General Shale

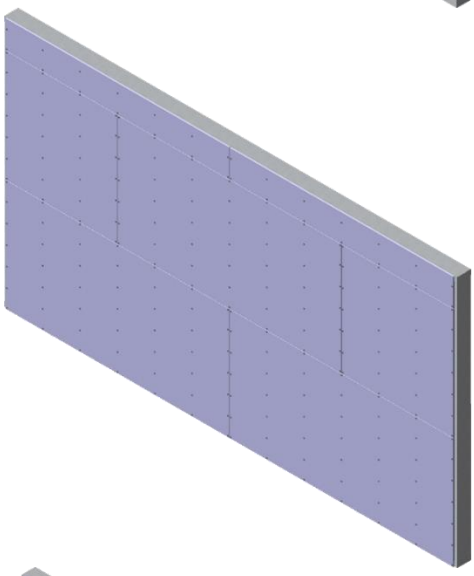
ProGUARD®*DP* Installation

Step 1: Inspect Framed Walls

Studs (wood to steel) shall be installed plumb and level. Steel studs should be 16-gauge minimum. Deflection criteria for substrate should be L/600 (L/720 preferred).

Step 2: Install Sheathing

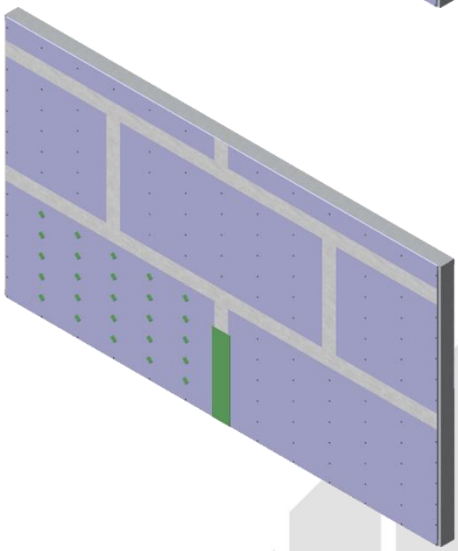
Install exterior grade sheathing (glass-mat reinforced gypsum board or plywood) per manufacturer's recommendations with proper screw placement and attachment.



Step 3: Apply Anti-Fracture Membrane

Apply a liberal coat of Laticrete Air & Water Barrier (Vapor Barrier Material) to the joints between the exterior grade sheathing boards and then embed the Laticrete Waterproofing/Anti-Fracture Fabric Tape into it. Once the tape is applied, apply another liberal coat of Laticrete Air & Water Barrier over the Fabric Tape and allow it all to cure per Laticrete's recommendations. Remember to pre-treat the fastener locations in the exterior grade sheathing with Laticrete Air & Water Barrier.

Alternatively, apply a liberal coat of ProGUARD®*DP* Water Armor Air and Water Barrier (Air Barrier Material) to the joints between the exterior grade sheathing boards and then embed the ProGUARD®*DP* Water Armor Flashing Tape into it. Once the tape is applied, apply another liberal coat of ProGUARD®*DP* Water Armor Air and Water Barrier over the flashing tape and allow it all to cure per T-Clear's recommendations. Remember to pre-treat fastener locations in the exterior grade sheathing with ProGUARD®*DP* Water Armor Air and Water Barrier.



