ATAS International, Inc.

Sustainable Building Envelope Technology

SPECIFICATION DATA SHEET

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 2

1. PRODUCT NAME
VERSA-LINE PANEL

VSN120, VSN160

2. MANUFACTURER
ATAS INTERNATIONAL, INC.
Website: www.atas.com
Email: info@atas.com
Corporate Headquarters:
Allentown, PA 18106
Phone: (800) 468-1441
Western Facility:
Mesa, AZ 85204
Phone: (480) 558-7210

3. PRODUCT DESCRIPTION
Basic Uses:
Versa-Line is a rainscreen style wall system that requires a water and air barrier system behind it. The panel forms architectural shadow lines in its horizontal installation.

Composition & Materials:
Standard Offerings: Versa-Line panels are produced from .032 and .040 aluminum
Special Offerings: .7, .8 mm zinc; 16 oz. copper, subject to minimum quantities and lead time.

Sizes:
Versa-Line panels are available in standard sizes with a panel width of 12-3/8", 16-3/8" and 1" height. Panel lengths are cut to customer specifications with a minimum of 2'-0"and maximum of 25'-0". Custom widths available with a minumum of 8" and a maximum of 20-5/8".

Colors & Finishes:
A choice of over 35 stock colors is available in a 70% PVDF finish. (Request color chart or chips). Custom colors available. Anodized: Clear Satin, Dark Bronze*. Texture can be smooth or embossed. Perforations are available.

4. TECHNICAL DATA
70% PVDF based finishes tested by paint supplier for:

- Dry Film Thickness: ASTM D 1005, ASTM D 1400, ASTM D 4138 or ASTM D 5796
- Specular Gloss: ASTM D 523
- Pencil Hardness: ASTM D 3363
- T-Bend Flexibility: ASTM D 4145
- Mandrel Bend Flexibility: ASTM D 522
- Impact Resistance: ASTM D 2794
- Adhesion: ASTM D 3359
- Water Immersion Resistance: ASTM D 870
- Abrasion Resistance: ASTM D 968
- Acid Resistance: ASTM D 1308
- Acid Rain Resistance (Kesternich): ASTM G 87 or DIN 50018
- Salt Spray: ASTM B 117
- Cyclic Salt Spray: ASTM D 5894 and ASTM D 5487
- Humidity Resistance: ASTM D 2247
- Accelerated Weathering: ASTM D 822 and ASTM G 155, ASTM G 151 or ASTM G 153
- Color Retention, Florida Exposure: ASTM D 2244
- Chalking Resistance: ASTM D 4214
- Cleveland Condensing Cabinet: ASTM D 4585
- Cure Test, MEK Resistance: ASTM D 5402
- Alkali Resistance, Sodium Hydroxide: ASTM D 1308, Procedure 7.2
- Flame Spread Rating: ASTM E 84
- Organic coatings meet requirements of AAMA 2605 when applied to aluminum.

Panel testing/ratings:

- Aluminum: ASTM B 209
- Coil Coating: ASTM A 755

5. INSTALLATION
Versa-Line may be installed horizontally or vertically. Panels can be installed over a solid substrate covered with an appropriate water and air barrier system or sub-girt system in a rainscreen application. Installation details and hands-on training via seminars are available through ATAS. Visit www.atas.com for more information.

6. AVAILABILITY & COST
Availability:
Versa-Line panels are available through ATAS product distributors. A complete line of related components and trim accessories is available to complete the system. In addition, a complete line of rainware and perimeter roof edge trims can be supplied by ATAS to complement the application. Flat sheet and/or coil stock is available in matching colors for fabrication of related components by the installing contractor.
*Subject to minimum quantities and extended lead times.

Cost:
Contact ATAS product distributors for current pricing.

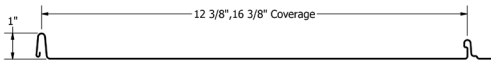
7. WARRANTY
The fluoropolymer, 70% PVDF finish carries a limited warranty against chalking and fading.

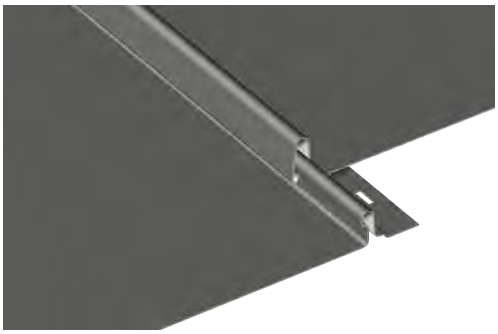
8. MAINTENANCE
Versa-Line panels require minimal maintenance. Surface residue may be easily removed by conventional cleaning methods. For painted products, minor scratches should be touched up with a matching paint, available from the manufacturer.

9. TECHNICAL SERVICES
Complete technical information and literature are available at www.atas.com. ATAS will assist with design ideas and shop drawings.

10. FILING SYSTEM

- www.atas.com
- Additional product information is available from the manufacturer upon request.



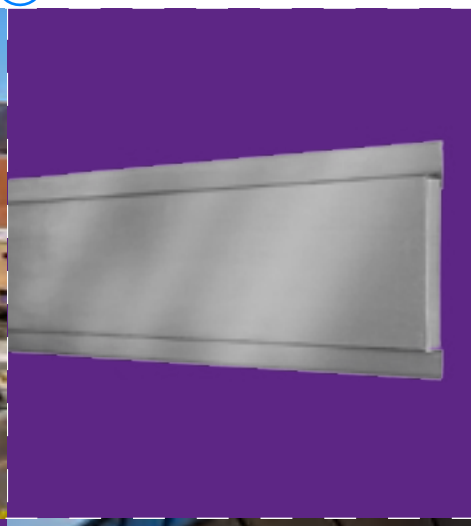


Edition 15

Catalog

EXTERIOR WALL SYSTEM

BUILDING A - FINISH FOR SYSTEM 2



VMZINC

passionate about zinc

This brochure shows a variety of VMZINC® panel shapes and profiles proposed by Umicore Building Products, the makers of VMZINC. This is a comprehensive overview of zinc wall and roof systems.

These systems and products are engineered by the manufacturer, providing a complete set of design options that address: scale, texture, performance and price requirements.

Further necessary information on zinc in architecture, such as colors, technical and environmental data is available on www.vmzinc-us.com. CAD details, drawings, Sketch-Up models, specifications, and installation guides are also downloadable.

Tailored solutions with VMZINC are available upon request.

Umicore Building Products USA, Inc.
3600 Glenwood Avenue
Suite 250
Raleigh NC 27612

Telephone: 919-874-7173
Fax: 919-874-7140
Website: www.vmzinc-us.com
Email: info@vmzinc-us.com
Blog: www.ZINCsense.com

EXTERIOR WALL SYSTEM
BUILDING A - FINISH FOR SYSTEM 2

ASTM TESTED
HORIZONTAL & VERTICAL
CONCEALED FASTENERS

Material Colors

QUARTZ-ZINC® | ANTHRA-ZINC® | PIGMENTO® Blue | PIGMENTO® Red | PIGMENTO® Green | PIGMENTO® Brown

Vertical, horizontal and diagonal installation.

1″ VMZ SINGLE LOCK STANDING SEAM WALL PANEL

Maximum Dimensions
Horizontal Orientation
20′ - 0″
Vertical Orientation
15′ - 0″

On Center
16 7/8″

Seam
1″

Radius

Convex	Concave
R1 48″ pre-fab	130′ field
R1 30′ pre-fab	130′ field
R2 10′ field	10′ field

Panels per Crate
40

Coverage
Per LF of Installed Panel
1.4 ft²

Thickness
.8mm

Weight per ft² installed
1.38 lb for 16 7/8″ OC Panels

*Also available with blank rib stiffener.

VERTICAL
CONCEALED FASTENERS
PANELS CANNOT BE CURVED

Material Colors

QUARTZ-ZINC® | ANTHRA-ZINC® | PIGMENTO® Blue | PIGMENTO® Red | PIGMENTO® Green | PIGMENTO® Brown

Quick installation. Out of the box system.
An economical alternative to standing seam.

VMZ DEXTER® WALL PANEL

Dimensions
On Center
32 7/8″ L x 15 3/4″ W

Seam
1 1/2″

Panels per Box
6

Coverage
Per Installed Panel
3.59 ft²
Per Box for Installed Panels
21.5 ft²

Thickness
.7mm

Weight per ft² installed
1.55 lb

COLOR SELECTED IS
"QUARTZ-ZINC"

NOTE: VM ZINC SHOWN HERE PROVIDES THE FINISH FOR THE ATAS VERSALINE PANELS. SEE VERSA-LINE CUT SHEET AND ARCH ELEVATION DRAWINGS FOR PANEL LAYOUT

EXTERIOR WALL SYSTEM
BUILDING A - FINISH FOR SYSTEM 2

ASTM B69-13

VMZINC products sold in North America meet the ASTM B69-11 norm for Architectural zinc type 1

Dimensions & Permissible Variations

8.1 Thickness - The permissible variations in thickness of rolled zinc shall be as specified in **Table 3**, along the length of the coil shall be made within 12 in. (305 mm) of each other, nor shall measurement in any one line across the width of the coil be used as a basis of rejection.

8.2 Width - The permissible variations in width of all types of rolled zinc shall be as specified in **Table 4**.

8.3 Length - The permissible variations in length in all types of rolled zinc shall be as follows: sheets, strips, and plates may be ordered to exact lengths with the following variations in length permitted, ±0.125 in. (3.2 mm), or to a tolerance range agreed to by buyer and seller. For Architectural Rolled Zinc (ZXXXXX), the permissible variation in length is ±0.2 in. (±5 mm).

8.4 Slide wise Bend and Curvature (Camber) - Type I rolled zinc in length over 10 ft (3048 mm) shall not exhibit sidewise bend or curvature in excess of 1 in. (25.4 mm) in any length of 10 ft, or to a tolerance range agreed to by buyer and seller.

Chemical Composition of Rolled Zinc Alloys

Alloy (UNS)	Cu	Pb	Fe	Cd	Ti	Al	Sn	Mn	Mg
Architectural Rolled Zinc Type 1	0.08 to 0.20	-	-	-	0.07 to 0.12	0.001 to 0.015	-	-	-

Zinc: balance by difference. The total of Pb, Fe, Sd, Sn, Mn, and Mg must not exceed 0.005% max.

Mechanical Properties of Rolled Zinc Alloys

Alloy (UNS)	Tensile Strength ksi	Tensile Strength mpa	Elongation %	Hardness HR15T
Architectural Rolled Zinc Type 1	14 - 38	96 - 262	10 - 70	54 - 74

Table 3 Permissible Variations In Thickness of Rolled Zinc

Thickness, in. (mm)	Tolerance, in. (mm)
0.009 (0.229 and under)	10 % of thickness
0.010-0.030 (0.254 to 0.762)	± 0.001 (0.0254)
0.031-0.060 (0.787 to 1.524)	± 0.002 (0.0508)
0.061-0.090 (1.549 to 2.286)	± 0.003 (0.0762)
0.091-0.125 (2.311 to 3.175)	± 0.004 (0.1016)
0.126 and above (3.200 and above)	± 0.007 (0.1270)

Table 4 Permissible Variations In Width

Width Form	Tolerance, in. (mm)
Slit widths	± 0.010 (0.254)
Sheared widths	± 0.062 (1.575) Type I

Gauge Conversions

Gauge	Millimeters	Inches	lbs/ft²	ft² (39.4" x 10' sheet)	lbs (39.4" x 10' sheet)
24	0.7	0.027	1.03	32.81	33.79
22	0.8	0.031	1.18	32.81	38.71
20	1	0.039	1.48	32.81	48.56
16	1.5	0.059	2.21	32.81	72.51

Stretch Out Matrix

Unit	7	6	5	4	3	2
39.4 in	5 5/8	6 9/16	7 7/8	9 7/8	13 1/8	19 11/16
39.400 in	5.625	6.563	7.875	9.875	13.125	19.687
1 meter	143	166	200	250	333	500
48 in	6 6/7	8	9 3/5	12	16	24
48.000 in	6.857	8	9.6	12	16	24
1.219 meter	174	203	244	305	406	610

Recommended Substrates for VMZINC Panels

(Non Perforated)

	Inland Climate	Marine Climate
Aluminum (painted, anodized, bare)	Yes	Yes
Galvanized Steel	Yes	Yes
Painted Steel	Yes (1)	No
Painted Galvanized Steel	Yes	Yes
Stainless Steel 304	Yes	Yes
Stainless Steel 316	Yes	Yes

Recommended Substrates for VMZINC Perforated Panels

	Panels used for mechanical screens on roof tops		Panels for main walls (windows, etc...)	
	Inland Climate	Marine Climate	Inland Climate	Marine Climate
Aluminum (painted, anodized, bare)	Yes	Yes	Yes	Yes
Galvanized Steel	Yes (2)	No	No	No
Painted Steel	Yes (1)(2)	No	Yes (1)(2)	No
Painted Galvanized Steel	Yes (2)	No	Yes (2)	No
Stainless Steel 304	Yes	No	Yes	No
Stainless Steel 316	Yes	Yes	Yes	Yes

(1) Stainless steel washer needed to separate zinc from painted steel substrate
(2) Limited lifespan - for better results use a different substrate

COLOR SELECTED IS "QUARTZ-ZINC"

EXTERIOR WALL SYSTEM
BUILDING A - FINISH FOR SYSTEM 2

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

FACE BRICK

ENDICOTT™

BEAUTIFUL MOVEMENT BEGINS WITH A BRICK

Beauty starts with a single brick.
Formed from iron-rich clays,
Endicott face brick are like no other.
The extraordinary colors, beautiful sheen,
compelling textures and varied sizes
add richness to every space. Capture
design intent with the consistency
and sophistication of Endicott.

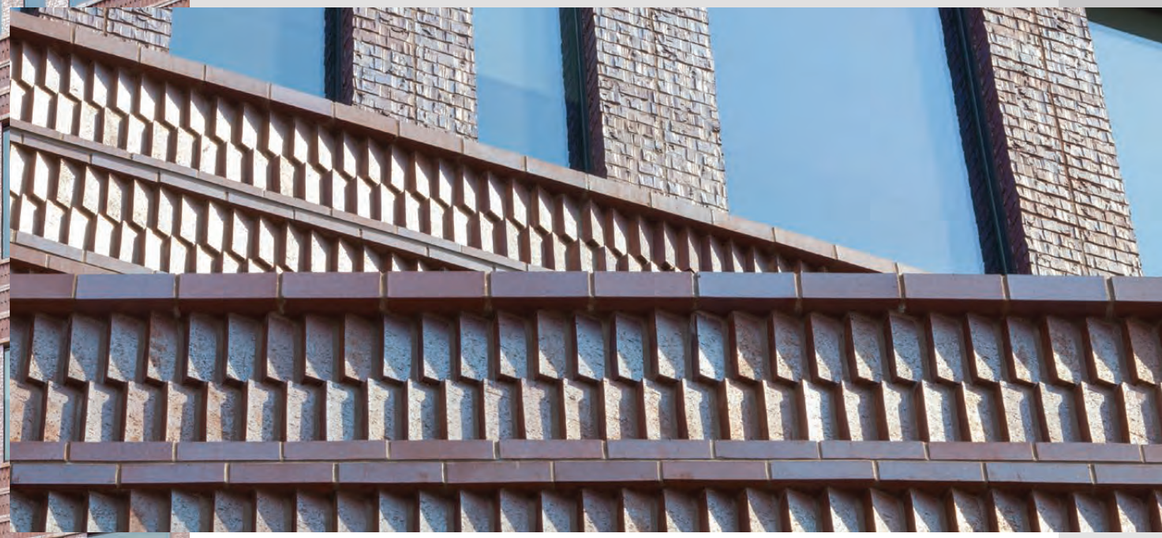
EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

Yale University Health Center
Color: Manganese Ironspot
Texture: Smooth
Size: Solid Modular, Bullet Shape
Location: New Haven, CT

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

Bruce C. Bolling Municipal Building
Color: Medium Ironspot #46
Texture: Smooth, Velour, Artisan
Size: Modular, Shapes
Location: Boston, MA

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1



ZMBRT House
Color: Dark Ironspot
Texture: Smooth
Size: Solid Norman
Location: Covington, KY

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

THIS COLOR

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

ARCHITECTURAL SERIES

Adding richness to great design since 1920.


Golden Buff


Red Blend


Burgundy Blend


Bordeaux Blend


Manganese Brown


Light Grey Blend


Grey Blend


Ruby Red


Red Ironspot


Executive Ironspot


Sienna Ironspot


Light Sandstone


Dark Sandstone


Desert Ironspot Light


Desert Ironspot Dark


Medium Ironspot #77


Medium Ironspot #46


Buff Blend


Rose Blend


Coppertone


Copper Canyon


Dark Ironspot


Manganese Ironspot

RESIDENTIAL SERIES


Buckskin Sands


Adobe Sands


Desert Sands


Orleans Sands


Grey Sands


Antique 752


Red Heritage with Black


Burgundy Sands


Tuscan Grey


Grey Heritage with Black


Autumn Sands


Merlot Sands


Copper Sands


Sahara Sands


Heritage #46


Heritage #46 No Yellow

JEFFERSON SERIES


Rushmore


Continental


Monticello


Liberty


Patriot

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

TEXTURES

Smooth

Velvetex

Velour

Vertical Score

TEXTURE TBD

Matt

Artisan

TEXTURES CONTINUED

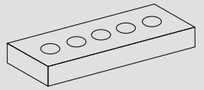
Danish Hand Mould

Heritage

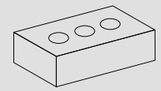
Antique

SIZES

THIS SIZE

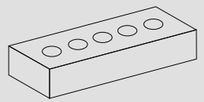


Roman
3-5/8" x 1-5/8" x 11-5/8"

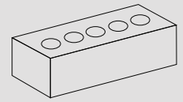


Modular
3-5/8" x 2-1/4" x 7-5/8"

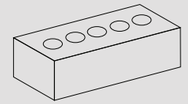
Danish Hand Mould
3-5/8" x 2-1/4" x 7-5/8"



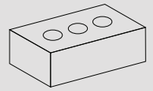
Norman
3-5/8" x 2-1/4" x 11-5/8"



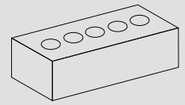
Slim Kingsize
2-5/8" x 2-5/8" x 9-5/8"



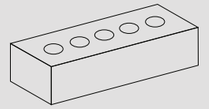
Kingsize
3" x 2-5/8" x 9-5/8"



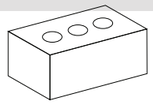
Engineer Modular
3-5/8" x 2-13/16" x 7-5/8"



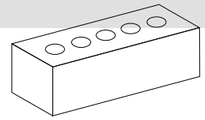
Engineer Kingsize
3" x 2-13/16" x 9-5/8"



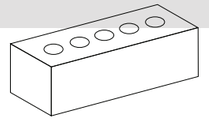
Norwegian
3-5/8" x 2-13/16" x 11-5/8"



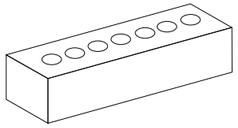
Closure
3-5/8" x 3-5/8" x 7-5/8"



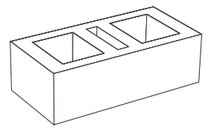
3" Utility
3" x 3-5/8" x 11-5/8"



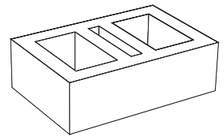
Utility
3-5/8" x 3-5/8" x 11-5/8"



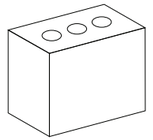
Meridian
3-5/8" x 3-5/8" x 15-5/8"



6" Thru the Wall
5-5/8" x 3-5/8" x 11-5/8"



8" Thru the Wall
7-5/8" x 3-5/8" x 11-5/8"



Triple Brick
3-5/8" x 7-5/8" x 7-5/8"

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

EXTERIOR WALL SYSTEM
BUILDING A - SYSTEM 1

In 1920, rich mineral deposits were discovered in Jefferson County, Nebraska. These rich minerals help give Endicott brick their unmatched color and sheen. Across North America, Endicott's collection of face brick, thin brick, pavers, tile and special shapes are setting the solid world in motion.

For other literature, samples and the name of your nearest distributor, contact Endicott today.

ENDICOTT™

Endicott Clay Products Company
P.O. Box 17
Fairbury, Nebraska USA 68352
402-729-3315 FAX: 402-729-5804
endicott.com

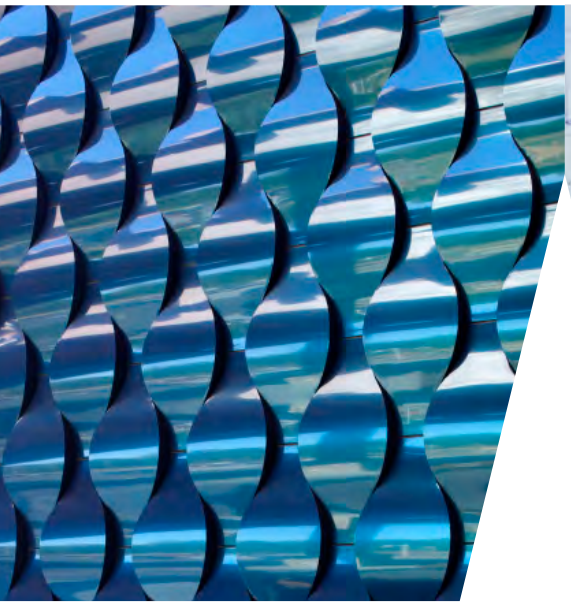
Kennesaw State University, Marietta
Color: Medium Ironspot #77
Texture: Velour
Size: Modular
Location: Marietta, GA

ALUCOBOND® PLUS

GIVING SHAPE TO GREAT IDEAS

TECHNICAL DATA SHEET

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2



As the original "aluminum composite material," ALUCOBOND PLUS consists of two sheets of smooth .020" aluminum thermo-bonded to a solid, fire retardant core and has been developed exclusively to allow architects and designers to meet today's fire performance requirements set by the International Building Code (IBC) while using ACM as the material of choice. Proven product properties and benefits of ALUCOBOND PLUS include:

- Flatness & Rigidity
- Durability
- Ability to be perforated
- Formability
- Ease of fabrication
- Wide range of colors & finishes

The versatile characteristics of ALUCOBOND PLUS provide for a plethora of applications such as exterior and interior cladding, column covers, canopies, soffits and even signage, allowing architects to offer inspiring, creative, and innovative designs while meeting the standards of sustainable planning.

ALUCOBOND PLUS is available in all of our current finishes and custom colors.

