting the panel to the required height to fit below the window sill, leaving a 1/4" (6mm) gap between the top of the cut panel edge and the window sill or trim board.

Cut panel edges must be sealed with 100% acrylic latex primer or paint, such as Kilz Premium or Kilz Max. Clean any dust off the panels with a clean, soft, dry cloth or dust-filtered vacuum.

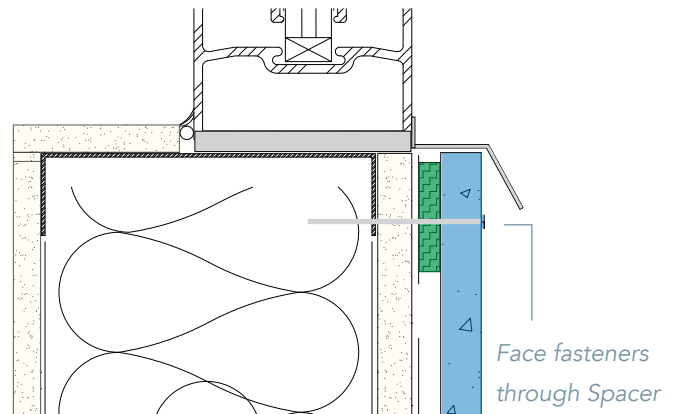
Add FS1010 Corrugated Spacer (10mm) at the sill. Set the panel on the clips of the panel(s) below and position the panel into place to seat properly. Then add the painter's tape per the *Face Fastening Best Practices* section, pre-drill with countersink before face fastening the top, cut edge of the panel at the sill, every 16" (406mm) o.c. max. Keep screws 1" (25mm) below the edge. This will avoid cracking or breaking the panel.

If the top edge of the panel is fully sheltered under the sill, it is not necessary to seal the 1/4" (6mm) gap. For better system performance, Nichiha recommends a vented approach.

J-Mold type trim (installed before AWP) may be used at window sills if AWP can be slid into position from the side(s).



Face fasten the top edge of panels at sills.



Use window manufacturer sill extensions/flashing or brake metal to cap over the panels at recessed sill returns.



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WINDOW / DOOR JAMBS

A minimum gap of 1/4" (6mm) is required when butting panels directly into windows, doors, and trim boards. Refer to window/door manufacturer guidelines for spacing trims around openings.

SINGLE FLANGE SEALANT BACKER

Install the Single Flange Sealant Backer first, butting to the door/window jamb or trim pieces prior to installing the panels.

The Single Flange Sealant Backer must be fastened every 12"-14" (305-356mm) to studs, blocking, or structural sheathing.

Cut panels to the appropriate width, at least removing ship-lapped vertical edges. Remember to clean freshly cut panels with a soft, dry cloth or a dust-filtered vacuum.

Install panels and fill the gap with ASTM C920, Class 35 (min.) compliant sealant.

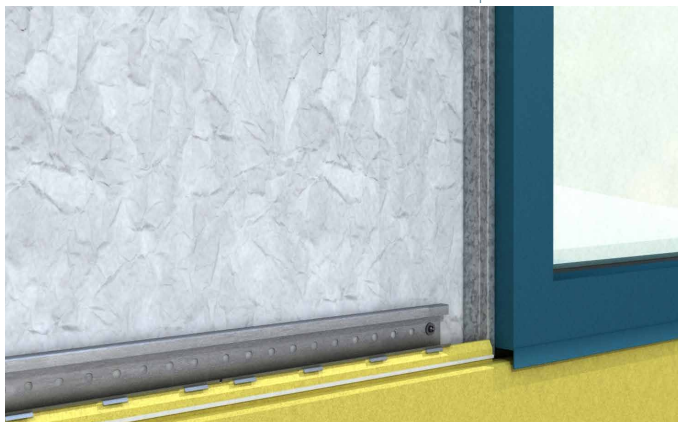
J-MOLD

Pre-install J-Mold trim at window and door jambs prior to AWP. For J-Mold positioning, refer to the window/door manufacturer instructions regarding trim attachments to determine if the J-Mold can be butted directly to the window or door jamb or if a gap is required.

AWP cut vertical edges must fit completely within the J-Mold, leaving no exposed panel edges.

Lastly, add closed-cell foam backer rod and sealant to any gap between the J-mold and jamb, if applicable.

Single Flange Sealant Backer



Flush window jamb with Sealant Backer

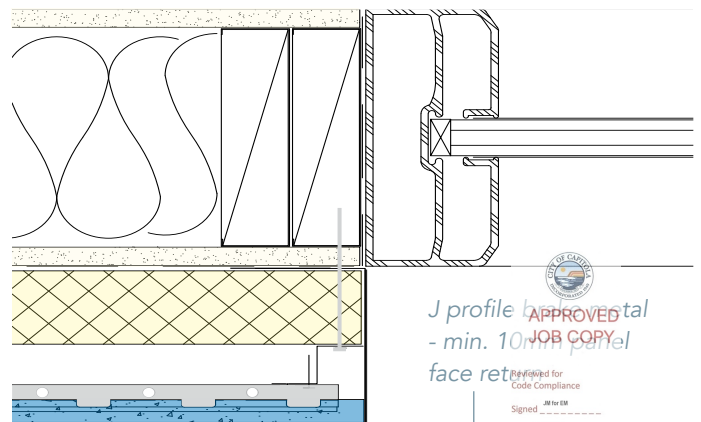
RECESSED JAMBS

At recessed openings, the best option for finishing the jamb returns/recesses is with jamb extension accessories from the window or door manufacturer. The extenders must account for the depth of the return, inclusive of the Nichiha system (1-1.25" (25-31mm)). With these in place, the standard Single Flange Sealant Backer or J-Mold steps can be followed.

BRAKE METAL

Another option at recessed jambs is to use brake metal to cover the return over furring, continuous insulation, or other assembly components that create the recessed window condition. Because of thermal expansion and contraction of AWP, the brake metal must be of a heavier gauge sheet steel (24 or thicker) or equivalent aluminum.

For an L-angle shaped metal, terminate the AWP to a Single Flange Sealant Backer meeting the outward fin, which must extend to just beyond the panel face. Or include a face return flange on the brake metal to form a J-Mold type profile. With a minimum 10mm (3/8") return leg covering the panel edge and face, the sealant joint can be eliminated. Insert the panel edge in moderate contact with the metal.



J profile brake metal at a recessed window jamb

WINDOW/DOOR HEADERS

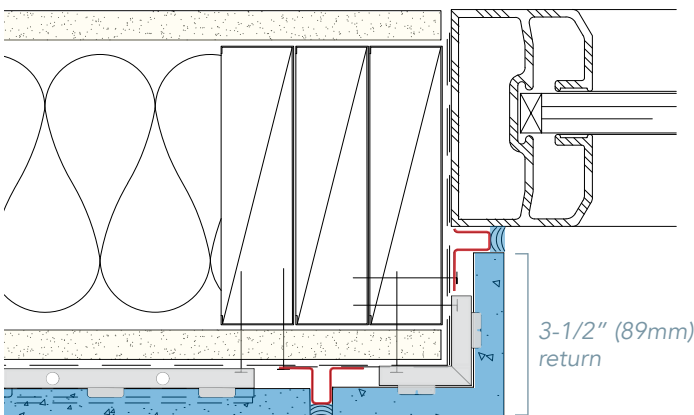
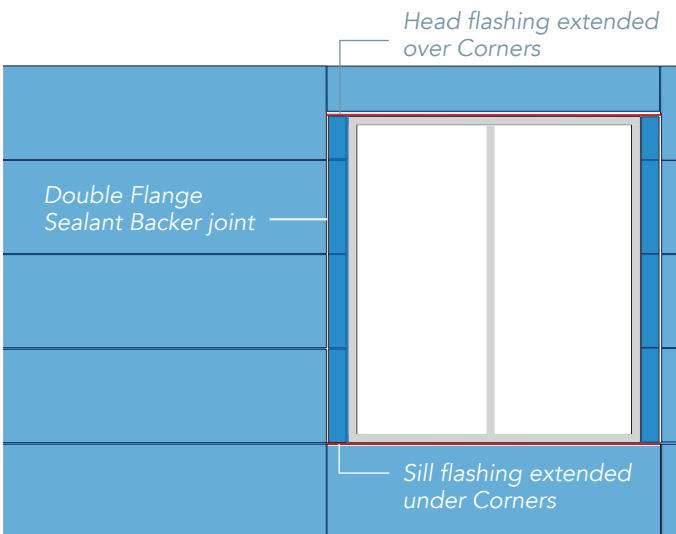
NICHIHA CORNERS

Nichiha Corners can be used to wrap recessed window jambs. Corners have returns of 3-1/2" (89mm) (face dimension). Cut the pieces as needed for shallower returns but there must be sufficient depth for use of Corner Clips.

Extend the opening's header and sill flashing to cover the width of the Corner pieces that will flank the opening. Add Single Flange Backer where the Corner will return and meet the recessed opening frame.

Wrap the base of the jamb with cut pieces of Starter Track (or FS1010 Spacer if face fastening). Maintain a min. 1/4" (6mm) clearance above the sill flashing. Install Corner pieces at the jamb using Corner Clips.

Through 10mm Spacer, face fasten shortened Corners under the head flashing. Then add Double Flange Sealant Backers to the sides of the Corners prior to the main panel installation.



Factory outside Corner at a recessed window jamb

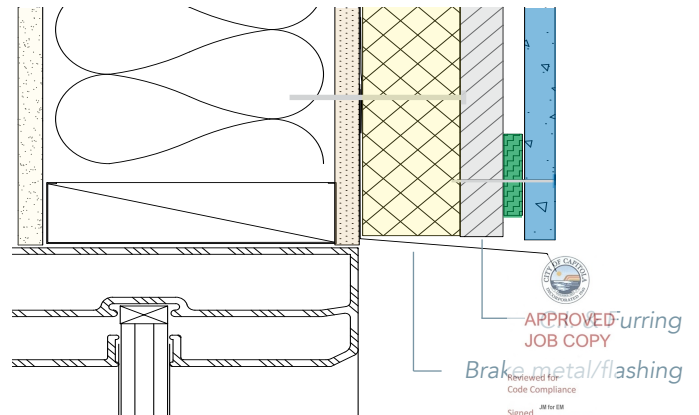
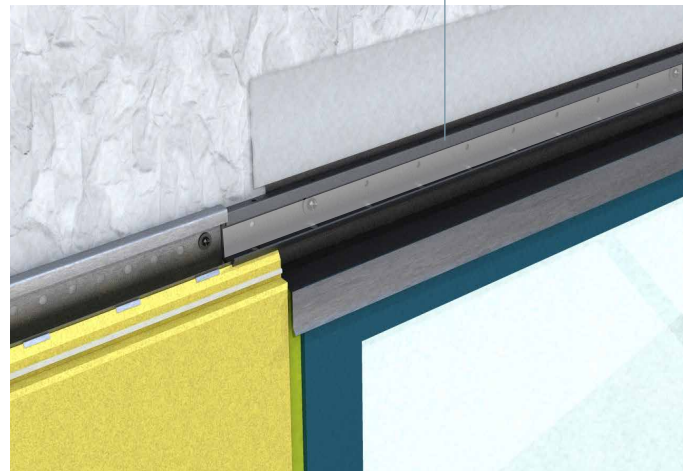
STARTER TRACK

When starting a course of whole panels above a window or door, add flashing and Horizontal Starter Track at the header, installed with fasteners at each framing/furring member or into header framing, every 16" (406mm). Follow the WRB installation instructions with respect to window heads and metal flashings. Refer to *Starter Track Above Large Openings* on page 15.

FACE FASTENING

When adding a cut panel above the opening, install drip edge flashing and 10mm corrugated Spacer first and follow WRB manufacturer installation instructions with respect to window/door heads and metal flashings. Then face fasten panels every 16" (406mm) to the header framing or at each vertical framing/furring member. Keep fasteners a min. 1" (25mm) from the panel bottom edge(s).

Starter Track over Z-flashing



Face fasten cut panels through 10mm Spacer at opening heads. Use extenders or brake metal for recessed returns.

OUTSIDE CORNERS

There are several Nichiha recommended outside corner installation options:

- Nichiha Corners
- Metal (Open Outside, Corner Key) and Vinyl Trim
- Fiber Cement and PVC Trim Boards

Appropriate flashing must be used as required to prevent moisture penetration on outside corners.

NICHIHA CORNERS

Install Nichiha Corners prior to panels. Corners may only be used in vertical applications. They may not wrap window heads and sills.

When using Nichiha Corners, terminate the Starter Track 1/2" (13mm) short of both sides of the wall corner. Set a Corner on the Starter Track and secure it with a Corner Clip. Fasten with screws into framing/structure on both sides of the Corner Clip.

Place the next Corner on top of the first, fitting the ship-lapped edges together over the clips. Secure the top edge in the same manner with a Corner Clip. (Figure A, B)

Continue up the outside corner, stacking and securing the Corner pieces.

The top Corner will be cut to the appropriate height and face fastened over 10mm Spacer.

Add Double Flange Sealant Backer at the Corners on both sides, all the way down from the top of the wall section to the Starter Track. Secure Sealant Backer to structure every 12-14" (305-356mm) on the exposed fastening flanges. (Figure C)

After all the panels have been installed, apply ASTM C920, Class 35 (min.) compliant sealant to the Sealant Backers.



Double Flange Sealant Backer flanking stacked Corners

METAL & VINYL TRIM

Install trim channels, such as Nichiha Corner Key or Open Outside Corner, manufactured by Tamlyn, prior to Starter Track and panels. Fasten trim with corrosion resistant fasteners through the wall mounting flanges every 12-16" (305-406mm) into studs or corner blocking. Stagger the fasteners on alternating sides.

Cut off terminal panels' ship-lapped edges, enabling the cut panel edges to fit fully into the trim channels. Panel edges must not be left exposed. Butt the flat panel edges in moderate contact to the center flange of the trim. With Corner Key trim, this will necessitate miter cutting the panel edges.

Refer to *Vertical Control/Expansion Joints*.

Nichiha metal trim pieces are each 10 feet (3048mm) in length. To cut metal trim, a non-ferrous carbide miter saw blade is appropriate. When butting/stacking metal trim pieces, add a bead of polyurethane sealant at the seam/joint.

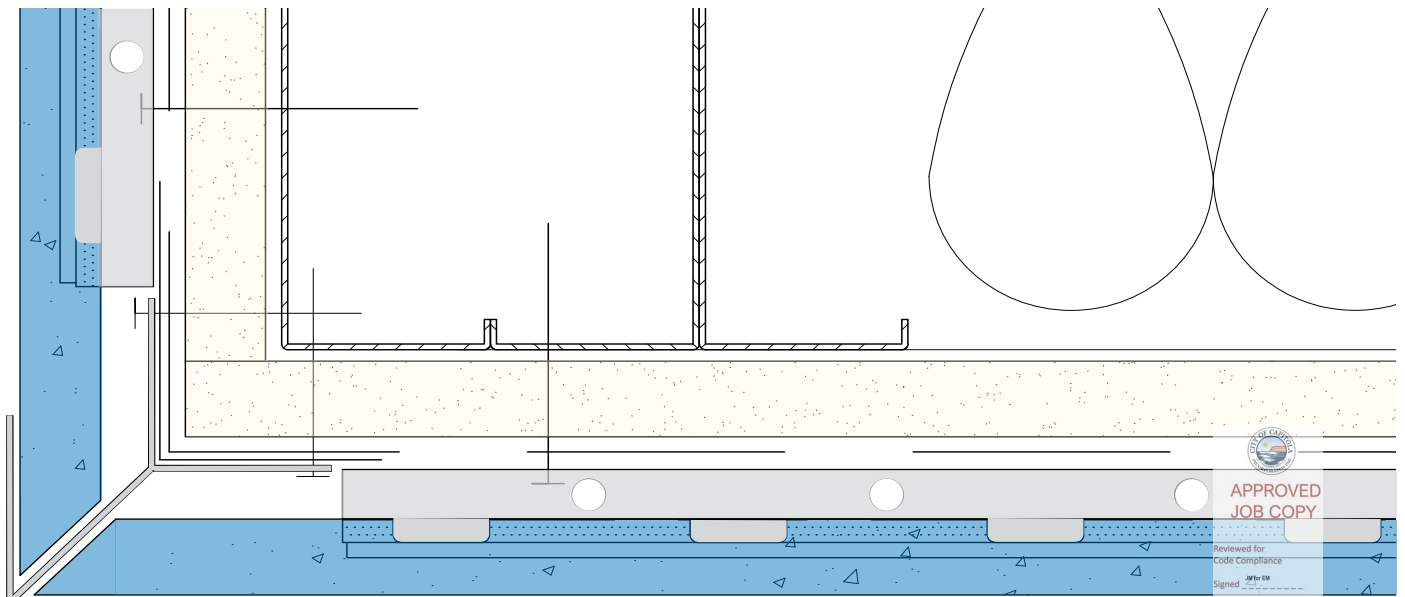
Metal trim can be pre-finished when purchased to match custom Nichiha Color Xpressions panels and some standard panel colors. Otherwise, for field painting metal trim, it is best to purchase Primed trim, which readily accepts a variety of exterior paints. See [Tamlyn's XtremeTrim Painting Guide](#).

FIBER CEMENT & PVC TRIM BOARDS

Nichiha manufactures a full line of fiber cement trim boards - NichiTrim™, which are available in the Southeast U.S. Refer to Nichiha.com for more information.

When panels are to be butted to fiber cement, wood or other trim pieces, use Nichiha Single Flange Sealant Backer between them.

Apply sealant compliant with ASTM C920, Class 35 (min.).



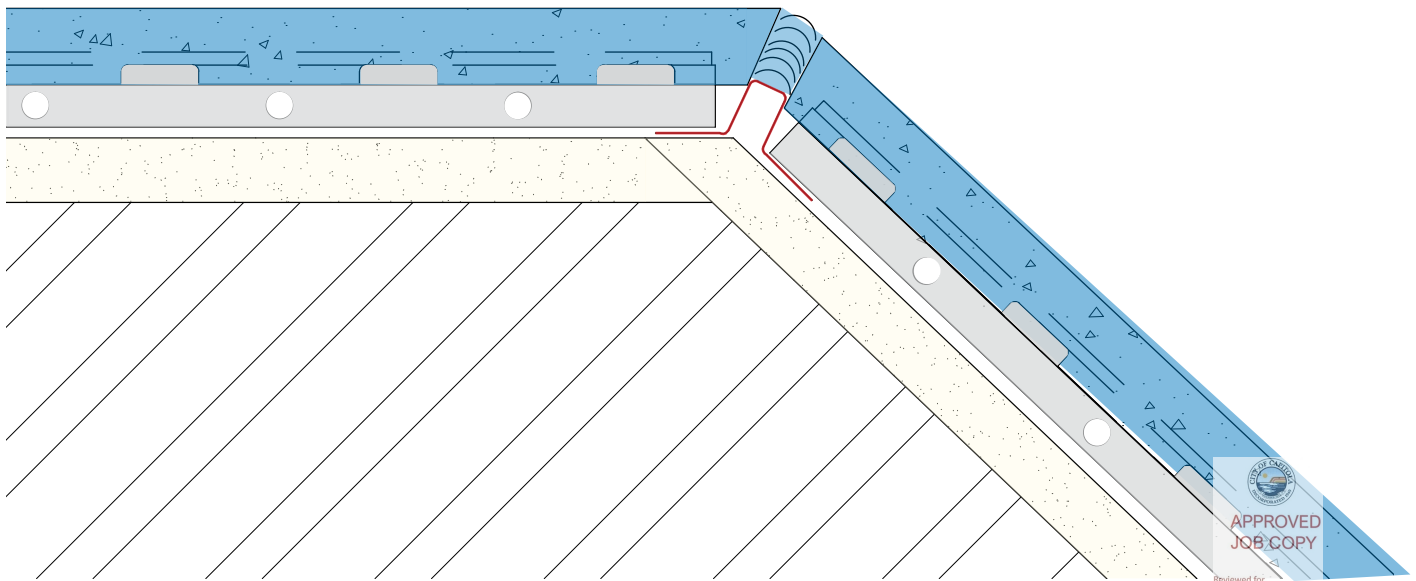
Corner Key Trim outside corner detail with miter cut panel edges

NON-90-DEGREE CORNERS

Corners other than 90 degrees can be achieved with custom metal trim or with the use of Double Flange Sealant Backer (refer to *Vertical Control/Expansion Joints*) to set cut panel edges at the desired corner angle. Miter cut panel edges as needed to create uniform sealant joints.

The Double Flange Sealant Backer detail can be utilized to accommodate install AWP on segmented, radius-like walls. Do not attempt to curve AWP. Contact the Nichiha Technical Department for assistance.

Flat fiber cement or other trim boards can also be used to facilitate non-90 corners. Miter cut the trim boards to meet and joint at the appropriate angle. AWP can then terminate to the square edges of the trim boards with a J-Mold or Single Flange Sealant Backer and sealant.



Non-90 corner utilizing modified Double Flange Sealant Backer and miter-cut panel edges.


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PENETRATIONS & ATTACHMENTS

ALL APPLICATIONS

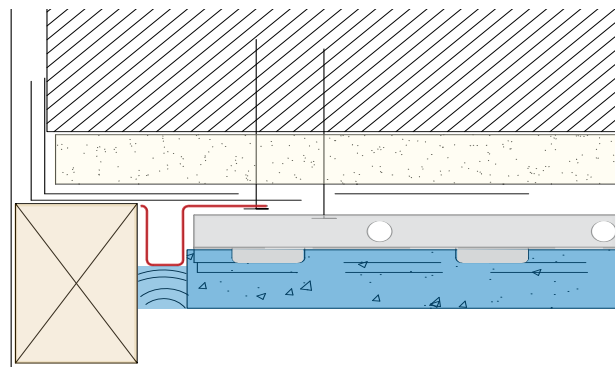
Openings for small penetrations for pipes or conduits may be cut through a panel and the hole sealed with ASTM C920 compliant sealant. For larger penetrations greater than 1.5" (38mm), it is best to block or frame out the opening. Treat the penetration like a small window.

Along the jambs of the opening install Single Flange Sealant Backer. Cut panel edges as needed to butt to Single Flange Sealant Backer and add recommended sealant.

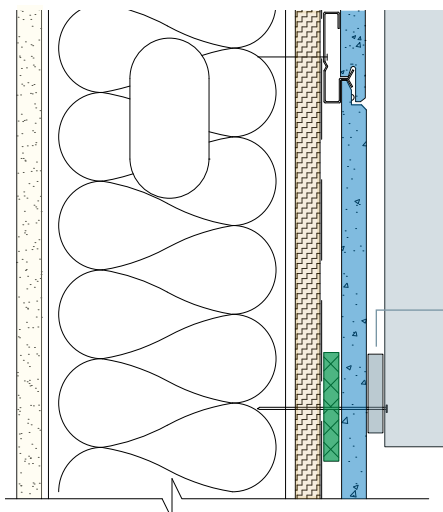
Underneath the opening block out, install FS1010 Spacer as needed for face fastening the top panel edge at framing locations. Terminate the panel with a 1/4" (6mm) gap. Sealant here is optional, depending on the depth of the blocking.

Above the penetration, add flashing and install FS1010 Spacer as needed for face fastening the panel edge at framing locations. Ensure a minimum 1/4" (6mm) gap between the bottom of the panel edge and penetration blocking. Keep any face fasteners 1" (25mm) away from panel edges.

If installing railings, signage, or other items directly over AWP, ensure the fasteners are secured through Spacers to the framing or other structural support. Do not fasten any attachment solely to AWP. Further, add a small spacer (up to 10mm) between signage/ attachments and AWP to prevent moisture pooling on top of the attachment and seeping between it and the AWP, becoming trapped.



Blocked penetration jamb condition



Signage/Attachments detail

Signage/Attachment fasteners through shims, AWP, & 10mm spacer into framing blocking



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LAST COURSE

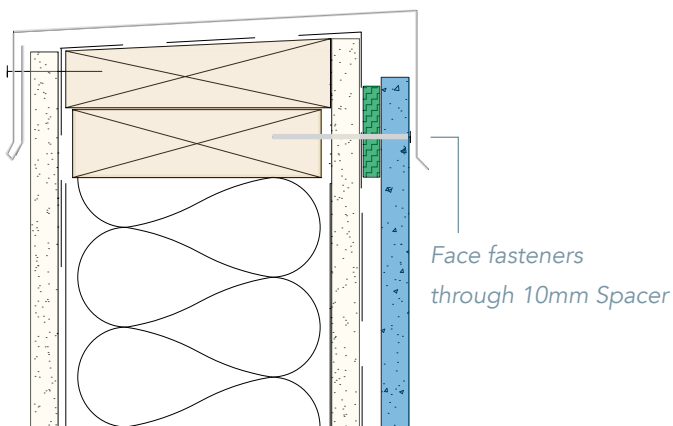
ALL APPLICATIONS

Fasten 10mm Spacer (FS 1010) to the wall where the last panel course will terminate. This is needed to maintain the rainscreen without use of the clips. Cut the panels (horizontally) to properly fit at the termination line. Apply low adhesive/painter's tape to panels at face fastening locations. Pre-drill with countersink 1" (25mm) down from the top (cut) edge. Face fasten at the studs and through the green Spacer (FS 1010) all along the top using bugle head type screws.

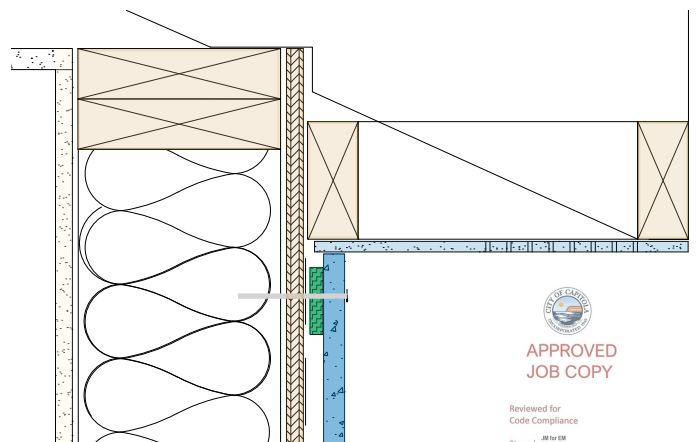
Fill counter-sunk fastener holes with exterior patching compound/filler, such as MH Ready Patch® and later dab touch-up paint with cotton swabs. Remove the painter's tape.

Cover the top panel row edge with a roof cap/ coping, where applicable.

It is not necessary to seal between AWP and soffit. J-Mold is optional to cap AWP.



Parapet cap termination detail



Soffit termination detail



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GABLES & OVERHANGS

ALL APPLICATIONS

Allow a minimum of 1" (25mm) clearance (as per local building codes) for AWP above a sloped roof line.

At the wall top, cut the panels to follow the slope of the gable roof.

Panels installed along gable edges must be face fastened along the angled edges. All face-fastened panel edges must be shimmed out with FS 1010 Spacer. Use Ultimate Clips wherever possible, positioning them as close to the end of the horizontal/shi lap edge as space permits. When adding face fasteners, apply the fasteners at least 1" (25mm) from any panel edge. This will avoid cracking or breaking of the panel. Fasten every 16" (406mm) max.

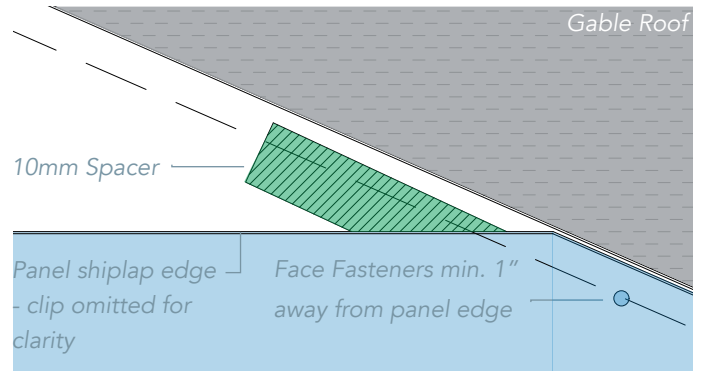
Seal all cut panel edges with 100% acrylic primer or paint. Do not leave any panel edges exposed. Clean any cut panels to remove dust.

Essential Overhang Flashing may be used at the base of overhangs/bump-outs or porte-cocheres. Alternatively, Essential Compression Joint Flashing may also be used. Keep a minimum clearance of 1/4" (6mm) for the panel edge above flashings. Do not seal this gap. *Always follow WRB manufacturer instructions and local code with respect to moisture management best practices for treating and detailing metal through-wall flashings.*

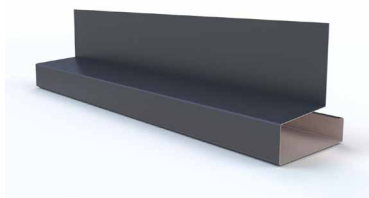
Prior to panel installation, fasten Overhang Flashing at each stud location, beginning with corner segments. Main segments will slide under/overlap corner segments.

Use Joint Clip segments to join main segments together. After the first piece is secured, add a Joint Clip, fastening through both it and the first main segment. The next main piece will slide behind the Joint Clip.

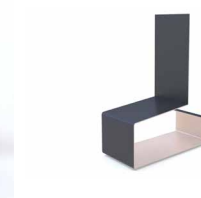
Position Overhang Flashing so that its bottom/return flange overlaps soffit materials. The bottom return portion must extend beyond the face of the fascia substrate. Positioning the flashing too high can deform it from its normal shape. The bottom return should slope away from the soffit as pictured.



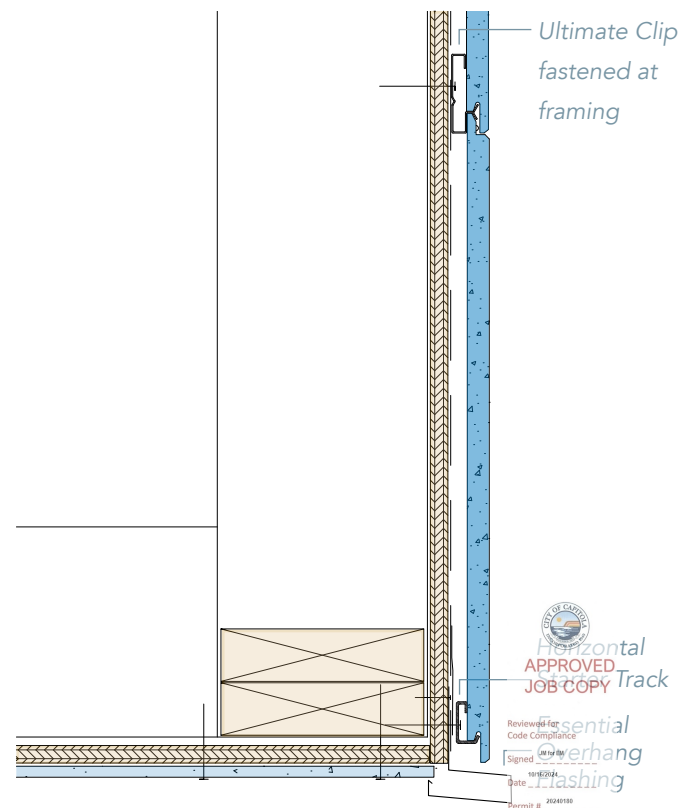
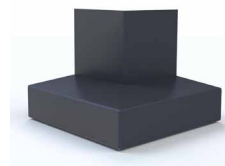
ESSENTIAL OVERHANG FLASHING & JOINT CLIP



OUTSIDE CORNER



INSIDE CORNER



SOFFITS & ANGLED (NON-VERTICAL) WALLS

Nichiha Architectural Wall Panels may be used in a soffit application and/or on non-vertical, angled walls (*leaning forward only*) when installed in strict accordance with the following provisions and requirements. Nichiha is not responsible for any actions or defects incurred as a result of incorrect installations using AWP as soffit. Those opting to deviate from these installation procedures incur all responsibility for their actions and any defects that result.

GENERAL REQUIREMENTS

If applicable, remove existing soffit materials and sheathing to accommodate blocking and (required) face fastening detailed in these instructions. Do not install AWP over existing soffit.

Framing spacing must be no greater than 16" (406mm) o.c. Add blocking as needed to enable Ultimate Clip and face fastening of the panels.

Nichiha AWP hardware (clips and tracks) must be used normally for soffit and angled wall panel installations but face fastening is also required at each framing member along the centerline of each panel.

Particularly with angled wall applications, ensure starter track and panels are horizontal/level. Check with a laser level regularly.

Soffit panels are oriented with the long dimension (1818 mm (71-9/16") or 3030 mm (119-5/16")) parallel to the wall and the short panel dimension (455mm (17-7/8")) perpendicular to the wall.

All short-edge (455mm) joints between panels must be factory shiplapped joints (AWP 1818) or H-mold joints (AWP 3030).

Treat all cut panel edges by coating them with exterior acrylic latex paint.

Utilize WRBs as prescribed by local code and/or manufacturer instructions for under horizontal surfaces.

Do not add attachments directly on AWP used on angled walls.

REQUIRED FASTENERS

ULTIMATE CLIPS AND STARTER TRACK:
Refer to and follow *Fasteners* on page 9.

FACE FASTENERS:

Minimum #7 or larger, stainless steel or corrosion-resistant exterior, full-headed screws are required. The length of the screws must enable minimum penetration of 1" into wood or 1/2" into min. 18 gauge steel framing.

PROCEDURES

AWP As SOFFIT

Begin soffit installation by measuring and adding 10mm Spacers to the framing or sheathing where the centerlines of each panel course will occur, accounting for the soffit depth, number of AWP courses, and reduced/cut panels.

At the wall-soffit angle/intersection, there are two options to secure the first edge of AWP:

1. Starter Track: Position the track to allow for the AWP shiplap edge which will extend 3/4" (18mm) past the track. Fasten the track to framing every 16" (406mm), or
2. Remove the panel shiplap and face fasten through 10mm Spacer, keeping screws 1" (25mm) from the panel edge.

If additional courses of panels will be utilized, add Ultimate Clips to the panel edges in the same fashion as normal/vertical wall installation. Fasten Clips to framing every 16" (406mm). Utilize Joint tab attachments for AWP 1818 normally. *Ensure panel edges are fully seated within the clips and joints are closed in moderate contact.*

Along the centerline of each panel course, face fasten at intermediate framing members (field) every 16" (406mm) o.c.

The terminal edge must be cut and secured via face fasteners through 10mm Spacers. Add screws every 16" (406mm), keeping 1" from the cut edge. J-Mold trim may be utilized with cut panel edges.

Pre-drill the panels at face fastener locations with a #6 countersink bit. Refer to and follow *Fastening Best Practices*.

Soffit vents may be added to or used in conjunction with soffit panels.



