LOGIX INSULATED CONCRETE FORMS
DESIGN MANUAL
VERSION 2013

Publication History

List of changes from previous version 2013 includes

	Changes
Section 2, Installation Guide	• Section 2.7.7 - T-WALLS Added 10” and 12” size LOGIX T-walls to table • Revised Section 2.7.7 to include LOGIX T-wall
Section 5, CAD Drawings - LOGIX ICF Forms	• 5.1.23 LOGIX T-Wall Added 10” and 12” size LOGIX T-walls
Section 5, CAD Drawings - Residential	• New drawing 5.5.6, LOGIX 6.25” Below- & Above-grade Wall W/ Brick Ledge • New drawing 5.8.8, Gable End Wood Framed Connection • Revised drawing 5.10.8, Brick Ledge Stirrup Detail, to include 10” Brick Ledge • New drawing 5.10.21, Overhead Garage Door • New drawing 5.10.22, Radon Barrier Slab • New drawing 5.10.23, Pool Detail Forming for Coping Option 1 • New drawing 5.10.24, Pool Detail Forming for Coping Option 2 • New drawing 5.10.25, Pool Detail of Inlet/Outlet Fixture • New drawing 5.10.26, Pool Detail at Footing • New drawing 5.10.27, Pool Skimmer • New drawing 5.10.28, Brick Ledge with Timber Post
Section 5, CAD Drawings - Commercial	• New drawing 5.2.12, Foundation W/ Tie Xtenders Supporting Stone Veneer • Revised drawing 5.9.7, Brick Ledge Stirrup Detail, to include 10” Brick Ledge • New drawing 5.9.42, Concrete Encased Steel Column • New drawing 5.9.43, Brick Ledge Shelf Angle
Section 6, US Engineering	• Lintel Tables 4A to 4E, 5A to 5E Added note to clarify factored loads • Minor editorial change Corrected note in Lintel Tables that referred to “Figure 8”. Changed to read “Figure 4”
Section 6, Canadian Engineering	• Lintel Tables 4A to 4E, 5A to 5E Added note to clarify factored loads
Section 6, US & Canadian Engineering	• 6.4, Footing Width Tables Added notes to clarify footing size, and applicable uses
Section 7, Evaluation Reports (US)	• 7.1.1, ICC-ES Updated to 2009 I-Codes • 7.1.4, State of Florida Certificate of Approval Updated to 2010 Florida Building Code

Publication History Cont'd

	Changes
Section 7, Evaluation Reports (Canada)	• 7.2.2, Ontario Ruling of the Minister Document no longer applicable due to ICFs now included in National Building Code. Document is available in the LOGIX Technical Library website • Minor Editorial Change: Section numbers changed to reflect removal of Section 7.2.2, Ontario Ruling of the Minister

1.0 – SYSTEM OVERVIEW

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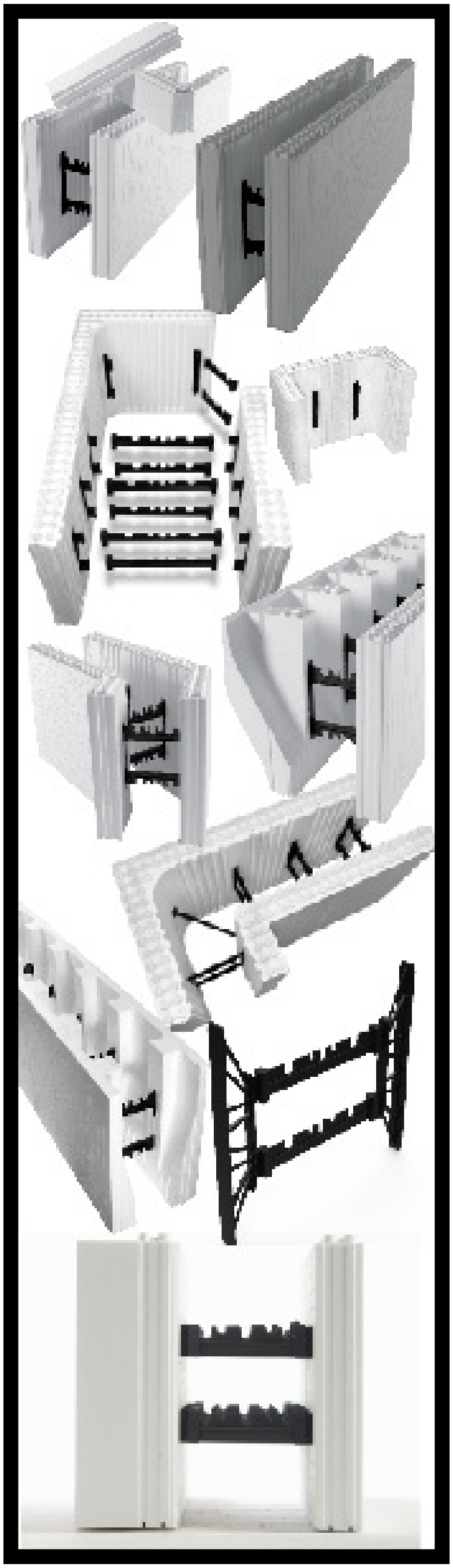
1.0 – SYSTEM OVERVIEW
1.1 – APPLICATION & USE



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, light commercial, institutional, and industrial buildings, providing excellent insulation as well as thermal mass and structural strength. LOGIX walls offer a 4-hour fire resistance rating.

LOGIX Insulated Concrete Forms are based on the simple concept of modular interlocking blocks. These "blocks" or "forms" are made of expanded polystyrene (EPS) panels, held together with high-density polypropylene webs. LOGIX leads the industry in builder friendliness, featuring thick 2-3/4 inch (70 mm) foam in each panel. In fact, LOGIX XRV Panels can provide EPS panels as thick as 8 inches (203 mm). This not only adds insulating value, it also makes the block tougher and more resistant to normal jobsite handling.

LOGIX forms are dry stacked using a running bond. Reinforcing steel is inserted in the wall cavity as required, and the forms are filled with concrete to form a monolithic insulated wall.

LOGIX forms are generally 48 inches (1220 mm) in length and 16 inches (406 mm) in height. They come in a range of concrete core thicknesses, from 4 inch (102 mm) to 12 inch (305 mm), to accommodate most design requirements. In addition, LOGIX Xtenders can increase the core thickness to virtually any width wider than 12 inches (305 mm).

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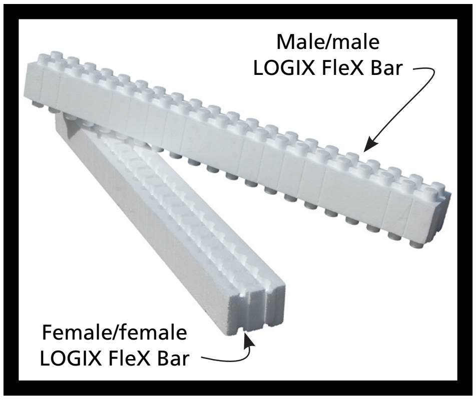
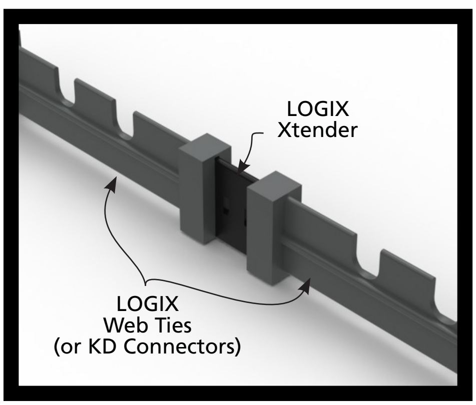
1.1 – APPLICATION & USE CONTINUED





LOGIX is available in a wide variety of special form units and accessories, including corners, transitions, ledges, panel systems, pilasters, FleX Bars, and Knock-down forms permit the LOGIX system to be adapted to many different situations. Most LOGIX forms are also available in 8 inch (203 mm) height for additional design flexibility.