PRODUCT DESCRIPTION

MATERIAL COMPOSITION
- Aluminum interior and exterior facings in 0.020" nominal thickness
- 4mm total nominal thickness, including proprietary fire retardant core

SHEET WIDTHS
- Standard coil-coated width of 62"*
  *Some finishes are stocked in 40", 49.2" or 50". Please refer to stock material list
- Custom widths of 40" and 50" available on request

SHEET LENGTHS
- Standard coil-coated length of 196"
- Reflect Mirror is offered in 146"
- Custom lengths for coil coating: maximum 400"
- Custom lengths for anodized: maximum 216"

MINIMUM BENDING RADIUS
- The minimum bending radius of ALUCOBOND PLUS without routing the interior skin is 15 times the thickness
- 4mm x 15 = 60mm (2.36")

MANUFACTURING
- ALUCOBOND PLUS is made in Benton, Kentucky USA

TECHNICAL SUMMARY

TEMPERATURE RESISTANCE
- Withstands environmental temperature changes from -55°F to +180°F
- Coefficient of linear expansion is governed by the aluminum sheet

TECHNICAL PROPERTIES

- Nominal thickness:	4mm
- Nominal weight:	1.56 lb/ft^2
- Moment of intertia:	.000212 in^4/in
- Section of modulus:	.00275 in^3/in
- Rigidity:	2143 lb-in^2/in

SUSTAINABILITY DESIGN
- LEED 3
- LEED v4/4.1
  - LCA Industry Standard
  - EPD Industry Standard

ACCEPTED EVALUATION REPORTS
- ICC-ES: 1185
- Florida Product Approval: FL29842
- Miami Dade County NOA: 15-0923.03
- Los Angeles Research Report: 24868
- Underwriters Laboratory: 19980

WALL ASSEMBLY FIRE TESTING
- CAN/ULC S134**
- NFPA 285**

To download PDF or AutoCAD details and specifications, visit our website at **www.alucobondusa.com**

ALUCOBOND® PLUS
GIVING SHAPE TO GREAT IDEAS

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

TECHNICAL DATA SHEET
Engineering Properties for ALUCOBOND PLUS Material

Standard Test Method*	Description	Category	4mm
ASTM C-365	Flatwise Compression Strength (Ultimate)	Mechanical	9291 psi
ASTM C-393	Core Shear Properties (Perpendicular) Ultimate Facing Bending Stress	Mechanical	24,720 psi
ASTM C-393	Core Shear Properties (Parallel) Ultimate Facing Bending Stress	Mechanical	22,732 psi
ASTM D-790	Flexural Modulus (Perpendicular)	Mechanical	1891 ksi
ASTM D-790	Ultimate Flexural (Perpendicular)	Mechanical	18,573 psi
ASTM D-790	Flexural Modulus (Parallel)	Mechanical	1815 ksi
ASTM D-790	Ultimate Flexural (Parallel)	Mechanical	17,703 psi
ASTM D-790	Yield Flexural Stress (Perpendicular)	Mechanical	6667 psi
ASTM D-790	Yield Flexural Stress (Parallel)	Mechanical	6930 psi
ASTM D-638	Modulus of Elasticity (Perpendicular)	Mechanical	2930 ksi
ASTM D-638	Tensile Strength (Perpendicular)	Mechanical	7750 psi
ASTM D-638	Tensile Yield at 0.2% Offset (Perpendicular)	Mechanical	6570 psi
ASTM D-638	Elongation (Perpendicular)	Mechanical	14.2%
ASTM D-732	Punching Shear (Maximum Shear Load)	Mechanical	2198 lbs.
ASTM D-732	Punching Shear (Shear Strength)	Mechanical	4615 psi
ASTM C-518	Thermal Conductivity	Thermal	U=6.5 Btu/hr ft^2 °F
ASTM C-518	Thermal Resistance	Thermal	R=0.16
ASTM C-518	Thermal Conductance	Thermal	6.25
ASTM D-648	Deflection Temperature - Perpendicular	Thermal	185°F
ASTM D-648	Deflection Temperature - Parallel	Thermal	189°F
ASTM C-273	Shear Test in Flatwise Plane (Ultimate Core Shear Strength)	Bond Integrity	765 psi
ASTM C-297	Tensile Bond Strength Test in Flatwise Plane (Ultimate)	Bond Integrity	1016 psi
ASTM D-1781	Bond Integrity	Bond Integrity	> 22.5 in-lb/in
ASTM E-90	Sound Transmission (STC)	Acoustical	30
ASTM E-90	Sound Transmission (OITC)	Acoustical	24
ASTM C-272	Water Absorption	Physical	0.003%
ASTM D-696	Coefficient of Linear Thermal Expansion	Physical	$1.11x10^{-5}$ in/in °F
ASTM D-635	Rate of Burning	Fire Performance	Classified CC1
ASTM D-1929	Ignition Temperature - Self	Fire Performance	783°F
ASTM D-1929	Ignition Temperature - Flash	Fire Performance	784°F
ASTM E-84	Surface Burning Characteristics (Flame Spread)	Fire Performance	< 25
ASTM E-84	Surface Burning Characteristics (Smoke Development)	Fire Performance	< 100
CAN/ULC-S102	Surface Burning Characteristics (Flame Spread)	Fire Performance	< 25
CAN/ULC-S102	Surface Burning Characteristics (Smoke Development)	Fire Performance	< 100
CAN/ULC-S134	Flame Spread of Exterior Wall Assemblies	Fire Performance	Meets Criteria**
NFPA 285	Flame Spread of Exterior Wall Assemblies	Fire Performance	Meets Criteria**

*The ASTM (American Society for Testing & Materials) Standard Test Method defines the way a test is performed and the precision of the result. The result of the test is then used to assess compliance with a standard specification.

** Results based upon tests made with ALUCOBOND PLUS panels in specific wall assemblies. For more information about assemblies that have been tested, please contact technical support: Thomas.rogers@3acomposites.com

ALUCOBOND® PLUS

GIVING SHAPE TO GREAT IDEAS

THE

Stock Color Library

EXTERIOR WALL SYSTEM

BUILDING B - SYSTEM 1&2

SPECTRA COLLECTION: OCEAN

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

ALUCOBOND® PLUS

3A Composites is grateful to the architectural community for embracing ALUCOBOND since its global introduction over 50 years ago. We aspire to bring value to our partners through outstanding service, industry-leading quality, and continuous innovation. As we look to the future, we remain committed to servicing the architectural community by listening to our customers and responding to the evolving needs of the market.

Our trend-forward palette represents an ongoing development of colors and finishes curated to foster creativity and ingenuity. We humbly look forward to another 50 years of shared partnership and collaboration.

Scan QR code with mobile camera to order samples or visit us at:

ALUCOBONDUSA.COM/SAMPLES

The Classic Collection

Color plays an integral role in the architectural environment; the timeless palette in our Classic Collection reflects your passion for what's possible. From classic neutrals to biophilic hues, this line offers a wide range of options to help you give shape to great ideas.

The Spectra Collection

To add a dynamic element of fascination and movement to any architectural facade, these transitional finishes celebrate the natural color shifts that occur in the world around us – from raw natural elements to the glowing luster and sheen found in modern alloys and luxury finishes.

The Anodized Collection

In addition to the strength and high-quality appearance that comes standard with our collections, this line uses the anodizing process to enhance the intrinsic clarity and beauty of aluminum while creating a harder, smoother, more durable surface.

The Natural Collection

Biophilic design conceptualizes spaces in a way that acknowledges the human need to connect with nature. The finishes in the Natural Collection amplify the organic beauty and character of different elements & materials found in the world around us.

The Element Series finishes unify the effortless appearance of organic metals & finely textured patterns to create a vivid & memorable impression while retaining the luster of aluminum from afar.

The Terra Series is inspired by iridescent stone & the mesmerizing beauty of crystalline surfaces, creating a unique, organic and natural ambiance.

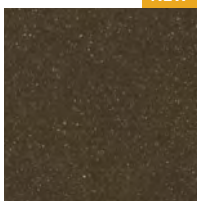
The Woodgrain Series exemplifies the inherent beauty & character of natural wood unifying its effortless appearance with the outstanding durability & lightweight properties of aluminum composite.

The Classic Collection

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Statuary Bronze
PVDF 2
Gloss 25–35

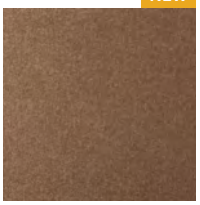
NEW



New-Age Dark Bronze Mica PVDF 2
Gloss 20–30

Driftwood Mica
PVDF 2
Gloss 15–25

NEW



Atacama Bronze Metallic PVDF 3
Gloss 25–35

Hazelnut Mica
PVDF 2
Gloss 15–25

Russet Mica
PVDF 3
Gloss 25–35

NEW

Beige
PVDF 2
Gloss 35–45

Castle Gray
PVDF 2
Gloss 25–35

JLR Champagne Metallic PVDF 2
Gloss 20–30

Anodic Satin Mica
PVDF 2
Gloss 20–30

NEW

Epernay Champagne Metallic PVDF 3
Gloss 25–35

Harvest Gold Mica
PVDF 2
Gloss 20–30

Oyster
PVDF 2
Gloss 20–30

Polyester White
Polyester
Gloss 25–35

Alabaster
PVDF 2
Gloss 25–35

Bone White
PVDF 2
Gloss 25-35

Pure White (RVW)
PVDF 2
Gloss 45–55

HWH Bio White
PVDF 2
Gloss 40–50

NEW

Magnolia
PVDF 2
Gloss 30-40

NEW

Market Pearl White Mica PVDF 2
Gloss 15–25

Sunrise Silver Metallic II PVDF 3
Gloss 25–35

Brilliant Silver Metallic PVDF 3
Gloss 25–35

Anodic Clear Mica
PVDF 2
Gloss 20–30

Champagne Metallic
PVDF 3
Gloss 25–35

Platinum Mica
PVDF 2
Gloss 15–25

Silver Metallic
PVDF 3
Gloss 25–35

Cadet Gray
PVDF 2
Gloss 20–30

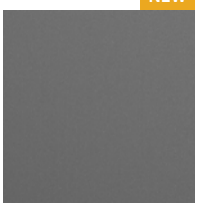
West Pewter Mica II
PVDF 2
Gloss 15–25

NEW

Beachstone Gray Metallic PVDF 3
Gloss 25–35

JLR Gray Metallic
PVDF 2
Gloss 25–35

NEW



Steel City Silver Mica
PVDF 2
Gloss 15–25

MZG Gray Mica II (Lexus) PVDF 2
Gloss 30–40

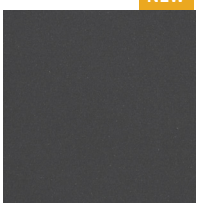
NEW

Greyhound
PVDF 2
Gloss 5–15

NEW

Anthracite Silver Metallic PVDF/FEVE
Gloss 70–80

NEW



Graphite Mica
PVDF 3
Gloss 25–35

Dusty Charcoal II
PVDF 2
Gloss 25–35

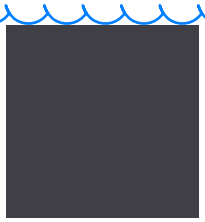
All finishes are stocked in 4mm PLUS core

The Classic Collection (continued)

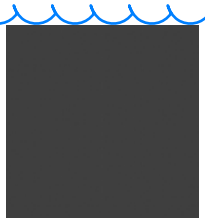
EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Nissan Gray
PVDF 3
Gloss 45–55

Tri-Corn Black
SMP
Gloss 25–35

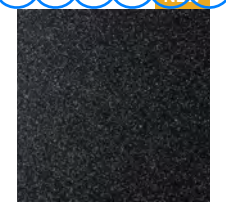


Focus Black II
PVDF 2
Gloss 25–35



TBL Black (Buick)
SMP
Gloss 70–80

NEW



Black Metallic
PVDF 3
Gloss 25–35

Spire Blue II
PVDF 3
Gloss 25–35

Azure Blue
PVDF 3
Gloss 25–35

NEW

Ultramarine Blue
PVDF 2
Gloss 25–35

Bowtie Blue II
SMP
Gloss 65–75

Image Blue
SMP
Gloss 25–35

Red Fire
PVDF 3
Gloss 25–35

Patriot Red
PVDF 3
Gloss 45–55

Carb Red
SMP
Gloss 75–85

NEW

Tuscan Sun
PVDF 2
Gloss 25–35

NEW

Botanical
PVDF 2
Gloss 25–35

The Spectra Collection

Ocean
PVDF/FEVE
Gloss 70–80

NEW

Galaxy Blue
PVDF/FEVE
Gloss 70–80

NEW

White Gold
PVDF/FEVE
Gloss 70–80

Cupral
PVDF/FEVE
Gloss 70–80

Sakura
PVDF/FEVE
Gloss 70–80

The Anodized Collection

Lead time of 3–4 weeks

Clear Anodized
Anodized
Gloss 15–25

Light Bronze Anodized
Anodized
Gloss 15–25

Medium Bronze Anodized Anodized
Gloss 15–25

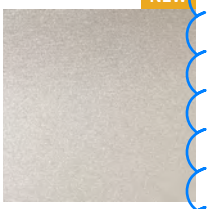
Dark Bronze Anodized
Anodized
Gloss 15–25

Black Anodized
Anodized
Gloss 15–25

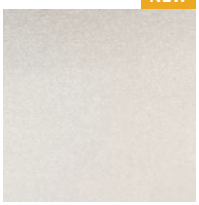
All finishes are stocked in 4mm PLUS core

The Natural Collection **Element Series**

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

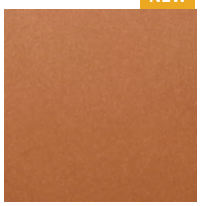


Aragonite Metallic
PVDF/FEVE
Gloss 70–80



Moonstone Metallic
PVDF/FEVE
Gloss 70–80

Colorado Gold Metallic PVDF 3
Gloss 25–35

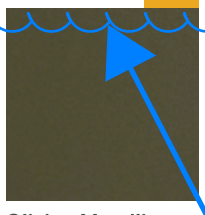


Native Copper Mica
PVDF 2
Gloss 20–30

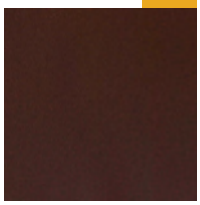
Rusted Metal
PVDF Print
Gloss 3–8

Zinc
PVDF Print
Gloss 3–8

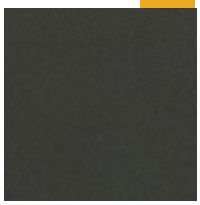
Brushed Antique Copper FEVE
Gloss 35–45



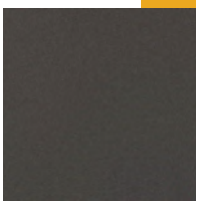
Olivine Metallic
PVDF/FEVE
Gloss 5–10



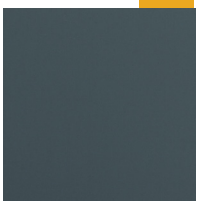
Almandine Garnet Metallic PVDF/FEVE
Gloss 5–10



Cubanite Metallic
PVDF/FEVE
Gloss 5–10

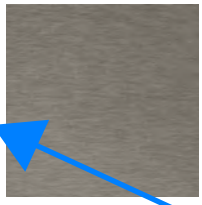


Serpentine Metallic
PVDF/FEVE
Gloss 5–10



Basalt Gray
PVDF 2
Gloss 25–35

Brushed Carbon
FEVE
Gloss 35–45



Brushed Stainless
FEVE
Gloss 35–45

Brushed
FEVE
Gloss 45–55

Reflect Mirror*
Reflective

*Sample is meant to demonstrate the reflective qualities of the surface but is not an exact match; please request a sample to see the true mirror finish

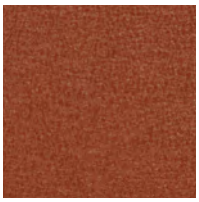
CUSTOM BLACK AND LIGHT GRAY COLORS TO BE DEVELOPED BY ARCHITECT & MANUFACTURER

The Natural Collection **Terra Series**

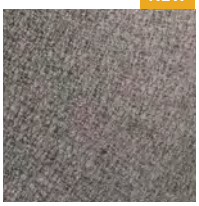
Arctic Frost
SMP Textured
Gloss 8–12

Sierra Sand
SMP Textured
Gloss 8–12

Bronze
SMP Textured
Gloss 8-12



Terracotta
SMP Textured
Gloss 8–12



Slate
SMP Textured
Gloss 5–10

Lava Nera
SMP Textured
Gloss 5–10

The Natural Collection **Woodgrain Series**

Beechwood
PVDF Print
Gloss 3-8

Rustic Walnut
PVDF Print
Gloss 3–8

Chestnut
PVDF Print
Gloss 3–8

Scan QR code with mobile camera to order samples or visit ALUCOBONDUSA.COM/SAMPLES

All finishes are stocked in 4mm PLUS core

PRODUCT DESCRIPTION

MATERIAL COMPOSITION

- Aluminum interior and exterior facings in 0.020" nominal thickness
- 4mm total nominal thickness, including proprietary fire retardant core

SHEET WIDTHS

- Standard coil-coated width of 62"*
  *Some finishes are stocked in 40", 49.2" and 50" Please refer to stock material list.
- Custom widths of 40" and 50" available on request

SHEET LENGTHS

- Standard coil-coated length of 196"
- Reflect Mirror is offered in 146"
- Custom lengths for coil coating: maximum of 400"
- Custom lengths for anodized: maximum of 216"

MINIMUM BENDING RADIUS

- The minimum bending radius of ALUCOBOND PLUS without routing the interior skin is 4"

AVAILABLE FINISHES

- PVDF
- FEVE
- SMP
- Polyester
- Anodized
- Brushed
- Textured
- Print
- Color-Shifting
- Solids, Micas, & Metallics

TECHNICAL SUMMARY

TECHNICAL PROPERTIES	ALUCOBOND PLUS
- Nominal thickness:	4mm
- Nominal weight:	1.56 lb/ft^2
- Coefficient of Expansion x 10^{-5} (in/in/°F)	1.11
- Temperature Resistance:	-55° to 180° F (-48° to 82°C)
- Rigidity:	2143 lb-in^2/in

NORTH AMERICAN BUILDING CODE ACCEPTANCE

- IBC
- Miami-Dade County, Florida
- National Building Code of Canada
- State of Florida
- City of Los Angeles, California

MANUFACTURING

- ALUCOBOND PLUS is made in Benton, Kentucky USA

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

PAINT FINISHES

All ALUCOBOND PLUS PVDF & FEVE finishes are coated in accordance with AAMA 2605 signifying the highest-performance exterior finish standard in the industry. AAMA 2605 finishes have the best chalk, humidity, and color change performance. SMP finishes meet AAMA 2604.

- PVDF (Polyvinylidene Fluoride) Two coat PVDF paint systems are applied to solid & mica finishes which are coil-coated over a pre-treated aluminum substrate with a primer & color coat at a nominal 1.0 mil thickness. When a two coat PVDF system is used, the primer allows bonding & color consistency in the color coat to show, in lieu of having the underlying metal affect color consistency. Note, the pre-treatment is not considered one of the paint "coats." Three coat systems are solid & metallic finishes which are coil-coated over a pre-treated aluminum substrate with a primer, color coat, & clear coat at a nominal 1.5 mil thickness. The clear coat protects the aluminum flake from oxidizing & adds increased weatherability & protection against the elements.

- FEVE (Fluoropolymer Based) Base coat plus a clear coat are often used to protect bare finishes, ie. various brushed patterns. A transparent top coat is applied to the coil protecting the surface from the elements & preserves the aesthetic of the bare finish. Various tints can be applied to broaden the color palette & add to the aesthetics of a project.

- PVDF/FEVE Finish consists of 2 coats of PVDF & a clear coat of FEVE. On our Spectra finishes, the FEVE coat provides a higher gloss level & depending on the viewing angle, different wave-lengths of light are reflected, resulting in an ever-changing color gradient with iridescent highlights.

- SMP (Silicone Modified Polyester) Paint systems are a blend of polyester & silicon intermediates. Silicone acts to improve the gloss retention & weather resistance of the polyester coating.

For warranty information please contact your local ALUCOBOND Sales Manager.

CUSTOM COLORS

If you require a custom color for your next project, our color technicians will strive to match your desired color. Please note, custom color orders are subject to set-up charges and require a 1,000 sq. ft. minimum per color. Exact matches are not always possible due to different inks & pigments used in various industries & application methods. Matching a color created by a spray method, particularly a metallic, may not match with a color created on a roll coated method.

To ensure that we identify your color correctly, we require either:

- A hand sample of at least 1" x 1", OR
- Pantone®, RAL, NCS or paint code reference

Please reach out to your local sales manager to aid with the process at: ALUCOBONDUSA.COM/SALES-REP

Send the color sample along with your name, company name, address, phone number & email, as well as the project name, project location, type of finish and gloss level to:

3A Composites USA
Attn: Color Lab
208 West Fifth Street
Benton, KY 42025

01-2020-20000

ALUCOBOND® PLUS

GIVING SHAPE TO GREAT IDEAS

Fabrication Manual

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

This fabrication manual has been developed to assist fabricators to work with 4mm ALUCOBOND® PLUS material in the most efficient and effective manner. The recommendations in this manual are the result of many years of combined experience by fabricators in North America.

Project: C.H. Robinson Midwest HQ
Chicago, LEED Gold
Architects: Skidmore, Owings, & Merrill LLP
Fabricator: Sobotec Ltd.

3A COMPOSITES

C.H. ROBINSON

TABLE OF CONTENTS

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

INTRODUCTION

This fabrication manual has been developed to assist fabricators to work with ALUCOBOND® PLUS material in the most efficient and effective manner. The tips and suggestions contained in this manual are the result of many years of combined experience by fabricators in both North America and Europe.

The recommended suggestions and product data are based on information which is, in our opinion, reliable. However, since skill, judgment, and quality of equipment and tools are involved, and since conditions and methods of using ALUCOBOND PLUS material are beyond our control, the suggestions contained are provided without guarantee. We recommend that prospective users determine the suitability of both the material and suggestions before adopting them on a commercial scale. 3A COMPOSITES USA INC. DOES NOT MAKE ANY WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR PURPOSE, WITH RESPECT TO ANY SAID SUGGESTIONS AND PRODUCT DATA. In no event shall 3A Composites USA Inc. have any liability in any way related to or arising out of said suggestions and product data for direct, special, consequential or any other damages of any kind regardless whether such liability is based on breach of contract, negligence or other tort, or breach of any warranty, express or implied.

Also, normal safety and health precautions practiced in any fabricating environment should be used when fabricating ALUCOBOND PLUS material. Goggles or other face protection, as well as hearing protection should always be worn.

SDS for ALUCOBOND PLUS material are available through our Customer Service Department.

This fabrication manual is written to address the fabrication of 4mm ALUCOBOND PLUS material. Although DIBOND material (2mm, 3mm, 4mm) is a similar composite, it is not covered by this manual. Questions regarding DIBOND material are answered in the DIBOND material Processing Manual.

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section I: FABRICATING

Considerate care should be taken in the layout and handling of ALUCOBOND PLUS material. Refer to Section VI of this manual for information on care and handling.

The use of coolants or lubricants is not required when sawing.

A. Sawing (For Sizing Panels)

ALUCOBOND PLUS material is manufactured with any one of several high quality finishes. It is best to move the saw blade rather than the material in most operations. Saw cutting can be accomplished with the following cutting equipment:

1. TABLE SAWS

Table saws are not recommended for cutting sheets larger than 4' x 4' in size.

2. PANEL SAWS

Panel saws provide an effective method of cutting. These saws, whether standard equipment or custom made, perform well and have the added advantage of space savings. If a panel saw is to be used as production equipment, an industrial model should be purchased in order to obtain adequate cutting tolerances and increase the longevity of the equipment.

3. MULTIPLE OPERATION RIP/V-GROOVING SAWS

In high production operations, equipment that is capable of performing more than one operation with a single pass through the machinery may be used. This equipment can make multiple saw cuts (sizing the panel) and V-Grooves (rout) at the same time.

4. PORTABLE SAWS

Cutting ALUCOBOND PLUS material with portable circular saws is another effective method. As mentioned, this equipment should also be production/industrial type equipment.

5. RECIPROCATING SAWS

Reciprocating saws work well for cutouts. Care should be aken with portable saws and reciprocating saws to prevent damage to the ALUCOBOND PLUS material surface. More than one sheet can be cut at a time by stacking panels. If center cutting (i.e., letter cutouts) is required, a foam pad may be placed under the material with the reciprocating blade cutting into the foam. The sheets may be clamped or secured with double-faced tape for the cutting operation. When clamping between jaws, protect the panel surface against damage.

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section I: FABRICATING cont'd.

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

B. Blade Recommendations

Consult **Table I** for recommended blades and cutting speeds for various types of saws.

TABLE 1

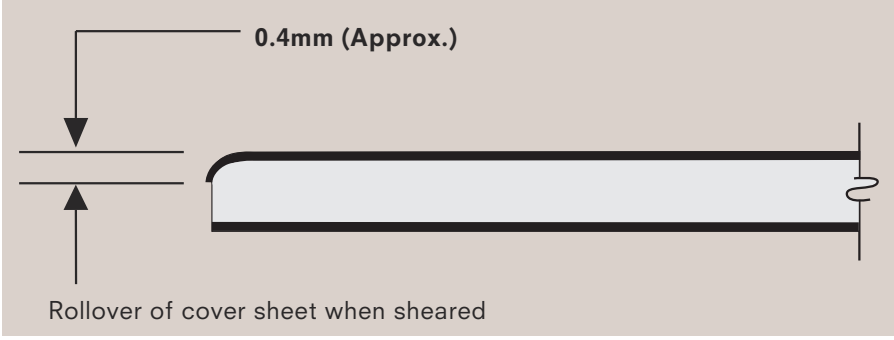
WORKING METHOD	CUTTING MATERIAL	BLADE OR BAND GEOMETRY	TOOTH GEOMETRY	CUTTING SPEED (MAX.)	CUTTING FEED (MAX.)
Circular Saws	Carbide tipped or high-speed steel (For anodized finish, use Carbide tipped only.)	8" x 14" blades with maximum number of carbide teeth available, designed for cutting nonferrous material. The blade should be ground thinner from the rim towards the center to prevent pinching.	Angle or circular tooth, alternate beveled, triple ground. Tooth gap wall rounded. Chip angle: 5o to 15o. Clearance angle: 10o to 30o. Tooth spacing: 3/16" to 1" (4mm to 25mm), fine spacing preferable.	5,500 RPM	16"/second
Bandsaws	Tempered spring strip steel	Thickness: .03" to .047" (0.8mm to 1.2mm). Width: 9/16" to 1" (15mm to 25mm). Use racket or straight set.	Skip teeth, designed for nonferrous and ferrous materials (light metals & plastics). Tooth spacing: minimum ten teeth per inch.	10,000'/min.	10"/second
Reciprocating saws	High-speed steel	Thickness: .03" to .047" (0.8mm to 1.2mm). Width: 3/16" to 9/16" (15mm to 15mm). Use racket or straight set.	Hook or circular tooth with alternate angles, set or waved. Tooth spacing: .010" to .250" (2mm to 6mm). (Plywood blade).		4"/second

C. Shearing

ALUCOBOND PLUS material can be easily sheared. However, a slight roll-down of the aluminum cover sheet may occur on the impact side (reference **Figure 1**). This roll-down area is often referred to as the "edge zone." In this area, the polythylene core is compressed and can lead to increased stress between the core and the aluminum cover sheet. Due to this additional stress, shearing should be avoided when the edge of the panel es exposed to the environment.

