



FP-2.0 UX



FP-2.5 EXi

Concrete or Masonry Walls



Cold Exterior Walls



Concrete Floors



Concrete Ceilings



Tools and Supplies

- Large caulk gun, for adhesive attachment
- Screw gun, for mechanical attachment
- Long snap-off blade utility knife
- Saw – hand, jig, circular, or table
- Gap and crack foam for sealing gaps at corners, openings, and at the top and bottom of the wall
- Adhesive or Screws - See attachment method



Get ready to start.

Prep and Supplies for Windows and Doors

Openings are typically built out to be flush with the InSoFast panels. Using screws and adhesive, install wood furring that is the thickness of the panel around the openings.

- FP-2.5 panels use 2x3s (2-1/2" thick)
- FP-2.0 panels use 2x2s plus 1/2" plywood or rip down larger 2x stock to 2" thick



Install wood furring around openings.

Cutting the Panels

Cutting through the foam is easy. Using a long snap-off blade utility knife, make a couple of scoring cuts through the panel. To cut through the studs, use any saw that cuts wood: hand saw, jig saw, circular saw, or table saw.

Never force or wedge a panel into place. Forcing a panel into place may cause the panels to buckle or bow away from the concrete wall. It is recommended to loose fit the panels in the corners and around openings and then seal the gap with spray foam.

Anytime the panels are cut, an extra bead of adhesive should be applied directly to the backside of the foam along the cut to secure the cut panel to the wall.

Miscut panels can be glued back together.



Methods of Attachment for Concrete Walls or Lath & Plaster Above Grade Walls

1. Adhesive attachment for concrete or masonry walls is the fastest and strongest method for installing panels. The hundreds of interlocking dovetails on the back of the stud are mechanically locked to the concrete. The benefit of the adhesive method is that it can flatten out the wall by floating over uneven surfaces, spanning up to 3/8" gaps.
2. Mechanical attachment can be used in place of adhesive when the concrete surface is unsuitable for a proper adhesive bond. Install concrete screws 12" o.c. through the studs and into the concrete wall. Do not use powder actuated nail guns which may crack the InSoFast studs.
3. Adhesive attachment can be supplemented with concrete screws. For a flatter wall, wait until the adhesive has set before installing mechanical fasteners.

PL Premium Construction Adhesive 3X by Loctite is the approved adhesive (LaPage in Canada)
(one 28 oz. tube covers 50 S.F. of panels - uneven surfaces may decrease coverage)

This installation manual primarily shows the use of adhesive attachment. See www.InSoFast.com

Installing InSoFast Panels over Concrete or Masonry Walls

Wall Prep

It is up to the installer to determine the suitability of adhesive for the application of the InSoFast panels. Clean and remove dirt, debris, or loose paint from the wall that could affect the adhesive bond. If you are unsure of the suitability of the wall, perform an adhesive test. See www.insofast.com for details on performing this test.

This is your last chance to fix any issues before covering the walls.

Start in a Corner

Start in the corner with a full InSoFast panel, tongue side up. The "InSoFast" logo must face outward toward the installer. The ribbed side of the studs must be in contact with the concrete wall. The front of the FP-2.0 panel has the exposed smooth front face of the stud showing. The FP-2.5 panel has recessed studs that are indicated on the front face of the panel. The exposed finished face of the FP-2.5 panel is completely white.

Run a 3/8" bead of PL Premium 3X along the ribbed dovetail gluing surface of the studs on the back of the first panel. Then apply an extra bead of adhesive directly to the foam within 2" of the corner of the wall. Set the panel on the floor and press it against the wall.

It is normal for panels to float out from the wall and feel spongy until the adhesive sets. Verify the proper amount of adhesive by pressing the panel to the wall and pulling back. The adhesive should cover the entire width of the stud. The adhesive is able to span gaps and will float over irregularities in the wall. Rough or uneven surfaces will require more adhesive.

Start the second row by cutting a panel to create the staggered or running bond pattern. The vertical seams should not match up. Convenient cutting lines are located 16" from the ends of the panel.

