

2.18 – INTERIOR & EXTERIOR FINISHES

2.18.1 – VAPOR & AIR BARRIERS

The Logix wall assembly has no need for an additional vapor barrier, the solid concrete core covered with the low permeance EPS (Type II) foam insulation on the inside wall face keeps water vapor from penetrating the wall.

The fact that the inner face of EPS foam maintains a similar temperature as the inside air of the building and that a Logix wall has no cavity means that no condensation can occur in a Logix wall assembly.

The Logix wall assembly has no need for an air barrier (building wrap) layer as the solid concrete core and low permeance EPS (Type II) foam insulation on the outside wall face keeps air and moisture from penetrating the wall.

2.18.2 – INTERIOR DRYWALL

Drywall should be installed in the same manner on a Logix wall as on a stud wall, with the following time-saving exceptions:

- All webs (studs) are on 8 inch (203 mm) centers from floor to ceiling for easy attachment of any type of interior wall finish.
- The butt joints of the sheetrock do not need to fall on webs (studs) as the foam provides solid backing wherever the joints fall. However, the edge of sheetrock panels should not exceed more than 4" from webs.
- A foam-compatible adhesive can be used to effectively fasten the sheetrock to the Logix wall along with screws. Always make sure to verify the local code for types and spacing for sheetrock fasteners. Typically, adhesive alone is not allowed as a fastener of sheetrock, but again check with local building codes.

Many local building codes require the application of 1/2 inch (13 mm) drywall or other suitable thermal barrier in any living space even though the EPS foam has a fire retardant component. Always verify local building code requirements.

2.18.2 – INTERIOR DRYWALL CONTINUED

Non-habitable spaces such as crawl spaces, attics, and other types of hidden areas typically do not require a thermal barrier (drywall).

Embedded furring tabs are fixed at each corner of the Logix 90° corner forms for solid sheetrock fastening at all corners.

2.18.3 – EXTERIOR SIDING



Siding material of some kind must be installed over the EPS foam to protect it from the UV rays of the sun. Foam left exposed to the sun will degrade on the exposed surface by slowly breaking and getting “dusty”.

NOTE: When using Logix Platinum Series care should be taken to protect exposed foam surfaces from reflected sunlight and prolonged solar exposure until wall cladding or finish material is applied. Shade exposed foam areas, or remove sources of reflective surfaces, where heat build up onto exposed foam might occur. For more information refer to BASF Technical Leaflet N-4 Neopor, “Recommendations for packaging, transporting, storing and installing building insulation products made from Neopor EPS foam.” (The BASF Technical Leaflet is attached to every bundle of Logix Platinum forms delivered to a job site).

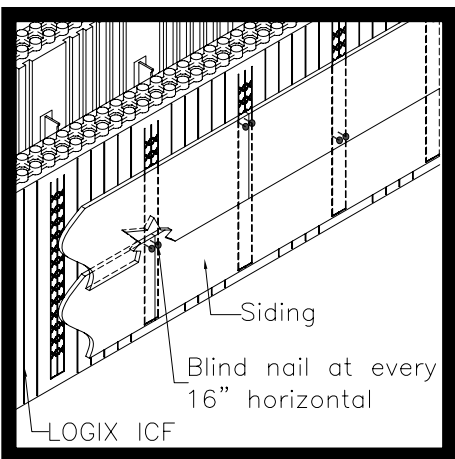
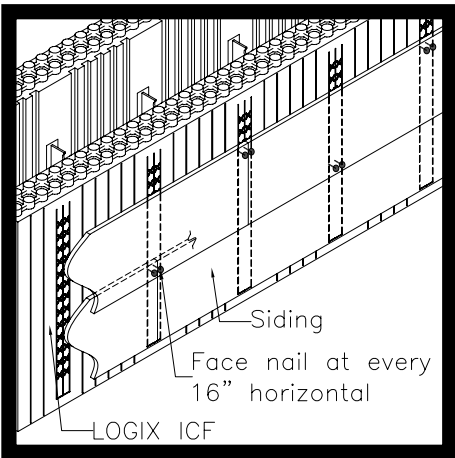
Metal and vinyl siding can be installed directly over the top of the EPS.

Although air guns can be used, Logix recommends the use of screw guns when attaching exterior siding. Always follow manufacturer’s recommendations and local codes to determine the size and spacing of fasteners for all siding products.

Any type of siding that is used on a typical wood-framed building can be used on a Logix building.

