Installation Guide

Fastening Systems and Panels

CEMFORT
Fiber concrete facade panels

CEMFORT

In 1992, Canada's Department of Energy, Mines and Resources launched a competition to design a high-performance building that would serve as a model for builders in the future. CEMFORT, a Canadian company, together with a multidisciplinary team of scientists and builders, won the prize and constructed NOVTEC, located in Laval. This building incorporates CEMFORT HD concrete panels—products manufactured in North America for North American climates.

cemforthd.com
t: 450-373-0455
f: 450-377-0440
info@cemforthd.com

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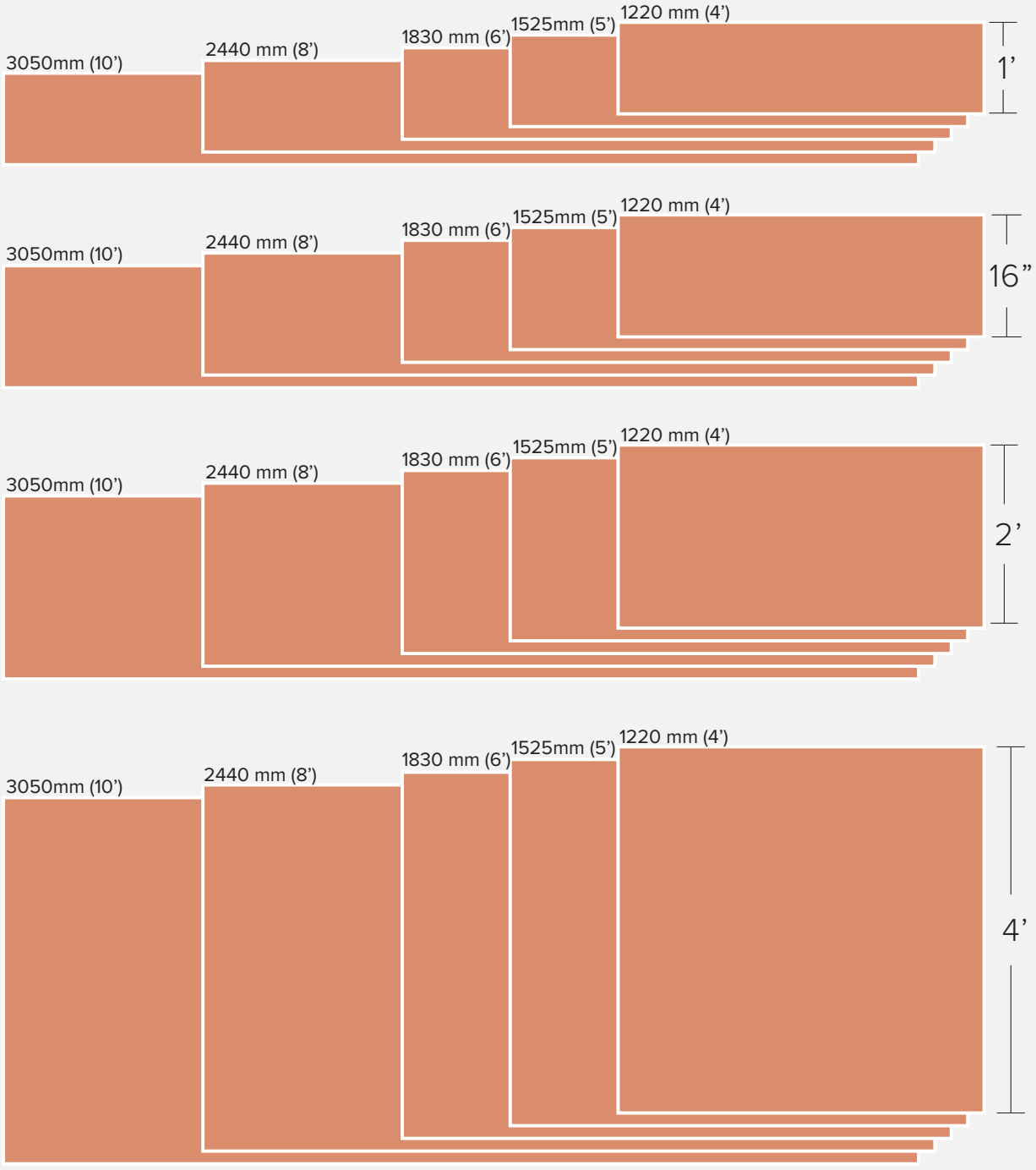
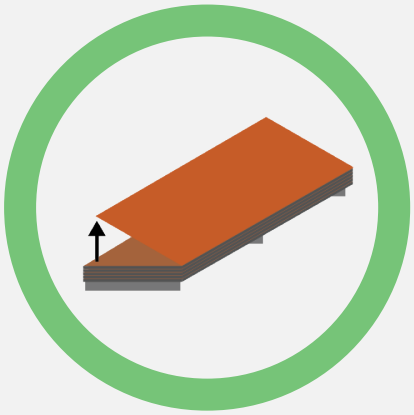
DIMENSIONS

STANDARD SERIES (PANELS)

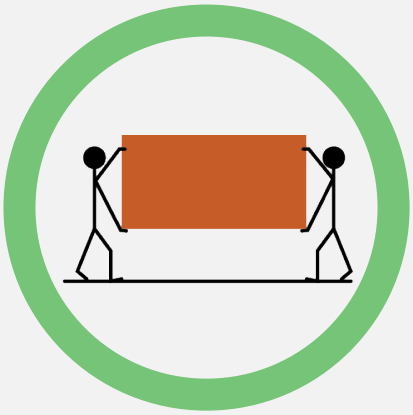


Note: Custom dimensions available upon request, with supplement.

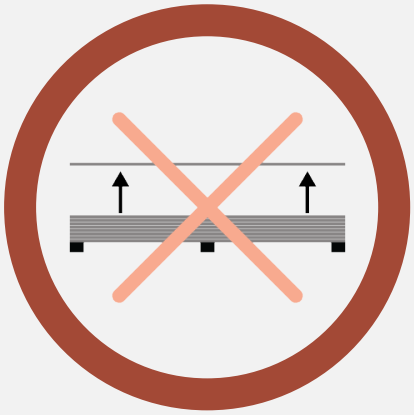
HANDLING

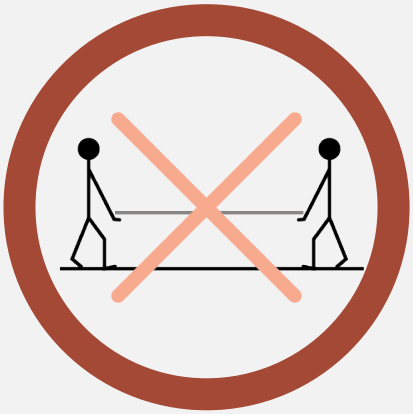


Remove the panels of their delivery pallet by lifting one side at a time.



Always move the panels in vertical position.





Note: For handling of large panels, we recommend using glass carriers.

MARCHANDISE VERIFICATION

IMPORTANT: Upon arrival of merchandise on site, shipment should be carefully inspected. In case of breakage or irregularity please notify CEMFORT immediately. Any damaged materials should not be used. Any product with an anomaly/defect which has been installed will be declared “accepted as is” by the client.

SECURITY

- It is strongly recommended to wear gloves when handling panels and wear a mask and safety glasses when cutting and drilling panels.
- If irritation occurs, we recommend rinsing the affected area with cool water.
- If discomfort or irritation persists, consult a doctor immediately.

STORAGE

- Merchandise must be stored in an enclosed area, away from water/snow, excessive moisture or anything else that could damage your order.
- If an enclosed area for storage is not possible, make sure to have and apply a protective tarp on the materials pallets to avoid any water/snow accumulation/infiltration into the pallets. This tarp needs to allow for ventilation to avoid any excessive moisture. Humidity/water accumulation may result in damaging the surface of the panels. Exterior storage should not be longer than 3 months.
- Panels shall be placed flat on a surface free of protrusions. Pallets having only full-size panels (4’ x 8’ and 4’ x 10’) on them can be stacked two high. If your order includes custom fabricated panels, the pallets cannot be stacked.
- Be sure to keep the colored enamel and sealer provided for touch-ups at room temperature (minimum of 8°C (45°F) and up to 40°C (105°F)).
- At each end of a workday, cover the products with their original tarp to prevent any water/snow/dirt infiltrating the pallet and potentially damaging the products.

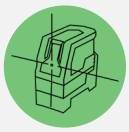
Note: Do not cover directly enameled surface of a wood product. Acids could alter the enamel.

TOOL OPTIONS FOR ON-SITE CUTTING AND INSTALLATION

This includes cutting panel edges around windows, pipes, electrical outlets, unanticipated adjustments, etc.

- **High –speed circular saw** (min 4000 revolutions per/minute) with finishing blade (60 teeth minimum) carbide or titanium tipped.

- **Router** with titanium or carbide-tipped blade.



- **Laser**

- **Jigsaw** with titanium or carbide-tipped blade.

- **Sawing plate** with titanium or carbide blade.

Note: Be sure to use titanium or carbide blades and drill bits to make precise cuts and use a guide to ensure straight and rectilinear cut.

PROVIDED TOOLS & ACCESSORIES

The following table summarizes the tools and accessories supplied with respect to the selected installation method.

