



High Performance
In A Field-Assembled System

TECHNICAL MANUAL

- System Assembly
- Substrate Layouts
- CAD Sections/Details
- Physical Properties
- Performance Properties

PANEL 20[®]

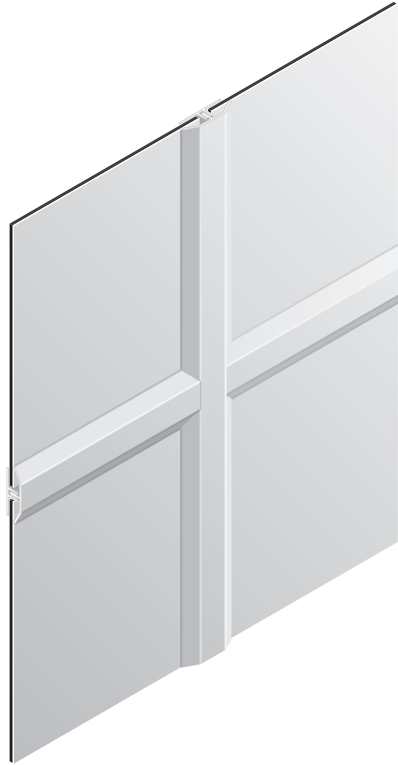
TWO PIECE MOLDING SYSTEM



SYSTEM ASSEMBLY



BATTEN PROFILES

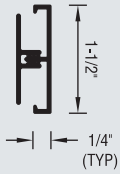


CHAMFER PROFILES

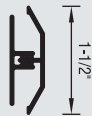


REVEAL PROFILES

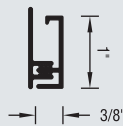
MOLDINGS / EXTRUSIONS



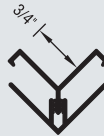
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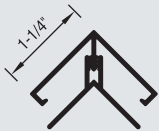
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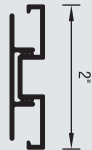
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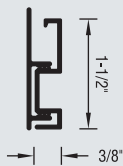
B4



B5



B6



B7

PROPERTIES

B1 C20-401 Horizontal/Vertical
R20-401 Receiver
12'-6", 1.88 lbs / 12'-0", 0.72 lbs

B2 C20-402 Horizontal/Vertical
R20-401 Receiver
12'-6", 1.50 lbs / 12'-0", 0.72 lbs

B3 C20-403 Perimeter J
R20-403 Receiver
12'-6", 1.50 lbs / 12'-0", 0.72 lbs

B4 C20-404 Inside Corner
R20-404 Receiver
12'-6", 1.88 lbs / 12'-0", 0.90 lbs

B5 C20-405 Outside Corner
R20-405 Receiver
12'-6", 2.63 lbs / 12'-0", 0.90 lbs

B6 C20-406 Horizontal/Vertical (Reveal)
R20-406 Receiver
12'-6", 2.25 lbs / 12'-0", 1.08 lbs

B7 C20-407 Perimeter J (Reveal)
R20-407 Receiver
12'-6", 1.88 lbs / 12'-0", 0.90 lbs

LAYOUT AND INSTALLATION

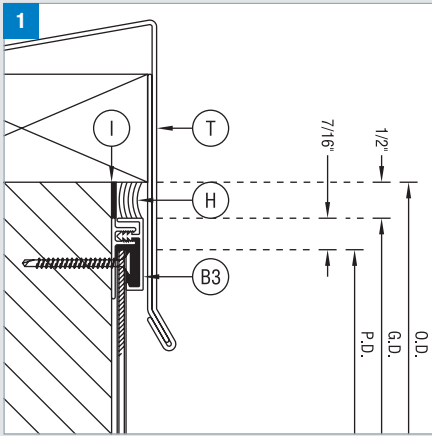
DESCRIPTION

- **Field Assembled** - all panels and moldings are shipped directly to the jobsite and are cut-to-size in the field, saving significant time and money
- **Barrier Wall** - designed to be completely sealed against moisture intrusion to protect the structural wall assembly of the building
- **Non-Progressive** - due the manner in which the plastic receivers and aluminum covers are applied, work may begin in any part of the elevation
- **Joints** - plastic receivers and low-profile, aluminum covers make up the two piece moldings that complete the trim, batten and reveal profiles

