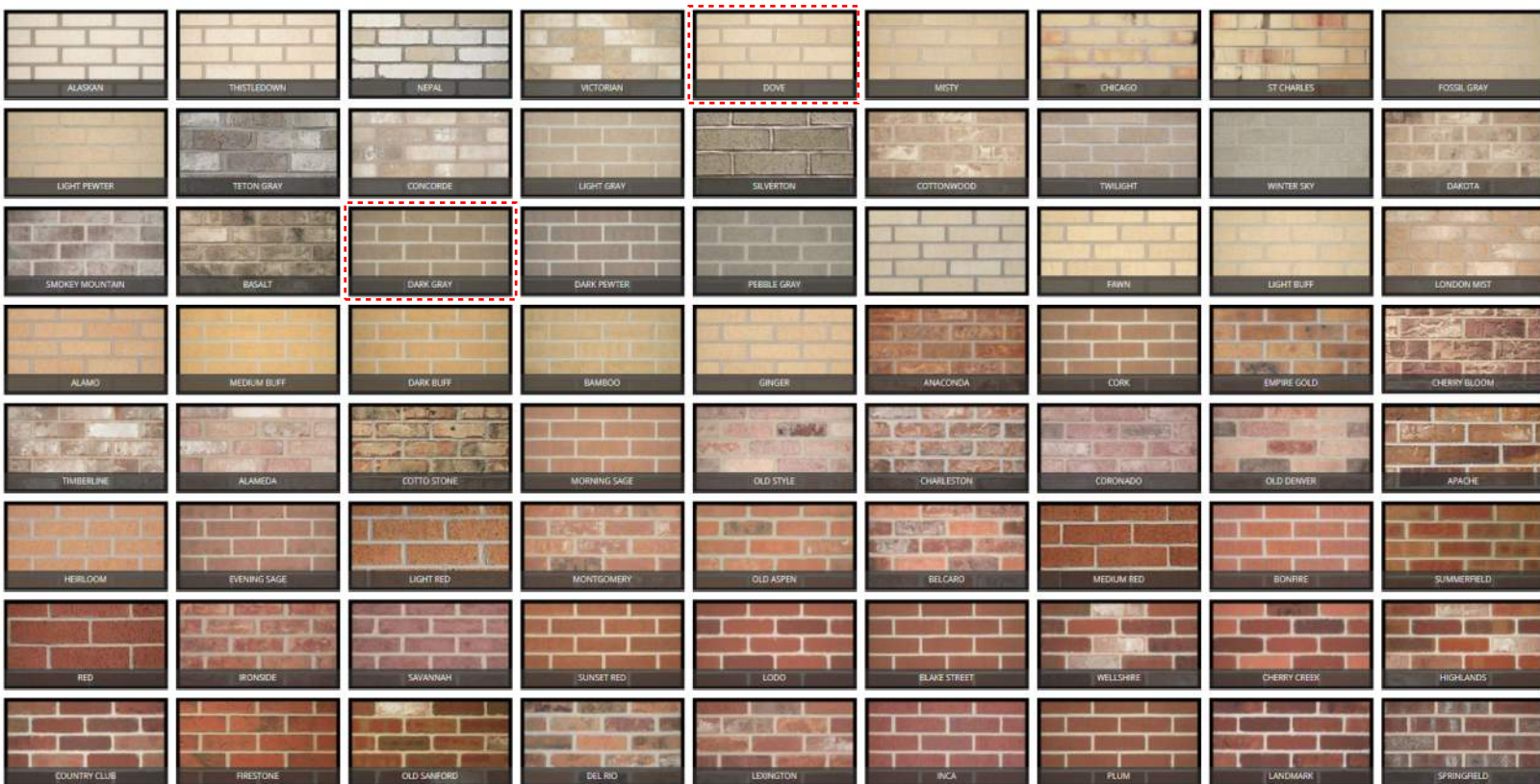


# Face Brick



Summit Brick Company is dedicated to providing quality brick products with a vast array of colors, textures, and sizes. Our Pueblo and Lakewood plants are able to manufacture a wide variety of face brick and have the ability to do custom blends and matching projects. Check out all the face brick we offer below.



# Sustainability & Environment

**In The Photos** – Fossil Trace Golf Club is located in Golden, Colorado and is one of Colorado's premier public golf courses. Jim Engh, a renowned golf course architect, constructed the course with the original landscape in mind, a large reclaimed clay mine from Lakewood Brick & Tile Co. Large outcropping of rock and some of the original mining equipment are still on the course today. This is a great example of how innovative ideas come from the clay mine reclamation process and how it can have a positive impact on the surrounding environment.

## Our Commitment

Summit Brick Company is committed to sustainability and the preservation of our environment. We are proud members of the United States Green Building Council (USGBC) and we run all of our operations with the goal of eliminating adverse environmental impacts. We work with the communities in which we operate to make sure we are good stewards of the environment, as well as exceeding all legislation, regulations, standards, and codes that are in place. Summit Brick makes a point to do business with other contractors and suppliers who have the same commitment we do. Our goal is to make the world a better place for future generations.

## Masonry Products...Excellence in Sustainable Designs and the Environment

More and more communities, architects, and owners are requiring sustainable design as the world moves towards a "green" environment. With sustainability in mind, buildings are being constructed to have a small carbon footprint and to lessen the impact on the environment. Masonry is expected to have a very long-life expectancy (100 years +) and as it's a durable building material, it has little to no maintenance. Clay is an abundant natural resource that can be found all over the world and is easily recycled. Almost all of today's masonry contains recycled content and offers many sustainable attributes; including efficient mining and manufacturing, acoustical and fire resistance, low maintenance, durability, and energy efficiency.





## Pueblo Plant

### Facebrick (Veneer)

Nominal Size (Inches)	Actual Size (Inches)	Name of Brick Size	Number Per Square Foot	Approximate Weight*	Number Per Bundle	Number Per Pack	Minimum Order Quantity**
4 x 2.6 x 8	3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 7 <sup>9</sup> / <sub>16</sub>	Modular	6.86	3.50	500	100	40,000
4 x 2.6 x 8.4	3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 8	8" Modular	6.50	3.60	500	100	40,000
4 x 4 x 8	3 <sup>9</sup> / <sub>16</sub> x 3 <sup>9</sup> / <sub>16</sub> x 7 <sup>9</sup> / <sub>16</sub>	Utility Modular (Closure)	4.50	5.20	300	60	25,000
3 x 3.2 x 9	2 <sup>7</sup> / <sub>8</sub> x 2 <sup>3</sup> / <sub>4</sub> x 8 <sup>5</sup> / <sub>8</sub>	Performance King	5.00	3.85	380	95	40,000
4 x 2.6 x 12	3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 11 <sup>9</sup> / <sub>16</sub>	Norman	4.50	5.20	300	100	33,000
4 x 4 x 12	3 <sup>9</sup> / <sub>16</sub> x 3 <sup>9</sup> / <sub>16</sub> x 11 <sup>9</sup> / <sub>16</sub>	Utility Norman (Utility)	3.00	8.20	180	60	20,000
4 x 2.6 x 16	3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 15 <sup>9</sup> / <sub>16</sub>	Super 16" Norman	3.43	6.35	200	100	26,000
4 x 2.6 x 16	3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 15 <sup>9</sup> / <sub>16</sub>	Super 16" Norman	3.43	6.35	280	N/A - Pallet	26,000
4 x 4 x 16	3 <sup>9</sup> / <sub>16</sub> x 3 <sup>9</sup> / <sub>16</sub> x 15 <sup>9</sup> / <sub>16</sub>	Super Four Inch	2.25	11.20	134	68	10,000
4 x 4 x 16	3 <sup>9</sup> / <sub>16</sub> x 3 <sup>9</sup> / <sub>16</sub> x 15 <sup>9</sup> / <sub>16</sub>	Super Four Inch	2.25	11.20	180	N/A - Pallet	10,000

Super 16" Norman and Super Four Inch sizes are packaged in both bundles and on pallets depending on quantity and color selected. Please contact the plant for packaging type on your order.

### Thin Brick (Thin Veneer)

Nominal Size (Inches)	Actual Size (Inches)	Name of Brick Size	Number Per Square Foot	Approximate Weight*	Number Per Bundle	Number Per Pack	Minimum Order Quantity**
.5 x 2.6 x 8	1 <sup>1</sup> / <sub>2</sub> x 2 <sup>1</sup> / <sub>4</sub> x 7 <sup>9</sup> / <sub>16</sub>	Modular Thin Brick	6.86	0.72	2500	50/box	50/box
.5 x 4 x 2.6 x 8	1 <sup>1</sup> / <sub>2</sub> x 3 <sup>9</sup> / <sub>16</sub> x 2 <sup>1</sup> / <sub>4</sub> x 7 <sup>9</sup> / <sub>16</sub>	Modular Thin Brick Corner	5 per LF	1.20	1250	25/box	25/box

Additional sizes and thicknesses are available in thin brick. Please contact your representative for availability.

Dimensions are specified by width (thru the wall), height and length.

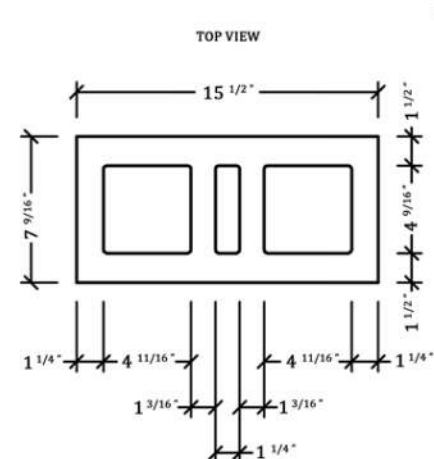
Uniwall indicates coring designed for vertical reinforcing.

Due to variations in the manufacturing process and coring, there can be no guarantee that everything shown here is exact.

Core sizes shown here are the maximum size that will be found in a production run for engineering design purposes.

Please do not hesitate to contact the plants if you have any questions on coring or sizing.

All of the clay brick manufactured at Summit Brick Company meet current ASTM standards and have a Severe Weather Rating.



# BRICK MATERIAL EXAMPLES



DOVE



DARK GRAY

Metal Wall & Roof Systems  
North America



# Architectural Metal Wall & Roof Systems Product Portfolio

Single Element Building Envelope Solutions





Morin specializes in roll forming of architectural heavier gauge single skin metal wall and roof systems.

With over 100 profiles and three manufacturing locations, Morin is well positioned to produce for any size project.

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## 03

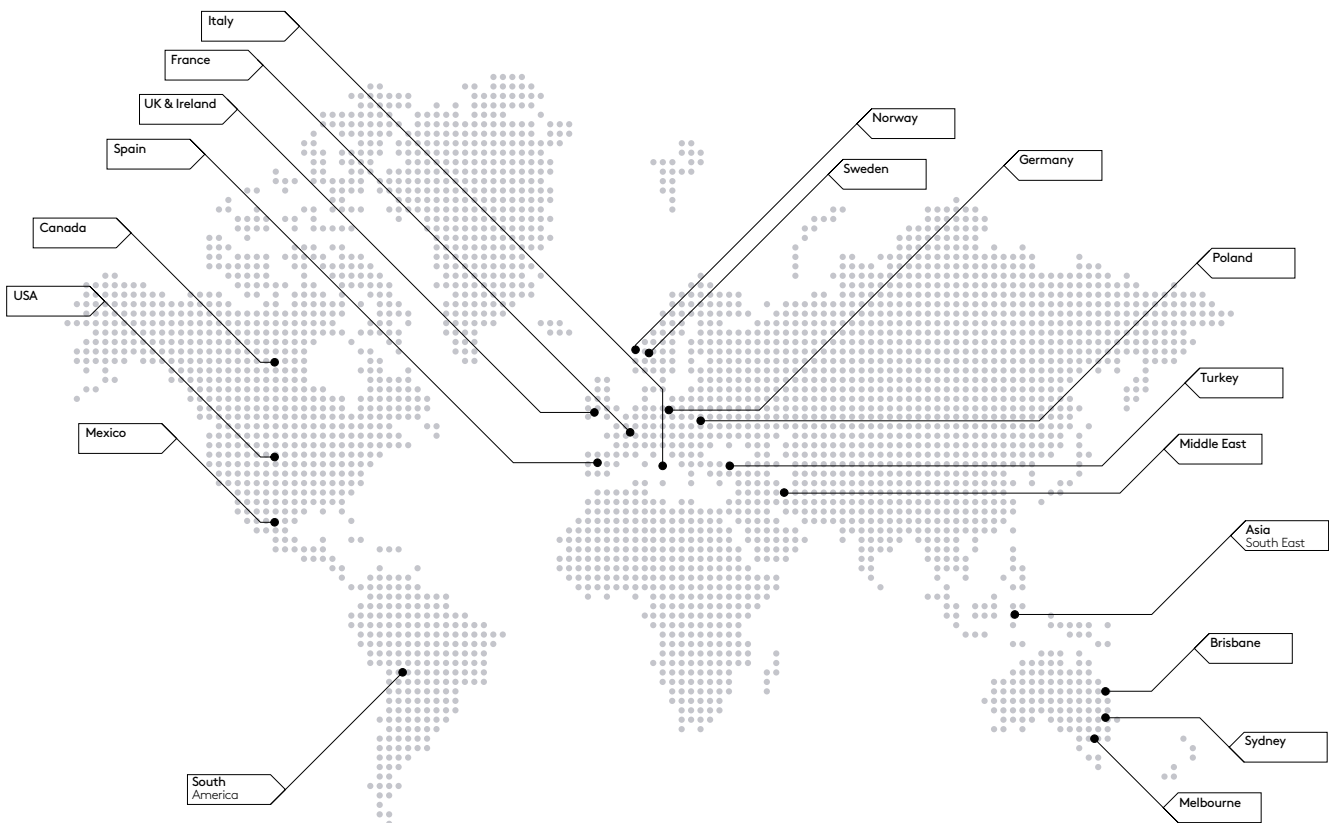
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# Your Global Partner

Morin is part of the Kingspan Group plc., founded in Kingscourt Co. Cavan Ireland in 1965, Kingspan is a global leader in the design, development and delivery of advanced building envelope products and solutions.



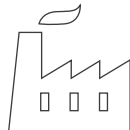
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13  
regional R&D  
centers



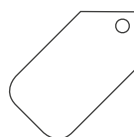
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159  
manufacturing  
sites worldwide



---

5.3  
billion USD  
revenue in 2019



---

15,000+  
employees  
worldwide





Kingspan Insulated Panels are pioneering better technologies and methods of building for a low carbon world. Improving building performance, construction methods and ultimately people's lives – that's what drives our people across the world. Energy efficiency is at the heart of Kingspan's innovation, from making the industry's most thermally efficient core for our insulated panels, to producing the most airtight interfaces, to providing technical and field-service support on how to build optimally.

Kingspan offers aesthetic flexibility with a vast range of insulated panel profiles supported by state-of-the-art specialty fabrications. Our commercial insulated metal roof and wall panel systems combine design flexibility, efficiency and performance to create the ultimate building envelope solution.

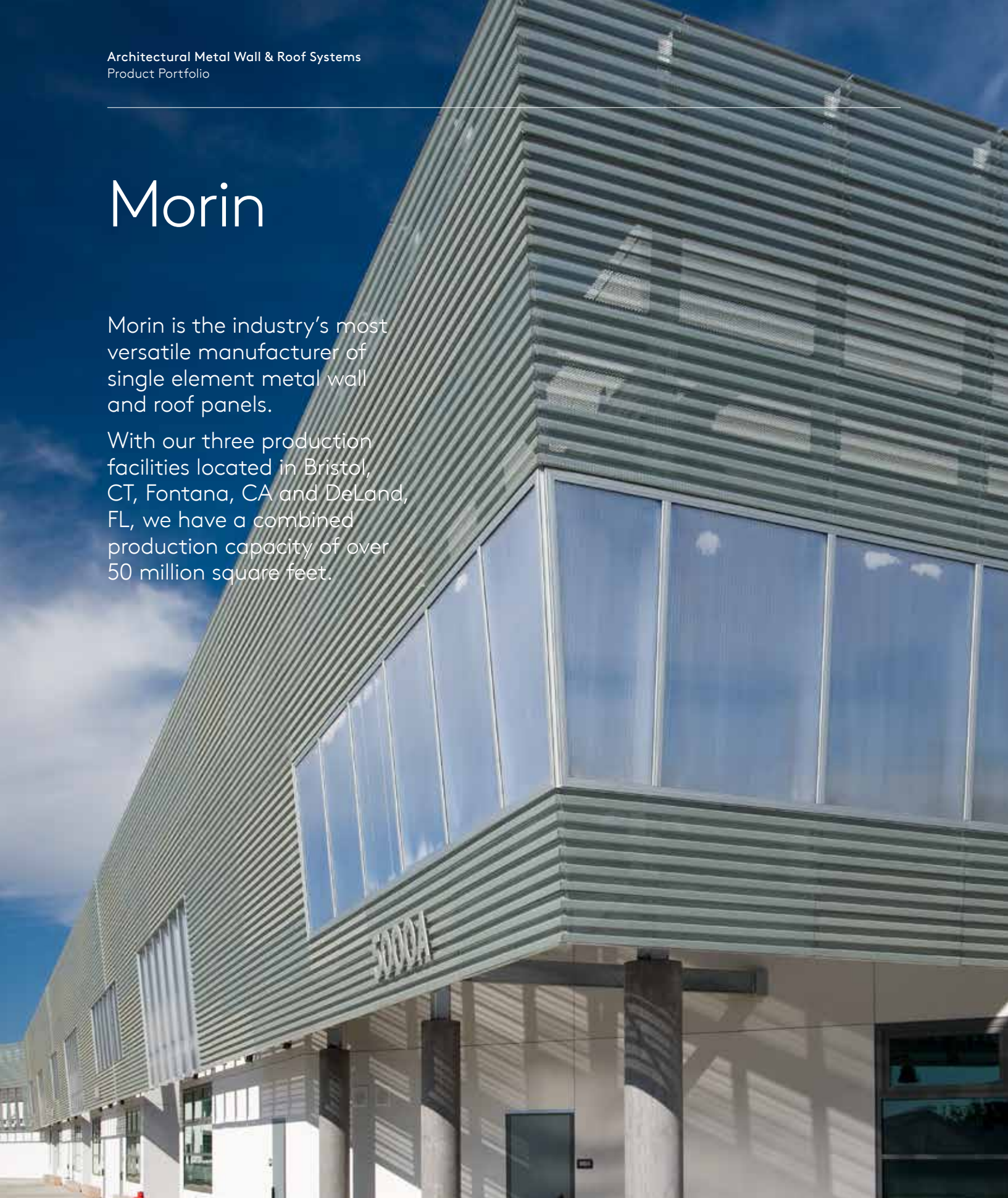
Together with the learnings from our ongoing research into better building design, these enhanced Kingspan envelopes will take our built environment to the next era of efficiency and wellbeing.



# Morin

Morin is the industry's most versatile manufacturer of single element metal wall and roof panels.

With our three production facilities located in Bristol, CT, Fontana, CA and DeLand, FL, we have a combined production capacity of over 50 million square feet.





The Morin story goes well beyond the panels. We thrive in helping customers bring their most challenging design ideas to life. Beyond panels we offer a complete suite of metal finishes including perforations, corners, coordinated louvers and fasteners and custom extrusions for a complete look.



### Much More Than Panels

We offer over 100 wall and roof panel options with a wide range of panels with unique profiles including over 30 integrated panels. Our Matrix, Integrity and Pulse series of panels all have interlocking joinery and can be easily integrated.

Morin Systems provide for a complete, finished, custom fabricated look. Rounded or miter corners, extrusions, foam backers and custom cut components will make for a more professional looking, longer lasting job.

We know we are just one part of many in a project, we want to make our part look its best and have all the tools available from design to installation for you.

### Sustainability

Morin recognizes the significance of climate change to global society and the importance of addressing the built environment as part of efforts to lower greenhouse gas emissions. We are committed to providing solutions for our customers and addressing our own facilities.

Our products will assist in meeting the requirements that are specified in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) Green Building Rating System.



### Technical Support

Morin has technical support available from start to finish. We are there to help you through every phase of building from technical CAD support to on-site installation.

We have on-site technical staff to help with drawings, design, cost-effective construction application and technical designs for complicated projects. We also offer on-site installation guidance and support from our expertly trained knowledgeable team.

Our nationwide sales network and in-house technical service teams provide innovative solutions for today's progressive architecture. Visit [www.morincorp.com](http://www.morincorp.com) for access to profiles, specifications, AutoCAD details, load span charts and technical manuals.

Morin's knowledgeable sales staff provides AIA/CES approved seminars on single element architectural metal wall and roof systems.







"From concept to completion,  
Morin is there to support."





Technical  
Support



Customer  
Service



Sales  
Support



Field  
Services



Warranty



Marketing  
Support




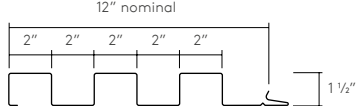

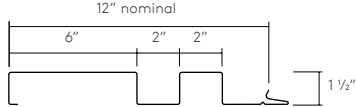

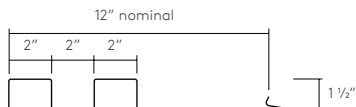

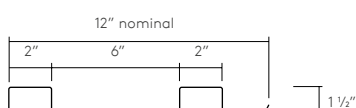

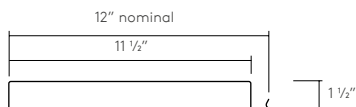

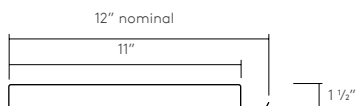







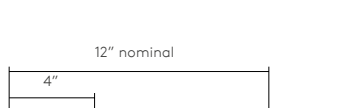


# Matrix Wall Series®

Inspired by technology, Morin Matrix Series® is the next evolution in an integrated concealed fastener rainscreen wall panel system.





	<b>Matrix MX-1</b>	
	<b>Matrix MX-2</b>	
	<b>Matrix MX-3</b>	
	<b>Matrix MX-4</b>	
	<b>Matrix MX-6</b>	
	<b>Matrix MX-7</b>	
	<b>Matrix MX-8</b>	
	<b>Matrix MX-9</b>	
	<b>Matrix MX-10</b>	
	<b>Matrix MX-11</b>	

With ten unique panel profiles, as well as complimentary extruded aluminum trims and MiterSeam corners, the designer has all the tools necessary to create the next award winning design.

- Concealed clip and fastener design
- Can be installed horizontally or vertically
- Weather resistant or rainscreen rear ventilated application
- Ideal for new or retrofit projects
- Smooth surface standard, stucco embossed texture optional
- All PVDF painted finishes available
- Perforated options available
- Optional factory caulking available

**Panel Depth:**  
1 1/2" (38mm)

**Cover Width:**  
12" (305mm)

**Lengths:**  
5' (1.52m) to 30' (9.14m) standard.  
Shorter and longer lengths available

**Galvalume® / Zinalume®  
Painted Steel Options:**  
18 GA\* (1.19mm) / 20 GA (1.0mm) /  
22 GA (.80mm) / 24 GA\* (.60mm)

**Aluminum Options:**  
.032" (.80mm) / .040" (1mm) /  
.050" (1.27mm)

**Stainless Steel Options:**  
22 GA (.80mm) / 24 GA (.60mm)

**Zinc Options:**  
20 GA (1.0mm) / 22 GA (.80mm)

**Natural Copper Options:**  
20 oz. / 16 oz.



\*Only available on certain profiles.



**Easy Integration**  
Common joint allows  
multiple panel integration  
with Integrity Series and  
Pulse Series®

# Color Options

Our range of color options provide you with the most durable surfaces and longest warranties, with custom color matching available there are unlimited design options available.

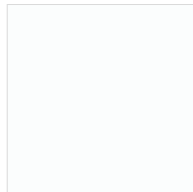
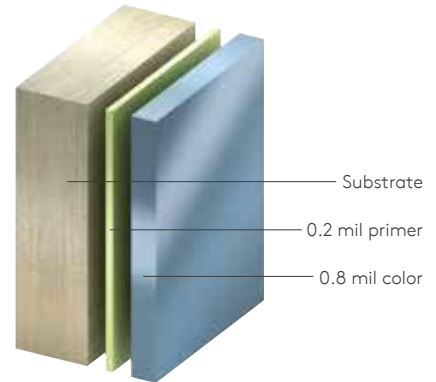




## Standard Colors

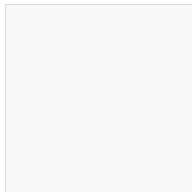
### Fluoropon® PVDF

Formulated with a proprietary resin, Fluoropon® is a premium fluoropolymer coating. Factory applied and baked on, it provides excellent adhesion and flexibility properties with aluminum, HDG steel or Galvalume® components.



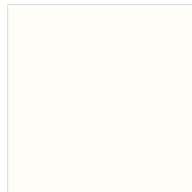
**Regal White**

SR:0.70 E:0.86 SRI:85



**Ascot White**

SR:0.69 E:0.85 SRI:83



**Bone White**

SR:0.69 E:0.84 SRI:83



**Sandstone**

SR:0.61 E:0.85 SRI:72



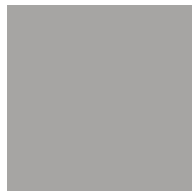
**Dove Gray**

SR:0.47 E:0.86 SRI:53



**Zinc Gray**

SR:0.35 E:0.86 SRI:37



**Chromium Gray**

SR:0.56 E:0.86 SRI:65



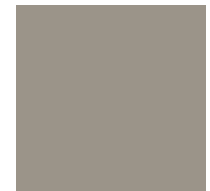
**Surrey Beige**

SR:0.48 E:0.86 SRI:54



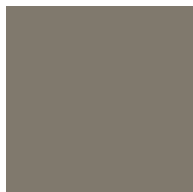
**Sierra Tan**

SR:0.38 E:0.85 SRI:40



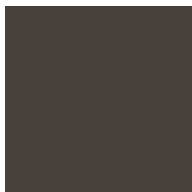
**Parchment**

SR:0.53 E:0.85 SRI:61



**Antique Bronze**

SR:0.43 E:0.86 SRI:48



**Spartan Bronze**

SR:0.31 E:0.85 SRI:31



**Dark Bronze**

SR:0.27 E:0.85 SRI:26



**Redwood**

SR:0.38 E:0.86 SRI:41



**Colonial Red**

SR:0.32 E:0.86 SRI:33



**Patina Green**

SR:0.41 E:0.84 SRI:44



**Evergreen**

SR:0.26 E:0.85 SRI:24



**Slate Blue**

SR:0.28 E:0.85 SRI:27



**Bristol Black**

SR:0.26 E:0.86 SRI:25



**Blue Gray**

SR:0.27 E:0.85 SRI:26



**Regal Blue**

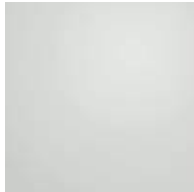
SR:0.26 E:0.85 SRI:24



## Premium Colors – Mica

### Fluropon® Classic II PVDF

2-Coat Fluropon® Classic II PVDF is a premium fluoropolymer coating containing 70% proprietary resin that achieves a pearlescent appearance. This two coat system is a cost-effective alternative to metallic systems requiring clear coat.



**Silversmith**  
SR:0.53 E:0.79 SRI:59



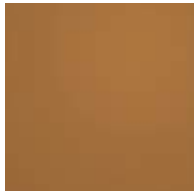
**Champagne Bronze**  
SR:0.44 E:0.78 SRI:46



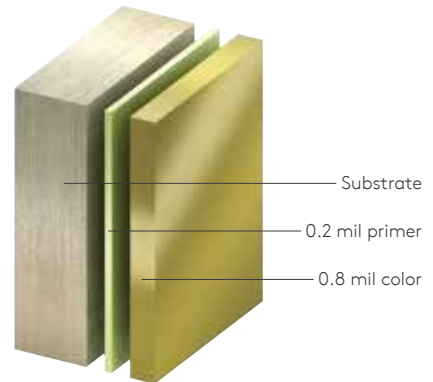
**Champagne Pearl**  
SR:0.48 E:0.81 SRI:53



**Weathered Zinc**  
SR:0.33 E:0.84 SRI:33



**Copper Penny**  
SR:0.48 E:0.84 SRI:54



## Premium Colors – Metallic

### Fluropon® Classic PVDF

3-Coat Fluropon® Classic PVDF is a premium fluoropolymer coating containing 70% proprietary resin and a special metallic effect. Due to its outstanding color retention and resistance to ultraviolet radiation, it is the preferred choice among architects and metal building manufacturers.



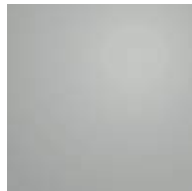
**Medium Gray**  
SR:0.36 E:0.85 SRI:38



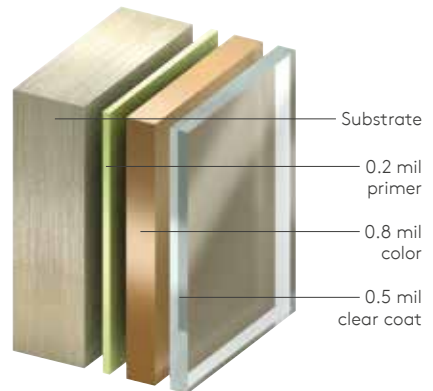
**Seafoam Green**  
SR:0.49 E:0.87 SRI:56



**Champagne Gold**  
SR:0.51 E:0.85 SRI:58



**Bright Silver**  
SR:0.57 E:0.81 SRI:65



## Custom Color Matching Available

Morin makes it easy to add protection and visual distinction to your next project. Our state-of-the-art color and paint facility can achieve virtually any tint, shade or finish to your specifications, quickly and accurately. To get started, contact our experienced sales representatives today for details.



Colors shown here are for preliminary selection only. Contact Morin for color chart and/or physical painted metal samples before final selection. Because of the differences in the paint formulation and application, coil coated metal panels in mica and metallic colors will differ slightly in appearance from spray applied aluminum extrusions.



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# Contact Details

---

## USA

### HQ / East

685 Middle Street | Bristol  
CT 06010

T: 1-800-640-9501

### West

10707 Commerce Way | Fontana  
CA 92337

T: 1-800-700-6140

### South

1975 Eidson Drive | DeLand  
FL 32724

T: 1-800-640-9501

[www.morincorp.com](http://www.morincorp.com)



For the product offering in other markets please contact your local sales representative or visit [www.morincorp.com](http://www.morincorp.com)

Care has been taken to ensure that the contents of this publication are accurate, but Morin Corporation does not accept responsibility for errors or for information that is found to be misleading. Suggestions for, or description of, the end use or application of products or methods of working are for information only and Morin Corporation accepts no liability in respect thereof.

**Morin**<sup>®</sup>  
A Kingspan Group Company



# Matrix<sup>®</sup> Series

Wall System

# Installation Guide



## Contents

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### Disclaimer:

The details are provided as a guideline for proper panel and associated component design, and are based on industry accepted practices. Panel spans, clip spacing and fastener recommendations are project specific and should be determined by the engineer of record.

Insulation, purlins/joists, decking, miscellaneous structural supports etc. are shown for clarity only, and are not supplied by Morin (N.B.M.). For project specific engineering and design assistance, as well as information on radius panel options, please contact Morin Technical Services.

**IMPORTANT:** Please read all information related to your project before receiving materials at the job site and before starting the installation.

MANUAL DOES NOT APPLY TO ZINC OR COPPER APPLICATIONS



## Introduction

Matrix Series manual is an introduction to Morin's recommendations. While some of these recommendations may or may not be agreed to by all, it must be remembered that these are the methods that we recommend and/or require to activate the warranties to our material upon completion of a project.

It is generally understood that one of the most serious problems with metal wall panels in the past has been leaking, because of the use of thru-fastening to the substrate. Using this method, holes are drilled through the panels and then fasteners are installed through these holes for attachment to a structural substrate. In time, these holes will elongate due to thermal expansion/contraction, which in turn will cause the panel to leak.

The Matrix wall panel system eliminates this problem by using the factory formed panels that are attached to the structural substrate by the use of concealed clips. Morin's Matrix Series clips are fixed to the structure and the panels move up and engage on the clips rather than the clips sliding and running out of expansion capacity. The Matrix Series systems (i.e. panels, closures, clips) can be designed into walls on both new and retrofit construction. Please contact your local representative for further information. Flashing are not standard, but are fabricated for specific job requirements. Our suggested details for these conditions are included in the following sections of this manual.

### WARRANTIES:

Morin can furnish the various extended performance warranties as required by a project's specification. The items covered by this warranty are standard and include such items as material & finish performance and weathertightness. Contact your local representative for a sample copy of these warranties. The above warranties cover only the materials furnished by Morin and will not become valid until all remittance is complete for weathertightness warranty. Furthermore, if requesting a weathertightness warranty, a complete set of shop drawings and specifications are required for review prior to installation. Three jobsite inspections are also required. The effective date of the warranty will be the date of the substantial completion of work.

### INSTALLATION:

Morin recommends that our Matrix Series panel should be installed under the direct supervision of an experienced sheet metal craftsman trained in the proper application of the system.

### MATERIAL SPECIFICATIONS:

The Matrix panel is supplied in standard widths of 12" and the standard material thickness is 24 through 18 gauge for steel, as well as 0.032", 0.040", and 0.050" for aluminum. All panels are supplied with either a non-coated mill finish or with a prefinished coating using standard 1.0 mil Fluorocarbons and High Build Fluorocarbons, depending on the project's performance requirements. Standard panel fabrication lengths are available from 5' (1.52m) up to 30' (9.14m). Longer lengths of panel are available however not recommended due to handling restrictions.

### COOL METAL WALL AND LEED®:

Morin's Matrix Series meets the requirements of these programs. Contact your local representative for additional information.

## Design Data

### **THERMAL MOVEMENT:**

As mentioned earlier in this manual, movement due to thermal expansion and contraction must be taken into consideration during design. This affects the trim conditions, clip spacing, and type.

Coefficient of expansion:

Steel 0.00065"

Aluminum 0.00128"

Concrete 0.00055"

### **HOW TO CALCULATE PANEL LENGTH CHANGE:**

#### Sample Calculation:

Given: Original Panel Length = 55'

Temperature Change = 90°F

#### Panel Length Calculation (PLC):

$$\text{PLC} = \frac{0.00065 \times \text{Temperature change} \times \text{Original panel length}}{100} \quad \text{PLC} = \frac{0.00065 \times 90 \times 55}{100} = 0.032' \text{ or } 3/8''$$

Temperature variation in the metal panels is not constant across the surface. This differential effect causes the parts of the wall to expand/contract at different times. The variation in movement affects both the panels and structure, even if the components are of the same material. A correct design should use a minimum daylight ambient temperature of 160°F for bare aluminum to in excess of 200°F for dark coated panels. Another factor to be considered is radiant heat. At night this can cause low temperatures well under ambient temperature. The difference here has been measured as 30°F in very thin dry air climates and as high 20°F in very high humidity at sea level.

Gross panel thermal expansion is handled at each vertical rib in the wall system. If structural expansion joints are needed, then special panel connections will be required. Please contact the Morin Technical Department for their suggested details. Some of the items that must be considered for a correct detail are the proper selection of clips, clip placement and the design and fabrication of trim.

In some cases when you have ventilators or other large wall openings, then a fixed point at some other location may be needed. If this becomes a fact then a fixed point must be located so that there is no relative movement between adjacent panels. Please contact our Technical Department for their suggested details. Other areas of concern are those of irregular shapes and conditions which may require the use of panel splice plates. Our suggested details for these items are found in a section of this manual.

In addition to the above, a designer must also give some thought concerning such accessory items and/or flashing. All of these trim items must be designed and fastened to adequately account for their expected thermal movement. Standard trim length in fabrication is 10'. Everything mentioned above applies to both steel and aluminum. With aluminum this is very critical, in as much as it's coefficient of expansion is twice that of steel. In either case, steel or aluminum, trim lengths should not exceed 20' in order to try to eliminate the elongation of fastener holes, oilcans or kinks. Flashing lap joints must be allowed to move. Screws or rivets should not be used to hold flashing lengths together. Several types of joinery that allow for thermal movement are shown in our detail section found in this manual.

In areas where it is not feasible to furnish full length factory fabricated panels because of either shipping limitations or adding to the length of existing wall panels, it will be required to use a panel splice plate. For weather resistance, these are designed to be sealed joints with structural fixpoint connections that prevent relative movement between adjacent panels. The reason for this is that any movement may over stress the sealant and cause a leak or cause fastener holes to elongate with the same leak results.



## Design Data

### **PANEL GAUGE SELECTION:**

Some of the items that must be considered when selecting the minimum gauge of a wall panel are material types, panel width and panel rib height. Economy in gauge selection may be had if the lightest gauge available meets the performance requirements of the project. If this is found to be the case, then structural wall panel systems can be fabricated in heavier gauges or girt spacing can be designed to allow for the maximum span of the wall panel system selected. Sometimes economies of gauge girts can outweigh the cost savings of using the wall panel systems maximum spans. These components should be taken into account in order to receive the best overall cost for the project.

### **PANEL SUBSTRATE DETERIORATION:**

In the metal panel industry, deterioration is generally known to be "corrosion". Corrosion is nothing more than metal oxidation, (i.e. red rust/steel or white rust/aluminum). In order to fight this problem, it is recommended that only stainless steel or metal coated/plated fasteners or clips be used in the wall panel system. The reason for this is that there is the possibility of water condensation at the base of the fastener, which could accelerate fastener deterioration. All fasteners must be compatible with the panel substrate in order to allow the building envelope to have a long performance in the project's atmospheric environment.

### **PANEL DEFLECTION:**

Building codes in most cases do not set limits on the deflection of wall cladding; therefore this item is overlooked in the design of wall panel systems. Usually these codes limit the deflection to structural members only if other materials supported are sensitive to great movement and/or cracking. Deflection should be calculated if there is concern for drainage or the possibility of a clearance problem with secondary structural members. The Southern Building Code and BOCA limit deflection to L/180 while the Aluminum Association sets the limit at L/60. However, the designer should always check the local codes for the limits that they should set and these limits should be included in the project specifications. Uniform loading changes the wall panel products section properties as the panel distorts, (i.e. panels become more rigid under positive loads and more flexible under negative loads).

To determine the actual allowable negative load ability of a wall panel system a full-scale wind uplift test should be run. From these tests, a negative load table with appropriate safety factors can be developed. Positive load capacity can be calculated using the products section properties and in accordance with AISI Specifications. The flat of the wall panel, at its intersection with its vertical rib, when put under a positive or negative load, will deflect. In checking clearances, both positive and negative clearances must be determined.

### **FLOOR DEFLECTION:**

The structural design needs to be checked for floor deflection or structural shrinkage when wall panels are installed on a multi-floor building. If the framing is not outboard of the floors, the wall panel system needs to be designed to allow for floor deflection and movement. The most common way to address the issue is with a stack or slip joint at each floor.