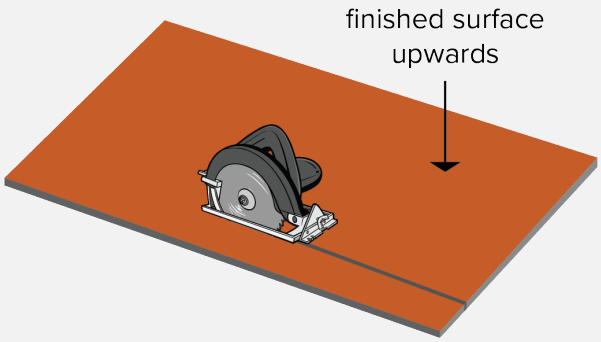
Tools & Accessories	CEM-TRIM	CEM-SCREW	CEM-LAP	CEM-CORE
Drilling template		Predrilling bit 2 mm Corners: 65 mm (2-1/2") from top and 38 mm (1-1/2" from side		Depth locator bit
Drill bit	Drill bit included for predrilling of aluminium accessories	Titanium or carbide drill bit : 8.3 mm (21/64") for predrilling		Drilling bit for panels included
Back strips and moldings for ventilation	Back strips not applicable, Cem-Trim Design: see p.13 Ventilation grill included	Back strip galvanized steel satin 24 gauges, enameled, length 3050mm (10')	24 gauge vertical flat back strip, 6'' wide by 12'' long.	Aluminium horizontal rails 10'. Lock & Static brackets. Ventilation grill included
Interface ribbon		Interface ribbon 25 mm (1") length and 6 mm (¼") thick, self-adhesive in rolls of 9.1m (30')		
Adhesive	(for 1220 series)			
Screws	1'' metal or wood screw	1-1/2'' metal or wood screw		9mm Cem-Core anchors for back of panel
Sanding block (chamfer)	Sanding block and fine sanding paper			
Enamel	Enamel for touch-ups			

Option: Special flashings, bents, etc., custom bending and enameled color-match to panel color, available at CEMFORT Panels Inc.
For INFO: (450) 373-0455 or info@cemforthd.com

PANEL CUTTING

Panels are precut by CEMFORT. For additional on-site cutting:

- Panels need to be cut in an area protected from weather and rain.
- Place a sheet of plywood between the saw and the panel to prevent damages to the enameled surface;
- Guide the panel in order to have the finished surface up and protect it from slipping tools or other material;
- Have a continuous guide to ensure a straight edge;
- Use a finishing blade (60 teeth minimum-8”diameter) with carbide or titanium tip;
- Using enamel supplied by the manufacturer, paint the new edge carefully (see reference to on-site enamel touch-ups)
- Dust resulting from panel cutting must be cleaned immediately from the panel’s surface. Dust can be removed with a vacuum or dry and clean cloth.



ON-SITE ENAMEL TOUCH-UPS

Note: ambient and substrate temperature must be higher than 5C°/40°F during application and 3 hours after.

To make enamel touch-ups on-site, you must follow these steps:

STEP 1: SURFACE PREPARATION

- Using the grade #80 sandpaper included in your order, slightly bevel all corners to eliminate sharp edges;
- Using a clean and slightly humid cloth, carefully clean the freshly cut area.

STEP 2: MIXING AND ENAMEL APPLICATION FOR ALL ON-SITE CUTS

- Using a stick, mix the content of the colored enamel supplied with the CEMFORT panels on delivery;
- Using a foam roller or a soft sponge, apply without pressure enamel on the edge of the cut or on flaking, taking care to avoid spillage on the surface already colored. In that event, immediately wipe any spills with a clean cloth;
- Allow 30 minutes to dry;
- Apply the second coat within a maximum delay of 1 hour and let dry 30 minutes before handling the panels. Same operations are applicable for water repellent touch-ups.
- Warning: Outside corners. Apply on site enamel on the apparent back outer corners.

Always follow directions on the paint can. The touch-up enamel is meant only for the panels edges, never apply on surface. If any corrections are needed on the panel’s surface, please connect with your Cemfort representative for additional instructions.

STEP 3: CLEANING

Note: It is important during the pre-drilling and on site cutting to immediately remove any dust to avoid damaging the surface. Dust from cutting and predrilling left on the surface may solidify with rain/humidity and stain it permanently.

For cleaning, use a sponge and a nonabrasive household detergent diluted in water, rinse thoroughly with clean water. Soft bristle brush may be used. Do not use any solvent based or acid product. After installing the siding, make sure the panels are free of dust. Pressure washing can be carried out within a maximum pressure of 100 pounds, using a cleaning nozzle with a wide jet. A minimum distance of 1m (3') of the panels should be kept at all time.

VENTILATED FACADES

Do not apply Cemfort panels directly to studs or structural timber. Ensure adequate and continuous ventilation of the rear wall cavity to comply with the National Building Code standards in effect and the principle and standards of the ventilated rain screen assembly. A ventilation gap of 25mm (1'') needs to be considered at the bottom of the wall, top of the wall and at the top of wall openings.

Width of the rear wall cavity behind the panels:

Wall facades less than 20' in height = 18mm (3/4'')

Wall facades 20' and over in height = 30mm (1-1/4'')

WALL ASSEMBLY PREPARATION

- Construct the wall system as stated in the drawings and according to the composition described in the wall description tables. The cladding steel framing shall be aligned with each other with a maximum deviation of 3mm (1/8'') on 2440mm (8 ft).

- For ceilings or soffits, make sure the dead weight (including the weight of the panel, etc) does not exceed 48 kg/m^2 (10lb/sq.ft) and the ventilation is sufficient, thus avoiding condensation at the back of the panels. The thickness of the panels should be 10 mm or 12 mm (3/8'', 1/2''). The furring should have a maximum space of 400 mm (16 inches).

- For wall application, do not assemble the panels directly on the wall studs. Install the steel furring (hat channel) vertically. Make sure the ventilation is adequate in the wall cavity. The vertical hat channel furring must be spaced at a maximum of 400 mm (16''). They should be aligned with each other with a maximum deviation of 3mm (1/8 in) on 2440mm (8'). The furring and cladding should be discontinued at the building construction joint. The vertical omega furring should be of 75 mm (3'') length towards the vertical architectural lines (joints between panels). The maximum deflection of the building including the frame should be within L/360. The contractor should have the architect's approval of the support before having the CEMFORT panels installed.

- Metal of wood furring are acceptable for the installation of the Cemfort cladding system. Make sure at all times that the flatness of the supports is constant. Refer to the specified installation system section for further details.

- Ground Clearance: To avoid any damage to the panels, it is advised to keep a minimum distance of 150mm (6'') between the bottom of the panel and ground.

SYSTEM:

CEM-TRIM

PRESSURE MOLDINGS MOUNT

PREPARATION

Vertical metal furring (20g Caliber Minimum)

Furrings (« Z » bars or « hat channels ») must be spaced at a maximum of 400mm (16”) for walls, ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor level. Furring should match the architectural vertical joints in addition to meeting the maximum spacing mentioned above and must be 75mm (3”) wide « hat channel » type at panel joints and intermediary supports should be 30mm (1-1/4’) wide. At the exterior and interior corners of the cladding, install an appropriate folded support of 75mm X 75mm (3” x 3’’) caliber 20, on the back of the panel to provide support and help get a straight angle.

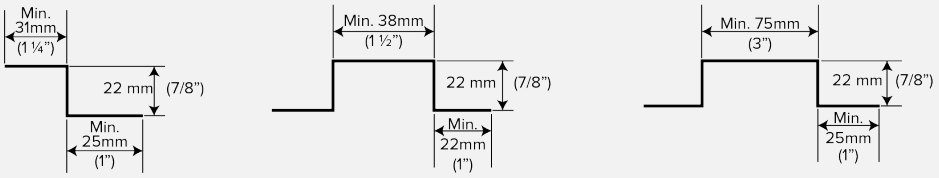
Vertical wood furring (SPF)

Wood furring must be spaced at a maximum of 400mm (16’’) for walls, ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor level. Furring should match the architectural vertical joints in addition to meeting the maximum spacing mentioned above and must be 75mm (3”) wide. Wood furring must be covered with an EPDM membrane or equivalent to avoid direct contact between the wood and concrete and to avoid long term wood degradation. If a panel adhesive is used (see p. 14), do not apply the EPDM membrane on the intermediary supports. At the exterior and interior corners of the cladding, install an appropriate support of 75mm X 75mm (3” x 3’’) on the back of the panel to provide support and help get a straight angle.

Ceilings and soffits

For ceilings and soffits, make sure there is sufficient ventilation to avoid condensation on the rear of the panel. The furring should be spaced at 400mm (16”) maximum. For all the junction details, see the architectural plans.

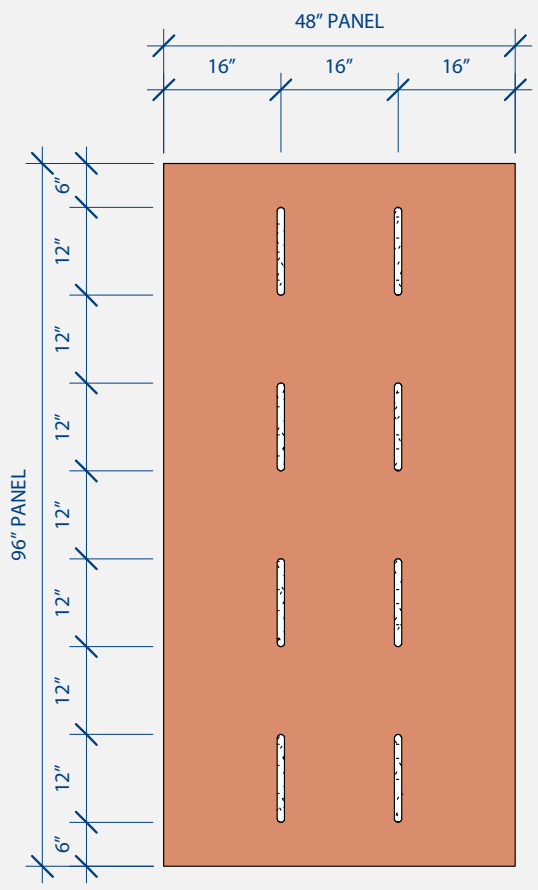
Ensure the flatness of the supports.



