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Sycamore Township
Planning & Zoning

ZONE CASE NUMBER: 2021-18MI

MINOR PUD ADJUSTMENT

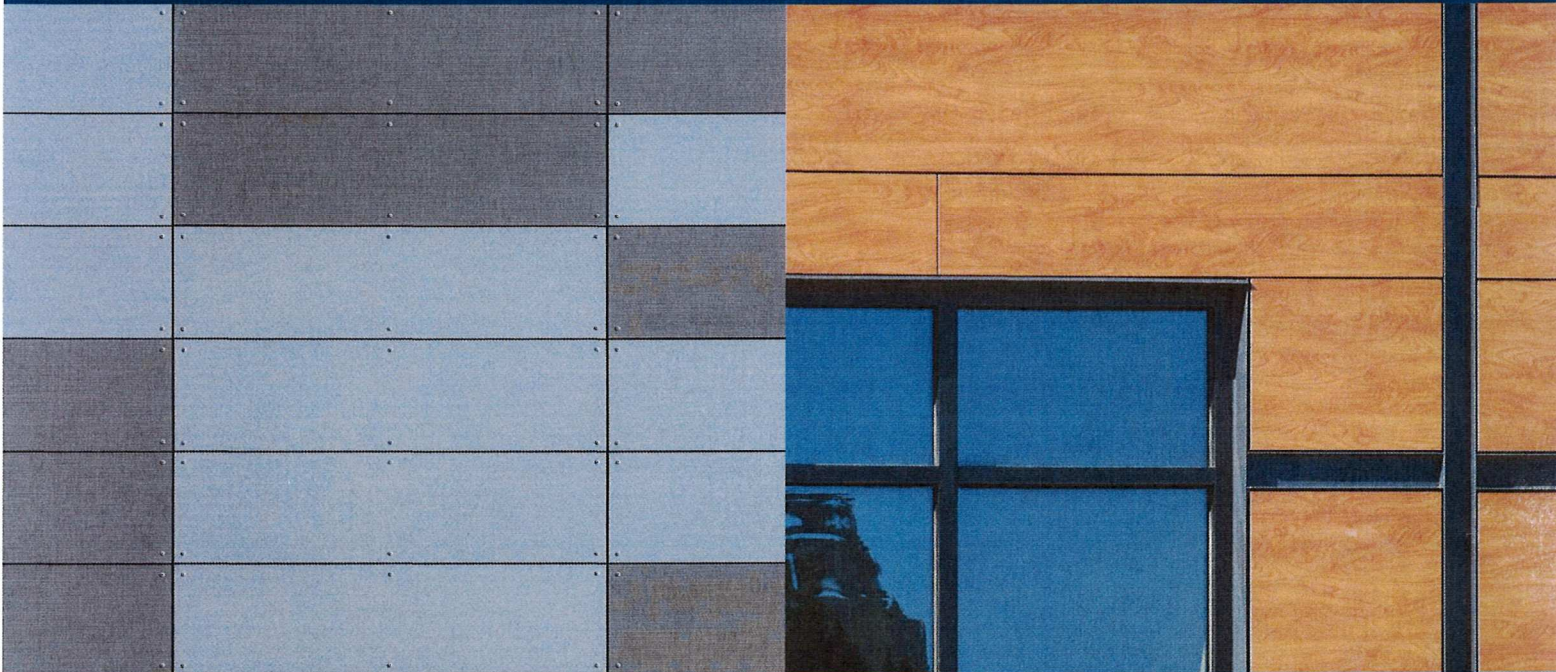
APPROVAL DATE: 11/24/2021



STONEWOOD™
ARCHITECTURAL PANELS

PROUDLY MADE IN AMERICA

EXTERIOR PANELS: EF AND CF TECHNICAL GUIDE



Exposed Fasteners (EF)

Concealed Fasteners (CF)

STORAGE AND HANDLING
FIELD FABRICATION
FACTORY PROCESSING GUIDELINES
EF & CF INSTALLATION
CLEANING AND MAINTENANCE

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PANEL INSTALLATION OVERVIEW

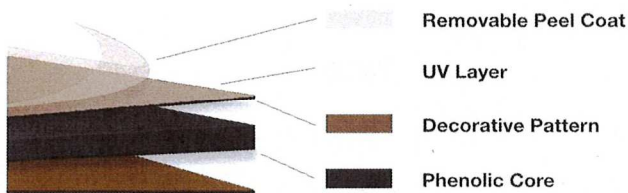
About Stonewood Exterior Panels

Stonewood Exterior Architectural Panels (Division 07-42 Solid Phenolic Exterior Wall Cladding) are solid phenolic panels manufactured by Fiberesin. Panels are installed using the Exposed Fastener (EF) System, Concealed Fastener (CF) System or other systems that meet the required criteria outlined on Stonewoodpanels.com.

To meet the local building code, building professionals should be consulted for the final structural/attachment plan of the Stonewood Panels to the substructures.

Composition

Stonewood is manufactured with a core of phenolic resin impregnated kraft paper and a face of melamine resin impregnated with a decorative pattern. These layers are compressed at high pressure and temperature. The panel is further protected by a protective surface layer for UV and weathering protection and a protective peel coat for shipping and handling.

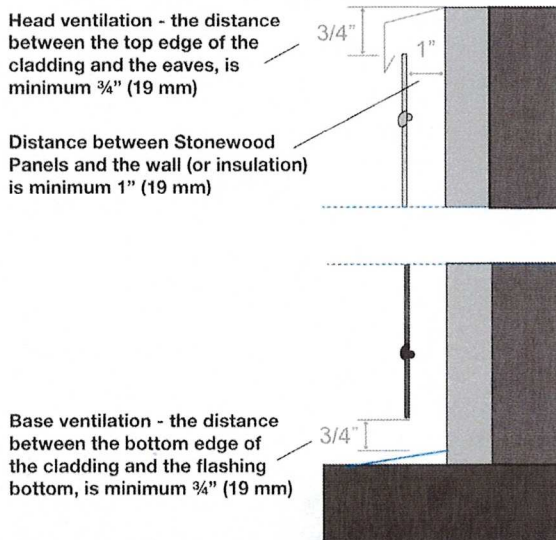


Panel Weights 48" x 96"

Thickness	Weight Per Panel
5/16"	72 lbs
3/8"	86 lbs
1/2"	115 lbs

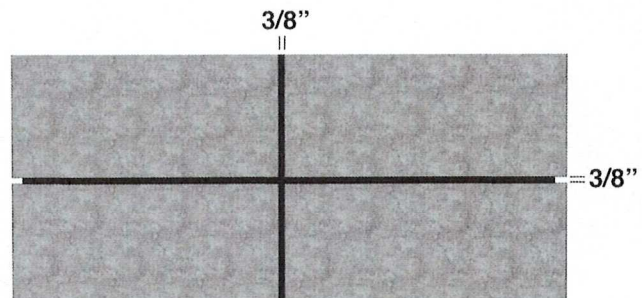
Ventilated Facade

A ventilated façade requires unobstructed continuous air flow for proper performance. The sub-framing used to create the air flow cavity must be installed in a vertical direction. Installation **should not** allow for standing water to accumulate anywhere on the panel surface. If conditions require horizontal battens, weep holes are required.



Panel-to-Panel Joints

A minimum distance of 3/8" (10mm) must be maintained between panels on all sides to accommodate hygrothermal movement of the panels.



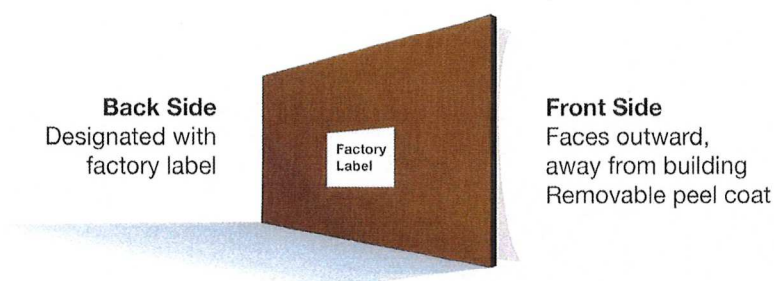
PANEL INSTALLATION OVERVIEW

Fastening Systems by Others

Stonewood Panels must be installed over a subframe system that can support a cladding weight and wind load of up to 8 PSF made of either 0.09' ASTM B317 6063 T5 extruded aluminum or 16 gauge G90 Galvanized steel. *Important note: 1/8" shim must be used between dissimilar metals. Follow guidelines on previous page for Ventilated Facade and Panel-to-Panel joint information.*

Single-sided Panels

Panels are NOT identical on both sides. The Front Side faces outward (away from the building) and has the removable Peel Coat. The Back Side is designated with a factory label.



It may appear that both sides are identical, the Back Side could have minor imperfections, and therefore should never face the outside of the building. The construction buildup is identical, providing uniform balance and weather/UV protection. **Installers are responsible for making sure that the appropriate (Front) side is visible.**

EXPANSION JOINT LIMITATIONS



Stonewood Architectural Panels are designed to be installed on a continuous substructure. Panels are not to be installed such that they span areas where there is a discontinuity in the substructure, such as vertical or horizontal expansion joints. It is the responsibility of the project designer to ensure that panels do not span these substructure discontinuities.



Material Receipt

- Verify condition of package.
- All product is quoted FCA factory. If there is visible damage, it is the responsibility of the buyer to file a freight claim for any damage within 24 hours of receipt.

Packaging and Moving

- Keep panels on pallets.
- Fasten panels using straps within vehicle.
- Protect edges with packing material such as: corners/blanket.

Handling of Exterior Panels

- Do not scratch the UV protective surface during handling, machining and installation.
- Panels are shipped with protective foam dividers or Clear Peel Coat between each panel.
- Always use the foam dividers or ensure Peel Coat is intact when stacking panels.
- Keep foam dividers or Peel Coat in place until ready to install.

Storage

- Keep load stored within outer wrap until use.
- Keep panels dry, by storing indoors, in original packaging until installation.
- Remove pallet straps once load is moved to storage area.
- Store panels flat, on a smooth, dry surface—ensure there are no bends or bowing in the load.
- Reseal protective wrap if partial load is used.