## Design Data

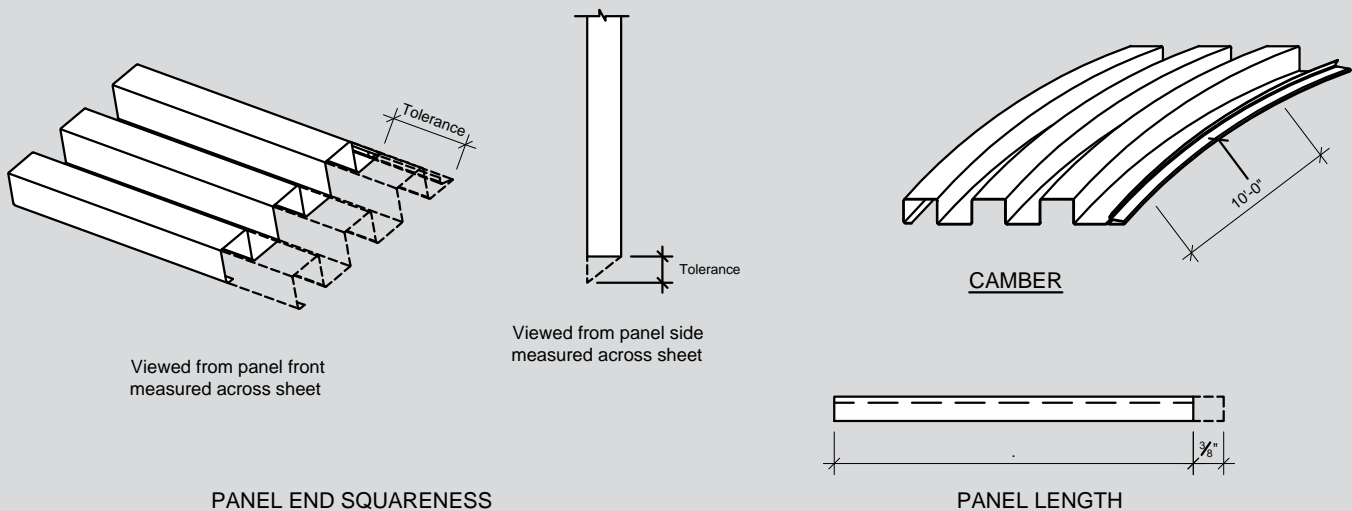
### FABRICATION TOLERANCE:

The Metal Construction Association (MCA) has developed tolerances for acceptable manufacturing practices. These tolerances are now considered to be the metal panel industry standard and are published in the MCA Manual. The following is a brief summary of these tolerances:

Panel Length	+ / - 3/8"
Panel End Squareness Viewed from Panel Front measured across sheet	0.5% of width or no more than 1/8" at one end
Viewed from Panel Side measured across sheet	2.0% of panel depth or no more than 1/16"
Camber (lateral bow of panel viewed from panel front)	3/16" per 10' length

Squareness should be measured using the panel "diagonal difference" method. Generally both ends will be parallel so 1/8" out of square at an end can correspond to 1/4 inch diagonal difference. Squareness thus determined is a function of panel length and width.

If the tabulated level of camber renders a particular product unserviceable for reasons other than aesthetics, it shall not be acceptable. Other "as fabricated" profile dimensional tolerances (e.g. cover width and sub-element lengths, radii and angular tolerances) can be somewhat meaningless. These dimensions are difficult to consistently measure and the profiles are difficult to sustain during transit and installation. Sometimes profile must be field adjusted for in place aesthetics. The final "in place" condition is the essential factor.



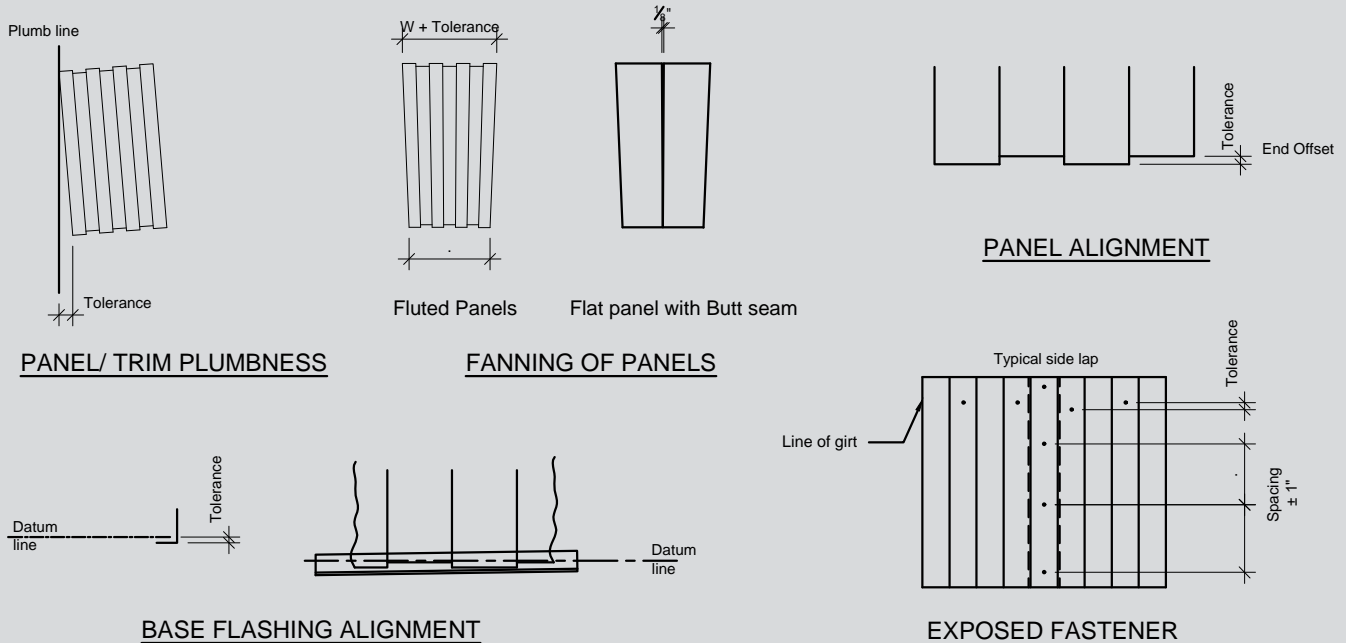


## Design Data

### INSTALLATION TOLERANCES:

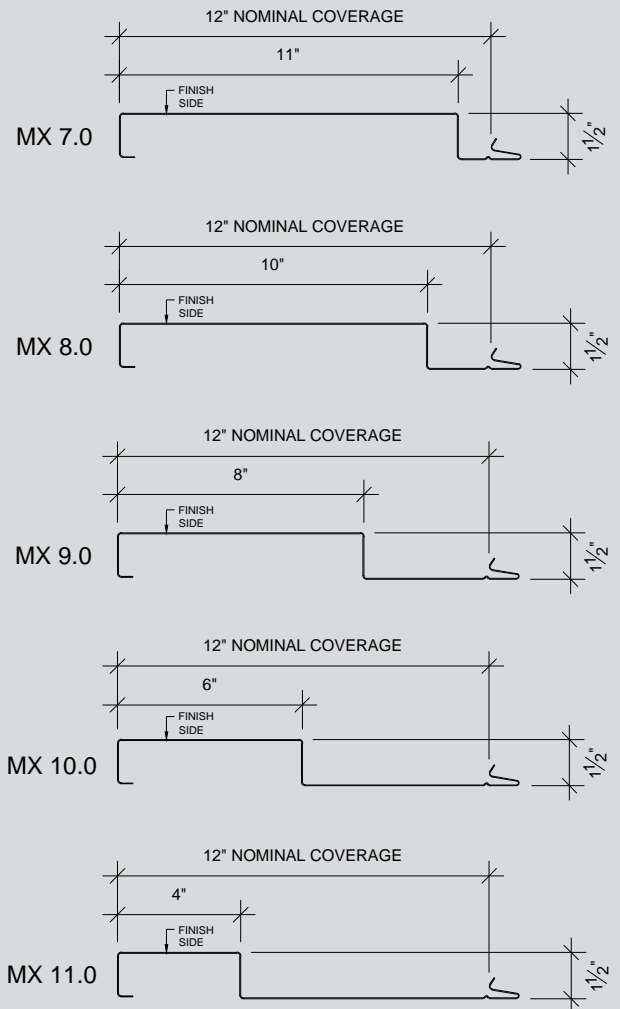
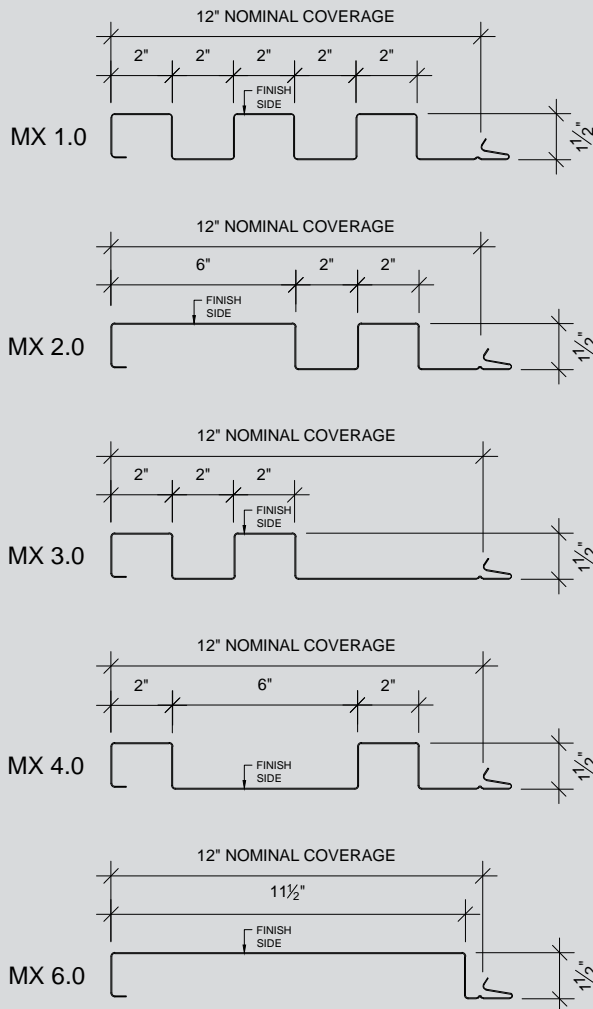
MCA tolerances for installation of materials are as follows:

Panel Plumbness (in wall plane)	1/4" in 20'
Trim Plumbness (Unless controlled by structure and must align with adjacent steel or masonry for aesthetic or service reasons)	1/4" in 20'
Fanning of Panels (Restores line or create module) Fluted panels (Fanning uniformly distributed across the panel)	1/8" per panel
Flat panels with Butt Seam	1/8" per seam
Panel Alignment at End or End Laps (End Offset or Saw-tooth. Accumulation of fabrication and installation tolerances shall not exceed 1/4" at base.	3/16" at panel end 1/4" lap below 40'
Base flashing alignment: (measured at brake point and not at free end; non accumulative)	1/2" in 12'
Exposed Fastener: Alignment- variance across panels. Spacing- Along panel trim	1/2" in a bay (+/-) 1"



## Technical Data

### STANDARD PROFILES



#### PRODUCT SUMMARY:

The Matrix Series features ten unique profiles. Collective joint interlock design and clip attachment allows for panel integration with both Morin's Pulse and Integrity Series.

#### PRODUCTION LENGTHS:

Lengths 5' (1.52m) to 30' (9.14m) Standard  
Longer lengths available (not recommended due to handling restrictions)

#### APPLICATIONS:

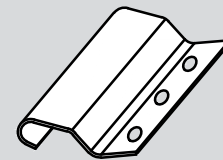
Weather-resistant or rainscreen rear-ventillated applications.  
Installed in Vertical or Horizontal orientations.

#### PRODUCT OFFERINGS:

Panel Type - Wall Panel  
Panel Depths - 1 1/2" (38mm),  
Cover Widths - 12" (305mm)

#### MATERIAL OPTIONS:

Painted Steel: Galvalume/Zincalume 18GA (1.19mm), 20GA (.91mm),  
22GA (.76mm), 24GA (.60mm)  
Stainless Steel: 20GA, 22GA and 24 GA  
Aluminum: 0.050GA (1.27mm), 0.040GA (1mm) and 0.032GA (.81mm)



**MATRIX CLIP**

#### COLOR AND FINISH OPTIONS FOR ALUM. AND STEEL:

Standard (Fluropon® PVDF-Kynar500®)  
Premium Colors MICA (Fluropon Classic® II PVDF)  
Premium Colors METALLIC (Fluropon Classic® PVDF)  
Morin Custom Color Matching Services  
Other Finishes Available  
Surface Options- Smooth surface standard  
Sealant- Optional factory sealant available  
Clip- Matrix Clip  
Substrate- Open framing or other various  
backup wall assemblies  
(i.e. exterior sheathing, air/water barrier,  
exterior insulation)



## Technical Data

### **STRUCTURAL – POSITIVE AND NEGATIVE LOADS:**

The Matrix panel systems capacities are based on the requirements of ASTM E1592 and the A.I.S.I “Cold Formed Steel Design Manual”. Actual negative loads are determined by an independently certified load test of production run panels. ASCE 7 is the basis of use with most major code bodies that specifies that higher negative pressures be used at the perimeters and thus the clips must be spaced closer together to allow for the increased negative pressures when compared to the general field of the wall. This means that if an open girt design is used, then the girt spacing at the perimeter must be shortened to allow for the smaller spans required by the Matrix Series system. Determination of the required wind negative pressure (psf) for all wall loading areas must be provided in the specifications and/or drawings by the architect and/or engineer of record. This information is needed in order to make the correct panel selection and clip spacing during the bidding process. Also carefully review the submittal to verify that the **fasteners** that secure the clip to the structure are adequate to resist the negative loads mentioned above.

### **THERMAL LOADS – PRESSURE PARALLEL TO THE WALL:**

Structural supports are exposed not only to wind loads, but also to expansion and contraction thermal loads due to temperature induced friction forces at the anchor points. Generally speaking these forces can be ignored, but in some cases they can build up quite rapidly and become very noticeable. They should definitely be checked when panel length exceeds 35'. A basic assumption is that a friction induced force is additive, allowing a 20 pound per fastener friction allowance is then conservative based on the “stick/slip” movement of the panel in relation to the fastener. It is highly unlikely all fastener resistance is at the same place at the same time.

### **PANEL SYSTEM DIAPHRAGM STRENGTH:**

The Matrix Series system is a floating system and therefore has no effective diaphragm strength. Therefore the wall structure must be designed with wind bracing.

### **FIRE RATINGS:**

Morin's wall systems are fabricated from either steel or aluminum. These materials are generally considered by most code bodies and fire jurisdictions to qualify as fire retardant wall coverings. Because of this they may be used with other materials to satisfy a requirement for an hourly rated system to meet a specific fire protection need. Contact our technical department for various rates up to 4 hours. UL rates the wall systems in either steel or aluminum as a Class A Wall Covering for use over girt or non-combustible decks.

### **AIR AND WATER INFILTRATION:**

Air and Water Infiltration testing has been conducted on the Matrix Series panel system in accordance with ASTM E283 and ASTM E 331.

## Storage of Material

- Morin recommends that all materials be stored in a dry condition. An area should be provided, maintained and assigned by the general contractor. This area should be clean, level, accessible and sufficiently compacted to support and permit movement of delivery trucks and construction equipment.
- The materials should be stored sloped to allow drainage of condensation. All materials should be allowed to breathe in order to deter build-up of condensation. The materials should be protected from weather by suitable covering. Aluminum materials should be stored in a dry covered location.
- Materials should be inspected upon delivery for presence of moisture or damage. If moisture is present, bundles should be opened immediately and dried.
- Temperature sensitive items such as butyl tapes and sealants should be stored under controlled conditions to maintain suitable application characteristics.
- Materials with protective plastic peel coat must be shielded from UV exposure and prolonged heat or cold. Excessive storage duration or exposure to severe temperature swings may cause peel coat to permanently adhere to finish of panel.
- Special care is required for non-color aluminum materials. The presence of moisture can cause storage stain. Care must be taken to assure moisture does not condense on the panel surface.
- Remove panels from bundles with caution. Tilt or lean the bundle on one side creating a slope that will prevent the panels from falling in an outward or sliding motion. Care in removing panels from a bundle is the responsibility of the contractor!

**TO AVOID DAMAGE TO THE PANEL FINISH, PROTECTIVE PEEL COAT MUST BE REMOVED WITHIN 30 DAYS OF RECEIPT OF MATERIAL.**

## Contact Us

### Morin Northeast

Corporate HQ and Manufacturing Location

East- Corporate HQ  
685 Middle Street, Bristol CT 06010

(860) 584-0900  
(800) 640-9501

### Morin South

Manufacturing and Testing Location

South- Manufacturing & Testing  
1975 Eidson Drive, Deland FL 32724

(860) 584-0900  
(800) 640-9501

### Morin West

Manufacturing Location

West- Manufacturing  
10707 Commerce Way, Fontana CA 92337

(909) 428-3747  
(800) 700-6140

Please feel free to contact our shipping department if you have any questions or need further information regarding product handling. TOLL FREE: (800) 640-9501



## Panel Handling

### Forklift:

The recommended loading/unloading method for bundles less than or equal to 20' is to use a single forklift with widely spaced forks placed under the center of the bundles as shown below in figure 1.

Wood surrounds or metal angles placed beneath the bundle will provide protection to the underside of material. Wood surrounds will be spaced according to the center of bundle, especially at lift points where forks must meet wood surrounds.

Panel bundles greater than 20' in length may be moved by using two forklifts spaced equally along the length of the bundle as seen in figure 2. However, this method is *\*strongly discouraged* due to the difficulty of co-ordinating forklift movement. Use crane if available.

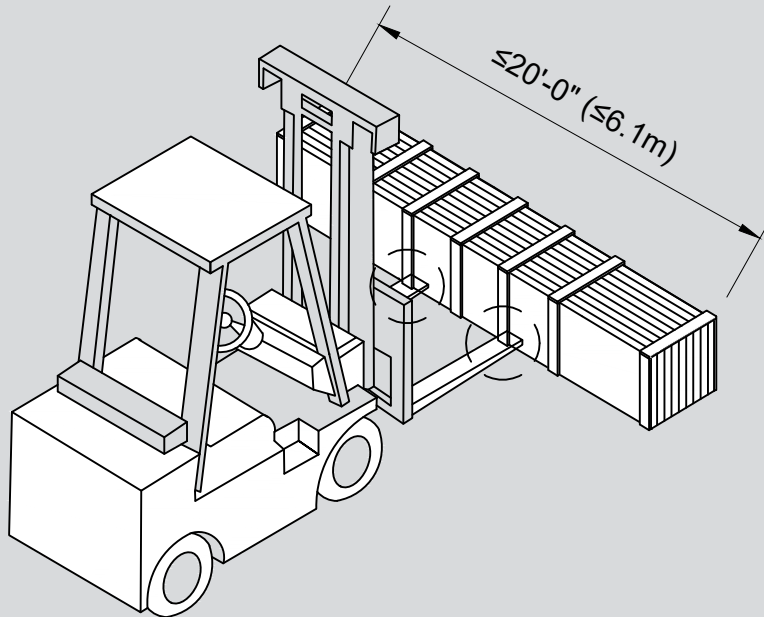


FIG.1 PREFERRED METHOD (1 FORKLIFT)

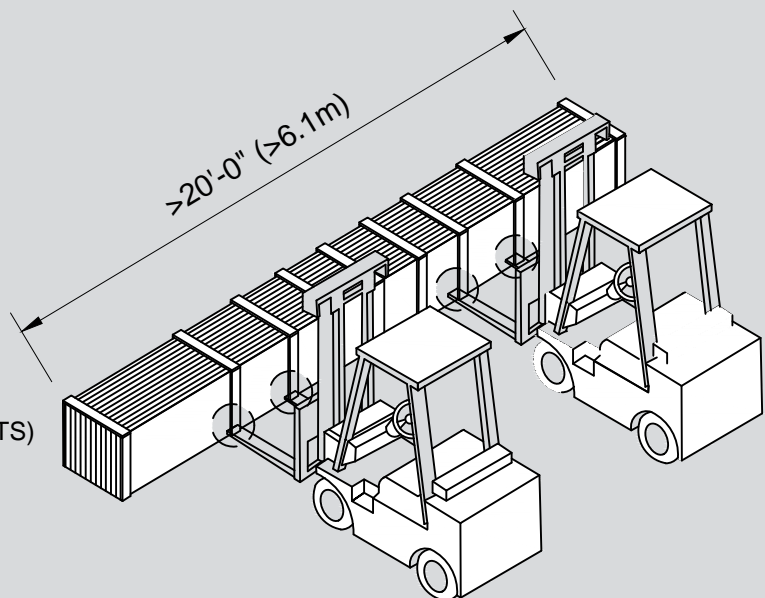


FIG.2 \*STRONGLY DISCOURAGED! (2 FORKLIFTS)



## Panel Handling

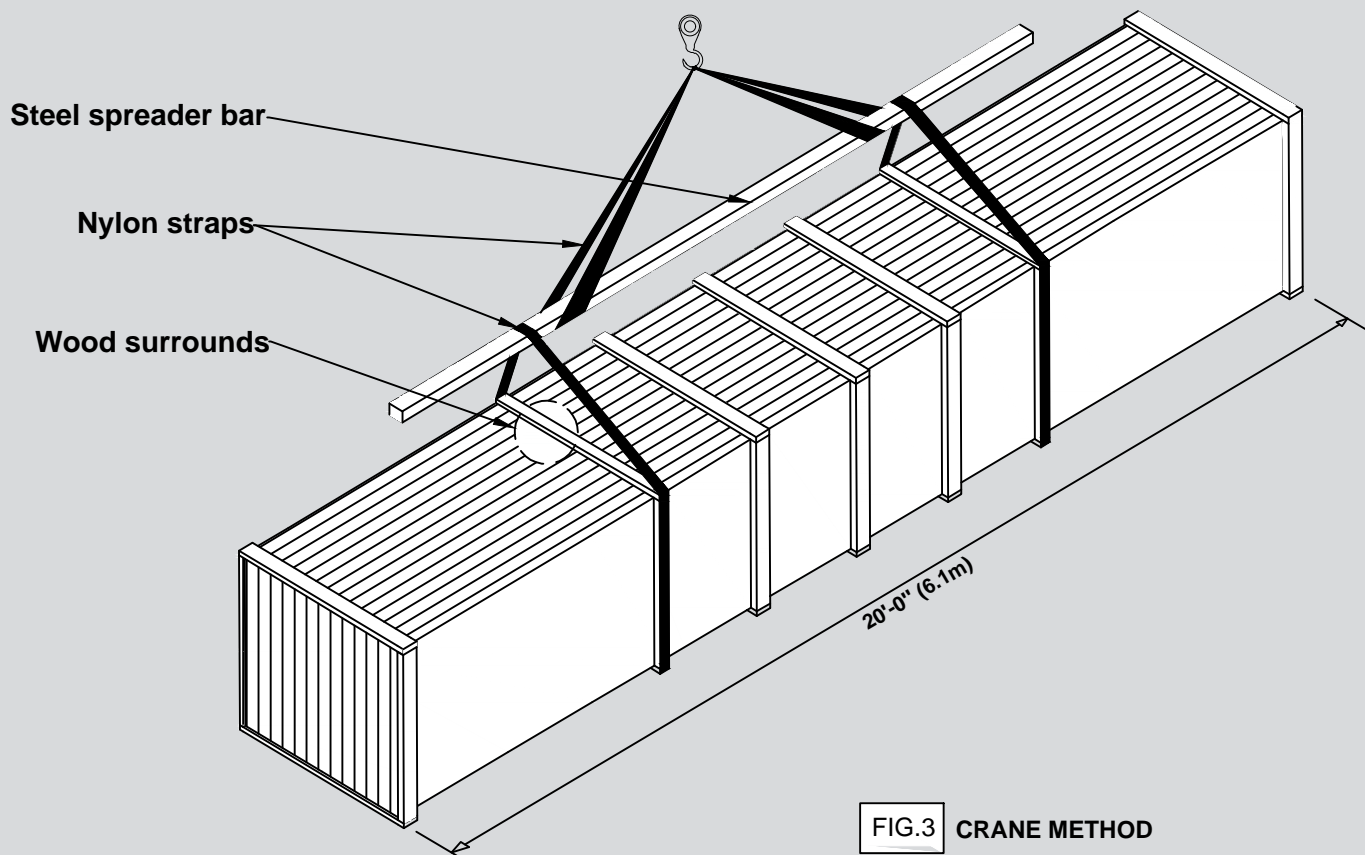
### Crane:

The recommended crane lifting method is to use nylon straps positioned at a minimum of two points at equal distances along the length of the bundle.

A steel spreader bar should be used for lifting all bundles. Suitable wood surrounds should be used and located at the top, bottom and sides of the bundles to protect the panels as shown below in figure 3.

Req'd Strap Spacing for Lifting Bundles:

LIFT POINTS	BUNDLE LENGTHS
2 points	up to 20'
3 points	up to 30'



**FIG.3 CRANE METHOD**

### NOTE:

To prevent panels from damage while lifting, carefully pick up bundles one at a time.

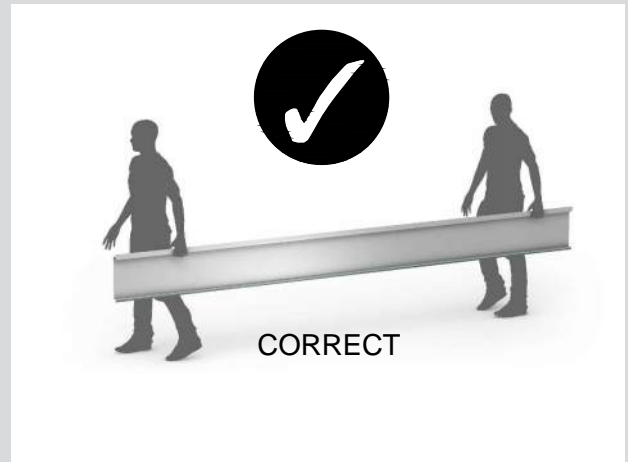
## Panel Handling

### Individual Panel:

#### Correct Panel Handling:

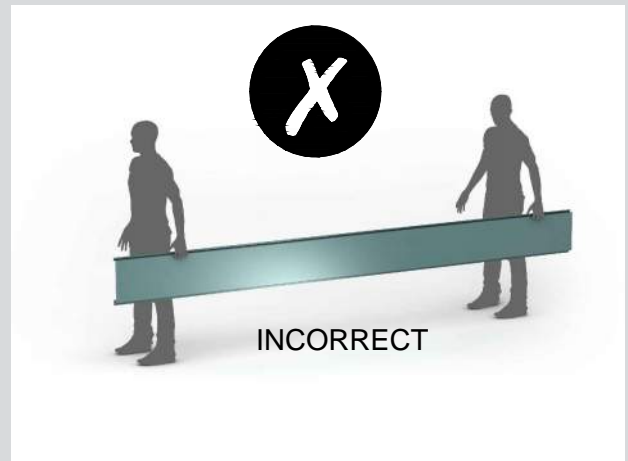
Individual panels must be handled and supported in a longitudinal orientation with the **attaching leg** facing upward. When handling panels exceeding 12', additional personnel will be required to support the panel. The recommended distance between each handler will be 8' (maximum).

Insufficient number of handlers could cause damage to panel such as warping, buckling or creasing etc.



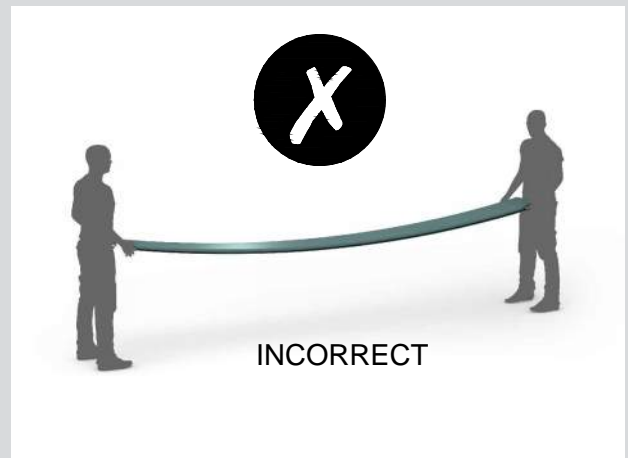
#### Incorrect Panel Handling:

Panel handled by the **interlocking leg** will result in less surface area to be able to grip the panel suitably.



#### Incorrect Panel Handling:

Panel handled in a flat orientation will cause warping, buckling or creasing due to improper support at the midpoint.



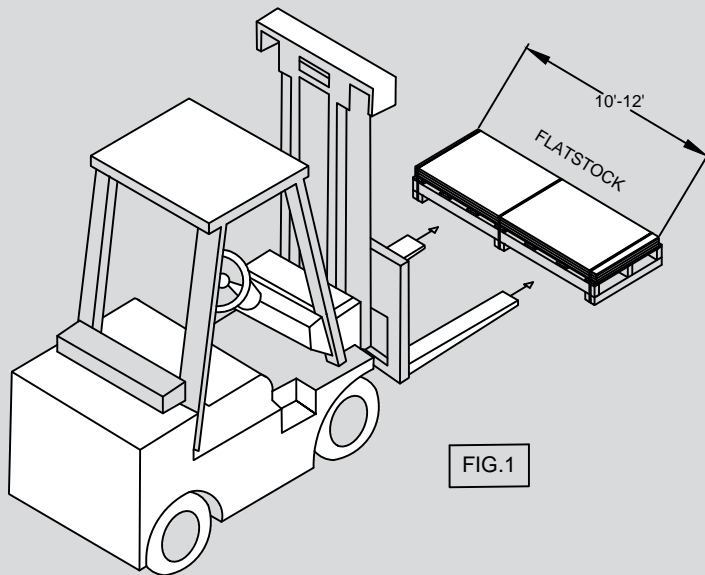
## Panel Handling

### Flatstock:

The recommended loading/unloading method for flatstock skids is to use a forklift with widely spaced forks (min. 5') placed under the center of the bundles as shown below in **Figure 1**.

Individual sheets of flatstock may be handled and transported in either vertical or horizontal orientations with as many people as necessary to safely handle. When transporting a flat sheet, it should be turned vertically (upright) on its edge, then supported at each end with as many people as necessary to safely handle. **Figure 2**

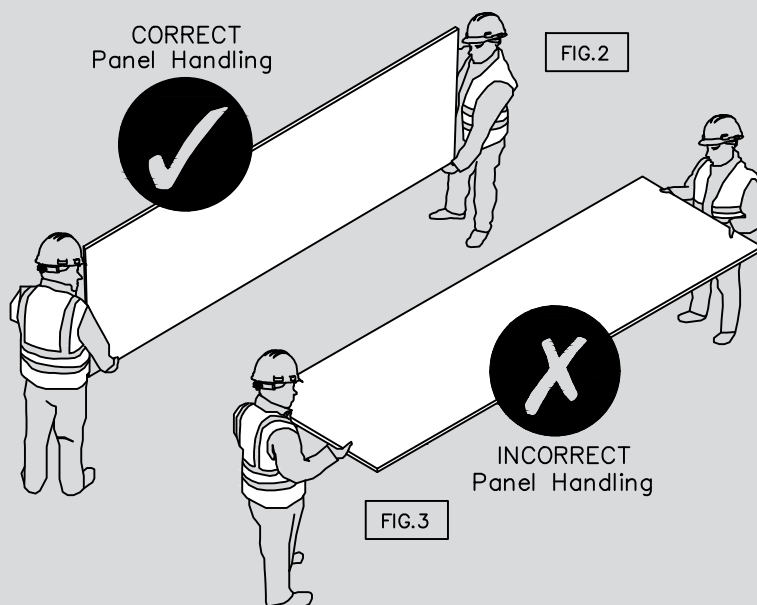
Flatstock should not be transported in a horizontal (flat) position, as excessive flexing may result, which can cause oil-canning, permanently distorting the panel. **Figure 3**



#### NOTE:

When unloading flatstock bundles, lift individual skids one at a time to ensure safest means of handling.

Do not lift stacked skids!  
When transporting bundles onsite lift skids individually.



#### NOTE:

Carefully pick up panels one at a time. Never drag panels from a bundle or across other surfaces because this will scratch and damage the panel finish.

Always lift panels when removing them from a bundle.



## Matrix Panel Clip

The Morin Matrix Series panel is assembled using a concealed fastening method allowing for a seamless and structurally sound wall system.

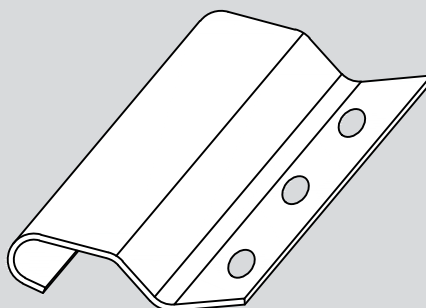
The Matrix Clip, also referred to as the 'MIP' Clip is an integrated concealed fastener clip. With its innovative design, it is used interchangeably between Morin's **Matrix, Integrity and Pulse** Series panels for limitless design possibilities.

The clip assembly allows for expansion and contraction of the panel system along its supporting structure. The clip interlocks two panels and is fastened to the girt or structural member. Fastening the clip alone allows the panel to slide vertically or horizontally along the surface of the clip to accommodate for thermal movement and to alleviate oil-canning or constriction.

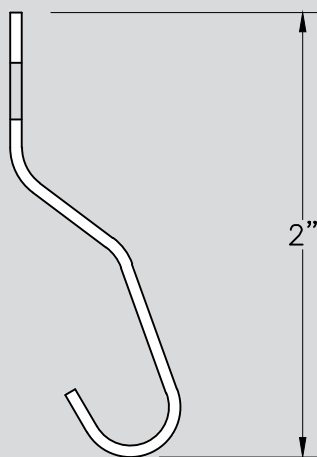
### **MATERIAL OPTIONS:**

Galvanized/Galvalume: 18 GA

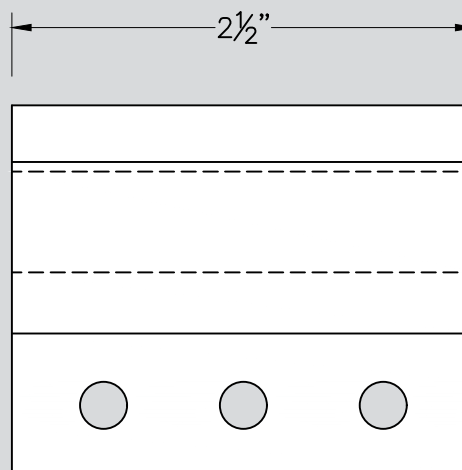
Stainless Steel: 18 GA



**ISOMETRIC VIEW**



**SIDE VIEW**

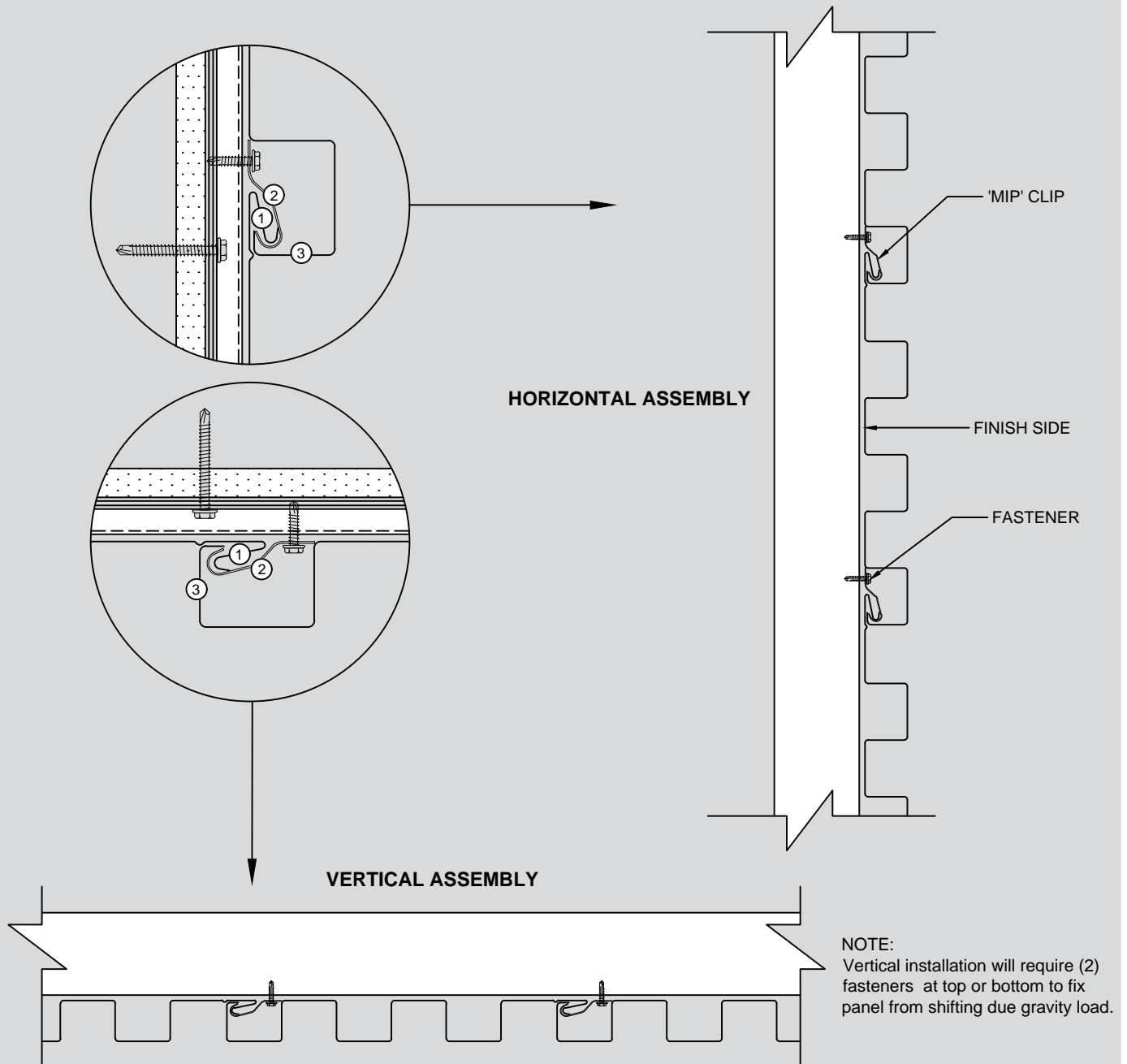


**TOP VIEW**

## Panel Assembly

Horizontal Assemblies must be installed from bottom to top (base to roofline). This is crucial because the Matrix panel's interlocking system is not reversible. The clip holds the attaching leg and is secured first, then the next panel hooked over the clip with the interlocking leg slid <sup>②</sup> into the pocket <sup>①</sup>.

Vertical Assemblies are typically installed from left to right, however depending on construction requirements, can be installed in either direction. The clip holds the attaching leg and is secured first, then the next panel hooked over the clip into the pocket.



\*NOTE: The numbers ① ② & ③ represent the order of assembly.

## Testing

The Matrix Series wall panel from MORIN has undergone or is undergoing a wide variety of tests that will allow for its installation anywhere, including where the strictest wind uplift codes and wind driven rain requirements are in place.

The Matrix Series wall panels (MX 6.0-MX 11.0) are undergoing (and expected to meet the requirements of):

- ASTM E1592- Uplift Test
- ASTM E283 - Air Infiltration Test
- ASTM E331 - Water Infiltration Test
- Florida Product Approval



## Fastening Guidelines

### **MATRIX SERIES CLIP LOCATION:**

Clips are to be spaced at the maximum spacing as shown on the calculations submitted to the architect at the time the contractors make their material submittal, but must not exceed the maximum spacing as shown in the manufacturers literature for the required loads. When the wall system is used over a solid substrate, the spacing of the clips must be examined to be sure that this spacing does not exceed the spacing of the panel/clip system but also does not exceed the strength of the fastener, which connects the clip to the substrate.

### **FASTENER LOAD CALCULATIONS:**

To calculate the wind uplift loads for any fastener or fastener group, you must take the following items into account:

- Design wind load uplift.
- Tributary area of fastener.
- Fastener manufacturer's information as to the pullout/pullover of the fastener being considered.
- The local building code safety factor requirements.
- As mentioned earlier in this manual, you should also check the loads that snow and expansion/contraction places on the fastener to be sure that those loads do not exceed the fastener manufacturer's recommendations.

### **FLASHING, TRIM & MISCELLANEOUS FASTENERS:**

While Matrix Series panels & clips are the primary concern when using the Morin wall system, you should not overlook the importance of flashing and their fasteners. After all, a leak at this location is just as bad as a leak through the wall panel. If at all possible, these fasteners should not be installed in a manner that would penetrate the Matrix panel. The fastener must be of a self sealing type with a sealing washer under its head on the exposed surface. The minimum size fastener to be used to connect flashing and trim to the wall panel should be either a #10 screw or 1/8" rivet at 16"(MAX.)