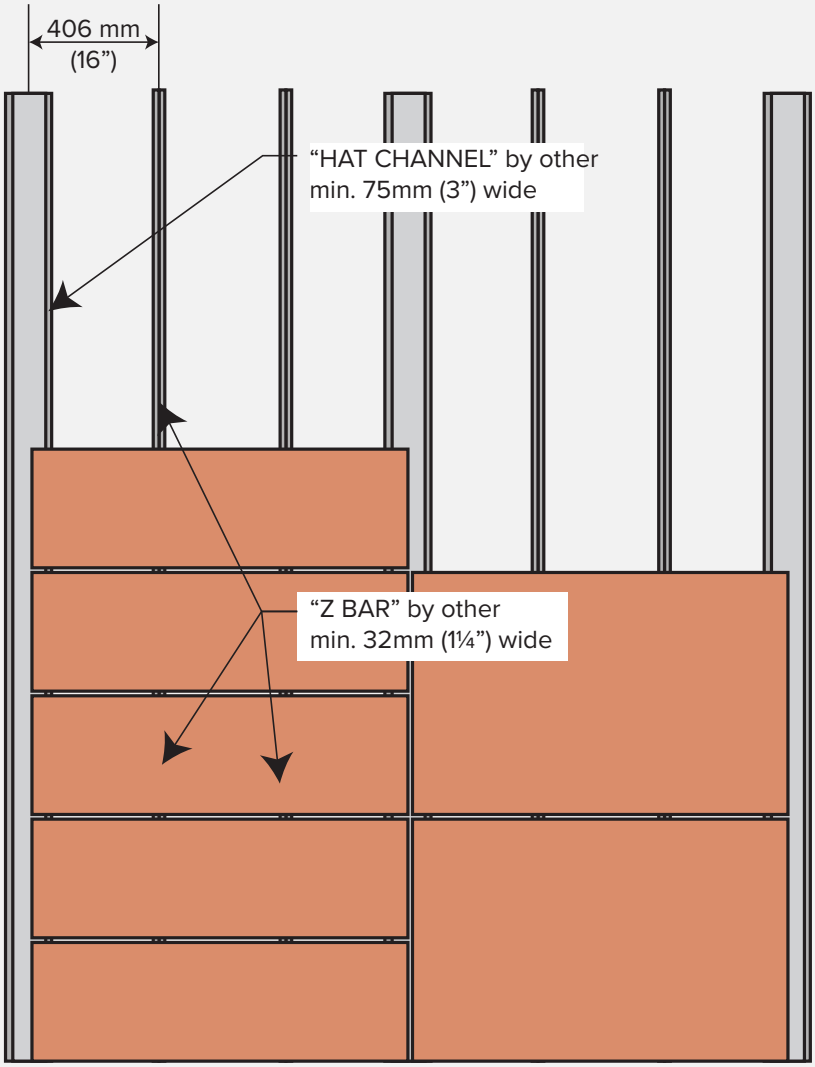
INTERMEDIATE

VERTICAL PERIMETER

Minimum suggested dimension



Glue application



PROCEDURE

SIDING INSTALLATION

Select the appropriate trim in the range of “Cem-Trim®” moldings, as per the situation requirements. The installation concept of CEMFORT’s prefab cladding involves the install of the panel by a pressure molding at its perimeter. Use of a construction laser is recommended to ensure molding consistent alignment.

Note: Plan the use of the ventilation grill at the bottom, top of walls and at wall’s ridge openings. Leave a ventilation space of 25mm (1’’). If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of ridge openings. Colored ventilation grills are provided for this use.

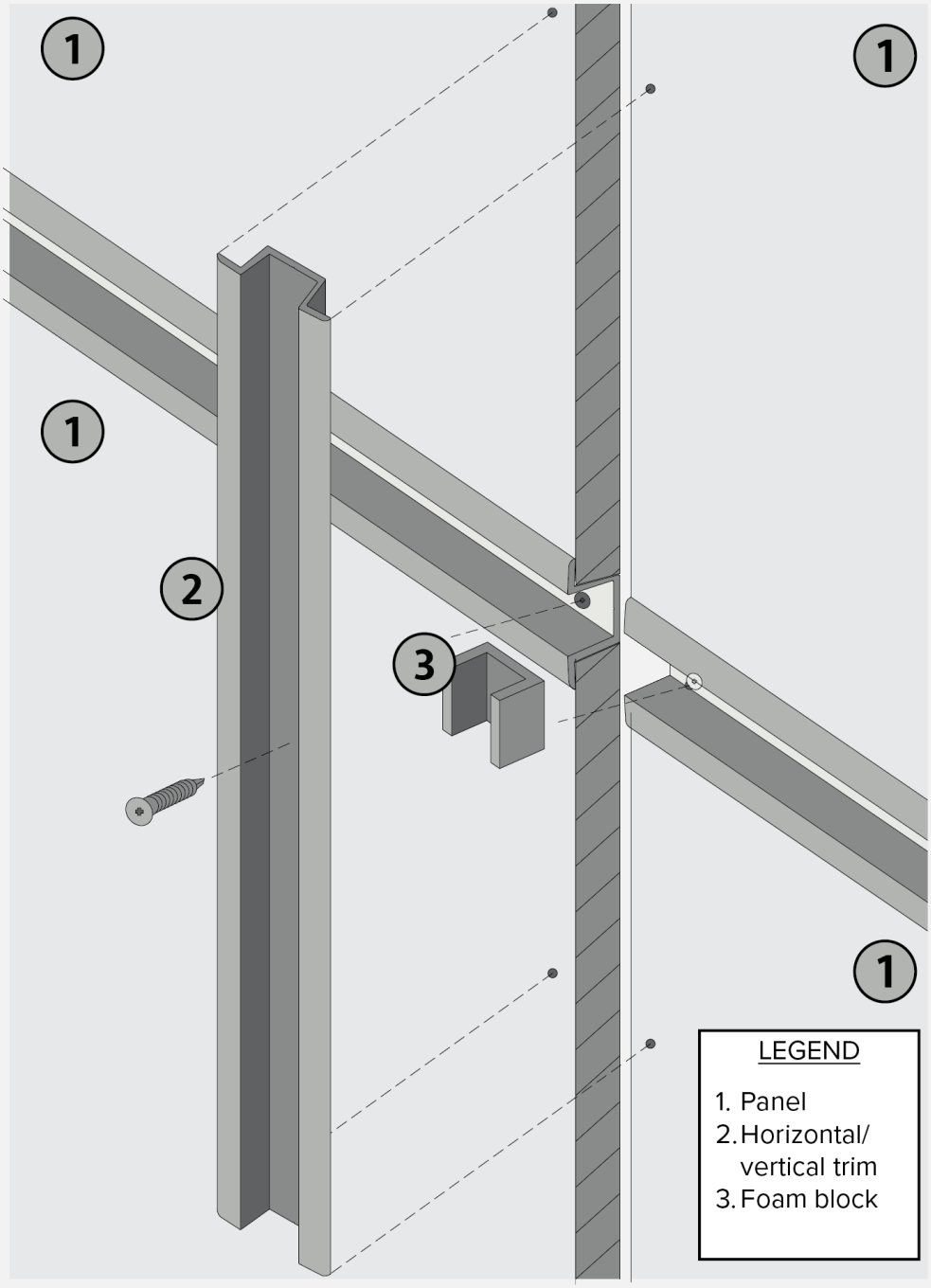
- Start by placing the “Cem-Trim®” junction/starter pressure molding at 25mm (1”) from the flashing for an efficient air circulation and partially fix the trim to each of the vertical omega furring (16”), using 25mm (1”) stainless steel screws. Slide the CEMFORT panel in the upper part of the trim and completely fix the trim afterwards.
- Position the horizontal/vertical molding “Cem-Trim®” on the upper part of the panel and adjust the molding with the panel’s length. Partially fix the molding with 25mm (1”) stainless steel screws on each hat channel furring and once the next panel has been inserted into the trim, fix completely. Secure the trims winglet with the panel’s surface without deforming it. Trims must be fastened each 16” on omega furring. Repeat the above steps for each CEMFORT panel.
- When panels are horizontally fixed to the furring with “Cem-Trim®” pressure moldings system, insert a compressible foam block inside both ends of adjacent horizontal pressure moldings. Important: Place correctly the compressible foam piece inside the horizontal pressure molding.
- Position the appropriate “Cem-Trim®” pressure molding vertically, overlapping horizontal moldings and compressible foam pieces. Joint only when it meets horizontal moldings. Make sure the compressible foam piece is subjected to the cavity in the cross meeting of the vertical and horizontal moldings. Attach the molding with 25mm (1”) stainless steel screws at 400mm (16”) c/c on the vertical furring and at the intersection of architectural lines, press it without deforming it. Make sure that the straight alignment is maintained at all times.
- For any wall opening or junction with another siding material, use the starter/junction “Cem-Trim®” in order to make the connection between the window/door frame or the other siding and the Cemfort cladding system. For any opening in projection/recess, use bended aluminium sheets to make the connection.
- To complete the installation of the “Cem-Trim®” system at the end (top) of the siding, use a starter/junction molding overlapping the last panel and fasten each 400mm (16”) c/c.

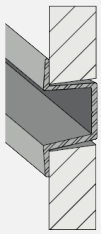
Note: For panels used as ceilings/soffits or over 610mm in width, add 12’’ long strips of the included adhesive mounting sealant on the intermediate supports (follow the sealant manufacturer’s instructions). Do not apply/install if temperatures are lower than zero (0) Celsius / 32F. If wood furring is used, do not apply the EPDM membrane where the adhesive will be used.

Important: Make sure of the straight alignment of the Cem-Trim® moldings at all times.

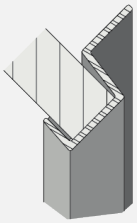
PRESSURE AT PERIMETER MOUNTING SYSTEM

Extruded Aluminum trims, T-6 structural grade, enameled and with sealing compressible close-cell foam on trims fins rear surface.

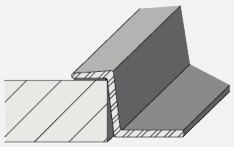




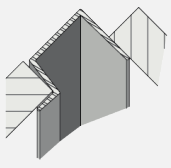
HORIZONTAL/
VERTICAL



JAMB/
EXTERNAL CORNER



JUNCTION/
STARTER



INTERNAL CORNER

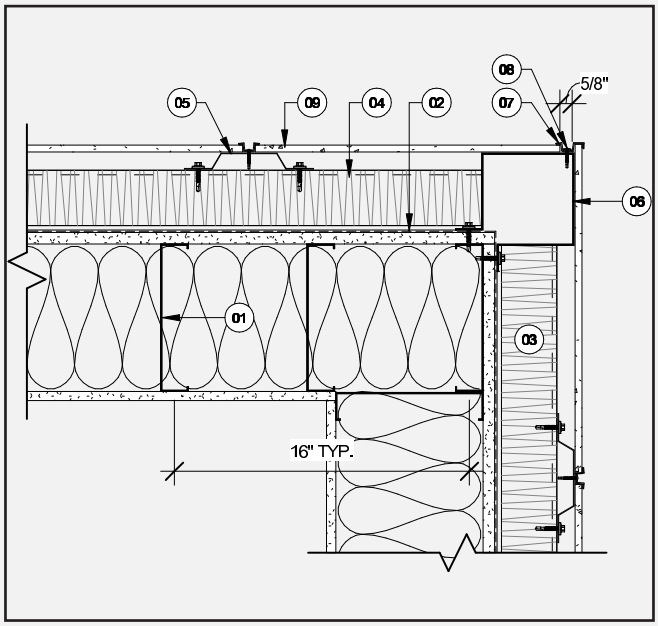
- All Cem-Trim trims are painted in factory and available in 10’ lengths.
- Ventilation grill of 1/2’’ x 2-1/2’’ x 10’ enameled is included in the system.