Comparative Installed Cost



Lead Time: 15 working days
Minimum Qty: none
System Depth: 7/16" from the face of the substrate to the face of the molding



HORIZONTAL SECTIONS

1: Parapet

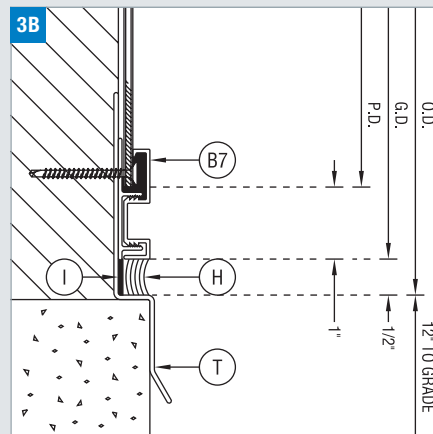
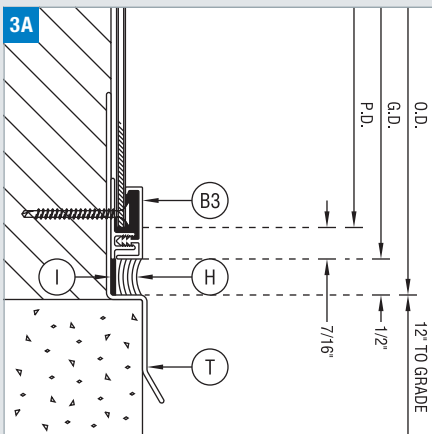
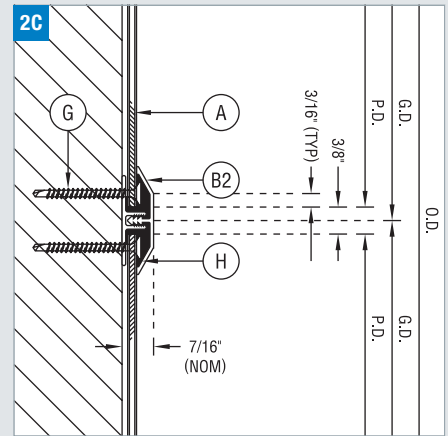
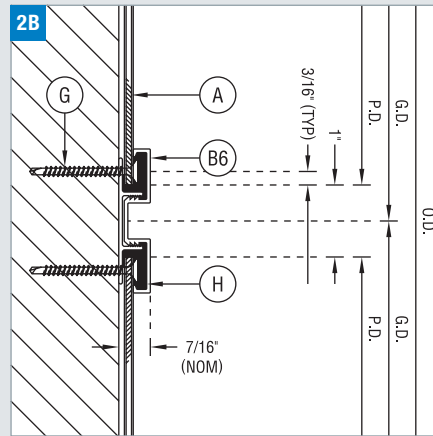
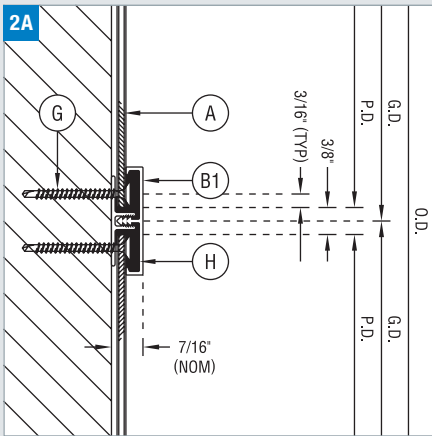
Metal flashing secured over blocking completes the vertical run and prevents moisture from getting behind the system.

2A, 2B & 2C: Horizontal

Plastic receivers are first secured in place with brads or nails. Then the panel is applied and mechanically fastened. Sealant is then liberally applied and the aluminum cover is snapped into place. Batten, reveal (1/2") and chamfer profiles are available.

