HYGIBREAK

HYGIENIC WALL AND CEILING CLADDING SYSTEM

INSTALLATION MANUAL VERSION 1.40

THERMOBREAK® Thermal & Acoustic Insulation

PHYSICALLY CROSSLINKED SEKISUI TECHNOLOGY

CRANE® Composites

GLASBORD® SURFASEAL®

Installation Manual

Version 1.40

HYGIBREAK

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2 General Information

2.1 Disclaimer

PLEASE READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION

This document covers installation instructions for the Hygibreak product range in various applications. Hygibreak products are very easy to install. However, since they are based on self adhesive backing, they require different installation techniques to those in standard FRP installations. It is important to note the following:

1. Review the Engineer's specifications in conjunction with this document.
2. Read all relevant sections to the particular Hygibreak product being installed and/or the application.
3. Should there be any doubt on how to install Hygibreak it is advisable to contact your Hygibreak Sales representative who will advise as to the best method of installation.

These guidelines are provided in good faith to help prevent installation problems caused by common errors. The manufacturer and/or distributor of the product bears no responsibility for installation actions taken or not taken. There are many nuances of installation that are assumed to be general construction knowledge to an experienced installer; such nuances are not included in these instructions. Rather, these installation guidelines are strictly recommendations and are not intended to serve as a step-by-step, foolproof installation checklist. Selection of an experienced FRP installer is the sole responsibility of the project owner and architect.

2.2 Factory Mutual Approval

Fire-X Glasbord (FXE and FSFM) is the only fiberglass reinforced interior wall and ceiling panel that is accepted under Factory Mutual Research approved FRP, Plastic Interior Finish Materials when installed in accordance with Factory Mutual Research Approval Standard 4880. This information is available at www.approvalguide.com and www.FRP.com/FMApproved.pdf. NOTE: Please contact your local FM Global Representative to provide a field exemption of alternative methods of installation.

2.3 Safety Information

WHEN CUTTING OR DRILLING, ALWAYS WEAR PROTECTIVE GLASSES OR GOGGLES AND A FACE MASK WHICH COVERS THE FACE AND MOUTH. Itching due to glass fibers may be avoided by the use of barrier creams on exposed skin areas. Hearing protection is also recommended when using power tools.

2.4 Supplies and equipment

Standard tools needed:

- Laminate roller
- Circular saw with fine tooth carbide tipped saw blade
- Swivel-head 18 gauge shears
- Jig-Saw
- Flat edge finishing tool (putty knife or equivalent)
- Hole saw
- Saw horses + plywood / flat working surface
- Tape measure
- Utility knife
- Carbide tipped laminate cutter
- IMPORTANT NOTE: If installation room has high humidity (65% or higher) then a portable low-cost dehumidifier unit is suggested.
- Dry lint free rags
- Soap and water

Materials needed:

- Hygibreak FRP composite panels
- Moldings and profiles
- Sealant (if specified)
- Stainless steel screws
- Painters tape
- Backing rod (if applicable only)

2.5 Storage

- Panels and accessories should be stored indoors on a solid, flat, dry surface other than the floor.
- Do not stack on concrete floor or any other surface that emits moisture. Lay panels flat with proper support on the ends of panels.
- Do not stand panels on edge.
- All FRP panels must be stored inside. The ideal conditions to store panels are 16°C to 24°C and 35% to 55% relative humidity.
- Careless unloading like dropping or throwing from a truck can result in edge damage or damage to the outer layers.
- Do not expose to any source of flame, ignition, or intense heat

2.6 Environmental considerations

2.6.1 Direct sunlight

Prolonged Direct Sunlight on panels may cause abnormal fading and/or rapid expansion depending upon amount of heat buildup. Use caution in these areas.

2.6.2 High humidity rooms

Acclimate panels in the operating humidity conditions. Carefully follow the guidelines in this installation guide for expansion/contraction spacing and sealing. (see Expansion Joint Chart 4.7.1). Failure to seal moisture entry points with silicone sealant can cause swelling of the substrate resulting in warping, curling, delamination or bond line separation. *Follow the architect or owner's specifications or check your local building codes for specific requirements.