Continue installing the panels to the next corner. Cut the last panel 1/4" less than the exact measurement needed. To eliminate waste, use the cut portion of the panel to turn the corner.

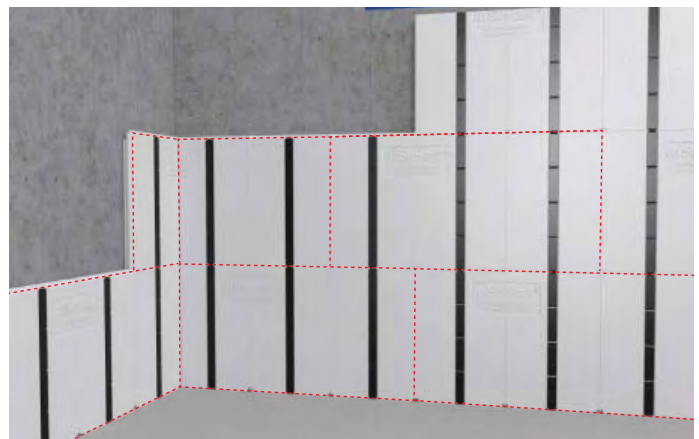
If you notice that the horizontal seams are not tight your floor may be uneven. See Advanced Installation: Adjusting Panels for Uneven Floors.



Start with a full panel in the corner.



Cut 16" off the panel to start running bond.



The staggered running bond pattern smooths out the wall.

Inside Corners

To prevent the panels from buckling out, do not cut the panels tight to the corner. Leave a 1/4" gap. Use the cut off piece to turn the corner and start the next wall. It is best to leave another 1/4" gap to fill with spray foam after all the panels are installed.



Use spray foam in the corner and at top of the wall.



Use one panel to go around a corner.

Outside Corners - with Corner Bead

Cut the panel flush or square with the corner. Run a bead of adhesive 2" from the cut end on the backside of the panel.

Use the cut off piece of the panel to continue around the corner and over lap the first piece. Run two beads of adhesive at 1" and at 3" from the cut end on the backside of the second piece. This secures the lap joint and bonds the panel to the concrete.

Install a sheet metal corner flashing "L" angle (available in roofing or drywall department) with PL Premium 3X. Hold in place temporarily with duct tape. This provides for easy drywall and corner bead attachment using screws.



Use adhesive to adhere the metal corner flashing.

Installing Top Row of Panels

It is important to seal the top row of panels. When installing the last row of panels, add a line of spray foam 2" down from the top of the panel before pressing into place. An alternate method is to use spray foam the top edge once the panels have been installed.

Intersecting Walls

It is best to install the InSoFast panels on the exterior wall before installing the intersecting partition walls. This provides a continuous thermal and moisture seal for the wall. Secure the partition wall with a bead of PL Premium 3X along the wood stud that butts into the InSoFast panels. A concrete screw may be used in place of adhesive. The top and bottom plates are secured to the ceiling and floor.

For existing interior walls, install the InSoFast panels up to the interior wall. Leave a 1/4" gap for spray foam.



Use adhesive in the corners of intersecting walls.

Sealing and Stopping Air Infiltration

It is important to prevent air infiltration and air movement behind the wall panels that could potentially lead to moisture issues.

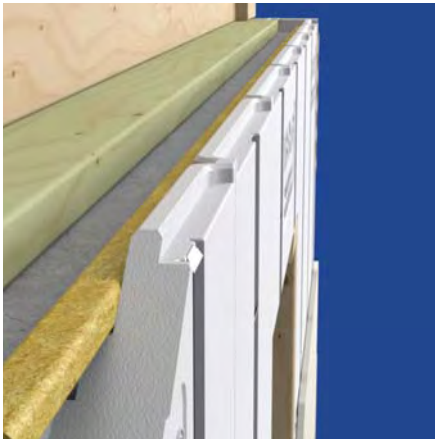
Seal the joint where the panels meet the floor. This reduces air movement but also assists in moisture management.

Apply a continuous bead of adhesive or spray foam to seal the panels at the top of the foundation wall.