Clear Peel Coat on Exterior Panels

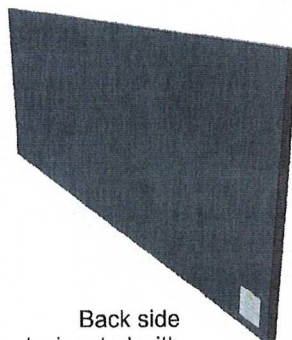
- Peel Coat is intended to protect the surface of panels during transportation and fabrication.
- Peel Coat is **not** intended for long term storage.
- Hot/cold temperatures may affect removal of the Peel Coat.
- **IMPORTANT:** Remove Peel Coat **AFTER** installation.



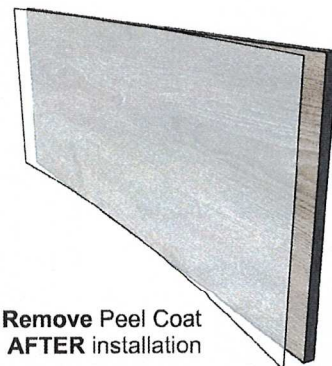
- **Do Not** store panels on edges or on uneven surfaces.
- **Do Not** let panels slip or slide into each other.
- **Do Not** store directly on concrete floors as moisture may migrate.
- **Do Not** store under heating or air conditioning units.
- **Damage resulting from improper storage or handling will void the warrantee.**

Exterior Single-Sided Panels

Panels are NOT identical on both sides. The Front Side faces outward (away from the building) and has the removable Peel Coat. The Back Side is designated with a factory label. Installers are responsible for making sure that the appropriate (Front) side is visible.



Back side
designated with
factory label



Remove Peel Coat
AFTER installation

FIELD FABRICATION CUTTING GUIDELINES

General Safety

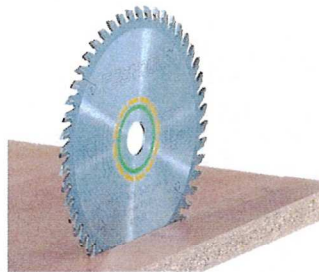
- Wear appropriate personal protection gear such as safety glasses and ear protection.
- Always follow manufacturer equipment and/or tool safety recommendations.
- Read and follow instruction manual before beginning work.
- Ensure all tools are properly grounded, never remove the third prong.
- Do NOT use electric power tools in a damp or wet area.
- Do NOT force tools or attachments to a job it was not designed to perform.
- Safety training, knowledge and product use is the responsibility of the facility owner, employees or designated contractor team(s).



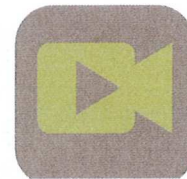
Required Equipment—Cutting



Festool 55 REQ Plunge Cut Track Saw or equivalent



Festool 496309 blade or Aluminum/Plastic saw blade equivalent



View Panel Field Fabrication video at stonewoodpanels.com



Use track saw guide rails to improve cut accuracy and protect panel surface



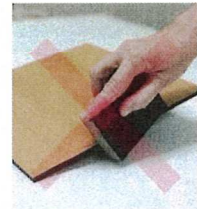
Set up guide rails, and support panel on appropriate supports

Best Practice Cutting Guidelines

- Place panels on a support board for all cutting and drilling.
- Square panels before cutting using saw guide rails.
- Set-up Festool or similar track saw and panels on appropriate cutting surface, allowing for exact squaring of each panel before cutting.
- Make required cut.
- Inspect edge for smooth finish. Chipping or burring may indicate a new blade is required.

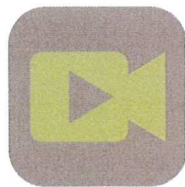


- Do NOT remove Peel Coat
- Do NOT cut panels with: jigsaw, circular saw, table saw
- Do NOT use sand paper to smooth out edges



Chamfer Edges

- Panels arrive with .015" chamfer edge.
- Field cut edges **MUST** be re-chamfered to .015".
- Use 45° bit Hand Router test with scrap piece to set and test router depth to match factory chamfer.
- Use a soft brush to remove sawdust and debris from panel, taking care not to scratch panel.



View Chamfer video at stonewoodpanels.com

FACTORY PROCESSING GUIDELINES

Beam Saw

Boom Pressure	Feed Speed	RPM	Hook	Teeth	Type
8 Bars	29 m/m	3,600	+15°	72	TCG Triple Chip Grind

CNC Guidelines Recommended Speeds

Stonewood panels can be fabricated with computerized numeric control (CNC) machines.

Panel Thickness	Cutter Speed	Feed Speed	Comments
8, 10, 13mm	14,000–18,000 rpm	2.54–3.81 m/m	Cutter and feed speed vary by thickness and suitable finish results
		100–150 in/min	

The above recommendations must be monitored throughout the fabrication process to ensure optimal results.

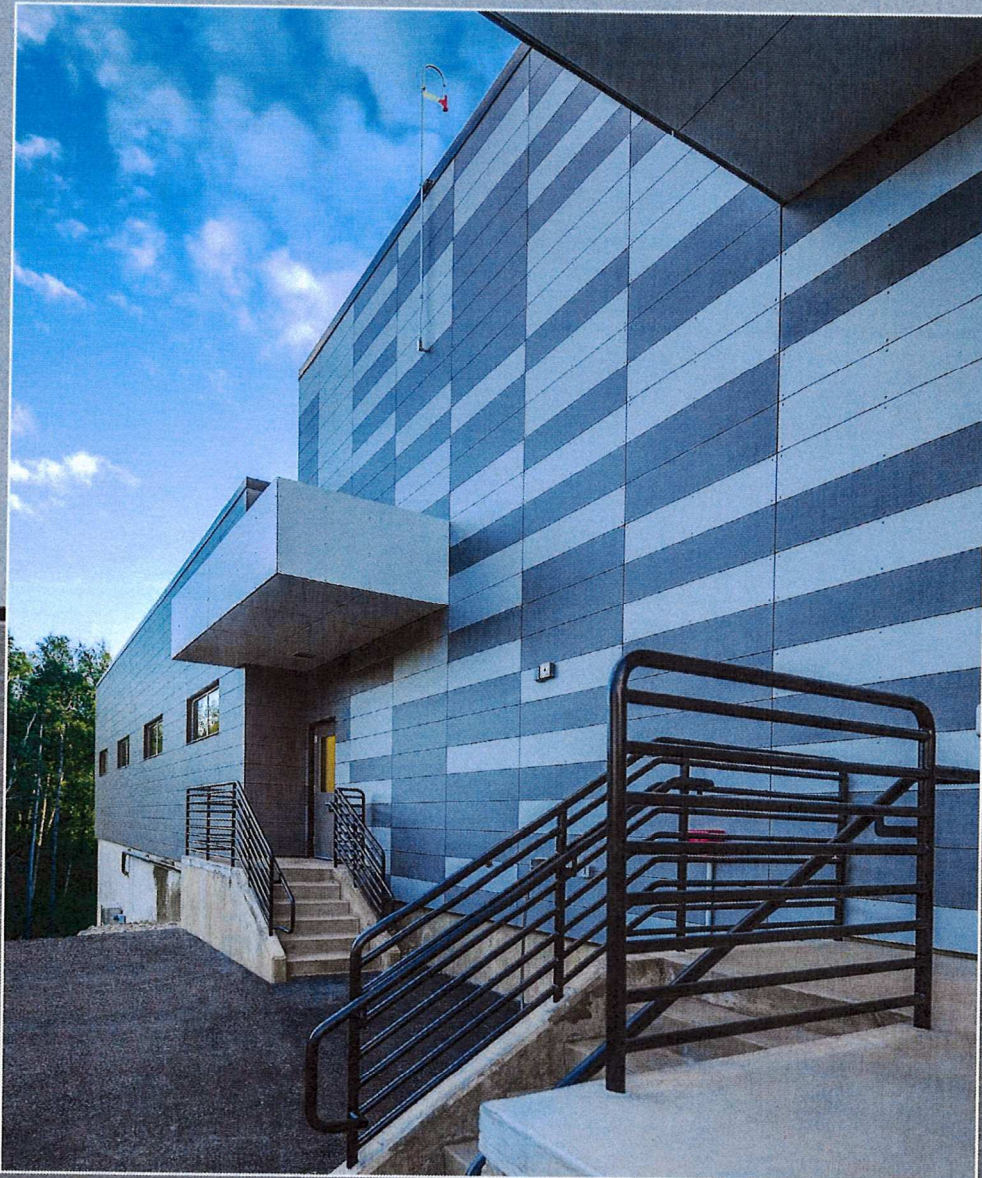
CNC Drilling

Diameter Inch	Revolutions	Feed
1/4 - 3/8"	4,000-5,000 /min	50 in/min

Chamfer

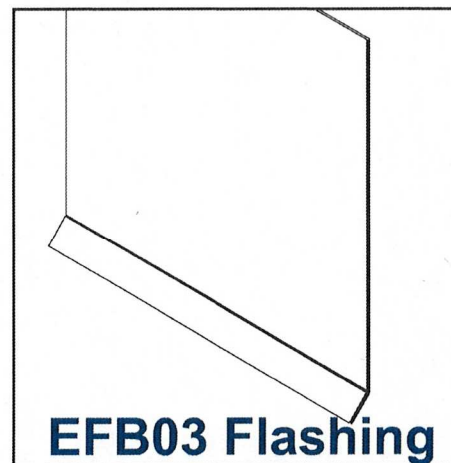
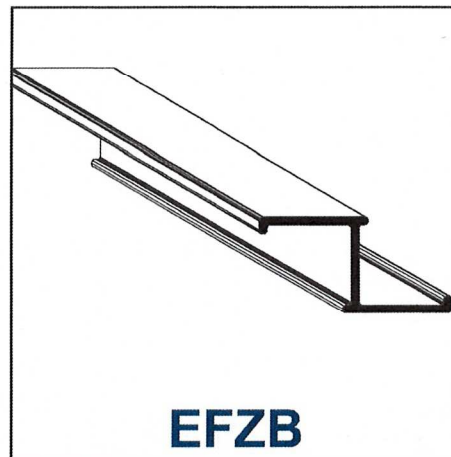
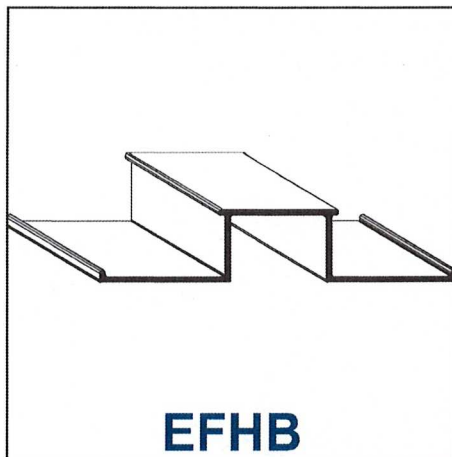
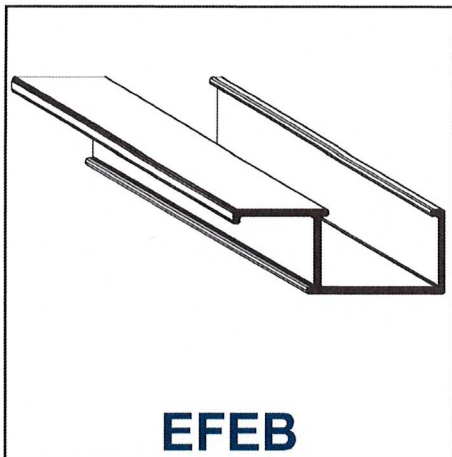
- Panels arrive with .015" chamfer edge
- Factory cut edges **MUST** be re-chamfered to .015"
- Use 45° bit Hand Router test with scrap piece to set and test router depth to match factory chamfer