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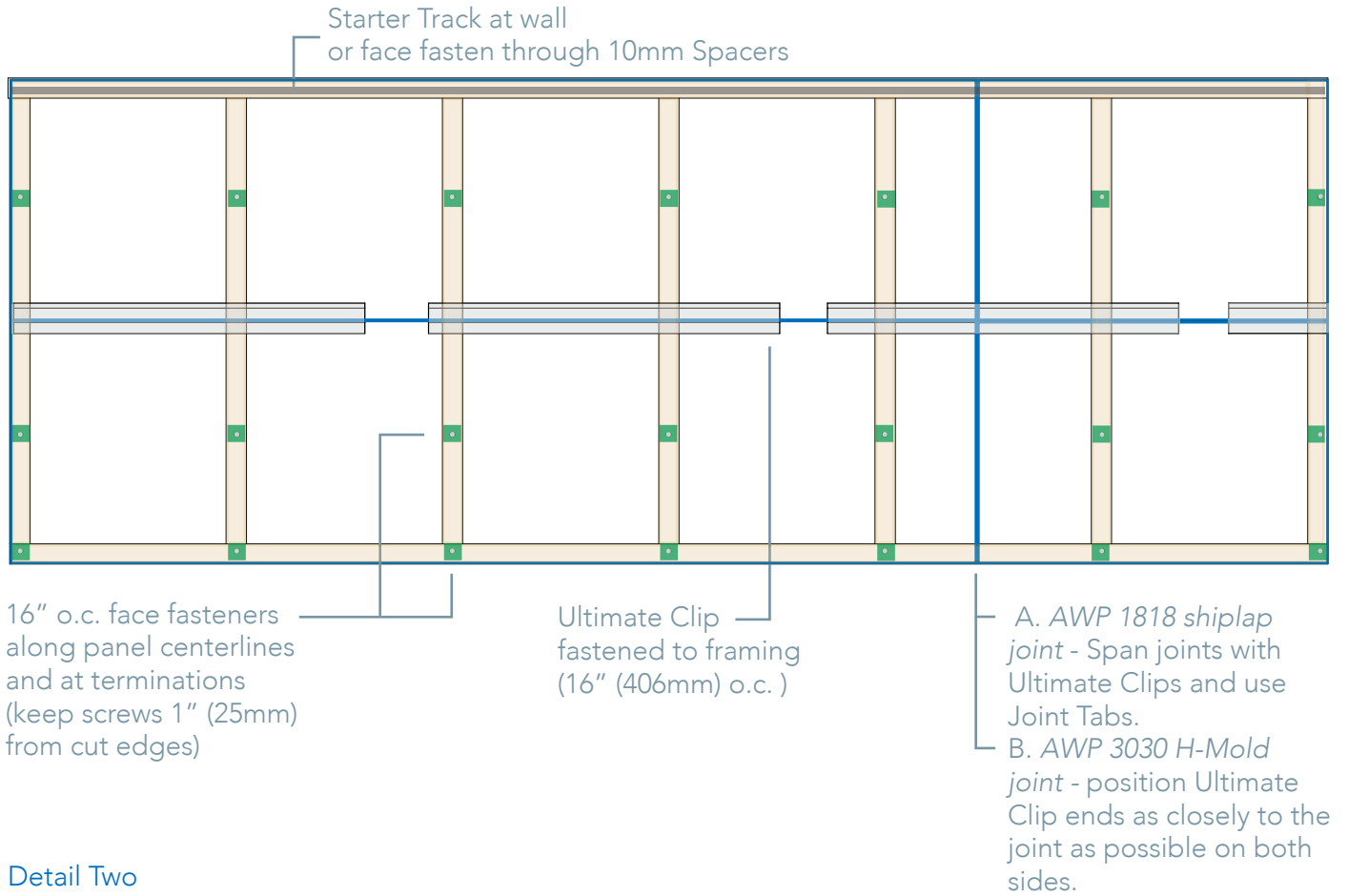
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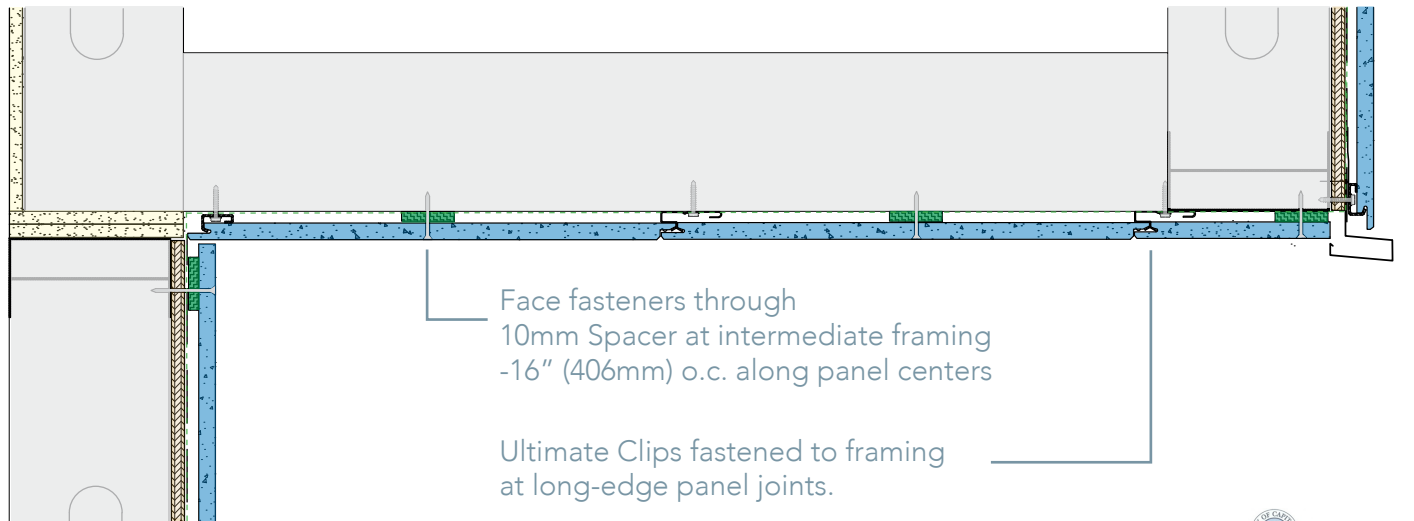
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Detail One



Detail Two



For terminal course/cut panels less than 10" (254mm) in width, center face fasteners are not needed.


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ANGLED (NON-VERTICAL) WALLS

Angled walls must be pitched forward as shown in *Detail Three* (away from the interior) - to where the wall to grade angle is less than 90 degrees. Backward leaning walls create roofing-like conditions, greatly accelerating the weathering of AWP.

Begin angled wall installation with typical installation of Starter Track at the wall base, fastening to framing every 16" (406mm) o.c. Ensure the track is level. Check with a laser level.

Measure 7" (183mm) above the top of the Starter Track and add 10mm Spacers to the sheathing or furring where the centerline of the first panel course will occur.

Set the first panel on the Starter Track and secure the top shiplap edge with Ultimate Clips in the same manner as vertical wall (standard) installations. Each clip will be fastened to a minimum of two framing members. Add the second panel and span the panel joint with an Ultimate Clip (for AWP 1818 only). AWP 3030 vertical joints must follow the steps on pages 24-25. Continue working normally from left to right and low to high.

Beginning with the second course of panels, utilize the Joint Tab Attachment normally with AWP 1818.

Regularly check for level with a laser to ensure panel courses are horizontal.

Along the centerline of each panel course, face fasten at intermediate framing members (field) every 16" (406mm) o.c. through 10mm Spacer.

The terminal edge must be cut and secured via face fasteners through 10mm Spacer. Add screws every 16" (406mm), keeping 1" from the cut edge.

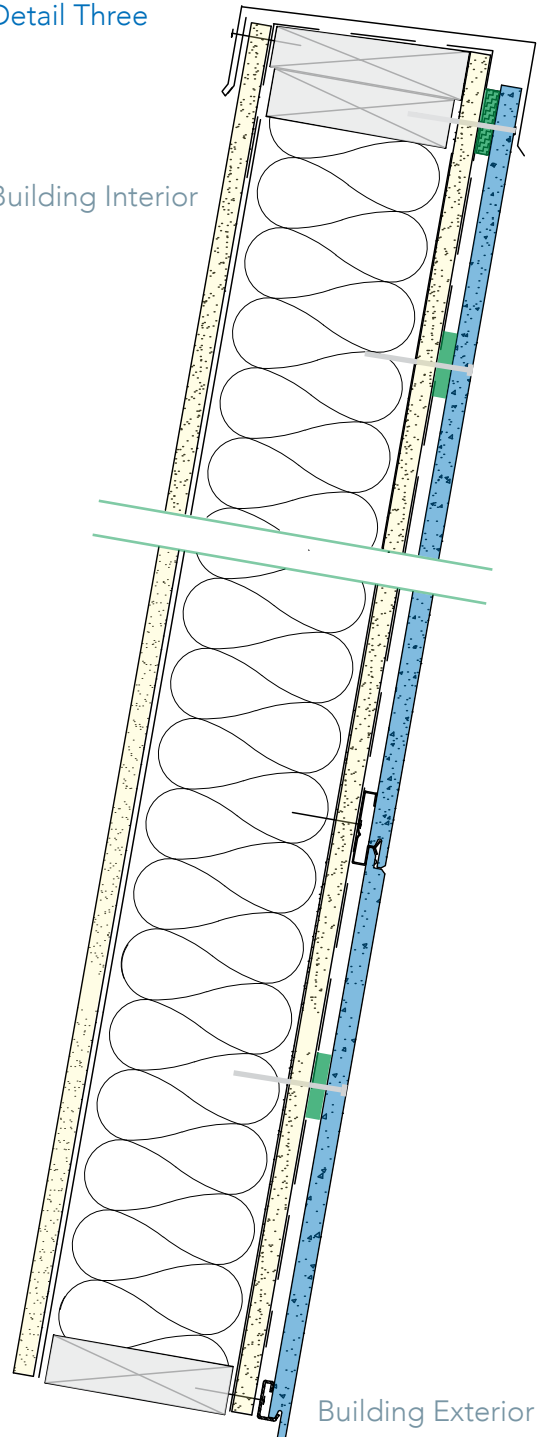
Pre-drill the panels at face fastener locations with a #6 countersink bit. Refer to and follow *Face Fastening Best Practices*.

Outside Corners: Metal trim corners are strongly recommended.

Reminder: do not add attachments such as light fixtures or signs on AWP on angled walls. Utilize blocked penetrations only.

Detail Three

Building Interior



Building Exterior

Only forward-leaning angled walls are acceptable. Face fasten the centerline of panels at intermediate (field) framing members.

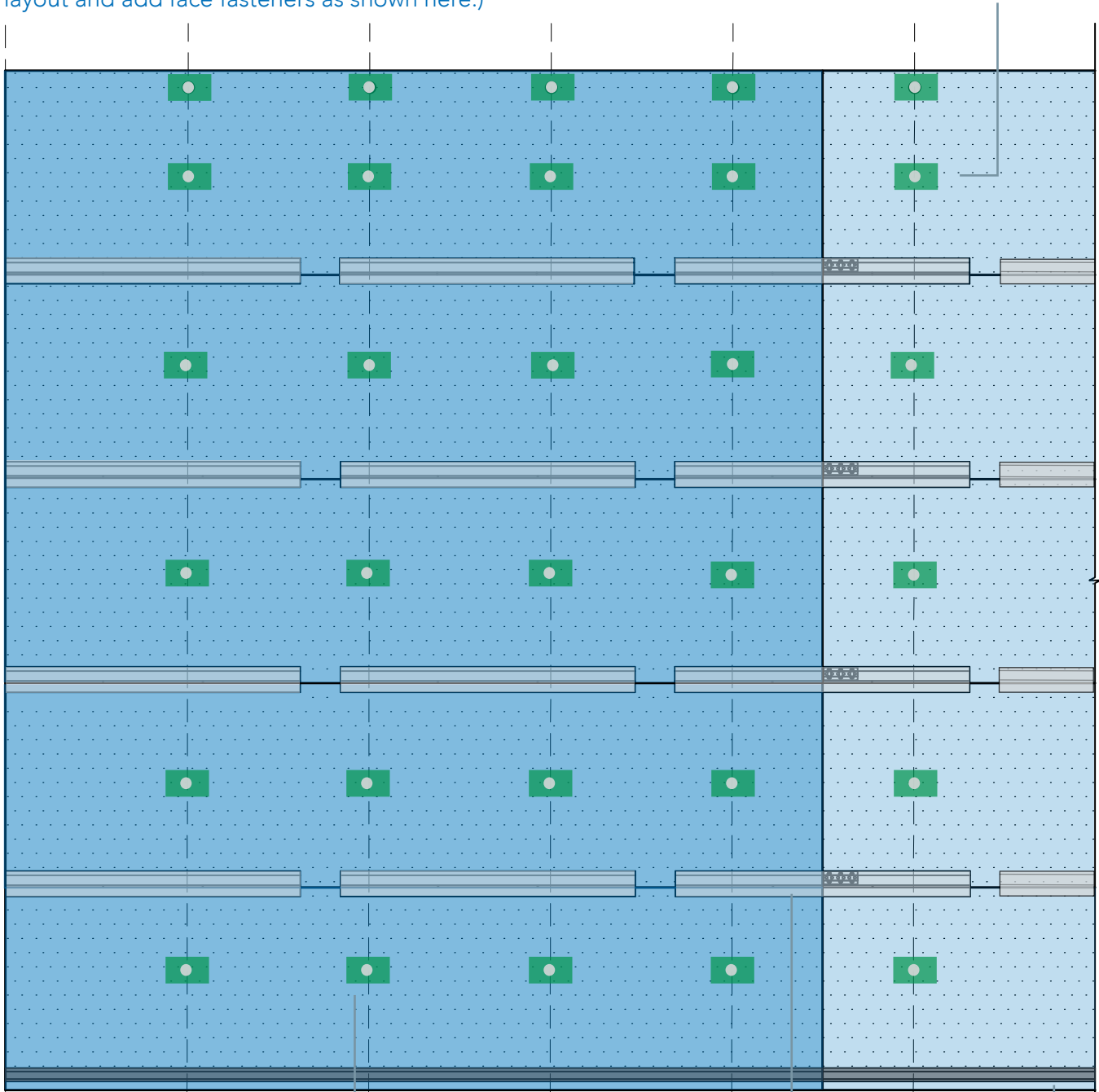


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Detail Four

(AWP 1818 depicted. Refer to p. 24 for AWP 3030 panel/clip layout and add face fasteners as shown here.)

For terminal course/shortened panels less than 10" (254mm) in height, the center face fasteners are not needed.



16" o.c. face fasteners along panel centers at framing members

Ultimate Clip fastened to framing (16" o.c.)

Starter Track fastened to framing (16" o.c.)


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CLEANING & MAINTENANCE

ALL APPLICATIONS

CLEANING PANELS

After completion of the installation or for periodic maintenance, it may be necessary to clean panels.

When cleaning panels, use no more than 400 psi of water pressure at 10"-12" (254-305mm) away. **Do not pressure wash custom color panels.**

To clean heavily soiled areas, a mild household detergent and/or soft bristle brush may be required.

Do not allow any detergent/cleaner to dry on panels. Rinse immediately after cleaning.

PAINT TOUCH-UP

It is impossible to fully match the AWP factory finish sheen in the field. It is imperative that the least amount of touch-up paint be applied to AWP as possible.

Touch up paint must be exterior grade 100% acrylic latex and can be color matched by taking a panel sample to your local paint or home improvement store.

A small can of touch-up paint is supplied with your custom color panel order. Do not use for edge coating/sealing for larger projects as there will not be sufficient supply.

Isolate touch-up locations with low-adhesive/painter's tape. Where face fasteners have been used and patched by exterior filler compound, use a cotton swab to lightly dab touch-up paint.

For scratches, use a cotton swab for small ones or a 1" (25mm) foam brush for longer ones. Employ a dabbing motion rather than brushing in order to minimize the amount of paint applied.

REMOVAL OF EXTERIOR ACRYLIC LATEX PAINT

Wet Paint Removal - While the paint is still wet, flush the area with clean water, using mild abrasion with a clean cloth or soft brush.

Semi-Dry Paint Removal - If paint has set, but not dried, flush and clean as above, followed by light scrubbing with alcohol to remove any remaining paint residue. Rinse with water and a clean cloth.

Dry Paint Removal - Please refer to paint-removal guide in the next section.



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OTHER PAINT & GRAFFITI REMOVAL

The following products have been tested on Nichiha panels to aid in the removal of graffiti type markings.* These citrus-based products can also be used for basic panel cleaning purposes. The panels were sprayed with an indoor/outdoor aerosol spray paint and left to dry overnight, and then the paint removal products were applied following the manufacturer's guidelines.

All products tested achieved good results. However, the outcome may vary depending on the amount of paint that needs to be removed. Be sure to follow all manufacturer's guidelines and first test in an inconspicuous area before working on a larger area.

*Do NOT use these cleaners with custom color panels. *Nichiha is not liable for any damage caused by the use of these cleaners.*

CITRISTRIP

www.citristrip.com

Products tested:

Citristrip Striping Gel - One Quart container

Citristrip Stripping Aerosol - 18 oz. spray can

GOOF OFF GRAFFITI REMOVER

www.goof-off.com

Products tested:

Goof Off Aerosol - 16 oz. spray can

Goof Off - 22 oz. trigger spray bottle

TAGAWAY

www.tagaway.com

Product tested:

Tagaway - 32 oz. trigger spray bottle

REPAIRING MINOR DAMAGE

Isolate the blemish with a low adhesive tape such as painters tape. This will help protect the surrounding area of the panel and aide in creating a more polished, clean repair.

Lightly brush/abrade the surface within the taped off area in order to remove any loose material.

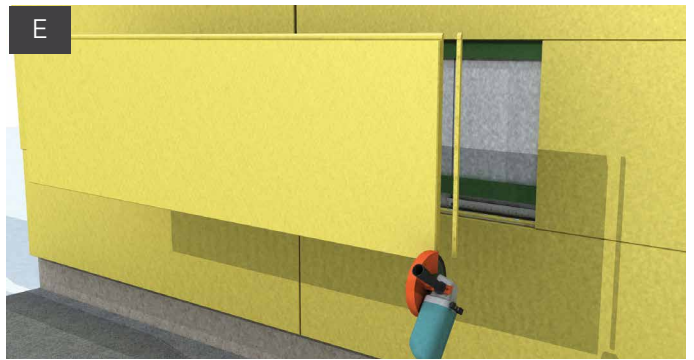
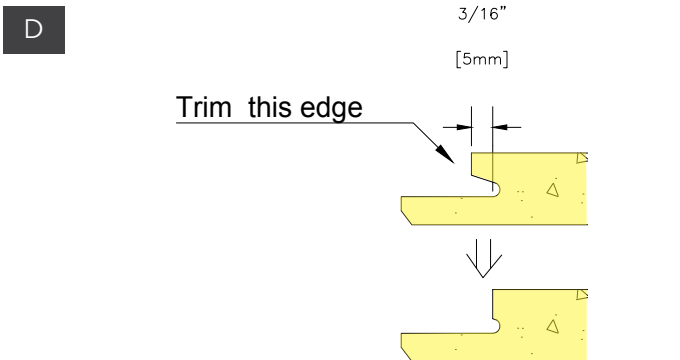
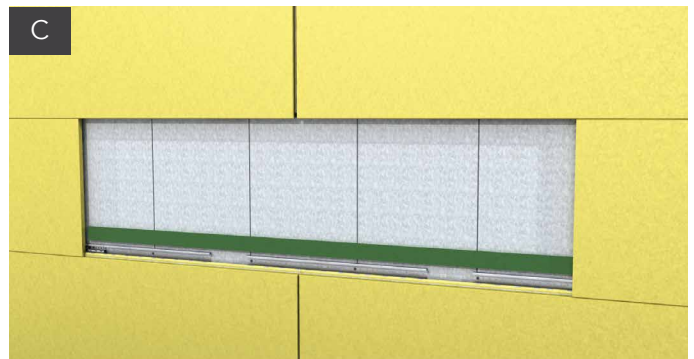
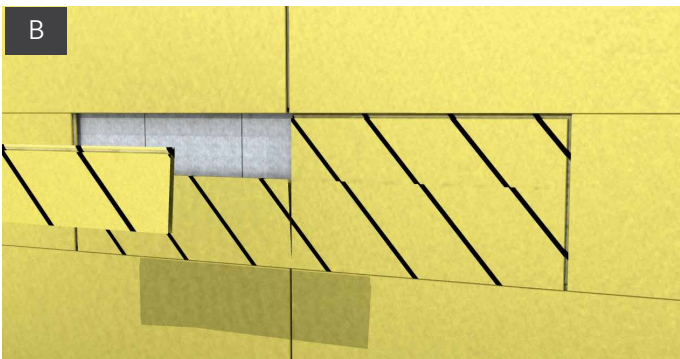
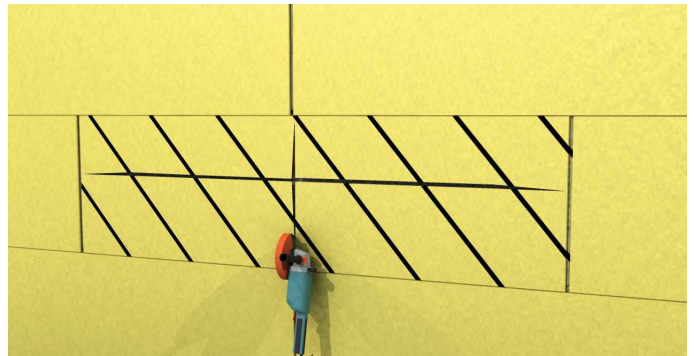
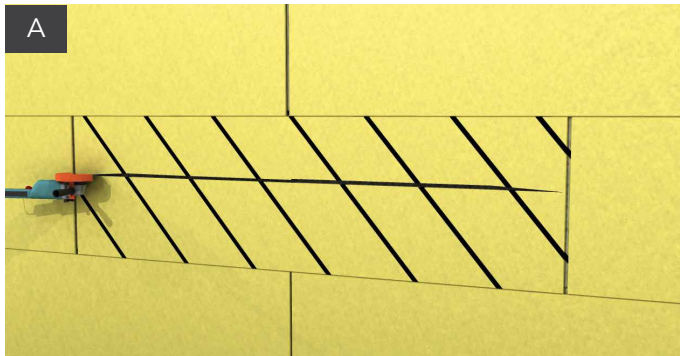
Carefully fill and smooth the resultant prepped area with exterior grade patching compound such as MH Ready Patch®. Allow to dry/cure fully.

Gently smooth the patch and then apply touch-up paint to the affected area. Allow touch-up paint to dry and remove the tape.



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Behind our Architectural Wall Panels is SOME SERIOUS TECHNOLOGY.



EASY INSTALLATION

Time-saving Clip Installation System that reduces construction time and minimizes mistakes.



NO MORTAR, NO MESS

Pre-finished panels that eliminate the need for messy mortar or costly masonry-skilled labor.



ANY WEATHER PRODUCT

Products that can be installed year round in any climate across the country. No geographical restrictions means more possibilities.



LOW MAINTENANCE

No-fuss products. Little ongoing cleaning or regular maintenance needed. You get to bring your vision to life and ensure it looks great for a long time.



ENGINEERED FOR PERFORMANCE

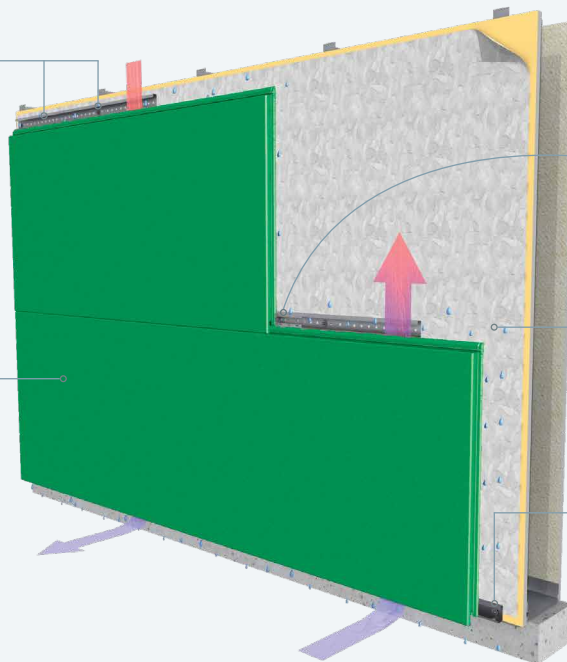
Go beyond our durable panels and discover a meticulously engineered moisture management system that provides a vertical drainage point for air and moisture to exit.

THE ULTIMATE CLIP

creates a hidden fastening system that all but eliminates face fastening. Installation is quick and easy and never requires specialty subcontractors.

NICHIHA ARCHITECTURAL WALL PANELS

are lightweight, easy to handle and available in a virtually endless color palette and a diverse offering of textural finishes.



NICHIHA'S JOINT TAB ATTACHMENT

is designed to support panel lateral stability, helping vertical joints stay tightly closed. The tab fits in place easily and is fastened to the Ultimate Clip with provided screw.

DRAINED AND BACK VENTILATED RAINSCREEN

design allows water to escape and air to circulate, reducing the risk of mold and water damage inside the building.

THE ULTIMATE STARTER TRACK

pulls double-duty. It ensures a fast, level installation and its patented drainage channel directs water out away from the base of the wall.



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THE POWER OF POSSIBILITIES AND PARTNERSHIPS

Your creative vision is unique. That's why Nichiha wants to offer you the power of cooperation to help your project move from conception to completion. Our ever-expanding offering of textures and finishes lift buildings to new and unexpected places and we want to share them with you. We place a high value on our relationships and are proud to work with our dedicated partners across the country. Join us and discover the power of possibilities and partnerships with Nichiha.

NICHIHA WARRANTIES

- ILLUMINATION SERIES PANELS
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- ARCHITECTURAL WALL PANELS
(Brick, Block, Stone, Wood, Kurastone)
15-year limited warranty* on panels,
15-year limited warranty* on finish.
- METAL TRIM
Tamlyn warrants defective-free products for a period of 10 years for the original purchaser. Please visit tamlyn.com for detailed information on terms, conditions and limitations.

*See Nichiha warranties for detailed information on terms, conditions and limitations. Visit nichiha.com for easy downloadable warranties or call toll-free 1.866.424.4421 for a copy.

Nichiha SDS are available on nichiha.com.

CERTIFICATION & TESTING



C.C.R.R. 0299



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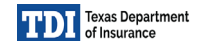
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Miami-Dade
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Report EC-58



L.A.R.R. 26081



CRYSTALLINE SILICA DUST WARNING: Nichiha products may contain some amounts of crystalline silica [a.k.a. sand, silicone dioxide], which is a naturally occurring mineral. The amount will vary from product to product. Inhalation of crystalline silica into the lungs and repeated exposure to silica can cause health disorders, such as silicosis, lung cancer, or death depending upon various factors. To be conservative, Nichiha recommends that whenever cutting, sawing, sanding, sniping, or abrading the product, users observe appropriate safety protocols. For further information or questions, please consult Nichiha SDS, your employer, or visit osha.gov/silica and cdc.gov/niosh/topics/silica. The SDS for Nichiha products are available at nichiha.com/resources, at your local Nichiha dealer, or through Nichiha directly at 1.866.424.4421. FAILURE TO ADHERE TO OUR WARNINGS, SAFETY AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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Date: 05/16/2024
Permit # 2254180

Continuous Insulation and AWP

General

Nichiha AWP (horizontal) may be installed directly over up to one inch of foam plastic insulation such as polyiso or EPS over wood or gypsum sheathing. Insulation compressive strength of 25 psi or greater is strongly recommended. Continuous insulation (c.i.) thicker than one inch and mineral wool c.i. of any thickness must be paired with a furring or other solution to satisfy the *Framing & Sheathing Requirements* set out in the AWP install guides and is subject to a required Technical Review process. Refer to the guides for complete installation requirements and instructions. This bulletin is not intended to prohibit options or furring combinations not covered herein. Please contact the Technical Department for assistance.

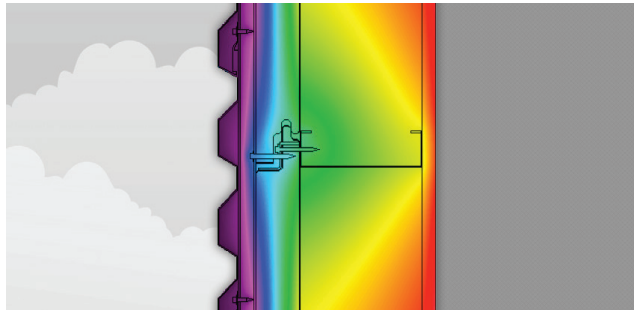
No Thermal Bridges!

The energy code, in its definition of c.i., does not allow for thermal bridges, excluding fasteners, to penetrate through the exterior (or interior) layer of “continuous” insulation. This means that simple z furring is not compliant with the c.i. definition since the metal bridging through the insulation board provides a major pathway for energy transfer, particularly when fastened over metal stud wall framing. This lowers the *effective* value of the insulation layers overall and the building’s energy efficiency.

Fasteners are allowed to penetrate continuous insulation, but because the insulation does not provide much, if any, support for fasteners holding up exterior claddings, there are natural limits to “cantilevered fastening.” As an example, if you wanted to hang a large painting in your living room, would you rest the frame’s wire out on the head of the nail or directly at the drywall? If you think of exterior cladding and c.i., the same forces are at work. You want the weight of the cladding as close to the framing as possible and not out on the ends of the fasteners since the foam is non-structural. Over time the cladding could creep downward if the fasteners begin to succumb to the shear/torquing action.

Designers (rightfully so!) demand more exterior finish choices than just EIFS, so this means cladding options require energy code friendly attachment methods, of which there are many...

Thermal profile with bridging



Thermal profile without bridging

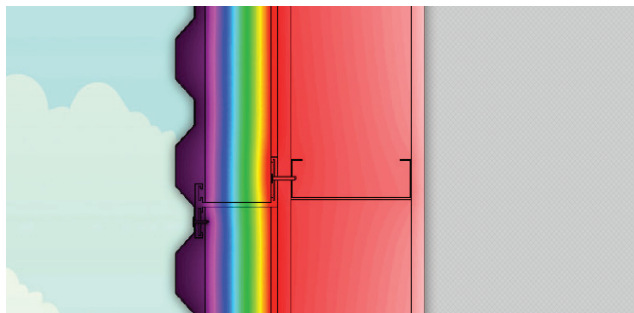


image credit: SMARTci/AAP



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AWP Attachment Requirements

When adding a furring grid* to enable AWP installation over c.i., the following general criteria are applicable:

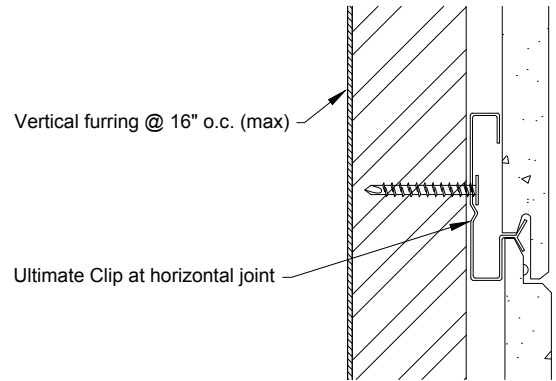
AWP-1818 and AWP-3030 Horizontal Applications

1. Shaped metal furrings (Z, hat channel, C, etc.)
 - a. Minimum 18 gauge
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)

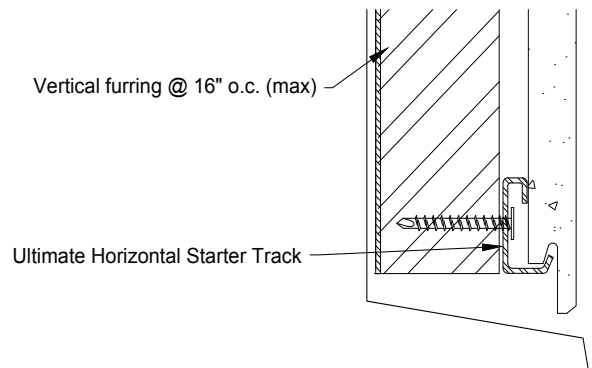
- or -
2. Pressure treated lumber (*Do not use strips of wood sheathing as furring.*)
 - a. Minimum 2x (1.5") thickness
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)

- or -
3. A combination of horizontal (spaced per engineer's design) with a second, outermost layer of vertical furring (16" o.c.)

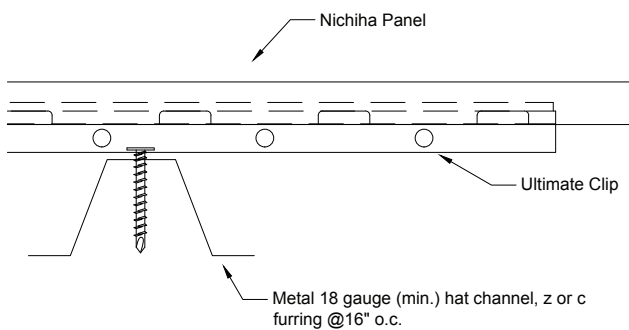
***Consult a structural engineer to design the furring system to manage the AWP system dead load of minimum 4 psf and also meet the project wind load design criteria. Furring must account for expected building compression. Nichiha does not provide fastener design for anchoring the furring to structure. Refer to IBC 2015 Table 2603.12.2 for more info.**



Section view - clip to furring



Section view - starter track to furring



Plan view - clip to furring



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Continuous Insulation and AWP

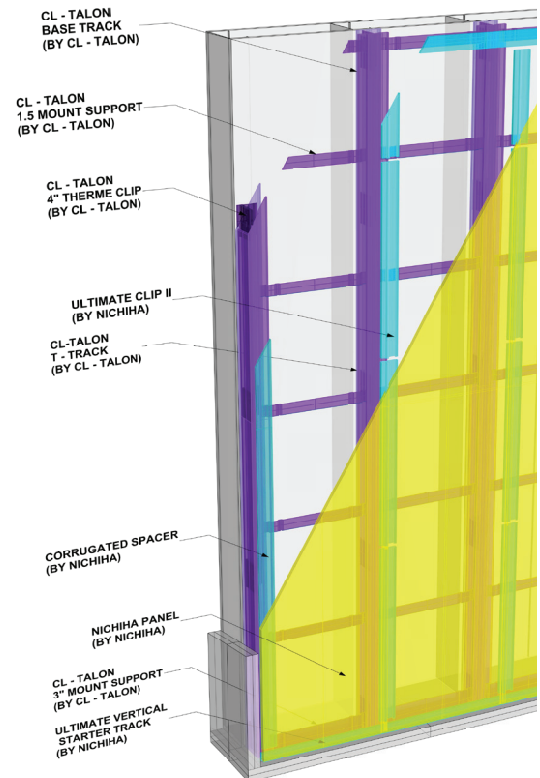
AWP-3030 Vertical Applications

Special attention must be paid to supporting the Vertical Starter Track, which bears the weight of AWP-3030 in vertical applications. The clips do not share the dead loads for vertical panels.

1. Shaped metal furrings
(Z, hat channel, C, etc.)
 - a. Minimum 18 gauge
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)
 - d. Min. 7/16" APA Rated OSB or Plywood
- or -
2. Pressure treated lumber
 - a. Minimum 2x (1.5") thickness
 - b. Aligned vertically
 - c. Spaced 16" o.c. (max.)
 - d. Min. 7/16" APA Rated OSB or Plywood
- or -
3. Shaped metal furrings (one layer)
 - a. Minimum 18 gauge
 - b. Aligned vertically at 17-7/8" o.c.
 - c. Additional vertical furring segments at Vertical Starter Track locations to enable 9" o.c. fastener spacing for track (Figure 3-4)
- or -
4. Shaped metal furrings (two layers)
(Z, hat channel, C, etc.)
 - Layer One
 - a. Minimum 18 gauge
 - b. Aligned horizontally
 - c. Spaced per engineer's design
 - Layer Two
 - d. Minimum 18 gauge
 - e. Aligned vertically at 17-7/8" o.c.
 - f. Additional vertical furring segments at Vertical Starter Track locations to enable 9" o.c. fastener spacing for track (Figure 3-4)
- or -
5. CL-TALON® 300
 - a. Base Track and Wall Mount T-Tracks (vertical) at 16" o.c. (aligned with framing), and Therme Clips spaced per project loading requirements
 - b. Wall Mount Supports (horizontal) at 16" o.c.



