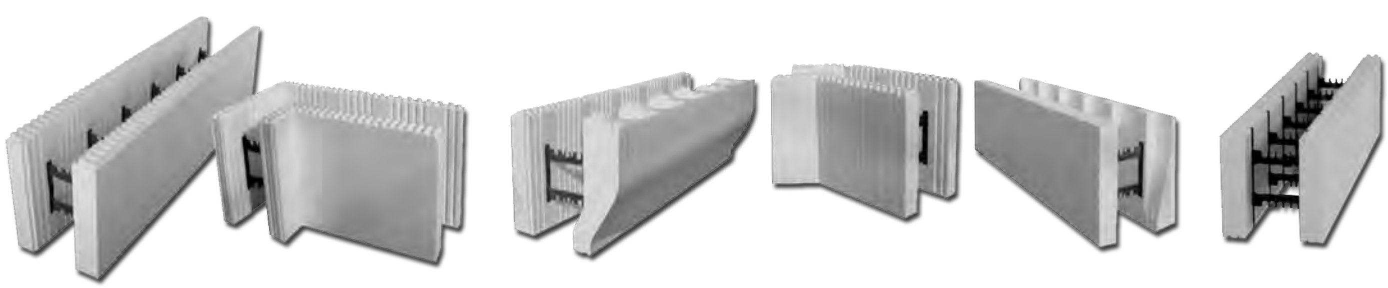
LOGIX®
INSULATED CONCRETE FORMS

DESIGN MANUAL (USA)

Build **Anything** Better.™

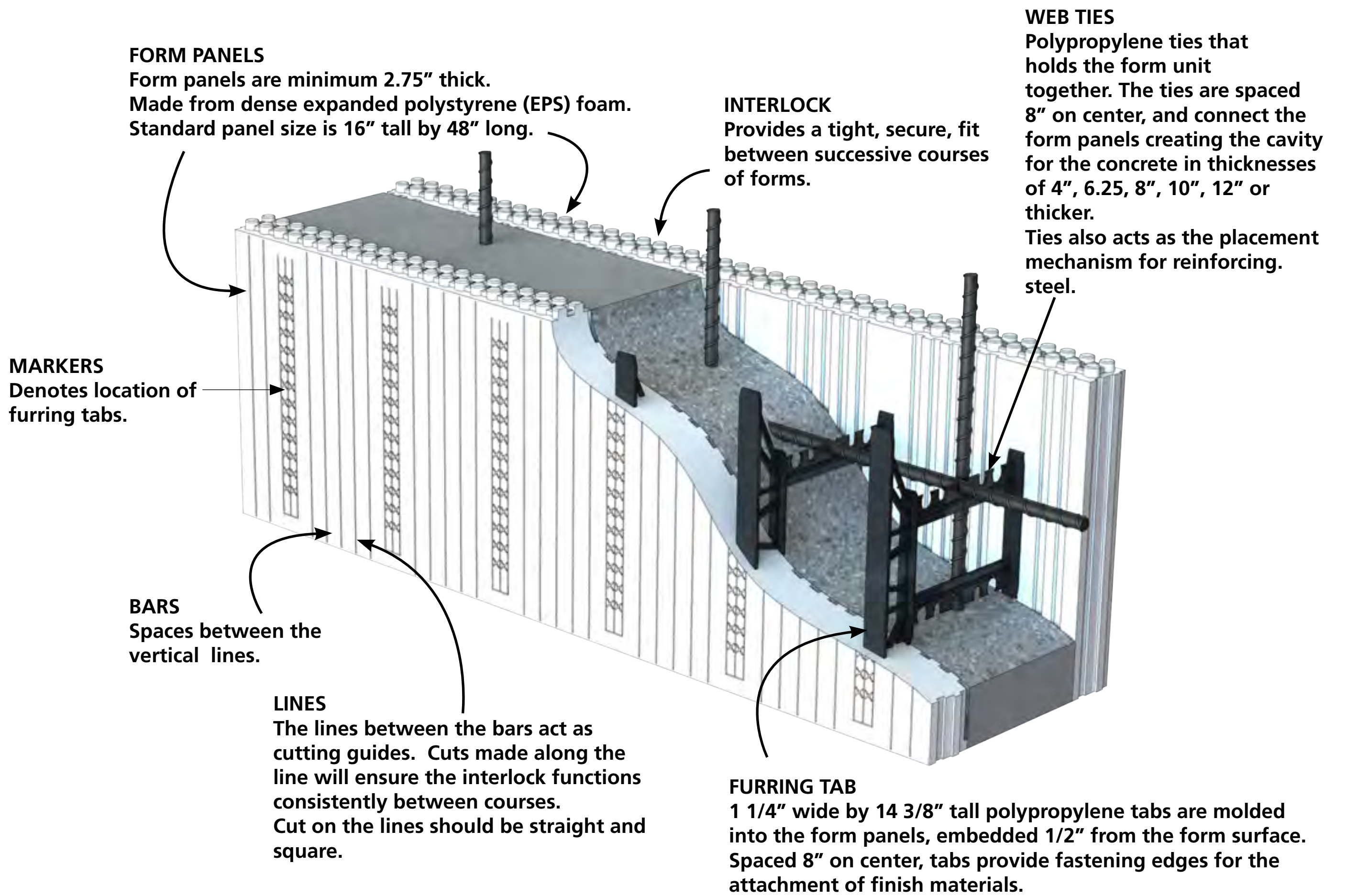


1.0 – SYSTEM OVERVIEW

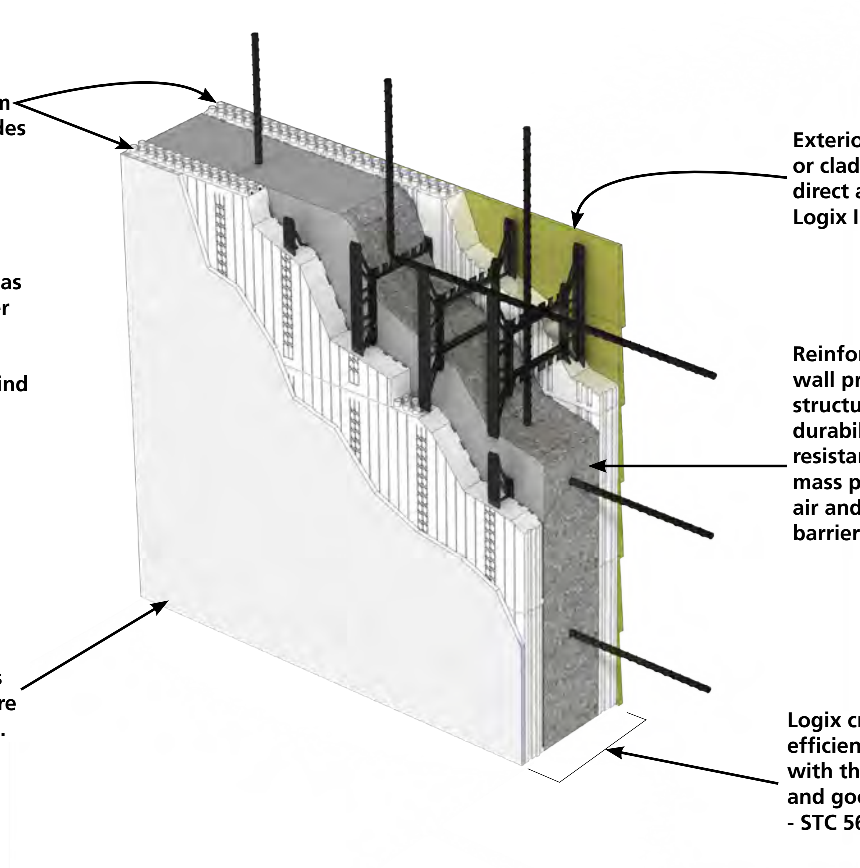
1.1 – APPLICATION & USE

Logix Insulated Concrete Forms are used to create solid reinforced concrete walls that are pre-insulated for use both above-and below-grade. Logix walls are particularly effective for residential, multi-residential, commercial, institutional, and industrial buildings.

Logix is available in a wide variety of special form units and accessories, including corners, brick ledges, straight panels, t-walls, pilasters, and knock-down forms permit the Logix system to be adapted to many different situations. Logix forms are available in 8 inch (203 mm), 12 inch (305 mm) and 16 inch (406 mm) height for additional design flexibility. See Section "1.2 – PRODUCT SPECIFICATION TABLE" on page 5.



Typical ICF Components



Typical ICF Wall Assembly

1.2 – PRODUCT SPECIFICATION TABLE

Logix manufactures both assembled and unassembled insulated concrete form units. Logix assembled forms, known as “Logix PRO”, are delivered to the job site as assembled form blocks. Logix unassembled forms (or knock-down forms), known as “Logix KD”, are delivered to the job site in components that make up the form blocks - the form panels and KD Connectors. Logix KD are assembled on the job site.

Below is a summary of the types of Logix PRO and Logix KD forms available. However, contact a local Logix representative for availability of specific Logix products.

Logix PRO (assembled form blocks)

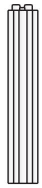
	DESCRIPTION
Logix Pro	White in color
Logix Pro Platinum[3]	Offers higher R-value[1] than Logix Pro. Grey in color. Made with BASF Neopor.
Logix Pro TX	Logix Pro with termite resistant additive Preventol[2]. White in color.
Logix Pro Platinum[3] TX	Logix Pro Platinum with Preventol. Grey in color.

Logix KD (unassembled form blocks)

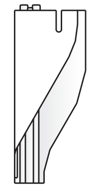
	DESCRIPTION
Logix KD	White in color
Logix KD Platinum[3]	Offers higher R-value[1] than Logix KD. Grey in color. Made with BASF Neopor.
Logix KD TX	Logix KD with termite resistant additive Preventol[2]. White in color.
Logix KD Platinum[3] TX	Logix KD Platinum with Preventol. Grey in color.

Notes:
1. See Section 8.5 for Logix R-values.
2. Preventol is an effective termite resistant additive.
3. 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).

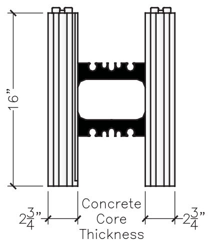
LOGIX FORM PANELS

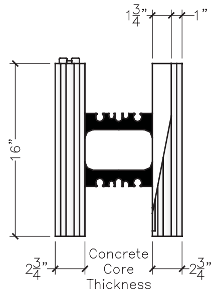
STANDARD 

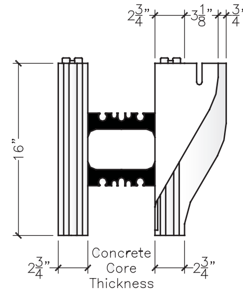
TAPER TOP 

BRICK LEDGE 

STANDARD 

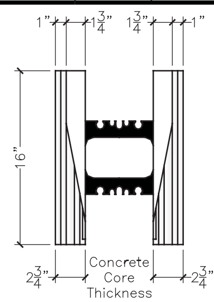


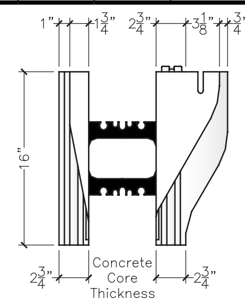




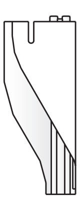
	STANDARD					TAPER TOP					BRICK LEDGE				
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	13.375	15.625	17.375	19.375	21.375
Width Bot.[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5
Form Type[2]	KD/P	KD/P	KD/P	KD/P	KD	KD	KD/P	KD/P	KD/P	KD	KD/P	KD/P	KD/P	KD/P	KD

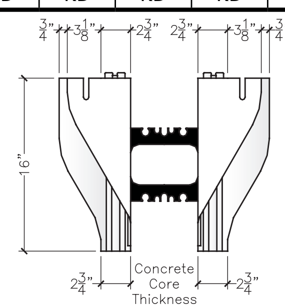
TAPER TOP 





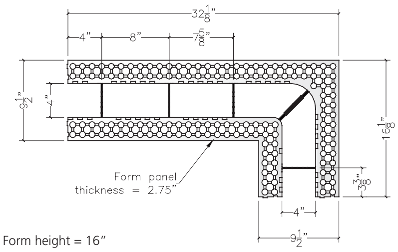
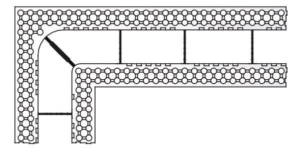
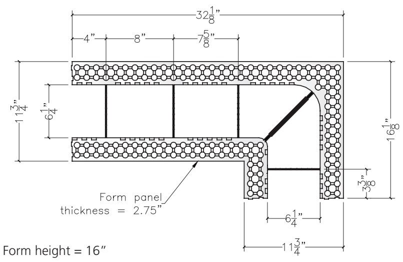
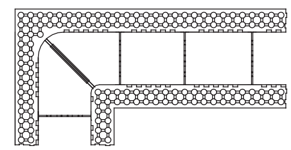
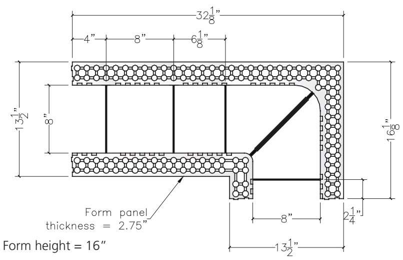
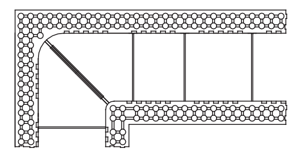
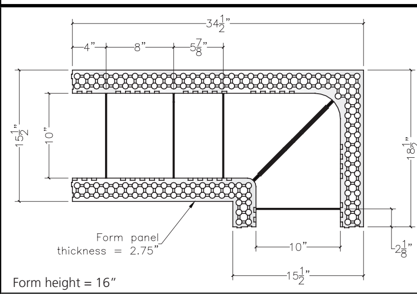
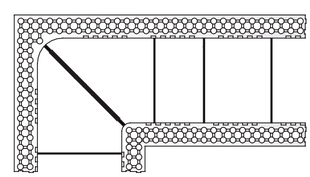
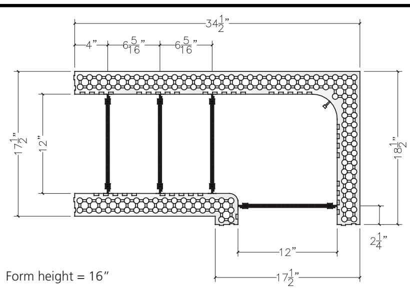
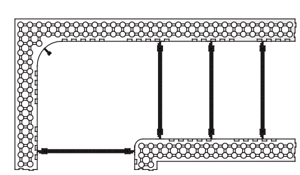
	STANDARD					TAPER TOP					BRICK LEDGE				
Conc.Core Thickness						4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]						9.5	11.75	13.5	15.5	17.5	13.375	15.625	17.375	19.375	21.375
Width Bot.[1]						9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5
Form Type[2]						KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

BRICK LEDGE 



	STANDARD					TAPER TOP					BRICK LEDGE				
Conc.Core Thickness											4	6.25	8	10	12
Width Top[1]											17.25	19.5	21.25	23.25	25.25
Width Bot.[1]											9.5	11.75	13.5	15.5	17.5
Form Type[2]											KD	KD	KD	KD	KD

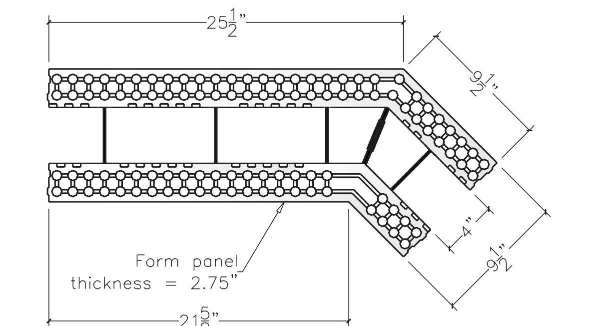
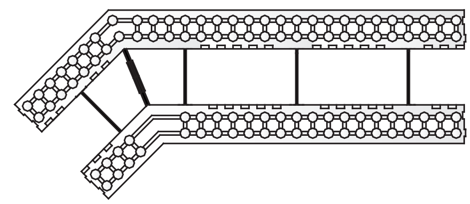
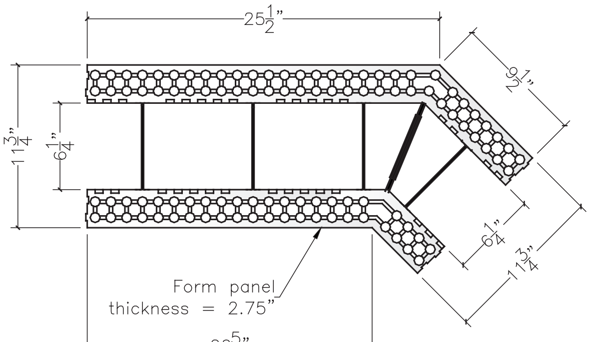
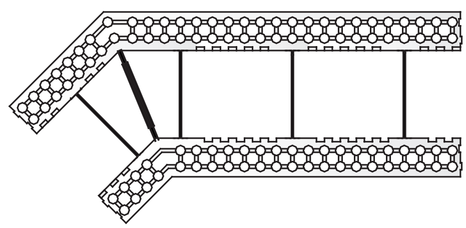
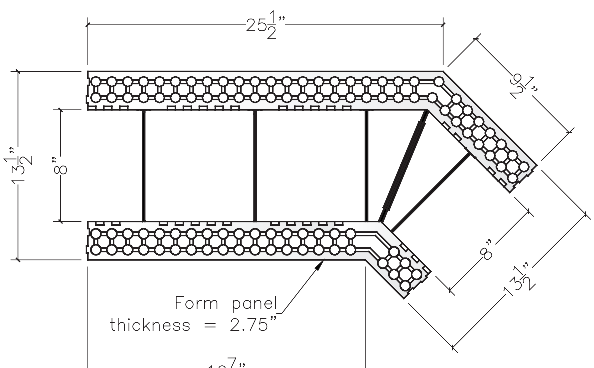
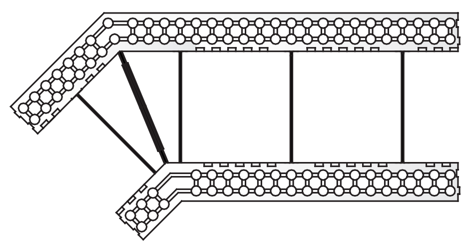
1. Width at Top and Bottom is measured from outside face to outside face of forms.
2. "KD" and "P" denotes Logix KD (unassembled forms) and Logix PRO (assembled forms), respectively.

	Left Hand Corner Form	Right Hand Corner Form
4 inch Concrete Core Thickness	 Form panel thickness = 2.75” Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
6.25 inch Concrete Core Thickness	 Form panel thickness = 2.75” Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
8 inch Concrete Core Thickness	 Form panel thickness = 2.75” Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
10 inch Concrete Core Thickness	 Form panel thickness = 2.75” Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
12 inch Concrete Core Thickness	 Form height = 16”	 (dimensions similar)
Form Type[1]	**KD**	**KD**

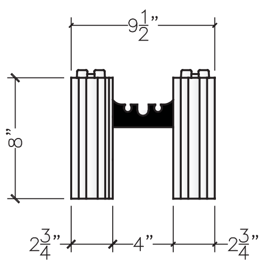
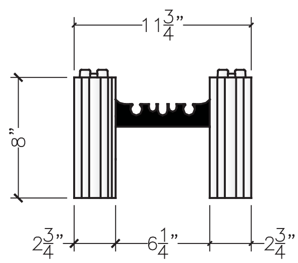
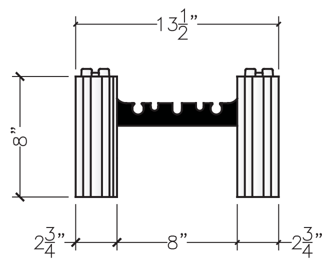
1. “KD” and “P” denotes Logix KD (unassembled forms) and Logix PRO (assembled forms), respectively.

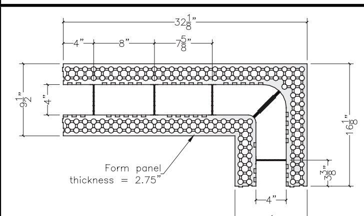
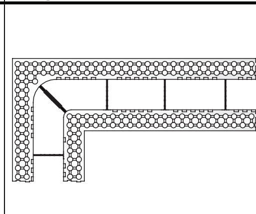
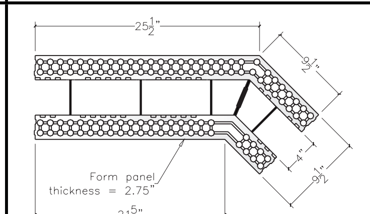
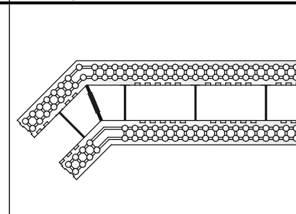
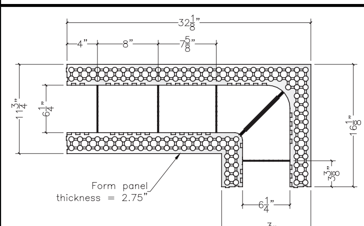
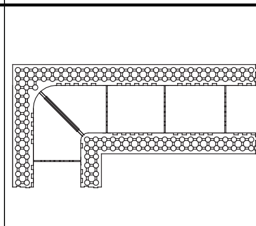
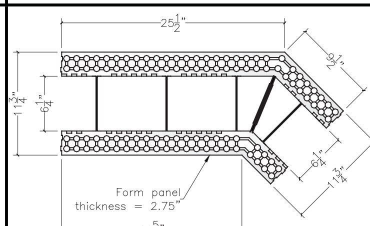
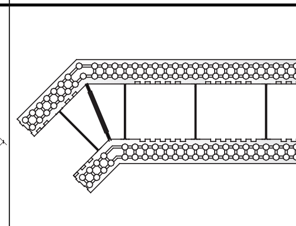
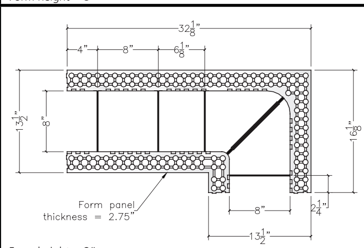
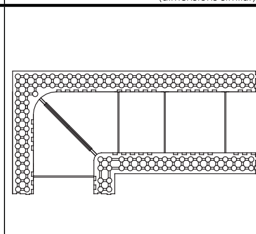
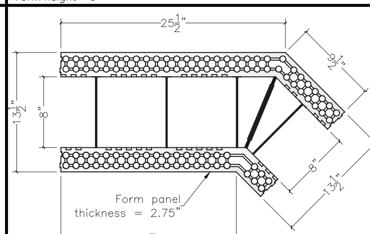
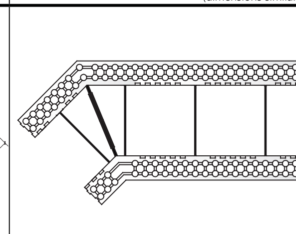
SYSTEM OVERVIEW

1.2 – PRODUCT SPECIFICATION TABLE cont'd

	Left Hand 45° Form	Right Hand 45° Form
4 inch Concrete Core Thickness	 Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
6.25 inch Concrete Core Thickness	 Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**
8 inch Concrete Core Thickness	 Form height = 16”	 (dimensions similar)
Form Type[1]	**KD/P**	**KD/P**

1. “KD” and “P” denotes Logix KD (unassembled forms) and Logix PRO (assembled forms), respectively.

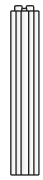
HALF HEIGHT STANDARD FORMS[1]		
4 inch Concrete Core Thickness	**6.25 inch Concrete Core Thickness**	**8 inch Concrete Core Thickness**
		

	HALF HEIGHT CORNER FORMS[1]		HALF HEIGHT 45° FORMS[1]	
	Left Hand 45° Form	**Right Hand 45° Form**	**Left Hand 45° Form**	**Right Hand 45° Form**
4 inch Concrete Core Thickness	 Form height = 8"	 (dimensions similar)	 Form height = 8"	 (dimensions similar)
6.25 inch Concrete Core Thickness	 Form height = 8"	 (dimensions similar)	 Form height = 8"	 (dimensions similar)
8 inch Concrete Core Thickness	 Form height = 8"	 (dimensions similar)	 Form height = 8"	 (dimensions similar)

1. Height of forms for Half Height Forms = 8 inches

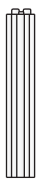
V12 Logix FORM PANELS

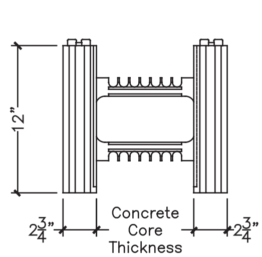
V12 STANDARD

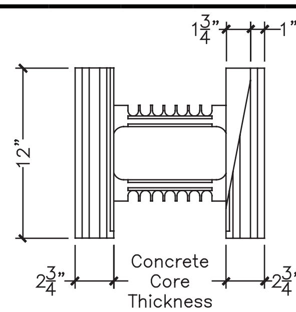


V12 TAPER TOP

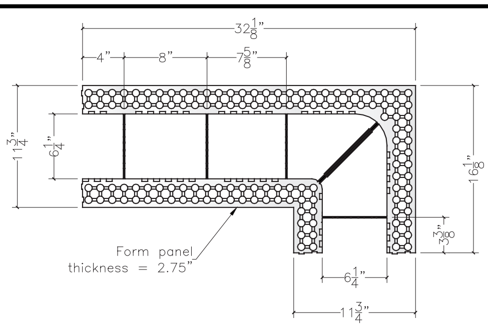
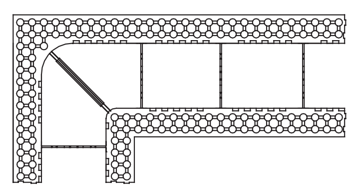
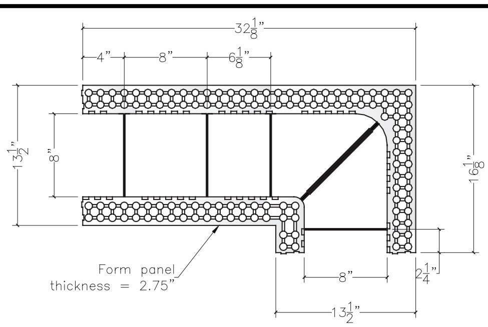
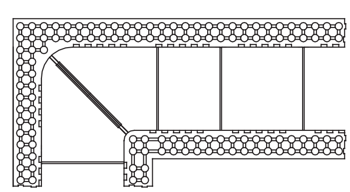
V12 STANDARD





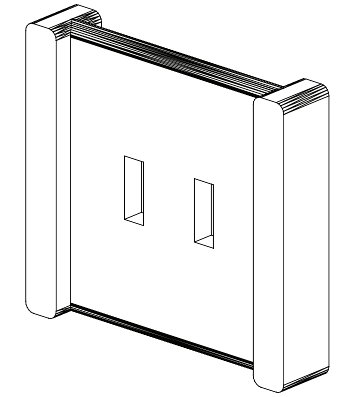
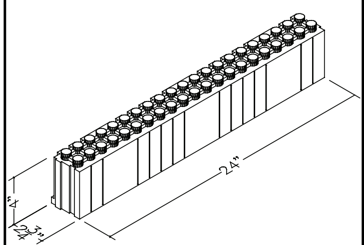
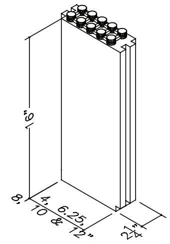
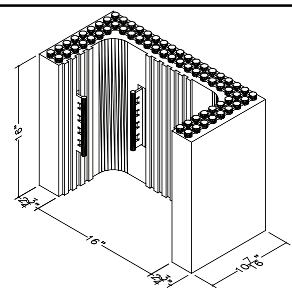
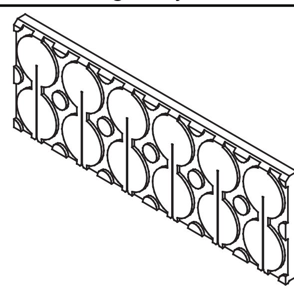
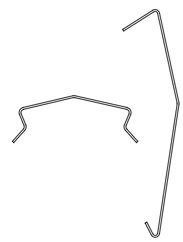
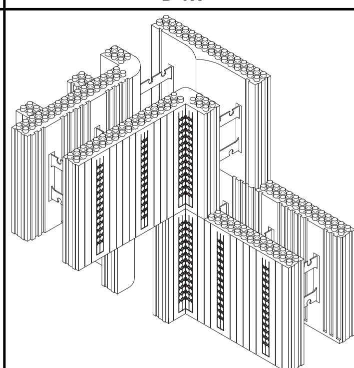
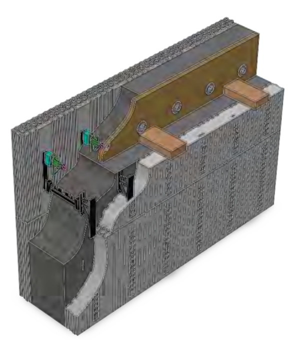


	V12 STANDARD					V12 TAPER TOP				
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	-	11.75	13.5	-	-	-	11.75	13.5	-	-
Width Bot.[1]	-	11.75	13.5	-	-	-	11.75	13.5	-	-
Form Type[2]	-	KD/P	KD/P	-	-	-	KD/P	KD/P	-	-

	V12 Left Hand Corner Form	V12 Right Hand Corner Form
Form Type[1]	KD/P	KD/P
V12 6.25 inch Concrete Core Thickness		
Form Type[1]	KD/P	KD/P
V12 8 inch Concrete Core Thickness		
Form Type[1]	KD/P	KD/P

1. Width at Top and Bottom is measured from outside face to outside face of forms.
2. "KD" and "P" denotes Logix KD (unassembled forms) and Logix PRO (assembled forms), respectively.

1.3 – ACCESSORIES

LOGIX ACCESSORIES		
		
Xtender	**Height Adjuster**	**End Cap**
		
Pilaster	**D-Rv**	**Horizontal & Vertical Hooks**
		
Pro Buck	**T-Walls**	**Wall Insert Plate**
		
Buck Brace	**Heat-Sheet**	**XP-1 Curb Block**

2.0 – INSTALLATION GUIDE

TABLE OF CONTENTS

2.1 – INTRODUCTION

For builders who want a competitive edge, Logix offers solid products and friendly local service. Our products are designed to perform better in the field, providing trouble-free, profitable installations time after time.

Our technical team is ready to respond to your queries with practical advice on quick and efficient installation. With contractor training provided through our numerous regional technical support offices, help is always close at hand.

We are the most experienced ICF manufacturers in North America, manufacturing top quality products at our nine plants located throughout the United States and Canada.

For more information, or to contact a Logix representative, visit our website at www.Logixicf.com and click “Contact Us”. You can also register online to receive Logix updates.

This manual will be updated regularly. Current updates will be available at www.Logixicf.com.

2.2 – USEFUL TOOLS & MATERIALS

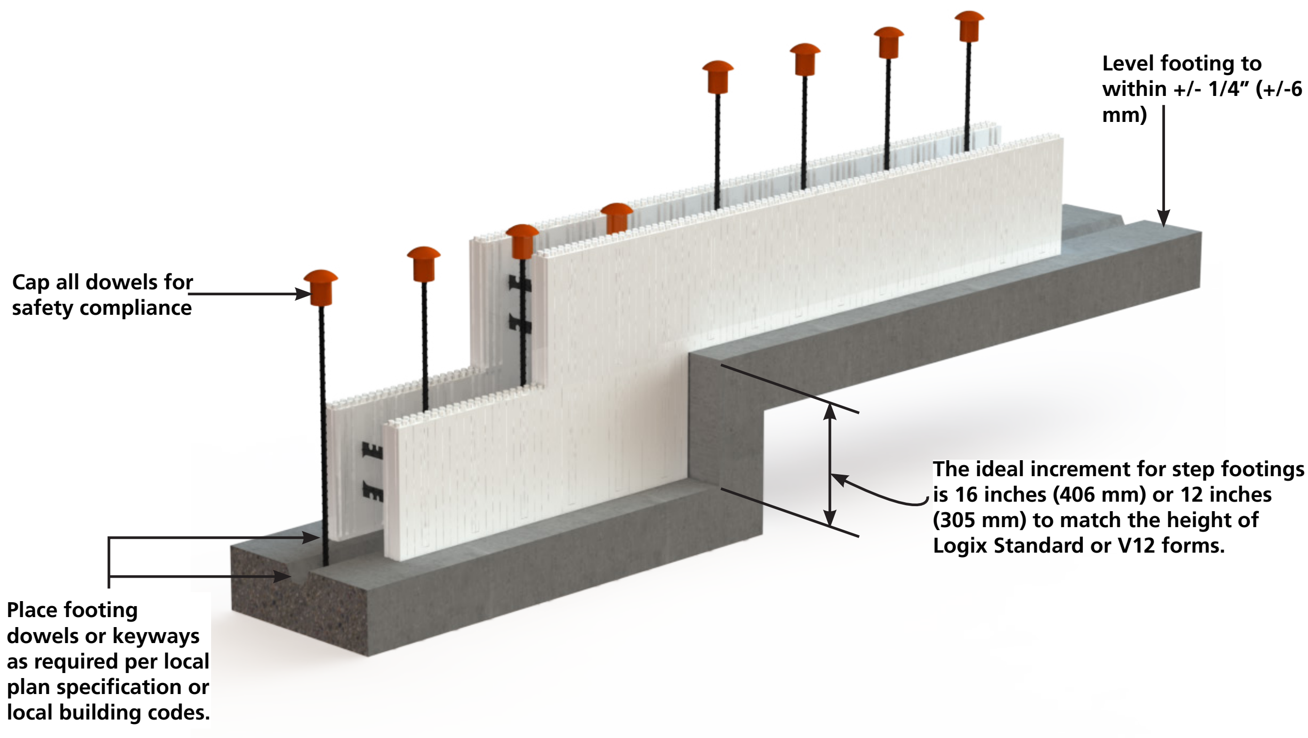
- Pruning saw
- Cordless drill
- Screws
- Hot knife
- Electric chainsaw
- Fiberglass-reinforced tape
- Step ladder
- Rebar bender/cutter
- Internal vibrator
- Contractor-grade foam gun
- Low expansion foam adhesive
- Approved scaffold planks
- Transit or laser
- 48” (1220mm) level
- Bolt cutters
- String line
- Chalk line
- Wall alignment system (safety compliant)
- 36 inch (914 mm) plastic zip ties, or Logix Vertical & Horizontal Hooks
- Concrete embedments
- Window and door buck material
- Sleeves for wall penetrations

NOTE: For more information on Logix Vertical & Horizontal Hooks see Technical Bulletin No.20

2.3 – ACCURATE FOOTINGS & SLABS

The first step to a successful Logix installation is an accurate footing or slab. This means a footing or slab that is:

- Code compliant
- Designed in accordance with construction drawings and specifications
- Designed taking into account soil conditions, seismic area, number of stories, building loads, and water tables.

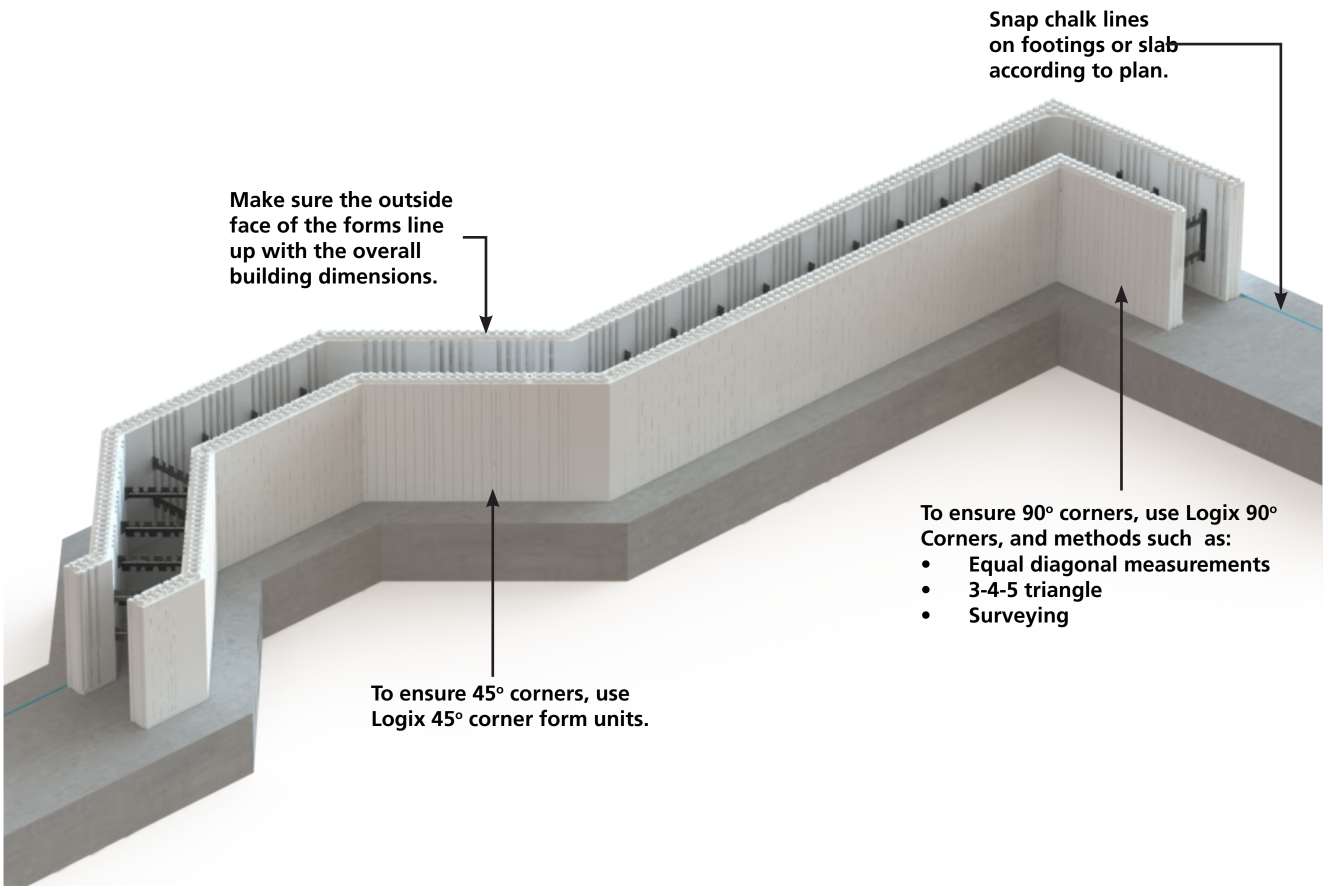


2.4 – WALL LAYOUT

Accurate wall layout is critical to ensure a complete and profitable Logix project.

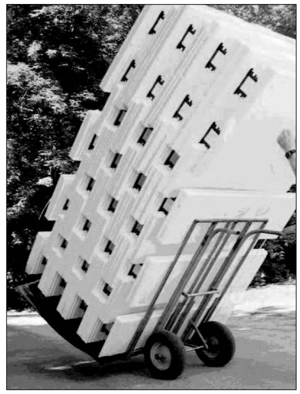
Verify that wall layout is in accordance with plans and specifications.

In addition to straight Standard forms, Logix provides 45⁰ and 90⁰ corner form blocks. However, Logix can be easily cut on-site to fit any corner angle or radius. See "2.7.8 – RADIUS WALLS" on page 26.



2.5 – PRODUCT HANDLING & PLACEMENT

There are several methods to efficiently handle Logix forms. Unlike most ICF systems, the consistent 2-3/4 inch (70 mm) panel thickness on Logix forms means that handling damage is minimized.



- Logix Standard Forms arrive stacked on disposable skids.
- The forms are strapped together for easy handling.
- Unloading can be accomplished manually or using alternate lifting equipment.
- Standard forms can be moved by two people using two 2x4s
- Corner forms come in bundles of four or twelve, and can easily be carried by one or two people.
- Specialized dollies are another convenient way to move Logix bundles.
- When transporting forms on an open trailer, position the forms so the wind travels through the webs to minimize drag.
- When tying forms down on an open trailer, ensure the forms are well secured and avoid form damage from strapping materials.
- If job site conditions require form protection, Logix bundle bags can be ordered.
- Logix forms are produced to the tightest tolerance in the industry, with a length tolerance of +/-1/8 inch (+/-3 mm), and a height tolerance of +/-1/16 inch (+/-2 mm).

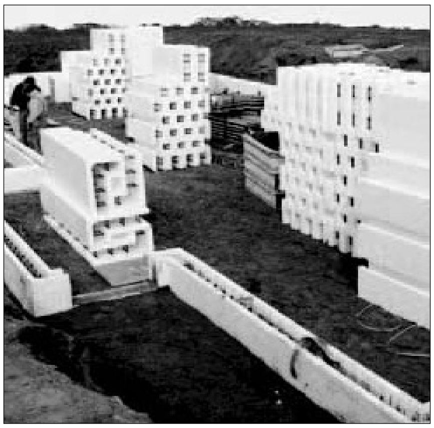
When forms are unloaded, it is necessary to measure forms to determine uniform length and height. It is suggested to measure 2 forms per skid. In the unlikely event that forms are out of spec, please contact the local Logix representative immediately.

2.6 – JOBSITE EFFICIENCY

An efficient jobsite means a faster and safer installation, and ultimately a higher quality finished project.

- Keep all materials and tools outside of the footing area until the chalk lines have been snapped and the wall layout is complete. Generally, construction is accomplished from within the perimeter of the structure.

- When wall layout is complete, place forms at least 7 feet (2.134 m) inside the perimeter of the footings or slab to accommodate the wall alignment system.



- Space skids of standard forms around the inside of the entire perimeter.

NOTE: When placing courses of forms, always take forms from the closest skid. This will eliminate the effects of normal manufacturing variations between skids.

- Periodic checking of dimensions ensures accurate wall construction.

- Additional materials that should be located within the perimeter:

- Window and door bucks

- Rebar (straight or pre-bent)

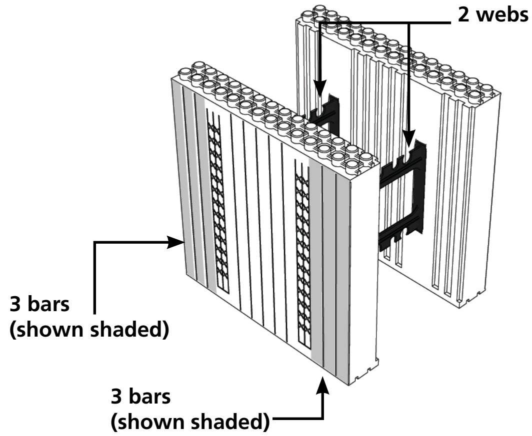
- Alignment system

- Approved scaffold planks

- Tools

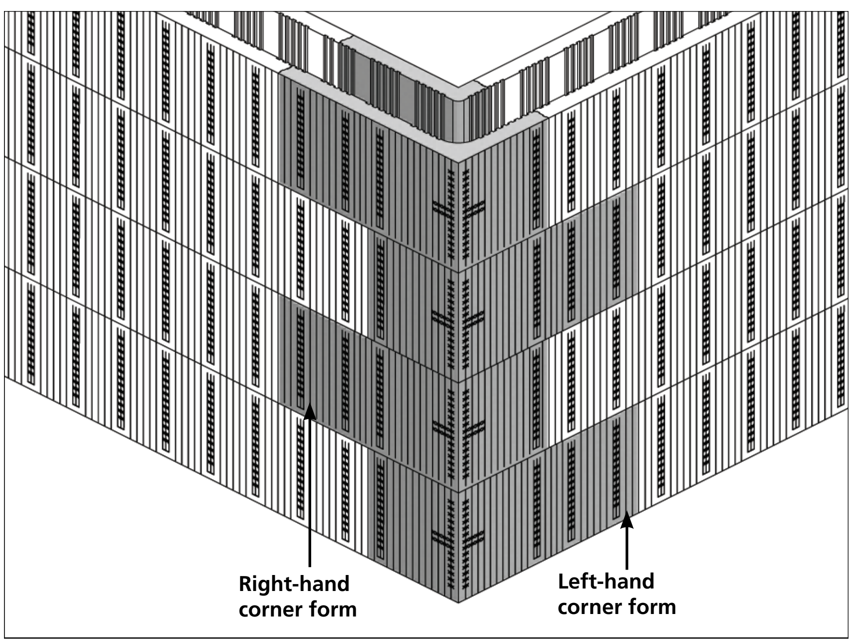
2.7 – LOGIX WALL CONSTRUCTION

When a form is cut, it can be identified using bars and webs. For example, a cut form with three bars, two webs, and three bars will be referred to as a "3-2-3".



By establishing a logical form pattern that takes into account the building dimensions, maximum efficiency will be achieved. It is important that the building dimensions have a tolerance of +/-1/2" inch (13 mm) or a stacked vertical joint will result. Such joints are acceptable if dimensions necessitate but will require additional form support on both sides of the form.

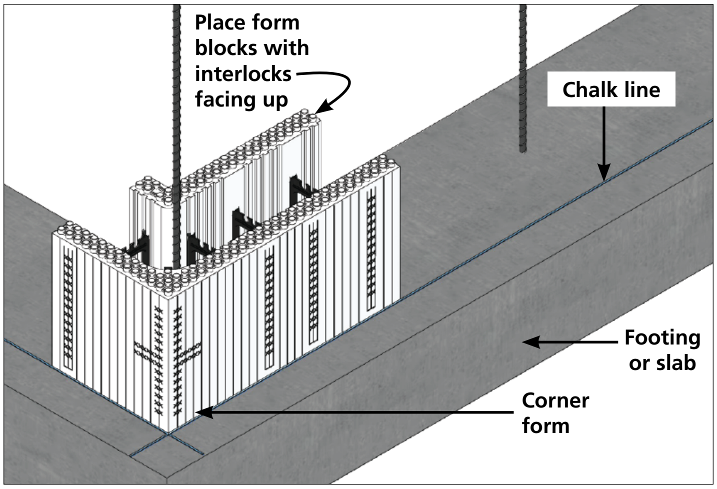
When building dimensions are based on 4 feet (1.219 m) increments, it is suggested to alternate between left- and right-hand corners within each course.



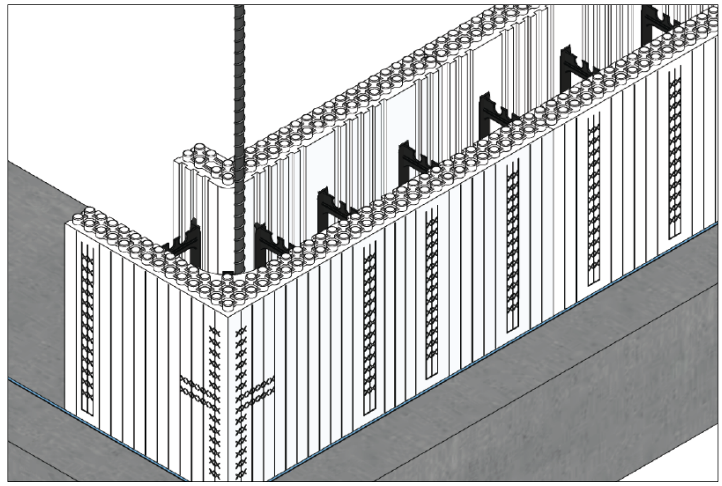
Alternating corner forms

2.7 – Logix WALL CONSTRUCTION cont'd

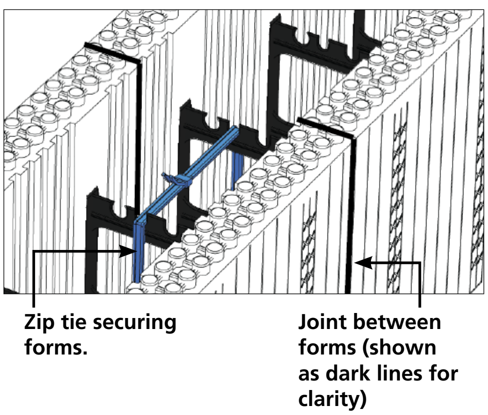
2.7.1 – THE FIRST COURSE

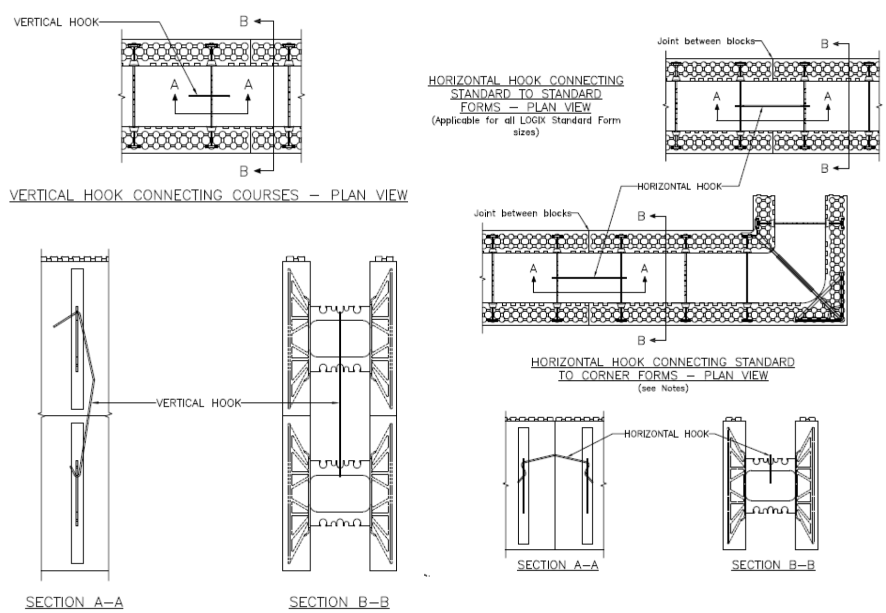


STEP 1: Start first course at a corner and align with chalk line.

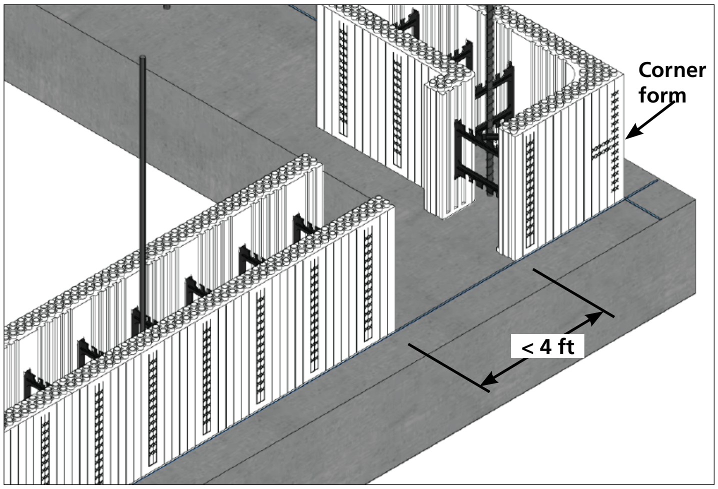


STEP 2: Continue placing forms along the chalk line.

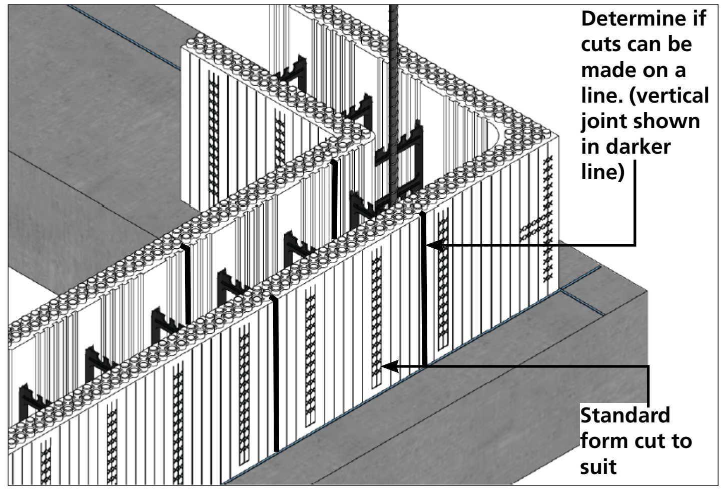




STEP 3: Secure forms end-to-end to maintain building dimensions using zip ties or Logix Hooks.

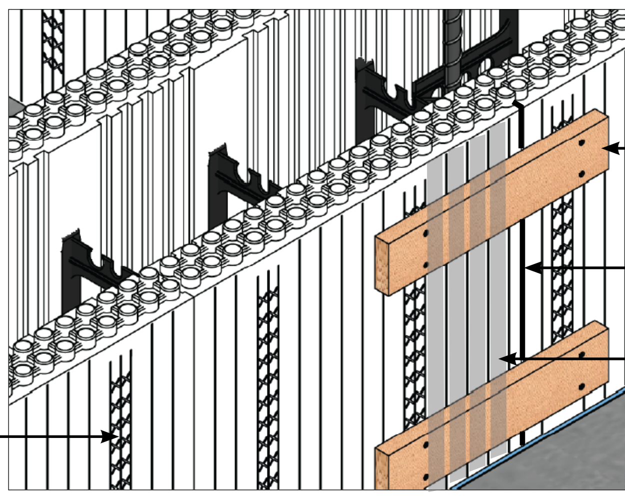


STEP 4: When forms are 4 ft or less from the second corner, place the second corner form.



STEP 5: Cut a Standard form to fit the space left between the corner and the previous Standard form.

At this point, determine if adjustments are needed to the building dimensions so the cut can be made on a line. If adjustments are needed, alter chalk lines accordingly.



If more than 3 bars are extending beyond any web, additional form support is required on both faces of the form.

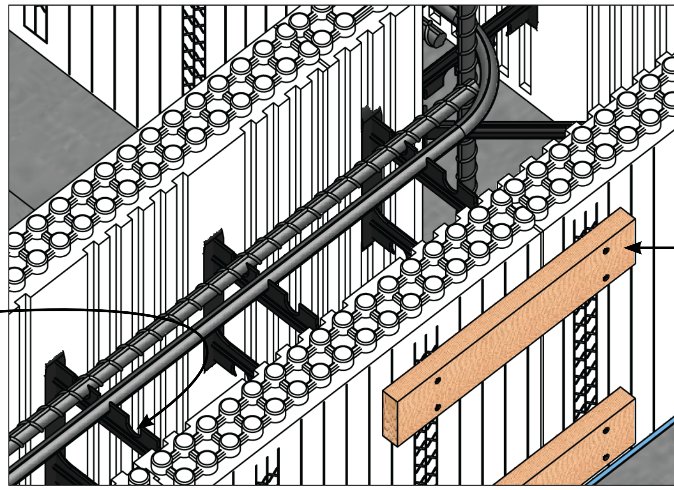
STEP 6: Continue around the wall in this manner until the first course is complete and dimensions are verified.

Leave the first course of forms in place across door openings and low windows until forms have been placed and building dimensions have been verified to maintain the interlock pattern above openings.

STEP 7: Place necessary rebar in first course as specified and according to local code.

NOTE: Web ties are designed with 'rebar slots' to provide secure placement of horizontal rebar, and allows for non-contact lap splices. See "2.8.2 – HORIZONTAL & VERTICAL REINFORCEMENT" on page 29.

STEP 8: Prior to starting the second course, install additional form support if required.



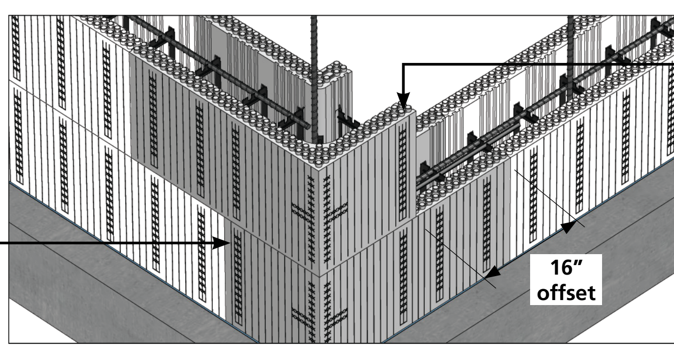
Place reinforcement and necessary additional form support prior to installing the second course.

2.7.2 – THE SECOND COURSE

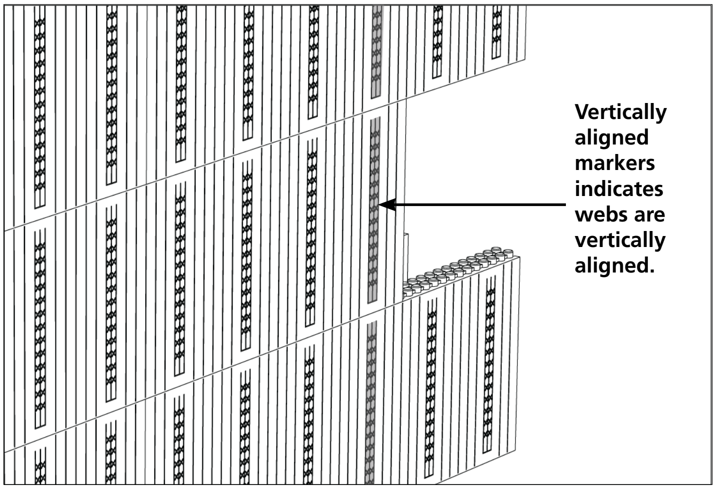
STEP 1: Starting at the original corner, place appropriate corner form. When possible, alternate between left- and right-hand corners between courses. This will create a 16" offset.

NOTE: It is necessary to firmly seat every form to the form below to minimize interlock settling. The interlock system is designed to secure forms betweens courses, which helps minimize form settling and movement during installation and concrete placement.

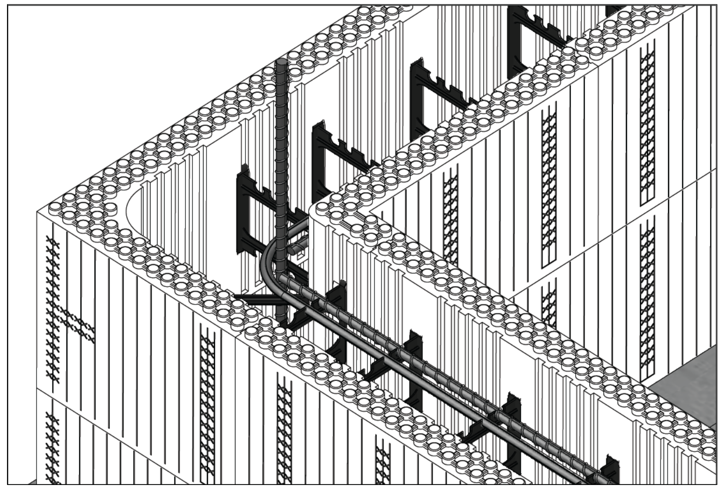
STEP 2: Continue placing forms around the wall, working in the same direction as the first course. Make sure to secure forms end-to-end, and between courses, with zip ties, Logix Hooks or foam adhesive.



2.7 – Logix WALL CONSTRUCTION cont'd

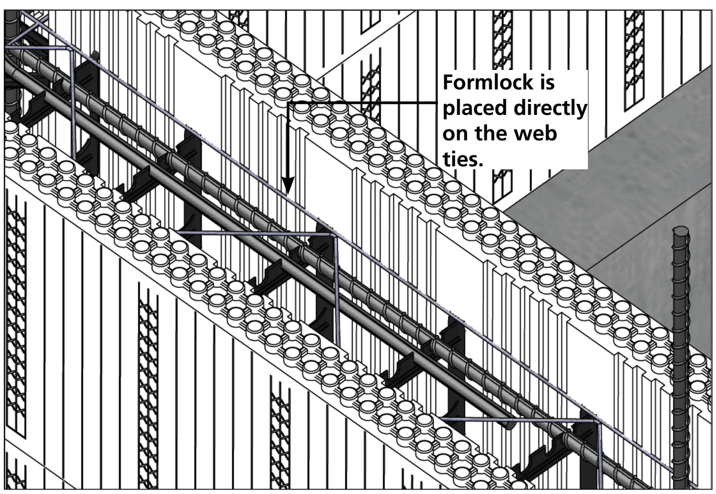


STEP 3: All webs should line up vertically, except where building dimensions are other than 8 inch (203 mm) increments. In this case, special cuts may be required to allow vertical alignment of webs. Webs are aligned when markers on the face of the form are vertically aligned.

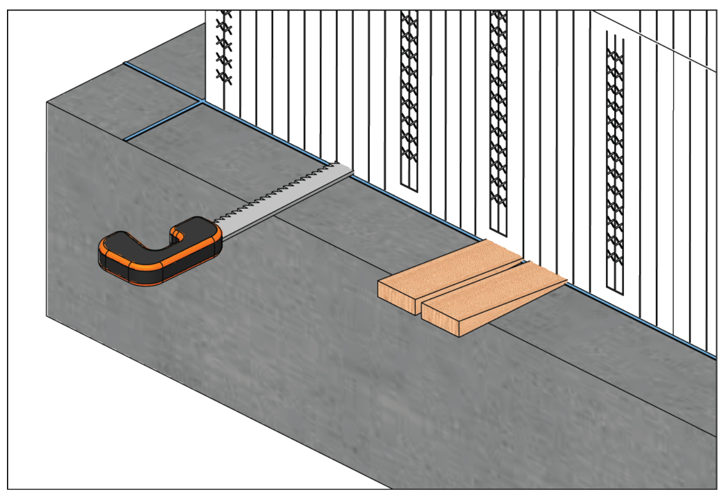


STEP 4: Place necessary rebar after completion of second course.

NOTE: Web ties are designed with 'rebar slots' to provide secure placement of horizontal rebar, and allows for non-contact lap splices.

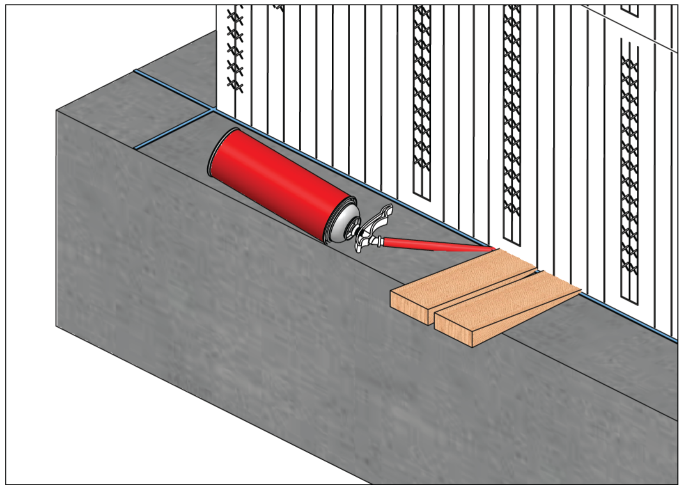


STEP 5: Form Lock can also be placed in the second course, if desired. Overlap Form Lock lengths by roughly 8 inch (203 mm). Align the points of the zigzag pattern in the Form Lock directly above the webs.



STEP 6: Confirm that the wall is straight and level. If adjustment is required, shim or trim the bottom of the wall until level is achieved.

STEP 7: Use foam adhesive to fasten the straightened and leveled wall to the footing or slab. Insert the nozzle 1 inch (25 mm) at the base of every other web along the chalk line, and shimmed and trimmed locations, and inject foam between the block and the footing.



When vertical joints are less than 8 inches (203 mm) apart, additional form support is required.

It is important to note that at this point the wall pattern has been established. Course number 1 will be the pattern for all odd numbered courses (3, 5, 7, etc.). Course number 2 will be the pattern for all even numbered courses.

Wall alignment system to be installed at some point between the second and fourth courses, at no more than 7 feet (2.134 m) intervals. See "2.11 – WALL BRACING & ALIGNMENT SYSTEM" on page 44.

2.7.3 – ADDITIONAL COURSES

Installation of additional courses is the generally the same as the second course, described in the previous section.

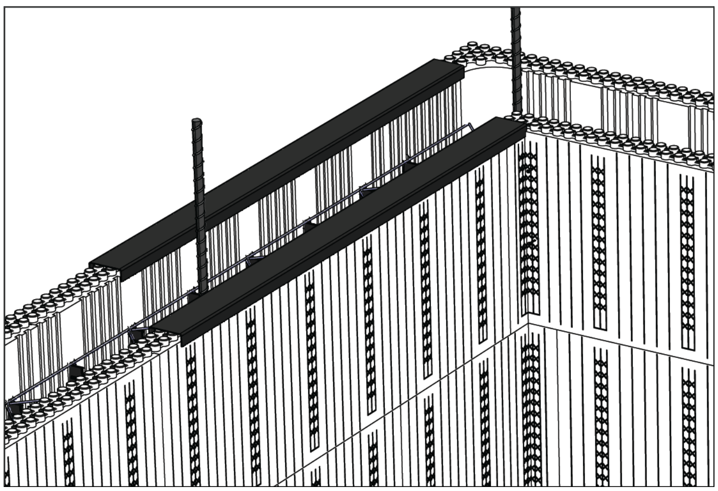
STEP 1: Fasten every corner end-to-end to adjoining forms using zip ties, Logix Hooks, or adhesive foam.

Install Form Lock, if desired, every fourth of fifth course after the second course.

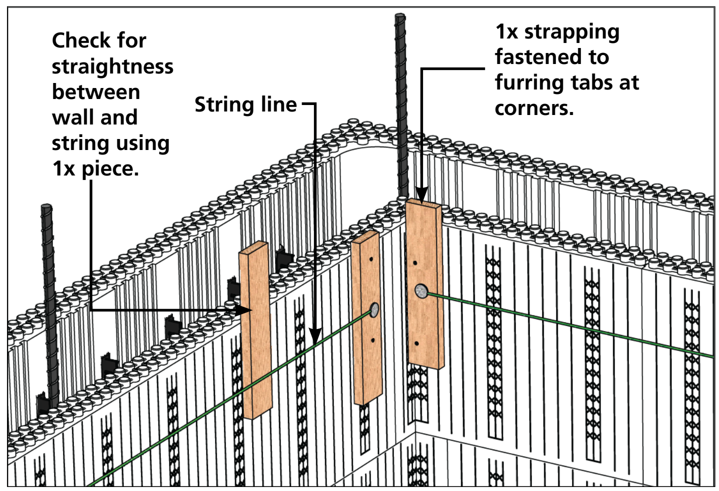
STEP 2: After completion of each course, place necessary rebar as specified and according to local code.

STEP 3: Secure forms end-to-end in the top course to maintain building dimensions.

STEP 4: Secure the top course to the forms below on both sides to prevent tipping during concrete placement.



STEP 5: If additional stories are planned, the interlock needs to be protected prior to concrete placement.

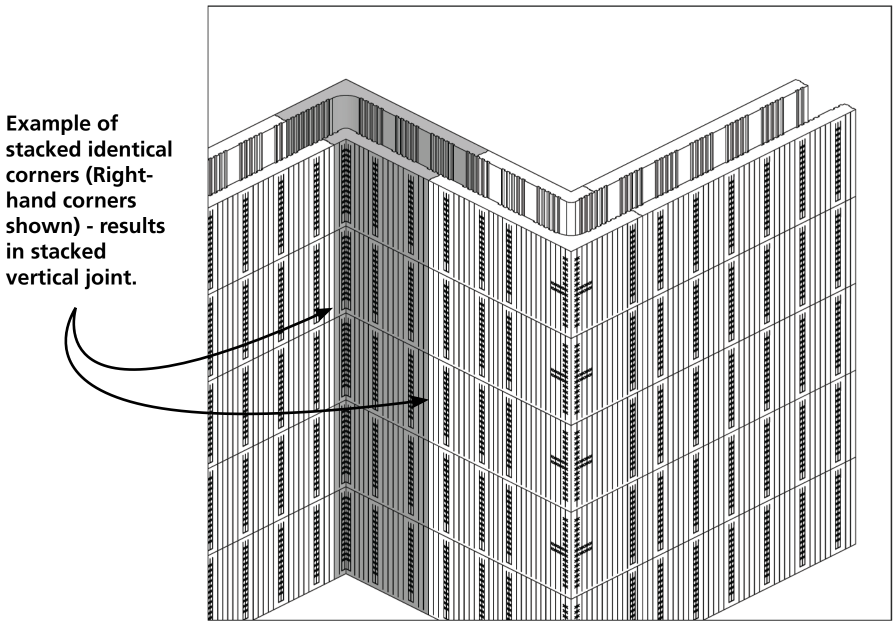


STEP 6: Check building dimensions. Check corners for plumb.

Ensure straight walls by placing a string at the top course set off from the wall using 3/4 inch pieces of wood placed in the corners. Check for straightness by running another 3/4 inch piece of wood between the string and wall.

When vertical joints are less than 8 inches (203 mm) apart additional form support is required.

If you need to stack identical corners in subsequent courses, you will need to provide additional form support where the stacked joints are created.



Vertical stacked joints requires additional form support.

Hold all reinforcement back 2 inches (51 mm) from door and window buck material to ensure proper concrete coverage.

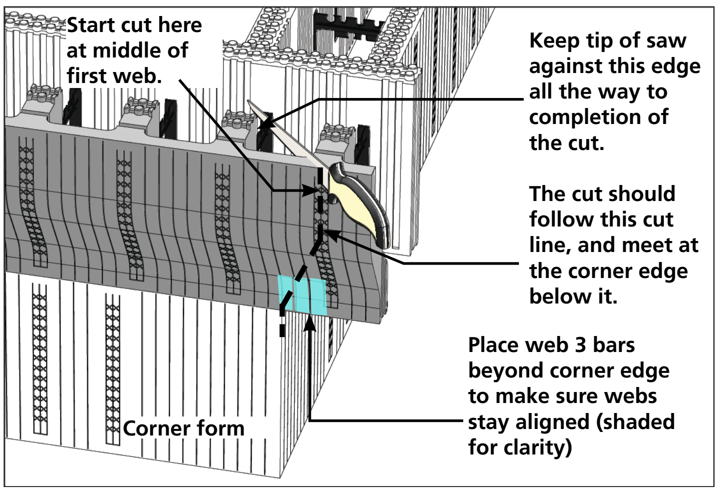
2.7.4 – CORNER BRICK LEDGE

Brick Ledge forms come only in straight units, so mitered cuts on site must be made to create corners with these blocks. Two methods can be used:

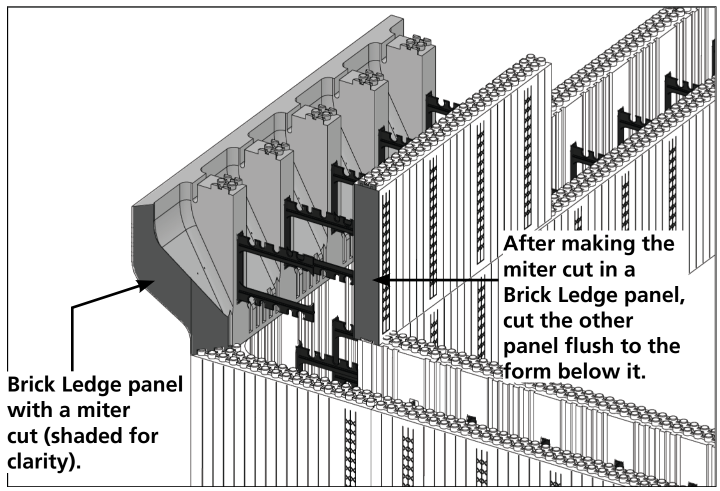
1. Freehand miter cutting.
2. Using a template.

NOTE: On a 6.25 inch (159 mm) Logix Brick Ledge always start a miter cut in the middle of the first web beyond the corner form.

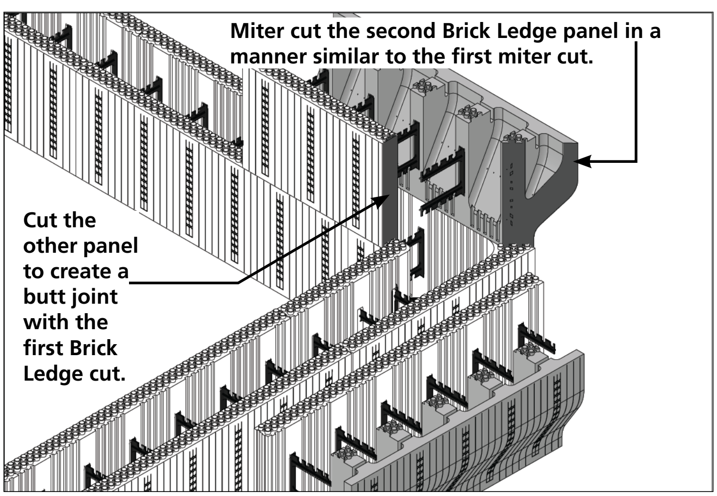
Extending a Brick Ledge block two webs beyond the corner block and making the cut will create a remaining piece that can be used for an inside corner elsewhere in the layout.



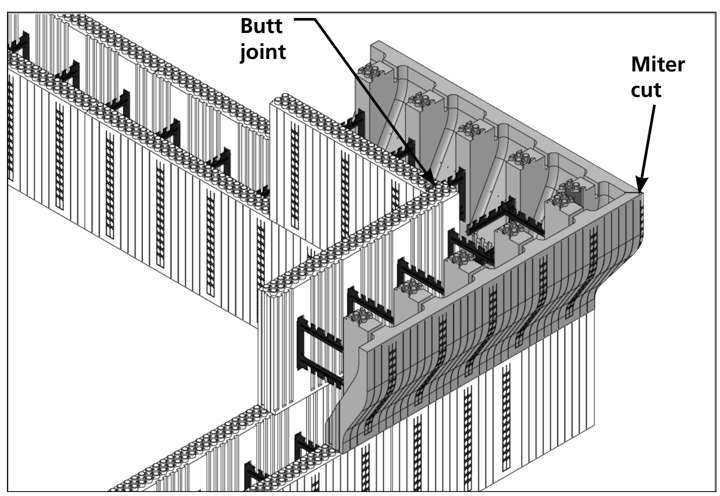
STEP 1: With the first Brick Ledge block, make a miter cut on the Brick Ledge panel.



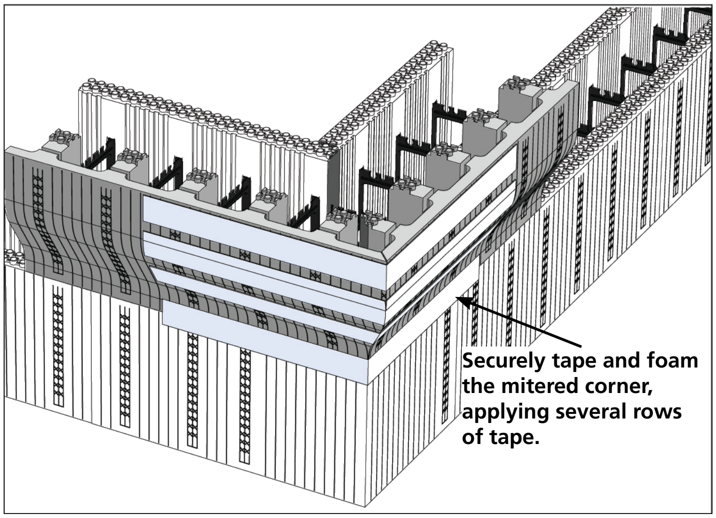
STEP 2: With the first Brick Ledge block, make a butt-joint cut flush to the form below.



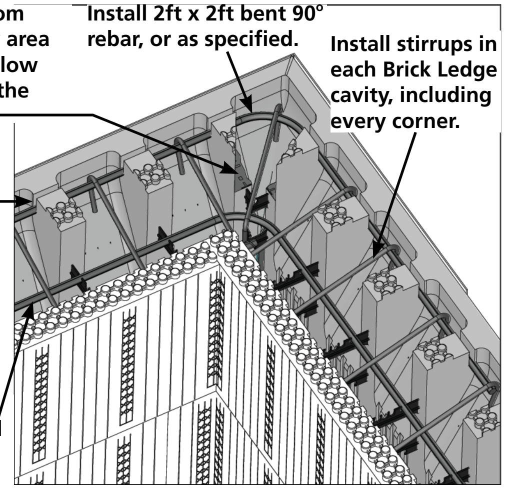
STEP 3: With the second Brick Ledge block, make similar miter and butt-joint cuts.



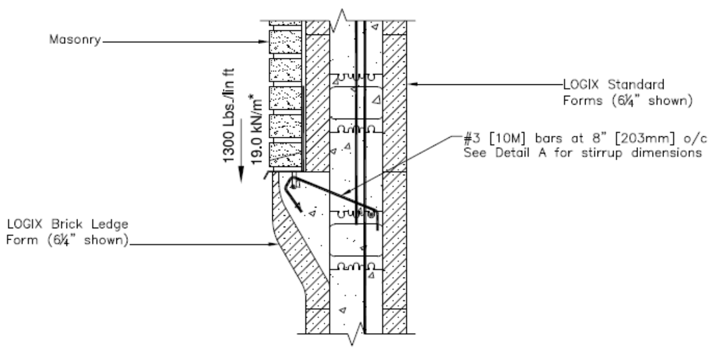
STEP 4: Place both cut Brick Ledge blocks to create the Brick Ledge 90° corner.



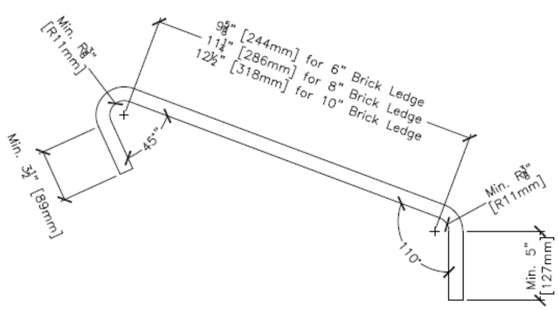
STEP 5: Secure the corner Brick Ledge with tape and foam.



STEP 6: Place rebar, as required,and remove foam from cavity where necessary.



BRICK LEDGE STANDARD REINFORCEMENT



DETAIL A

*1kN = 224.8lb

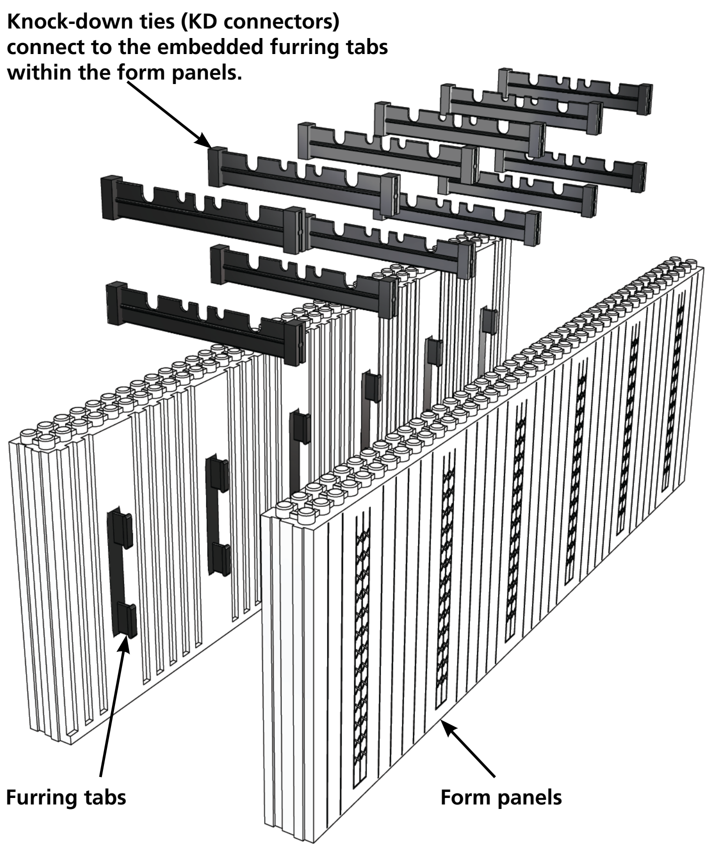
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

2.7 – Logix WALL CONSTRUCTION cont'd

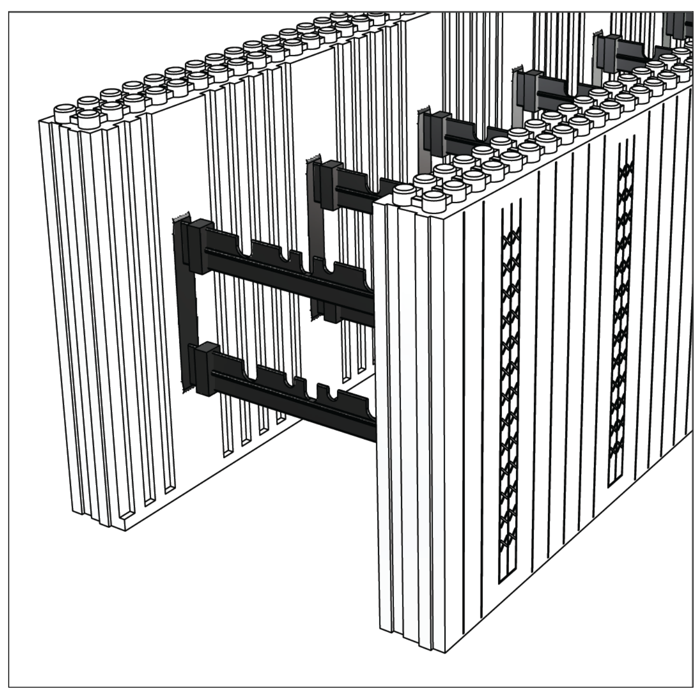
2.7.5 – KNOCK-DOWN FORMS

Logix Knock-down forms (Logix KD) are designed to offer the same benefits as the Logix solid forms (Logix PRO). However, Logix KD forms also

- reduce shipping costs and inventory requirements
- accommodates tilt-up wall panel construction
- allows hassle-free assembly of forms around complex rebar patterns (i.e. stirrup or rebar cage pattern in walls)
- allows custom block configurations (i.e. Taper Top-Brick Ledge, etc…)



Logix KD Standard Form - disassembled view.



Logix KD Standard Form - assembled view.

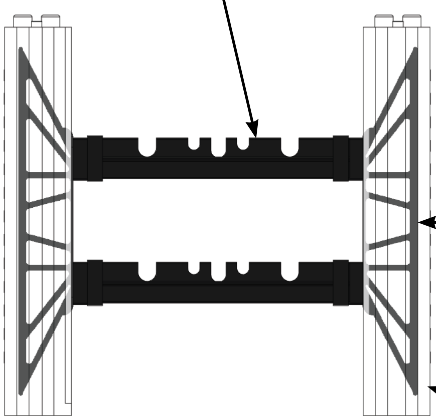
2.7.5.1 – PRODUCT HANDLING

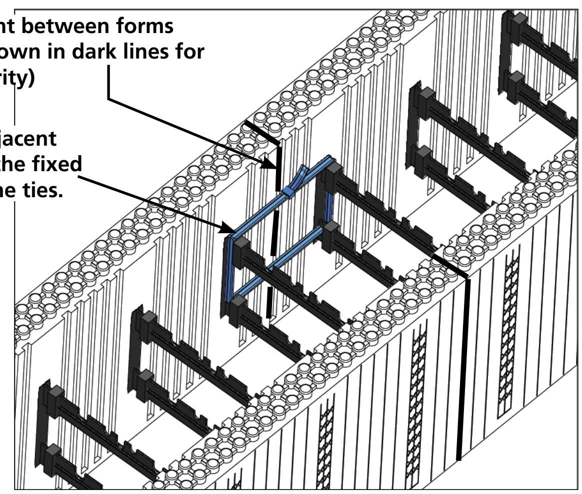
There are several methods to efficiently handle Logix KD forms. The high foam density and consistent 2-3/4 inch (70 mm) panel thickness on Logix KD means that handling damage is minimized.

The forms arrive on-site unassembled. KD Connectors and panels arrive on-site packaged in boxes and bundled in stacks, respectively.

2.7.5.2 – ASSEMBLING AND INSTALLATION

As the forms are assembled on-site they are stacked in place to form the walls. Stacking the blocks, including required tools and methods, are the same when using Logix Pro forms.



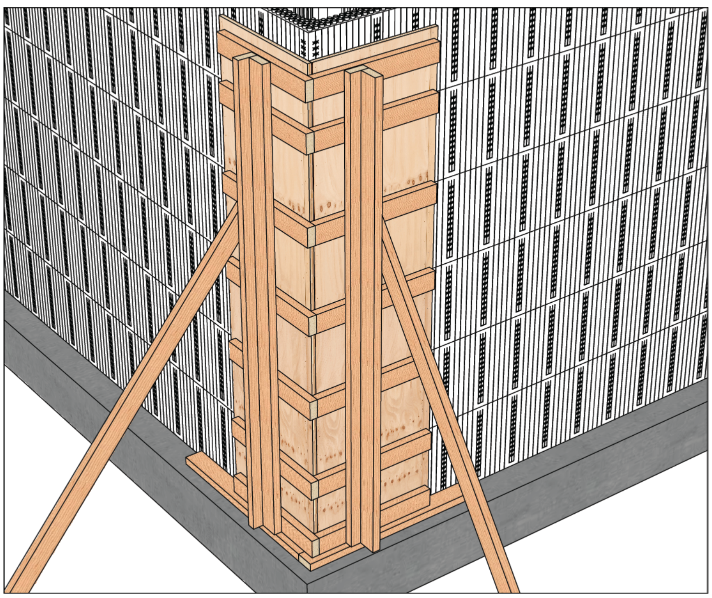


2.7.5.3 – CORNER FORM SUPPORT

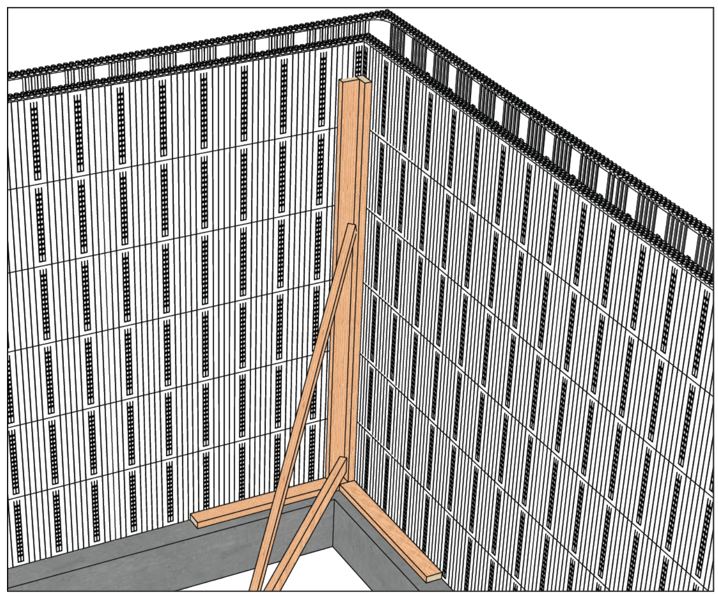
For any type of ICF knock-down system it is good practice to provide additional form support at the corners.

To ensure a safe and proper concrete pour the following corner form support is recommended:

- Using 2.5 inch (64 mm) wood screws to fasten 2x6 vertically to the embedded furring tabs on both sides of the corner.
- For outside corners wrap steel strapping around the corners. For the bottom third of the concrete pour height evenly space two strappings for each course. Then one strap per course for the remaining pour height. Using 1.5 inch (38 mm) wood screws the bands should attach to at least two furring tabs that extend beyond the 2x6 on both sides of the corner.
- For inside corners apply typical bracing as required.



Example of outside corner form support for KD forms.



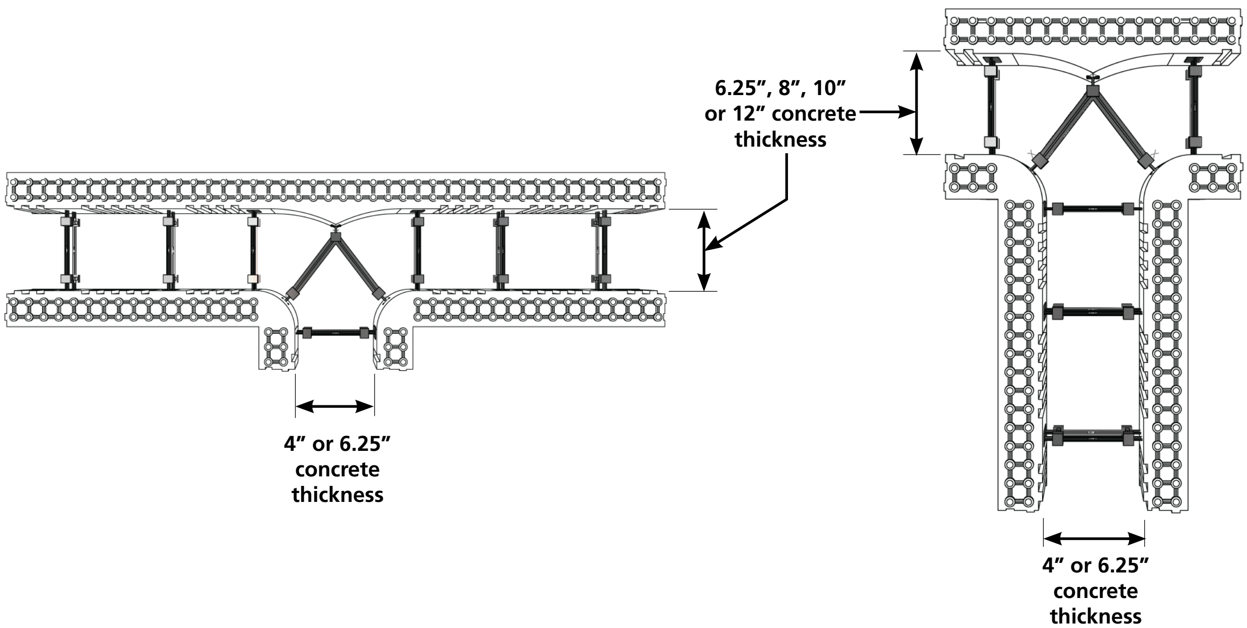
Example of inside corner form support for KD forms.

2.7.6 – TEE WALLS

Wall T-junctions can be constructed using Logix T-walls, or by field-cutting Logix Standard forms.

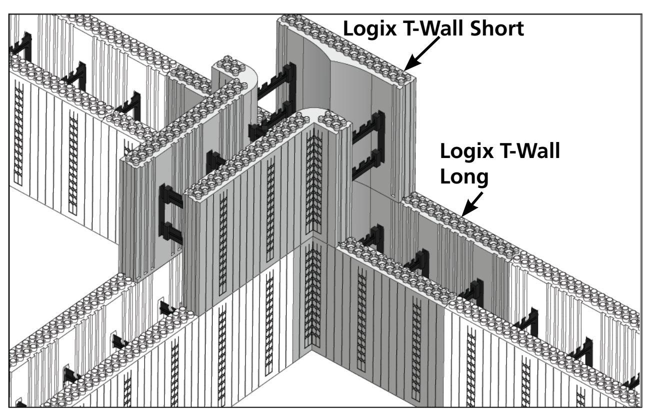
Logix T-walls arrive to the job site assembled or disassembled. When assembled Logix T-walls provide sizes that are commonly used in construction. Each T-wall size comes in two different shapes, a long and short section, so that a running bond pattern is created when the T-wall forms are stacked.

Installation of Logix T-walls is straightforward. As with all Logix forms, the T-walls are stacked in the usual running bond pattern, and follows the same basic installation instructions detailed in "2.7 – LOGIX WALL CONSTRUCTION" on page 10.



Logix T-wall Sizes	Description
4 to 6	4" connected to 6.25" Logix
4 to 8	4" connected to 8" Logix
4 to 10	4" connected to 10" Logix*
4 to 12	4" connected to 12" Logix*
6 to 6	6.25" connected to 6.25" Logix
6 to 8	6.25" connected to 8" Logix
6 to 10	6.25" connected to 10" Logix*
6 to 12	6.25" connected to 12" Logix*

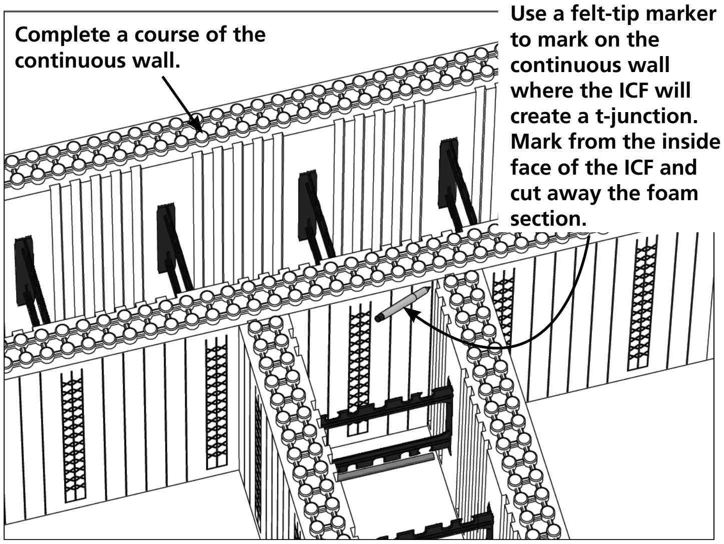
*** Assembled without diagonal ties.**

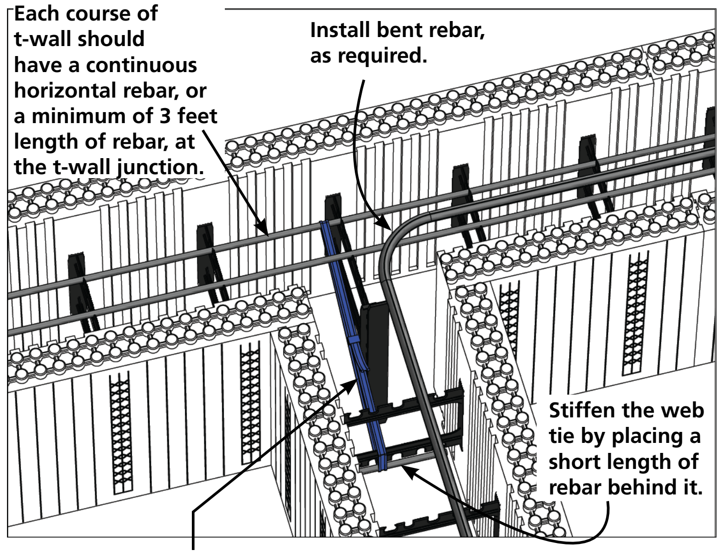


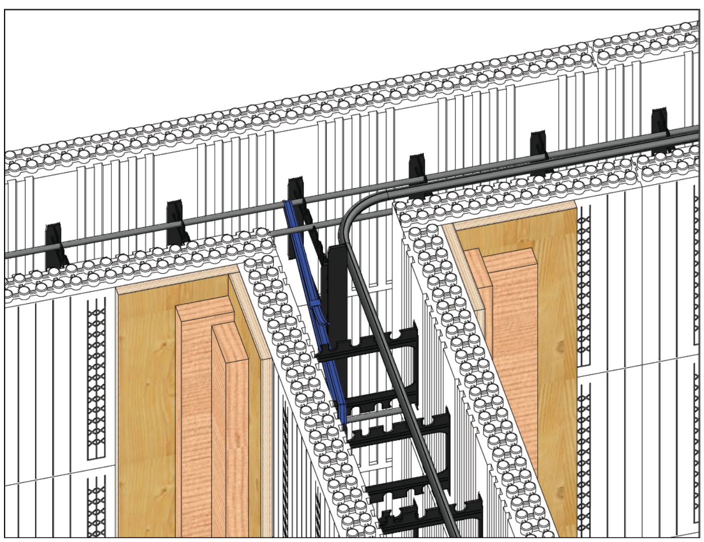
Logix T-Walls stacked

2.7.6.1 – FIELD-CUT T-WALLS

When necessary, t-walls can be made field cutting Standard forms, or straight blocks.





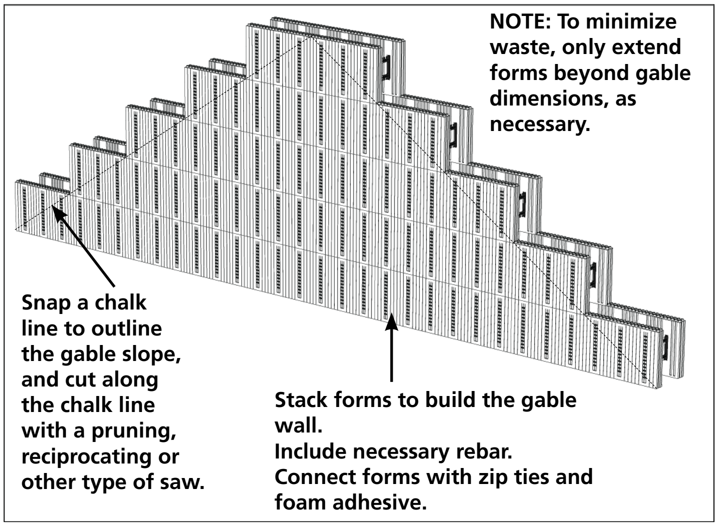


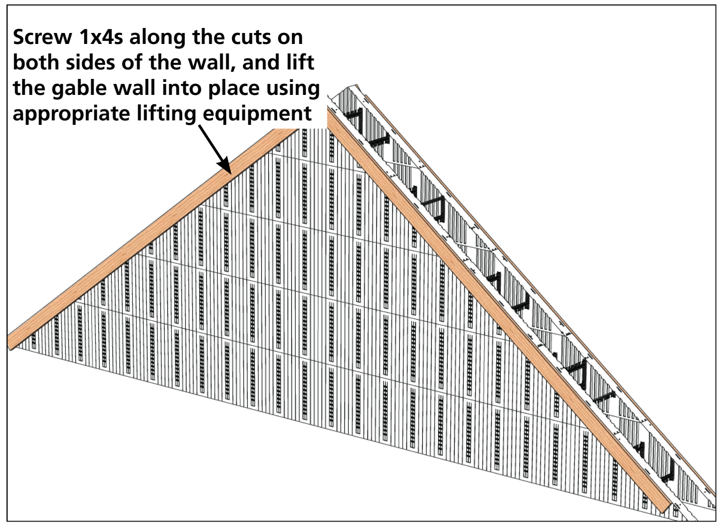
When the entire wall has been checked for plumb and square, apply foam adhesive to the butt joints, and install additional form support, as required.

Another option for building a t-wall is to construct the entire continuous wall first. This method requires pre-planning to ensure there is adequate reinforcement at every course to allow the t-wall to be attached securely. All other steps above need to be applied.

2.7.7 – GABLE WALLS

The preferred method to construct a gable end is on the floor to be installed as a one-piece unit.

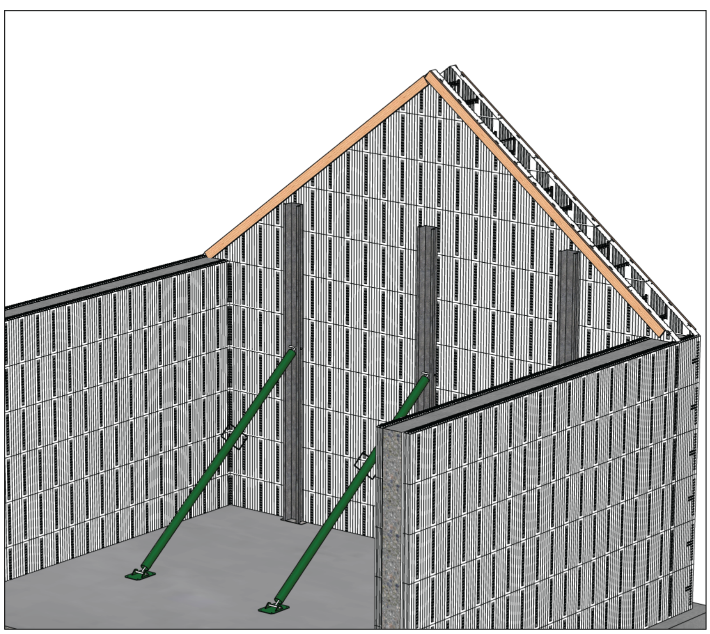




Make sure all necessary roof attachment hardware is available prior to concrete placement, as it must be installed during or immediately after the pour.

NOTE: Pieces of plywood can be screwed into the 1x4s during placement to help contain the concrete.

Another option for constructing a gable wall is to assemble the gable in place. Set the pitch for the gable by marking the first course appropriately. Subsequent courses should follow this pattern.



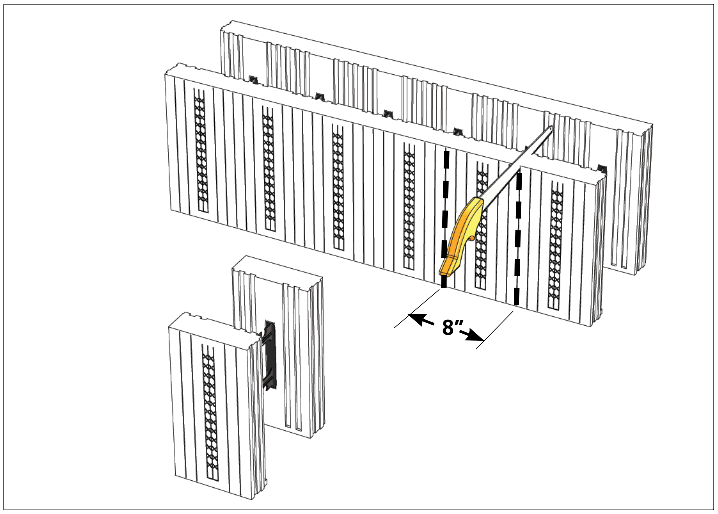
Prior to lifting the gable wall into place, ensure that appropriate wall alignments and scaffolding system is in place for safe installation.

2.7.8 – RADIUS WALLS

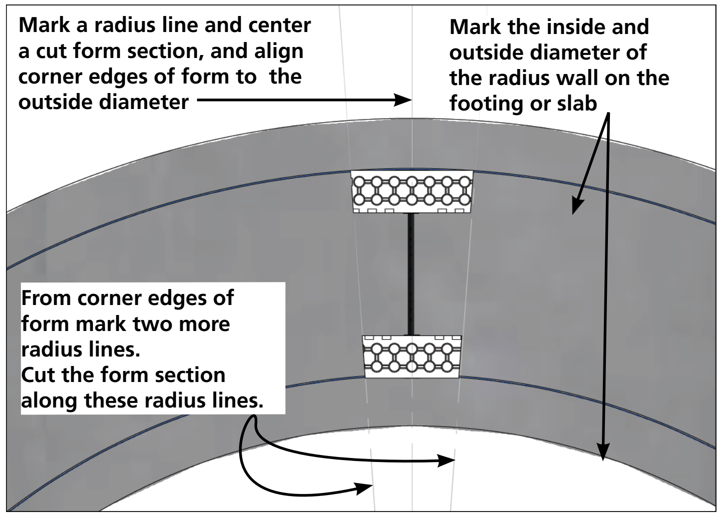
There are a number of different methods for creating radius walls with Logix. Below, is a guide that will create radius walls based on 8 inch segments of Logix.

NOTE: This process will result in vertically stacked joints, and additional form support will be required prior to concrete placement.

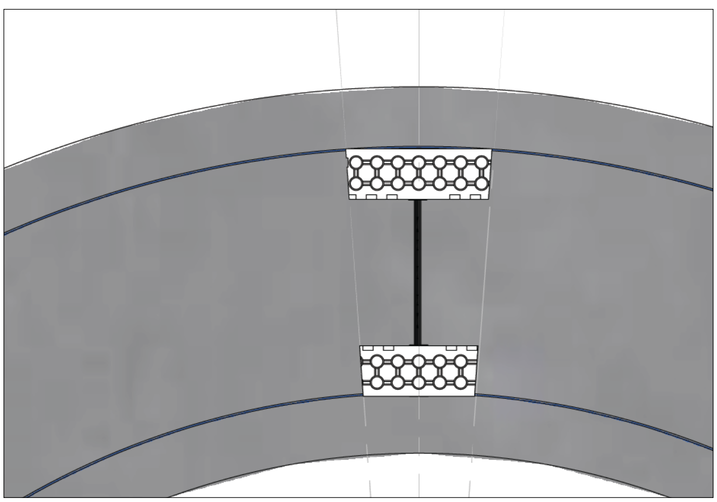
See "2.21 – RADIUS WALLS" on page 83, for radius wall tables.



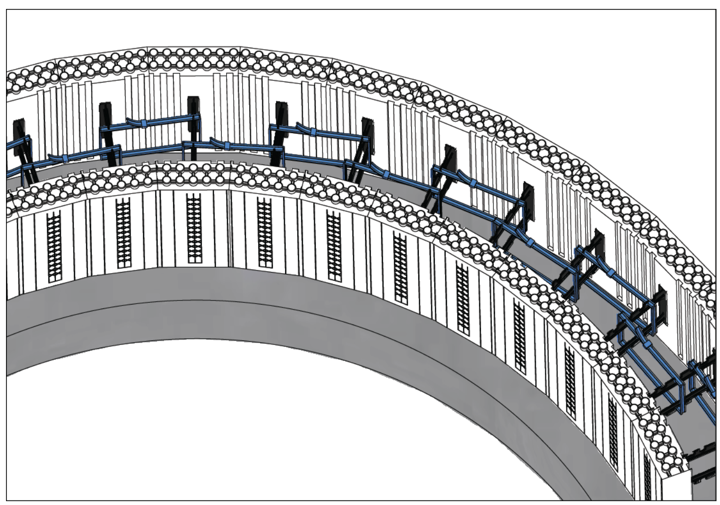
STEP 1: Cut forms into 8" sections with web centered in each section.



STEP 2: Mark radius lines for an 8"cut section.



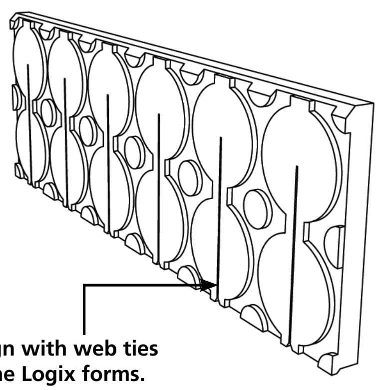
STEP 3: Cut the 8" section at the edges along the radius lines. Mark and cut all form sections using this template.



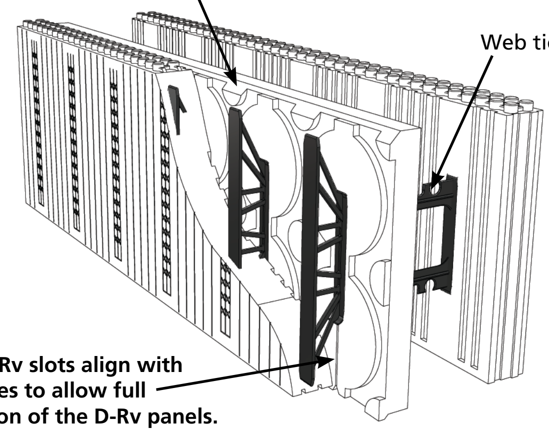
STEP 4: Connect and secure sections with zip-ties, tapes and foam to create the first course. Repeat the steps for each additional course, and connect each with zip ties or Logix hooks.

2.7.9 – LOGIX D-RV

Logix D-Rv™ are 2 inch thick foam panels made with a drainage layer. It provides a quick and easy alternative to providing drainage with the added benefit of increasing the R-value of a Logix wall assembly.



D-Rv panel with drainage pattern.



D-Rv panels snap and lock into place against the inside face of Logix forms without the need for fasteners or adhesives.

(The drainage layer may be required, either by code or design, when a direct applied finish, such as stucco, is used on an exterior ICF wall).

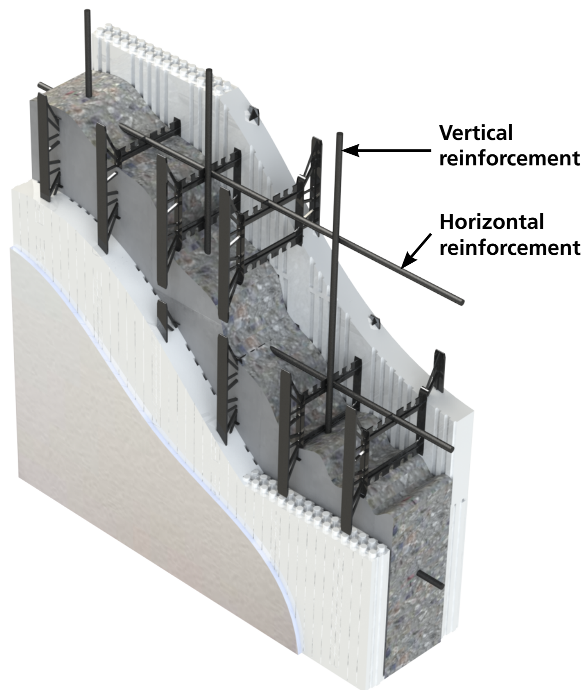
Logix D-Rv can be installed into the Logix form blocks either before or while the form blocks are stacked to build the wall. This speeds up the construction process and eliminates the need to apply the drain layer to the exterior face after a Logix wall has been built.

Offsetting the vertical joints of the D-Rv™ panels with the vertical joints of the Logix forms will create a stronger, more rigid wall structure.

For more information contact your local Logix representative or see Technical Bulletin No. 36, Logix D-Rv™ in the Logix Technical Library.

2.8 – REINFORCEMENT

Reinforcing steel (rebar) strengthens concrete walls to help minimize cracking and buckling under load due to backfill, wind, and other loads. Rebar also helps control cracking due to temperature swings and shrinkage.



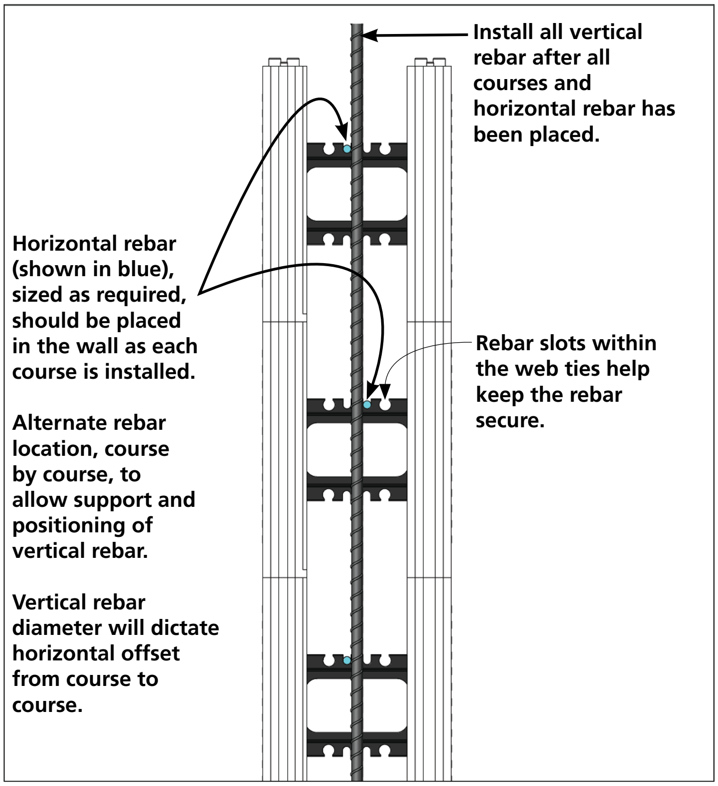
2.8.1 – BASIC REINFORCEMENT

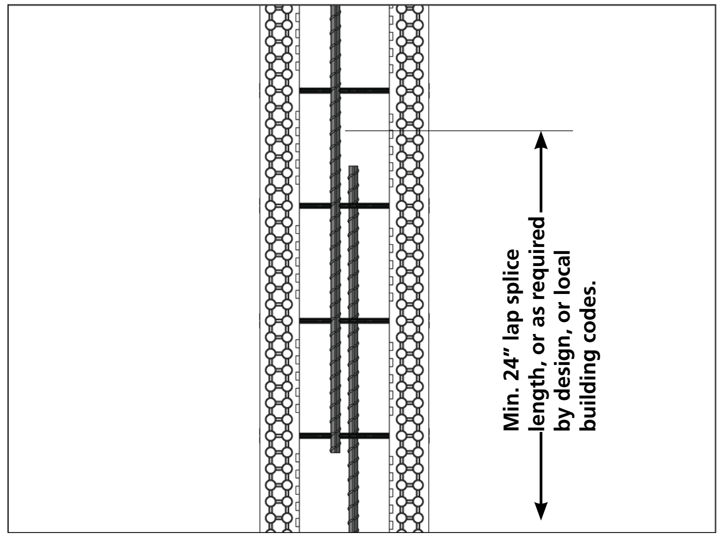
- Reinforcing steel must meet the requirements of ASTM A615, ASTM A996, or ASTM A706 for low-alloy steel. Minimum of Grade 40 (300MPa).
- Reinforcing steel in a Logix wall must have minimum 3/4 inch (19 mm) concrete cover.
- Hold the reinforcement back from door and window openings by 2" (51 mm), or as required by design, or local building codes.
- Refer to Section 6, Engineering for the Logix prescriptive engineering tables.
- It is the responsibility of the installer to verify table rebar specifications with local building codes and engineering specs.

2.8.2 – HORIZONTAL & VERTICAL REINFORCEMENT

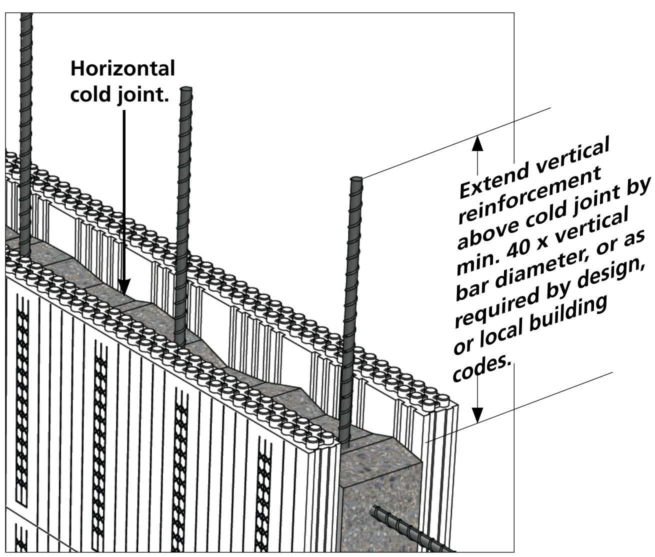
It is the responsibility of the installer to verify table rebar specifications to comply with local building codes and engineering specs.

Refer to Section 6 for Logix prescriptive engineering tables, and Section 5.2.1 for typical reinforcement details.





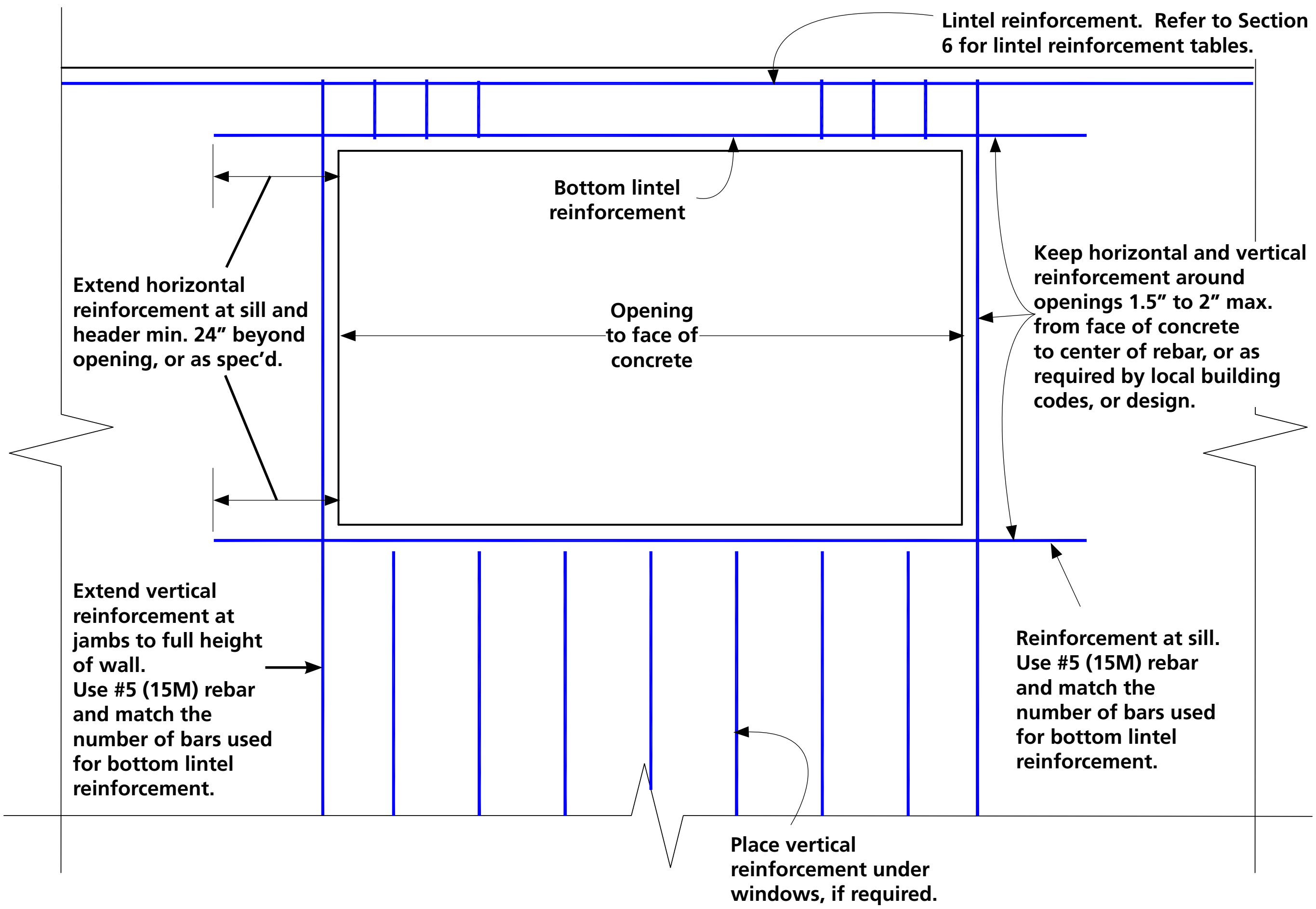
Rebar slots in the web ties allow for non-contact lap splices of horizontal rebar, the preferred method when creating lap splices.



2.8.3 – TYPICAL REINFORCEMENT AT OPENINGS

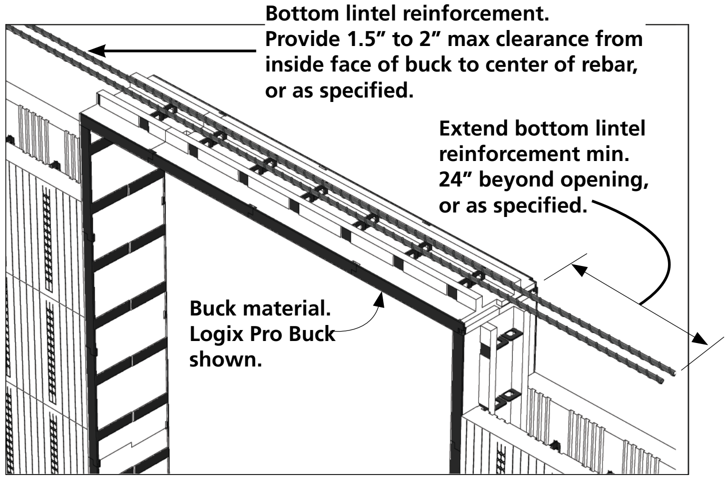
It is the responsibility of the installer to verify table rebar specifications to comply with local building codes and engineering specs.

Refer to Section 6 for lintel reinforcement tables, and lintel details.



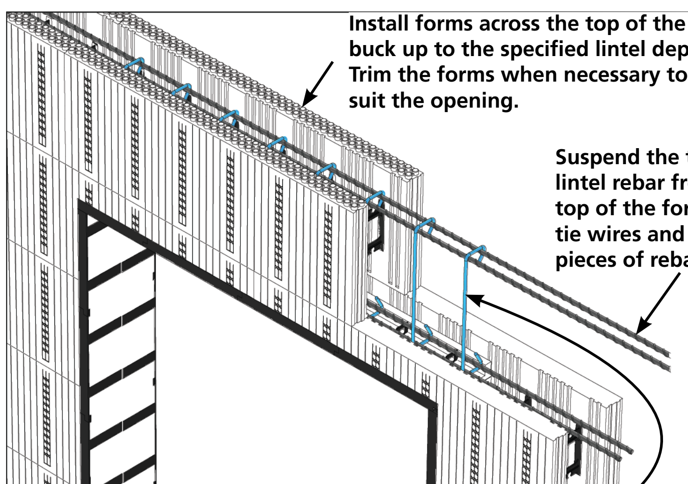
2.8.4 – LINTELS

Appropriate lintel rebar should be placed in the proper sequence directly above doors and windows to carry loads over these openings.



Before placing forms across the top of door or window openings, rest the bottom lintel bar(s) on buck material.

NOTE: Form Lock can be installed across the entire length of the lintel span. In some cases it may be required to install top lintel rebar before installing Form Lock, in order to achieve necessary concrete cover.



Use the stirrups to hang the bottom lintel rebar from the top steel. Depending on lintel depth and stirrup shape, it may be easier to rest the stirrups in place with the bottom lintel rebar before placing forms above the top buck.

Refer to Section 6 for lintel reinforcement tables, and lintel details.

2.9 – WINDOW & DOOR BUCKS

Bucks provide attachment surfaces for windows and doors while holding back concrete from these openings during concrete placement. Mark the center and edges of openings as you place courses and cut blocks as needed.

Refer to the rough opening (R/O) dimensions for windows and doors. Provide for openings in the wall taking into consideration the thickness of the chosen buck material. See window and door manufacturer info for R/O dimensions.

Cross bracing is required for all window and door bucks approximately 18 inches (457 mm) on center to help withstand the pressures of concrete placement.

Window and door openings within 4 feet (1.220 m) of corners require additional horizontal strapping from corner to across the opening.

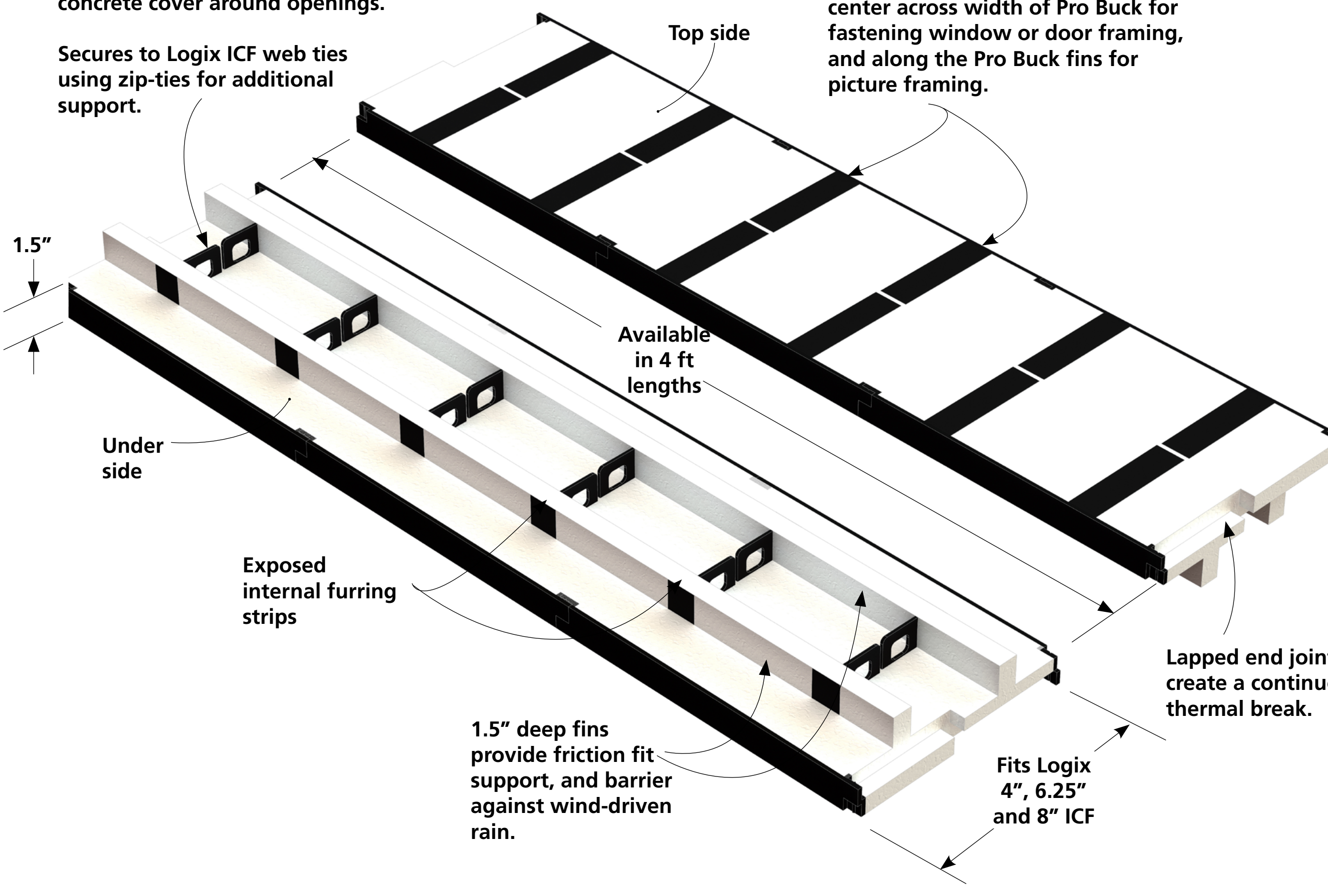
Prior to placing window or door buck, confirm that bottom lintel rebar has been installed.

Bucks can be made from EPS foam, lumber or vinyl. Logix Pro Buck, made of dense EPS foam, is recommended for use with Logix ICF.

2.9.1 – LOGIX PRO BUCK

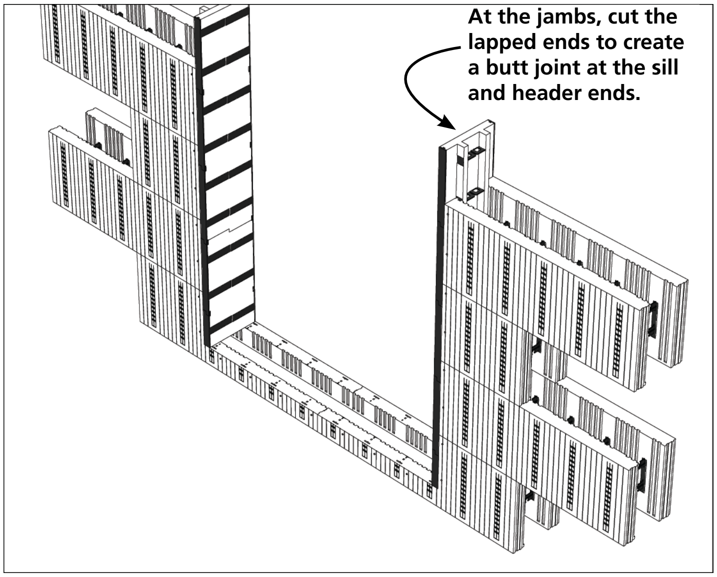
Recommended for use with Logix ICF is the Logix Pro Buck system. Designed for Logix, Pro Buck creates a complete thermal break in window and door openings. And unlike wood and vinyl bucks, Pro Buck is light weight, faster and easier to install, while creating little job site waste. For more information refer to the Logix Pro Buck Installation Guide.

For efficiency, a table long enough to accommodate connecting and cutting Pro Buck sections together is recommended. This can be done by simply using a pair of sawhorses and a section of plywood, or 2x lumber, such as 2x10 or 2x12 pieces.

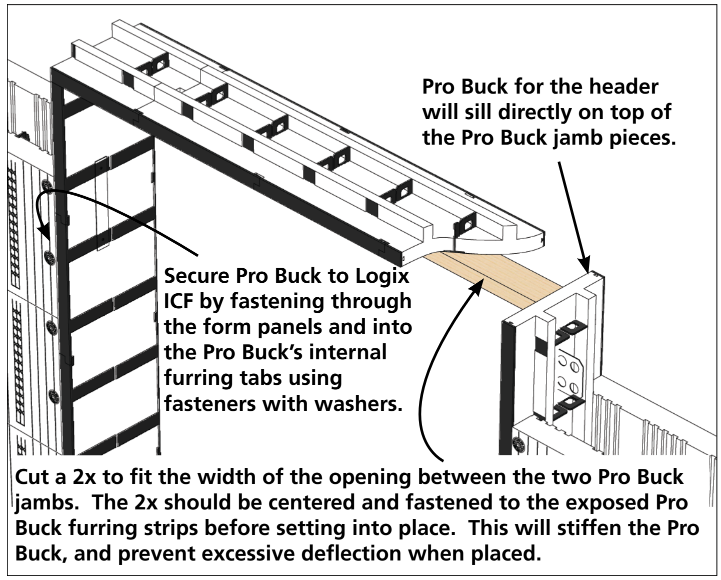


2.9 – WINDOW AND DOOR BUCKS cont'd

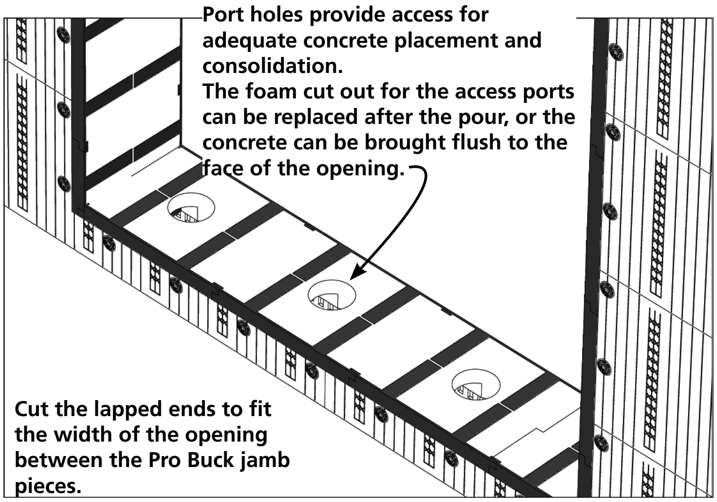
When the walls are built to the height of the opening installation of the Pro Buck can begin. The rough opening is measured between the Pro Bucks. Therefore, to account for the 1.5" thickness of Pro Buck, the opening in the Logix ICF wall should be cut 3" wider and 3" taller than the rough opening.



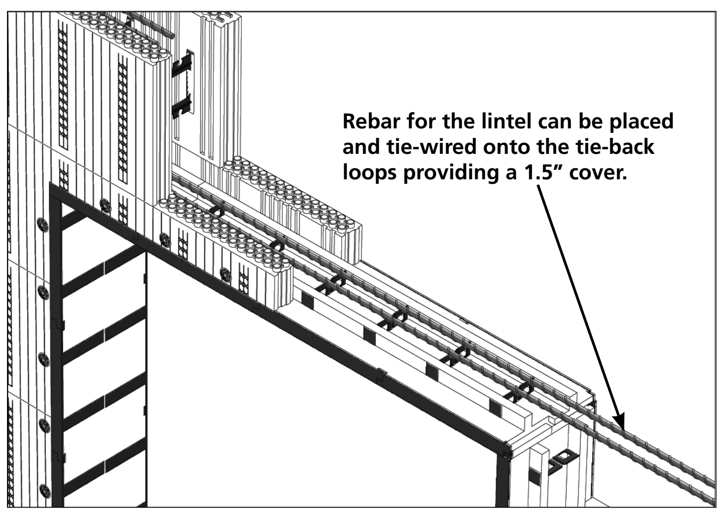
STEP 1: Assemble Pro Buck for the jambs, and cut the lapped ends to fit the height of the opening minus 1.5", which is the thickness of the Pro Buck at the header.



STEP 2: Install Pro Buck at the header. Cut the lapped ends to fit the entire width of the opening. The ends of Pro Buck will sit directly on the Pro Buck jamb pieces.



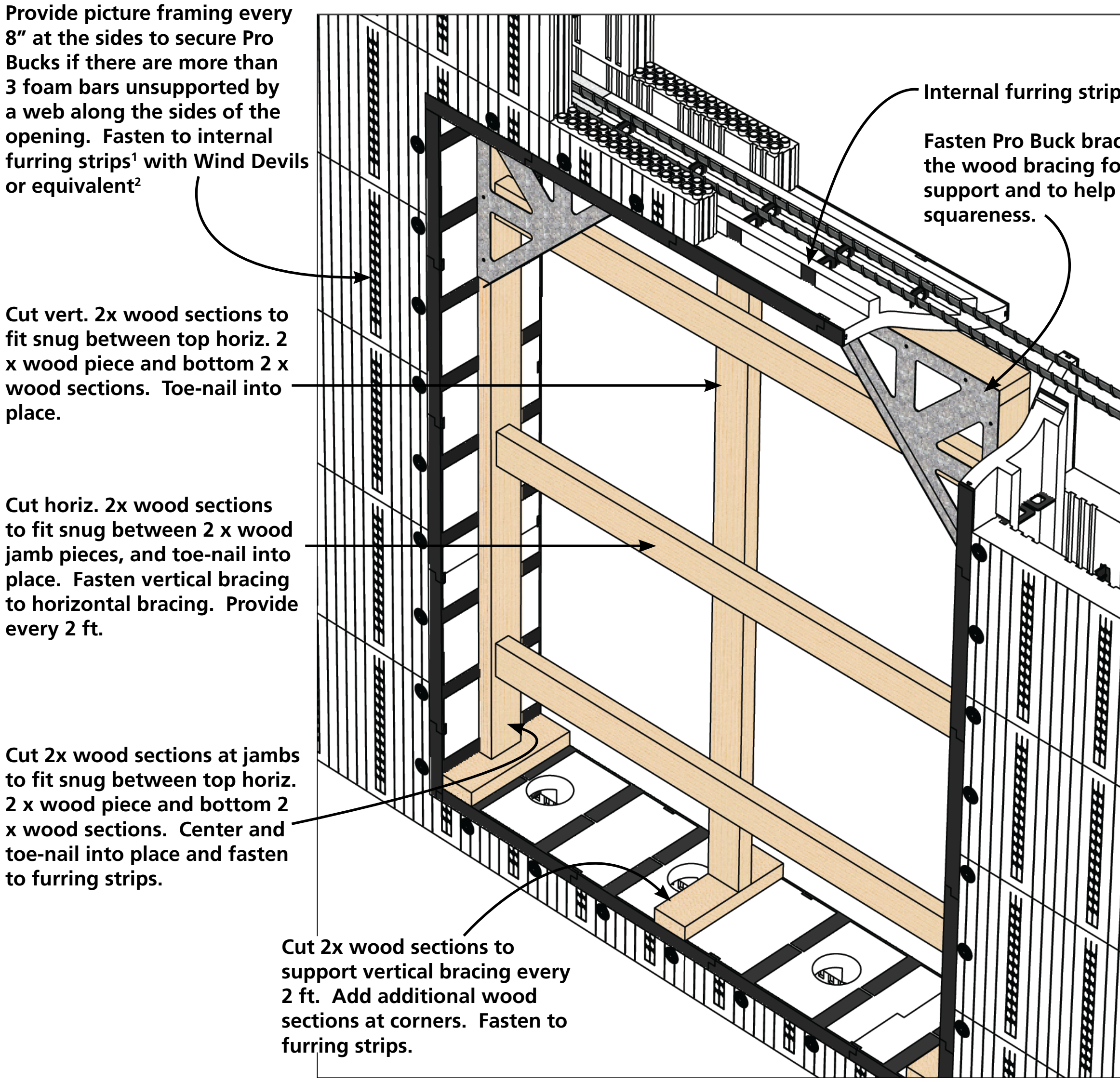
STEP 3: Install Pro Buck at the sill. To avoid debris in the wall cavity, cut min. 4" port holes at 16" on center before placing in the opening.



STEP 4: Continue installing forms above the opening. Use zip ties around the tie-back loop to secure the Logix forms to the Pro Buck at the header.

Once the Pro Buck pieces are placed in the opening add 2x wood bracing, and Pro Buck Brackets, to secure the Pro Bucks during concrete placement. Wood screws are recommended when fastening wood bracing to Logix Pro Buck.

NOTE: Using a membrane flashing is recommended to cover the joints between Pro Bucks and the Logix blocks.



1. Internal furring strips are easy to locate as they are in the same spot as the exposed furring strips that run across the face of Pro Buck.
2. Wind Devil fasteners are available from www.wind-lock.com. Finishes such as stucco, or acrylic textured finishes can be applied directly over Wind Devil fasteners.

2.9 – WINDOW AND DOOR BUCKS cont'd

Non-corrosive wood screws are recommended for the attachment of window or door frames. Inset or flanged windows and doors are fastened to the furring strips molded into the Logix Pro Buck. The furring strips are anchored into the concrete providing proper load transfer from the window/door to the concrete substrate.

To determine the fastener type and spacing for load rated windows and doors, withdrawal and lateral load resistance of specific fasteners are provided below.

Direct Fastening to Furring Strips

	Allowable Withdrawal[1]	Allowable Lateral[1]
#6 wood screw, min 1" long	30 lb	72 lb
#8 wood screw, min 1.25" long	38 lb	188 lb
#10 wood screw, min 1" long	34 lb	90 lb

1. Withdrawal factor of safety = 5, allowable lateral load based on the lesser of factor of safety of 3.2 or 75% of proportional limit. Based on independent fastener testing conducted by QAI Laboratories, in accordance with ASTM D1761, and ASTM E2634.

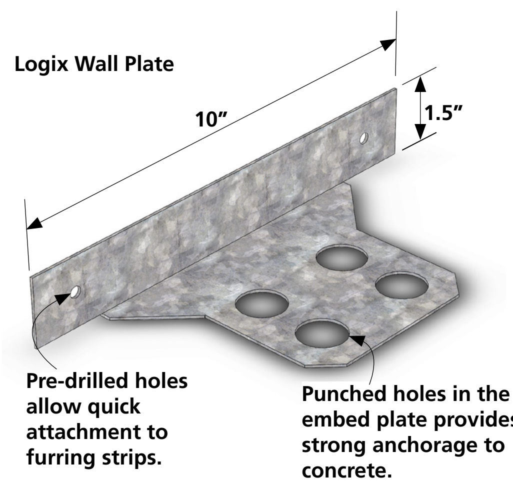
Where heavier load conditions are expected, mullion anchorage or where fixtures may not align with furring strips for proper fastening, such as door hinges, the Logix Wall Plate Inserts are recommended. The Wall Plates provide additional fastening edges between Pro Buck furring strips, and provide stronger fastener resistance. Withdrawal and lateral load resistance of specific fasteners are provided below.

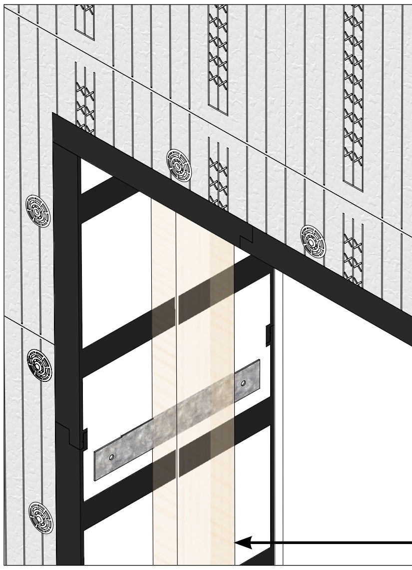
Direct Fastening of Logix Wall Plate

	Allowable Withdrawal[1]	Allowable Lateral[1]
#8-18x1" long self-tapping screw	102 lb	142 lb
#10-16x1.5" long self-tapping screw	106 lb	171 lb

1. Withdrawal factor of safety = 5, lateral resistance factor = 0.5 & 0.53 for #8 and #10 screws, respectively. Based on independent fastener testing conducted by QAI Laboratories, in accordance with ASTM D1761, and ASTM E2634.

To insert Logix Wall Plate cut a narrow slit on the face of Pro Buck.

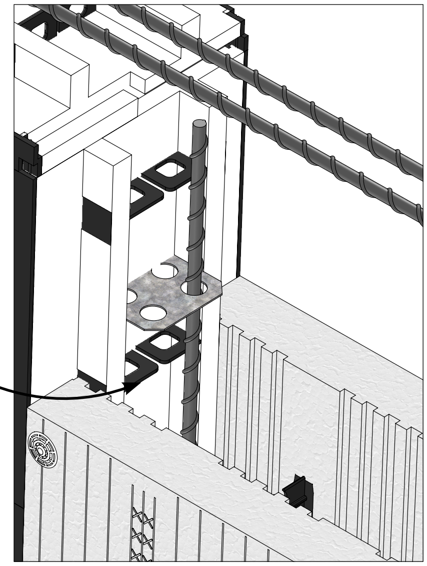




Bracing support for opening can support the Wall Plate during concrete placement.

Wall Plate at front face of Pro Buck

The Wall Plate securely anchors into the concrete core. When placed transversely to the opening holes punched in the Wall Plate allow for the placement of perimeter reinforcement.



Wall Plate at back side of Pro Buck

Pro Buck can also be installed length wise along the opening and temporarily fastened to the furring strips at pre-drilled holes, if required.

2.9.2 – TREATED PLYWOOD BUCK

Following are several methods for building bucks. Regardless of the method chosen, pre-planning is required to optimize chosen finish materials.

STEP 1: Rip 3/4 inch (19 mm) treated plywood to full form width.

STEP 2: Rip treated 2x4 diagonally on table saw at 180° angle.

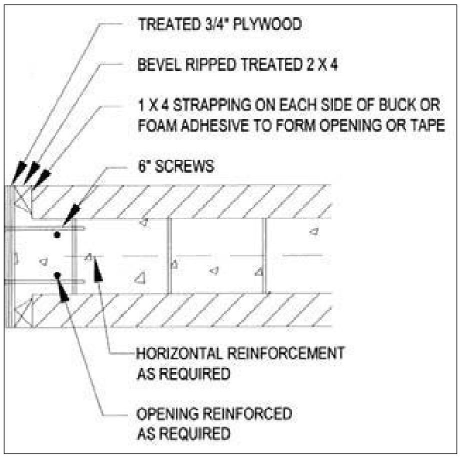
STEP 3: Assemble buck with appropriate fasteners with 2x4s creating a dovetail detail.

STEP 4: Assemble buck sides and top with access holes cut in bottom piece for placement of concrete. Two 2x4s can also be used for the bottom to allow concrete placements.

STEP 5: Place pre-assembled buck in opening and fasten in place with foam adhesive. The buck can also be installed in opening as separate pieces.

STEP 6: Install temporary cross bracing to withstand concrete pressure. Attaching screws through the buck and into closest webs can provide additional buck support.

NOTE: Pressure treated wood for window bucks are normally required only if the bottom of the window buck frame is located at or below ground level. Check with local building codes to determine if your area requires pressure treated window bucks.



2.9.3 – SOLID WOOD BUCK

STEP 1: Choose appropriate wood product based on the dimension of the forms:

- 4" (102mm) form: 9.5" (241mm)
- 6.25" (159mm) form: 11.75" (298mm)
- 8" (203mm) form: 13.5" (343mm)
- 10" (254mm) form: 15.5" (394mm)

STEP 2: Cut top piece of buck to fit the width of the opening.

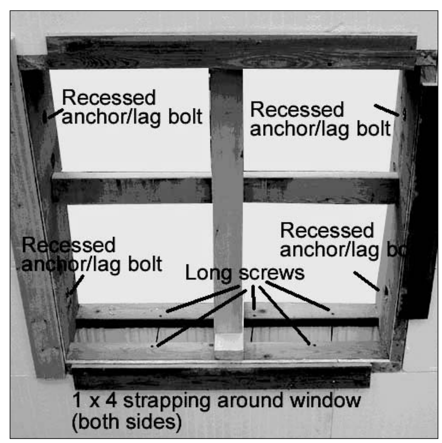
STEP 3: Cut sides of buck, remembering that the top piece rests on the side pieces.

STEP 4: Cut two 2x4s for the bottom to allow concrete placement.

STEP 5: Assemble buck and place in opening.

STEP 6: Once the buck is in place, it must be centered and secured. This can be done by attaching 1x4s to the edges of the buck, extending the edge of the 1x4 over the foam to hold the buck firmly in place. Alternately, the buck can be secured with foam adhesive and tape.

STEP 7: Solid wood bucks will require additional concrete anchors to create a permanent attachment to the concrete.



2.9.4 – RADIUS OPENINGS

Radius windows and doors can be assembled at the site with shortened pieces of Logix Pro Buck or lumber buck material.

STEP 1: Create the template for the radius opening with OSB or plywood that matches door or window rough opening.

STEP 2: Using template, draw outline of radius on wall, allowing for buck material thickness. Cut accordingly.

STEP 3: Cut buck material into approximately 4 inch (102 mm) widths to create radius buck.

STEP 4: Cut side and bottom buck pieces. Leave openings in the bottom piece for concrete placement and consolidation.

STEP 5: Assemble buck pieces in the opening in the following order:

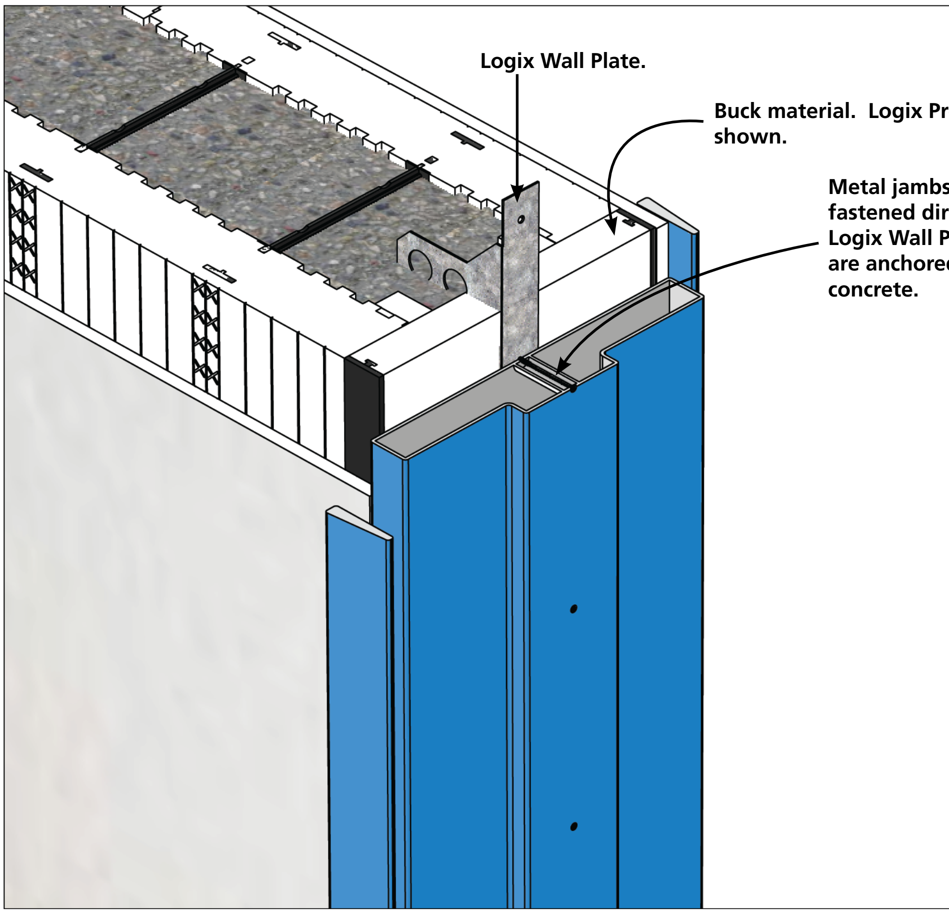
- bottom
- sides
- radius top

STEP 6: Once the buck is in place, it must be centered and secured. This can be done by attaching 1x4s to the edges of the buck, extending the edge of the 1x4 over the foam to hold the buck firmly in place. Alternately, the buck can be secured with foam adhesive and tape. Insert the radius template in opening to provide additional support.

STEP 7: Solid wood bucks will require additional concrete anchors to create a permanent attachment to the concrete.

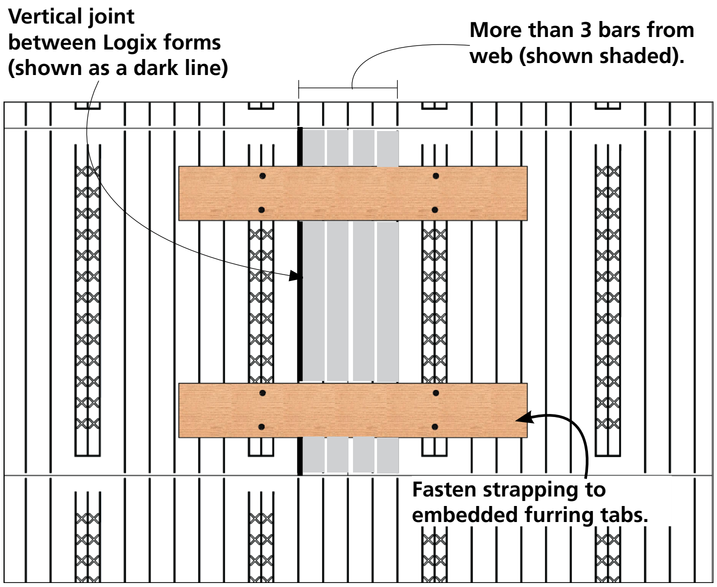
2.9.5 – METAL JAMBS

Metal jambs are typically used in commercial applications. Many metal jamb companies will pre-bend jambs to fit Logix forms. Contact your local Logix representative for more details.

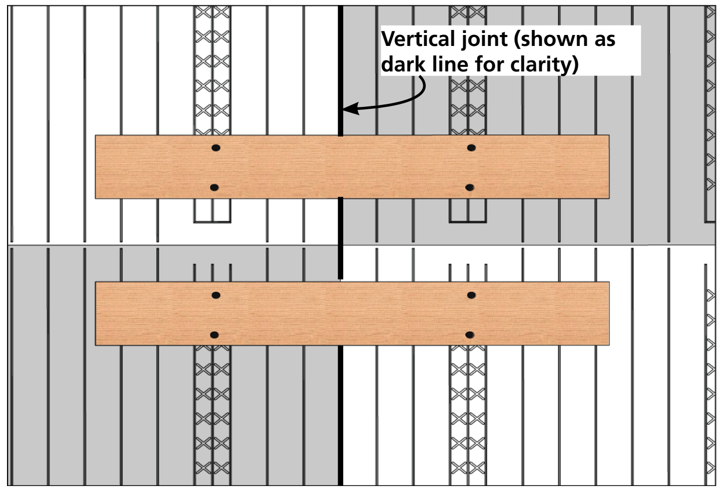


2.10 – ADDITIONAL FORM SUPPORT

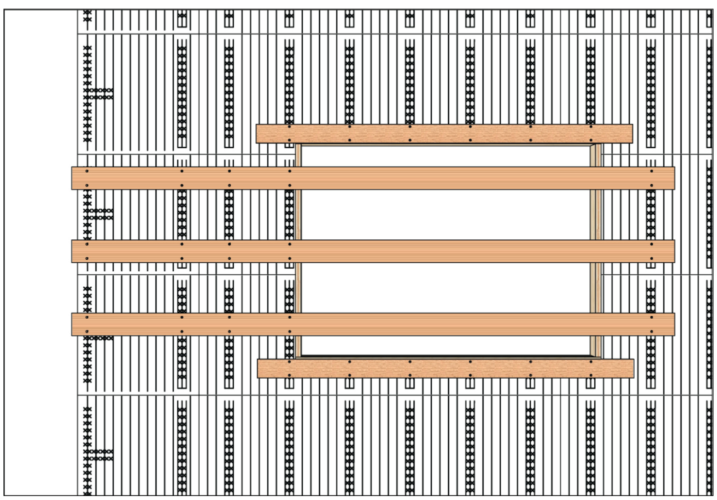
The time spent prior to concrete placement pays huge dividends in job efficiency, accuracy, and profitability.



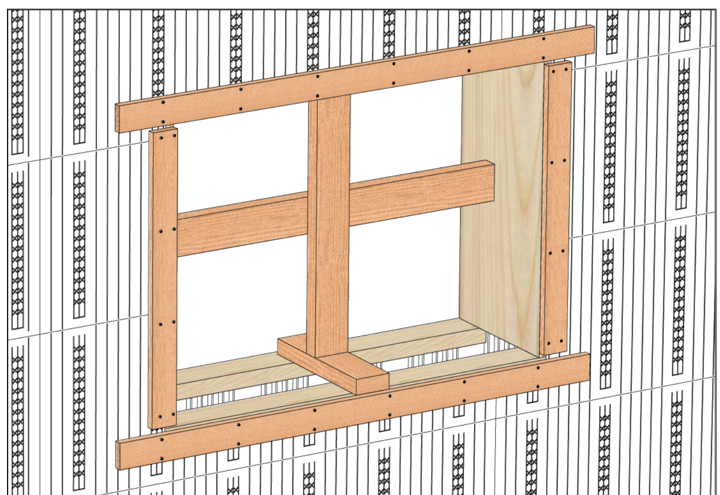
Provide wood strapping on both sides of Logix when there are more than 3 bars beyond a web.



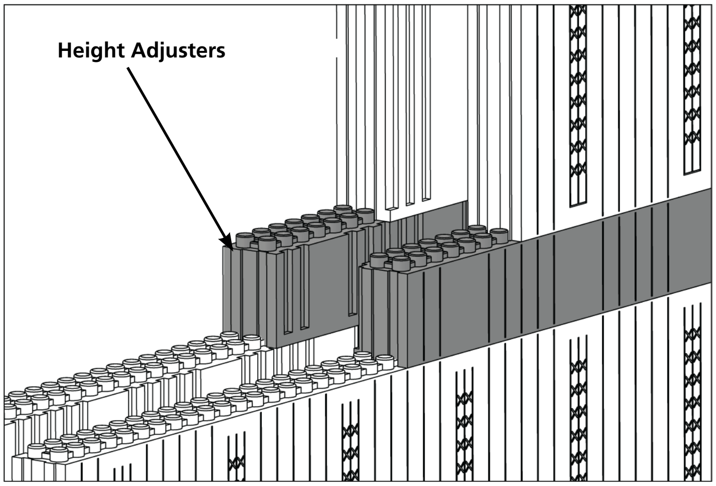
Provide wood strapping on both sides of Logix when vertical joints are directly on top of each other, or offset between joints is less than 8” between courses.



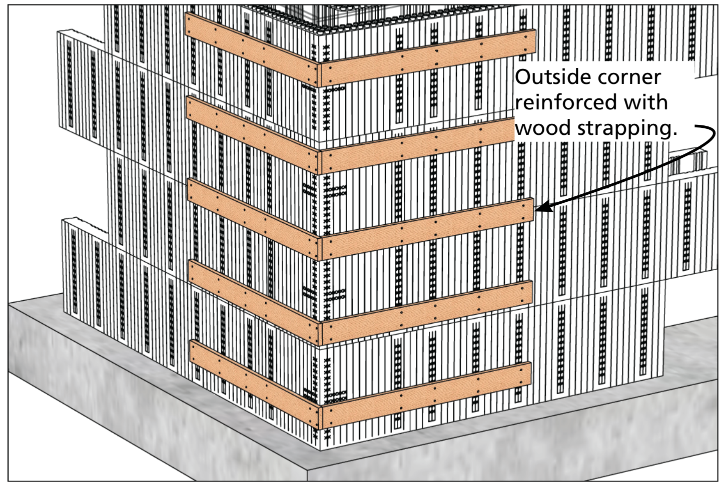
Provide wood strapping on both sides of Logix at window and door openings less than 4 feet from a corner. Run strapping across opening. Fasten to embedded furring tabs, and bracing around openings.



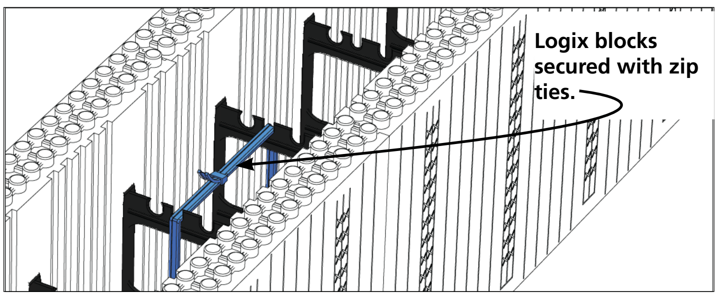
Wood strapping is required around window and door openings to maintain straightness. In addition, cross bracing with 2x4 supports is required inside window and door bucks to hold bucks in place and prevent sagging. Use foam adhesive on bucks to provide additional buck support.



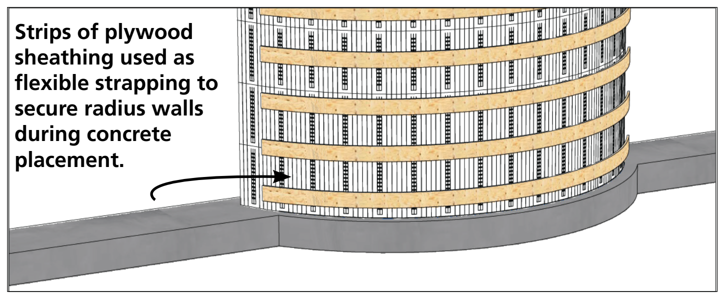
Foam adhesive should be used to secure all Height Adjusters.



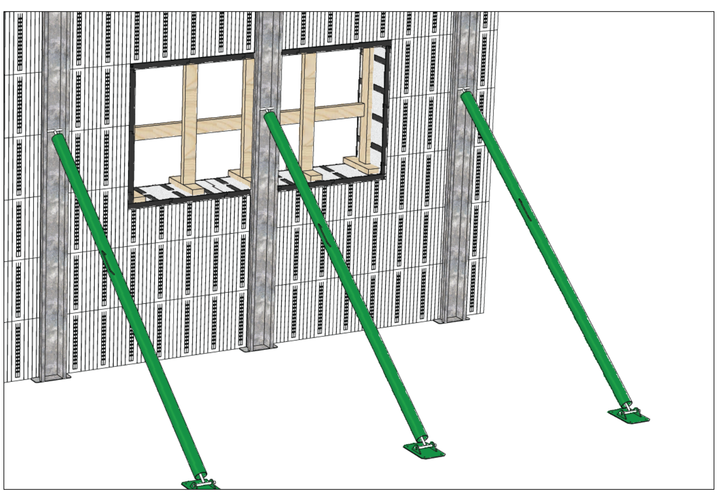
All outside corners can be reinforced with tape, or wood strapping, and zip ties.



The top course and lintels should be secured with adhesive foam, zip ties, or Logix Horizontal and Vertical Hooks.



Radius walls should be secured with foam adhesive and flexible strapping material.