IMPORTANT NOTES

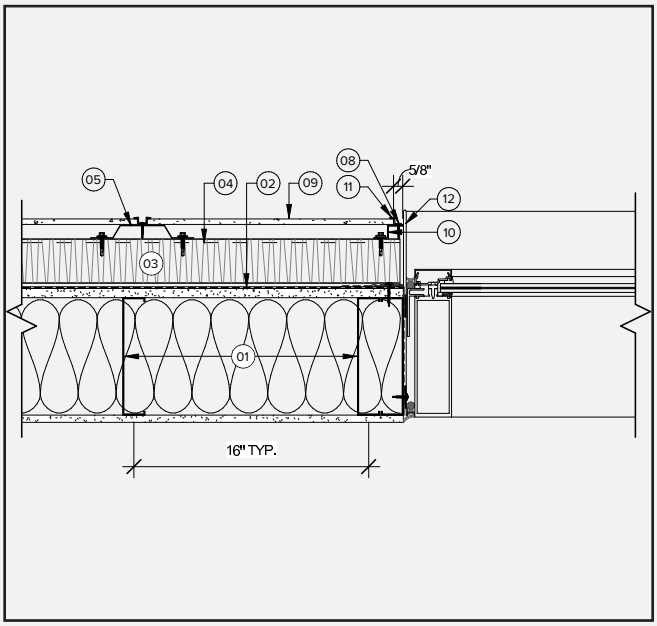
- The steel supports shall be 20 gauge or more (see description on plans). If wood supports are used, they will need to be covered with an EPDM membrane to avoid direct contact between wood and concrete.
- Galvanization layer thickness on steel must be of Z275g/m2;
- Vertical furring (a minimal distance of 6mm (1/4”) between the joint junctions) should be discontinued at the junction of a horizontal joint between two panels. Example : at the junction of floor stages;
- Press the panel at 1mm (1/32”) from the back strip surface : do not crush it on the back strip. **Do not use impact tools.**
- If Cemfort panels need to be adjusted on site, it is recommended that the cut edge be placed **upwards** with this system and then paint treated as per the recommendations mentioned earlier. The «Cem-Trim®» mouldings will hide these adjustments.

TYPICAL DETAILS

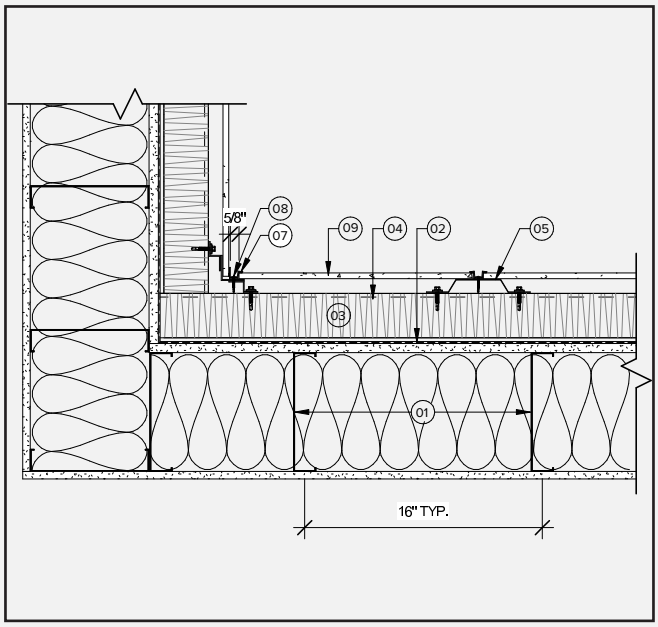
INSTALLATION DIAGRAM



external corner



window jamb



internal corner

LEGEND

01. ASSEMBLY OF A STEEL HALF-TIMBERED WALL ACCORDING TO THE ARCHITECT.
02. WEATHER AND AIR BARRIER ACCORDING TO THE ARCHITECT.
03. MINERAL WOOL INSULATION, THICKNESS ACCORDING TO THE ARCHITECT.
04. STEEL PROFILE IN ‘’Z’’, SIZE ACCORDING TO REQUIREMENTS.
05. 3’’ COLD-FORMED OMEGA PROFILE.
06. CORNER STEEL PROFILE, SIZE AS REQUIRED.
07. CORNER MOLDING ‘CEM-TRIM’ BY CEMFORT.
08. FIXING SCREW BY CEMFORT.
09. CEMFORT FIBER-REINFORCED CONCRETE FACADE PANEL.
10. COLD-FORMED ‘’Z’’ PROFILE.
11. JOINT MOLDING ‘CEM-TRIM’ BY CEMFORT.
12. BENT STEEL SHEET, BY THE INSTALLER.

*Additional details available on the website: www.cemforthd.com

SYSTEM:

CEM-SCREW

FACE-FASTEN SYSTEM

PREPARATION

Vertical Furring (20g Caliber Minimum)

Furrings (« Z » bars or « hat channels ») must be spaced at a maximum of 400mm (16”) for vertical surfaces as well as for ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor. Furring should match the architectural horizontal joints, in addition to meeting the maximum spacing just mentioned and must be 125mm (5”) wide « hat channel » type at the architectural joints and intermediary supports should be 30mm (1-1/4’) wide. At the exterior and interior corners of the cladding, install an appropriate folded support of 75mm X 75mm (3” x 3’’) caliber 20, on the back of the panel to provide support and help get a straight angle.

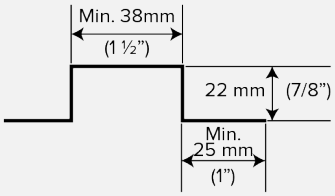
Vertical wood furring (SPF)

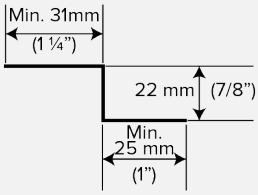
Wood furring must be spaced at a maximum of 400mm (16’’) for walls, ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor level. Furring should match the architectural vertical joints in addition to meeting the maximum spacing mentioned above. Wood furring must be double at vertical architectural joints to obtain 150mm (6’’) width and single 75mm (3’’) width at intermediary supports. Wood furring must be covered with an EPDM membrane or equivalent to avoid direct contact between the wood and concrete and to avoid long term wood degradation. At the exterior and interior corners of the cladding, install an appropriate support of 75mm X 75mm (3” x 3’’) on the back of the panel to provide support and help get a straight angle.

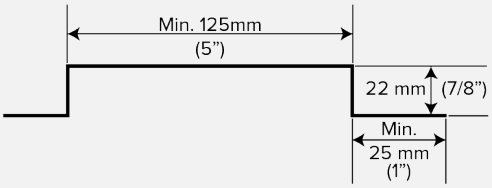
Ceilings and soffits

For ceilings and soffits, make sure there is sufficient ventilation to avoid condensation on the rear of the panel. The furring should be spaced at 400mm (16”) maximum. For all the junction details, see the architectural plans.

Ensure flatness of the support

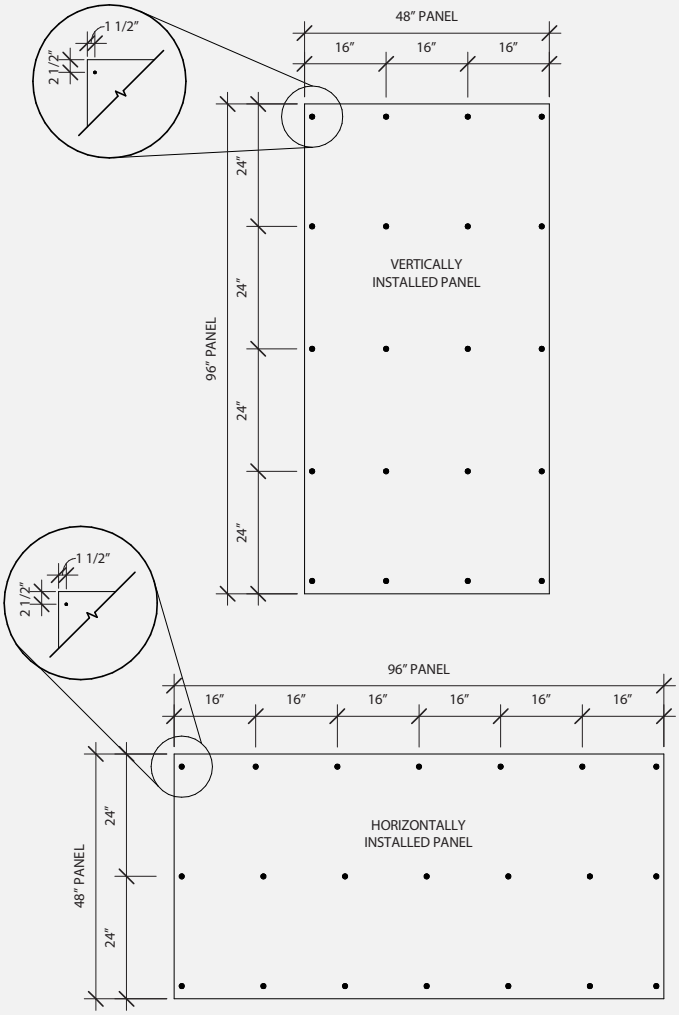


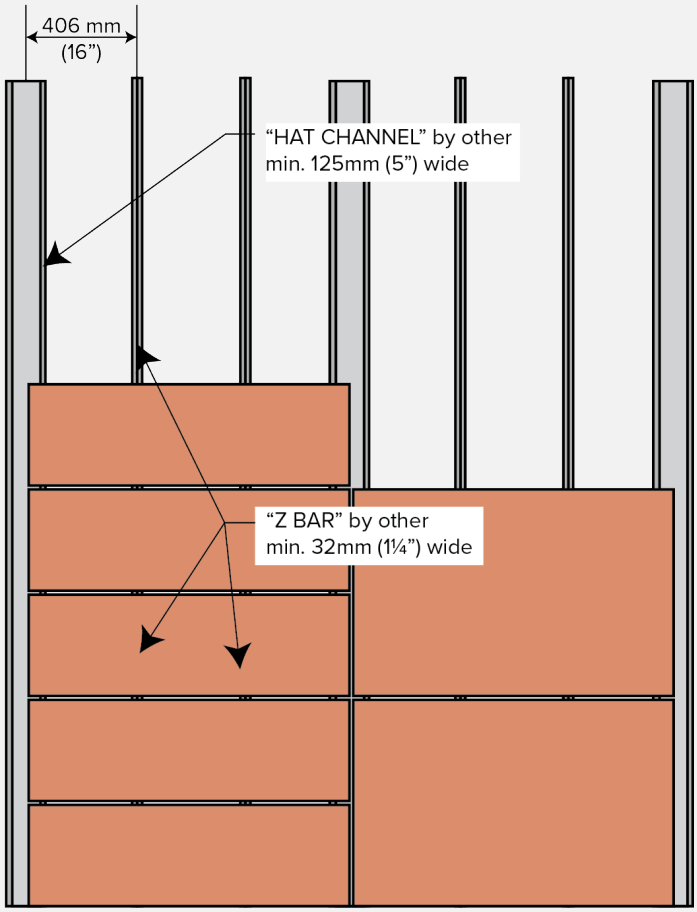




INTERMEDIATE **PERIMETERS**

Minimum suggested dimension





PROCEDURE

Note: Plan the use of the ventilation grill at the bottom, top of walls and at wall's ridge openings. Leave a ventilation space of 25mm (1''). If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of ridge openings. Colored ventilation grills are provided for this use.