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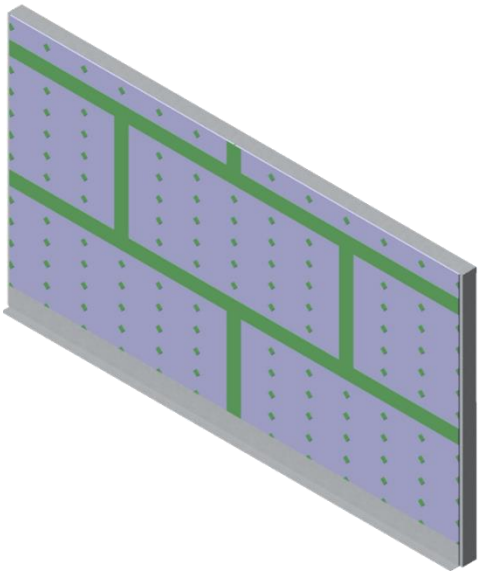
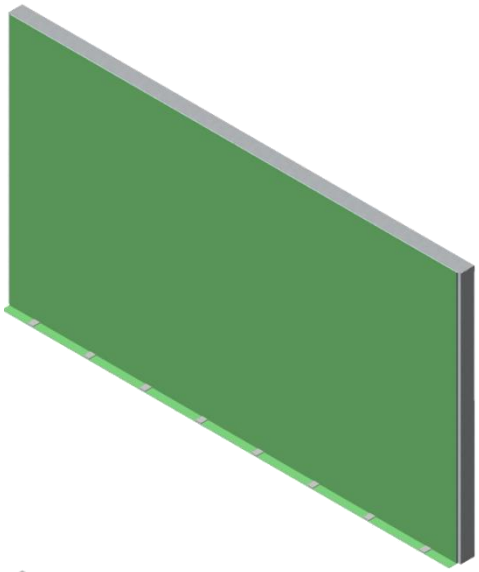
Step 4: Base Wall Flashing



Install 16-gauge steel flashing/panel support (ideally prefinished or with a G-90 coating) at the base of all walls, above wall openings, and at deflection joints in the stud assembly. Attach the steel flashing at 16" O.C. back to the studs or solid substrate behind, using the same screws used to attach the ProGUARD®*DP* insulated concrete panels (shorter versions of the same screws). The steel flashing should extend 6" up the wall and the horizontal leg should project a minimum of ½" beyond the face of the ProGUARD®*DP* insulated concrete panel face (i.e. horizontal leg is based on the thickness of the ProGUARD®*DP* insulated concrete panels plus ½"). If the panels are resting on the foundation ledge or 16-gauge steel flashing/panel support is used then this would be a ProGUARD®*DP* **"supported panel application"** (i.e. base of ProGUARD®*DP* insulated concrete panels are supported on foundation ledge or footing or 16-gauge steel flashing/panel support)

16-gauge steel flashing/panel support does not have to be utilized. If not used then this would be a ProGUARD®*DP* **"unsupported panel application"**. In this case, more screws with a tighter screw spacing may be required to fasten the ProGUARD®*DP* insulated concrete panels to the substrate. The engineer of record should provide this information by referring to NTA Report TRI9030116-28.

Step 5: Install Air & Water Barrier

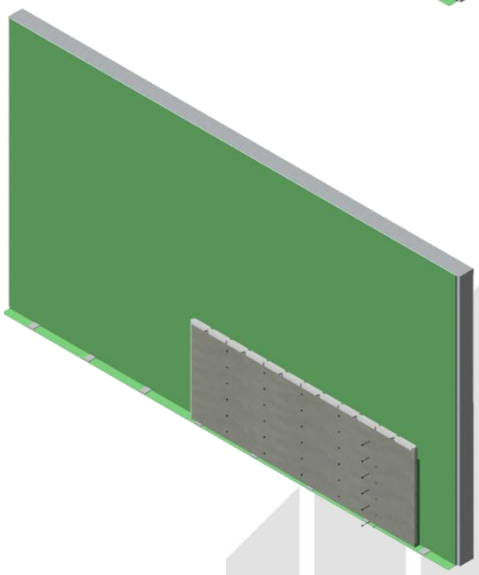


Apply two coats of Laticrete Air and Water Barrier (Vapor Barrier Material) over the entire surface of the sheathing. Follow manufacturer's instructions for proper application.

Alternatively if using ProGUARD®*DP* Water Armor Air and Water Barrier (Air Barrier Material) to seal and treat the joints in the sheathing then apply two coats ProGUARD®*DP* Water Armor Air and Water Barrier over the entire surface of the sheathing. Follow manufacturer's instructions for proper application.

Install 1/8" thick hard plastic shims at the base of the wall on top of the 16-gauge flashing or flashing over the foundation ledge to support the bottom of the panels and create a small gap for moisture to escape the assembly from the drainage planes. Tack the shims in place with a dab of waterproofing.

Step 6: Install First ProGUARD®*DP* Insulated Cement Board Panel



Install first ProGUARD®*DP* insulated concrete panels. The bottom ship-lapped edge of the panel should be cut so that the concrete board and insulation are flush at the base of the wall. Set the bottom of the panel down on the steel flashing support and weep vents. Ensure that the vertical panel joints fall on a stud. Panels may have to be cut to length to accomplish this. Always set the 8'-0" dimension in the horizontal dimension on the wall (3'-0" is always the vertical dimension).