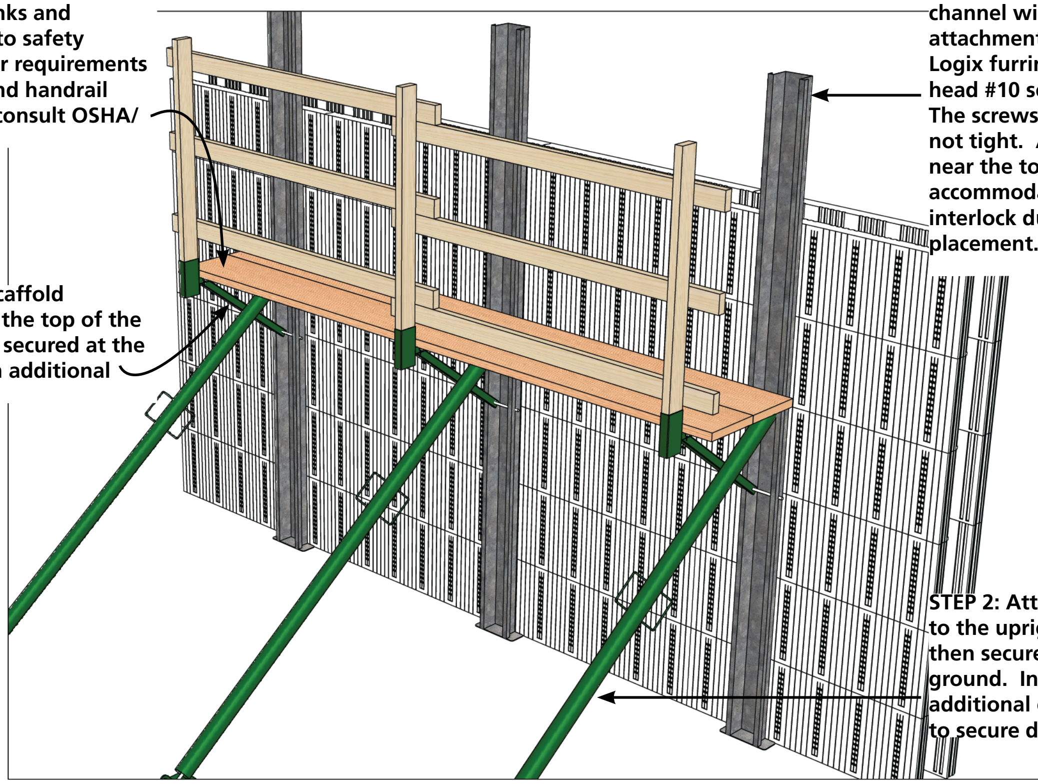


The middle of large openings should be vertically braced to prevent tipping.

NOTE: All forms should be firmly seated to prevent settling.

2.11 – WALL BRACING & ALIGNMENT SYSTEM

A bracing system provides support for the wall and acts an alignment system to keep the walls straight and plumb during concrete placement. Typically, the wall alignment system is installed on the inner side of the Logix wall, and installed after placing 2 to 4 courses of Logix forms (depending on wind and other conditions).



Recommended minimum spacing and bracing locations:

- no more than 2 feet (0.610 m) from each corner or wall end, and every 7 feet (2.134 m) or less thereafter, in accordance with OSHA/OHSA requirements.
- on either side of every door and window opening.
- along door and window openings that span more than 6 feet (1.829 m)

NOTES: Prior to concrete placement, make certain walls are aligned perfectly plumb, or leaning slightly inward. The wall must not lean out at all.

A string line must be used to achieve straight walls. See Section “2.7.3 – ADDITIONAL COURSES” on page 16.

Before, during and after concrete placement, the diagonal turnbuckle arm is used to adjust wall straightness to stringline.

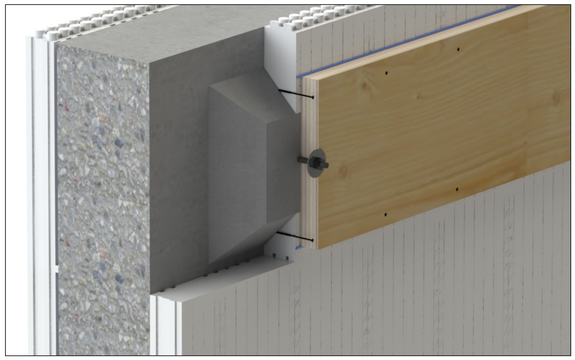
Proprietary bracing systems are available through ICF dealers or bracing suppliers.

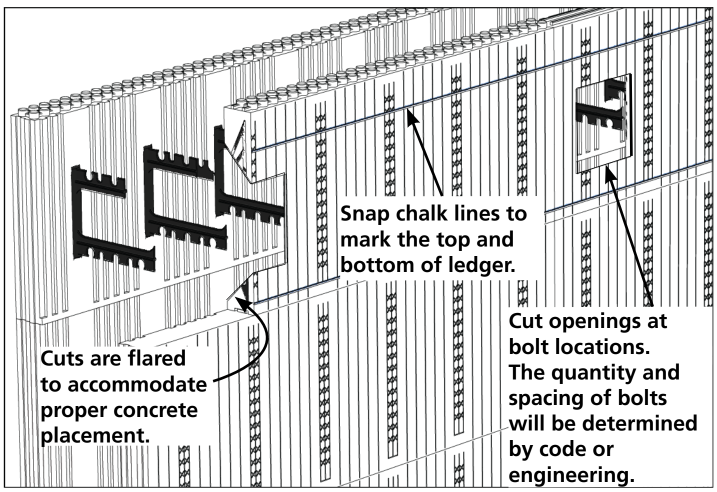
For tall wall bracing and alignment see Section 3.2, Tall Wall Bracing Systems.

2.12 – FLOOR CONNECTIONS

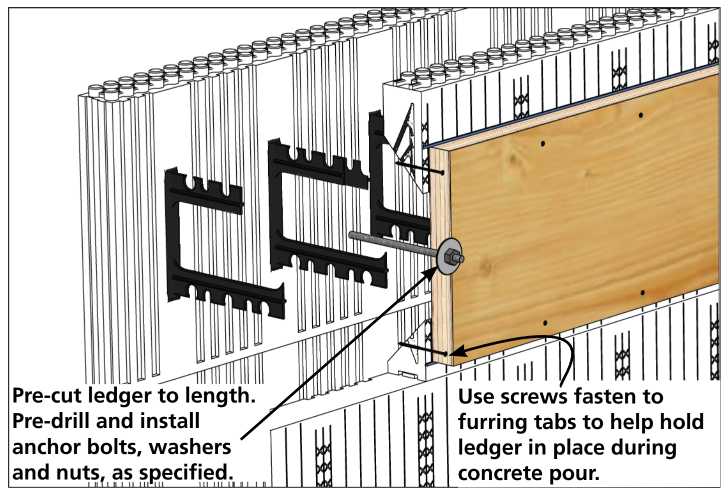
Any type of floor system can be easily integrated with Logix. For any questions or assistance, please contact your local Logix representative.

2.12.1 - LEDGER WITH ANCHOR BOLTS & JOIST HANGERS

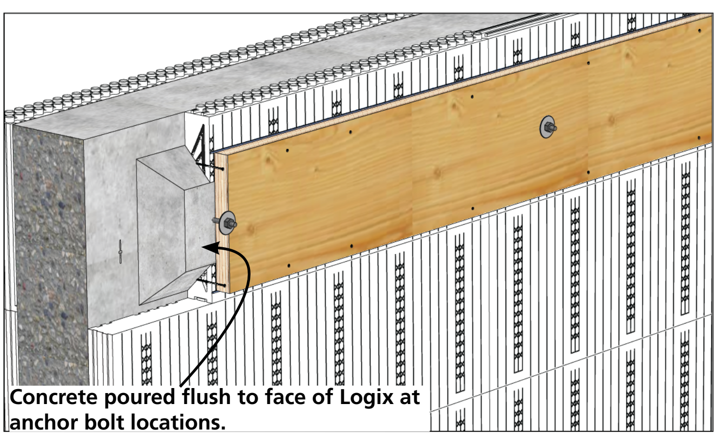




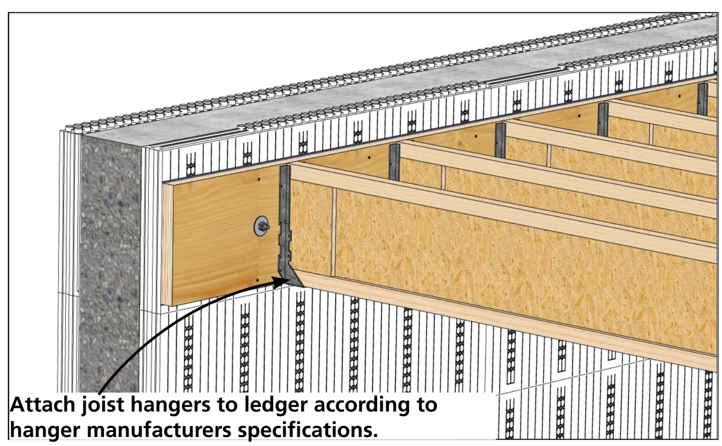
STEP 1: Snap chalk lines and cut openings for bolt locations.



STEP 2: Install ledger with anchor bolts.



STEP 3: Place concrete.



STEP 4: Install joist hangers.

LOGIX® INSULATED CONCRETE FORMS

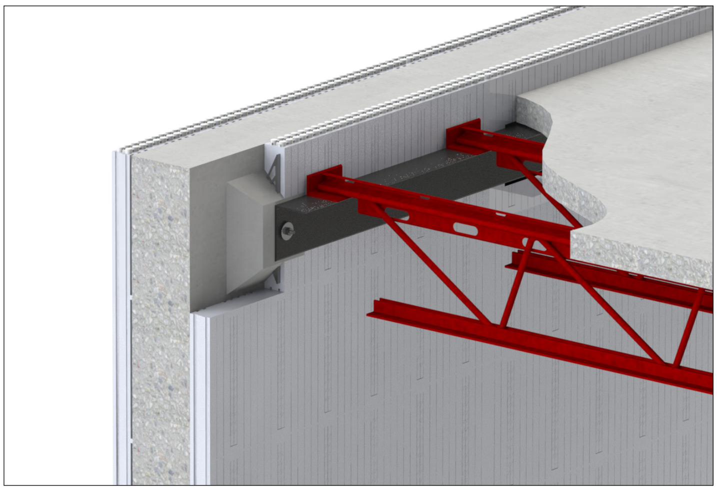
2.12 – FLOOR CONNECTIONS Cont'd

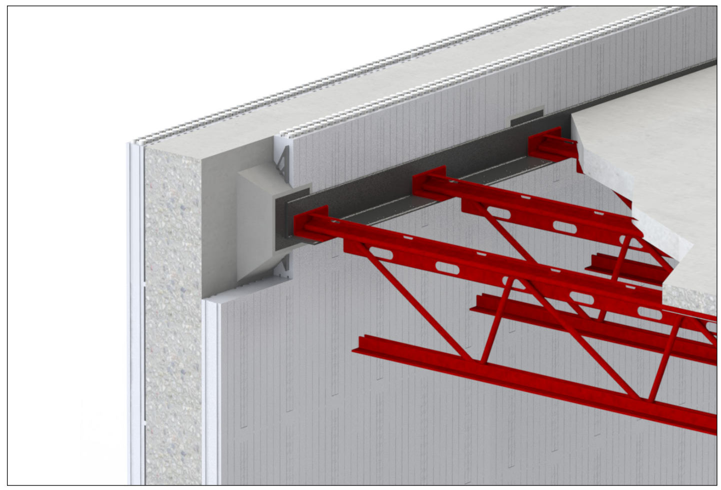
2.12.2 – STEEL ANGLE IRON LEDGER

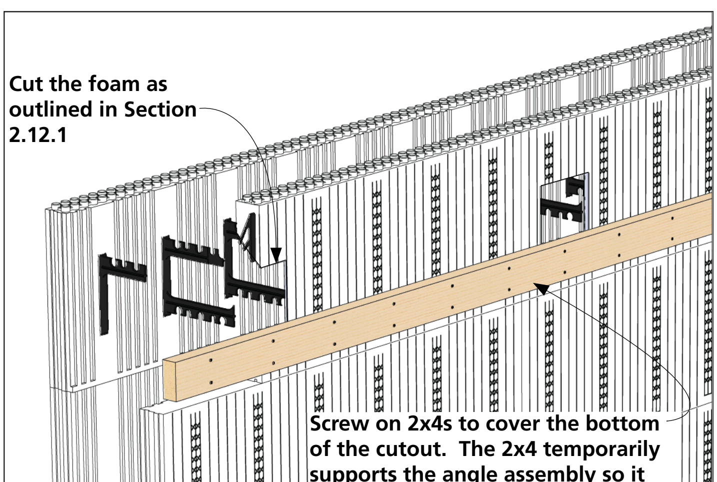
When floor spans become very long or concrete topping is applied to the floor, a wood ledger may not be adequate to support floor loads. In this case a steel angle iron can be used in place of a wood ledger. The angle iron can support much more weight and also eliminates the need for joist hangers, as the floor system sits right on the angle.

To install an angle iron ledger follow the steps in Section "2.12.1 - LEDGER WITH ANCHOR BOLTS & JOIST HANGERS" on page 45, but use pieces of plywood to temporarily hold the bolts in place. After the pour drill and bolt on the angle iron. Local steel fabricators may be able to pre-drill your angle iron.

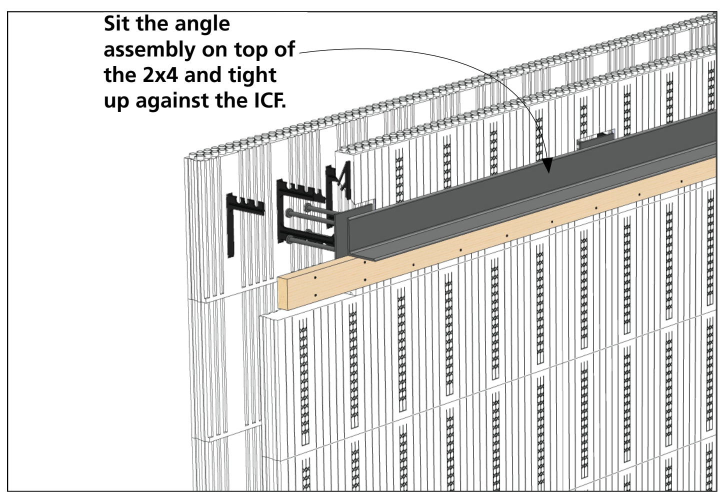
Another alternative is to pre-fabricate an angle iron with anchor bolts or nelson studs welded directly to the angle. The entire assembly is then cast in place. This application is described below.



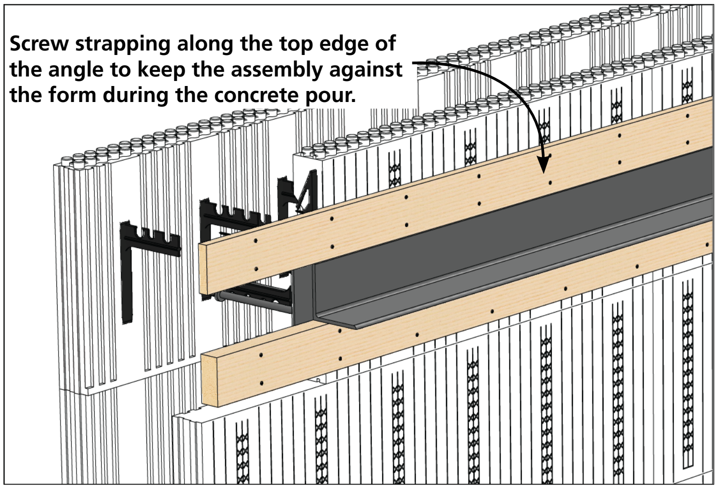




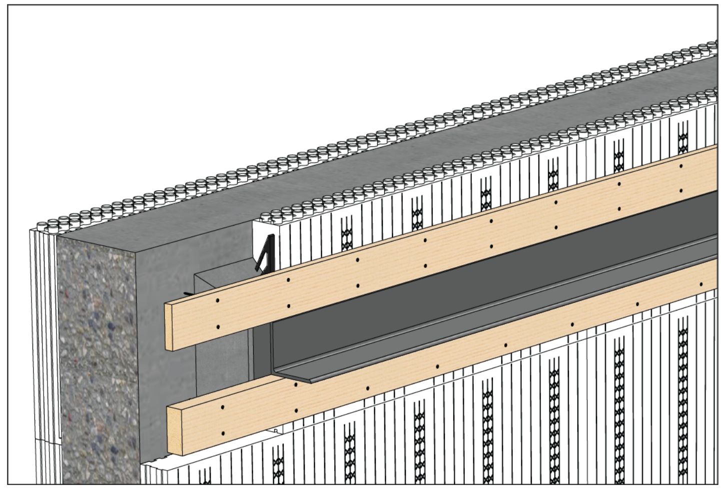
STEP 1: Cut foam to accommodate anchors, and install 2x4 to support angle assembly.



STEP 2: Install 2x4 to support angle assembly.

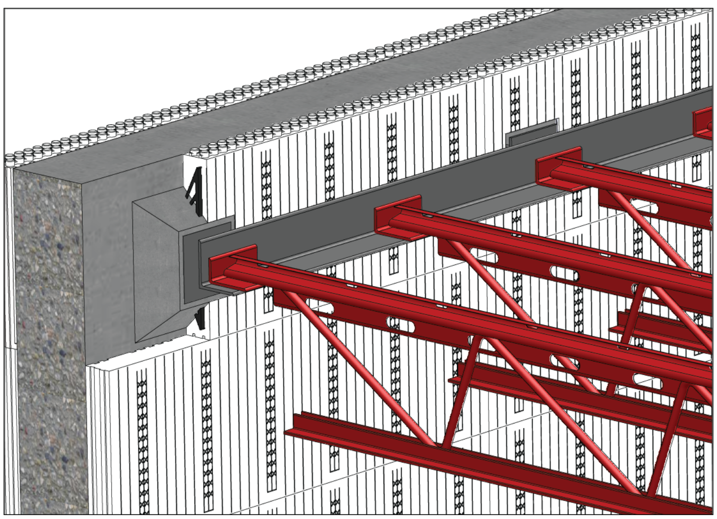


STEP 3: Install strapping to support angle assembly.



STEP 4: Pour concrete and cast the assembly in place.

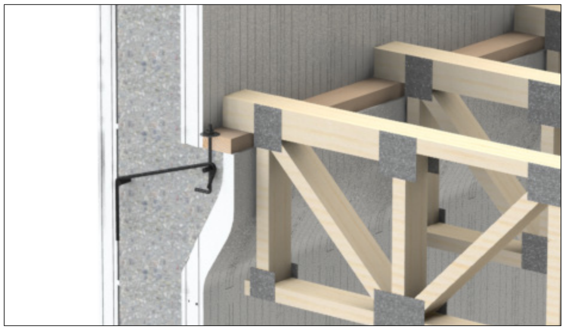
NOTE: It is code in some areas for the angle assembly to be primed.



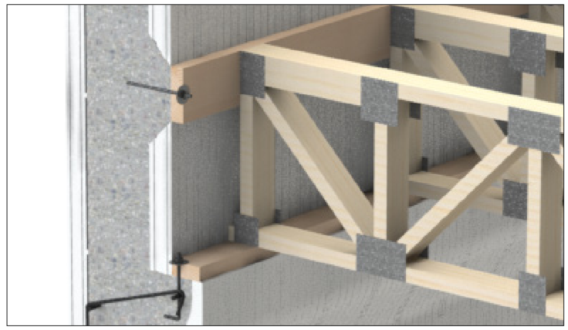
STEP 5: After some curing place floor systems on the angle and establish layout. Once layout is complete fasten the floor joist to the angle iron, as specified. You may decide to attach a nailing surface to the bottom leg of the angle iron to nail joists to.

2.12.3 – BRICK LEDGE FOR TOP & BOTTOM CHORD BEARING SYSTEMS

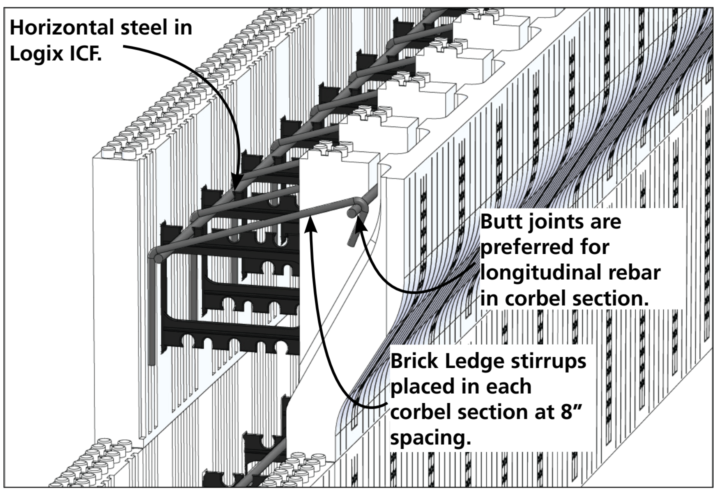
The Logix Brick Ledge form can create a load bearing surface to support floor systems, including top and bottom chord bearing trusses or joists.



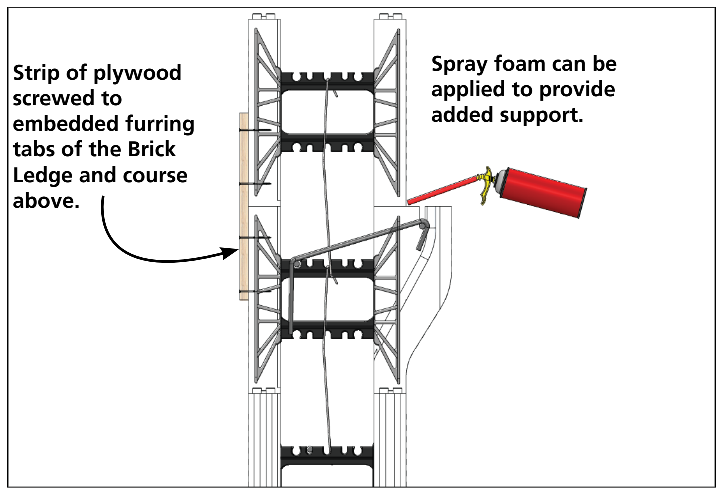
Top chord bearing on Logix Brick Ledge.



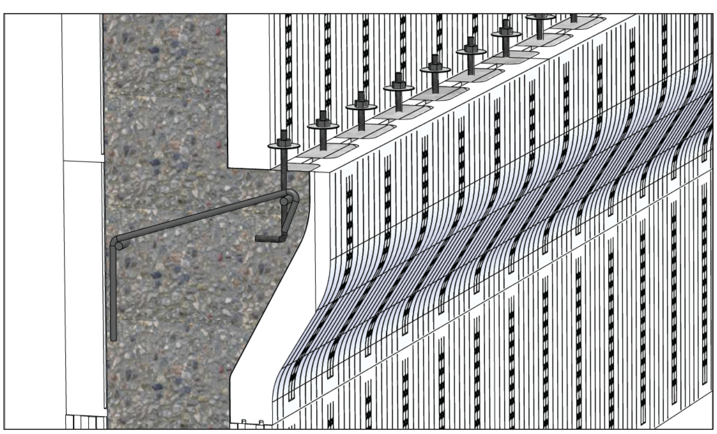
Top chord bearing on Logix Brick Ledge.



STEP 1: Install a course of Logix Brick Ledge, and place required reinforcement.



STEP 2: When installing a course above the Logix Brick Ledge add additional form support to prevent tilting or separating.

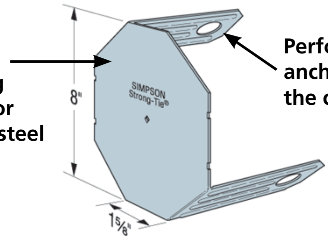


STEP 3: As concrete is placed, install embedments, as required.

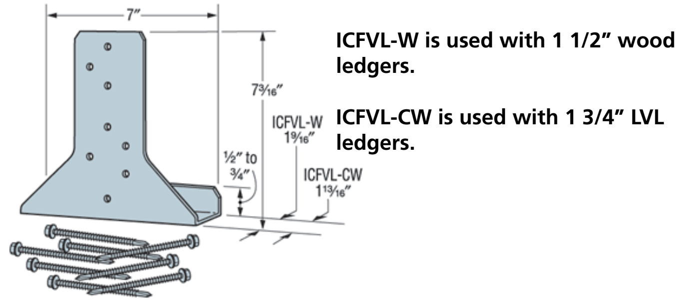
NOTE: If the Logix block in the course above the Brick Ledge is of a smaller width than the Brick Ledge, additional form support will be required.

2.12.4 – LEDGER WITH SIMPSON BRACKET & JOIST HANGERS

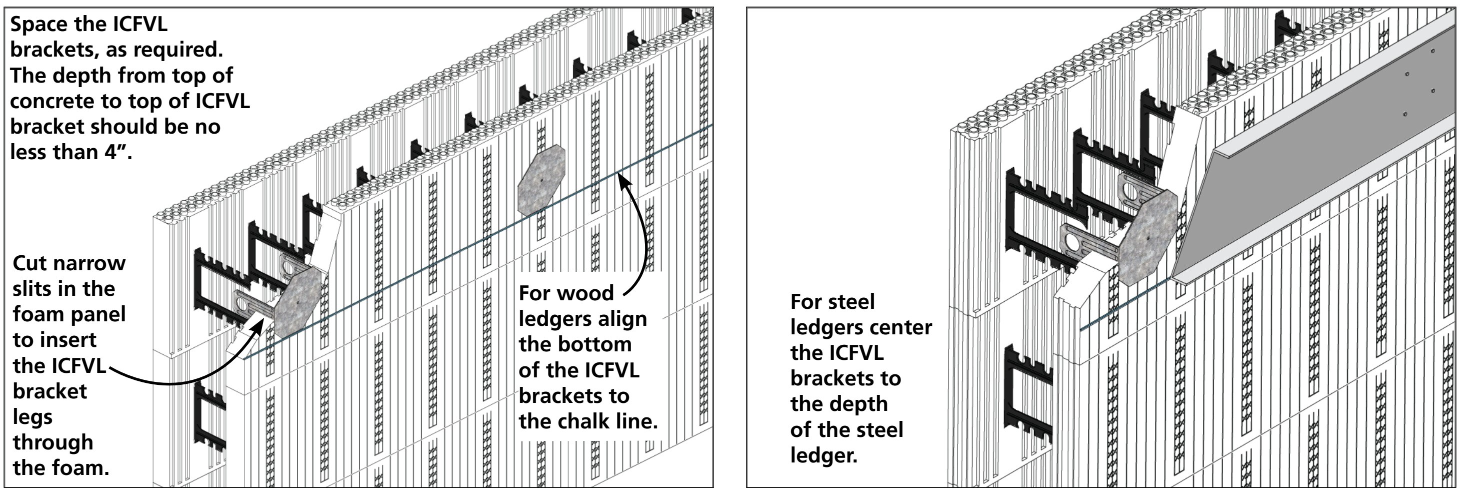
The ICFVL & ICFVL-W ledger connector system from Simpson Strong-Tie is designed for mounting steel or wood ledgers on ICF walls.



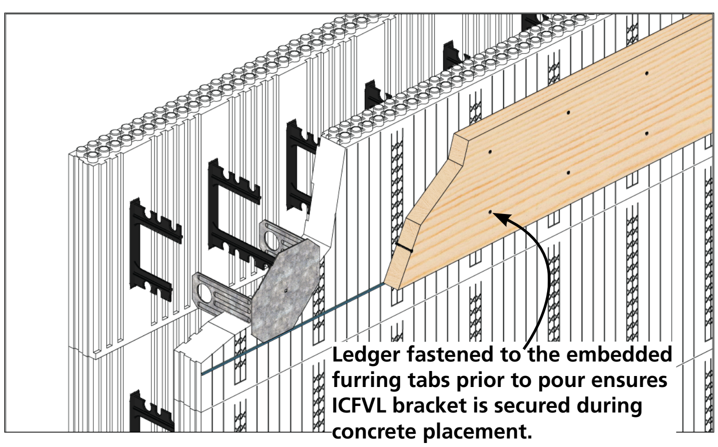
ICFVL bracket is inserted through the Logix form panels prior to concrete placement.



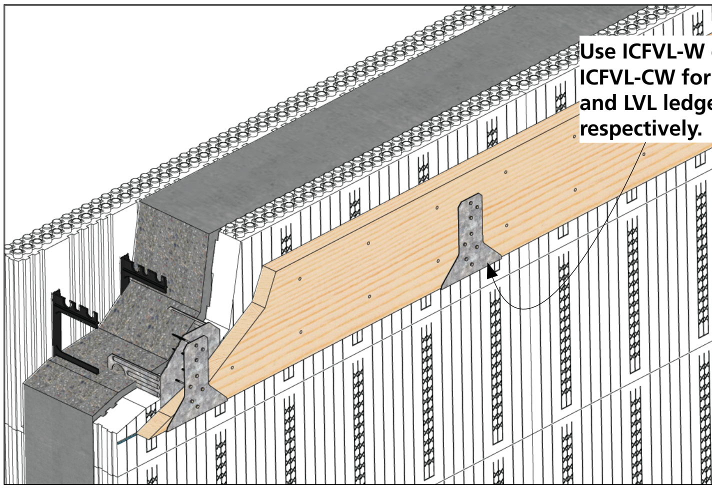
ICFVL-W and ICFVL-CW brackets are installed on the ledger and screwed to the embedded ICFVL.

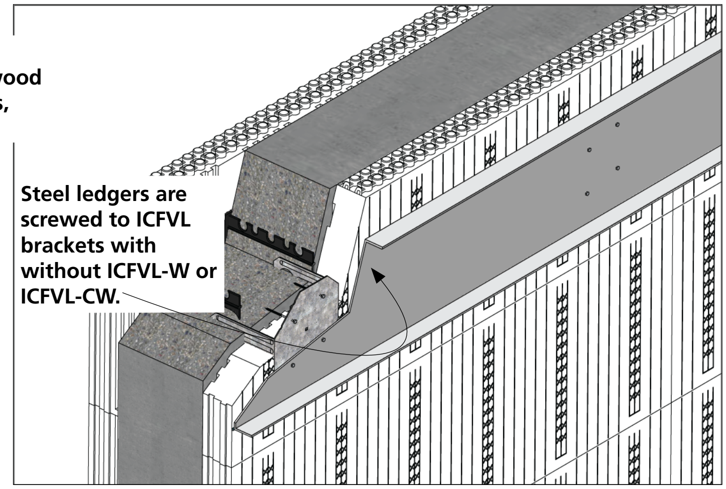


STEP 1: Snap a chalk line to mark the bottom of the ledger and insert ICFVL brackets, as specified.



STEP 2: Secure the ICFVL brackets before placing concrete. Fastening strapping across the brackets or installing the ledgers prior to concrete placement will help ensure full concrete embedment of the ICFVL brackets.





STEP 3: Place and consolidate concrete. Once set, slip the ICFVL-W or ICFVL-CW underneath the wood ledger and drive eight ICF-D3.25 screws through the ledger and into the ICFVL bracket. ICF-D3.25 screws are supplied by Simpson Strong-Tie.

For steel ledgers use four #14 x 3/4" screws to attach the ledger to the ICFVL brackets. These screws are not supplied by Simpson Strong-Tie.

STEP 4: Connect the floor joists to the ledgers, as required.

NOTE: Industry studies show that hardened fasteners can experience performance problems in wet environments. Accordingly, use this product in dry environments only. In addition, due to its corrosive nature, treated lumber should not be used with this product.

Use extra caution when installing the hangers on both sides of a wall. Consult your local Simpson Strongtie rep or contact Simpson Strongtie at (800) 999-5099 prior to installation.

Complete technical data is available at www.strongtie.com

Simpson Strong-Tie Ledger Connector Loads & Spacings

		4" LOGIX ICF	6", 8" & 10" LOGIX ICF	4" LOGIX ICF	6", 8" & 10" LOGIX ICF	Spacing to Replace Anchor Bolts[3,4,6]							
Ledger Type	Model No.	Allowable Vertical Resistance[2]	Allowable Vertical Resistance[2]	Factored Vertical Resistance	Factored Vertical Resistance	1/2" Dia. Bolts at				5/8" Dia. Bolts at			
		lbs (kN)	lbs (kN)	lbs (kN)	lbs (kN)	12" (305mm)	24" (610mm)	36" (914mm)	48" (1220mm)	12" (305mm)	24" (610mm)	36" (914mm)	48" (1220mm)
2xD.Fir-L/SPF	ICFVL w/ ICFVL-W	1375 (6.12)	1894 (8.42)	1890 (8.41)	2630 (11.70)	4' (1220mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)	3'-9" (1143mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)
1 3/4" LVL	ICFVL w/ ICFVL-CW	1375 (6.12)	1894 (8.42)	1890 (8.41)	2630 (11.70)	4' (1220mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)	3'-6" (1067mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)
(0.054") 16ga	ICFVL	1770 (7.87)	1894 (8.42)	2435 (10.83)	2630 (11.70)	1'-3" (381mm)	2'-3" (686mm)	-- --	-- --	1' (305mm)	'2 (610mm)	-- --	-- --
(0.068") 14ga	ICFVL	1770 (7.87)	1894 (8.42)	2435 (10.83)	2630 (11.70)	1' (305mm)	2' (610mm)	-- --	-- --	9" (229mm)	1'-6" (457mm)	-- --	-- --

		4" LOGIX ICF	6", 8" & 10" LOGIX ICF	4" LOGIX ICF	6", 8" & 10" LOGIX ICF	Spacing to Replace Anchor Bolts[3,4,6]							
Ledger Type	Model No.	Allowable Vertical Resistance[2]	Allowable Vertical Resistance[2]	Factored Vertical Resistance	Factored Vertical Resistance	2-5/8" Dia. Bolts at				3/4" Dia. Bolts at			
		lbs (kN)	lbs (kN)	lbs (kN)	lbs (kN)	12" (305mm)	24" (610mm)	36" (914mm)	48" (1220mm)	12" (305mm)	24" (610mm)	36" (914mm)	48" (1220mm)
2xD.Fir-L/SPF	ICFVL w/ ICFVL-W	1375 (6.12)	1894 (8.42)	1890 (8.41)	2630 (11.70)	1'-9" (533mm)	3'-9"' (1143mm)	4' (1220mm)	4' (1220mm)	3'-6" (1067mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)
1 3/4" LVL	ICFVL w/ ICFVL-CW	1375 (6.12)	1894 (8.42)	1890 (8.41)	2630 (11.70)	1'-9" (533mm)	3'-6" (1067mm)	4' (1220mm)	4' (1220mm)	2'-9" (838mm)	4' (1220mm)	4' (1220mm)	4' (1220mm)
(0.054") 16ga	ICFVL	1770 (7.87)	1894 (8.42)	2435 (10.83)	2630 (11.70)	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
(0.068") 14ga	ICFVL	1770 (7.87)	1894 (8.42)	2435 (10.83)	2630 (11.70)	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --

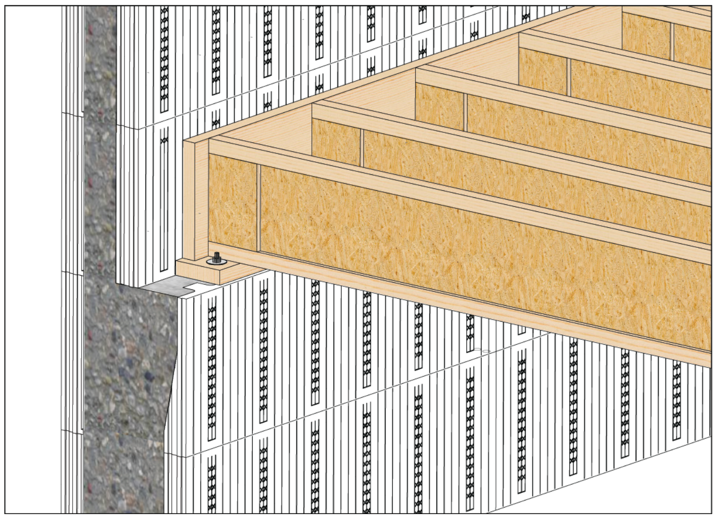
Allowable lateral load = 1905lbs (8.47kN) (Applicable to all form sizes).

1kN = 224.8lbs = 102Kg
1. Minimum steel ledger specification is Fy=33ksi (230MPa) and Fu=45ksi (310MPa) in accordance with CSA S136-94.
2. No load duration increase is allowed.
3. Spacing is based on vertical load only.
4. For steel ledger, spacing is based on a combination of ledger gauge & anchor bolt diameter. Spacing is closer for a 14 gauge ledger in order to achieve the equivalent bolt/ledger capacity.
5. Minimum concrete compressive strength, f'c, is 2500psi (17.25MPa).
6. The designer may specify different spacing based on the load requirements.
7. For more information contact Simpson Strongtie at www.simpsonstrongtie.com

Note: Industry studies show that hardened fasteners can experience performance problems in wet environments. Accordingly, use this product in dry environments only. In addition, due to its corrosive nature, treated lumber should not be used with Simpson Strongties.

2.12.5 – TRANSITION LEDGE

A transition ledge typically occurs at the floor level where a wider Logix wall transitions to a narrower Logix wall above the floor line, and usually up to the roof line.



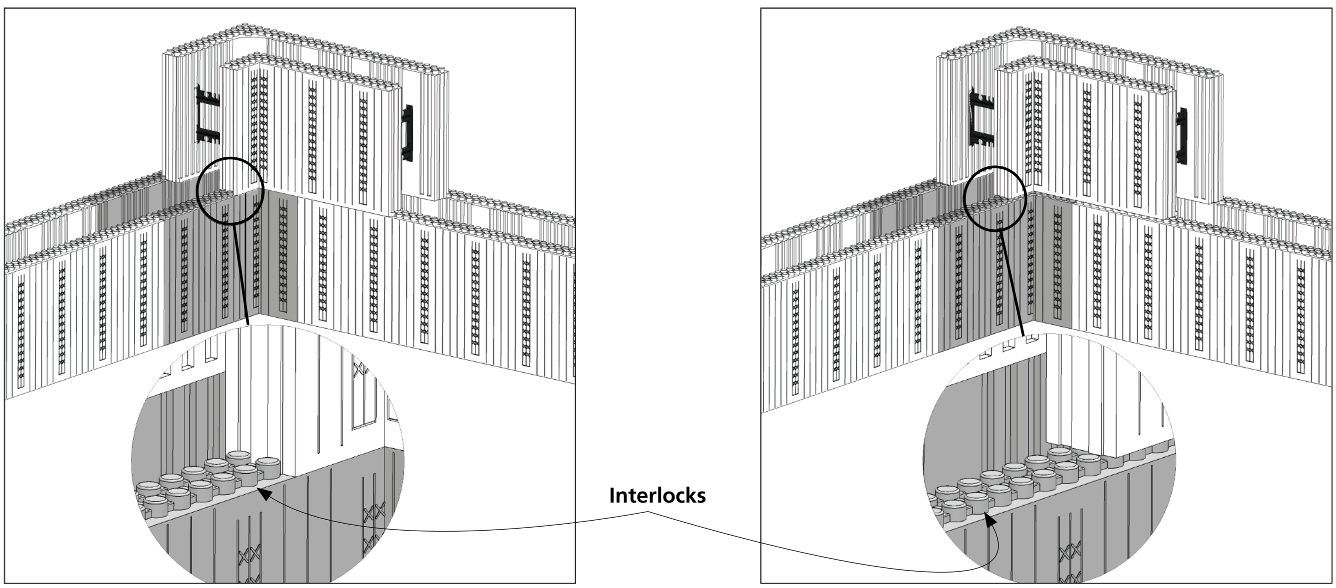
The ledge created when transitioning from a wider to a narrower wall can provide a suitable bearing length for many types of floor systems. The bearing length will vary depending on the thickness and type of Logix forms used. For a complete list of bearing lengths see Section 5.4.1, Bearing Lengths.

2.12.5.2 – TRANSITION LEDGE WITH CORNER BLOCKS

Transitioning from a wider block to a narrower block is commonly used in cases where a thinner wall becomes more economical (i.e., below grade wall to above grade wall), or to create a ledge that can support a floor or roof system, or finishes such as brick veneer.

When transitioning at corner locations using corner blocks, you might find that the interlocking knobs on the top side of the wider bottom block (bottom course) do not interlock or align with the underside of the top narrower block (top course). As a result, the top course will not sit or snap into its proper position.

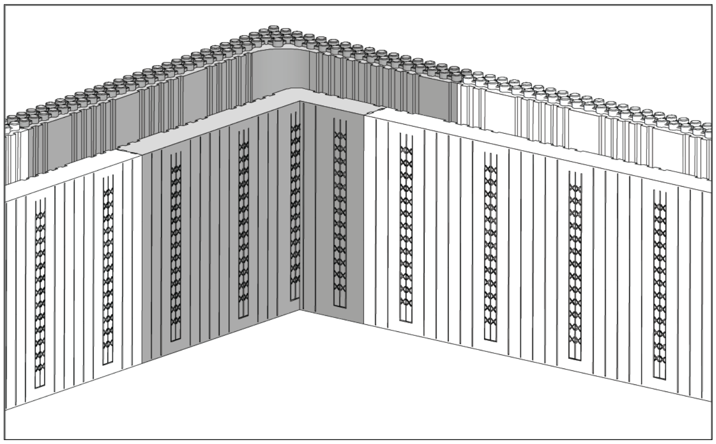
This typically occurs in transitions at corner locations, and is easily resolved by following a few simple steps outlined below.



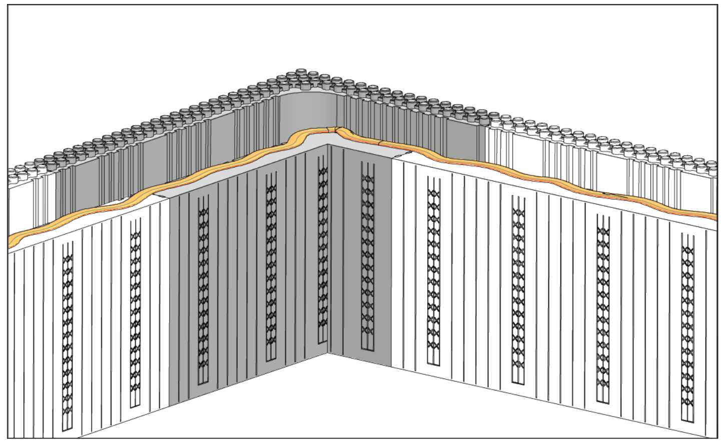
Proper alignment of top course to bottom course. Interlock aligns with underside of top course.

Improper alignment of top course to bottom course. Interlock does not align with underside of top course.

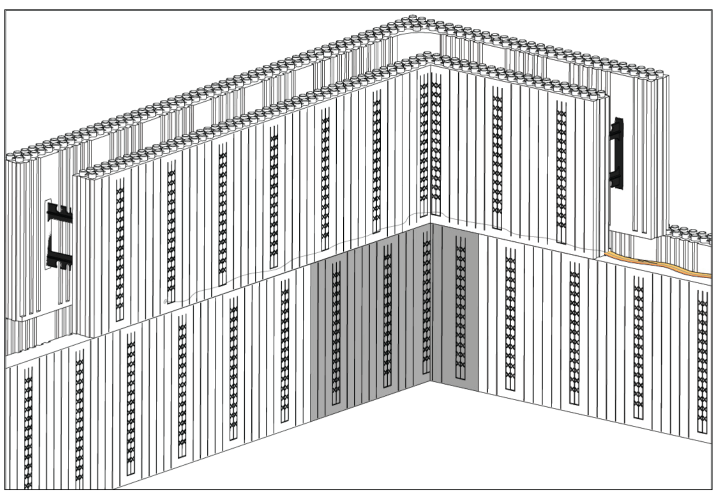
2.12 – FLOOR CONNECTIONS Cont'd



STEP 1: Cut the interlocks off the wider corner blocks (it may be necessary to cut the interlocks off the rest of the blocks on the bottom course to ensure the top course can be placed flush on top of the previous course).
As an alternative, Taper Top blocks for the bottom course can be used. The Taper Tops provide more flexibility since they can be adjusted to ensure the interlocks align with the top course.



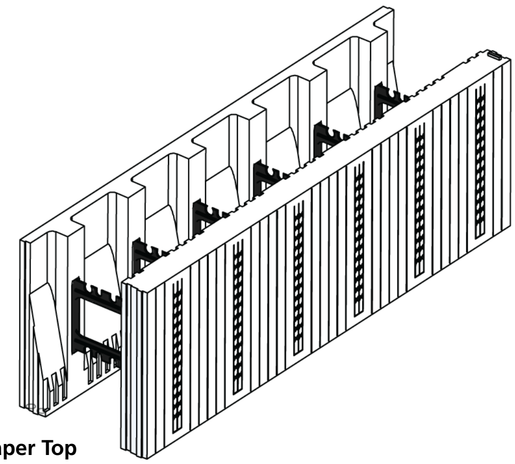
STEP 2: Apply foam adhesive prior to installing the top course.

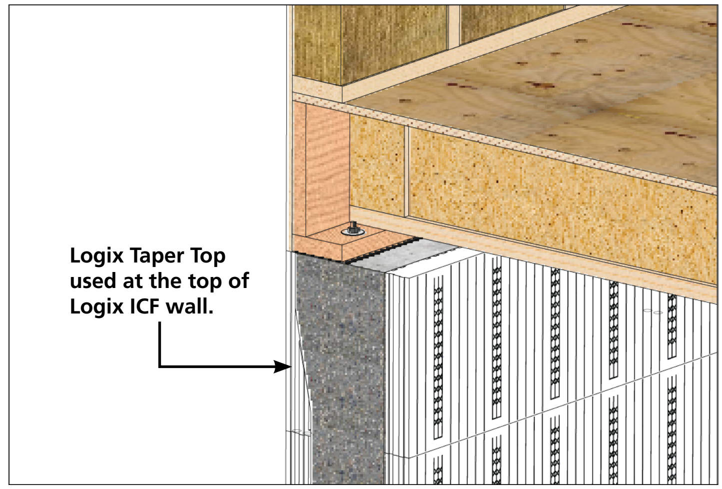


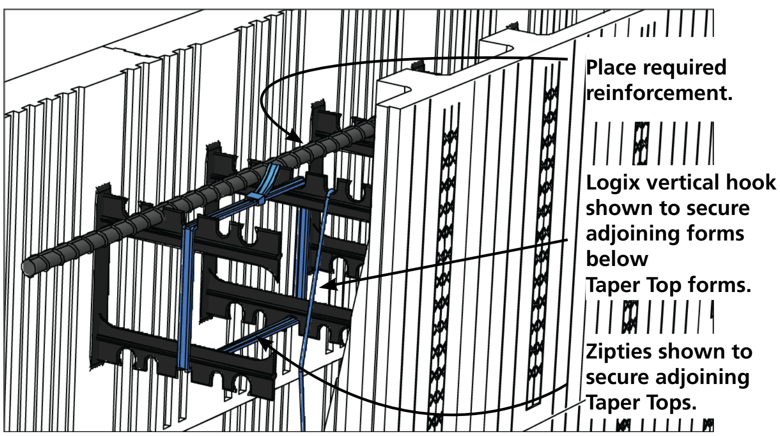
STEP 3: Install the top course beginning with the corner block and continuing around the building perimeter.

2.12.6 – TAPER TOP WITH SILL PLATE

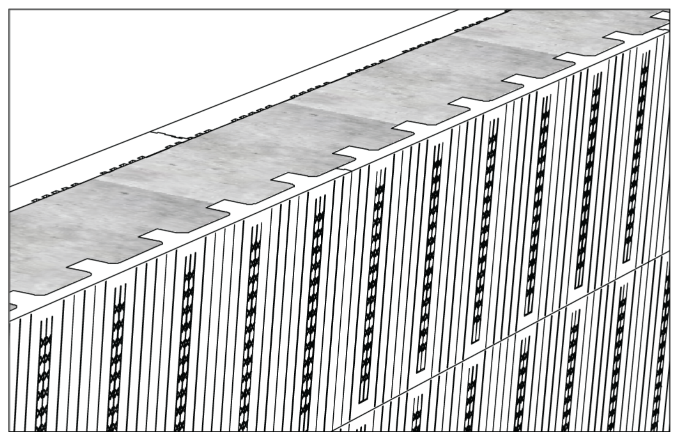
The Taper Top form creates a greater bearing surface at the top of Logix walls.



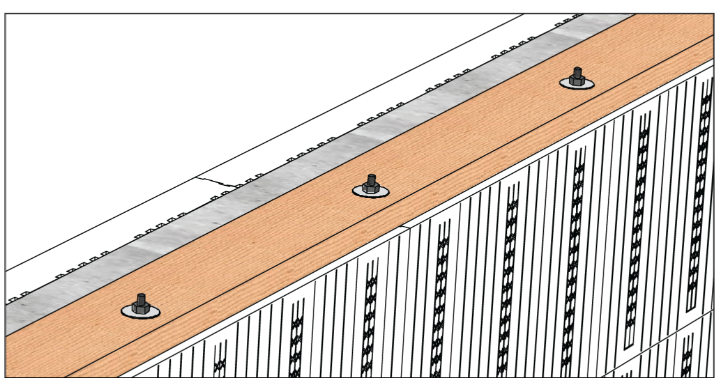




STEP 1: Taper Top forms need to be foamed down or otherwise secured to the course below.



STEP 2: Trowel concrete flush with top of forms, or inset as required. Be sure to check for level.



STEP 3: Insert embedments as required.

2.12.7 – CONCRETE FLOOR SYSTEMS

Building with Logix will allow you to explore many concrete floor system options. Our walls are stronger and can support added weight that wood or steel frame buildings may not. Concrete floor systems are very popular in multi-residential buildings where the transmission of sound and fire are a concern. They are also growing in popularity in single-family residential applications.

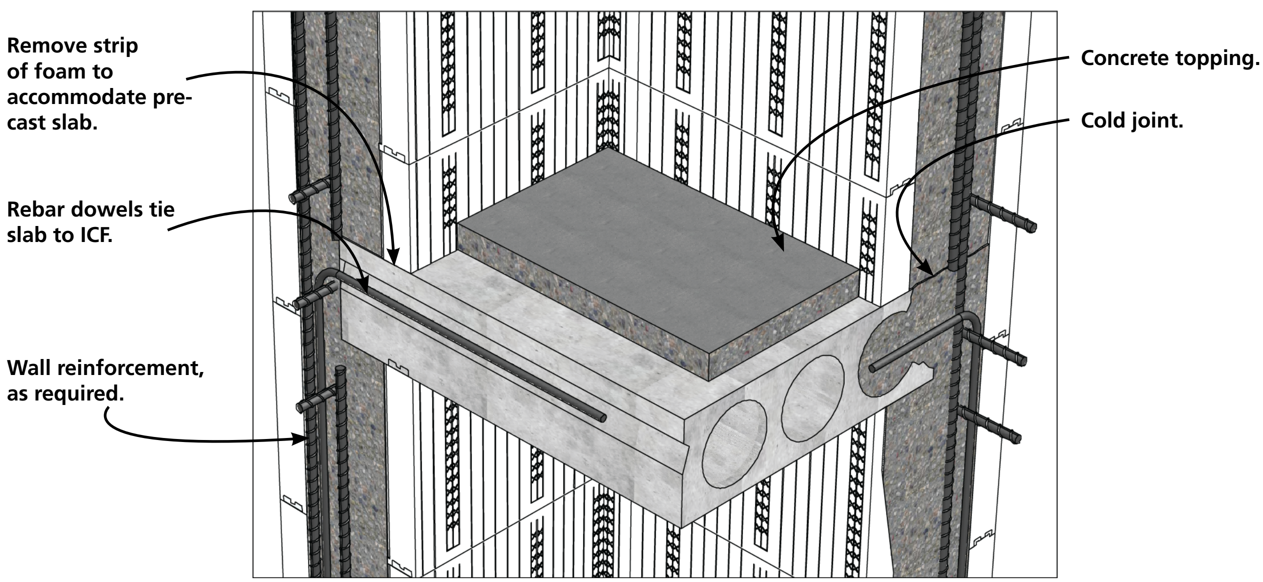
2.12.7.1 – PRECAST CONCRETE FLOORS

Pre-cast floor systems are poured at the factory and shipped to site then craned in place. They are usually tensioned with steel cables cast in the concrete to provide maximum strength. Pre-cast floor are fast and can have very long clear spans.

Typically the Logix wall is constructed to the desired height and the pre-cast planks sit directly on the cured concrete. The planks, typically 4 feet (1.220 m) wide, are craned in place and the groves between planks are grouted together. A 2 inch (52 mm) topping is poured over the deck to provide a smooth and level finish.

The reinforcing of the wall is tied in to the grouted grooves to secure the floor in place. The vertical reinforcing of the wall is extended past the planks to secure future levels of Logix.

See floor manufacturer for specific installation requirements and details.

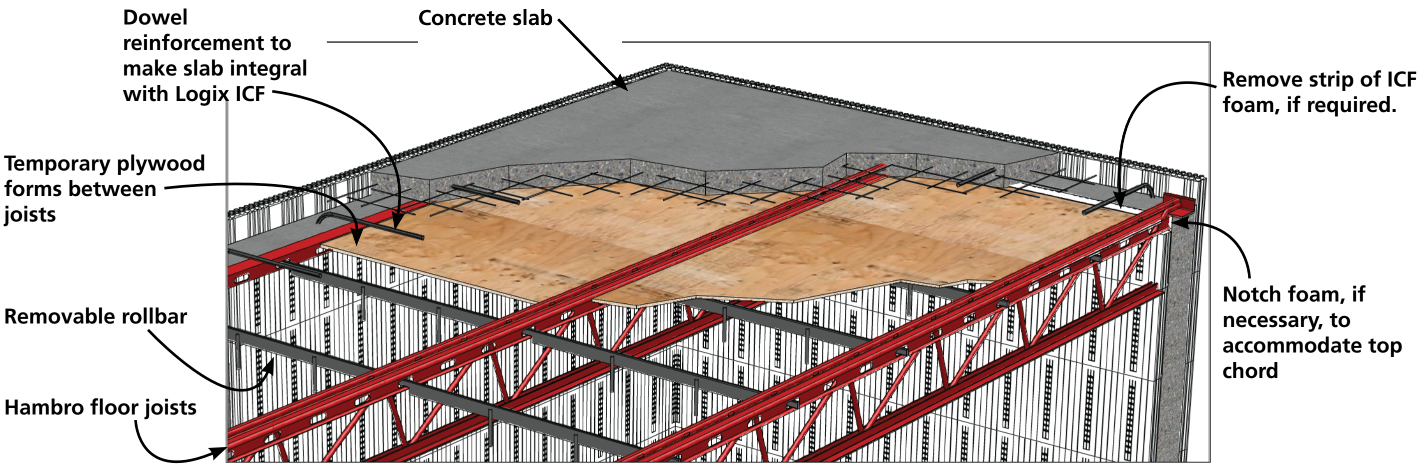


Logix ICF with precast slab (hollow core slab example).

2.12.7.2 – COMPOSITE FLOOR SYSTEMS

Composite floors are a combination of steel and concrete that is bonded together to create a very strong floor allowing for longer spans and wider joist spacings.

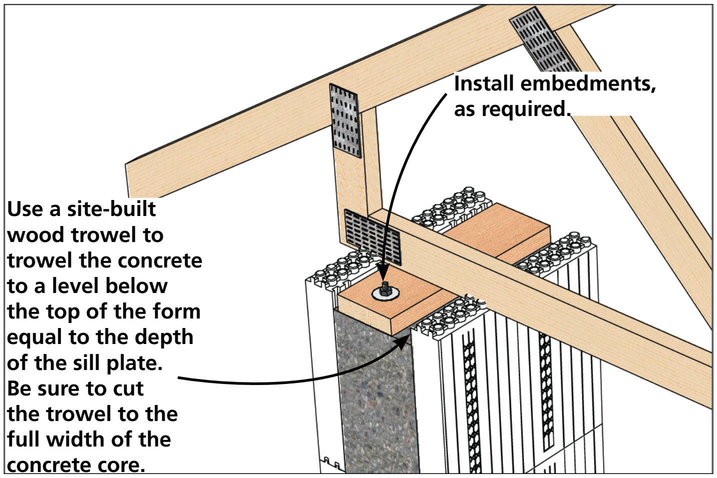
There are a number of brands designed for ICFs including Hambro, iSpanEcospan and Total Joist. Consult your floor manufacturer and your local design engineer for more information.



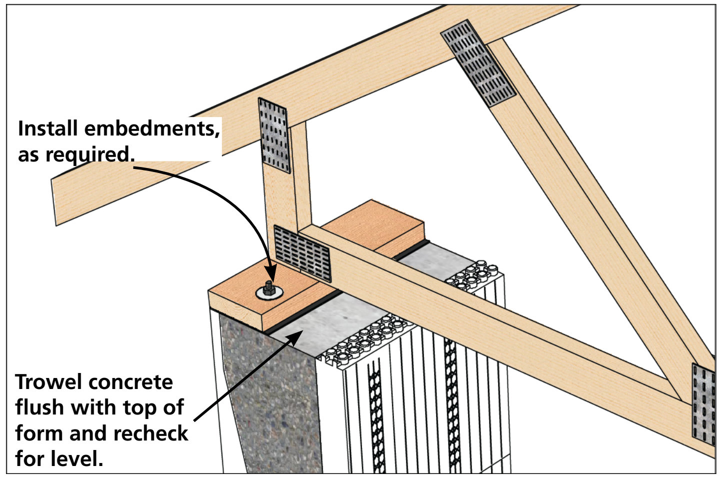
Composite floor system - Hambro

2.13 – ROOF CONNECTIONS

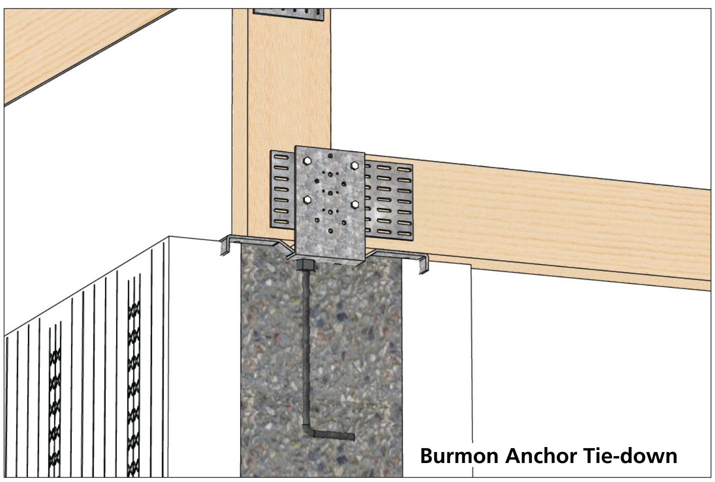
Roof connections can be attached to the Logix wall in a variety of ways. Several factors can affect which method to use such as area of the country and wind conditions. There are a number of tie-down options made by Simpson Strong-Tie, including brands designed for ICFs, such as Burmon tie-down systems.



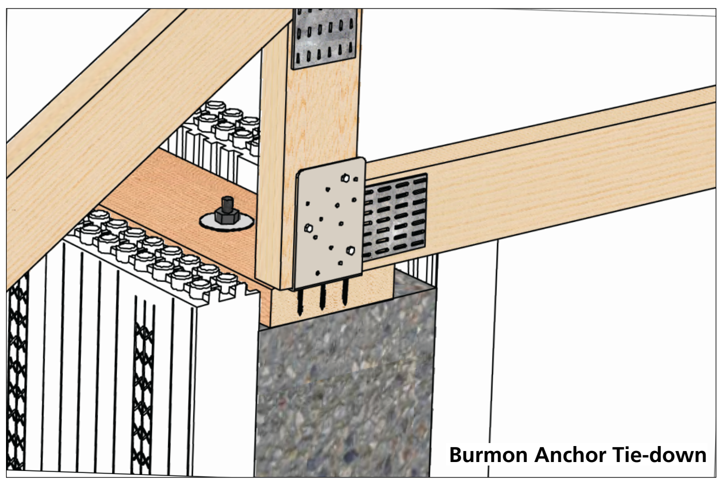
INSET SILL PLATE
This method of sill plate attachment is the most energy efficient. The Logix foam on each side provides an excellent thermal barrier.



TOP MOUNTED SILL PLATE
This method is typically used when additional wall height is required.



TIE-DOWN TO CONCRETE
This method anchors the roof truss to the concrete.



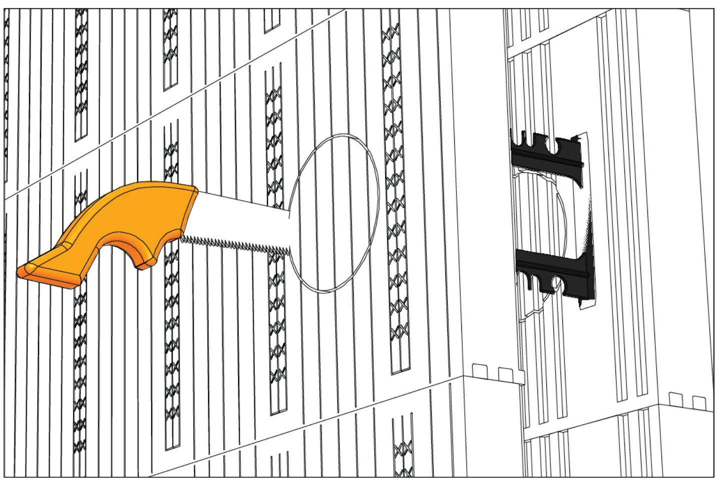
TIE-DOWN TO SILL PLATE
This method anchors the roof truss to the sill plate. (Burmon Anchor Tie-down)

2.14 – SERVICE PENETRATIONS

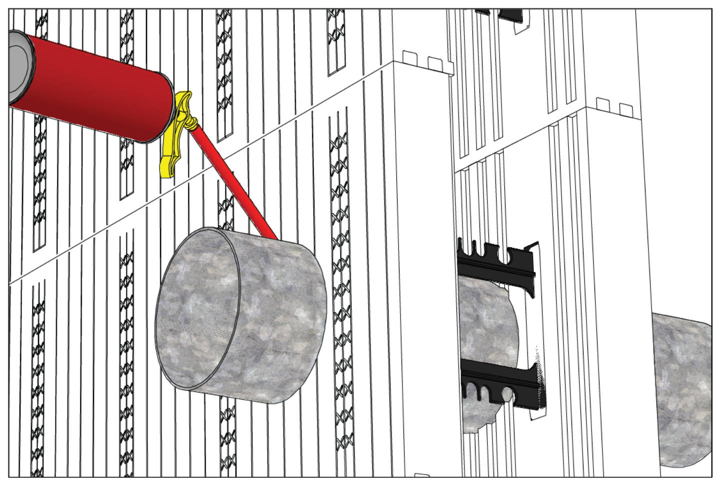
Identify and size all service and utility penetrations. Install all appropriate and properly sized sleeves where required, remembering that lightweight sleeves can be crushed during concrete placement.

List of possible service penetrations

- Dryer vent
- Water heater vent
- Water
- Sewer
- Electrical main service
- Gas line
- A/C line
- Furnace vent
- Air Exchange/HRV
- Central vacuum
- Ducting
- Bathroom vent
- Kitchen appliance venting
- Fireplace rough opening and vent
- Pet door



Cut appropriate sized holes for penetrations.



Install all required services through the ICF prior to concrete placement, and secure with spray foam.

2.15 – CONCRETE PLACEMENT

2.15.1 – PRE-PLACEMENT CHECKLIST

DATE:
FOREMAN:
JOB:

Prior to placing concrete in Logix insulated concrete forms, be certain to mark off each item on the checklist provided in this section.

____ 1. String line in place around the top of entire perimeter?

____ 2. Walls straight and plumb (not leaning out)?

____ 3. Top course foamed or tied down with zip ties or Logix Hooks end to end to maintain dimensions?

____ 4. Additional form support on all corners?

____ 5. Have Tee-walls been foamed and supported?

____ 6. Alignment - screw in every course?

____ 7. Scaffold planking properly secured?

____ 8. All handrails and toe boards installed?

____ 9. All bucks cross braced?

____ 10. All bucks secured to wall?

____ 11. All buck concrete anchors installed?

____ 12. All horizontal and vertical rebar in place?

____ 13. All lintel reinforcing in place?

____ 14. All penetrations installed?

____ 15. All beam pockets in place?

____ 16. All floor embedments installed?

____ 17. Are anchor bolts and hold-downs on site?

____ 18. Has cavity of wall been checked, and foreign material removed?

____ 19. Plywood, screw gun, and saw on site?

____ 20. Interlock protected by tape, or other covering?

____ 21. Proper concrete mix and slump ordered?

____ 22. Concrete vibrator on site?

____ 23. Pump equipped with reducer or 2 1/2” trimmer hose available?

2.15.2 – MIX DESIGN

Minimum compressive concrete strength is typically 3,000 psi (20MPa) at 28 days. However, this will depend on the structure and loading conditions. For seismic areas mix design should be confirmed with local codes or by an engineer.

The following maximum aggregate sizes are recommended for use in Logix walls:

	Form Cavity Size, in. (mm)				
	4 (102)	6.25 (159)	8 (203)	10 (254)	12* (305)
Max. Aggregate Size, in. (mm)	3/8 (9.5)	3/8 (9.5) to 1/2 (13)	3/4 (19)	3/4 (19)	3/4 (19)

Always consult your local ready mix companies for appropriate concrete mix design.

2.15 – CONCRETE PLACEMENT Cont'd

2.15.3 – BEST PRACTICES

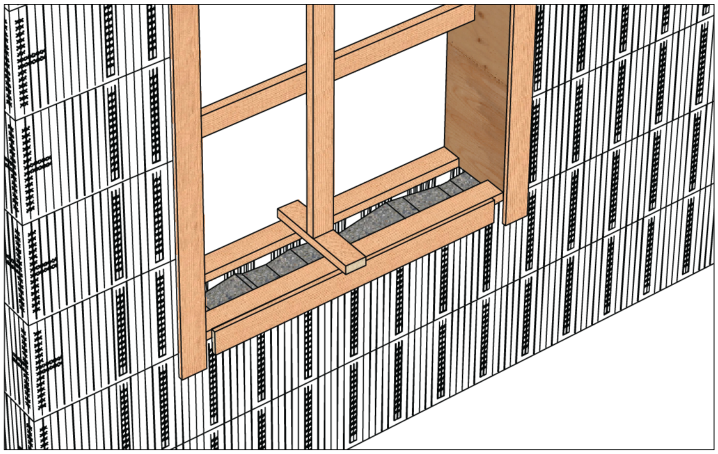
The most important stage of a successful Logix project is the concrete placement. Extra workers at this stage are important - be certain to have enough on hand during the pour to safely handle placement, consolidation, alignment, embedments, and cleanup.

An experience crew ensures the concrete is properly placed and consolidated. The following are recommended practices and considerations when placing concrete.

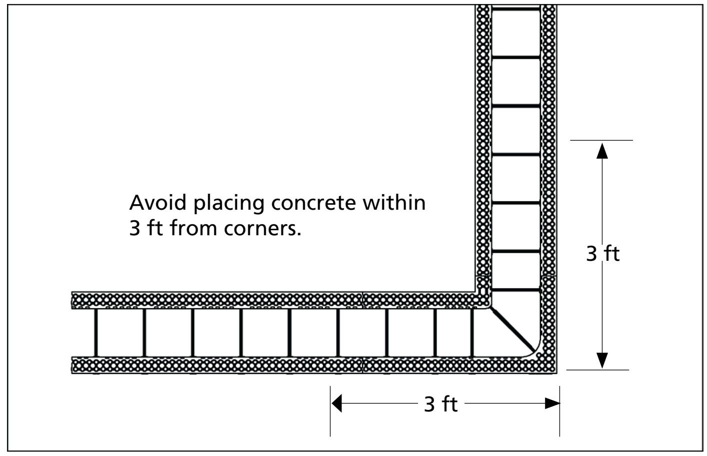
- Concrete slump should be 5 inch (127 mm) to 6 inches (152mm) for best results.
- Use an internal vibrator with a head size of 3/4 inch (19 mm) to 1 inch (25mm) and maximum 1 hp motor. Do not use a vibrator with a head larger than 1 inch (25 mm).
- Appropriate internal vibration assures the strongest walls possible and is especially important for below grade application where the greatest loads occur.
- The rule of thumb for internal vibration is fast in and slow out, always moving, with a withdrawal rate of approximately 3 inch (76 mm) per second.
  Other methods of placement include conveyor truck, crane and bucket, and directly off the ready mix truck.
- Lift height is determined by many factors, such as air temperature, concrete temperature, slump, etc. In general, lift heights should not exceed 4ft (1.220 m) per hour.
- When placing concrete below freezing or at temperatures above 100° F (38° C), it's important to protect all exposed concrete with insulation.
- When placing concrete in 4 inch (102 mm) forms, it is recommended that the pump truck be fitted with a 2.5 inch (76 mm) flexible hose end.

2.15.4 – PLACING CONCRETE

STEP 1: Complete the pre-placement checklist.



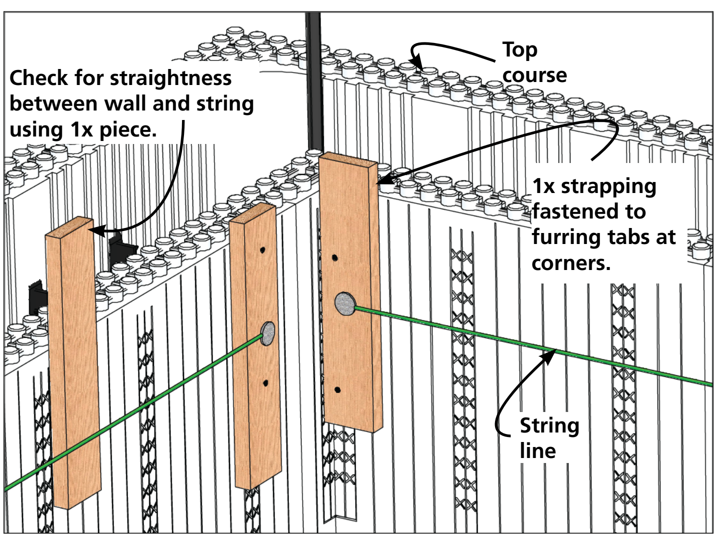
STEP 2: Begin concrete placement under openings, filling those areas and consolidating.



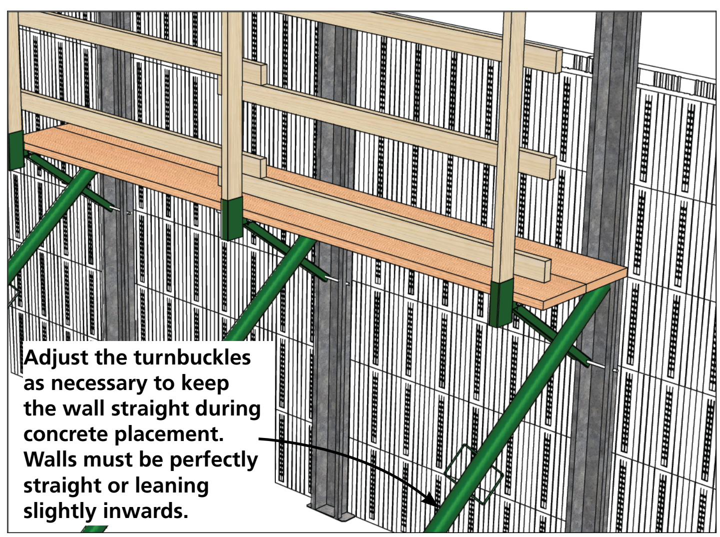
STEP 3: Beginning no closer than 3 feet (0.914 m) from a corner, start filling the wall from the top, allowing the concrete to flow gently toward the corner. Then fill in that corner from the opposite side using the same technique.

STEP 4: Continue placing concrete around entire wall in appropriately sized lifts, using the same technique at each corner to minimize fluid pressure.

STEP 5: As the concrete is being placed, consolidation is taking place to remove air and voids to ensure structural integrity.



STEP 6: Check and adjust wall alignment using string lines and turnbuckles.



STEP 7: Return to starting location and begin the next lift. Follow all the techniques established above.

INSTALLATION GUIDE - CONCRETE PLACEMENT

2.15.5 – POST-PLACEMENT CHECKLIST

DATE:
FOREMAN:
JOB:

After placing concrete in Logix insulated concrete forms, be certain to mark off each item on the checklist provided in this section.

____ 1. Has consolidation been completed?

____ 2. Are walls straightened to string line?

____ 3. In extreme temperatures, has exposed concrete been protected?

____ 4. Have all anchors and embeds been installed?

____ 5. Has spilled concrete been disposed of?

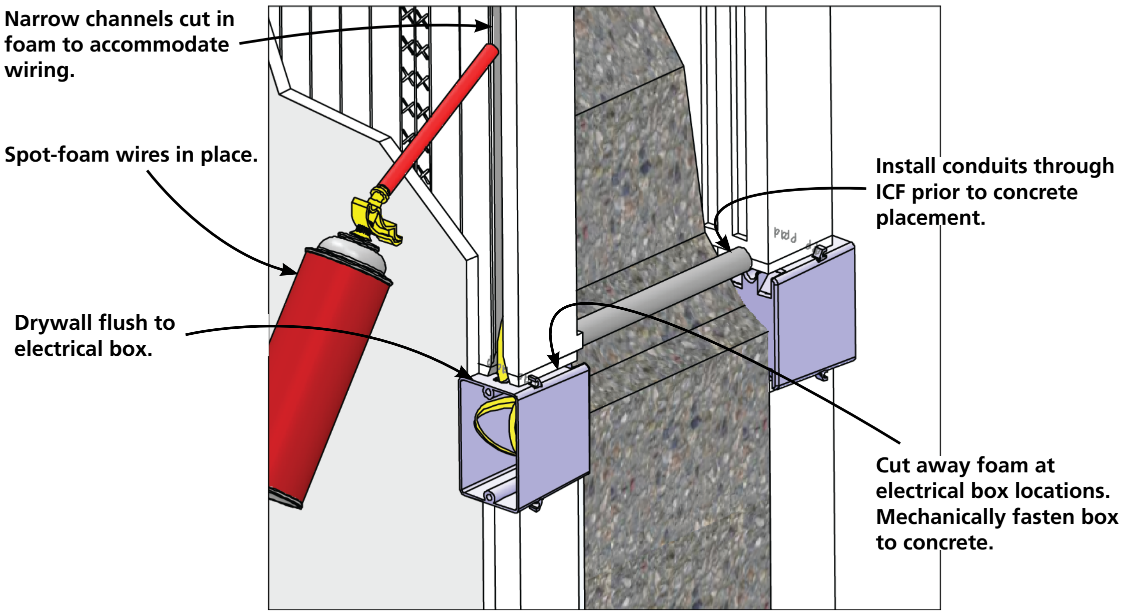
____ 6. Has final check for straight and plumb been done?

2.16 – ELECTRICAL INSTALLATIONS

Electrical and plumbing installation are typically performed after concrete placement.

The exception to this rule is the placement of conduit that penetrates the wall, which must be performed before concrete placement.

Installing electrical wiring and boxes is accomplished by creating channels in the EPS foam. When installed in Logix walls directly against the concrete, electrical boxes will extend 1/2 inch (13 mm) beyond the foam to match the thickness of 1/2 inch (13 mm) sheetrock.



Various tools can be used to create the channels and spaces for wiring and boxes:

- Electrical chainsaw with an adjustable roller depth stop
- Hot knife
- Circular saw with a masonry blade

Make the wiring channels narrow so there will be a friction fit with the wiring. The wiring needs to remain embedded well into the foam to meet local electrical codes. Foam adhesive can be spot-applied into the channel to help hold the wiring in place.

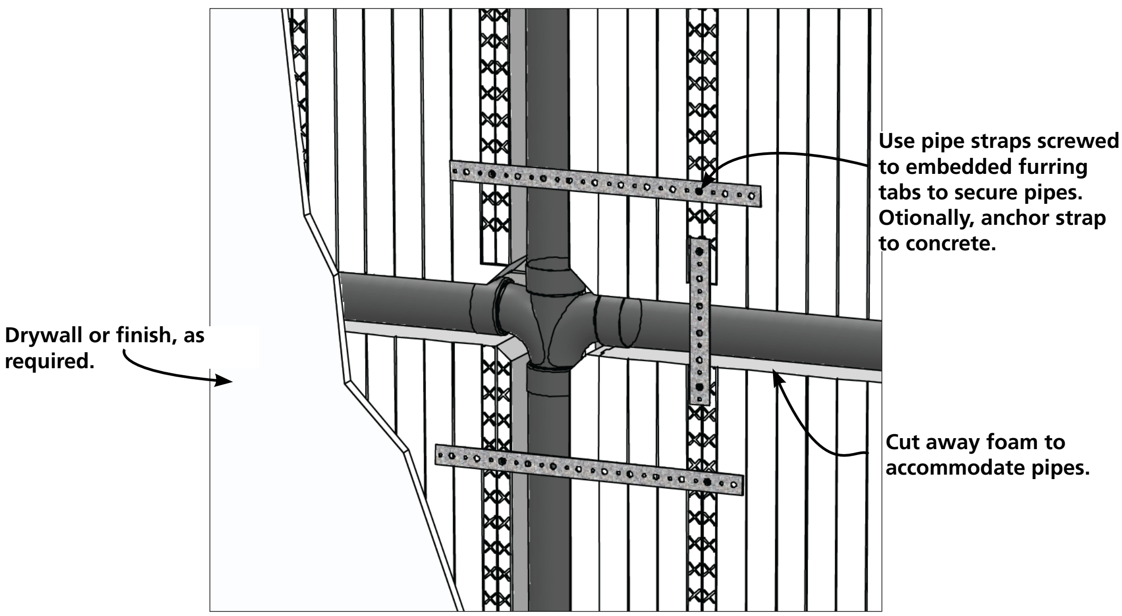
2.17 – PLUMBING INSTALLATIONS

In most cases, buildings are designed so plumbing pipes are not carried through the Logix walls, except for utility entry and exit points.

However, in some cases it may be required to embed pipe in the EPS. For example, a kitchen vent tube may need to be installed vertically in the EPS foam. Pipes embedded in the foam cannot exceed 1-1/2 inch (38 mm) in diameter. Fittings embedded in the foam cannot exceed 2-1/2 inch (64 mm) diameter.

An external faucet will require the installation of a hose sleeve through the wall prior to concrete placement. This will permit replacement of the faucet or pipe should it ever be necessary.

If connecting to existing sewer lines, establish the location of the required opening and ensure clearances, since this is difficult to change.



Pipes embedded within the Logix foam panels.

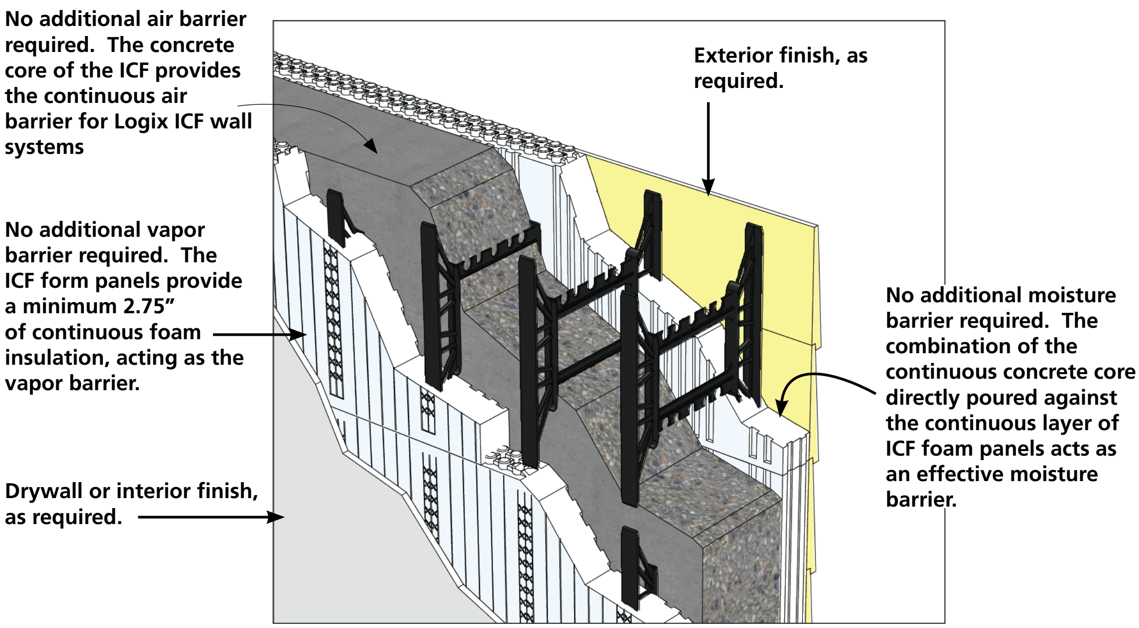
2.18 – INTERIOR & EXTERIOR FINISHES

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 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 foam insulation on the outside wall face keeps air and moisture from penetrating the wall.



Typical Logix wall assembly - no additional vapor barrier, house wrap and air barrier required.

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 furring tabs (studs) are on 8 inch (203 mm) centers from floor to ceiling for easy attachment of any type of interior wall finish.

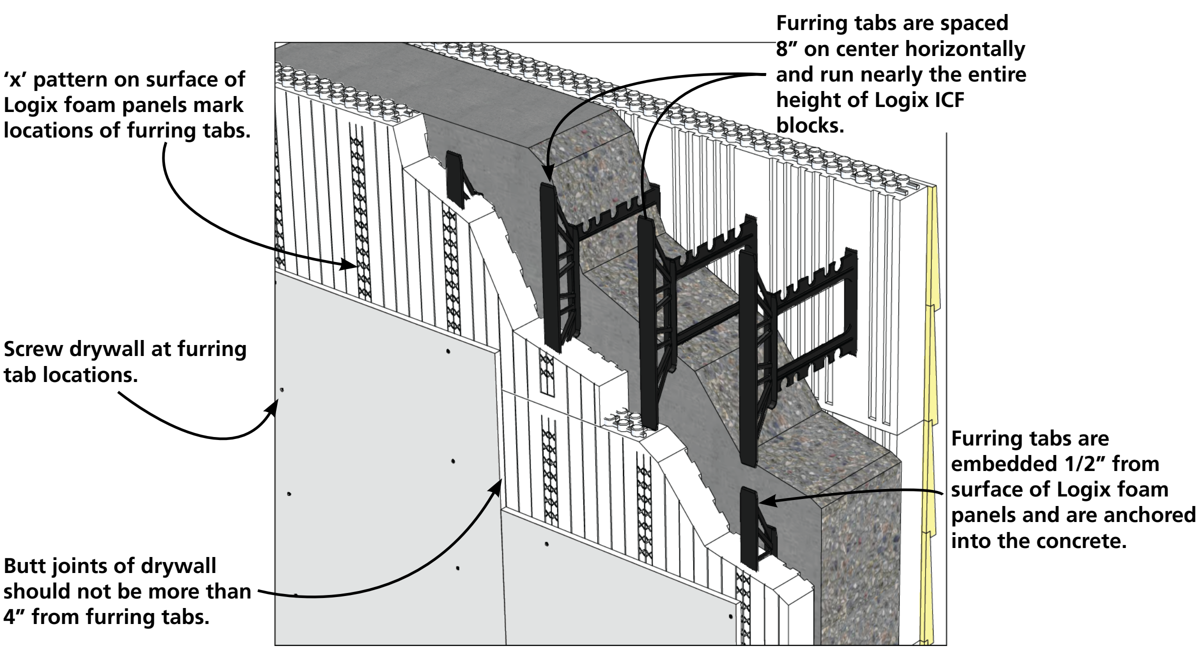
- The butt joints of the sheetrock do not need to fall on webs (studs) as the foam provides solid backing wherever the joints fall. However, the edge of sheetrock panels should not exceed more than 4" from webs.

- 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.

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.



Typical Logix wall assembly - Attaching drywall.

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 slowly develop a dusty surface.

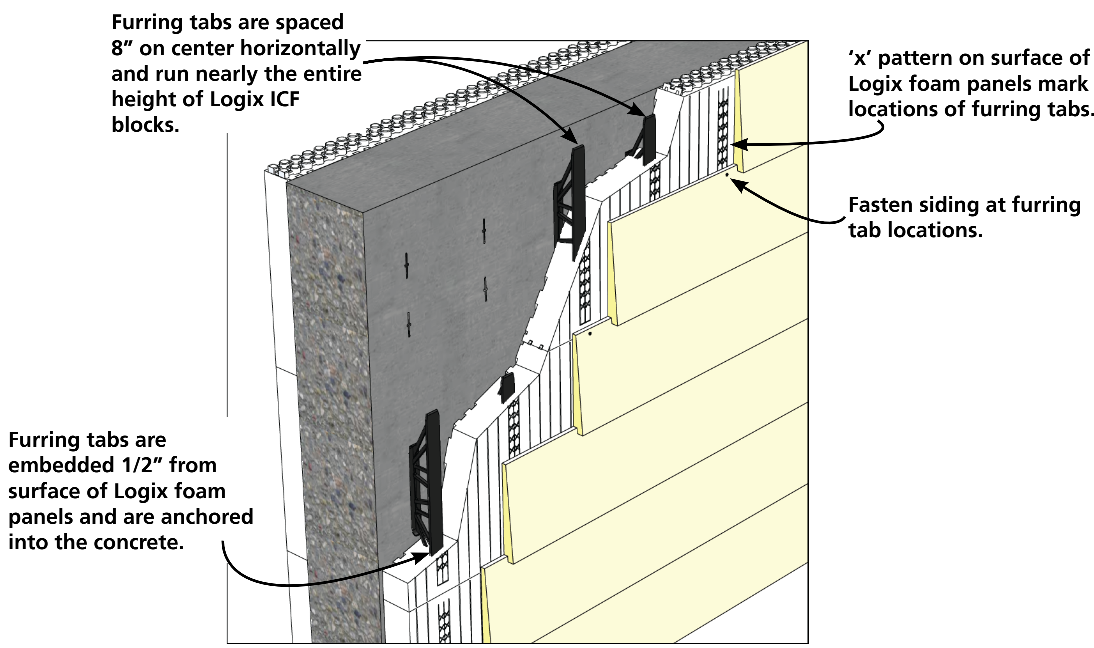
NOTE: When using Logix Platinum Series care should be taken to protect exposed foam surfaces from reflected sunlight and prolonged solar exposure until wall cladding or finish material is applied. Shade exposed foam areas, or remove sources of reflective surfaces, where heat build up onto exposed foam 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.

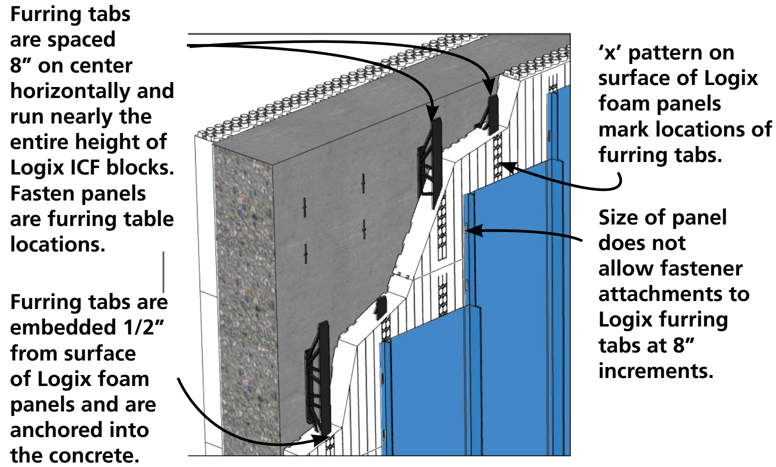
The siding channel stock around doors and windows can be fastened to whatever type of buck material was chosen, in a similar fashion as wood framed building.



Typical Logix wall assembly - Siding.

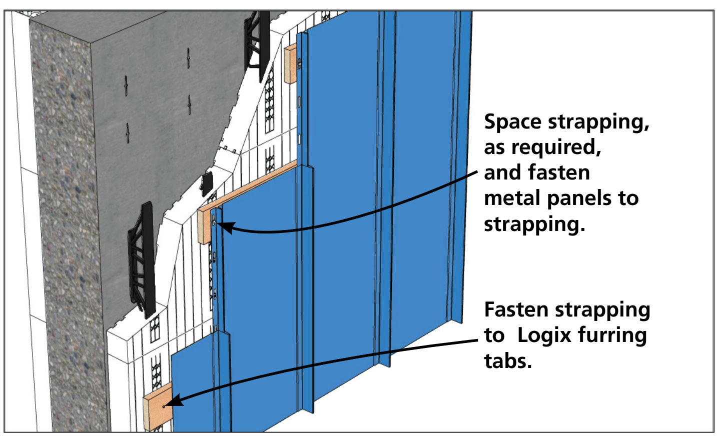
2.18.4 – STEEL PANEL SIDING

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



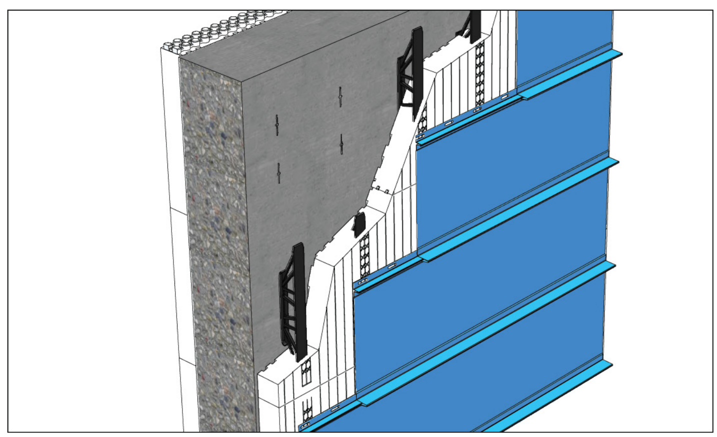
Typical Logix wall assembly - Metal Panel Siding.

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



Typical Logix wall assembly - Metal Panel Siding with strapping

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.



Typical Logix wall assembly - Metal Panel Siding placed horizontally.

METHOD 2: The panels can be installed horizontally, by fastening directly into the webs.

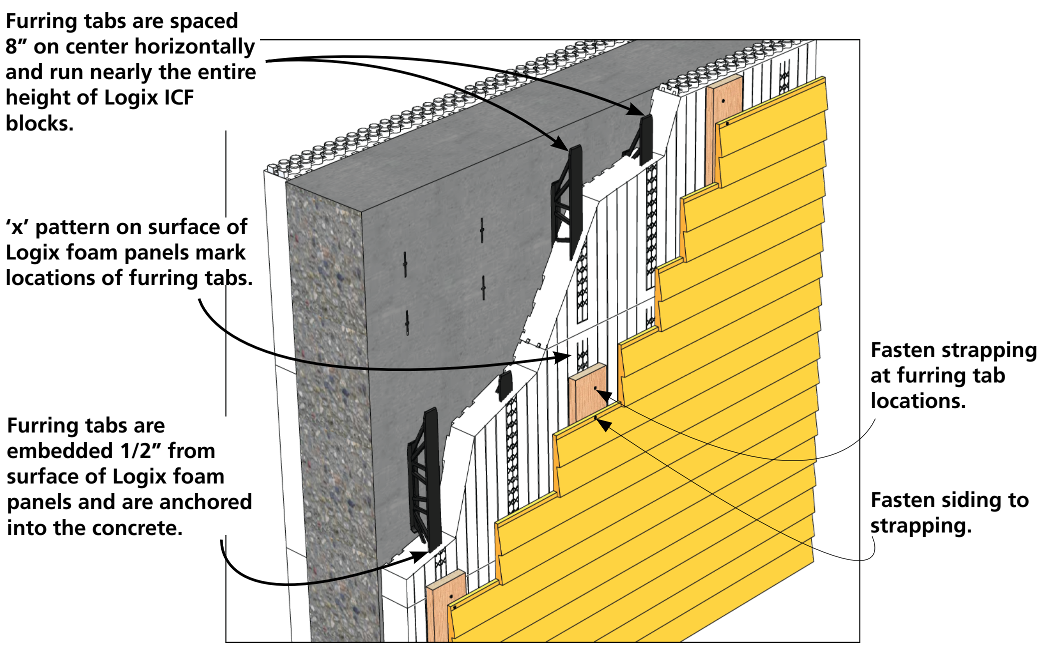
NOTE: Although air guns can be used, Logix recommends the use of screw guns when attaching exterior siding. Always follow manufacturer's recommendations and local codes to determine the size and spacing of fasteners for all siding products.

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.



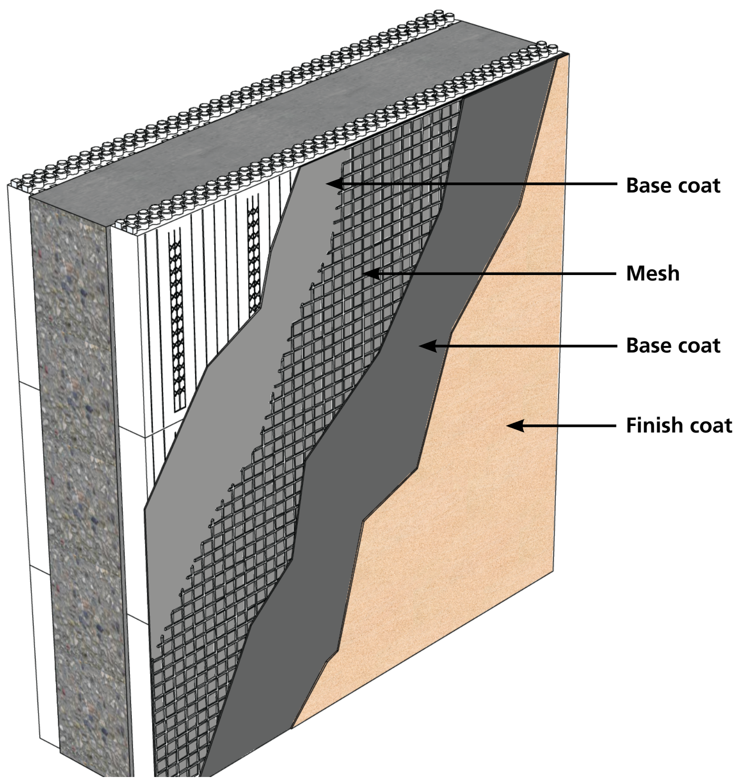
Typical Logix wall assembly - Wood Siding.

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.



Typical Logix wall assembly - EIFS example. Consult EIFS manufacturer for recommended application procedures..

2.18.8 – CEMENT COMPOSITE SIDING

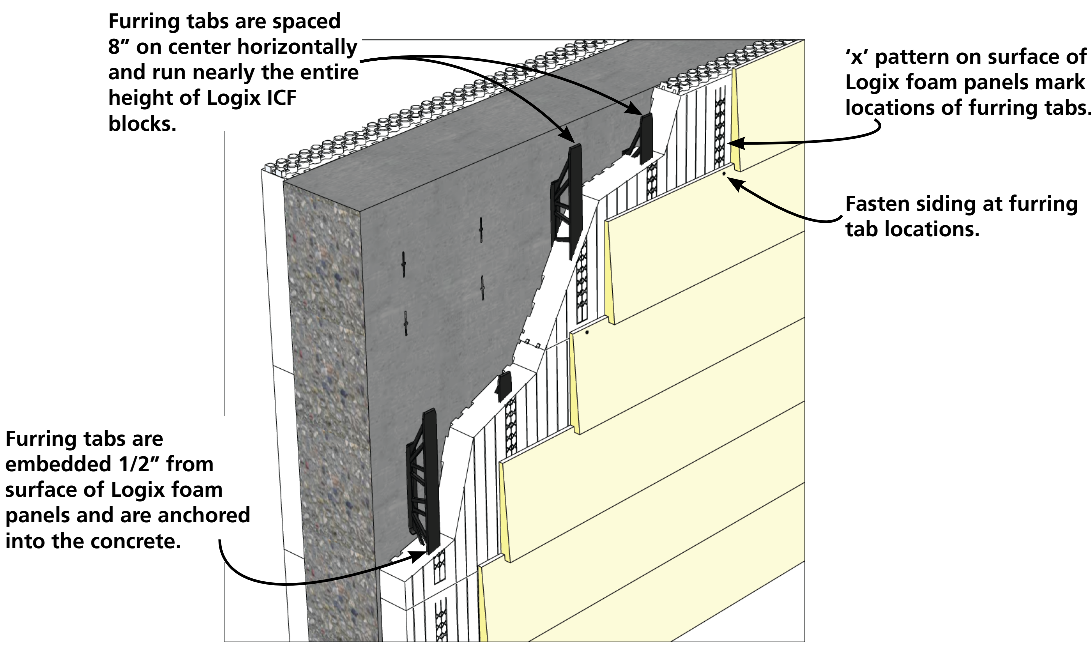
Recently the new cement fiber siding products have gained popularity. This type of siding can usually be fastened directly to the Logix webs.

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. See illustrations in Section 2.18.4 and 2.18.5 for strapping examples.

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.



Typical Logix wall assembly - Cement fibre siding installed horizontally.

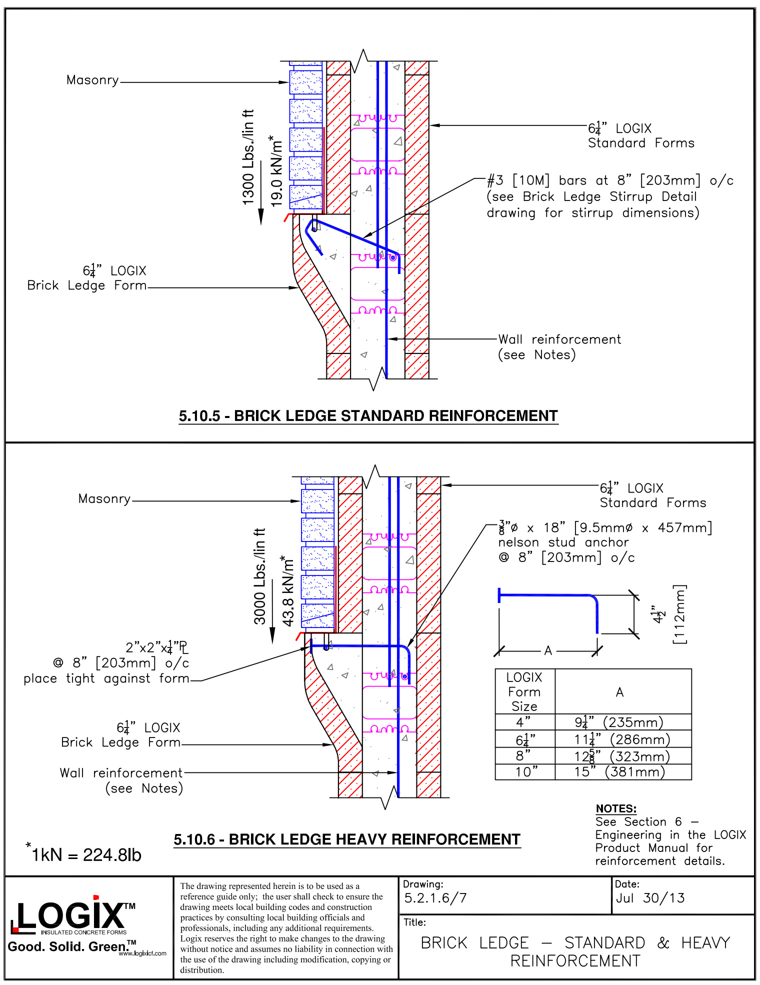
2.18.9 – BRICK VENEER

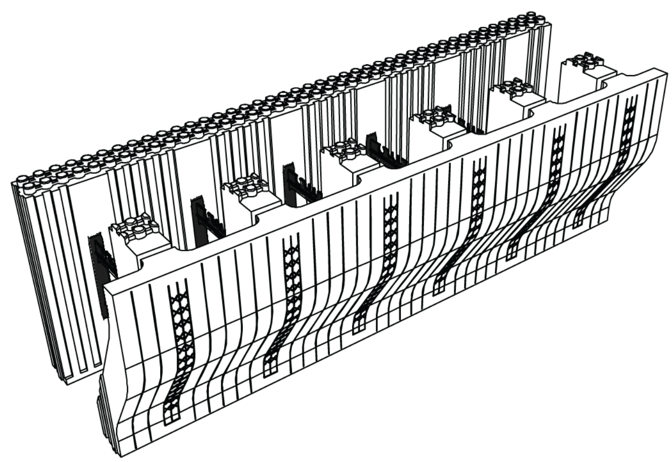
The Logix Brick Ledge form units are used to support a brick veneer as the exterior finish material. The Brick Ledge forms are simply placed at a level where the brick is desired to begin. The design of the form creates a reinforced concrete ledge.

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 in section "2.7.4 – CORNER BRICK LEDGE" on page 18 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.



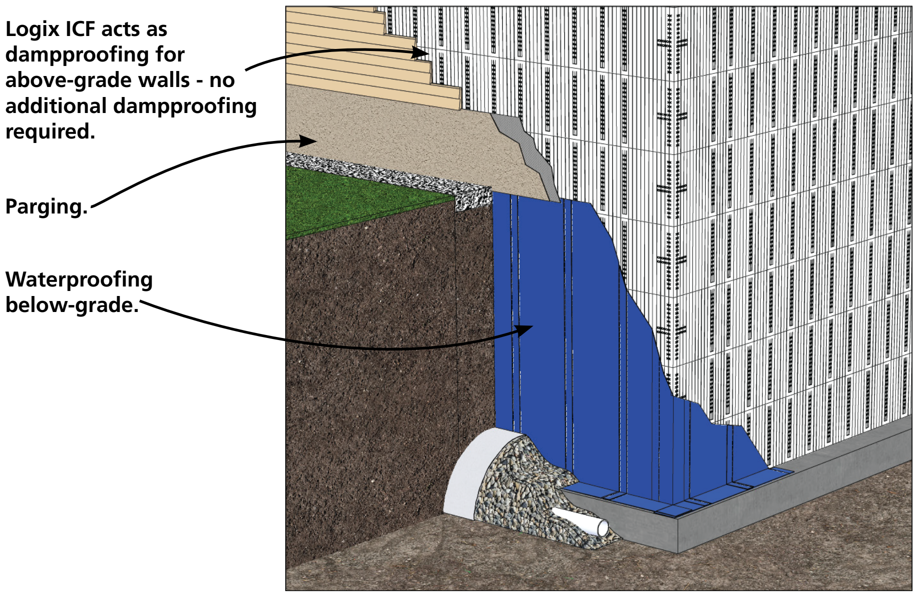


2.18.10 – BELOW GRADE WATERPROOFING, DAMPPROOFING & PARGING

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) foam panels of the Logix insulated concrete forms act 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, such as 1/2 inch rigid foam boards, or drainage boards, to prevent damage to the waterproofing membrane during backfilling.

Proper free-draining backfill material is recommended for below-grade walls.

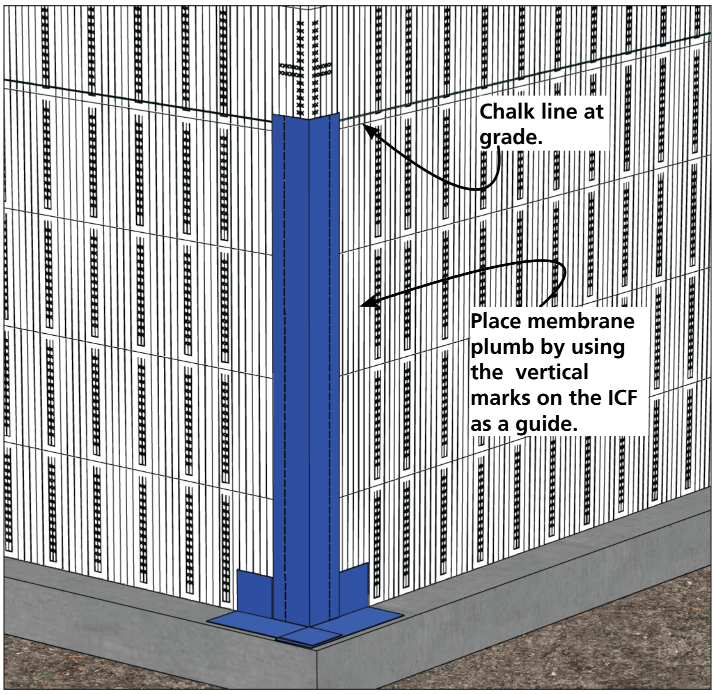
NOTE: Membrane should be installed within one week prior to backfill being placed. Sunlight and high temperatures may cause the membrane to begin to "sag" which may cause wrinkles in the material. This may result in tears or punctures during the placement of the backfill material. Should you choose to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

2.18.10.1 – BELOW GRADE WATERPROOFING

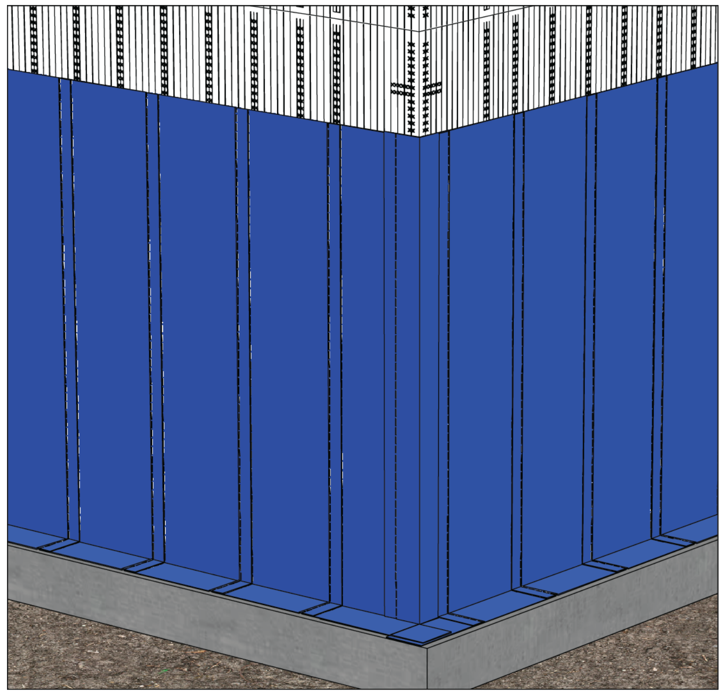
STEP 1: Prep the wall and footing area to be covered by removing all dirt and debris. If the ICF foam panels have been subjected to prolonged UV exposure a chalky layer of dust will develop on its surface. Be sure to remove the dust layer by sweeping the surface with a broom.

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.



STEP 4: Apply the membrane at corners first. Hang the membrane vertically, and starting at the top pull back the first 8" to 10" of the release paper and press. Continue pulling back the release paper and pressing the membrane to the wall. Make sure to wrap the corners with the membrane.



STEP 5: Starting at a corner continue applying cut pieces of membrane around the wall, maintaining 2 inch 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.

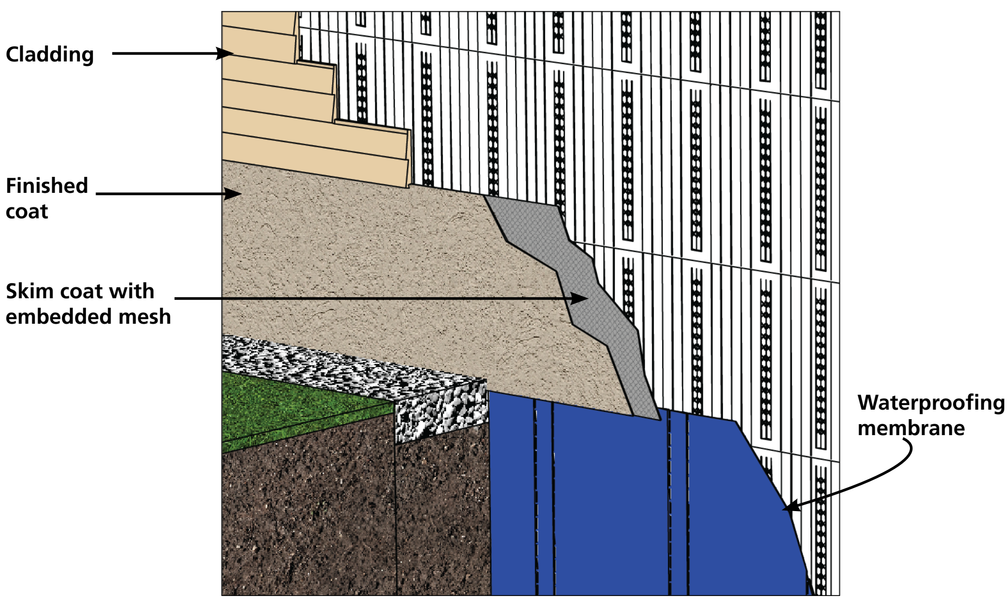
STEP 2: Mix Prepcoat dry material with water to a pasty consistency.

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".

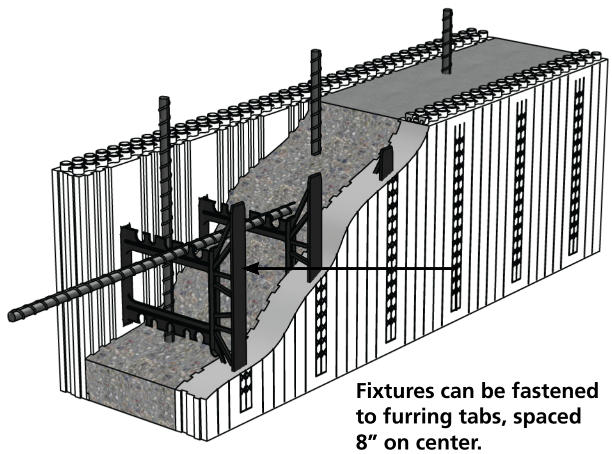
STEP 5: Embed the mesh in the skim coat firmly.

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.



2.19 – ATTACHING FIXTURES

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



Fixtures can be fastened to furring tabs, spaced 8” on center.

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

2.19.1 - LIGHT WEIGHT FIXTURES

Fixtures that are light in weight, 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.

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

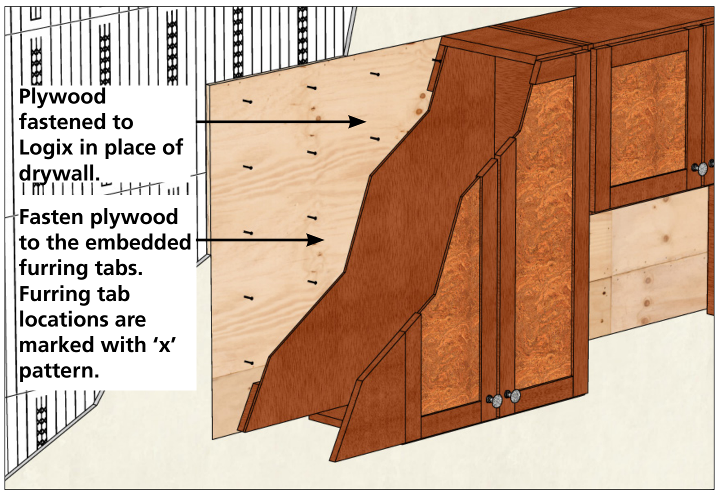
The Grappler, a product made specifically for ICFs, provides a stronger attachment for fixtures that are light in weight but require a more secure hold. The Grappler is also useful in areas where a stronger fastening point is required in an area where furring tabs may be absent. The Grappler is a 4” 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.

2.19.2 - HEAVY WEIGHT FIXTURES

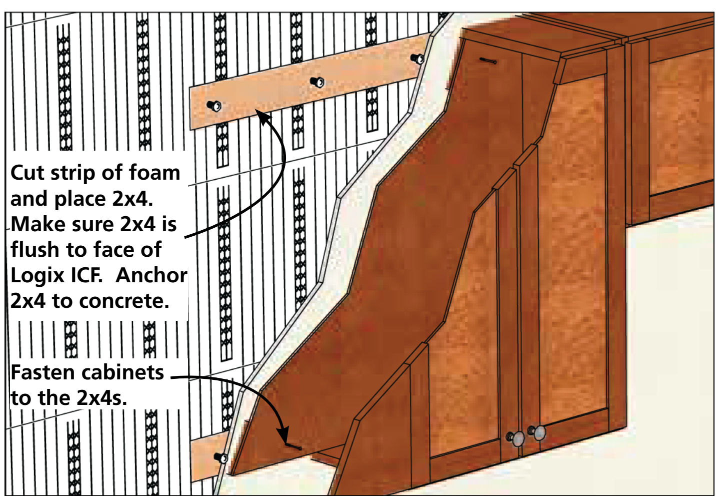
Additional backing is recommended to support heavier wall fixtures, such as kitchen cabinetry, wall mounted fixtures, grab bars, hand rails, etc.

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

2.19.2.1 – CABINETS



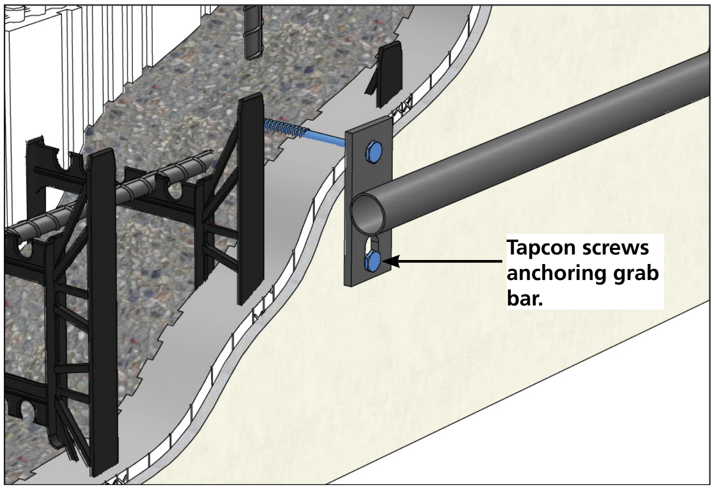
METHOD 1: Plywood board can be attached to the Logix wall behind the heavier cabinets in place of gypsum board, providing a thermal barrier comparable to gypsum and a strong attachment surface for heavier items and fixtures. Be certain to attach the plywood board to the Logix webs with a sufficient number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



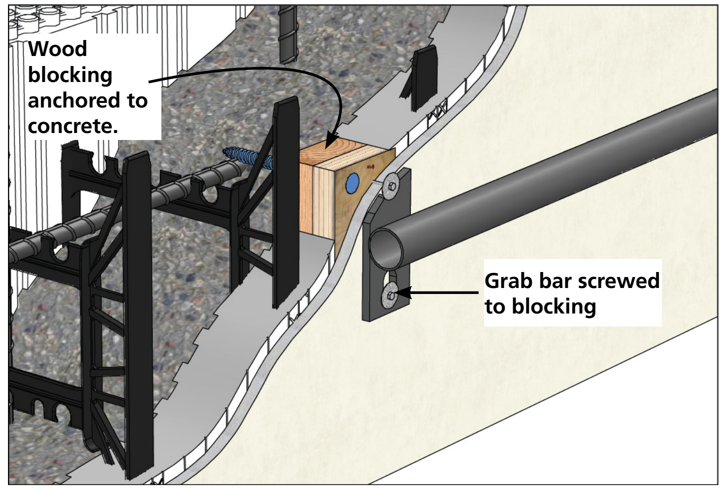
METHOD 2: Create horizontal channels behind the cabinets equal in width to a 2x4 and install 2x4 backing directly to the concrete surface using sufficiently long concrete screws and a rotohammer. Attach the cabinets to the 2x4s.

2.19.2.2 - GRAB BARS

METHOD 1: Before placing drywall, place the Grapplers (see Section "2.19.1 - LIGHT WEIGHT FIXTURES" on page 78) onto Logix at grab bar fastening points. Install the drywall and fasten the grab bar to the Grapplers.

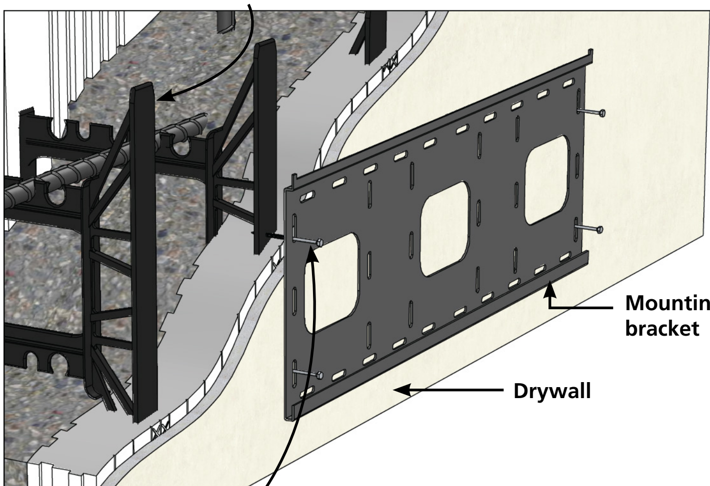


METHOD 2: Use Tapcon screws to anchor the grab bar directly to the concreted.

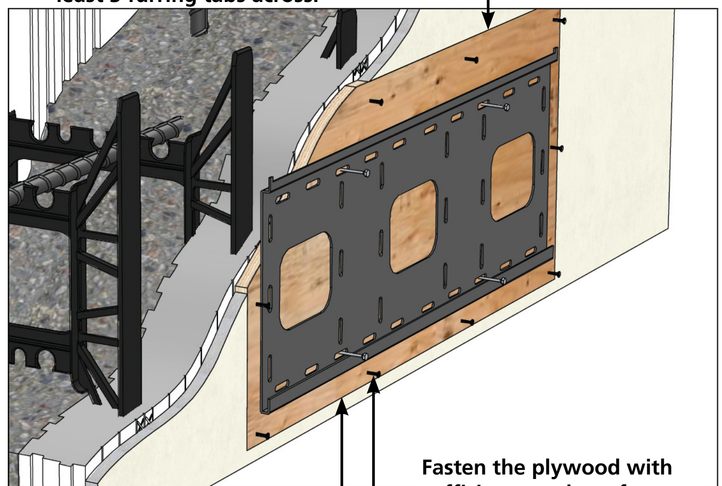


METHOD 3: For a stronger hold remove the foam and replace with wood blocking behind the grab bar mounting bracket. The wood blocking should be mechanically fastened to the concrete.

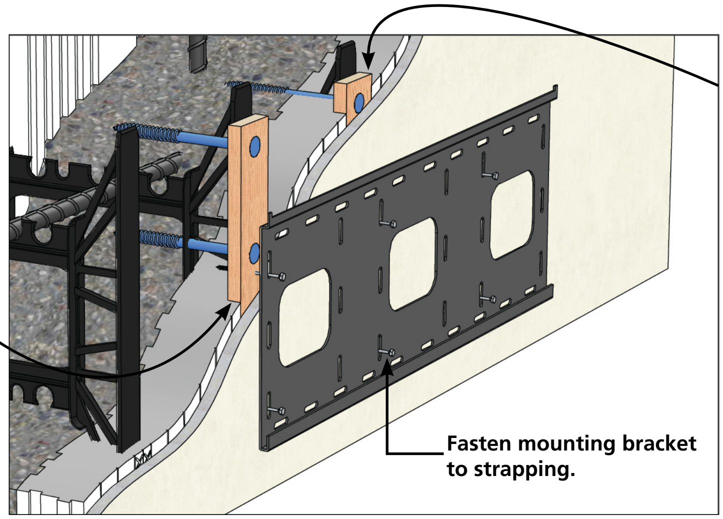
2.19.2.3 – TELEVISIONS



METHOD 1: Face mounted TVs up to 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.



METHOD 3: TV mounts that swivel causes heavier loading conditions and should be anchored to the concrete with plywood and tapcons.

2.20 – HOLDING POWER OF SCREWS FASTENED TO LOGIX FURRING TABS

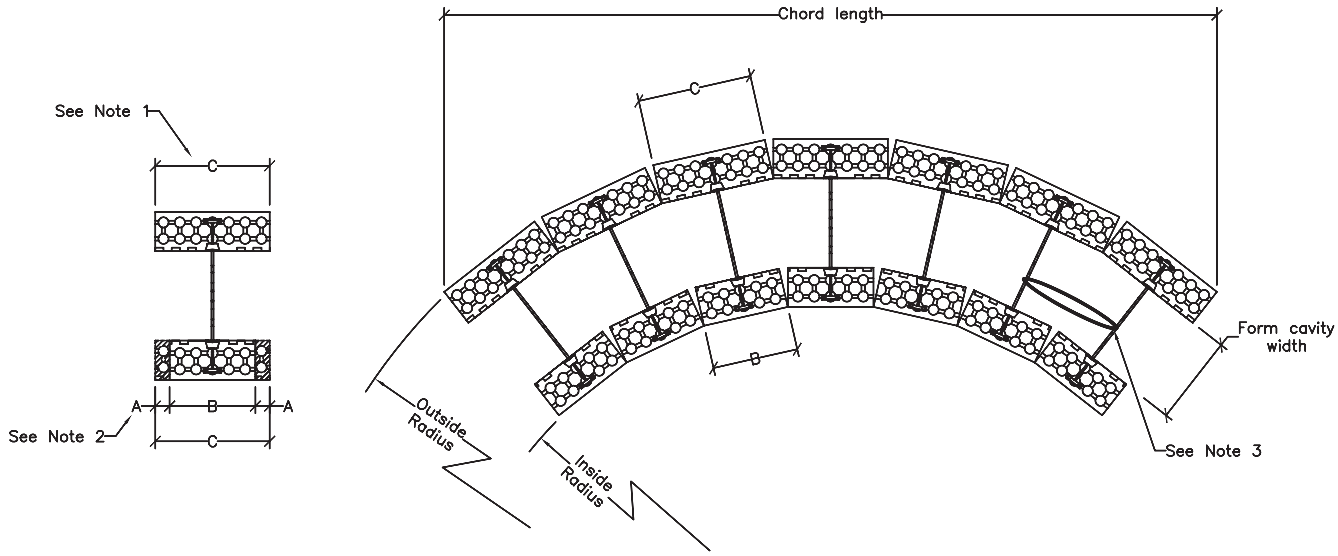
Web fastener withdrawal and shear testing using course and fine thread drywall screws. Tests were conducted on furring tabs embedded 1/2 inch (52 mm) from the surface of the 2.75 inch (70 mm) Logix EPS panels .

	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.



Outside Radius, ft. (m)	Form Cavity Width 4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
3 (0.914)	8 (203)	13/16 (21)	8 (203)	1 3/32 (28)	8 (203)	1 19/64 (33)	8 (203)	1 35/64 (39)
3.5 (1.067)	8 (203)	11/16 (17)	8 (203)	59/64 (23)	8 (203)	1 3/32 (28)	8 (203)	1 19/64 (33)
4 (1.219)	8 (203)	19/32 (15)	8 (203)	51/64 (20)	8 (203)	61/64 (24)	8 (203)	1 1/8 (29)
4.5 (1.372)	8 (203)	17/32 (13)	8 (203)	45/64 (18)	8 (203)	27/32 (21)	8 (203)	1 (25)
5 (1.524)	8 (203)	15/32 (12)	8 (203)	5/8 (16)	8 (203)	3/4 (19)	8 (203)	57/64 (23)
5.5 (1.676)	8 (203)	27/64 (11)	8 (203)	9/16 (14)	8 (203)	43/64 (17)	8 (203)	51/64 (20)
6 (1.829)	8 (203)	25/64 (10)	8 (203)	33/64 (13)	8 (203)	5/8 (16)	8 (203)	47/64 (19)
6.5 (1.981)	8 (203)	23/64 (9)	8 (203)	15/32 (12)	8 (203)	9/16 (14)	8 (203)	43/64 (17)
7 (2.134)	8 (203)	21/64 (8)	8 (203)	7/16 (11)	8 (203)	17/32 (13)	8 (203)	5/8 (16)

NOTES:

1. Field cut Logix Standard forms (straight forms) into widths, C, according to Logix Radius Walls table. For inside radius field cut additional foam, A, accordingly.
2. Secure each radius section with zip ties, Logix Hooks, tape or foam.
3. The field cuts, C, are kept at 8” (203mm), 16” (406mm), 24” (610mm) or 48” (1220mm) lengths. The field cuts, A, are determined depending on required radius. The combined field cuts, A and C, results in an outside radius which is within 1% of the design radius for radii less than 60ft (18.3m), and 1% to 2% for radii between 60ft and 100ft (18.3m to 30.5m).

Outside Radius, ft. (m)	Form Cavity Width							
	4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
7.5 (2.286)	8 (203)	5/16 (8)	8 (203)	13/32 (10)	8 (203)	31/64 (12)	8 (203)	37/64 (15)
8 (2.438)	8 (203)	9/32 (7)	8 (203)	3/8 (10)	8 (203)	29/64 (12)	8 (203)	35/64 (14)
8.5 (2.591)	8 (203)	17/64 (7)	8 (203)	23/64 (9)	8 (203)	27/64 (11)	8 (203)	33/64 (13)
9 (2.743)	8 (203)	1/4 (6)	8 (203)	11/32 (9)	8 (203)	13/32 (10)	8 (203)	31/64 (12)
9.5 (2.896)	8 (203)	15/64 (6)	16 (406)	41/64 (16)	8 (203)	25/64 (10)	8 (203)	29/64 (12)
10 (3.048)	16 (406)	29/64 (12)	16 (406)	39/64 (15)	8 (203)	23/64 (9)	8 (203)	7/16 (11)
10.5 (3.200)	16 (406)	7/16 (11)	16 (406)	37/64 (15)	8 (203)	11/32 (9)	8 (203)	13/32 (10)
11 (3.353)	16 (406)	27/64 (11)	16 (406)	35/64 (14)	8 (203)	21/64 (8)	8 (203)	25/64 (10)
11.5 (3.505)	16 (406)	25/64 (10)	16 (406)	17/32 (13)	8 (203)	5/16 (8)	8 (203)	3/8 (10)
12 (3.658)	16 (406)	3/8 (10)	16 (406)	1/2 (13)	8 (203)	19/64 (8)	8 (203)	23/64 (9)
12.5 (3.810)	16 (406)	23/64 (9)	16 (406)	31/64 (12)	16 (406)	37/64 (15)	8 (203)	11/32 (9)
13 (3.962)	16 (406)	11/32 (9)	16 (406)	15/32 (12)	8 (203)	9/32 (7)	8 (203)	21/64 (8)
13.5 (4.115)	16 (406)	21/64 (8)	16 (406)	29/64 (12)	16 (406)	17/32 (13)	8 (203)	5/16 (8)
14 (4.267)	16 (406)	21/64 (8)	16 (406)	7/16 (11)	8 (203)	1/4 (6)	16 (406)	39/64 (15)
14.5 (4.420)	16 (406)	5/16 (8)	16 (406)	27/64 (11)	8 (203)	1/4 (6)	16 (406)	19/32 (15)
15 (4.572)	16 (406)	19/64 (8)	16 (406)	13/32 (10)	8 (203)	15/64 (6)	16 (406)	37/64 (15)
15.5 (4.724)	16 (406)	19/64 (8)	16 (406)	25/64 (10)	8 (203)	15/64 (6)	16 (406)	35/64 (14)
16 (4.877)	24 (610)	27/64 (11)	16 (406)	3/8 (10)	8 (203)	7/32 (6)	16 (406)	17/32 (13)
16.5 (5.029)	24 (610)	13/32 (10)	16 (406)	23/64 (9)	8 (203)	7/32 (6)	16 (406)	33/64 (13)
17 (5.182)	24 (610)	13/32 (10)	16 (406)	23/64 (9)	16 (406)	27/64 (11)	16 (406)	1/2 (13)
17.5 (5.334)	24 (610)	25/64 (10)	24 (610)	33/64 (13)	16 (406)	13/32 (10)	16 (406)	31/64 (12)
18 (5.486)	24 (610)	3/8 (10)	24 (610)	1/2 (13)	16 (406)	13/32 (10)	16 (406)	15/32 (12)
18.5 (5.639)	24 (610)	23/64 (9)	24 (610)	31/64 (12)	16 (406)	25/64 (10)	16 (406)	15/32 (12)
19 (5.791)	24 (610)	23/64 (9)	24 (610)	15/32 (12)	16 (406)	3/8 (10)	16 (406)	29/64 (12)

Outside Radius, ft. (m)	Form Cavity Width 4" (102mm) C, in. (mm)	4" (102mm) A, in. (mm)	6.25" (159mm) C, in. (mm)	6.25" (159mm) A, in. (mm)	8" (203mm) C, in. (mm)	8" (203mm) A, in. (mm)	10" (254mm) C, in. (mm)	10" (254mm) A, in. (mm)
19.5 (5.944)	24 (610)	11/32 (9)	24 (610)	15/32 (12)	16 (406)	3/8 (10)	16 (406)	7/16 (11)
20 (6.096)	24 (610)	11/32 (9)	24 (610)	29/64 (12)	16 (406)	23/64 (9)	16 (406)	27/64 (11)
20.5 (6.248)	24 (610)	21/64 (8)	24 (610)	7/16 (11)	16 (406)	11/32 (9)	16 (406)	27/64 (11)
21 (6.401)	24 (610)	21/64 (8)	24 (610)	7/16 (11)	16 (406)	11/32 (9)	16 (406)	13/32 (10)
21.5 (6.553)	24 (610)	5/16 (8)	24 (610)	27/64 (11)	16 (406)	21/64 (8)	16 (406)	25/64 (10)
22 (6.706)	24 (610)	5/16 (8)	24 (610)	13/32 (10)	16 (406)	21/64 (8)	16 (406)	25/64 (10)
22.5 (6.858)	24 (610)	19/64 (8)	24 (610)	13/32 (10)	16 (406)	5/16 (8)	16 (406)	3/8 (10)
23 (7.010)	24 (610)	19/64 (8)	24 (610)	25/64 (10)	16 (406)	5/16 (8)	16 (406)	3/8 (10)
23.5 (7.163)	24 (610)	9/32 (7)	24 (610)	25/64 (10)	24 (610)	29/64 (12)	16 (406)	23/64 (9)
24 (7.315)	24 (610)	9/32 (7)	24 (610)	3/8 (10)	24 (610)	29/64 (12)	16 (406)	23/64 (9)
24.5 (7.468)	24 (610)	9/32 (7)	48 (1,219)	47/64 (19)	24 (610)	7/16 (11)	16 (406)	11/32 (9)
25 (7.620)	24 (610)	17/64 (7)	48 (1,219)	23/32 (18)	24 (610)	7/16 (11)	16 (406)	11/32 (9)
25.5 (7.772)	24 (610)	17/64 (7)	48 (1,219)	45/64 (18)	24 (610)	27/64 (11)	16 (406)	21/64 (8)
26 (7.925)	48 (1,219)	33/64 (13)	48 (1,219)	45/64 (18)	24 (610)	13/32 (10)	16 (406)	21/64 (8)
26.5 (8.077)	48 (1,219)	33/64 (13)	48 (1,219)	11/16 (17)	24 (610)	13/32 (10)	16 (406)	5/16 (8)
27 (8.230)	48 (1,219)	1/2 (13)	48 (1,219)	43/64 (17)	24 (610)	25/64 (10)	16 (406)	5/16 (8)
27.5 (8.382)	48 (1,219)	1/2 (13)	48 (1,219)	21/32 (17)	24 (610)	25/64 (10)	16 (406)	5/16 (8)
28 (8.534)	48 (1,219)	31/64 (12)	48 (1,219)	41/64 (16)	24 (610)	25/64 (10)	16 (406)	19/64 (8)
28.5 (8.687)	48 (1,219)	15/32 (12)	48 (1,219)	41/64 (16)	24 (610)	3/8 (10)	24 (610)	29/64 (12)
29 (8.839)	48 (1,219)	15/32 (12)	48 (1,219)	5/8 (16)	24 (610)	3/8 (10)	24 (610)	7/16 (11)
29.5 (8.992)	48 (1,219)	29/64 (12)	48 (1,219)	39/64 (15)	24 (610)	23/64 (9)	24 (610)	7/16 (11)
30 (9.144)	48 (1,219)	29/64 (12)	48 (1,219)	39/64 (15)	24 (610)	23/64 (9)	24 (610)	27/64 (11)
30.5 (9.296)	48 (1,219)	7/16 (11)	48 (1,219)	19/32 (15)	48 (1,219)	45/64 (18)	24 (610)	27/64 (11)
31 (9.449)	48 (1,219)	7/16 (11)	48 (1,219)	37/64 (15)	48 (1,219)	45/64 (18)	24 (610)	13/32 (10)

Outside Radius, ft. (m)	Form Cavity Width 4" (102mm) C, in. (mm)	4" (102mm) A, in. (mm)	6.25" (159mm) C, in. (mm)	6.25" (159mm) A, in. (mm)	8" (203mm) C, in. (mm)	8" (203mm) A, in. (mm)	10" (254mm) C, in. (mm)	10" (254mm) A, in. (mm)
31.5 (9.601)	48 (1,219)	27/64 (11)	48 (1,219)	37/64 (15)	48 (1,219)	11/16 (17)	24 (610)	13/32 (10)
32 (9.754)	48 (1,219)	27/64 (11)	48 (1,219)	9/16 (14)	48 (1,219)	43/64 (17)	24 (610)	25/64 (10)
32.5 (9.906)	48 (1,219)	27/64 (11)	48 (1,219)	9/16 (14)	48 (1,219)	21/32 (17)	24 (610)	25/64 (10)
33 (10.058)	48 (1,219)	13/32 (10)	48 (1,219)	35/64 (14)	48 (1,219)	21/32 (17)	24 (610)	25/64 (10)
33.5 (10.211)	48 (1,219)	13/32 (10)	48 (1,219)	17/32 (13)	48 (1,219)	41/64 (16)	24 (610)	3/8 (10)
34 (10.363)	48 (1,219)	25/64 (10)	48 (1,219)	17/32 (13)	48 (1,219)	41/64 (16)	24 (610)	3/8 (10)
34.5 (10.516)	48 (1,219)	25/64 (10)	48 (1,219)	33/64 (13)	48 (1,219)	5/8 (16)	24 (610)	3/8 (10)
35 (10.668)	48 (1,219)	25/64 (10)	48 (1,219)	33/64 (13)	48 (1,219)	39/64 (15)	24 (610)	23/64 (9)
35.5 (10.820)	48 (1,219)	3/8 (10)	48 (1,219)	1/2 (13)	48 (1,219)	39/64 (15)	24 (610)	23/64 (9)
36 (10.973)	48 (1,219)	3/8 (10)	48 (1,219)	1/2 (13)	48 (1,219)	19/32 (15)	24 (610)	23/64 (9)
36.5 (11.125)	48 (1,219)	3/8 (10)	48 (1,219)	1/2 (13)	48 (1,219)	19/32 (15)	24 (610)	11/32 (9)
37 (11.278)	48 (1,219)	23/64 (9)	48 (1,219)	31/64 (12)	48 (1,219)	37/64 (15)	24 (610)	11/32 (9)
37.5 (11.430)	48 (1,219)	23/64 (9)	48 (1,219)	31/64 (12)	48 (1,219)	37/64 (15)	24 (610)	11/32 (9)
38 (11.582)	48 (1,219)	23/64 (9)	48 (1,219)	15/32 (12)	48 (1,219)	9/16 (14)	24 (610)	21/64 (8)
38.5 (11.735)	48 (1,219)	11/32 (9)	48 (1,219)	15/32 (12)	48 (1,219)	9/16 (14)	24 (610)	21/64 (8)
39 (11.887)	48 (1,219)	11/32 (9)	48 (1,219)	15/32 (12)	48 (1,219)	35/64 (14)	24 (610)	21/64 (8)
39.5 (12.040)	48 (1,219)	11/32 (9)	48 (1,219)	29/64 (12)	48 (1,219)	35/64 (14)	24 (610)	21/64 (8)
40 (12.192)	48 (1,219)	11/32 (9)	48 (1,219)	29/64 (12)	48 (1,219)	17/32 (13)	24 (610)	5/16 (8)
40.5 (12.344)	48 (1,219)	21/64 (8)	48 (1,219)	7/16 (11)	48 (1,219)	17/32 (13)	48 (1,219)	5/8 (16)
41 (12.497)	48 (1,219)	21/64 (8)	48 (1,219)	7/16 (11)	48 (1,219)	17/32 (13)	48 (1,219)	5/8 (16)
41.5 (12.649)	48 (1,219)	21/64 (8)	48 (1,219)	7/16 (11)	48 (1,219)	33/64 (13)	48 (1,219)	39/64 (15)
42 (12.802)	48 (1,219)	5/16 (8)	48 (1,219)	27/64 (11)	48 (1,219)	33/64 (13)	48 (1,219)	39/64 (15)
42.5 (12.954)	48 (1,219)	5/16 (8)	48 (1,219)	27/64 (11)	48 (1,219)	1/2 (13)	48 (1,219)	19/32 (15)
43 (13.106)	48 (1,219)	5/16 (8)	48 (1,219)	27/64 (11)	48 (1,219)	1/2 (13)	48 (1,219)	19/32 (15)

Outside Radius, ft. (m)	Form Cavity Width: 4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
43.5 (13.259)	48 (1,219)	5/16 (8)	48 (1,219)	13/32 (10)	48 (1,219)	1/2 (13)	48 (1,219)	19/32 (15)
44 (13.411)	48 (1,219)	5/16 (8)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)	48 (1,219)	37/64 (15)
44.5 (13.564)	48 (1,219)	19/64 (8)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)	48 (1,219)	37/64 (15)
45 (13.716)	48 (1,219)	19/64 (8)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)	48 (1,219)	9/16 (14)
45.5 (13.868)	48 (1,219)	19/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)	48 (1,219)	9/16 (14)
46 (14.021)	48 (1,219)	19/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)	48 (1,219)	35/64 (14)
46.5 (14.173)	48 (1,219)	9/32 (7)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)	48 (1,219)	35/64 (14)
47 (14.326)	48 (1,219)	9/32 (7)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)	48 (1,219)	35/64 (14)
47.5 (14.478)	48 (1,219)	9/32 (7)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)	48 (1,219)	17/32 (13)
48 (14.630)	48 (1,219)	9/32 (7)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)	48 (1,219)	17/32 (13)
48.5 (14.783)	48 (1,219)	9/32 (7)	48 (1,219)	3/8 (10)	48 (1,219)	7/16 (11)	48 (1,219)	17/32 (13)
49 (14.935)	48 (1,219)	17/64 (7)	48 (1,219)	23/64 (9)	48 (1,219)	7/16 (11)	48 (1,219)	33/64 (13)
49.5 (15.088)	48 (1,219)	17/64 (7)	48 (1,219)	23/64 (9)	48 (1,219)	7/16 (11)	48 (1,219)	33/64 (13)
50 (15.240)	48 (1,219)	17/64 (7)	48 (1,219)	23/64 (9)	48 (1,219)	27/64 (11)	48 (1,219)	33/64 (13)
50.5 (15.392)	48 (1,219)	17/64 (7)	48 (1,219)	23/64 (9)	48 (1,219)	27/64 (11)	48 (1,219)	1/2 (13)
51 (15.545)	48 (1,219)	17/64 (7)	48 (1,219)	11/32 (9)	48 (1,219)	27/64 (11)	48 (1,219)	1/2 (13)
51.5 (15.697)	48 (1,219)	17/64 (7)	48 (1,219)	11/32 (9)	48 (1,219)	27/64 (11)	48 (1,219)	1/2 (13)
52 (15.850)	48 (1,219)	1/4 (6)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)
52.5 (16.002)	48 (1,219)	1/4 (6)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)
53 (16.154)	48 (1,219)	1/4 (6)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)	48 (1,219)	31/64 (12)
53.5 (16.307)	48 (1,219)	1/4 (6)	48 (1,219)	21/64 (8)	48 (1,219)	13/32 (10)	48 (1,219)	15/32 (12)
54 (16.459)	48 (1,219)	1/4 (6)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)
54.5 (16.612)	48 (1,219)	1/4 (6)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)
55 (16.764)	48 (1,219)	1/4 (6)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	15/32 (12)

Outside Radius, ft. (m)	Form Cavity Width							
	4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
55.5 (16.916)	48 (1,219)	15/64 (6)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)	48 (1,219)	29/64 (12)
56 (17.069)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)
56.5 (17.221)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)
57 (17.374)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)	48 (1,219)	29/64 (12)
57.5 (17.526)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)	48 (1,219)	7/16 (11)
58 (17.678)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)	48 (1,219)	7/16 (11)
58.5 (17.831)	48 (1,219)	15/64 (6)	48 (1,219)	5/16 (8)	48 (1,219)	23/64 (9)	48 (1,219)	7/16 (11)
59 (17.983)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)	48 (1,219)	7/16 (11)
59.5 (18.136)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)	48 (1,219)	27/64 (11)
60 (18.288)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)	48 (1,219)	27/64 (11)
60.5 (18.440)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)	48 (1,219)	27/64 (11)
61 (18.593)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)	48 (1,219)	27/64 (11)
61.5 (18.745)	48 (1,219)	7/32 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)
62 (18.898)	48 (1,219)	7/32 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)
62.5 (19.050)	48 (1,219)	7/32 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)
63 (19.202)	48 (1,219)	7/32 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)
63.5 (19.355)	48 (1,219)	13/64 (5)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)	48 (1,219)	13/32 (10)
64 (19.507)	48 (1,219)	13/64 (5)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)
64.5 (19.660)	48 (1,219)	13/64 (5)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)
65 (19.812)	48 (1,219)	13/64 (5)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)
65.5 (19.964)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)
66 (20.117)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	21/64 (8)	48 (1,219)	25/64 (10)
66.5 (20.269)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	21/64 (8)	48 (1,219)	3/8 (10)
67 (20.422)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)

Outside Radius, ft. (m)	Form Cavity Width							
	4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
67.5 (20.574)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)
68 (20.726)	48 (1,219)	13/64 (5)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)
68.5 (20.879)	48 (1,219)	3/16 (5)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)	48 (1,219)	3/8 (10)
69 (21.031)	48 (1,219)	3/16 (5)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)	48 (1,219)	23/64 (9)
69.5 (21.184)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	5/16 (8)	48 (1,219)	23/64 (9)
70 (21.336)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)
70.5 (21.488)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)
71 (21.641)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)
71.5 (21.793)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	23/64 (9)
72 (21.946)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)
72.5 (22.098)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)
73 (22.250)	48 (1,219)	3/16 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)
73.5 (22.403)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	19/64 (8)	48 (1,219)	11/32 (9)
74 (22.555)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)
74.5 (22.708)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)
75 (22.860)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	11/32 (9)
75.5 (23.012)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)
76 (23.165)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)
76.5 (23.317)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)
77 (23.470)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)
77.5 (23.622)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)	48 (1,219)	21/64 (8)
78 (23.774)	48 (1,219)	11/64 (4)	48 (1,219)	15/64 (6)	48 (1,219)	17/64 (7)	48 (1,219)	21/64 (8)
78.5 (23.927)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	21/64 (8)
79 (24.079)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)

Outside Radius, ft. (m)	Form Cavity Width							
	4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
79.5 (24.232)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
80 (24.384)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
80.5 (24.536)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
81 (24.689)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
81.5 (24.841)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
82 (24.994)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)	48 (1,219)	5/16 (8)
82.5 (25.146)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)	48 (1,219)	5/16 (8)
83 (25.298)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
83.5 (25.451)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
84 (25.603)	48 (1,219)	5/32 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
84.5 (25.756)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
85 (25.908)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
85.5 (26.060)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
86 (26.213)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
86.5 (26.365)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
87 (26.518)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	19/64 (8)
87.5 (26.670)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	1/4 (6)	48 (1,219)	9/32 (7)
88 (26.822)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
88.5 (26.975)	48 (1,219)	5/32 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
89 (27.127)	48 (1,219)	9/64 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
89.5 (27.280)	48 (1,219)	9/64 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
90 (27.432)	48 (1,219)	9/64 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
90.5 (27.584)	48 (1,219)	9/64 (4)	48 (1,219)	13/64 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
91 (27.737)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)

Outside Radius, ft. (m)	Form Cavity Width 4" (102mm)		6.25" (159mm)		8" (203mm)		10" (254mm)	
	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)	C, in. (mm)	A, in. (mm)
91.5 (27.889)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
92 (28.042)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	9/32 (7)
92.5 (28.194)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	17/64 (7)
93 (28.346)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	17/64 (7)
93.5 (28.499)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	15/64 (6)	48 (1,219)	17/64 (7)
94 (28.651)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
94.5 (28.804)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
95 (28.956)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
95.5 (29.108)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
96 (29.261)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
96.5 (29.413)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
97 (29.566)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
97.5 (29.718)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	17/64 (7)
98 (29.870)	48 (1,219)	9/64 (4)	48 (1,219)	3/16 (5)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)
98.5 (30.023)	48 (1,219)	9/64 (4)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)
99 (30.175)	48 (1,219)	1/8 (3)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)
99.5 (30.328)	48 (1,219)	1/8 (3)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)
100 (30.480)	48 (1,219)	1/8 (3)	48 (1,219)	11/64 (4)	48 (1,219)	7/32 (6)	48 (1,219)	1/4 (6)

2.22 – TALL WALLS

Logix walls can be constructed to any height provided proper engineering and construction methods are used.

Logix tall walls should be designed in accordance with ACI 318 or CAN/CSA A23.3.

Constructing tall walls follows the same basic steps described throughout Section 2. In addition, building taller walls is done in much the same way as concrete pours using traditional formwork. Generally, Logix blocks are stacked and braced, normally 10 to 12 feet high. The concrete is then placed. After the concrete sets Logix blocks are then stacked another 10 to 12 feet, and bracing is raised or extended higher to support the wall, as well as keeping the wall plumb. This process is continued until the specified wall height is reached.

To ensure a smooth build, the following items should be considered:

- Load tables in Section 6 can be used as a design aid for both the builder and designer. However, tall wall designs should be reviewed and approved by a local licensed professional engineer.

- In higher wind areas taller walls may require guy wires for additional support. Typically, this will be determined by the engineer of record.

- Proper consolidation of concrete can be achieved by adequate vibrating. However, depending on the drop height, and the steel congestion, external vibration, in addition to internal vibration, should be considered, particularly at corners, openings, and congested areas of rebar. (External vibrators made specifically for ICFs are available. See Section "2.23 – SUPPORTING PRODUCTS" on page 94.

- Since tall walls are typically poured using a pump truck, using a 2 1/2" trimmer hose can provide better control of the concrete pour.

- If required, roughen the surface of all cold joints to ensure a good bond between the surface of the old pour and the subsequent pour. In addition, ensure adequate rebar embedments are provided.

- For the final stage of the pour, a Logix Taper Top block can be used, if required, for the top course of the wall. This provides a larger opening for concrete to flow into the wall and also provides a larger bearing area for supporting elements.

- Several tall wall bracing and alignment systems are available. For more information see Section 3.2, Tall Wall Bracing Systems.

NOTE: Both ACI 318 and CAN/CSA A23.3 permit cold joints when concrete is poured in stages.

2.23 – SUPPORTING PRODUCTS

A list of supporting ICF products are shown below. Consult with the listed manufacturer prior to using with Logix Insulated Concrete Forms. Please note: the products listed below does not prohibit the use of Logix ICFs with other supporting products not listed.

FOOTINGS

Product Name	Manufacturer	Contact	Website
Form-A-Drain	CertainTeed Corp.	708-301-4449	certainteed.com

EXTERIOR FINISHES

Product Name	Manufacturer	Contact	Website
Durock	Alfacing International Ltd.	1-888-238-6345	durock.com
Senerflex	Degussa Wall Systems, Inc.	1-800-221-9255	senergy.cc
Sto EIFS System	Sto Corp.	1-800-221-2397	stocorp.com
GrailCoat	GrailCoat	1-877-472-4528	grailcoat.com
TAFS (Textured Acrylic Finishes	dryvit	1-800-263-3308	dryvit.com
SoftCoat PB System	Total Wall, Inc.	1-888-702-9915	totalwall.com
Akroflex	Omega Products Corp.	602-721-5027	omega-products.com
Impact System	parex	1-800-537-2739	parex.com
PermaCrete	Quality Systems	1-800-607-3762	permacrete.com
Crack Guard	Poly-Wall	1-800-846-3020	poly-wall.com
WeatherWall Systems	Eco Specialty Products Ltd.	1-888-481-5507	ecocoatings.ca

WATERPROOFING

Product Name	Manufacturer	Contact	Website
System III	Epro	1-800-882-1896	eproserv.com
Blueskin WP2000	Bakor, Inc	1-800-387-9598	bakor.com
Colphene 3000	Soprema, Inc	1-800 567-1492	soprema.com
Delta-MS Clear	Cosella-Dorken Products, Inc.	1-888-4DELTA4	cosella-dorken.com
Platon	Armtec Ltd.	1-800-265-7622	systemplaton.com
Tamko TW60	Tamko, Inc.	1-800-641-4691	tamko.com
Grace waterproofing products	Grace Construction Products	See website	graceconstruction.com
Aqua-Wrap/Green Sheild	Aqua Seal Inc.	1-888-282-3861	aquasealusa.com
Protecto Universal Primer Free Membrane	Protecto Wrap	1-800-759-9727	protecowrap.com

CONNECTION SYSTEMS

Product Name	Manufacturer	Contact	Website
ICF Ledger Connector System	Simpson Strong-Tie Co., Inc.	1-800-999-5099	simpsonstrongtie.com
ICF-Connect	ICF-Connect Ltd.	1-866-497-1576	icfconnect.com

ADHESIVE & SEALANTS

Product Name	Manufacturer	Contact	Website
Enerfoam Sealant/Enerbond Adhesive	Dow Chemical Company	1-800-800-FOAM	dow.com/buildingproducts
PL300	Loctite	1-800-624-7767	www.loctiteproducts.com

WALL BRACING & ALIGNMENT SYSTEMS

Product Name	Manufacturer	Contact	Website
Uniscaffold, LLC	Uniscaffold	1-208-791-5624	www.uniscaffold.com
Giraffe Bracing	Giraffe Bracing	1-888-778-2285	www.giraffebracing.com
Plumwall	Plumwall Ltd.	1-905-786-7586	www.plumwall.com
Mono-Brace	Tapco	814-336-6549	www.mono-brace.com
Amazing Brace	Lakeland Group	905-372-7413	www.lakeland-multitrade.com

EXTERNAL VIBRATORS

Product Name	Manufacturer	Contact	Website
Brecon	Brecon Inc.	815-463-8073	http://icfvibrator.com
Arkie Wall Banger	Available from Wind-lock	1-800-872-5625	-

SUPPLIERS OF SUPPORTING ICF PRODUCTS

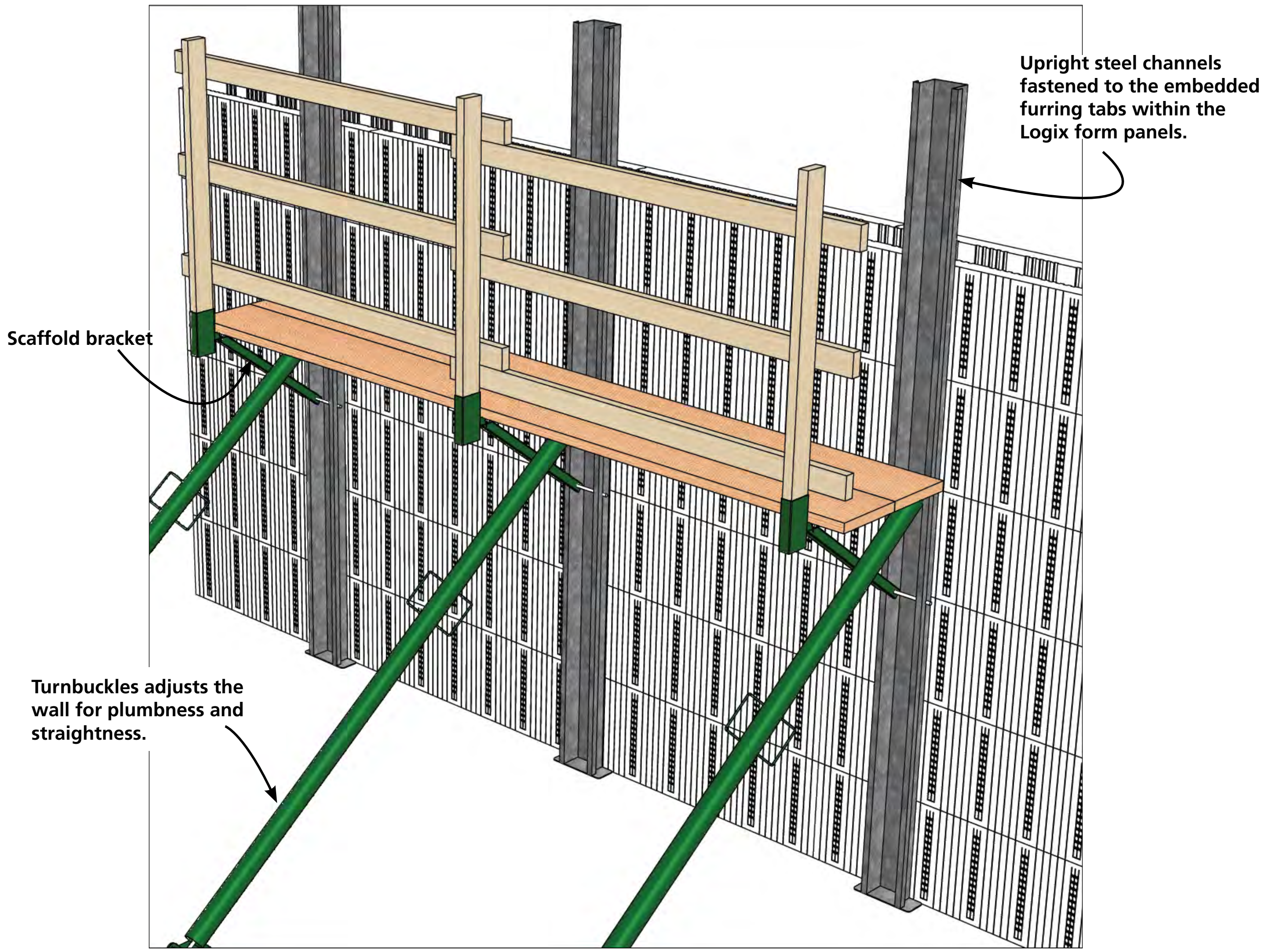
Company	Contact	Website
Wind-lock	1-800-872-5625	wind-lock.com
Grace Construction Products	See website	graceconstruction.com

3.0 – WALL BRACING & ALIGNMENT SYSTEM

3.1 – INTRODUCTION

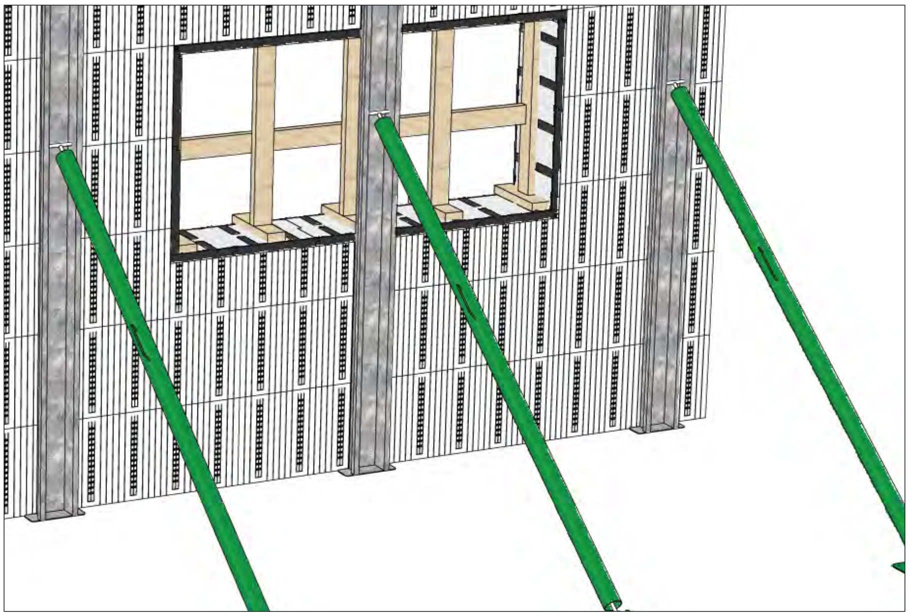
A bracing system provides temporary support for the wall and acts as an alignment system to keep the walls straight and plumb during concrete placement. Typically, the wall alignment system is installed on the inner side of the Logix wall.

There are a number of proprietary systems available. However, each bracing unit typically consists of a vertical upright steel channel with slots for attaching screws to the Logix webs, a turnbuckle arm, and a scaffold bracket. Normally, wall bracing systems are installed after placing 2 to 4 courses of Logix forms (depending on wind and other conditions).



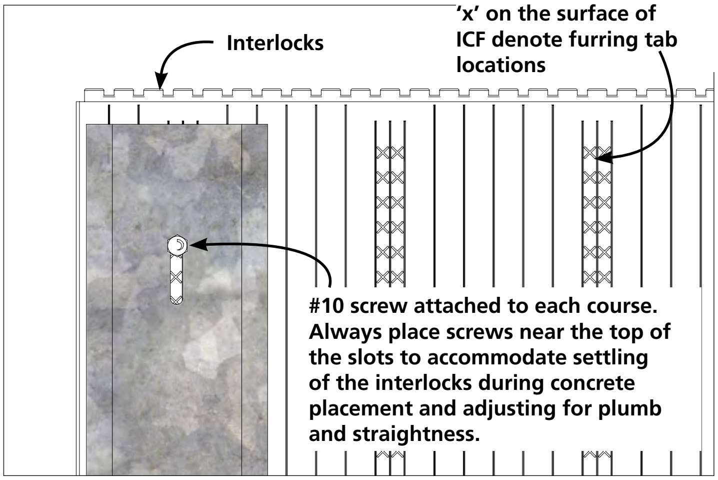
3.2 – LOCATION & SPACING

- Place bracing no more than 2ft (610 mm) from each corner or wall end, and every 7ft (2134 mm) or less thereafter, in accordance with OSHA/OHSA requirements.
- Every door and window opening should be flanked on either side by bracing units.

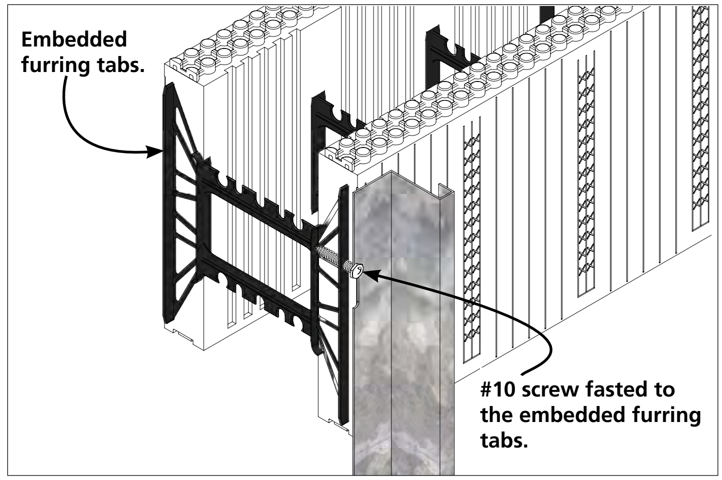


The middle of large openings should be vertically braced to prevent tipping.