Exposed Fastener (EF) Guidelines



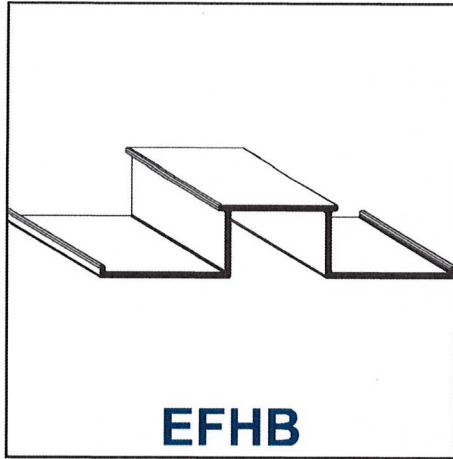
EXPOSED FASTENER (EF) OVERVIEW

Exposed Fastener Products

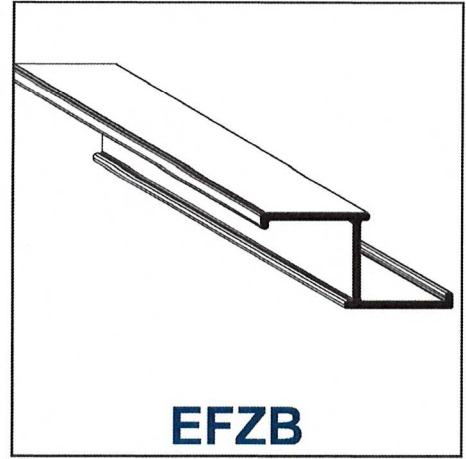


EXPOSED FASTENER (EF) OVERVIEW

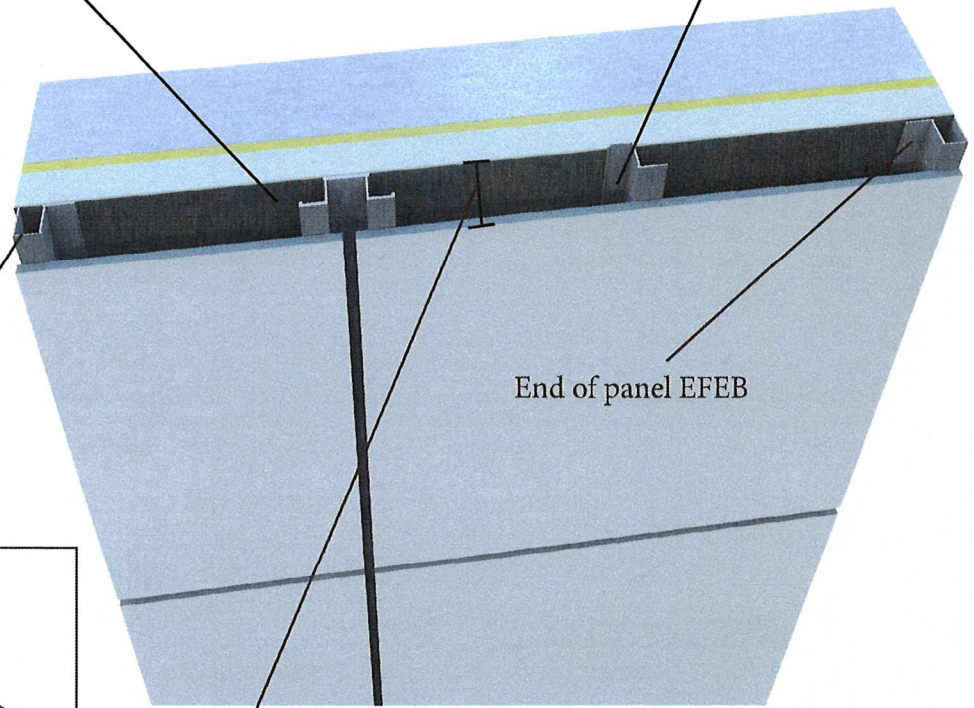
Rail Placement



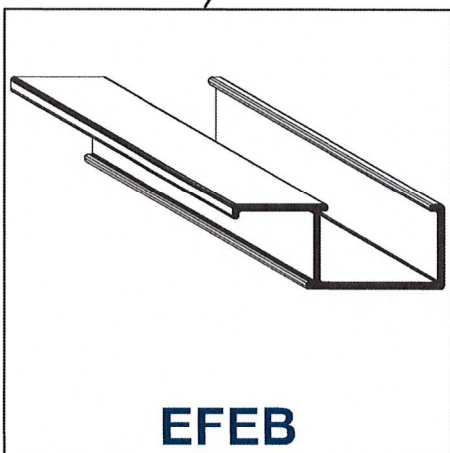
Use when 2 panels are joined



Mid-panel support



Overall system depth: 1 5/16" (8mm (5/16") panel)



Install at panel ends

DRILLING: SIZE AND EQUIPMENT

Required Equipment – Not available from Stonewood

- 0-2000 rpm screw gun equipped with depth sensing nosepiece
- T25 Torx® drive bit required for SX3-D16 Fastener
- Fastener must be centered in the hole
- Tighten to min. 23 - max. 27lb-in Torque

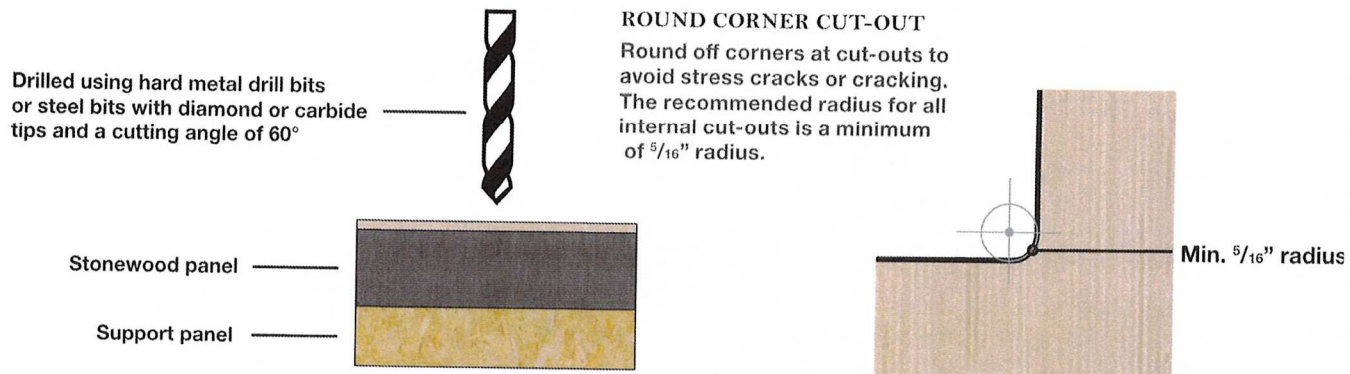
Recommended Equipment



Olsa Tools Torque Screwdriver with Hex head and T-handle, 10-50 in-lb, +/-6% Accuracy or equivalent (not supplied by Fiberesin).

Field Drilling

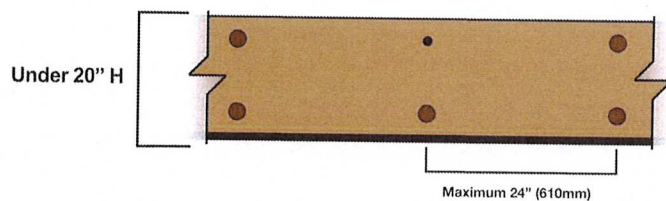
Stonewood panels are drilled using hard metal drill bits or steel bits with diamond or carbide tips and a cutting angle of 60 degrees. Bits designed for perforating metal may also be used.



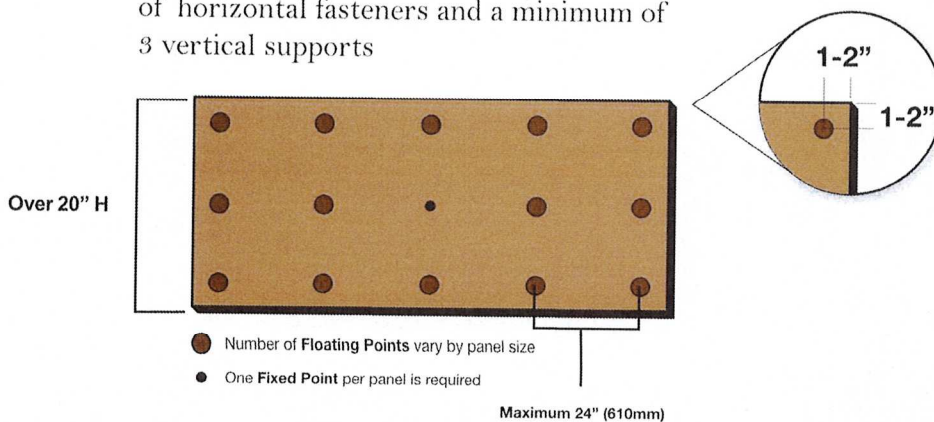
- Supporting sheets (plywood, chipboard) must be used under the panel to ensure clean hole and eliminate "breakout."
- To avoid breakout, the feed speed of the drill head and pressure applied should be gradually reduced when approaching the point of breakthrough.
- When properly drilled, there **should not be any chipping** around the hole.