1. BACK STRIP : HORIZONTAL

- Place the back strip to the corresponding horizontal architectural joints.
- Temporarily secure the back strip on furring as specified on the frame plans, the panels' fasteners will keep them in place permanently.

2. BACK STRIP : VERTICAL

- The back strip must have a minimum size of 50mm (2") onto the rear edge of the panels, in addition to the spacing of the joint as specified on plans.
- Place an ongoing length for vertical joints. Vertical back strip must overlap the horizontal back strip.
- Temporarily secure the back strip on furring as specified on the frame plans, the panel's fasteners will keep them in place permanently.
- Perforated vent grills are included with your order. Position these at the bottom of the cladding, above the wall openings and at the top of the façade. Plan to leave a 25mm (1'') gap for proper ventilation of the wall cavity. If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of ridge openings.

3. ON-SITE PRE-DRILLING CEM-SCREW

CEMFORT products are offered to be pre-drilled at our facility. Should there be a need to perform on-site pre-drilling:

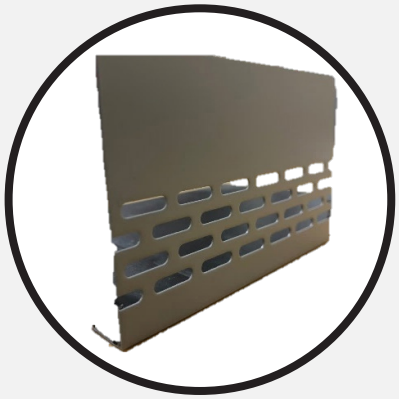
- Pre-drill the panel using the drill bit provided with your order. Screw holes must be 2mm wider than diameter of fastener to allow natural expansion of panel.
- FREQUENCY: horizontal = 405mm (16"), vertical = 610mm (24")
- Fasteners must be positioned asymmetrically at the panel's corners, at least 38 mm (1.5") from edge and 64 mm (2.5'') from the top with a maximum spacing of 405mm (16") horizontally and 610mm (24") vertically or as specified on plans.
- Immediately remove any dust to avoid surface damage.

4. INTERFACE RIBBON (REAR OF PANEL)

Position the flexible self-adhesive ribbon directly to the outer edges of the back of the panel. Ribbon must be positioned at 25mm (1'') from the edge of the panel and on 3 edges of the panels (not at panel's bottom edge). Lightly vaporize an adhesive primer to install the interface ribbon when in cold temperatures (below 32°F or 0°C).

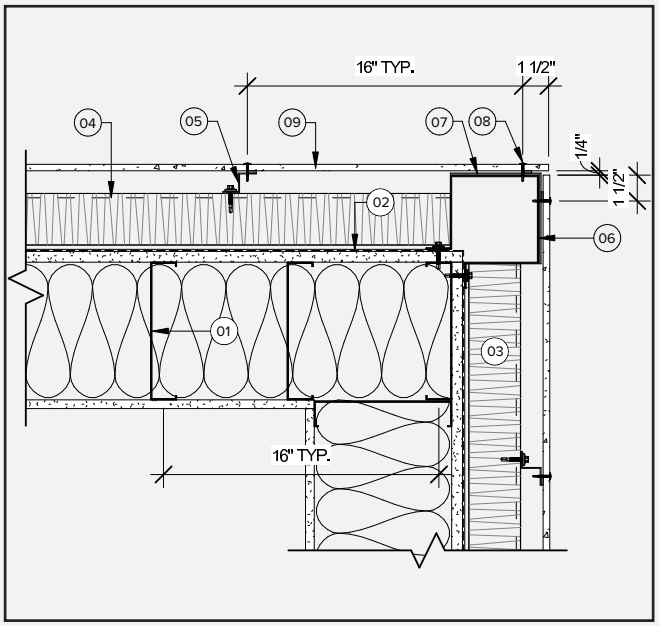
5. VENTILATION

Perforated vent grilles are included with your order. Position these at the bottom of the cladding, above the wall openings and at the top of the façade. Plan to leave a 25mm (1'') gap for proper ventilation of the wall cavity. If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of ridge openings.

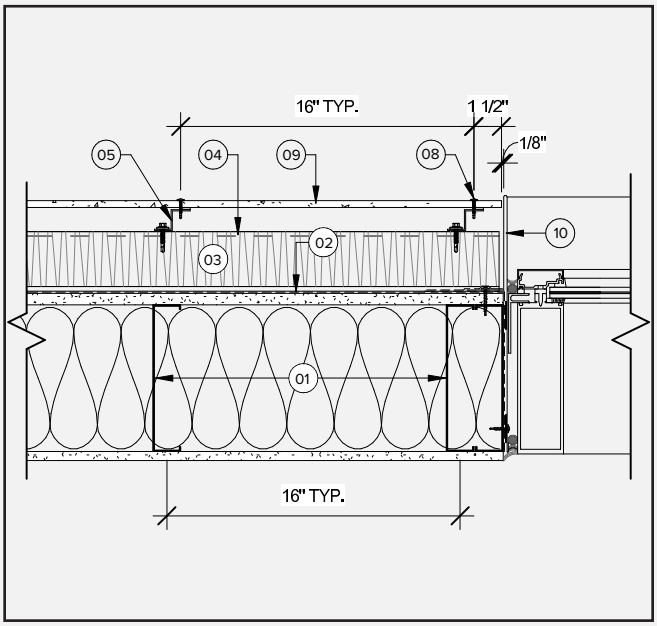


TYPICAL DETAILS

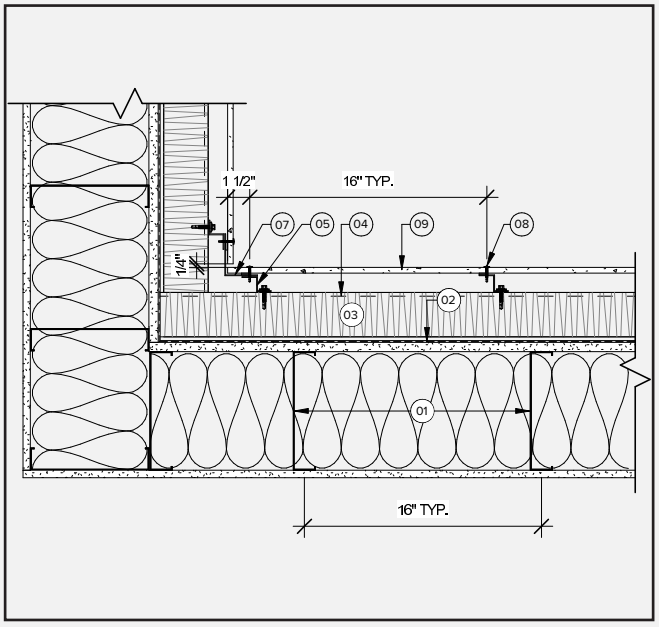
INSTALLATION DIAGRAMS



external corner



window jamb



internal corner

LEGEND

01. ASSEMBLY OF A STEEL HALF-TIMBERED WALL ACCORDING TO THE ARCHITECT.
02. WEATHER AND AIR BARRIER ACCORDING TO THE ARCHITECT.
03. MINERAL WOOL INSULATION, THICKNESS ACCORDING TO THE ARCHITECT.
04. STEEL PROFILE IN ‘‘Z’’, SIZE ACCORDING TO REQUIREMENTS.
05. COLD-FORMED ‘‘Z’’ PROFILE.
06. CORNER STEEL PROFILE, SIZE AS REQUIRED.
07. COLORED STEEL CORNER MOLDING BY CEMFORT.
08. FIXING SCREW BY CEMFORT.
09. CEMFORT FIBER-REINFORCED CONCRETE FACADE PANEL.
10. BENT STEEL SHEET, BY THE INSTALLER.

*Additional details available on the website: www.cemforthd.com

6. FIXING TO THE FURRING

- Place the panel in it's final position. Screw holes must be 2mm larger than diameter of fasteners. Start the installation with the fasteners at the center panel and move towards edges. Fasten the panels to the furring using only the fasteners provided by CEMFORT. **Fastening the panels starting by the center will ensure the flatness of the panels.**
- Keep a minimum distance of 6mm (1/4") between panels, or according to specifications described in the plans.
- In the inside and outside corners, install a 20 gauge galvanized steel support of 75mm x 75mm (3" x 3") at panel rear to provide support and help get a straight angle. Take into consideration the thickness (either 10mm or 12mm) of the panel when performing a corner, to make sure the edge of the panel is hidden by the other panel, or as specified. The joint spacing will also need to be considered.

PANEL FIXATION TO FURRING

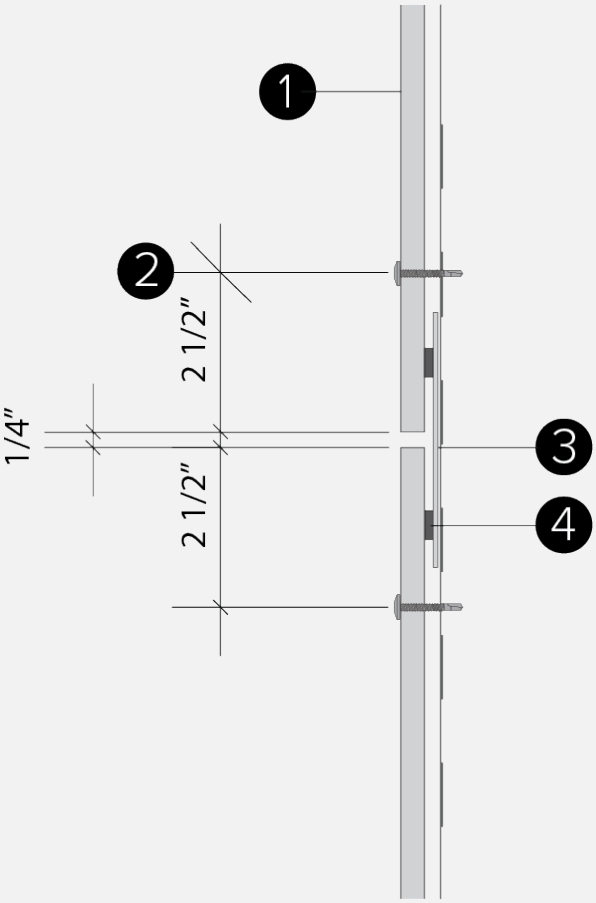
Due to the attachment points of the furring and panels, when they take their expansion on two different furrings as in example A; the expansion of both materials is equal. When panels are to expand on two furrings as in example B; uneven pressure is then exerted on the panels and can cause potential damage.