4. Vertical furring at 17-7/8" o.c. over horizontals. Additional vertical segments added to enable 9" o.c. Vertical Starter Track fastening. (Knight HCI™ System girts shown)



5. CL-TALON® 300



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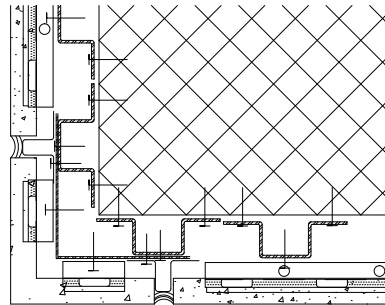
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Accessory Attachments

Nichiha Double and Single Flange Sealant Backers and metal trims, such as H-Mold and Corner Key, must be fastened to furring, blocking, or 18 gauge flat stock. Sealant backers must be fastened every 12-14" vertically, so any use of flat stock must accommodate this fastening schedule.

Outside corners may be wrapped with 18 gauge flat stock fabricated to fit the corner. Attach the stock to furring on both sides of the corner. Corner Clips are used to secure Nichiha factory panel Corners and can be fastened to the flat stock, as can metal trim corners. (Figure 1).



1. Wrapped outside corner with 18 gauge flat stock

IBC 2015 Table 2603.12.2

The model building code for 2015 includes information in Chapter 26 about foam plastic insulation/sheathing and furring minimum fastening requirements. Table 2603.12.2 shows various configurations depending upon framing gauge and spacing, fastener size and spacing, thickness of insulation and cladding weight. As an example, according to the table, 3 inches is the maximum thickness of foam sheathing on which a furring can be added directly on top, spaced at 16" o.c. and fastened with #8 screws every 12"-16" (into 18 gauge wall framing), that can support a cladding weight of 3 psf.

Energy Code Friendly Market Options

A number of engineered third party systems exist that are designed to solve the conflicts between energy code compliance and the safe installation of exterior claddings over continuous insulation.

Nichiha has direct experience with these products:

- Bracket and rail systems:
 - Cascadia Clips®
 - FERRO Cladding Support
 - ISO Clip
 - Knight Wall MFI®
- CL-TALON®
- Knight Wall CI® and HCI™ Systems
- SMARTci GreenGirts



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Section 02722
STORMWATER FILTRATION SYSTEM
Table of Contents

PART 1 – GENERAL

- 1.1 Related Requirements
- 1.2 Summary
- 1.3 Reference Standards
- 1.4 Definitions
- 1.5 Submittals
- 1.6 Delivery, Storage and Handling

PART 2 – PRODUCTS

- 2.1 Radial Cartridge Stormwater Media Filter
 - 2.1.1 Description
 - 2.1.2 Materials and Design
 - 2.1.3 Performance
 - 2.1.4 Quality Assurance
 - 2.1.5 Manufacturer

PART 3 – EXECUTION

- 3.1 Earthwork
- 3.2 Identification
- 3.3 Inspection
 - 3.3.1 General
 - 3.3.2 Manhole Sections
- 3.4 Structure Installation
 - 3.4.1 General
 - 3.4.2 Trench Excavation
 - 3.4.2.1 Excavation
 - 3.4.2.2 Dewatering
 - 3.4.2.3 Removal of Rock
 - 3.4.2.4 Removal of Unstable Material
 - 3.4.3 Bedding
 - 3.4.4 Setting Structures
 - 3.4.5 Jointing
 - 3.4.6 Backfilling
 - 3.4.6.1 General
 - 3.4.6.2 Backfilling Manhole Sections in Trenches
 - 3.4.6.3 Movement of Construction Machinery

PART 1 – GENERAL 1.1

Related Requirements

- A. Section 01330 – Submittals: Shop Drawings, Product Data and Samples
- B. Section 02330 – Earthwork: Excavation, Trenching, Backfill and Compaction
- C. Section 02370 – Erosion and Sedimentation Control (including SWPPP)

1.2 Summary

- A. This section includes radial cartridge stormwater media filters.



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1.3 Reference Standards

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - a. AASHTO M105 – Gray Iron Castings
- B. American Society for Testing and Materials (ASTM)
 - a. ASTM A48, CL.30B – Gray Iron Castings
 - b. ASTM A82 – Steel Wire, Plain, for Concrete Reinforcement
 - c. ASTM A185 – Steel Welded Wire Reinforcement, Plain for Concrete
 - d. ASTM A496 – Steel Wire, Deformed, for Concrete Reinforcement
 - e. ASTM A497 – Steel Welded Wire Reinforcement, Deformed for Concrete
 - f. ASTM A615 – Deformed and Plain, Carbon-Steel Bars for Concrete Reinforcement
 - g. ASTM B209 – Aluminum, Aluminum Alloy Sheet and Plate
 - h. ASTM C32 – Sewer and Manhole Brick (Made from Clay or Shale)
 - i. ASTM C139 – Concrete Masonry Units for Construction of Catch Basins and Manholes
 - j. ASTM C150 – Portland Cement
 - k. ASTM C478 – Precast Reinforced Concrete Manhole Sections
 - l. ASTM C595 – Blended Hydraulic Cement
 - m. ASTM C857 – Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - n. ASTM C858 – Underground Precast Concrete Utility Structures
 - o. ASTM C891 – Installation of Underground Precast Utility Structures
 - p. ASTM C990 – Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants
 - q. ASTM C1107 – Packaged Dry, Hydraulic Cement Grout (Non-Shrink)
 - r. ASTM D698 – Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

1.4 Definitions

- A. BMP: Best Management Practices
- B. TSS: Total Suspended Solids

1.5 Submittals

The following shall be submitted by Contractor in accordance with Section 01330 Submittal Procedures:

- A. Product Date for the following:
 - a. Radial Cartridge Stormwater Media Filter
 - 1. Product specifications to include but not limited to specification sheets, brochures and performance claims.
 - 2. Installation procedures.
 - 3. Shop drawings shall be provided to include details for fabrication, construction, reinforcement, joints, assembly, and any accessory items. Shop drawings shall be annotated to indicate all materials to be used and applicable material standards, required tests of materials and all design assumptions for structural analysis.
 - 4. Operations & Maintenance Manual.
- B. Independent third-party certification or test report demonstrating conformance to applicable local or regional BMP standards before the treatment system is installed for the following:
 - 1. Removal efficiency
 - 2. Targeted pollutants of concern
 - 3. Hydraulic capacity
 - 4. Certification of adherence to applicable standard
- C. Products submitted as approved equal must be submitted at least two weeks prior to project opening and must be approved by project engineer. Submittal for approved equal product must contain



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a signed letter from an executive officer of the manufacturer stating product is equivalent to all applicable requirements of this specification.

1.6 Delivery, Storage and Handling

- A. All filtration system components shall be delivered to the site and unloaded with handling that conforms to the manufacturer's instructions for reasonable care. Concrete and internal components shall not be rolled or dragged over gravel or rock during handling. The Contractor shall take necessary precautions to ensure the method used in lifting or placing the filtration system does not induce stress fatigue in the concrete.

PART 2 – PRODUCTS

2.1 Radial Cartridge Stormwater Media Filter

2.1.1 Description

The Contractor, and/or a manufacturer selected by the Contractor and approved by the Engineer, shall furnish all labor, materials, equipment and incidentals required and install all precast concrete Stormwater Filtration Systems and appurtenances in accordance with the Drawings and these Specifications. The Stormwater Filtration System shall consist of an underground precast concrete structure at houses rechargeable, passive, orifice controlled, radial-flow media-filled filter cartridges which trap particulates (TSS) and absorb pollutants such as dissolved metals, nutrients and hydrocarbons.

The Stormwater Filtration System shall be sized at a hydraulic loading rate of no more than 2.0 gpm/sf of media surface area. The water quality treatment flow rate shall be as determined and approved by the Engineer.

The Stormwater Filtration System shall contain a pre-treatment bay and be self-draining to increase the effective life of the filter media. The media cartridges shall be elevated to reduce the accumulation of material on the cartridge surface. Each radial-flow filter cartridge shall operate at a pre-determined flow rate through the use of an integrated flow control mechanism located within each filter cartridge.

The filtration system must include the capability to partition flows, causing all runoff to be diverted into the filtration chamber during low-flow conditions. This can be accomplished with either internal or external diversion. Flows exceeding the treatment capacity of the unit shall be diverted around the filtration chamber to prevent re-suspension and washout of previously trapped pollutants.

The Contractor shall furnish and install the Stormwater Filtration System complete and operable as shown and as specified herein in accordance with the requirements of the plans and contract documents.

2.1.2 Materials and Design

- A. Concrete for precast Stormwater Filtration Systems shall conform to ASTM C478, C857 and C858 and meet the following additional requirements:
1. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 (MS18) loading requirements as determined by a Licensed Professional Engineer.
 2. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C990.
 3. Cement shall be Type I, II or III Portland cement conforming to ASTM C150.
 4. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or other designate suitable handling strength.
 5. Pipe openings shall be sized to accept pipes of the specified size(s) and materials, and shall be sealed by the Contractor with hydraulic cement conforming to ASTM C595M or ASTM C1107.
 6. Aggregates shall conform to ASTM C33, except that the requirement for gradation shall not apply.



7. Reinforcement shall consist of wire conforming to ASTM A82 or A496, of wire mesh conforming to ASTM A185 or A497, or Grade 40 steel bars conforming to ASTM A615.
 8. Castings for manhole frames and covers shall be in accordance with ASTM A48, CL.30B and AASHTO M105. The access cover/s shall be designed for HS20-44 traffic loading and shall provide a minimum of 30-inch clear opening.
 9. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C32 or ASTM C139 and shall be installed in conformance with all local requirements.
 10. Diversion weirs, separation chamber and oil baffle shall be made from concrete, marine grade fiberglass and/or stainless steel and shall conform to ASTM A240.
 11. All mounting hardware for internal components shall be made of 304SS and shall conform to ASTM A240.
- B. All internal components including stainless steel bypass manifold, pre-treatment filter, filter cartridge(s), filter media (as specified on the plans or by the Engineer), and shall be provided by the manufacturer.
1. The bypass manifold shall be fabricated of stainless steel, minimum Type 304, complying with the requirements of ASTM A240.
 2. Filter cartridge bottom pan, inner ring, top and hood shall be constructed from high density polyethylene (HDPE). Filter cartridge screen shall consist of 1" x ½" welded wire fabric (16-gauge minimum) with a bonded PVC coating. An orifice mechanism plate shall be supplied with each cartridge to restrict flow rate to a maximum of 12 gpm (12-inch cartridge), 18 gpm (18-inch cartridge), 24 gpm (24-inch cartridge), 30 gpm (30-inch cartridge) at a system design head or as specified on drawings.
 3. The filter media shall consist of one or more of the following, as specified on the Plans or by the Engineer:
 - a. Perlite Media: Perlite media shall be made of natural siliceous volcanic rock free of any debris or foreign matter. The perlite media shall have a bulk density ranging from 6.5 to 8.5 lb/ft³ and particle sizes ranging from that passing through a 0.50-inch screen and retained on a U.S. Standard #8 sieve.
 - b. Zeolite Media: Zeolite media shall be made of naturally occurring clinoptilolite, which has a geological structure of potassium-calcium-sodium aluminosilicate. The zeolite media shall have a bulk density ranging from 44 to 48 lb/ft³, particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained in a U.S. Standard #6 sieve, and a cation exchange capacity ranging from 1.0 to 2.2 meq/g.
 - c. Granular Activated Carbon: Granular activated carbon (GAC) shall be made of lignite coal that has been steam activated. The GAC media shall have a bulk density ranging from 28 to 31 lb/ft³ and particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #8 sieve.
 - d. Zeolite-Perlite-Carbon (ZPC): ZPC is a mixed media that shall be composed of a blend of Zeolite (see above), Perlite (see above) and Granular Activated Carbon (see above).
 - e. Zeolite-Perlite (ZP): ZP is a mixed media that shall be composed of a blend of Zeolite (see above) and Perlite (see above).

2.1.3 Performance

- A. Each specified flow based Stormwater Filtration System shall be capable of removing 80% of the net annual Total Suspended Solids (TSS) load based on a d50 particle size of 20 microns. Annual TSS removal efficiency models shall be based on laboratory and field performance data, site-specific hydraulics and hydrology, and local rainfall intensity distributions. Filtration units shall have the ability of being placed inline without re-suspending trapped sediments or re-entrain contaminants up to and including the Peak Flow Rate.



- B. Each Stormwater Filtration System shall contain one or more media cartridges that maintain a uniform pressure profile across the face of the filter during operation. At the design flow rate, the maximum filter hydraulic loading rate is not to exceed 2.0 gpm/sf of filter surface area. Stormwater shall enter the filter cartridges through the sides and shall flow through the filter media radially from the outer perimeter inward and shall have an average media contact time of not less than 39 seconds.
- C. The Stormwater Filtration System performance shall be third party verified and shall be based on lab and field performance. The Stormwater Filtration System shall have Washington Department of Ecology General Use Level Designation (GULD).
- D. The Stormwater Filtration System shall be supplied with either internal or external bypass with a minimum capacity not less than the peak design storm as determined by the Engineer.

2.1.4 Quality Assurance

The materials, process and finished Stormwater Filtration System shall be subject to inspection by the Engineer. Acceptance or rejection of the system shall be based on the Specifications contained in this section. Imperfections may be repaired but subject to the acceptance of the Engineer.

2.1.5 Manufacturer

Each Stormwater Filtration System shall be a PerkFilter as manufactured by Oldcastle Precast, 7100 Longe Street, Stockton, California, 95206.

PART 3 – EXECUTION

3.1 Earthwork

- A. Excavation, trenching and backfilling shall be as specified in Division 2 Section “Earthwork”.

3.2 Identification

- A. All Stormwater Filtration devices shall be identified at the surface level with markings indicating that they are treatment devices.

3.3 Inspection

3.3.1 General

- A. Concrete, internals and accessories shall be inspected prior to installation and any defective or damaged product shall be replaced.

3.3.2 Manhole Sections

- A. Any manhole section with chipped bells or spigots shall be rejected and replaced.
- B. Any section with a fracture or crack greater than 0.10-inch in length or 0.01 in width shall be rejected and replaced.
- C. Any manhole section that has not had at least seven (7) days cure time (including 12 hours steam cure, or 21 days without steam cure) or is out of round shall be rejected and replaced.
- D. Any section with indications of imperfections in mixing and/or molding, honeycombed, or open textured surface, shall be rejected and replaced.
- E. Any section with indications of patches or repairs shall be rejected and replaced.
- F. Any section with exposed reinforcing steel shall be rejected and replaced.

3.4 Structure Installation

3.4.1 General

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm and drainage piping systems. Location and arrangement of Stormwater Filtration Systems is critical and design consideration should be taken into account. Install filtration system as indicated herein and as directed by the product manufacturer, to the maximum extent practical. Where specific installation procedure is not indicated, follow product manufacturer’s written instructions.



- B. All products shall be inspected for defects and cracks before being lowered into the trench, piece by piece. Any defective, damaged or unsound structure or any product that has had its grade disturbed after laying, shall be taken up and replaced. Open ends shall be protected with a pipe plug to prevent earth or other material from entering the filtration system during construction. The interior of the filtration system shall be free from dirt, excess water and other foreign materials as the installation progresses and left clean at the completion of the installation.

3.4.2 Trench Excavation

3.4.2.1 Excavation

- A. Excavate trenches to ensure that sides will be stable under all working conditions. Slope trench walls or provide supports in conformance with all local and national standards for safety. Open only as much trench as can be safely maintained by available equipment. Backfill all trenches as soon as practicable, but not later than the end of each working day.
- B. Where trench walls are stable or supported, provide a width sufficient, but no greater than necessary, to ensure working room to properly and safely place and compact haunching and other embedment materials. The space between the filtration system and trench wall must be wider than compaction equipment used in the compaction zone.
- C. When supports such as trench sheeting, trench jacks, trench shields or boxes are used, ensure that support of the filtration system and its embedment is maintained throughout installation. Ensure that sheeting is sufficiently tight to prevent washing out of the trench wall from behind the sheeting. Provide tight support of trench walls below viaducts, existing utilities, or other obstructions that restrict driving of sheeting.

3.4.2.2 Dewatering

- A. Do not lay or embed any section of the Stormwater Filtration System in standing or running water. At all times prevent runoff and surface water from entering the trench.
- B. When water is present in the work area, dewater to maintain stability of in-situ and imported materials. Maintain water level below pipe bedding and foundation to provide a stable trench bottom. Use, as appropriate, sump pumps, well points, deep wells, geofabrics, perforated underdrains, or stone blankets of sufficient thickness to remove and control water in the trench. When excavating while depressing ground water, ensure the ground water is below the bottom of cut at all times to prevent washout from behind sheeting or sloughing of exposed trench walls. Maintain control of water in the trench before, during and after pipe system installation and until embedment is installed and sufficient backfill has been placed to prevent flotation of the pipe, fitting or drainage structures. To preclude loss of soil support, employ dewatering methods that minimize removal of fines and the creation of voids in in-situ materials.

3.4.2.3 Removal of Rock

- A. Rock in either ledge or boulder formation shall be replaced with suitable materials to provide a compacted earth cushion having a thickness between exposed rock and the manhole sections of at least 12 inches (0.3m). Rock excavation shall be as specified and defined under section 02300 "Earthwork".

3.4.2.4 Removal of Unstable Material

- A. Where wet or otherwise unstable soil incapable of properly supporting the manhole structure, as determined by the Engineer, is encountered in the bottom of a trench, such material shall be removed to at least 24 inches below bottom of the structure


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and replaced to the proper grade with select granular material, compacted as directed by the Engineer. When removal of unstable material is due to the fault or neglect of the Contractor while performing shoring and sheeting, water removal, or other specified requirements, such removal and replacement shall be performed at no additional cost to the Owner.

3.4.3 Bedding

- A. A stable and uniform bedding shall be provided for the manhole structure and any protruding features of its joint and/or fittings. The bedding shall be compacted to a minimum of 90% of maximum density per AASHTO T99, or as shown in the plans. Structure bedding shall be a minimum of 6" in thickness. The bedding surface for the structure shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.4.4 Setting Structures

- A. Each structure section shall be thoroughly examined before being placed; defective or damaged sections shall not be used. Structures shall be placed to the elevations as indicated on the plans. Proper facilities shall be provided for lowering structure sections into trenches. Sections shall not be laid in water, and the sections shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches shall be provided as directed by the Engineer; see dewatering section.

3.4.5 Jointing

- A. Joints shall be constructed as described herein and in accordance with manufacturer's installation instructions.
- B. All bell-and-spigot manhole joints shall be thoroughly cleaned. The supplied gasket shall be installed on the spigot end with the angled surface facing toward the mating surface. Joint lubricant, supplied by the manufacturer, shall be liberally applied to the entire interior of bell and gasket on spigot prior to assembly. Sections shall be mated with sections level and plumb to prevent rolling the gasket.
- C. All tongue-and-groove joints shall be thoroughly cleaned. Sections shall be mated and hydraulic cement grout (non-shrink) complying with ASTM C1107 shall be applied liberally to the exterior and exterior of the joint ensuring all voids are filled completely.

3.4.6 Backfilling

3.4.6.1 General

Backfill placement and compaction shall be constructed in accordance with specifications herein and the product manufacturer's published installation guides.

3.4.6.2 Backfilling Manhole Sections in Trenches

After the manhole sections and connecting pipes have been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along all sides of pipe in layer depths to ensure minimum compaction density is obtained evenly throughout the backfill material. The backfill shall be brought up evenly on all sides of the structure. Each layer shall be thoroughly compacted with mechanical tampers or rammers. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below.

Where it is necessary, in the opinion of the Engineer, that sheeting or portions of bracing used be left in place, the contract shall be adjusted accordingly. Untreated sheeting shall not be left in place beneath structures or pavements.

3.4.6.3 Movement of Construction Machinery

Movement of construction machinery over a manhole structure at any stage of construction shall be at the Contractor's risk. Any damaged structure shall be repaired or replaced.



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City of San Francisco
JRF/ML
Signed
Date
Permit # 2204180

OLDCASTLE GLASS SPECIFICATIONS



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Code Compliance
Signed _____
Date 10/10/2024
Permit # 20240128

Designed by/for: Jacquie
CAPITOLA COMMUNITY CENTER

Date: 4/19/2024

ARCHITECTURAL GUIDE SPECIFICATION

SECTION 088000 GLAZING

Note to Specifiers:

The specifications below are suggested as desirable inclusions in glass and glazing specifications (section 088000), but are not intended to be complete. An appropriate and qualified Architect or Engineer must verify suitability of a particular product for use in a particular application as well as review final specifications. Oldcastle BuildingEnvelope® assumes no responsibility or liability for the information included or not included in these specifications.

APPROVED GLASS FABRICATOR

Oldcastle BuildingEnvelope®

GLAZING PRODUCTS

Glass Standards

1. Annealed float glass shall comply with ASTM C1036, Type I, Class 1 (clear), Class 2 (tinted), Quality-Q3.
2. Heat-strengthened float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind HS.
3. Tempered float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind FT.
4. Laminated glass to comply with ASTM C1172.
5. Glass shall be annealed, heat-strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.



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www.obe.com/systemselect

 **Oldcastle BuildingEnvelope®**

Reviewed for
Compliance
Signed
04/19/2024
Date

Contact Oldcastle BuildingEnvelope® at 866-OLDCASTLE (653-2278) for samples or additional information. SystemSelect™ calculates center of glass (COG) and total product data using the Lawrence Berkeley National Laboratory (LBNL) Berkeley Lab WINDOW Calc Engine (WinCalc). Glass data is from the following sources: 1. LBNL International Glazing Database (IGDB); 2. Vendor supplied data; 3. LBNL Optics 6. Based on original laboratory testing per AAMA 1503, validated per NFRC 100, 200, 500 and AAMA 507 simulations. Framing system values and glass spacer values determined per LBNL THERM 7.4. as validated in total product simulations. All values are determined in accordance with the aforementioned procedures and valid for use in R&D, bidding and investigative purposes. For NFRC certified values, contact Oldcastle BuildingEnvelope®.

Sealed Insulating Glass (IG)

Vision Glass (Vertical)

1. IG units consist of glass lites separated by a dehydrated airspace that is hermetically dual sealed with a primary seal of polyisobutylene (PIB) or Thermoplastic Spacer (TPS) and a secondary seal of silicone or an organic sealant depending on the application.
2. USA - Insulating glass units are certified through the Insulating Glass Certification Council (IGCC) to ASTM E2190. Canada - Insulating Glass units are certified through the Insulating Glass Manufacturers Alliance (IGMA) to either the IGMAC certification program to CAN/CGSB-12.8, or through the IGMA program to ASTM E2190.

IG VISION UNIT PERFORMANCE CHARACTERISTICS

1. Exterior Lite: 6mm (1/4") Vitro Solarban® 60 on Clear Low-E #2
2. Cavity: 1/2" Argon (90%) / Air (10%)
3. Interior Lite: 6mm (1/4") Vitro Clear
4. Center of Glass (COG) Performance Characteristics

Thermal		Optical	
Winter U-factor (Btu/h·ft ² ·F):	0.24	Visible Light Transmittance:	70%
Winter U-factor (W/m ² ·K):	1.39	Visible Light Reflectance (outside):	11%
Solar Heat Gain Coefficient:	0.39	Visible Light Reflectance (inside):	12%
Shading Coefficient:	0.44	Total Solar Transmittance:	34%
Light to Solar Gain:	1.82	Total Solar Reflectance (outside):	28%
		Ultraviolet Transmittance:	18%



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ARCHITECTURAL GUIDE SPECIFICATION

Note to Specifiers:

The specifications below are suggested as desirable inclusions in glass and glazing specifications (section 088000), but are not intended to be complete. An appropriate and qualified Architect or Engineer must verify suitability of a particular product for use in a particular application as well as review final specifications. Oldcastle BuildingEnvelope® assumes no responsibility or liability for the information included or not included in these specifications.

APPROVED FRAMING PROVIDER**Oldcastle BuildingEnvelope®****FRAMING PRODUCTS**

Framing System	Series 3000 Front Set
Framing Size	NFRC 100 Standard Size
Framing Metal	Aluminum

TOTAL PRODUCT PERFORMANCE CHARACTERISTICS (FRAMING + GLASS)

Winter U-factor (Btu/h·ft ² ·F) (IP):	0.340
Winter U-factor (W/m ² ·K) (SI):	1.93
Solar Heat Gain Coefficient (SHGC):	0.36
Visible Light Transmittance (VT):	0.64
Condensation Resistance (CR):	55



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Signed
08/16/2024
Date

RSIC-1 ACOUSTIC CLIPS & WALL CHANNEL



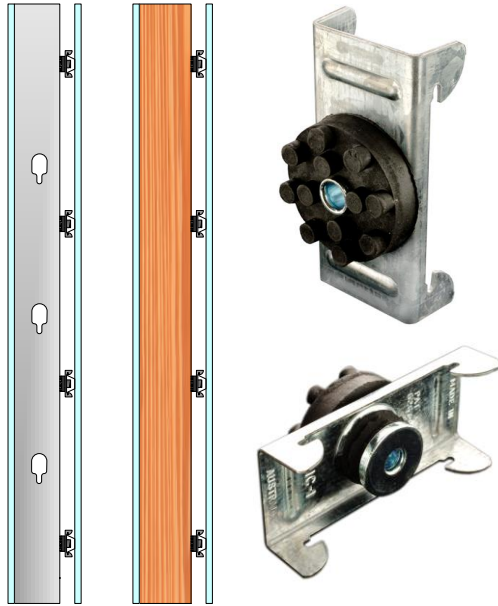
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Reviewed for
Code Compliance
SIGNED _____
DATE 10/10/2024
Permit # 202401188



RSIC-1

The **RSIC-1** is designed for use with any wood, steel or concrete application where noise control is required. This includes, wood framed, steel framed, CMU, or concrete wall and or ceiling systems. The RSIC-1 assembly decouples the gypsum board from the structure, giving the assembly enhanced acoustical performance. With an Acoustical design load rating of 36 lbs per isolator, the RSIC-1 clip can support up to two layers of 5/8" gypsum board when spaced no more than 24" x 48" oc. The RSIC-1 clip fastens directly to the framing or structure. The RSIC-1 decouples the gypsum board from the structure stopping STC and IIC vibrations from entering the space adjacent. The RSIC-1 systems have several UL fire resistive design assemblies from ranging one hour to four hours. The UL assemblies can be viewed on our site at http://pac-intl.com/fire_ratings_list.html, and on UL.com



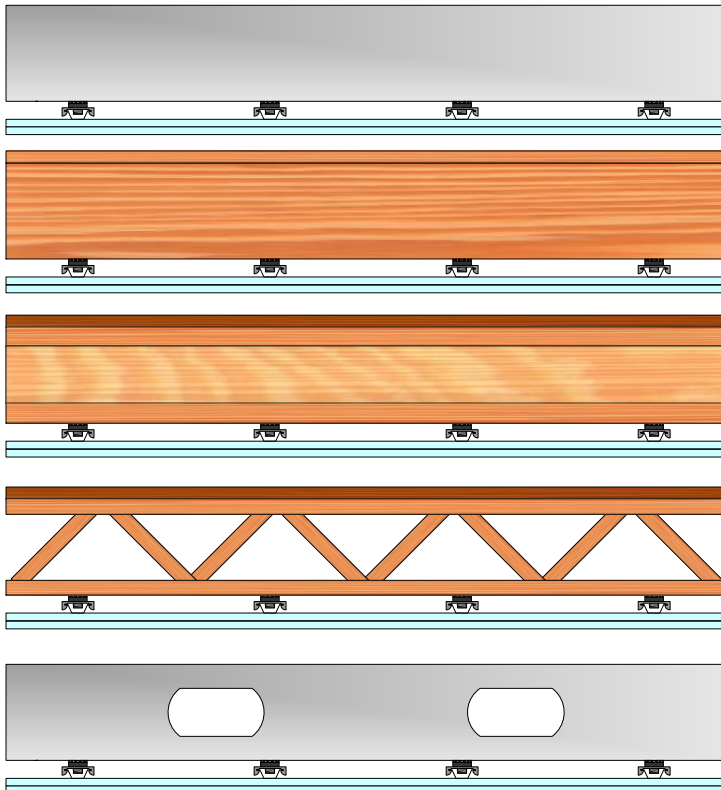
RSIC-1, the Low Cost, High Performance, Noise control Solution

Wood
Steel
Metal deck

Concrete
Condo
Commercial

Apartment
Retail
Conference Rooms

Recording Studio
Home Theater
Commercial theater



RSIC-1 specifications:	
Acoustical design load:	36 Lbs
Total deflection	3 mm
Double deflection	Yes (1.5 mm)
Made with Recycled content	Yes
Low VOC treated	Yes
Adjustable	No
Cavity min	1-5/8"
Cavity Max	1-5/8"
Adjustment limit	N/A
Use on Ceilings	Yes
Use on walls	Yes
New Construction	Yes
Retro Fit	Yes
Made in USA	Yes



24

**KITCHEN EQUIPMENT
SPECIFICATIONS**



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Code Compliance
Signed _____
Date 10/10/2024
Permit # 20240128

Capitola Community Center

Capitola, CA

EQUIPMENT SPECIFICATIONS

PROJECT No. 5768

ISSUED: May 2024

EAST BAY RESTAURANT SUPPLY, INC

49 4TH STREET, OAKLAND, CALIFORNIA, 94607
TEL: (510)465-4300 FAX: (510)544-0393



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Code Compliance
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Date 5/16/2024
Permit # 22241180



Project _____
 AIA # _____ SIS # _____
 Item # _____ Quantity _____ C.S.I. Section 114000

ENDURANCE™ GAS RESTAURANT RANGE

6 Open Burners / 36" Wide Gas Range



SELL SHEET

Model 36C-6BN
Shown on optional casters



SPECIFIER STATEMENT

36" wide gas restaurant range, Vulcan Model No. 36S-6BN. Fully MIG welded aluminized steel frame for added durability. Stainless steel front, sides, backriser, highshelf and 6" adjustable legs. Extra deep crumb tray with welded corners. Six 30,000 BTU/hr. open top burners with lift-off burner heads. Energy saving flashtube open burner ignition system (one pilot for every two burners) shrouded for reliability. Heavy duty cast grates, easy lift-off 12" x 12½" in the front and 12" x 14½" in the back to better accommodate stock pots or large pans. Grates have a built in aeration bowl for greater efficiency. Burner knobs are cool to the touch, high temperature material. One oven: 35,000 BTU/hr. standard bakers depth oven with porcelain oven bottom and door panel, measures 27"d x 26¾"w x 14"h. Oven thermostat adjusts from 250°F to 500°F with a low setting. Oven is supplied with two racks, two rack guide sets, and four rack positions. Oven door is heavy duty with an integrated door hinge/spring mechanism requiring no adjustment. ¾" rear gas connection and pressure regulator. Total input 215,000 BTU/hr.

Exterior Dimensions:

34"d x 36"w x 58"h on 6" adjustable legs

MODELS

- 36S-6BN** 1 Standard Oven / Natural Gas
- 36S-6BP** 1 Standard Oven / Propane
- 36C-6BN** 1 Convection Oven / Natural Gas
- 36C-6BP** 1 Convection Oven / Propane

STANDARD FEATURES

- Fully MIG welded frame
- Stainless steel front, sides, backriser, lift-off high shelf
- 6" stainless steel adjustable legs
- Six open top burners, each burner is 30,000 BTU/hr. with lift-off burner heads
- Shrouded flash tube pilot system (one pilot per two burners)
- Heavy duty cast grates, easy lift-off 12" x 12½" in front and 12" x 14½" in the rear
- Extra deep pull out crumb tray with welded corners
- 35,000 BTU/hr. baker's depth standard oven cavity; full size sheet pans fit side-to-side or front-to-back
- Oven thermostat adjusts from 250°F to 500°F
- Two oven racks and four rack positions
- 35,000 BTU/hr. convection oven in place of standard oven, 24"d x 26¾"w x 13¾"h (115v - 1 phase blower motor 4 amp, 6' cord and plug); full size sheet pans only fit side-to-side in convection oven; convection oven motor requires field attachment
- One year limited parts and labor warranty

ACCESSORIES (PACKAGED AND SOLD SEPARATELY)

- Extra oven rack with rack guides
- Casters (set of four)
- Leveling casters (set of four)
- Flanged feet (set of four)
- 10" stainless steel stub back
- Reinforced high shelf for mounting salamander broiler

OPTIONS (FACTORY INSTALLED)

- Flame Safety device with manual spark ignition for all open top burners, thermostatic griddles and oven pilots
- Hot tops

ENDURANCE GAS RESTAURANT RANGE – 6 Open Burners / 36" Wide Gas Range



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Code Compliance
Signed _____
Date _____
Permit # _____

Approved by _____ Date _____ Approved by _____ Date _____



ENDURANCE™ GAS RESTAURANT RANGE

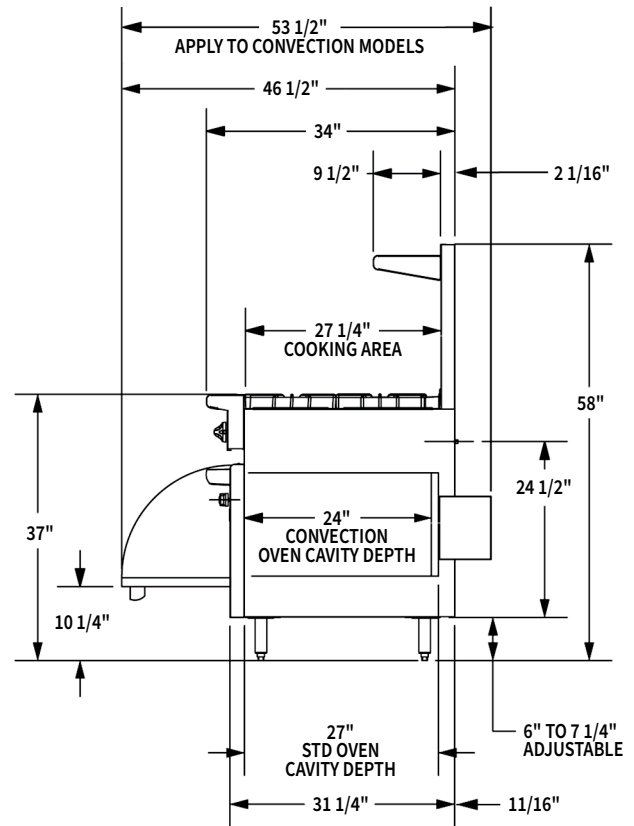
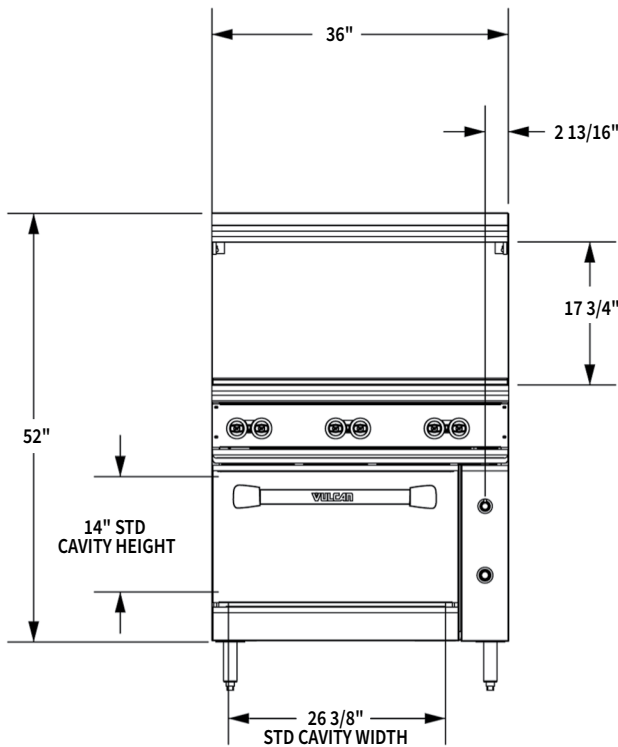
6 Open Burners / 36" Wide Gas Range

INSTALLATION INSTRUCTIONS INSTALLATION MANUAL

1. A pressure regulator sized for this unit is included. Natural gas 5.0" W.C., propane gas 10.0" W.C.
2. Gas line connecting to range must be 3/4" or larger. If flexible connectors are used, the inside diameter must be 3/4" or larger.
3. An adequate ventilation system is required for commercial cooking equipment. Information may be obtained by visiting the National Fire Protection Association website at <https://www.nfpa.org/>. Refer to NFPA No. 96.
4. These units are manufactured for installation in accordance with ANSZ223.1A (latest edition), National Fuel Gas Code. Information may be obtained from The American Gas Association website at <https://www.aga.org/>.
5. Clearances

	Rear	Sides
Combustible	6"	10"
Standard Oven Non-Combustible	0"	0"
Convection Oven Non-Combustible	Min. 4"	0"
6. For proper combustion, install equipment on adjustable legs or casters provided with unit.
7. This appliance is manufactured for commercial installation only and is not intended for home use.