3.3 – INSTALLATION

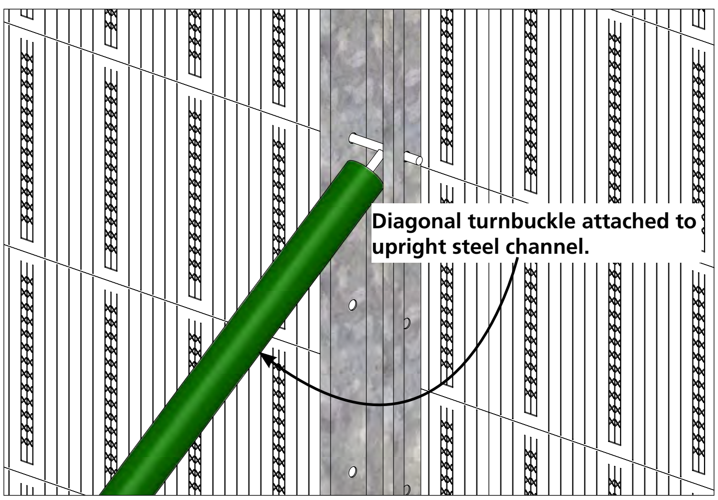


Front View

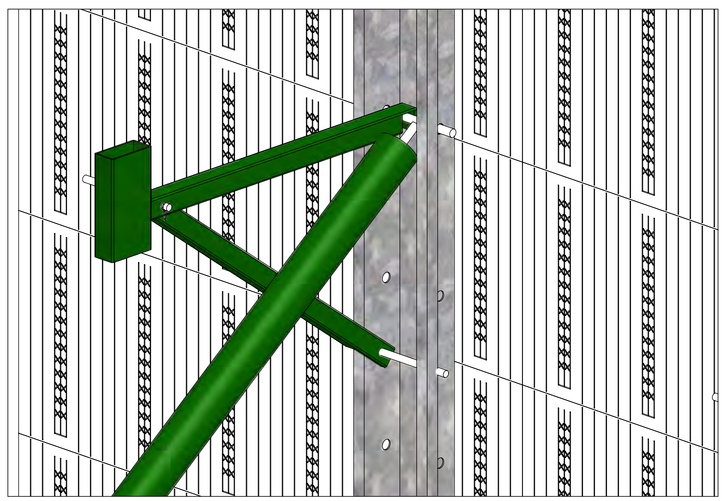


Perspective Cut Section

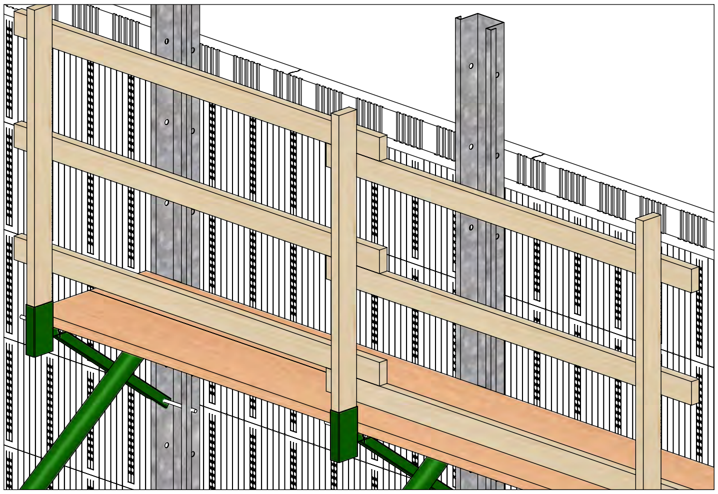
STEP 1: Attach the upright steel channel to the Logix webs with a #10 screw in each course. The screws should be snug but not tight.



STEP 2: Attach a turnbuckle arm to the upright with a bolt and then secure to the floor or ground. In light or sandy soils, additional care must be taken to secure diagonal turnbuckle. Ensure wall is close to plumb and threads on the turnbuckle is secured.

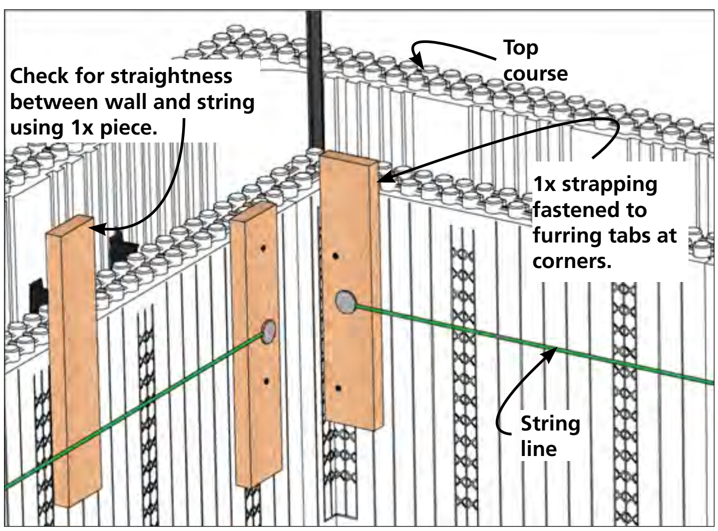


STEP 3: The scaffold bracket is then inserted behind the top of the turnbuckle and secured at the bottom with an additional bolt.



STEP 4: Place the appropriate scaffolding planks and rails according to safety regulations. For requirements on toe board and handrail configuration, consult OSHA/OHSA.

STEP 5: Prior to concrete placement, make certain walls are leaning slightly inward. The wall must not lean out at all.



STEP 6: A stringline must be used to achieve straight walls.

STEP 7: Before, during and after concrete placement, the diagonal turnbuckle arm is used to adjust wall straightness to stringline.

3.4 – TALL WALL BRACING

Tall walls are constructed in much the same way as concrete pours using traditional formwork. In general, the Logix blocks are stacked and braced, normally 10 to 12 feet high. The concrete is then placed. After the concrete sets the Logix blocks are then stacked another 10 to 12 feet, and bracing is raised or extended higher to support the wall, as well as keeping the wall plumb. This process is continued until the specified wall height is reached.

In higher wind areas taller walls may require guy wires for additional support.

Logix can be built to any height using either proprietary bracing systems or traditional scaffolding.

There are a number of proprietary tall wall bracing and alignment systems available. Many of the systems are designed to accommodate walls heights from 30 to 50 feet. For a list of some of these systems see "2.23 – SUPPORTING PRODUCTS" on page 94.

With minor modifications traditional scaffold (masonry scaffold) systems can also be used as the bracing and alignment system for tall walls. In addition, more experienced builders may have their own custom bracing systems designed to meet their preferred method of construction.

NOTE: When using wall bracing systems always follow the manufacturer's recommended installation practices, including all required federal and local safety guidelines. Users of Logix and bracing systems should always follow OSHA/OHSA guidelines.

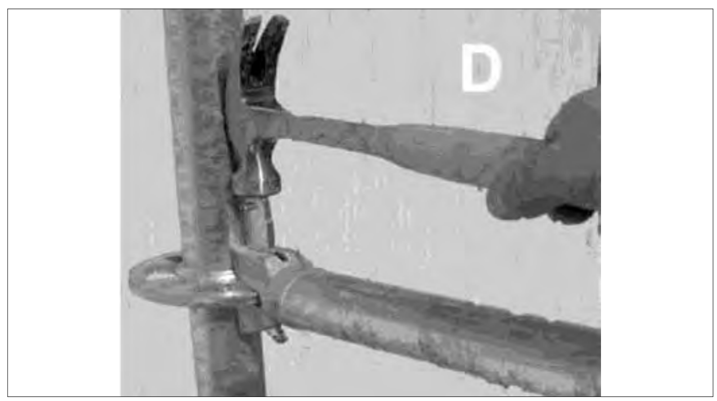
3.4.1 – TALL WALL BRACING SYSTEMS USING SCAFFOLDING

The following installation instructions demonstrates the use of scaffolding as a tall wall bracing and alignment system. The scaffolding system described is available from Form Systems, Inc. For more information contact your local Logix representative.

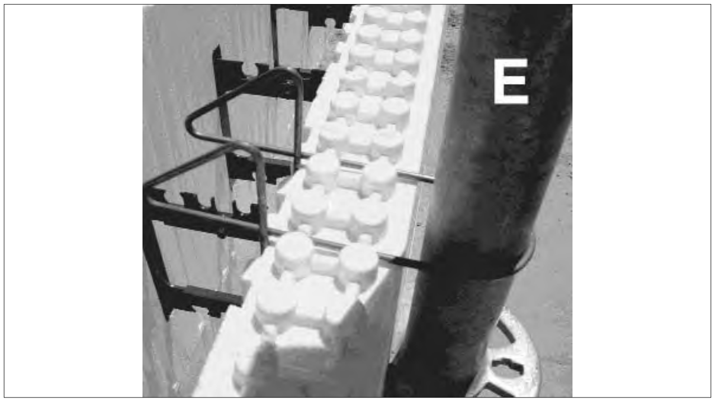
STEP 1: Complete two courses making sure they are straight, level and well anchored (Figure A).

STEP 2: The first scaffolding items needed are the base frames and screw jacks. The left end of the base frame as seen in Figures B and C is the end that will sit against the forms to allow the screw jacks to be adjusted.

STEP 3: Insert the screw jacks into the base frames as seen in Figure C. Create a base frame by attaching two 7ft (2.134m) ledgers (the horizontal pipes) to two base frames. Each ledger end has a wedge to anchor the system together (Figure D). To remove, hit from below. Once base frame is in place, level in all directions.



STEP 4: There are two kinds of vertical poles. Poles with the 2/3 rosettes go against the wall. Those with the full rosettes go into the center cup of the base frame (Figure C).



STEP 5: Install the two-foot ledgers that will hold the decks in place on every third rosette from the bottom. Note that the only 7ft (2.134m) ledger required against the wall is on the base frame. The rest of the scaffolding will require 7ft (2.134m) ledgers only on one side (Figure F).

STEP 6: Place one wire clip per course at each vertical 2/3 rosette pole (Figure E).

STEP 7: Insert 7ft (2.134m) ledgers for railings in the two rosettes above the planks (Figure G).

STEP 8: There are two adjustable diagonals. One is 4ft (1.220m) long and is intended to go to the inside of the vertical poles. It's designed to align the wall during the second or third build. For the first build, use the 10ft (3.048m) external adjustable diagonal (Figure G).

4.0 – ESTIMATING

4.1 – INTRODUCTION

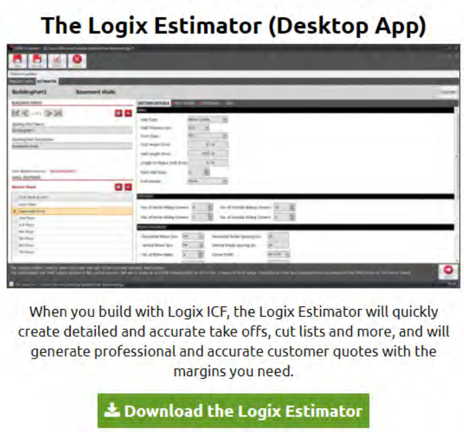
Calculating the number of forms needed is a simple task with Logix.

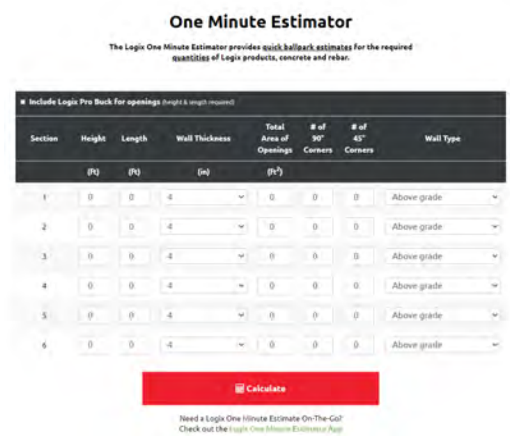
An important thing to remember in estimating is that walls with different heights should be calculated separately. As the wall heights change, so do the quantities required.

There are several tools available to aid in estimating:

- Drawing a wall section on graph paper before estimating a project saves time and effort.
- The Logix One Minute Estimator provides rough estimates for preliminary estimates, and is available as an app or online.
- The Logix Estimator provides more accurate and very detailed estimates and is on Windows. However, the Logix Estimate can work on a Mac provided Windows Parallel is installed. This program is available for download.

The Logix Estimator and One Minute Estimator are available through the "Download Apps" link on any of the Logixicf.com web pages.





4.2 – MATERIAL TAKE-OFF LIST

The material take off is the first step in any estimate.

____ Linear feet of exterior and interior Logix walls

____ Height of walls

____ Number of courses in wall

____ Thickness of wall (4”, 6.25”, 8”, 10” or 12”)

____ Number of 90o corners (both inside and outside)

____ Number of 45o corner (both inside and outside)

____ Linear feet of Brick Ledge

____ Linear feet of Taper Top

____ Linear feet of Double Taper Top

____ Square feet of parge coating “stucco” (height x length) between grade and siding

____ Square feet of water proofing (height x length) from grade to lap over footing

____ Square feet of door and window openings

____ Linear feet of buck material

____ Number of beam pockets (End Caps)

____ Linear feet of end walls (End Caps)

____ Linear feet of Height Adjusters (both sides of wall)

SQUARE FOOTAGE OF DIFFERENT FORM TYPES

Standard (straight):	5.33sf
Standard V12 (straight)	4.00sf
Brick Ledge:	5.33sf
Taper Top:	5.33sf
Double Taper Top:	5.33sf
90° Corner (outside face):	5.36sf (5.89sf for 10” and 12” corner forms)
90° Corner V12 (outside face):	4.02sf
45° Corner (outside face):	3.89sf
4” Height Adjuster:	0.67sf
Pilaster:	3.49sf max.

4.3 – ESTIMATING FORMS

Standard, 45° and 90° Corner forms are 16” in height. Standard V12 and Corner V12 forms are 12” in height. The following steps are based on 16” heights, however, the same procedure outlined in Section 4.3.1 is followed for 12” high forms. (Currently, 45° forms in V12 are not available and are formed on-site.)

4.3.1 – STANDARD FORMS & CORNERS

STEP 1: Determine the total lineal feet of walls (both interior and exterior walls that will be built using Logix). Add an extra 2ft for every 45° or 90° inside corner to the total lineal feet of walls. With this new lineal footage, multiply by the height of the walls to determine the property’s total square footage. When figuring the total square footage of walls with different heights it’s easiest to figure each wall separately and then add totals together.

Subtract the total square footage of all window and door openings.

STEP 2: Determine number of 45° forms (A) by multiplying number of 45° turns by the number of courses (i.e. 6 courses x 4 turns). Then multiply the number of 45° forms by 3.89 sf/form. Then subtract this from your gross square footage of wall determined in Step 1.

If no 45° turns continue with Step 3.

STEP 3: Determine number of 90° corner forms (B) by multiplying number of 90° turns by the number of courses (i.e. 6 courses x 4 turns). Then multiply the number of 90° forms by 5.36 sf/form (or 5.89sf for 10” or 12” corner forms). Then subtract this from your square footage of wall determined in Step 2 (if no 45° turns used, then subtract from gross square footage determined in Step 1).

STEP 4: Divide square footage of wall determined in Step 3 by 5.33 to determine gross number of Standard forms required. (C)

NOTE: Standard forms are all 16” (406mm) tall and 48” (1220mm) long with a wall area of 5.33sf each. All 90° Corners are 16” tall. The 4”, 6.25” and 8” Ninety degree corner forms cover a wall area of 5.36sf (measured at the longer side of the corner form). The 10” and 12” Ninety degree corner forms cover a wall area of 5.89sf.

A. Number of 45° forms required: ____________

B. Number of 90° forms required: ____________

C. Number of Standard forms required: ____________

D. Total number of forms required: ____________

4.3.2 - BRICK LEDGE FORMS

NOTE: Brick Ledge forms are available in straight units only. Corner applications require miter cutting Brick Ledge forms on site.

Brick Ledge forms only come in 6.25", 8", 10" and 12" cavity sizes.

STEP 1: Measure the total linear feet of Brick Ledge needed and divide by 4 (the length in feet of each block) to determine the total number of Brick Ledge forms needed. When miter cutting Brick Ledge corners, add one Brick Ledge form for waste at each corner to the total Brick Ledge count.

STEP 2: Subtract the number of Brick Ledge forms from the total number of Standard forms determined earlier to avoid ordering too many Standard forms.

4.3.3 - DOUBLE TAPER TOP & TAPER TOP FORMS

NOTE: The above forms are available in straight units only. Corner applications require miter cutting the forms on site.

Taper Top and Double Taper Top forms come in 6.25", 8", 10" or 12" cavity sizes.

Follow Steps 1 and 2 in Section 4.3.2 to estimate the number of Taper Top or Double Taper Top forms required.

4.3.4 - HEIGHT ADJUSTERS

A 2ft Height Adjuster = 0.66sf. The number of 2ft long Height Adjusters needed is equal to the total linear footage.

NOTES: Height Adjusters come in one size, 4" x 24" x 2.75" thick. Remember to count both sides of the wall. Height Adjusters can be used in window openings to adjust height without cutting standards.

4.3.5 - END CAPS

NOTES: End Caps are 16" tall and 2-1/4" thick . End Caps come in all wall cavity sizes - 4", 6.25", 8", 10" and 12". Use End Caps at end wall applications. Use two End Caps for each beam pocket. Use End Caps for step foundations if necessary. End Caps can be used to form side bucks on door and window openings.

4.4 – CONCRETE

4.4.1 - 4" WALLS

STEP 1: Take the square footage of all wall area and subtract the square footage of all window and door openings.

STEP 2: Multiply by 0.333ft (the width of the cavity) to get the cubic feet of concrete required.

STEP 3: Divide by 27cf to determine the total number of yards of concrete required (or divide by 35.32 to determine meters of concrete required).

Example: 1845sf of wall area minus 322sf of window and door area equals 1523sf of net wall area. 1523sf times 0.333ft equals 507cf divided by 27cf per yard equals 18.8 yards of concrete required. Or divide 507cf by 35.32 for meters required. In this case, 14.4 meters.

4.4.2 - 6.25" WALLS

STEP 1: Take the square footage of all wall area and subtract the square footage of all window and door openings.

STEP 2: Multiply by 0.521ft (the width of the cavity) to get the cubic feet of concrete required.

STEP 3: Divide by 27cf to determine the yards of concrete required (or divide by 35.32 to determine meters required).

Example: 1845sf of wall area minus 322sf of window and door are equals 1523sf of net wall area. 1523sf times 0.521ft equals 793cf divided by 27cf per yard equals 29.4 yards of concrete. Or divide 793cf by 35.32 for meters required. In this case, 22.5.

4.4.3 - 8" WALLS

STEP 1: Take the square footage of all wall area and subtract the square footage of all window and door openings.

STEP 2: Multiply by 0.667ft (the width of the cavity) to get the cubic feet of concrete required.

STEP 3: Divide by 27 to determine the yards of concrete required (or by 35.32 to determine meters required).

Example: 1845sf of wall area minus 322sf of window and door area equals 1523sf of net wall area. 1523sf times 0.667ft equals 1016cf divided by 27cf per yard equals 37.6 yards of concrete. Or divide 1016cf by 35.32 for meters required. In this case, 28.8.

4.4.4 - 10" WALLS

STEP 1: Take the square footage of all wall area and subtract the square footage of all window and door openings.

STEP 2: Multiply by 0.833ft (the width of the cavity) to get the cubic feet of concrete required.

STEP 3: Divide by 27cf to determine the total number of yards of concrete required (or by 35.32 to determine meters of concrete required).

Example: 1845sf of wall area minus 322sf of window and door area equals 1523sf of net wall area. 1523sf times 0.833ft equals 1269cf divided by 27cf per yard equals 47.0 yards of concrete required. Or divide 1269cf by 35.32 for meters required. In this case, 35.9 meters.

4.4.5 - 12" WALLS

STEP 1: Take the square footage of all wall area and subtract the square footage of all window and door openings.

STEP 2: Multiply by 1ft (the width of the cavity) to get the cubic feet of concrete required.

4.4.6 - ADD EXTRA CONCRETE FOR TAPER TOPS

Multiply linear feet of Taper Top by 0.003 cubic yards or cubic meters 0.002 to determine the additional yards or meter of concrete needed.

Example: 200lf of Taper Top forms would require an additional 0.6 yards of extra concrete (200lf x 0.003 = 0.6 yards).

4.4.7 - ADD EXTRA CONCRETE FOR DOUBLE TAPER TOPS

Multiply linear feet of Double Taper Tops by 0.006 cubic yards or cubic meters 0.005 to determine the additional yards or meter of concrete needed.

Example: 200lf of Taper Top forms would require an additional 1.2 yards of extra concrete (200lf x 0.006 = 1.2 yards).

4.4.8 - ALTERNATE METHOD FOR CALCULATING CONCRETE

An alternate method to calculate concrete is to use the chart below. Simply multiply the total number of forms by the appropriate multiplier to determine the cubic yards or cubic meters of concrete required.

Form Size	Cubic Yards per Form Unit	Cubic Meters per Form Unit
4"	0.066	0.050
6.25"	0.103	0.079
8"	0.132	0.100
10"	0.165	0.126
12"	0.198	0.151

4.5 – REBAR

Rebar estimating varies from wall to wall depending on factors such as height, vertical loading, horizontal loading, backfill heights, etc.

NOTE: Each Brick Ledge will require six stirrups to tie the horizontal rebar in the corbel to the horizontal rebar in the interior of the form.

4.6 – WATERPROOFING

Multiply linear footage of walls by the height of backfill. When calculating backfill height, make sure to add enough height to allow the waterproofing materials to extend over the edge of the footing.

Divide this number by the square footage per roll of membrane material to determine the total number of rolls required.

If using a rigid waterproofing board, do not include a footing overlap in you calculations.

4.7 – PARGING

Parging typically covers from the top of the waterproofing membrane to a height 2” above the bottom edge of the siding.

Multiply the linear footage of wall by height of parging to determine total square footage of parging required.

Divide this number by the square footage per bag of parging material to determine the total number of bags required.

4.8 – COURSE HEIGHT TABLE

This table shows wall heights that are readily achieved using Standard Logix forms used in combination with 4” (102mm) Height Adjusters and/or 12” (305mm) V12 forms.

		HEIGHT OF WALL WHEN ADDITIONAL COURSES OF HEIGHT ADJUSTER OR V12s ARE ADDED			
Number of Standard Courses	Height of Wall for Standard Courses	4" Height Adjuster	1 Course of V12	2 Courses of V12	3 Courses of V12
1	1' - 4" (406mm)	1' - 8" (508mm)	2' - 4" (711mm)	3' - 4" (1016mm)	4' - 4" (1321mm)
2	2' - 8" (813mm)	3' - 0" (914mm)	3' - 8" (1118mm)	4' - 8" (1422mm)	5' - 8" (1727mm)
3	4' - 0" (1219mm)	4' - 4" (1321mm)	5' - 0" (1524mm)	6' - 0" (1829mm)	7' - 0" (2134mm)
4	5' - 4" (1626mm)	5' - 8" (1727mm)	6' - 4" (1930mm)	7' - 4" (2235mm)	8' - 4" (2540mm)
5	6' - 8" (2032mm)	7' - 0" (2134mm)	7' - 8" (2337mm)	8' - 8" (2642mm)	9' - 8" (2946mm)
6	8' - 0" (2438mm)	8' - 4" (2540mm)	9' - 0" (2743mm)	10' - 0" (3048mm)	11' - 0" (3353mm)
7	9' - 4" (2845mm)	9' - 8" (2946mm)	10' - 4" (3150mm)	11' - 4" (3454mm)	12' - 4" (3759mm)
8	10' - 8" (3251mm)	11' - 0" (3353mm)	11' - 8" (3556mm)	12' - 8" (3861mm)	13' - 8" (4166mm)
9	12' - 0" (3658mm)	12' - 4" (3759mm)	13' - 0" (3962mm)	14' - 0" (4267mm)	15' - 0" (4572mm)
10	13' - 4" (4064mm)	13' - 8" (4166mm)	14' - 4" (4369mm)	15' - 4" (4674mm)	16' - 4" (4978mm)
11	14' - 8" (4470mm)	15' - 0" (4572mm)	15' - 8" (4775mm)	16' - 8" (5080mm)	17' - 8" (5385mm)
12	16' - 0" (4877mm)	16' - 4" (4978mm)	17' - 0" (5182mm)	18' - 0" (5486mm)	19' - 0" (5791mm)
13	17' - 4" (5283mm)	17' - 8" (5385mm)	18' - 4" (5588mm)	19' - 4" (5893mm)	20' - 4" (6198mm)
14	18' - 8" (5690mm)	19' - 0" (5791mm)	19' - 8" (5994mm)	20' - 8" (6299mm)	21' - 8" (6604mm)
15	20' - 0" (6096mm)	20' - 4" (6198mm)	21' - 0" (6401mm)	22' - 0" (6706mm)	23' - 0" (7010mm)
16	21' - 4" (6502mm)	21' - 8" (6604mm)	22' - 4" (6807mm)	23' - 4" (7112mm)	24' - 4" (7417mm)
17	22' - 8" (6909mm)	23' - 0" (7010mm)	23' - 8" (7214mm)	24' - 8" (7518mm)	25' - 8" (7823mm)
18	24' - 0" (7315mm)	24' - 4" (7417mm)	25' - 0" (7620mm)	26' - 0" (7925mm)	27' - 0" (8230mm)
19	25' - 4" (7722mm)	25' - 8" (7823mm)	26' - 4" (8026mm)	27' - 4" (8331mm)	28' - 4" (8636mm)
20	26' - 8" (8128mm)	27' - 0" (8230mm)	27' - 8" (8433mm)	28' - 8" (8738mm)	29' - 8" (9042mm)
21	28' - 0" (8534mm)	28' - 4" (8636mm)	29' - 0" (8839mm)	30' - 0" (9144mm)	31' - 0" (9449mm)
22	29' - 4" (8941mm)	29' - 8" (9042mm)	30' - 4" (9246mm)	31' - 4" (9550mm)	32' - 4" (9855mm)
23	30' - 8" (9347mm)	31' - 0" (9449mm)	31' - 8" (9652mm)	32' - 8" (9957mm)	33' - 8" (10262mm)
24	32' - 0" (9754mm)	32' - 4" (9855mm)	33' - 0" (10058mm)	34' - 0" (10363mm)	35' - 0" (10668mm)
25	33' - 4" (10160mm)	33' - 8" (10262mm)	34' - 4" (10465mm)	35' - 4" (10770mm)	36' - 4" (11074mm)

4.9 – ESTIMATING FORM

Customer Name:________________________________ Date:________________

Project Name:____

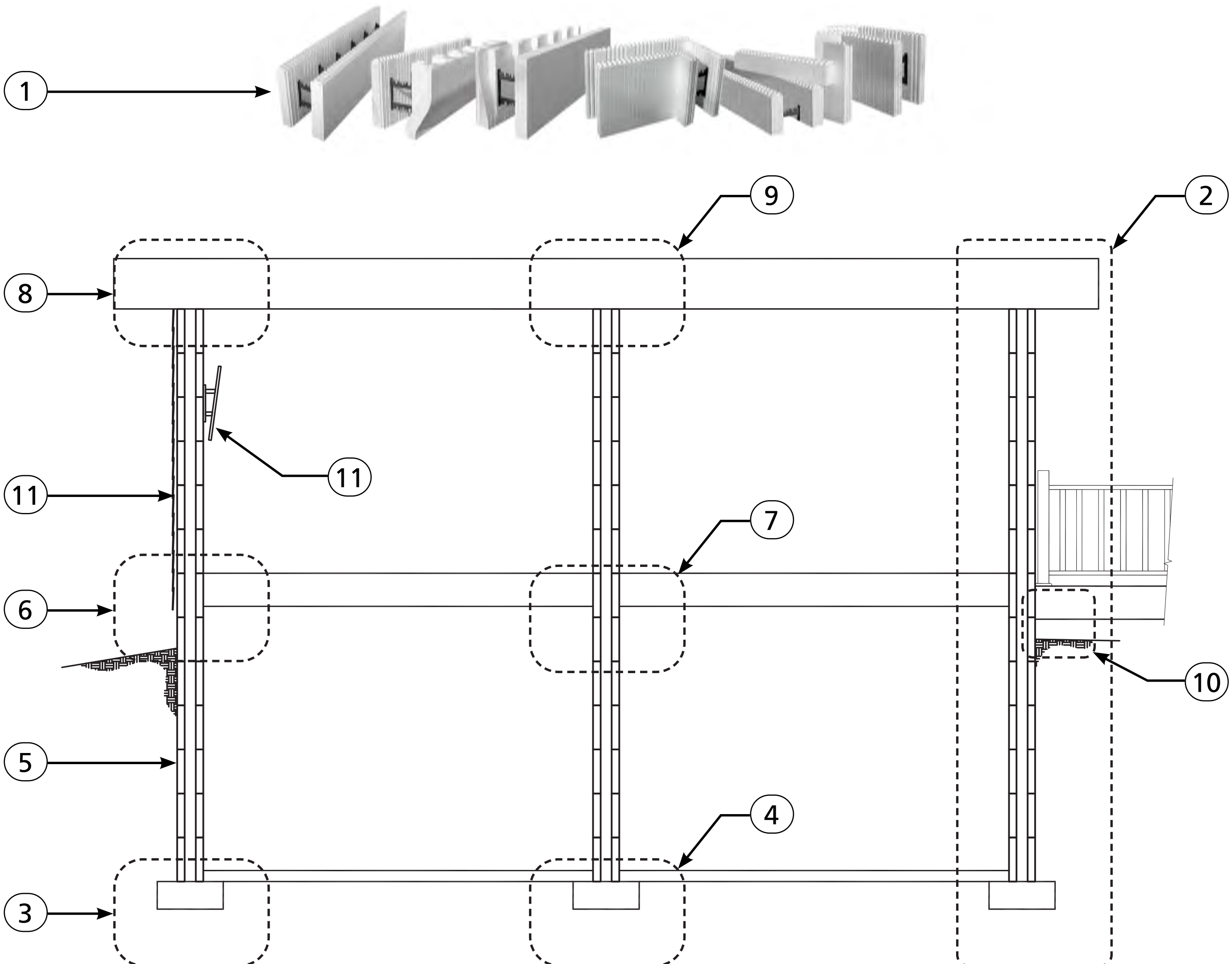
Wall Type (Circle): Frost Wall Basement Main Floor Second Floor Other

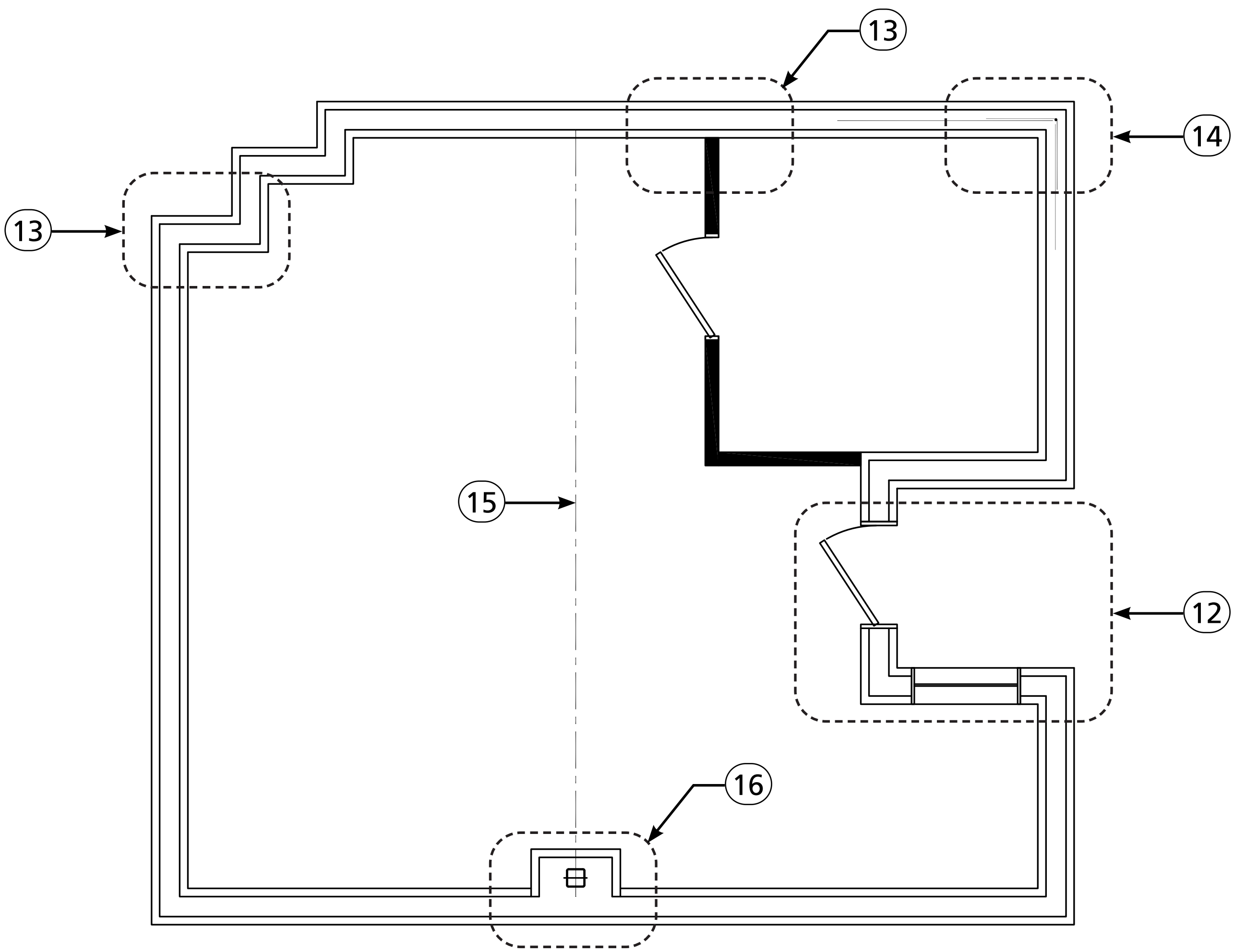
Form Size (Circle): 4” 6.25” 8” 10” 12”

Estimating Data

	Lineal Feet (LF) of Wall		LF Height Adjusters
	Wall Height		LF Extended Brick Ledge
	Number of 90° Turns		LF Taper Top Form
	Number of 45° Turns		Height of Backfill
	Number of Logix Courses		Square Footage (SF) of Openings
	Number of Courses of Standards		Gross SF of Wall (GSF)
	LF Form Lock		Net SF of Wall (NSF)

Quantity	Description	Notes
	Standard Forms	
	Standard V12 Forms	
	90° Corner Forms	
	90° V12 Corner Forms	
	45° Corner Forms	
	Brick Ledge	
	Taper Top Forms	
	Double Taper Top Forms	
	Number of Height Adjusters (2’ each)	
	Number of Form Lock (12.5’ each)	
	Filament Tape (1 roll/50 blocks)	
	Zip Ties (1 bag/200 blocks)	
	Waterproofing Membrane (200sf/roll)	
	Rolls of Fiber Mesh (475sf/roll)	
	Bags of Prepcoat (85sf/bag)	
	LF/Type Rebar	
	Cubic Yards of Concrete	
	LF Window/Door Buck	
	Number of Alignment System Sets	
	Man Hours/sf	


1
9
2
8
11
11
7
6
10
5
4
3



ADDITIONAL DRAWING

5.0 - CAD DRAWINGS

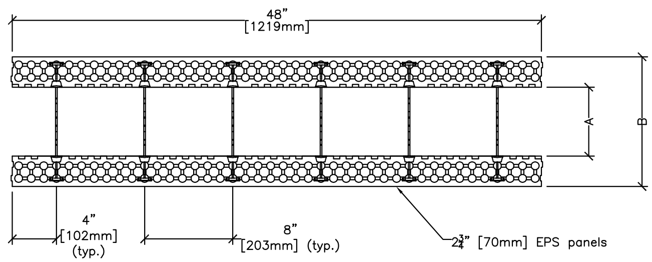
CAD drawings applicable for residential and commercial projects are available in the Technical Library at logixicf.com/technical-library in .dwg, .dxf, pdf and .jpg file formats. In addition, please refer to the Technical Library for updated and new drawings.

LOGIX carries both assembled form units, known as LOGIX PRO, and unassembled (or knock-down) systems known as LOGIX KD. In addition, LOGIX carries a number of accessories meant to make designing and constructing with ICFs much faster and easier.

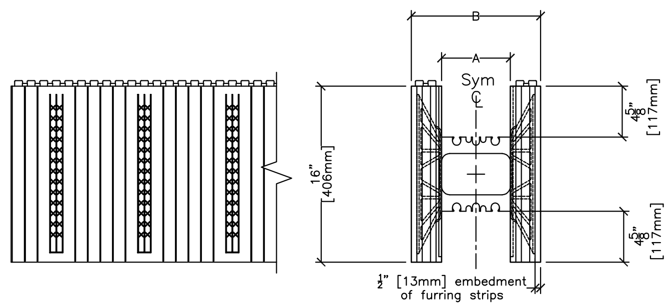
NOTE: The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

CAD DRAWINGS - TABLE OF CONTENTS

5.1.1.1 - STANDARD FORM



PLAN VIEW



SIDE ELEVATION

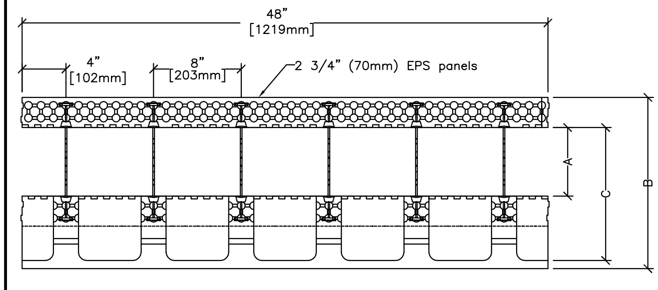
END VIEW

	FORM SIZES, in (mm)				
	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)	17.5 (445)
Conc. Vol. (y^3)	0.066	0.103	0.132	0.165	0.198
Conc. Vol. (ft^3)	1.778	2.778	3.556	4.444	5.333
Conc. Vol. (m^3)	0.050	0.079	0.101	0.126	0.151

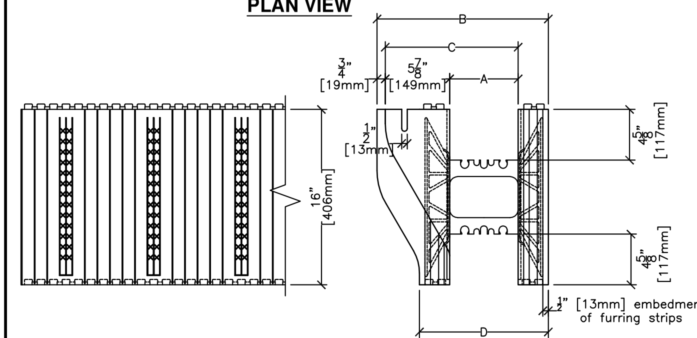
NOTES:

1. Wall area per block or panel = 5.333 ft^2
2. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6¼" [159mm] LOGIX Form shown.

5.1.1.2- BRICK LEDGE FORM



PLAN VIEW



SIDE ELEVATION

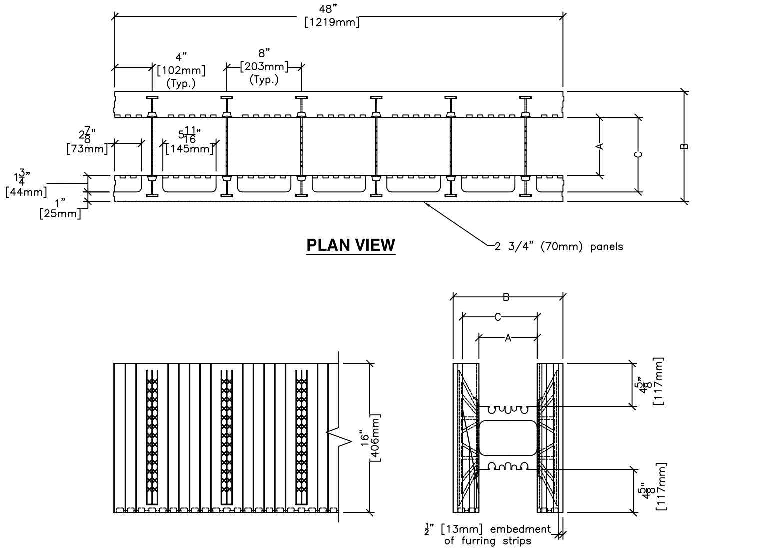
END VIEW

	FORM SIZES, in (mm)				
	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension B, in (mm)	13.325 (338)	15.625 (397)	17.375 (441)	19.375 (492)	21.375 (543)
Dimension C, in (mm)	9.875 (251)	12.125 (308)	13.875 (352)	15.875 (403)	17.875 (454)
Dimension D, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)	17.5 (445)
Conc. Vol. (y^3)	0.073	0.110	0.139	0.172	0.205
Conc. Vol. (ft^3)	1.967	2.967	3.745	4.633	5.522
Conc. Vol. (m^3)	0.056	0.084	0.106	0.131	0.156

NOTES:

1. Wall area per block or panel = 5.333 ft^2
2. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6¼" [159mm] LOGIX Form shown.

5.1.1.3 - TAPER TOP FORM

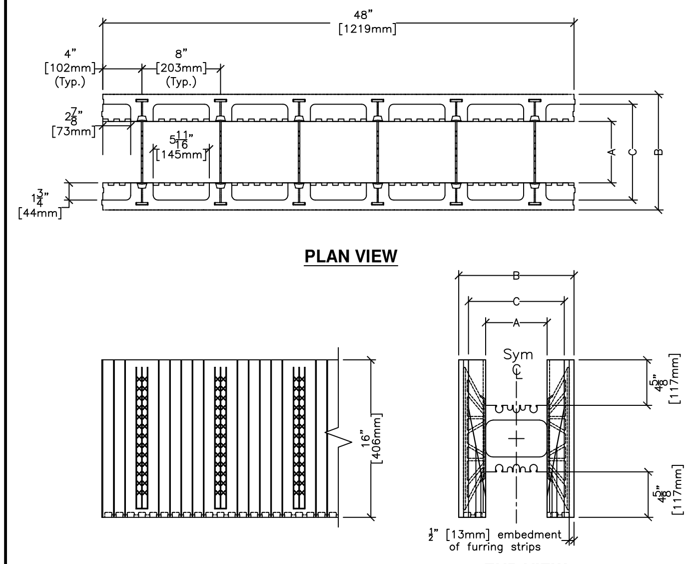


	FORM SIZES, in (mm)				
	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)	17.5 (445)
Dimension C, in (mm)	5.75 (146)	8 (203)	9.75 (248)	11.75 (298)	13.75 (349)
Conc. Vol. (y^3)	0.087	0.124	0.152	0.185	0.218
Conc. Vol. (ft^3)	2.339	3.339	4.116	5.005	5.894
Conc. Vol. (m^3)	0.066	0.095	0.117	0.142	0.167
Wall Area (sf)	5.333	5.333	5.333	5.333	5.333
R-value	21.3	21.5	21.6	21.7	21.8
RSI	3.76	3.78	3.80	3.82	3.84

NOTES:

1. Wall area per block or panel = 5.333 ft^2
2. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6¼" [159mm] LOGIX Form shown.

5.1.1.4 - DOUBLE TAPER TOP FORM

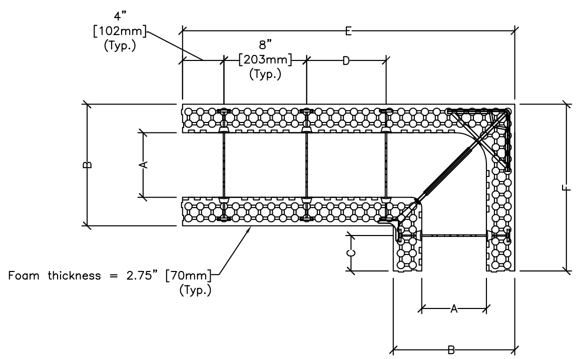


	FORM SIZES, in (mm)				
	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)	17.5 (445)
Dimension C, in (mm)	7.5 (191)	9.75 (248)	11.5 (292)	13.5 (343)	15.5 (394)
Conc. Vol. (y^3)	0.090	0.127	0.155	0.188	0.221
Conc. Vol. (ft^3)	2.420	3.420	4.197	5.086	5.975
Conc. Vol. (m^3)	0.069	0.097	0.119	0.144	0.169

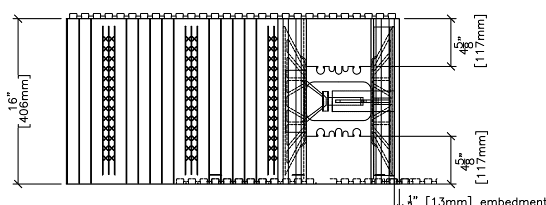
NOTES:

1. Wall area per block or panel = 5.333 ft^2
2. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6¼" [159mm] LOGIX Form shown.

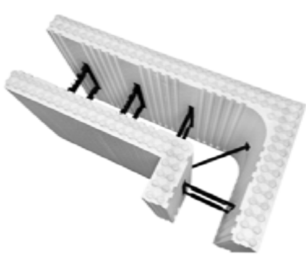
5.1.1.5 - LEFT HAND CORNER FORM



PLAN VIEW



SIDE ELEVATION

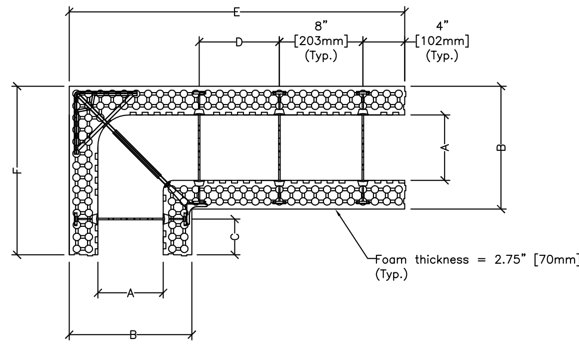


	FORM SIZES, in (mm)			
	4 (102)	**6.25 (159)**	**8 (203)**	**10 (254)**
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)
Dimension C, in (mm)	3.5 (89)	3.375 (86)	2.25 (57)	2.125 (54)
Dimension D, in (mm)	7.67 (195)	7.67 (195)	6.125 (156)	5.875 (149)
Dimension E, in (mm)	32.125 (816)	32.125 (816)	32.125 (816)	34.5 (876)
Dimension F, in (mm)	16.125 (410)	16.125 (410)	16.125 (410)	18.5 (470)
Conc. Vol. (y^3)	0.053	0.078	0.095	0.128
Conc. Vol. (ft^3)	1.419	2.096	2.558	3.456
Conc. Vol. (m^3)	0.040	0.059	0.072	0.098
Outside Corner Wall Area (ft^2)	5.361	5.361	5.361	5.889
Inside Corner Wall Area (ft^2)	3.250	2.750	2.361	2.444

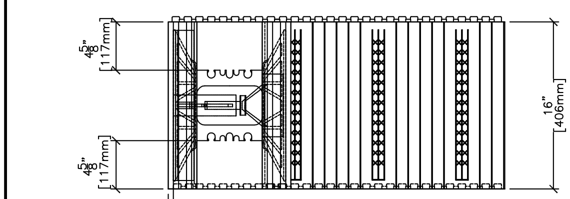
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
3. 6¼" [159mm] LOGIX Corner Form shown.

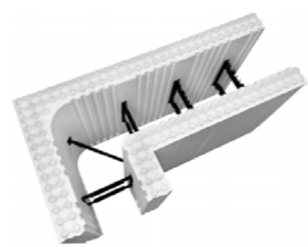
5.1.1.6 - RIGHT HAND CORNER FORM



PLAN VIEW



SIDE ELEVATION

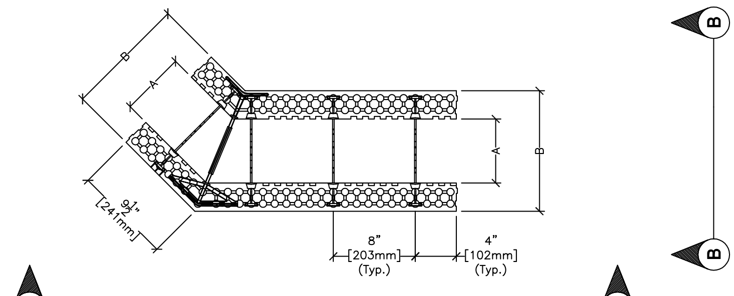


	FORM SIZES, in (mm)			
	4 (102)	**6.25 (159)**	**8 (203)**	**10 (254)**
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)	10 (254)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)	15.5 (394)
Dimension C, in (mm)	3.5 (89)	3.375 (86)	2.25 (57)	2.125 (54)
Dimension D, in (mm)	7.67 (195)	7.67 (195)	6.125 (156)	5.875 (149)
Dimension E, in (mm)	32.125 (816)	32.125 (816)	32.125 (816)	34.5 (876)
Dimension F, in (mm)	16.125 (410)	16.125 (410)	16.125 (410)	18.5 (470)
Conc. Vol. (y^3)	0.053	0.078	0.095	0.128
Conc. Vol. (ft^3)	1.419	2.096	2.558	3.456
Conc. Vol. (m^3)	0.040	0.059	0.072	0.098
Outside Corner Wall Area (ft^2)	5.361	5.361	5.361	5.889
Inside Corner Wall Area (ft^2)	3.250	2.750	2.361	2.444

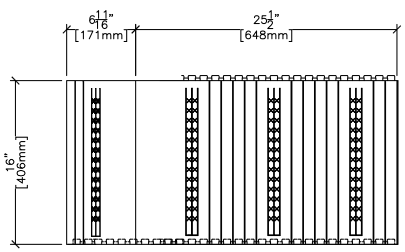
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
3. 6¼" [159mm] LOGIX Corner Form shown.

5.1.1.7 - LEFT HAND 45° FORM

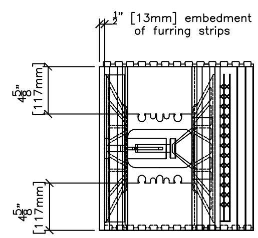


PLAN VIEW



ELEVATION A-A

For clarity knobs partially removed in evelvation views.



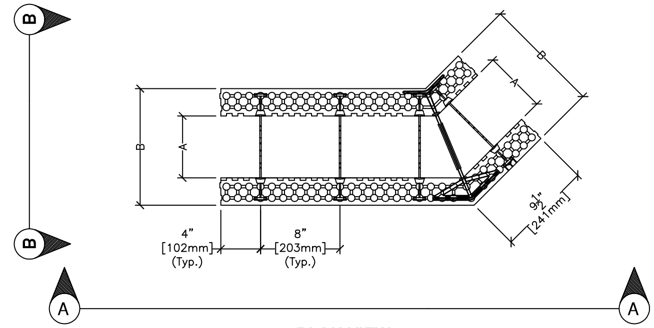
ELEVATION B-B

	FORM SIZES, in (mm)		
	4 (102)	6.25 (159)	8 (203)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)
Conc. Vol. (y^3)	0.043	0.065	0.081
Conc. Vol. (ft^3)	1.151	1.744	2.178
Conc. Vol. (m^3)	0.033	0.049	0.062
Outside Corner Wall Area (ft^2)	3.889	3.889	3.889
Inside Corner Wall Area (ft^2)	3.014	2.807	2.646

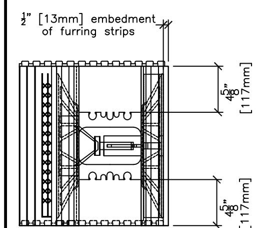
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
3. 6¼" [159mm] LOGIX Form shown.
4. Corner web not available with 4" 45deg Corner Forms.

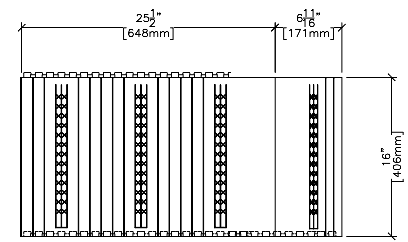
5.1.1.8 - RIGHT HAND 45° FORM



PLAN VIEW



ELEVATION B-B



ELEVATION A-A

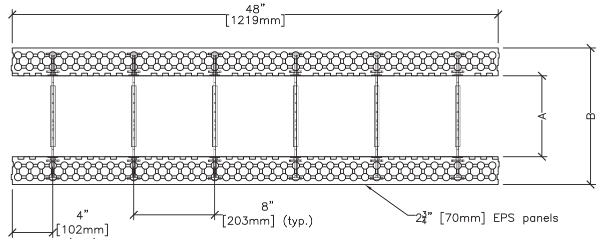
For clarity knobs partially removed in evelvation views.

	FORM SIZES, in (mm)		
	4 (102)	6.25 (159)	8 (203)
Dimension A, in (mm)	4 (102)	6.25 (159)	8 (203)
Dimension B, in (mm)	9.5 (241)	11.75 (298)	13.5 (343)
Conc. Vol. (y^3)	0.043	0.065	0.081
Conc. Vol. (ft^3)	1.151	1.744	2.178
Conc. Vol. (m^3)	0.033	0.049	0.062
Outside Corner Wall Area (ft^2)	3.889	3.889	3.889
Inside Corner Wall Area (ft^2)	3.014	2.807	2.646

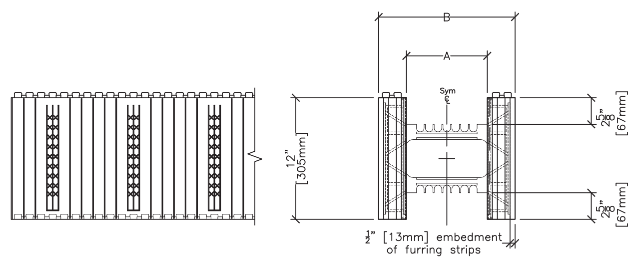
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD Product drawings).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
3. 6¼" [159mm] LOGIX Form shown.
4. Corner web not available with 4" 45deg Corner Forms.

5.1.1.9 - V12 STANDARD



PLAN VIEW

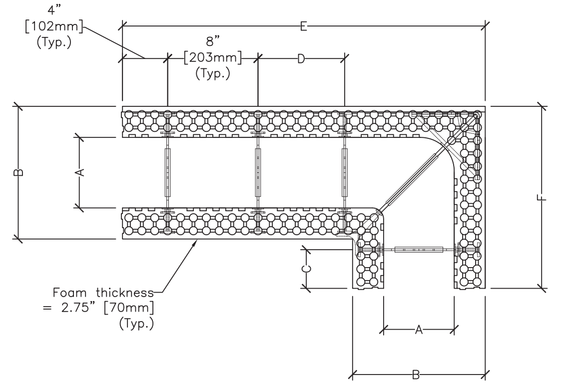


SIDE ELEVATION

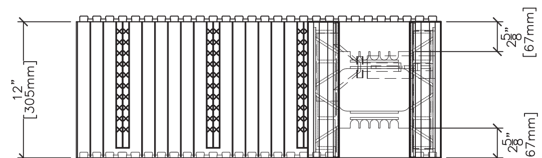
END VIEW

	FORM SIZES, in (mm)	
	6.25 (159)	8 (203)
Dimension A, in (mm)	6.25 (159)	8 (203)
Dimension B, in (mm)	11.75 (298)	13.5 (343)
Conc. Vol. (y^3)	0.103	0.099
Conc. Vol. (ft^3)	2.083	2.667
Conc. Vol. (m^3)	0.059	0.076
Wall Area (sf)	4.000	4.000
R-value	24.4	24.5
RSI	4.30	4.31

5.1.1.10 - V12 LEFT-HAND CORNER

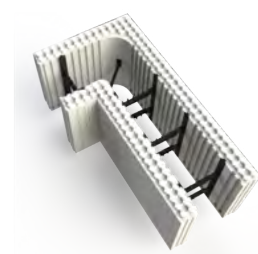


PLAN VIEW



SIDE ELEVATION

½" [13mm] embedment
of furring strips

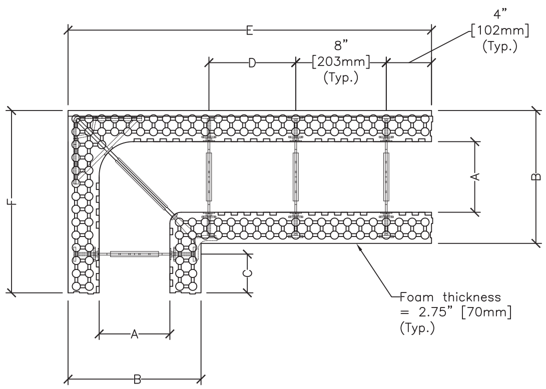


	FORM SIZES, in (mm)	
	6.25 (159)	8 (203)
Dimension A, in (mm)	6.25 (159)	8 (203)
Dimension B, in (mm)	11.75 (298)	13.5 (343)
Dimension C, in (mm)	3.375 (86)	2.25 (57)
Dimension D, in (mm)	7.67 (195)	6.125 (156)
Dimension E, in (mm)	32.125 (816)	32.125 (816)
Dimension F, in (mm)	16.125 (410)	16.125 (410)
Conc. Vol. (y^3)	0.058	0.071
Conc. Vol. (ft^3)	1.572	1.919
Conc. Vol. (m^3)	0.045	0.054
Outside Corner Wall Area (ft^2)	4.021	4.021
Inside Corner Wall Area (ft^2)	2.063	1.771

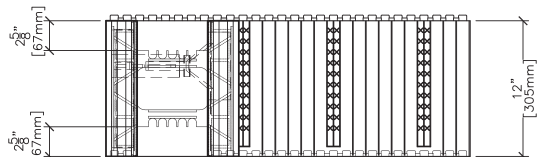
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.1.2 - KD FORMS (KNOCK-DOWN FORMS)

5.1.1.11 - V12 RIGHT-HAND CORNER

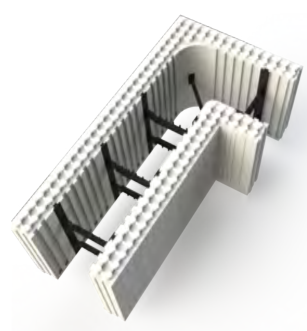


PLAN VIEW

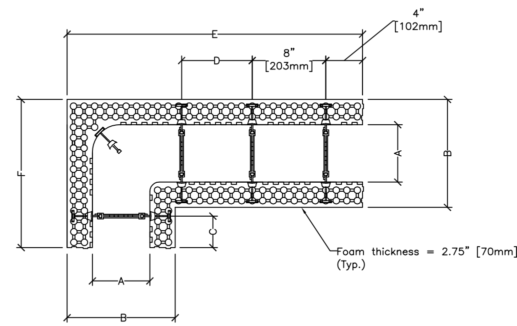


SIDE ELEVATION

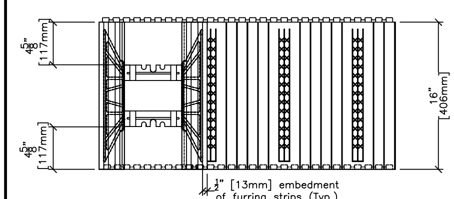
	FORM SIZES, in (mm)	
	6.25 (159)	8 (203)
Dimension A, in (mm)	6.25 (159)	8 (203)
Dimension B, in (mm)	11.75 (298)	13.5 (343)
Dimension C, in (mm)	3.375 (86)	2.25 (57)
Dimension D, in (mm)	7.67 (195)	6.125 (156)
Dimension E, in (mm)	32.125 (816)	32.125 (816)
Dimension F, in (mm)	16.125 (410)	16.125 (410)
Conc. Vol. (y^3)	0.058	0.071
Conc. Vol. (ft^3)	1.572	1.919
Conc. Vol. (m^3)	0.045	0.054
Outside Corner Wall Area (ft^2)	4.021	4.021
Inside Corner Wall Area (ft^2)	2.063	1.771



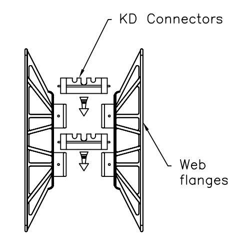
5.1.2.1 - LOGIX KD RIGHT-HAND CORNER FORMS



PLAN VIEW



SIDE ELEVATION



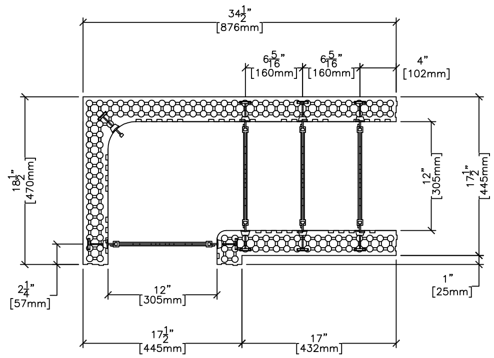
WEB COMPONENTS
(NTS)

	FORM SIZES, in (mm)			
	4 (102)	6.25 (159)	8 (203)	10 (254)
Dimension A, in (mm)	N/A	6.25 (159)	8 (203)	10 (254)
Dimension B, in (mm)	N/A	11.75 (298)	13.5 (343)	15.5 (394)
Dimension C, in (mm)	N/A	3.375 (86)	2.25 (57)	2.125 (54)
Dimension D, in (mm)	N/A	7.67 (195)	6.125 (156)	5.875 (149)
Dimension E, in (mm)	N/A	32.125 (816)	32.125 (816)	34.5 (876)
Dimension F, in (mm)	N/A	16.125 (410)	16.125 (410)	18.5 (470)
Conc. Vol. (y^3)	N/A	0.078	0.095	0.128
Conc. Vol. (ft^3)	N/A	2.096	2.558	3.456
Conc. Vol. (m^3)	N/A	0.059	0.072	0.098
Outside Corner Wall Area (ft^2)	N/A	5.361	5.361	5.889
Inside Corner Wall Area (ft^2)	N/A	2.750	2.361	2.444

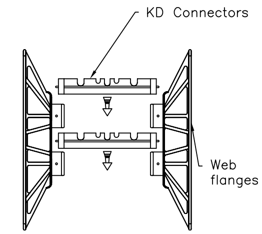
NOTES:

1. Drawings showing rebar slot locations will be available upon request.
2. For 12" Right Hand LOGIX KD Corner Form see next page.
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6 1/4" [159mm] LOGIX Corner Form shown.

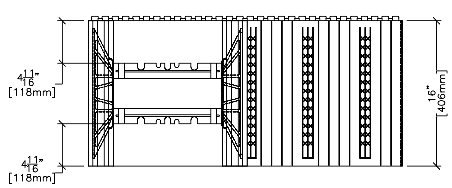
5.1.2.1 - LOGIX KD RIGHT HAND CORNER FORMS CONT'D



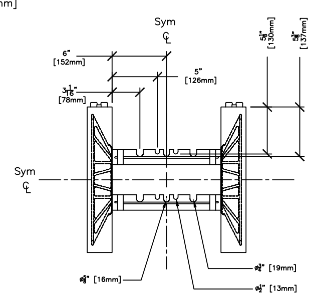
PLAN VIEW



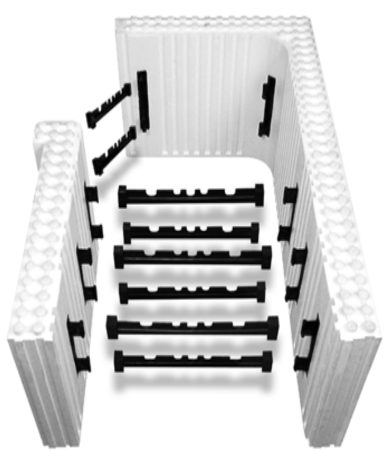
WEB COMPONENTS
(NTS)



SIDE ELEVATION



REBAR SLOT LOCATIONS

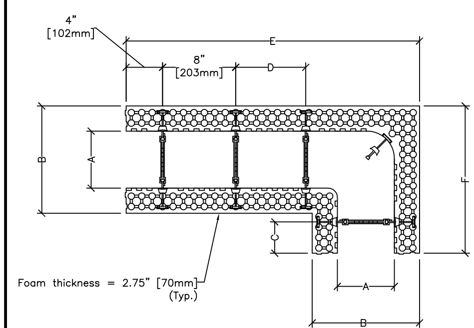


Conc. Vol. (y^3)	0.146
Conc. Vol. (ft^3)	3.929
Conc. Vol. (m^3)	0.111
Outside Corner Wall Area (ft^2)	5.889
Inside Corner Wall Area (ft^2)	2.000

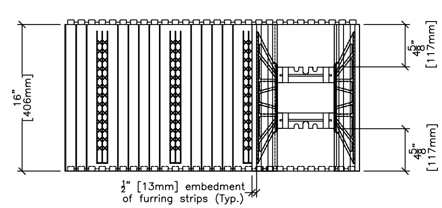
NOTES:

1. Drawings showing rebar slot locations will be available upon request.
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).

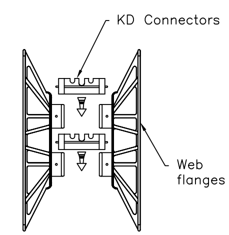
5.1.2.2 - LOGIX KD LEFT HAND CORNER FORMS



PLAN VIEW



SIDE ELEVATION

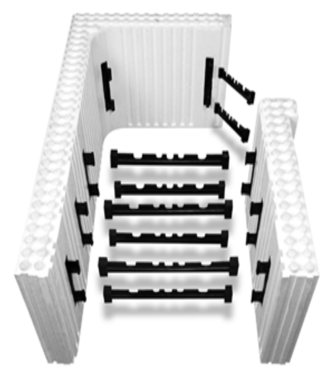


WEB COMPONENTS
(NTS)

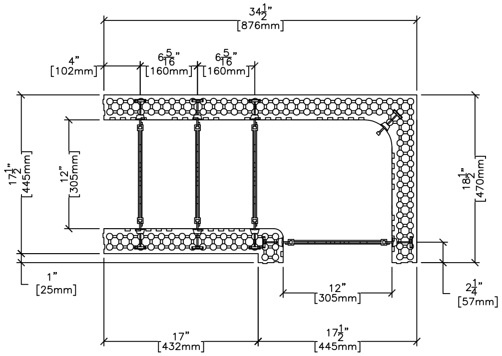
	FORM SIZES, in (mm)			
	4 (102)	6.25 (159)	8 (203)	10 (254)
Dimension A, in (mm)	N/A	6.25 (159)	8 (203)	10 (254)
Dimension B, in (mm)	N/A	11.75 (298)	13.5 (343)	15.5 (394)
Dimension C, in (mm)	N/A	3.375 (86)	2.25 (57)	2.125 (54)
Dimension D, in (mm)	N/A	7.67 (195)	6.125 (156)	5.875 (149)
Dimension E, in (mm)	N/A	32.125 (816)	32.125 (816)	34.5 (876)
Dimension F, in (mm)	N/A	16.125 (410)	16.125 (410)	18.5 (470)
Conc. Vol. (y^3)	N/A	0.078	0.095	0.128
Conc. Vol. (ft^3)	N/A	2.096	2.558	3.456
Conc. Vol. (m^3)	N/A	0.059	0.072	0.098
Outside Corner Wall Area (ft^2)	N/A	5.361	5.361	5.889
Inside Corner Wall Area (ft^2)	N/A	2.750	2.361	2.444

NOTES:

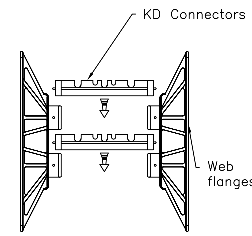
1. Drawings showing rebar slot locations will be available upon request.
2. For 12" Right Hand LOGIX KD Corner Form see next page.
3. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
4. 6 1/4" [159mm] LOGIX Corner Form shown.



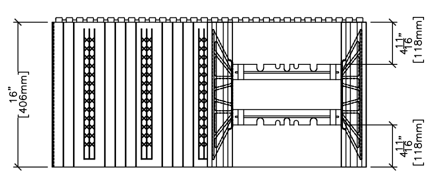
5.1.2.2 - LOGIX KD LEFT HAND CORNER FORMS CONTINUED



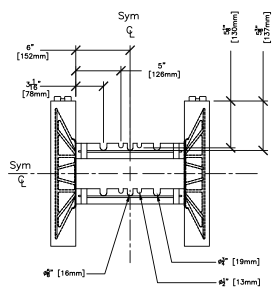
PLAN VIEW



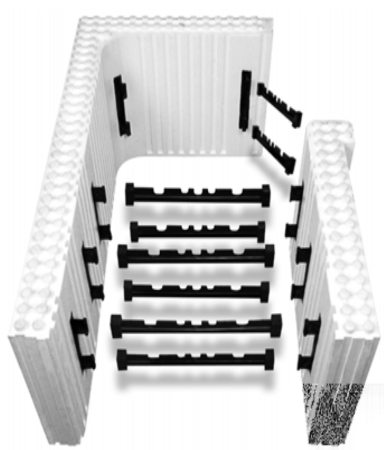
WEB COMPONENTS (NTS)



SIDE ELEVATION



REBAR SLOT LOCATIONS



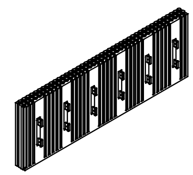
Conc. Vol. (y^3)	0.146
Conc. Vol. (ft^3)	3.929
Conc. Vol. (m^3)	0.111
Outside Corner Wall Area (ft^2)	5.889
Inside Corner Wall Area (ft^2)	2.000

NOTES:

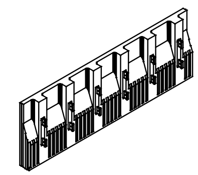
1. Drawings showing rebar slot locations will be available upon request.
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).

5.1.2.3 - LOGIX KD FORM COMBINATIONS

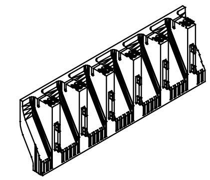
LOGIX KNOCK DOWN PANELS



Standard

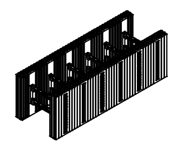


Taper Top

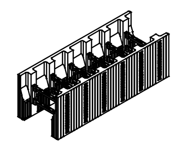


Brick Ledge

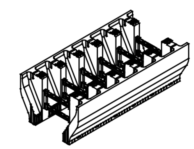
LOGIX KNOCK DOWN FORM COMBINATIONS



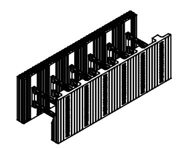
Standard–Standard



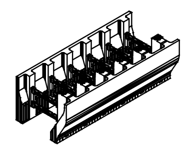
Taper Top–Taper Top



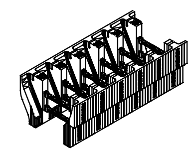
Brick Ledge–Brick Ledge



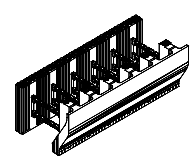
Standard–Taper Top



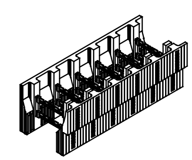
Taper Top–Brick Ledge



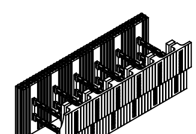
Brick Ledge–Transition Block



Standard–Brick Ledge

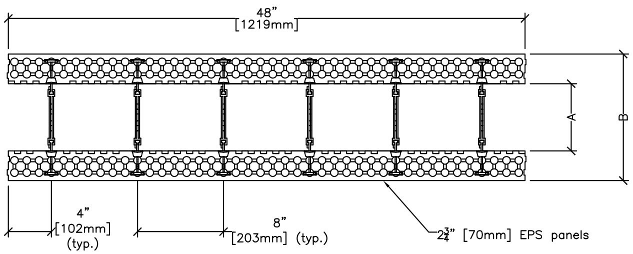


Taper Top–Transition Block

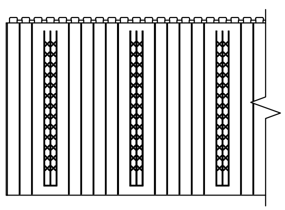


Standard–Transition Block

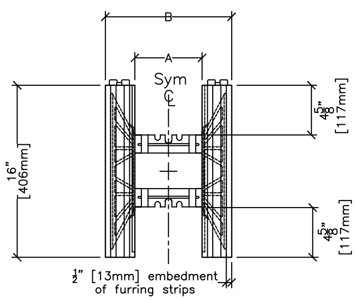
5.1.2.4 - LOGIX KD STANDARD FORM



PLAN VIEW



SIDE ELEVATION



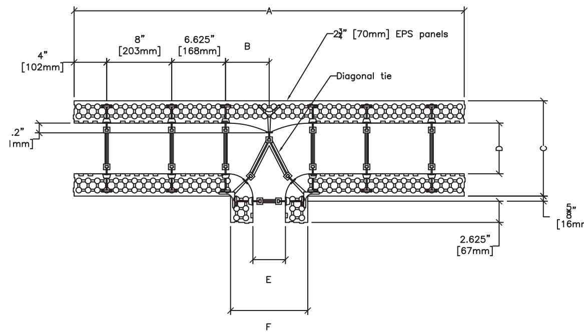
END VIEW

	FORM SIZES, in (mm)			
	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension A, in (mm)	6.25 (159)	8 (203)	10 (254)	12 (305)
Dimension B, in (mm)	11.75 (298)	13.5 (343)	15.5 (394)	17.5 (445)
Conc. Vol. (y^3)	0.103	0.132	0.165	0.198
Conc. Vol. (ft^3)	2.778	3.556	4.444	5.333
Conc. Vol. (m^3)	0.079	0.101	0.126	0.151

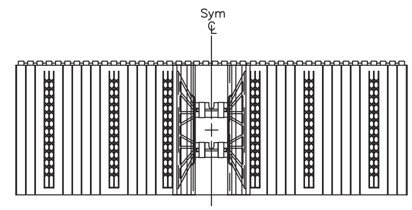
NOTES:

1. Wall area per block or panel = 5.333 ft^2
2. Drawings showing rebar slot locations will be available upon request.
3. For 12" Right Hand LOGIX KD Corner Form see Pg 3/4 or 4/4.
4. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See Logix Xtender Product drawing).
5. 6 1/4" [159mm] LOGIX Form shown.

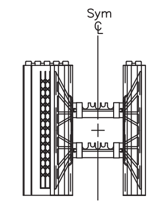
5.1.2.5 - LOGIX T-WALL



LONG T-WALL
PLAN VIEW



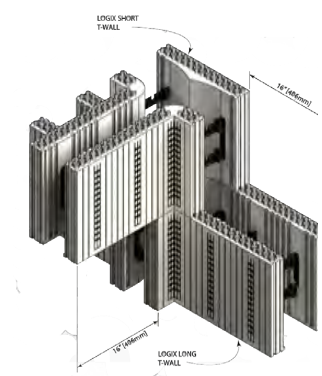
LONG T-WALL
SIDE ELEVATION



LONG T-WALL
END VIEW

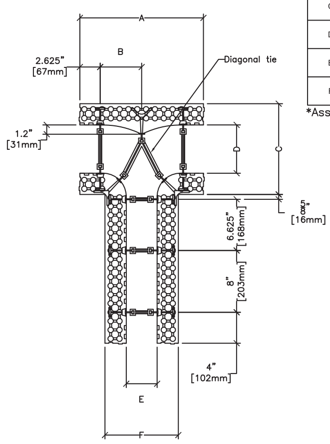
	T-WALL SIZES							
	6¼" to 4" (159mm to 102mm)	6¼" to 6¼" (159mm to 159mm)	8" to 4" (203mm to 102mm)	8" to 6¼" (203mm to 159mm)	10" to 4" (254mm to 102mm)*	10" to 6¼" (254mm to 159mm)*	12" to 4" (305mm to 102mm)*	12" to 6¼" (305mm to 159mm)*
A	48" (1219mm)	50.25" (1276mm)	48" (1219mm)	50.25" (1276mm)	48" (1219mm)	50.25" (1276mm)	48" (1219mm)	50.25" (1276mm)
B	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)
C	11.75" (298mm)	11.75" (298mm)	13.5" (343mm)	13.5" (343mm)	15.5" (394mm)	15.5" (394mm)	17.5" (445mm)	17.5" (445mm)
D	6.25" (159mm)	6.25" (159mm)	8" (203mm)	8" (203mm)	10" (254mm)	10" (254mm)	12" (305mm)	12" (305mm)
E	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)
F	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)

*Assembled without diagonal tie



C A D D R A W I N G S - K D F O R M S

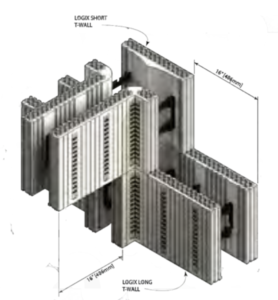
5.1.2.5 - LOGIX T-WALL CONTINUED

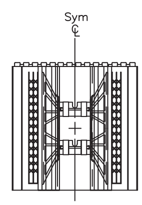


SHORT T-WALL
PLAN VIEW

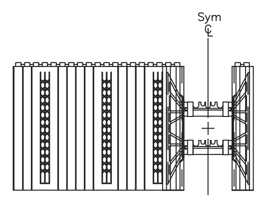
	T-WALL SIZES							
	6¼" to 4" (159mm to 102mm)	6¼" to 6¼" (159mm to 159mm)	8" to 4" (203mm to 102mm)	8" to 6¼" (203mm to 159mm)	10" to 4" (254mm to 102mm)*	10" to 6¼" (254mm to 159mm)*	12" to 4" (305mm to 102mm)*	12" to 6¼" (305mm to 159mm)*
A	16" (406mm)	18.25" (464mm)	16" (406mm)	18.25" (464mm)	16" (406mm)	18.25" (464mm)	16" (406mm)	18.25" (464mm)
B	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)	5.375" (137mm)	6.5" (165mm)
C	11.75" (298mm)	11.75" (298mm)	13.5" (343mm)	13.5" (343mm)	15.5" (394mm)	15.5" (394mm)	17.5" (445mm)	17.5" (445mm)
D	6.25" (159mm)	6.25" (159mm)	8" (203mm)	8" (203mm)	10" (254mm)	10" (254mm)	12" (305mm)	12" (305mm)
E	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)	4" (102mm)	6.25" (159mm)
F	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)	9.5" (241mm)	11.75" (298mm)

*Assembled without diagonal tie



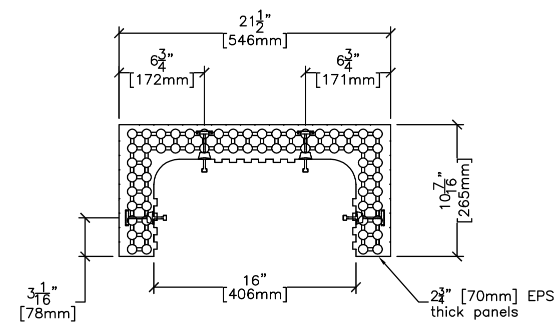


LONG T-WALL
SIDE ELEVATION

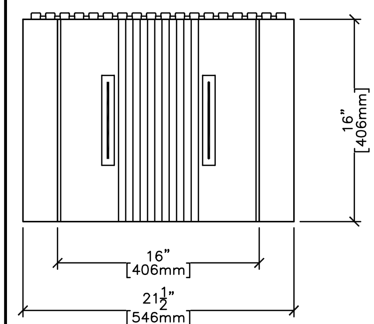


LONG T-WALL
END VIEW

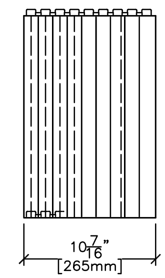
5.1.3.1.1 - PILASTER FORM



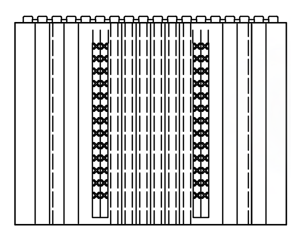
TOP VIEW



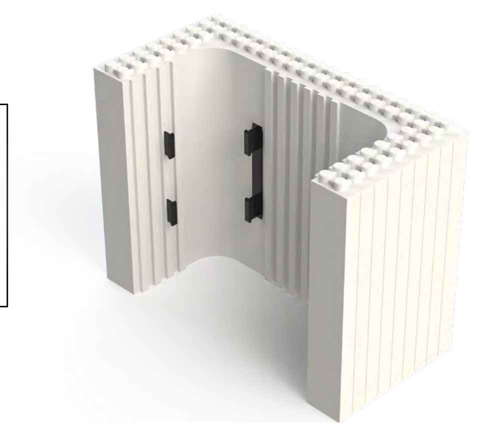
FRONT ELEVATION



RIGHT
(LEFT SIDE SIMILAR)

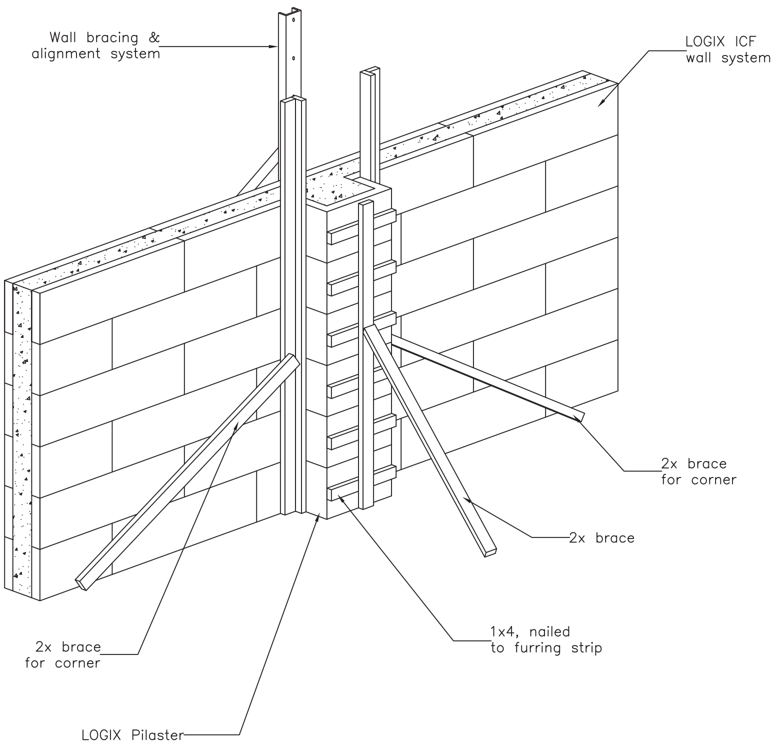


REAR ELEVATION

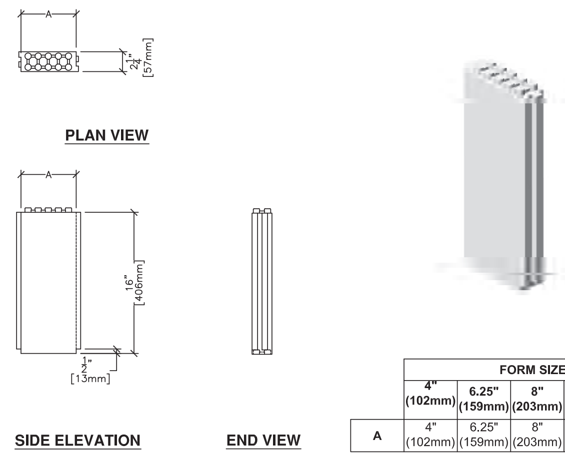


The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

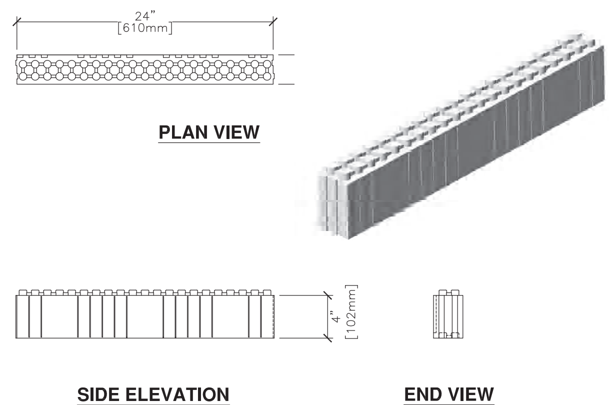
5.1.3.1.2 - PILASTER FORM SUPPORT & BRACING EXAMPLE



5.1.3.1.3 - END CAP & 4" HEIGHT ADJUSTER



	FORM SIZES				
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**	**12" (305mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)



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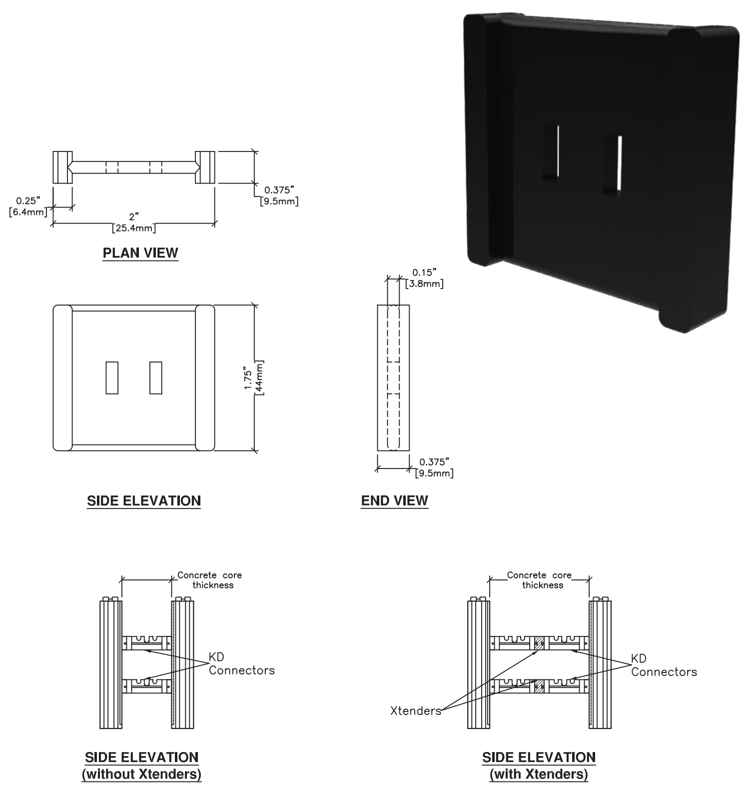
5.1.3.1.4 - LOGIX XTENDER



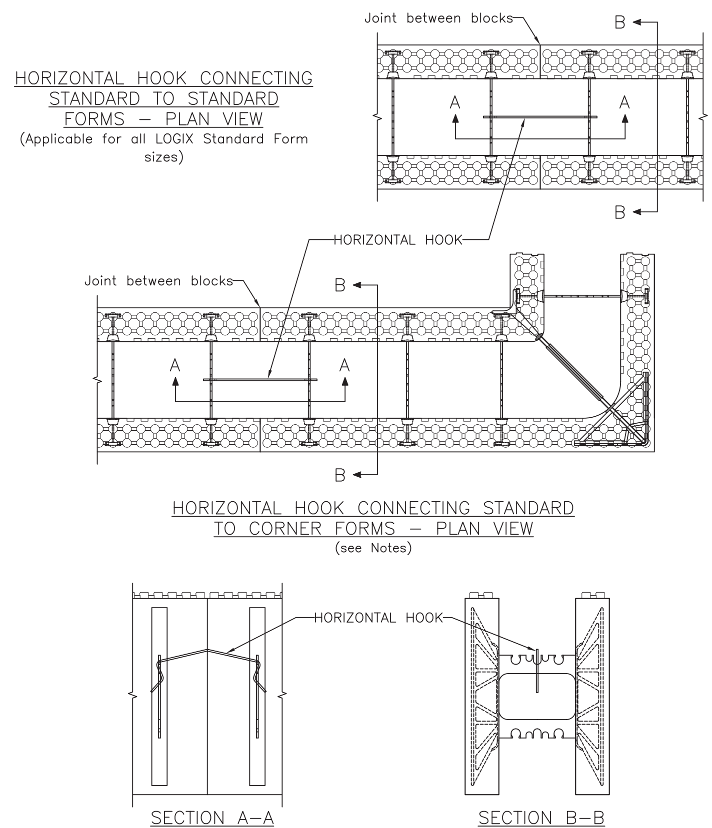
CONCRETE CORE THICKNESS

		KD Connector Size			
		6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
KD Connector Size	4" (102mm)	10.25" (260mm)	12" (305mm)	14" (356mm)	16" (406mm)
	6.25" (159mm)	12.5" (318mm)	14.25" (362mm)	16.25" (413mm)	18.25" (464mm)
	8" (203mm)	14.25" (362mm)	16" (406mm)	18" (457mm)	20" (508mm)
	10" (254mm)	16.25" (413mm)	18" (457mm)	20" (508mm)	22" (559mm)
	12" (305mm)E	18.25" (464mm)	20" (508mm)	22" (559mm)	24" (610mm)

NOTES:

1. Table lists concrete core thickness using two KD Connectors with one Xtender.

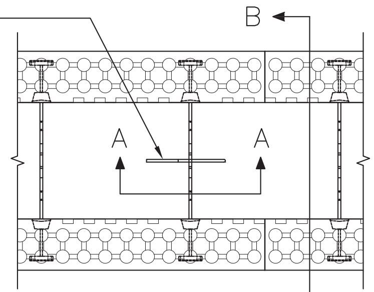
5.1.3.1.5 - LOGIX HORIZONTAL & VERTICAL STEEL HOOKS



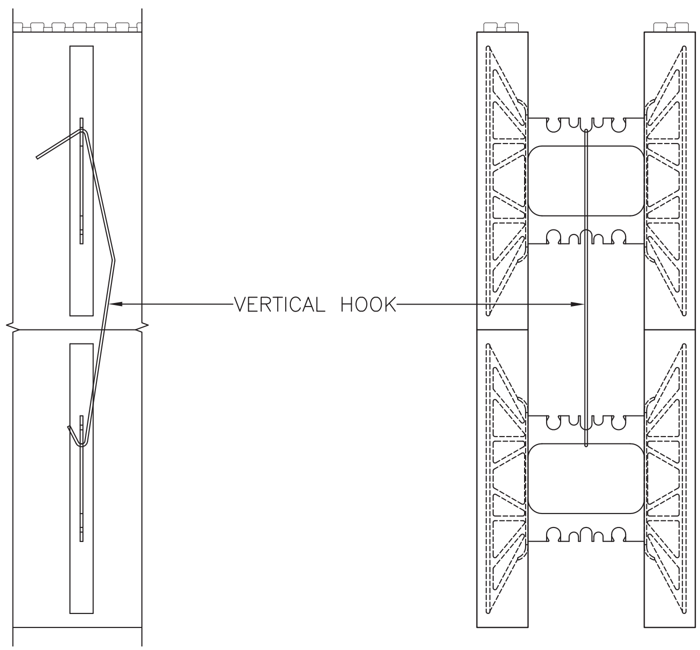
NOTES:

1. Applicable for connecting 4" or 6.25" LOGIX Standard Forms to 4" or 6.25" LOGIX Corner Forms.
2. Use traditional zip ties when connecting the shorter legs of the 8", 10" or 12" LOGIX Corner Forms to LOGIX Standard Forms.
3. When connecting the shorter leg of the 4" LOGIX Corner Form be sure to connect the Horizontal Hook at the web's center rebar slot.

5.1.3.1.6 - LOGIX HORIZONTAL & VERTICAL STEEL HOOKS CONTINUED



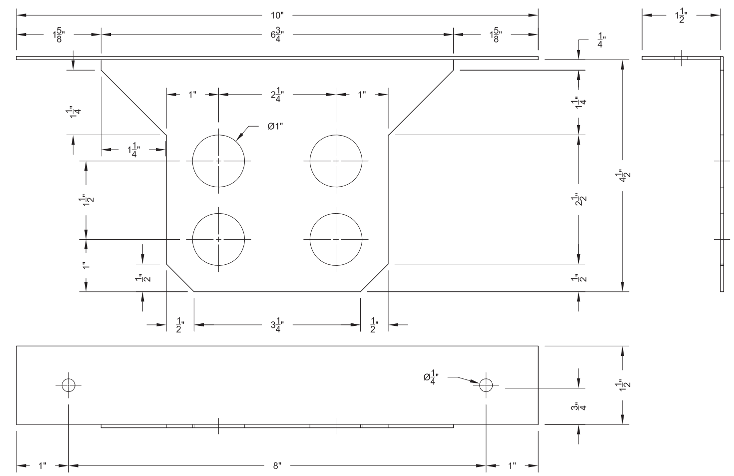
VERTICAL HOOK CONNECTING COURSES – PLAN VIEW



SECTION A–A

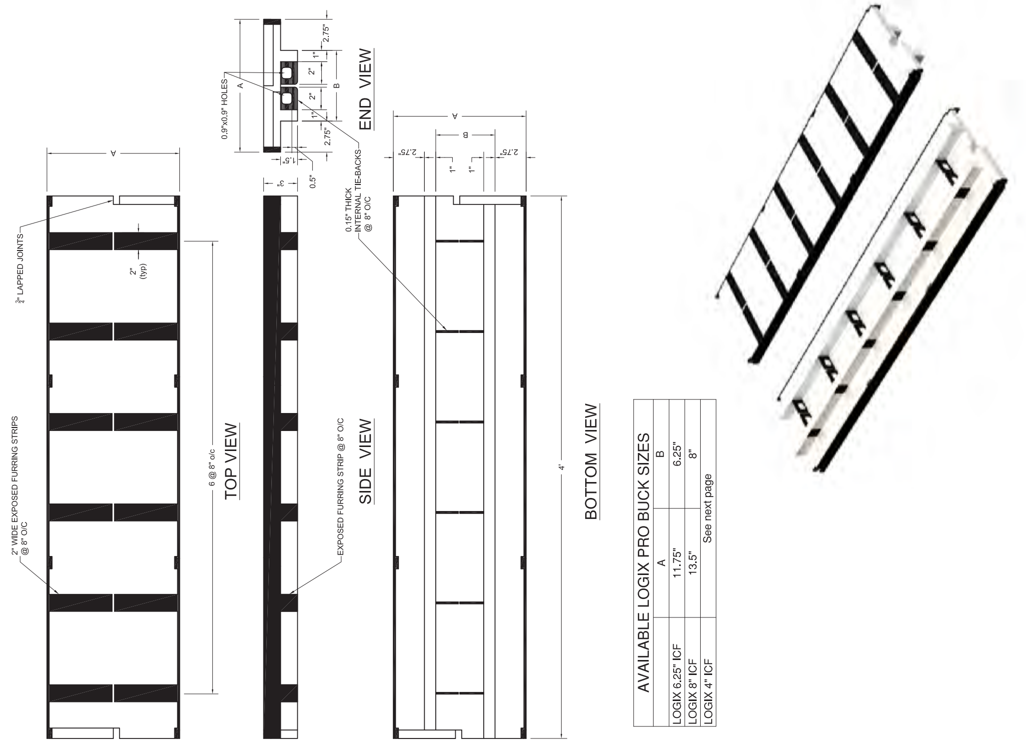
SECTION B–B

5.1.3.1.7 - WALL INSERT PLATE



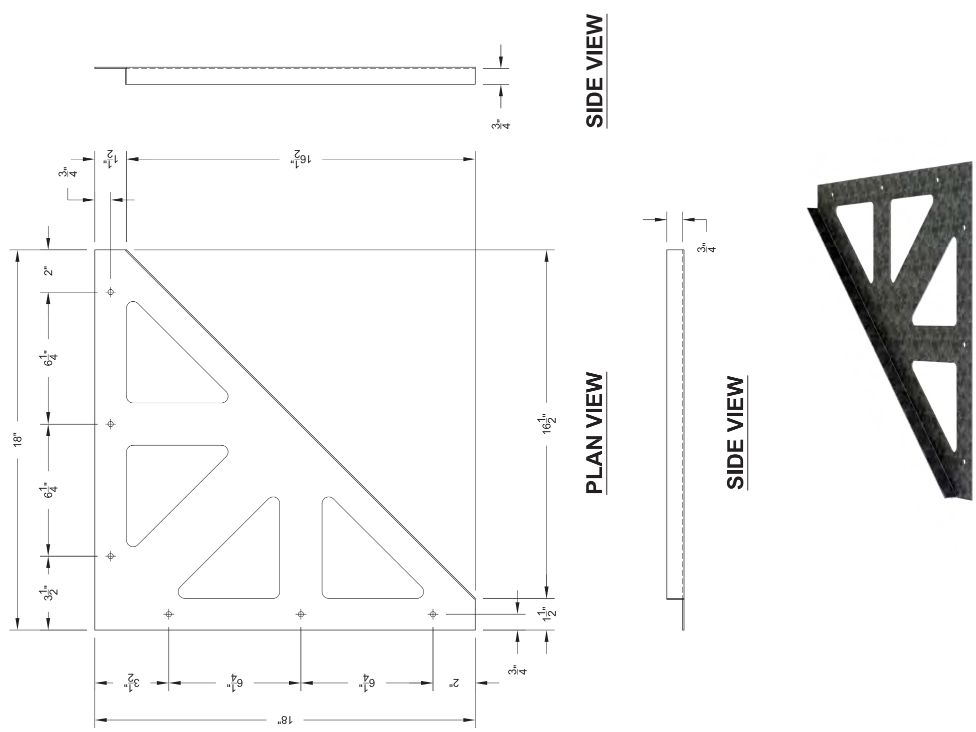
5.1.3.2 - PRO BUCK

5.1.3.2.1 - LOGIX PRO BUCK 6" & 8"



AVAILABLE LOGIX PRO BUCK SIZES		
	A	B
LOGIX 6.25" ICF	11.75"	6.25"
LOGIX 8" ICF	13.5"	8"
LOGIX 4" ICF	See next page	

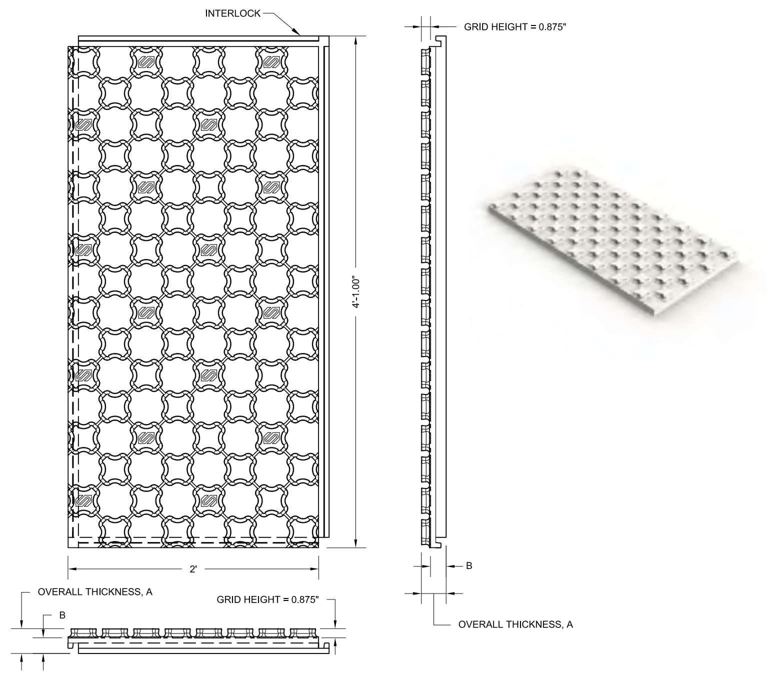
5.1.3.1.8 - BUCK BRACE



The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.1.3.3 - HEAT-SHEET

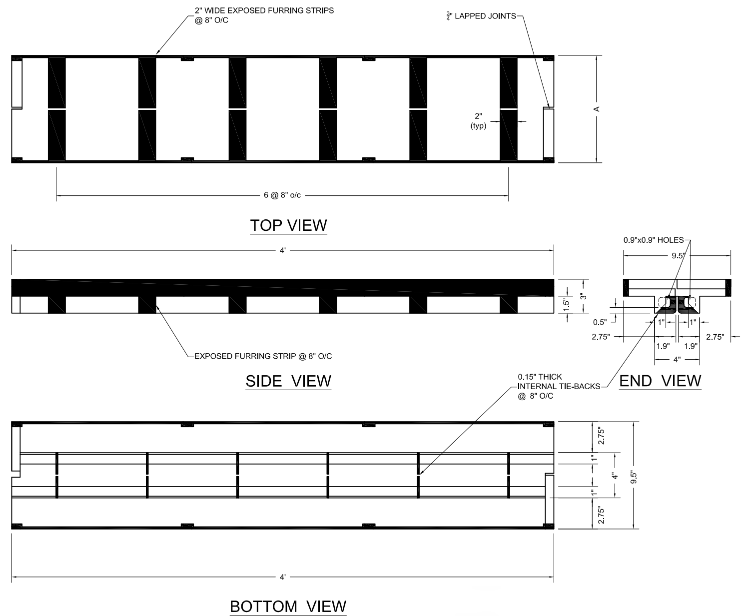
5.1.3.3.1 - HEAT-SHEET RADIANT FLOOR INSULATION



HEAT-SHEET SIZES					
PRODUCT	NOMINAL PANEL THICKNESS, B	OVERALL THICKNESS, A	AVG R-VALUE[1]	PANELS/ BUNDLE[6]	SQFT/ BUNDLE
HS-R4[2]	½"	1⅜"	4	20	160
HS-R6[2]	1"	1⅞"	6	14	112
HS-R8[2]	1 ½"	2⅜"	8	8	64
HS-R10[3,4]	2"	2⅞"	10	8	64
HS-R12[3,4]	2 ½"	3⅜"	12	6	48
HS-14[3,4]	3"	3⅞"	14	6	48
HS-R16.1[3,4,6]	3"	3⅞"	16.1	6	48
HS-R20[3,4]	4 ⅜"	5 ¼"	20	6	48

1. In accordance with ASTM C578, and CAN/ULC S701, at 75°F (24°C). R-value is determined based on weighted average R-value of nodule and panel profile.
2. These panels do not interlock. HS-R4 and HS-R6 are designed to be applied only over flat surfaces such as concrete slabs and wood subfloors.
3. Additional vapor barrier may not be required when using Type 3 EPS, per CAN/ULC S701, and the National Building Code of Canada.
4. Additional vapor retarder may not be required when using Type IX or XIV EPS, per ASTM C578, and the International Residential Code. Confirm with your local building official prior to use. Visit. Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.
5. Panels per bundle may vary. Contact your local Heat-Sheet representative to confirm.
6. Made with Graphite Polystyrene (GPS) to provide an incremental R-2.1.
7. Custom orders may be available upon request. Confirm availability of all Heat-Sheet products with your local supplier.
8. Visit Heat-Sheet.com for more information.

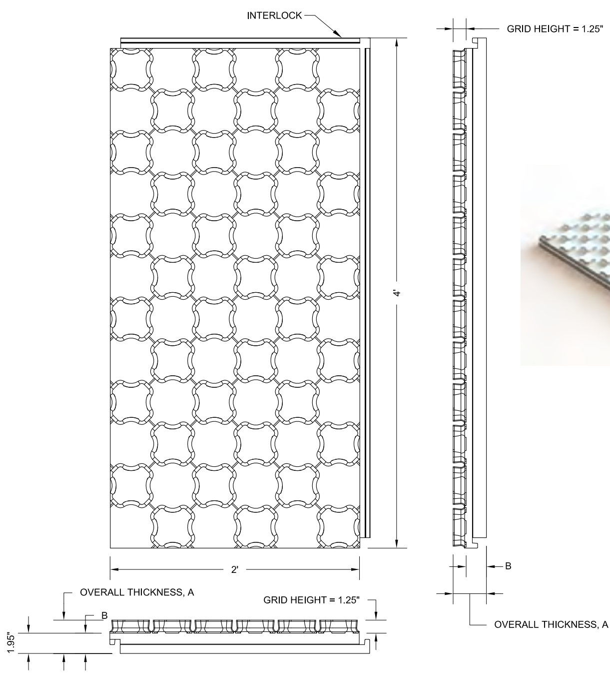
5.1.3.2.2 - LOGIX PRO BUCK 4"



NOTES:
1. Pro Buck is available in sizes designed for 4", 6.25" and 8" Logix. See previous page for Pro Buck product drawings for 6.25" and 8" Logix.

The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

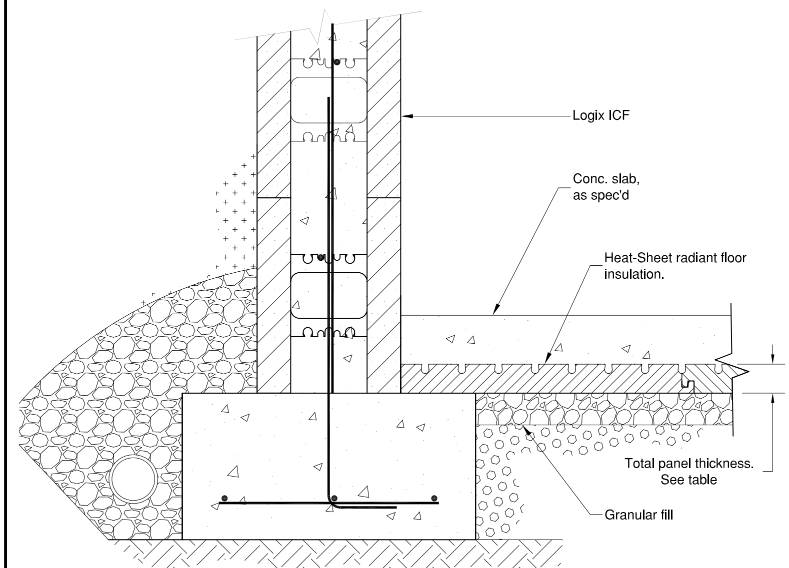
5.1.3.3.2 - HEAT-SHEET HEAVY RADIANT FLOOR INSULATION



HEAT-SHEET SIZES					
PRODUCT	NOMINAL PANEL THICKNESS, B	OVERALL THICKNESS, A	AVG R-VALUE[1]	PANELS/ BUNDLE[4]	SQFT/ BUNDLE
HSH-R8	1 1/2"	2 3/4"	4	10	80
HSH-R10[3]	2"	3 1/4"	10	8	64
HSH-R12[3]	2 3/8"	3 5/8"	12	6	48
HSH-R14[3]	2 7/8"	4 1/8"	14	6	48
HSH-R16.1[3,5]	2 7/8"	4 1/8"	16	6	48

1. In accordance with ASTM C578, and CAN/ULC S701, at 75°F (24°C). R-value is determined based on weighted average R-value of nodule and panel profile.
2. Additional vapor barrier may not be required when using Type 3 EPS, per CAN/ULC S701, and the National Building Code of Canada.
3. Additional vapor retarder may not be required when using Type IX or XIV EPS, per ASTM C578, and the International Residential Code. Confirm with your local building official prior to use. Visit. Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.
4. Panels per bundle may vary. Contact your local Heat-Sheet representative to confirm.
5. Made with Graphite Polystyrene (GPS) to provide an incremental R-2.1.
6. Custom orders may be available upon request. Confirm availability of all Heat-Sheet products with your local supplier.
7. Visit Heat-Sheet.com for more information.

5.1.3.3.3 - HEAT-SHEET UNDER SLAB APPLICATION

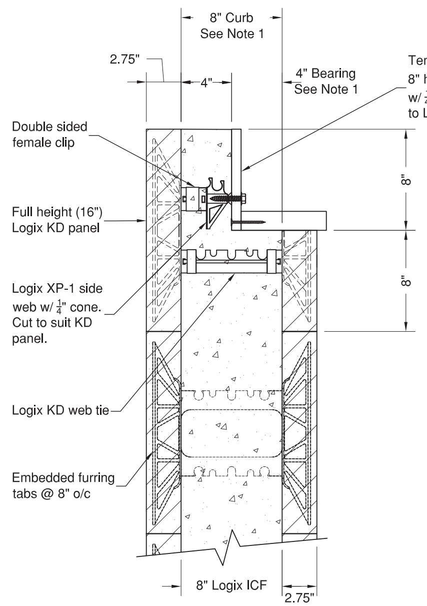


HEAT-SHEET SIZES		
PRODUCT	TTL PANEL THICKNESS	AVG R-VALUE
HS-R4[1]	1⅜"	4
HS-R6[1,4]	1⅞"	6
HS-R8	2⅜"	8
HS-R10[2.4]	2⅞"	10
HS-R12[2,3,4]	3⅜"	12
HS-14[2.3]	3⅞"	14
HSH-R10[2]	3.2"	10

1. These panels do not interlock.
2. Additional vapor barrier not required when using Type 3 EPS, per CAN/ULC S701.
3. Additional vapor barrier not required when using Type IX EPS.
4. Visit Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.

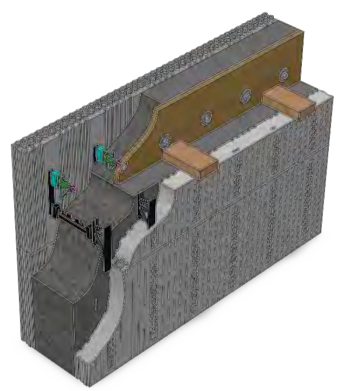
5.1.3.4 - XP-1 CURB BLOCKS

5.1.3.4.1 - XP-1 CURB BLOCK



WALL CHART

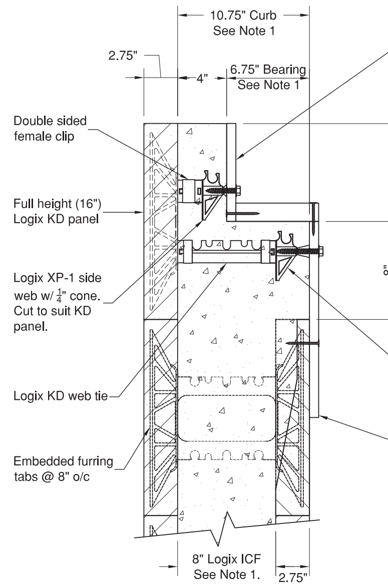
ICF Form Size, in	Resulting Curb Thicknes s, in	Resulting Bearing Length, in	KD Web Tie Required , in
4	n/a	n/a	n/a
6.25	6.25	2.25	6.25
8	8	4	8
10	10	6	10
12	12	8	12



NOTES:

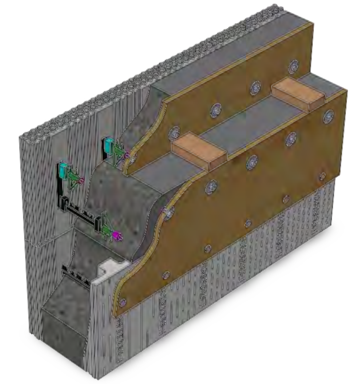
1. Dimensions shown are for 8" Logix ICF (8" concrete curb thickness), which provides a 4" bearing length. However, bearing length will vary depending on ICF wall sizes. Refer to Wall Chart table for available sizes, and corresponding dimensions.
2. For more information refer to the Logix XP-1 Installation Guide.

5.1.3.4.2 - XP-1 CURB BLOCK WITH CORBEL LEDGE



WALL CHART

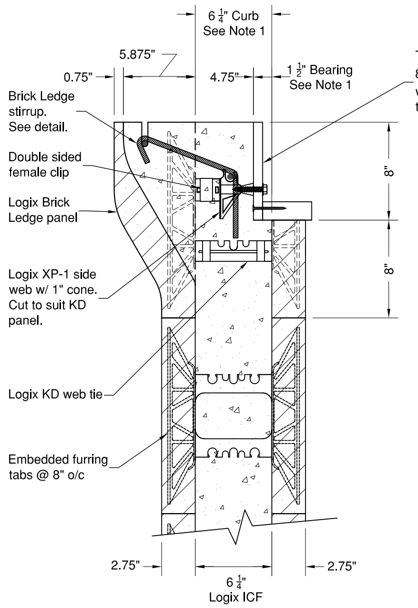
ICF Form Size, in	Resulting Curb Thickness, in	Resulting Bearing Length, in	KD Web Tie Required , in
4	n/a	n/a	n/a
6.25	9	5	6.25
8	10.75	6.75	8
10	12.75	8.75	10
12	14.75	10.75	12



NOTES:

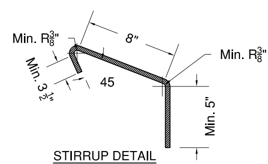
1. Dimensions shown are for 8" Logix ICF with 10.75" concrete curb thickness, which proivdes a 6.75" bearing length. However, these dimensions vary depending on ICF wall sizes. Refer to Wall Chart table for available sizes, and corresponding dimensions.
2. Depth of corbel edge can be greater than 8" by extending the XP-1 system, as required.
3. For more information refer to the Logix XP-1 Installation Guide.

5.1.3.4.3 - XP-1 CURB BLOCK WITH BRICK LEDGE (1 OF 2)



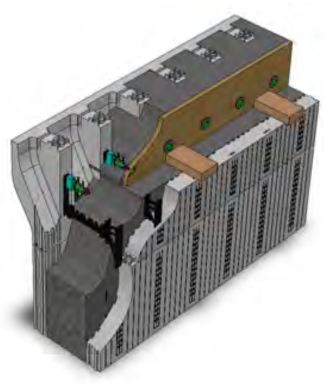
WALL CHART

ICF Form Size, in	Resulting Curb Thicknes s, in	Resulting Bearing Length, in	KD Web Tie Required , in
4	n/a	n/a	n/a
6.25	6.25	4.75	6.25
8	8	6.5	8
10	10	8.5	10
12	12	10.5	12

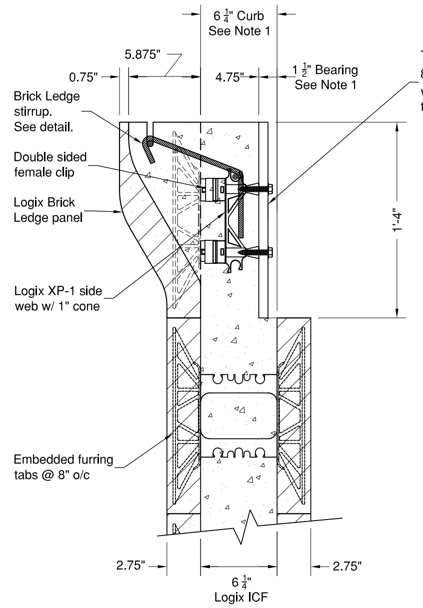


STIRRUP DETAIL

NOTES:
1. Dimensions shown are for 6 1/4" Logix ICF (6 1/4" concrete curb thickness), which provides a 1 1/2" bearing length. However, bearing length will vary depending on ICF wall sizes. Refer to Wall Chart table for available sizes, and corresponding dimensions.
2. For more information refer to the Logix XP-1 Installation Guide.

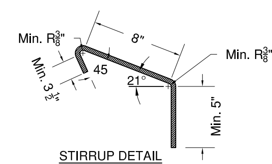


5.1.3.4.4 - XP-1 CURB BLOCK WITH BRICK LEDGE (2 OF 2)



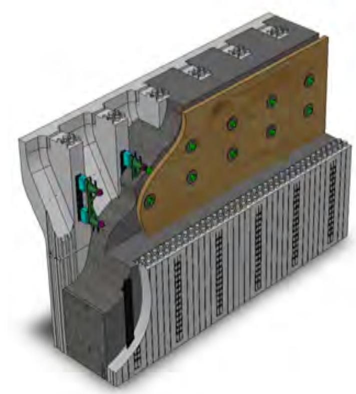
WALL CHART

ICF Form Size, in	Resulting Curb Thicknes s, in	Resulting Bearing Length, in	KD Web Tie Required , in
4	n/a	n/a	n/a
6.25	6.25	1.5	6.25
8	8	3.25	8
10	10	5.25	10
12	12	7.25	12

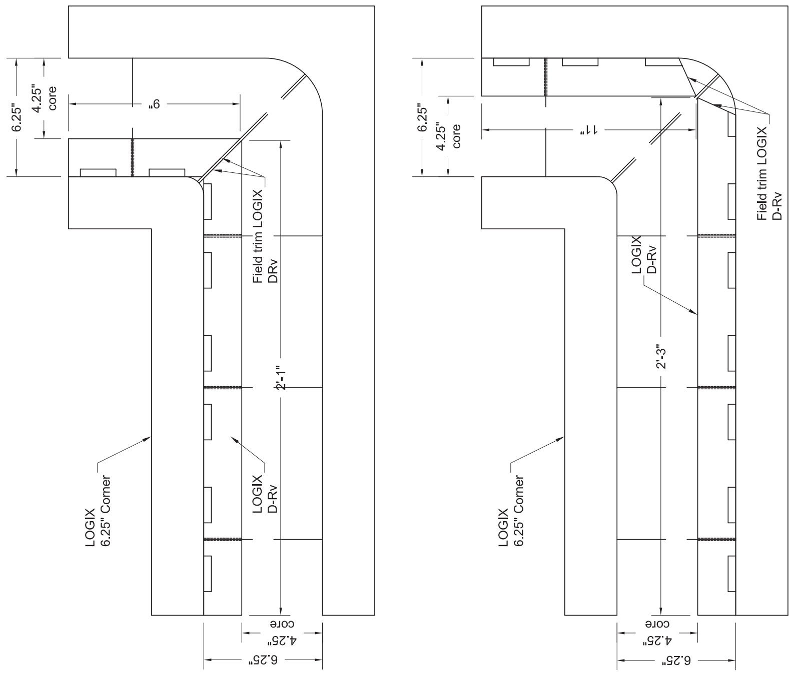


STIRRUP DETAIL

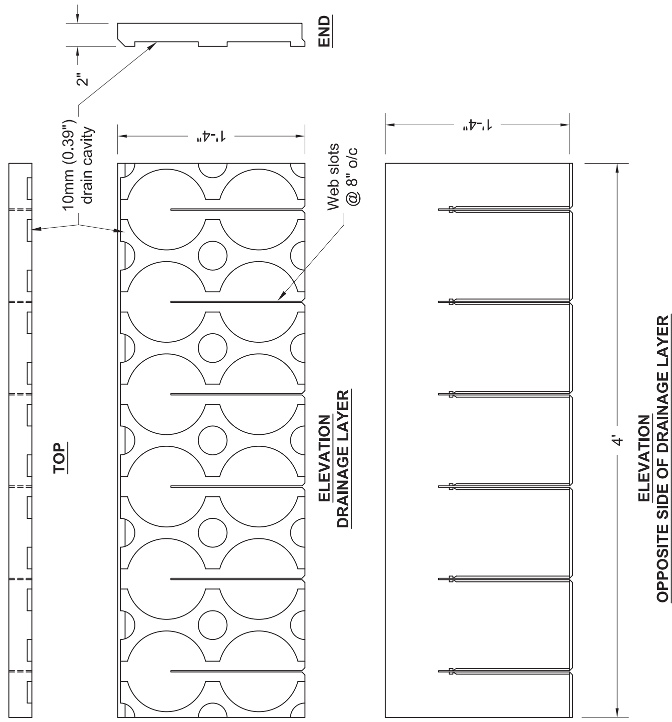
NOTES:
1. Dimensions shown are for 6 1/4" Logix ICF (6 1/4" concrete curb thickness), which provides a 1 1/2" bearing length. However, bearing length will vary depending on ICF wall sizes. Refer to Wall Chart table for available sizes, and corresponding dimensions.
2. For more information refer to the Logix XP-1 Installation Guide.



5.1.3.5.2 - LOGIX D-RV WITH 6.25" LOGIX 90° CORNER FORMS

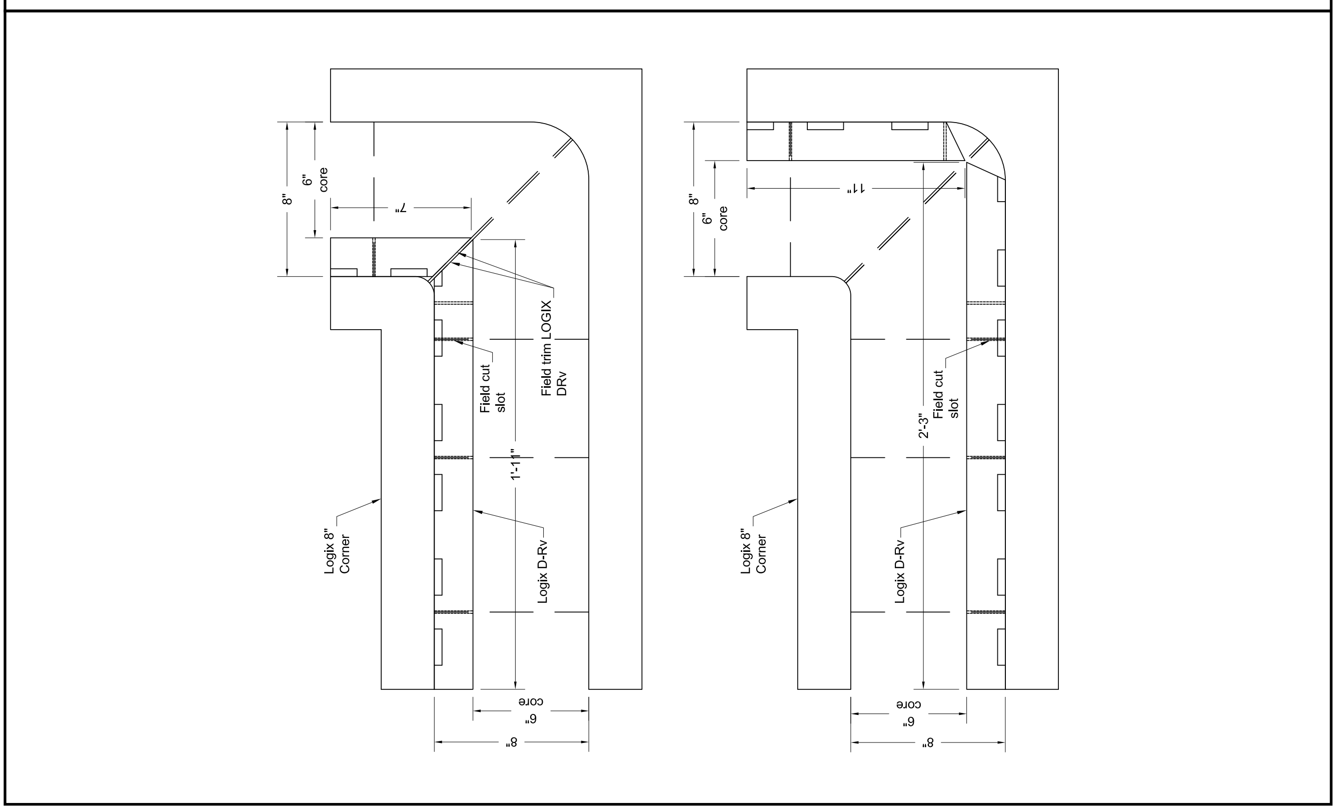


5.1.3.5.1 - LOGIX D-RV

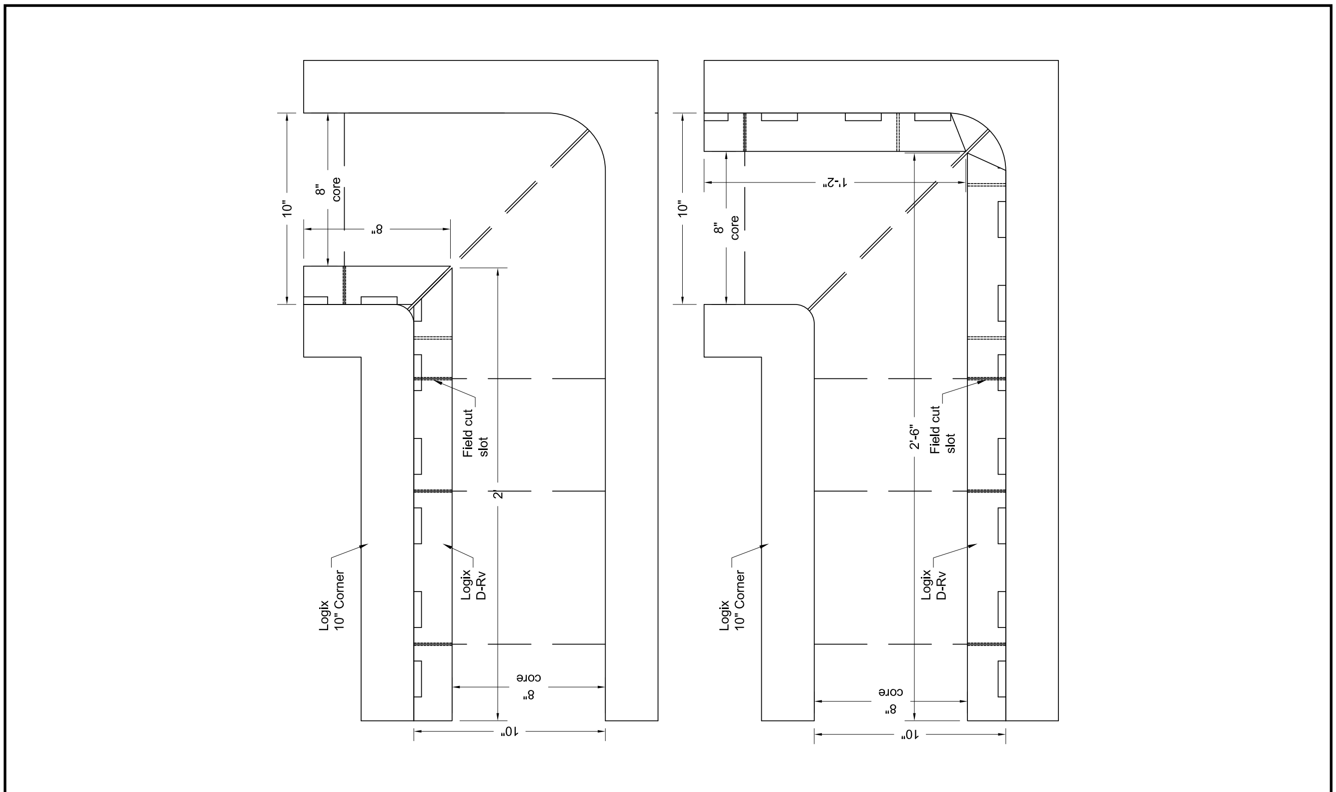


NOTES:
1. Dimensions shown are typical.

5.1.3.5.3 - LOGIX D-RV WITH 8" LOGIX 90° CORNER FORMS

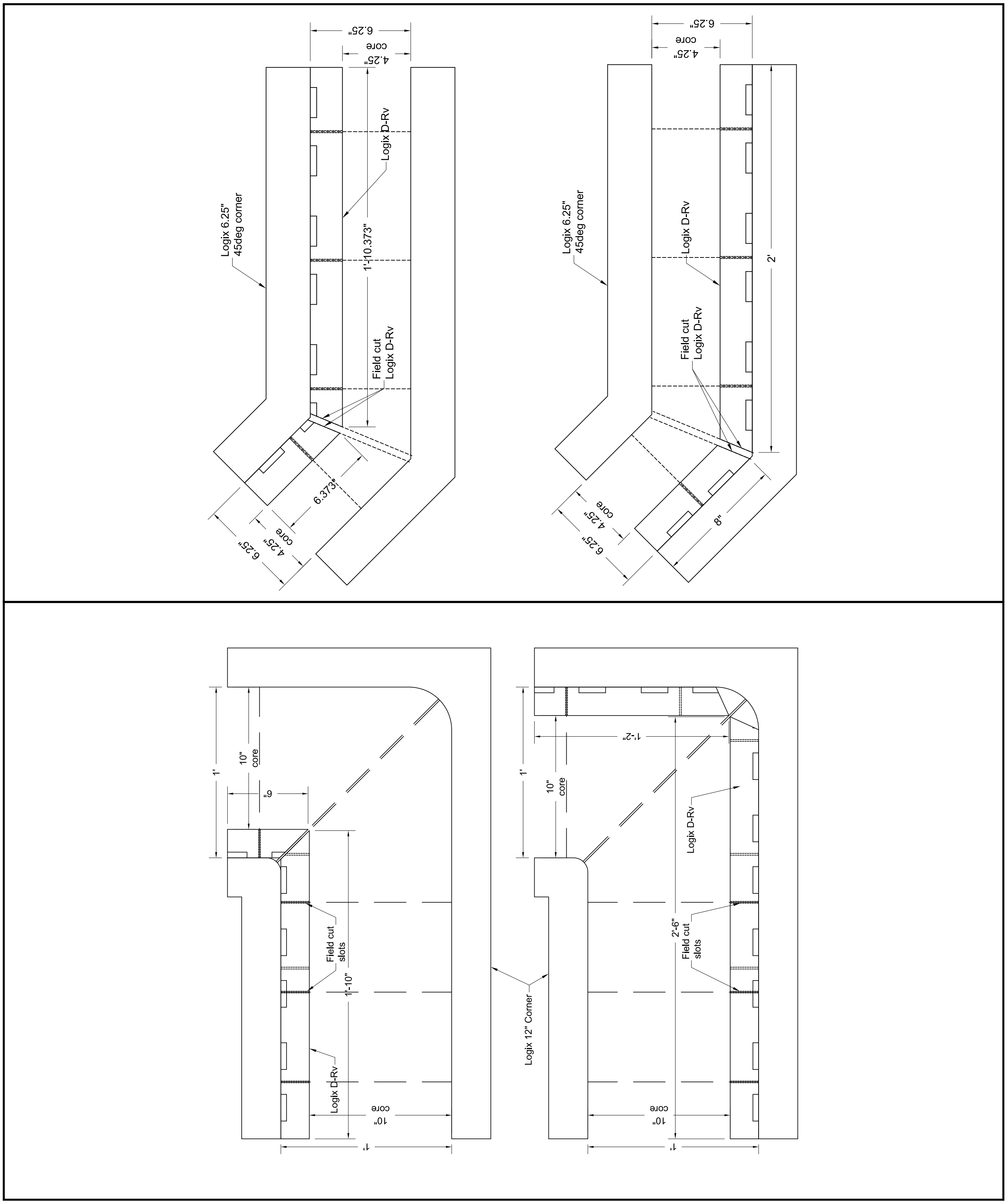


5.1.3.5.4 - LOGIX D-RV WITH 10" LOGIX 90° CORNER FORMS



5.1.3.5.5 - LOGIX D-RV WITH 12" LOGIX 90° CORNER FORMS

5.2.3.5.6 - LOGIX D-RV WITH 6.25" LOGIX 45° CORNER FORMS



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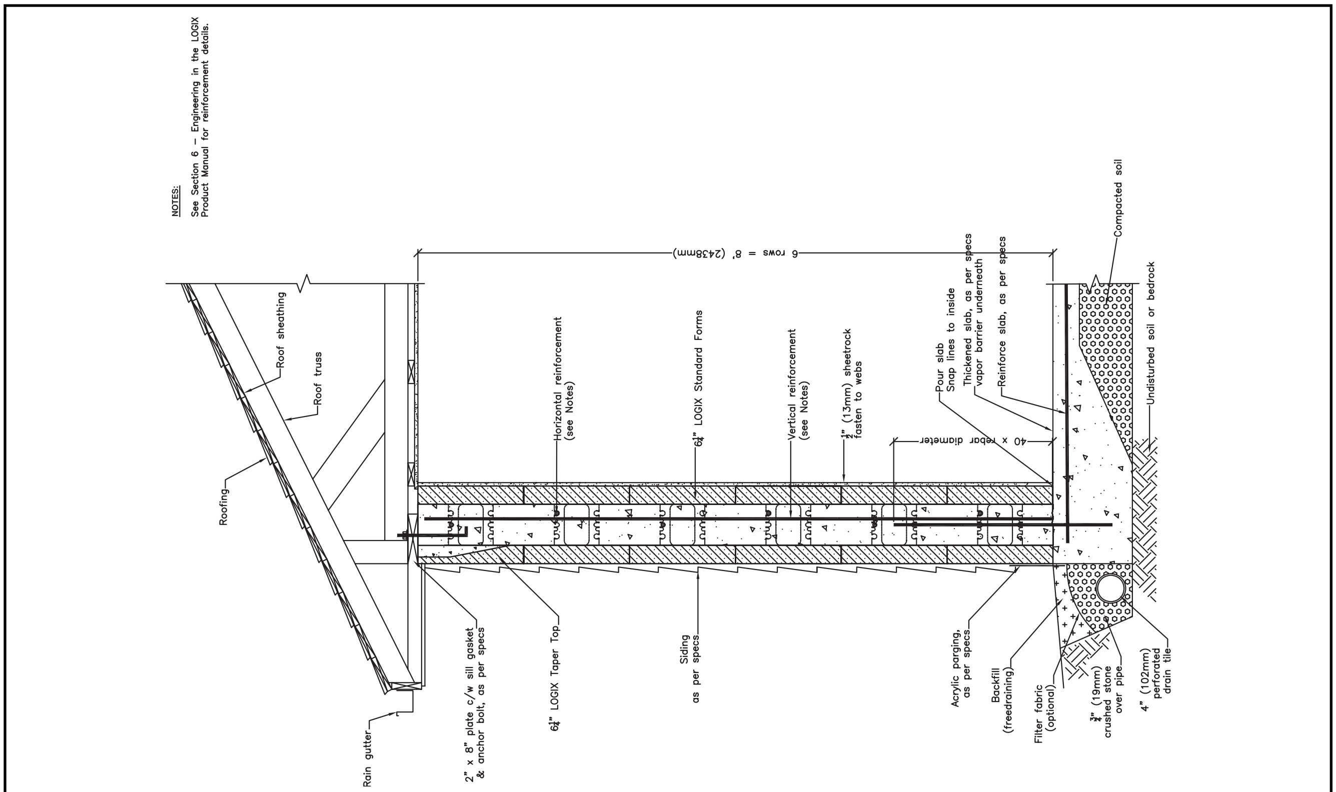
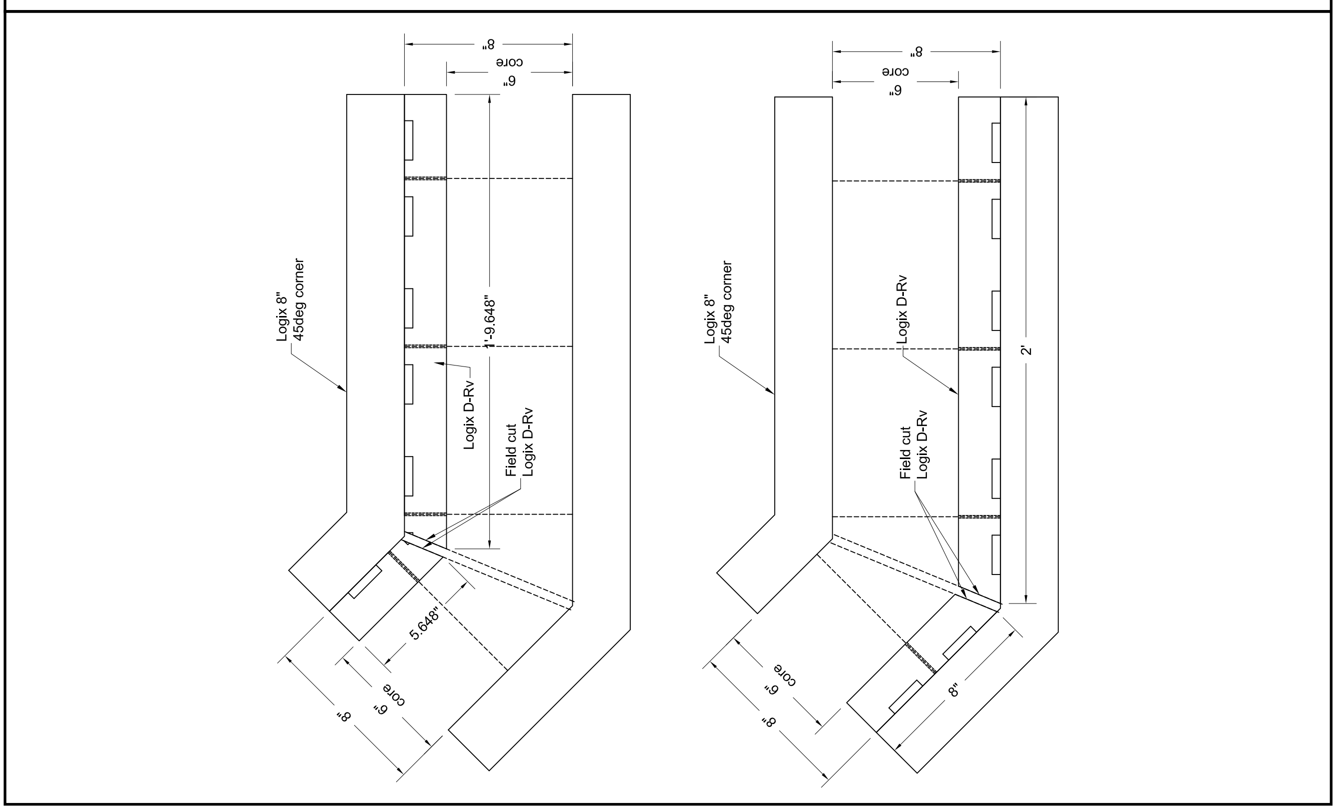
5.2 - WALL SECTIONS
5.2.1 - SLAB-AT-GRADE

5.2.1.1 - 8' WALL WITH THICKENED SLAB



5.1.3.5.7 - LOGIX D-RV WITH 8" LOGIX 45° CORNER FORMS



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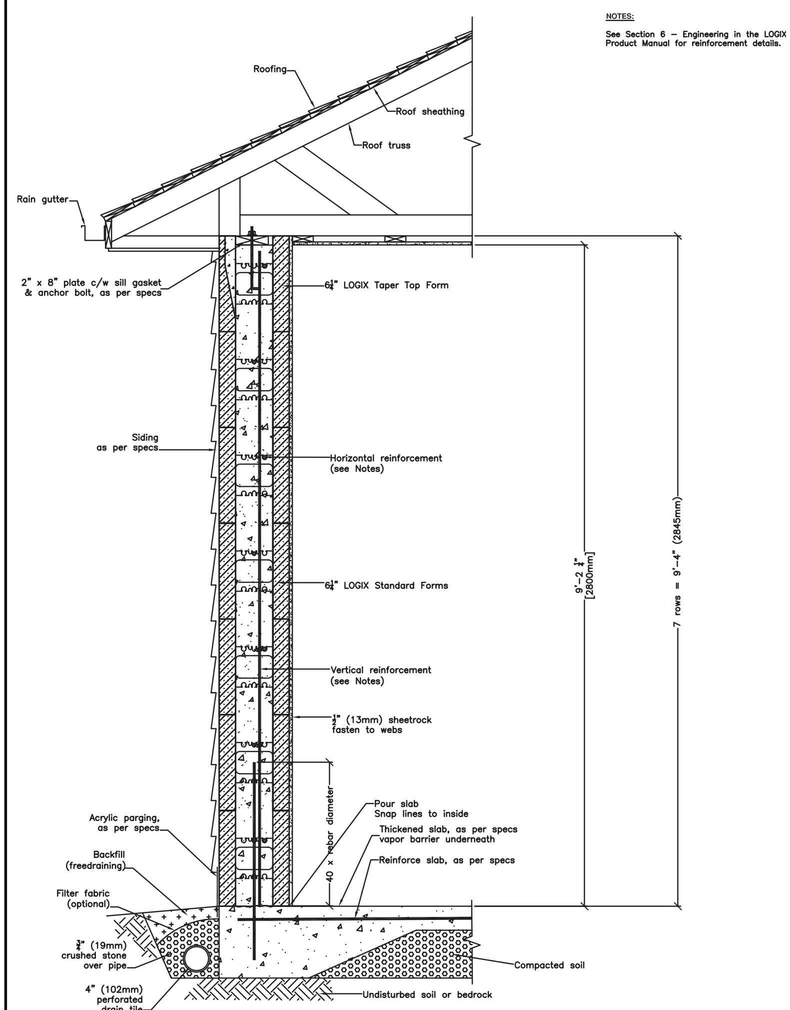
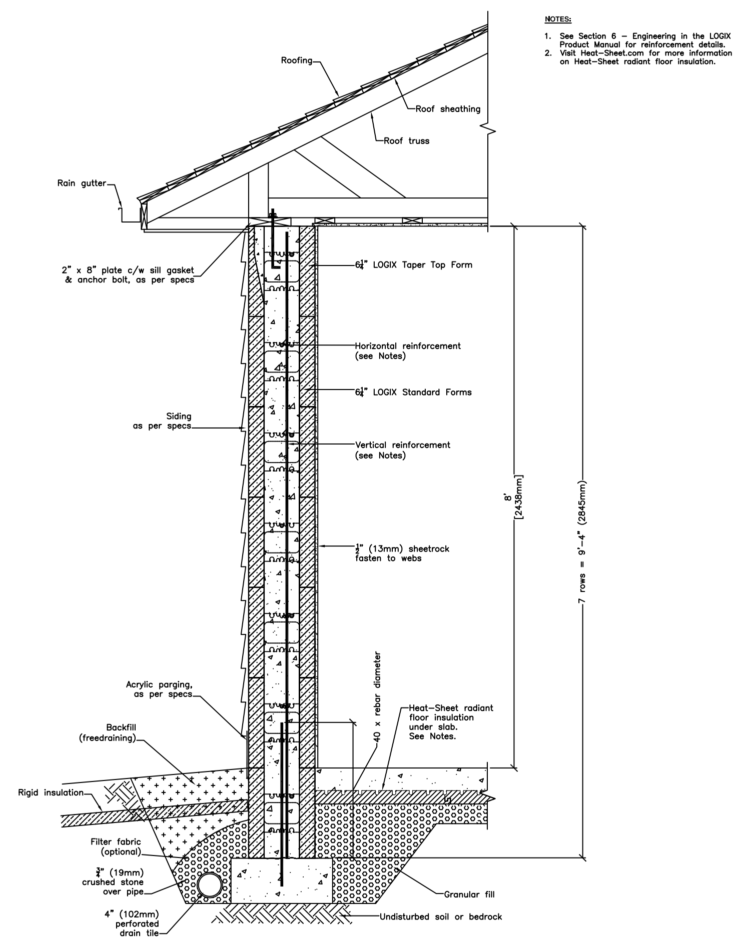
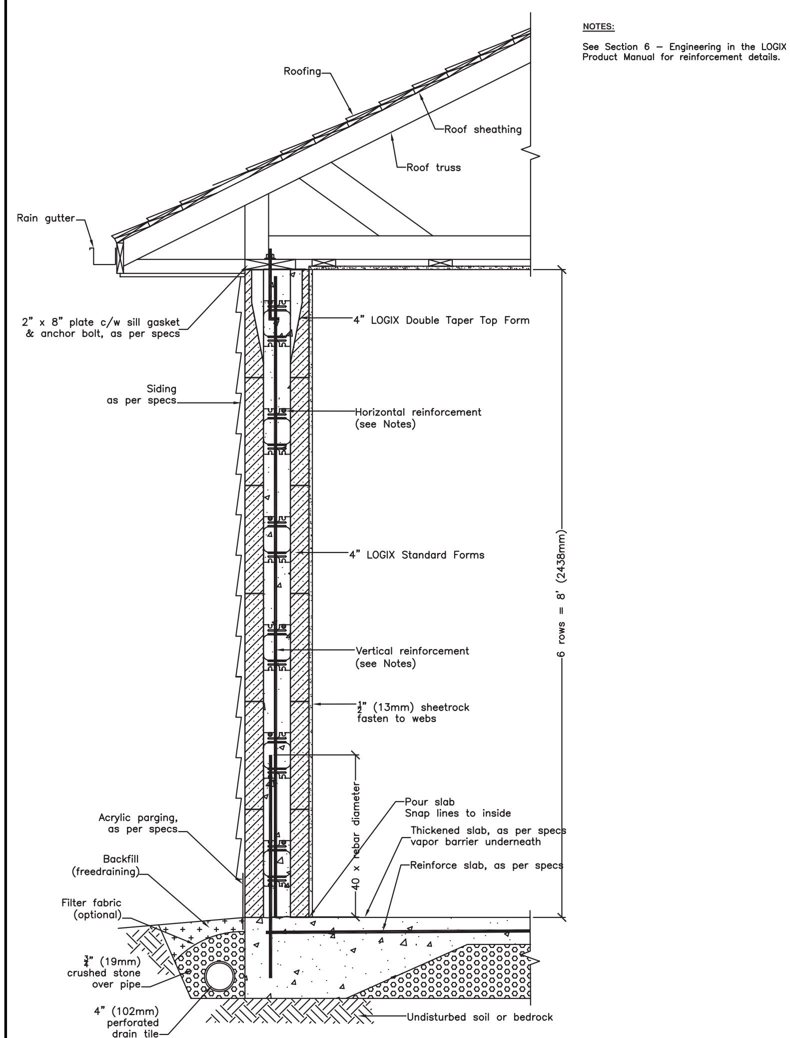
5.2.1.2 - 9'-4" WALL WITH THICKENED SLAB



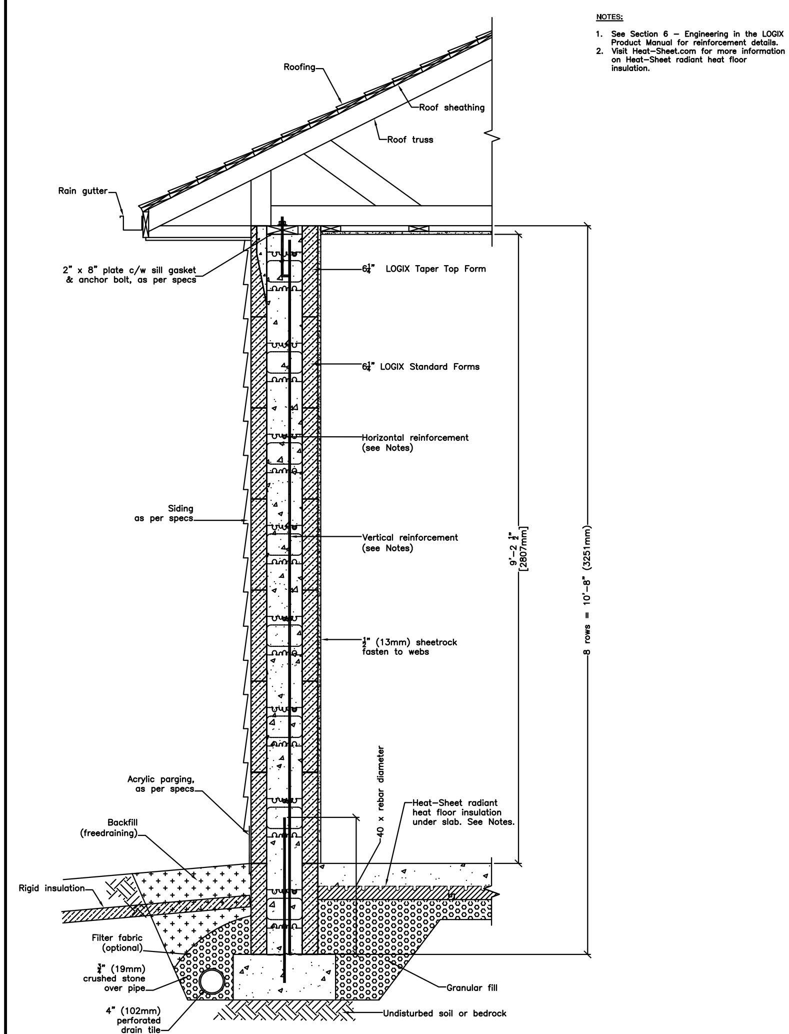
5.2.1.3 - 8' WALL WITH SHALLOW FROST WALL



5.2.1.4 - 8' WALL WITH LOGIX DOUBLE TAPER TOP & THICKENED SLAB

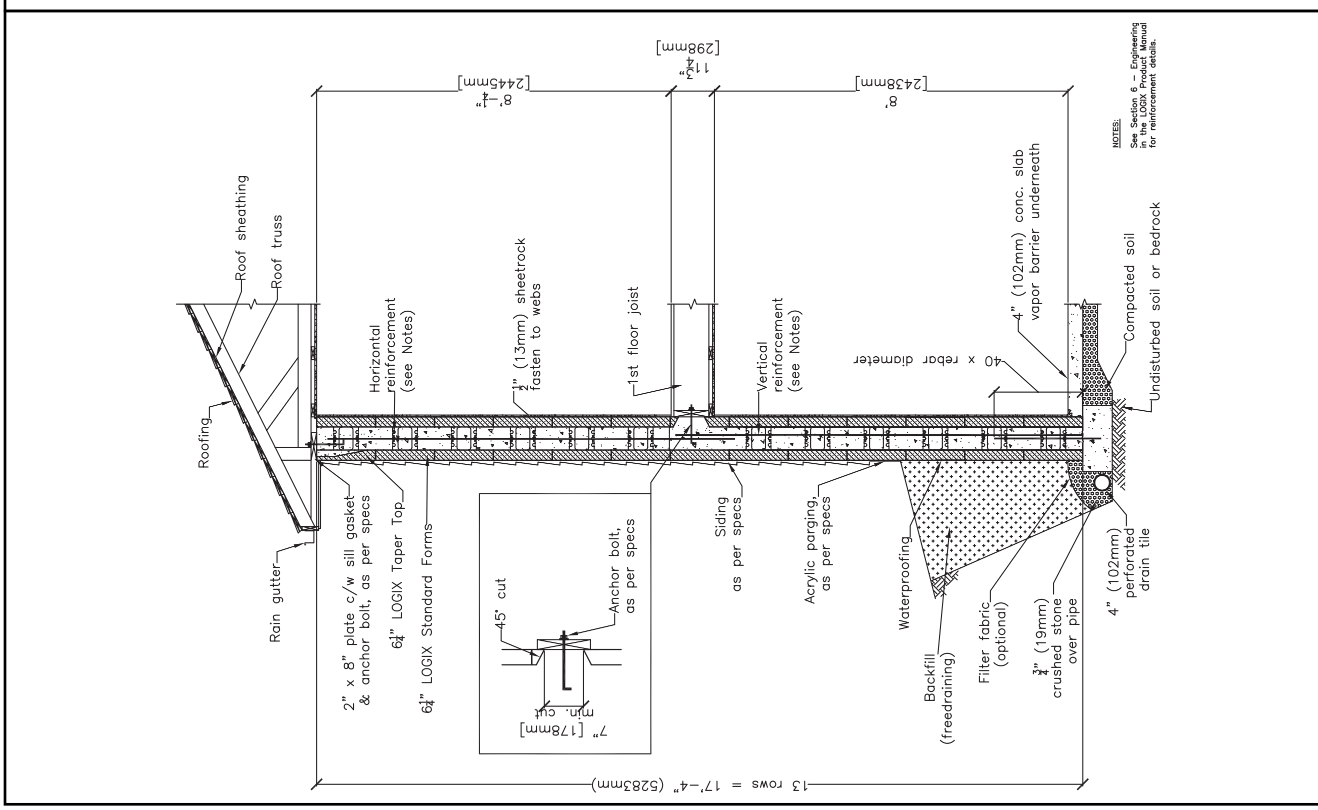


5.2.1.5 - 9' SLAB-AT-GRADE WITH SHALLOW FROST WALL

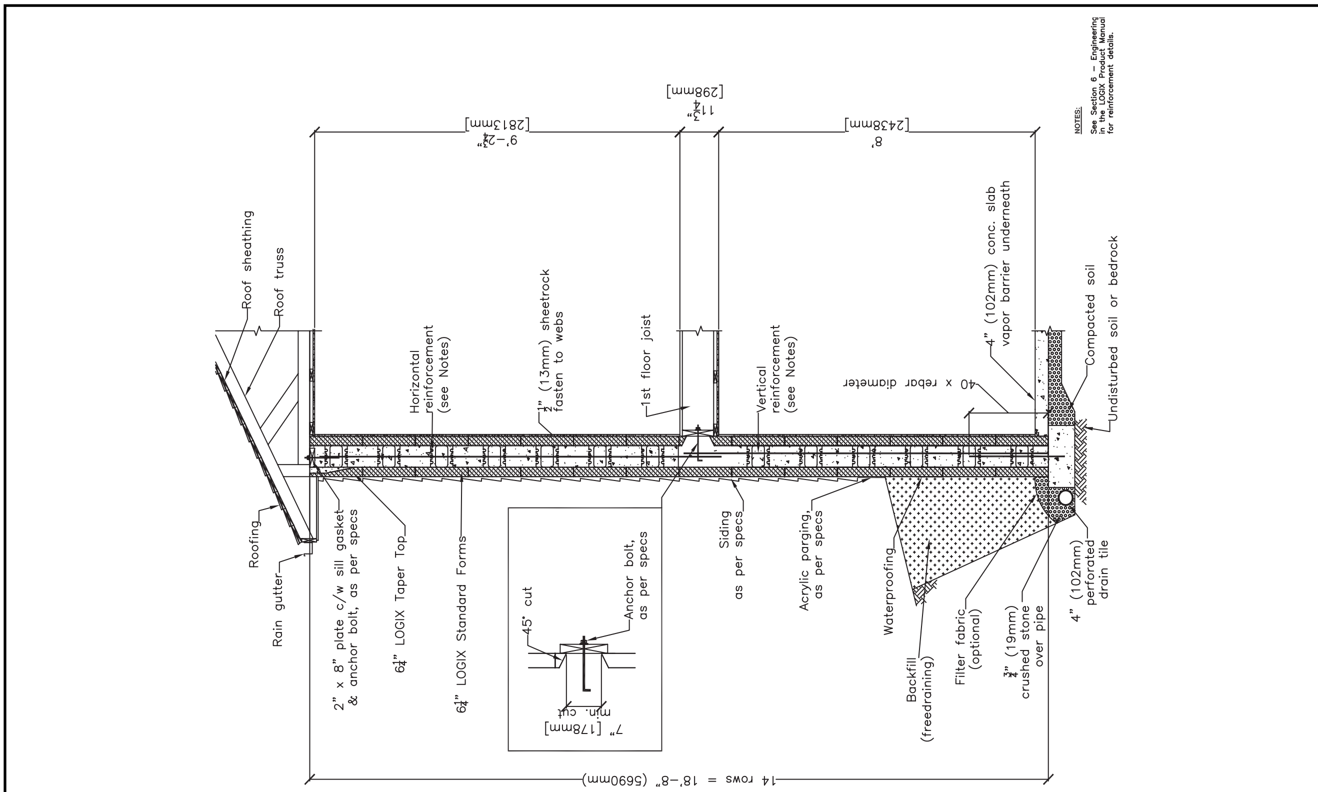


5.2.2 - 1 STORY PLUS BASEMENT

5.2.2.1 - 8' FOUNDATION / 8' MAIN FLOOR



5.2.2.2 - 8' FOUNDATION / 9' MAIN FLOOR



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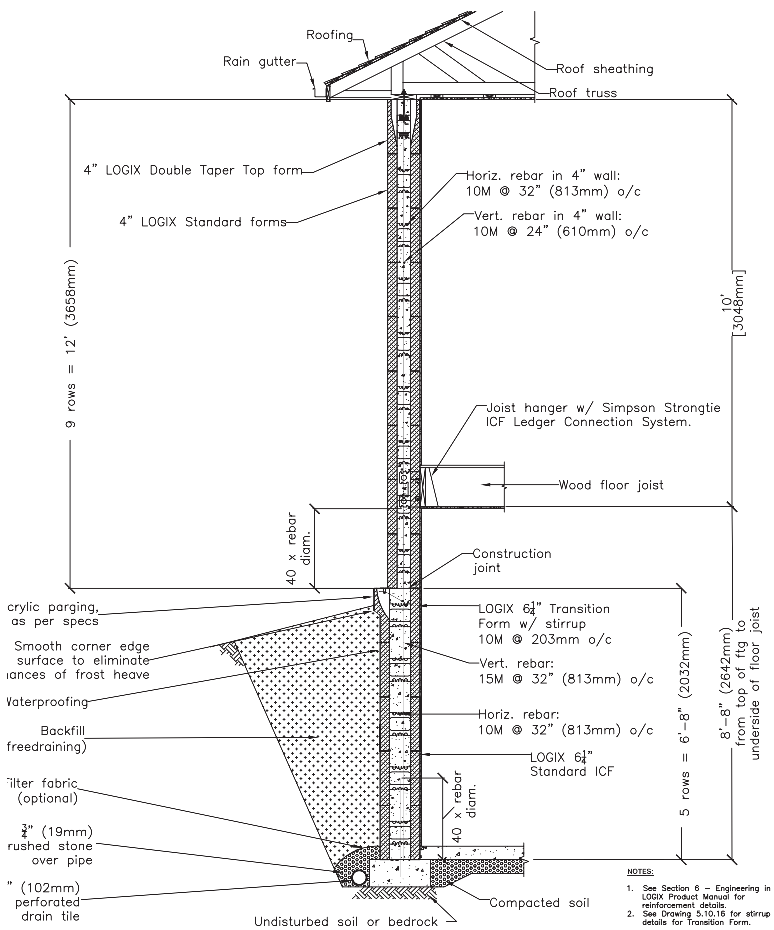
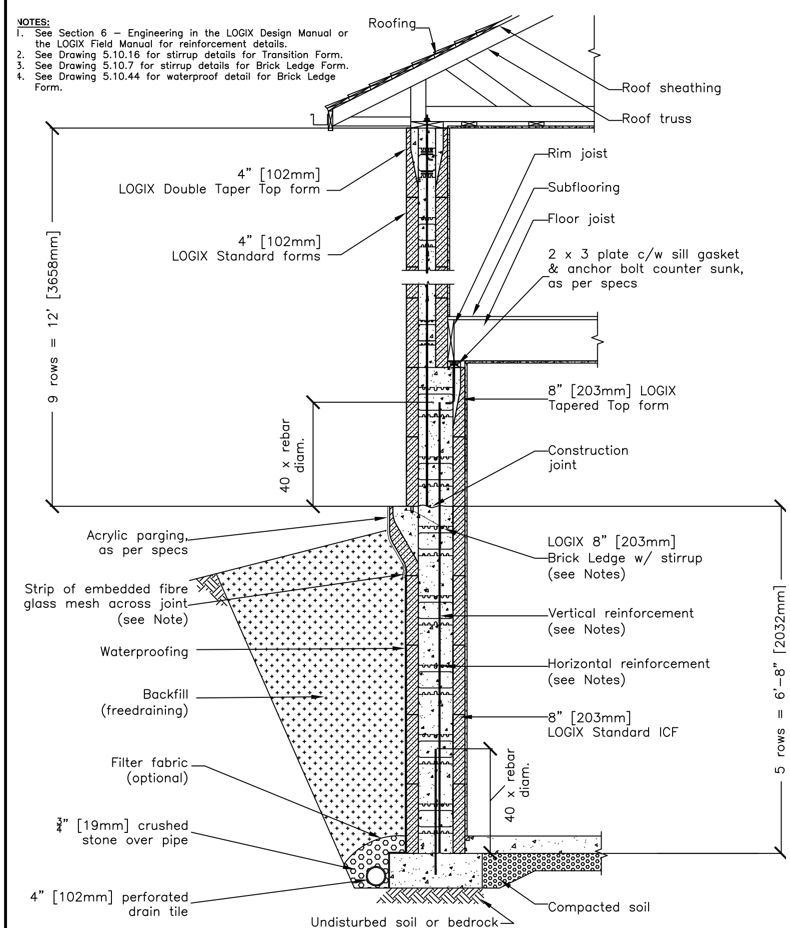
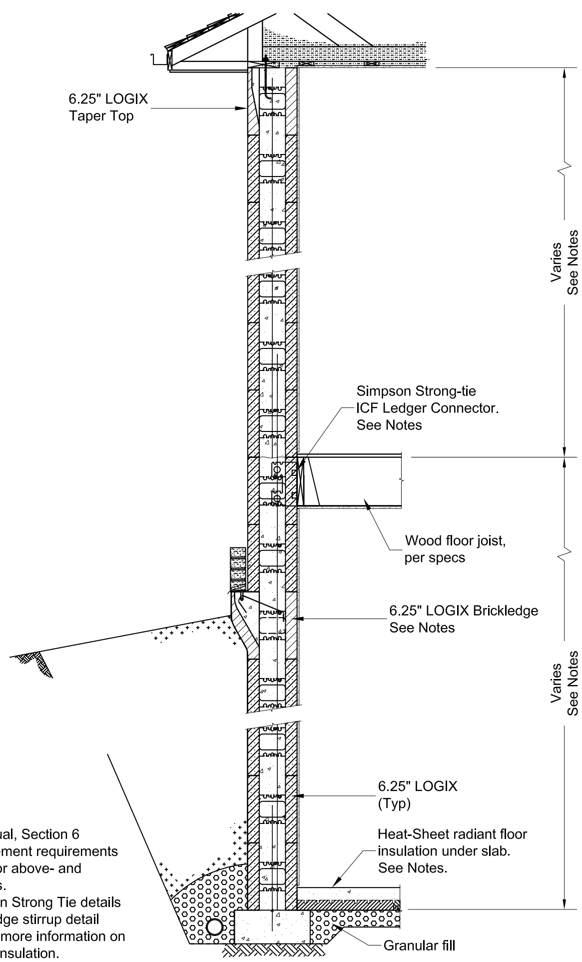
5.2.2.3 - 8'-8" FOUNDATION / 10' MAIN FLOOR



5.2.2.4 - 8" TO 4" LOGIX TRANSITION

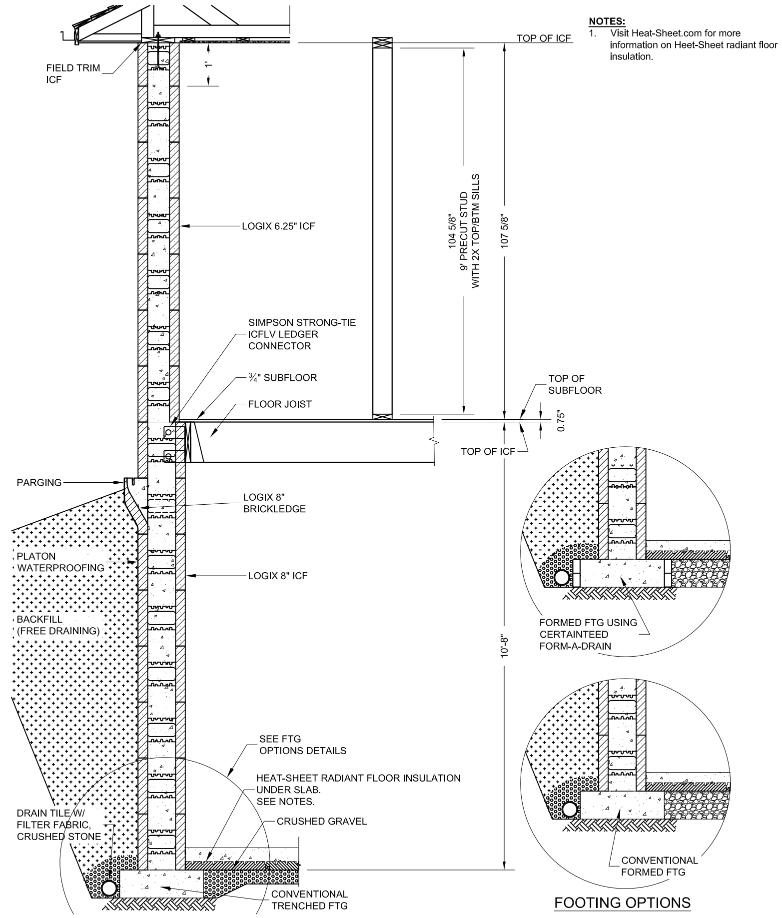


5.2.2.5 - 6.25” TO 6.25” LOGIX TRANSITION

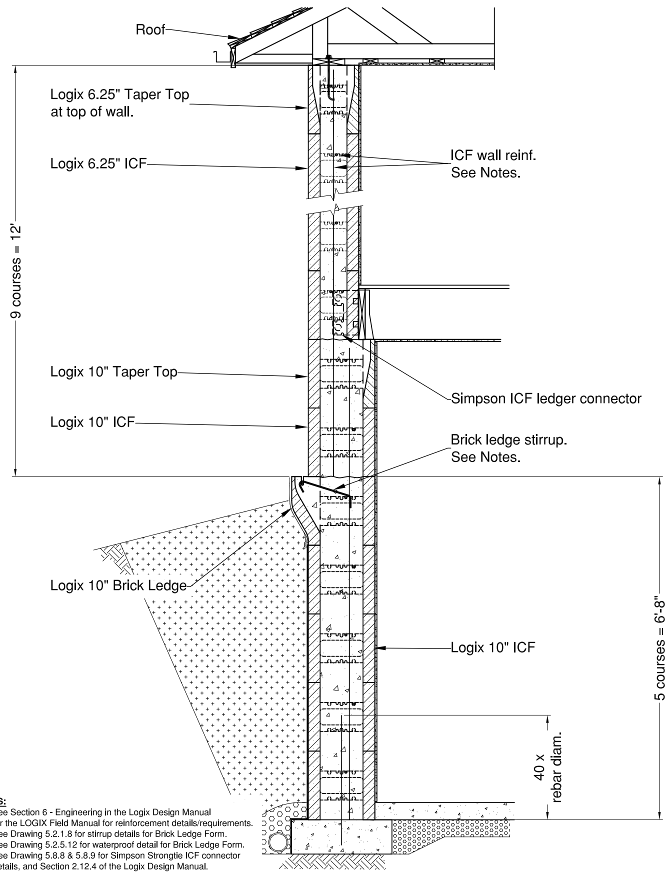


NOTES:
1. See LOGIX Design Manual, Section 6 Engineering, for reinforcement requirements for varying wall heights for above- and below-grade LOGIX walls.
2. See drawings for Simpson Strong Tie details
3. See drawings for Brickledge stirrup detail
4. Visit Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.