The siding channel stock around doors and windows can be fastened to whatever type of buck material was chosen, in a similar fashion as wood framed building.

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2.18.4 – STEEL PANEL SIDING

Steel panel siding can be applied vertically to a Logix wall when the style of the panel matches the Logix web 8 inch (203 mm) increments for fastening purposes.

When a panel siding is chosen that doesn't fit with 8 inch (203 mm) increment for fastening, two different methods are available:

METHOD 1:

A 1/2 inch (13 mm) or 3/4 inch (19 mm) strip of wood can be attached horizontally to the webs in the wall to provide the manufacturer's specified fastener spacing.

METHOD 2:

The panels can be installed horizontally, by fastening directly into the webs.

NOTE: Although air guns can be used, Logix recommends the use of screw guns when attaching exterior siding. Always follow manufacturer's recommendations and local codes to determine the size and spacing of fasteners for all siding products.

2.18.5 – WOOD SIDING

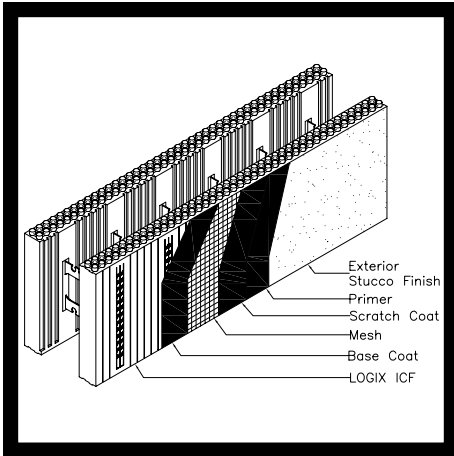
Any wood siding can be attached to the Logix wall in the same manner as to a traditional framed building. The spacing of the web studs on 8 inch (203 mm) centers allows for industry standard spacing of fasteners.

Typically, screws are used for attaching wood siding or even half-log siding to the Logix wall.

Although air guns can be used, Logix recommends a screw gun with screws in clips (Quik Drive). This is usually the fastest method for applying wood siding. Always follow manufacturer's recommendations and local codes to determine the size and spacing of fasteners for all siding products.

A good practice for installing wood siding on a wall, is to apply the siding over vertical 1 inch x 2 inch (25 mm x 51 mm) wood nailing strips with a screen at the bottom. The screen keeps insects out while the space allows air to circulate behind the siding. The air circulation helps equalize the moisture content in the wood siding, which makes for much more dimensionally stable siding and longer lasting application.

2.18.6 – EIFS



There are now acrylic-based stucco products available that are more flexible and easier to work with than traditional cement-based stucco. Collectively these products are known as EIFS (Exterior Insulation Finish Systems) and almost always require an EPS substrate.

Because Logix blocks are made with EPS, they are a natural fit for EIFS finishes. In addition, the webs in Logix blocks are embedded 1/2 inch (13 mm) deep in the EPS foam to comply with EIFS manufacturer requirements.

It is important to follow the EIFS manufacturer's application procedures.

2.18.7 – TRADITIONAL STUCCO (CEMENT-BASED)

Logix walls will accept traditional cement-based stucco product. Although air guns can be used, Logix recommends a screw gun when attaching the wire lath mesh to Logix walls. Use screws with a wide head or screws along with washers to best hold the mesh in place.

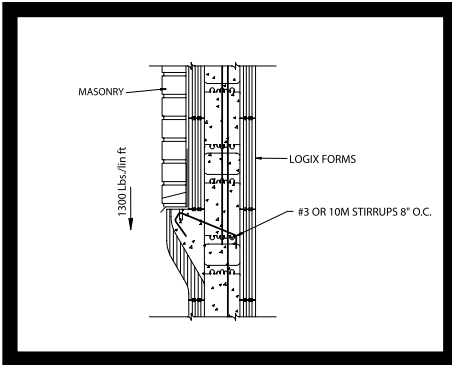
Consult local building codes for vertical and horizontal fastener placement requirements. The center-to-center fastener spacing requirements for nails and staples must be followed for screws as well. Again, check with local codes for all specific requirements relating to the application of stucco over EPS insulation.