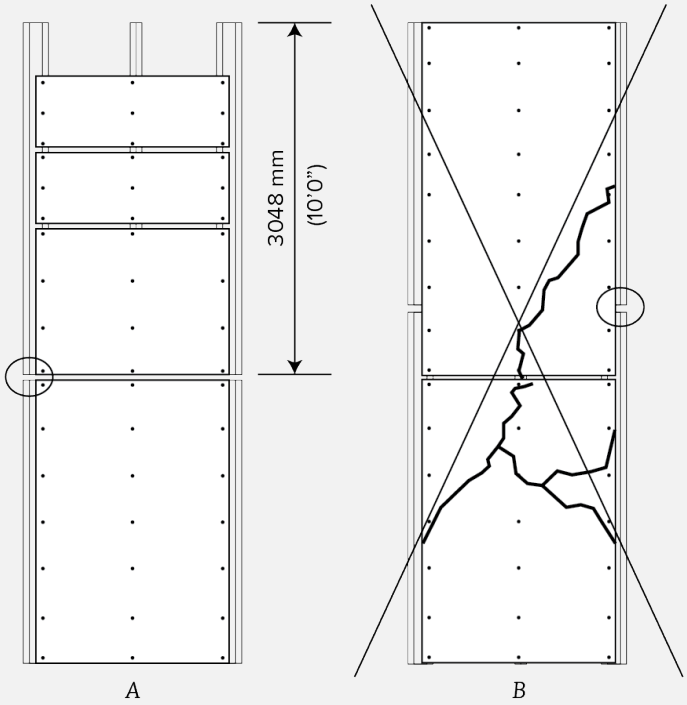
This means that :

- It is recommended that vertical furring be discontinued at the junction of floor levels to allow it's deformation absorbtion, see A;
- The vertical furring must not exceed 3050 mm (10') long;
- For smaller parts, it is possible to set them on the same metal sleeve subject to compliance with the two points above;

IMPORTANT NOTES

- The steel supports shall be 20 gauge or more (see description on plans). If wood supports are used, they will need to be covered with an EPDM membrane to avoid direct contact between wood and concrete.
- Galvanization layer thickness on steel must be of Z275g/m2;
- Vertical furring (a minimal distance of 6mm (1/4") between the joint junctions) should be discontinued at the junction of a horizontal joint between two panels. Example : at the junction of floor stages;
- Press the panel at 1mm (1/32") from the back strip surface : do not crush it on the back strip. **Do not use impact tools.**
- The suggested spacing for the expansion joints between panels is 6mm (1/4''). A larger expansion joint can be considered for design aspect or to hide wall curving.
- If Cemfort panels need to be adjusted on site, it is recommended that the cut edge be placed **downwards** with this system and then paint treated as per the recommendations mentioned earlier.





1. CEMFORT FIBER-REINFORCED CONCRETE FACADE PANEL.
2. FIXING SCREW BY CEMFORT.
3. BACK STRIP
4. INTERFACE RIBBON

SYSTEM:

CEM-LAP

OVERLAP MOUNTING SYSTEM

PREPARATION

Vertical furring (20g caliber minimum)

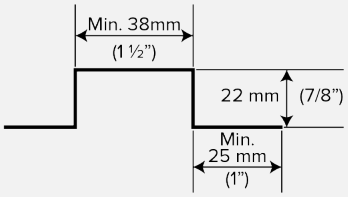
Furrings (« Z » bars or « hat channels ») must be spaced at a maximum of 400mm (16”) for vertical surfaces as well as for ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor. Furring should match the architectural horizontal joints, in addition to meeting the maximum spacing just mentioned and must be 150mm (6”) wide « hat channel » type at the architectural joints. An acceptable alternative is to place 2 ‘hat channels’ 63mm (2-1/2’’) wide, side-by-side in order to fasten panels to furring. intermediary supports should be 30mm (1-1/4’) wide. At the exterior and interior corners of the cladding, install an appropriate folded support of 75mm X 75mm (3” x 3’’) caliber 20, on the back of the panel to provide support and help get a straight angle.

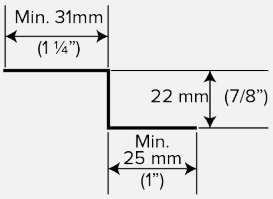
Vertical wood furring (SPF)

Wood furring must be spaced at a maximum of 400mm (16’’) for walls, ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor level. Furring should match the architectural vertical joints in addition to meeting the maximum spacing mentioned above. Wood furring must be double at vertical architectural joints to obtain 150mm (6’’) width and single 75mm (3’’) width at intermediary supports. Wood furring must be covered with an EPDM membrane or equivalent to avoid direct contact between the wood and concrete and to avoid long term wood degradation. At the exterior and interior corners of the cladding, install an appropriate support of 75mm X 75mm (3” x 3’’) on the back of the panel to provide support and help get a straight angle.

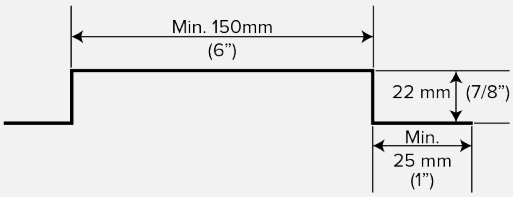
Ensure flatness of the support.

INTERMEDIATE

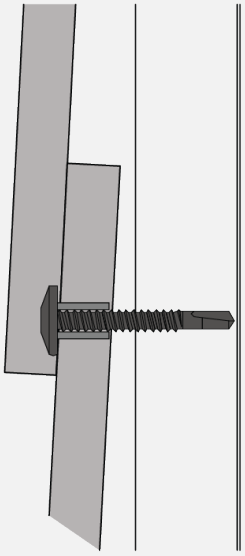


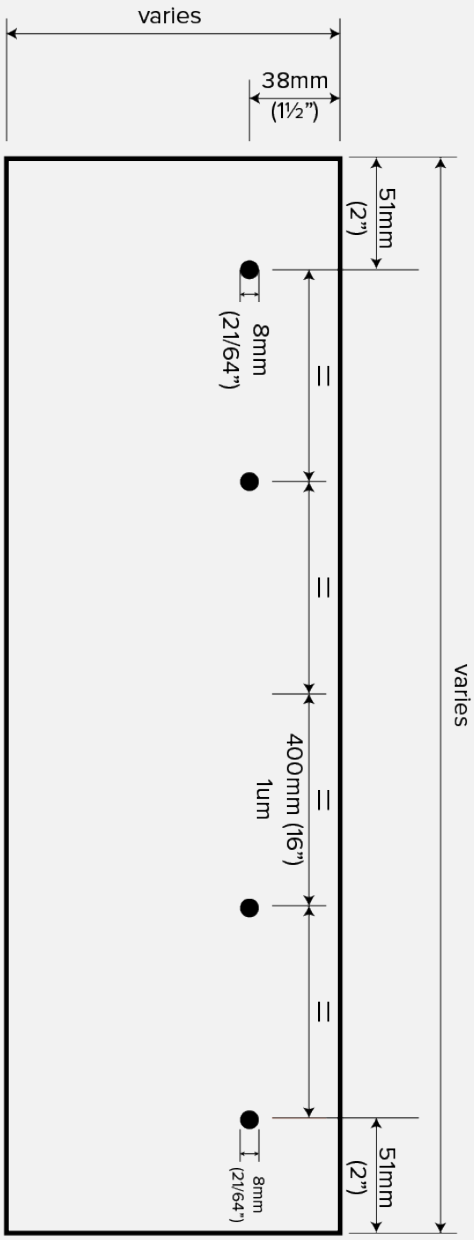


PERIMETERS



Minimum suggested dimension





PROCEDURE

Note: Plan the use of the ventilation grill at the bottom, top of walls and at wall's ridge openings. Leave a ventilation space of 25mm (1''). If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of ridge openings. Colored ventilation grills are provided for this use.

On-site pre-drilling Cem-Lap. CEMFORT products are offered to be pre-drilled at our facility. Should there be a need to perform on-site pre-drilling:

- Pre-drill the plank using the drill bit provided with your order. Screw holes must be 2mm wider than diameter of fastener to allow natural expansion of plank. Always use the same drill bit size to ensure correct and larger pre-drilling.
- Immediately remove any dust on plank's surface to avoid surface alterations.

DRILLING

1. FIXING TO VERTICAL FURRING

- Place the plank in its final position. Screw holes must be 2mm larger than the diameter of fasteners. Start the installation with the fasteners at the center plank and move towards the edges. Fasten the planks to the furring using only the fasteners provided by CEMFORT. Fastening the planks starting by the center will ensure the flatness of the planks.
- Fasten the plank in its upper part to at 38mm (1 ½") from the horizontal edge and at 50mm (2") from the vertical edge and at a maximum spacing of 400mm (16") horizontally or as specified on plans.
- Overlap by 50mm (2'') the bottom plank.

2. VERTICAL BACK STRIP INSTALLATION

- Place the metal back strip provided at the rear of a vertical joint before attaching panels to furring. Back strip will need to be temporarily fixed and panel screws will secure them permanently; **see Figure 2.**
- Insert next panel on back strip previously installed. For any other specific junction details, view plans.

VERTICAL JUNCTION AND VENTILATION

- Keep a minimum distance of 3 mm (1/8'') between planks. Ensure a minimum spacing of 25mm (1'') between panel and flashing, at the top of openings and at the top and bottom of the wall to allow ventilation and proper drainage. Use the ventilation grill provided with your order. If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top of the ridge opening.