5.2.2.6 - 8” TO 6.25” LOGIX TRANSITION W/ 9’ PRECUT STUDS & FOOTING OPTIONS

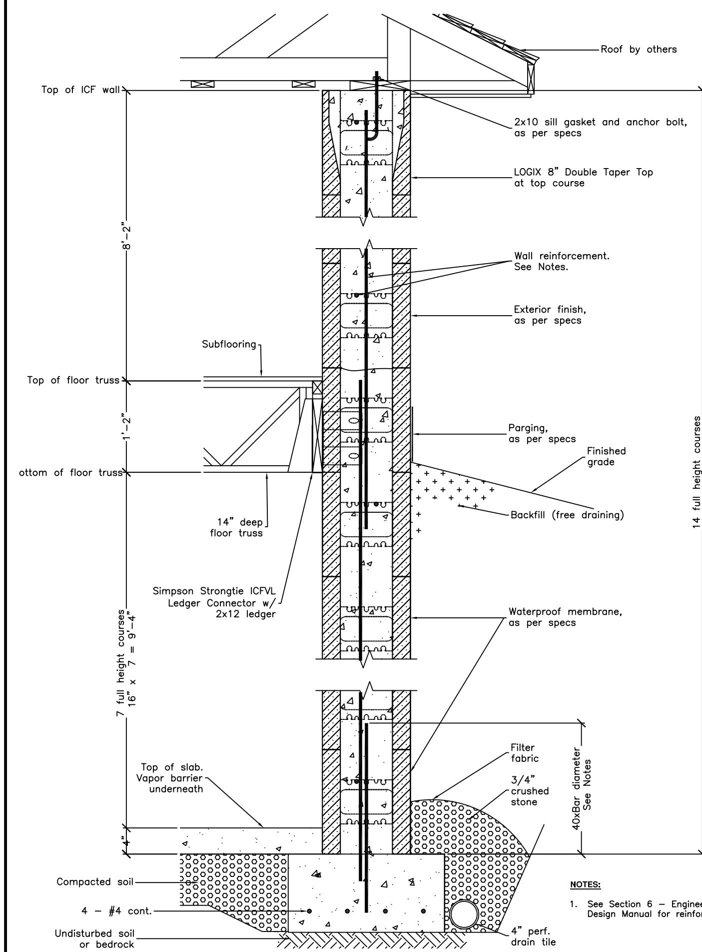


5.2.2.7 - 10" TO 6.25" LOGIX TRANSITION



NOTES:
1. See Section 6 - Engineering in the Logix Design Manual for the LOGIX Field Manual for reinforcement details/requirements.
2. See Drawing 5.2.1.8 for stirrup details for Brick Ledge Form.
3. See Drawing 5.2.5.12 for waterproof detail for Brick Ledge Form.
4. See Drawing 5.8.8 & 5.8.9 for Simpson Strongtie ICF connector details, and Section 2.12.4 of the Logix Design Manual.

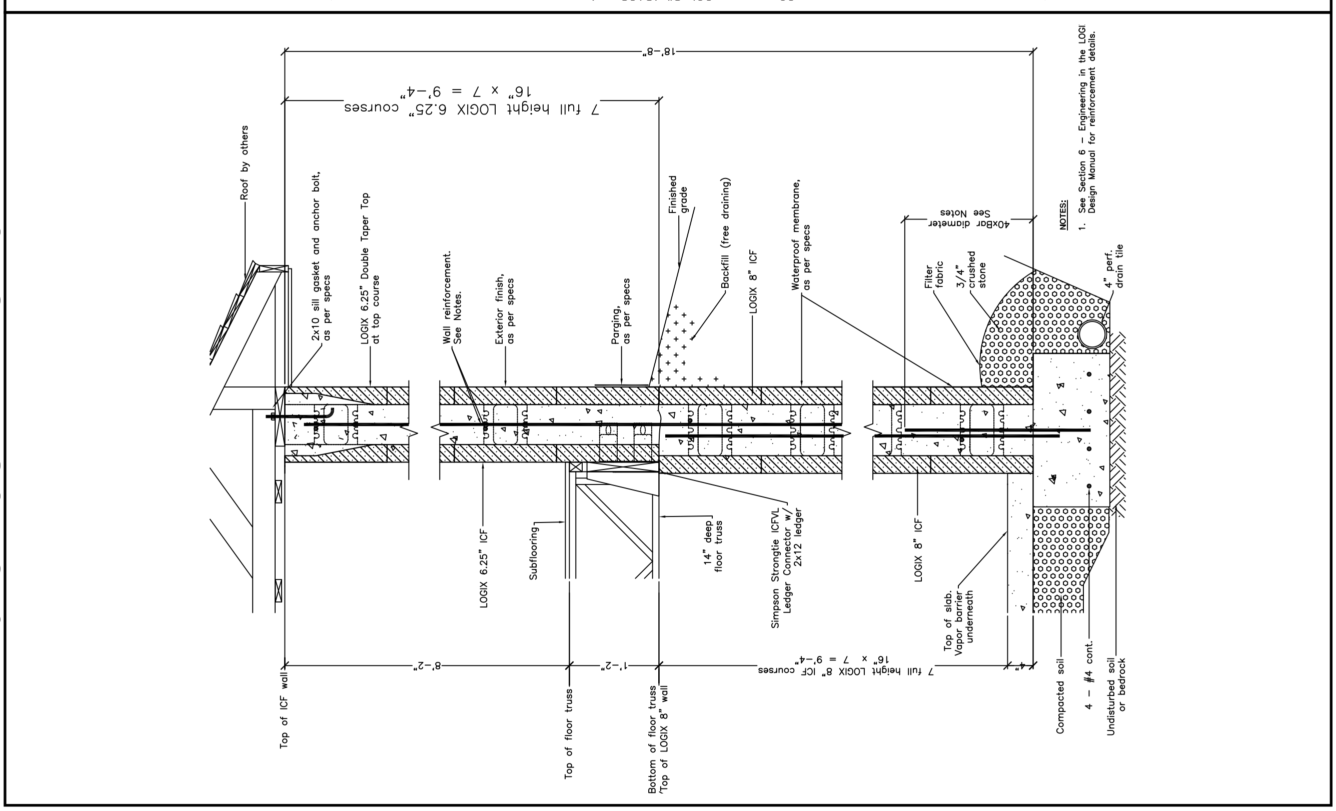
5.2.2.8 - 9'-4" FOUNDATION WITH 8" TO 8" LOGIX TRANSITION



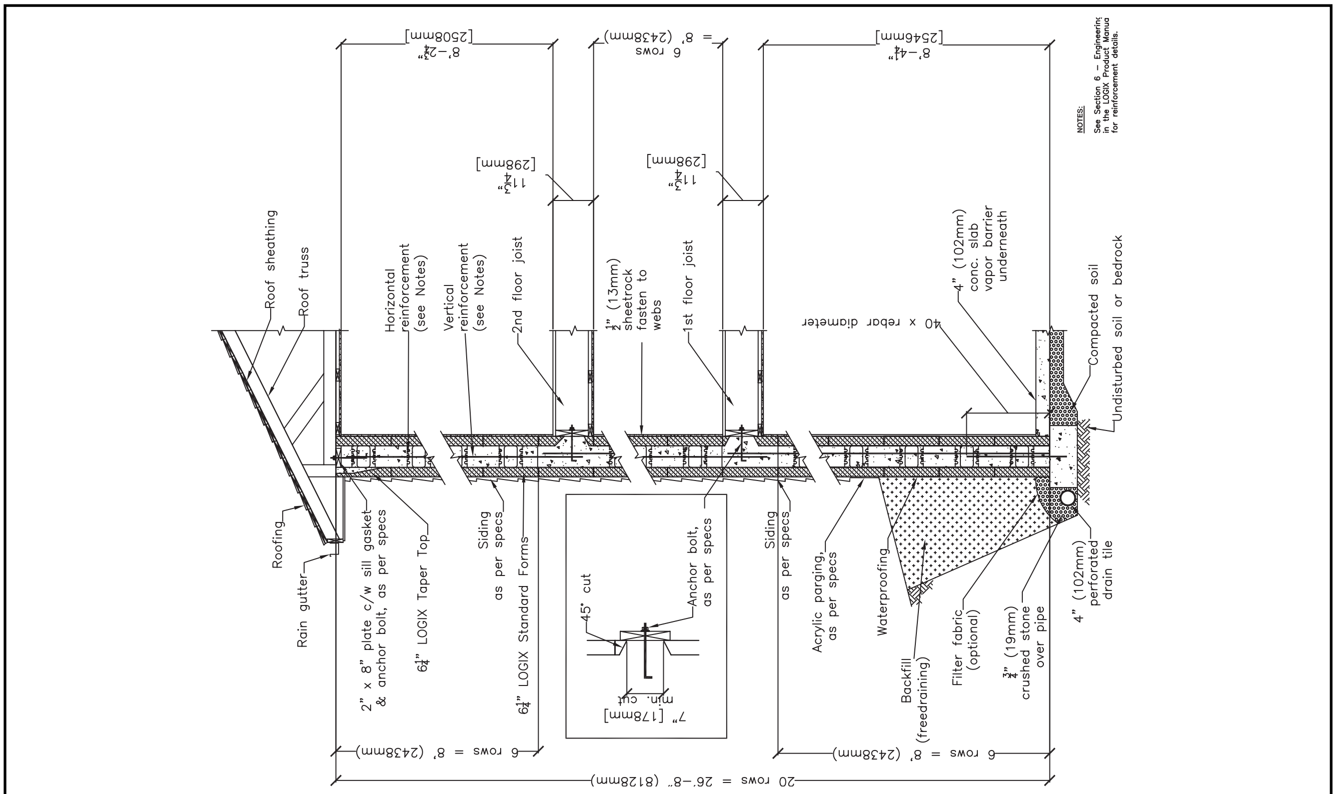
NOTES:
1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.

The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.2.2.9 - 9'-4" FOUNDATION WITH 8" TO 6.25" LOGIX TRANSITION



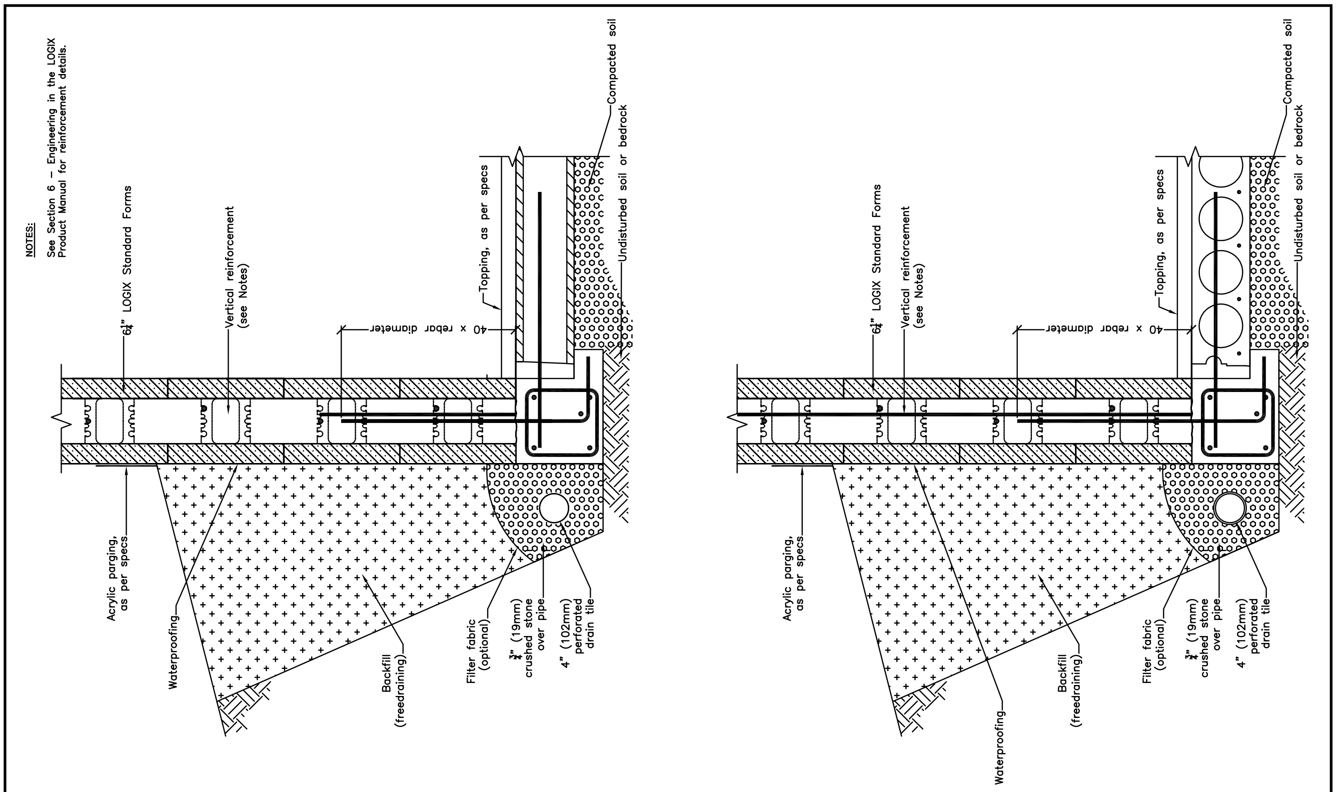
5.2.3.1 - 8' FOUNDATION / 8' MAIN FLOOR / 8' TOP FLOOR



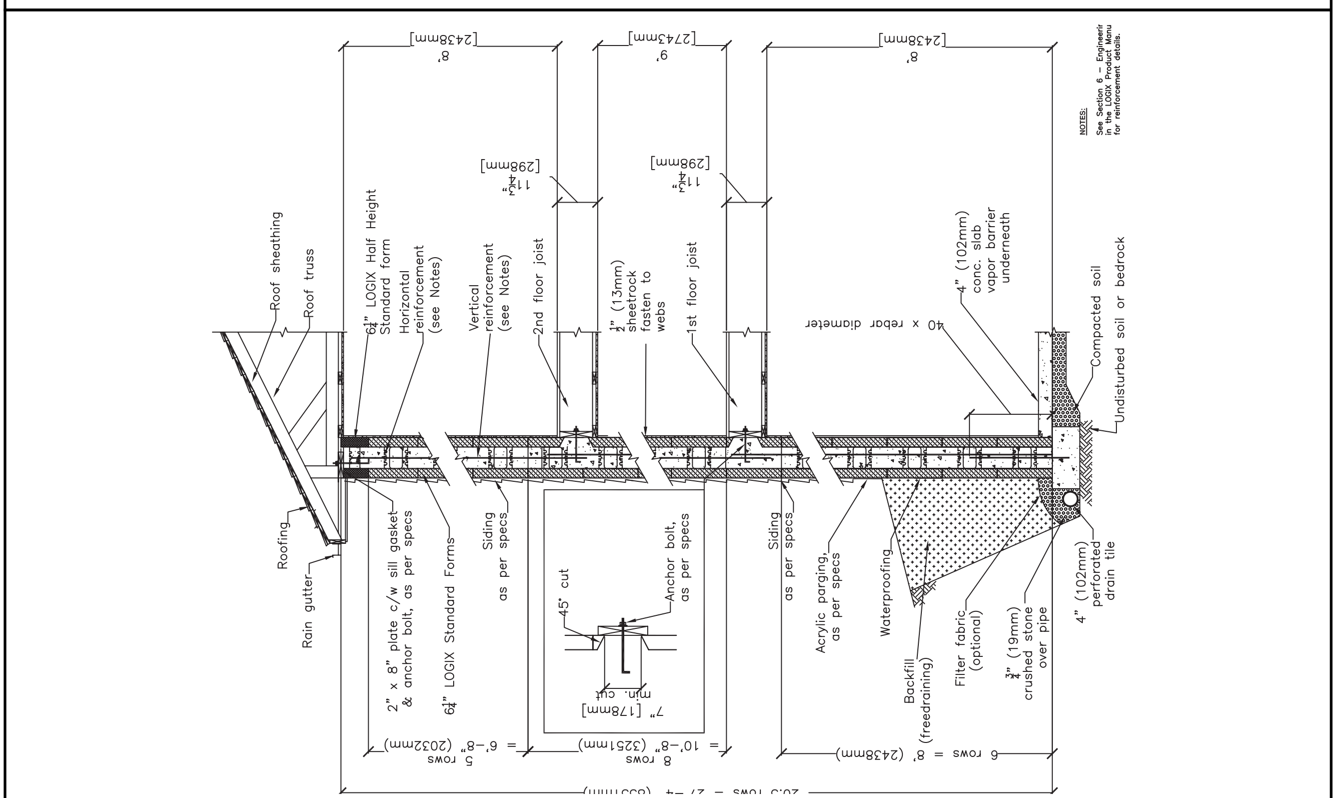
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.3 - FOOTINGS AT EXTERIOR WALL
5.3.1 - PRE-CAST SLABS

5.3.1.1 - HOLLOW CORE SLAB

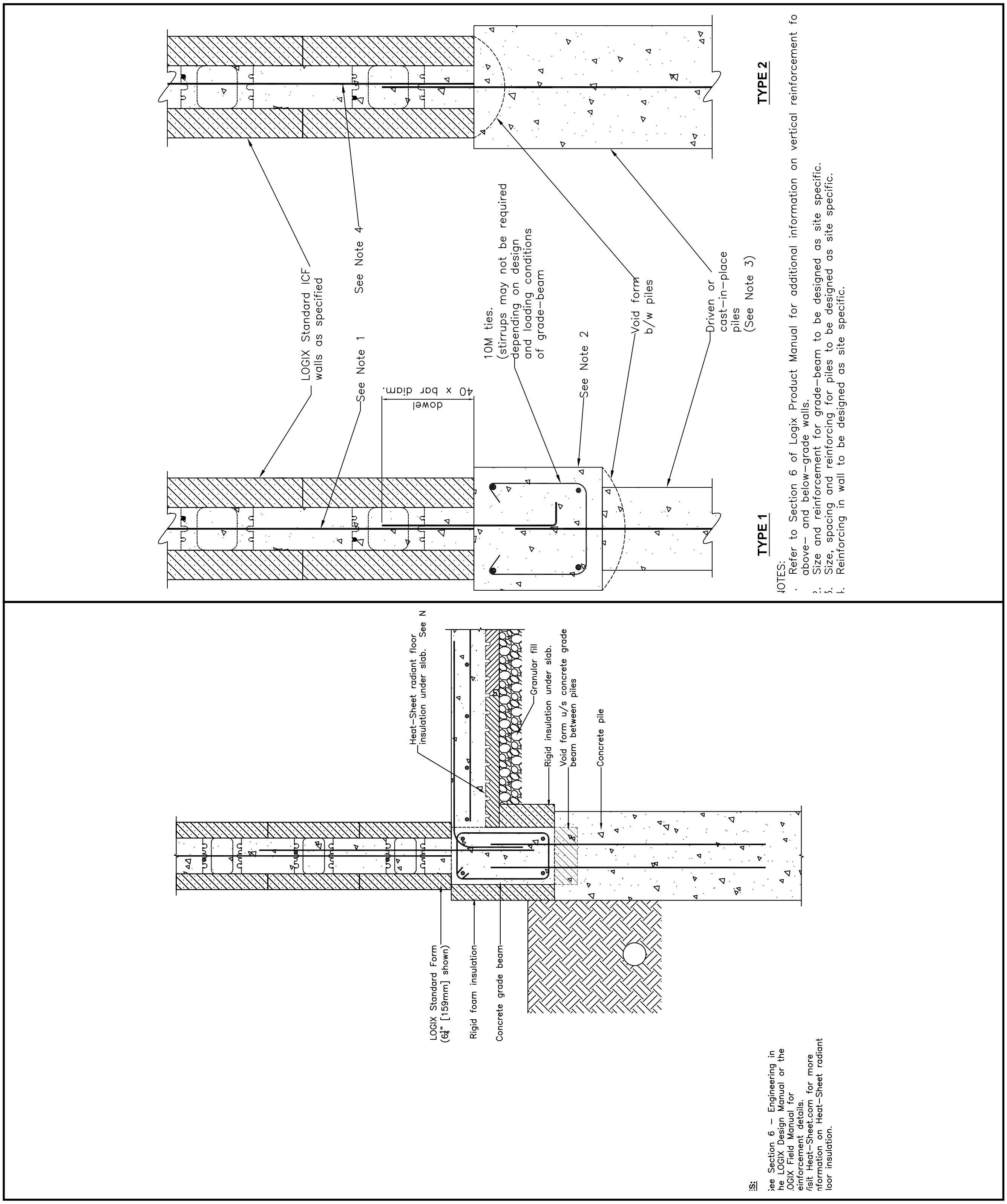


5.2.3.2 - 8' FOUNDATION / 9' MAIN FLOOR / 8' TOP FLOOR



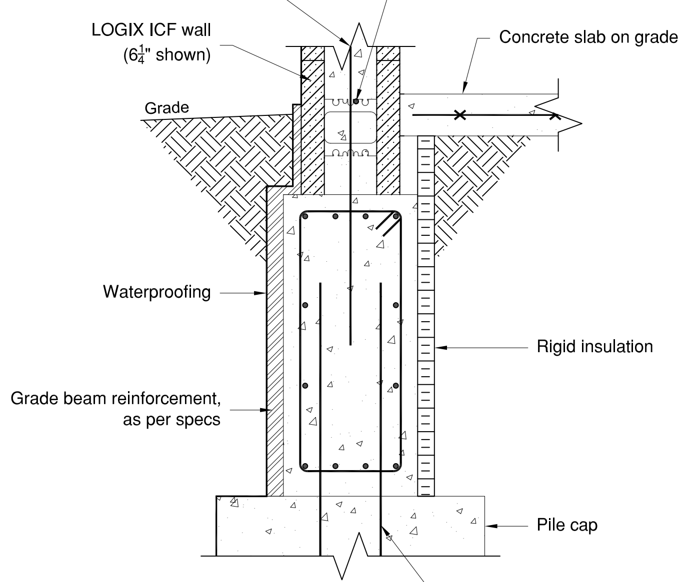
5.3.2.2 - PILE SUPPORTED GRADE BEAMS

5.3.2.1 - PILE SUPPORTED GRADE BEAM



C A D D R A W I N G S - F O O T I N G S A T E X T E R I O R W A L L

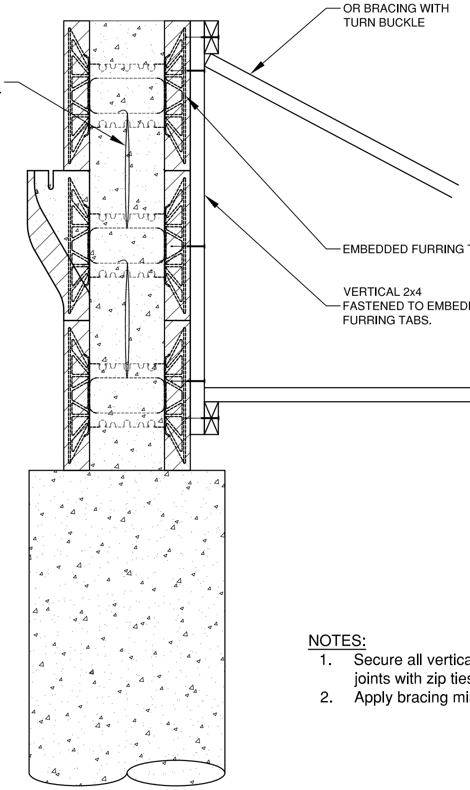
5.3.2.3 - DEEP GRADE BEAM ON PILE CAP



NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

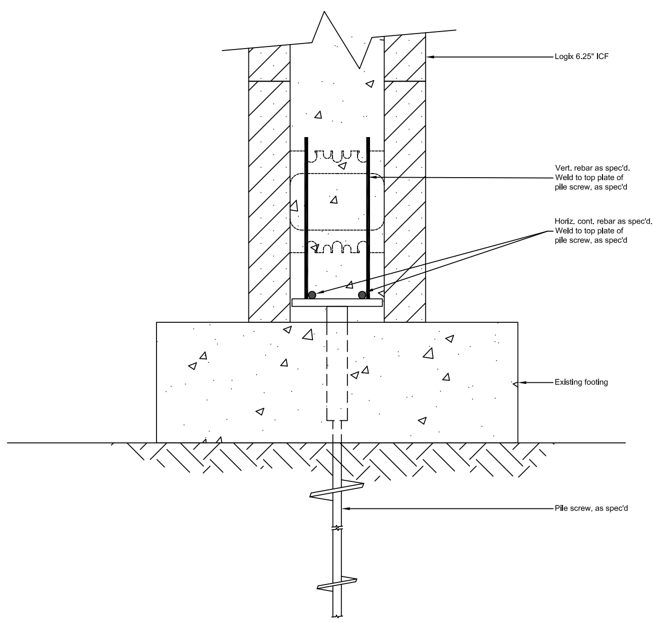
5.3.2.4 - GRADE BEAM BRACING



NOTES:

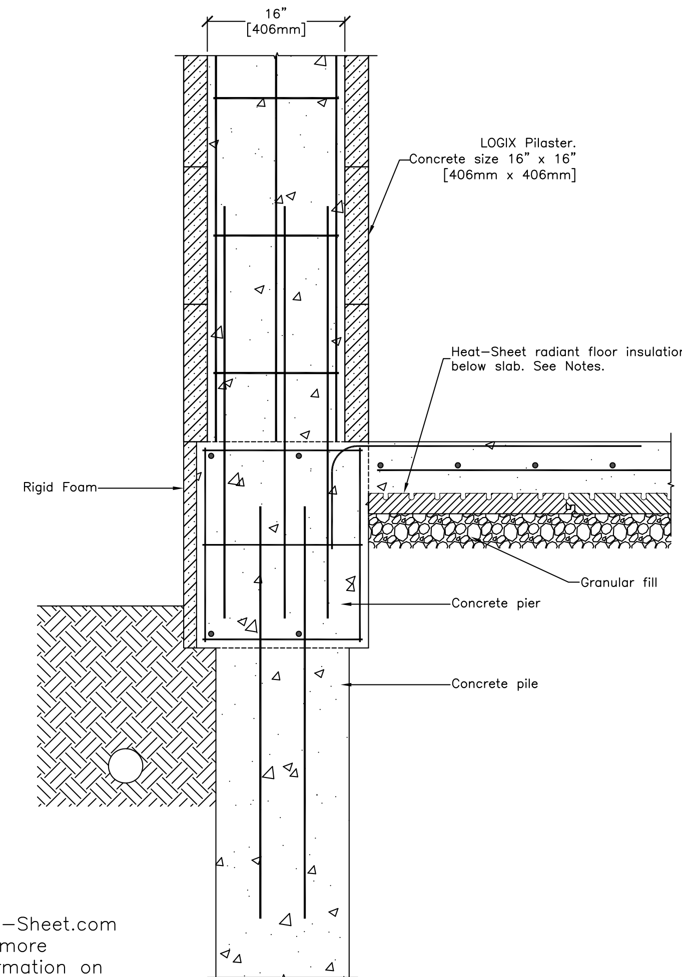
1. Secure all vertical and horizontal joints with zip ties.
2. Apply bracing min. 6ft o/c.

5.3.2.5 - SCREW PILES



FOOTING DETAIL
SCREW PILE CONNECTION TO ICF

5.3.2.6 - LOGIX PILASTER ON CONCRETE PIER

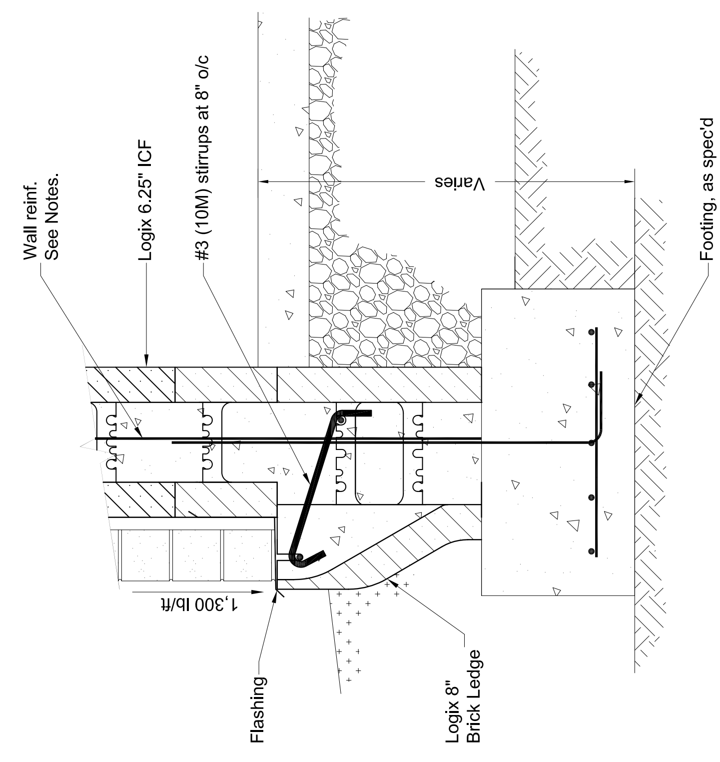


NOTES:

1. Visit Heat–Sheet.com for more information on Heat–Sheet.

CAD DRAWINGS - FOOTINGS AT EXTERIOR WALL

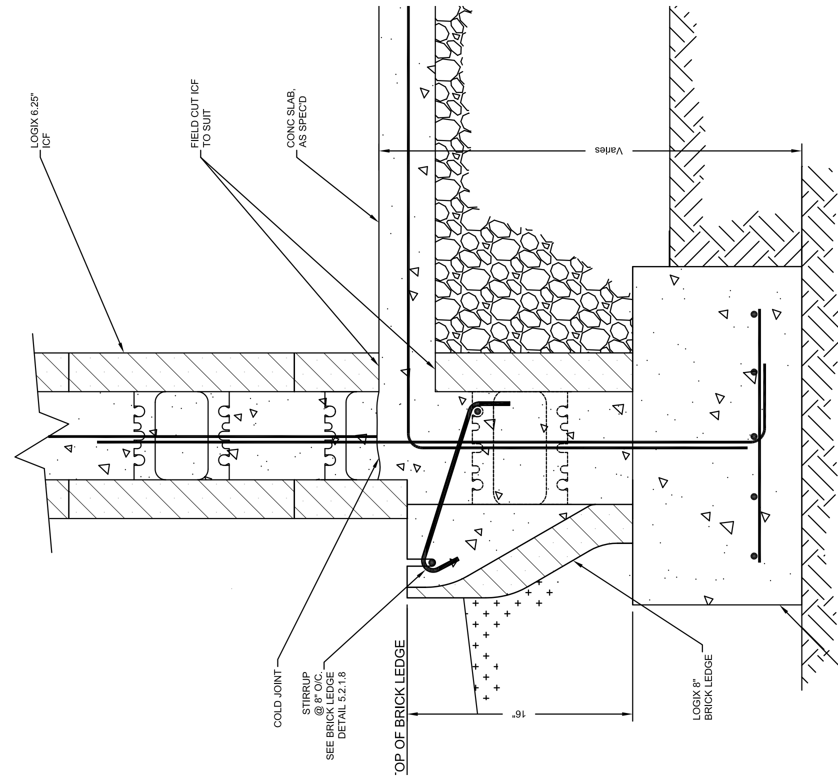
5.3.3.1 - LOGIX BRICK LEDGE ON FOOTING



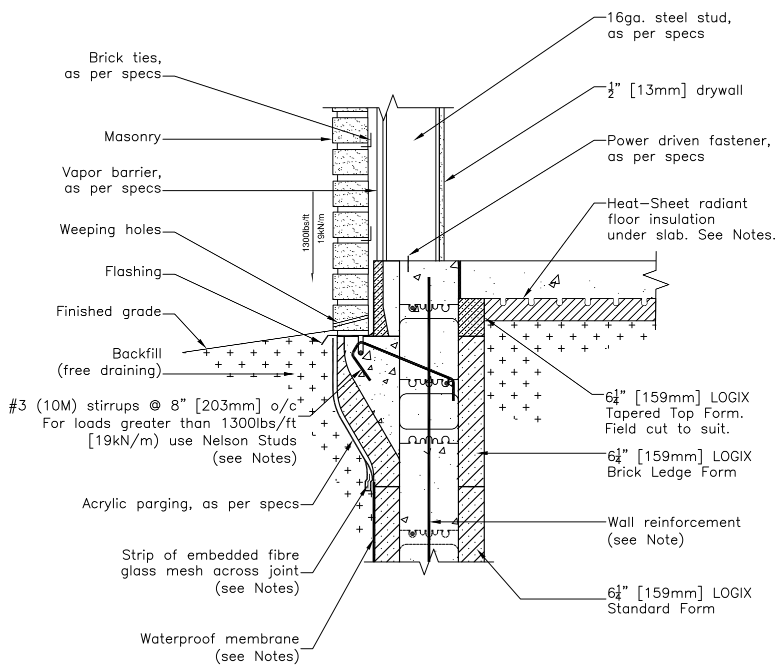
NOTES:

See Section 6 - Engineering in the LOGIX Product Manual for reinforcement details.

5.3.3.2 - LOGIX BRICK LEDGE ON FOOTING WITH INTEGRAL SLAB



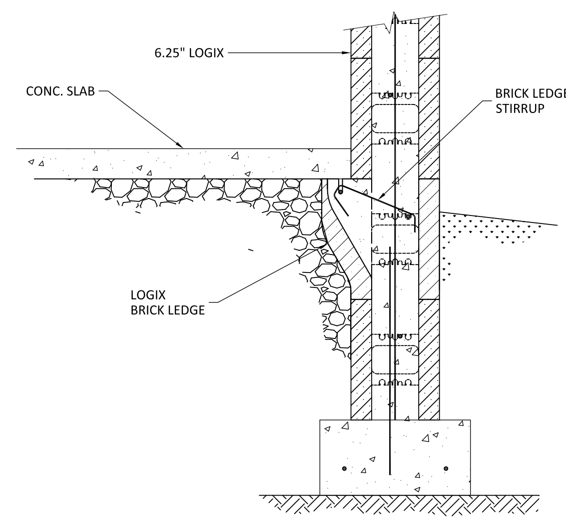
5.3.3.3 - SLAB-ON-GRADE WITH BRICK LEDGE & MODIFIED LOGIX TAPER TOP



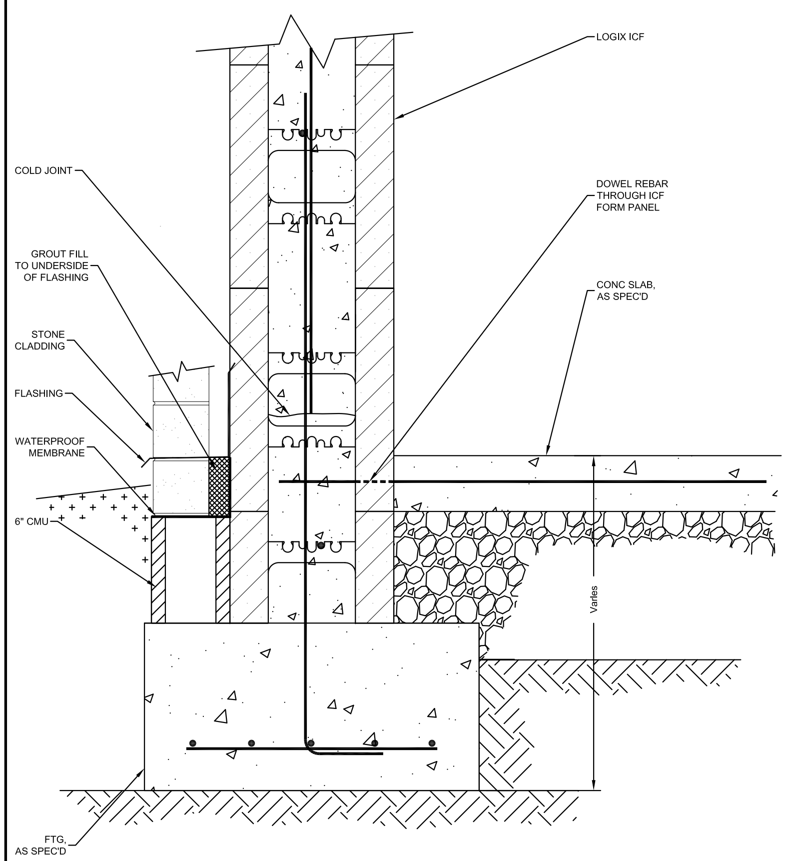
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.2.1.6/7 for stirrup details for Brick Ledge Form.
3. See Drawing 5.2.5.12 for waterproof detail for Brick Ledge Form.
4. Visit Heat–Sheet.com for more information on Heat–Sheet radiant floor insulation.

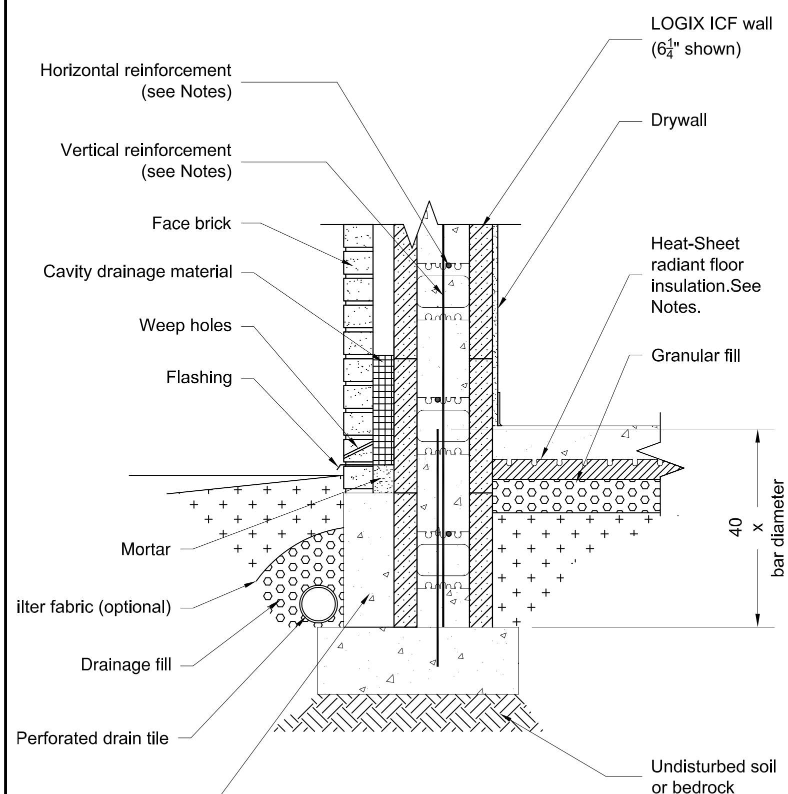
5.3.3.4 - BRICK LEDGE SUPPORTING SLAB-AT-GRADE



5.3.3.5 - CMU BRICK LEDGE ON FOOTING



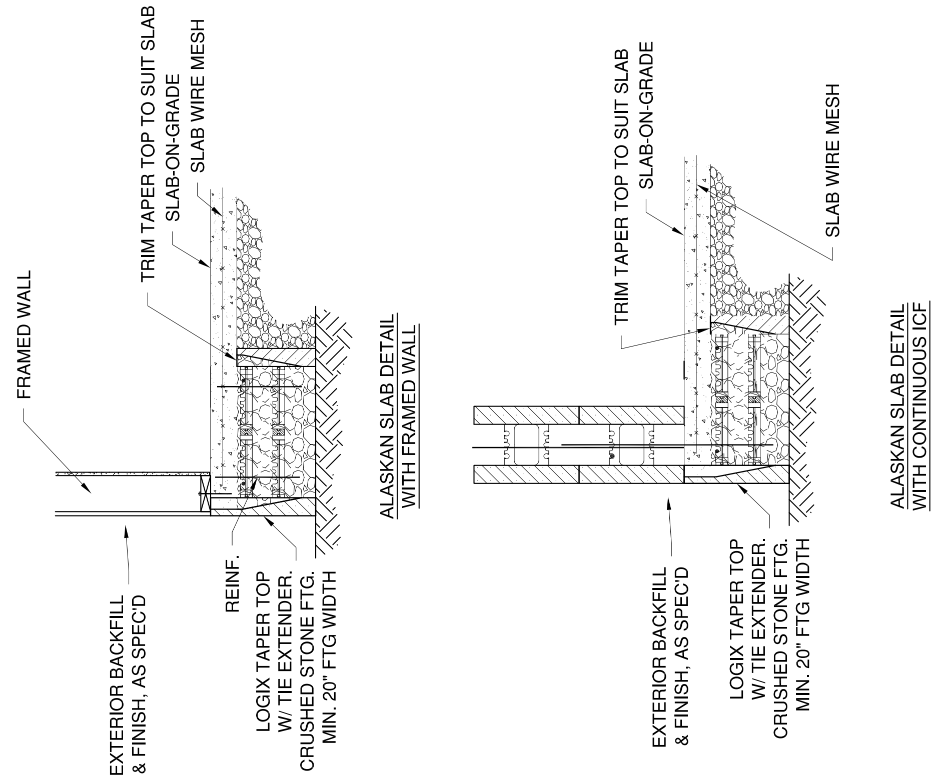
5.3.3.6 - BRICK VENEER ON CONCRETE FILL



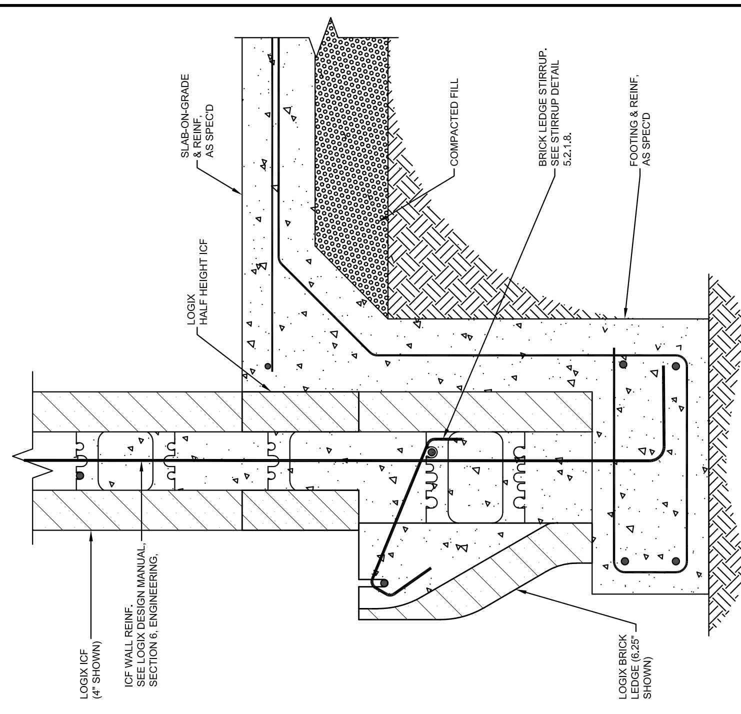
NOTES:

1. See Section 6 - Engineering in the LOGI[X] Design Manual for reinforcement details.
2. Visit Heat-Sheet.com for more informatio[n] on Heat-Sheet radiant floor insulation.

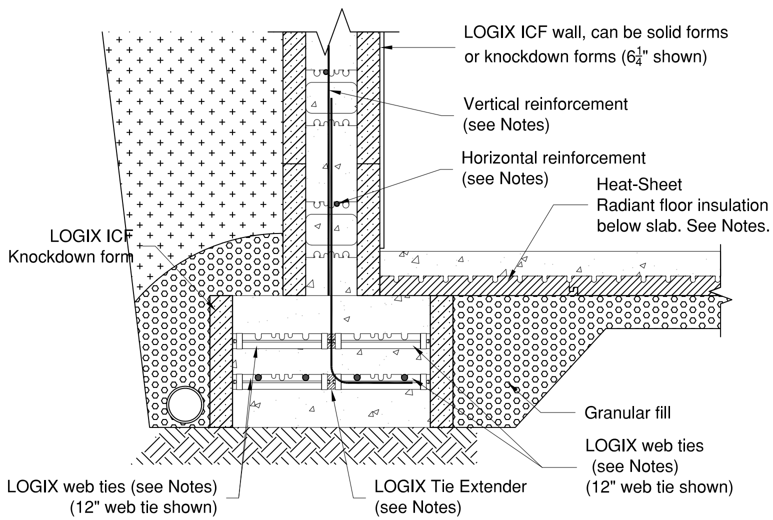
5.3.4.1 - ALASKAN SLAB WITH LOGIX TIE XTENDER



5.3.3.7 - THICKENED SLAB INTEGRATED WITH LOGIX BRICK LEDGE



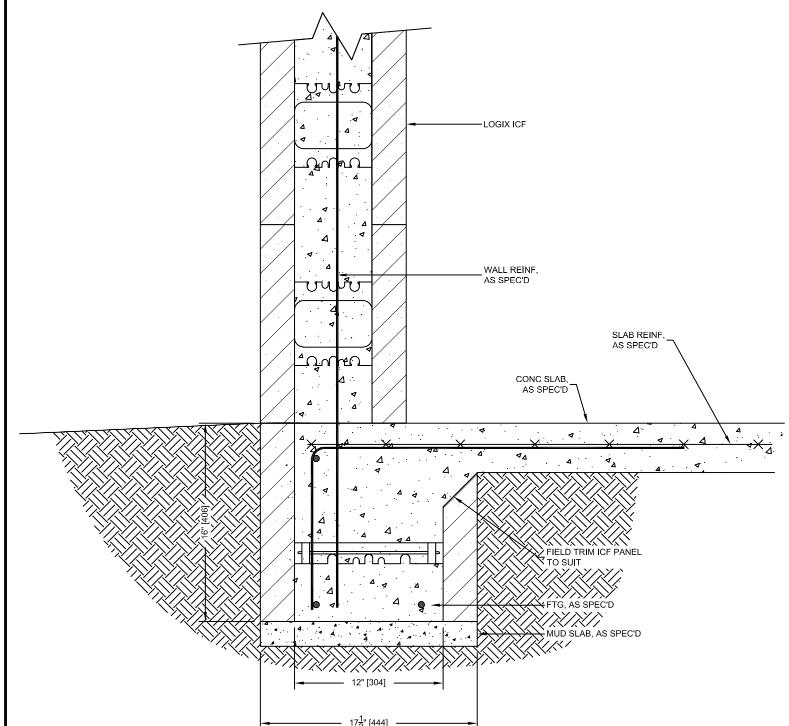
5.3.4.2 - FOOTING FORMED WITH LOGIX TIE XTENDER



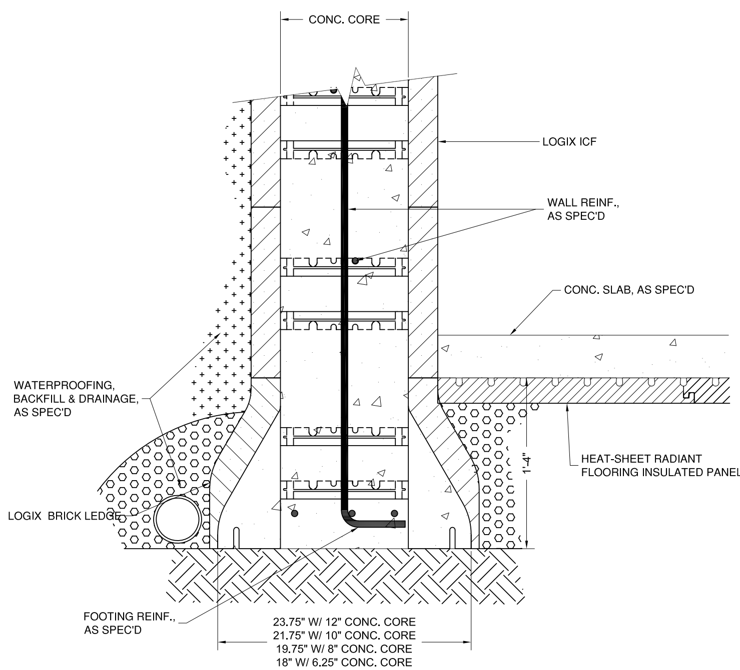
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For more information on LOGIX Tie Xtenders, see Drawing 5.1.22.
3. Visit Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.

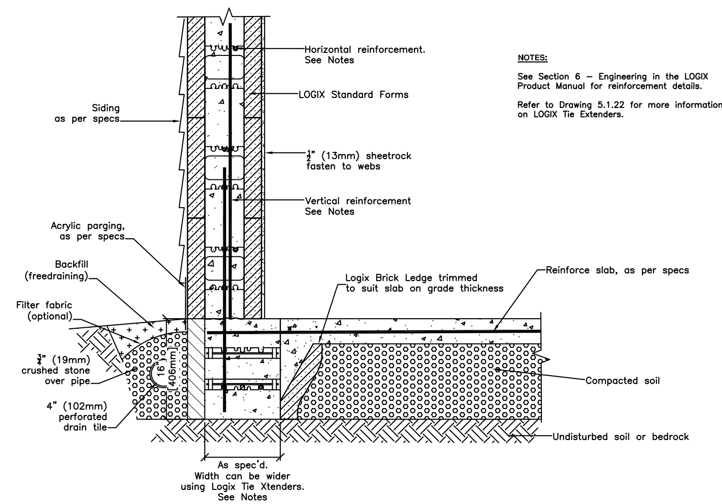
5.3.4.3 - LOGIX KD FOOTING WITH INTEGRAL SLAB



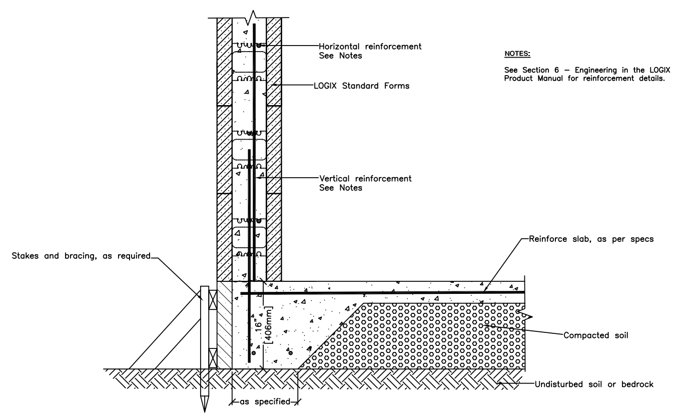
5.3.4.4 - FOOTING FORMED WITH LOGIX BRICK LEDGE



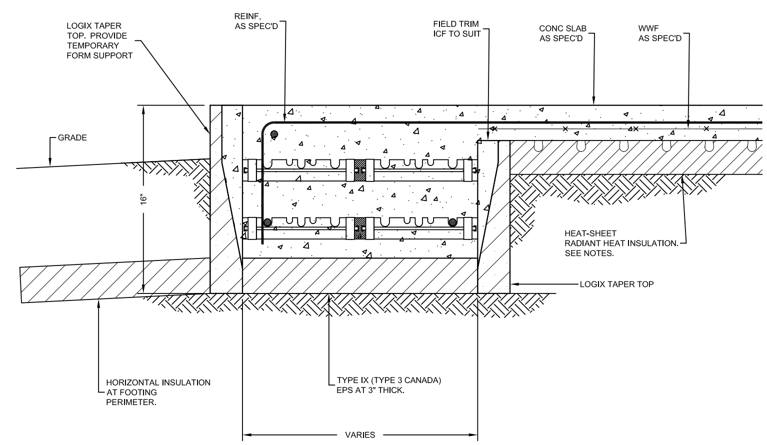
5.3.4.5 - THICKENED SLAB FORMED WITH LOGIX BRICK LEDGE



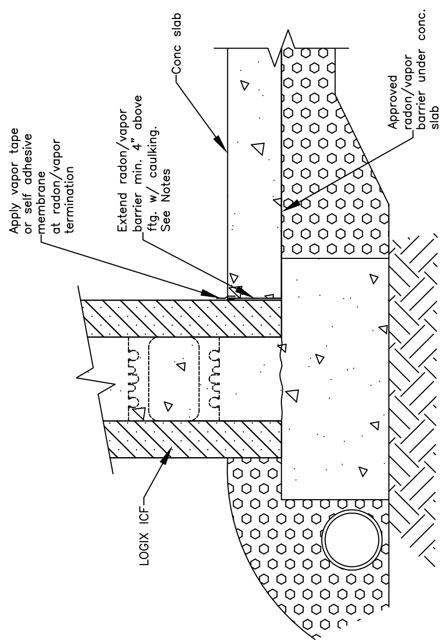
5.3.4.6 - THICKENED SLAB FORMED WITH LOGIX ON ONE SIDE



5.3.4.7 - SHALLOW FROST PROTECTED FOOTING



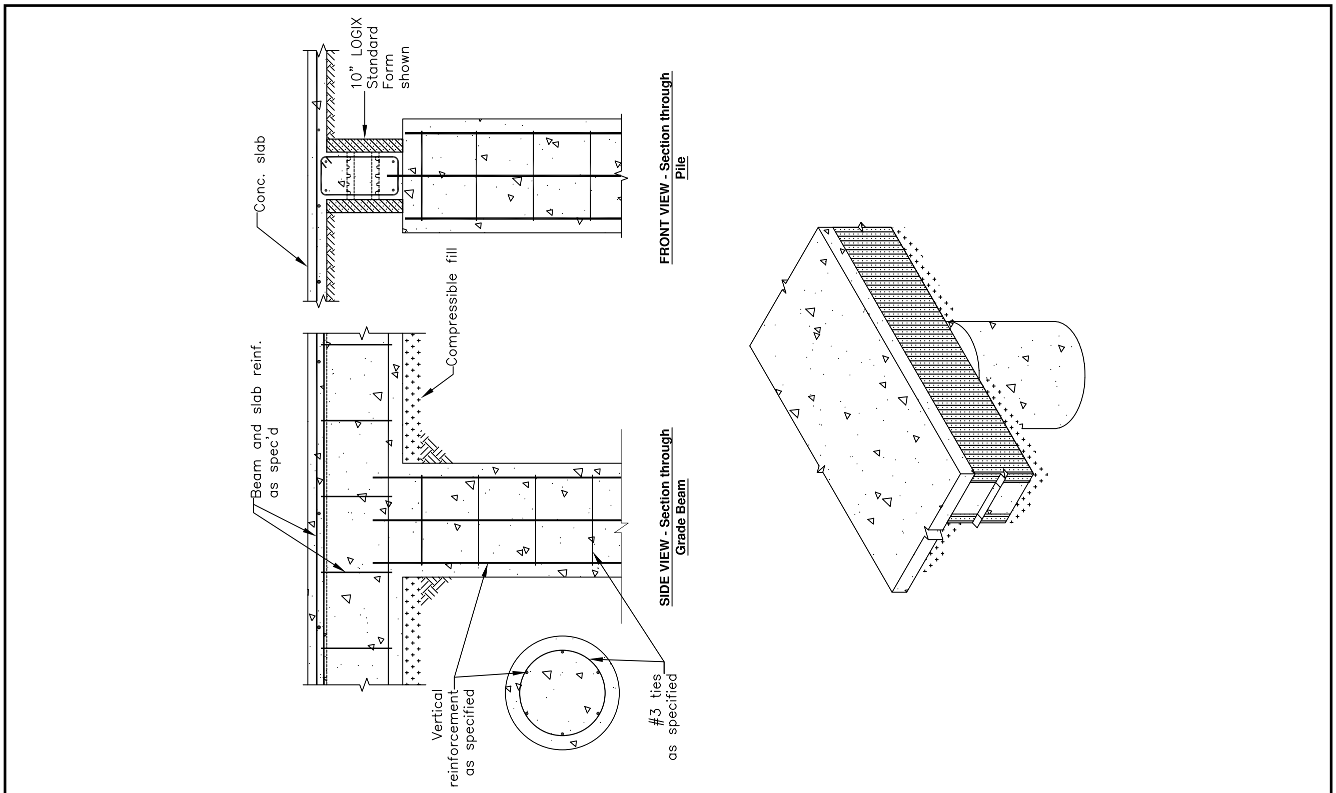
5.3.5.1 - RADON BARRIER DETAIL



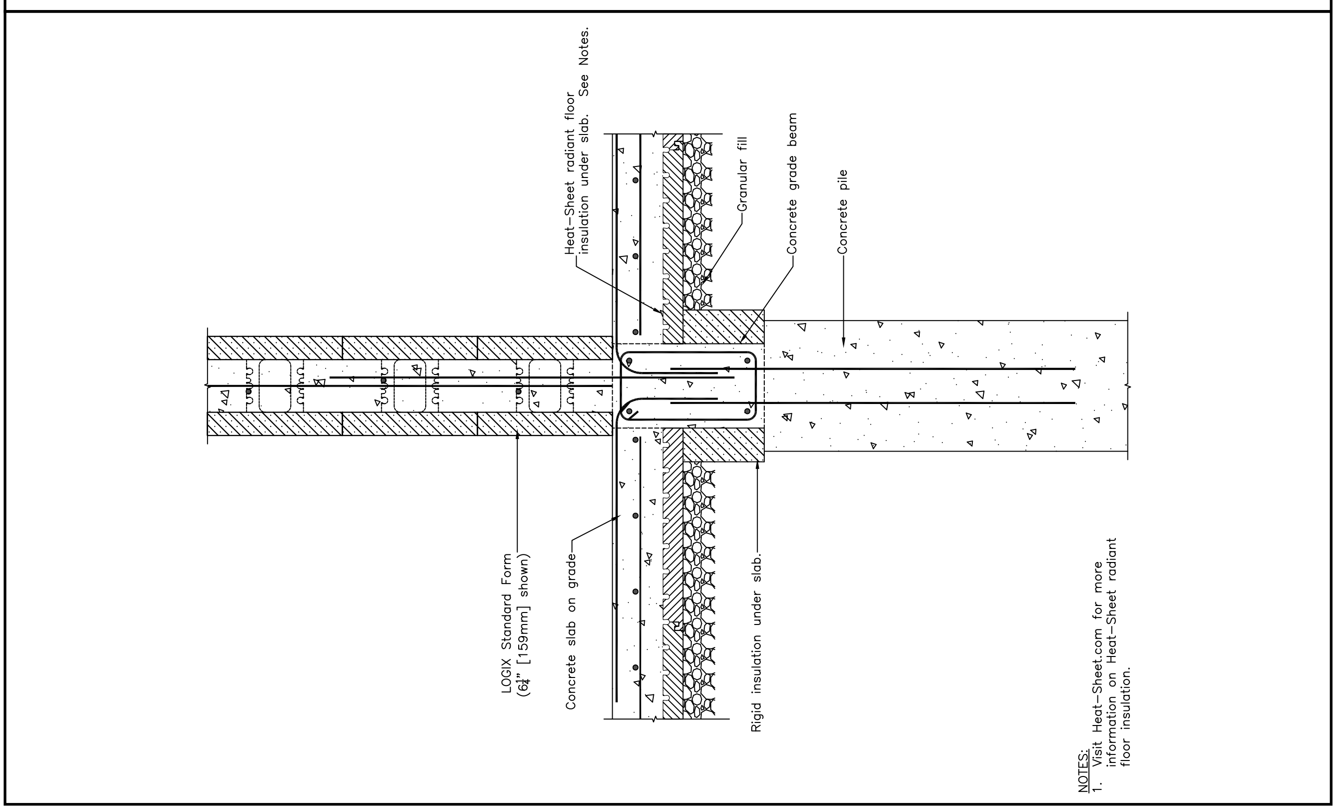
NOTES:
- Apply caulking to seal vertical joints between ICF forms up to radon/vapor termination.
- Consult local officials for additional required radon mitigation measures.

5.4 - FOOTINGS AT INTERIOR WALL
5.4.1 - GRADE BEAM & PILES

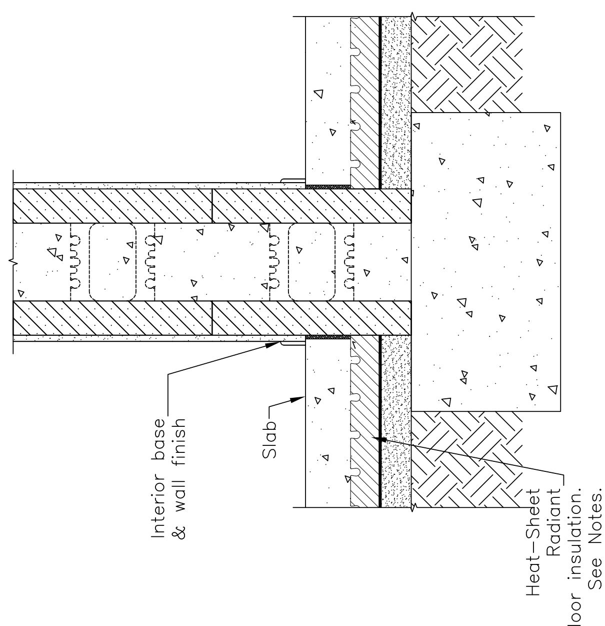
5.4.1.2 - LOGIX GRADE BEAM



5.4.1.1 - INTERIOR WALL ON PILE SUPPORTED GRADE BEAM



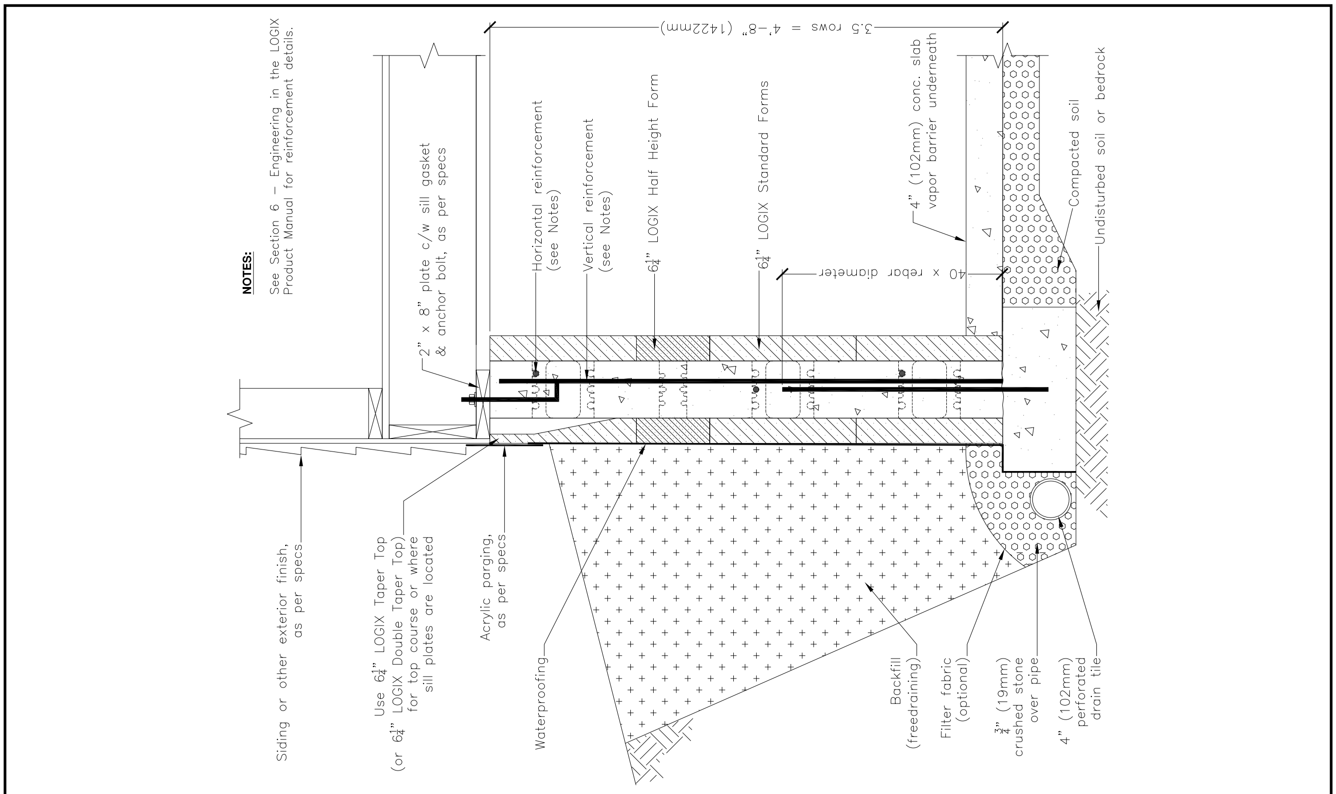
5.4.2.1 - ICF BASE AT INTERIOR WALL



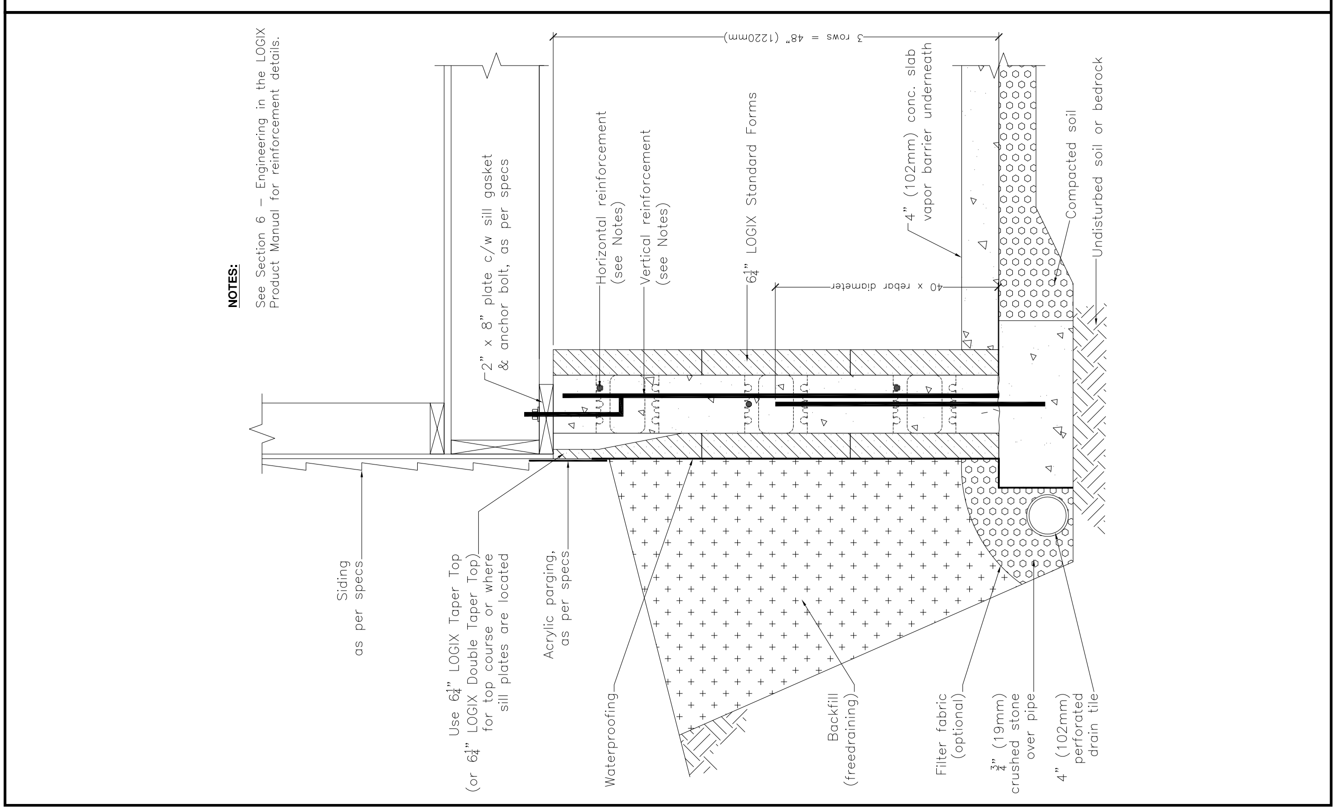
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. Visit Heat-Sheet.com for information on Heat-Sheet.

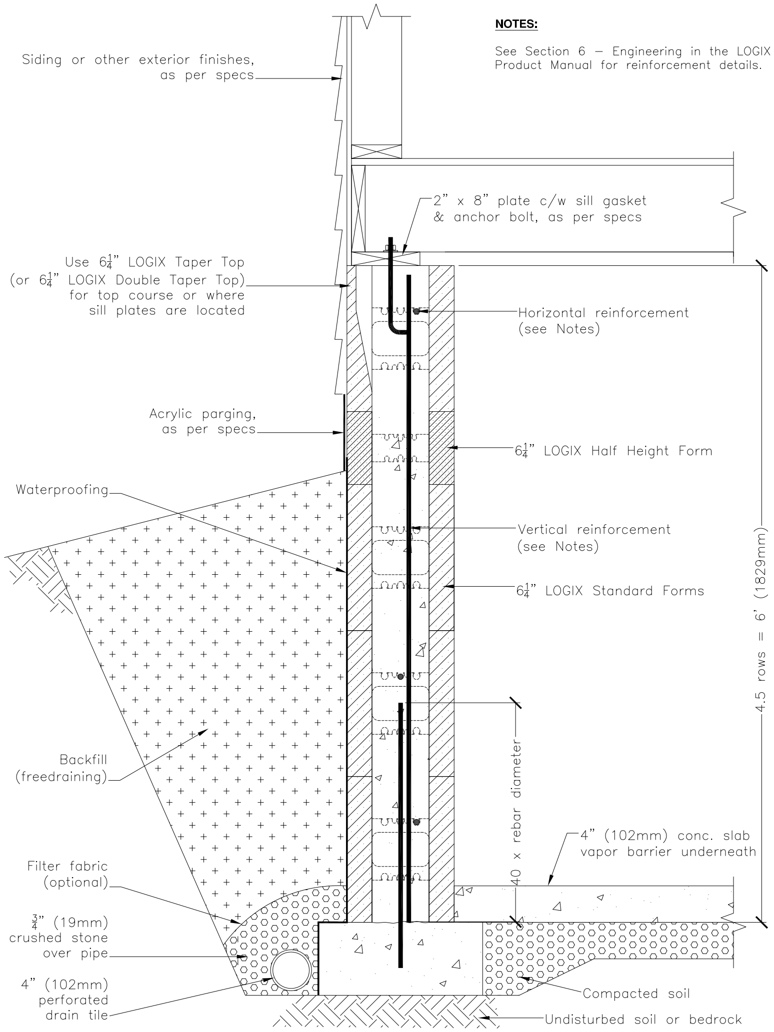
5.5.1.2 - 4'-8" CRAWL SPACE



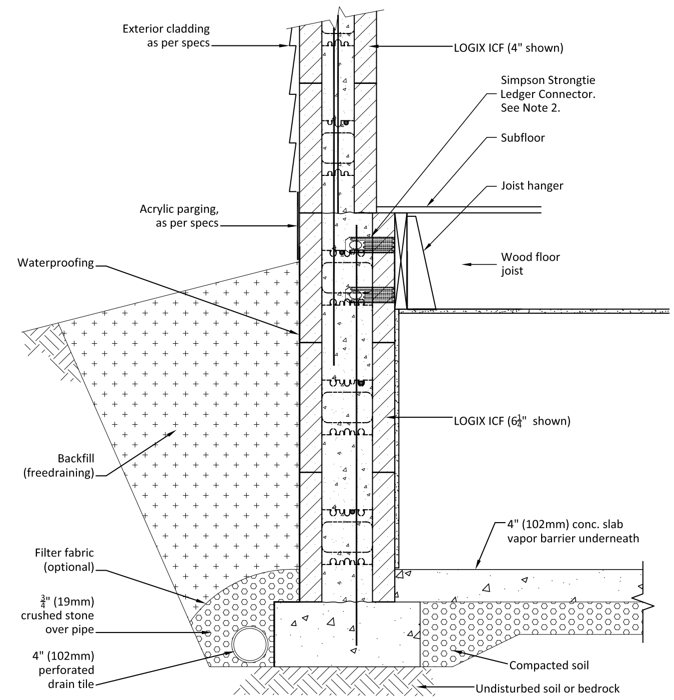
5.5.1.1 - 4' CRAWL SPACE



5.5.1.3 - 6' CRAWL SPACE

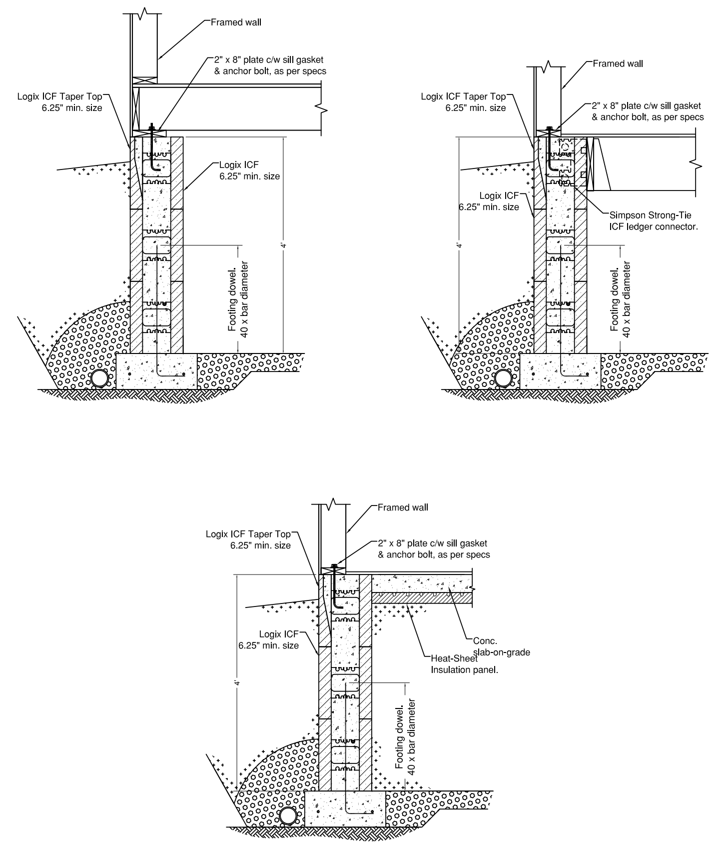


5.5.1.4 - 6.25" TO 4" LOGIX CRAWL SPACE

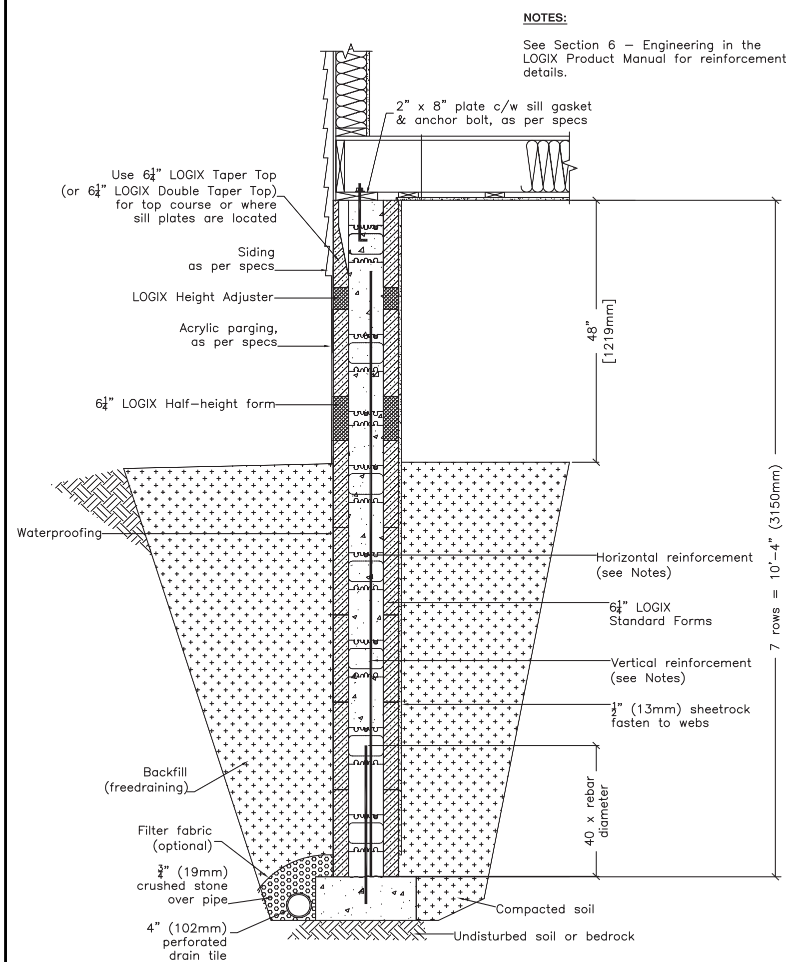


NOTE:
1. Refer to Section 6 of the Logix Design Manual for reinforcing requirements.
2. Refer to Section 2.12.4 of the Logix Design Manual.

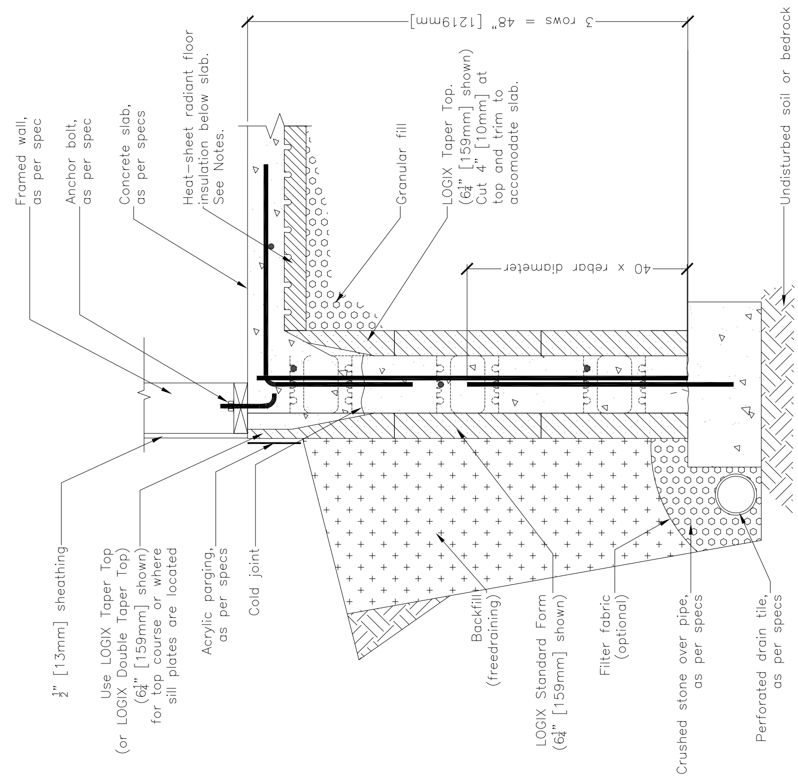
5.5.1.5 - 4' CRAWL SPACES WITH LOGIX 6.25"



5.5.1.6 - 10'-4" FOUNDATION WITH 4' CRAWL SPACE



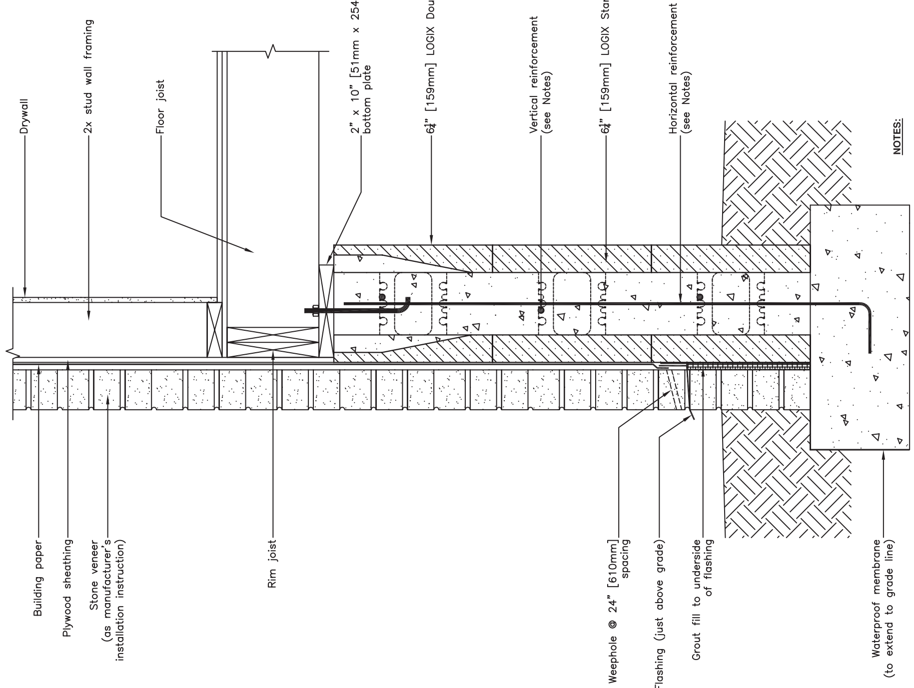
5.5.2.1 - 4' FROST WALL



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for wall reinforcement details.
2. Visit Heat-Sheet.com for more information on Heat-Sheet radiant floor insulation.

5.5.1.7 - CRAWL SPACE WITH BRICK VENEER AND FRAMING



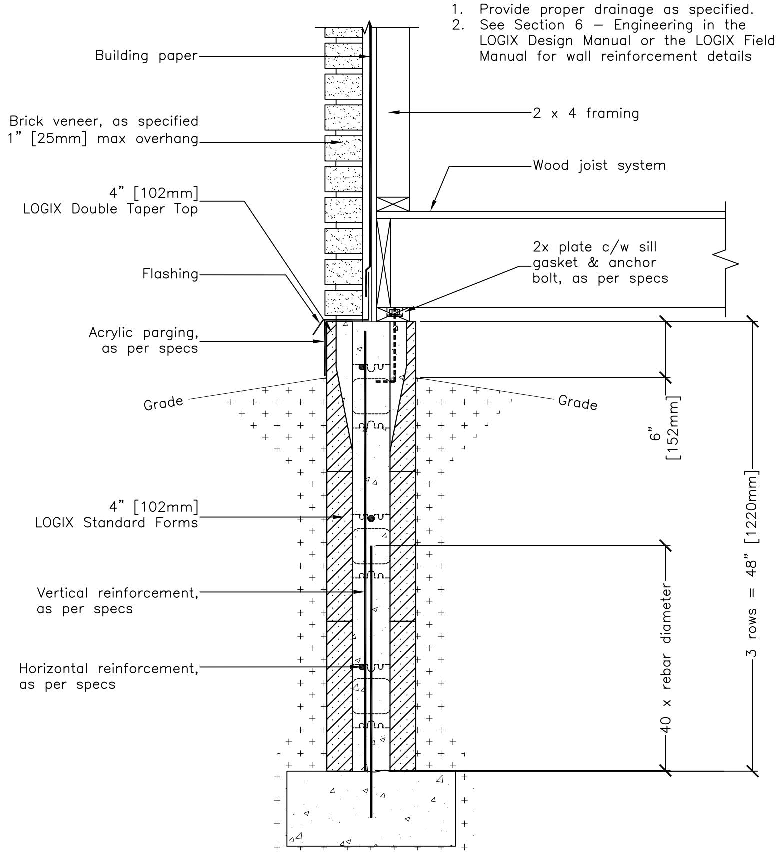
NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

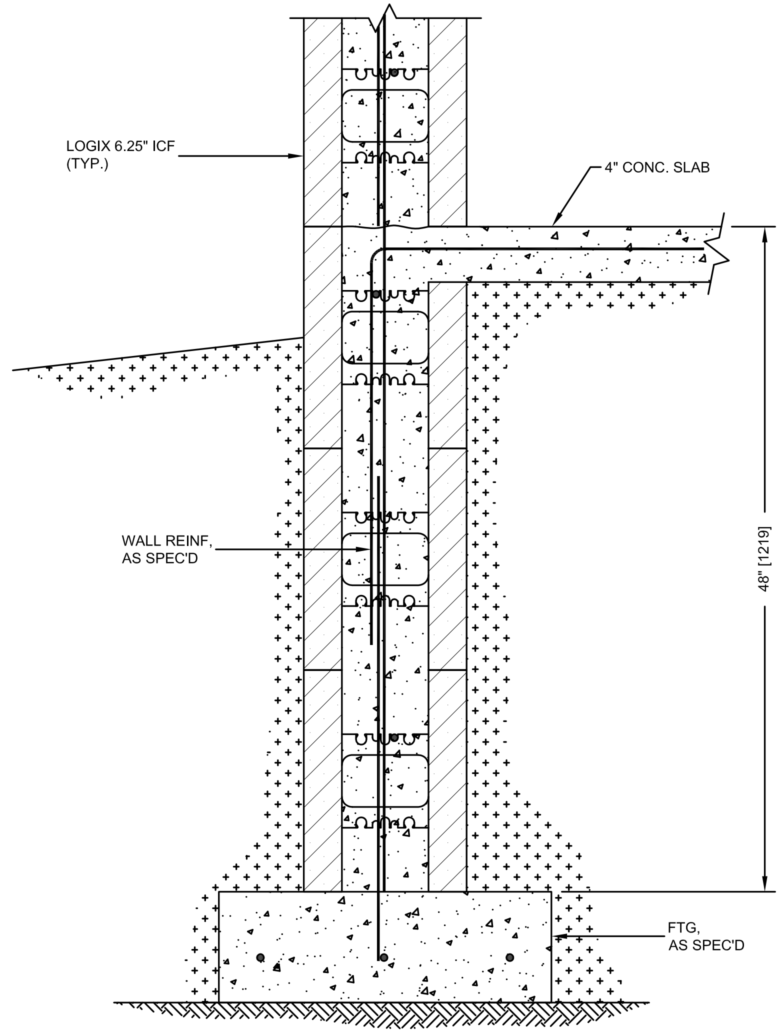
5.5.2.2 - 4' FROST WALL WITH DOUBLE TAPER TOP

NOTE:

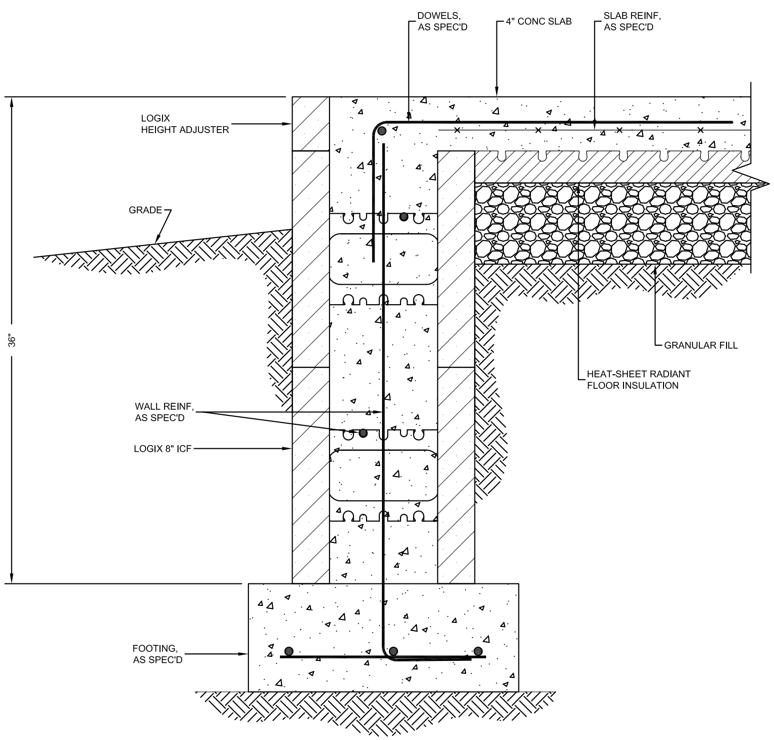
1. Provide proper drainage as specified.
2. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for wall reinforcement details



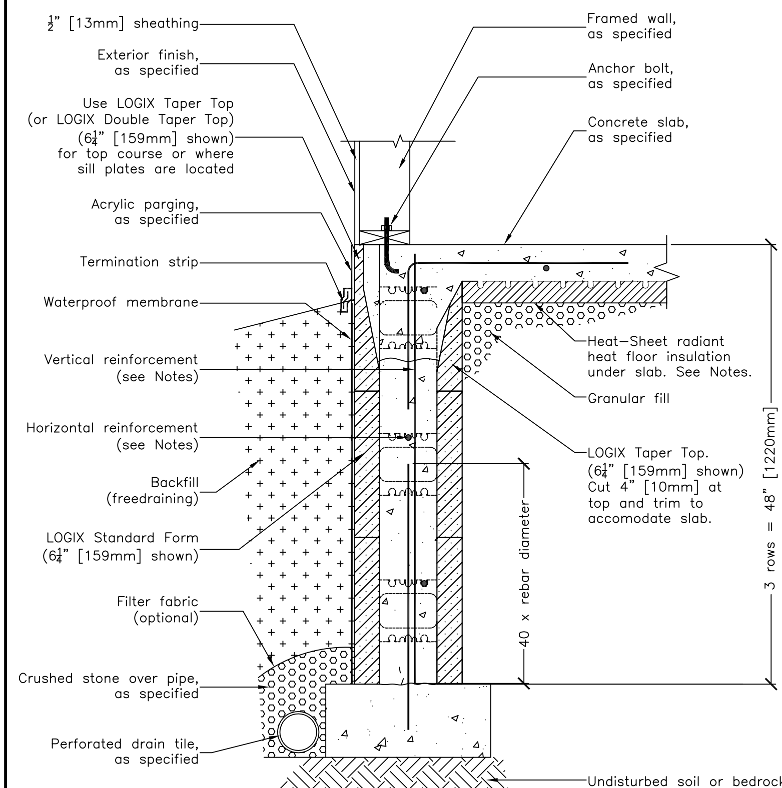
5.5.2.3 - 4' FROST WALL WITH 6.25" TO 6.25" LOGIX TRANSITION



5.5.2.4 - 3' FROST WALL WITH INTEGRAL SLAB



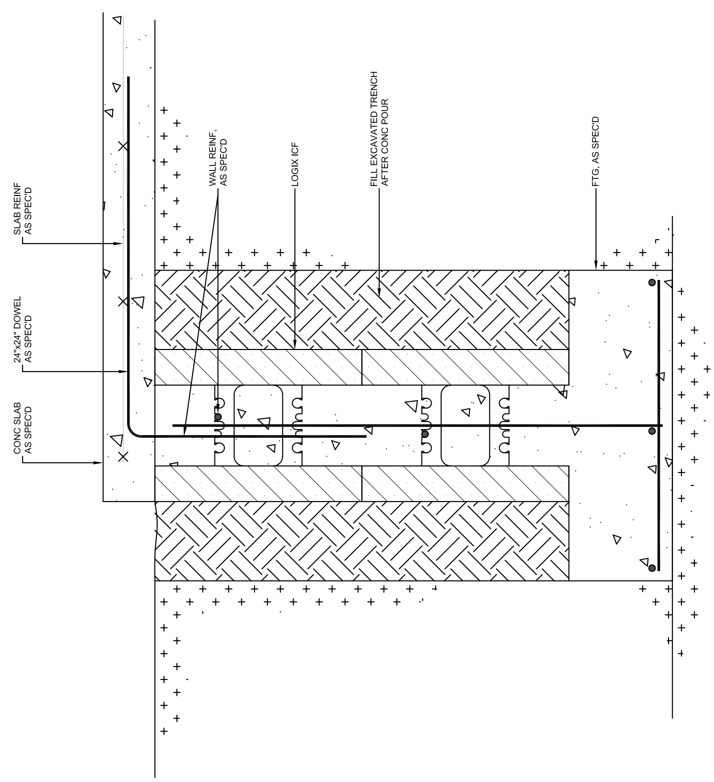
5.5.2.5 - 3' FROST WALL WITH INTEGRAL SLAB & FRAMING



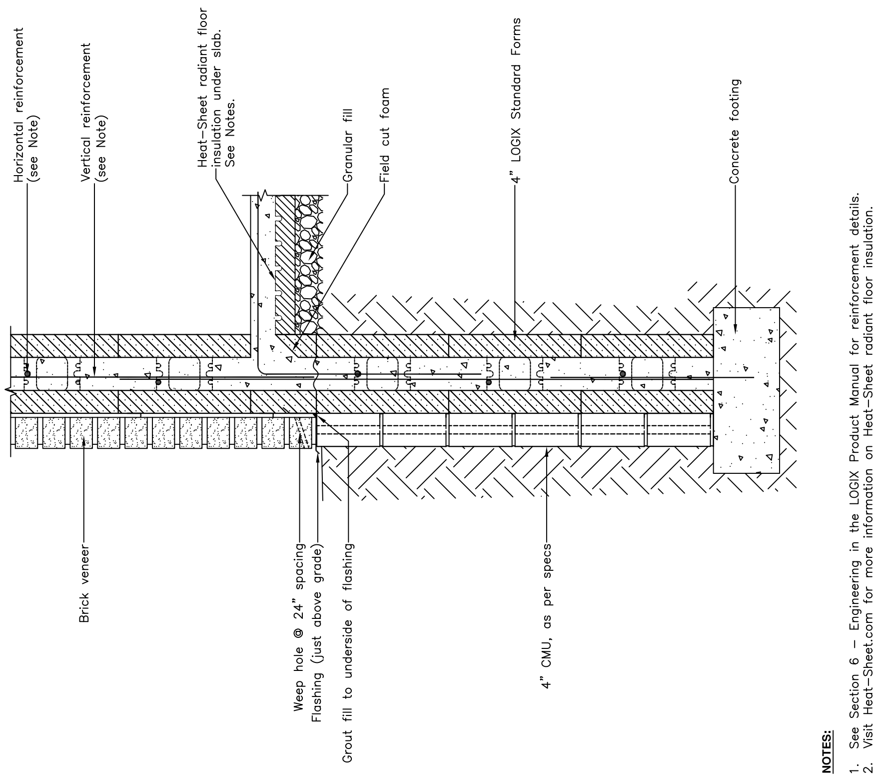
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for wall reinforcement details.
2. Visit Heat–Sheet.com for more information on Heat–Sheet radiant heat floor insulation.

5.5.2.6 - TRENCHED STEM WALL



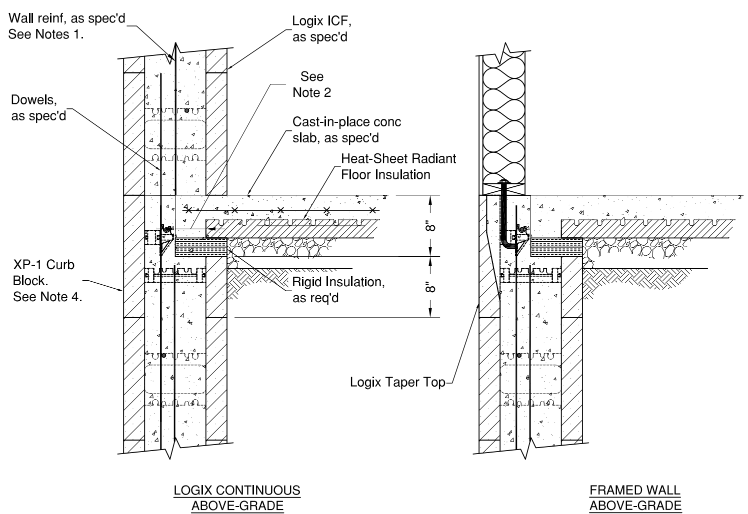
5.5.2.7 - FROST WALL WITH CMU BRICK LEDGE



NOTES:

1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Visit Heat–Sheet.com for more information on Heat–Sheet radiant floor insulation.

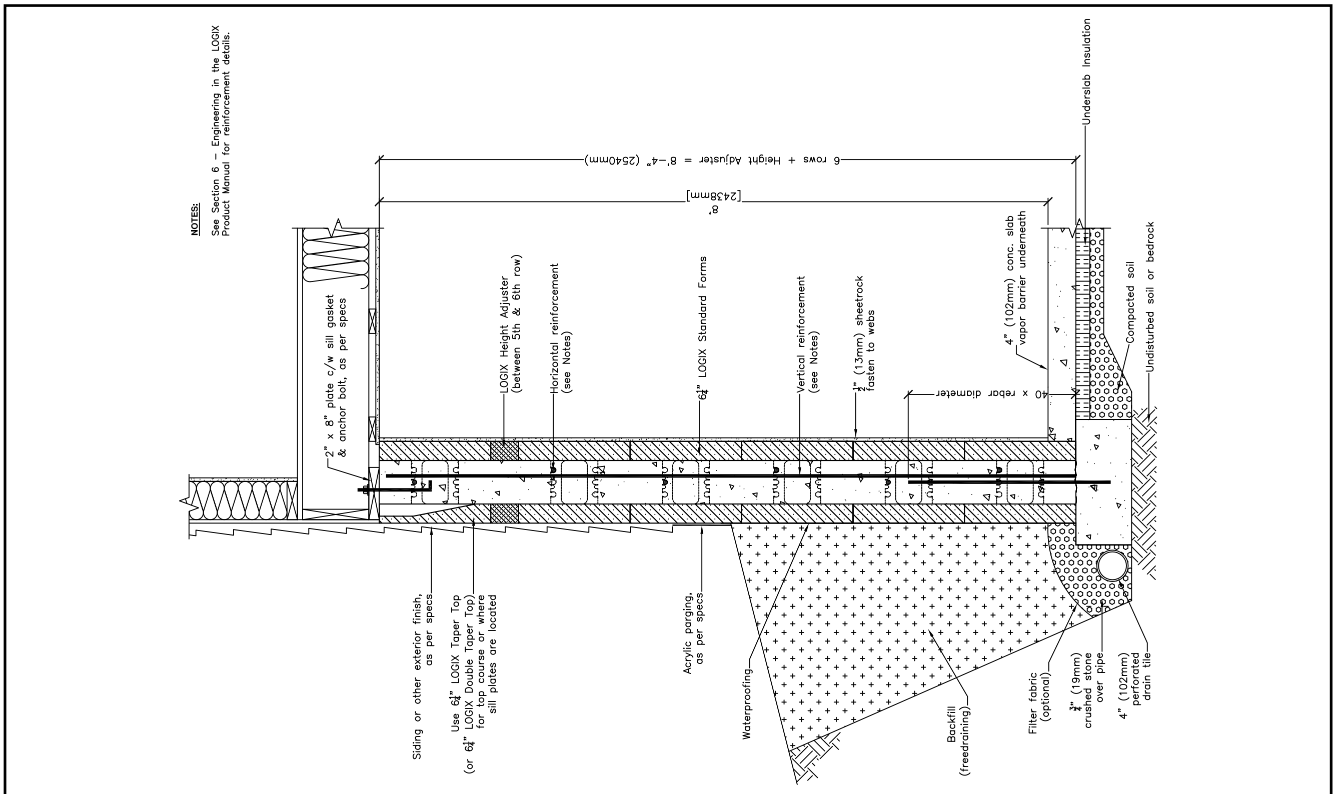
5.5.2.8 - CAST-IN-PLACE SLAB WITH XP-1 CURB BLOCK



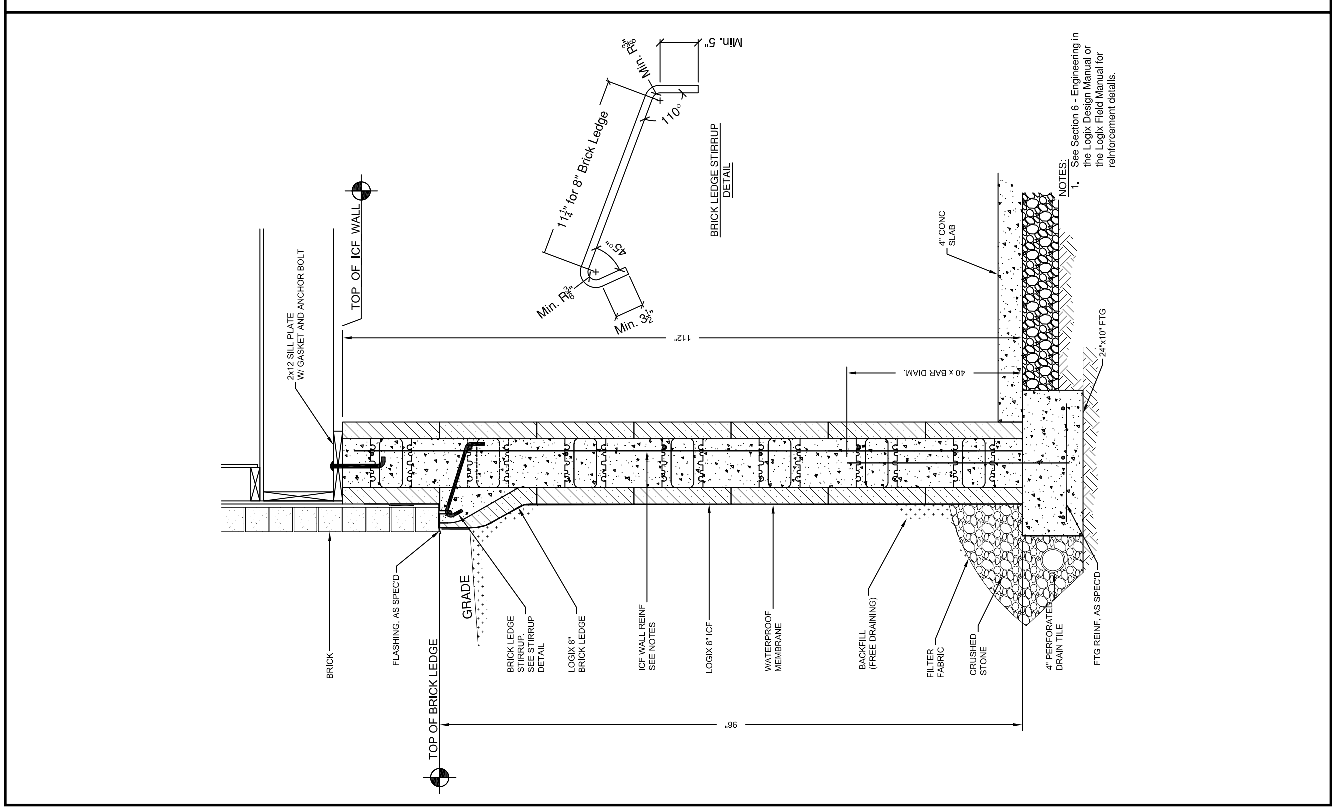
NOTES:
1. For wall reinforcement refer to the Logix Design Manual, Secdtion 6 Engineering.
2. Bearing length varies based on Logix ICF size. Refer to Wall Chart table in Drawing 5.18.1, XP-1 Curb Block with Corbel Edge
3. For more information refer to Drawing 5.18.1, XP-1 Curb Block
4. Visit Heat-Sheet.com for mroe information on Heat-Sheet radiant floor insulation.

CAD DRAWINGS - FOUNDATION WALLS

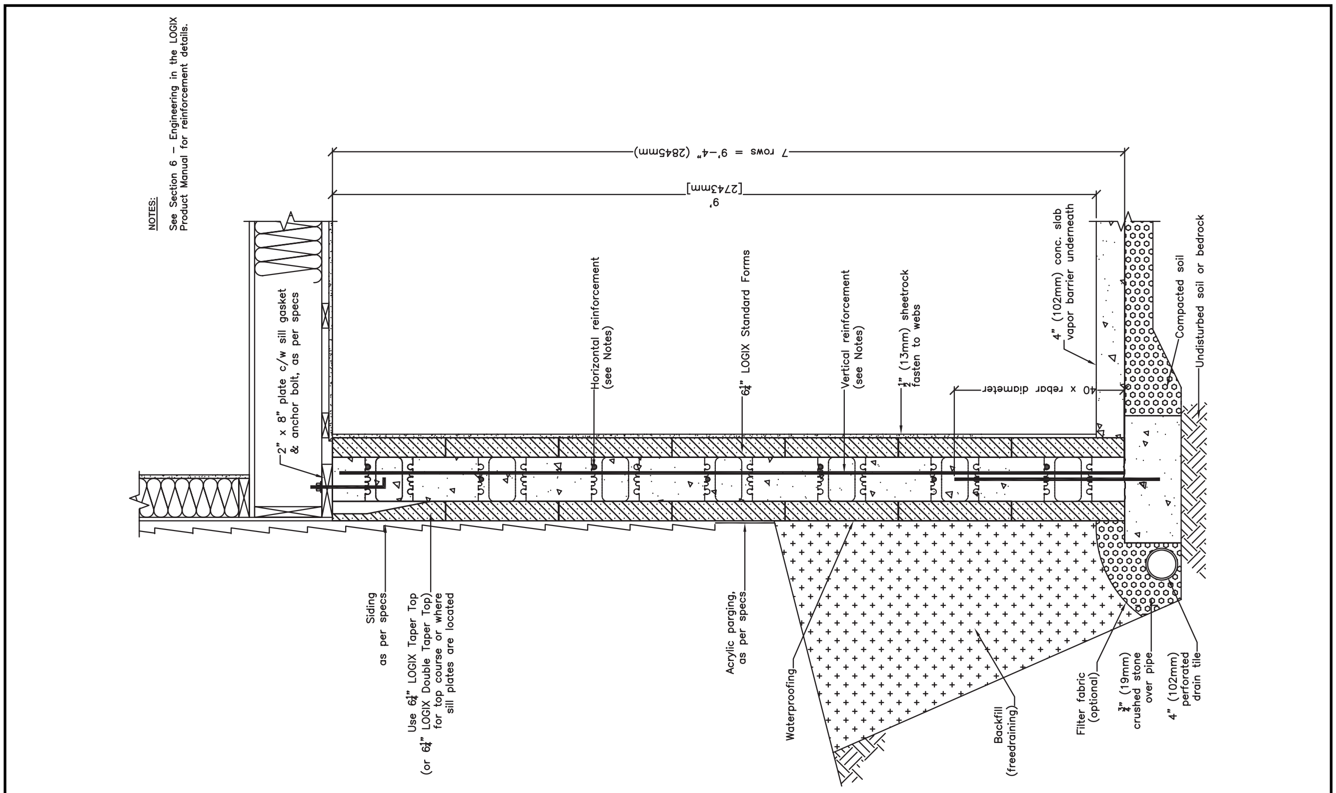
5.5.3.2 - 8'-4" FOUNDATION WITH LOGIX TAPER TOP & HEIGHT ADJUSTER



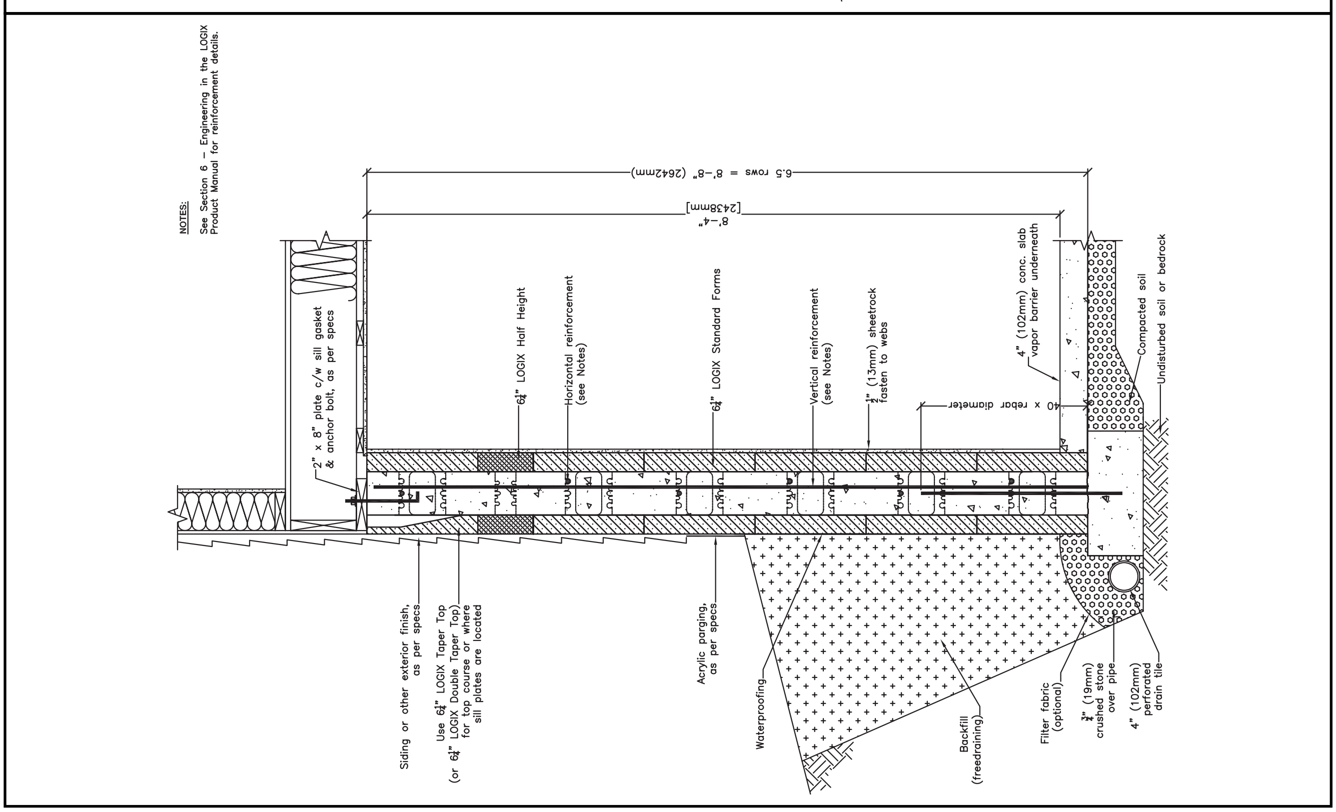
5.5.3.1 - 7' FOUNDATION WITH LOGIX 8" & BRICK LEDGE



5.5.3.4 - 9'-4" FOUNDATION WITH LOGIX TAPER TOP



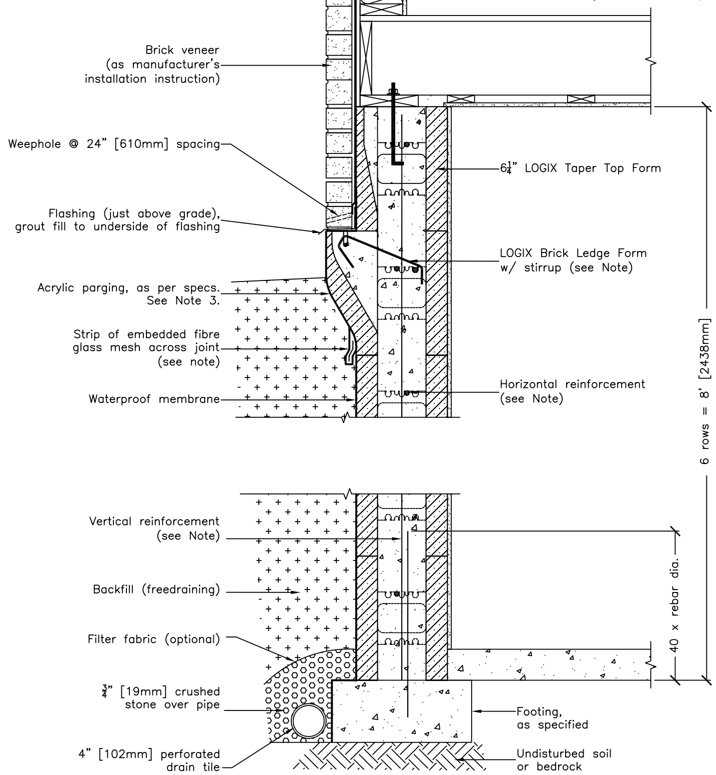
5.5.3.3 - 8'-8" FOUNDATION WITH LOGIX TAPER TOP



5.5.3.5 - 8' FOUNDATION WITH LOGIX BRICK LEDGE

NOTES:

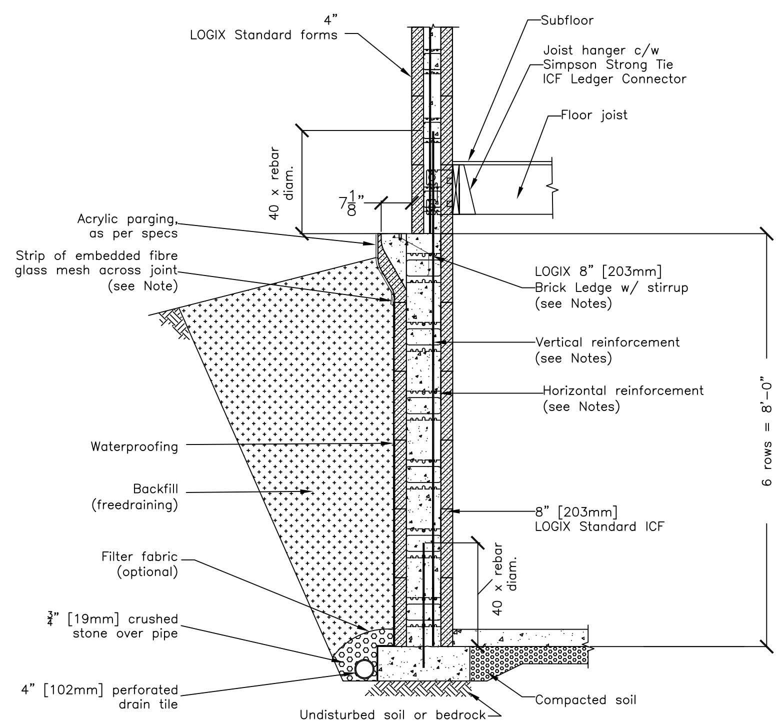
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. See Residential Drawing 5.3.8 for waterproof detail.



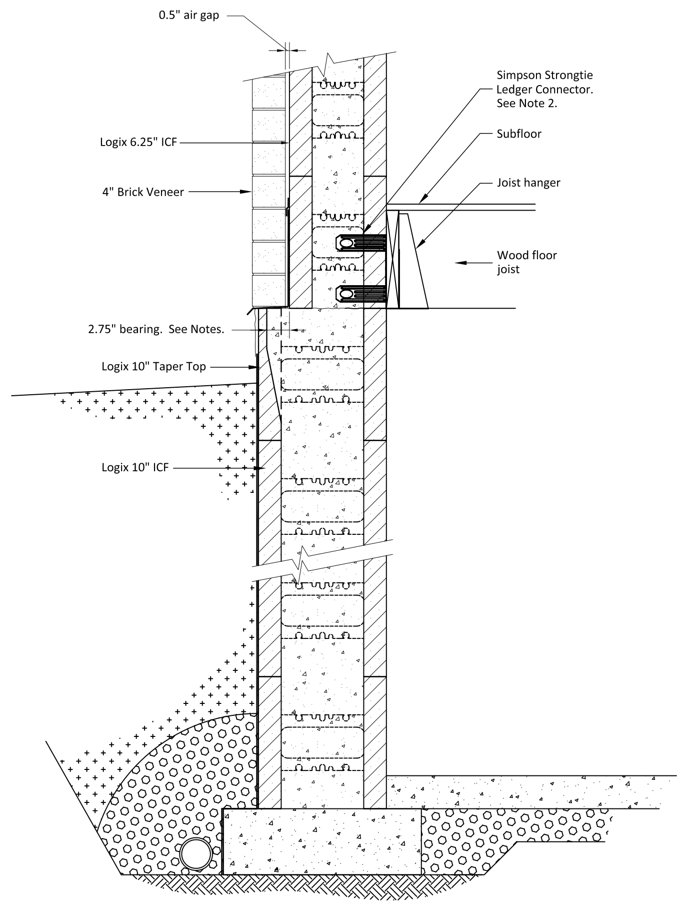
5.5.3.6 - 8' FOUNDATION WITH 8" TO 4" LOGIX TRANSITION

NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.



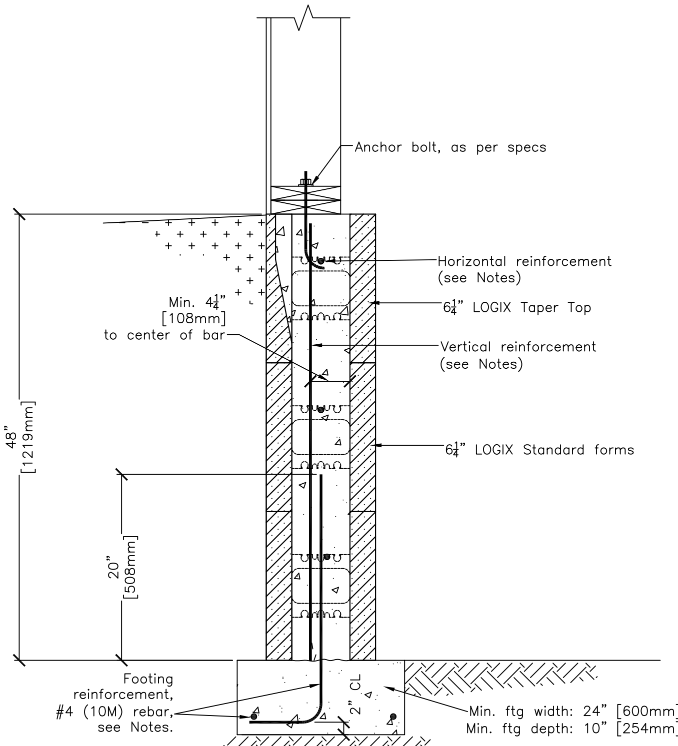
5.5.3.7 - 10" TO 6.25" SUPPORTING BRICK VENEER



NOTE:

1. Builder/contractor shall verify bearing length for brick veneer complies with local building codes.

5.5.3.8 - 4' KNEE WALL WITH LOGIX 6.25"

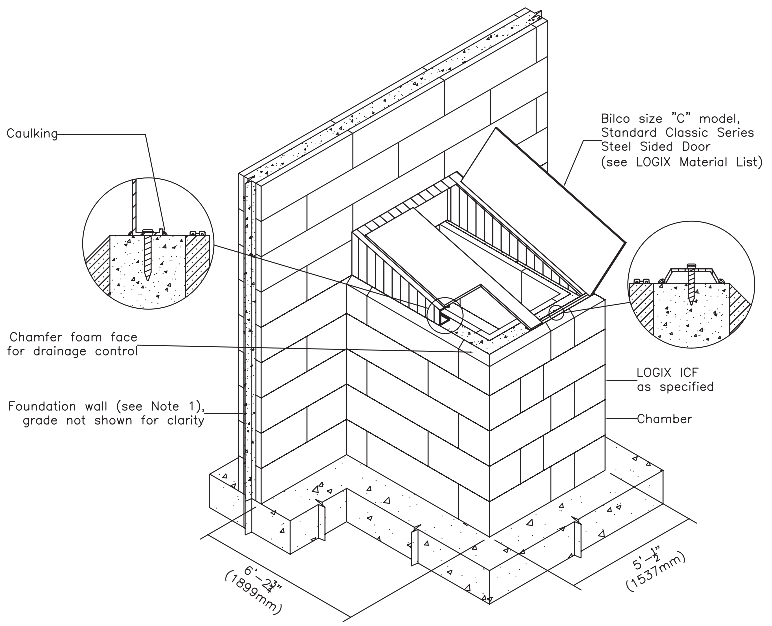


NOTES:

The above knee wall is applicable under the following conditions:

1. Min. vertical rebar, use #4@32" max. (10M@813 mm max.) on center for 60ksi steel (#4@24" for 40ksi steel). Footing dowels to match vertical rebar in wall for size and spacing.
2. Horizontal rebar: #4@16" max (10M@406 mm max.). on center.
3. Max. backfill height: 4 ft (1.2 m); Equivalent fluid density: <= 75pcf (1200 kg/m3) w/ no surcharge; Soil must be well drained (no heavy clay)
4. Min. soil bearing capacity: 2000 psf (13.8 MPa)
5. Min. 28 day concrete compressive strength: 3000 psi (20 MPa)
6. Max. knee wall length: 40 ft (12 m); Max. knee wall height: 4 ft (1.2 m)
7. Max. 2 stories above-grade of stud framed wall construction – house superstructure not to exceed 2000 lb/ft.
8. Consult a local licensed engineer for knee walls that do not meet the above notes and drawing.

5.5.3.9 - BILCO BASEMENT DOORS



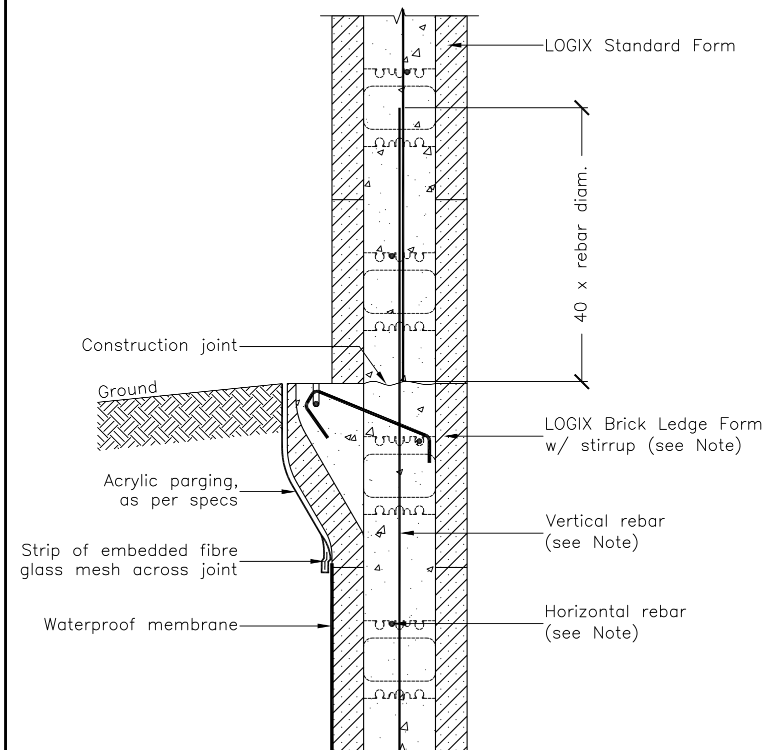
LOGIX Material List for Bilco Size "C" Doors:

90° Corner Forms (per course) – 2
Standards (per course) – 3 (Field cut to size)

NOTES:

1. Foundation wall height typically one course higher than chamber.
2. Caulk all around the exterior of the frame where it meets the concrete with exterior grade silicone caulking.
3. Install Bilco door as per recommended manufacturer's installation instructions.
4. For more information on Bilco products please visit www.bilco.com

5.5.4.1 - LOGIX BRICK LEDGE WATERPROOFING DETAIL



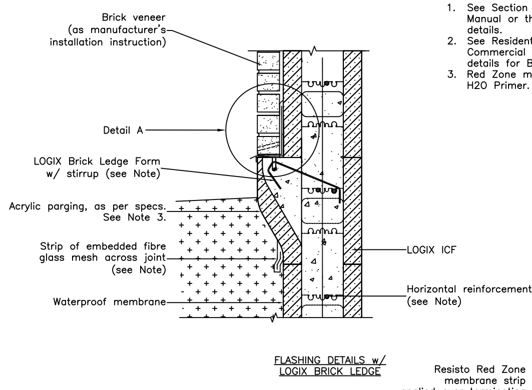
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.7 for stirrup details for Brick Ledge Forms.

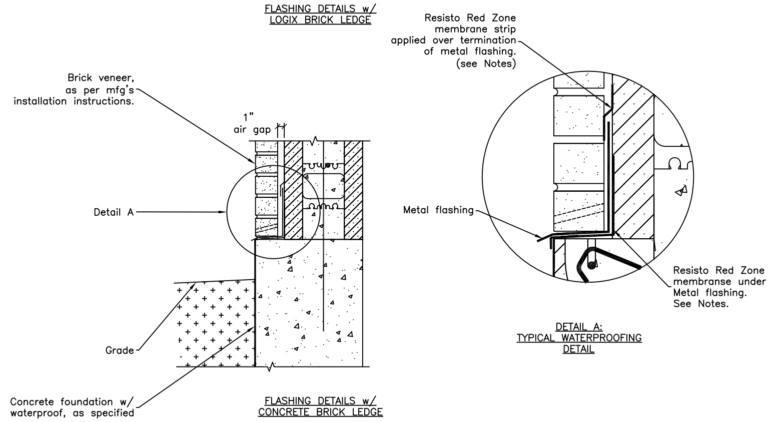
5.5.4.2 - BRICK LEDGE FLASHING DETAILS

NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. Red Zone membrane must be adhered with Resisto H20 Primer.



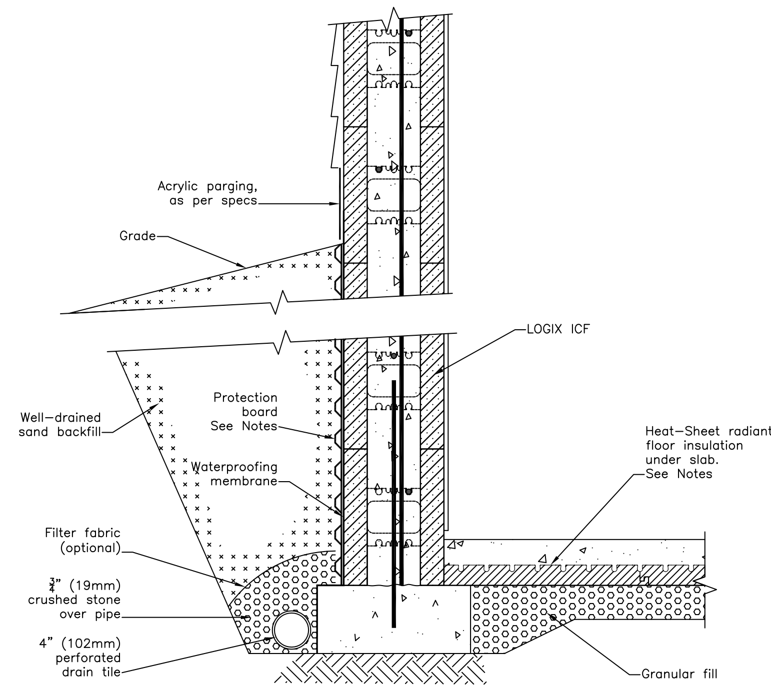
FLASHING DETAILS w/ LOGIX BRICK LEDGE



FLASHING DETAILS w/ CONCRETE BRICK LEDGE

DETAIL A: TYPICAL WATERPROOFING DETAIL

5.5.4.3 - WATERPROOFING MEMBRANE PROTECTION



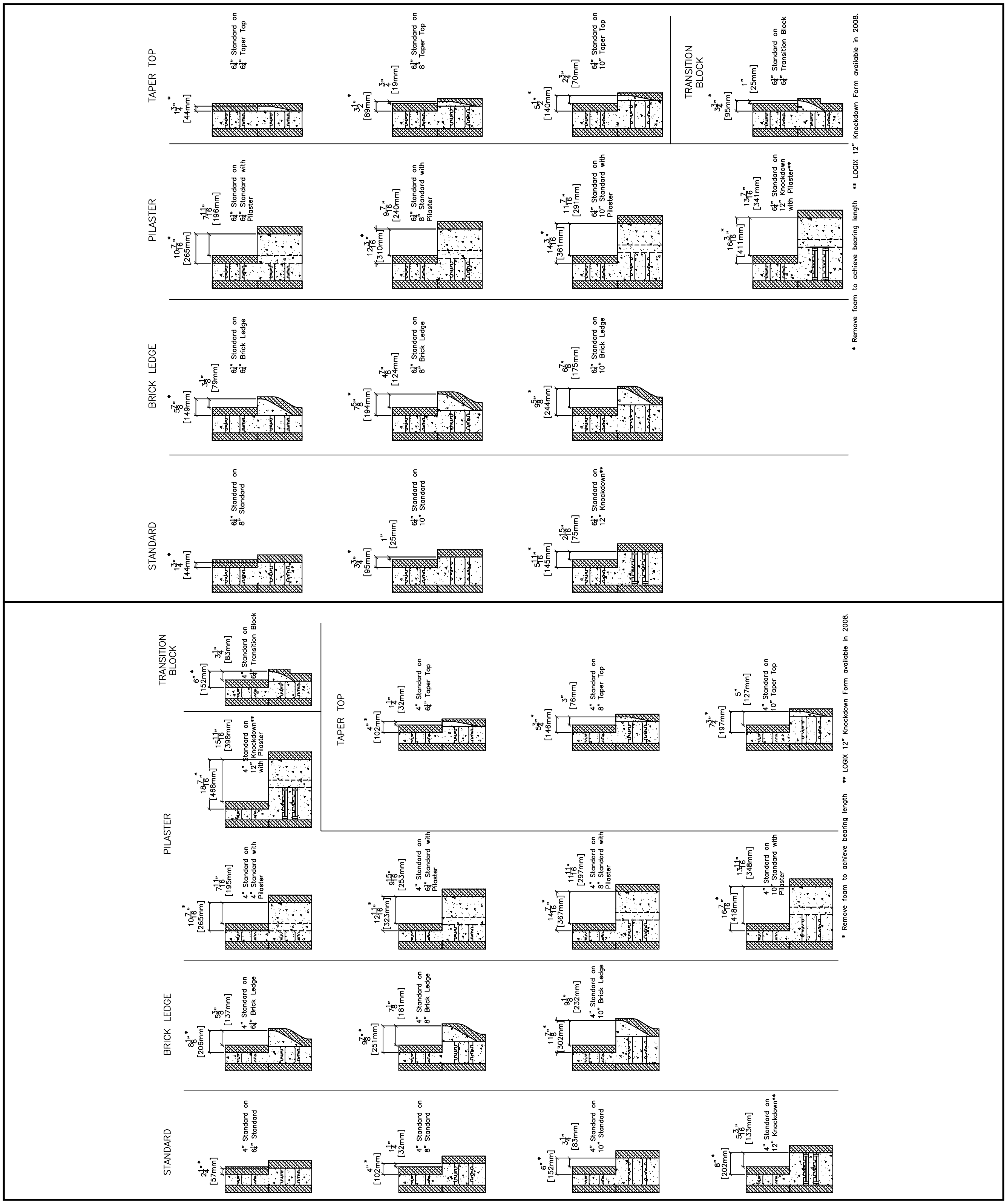
NOTES:

1. Protection board not required if backfill material consists only of well–drained sand. Backfill material with well–drained gravels or clays require a protection board against damp–proof membrane.
2. Visit Heat–Sheet.com for more information on Heat–Sheet radiant floor insulation.

5.6 - FLOOR CONNECTIONS AT EXTERIOR WALL
5.6.1 - LOGIX BEARING LENGTHS

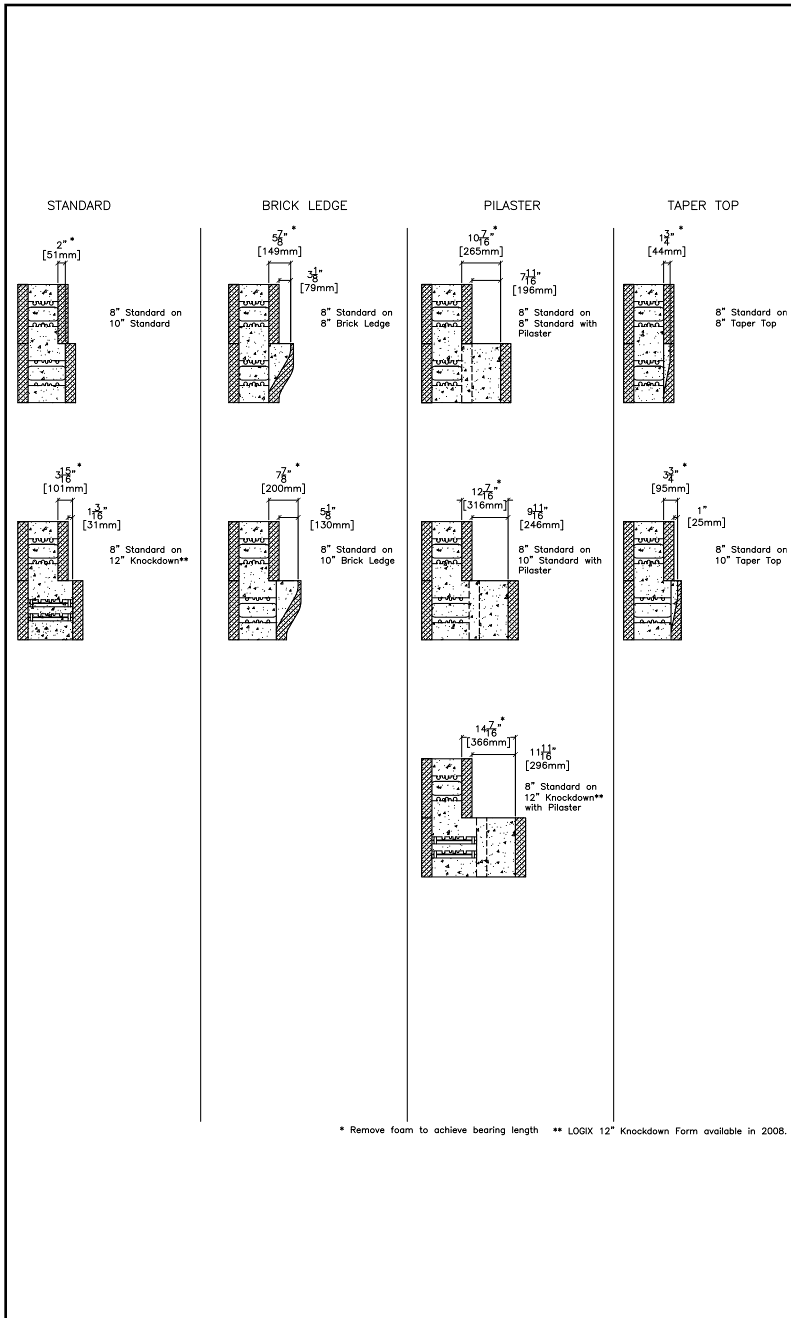
5.6.1.2 - BEARING LENGTHS - 6.25" LOGIX STANDARD ON TOP

5.6.1.1 - BEARING LENGTHS - 4" LOGIX STANDARD ON TOP

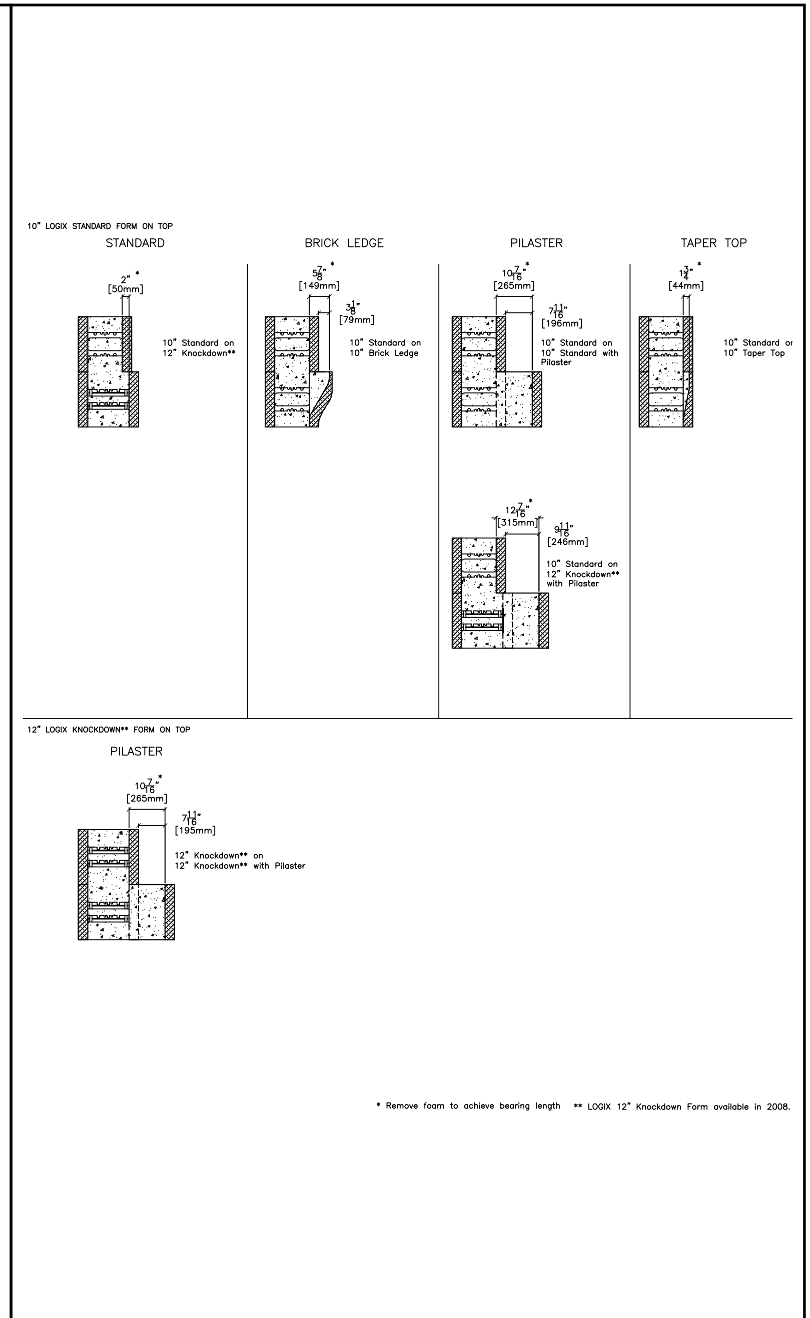


The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.6.1.3 - BEARING LENGTHS - 8" LOGIX STANDARD ON TOP



5.6.1.4 - BEARING LENGTHS - 10" & 12" LOGIX STANDARD ON TOP

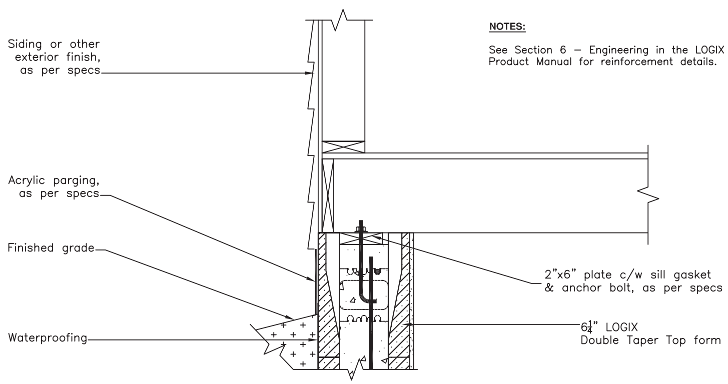


5.6.2 - WOOD JOISTS

5.6.2.1 - 2X6 TOP PLATE RECESSED WITH DOUBLE TAPER TOP

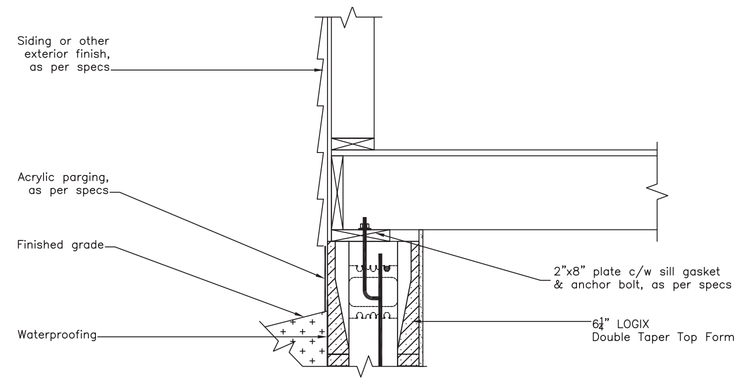
NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.



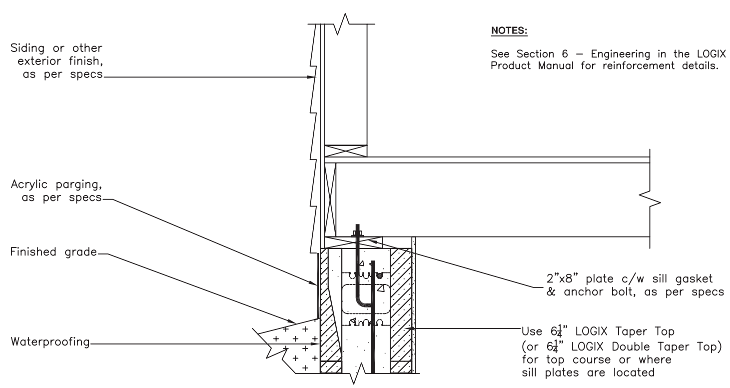
2x6 TOP PLATE RECESSED

5.6.2.2 - 2X6 TOP PLATE OVERHUNG WITH DOUBLE TAPER TOP



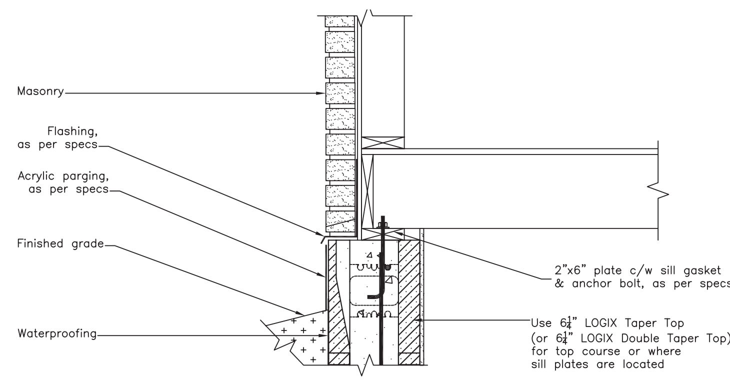
2x8 TOP PLATE OVERHUNG

5.6.2.3 - 2X8 TOP PLATE OVERHUNG WITH TAPER TOP



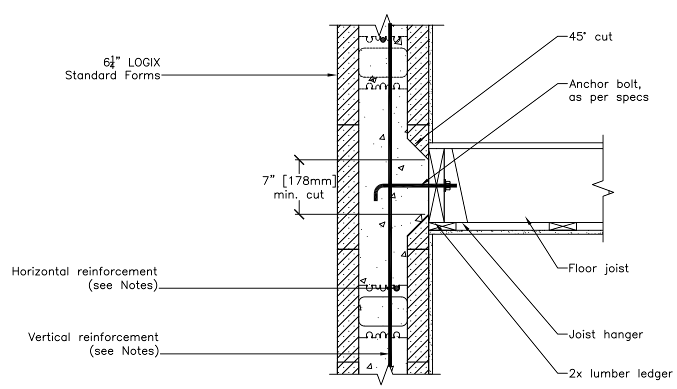
2x8 TOP PLATE OVERHUNG WITH TAPERED TOP FORM

5.6.2.4 - MASONRY VENEER WITH TAPER TOP



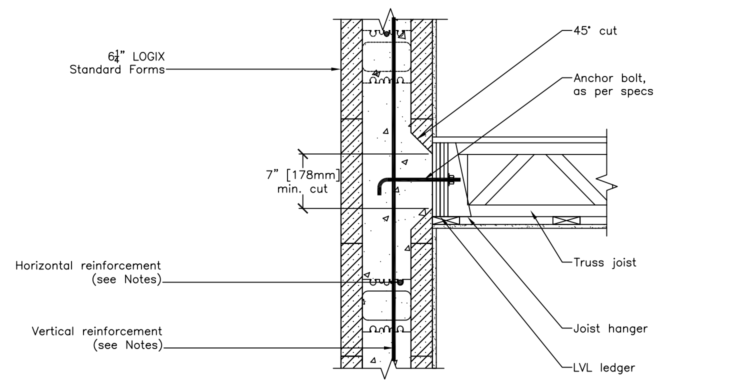
2x6 TOP PLATE OVERHUNG WITH MASONRY AND TAPERED TOP FORM

5.6.2.5 - 2X LUMBER LEDGER



LUMBER LEDGER

5.6.2.6 - LVL LUMBER LEDGER

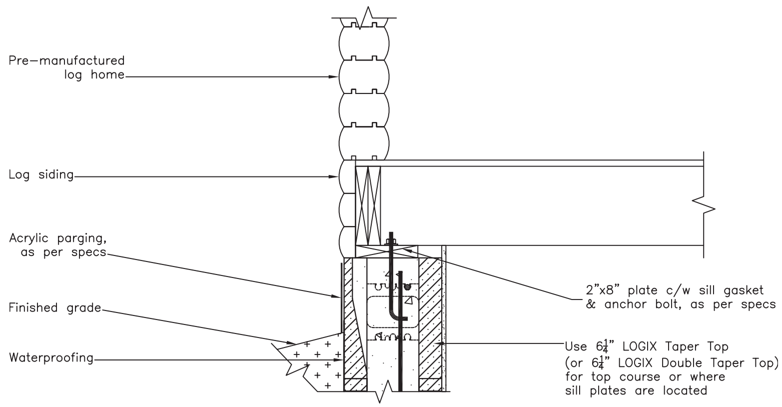


LVL LEDGER

NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.2.7 - TAPER TOP WITH LOG HOME

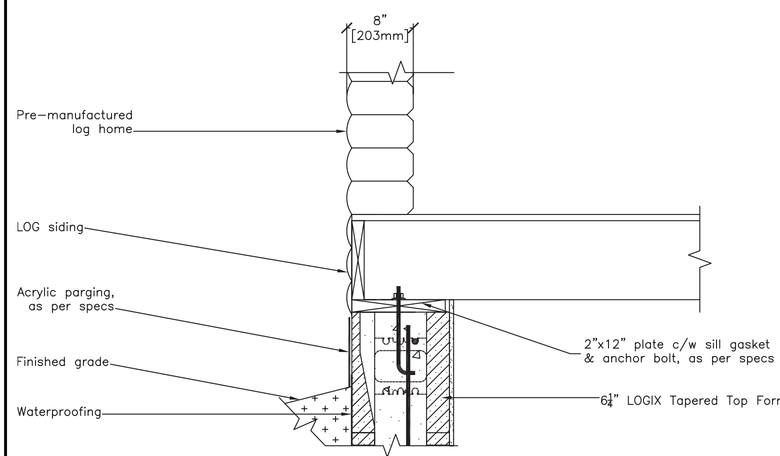


LOG HOME ON 2x8 SILL PLATE & TAPER TOP FORM

NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.2.8 - TAPER TOP WITH LOG HOME 2X12 SILL PLATE

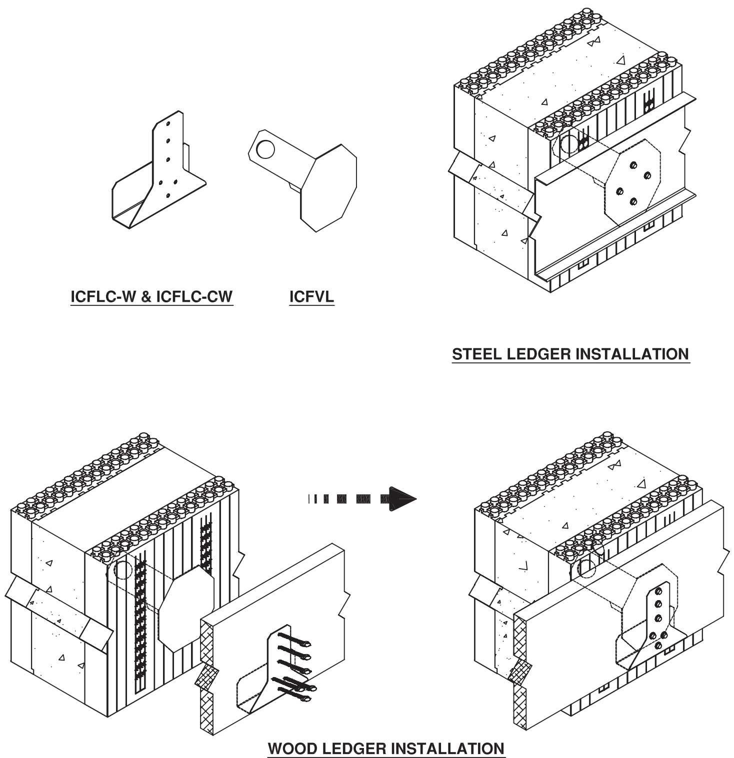


LOG HOME ON 2x12 SILL PLATE & TAPER TOP FORM

NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

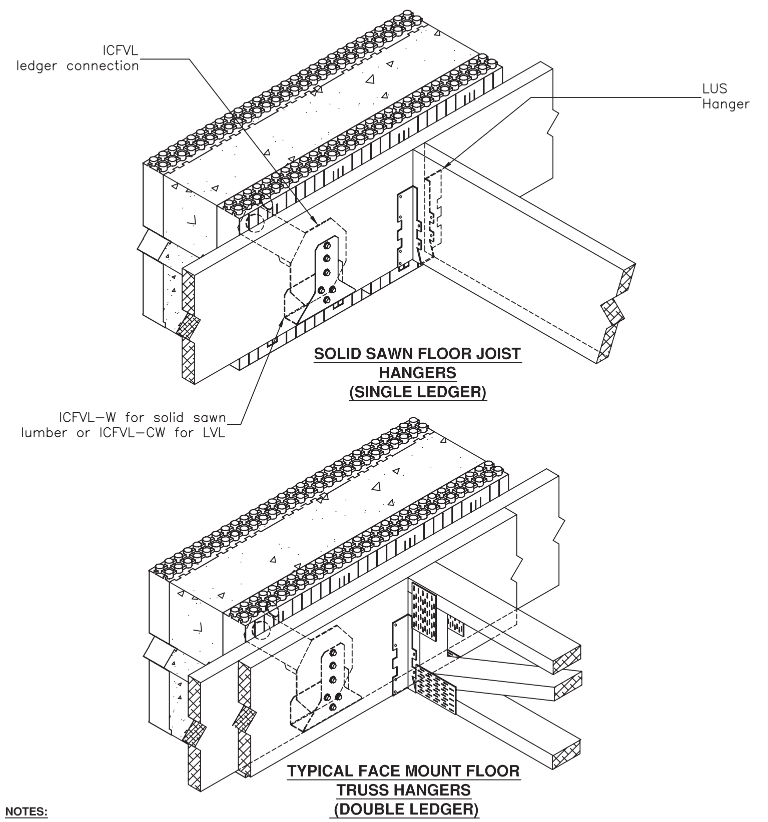
5.6.2.9 - SIMPSON ICF HANGER



NOTES:

1. For more information see Section 2 of the LOGIX Product Manual or visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999−5099 prior to installation.

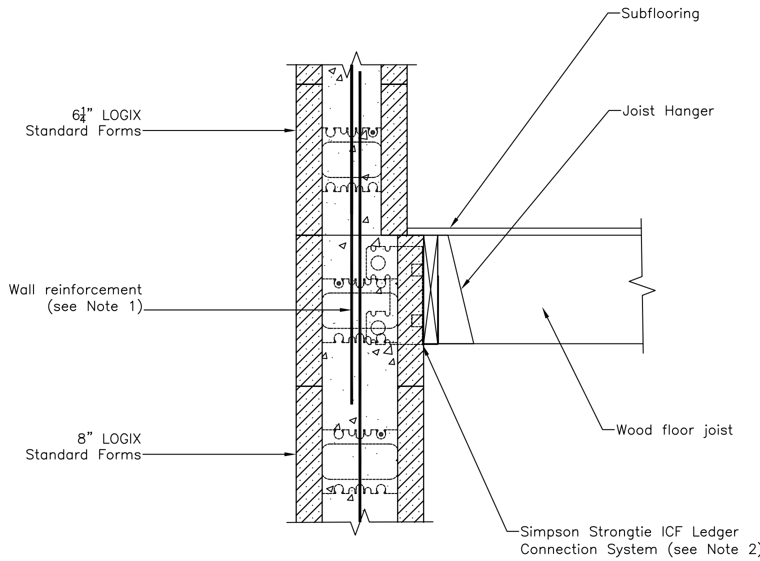
5.6.2.10 - SIMPSON ICF LEDGER CONNECTION SYSTEM



NOTES:

1. For more information see Section 2 of the LOGIX Product Manual or visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999−5099 prior to installation.
3. Attachment of second ledger to be designed by others.

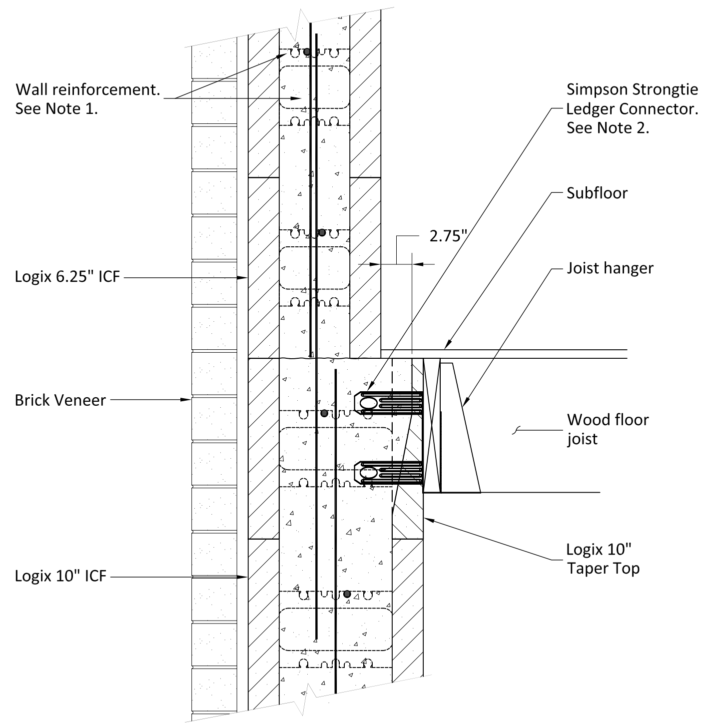
5.6.2.11 - 8” TO 6.25” TRANSITION WITH SIMPSON ICF HANGERS



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.
2. For spacing of Simpson Strongtie ICF Ledger Connection Systems refer to Section 2.12.4 of the LOGIX Design Manual.