Engineer of record should select ProGUARD®*DP* screws and screw spacing using NTA Report TRI9030116-28 and will be dependent on supported or unsupported panel applications, weight of the thin adhered masonry veneer or stucco application, insulation thickness, wall height, wind pressure, and wind speed. When fastening the ProGUARD®*DP* panels, the screw heads should not break the outside skin of the concrete board.

Please call General Shale Technical Services if there are any questions about the screws or screw spacing. Only use approved ProGUARD®*DP* screws and do not substitute with any other screw.

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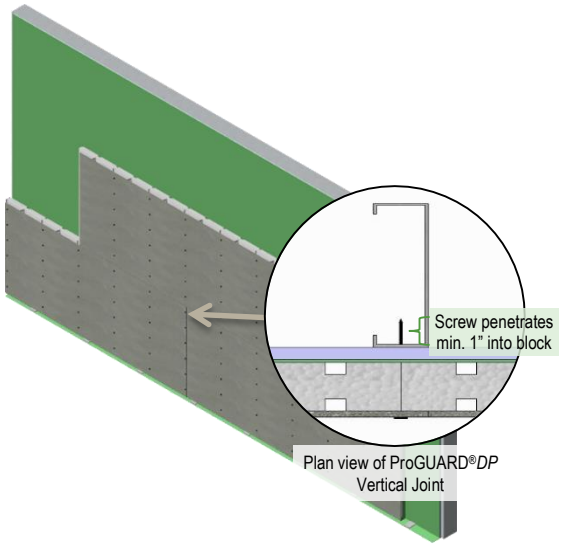
Step 7: Install Remaining Panels

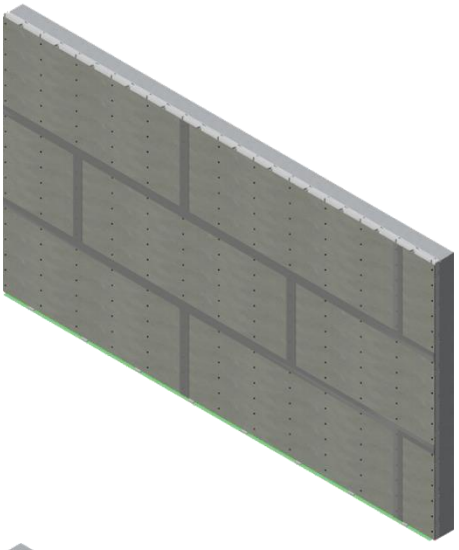
Install second ProGUARD®*DP* insulated concrete panel adjacent to the first panel (following similar procedures to the first). Slip the foam insulation edge of the second panel behind the ship lapped edge of the concrete board of the first panel. Screw the ship-lapped edge of the first panel back to the studs. Continue in the same fashion along the base of the wall until all panels are installed.

Install the next row of ProGUARD®*DP* panels above offsetting the vertical panel joints in increments of 16" O.C. (i.e. 16", 32", 48" etc…). ProGUARD®*DP* insulated concrete panels cannot be oriented vertically (i.e. the 8'-0" length of the panel must always be in the horizontal direction for the drainage grooves to align). **To promote drainage of the assembly, the panels must be installed with the insulation grooves aligned.** Offsetting the vertical panel joints in increments of 16" O.C. (i.e. 16", 32", 48" etc.) will help to align the drainage grooves, however using a 3/8" diameter wood dowel slid into the drainage grooves to align the joints may be required. Remove the wood dowel once the next panel has been tacked into place and repeat as required