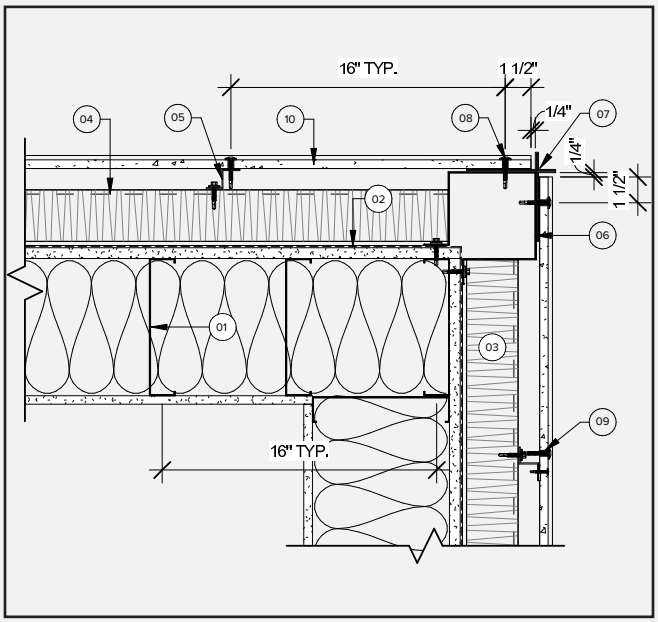
Note: for specific back strip, corner and junction details; see plans.

IMPORTANT NOTES

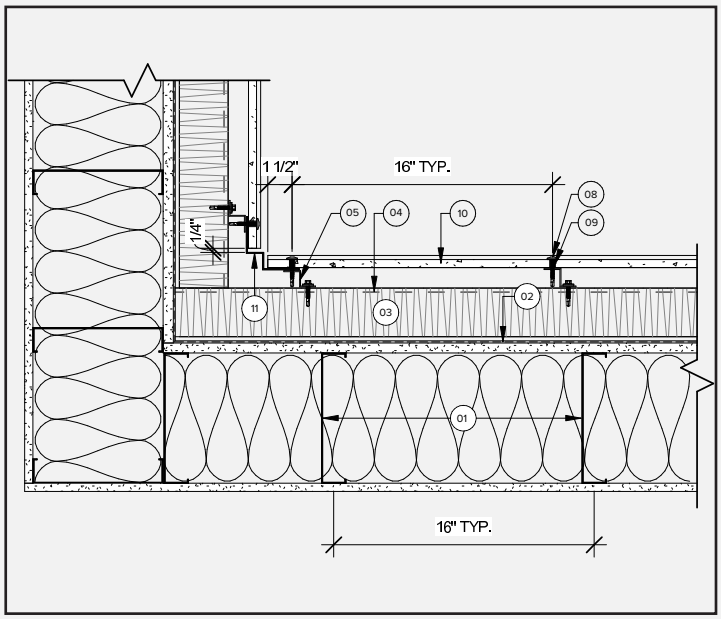
- The steel supports shall be 20 gauge or more (see description on plans). If wood supports are used, they will need to be covered with an EPDM membrane to avoid direct contact between wood and concrete.
- Galvanization layer thickness on steel must be of Z275g/m2;
- Vertical furring (a minimal distance of 6mm (1/4") between the joint junctions) should be discontinued at the junction of a horizontal joint between two panels. Example : at the junction of floor stages;
- Press the panel at 1mm (1/32") from the back strip surface : do not crush it on the back strip. **Do not use impact tools.**
- The suggested spacing for the expansion joints between panels for this system is 3mm (1/8''). A larger expansion joint can be considered for design aspects or to hide wall curving.
- If Cemfort panels need to be adjusted on site, it is recommended that the cut edge be placed **upwards** with this system and then paint treated as per the recommendations mentioned earlier. The next row of planks will hide the adjustment cut.

TYPICAL DETAILS

INSTALLATION DIAGRAMS



external corner



internal corner

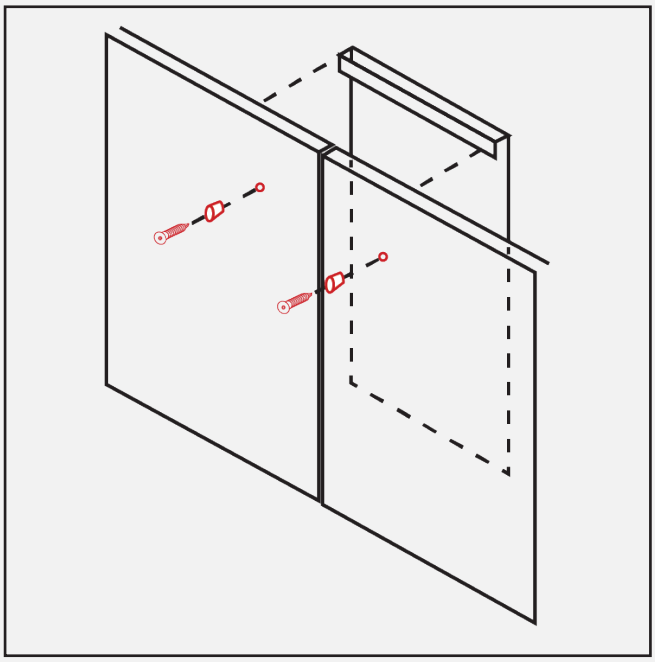
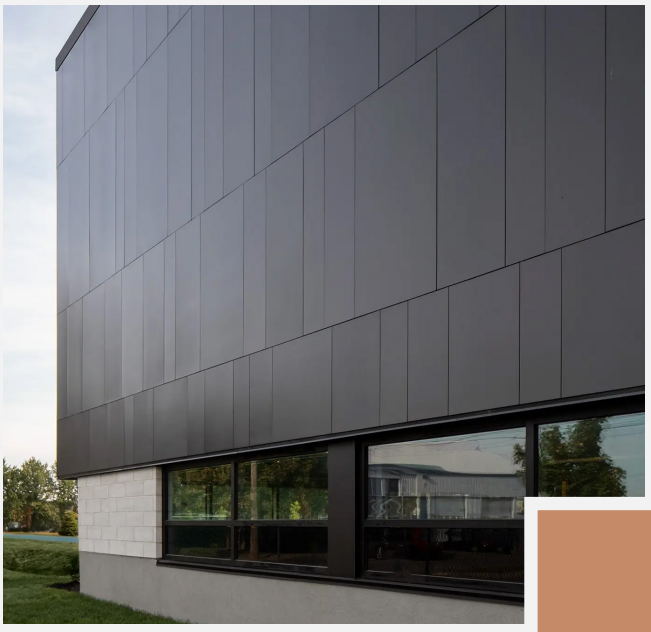


Figure 2

LEGEND

01. ASSEMBLY OF A STEEL HALF-TIMBERED WALL ACCORDING TO THE ARCHITECT.
02. WEATHER AND AIR BARRIER ACCORDING TO THE ARCHITECT.
03. MINERAL WOOL INSULATION, THICKNESS ACCORDING TO THE ARCHITECT.
04. STEEL PROFILE IN ''Z'', SIZE ACCORDING TO REQUIREMENTS.
05. 3'' COLD-FORMED OMEGA PROFILE.
06. CORNER STEEL PROFILE, SIZE AS REQUIRED.
07. CORNER MOLDING 'CEM-LAP' BY CEMFORT.
08. FIXING SCREW BY CEMFORT.
09. NYLON SLEEVE BY CEMFORT.
10. CEMFORT FIBER-REINFORCED CONCRETE FACADE PANEL.
11. PRIED STEEL SHEET, BY THE INSTALLER.

*Additional details available on the website: www.cemforthd.com



SYSTEM:

CEM-CORE

CONCEALED ANCHORS MOUNT

PREPARATION

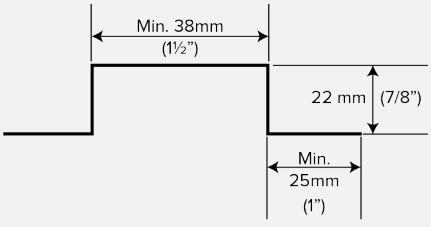
Vertical furring (20g caliber minimum)

Furrings (« Z » bars or « hat channels ») must be spaced at a maximum of 400mm (16”) for vertical surfaces and should be discontinued at the meeting of a building construction joint and floor. Furthermore, furrings should match the architectural horizontal joints. Supports must « hat channel » type at intermediary supports and architectural joints with a width of 30mm (1-1/4’’). At the exterior and interior corners of the cladding, install an appropriate folded support of mm 30mmX 30mm (1-1/4” x 1-1/4’’) caliber 20, on the back of the cladding to provide support and help get a straight angle.

Vertical wood furring (SPF)

Wood furring must be spaced at a maximum of 400mm (16’’) for walls, ceilings and soffits and should be discontinued at the meeting of a building construction joint and floor level. Furring should match the architectural vertical joints in addition to meeting the maximum spacing mentioned above. Wood furring must be 75mm (3’’). Wood furring must be covered with an EPDM membrane or equivalent to avoid direct contact between the wood and concrete and to avoid long term wood degradation. At the exterior and interior corners of the cladding, install an appropriate support of 75mm X 75mm (3” x 3’’) on the back of the panel to provide support and help get a straight angle.

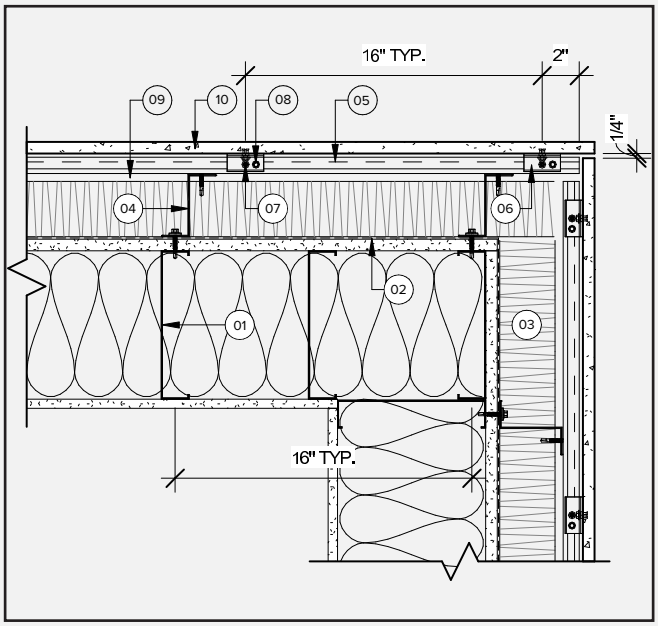
Ensure flatness of the support.