Support Points Per Panel

Panels under 20"H (508mm) **require 2 rows** of horizontal fasteners and a minimum of 3 vertical supports.



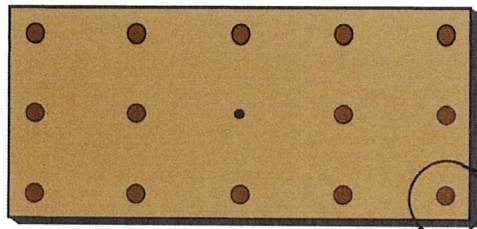
Panels over 20"H (508mm) **require 3 rows** of horizontal fasteners and a minimum of 3 vertical supports



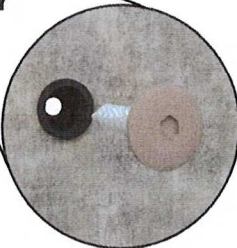
Guidelines

- Panels must be supported by the maximum surface area of sub-frame element
- Minimum of 3 supports, vertically and horizontally are required except for planks under 20"
- Maximum space between fasteners 24"
- Distance between the edge mounting points and the panel edges must be 1-2"
- The actual number of fastening points and distance between supports must be verified by a building professional for wind load as per load building code

Fixed and Floating Points



- Number of Floating Points vary by panel size
- One Fixed Point per panel is required



Fixed and floating points holes are **required** on every panel to allow for panel expansion and contraction.

Fixed point hole is the **same size** as the screw shaft.

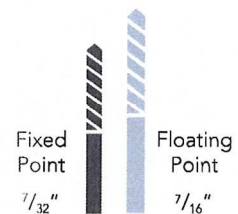
Floating point ($7/16"$) will allow for panel movement. Use Center Grommet, EFBB, to properly center fastener.

Remove Peel Coat prior to installing fasteners



Fixed Point Pre-Drilling

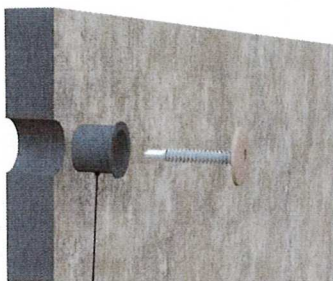
The fixed point (as close as possible to geometric center) is permanently fixed and is the **same size as the screw thread width**. There is **one** fixed point per panel. The fixed point ensures the panel movement is evenly distributed. The remaining holes must be fabricated as floating points.



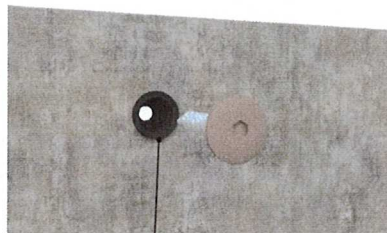
Use 2 drill bit sizes

Position of Centering Grommet and Fastener

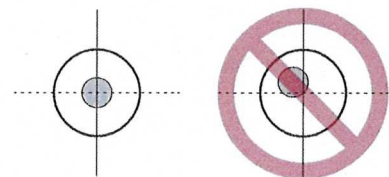
Insert the Centering Grommet, EFBB, into the pre-drilled floating point hole. Insert fastener, SX3-D16, into the grommet centering hole. **Tighten to min. 23 - max. 27lb-in Torque.**



EFBB, Centering Grommet

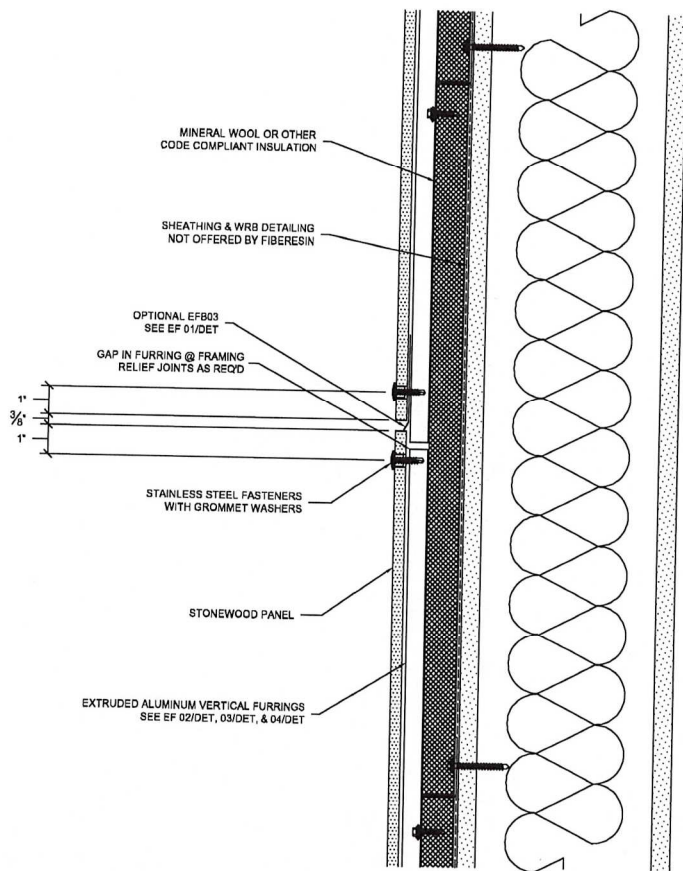


EFBB, Centering Grommet



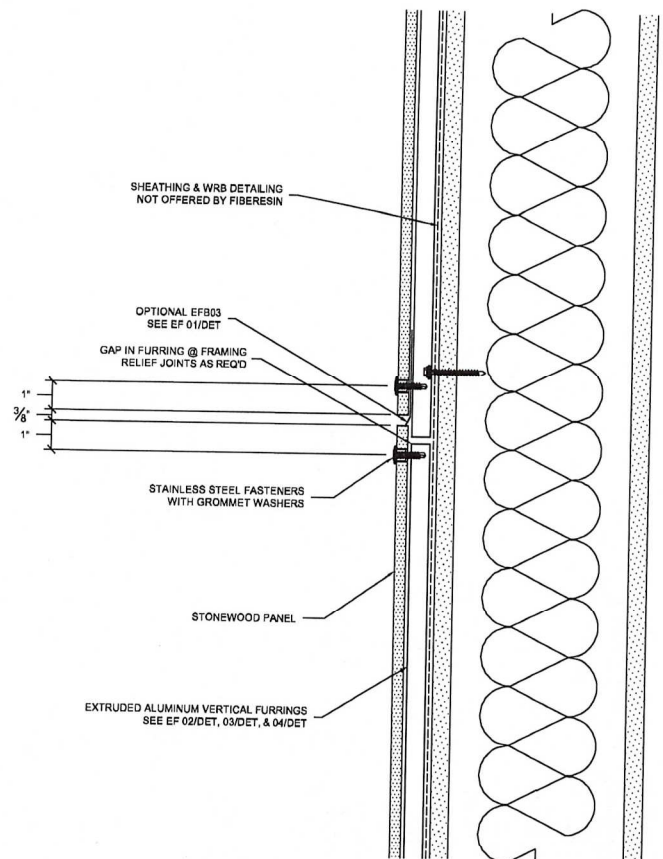
EF HORIZONTAL JOINT DETAILS

EF Insulated Horizontal Joint



FIBERESIN EXTERIOR FASTENER
INSULATED HORIZONTAL JOINT

EF Uninsulated Horizontal Joint



FIBERESIN EXTERIOR FASTENER
UNINSULATED HORIZONTAL JOINT

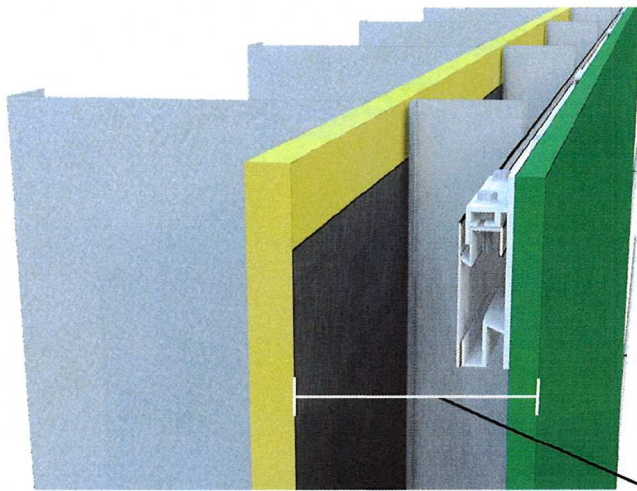
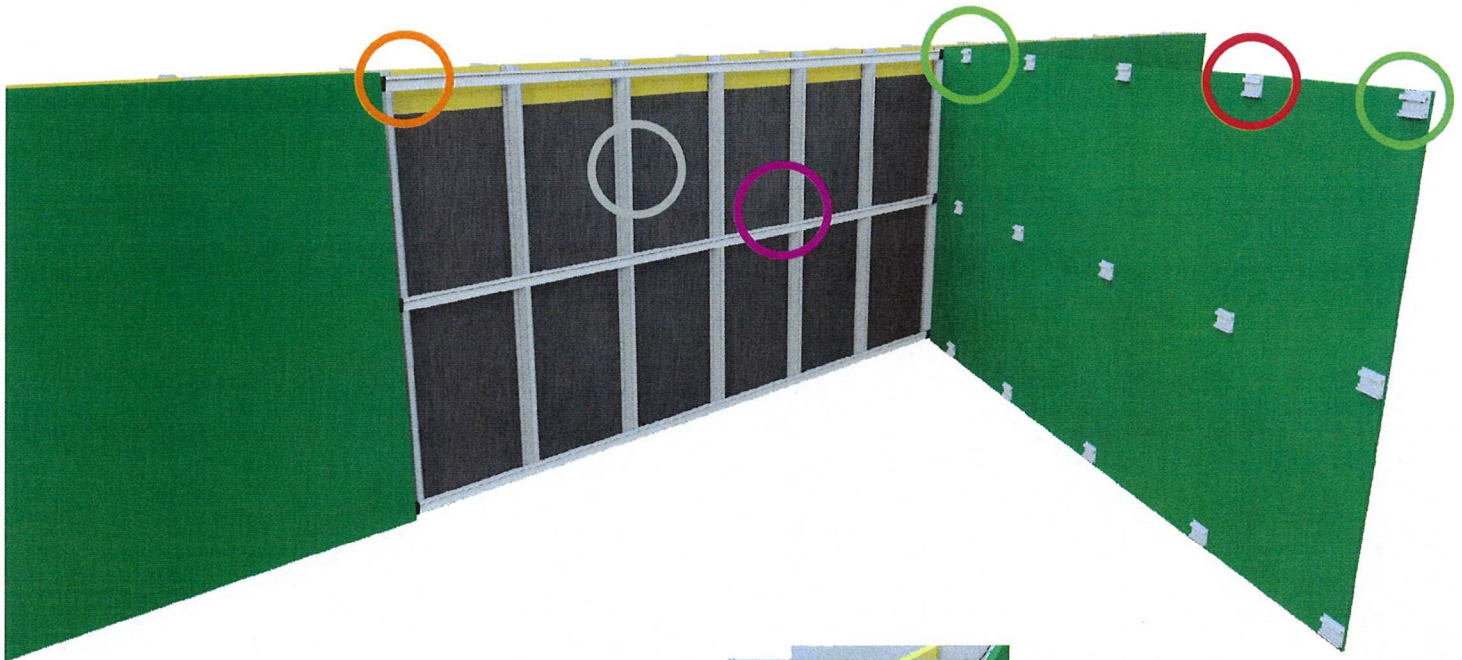
View complete EF Insulated and Uninsulated details at Stonewoodpanels.com. Detail package includes:

- Base Detail
- Coping
- Outside Corner
- Inside Corner
- Window Head
- Louver Head
- Door Head
- Concrete Transition
- Termination
- Window Jamb
- Louver Jamb
- Door Jamb
- Window Sill
- Louver Sill

Concealed Fastener (CF) Guidelines

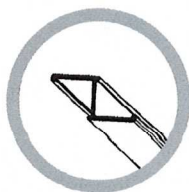


EXTERIOR CONCEALED FASTENER (CF) OVERVIEW

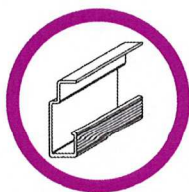


Total installed system depth: 2 3/8" (10mm (3/8") panel)

Concealed Fastener Products



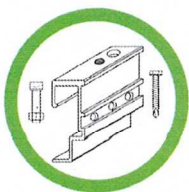
EFZB



CFRM

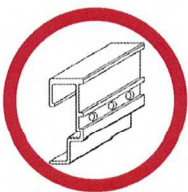


CFB01



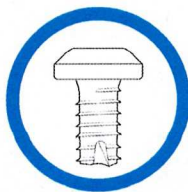
CFCAC

Requires 2 ea. CFF5



CFC5

Requires 2 ea. CFF5

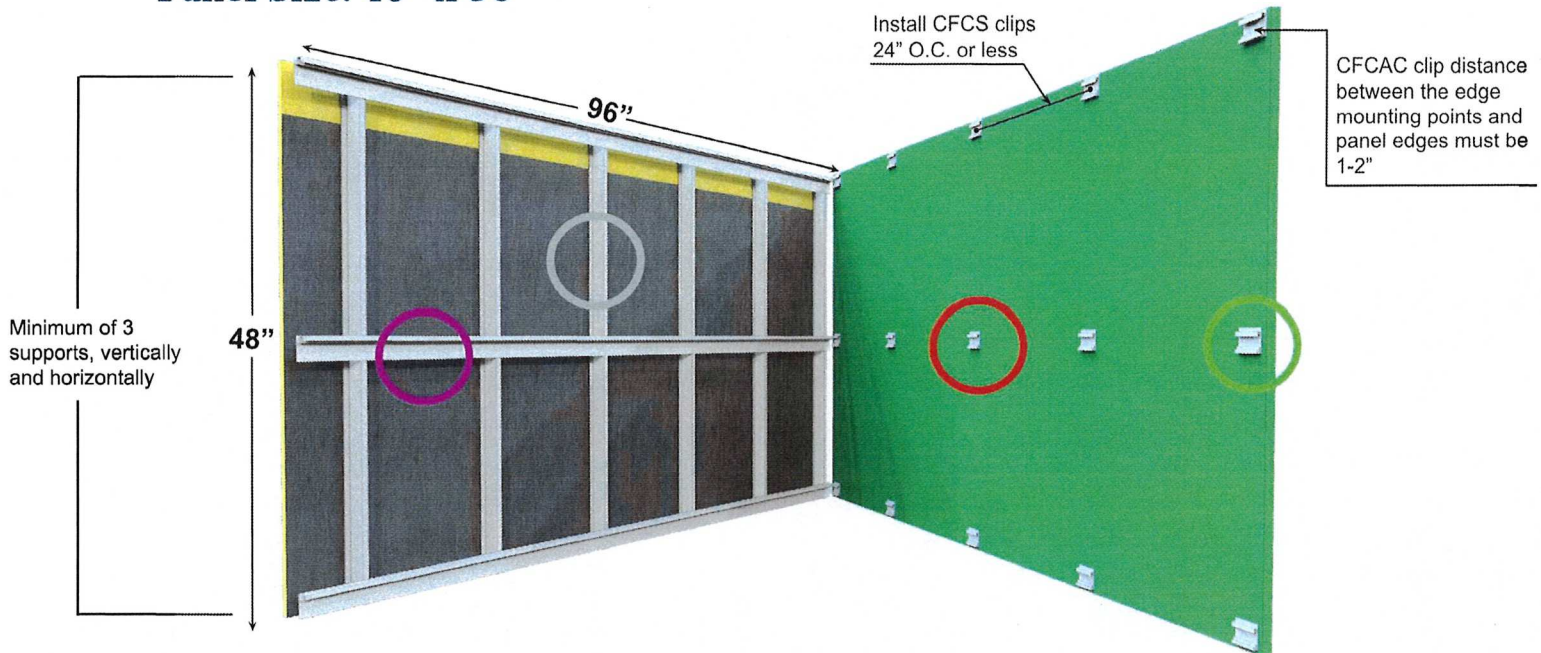


CFF5

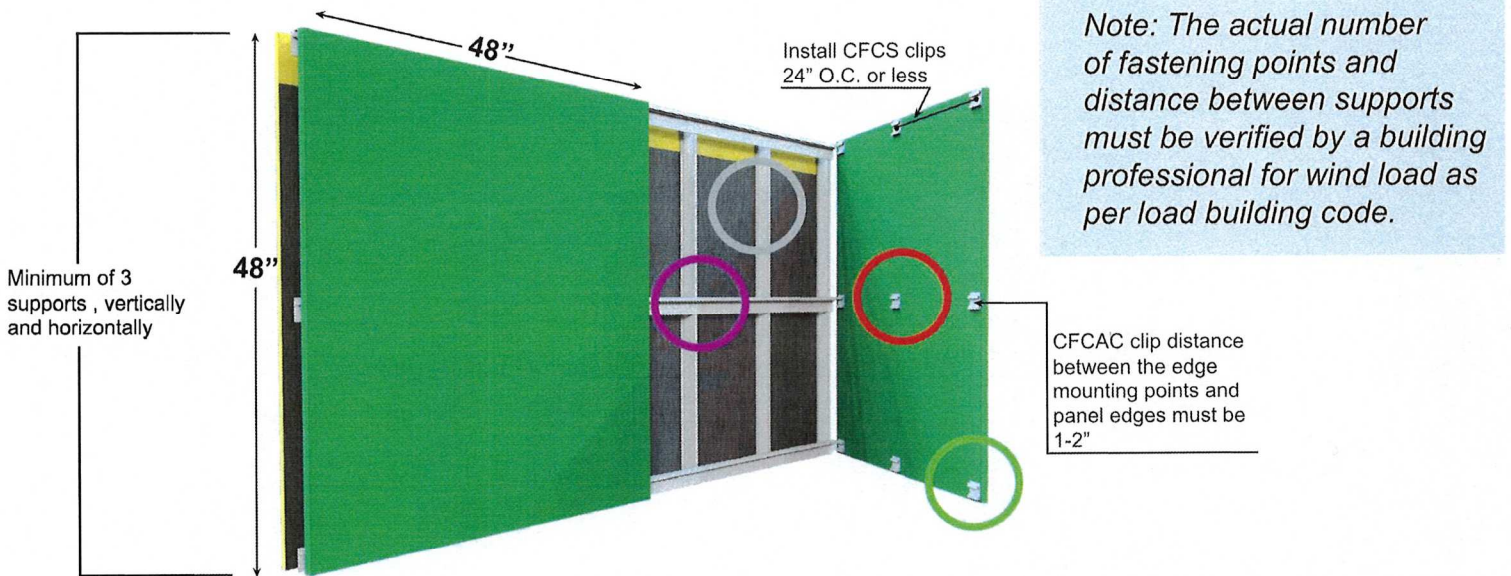
Use 2 ea. CFF5 per CFC

CLIP PLACEMENT FOR COMMON PANEL SIZES

Panel Size: 48" x 96"



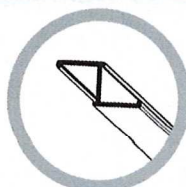
Panel Size: 48" x 48"



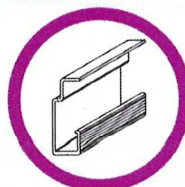
! Horizontal guide rails must be installed with a maximum coplanar deviation of 1/4" per 20'.

Note: The actual number of fastening points and distance between supports must be verified by a building professional for wind load as per load building code.