When shearing ALUCOBOND PLUS material, light markings on the material may be caused by the hold down pads. In order to avoid these markings, the hold down on the shear should be fitted with a shock-absorbing rubber pad which will help to prevent damage to the ALUCOBOND PLUS material.

Figure 1 - Shearing



Section I: FABRICATING cont'd.

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

D. Jointing or Filing of Edges

Floor model woodworking jointers are effective for edge finishing.

For finishing work, after contour cutting with a reciprocating saw (ordinary cutting files work best), the file profile should be from slightly to fulling rounded. The proper filing direction is length-wise along the edge.

E. Routing: For Bending

Unlike sheet metals which require the use of a large break press for folding fabrication, ALUCOBOND PLUS material can be accurately folded by hand after a simple routing operation is done on the back skin. Anytime a blueprint shows a fold line, this routing operation is done at the location of the bend. This fabrication method is unique to composite panel fabrication and is referred to as Rout & Return. Floor model woodworking jointers are effective for edge finishing.

ALUCOBOND PLUS material may be routed using one of the two following methods: (Either method should use high-quality industrial equipment.)

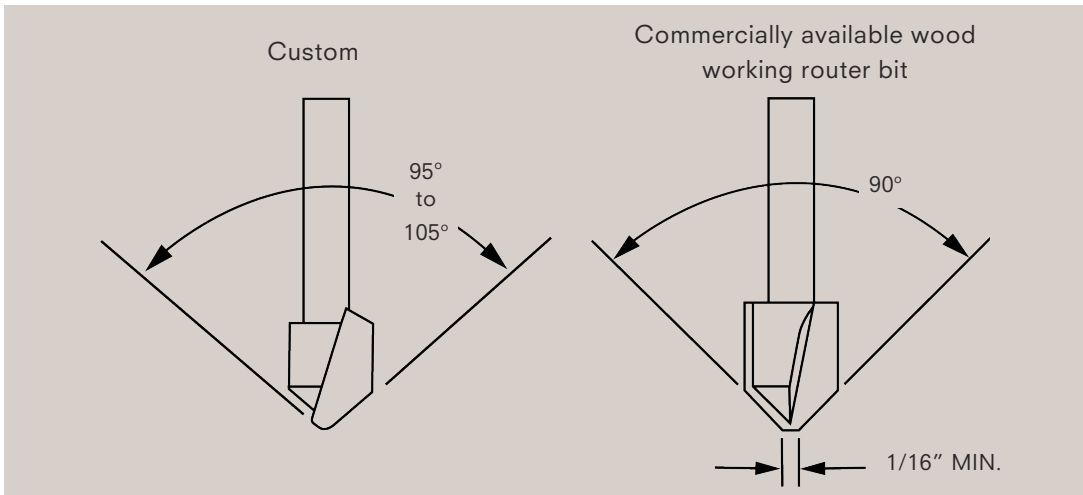
1. ROUTER

One procedure for routing ALUCOBOND PLUS material is to use an industrial or commercial grade, hand-operated router. For production operations this method is relatively slow. The recommended feed rate is 6' to 10' per minute using carbide tipped cutters.

Special custom cutters for ALUCOBOND PLUS material are available (reference Section VII). These cutters have been specifically developed for ALUCOBOND PLUS material and will produce the required configuration for proper rout tolerances. Commercially available 90° wood working routing cutters, available from your local hardware store, may be modified to provide approximately the same function as the custom cutters, provided the tip is ground to a (or flattened) 1/16" minimum at the point (reference **Figure 2**).

Keep router bit sharp to reduce heat build-up and the need to rerout fused core material.

Figure 2 - Router Bits



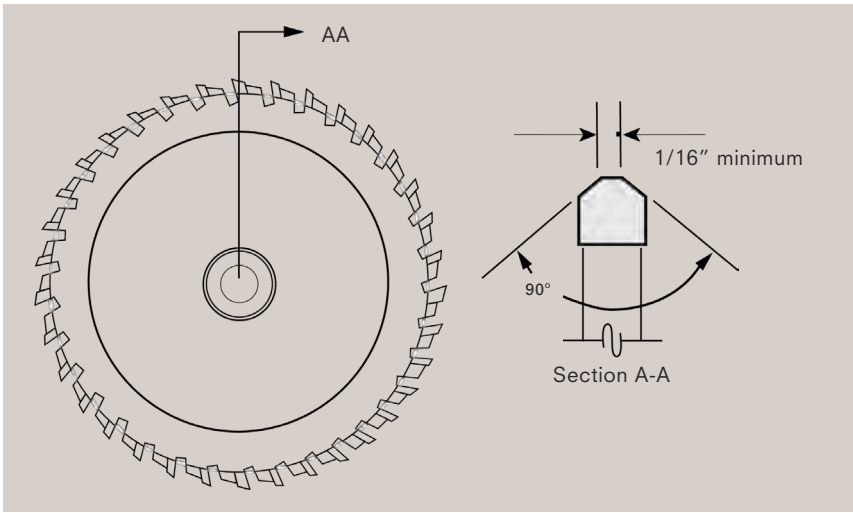
Section I: FABRICATING cont'd.

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

2. CIRCULAR SAW (CUSTOM BLADE)

For fabrication of a large number of sheets that require routing, a portable circular saw fitted with a special blade is advisable (reference **Figure 3**). This blade is often referred to as a "V" Routing Blade. These blades, used with a quality industrial saw, you will produce the required tolerances at a much faster rate than hand routers (reference Section VII). Many fabricators use a worm gear-driven industrial-quality saw, with a larger plastic base plate added for stability.

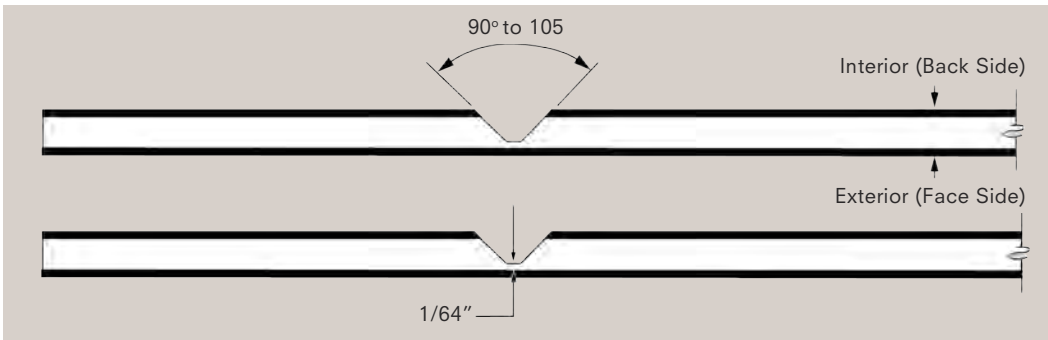
Figure 3 - Routing Saw Blade ("V" Routing blade)



The depth of the "V" rout is critical. As a rule of thumb, the visual appearance of the rout line should be consistent along the entire length of the rout (reference **Figure 4**). Extreme care should be taken not to touch the exterior aluminum skin with the router bit or saw blade. Slight variations can occur due to thickness changes in the ALUCOBOND PLUS material sheet; constant depth of the rout ensures a good smooth line when the edge is folded.

The same guidelines should be used when routing with a "V" Routing Blade on a portable circular saw or with a portable router. **Figure 4** indicates the finished rout required to develop a quality bend. Leave skin plus 1/64" of PLUS core.

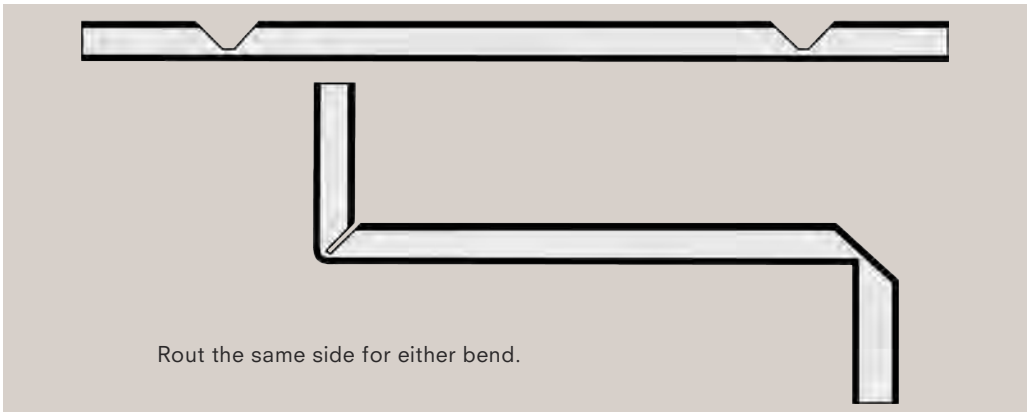
Figure 4 - Routing



Section I: FABRICATING cont'd.

By routing only one side, ALUCOBOND PLUS material can be bent either upward or downward to create both an inside or outside corner as illustrated in **Figure 5.**

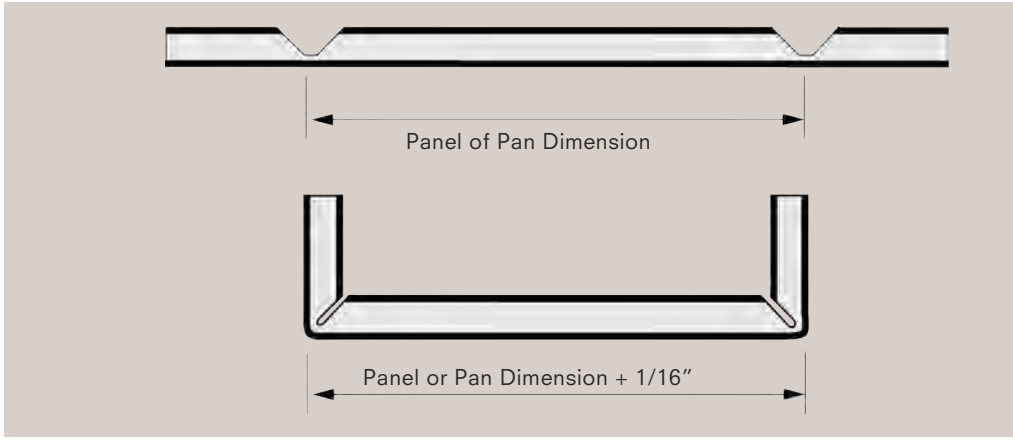
Figure 5 - "V" Routing



NOTE: The material is most easily bent when the rout is made at least one inch or more from the edge of the panel.

An ALUCOBOND PLUS material "pan" is easily fabricated by routing all four sides, notching the corners (shown in **Figure 7** and **Figure 8**), and folding or returning each of the routed sides (reference **Figure 6**). This type of fabrication is commonly referred to as "Rout & Return."

Figure 6 - Routing



Note that as a result of the slight radius produced when bending, your finished panel dimension will be 1/32" to 1/16" larger when folded. This is determined by the profile of the cutter used to make the rout. Trial cuts should be made prior to production to determine any necessary adjustments in layout dimensions (feference **Figure 6**).

On the following page, two different methods of fabrication are illustrated showing how corners may be handled on the folded or "returned" leg of the "pan."

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section I: FABRICATING cont'd.

Figure 7 - Square Corner Cutouts

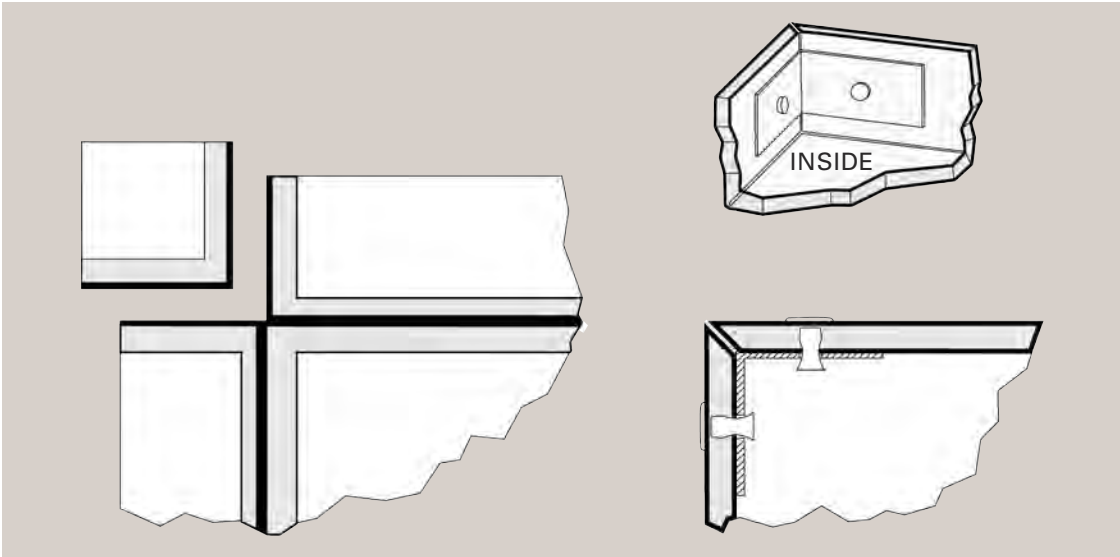
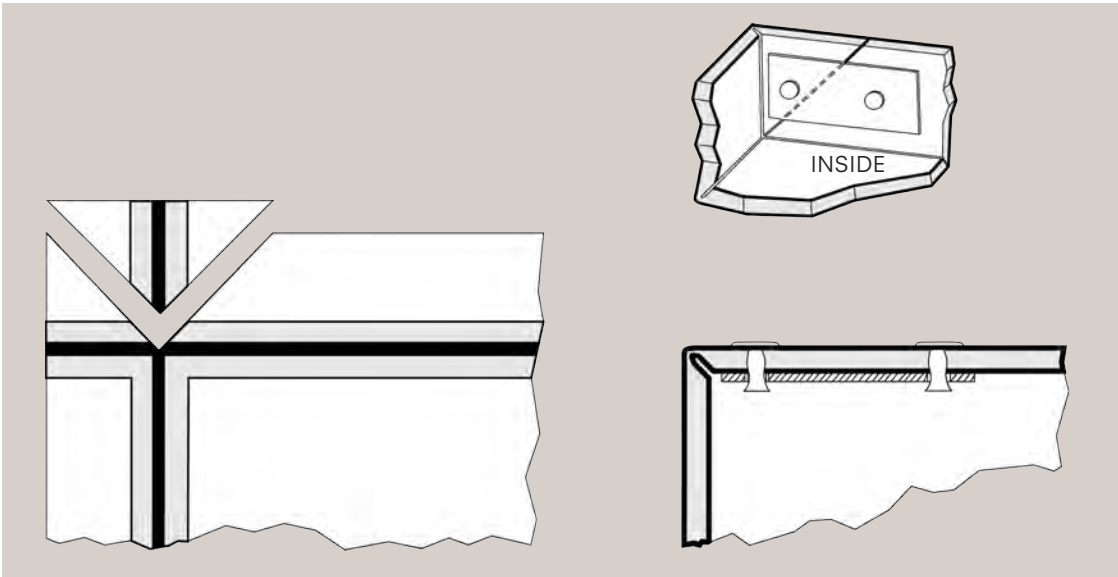


Figure 8 - Envelope Corner Cutous



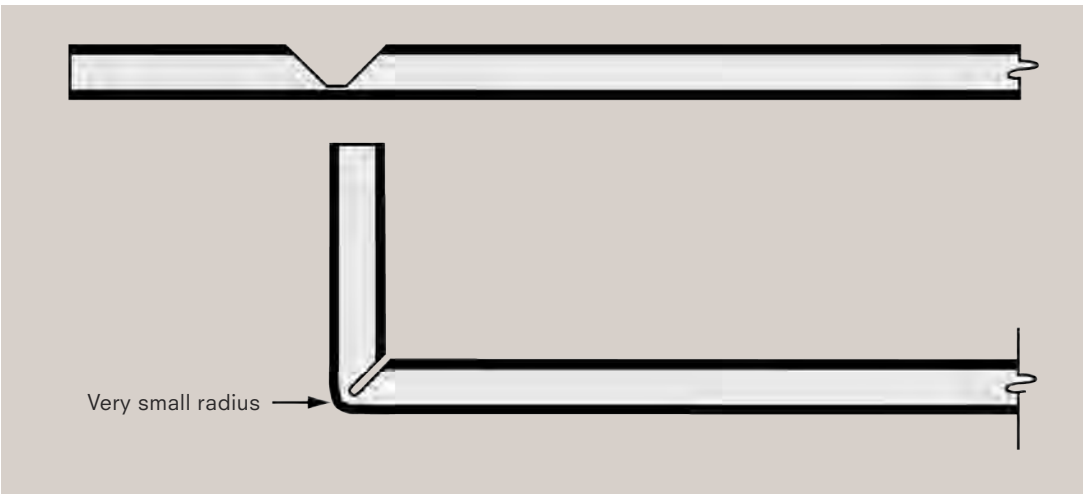
EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section I: FABRICATING cont'd.

F. Small Radius Bending (by routing)

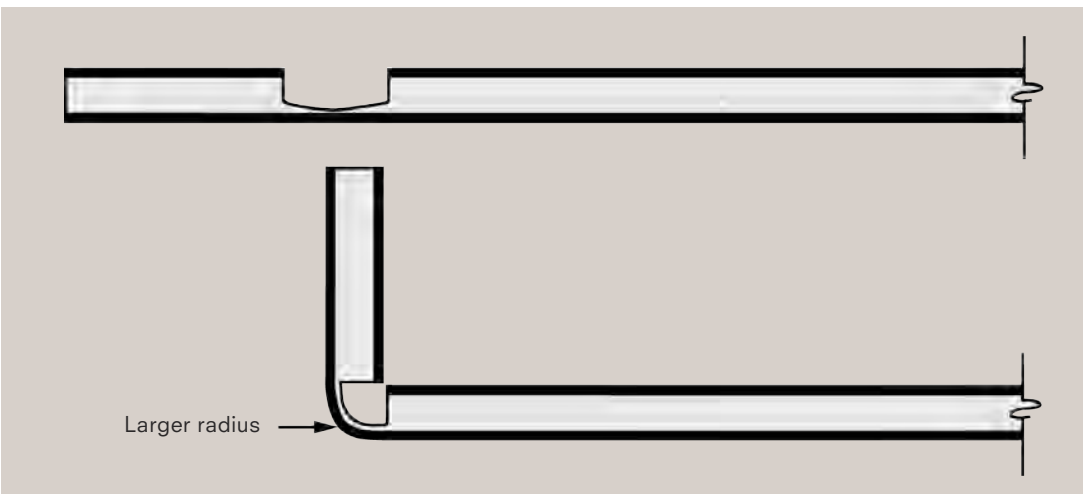
A very small radius can be achieved by "V" routing and folding (reference **Figure 9**).

Figure 9 - "V" Routing



By changing the shape of the cutter used, a larger radius can be achieved. A flatter, wider cut will result in a smoother bend (reference **Figure 10**). Care must be taken when sliding the router across the ALUCOBOND PLUS material to avoid surface scratches. Care must also be taken to avoid cracking the paint of the surface. A minimum of a 1-T radius is required for the ALUCOBOND metal and paint.

Figure 10 - Flat Routing



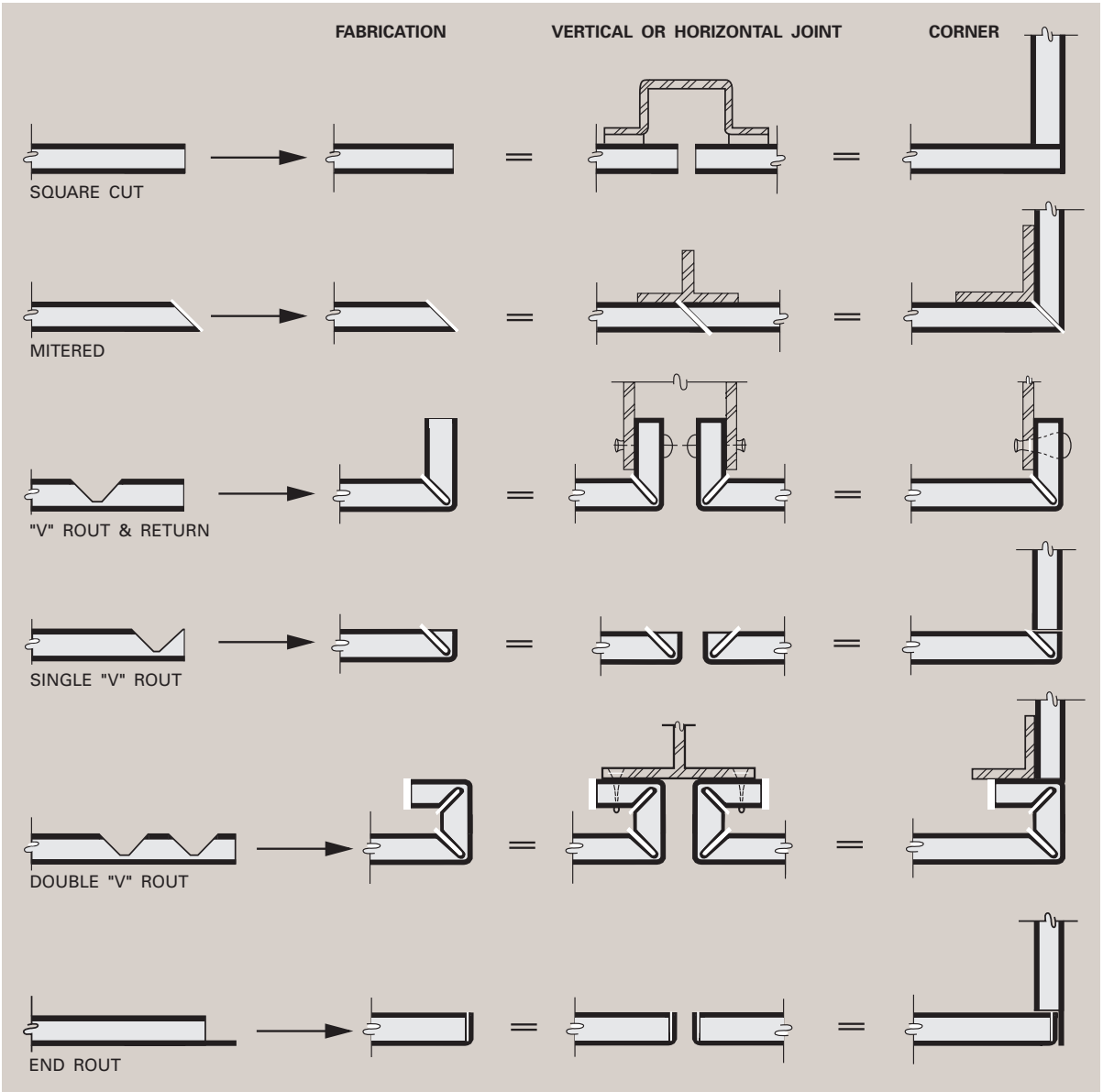
EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section III: CONCEPTS

A. Details

The following details are provided for conceptual purposes only. These are not the only methods that can be used to attach ALUCOBOND PLUS material, nor can they be used generically without consideration for each individual application. Good design, thermal expansion, and engineering may preclude the choice of details used.