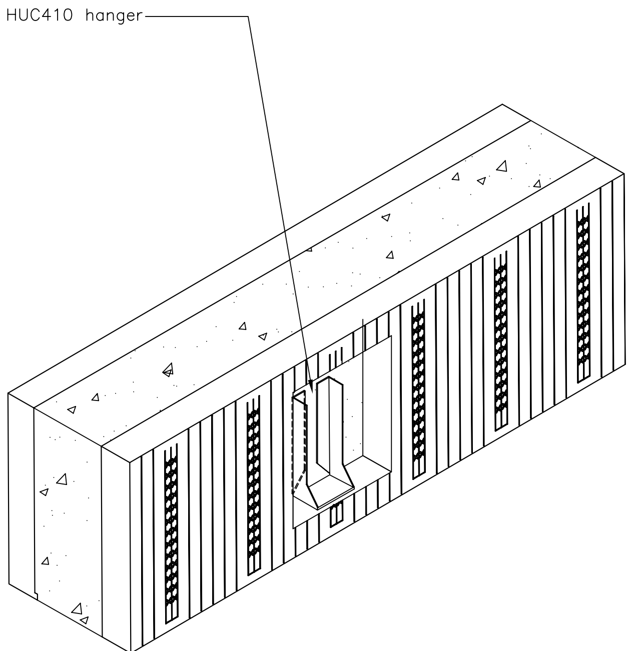
5.6.2.12 - 10” TO 6.25” LOGIX WITH TAPER TOP & SIMPSON ICF CONNECTOR



NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For spacing of Simpson Strongtie ICF Ledger Connection Systems refer to Section 2.12.4 of the LOGIX Design Manual.

5.6.2.13 - SIMPSON JOIST HANGER HUC410

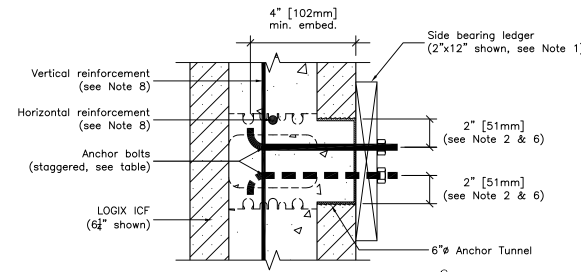


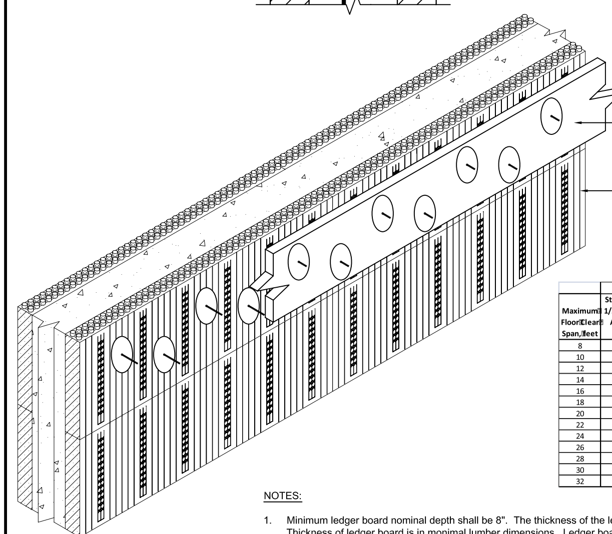
JOIST HANGER
(Installed on face of concrete in ICF)

NOTES:

1. For more information see Section 2 of the LOGIX Product Manual or visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999-5099 prior to installation.

5.6.2.14 - ANCHOR TUNNEL - FLOOR LEDGER CONNECTION



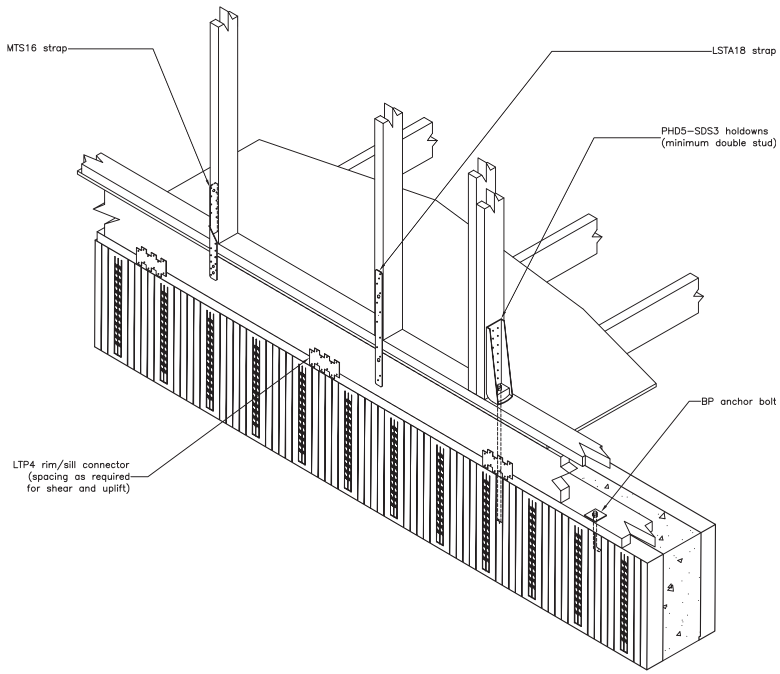


Maximum Floor Clear Span, feet	Maximum Anchor Bolt Spacing			
	Staggered 1/2" Diam. Anchor Bolts	Staggered 5/8" Diam. Anchor Bolts	Two 1/2" Diam. Anchor Bolts	Two 5/8" Diam. Anchor Bolts
8	18	20	36	40
10	16	18	32	36
12	14	18	28	36
14	12	16	24	32
16	10	14	20	28
18	9	13	18	26
20	8	11	16	22
22	7	10	14	20
24	7	9	14	18
26	6	9	12	18
28	6	8	12	16
30	5	8	10	16
32	5	7	10	14

NOTES:

1. Minimum ledger board nominal depth shall be 8". The thickness of the ledger board shall be a minimum of 2". Thickness of ledger board is in monimal lumber dimensions. Ledger board shall be minimum No.2 Grade.
2. Minimum edge distance shall be 2" for $\frac{1}{2}$" ∅ anchor bolts and $2\frac{1}{2}$" for $\frac{5}{8}$" ∅ anchor bolts.
3. Interpolation is permitted between floor spans.
4. Floor span corresponds to the clear span of the floor structure spanning between load bearing walls or beams.
5. Anchor bolts shall extend through the ledger to the center of the horizontal or vertical core thickness of the waffle-grid concrete cross section.
6. Minimum vertical distance between bolts shall be $1\frac{1}{2}$" for $\frac{1}{2}$" ∅ anchor bolts, and 2" for $\frac{5}{8}$" ∅ anchor bolts.
7. In order to use this table, the wall must be within the vertical reinforcement parameters. Consult an engineer beyond the parameters. This table is only valid for a service dead load of 15psf and a servic live load of 40psf.
8. See Section 6 - Engineering in the LOGIX Product Manual for reinforcing details.

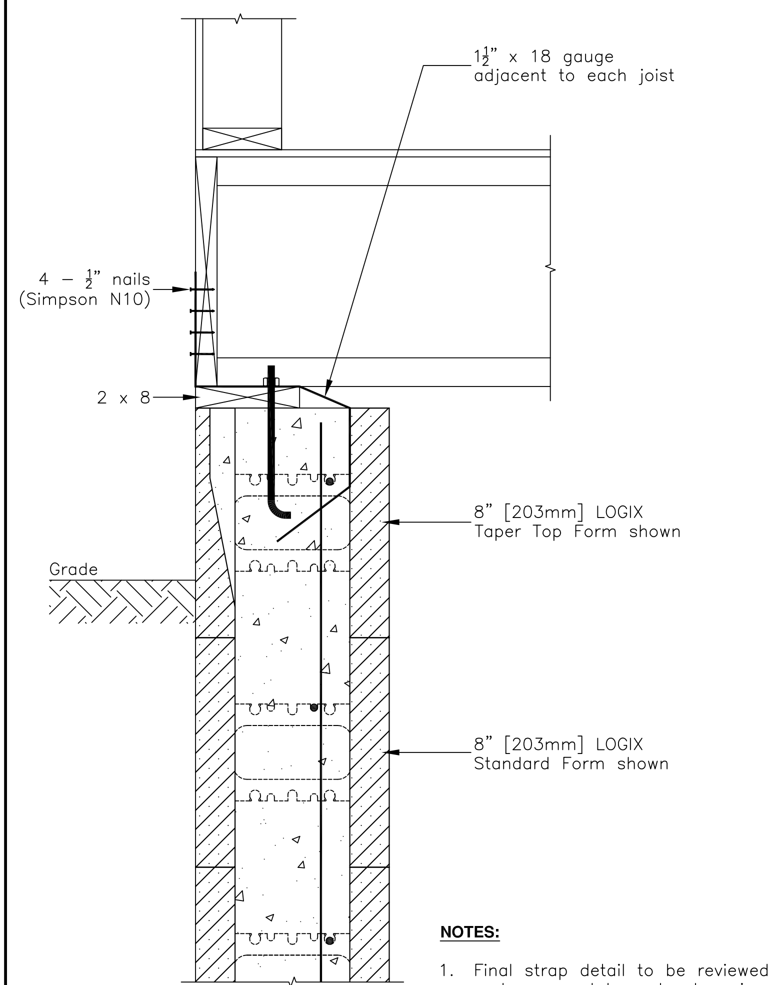
5.6.2.15 - SIMPSON STRONG TIE - STUD FRAME CONNECTIONS



NOTES:

1. For more information visit www.strongtie.com.

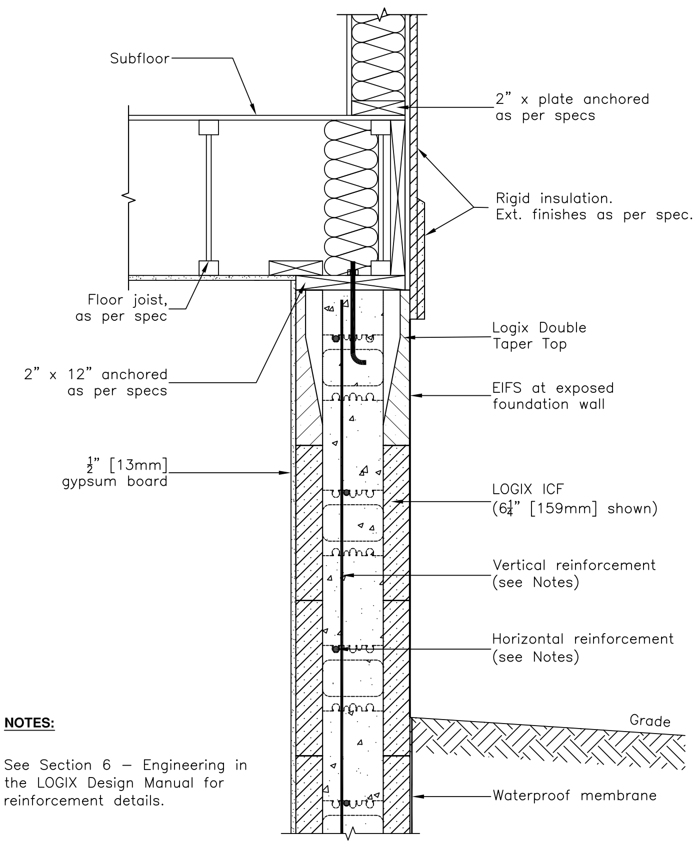
5.6.2.16 - FRAME STRAP ALTERNATIVE



NOTES:

1. Final strap detail to be reviewed and approved by a local engineer.

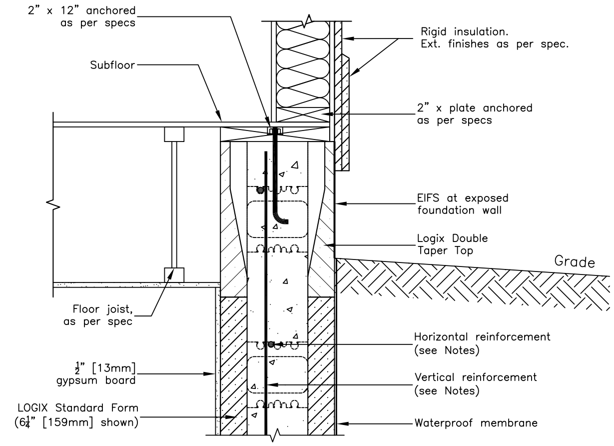
5.6.2.17 - WOOD FLOOR JOIST PARALLEL TO WALL (1 OF 2)



NOTES:

See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.

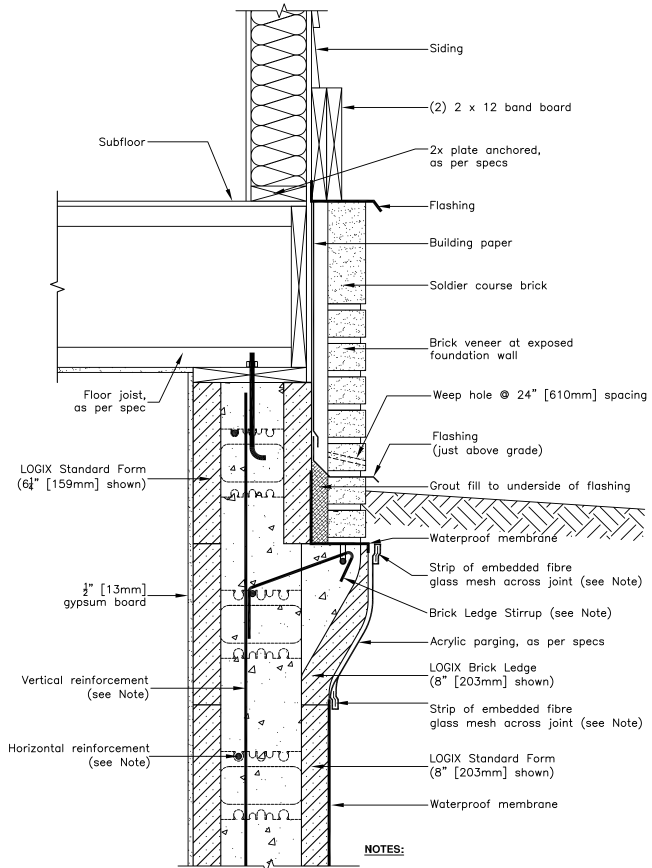
5.6.2.18 - WOOD FLOOR JOIST PARALLEL TO WALL (2 OF 2)



NOTES:

See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.

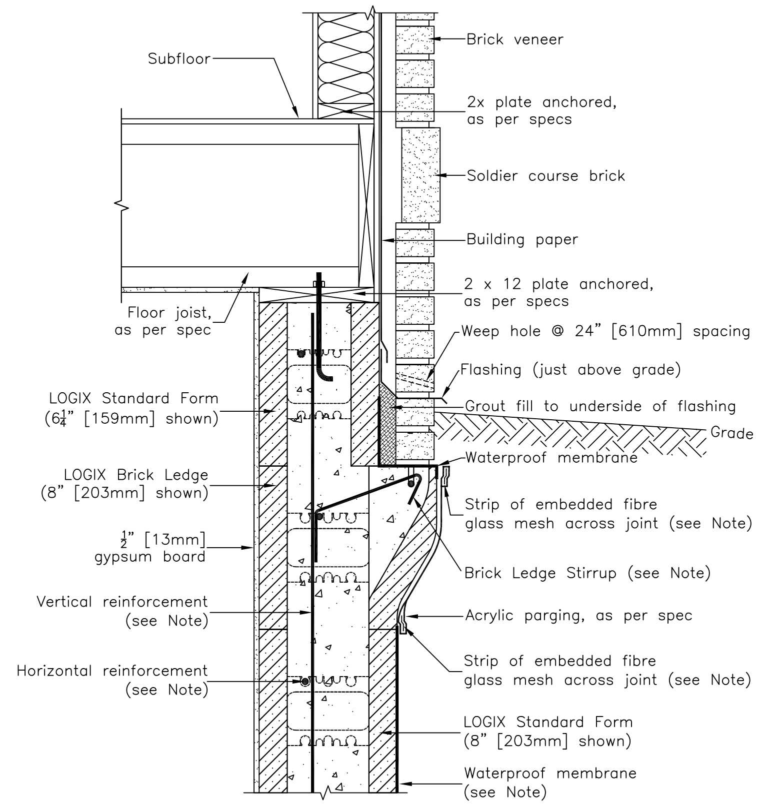
5.6.2.19 - BELOW-GRADE BRICK VENEER (1 OF 4)



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.16 for stirrup details for Transition Form.
3. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.
4. See Drawing 5.10.44 for waterproof detail for Brick Ledge Form.

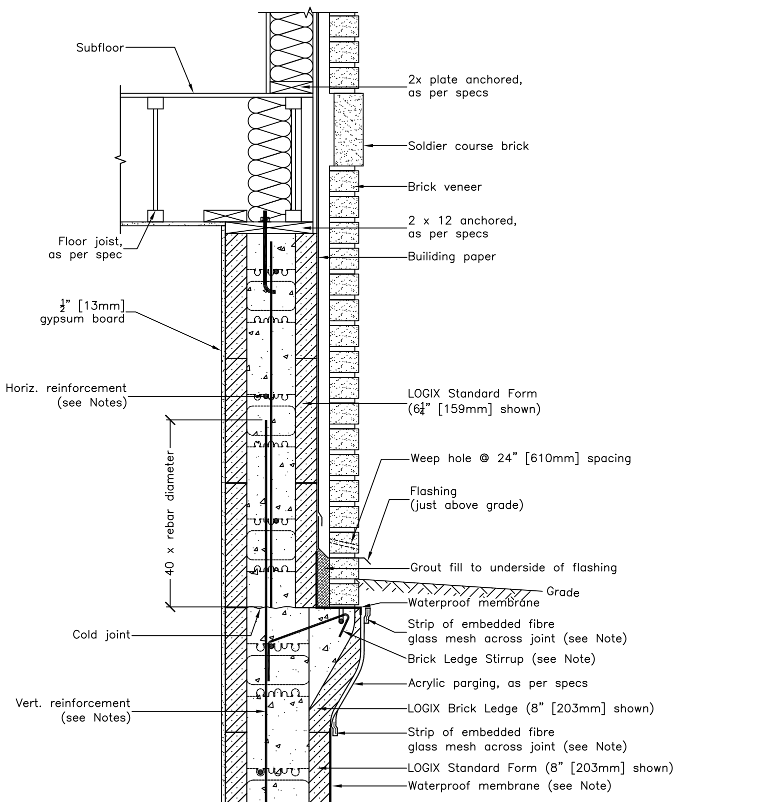
5.6.2.20 - BELOW-GRADE BRICK VENEER (2 OF 4)



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.
3. See Drawing 5.10.44 for waterproof detail for Brick Ledge Form.

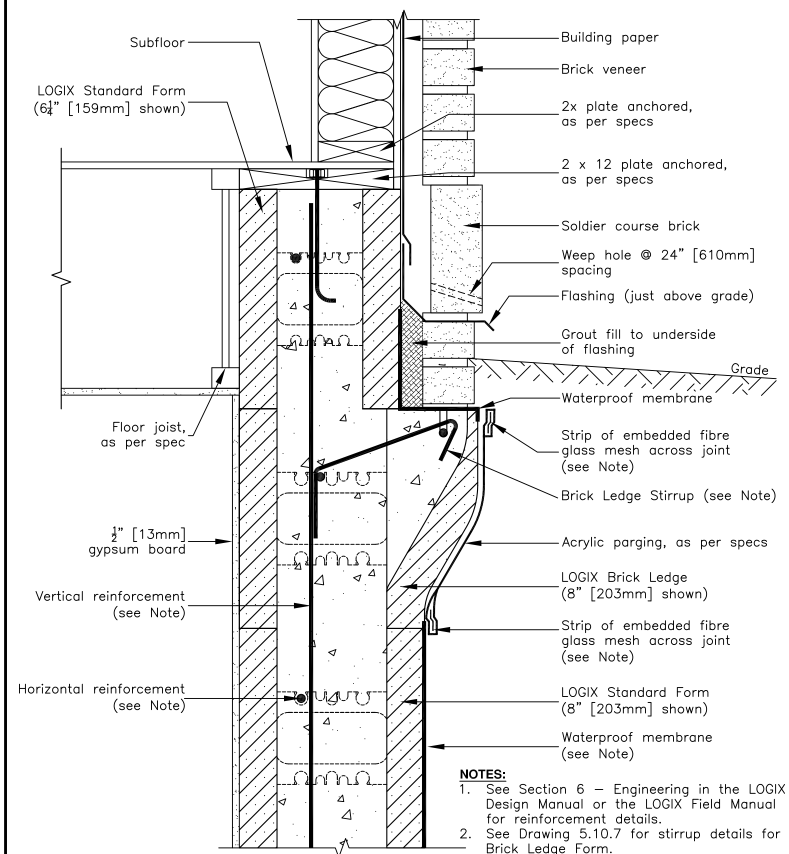
5.6.2.21 - BELOW-GRADE BRICK VENEER (3 OF 4)



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.
3. See Drawing 5.10.44 for waterproof detail for Brick Ledge Form.

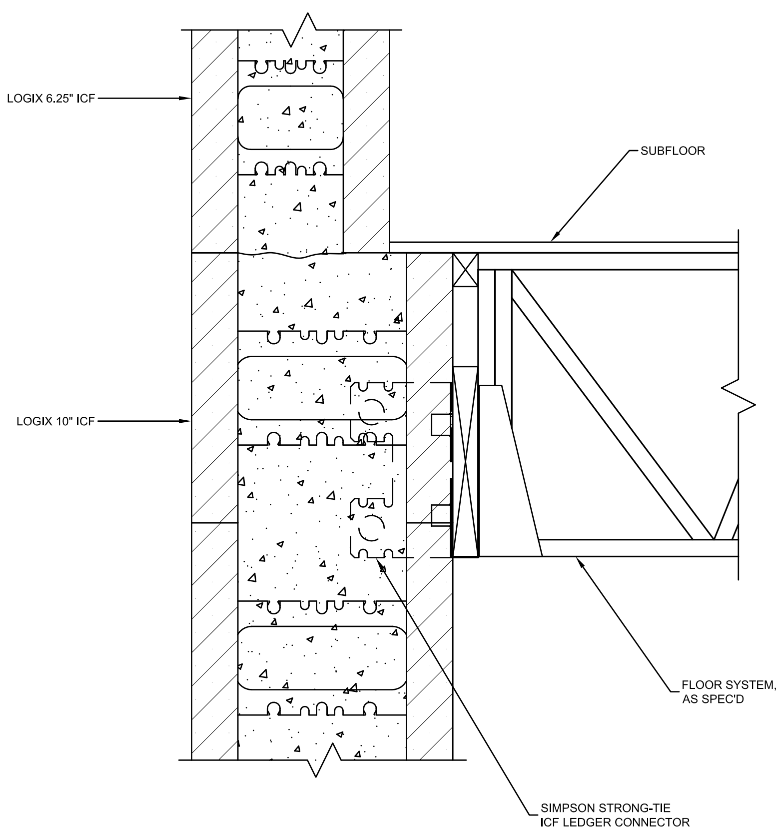
5.6.2.22 - BELOW-GRADE BRICK VENEER (4 OF 4)



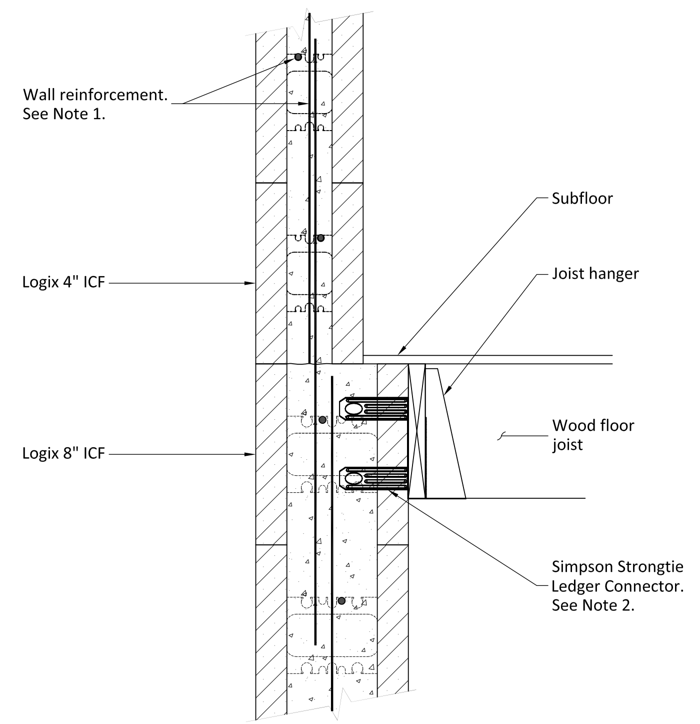
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.
3. See Drawing 5.10.44 for waterproof detail for Brick Ledge Form.

5.6.2.23 - 10" TO 6.25" LOGIX WALL TRANSITION



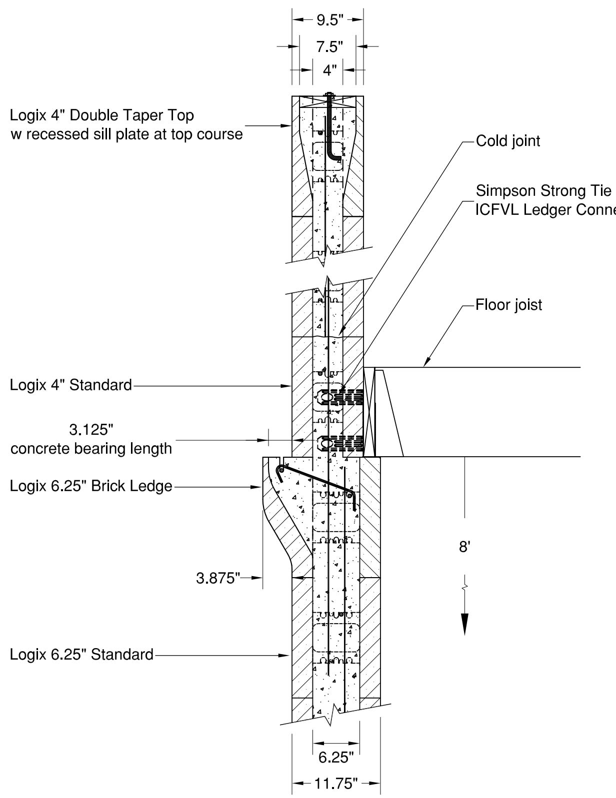
5.6.2.24 - 8" TO 4" LOGIX WALL TRANSITION



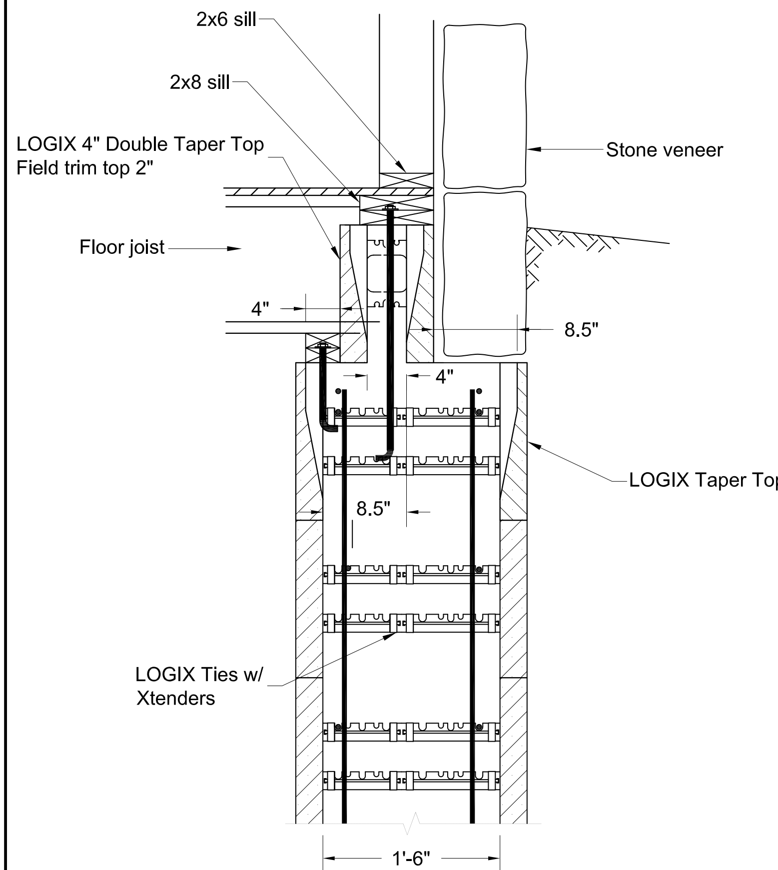
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For spacing of Simpson Strongtie ICF Ledger Connection Systems refer to Section 2.12.4 of the LOGIX Design Manual.

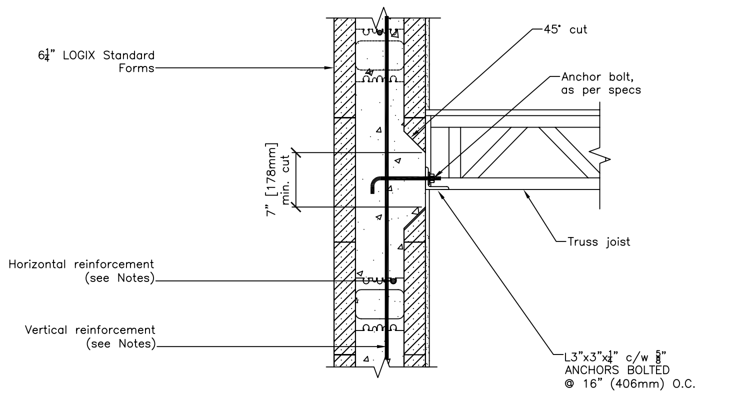
5.6.2.25 - 6.25" TO 4" LOGIX WALL TRANSITION



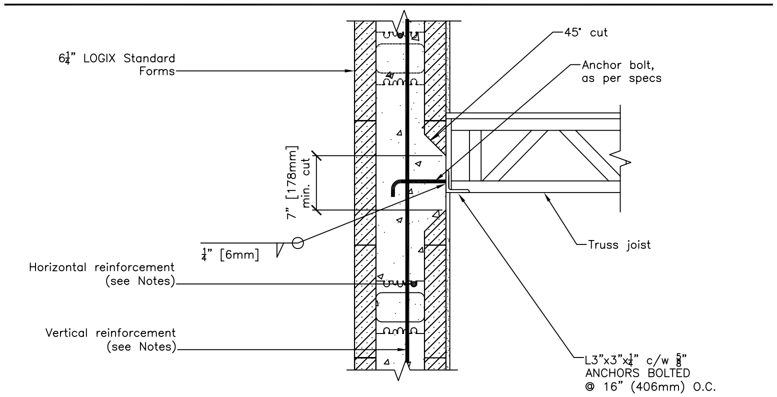
5.6.2.26 - STONE VENEER



5.6.2.27 - ANGLE IRON LEDGER



BOLTED ANGLE SEAT DETAIL

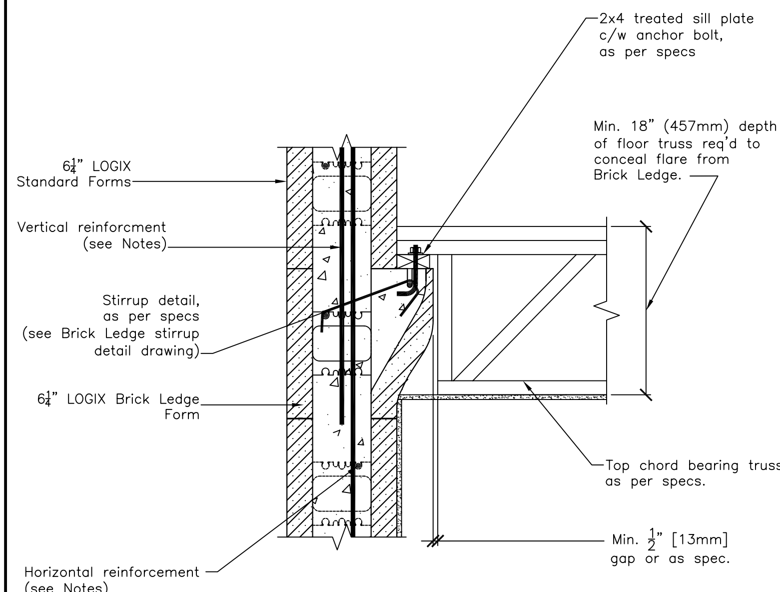


WELDED ANGLE SEAT DETAIL

NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.2.28 - BRICK LEDGE WITH TOP CHORD BEARING

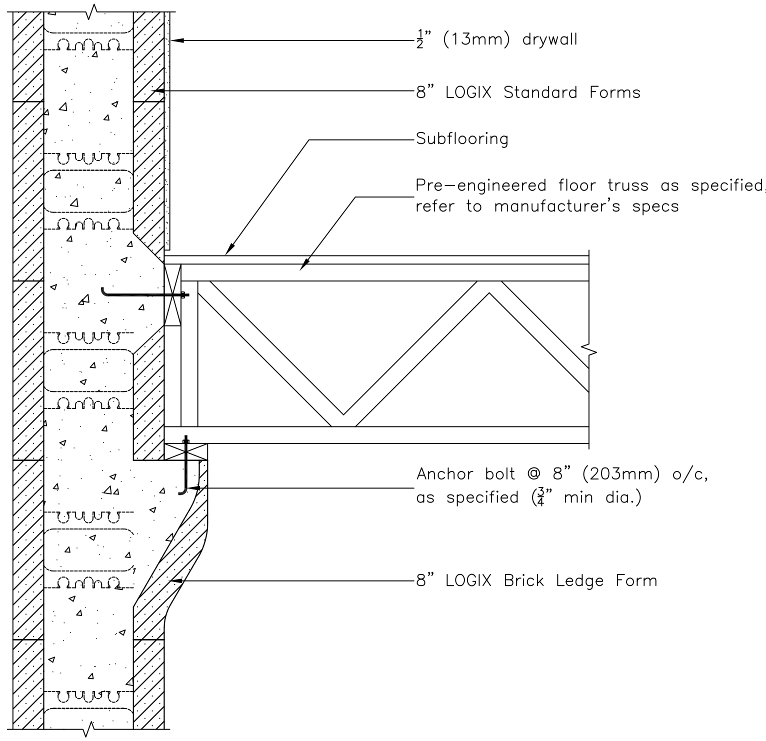


NOTES:

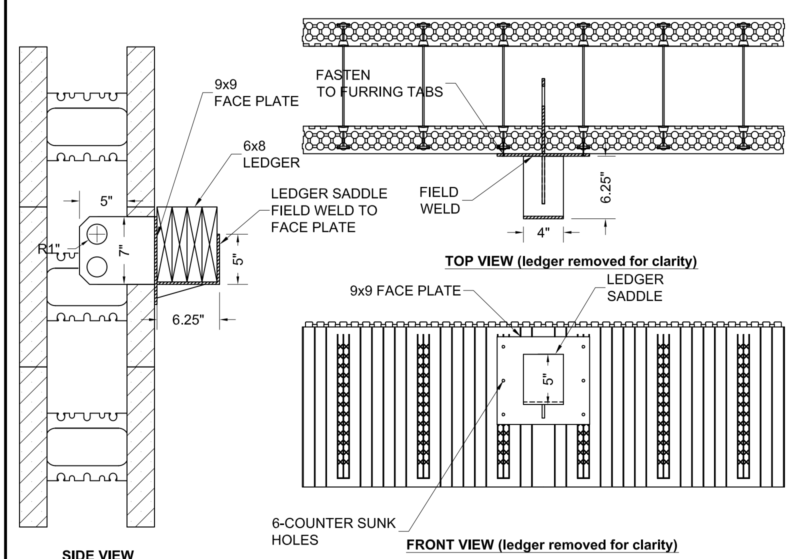
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS - FLOOR CONNECTIONS AT EXTERIOR WALL

5.6.2.29 - BOTTOM CHORD BEARING TRUSS

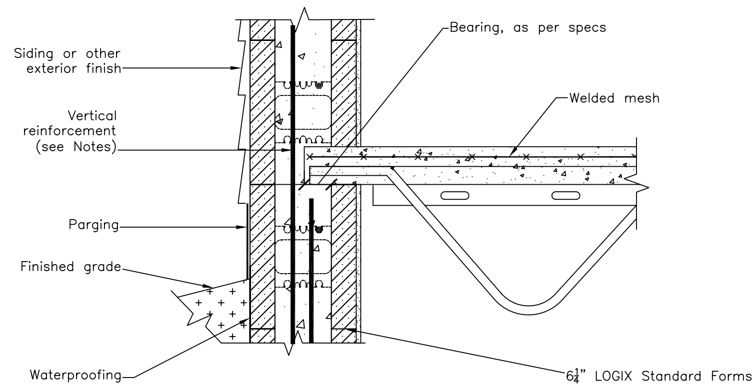


5.6.2.30 - LEDGER SADDLE

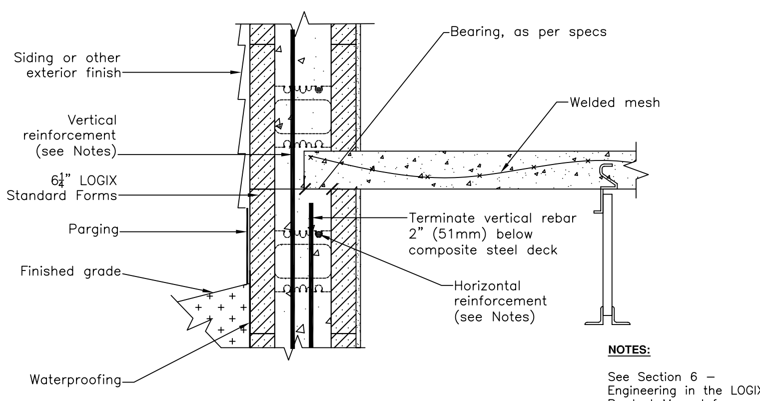


NOTES:
PRELIMINARY ONLY. FINAL DESIGN OF LEDGER SUPPORT TO BE REVIEWED AND APPROVED BY A LICENSED ENGINEER.

5.6.3.1 - HAMBRO FLOOR



HAMBRO FLOOR SYSTEM (BEARING END)

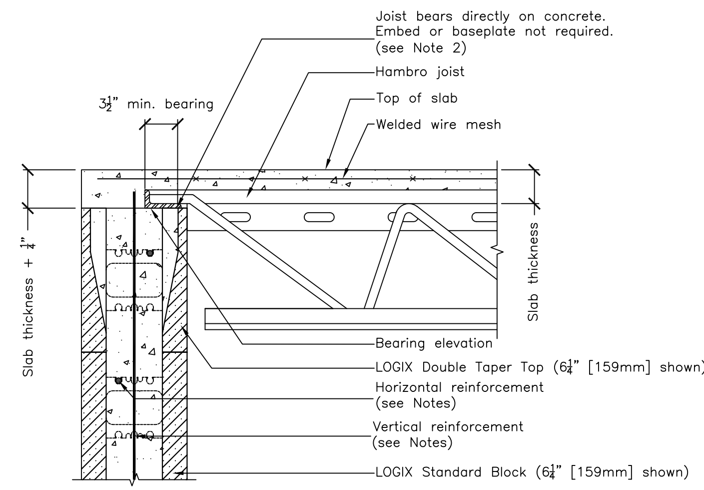


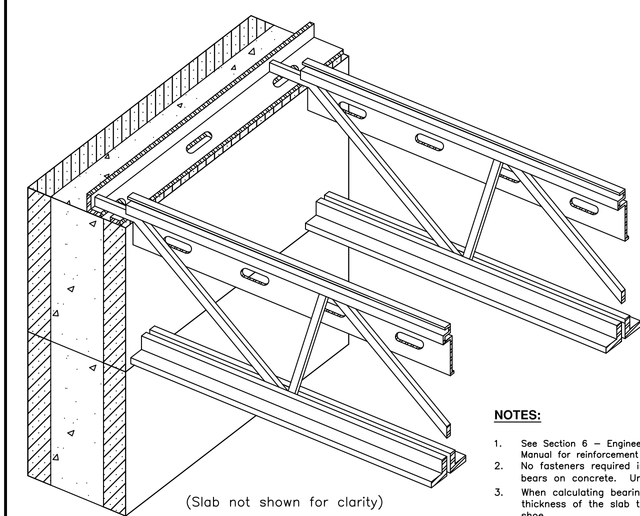
HAMBRO FLOOR SYSTEM (NON-BEARING END)

NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.3.2 - HAMBRO JOISTS BUTTED UP AGAINST LOGIX



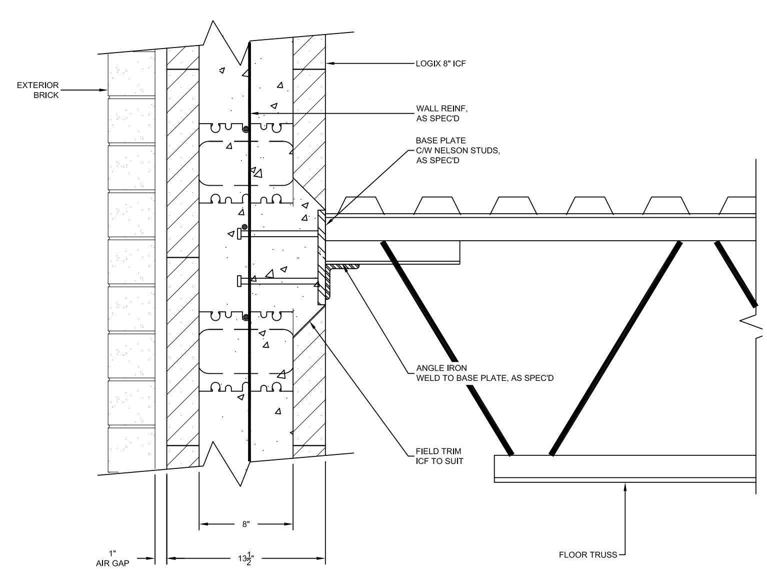


NOTES:

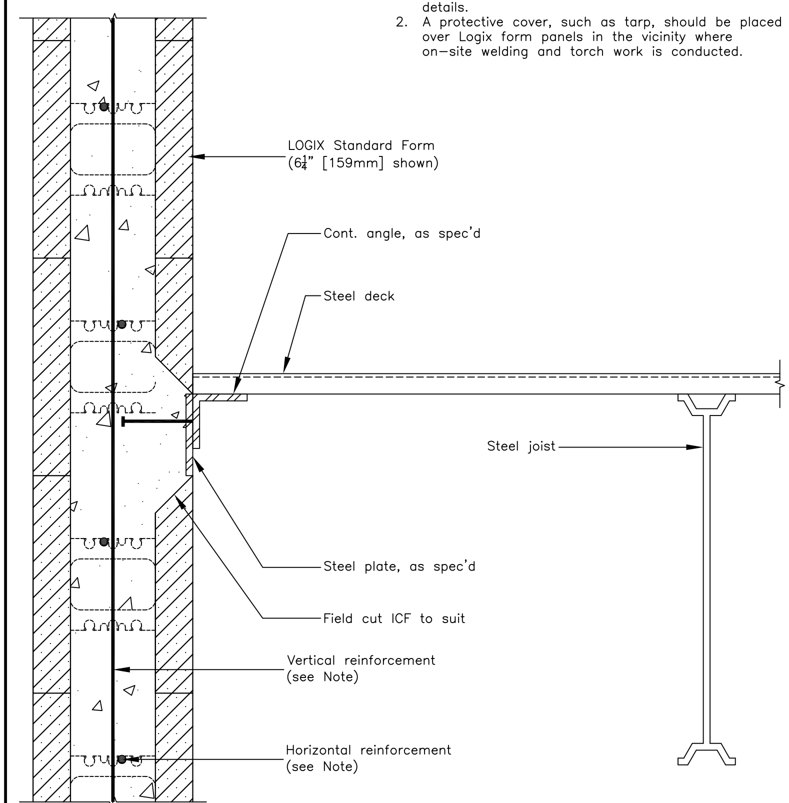
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. No fasteners required in open holes when joist bears on concrete. Unless noted otherwise (typ.).
3. When calculating bearing elevation – add ¼" to the thickness of the slab to allow for the joist bearing shoe.

CAD DRAWINGS - FLOOR CONNECTIONS AT EXTERIOR WALL

5.6.3.3 - STEEL DECK ON OPEN WEB STEEL JOIST (BEARING END)



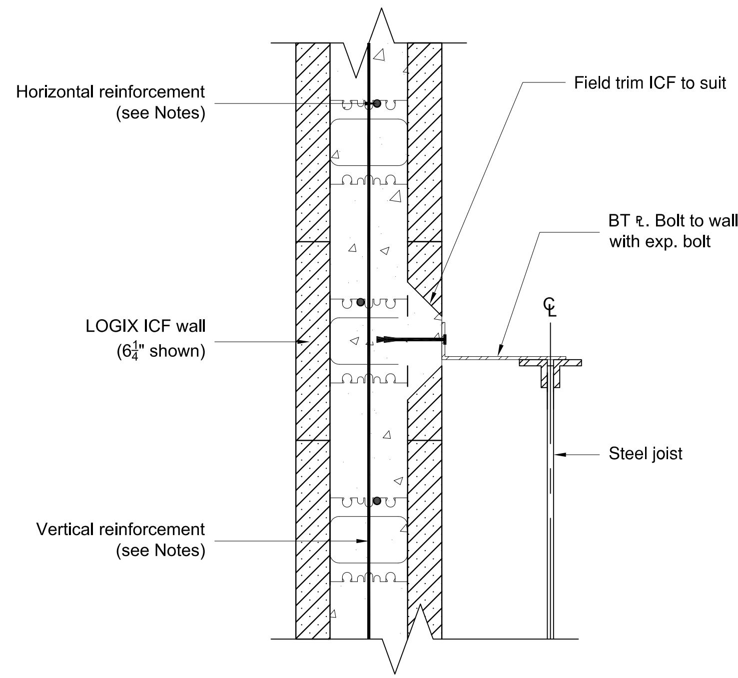
5.6.3.4 - STEEL DECK ON OPEN WEB STEEL JOIST (NONBEARING END)



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.

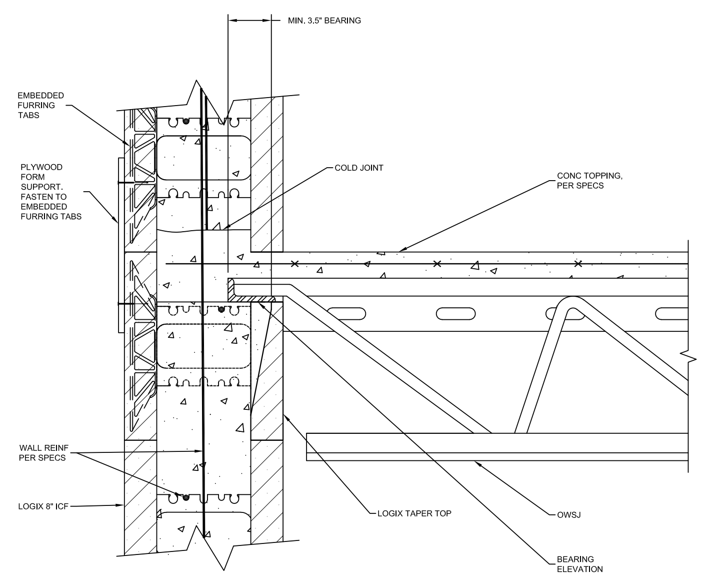
5.6.3.5 - STEEL ANGLE TO JOIST



NOTES:

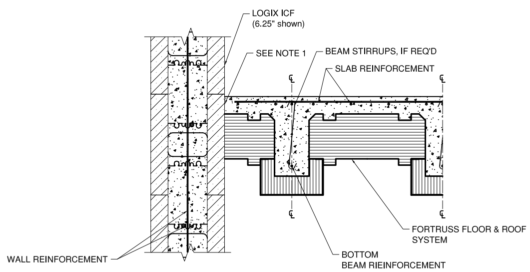
1. See Section 6 - Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding and torch work is conducted.

5.6.3.6 - OPEN WEB STEEL JOIST FORM SUPPORT AT FLOOR TRANSITION

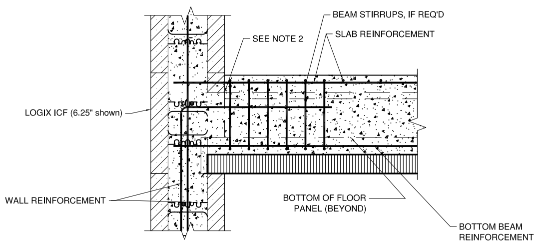


5.6.4 - CAST-IN-PLACE

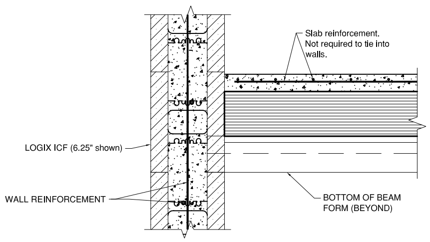
5.6.4.1 - FORTRUSS FLOOR & ROOF SYSTEM



SECTION THROUGH BEAM & FLOOR PANELS (NON-BEARING END)



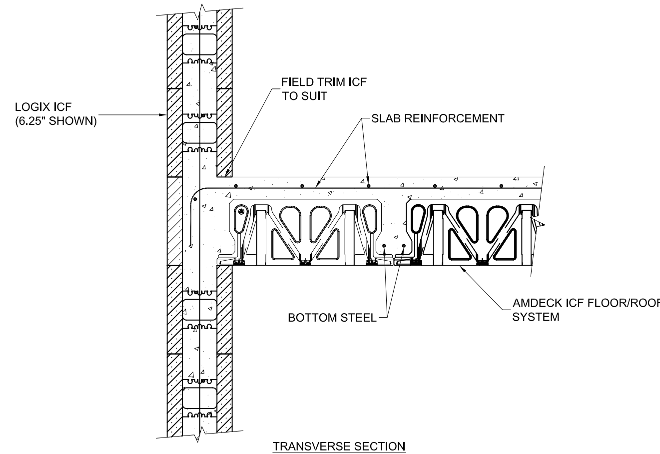
SECTION THROUGH BEAM (BEARING END)



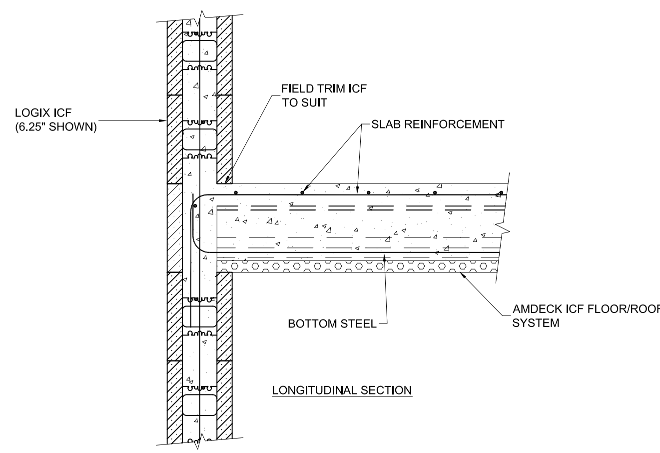
SECTION THROUGH FLOOR PANEL (BEARING END)

NOTES:
1. Logix ICF wall panels can be left in place at slab level, or removed to make slab integral with wall.
2. Cut into Logix ICF wall panels to accomodate beam depth and beam form. Logix ICF wall panels can remain in place at slab level.
3. Keep webs intact whenever possible.
4. Refer to Section 6, Engineering, in the Logix Design Manual for wall reinforcement. Refer to Section 4, Engineering, in the Fortruss Installation Manual for reinforcement details.
5. Visit beaverplastics.com/Construction/fortruss.html for more information on Fortruss.

5.6.4.2 - AMDECK FLOOR & ROOF SYSTEM



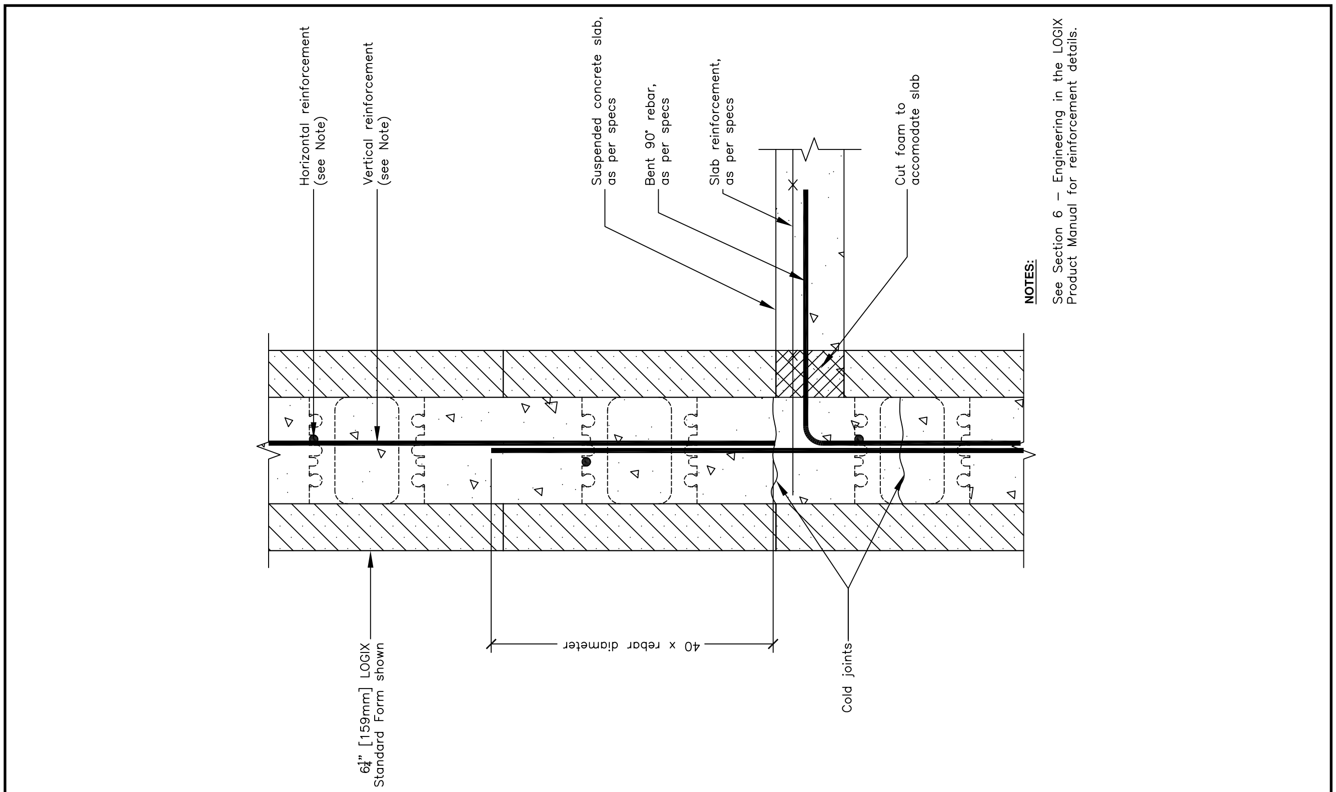
TRANSVERSE SECTION



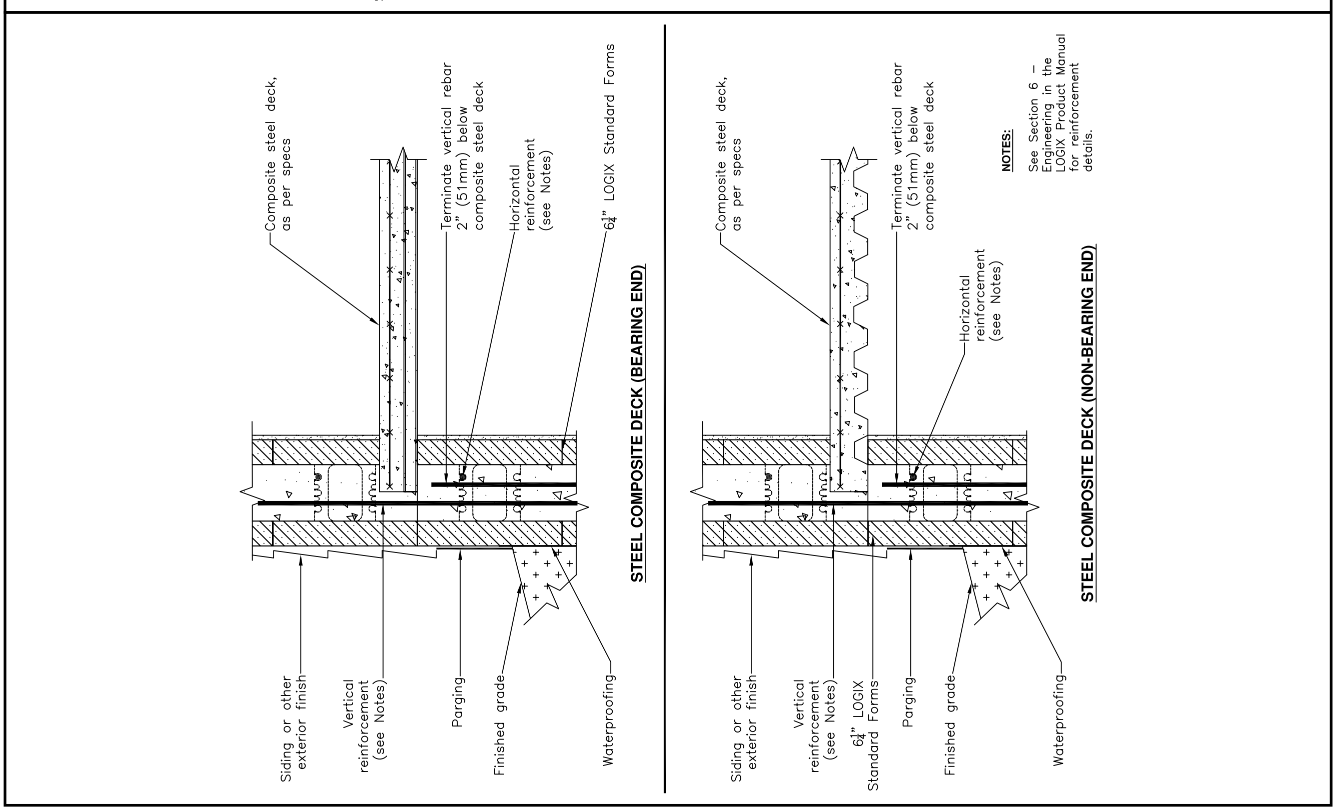
LONGITUDINAL SECTION

NOTES:
1. For more information visit amvicsystem.com/amdeck
2. For wall reinforcement see Section 6, Engineering, in the Logix Design Manual.

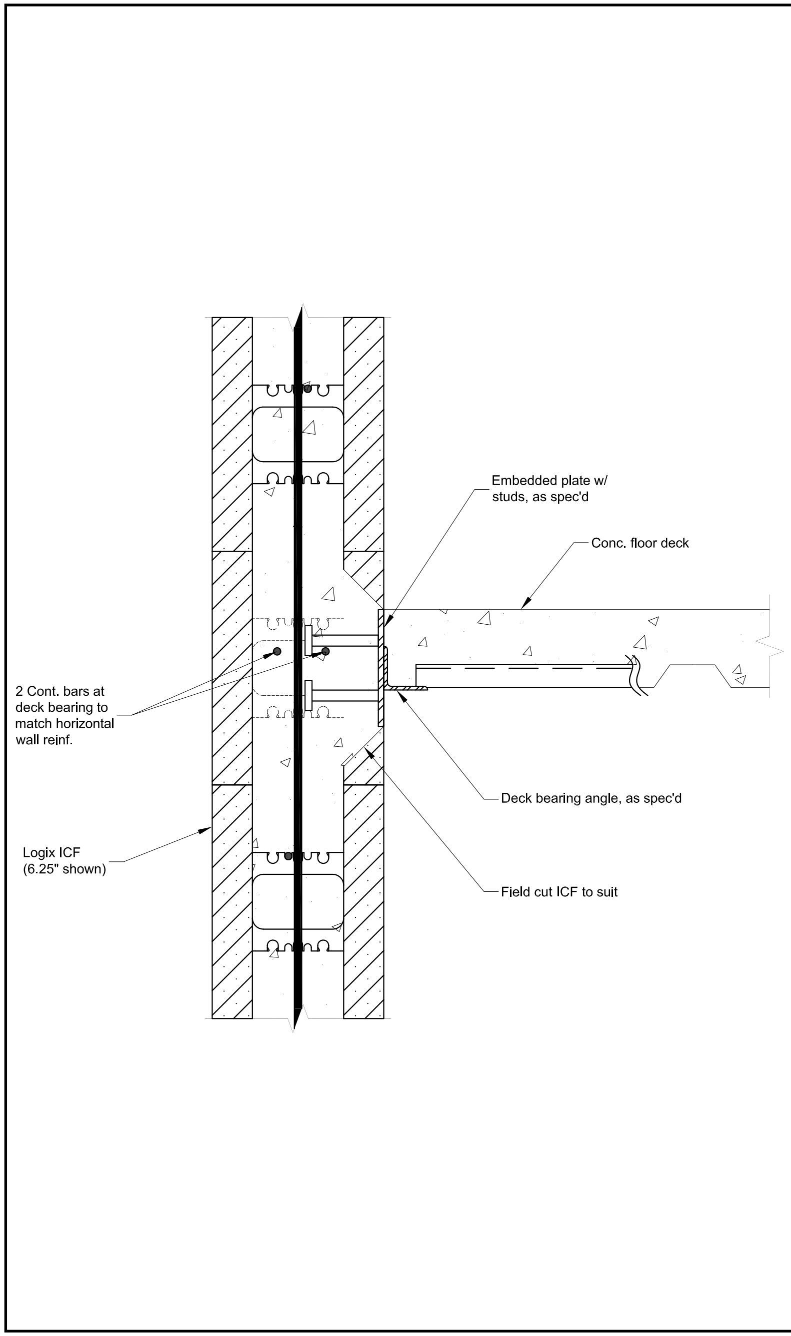
5.6.4.4 - SLAB DOWEL TO ICF



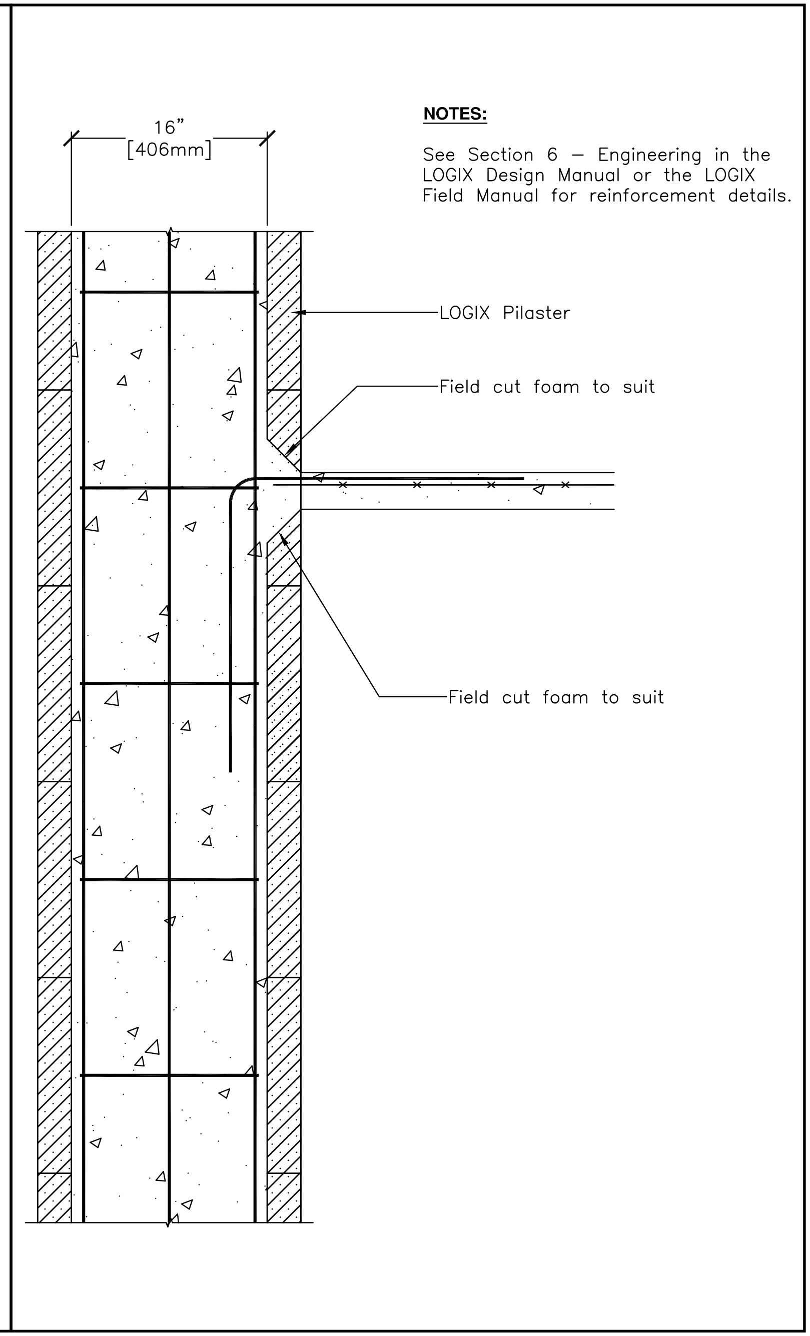
5.6.4.3 - STEEL COMPOSITE DECK



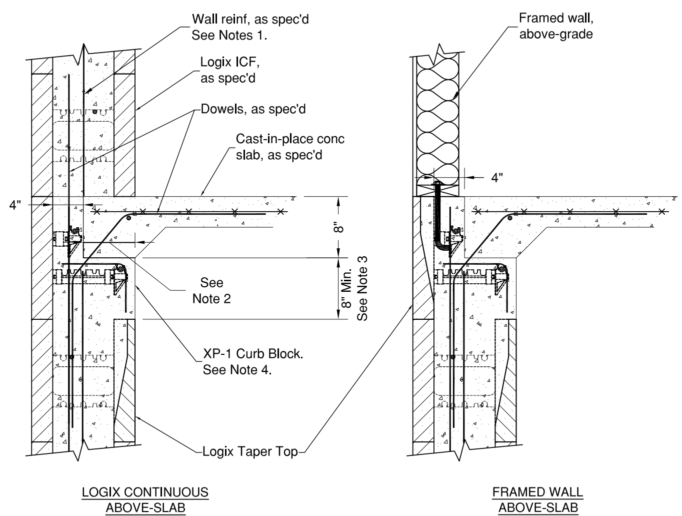
5.6.4.5 - SLAB WITH ANGLE IRON CONNECTION



5.6.4.6 - INTEGRAL SLAB TO LOGIX PILASTER



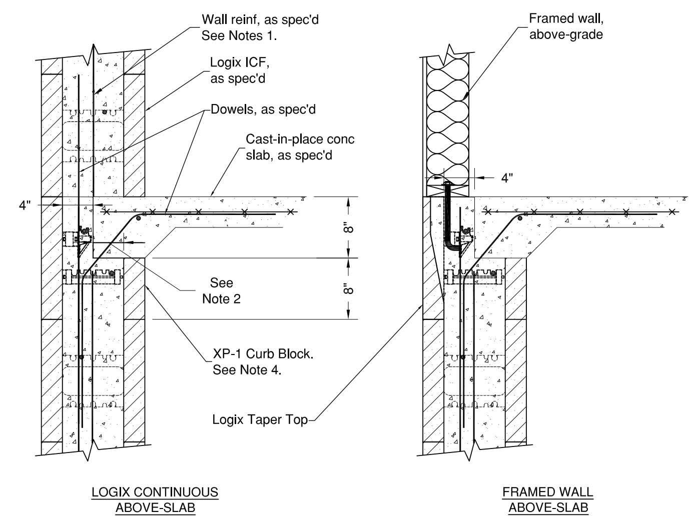
5.6.4.7 - CAST-IN-PLACE SLAB WITH XP-1 CURB BLOCK WITH CORBEL LEDGE



NOTES:

1. For wall reinforcement refer to the Logix Design Manual, Secdtion 6 Engineering.
2. Bearing length varies based on Logix ICF size. Refer to Wall Chart table in Drawing 5.18.2, XP-1 Curb Block with Corbel Edge
3. Depth of corbel edge can be greater than 8" by extending the XP-1 system, as required.
4. For more information refer to Drawing 5.18.2, XP-1 Curb Block with Corbel Edge

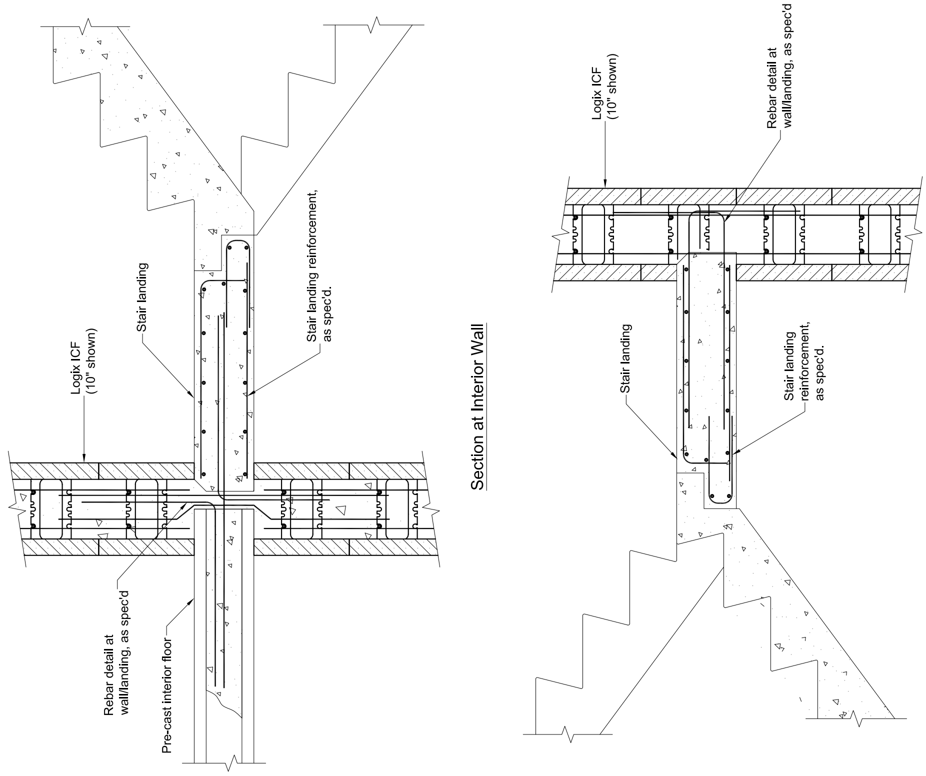
5.6.4.8 - CAST-IN-PLACE SLAB WITH XP-1 CURB BLOCK



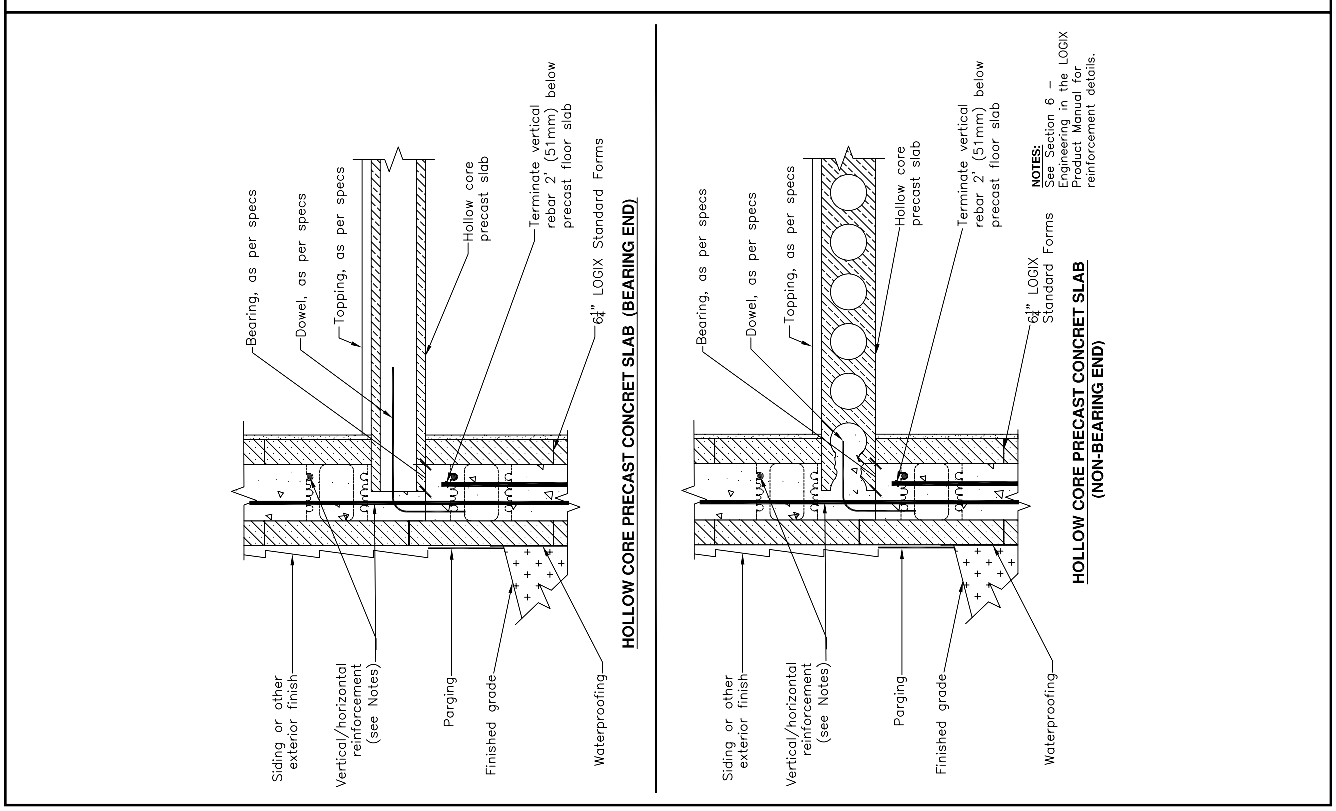
NOTES:

1. For wall reinforcement refer to the Logix Design Manual, Secdtion 6 Engineering.
2. Bearing length varies based on Logix ICF size. Refer to Wall Chart table in Drawing 5.18.1, XP-1 Curb Block with Corbel Edge
3. For more information refer to Drawing 5.18.1, XP-1 Curb Block

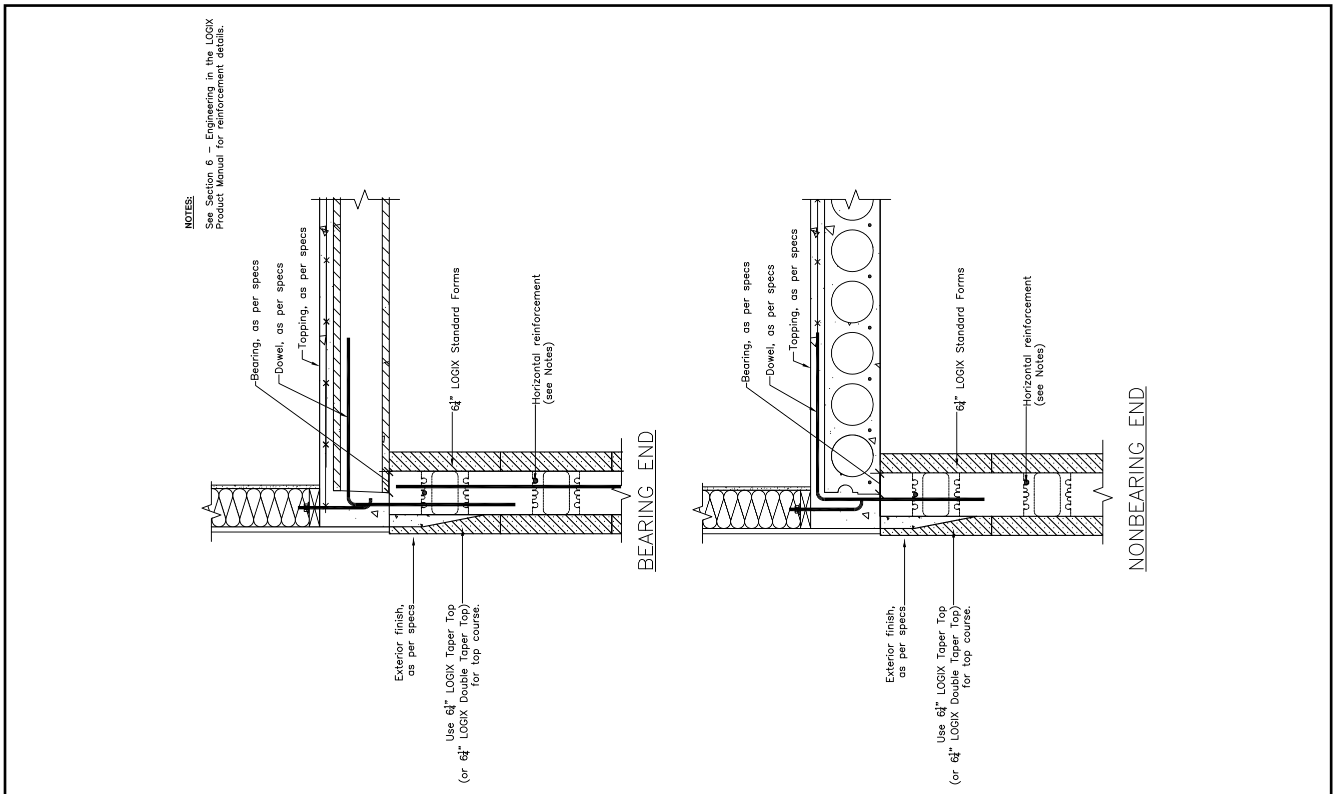
5.6.4.9 - STAIR LANDING



5.6.5.1 - HOLLOW CORE SLAB

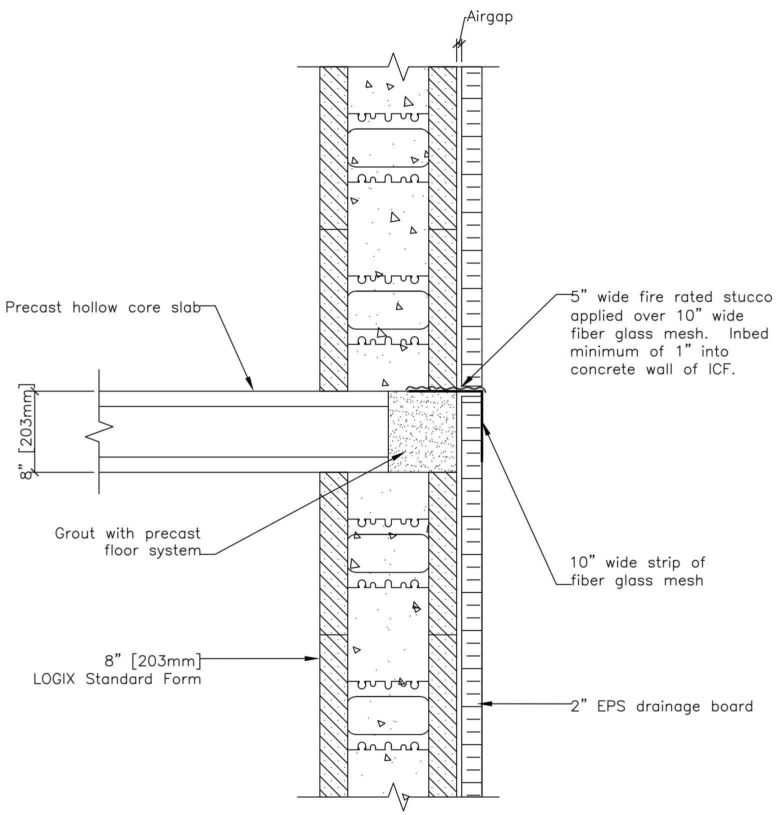


5.6.5.2 - HOLLOW CORE SLAB WITH FRAMED WALL

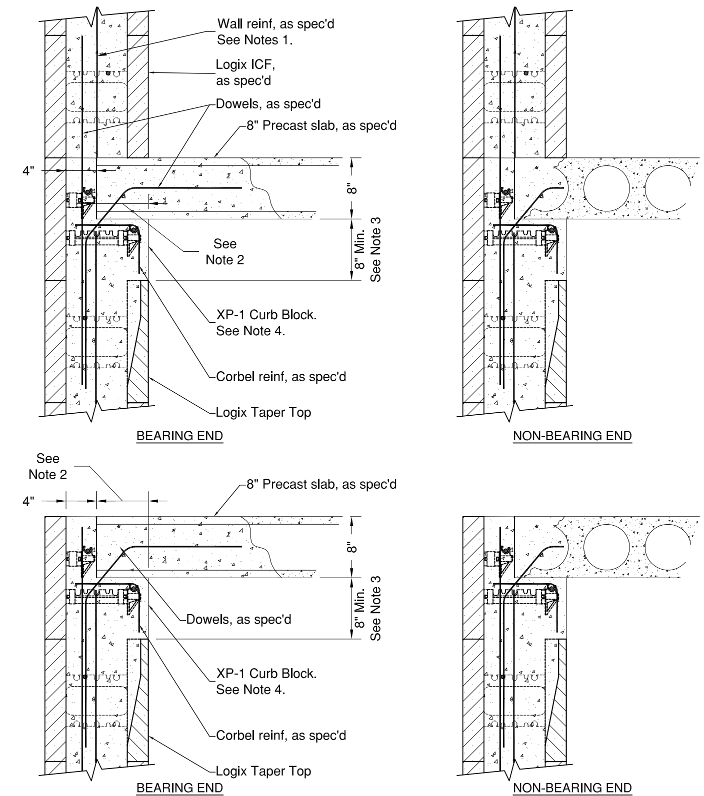


CAD DRAWINGS - FLOOR CONNECTIONS AT EXTERIOR WALL

5.6.5.3 - HOLLOW CORE SLAB WITH FIRE BREAK



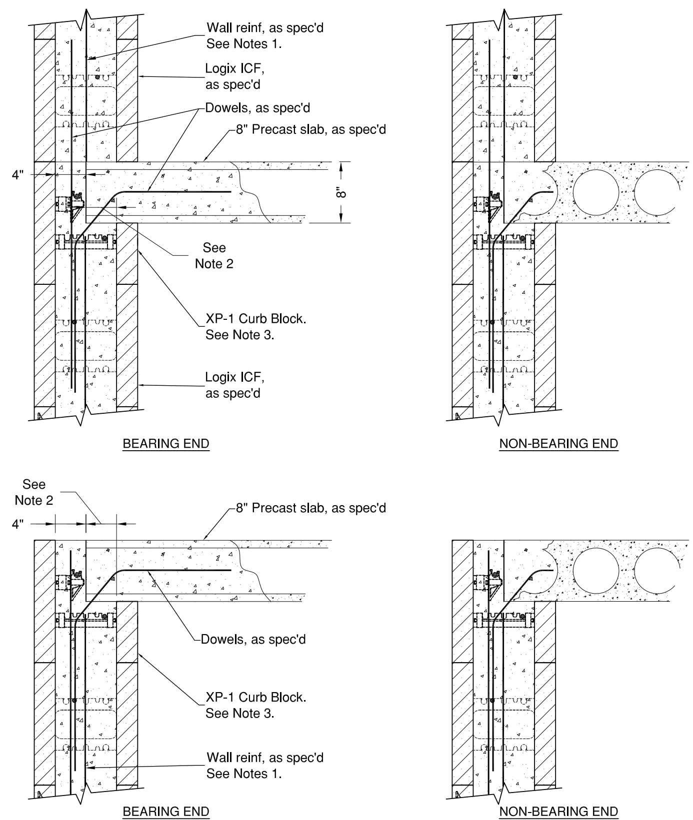
5.6.5.4 - HOLLOW CORE SLAB WITH XP-1 CURB BLOCK WITH CORBEL LEDGE



NOTES:

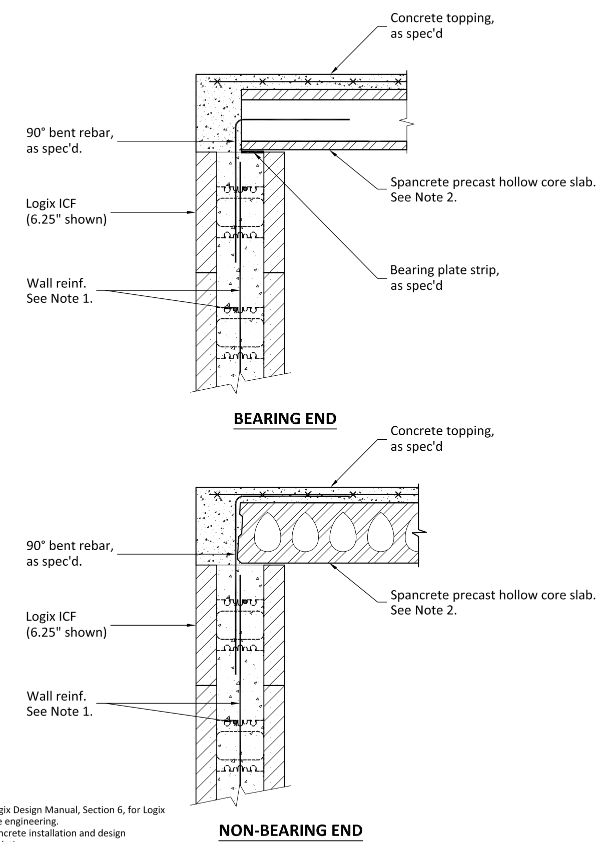
1. For wall reinforcement refer to the Logix Design Manual, Secdtion 6 Engineering.
2. Bearing length varies based on Logix ICF size. Refer to Wall Chart table in Drawing 5.4.18.2, XP-1 Curb Block with Corbel Edge
3. Depth of corbel edge can be greater than 8" by extending the XP-1 system, as required

5.6.5.5 - HOLLOW CORE SLAB WITH XP-1 CURB BLOCK



NOTES:
1. For wall reinforcement refer to the Logix Design Manual, Secdtion 6 Engineering.
2. Bearing length varies based on Logix ICF size. Refer to Wall Chart table in Drawing 5.18.1, XP-1 Curb Block
3. For more information refer to Drawing 5.18.1, XP-1 Curb Block

5.6.5.6 - SPANCRETE TOPPING FLUSH TO LOGIX

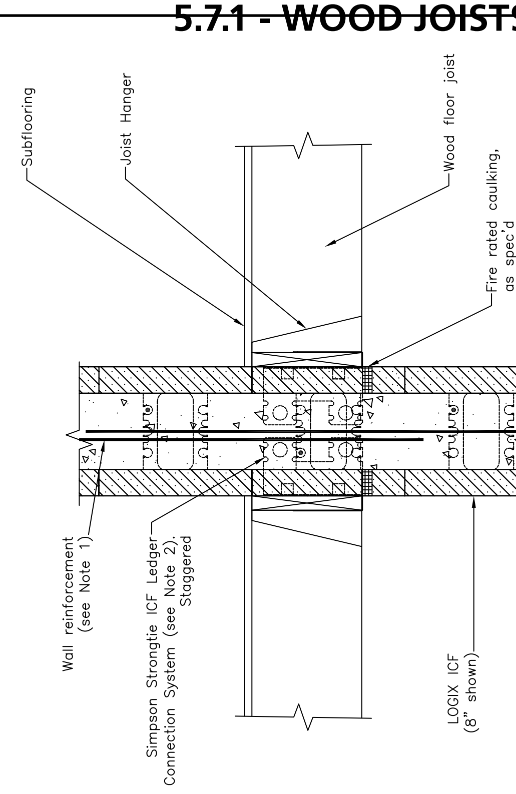


NOTES:
1. Refer to Logix Design Manual, Section 6, for Logix prescriptive engineering.
2. Follow Spancrete installation and design recommendations.

5.7 - FLOOR CONNECTIONS AT INTERIOR WALL

5.7.1 - WOOD JOISTS

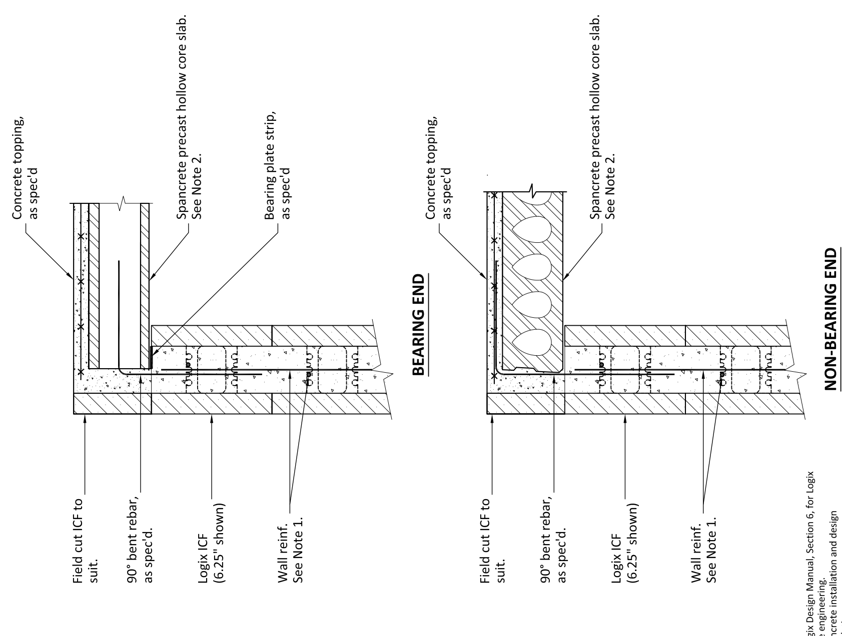
5.7.1.1 - PARTY WALL WITH FIRE STOP



NOTES:

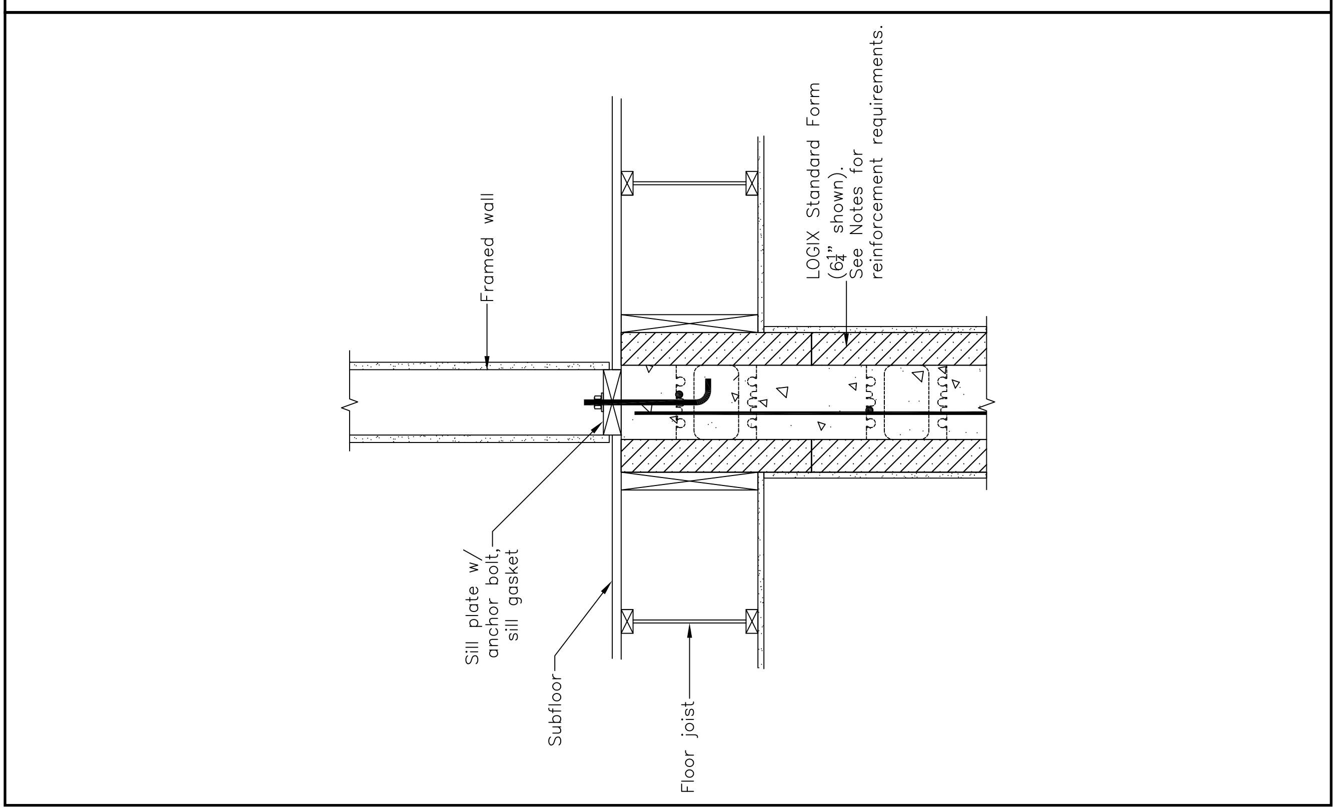
1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.
2. For spacing of Simpson Strongtie ICF Ledger Connection Systems refer to Section 2.12.4 of the LOGIX Design Manual. Ensure ICF Ledger Connection staggered on both sides of wall, and no rebar is in contact with the ICF Ledger connection.

5.6.5.7 - SPANCRETE TOPPING FLUSH TO INSIDE FACE OF LOGIX

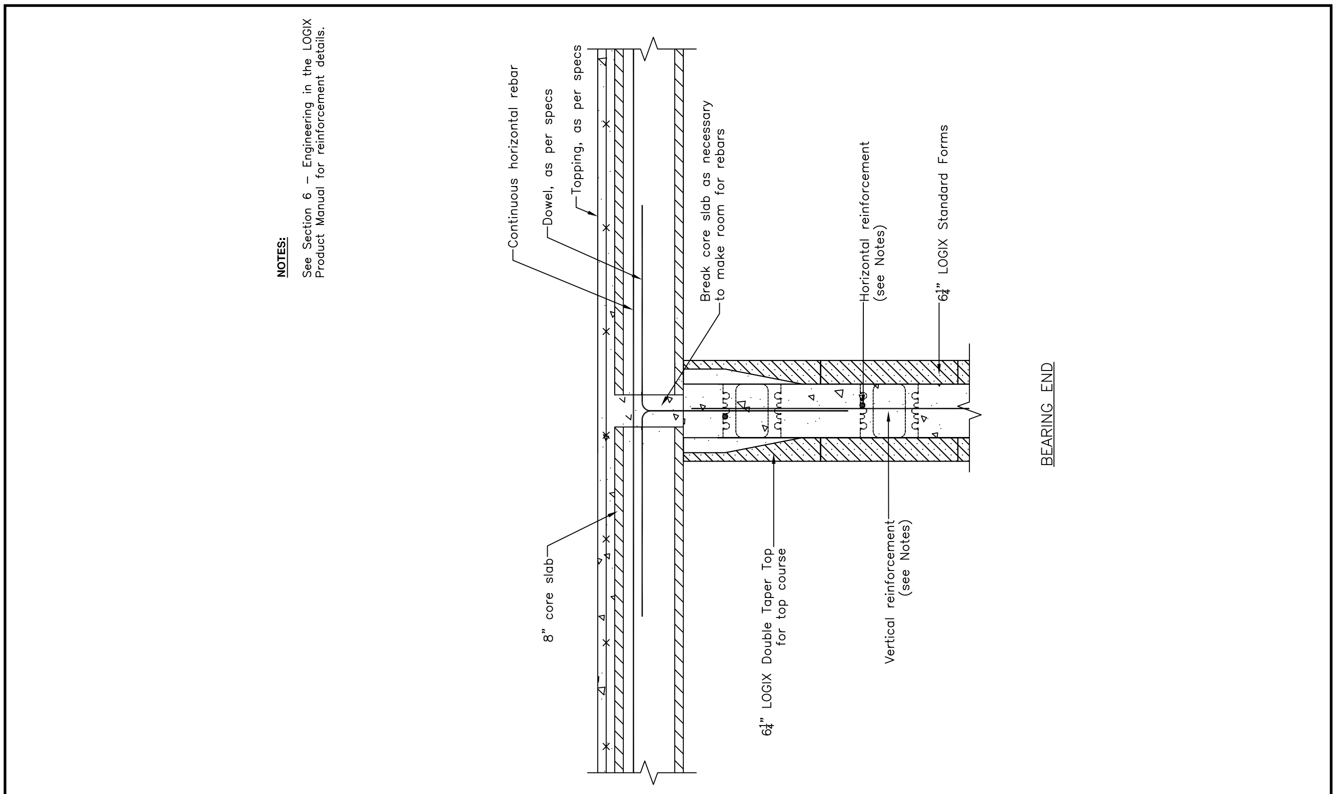


NOTES:
1. Refer to Logix Design Manual, Section 6, for Logix prescriptive engineering.
2. Follow Spancrete installation and design recommendations.

5.7.1.2 - NON-LOAD BEARING DEMISING WALL

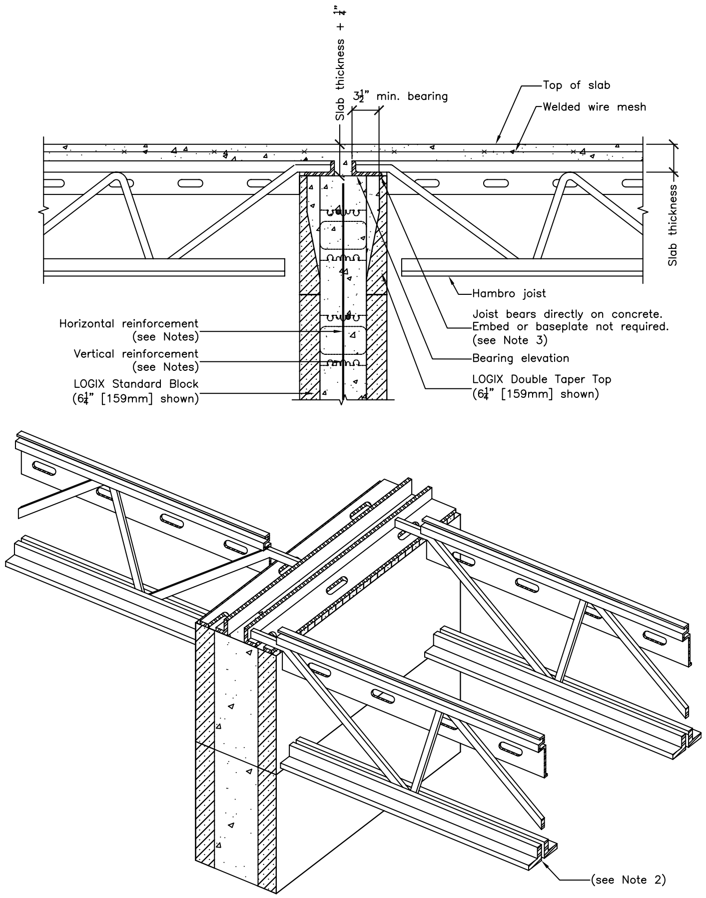


5.7.2.1 - HOLLOW CORE SLAB ON DOUBLE TAPER TOP



5.7.3 - STEEL JOISTS

5.7.3.1 - HAMBRO JOIST BUTTED UP AGAINST LOGIX



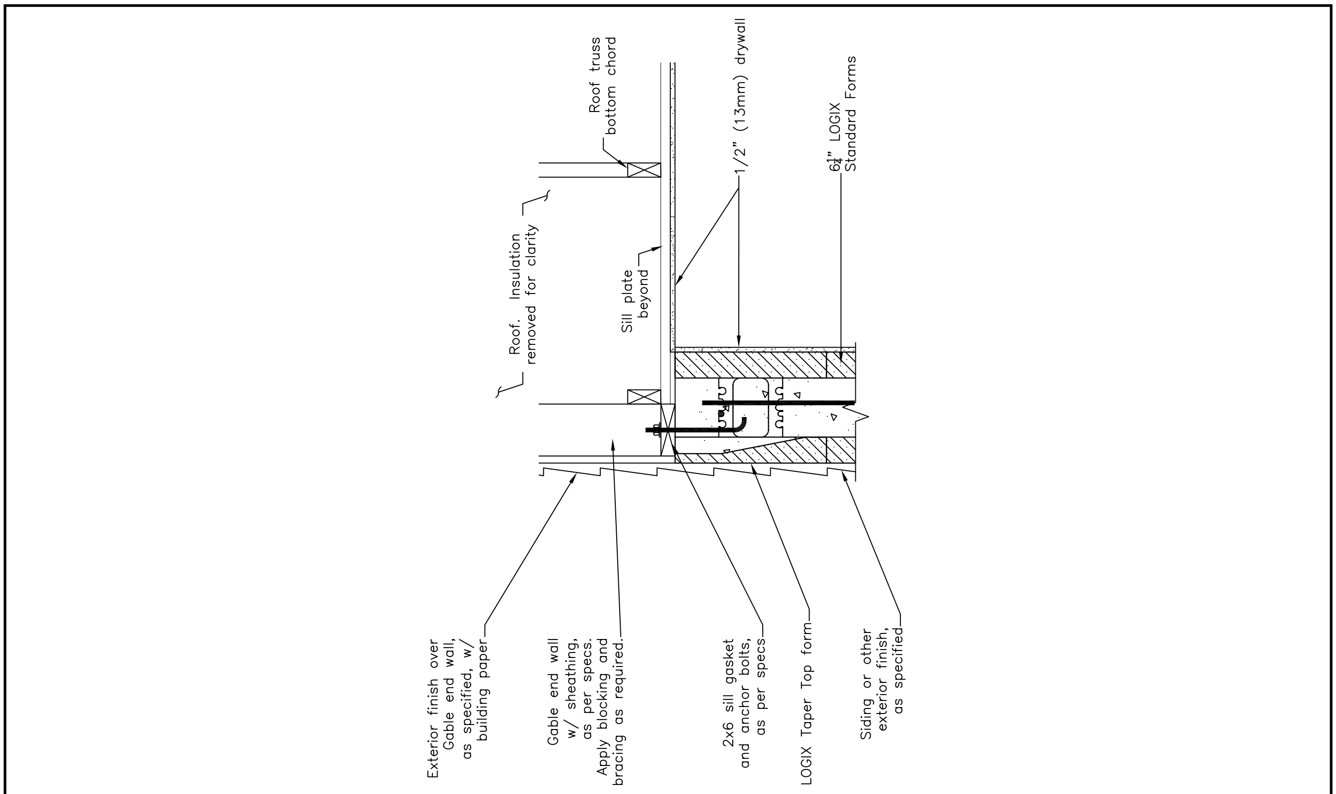
(Slab not shown for clarity)

NOTES:

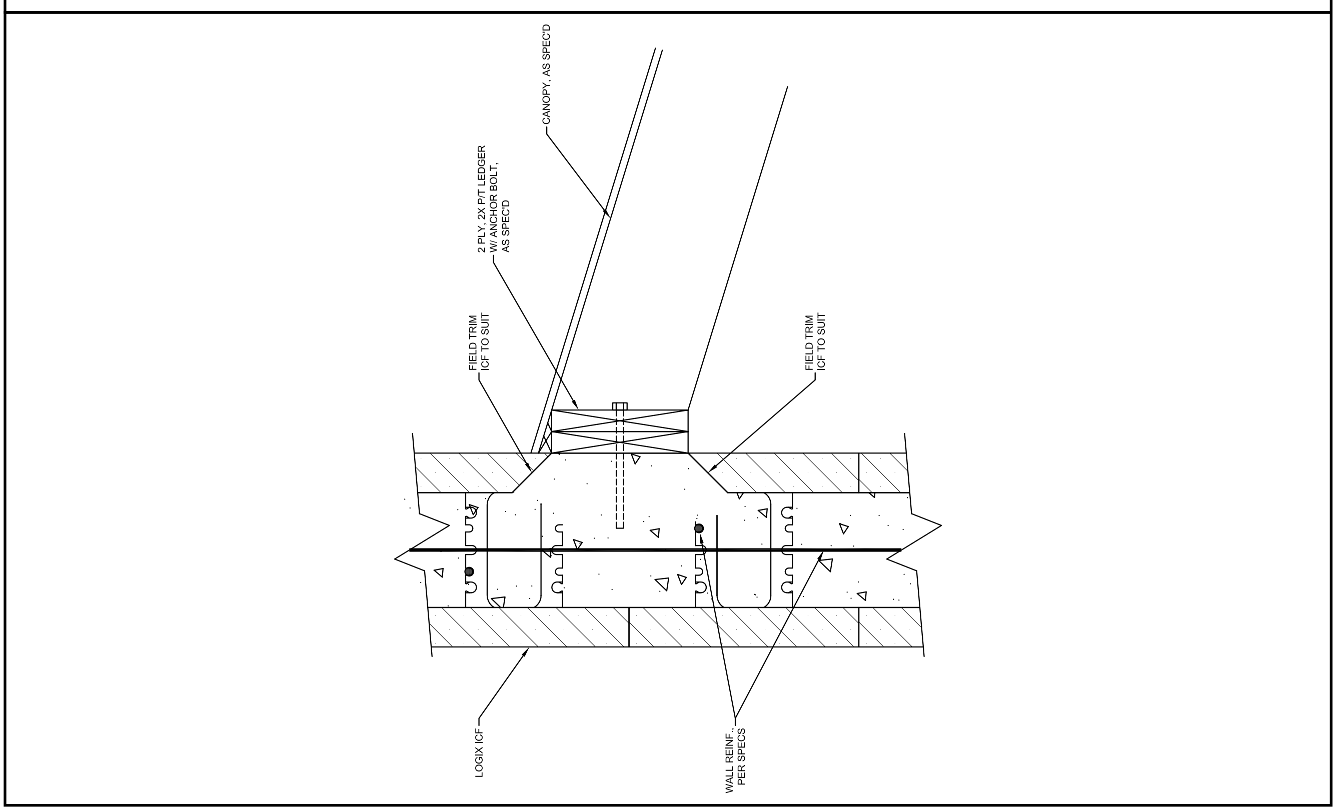
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. On bearing surfaces less than 8" (nom.), joists must be staggered by a min. of 6".
3. No fasteners required in open holes when joist bears on concrete. Unless noted otherwise (typ.).
4. When calculating bearing elevation – add 1/4" to the thickness of the slab to allow for the joist bearing shoe.

5.8 - ROOF & PARAPETS AT EXTERIOR WALL
5.8.1 - WOOD

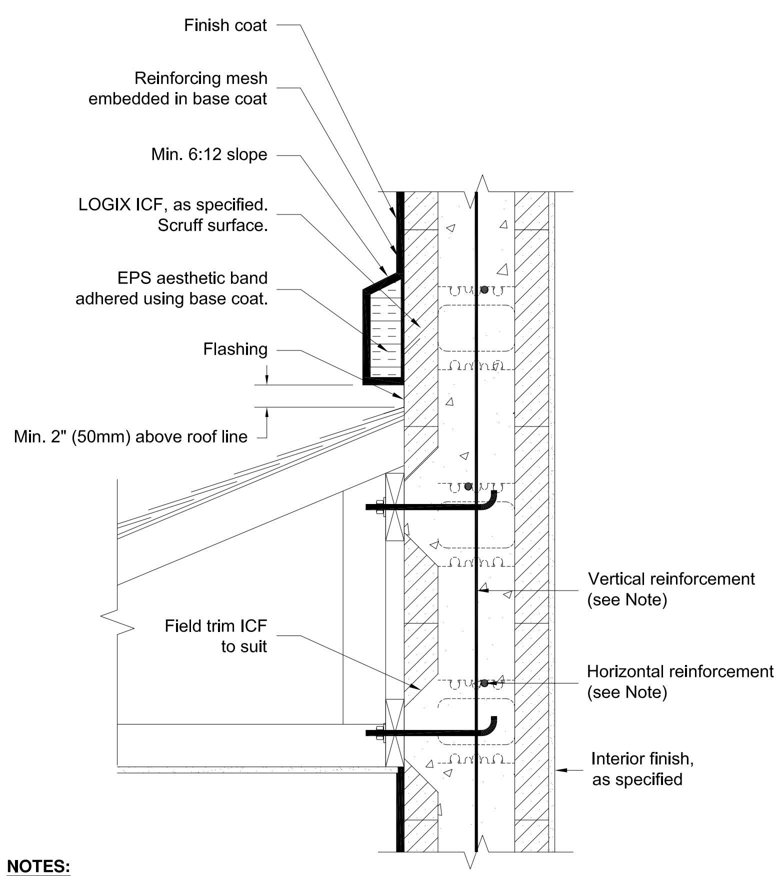
5.8.1.2 - GABLE WALL END



5.8.1.1 - CANOPY FRAMING



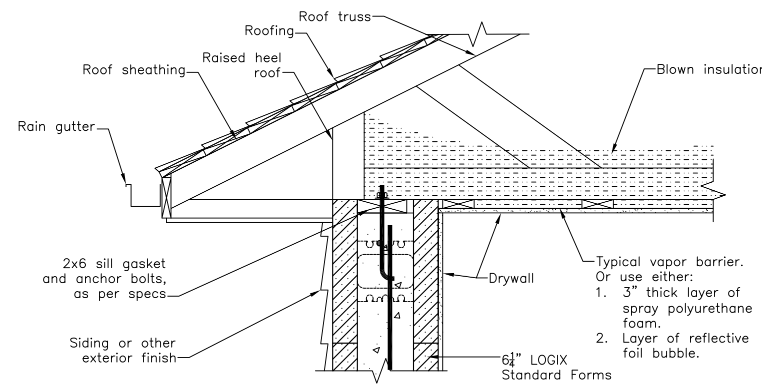
5.8.1.3 - SLOPE ROOF/WALL INTERSECTION



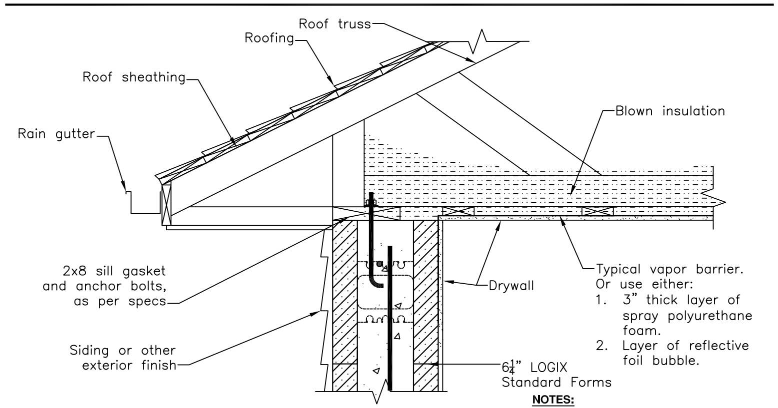
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.8.1.4 - 2X6 RECESSED TOP PLATE



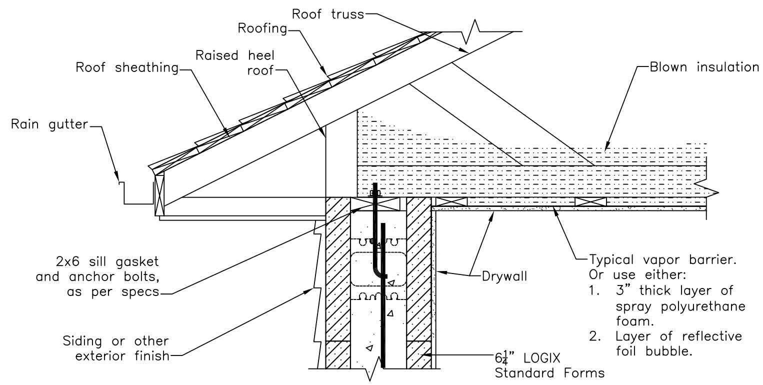
5.9.1 - 2x6 RECESSED TOP PLATE



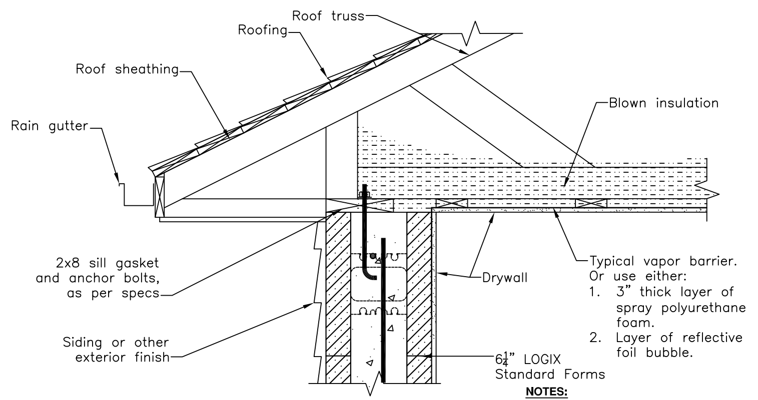
5.9.2 - 2x8 OVERHUNG TOP PLATE

NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.1.5 - 2X8 OVERHUNG TOP PLATE



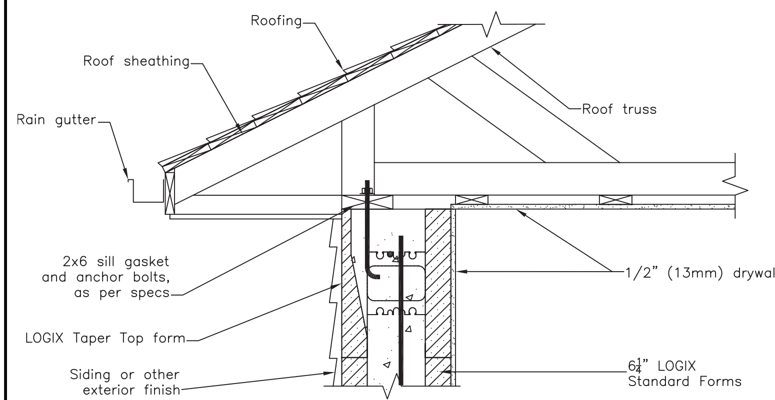
5.9.1 - 2x6 RECESSED TOP PLATE



NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

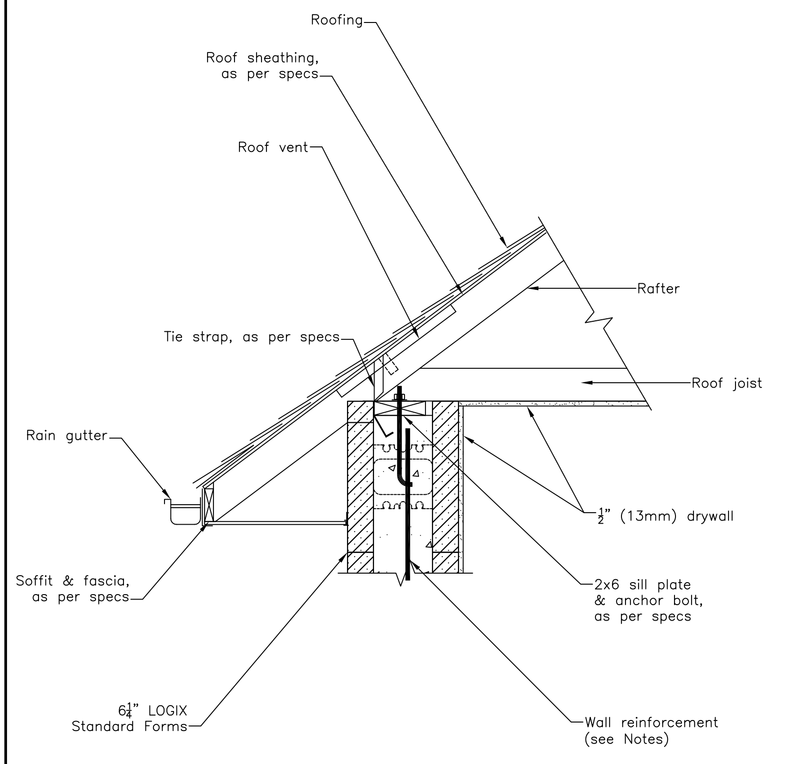
5.9.2 - 2x8 OVERHUNG TOP PLATE

5.8.1.6 - 2X6 WITH LOGIX TAPER TOP



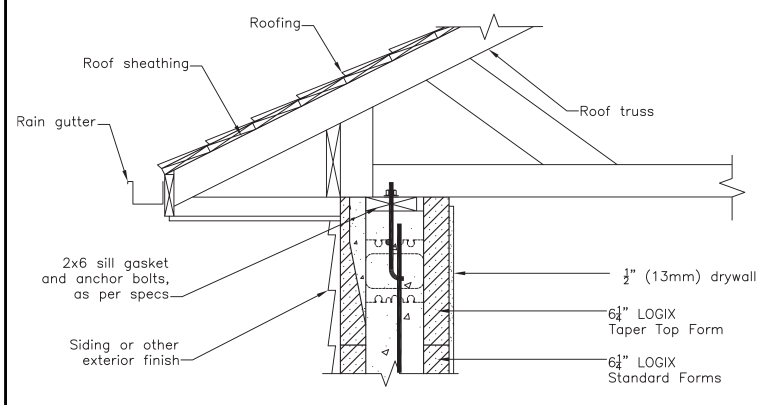
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.1.7 - HURRICANE TIE DOWN STRAP

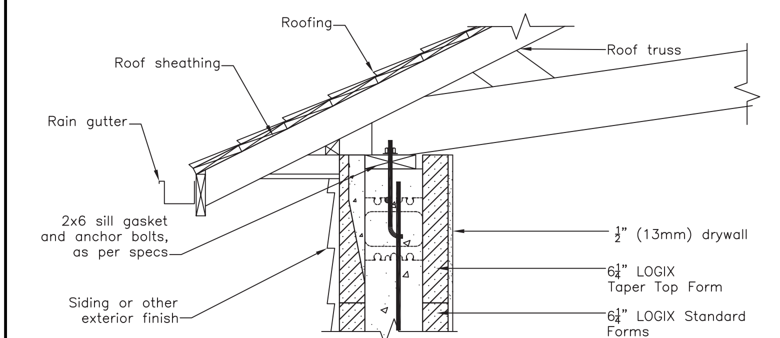


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual reinforcement details.

5.8.1.8 - VAULTED CEILINGS (1 OF 2)



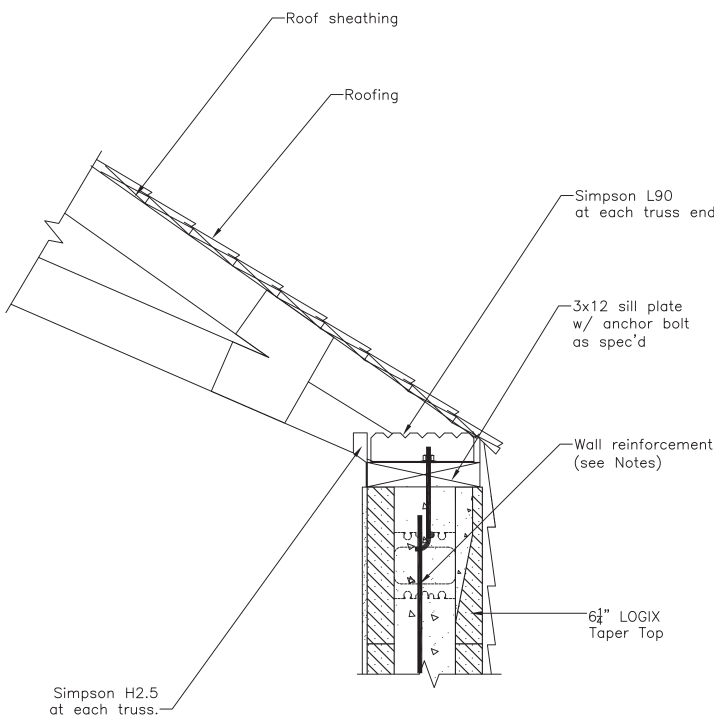
Vaulted Ceiling - A - Frame



NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

Vaulted Ceiling - Scissor Truss

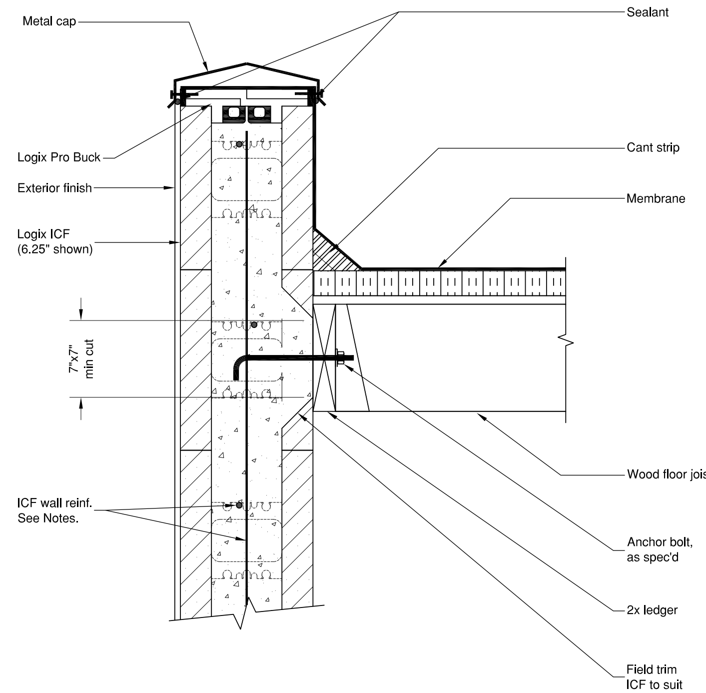
5.8.1.9 - VAULTED CEILINGS (2 OF 2)



NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.1.10 - ICF PARAPET: FLAT ROOF ON WOOD JOISTS WITH METAL CAP

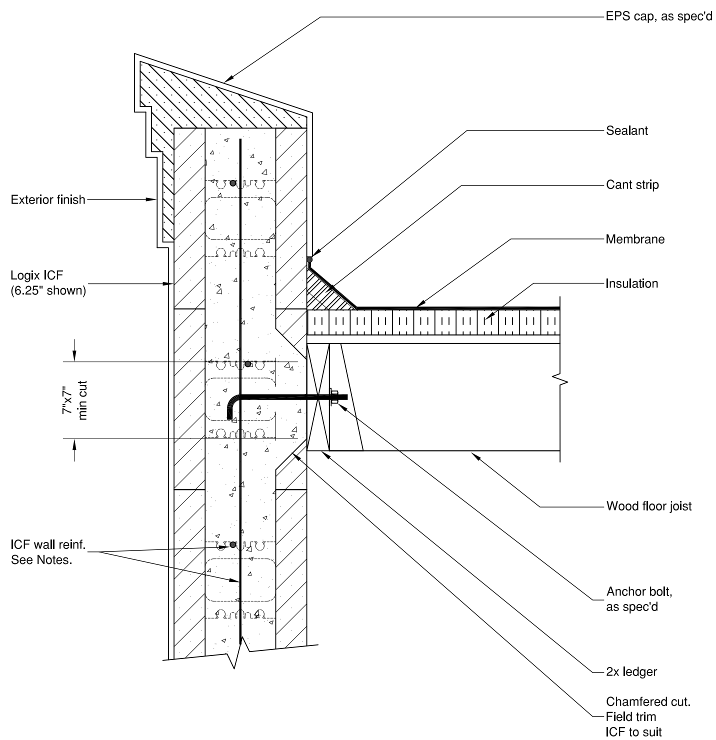
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

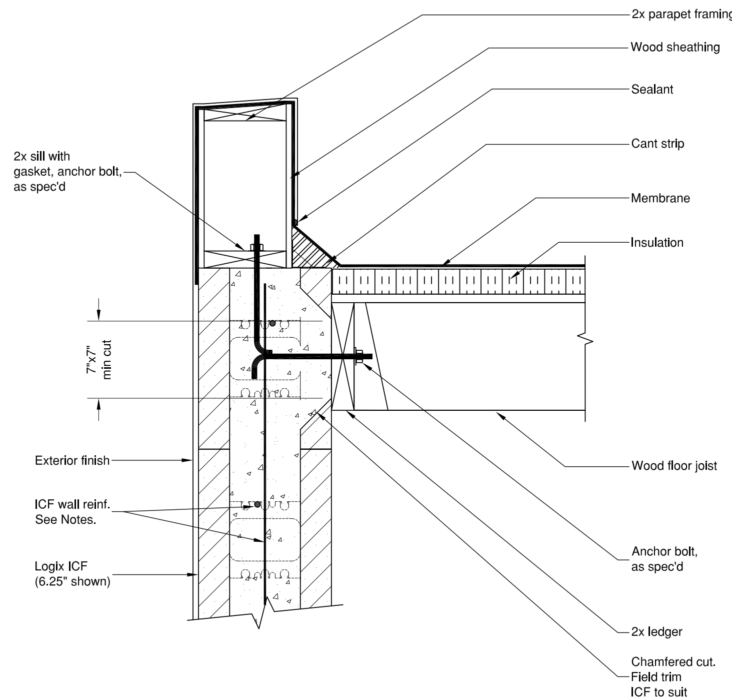
5.8.1.11 - ICF PARAPET: FLAT ROOF ON WOOD JOISTS WITH EPS COPING

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

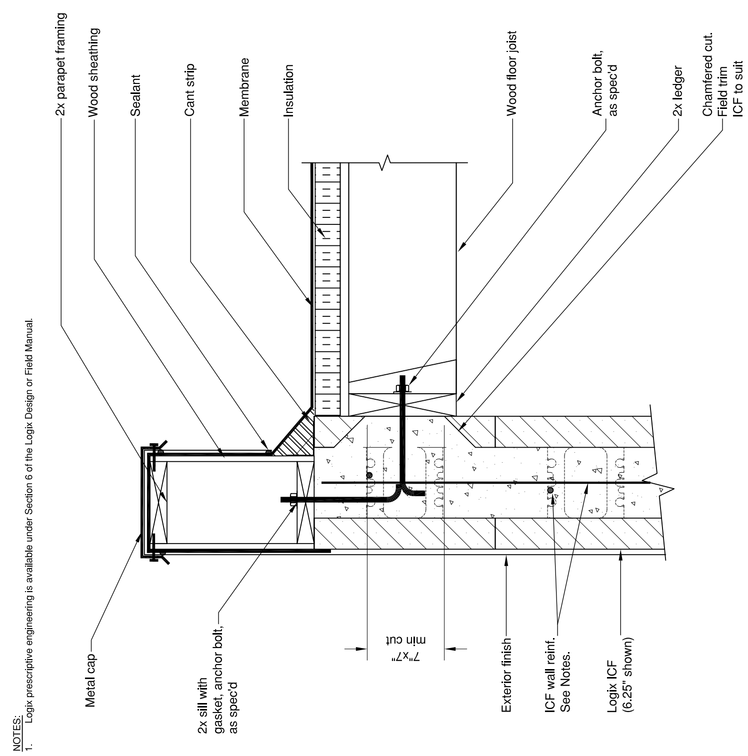


5.8.1.12 - WOOD PARAPET ON WOOD JOIST

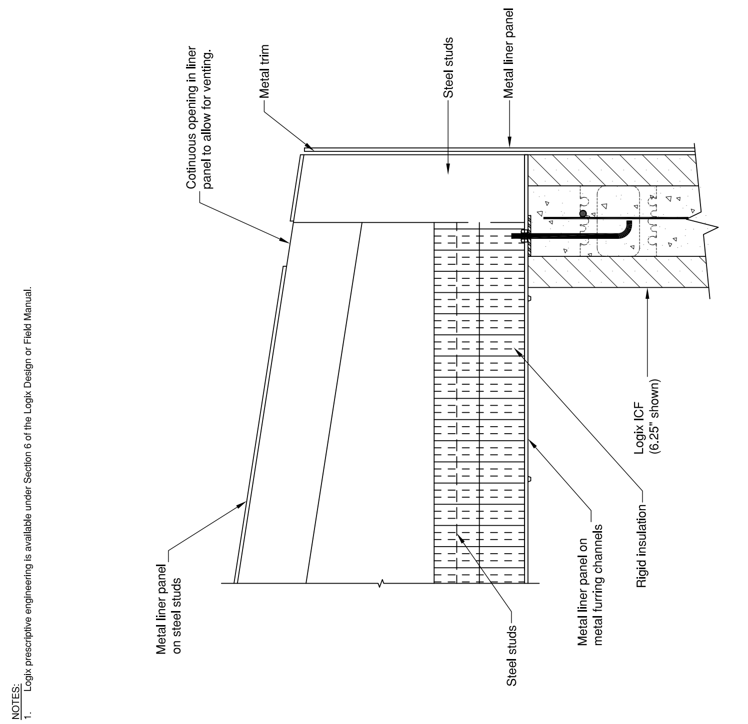
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



5.8.1.13 - WOOD PARAPET ON WOOD JOIST WITH METAL CAP

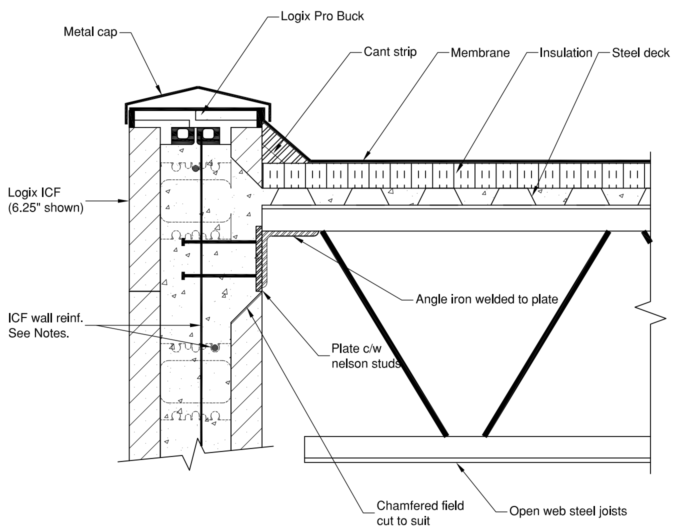


5.8.2.1 - METAL LINER ROOF PANELS



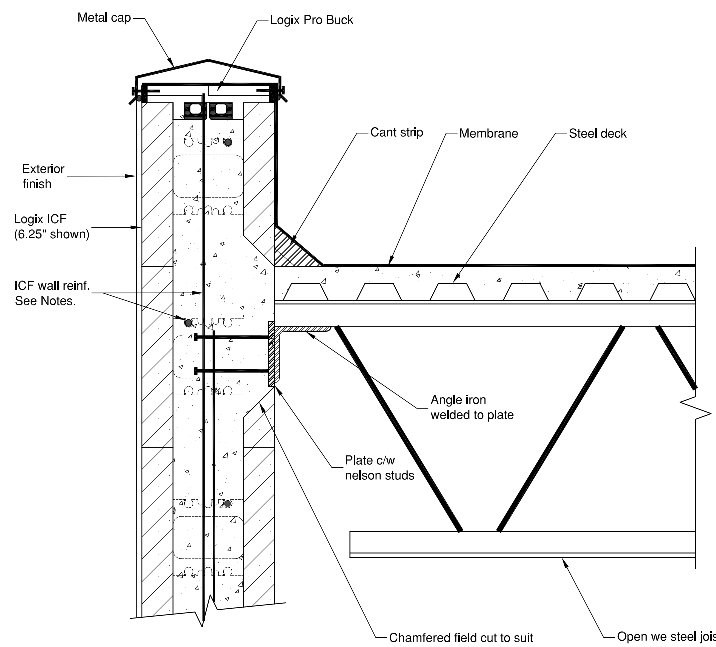
5.8.2.2 - OPEN WEB STEEL JOISTS FLAT ROOF

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding or torch work is conducted.



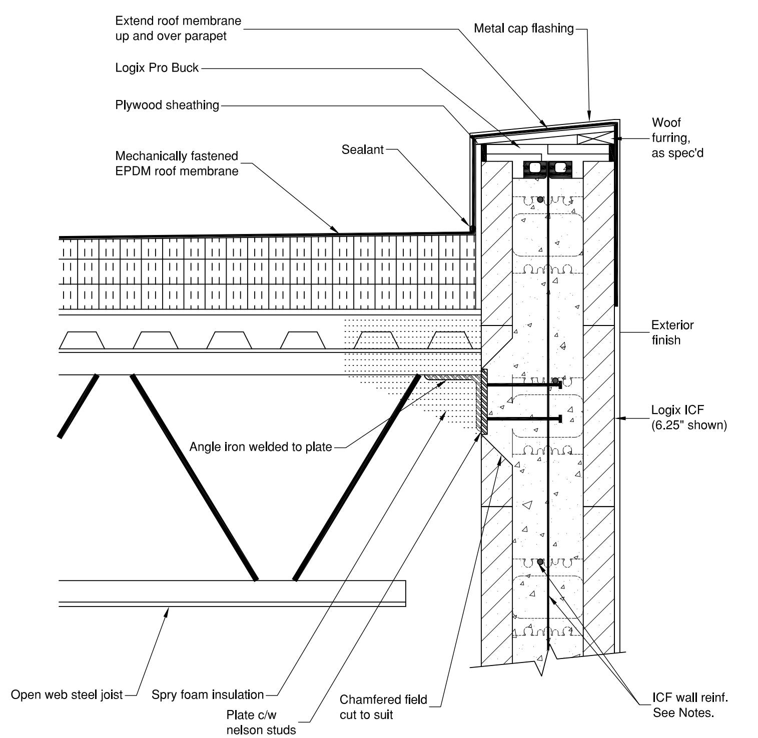
5.8.2.3 - ICF PARAPET: FLAT ROOF ON OPEN WEB JOIST

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding or torch work is conducted.



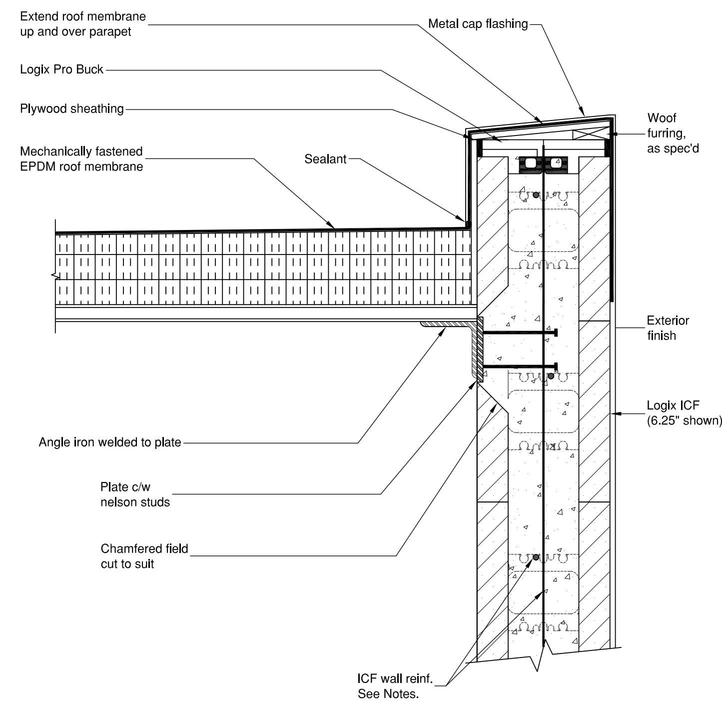
5.8.2.4 - ICF PARAPET: FLAT ROOF ON OPEN WEB JOIST WITH INSULATION

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding or torch work is conducted.



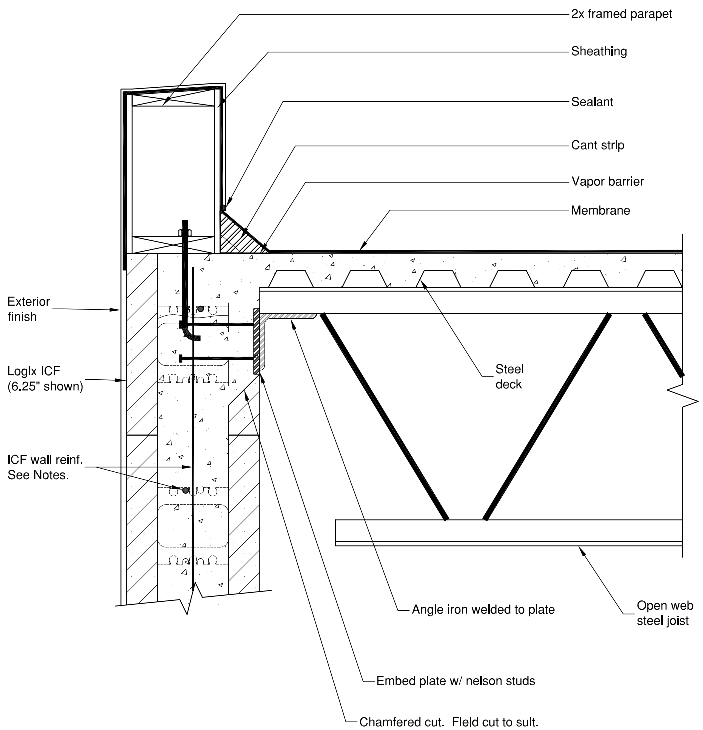
5.8.2.5 - ICF PARAPET: FLAT ROOF WITH ANGLE IRON SUPPORT

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding or torch work is conducted.



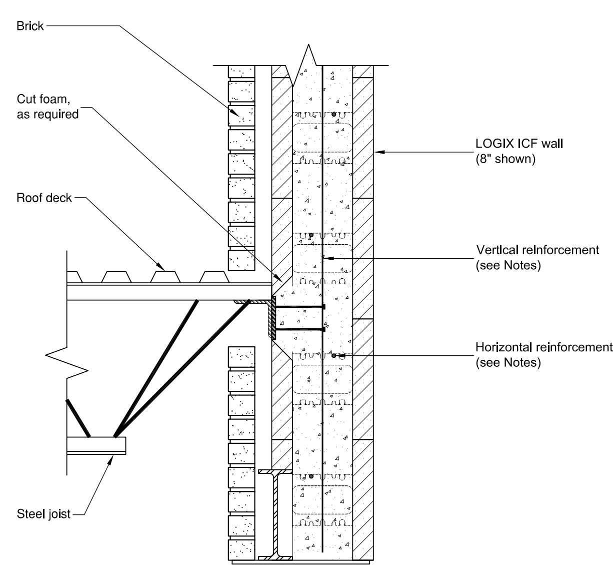
5.8.2.6 - WOOD PARAPET WITH OPEN WEB STEEL JOIST

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on-site welding or torch work is conducted.

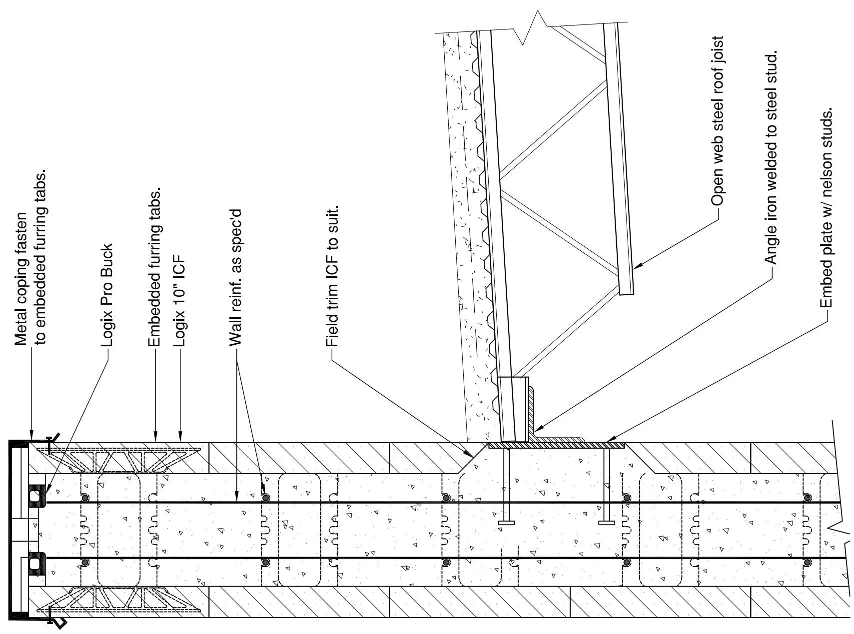


5.8.2.7 - ROOF DECK ON STEEL JOIST WITH LOGIX TAPER TOP

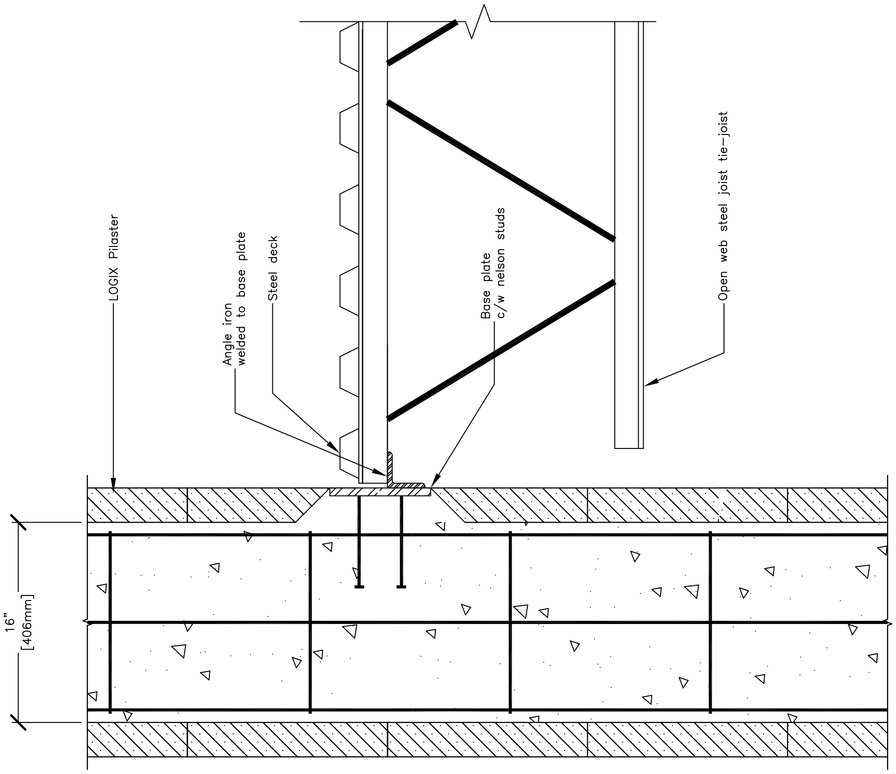
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



5.8.2.8 - PARAPET WITH SLOPED ROOF



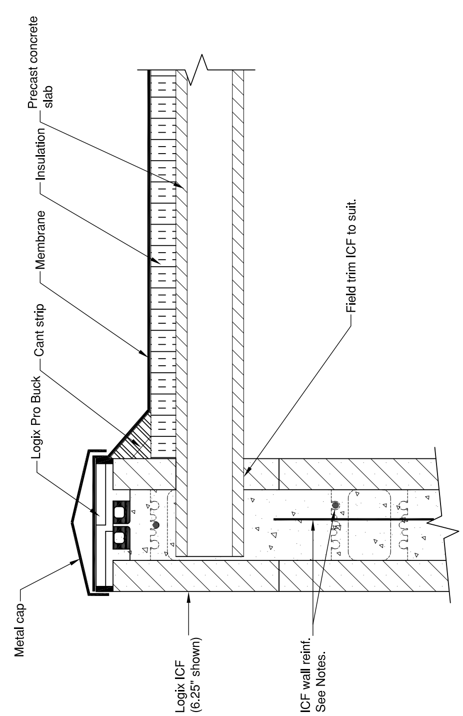
5.8.2.9 - STEEL DECK ON OPEN WEB STEEL JOIST AGAINST LOGIX PILASTER



The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

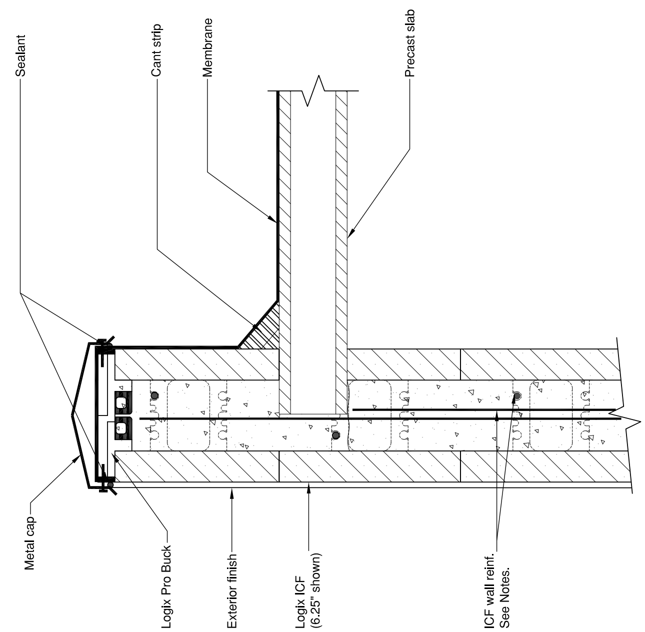
5.8.3 - PRE-CAST

5.8.3.1 - PRECAST CONCRETE FLAT ROOF



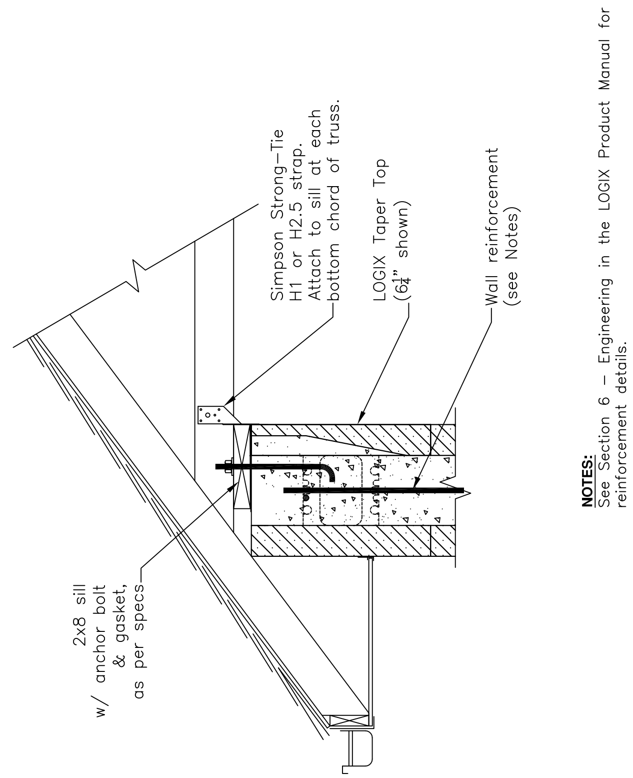
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

5.8.3.2 - ICF PARAPET: FLAT ROOF WITH PRECAST CONCRETE PANEL



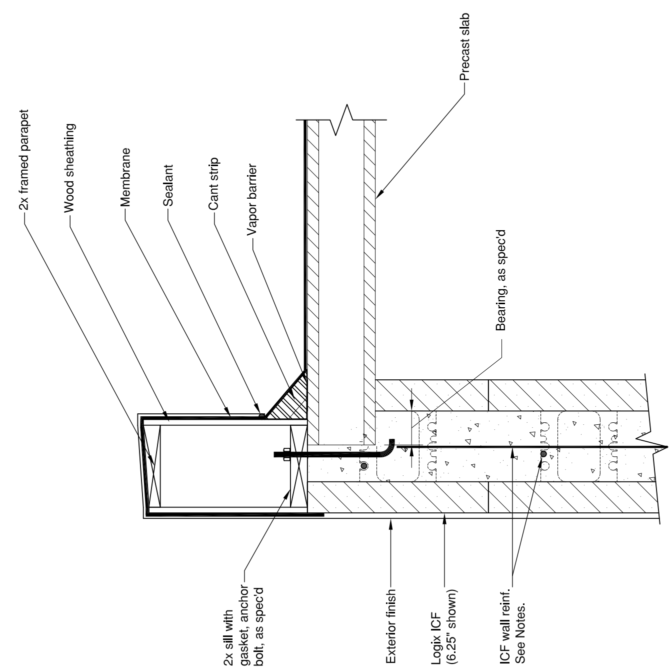
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

5.8.4.1 - SIMPSON H1/H2.5 STRAP



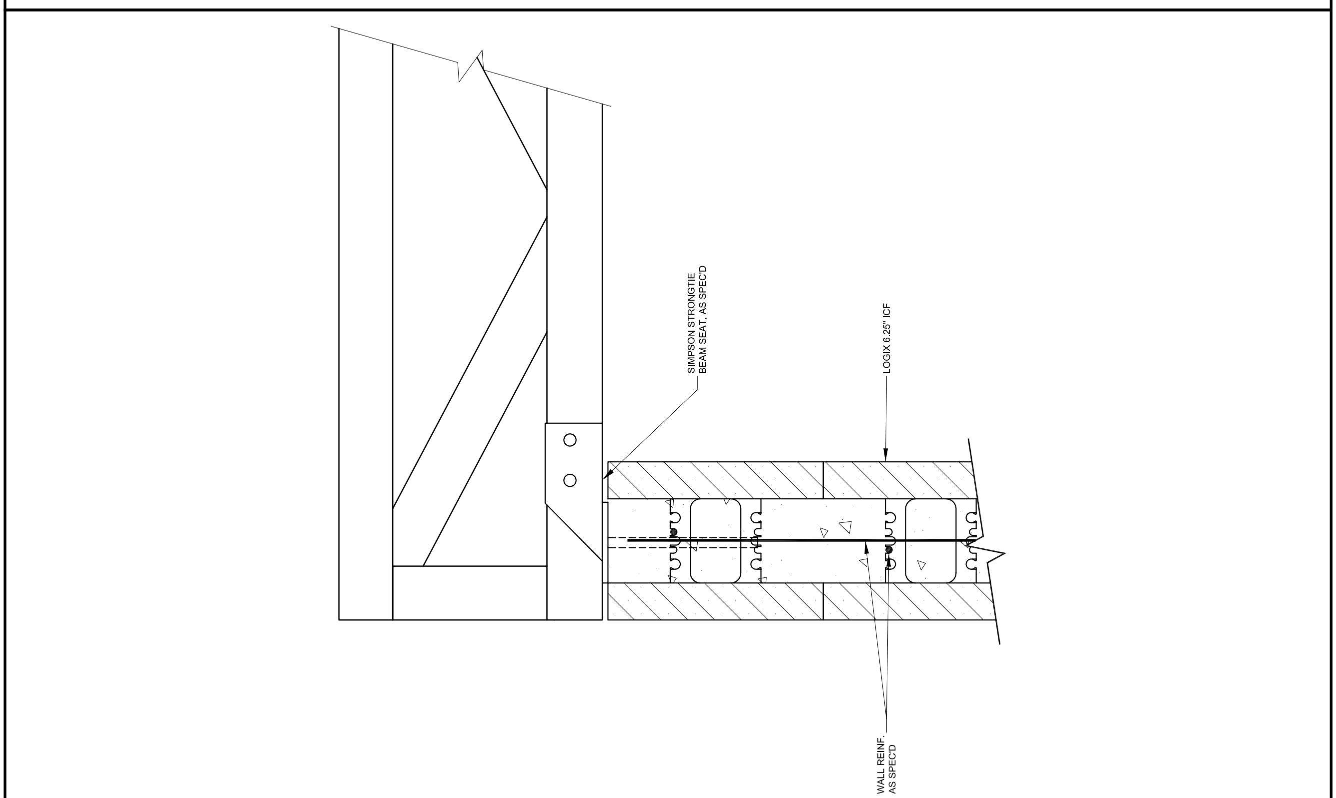
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.3.3 - WOOD PARAPET WITH PRECAST CONCRETE PANEL ROOF

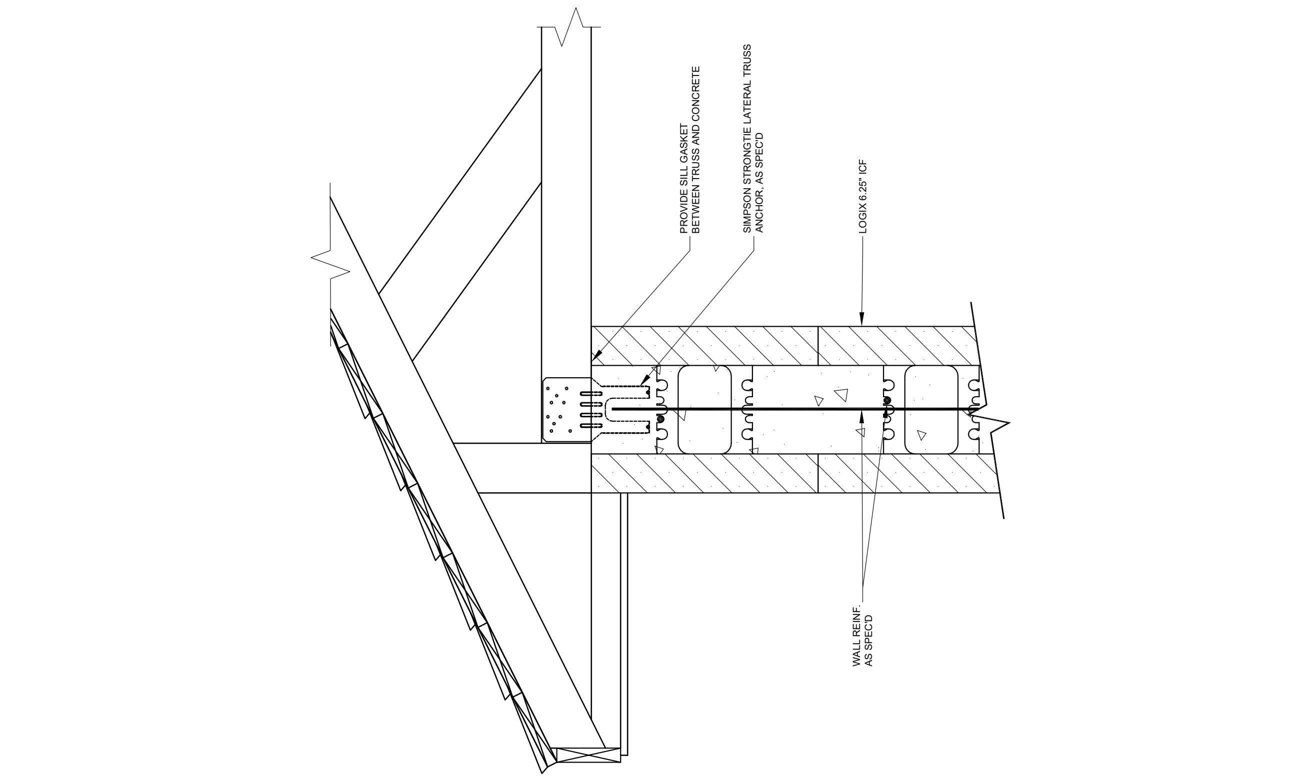


NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

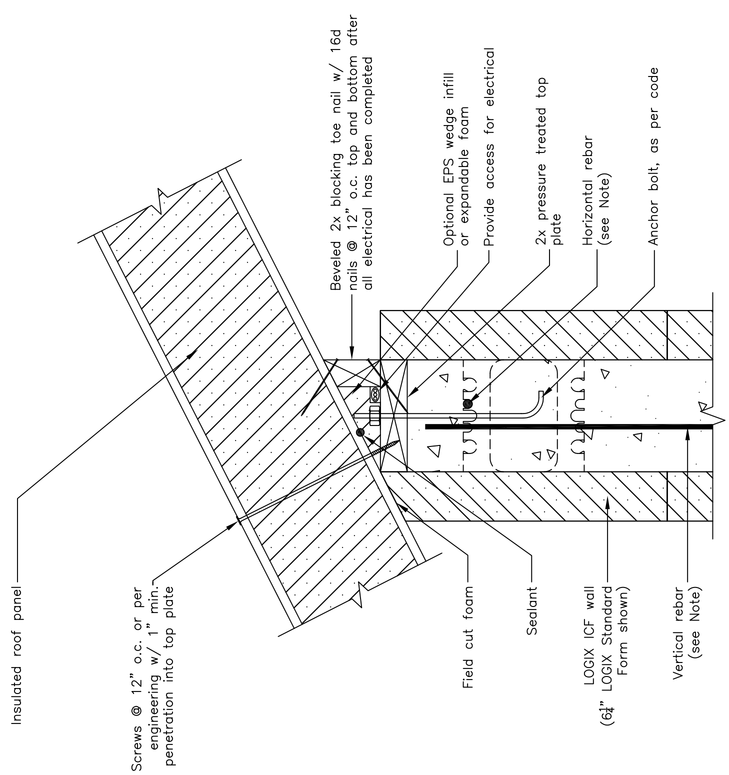
5.8.4.2 - SIMPSON ROOF TRUSS BEAM SEAT



5.8.4.3 - LATERAL TRUSS ANCHOR



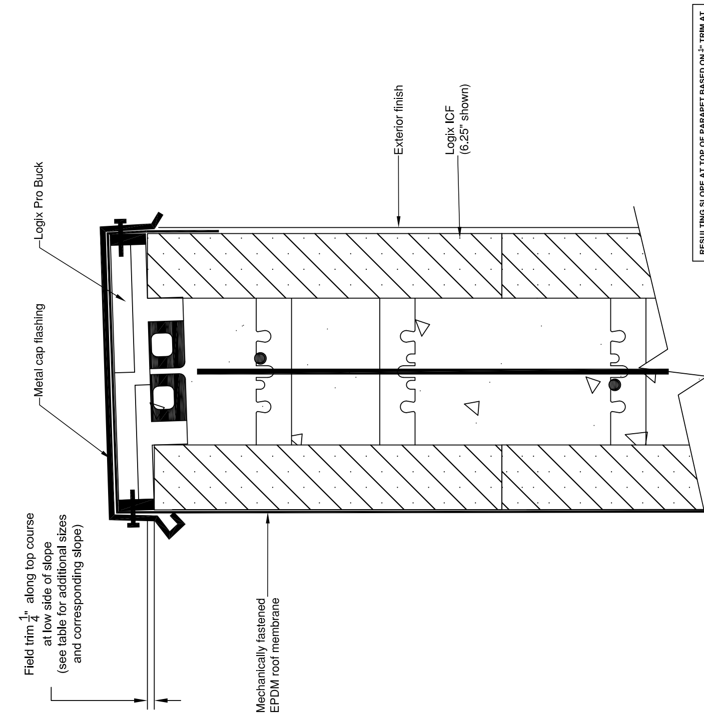
5.8.5.1 - SIP ROOF



NOTES:

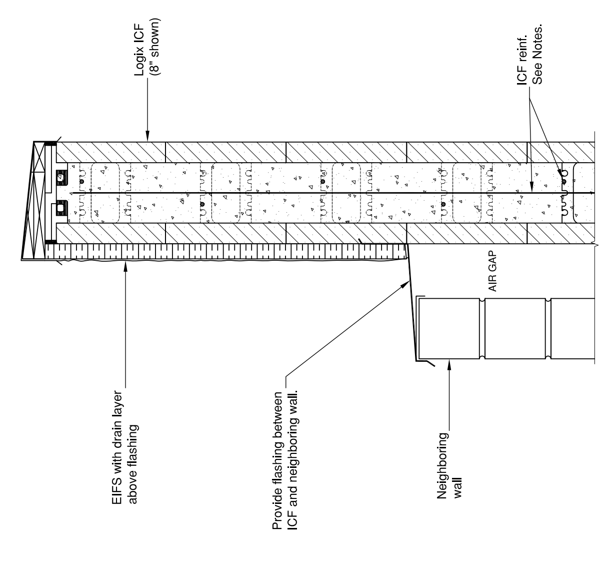
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Helpful Hint: Wedge behind beveled block can be a good place to run electrical wires after screws are in place.