The plastic webs that hold the LOGIX forms together are made from recycled plastic. In addition to form support, the webs are designed to conveniently hold reinforcing steel in place prior to concrete placement, and act as a fastening surface for wall finish materials. The outer face of the web is 14-3/8 inch (365 mm) high and 1-1/4 inch (32 mm) wide, and is embedded in the foam 1/2 inch (13 mm) deep to comply with EIFS siding manufacturer standards.

LOGIX offers solid products and quality service from seven key manufacturing locations situated throughout North America. Our products are designed to perform better in the field, providing trouble-free, profitable installations time after time. Our commitment to product quality and continual innovation is backed up by over 50 years of ICF manufacturing experience.

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.

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.
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)

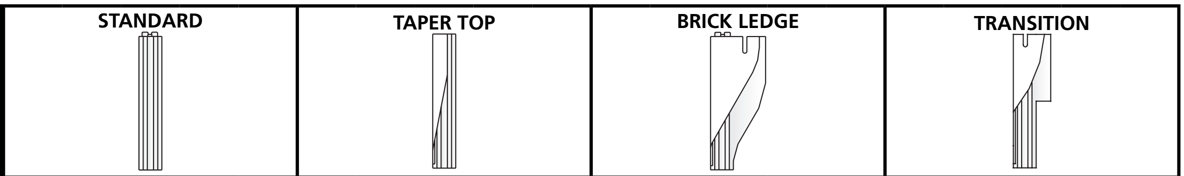
	DESCRIPTION
LOGIX KD	White in color
LOGIX KD Platinum[3]	Offers higher R-value[1] than LOGIX KD. Grey in color.
LOGIX KD TX	LOGIX KD with termite resistant additive Preventol[2]. White in color.
LOGIX KD Platinum[3] TX	LOGIX KD Platinum with Preventol. Grey in color.

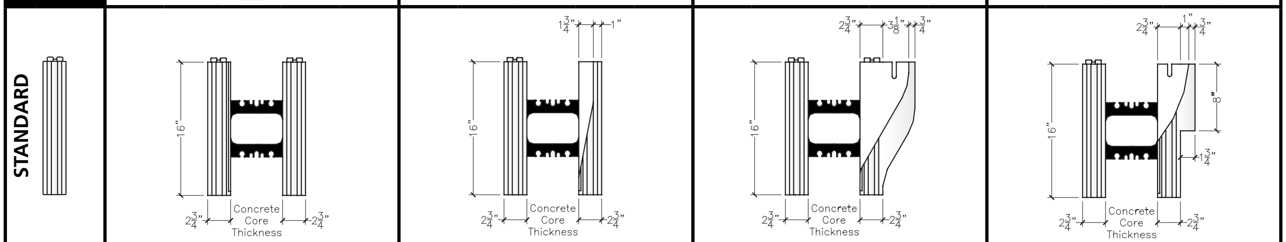
Notes:
1. See **Section 8.5** for LOGIX R-values.
2. Preventol is an effective termite resistant additive.
3. Care should be taken to protect exposed foam surfaces from reflected sunlight and prolonged solar exposure until wall cladding or finish material is applied. Shade exposed foam areas, or remove 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).

1.2 – PRODUCT SPECIFICATION TABLE CONT'D

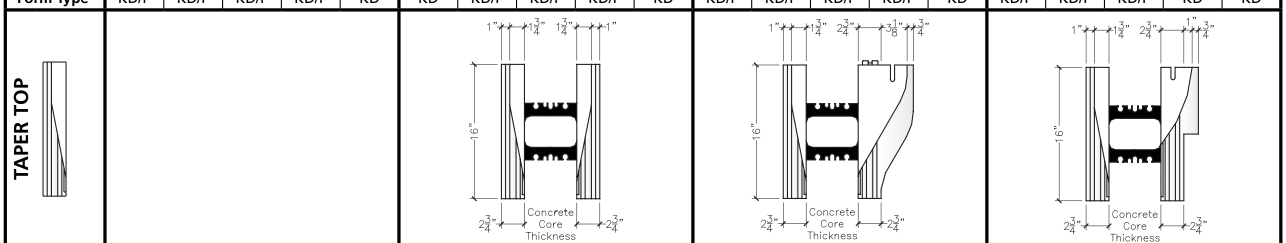
STRAIGHT FORMS

LOGIX FORM PANELS

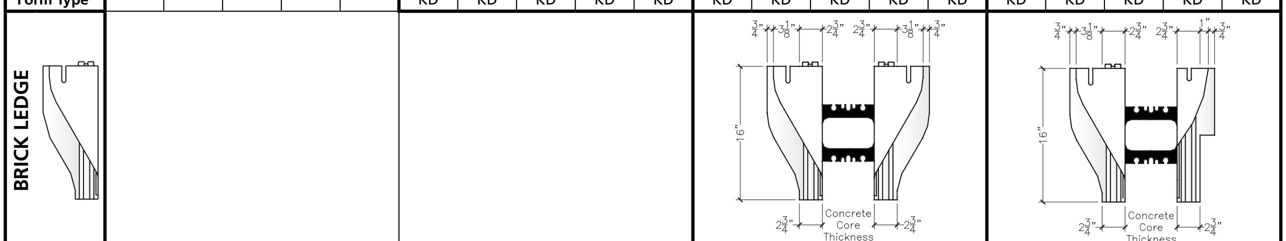




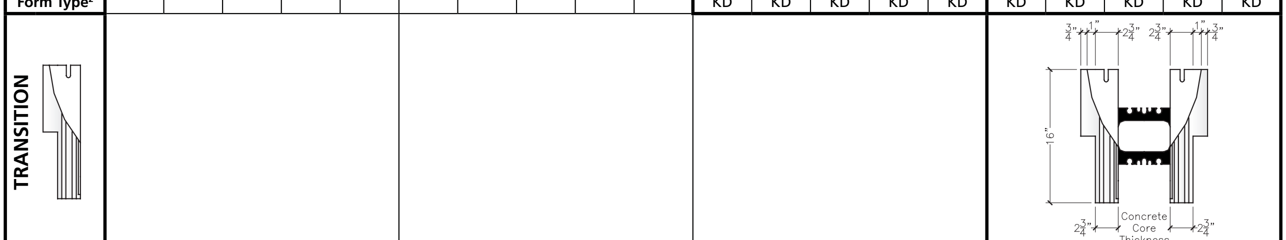
	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	13.375	15.625	17.375	19.375	21.375	11.25	13.5	15.25	17.25	19.25
Width Bot.[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	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	KD/P	KD/P	KD/P	KD	KD



	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
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	13.375	15.625	17.375	19.375	21.375	11.25	13.5	15.25	17.25	19.25
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	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD



	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness											4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]											17.25	19.5	21.25	23.25	25.25	15.125	17.375	19.125	21.125	23.125
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



	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness																4	6.25	8	10	12
Width Top[1]																13	15.25	17	19	21
Width Bot.[1]																9.5	11.75	13.5	15.5	17.5
Form Type[2]																KD	KD	KD	KD	KD

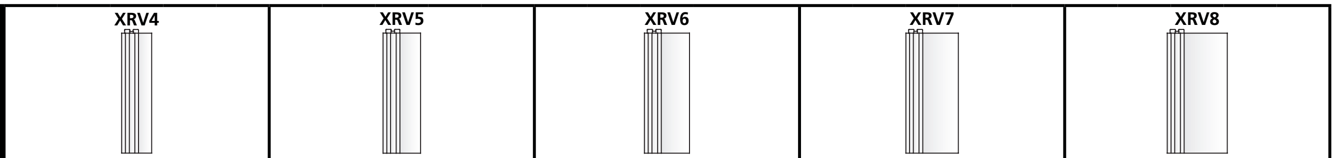
1. Width at Top and Bottom is measured from outside face to outside face of forms.
2. "KD" and "P" denotes LOGIX KD (unassembled forms) and LOGIX PRO (assembled forms), respectively.