3A & 3B: Base/Foundation

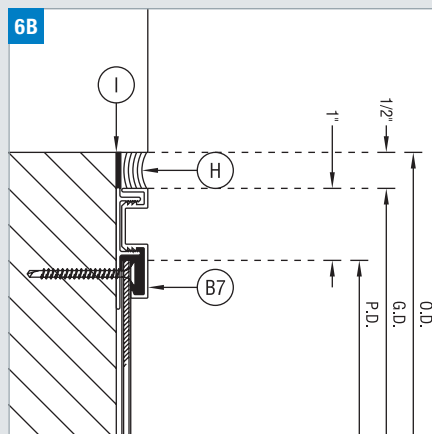
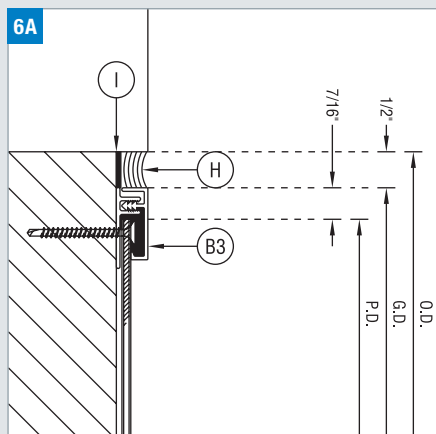
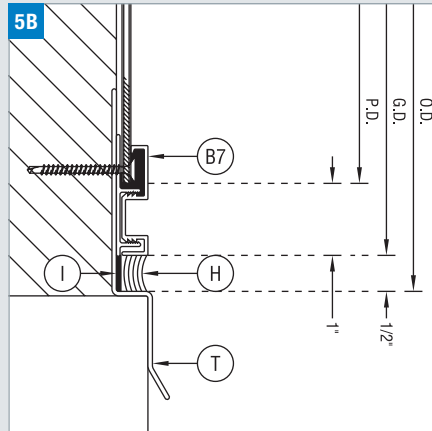
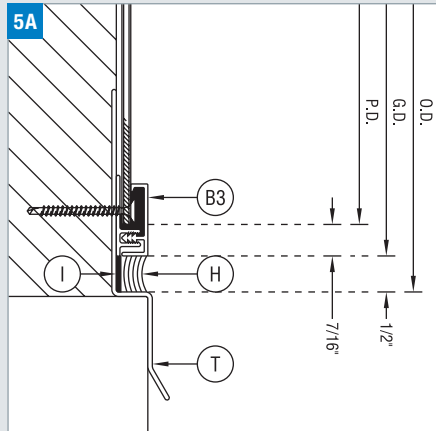
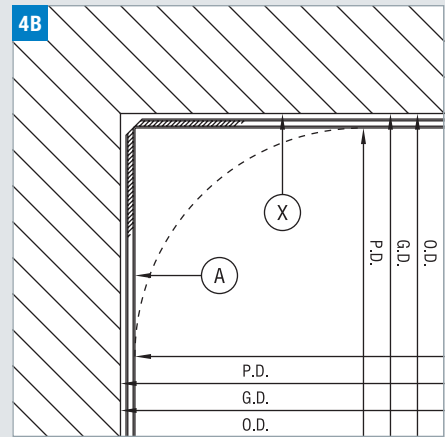
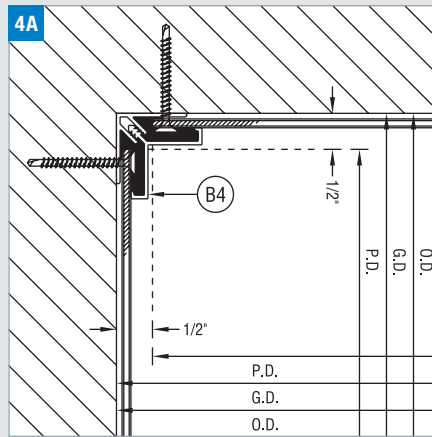
Installation typically begins at the base of the wall and moves vertically. The cladding should be kept approximately 12" away from landscaping grade. However, if the system is installed adjacent to a concrete sidewalk, that dimension may be reduced to 1/2".