Step 8: Cement Board Panel Joint Treatment

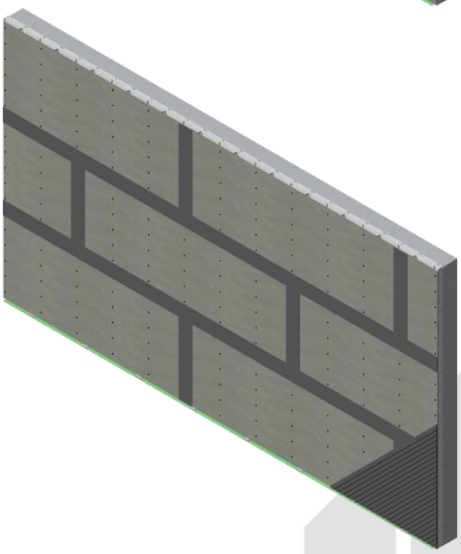
Once all ProGUARD®*DP* panels are installed, treat all joints between panels with a 4" wide alkali-resistant mesh tape. Apply tape across all joints (2" on either side of joint), pressing firmly to ensure adhesion to substrate. Spread a thin coat of Laticrete Thin-Brick Mortar over the alkali resistant mesh tape. Allow Laticrete Thin-Brick Mortar to fully cure.



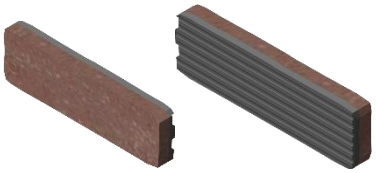
Step 9: Adhered Veneer Substrate Preparation

Ensure installed ProGUARD®*DP* insulated concrete panels are free of dust and debris. Using a notched trowel, spread Laticrete Thin-Brick Mortar across ProGUARD®*DP* panels and ensuring to burn the mortar into the concrete board surface. Pull notched side of the trowel across mortar to create a grooved surface and to gauge the mortar thickness. Notched trowel selection is dependent on the material being installed and the tolerances on the substrate. Apply only a workable area of mortar that will allow stone to be properly set before surface drying occurs. This area will vary depending on site environmental conditions.

NOTE: Do not substitute Laticrete Thin-Brick Mortar with any other product or material unless General Shale Technical Services has been consulted.



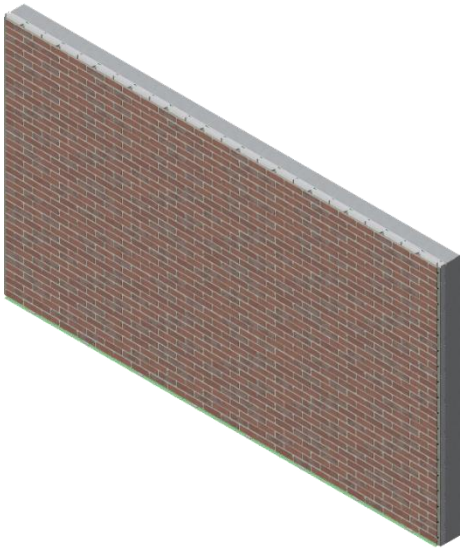
Step 10: Prepare Thin Adhered Masonry Veneer



Clean unit backs of any dust, laitance, loose material and any excess film that could impede bond. With the point trowel "back-butter" the brick units with Laticrete Thin-Brick Mortar, ensuring to burn the mortar into the back of the units and filling any surface irregularities and ensuring 100% coverage.

NOTE: Do not substitute Laticrete Thin-Brick Mortar with any other product or material unless General Shale Technical Services has been consulted.

Step 11: Install Thin Adhered Masonry Veneer



Begin with the corner pieces. Press the corner piece onto the wall, rotating back and forth slightly. This process should force some of the mortar to "squeeze out" and work out any air gaps in the mortar. Remove any excess mortar with a square flat trowel and use the excess on the next piece of stone.

After the corner pieces are installed, apply flat stretcher pieces starting at an outside corner unit and working your way in. Set the stretcher unit. Once set on the wall push the unit up and at an angle and then return it back to desired position. This process should force some of the mortar to "squeeze out" and work out any air gaps in the mortar. Remove any excess mortar with a square flat trowel and use the excess on the next brick unit. Remove excess mortar droppings from the brick face with a clean wet sponge and a stiff fibre brush. Check for 100% mortar coverage by removing ten brick units from the wall per bag of mortar used.

Once the Laticrete Thin-Brick Mortar has cured then use the Laticrete Pointing Mortar to point the joints between the individual brick units. Place pointing mortar into a grout bag or grout gun and squeeze the grout into the joints between the brick units. Once the mortar is thumbprint hard, tool the joints to a concave finish ensuring to push the mortar into the joint during this process. Allow the wall to cure.