1.2 – PRODUCT SPECIFICATION TABLE CONT'D

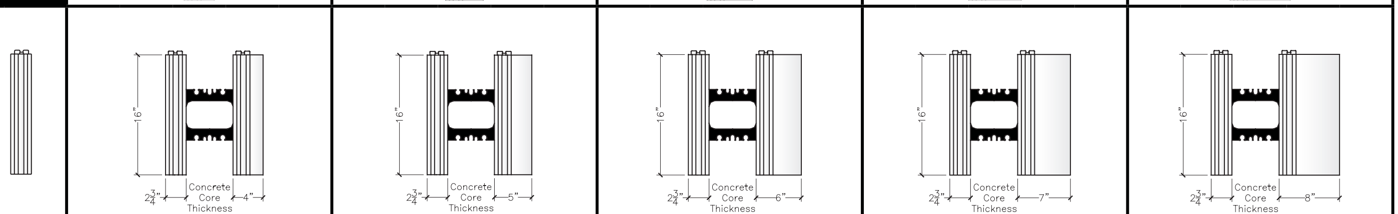
STRAIGHT FORMS with XRV

LOGIX FORM PANELS

XRV4 | XRV5 | XRV6 | XRV7 | XRV8

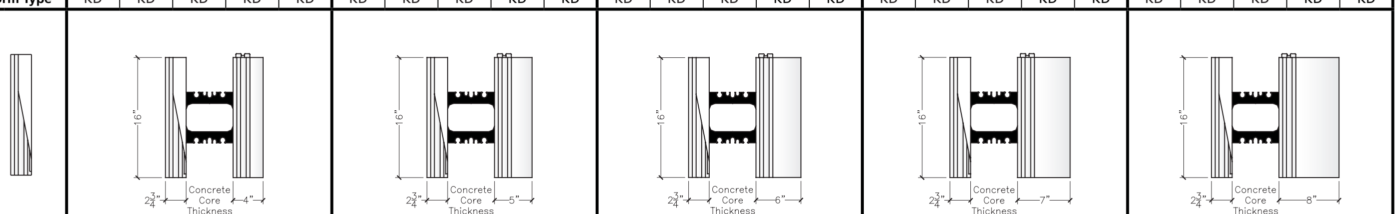


STANDARD



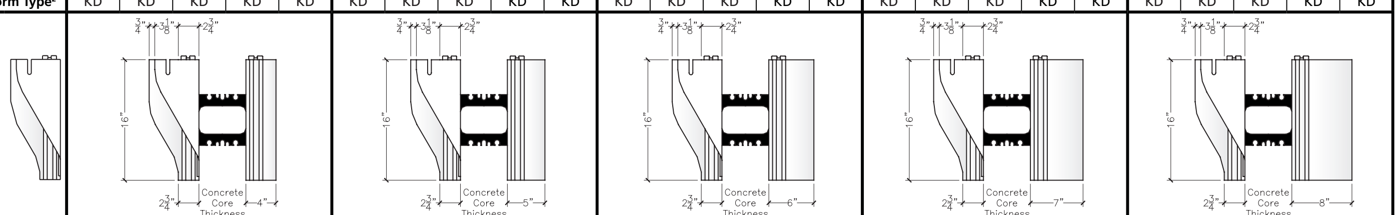
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

TAPER TOP



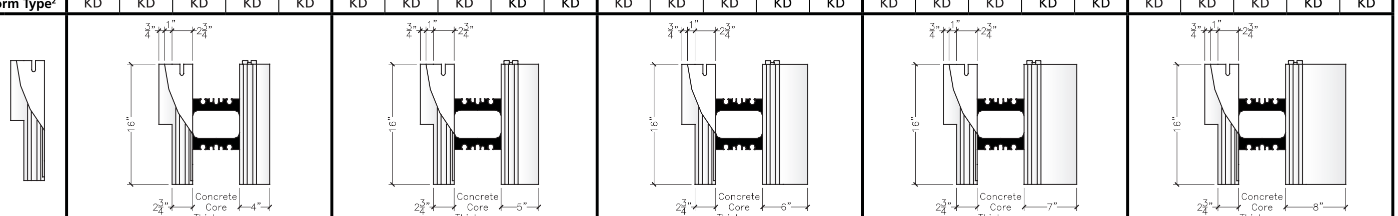
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

BRICK LEDGE



Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	14.625	16.875	18.625	20.625	22.625	15.625	17.875	19.625	21.625	23.625	16.625	18.875	20.625	22.625	24.625	17.625	19.875	21.625	23.625	25.625	18.625	20.875	22.625	24.625	26.625
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

TRANSITION



Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	12.5	14.75	16.5	18.5	20.5	13.5	15.75	17.5	19.5	21.5	14.5	16.75	18.5	20.5	22.5	15.5	17.75	19.5	21.5	23.5	16.5	18.75	20.5	22.5	24.5
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

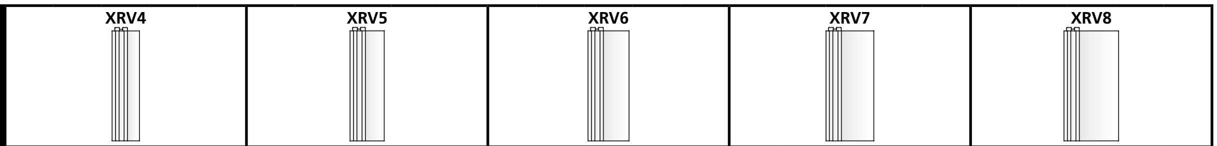
(Columns 1–5: XRV4; 6–10: XRV5; 11–15: XRV6; 16–20: XRV7; 21–25: XRV8.)

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.