SPECIFY TYPE OF GAS WHEN ORDERING.
SPECIFY ALTITUDE WHEN ABOVE 2,000 FEET.



▶ CAD and/or Revit Files Available

Top Configuration	Model	Description	Total Input BTU / Hr.	Shipping Weight Lbs. / KG
	36S-6BN	1 Standard Oven / 6 Burners / Natural Gas	215,000	520 / 236
	36S-6BP	1 Standard Oven / 6 Burners / Propane	215,000	520 / 236
	36C-6BN	1 Convection Oven / 6 Burners / Natural Gas	215,000	580 / 263
	36C-6BP	1 Convection Oven / 6 Burners / Propane	215,000	580 / 263

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 580 / 263
 Date
 PERMIT #

As continued product improvement is a policy of Vulcan, specifications are subject to change without notice.

Dormont®

Foodservice Moveable Equipment Installation Products

The Dormont Blue Hose™ is the heart of the Safety System, specifically engineered for caster-mounted commercial cooking equipment. The Blue Hose includes an antimicrobial protective PVC coating, and our Stress Guard® technology that makes the hose easier to install and dramatically reduces stress on the hose ends.

The fuel gas codes require the use of an ANSI Z21.69/CSA 6.16 moveable gas connector with all appliances that may or may not utilize casters and, under normal use, are moved on a regular basis for service, positioning or area cleanliness.



- 
Stress Guard Technology
 Rotation technology reduces stress on both ends of the hose
- Stainless Steel Construction**
 Heavy-duty, flexible, corrugated 304 stainless steel tubing
- Stainless Steel Braid**
 Tight-weave braid prevents corrugations from stretching as equipment is moved
- Antimicrobial PVC Coating**
 Inhibits growth of bacteria, mold and mildew on the gas connector



A Watts Water Technologies Company USA, 6015 Enterprise Drive, Export, PA 15632 • 1-800-DORMONT • Dormont.com

SRV161116-Front Inset 1

The Dormont Safety System™ is the first and only complete gas equipment connection system specifically engineered for the commercial kitchen. It's a complete system of connectors designed with the safety of your kitchen in mind. You serve, your employees, and your business in mind.

The Safety System includes the famous Dormont Blue Hose and our exclusive safety-bassed fittings - the SnapFast quick-disconnect, the Safety Quik quick-disconnect valve, and the Swivel MAX. Safe, unique and affordable, the Dormont Safety System provides peace of mind for the gas connections in your commercial kitchen.



Safety Quik

- Prevents user from turning on gas while appliance is disconnected
- Thermal shut-off when internal temperature exceeds 350°F (177°C)



SnapFast

- One-handed quick-disconnect fitting
- Thermal shut-off when internal temperature exceeds 350°F (177°C)



Swivel MAX

- Reduces stress on connector
- Increases kitchen aisle space by allowing connector to be positioned closer to the wall



Restraining Cable

- Prevents transmission of strain to connector
- Provided 1' shorter than the gas connector



Safety-Set

- Ensures cooking equipment is always positioned in design-specified location
- Fast installation with choice of adhesive foam tape or thumbscrews



11/6/15 11:07 AM



Moveable Commercial Equipment Kits

KIT SOLUTIONS	50 = 1/2" ID 75 = 3/4" ID 100 = 1" ID 125 = 1-1/4" ID	BTU/hr Minimum Flow Capacity*						
	PART NUMBER		THE BLUE HOSE™	SnapFast® QUICK-DISCONNECT	Swivel MAX® 1st SWIVEL	Swivel MAX® 2nd SWIVEL	Safety Quik® VALVE	RESTRAINING CABLE
Standard Kit (KIT)¹ The Dormont Blue Hose™ SnapFast Quick-Disconnect Restraining Cable	1650KIT36	77K	✓	✓				✓
	1650KIT48	68K	✓	✓				✓
	1650KIT60	60K	✓	✓				✓
	1675KIT36	218K	✓	✓				✓
	1675KIT48	180K	✓	✓				✓
	1675KIT60	158K	✓	✓				✓
	16100KIT36	379K	✓	✓				✓
	16100KIT48	334K	✓	✓				✓
16100KIT60	294K	✓	✓				✓	
Single Swivel MAX Kit (KITS)² The Dormont Blue Hose™ SnapFast Quick-Disconnect One Swivel MAX Swivel Restraining Cable	1650KITS36	72K	✓	✓	✓			✓
	1650KITS48	63K	✓	✓	✓			✓
	1650KITS60	56K	✓	✓	✓			✓
	1675KITS36	203K	✓	✓	✓			✓
	1675KITS48	167K	✓	✓	✓			✓
	1675KITS60	147K	✓	✓	✓			✓
	16100KITS36	353K	✓	✓	✓			✓
	16100KITS48	310K	✓	✓	✓			✓
16100KITS60	274K	✓	✓	✓			✓	
Double Swivel MAX Kit (KIT2S)³ The Dormont Blue Hose™ SnapFast Quick-Disconnect Two Swivel MAX Swivels Restraining Cable	1650KIT2S36	69K	✓	✓	✓	✓		✓
	1650KIT2S48	60K	✓	✓	✓	✓		✓
	1650KIT2S60	54K	✓	✓	✓	✓		✓
	1675KIT2S36	193K	✓	✓	✓	✓		✓
	1675KIT2S48	160K	✓	✓	✓	✓		✓
	1675KIT2S60	140K	✓	✓	✓	✓		✓
	16100KIT2S36	336K	✓	✓	✓	✓		✓
	16100KIT2S48	295K	✓	✓	✓	✓		✓
16100KIT2S60	261K	✓	✓	✓	✓		✓	
Safety Quik Kit (KITCF)⁴ The Dormont Blue Hose™ Safety Quik Quick-Disconnect Restraining Cable	1650KITCF36	77K	✓				✓	✓
	1650KITCF48	68K	✓				✓	✓
	1650KITCF60	60K	✓				✓	✓
	1675KITCF36	218K	✓				✓	✓
	1675KITCF48	180K	✓				✓	✓
	1675KITCF60	158K	✓				✓	✓
	16100KITCF36	379K	✓				✓	✓
	16100KITCF48	334K	✓				✓	✓
16100KITCF60	294K	✓				✓	✓	
Safety Quik Single Swivel MAX Kit (KITCFS)⁵	1650KITCFS36	72K	✓		✓		✓	✓
	1650KITCFS48	63K	✓		✓		✓	✓
	1650KITCFS60	56K	✓		✓		✓	✓
	1675KITCFS36	203K	✓		✓		✓	✓
	1675KITCFS48	161K	✓		✓		✓	✓
	1675KITCFS60	147K	✓		✓		✓	✓
	16100KITCFS36	353K	✓		✓		✓	✓
	16100KITCFS48	310K	✓		✓		✓	✓
16100KITCFS60	274K	✓		✓		✓	✓	

¹ Includes Full Port Gas Valve and (2) 90° Street Elbows
 ² Includes Full Port Gas Valve and (1) 90° Street Elbow
 ³ Includes Full Port Gas Valve
 ⁴ Includes (2) 90° Street Elbows
 ⁵ Includes (1) 90° Street Elbow

*BTU/hr Minimum Flow Capacity (0.64 Sp.Gr., 1000 BTU/ft³ Natural Gas at 0.5" wc pressure drop)

ADDITIONAL CONFIGURATIONS ARE AVAILABLE IN OUR CATALOG



Add PS to the end of any part number to include the Safety-Set® wheel placement system



We guarantee our commercial gas connectors for the life of the original appliance to which it is connected.



APPROVED FOR COMPLIANCE

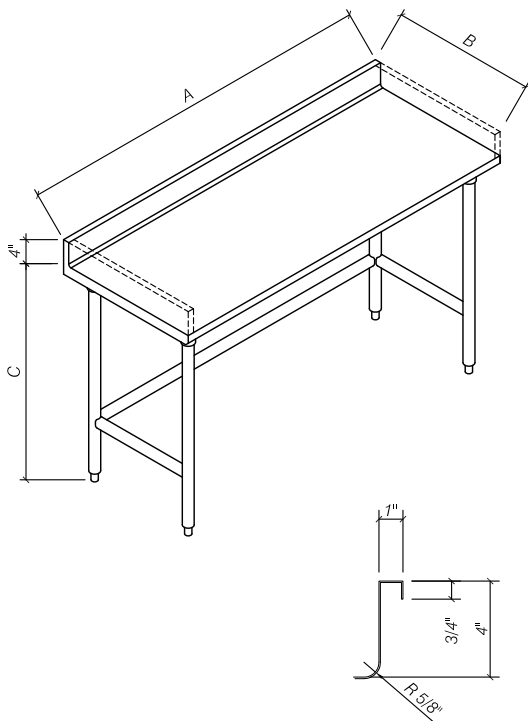
CSF-WTRSX

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

SS Work Table w/ Rear Splash & Crossbracing



MATERIAL: TYPE 304 SERIES STAINLESS STEEL

- TOP 16 GAUGE 304 STAINLESS STEEL WITH #4 FINISH
 - 1 3/4" TURNED DOWN EDGE CONFIGURATION
 - SS CHANNEL REINFORCEMENT
- 1" X 4" HIGH REAR SPLASH WITH 5/8" RADIUS COVE
- FULLY WELDED 1 5/8" DIAMETER CROSSBRACING 16 GAUGE 304 SS TUBE
- 1 5/8" DIAMETER LEGS 16 GAUGE 304 SS TUBE
 - (4) LEGS FOR LENGTHS UP TO 96"
 - SS CLAD ADJUSTABLE BULLET FEET
- WORKING HEIGHT @ 36"

ACCESSORIES:

- Z-CLIP

OPTIONS:

- TOP 14 GAUGE 304 SS (-S)
- LEFT SPLASH (-L) RIGHT SPLASH (-R)
- LEFT / RIGHT SPLASH (-LR)
- 1" X 6" HIGH SPLASH
- HEIGHT "C" @ 34"

LENGTH "A"	MODEL # WIDTH "B" = 24"	MODEL # WIDTH "B" = 30"	MODEL # WIDTH "B" = 36"
36"	WT36-RSX-24	WT36-RSX-30	WT36-RSX-36
48"	WT48-RSX-24	WT48-RSX-30	WT48-RSX-36
→ 60"	WT60-RSX-24	WT60-RSX-30	WT60-RSX-36
72"	WT72-RSX-24	WT72-RSX-30	WT72-RSX-36
84"	WT84-RSX-24	WT84-RSX-30	WT84-RSX-36
96"	WT96-RSX-24	WT96-RSX-30	WT96-RSX-36
108"	WT108-RSX-24	WT108-RSX-30	WT108-RSX-36
120"	WT120-RSX-24	WT120-RSX-30	WT120-RSX-36

CALL FOR CUSTOM SIZE & CONFIGURATION



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Code Compliance

Signed _____
JW for SM

Date: 05/16/2024

Project #: 20241010

1925 N. MacArthur Drive, Suite 300 - Tracy, CA 95376 - 209.740.4280 - Fax 209.740.4278



BEVERAGE-AIR

ITEM #9

Project: _____	AIA# _____
Item: _____	
Location: _____	SIS# _____
Approved: _____	

WORKTOP FREEZER

**MODEL:
WTF27AHC-FIP**

WTF27AHC Solid Door With Foamed-In Place Backsplash Hydrocarbon Series

**3 Year Parts/Labor Warranty
Additional 4 Year Compressor Warranty**

CABINET CONSTRUCTION

- Stainless steel front, sides, door and grille (galvanized back & bottom)
- Interior liner is made of corrosion resistant aluminum
- Stainless steel top for added durability
- Full electronic control
- Interior thermometer is standard
- Foamed-in place backsplash
- Self-closing doors with 120° stay-open feature, on cartridge style hinges
- Door opening includes low wattage, anti-condensate heaters
- Magnetic gasket attached to each door for positive seal
- 6" Casters, two (2) with brakes standard
- Two epoxy-coated steel wire shelves
- Field-reversible door (hinge kit not included)



OPTIONS & ACCESSORIES

- Stainless steel back
- Stainless steel interior
- 16 Gauge stainless steel top
- Additional shelves
- Shelf clips
- Glass door option
- Right or left hinged door
- Locks (solid doors only)
- Bun rack
- Wire shelf divider
- 3" Casters
- 6" legs (stainless steel, black or seismic/flange)
- Low profile casters
- Roller kit
- Remote option* (see note on back on page)

REFRIGERATION SYSTEM

- Uses environmentally friendly, energy efficient R290 refrigerant, and meets all regulatory requirements for CARB, SNAP, DOE & more
- Adaptive defrost
- Epoxy coated evaporator coil
- Freezers capable of maintaining product temperature of -10°F

WTF27AHC WORKTOP FREEZER

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JOB COPY**Reviewed for
Code ComplianceSigned _____
JW for EMPlease verify qualifying units by visiting:
www.energystar.gov/cfs3779 Champion Blvd., Winston-Salem, NC 27105
1-888-845-9800 Fax: 1-336-245-6453
Beverage-Air.com Sales@bevair.com



MODEL	WTF27AHC-FIP
EXTERNAL DIMENSIONAL DATA	
Width Overall	27"
Depth Overall with Handle & Bumper	32"
Height Overall with 6" Casters	39 5/8"
Number of Doors	1
Depth with Door Open 90°	55 3/8"
Door Opening	22 5/8" x 21 5/8"
INTERNAL DIMENSIONAL DATA	
NET Capacity (cubic ft.)	5.87
Internal Width Overall (in)	23"
Internal Depth Overall (in)	15 1/2"
Internal Height Overall (in)	23"
Number of Shelves	2
ELECTRICAL DATA	
Full Load Amperes	2.5
REFRIGERATION DATA	
Horsepower	1/4
Capacity (BTU/Hr)	857
SHIPPING DATA	
Gross Weight - Crated	202 lbs
Height - Crated	36"
Width - Crated	30"
Depth - Crated	32"

*NOTE: Remote units are field wired and come with 6" legs.
Refrigerant must be specified at time of order.

Worktop Freezer Models: WTF27AHC-FIP

Model Views

Required Clearance: 3 3/16" bottom & 2" rear

PLAN VIEW

ELEVATION VIEW

SIDE VIEW

*ELECTRICAL CONNECTION



115/60/1
NEMA 5-15P

Unit pre-wired at factory and include 8' long cord and plug set.



Code Compliance

Signed _____

10/16/2024

2544140

FIGURE # _____





Project _____
 AIA # _____ SIS # _____
 Item # _____ Quantity _____ C.S.I. Section 114000

G-SERIES

2-Section Refrigerator Reach-In Self-Contained Solid Door(s)



STANDARD PRODUCT FEATURES

- High Performance, Energy Efficient Refrigeration System Using R-290
- Reliable Microprocessor Control With LED Temperature Display
- Evaporator Coil Outside Food Zone Provides More Usable Space
- Load-Sure Guard Prevents Problems From Improper Loading
- Durable All-Metal Construction
- Stainless Steel Front & Doors, Anodized Aluminum Sides & Interior
- Full or Half Height Door Models with a Variety of Hinging Configurations
- Long Life EZ-Clean Door Gaskets
- Three (3) Epoxy Coated Shelves Per Section (factory installed)
- Easy to Maintain Front Facing Condenser Coil
- 6" High Locking Casters

FIELD INSTALLED ACCESSORIES & OPTIONS

- Trayslides for 18" x 26" Sheet Pans
- Trayslides for 12" x 20" Food Pans
- Trayslides for 14" x 18" Sheet Pans
- Trayslides for 18" x 26", 12" x 20" & 14" x 18" Pans
- Additional Shelves
- Set of (4) 4 1/8" Casters in Lieu of Standard
- 6" High Legs



Intertek



This unit is listed to the applicable ETL and NSF Standards by an approved NRTL. Consult the factory or unit's data plate for approval information.

AVAILABLE CONFIGURATIONS

Half-Height Door Models

G20000
 G20001
 G20002
 G20003

Hinging

Left/Right
 Right/Left
 Right/Right
 Left/Left

Full-Height Door Models

G20010
 G20011
 G20012
 G20013

Hinging

Left/Right
 Right/Left
 Right/Right
 Left/Left

***Please refer to the G-Series Accessory Kit Guide for precise details. (Form TR35872)**

-GUARANTEED FOR LIFE CAM-LIFT HINGES

**-GUARANTEED FOR LIFE HORIZONTAL
 WORKFLOW DOOR HANDLES (SOLID DOORS ONLY)**



APPROVED
 JOB COPY

Reviewed for
 Code Compliance

Signed _____

Date _____

Permit # _____

Approved by _____ Date _____ Approved by _____ Date _____

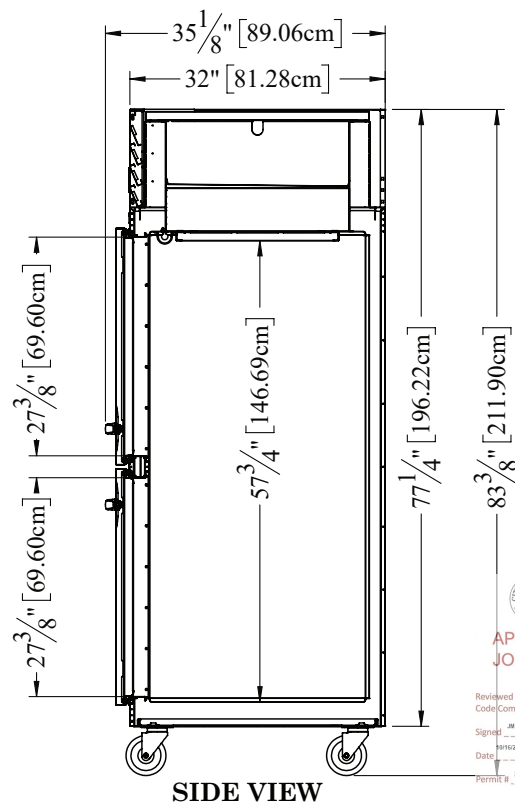
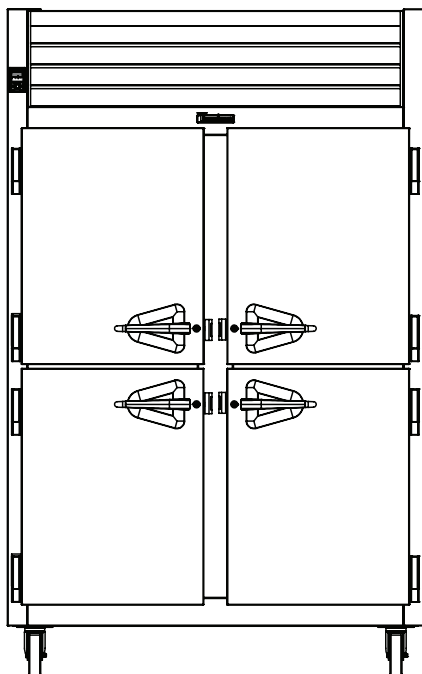
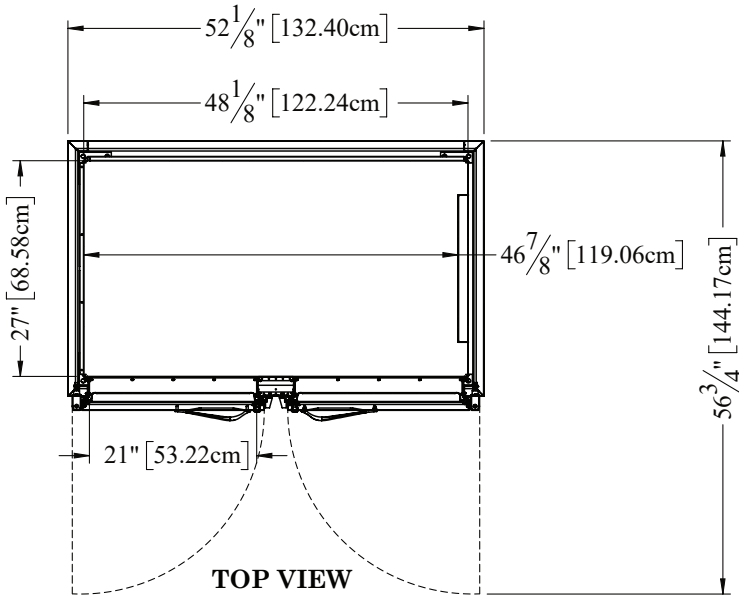


CAD and/or Revit Files Available

https://traulsen.klccad.com/

MODELS

Half Height Door Models: G20000, G20001, G20002, G20003




**APPROVED
JOB COPY**
 Reviewed for
Code Compliance
 Signed: JM for EM
 Date: 09/16/2024
 Permit #: 2254145

CAD and/or Revit Files Available

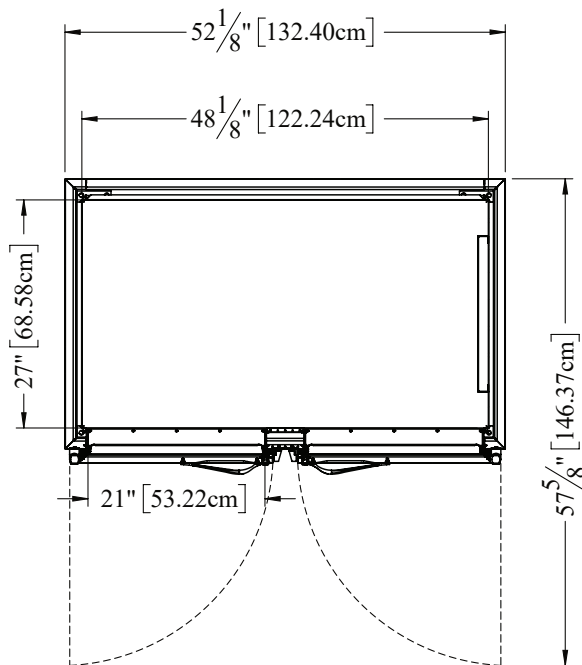
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G-SERIES

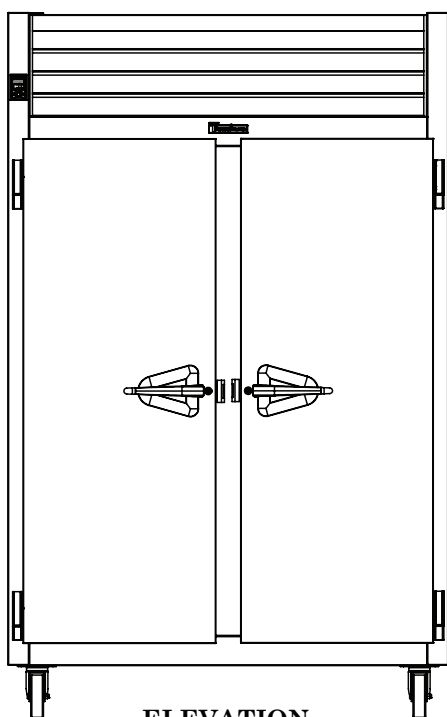
2-Section Refrigerator Reach-In Self-Contained Solid Door(s)

MODELS

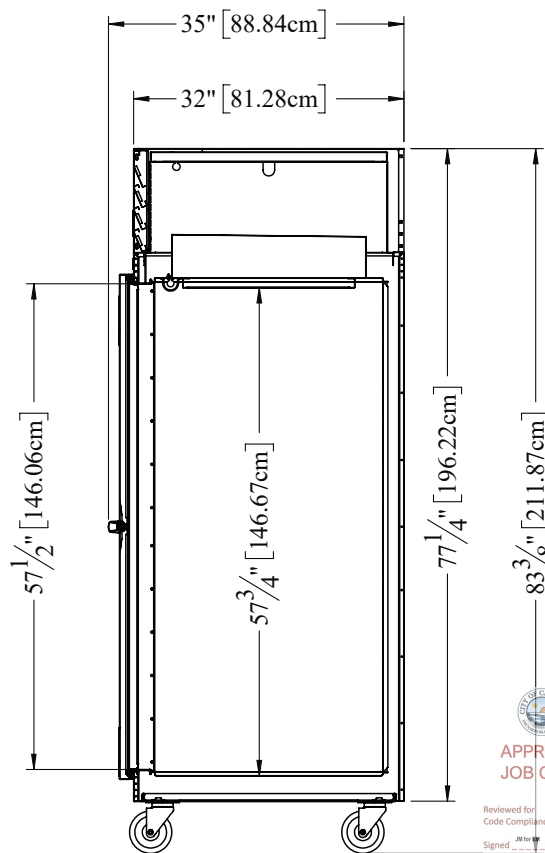
Full Height Door Models: G20010, G20011, G20012, G20013



TOP VIEW



ELEVATION



SIDE VIEW



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Reviewed for
Code Compliance

Signed _____
Date: 05/16/2024

Permit # 2254150

Permit # _____



G-SERIES

2-Section Refrigerator Reach-In Self-Contained Solid Door(s)

MODELS

Half Height Door Models: G20000, G20001, G20002, G20003

Full Height Door Models: G20010, G20011, G20012, G20013

EQUIPMENT SPECIFICATIONS

MODELS	G200__
DIMENSIONAL DATA	
Net Capacity cu. ft. ¹	45.89 (1300 l) 46.02 (1303 l)
Length - overall in.	52 ¹ / ₈ " (132.4 cm)
Depth - overall in.	35" (88.8 cm)
Depth - over body in.	32" (81.3 cm)
Depth - door open 90° in.	57 ³ / ₈ " (146.3 cm)
Clear door width in.	21" (53.2 cm)
Clear half-door height in.	27 ³ / ₈ " (69.6 cm)
Clear full-door height in.	57 ¹ / ₂ " (146.1 cm)
Height - overall on 6" legs in. ²	83 ³ / ₈ " (211.9 cm)
No. Standard Shelves	6
Shelf Area sq. ft. ³	34.6 (3.21 sq m)
ELECTRICAL DATA	
Voltage Plug	115/60/1 NEMA 5-15P (attached)
Feed wires with ground	3
Full Load Amperes KWH/24HR ⁴	4.3 2.74
REFRIGERATION DATA	
Refrigerant	R-290
Refrigerant Charge oz.	4.5 (127.6 g)
BTU/HR H.P. ⁵	2100 1/4 HP
SHIPPING DATA	
Length - Crated in.	62" (158 cm)
Width - Crated in.	42" (107 cm)
Height - Crated in.	85" (216 cm)
Volume - Crated cu. ft.	128 (3625 l)
Weight - Crated lbs.	480 (218 kg)

NOTES:

1. Net Capacity cu. ft. = Half Height Door | Full Height Door models.
2. 12" Top clearance preferred for optimum performance & service access.
3. Figure shown reflects the area of standard shelf compliment.
4. KWH/24HR = Kilowatt usage per 24 hours
5. Based on a 90°F ambient and 20°F evaporator.

CONSTRUCTION, HARDWARE, INSULATION

Cabinet exterior front, louver assembly and door(s) are constructed of heavy gauge stainless steel. Cabinet sides (including returns), interior and door liners are constructed of anodized aluminum. The exterior cabinet top, back and bottom are constructed of heavy gauge galvanized steel. A set of four (4) 6" high locking casters are included.

Doors are equipped with a gasket protecting, raised metal door pan, cylinder locks, and guaranteed for life self-closing cam-lift hinges with a stay open feature at 120 degrees. Hinges include a concealed switch to automatically activate the interior LED lighting. Guaranteed for life, metal work flow door handles are mounted horizontally over recess in door which limits protrusion into aisle ways.

Gasket profile and durable long life material simplify cleaning and increase overall gasket life. Anti-condensate heaters are located behind each door opening.

Both the cabinet and door(s) are insulated with an average of 2" thick high density, non-CFC, 100% foamed in place polyurethane.

SELF-CONTAINED REFRIGERATION SYSTEM

A top mounted, self-contained, balanced refrigeration system using environmentally-friendly, low GWP R-290 refrigerant is conveniently located behind the one piece louver assembly. It features an easy to clean front facing condenser, thermostatic expansion valve metering device, air-cooled hermetic compressor, large, high humidity evaporator coil located outside the food zone and a top mounted non-electric condensate evaporator. A 9' cord and plug is provided. Standard operating temperature is 34 to 38°F.

CONTROL

The easy to use water resistant microprocessor control is supplied standard. It includes a 3-Digit LED Display, and a Fahrenheit or Celsius Temperature Scale Display Capability.

INTERIOR ARRANGEMENTS

Standard interior arrangements include three (3) epoxy coated steel wire shelves per section, mounted on shelf pins, installed at the factory. Shelves are full-width, and do not have any large gaps between them requiring the use of "bridge" or "junior shelves." Recommended load limit per shelf should not exceed 225 lbs.

DOMESTIC WARRANTY

Both a six year parts and labor warranty and an additional one year compressor parts warranty (for a total of seven on self-contained models) are provided standard.

When ordering please specify: Voltage, Hinging, and Options.

Equipped with one NEMA 5-15P Plug



OPTIONAL ACCESSORY TRAYSLIDE VERSATILITY CHART						
TRAYSLIDE DRAWINGS						
TRAYSLIDE OFFERING	#1 (1) 18" x26" or (2) 14"x18"	#4 (Rod Type) (1) 18" x26"	Universal (1) 18" x26" or (2) 14"x18" or (2) 12"x20"	#1 EZ-Change (1) 18" x26" or (2) 14"x18"	Universal EZ-Change (1) 18" x26" or (2) 14"x18" or (2) 12"x20"	HD Universal (1) 18" x26" or (2) 14"x18" or (2) 12"x20"
SPACING CAPACITY DOOR SIZE	2" 28 Pairs Full Door & 13 Half 3" 19 Pairs Full Door & 09 Half 4" 14 Pairs Full Door & 07 Half 5" 11 Pairs Full Door & 05 Half	1 1/2" 38 Pairs Full Door (2 Pair) 1 1/2" 18 Pairs Half Door (1 Pair)	4" 14 Pairs Full Door & 06 Half 4" 14 Pairs Full Door & 07 Half 5" 11 Pairs Full Door & 05 Half 6" 09 Pairs Full Door & 04 Half	2" 26 Pairs Full Door & 12 Half 4" 13 Pairs Full Door & 06 Half	2 1/4" 22 Pairs Full Door & 11 Half 4 1/2" 11 Pairs Full Door & 05 Half	4 1/2" 11 Pairs Full Door & 05 Half 9" 05 Pairs Full Door & 02 Half

- Upper Half Height Door¹
- Lower Half Height Door²

CONTINUED PRODUCT DEVELOPMENT MAY NECESSITATE SPECIFICATION CHANGES WITHOUT NOTICE.

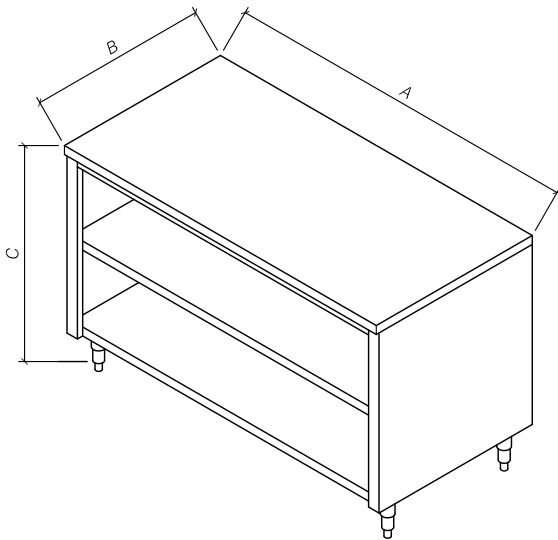
CSF-CWTS

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

SS Cabinet Work Table w/ Intermediate Shelf



MATERIAL: TYPE 304 SERIES STAINLESS STEEL

- TOP 16 GAUGE 304 STAINLESS STEEL WITH #4 FINISH
 - 1 3/4" TURNED DOWN EDGE CONFIGURATION
 - SS CHANNEL REINFORCEMENT
- CABINET BODY 18 GAUGE 304 SS WITH #4 FINISH
- INTERMEDIATE SHELF 18 GAUGE 304 SS WITH #4 FINISH
- BOTTOM SHELVING 18 GAUGE 304 SS WITH #4 FINISH
- 1 5/8" DIAMETER LEGS 16 GAUGE 304 SS TUBE
 - SS CLAD ADJUSTABLE BULLET FEET
 - SS LEG SOCKETS
- WORKING HEIGHT @ 36"

OPTIONS:

- TOP 14 GAUGE 304 SS (-S)
- HEIGHT "C" @ 34"

LENGTH	24" WIDTH	30" WIDTH	36" WIDTH
36"	CWT36-S-24	CWT36-S-30	CWT36-S-36
48"	CWT48-S-24	CWT48-S-30	CWT48-S-36
60"	CWT60-S-24	CWT60-S-30	CWT60-S-36
→ 72"	CWT72-S-24	CWT72-S-30	CWT72-S-36
84"	CWT84-S-24	CWT84-S-30	CWT84-S-36
96"	CWT96-S-24	CWT96-S-30	CWT96-S-36
108"	CWT108-S-24	CWT108-S-30	CWT108-S-36
120"	CWT120-S-24	CWT120-S-30	CWT120-S-36



CALL FOR CUSTOM SIZE & CONFIGURATION



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Code Compliance
Signed _____
09/16/2024
Date: _____

1925 N. MacArthur Drive, Suite 300 - Tracy, CA 95376 - 209.740.4280 - Fax 209.740.4278

NE-1054F

1000 WATT* COMMERCIAL MICROWAVE OVEN

FOOD SERVICE EQUIPMENT

PROwww.panasonic.com/CMO

PERFECT FOR

- Vending
- Break Rooms
- Waitress Stations
- Front of House
- Schools
- Concessions
- Convenience Stores

PERFORMANCE

- 1000 Watt Power
- 10 Programmable memory pads
- 20 Memory capability
- 6 Power Levels
- 2- and 3-stage cooking
- Programmable and Manual operations
- Bottom energy feed

BOTTOM ENERGY FEED

Energy travels less distance to reach the food, compared to side or top energy feed, for increased efficiency.

“GRAB & GO” DOOR HANDLE

Without moving parts like those found in trigger-activated or push-button handles, the “Grab & Go” door handle is fast, reliable and durable.