INSIDE CORNER

4A & 4B: Inside Corner

Typically, corners are completed with the standard two-piece profile. For corners that are out of square or irregular, two perimeter moldings may be used to form the correct angle. Or, if preferred the panel may be routed on the back and bent around the corner. This condition is also applicable for soffit to wall transitions.



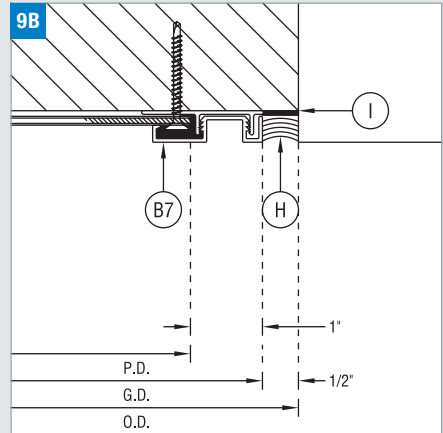
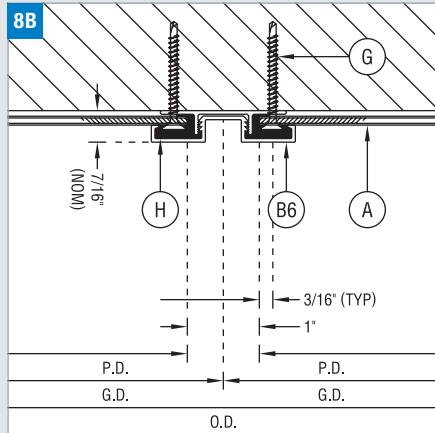
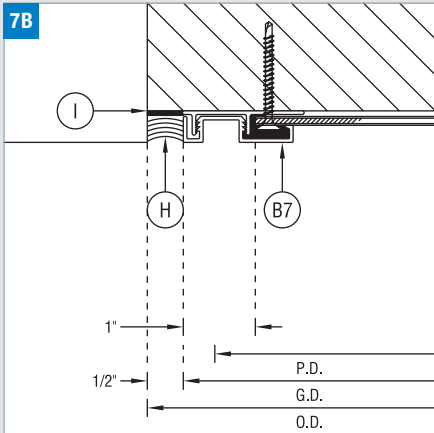
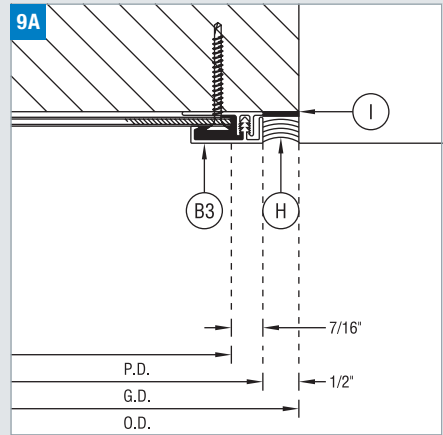
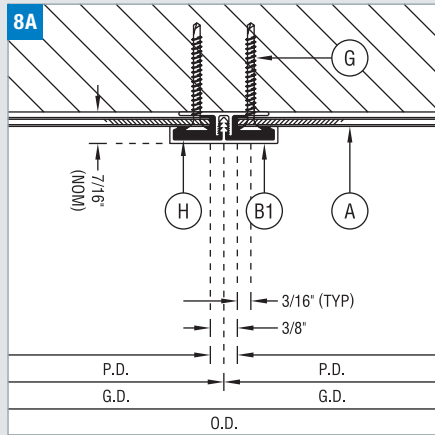
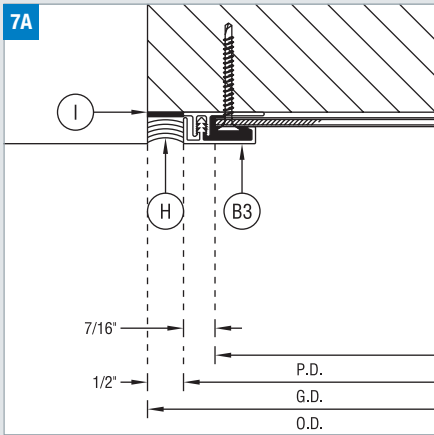
WINDOW HEAD & SILL

5A & 5B: Head

Similar to the base condition, flashing should be used behind the system to direct water away and prevent moisture intrusion.