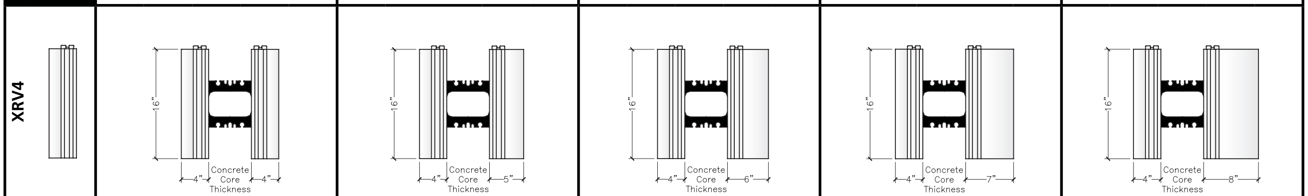
1.2 – PRODUCT SPECIFICATION TABLE CONT'D

XRV FORMS

LOGIX FORM PANELS: XRV4, XRV5, XRV6, XRV7, XRV8

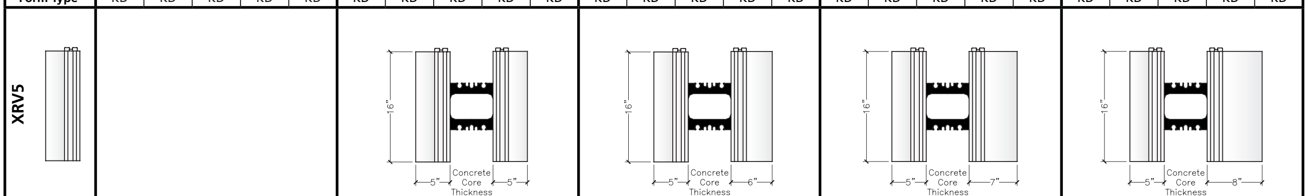


XRV4



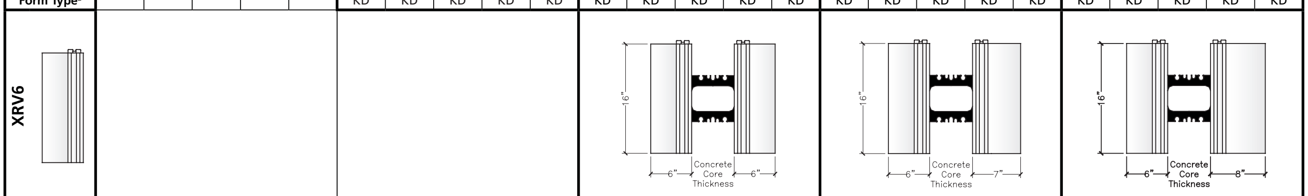
	XRV4					XRV5					XRV6					XRV7					XRV8				
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	12	14.25	16	18	20	13	15.25	17	19	21	14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24
Width Bot.[1]	12	14.25	16	18	20	13	15.25	17	19	21	14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

XRV5



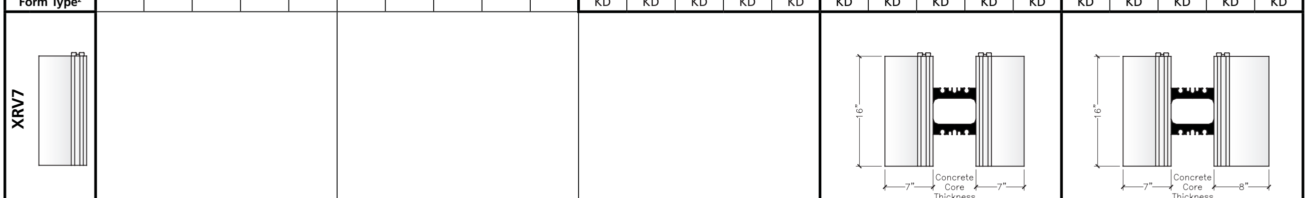
	XRV4					XRV5					XRV6					XRV7					XRV8				
Conc.Core Thickness						4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]						14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24	17	19.25	21	23	25
Width Bot.[1]						14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24	17	19.25	21	23	25
Form Type[2]						KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

XRV6



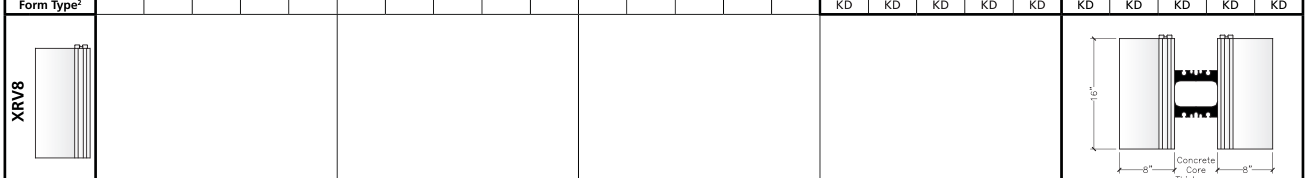
	XRV4					XRV5					XRV6					XRV7					XRV8				
Conc.Core Thickness											4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]											16	18.25	20	22	24	17	19.25	21	23	25	18	20.25	22	24	26
Width Bot.[1]											16	18.25	20	22	24	17	19.25	21	23	25	18	20.25	22	24	26
Form Type[2]											KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

XRV7



	XRV4					XRV5					XRV6					XRV7					XRV8				
Conc.Core Thickness																4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]																18	20.25	22	24	26	19	21.25	23	25	27
Width Bot.[1]																18	20.25	22	24	26	19	21.25	23	25	27
Form Type[2]																KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

XRV8



	XRV4					XRV5					XRV6					XRV7					XRV8				
Conc.Core Thickness																					4	6.25	8	10	12
Width Top[1]																					20	22.25	24	26	28
Width Bot.[1]																					20	22.25	24	26	28
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.