Use spray foam to seal any gaps, corners, penetrations, windows/openings, and outlet boxes.



Seal the bottom of the wall.



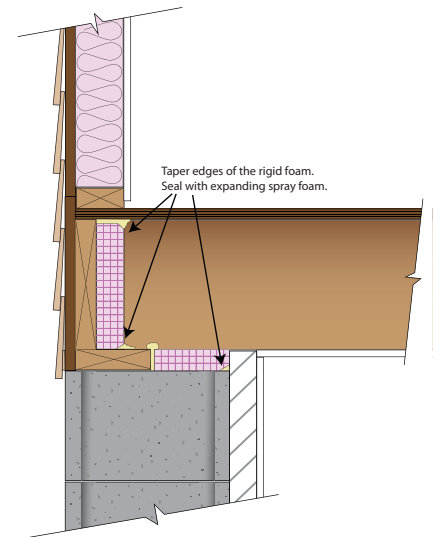
Seal the top of the wall.

Damaged panels with missing foam can be filled with spray foam.

It is not necessary to seal all the seams of the InSoFast panels.

Sealing the Rim Joist Area

A critical place to stop air infiltration in a home is the rim joist area at the top of the foundation. See www.insofast.com for more options on sealing and insulating the rim joist.



Seal the rim joist area.



Seal between the panels and furring.

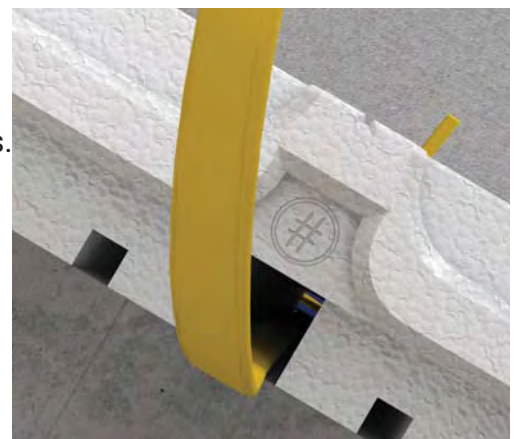
Windows and Openings

When fitting panels to the furring or framing for openings, cut panels short to leave a 1/4" gap to fill with spray foam. Add an additional bead of adhesive on the backside of the foam along any cuts.

Electrical Installation

Install electrical boxes and wiring after the panels are installed and the adhesive has cured. The InSoFast panels have vertical wiring raceways 16" o.c. which are indicated on the front face of the panels. The horizontal wiring raceway is 24" o.c. and located at the top of each panel. This horizontal raceway is formed when the two panels are stacked together.

The FP-2.0 panel uses a 2-1/2" deep electrical box or 1-1/2" deep metal junction box with a 1" reducing mud ring for a single outlet. The FP-2.5 panel can accommodate a 3" standard depth electrical box. See www.insofast.com for additional information.



It is easy to push wiring through the raceways.

Installing Wiring and Electrical Boxes

To locate the cutout area for an electrical box, press a box firmly into the foam to make an impression and then cut out the foam with a utility knife.

It is best to run wiring before securing the boxes. Push or slide Romex wiring through the horizontal or vertical raceways from box to box. If the wiring hangs up, bend over the sharp ends of the wire and crimp down. This makes it easier for the wiring to slide through the raceways. A fish tape is generally not needed to pull wiring through the raceways unless multiple wires are pulled at the same time.

Align the electrical box with a raceway or cut out a pathway in the foam to run wiring from the box opening to the horizontal or vertical raceway.



Cut out foam up to the horizontal raceway.



Vertical raceways are 16" o.c.



Horizontal raceways are 24" o.c.

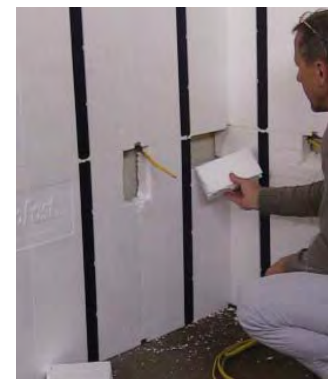
Electrical boxes are secured directly to the concrete wall using PL Premium 3X or concrete screws.