### **SEALANTS:**

The wall system is designed & manufactured to give 20 years of service. Because of this, it is our recommendation that the sealants specified or used have an equal life expectancy. In applying sealants to a metal surface, one of the most important aspects for a good seal is to have a clean and dry surface and that the sealant being used is applied in accordance with the manufacturers recommendations. There are two types of joints on which sealant is required. They are exposed and non-exposed joints. An exposed sealant joint should use a sealant that will have a final cure that will stay flexible. Do not use either asphalt or oil base type sealant. For non-exposed sealant joints, use only non-hardening type sealant, recommended by a sealant manufacturer. There are several installers that prefer to use a silicone type sealant. This type of material will work fine as long as it has the 20-yr service life expectancy. One word of caution when using this product is that you must be sure that it is a non-acetic acid cure.

## Panel Installation

### 1. COORDINATING THE INSTALLATION OF PANELS WITH OTHER TRADES

Careful attention prior to and during panel installation must be paid to the other trades working on the same project as your wall installation. Failure to do so may result in compromised schedules and rising costs. For example, if there is any new masonry and/or cement work on the same project, it should be scheduled prior to the wall panel installation, so that the masonry/cement is complete and cured before any wall panels are installed.

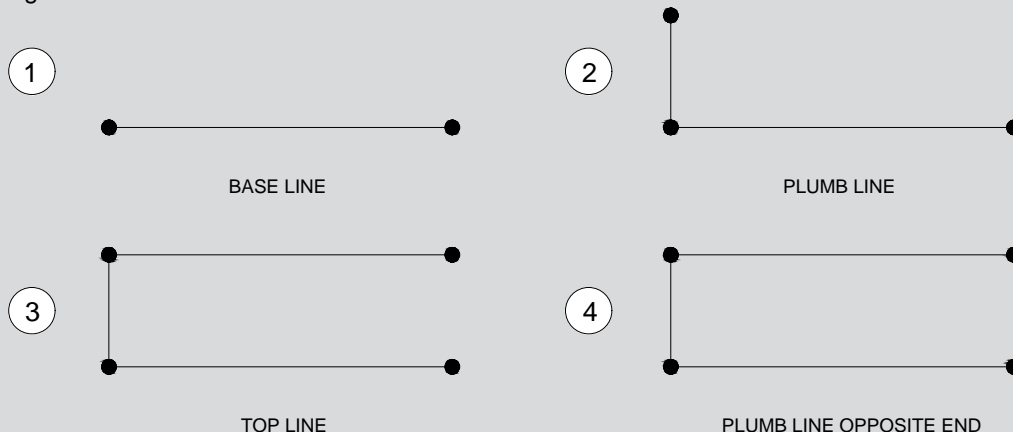
Trades involved in electrical and HVAC may perform work in conjunction with the wall panel installation remembering to coordinate the work such that those trades may perform their tasks while the walls are partially or completely installed. Also keep in mind that some of the work performed by these trades may be detrimental to the wall structure and the materials used are corrosive to metal walls; such as copper, pressure treated wood, and HVAC cleaners.

### 2. INSPECT THE STRUCTURE

The area designated to receive the new wall panels must be inspected and condition that fail to meet the requirement of the all system must be reported PRIOR to general contractor beginning the installation process.

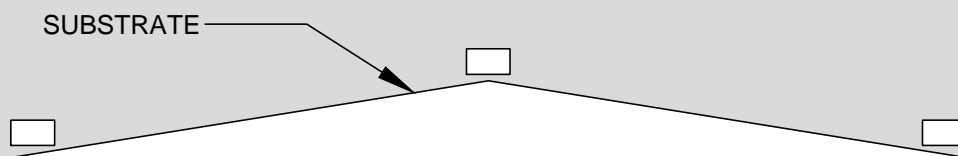
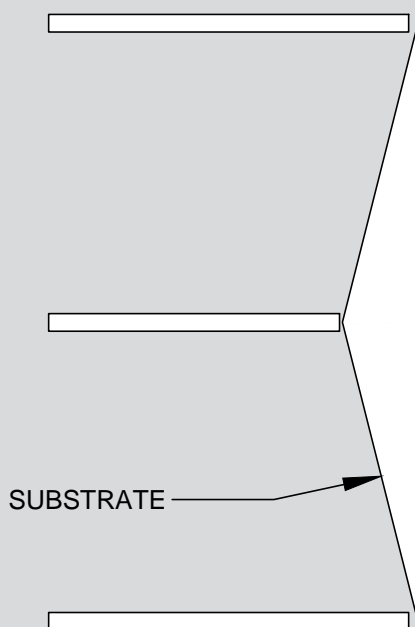
- a. Checking for Flatness - Failing to confirm that the structure and the wall system are flat in plane of the elevation will have a major impact on the success of the wall panel installation. Straight, level, plumb and plane are not the same. Straight is a line between two points without curves or bents. Level is a horizontal line with respect to distance above or below a given point. Plumb is vertical upright straight line ninety degree off level. Plane is a flat, level, horizontal or vertical surface.
  1. Starting at the base line of the wall set a point 4 inches off the corner and 1 inch off the wall, pull a line or shoot a laser line level to a point 4 inches off the opposite corner and 1 inch off the wall. Measure multiple places off the line back to the wall. This will determine if the wall is straight at the base line.
  2. Set up a plumb bob or laser off the base line point to the top of the panel run. Measure multiple places off the line back to the wall. This will determine if the wall is straight from bottom to top.
  3. Set up point off the plumb line at the top of the panel run and pull a line or shoot a laser line level to the opposite corner. Measure multiple places off the line back to the wall. This will determine if the wall is straight at the top of the wall.
  4. Set up a plumb bob or laser at the opposite corner set point at the top of the panel run. The plumb line and the level bottom point should lineup. Measure multiple places off the line back to the wall. This will determine if the wall is plumb at the opposite wall.
  5. After setting up the perimeter line you can check multiple places to determine if the wall is in plane.

See diagram:



## Panel Installation

b. In-plane alignment (Wall to Wall) - While a wall's substrate may have been installed square, straight, and flat, it may still not have been installed correctly. The wall must be installed in-plane with the rest of the structure and other planes, otherwise it will not appear correct and performance may be compromised. When wall surfaces are not in-plane, it can sometimes be referred to as a "crooked" wall. In this scenario, even though each wall is straight, they are not straight to each other. Remember that misalignment may occur at the intersection of different walls and transition sections. A misaligned or crooked wall will present performance issues, and appearance issues, creating gaps, misalignment, and oil canning in the panels.





## Panel Installation

### **3. FLATNESS**

Straightness involves the edges of an object while flatness entails the wide, open surfaces of an object. Installed wall panels must be both straight and flat. The issue of oil-canning on a metal wall is directly related to panel surfaces which are not flat.

Examples of this are pre-cambered stud walls; subgirts out of alignment and support members having been twisted.

### **4. SUSTAINING PANEL MODULARITY AND ALIGNMENT**

The relationship of the installed wall panel to other installed wall panels, wall structure members and the structure that the wall rests upon is called panel modularity. Modularity affects the strength, performance and aesthetics factors of the finished wall.

- a. Starting Square To The Base - The technique of starting the first panel as “plumb and level” will establish a baseline and reference for the remaining panels, and impact the appearance and performance of the finished wall.
- b. Monitor and Measure During Installation - The measurement and monitoring of the wall, its members and conditions during the installation are the responsibility of the installer. Once a square edge has been determined and established as the reference, all distances must be measured from and compared to that square edge/reference in order to effectively monitor and maintain squareness, never forgetting that small errors grow over distance.
- c. Sawtooth at Base, End Laps and Ridge - Sawtooth of the panels will occur when the wall panels are not installed square to the base or edge. To avoid or reduce this risk the installer should always make sure that the first panel installed is squared and plumb to the corresponding wall edge and aligned to panels at other tiers.

Issues with Thermal Movement - Common causes of problems related to thermal movement are either double-pinning of the wall panels (ex. fastening at both end of panel) and conditions that cause the panel clips to bind, thereby not adjusting to the thermal movement of the panel.

The installer should:

- a. Refer back to the Design Data section within this Matrix Series Manual, specifically the section on Thermal Movement: Coefficient of Expansion and How to Calculate Panel Length Change.
- b. Confirm that the panel fastening method is aligned with those as shown in the erection drawing or the manufacturer's instructions. Verify that all involved with this installation are also aware as to the panel fastening method.
- c. Be aware of installation of accessories or any panel modification and that these do not create a double-pinning of the wall panels.
- d. Inspect and approve the sealant requirements around any clips and ensure that the fasteners are not damaged and allow the panel to move freely as designed.

## Panel Installation

### 5. BEST PRACTICES FOR FIELD CUTTING THE PANELS AND TRIM

#### Tools:

Tools approved for cutting metal include electric or pneumatic nibblers, electric sheet metal shears, sheet metal hand shears and aviation snips, circular saws fitted with specially formulated carbide blades designed for cutting metal.

For field cutting sheet metal, follow these simple rules:

- a. Avoid abrasive or other blades which will heat the metal and create heavy burrs. This is especially true when working with coated steel, as it will exceed the melting temperature of the metallic coating, melt it away from the cut edge, and cause a site for corrosion to occur.
- b. When cutting panels, a lot of steel bits, (commonly referred to as swart) get scattered and thrown onto adjacent surfaces. If not thoroughly and promptly cleaned up and removed, this swart will cause potential corrosion or heavy staining.
- c. Some trimming and cutting of panels and trim pieces is to be expected with every installation. You risk jeopardizing the appearance and performance of a wall system by failing to cut the metal wall materials correctly.

## Basic Installation Tool List:

- Measuring Tape
- Pencil
- Offset. Straight and Left Cut. Red Grip Snaps (a)
- Offset. Straight and Right Cut. Green Grip Snaps (b)
- Utility Knife and Blades
- 6" Vise-Grip Locking C-Clamps (c)
- Pop Rivet Tool (d)
- 6" Speed Square (e)
- Tool Belt
- 1 ½" Wood Chisel
- Hammer. Straight Claw 16 oz. (f)



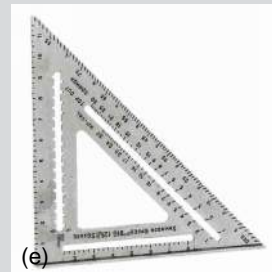
(a)



(b)



(c)



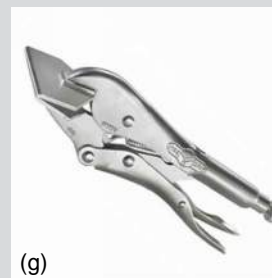
(e)



(f)

## ADDITIONAL TOOLS TO SPEEDUP INSTALLATION:

- Duckbill. Vise-Grip. Locking Sheet Metal Tool (g)
- 12" Speed Square
- Construction Master, Contractor's Calculator
- Roper Whitney No. 5 Jr. Punch Kit (h)
- Hand Seamer (i)
- Bend Moore. Hemming Tool



(g)



(h)



(i)

Can be purchased at most:  
Lowes, Home Depot, Granger, Dynamic Fastener,  
Triangle Fastener, Ram Tool, and Fastenal



## Field Metal Cutting Tool List:

- Metal Cutting Circular Saw (a)
- Tenryu Steel-Pro Saw Blade for Circular Saw
- Nibbler (b)
- Porta - Band. Bandsaw (c)
- Sawzall. Reciprocating Saw (d)
- Kett Shears (e)
- Swanson Shear (f)

\*Available at most Lowes, Home Depot, Granger, Dynamic Fastener, Triangle Fastener, Ram Tool, and Fastenal\*



(a)



(b)



(c)



(d)



(e)



(f)

## Pre-Installation Checklist List:

- Review contract documents and approved shop drawings prior to installation to verify that they match the structure.
- Examine the structure for alignment prior to installation. Verify that all surfaces are flat, plumb, level, straight, square, and within panel tolerances of  $\frac{1}{4}$  in the plane of the wall. Any variance from tolerances can affect panel performance, aesthetics, and installation. Variances must be reported to the general contractor, and corrected by the responsible party before panel installation begins.
- Set benchmarks for panels/trim per contract documents and approved shop drawings. This will ensure better panel alignment, easier panel installation, panel performance, and aesthetics for the project.
- Verify that all blocking, supports, and penetrations are in place before installation begins.
- Verify clip placement and fastening points based on project specific shop drawings and calculations.
- Verify that staged panels match the shop drawings based on specific elevation.
- Verify that panels/trim are clean and free of damage. Do not install any damaged materials.
- Verify that the installer has the proper tools for panel and trim installation.
- Verify that all equipment, safety gear, and procedures meet or exceed the OSHA approved standards.

\*NOTE: Ensure that all conditions on the Pre-Installation Checklist are met prior to the installation of panels. If any one of these conditions are not met, MORIN recommends that installation of panels not begin until the issue is rectified.\*

## Installing Matrix Series for Vertical and Horizontal Applications

- Check approved shop drawings to building.
- Check panel layout per approved shop drawing.
- Check panel module.
- Check panel squareness.
- Set benchmark around building to determine panel layout to approved shop drawings.
- Layout fasteners for panel framing attachment, calculation, side lap and end lap.
- Measure out framing attachment and allow for panel end lap and side lap.
- Install base trim straight and level around perimeter of building.
- Level first panel, first course, and install from the bottom up.
- Install sealant as required per approved shop drawings.
- Check panel level and module at each course as installed.
- Install door and window heads trim.
- Complete flashing and trim installation per approved shop drawings.

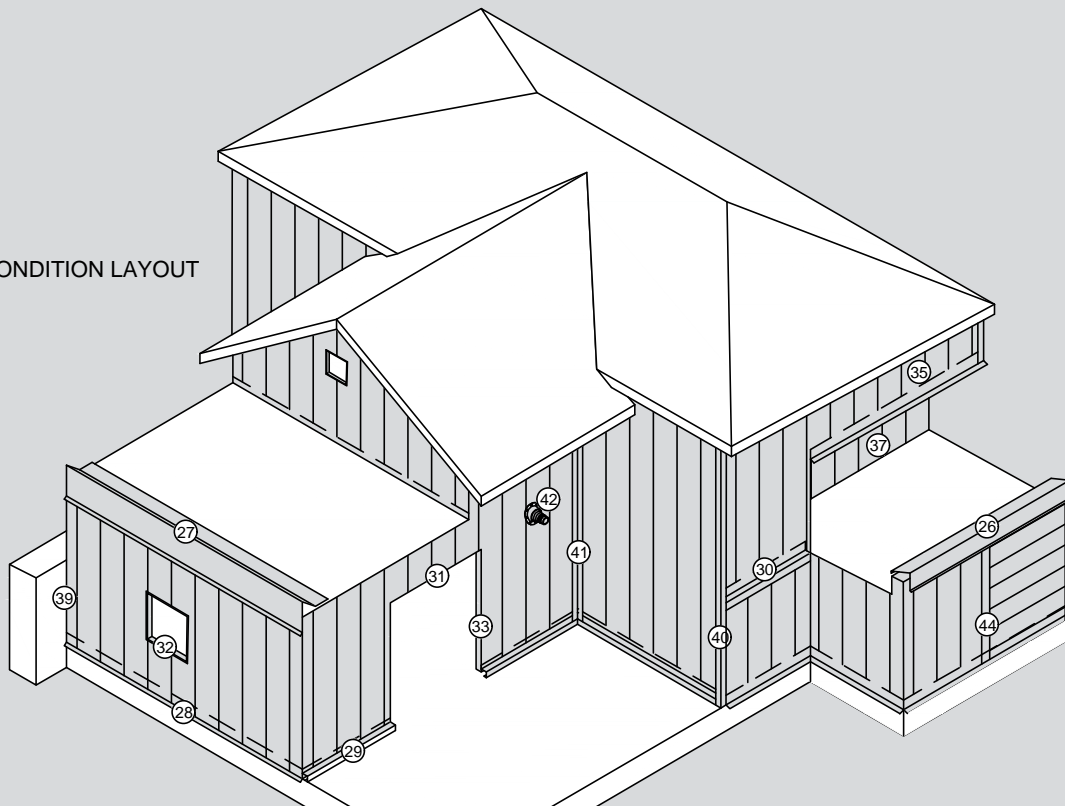


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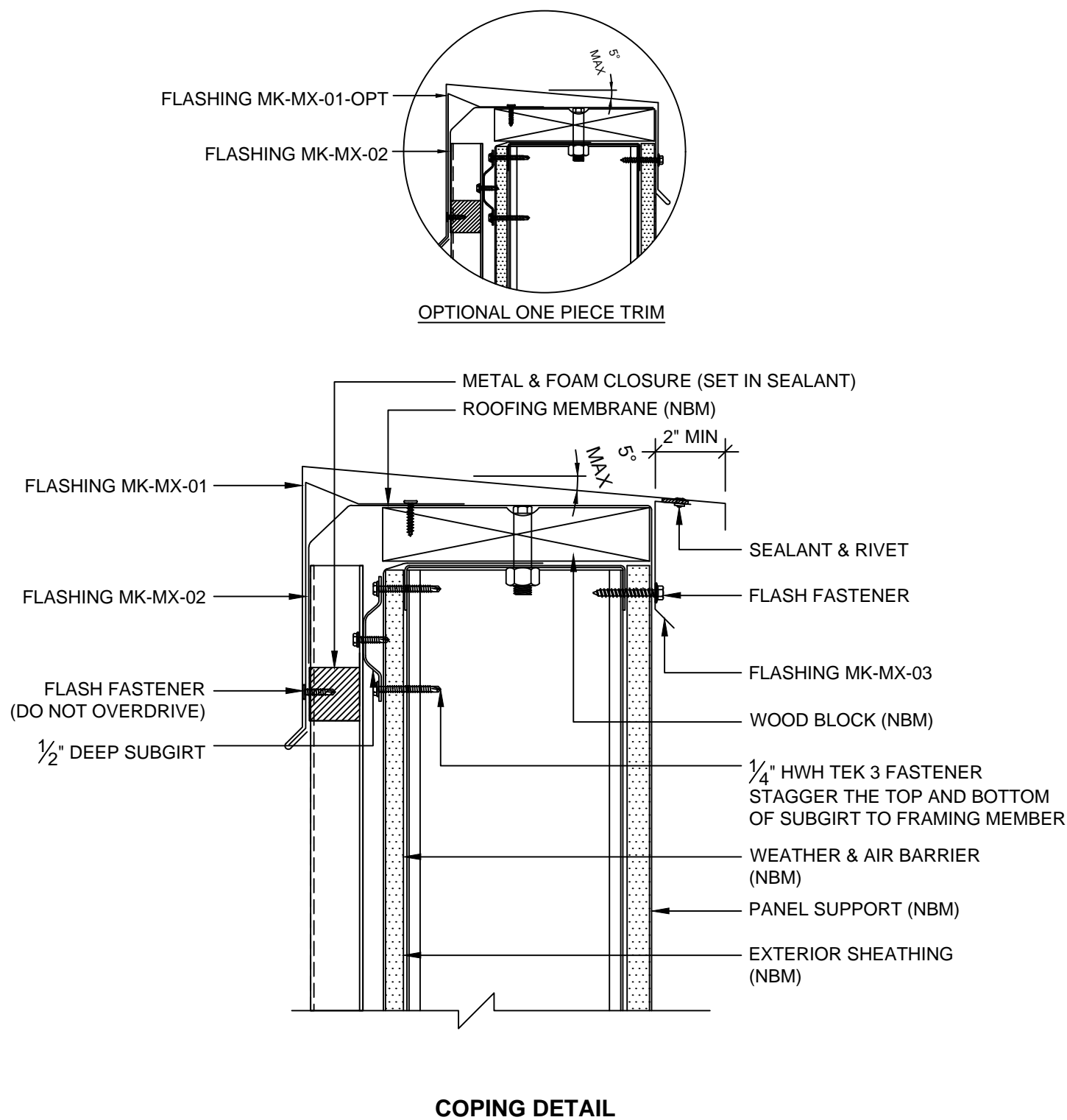
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TYPICAL WALL CONDITION LAYOUT

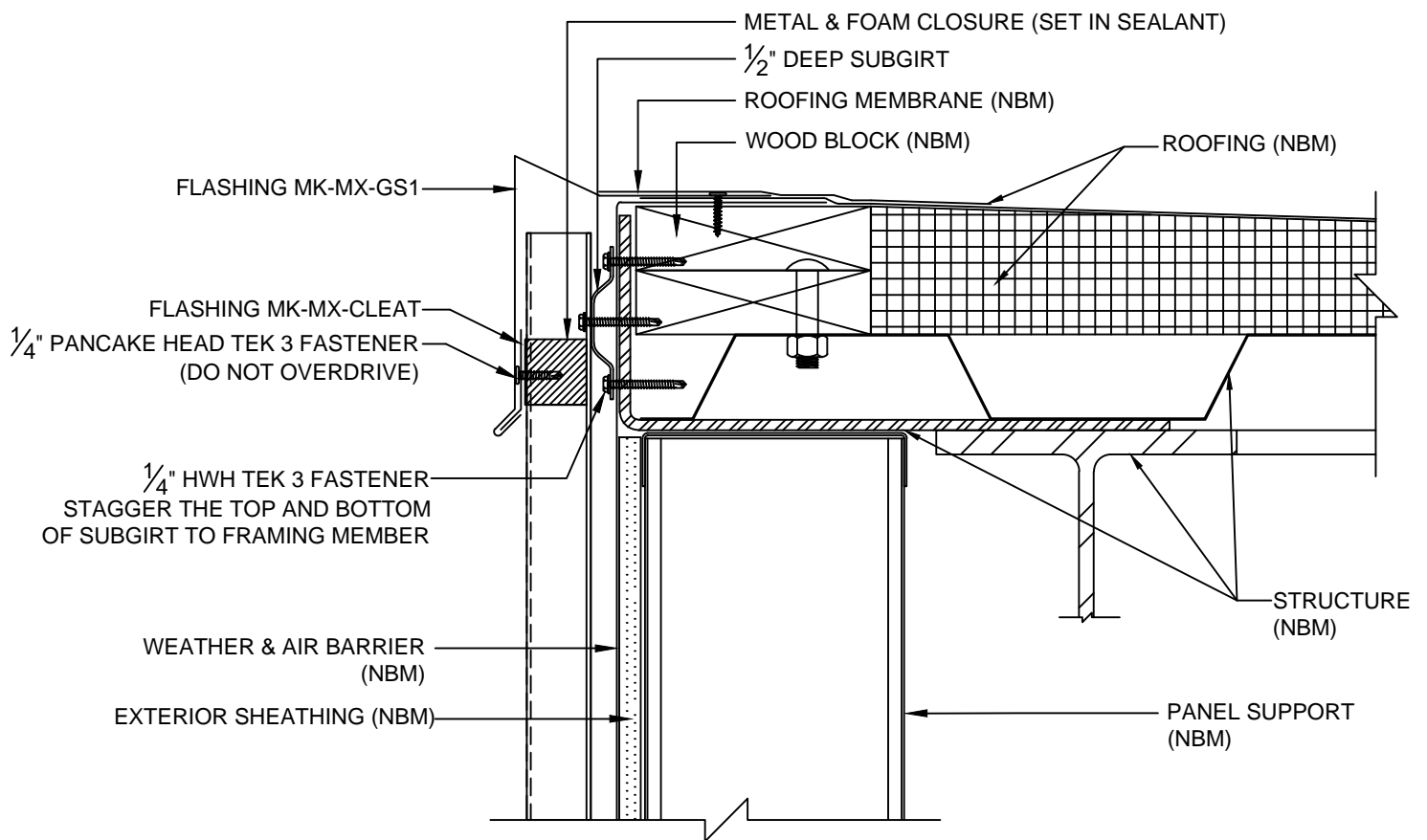


## Vertical Installation



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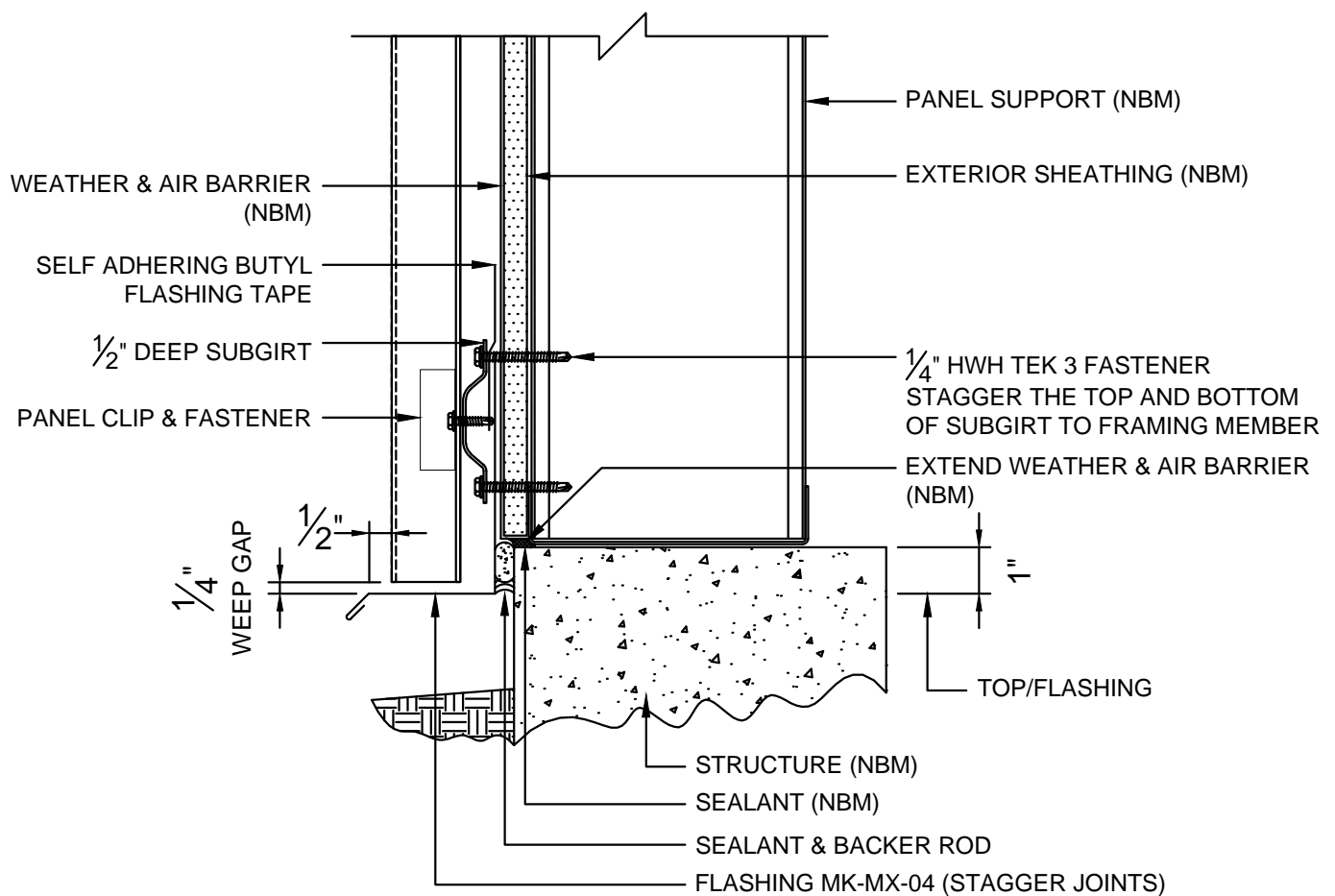
## Vertical Installation



### GRAVELSTOP DETAIL

\*NBM=(NOT BY MORIN)

## Vertical Installation

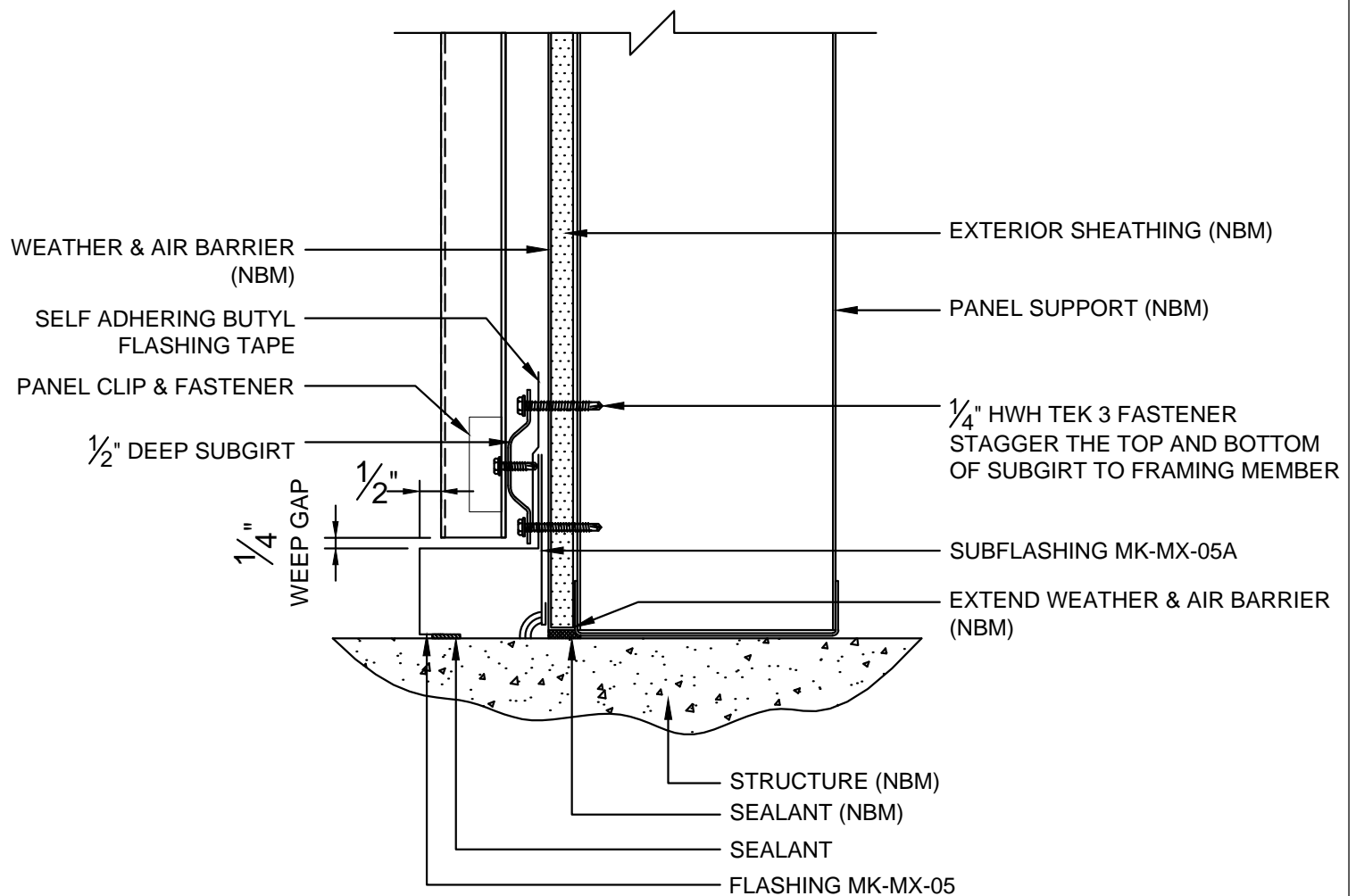


### BASE AT CURB OR EDGE OF SLAB

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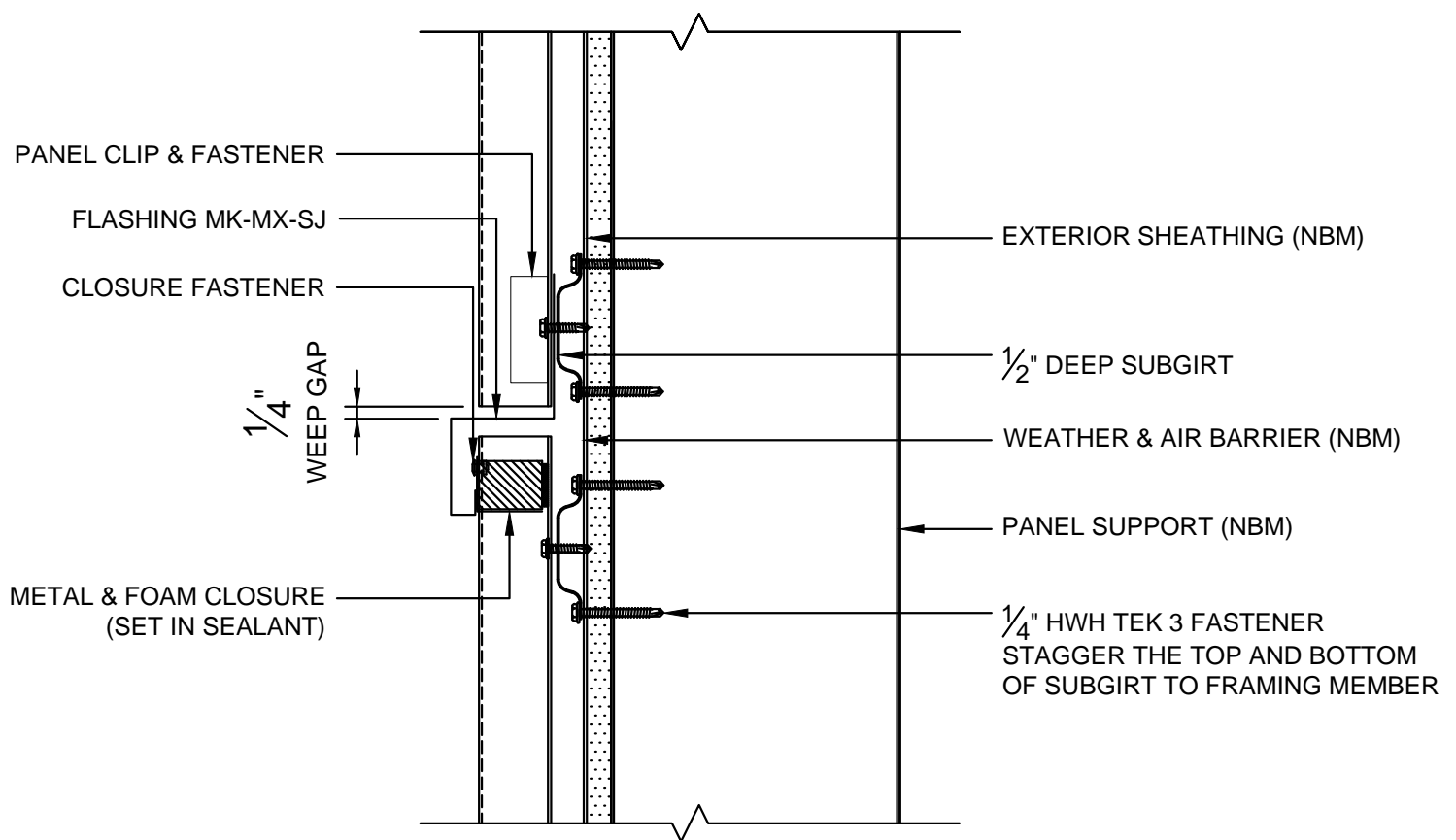
## Vertical Installation



### BASE AT SLAB

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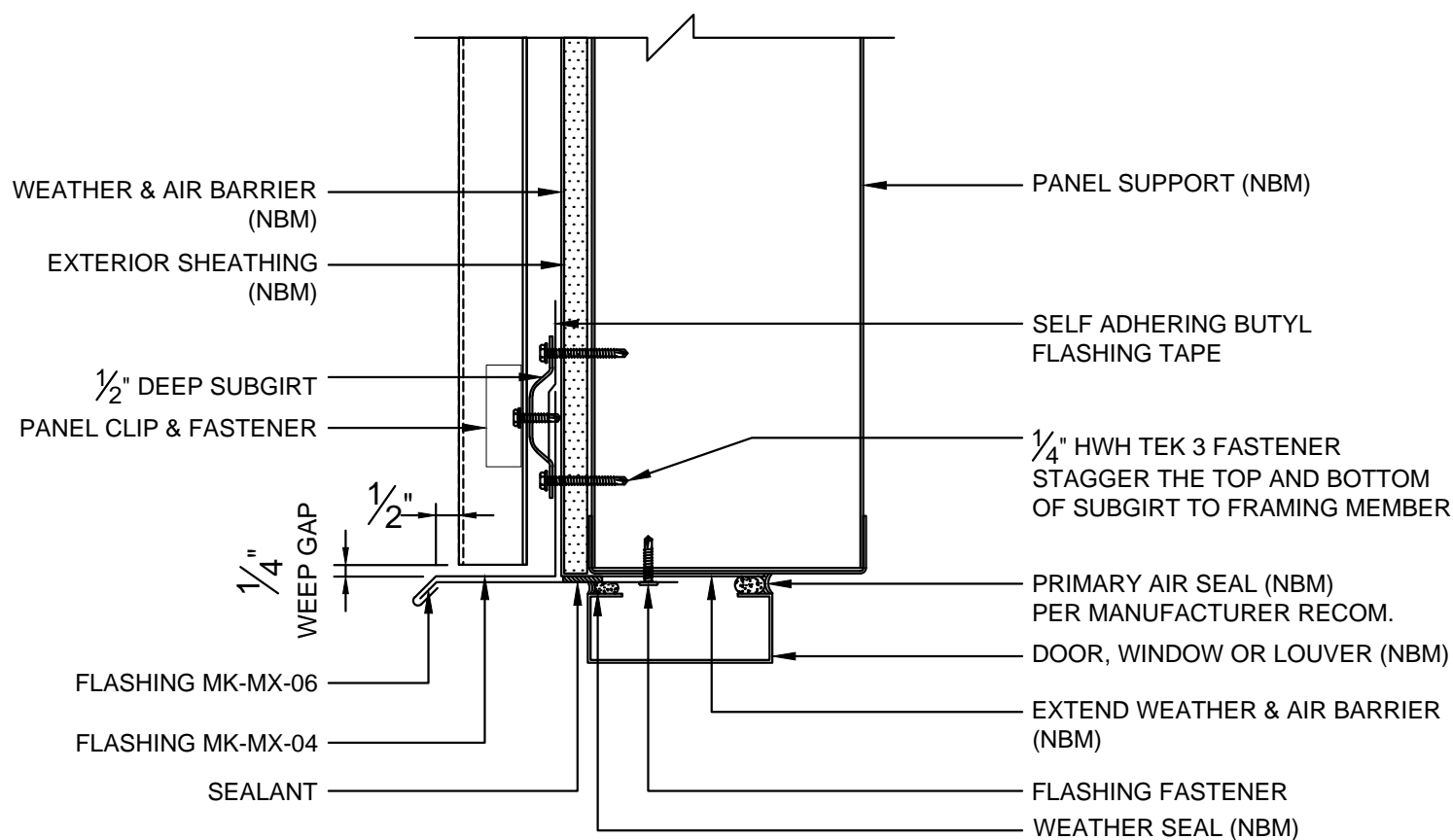
## Vertical Installation