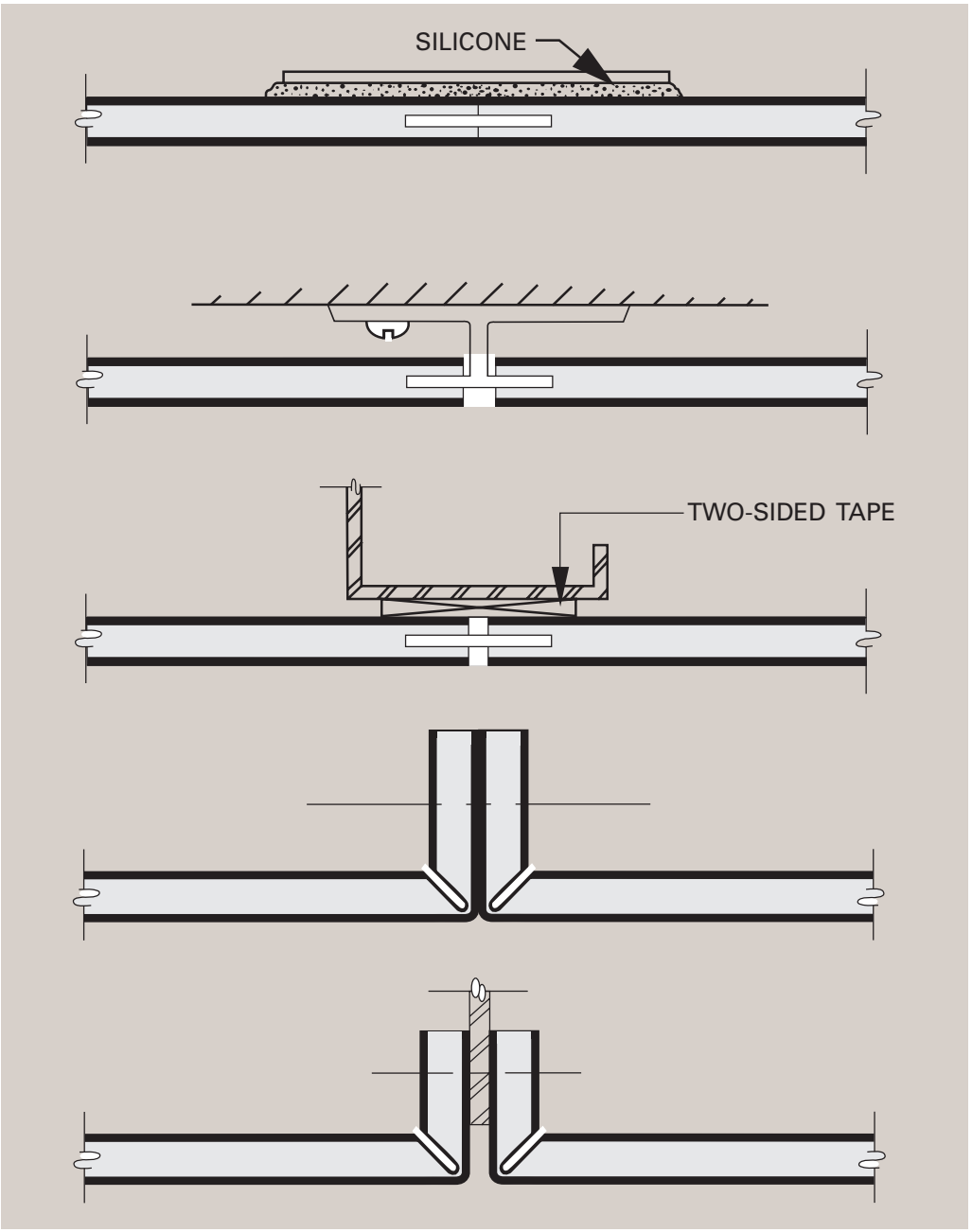
NOTE: The core material of ALUCOBOND PLUS material is UV stabilized, which eliminates the concern of core deterioration.



EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section III: CONCEPTS cont'd.

INTERIOR JOINTS - NO ALLOWANCE FOR THERMAL EXPANSION

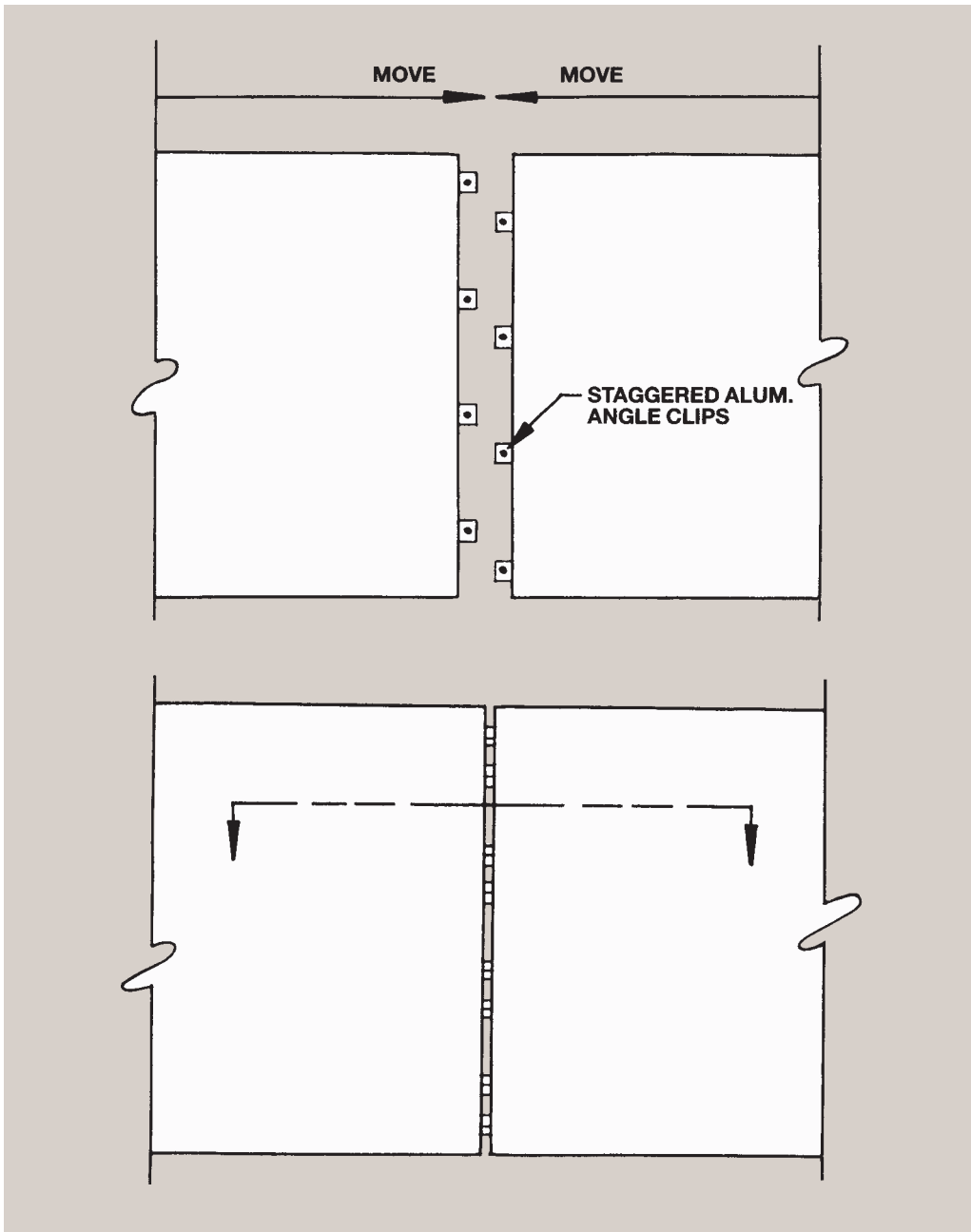


EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section III: CONCEPTS cont'd.

EXTERIOR JOINTS - ALLOWS THERMAL EXPANSION OF PANELS

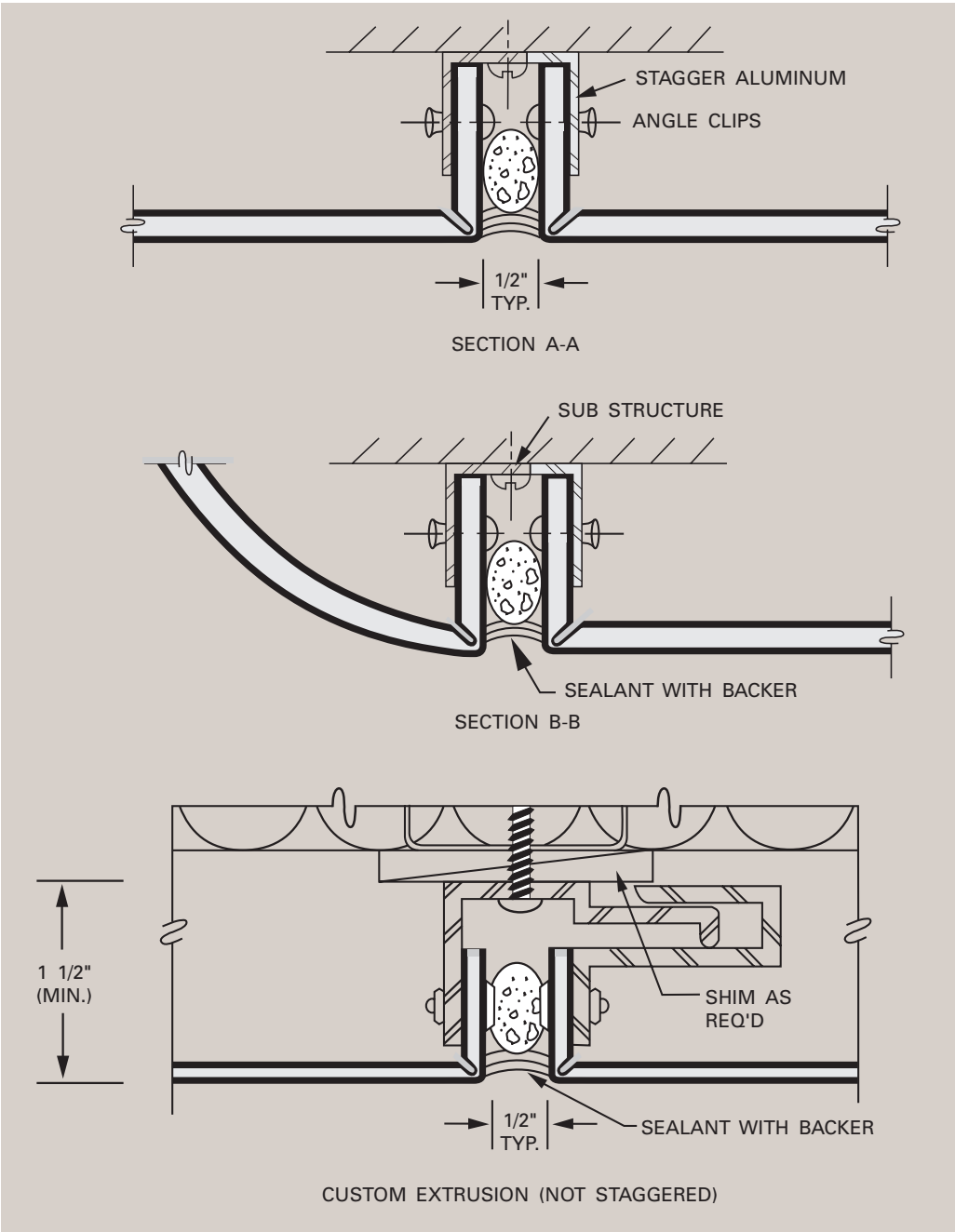
NOTE - Clips are at different locations on left & right side of panels to allow for easier installation.



EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section III: CONCEPTS cont'd.

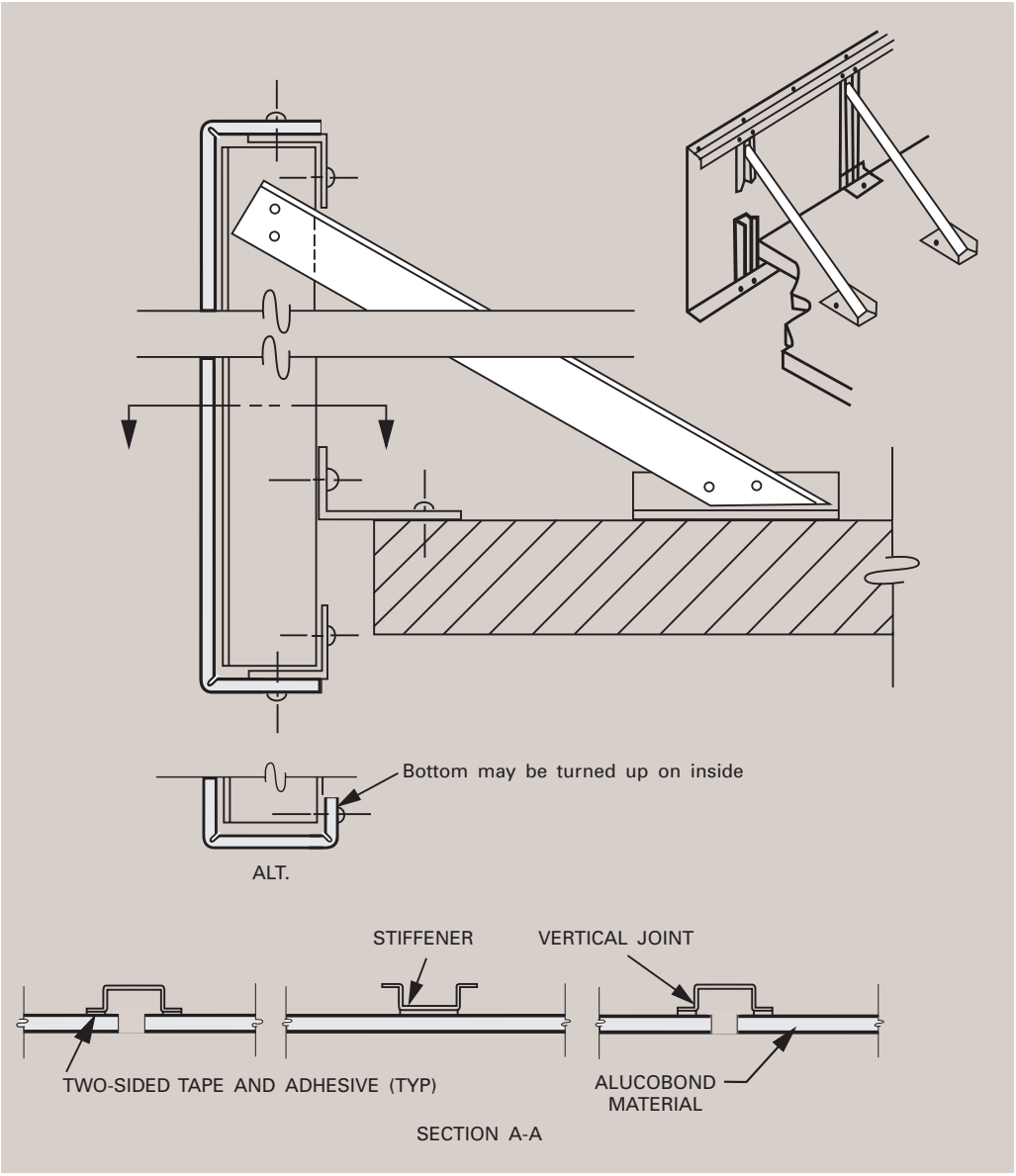
EXTERIOR JOINTS - ALLOWS THERMAL EXPANSION OF PANELS



EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Section III: CONCEPTS cont'd.

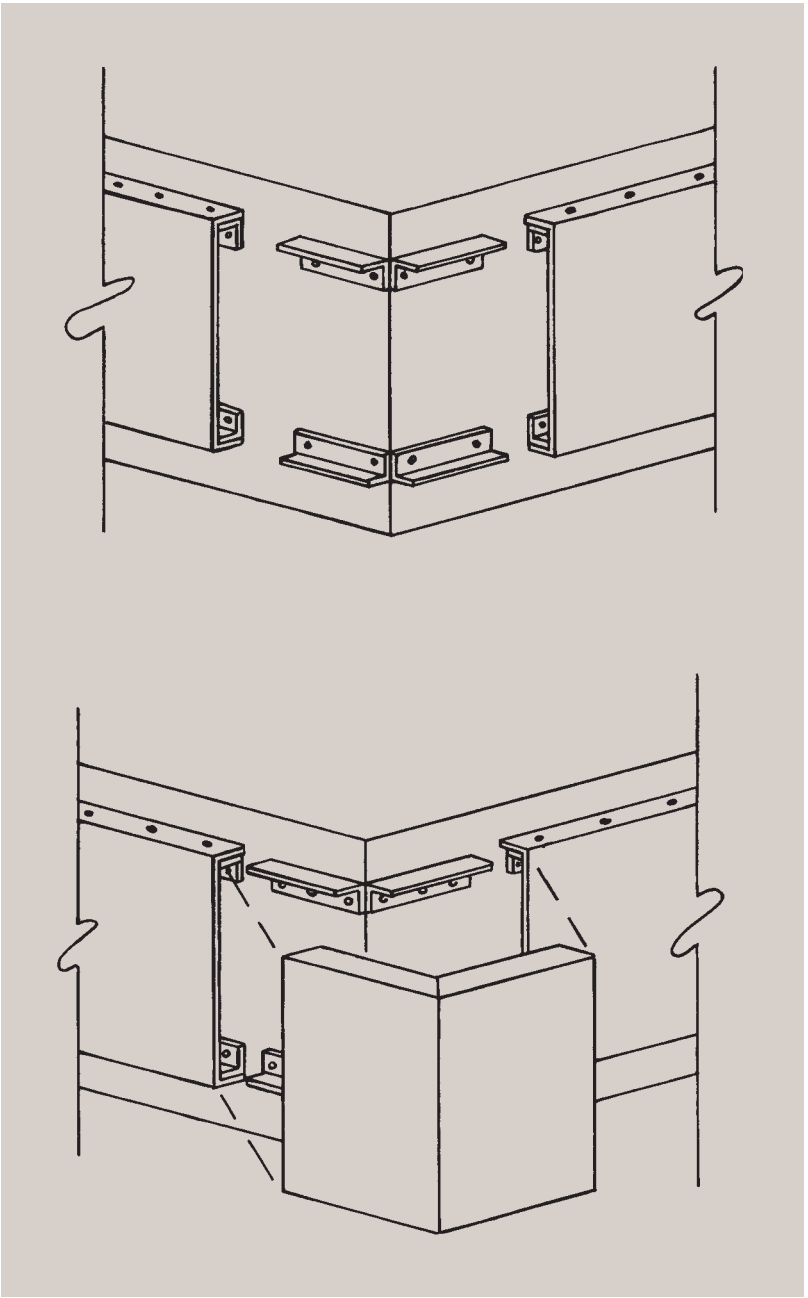
SIGN BAND



EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

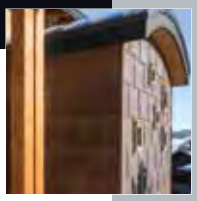
Section III: CONCEPTS cont'd.

OUTSIDE CORNER



EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 1&2

Cor-ten® Weathering Steel



PRODUCT DESCRIPTION

Cor-ten Steel oxidizes naturally over time, giving it an orange-brown color and a rough and granular texture. It has a very high tensile strength, and in spite of its rusted appearance it is actually more resistant to damaging corrosion than standard forms of carbon steel. Cor-ten is an alloy that through the chemical interaction of weather and steel, prevents rust from penetrating the surface and creating rust holes. The rust actually forms a shield over the steel. Cor-ten is highly resistant to exposure-related corrosion once the initial oxidation process reaches saturation levels.

Weathering steel has become extremely popular in architectural applications for both residential and commercial projects. It's used for both siding and roofing materials in corrugated, standing seam and plate cladding systems.

FEATURES & BENEFITS

- Weather resistant.
- Maintenance-free.
- Beautiful, aged patina that develops over time.

APPLICATIONS

- Roofing
- Facades
- Fences & gates
- Sculpture
- Rural buildings
- Gazebos
- Interior ceilings & accents

COR-TEN PRODUCTS

- Available in coils and flat sheets.
- Perforations.
- Corrugation.
- Double Lock Standing Seam Panels.
- Flat Lock Tiles.
- Pre-formed roof panels.

SPECIFICATIONS

A606-04 Type 4 Cor-ten Steel

Gauge	22 (other gauges available upon request)
Finished Panel Dimensions, Flat:	48.00" (121.90cm) x 10' (3.05m)
Master Coil Dimensions:	48.00" (121.90cm) x 10' (3.05m)
Roofing Coil Dimensions:	24.00" (61cm) x 10' (3.05m)

EXTERIOR WALL SYSTEM
BUILDING B - SYSTEM 3

elZinc®

elZinc®

MetalTech-USA
Changing Ideas Into Sustainable Reality.™

U.S. GREEN BUILDING COUNCIL MEMBER

KEYSTONE CERTIFIED MANUFACTURER

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COR-TEN STEEL

EXTERIOR WALL SYSTEM

BUILDING B - SYSTEM 3

QUAKER
COMMERCIAL WINDOWS AND DOORS

M600
4 1/2" Frame Depth
Outswing Terrace Door

M600 SERIES OUTSWING TERRACE DOOR

The M600 Series Outswing Terrace door is ideal for a variety of applications including - Institutions, Education, Apartments and Assisted Living.

FEATURES

◊ Commercial Framing System
- 4 1/2' main frame
- Extruded wall thickness of 0.125" for all outside walls
- Exruded wall thickness of 0.070" for all inside walls
- 2 1/8" sill

◊ Thermally Enhanced Design
- Heavy-duty corner keys internally sealed to eliminate sag

◊ Glazing
- Glazing pocket can accomodate up from 1/4" single glaze to 1" insulated glass

◊ Hardware
- Adjustable hinges
- 2-way adjustable hinge (optional 3-way available)
- 5-point locking system for added security
- Stylish handle sets add modern touch

BENEFITS

◊ The capacity to match exterior colors for unique project facades

PERFORMANCE

◊ Structural & Thermal (test reports or thermal simulations available upon request)

Model	ModernVu Outswing Terrace Door	
	Single Panel	Dual Panel
Door test size	48" x 96"	
NAFS Rating	AW-PG70-ATD	
Structural Load P.S.F.	105.26	
Air at 50 MPH (cfm/ft²)	<0.01	
Water (No Penetration) P.S.F.	12.11	
U-Value (ranges based on multiple Low-E/Argon combinations)	0.37-0.41	
SHGC (ranges based on multiple Low-E/Argon combinations)	0.13-0.43	

OPTIONS

◊ Available Configurations
- Single Panel or Double Panel
- Inswing or Outswing
- Matching transoms and sidelites
- Standard or custom sizing

◊ Construction
- Positioning fin

◊ Muntin Choices
- Internal or simulated divided lites available

◊ Hardware
- 10" bottom rail
- Surface mounted closure

◊ Glazing
- Multiple Low-E and argon glazing choices
- Up to 1 3/8" thickness of I.G. available
- Impact Glazing
- Sound attenuation glazing packages for STC/OITC

◊ Panning & Trim Choices
- Structural mullions
- Wide variety of panning, receptor and trim available

GROUND LEVEL RESIDENTIAL ENTRY DOORS

Our products are tested to the standards of and certified by some of the foremost organizations in the fenestration industry.

PROUD MEMBER FGIA AAMA + IGMA

WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

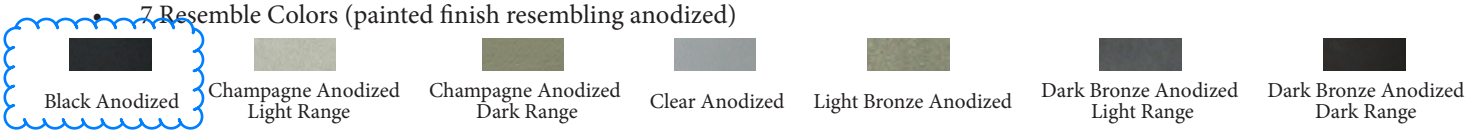
QUAKER COMMERCIAL WINDOWS AND DOORS

ARCHITECTURAL PAINT COATINGS AND FINISHES

◊ Baked on powder coat finish meets AAMA 2604 (an FGIA specification) and is available in unlimited colors

- Quaker Impressive Palette of Colors

- 7 Resemble Colors (painted finish resembling anodized)



- Unlimited Custom Colors

◊ AAMA 2605 (an FGIA specification) powder coat finishes (not available for all colors shown)

◊ SolarLE Paint Finish (available with Textured Black and Dark Espresso colors only)

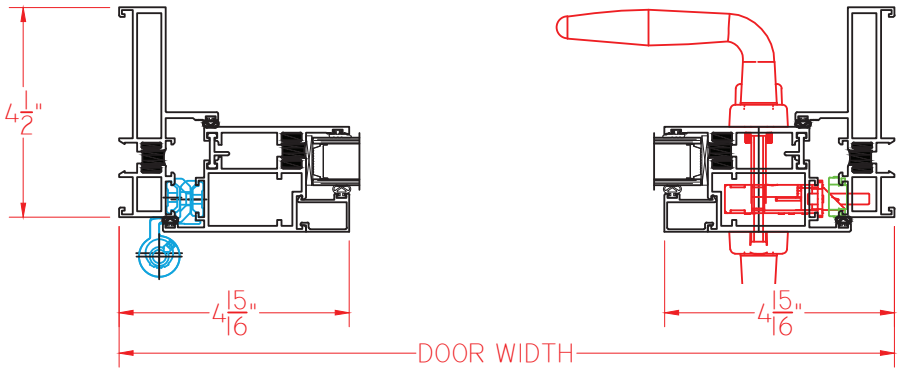
◊ AAMA 611-98 Class I (an FGIA specification) clear and tinted anodized finishes

⁎ Printed colors shown here may not accurately depict actual painted colors. Color samples are available upon request.