5.8.6.2 - PARAPET SLOPED CAP WITH LOGIX PRO BUCK



RESULTING SLOPE AT TOP OF PARAPET BASED ON $\frac{1}{4}$" TRIM AT TOP OF ICF	
LOGIX	SLOPE
Logix 4"	2.6 %
Logix 6.25"	2.1 %
Logix 8"	1.9 %
Logix 10"	1.6 %
Logix 12"	1.4 %

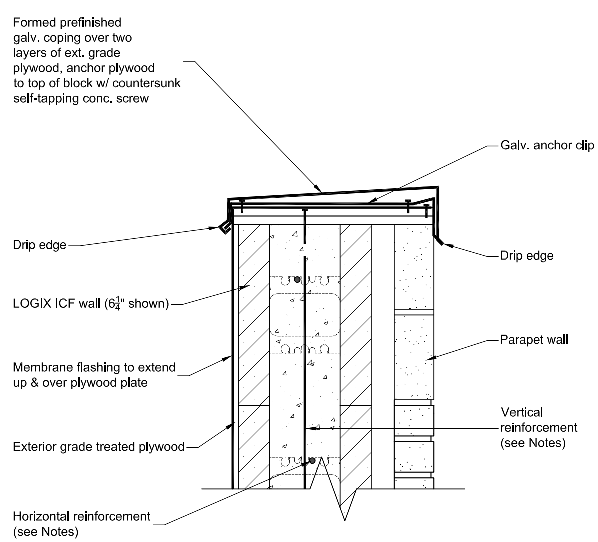
5.8.6.1 - FLASHING TO NEIGHBORING WALL



NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

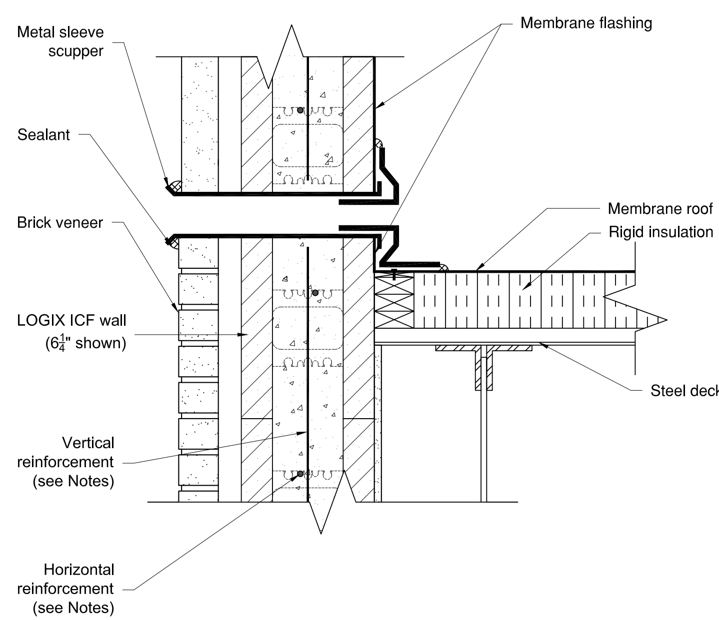
5.8.6.3 - PARAPET - METAL COPING WITH BRICK VENEER

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

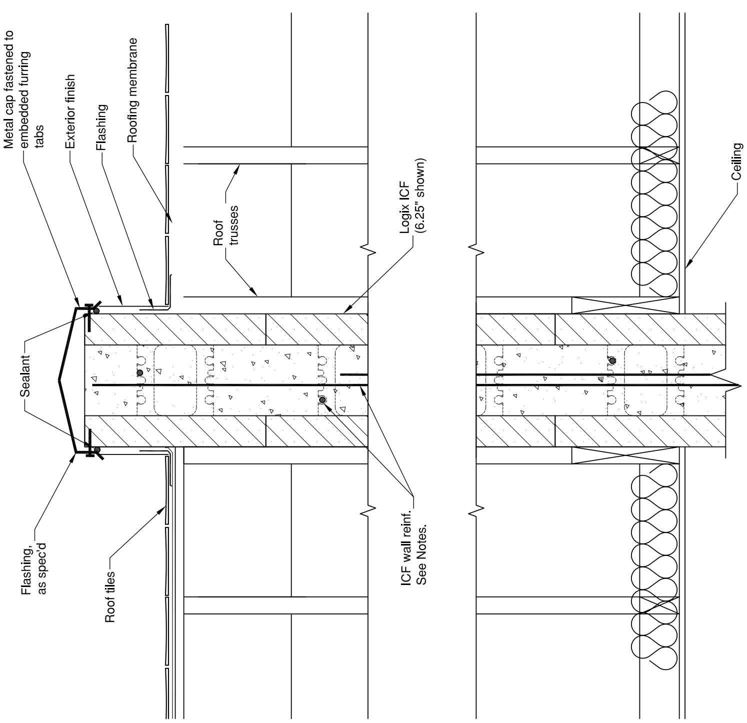


5.8.6.4 - SCUPPER DETAIL

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



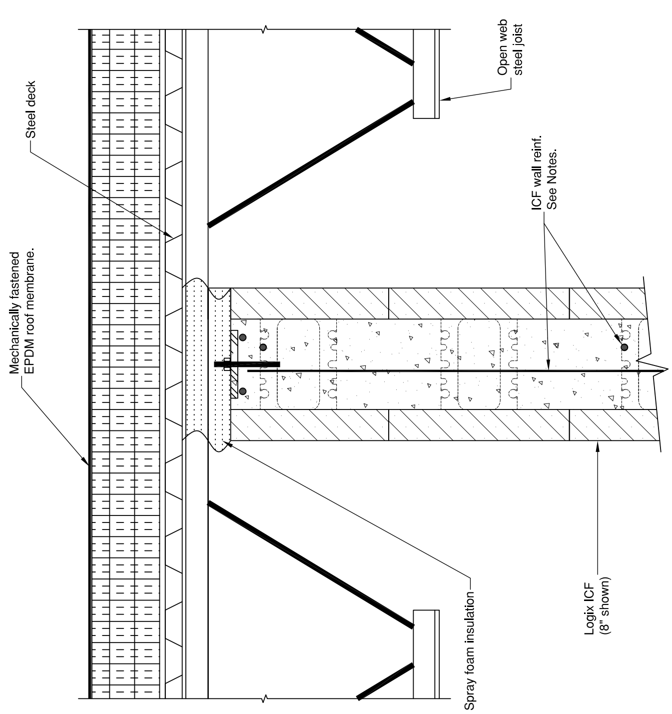
5.9.1.1 - FIRE WALL ABOVE ROOF LINE



NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.

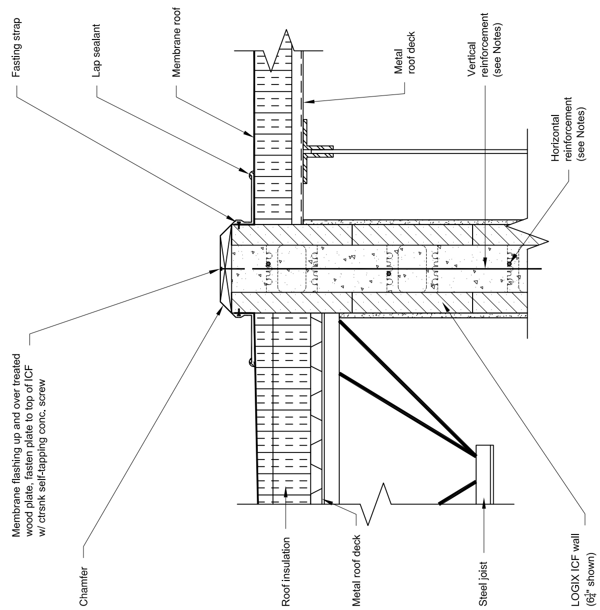
5.9.2.1 - INTERIOR WALL SUPPORTING OPEN WEB STEEL JOISTS

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



5.9.2.2 - SEPARATION WALL

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



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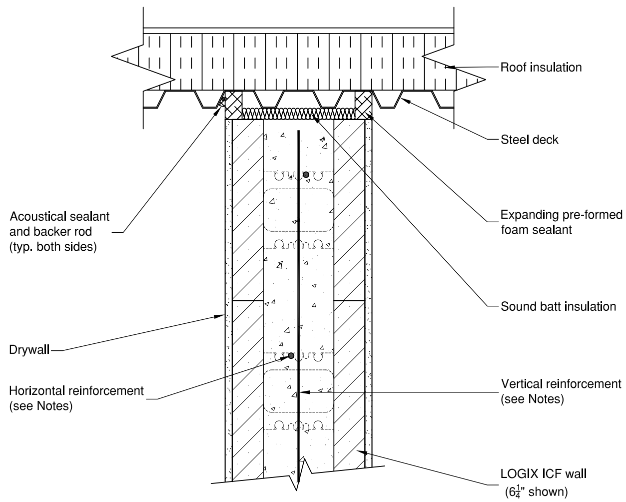
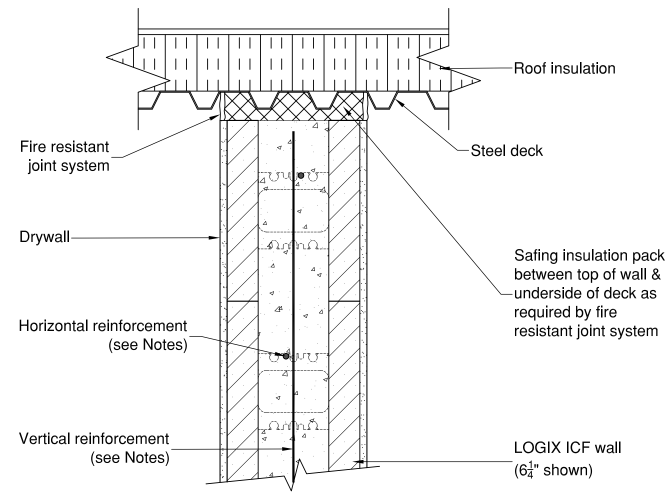
5.9.2.3 - STEEL DECK ON LOGIX DEMISING WALL

NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



5.9.2.4 - STEEL DECK ON LOGIX DEMISING WALL WITH FIRE SEALANT

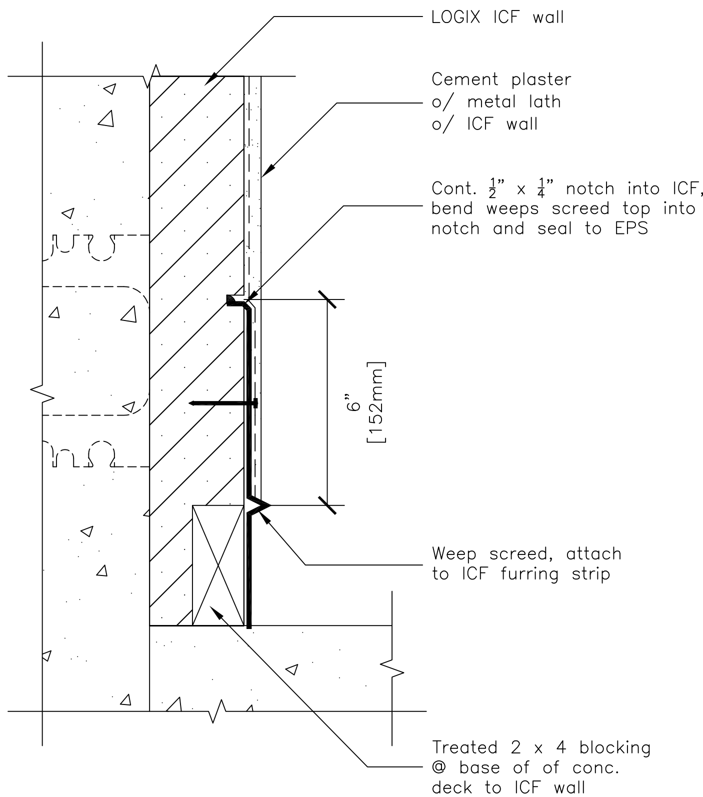
NOTES:
1. Logix prescriptive engineering is available under Section 6 of the Logix Design or Field Manual.



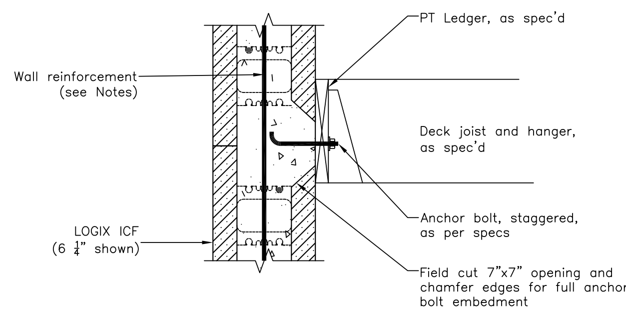
5.10.1 - WEEP SCREED & FLASHING

NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

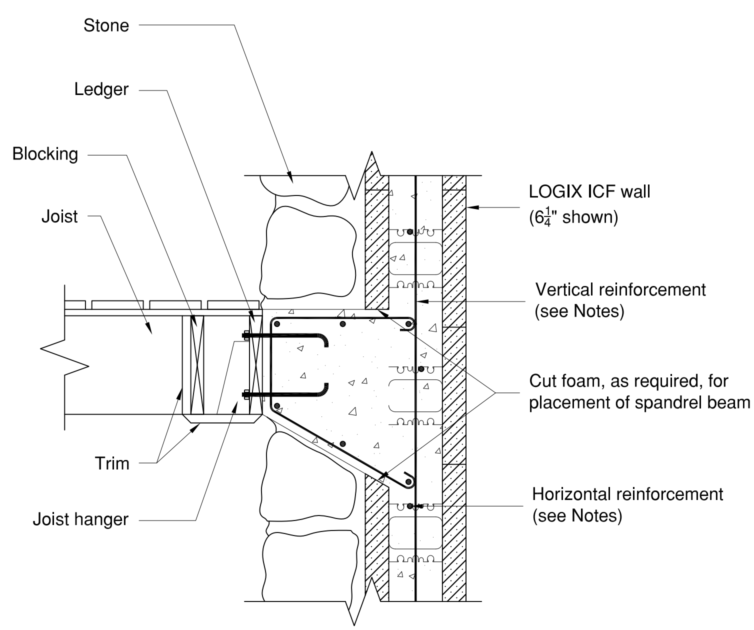


5.10.2 - LEDGER ATTACHMENT



NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

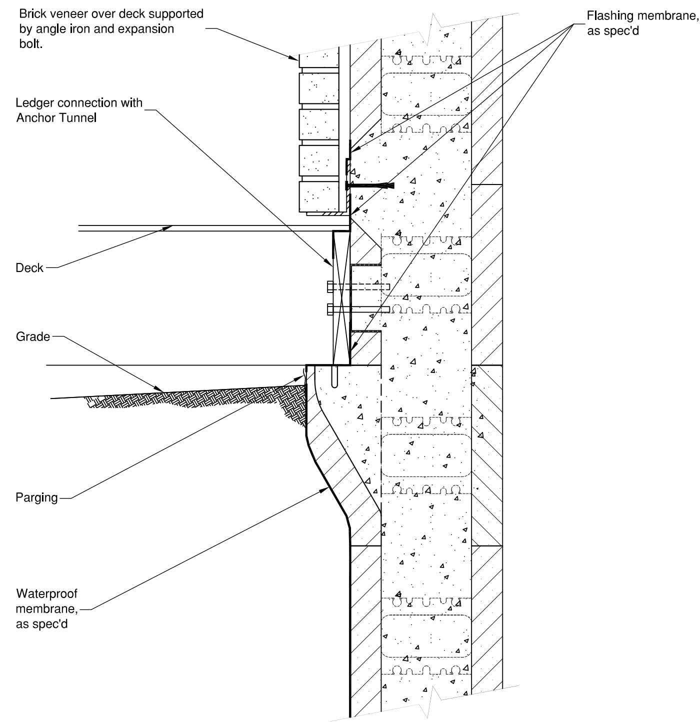
5.10.3 - CORBEL SUPPORTING DECK & STONE VENEER



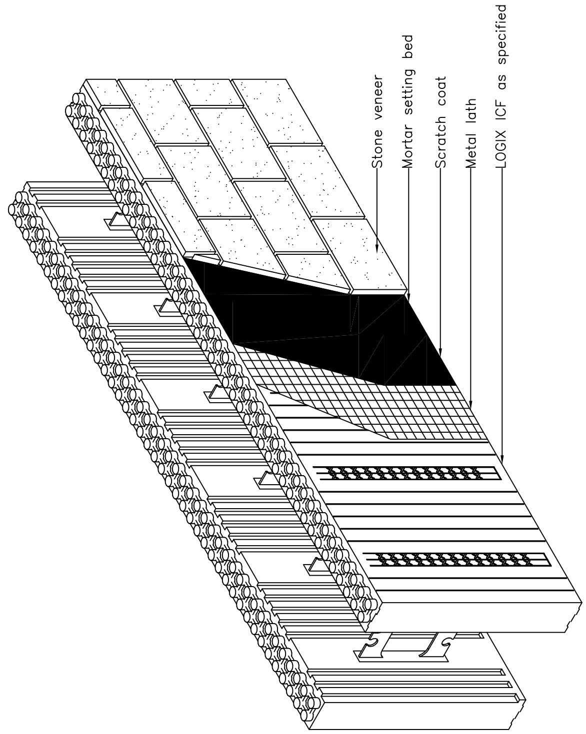
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.10.4 - BRICK LEDGE WITH LEDGER



5.11.1.1 - LOGIX ICF WITH STONE VENEER



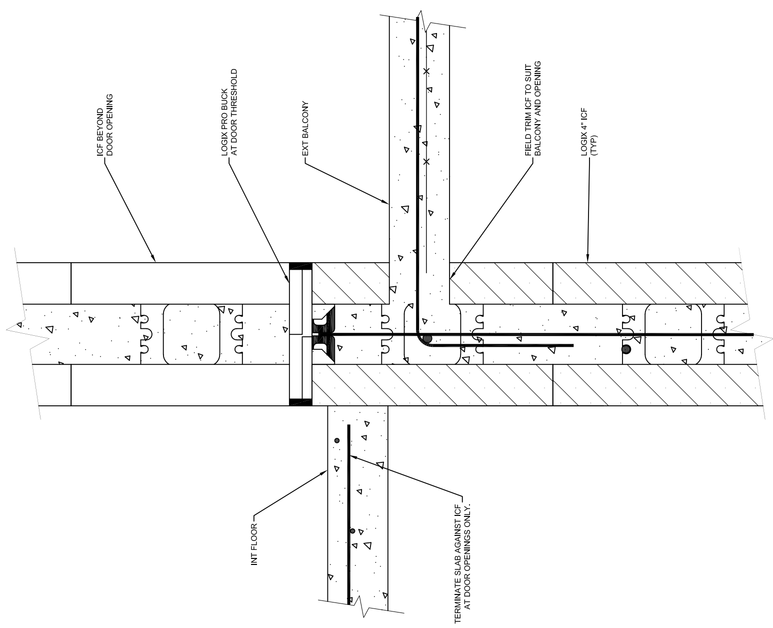
NOTES:

1. All fasteners to be attached to the embedded furring tabs.
2. Recommended min. fastener spacings:
   1. Grabber construction non-corrosive screws: No.8 min. 1.25" long, 8" o.c. horiz., 12" o.c. vert. spacing. (3/8" head ring shank nails with washers can be used in lieu of No.8 screws)

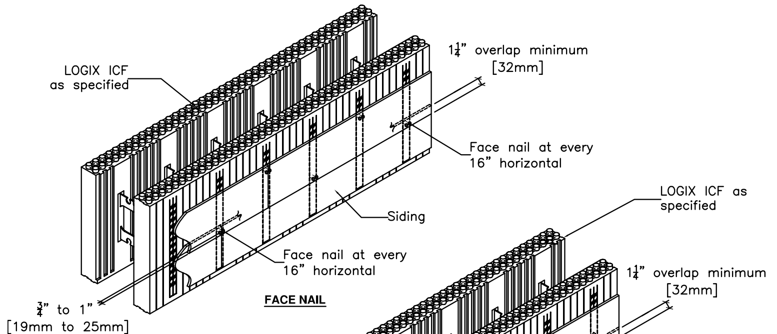
   OR

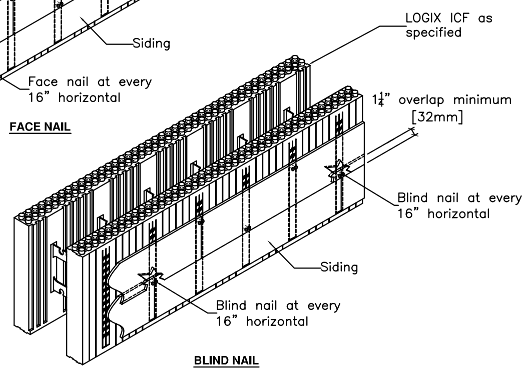
   2. Staples 1.59mm 16ga. min. 1.25" long, 8" o.c. horiz., 5" o.c. vert. spacing.
3. Always follow manufacturer's instructions or recommendations.

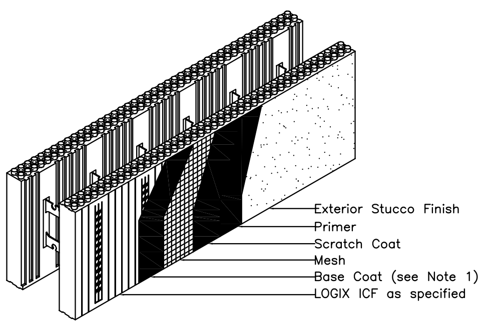
5.10.5 - THERMAL BREAK AT THRESHOLD WITH PRO BUCK



5.11.1.2 - SIDING & STUCCO



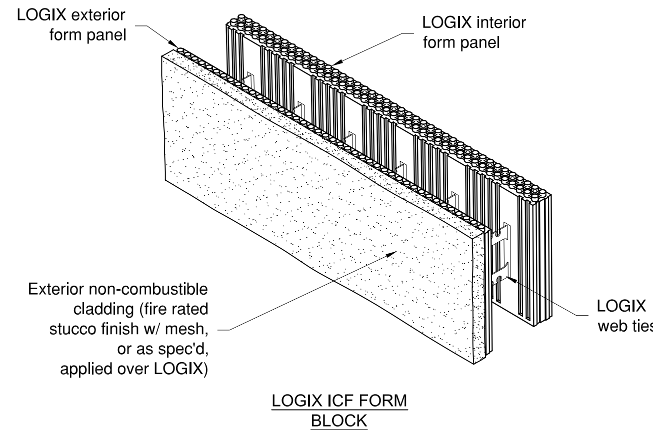


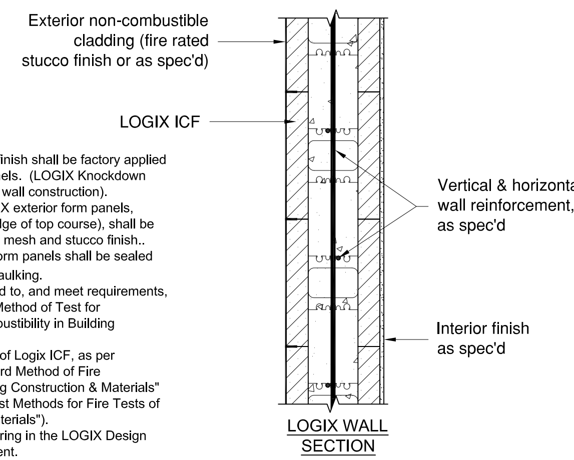


NOTES:

1. If no base coat, fasten mesh to ICF with staples.
2. Detail above is a general drawing only. Follow manufacturer's installation instructions.
3. See LOGIX Product Manual section 2.21 for supporting exterior finish products.
4. See LOGIX Product Manual section 2.18.3 for more information on exterior siding.

5.11.1.3 - ZERO LOT LINE (NON-COMBUSTIBLE FINISH)

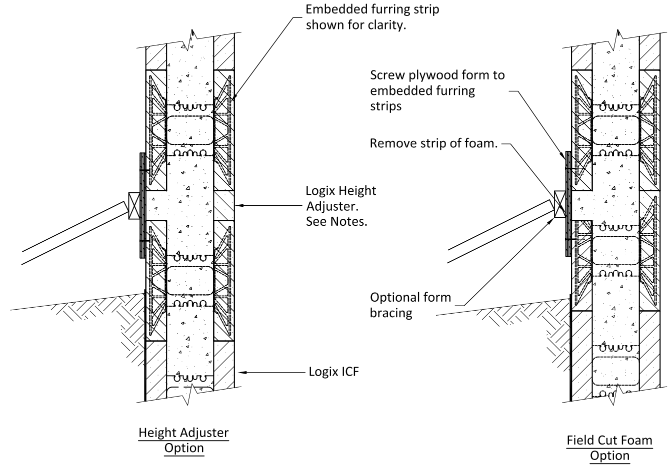




NOTES:

1. Fire rated stucco w/ mesh finish shall be factory applied to LOGIX exterior form panels. (LOGIX Knockdown forms shall be used for the wall construction).
2. All exposed edges of LOGIX exterior form panels, including top of wall (top edge of top course), shall be fully covered with fire rated mesh and stucco finish..
3. All joints/seams between form panels shall be sealed with minimum ⅜" fire stop caulking.
4. Stucco finish shall be tested to, and meet requirements, of CAN4-S114 "Standard Method of Test for Determination of Non-combustibility in Building Materials".
5. 2 hour minimum fire rating of Logix ICF, as per CAN/ULC S101-M "Standard Method of Fire Endurance Tests of Building Construction & Materials" (ASTM E119 "Standard Test Methods for Fire Tests of Building Construction & Materials").
6. Refer to Section 6 Engineering in the LOGIX Design Manual for wall reinforcement.

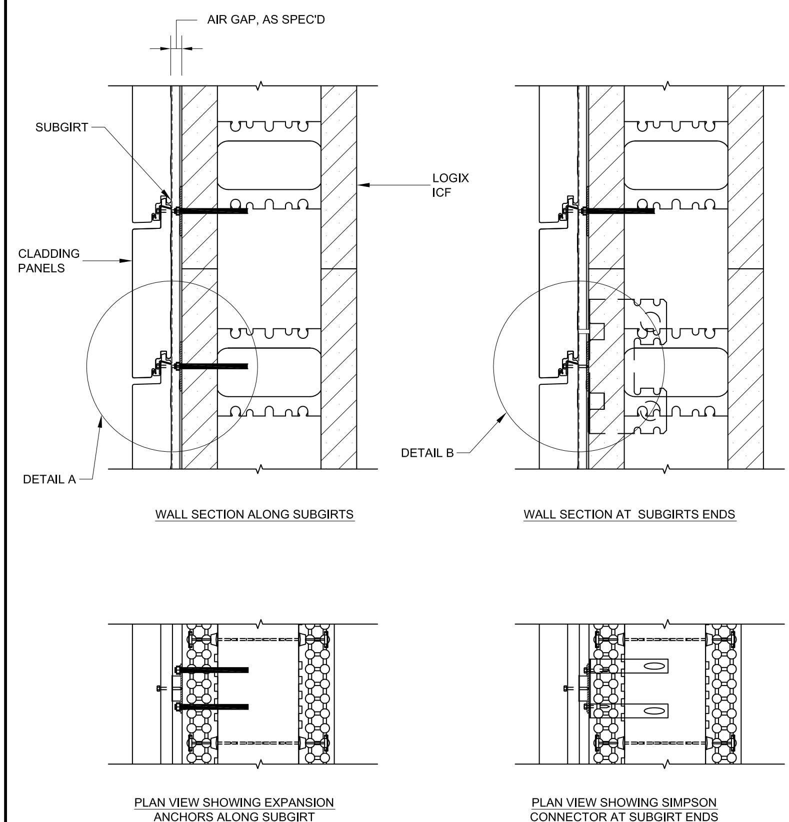
5.11.1.4 - TERMITE STRIP



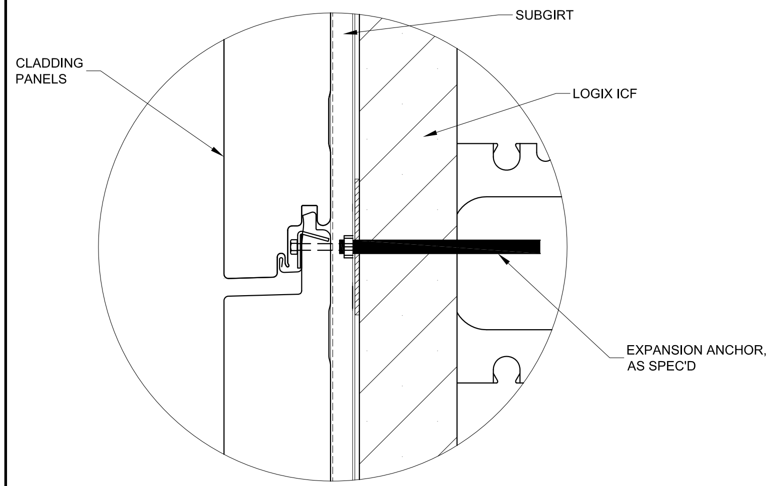
NOTES:

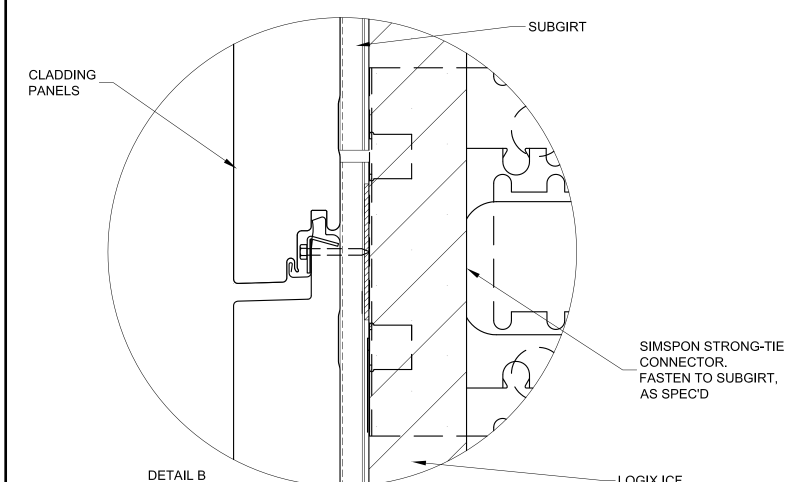
1. See Section 6 - Engineering in the LOGIX Product Manual for reinforcement details.
2. Treating the soil ahead of time is another method of avoiding termite related problems.
3. Please refer to local building codes for more information on termite control.
4. Recommend gluing in place Height Adjusters with foam adhesive.

5.11.1.5 - CLADDING PANELS

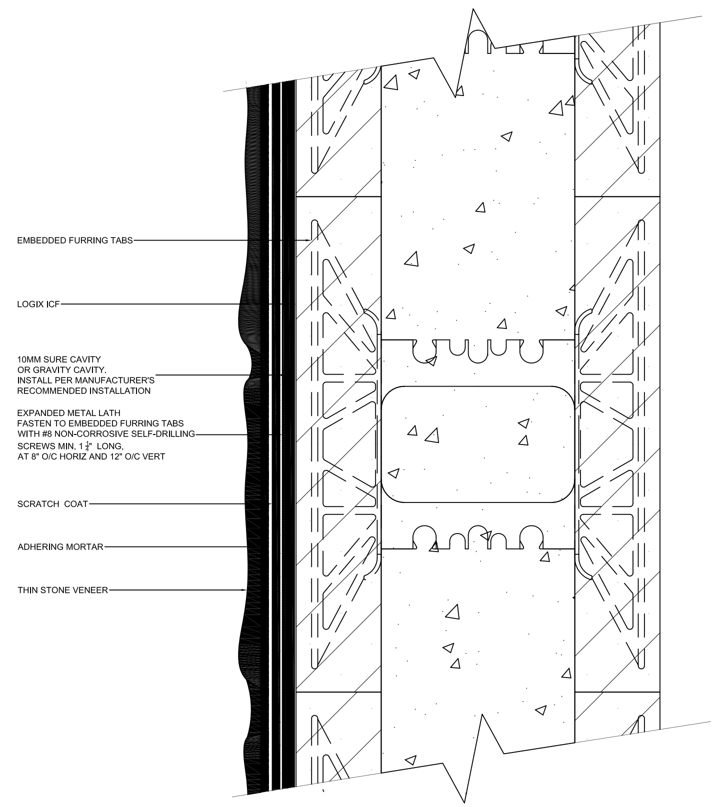


5.11.1.6 - CLADDING PANELS CONT'D





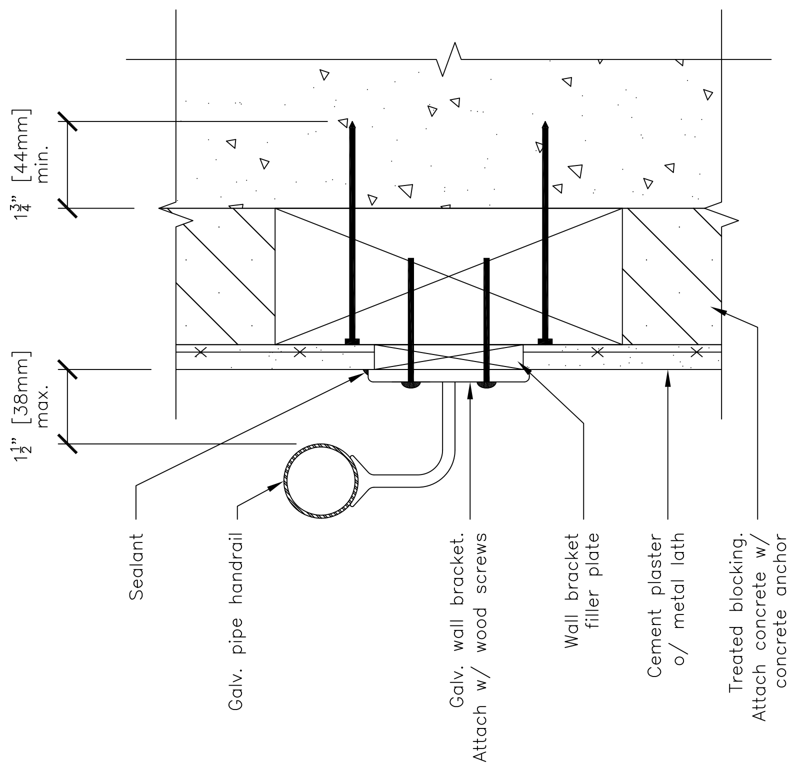
5.11.1.7 - STONE VENEER APPLICATION WITH DRAINAGE PLANE



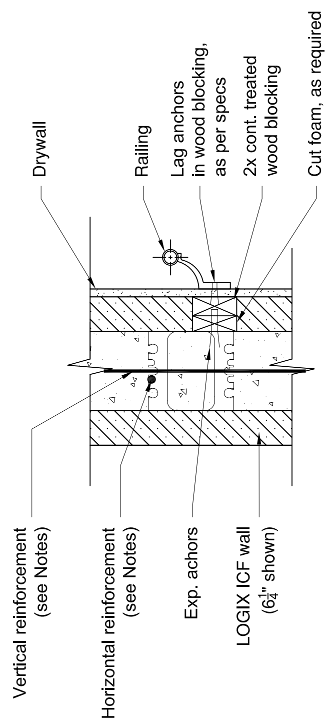
5.11.2.1 - METAL HANDRAIL

NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



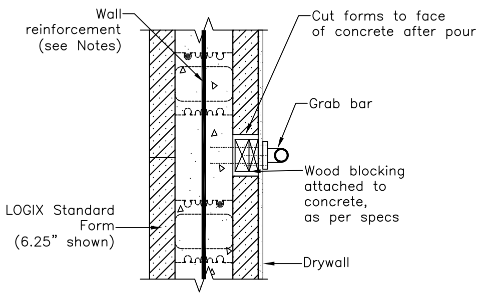
5.11.2.2 - HANDRAIL



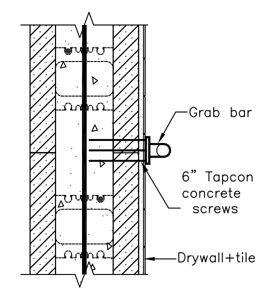
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

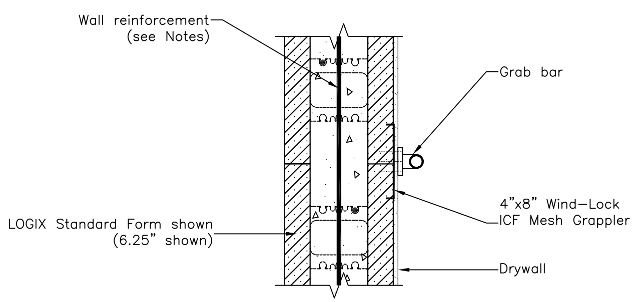
5.11.2.3 - GRAB BAR SUPPORT



WOOD BLOCKING



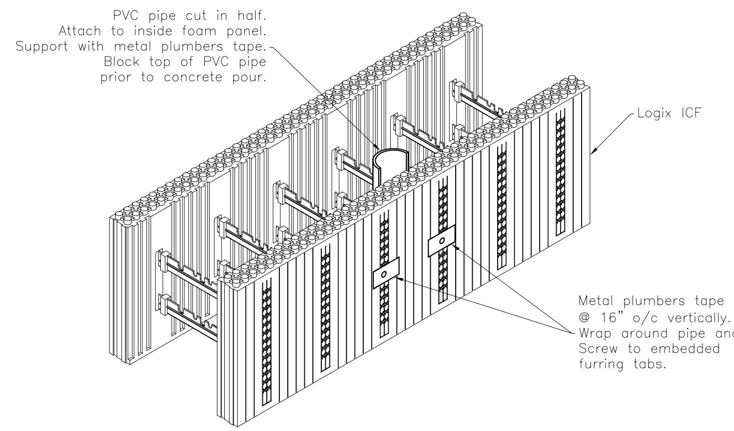
TAPCON CONCRETE SCREWS

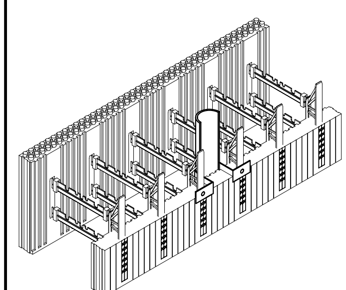


ICF MESH GRAPPLER

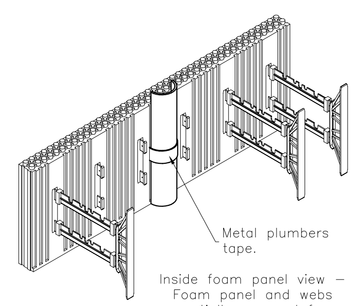
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.11.2.4 - EMBEDDED VERTICAL PIPE





Embedded vertical pipe – Foam panel partially removed for clarity

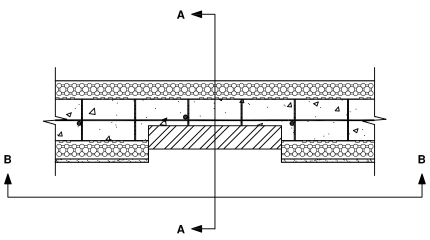


Inside foam panel view – Foam panel and webs partially removed for clarity.

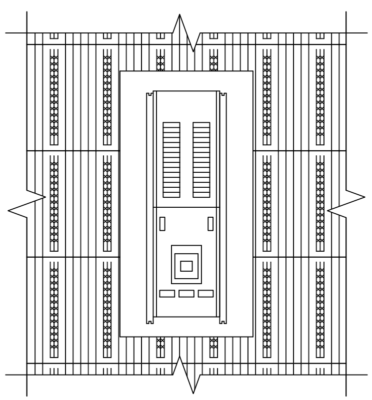
5.11.2.5 - PANELBOARD WITH LOGIX 6.25" & LARGER

NOTES:

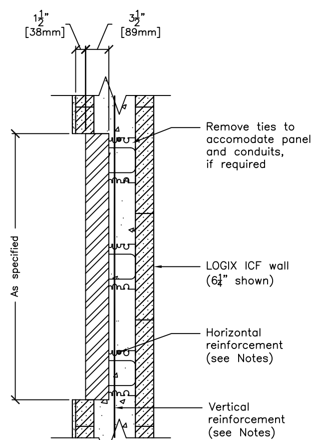
1. 6¼" [159mm] LOGIX Standard Form shown.
2. See Section 6 – Engineering in the LOGIX Design Manual for wall reinforcement details.



PLAN VIEW



FRONT VIEW B-B

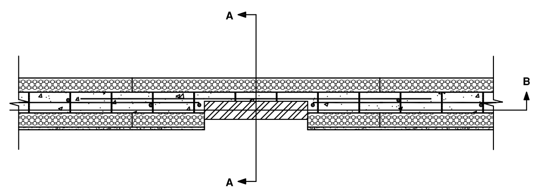


END VIEW A-A

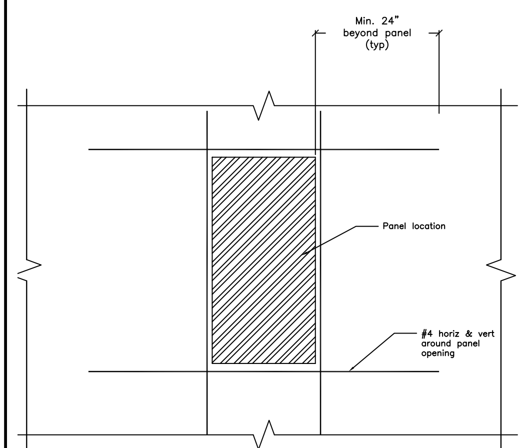
5.11.2.6 - PANELBOARD WITH LOGIX 4"

NOTES:

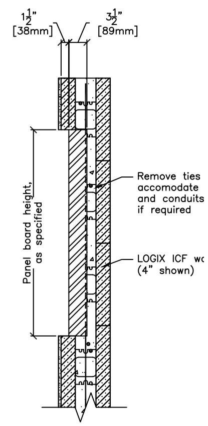
1. 4" [102mm] LOGIX Standard Form shown.
2. For more horizontal and vertical rebar reinforcement details, see Section 6 – Engineering in the LOGIX Design Man
3. For more lintel reinforcement details, see Section 6 – Engineering in the LOGIX Design Manual.



PLAN VIEW

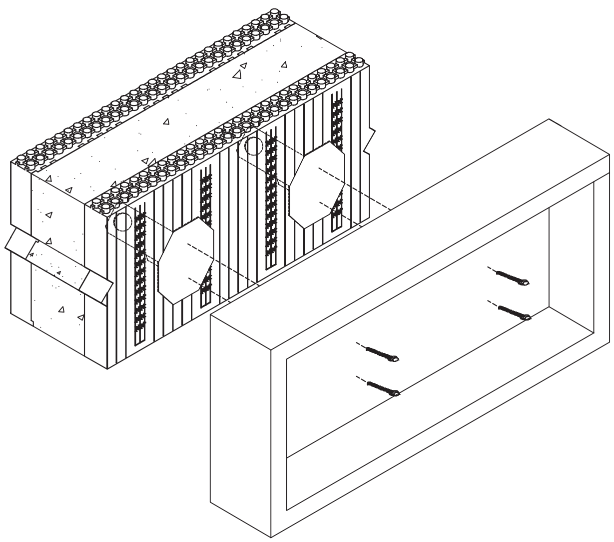


FRONT VIEW B-B



END VIEW A-A

5.11.2.7 - SIMPSON STRONG TIE WITH CABINETS

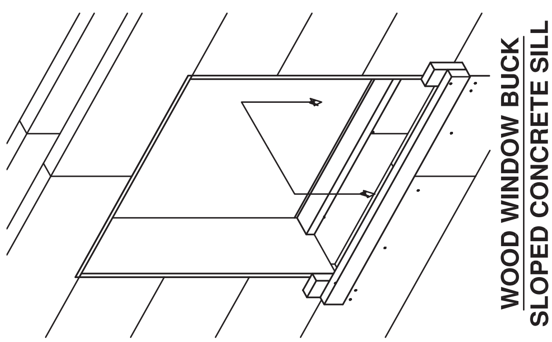


CABINET INSTALLATION

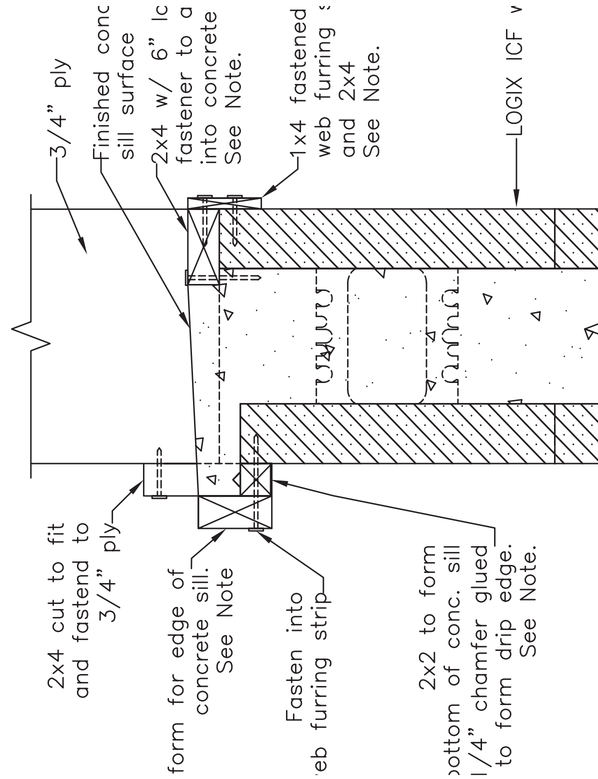
NOTES:

1. For more information visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999-5099 prior to installation.

5.12.1.2 - SLOPED CONCRETE SILL



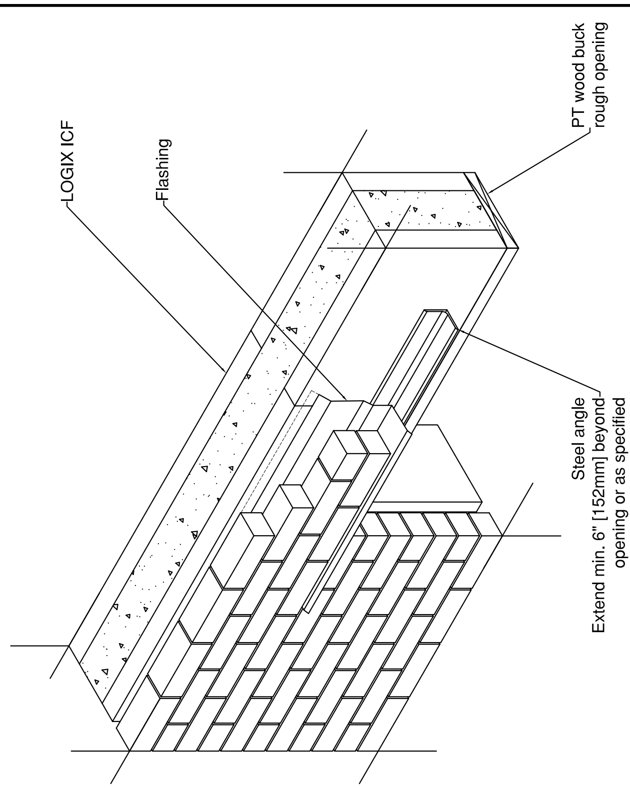
WOOD WINDOW BUCK
SLOPED CONCRETE SILL

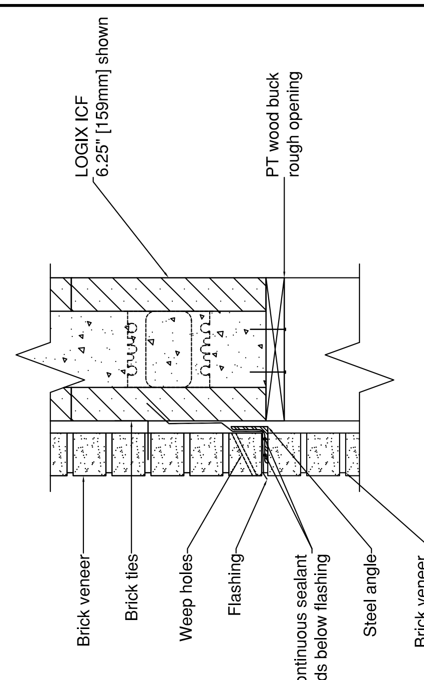


SECTION A-A

r to suit specified slope of concrete sill.

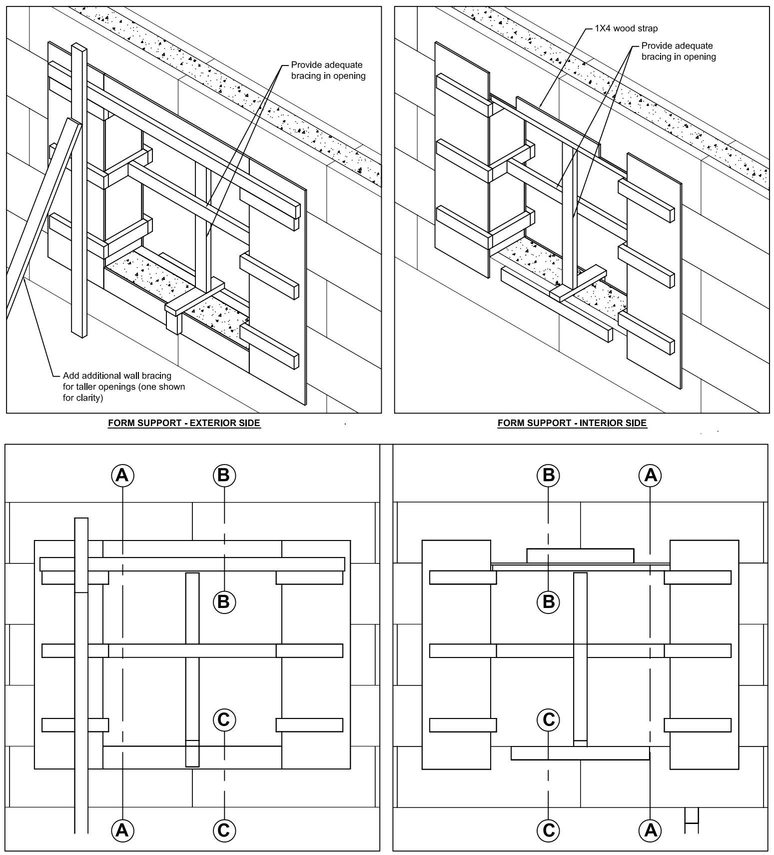
5.12.1.1 - STEEL LINTEL SUPPORTING BRICK VENEER





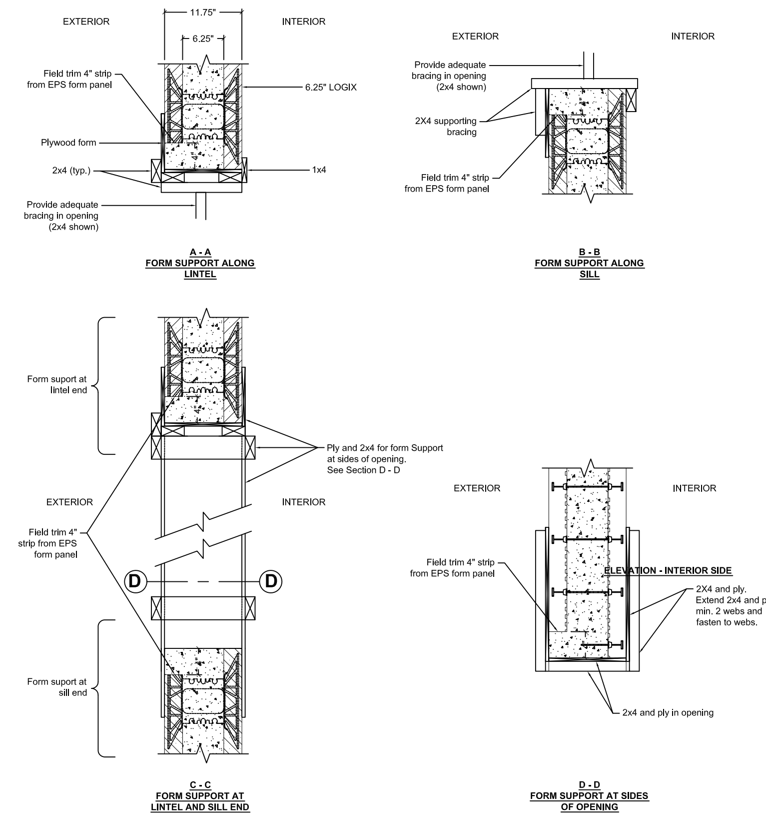
SECTION THROUGH
LINTEL

5.12.1.3 - TEMPORARY FORM SUPPORT FOR EXPOSED CONCRETE SILL



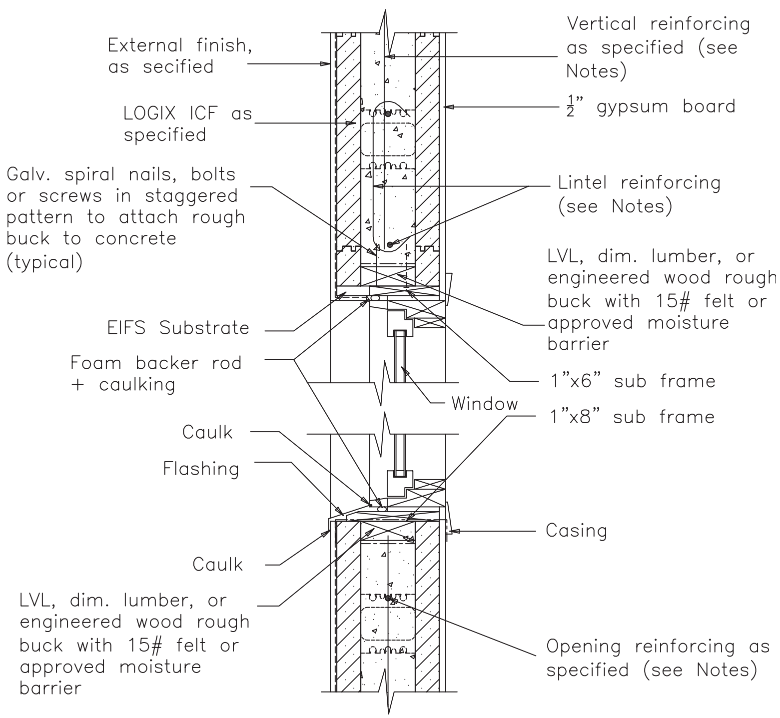
NOTE:
1. For 4" exposed concrete trim around opening on the interior face apply same form support and detail as shown for exterior face details.
2. Unless otherwise shown, temporary form work material includes 2x4 and plysheets.

5.12.1.4 - TEMPORARY FORM SUPPORT FOR EXPOSED CONCRETE SILL CONT'D



NOTE:
1. For 4" exposed concrete trim around opening on the interior face apply same form support and detail as shown for exterior face details.
2. Unless otherwise shown, temporary form work material includes 2x4 and plysheets.

5.12.1.5 - WINDOW HEAD / SILL DETAIL



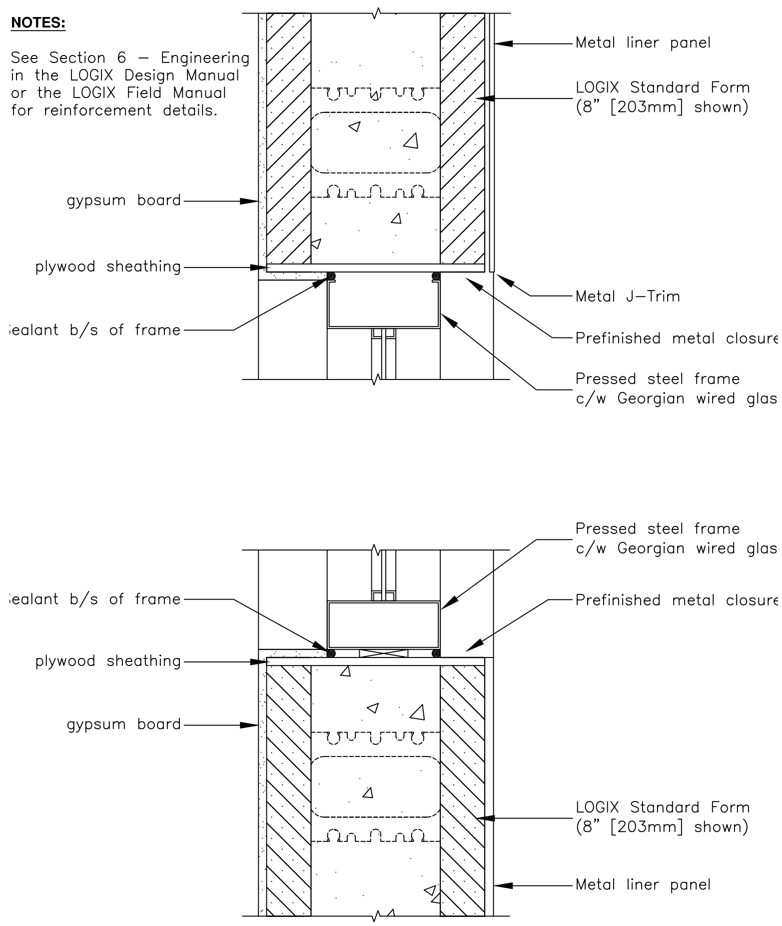
NOTES:

1. For wall & lintel reinforcement, see LOGIX Product Manual Section 6, Engineering.

5.12.1.6 - WINDOW HEAD / SILL STEEL FRAME

NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



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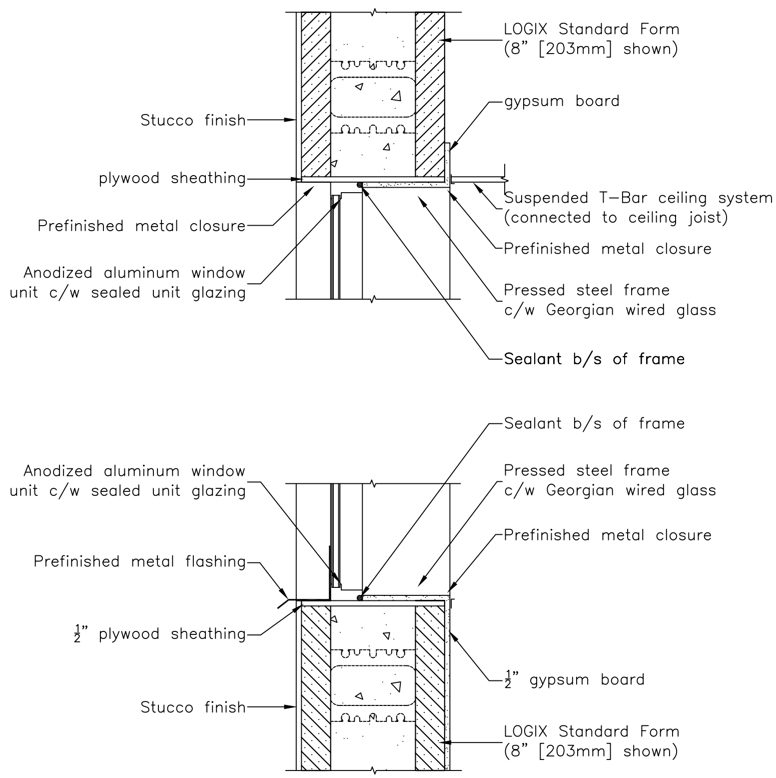
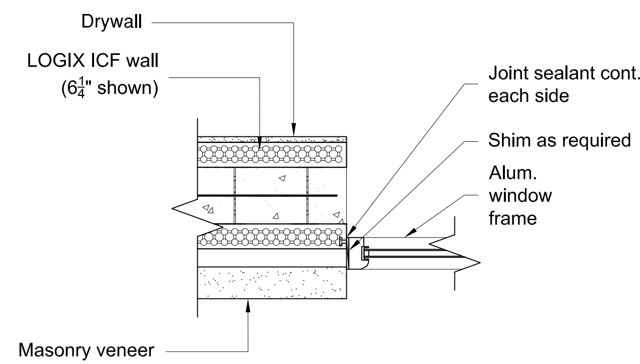
5.12.1.7 - ALUMINUM WINDOW HEAD / SILL



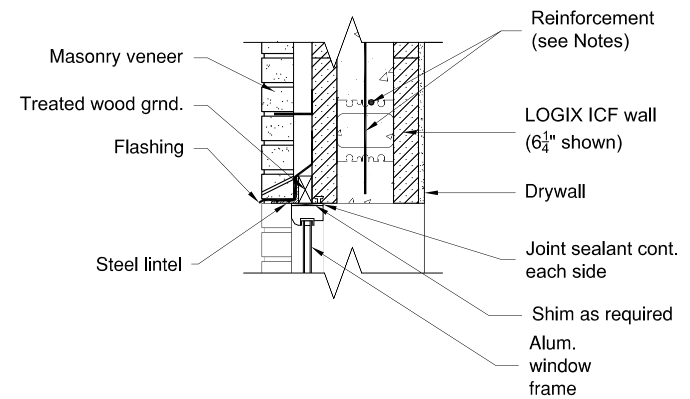
NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.12.1.8 - ALUMINUM WINDOW FRAME



ALUMINUM WINDOW JAMB

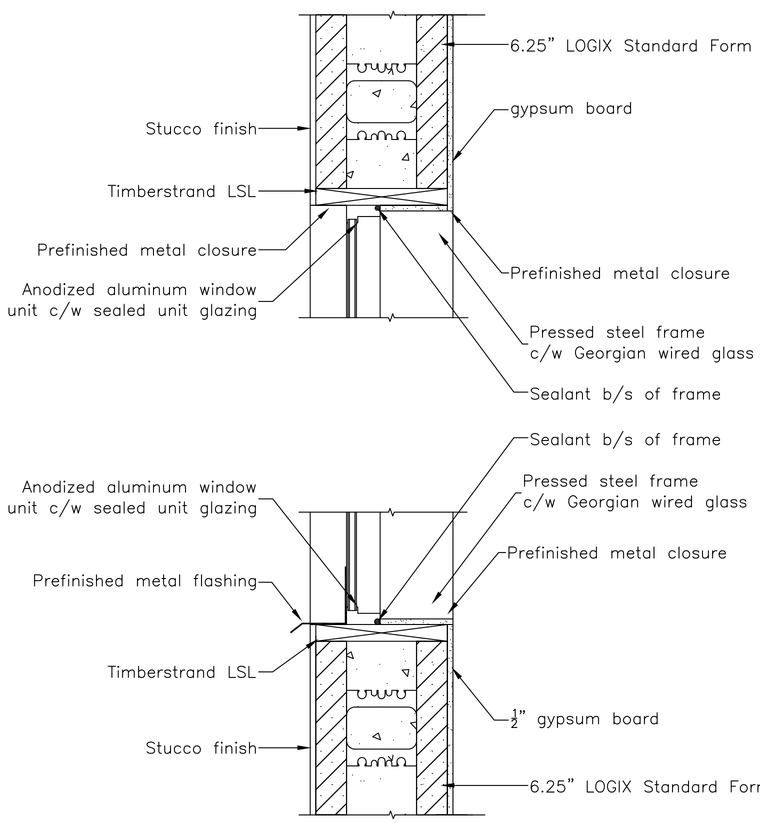


ALUMINUM WINDOW HEAD

NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

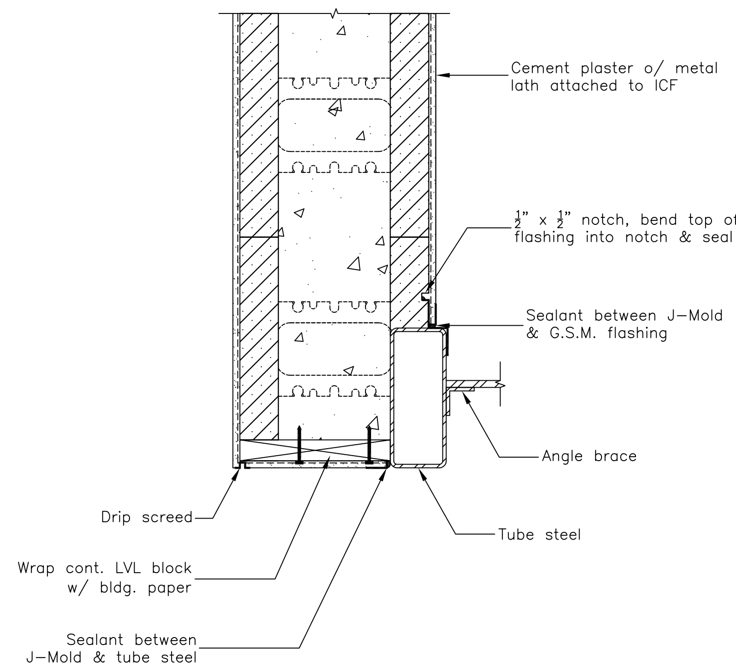
5.12.1.9 - ALUMINUM WINDOW HEAD / SILL WITH TIMBERSTRAND LSL



NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

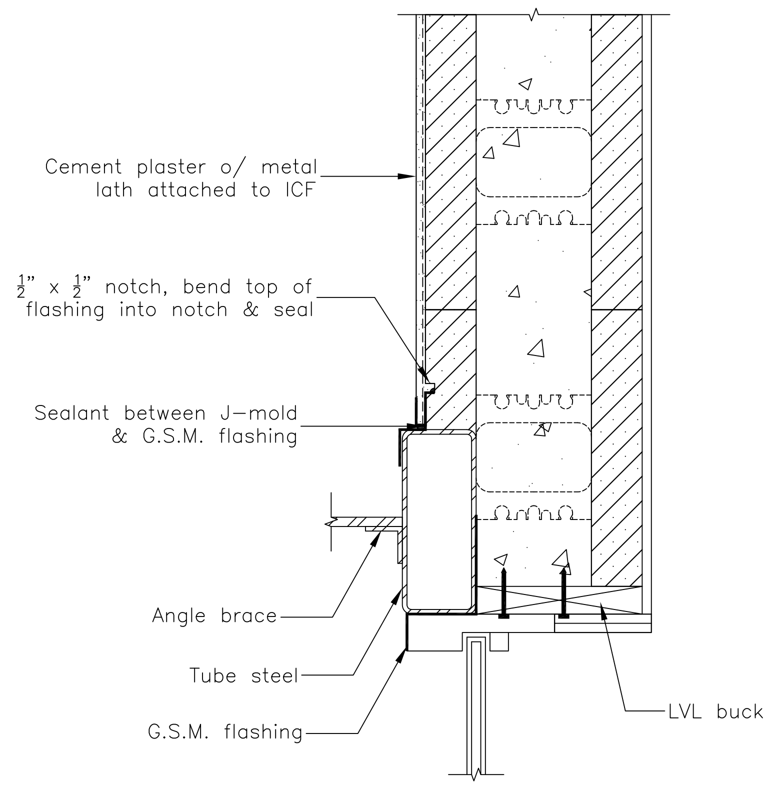
5.12.1.10 - WINDOW SCREEN



NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

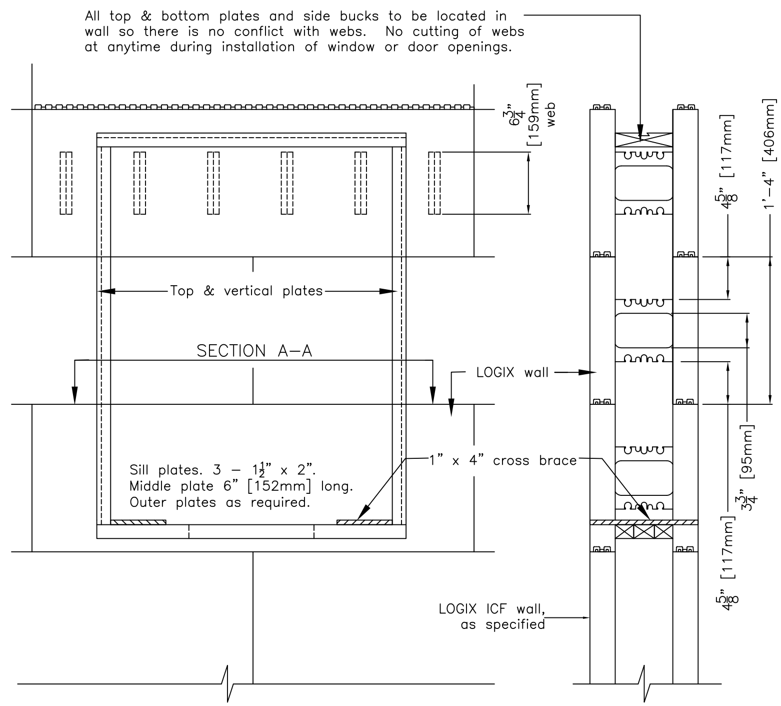
5.12.1.11 - EXTERIOR WINDOW SCREEN



NOTES:

See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

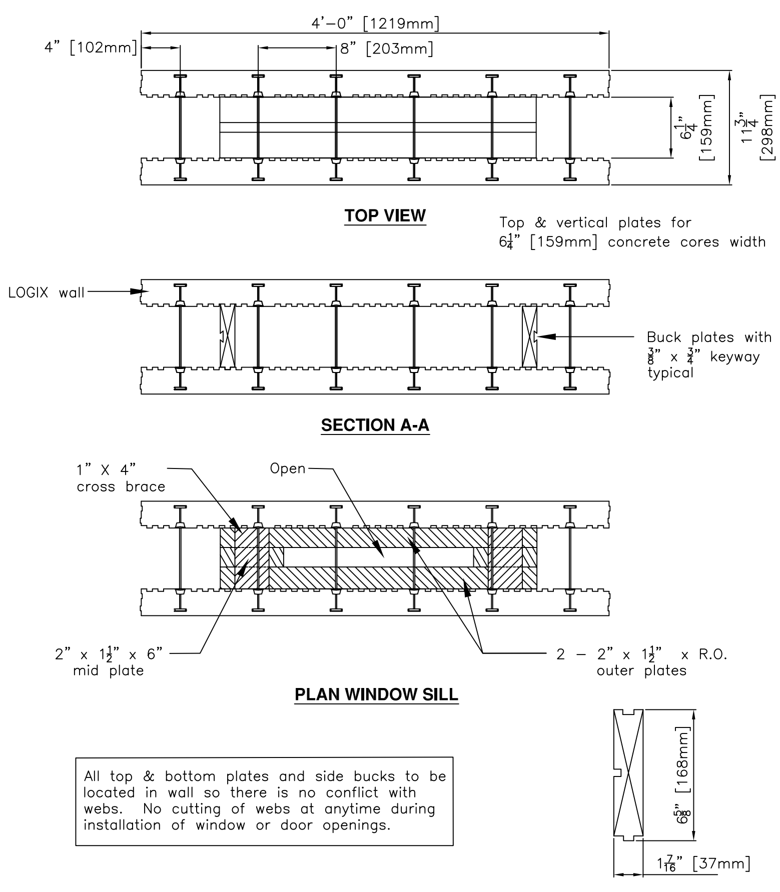
5.12.1.12 - WINDOW WOOD BUCK DETAILS



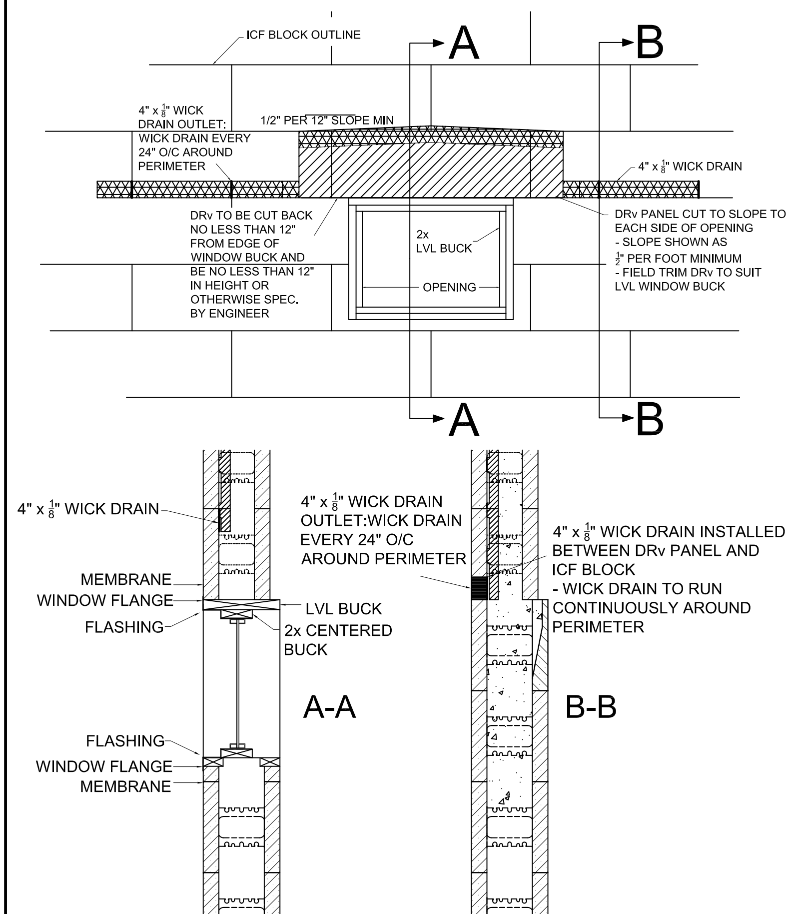
SIDE ELEVATION

END VIEW

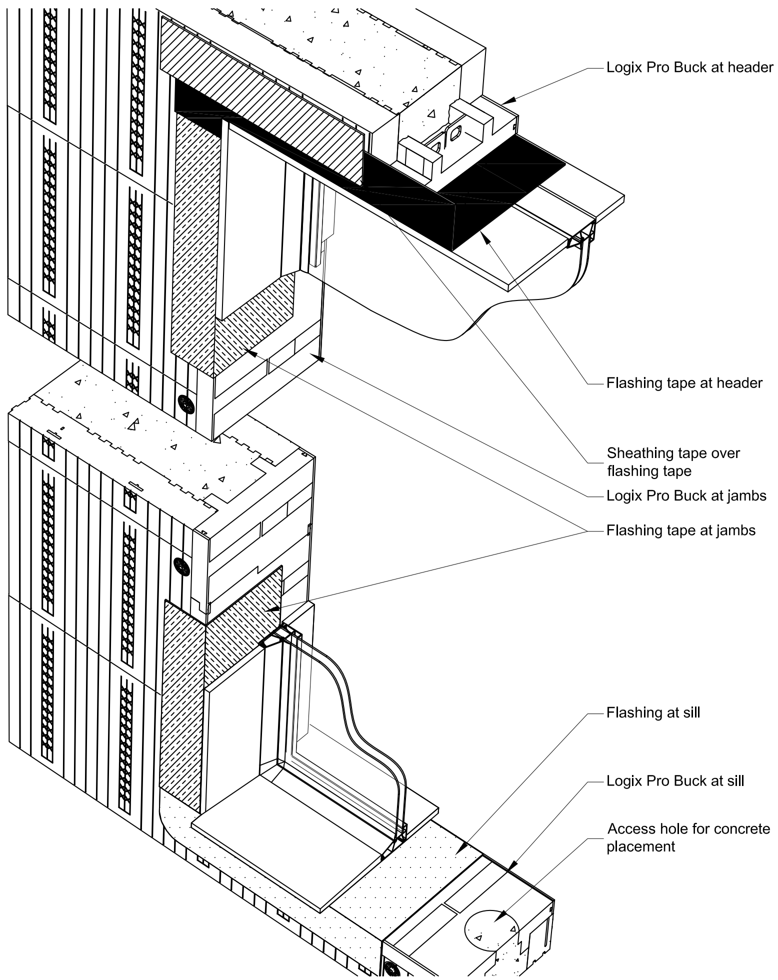
5.12.1.13 - WINDOW WOOD BUCK DETAILS CONT'D



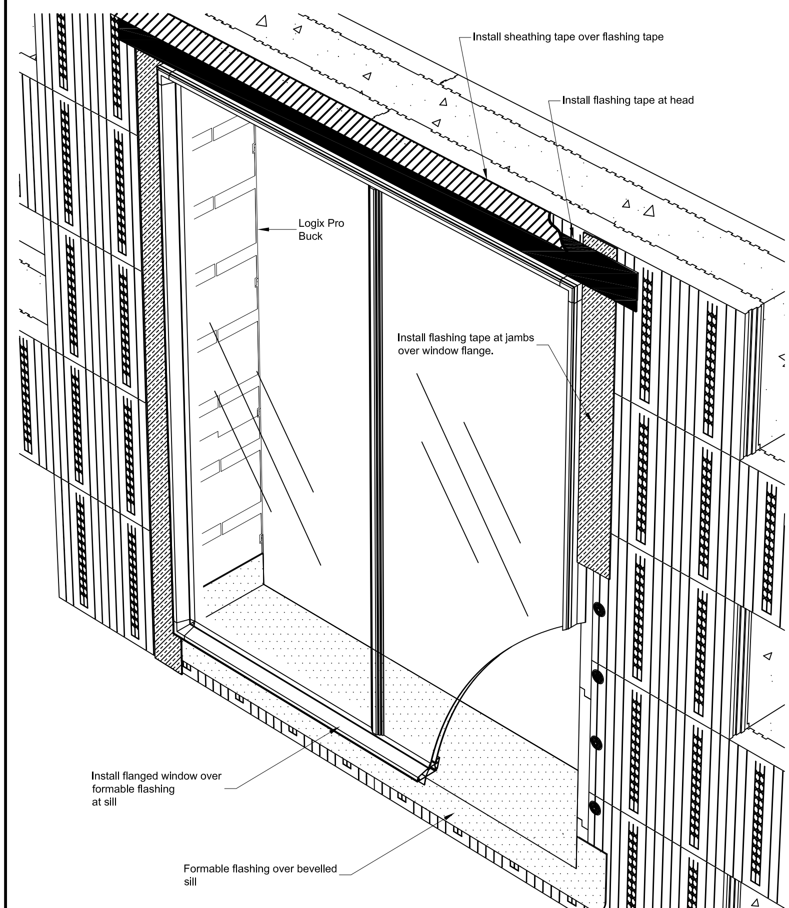
5.12.1.14 - D-RV WITH WICK DRAIN



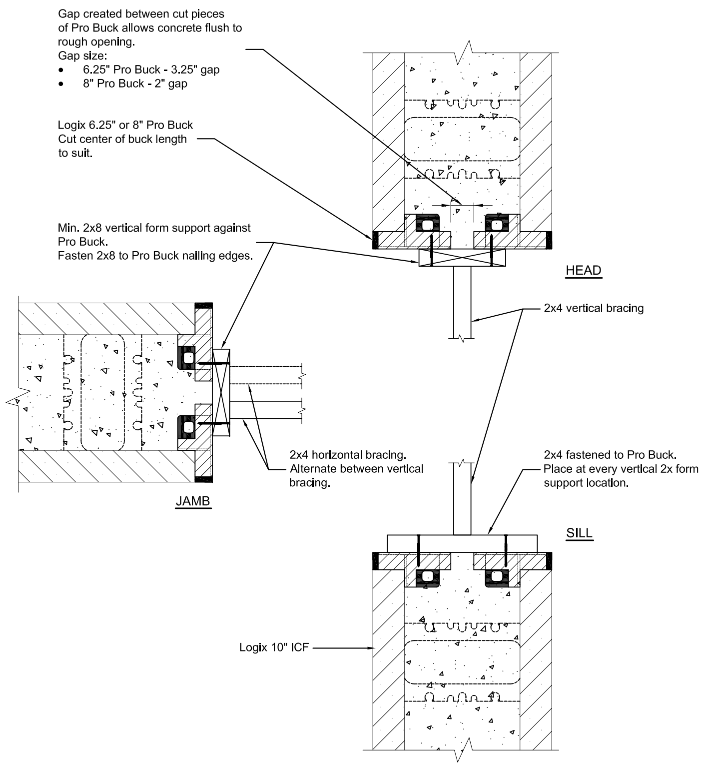
5.12.1.15 - LOGIX PRO BUCK INSET WINDOW FLASHING



5.12.1.16 - LOGIX PRO BUCK FLANGED WINDOW FLASHING



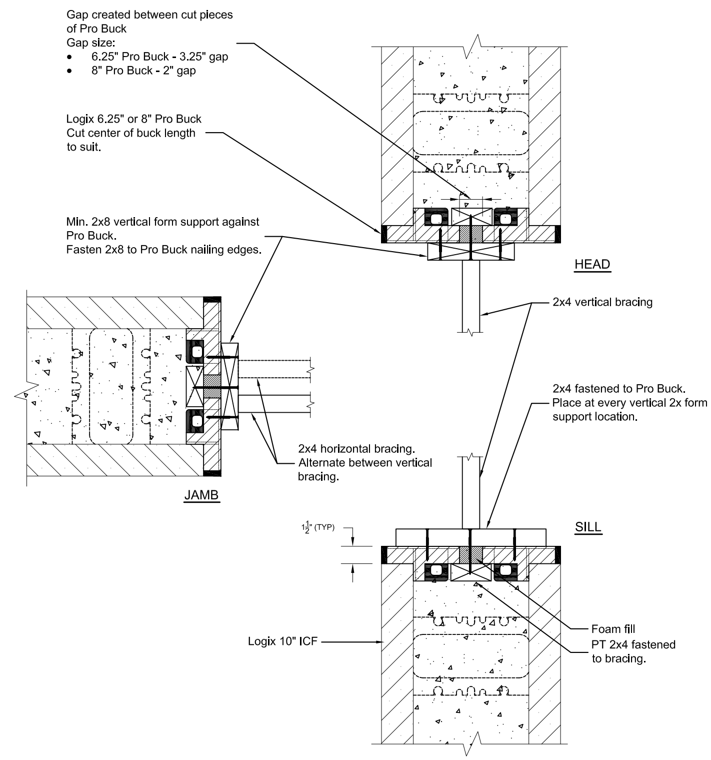
5.12.1.17 - 10" PRO BUCK ASSEMBLY (OPTION 1)



CONCRETE FLUSH TO ROUGH OPENING OPTION

NOTES:
1. Refer to the Logix Pro Buck Installation Guide for detailed instructions.
2. At sill location provide min. 4" diameter access ports to allow for adequate concrete placement and consolidation.

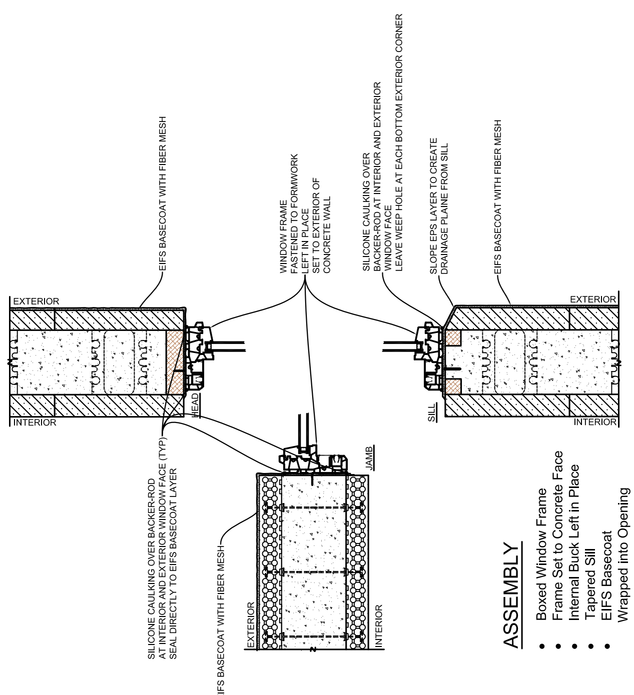
5.12.1.18 - 10" PRO BUCK ASSEMBLY (OPTION 2)



PT WOOD AND FOAM FILL OPTION

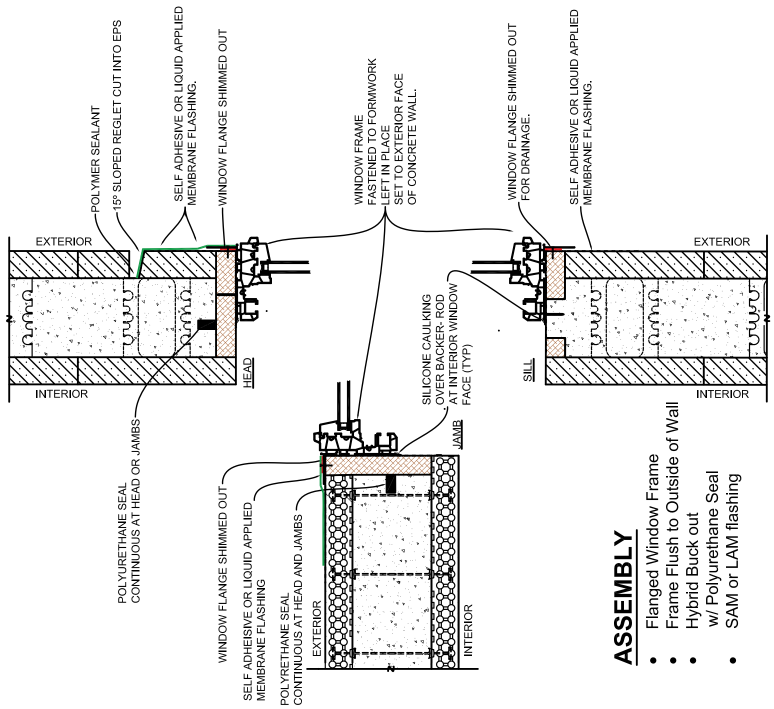
NOTES:
1. Refer to the Logix Pro Buck Installation Guide for detailed instructions.
2. At sill location provide min. 4" diameter access ports to allow for adequate concrete placement and consolidation.

5.12.1.19 - EIFS BASECOAT



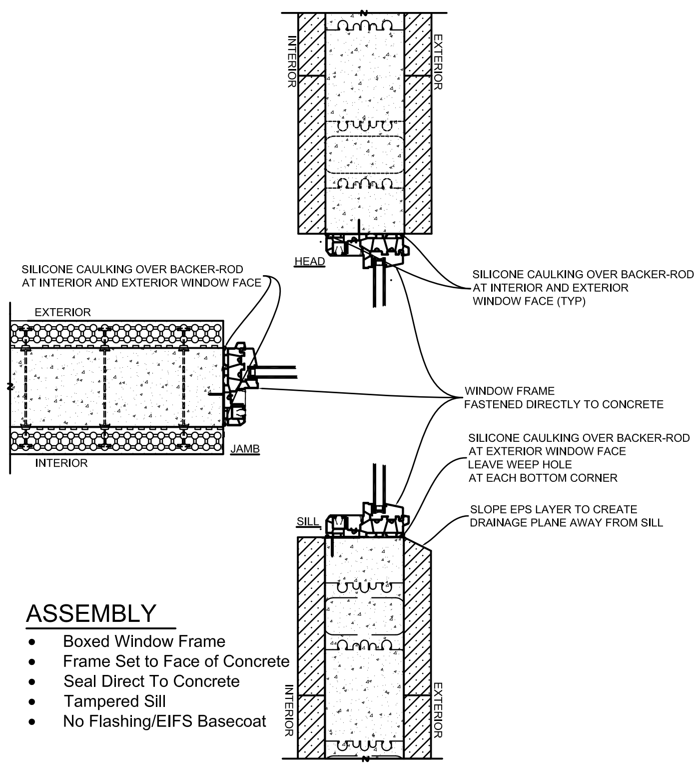
ASSEMBLY
- Boxed Window Frame
- Frame Set to Concrete Face
- Internal Buck Left in Place
- Tapered Sill
- EIFS Basecoat Wrapped into Opening

5.12.1.20 - EXTERNAL BUCK FLASHING



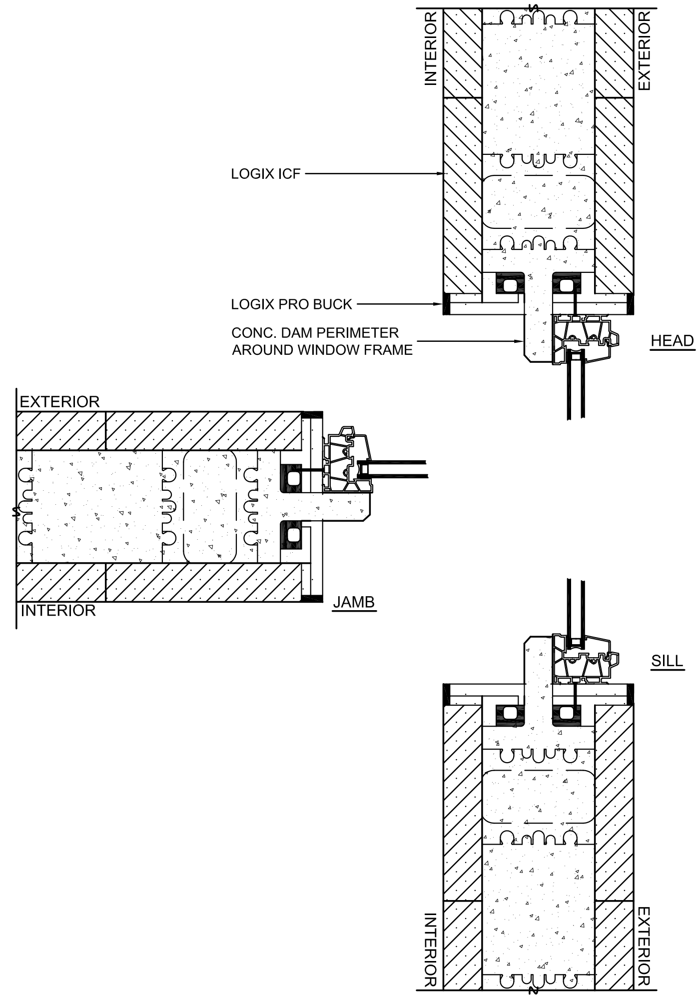
ASSEMBLY
- Flanged Window Frame
- Frame Flush to Outside of Wall
- Hybrid Buck out w/ Polyurethane Seal
- SAM or LAM flashing

5.12.1.21 - DIRECT TO CONCRETE



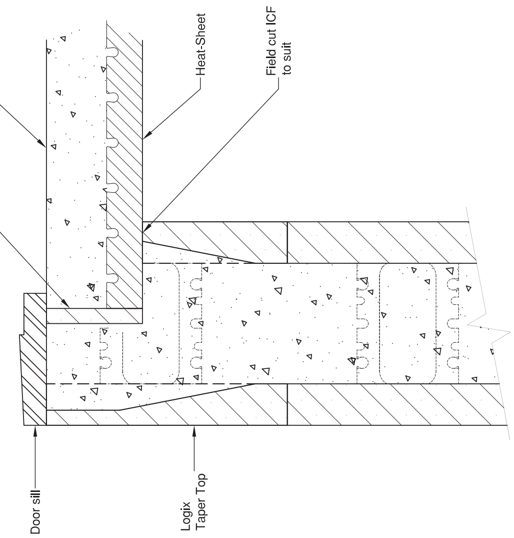
ASSEMBLY
- Boxed Window Frame
- Frame Set to Face of Concrete
- Seal Direct To Concrete
- Tampered Sill
- No Flashing/EIFS Basecoat

5.12.1.22 - LOGIX PRO BUCK WITH CONCRETE DAM PERIMETER

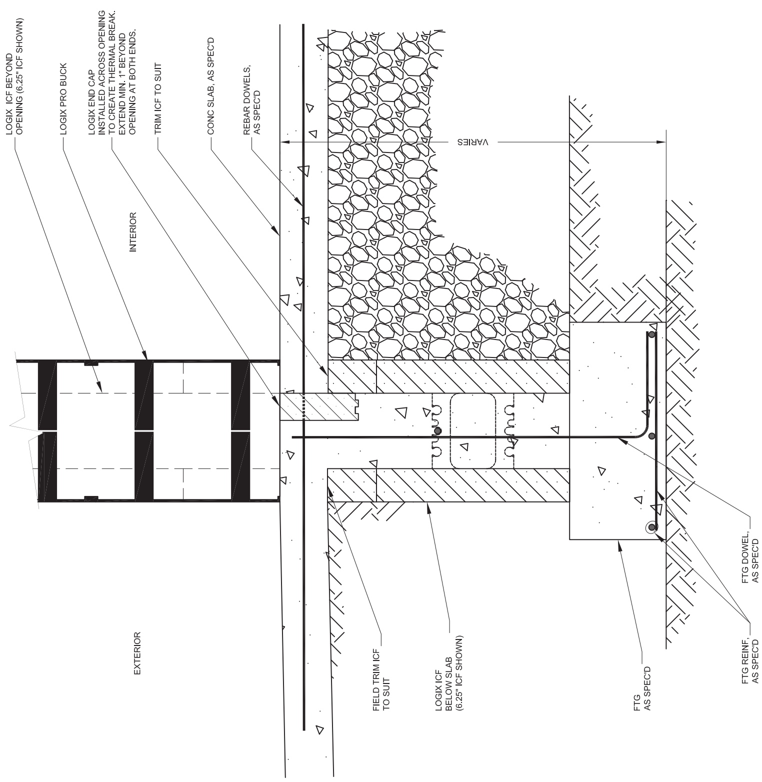


5.12.2 - DOORS

5.12.2.2 - THERMAL BREAK AT THRESHOLD WITH LOGIX TAPER TOP



5.12.2.1 - THERMAL BREAK AT THRESHOLD WITH LOGIX END CAP



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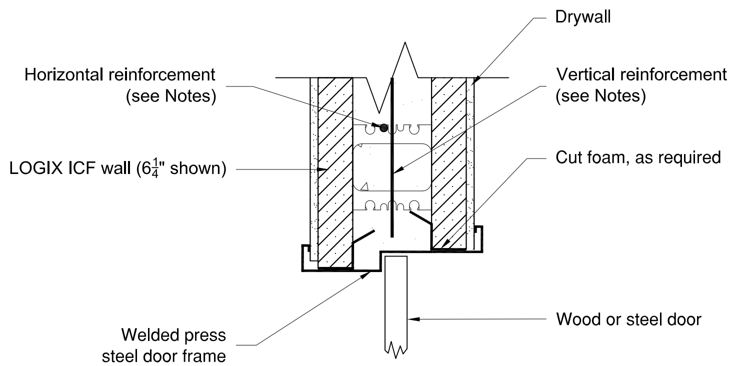
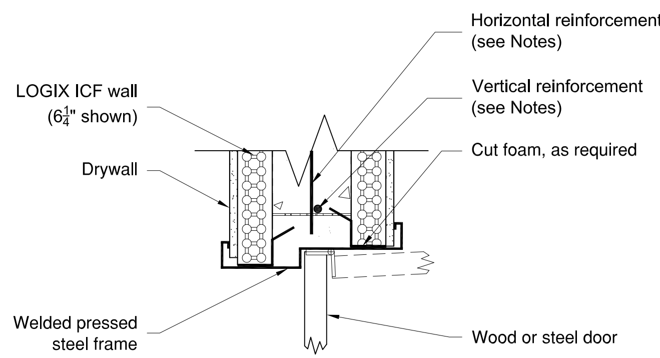
5.12.2.3 - WELDED PRESS STEEL DOOR FRAME - CENTER MOUNTED



INTERIOR DOOR FRAME - HEAD
CENTER MOUNTED DOOR

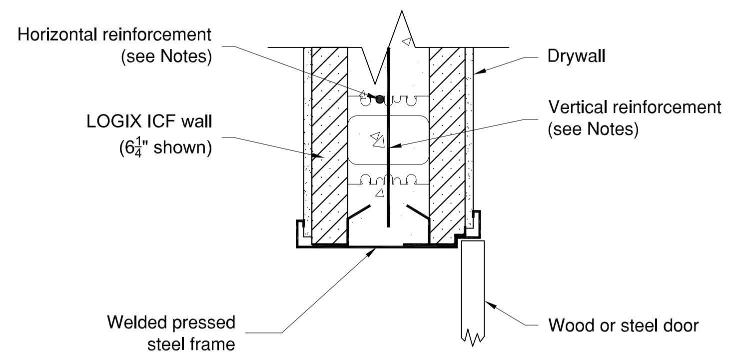


INTERIOR DOOR FRAME - JAMB
CENTER MOUNTED DOOR

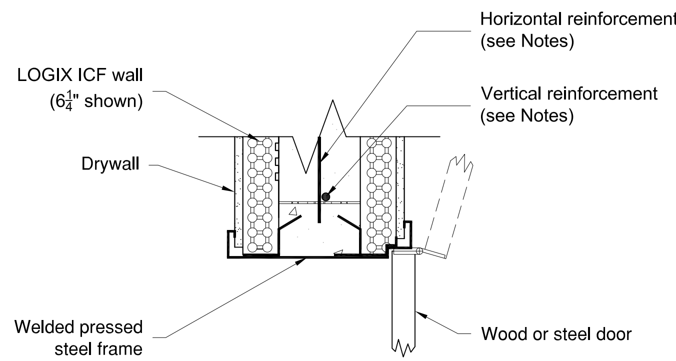
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.12.2.4 - WELDED PRESSED STEEL DOOR FRAME - FLUSH MOUNTED



INTERIOR DOOR FRAME - HEAD
FLUSH MOUNTED DOOR

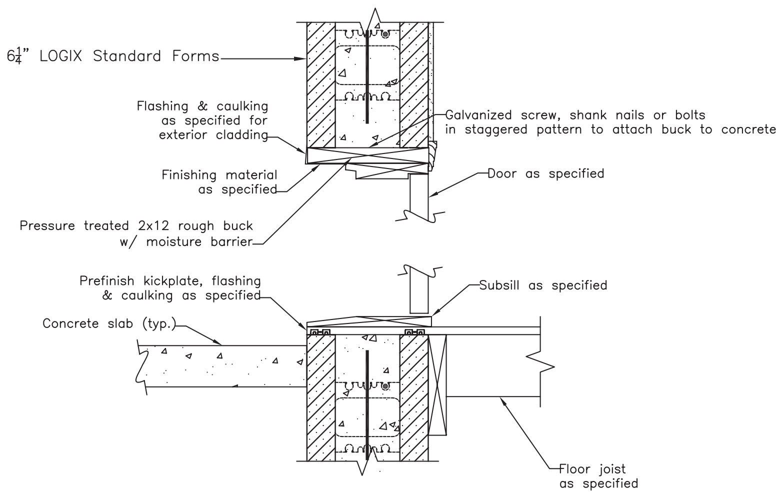


INTERIOR DOOR FRAME - JAMB
FLUSH MOUNTED DOOR

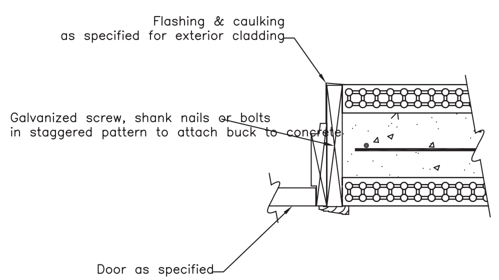
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.12.2.4 - TYPICAL DOOR FRAMING



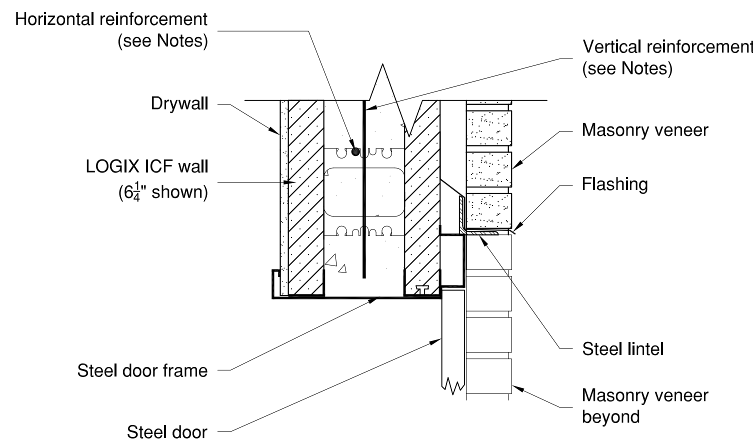
DOOR HEAD & SILL USING WOOD BUCKS



DOOR JAMB USING WOOD BUCKS

NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

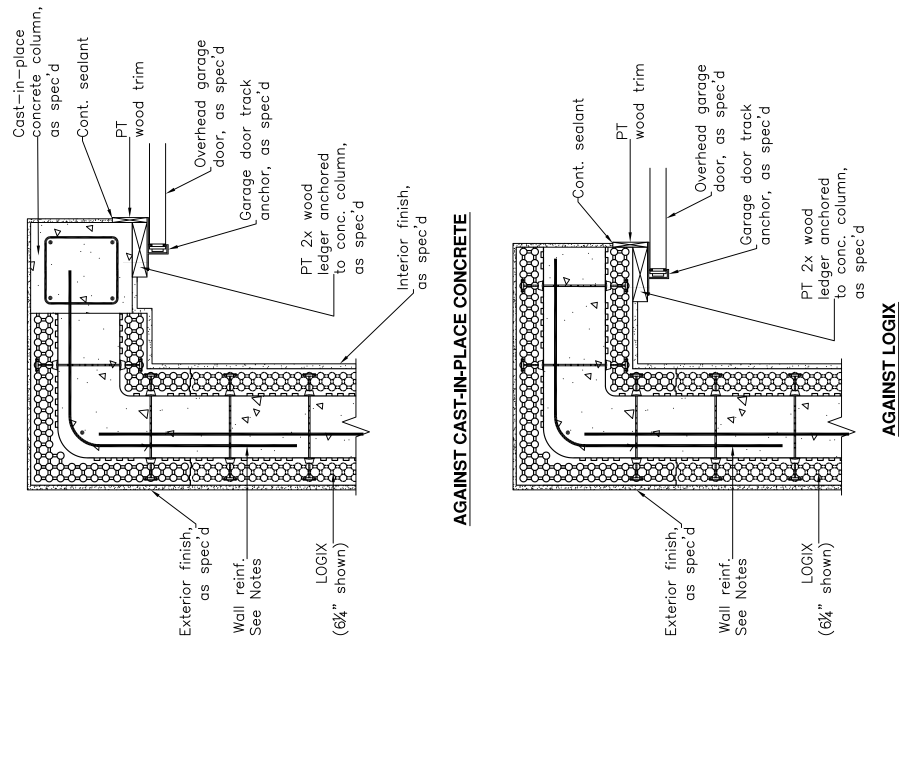
5.12.2.5 - BRICK VENEER OVER DOOR OPENING



NOTES:

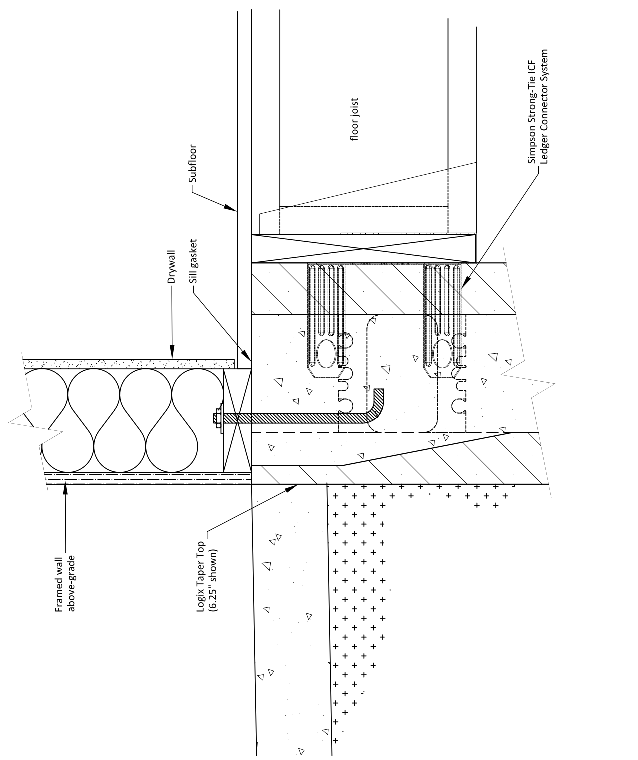
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.12.3.1 - OVERHEAD GARAGE DOOR WITH CAST-IN-PLACE COLUMN



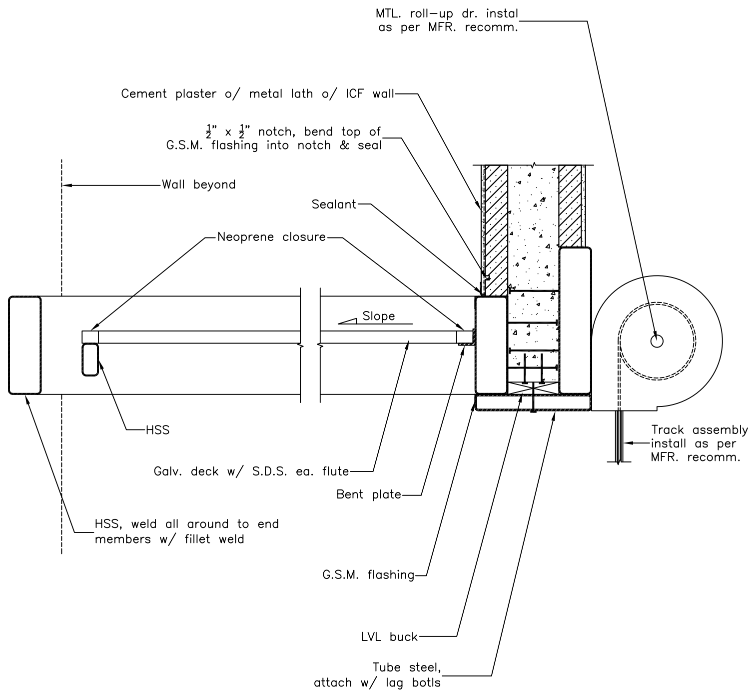
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.12.2.6 - ZERO ENTRY DETAIL



NOTES:
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For spacing of Simpson Strongtie ICF Ledger Connection Systems refer to Section 2.12.4 of the LOGIX Design Manual.

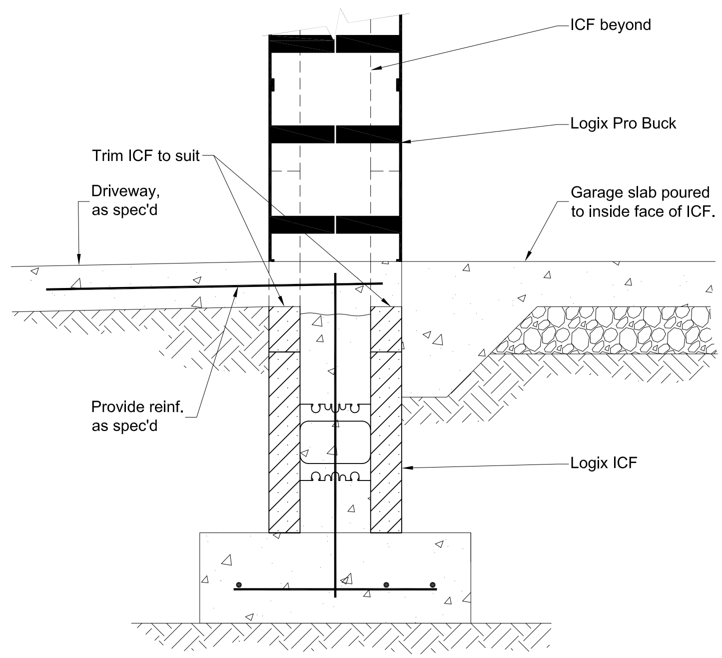
5.12.3.2 - CANOPY & ROLL-UP DOOR



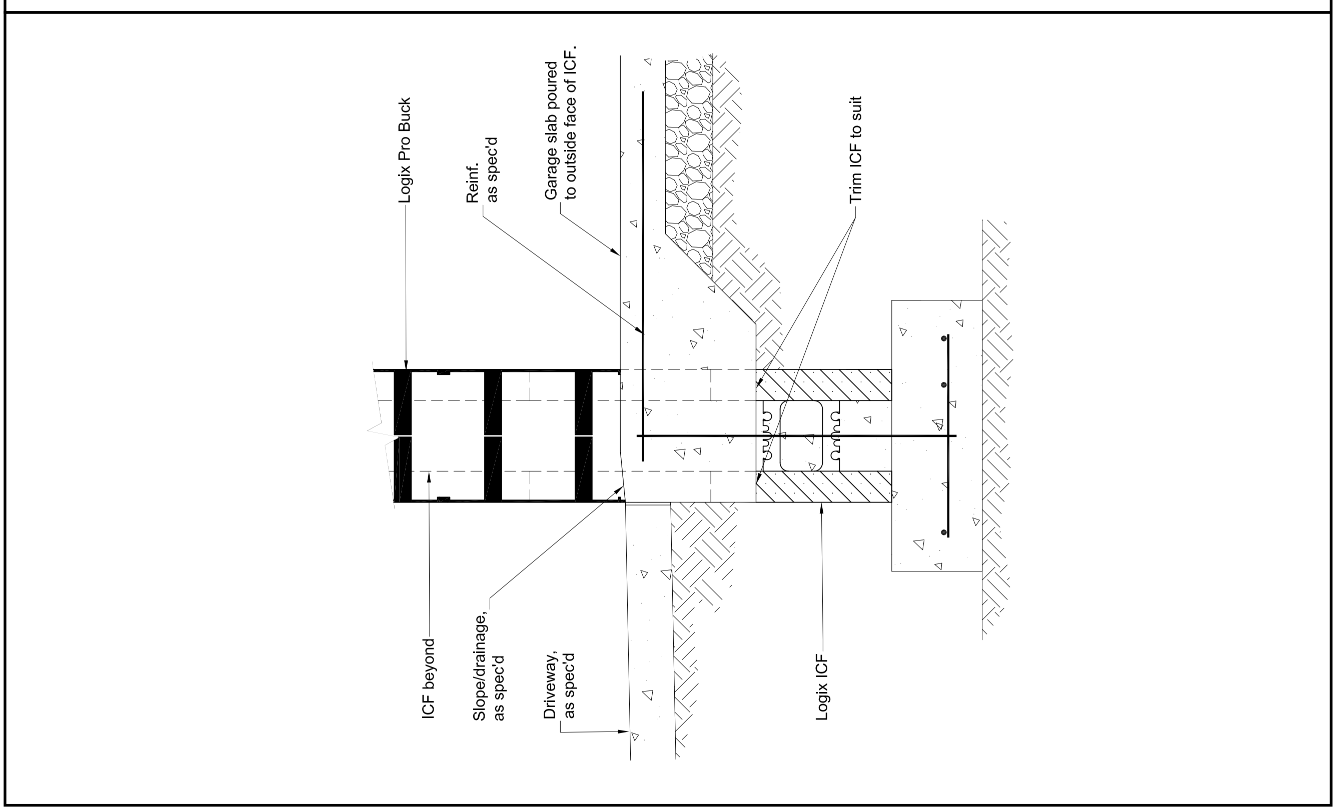
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

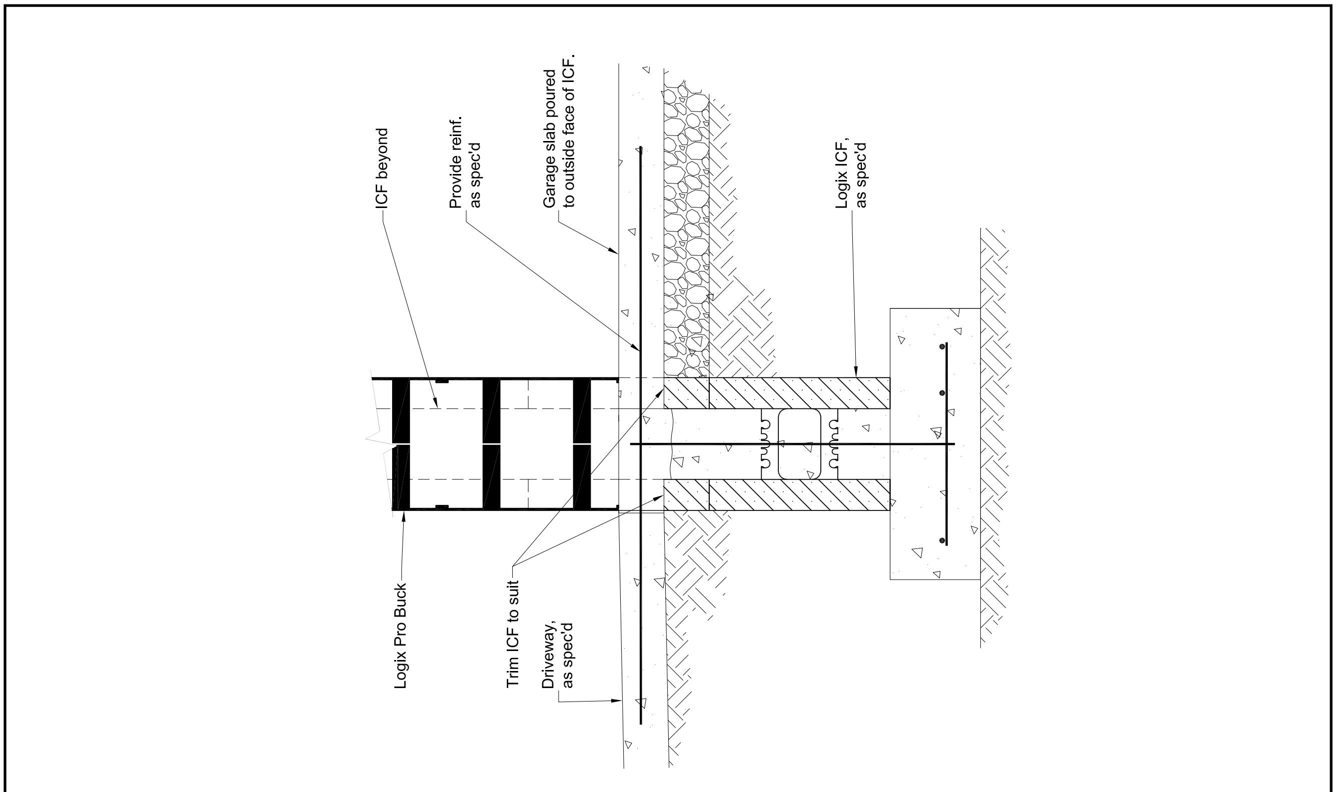
5.12.3.3 - GARAGE OPENING DRIVEWAY TIED TO ICF



5.12.3.4- GARAGE OPENING THICKENED SLAB TIED TO ICF

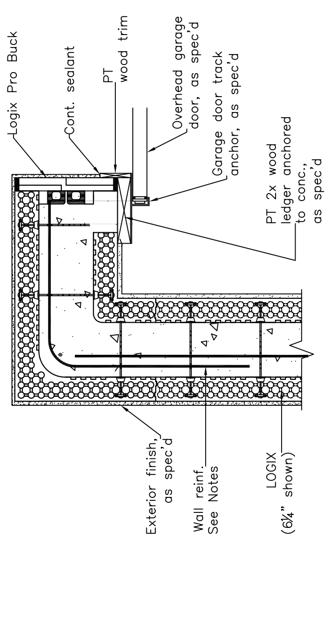


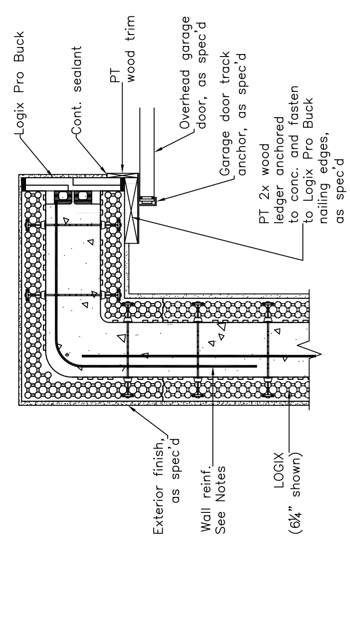
5.12.3.5 - GARAGE OPENING TIED TO SLAB



5.13 - WALL-TO-WALL CONNECTIONS
5.13.1 - FRAMED WALLS

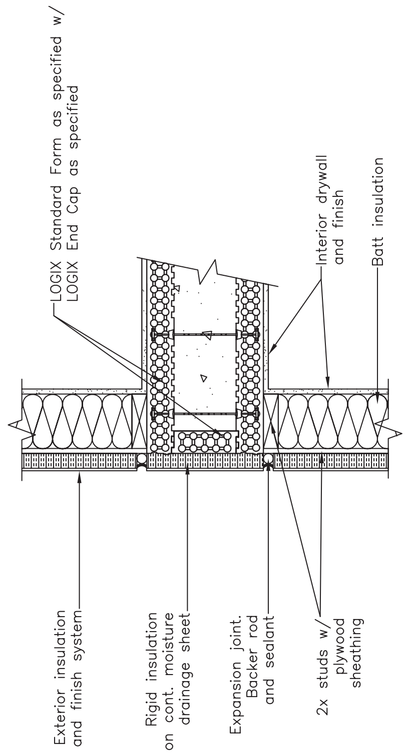
5.12.3.6 - OVERHEAD GARAGE DOOR WITH LOGIX PRO BUCK



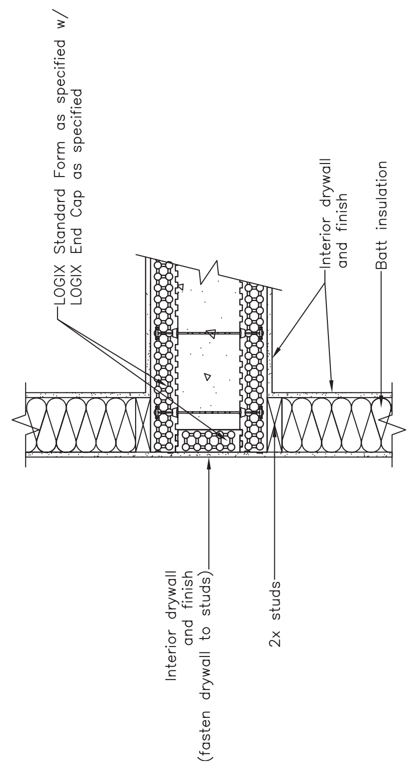


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.13.1.1 - ATTACHMENT TO STUD FRAMED WALLS

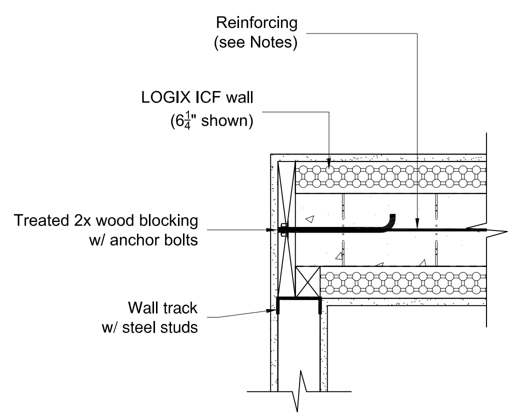


INTERIOR LOGIX WALL TO EXTERIOR STUD FRAMED WALLS



INTERIOR LOGIX WALL TO INTERIOR STUD FRAMED WALLS

5.13.1.2 - FRAMED WALL CLOSURE ATTACHMENT

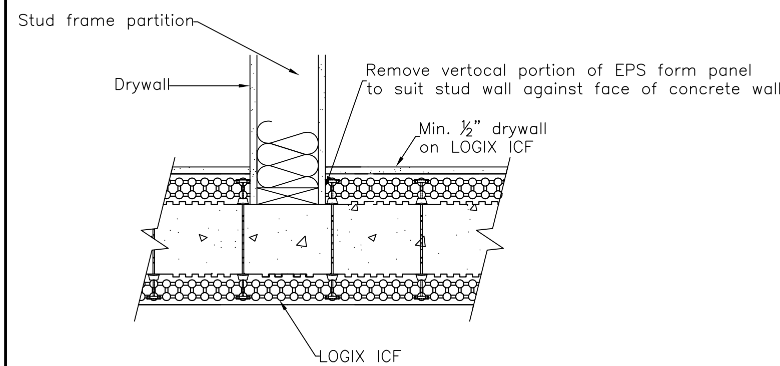


NOTES:

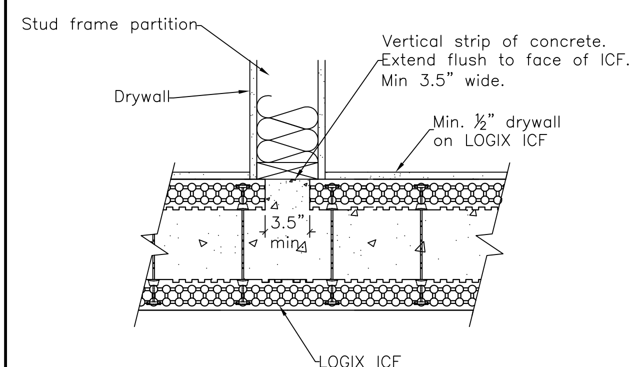
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

7/4/2013 2:25:57 PM

5.13.1.3 - 1 HOUR FIRE RATED WALL DETAIL AT PARTITION/ICF WALL JOINT



STUD WALL INSET OF LOGIX



STUD WALL FLUSH TO ICF

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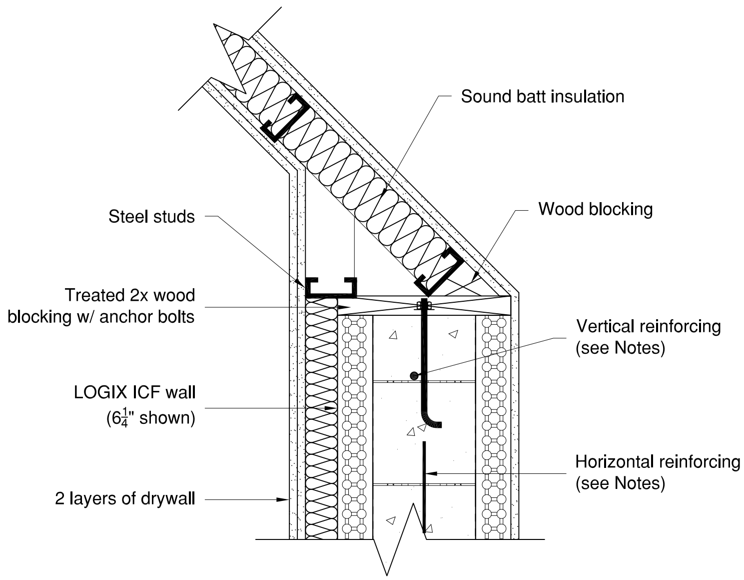
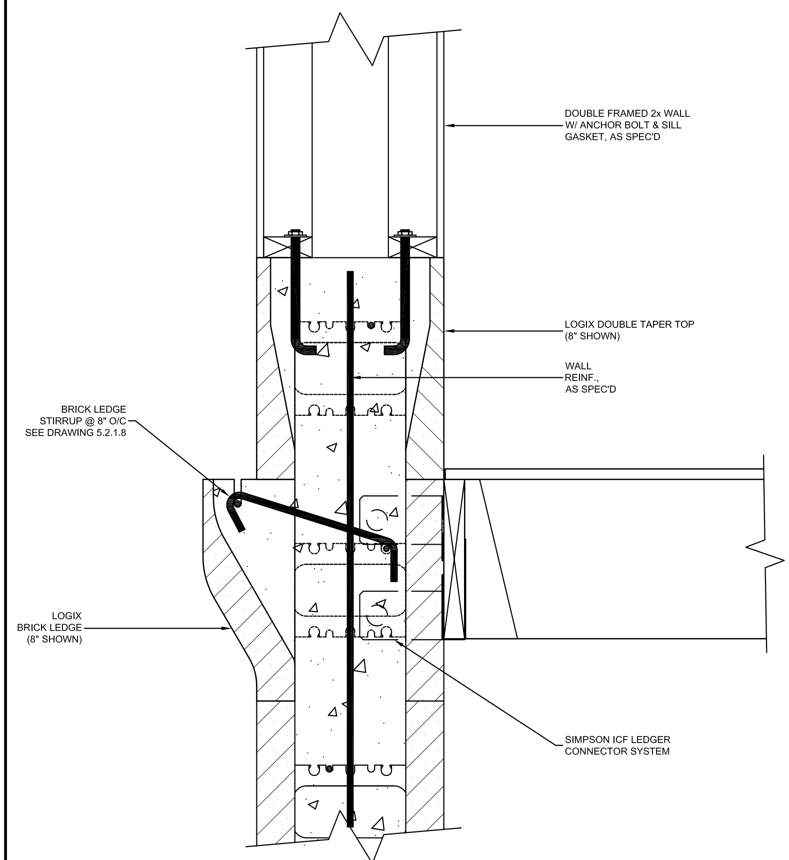
5.13.1.4 - ANGLE STUD FRAMED WALL ATTACHMENT



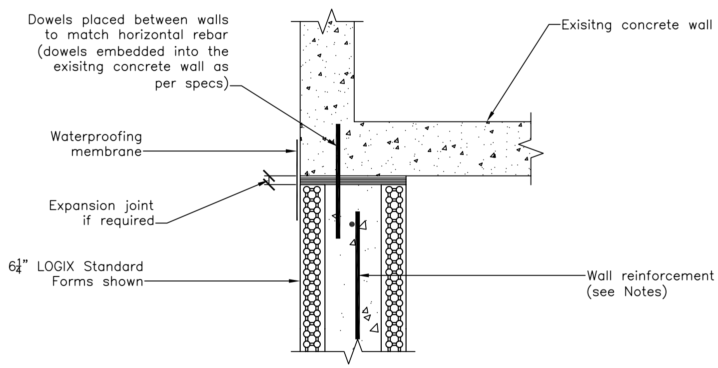
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

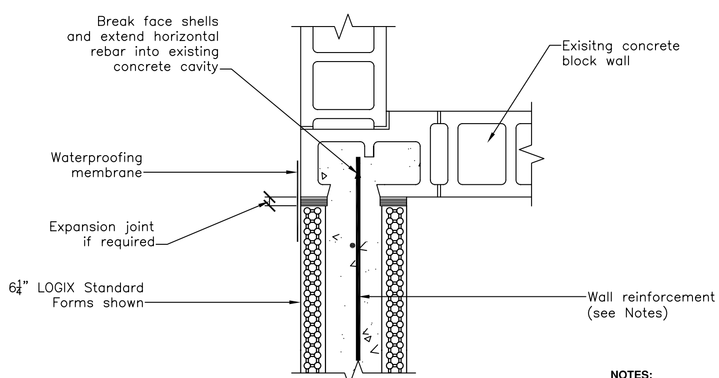
5.13.1.5 - DOUBLE FRAMED WALL ON LOGIX ICF WITH BRICK LEDGE



5.13.2.1 - ATTACHING TO EXISTING CONCRETE WALL



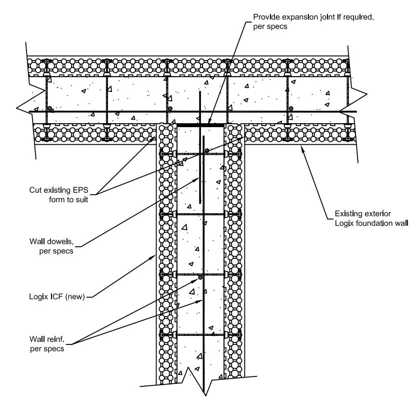
LOGIX WALL ATTACHMENT TO EXISTING CONCRETE WALL



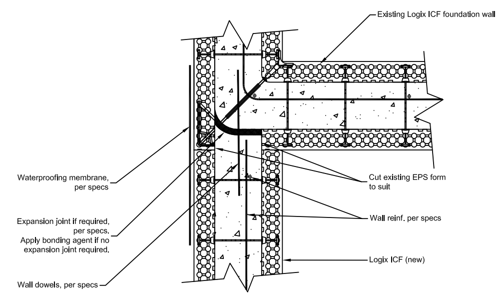
LOGIX WALL ATTACHMENT TO EXISTING CONCRETE MASONRY WALL

NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.13.2.2 - LOGIX ICF TO EXISTING LOGIX ICF FOUNDATION



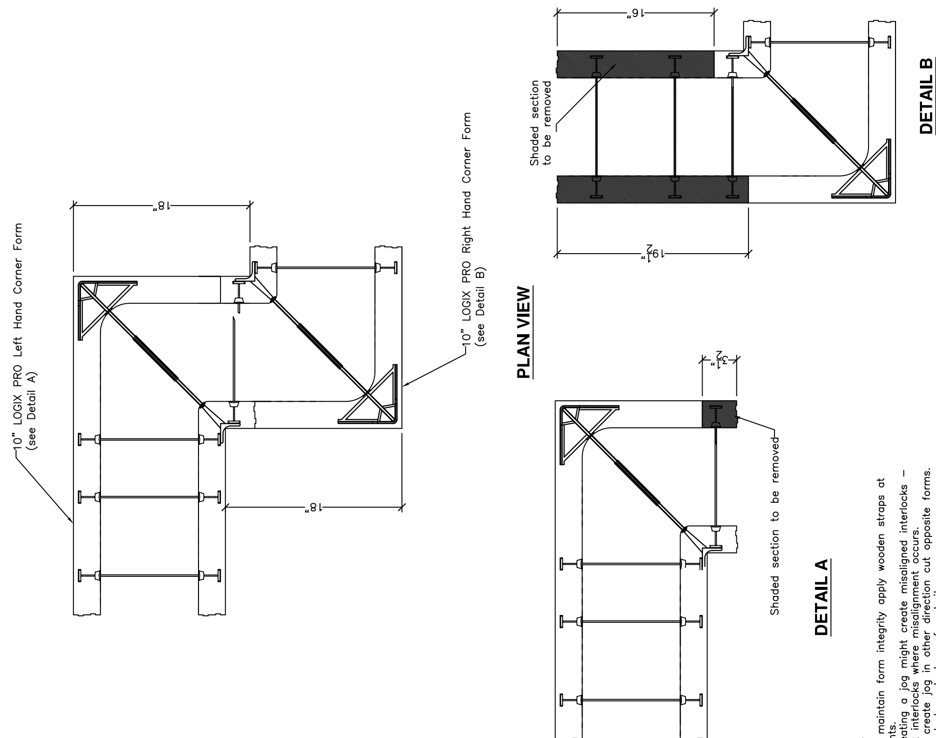
LOGIX ICF WALL TO EXISTING LOGIX FOUNDATION WALL AT T-JUNCTION



LOGIX ICF WALL TO EXISTING LOGIX FOUNDATION WALL AT CORNER

5.13.3 - WALL JOGS

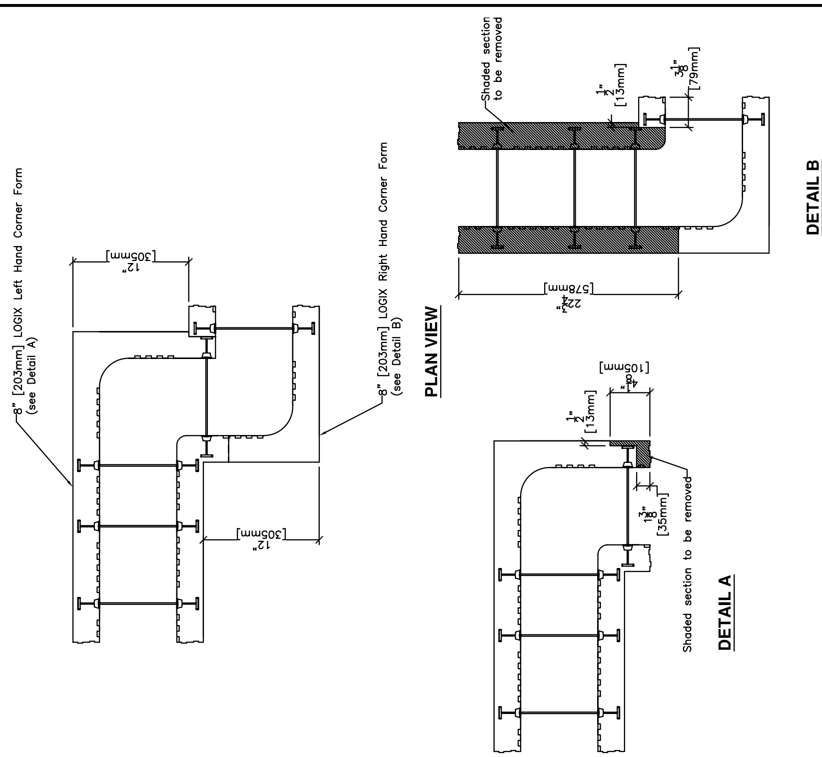
5.13.3.2 - 18" WALL JOGS WITH LOGIX 10" ICF



NOTES:

1. To maintain form integrity apply wooden straps at joints.
2. Creating a jog might create misaligned interlocks – cut interlocks where misalignment occurs.
3. To create jog in other direction cut opposite forms.
4. Interlocks not shown for clarity.

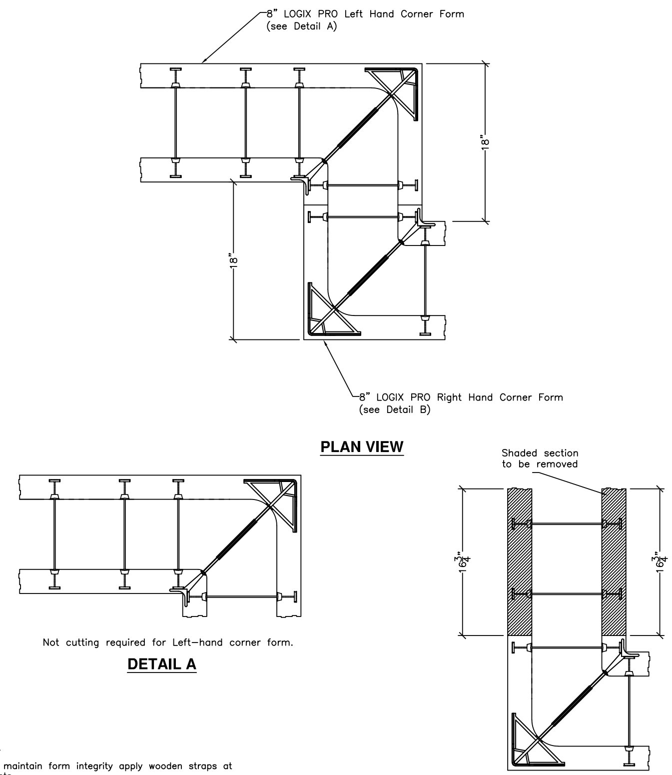
5.13.3.1 - 12" WALL JOGS WITH LOGIX 8" ICF



NOTES:

1. To maintain form integrity apply wooden straps at joints.
2. Creating a 12" (305mm) jog might create misaligned interlocks – cut interlocks where misalignment occurs.
3. To create jog in other direction cut opposite forms.
4. Interlocks not shown for clarity.

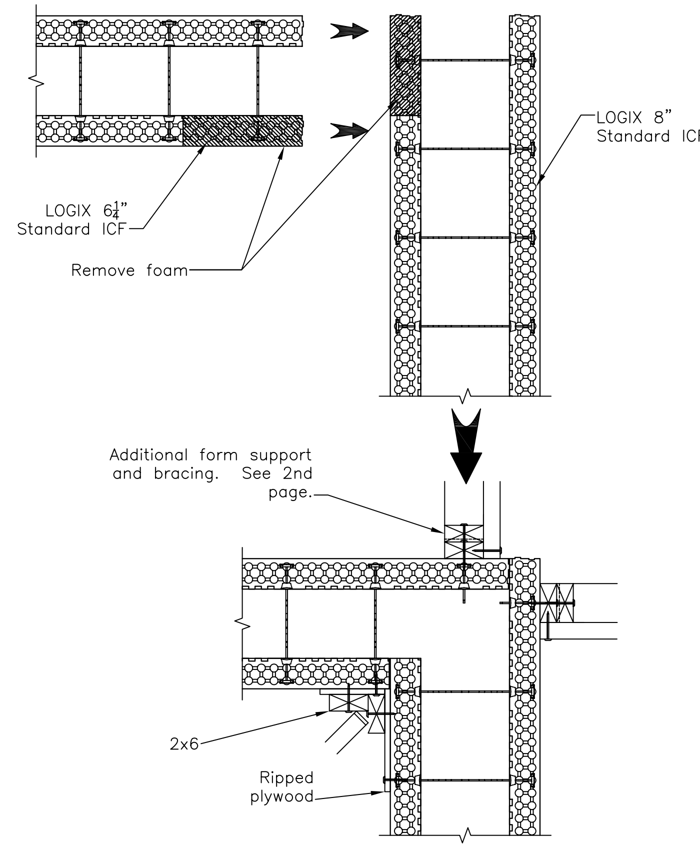
5.13.3.3 - 18" WALL JOGS WITH 8" LOGIX ICF



NOTES:

1. To maintain form integrity apply wooden straps at joints.
2. Creating a jog might create misaligned interlocks – cut interlocks where misalignment occurs.
3. To create jog in other direction cut opposite forms.
4. Interlocks not shown for clarity.

5.13.4.1 - HORIZONTAL TRANSITION - 6.25" TO 8" CORNER WALLS



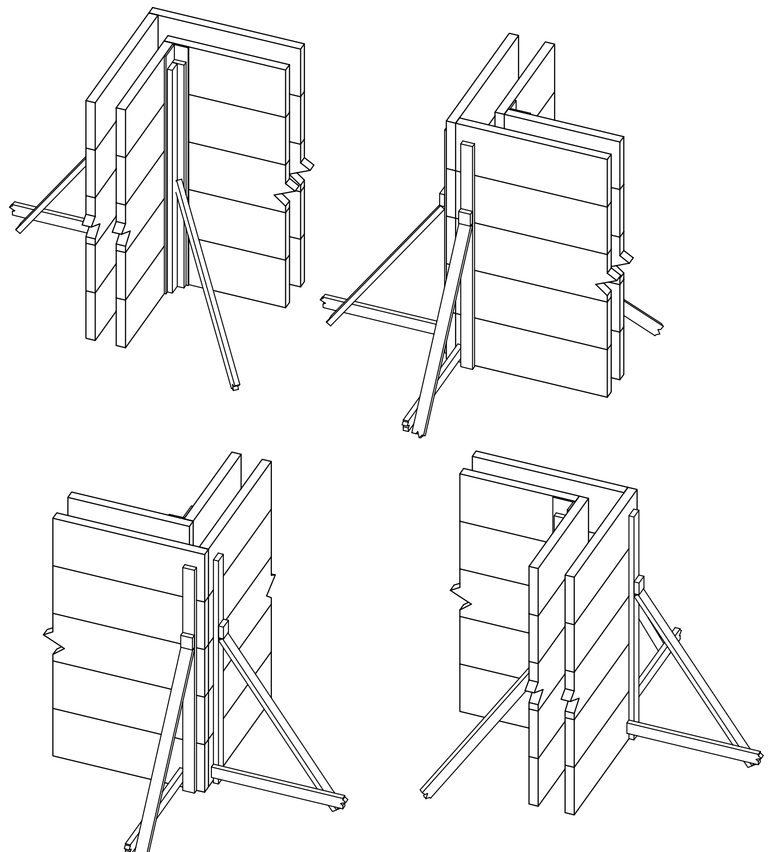
Notes:

1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete directly into the corners.
3. Follow all required national and local wall brace safety regulations.
4. See page 2 for perspective views.

CAD DRAWINGS - WALL-TO-WALL CONNECTIONS

The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

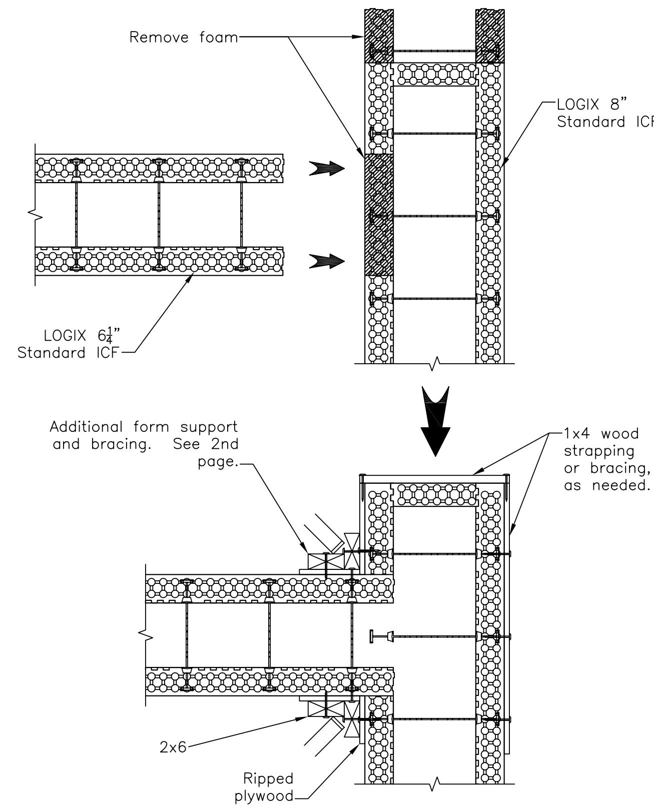
5.13.4.2 - HORIZONTAL TRANSITION - 6.25" TO 8" CORNER WALLS FORM SUPPORT



Notes:

1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete directly into the corners.
3. Follow all required national and local wall brace safety regulations.

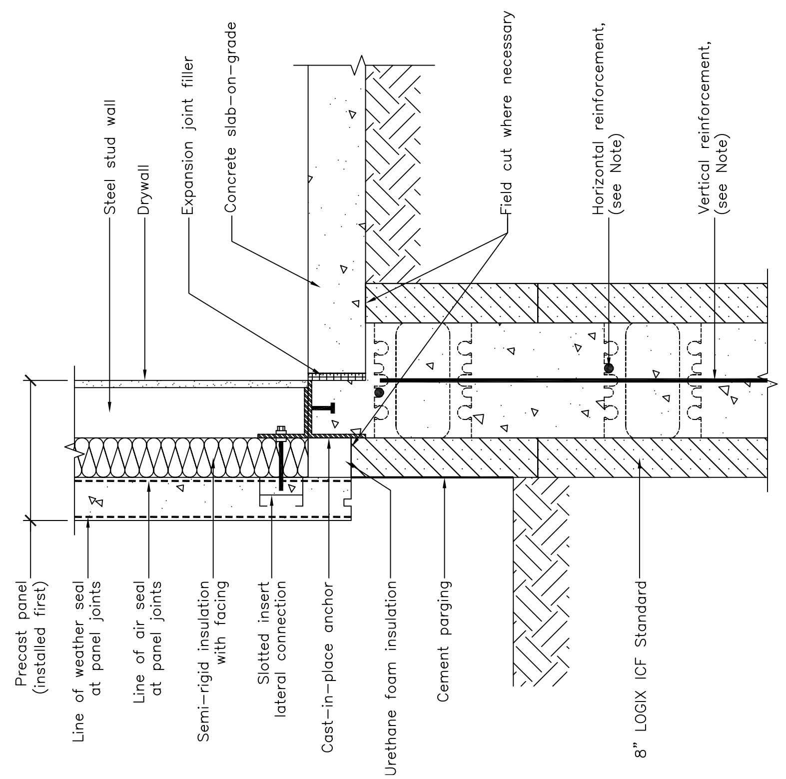
5.13.4.3 - HORIZONTAL TRANSITION - 6.25" TO 8" T-WALL WITH END CAP



Notes:

1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete directly into the corners.
3. Follow all required national and local wall brace safety regulations.
4. See page 2 for perspective views.

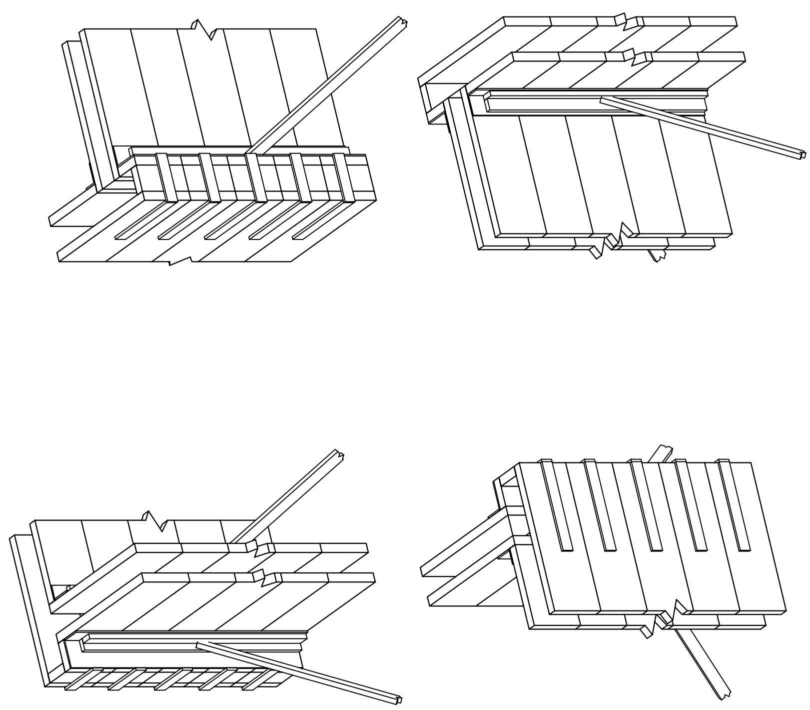
5.13.5.1 - PRE-CAST PANEL WALL



NOTES:

See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

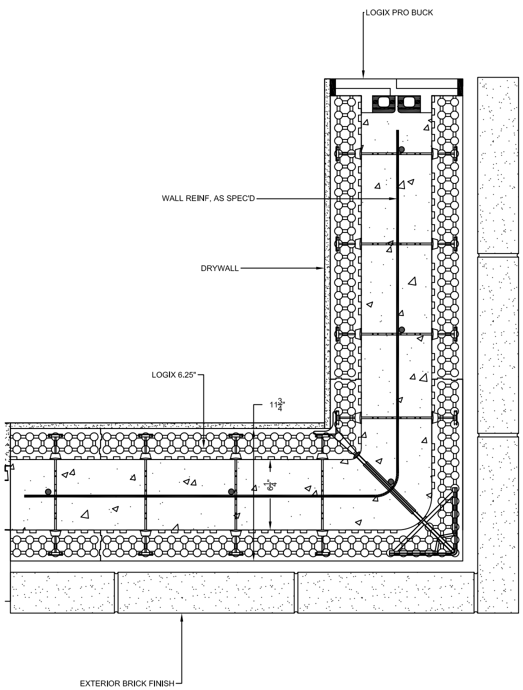
5.13.4.4 - HORIZ TRANSITION - 6.25" TO 8" T-WALL W/ END CAP FORM SUPPORT



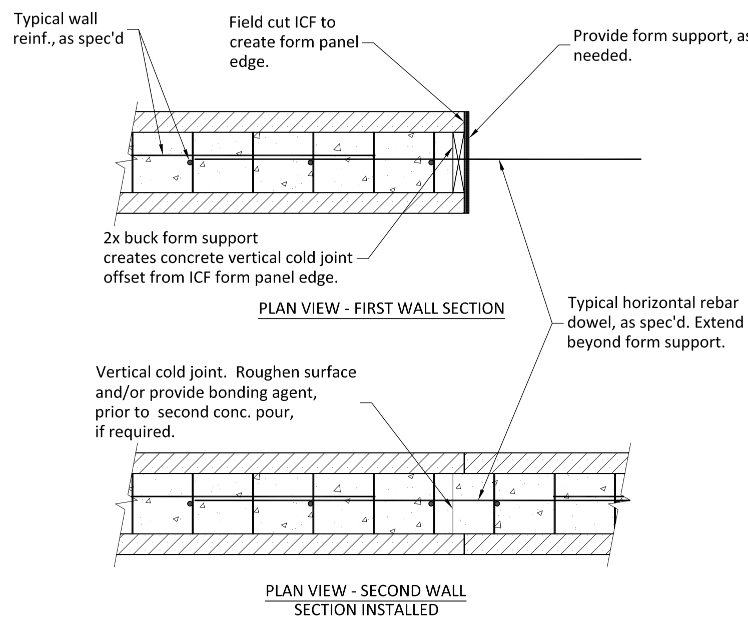
Notes:

1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete directly into the corners.
3. Follow all required national and local wall brace safety regulations.
4. See page 2 for perspective views.

5.13.5.2 - END WALL WITH PRO BUCK



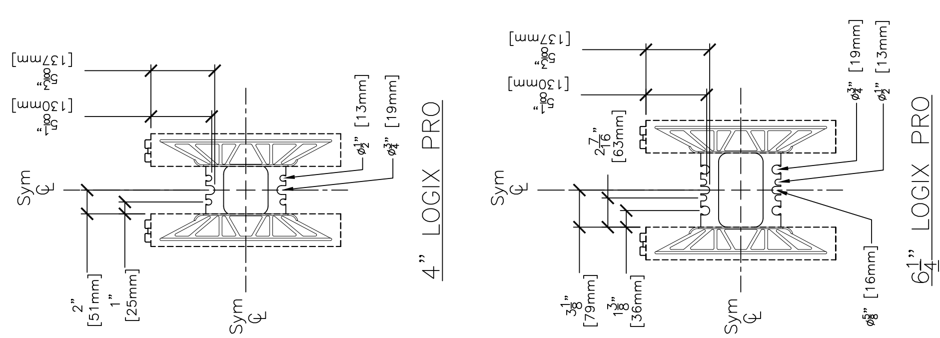
5.13.5.3 - VERTICAL JOINT



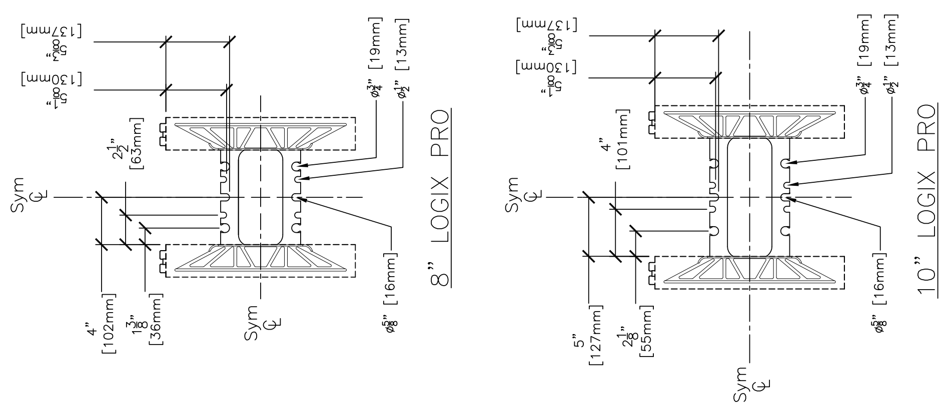
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.14.1 - WEB TIE REBAR SLOT LOCATIONS

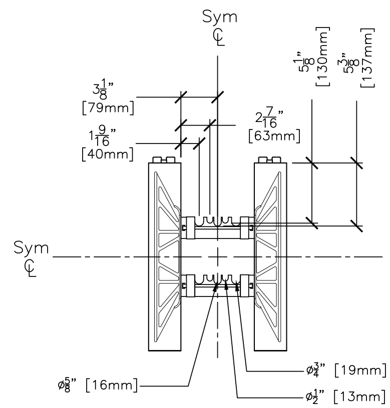
5.14.1.1 - REBAR SLOT LOCATIONS - LOGIX PRO FORMS (1 OF 4)



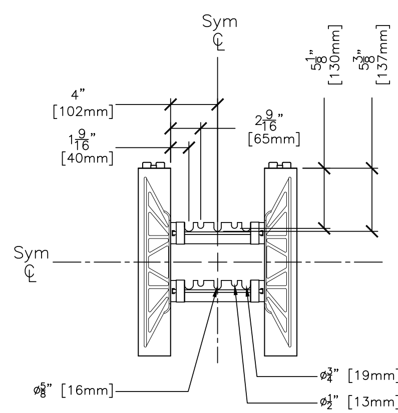
5.14.1.2 - REBAR SLOT LOCATIONS - LOGIX PRO FORMS (2 OF 4)



5.14.1.3 - REBAR SLOT LOCATIONS - LOGIX KD FORMS (3 OF 4)

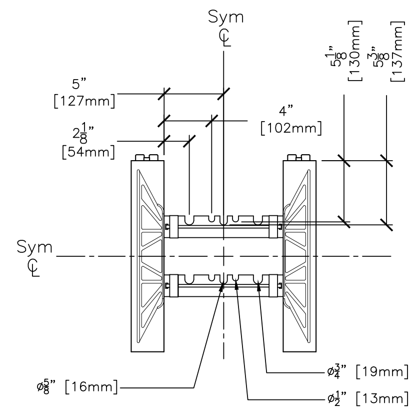


6 1/4" [159mm] LOGIX KD CONNECTORS

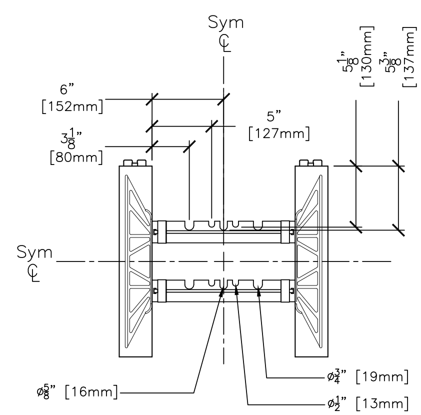


8" [203mm] LOGIX KD CONNECTORS

5.14.1.4 - REBAR SLOT LOCATIONS - LOGIX KD FORMS (4 OF 4)



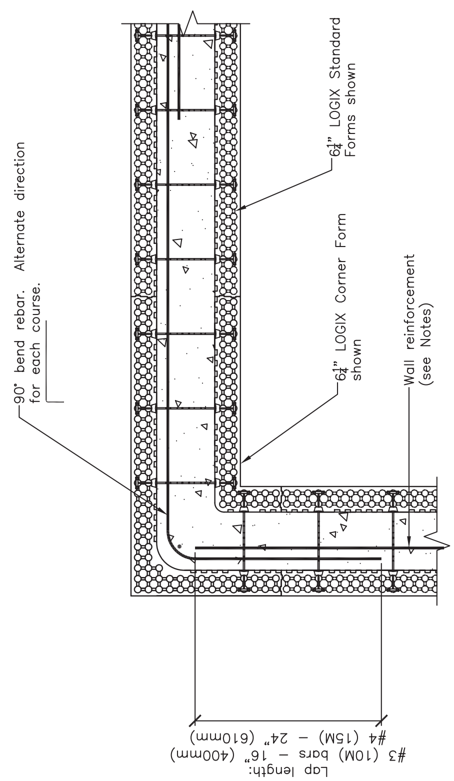
10" [254mm] LOGIX KD CONNECTORS



12" [305mm] LOGIX KD CONNECTORS

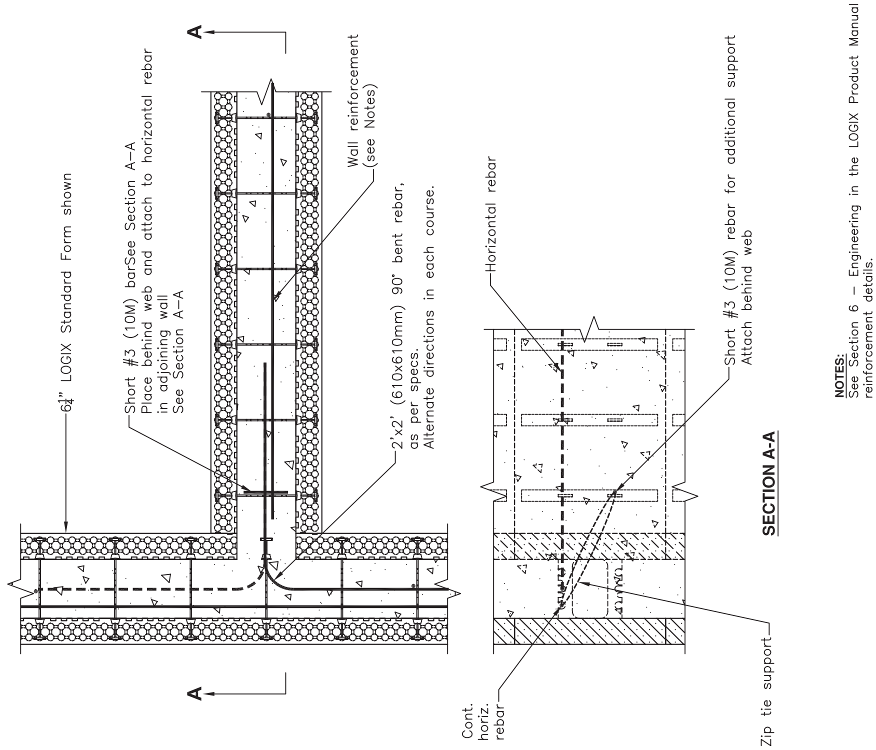
5.14.2 - CORNERS

5.14.2.1 - CORNER WALL REINFORCING

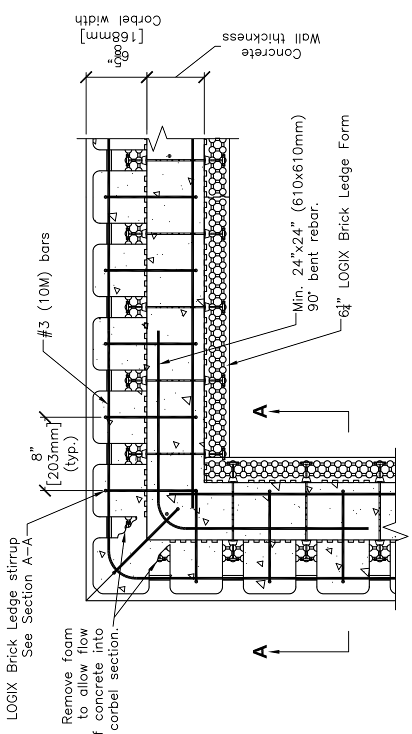


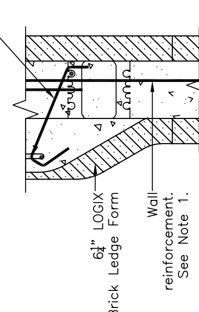
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.14.3.1 - LOGIX T-WALL REINFORCING

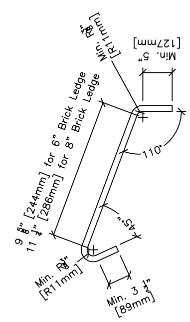


5.14.4.1 - CORNER REINFORCING WITH LOGIX BRICK LEDGE





SECTION A-A

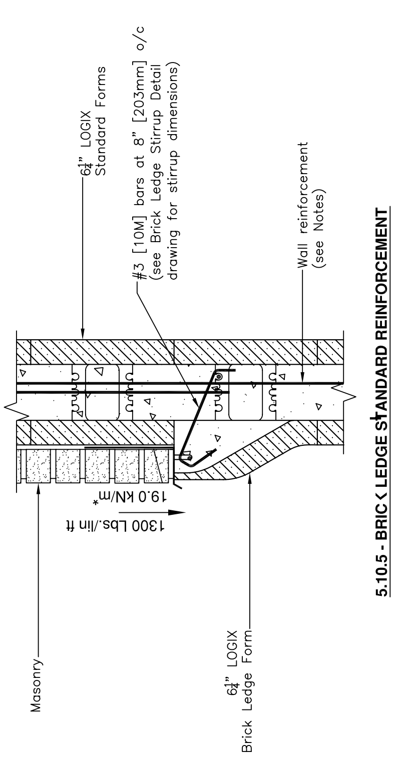


STIRRUP DETAIL (See Note 2)

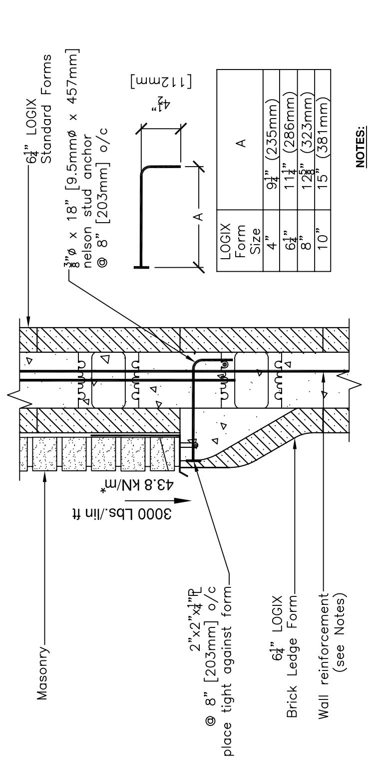
NOTES:

1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Stirrup shown is rated for 1300lbs/ft (19kN/m). For heavier load conditions and stirrup dimensions see Brick Ledge Stirrup details drawings.