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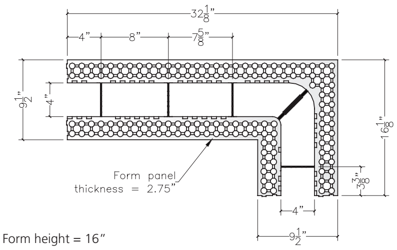
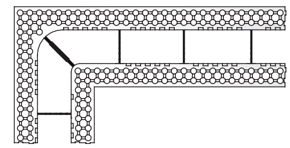
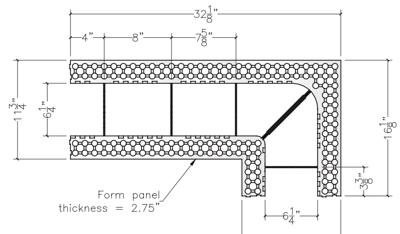
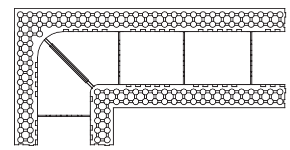
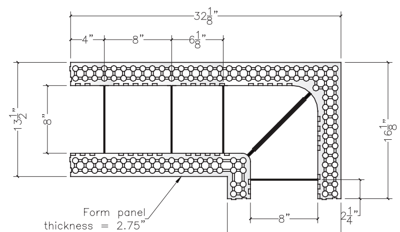
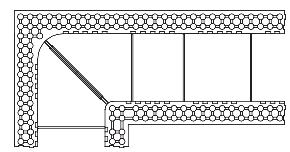
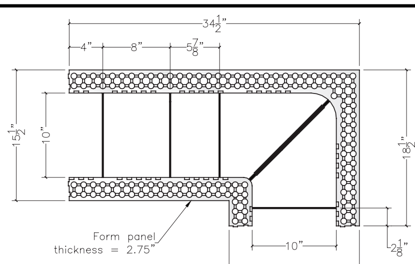
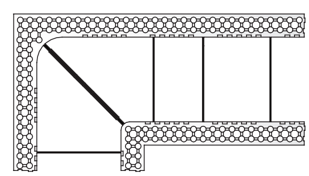
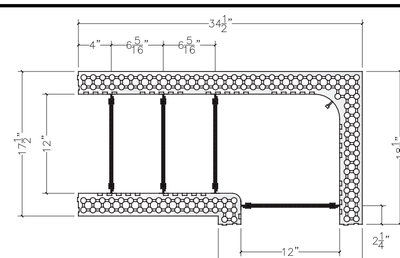
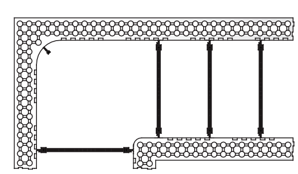
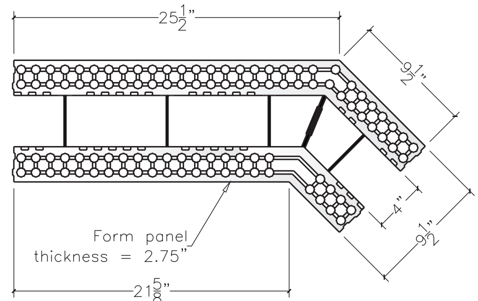
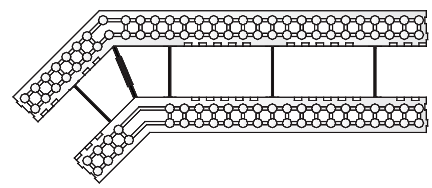
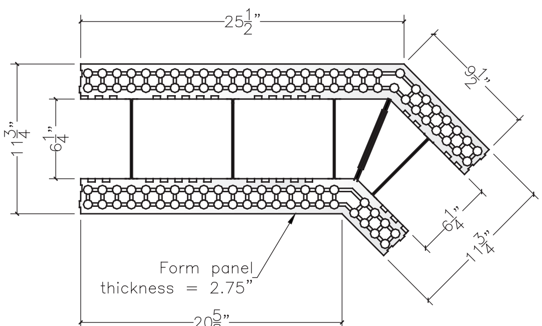
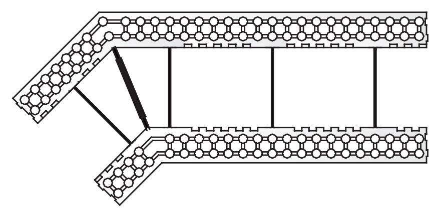
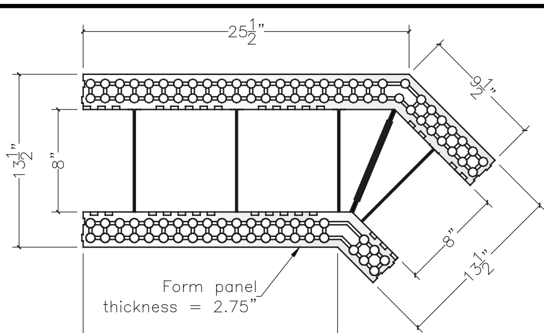
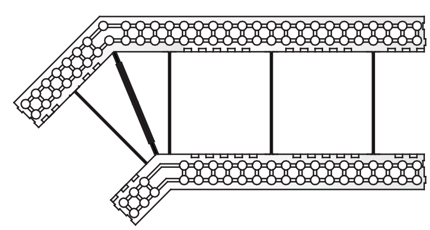
CORNER FORMS

	Left Hand Corner Form	Right Hand Corner 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**
10 inch Concrete Core Thickness	 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.

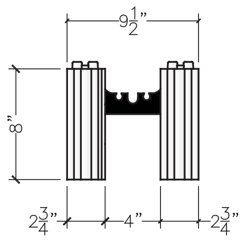
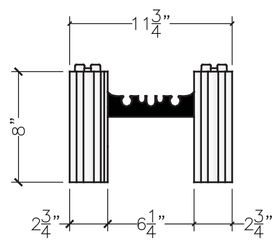
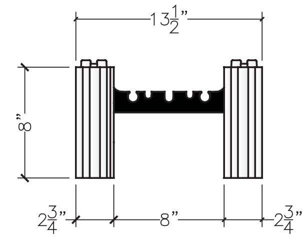
1.2 – PRODUCT SPECIFICATION TABLE CONT'D

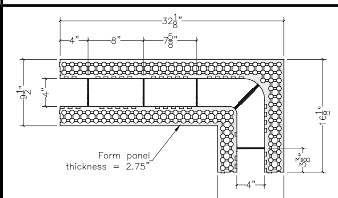
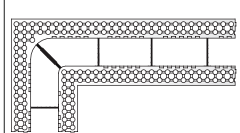
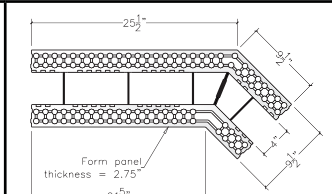
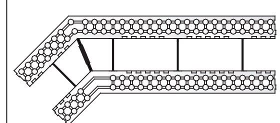
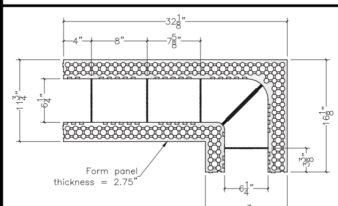
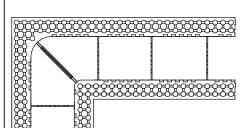
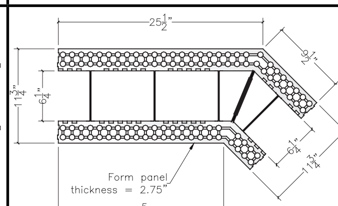
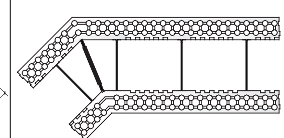
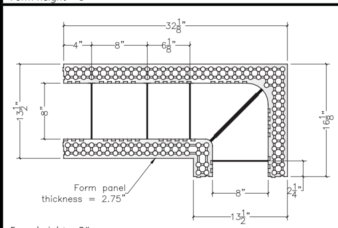
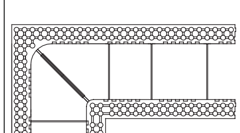
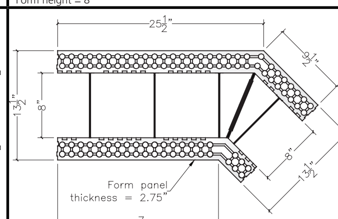
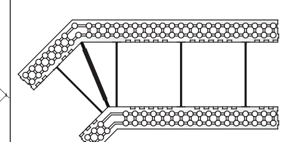
45^0 CORNER FORMS

	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 FORMS

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

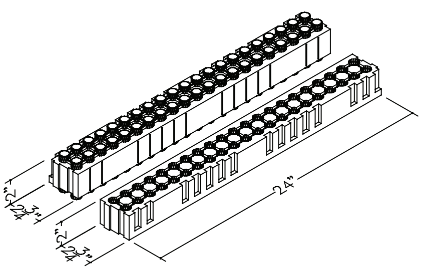
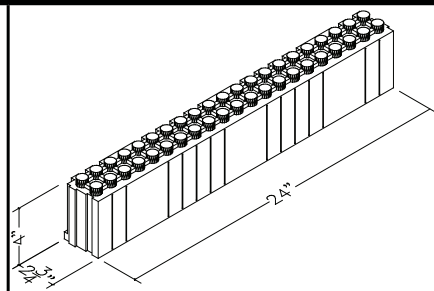
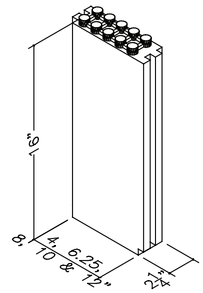
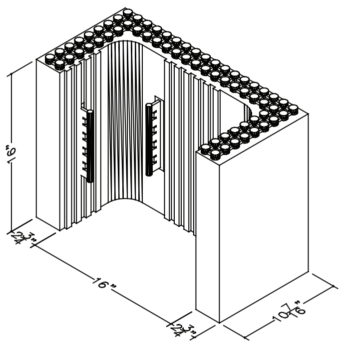
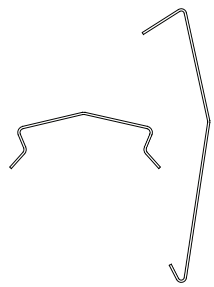
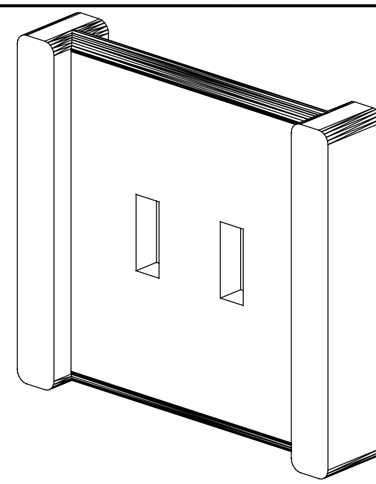
	HALF HEIGHT CORNER FORMS[1]		HALF HEIGHT 45° FORMS[1]	
	Left Hand 45° Form	**Right Hand 45° Form**	**Left Hand 45° Form**	**Right Hand 45° Form**
4 inch Concrete Core Thickness	 Form height = 8"	 (dimensions similar)	 Form height = 8"	 (dimensions similar)
6.25 inch Concrete Core Thickness	 Form height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