ADDITIONAL FEATURES

- Stainless steel front
- 0.8 cubic feet cavity
- Grab & Go door handle
- Fits 1 half-size, 6-inch deep steam table pan/cover
- Braille keypad
- Program list/cycle counter
- Self diagnostics
- 99:99-minute capacity
- Interior oven light
- See-through oven door
- Touch control keypad
- Anti-theft equipped
- Program lock
- Tone control
- Will ship via UPS

SPECIFICATIONS	NE-1054F
Power Source:	120V, 60Hz, Single Phase
Receptacle Required:	NEMA 5-15
Frequency:	2,450MHz
Required Power:	13.4A
Output:	1000 Watts*
Outer Dimensions: (w x d x h)	20-1/8" x 16-1/2" x 12"
Cavity Dimensions: (w x d x h)	13" x 13" x 8-1/16"
Net Weight:	34 lbs.
Shipping Weight:	40 lbs.
Shipping Box Size: (w x d x h)	24" x 18-3/4" x 14-3/4" - 3.8 cu. ft.
Timer:	99 Minutes, 99 Seconds
Memory Capability:	20 Programs
Door / Cabinet / Cavity:	Stainless / Grey / White

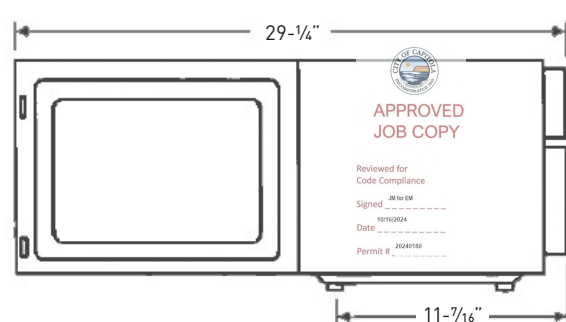
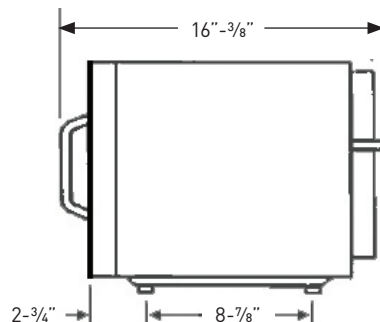
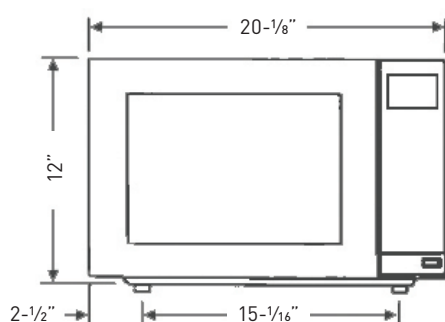
The NE-1054F commercial microwave meets or exceeds all safety performance and sanitation standards set for commercial food service microwave ovens by UL, HHS, FCC and NSF.



Panasonic Commercial Food Service
Division of Panasonic Corporation of North America
2 Riverfront Plaza | Newark, NJ 07102
(201) 348-7000
www.panasonic.com/cmo

MAINTENANCE

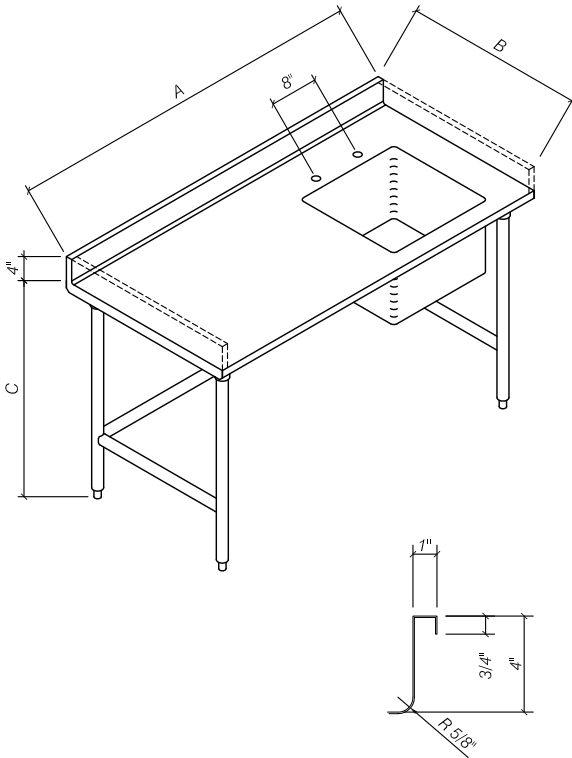
- Self-diagnostics
- Easy to change interior oven light
- Warranty: 1 year parts/labor or 18,000 cycles
- Warranty: 3 years parts/labor or 54,000 cycles for magnetron



CSF-WTCRSX

Item #: _____ Qty #: _____
 Model #: _____
 Project #: _____

SS Chef's Table w/ Rear Splash & Crossbracing



MATERIAL: TYPE 304 SERIES STAINLESS STEEL

- TOP 16 GAUGE 304 STAINLESS STEEL WITH #4 FINISH
 - 1 3/4" TURNED DOWN EDGE CONFIGURATION
 - SS CHANNEL REINFORCEMENT
- 18" X 18" X 12" SS TUB WITH 3 1/2" DIA. DRAIN HOLE
 - TUB ON LEFT (L) OR ON RIGHT (R)
 - 8" O.C. HOLES FOR DECK MOUNT FAUCET
- 1" X 4" HIGH REAR SPLASH WITH 5/8" RADIUS COVE
- FULLY WELDED 1 5/8" DIAMETER CROSSBRACING 16 GAUGE 304 SS TUBE
- 1 5/8" DIAMETER LEGS 16 GAUGE 304 SS TUBE
 - (4) LEGS FOR LENGTHS UP TO 96"
 - SS CLAD ADJUSTABLE BULLET FEET
- WORKING HEIGHT @ 36"

ACCESSORIES:

- DRAIN BASKET • Z-CLIP

OPTIONS:

- TOP 14 GAUGE 304 SS (-S)

TUB SIZE:

- 18" X 24" TUB 20" X 20" TUB 24" X 24" TUB
- LEFT SPLASH (-L) RIGHT SPLASH (-R)
- LEFT / RIGHT SPLASH (-LR) 1" X 6" HIGH SPLASH
- HEIGHT "C" @ 34"

LENGTH "A"	MODEL # TUB 18" X 18" WIDTH "B" = 30"	MODEL # TUB 18" X 18" WIDTH "B" = 36"
36"	WT36-1818(L/R)-CRSX-30	WT36-1818(L/R)-CRSX-36
48"	WT48-1818(L/R)-CRSX-30	WT48-1818(L/R)-CRSX-36
60"	WT60-1818(L/R)-CRSX-30	WT60-1818(L/R)-CRSX-36
72"	WT72-1818(L/R)-CRSX-30	WT72-1818(L/R)-CRSX-36
84"	WT84-1818(L/R)-CRSX-30	WT84-1818(L/R)-CRSX-36
96"	WT96-1818(L/R)-CRSX-30	WT96-1818(L/R)-CRSX-36
108"	WT108-1818(L/R)-CRSX-30	WT108-1818(L/R)-CRSX-36
120"	WT120-1818(L/R)-CRSX-30	WT120-1818(L/R)-CRSX-36



CALL FOR CUSTOM SIZE & CONFIGURATION



Reviewed for
Code Compliance
Signed _____
Date: 05/16/2024
Permit #: 20241810

1925 N. MacArthur Drive, Suite 300 - Tracy, CA 95376 - 209.740.4280 - Fax 209.740.4278



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-1127

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com



ADA Compliant

This Space for Architect/Engineer Approval

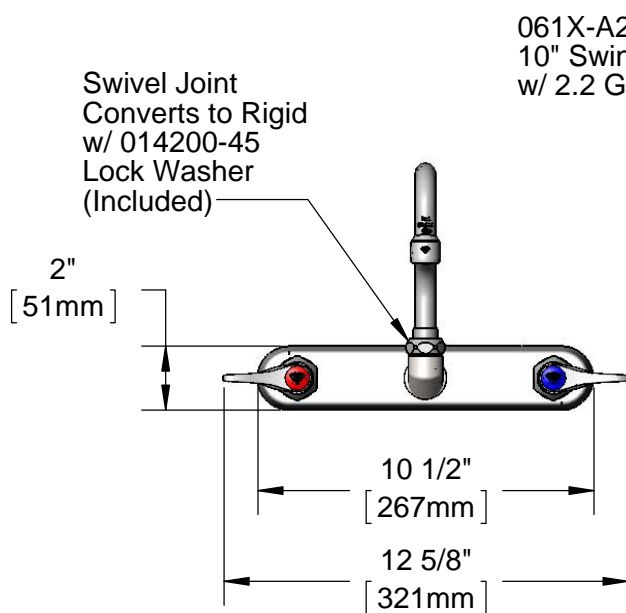
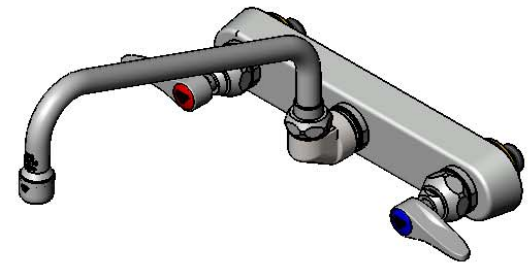
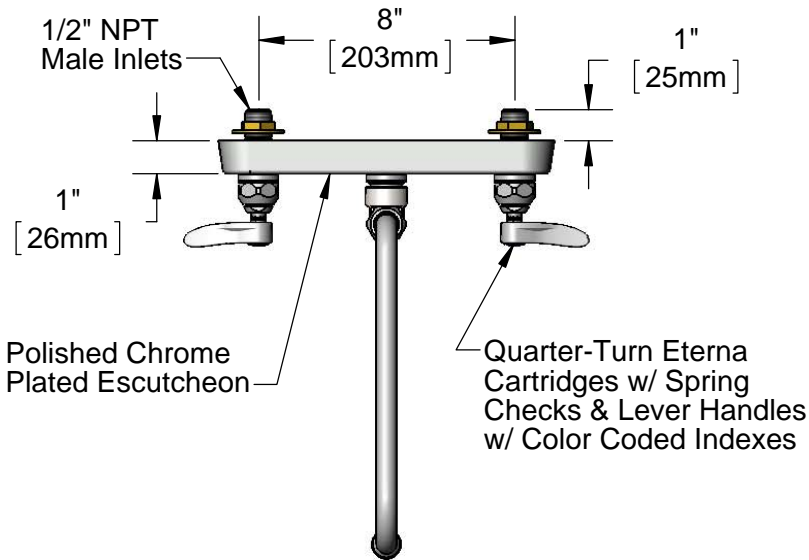
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Model Specified _____ Quantity _____

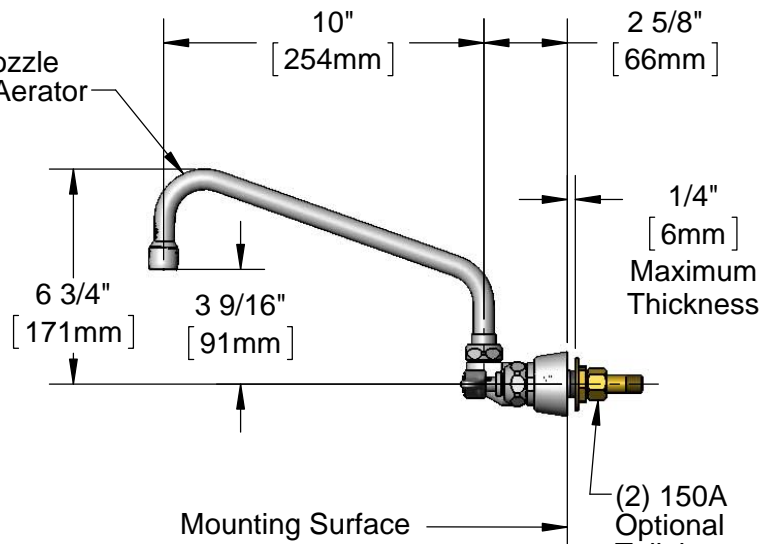
Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



061X-A22
10" Swing Nozzle
w/ 2.2 GPM Aerator



Rough-In Requirement:
(2) \varnothing 1" [25mm] Mounting Holes

Product Specifications:
8" Wall Mount Workboard Faucet, Quarter-Turn Eterna Cartridges w/ Spring Checks, Lever Handles, 10" Swing Nozzle, 2.2 GPM Aerator & 1/2" NPT Male Inlets

Product Compliance:

ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
ANSI A117.1 (ADA)

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Reviewed for
Signed
Permit #



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

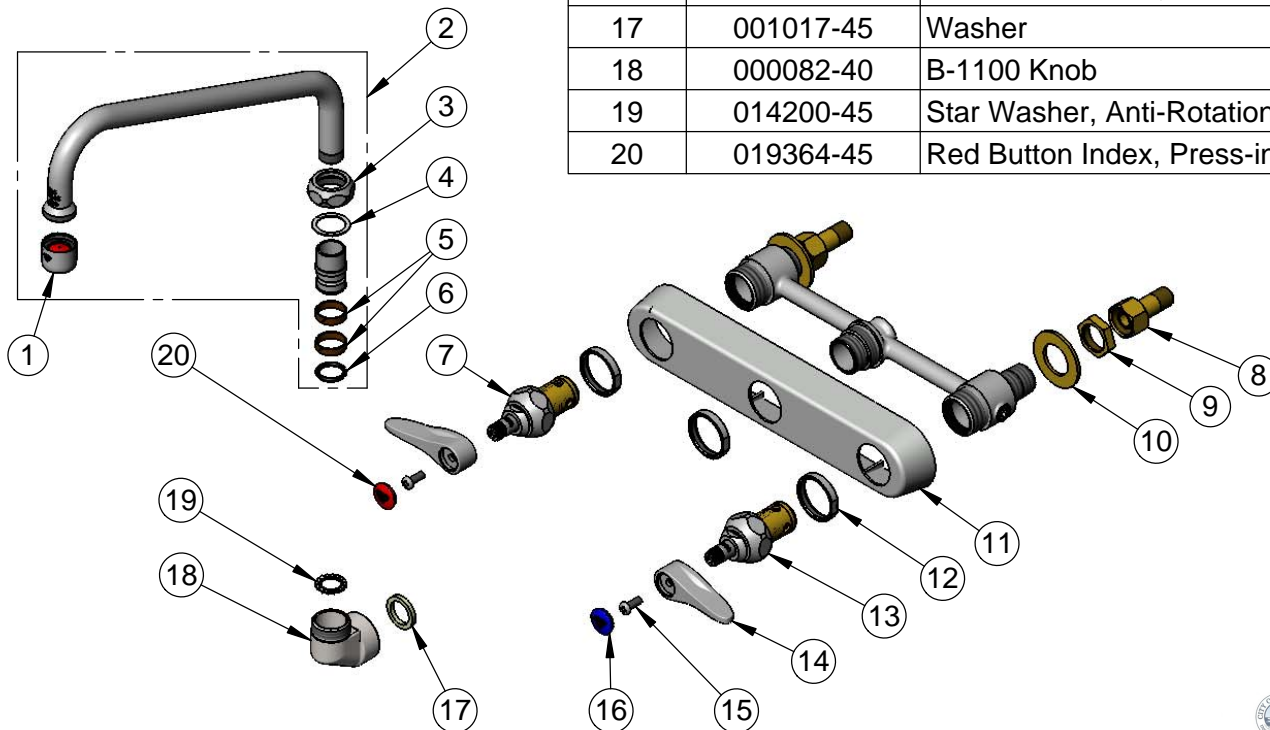
Model No.

B-1127

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	B-0199-01	2.2 GPM Aerator, 55/64"-27 UN Female
2	061X-A22	10" Swing Nozzle w/ 2.2 GPM Aerator
3	019360-40	Swivel Nut (New Style)
4	009538-45	Swivel Washer
5	011429-45	Swivel Sleeves (2)
6	001074-45	O-Ring
7	019382-40	Quarter-Turn New Style Eterna Cartridge w/ Spring Check, LTC
8	150A	1/4" NPT Tailpiece & Nut
9	002954-45	Shank Lock Nut
10	000999-45	Brass Lock Washer
11	019375-40	B-1120 Eterna Workboard Escutcheon
12	019376-40	Escutcheon Lock Nut
13	019383-40	Quarter-Turn New Style Eterna Cartridge w/ Spring Check, RTC
14	019361-45	Lever Handle (New Style)
15	000925-45	Lab Handle Screw
16	019363-45	Blue Button Index, Press-in
17	001017-45	Washer
18	000082-40	B-1100 Knob
19	014200-45	Star Washer, Anti-Rotation
20	019364-45	Red Button Index, Press-in



Product Specifications:
8" Wall Mount Workboard Faucet, Quarter-Turn Eterna Cartridges w/ Spring Checks, Lever Handles, 10" Swing Nozzle, 2.2 GPM Aerator & 1/2" NPT Male Inlets

Product Compliance:
ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
ANSI A117.1 (ADA)





T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690



REG. #A2601
ISO #9001

Model No.

B-1105-KIT

Item No.

Travelers Rest, SC: 800-476-4103 Simi Valley, CA: 800-423-0150 Fax: 864-834-3518 www.tsbrass.com

This Space for Architect/Engineer Approval

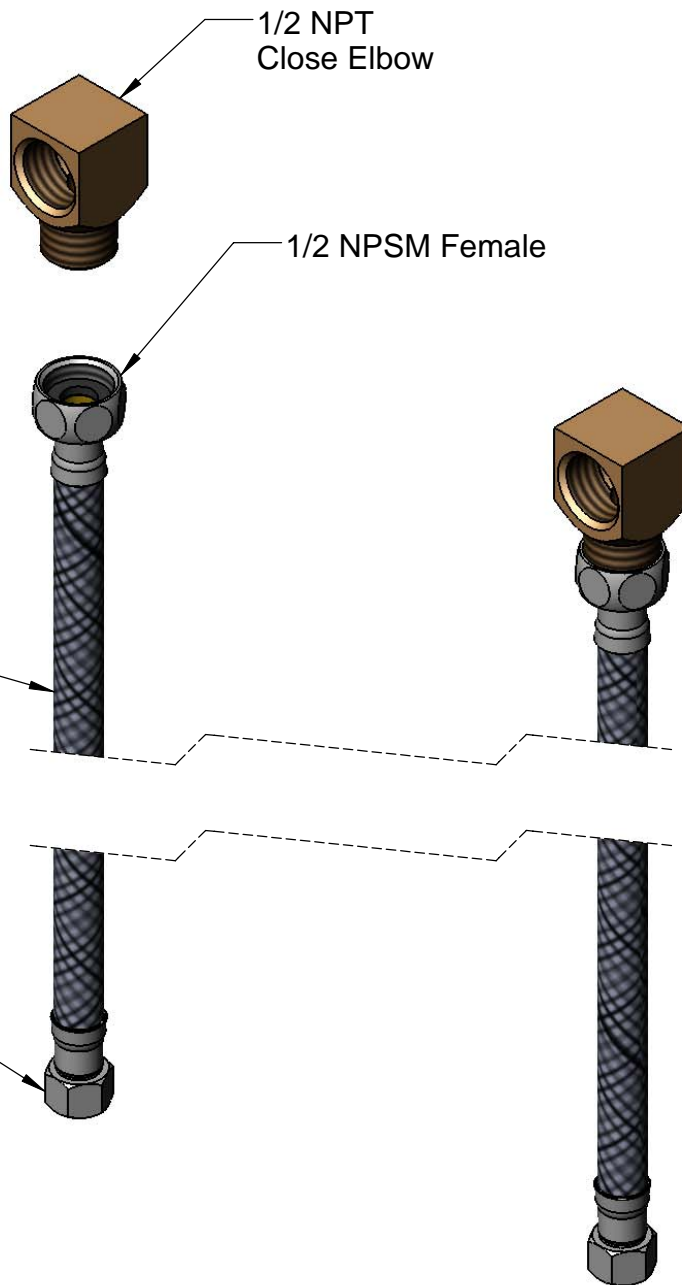
Job Name _____ Date _____

Model Specified _____ Quantity _____

Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



24" Stainless Steel Braided Flexible Supply Hose with Swivel Fittings and Integral Gaskets

1/2 NPT Close Elbow

1/2 NPSM Female

9/16-24 UN Female (3/8" Compression)

(2) Sets Supplied per Kit

Product Specifications:

Inlet Kit:
1/2 NPT Close Elbows and 24" Flexible Supply Hoses

Drawn
GEF

Checked
JRM



APPROVED
JOB COPY
Approved
Reviewed for Code Compliance
Signed: **JRM**
Date: 10/14/08

Scale:

1:2

Date:

10/14/08

Sheet: 1 of 2



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690



REG. #A2601
ISO #9001

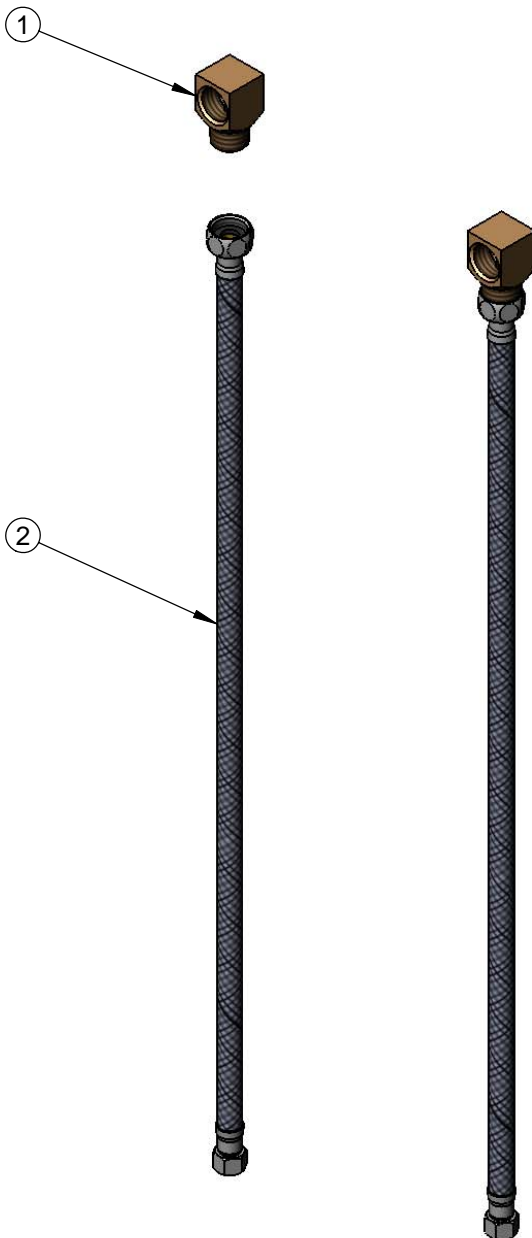
Model No.

B-1105-KIT

Item No.

Travelers Rest, SC: 800-476-4103 Simi Valley, CA: 800-423-0150 Fax: 864-834-3518 www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	B-1100-K	Elbow Kit (2 Elbows per Kit)
2	017420-45	24" Flexible Supply Hose (Sold Individually)



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Product Specifications:

Inlet Kit:
1/2 NPT Close Elbows and 24" Flexible Supply Hoses

Drawn GEF	Checked JRM	Approved JHB
Scale: 1:4		Date: 10/14/08



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-3950

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

This Space for Architect/Engineer Approval

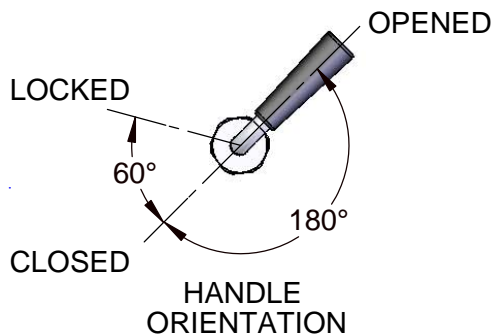
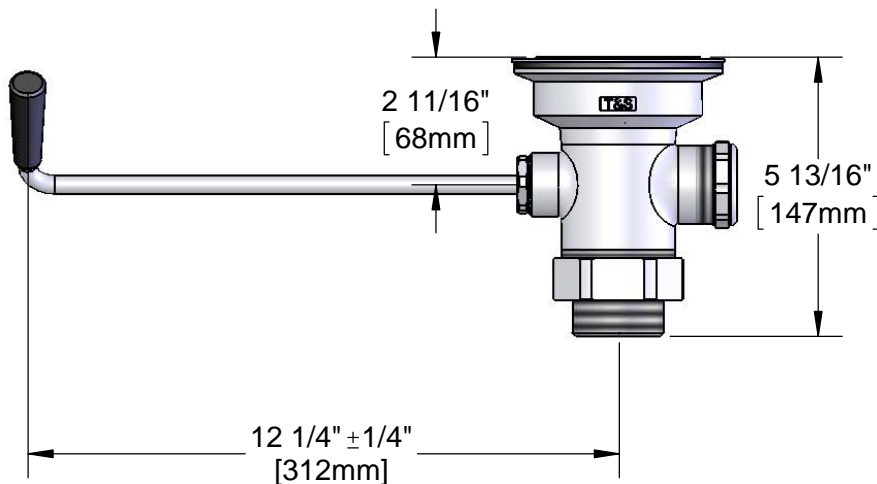
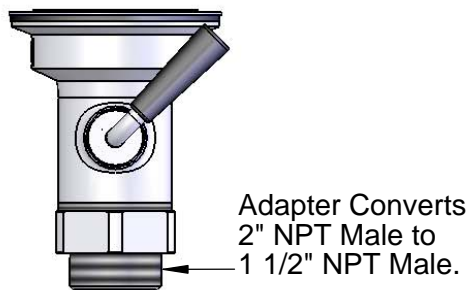
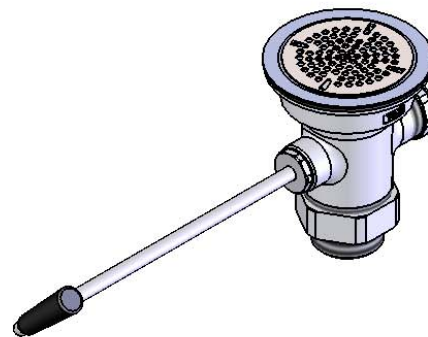
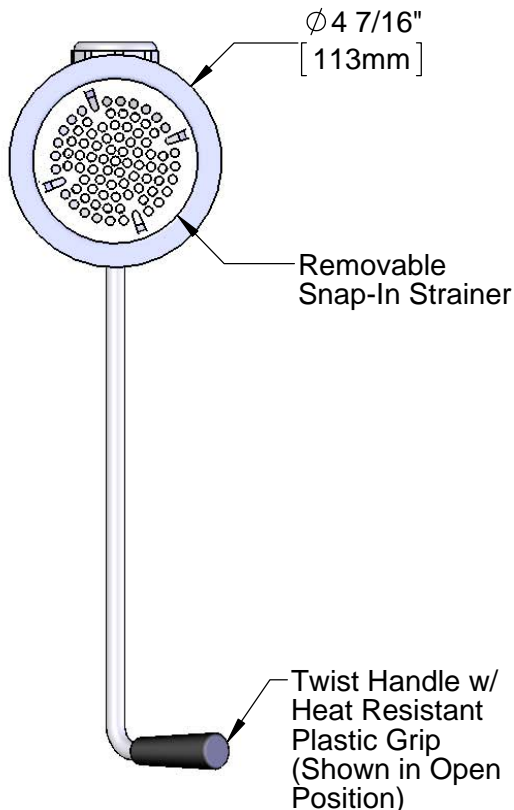
Job Name _____ Date _____

Model Specified _____ Quantity _____

Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



Product Specifications:
Rotary Waste Valve w/ Twist Handle, 3 1/2" Sink Opening, 2" NPT Male Outlet & 1 1/2" NPT Male Adapter

Product Compliance:

ASME A112.18.2 / CSA B125.2



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Reviewed for
Signed
Date
Permit #



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

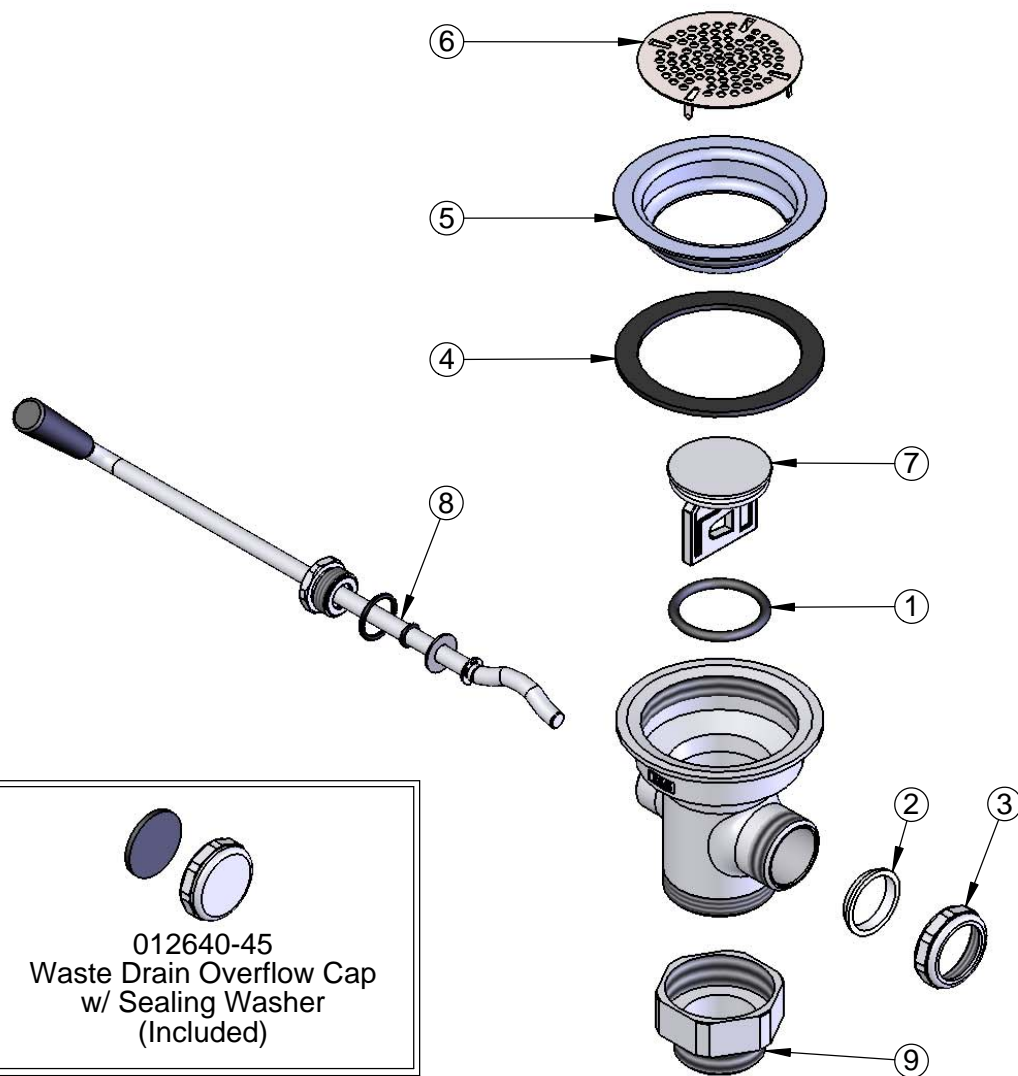
Model No.

B-3950

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	010389-45	O-Ring, Plunger
2	010390-45	Ferrule, Coupling Nut
3	010391-45	Nut, Coupling For Twist Drain
4	010382-45	Gasket, 3 1/2" Face Flange
5	010384-45	Flange, 3 1/2" Face
6	010386-45	Strainer, 3 1/2" Snap-in Removable
7	010388-45	Plunger, Lever and Twist Drain
8	010393-45	Rotary Waste Valve Twist Handle
9	B-3945	Adapter, 2" NPT x 1 1/2" NPT



Product Specifications:
Rotary Waste Valve w/ Twist Handle, 3 1/2" Sink Opening, 2" NPT Male Outlet & 1 1/2" NPT Male Adapter

Product Compliance:

ASME A112.18.2 / CSA B125.2

Reviewed for
Signed
Date
Permit #



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STAINLESS STEEL

ITEM #17

HAND SINKS

A.D.A COMPLIANT LAVATORIES WITH TAPERED SKIRT

Conforms To NSF 61/9 Lead Free Requirements



Includes K-175 Electronic Faucet



7-PS-41



Includes Extended Swing Faucet



7-PS-46



Includes K-175 Electronic Faucet



7-PS-77-E



Includes Extended Swing Faucet



7-PS-77-W

Item #: _____ Qty #: _____
 Model #: _____
 Project #: _____

7-PS-41 / 7-PS-46 FEATURES:

One piece **Deep Drawn** sink bowl design.
 Sink bowl is 14" x 16" x 5".
 Undermount Towel Dispenser.
 Deck mount liquid soap dispenser.
 Stainless Steel Skirt with Removable Access Panel and enclosed bottom for storage.
 "Z" bracket wall mounting plate
 Stainless steel 1-1/2" IPS basket drain.

Additional Unit Features:

7-PS-41:

K-175 splash mount hands free electronic operated gooseneck faucet.

7-PS-46:

K-206 6" splash mount extended "d" spout faucet with wrist handles.

7-PS-77-E / 7-PS-77-W FEATURES:

One piece **Deep Drawn** sink bowl design.
 Sink bowl is 14" x 16" x 5".
 Deck mount liquid soap dispenser.
 Stainless Steel Skirt with Removable Access Panel and enclosed bottom for storage.
 "Z" bracket wall mounting plate
 Stainless steel 1-1/2" IPS basket drain.

Additional Unit Features:

7-PS-77-E:

K-175 splash mount hands free electronic operated gooseneck faucet.

7-PS-77-W:

K-206 6" splash mount extended "D" spout faucet with wrist handles.

CONSTRUCTION:

All TIG welded.
 Welded areas blended to match adjacent surfaces and to a satin finish.
 Die formed Countertop Edge with a 3/8" No-Drip offset.
 Bowl made from One sheet of stainless steel - No Seams.

MATERIAL:

Heavy gauge type 304 series stainless steel.
 Skirt - 16 gauge type 304 series stainless steel.
 Wall mounting bracket is Galvanized and of offset design.
 All fittings are brass / chrome plated unless otherwise indicated.

MECHANICAL:

Faucet supply is 1/2" IPS male thread hot and cold.
Faucet Flow Rate: 1.0 GPM/3.8 LPM aerator. 60 PSI.

WARNING:

Equipment that includes a faucet may expose you to chemicals, including lead, that are known to the State of California to cause cancer or birth defects or other reproductive harm. For more Info., visit www.p65warnings.ca.gov



Customer Service Available To Assist You 1-800-645-3166 8:30 am - 7:00 pm E.S.T.