Seal around the box with expanding spray foam. This can also serve as the code required attachment for securing the wiring within 6" of an electrical box.

To run wiring around a corner, cut out a 4" piece of foam from each panel to access the horizontal raceway. Run wiring around the corner and then replace the foam pieces or fill the gap with spray foam.



Cut out foam to run wiring around the corner.



Replace missing foam.

Existing Outlets and Conduit

Install box extenders on the existing outlets if needed to reach the proper depth. To cut out for the box, press the panel over the outlet to make an impression onto the back of the panel. Cut out about 1/2" larger than the indentation. Fill the gap around the box with spray foam.

For existing conduit, firmly press the InSoFast panel against the conduit to transfer the location to the back. Remove the foam from the backside to accommodate the conduit by cutting along each side and then scraping out the foam with a chisel or screw driver.



Cut out foam for existing conduit.

Installing Drywall

A vapor barrier is not required when using InSoFast panels on the interior over concrete or masonry walls. As with all basement applications, it is recommended to use mold resistant drywall for basements.

Drywall is installed over InSoFast panels in the same way as traditional wood framing. Fasten drywall to the studs using standard coarse thread all-purpose drywall screws for wood.

Keep the drywall 1" off of the floor to prevent the wicking of moisture from the concrete.

InSoFast panels provide solid backing for drywall in corners and at partition walls. This eliminates the need for extra studs at the corners. If there is not an attachment stud in the corner, you can either float the drywall in the corner or apply a bead PL Premium 3X to the face of the panel. This bonds the drywall to the foam panel which is bonded to the wall.

InSoFast panels are manufactured with fire retardant foam, however building codes require that all foam products be covered by a 15-minute thermal barrier, such as 1/2" drywall.

Installing Trim

Fasten baseboard and trim to the attachment studs using a finish nail gun, hand nails, or trim head screws.

Trim out windows with a drywall return or extension jambs with casing.

Hanging Pictures

Lightweight pictures can be hung on the wall by using a nail or screw inserted through the drywall into the foam. For heavier pictures, use standard drywall anchors when a stud can not be located.

Installing TVs & Cabinets

Use a density scanning or metal sensing stud sensor to locate the studs or drywall screw heads. Install the TV mounting bracket or cabinets by screwing directly into the attachment studs using fasteners for wood.

Follow up with an additional mechanical fasteners as necessary to secure the TV mounting bracket or cabinets through the panel directly into the concrete wall. It is not necessary for the concrete screw to go through a InSoFast stud.



Screw drywall to metal flashing.



Drywall corner bead attached to the metal flashing.



Install extension jambs and window casing.

Advanced Installations

Adjusting Panels for Uneven Floors

After installing the second row, the horizontal seams should be tight. If there is a gap, apply duct tape the lower panel and pull it tight to the upper panel. The adhesive is repositionable for about 20 minutes. This will create a gap at the floor that can be filled with spray foam. The next rows will install correctly.

Sloping Floors

InSoFast panels can be cut to fit sloping floors. Place a panel on the low side. Measure the distance from the ceiling to the top of the panel. On the other end of the wall, measure down from the ceiling the same distance. Snap a line between the two marks. Lay out the panels against the line to determine how much needs to be trimmed off of the bottom of the panels to match the slope of the floor.

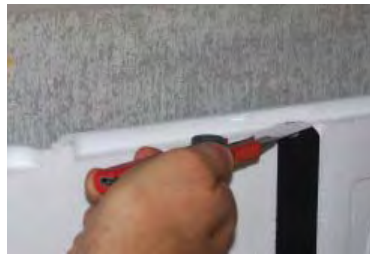
Rubble Stone Foundations- Bowed Walls – Out of Plumb Walls

InSoFast panels are not suitable for every project. It is up to you to decide if you have the skills necessary to tackle leveling a wall using advanced techniques. All walls must be repaired and stabilized structurally before you begin.