GROUND LEVEL RESIDENTIAL ENTRY DOORS

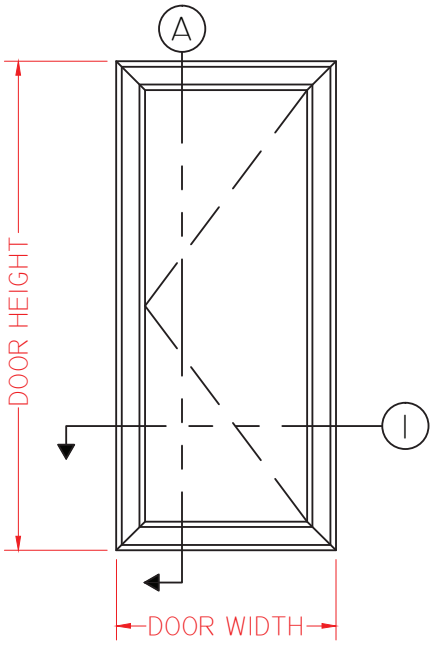
M600
4 1/2" Frame Depth
Outswing Terrace Door

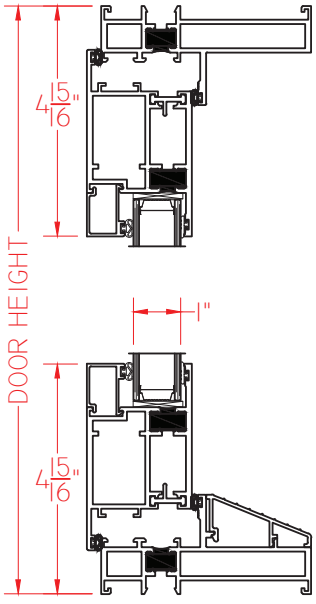
M600 SERIES ENHANCED HINGED TERRACE DOOR - OUTSWING



I HORIZONTAL CROSS SECTION

A VERTICAL CROSS SECTION





ELEVATION SCALE 3/8" = 1'-0"

GROUND LEVEL RESIDENTIAL ENTRY DOORS

SCALE 1:4

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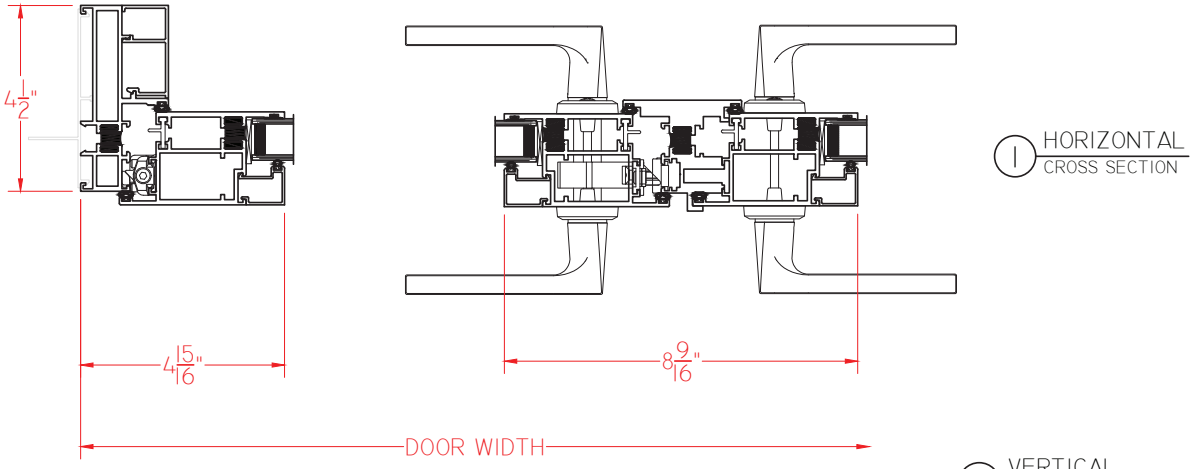
QUAKER
COMMERCIAL WINDOWS AND DOORS

M600
4 1/2" Frame Depth
Outswing Terrace Door

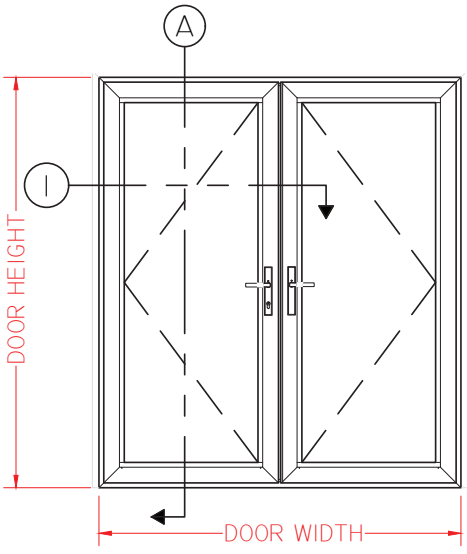
M600 SERIES HINGED FRENCH TERRACE DOOR - OUTSWING



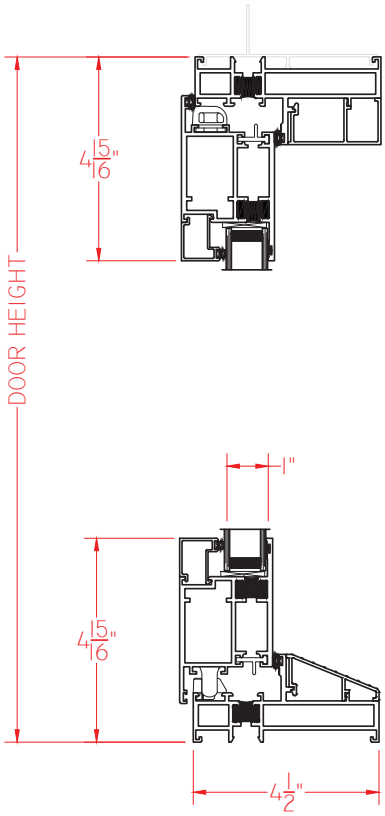
I HORIZONTAL CROSS SECTION

A VERTICAL CROSS SECTION

GROUND LEVEL RESIDENTIAL ENTRY DOORS



ELEVATION SCALE 3/8" = 1'-0"



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QUAKER COMMERCIAL WINDOWS AND DOORS

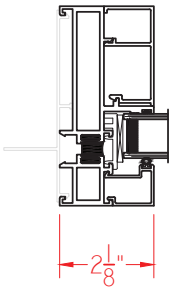
QUAKER
COMMERCIAL WINDOWS AND DOORS

GROUND LEVEL RESIDENTIAL
ENTRY DOORS

M600
4 1/2" Frame Depth
Outswing Terrace Door

M600 SERIES HINGED FRENCH TERRACE DOOR - OUTSWING W/TRANSOM

(1) HORIZONTAL CROSS SECTION



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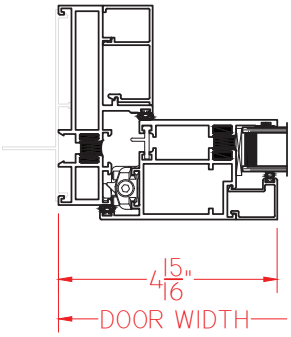
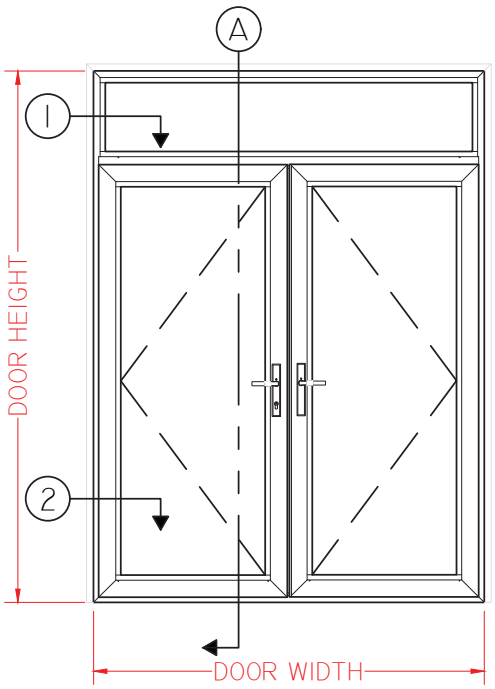
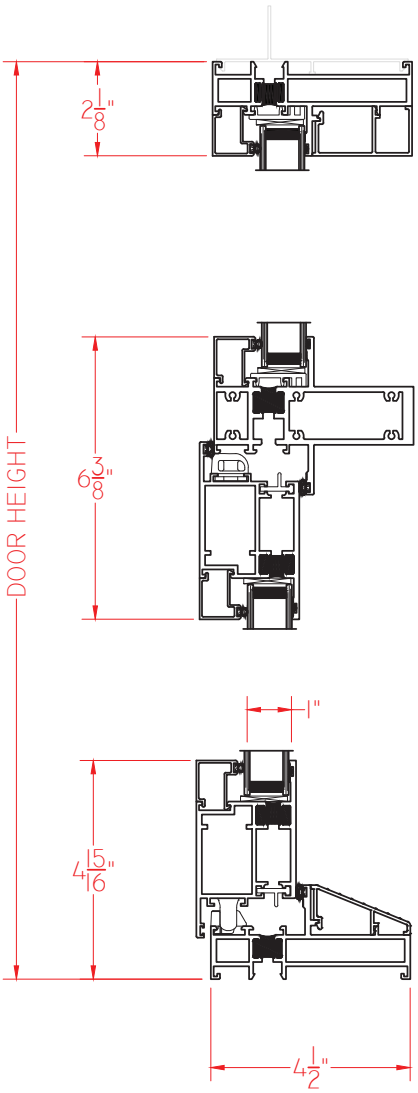




(A) VERTICAL CROSS SECTION



SCALE 1:4

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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

QUAKER
COMMERCIAL WINDOWS AND DOORS

M600 Series
AW-PG70
3 ¼" Frame Depth
Picture Window (Fixed)

M600 SERIES PICTURE WINDOW (FIXED)

The Quaker M600 Series Picture window is ideal for a variety of applications including - Multi-Family, Healthcare, Hotel, Education, Office and Assisted Living.

FEATURES

◊ Commercial Framing System
- 3 ¼" main frame
- Sealable corner keys
- Crimp/Screw connections
- 0.094" wall thickness of interior and exterior walls, 0.070" wall thickness elsewhere

◊ Enhanced Design
- Azo-braided channel receives Azon pour and debridge thermal break which is ½" wide in all main frame and vent rail extrusions
- Clean squared edges
- 1 ⅞" narrow sitelines

◊ Glazing
- 1" insulated glass

OPTIONS

◊ Available Configurations
- Wire frame capabilities

◊ Muntin Choices
- Internal or simulated divided lites available

◊ Nailing Fin

◊ Glazing
- Capillary tubes
- Argon gas
- Wide variety of glazing, tinting and thickness options

◊ Panning & Trim Choices
- Wide variety of panning, receptor and trim available
- Jamb filler

◊ Mulling
- Wide variety of structural mulls

BENEFITS

◊ The capacity to match exterior colors for unique project facades
◊ The ability to facilitate large sizes for taller and wider window openings
◊ Modern appearance merged with superior structural integrity

PERFORMANCE

◊ Structural & Thermal

Model	Picture Window (Fixed)
AAMA/WDMA/CSA 101/I.S.2/A440-08 Rating	AW-PG70-FW
Structural Load P.S.F.	70.18
Air at 50 MPH (cfm/ft²)	0.01
Water (No Penetration) P.S.F.	12.11
CR (Condensation Resistance)	48-58
U-Value	0.26-0.31
SHGC	0.23-0.36

Window test size: 72" × 120" (with tempered glass)

Other tests performed using the following sizes: 60" x 60" (with 1/4", 1/4") = AW80
60" x 99" (with 1/4", 1/4") = AW50
48" x 120" (with 1/4", 1/4") = AW40

Thermal values shown are a range based on Quaker's most popular glass package options. Other available glass options may result in scores outside of the range shown.

ALUMINUM WINDOWS - FIXED

Our products are tested to the standards of and certified by the American Architectural Manufacturer's Association, the National Fenestration Rating Council and the Window & Door Manufacturers Association.

WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

ARCHITECTURAL PAINT COATINGS AND FINISHES

◊ Baked on powder coat finish meets ANSA/AAMA 2604 specs and is available in unlimited colors

- 11 Popular Colors

White | Sandstone | Holly Green | Redwood | Chestnut | Satin Creme | Dark Bronze | Toffee | Beige | Earthone | Black

- 15 Impressive Colors

Agate Grey | Beige Grey | Burgundy | Gloss Black | Interstate Blue | Moss Green | New Bone White | New Dark Bronze

Patina Green | Polar White | Sky White II | Slate Gray | Teal | Telegrey 1 | Oyster White

- 7 Resemble Colors (painted finish resembling anodized)

Black Anodized | Champagne Anodized Light Range | Champagne Anodized Dark Range | Clear Anodized | Light Bronze Anodized | Dark Bronze Anodized Light Range | Dark Bronze Anodized Dark Range

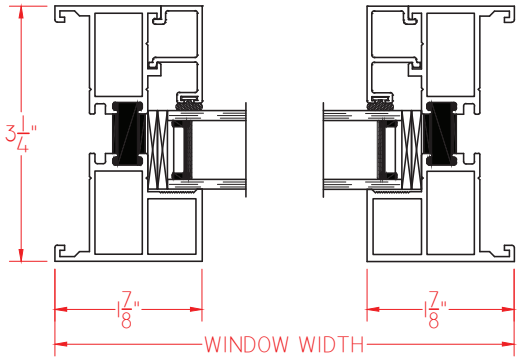
- Unlimited Custom Colors

◊ ANSA/AAMA 2605 powder coat finishes

◊ AAMA 611-98 Class I clear and tinted anodized finishes

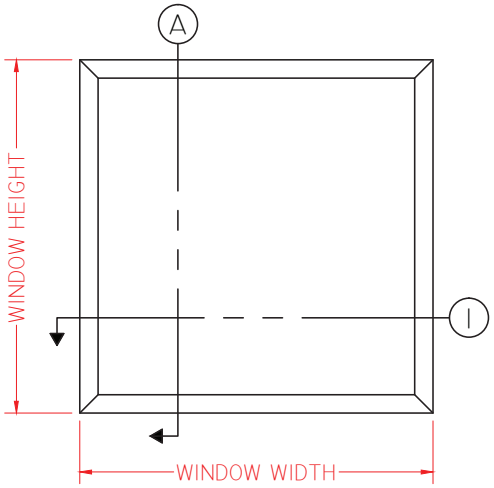
* Printed colors shown here may not accurately depict actual painted colors. Color samples are available upon request.

M600 SERIES PICTURE WINDOW WITHOUT NAILING FIN

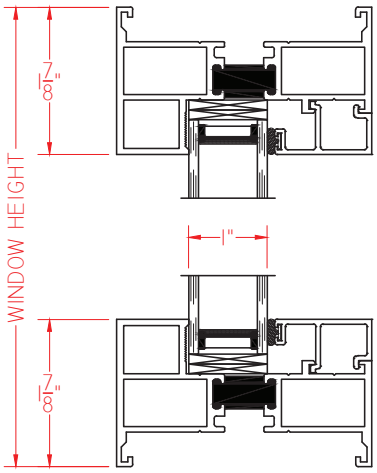


I HORIZONTAL CROSS SECTION

ALUMINUM WINDOWS - FIXED



A VERTICAL CROSS SECTION



ELEVATION SCALE 3/4" = 1'-0"

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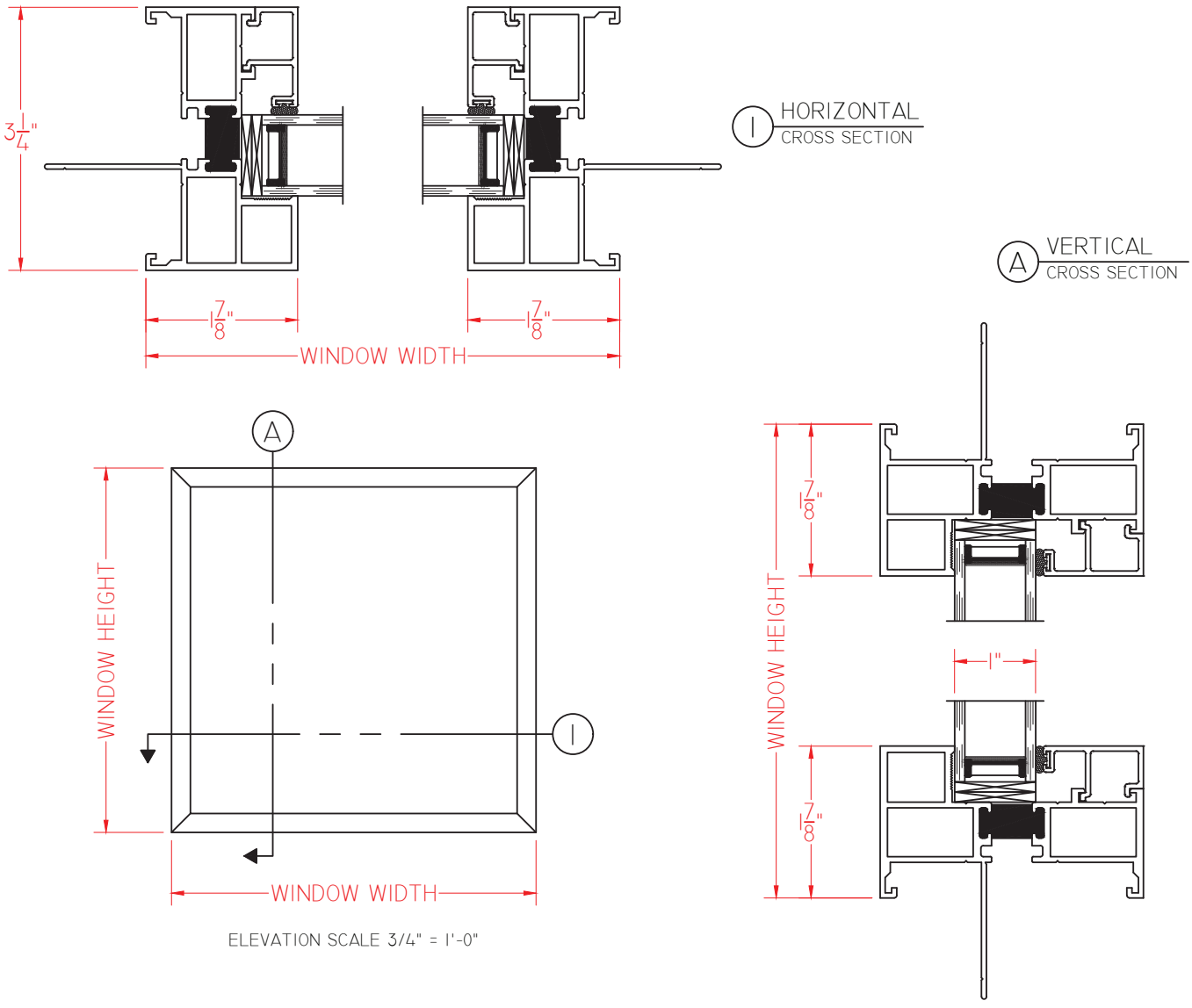
QUAKER
COMMERCIAL WINDOWS AND DOORS

M600 Series
AW-PG70
3 ¼" Frame Depth
Picture Window (Fixed)

M600 SERIES PICTURE WINDOW WITH NAILING FIN



ELEVATION SCALE 3/4" = 1'-0"

ALUMINUM WINDOWS - FIXED

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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

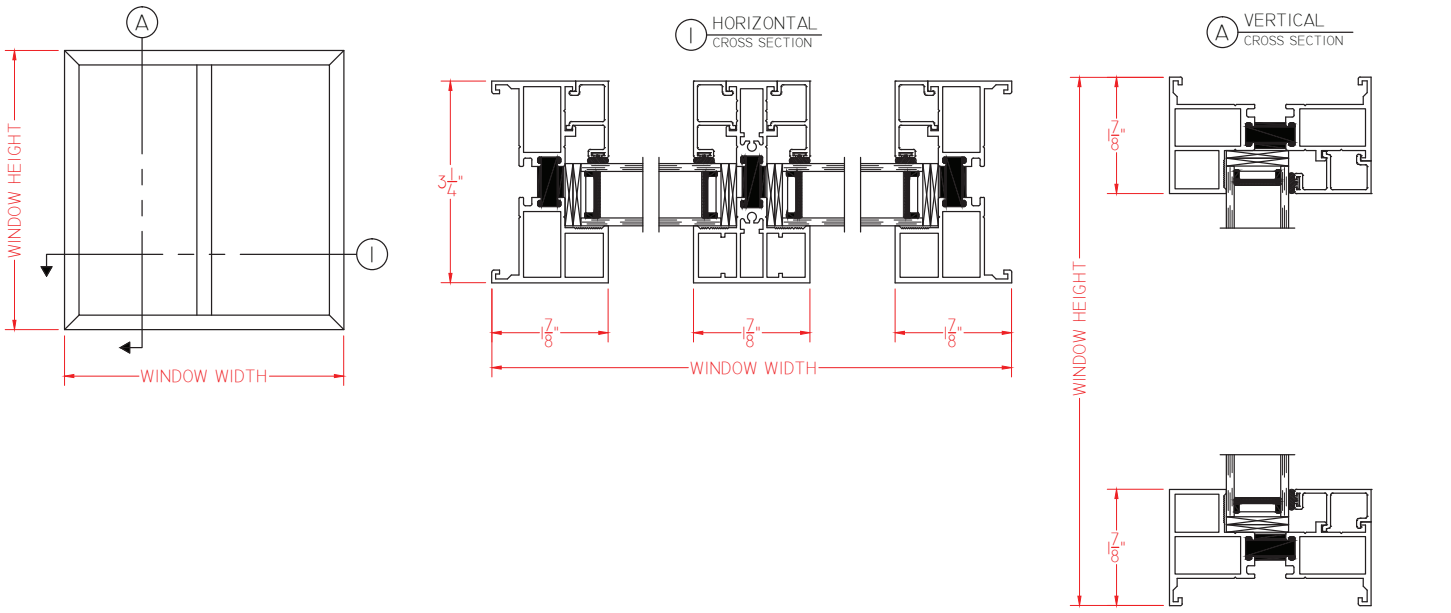
QUAKER
COMMERCIAL WINDOWS AND DOORS

QUAKER
COMMERCIAL WINDOWS AND DOORS

M600 Series
AW-PG70
3 ¼" Frame Depth
Picture Window (Fixed)

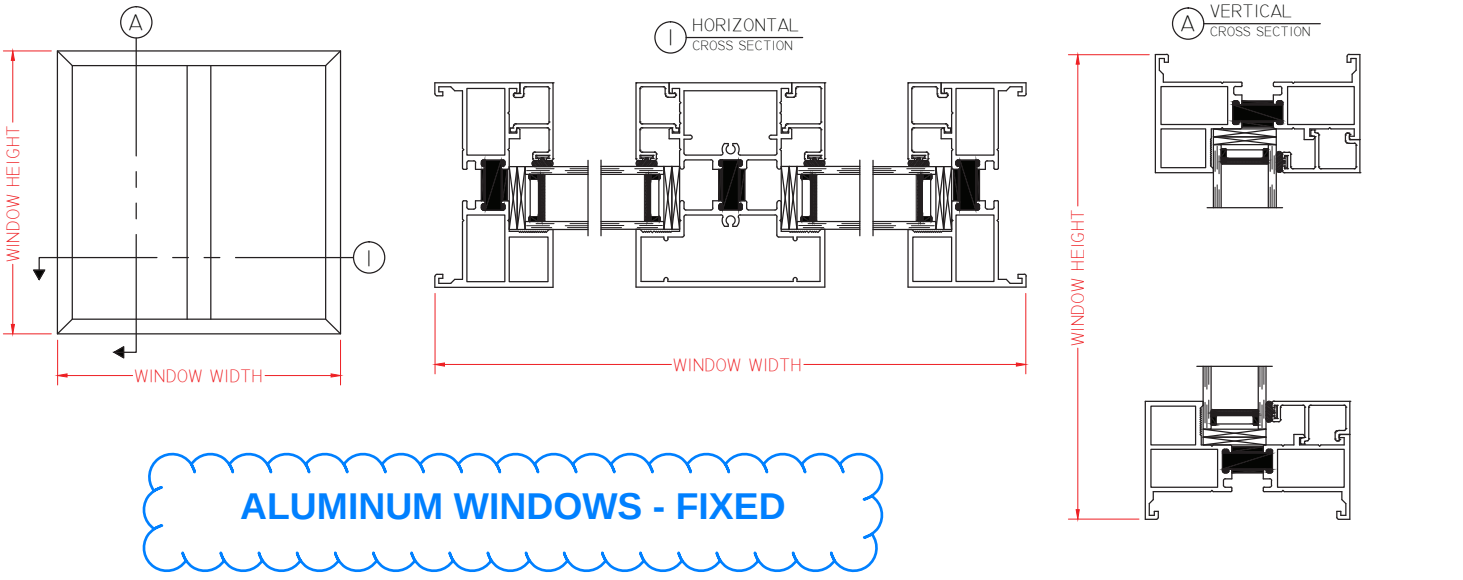
M600 SERIES PICTURE WINDOW (FIXED/FIXED - SIDE BY SIDE)

Double Jamb with Narrow 1 7/8" Sightline



SCALE 1:2

Double Jamb with Wide 3" Sightline



ALUMINUM WINDOWS - FIXED

SCALE 1:2

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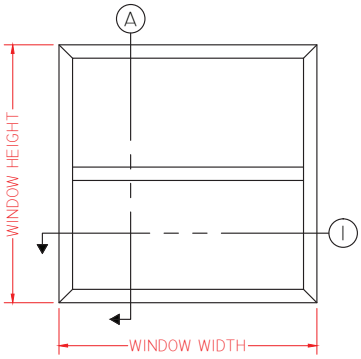
QUAKER COMMERCIAL WINDOWS AND DOORS