**STACK JOINT DETAIL**

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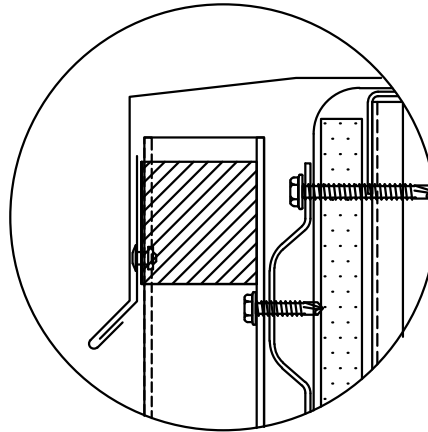
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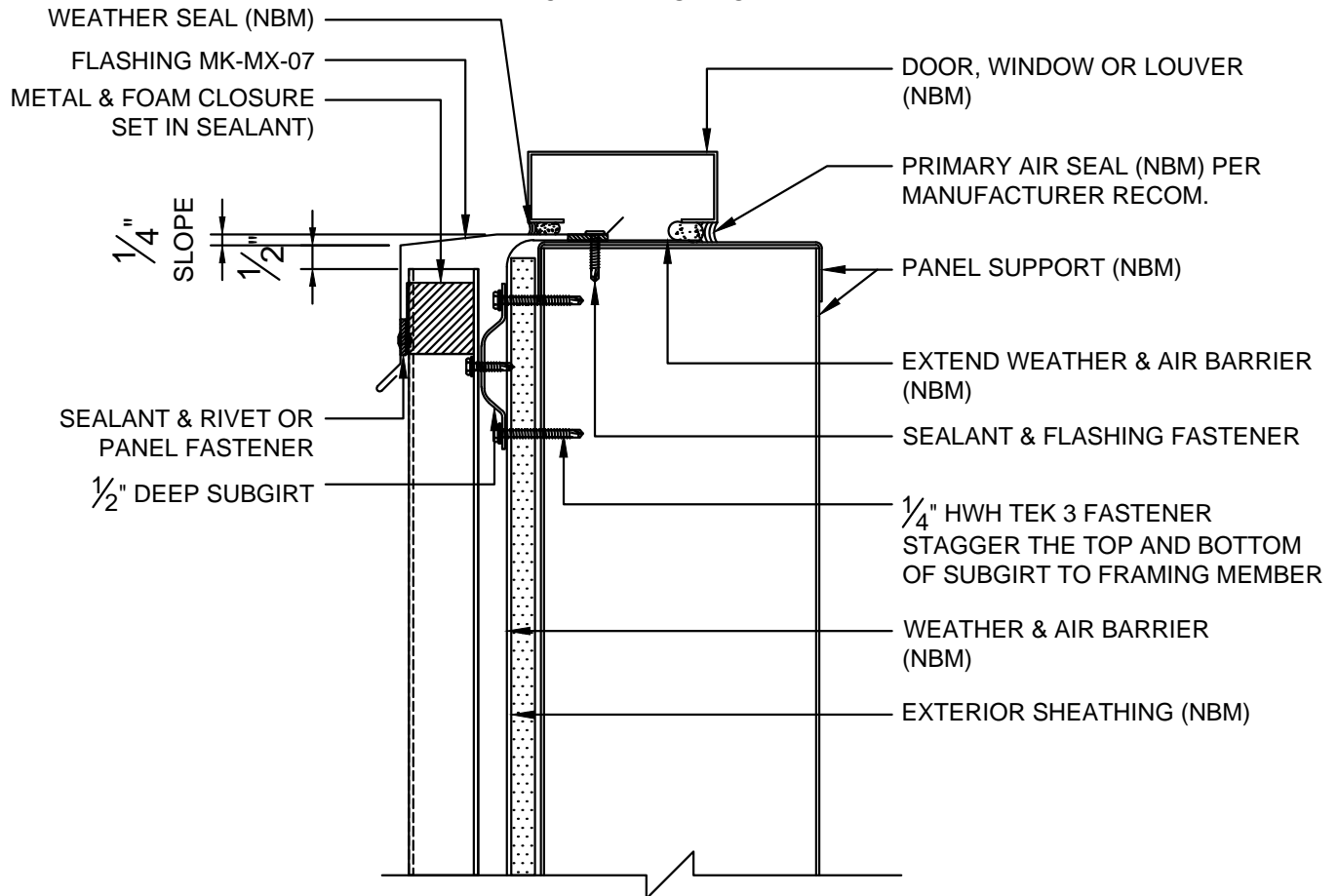
**DOOR/WINDOW/LOUVER HEAD DETAIL**

\*NBM=(NOT BY MORIN)

## Vertical Installation



OPTIONAL DETAIL  
CLEAT FLASHING

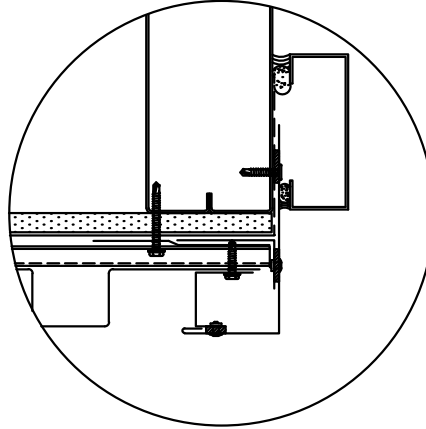


DOOR/WINDOW/LOUVER SILL

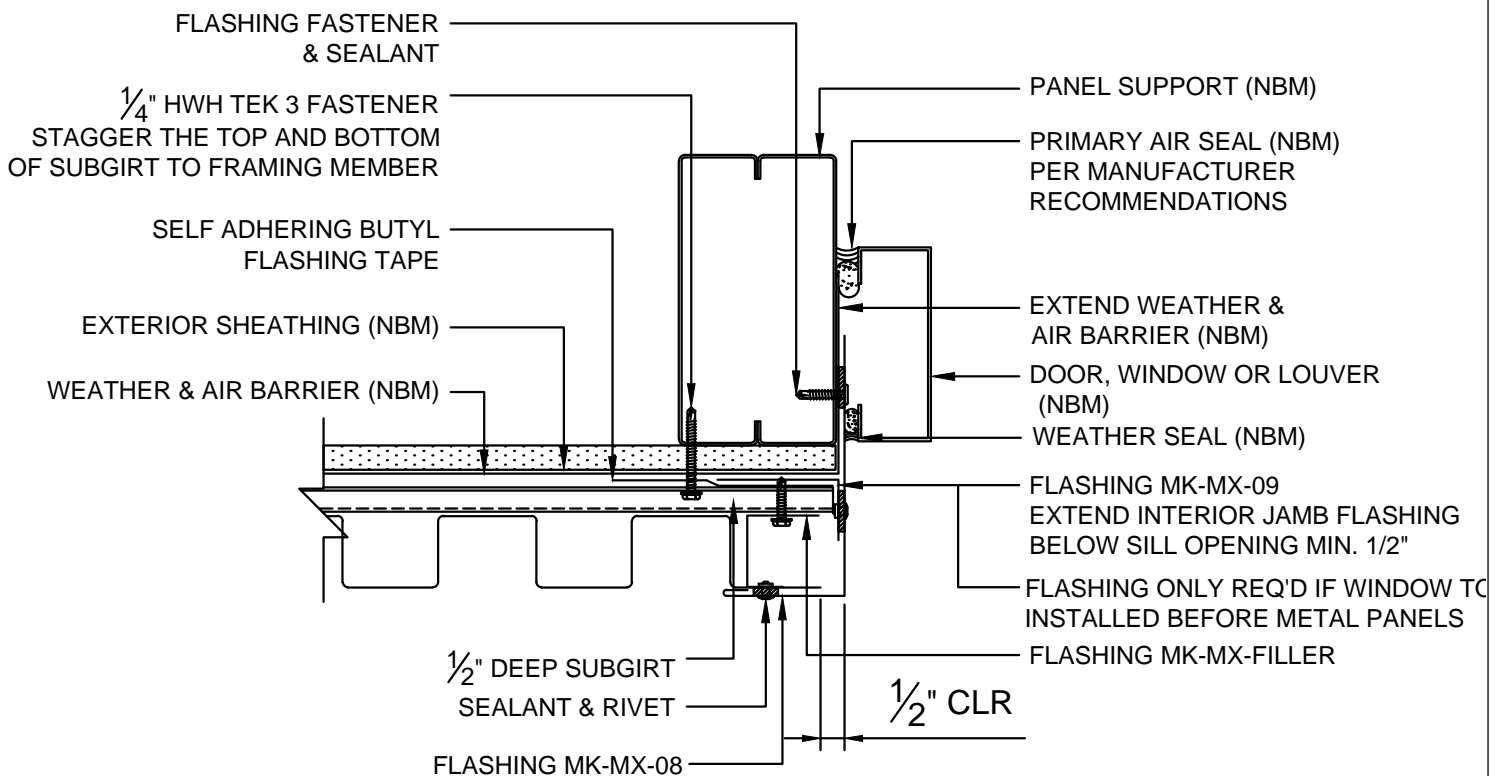
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## Vertical Installation



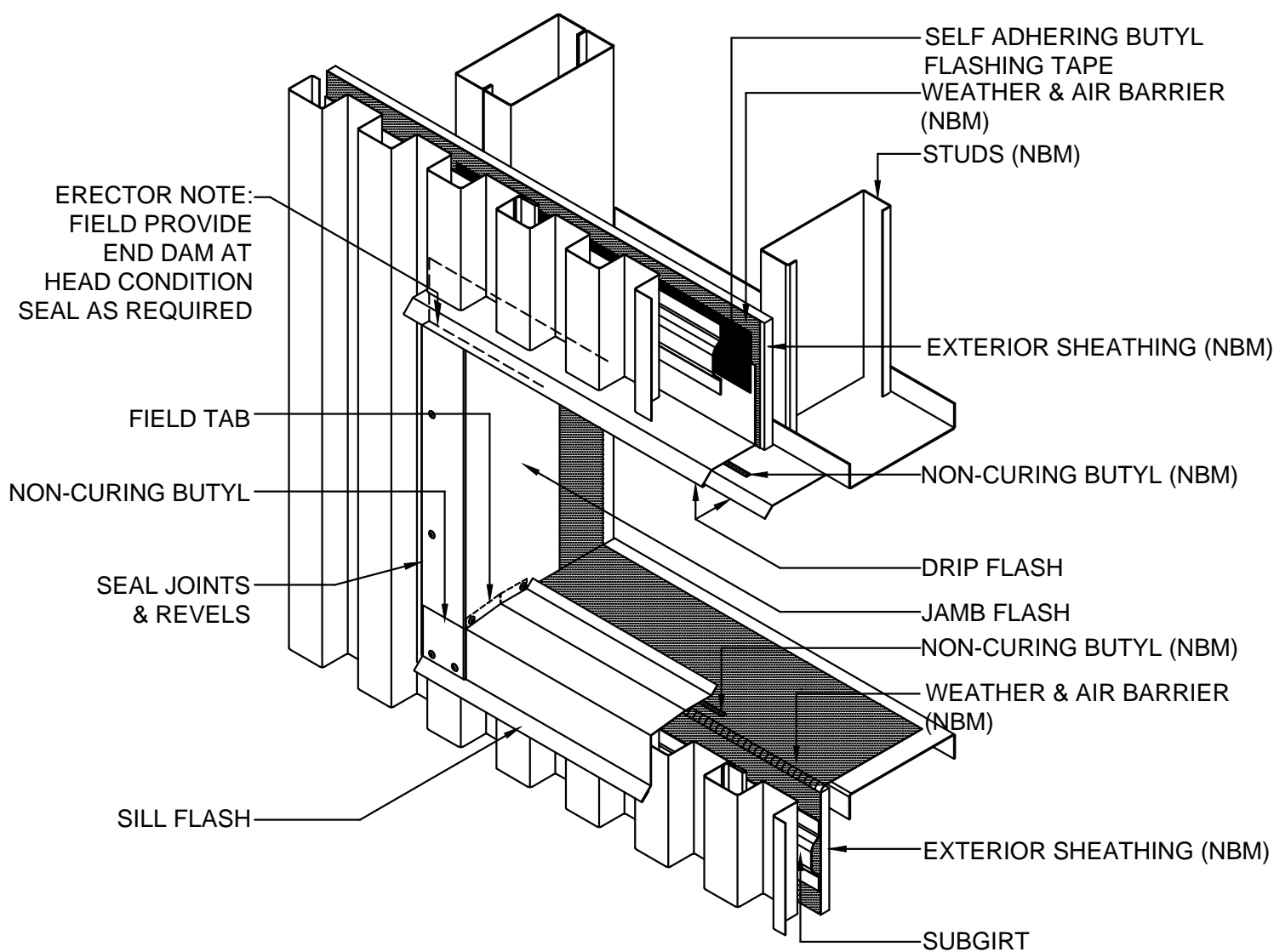
OPTIONAL DETAIL



**DOOR/WINDOW/LOUVER JAMB DETAIL**

\*NBM=(NOT BY MORIN)

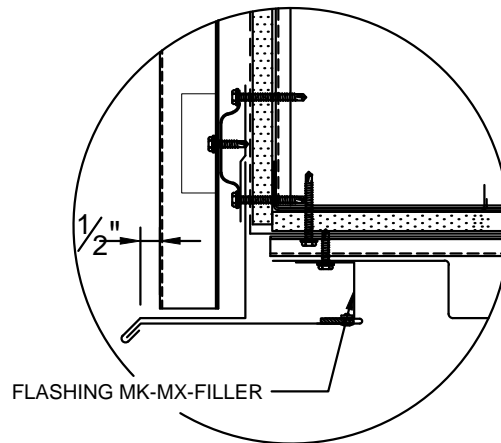
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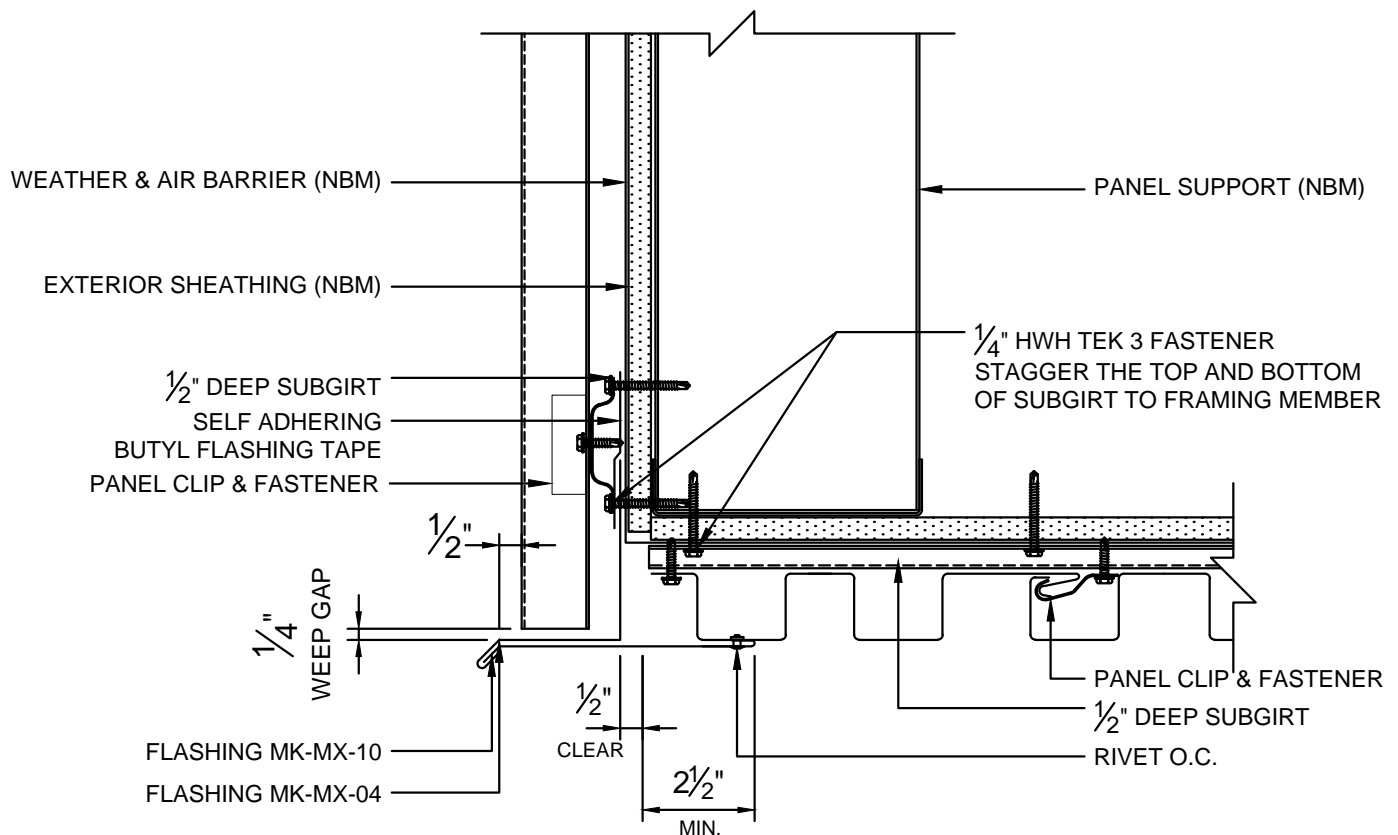
### INTERSECTION OF HEAD, SILL & JAMB

\*NBM=(NOT BY MORIN)

## Vertical Installation



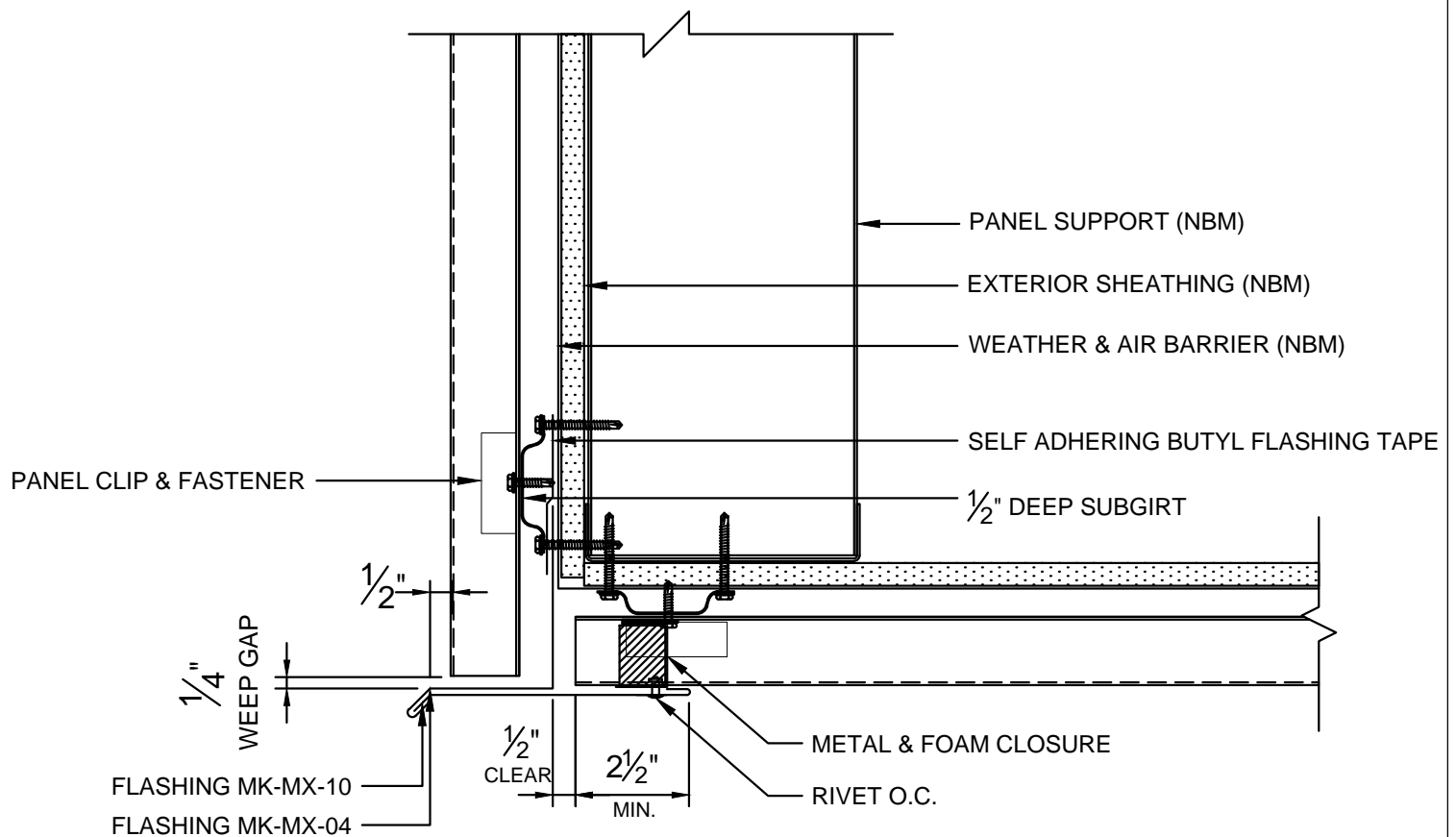
OPTIONAL DETAIL



FRONT SOFFIT DETAIL

\*NBM=(NOT BY MORIN)

## Vertical Installation

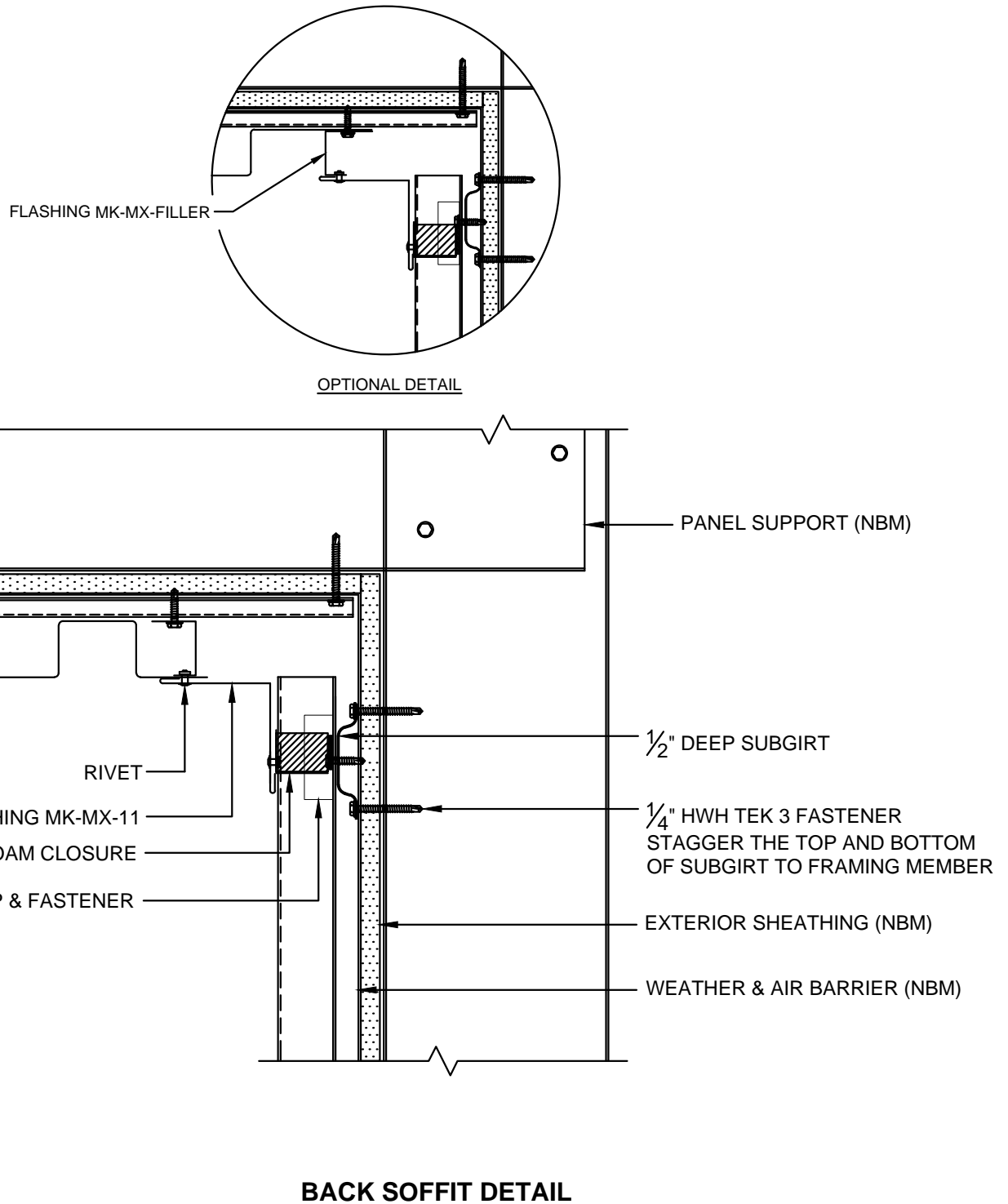


**FRONT SOFFIT DETAIL**

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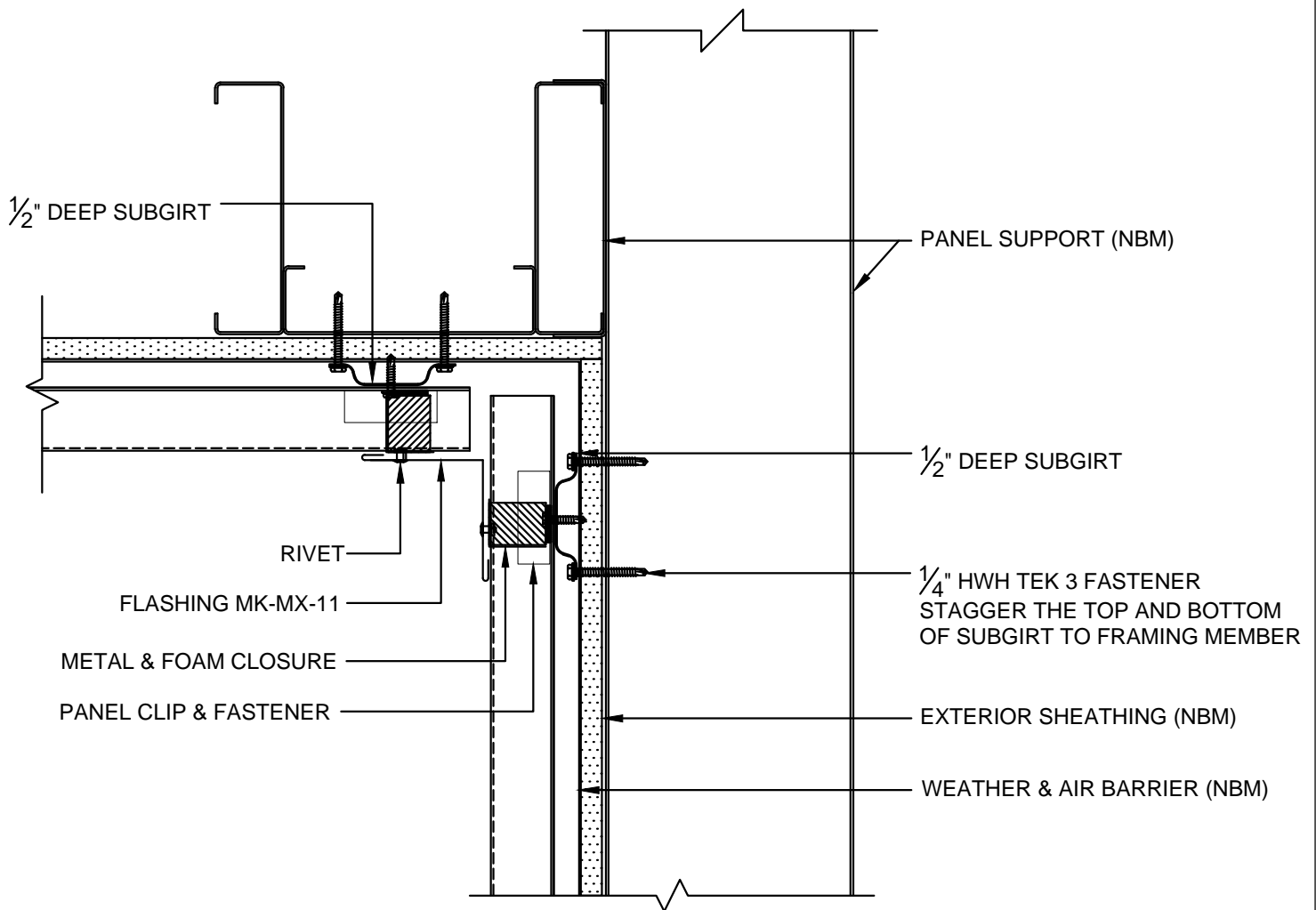


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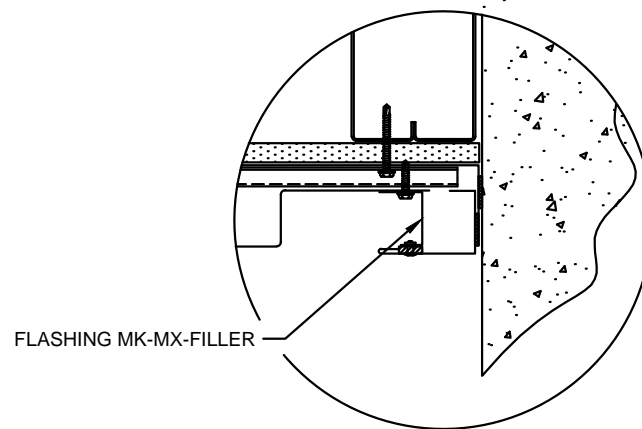
## Vertical Installation



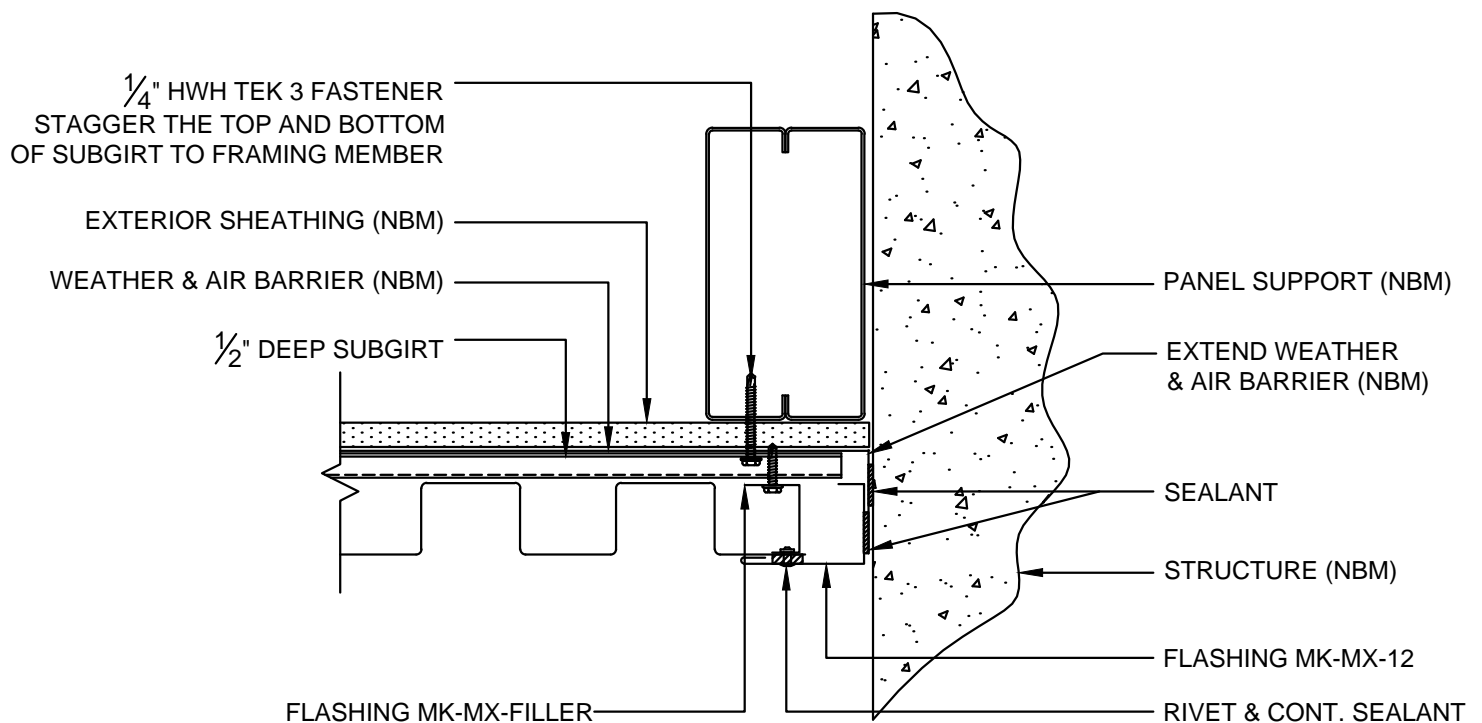
**BACK SOFFIT DETAIL**

\*NBM=(NOT BY MORIN)

## Vertical Installation



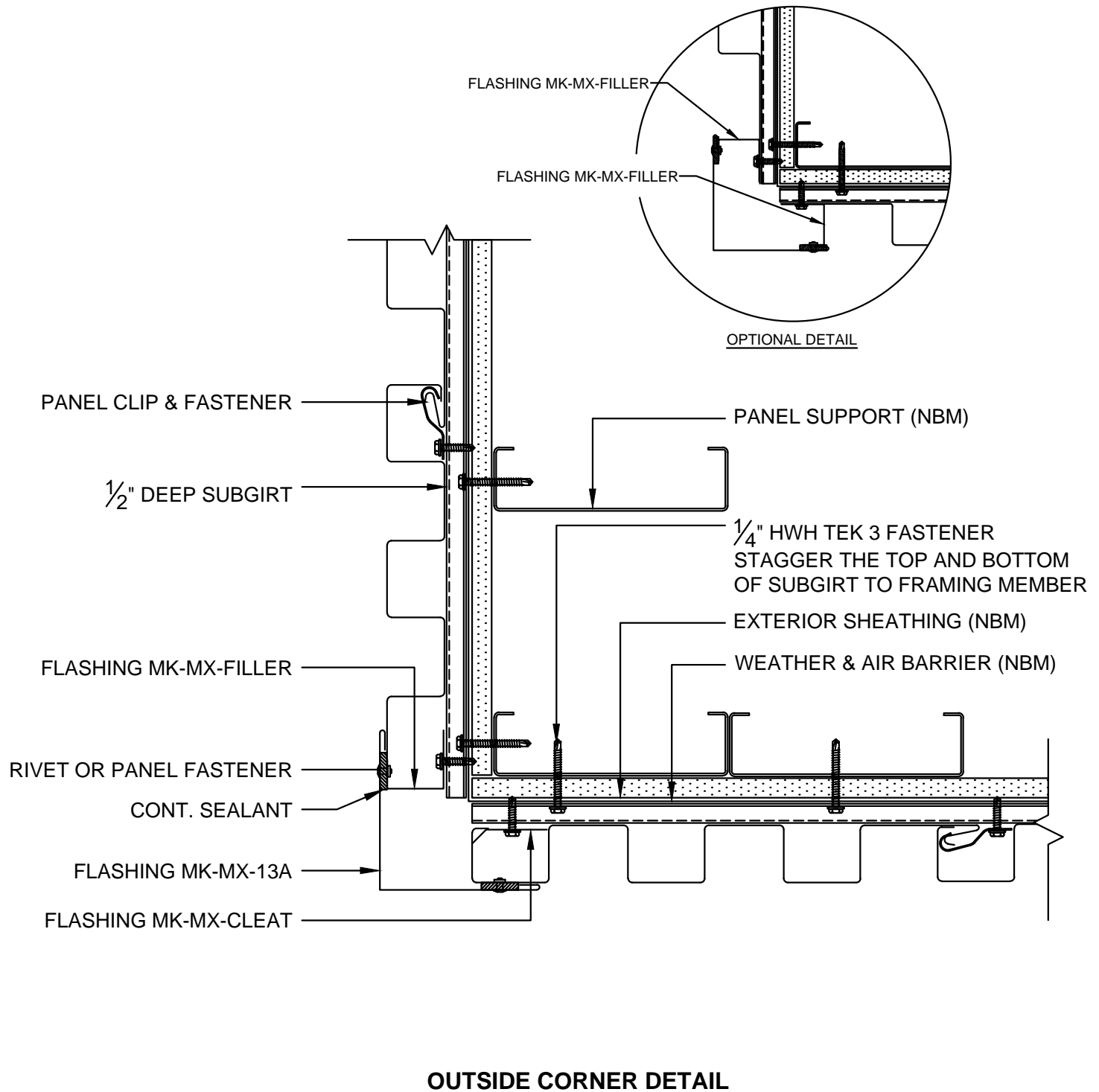
OPTIONAL DETAIL



ENDWALL DETAIL

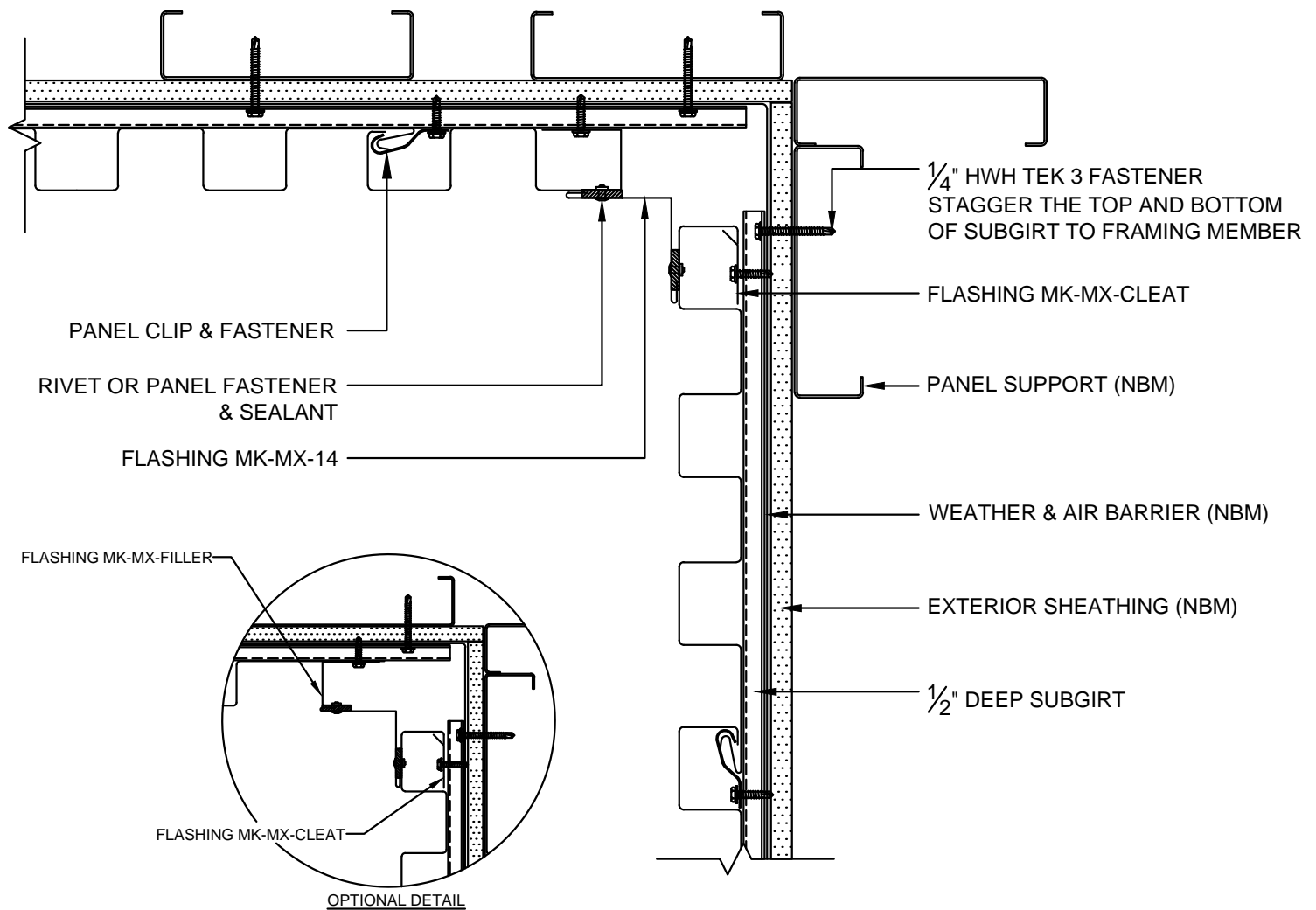
\*NBM=(NOT BY MORIN)