For Orders & Customer Service:

Email: customer@advancetabco.com or Fax: 631-242-6900

For Smart Fabrication Quotes:

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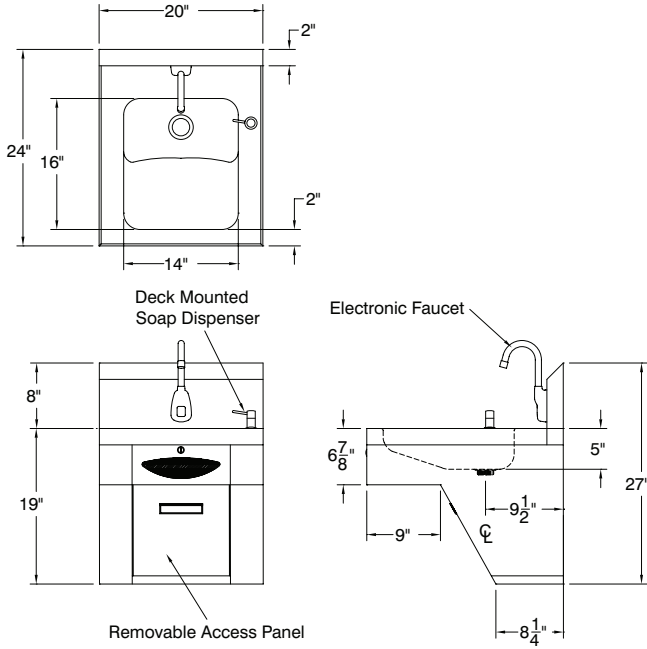
DIMENSIONS and SPECIFICATIONS ITEM #17

TOL Overall: ± .500" Interior: ± .250"

FITTINGS SUPPLIED AS SHOWN

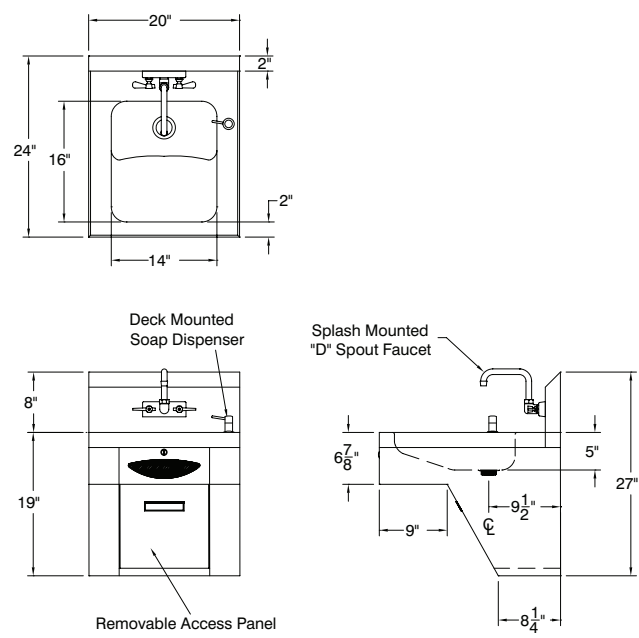
ALL DIMENSIONS ARE TYPICAL

7-PS-41



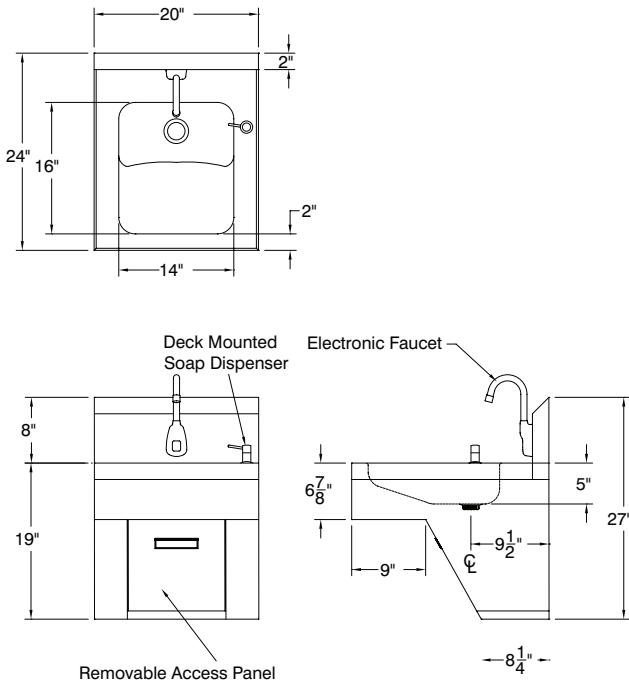
65 lbs.

7-PS-46



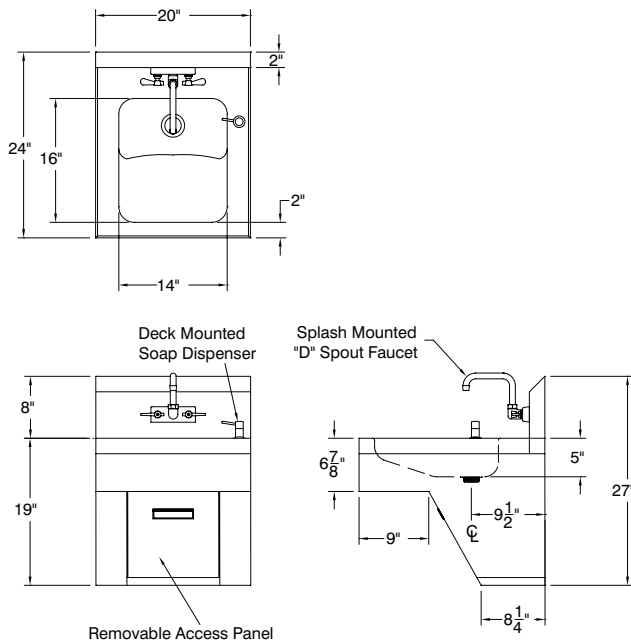
65 lbs.

7-PS-77-E



65 lbs.

7-PS-77-W



65 lbs.



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Code Compliance

Signed _____
BY FOR EIR

Date: 02/16/2024

Permit # 20241180



REF-B

325 Wireless Boulevard, Hauppauge, NY 11788

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.

© ADVANCE TABCO, FEBRUARY 2020



S890TBL

S890TBK

Oceans® Soap & Hand Sanitizer Dispensers

- Accommodates bulk or most 800 ml bag-in-box cartridges
- Accepts bulk hand sanitizers or lotion soap
- Mounts easily with adhesive or screws

Item	Color	Capacity	Dimensions H x W x D
OCEANS® STYLE			
→ S890*	TBL, TBK	800 ml (can hold some 1000 ml bags) 0.9 ml portion dispensed	10½" x 4½" x 4¾" (267 x 114 x 111 mm)

Construction: Impact resistant plastic



S30TBK

Soap Dispensers - Lotion, Liquid or Foam

- Accommodates a wide variety of liquid, lotion (except pumice) and foam soaps
- Large push bar allows for easy dispensing

Item	Color	Capacity	Dimensions H x W x D
LIQUID & LOTION			
S30*	TBL, TBK	30 oz. (0.9 l) 0.8 ml portion dispensed	6¾" x 4¼" x 4¼" (156 x 105 x 108 mm)
FOAM			
SF30*	TBL, TBK	30 oz. (0.9 l) 0.4 ml portion dispensed	6¾" x 4¼" x 4¼" (156 x 105 x 108 mm)

Construction: Impact resistant plastic



T1730TBK

Handwashing Station Value Pack

- Convenient solution to ensure employees have the tools to properly wash their hands

Item	Includes
T1730TBK	(1) T1700TBK Ultrafold™ Towel Dispenser with handwashing instructions sticker (1) S30TBK Bulk Soap Dispenser

Construction: Impact resistant plastic



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TEAR-N-DRY essence

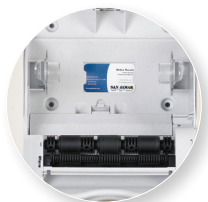
Also available in
Oceans[™]



BENEFITS



UNIVERSAL DISPENSING
NO PAPER CONTRACTS




SIMPLE TO USE
NO ADJUSTMENTS NEEDED



RELIABLE
BEST BATTERY LIFE IN THE INDUSTRY

Universal. Simple. Reliable.

TEAR-N-DRY Essence is an electronic hands free dispenser that provides quick paper delivery; consistently dispensing 10" length towels without a wait. The Tear-N-Dry Essence is simple to use and requires no adjustments, making it easy to load, use and refill with the universal paper of your choice. Reliability and best battery life also make Essence the right choice to reduce maintenance  battery costs.

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Date: 05/16/2024
Permit # 2461161



Features

Integrated business card holder for **easy reordering** or advertising.

Dispenses all roll paper qualities, including 100% recycled paper.

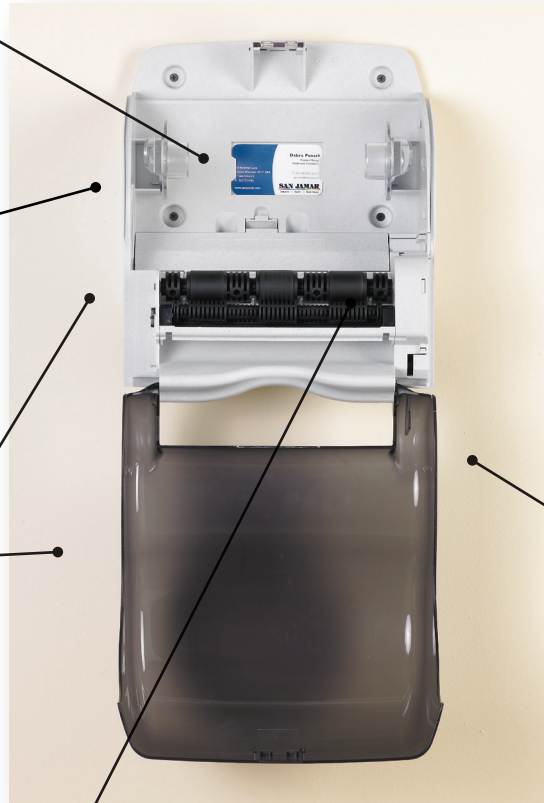
Durable back and front cover made of **high impact resistant** plastic to withstand normal everyday use.

Best battery life in the industry.

Integrated hubs and electronics make this dispenser **easy to load** and use.



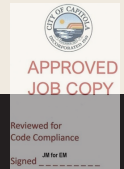
Perfect for tight spaces such as foodservice/hospitality areas, hand washing stations, industrial applications and schools/universities. Up to 25% smaller than most electronic dispensers.



Item Numbers	Core Diameter	Capacity/Dimensions	Case Pack	Weight
→ T8000TBK T8000TBL T8000WH	1 1/2" (38mm)	One 8" (200mm) wide roll; 8" (200mm) dia. 14 7/16"h x 11 3/4"w x 9 1/8"d (367h x298w x232d mm)	1	4.1 lbs (1.9kgs)
T8090TBK T8090TBL	1 1/2" (38mm)	One 8" (200mm) wide roll; 8" (200mm) dia. 14 7/16"h x 11 3/4"w x 9 1/8"d (367h x298w x232d mm)	1	4.1 lbs (1.9kgs)



X100960 Convertable hub system to 2" cone
Construction: Break Resistant Plastic; Requires 4 D-cell alkaline batteries.



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F: +52 (55) 5273 4495
mexico@sanjamar.com



CSF-CS32D

Item #: _____ Qty #: _____

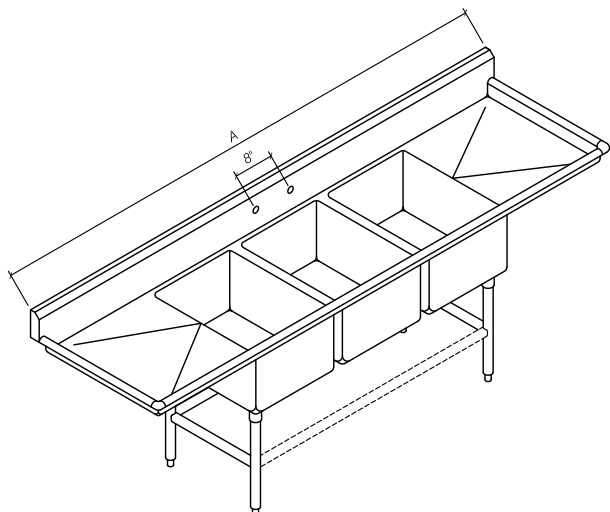
Model #: _____

Project #: _____

SS 3 Compartment Sink w/ Left & Right Drainboards



MATERIAL: TYPE 304 SERIES STAINLESS STEEL



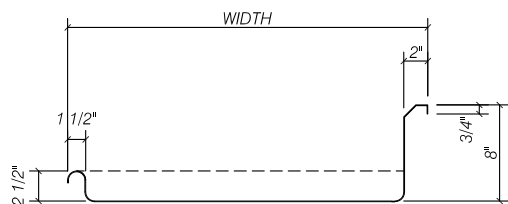
- TOP 16 GAUGE 304 STAINLESS STEEL WITH #4 FINISH
 - LEFT AND RIGHT DRAINBOARDS - 18" OR 24"
 - 2 1/2" HIGH ROLLED EDGE CONFIGURATION
 - 1 1/2" SANITARY ROLL
 - STAINLESS STEEL CHANNEL REINFORCEMENT
- 12" DEEP SS TUB WITH 3 1/2" DIAMETER DRAIN HOLE
 - 8" O.C. HOLES FOR SPLASH MOUNT FAUCET
- 2" X 8" HIGH REAR SPLASH, 45° RETURN WITH 5/8" RADIUS COVE
- FULLY WELDED 1 5/8" DIAMETER REAR AND SIDE CROSSBRACINGS 16 GAUGE 304 SS TUBE
- 1 5/8" DIAMETER LEGS 16 GAUGE 304 SS TUBE
 - SS SINK TUB SOCKET PAD
 - SS CLAD ADJUSTABLE BULLET FEET
- WORKING HEIGHT @ 34"

ACCESSORIES:

- DRAIN BASKET
- SCRAP BASKET #CSF-SB
- Z-CLIP

OPTIONS:

- 14 GAUGE STAINLESS STEEL (-S)
- FRONT CROSSBRACING
- APRON / SINK SKIRT
- ROTARY WASTE BRACKET #CSF-RWB
- END SPLASH (-L OR -R)
- SS CLAD ADJUSTABLE FLANGED FEET
- (2) 8" O.C. SPLASH MOUNT FAUCET HOLES



TUB SIZE	DRAINBOARD SIZE	MODEL #	OVERALL SIZE LENGTH "A" X WIDTH
18" X 18"	18"(24")	CS3-1818-2D18(24)	94"(106") X 23 1/2"
18" X 24"	18"(24")	CS3-1824-2D18(24)	94"(106") X 29 1/2"
24" X 24"	24"	CS3-2424-2D24	124" X 29 1/2"

CALL FOR CUSTOM SIZE & CONFIGURATION



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Code Compliance

Signed _____

Date: _____

Permit # _____

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T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-0133-12-CRBJ

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

This Space for Architect/Engineer Approval

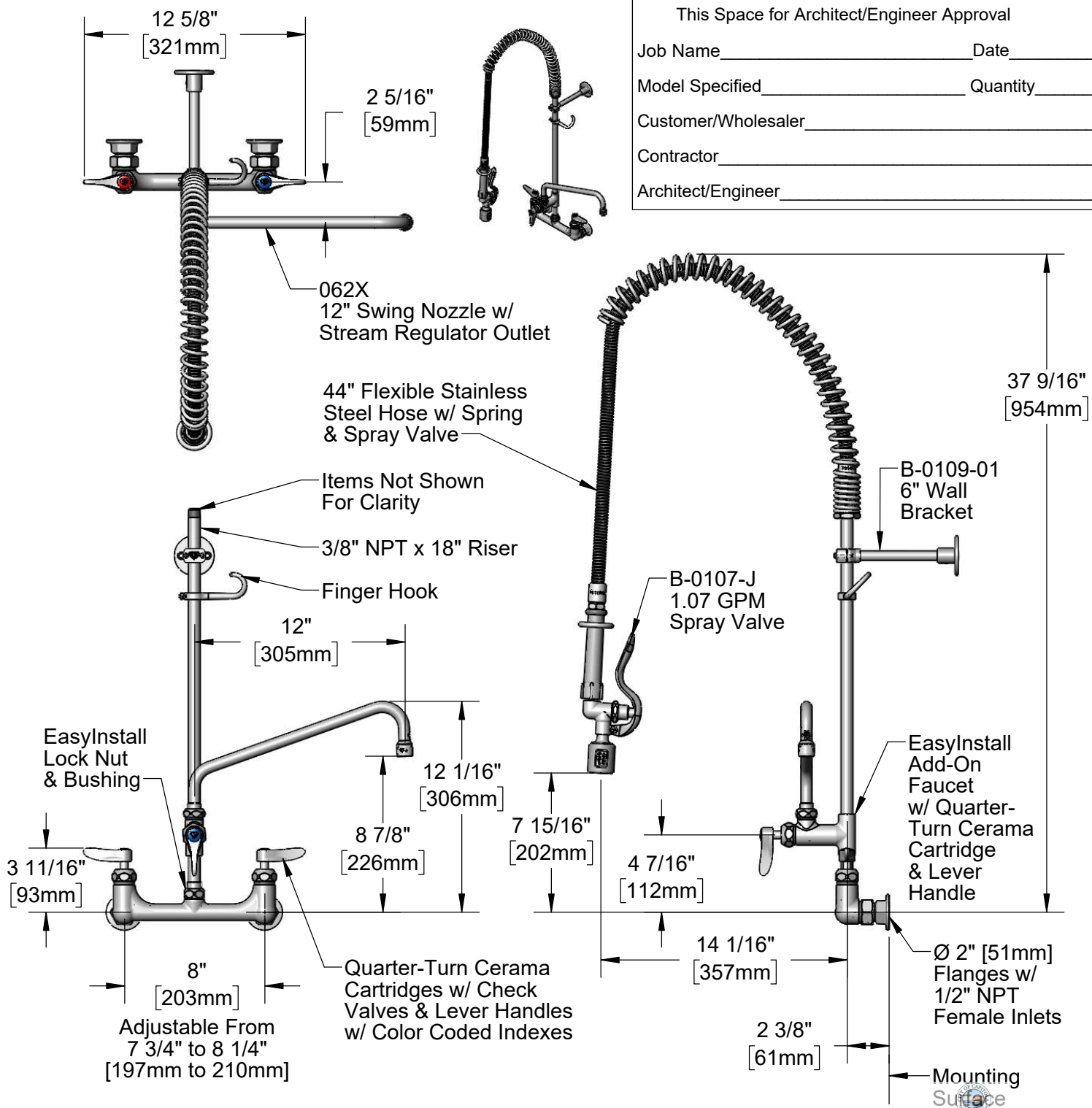
Job Name _____ Date _____

Model Specified _____ Quantity _____

Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



Product Specifications:
Pre-Rinse Unit: EasyInstall 8" Wall Mount Mixing Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Lever Handles, Add-On Faucet w/ 12" Swing Nozzle, 44" Flexible Stainless Steel Hose, 1.07 GPM Spray Valve, 6" Wall Bracket & 1/2" NPT Female Inlets

Product Compliance:
ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
2019 DOE PRSV - Class II

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T&S BRASS AND BRONZE WORKS, INC.

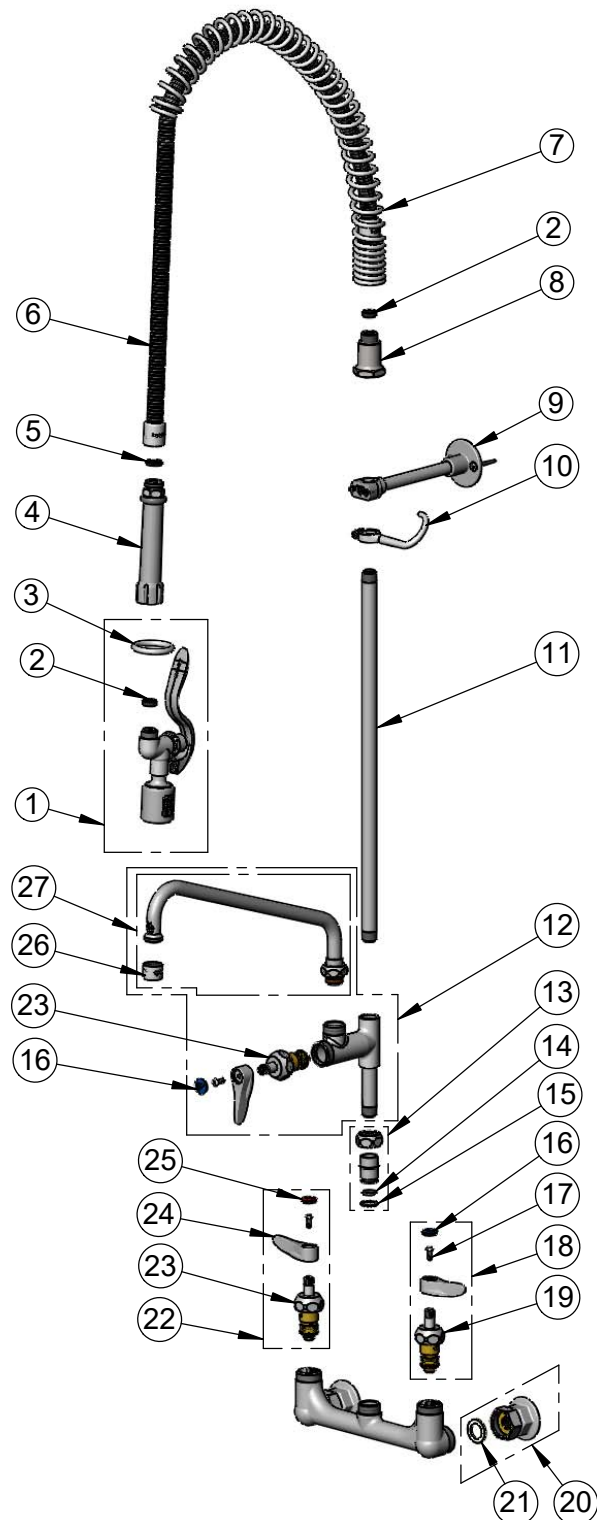
2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-0133-12-CRBJ

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com



ITEM NO.	SALES NO.	DESCRIPTION
1	B-0107-J	1.07 GPM Spray Valve
2	010476-45	#27 Washer
3	000907-45	Spray Valve Hold Down Ring
4	002987-40	Grip Handle
5	001014-45	Washer, B-0100 Hose Barrel
6	B-0044-H2A	44" Flexible Stainless Steel Hose, Less Handle
7	000888-45	EasyInstall Overhead Spring
8	000821-40	Spring Body
9	B-0109-01	6" Wall Bracket
10	004R	Finger Hook
11	000369-40	3/8" NPT x 18" Riser
12	B-0156-CR-SC	Add-On Faucet w/ Quarter-Turn Cerama Cartridge, Lever Handle & 12" Swing Nozzle
13	EZ-K	EasyInstall Kit: Nut, Bushing, O-Ring & Lock Washer
14	006562-45	O-ring
15	014200-45	Star Washer, Anti-Rotation
16	018506-19NS	Blue Button Index, Press-in
17	000925-45	Lab Handle Screw
18	012447-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, Handle, Blue Index & Screw, LTC
19	012395-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, LTC
20	00AA	1/2" NPT Female Eccentric Flange
21	001019-45	Coupling Nut Washer
22	012446-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, Handle, Red Index & Screw, RTC
23	012394-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, RTC
24	001638-45NS	Lever Handle (New Style)
25	001193-19NS	Red Button Index, Press-in
26	B-PT	Full Flow Stream Regulator, 55/64-27
27	062X	12" Swing Nozzle w/ Stream Regulator Outlet

Product Specifications:
Pre-Rinse Unit: EasyInstall 8" Wall Mount Mixing Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Lever Handles, Add-On Faucet w/ 12" Swing Nozzle, 44" Flexible Stainless Steel Hose, 1.07 GPM Spray Valve, 6" Wall Bracket & 1/2" NPT Female Inlets

Product Compliance:
ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
2019 DOE PRSV - Class II





T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-0230-KIT

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

This Space for Architect/Engineer Approval

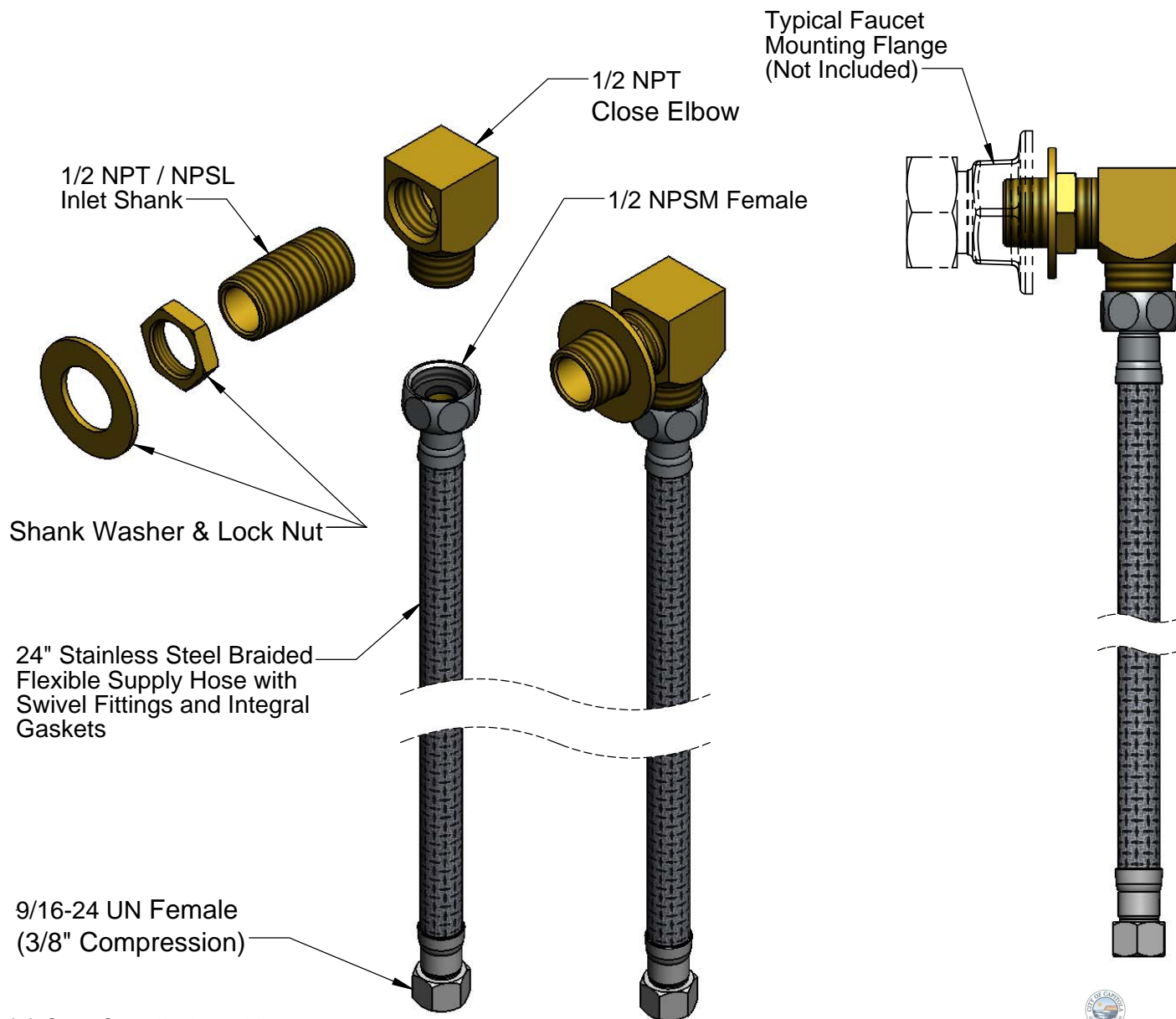
Job Name _____ Date _____

Model Specified _____ Quantity _____

Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



(2) Sets Supplied per Kit

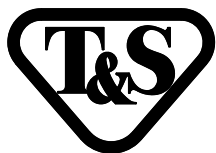
Product Specifications:

Inlet Kit:
1/2" Inlet Shanks, Close Elbows
and 24" Flexible Supply Hoses

Product Compliance:

ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)





T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

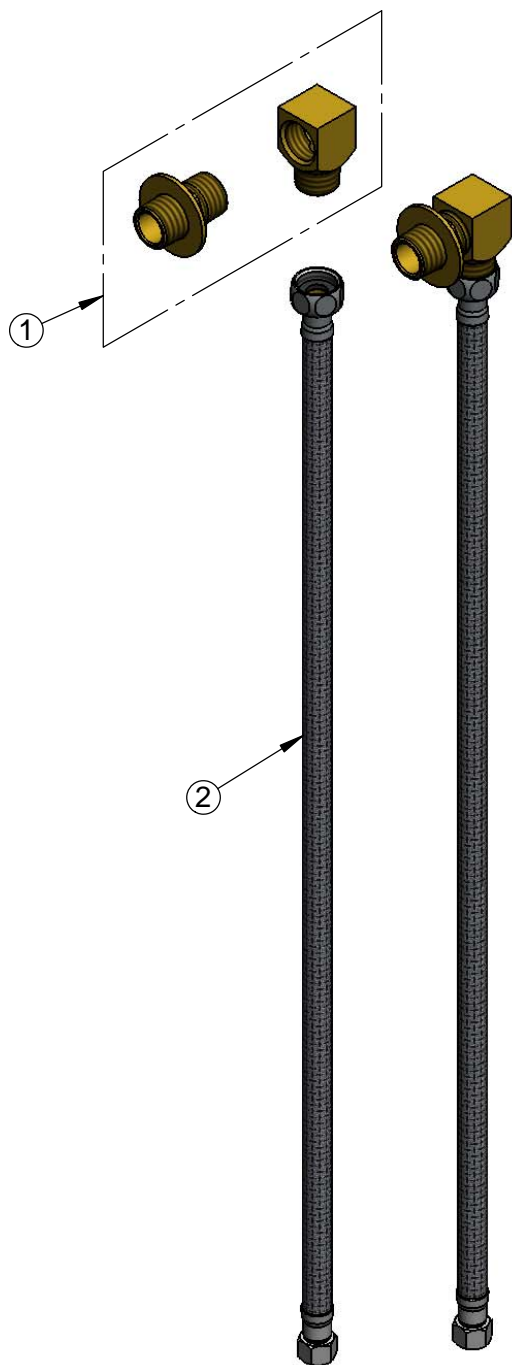
Model No.

B-0230-KIT

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	B-0230-K	1/2" Inlet Assembly Kit (2 Sets per Kit)
2	017420-45	24" Flexible Supply Hose (Sold Individually)



Product Specifications:
Inlet Kit:
1/2" Inlet Shanks, Close Elbows
and 24" Flexible Supply Hoses

Product Compliance:
ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)



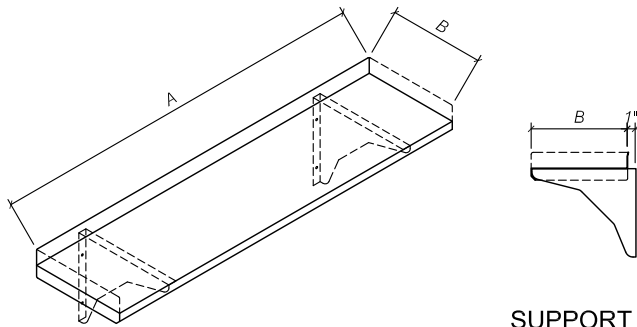
CSF-WSB

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

Stainless Steel Wall Shelf



SUPPORT BRACKETS:
 #WSB-B-(L/R)-12, #WSB-B-(L/R)-14,
 #WSB-B-(L/R)-18

MATERIAL: TYPE 304 SERIES STAINLESS STEEL

- SHELF 18 GAUGE STAINLESS STEEL WITH #4 FINISH
 - 2" HIGH REAR TURN UP
 - 1" AIR SPACE BEHIND SHELF
 - 1 1/2" FRONT, LEFT & RIGHT TURNED DOWN END
- #WSB-B-(L/R)-WIDTH SUPPORT BRACKETS 14 GAUGE STAINLESS STEEL - SHIPPED LOOSE
 - (2) SUPPORT BRACKETS FOR LENGTHS UP TO 72"
 - (3) SUPPORT BRACKETS FOR LENGTHS 78" - 120"

OPTIONS:

SHELF 16 GAUGE SS (-S)

TURN UP:

LEFT TURN UP (-L)

RIGHT TURN UP (-R)

LEFT / RIGHT TURN UP (-LR)



LENGTH "A"	MODEL # WIDTH "B" = 12"	MODEL # WIDTH "B" = 14"	MODEL # WIDTH "B" = 18"
36"	WSB-3612	WSB-3614	WSB-3618
48"	WSB-4812	WSB-4814	WSB-4818
60"	WSB-6012	WSB-6014	WSB-6018
72"	WSB-7212	WSB-7214	WSB-7218
84"	WSB-8412	WSB-8414	WSB-8418
96"	WSB-9612	WSB-9614	WSB-9618
108"	WSB-10812	WSB-10814	WSB-10818
120"	WSB-12012	WSB-12014	WSB-12018



CALL FOR CUSTOM SIZE & CONFIGURATION



Reviewed for Code Compliance
 Signed _____
 05/16/2024
 Date _____

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REV. 2, 1707

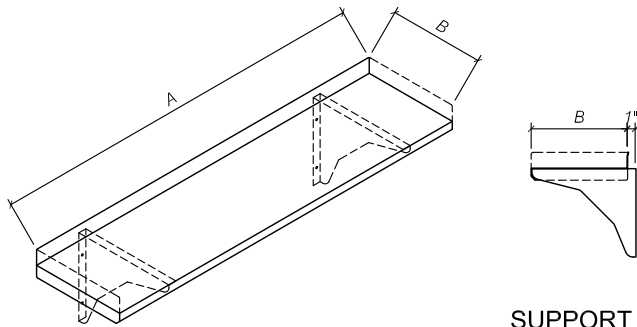
CSF-WSB

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

Stainless Steel Wall Shelf



SUPPORT BRACKETS:
 #WSB-B-(L/R)-12, #WSB-B-(L/R)-14,
 #WSB-B-(L/R)-18

MATERIAL: TYPE 304 SERIES STAINLESS STEEL

- SHELF 18 GAUGE STAINLESS STEEL WITH #4 FINISH
 - 2" HIGH REAR TURN UP
 - 1" AIR SPACE BEHIND SHELF
 - 1 1/2" FRONT, LEFT & RIGHT TURNED DOWN END
- #WSB-B-(L/R)-WIDTH SUPPORT BRACKETS 14 GAUGE STAINLESS STEEL - SHIPPED LOOSE
 - (2) SUPPORT BRACKETS FOR LENGTHS UP TO 72"
 - (3) SUPPORT BRACKETS FOR LENGTHS 78" - 120"

OPTIONS:

SHELF 16 GAUGE SS (-S)

TURN UP:

LEFT TURN UP (-L)

RIGHT TURN UP (-R)

LEFT / RIGHT TURN UP (-LR)

LENGTH "A"	MODEL # WIDTH "B" = 12"	MODEL # WIDTH "B" = 14"	MODEL # WIDTH "B" = 18"
36"	WSB-3612	WSB-3614	WSB-3618
48"	WSB-4812	WSB-4814	WSB-4818
60"	WSB-6012	WSB-6014	WSB-6018
72"	WSB-7212	WSB-7214	WSB-7218
84"	WSB-8412	WSB-8414	WSB-8418
96"	WSB-9612	WSB-9614	WSB-9618
108"	WSB-10812	WSB-10814	WSB-10818
120"	WSB-12012	WSB-12014	WSB-12018



CALL FOR CUSTOM SIZE & CONFIGURATION



Reviewed for Code Compliance
 Signed _____
 05/16/2024
 Date _____

1925 N. MacArthur Drive, Suite 300 - Tracy, CA 95376 - 209.740.4280 - Fax 209.740.4278

REV. 2, 1707



CUH HIGH TEMPERATURE Undercounter



SPECIFIER STATEMENT

Specified unit will be NSF rated, **Centerline by Hobart** high temperature undercounter dishwasher. Features soft start, two selectable cycles, one standard 2-minute cycle with optional extended cycle (factory set at 240 seconds); .84 gallons per rack, LED temperature and operator display, service diagnostics, detergent and rinse aid pumps. Constructed of stainless steel.

1 year parts and labor warranty.