SYSTEM OVERVIEW

1.2 – PRODUCT SPECIFICATION TABLE CONT'D

ACCESSORIES

LOGIX ACCESSORIES		
		
FleX Bars	Height Adjuster	End Cap
		
Pilaster	Horizontal & Vertical Hooks	Xtender

2.0 – INSTALLATION GUIDE

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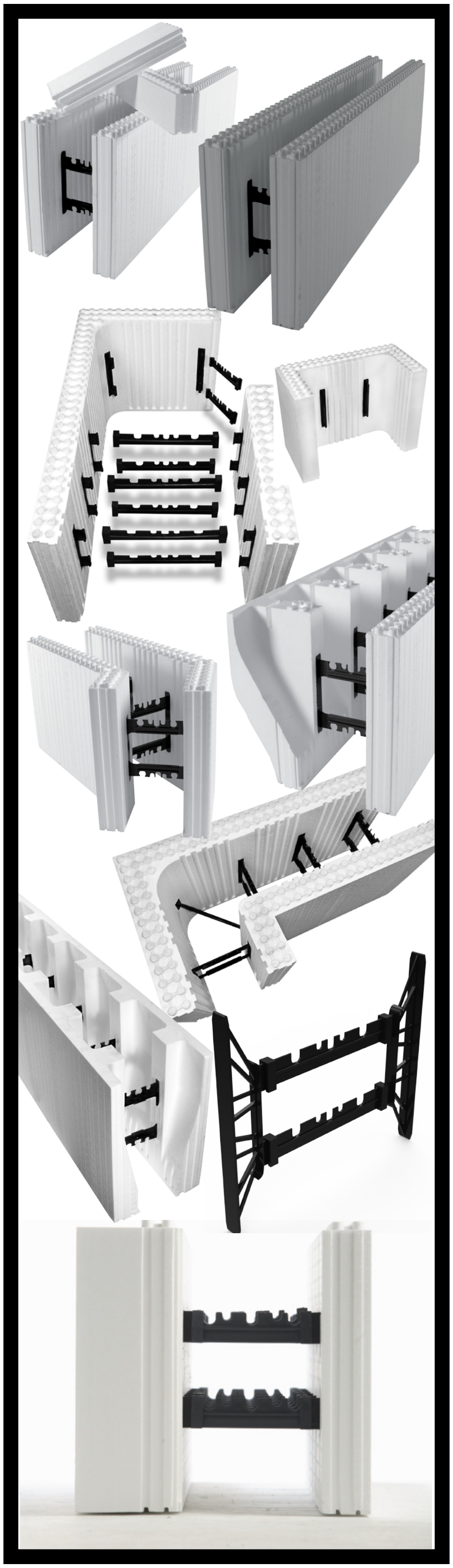
2.1 – INTRODUCTION



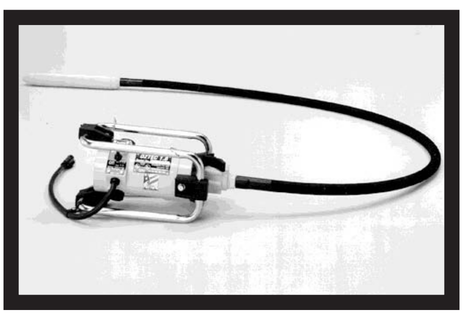
For builders who want a competitive edge, LOGIX offers solid products and friendly local service. Our products are designed to perform better in the field, providing trouble-free, profitable installations time after time. Our technical team is ready to respond to your queries with practical advice on 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.

You can count on LOGIX. The ICF wall system that’s built to last.

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

2.2 – USEFUL TOOLS & MATERIALS

CONTINUED

- Chalk line
- Wall alignment system (safety compliant)
- 36 inch (914 mm) plastic zip ties
- Concrete embedments
- Window and door buck material
- Sleeves for wall penetrations

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. **see section** 6.0 – Engineering

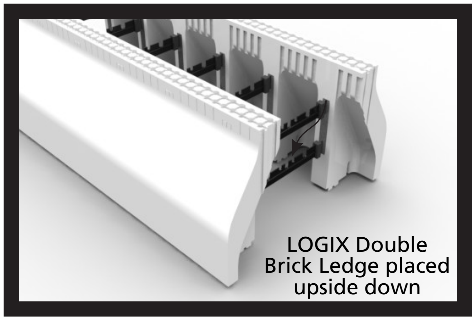
STEP 1: Level footings with +/-1/4 inch (+/-6 mm).

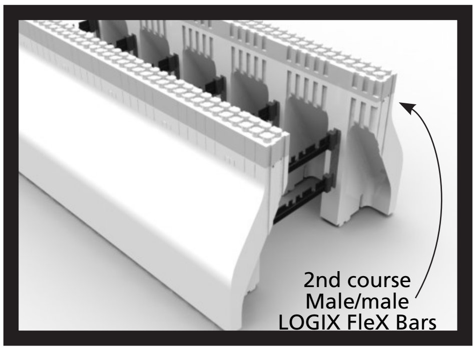
STEP 2: Place footing dowels or keyways as required per plan specification or local building codes.

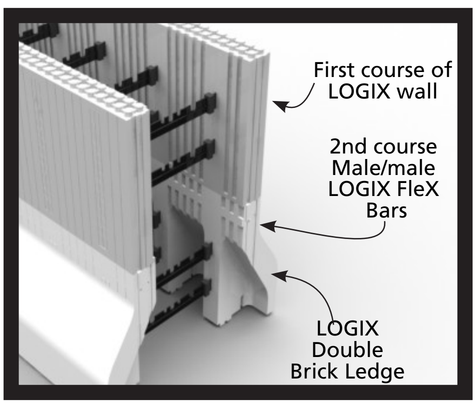
STEP 3: Once footing dowels are installed, cap all dowels for safety compliance.