2.18.8 – CEMENT COMPOSITE SIDING

Recently the new cement fiber siding products have gained popularity. This type of siding can usually be fastened directly to the Logix webs. Although air guns can be used, Logix recommends a screw gun to fasten flat-headed exterior screws at 16 inch (406 mm) centers. The screws pull the siding in tight and hold the siding securely in place. Some manufacturers may require the siding to be strapped out to allow air space behind. Vertical or shake patterns will require strapping for fastening. Always follow manufacturer's recommendations and local codes to determine the size and spacing of fasteners for all siding products.

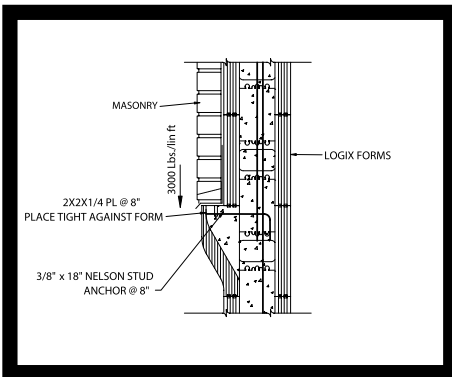
Check with your siding manufacturer for specific requirements.

2.18.9 – BRICK VENEER



The Logix Brick Ledge form units are used to support a brick veneer as the exterior finish material. The Brick Ledge forms are simply placed at a level where the brick is desired to begin. The design of the form creates a reinforced concrete ledge.

With standard reinforcing, the Brick Ledge can bear up to 1300lb/ft (19kN/m) of wall.



With site-specific engineering, up to 3000lb/ft (44kN/m) of wall is attainable.

To install Brick Ledge form units, follow the instructions on **Section 2.7.4** of the guide. When reinforcing steel and concrete are in place within the wall, brick is laid on the ledge and tied back to the webs with brick ties as specified.



For full size CAD drawing see
Section 5, CAD Drawings

2.18.10 – BELOW GRADE WATERPROOFING, DAMPPROOFING & PARGING

There are many methods available to protect the “below grade” and the “just above grade” areas of the exterior of your building.

Dampproofing is used on concrete or masonry surfaces to repel water in above grade walls. The 2.75 inch (70 mm) and thicker foam panels of the Logix insulated concrete forms acts as dampproofing, therefore, no additional dampproofing treatment is required.

NOTE: Although dampproofing above grade walls is not typically required, check with local building codes for dampproofing requirements.

2.18.10.1 – BELOW GRADE WATERPROOFING



Logix recommends a rubberized “peel and stick” waterproofing membrane. The membrane is applied vertically to the wall from grade level down to and overlapping the top of the footing. It is recommended to use protection board (1/2 inch EPS or EXP foam sheets or similar) to prevent damage to the waterproofing membrane during backfilling.

Free flow drainage material with a maximum fluid density of 30 pcf (480 kg/m³) is recommended, i.e., sand or sand-gravel mix.

NOTE: Membrane should be installed within one week prior to backfill being placed. Sunlight and high temperatures may cause the membrane to begin to “sag” which may cause wrinkles in the material which may result in tears or punctures during the placement of the backfill material. Should you choose to use one of the many other types of waterproofing available be sure to follow the manufacturer’s recommended installation procedures.

STEP 1: Prep the wall and footing area to be covered by removing dirt and debris.

STEP 2: Snap chalk lines for the “grade” line.

STEP 3: Measure the height from grade line to footing. Add enough length to cover the top of the footing and cut pieces of membrane to length.

2.18.10.1 – BELOW GRADE WATERPROOFING CONTINUED

Also cut smaller 4" - 6" (102mm - 152mm) pieces to be applied as "corner caps". This will provide double ply protection in the corners.



STEP 4: Apply the "corner cap" pieces on each corner first.

STEP 5: Starting at a corner, line up the membrane so it is hanging vertically (using our vertical cut lines as a guide to keep membrane plumb). Pull back the first 8" - 10" (203mm - 254mm) of the release paper and press the membrane to the wall. Continue pulling back the release paper and pressing membrane to the wall.

STEP 6: Continue applying cut pieces of membrane around the wall, maintaining 2 inch (51 mm) overlap by using the printed marks on the membrane as a guide.

NOTE: Extreme temperatures, both cold and hot, may cause the installer to consider other types of waterproofing. Be sure to follow the manufacturer's installation process.

2.18.10.2 – ABOVE GRADE PARGING

The area that is above grade line and below the exterior siding material must be parged to protect the EPS from damage.

Parging is a coating material that is applied to give a finished appearance to the small area of wall that is above grade level but below where the siding materials will begin. Logix Prepcoat is the preferred option for this area.