STANDARD VOLTAGE

+ 208-240/60/1

Project _____
 AIA # _____ SIS # _____
 Item # _____ Quantity _____ C.S.I. Section 114000

MODELS

- CUH** High temperature rinse

STANDARD FEATURES

- + 24 racks per hour
- + .84 gallons of water per rack
- + Hot water sanitizing
- + Top-mounted user interface with digital temperature display
- + 2-minute cycle with optional extended cycle
- + 14.46" door opening
- + Snap-in, revolving upper and lower anti-clogging wash & rinse arm; low-profile, single-arm design
- + Sense-a-Temp™ ensures 180°F final rinse
- + Integrated booster heater capable of 70°F rise
- + Removable, 3-part stainless steel scrap screen
- + Soft start
- + Automatic pumped drain
- + Automatic fill
- + Service diagnostics with error notifications
- + Delime notification and cycle
- + Chemical pumps standard
- + Electric tank heat
- + Two dishracks – one peg and one combination type

OPTIONS & ACCESSORIES (Available at extra cost)

- Upper/lower stainless steel wash and rinse arm kit
- Chemical sensing indicators (low chemical alert)
- Stainless steel stand with rack storage and telescoping legs (legs in provide 15⁵/₁₆" of additional height; legs out provide 17⁷/₈" of additional height)
- Peg rack
- Combination rack
- Power cord kits
- DWT – Drain water tempering kit

CUH HIGH TEMPERATURE

Approved by _____ Date _____ Approved by _____ Date _____



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2024180



CUH HIGH TEMPERATURE Undercounter

LEGEND

Electrical Connections	
E1	Electrical connection: 1-3/8" dia. hole for 1" trade size conduit; 1-5/8" AFF.
Plumbing Connections	
P1	Single fill and rinse connection: 3/4" female garden hose fitting on 6' long hose supplied with machine; 110°F water minimum for CUH approximately 1-13/16" AFF.
P2	Drain connection: 19mm O.D. barb fitting with 6' long hose supplied with machine.
P3	Chemical supply: Detergent and rinse aid; approximately 1-5/8" AFF. 63" long, 6mm O.D. tubing supplied with machine.

WARNING: Electrical and grounding connections must comply with the applicable portion of the National Electrical Code and/or other local electrical codes.

Plumbing connections must comply with applicable sanitary, safety, and plumbing codes.

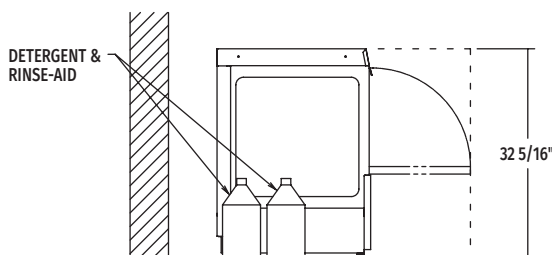
(E1) STANDARD ELECTRICAL OPTIONS

Voltage	Rated Amps	Minimum Supply Circuit Ampacity	Maximum Protective Device
208/60/1	24.2	30	30
240/60/1	27.5	30	30

NOTE: For supply connections, use copper wire only rated at 90°C minimum.

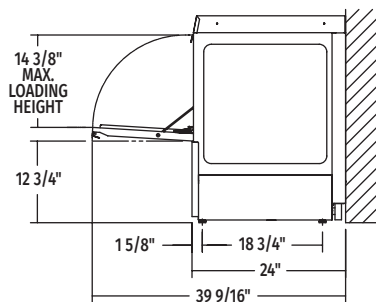
Accessory cord kit available for all models.

Dishmachine not provided with internal GFCI protection.

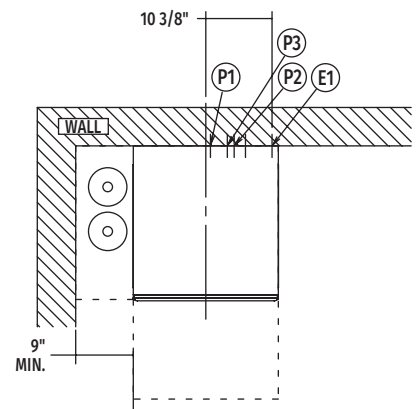


ADDITIONAL CLEARANCE REQUIRED TO SLIDE UNIT FORWARD FOR SERVICE ONLY

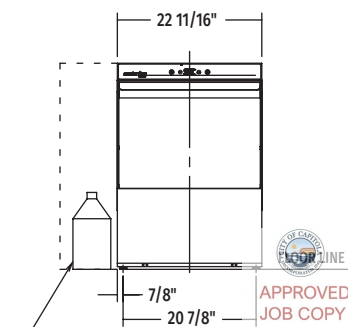
Left Side View



Right Side View



Top View



Front View

SPECIFICATIONS

Capacities

Cycle Time (seconds)	120
Racks per Hour	24
Tank Capacity – Gallons	5.3

Motor Horsepower

Wash	0.62
Rinse	0.20

Water Consumption

U.S. Gallons per Hour (maximum use)	20.2
U.S. Gallons per Rack (maximum use)	0.84
Peak Drain Flow – U.S. Gallons (gallons per minute)	2.8

Temperatures °F

Wash	150
Rinse	180
Incoming Water Temperature (minimum recommended)	110° F

Heating

Tank Heat, electric (kW)	5.5
Electric Booster (kW)	6.0

Standard 20" x 20" (508 x 508) Rack Complement

Flat	1
Peg	1

Shipping Weight (approximate) 148 lbs.

Crated Dimensions 27 1/4" W x 26 1/2" L x 38 3/4" H

Heat Output, BTU/Hour		
Volts	Latent	Sensible
208	4,300	1,800
240	5,600	2,400

MODEL:
CUH
00-562543
REV E

As continued product improvement is a policy of Hobart, specifications are subject to change without notice.



California Cooking Shelves

CALIFORNIA COOKING SHELVING IS RUST-RESISTANT WITH a specially formulated epoxy coating that is electrostatically applied and thermostatically cured to a hard, smooth, satin gloss finish.

CALIFORNIA COOKING SHELVING is perfect for high humidity conditions such as walk-in coolers and freezers or dry air conditions such as store room or pantry. Assembly is a breeze. Just snap the collar adapters into the grooves on the posts (they come in 1 inch increments) and slide the shelf on. Each shelf includes 4 collar adapters and come in a variety of sizes for every possible use.

Shelf Dimensions:

DEPTHS: 14", 18", 21", and 24"

WIDTHS: 24", 30", 36", 42", 48", 54", 60" and 72"

Basic Accessories



**Caster
w/Brakes**



**Caster
without Brakes**



Bumper

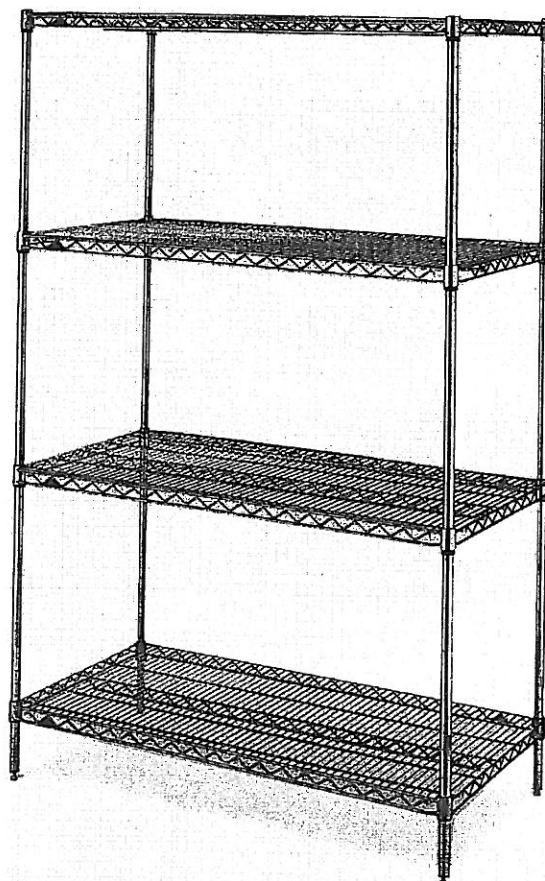
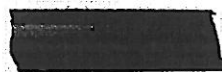
Collar Adapters



"S" Hooks



Label Holders



Posts:

Epoxy coated for Dry and Wet storage.

Post Sizes:

14", 34", 63", 74", and 86"



CALIFORNIA
COOKING INC



EQUIPMENT DISTRIBUTORS

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510.627.0296 TEL
510.465.2138 FAX

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	p. 1
A. Safe Harbor Provisions	p. 2
B. Official Responsible	p. 3
C. Recommended Barrier Removal Priorities	p. 3
D. Cost Estimates	p. 4
E. Exterior Spaces	p. 4
F. Facility Entrances	p. 5
G. Report Format Definitions	p. 6
2. EXTERIOR SPACES	p. 9
3. INTERIOR SPACES	p. 9
4. BARRIER DATA RECORDS	
A. Barrier Data Records	p. 11
B. Cost Estimate	p. 84
5. APPENDIX	
A. Reference Drawings	p. 85



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1. EXECUTIVE SUMMARY

The field investigation began on April 20, 2017. Images of each physical element identified in this report were captured in HD digital photos while manual measurements were taken to establish as-built conditions for the process of cost estimating. Digital photographs are provided within this report for each barrier to access to facilitate the review of the data collected. Technical data can be interpreted more efficiently with a visual component; the photos provide a clear connection between the technical data described in each barrier data record and the physical barrier to access identified.

When taking measurements in exterior areas, visual markers are used to indicate the location or beginning and end of a barrier such as cross slope. Red cups or the digital level used to take measurements will be used in photos as a visual marker to indicate the location of these exterior barriers within the context of the existing site conditions.

The Community Center is a structure built before the enforcement of the Americans with Disabilities Act and many barriers to access were identified in the building. That is quite typical, as barriers to access exist in virtually every building, whether new or existing.

No “perfect” building exists in the real world.

This update to the existing ADA Transition Plan report is intended to not only identify barriers to access, but to provide solutions. This report provides information on physical barriers to access and the accompanying Self-evaluation document will allow coordination of programs, services and activities (programs) provided by the City to ensure that when these programs are viewed in their entirety, they are readily accessible to and usable by individuals with disabilities.

The goal is to create a *barrier-free* environment.

This concept is referred to as *Program Access*¹, and it allows an ADA Title II like the City of Capitola to move a program to an accessible location, or use other methods to make it accessible rather than relying only on architectural changes to facilities to make the programs, services, or activities the City provides readily accessible to and usable by individuals with disabilities.

The basis for this process is the underlying desire on the part of the City of Capitola to improve access for people with disabilities. The intent of this report is to provide information in a clear and usable format. The information in this report is compiled for use by designated City staff and other interested persons. The content is designed to be understood by professionals and laymen alike.

The findings presented are both narrative and technical in nature. Physical barriers to access identified during the field investigation process are documented in two ways:

¹ ADA Title II Technical Assistance Manual, Section 5.000 Program Accessibility. 28 CFR 35.149-35.150.



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1. Summary and Analysis: An analysis of findings is provided in a narrative form that describes particular barriers identified in the following records to help ensure that the findings for atypical situations can be further explained. The intent of this information is to provide a discussion on the functionality of physical elements. Background reasoning and research behind the identification of barriers is also provided where universal design principles may play a role. This analysis may be accompanied by digital photographs or diagrams, where applicable. Understanding building function and usage is essential when interpreting the findings held in this report. The narrative is intended to facilitate this process.
2. Barrier Data Records: Individual barriers to access are entered into the ADA/Access Compliance database so that technical information on each individual barrier can be provided a barrier data record. These barrier data records include detailed information including digital photographs of each barrier identified, code references that determine the barrier to access, as-built measurements, barrier severity ratings, budgetary cost estimates, recommended solutions for barrier removal and a priority for barrier removal will be assigned in the final report. The information is formatted with two barriers on each report page.

Each barrier identified in this report is designated as either required for removal or recommended for removal. State and federal model code provide the basis for most of the barrier identification contained in this report. There are other barriers to access that are dictated by case law precedent, vehicle code, health, safety code and labor code. Most barriers identified in this report are based on those requirements but additional barriers exist that are not based in these regulations or statutes. Barriers that are recommended for removal are based on pending regulations or good practices. The associated field provides two options for each barrier: Required or Recommended.

It is important to note that the barriers identified in this report reflect the most stringent requirements from the 2010 ADA Standards, California Code of Regulations/Title 24 and the California edition of the Manual on Uniform Traffic Control Devices (MUTCD). These model codes are not identical and contain conflicting requirements. This report is based on the most stringent requirements taken from these model codes.

In order to consolidate the barrier data, some of the more typical barriers found in multiple locations have been grouped within the barrier data records with a description of the locations in which they were found. For instance, this occurs where barriers were identified in stairways that have existing handrails that continue through multiple floors.

A. SAFE HARBOR PROVISIONS

One of the goals of this project is to ensure that the City of Capitola can make use of the *safe harbor* provision contained in the 2010 ADA Standards. This federal rule applies to provisions in the ADA Standards and is applied on an element-by-element basis for elements that complied with the 1991 ADA Standards. The rule includes a general "safe harbor" under which physical elements in the City's facilities, that were built or altered in compliance with the 1991 Standards, would not be required to be brought into compliance with the 2010 Standards until the elements were subject to a planned alteration. A *safe harbor* applies to elements associated with the "path of travel" to an altered area. The federal Access Board has provided a list of the new requirements in the 2010 Standards

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that are not eligible for the safe harbor in § 35.150(b)(2)(ii)(A) through § 35.150(b)(2)(ii)(L) of the final rule², which includes golf courses, recreation areas, play areas and other areas not originally covered by the 1990 Standards that are now included in the 2010 Standards.

The most common area where safe harbor applies in this particular facility is within the reach range requirements. Previous requirements under the 1990 ADA Standards allowed high reach range to extend to a maximum of 54 inches high, whereas the 2010 ADA Standards now require the maximum reach of only 48 inches. Many controls and mechanisms can be granted safe harbor under this federal provision. Safe harbor does not apply to areas where an alteration to the permanent room or space has been performed since 1990, which required the element (e.g. light switch) to comply with the standards in place at the time of the alteration.

B. OFFICIAL RESPONSIBLE

The Official Responsible for the City of Capitola is the City’s ADA Coordinator. Brian Van Son has been designated as the ADA Coordinator (ADA CO) in charge of the ADA Transition Plan remediation during the time in which these reports have been compiled. He can be reached at (831) 475-7300 or bvanson@ci.capitola.ca.us. It is likely that the person in this position will change over time through attrition, retirement. At that time, another ADA CO will be named and take over these responsibilities.

C. RECOMMENDED BARRIER REMOVAL PRIORITIES

The functions within the buildings were assigned a barrier removal priority. In order to prioritize barrier removal within facilities for implementation over time, we must correlate the City programs, activities and services that take place within City buildings that serve people with disabilities. This process is on-going as part of the Self-evaluation and this report will be updated when those findings are complete. Barriers to access identified in the exterior and interior spaces have been prioritized according to the following criteria:

- Priority 1:** Pedestrian route including access to the building from points of arrival and from the building site, including walkways and breezeways and potential hazards (see stairways below). Building entrances and lobby spaces
- Priority 2:** Primary building functions (classrooms, meeting rooms, auditoriums, corridors, play areas, etc.)
- Priority 3:** Restrooms, drinking fountains and benches or tables in public places
- Priority 4:** Interior and exterior stairways, signage and remaining barriers that affect people with disabilities as a low severity barrier

² Americans with Disabilities Act Title II Regulations, Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services (as amended by the final rule published on September 15, 2010) http://www.ada.gov/regs2010/titleII_2010/titleII_2010_regulations.htm



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Finalized barrier priorities can be influenced by information on other factors provided by the City of Capitola. These factors include:

- Number and type of programs, services and activities that take place in the facility
- Frequency of use by the general public
- Age of facility (pre-1992 existing or new construction post-1992)
- Type of use (public, staff or mixed use)
- Long-term Facility Planning Goals
 - Infrastructure improvement projects
 - Facility replacement as part of future CIP plans

D. COST ESTIMATES

This report contains budgetary cost estimates provided to facilitate the process of determining a reasonable barrier removal phasing schedule that corresponds to the financial constraints that the City of Capitola can forecast into the future. Cost estimates are provided for physical elements only while the cost of implementing a new policy or practice cannot be accurately assessed at this point in the process. The actual cost estimates are calculated using RS Means Construction Cost Estimating data and in some instances where a barrier location can have several different barriers to access, one or more of the barriers may have a cost estimate of \$0 dollars. This is an intentional reporting mechanism as it reflects the fact that the cost to remove that particular barrier is part of a cost of one or more barriers at that same location.

For instance, where a door equipped with a door closer is identified with a non-compliant opening force, sweep period and a lack of required maneuvering clearance on one or both sides of that door, the recommended barrier removal solution is often to install an automatic door opening device (ADOD), which at the time of this assessment is estimated to cost \$5,000. If each of those barriers to access had been reported with a cost estimate, the estimate could amount to 3 times that much, or \$15,000 if the correction to 2 of the 3 cost estimates was not performed. The end result is intended to produce a budgetary cost estimate that does not include amounts that could exponentially increase the overall cost of barrier removal implementation plans.

E. EXTERIOR SPACES

This report provides information on City pedestrian facilities that serve the Community Center. Many physical elements are part of the comprehensive whole that creates a facility. The descriptions provided for physical elements in the barrier data records contained in this report are intended to clearly describe each physical element. The fundamental elements evaluated in exterior facilities associated with the buildings and entrances include:

- Walkways
- Ramps
- Elevators



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- Stairways (95% of people with disabilities are **not** mobility-impaired)
- Benches or Other Seating Elements
- Tables
- Access to Monuments or Displayed Information

These narrative descriptions are intended to explain how the elements interact to form a comprehensive approach to access within this facility. Specific information described within this section provides guidance on determinations made in this report.

The key to providing accessible facilities is to recognize that different people with disabilities have different needs. Setting policies that speak to the entire group is essential, rather than focusing on one particular subset of the overall group. Universal design principles can play a role here. Physical elements should be usable to everyone that visits the City without having to resort to any adaptation or specialized design.

As a public building that was constructed prior to the passage of the ADA, the Community Center should have at least one accessible entrance. The main entrance to the building is located at the front of the building and has a connection to the existing accessible parking and the existing sidewalk along Jade Street. The Community Center was identified with an accessible route provided within the building site that connects the existing sidewalk to the exterior and interior amenities provided, including a connection to public streets and sidewalks; and public transportation stops to the accessible building or facility entrance³, as required by the 1990 and 2010 ADA Standards and California Code of Regulations Title 24. City sidewalks are not included in this scope of work.

F. FACILITY ENTRANCES

The main entrance is located in the center of the building in front of a pair of parking stalls identified as accessible. The path of travel to the entrance is a concrete path that is sloped in two locations to drain inlets that create a difficult path to travel for people using wheelchairs. The benches located along the path also lack a level landing adjacent to at least one of the benches. The outdoor patio is located on the east side of the building with access points through the kitchen, classroom C and a pedestrian path east of the building.

The walking surface of the patio was identified with wooden framing that has deteriorated over time creating abrupt changes in level that should be remedied to provide a smooth, abrupt-free travel surface. Non-compliant cross slopes in that area were also identified in the areas near drain inlets. Benches were identified with level areas adjacent to more than one bench and the doorway into the classroom adjacent to the patio was free of abrupt changes in level. The kitchen entrance threshold should be replaced to provide access into that space from the patio.

The paved pathways surrounding the Community Center also connect the Center to the play area and the park.

³ 2010 ADA Standards for Accessible Design, Section 206.2.1 Site Arrival Points



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G. REPORT FORMAT - DEFINITIONS

SZS CONSULTING City of Capitola - City Hall

1 Field Date: 2/6/2017 2 Report Date: 2/7/2017 3 Barrier #: 1 4 

5 Facility: City Hall

6 Location: Parking Lot

7 Official Responsible: Brian Van Son, ADA Coordinator

8 Facility Function: Public Dwg: 1 of 3 9

10 Barrier Area: Parking Remediation: Required 11

12 Barrier Type: Van Accessible Stall

13 Barrier Description: No van accessible stall provided in parking lot 18

14 Code References: CBC 11B.208.2.4 19

15 As Built Description: Where 8 stalls are identified as accessible, no van accessible stall is provided 22

16 Proposed Solution: Provide min. one van accessible stall per every six accessible stalls (1:6 ratio) for a total of 2 van accessible stalls 20

17 As-Built Meas: 2 Quantity: EACH Cost Estimate: \$1,026.00 BSR: 1 Necessary 23

21 X Coordinate: -121.953464699909 Y Coordinate: 36.9743577204644 Z Coordinate: 6.85498046875 27

24 Implementation: Priority 1 Phase Date Status Open 26

28 Notes: 25

This is the Graphic User Interface (GUI) for the ADA Transition Plan database entry form. The name of each facility is located at the top of the form and the reports produced by the database have a similar format with identical fields although they are, in some instances, slightly different in size. A description for the data contained within each field is provided below:

- 1) **Field Date:** The date of the facility inspection.
- 2) **Report Date:** The date the report was compiled, revised or completed.
- 3) **Barrier #:** Individual number assigned to each barrier identified. The alphanumeric character assigned correlates with a room or space identified on the reference drawings provided with each report. This number allows the barrier to be pinpointed to a location within the facility.
- 4) **Image:** Digital photograph provided for each barrier as a visual representation of the issue and context.
- 5) **Facility:** Name of building, park or parking lot where the inspection was performed
- 6) **Location:** Area or space within the facility where a barrier is identified



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- 7) **Official Responsible:** Public or private entity responsible for the facility and the remediation of the barriers
- 8) **Facility Function (Public/Staff):** Designates barriers as located in either staff or public areas. Most barriers identified are designated for public use. Different requirements exist for public and staff use areas.
- 9) **Reference Drawing (Dwg):** Floor, site plans or aerial maps of the designated facility where the assessment was performed. Each reference drawing provides correlation between the barrier number listed in the report (see item 3 above) and the actual physical location where the barrier was identified.
- 10) **Barrier Area:** Provides a grouping of similar barriers identified in specific spaces (E.G.: Restrooms, Doors and Gates, Stairs, Ramps, Sidewalk, Walkways)
- 11) **Remediation:** Indicates whether a barrier is in direct violation of the federal and state codes and statutes and must be remediated or whether the remediation is recommended as a best practice. One of two options exist: (Required) or (Recommended).
- 12) **Barrier Type:** Identifies the type of physical element or area defined by California Building Code and the ADA Standards used to identify non-compliance. The categories of barriers contained in the database include:

Alarms
Assembly Areas
Blended Transitions
Bus Stops & Shelters
Classrooms
Clear Floor Space
Controls and Mechanisms
Corridors
Counters and Tables
Curb Ramps
Dining Facilities
Doors or Gates
Drinking Fountains
Elevators
Kitchens
Outdoor Areas Access Route
Parking
Passenger Loading Zones (Drop-Off)
Picnic Facilities
Play Areas
Public Phones
Ramps
Restrooms
Signage
Stairways



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Street Furniture
Swimming Pools
Turning Space
Walkways

13) **Requirement (Barrier Description):** Code language or performance standard that describes barrier identified.

14) **Code References:** Applicable state and federal codes regulating the entities compliance. Each code reference is specific to each barrier and identifies the section of code which regulates compliance to that specific element (doors, parking stalls, sidewalks, etc.). Where a best practice is recommended, the term *Performance Standard* identifies the barrier to access documented in the barrier data record.

15) **As Built Description (Desc):** Also known as the *findings*, information describes the barrier.

16) **Proposed Solution:** Provides one suggested solution for the remediation of the barrier identified. Please note that other options may exist to bring items into compliance. Other solutions may exist and all solutions cannot be accounted for in this report. The suggested solution is generally the most common way of remediating this particular barrier.

17) **As Built Measure:** Actual field measurement number for square footage (SF), linear footage (LF), or a single value (EACH or JOB) used to indicate physical dimension of barrier and calculate cost estimate.

18) **Quantity:** Unit of measure for the remediation of each barrier (SF, LF, EACH or JOB).

19) **Cost Estimate:** Budgetary Cost Estimate to remove the barrier described.

20) **Barrier Severity Rating (BSR):** A systematic, research based rating that describes how severely each barrier affects usability for the particular element.

21) **X Coordinate:** Geographic coordinate that provides the longitude (north-south) value

22) **Y Coordinate:** Geographic coordinate that provides the latitude (east-west) value

23) **Z Coordinate:** Geographic coordinate that provides the elevation value

24) **Implementation Priority:** Scheduling of barrier removal based on many factors including the US DOJ requirements for providing access to ADA Title II facilities.

25) **Implementation Phase:** Designated annual phase of the transition plan when remediation of the barrier is scheduled. Phases are generally annual but can be longer, if needed.

26) **Implementation Date:** Scheduled year or date as to when the remediation of the barrier will take place. This field can be scheduled during phasing and changed to a specific date after the barrier is remediated and the record is closed.

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- 27) Status (Open or Closed):** An implementation management tool that can flag barriers to indicate that they have been remediated or are remaining in the implementation phasing plan. Barrier data records have a “Closed” status when completed or have an “Open” status when they remain scheduled for remediation.
- 28) Notes:** Open field where additional explanation of the findings can be noted when encountering unusual situations in the field, or to note programmatic access solutions. The notes field can contain the image file name shown in the barrier data record, or additional information as needed such as an explanation of findings, or information on associated barriers in the same or similar locations.

EXTERIOR SPACES

The Community Center was designed and constructed prior to the enforcement of the ADA and prior to the passage of Access Compliance requirements in California. A parking lot was provided at the Community Center. Three parking stalls were identified as accessible, although the asphalt surfaces at the parking stalls were found to have significant slopes and uneven surfaces where patching or other repairs had been performed. One stall identified as accessible was located in the west corner of the parking lot and appeared to be intended to serve the park, including the tennis courts, basketball courts and baseball field. This stall was identified with a built-up curb ramp in the access aisle, which was allowed under the California Building Code until 2009, but was a violation of the ADA Standards as it creates a sloped aisle and can prevent use by people who use wheelchairs and need to exit their vehicles at the passenger’s side by way of a deployable ramp. Such ramps cannot safely deploy on sloped surfaces.

Two other parking stalls identified as accessible were provided directly in front of the main entrance to the Community Center. These stalls were also identified with barriers to access, but the most significant was the abrupt change in level between the access aisle and concrete curb ramp, which appeared to have been constructed fairly, recently within the walkway along the property. This may hinder or prevent people who use wheelchairs from entering the facility.

The play area was designed and constructed after the ADA was enforced and is considered a new construction project. No accessible parking stall is provided on the shortest possible route to the play area.

INTERIOR SPACES

The Community Center provides three classrooms, a kitchen and public men and women’s restrooms. The kitchen is rented out for public gatherings and is required to be accessible to people with disabilities. The entrance door is located within a narrow central corridor adjacent to the lobby. Maneuvering clearance at the entry and exit side of the door is not considered accessible for people who use mobility assist devices. The counters, sink, dispensers and shelves were not identified as accessible. In many kitchens where public use occurs an additional wheelchair accessible sink is installed to ensure that health and safety requirements are met for the main sink in the prep area. Exit doors to the patio and adjacent classroom were also identified as lacking accessible maneuvering clearance.





The classrooms in the building were identified with entry doors with compliant view panels for short people or those who use wheelchairs. Controls and mechanisms used to operate the audio system or accordion doors were not located within accessible reach ranges and the entry and exit doors lacked tactile signage and operating force that complied with state and federal requirements. Tables in the classrooms were provided in rectangular or round types and none were identified with accessible knee clearance.

The following barrier data records provide more detailed information on the barriers described above.



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BARRIER DATA RECORDS



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Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:
 As Built Description:
 Proposed Solution:
 As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:
 As Built Description:
 Proposed Solution:
 As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

Notes:

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Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 1C

Facility: Capitola Community Center

Location: Walkway to Building

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Curb Ramps Remediation: Required

Barrier Type: Parallel Ramp Landing - New Construction

Barrier Description: Curb ramp pan is not level (2.0% in all directions)

Code References: CBC 11B-406.5.3 and 2010 ADAS 406.4

As Built Description: Parallel curb ramp has 5.1% cross slope in (pan) landing

Proposed Solution: Demolish existing and construct new curb ramp

As-Built Meas: 0 Quantity: EACH Cost Estimate: \$0.00 BSR: 1 Necessary

X Coordinate: -121.95989202708 Y Coordinate: 36.97024597786366 Z Coordinate: 19.11181640625

Implementation: Priority 1 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 1D

Facility: Capitola Community Center

Location: Walkway to Building

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Curb Ramps Remediation: Required

Barrier Type: Detectable Warnings - Truncated Dome Location

Barrier Description: No truncated domes provided at curb ramp within 6" - 8" of transition into roadway

Code References: CBC 11B-705.1.3 and 2010 ADAS 705.1.3

As Built Description: No detectable warnings at curb ramp

Proposed Solution: Provide compliant truncated domes

As-Built Meas: 4 Quantity: LF Cost Estimate: \$1,512.00 BSR: 2 Recommended

X Coordinate: -121.95989202708 Y Coordinate: 36.97024597786366 Z Coordinate: 19.11181640625

Implementation: Priority 1 Phase Date Status Open

Notes:




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 Code Compliance
 Signed _____
 Date: 5/16/2017
 Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status



Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status



Notes:

City of Capitola
Permitted for Code Compliance

Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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 Date: 5/16/2017
 Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Signed _____
Date: _____
Permit # _____

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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 Date: _____
 Permit # _____

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

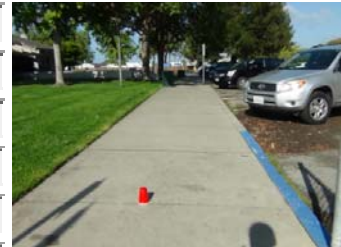
Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Signed _____
Date: _____
Permit # _____

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 11B

Facility: Capitola Community Center

Location: Walkway to Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Required

Barrier Type: Abrupt Change in Level - 1/4" to 1/2"

Barrier Description: Change in level greater than 1/4" in walkway with no bevel

Code References: CBC 11B-403.4 and 2010 ADAS 303.3

As Built Description: 1/2" lip in walkway surface near trash receptacle

Proposed Solution: Grind or repair to remove trip hazard

As-Built Meas: 4 Quantity: LF Cost Estimate: \$1,080.00 BSR: 1 Necessary

X Coordinate: -121.959808627143 Y Coordinate: 36.97005503810942 Z Coordinate: 23.91833496093755

Implementation: Priority 1 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 12

Facility: Capitola Community Center

Location: Walkway to Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Required

Barrier Type: Cross Slope - Existing (5.0% or more)

Barrier Description: Cross slope exceeds 2.0% (5.0% or more)

Code References: CBC 11B-403.3 and 2010 ADAS 403.3

As Built Description: 9.7% cross slope in curb ramp at change of direction leading to entrance

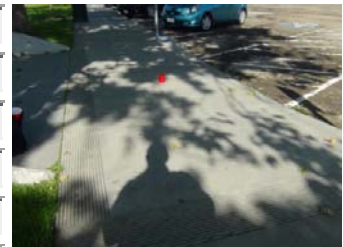
Proposed Solution: Demolish existing and construct new route with a parallel curb ramp

As-Built Meas: 25 Quantity: SF Cost Estimate: \$3,375.00 BSR: 1 Necessary

X Coordinate: -121.95994743146 Y Coordinate: 36.97007725015282 Z Coordinate: 26.708496093755

Implementation: Priority 1 Phase Date Status Open

Notes:




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 Signed _____
 Date: 5/16/2017
 Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

City of Capitola
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Signed: _____
Date: 05/16/2017
Permit #: 2018180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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 Date: _____
 Permit # _____

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:


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 Date: _____
 Permit # _____

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 14A

Facility: Capitola Community Center

Location: Parking Lot - Accessible Stalls at Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Parking Remediation: Required

Barrier Type: Stall Slope - Existing (4.1% to 4.9%)

Barrier Description: Accessible stall & aisle not max. 2.0% in all directions (4.1% to 4.9%)

Code References: CBC 11B-502.4

As Built Description: 4.5% slope at damaged concrete

Proposed Solution: Regrade stall to make level and restripe

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$13,608.00 BSR: 2 Recommended

X Coordinate: -121.96003921329 Y Coordinate: 36.97013667784631 Z Coordinate: 21.755371093

Implementation: Priority 1 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 14B

Facility: Capitola Community Center

Location: Parking Lot - Accessible Stalls at Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Parking Remediation: Required

Barrier Type: Accessible Stall Sign - Fine Sign

Barrier Description: An additional sign or info below the ISA does not state "Minimum Fine \$250."