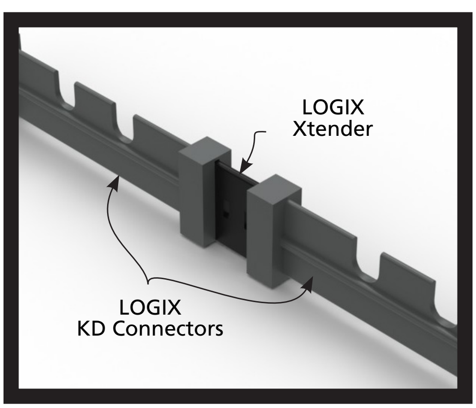
The ideal increment for step footing is 16 inches (406 mm). Using LOGIX Half-height forms, Height Adjusters or FleX Bars it is possible to achieve 8 inch (203 mm), 4 inch (102 mm) or 2 inch (51 mm) footing increments, respectively.

2.3.1 – LOGIX FOOTING WITH FLEX BARS & XTENDERS









Building a footing with LOGIX can be done using LOGIX FleX Bars and Double Brick ledge.

STEP 1: Place the Double Brick Ledge upside down along the footing locations. With the Double Brick Ledge placed upside down the female interlocks will be at the top of the block. This means for the next course male/male LOGIX FleX Bars will be used.

STEP 2: Place the 2nd course using the male/male LOGIX FleX Bars.

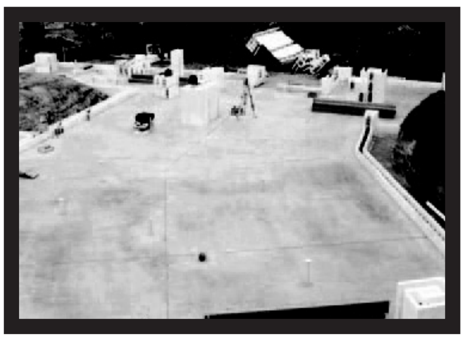
STEP 3: Continue building the wall with LOGIX blocks for the remaining courses.

Be sure to add required reinforcement while placing courses, and install bracing as typically required.

To secure the courses of LOGIX FleX Bars in a LOGIX wall use zip ties to firmly connect the course below and above the LOGIX FleX Bars, and add additional form support where needed.

As an alternative to using Double Brick Ledge forms, LOGIX Standard form panels can be used with LOGIX Xtenders. LOGIX Xtenders increase the LOGIX concrete core thickness beyond 12 inches (305mm) to any footing width required.

2.4 – WALL LAYOUT



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

STEP 1: Verify that wall layout is in accordance with plans and specifications.

STEP 2: To ensure accurate 90° corners, use methods such as:

- Equal diagonal measurements
- 3-4-5 triangle
- Surveying

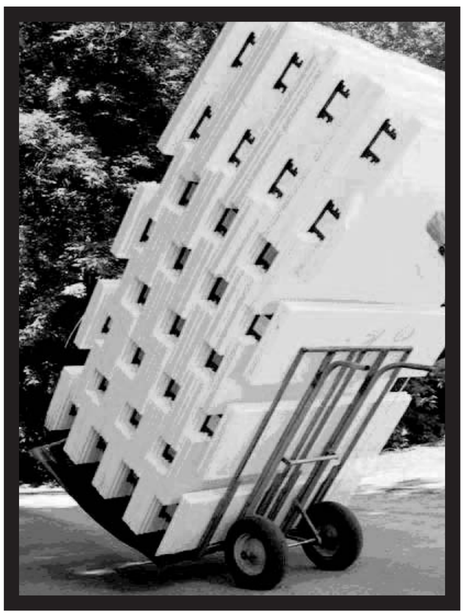
STEP 3: To ensure accurate 45° corners, use LOGIX 45° corner form units.

STEP 4: Snap chalk lines on footings or slab according to plan.

STEP 5: Make sure the outside face of the forms line up with the overall building dimensions.

Wall layout of radius or other corner angles is easily achieved with LOGIX.

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 XRV panels can also provide thicker panels up to 8 inches (203 mm)

- 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.

2.5 – PRODUCT HANDLING & PLACEMENT

CONTINUED

- 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.

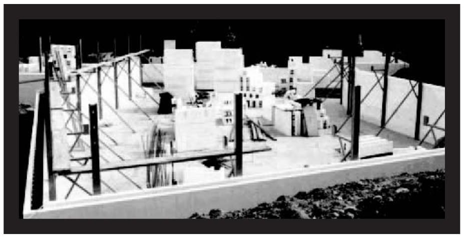
- Space skids of standard forms around the inside of the entire perimeter.

ALERT: 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.

2.6 – JOBSITE EFFICIENCY

CONTINUED

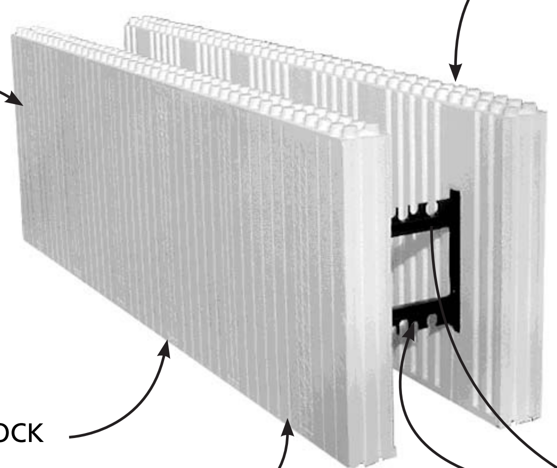


- Additional materials that should be located within the perimeter:
    - Window and door bucks
    - Rebar (straight or pre-bent)
    - Alignment system
    - Approved scaffold planks
    - Tools

LOGIX INSULATED CONCRETE FORMS

INTERLOCK
The mechanism that holds successive courses of forms together.

BARS
The spaces between the lines.



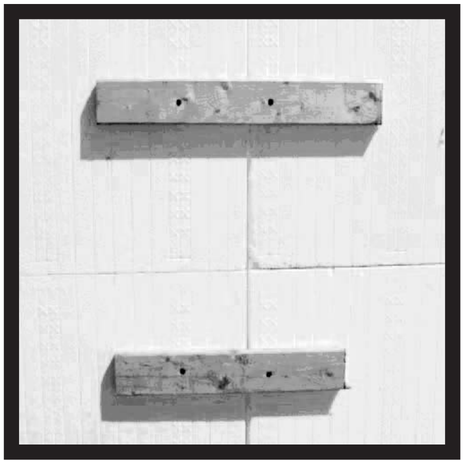
INTERLOCK

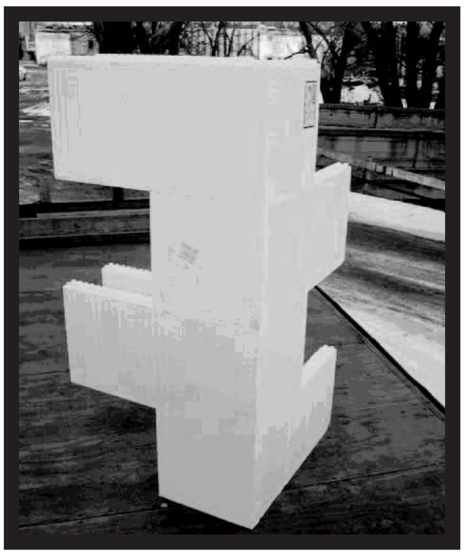
WEB
polypropylene ties that holds the form unit together. The web also acts as the placement mechanism for reinforcing steel and the attachment surface for finish materials. There are six webs in each form unit.

LINES
The lines between the bars allow cuts to be easily made that will allow the interlock to function consistently between courses. Cuts should always be made straight and square on the lines. Cutting anywhere but along these marks will create a stacked vertical joint.