STEP 1: Prep the wall area to be covered by removing any dirt or debris. The wall may need to be “scuffed” to reveal fresh EPS beads.

STEP 2: Mix Prepcoat dry material with water to a pasty consistency.

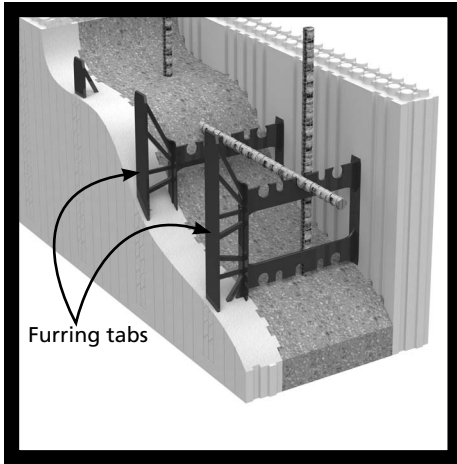
STEP 3: Using a trowel apply a thin, 1/16” - 1/8” (2mm - 3mm) “skim coat” of Prepcoat.

STEP 4: Pre-cut pieces of Logix fiber mesh 1” - 2” (25mm - 51mm) wider than the area to be parged. This will allow for an over-lap over the waterproofing membrane to create a “drip ledge”.

STEP 5: Embed the mesh in the skim coat firmly.

STEP 6: Once the area is dry to the touch apply a second coat of Prepcoat. This coat can be painted or stained if desired.

2.18.11 – ATTACHING FIXTURES



For attaching fixtures Logix provides furring tabs spaced every 8 inches, which provides more fastening points than stud walls.

Different methods are used to attach fixtures depending on whether the fixture is light or heavy in weight.

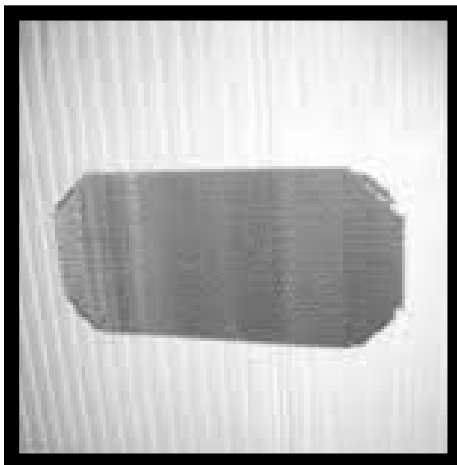
LIGHT WEIGHT FIXTURES

Fixtures that are light in weight, or are not subjected to heavy loads, such as small picture frames or mirrors, can be attached to the wall without having to fasten into the furring tabs by using typical hanging pins, finishing nails or plugs.

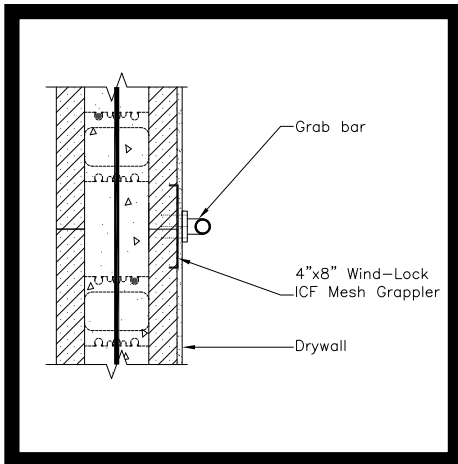
Light weight fixtures such as curtain rods, large picture frames or mirrors, bathroom accessories, etc., require a more secure attachment to the wall.

The Grappler, a product made specifically for ICFs, provides a stronger attachment for fixtures that are light in weight but require a more secure hold. The Grappler is also useful in areas where a stronger fastening point is required in an area where furring tabs may be absent. The Grappler is a 4" x 8" steel meshed plate that is pressed into the surface of the Logix form panels before drywall is placed. Once the drywall is installed the Grappler is sandwiched between the ICF and drywall creating a much stronger and secure attachment area.