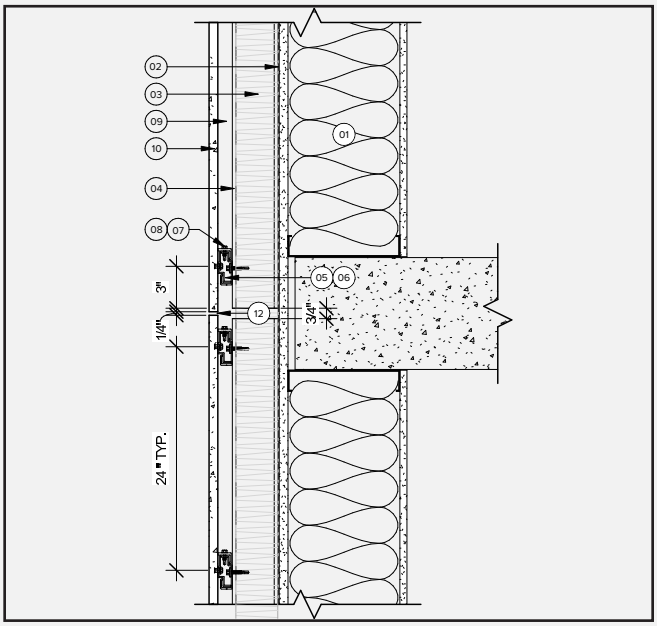
Minimum suggested dimension

TYPICAL DETAILS

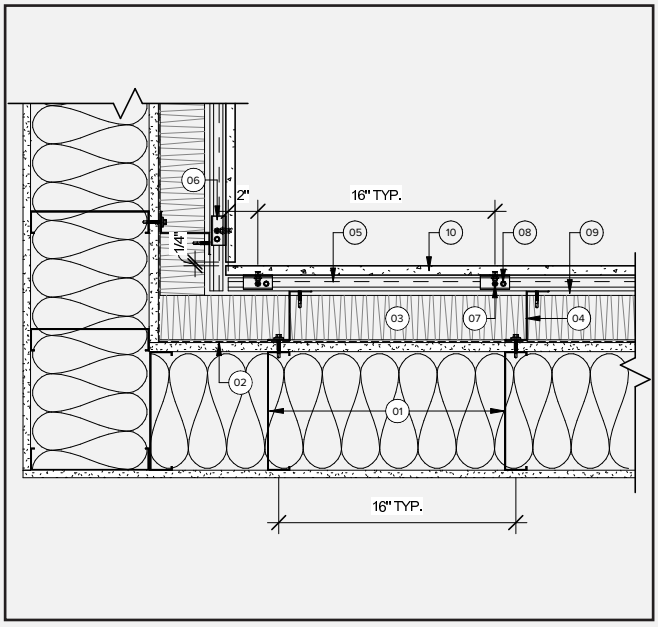
INSTALLATION DIAGRAMS



external corner



horizontal joint



internal corner

LEGEND

01. ASSEMBLY OF A STEEL HALF-TIMBERED WALL ACCORDING TO THE ARCHITECT.
02. WEATHER AND AIR BARRIER ACCORDING TO THE ARCHITECT.
03. MINERAL WOOL INSULATION, THICKNESS ACCORDING TO THE ARCHITECT.
04. STEEL PROFILE IN ‘‘Z’’, SIZE ACCORDING TO REQUIREMENTS.
05. HORIZONTAL SUSPENSION PROFILE ‘CEM-CORE’ BY CEMFORT.
06. CEM-CORE SUSPENSION CLIP WITH ANCHOR FIXED TO THE PANEL.
07. FIXING SCREWS 5,5 MM X 50 MM BY CEMFORT.
08. ADJUSTMENT SCREW FOR PANEL LEVELING BY CEMFORT.
09. CONTINUOUS AIR GAP, MINIMUM 3/4’’.
10. CEMFORT FIBER-REINFORCED CONCRETE FACADE PANEL.
11. OPEN EXPANSION JOINT, 1/4’’.

*Additional details available on the website: www.cemforthd.com

PROCEDURE

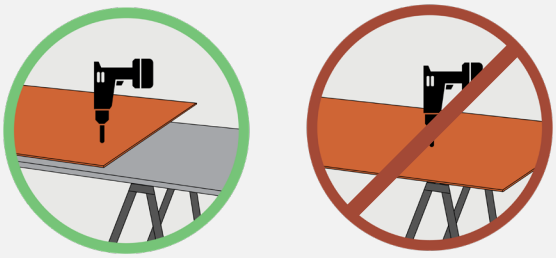
1. WALLS AND PANELS PREPARATION

- Begin by placing the pre-perforated ventilation grill included with the system on the hat channels. Plan to leave a spacing of 25mm (1'') between the bottom of the panel and flashing. Repeat this at the top of wall ridge openings. Unless panel joints are covered, there is no need for an additional ventilation grill at the top of the wall. If the wall is completed by a vented soffit, then only the ventilation grill is required at the bottom of the wall and top if ridge opening.
- **Horizontal Rails**: Place the Cem-Core horizontal rails where the panel hangers and panels will be mounted, with the assistance of a laser or level. Before installing the rail on the support, apply a small section of anti-adhesive tape (Tuck tape) to prevent any direct contact between aluminium and metal. Space the Cem-Core horizontal rails at a maximum of 24'' o/c or depending on panel size and fasten to the vertical supports with #12, 25mm (1'') self-tapping screws.

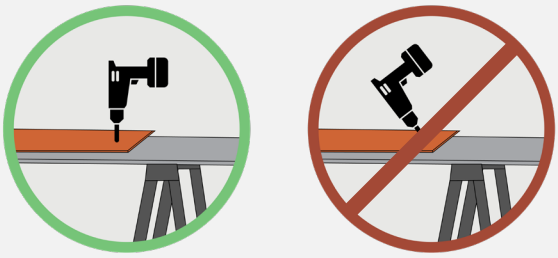
- **'Adjustable' brackets**: At the back of the Cemfort concrete panels, plan/measure to add 2 holes at each superior corners of the panels to mount the adjustable brackets to Cemfort panels using the Cem-Core anchors. The left and right holes on the bracket need to be considered for predrill and fastening. Make sure to align the holes to the panel brackets holes as well as to the Cem-Core horizontal rails already on the wall. NOTE: The center of bracket must be positioned at a distance of 3'' from top/bottom of panel and 2'' from the edges. The adjustable brackets allows up to 6mm (1/4'') of height adjustment.
- **'Fixed' brackets**: Based on the same concept as the 'adjustable' brackets, plan/measure to do 1 hole each 16'' horizontally and 24'' vertically (following horizontal rail placement) to attach the fixed brackets to the back of Cemfort panels with the Cem-Core anchors. Use the center hole of the bracket for anchor.
- Using the special pre-drill bit with depth locator provided by Cemfort, pre-drill the measured holes at the back of the panels. **Warning**: Make sure that the holes are straight and free of any dust/dirt before using the Cem-Core anchors for final fastening. See image below.
- Place the panel brackets in line with the pre-drilled holes using a rivet gun. Fasten the Cem-Core anchors using adequate and continuous pressure on the gun, the anchor rod will remove by itself. **Warning**: Do not apply too much pressure on the gun by lying on it, as it might damage the front of the panels. See image below.

2. INSERTION AND ADJUSTMENT OF PANELS

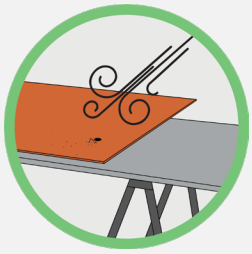
- Insert the preassembled Cemfort panels (with brackets) into the horizontal rails on the wall. If needed, adjust the level of the panel with the adjustment bolt supplied with the adjustable brackets up to a maximum of 6mm (1/4'').
- Once the Cemfort panels and panel brackets are completely inserted and leveled into the horizontal supports, use a stainless screw #12 into the hole at the top of the bracket to permanently fasten the brackets to the horizontal rails. These fasteners will lock the panels in place.
- When pre-drilling the panels and placing the panel brackets at the back of the Cemfort panels, make sure to plan a minimal spacing of 1/8'' (3mm) between the panels or as indicated in the spec. Joint spacing, placement of the bracket from the edge and the length of the brackets will need to be considered to create this joint spacing when taking your measurements for pre-drilling.



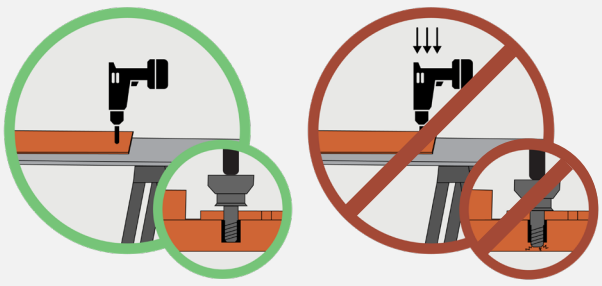
Panel must lie on a hard surface.



Keep a right angle during the drilling process.



Remove debris from drilled hole



There can be a gap between the TU-fastener head and the bracket

Applying heavy force to the TU-fastener while not removing the mandrel can cause damage to the panel.

3. CORNERS

- In the inside and outside corners, install a 20-gauge galvanized steel angle support of 30mm x 30mm (1-1/4" x 1-1/4") at panel rear to provide support and help get a straight angle.
- Follow the above-described installation steps of the Cem-Core system, but depending on the chosen panel, foresee that the panel from one side will be 3/8'' (10mm) or 1/2'' (12mm) longer in order to cover the edge of the panel on the other side, which will be at least 1/8'' (3mm) shorter or as indicated in specs, to account for the expansion joint.

5. JUNCTIONS

For a junction between panels and a window and/or door frame, which is level (flush) to the Cemfort siding system, cut the panels to the desired dimension, but plan a minimal spacing of at least 3mm (1/8'') between the edge of the Cemfort panel and the window/door frame. Treat the cut edge with the touch-up enamel included in the Cem-Core system (ref : Page 7 for process of on-site touch-up). Insert the prepared CEMFORT panel into the horizontal rails and leave a 1/8'' gap or do a bent aluminium sheet trim (J-trim) between the CEMFORT panel and frame.

IMPORTANT NOTES

- The steel supports shall be 20 gauge or more (see description on plans). If wood supports are used, they will need to be covered with an EPDM membrane to avoid direct contact between wood and concrete.
- Galvanization layer thickness on steel must be of Z275g/m2;
- Vertical furring (a minimal distance of 6mm (1/4") between the joint junctions) should be discontinued at the junction of a horizontal joint between two panels. Example : at the junction of floor stages;
- The suggested spacing for the expansion joints between panels is 6mm (1/4''). A larger expansion joint can be considered for design aspects or to hide wall curving.
- We highly recommend using the rivet gun GESIPA ACCUBIRD for panel anchor installation. Do not use a pneumatic gun.
- If Cemfort panels need to be adjusted on site, it is recommended that the cut edge be placed **downwards** with this system and then paint treated as per the recommendations mentioned earlier.

Rely on the most recent version of the installation guide available at www.cemforthd.com

Notes:

1915 Alfred-Nobel Street
Slaberry-de-Valleyfield, QC
J6T 0E3 Canada

(450) 373-0455
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