InSoFast panels can be installed on walls that are out of plumb, bowed, or are made from rubble stone. It is up to you to determine if InSoFast is the right fit for you and your project. See www.insofast.com.

Minimizing Waste for Odd Height Walls

InSoFast panels can be used to minimize waste for odd height walls such as 7' or 9' high. When panels are cut in half lengthways to fit, half of the pieces are left without a groove. Install the pieces with the groove first. To install the pieces without grooves, trim off the tongue of the panels on the wall and replace with a bead of adhesive. Then set the cut panels without grooves on top.



Trim off the tongue.



Glue bottom of top panel.



Set panel in place.



Add sheet foam over top InSoFast panels for increased R-Value.

InSoFast Plus Additional Insulation

If a higher R-Value is required, up to 1-1/2" of sheet foam can be added over top the InSoFast panels. Use enough fasteners or adhesive to hold the sheets in place.

Mark the stud location on the floor, ceiling, and at board edges to easily locate the InSoFast studs when installing drywall.

Use standard coarse thread all-purpose dry-wall screws for wood of sufficient length to penetrate through the foam board 1/2" into the InSoFast stud.

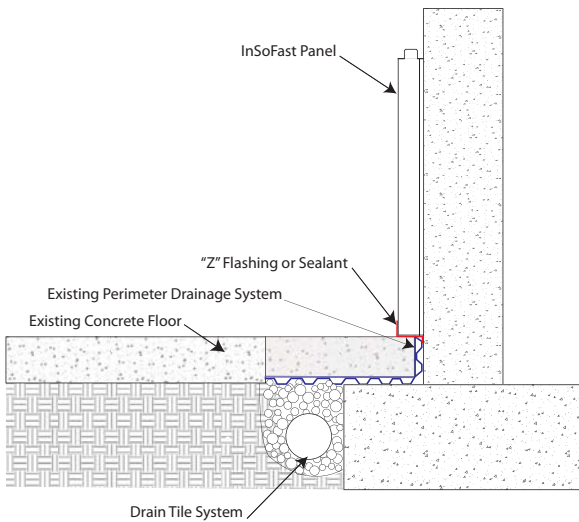
Perimeter Drainage Systems

When the basement floor is broken out for a new perimeter drainage system, InSoFast panels can be installed before the new replacement concrete is poured. This allows moisture to travel directly down the wall into the drain tile system. It is important to seal the InSoFast panels at the top of the wall, at corners, and at all penetrations to prevent soil gases from entering the house. See insofast.com for detailed drawings on soil gas mitigation.

If the drainage system is easily trimmable, such as a dimpled drainage mat, cut the material close to the floor. Install a "Z" flashing along the floor or seal the InSoFast panels to the floor.

If you have an existing perimeter drainage system that comes up above the concrete floor, slide a "Z" flashing into the top of the drainage system. Start the InSoFast panels on top of the flashing. Fill in the lower part below the flashing with scrap InSoFast panels or spray foam.

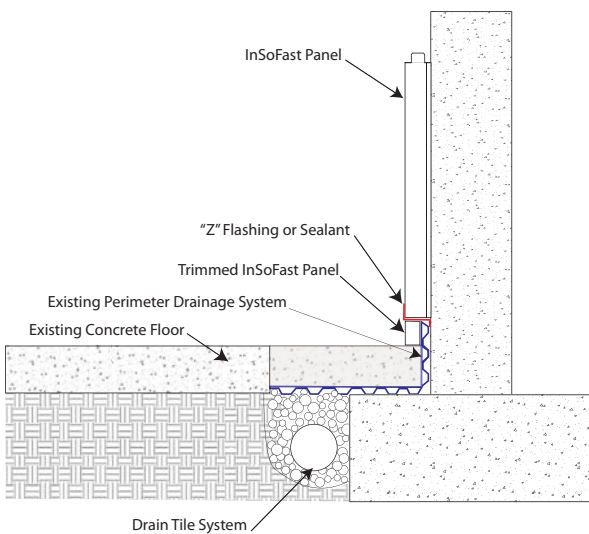
If you have a radon mitigation system in place, consult a professional before installing a perimeter drainage system. See www.insofast.com for more details.