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2.18.11 – ATTACHING FIXTURES CONTINUED



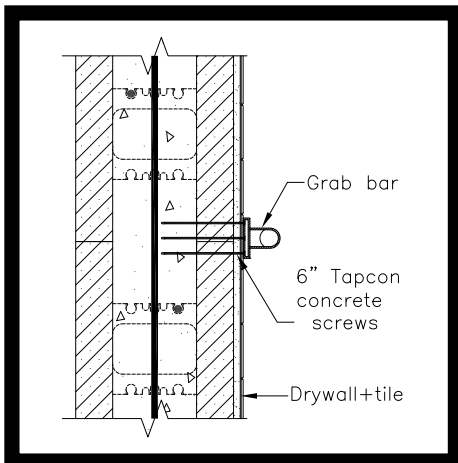
HEAVY WEIGHT FIXTURES

Additional backing is recommended to support heavier wall fixtures, such as kitchen cabinetry, wall mounted fixtures, grab bars, hand rails, etc.

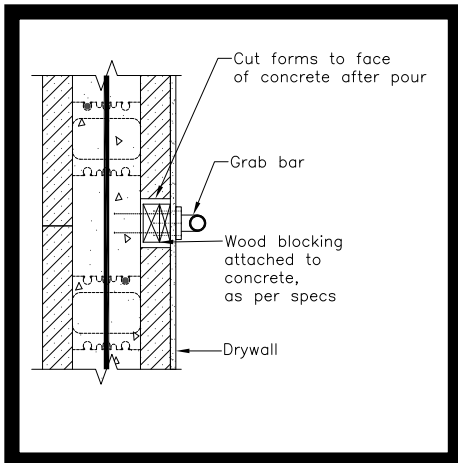
Different attachment methods can be employed depending on the type of attachment.

Cabinets

Method 1: Plywood board can be attached to the Logix wall behind the heavier cabinets in place of gypsum board, providing a thermal barrier comparable to gypsum and a strong attachment surface for heavier items and fixtures. Be certain to attach the plywood board to the Logix webs with a sufficient number of screws to hold heavy items in place for when loads are applied.



Method 2: Create horizontal channels behind the cabinets equal in width to a 2x4 and install 2x4 backing directly to the concrete surface using sufficiently long concrete screws and a rotohammer. Attach the cabinets to the 2x4s.



Grab Bars

Method 1: Before placing drywall, place the Grapplers onto Logix at grab bar fastening points. Install the drywall and fasten the grab bar to the Grapplers.



For full size CAD drawing see Section 5, CAD Drawings

2.18.11 – ATTACHING FIXTURES CONTINUED

Method 2: Use Tap Con screws to anchor the grab bar directly to the concreted.

Method 3: For a stronger hold remove the foam and replace with wood blocking behind the grab bar mounting bracket. The wood blocking should be mechanically fastened to the concrete.

Televisions

Method 1: Face mounted TVs upto 200lbs can be secured to the furring tabs with a minimum of 4 course thread screws. Care must be taken to ensure the screws are properly fastened to the furring tabs. Fastening to Grapplers in combination with furring tabs will also work.

Method 2: Replace the drywall behind the mounting bracket with plywood extending the full height of the mounting bracket and covering at least 3 furring tabs in length. Fasten the plywood with sufficient number of screws to the furring tabs. Conceal the plywood with drywall compound to blend with the drywall and attach the mounting bracket to the plywood.

TV mounts that swivel causes heavier loading conditions and should be anchored to the concrete with plywood and tapcons.

2.18.12 – HOLDING POWER OF SCREWS FASTENED TO Logix FURRING TABS

Web fastener withdrawal and shear testing using coarse and fine thread drywall screws. Tests were conducted on furring tabs embedded 1/2 inch (52 mm) from the surface of the 2.75 inch (70 mm) Logix EPS panels .

	Max. Average Withdrawal Resistance	Allowable Withdrawal Resistance ¹	Max. Average Shear Resistance	Allowable Shear Resistance ²
Coarse Thread Drywall Screw	166lb (75.3kg)	33lb (15.0kg)	367lb (166.5kg)	49lb (22.2kg)
Fine Thread Drywall Screw	169lb (76.7kg)	34lb (15.4kg)	328lb (148.8kg)	49lb (22.2kg)

1kg = 9.81 Newtons

1. Allowable withdrawal resistance values are based on a factor of safety of 5.
2. Allowable shear resistance values are based on a factor of safety of 3.2 within defined deflection limits (for more detailed information contact info@Logixicf.com)

NOTE: The numbers in this table represent resistance at failure. Good building practice mandates a minimum of a 5 to 1 safety factor in calculating fastener loading. For complete test results on additional fasteners, see **Section 8** in the Logix Design Manual or consult your local Logix representative.