5.14.4.2 - LOGIX BRICK LEDGE STANDARD REINFORCING



5.10.5 - BRICK LEDGE STANDARD REINFORCEMENT



LOGIX Form Size	A
4"	9¼" (235mm)
6¼"	11¼" (286mm)
8"	12⅝" (323mm)
10"	15" (381mm)

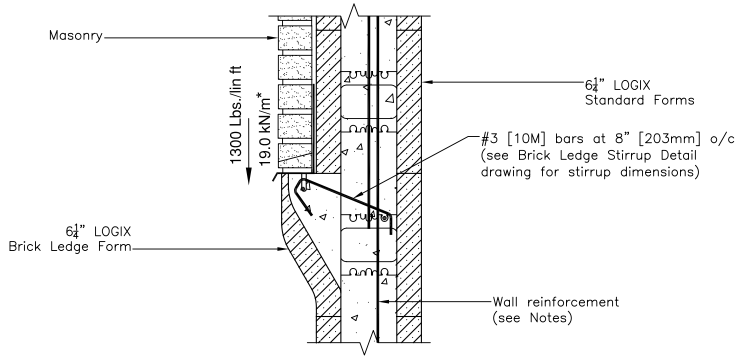
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

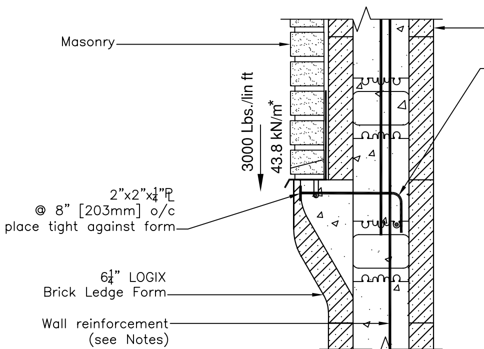
*1kN = 224.8lb

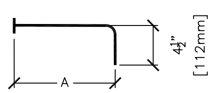
C A D D R A W I N G S - S T E E L R E I N F O R C I N G

5.14.4.3 - LOGIX BRICK LEDGE HEAVY REINFORCING



5.10.5 - BRIC< LEDGE STANDARD REINFORCEMENT





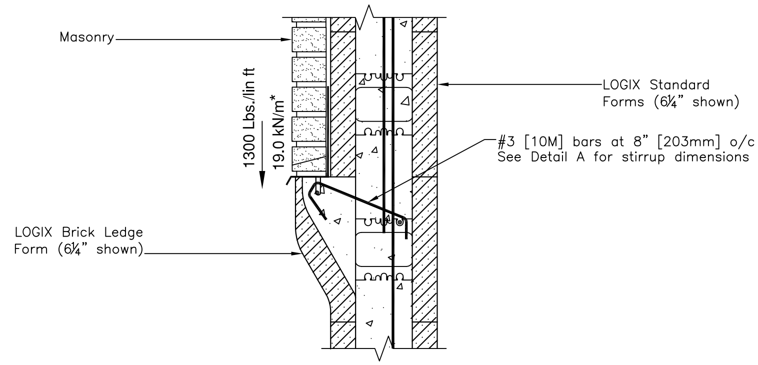
LOGIX Form Size	A
4"	9¼" (235mm)
6¼"	11¼" (286mm)
8"	12⅝" (323mm)
10"	15" (381mm)

5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

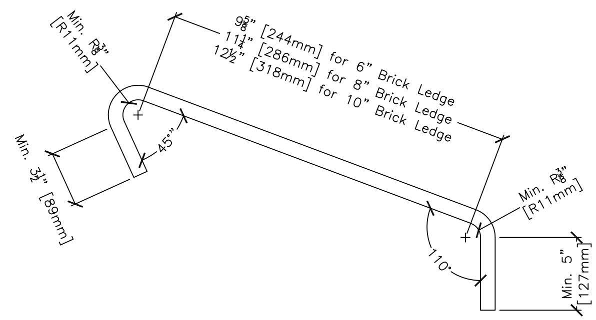
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

*1kN = 224.8lb

5.14.4.4 - LOGIX BRICK LEDGE STIRRUP DETAIL



BRICK LEDGE STANDARD REINFORCEMENT

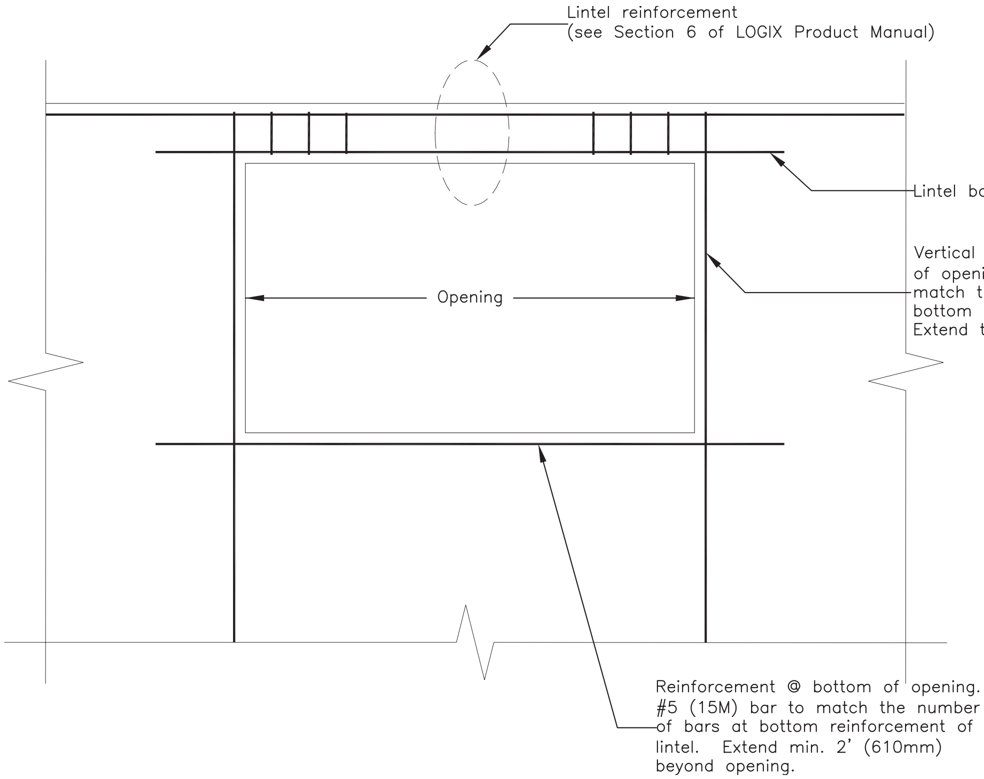


DETAIL A

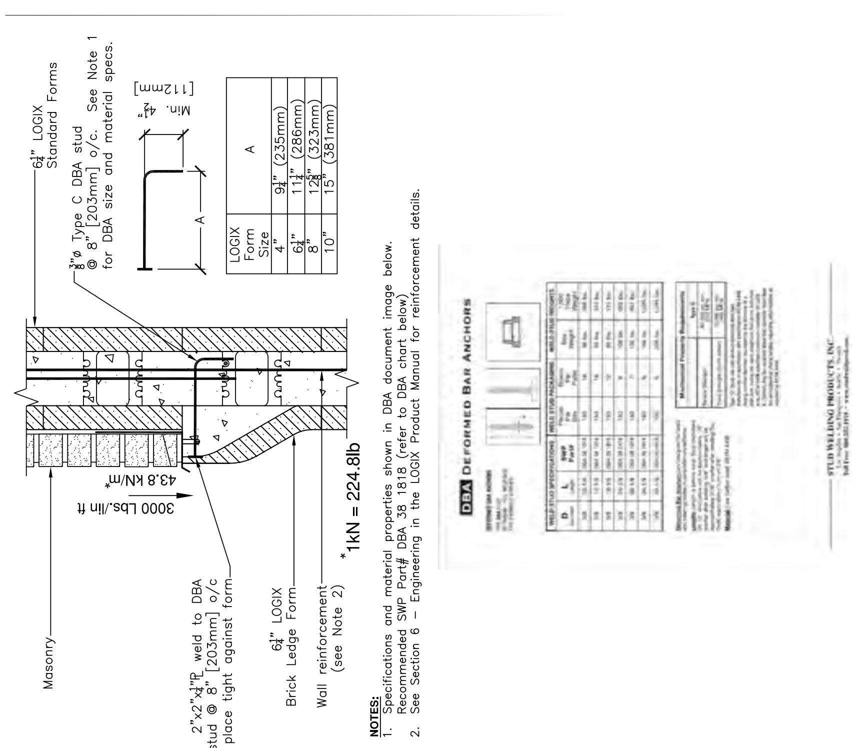
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

*1kN = 224.8lb

5.14.5.1 - REINFORCEMENT AROUND OPENINGS



5.14.4.5 - LOGIX BRICK LEDGE HEAVY REINF WITH DEFORMED BAR ANCHORS

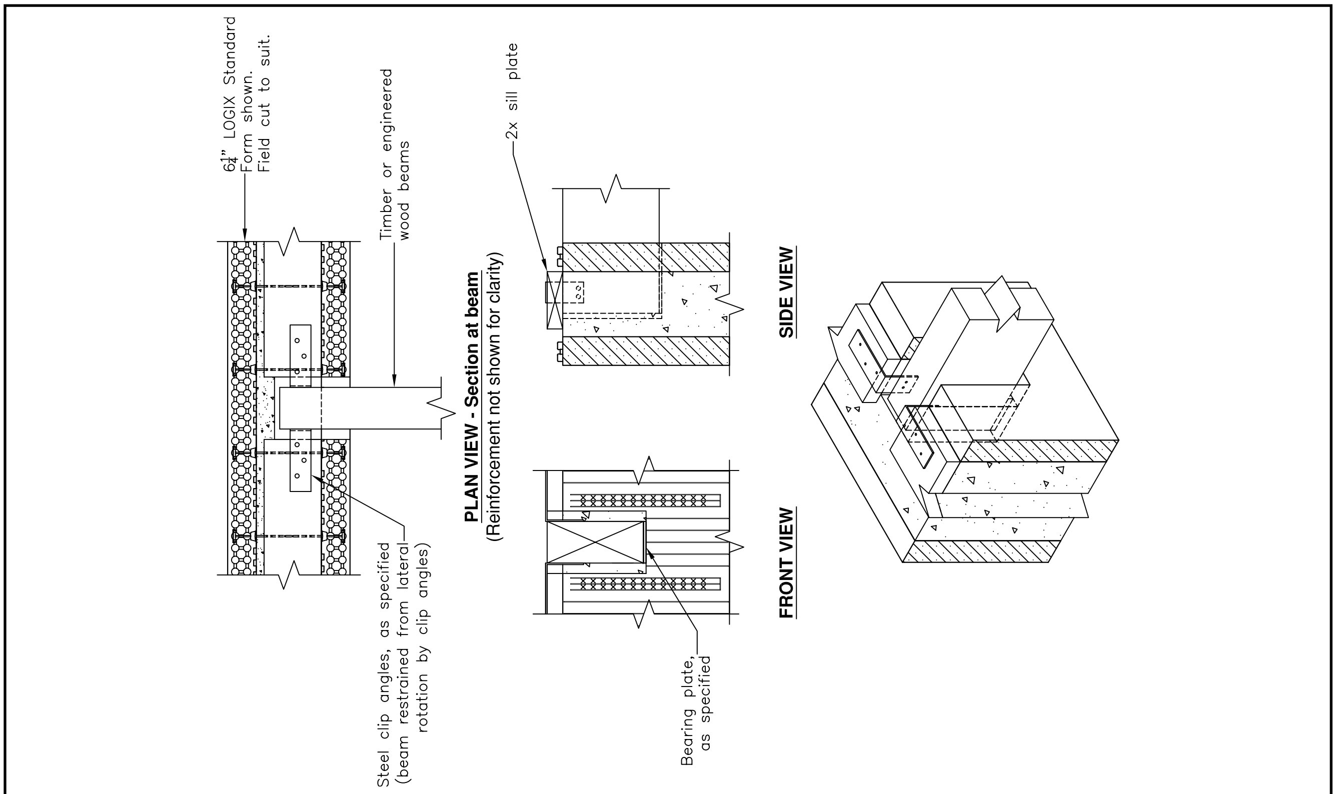


LOGIX Form Size	A
4"	9¼" (235mm)
6¼"	11¼" (286mm)
8"	12⅝" (323mm)
10"	15" (381mm)

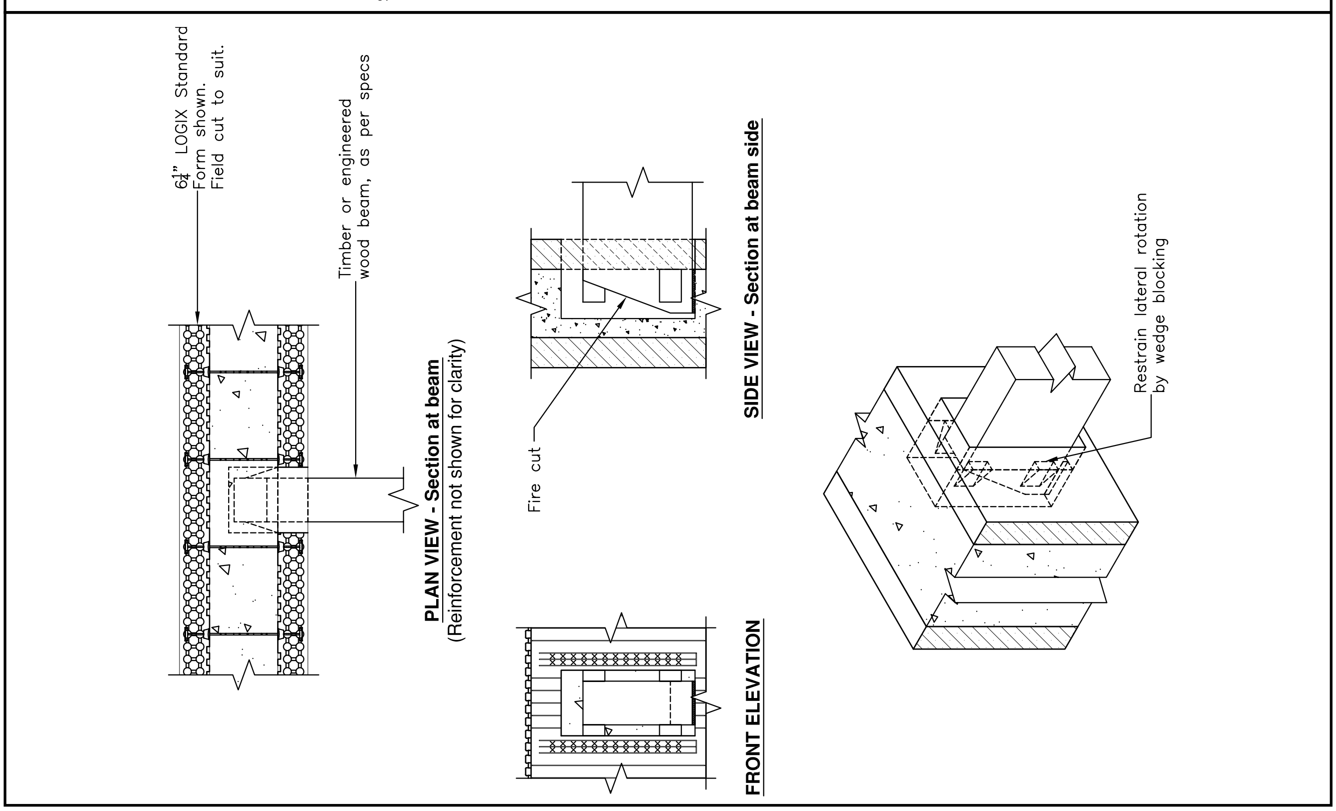
NOTES:
1. Specifications and material properties shown in DBA document image below. Recommended SWP Part# DBA 38 1818 (refer to DBA chart below)
2. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.15 - BEAM CONNECTIONS
5.15.1 - WOOD BEAMS

5.15.1.2 - WOOD BEAM WITH CLIP ANGLES

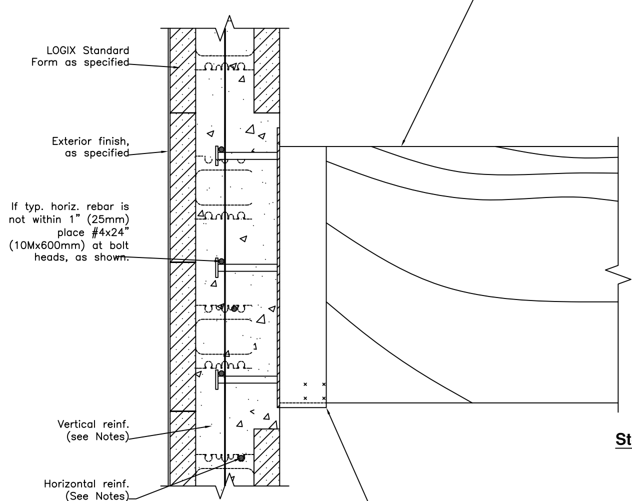


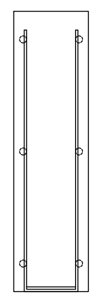
5.15.1.1 - WOOD BEAM WITH FIRE CUT



CAD DRAWINGS - BEAM CONNECTIONS

5.15.1.3 - STEEL BEAM BRACKET SUPPORTING WOOD BEAM



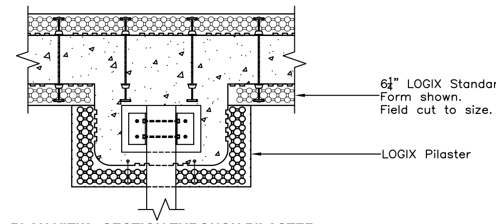


Steel Beam Bracket - Front View

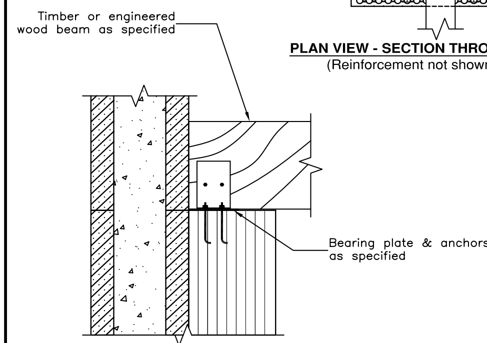
NOTES:

For reinforcement details in walls, see Section 6 – Engineering in the LOGIX Product Manual.

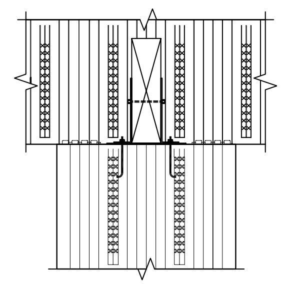
5.15.1.4 - WOOD BEAM ON LOGIX PILASTER



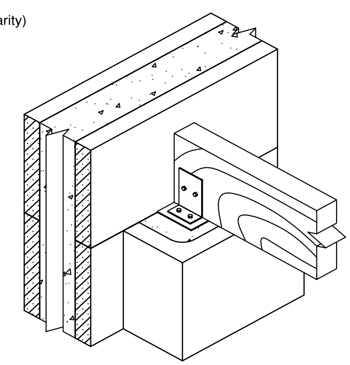
PLAN VIEW - SECTION THROUGH PILASTER
(Reinforcement not shown for clarity)



SIDE ELEVATION
(Reinforcement not shown for clarity)



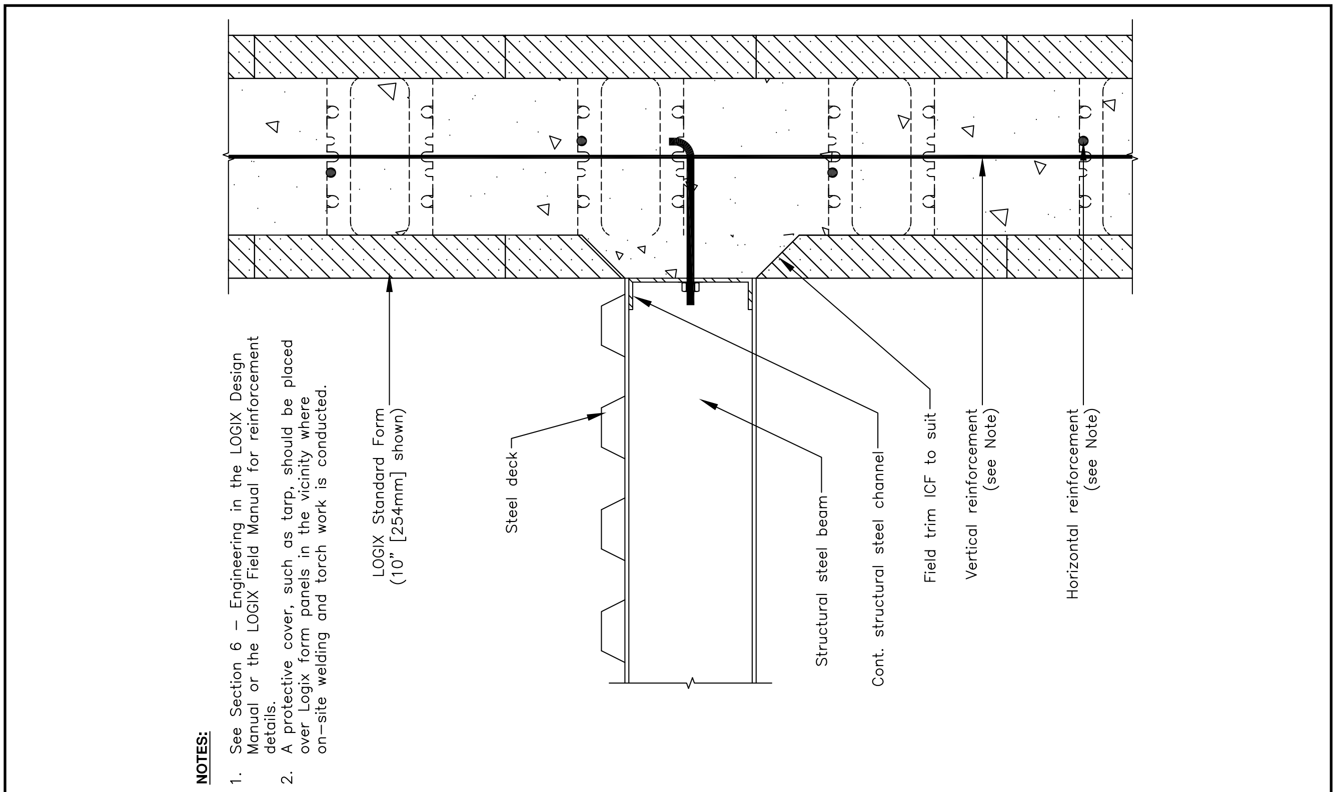
FRONT VIEW



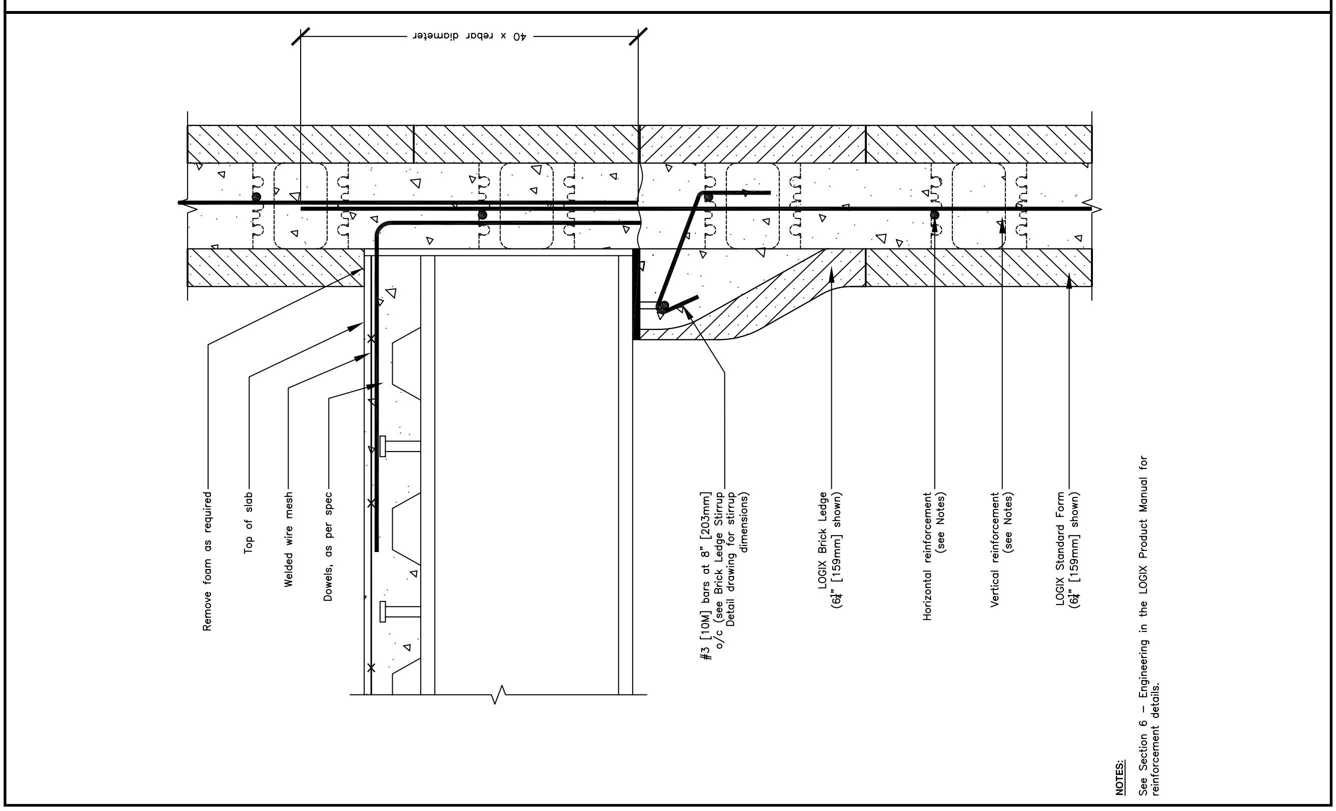
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction practices by consulting local building officials and professionals, including any additional requirements. Logix reserves the right to make changes to the tables and drawings without notice and assumes no liability in connection with the use of the tables and drawings including modification, copying or distribution.

5.15.2 - STEEL BEAMS

5.15.2.2 - STEEL DECK ON STRUCTURAL BEAM



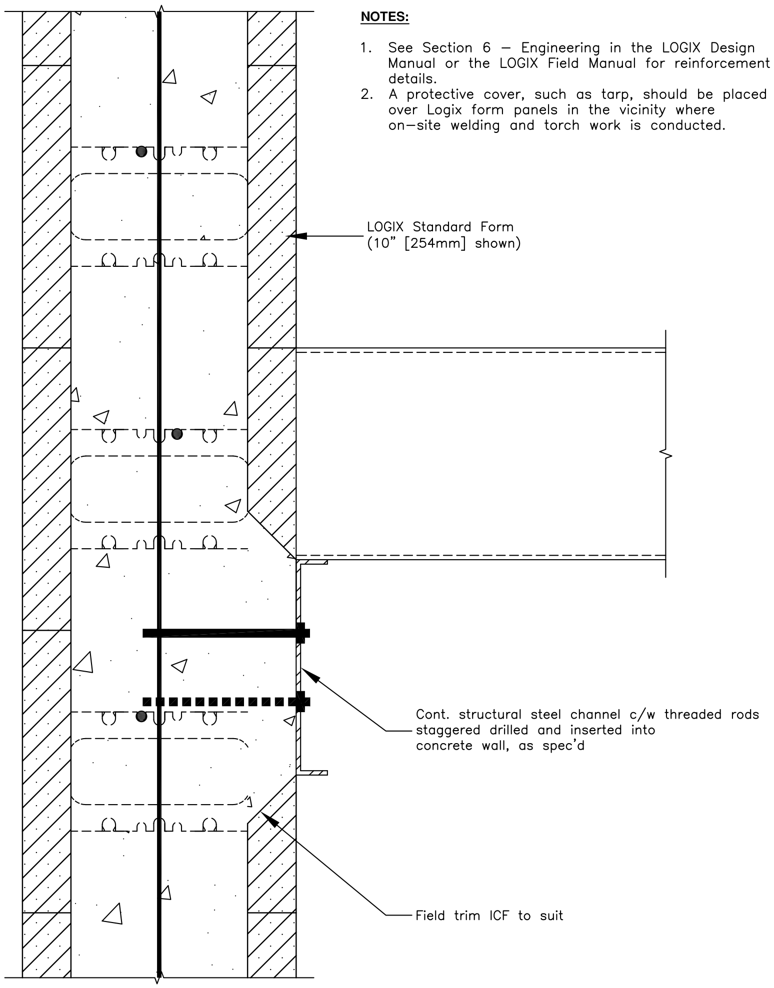
5.15.2.1 - COMPOSITE STEEL BEAM ON LOGIX BRICK LEDGE



5.15.2.3 - STRUCTURAL STEEL CHANNEL BEAM

NOTES:

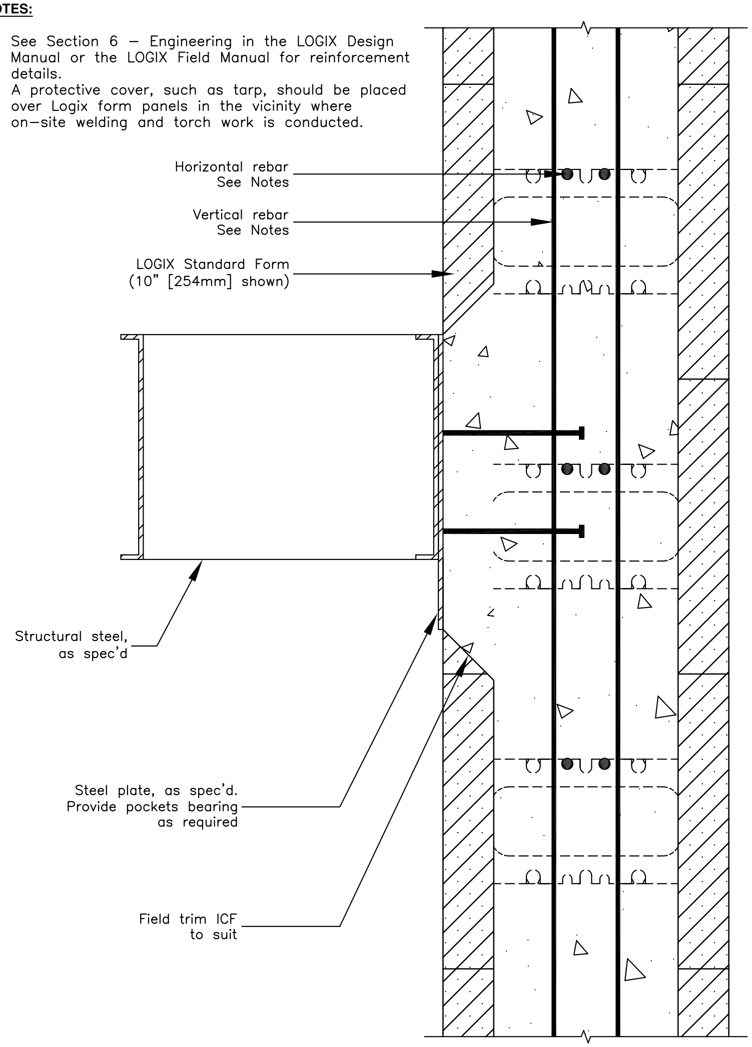
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.



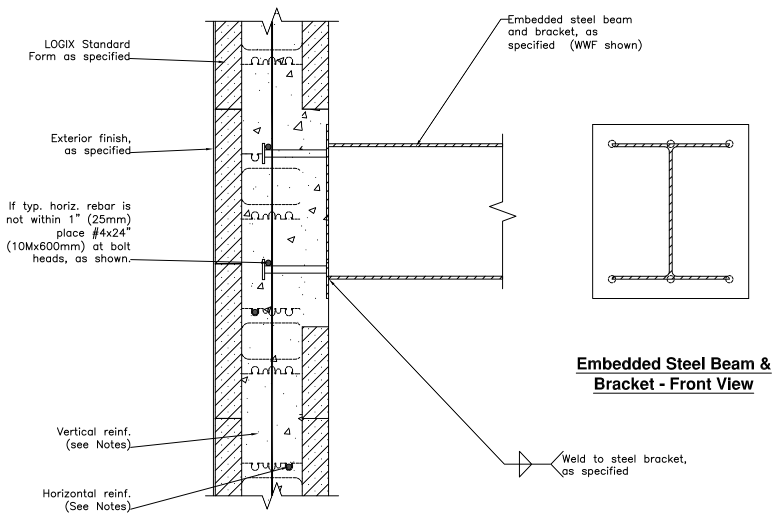
5.15.2.4 - STRUCTURAL STEEL CHANNEL BEAM CONT'D

NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.



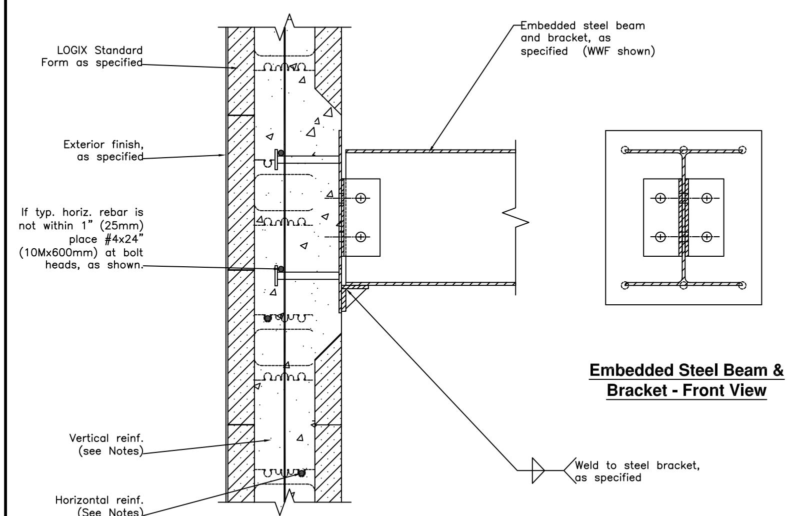
5.15.2.5 - STEEL BEAM BRACKET SUPPORTING STEEL BEAM



NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.

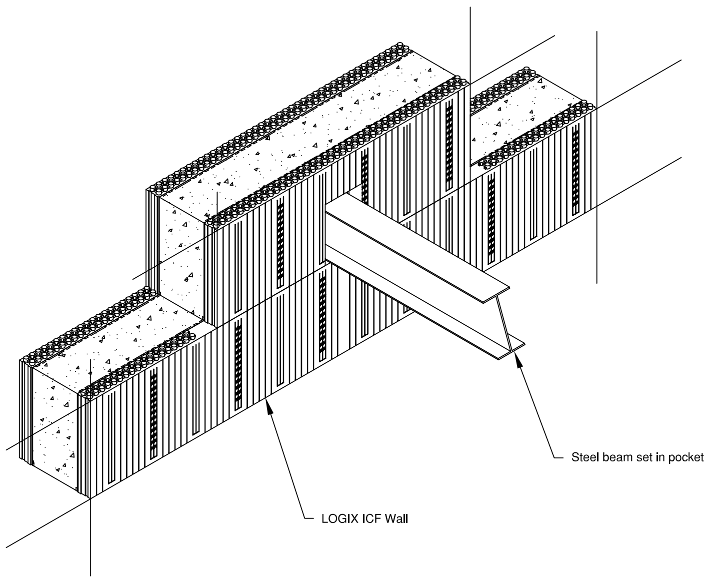
5.15.2.6 - STEEL BEAM BRACKET SUPPORTING STEEL BEAM WITH ANGLE IRON

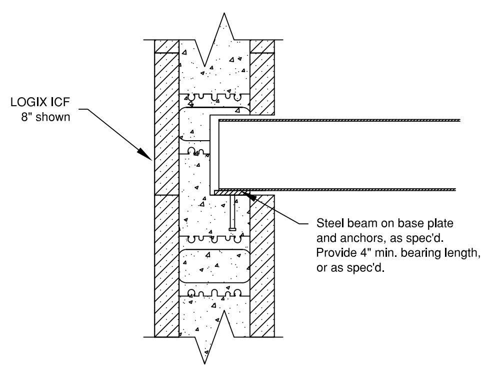


NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.

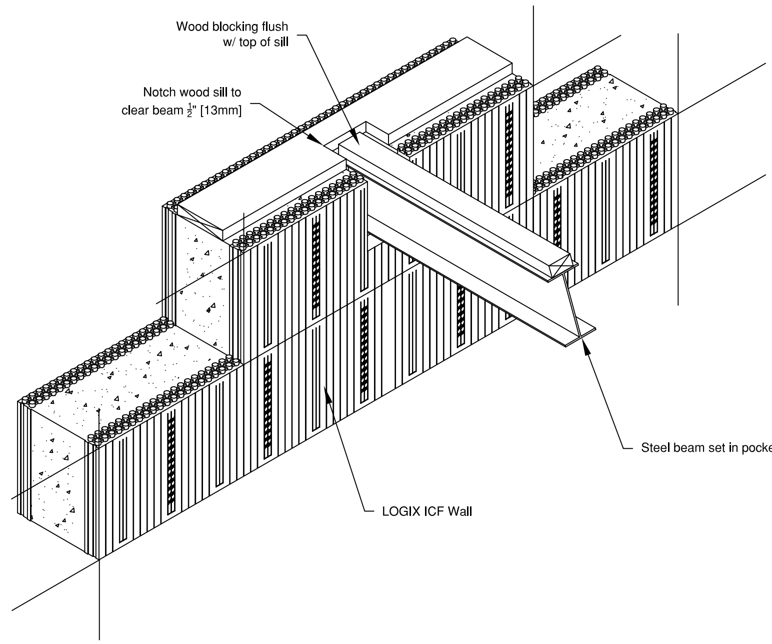
5.15.2.7 - STEEL BEAM POCKET

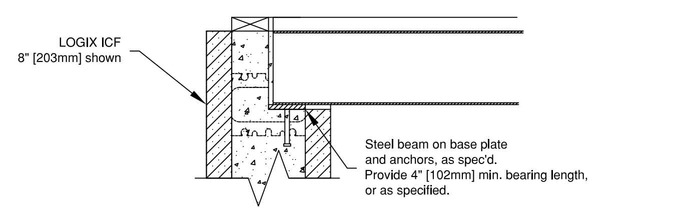




Section through Wall at Beam Pocket

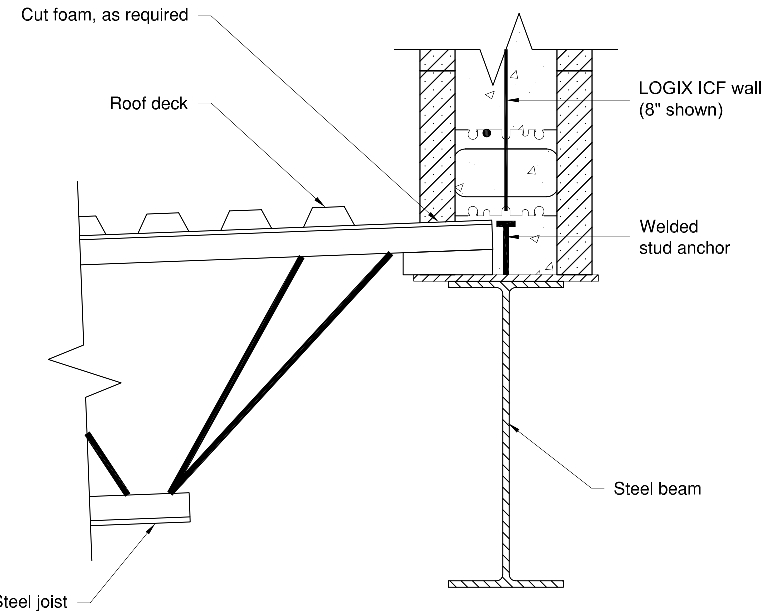
5.15.2.8 - STEEL BEAM POCKET FLUSH WITH SILL





Section through Wall at Beam Pocket

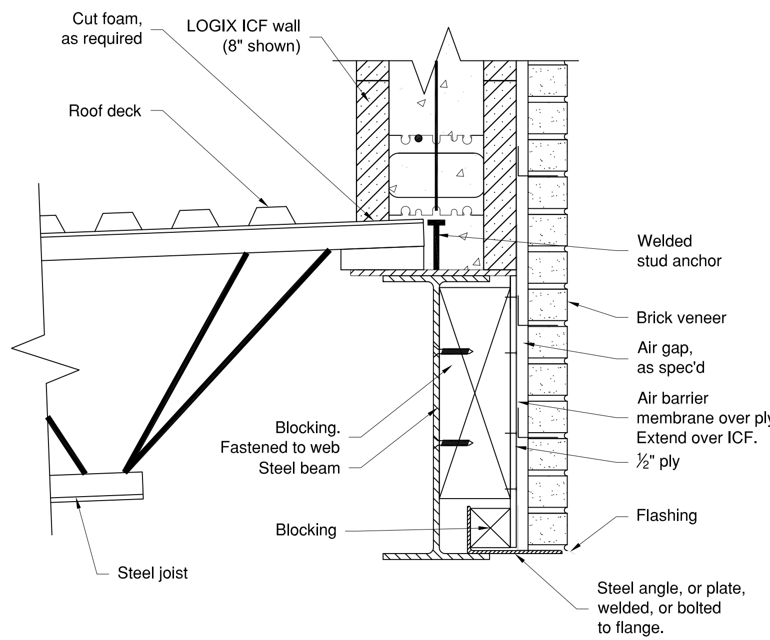
5.15.2.9 - JOIST BEARING ON STEEL BEAM



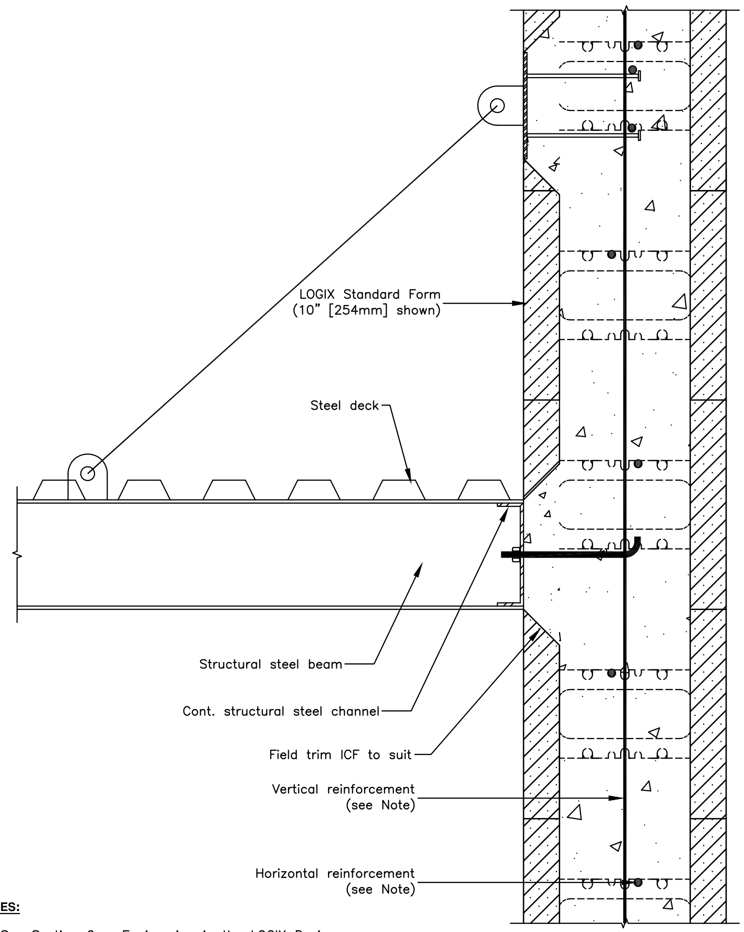
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.15.2.10 - JOIST BEARING ON STEEL BEAM SUPPORTING BRICK VENEER



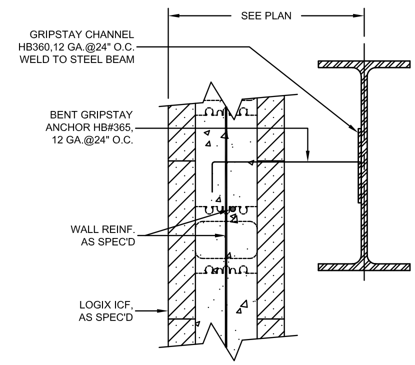
5.15.2.11 - STEEL DECK PORCH COVER



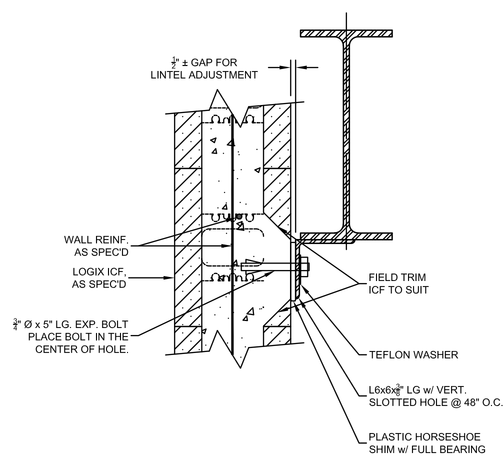
NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. A protective cover, such as tarp, should be placed over Logix form panels in the vicinity where on–site welding and torch work is conducted.

5.15.2.12 - LATERAL BRACING TO STEEL BEAM

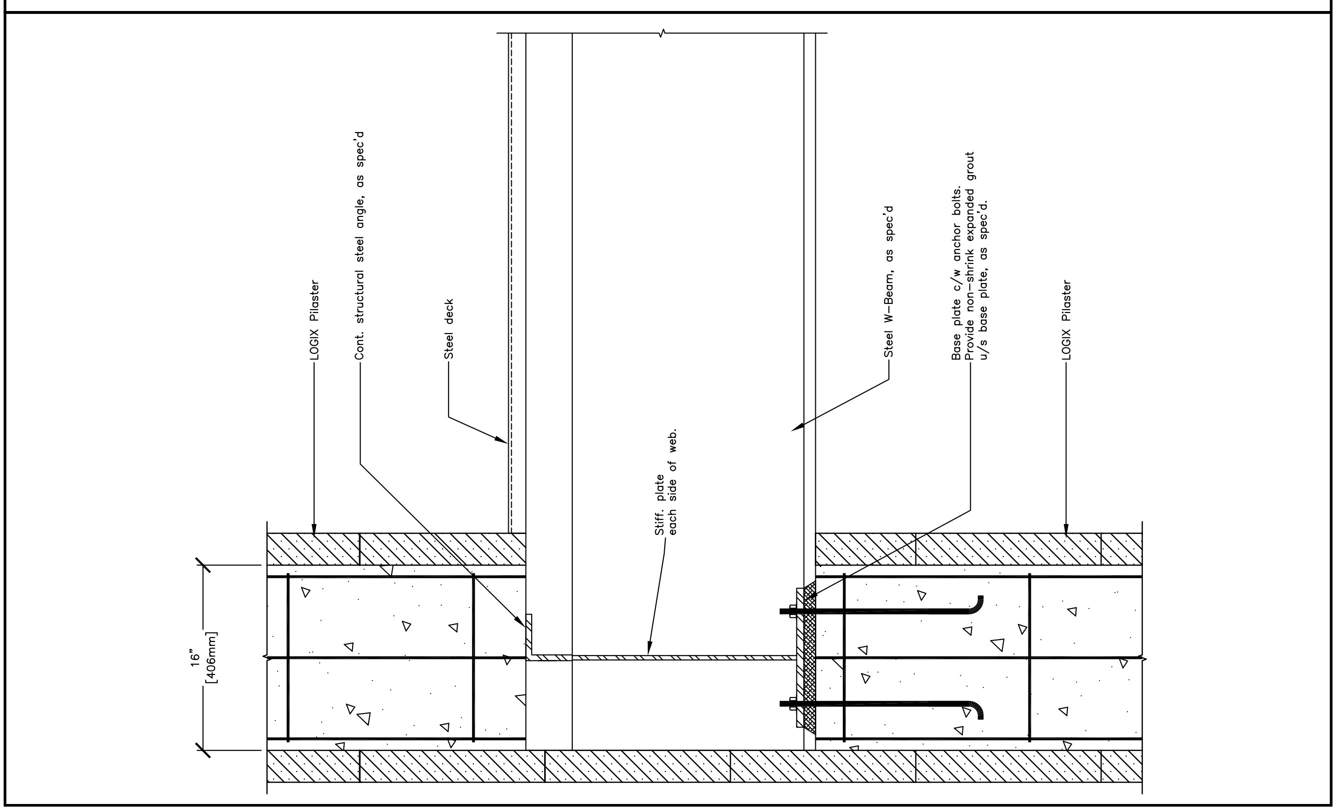


DETAIL 1

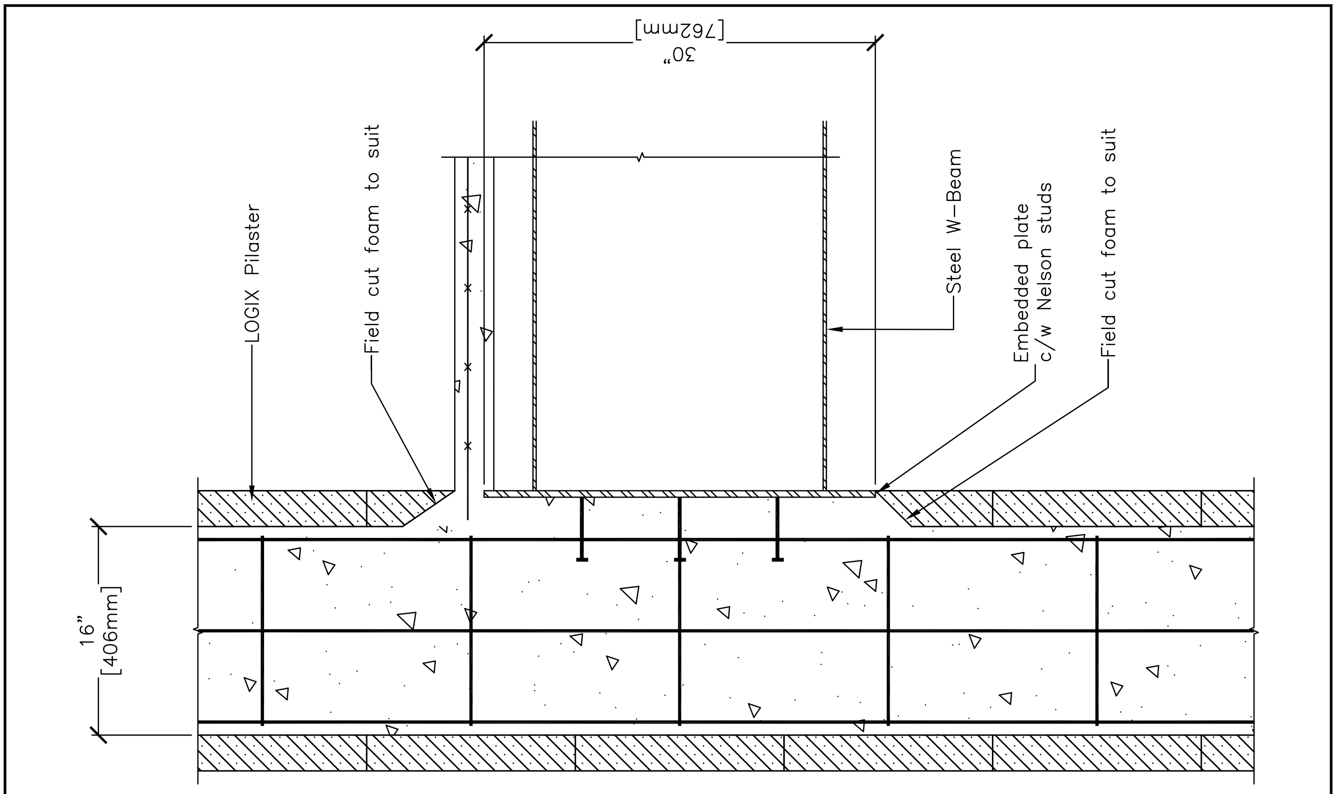


DETAIL 2

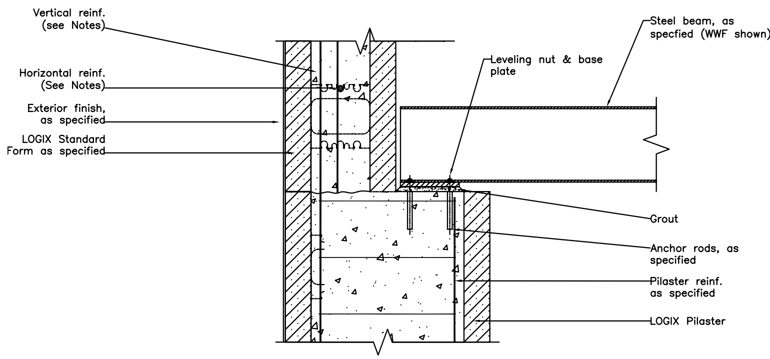
5.15.2.13 - STRUCTURAL BEAM WITH BASE PLATE ON LOGIX PILASTER



5.15.2.14 - STRUCTURAL BEAM WITH STUDS IN LOGIX PILASTER



5.15.2.15 - STEEL BEAM BEARING ON LOGIX PILASTER

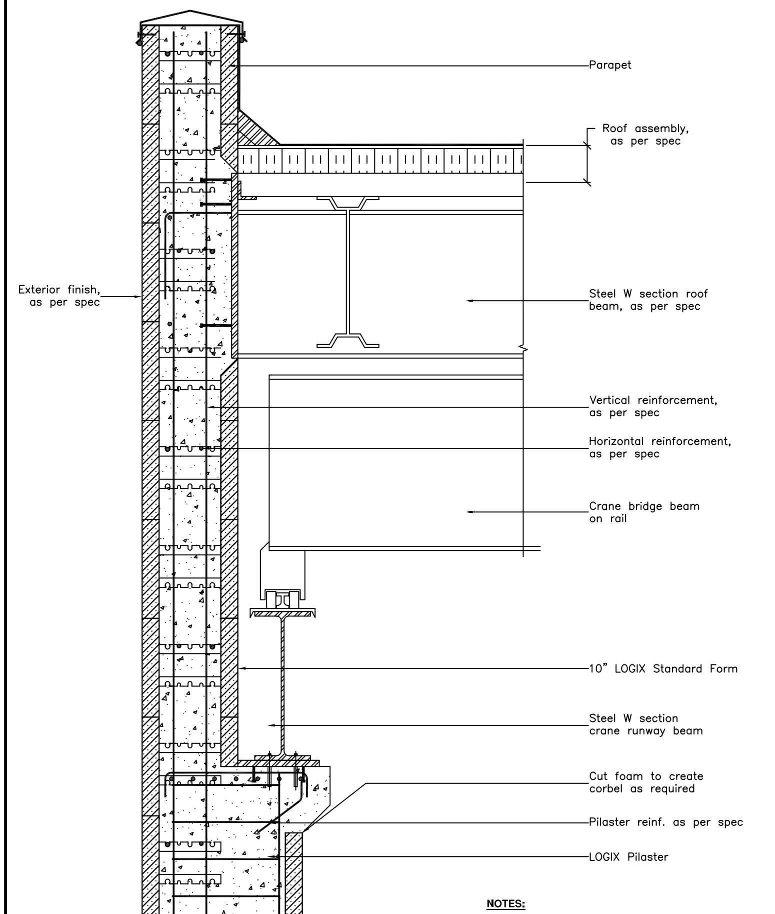


Logix Pilaster Supporting Steel Beam

NOTES:

For reinforcement details in walls, see Section 6 – Engineering in the LOGIX Product Manual.

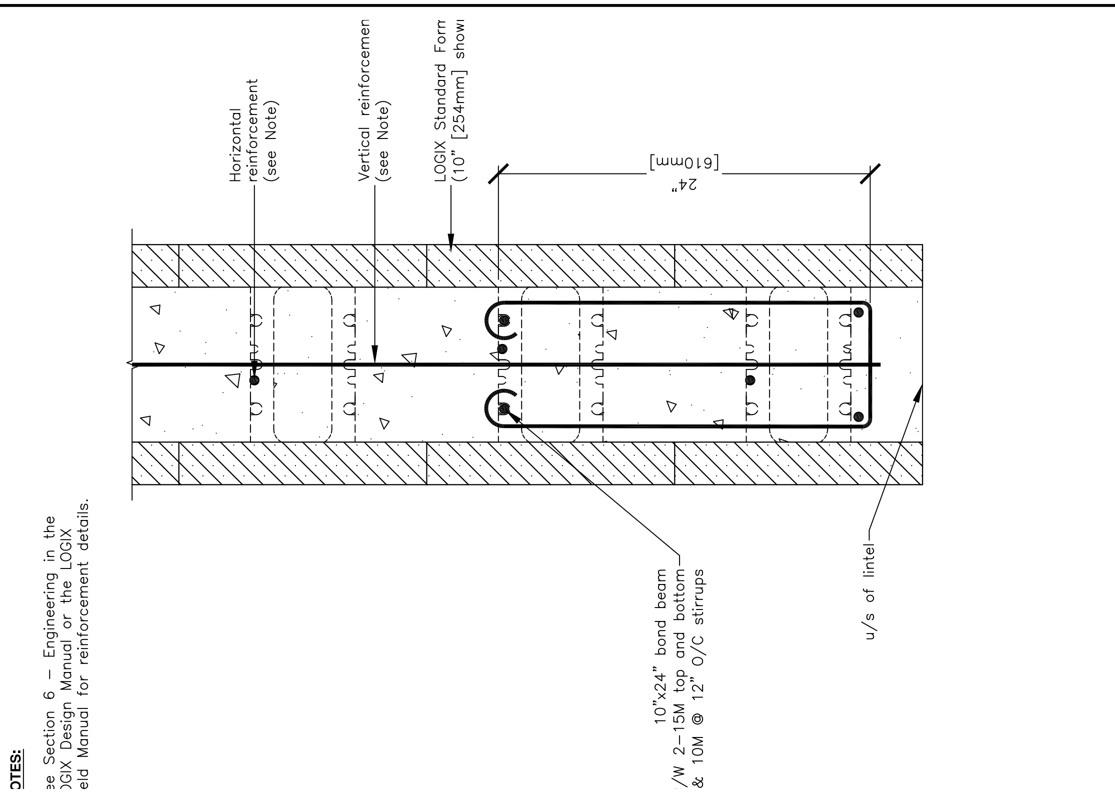
5.15.2.16 - GANTRY SYSTEM ON LOGIX PILASTER



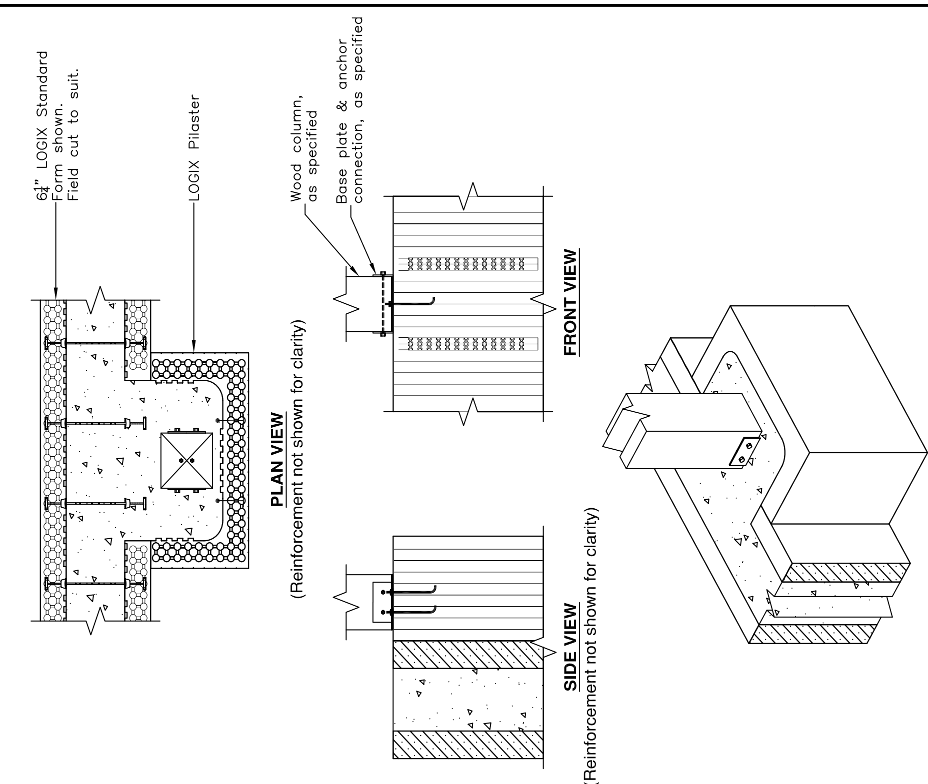
NOTES:

All embedded plates & and anchors as per specs.

5.15.3.1 - BOND BEAM



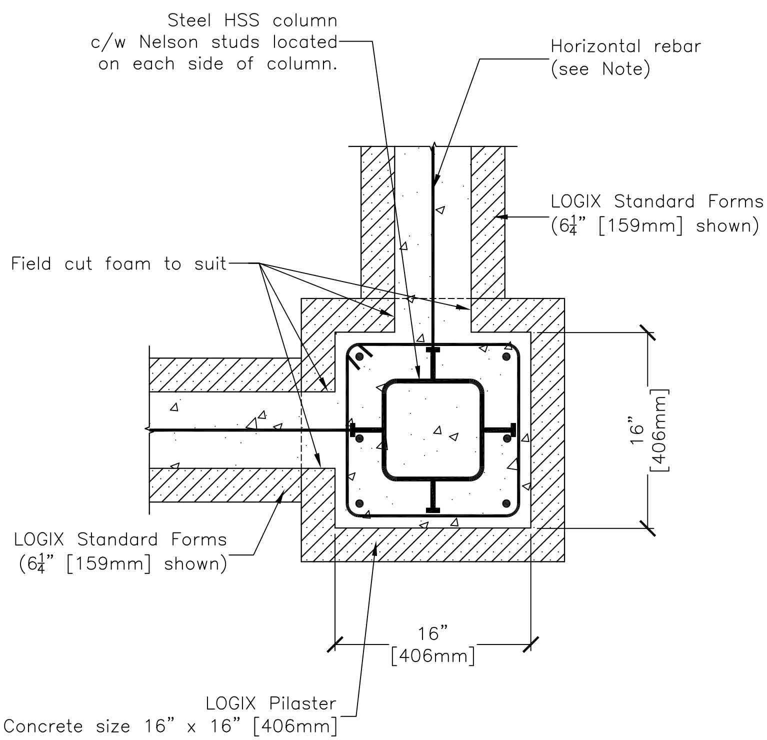
5.16.1.1 - WOOD COLUMN ON LOGIX PILASTER



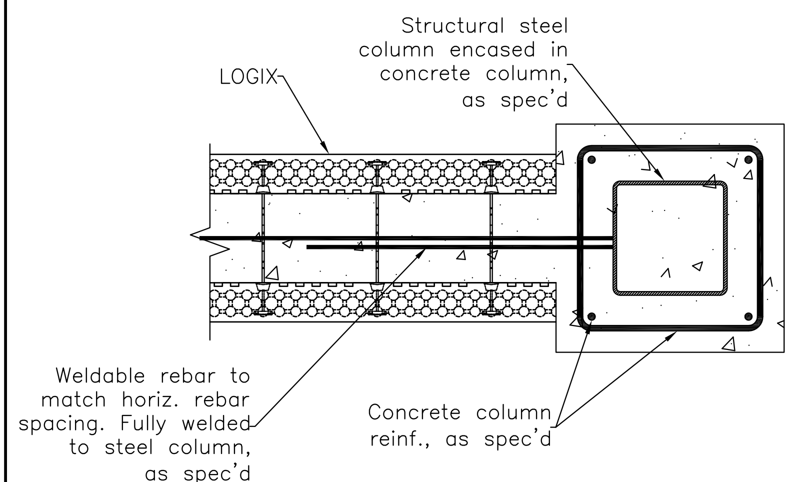
5.16.2.1 - LOGIX PILASTER AT CORNER WITH STRUCTURAL STEEL COLUMN EMBED

NOTES:

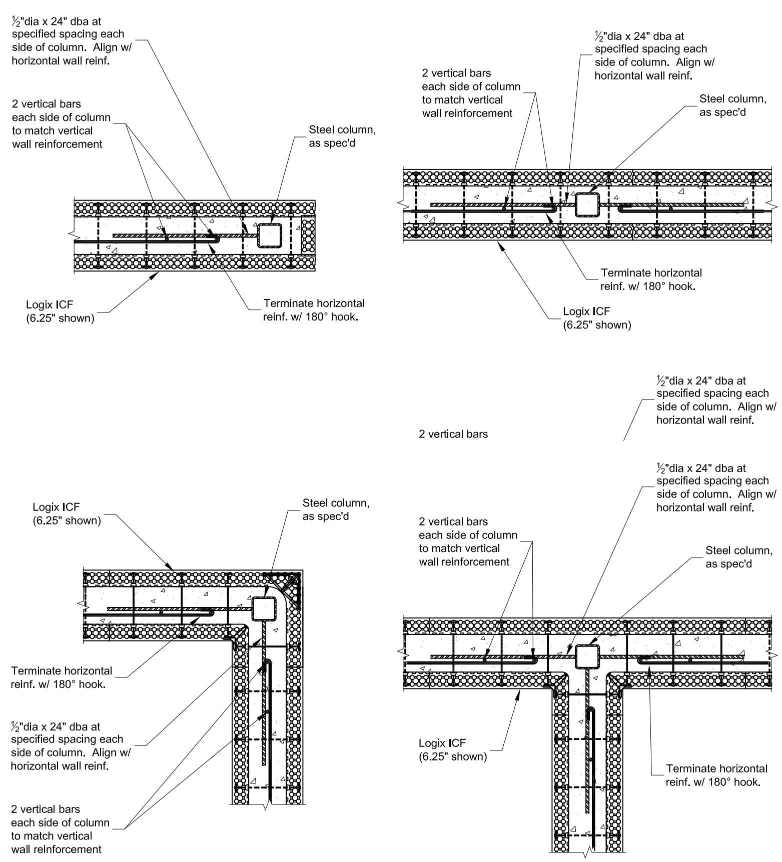
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



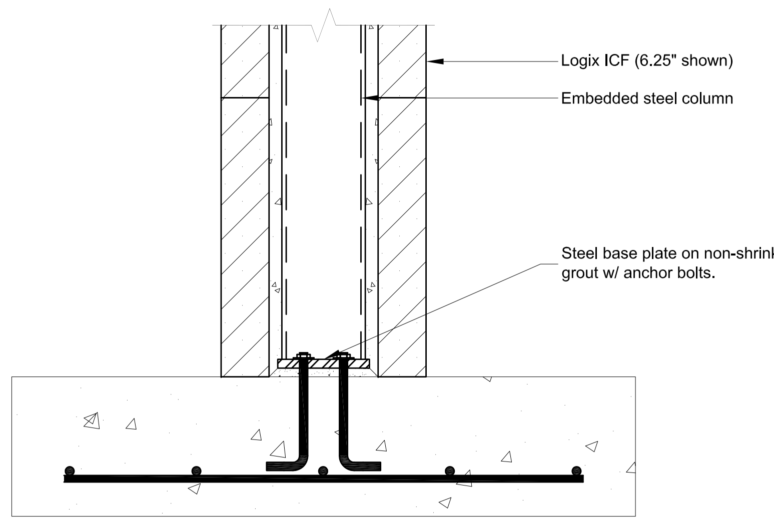
5.16.2.2 - CONCRETE ENCASED STEEL COLUMN



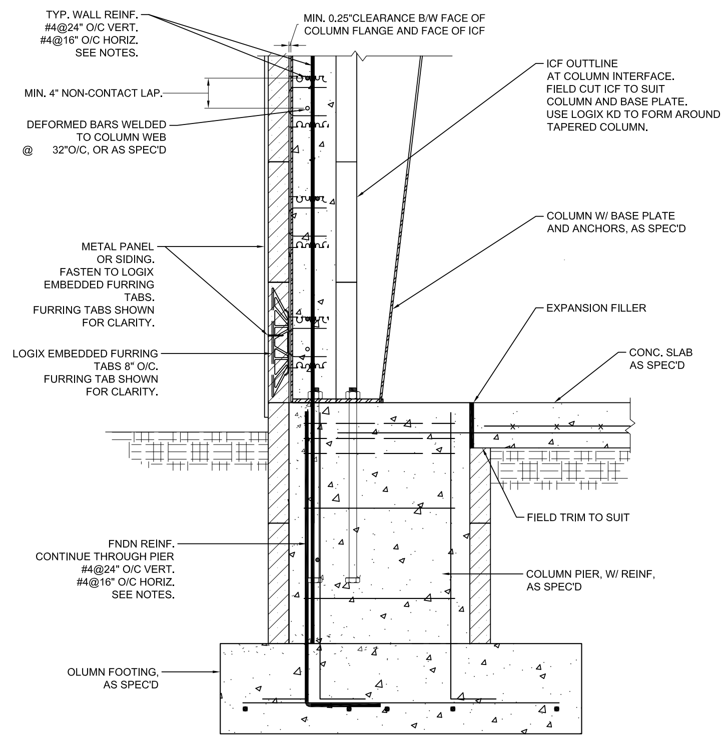
5.16.2.3 - EMBEDDED STEEL COLUMN



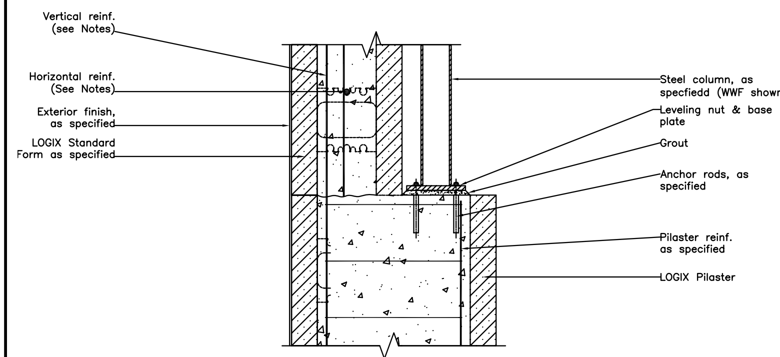
5.16.2.4 - EMBEDDED STEEL COLUMN ON FOOTING



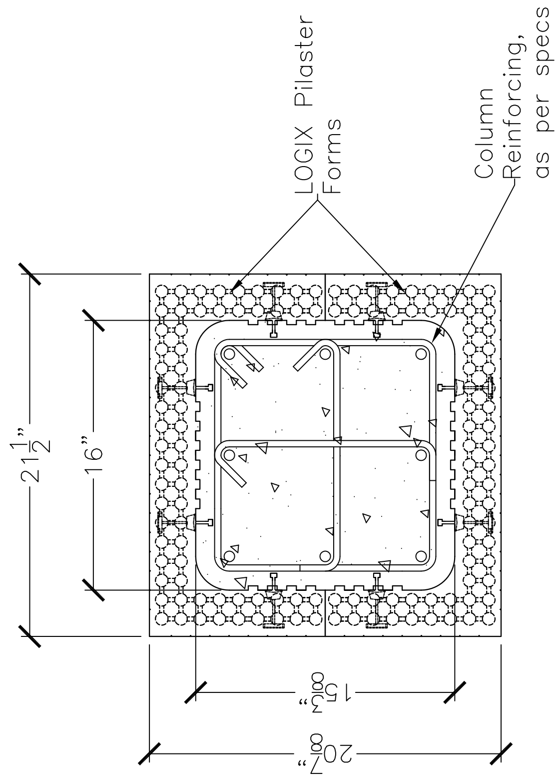
5.16.2.5 - EMBEDDED TAPERED COLUMN ON FOOTING



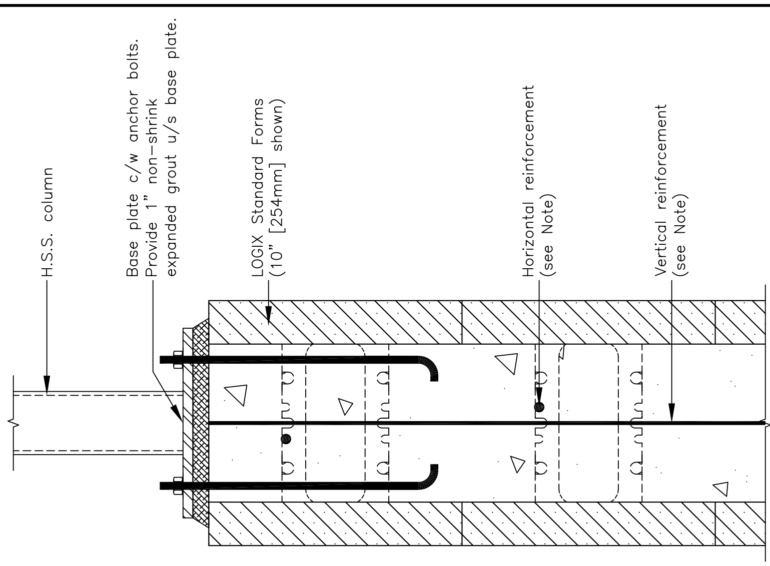
5.16.2.6 - LOGIX PILASTER SUPPORTING STEEL COLUMN



5.16.3.1 - COLUMN FORMED WITH LOGIX PILASTER



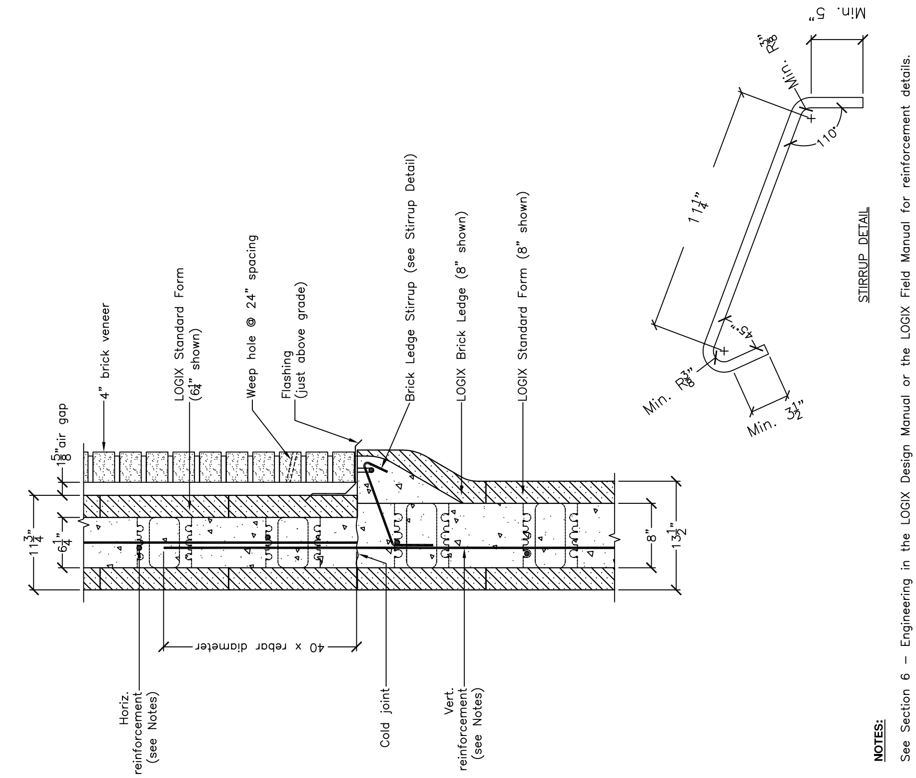
5.16.2.7 - HSS COLUMN ON LOGIX



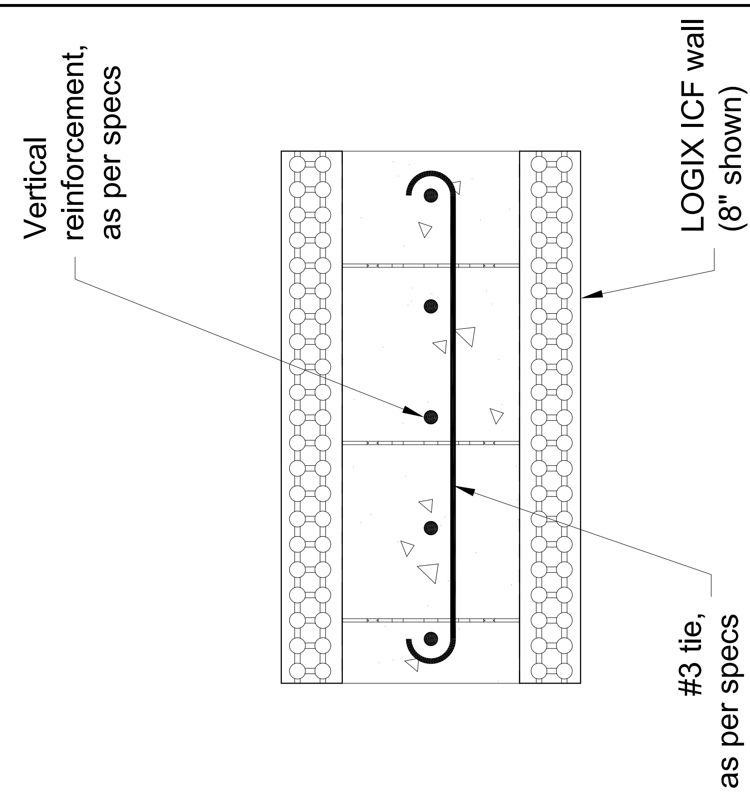
NOTES:
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.17.1 - LOGIX BRICK LEDGE

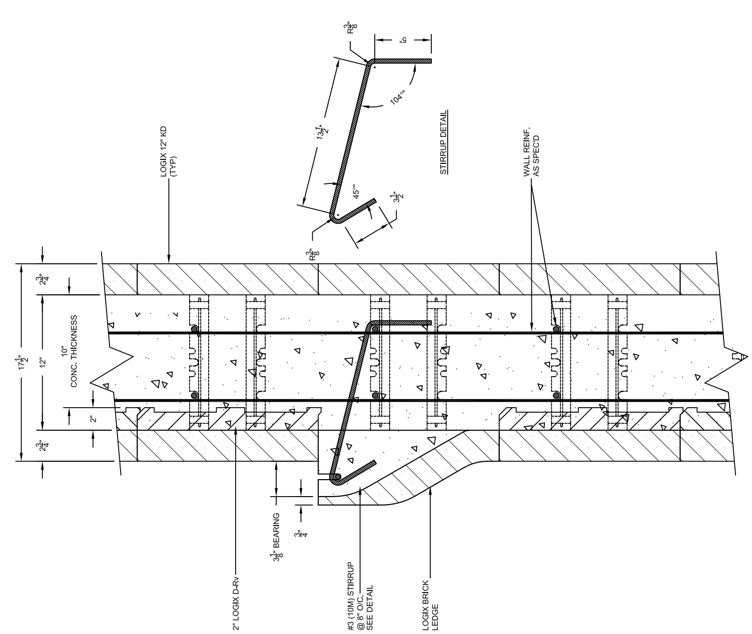
5.17.1.1 - LOGIX 6.25" ON LOGIX 8" BRICK LEDGE



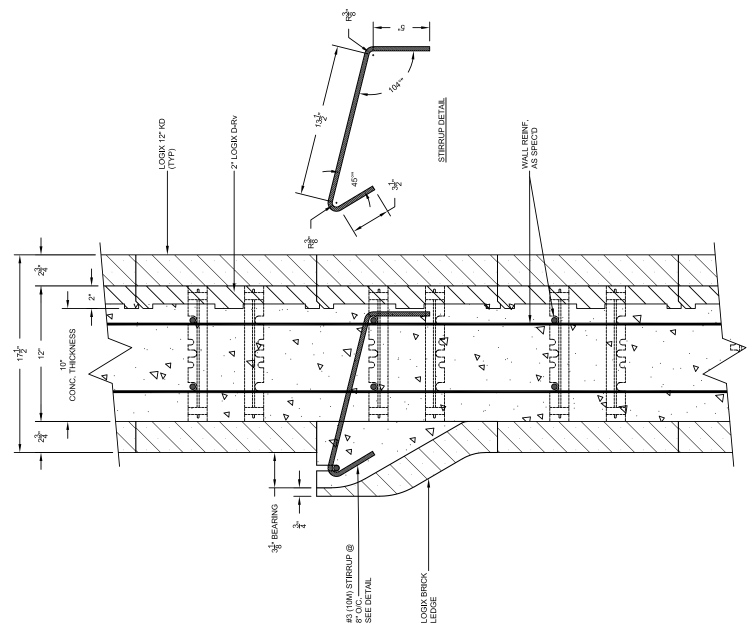
5.16.3.2 - LOGIX ICF COLUMN



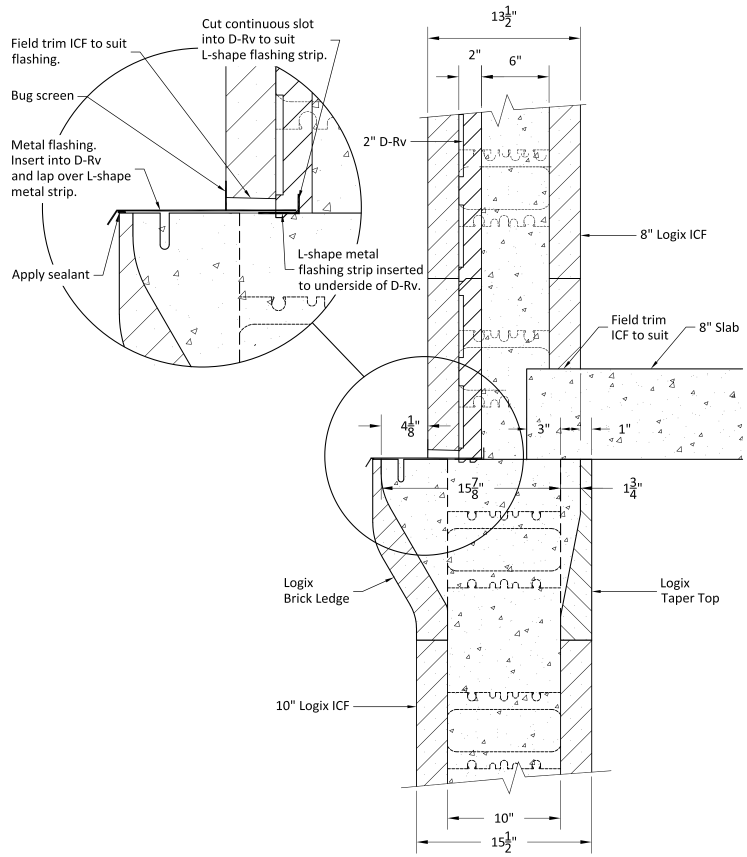
5.17.1.2 - LOGIX 12" KD BRICK LEDGE WITH D-RV (1 OF 2)



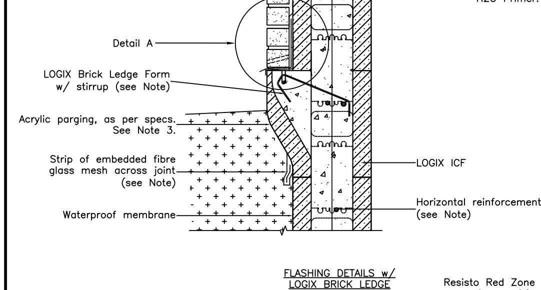
5.17.1.3 - LOGIX 12" KD BRICK LEDGE WITH D-RV (2 OF 2)



5.17.1.4 - LOGIX BRICK LEDGE FLASHING DETAILS



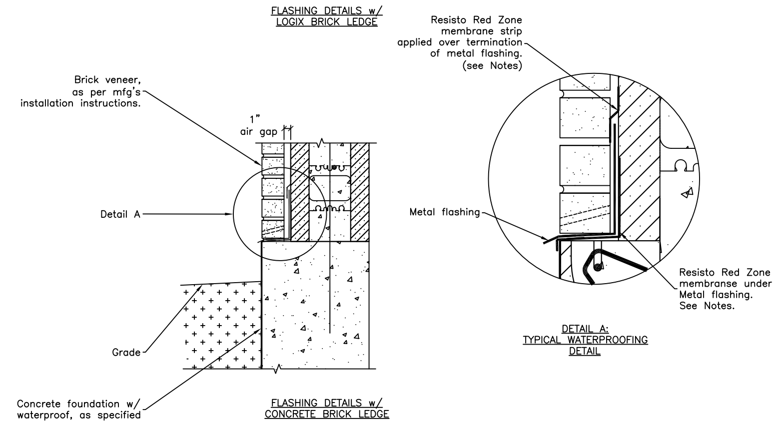
5.17.1.5 - LOGIX BRICK LEDGE FLASHING DETAILS



FLASHING DETAILS w/ LOGIX BRICK LEDGE

NOTES:

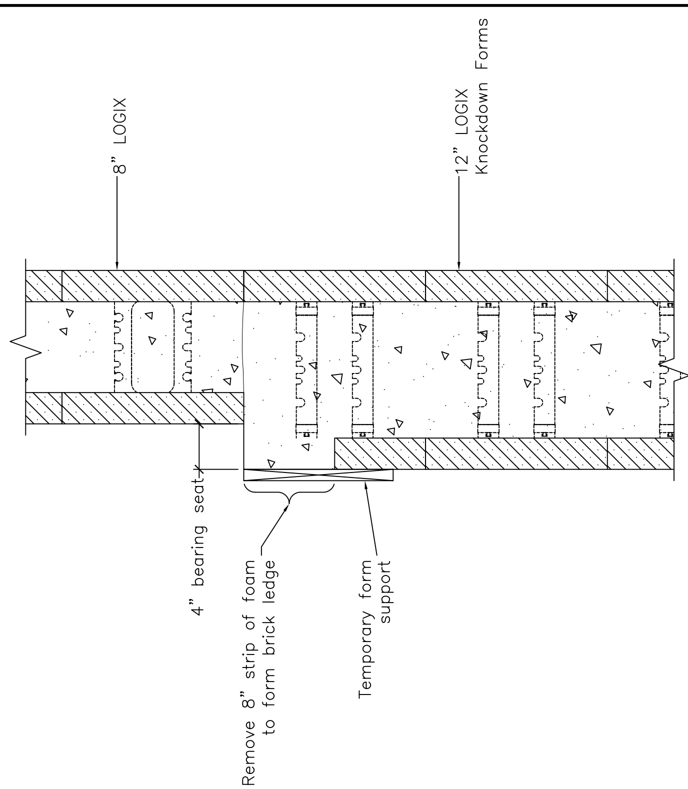
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. Red Zone membrane must be adhered with Resisto H2O Primer.



FLASHING DETAILS w/ CONCRETE BRICK LEDGE

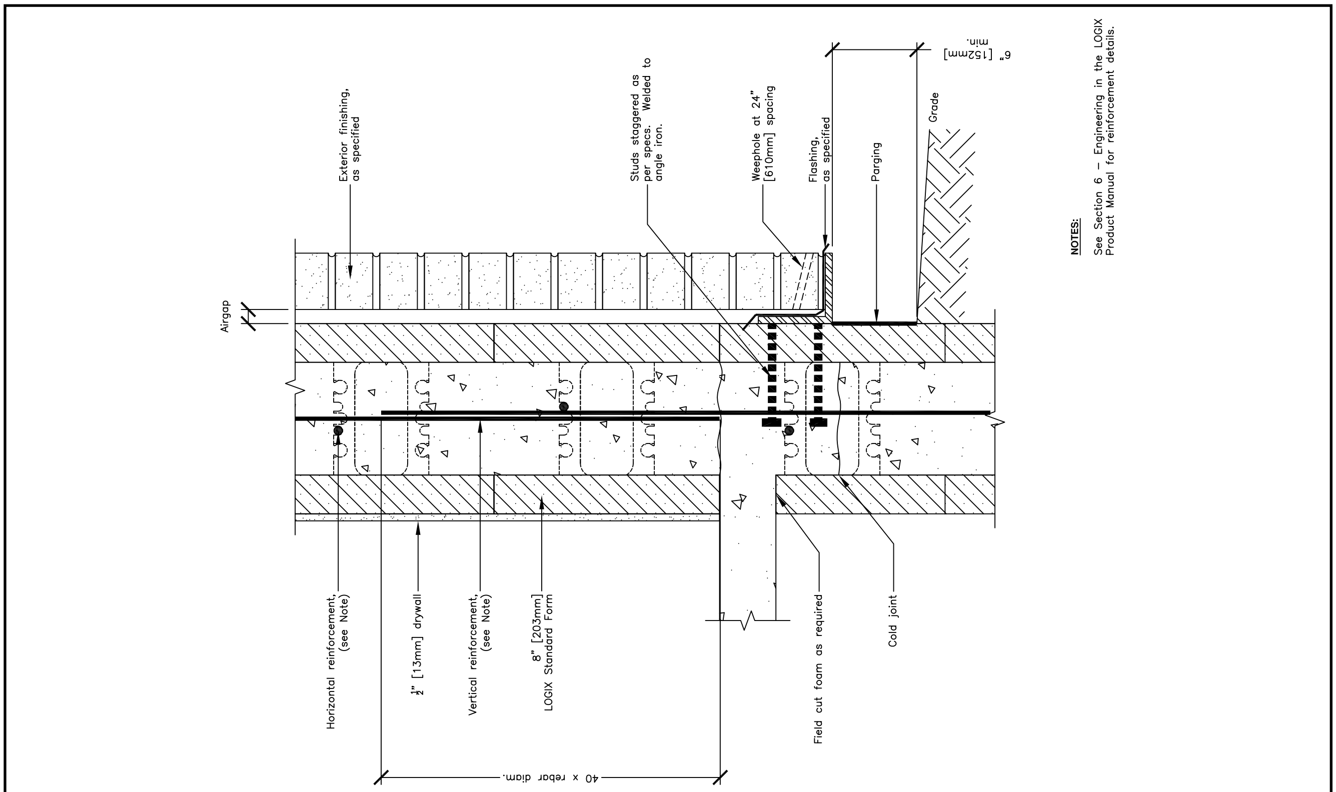
DETAIL A: TYPICAL WATERPROOFING DETAIL

5.17.2.1 - BRICK LEDGE FORMED WITH 12" KD FORMS

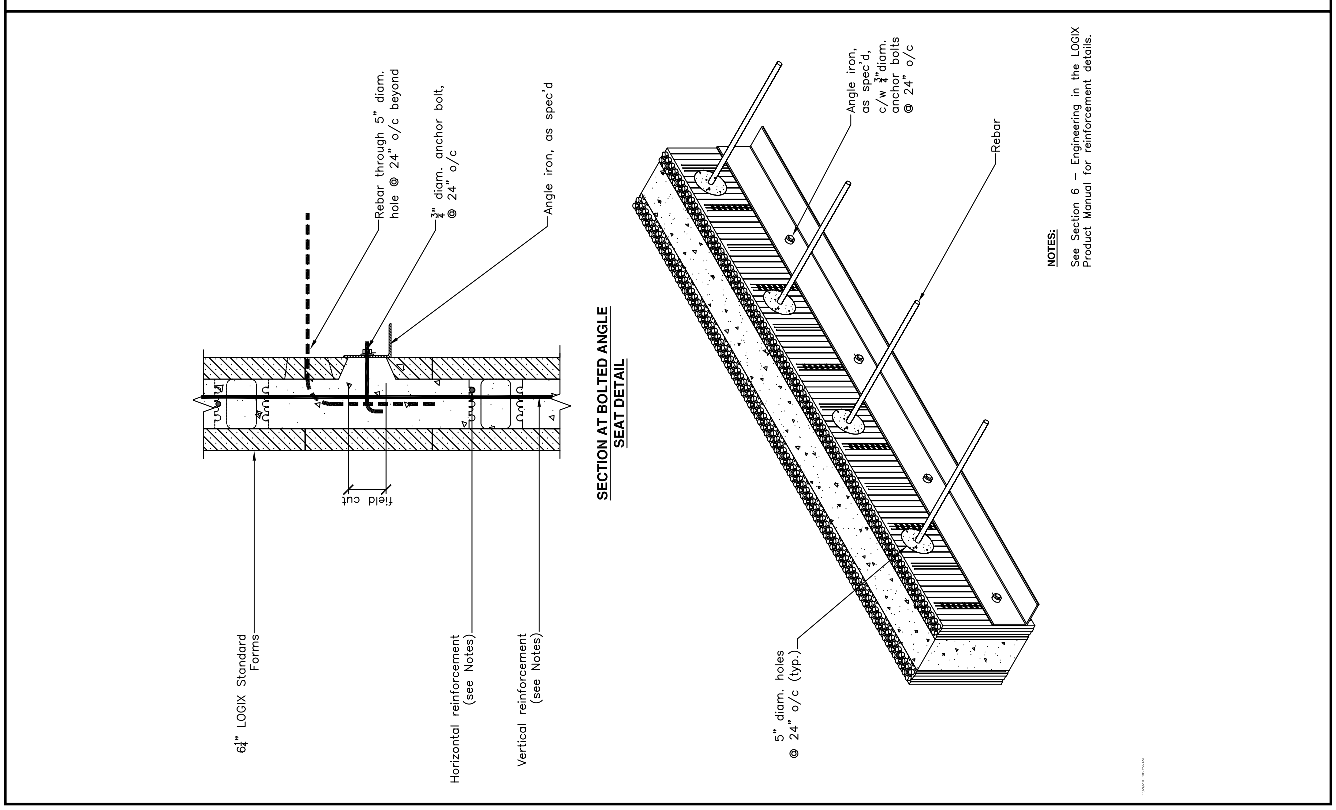


5.17.3 - ANGLE IRON SEATS

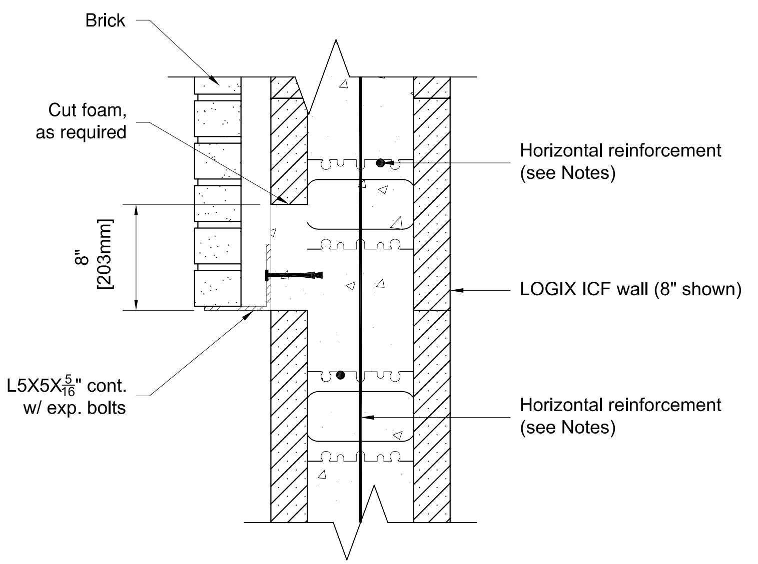
5.17.3.2 - ANGLE IRON SUPPORTING BRICK VENEER WITH WELDED STUDS



5.17.3.1 - ANGLE IRON SEAT SHOWING WALL DOWELS TO SLAB



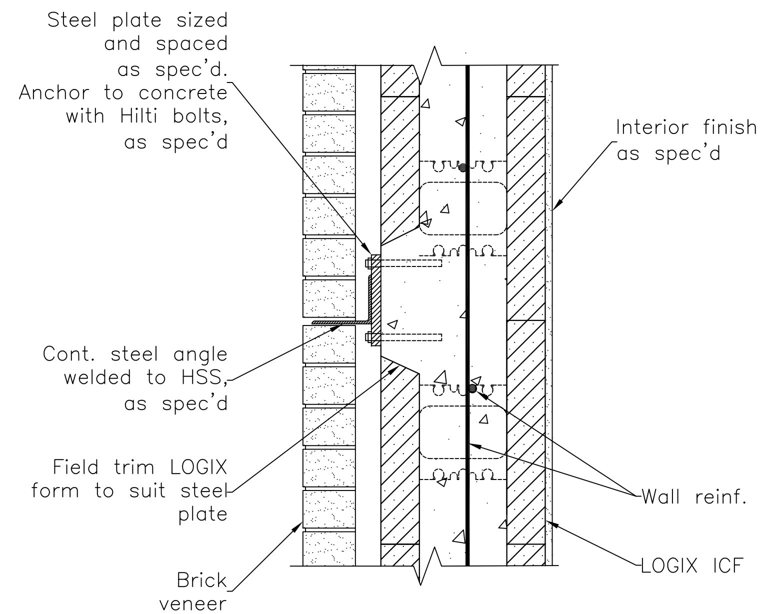
5.17.3.3 - ANGLE IRON SUPPORTING BRICK VENEER WITH EXPANSION BOLTS



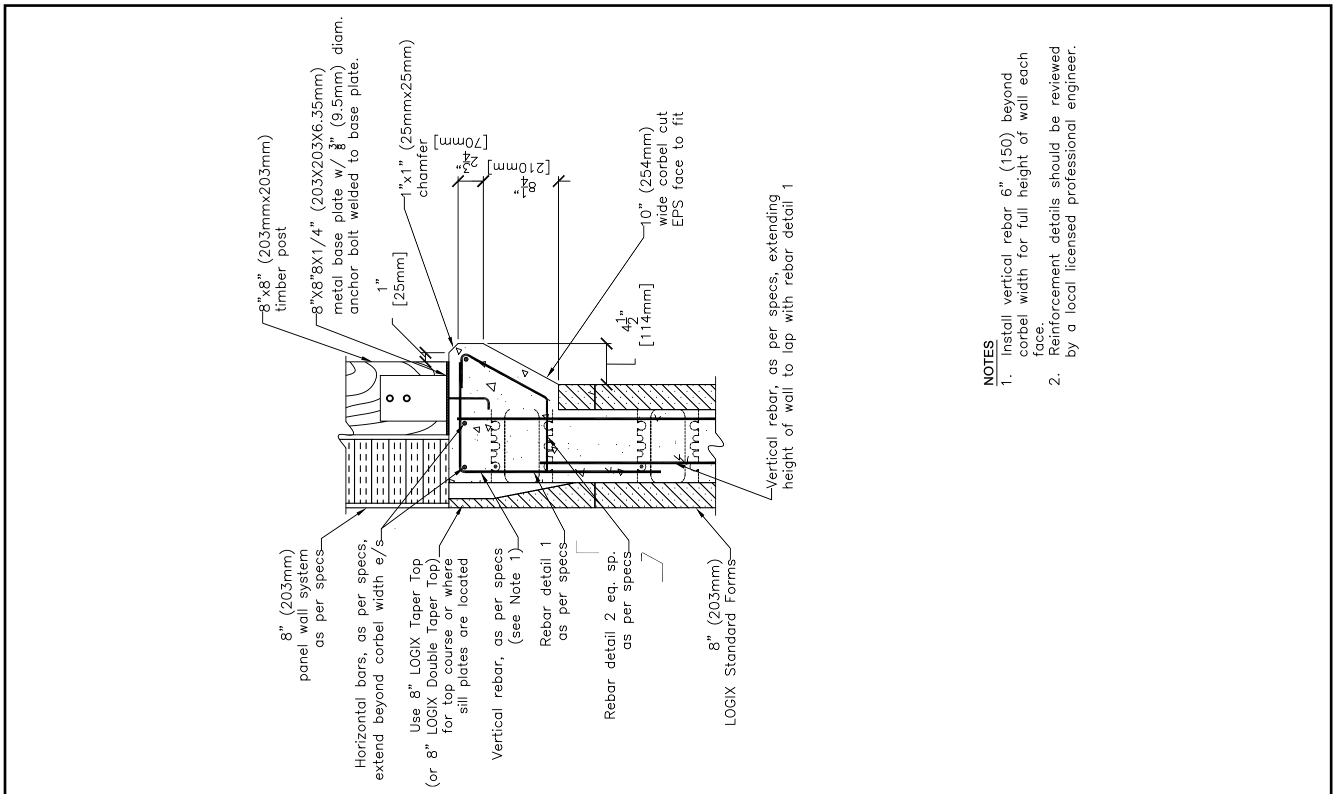
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

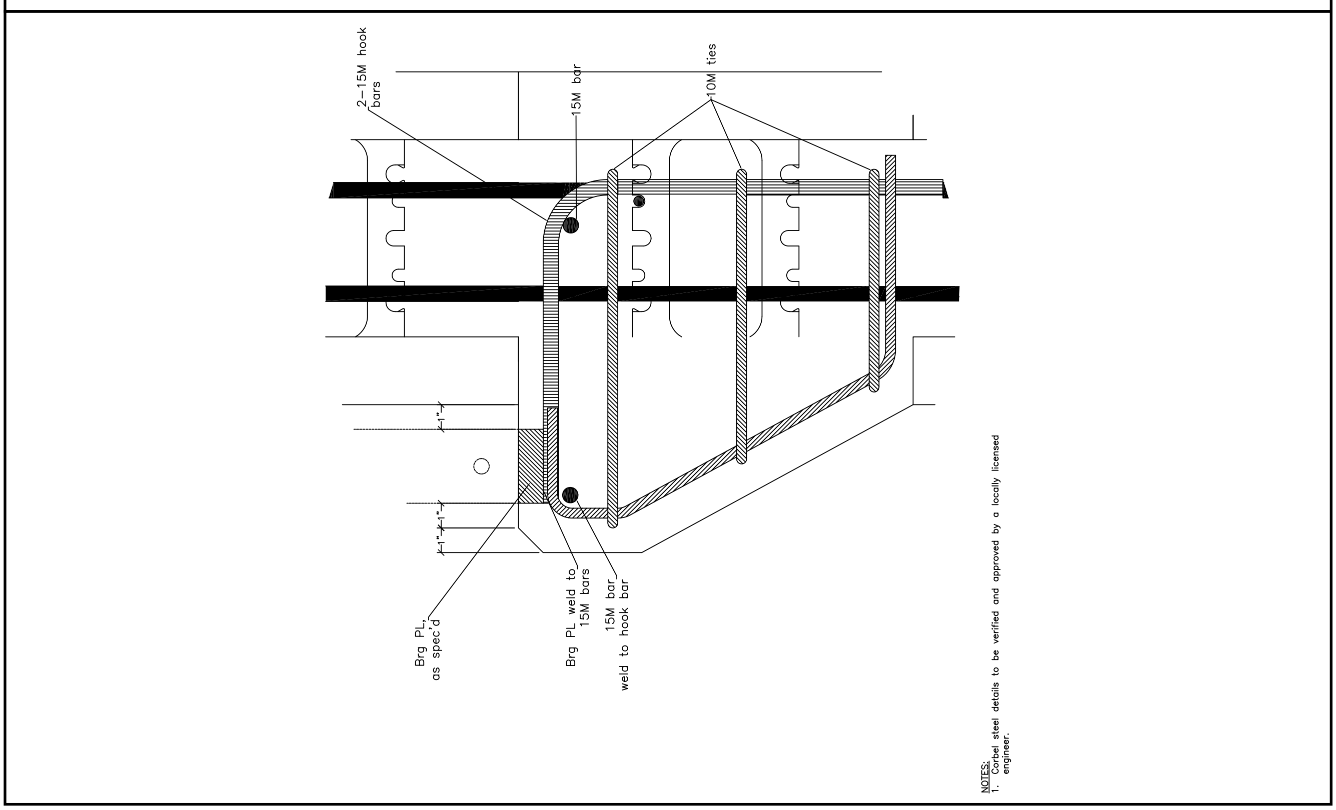
5.17.3.4 - ANGLE IRON SUPPORTING BRICK VENEER WITH WELDED PLATE



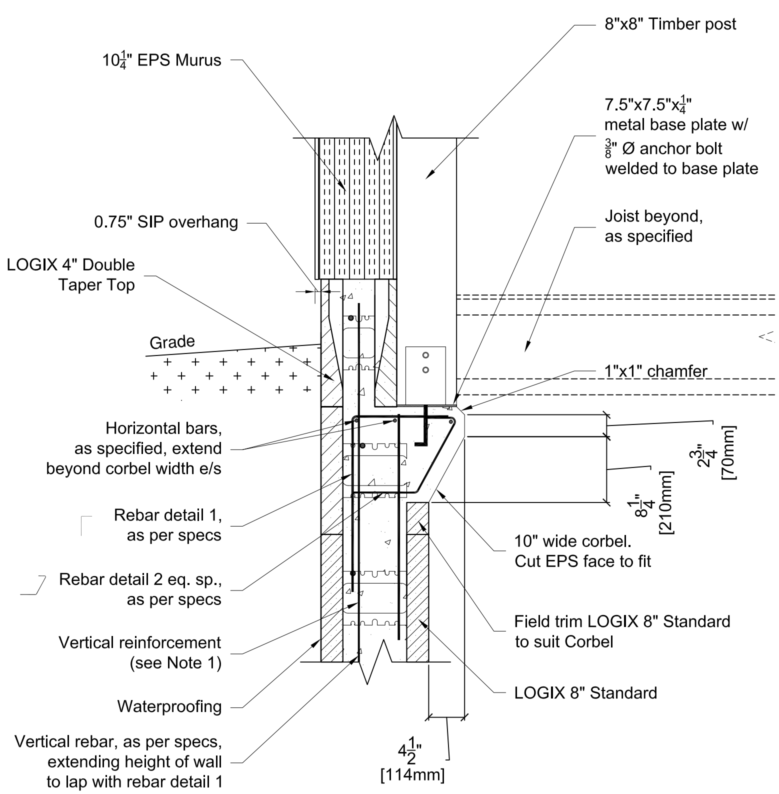
5.17.4.2 - CORBEL SUPPORTING TIMBER POST



5.17.4.1 - CORBEL REINFORCING EXAMPLE



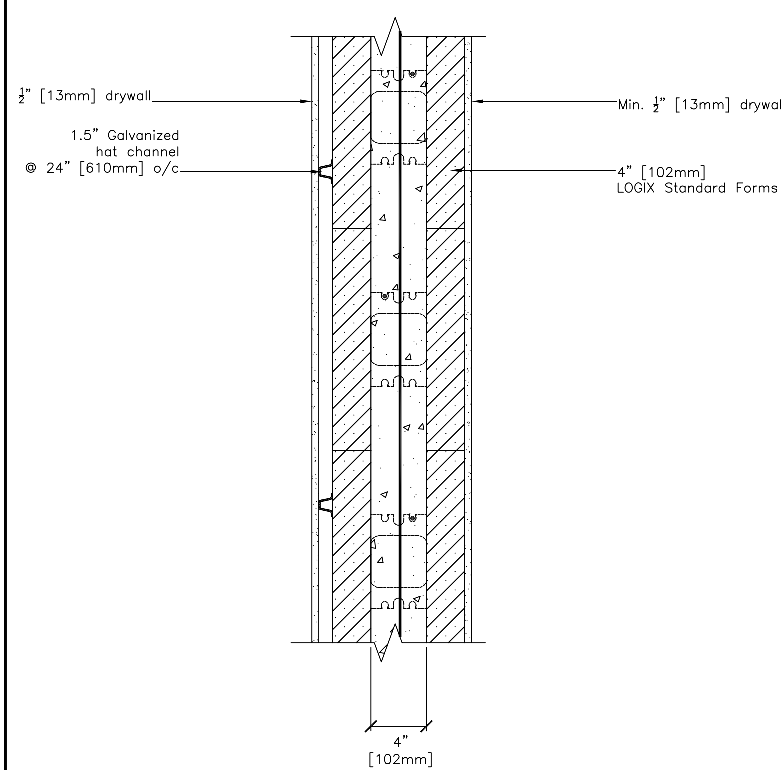
5.17.4.3 - CORBEL SUPPORTING TIMBER POST & JOIST



NOTES:

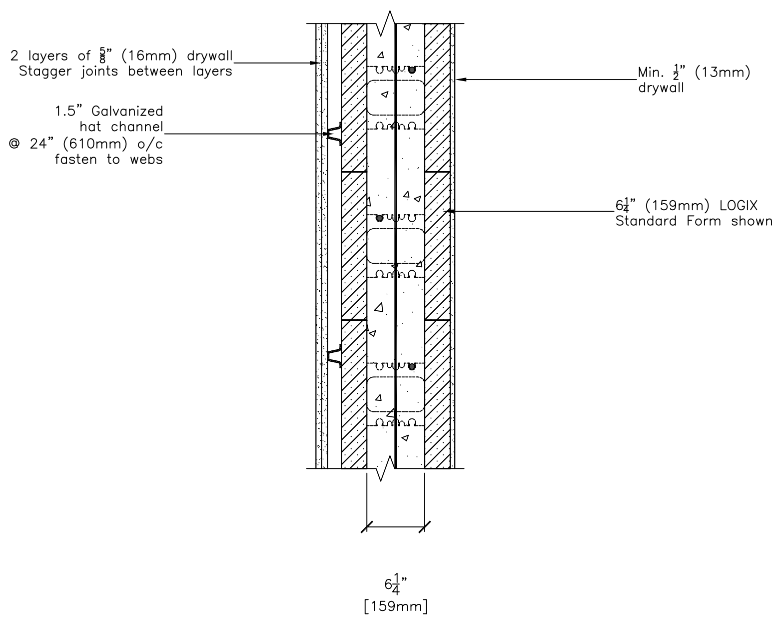
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. Install vertical rebar 6" beyond corbel width for full height of wall each face.
3. Reinforcement details should be reviewed by a local licensed professional engineer.

5.18.1 - 4" LOGIX WALL ASSEMBLY (STC 50)



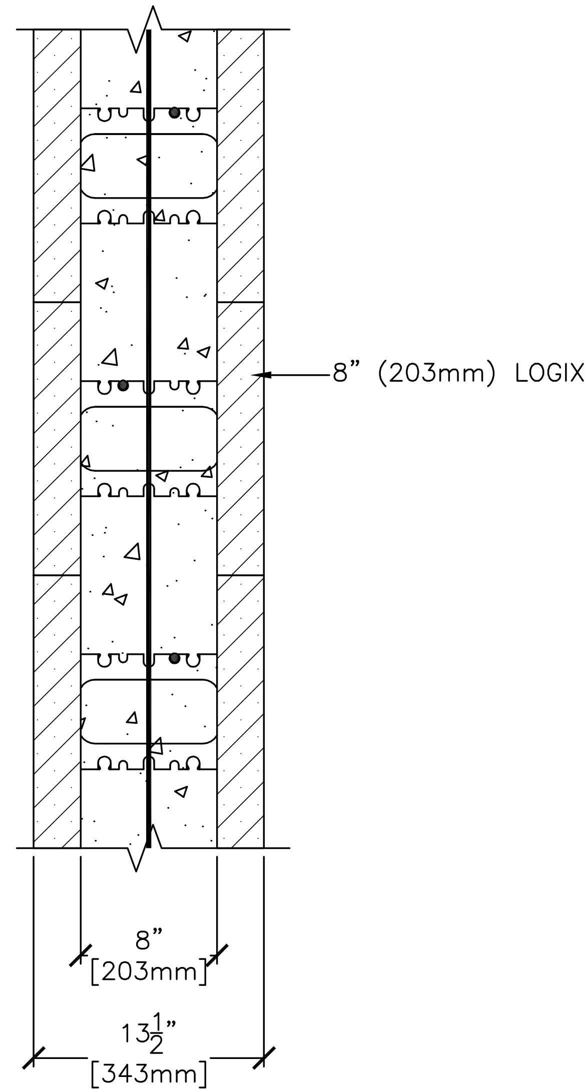
STC50 - 4" [102mm] LOGIX WALL

5.18.2 - 6.25" LOGIX WALL ASSEMBLY (STC 56)



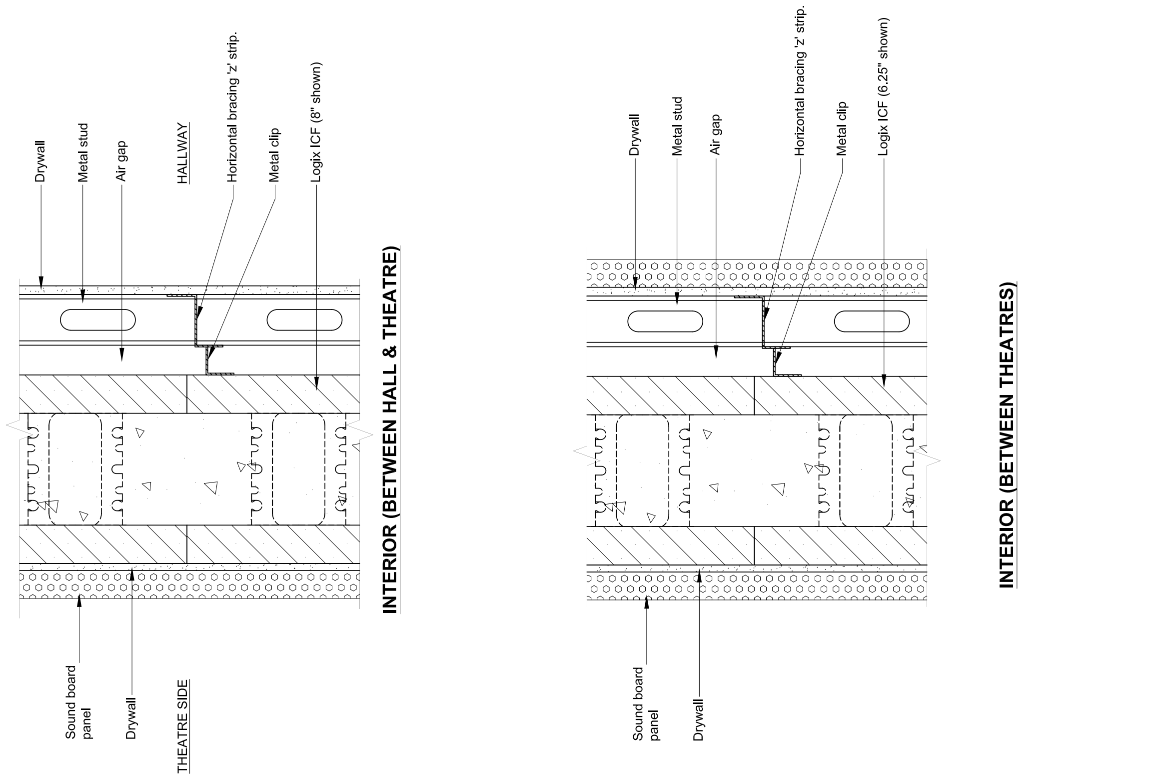
STC56 - 6.25" [159mm] LOGIX WALL

5.18.3 - 8" LOGIX WALL ASSEMBLY (> STC 56)

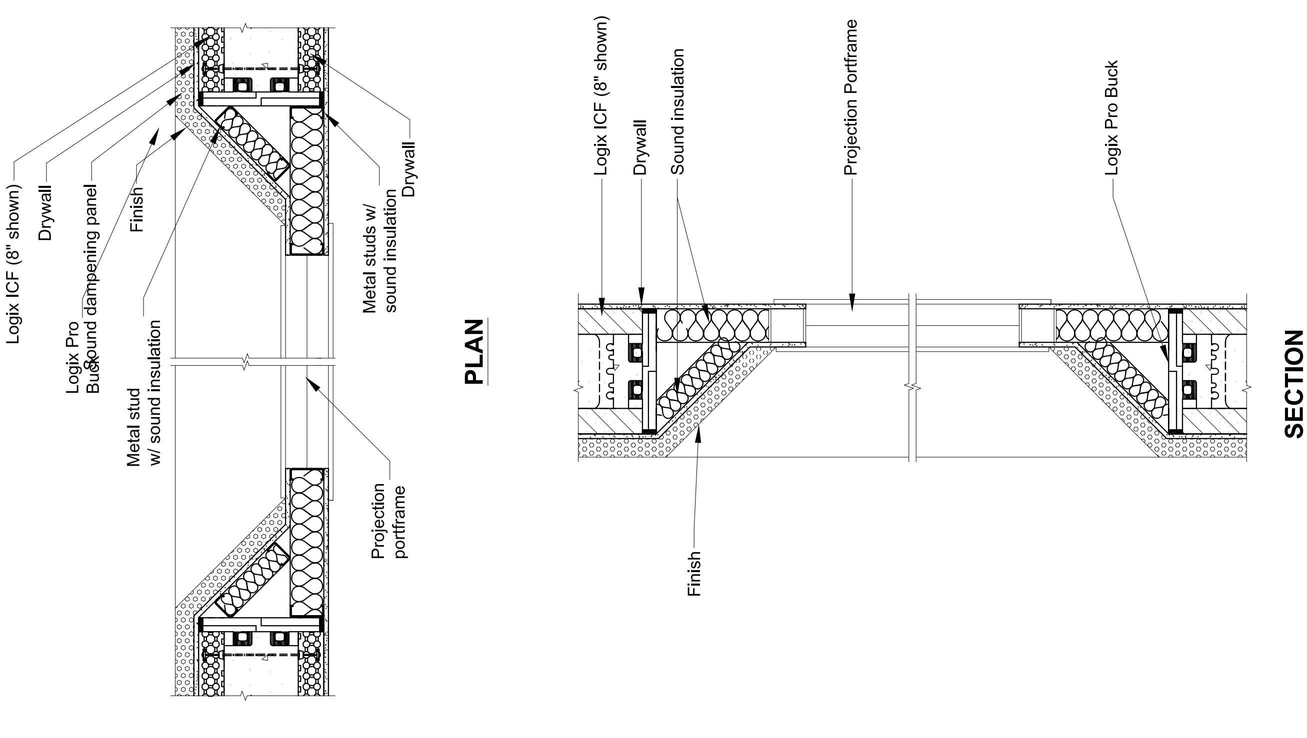


> STC52 - 8" [203mm] LOGIX WALL (no cladding)

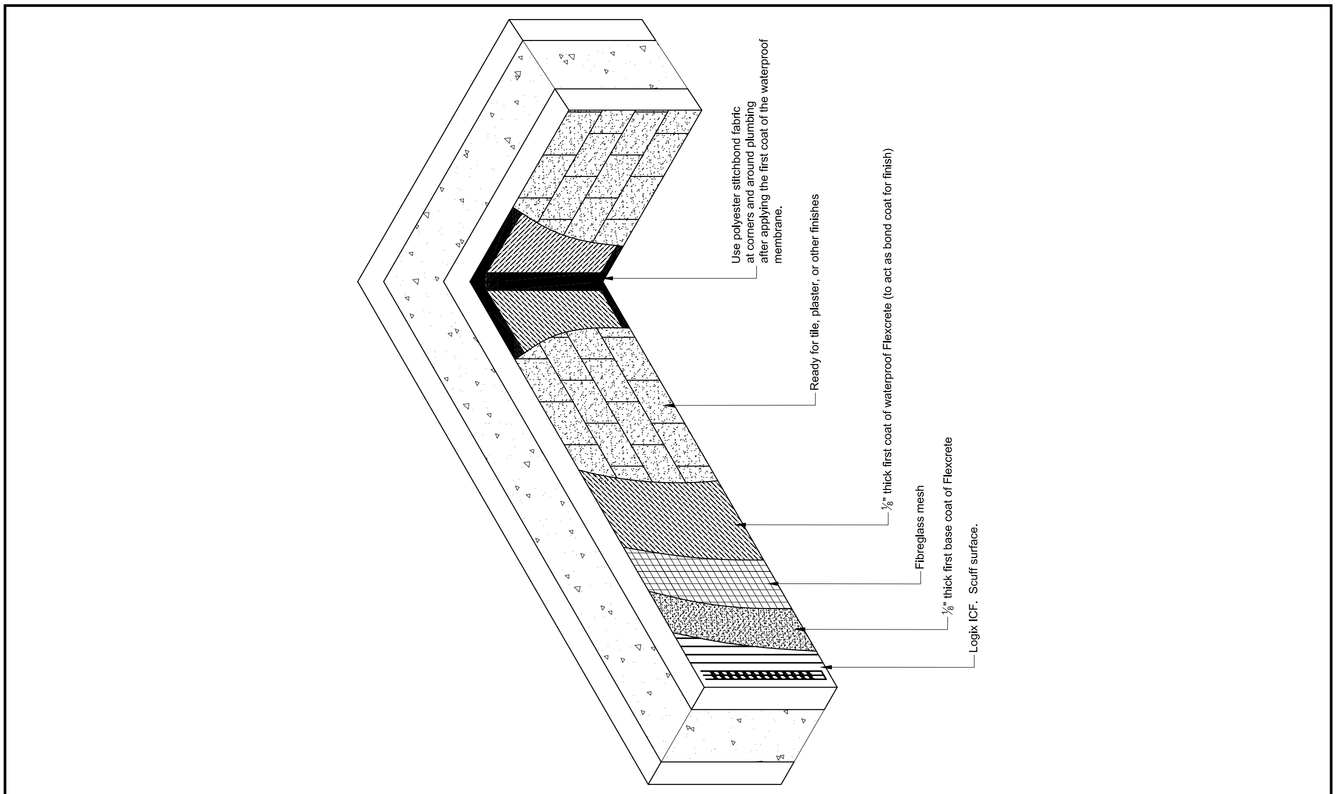
5.19.2 - THEATRE WALL ASSEMBLIES



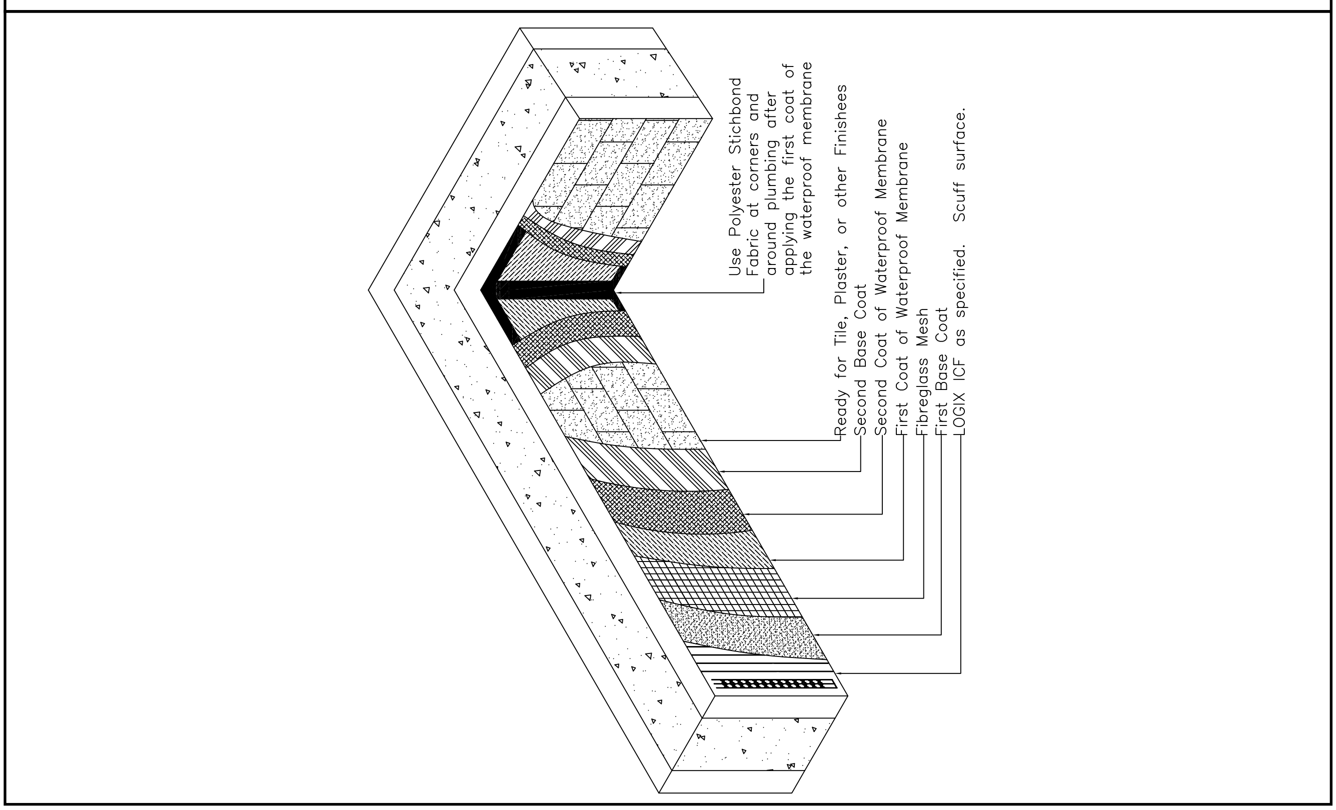
5.19.1 - THEATRE PROJECTION PORT FRAME



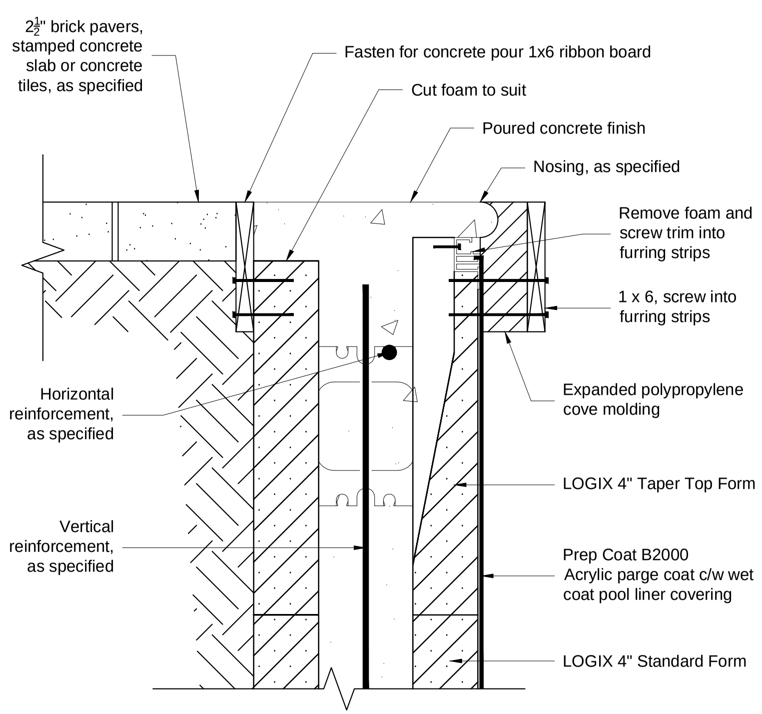
5.20.2 - FLEXCRETE POOL FINISH



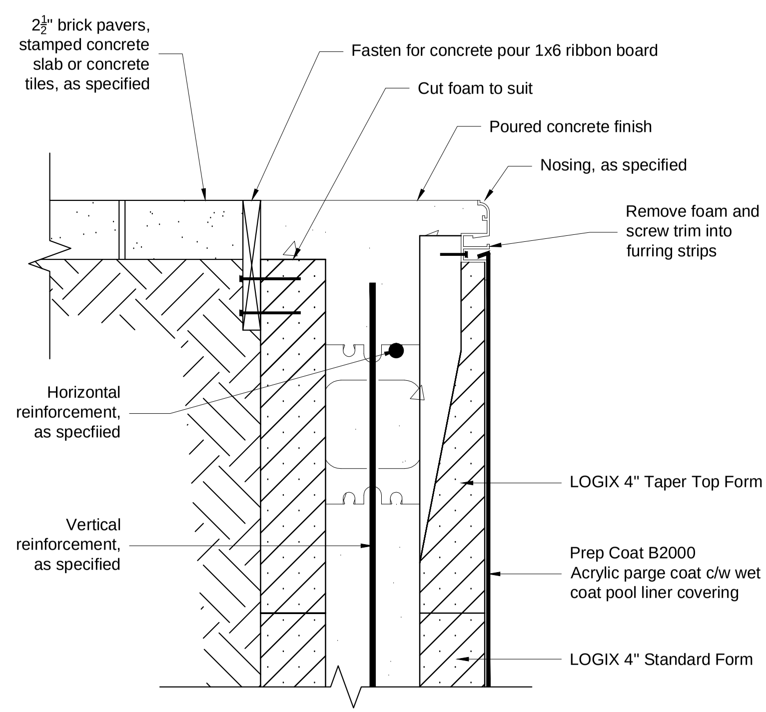
5.20.1 - POOL FINISH EXAMPLE



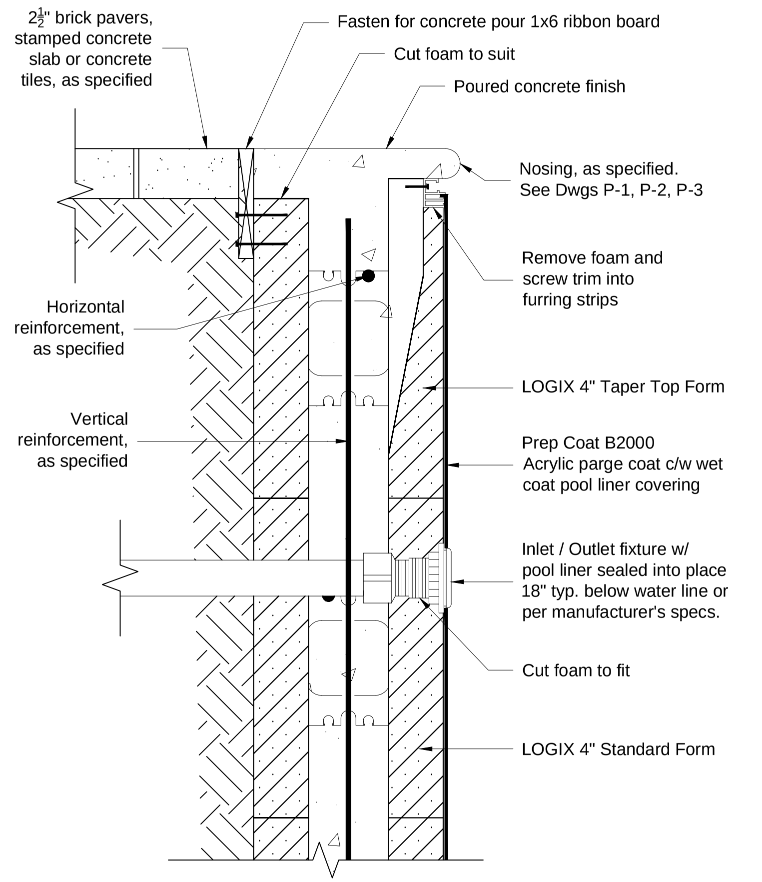
5.20.3 - POOL DETAIL FORMING FOR COPING OPTION 1



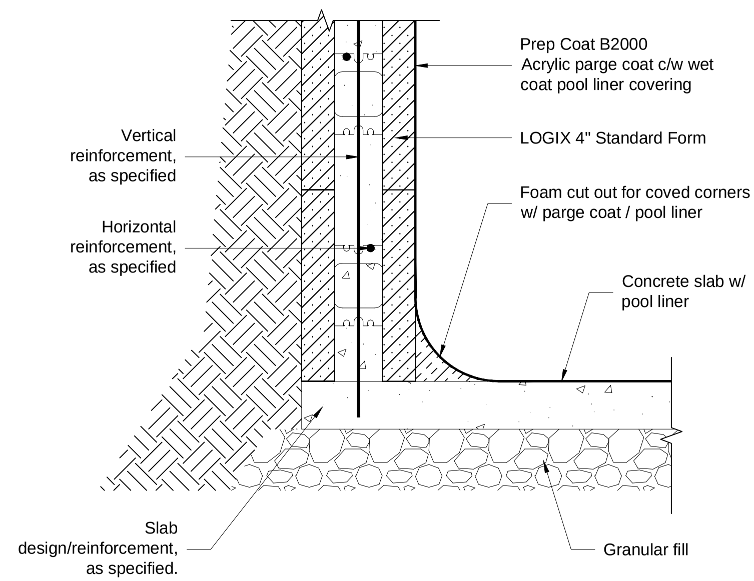
5.20.4 - POOL DETAIL FORMING FOR COPING OPTION 2



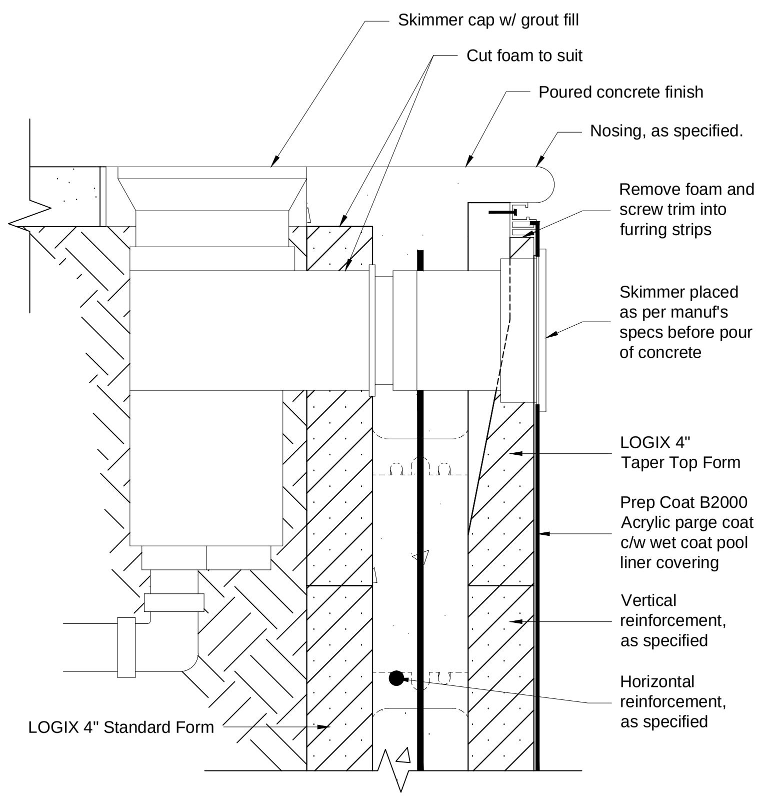
5.20.5 - POOL DETAIL OF INLET / OUTLET FIXTURE



5.20.6 - POOL DETAIL AT FOOTING



5.20.7 - POOL SKIMMER



6.0 – U.S. ENGINEERING ANALYSIS REPORT

DISCLAIMER

By using the Logix Design Manual, in part or in whole, the user accepts the following terms and conditions.

The Logix Design Manual shall be used for the sole purpose of estimating, design or construction of Logix Insulated Concrete Forms used in residential, commercial or industrial structures.

The information represented herein is to be used as a reference guide only. The user shall check to ensure the information provided in this manual, including updates and amendments, meets local building codes and construction practices by consulting local building officials, construction and design professionals, including any additional requirements.

Logix reserves the right to make changes to the information provided herein without notice and assumes no liability in connection with the use of this manual including modification, copying or distribution.

The user shall check to ensure that any construction projects utilizing the Logix Design Manual includes the latest updates/amendments (related to the version of the Logix Design Manual being used at the time of the construction project). Updates/amendments to the Logix Design Manual are available for download in the "Technical Library" under "Addenda" at www.logixicf.com.

INTRODUCTION

Logix walls are intended to be used both above and below grade, and can carry large vertical as well as lateral loads. They are particularly effective for residential, commercial and industrial buildings; providing excellent insulation as well as thermal mass and structural strength. They can be easily adapted to accommodate concrete floors and other “non-standard” building systems.

Construction must be in conformance with the Logix Design Manual, including assembly of formwork, bracing, accurate rebar positioning, concrete mix design & placement, and details for interconnection with the other building components.

STRUCTURAL DESIGN AND PERFORMANCE

The Logix Building System can be used for an infinite variety of building situations with proper engineering. This report, with its load tables and diagrams, is intended to assist with the structural design of buildings using the Logix system for the basement only, or continuing to two stories above-grade and/or roof. Where unusual conditions are encountered, it is recommended that the user consult a designer who can evaluate the loadings to the various components and who can appreciate the limitations of “prescriptive” design under unusual conditions. Connection details have generally been excluded from this report because of the great variety of floor and roof systems that can be used with the Logix wall system. The designer should refer to the Logix Design Manual and the literature for the various proprietary products that are available for connections, which are an important part of the total design.

REINFORCEMENT TABLES

Above- and below-grade walls, lintel and shear wall reinforcement tables are provided in this report. The tables were developed using the applicable sections of Chapter 16 of the International Building Code 2018, Sections 404 and 611 of the International Residential Code 2012, and ACI 318 Building Code Requirements for Structural Concrete.

Table 1 makes use of plain concrete foundation walls adapted from the IRC 2018, Table 404.1.2(8), for Logix used below-grade. For walls that fall outside the scope of Table 1, Tables 2A, 2B, 2C and 2D are provided, which cover wall reinforcement for larger walls and larger loading conditions.

Tables 3A and 3B provides reinforcement tables for Logix walls used above-grade.

HELIX TSMR TABLES - ALTERNATIVE TO REBAR REINFORCEMENT TABLES

Where applicable, Logix prescriptive engineering with Helix TSMR (Twisted Steel Micro Rebar), may be used in lieu of the reinforcement requirements in Tables 2A to 2D, and Tables 3A and 3B. Helix is steel fibre reinforcement that can significantly reduce the amount of horizontal and vertical reinforcement in above- and below-grade concrete walls, with exception of lintel and shear wall reinforcement. For more information, refer to the Logix Prescriptive Engineering Manual, developed by Helix specifically for Logix.

LIMITATIONS

Building limitations used to develop above- and below-grade tables include:

Building perimeter = 80 ft max x 40 ft max
Roof clear span = 40 ft max
Floor clear span = 32 ft max
Number of stories above grade = 2 max
Number of stories below grade = 1

Tables 4A to 4E and Tables 5A to 5E provide lintel tables for factored uniform and concentrated loading conditions, respectively.

More specific design assumptions and limitations are located with the corresponding reinforcement tables.

NOTES FOR TABLE 1 - BELOW-GRADE TABLE ADAPTED FROM IRC 2018

Table 1 was developed adapting Table 404.1.2(8), Minimum Vertical Reinforcement For 6-, 8-, 10-Inch And 12-Inch Nominal Flat Basement Walls, of IRC 2018. Table 1 allows the use of foundation walls without reinforcement (in lieu of Tables 2A to 2D) provided the walls meet the following criteria:

1. Minimum 28day compressive strength of concrete = 2500 psi
2. Concrete foundation walls with corbels (ie, brick ledge), brackets or other projections built into the wall for support of masonry veneer or other purposes are not within the scope of the tables in this section
3. Where vertical rebar is not required (NR), provide minimum horizontal rebar as follows (Table 404.1.2(1)):
4. Maximum unsupported height of basement wall is LESS than or equal to 8 ft - One No. 4 bar within 12 inches of the top of the wall story and one No. 4 bar near mid-height of the wall story
5. Maximum unsupported height of basement wall is GREATER than 8 ft - One No. 4 bar within 12 inches of the top of the wall story and one No. 4 bar near third points in the wall story
6. Walls are not subject to hydrostatic pressure from ground water
7. Walls must be laterally supported at top and bottom of wall before backfilling
8. Interpolation is not permitted
9. Maximum 60 feet in plan dimensions, floors not more than 32 feet or roofs not more than 40 feet in clear span. Buildings shall not exceed 2 stories above-grade with each story not more than 10 feet high. Maximum ground snow load of 70 psf, and located in Seismic Design Categories A, B or C. For Seismic Design Categories D0, D1, or D2 see Items 7 to 9.
10. In Seismic Design Category D0, D1, and D2, concrete foundation walls supporting above grade concrete or Logix walls shall comply with above and below-grade tables in this manual, ACI 318, ACI 332 or PCA 100
11. In Seismic Design Category D0, D1, and D2, where Table 1 permits plain concrete, and supporting light-frame walls shall comply with the following:
12. Wall height shall not exceed 8 feet
13. Unbalanced backfill height shall not exceed 4 feet
14. Minimum thickness for plain concrete foundation walls shall be 7.5 inches except that 6 inches is permitted where the maximum wall height is 4 feet, 6 inches
15. Minimum reinforcement shall consist of one #4 horizontal bar within the top 12 inches of the wall
16. Backfill shall not be placed against the wall until the wall has sufficient strength and has been anchored to the floor above, or has been sufficiently braced to prevent damage by the back fill.
17. For walls that fall outside the scope Table 1 see “Notes for Tables 2A to 2D - Logix Below-grade Tables.”

TABLE 1 - LOGIX BELOW-GRADE WALLS MINIMUM VERTICAL REINF - IRC2018

TABLE 1 - LOGIX BELOW-GRADE WALLS MINIMUM VERTICAL REINFORCEMENT - IRC2018

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Height of Basement Wall, ft	Max. Unbalanced Backfill Height, ft	6.25" LOGIX Design Lateral Soil Load (psf per foot of depth)			8" LOGIX Design Lateral Soil Load (psf per foot of depth)			10" LOGIX Design Lateral Soil Load (psf per foot of depth)			12" LOGIX Design Lateral Soil Load (psf per foot of depth)		
		30	45	60	30	45	60	30	45	60	30	45	60
5	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6	4	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	6	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
7	4	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	6	RR	RR	RR	NR	NR	RR	NR	NR	NR	NR	NR	NR
	7	RR	RR	RR	NR	RR	RR	NR	NR	NR	NR	NR	NR
8	4	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	6	RR	RR	RR	NR	NR	RR	NR	NR	NR	NR	NR	NR
	7	RR	RR	RR	NR	RR	RR	NR	NR	RR	NR	NR	NR
	8	RR	RR	RR	RR	RR	RR	NR	RR	RR	NR	NR	NR
9	4	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	6	RR	RR	RR	NR	NR	RR	NR	NR	NR	NR	NR	NR
	7	RR	RR	RR	NR	RR	RR	NR	NR	RR	NR	NR	NR
	8	RR	RR	RR	RR	RR	RR	NR	RR	RR	NR	NR	RR
	9	RR	RR	RR	RR	RR	RR	NR	RR	RR	NR	NR	RR
10	4	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	RR	RR	RR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	6	RR	RR	RR	NR	NR	RR	NR	NR	NR	NR	NR	NR
	7	RR	RR	RR	NR	RR	RR	NR	NR	RR	NR	NR	NR
	8	RR	RR	RR	RR	RR	RR	NR	RR	RR	NR	NR	RR
	9	RR	RR	RR	RR	RR	RR	RR	RR	RR	NR	RR	RR
	10	RR	RR	RR	RR	RR	RR	RR	RR	RR	NR	RR	RR

NOTES:

1. “NR” denotes plain concrete or no reinforcement required, except 6.25” LOGIX will requires #4@32” on center for Grade 40 Steel Bars and #4@48" on center for Grade 60 Steel Bars.
2. “RR” denotes reinforcement required. Refer to Tables 2A to 2D for LOGIX Below-grade tables for required reinforcement.
3. Table 1 values are based on concrete with a minimum specified compressive strength of 2,500 psi
4. Bar Spacing Shall not exceed 48 inches on center and shall not be less than one-half the nominal wall thickness.
5. Table 1 shall be read in conjunction with “ Notes for Table R404.1.2(1) to Table R404.1.2(9) - Below-grade Table Adapted from IRC 2018”.

NOTES FOR TABLES 2A TO 2D - LOGIX BELOW-GRADE TABLES

Tables 2A to 2D are recommended for use when larger walls and/or loading conditions fall outside the scope of Table 1. Alternatively, and where applicable.

Tables 2A to 2D shall be used in conjunction with corresponding Figures 2A to 2D, the notes listed below, and the building limitations noted in the “Reinforcement Tables” section, which form the basis of these tables.

1. Vertical rebar spacing shown in the tables provide simple placement between ICF ties.
2. Steel yield strength = 40 ksi, 28 day concrete compressive strength = 3 ksi
3. Rebar spacing is based on 40 ksi reinforcing steel. For spacing based on 60 ksi reinforcing steel multiply spacings by 1.5.
4. Deflection criteria = L/240
5. Snow load = 70 psf
6. Assumed eccentricity = 3” (to account for loads on Logix Brick Ledge).
7. The basement walls must be supported at the top and bottom of the wall.
8. For light vehicles parked or travelling near the wall use reinforcement corresponding to 1 feet higher backfill.
9. Where spaces have been left blank, the corresponding bar size is presumed to be less economical and/or practical than that shown. Consult a local licensed engineer to determine proper design.
10. For walls with over 50% of height exposed to wind, also check rebar requirements for above-grade walls.
11. Except as noted for seismic design, horizontal rebar shall be #4 at 32 inches on center. At least one rebar shall be placed at the bottom course and top course.
12. In Seismic Design Categories D0, D1, and D2, the reinforcing steel shall meet the requirements of ASTM A 706 for low-alloy steel with a minimum yield strength of 60 ksi.
13. For townhouses in Seismic Category C, the minimum vertical reinforcement shall be one #5 at 24 inches on center or one #4 bar at 16 inches on center, and the minimum horizontal reinforcement shall be one #4 bar at 16 inches on center.
14. For all buildings in Seismic Design Categories D0, D1 and D2, the minimum vertical reinforcement shall be one #5 at 18 inches on center or one #4 bar at 12 inches on center, and the minimum horizontal reinforcement shall be one #5 bar at 16 inches on center.
15. Horizontal reinforcement shall be continuous around building corners using corner bars or by bending the bars. The minimum lap splice shall be 24 inches. For townhouses in Seismic Design Categories D0, D1, and D2, each end of all horizontal reinforcement shall terminate with a standard hook or lap splice.
16. Carefully consider floor/wall connection details for lateral loads, especially with higher backfills, walkout basements, and active seismic areas.
17. Soil density is often referred to as “equivalent fluid density” or design fluid pressure.
18. Where applicable alternative Helix dosage Tables 2A-H to 2D-H may be used in lieu of Logix reinforcement Tables 2A to 2D.

NOTES FOR TABLES 2A to 2D - LOGIX BELOW-GRADE TABLES Cont'd

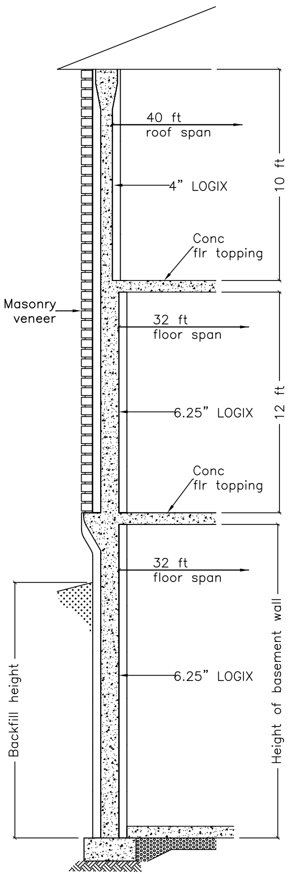


Fig 2A
Assumed typical flooring, wall & roof for Table 2A. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 6.7 kips/ft.

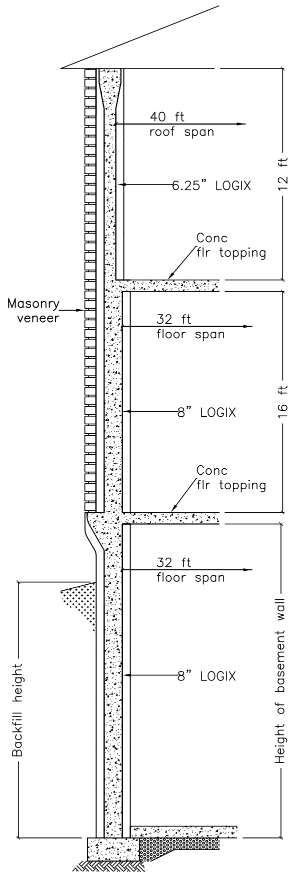


Fig 2B
Assumed typical flooring, wall & roof for Table 2B. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

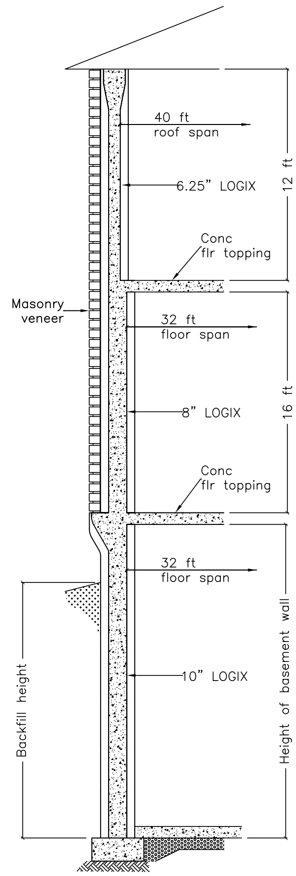


Fig 2C
Assumed typical flooring, wall & roof for Table 2C. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

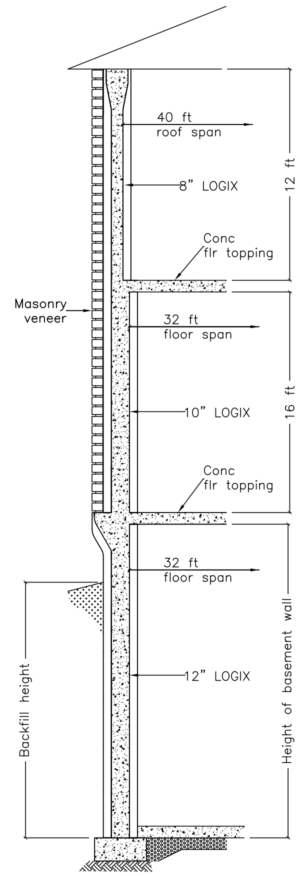


Fig 2D
Assumed typical flooring, wall & roof for Table 2D. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 9 kips/ft.

TABLE 2A - LOGIX 6.25” BELOW-GRADE WALL MINIMUM VERTICAL REINF

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Maximum Height Basement Wall, ft	Maximum Unbalanced Backfill Height, ft	Bar Spacing in.																			
		MaximumEquivalent Density 30pcf					MaximumEquivalent Density 45pcf					MaximumEquivalent Density 60pcf					MaximumEquivalent Density 75pcf				
8	4	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	32	48	48	48	48
	5	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48
	6	24	48	48	48	48	24	32	48	48	48	16	24	40	48	48	16	24	32	48	48
	7	24	32	48	48	48	16	24	40	48	48	8	16	32	40	48	12	16	24	32	48
	8	16	32	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	16	24	32
9	4	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	24	48	48	48	48
	5	32	48	48	48	48	24	48	48	48	48	24	32	48	48	48	16	32	48	48	48
	6	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48	12	16	32	40	48
	7	16	32	48	48	48	16	24	32	48	48	12	16	24	40	48	8	16	24	32	40
	8	16	24	40	48	48	12	16	24	40	48	8	16	16	32	40	8	12	16	24	32
	9	12	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
10	4	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	24	48	48	48	48
	5	32	48	48	48	48	24	40	48	48	48	24	32	48	48	48	16	32	40	48	48
	6	24	40	48	48	48	16	32	48	48	48	16	24	32	48	48	12	16	32	40	48
	7	16	32	48	48	48	16	24	32	48	48	12	16	24	32	48	8	16	16	32	40
	8	16	24	32	48	48	12	16	24	32	48	8	12	16	24	32	6	12	16	24	24
	9	12	16	32	40	48	8	12	16	24	40	6	8	16	16	24	6	8	12	16	24
	10	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16
11	4	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48
	5	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	6	24	40	48	48	48	16	32	40	48	48	16	24	32	48	48	12	16	24	40	48
	7	16	32	40	48	48	12	24	32	40	48	12	16	24	32	48	8	12	16	24	32
	8	16	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	16	16	24
	9	12	16	24	40	48	8	12	16	24	32	6	8	16	16	24	6	8	12	16	16
	10	8	16	24	32	40	6	8	16	16	24	6	8	12	16	16	6	6	8	12	16
	11	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	8	8	12
12	4	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48
	5	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	6	24	40	48	48	48	16	24	40	48	48	16	24	32	48	48	12	16	24	40	48
	7	16	24	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	16	24	32
	8	12	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
	9	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	8	16	16
	10	8	16	16	24	40	6	8	12	16	24	6	8	12	16	16	6	6	8	12	16
	11	8	12	16	24	32	6	8	12	16	16	6	6	8	12	16	6	6	6	8	12
	12	6	8	16	16	24	6	6	8	12	16	6	6	8	8	12	6	6	6	8	8
		#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8

NOTES:

1. Reinforcement to be placed on interior face of concrete wall. Effective depth of vertical rebar (exterior face of concrete to center of vertical rebar) = 4.375”
2. Table 2A shall be read in conjunction with Fig 2A, and section “NOTES FOR TABLES 2A to 2D - LOGIX BELOW-GRADE TABLES."
3. Steel yield strength = 40 ksi, 28 day concrete compressive strenght = 3 ksi.
4. Where cells show “-” engineering is required.

TABLE 2B - LOGIX 8” BELOW-GRADE WALL MINIMUM VERTICAL REINF

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Maximum Height Basement Wall, ft	Maximum Unbalanced Backfill Height, ft	Bar Spacing, in. Maximum Equivalent Density 30pcf					Maximum Equivalent Density 45pcf					Maximum Equivalent Density 60pcf					Maximum Equivalent Density 75pcf				
8	4-5	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48
	6	40	48	48	48	48	24	48	48	48	48	24	32	48	48	48	16	32	48	48	48
	7	32	48	48	48	48	24	32	48	48	48	16	24	40	48	48	12	24	40	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	16	32	40	48	12	16	32	32	48
9	4-5	48	48	48	48	48	32	48	48	48	48	32	48	48	48	48	24	40	48	48	48
	6	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	48	48	48
	7	24	40	48	48	48	16	32	48	48	48	16	24	32	48	48	12	16	32	40	48
	8	24	32	48	48	48	16	24	32	48	48	12	16	24	40	48	8	16	24	32	40
	9	16	24	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	24	24	32
10	4-5	48	48	48	48	48	32	48	48	48	48	24	48	48	48	48	24	40	48	48	48
	6	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	48	48	48
	7	24	40	48	48	48	16	32	40	48	48	16	24	32	48	48	12	16	32	40	48
	8	16	32	48	48	48	16	24	32	48	48	12	16	24	32	48	8	16	24	24	40
	9	16	24	40	48	48	12	16	24	32	48	8	12	16	24	40	8	12	16	24	32
	10	12	24	32	40	48	8	16	24	32	40	8	12	16	24	32	6	8	16	16	24
11	4-5	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	24	40	48	48	48
	6	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	48	48	48
	7	24	40	48	48	48	16	24	40	48	48	12	24	32	40	48	12	16	32	32	48
	8	16	32	48	48	48	12	16	32	40	48	12	16	24	32	40	8	12	24	24	32
	9	16	24	32	48	48	12	16	24	32	48	8	12	16	24	32	6	8	16	16	24
	10	12	16	32	40	48	8	12	16	24	32	6	8	16	16	24	6	8	16	16	24
	11	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	6	12	12	16
12	4-5	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	24	32	48	48	48
	6	32	48	48	48	48	24	40	48	48	48	16	32	40	48	48	16	24	40	48	48
	7	24	40	48	48	48	16	24	40	48	48	12	16	32	40	48	12	16	32	32	48
	8	16	24	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	24	24	32
	9	16	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	16	16	24
	10	12	16	24	40	48	8	12	16	24	32	6	8	12	16	24	6	8	12	16	16
	11	8	16	24	32	40	6	12	16	16	24	6	8	12	16	16	6	6	12	12	16
	12	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	12	8	12
14	4	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48
	5	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	24	32	48	48	48
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	8	16	24	40	48	48	12	16	24	40	48	8	16	16	24	40	8	12	16	24	32
	9	8	16	32	40	48	8	16	16	24	40	6	12	16	24	24	6	8	16	16	24
	10	12	16	24	32	40	8	12	16	24	32	6	8	12	16	24	6	6	12	12	16
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	13	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	8	8
	14	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8
16	4	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	32	48	48	48	48
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	9	12	16	24	40	48	8	8	16	24	32	6	8	16	16	24	6	8	16	16	16
	10	8	16	24	32	40	6	8	16	16	24	6	8	12	16	16	6	6	12	12	16
	11	8	12	16	24	32	6	8	12	16	24	6	6	8	8	16	6	6	8	8	12
	12	6	8	16	16	24	6	6	8	12	16	6	6	8	8	12	6	6	8	8	8
	13	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8
	14	6	8	12	16	16	6	6	8	8	12	6	6	6	8	8	6	6	6	6	8
	15	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6
		#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8

NOTES:
1. Reinforcement to be placed on interior face of concrete wall. Effective depth of vertical rebar (exterior face of concrete to center of vertical rebar) = 6”
2. Table 2B shall be read in conjunction with Fig 2B, and section “Notes for Tables 2A to 2D - LOGIX Below-grade Tables.”
3. Steel yield strength = 40 ksi, 28 day concrete compressive strenght = 3 ksi.
4. Where cells show “- ” engineering is required.