## Vertical Installation



\*NBM=(NOT BY MORIN)

## Vertical Installation

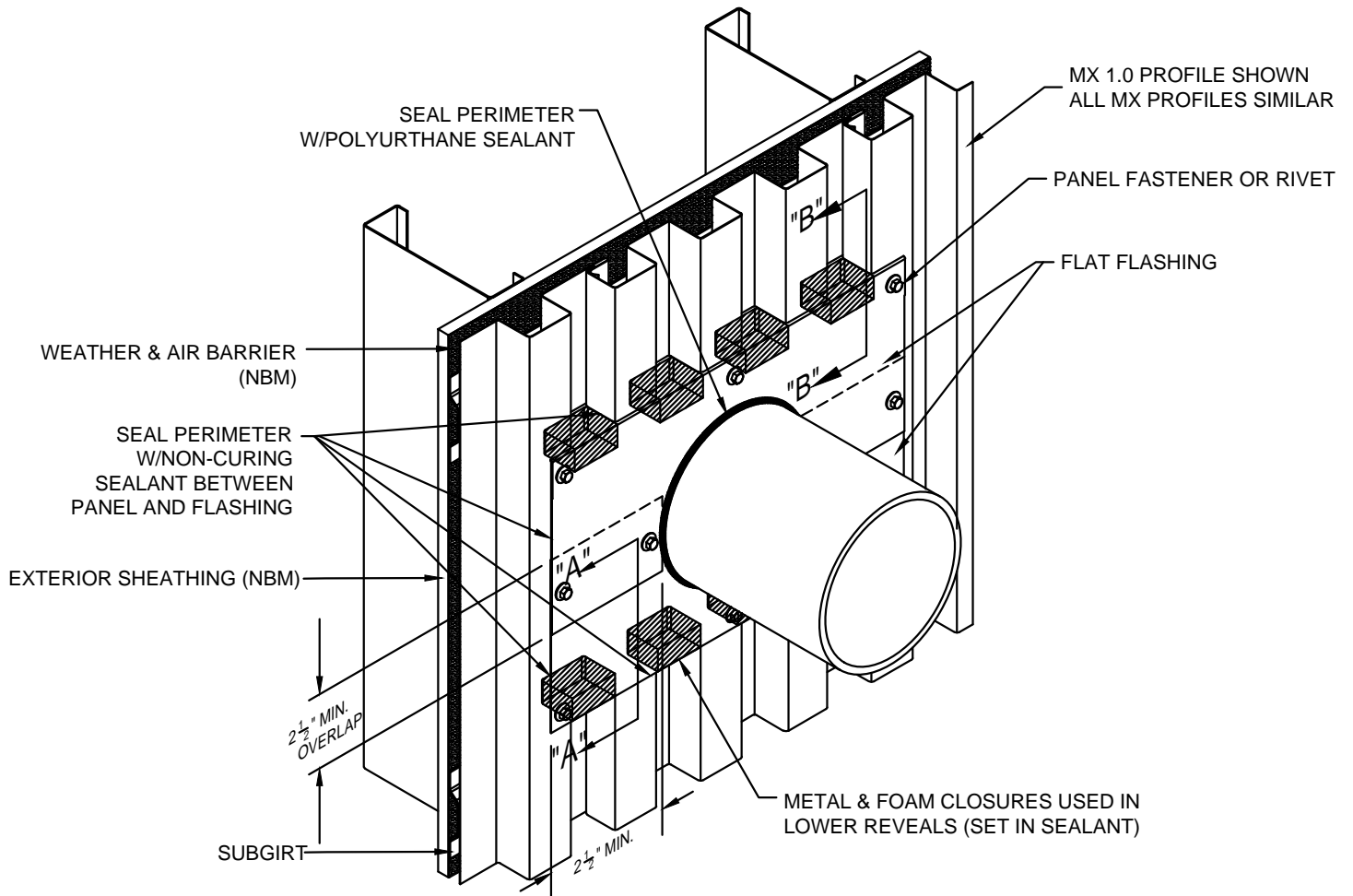


### INSIDE CORNER DETAIL

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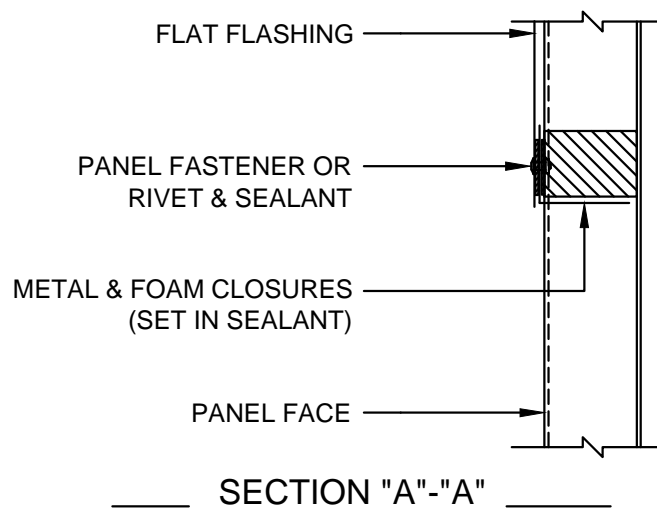
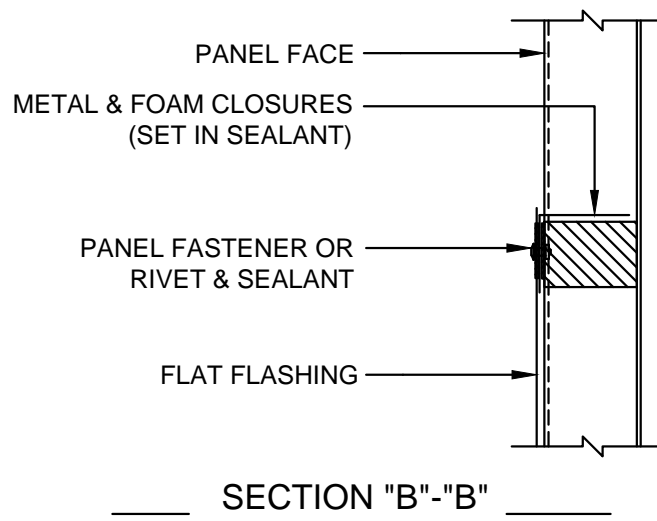
## Vertical Installation



### PENETRATION ISOMETRIC

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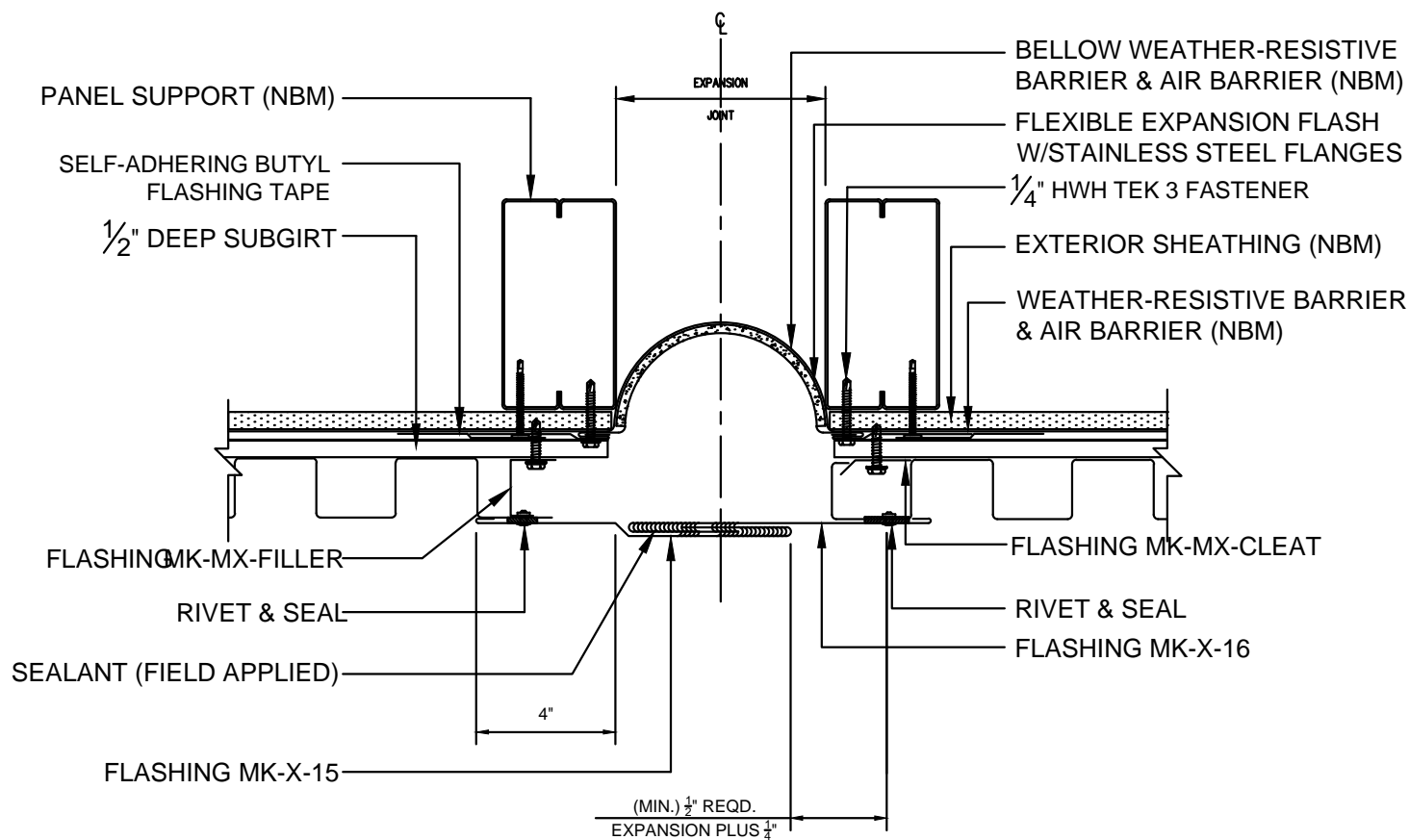
## Vertical Installation



### PENETRATION DETAIL

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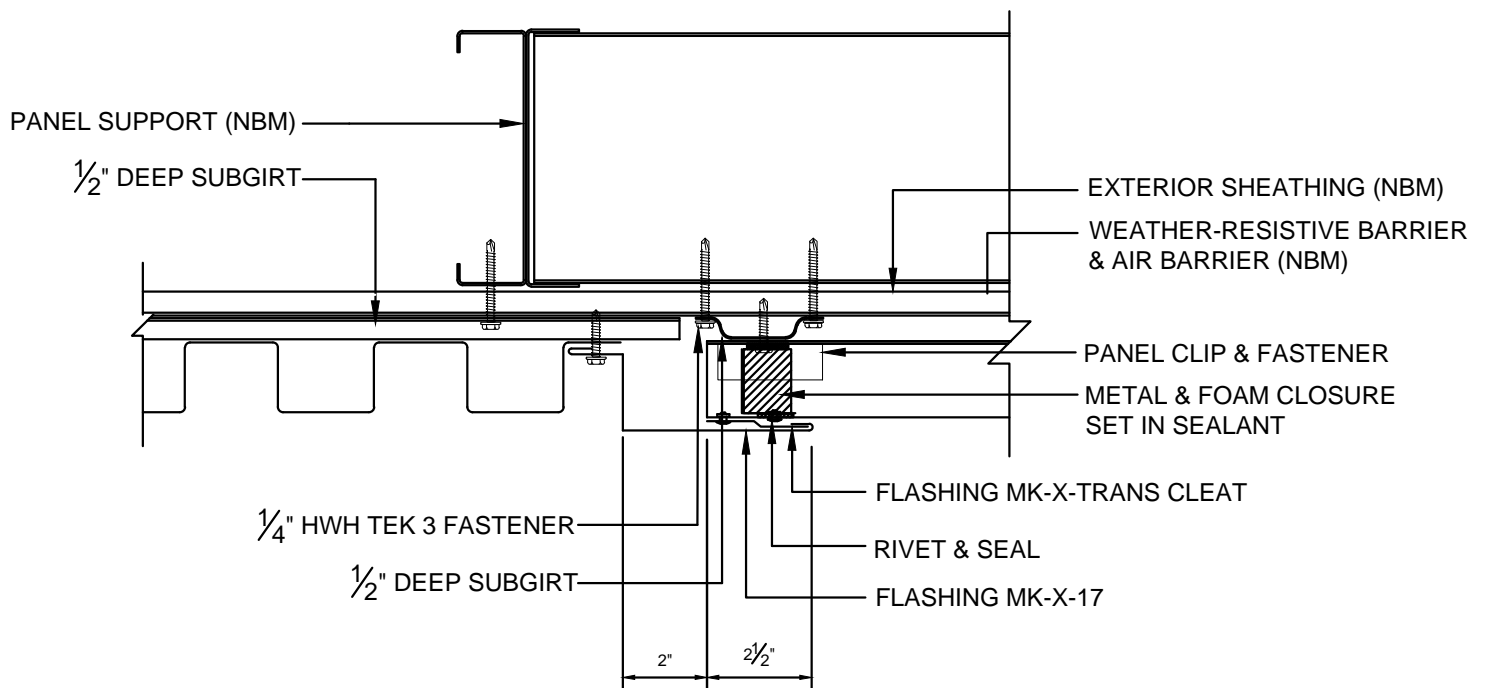
## Vertical Installation



### EXPANSION DETAIL

\*NBM=(NOT BY MORIN)

## Vertical Installation



### TRANSITION DETAIL

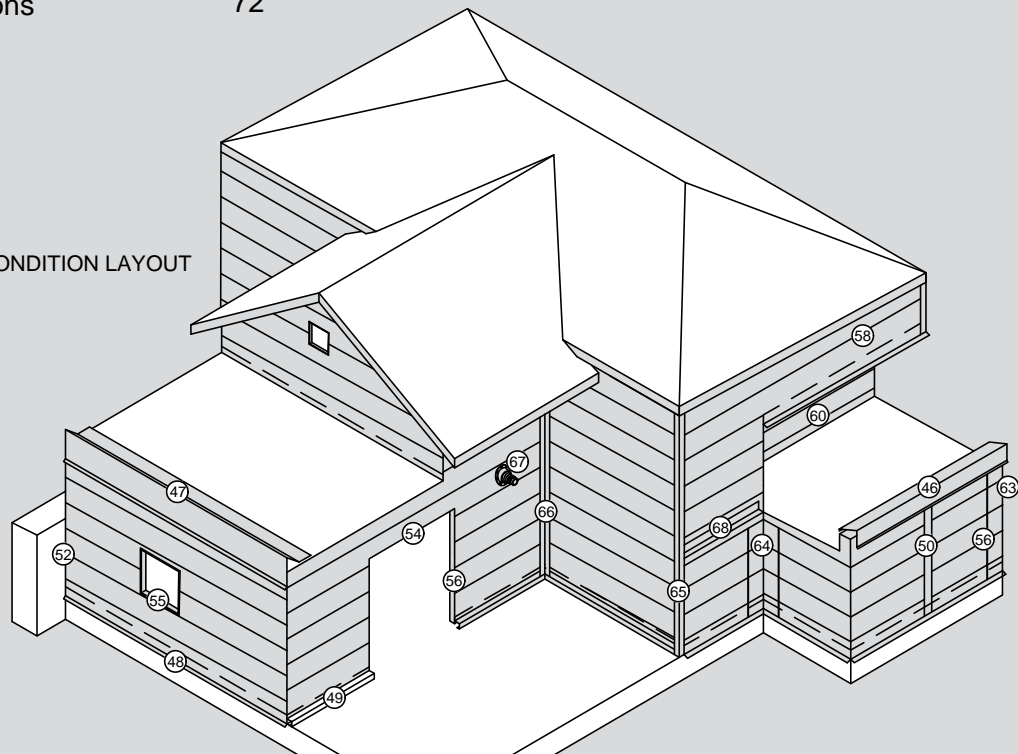
\*NBM=(NOT BY MORIN)

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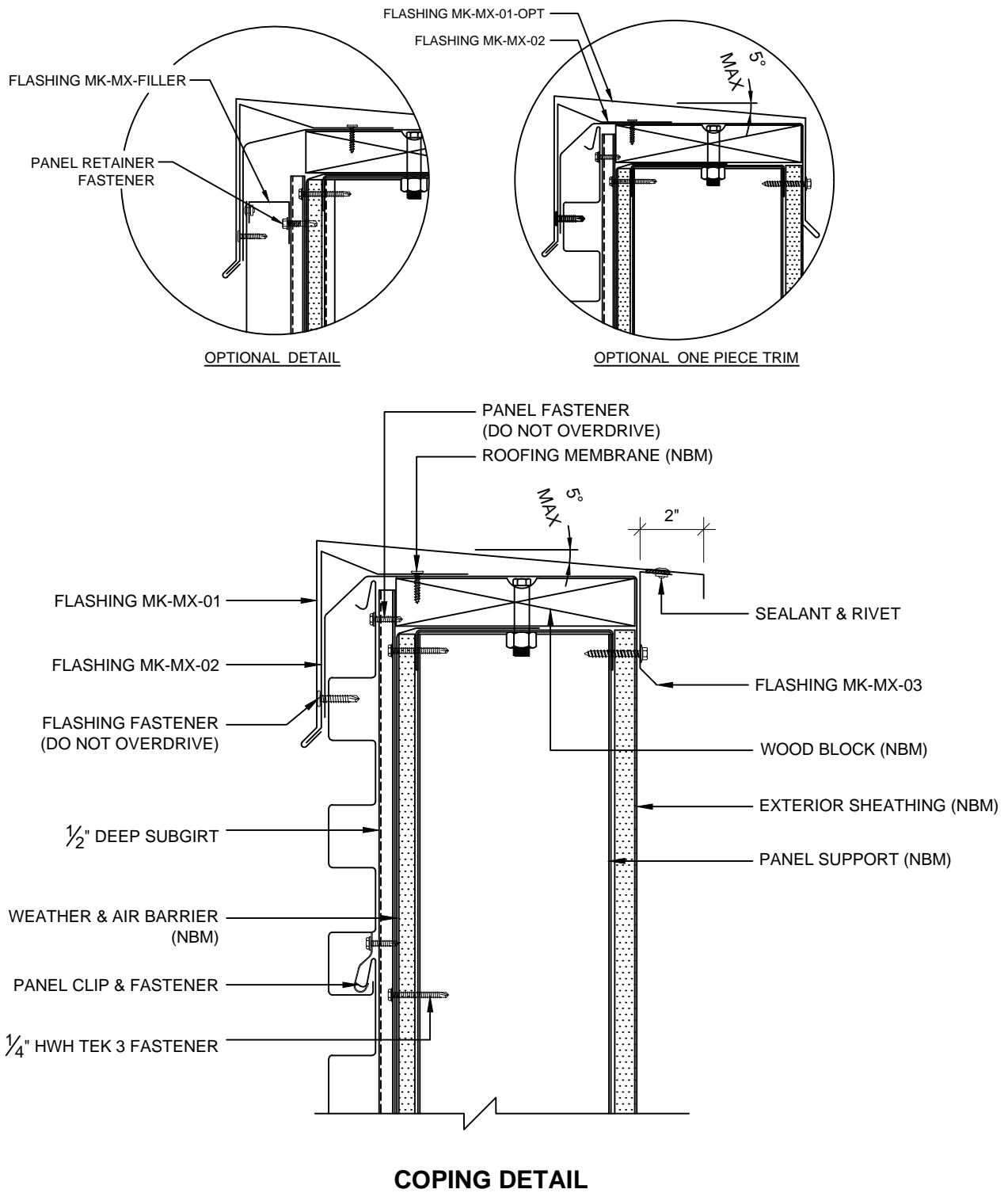


TYPICAL WALL CONDITION LAYOUT



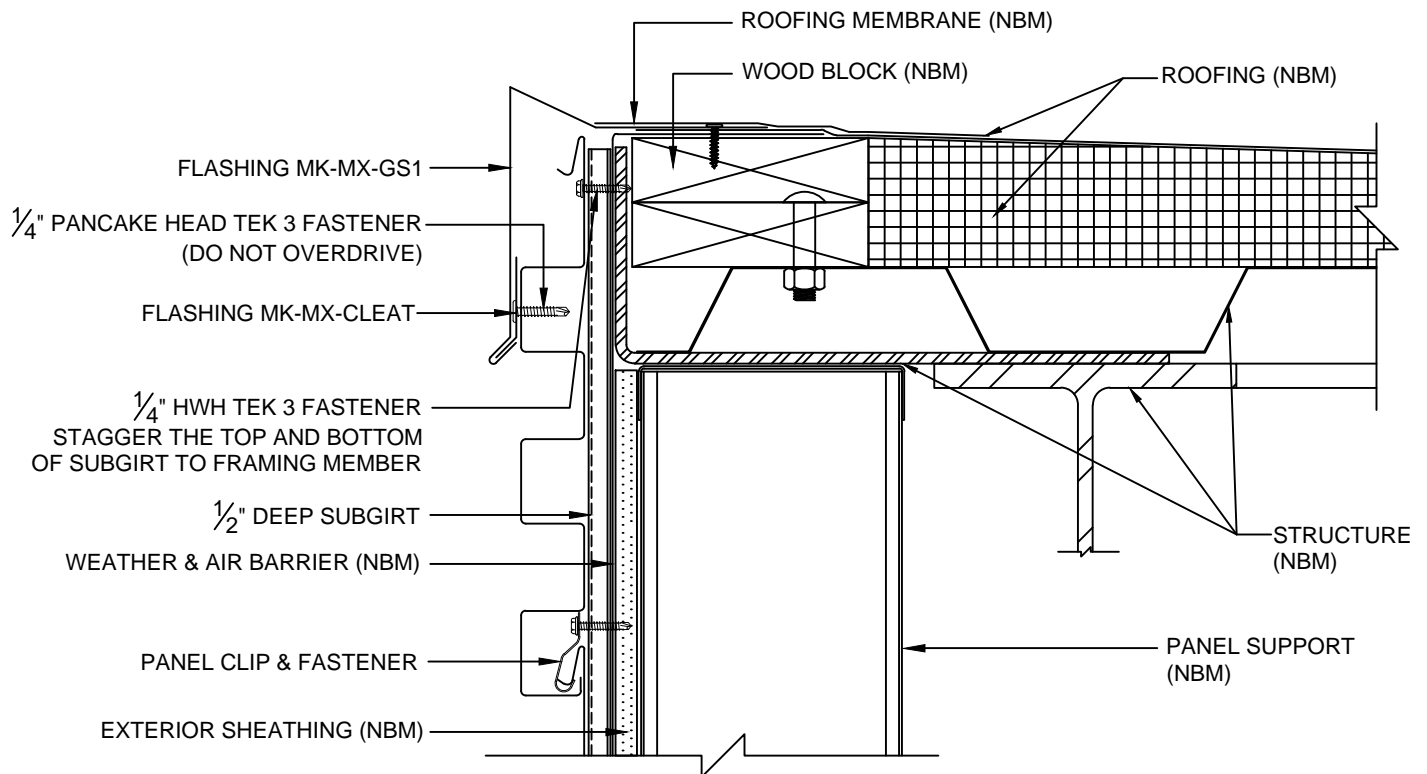
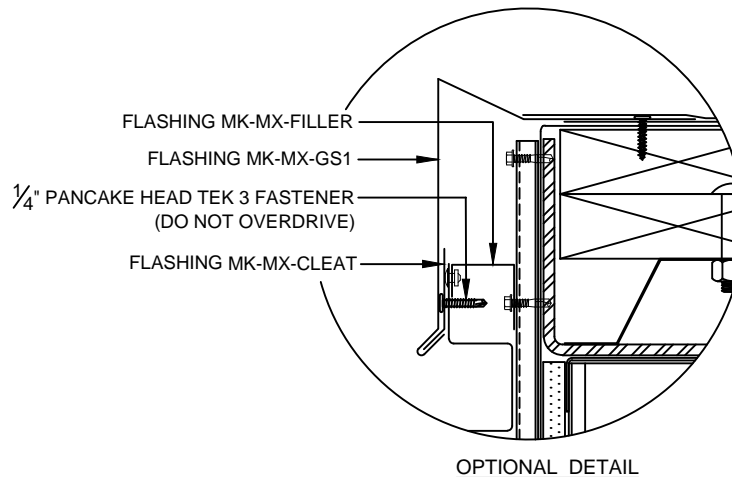


## Horizontal Installation



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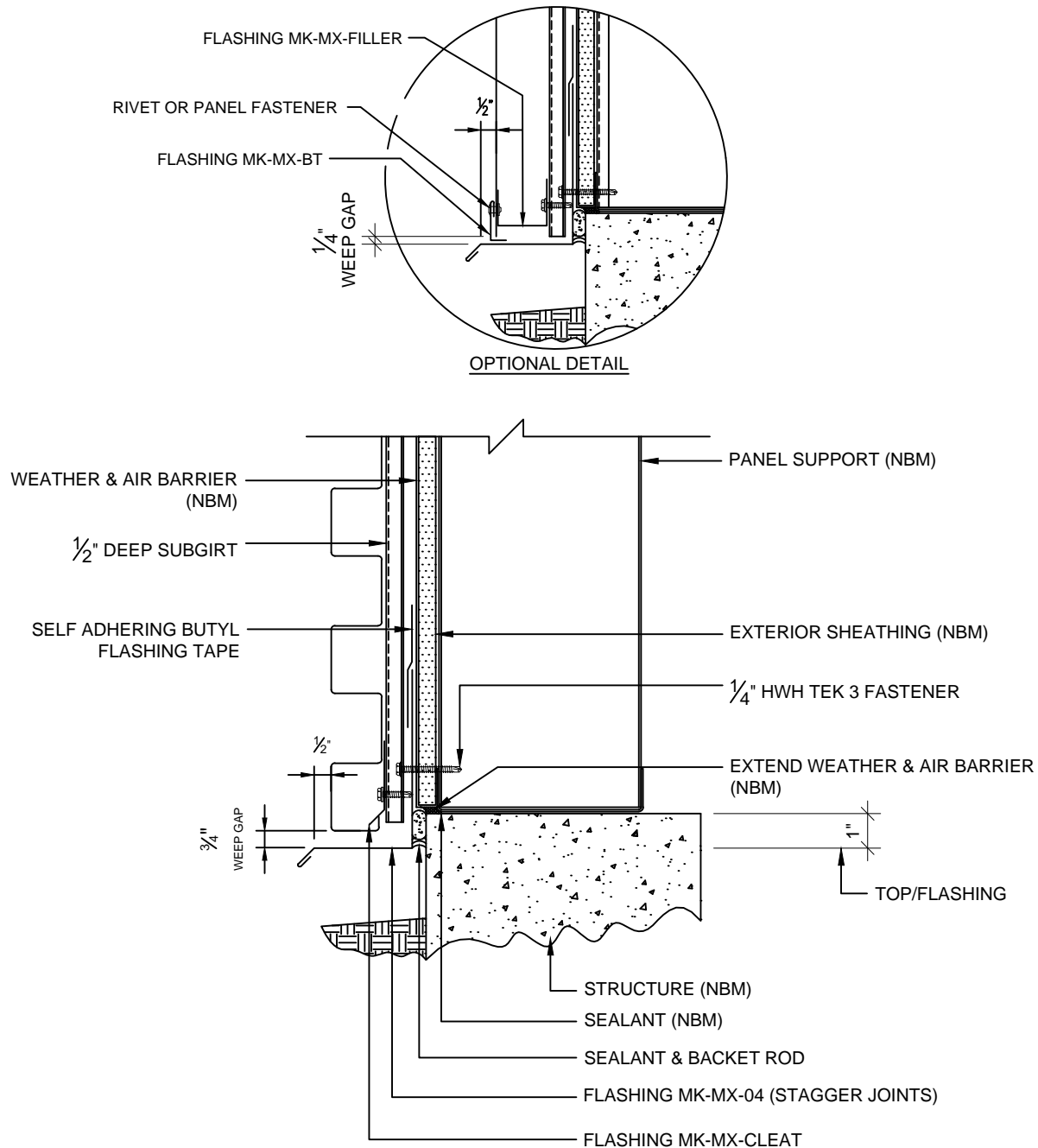
## Horizontal Installation



### GRAVELSTOP DETAIL

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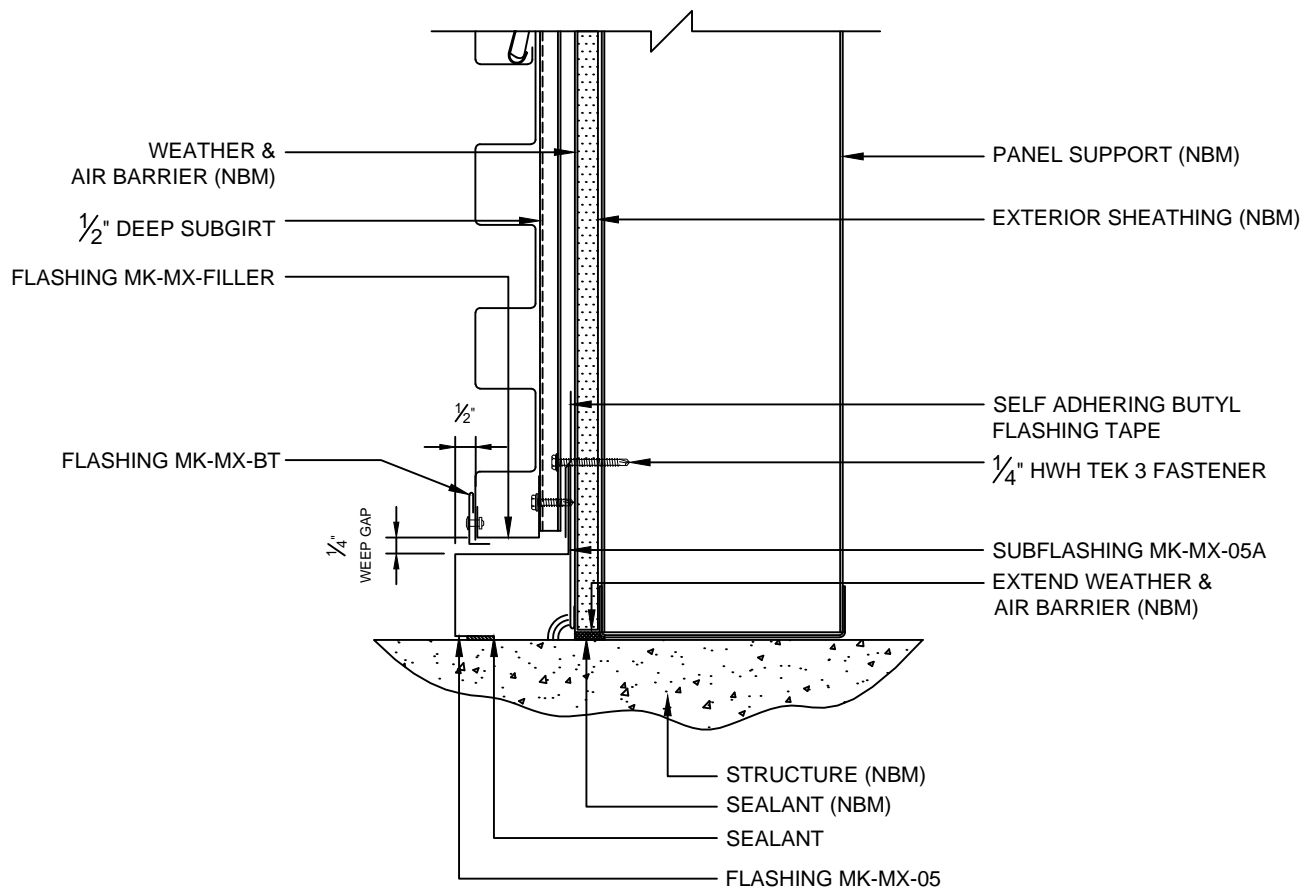
## Horizontal Installation



### BASE AT CURB OR EDGE OF SLAB

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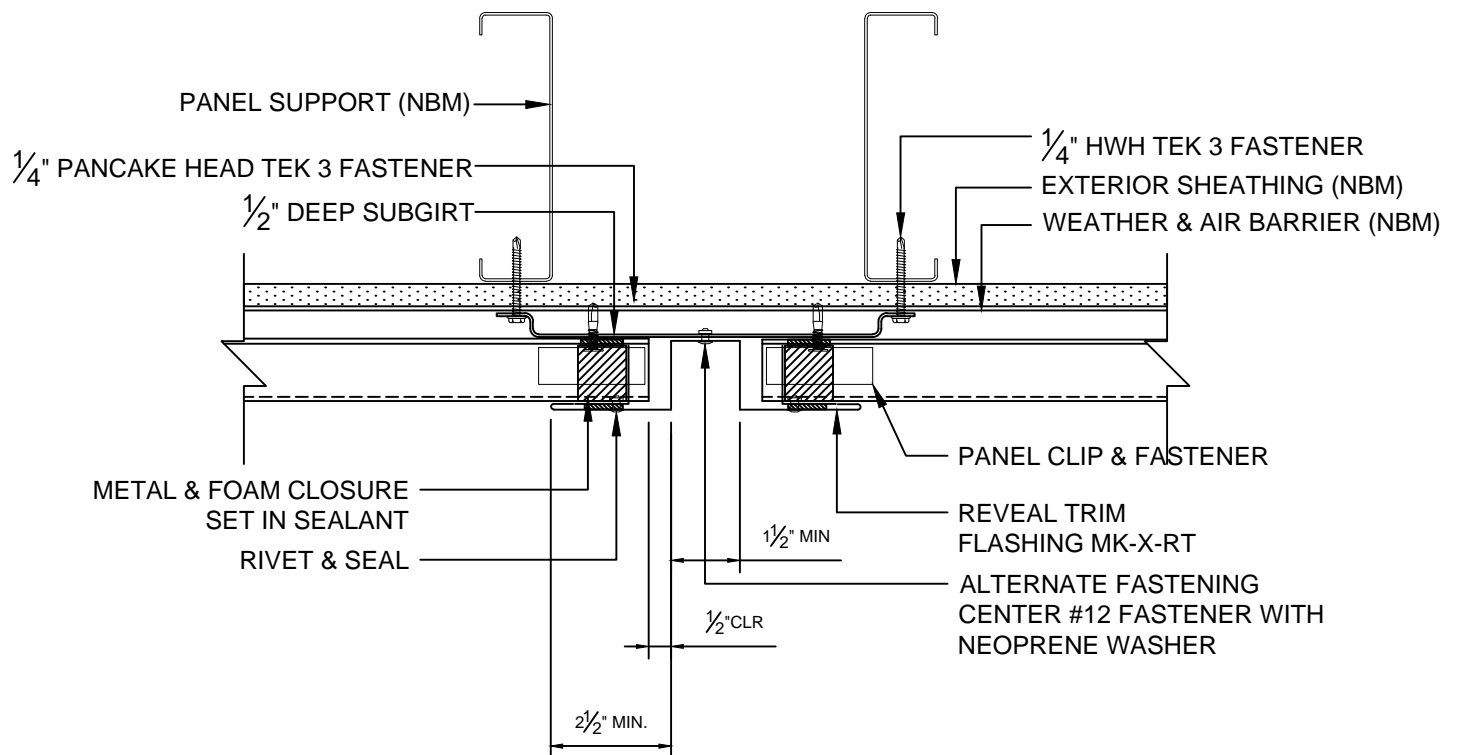
## Horizontal Installation



### BASE AT SLAB

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## Horizontal Installation

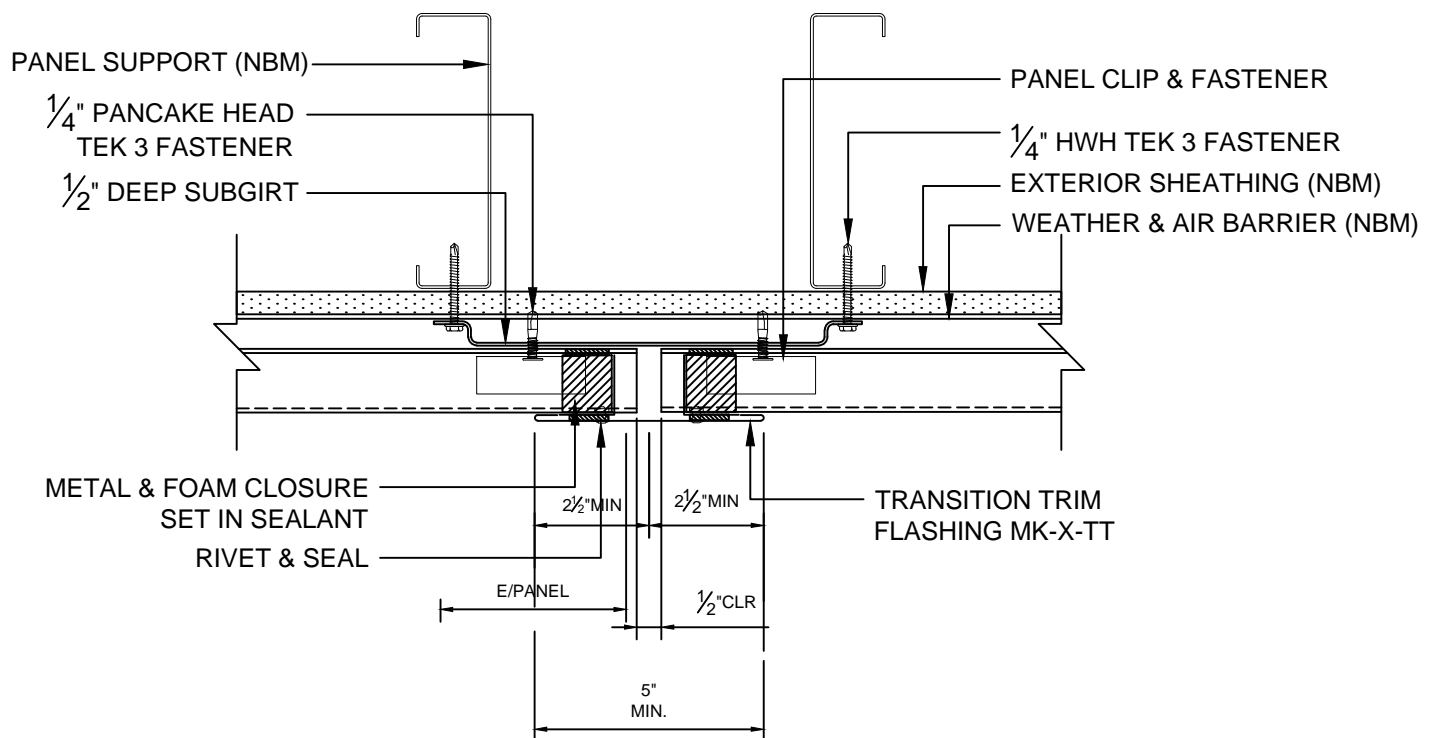


### REVEAL TRIM DETAIL

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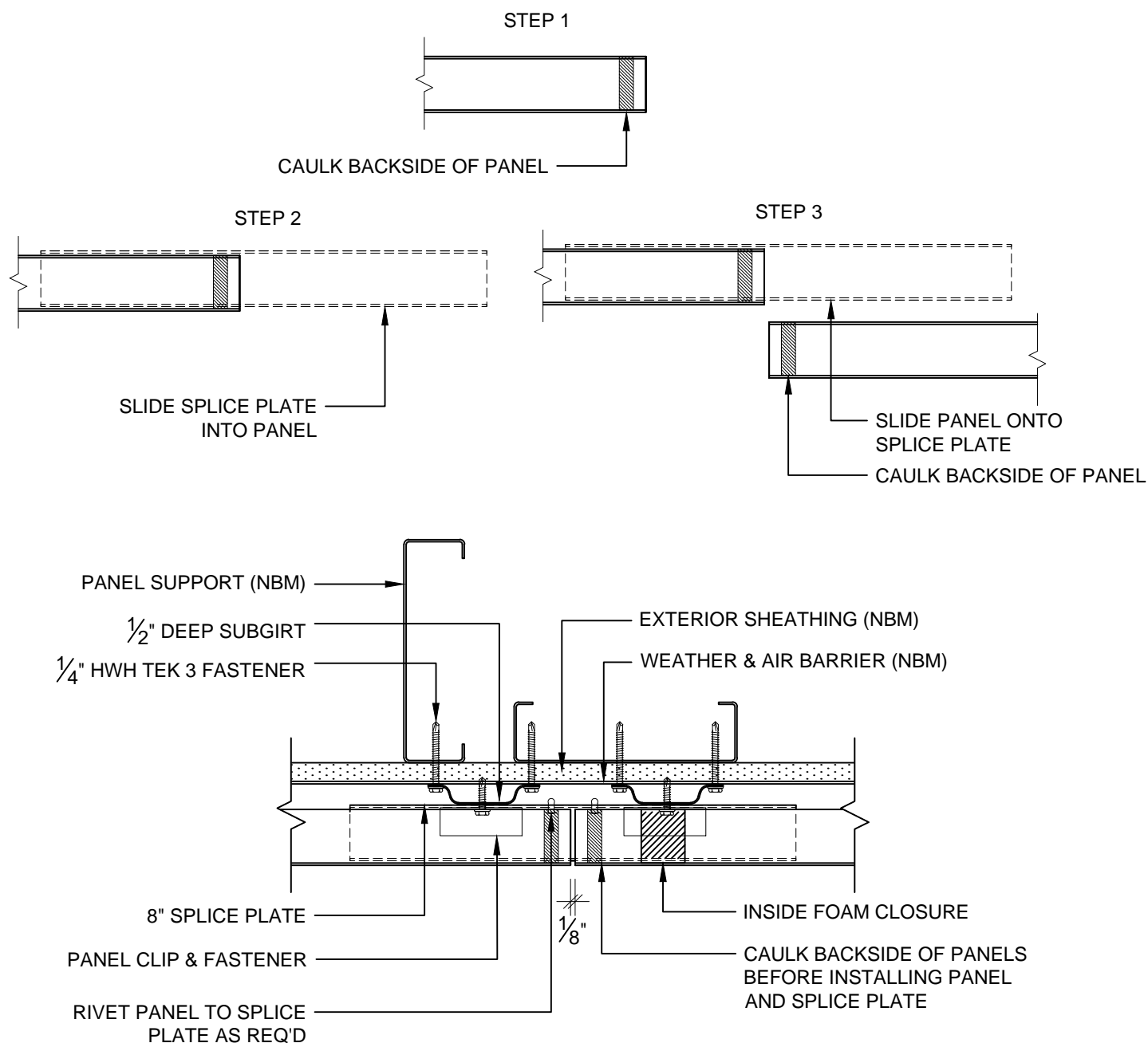
## Horizontal Installation