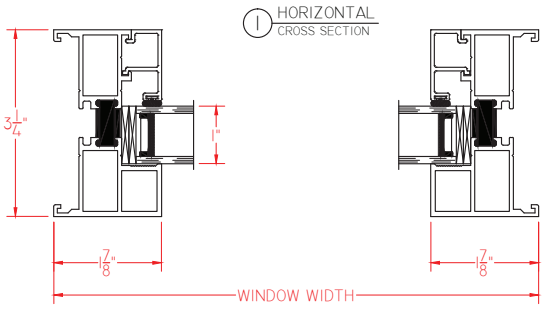
QUAKER
COMMERCIAL WINDOWS AND DOORS

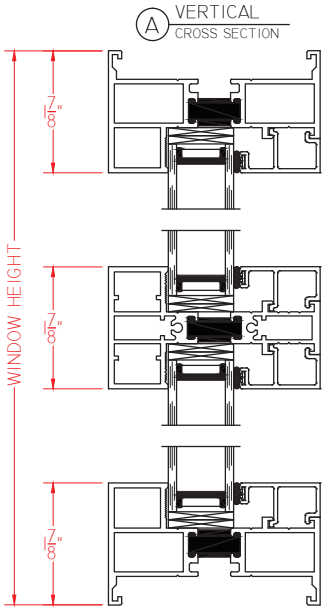
M600 Series
AW-PG70
3 ¼" Frame Depth
Picture Window (Fixed)

M600 SERIES PICTURE WINDOW (FIXED/FIXED - STACKED)

Double Jamb with Narrow 1 7/8" Sightline

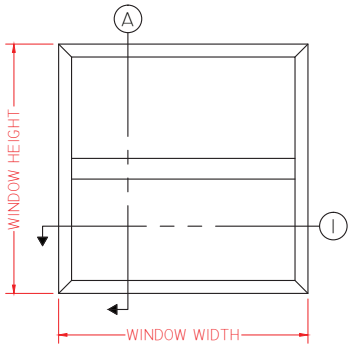


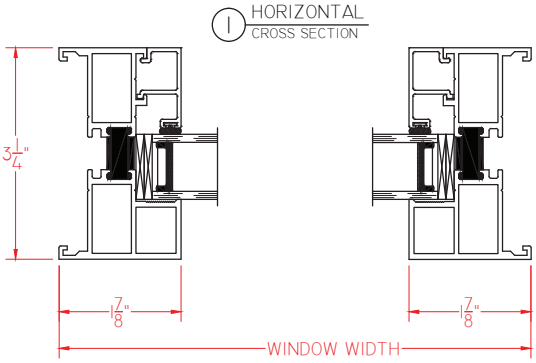


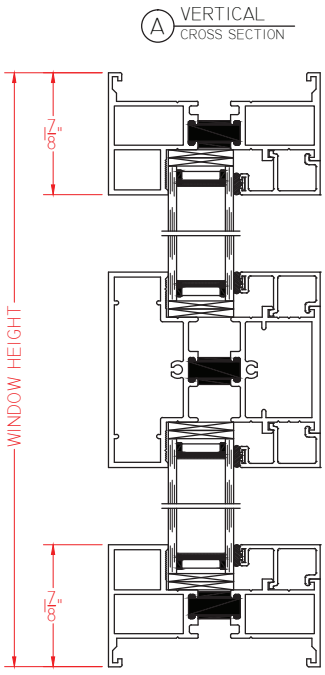


SCALE 1:2

Double Jamb with Wide 3" Sightline







SCALE 1:2

ALUMINUM WINDOWS - FIXED

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ALUMINUM WINDOWS - AWNING

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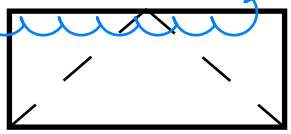
COMMERCIAL WINDOWS AND DOORS



M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

M600 SERIES AWNING (PROJECT-OUT)

The Quaker M600 Series Awning window is ideal for a variety of applications including - Multi-Family, Hotel, Healthcare, Education, Office and Assisted Living.

FEATURES

◊ Commercial Framing System
- 3 ¼" main frame
- Sealable corner keys
- Crimp/Screw connections
- 0.094" wall thickness of interior and exterior walls, 0.070" wall thickness elsewhere

◊ Enhanced Design
- Azo-braided channel receives Azon pour and debridge thermal break which is ½" wide in all main frame and vent rail extrusions
- Clean squared edges
- 3" narrow sitelines

◊ With or Without Integral Nailing Fin

◊ Glazing
- 1" insulated glass

◊ Hardware
- Heavy-commercial Truth Contour™ locking system (Crank-out only)
- Low profile cam handle (Push-out only)
- Crank-out available (4-Bar hinges or butt hinges)
- Push-out available (4-Bar hinges)

◊ Screen
- Wicket screen (Push-out only)
- Standard screens (Crank-out only)

◊ Meets ADA Requirements (ADA Handle Required, Crank-out only)

OPTIONS

◊ Available Configurations
- Project-out awning
- Push-out or Crank-out
- Wire frame capabilities

◊ Muntin Choices
- Internal or simulated divided lites available

◊ Limited travel hardware

◊ Glazing
- Capillary tubes
- Argon gas
- Wide variety of glazing, tinting and thickness options

◊ Panning & Trim Choices
- Wide variety of panning, receptor and trim available

◊ Mulling
- Wide variety of structural mulls

BENEFITS

◊ The capacity to match exterior colors for unique project facades

◊ The ability to facilitate large sizes for taller and wider window openings

◊ Modern appearance merged with superior structural integrity

PERFORMANCE

◊ Structural & Thermal

Model	Awning (Project-Out)
AAMA/WDMA/CSA 101/I.S.2/A440-08 Rating	AW-PG70-AP
Structural Load P.S.F.	70.18
Air at 50 MPH (cfm/ft²)	0.06
Water (No Penetration) P.S.F.	12.11
CR (Condensation Resistance)	42-49
U-Value	0.39-0.43
SHGC	0.19-0.29

Window test size: 48" × 72" Operating Force: 6 lbf (maintain motion), 8 lbf (latches), 3 lbf (ADA Handle)

Thermal values shown are a range based on Quaker's most popular glass package options. Other available glass options may result in scores outside of the range shown.

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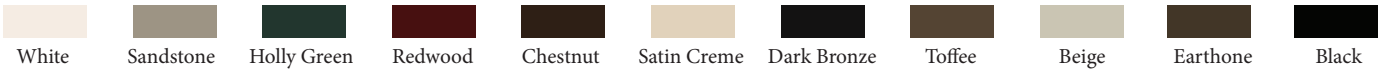
WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

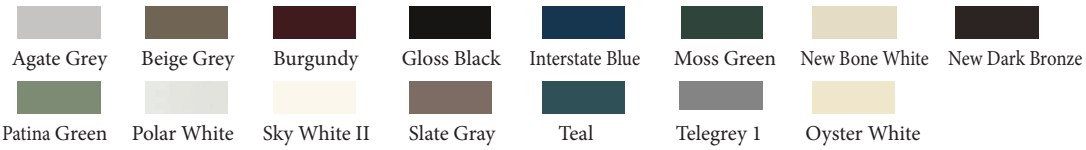
ARCHITECTURAL PAINT COATINGS AND FINISHES

◊ Baked on powder coat finish meets ANSA/AAMA 2604 specs and is available in unlimited colors

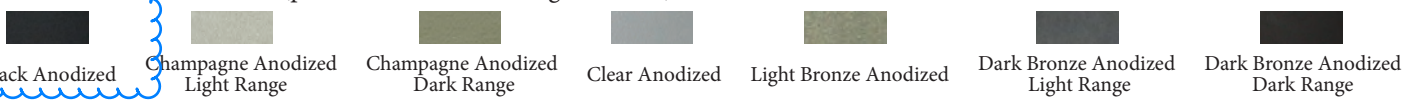
- 11 Popular Colors



- 15 Impressive Colors



- 7 Resemble Colors (painted finish resembling anodized)



- Unlimited Custom Colors

◊ ANSA/AAMA 2605 powder coat finishes

◊ AAMA 611-98 Class I clear and tinted anodized finishes

⁎ Printed colors shown here may not accurately depict actual painted colors. Color samples are available upon request.

ALUMINUM WINDOWS - AWNING

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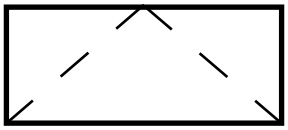
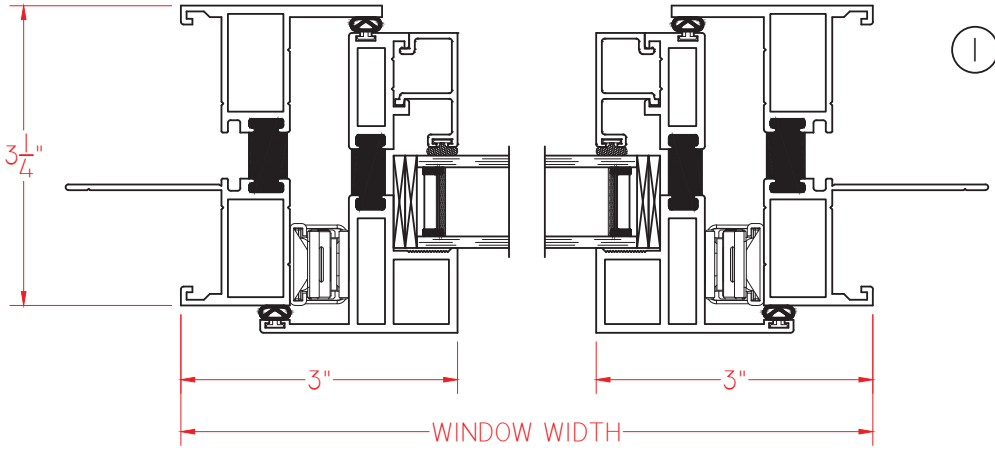


M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

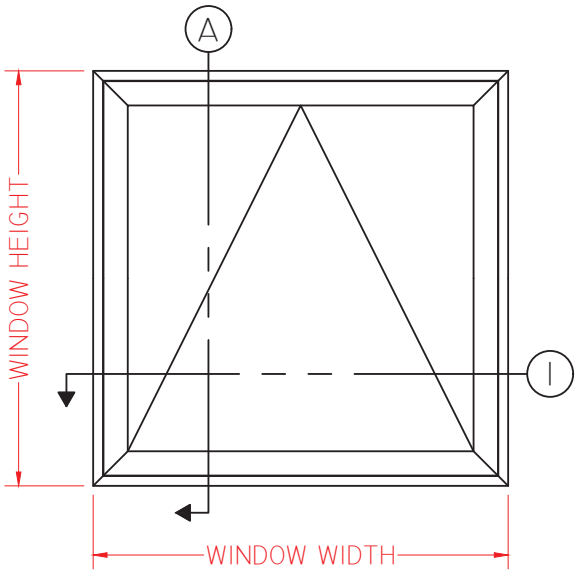
M600 SERIES AWNING (PROJECT-OUT) PUSH OUT

Shown With Nailing Fins



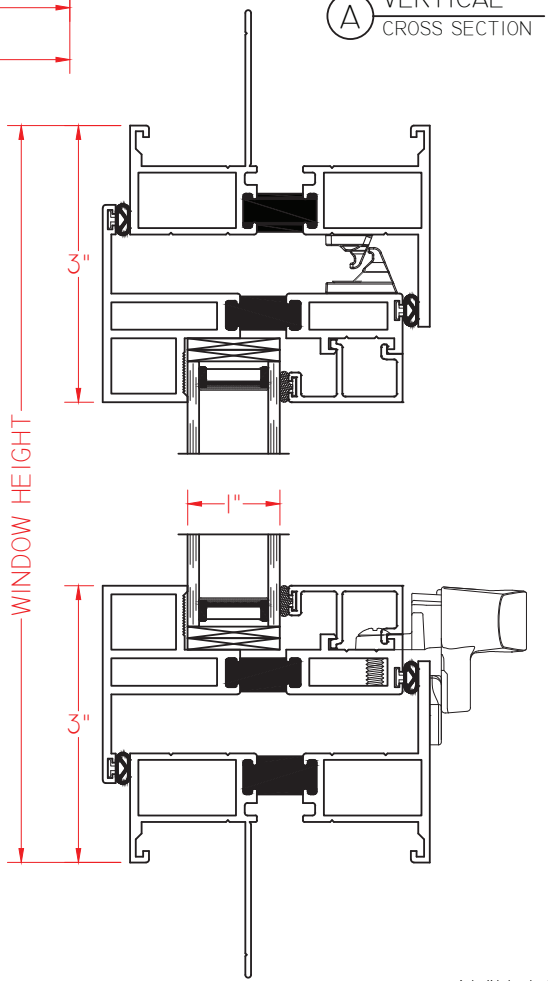
1 HORIZONTAL CROSS SECTION

ALUMINUM WINDOWS - AWNING



ELEVATION SCALE 3/4" = 1'-0"

A VERTICAL CROSS SECTION



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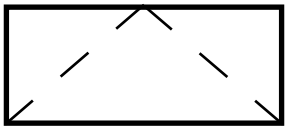
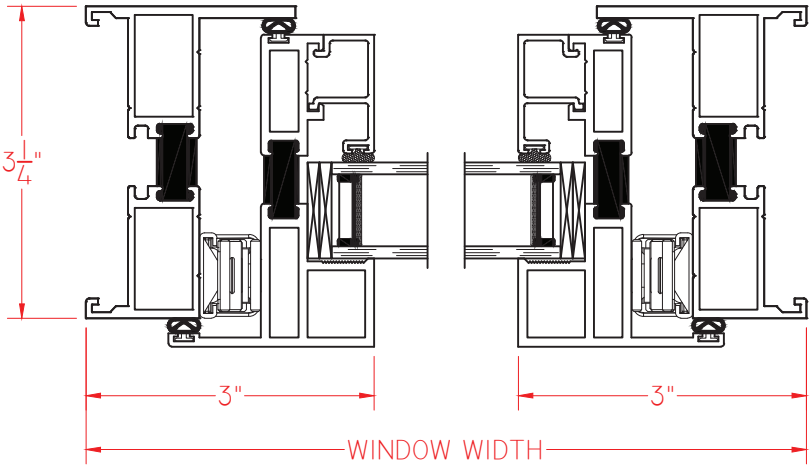


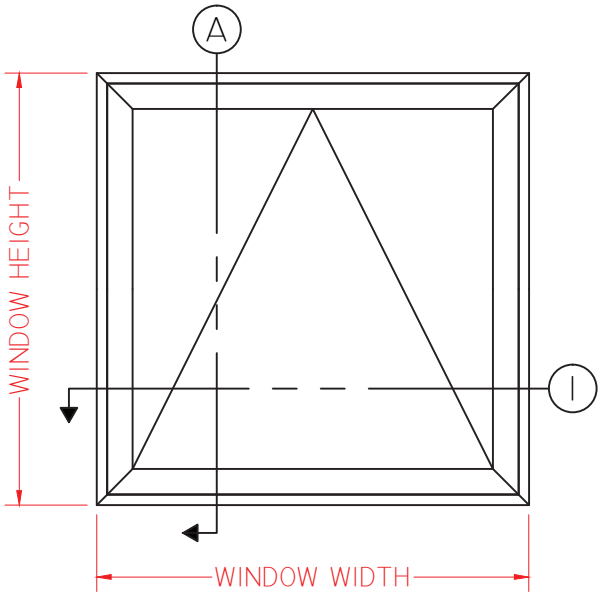
M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

M600 SERIES AWNING (PROJECT-OUT) PUSH OUT

Shown With No Nailing Fins

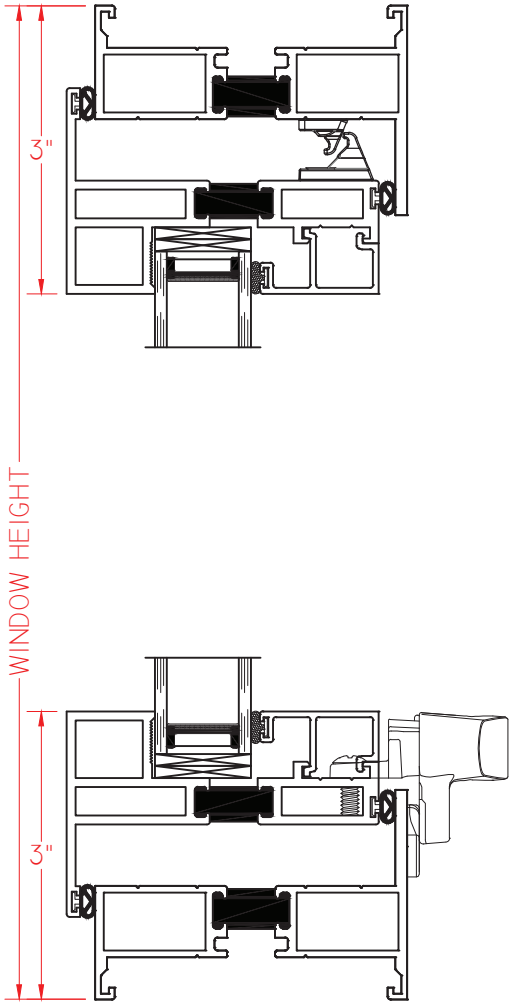


1 HORIZONTAL CROSS SECTION



ELEVATION SCALE 3/4" = 1'-0"

A VERTICAL CROSS SECTION



ALUMINUM WINDOWS - AWNING

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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

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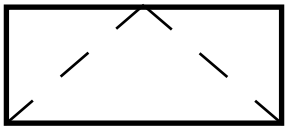
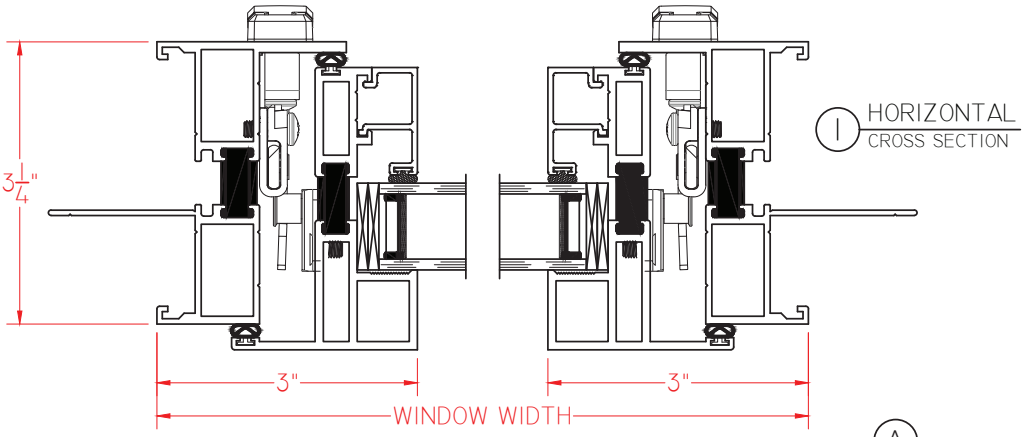


M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

M600 SERIES AWNING (PROJECT-OUT) CRANK OUT

Shown with Nailing Fins



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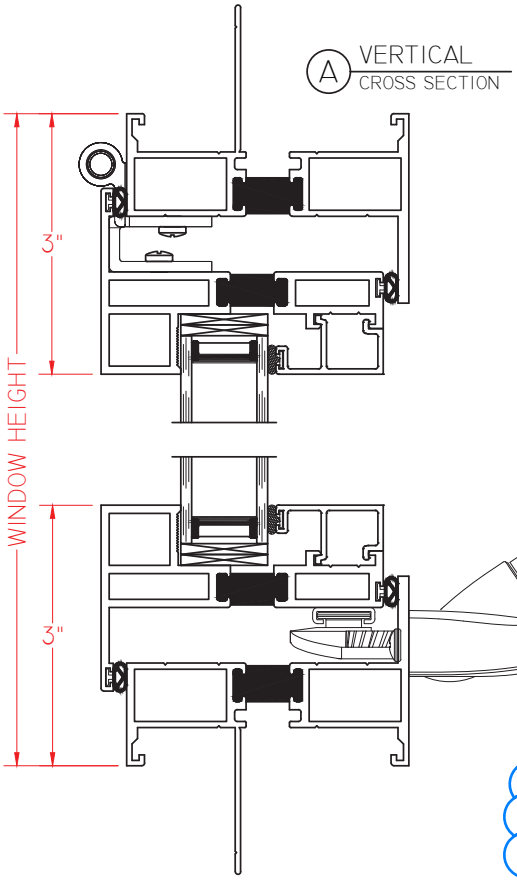
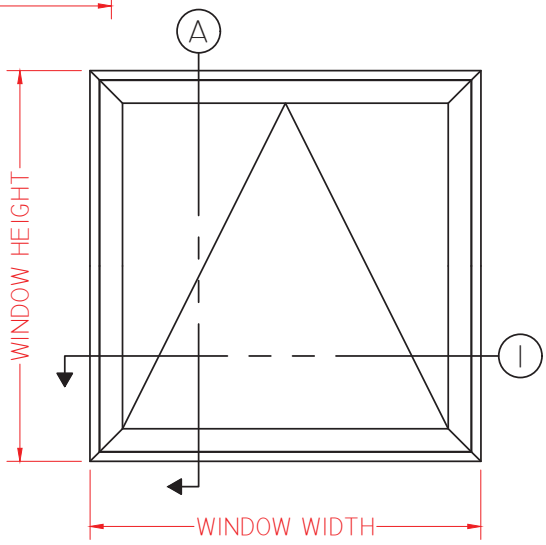


A VERTICAL CROSS SECTION



ELEVATION SCALE 3/4" = 1'-0"

ALUMINUM WINDOWS - AWNING

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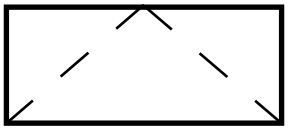
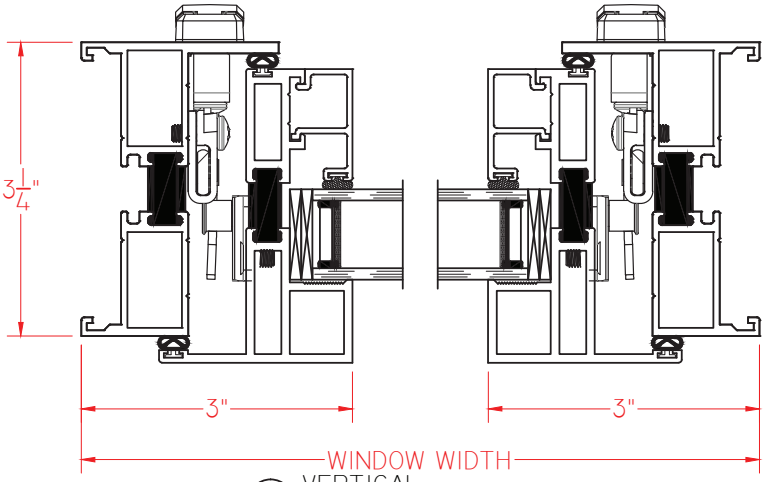


M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

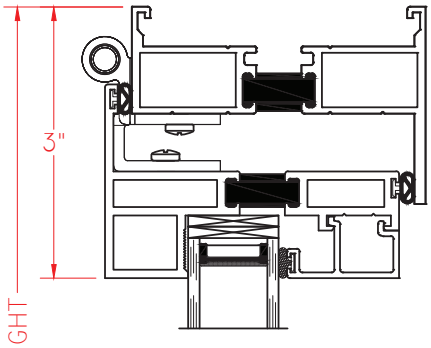
M600 SERIES AWNING (PROJECT-OUT) CRANK OUT

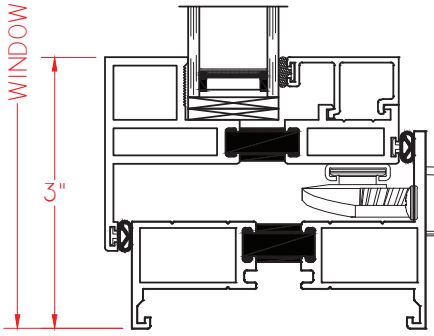
Shown With No Nailing Fins

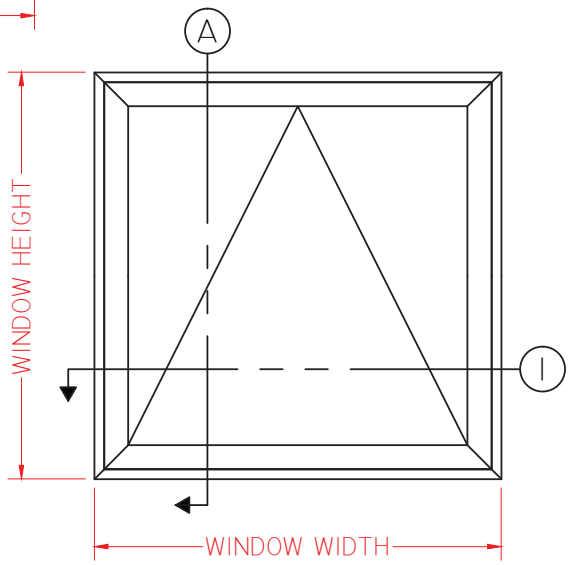


1 HORIZONTAL CROSS SECTION

A VERTICAL CROSS SECTION







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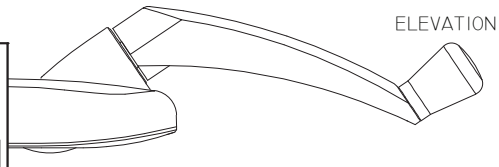