2.6.3 Low temperature conditions

Acclimate panels in the operating temperature conditions. Carefully follow the guidelines in this installation guide for expansion/contraction spacing and sealing (see Expansion Joint Chart 4.7.1). 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.

2.6.4 Near Heat Source

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

3 Installation Preparation

3.1 General instructions

- Review Installation requirements of Engineer's specifications.
- Check that the insulation complies with the local building codes.
- Where applicable, check that the insulation is of sufficient thickness to prevent surface condensation
- Ensure that the substrate surface is clean, dry and at ambient temperature prior to installation. This involves removing dust, rust, grease, oil, scale, flaking paint and the like from the surface.

- To clean the substrate surface, first wipe down with a clean cloth to remove excess dust. Then remove grease and oil using a suitable cleaning agent. Wipe surface clean and allow cleaning agent to evaporate.
- Work in a clean, dry area and avoid dusty places

3.2 Pre conditioning

Before beginning the installation, the installer must determine that the environment of the job site meets or exceeds all requirements specified in the installation guide. Prior to installing, remove the packaging and allow the panels to acclimate to the room temperature and humidity for 24 hours. The ideal conditions should be 16°C to 24°C and relative humidity is 35% to 55%. Ideally, both the room temperature and humidity during acclimation and installation should be the same as the final operating conditions.

3.3 Installation conditions

Installation should not begin until building is enclosed (windows and doors are installed), permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete, or terrazzo work has dissipated. The ideal conditions to install panels are 16°C to 24°C and 35% to 55% relative humidity.

3.4 Wall Preparation

Every attempt is made to inspect panels for cosmetic and physical abnormalities prior to shipment, however, all panels should be inspected for any defects prior to installation. The installer assumes all responsibility for full inspection of product before installation. If panels are not acceptable, contact your Customer Service Representative (CSR) immediately. Do not install panels of unacceptable or questionable quality. Hygibreak will not be responsible for installation or removal costs of unacceptable panels. Walls should be flat and even. Remove high spots and fill in low spots prior to beginning installation. Remove any foreign matter that may interfere with the adhesive bond. The wall substrate must be dry and free from dirt, dust, and grease. Installation over uneven surfaces will result in little or no adhesion to the wall substrate, therefore bubbling due to air pockets will form behind the panel.

3.4.1 New Gypsum board or drywall

New gypsum doesn't need to be painted or primed. Tapered joints need only a fill and taped coating using a setting joint compound. A finish coat is not necessary or desirable. Any extremely uneven areas should be filled. Remove all drywall dust.

3.4.2 Plywood

Plywood walls must be flat and even, and warped plywood should be removed and replaced.

3.4.3 Concrete bock and brick

Concrete block and brick wall surfaces are by nature uneven, and FRP panels installed directly to these surfaces will likely develop loose spots, bulges and buckles. An alternate method is to install gypsum board, cement board or another appropriate substrate over the furring and then install FRP panels according to the standard installation instruction.

3.5 Substrates adhesion guide

Hygibreak Substrate	Can be used
Standard unpainted drywall	YES
Painted walls (if paint is well anchored)	YES
Fiberglass faced, and/ or mold /moisture resistant faced drywall Standard unpainted plywood	YES
Treated plywood	YES
Fire treated plywood	YES
FRP Ceramic tile	YES
Stainless steel	YES
Aluminium	YES
Galvanized metal	YES
Cement board	YES
Cement board above grade or inside wall	YES
Polystyrene foam	YES
Polyurethane foam	YES
Foil faced insulation	YES

** For panels greater than 3.05m, screws should be used for all surfaces.

4 Installation guide

4.1 Pre installation planning

- Pre-fit each panel before fastening and/or adhering in place.
- All cutting and drilling should be done prior to the application of panel.
- Preplan for cove or base molding. FRP panels should be installed so that the base molding will not restrict normal panel movement during expansion and contraction. Cut panels 6.5mm short of where the base molding will extend; poured acrylic floor with built-in base cove should be in place prior to installation.
- When using screws in the FRP, pre-drill holes in the panels using a drill bit that is larger than the fixing (see Fastener predrilling guide below)
- When using mechanical fasteners through FRP to attach wall angles or other fixtures, pre-drill holes using a drill bit that is larger than the mechanical fastener. Without over-sizing the holes, the FRP will likely have bulges and/or buckles when panel movement occurs during expansion and contraction.