**TRANSITION TRIM DETAIL**

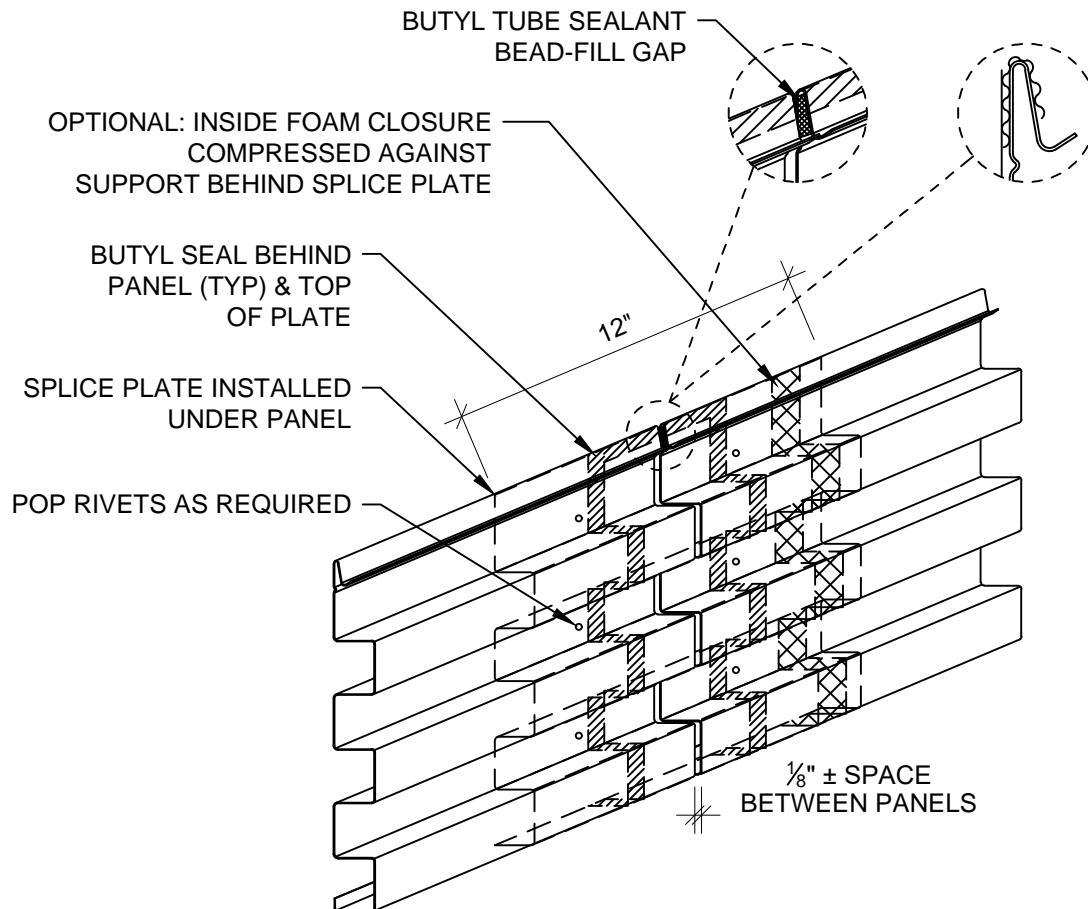
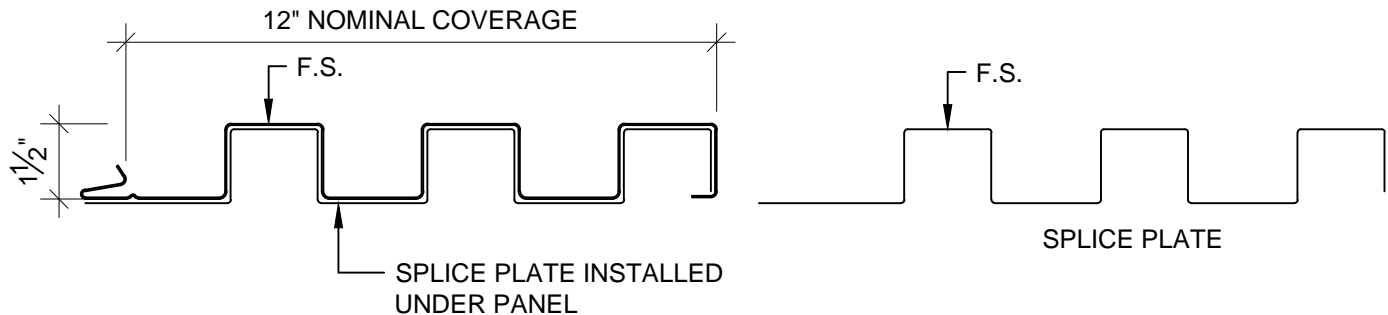
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## Horizontal Installation



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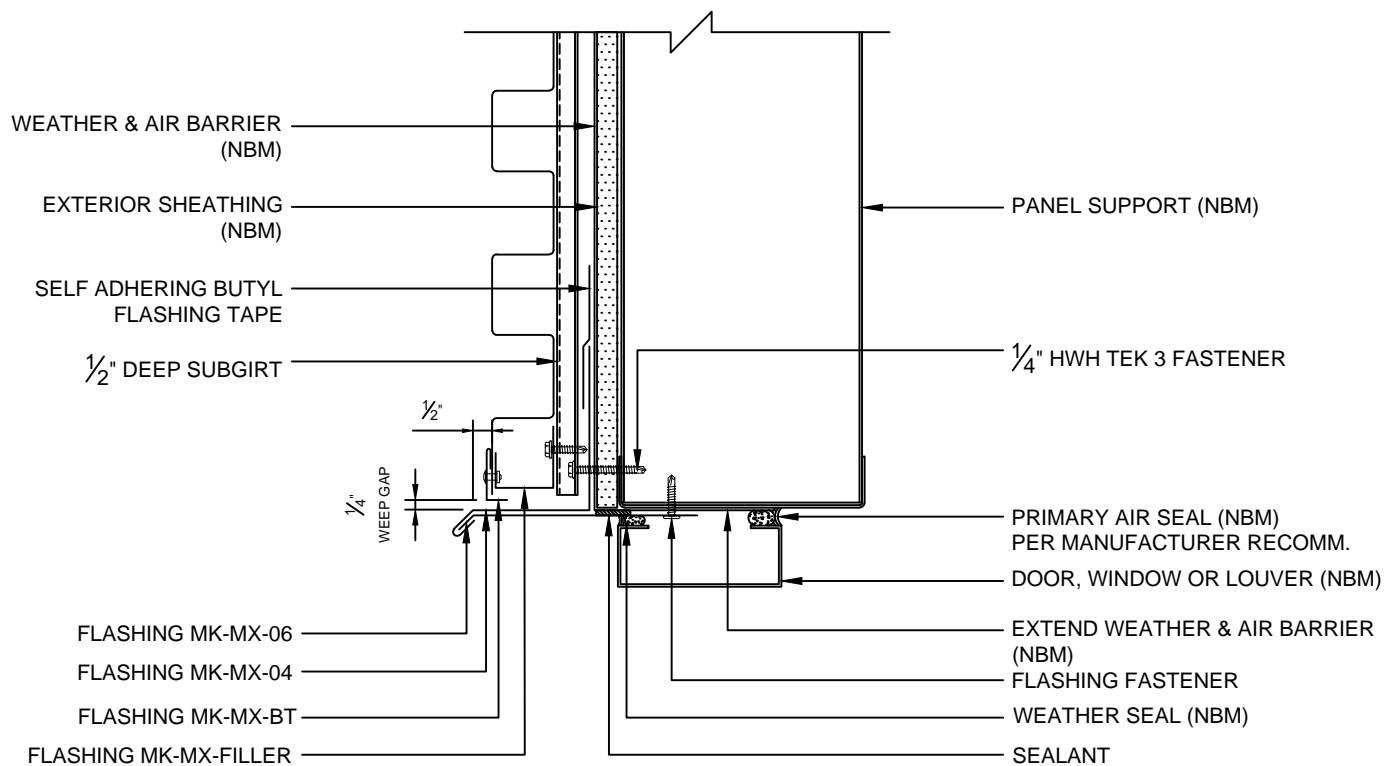
## Horizontal Installation



### SPLICE PLATE ASSEMBLY

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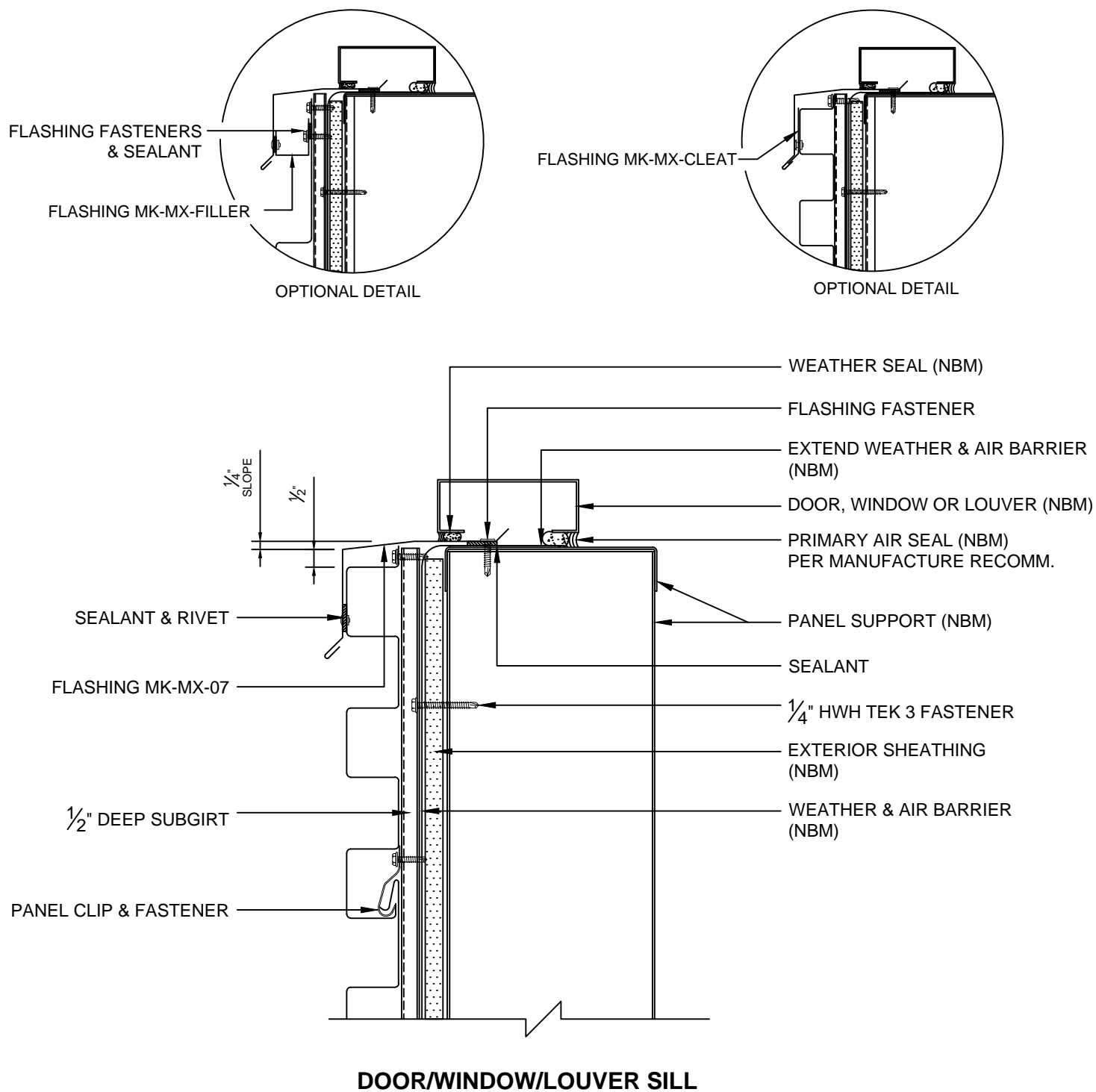
## Horizontal Installation



### DOOR/WINDOW/LOUVER HEAD

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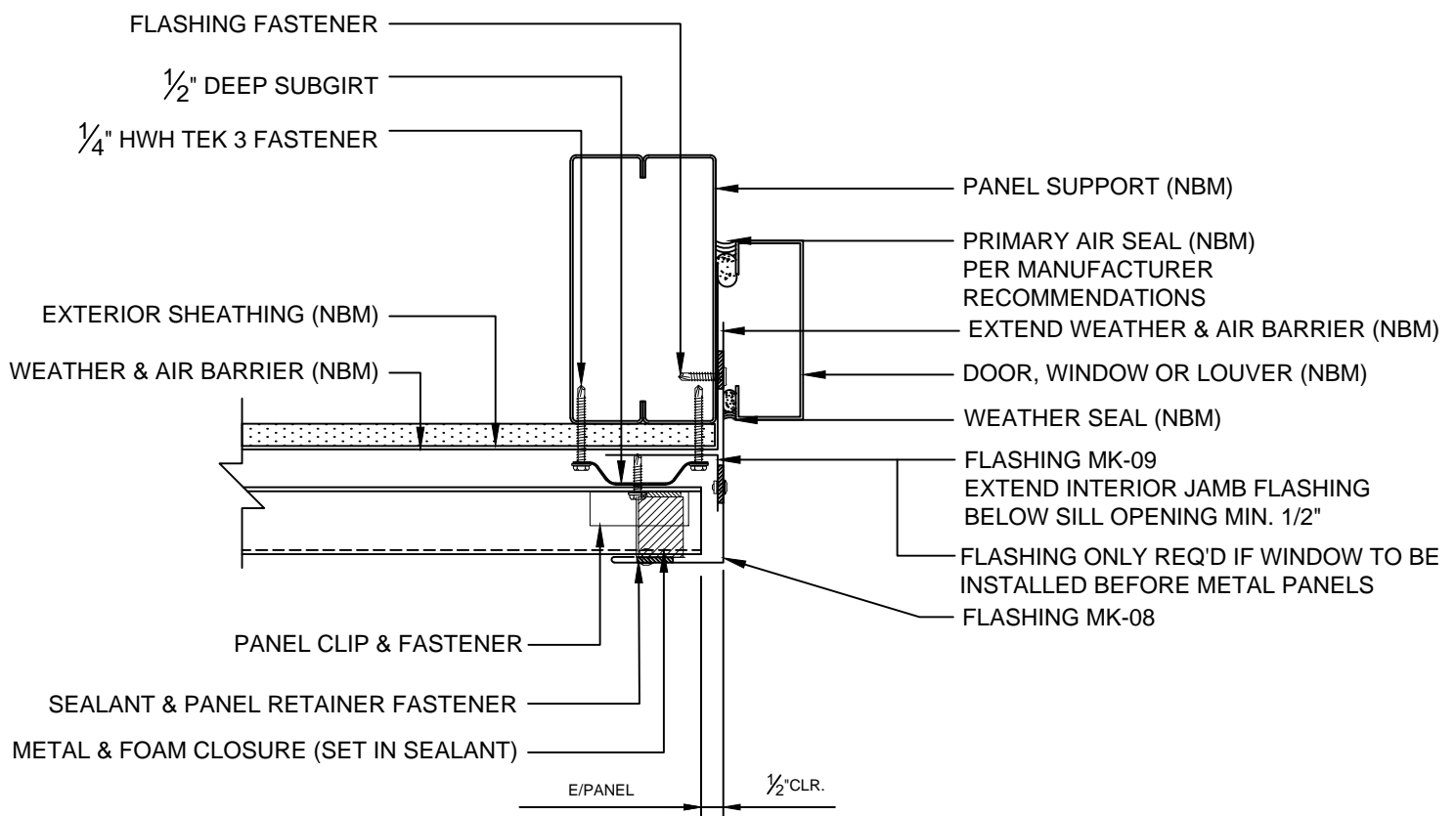
## Horizontal Installation



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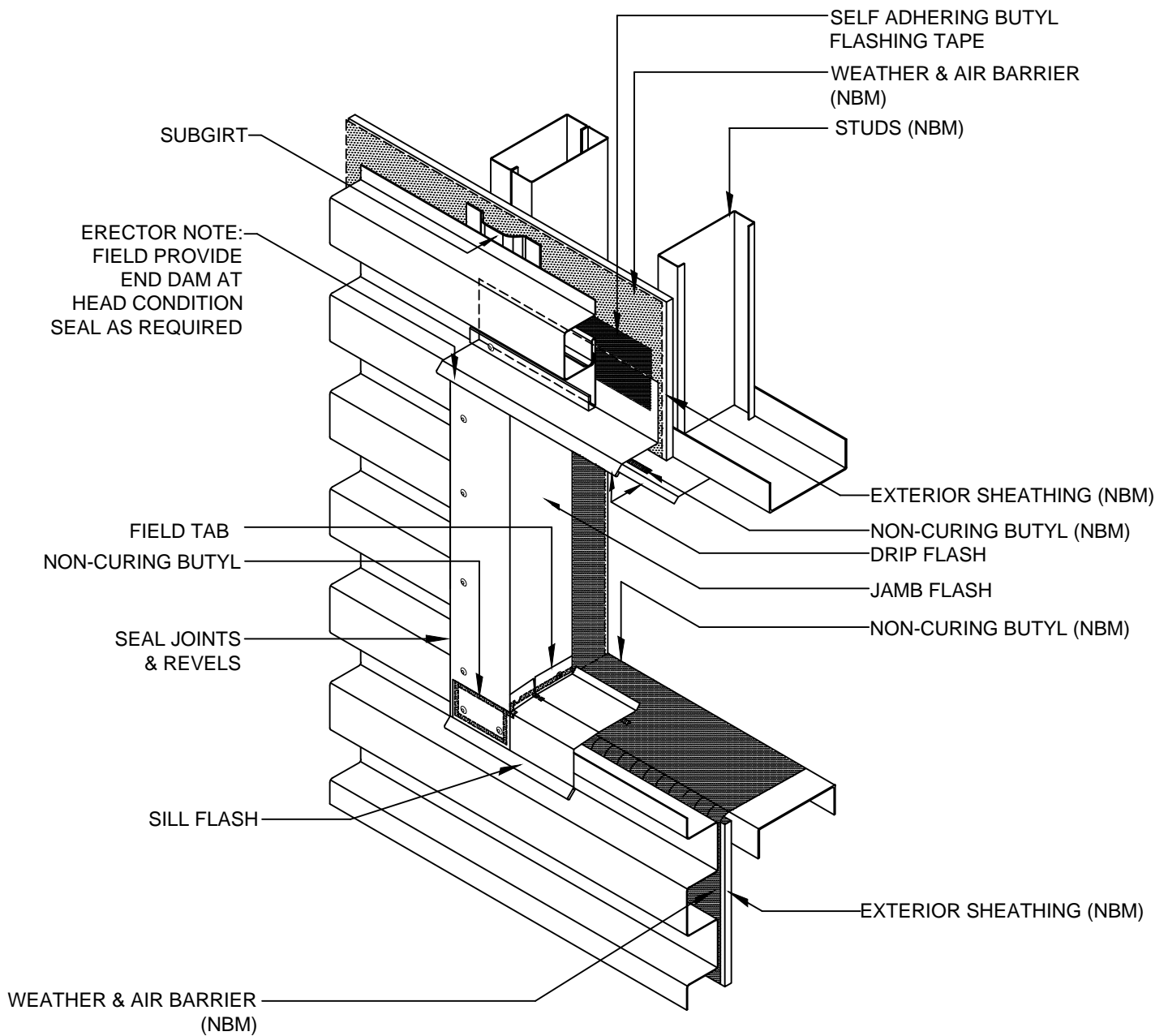
## Horizontal Installation



### DOOR/WINDOW/LOUVER JAMB

\*NBM=(NOT BY MORIN)

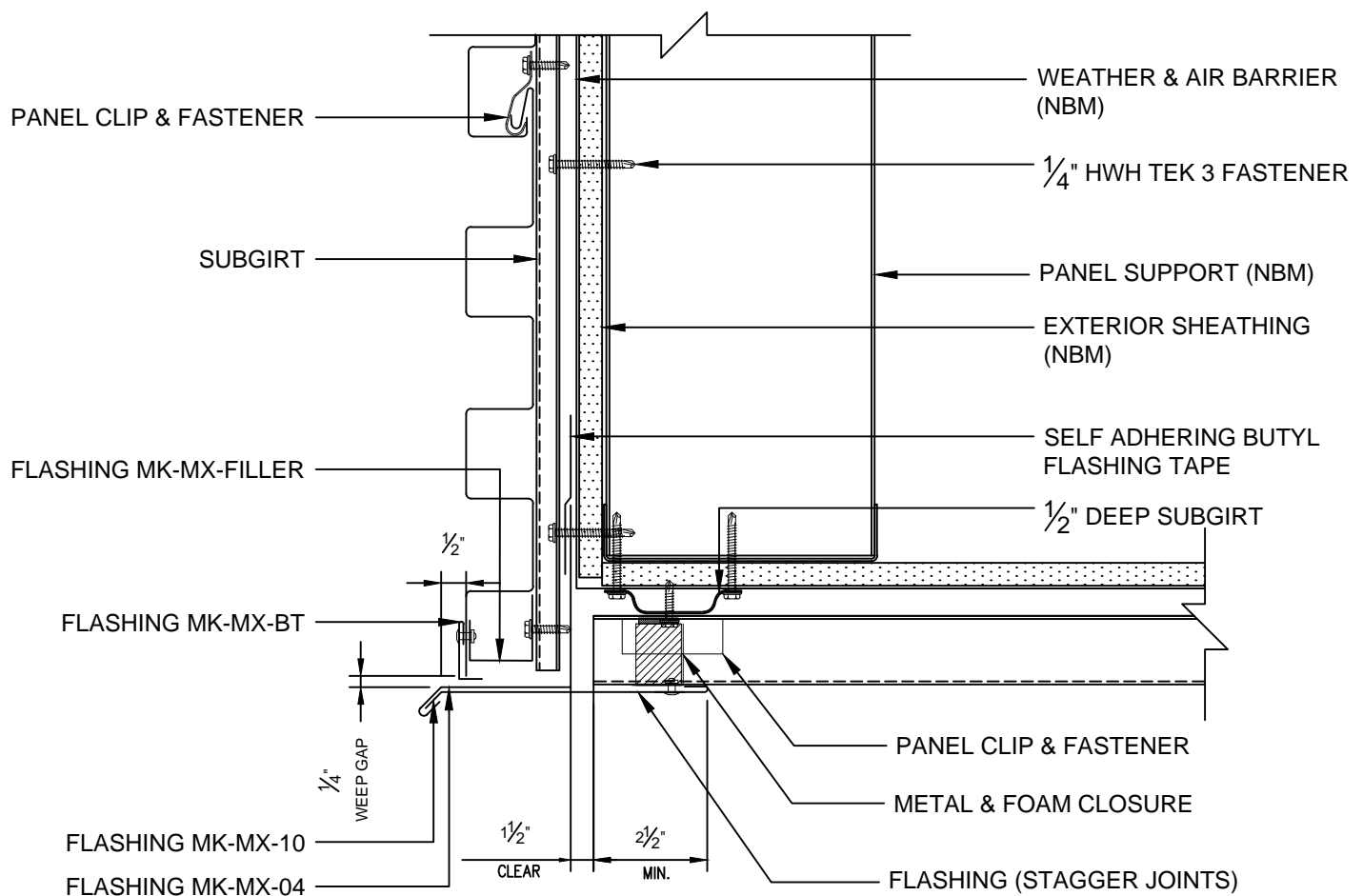
## Horizontal Installation



### INTERSECTION OF HEAD/JAMB/SILL

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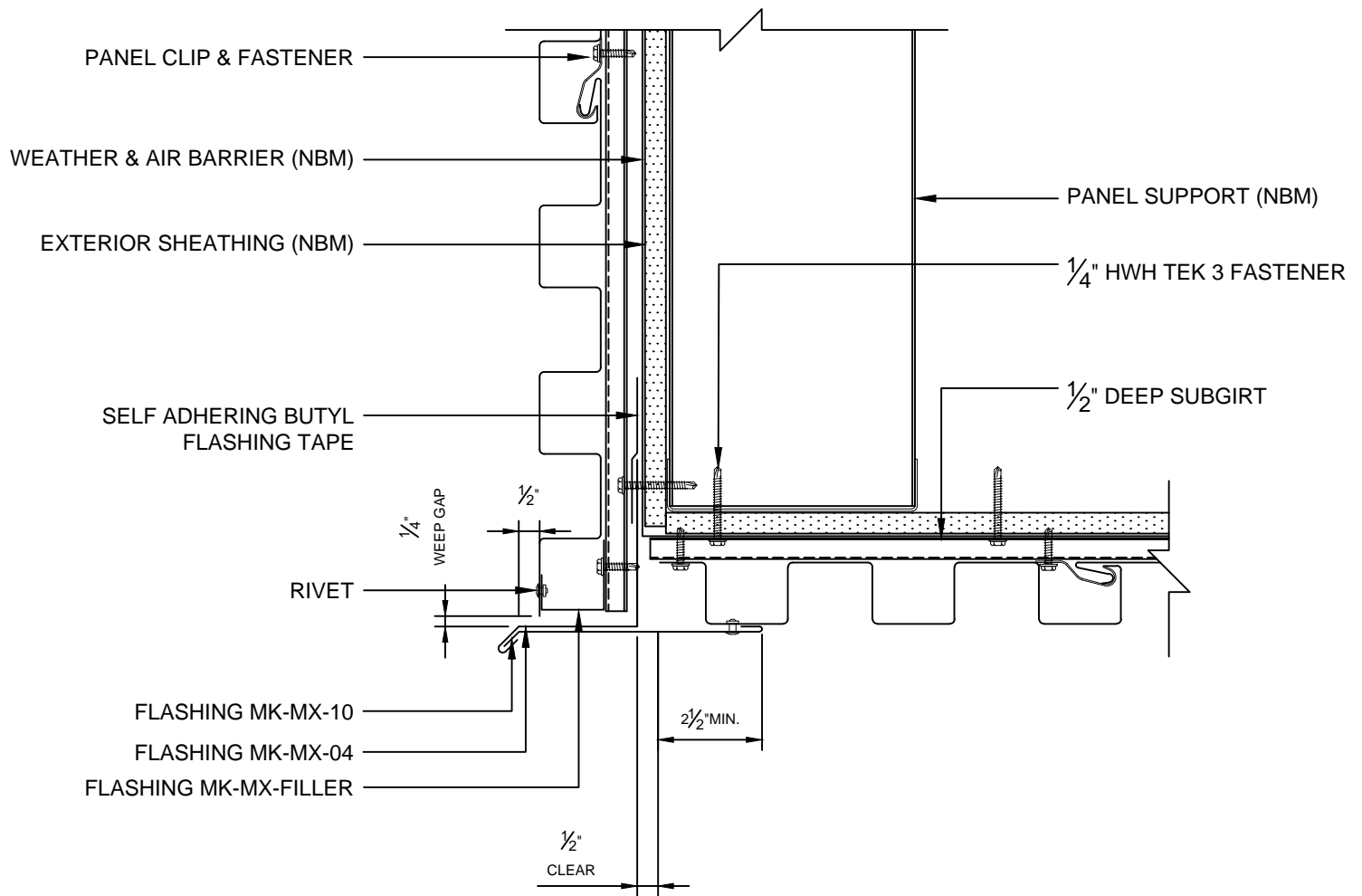
## Horizontal Installation



**FRONT SOFFIT DETAIL**

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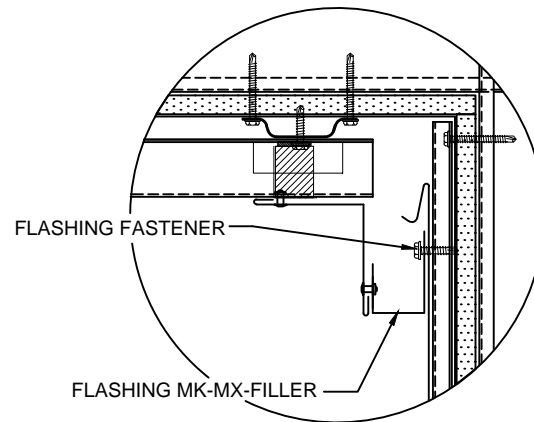
## Horizontal Installation



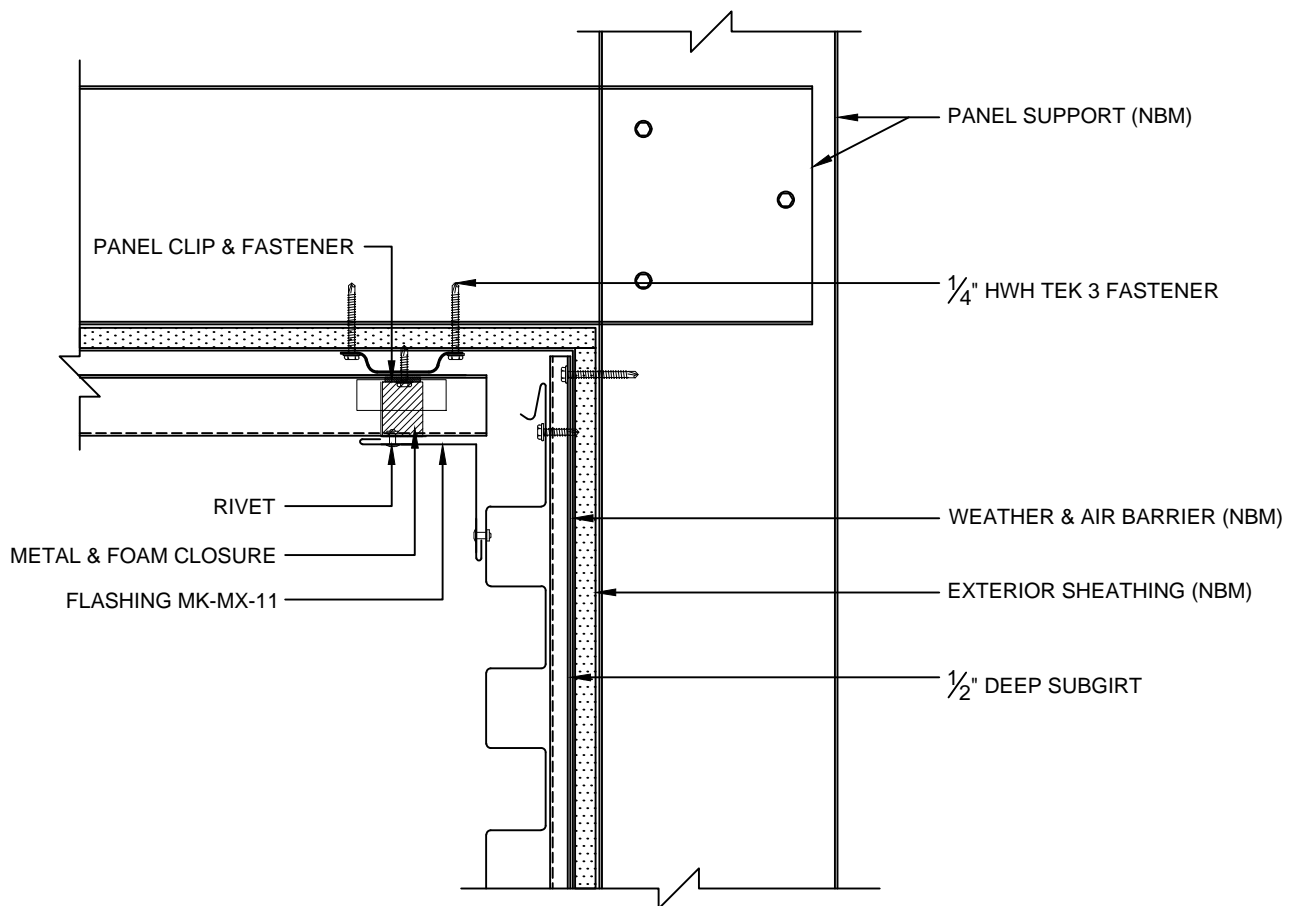
**FRONT SOFFIT DETAIL**

\*NBM=(NOT BY MORIN)

## Horizontal Installation



OPTIONAL DETAIL

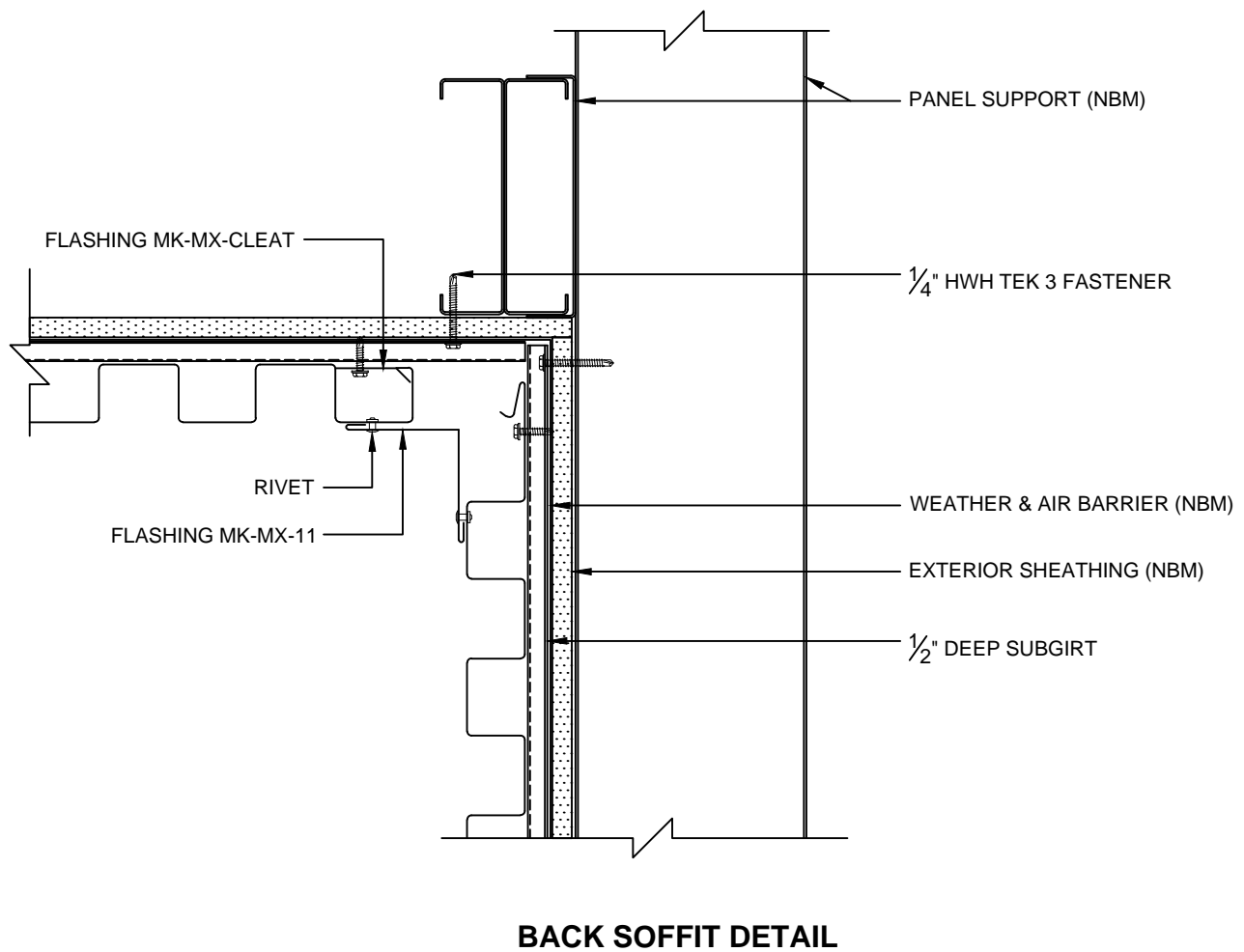
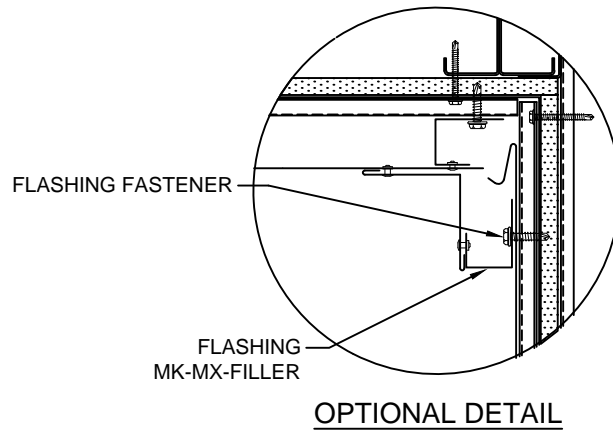