ALUMINUM WINDOWS - AWNING

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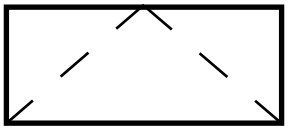
QUAKER COMMERCIAL WINDOWS AND DOORS

QUAKER
COMMERCIAL WINDOWS AND DOORS

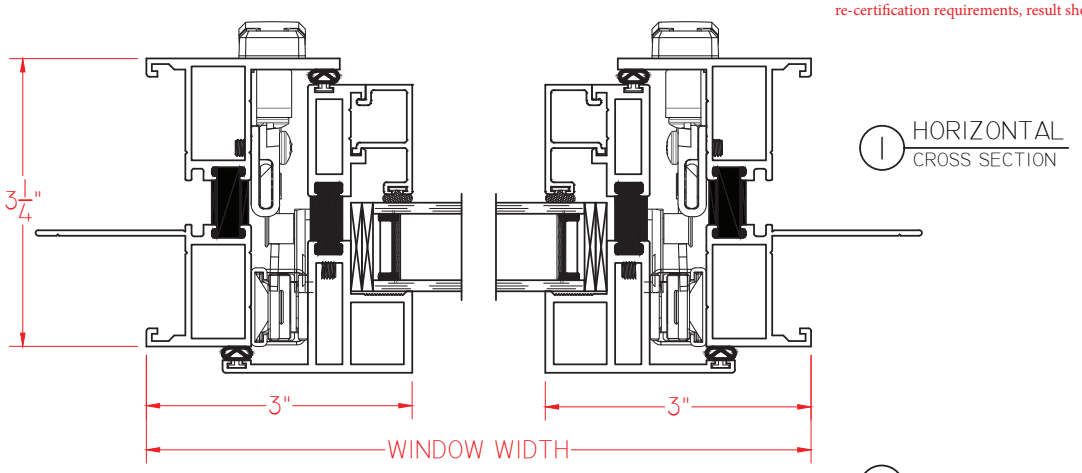


M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

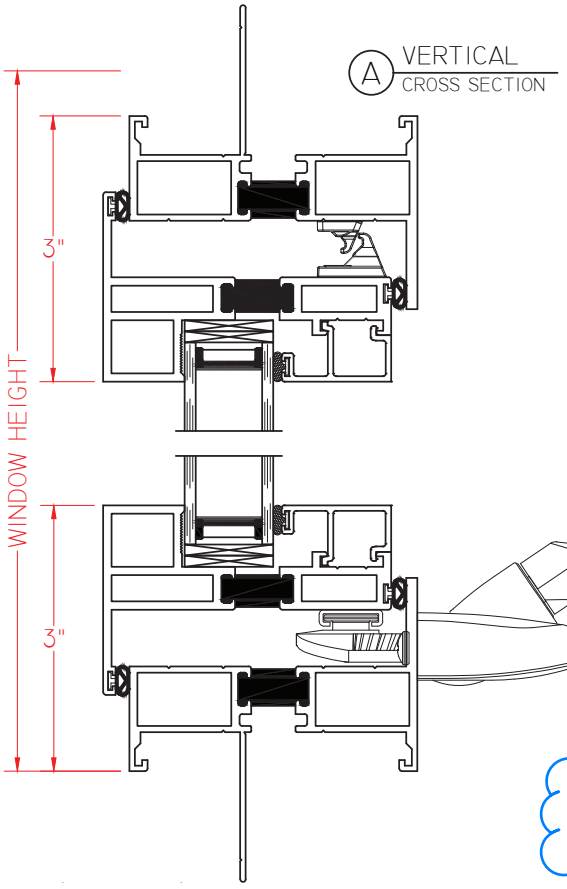
M600 SERIES AWNING (PROJECT-OUT)

CRANK OUT WITH 4-BAR HARDWARE

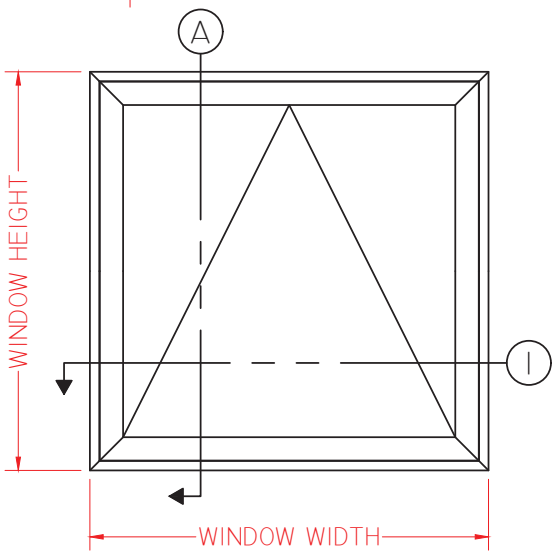
Shown With Nailing Fins



1 HORIZONTAL CROSS SECTION



A VERTICAL CROSS SECTION



ELEVATION SCALE 3/4" = 1'-0"

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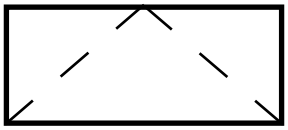
QUAKER COMMERCIAL WINDOWS AND DOORS

QUAKER
COMMERCIAL WINDOWS AND DOORS

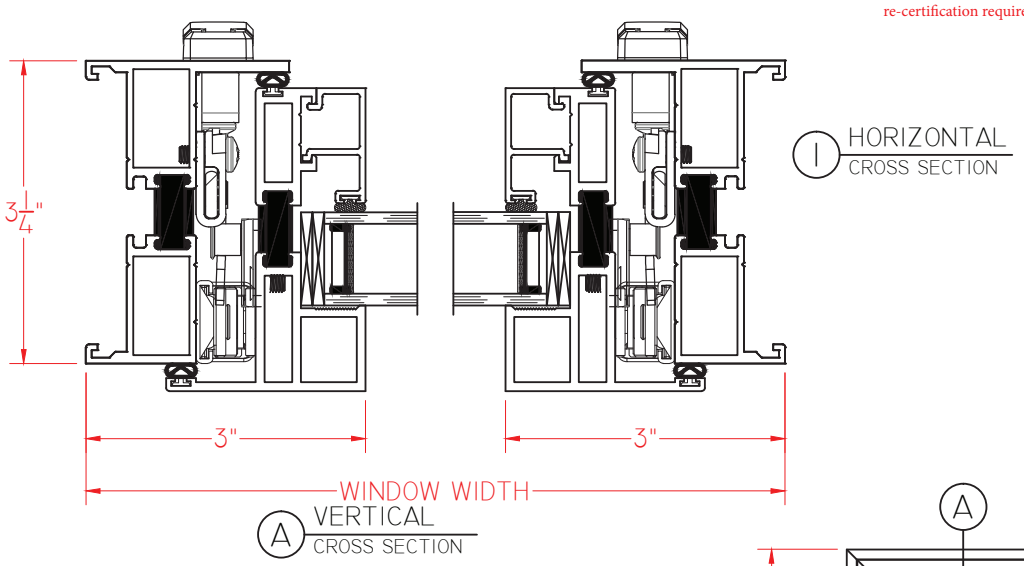


M600 Series
AW-PG70
3 ¼" Frame Depth
Awning (Project-Out)

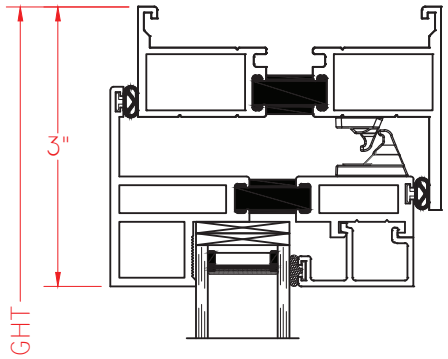
M600 SERIES AWNING (PROJECT-OUT)

CRANK OUT WITH 4-BAR HARDWARE

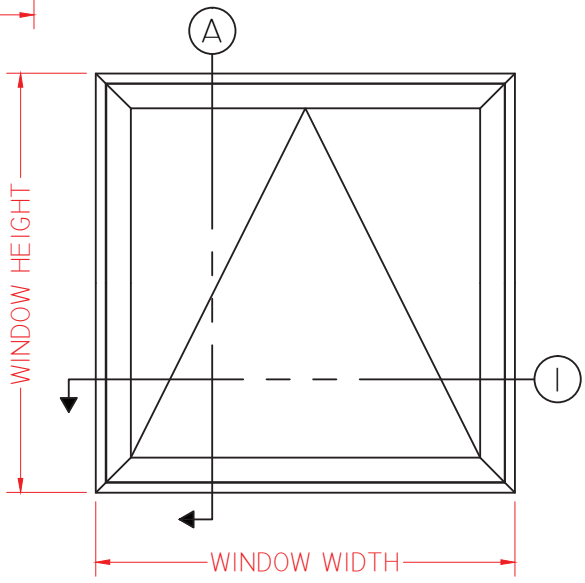
Shown With No Nailing Fins



1 HORIZONTAL CROSS SECTION



A VERTICAL CROSS SECTION



ELEVATION SCALE 3/4" = 1'-0"

ALUMINUM WINDOWS - AWNING

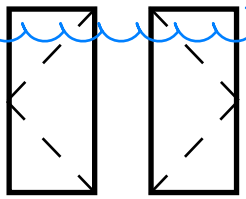
Our products are tested to the standards of and certified by the American Architectural Manufacturer's Association, the National Fenestration Rating Council and the Window & Door Manufacturers Association.

WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

ALUMINUM WINDOWS - CASEMENT

QUAKER
COMMERCIAL WINDOWS AND DOORS



M600 Series
AW-PG70
3 ¼" Frame Depth
Casement (Project-Out)

M600 SERIES CASEMENT (PROJECT-OUT)

The Quaker M600 Series Casement window is ideal for a variety of applications including - Multi-Family, Healthcare, Hotel, Education, Office and Assisted Living.

FEATURES

◊ Commercial Framing System
- 3 ¼" main frame
- Sealable corner keys
- Crimp/Screw connections
- 0.094" wall thickness of interior and exterior walls, 0.070" wall thickness elsewhere

◊ Enhanced Design
- Azo-braided channel receives Azon pour and debridge thermal break which is ½" wide in all main frame and vent rail extrusions
- Clean squared edges
- 3" narrow sitelines

◊ With or Without Integral Nailing Fin

◊ Glazing
- 1" insulated glass

◊ Hardware
- Heavy-commercial Truth Contour™ locking system (Crank-out only)
- Low profile cam handle (Push-out only)
- Crank-out available (4-Bar hinges or butt hinges)
- Push-out available (4-Bar hinges)

◊ Screen
- Standard screens (Crank-out only)

◊ Meets ADA Requirements (ADA Handle Required, Crank-out only)

OPTIONS

◊ Available Configurations
- Project-out Casement
- Push-out or Crank-out (Left or Right)
- Wire frame capabilities

◊ Muntin Choices
- Internal or simulated divided lites available

◊ Limited travel hardware

◊ Glazing
- Capillary tubes
- Argon gas
- Wide variety of glazing, tinting and thickness options

◊ Panning & Trim Choices
- Wide variety of panning, receptor and trim available

◊ Mulling
- Wide variety of structural mulls

BENEFITS

◊ The capacity to match exterior colors for unique project facades

◊ The ability to facilitate large sizes for taller and wider window openings

◊ Modern appearance merged with superior structural integrity

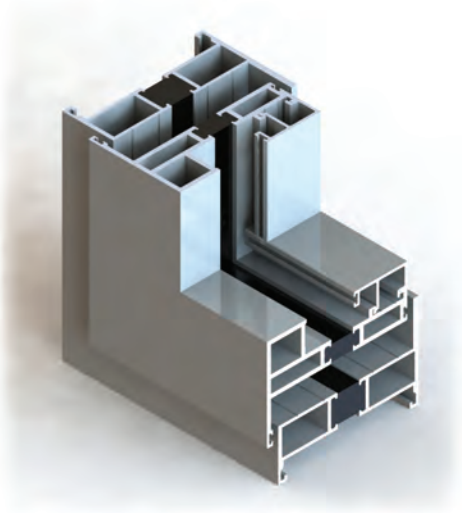
PERFORMANCE

◊ Structural & Thermal

Model	Casement (Project-Out)
AAMA/WDMA/CSA 101/I.S.2/A440-08 Rating	AW-PG70-C
Structural Load P.S.F.	70.18
Air at 50 MPH (cfm/ft²)	0.01
Water (No Penetration) P.S.F.	12.11
CR (Condensation Resistance)	45-48
U-Value	0.39-0.43
SHGC	0.19-0.29

Window test size: 48" × 84" Operating Force: 6 lbf (maintain motion), 8 lbf (latches), 3 lbf (ADA Handle)

Thermal values shown are a range based on Quaker's most popular glass package options. Other available glass options may result in scores outside of the range shown.



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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

ARCHITECTURAL PAINT COATINGS AND FINISHES

◊ Baked on powder coat finish meets ANSA/AAMA 2604 specs and is available in unlimited colors

- 11 Popular Colors

White | Sandstone | Holly Green | Redwood | Chestnut | Satin Creme | Dark Bronze | Toffee | Beige | Earthone | Black

- 15 Impressive Colors

Agate Grey | Beige Grey | Burgundy | Gloss Black | Interstate Blue | Moss Green | New Bone White | New Dark Bronze

Patina Green | Polar White | Sky White II | Slate Gray | Teal | Telegrey 1 | Oyster White

- 7 Resemble Colors (painted finish resembling anodized)

Black Anodized | Champagne Anodized Light Range | Champagne Anodized Dark Range | Clear Anodized | Light Bronze Anodized | Dark Bronze Anodized Light Range | Dark Bronze Anodized Dark Range

- Unlimited Custom Colors

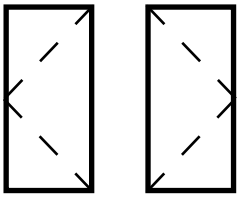
◊ ANSA/AAMA 2605 powder coat finishes

◊ AAMA 611-98 Class I clear and tinted anodized finishes

* Printed colors shown here may not accurately depict actual painted colors. Color samples are available upon request.

ALUMINUM WINDOWS - CASEMENT

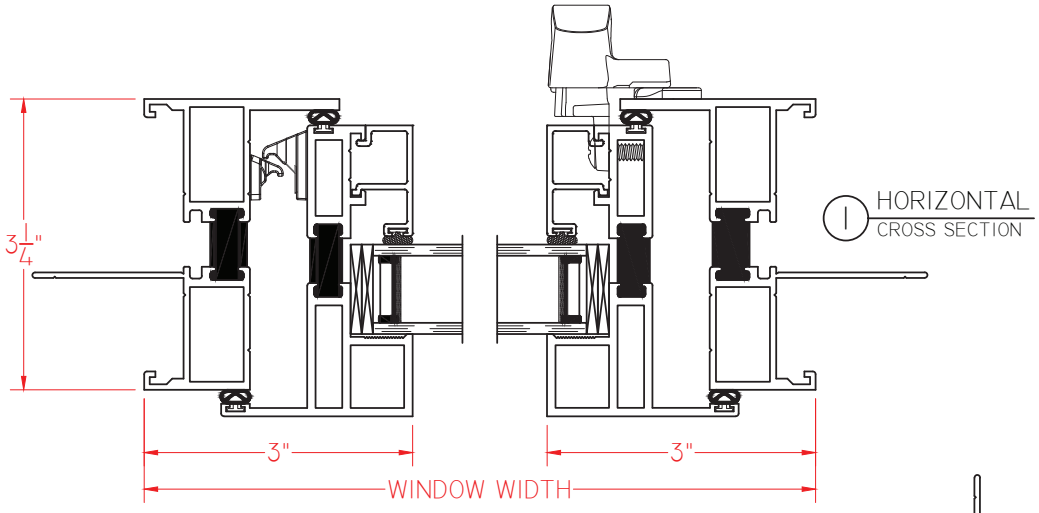
QUAKER
COMMERCIAL WINDOWS AND DOORS

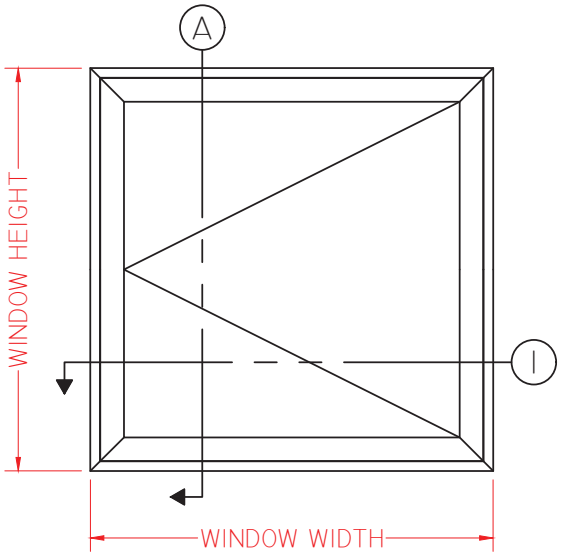


M600 Series
AW-PG70
3 ¼" Frame Depth
Casement (Project-Out)

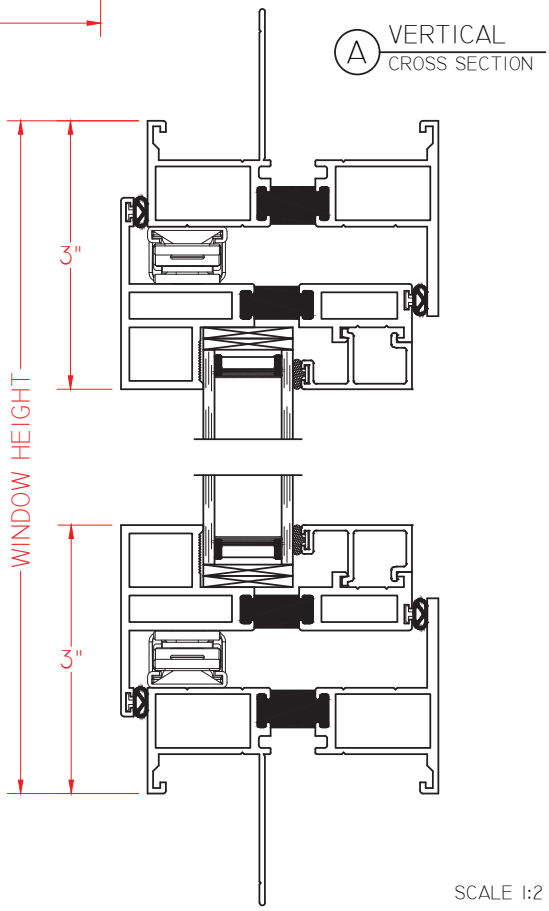
M600 SERIES CASEMENT (PROJECT-OUT) PUSH OUT

Shown With Nailing Fin





ELEVATION SCALE 3/4" = 1'-0"



SCALE 1:2

ALUMINUM WINDOWS - CASEMENT

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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER
COMMERCIAL WINDOWS AND DOORS

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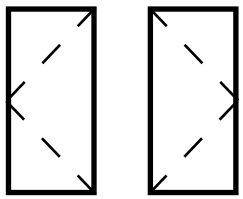
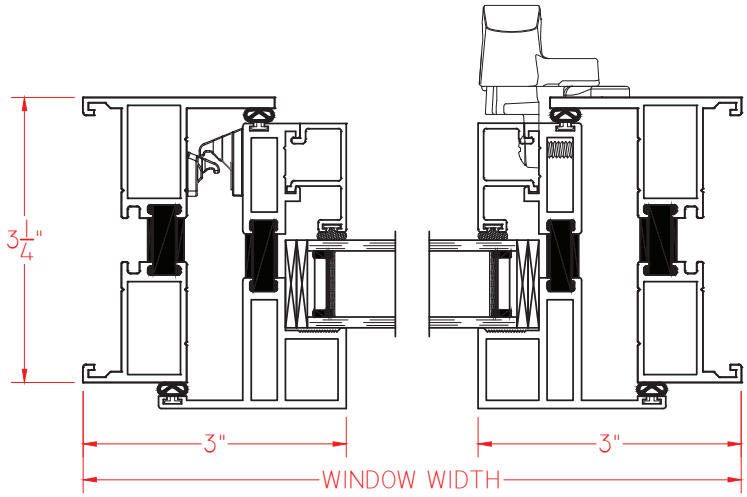
COMMERCIAL WINDOWS AND DOORS



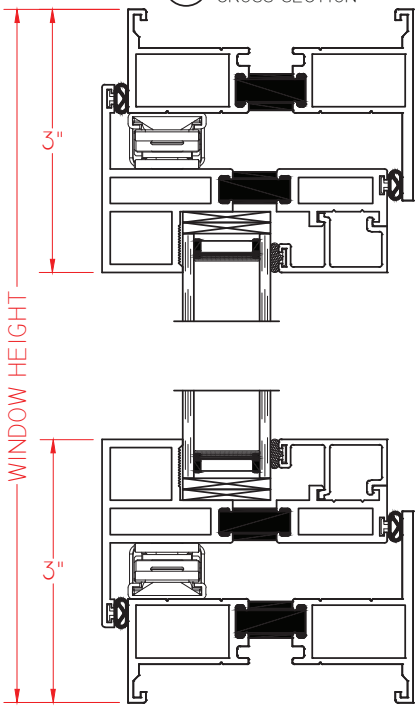
M600 Series
AW-PG70
3 ¼" Frame Depth
Casement (Project-Out)

M600 SERIES CASEMENT (PROJECT-OUT) PUSH OUT

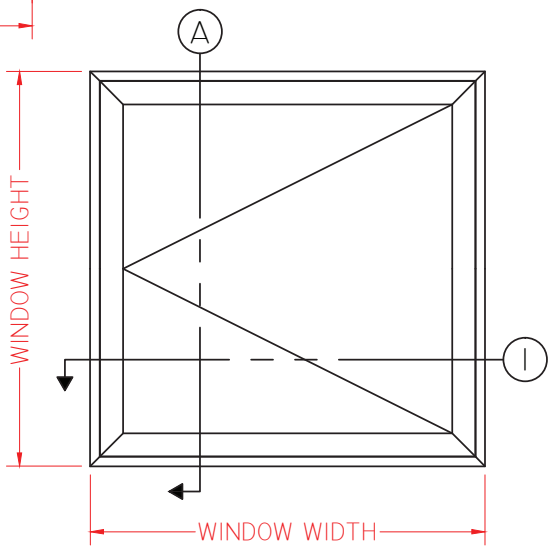
Shown With No Nailing Fins



I HORIZONTAL CROSS SECTION



A VERTICAL CROSS SECTION



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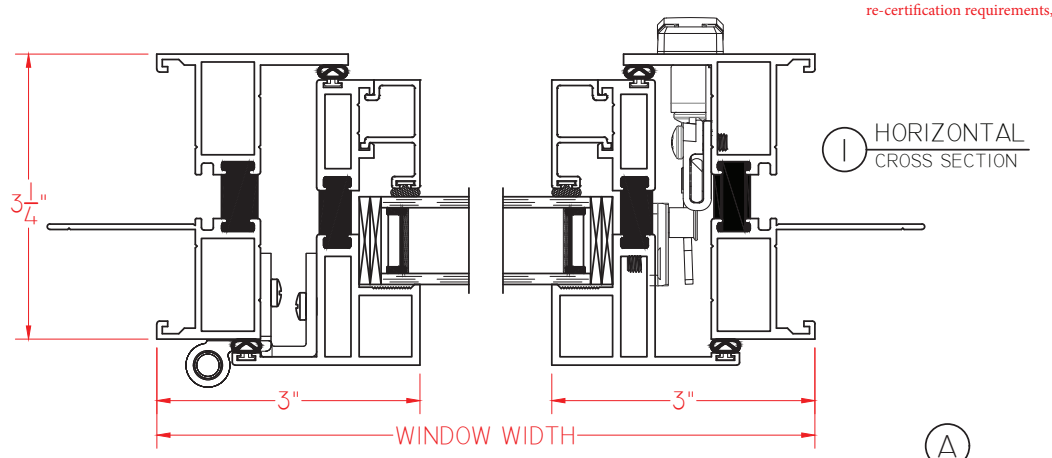
QUAKER COMMERCIAL WINDOWS AND DOORS