6A & 6B: Sill

Depending upon visual preference, windows will either extend past the face of the panel or be aligned so that they sit flush. Batten or reveal profiles may be used for this condition.



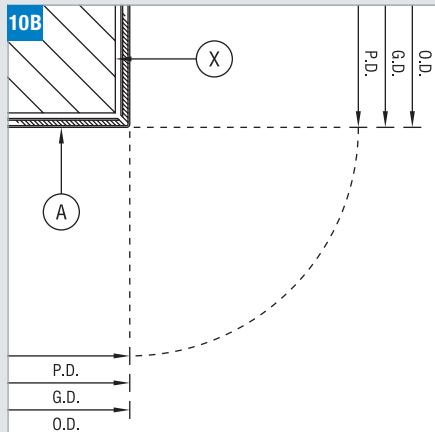
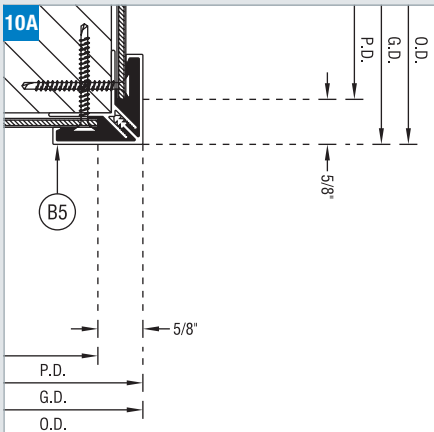
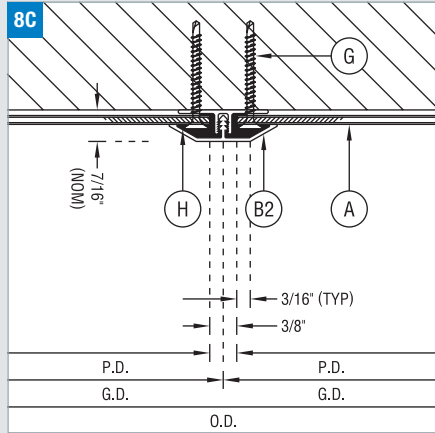
VERTICAL SECTIONS

7A, 7B & 9A, 9B: Jamb

When abutting dissimilar material, a sealant joint should be used to prevent moisture intrusion behind the cladding system.

8A, 8B & 8C: Vertical

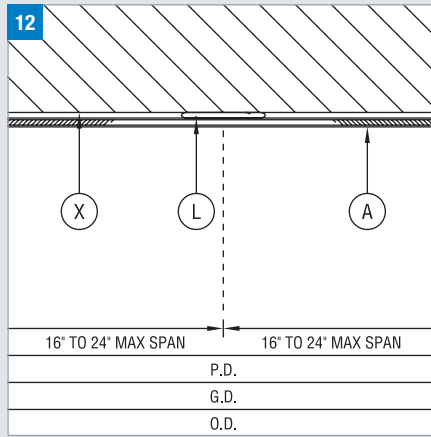
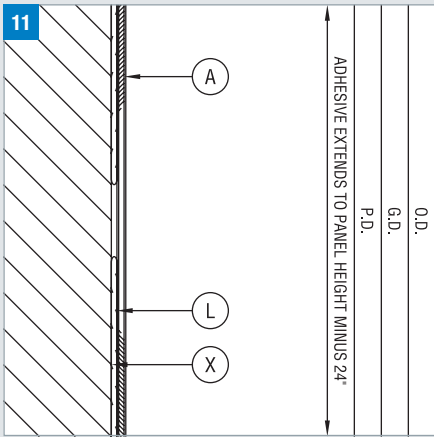
Same condition as the horizontal, the receiver is secured in place, followed by the panel, then the sealant and the aluminum cover. Batten, reveal, and chamfer profiles.