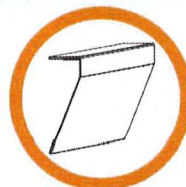
Concealed Fastener Products



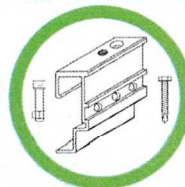
EFZB



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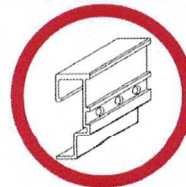


CFB01



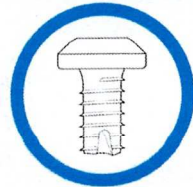
CFCAC

Requires 2 ea. CFF5



CFCS

Requires 2 ea. CFF5

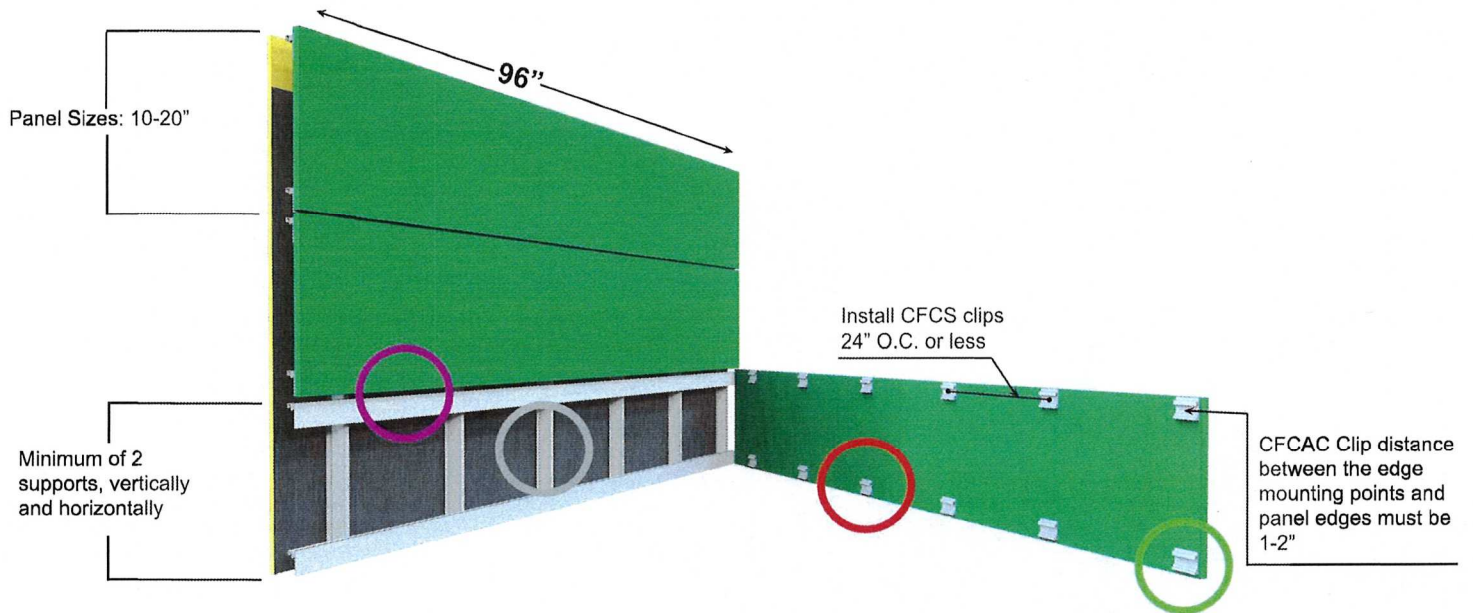


CFF5

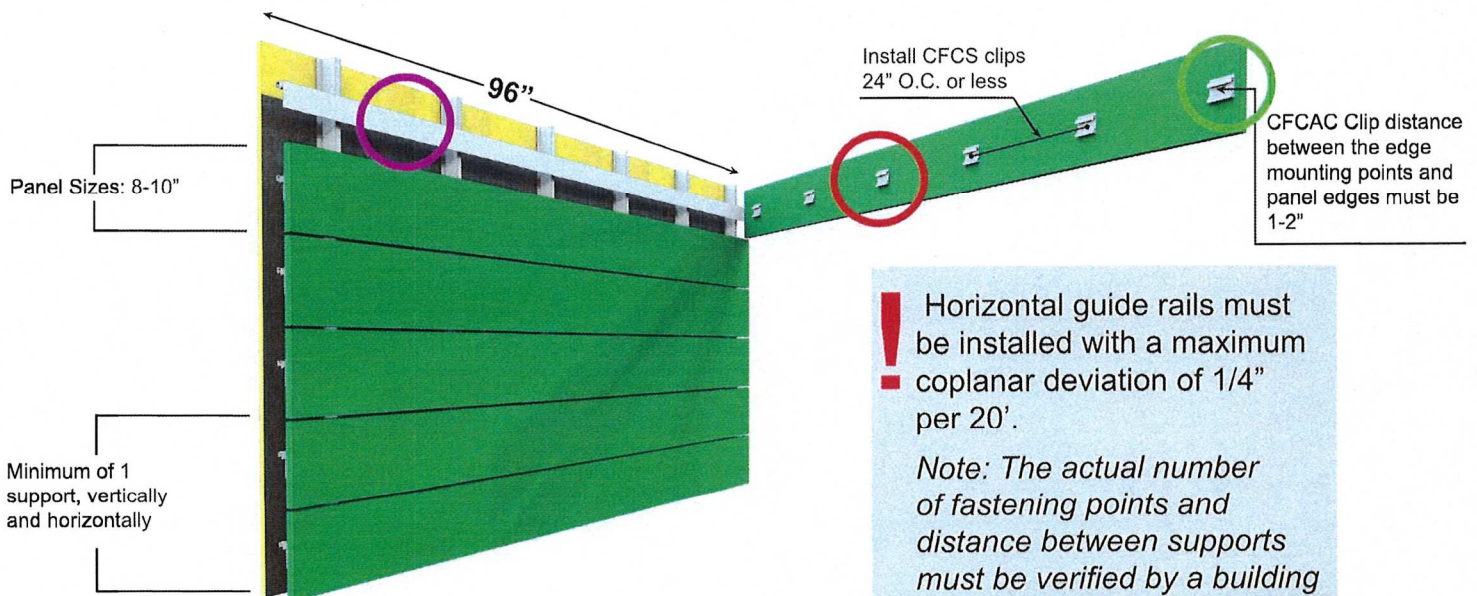
Use 2 ea. CFF5 per CFC

HORIZONTAL CLIP PLACEMENT EXCEPTIONS

Panel Size: 10-20" x 96"



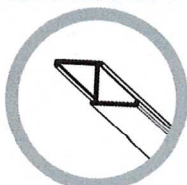
Panel Size: 8-10" x 96"



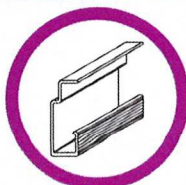
! Horizontal guide rails must be installed with a maximum coplanar deviation of 1/4" per 20'.

Note: The actual number of fastening points and distance between supports must be verified by a building professional for wind load as per load building code.

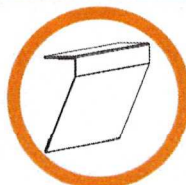
Concealed Fastener Products



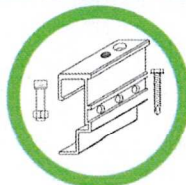
EFZB



CFRM

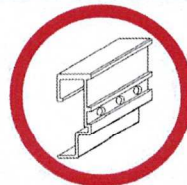


CFB01



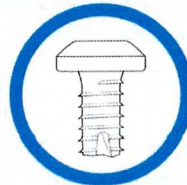
CFCAC

Requires 2 ea. CFF5



CFCS

Requires 2 ea. CFF5

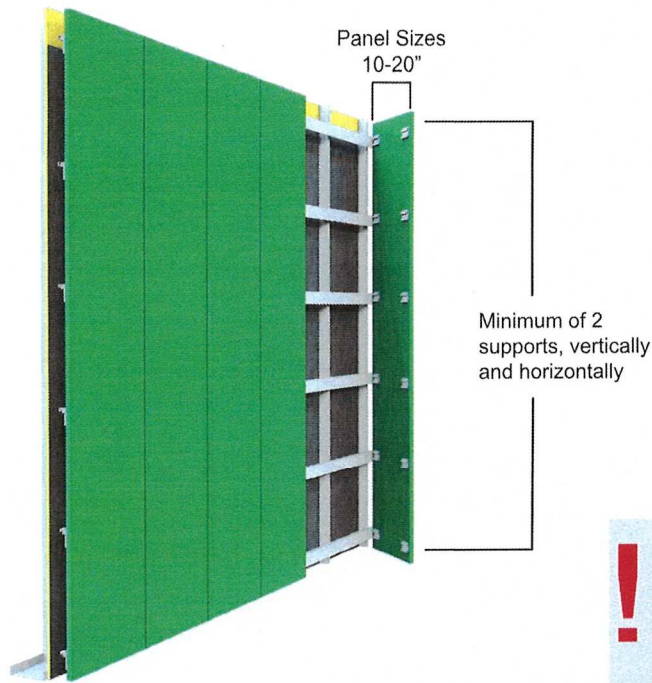


CFF5

Use 2 ea. CFF5 per CFC

VERTICAL CLIP PLACEMENT EXCEPTIONS

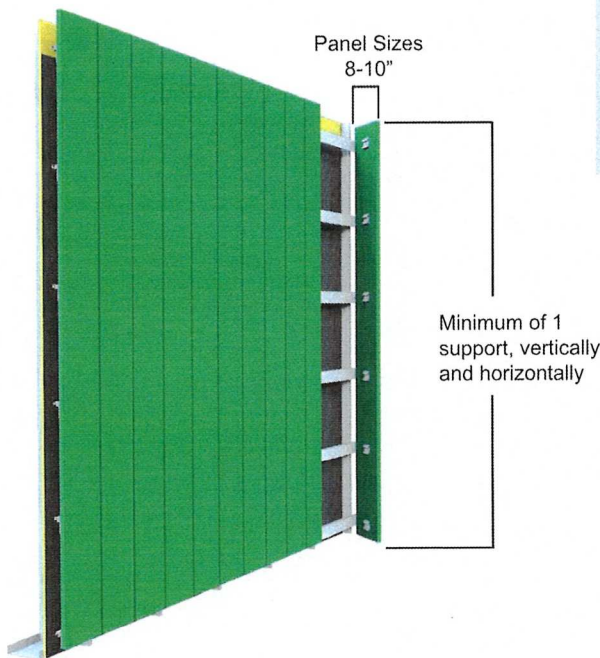
Panel Size: 10-20"



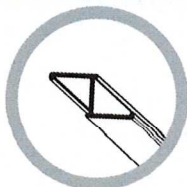
! Horizontal guide rails must be installed with a maximum coplanar deviation of 1/4" per 20'.