BACK SOFFIT DETAIL

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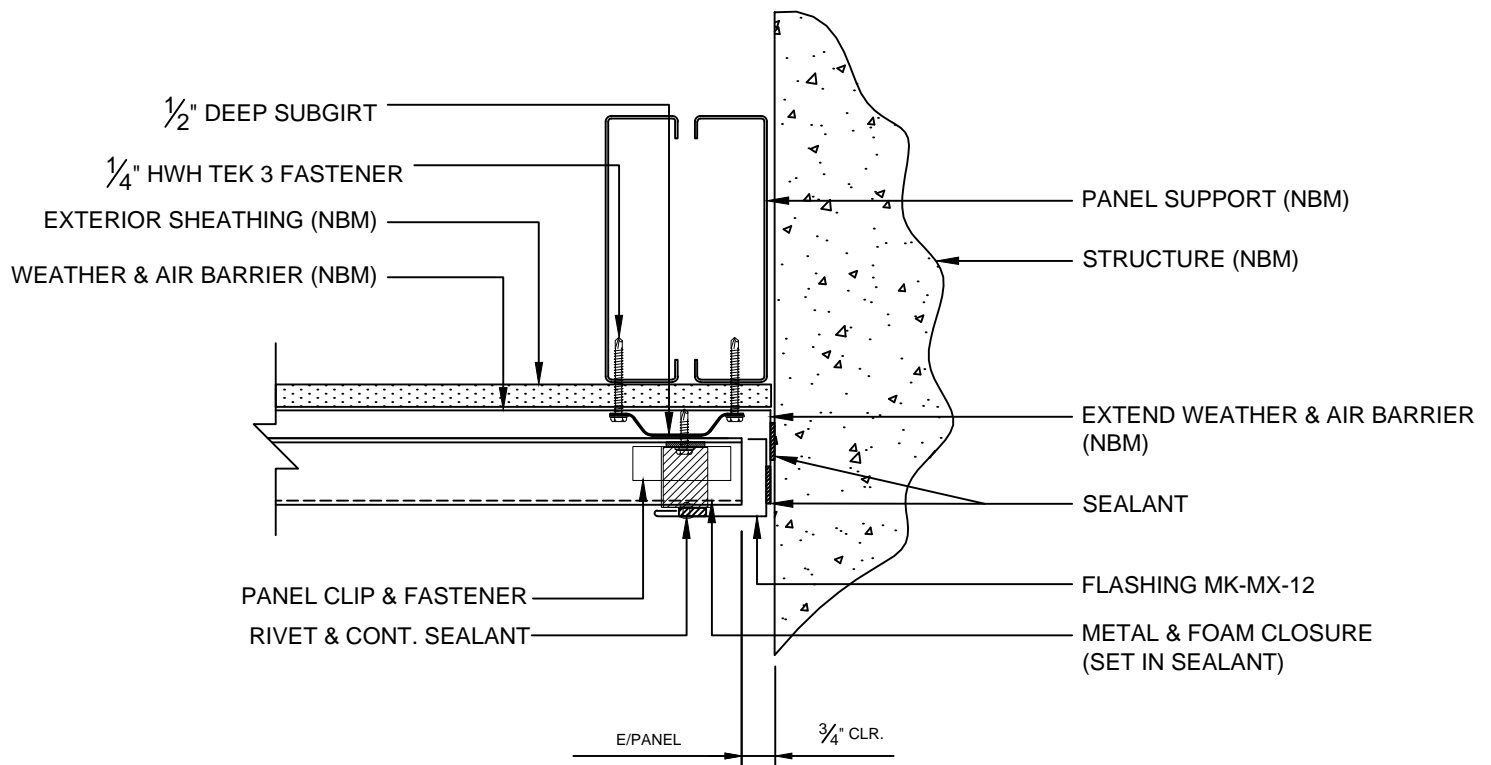


## Horizontal Installation



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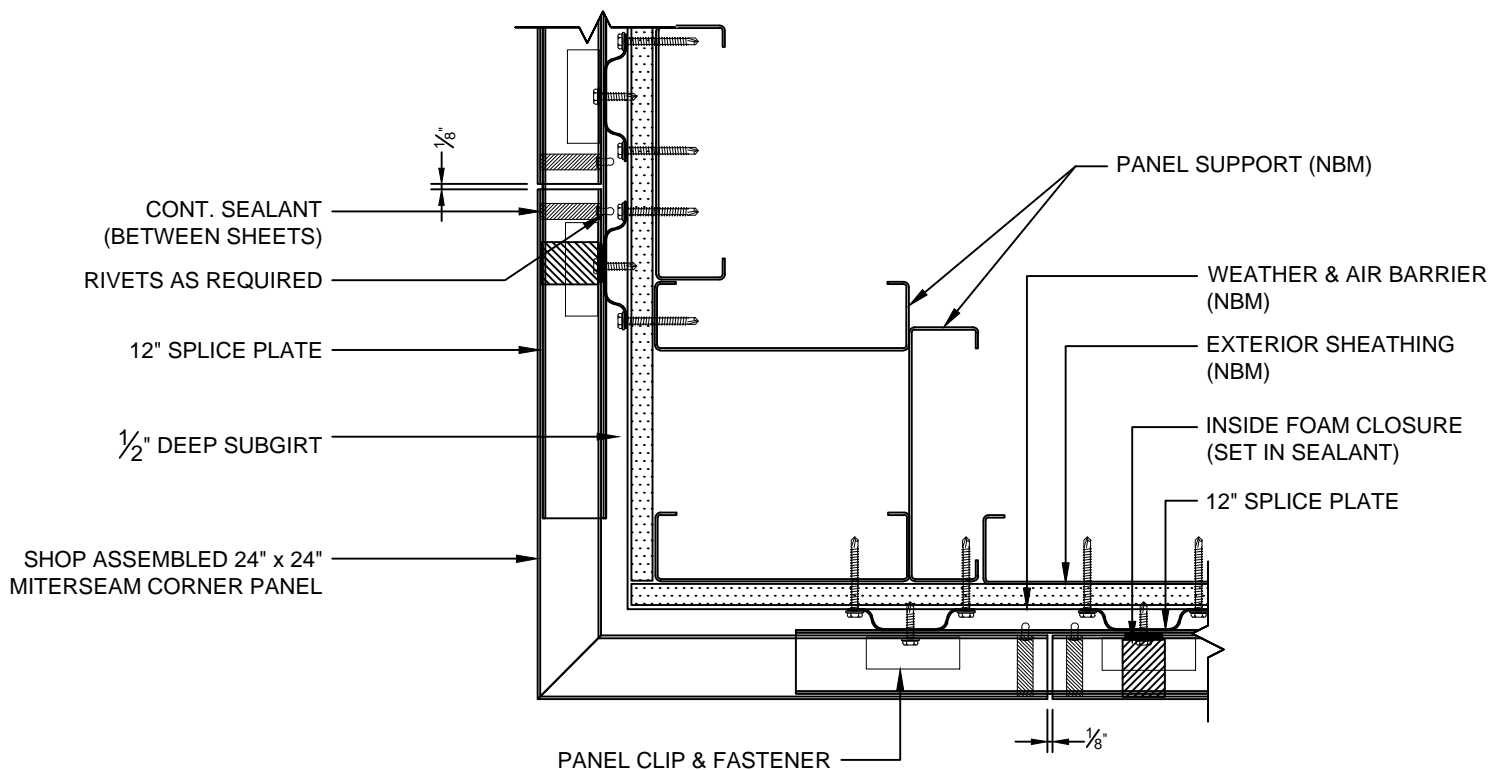
## Horizontal Installation



### ENDWALL DETAIL

\*NBM=(NOT BY MORIN)

## Horizontal Installation

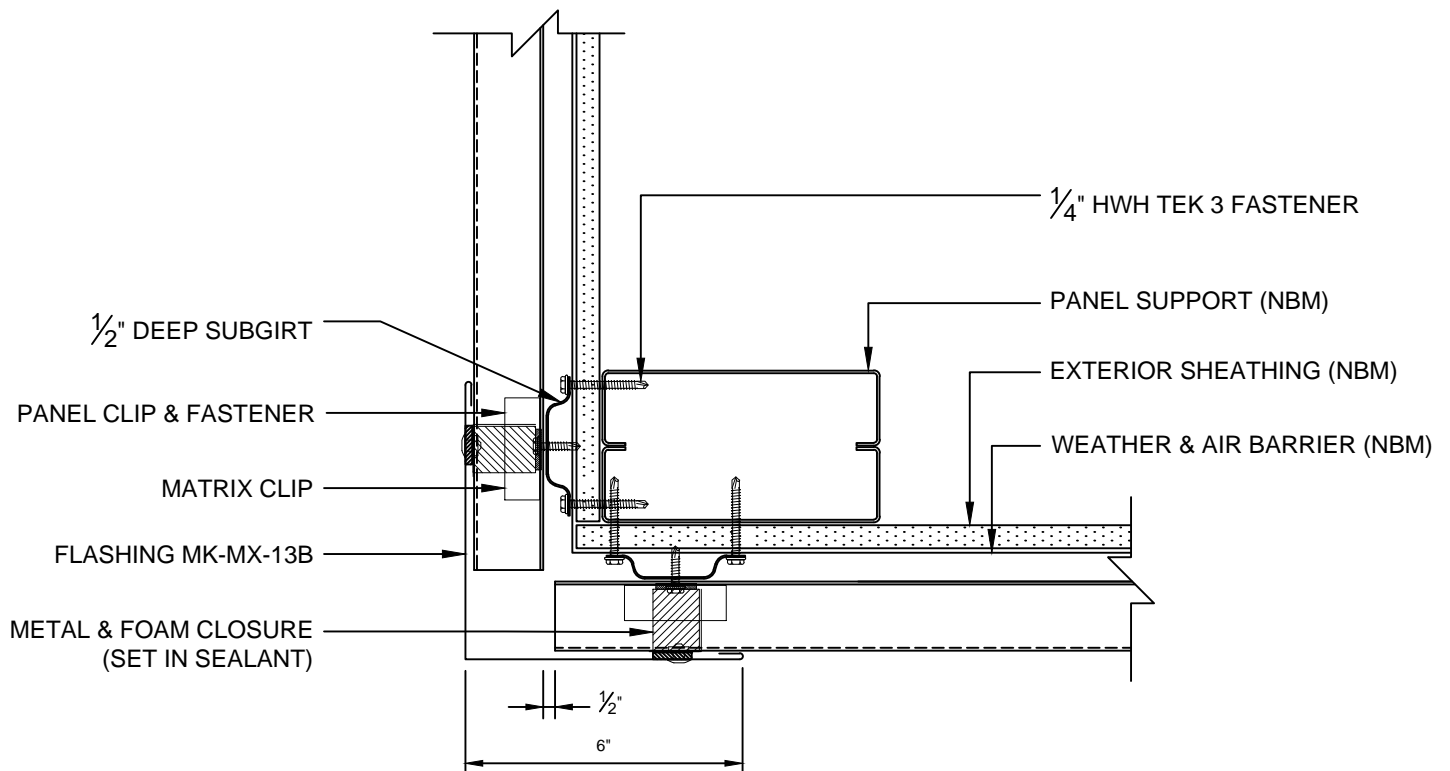


### OUTSIDE CORNER (MITERSEAM) DETAIL

\*CORNER TO BE INSTALLED  
AT SAME TIME AS PANELS

\*NBM=(NOT BY MORIN)

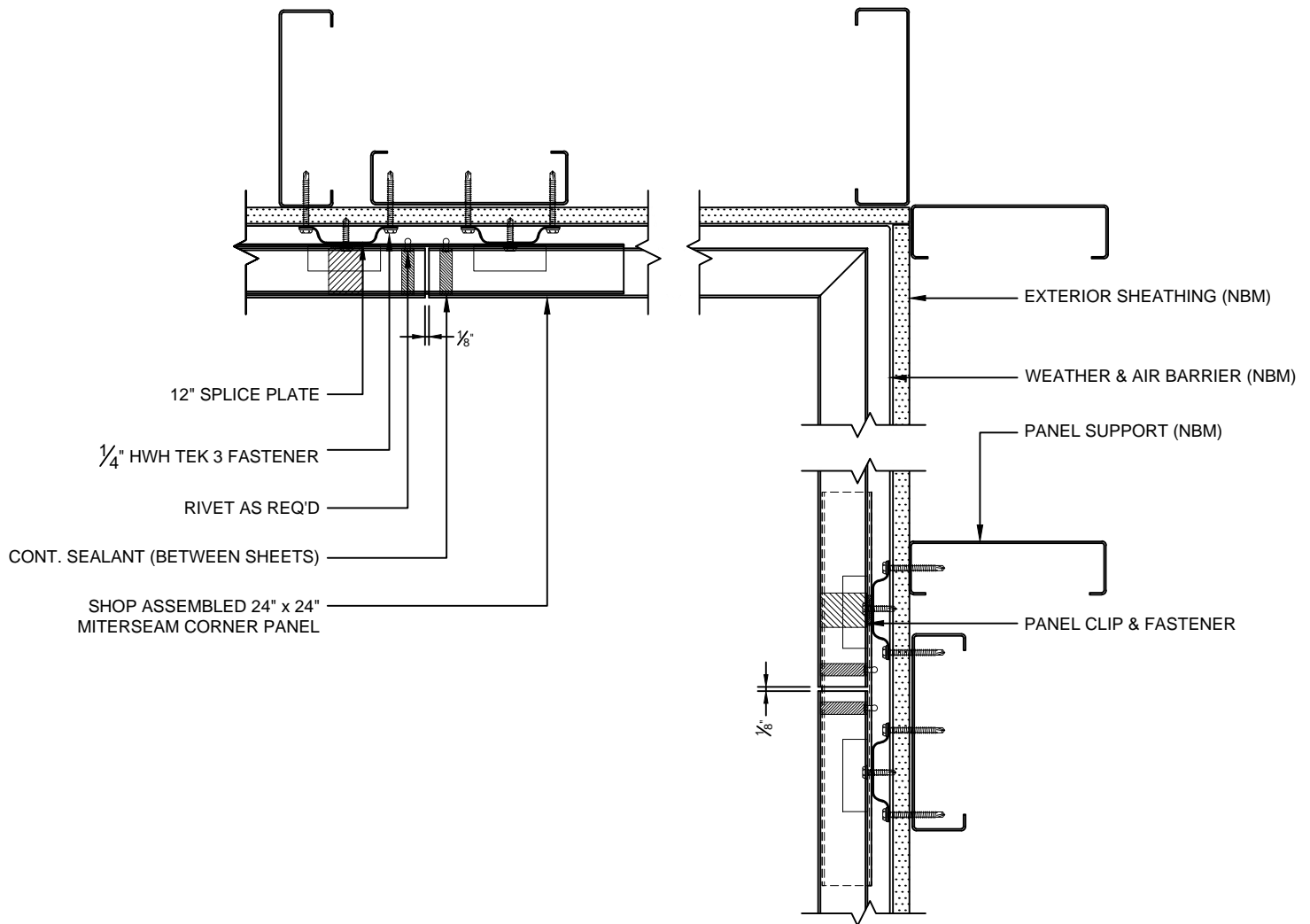
## Horizontal Installation



### OUTSIDE CORNER DETAIL

\*NBM=(NOT BY MORIN)

## Horizontal Installation

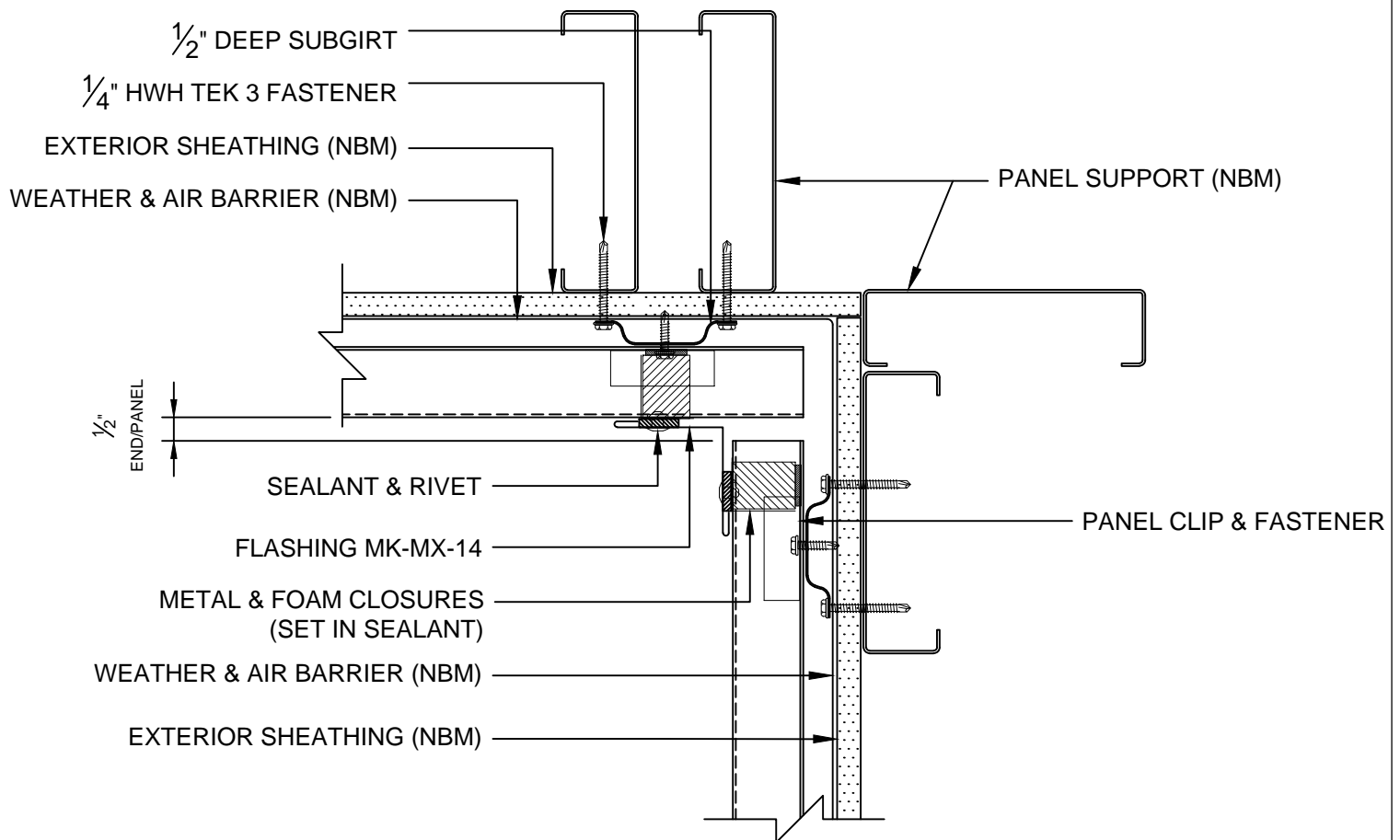


### INSIDE CORNER (MITERSEAM) DETAIL

\*CORNER TO BE INSTALLED  
AT SAME TIME AS PANELS

\*NBM=(NOT BY MORIN)

## Horizontal Installation

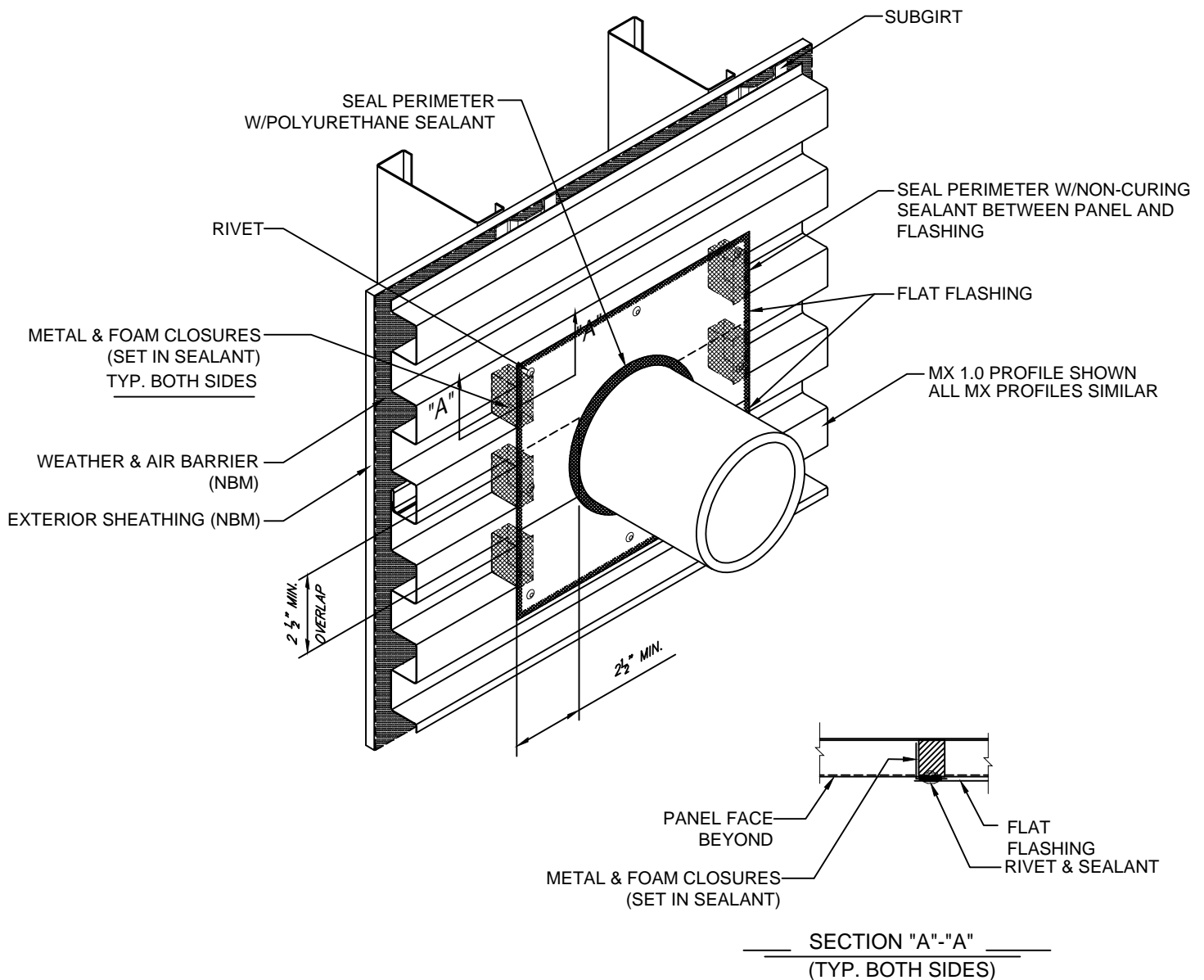


### INSIDE CORNER DETAIL

\*NBM=(NOT BY MORIN)



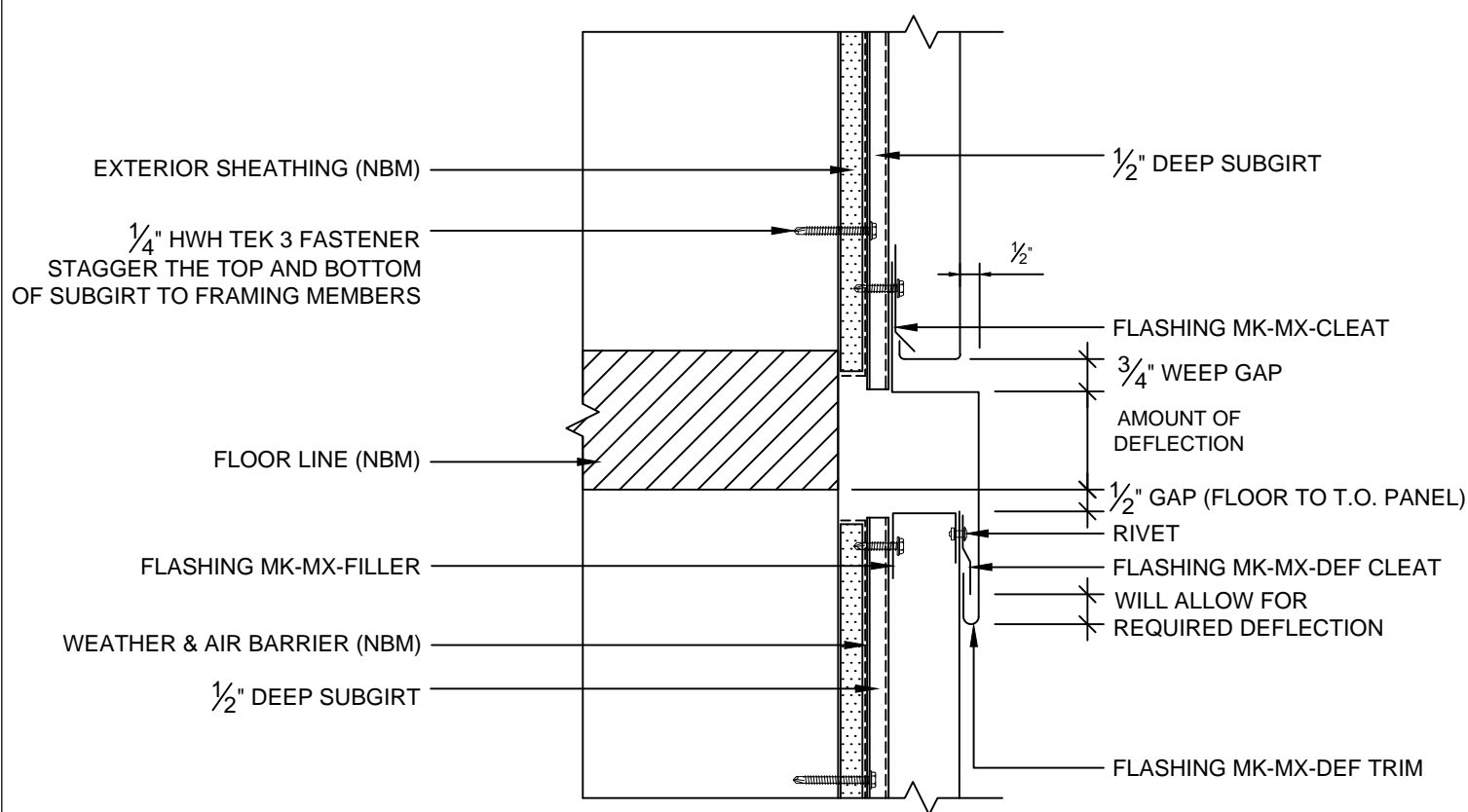
## Horizontal Installation



### PENETRATION DETAIL

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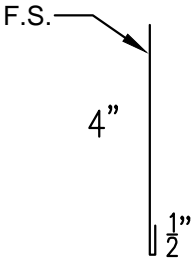
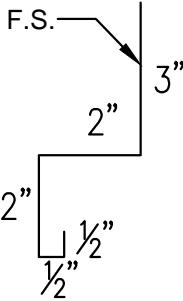
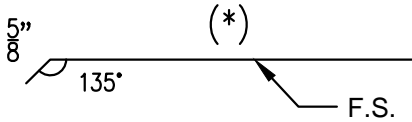
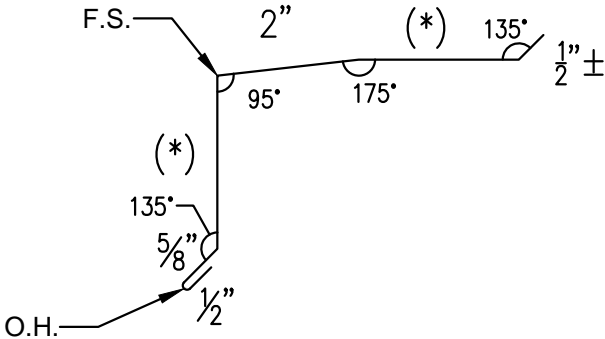
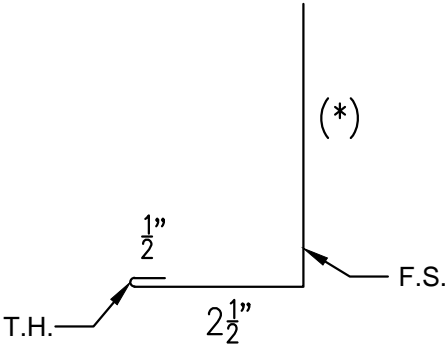
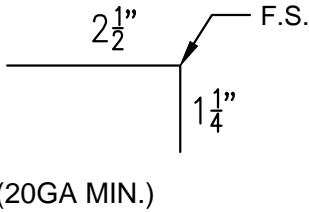
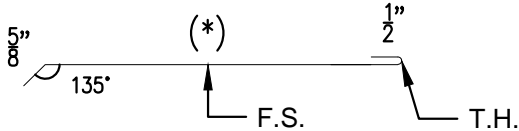
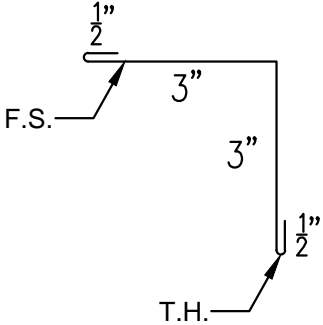
## Horizontal Installation

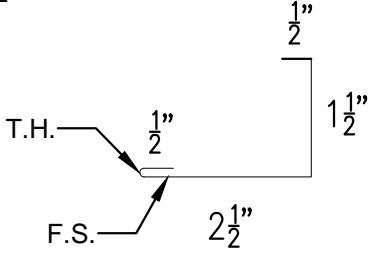
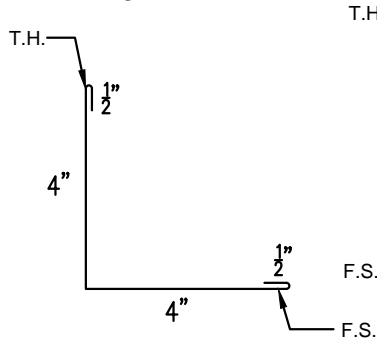
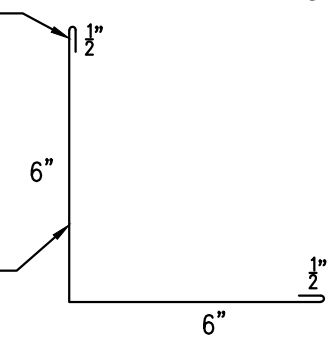
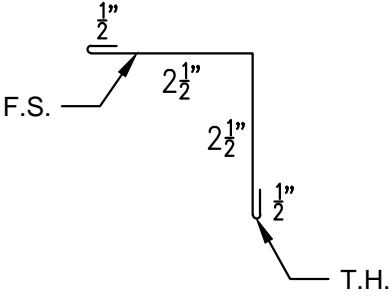
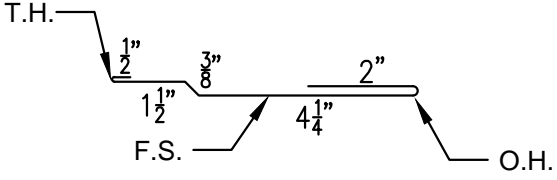
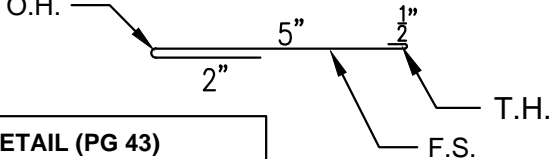
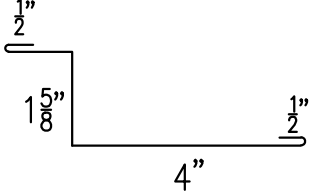
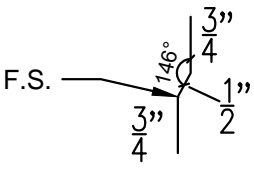
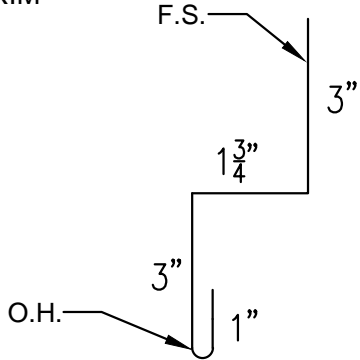
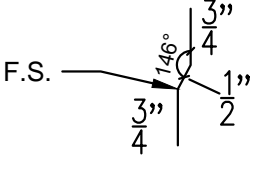


### DEFLECTION JOINT DETAIL

\*NBM=(NOT BY MORIN)

<p>MK-MX-01</p> <p>COPING DETAIL (PGS 26, 46)</p>	<p>MK-MX-02</p> <p>COPING DETAIL (PGS 26, 46)</p>
<p>MK-MX-03</p> <p>COPING DETAIL (PGS 26, 46)</p>	<p>MK-MX-01-OPT (OPTIONAL ONE-PIECE TRIM)</p> <p>COPING DETAIL (PGS 26, 46)</p>
<p>MK-MX-GS1</p> <p>GRAVELSTOP DETAIL (PGS 27, 47)</p>	<p>MK-MX-FILLER</p> <p>MK-MX-CLEAT</p> <p>MK-MX-BT</p> <p>COMMON TRIM AT VARIOUS DETAILS</p>
<p>MK-MX-04</p> <p>BASE AT CURB (PGS 28, 48) DOOR/WIN/LOU HEAD (PGS 31,54) FRONT SOFFIT (PGS 35, 36, 58, 59)</p>	<p>MK-MX-05</p> <p>BASE AT SLAB (PGS 29, 49)</p>

<div>MK-MX-05A</div> <div></div> <div>BASE AT SLAB (PGS 29, 49)</div>	<div>MK-MX-SJ</div> <div></div> <div>STACK JOINT DETAIL (PG 30)</div>
<div>MK-MX-06</div> <div></div> <div>DOOR/WIN/LOUV HEAD (PGS 31,54)</div>	<div>MK-MX-07</div> <div></div> <div>DOOR/WIN/LOUV SILL (PGS 32, 55)</div>
<div>MK-MX-08</div> <div></div> <div>DOOR/WIN/LOUV JAMB (PGS 33, 56)</div>	<div>MK-MX-09</div> <div></div> <div>DOOR/WIN/LOUV JAMB (PGS 33, 56)</div>
<div>MK-MX-10</div> <div></div> <div>FRONT SOFFIT (PGS 35, 36, 58, 59)</div>	<div>MK-MX-11</div> <div></div> <div>BACK SOFFIT (PGS 37, 38, 60, 61)</div>

<p>MK-MX-12</p> 	<p>MK-MX-13A</p>  <p>MK-MX-13B</p> 
<p>ENDWALL DETAIL (PGS 39, 62)</p>	<p>OUTSIDE CORNER (PGS 40, 64)</p>
<p>MK-MX-14</p> 	<p>MK-MX-15</p>  <p>MK-MX-16</p> 
<p>INSIDE CORNER DETAIL (PGS 41, 66)</p>	<p>EXPANSION DETAIL (PG 43)</p>
<p>MK-MX-17</p> 	<p>MK-MX-TRANS CLEAT</p> 
<p>TRANSITION DETAIL (PG 44)</p>	<p>TRANSITION DETAIL (PG 44)</p>
<p>MK-MX-DEF TRIM</p> 	<p>MK-MX-DEF CLEAT</p> 
<p>DEFLECTION DETAIL (PG 68)</p>	<p>DEFLECTION DETAIL (PG 68)</p>

## Maintenance Instructions

METAL WALL/ROOF PANELS NORMALLY REQUIRE A MINIMUM OF MAINTENANCE. TO PROVIDE A GREATER DEGREE OF OPTIMUM SERVICE LIFE, THE OWNER'S MAINTENANCE DEPARTMENT SHOULD INSPECT THE PANEL SURFACE BI-ANNUALLY, PREFERABLY DURING THE SPRING AND FALL OR AFTER ANY SEVERE STORMS.

1. The Owner's Agent shall note or do the following:
  - A. File all project records, shop drawings, project plans and specifications for reference. Set up a maintenance schedule and written reporting documentation system.
  - B. Clean drains, gutters, copings and inspect sealants at all locations.
  - C. Clean USING NORMAL WATER PRESSURE any accumulated airborne or waterborne contaminants that aren't being naturally removed. DO NOT use any cleaning agents, abrasives or detergents without consulting Morin. Rinse to avoid cleaning residues. When possible, do not direct water at a panel side lap or any seams. Systematic fresh water rinse maintenance shall be in effect in areas of high salt concentration (such as adjacent to the seashore and/or in industrial atmosphere) so as to prevent the accumulation of concentrated salt deposits. We require a documented inspection and bi-annual fresh water rinse of exposed panel system be sent each time conducted to Morin. (Documented inspection and rinse - include date performed, notes of any areas of concern [items E, F, G, and H below] and pictures, clean water wash with regular pressure for 5 minutes per area of cleaning, sign and date the document with all parties involved.) Morin must be contacted prior to inspection to be given the option of attending. Contact Morin Technical Department 800-640-9501, 685 Middle Street, Bristol, CT 06010.
  - D. Inspect for any standing water at flashings or panels. See note 2.
  - E. Observe and remove any vegetation or debris that has accumulated against the panels.
  - F. Examine for any deterioration, pest disturbance or vandalism at sealants, closures, flashings and panels. See note 2.
  - G. View panel surface at all penetrations for any localized deterioration. See note 2.
  - H. Notify contractor of any leaks. Note the location and conditions resulting in leakage; magnitude of rain; wind direction; temperature; time required for leaks to appear and cease after rain starts and stops; condition of building openings; status of mechanical equipment; internal conditions, windows, walls and skylights, etc.
  - I. Keep written documentation of the location and type of any deterioration for future yearly comparisons.
1. Except for emergencies or obvious problems, do not perform any repairs on any issues note above. Consult with the contractor for proper remedial action (if any).
2. All servicing of the panel system must be completed in compliance with the above or voiding of any or all warranties may occur.





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# BATTENS & PERGOLA PROJECT GUIDE

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# KNOTWOOD™

It's Not Wood, It's Aluminum

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# Battens & Pergolas

The next level of style is only a step away with Knotwood's clip batten system. By adding a trellis or decorative feature wall, you can make your home stand out with an architectural feature that will show off your style and design.

Knotwood's Clip-batten system is as revolutionary as it is eye-catching. A built-in bracket provides a unique floating look that hides the unsightly bolts and provides a look you simply can't get anywhere else. Backed by over 50 years of experience in the aluminum industry, Knotwood's newest system is designed to be easy to install and requires next to zero maintenance.

Not only can you create stunning features, but the versatile system can be used to create an oasis in the form of a pergola or trellis. Pick from 4 different sizes, over 30 woodgrain colors and hundreds of solid colors to get the perfect look.

Immune to the traditional problems of both timber and steel, Knotwood's limited lifetime warranty provides a no fuss guarantee that your battens will be the envy of your neighbor for a lifetime.





# Knotwood Colors

All Knotwood colors have been tested to withstand the most extreme environments and uphold the highest finishing standards in the world including the Australian, American and European standards. Backed by a limited lifetime warranty, it's no wonder Knotwood's award winning finish is coveted the world over. With a full range of color matched accessories available you can ensure a clean, uniform finish that will leave you breathless.

Please note: These colors are a guide only contact our office for samples. Please be aware that Knotwood contains natural color variation consistent with that of real timber.

## Stock Colors

Colors with a grey background are the Knotwood stock colors.

