

ATTENTION: FRP PANELS MUST BE ACCLIMATIZED FOR 24 HOURS BEFORE INSTALLATION. PLEASE READ ALL INSTRUCTIONS PRIOR TO INSTALLATION

The guidelines provided herein have been established in good faith to help prevent installation problems. MDC Interior Solutions believes all information contained herein to be correct. It is the responsibility of the fabricator/customer to completely test the adhesives and methods of fabrication to ensure that the results are satisfactory. Failure to comply with the following instructions, as well as the adhesive manufacturers' instructions, may result in significant installation problems. MDC is not responsible for any fabrication or ancillary costs involved with using MDC FRP products.

INSPECTION: Please inspect FRP panels for any imperfections prior to installing; once installed, panels may be very difficult to remove.

STORAGE AND ENVIRONMENTAL CONSIDERATIONS

Panels should be stored inside in a cool, well-ventilated, dry area on the original shipping pallet. Do not place panels on a concrete floor or any other surface that emits moisture. Panels should be laid flat, not on edge. Panels should be climatized in the area they will be installed for a minimum of 24-48 hours.

The following special conditions require additional preparation or installation techniques:

DIRECT SUNLIGHT

The panels should never be exposed to direct sunlight. Any environment where the panels may be exposed to indirect sunlight or filtered sunlight for prolonged periods should be tested prior to installation.

HIGH HUMIDITY ROOMS

Acclimate panels in the operating humidity conditions. Carefully follow the guidelines in this installation guide for expansion/contraction spacing and sealing. Failure to seal moisture entry points with silicone sealant can cause swelling of the substrate resulting in warping, curling, delamination or bond line separation. Use an adhesive that is recommended for high humidity conditions. A vapor barrier (e.g. 6 mil poly sheet) may be required.

* Follow the architect or owner's specifications or check your local building codes for specific requirements.

LOW-TEMPERATURE CONDITIONS

Acclimate panels in the operating temperature conditions. Carefully follow the guidelines in this installation guide for expansion/contraction spacing and sealing. Use an adhesive that is recommended for low-temperature conditions. A vapor barrier (e.g., 6 mil poly sheet) may be required. Follow the architect or owner's specifications or check your local building codes for specific requirements.

FOAM INSULATION

An approved thermal barrier system (e.g., gypsum board) must be used between the FRP panels and any foam insulation. Check your local building codes for specific requirements.

NEAR HEAT SOURCE

FRP panels will discolor when installing behind or near a heat source which radiates temperatures exceeding 130°F (55°C), such as cookers, ovens, and deep fryers. Stainless steel is recommended for these types of areas.

TOOLS REQUIRED

Laminate Roller • V-notched Trowel 3/16" x 1/4" x 5/16" • Circular saw with fine-tooth carbide tipped saw blade • Swivel-head 18-gauge shears • Drywall Roto-Zip® • Jigsaw • Flat edge finishing tool (putty knife or equivalent)

PANEL TRIMMING

If not using trim strips, it is recommended that the edges be properly trimmed with a router. This will mitigate showing "white lines" from the factory edges of the panel. A commercial high-speed router using a Bosch 3/8" Laminate Trim Bit with ball bearing, carbide tip, and roller tip (when appropriate) is recommended.

MATERIALS REQUIRED

FRP Panels • Adhesive - Advanced Polymer Adhesive or Fast Grab Adhesive. • Soap and water for clean-up (Latex or Polymer adhesives) • Saw horses • Plywood larger than panels • Dry, lint-free rags • Sandpaper or Paper Tiger® Wallpaper Removal Tool for roughing up wall • Tape measure • Utility knife • Six-penny nails or tool to measure spacing 1/8" • Carbide tipped laminate cutter • **IMPORTANT NOTE:** If the installation room has high humidity (65% or higher) then a portable low-cost dehumidifier unit is suggested.

ADHESIVE

For applications requiring adhesive, suggestions include (*Titebond fast grab FRP*) adhesive or (*Titebond® Advanced Polymer*) Panel Adhesive (applied with a notched trowel). *Titebond® Panel Adhesive* should be applied in a crosshatch pattern to the wall, enabling even distribution of substrate. For best results, *Titebond®* panel adhesive should be stored above 50°F.

NON-POROUS SURFACES

Non-porous surfaces (i.e., ceramic tile, glazed block, moisture-resistant substrates, and metal panels) do not provide a good surface for adhesive bonding. General-purpose latex-based, polymer or solvent-based adhesives will not dry properly on a non-porous surface. The advanced polymer is recommended in these applications. Installation over this type of surface can be accomplished with rivets or you may contact an adhesive manufacturer for additional recommendations. Due to the abrasive nature of the adhesive, it is highly recommended that those working with the adhesive wear protective safety equipment which includes, but are not limited to the following: safety glasses, gloves, and a filter mask.