Note: The actual number of fastening points and distance between supports must be verified by a building professional for wind load as per load building code.

Panel Size: 8-10"



Concealed Fastener Products



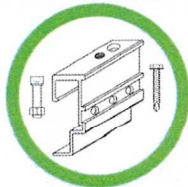
EFZB



CFRM

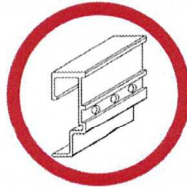


CFB01



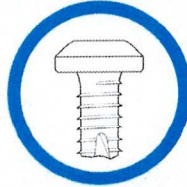
CFCAC

Requires 2 ea. CFF5



FCFS

Requires 2 ea. CFF5



CFF5

Use 2 ea. CFF5 per CFC

DRILLING: SIZE AND EQUIPMENT

Required Equipment – Not available from Stonewood

Brad-tipped drill bit



Pin

DRILL BIT DEPTH LOCATOR

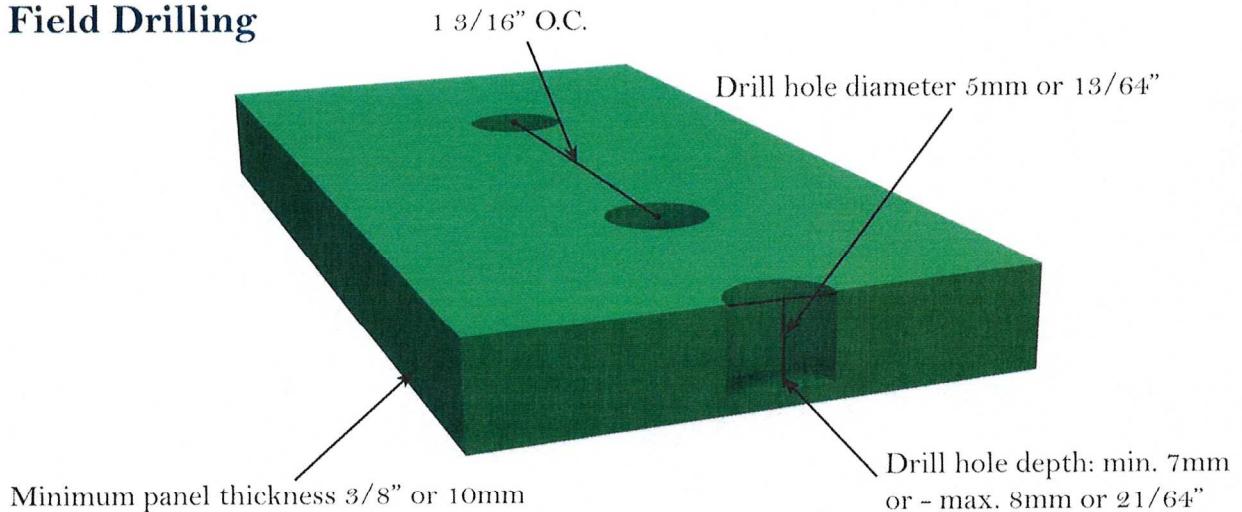
Commercially available, examples below.



Adjustable setting depth for proper pre-drill. Available from SFS Intec USA, www.sfsintecusa.com.



Field Drilling

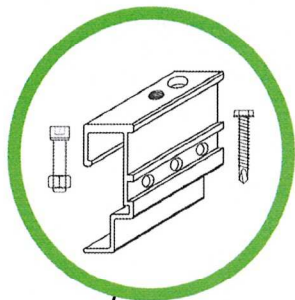


Important Note:

Before installation, inspect and remove debris from pre-drilled holes.



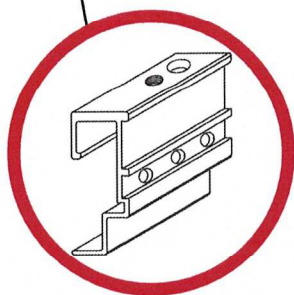
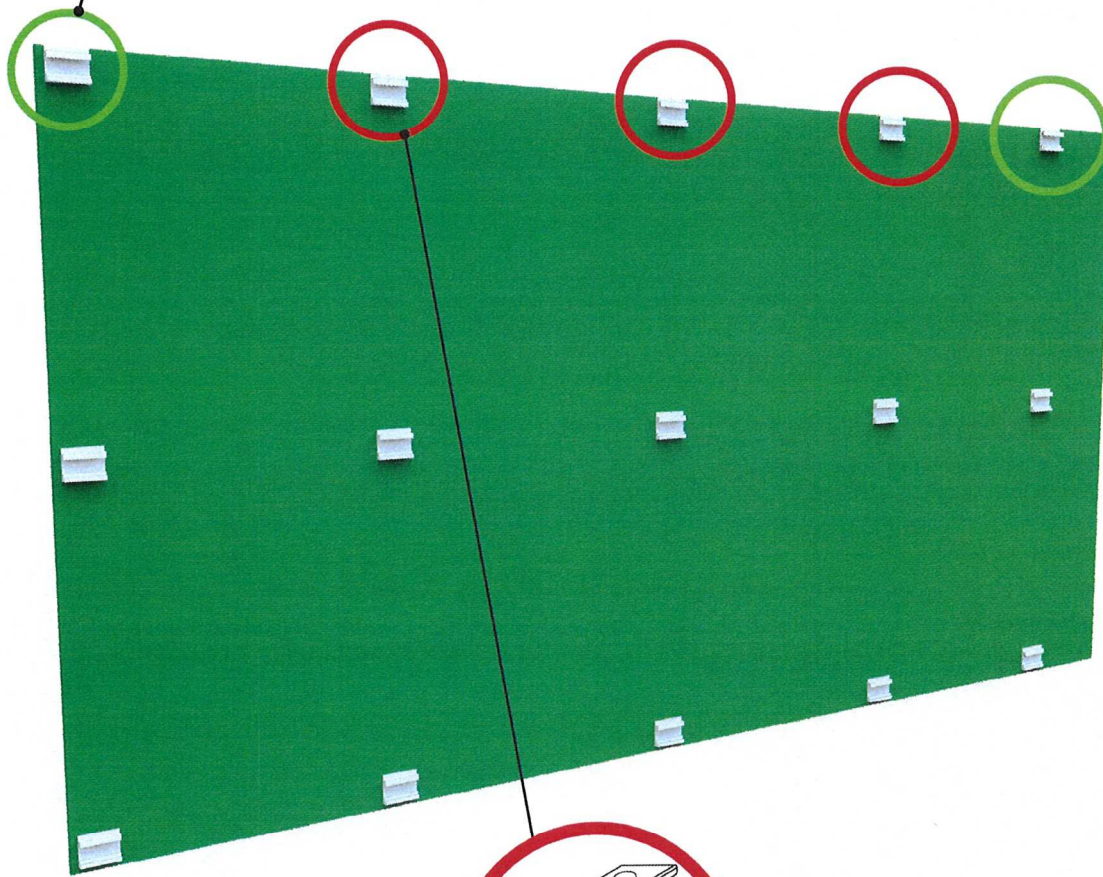
CLIP INSTALLATION



Install CFCAC on the outside corners and attach with 2ea CFF5 into the pre-drilled 5mm pilot holes.

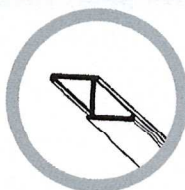
Use the leveling screw on each corner to level the panel **once installed**.

After the panel is **installed and leveled**, the 'set screw' is then used to secure the CFCAC to the rail, acting as a 'fixed point'.
Tighten to min. 23 - max. 27lb-in Torque.

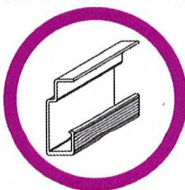


All remaining clips are CFCs. Secure clips with 2ea. CFF5.