4.2 Basic Hygibreak installation steps

1. Trim panel to fit. Oversize pilot holes if drop-in ceiling wall angle is attached to and through FRP (please allow for proper expansion and contraction)
2. Radius corners of any cut out fixture openings.
3. Determine the spacing of the molding (while leaving a minimum of 6.5mm for expansion/ contraction) and install the base pieces of the moldings with screws.
4. Once panel is aligned, working from the top down, partially remove adhesive backing and initially stick onto the surface, ensuring all air is expelled.
5. Slowly continue to peel off adhesive backing, ensuring it is removed evenly and any braking of the craft paper is removed from the adhesive back. Continue to stick onto the wall surface
6. Using a laminate roller, remove air pockets by rolling down and out toward the panel edge without a molding.
7. Place panel on wall, leaving appropriate room at panel joints and corners for expansion and contraction.
8. Install next panel. The nature of FRP panels is to expand and contract. Without leaving required room for expansion and contraction, FRP panels can develop buckles and/or bulges because panel movement will occur.
9. Once all panels are installed, apply sealant to the base layers of the moldings if required.
10. Close capping of moldings.

4.3 Cutting instructions

POSITION PANEL FACE DOWN ON A COVERED WORK AREA When cutting with a circular saw, position the panel so that the saw blade enters the back side of panel first to avoid chipping or damage (CUT WITH THE FOAM SIDE UPWARDS).

4.4 Specific adhesive instructions

The adhesive used relies on pressure to properly bond to the surface. Once fixed, adhesive should be padded firmly to ensure contact with the surface. The adhesive can be re-positioned for better alignment, provided no pressure is applied and it is done immediately. However, once the adhesive cures, it will be impossible to re-position or peel off the surface.Full curing of the adhesive onto the substrate typically takes about 24 hours, depending on ambient temperature.

Peel off only a small section to start off with . Align piece and gently apply to the wall. Pad firmly once alignment is correct. Ensure air is expelled. Do not try to stick the entire sheet in one attempt as this will lead to trapped air pockets. Thermobreak is a closed cell material and will not allow trapped air to escape.

4.5 Radius corners of cut outs

The inside corners of all cut-outs must have a radius of at least 3.2mm. Failure to radius corners may result in stress cracking. For pilot holes, a 6.5 mm diameter router bit or drill bit may be used, use a jig saw to complete the radius cut out. Allow 3.2 mm clearance around all fixtures, electric boxes, piping, etc.

4.6 Embossed panel installation direction

Embossed (pebbled) panels should be installed in a uniform orientation, with direction of pebbling to be vertical. Installers should avoid alternating the orientation, to ensure compliance with HACCP certification.

4.7 Spacing

All FRP panels have expansion characteristics due to changes in humidity and temperature that must be accounted for during installation with proper spacing around panel edges and around fixtures attached to the panel/wall. Adequate space must be allowed for panel expansion and contraction. For FRP panels, a minimum gap of 6.5mm is required at the top and bottom of each panel. Between the panels should have a minimum of 3.2mm, but it is recommended to have 6.5mm. It is recommended that panels do not exceed 3.6m in length to aid in ease of installation and ensure a satisfactory finished installation. See the FRP panel Expansion Joint Chart for appropriate spacing at ceiling, floor and between panels. When a

moisture resistant installation is required, silicone sealant should be applied in all moldings around all panel edges, fastener, and fixtures.

4.7.1 Expansion Joint Chart

Gap location	Recommended gap	Minimum gap
Gap at ceiling	6.5mm	6.5mm
Gap at floor	6.5mm	6.5mm
Gap between panel and center molding	6.5mm	3.2mm
Gap between panel when not using moldings	6.5mm	3.2mm
Gap around fasteners/ rivets	3.2mm	3.2mm

4.8 Molding installation

1. Start in an inside corner. Mark plumb line 1.2 m from corner. The first panel should be set true with a plumb line.
2. Install the base of the division bar at this marked location and secure with screws.
3. Install the panel on the wall following above basic installation guidelines
4. Repeat the steps with panels and division bar base pieces until walls are completed
5. Once surfaces are installed and correct adherence is achieved (rolled with laminate rollers, no bulges etc) install the top coving, bottom coving, outside corners and end cap pieces, which are all 2 piece installations, install only the base pieces and ensure correct expansion gaps are left.
6. Once all base pieces are installed, apply the Hygibreak silicone if required on all moldings and trimmed edges ensuring that surfaces are cleaned from any dust and grease and close off the capping pieces.