QUAKER
COMMERCIAL WINDOWS AND DOORS

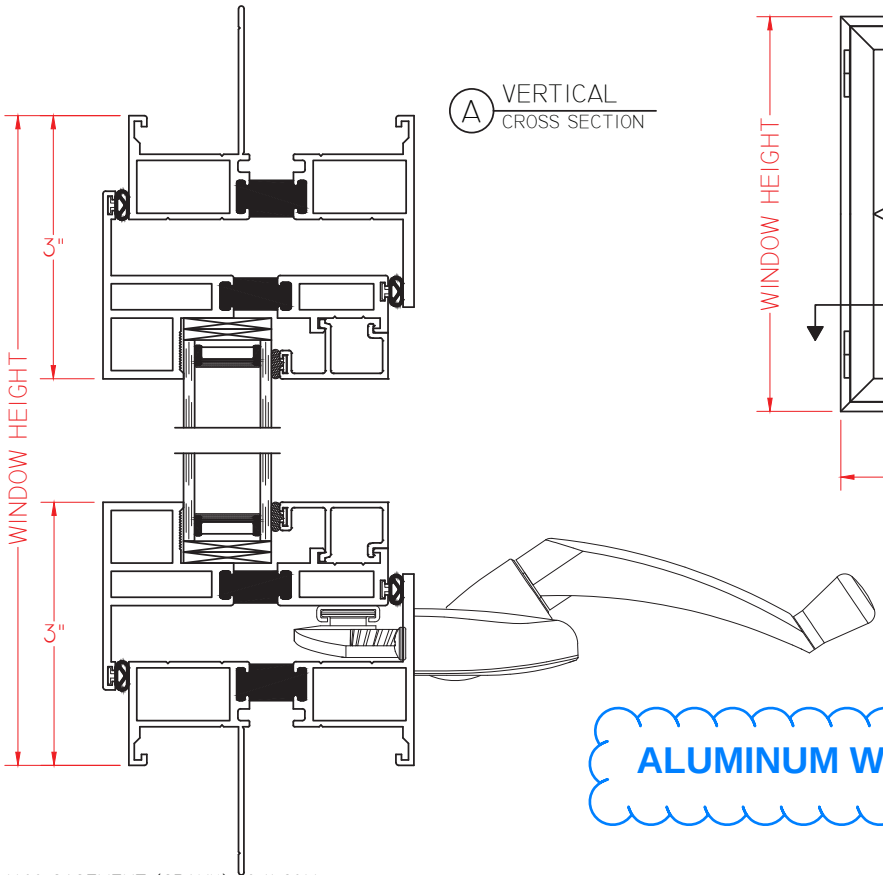
M600 Series
AW-PG70
3 ¼" Frame Depth
Casement (Project-Out)

M600 SERIES CASEMENT (PROJECT-OUT) CRANK OUT

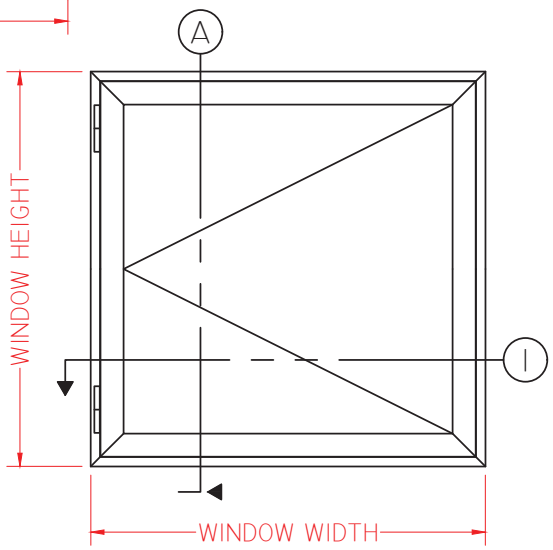
Shown With Nailing Fins



1 HORIZONTAL CROSS SECTION



A VERTICAL CROSS SECTION



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ALUMINUM WINDOWS - CASEMENT

SCALE 1:2

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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

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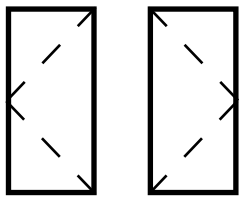
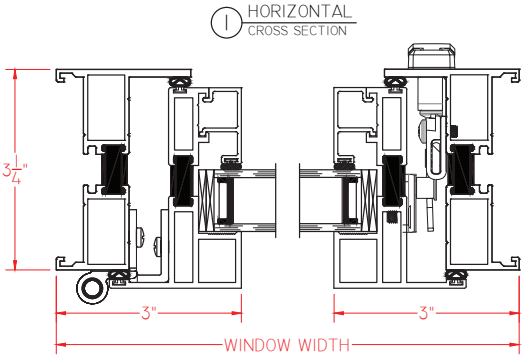
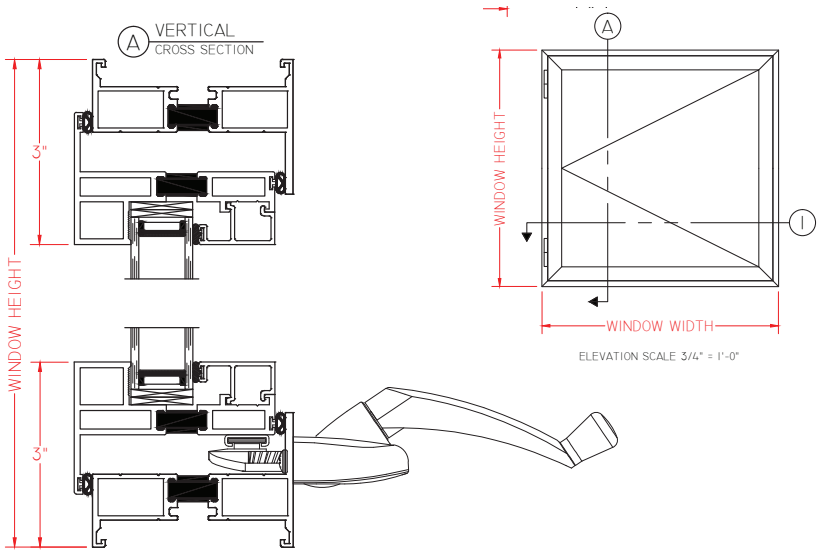


M600 Series
AW-PG70
3 ¼" Frame Depth
Casement (Project-Out)

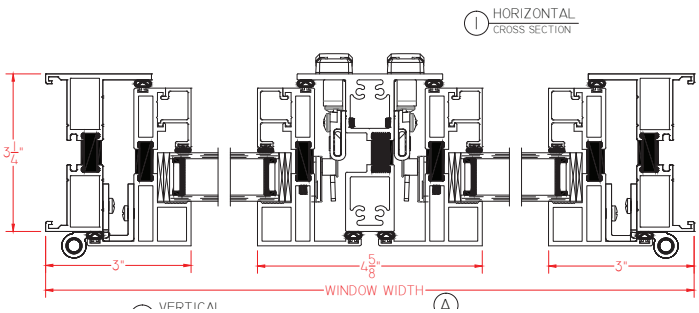
M600 SERIES CASEMENT (PROJECT-OUT) CRANK OUT

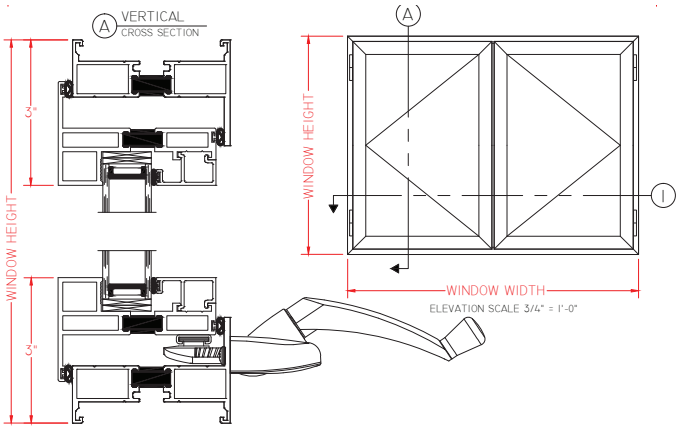
Shown With No Nailing Fins





CASEMENT/CASEMENT - Shown With No Nailing Fins





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WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA MEMBER

QUAKER COMMERCIAL WINDOWS AND DOORS

800-866-2227 / www.tubeliteinc.com

Thermal Entrances

A break from high energy costs!

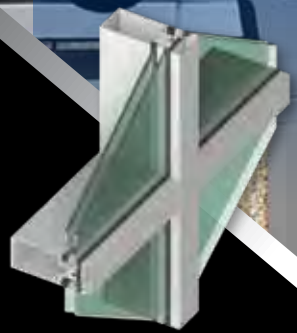
Tubelite Therml=Block Entrances are designed using the same durable components as our Standard Entrances for outstanding craftsmanship and strength, with the additional benefit of strut thermal barriers for enhanced thermal performance. Door stiles are available in Medium Stile 5" and Wide Stile 6" models; top rails in 4" and 5" heights; and bottom in 10" height for ADA compliance. Snap-in thermally broken vertical frame closures easily accommodate addition of sidelites and incorporation with thermal storefront framing.

Therml=Block Entrances are furnished with mortised butt hinges, offset pivots or continuous hinges as specified. Standard deadbolt locks, and concealed vertical rod or rim panic exit devices also may be selected. Standard pull handles have been designed for ADA access and have matching push bars.

Durable Tie-Rod Construction
The strength and flexibility of steel tie-rod construction is what holds it all together and makes our doors endure. Tie-rod assembly is as durable as welded corner construction, but superior in many ways. Monumental doors can be modified, disassembled or resized right in the field. No other door offers you this much strength and flexibility.

Therml=Block®
HIGH PERFORMANCE THERMAL FRAMING

*Tubelite thermal entrances use **Therml=Block** to provide superior insulation through increased aluminum separation and air space, while also increasing strength and reducing stress.*



400T Thermal Curtainwall

ALSO USED WITH

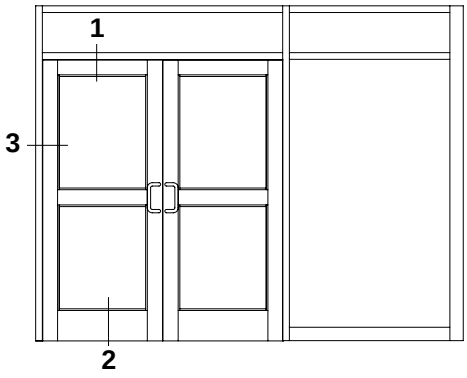
TU24000 High Thermal Performance

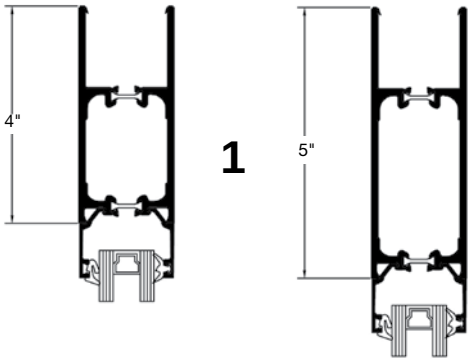
TUBELITE®
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

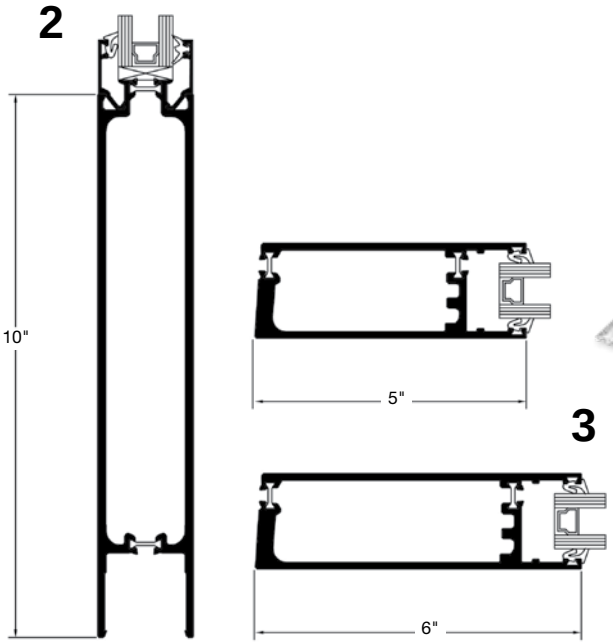
Thermal Entrances - *A break from high energy costs!*

Therml=Block®

HIGH PERFORMANCE THERMAL FRAMING







System Features

- Dramatically reduce the transfer of hot and cold temperatures
- Fast easy installation
- Outstanding craftsmanship, strength, and durability
- Blocks interior frost buildup

Note: Dimensions do not include 1/2" glass stops.

Therml=Block Entrance Series	Medium Stile	Wide Stile
Application	Projects requiring high thermal performance	
Traffic	Light to heavy	
Vertical Stile 1-3/4" x	5"	6"
Top Rail 1-3/4" x	4"	5"
Bottom Rail 1-3/4" x	10"	10"
Maximum Sizes	Single: 4'0" x 8'0" Pair: 8'0" x 8'0"	Single: 4'0" x 8'0" Pair: 8'0" x 8'0"

Therml=Block Entrance Series Product Specifications

Application: Thermally broken door with insulating glass for enhanced thermal performance
Description: Thermally broken vertical stiles and horizontal rails for energy savings and ADA compliance

Glass:	Air Infiltration:	Structural:	U-Factor** SINGLE DOOR:	U-Factor** DOUBLE DOOR:	CRF:
1" std	1.0 CFM / Ft.2 @ 1.57 PSF	50 PSF – Design 75 PSF – Overload	Medium: 0.58 Wide: 0.59	Medium: 0.52 Wide: 0.53	57

** U-Factor per NFRC 100. COG = 0.24 with warm edge spacer, 1-3/4" x 4-1/2" non-thermal frame.
Refer to the U-Factor table at: www.tubeliteinc.com/products/entrances/thermlblock-thermal-doors/ for other glass makeups and configurations.

3056 Walker Ridge Drive NW, Suite G, Walker, MI 49544

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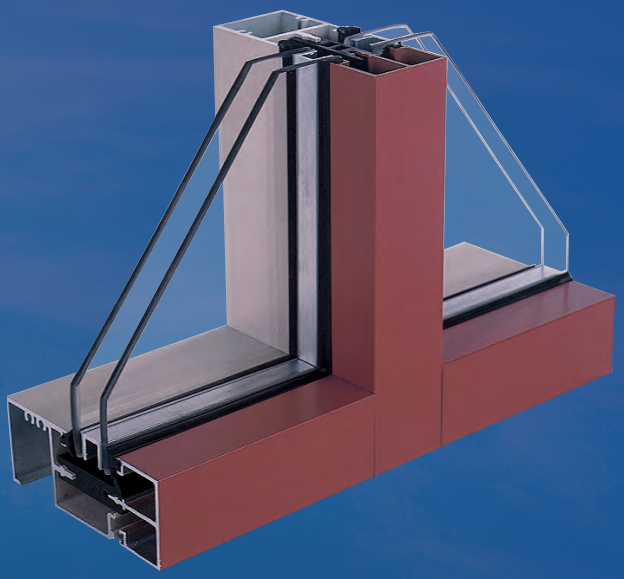
VersaTherm® Storefront Framing

VersaTherm™ Storefront Framing is our most versatile and economical storefront framing system. The flexible design allows for on-site fabrication in applications ranging from punched openings to mall fronts. VersaTherm is available in a large selection of profiles. Snap-on covers and backmembers, available in a variety of colors, allow for contrasting interior and exterior finishes. Finish options and glass positioning from frame exterior to center meet a wide range of aesthetic requirements.

Snap-on covers and back members are "locked" together by a unique thermal barrier clip. This clip ensures that interior and exterior metal members remain separate while firmly connected, virtually eliminating the transference of frost and condensation. High-performance verticals and compatibility with Tubelite stock doors create a complete and truly versatile system.



Standard Narrow Stile Entrances

ALSO USED WITH

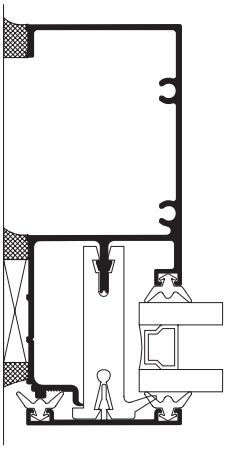
200 Series Curtainwall

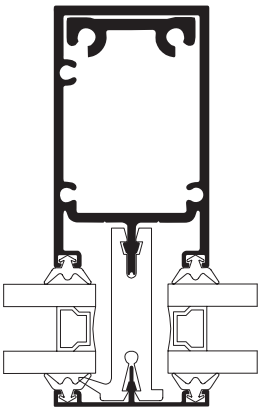
TUBELITE®

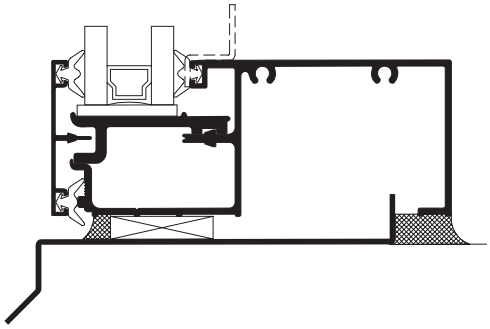
DEPENDABLE

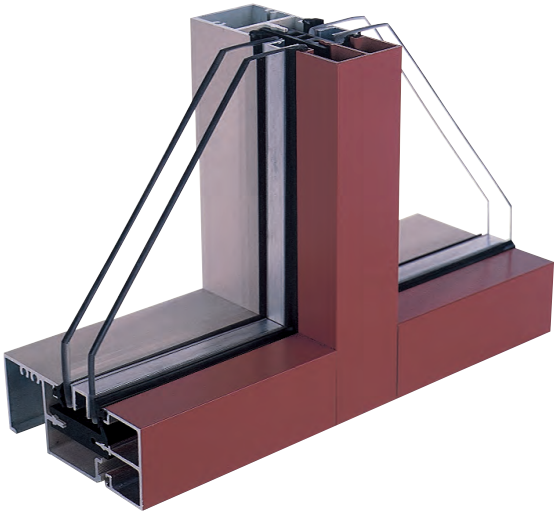
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

VersaTherm® Storefront Framing









System Features:

- Standard 1-3/4" (44.45mm) sight-line on perimeter members
- Standard 2" (50.8mm) sight-line on intermediate members
- 3-1/2" (88.9mm) to 6-5/8" (168.275mm) system depth
- Thermal Clip thermal break
- EPDM wedge type and fixed gaskets for 1" glass or panel thickness
- Non-thermal Framing

Optional Features:

- Screw-spline or shear block connections
- Easily integrates with standard or thermal doors & operable vent windows
- A wide variety of standard anodized and painted colors are available to complement any project with warrantied protection, as well as street appeal.
- Curved Headers

Versatherm Series Product Specifications

Application: Low and mid-rise commercial buildings including retail, office, healthcare, schools, etc.
Description: 1-3/4" x (3-1/2" to 6-5/8") field glazed, shear block – screw spline storefront

Face Width:	Overall Depths:	Glass:	Air Infiltration:	Water Infiltration:	Structural:	U-Factor**:	CRF:
1-3/4"	3-1/2" to 6-5/8"	1" (1/4")	0.06 CFM/Ft.2 @ 6.24 PSF	12 - Static	40 PSF - Design	0.36 - Thermally Broken	64_F 55_G

** U-Factor per NFRC 100: COG = 0.24 with warm edge spacer, 1-3/4" x 4-1/2" non-thermal frame
Refer to the U-Factor table at: www.tubeliteinc.com/products/storefront/versatherm-storefront-framing/ for other glass makeups and configurations.

3056 Walker Ridge Drive NW, Suite G, Walker, MI 49544

TUBELITE®

DEPENDABLE

LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

We offer an option for recycled aluminum on selected extruded products with an industry leading content of post-consumer and pre-consumer material.

STOREFRONT

Anodized Finishes

Clear Class 2 **C2**
Clear Class 1 **C1**

Light Champagne **LC**

Champagne **CH**

Light Bronze **LB**

Medium Bronze **MB**

Dark Bronze **DB**

Extra Dark Bronze **EB**

Black **BL**

Copper **CA**

Bordeaux **BD**

Standard Painted Colors – 70% PVDF

Bone White **1P**
LT609-70

Colonial White **NP**
LT640-70

Sandstone **5P**
LT607-70

Burnt Sun **7P**
LT612-70

Antique Bronze **ZP**
LT641-70

Beige **BP**
LT603-70

Light Seawolf Beige **CP**
LT614-70

Dove Gray **VP**
LT615-70

Slate Gray **WP**
LT604-70

Charcoal Gray **XP**
LT605-70

Patina Green **SP**
LT616-70

Dark Ivy **TP**
LT617-70

Hartford Green **2P**
LT606-70

Military Blue **DP**
LT610-70

Black **3P**
LT601-70

Colonial Red **RP**
LT622-70

Boysenberry **9P**
LT608-70

Sage Brown **8P**
LT620-70

Quaker Bronze **6P**
LT602-70

NOTE: Colors shown are not exact and are intended for planning purposes. For actual job, Tubelite® will supply Linetec color chips.

113019

www.tubeliteinc.com • 800-866-2227 • Fax 877-299-2414 • 3056 Walker Ridge Drive NW, Suite G, Walker, Michigan 49544

TUBELITE®
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

We offer an option for recycled aluminum on selected extruded products with an industry leading content of post-consumer and pre-consumer material.

STOREFRONT

Finish Color Guide Chart

Depend on Tubelite® for detailed information on the performance, integrity, and weatherability of anodized finishes, and for specifications on the color retention, erosion resistance, and gloss retention of painted finishes.

Finish Colors

	AAMA Code	Code Performance	Content	Applicable Warranty	Tubelite® Colors Available
ANODIZED	611	Anodized aluminum provides and maintains a superior level of performance in terms of film integrity, exterior weatherability, and general appearance for many years.	Two-step electrolytic anodizing process	Standard Linetec 5yr. warranty applies on Class I anodize 3 Standard Tubelite 2yr. warranty applies on Class II anodize	**Standard Finishes:** Clear - Class II..... C2 Dark Bronze - Class I..... DB **Special Finishes:** Clear - Class I..... C1 Light Champagne - Class I..... LC Champagne - Class I..... CH Light Bronze - Class I..... LB Medium Bronze - Class I..... MB Extra Dark Bronze - Class I..... EB Black - Class I..... BL Copper - Class I..... CA Bordeaux - Class I..... BD
PAINTED	2605	Co 10 yrs – Fade = 5 Delta E Ch 10 yrs – Chalk = 8 Gl 10 yrs – 50% retention Er 10 yrs – 10% loss SS 4,000 hrs Hu 4,000 hrs	70% PVDF	10-Yr Linetec Warranty ✓	**Standard Finishes:** Bone White..... 1P Colonial White..... NP Sandstone..... 5P Burnt Sun..... 7P Antique Bronze..... ZP Beige..... BP Light Sea Wolf Beige..... CP Boysenberry..... 9P Dove Gray..... VP Slate Gray..... WP Charcoal Gray..... XP Patina Green..... SP Dark Ivy..... TP Hartford Green..... 2P Military Blue..... DP Colonial Red..... RP Sage Brown..... 8P Quaker Bronze..... 6P Black..... 3P **Custom Finishes:** Nearly unlimited in-house blendable and order-out paints include 2, 3 and 4-coat finish types
	2604	Co 5 yrs – Fade = 5 Delta E Ch 5 yrs – Chalk = 8 Gl 5 yrs – 30% retention Er 5 yrs – 10% loss SS 3,000 hrs Hu 3,000 hrs	50% PVDF	5-Yr Linetec Warranty ✓	**Custom Finishes:** Nearly unlimited in-house blendable shades
	2603		Baked Enamel	1-Yr Linetec Warranty (Adhesion only)	**Custom Finishes:** Nearly unlimited in-house blendable shades

KEY
Co = Color Retention
Ch = Chalk Resistance
Gl = Gloss Retention
Er = Erosion Resistance
SS = Salt Spray
Hu = Humidity
= Tubelite Standard Color Palette

NOTE
Class I = Minimum 0.7 mil thickness
Class II = Minimum 0.4 mil thickness
✓ = Extended Warranty Available (Contact Tubelite Inc.)

Eco-Friendly Finishes

Beyond being compliant, Tubelite's sister company Linetec captures and destroys the Volatile Organic Compounds (VOCs) present in solvent-borne paints during the finishing process. 100% of the solvents are captured from the painting operations, and destroyed with a $2 million "oxidizer", which burns the VOC's at 1500 degree heat, converting them to harmless water vapor. In doing so, our liquid-paints are just as VOC-free to the environment as powder or waterborne paints.

At Linetec's anodize operations, the process does not use heavy metals or toxins and is environmentally friendly. Anodized aluminum is 100% recyclable and uses simple water-based chemistry that can be treated easily and releases no harmful by-products. Linetec's voluntary commitment to a clean and healthy environment goes well beyond industry standards or regulatory requirements.