ADHESIVE RECOMMENDATIONS FOR VARIOUS SUBSTRATES

**** Will have longer drying time and FRP may need to be braced****

FRP TO:	Adv Polymer	Fast Grab
Standard Unpainted Drywall	Y	Y
Painted Walls (if the paint is well anchored)	Y	N
Fire Rated Gypsum Drywall	Y	N
Fiberglass Faced, Mold Resistance and Fire code Core Drywall	Y	N
Standard Unpainted Plywood	Y	Y
Treated Plywood	Y	N
Fire-Rated Plywood	Y	N
Aluminum	Y	N
Galvanized Metal	Y	N
Cement Board	Y	Y
Cement Block (above grade or inside wall)	Y	Y
Polystyrene Foam	Y	N
Polyurethane Foam	Y	N
Foil-Faced Insulation	Y	N
Traditional Greenboard	Y	N
Moisture Resistant Cement Board	Y	N
FRP	Y	N
DensGlass	Y	N
Ceramic Tile	Y	N
Stainless Steel	Y	N
Metal	Y	N

FASTENERS

Nylon drive rivets or corrosion-resistant screws are appropriate fastener options. If fasteners will be used in the installation, panels should be pre-drilled using a drill bit that is 1/8"-1/4" larger than the fastener. During installation, holes drilled into the substrate should also be made 1/8"- 1/4" larger. This is required to allow room for expansion and contraction of the panels.

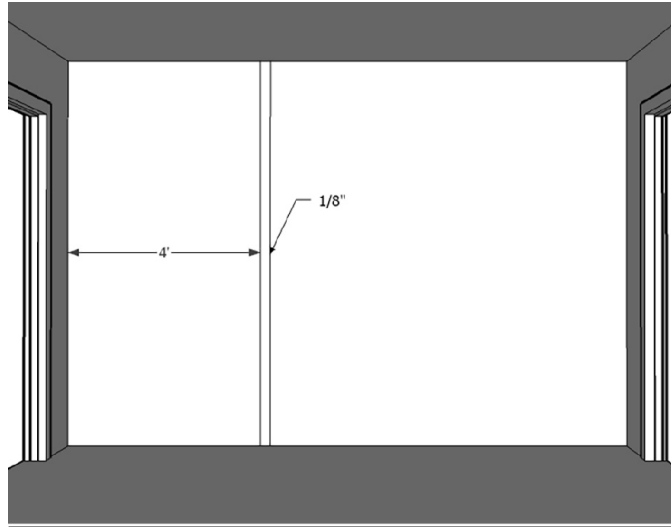
EXPANSION JOINTS

As temperature and humidity levels fluctuate, White FRP panels will expand and contract. Therefore, adequate space must be allowed around panel edges, holes drilled in panels, and around fixtures attached to the panel/wall. Please refer to the expansion joint chart below for spacing at the ceiling, floor and between panels.

EXPANSION JOINT CHART

PANEL SIZE	4 X 8	4 X 10
Gap at ceiling	1/4"	3/8"
Gap at floor	1/4"	3/8"
The gap between the panel and center of 1-piece molding	1/8"	3/16"
The gap between the panel and center of 2-piece molding	1/4"	3/8"
The gap between panel without molding	1/4"	3/8"
Gap around rivets	1/8"	3/16"
The gap between panels and wall fixtures	1/8"	1/4"

EXPANSION JOINT LAYOUT



INSTALLATION

Note: For best results, White FRP panels should be used in conditions which result in temperatures that are less than or exceed the allowable temperature ranges in the chart below.

ALLOWABLE INSTALLATION TEMPERATURE RANGES CHART

		Temperature (F)	
Material	Length	Low	High
FRP	48"	27	117
	96"	50	94

Do not use in areas exposed to temperatures exceeding 200°F for extended periods of time, or to intense or continuous direct sunlight.

STEP 1 - PLANNING AND CUTTING

- Fit each panel in advance before fastening and/or adhering in place.
- Perform all cutting and drilling prior to adhesive application.
It is recommended that the edges be properly trimmed with a router. This will mitigate showing "white lines" from the factory edges of the panel. A commercial high-speed router using a Bosch 3/8" Laminate Trim Bit with ball bearing, carbide tip, and roller tip (when appropriate) is recommended.
- Verify that the substrate surface has no bumps or uneven areas.
- Pre-drill rivet holes using a bit that is 1/8"-1/4" larger than rivet allowing for panel expansion according to the sizes in the chart on the previous page.
- Plan for cove or base molding. Base molding should be installed in such a manner as not to restrict the White FRP panel's normal movement. Cut panels 1/4" short of where the base molding will extend; poured molding should be in place prior to installation.
- Mark a plumb line 48-1/8" from the corner. In areas where several courses of panels are used, such as on a high wall, use vertical and horizontal lines to assure alignment.
- When using rivets, pre-drill holes in the panels using a drill bit that is 1/4" larger than the rivet.