Detail for perimeter drainage.



Drainage rock added for perimeter drainage.



Detail for drainage system above the floor.



New concrete poured up against panels.

Installing InSoFast Panels over Above Grade Framed Walls

InSoFast panels can be installed over an existing wood framed walls with existing drywall or lath and plaster. It is not necessary to remove drywall to install InSoFast and it is preferred to go right over the existing drywall. The drywall functions as an air barrier and will also increase sound proofing qualities and the performance of your wall. The InSoFast panels serve as the vapor retarder for above grade walls.

InSoFast panels can be used over above grade framed walls such as lookout or walkout walls in a basement. Do not install InSoFast panels over below grade wood framed walls that are against a concrete or foundation wall.

Wall Prep

Remove baseboard, window trim, electrical outlet covers, and heat registers. Install wood furring around openings so that they are flush with the face of the InSoFast panels. See page 2.

Electrical

When using existing electrical boxes, install a box extender.

After the InSoFast panels are installed, new outlets can be added. Wiring can be run from the knockout in the box extender to the new electrical box, utilizing the electrical raceways in the InSoFast panels. Foam can be cut out as necessary to access raceways.

Screw through the back of the box into an existing wall stud or to the InSoFast stud using face mounting steel stud boxes, available in metal or plastic. See Electrical Page 5.



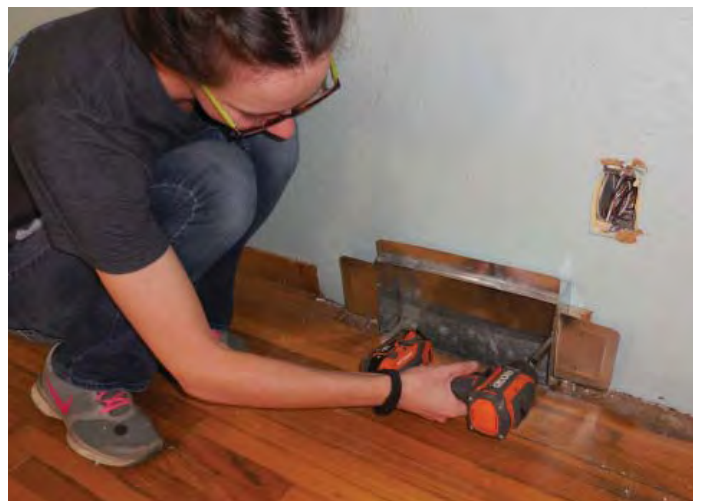
Use box extenders to accommodate new wall depth.



Face mounted box secured to stud.

Heating

Baseboard style wall registers can be extended before the panels are installed. Use a pre made sidewall metal register head.

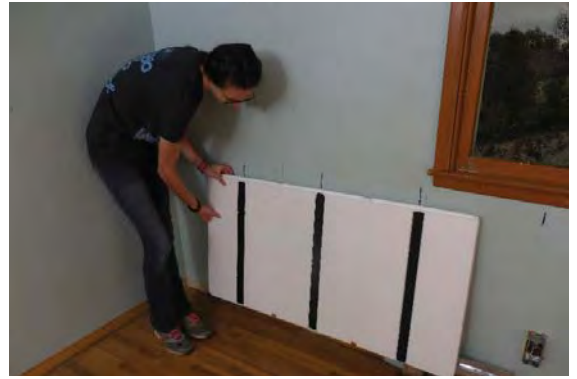


Extend out heat registers.

Panel Layout

Mark the existing stud locations on the wall. Align the InSoFast studs with the framing.

The recommended screw pattern is 12" o.c. with a fastener length sufficient to penetrate into the existing framing. If the framing is not 16" o.c., you can supplement with adhesive or screws with plastic washers for foam board.



Match up existing studs to InSoFast studs.



Install panels.

A stud is not required in the corners since the drywall is backed solid. Adhesive may be used in the corner for additional support.