OUTSIDE CORNER

10A & 10B: Outside Corner

Similar to the inside corner, the standard molding can be used for typical corners. If preferred, two perimeter moldings can be used instead or the panel may be routed and bent around the corner. This condition is also applicable for fascia to soffit transitions.



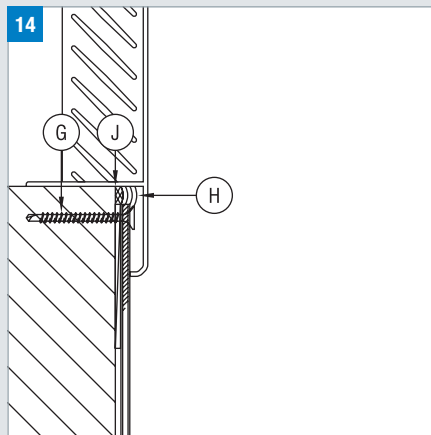
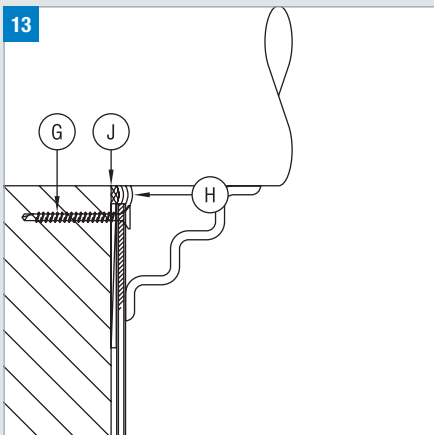
INTERMEDIATE CONNECTION

11: Intermediate Connection - Horiz

Construction adhesive secures the field of the panel at intermediate locations. The length of this bead should extend to cover a majority of the panel.

12: Intermediate Connection - Vert

The spacing of the adhesive may be dependent upon the type of substrate chosen for the application.



SYSTEM PENETRATIONS

13: Round

When piping or other round penetrations must occur, the hole should be made slightly larger to accommodate a backer rod (when possible) and sealant joint around the object.

14: Linear (Square or Rectangular)

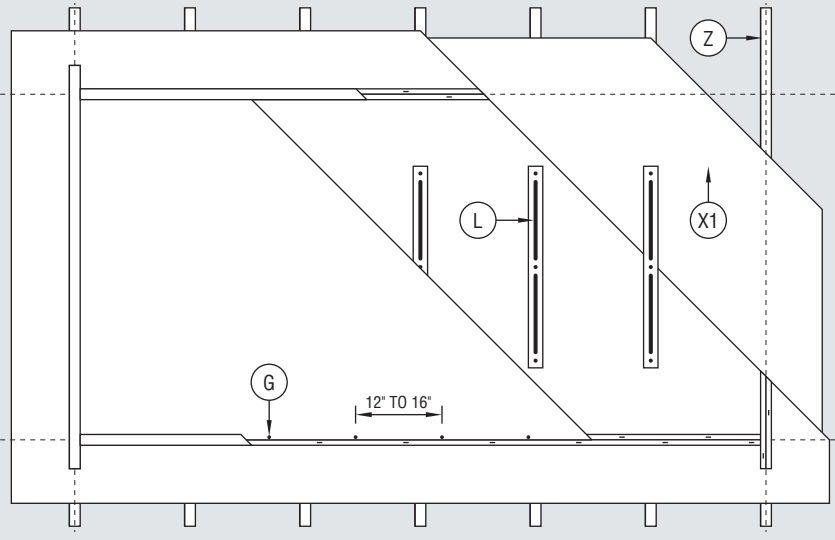
Moldings should be used to trim the panel edge for all linear penetrations. However, if that is not possible, a proper sealant joint should be utilized to maintain system integrity.