TABLE 2C - LOGIX 10” BELOW-GRADE WALL MINIMUM VERTICAL REINF

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Maximum Height Basement Wall, ft	Maximum Unbalanced Backfill Height, ft	Bar Spacing, in.																			
		Maximum Equivalent Density 30pcf					Maximum Equivalent Density 45pcf					Maximum Equivalent Density 60pcf					Maximum Equivalent Density 75pcf				
8	4-8	32	48	48	48	48	24	32	48	48	48	16	24	40	48	48	12	24	32	48	48
9	4-7	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	8	24	40	48	48	48	16	32	48	48	48	16	24	32	48	48	12	16	24	40	48
	9	24	32	48	48	48	16	24	40	48	48	12	16	24	40	48	8	16	24	32	40
10	4-7	32	48	48	48	48	24	40	48	48	48	16	32	40	48	48	16	24	32	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	24	32	48	48	12	16	24	32	48
	9	16	32	48	48	48	16	24	32	48	48	12	16	24	32	48	8	16	16	24	40
	10	16	24	40	48	48	12	16	24	40	48	8	16	16	24	40	8	12	16	24	32
11	4-7	32	48	48	48	48	24	32	48	48	48	16	24	40	48	48	16	24	32	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	16	32	40	48	12	16	24	32	48
	9	16	32	48	48	48	12	16	32	40	48	12	16	24	32	40	8	12	16	24	32
	10	16	24	40	48	48	12	16	24	32	48	8	12	16	24	32	6	12	16	16	24
	11	12	16	32	40	48	8	16	16	24	40	6	12	16	24	24	6	8	12	16	24
12	4-6	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48
	7	32	48	48	48	48	16	32	48	48	48	16	24	40	48	48	12	24	32	40	48
	8	24	40	48	48	48	16	24	40	48	48	12	16	24	40	48	8	16	24	32	40
	9	16	24	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	16	24	32
	10	16	24	32	48	48	12	16	24	32	40	8	12	16	24	32	6	8	16	16	24
	11	12	16	24	40	48	8	12	16	24	32	6	8	16	16	24	6	8	12	16	16
	12	12	16	24	32	40	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16
14	4-6	40	48	48	48	48	24	48	48	48	48	24	32	48	48	48	16	24	40	48	48
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	8	16	32	48	48	48	16	24	32	48	48	12	16	24	32	48	8	16	16	32	40
	9	16	24	40	48	48	12	16	24	32	48	8	12	16	24	32	8	12	16	24	32
	10	12	16	32	40	48	8	16	16	24	40	6	12	16	24	24	6	8	12	16	24
	11	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	8	12	16
	12	8	16	16	24	40	6	8	12	16	24	6	8	12	16	16	6	6	8	12	16
	13	8	12	16	24	32	6	8	12	16	16	6	6	8	12	16	6	6	8	8	12
	14	6	12	16	16	24	6	8	12	12	16	6	6	8	12	12	6	6	6	8	12
16	4-6	40	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	7	24	40	48	48	48	16	32	40	48	48	16	24	32	48	48	12	16	24	40	48
	8	16	32	48	48	48	12	24	32	48	48	12	16	24	32	48	8	12	16	24	32
	9	16	24	32	48	48	12	16	24	32	48	8	12	16	24	32	6	8	16	16	24
	10	12	16	24	40	48	8	12	16	24	32	6	8	16	16	24	6	8	12	16	16
	11	8	16	24	32	40	6	12	16	16	24	6	8	12	16	16	6	6	8	12	16
	12	8	12	16	24	32	6	8	12	16	24	6	6	12	12	16	6	6	8	8	12
	13	6	8	16	24	24	6	8	12	16	16	6	6	8	12	12	6	6	6	8	12
	14	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	8	8
	15	6	8	12	16	16	6	6	8	12	12	6	6	6	8	8	6	6	6	6	8
	16	6	8	12	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	8

TABLE 2C - LOGIX 10" BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT Cont'd

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Maximum Height Basement Wall, ft	Maximum Unbalanced Backfill Height, ft	Bar Spacing, in.																			
		Maximum Equivalent Density 30pcf					Maximum Equivalent Density 45pcf					Maximum Equivalent Density 60pcf					Maximum Equivalent Density 75pcf				
	4-6	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	7	24	40	48	48	48	16	32	40	48	48	12	24	32	48	48	12	16	24	32	48
	8	16	32	48	48	48	8	16	32	40	48	12	16	24	32	40	8	12	16	24	32
	9	16	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
	10	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	12	16	16
	11	8	16	16	32	40	6	8	16	16	24	6	8	12	16	16	6	6	8	12	16
18	12	8	12	16	24	32	6	8	12	16	16	6	6	8	12	16	6	6	6	8	12
	13	6	8	16	16	24	6	6	8	12	16	6	6	8	8	12	6	6	6	8	8
	14	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8
	15	6	8	12	16	16	6	6	6	8	12	6	6	6	8	8	6	6	6	6	8
	16	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6
	17	6	6	8	12	16	6	6	6	8	8	6	6	6	6	6	6	6	6	6	6
	18	6	6	8	8	12	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6
	4-6	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48	16	24	40	48	48
	7	24	40	48	48	48	16	24	40	48	48	12	24	32	40	48	12	16	24	32	48
	8	16	32	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	16	24	32
	9	12	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
	10	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	8	12	16
	11	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	8	12	16
	12	8	12	16	24	32	6	8	12	16	16	6	6	8	8	16	6	6	6	8	12
20	13	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	8	8
	14	6	8	12	16	16	6	6	8	8	12	6	6	6	8	8	6	6	6	6	8
	15	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6
	16	6	6	8	12	16	6	6	6	8	8	6	6	6	6	8	6	6	6	6	6
	17	6	6	8	8	12	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6
	18	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6
	19	6	6	6	8	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	20	6	6	6	8	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
		#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8

NOTES:

1. Reinforcement to be placed on interior face of concrete wall. Effective depth of vertical rebar (exterior face of concrete to center of vertical rebar = 8"
2. Table 2C shall be read in conjunction with Fig 2C, and section " Notes for Tables 2A to 2D - LOGIX Below-grade Tables."
3. Steel yield strength = 40 ksi, 28 day concrete compressive strenght = 3 ksi.
4. Where cells show "- " engineering is required.

TABLE 2D - LOGIX 12” BELOW-GRADE WALL MINIMUM VERTICAL REINF

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Maximum Height Basement Wall, ft	Maximum Unbalanced Backfill Height, ft	Bar Spacing, in.																			
		Maximum Equivalent Density 30pcf					Maximum Equivalent Density 45pcf					Maximum Equivalent Density 60pcf					Maximum Equivalent Density 75pcf				
14	4-6	48	48	48	48	48	32	48	48	48	48	24	40	48	48	48	24	32	48	48	48
	7	32	48	48	48	48	24	40	48	48	48	16	32	40	48	48	16	24	32	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	24	32	40	48	12	16	24	32	48
	9	16	32	48	48	48	12	24	32	40	48	8	16	24	32	40	8	12	16	24	32
	10	16	24	40	48	48	12	16	24	32	48	8	12	16	24	32	6	12	16	16	24
	11	12	16	32	40	48	8	12	16	24	40	6	8	16	16	24	6	8	12	16	24
	12	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	12	12	16
	13	8	16	24	32	40	6	8	16	16	24	6	8	12	16	16	6	6	8	12	16
	14	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	8	8	12
16	4-6	48	48	48	48	48	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48
	7	32	48	48	48	48	24	40	48	48	48	16	24	40	48	48	16	24	32	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	16	32	40	48	12	16	24	32	40
	9	16	32	40	48	48	12	16	32	40	48	8	16	24	32	40	8	12	16	24	32
	10	16	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
	11	12	16	24	40	48	8	12	16	24	32	6	8	12	16	24	6	8	12	16	16
	12	8	16	24	32	40	6	12	16	16	24	6	8	12	16	16	6	6	8	12	16
	13	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	8	12	12
	14	8	12	16	24	32	6	8	12	16	16	6	6	8	12	16	6	6	6	8	12
	15	6	8	16	16	24	6	6	8	12	16	6	6	8	8	12	6	6	6	8	8
	16	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8
18	4-6	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48
	7	32	48	48	48	48	24	32	48	48	48	16	24	40	48	48	12	24	32	48	48
	8	24	40	48	48	48	16	24	40	48	48	12	16	24	40	48	8	16	24	32	40
	9	16	24	40	48	48	12	16	24	40	48	8	16	16	32	40	8	12	16	24	32
	10	12	24	32	48	48	8	16	24	32	40	8	12	16	24	32	6	8	12	16	24
	11	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	8	12	16	16
	12	8	16	16	24	40	6	8	12	16	24	6	8	12	16	16	6	6	8	12	16
	13	8	12	16	24	32	6	8	8	16	16	6	6	8	12	16	6	6	6	8	12
	14	6	12	16	16	24	6	6	8	12	16	6	6	8	8	12	6	6	6	8	12
	15	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8
	16	6	8	12	16	16	6	6	8	8	12	6	6	6	8	8	6	6	6	6	8
	17	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6
	18	6	6	8	12	16	6	6	6	8	8	6	6	6	6	8	6	6	6	6	6
20	4-6	40	48	48	48	48	32	48	48	48	48	24	40	48	48	48	16	32	48	48	48
	7	32	48	48	48	48	16	32	48	48	48	16	24	40	48	48	12	16	32	40	48
	8	24	32	48	48	48	16	24	32	48	48	12	16	24	40	48	8	16	24	32	40
	9	16	24	40	48	48	12	16	24	40	48	8	12	16	24	40	8	12	16	24	32
	10	12	16	32	40	48	8	16	16	24	40	6	12	16	16	24	6	8	12	16	24
	11	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16
	12	8	12	16	24	32	6	8	12	16	24	6	6	8	12	16	6	6	8	12	12
	13	8	12	16	24	32	6	8	12	16	16	6	6	8	12	16	6	6	6	8	12
	14	6	8	12	16	24	6	6	8	12	16	6	6	6	8	12	6	6	6	8	8
	15	6	8	12	16	16	6	6	8	12	12	6	6	6	8	12	6	6	6	6	8
	16	6	8	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	8
	17	6	6	8	12	16	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6
	18	6	6	8	12	16	6	6	6	8	8	6	6	6	6	6	6	6	6	6	6
	19	6	6	8	8	12	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6
	20	6	6	6	8	12	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6
		#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8	#4	#5	#6	#7	#8

NOTES:

1. Effective depth (out face of concrete to center of vertical rebar) = 10"
2. Provide additional mat of rebar near exterior face of concrete surface:
   - Horizontal = #4 @32" o/c.
   - Vertical = #4 to match vertical rebar spacing
3. Table 2D shall be read conjunction with Fig 2D, and section "Notes for Tables 2A to 2D - LOGIX Below-grade Tables."
4. Steel yield strength = 40ksi , 28 day concrete compressive strength = 3 ksi.
5. Where cells show “- ” engineering is required.

NOTES FOR ABOVE-GRADE WALL TABLES - TABLES 3A & 3B

Table 3A covers reinforcement for Logix above-grade walls with wind speeds up to 150mph. For larger wind speeds see Table 3B, which covers wind speeds up to 300mph.

Logix above-grade tables cover three different construction types:

- One storey Logix supporting wood roof frame (Fig. 3A)
- One storey Logix supporting 2nd storey wood frame plus wood roof frame (Fig. 3B)
- Two storey Logix supporting wood roof frame (Fig. 3C)

For two story buildings, the height of the second story wall is equal to the height of the first story provided the height of the first storey wall is not more than 12 feet high.

For first story walls greater than 12 feet high, the second story wall height is a maximum of 12 feet.

With the exception of 4" Logix, the second story concrete wall thickness is one size less than the concrete core thickness used for the first storey wall.

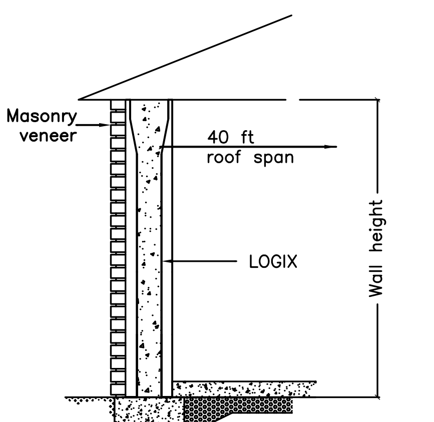

Fig 3A
Assumed typical flooring, wall & roof section for Tables 3A and 3B, Logix Supporting Roof Only.

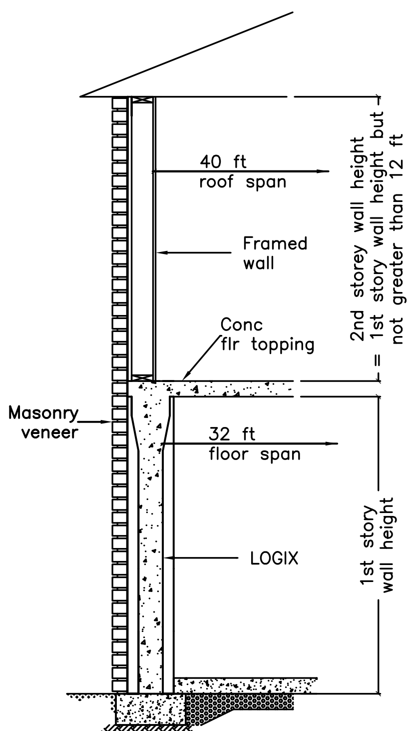

Fig 3B
Assumed typical flooring, wall & roof section for Tables 3A and 3B, Logix Supporting 2nd Story Wood Frame & Roof Structure.

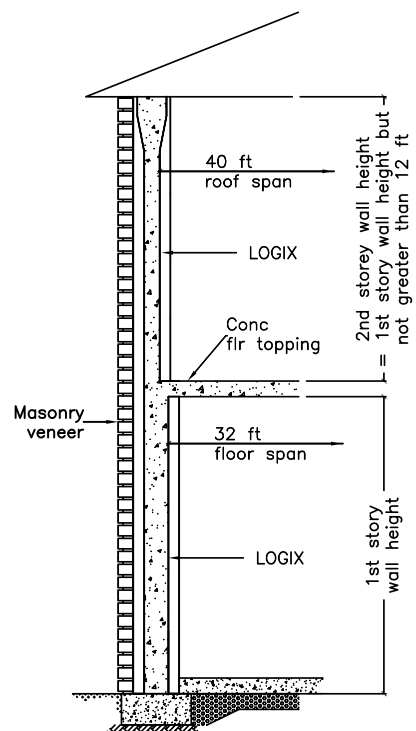

Fig 3C
Assumed typical flooring, wall & roof section for Tables 3A and 3B, Logix Supporting 2nd Story Logix & Roof Structure.

NOTES FOR ABOVE-GRADE WALL TABLES - Tables 3A & 3B Cont'd

The above-grade tables shall be used in conjunction with the notes listed below, the building limitations noted in the "Reinforcement Tables" section, and Figures 3A to 3B, which form the basis of this table.

1. Vertical rebar spacing shown in the tables provide simple placement between ICF ties.
2. Steel yield strength = 40 ksi and 60 ksi for Table 3A and 3B, respectively. 28 day concrete compressive strength = 3 ksi
3. For rebar spacing based on 40 ksi reinforcing steel multiply spacing by 1.5 if using 60 ksi steel.
4. Deflection criteria = L/240
5. Snow load = 70 psf
6. Assumed eccentricity = 1".
7. The walls must be supported at the top and bottom of the wall.
8. Where spaces have been left blank, the corresponding bar size is presumed to be less economical and/or practical than that shown. Consult a local licensed engineer to determine proper design.
9. Except as noted for seismic considerations, vertical rebar shall be placed in middle of wall, and minimum horizontal rebar shall be:
   - 4" & 6.25" Logix = #4 @ 32" on center
   - 8" & 10" Logix = #4 @ 16" on center

   Provide additional mat of rebar for 12" Logix
   - Horizontal rebar = #4 @ 32" on center (double mat)
   - Vertical rebar = to match vertical bar spacing in Tables 3A or 3B, whichever applies.

   Provide at least one #4 bar (two for 12" Logix) to be placed at the bottom course and top course.
10. In Seismic Design Categories D0, D1, and D2, the reinforcing steel shall meet the requirements of ASTM A 706 for low-alloy steel with a minimum yield strength of 60 ksi.
11. For townhouses in Seismic Category C, the minimum vertical reinforcement shall be one #5 at 24 inches on center or one #4 bar at 16 inches on center, and the minimum horizontal reinforcement shall be one #4 bar at 16 inches on center.
12. For all buildings in Seismic Design Categories D0, D1 and D2, the minimum vertical reinforcement shall be one #5 at 18 inches on center or one #4 bar at 12 inches on center, and the minimum horizontal reinforcement shall be one #5 bar at 16 inches on center.
13. Horizontal reinforcement shall be continuous around building corners using corner bars or by bending the bars. The minimum lap splice shall be 24 inches. For townhouses in Seismic Design Categories D0, D1, and D2, each end of all horizontal reinforcement shall terminate with a standard hook or lap splice.
14. For openings provide one #4 horizontal bar within 12 inches from the bottom of the opening to extend minimum 24 inches beyond opening. In locations with wind speeds greater than or equal to 110mph or in Seismic Design Categories A and B, provide one #4 bar for the full height of the wall story within 12 inches each side of the opening. In locations with wind speeds greater than 110 mph, townhouses in Seismic Design Categories D0, D1, and D2, provide two #4 bars or one #5 bar for full height of the wall story within 12 inches of each side of the opening.

15. Where design wind pressure exceeds 40 psf or for townhouses in Seismic Design Category C, and all buildings in Seismic Design Categories D0, D1 and D2, the vertical wall reinforcement in the top-most ICF story shall terminate with a 90-degree standard hook in accordance with IRC 2006, Section R611.7.1.5. The free end of the hook shall be within 4 inches of the top of the wall and shall be oriented parallel to the horizontal steel in the top of the wall.
16. Carefully consider floor/wall connection details for lateral loads, especially with higher backfills, walkout basements, and active seismic areas.
17. Use Table R611.3(1) to determine wind loads in Table 3A.
    Table R611.3(1) is based on ultimate design wind speeds, V_{ult}. Where documents are based only on nominal design wind speeds, V_{asd}, use Table R301.2.1.3 to convert nominal design wind speeds to ultimate design wind speeds, V_{ult}, before using Table R611.3(1).
18. For larger wind speeds greater than 150mph see Table 3B.

TABLE R301.2.1.3
WIND SPEED CONVERSIONS[a]

V_{ult}	110	115	120	130	140	150	160	170	180	190	200
V_{asd}	85	89	93	101	108	116	124	132	139	147	155

For SI: 1 mile per hour = 0.447 m/s.
a. Linear interpolation is permitted.

TABLE R611.3(1)
DESIGN WIND PRESSURE FOR USE WITH TABLES R611.3(2), R611.4(1), AND R611.5 FOR ABOVE GRADE WALLS[a]

WIND SPEED (mph)[e]	DESIGN WIND PRESSURE (psf)					
	Enclosed[b]			Partially Enclosed[b]		
	Exposure[c]			Exposure[c]		
	B	C	D	B	C	D
85	18	24	29	23	31	37
90	20	27	32	25	35	41
100	24	34	39	31	43	51
110	29	41	48	38	52	61
120	35	48	57	45	62	73
130	41	56	66	53	73	85[d]
140	47	65	77	61	84[d]	99[d]
150	54	75	88[d]	70	96[d]	114[d]

For SI: 1 pound per square foot = 0.0479 kPa; 1 mile per hour = 0.447 m/s; 1 foot = 304.8 mm; 1 square foot = 0.0929 m^2.
a. This table is based on ASCE 7-98 components and cladding wind pressures using a mean roof height of 35 ft and a tributary area of 10 ft^2.
b. Buildings in wind-borne debris regions as defined in Section R202 shall be considered as "Partially Enclosed" unless glazed openings are protected in accordance with Section R301.2.1.2, in which case the building shall be considered as "Enclosed." All other buildings shall be classified as "Enclosed."
c. Exposure Categories shall be determined in accordance with Section R301.2.1.4.
d. For wind pressures greater than 80 psf, design is required in accordance with ACI 318 and approved manufacturer guidelines.
e. Interpolation is permitted between wind speeds.

TABLE 3A - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

(WIND SPEEDS UP TO 150 MPH)

Note: Logix recommends Builiders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Ground Floor LOGIX Supporting Roof only																														
Height of Basemen t Wall, ft	4" Logix						6.25" Logix						8" Logix						10" Logix						12" Logix					
	Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)					
	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114
8	48	24	16	12	8	8	48	42	24	16	16	12	48	48	32	24	16	16	48	48	40	24	24	16	48	48	48	32	32	24
9	48	16	12	8	8	6	48	32	16	12	12	8	48	40	24	16	16	12	48	48	32	16	16	16	48	48	32	24	24	16
10	32	16	8	6	6		48	24	16	8	8	8	48	32	16	12	12	8	48	40	24	16	16	12	48	48	24	16	16	12
12	16	8	6				32	16	8	6	6		40	16	12	8	8	6	48	24	16	12	8	8	48	32	16	12	12	8
14	16	6					24	12	6				32	12	8	6	6		40	16	12	8	8	6	48	16	12	8	8	6
16	8						16	8					24	8	6				24	12	8	6	6		32	16	8	8	6	
18	8						12	6					16	8					16	8	6				24	12	8	6		
20	6						8						12	6					16	8					16	8	6			

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure																														
Height of Basemen t Wall, ft	4" Logix						6.25" Logix						8" Logix						10" Logix						12" Logix					
	Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)					
	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114
8	48	24	16	12	8	8	48	40	24	16	16	12	48	48	32	24	16	16	48	48	40	32	24	16	48	48	48	32	32	24
9	48	16	12	8	8	6	48	32	16	12	12	8	48	40	24	16	16	12	48	48	32	24	16	16	48	48	40	24	24	16
10	32	16	8	6	6		48	24	16	8	8	8	48	32	16	12	12	8	48	40	24	16	16	12	48	48	12	16	16	16
12	24	8	6				32	16	8	8	6		48	16	12	8	8	6	48	24	16	12	8	8	48	32	12	12	12	8
14	16	6					24	12	6				32	12	8	6	6		40	16	12	8	8	6	48	16	12	8	8	6
16	12						16	8					24	8	6				24	12	8	6	6		32	16	8	8	6	
18	8						12	6					16	8					24	8	6				24	12	8	6		
20	6						6						12	6					16	6	6				16	8	6			

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure																														
Height of Basemen t Wall, ft	4" Logix						6.25" Logix						8" Logix						10" Logix						12" Logix					
	Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)						Unfactored Wind Load (psf)					
	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114	20	40	60	80	90	114
8	48	24	16	12	12	8	48	40	24	16	16	12	48	48	32	24	16	16	48	48	40	32	24	16	48	48	48	32	32	24
9	48	16	12	8	8	6	48	32	16	12	12	8	48	40	24	16	16	12	48	48	32	24	16	16	48	48	40	24	24	16
10	40	16	8	6	6		48	24	16	12	8	8	48	32	16	12	12	8	48	40	24	16	16	12	48	48	32	16	16	16
12	24	8	6				32	16	8	8	6		48	16	12	8	8	6	48	24	16	12	8	8	48	32	16	12	12	8
14	16	6					24	12	6				32	12	8	6	6		42	16	12	8	8	6	48	16	12	8	8	6
16	12						16	8					24	8	6				24	12	8	6	6		32	16	8	8	6	
18	8						12	6					16	8					24	8	6				24	12	8	6		
20	6						8						12	6					16	8					16	8	6			

Notes:
1. Table 3A must be used in conjuction with the notes listed under "Notes for Above - Grade Wall Tables".
2. Vertical bar spacing is for #4 rebar. #5 rebar can be substituted provided the spacing is multiplied by 1.5. Spacing shall be no more than 48 inches on center
3. Steel yield strength = 40 ksi, 28 day concrete comprehensive strenght = 3 ksi.
4. Where cells show "- ", or are blank, engineering is required.`

TABLE 3B - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

(WIND SPEEDS GREATER THAN 150 MPH)

Note: Logix recommends Builiders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

Ground Floor LOGIX Supporting Roof only																				
Height of Basement Wall, ft	4" Logix				6.25" Logix				8" Logix				10" Logix				12" Logix			
	Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)			
	200	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**
8	12	8	6		16	12	8	8	24	16	12	8	32	16	16	12	42	24	16	16
9	8	6			16	8	8	6	16	12	8	8	24	16	12	8	32	16	16	12
10	8				12	8	6		16	8	8	6	16	12	8	8	24	16	12	8
12					8				8	6	6		12	8	6	6	16	8	8	6
14					6				8				8	6			12	8	6	
16									6				8				8	6		
18													6				6			
20																	6			

Ground Floor LOGIX Supporting 2nd Storey LOGIX (or 2nd Storey Wood Frame) & Roof Structure																				
Height of Basement Wall, ft	4" Logix				6.25" Logix				8" Logix				10" Logix				12" Logix			
	Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)				Wind Speed (mph)			
	200	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**	**200**	**250**	**275**	**300**
8	12	8	6		16	12	8	8	24	16	12	12	32	16	16	12	42	24	16	16
9	8	6			16	8	8	6	16	12	8	8	24	16	12	12	32	16	16	12
10	8				12	8	6		16	8	8	6	16	12	8	8	24	16	12	8
12					8				12	6	6		12	8	6	6	16	8	8	6
14					6				8				8	6			12	8	6	
16									6				8				8	6		
18													6				6			
20																	6			

Notes:

1. Table 3B must be used in conjuction with the notes listed under "Notes for Above - Grade Wall Tables".
2. Vertical bar spacing is for #4 rebar. #5 rebar can be substituted provided the spacing is multiplied by 1.5. Spacing shall be no more than 48 inches on center
3. Steel yield strength = 60 ksi, 28 day concrete comprehensive strenght = 3 ksi.
4. Where cells show "- ", or are blank, engineering is required.`

LINTEL REINFORCEMENT

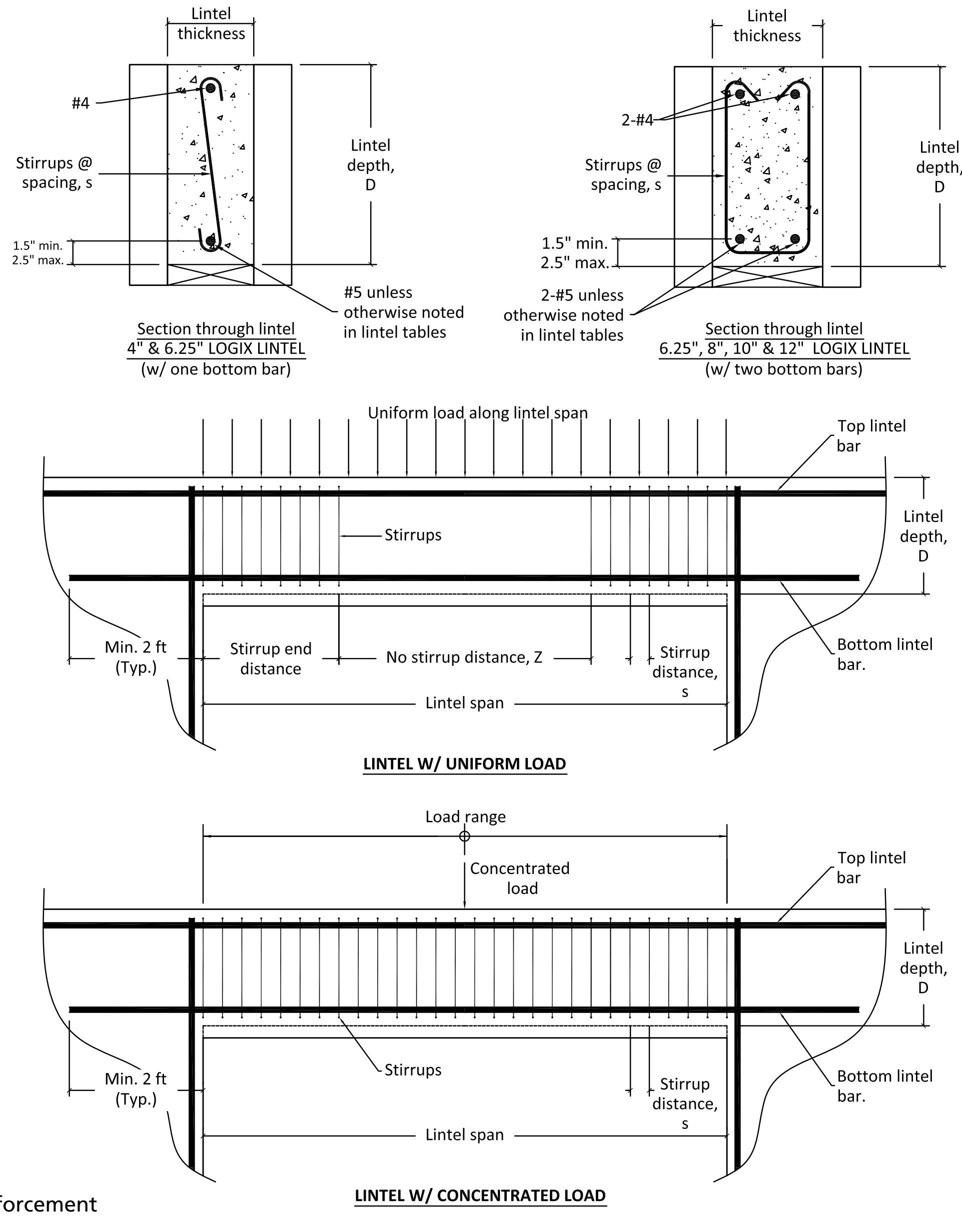

Fig 4
Lintel reinforcement

The lintel tables cover a wide range of uniform and concentrated load conditions, and span lengths. The depth of the lintels range from 8 inch to 30 inches. Uniform and concentrated loading are considered to be concentric and centered on the lintel. Uniform loads act along the entire lintel span, such as from roof trusses at 2 ft spacing. Concentrated load lintel tables consider only a single concentrated load acting anywhere along the lintel span. In addition, the lintel tables do not consider uniform and concentrated loads to act simultaneously on the lintel.

The following notes are common to both uniform and concentrated load lintel tables:

1. 28 day concrete compressive strength = 3 ksi. Steel yield strength = 40 ksi.
2. Stirrups are D9.5 wire or #3 bars, bent as shown, and conforming to ACI 318.
3. Shaded areas of the lintel tables require reinforcement, except for length Z.
4. Dimension D is to the concrete surface, not counting bucks or top plate.
5. Bottom steel must extend a min. 2 ft beyond opening, and no splices are permitted.
6. Deflection is limited to L/360, not considering long term effects. Long term deflection could be twice the short term depending on the nature of the load.
7. Seismic and wind loads are not considered.
8. Shear planes are not interrupted by embedded joists.
9. Top of lintel is assumed to be laterally restrained.

These tables should only be used if the above conditions are met. For other conditions, consult a structural engineer.

LOGIX® INSULATED CONCRETE FORMS

TABLE 4A - LOGIX 4” LINTEL REINFORCEMENT WITH UNIFORM LOAD

s=3", D=8"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						1 - #6
5				1 - #6	-	-
6			1 - #6	-	-	-
7		1 - #6	-	-	-	-
8		-	-	-	-	-
9	1 - #6	-	-	-	-	-
10	-	-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No Stirrup distance,Z (in)	28	14	9	7	5	4

s=4", D=10"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						1 - #6
6				1 - #6	-	-
7			1 - #6	-	-	-
8		1 - #6	-	-	-	-
9		1 - #6	-	-	-	-
10		-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No Stirrup distance,Z (in)	38	19	12	9	7	6

s=5", D=12"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6					1 - #6	1 - #6
7				1 - #6	-	-
8			1 - #6	-	-	-
9		1 - #6	-	-	-	-
10		1 - #6	-	-	-	-
12		-	-	-	-	-
14	1 - #6	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No Stirrup distance,Z (in)	48	24	16	12	9	8

s=7", D=16"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					1 - #6	1 - #6
8				1 - #6	1 - #6	-
9			1 - #6	-	-	-
10			1 - #6	-	-	-
12		1 - #6	-	-	-	-
14		-	-	-	-	-
16	1 - #6	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No Stirrup distance,Z (in)		33	22	16	13	11

Notes:
1. Where not shown otherwise, bottom steel is 1-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4A - LOGIX 4” LINTEL REINFORCEMENT WITH UNIFORM LOAD cont’d

s=9", D=20"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					1 - #6	1 - #6
9				1 - #6	1 - #6	-
10			1 - #6	1 - #6	-	-
12		1 - #6	-	-	-	-
14		-	-	-	-	-
16	1 - #6	-	-	-	-	-
18	1 - #6	-	-	-	-	-
20	-	-	-	-	-	-
No Stirrup distance,Z (in)			29	21	17	14

s=11", D=24"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						1 - #6
9					1 - #6	1 - #6
10				1 - #6	1 - #6	-
12			1 - #6	-	-	-
14		1 - #6	-	-	-	-
16		-	-	-	-	-
18	1 - #6	-	-	-	-	-
20	1 - #6	-	-	-	-	-
No Stirrup distance,Z (in)		45	35	26	21	17

s=14", D=30"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						1 - #6
10					1 - #6	1 - #6
12				1 - #6	-	-
14			1 - #6	-	-	-
16		1 - #6	-	-	-	-
18		-	-	-	-	-
20	1 - #6	-	-	-	-	-
No Stirrup distance,Z (in)			45	34	27	22

Notes:

1. Where not shown otherwise, bottom steel is 1-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

LOGIX® INSULATED CONCRETE FORMS

TABLE 4B - LOGIX 6.25” LINTEL REINFORCEMENT WITH UNIFORM LOAD

s=3", D=8"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						1 - #6
5				1 - #6	1 - #6	2 - #5
6			1 - #6	2 - #5	-	-
7		1 -#6	2 - #5	-	-	-
8		2 -#5	-	-	-	-
9		-	-	-	-	-
10	2 - #5	-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	44	22	14	11	8	7

s=4", D=10"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						1 - #6
6				1 - #6	2 - #5	2 - #5
7			1 - #6	2 - #5	2 - #6	2 - #6
8		1 - #6	2 - #5	2 - #6	2 - #7	-
9		1 - #6	2 - #6	-	-	-
10		2 - #5	2 - #6	-	-	-
12	1 - #6	-	-	-	-	-
14	2 - #6	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	59	29	19	14	11	9

s=5", D=12"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6					1 - #6	1 - #6
7				1 - #6	2 - #5	2 - #5
8			1 - #6	2 - #5	2 - #6	2 - #6
9		1 -#6	2 - #5	2 - #6	2 - #6	2 - #7
10		1 -#6	2 - #5	2 - #6	2 - #7	-
12	1 - #6	2 -#5	2 - #7	-	-	-
14	2 - #5	2 -#7	-	-	-	-
16	2 - #6	-	-	-	-	-
18	2 - #7	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	75	37	25	18	15	12

s=7", D=16"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					1 - #6	1 - #6
8				1 - #6	1 - #6	2 - #5
9			1 - #6	2 - #5	2 - #5	2 - #6
10			1 - #6	2 - #5	2 - #6	2 - #6
12		1 - #6	2 - #6	2 - #6	2 - #7	2 - #8
14	1 - #6	2 - #5	2 - #6	2 - #7	2 - #8	-
16	1 - #6	2 - #6	2 - #7	-	-	-
18	2 - #5	2 - #7	2 - #8	-	-	-
20	2 - #6	2 - #8	-	-	-	-
No stirrup distance, Z (in.)		52	35	26	21	17

Notes:
1. Where not shown otherwise, bottom steel is 1-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4B - LOGIX 6.25” LINTEL REINFORCEMENT WITH UNIFORM LOAD cont’d

s=9", D=20"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					1 - #6	1 - #6
9				1 - #6	1 - #6	2 - #5
10			1 - #6	1 - #6	2 - #5	2 - #6
12		1 - #6	2 - #5	2 - #6	2 - #6	2 - #7
14		2 - #5	2 - #6	2 - #6	2 - #7	2 - #8
16	1 - #6	2 - #5	2 - #7	2 - #7	2 - #8	-
18	2 - #5	2 - #6	2 - #7	2 - #8	-	-
20	2 - #5	2 - #7	2 - #8	-	-	-
No stirrup distance, Z (in.)		68	45	34	27	22

s=11", D=24"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						1 - #6
9					1 - #6	1 - #6
10				1 - #6	1 - #6	2 - #5
12			1 - #6	2 - #5	2 - #6	2 - #6
14		1 - #6	2 - #5	2 - #6	2 - #6	2 - #7
16		2 - #5	2 - #6	2 - #7	2 - #7	2 - #8
18	1 - #6	2 - #6	2 - #7	2 - #8	2 - #8	-
20	2 - #5	2 - #6	2 - #7	2 - #8	-	-
No stirrup distance, Z (in.)		83	55	41	33	27

s=14", D=30"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						1 - #6
10					1 - #6	1 - #6
12			1 - #6	1 - #6	2 - #5	2 - #5
14		1 -#6	1 - #6	2 - #5	2 - #6	2 - #6
16		1 -#6	2 - #5	2 - #6	2 - #7	2 - #7
18	1 -#6	2 -#5	2 - #6	2 - #7	2 - #7	2 - #8
20	1 -#6	2 -#6	2 - #7	2 - #7	2 - #8	-
No stirrup distance, Z (in.)			71	53	42	35

Notes:
1. Where not shown otherwise, bottom steel is 1-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

LOGIX® INSULATED CONCRETE FORMS

TABLE 4C - LOGIX 8” LINTEL REINFORCEMENT WITH UNIFORM LOAD

s=3", D=8"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						2 - #5
5				2 - #5	2 - #5	2 - #5
6			2 - #5	2 - #5	2 - #6	2 - #6
7		2 - #5	2 - #5	2 - #6	-	-
8		2 - #5	2 - #6	-	-	-
9		2 - #5	-	-	-	-
10	2 - #5	-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		28	18	14	11	9

s=4", D=10"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						2 - #5
6				2 - #5	2 - #5	2 - #5
7			2 - #5	2 - #5	2 - #6	2 - #6
8			2 - #5	2 - #6	2 - #7	-
9			2 - #6	2 - #6	-	-
10			2 - #6	-	-	-
12	2 - #5	-	-	-	-	-
14	2 - #6	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		38	25	19	15	12

s=5", D=12"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - #6	2 - #6
9				2 - #6	2 - #6	-
10			2 - #6	2 - #6	-	-
12		2 - #6	-	-	-	-
14	2 - #5	2 - #6	-	-	-	-
16	2 - #6	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		48	32	24	19	16

s=7", D=16"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					2 - #5	2 - #5
8				2 - #5	2 - #5	2 - #5
9				2 - #5	2 - #5	2 - #6
10			2 - #5	2 - #5	2 - #6	2 - #6
12		2 - #5	2 - #6	2 - #6	-	-
14		2 - #5	-	-	-	-
16	2 - #5	2 - #6	-	-	-	-
18	2 - #5	-	-	-	-	-
20	2 - #6	-	-	-	-	-
No stirrup distance, Z (in.)		67	45	33	27	22

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4C - LOGIX 8” LINTEL REINFORCEMENT WITH UNIFORM LOAD cont’d

s=9", D=20"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - #5	2 - #5
9				2 - #5	2 - #5	2 - #5
10				2 - #5	2 - #5	2 - #6
12			2 - #5	2 - #6	2 - #6	-
14		2 - #5	2 - #6	-	-	-
16		2 - #6	-	-	-	-
18	2 - #5	2 - #6	-	-	-	-
20	2 - #5	-	-	-	-	-
No stirrup distance, Z (in.)		87	58	43	34	29

s=11", D=24"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9					2 - #5	2 - #5
10				2 - #5	2 - #5	2 - #5
12			2 - #5	2 - #5	2 - #6	2 - #6
14		2 - #5	2 - #5	2 - #6	-	-
16		2 - #5	2 - #6	-	-	-
18		2 - #6	-	-	-	-
20	2 - #5	2 - #6	-	-	-	-
No stirrup distance, Z (in.)			71	53	42	35

s=14", D=30"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10					2 - #5	2 - #5
12				2 - #5	2 - #5	2 - #5
14			2 - #5	2 - #5	2 - #6	2 - #6
16		2 - #5	2 - #5	2 - #6	-	-
18		2 - #5	2 - #6	-	-	-
20		2 - #6	-	-	-	-
No stirrup distance, Z (in.)					54	45

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4D - LOGIX 10” LINTEL REINFORCEMENT WITH UNIFORM LOAD

s=3", D=8"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6					2 - #6	2 - #6
7				2 - #6	-	-
8			2 - #6	-	-	-
9			-	-	-	-
10		-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		35	23	17	14	11

s=4", D=10"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						2 - #6
8				2 - #6	2 - #6	2 - #7
9			2 - #6	2 - #6	2 - #7	2 - #8
10			2 - #6	2 - #7	2 - #8	-
12		2 - #7	2 - #8	-	-	-
14	2 - #6	2 - #8	-	-	-	-
16	2 - #8	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		47	31	23	19	15

s=5", D=12"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - #6	2 - #6
9				2 - #6	2 - #6	2 - #7
10			2 - #6	2 - #6	2 - #7	2 - #8
12		2 - #6	2 - #7	2 - #8	2 - #8	-
14		2 - #7	2 - #8	-	-	-
16	2 - #6	-	-	-	-	-
18	2 - #7	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		60	40	30	24	20

s=7", D=16"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						2 - #6
10					2 - #6	2 - #6
12			2 - #6	2 - #6	2 - #7	2 - #8
14		2 - #6	2 - #7	2 - #7	2 - #8	-
16		2 - #6	2 - #7	2 - #8	-	-
18	2 - #6	2 - #7	2 - #8	-	-	-
20	2 - #6	2 - #8	-	-	-	-
No stirrup distance, Z (in.)		84	56	42	33	28

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4D - LOGIX 10” LINTEL REINFORCEMENT WITH UNIFORM LOAD cont’d

s=9", D=20"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - #6
12				2 - #6	2 - #6	2 - #7
14			2 - #6	2 - #7	2 - #7	2 - #8
16		2 - #6	2 - #7	2 - #7	2 - #8	-
18		2 - #6	2 - #7	2 - #8	-	-
20	2 - #6	2 - #7	2 - #8	-	-	-
No stirrup distance, Z (in.)		109	72	54	43	36

s=11", D=24"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12					2 - #6	2 - #6
14				2 - #6	2 - #7	2 - #7
16			2 - #6	2 - #7	2 - #7	2 - #8
18		2 - #6	2 - #7	2 - #8	2 - #8	-
20		2 - #7	2 - #8	2 - #8	-	-
No stirrup distance, Z (in.)		134	89	67	53	44

s=14", D=30"

Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14					2 - #6	2 - #6
16			2 - #6	2 - #6	2 - #7	2 - #7
18			2 - #6	2 - #7	2 - #8	2 - #8
20		2 - #6	2 - #7	2 - #8	2 - #8	-
No stirrup distance, Z (in.)				85	68	56

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4E - LOGIX 12” LINTEL REINFORCEMENT WITH UNIFORM LOAD

s=3", D=8"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6					2 - #6	2 - #6
7				2 - #6	2 - #6	2 - #7
8			2 - #6	2 - #7	2 - #7	-
9			2 - #7	-	-	-
10		2 - #7	-	-	-	-
12	2 - #6	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		42	28	21	17	14

s=4", D=10"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						2 - #6
8				2 - #6	2 - #6	2 - #7
9			2 - #6	2 - #6	2 - #7	2 - #8
10			2 - #6	2 - #7	2 - #8	-
12		2 - #6	2 - #8	-	-	-
14	2 - #6	2 - #8	-	-	-	-
16	2 - #8	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		57	38	28	22	19

s=5", D=12"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - #6	2 - #6
9				2 - #6	2 - #6	2 - #7
10			2 - #6	2 - #6	2 - #7	2 - #8
12		2 - #6	2 - #7	2 - #8	2 - #8	-
14		2 - #7	2 - #8	-	-	-
16	2 - #6	-	-	-	-	-
18	2 - #7	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		72	48	36	28	24

s=7", D=16"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						2 - #6
10					2 - #6	2 - #6
12			2 - #6	2 - #6	2 - #7	2 - #8
14		2 -#6	2 - #7	2 - #7	2 - #8	-
16		2 -#6	2 - #8	-	-	-
18	2 - #6	2 -#7	2 - #8	-	-	-
20	2 - #6	2 -#8	-	-	-	-
No stirrup distance, Z (in.)		101	67	50	40	33

Notes:

1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 4E - LOGIX 12” LINTEL REINFORCEMENT WITH UNIFORM LOAD cont’d

s=9", D=20"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - #6
12				2 - #6	2 - #6	2 - #7
14			2 - #6	2 - #7	2 - #7	2 - #8
16		2 - #6	2 - #7	2 - #8	2 - #8	-
18		2 - #7	2 - #8	2 - #8	-	-
20	2 - #6	2 - #7	2 - #8	-	-	-
No stirrup distance, Z (in.)			87	65	52	43

s=11", D=24"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12					2 - #6	2 - #6
14				2 - #6	2 - #7	2 - #7
16			2 - #6	2 - #7	2 - #8	2 - #8
18		2 -#6	2 - #7	2 - #8	2 - #8	-
20		2 -#7	2 - #8	-	-	-
No stirrup distance, Z (in.)				80	64	53

D=30"						
Opening ft	Factored Uniform Load, lb/ft					
	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						2 - #6
14				2 - #6	2 - #6	2 - #6
16			2 - #6	2 - #6	2 - #7	2 - #7
18		2 - #6	2 - #6	2 - #7	2 - #8	2 - #8
20		2 - #6	2 - #7	2 - #8	2 - #8	-
No stirrup distance, Z (in.)					82	68

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrups. For stirrup information refer to Figure 4.
5. Factored Uniform Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load).
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 5A - LOGIX 4” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

	s=3", D=8"																
Opening	**Factored Point Load, lb**																
ft	**500**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**	**5500**	**6000**	**6500**	**7000**	**8000**	**9000**	**10000**
3														1 - #6	1 - #6	-	-
4											1 - #6	1 - #6	-	-	-	-	-
5								1 - #6	1 - #6	-	-	-	-	-	-	-	-
6							1 - #6	-	-	-	-	-	-	-	-	-	-
7						1 - #6	-	-	-	-	-	-	-	-	-	-	-
8					1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
9				1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
10				-	-	-	-	-	-	-	-	-	-	-	-	-	-
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	s=4", D=10"																
Opening	**Factored Point Load, lb**																
ft	**500**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**	**5500**	**6000**	**6500**	**7000**	**8000**	**9000**	**10000**
3																	1 - #6
4														1 - #6	1 - #6	-	-
5											1 - #6	1 - #6	1 - #6	-	-	-	-
6									1 - #6	1 - #6	1 - #6	-	-	-	-	-	-
7								1 - #6	1 - #6	-	-	-	-	-	-	-	-
8							1 - #6	1 - #6	-	-	-	-	-	-	-	-	-
9						1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
10					1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-
12				1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
14			1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	s=5", D=12"																
Opening	**Factored Point Load, lb**																
ft	**500**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**	**5500**	**6000**	**6500**	**7000**	**8000**	**9000**	**10000**
3																	
4																1 - #6	1 - #6
5														1 - #6	1 - #6	1 - #6	-
6												1 - #6	1 - #6	1 - #6	-	-	-
7										1 - #6	1 - #6	1 - #6	-	-	-	-	-
8									1 - #6	1 - #6	-	-	-	-	-	-	-
9							1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-
10							1 - #6	1 - #6	-	-	-	-	-	-	-	-	-
12					1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-
14				1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
16			1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	s=7", D=16"																
Opening	**Factored Point Load, lb**																
ft	**500**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**	**5000**	**5500**	**6000**	**6500**	**7000**	**8000**	**9000**	**10000**
3																	
4																	
5																	1 - #6
6															1 - #6	1 - #6	1 - #6
7														1 - #6	1 - #6	1 - #6	-
8												1 - #6	1 - #6	1 - #6	1 - #6	-	-
9										1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	-	-	-
10									1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-
12							1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-
14						1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-	-
16					1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-
18				1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
20			1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5A - LOGIX 4" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont'd

s=9", D=20"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																1 - #6	1 - #6
8															1 - #6	1 - #6	1 - #6
9													1 - #6	1 - #6	1 - #6	1 - #6	-
10												1 - #6	1 - #6	1 - #6	-	-	-
12									1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-
14							1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-
16						1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
18					1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
20				1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-

s=11", D=24"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	
8																	1 - #6
9															1 - #6	1 - #6	1 - #6
10														1 - #6	1 - #6	1 - #6	-
12											1 - #6	1 - #6	1 - #6	1 - #6	-	-	-
14									1 - #6	1 - #6	1 - #6	-	-	-	-	-	-
16							1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-
18						1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
20				1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-

s=14", D=30"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																1 - #6	1 - #6
12														1 - #6	1 - #6	1 - #6	-
14												1 - #6	1 - #6	1 - #6	-	-	-
16									1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-
18							1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-
20						1 - #6	-	-	-	-	-	-	-	-	-	-	-

Notes:
1. Where not shown otherwise, bottom steel is 1-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain "-" the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrup. For stirrup information refer to Figure 4.
5. Factored Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 5B - LOGIX 6.25" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

s=3", D=8"

Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3														1 - #6	1 - #6	1 - #6	2 - #5
4											1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	-	-
5									1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	-	-	-	-
6							1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	-	-	-	-	-	-
7						1 - #6	1 - #6	2 - #5	2 - #5	-	-	-	-	-	-	-	-
8					1 - #6	1 - #6	2 - #5	2 - #5	-	-	-	-	-	-	-	-	-
9				1 - #6	1 - #6	2 - #5	-	-	-	-	-	-	-	-	-	-	-
10				1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
12			1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=4", D=10"

Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	1 - #6
4														1 - #6	1 - #6	1 - #6	2 - #5
5											1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5
6									1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
7								1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	-
8							1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-	-
9						1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-
10					1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-	-	-	-	-
12				1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	2 - #6	-	-	-	-	-	-	-	-
14			1 - #6	2 - #5	2 - #5	2 - #6	-	-	-	-	-	-	-	-	-	-	-
16		1 - #6	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	1 - #6	2 - #5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=5", D=12"

Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
4	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
5	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5
6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5
7	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6
8	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
9	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	-
10	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-	-
12	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-
14	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-	-	-
16	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	-	-	-	-	-	-	-	-	-	-	-
18	1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-
20	1 - #6	2 - #5	2 - #5	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5B - LOGIX 6.25” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

D=16"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
4	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
5	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6
7	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5
8	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5
9	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5
10	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
12	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6
14	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-
16	1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	-	-	-
18	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	-	-	-	-	-
20	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-

D=20"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
4	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
7	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
8	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
9	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
10	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5
12	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6
14	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6
16	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	-
18	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	-	-
20	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	-	-	-

D=24"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-7	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
8	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
9	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
10	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
12	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
14	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
16	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
18	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
20	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	-	-

D=30"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-9	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
10	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
12	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
14	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
16	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
18	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
20	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6

Notes:
1. Refer to Notes for Table 5A

TABLE 5C - LOGIX 8" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

s=3", D=8"																	
Openin	Factored Point Load, lb																
g ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																2 - #6	2 - #6
5															2 - #6	2 - #6	-
6												2 - #6	2 - #6	2 - #6	-	-	-
7										2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-
8									2 - #6	2 - #6	2 - #6	-	-	-	-	-	-
9							2 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-
10						2 - #6	-	-	-	-	-	-	-	-	-	-	-
12				2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
14			2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D=10"																	
Openin	Factored Point Load, lb																
g	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																2 - #6	2 - #6
7														2 - #6	2 - #6	2 - #6	2 - #7
8													2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
9											2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	-
10										2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	-	-
12							2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	-	-	-	-	-
14						2 - #6	2 - #7	2 - #7	2 - #7	-	-	-	-	-	-	-	-
16				2 - #7	2 - #7	-	-	-	-	-	-	-	-	-	-	-	-
18			2 - #7	2 - #7	-	-	-	-	-	-	-	-	-	-	-	-	-
20		2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D=12"																	
Openin	Factored Point Load, lb																
g ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	2 - #6
8															2 - #6	2 - #6	2 - #6
9														2 - #6	2 - #6	2 - #6	2 - #7
10												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
12										2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8
14								2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-
16						2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-	-	-	-
18					2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-	-	-	-	-	-
20				2 - #6	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-

TABLE 5C - LOGIX 8” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

D=16"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	
8																	
9																	2 - #6
10																2 - #6	2 - #6
12															2 - #6	2 - #6	2 - #6
14												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
16										2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #8
18								2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8
20							2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-	-

D=20"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-11	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
12	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
14	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
16	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
18	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7
20	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8

D=24"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-13	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
14	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
16	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
18	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
20	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7

D=30"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-17	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
18	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
20	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain “-” the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrup. For stirrup information refer to Figure 4.
5. Factored Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 5D - LOGIX 10” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

s=3", D=8"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	2 - #6
5															2 - #6	2 - #6	-
6												2 - #6	2 - #6	2 - #6	2 - #6	-	-
7										2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-
8									2 - #6	2 - #6	2 - #6	-	-	-	-	-	-
9								2 - #6	2 - #6	-	-	-	-	-	-	-	-
10						2 - #6	-	-	-	-	-	-	-	-	-	-	-
12				2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
14			2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=4", D=10"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																2 - #6	2 - #6
7															2 - #6	2 - #6	2 - #7
8													2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
9											2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #8
10										2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8
12								2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-
14						2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-	-	-	-	-
16				2 - #6	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-
18			2 - #6	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-	-	-
20		2 - #6	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-	-	-	-

s=5", D=12"

Opening	Factored Point Load, lb															
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	2 - #6
8															2 - #6	2 - #6	2 - #6
9														2 - #6	2 - #6	2 - #6	2 - #7
10												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
12										2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8
14								2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-
16						2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-	-	-	-
18					2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-
20				2 - #6	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-

TABLE 5D - LOGIX 10” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

s=7", D=16"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-8	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
9	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
10	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
12	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
14	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
16	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8
18	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8
20	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-	-

D=20"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-11	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
12	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
14	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
16	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
18	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
20	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8

D=24"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-13	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
14	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
16	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
18	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
20	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7

D=30"																	
Opening ft	Factored Point Load, lb																
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-15	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
16	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
18	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
20	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain “-” the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrup. For stirrup information refer to Figure 4.
5. Factored Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

TABLE 5E - LOGIX 12" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

s=3", D=8"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	2 - #6
5															2 - #6	2 - #6	2 - #6
6												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
7											2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	-
8									2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	-	-
9								2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	-	-	-	-	-
10							2 - #6	2 - #7	2 - #7	-	-	-	-	-	-	-	-
12					2 - #6	2 - #7	-	-	-	-	-	-	-	-	-	-	-
14				2 - #7	-	-	-	-	-	-	-	-	-	-	-	-	-
16		2 - #7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	2-#6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=4", D=10"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																2 - #6	2 - #6
7															2 - #6	2 - #6	2 - #7
8												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
9											2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7
10										2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8
12							2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	2 - #8	-	-
14						2 - #6	2 - #6	2 - #7	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-
16				2 - #6	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-
18			2 - #6	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-	-	-
20		2 - #6	2 - #8	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=5", D=12"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																	2 - #6
8															2 - #6	2 - #6	2 - #6
9														2 - #6	2 - #6	2 - #6	2 - #7
10												2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
12										2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8
14								2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-
16						2 - #6	2 -#6	2 - #6	2 - #7	2 - #8	2 - #8	2 - #8	-	-	-	-	-
18					2 - #6	2 - #6	2 -#7	2 - #8	2 - #8	-	-	-	-	-	-	-	-
20				2 - #6	2 - #7	2 - #8	2 -#8	-	-	-	-	-	-	-	-	-	-

TABLE 5E - LOGIX 12” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

s=7", D=16"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-8	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
9	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
10	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6
12	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
14	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
16	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #8
18	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #6	2 - #7	2 - #8	2 - #8	2 - #8
20	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #6	2 - #7	2 - #7	2 - #6	2 - #8	2 - #8	-	-

s=9", D=20"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-11	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
12	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
14	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
16	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
18	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7
20	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8

s=11", D=24"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-13	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
14	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
16	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
18	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8
20	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8	2 - #8

s=14", D=30"																	
Opening	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3-15	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7
16	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7
18	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7
20	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7	3- #7

Notes:
1. Where not shown otherwise, bottom steel is 2-#5
2. Table is to be read in conjunction w/ Figure 4.
3. Where spaces contain “-” the bar is presumed to be less economical and/or practical. Alternatively, consult with a local engineer to determine if a practical bar size is possible based on local load conditions.
4. Blank regions require no stirrups. Shaded regions require stirrup. For stirrup information refer to Figure 4.
5. Factored Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)
6. Table values are based on concrete with a minimum specified compressive strength of 3 ksi and 40 ksi reinforcing steel.
7. Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

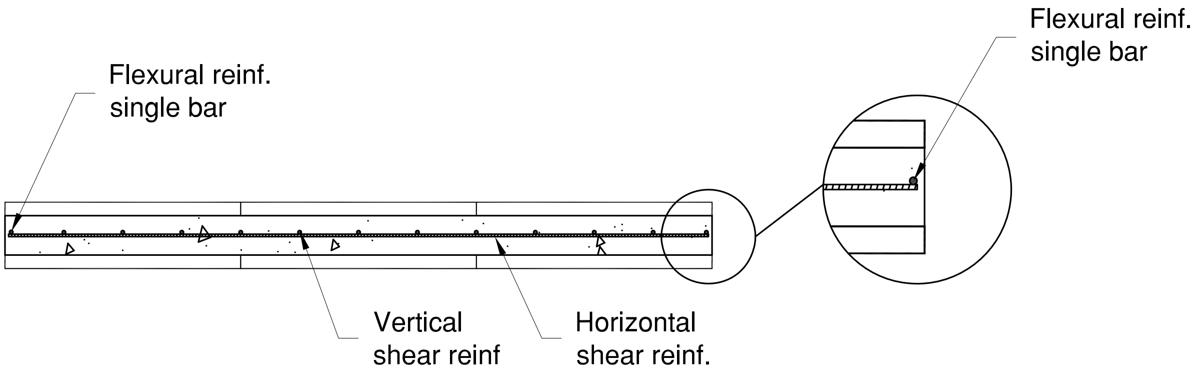

FIGURE 6: PLAN VIEW
LOGIX SHEAR WALL - SINGLE BAR FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

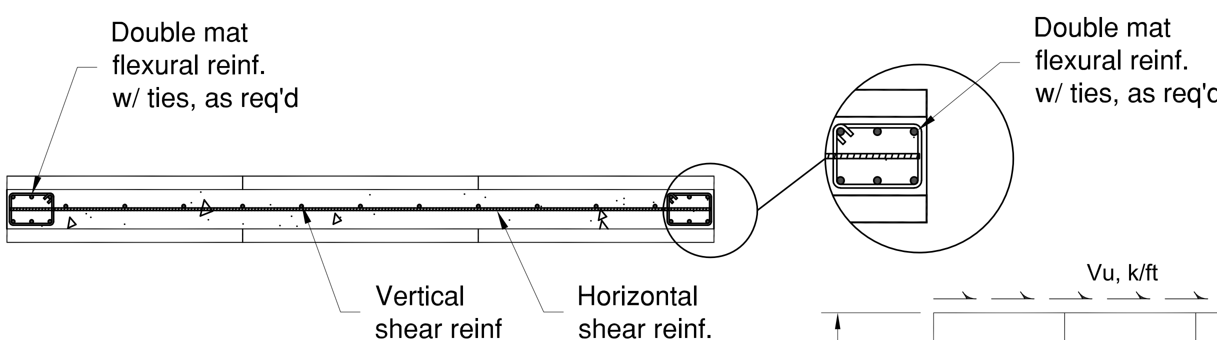

FIGURE 7: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

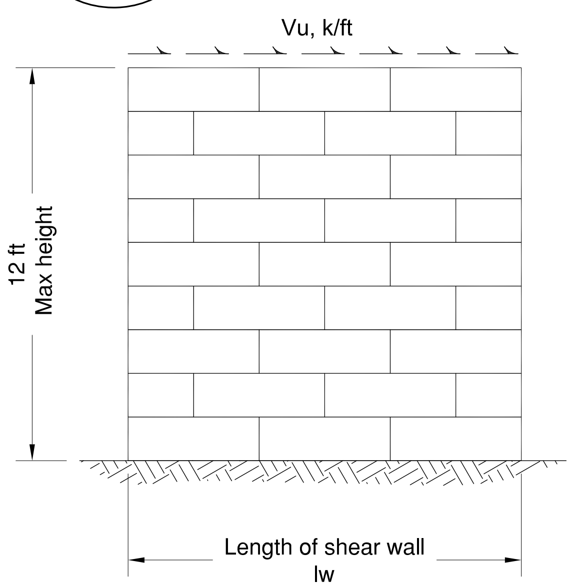

FIGURE 5: ELEVATION

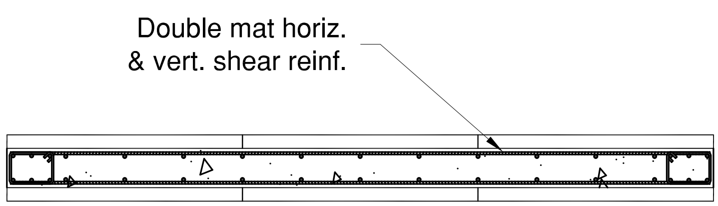

FIGURE 8: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL & SHEAR REINF.
(Applies to 12" LOGIX)

NOTES:
1. Shear wall Figures 6 to 8 to be used in conjunction with Tables 6A and 6B.
2. Provide double mat of reinforcement for 12" Logix wall. See Figure 8.
3. Fully develop flexural reinforcement into the footing.
4. Min. 28 day concrete compressive strength = 3 ksi. Steel yield strength = 60 ksi.
5. Clear spacing between flexural reinforcement bars = 3in

These tables should only be used if the above conditions are met. For other conditions, consult a structural engineer.

LOGIX® INSULATED CONCRETE FORMS

TABLE 6A - SHEAR WALL: HORIZONTAL & VERTICAL SHEAR REINFORCEMENT

4" LOGIX SHEAR WALL REINFORCEMENT SPACING,in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

Bar Size	Wall Length,	SHEAR FORCE, Vu, kpf															
		0.5		1		1.5		2		2.5		3		3.5		4	
		Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	12	12	12	12	12	12	4	8	4	8	4	8	4	8	4	8
	4	12	12	12	12	12	12	8	16	8	16	8	16	8	16	8	16
	>4	12	12	12	12	12	12	12	20	12	20	12	20	12	20	12	20

6.25" LOGIX SHEAR WALL REINFORCEMENT SPACING,in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

Bar Size	Wall Length,	SHEAR FORCE, Vu, kpf															
		1		2		3		4		5		6		7		8	
		Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	12	16	12	16	4	4	4	4	4	4	4	4	4	4	4	4
	4	12	16	12	16	8	8	8	8	8	8	8	8	8	8	8	8
	6	12	16	12	16	12	12	12	12	12	12	12	12	12	12	12	12
	>6	12	16	12	16	16	16	16	16	16	16	16	16	16	16	16	16

8" LOGIX SHEAR WALL REINFORCEMENT SPACING,in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

Bar Size	Wall Length,	SHEAR FORCE, Vu, kpf															
		1.5		2.5		5		6		7		8		9		10	
		Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	12, 12, 16	16	12, 16, 16	16	4	16	4	16	4	16	4	16	4	16	4	16
	4	12, 12, 16	16	12, 16, 16	16	8	16	8	16	8	16	8	16	8	16	8	16
	6	12, 12, 16	16	12, 16, 16	16	12	16	12	16	12	16	12	16	12	16	12	16
	>6	12, 12, 16	16	12, 16, 16	16	16	16	16	16	16	16	16	16	16	16	16	16

10" LOGIX SHEAR WALL REINFORCEMENT SPACING,in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

Bar Size	Wall Length,	SHEAR FORCE, Vu, kpf															
		1.5		2.5		5		6		7		8		9		10	
		Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	8, 12,16	16	8, 12, 16	16	4	8	4	8	4	8	4	8	4	8	4	8
	4	8, 12,16	16	8, 12, 16	16	8	16	8	16	8	16	8	16	8	16	8	16
	6	8, 12,16	16	8, 12, 16	16	12	24	12	24	12	24	12	24	12	24	12	24
	>6	8, 12,16	16	8, 12, 16	16	16	24	16	24	16	24	16	24	16	24	16	24

12" LOGIX SHEAR WALL REINFORCEMENT SPACING,in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

Bar Size	Wall Length,	SHEAR FORCE, Vu, kpf															
		1.5		2.5		5		6		7		8		9		10	
		Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	16	16	16	16	4	4	4	4	4	4	4	4	4	4	4	4
	4	16	16	16	16	8	8	8	8	8	8	8	8	8	8	8	8
	6	16	16	16	16	12	12	12	12	12	12	12	12	12	12	12	12
	>6	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

NOTES:

1. Table 6A to be read in conjunction with Shear Wall Figures 6 to 8.
2. Steel yield strength = 60 ksi, 28 day concrete compresive strength = 3 ksi.

TABLE 6B - SHEAR WALL: FLEXURAL REINFORCEMENT

4" LOGIX - FLEXURAL REINFORCEMENT

Wall Length, lw, ft	SHEAR FORCE, Vu, kpf 0.5			1			1.5			2			2.5			3			3.5			4		
	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6
2	2	2	2	2	2	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
4	4	4	4	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20

6.25" LOGIX - FLEXURAL REINFORCEMENT

Wall Length, lw, ft	SHEAR FORCE, Vu, kpf 1			2			3			4			5			6			7			8		
	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6	#4	#5	#6
2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
10	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
15	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
20	13	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14

NOTES:

1. Table 6B to be used in conjunction with Shear Wall Figures 6 to 8.
2. Where spaces contain "-" consult with a local licensed engineer.
3. Where more than one bar is shown use double mat for flexural reinforcement. See Figure 7 (or Figure 8 for 12" Logix).
4. Steel yield strength = 60 ksi, 28 day concrete compressive strength = 3 ksi.

TABLE 6.2 - SOIL CLASSIFICATION

NOTE: Logix recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being

Load Bearing Soil Classifications[1]

MINIMUM LOAD BEARING VALUE[2], psf	SOIL DESCRIPTION
2000 psf	Clay, sandy clay, silty clay, and clayey silt
3000 psf	Sand, silty sand, clayey sand, silty gravel, and clayey gravel
4000 psf	Sandy gravel and medium stiff clay
> 4000 psf	Stiff clay, gravel, sand, sedimentary rock, and crystalline bedrock.

1. User must verify that the values in this table agree with local codes and practices.
2. Tabulated values are the presumed strength of the soil, undisturbed (the maximum design load bearing value for the basement or foundation wall footing).

Equivalent Fluid Density Soil Classification[1, 2]

MAXIMUM EQUIVALENT FLUID DENSITY, pcf	USC[2] CLASSIFICATION	SOIL DESCRIPTION
30 pcf	GW, GP, SW, SP	Well-drained cohesionless soils such as clean (few or no fines) sand and gravels.
45 pcf	GM, GC, SM, SM-SC, ML	Well-drained cohesionless soils such as sand and gravels containing silt or clay.
60 pcf	SC, MH, CL, CH, ML-CL	Well-drained inorganic silts or clays that are broken up into smaller pieces.

1. User must verify that the values in this table agree with local codes and practices.
2. USC - Uniform soil classification

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TABLE 6.3 - FOOTING WIDTHS

NOTE: Logix recommend builders, owners and/or designers using these tables confirm that on-site loading conditions are within the scope of the tables being used.

Minimum width of concrete footing for Logix walls

Maximum Number of Storeys	MINIMUM LOAD BEARING VALUE OF SOIL				
	2000 psf	2500 psf	3000 psf	3500 psf	4000 psf
6.25" Logix Wall Thickness					
One Storey	15"	12"	10"	9"	8"
Two Storey	20"	16"	13"	12"	10"
8" Logix Wall Thickness					
One Storey	18"	14"	12"	10"	8"
Two Storey	24"	19"	16"	14"	12"
10" Logix Wall Thickness					
One Storey	20"	16"	13"	11"	10"
Two Storey	27"	22"	18"	15"	14"

- Minimum 28 day concrete compressive strength = 3000 psi (20 MPa)
- Table does not consider seismic. Footing design must also consider local design loads and building practices.
- Footings shall be minimum 8" thick, and shall have a width that allows for a nominal 2 inch projection from either face of the concrete in the wall to the edge of the footing.
- Table values are based on 40 ft building width (floor and roof clear span).
- Applicable for storey heights not greater than 9'-4".
- Basement wall shall not be considered as a storey in determining footing widths.
- Applicable also for 8 inch thick or 10 inch thick Logix foundation wall supporting 4 inch Logix storeys.
- Applicable also for 10 inch thick or 10 inch thick Logix foundation wall supporting 6.25 inch Logix storeys.

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7.0 – EVALUATION REPORTS

7.1 – WISCONSIN BUILDING PRODUCTS

Approval # 20199000 (Replaces 201307-I)

Industry Services Division
4822 Madison Yards Way
P.O. Box 7302
Madison, WI 53701-7302

Wisconsin Building Product Evaluation

Material: Logix Insulated Concrete Form

Manufacturer: AMC Foam Technologies, Inc.
35 Headingley St.
Headingley, MB R4H0A8
Canada

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of the Logix Insulated Concrete Form Wall System, manufactured by AMC Foam Technologies, Inc., evaluated as permanent form work and insulation system for reinforced concrete beams, lintels, exterior and interior walls, and foundation and retaining walls. The Logix Insulated Concrete Form Wall System was evaluated for safety requirements of the foam plastic and structural requirements for the codes listed below.

This review includes code requirements in accordance with the current **Wisconsin Uniform Dwelling Code** for 1 & 2 family dwellings **(UDC):**

- **Foam Plastic:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the fire safety requirements of **SPS 321.11**.
- **Structural:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the structural requirements of **SPS 321.02(3)(d)**.

This review includes the cited **International Building Code (IBC)** requirements below in accordance with the **Wisconsin Amended IBC Code:**

- **Foam Plastic & Fire Endurance:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the fire safety requirements **IBC 2603**.

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

- **Structural:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the requirements of **IBC Chapter 16**.
- **Fire-Resistance Rating and Fire Tests:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the requirements of **IBC 703.1** and **703.2**.

Note: Structural calculations shall be submitted (job-to-job basis) in accordance with IBC Chapter 16 for applicable Live, Ground Snow, Roof, Wind, and Seismic Loads.

DESCRIPTION AND USE

General: The Logix Insulated Concrete Form Wall System consists of expanded polystyrene (EPS) forms which are stacked in running bond and serve as forms for a 4-inch-thick, 6.25-inch-thick, 8-inch-thick, 10-inch-thick, and 12-inch or more-thick reinforced concrete wall. The EPS forms remain in place to provide insulation for the wall. The reinforced concrete wall system may be used as a foundation wall, above grade wall, basement wall, shear wall, exterior load-bearing wall, non-load bearing, and lintel section.

The Logix EPS forms are 48 inches long and 16 inches high. The 4-inch Logix form for 4-inch-thick reinforced concrete walls is 9½ inches wide. The 6.25-inch Logix form for 6-inch-thick reinforced concrete walls is 11¾ inches wide. The 8-inch Logix form for 8-inch-thick reinforced concrete walls is 13½ inches wide. The 10-inch Logix form for 10-inch-thick reinforced concrete walls is 15½ inches wide. The 12-inch Logix form for 12-inch-thick reinforced concrete walls is 17½ inches wide. Thicker walls are achieved by the use of Logix Xtender Ties.

The forms are available as solid-form blocks or knock-down blocks. The solid-form blocks consist of opposing form panels connected by 6 polypropylene web ties embedded into the panels forming a solid form block. The knock-down blocks consist of opposing form panels connected by 6 polypropylene snap-in-place ties. The polypropylene plastic web ties are spaced 8 inches on center and black in color.

Material: Logix Form Blocks are molded from modified expandable polystyrene beads. Manufacturers include:

Product	Manufacturer
BFL-422	BASF Corporation (Beaver Plastics Ltd.)

The blocks are manufactured to a nominal density of 1.68 pounds per cubic foot.

Concrete: Normal-weight concrete complying with **SPS 321.02(3)(d)** and **IBC 1903.1** with maximum aggregate size of ¾ inch and a minimum compressive strength of 2,500 psi.

Reinforcement: The concrete is reinforced with Nos. 3, 4, 5 and 6 deformed steel reinforcing bars, Type A615, Grade No. 40, with a minimum yield strength of 40,000 psi and Grade No. 60, with a minimum yield strength of 60,000 psi. All steel reinforcement shall be in accordance with **IBC 1901.2** & ACI 318 as modified by IBC 1905.

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

Commercial Building Product Evaluation No. 20199000
Page 3

Each pallet of Logix forms shall bear a label with the manufacturer's name, and the quality control inspection agency.

TESTS AND RESULTS

Intertek Testing Services, ETL SEMKO, conducted testing on the Logix forms. The Logix insulated concrete forms produced by Foam Technologies, Inc. have been subject to and complied with the following testing:

- EPS has a maximum flame-spread rating of 25 and a maximum smoke-developed rating of 450. Testing was done in accordance with ASTM E 84.
- Meets 3-hour fire rating in accordance with ASTM E119 and CAN/ULC S101 conducted by Intertek Testing Services NA Ltd, on April 24, 2002 filed with previous approval report.

Assembly Rating, hours	Minimum ICF Cavity Thickness, in.
2	4
3	6.25 (4-hr. rating with 5/8" drywall)
4	Greater than or equal to 8

NOTE: 1. Unless noted otherwise, ratings are based on wall assembly having 1/2" drywall on fire exposed side.
2. Load bearing during test = 36,000lb/ft.

- Room fire Test Standard for Interior of Foam Plastics Systems in accordance with ASTM D1929, D635 and D2843.
- Crawl Space evaluation conducted in accordance with ICC ES requirements.
- Conforms to ASTM C578, with equivalency CAN/ULC S701 (Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation) as a Type II Thermal Insulating Material.
- Fastener Withdrawal Evaluation in accordance with ASTM D1761.
- Fastener Lateral Resistance tested in accordance with ASTM D1761.
- Polypropylene web material conforms to CC1 Plastic material when tested in accordance with ASTM D1929, D635, and D2843.

The Rigid Cellular (RCPS) Polystyrene Thermal Insulation was tested May 10, 2002 for apparent density, compressive properties, and flexural properties in accordance with ASTM C578-95 "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation," using the following test methods:

- **Apparent Density:** ASTM D1622-98 "Standard Test Method for Apparent Density of Rigid Cellular Plastics".

Type	Test Result	Minimum Requirement	Status
Type II	1.68	1.35 lbs/ft^3	Complied

- **Compressive Properties:** ASTM C165-00 "Standard Test Method for Measuring Compressive Properties of Thermal Insulation".

Type	Test Result	Minimum Requirement	Status
Type II	24.5 psi	15.0 psi	Complied

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

- **Flexural Properties:** ASTM C203-99 "Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation"

Type	Test Result	Minimum Requirement	Status
SC Type II	44.9 psi	40.0 psi	Complied

Physical properties testing on May 10, 2002 of polypropylene reinforcing web material was performed in general accordance with the following test methods:

- **Screw Withdrawal:** ICC ES AC 116 (July 2001) "Acceptance Criteria for Nails and Spikes," in conjunction with ASTM D1761-88 (Re-approved 2000) "Standard Test Methods for Mechanical Fasteners in Wood", Sections 1 through 12 (two types of fasteners were tested: a type 'W' coarse thread drywall screw, and a type 'S' fine thread drywall screw)

- **Lateral Screw Resistance:** ICC ES AC 116 (July 2001) "Acceptance Criteria for Nails and Spikes," in conjunction with ASTM D1761-88 (Re-approved 2000) "Standard Test Methods for Mechanical Fasteners in Wood", Sections 13 through 20

	Fastener Type	Withdrawal	Lateral
		Max Load (lbs.)	Max Load (lbs.)
Average	Type 'W' Coarse Thread Drywall Screw	166	367
COV	Type 'W' Coarse Thread Drywall Screw	10.6 %	8.4 %
Average	Type 'S' Fine Thread Drywall Screw	169	328
COV	Type 'S' Fine Thread Drywall Screw	8.4 %	4.1 %

- **Tensile Strength:** ASTM D638-01 "Standard Test Method for Tensile Properties of Plastics"

	Ultimate Tensile Strength (lbs.)
Average	842
COV	1.7 %

DISCUSSION: ICC ES AC 116 references ASTM D1761 for lateral and withdrawal testing. The ASTM D6117 and ASTM D1761 are very similar in methodology, however ASTM D6117 is used for solid sections of plastic members and not for sheets of plastic material. In addition to this, the ICC ES AC 116 document gives guidance on establishing allowable loads, which ASTM D6117 does not provide. In the absence of a standard that more specifically addresses this issue, ITS (Intertek Testing Services) recommends that AC 116 is more appropriate.

It is ITS's opinion that it is appropriate to state specific loads for this material. ASTM D5456-99 clause A2.6.1 states, "The equivalent specific gravity is determined from Table 12.21 or Ref. (3) such that the table value for the tested nail does not exceed the average ultimate withdrawal resistance in pounds per inch (N/mm) from A2.4 divided by 5.0…" The safety factor for withdrawal in ASTM D5456 matches that of AC 116, again justifying its applicability to this issue. ASTM D5456 does not have a comparable safety factor for lateral load resistance. In the absence of a standard that more specifically addresses this issue, ITS suggests that AC 116 is more appropriate.

Given the low C.O.V. of the web tensile test results, it is the opinion of ITS that a safety factor of approximately three is appropriate. ITS chose to use the lateral resistance factors of AC 116 for consistency.

CALCULATIONS:

1. **Web Tensile:** 842 lbs. x 0.75 = 631 lbs. (Proportional limit assumed to be the same as ultimate load – brittle failure)
   842 lbs. ÷ 3.2 = 263 lbs. (Based on average ultimate load)

2. **Fastener Testing:**

(A) Withdrawal Resistance: Type "S" Screw F_{allow} = 178 lbs. ÷ 5 = 35 lbs.
Type "W" Screw F_{allow} = 166 lbs. ÷ 5 = 33 lbs.

(B) Lateral Resistance: Type "S" Screw F_{allow} = F ÷ 3.2 = 328 lbs. ÷ 3.2 = 102.5 lbs.
Type "W" Screw F_{allow} = F ÷ 3.2 = 367 lbs. ÷ 3.2 = 114 lbs.

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

Commercial Building Product Evaluation No. 20199000
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CONCLUSIONS:
Physical Properties of Polypropylene Reinforcing Webs

The polypropylene reinforcing webs were found to have the following allowable loads, as recommended by ITS when analyzed in accordance with ICC ES AC 116 (July 2001) "Acceptance Criteria for Nails and Spikes." (The withdrawal resistance utilized a safety factor of five as per ICC ES AC 116, Section 4.2. The lateral resistance of both the Type "W" screws and the Type "S" screws utilize a safety factor of 3.2 when analyzed in accordance with ICC ES AC 116, Section 4.1.):

- Withdrawal resistance of a Type "S" fine thread drywall screw is 35 lbs.
- Withdrawal resistance of a Type "W" coarse thread drywall screw is 33 lbs.
- Lateral resistance of a Type "S" fine thread drywall screw is 102 lbs.
- Lateral resistance of a Type "W" coarse thread drywall screw is 114 lbs.

The polypropylene reinforcing web tensile strength is recommended by ITS to be 263 lbs., based on a safety factor of 3.2 analyzed in accordance with ICC ES AC 116, Section 4.1. The maximum negative wind pressure for a cladding system attached to the EPS foam plastic panels is based on the maximum fastener values connected into the polypropylene reinforcing webs. For a screwed system into the webs, 8 inches on center vertically, and 6 inches on center horizontally, the allowable negative withdrawal is 99 lbs./ft^2. This withdrawal capacity can be converted to a wind speed based on the following formula extrapolated from the 1997 Uniform Building Code Table 16-F at a standard height of 33 feet:

$q_s = Kv^2$

where: q_s = wind pressure (lbs./ft^2)
and: v = basic wind speed (mph)
and: $K = 0.00256$
thus: $v = (q_s \div 0.00256)^{1/2}$
given: q_s = 99 lbs./ft^2 (allowable negative withdrawal)
then: v = 197 mph

- **Three Hour Fire Endurance Test:** ASTM E119-98, "Standard Test Methods for Fire Tests of Building Construction and Materials"

The objective of the test: to determine whether the polypropylene reinforcing web, a component of the form system, would melt out and cause a loss of support for the non-fire side standard ½-inch gypsum thermal barrier and consequently create a through opening in the concrete wall, and/or flaming of the polypropylene reinforcing web and expanded polystyrene foam on the unexposed side, or create openings in the concrete wall that would result in the ignition of cotton waste.

The April 23, 2002 Intertek Testing Services NA Ltd./Warnock Hersey fire test sample was constructed to be representative of the code requirements for a foam insulated concrete wall system. The Beaver Plastics Ltd. Insulating concrete form system was tested in accordance with UBC 26-3, "Room Fire Test Standard for Interior of Foam Plastic Systems," [refer to ITS/Warnock Hersey report #3020964(a)] and met the conditions of acceptance for a 15-minute index.

CONCLUSIONS:
The Beaver Plastics Ltd. "Logix" insulating concrete forms (EPS) protected by a ½" standard gypsum wallboard thermal barrier met the criteria of acceptance of ASTM E119-98, "Standard Test Methods for Fire Tests of Building Construction and Materials" for a three-hour fire resistance rating. The polypropylene web did not melt out and did not cause a loss of support for the non-fire side standard ½" gypsum thermal barrier. As no through-openings developed in the concrete wall section, no possibility of ignition of cotton waste occurred. There was no occurrence of burn-through or through-openings in the concrete wall, nor was there flaming of the polypropylene web and expanded polystyrene foam on the unexposed side.

The Beaver Plastics Ltd. "Logix" insulating concrete forms (EPS) are consequently eligible for a three-hour fire resistance rating.

LIMITATIONS OF APPROVAL

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

Commercial Building Product Evaluation No. 20199000
Page 6

The limitations below are in accordance with the current **Wisconsin Uniform Dwelling Code (UDC),** for 1 & 2 family dwellings**:**

- **Foam Plastic:** The ICF wall system is approved for use with a thermal barrier to separate the blocks from interior spaces in accordance with **SPS 321.11(1)**. Where a 1-inch thickness of masonry does not separate the polystyrene blocks from the building interior, including at the top of the wall, a thermal barrier, which has a finish rating of at least 15 minutes, shall be provided.
  1. Logix Form Blocks are approved for use in combustible non-rated construction in accordance with **SPS 321.11**. In one- or two-family dwellings, thermal barriers shall be provided to separate the forms from the occupied space of the dwellings per **SPS 321.11**.
  2. The exterior face of the blocks shall be finished with an approved weather covering and must be protected from ultraviolet light.

- **Structural:** The Logix Form Blocks are approved as structural building elements.
  1. The units are approved for use as concrete forms for basement walls and exterior walls when the resulting concrete core thickness satisfies **Table 321.18-B** for one- or two-family dwellings, or when structural calculations for the product are submitted for review.
  2. Walls shall be anchored to all floors and roofs. Walls shall be interconnected at corners by embedding and lapping the reinforcement.
  3. Structures are **limited** to two stories in height.
  4. The forms are approved for use as concrete forms for basement walls, exterior walls and retaining walls when structural calculations are submitted to the local building inspector.
  5. Below grade walls shall be damp-proofed when required by the local building department.
  6. Damp-proofing and water-proofing materials shall be approved by AMC Foam Technologies, Inc. and the local building official, and shall be free of solvents that will adversely affect the EPS foam.

  NOTE: The Logix Insulated Concrete Form Wall System was **not** evaluated for compliance with the thermal requirements of **Subchapter III and IV** of chapter SPS 322 provisions.

The **2015 IBC** limitations below are in accordance with the 2018 **Wisconsin Commercial Building Code:**

- **Foam Plastic:** The Logix ICF wall system is approved for use with a thermal barrier to separate the blocks from interior spaces in accordance with **IBC 2603.4.**
  1. In accordance with **IBC 2603.4.1.6**, when the Logix ICF is used within the attic or crawl space where entry is made only for service utilities, the foam plastic insulation shall be protected against ignition by 1½" thick mineral fiber insulation, a ¼" thick wood structural panel, particleboard or hardboard, gypsum wallboard, corrosion-resistant steel or other approved material installed so that the foam plastic is not exposed.
  2. The protective covering shall be consistent with the requirements for the type of construction.

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

3. The crawl space shall not be used for storage or air handling purposes, there are no interconnected basement areas and entry to the crawl space is only for service of utilities.
4. The exterior face of the blocks shall be finished with an approved weather covering per IBC 1405.2 and must be protected from ultraviolet light per IBC 1404.13 & IECC C303.2.1.

- **Structural:** Design of concrete formed by Logix Forms must comply with **IBC Chapter 19** with the following requirements:
  1. *The forms are approved for use as concrete forms for basement walls, exterior walls and retaining walls when structural calculations are submitted to the department by a Wisconsin registered professional engineer or architect.
  2. *Design calculations of walls must comply with section **IBC 1901.2.** Use of the empirical masonry design approach specified in **IBC 2109.1 [SPS 362.2109]** is prohibited.
  3. Design of lintels shall comply with the applicable provisions of **IBC Chapter 16.**
  4. Wall loading shall be in accordance with **IBC Chapter 16**.
  5. Minimum wall reinforcement shall conform to **IBC 1901.2**. When the code requires that vertical and horizontal reinforcement be spaced no further apart than 18 inches or three times the wall thickness, whichever is less, the maximum concrete wall thickness along the length of the wall is permitted to be used to determine rebar spacing.
  6. Walls shall be anchored to floors and roofs in accordance with **IBC 1604.8.2**. Walls shall be interconnected at corners by embedding and lapping reinforcement in accordance with the code.
  7. Design of shear walls shall be in accordance with sections **IBC 1901.2** and **1905**.
  8. Structures are **limited** to two stories in height plus a basement.
  9. Below grade walls shall be damp-proofed when required by the local building department. Water proofing shall be in accordance with **IBC 1805**.
  10. Damp-proofing and water-proofing materials shall be approved by AMC Foam Technologies, Inc. and the local building official, and shall be free of solvents that will adversely affect the EPS foam.
  11. Special inspection per **IBC chapter 17** are not required when meeting these limitations:
      a) Wall systems are a maximum of 8 feet high and are limited to use in single-story construction of Group R-3, or Group U occupancies.
      b) Maximum height of a concrete pour is 48 inches. Succeeding lifts must be placed in accordance with ACI 318 as modified by **IBC 1905.**
      c) Installation is by properly trained installers approved by AMC Foam Technologies, Inc.
      d) The installation instructions indicate methods used to verify proper placement of concrete.
  12. Walls constructed with Logix ICF are considered Type V Construction.

***Alternate Design:** In lieu of calculations, the structural design of reinforced concrete formed by Logix Insulated Concrete Form Wall System insulated concrete form blocks for residential construction is permitted to comply with the *Prescriptive Design of Exterior Concrete Walls for One- and 2-Family Dwellings* (PCA 100), published by the Portland Cement Association (PCA). Buildings constructed with the Logix Insulated Concrete Form Wall System insulated concrete form system and designed in accordance with the alternate design, will not exceed a height of two stories plus a basement, where the maximum unsupported wall height is 10 feet.

7.1 – WISCONSIN BUILDING PRODUCTS EVALUATION CONTINUED

NOTE: The Logix Insulated Concrete Form Wall System was **not** evaluated for compliance with the thermal requirements of **IECC chapters C4 & R4**.

Identification: Each package bears a label specifying the name and address of the manufacturer (AMC Foam Technologies, Inc., Headingley, MB R4H0A8, Canada). Additionally, product labels indicate the Wisconsin Building Product Evaluation Number and the name and logo of the quality control agency.

DISCLAIMER

This approval will be valid through December 31, 2024, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation Number must be provided when plans that include this product are submitted for review. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: *Jack A. Miller*

Approval Date: February 19, 2019 By: Jack A. Miller
Commercial building plan examiner and product reviewer

7.2 – STATE OF FLORIDA CERTIFICATE OF APPROVAL

2/20/2021 Florida Building Code Online

FLORIDA DEPARTMENT OF Business & Professional Regulation

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Product Approval
USER: Public User

Product Approval Menu > Product or Application Search > Application List > **Application Detail**

OFFICE OF THE SECRETARY

FL #	FL14469-R3
Application Type	Revision
Code Version	2017
Application Status	Approved
	*Approved by DBPR. Approvals by DBPR shall be reviewed and ratified by the POC and/or the Commission if necessary.
Comments	
Archived	
Product Manufacturer	Logix Insulated Concrete Forms
Address/Phone/Email	199-1917 West 4th Avenue Vancouver, FL 33133 (866) 944-0153 francis@logixicf.com
Authorized Signature	Francis Roma francis@logixicf.com
Technical Representative	Francis Roma
Address/Phone/Email	2755 Columbia Street Vancouver (866) 944-0153 francis@logixicf.com
Quality Assurance Representative	Francis Roma
Address/Phone/Email	106 Perma R Road Johnson City, TN 37063 francis@logixicf.com
Category	Structural Components
Subcategory	Insulation Form Systems
Compliance Method	Certification Mark or Listing
Certification Agency	QAI Laboratories
Validated By	QAI Laboratories

Referenced Standard and Year (of Standard)

Standard	Year
ASTM C578	2012
ASTM D1761	2006
ASTM D1929	2012
ASTM D635	2010
ASTM E119	2012
ASTM E2634	2011
ASTM E84	2013

Equivalence of Product Standards
Certified By

https://www.floridabuilding.org/pr/pr_app_dtl.aspx?param=wGEVXQwtDquiKNpeAsu%2bZM79cusQpogW3e6v6rZil4lgEcZ9r3d6dA%3d%3d 1/2

EVALUATION REPORTS

7.2 – STATE OF FLORIDA CERTIFICATE OF APPROVAL CONTINUED

Product Approval Method	Method 1 Option A
Date Submitted	07/21/2017
Date Validated	07/21/2017
Date Pending FBC Approval	
Date Approved	07/25/2017

Summary of Products

FL #	Model, Number or Name	Description
14469.1	Logix Insulated Concrete Forms	Insulated concrete forms
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** N/A **Other:**		**Certification Agency Certificate** FL14469_R3_C_CAC_3. B1031-1 Edition 2 - Logix - ICF Listing Page 2015.pdf FL14469_R3_C_CAC_Logix- Load Bearing Exterior Wall Assembly Design Listing.pdf **Quality Assurance Contract Expiration Date** 01/01/2022 **Installation Instructions** FL14469_R3_II_Logix-Design-Manual-2017 Part I.pdf FL14469_R3_II_Logix-Design-Manual-2017 Part II.pdf FL14469_R3_II_Logix-Design-Manual-2017 Part III.pdf Verified By: QAI Laboratories Created by Independent Third Party: **Evaluation Reports** Created by Independent Third Party:

Back Next

7.3 – MIAMI-DADE COUNTY

MIAMI-DADE COUNTY

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Perma R Products, Inc.
P.O. Box 5235
Johnson City, TN 37602

SCOPE:
This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER-Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).
This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Logix Insulating Concrete Forms

APPROVAL DOCUMENT: Drawing No. **SB-Rev7**, titled "Logix Standard Forms", sheet 1 of 1, prepared by Logix Insulated Concrete Forms, dated 09/16/2014, signed and sealed by Hermes F. Norero, P.E. on 09/27/2019, bearing the Miami-Dade County Product Control revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: None

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/series, and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.
This NOA **renews** and **revises NOA #14-0715.04** and consists of this page 1, evidence page E-1, as well as approval document mentioned above.
The submitted documentation was reviewed by **Carlos M. Utrera, P.E.**

MIAMI-DADE COUNTY APPROVED

10/23/2019

NOA No 19-0925.02
Expiration Date: September 23, 2024
Approval Date: November 31, 2019
Page 1

7.3 – MIAMI-DADE COUNTY CONTINUED

Perma R Products, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. **Evidence submitted under previous NOA's**

A. **DRAWINGS** ***"Submitted under NOA #14-0715.04"***

1. Drawing No. **SB-Rev7**, titled "Logix Standard Forms", sheet 1 of 1, prepared by Logix Insulated Concrete Forms, dated 09/16/2014, signed and sealed by Christopher W.C. Bowness, P.E.

B. **TESTS** ***"Submitted under NOA #14-0715.04"***

	Report	Test	Date	Signature
1.	RJ3526-1 Rev. 1	ASTM D1929	10/23/14	C. Bowness, P.E.
2.	RJ3526-2 Rev. 1	ASTM D1929	10/23/14	C. Bowness, P.E.

"Submitted under NOA # 03-0319.01"

	Report	Test	Date	Signature
3.	RAD-3015	ASTM C303	April 2002	J. D. Waldman
4.	RAD-3015	ASTM C518	April 2002	J. D. Waldman
5.	RAD-3015	ASTM E96	April 2002	J. D. Waldman
6.	RAD-3015	ASTM C272	April 2002	J. D. Waldman
7.	RAD-2725	ASTM D1929	Feb 2001	M. L. Zieman.
8.	UL R-7503	ASTM E84	06/18/98	No signature.
9.	UL R-7503	ASTM E84	06/18/98	No signature.
10.	ETL 3050535	ASTM G21	03/17/04	S. J, Emermas, P.E.

C. **CALCULATION**

1. None.

D. **QUALITY ASSURANCE**

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. **MATERIAL CERTIFICATION**

1. None.

F. **STATEMENTS**

1. Statement letter of code conformance to 6th edition (2017) FBC and of no financial interest issued by Building Drops, Inc., dated 09/27/2019, signed and sealed by Hermes F. Norero, P.E.

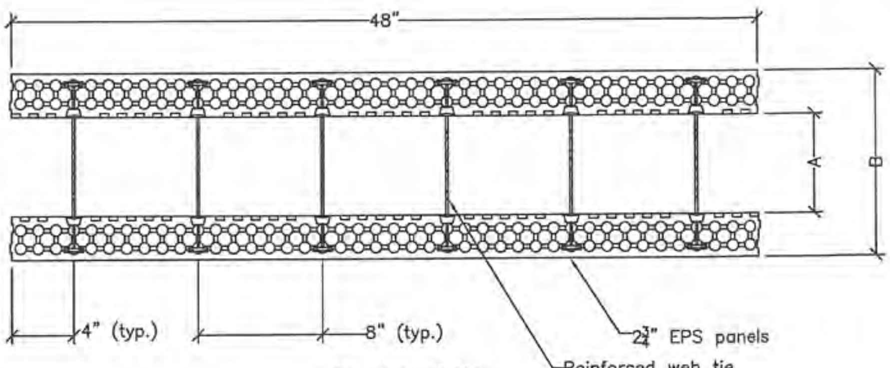
10/23/2019

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No 19-0925.02
Expiration Date: September 23, 2024
Approval Date: November 31, 2019

E - 1

EVALUATION REPORTS

7.3 – MIAMI-DADE COUNTY CONTINUED

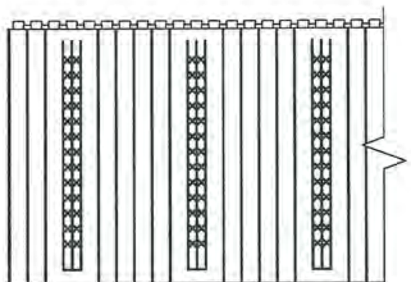


PLAN VIEW

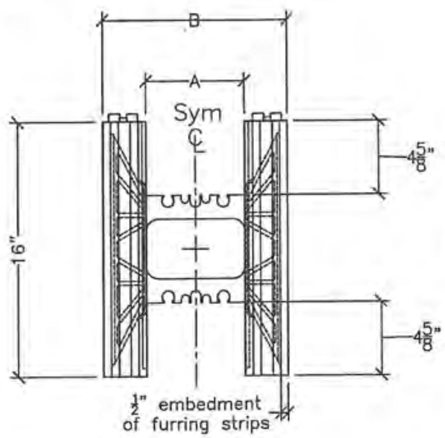
PRODUCT DESCRIPTION:
The Logix Insulated Concrete Forms consist of expanded polystyrene (EPS) interlocking rigid foam plastic boards that serve as permanent formwork for reinforced concrete, exterior and interior walls, lintel beams, and foundation and retaining walls.

PRODUCT PROPERTIES:

Description	Properties	Requirements	Test
Min. Density	1.35 pcf	1.35 pcf	ASTM C303
Flame Spread	5	Max. 75	ASTM E84
Smoke Development	400	Max. 450	ASTM E84
Self Ignition	810°F	Min. 650°F	ASTM D1929
Max. Thermal Conductivity per inch	0.237 Btu-in/hr-ft²-F	0.25 Btu-in/hr-ft²-F	ASTM C518
Odor Emission	Not detected	Not detected	AATCC-112
Water Vapor Transmission per inch	3.10 perms	Max. 3.5 perms	ASTM E96
Max Water Absorption	0.76% water abs by vol.	Max 3.0%	ASTM C272
Fungus Resistance	No bacteria growth	No growth	ASTM G21



SIDE ELEVATION



END VIEW

FORM SIZES

	4"	6.25"	8"	10"	12"
A	4"	6.25"	8"	10"	12"
B	9.5"	11.75"	13.5"	15.5"	17.5"

NOTES:

1. The product shown herein is designed and manufactured to comply with the 6th Edition (2017) Florida Building Code (FBC).
2. This approval pertains to the insulation properties of the Logix Insulated Concrete Forms and it does not approve the concrete, the structure and/or the forming capacity of the material and the system.
3. The forming system shall comply with ACI 347.
4. The Concrete walls shall comply with the requirements of ACI 318.

LOGIX™ INSULATED CONCRETE FORMS
Good. Solid. Green.™ www.logixicf.com
PERMA R PRODUCTS, INC.
P.O. BOX 5235
JOHNSON CITY, TN 37602
1-800-251-7532

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 19-0925.02
Expiration Date 09/23/2024
By
Miami-Dade Product Control

HERMES F. NORERO LICENSE No. 37778 STATE OF FLORIDA PROFESSIONAL ENGINEER
HERMES F. NORERO, P.E. FLORIDA P.E. No 73778 BUILDING DROPS, INC. 38 N. DANIA BEACH BLVD. #38 DANIA BEACH, FL 33004 FBPE CERT. OF AUTHORIZATION No. 29578
10-8-2019

Drawing:	Date:	Sheet:
SB–Rev7	SEP 16/14	1/1

Title: LOGIX STANDARD FORMS

7.4 – CITY OF NEW YORK - MEA (MATERIALS & EQUIPMENT ACCEPTANCE)

NYC BUILDINGS

NYC Department of Buildings
280 Broadway, New York, NY 10007
Patricia Lancaster, FAIA, Commissioner
(212) 566-5000, TTY: (212) 566-4769

Report of Materials and Equipment Acceptance Division

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use subject to the terms and conditions contained herein.

MEA 273-04-M

Manufacturer: Logix Insulated Concrete Forms Ltd., 840 Division Street, Cobourg, Ontario, Canada K9A 4J9.

Trade Name(s): Logix.

Product: Fire rated exterior insulation concrete forms wall assembly for combustible construction.

Pertinent Code Section(s): 27-297, 27-107, 27-133.

Prescribed Test(s): RS 5-5 (ASTM E84), Toxicity, RS 5-2 (ASTM 119).

Laboratory: Intertek Testing Services Ltd.

Test Report(s): Intertek Testing Services Test Report 3020964(b), dated April 24, 2002; Intertek Testing Services Test Report 3020964, dated April 8, 2002; Intertek Testing Services Test Report 3020964(a), dated June 12, 2002. Intertek letter dated November 11, 2003 and SwRI Project No. 01.10935.02.045 dated November 23, 2005.

Description: The Logix Insulated Concrete Forms are stay-in-place concrete forms for reinforced concrete wall systems. The wall system shall be constructed using a minimum ½ inch thick gypsum drywall to achieve the required fire resistance rating, and installed as shown in Figure 1.

Form Size (Wall Thickness)	Fire Rating
4”	2 hours
6.25”	3 hours
8” and larger	4 hours

7.4 – CITY OF NEW YORK - MEA CONTINUED

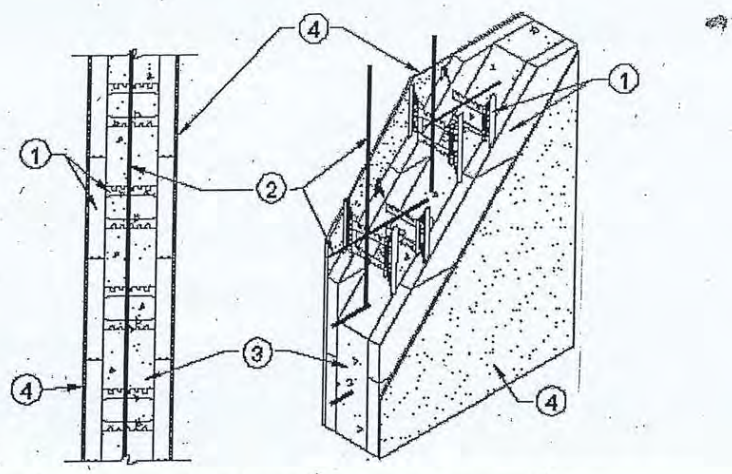


Figure 1. Logix Insulated Concrete Form wall system

1. **Insulated Concrete Forms** – Standard form units comprised of two 48" x 16" x 2.75" thick expanded polystyrene (EPS) panels linked by polypropylene webs spaced at 8" on center. The widths of the wall cavity are 4", 6.25", and 10". Height adjusters consist of 24" long, by 4" high, by 2.75" thick flat EPS panels. End caps are 16", 2.75" thick and range in widths are 4", 6.25", 8" and 10". For a complete listing of products visit the Logix website, www.logixicf.com. Logix ICF's bear the Warnock Hersey certification mark.
2. **Steel Reinforcement** – steel reinforcement shall be placed as per the Logix ICF Product Manual, or as per local engineering design and building code requirements.
3. **Normal Weight Concrete** – 145 ± 5 lb/ft³ density, 2900 psi compressive strength.
4. **Gypsum Board** – Classified or unclassified ½ " thick, 48" wide gypsum wallboard fastened to flanges of polypropylene webs with 1.5" long drywall screws spaced on center 12" vertically and 16" horizontally. Minimum weight 1.6 psf. Joints covered with joint compound. Screwheads covered with joint compound.

Terms and Conditions – The above described wall assembly consisting of exterior concrete form and other components be accepted as having fire resistance classification listed above for combustible construction only, when installation complies with the applicable New York City Codes, Rules and Regulations and in particular with Section 27-297A, Tables 3-4, and 4-2 of the Building Code, for 1, 2 or 3 family, when interior and exterior of the concrete form is covered with accepted one hour fire rated material.

This acceptance does not include structural adequacy of wall design, which must be certified by a P.E., or R.A. for particular structures for compliance with the Building Code prior to plan examination by department engineers.

All shipments and deliveries of such materials shall be accompanied by a certificate or label certifying that the materials shipped or delivered are equivalent to those tested and acceptable for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance February 10, 2006

Examined By Sium Derkhudam

MEA 273-04-M Page 2 of 2

EVALUATION REPORTS

7.5 – NON-COMBUSTIBLE CONSTRUCTION (I-CODES)

Intertek ETL SEMKO

February 2, 2006

Francis Roma
Logix Insulated Concrete Forms Ltd.
327 – 801 Klahanie Drive
Port Moody, BC V3H 5K4

Dear Mr. Roma,

RE: Installation of Logix ICF in Non-Combustible Construction, Project # 3091401

INTRODUCTION

Intertek Testing Services NA Ltd. (Intertek) has reviewed, at the request of Logix Insulated Concrete Forms (ICF) Ltd., the requirements for Non-Combustible Construction as it relates to Insulated Concrete Forms (ICFs) under the 2003 International Building Code (IBC). This evaluation is based on past test reports, and Logix ICF Ltd. current application to ICC-ES to include multi-storey construction.

STANDARDS AND CRITERIA

- 2003 International Building Code
- ICC-ES AC12 "Acceptance Criteria for Foam Plastic Insulation"

EVALUATION

Section 3.3 of ICC-ES AC12 states that in some instances foam plastic can be permitted where non-combustible materials are required if conditions of the 2003 IBC, Section 2603.5 are met. This section has been summarized below, and evidence provided to demonstrate how Logix ICF complies for use in non-combustible construction.

1) 2603.5.1 Fire Resistance rated Walls: Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 shall be provided.

Intertek Testing Services NA Ltd.
1500 Brigantine Drive, Coquitlam, BC V3K 7C1 Canada
tel: 604-520-3321 fax: 604-524-9186 Home Page www.intertek-etlsemko.com

The Logix ICFs achieved a 3 hour fire resistance rating when tested by Intertek in Intertek Test Report 3020964(d) dated June 2, 2004. A further study was conducted in which, the Intertek Letter dated November 11, 2003 showed that the presence of plastic ties in the concrete would not affect the ability of the wall to achieve a fire resistance rating of up to 4 hours.

2) 2603.5.2 Thermal Barrier: Any foam plastic insulation shall be separated from the building interior by a thermal barrier meeting the provisions of Section 2603.4.

Section 2603.4 requires that the interior of a building be separated from the foam plastic by an approved thermal barrier of ½ inch (12.7 mm) gypsum wallboard or equivalent thermal barrier that will limit the average temperature rise of the unexposed surface to not more than 250°F (120°C) after 15 minutes of fire exposure. The thermal barrier must also be installed in a manner that will remain in place for 15 minutes based on UL1715 (UBC Standard 26-3).

ASTM E119 testing per Intertek Test Report 3020964(d) was conducted using a ½ inch gypsum wallboard, and results showed that the temperature rise after 15 minutes was less than 60°F on the unexposed side.

A standard room fire test per Intertek Test Report 3020964(a) was also conducted in accordance with UBC Standard 26-3, and results showed that the ½ inch gypsum wallboard remained intact.

3) 2603.5.3 Potential Heat: The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259.

One of the polystyrene beads used in Logix ICF are Huntsmen Grade 40 and 54, for which Southwest Research Institute conducted testing per NFPA 259 and have reported in SwRI Project No. 01.03049.01.303. Results showed potential heat ratings of 17,293 Btu/lb and 17,269 Btu/lb for Grade 40 and 54 respectively.

4) 2603.5.4 Flame Spread and Smoked Developed Indexes: Foam plastic insulation shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84.

Flame Spread and Smoke Developed indexes have been obtained for Huntsmen Grade 40 and 54, one of the main polystyrene beads used in Logix ICF. These results are reported in Underwriters Laboratories Inc. Test Report 96RT6559, which show that various densities of Huntsmen polystyrene beads all achieve flame spread index ratings less than 25 and smoke-developed indices below 450 when tested in accordance to UL 723.

7.5 – NON-COMBUSTIBLE CONSTRUCTION (I-CODES) CONTINUED

5) 2603.5.5 Test Standard: The wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Testing to NFPA 285 is done on the finished wall assembly which includes the cladding (ex. Exterior Insulation and Finish System (EIFs)). This is a test that is primarily done by the cladding manufacturers to show conformance to NFPA 285 per the requirements of Section 3.3.2.1 and 3.3.2.2 of ICC-ES AC12. This is beyond the scope for an ICF manufacturer.

6) 2603.5.6 Label Required: The edge or face of each piece of foam plastic insulation shall bear the label of an approved agency.

Logix ICFs are manufactured under a third party inspection and listing program by Intertek, and all complying Logix ICF are marked with the Intertek – Warnock Hersey Certification Mark.

Each ICF is labeled with the following information: Company Name & Contact Information, Manufacturer's Location, Product Description, Complying Test Standards, Warnock Hersey Certification Mark, and Traceability Information (operator name, date, time).

7) 2603.5.7 Ignition: Exterior walls shall not exhibit sustained flaming when tested in accordance with NFPA 268.

This section lists a few exceptions that result in the foam plastic insulation not requiring testing in accordance to NFPA 268. Logix ICFs meet the exceptions as a thermal barrier (½" gypsum wallboard) complying with Section 2603.4 is used.

CONCLUSION

It is Intertek's professional opinion after reviewing Section 2603.5 of the 2003 IBC and the evidence shown above, that the Logix ICF meets the requirements for non-combustible construction for exterior walls of buildings of Type I, II, III or IV construction.

If you have any questions, please do not hesitate to contact us at 604-520-3321.

INTERTEK TESTING SERVICES NA LTD.
Warnock Hersey

Prepared By: ____________________ Reviewed By: ____________________

Kal Kooner, EIT
Engineer, Building Products

Peter Gildenstern, AScT
Asst. Mgr., Engineering Services

Enclosure

EVALUATION REPORTS

7.6 – VAPOR BARRIER (I-CODES)

The following evaluation report, although evaluated to the Canadian Codes, determines the permeance value of Logix. (Both I-codes and Canadian Codes determines permeance in accordance with ASTM E96)

The permeance value, as per the report, is noted as
36 ng/Pa-s-m^2 (or 0.63perms), which meets the requirement as a vapor retarder/barrier, according to the I-codes.

7.6 – VAPOR BARRIER (I-CODES) CONTINUED

1 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted an engineering evaluation for Logix Insulated Concrete Forms Ltd., on Logix ICF, to evaluate the vapor permeance properties of the product. The evaluation was conducted to determine if Logix ICF meets the 2005 National Building Code (NBC) for use as a vapor barrier.

2 Sample Description

Logix ICF consists of rigid interlocking expanded polystyrene (EPS) foam plastic boards that serve as permanent formwork for reinforced concrete, exterior and interior walls, and foundation and retaining walls.

3 Reference Documents

- 2005 National Building Code (NBC)
- ASTM E96/96M-05, Standard Test Methods for Water Vapor Transmission of Materials (ASTM E96)
- Intertek Test Report 3048347 dated October 14, 2003
- Intertek Letter dated January 6, 2005

4 Evaluation Method

Vapor barrier properties and installation are described in detail in Section 5.5.1.2 of the 2005 NBC. These details are summarized below:

1) The vapor barrier shall have sufficiently low permeance and shall be positioned in the building component or assembly so as to
   a) minimize moisture transfer by diffusion, to surfaces within the assembly that would be cold enough to cause condensation at the design temperature and humidity conditions, or
   b) reduce moisture transfer by diffusion, to surfaces within the assembly that would be cold enough to cause condensation at the design temperature and humidity conditions, to a rate that will not allow sufficient accumulation of moisture to cause deterioration or otherwise adversely affect any of
      i. the health or safety of building users,
      ii. the intended use of the building, or
      iii. the operation of building services.
2) Coatings applied to gypsum wallboard to provide required resistance to vapour diffusion shall conform to the requirements of Sentence (1) when tested in accordance with CAN/CGSB-1.501-M, "Method for Permeance of Coated Wallboard."

7.6 – VAPOR BARRIER (I-CODES) CONTINUED

3) Coatings applied to materials other than gypsum wallboard to provide required resistance to vapor diffusion shall conform to the requirements of Sentence (1) when tested in accordance with ASTM E96, "Water Vapor Transmission of Materials" by the desiccant method (dry cup).

Vapor Barrier materials are further discussed in Section 9.25.4.2 of the 2005 NBC under Sentence (1) which is summarized below:

1) Vapor barriers shall have a permeance not greater than 60 ng/Pa-s-m2 measured in accordance with ASTM E96, "Water Vapor Transmission of Materials" by the desiccant method (dry cup).

Logix ICF fall under Sentence (3) of Section 5.5.1.2 of the 2005 NBC and have been tested by Intertek in accordance with ASTM E96 using the desiccant method. The results were summarized in Intertek Test Report 3048347 dated October 14, 2003 and showed that a 1-inch Logix ICF had a water permeance of 100 ng/Pa-s-m^2. In the field, Logix ICF is installed with a 2.75-inch thickness and thus the calculated water permeance at this thickness is 36 ng/Pa-s-m^2. The detailed calculations are shown in Intertek Letter dated January 5, 2005. Based on these results, Logix ICF meets the requirements of Section 9.25.4.2, Sentence (1) of the 2005 NBC and can be installed without the use of a vapor barrier.

5 Conclusion

Intertek has conducted an engineering evaluation for Logix Insulated Concrete Forms Ltd., on Logix ICF, to determine if the Logix ICF meets the 2005 National Building Code as a vapor barrier. The analysis, per Section 4 above, showed that Logix ICF meets the water permeance requirements and can be installed without a vapor barrier.

INTERTEK TESTING SERVICES NA LTD.

Reported by: Matt Lansdowne
Matt Lansdowne, EIT
Engineer, Building Products

Reviewed by: ____________________
Kal Kooner, EIT
Team Leader, Engineering Services Canada

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Testing everywhere for markets anywhere.

EVALUATION REPORTS

7.7 – LEED V4 EVALUATION

TECHNICAL BULLETIN
No.37 - 053014

LEED v4 BD+C for Logix (US & Canada)

POTENTIAL LEED POINTS CONTRIBUTION WITH LOGIX[1]

Sustainable Sites	Applicable Building Types	Maximum Points Contribution	Comments
Protect or Restore Habitat	All	2 (1 for healthcare)	Although the points may not apply to LOGIX, wall bracing for LOGIX is one of a combination of actions that, together with other procedures, can result in proper protection or restoration of natural areas around the job site. LOGIX is typically placed within the building perimeter. This type of assembly avoids disturbance to existing natural areas and keeps construction activity close to the building perimeter.

Energy & Atmosphere	Applicable Building Types	Maximum Points Contribution	Comments
Minimum Energy Performance	All	n/a (required)	The continuous insulation and air barrier properties of Logix can help meet required minimum levels of efficiency for the building.
Optimize Energy Performance	All	18 except Schools and Healthcare (16 for Schools, 20 for Healthcare)	The continuous insulation and air barrier properties of Logix can help achieve the levels of energy performance that go beyond the prerequisite standard.

Material & Resources	Applicable Building Types	Maximum Points Contribution	Comments
Construction and Demolition Waste Management Planning	All	n/a (required)	Logix products produce little waste compared to wood, which should ease the waste management planning. In addition, EPS recycling programs can be implemented as part of the waste management planning.
Building Life-cycle Impact Reduction	All	3	Can help contribute 3 points under "Option 4. Whole-Building-Life-Cycle Assessment." The high energy efficient walls Logix creates contributes to the reduction of a building's impact on global warming.
Building Product Disclosure & Optimization - Environmental Product Declarations.	All	1	Can help contribute 1 point under "Option 1. Environmental Product Declaration (EPD)." Logix uses EPS which carries EPD documents, which conform to ISO 14025.
Building Product Disclosure & Optimization - Sourcing of Raw Materials.	All	2	Logix products are made with up to 10% recycled pre-consumer EPS.
Building Product Disclosure & Optimization - Material Ingredients.	All	1	Contributes to 1 point under "Option 3. Product Manufacturer Supply Chain Optimization." Logix products are certified under a third party program with Quality Auditing Institute (QAI).

7.7 – LEED V4 EVALUATION CONTINUED

TECHNICAL BULLETIN No.37 - 053014

LEED v4 BD+C for Logix (US & Canada)

Material & Resources	Applicable Building Types	Maximum Points Contribution	Comments
Construction & Demolition Waste Management	All	2	Programs can be put in place to recycle EPS from job sites. EPS is also light in weight, and produces less waste than wood products.

Indoor Environmental Quality	Applicable Building Types	Maximum Points Contribution	Comments
Minimum Acoustic Performance	Schools	N/a (required)	Logix can help increase the acoustical performance of wall and ceiling assemblies.
Low-emitting Materials	All	3	Logix Platinum is made with BASF Neopor, which is Greenguard Certified. In addition, the EPS used for Logix has been tested to show no signs of harmful emissions.
Thermal Comfort	All except Core & Shell	1	Logix offers continuous insulation in wall and ceiling assemblies, and is made with BASF Neopor, which offer the highest thermal value of any EPS material.
Acoustic Performance	All except Core & Shell	1	Logix can contribute to the STC ratings of wall and ceiling assemblies. STC testing of various wall assemblies have been conducted with Logix.

[1]The total LEED point contribution from Logix is a best estimate based on available information and test data. The actual LEED point contribution may change based on project specifics, and should be determined by a LEED Accredited Professional for each project seeking LEED accreditation.

For more information about the LEED green building rating system visit www.usgbc.org or www.cagbc.org.

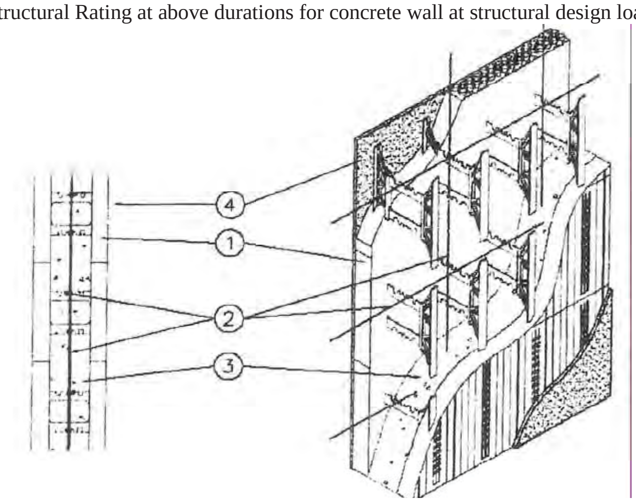
7.8 – QAI FIRE RESISTANCE RATING

Standards: ASTM E119 - "Standard Test Methods for Fire Tests of Building Construction and Materials";

CAN/ULC S101 – "Standard Methods of Fire Endurance Tests of Building Construction and Materials"

	Rating	Product Density	Maximum Cavity Width	Maximum Panel Thickness
ASTM E119 / CAN/ULC S701 Ratings:	2-Hour	1.35 pcf	4 inches	2 3/4 inches
	3-Hour	1.35 pcf	6 1/8 inches	2 3/4 inches
	4-Hour	1.35 pcf	8 inches	2 3/4 inches

Structural Rating at above durations for concrete wall at structural design load.



Assembly Details:

1. Insulated Concrete Forms – Standard forms made of two 16" x 48" by 2.75" thick expanded polystyrene (EPS) block panels connected by polypropylene detail webs at 8" O.C. The minimum width of the cavity is 4" as shown in the ratings table above (rating depends on cavity thickness).

2. Reinforcing Steel - No. 4 steel reinforcing bars placed horizontally in each course and vertically at 16" O.C. along centerline of wall cavity thickness.

3. Sand-Limestone Concrete – 145 +/- 5 pcf density, 2900 psi nominal compressive strength concrete.

4. Gypsum Wallboard – Min. ½" thick, 1.5 psf minimum density, 48" wide gypsum wallboard fastened to flanges of polypropylene webs with 2" long drywall screws at 16" horizontally and vertically. Joints covered with joint compound, covered with joint tape, and covered with an additional coat of joint compound. Screw heads covered with joint compound.

7.9 – QAI LISTING REPORT

BUILDING PRODUCTS LISTING PROGRAM

Class:	Insulated Concrete Forms (ICF)
Customer:	LOGIX Insulated Concrete Forms, Ltd.
Location:	9242 Pinetree Place, Whistler, BC, Canada, V0N 1B9
Website:	www.LOGIXicf.com
Listing No.	B1031-1
Effective Date:	September 27, 2010
Last Revised:	May 27, 2014
Expires:	N/A
Product:	LOGIX Insulated Concrete Forms (ICF)

Standard(s):

ASTM E2634 "Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems".

CAN/ULC S717.1 "Standard for Flat Wall Insulating Concrete Form (ICF) Systems".

CAN/ULC S701 "Thermal Insulation, Polystyrene, Boards and Pipe Covering".

CAN/ULC S102.2 "Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies".

ASTM C578 "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

ASTM E84 - "Standard Test Method for Surface Burning Characteristics of Building Materials".

UBC 26-3 "Room Fire Test Standard For Interior of Foam Plastic Systems".

CAN/ULC-S101 "Standard Methods of Fire Endurance Tests of Building Construction and Materials".

ASTM E119 / ANSI / UL 263 "Standard Test Methods for Fire Tests of Building Construction and Materials".

Label: **Product is marked with labels supplied by LOGIX Insulated Concrete Forms, Ltd. The label includes the manufacturer's name, trademark, or other recognized symbol of identification, the product model designation, month and year of manufacture or equivalent, QAI logo with the 'US' and "C" identifier, and CAN/ULC S701 Type 2, ASTM C578 Type II, ASTM E84 FSI and SDI Rating, and CAN/ULC S102.2 FSI and SDI Rating. Labels are applied to palletized finished products to ensure visibility on the jobsite.**

Ratings: The following outlines LOGIX ICF test results determined in accordance with the noted standards.

7.8 – QAI LISTING REPORT CONTINUED

LOGIX ICF Fastener Resistance Ratings

FASTENER	ALLOWABLE WITHDRAWAL		ALLOWABLE LATERAL SHEAR	
	lbs	kg	lbs	kg
#6 1 ¼ inch Length Coarse Thread Drywall Screw	23	10	59	26

LOGIX ICF Type 2 Specifications per CAN/ULC S701

PROPERTY	LOGIX SPECIFICATION
Thermal Resistance $m^2 {}^{*o}C/W$ at 25 mm Thickness	Minimum 0.70
Water Vapour Permeance $Ng/Pa^*s^*m^2$ at 25 mm Thickness	Maximum 200
Dimensional Stability % Linear Change	Maximum 1.5
Flexural Strength kPa	Minimum 240
Water Absorption % Volume	Maximum 4.0
Compressive Strength kPa at 10% Deformation	Minimum 110
Limiting Oxygen Index %	Minimum 24

LOGIX ICF Type II Specifications per ASTM C578

PROPERTY	LOGIX SPECIFICATION
Compressive Resistance psi at Yield or 10% Deformation	Minimum 15.0
Thermal Resistance $F^*ft^2{}^*h/Btu$ at 1.00 Inch Thickness	Minimum 4.0
Flexural Strength psi	Minimum 35.0
Water Vapor Permeance Perms at 1.00 Inch Thickness	Maximum 3.5
Water Absorption % Volume	Maximum 3.0
Dimensional Stability % Change Dimensions	Maximum 2.0
Oxygen Index % Volume	Minimum 24.0
Density lbs/ft^3	Minimum 1.35

LOGIX ICF Surface Burning Characteristics per CAN/ULC S102.2

LOGIX COMPONENT	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Expanded Polystyrene (EPS Panel)	22 – 29 kg/m3	100 mm Maximum	≤ 210	≥ 500

LOGIX ICF Surface Burning Characteristics per ASTM E84[1]

LOGIX	DENSITY	MAXIMUM	FLAME	SMOKE

7.8 – QAI LISTING REPORT CONTINUED

COMPONENT		THICKNESS	SPREAD INDEX (FSI)	DEVELOPED INDEX (SDI)
Expanded Polystyrene (EPS Panel)	1.35 – 1.80 lbs/ft^3	4.0 Inches Maximum	≤ 75	≤ 450

[1]Ceiling Measurement Only. This measurement is conducted through determination of flame spread index and smoke developed index with the removal of any contribution of molten materials ignited on the floor of the tunnel assembly.

LOGIX UBC 26-3 Configuration

Meets requirements with ½ inch thickness gypsum fastened with 2 ¼ inch length standard drywall screws at 12 inch on center. Fasteners must be anchored into LOGIX ICF web ties.

QAI Design Listing B1031-1 LOGIX Insulated Concrete Form (ICF) – CAN/ULC S101 / ASTM E119
Load Bearing Fire-Resistance-Rated Wall Assembly[1]

ASSEMLY RATING (Hours)	MINIMUM CONCRETE CORE THICKNESS (MM)	MINIMUM CONCRETE CORE THICKNESS (INCHES)
2	102	4
3	159	6.25
4	204	8

(See pdf Attachment)

NO.	COMPONENT	DESCRIPTION
1	Interior Sheathing	Minimum ½ inch (12 mm) thickness ASTM C1396 listed gypsum wall board, installed with 51 mm (2 inch) length drywall screws spaced at 406 mm (16 inches) on center horizontally and vertically. For 6 ¼ inch concrete LOGIX ICF product used in load bearing fire-resistance-rated wall assemblies, listed 16 mm (5/8 inch) thickness Type X gypsum wall board complying with ASTM C1396 is required fastened as noted above. Gypsum is required to be taped and mudded per industry standard and the applicable model code.
2	Expanded Polystyrene (EPS) Insulation	LOGIX ICF component 70 mm (2 ¾) inch thickness Type 2 (CAN/ULC S701) / Type II (ASTM C578) QAI certified expanded polystyrene thermal insulation. LOGIX ICF EPS panels have interlocking teeth to allow stacking onsite to create the forming wall.
3	Web Ties	LOGIX polypropylene web tie component, spaced at 203 mm (8 inches) on center spacing through LOGIX ICF. Web ties can be stacked or staggered vertically during installation (staggered web tie system shown).
4	Concrete Core	Minimum core as noted in Table above of 20 MPa (2,900 psi) compressive strength concrete. Steel reinforcing, while not shown, is approved for use. Rebar addition is to be designed and approved by a registered design professional, or authority having jurisdiction in accordance with the applicable code

7.8 – QAI LISTING REPORT CONTINUED

		requirements.
5	Exterior Cladding (Not Shown)	Exterior claddings are approved for use with the LOGIX ICF load bearing fire-resistance-rated wall assemblies without negatively impacting the fire rating. These exterior claddings include: brick veneer, stucco, fire rated exterior insulating finish systems where no additional EPS is added, cultured stone, aluminum and steel products. All exterior claddings are to be installed with the applicable building code, and the manufacturer's approved installation instructions.

Note 1: The allowable load for LOGIX ICF Load Bearing Fire-Resistance-Rated Construction is to be determined by a registered design professional, or authority having jurisdiction in accordance with the applicable codes.

Note: **Final acceptance of the product in the intended application is to be determined by the authority having jurisdiction.**

Product is to be installed in accordance with the manufacturer's published installation instructions by qualified installing personnel.

The materials, products or systems listed herein have been qualified to bear the QAI Listing Mark under the conditions stated with each Listing. Only those products bearing the QAI Listing Mark are considered to be listed by QAI.

No warrantee is expressed or implied, and no guarantee is provided that any jurisdictional authority will accept the Listing found herein. The appropriate authorities should be contacted regarding the acceptability of any given Listing.

Visit the QAI Online Listing Directory located at www.qai.org for the most up to date version of this Listing and to validate that this QAI Listing is active.

Questions regarding this listing may be directed to info@qai.org. Please include the listing number in the request.

***

FORM History

History Date	Version	Change Description	Reviewed By	Approved By
04/17/2014	3.0	Added disclaimer to form.	J. Johnson	K. Adamson

8.0 – SPECIFICATIONS & REFERENCES

8.1 – TECHNICAL SPECIFICATIONS

Updated 12/10/19

LOGIX INSULATED CONCRETE FORMS
MATERIAL PROPERTY DATA SHEET

This document is intended for general information purposes only regarding specifications for Logix Insulated Concrete Forms (herein referred to as Logix ICF). Technical specification sheet, as per Construction Specifications institute (CSI) formatting, can be downloaded at www.logixicf.com.

1 PRODUCT DESCRIPTION

- Logix ICF consists of two flame-resistant EPS boards separated by polypropylene webs.
- Logix ICF consists of solid form units (LOGIX Pro Forms) or knock-down forms (LOGIX KD Forms) or a combination of both Logix form and Logix KD forms, referred to as LOGIX Hybrid Forms.
- The EPS foam boards are a minimum 70 mm (2.75 inch) thick. Increased EPS foam boards are available by utilizing D-Rv insert panels, which provides additional thickness in increments of 50 mm (2 inch).
- The webs separate the EPS boards to form 102 mm (4 inch), 159 mm (6.25 inc), 203 mm (8 inch), 254 mm (10 inch) and 305 mm (12 inch) cavities, which create the concrete wall thicknesses. With Logix Xtenders the concrete wall thickness can be increased to virtually any thickness.
- The webs are spaced every 203 mm (8 inch) on centre horizontally and 406 mm (16 inch) on centre vertically, and contain a 32 mm (1.25 inch) wide furring strip that extends the height of each ICF block. The furring strips shall facilitate fasteners for attachment of both exterior and interior finishes.
- A furring strip is located in the corners of corner forms. The furring strip consists of both a vertical and horizontal component. The vertical component extends nearly the full height of the form, extends a minimum of 64 mm (2.5 inches) from both sides of the corner, and a minimum of 5 mm (0.2 inches) thick. The horizontal component is a minimum 51mm (2 inches) in height, extend a minimum of 152 mm (6 inches) from both sides of the corner, and a minimum of 5 mm (0.2 inches) thick.
- The webs facilitate rebar placement in accordance with CAN/CSA A23.1, and ACI 318

8.1 – TECHNICAL SPECIFICATIONS CONTINUED

Updated 12/10/19

2 LOGIX PRODUCTS

Logix manufactures both assembled and unassembled insulated concrete form units. Logix assembled forms, known simply as "Logix PRO", are delivered to the job site as assembled form blocks. Logix unassembled forms (or knock-down forms), known as "Logix KD", are delivered to the job site in components that make up the form blocks - the form panels and KD Connectors. Logix KD are assembled on the job site.

Below is a summary of the types of Logix and Logix KD forms available.

LOGIX (assembled form blocks)

	Description
Logix Pro	White in color
Logix Pro Platinum[3]	Grey in color. Offers higher R-value[1] than Logix Pro.
Logix Pro TX	Logix Pro with termite resistant additive Preventol[2].
Logix Pro Platinum[3] **TX**	Logix Platinum with Preventol.

LOGIX KD (unassembled form blocks)

	Description
Logix KD	White in color
Logix KD Platinum[3]	Grey in color. Offers higher R-value[1] than LOGIX Pro.
Logix KD TX	Logix Pro with termite resistant additive Preventol[2].
Logix KD Platinum[3] **TX**	Logix Platinum with Preventol.

Notes:
1. See Logix Design Manual, Section 8.5 for Logix R-values.
2. Preventol is an effective termite resistant additive.
3. 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 buildup 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).

8.1 – TECHNICAL SPECIFICATIONS CONTINUED

Updated 12/10/19

LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

3 CODE/CERTIFICATION APPROVALS

- QAI evaluation to IBC and IRC 2012
- Miami-Dade County Approval No.19-0925.02
- State of Florida Certification of Approval No.FL14469-R3
- Wisconsin Building Products Evaluation No.20199000
- City of New York Materials and Equipment Acceptance – MEA 273-04-M
- QAI listed QM0503
- ASTM E2634, Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems
- ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- CAN/ULC S717, Standard for Flat Wall Insulating Concrete Form (ICF) Units - Material Properties
- CAN/ULC S701, Standard for Thermal Insulation, Polystyrene Boards

4 DESIGN/PERFORMANCE OF LOGIX ICF

A brief description of each test is outlined in the attached Appendix. Test reports are available upon request.

Test Description	Result	Pass/Fail Criteria	Referenced Standard Test Method
R-Value (Thermal Resistance) per inch (per 25.4mm)	R 4.13 (RSI 0.72)	Min. R 4.00 (RSI 0.70)	ASTM C518
Water Absorption	0.18%	Max. 3.0%	ASTM D2842
Water Vapor Presence	100.0ng/Pa-s-m2 (1.74perm-in.)	Max. 201 ng/Pa-s-m2 (3.5perm-in.)	ASTM E96
Compressive Strength	165kPa (23.9psi)	Min. 104kPa (15.0psi)	ASTM D1621 & ASTM C165
Flexural Strength	365kPa (53.0psi)	Min. 240kPa (35.0psi)	ASTM C203
Dimensional Stability – Thermal & Humid Aging	0.5%	Max. 2.0%	ASTM D2126
Density	27.5kg/m3 (1.72pcf)	Min. 22 kg/m3 (1.35pcf)	ASTM C1622 & ASTM C303
Dimensions	Min. length variation = 0.0% Max. length variation = 0.4% Min. width variation = 0.1% Max. width variation = 0.4% Min. thickness variation = -0.3mm Max. thickness variation = 0.9mm Max. squareness = 3mm	Min. -0.2% Max. 0.4% Min. -0.2% Max. 0.4% Max. -2mm Max. 4mm Max. 3mm	ASTM C303
Limiting Oxygen Index	29.1%	Min. 24.0%	ASTM D2863
Formaldehyde Emission	No formaldehyde detected	N/A*	AATTC-112
Fungi Resistance	No fungal growth detected	N/A*	ASTM G21
Flame Spread Rating	< 25	N/A*	ASTM E84/CAN ULC S102

8.1 – TECHNICAL SPECIFICATIONS CONTINUED

Updated 12/10/19

LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

Test Description	Result	Pass/Fail Criteria	Referenced Standard Test Method
Smoke Developed Rating	< 450	N/A*	ASTM E84/CAN ULC S102
Fire Endurance Test	See Fire Resistance Rating table	N/A*	ASTM E119/CAN ULC S101
Standard Room Fire Test	w/in acceptable limits	Met conditions required for exposure to fire for 15 minutes.	UBC 26-3/CAN ULC 1715
Concrete Pour-in-place	Observations of deflection recorded.	N/A*	CCMC Masterformat 03131
Sound Transmission	STC 56 for 6.25" Logix wall system (2 layers of 5/8" drywall & 2x2 wood strips on one side, ½" drywall on the other side) STC 50 for 4" Logix wall system (½" drywall & 2x2 wood strips on one side, ½" drywall on the other side).	N/A*	ASTM E90
UPITT Toxicity	Pass	LC50 < 19.7g	University of Pittsburgh Toxicity Test

*Code body or referenced test standard required reporting test results only - no Pass/Fail criteria specified.

8.1 – TECHNICAL SPECIFICATIONS CONTINUED

Updated 12/10/19

LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

TESTS CONDUCTED ON POLYPROPYLENE WEB

Test Description	Result	US Requirements	Referenced Standard Test Method
Flammability	Flame Front Distance = 100mm (4") Avg. Linear Burn Rate = 17.9mm/min (0.70in/min)	Max. linear burn rate = 40.0mm/min (1.57in/min) for Flame Front Dist. = 100mm (4")	ASTM D635
Smoke Density Rating	19.1%	Max. 75%	ASTM D2843
Average Lateral Fastener Resistance of Drywall Screws	1.63kN (367lbs)	N/A*	ASTM D1761
Average Withdrawal Fastener Resistance of Drywall Screws	0.75kN (169lbs)	N/A*	ASTM D1761
Shear Strength of Polypropylene Web	26.1MPa (37.9psi)	N/A*	ASTM D732, CCMC Masterformat 03131
Average Tensile Strength of Polypropylene Web	3.75kN (842lbs)	N/A*	ASTM D638
Average Withdrawal Resistance of Staples 1.59mm 16ga.	105N (24lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Withdrawal Resistance of Plane Shank 1.5" long, 3/8" head	155N (35lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Withdrawal Resistance of Ring Shank 1.5" long, 3/8" head	431N (97lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Withdrawal Resistance of Spiral Shank 1.5" long, 3/8" head	135N (30lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Lateral Resistance of Staples 1.59mm 16ga.	169N (38lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Lateral Resistance of Plane Shank 1.5" long, 3/8" head	520N (117lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Lateral Resistance of Ring Shank 1.5" long, 3/8" head	378N (85lbs)	N/A*	ASTM D1761 (under cyclic temperatures)
Average Lateral Resistance of Spiral Shank 1.5" long, 3/8" head	200N (45lbs)	N/A*	ASTM D1761 (under cyclic temperatures)

8.1 – TECHNICAL SPECIFICATIONS CONTINUED

Updated 12/10/19

LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

Test Description	Result	US Requirements	Referenced Standard Test Method
Average Withdrawal Resistance of Corrosion Resistance No.8-18 x 0.323 HD x 1.5/8"	567N (127lbs)	N/A*	ASTM D1761
Average Withdrawal Resistance of Corrosion Resistance 6d (0.113" shank x 0.267 HD x 2" long)	93N (21lbs)	N/A*	ASTM D1761
#6 Coarse Drywall Screw, 1-5/8" long**	787N (177lbs)	N/A*	ASTM D1761
#6 Fine Drywall Screw, 1-5/8" long**	765N (172lbs)	N/A*	ASTM D1761
16ga. Staple, 1-1/2" long**	124N (28lbs)	N/A*	ASTM D1761
Galvanized Ringed Wallboard Nail, 1-1/2" long**	462N (104lbs)	N/A*	ASTM D1761
Hot-dipped Galvanized Spiral Nail, 2" long**	226N (51lbs)	N/A*	ASTM D1761
#8 Wood Screw, 2" long**	920N (207lbs)	N/A*	ASTM D1761
#8 Exterior Deck Screw, 2" long**	934N (210lbs)	N/A*	ASTM D1761
#10 Wood Screw, 2" long**	880N (198lbs)	N/A*	ASTM D1761

*Code body or referenced test standard required reporting test results only - no Pass/Fail criteria specified.

**Applicable to corner web only.

FIRE RESISTANCE RATING

Form Size (Concrete Wall Thickness)	Rating with ½" drywall
100mm (4")	2hrs
159mm (6.25")	3hrs (4hrs if 5/8" drywall used)
203mm (8") and above	4hrs

*Bearing load applied to wall = 360,000lbs (360kips)

8.2 – MATERIAL SAFETY DATA SHEET

SAFETY DATA SHEET

Safety Data Sheet – Expanded Polystyrene (EPS) in Logix® Insulated Concrete Forms

SECTION 1 - IDENTIFICATION

Product identifier:	Logix® Insulated Concrete Forms, Logix® Pro Buck, Logix® XP-1
Other means of identification:	Logix ICF
Recommended use:	Stay-In-Place Insulated Concrete Forms
Company:	Logix Insulated Concrete Forms Ltd. PO Box 162 Port Hope, Ontario L1A 3W3 1-866-944-0153
Emergency telephone number:	Francis Roma 1-866-944-0153

SECTION 2 – HAZARDOUS IDENTIFICATION

GHS classification:	None
Label elements:	None
Signal word:	None
Hazard statements:	None
Precautionary statements:	Keep away from heat/sparks/open flames/hot surfaces. - No smoking Avoid breathing dust/fume/gas/mist/vapours/spray. Wash thoroughly after handling Wear respiratory protection.
Other hazards:	May accumulate combustible dust particles when sanding or sawing in restricted or confined spaces. Residual off-gassing of blowing agent may occur in low toxicity levels under normal use conditions.

SECTION 3 – COMPOSTION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Content
Benzene Ethenyl-Homopolymer (Common Name: Polystyrene)	9003-53-6	> 90%
Pentane	109-66-0	>1% - <5.0%
Isopentane	78-78-4	<1.0%

8.2 – MATERIAL SAFETY DATA SHEET CONTINUED

SECTION 4 – FIRST AID MEASUREMENTS	
Inhalation:	When hot-knifing vapors may cause irritation to nose and throat. Dizziness may occur in poorly ventilated areas when hot-knifing. Remove affected individual into fresh air and keep the person calm. If difficulties occur, seek medical attention.
Skin contact:	This material is not considered to be a skin irritant. In cases where irritation may occur to extra sensitive skin, wash with soap and water for several minutes. Get medical attention if skin irritation develops or persists.
Eye contact:	Flush eyes with water for several minutes. Get medical attention if eye irritation persists or particulates are difficult to remove from the eye.
Ingestion:	This material is not considered to be hazardous when ingested but may cause blockage of air passage if large pieces are ingested. Get medical attention and apply proper first aid for persons with air passage blocked.
Physical state:	Solid
Odour & appearance:	Slight hydrocarbon odour, White in color

SECTION 5 – FIRE-FIGHTING MEASURES	
Suitable extinguishing media:	Use water spray, dry chemical, foam or carbon dioxide to extinguish flames.
Special protective equipment and precautions for fire-fighters:	Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.
Flash Point:	175 – 185 ºC (347 – 365 ºF), ASTM D3278
Autoignition:	285 ºC (571 ºF), DIN 51794
Lower explosion limit:	1.4 % (V) (air)
Upper explosion limit:	8.3 % (V) (air)
Flammability:	Not highly (UN Test N.1 (ready combustible solids))
Self-ignition temperature:	Not self-igniting
Further information:	Fire gives off black smoke consisting of carbon monoxide (< 10ppm), carbon dioxide (500ppm), oxides of nitrogen (4ppm), including trace of amounts of pentane, aldehydes and keytones. Fire hazards increase with presence of ignition sources or high concentrations of dust from work sites.

8.2 – MATERIAL SAFETY DATA SHEET CONTINUED

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions:	Sources of ignition should be kept well clear. Maintain proper ventilation in areas prone to static discharge (high dust environment) or products prone to combustion.
Environmental precautions:	Do not allow to enter drains or waterways.
Methods and materials for containment and cleaning up:	Loose material can be vacuumed or swept and placed in disposal containers. This material can be disposed of in accordance with local, state/provincial and federal regulations. This material is not considered a hazardous waste.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling:	Take special precautions in handling and unloading product onto the construction site. When loading or unloading from trucks use either proper lifting equipment or use a minimum of 2 persons when manually loading or unloading pallets from trucks.
Conditions for safe storage (including incompatible materials):	Storage locations should be in an area that will minimize damage or soiling to products. Products can be exposed to UV or freezing rain or snow for prolonged periods. However, protection is recommended in cases where stored or installed products are exposed for more than 4 weeks. Keep products away from heat, sparks, flames or other ignition sources.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

Eye protection:	Approved safety goggles when applying fasteners, sanding or sawing.
Skin protection:	Approved gloves and/or sleeves should be worn if sensitive to material composition of products.
Respiratory protection:	Approved dust mask when sanding, sawing or when working in high dust/particulates environment. In areas of high dust, vapor or mist content exceeding safe exposure limits use NIOSH or MSHA approved air purifiers or air supplied respirators.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Rigid cellular foam blocks and shapes. White in color.
Odour:	Faint odour.
Odour threshold:	N/A
pH:	N/A
Melting point/freezing point:	Softens at approximately 70 ºC (160 ºF)
Initial boiling point/boiling range:	N/A
Evaporation rate:	N/A
Flammability (solid, gas):	> 24% oxygen index (ASTM D2863)

8.2 – MATERIAL SAFETY DATA SHEET CONTINUED

Vapour pressure:	N/A
Vapour density:	N/A
Solubility:	Insoluble in water. Soluble with materials containing primarily of hydrocarbons, aldehydes, esters and amines.
Partition coefficient – n-octanol/water:	N/A
Viscosity:	N/A

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:	Products react to high temperatures and strong oxidizers.
Chemical stability:	Stable under normal use conditions.
Possibility of hazardous reactions:	None.
Conditions to avoid:	Avoid all sources of ignition, such as heat, sparks, open flame. Unstable when exposed to high temperatures. Recommended maximum use temperature of 60ºC (166ºF).
Incompatible materials:	Not compatible with materials containing primarily of hydrocarbons, aldehydes, esters and amines.
Hazardous decomposition products:	High heat or combustion produces black smoke consisting of carbon monoxide (< 10ppm), carbon dioxide (500ppm), oxides of nitrogen (4ppm), including trace of amounts of pentane, aldehydes and keytones.

SECTION 11 – TOXICOLOGICAL INFORMATION

Primary route of entry:	Eyes, skin and inhalation.
Effects of Acute Exposure:	
Eyes:	When hot-knifing material, vapors may cause irritation to eyes.
Skin:	This material is not considered to be a skin irritant. Products may contain small particulates of dust accumulated naturally from surrounding environment, which may cause skin irritation with possible mild discomfort on extra sensitive skin.
Inhalation:	When hot-knifing vapors may be cause irritation to nose and throat. Dizziness may occur in poorly ventilated areas when hot-knifing.
Effects of chronic exposure:	Exposure to vapors may aggravate existing respiratory conditions, such as asthma, bronchitis and inflammatory or fibrotic respiratory disease.

SECTION 12 – ECOLOGICAL INFORMATION

Non-biodegradable.

SECTION 13 – DISPOSAL CONSIDERATIONS

Loose material can be vacuumed or swept and placed in disposal containers.

This material can be disposed of in accordance with local, state/provincial and federal regulations. This material is not considered a hazardous waste.

8.2 – MATERIAL SAFETY DATA SHEET CONTINUED

SECTION 14 – TRANSPORT INFORMATION

N/A

SECTION 15 – REGULATORY INFORMATION

All ingredients listed with TSCA and DSL (Toxic Substances Control Act and Domestic Substances List, respectively)

EPCRA 311-312 (Emergency Planning and Emergency Right-to-Know Act): Not hazardous

Classified as non-hazardous with WHMIS.

SECTION 16 – OTHER INFORMATION

SDS updates: October 30, 2018

TO THE BEST OF OUR KNOWLEDGE THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. HOWEVER, NEITHER THE ABOVE NAMED MANUFACTURER OR SUPPLIER NOR ANY OF ITS SUBSIDIARIES ASSUMES ANY LIABILITY WHATSOEVER FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN. FINAL DETERMINATION OF SUITABILITY OF ANY MATERIAL IS THE SOLE RESPONSIBILITY OF THE USER. ALL MATERIALS MAY PRESENT UNKNOWN HAZARDS AND SHOULD BE USED WITH CAUTION. ALTHOUGH CERTAIN HAZARDS ARE DESCRIBED HEREIN, WE CANNOT GUARANTEE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

8.3 – RECOMMENDED INDUSTRY PRACTICE FOR PLACING REINFORCING BARS

Reprinted from: THE MANUAL OF STANDARD PRACTICE by the Concrete Reinforcing Steel Institute, January 1997.

RECOMMENDED INDUSTRY PRACTICE FOR PLACING REINFORCING BARS*

1. Introduction

These recommendations for placing reinforcing bars are partially based upon the ACI Building Code.

2. General

Reinforcing bars should be accurately placed in the positions shown on the placing drawings and adequately tied and supported before concrete is placed, and secured against displacement within the tolerances recommended in Section 8.

Welding of crossing bars (tack welding) should not be permitted for assembly of reinforcement unless authorized by the Architect/Engineer.

3. Surface Condition of Reinforcement

At the time of concrete placement, all reinforcing bars should be free of mud, oil, or other deleterious materials. Reinforcing bars with rust, mill scale, or a combination of both should be considered as satisfactory, provided the minimum dimensions, weight, and height of deformations of a hand-wire-brushed test specimen are not less than the applicable ASTM specification requirements.

4. Bending

Reinforcing bars should not be bent or straightened in a manner that will injure the material. Bars with kinks or improper bends should not be used. Except for realignment of #7 through #18 rebar up to about 30° bend and #3 through #6 rebar up to about a 45° bend, no bars partially embedded in concrete should be field bent, except as shown on the project drawings or permitted by the Architect/Engineer.

5. Spacing of Reinforcement

The clear distance between parallel reinforcing bars in a layer should not be less than the nominal diameter of the bars, nor 1 in. Clear distance should also not be less than one and one-third times the nominal maximum size of the coarse aggregate, except if in the judgement of the Architect/Engineer, workability and methods of consolidation are such that concrete can be placed without honeycomb or voids.

Where parallel reinforcement is placed in two or more layers, the bars in the upper layers should be placed directly above those in the bottom layer with the clear distance between layers not less than 1 in.

Groups of parallel reinforcing bars bundled in contact, assumed to act as a unit, not more than four in any one bundle may be used only when stirrups or ties enclose the bundle. Bars larger than #11 should not be bundled in beams or girders. Individual bars in a bundle cut off within the span of flexural members should terminate at different points with at least 40 bar diameters stagger. Where spacing limitations and minimum clear cover are based on bar size, a unit of bundled bars should be treated as a single bar of a diameter derived from the equivalent total area.

In walls and slabs other than concrete joist construction, the principal reinforcement should not be spaced farther apart than three times the wall or slab thickness, nor more than 18 in.

In spirally reinforced and tied columns, the clear distance between longitudinal bars should not be less than one and one-half times the nominal bar diameter, nor 1½ in.

The clear distance limitation between bars should also apply to the clear distance between a contact lap splice and adjacent splices or bars.

6. Splices in Reinforcement**

6.1 General

Splicing of reinforcing bars should be either by lapping, mechanical connections, or by welding.

Splices of reinforcing bars should be made only as required or permitted on the project drawings or in the project specifications, or as authorized by the Architect/Engineer. All welding should conform to the current edition of "Structural Welding Code—Reinforcing Steel" (ANSI/AWS D1.4).

6.2 Lap Splices

Lap splices of #14 and #18 bars should not be used, except in compression only to #11 and smaller bars.

Lap splices of bundled bars should be based on the lap splice length recommended for individual bars of the same size as the bars spliced, and such individual splices within the bundle should not overlap each other. The length of lap should be increased 20 percent for a 3-bar bundle and 33 percent for a 4-bar bundle.

Bar laps placed in contact should be securely wired together in such a manner as to maintain the alignment of the bars and to provide minimum clearances.

Bars spliced by noncontact lap splices in flexural members should not be spaced transversely farther apart than one-fifth the required length of lap nor 6 in.

*For more complete recommendations on bar placement, see *Placing Reinforcing Bars* available from the Concrete Reinforcing Steel Institute

**See *Reinforcement: Anchorages, Lap Splices and Connections* by the Concrete Reinforcing Steel Institute

SPECIFICATIONS & REFERENCES

8.4 – STANDARD PRACTICE - SPLICING & DOWELS

Lap Splices

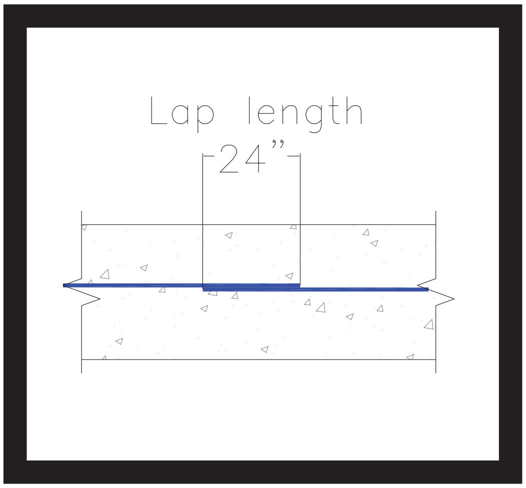


Figure 1a: Contact lap splices

A lap is when two pieces of rebar overlap to form a continuous line. This helps transfer loads properly throughout the structure. There are two types of lap splices: contact lap and non-contact lap splices (see Figure 1a and 1b). The lapped sections of contact lap splices are wired together. Lapped sections of non-contact lap splices do not touch and are permitted in practice provided the distance between lap sections meet the specified code requirements.

When using LOGIX ICFs non-contact lap splices can be used in lieu of contact lap splices.

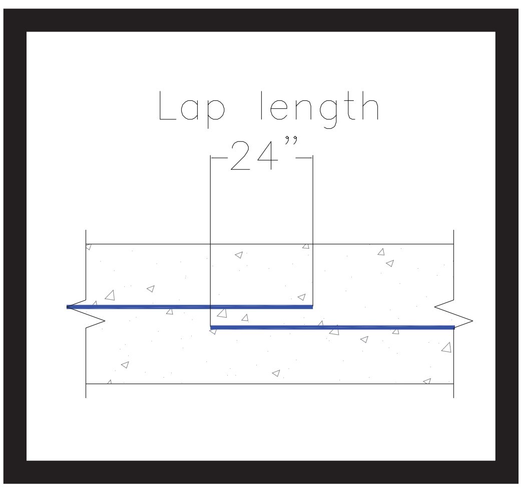


Figure 1b: Non-contact lap splices

Lap Splices in Horizontal Rebar

In traditional construction methods, contact lap splices are more commonly used because it offers the most reliable method of ensuring the lapped sections are secure against displacement, especially during concrete pours. LOGIX ICFs can accommodate contact lap splices. However, the rebar slots in the LOGIX webs are also designed to accommodate non-contact lap splices,

8.4 – STANDARD PRACTICE - SPLICING & DOWELS CONTINUED

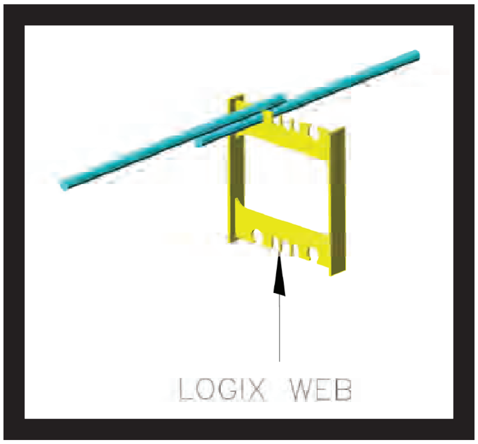


Figure 2a: Contact lap splices

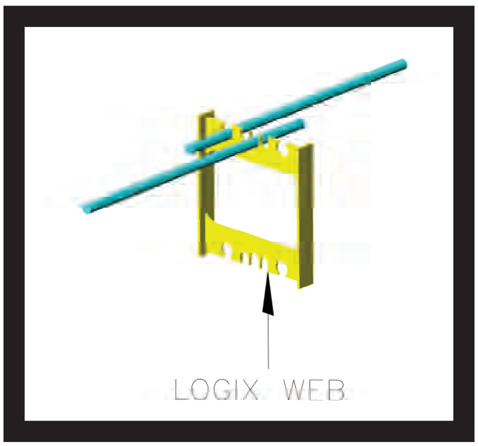


Figure 2b: Non-contact lap splices

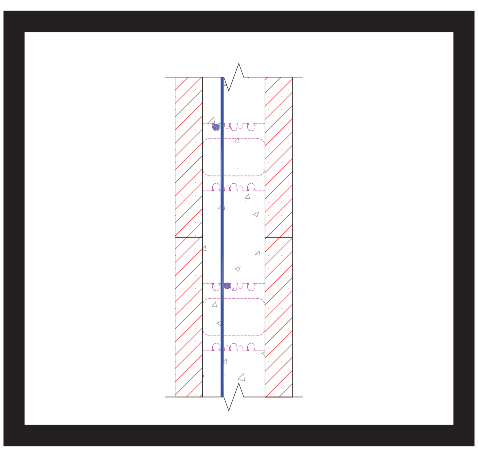


Figure 3: Vertical rebar in LOGIX ICF wall system

ensuring the horizontal rebar stays in place (see **Figure 2a** and **2b**). This minimizes the need to wire tie lapped sections and reduces labor.

The length of a lapped section (or lap length) varies depending mainly on the loading conditions, rebar size, rebar spacing, rebar grade and concrete strength. As a general rule, LOGIX recommends a lap length of 40d or 24", whichever is greater, for residential construction (see **Figure 1a** and **1b**).

Lap Splices in Vertical Rebar

For the same reason as horizontal rebar, contact lap splices are also more commonly used in traditional construction methods. However, contact lap splices are not necessary when using LOGIX ICFs. The LOGIX web ties, which are spaced horizontally every 8" (203mm) and about 5.25" (133mm) vertically per block, provides enough stability for placement of vertical rebar. Vertical rebar can be further secured if it is slid through a staggered pattern of horizontal rebar. The slots in the webs have been designed to accommodate this (see **Figure 3**).

8.4 – STANDARD PRACTICE - SPLICING & DOWELS CONTINUED

Footing Dowels

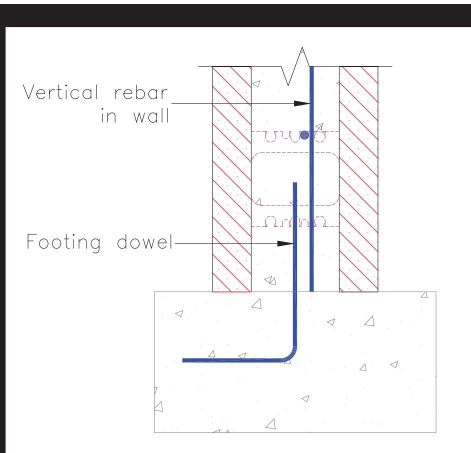
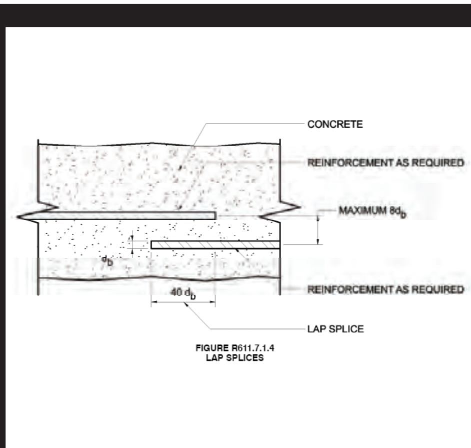


Figure 4: Wall/Footing connection

Footing dowels connects the wall to the footing (see **Figure 4**). This prevents wall movement at the wall/footing joint caused mainly by soil loads. In residential construction, the vertical rebar in the wall itself does not contribute to the strength of the wall/footing connection and hence is not required to splice with the footing or match the spacing of the footing dowels. In cases, where lap splice may be required, non-contact lap splices are permitted.



R611.7.1.4

Lap Splices –Building & Design Code References

International Building Code 2003 (IBC 2003), R611.7.1.4:

"R611.7.1.4 Lap Splices. Where lap slicing of vertical or horizontal reinforcing steel is necessary, the lap slice shall be in accordance with Figure R611.7.1.4 and a minimum of 40db, where db is the diameter of the smaller. The maximum distance between noncontact parallel bars at a lap slice shall not exceed 8db."

National Building Code 1995 (NBC 1995), 4.3.3.1:

Clause 4.3.3.1 references concrete design code, CSA A23.3 (specifically CSA A23.3, 12.14.2.3):

"12.14.2.3
Bars spliced by lap splices in flexural members shall have a transverse spacing not exceeding the lesser of one-fifth of the required lap splice length or 150mm."

SPECIFICATIONS & REFERENCES

8.5 – LOGIX R-VALUES

<table>
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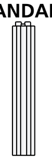</td><td colspan="2">TAPER TOP
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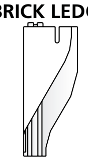</td></tr>
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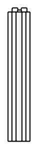
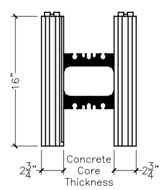
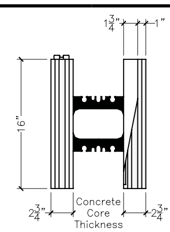
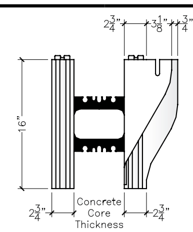
</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
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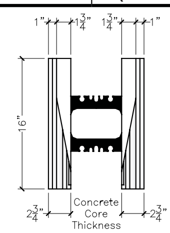
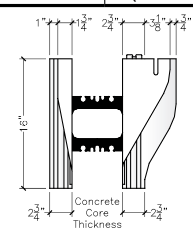
</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
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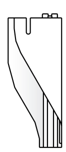
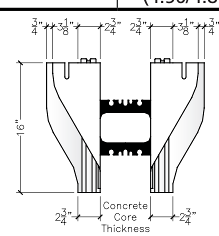
</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
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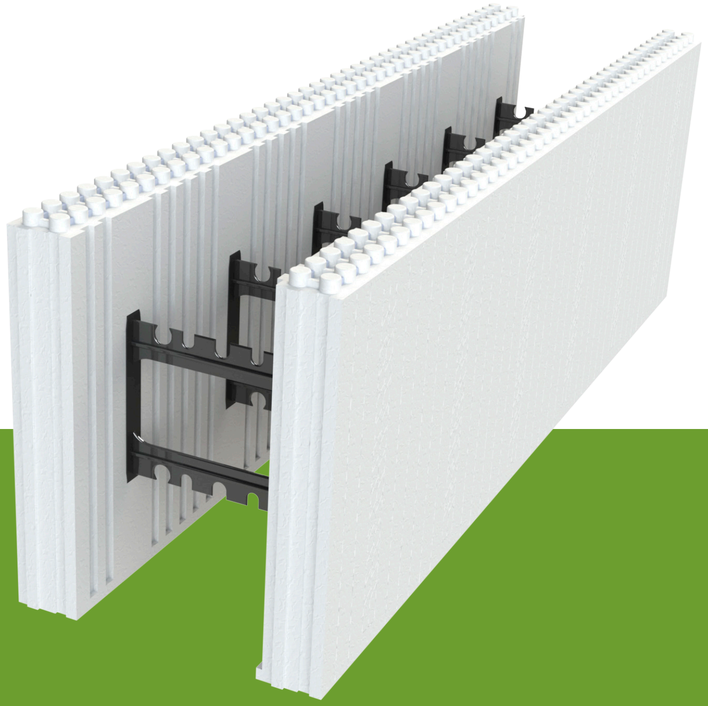
1. R1 denotes total R-value of form panels only (per ASTM C518 at average mean temperature of 75deg F.). R2 denotes total R-value of a wall assembly consisting of form panels, 4 inch concrete core, 1/2 inch drywall and interior airfilm. R1 and R2 are based on imperial units. R-values are based on independent testing conducted by Intertek Testing Services.



Connect with a Local Manufacturer

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Haysville, KS 67060-2004

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840 Division St.
Cobourg, ON K9A 5V2

877.789.7622
35 Headingley Rd.
Headingley, MB R4H 0A8

888.453.5961
11581-272 St.
Acheson, AB T7X 6E9

888.453.5961
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