Lath and plaster walls may use the adhesive method which does not require the panel studs to be aligned with the wall studs. Follow the basement application. See page 3.



Seal around window to prevent air infiltration.

Air Sealing - Drywall - Openings - Trim

Follow instructions for concrete or masonry wall application. See Pages 5 - 7.



Install drywall.



Trim out window.

Installing InSoFast Panels over Above Grade Masonry or Brick Walls

InSoFast panels can be installed over above grade masonry or brick walls. These old plastered brick walls had no insulation.

Wall Prep

Loose plaster and wall paper were removed. Replacement windows were installed.

Installation

Follow installation instructions for below grade concrete or masonry wall application. See Pages 2 - 4.

Air Sealing - Electrical - Drywall

Follow instructions for concrete or masonry wall application. See Pages 5 - 7.



Start in the corner.



Install ceiling panels first.



Apply a 3/8" bead of adhesive.



Optional mechanical attachment in the center of the panel.



Alignment notches keep studs aligned.

Installing InSoFast Panels over Concrete Ceilings

Installation

Install the InSoFast panels perpendicular to the planks in a staggered or running bond pattern. Install ceiling panels before installing InSoFast panels on the wall.

Mechanical Attachment

Install mechanical fasteners 12" o.c. (six per panel) into the recessed attachment points on the InSoFast stud that penetrate the concrete 1".

Adhesive Attachment

Apply a 3/8" bead of PL Premium 3X on the backside of the studs which have the ribbed surfaces. Apply an additional bead of adhesive to the foam along any cuts. See Page 2.

Install one mechanical fastener in the center recessed attachment point to hold the panel in place until the adhesive has set.

The ultimate strength of a single bead of adhesive is over 800 pounds per foot which is equal to concrete screws 6" o.c. However, it is up to your local building code official to determine if additional mechanical attachment is required. See www.insofast.com.

PL Premium 3X Stronger Construction Adhesive is the only recommended adhesive for adhering the InSoFast panels. Other formulas and brands may not work as expected.

Air Sealing - Electrical - Drywall

Follow instructions for concrete or masonry wall application. See Pages 5 - 7.



Install ceiling panels first.



Panels installed with concrete screws.



Panels installed in a staggered or running bond pattern.



Ready for drywall. Allow adhesive to fully cure.

Installing InSoFast Panels over Concrete Floors

Floor Prep and Vapor Barriers

If you have a moisture issue, it may be best to apply a concrete sealer that blocks moisture or install a vapor barrier on the concrete floor prior to installing the InSoFast panels. See www.insofast.com.

If you have new construction with a vapor barrier already installed underneath the concrete slab, it is not necessary to put another vapor barrier on top of the concrete floor.

Best practices recommends that you avoid floor coverings that are not vapor permeable such as sheet vinyl floor covering when using wood subfloor material.

When Using InSoFast on Both Walls and Floors

Install the InSoFast panels on the wall first. This minimizes the chance of water getting on top of the subflooring in the event the wall leaks.

Installation Methods

There are four basic installation methods: floating, glue down, screwed down, and fully adhered. All applications are installed in a staggered running bond pattern.

The floating method is recommended for carpet, laminate, and wood floors. This is a simpler, quicker installation that makes the concrete floor feel softer and more comfortable.

The glue down method can be used for carpet, laminate, and wood floors.

The screw down method can be used for any flooring type.

The fully adhered method is recommended for tiled areas to create a solid base that eliminates movement.

Floating Installation

The floating method places the panels directly on the concrete without any adhesive. Interlock the panels together with the tongue and grooved edges in a staggered or running bond pattern.

Glue Down Installation

The glue down method bonds the panels in place with a 3/8" bead of PL Premium 3X along dove-tailed ribbing of each stud.

Screw Down Installation

Attach InSoFast panels to the concrete floor by installing concrete screws through the studs.

Fully Adhered Installation

For tile applications, the InSoFast panels are set in a bed of thin set tile adhesive with a notched trowel per manufacturer's instructions.



Interlock the panels.



Glue down installation.