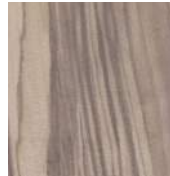
### WHITE SHADES



ASPEN



DRIFTWOOD



ASH



BEACH WOOD



ZEBRANO

### BLACK SHADES



BLACK ASH

### YELLOW SHADES



IROKO



TASSIE OAK



LIGHT OAK



KNOTTY PINE



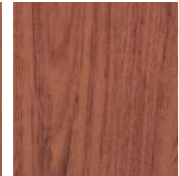
SPOTTED GUM



HICKORY



MAPLE



BLACKBUTT

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## YELLOW SHADES



ATLANTIC  
CEDAR

## ORANGE SHADES



AUSTRALIAN  
CEDAR



RED GUM



KOA



TIGER WOOD



MERBAU



IRON BARK

## LIGHT BROWN SHADES



EASTERN  
MAHOGANY



WESTERN RED  
CEDAR



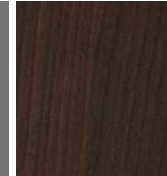
BUSH CHERRY



ELM



KWILA



TEAK BROWN

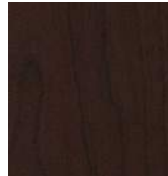
## DARK BROWN SHADES



OLIVE TREE



BLACK WALNUT



WENGE

## RED SHADES



JARRAH



SYDNEY BLUE



ROSE  
MAHOGANY



---

## Powdercoat Colors

If you want the reliability and consistency of a solid color, you can't go past our huge range of powder-coat colors. With the full range of colors on hand and a library of hundreds of custom colors only a phone call away, you can have exactly the look you want. All of our solid colors carry the same limited lifetime warranty as our premier woodgrain finish and are all applied by our experienced and accredited applicators to ensure you get the gold-standard of quality you deserve.



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## Frequently Asked Questions

### **Q. How far can the battens span?**

A. This depends on your particular area for the purposes of wind rating and fixing points. The lengths are supplied in set lengths, but can be joined easily for longer lengths as required. Your installer should consult an engineer when necessary for larger projects.

### **Q. Can I use this material structurally?**

A. Knotwood is designed to be a decorative product and is not primarily intended to be used for construction. Aluminum is a versatile material and with appropriate planning can be used for almost anything. Consult your builder or installer when unsure if Knotwood would be a suitable material for your project.

### **Q. How do I cap the ends of the battens?**

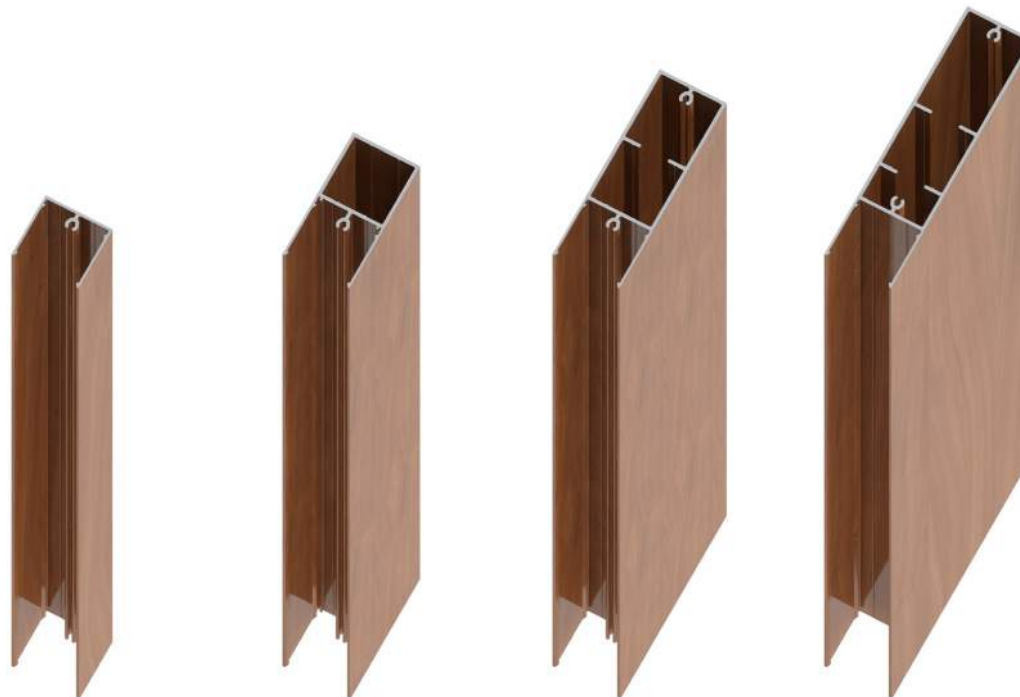
A. We can supply a purpose designed end-caps color matched to your battens if required.

### **Q. How do I clean and maintain my product?**

A. If your Knotwood needs to be cleaned, use a mild, PH neutral detergent and warm water to wash down your structure. Check our care and maintenance page on our website for full details.

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Our  
**RANGE**



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## BATTEN SIZES

With one bracket section, Knotwood battens are interchangeable. Available in the following size profiles, you can't go past the unique look Knotwood Battens can provide your home.

- 2x2"
- 2x4"
- 2x6"
- 2x8"

## ACCESSORY RANGE

With a full set of color matched end-caps and posts in most geometric sizes available to order, you can be sure to create the look you need.

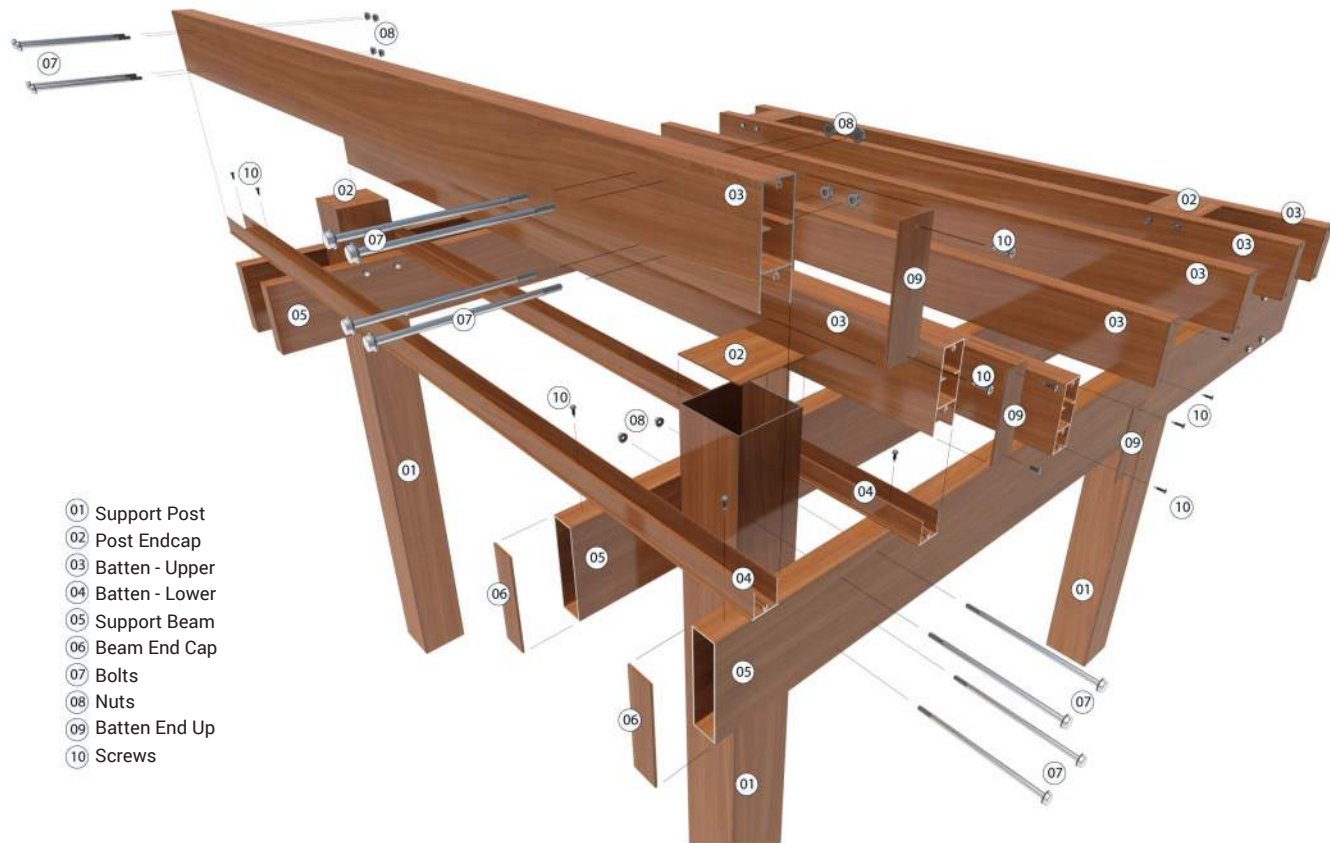
## THE LOOKS

Mix and match lengths and sizes to create a random look, scale up and down the sizes or keep a clean uniform finish by sticking to one size and length. Miter them to create structures or create a full on Pergola. Mount them at any angle. The looks are limitless. See the install guide for more information or visit our website.

[www.knotwood.com/battens/](http://www.knotwood.com/battens/)  
[www.knotwood.com/pergolas/](http://www.knotwood.com/pergolas/)

## SUITABLE USAGES

Feature walls, trellis, pergolas, feature fencing, façade fasteners, shade screen, louver screen, bus-stops, shop-fitouts, decorative framing, awnings, soffit façades.



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## Easy Installation

We strive to make Knotwood as easy, simple and efficient as possible. All of our Installation guides and technical manuals are readily available.

Each manual contains step-by-step instructions and product codes. You can train yourself in minutes and our sales team are always on hand to answer any questions you might have.

You can find the full list of guides by going to our website [www.knotwood.com](http://www.knotwood.com).



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# Our PRODUCTS







## 01 Pedestrian Shelter - Sunshine Coast, AUS

The contrasting elements of stone, wood and metal created a great effect for this public space. Designed as shelters in a park, the Knotwood battens and slats used to create the trellis combined with the matching seating create a unique look that tie's the natural elements of the park together seamlessly with the man-made structures around it.



## 02 Splash! In Pool Bar - Freeport, Bahamas

What could be more luxurious than a bar and grill built into a pool? With such a strange combination of environmental factors, Knotwood was the only option. The battens used to create the roof not only provide shelter for the staff and patrons, but provide a truly tropical feel.



## 03 Kewalo Apartment Trellis – Honolulu, Hawaii

The forerunner for the Trellis system, this apartment block in Honolulu showcases the range of roles Knotwood's Batten system can fulfil. Providing shade and a focal point for the design, the Kewalo Apartments have ever looked so stylish.



## 04 Driveway battens - Sunshine Coast, AUS

These huge battens on this sunshine coast home seek to tie the garage door in with the house while providing a warm element in an otherwise cold pallet. Simultaneously providing a contemporary style with a traditional warm element, this seaside house needed a solution that wouldn't require much maintenance while the owners were vacationing elsewhere.



# KNOTWOOD™

It's Not Wood, It's Aluminum

30 Tech Parkway South, Suite 400  
Peachtree Corners, GA 30092

Phone: **1.855.566.8966**

Web: **[www.knotwood.com](http://www.knotwood.com)**

E-mail: **[KnotwoodInfo@OmniMax.com](mailto:KnotwoodInfo@OmniMax.com)**

Fencing | Privacy Screens | Gates | Decking | Cladding | Battens | Soffits & Fascias

## 1. PRODUCT NAME

**KNOTWOOD™**  
Batten System

## 2. MANUFACTURER

**OmniMax International**  
30 Technology Pkwy. S, Suite 400  
Peachtree Corners, GA 30092  
Phone: 855.566.8966

## 3. PRODUCT DESCRIPTION

Knotwood™ Battens are made from 100% aluminum protected by a durable powder coat finish. They're immune to fire, rust, rot, insects and will never warp, split or crack. Even extreme heat or freezing cold can't damage Knotwood. Sublimated in Knotwood's award winning woodgrain finish or custom solid color coated, it meets the highest finishing standards in the world.

Knotwood's unique hidden fastener system creates a clean finish. The interlocking system makes Knotwood™ Battens a smart choice when water penetration is a concern. In addition, Knotwood™ Battens require next to no maintenance.

**Sizes:**  
Battens are available in range of sizes from 1" x 2" up to 10" x 2" and even larger with the batten joiner.

**Colors:**  
A wide variety of over 30 woodgrain colors as well as solid and custom color options.

## 4. TECHNICAL DATA

Material/Paint & Coatings Data:

- 100% Recyclable
- VOC-free coatings
- Lead free finishes
- LEED Certified Green Building Material

Non-Combustible Ratings:

- ASTM E84
- ASTM E84-17
- Class A Rating

## 5. INSTALLATION

Knotwood's ingenious batten click together system is a 2 part system designed for superior aesthetics. Knotwood™ does not rely on small clips to hold the battens either, it runs the whole length for easy attachment and strength.

## 6. AVAILABILITY & COST

**Availability:**

Batten systems are available through Knotwood™ distributors. A complete line of related Knotwood™ systems are available to complete any batten system. In addition, custom color matching is available.

**Cost:**

Contact Knotwood™ product distributors for current pricing. **Contact at -**  
[www.knotwood.com/contact-us](http://www.knotwood.com/contact-us)

## 7. WARRANTY

Knotwood™ expressly warrants for a limited lifetime that its aluminum products are free from manufacturing defects in material or workmanship when installed according to Knotwood™ specifications and properly maintained.

## WARRANTY (Continued)

The warranty provides for a 15-year warranty for the Knotwood™ finish, including checking/cracking, chalking, color change, gloss retention and adhesion of finish.

*The full warranty details are provided at*  
[www.knotwood.com/warranty](http://www.knotwood.com/warranty)

## 8. MAINTENANCE

Our products are designed to be effortless and low maintenance. Wash the surface with a mild solution of pure soap or mild non-abrasive kitchen detergent in warm water. Application should be with a sponge, soft cloth or soft bristle nylon brush, and should be gentle to prevent shiny spots. If cared for in this way, your Knotwood™ application should give many years of easy maintenance life.

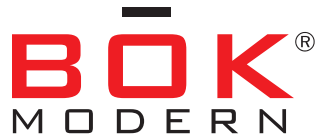
## 9. TECHNICAL SERVICES

Complete technical information and literature available at  
[www.knotwood.com/architects](http://www.knotwood.com/architects) - **Click here.**









## BRACKETLESS SUNSHADE

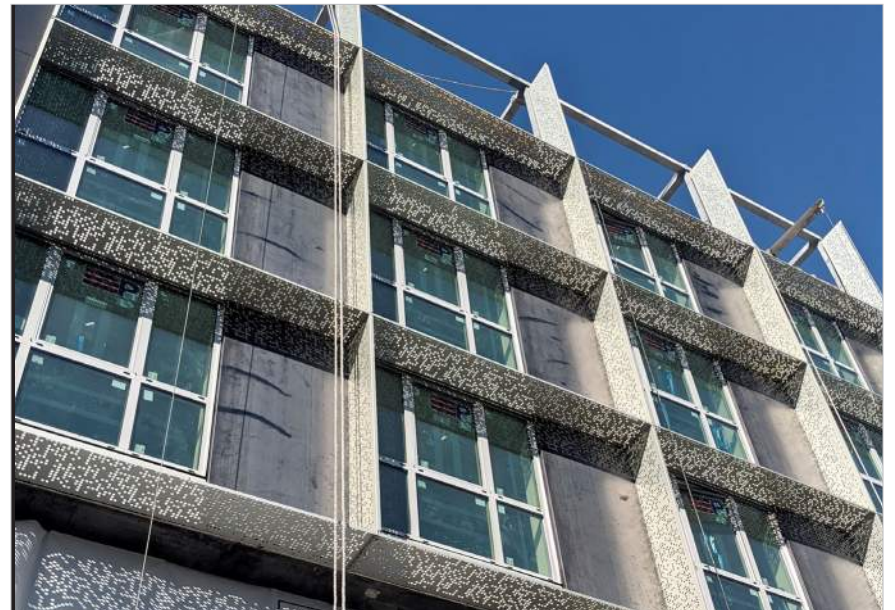
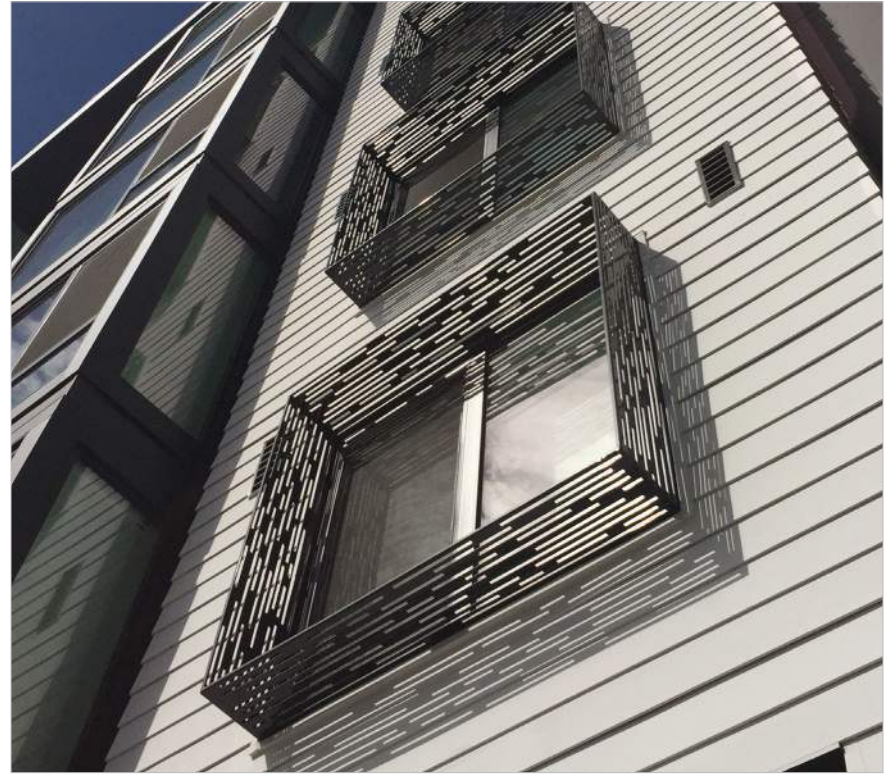
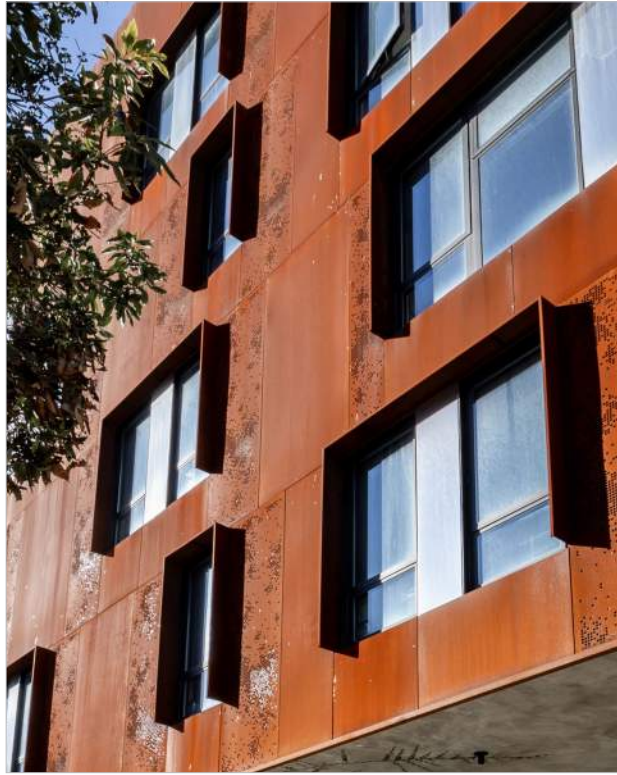
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Our newest sunshade product, the Bracketless Sunshade™ eliminates the need for a bracket protruding from the structure. It utilizes a 'nail-on' continuous attachment much like a 'nail-on' window fin. They are easier to install, easier to waterproof around and because it does not require a bracket protruding from the building, our Bracketless Sunshades do not interfere with scaffolding placement. Installers love the simplicity of this innovative system.

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## BRACKETLESS SUNSHADE

**BOKMODERN.COM**

For any questions please call  
415.749.6500 X 295

### TYPICAL DETAILS

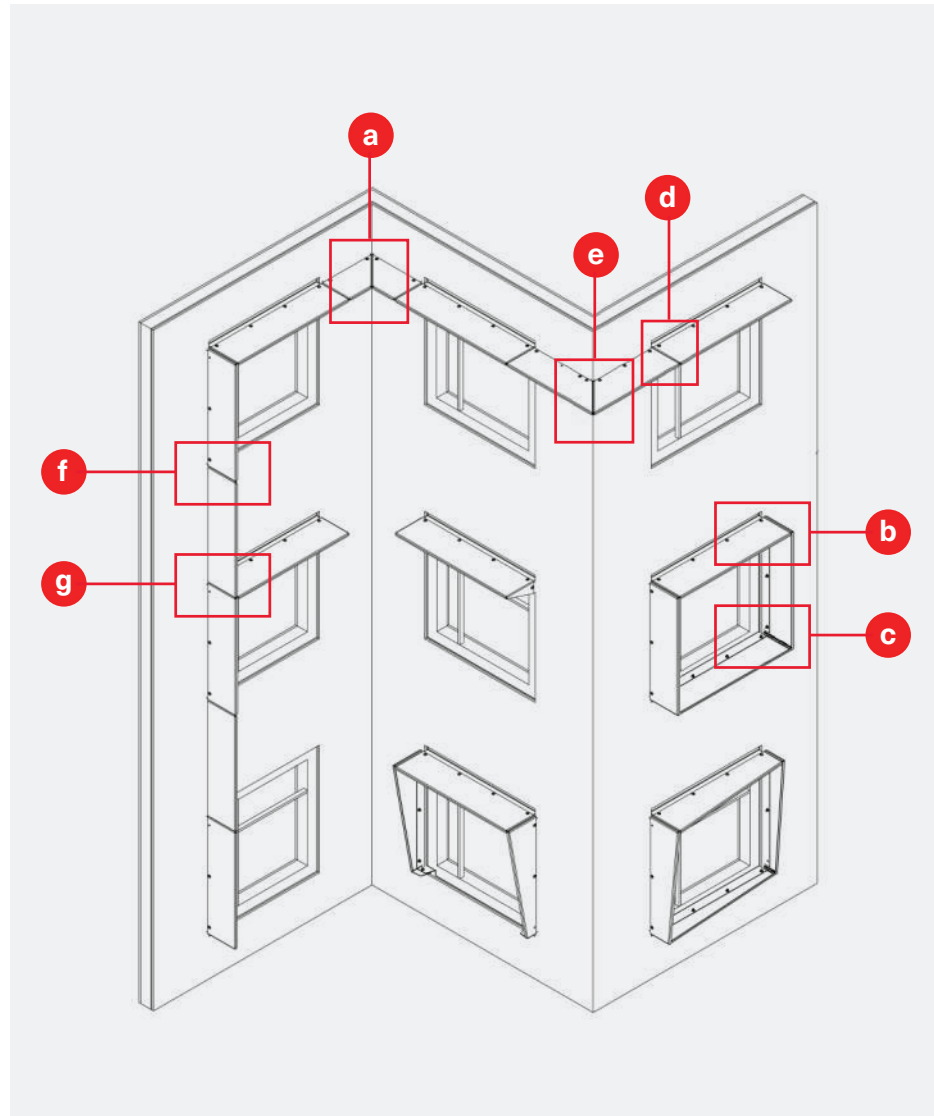


#### DETAIL KEY

- Ⓐ Bottom corner connection
- Ⓑ Top corner connection
- Ⓒ Outside corner connection
- Ⓓ Typ horizontal connection

## BRACKETLESS SUNSHADE

### ISOMETRIC VIEW



#### DETAIL KEY

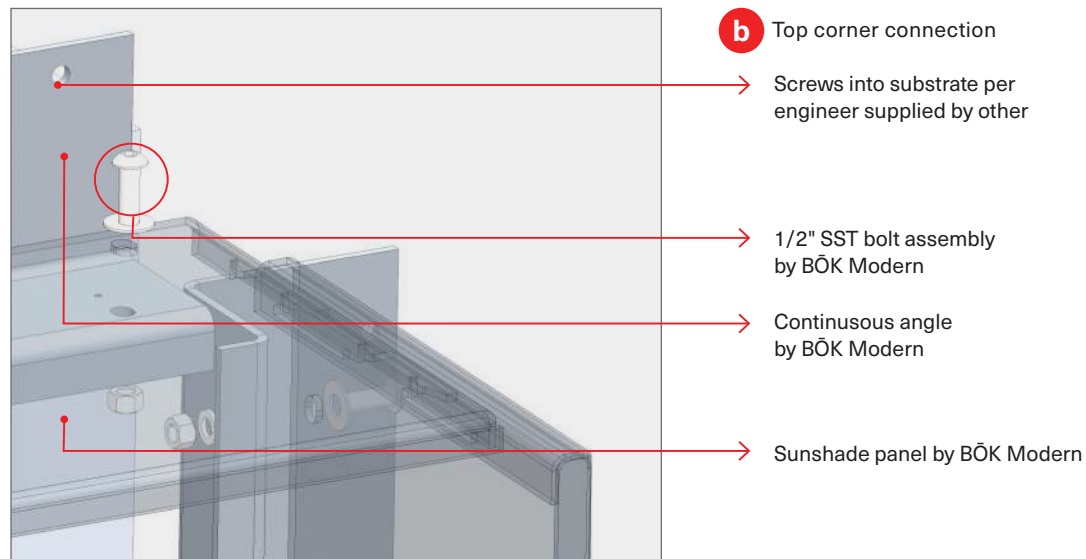
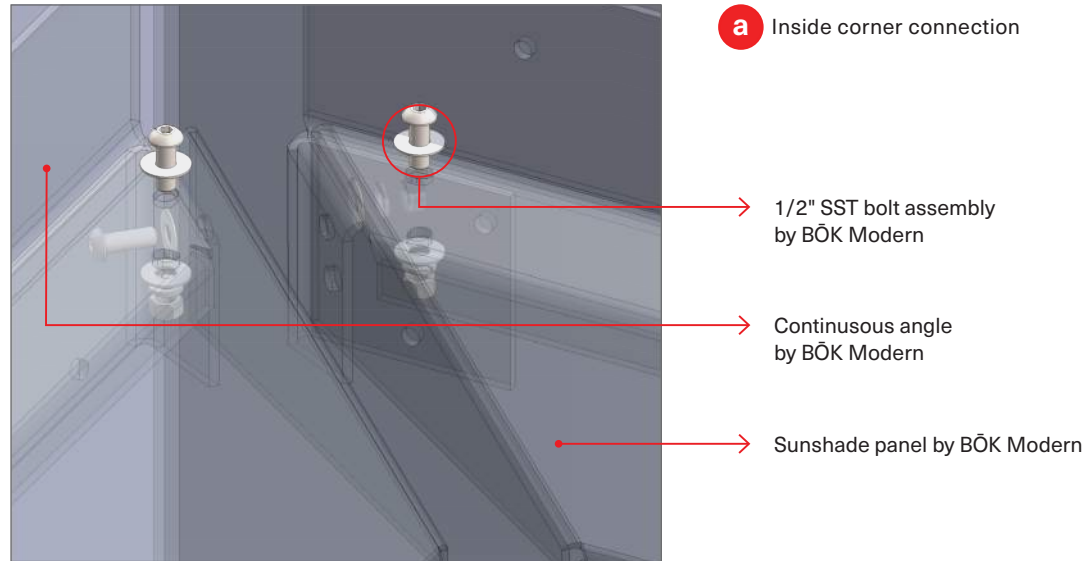
- Ⓐ Inside corner connection
- Ⓑ Top corner connection
- Ⓒ Bottom corner connection
- Ⓓ Top horizontal connection
- Ⓔ Outside corner connection
- Ⓕ Top vertical connection
- Ⓖ Intersection connection

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For any questions please call  
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**BRACKETLESS  
SUNSHADE**

**TYPICAL DETAILS**

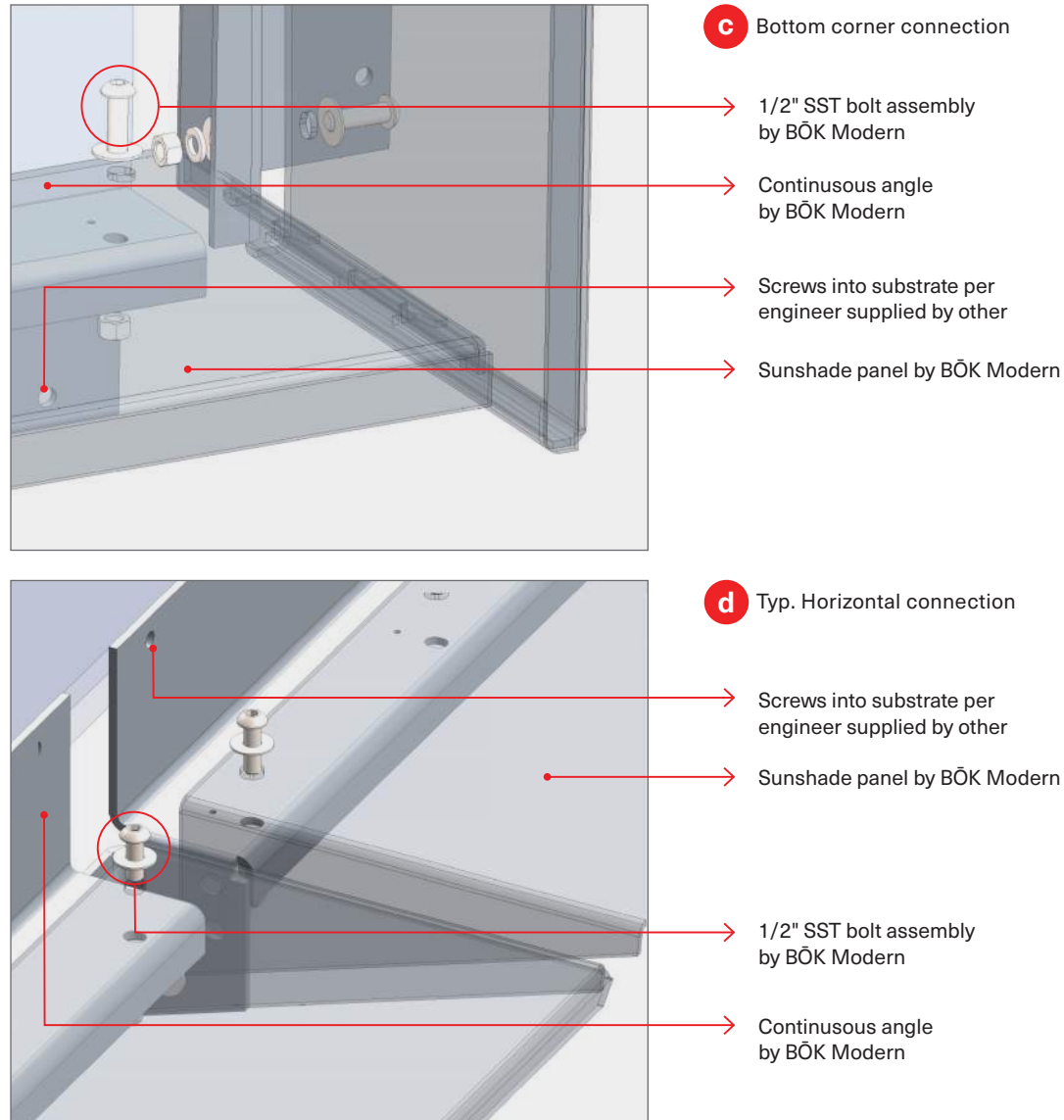


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## BRACKETLESS SUNSHADE

### TYPICAL DETAILS



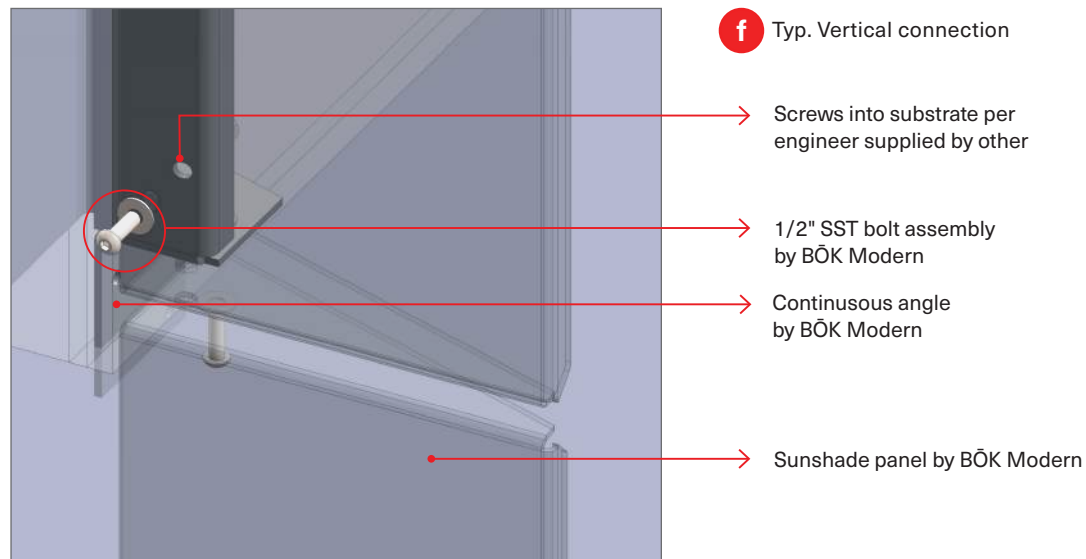
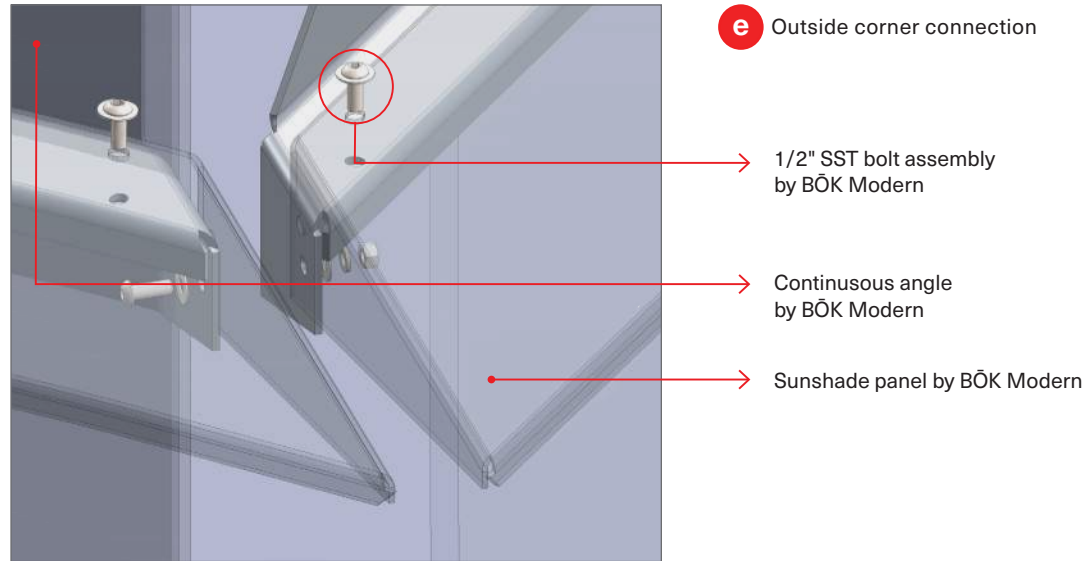
**BOKMODERN.COM**

For any questions please call  
415.749.6500 X 295



## BRACKETLESS SUNSHADE

### TYPICAL DETAILS



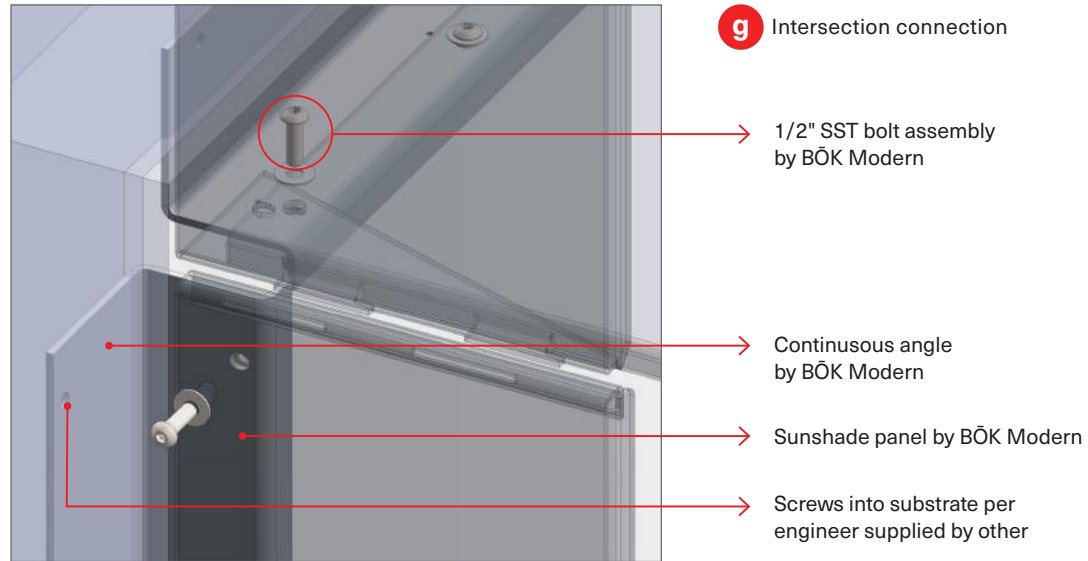
**BOKMODERN.COM**

For any questions please call  
415.749.6500 X 295



## BRACKETLESS SUNSHADE

### TYPICAL DETAILS



**BOKMODERN.COM**

For any questions please call  
415.749.6500 X 295



# SUSTAINABILITY STATEMENT

## 1] PREFABRICATION CONSIDERATIONS

All of our systems are designed to be prefabricated to the greatest extent possible, helping to minimize production and on-site waste. Our bent panel system contributes to eliminating emissions from gas welding, thus improving the overall environmental performance of our products. Gases and liquids from production are captured and any scrap is recyclable.

## 2] RECYCLABILITY

Aluminum, steel and stainless steel are among the most recycled materials in the building industry. Aluminum, steel and stainless steel are 100% recyclable with no loss in quality, and can be recycled at numerous reclamation stations all over the world.

## 3] LONGEVITY OF BÖK MODERN PRODUCTS

Due to their inherent durability and corrosion-resistant qualities, aluminum and stainless steel have a much longer life span than other materials, requiring less maintenance and reducing replacement costs in the future. This increases the projects overall efficiency by extending the life span of a key architectural feature.

## 4] BÖK MODERN SOLAR CONTROL SYSTEMS

BÖK Modern produces a series of products that serve to directly reduce the thermal effects of solar radiation. Our railings, canopies, screens and other panels systems all positively impact the efficiency of building projects.

## 5] BÖK MODERN PRODUCTS ARE LOW MAINTENANCE

Stainless steel and aluminum products are virtually maintenance free, and can be wiped clean of dirt and stains without the need for bleach, solvents, varnishes or any other harsh chemicals which have negative environmental impact.

## 6] FINISHES

Little or no volatile organic compounds released during cure of most powder coatings.

## 7] LOCALLY MANUFACTURED

Being locally manufactured in Northern California, helps eliminate transportation cost and fuel and emissions within the California and surrounding states.

## 8] LEED COMPLIANCE

Based on an analysis of the project, on a job-to-job basis, BÖK Modern may contribute to the acquisition of a U.S. Green building Council (USGBC) Leadership in Energy and Environmental Design (LEED) rating. Credits that BÖK Modern products apply to include, but are not necessarily limited to, the following

- Energy and Atmosphere credit, EA1-Optimize Energy Performance; 1-10 points
- Materials and Resources credit, MR 3.1 or credit MR 3.2-Salvage, Refurbished, or Reused Materials.
- Materials and Resources Credit MR 4.1 or Credit MR 4.2-Recycled Content Materials.
- Materials and Resources Credit MR 5.1 or Credit MR 5.2 – Regional Materials.
- Indoor Environmental Quality Credit EQ 4.1 or Credit EQ 4.2-Low-Emitting Materials.
- Indoor Environmental Quality Credit EQ 7.1-Thermal Comfort Design.