- When using mechanical fasteners through FRP to attach wall angles or other fixtures, pre-drill holes using a drill bit that is 1/4" larger than the mechanical fastener. Without oversizing the holes, the FRP will likely have bulges and/or buckles when panel movement occurs during expansion and contraction.

Plan so that fasteners will not interfere with moldings or other wall fixtures.

FABRICATION WARNING: POSITION PANEL FACE DOWN DURING FABRICATION

When cutting with a circular saw, position the panel so that the saw blade enters the back-side panel first to avoid chipping or damage. Radius Corners of Cut-Outs: The inside corners of all cut-outs must have a radius of at least 1/8" (3.2 mm). Failure to radius corners may result in stress cracking. For pilot holes, a 1/4" (6.36 mm) diameter router bit or drill bit may be used, use a jigsaw to complete the radius cut out. Allow 1/8" (3.2 mm) clearance around all fixtures, electric boxes, piping, etc. Due to the nature of the FRP and manufacturing variables, it is important to remember that the printed FRP has a tolerance of +/-1/8 inch when fabricated by MDC Interior Solutions.

STEP 2 - INSTALLATION

- Install one piece of corner molding and apply silicone sealant in the molding groove.
- If using rivets, drill holes into the substrate through the pre-drilled holes in the panel.
- If using *Titebond® Advanced Polymer Panel Adhesive*, or *Fast Grab FRP Adhesive*, apply adhesive to panel using adhesive manufacturer's recommended notched trowel to ensure good adhesion.
- Set first panel true to the plumb line.
- If using adhesive, firmly roll over the panel using a laminate roller, starting at the top corner nearest the molding rolling down and away toward the opposite edge, eliminating air pockets.
- If using fasteners, install fasteners as each panel is put into place and before the next division bar or molding strip is applied. Begin fastening at top edge and work towards the opposite end. Apply silicone sealant prior to inserting rivets or fasteners. Install fasteners one row at a time.
- Install one-piece division bar and caps or next molding piece by laying down a bead of silicone in molding groove and sliding completely onto the panel. Withdraw the molding or division bar 1/8" to provide proper spacing. The free edge of the molding or division bar may be tacked in place, if preferred, before installing the next panel.
- If using *Titebond® Advanced Polymer Panel Adhesive* and fasteners are not used, a few nails may be placed at the top (above the ceiling grid line) to help hold panels in place while the adhesive cures. Once cured, the nails must be removed, as they do not allow for normal panel expansion and contraction.
- Repeat the process, working in one direction around the room.

STEP 3 - COMPLETING PANEL INSTALLATION

MOLDINGS - When using moldings, panels and molding are installed in sequenced.

COLOR COORDINATING CAULK AND SEAM SEALANT - When using caulk and sealant, all panels are installed prior to the seam treatment. Before caulk and sealant can be applied, installed panels need to adhere for a minimum of 6 hours, but 24 hours is recommended when the room temperature is at 72°F and 45%-50% humidity.

- Use a laminate roller to ensure all air pockets are removed between the panel and the wall and to ensure a good bond between the panel and the wall. Start in the top corner of the panel way from the leading edge. Begin rolling down and out towards the panel edge without a molding.
- The adhesive residue may make panels appear stained and will collect dirt. Remove any adhesive residue upon completion of the job. To remove latex-based adhesive, clean with a non-abrasive cotton cloth and warm water. If necessary, use a mild, non-abrasive detergent. For best results, change the water and cleaning rags frequently. For clean-up with solvent-based adhesives, use mineral spirits or acetone to remove residue.
- NOTE: SOLVENT-BASED OR ABRASIVE CLEANERS SHOULD NOT BE USED ON PANELS
- Be sure to apply silicone sealant in all molding and around all panel edges, fasteners, and fixtures to prevent moisture from penetrating behind panels.
- Remove any residue left by adhesive as recommended by the manufacturer.
- Clean panels thoroughly prior to leaving the job site. Depending on your seam treatment selection, panels are either installed in sequence with the seam treatment or panels are installed independently. Before starting, determine which seal treatment is being used.

CONDITIONS & WARRANTY

MDC Interior Solutions believes all information contained herein to be correct. It is the responsibility of the fabricator/customer to completely test the adhesives and methods of fabrication to ensure that the results are satisfactory. MDC is not responsible for any fabrication or ancillary costs involved with using MDC FRP products.

All shipments are to be inspected within 10 working days after delivery. We are to be informed in writing of any potential adjustment necessary. The seller's only obligation will be to replace defective sheets on a one to one basis. Neither the manufacturer nor the seller shall be liable for any additional damage or loss, directly or indirectly, arising as a result of using MDC FRP products. Slight imperfections and color variations from sheet to sheet are possible and considered normal.

Please inspect each sheet carefully before fabrication to ensure it meets your needs. Contact MDC Customer Care at 847-437-4000 should you require additional assistance.