COMPONENTS

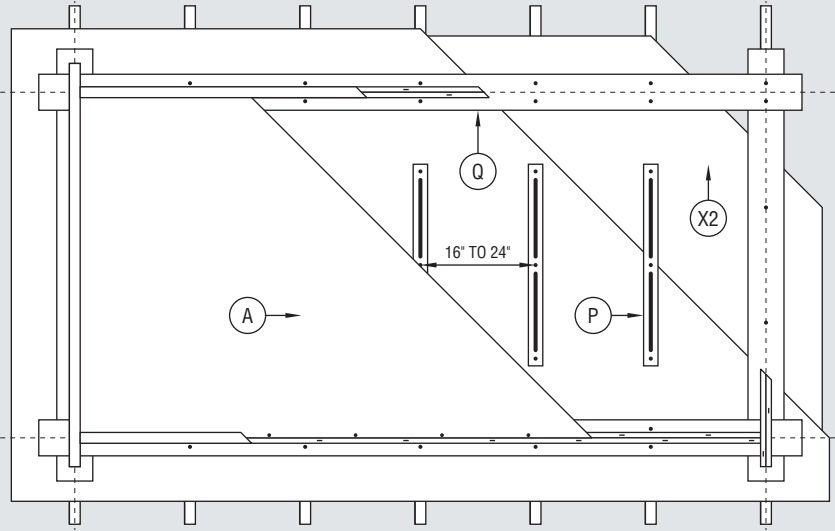
- A** Panel 20®
- B1** C20-401 Horizontal/Vertical R20-401 Receiver
- B2** C20-402 Horizontal/Vertical R20-401 Receiver
- B3** C20-403 Perimeter J R20-403 Receiver
- B4** C20-404 Inside Corner R20-404 Receiver
- B5** C20-405 Outside Corner R20-405 Receiver
- B6** C20-406 Horizontal/Vertical (Reveal) R20-406 Receiver
- B7** C20-407 Perimeter J (Reveal) R20-407 Receiver
- G** Fastener
As selected by contractor to suit project requirements.
 - cover - snap into receivers
 - receiver - 12" to 16" along length
 - panel - 12" to 16" around perimeter
- H** Silicone Sealant
An approved sealant must be used. Contact Citadel for current list.
- I** Bond Breaker Tape
- J** Foam Backer Rod
- L** Construction Adhesive
An approved adhesive must be used. Contact Citadel for current list.
 - located 16" to 24" o.c.
 - 3/8" bead x 2/3 panel height
 - double-sided tape as alternate
 - for panels 36" x 36" or larger
- T** Flashing
- X** Substrate
As selected by architect to suit project requirements.

NOTE: Combine both SECTION and SUBSTRATE drawings for a complete listing of components.