Code References: CBC 11B-502.6.2

As Built Description: No fine sign provided

Proposed Solution: Provide required sign


As-Built Meas: 1 Quantity: EACH Cost Estimate: \$162.00 BSR: 3 Hindrance

X Coordinate: -121.96003921329 Y Coordinate: 36.97013667784631 Z Coordinate: 21.755371093

Implementation: Priority 1 Phase Date Status Open

Notes:




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 Date: 5/16/2017
 Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 14C

Facility: Capitola Community Center

Location: Parking Lot - Accessible Stalls at Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Parking Remediation: Required

Barrier Type: Van Accessible Stall

Barrier Description: No van accessible stall provided in parking lot

Code References: CBC 11B.208.2.4

As Built Description: Sign indicating stall is van accessible is placed on stall that is not van accessible

Proposed Solution: Remove sign from this stall. Stall sharing access aisle is correctly located with aisle on passenger's side of vehicle

As-Built Meas: 0 Quantity: EACH Cost Estimate: \$0.00 BSR: 1 Necessary

X Coordinate: -121.96003921329 Y Coordinate: 36.97013667784631 Z Coordinate: 21.755371093

Implementation: Priority 1 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 15

Facility: Capitola Community Center

Location: Walkway to Outdoor Patio

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Required

Barrier Type: Cross Slope - Existing (2.1% to 3.0%)

Barrier Description: Cross slope exceeds 2.0% (2.1% to 3.0%)

Code References: CBC 11B-403.3 and 2010 ADAS 403.3

As Built Description: 2.6% cross slope

Proposed Solution: Low severity barrier - no remediation recommended

As-Built Meas: 11 Quantity: LF Cost Estimate: \$1,485.00 BSR: 4 Low Severity

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.9570312

Implementation: Priority 1 Phase Date Status Open

Notes:



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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

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Signed: _____
Date: 05/16/2017
Permit #: 2018180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

City of Capitola
Reviewed for Code Compliance
SIGNED BY: _____
DATE: 5/16/2017
Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 19

Facility: Capitola Community Center

Location: Outdoor Patio - Kitchen Entry

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Threshold (replacement)

Barrier Description: Door/Gate threshold height exceeds 1/2" with a bevel

Code References: CBC 11B-404.2.5 & 2010 ADAS 404.2.5

As Built Description: 3/4" high concrete threshold

Proposed Solution: Provide new door threshold

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$297.00 BSR: 1 Necessary

X Coordinate: -121.96025513112 Y Coordinate: 36.96981003507971 Z Coordinate: 22.2359619140625

Implementation: Priority 2 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 20A

Facility: Capitola Community Center

Location: Walkway to Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Required

Barrier Type: Change of Direction - Level Space

Barrier Description: Turning space identified with a change in level of more than 1:48 (2.0%)

Code References: CBC 11B-304.2 and 2010 ADAS 304.2

As Built Description: 6.6% slope in landing at change of direction

Proposed Solution: Alter floor or ground surface to comply

As-Built Meas: 45 Quantity: SF Cost Estimate: \$6,075.00 BSR: 2 Recommended

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.9570312

Implementation: Priority 1 Phase Date Status Open

Notes:



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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:

As Built Description:
 Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:




Barrier Description:
 Code References:

As Built Description:
 Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

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 Date: 5/16/2017
 Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 20D

Facility: Capitola Community Center

Location: Walkway to Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Required

Barrier Type: Bench - Level Landing

Barrier Description: No level landing provided adjacent to bench

Code References: CBC 11B-305.3 and 2010 ADAS 305.3

As Built Description: Space for people using wheelchairs adjacent to bench is not level or min. 30"x 48" allowing shoulder alignment

Proposed Solution: Provide level landing adjacent to min. 1 bench or 5% of group of benches

As-Built Meas: 12 Quantity: SF Cost Estimate: \$1,620.00 BSR: 3 Hindrance

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125

Implementation: Priority 1 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 20E

Facility: Capitola Community Center

Location: Walkway to Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: N/A

Barrier Area: Walkways Remediation: Recommended

Barrier Type: Bench - Seat Height/Depth/Back Support

Barrier Description: Bench seat not 20" to 24" deep and height not 17" to 19" above ground. Back support not compliant

Code References: Performance Standard, CBC 11B-903.3 and 2010 ADAS 903.3

As Built Description: 16-1/2" bench seat height and 17" seat depth and no backrest is provided

Proposed Solution: Ensure that min. 1 seating element in area is accessible or 5% overall

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$1,188.00 BSR: 3 Hindrance

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125

Implementation: Priority 1 Phase Date Status Open

Notes:



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Date: 5/16/2017
Permit # 2024180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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 Date: 5/16/2017
 Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Signed _____
Date _____
Permit # _____

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 22C

Facility: Capitola Community Center

Location: Main Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Exterior Adjustment

Barrier Description: Door opening force exceeds 5 lbf

Code References: CBC 11B-404.2.9

As Built Description: 11 lbf

Proposed Solution: Replace or adjust existing closer

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$486.00 BSR: 1 Necessary

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125

Implementation: Priority 2 Phase Date Status Open

Notes: If the door closer cannot be adjusted to consistently operate at 5 lbf or less, install an automatic door opening device



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 22D

Facility: Capitola Community Center

Location: Main Entrance

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Exterior Sweep

Barrier Description: Door closer lacks min. 5 second sweep period/back check

Code References: CBC 11B-404.2.8.1 & 2010 ADAS 404.2.8.1

As Built Description: 2 second sweep

Proposed Solution: Replace or adjust existing closer

As-Built Meas: 0 Quantity: EACH Cost Estimate: \$0.00 BSR: 2 Recommended

X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125

Implementation: Priority 2 Phase Date Status Open

Notes:



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5/16/2017
Date
Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 22E
 Facility: Capitola Community Center
 Location: Main Entrance
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Signage Remediation: Required
 Barrier Type: Tactile Exit Sign - Exit



Barrier Description: Ground floor doors that exit to exterior not provided with signs stating "EXIT"
 Code References: CBC 11B-216.4.1 & 11B-703
 As Built Description: No tactile sign provided where required
 Proposed Solution: Provide compliant sign at exit side of door
 As-Built Meas: 1 Quantity: EACH Cost Estimate: \$270.00 BSR: 1 Necessary
 X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125
 Implementation: Priority 4 Phase Date Status Open

Notes:

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 22F
 Facility: Capitola Community Center
 Location: Main Entrance
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Doors or Gates Remediation: Required
 Barrier Type: Doormats



Barrier Description: Doormat not anchored to floor (trip hazard)
 Code References: CBC 11B-302.2
 As Built Description: Door mat not secured or recessed
 Proposed Solution: Secure door mat or remove
 As-Built Meas: 1 Quantity: EACH Cost Estimate: \$540.00 BSR: 1 Necessary
 X Coordinate: -121.96010928601 Y Coordinate: 36.97013357654213 Z Coordinate: 22.95703125
 Implementation: Priority 2 Phase Date Status Open

Notes:

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 Date: 5/16/2017
 Permit #: 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:


As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:
 As Built Description:
 Proposed Solution:
 As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:
 Facility:
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 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:
 As Built Description:
 Proposed Solution:
 As-Built Meas: Quantity: Cost Estimate: BSR:
 X Coordinate: Y Coordinate: Z Coordinate:
 Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:


Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

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 Facility Function: Dwg:
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Barrier Description:
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 As Built Description:
 Proposed Solution:
 As-Built Meas: Quantity: Cost Estimate: BSR:
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 Implementation: Priority Phase Date Status

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Barrier Description:
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 As Built Description:
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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

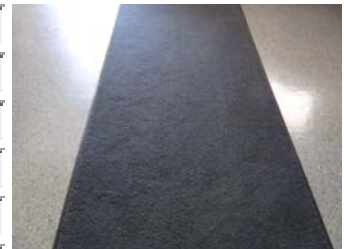
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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:


Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 24K

Facility: Capitola Community Center

Location: Kitchen

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Kitchens Remediation: Required

Barrier Type: Outlet - Forward Reach Obstructed (10"-25")

Barrier Description: Electrical outlet height over an 10" to 25" obstruction max. 34" high located above 44"

Code References: 2010 ADAS 308.2.2 and CBC 308.2.2

As Built Description: Switches 50" high over 37" high counter with no knee clearance

Proposed Solution: Relocate control or mechanism to max. 44" high over counter surface no more than 34" high

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$810.00 BSR: 3 Hindrance

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 24L

Facility: Capitola Community Center

Location: Kitchen

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Kitchens Remediation: Required

Barrier Type: Shelving or Cabinets

Barrier Description: 50% of shelving provided is not accessible

Code References: 2010 ADAS 804.5 & 811 and CBC 804.5

As Built Description: Shelves or cabinets not accessible

Proposed Solution: Provide additional shelving at max. 48" above floor or provide assistance


As-Built Meas: 1 Quantity: EACH Cost Estimate: \$135.00 BSR: 1 Necessary

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

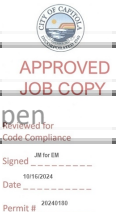
Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

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Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Barrier Area: Remediation:

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Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

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Barrier Description:

Code References:

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Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:


As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:


As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:




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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 25G

Facility: Capitola Community Center

Location: Women's Restroom

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Restrooms Remediation: Required

Barrier Type: Dispensers - Control Point

Barrier Description: Dispenser control point or operating mechanism not max. 40" AFF

Code References: CBC 11B-603.5

As Built Description: Paper towel and soap dispenser control points 43" high

Proposed Solution: Replace or remount dispenser

As-Built Meas: 2 Quantity: EACH Cost Estimate: \$270.00 BSR: 2 Recommended

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 3 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 25H

Facility: Capitola Community Center

Location: Women's Restroom

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Restrooms Remediation: Required

Barrier Type: Lavatory - Knee Clearance

Barrier Description: Lavatory bottom apron/edge not max 29" reducing to 27" at 8" back from edge

Code References: CBC 11B-306

As Built Description: 27-1/2" high at rim

Proposed Solution: Provide min. one accessible lavatory

As-Built Meas: 1 Quantity: JOB Cost Estimate: \$486.00 BSR: 1 Necessary

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 3 Phase Date Status Open

Notes:



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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 25I
 Facility: Capitola Community Center
 Location: Women's Restroom
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Restrooms Remediation: Required
 Barrier Type: Lavatory - Drainpipes



Barrier Description: Hot water and drainpipes accessible under lavatory not insulated or covered

Code References: CBC 11B-606.5

As Built Description: No insulation provided

Proposed Solution: Insulate drainpipes and hot water pipes

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$238.00 BSR: 2 Recommended

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 3 Phase Date Status Open

Notes:

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 25J
 Facility: Capitola Community Center
 Location: Women's Restroom
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Restrooms Remediation: Required
 Barrier Type: Changing Table - Surface Height



Barrier Description: Table surface when open not between 28" and 34" high

Code References: CBC 11B-902.3 and 2010 ADAS 902.3

As Built Description: 36" high and clear floor space blocked by chair

Proposed Solution: Remount existing changing table and remove chair

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$837.00 BSR: 3 Hindrance

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 3 Phase Date Status Open

Notes:


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 Date: 5/16/2017
 Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Field Date: Report Date: Barrier #:

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Code References:

As Built Description:

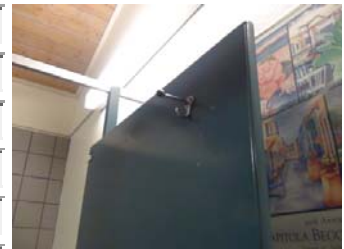
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Field Date: Report Date: Barrier #:

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Facility Function: Dwg:

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Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

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Barrier Description:

Code References:

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Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

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Facility Function: Dwg:

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Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

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Barrier Description:

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As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:
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 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:
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 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:

Code References:

As Built Description:


Proposed Solution:

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Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

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As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

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Implementation: Priority Phase Date Status

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Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Implementation: Priority Phase Date Status

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Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:


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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:
 Facility:
 Location:
 Official Responsible:
 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:
 Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

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Field Date: Report Date: Barrier #:
 Facility:
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 Facility Function: Dwg:
 Barrier Area: Remediation:
 Barrier Type:



Barrier Description:

Code References:

As Built Description:


Proposed Solution:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

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X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

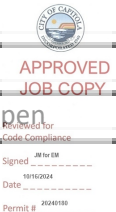
Proposed Solution:

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X Coordinate: Y Coordinate: Z Coordinate:

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Field Date: Report Date: Barrier #:

Facility:

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As Built Description:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

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As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

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Barrier Type:

Barrier Description:

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As Built Description:

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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

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As Built Description:

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Facility Function: Dwg:

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Barrier Type:



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As Built Description:


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Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

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Official Responsible:

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Facility:

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Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

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Official Responsible:

Facility Function: Dwg:

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As Built Description:

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 28B

Facility: Capitola Community Center

Location: Classroom B

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Interior Adjustment

Barrier Description: Door opening force exceeds 5 lbf

Code References: CBC 11B-404.2.9 & 2010 ADAS 404.2.9

As Built Description: 9 lbf

Proposed Solution: Replace or adjust existing closer

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$486.00 BSR: 1 Necessary

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 28C

Facility: Capitola Community Center

Location: Classroom B

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Interior Sweep

Barrier Description: Door closer lacks min. 5 second sweep period/back check

Code References: CBC 11B-404.2.8.1 & ADA/ABA 404.2.8.1

As Built Description: 2 second sweep

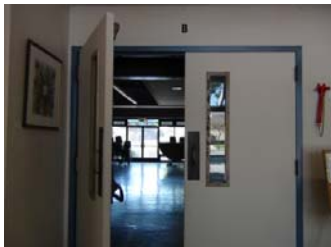
Proposed Solution: Replace or adjust existing closer

As-Built Meas: 0 Quantity: EACH Cost Estimate: \$0.00 BSR: 2 Recommended

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

Notes:



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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

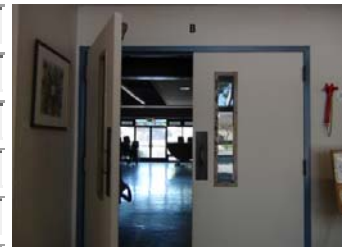
Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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DATE: 5/16/2017
PERMIT #: 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:


Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:


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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:


As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:


As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:




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5/16/2017
Date
2017160
Permit #

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 28L

Facility: Capitola Community Center

Location: Classroom B

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Exterior Adjustment

Barrier Description: Door opening force exceeds 5 lbf

Code References: CBC 11B-404.2.9

As Built Description: 9 lbf

Proposed Solution: Replace or adjust existing closer

As-Built Meas: 1 Quantity: EACH Cost Estimate: \$486.00 BSR: 1 Necessary

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

Notes:



Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 28M

Facility: Capitola Community Center

Location: Classroom B

Official Responsible: Brian Van Son, ADA Coordinator

Facility Function: Public Dwg: 1 of 1

Barrier Area: Doors or Gates Remediation: Required

Barrier Type: Door Closer - Exterior Sweep

Barrier Description: Door closer lacks min. 5 second sweep period/back check

Code References: CBC 11B-404.2.8.1 & 2010 ADAS 404.2.8.1

As Built Description: 2 second sweep

Proposed Solution: Replace or adjust existing closer

As-Built Meas: 0 Quantity: EACH Cost Estimate: \$0.00 BSR: 2 Recommended

X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A

Implementation: Priority 2 Phase Date Status Open

Notes:



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Signed _____
Date: 5/16/2017
Permit # 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:


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DATE: 5/16/2017
PERMIT # 2016180

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 29E
 Facility: Capitola Community Center
 Location: Classroom C
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Signage Remediation: Required
 Barrier Type: Tactile Exit Sign - Route



Barrier Description: Exit door to exterior thru exit enclosure, interior room or passageway lacks "EXIT ROUTE" sign
 Code References: CBC 11B-216.4.1 & 11B-703
 As Built Description: No tactile sign provided where required at entry door
 Proposed Solution: Provide compliant sign at exit side of door
 As-Built Meas: 1 Quantity: EACH Cost Estimate: \$270.00 BSR: 2 Recommended
 X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A
 Implementation: Priority 4 Phase Date Status Open

Notes:

Field Date: 4/20/2017 Report Date: 5/16/2017 Barrier #: 29F
 Facility: Capitola Community Center
 Location: Classroom C
 Official Responsible: Brian Van Son, ADA Coordinator
 Facility Function: Public Dwg: 1 of 1
 Barrier Area: Doors or Gates Remediation: Required
 Barrier Type: Doormats



Barrier Description: Doormat not anchored to floor (trip hazard)
 Code References: CBC 11B-302.2
 As Built Description: Door mat not secured or recessed
 Proposed Solution: Secure door mat or remove
 As-Built Meas: 1 Quantity: EACH Cost Estimate: \$540.00 BSR: 1 Necessary
 X Coordinate: N/A Y Coordinate: N/A Z Coordinate: N/A
 Implementation: Priority 2 Phase Date Status Open

Notes:

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 Date: 5/16/2017
 Permit #: 2016180

Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

Notes:



Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:

Barrier Description:

Code References:

As Built Description:

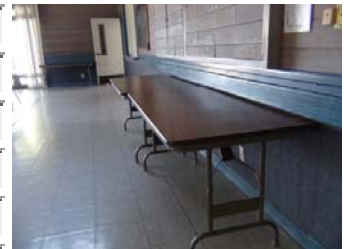
Proposed Solution:

As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Field Date: Report Date: Barrier #:

Facility:

Location:

Official Responsible:

Facility Function: Dwg:

Barrier Area: Remediation:

Barrier Type:



Barrier Description:

Code References:

As Built Description:

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Field Date: Report Date: Barrier #:

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As Built Description:

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As Built Description:

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As-Built Meas: Quantity: Cost Estimate: BSR:

X Coordinate: Y Coordinate: Z Coordinate:

Implementation: Priority Phase Date Status

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Permit # 2016180

COST ESTIMATES



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Code Compliance

Signed JM for EM

Date 08/16/2024

Permit # 22241180

APPENDIX – REFERENCE DRAWINGS



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Signed JM for EM

Date 08/16/2024

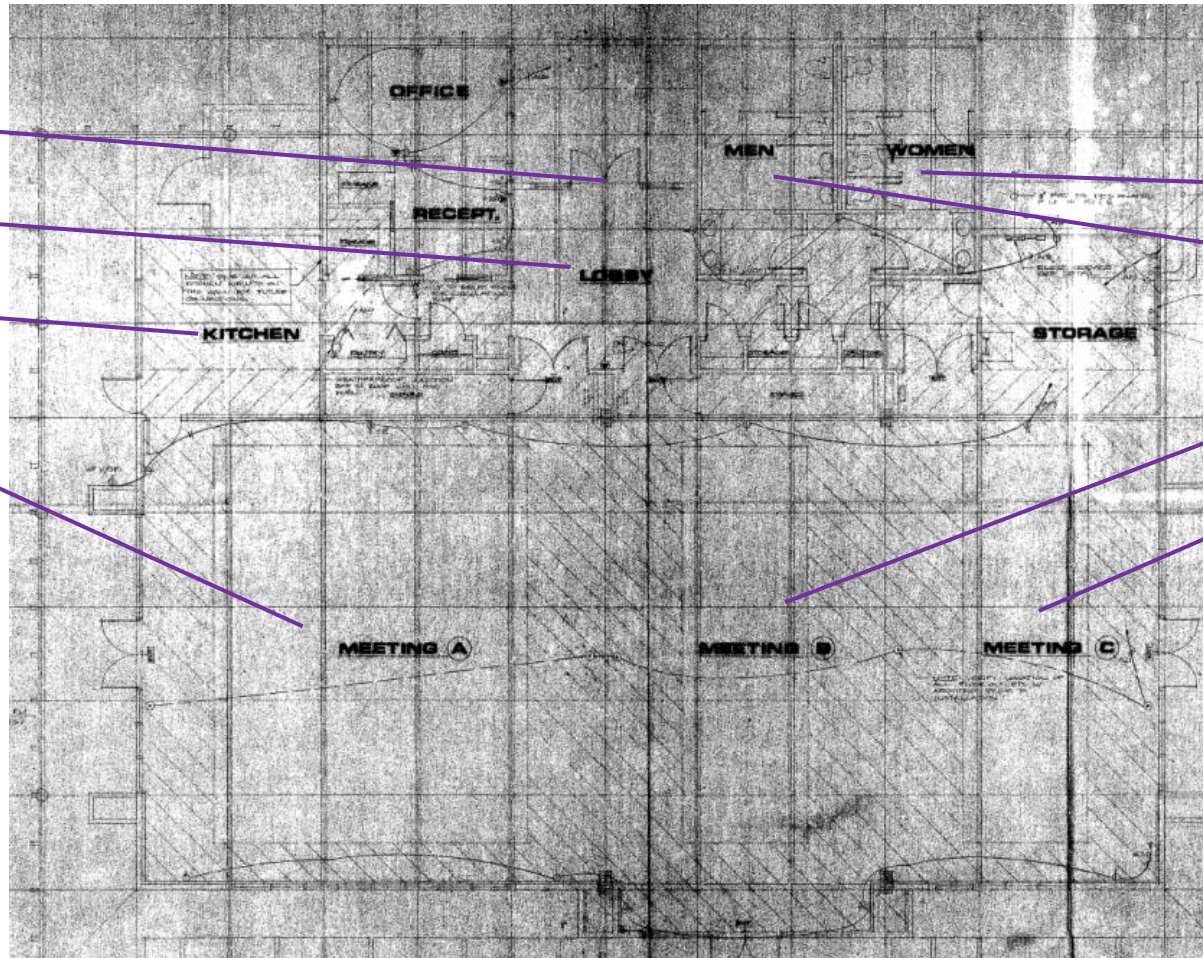
Permit # 22241180

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Code Compliance
Signed _____
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Permit # _____

**ELECTRIC VEHICLE CHARGING
STATION BLINK SERIES 8
ADA COMPLIANT**



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Reviewed for
Code Compliance
Signed _____
Date 10/10/2024
Permit # 202401100

Series 8 EV Charging Station



48 A

ELECTRICAL SPECIFICATION – AC OUTPUT	
Number of Ports	Two
Current	Configurable up to 48A Max per port
Power	Up to 11.52kW (@240VAC) or 9.984kW (@208VAC) Max per port
Energy Metering Accuracy	+/- 1%
Charging Connector	SAE J1772
ELECTRICAL SPECIFICATION – AC INPUT	
Input Connector	Hardwired
Voltage	208 or 240 VAC
Service Panel Breaker	Two-pole common trip 60A breaker, dedicated circuit per port
Power Connection	Line 1, Line 2 and GND (no neutral) per port
Standby Power	6.5 W Typical
SAFETY SPECIFICATION	
Ground Fault Circuit Interrupt	20mA CCID with auto retry (every 15 seconds)
Automatic Plug-Out Detection	Power terminated per SAE J1772 spec
Surge Protection	6kV @3,000A
NETWORK SPECIFICATION	
Data Communication	Cellular 4G LTE
Charging Infrastructure Communication	OCPP 1.6 compliant
Remote Management	Remote access, diagnostics, Over-the-Air (OTA) software update enabled
Load Management	Smart, dynamic allocation and distribution of power to each port



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Signed _____

Date: 05/16/2024

Permit # 2204180

Series 8 EV Charging Station



48 A

USER INTERACTION SPECIFICATION	
Charging Status Indicator	High visibility, multi-color LED visual status indication
Display	4.3" color LCD, 480 x 272
Authentication	RFID: ISO14443 Type A & B, MiFare, Felica, ISO15693
Payment	Optional: Apple/Google Pay, Contactless/Magnetic/EMV Credit Card/Tap to Pay
ENVIRONMENTAL SPECIFICATION	
Enclosure	Aluminum, NEMA 3R certified
Operating Humidity	Up to 95% non-condensing
Operating Temperature	-30 degree C to +50 degree C ambient
Operating Altitude	≤6560 ft
MECHANICAL SPECIFICATION	
Dimensions	Charging Head: 24" H x 7.4" W x 7.5" D Charging Head: w/cc reader 24" H x 7.4" W x 9" D
Approximate Weights	Charging Head: 21 lbs Charging Head w/ cc reader 21.7 lbs. Pedestal 12.5 lbs. Wall mount: 11.5 lbs.
Mounting Option	Wall or Pedestal mount
Cable Length	18ft standard, 25ft optional
Cable Organizer	Optional
REGULATION	
Safety	UL 2594 / CSA C22.2 No. 280-16 UL 2231-1 / CSA C22.2 No. 281.1-12, UL 2231-2 / CSA C22.2 No. 281.2-12 certified
EMI	FCC Part 15 Class A compliant
Energy Efficiency	Energy Star certified
Compliance	California Type Evaluation Program (CTEP) certified, Buy American ACT (BAA) compliant
Accessibility	ADA compliant



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Reviewed for
Code Compliance

Signed _____

5/16/2024

Date _____

2024180

Permit # _____

27

SCHIER SV10



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Reviewed for
Code Compliance

Signed _____

Date _____

Permit # _____

NOTES

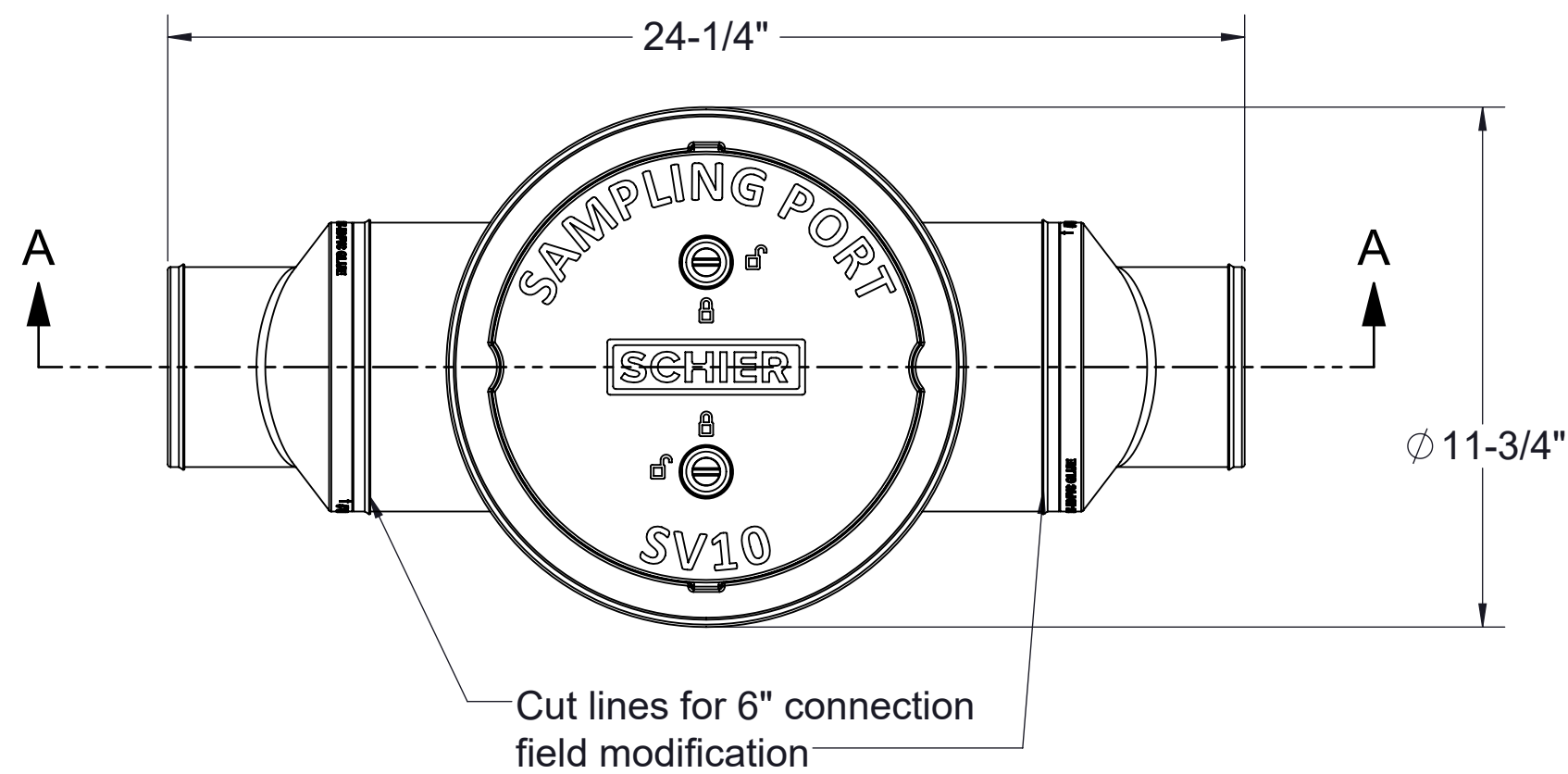
1. 4" plain end inlet/outlet
2. Field modifiable to 6" plain end inlet/outlet
3. Unit weight - 9 lbs.
4. Maximum operating temperature: 150° F continuous
5. Offset connections
6. 2 rolls of 33" x 2" butyl mastic tape provided for sealing build-your-own riser joints

ENGINEER SPECIFICATION GUIDE

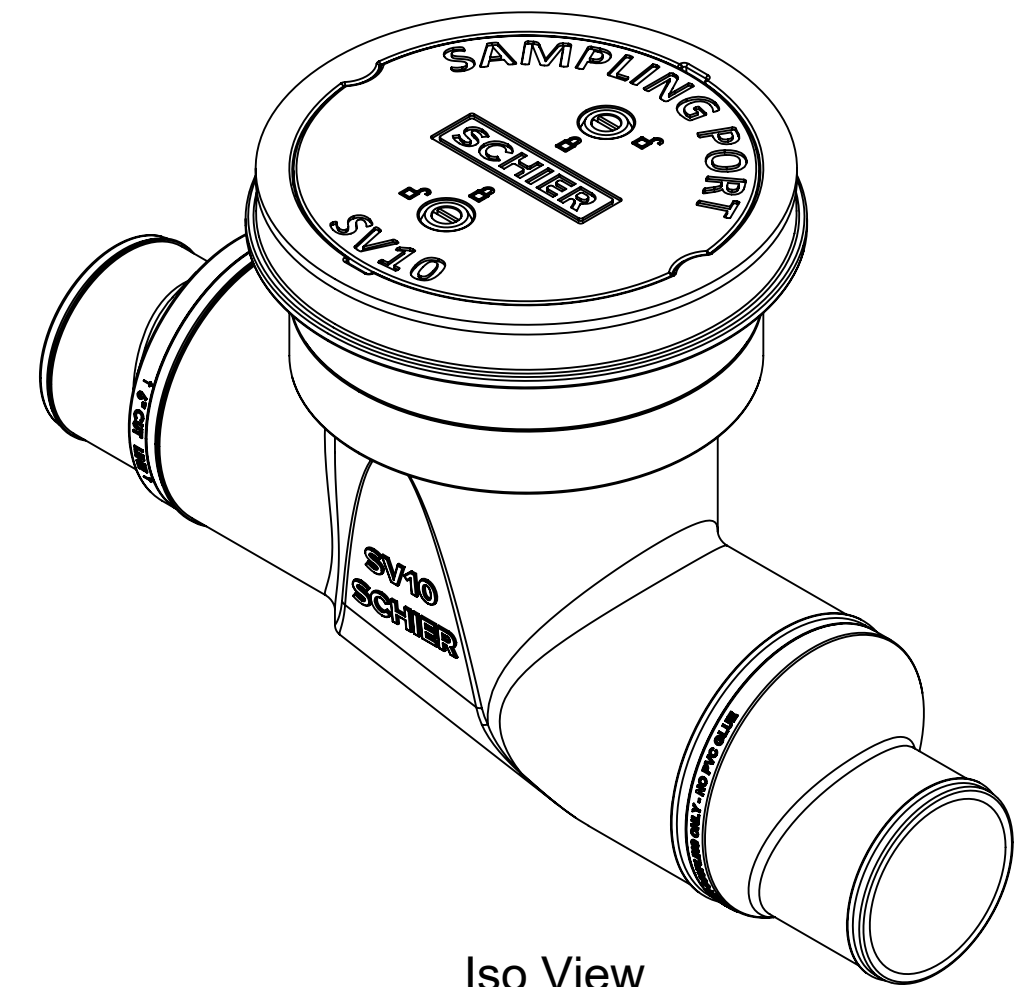
Schier Sewer Viewer™ sampling port model # SV10 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene. Sampling port shall be furnished for above or below grade installation. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

ACCESSORIES:

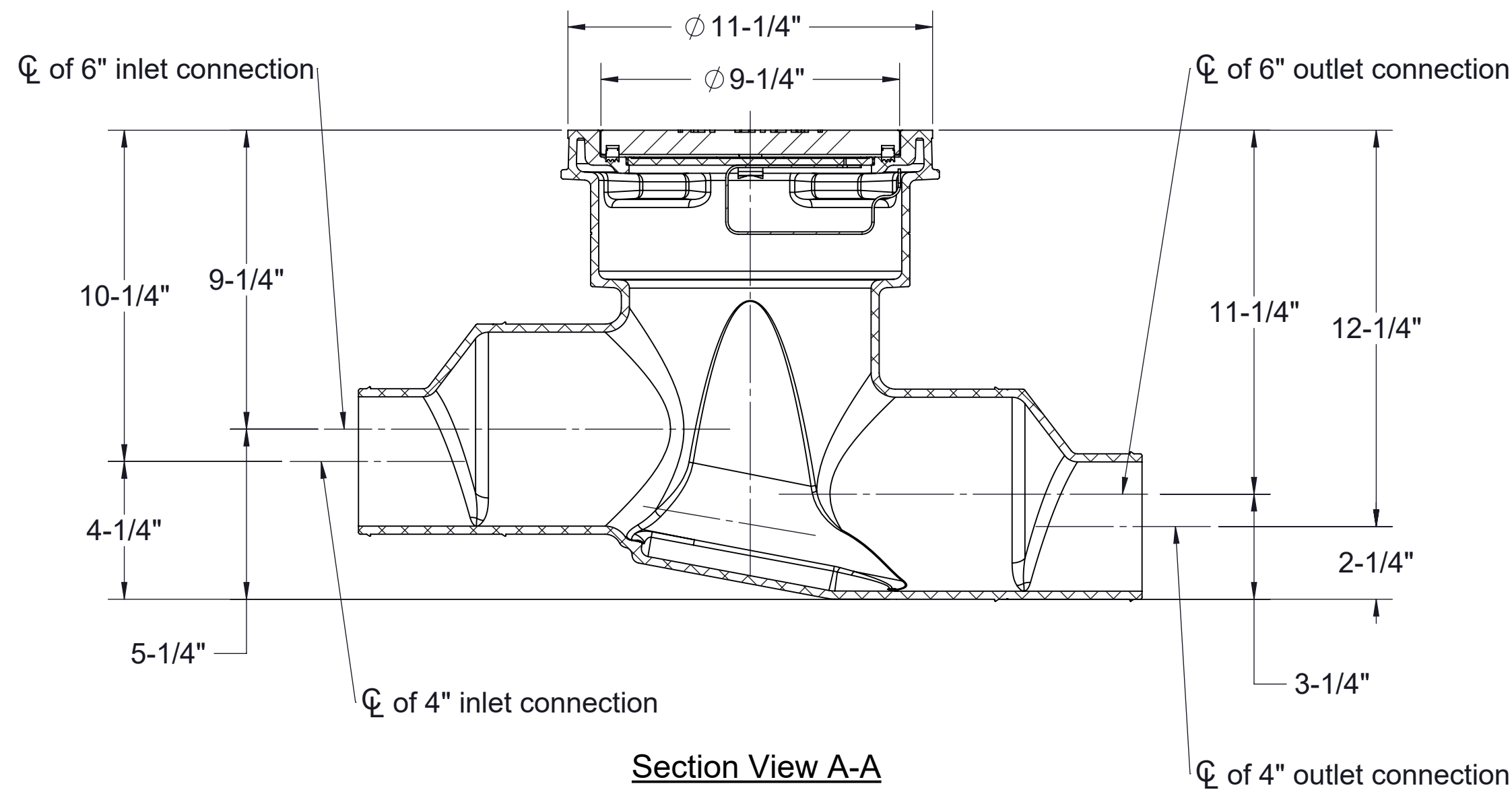
- Field Cut Risers for extending cover to grade



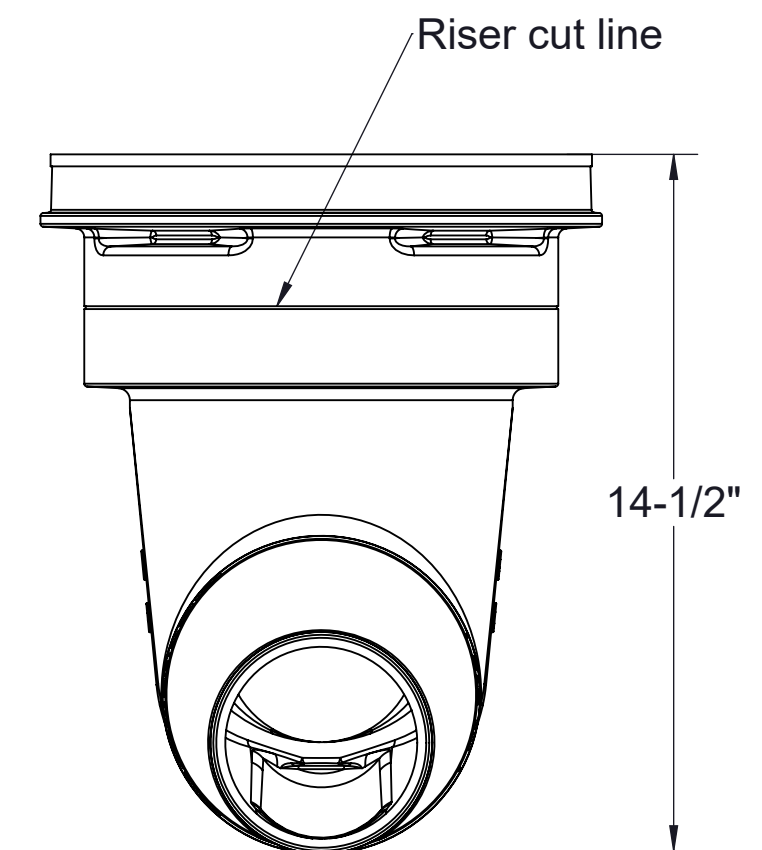
Top View



Iso View



Section View A-A



Outlet End View

SPECIFICATION SHEET

MODEL NUMBER:
SV10

PART NUMBER: 8065-001-01
DESCRIPTION:
SV10 SEWER VIEWER SAMPLING PORT, 4" CONNECTIONS (FIELD MODIFIABLE TO 6"), POLYETHELENE COVER

PROPRIETARY AND CONFIDENTIAL
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DWG BY: B.BROWN **DATE:** 6/6/2022 **REV:** - **ECO:** -

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