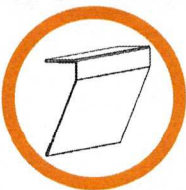
Concealed Fastener Products



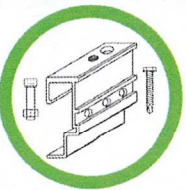
EFZB



CFRM

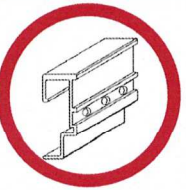


CFB01



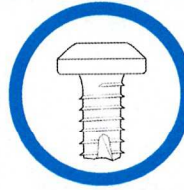
CFCAC

Requires 2 ea. CFF5



CFCs

Requires 2 ea. CFF5

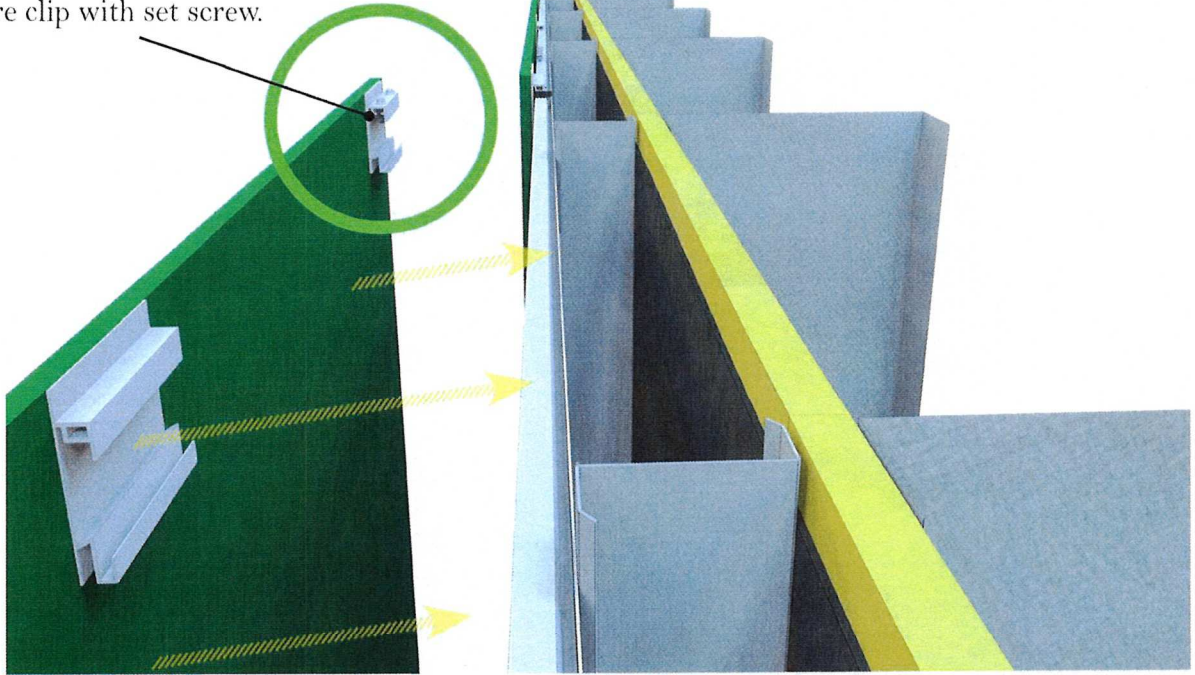


CFF5

Use 2 ea. CFF5 per CFC

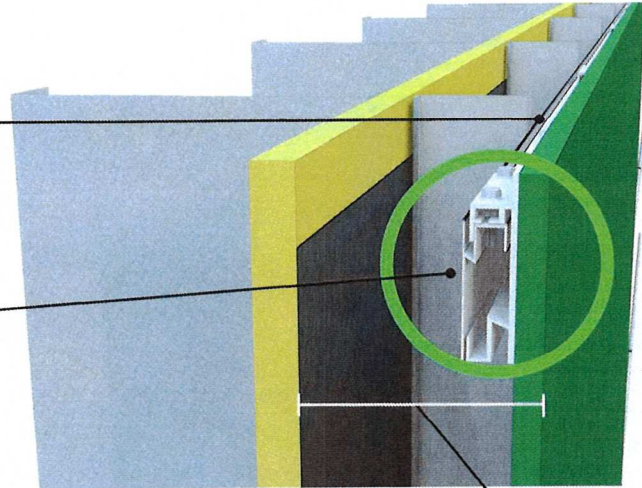
ATTACHING PANEL TO RAIL

Attach to panel using CFCAC clip.
Level the clip with the leveling screw.
Secure clip with set screw.



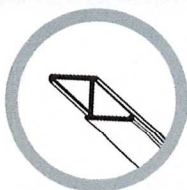
Attach CFRM to a flat wall. CFRM, horizontal guide rails must be installed with a maximum coplanar deviation of 1/4" per 20'.

Attach to panel using CFCAC clip.
Level the clip with the leveling screw.
Secure clip with set screw.



Total installed system depth: 2 3/8"
(10mm (3/8") panel)

Concealed Fastener Products



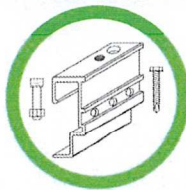
EFZB



CFRM

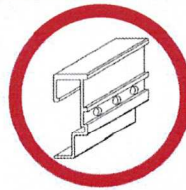


CFB01



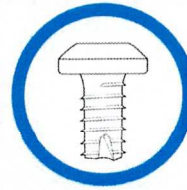
CFCAC

Requires 2 ea. CFF5



CFC5

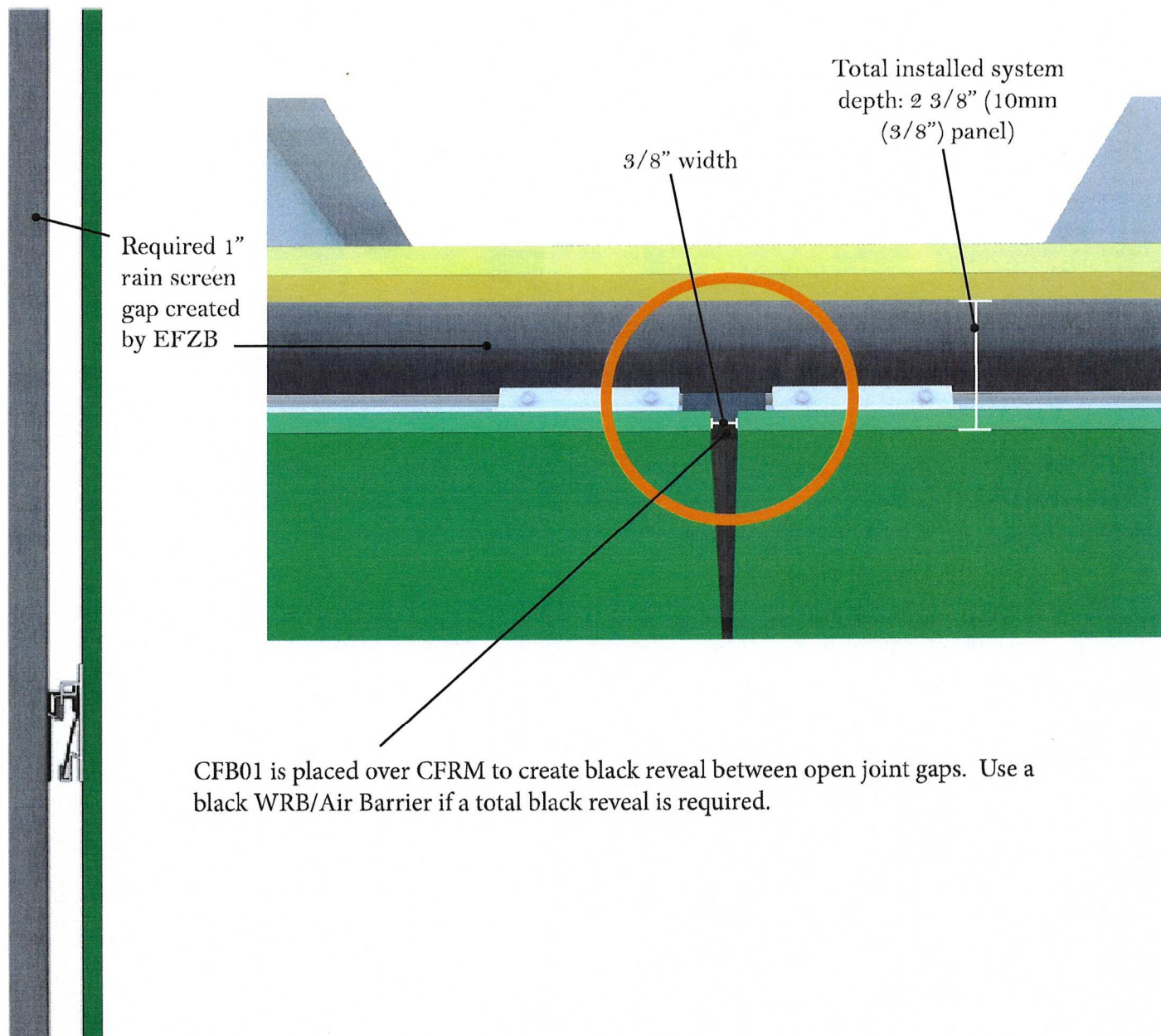
Requires 2 ea. CFF5



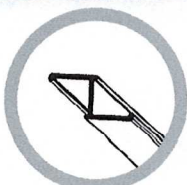
CFF5

Use 2 ea. CFF5 per CFC

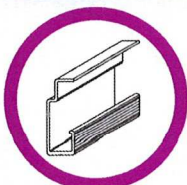
INSTALLED PANEL OVERVIEW



Concealed Fastener Products



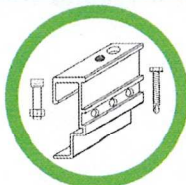
EFZB



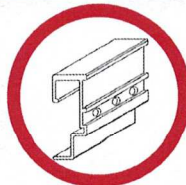
CFRM



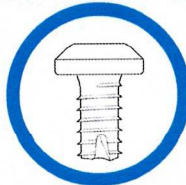
CFB01



CFCAC
Requires 2 ea. CFF5



CFCS
Requires 2 ea. CFF5



CFF5
Use 2 ea. CFF5 per CFC

CLEANING AND MAINTENANCE

General Cleaning Instructions

When cleaning Stonewood Architectural Panels, use a progressive approach starting with the gentlest cleaning method. It is best to use the least amount of cleaning agents and do not scrub to remove debris.



STONEWOOD™
ARCHITECTURAL PANELS
PROUDLY MADE IN AMERICA

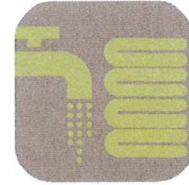
Benchmark Recommendation: It is highly recommended to always test clean a small part of the affected area, and once the effectiveness of the procedure has been verified, proceed with the rest of the surface.

Cleaning Progression Options

Option 1 – Clean surface using hot water and a clean soft cloth (not dyed). Immediately dry panels using a lint-free absorbent cloth. Always use a wet or damp cloth, do not rub the panels when dry.

Option 2 – Wash the surface with lukewarm water and dishwashing detergent. Use a clean, soft cloth, applying light pressure. Rinse with clean water.

Option 3 – Grease, oil or tar may be removed with a good grade of hexane, aliphatic naphtha or kerosene. These solvents may be obtained at a paint or hardware store and should be used in accordance with manufacturer's recommendations. Any oily film left behind by solvents should be immediately removed by washing with warm, clean water.



Repair

There is no approved method to repair panels. Damaged panels must be replaced. Contact your local representative or call Stonewood Customer Service 262-567-4427.



Do NOT use any of these products to clean Stonewood Panels:

- Window cleaning sprays (Windex®, Glass Plus® etc.)
- Kitchen scouring compounds (Comet®, Bar Keepers Friend®)
- Acetone
- Ethyl
- Acetate
- MEK (Methyl Ethyl Ketone Solvent)
- Nail polish remover
- Gasoline
- Benzene
- Carbon Tetrachloride
- Lacquer Thinner

These cleaning agents will cause permanent damage to the panel. **Do NOT** use cloths or sponges with abrasive cleaning surfaces or additives as they will damage the surface of the panels.

FIBERESIN INDUSTRIES INC.

N48W37031 E. WISCONSIN AVE, OCONOMOWOC, WI 53066-3146

PHONE: 262.567.4427 | WWW.STONEWOODPANELS.COM

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