4.9 Fasteners

Nylon drive rivets, or corrosion resistant screws are appropriate fastener options. If rivets or fasteners are used, panels should be predrilled using a drill bit that follows the below table for reference. During installation, holes only slightly larger than the fastener should be drilled into the substrate through the pre-drilled holes in the panel and prior to any application. Apply silicone sealant prior to inserting rivets or fasteners.

4.9.1 Fastener predrilling guide

Screw size	Predrilled Diameter
M3.9	5mm

4.9.2 Fastener spacing

Application	Spacing minimum between fasteners
Wall covering (panel height up to 3m)	Not required, but recommended every 1.0, with screws on the top and bottom edge, on both sides of panel.
Wall covering (panel height 3m+)	Every 0.75m, with screws on the top and bottom edge, on both sides of panel.
Ceiling application (direct to ceiling application)	Every 0.5m, with screws on the top and bottom edge, on both sides of panel.

The fastening system should be suited to the structure of the wall/under-slab. Mechanical fixing methods include: Pre-drilling of holes into concrete, followed by inserting of pins/washers through Hygribreak into hole, then tapping the pin into place. Gluing of anchor pins onto concrete prior to applying of Hygibeak, then fastening washers into place. Follow instructions provided by the mechanical fixing system supplier.

4.10 Silicone installation guide

Disclaimer: Silicone must remain workable during the entire process of application of sealant. This is dependent on temperature and humidity and specific sealant instructions must be followed as recommended by the manufacturer.

If silicone seam treatment is to be used, the following must be ensured:

1. Once panels are applied, all seams must be cleaned and free of any dust, grease and debris.
2. Painters tape must be applied on each side of the joint.
3. When dispensing silicone, the joints must be completely filled.
4. Always begin by installing silicone on the inside corner of the joint first.
5. Vertical seams should be completed first followed by the horizontal seams.
6. Once installed, run a wet finger on the silicone to bead.
7. Ensure all screws and fasteners are also covered in silicone.

4.10.1 Applying silicone to inside corners

- The Inline Seam Finisher can also be used if a flat inside corner bead is desired.
- Finishing/smoothing tools and techniques to be at the discretion of the operator and/or the end user.
- Smoothing of the sealant must occur within the open time of the sealant
- As soon as the smoothing of the sealant is complete, remove the painters tape. Any excess sealant on panels can be cleaned using a solvent dampened rag.

4.10.2 Applying around doors, window frames and other special applications

- Repeat the processes listed above
- these seams typically have a larger gap, they may not be able to be filled by the sealant in one pass. In that situation, an initial "filler bead" can be applied and then a secondary bead can be applied over the top of the initial bead after initial bead has reached full cure.
- A mechanical filler, such as weather-strip putty, filler board etc. may also be used to fill large gaps prior to the application.
- IMPORTANT NOTE: A larger mass of sealant, which is likely present in these types of seams, will lower the available open time during which the material can be successfully smoothed.

4.11 Ceiling Panels

There are 2 types of installation of ceilings with Hygibreak panels, these are:

1. Direct fix onto existing ceiling surface (as per above substrates in substrate adhesion guide)
2. Use of suspension system

For the direct fix, please follow the fastener spacing and installation guidelines as above.

For the use of the suspension system, please follow the required guide by the supplier of the suspension system, as the Hygibreak tiles will be dropped into place once installed.

Some general points are below:

- Lift panel at angle up through the grid, drop into place.
- If there's an obstruction in the area where you are inserting a ceiling tile, you may need to lift the ceiling tile through an adjacent opening and gently move it across the back of the grid into place.
- Trim border panels using same cutting details as outlined In this guide.

4.11.1 "Tegular" or "Recessed Grid" ceiling border panels

Due to the nature of the backing, the ceiling panels cannot be cut to be used as a Tegular/ Recessed ceiling Grid.