Interior Load Bearing Walls and Non-bearing Partition Walls

Install InSoFast panels up to load bearing walls or existing interior partition walls. Non-bearing interior partition walls can be framed directly on top of the subfloor with no need for a treated bottom plate.



Non-bearing interior partition wall.



Butt up to load bearing walls.

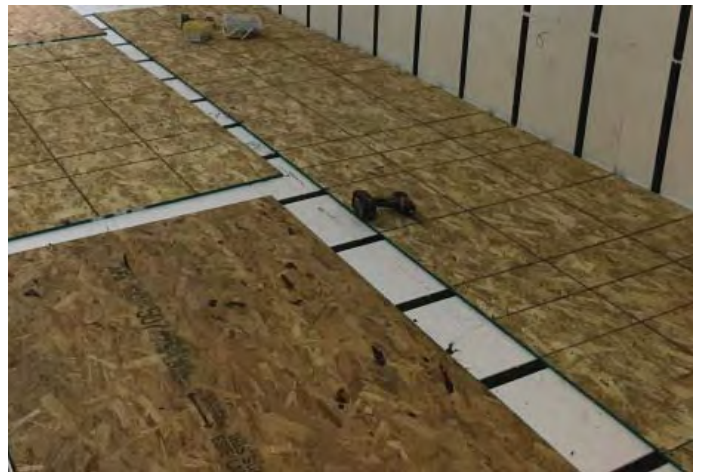
Installing Subflooring

Install subflooring with a gap for expansion per manufacturer's instructions. Fasten with standard coarse thread all-purpose construction screws or cement board screws which recess themselves.

When panels are installed as a floating floor, it is important to layout the subflooring so that the long seams of the plywood do not line up with the seams in the InSoFast panels. The short seams of the plywood should land over the top of a stud. Adhesive may be used if there is not stud to fasten to.



Line up end seam over InSoFast stud.



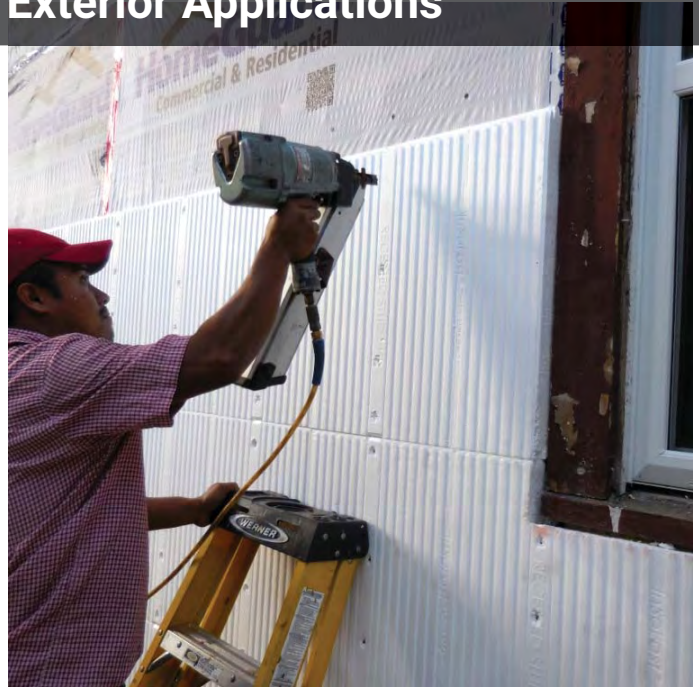
Cut subflooring so that it doesn't line up on the InSoFast seams.

Uneven Floors

Prior to installing panels, the low spots can be filled in with concrete patch or concrete floor leveler.

If you notice an area with excessive deflection after the subflooring has been installed, fill the void with adhesive or spray foam. Drill a hole through the subflooring and panel down to the void and inject PL Premium 3X or gap and crack spray foam. Using too much spray foam will cause a bulge in the floor. Avoid walking on this area until the adhesive or spray foam has set.

See InSoFast.com for Exterior Applications



See InSoFast.com for Shipping Container Build Outs



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