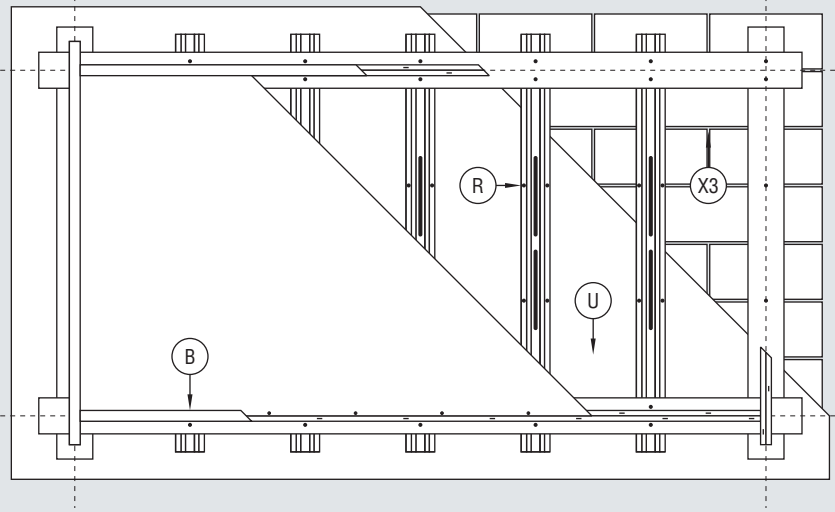
NAILABLE SUBSTRATE



NON-NAILABLE SUBSTRATE



MASONRY SUBSTRATE



COMPONENTS

- A** Panel 20®
- B** Two Piece Molding
- G** Fastener
As selected by contractor to suit project requirements.
 - cover - snap into receivers
 - receiver - 12" to 16" along length
 - panel - 12" to 16" around perimeter
- L** Construction Adhesive
An approved adhesive must be used. Contact Citadel for current list.
 - located 16" to 24" o.c.
 - 3/8" bead x 2/3 panel height
 - double-sided tape as alternate
 - for panels 36" x 36" or larger
- P** Field Strapping
 - located 16" to 24" o.c.
 - 1-1/2" (min) x 2/3 panel height
 - 22ga (min) recommended
 - fastened 12" to 16" along length
- Q** Grid Strapping
 - 16ga (min) recommended
 - fastened 12" to 16" along length
- R** Furring
 - metal (hat channels, z-girts) or wood
 - located 16" to 24" o.c.
 - fastened 12" to 16" along length
- S** Shim (not shown)
 - plastic shims recommended
 - flatness tolerance is 1/4" in 20'-0"
- U** Air/Moisture Barrier
Recommended for this system.
- X1** Nailable Substrate
 - plywood - 1/2" (min) recommended
 - OSB - 1/2" (min) recommended
- X2** Non-Nailable Substrate
 - exterior gypsum board
- X3** Masonry Substrate
 - CMU (block)
 - pre-formed concrete
- Z** Stud Framework
 - metal or wood
 - located 16" to 24" o.c.

NOTE: Combine both SECTION and SUBSTRATE drawings for a complete listing of components.

PANEL 20® TWO PIECE MOLDING SYSTEM



STANDARD SIZES

48" x 96"	(121.9cm x 243.8cm)
48" x 120"	(121.9cm x 304.8cm)
48" x 144"	(121.9cm x 365.8cm)
60" x 96"	(152.4cm x 243.8cm)
60" x 120"	(152.4cm x 304.8cm)
60" x 144"	(152.4cm x 365.8cm)

Cut-to-size panels are available in any increment up to 60" x 144".

WARRANTY

Panel Composition:	5 years
Kynar 500® Finishes:	30 years
Anodized Finishes:	20 years

RECYCLED CONTENT (BY WEIGHT)

Post-Consumer:	0.7%
Post-Industrial:	29.5% to 30.0%

BENDING / CURVING

Panels and moldings may be curved on-site (worked along a substrate) or in a factory setting.

Min. Radius On-Site:	25' (most applications)
Min. Radius Factory:	12"

MATERIAL PROPERTIES

Component	Standard (in)	Metric (mm)
A Prefinished Smooth Aluminum ¹	.024"	0.61mm
B Thermoset Phenolic Resin	.075"	1.91mm
C Primed Smooth Aluminum	.024"	0.61mm

PANEL PROPERTIES

Property	Standard (in)	Metric (mm)
Panel Weight	1.28 lbs/ft ²	6.24 kg/m ²
Nominal Thickness	1/8"	3mm
Thickness Tolerance	±1/32"	±0.79mm
Length & Width Tolerance	+0, -1/8"	+0, -3.18mm
Squareness	1/64" per lineal ft	
Flatness	visually flat	

FINISH PROPERTIES

Finish	Type	Coating
Smooth	2-coat PVDF (solid, mica)	0.20 mil primer + 0.80 mil color
Kynar 500®	3-coat PVDF (metallic)	0.20 mil primer + 0.80 mil color + 0.70 mil clear
Smooth Anodized	Exterior Standard No. 1 ²	0.20 mil to 0.45 mil (depending on color)

PANEL PERFORMANCE

Property	Test	Value	Unit
Flame Spread	ASTM E84	Class A	---

1 - Prefinished aluminum skins are furnished with a PVC film for protection during shipment and installation.
 2 - Class I or Class II anodizing is available as a premium custom finish. However, the warranty remains the same and fabrication difficulties will result (increased crazing, cracking) due to the increased film thickness.

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