2.7 – LOGIX WALL CONSTRUCTION

CONTINUED



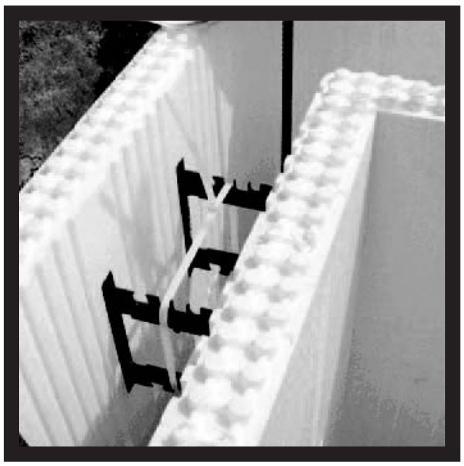


When a form is cut, it can be identified using bars and webs. For example, a cut form with three bars, two webs, and three bars will be referred to as a "3-2-3".

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 use all left or all right hand corners in each courses, alternating between subsequent courses.

2.7.1 – THE FIRST COURSE



STEP 1: Always place forms units with protruding interlock facing up.

STEP 2: Begin at a corner. Set corner block to chalk line.

STEP 3: Continue placing forms along the chalk line.

STEP 4: Secure forms ene-to-end in the first course to maintain building dimensions.

STEP 5: When the forms are within 4 feet (1.219 m) or less of the second corner, place the second corner form.

STEP 6: Cut a standard form to fit the space left between the corner and the previous 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.

2.7.1 – THE FIRST COURSE

CONTINUED

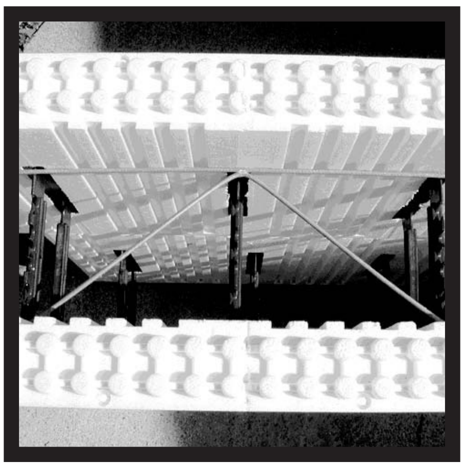
STEP 7: Continue around the wall in this manner until the first course is complete and dimensions are verified.

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

STEP 9: Prior to starting the second course, install additional form support if required.

2.7.2 – THE SECOND COURSE



STEP 1: Starting at the original corner, place appropriate corner form to create a 16” (406mm) offset.

STEP 2: Fasten every corner end-to-end to adjoining forms using zip ties or adhesive foam.

STEP 3: Continue placing forms around the wall, working in the same direction as first course.

STEP 4: It is necessary to seat every form to the form below to minimize interlock settling during concrete placement.

STEP 5: All webs should line up vertically, except where building dimensions are other than 8 inch (203 mm) increments.

STEP 6: After completion of second course, place necessary rebar as specified and according to local code.

STEP 7: Place Form Lock in the second course, overlapping the lengths by roughly 8 inch (203 mm). Align the points of the zigzag pattern in the Form Lock directly above the webs.

STEP 8: Confirm that the wall is straight and level. If adjustment is required, shim or trim the bottom of the wall until level is achieved.

2.7.2 – THE SECOND COURSE

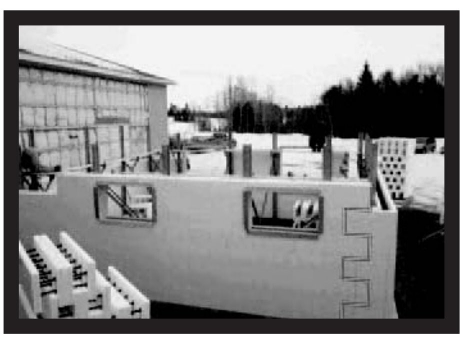
CONTINUED

STEP 9: Use foam adhesive to fasten the straightened and levelled 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 inject foam between the block and the footing.

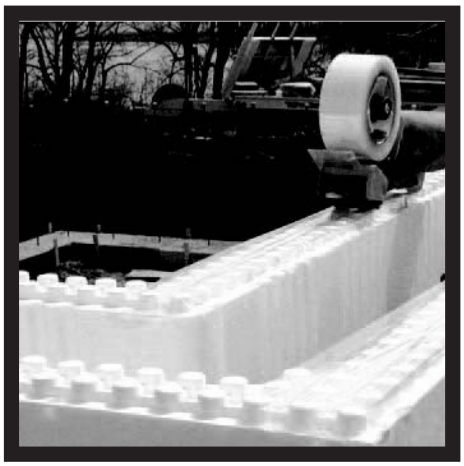
When vertical joints are less than 8 inches (203 mm) apart, additional form support is required.

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 **Section 2.11 - Wall Bracing & Alignment System** for further details.



2.7.3 – ADDITIONAL COURSES



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

STEP 2: Install Form Lock every fourth of fifth course after the second course.

STEP 3: After completion of each course, place necessary rebar as specified and according to local code.

STEP 4: Secure forms end-to-end in the top course to maintain building dimensions.

STEP 5: Secure top course to the forms below on both sides to prevent tipping during concrete placement.

STEP 6: If additional stories are planned, the interlock needs to be protected prior to concrete placement.

Female/female LOGIX FleX Bars can be used on the top of the wall to protect the interlocks during the pour.

STEP 7: Check building dimensions. Check corners for plumb.

STEP 8: Ensure straight walls by placing a string line at the top course set off from the wall using 3/4 inch (19 mm) pieces of wood placed in the corners. Check for straightness by running another 3/4 inch (19 mm) piece of wood between the string and wall.

2.7.3 – ADDITIONAL COURSES

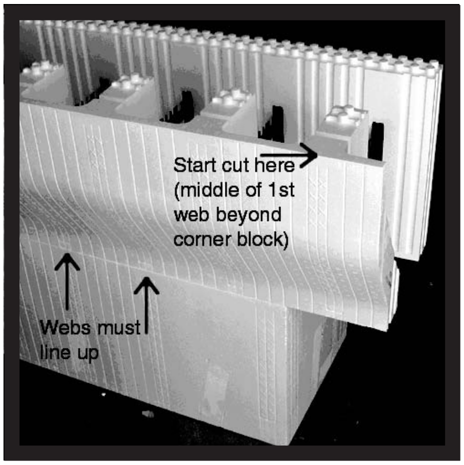
CONTINUED

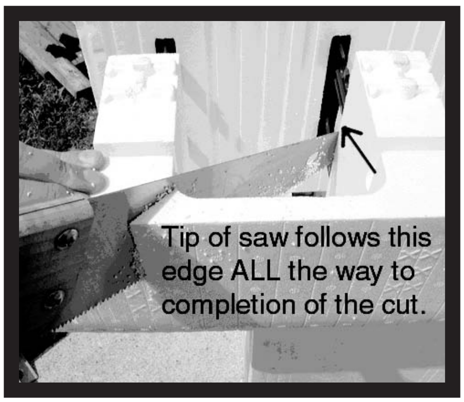
When vertical joints are less than 8 inches (203 mm) apart additional form support is required.

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

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

2.7.4 – EXTENDED 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.

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.

When making any miter cut in a Brick Ledge form to create a 90^{o} corner always angle the saw and make sure you follow this edge during the ENTIRE course of making the cut.

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: The first portion of the cut is vertical, then angle to the tip of the corner block below, always keeping the tip of the saw following the inside edge.

STEP 2: After making the miter cut, cut the far side of the block so it is flush with the inside edge of the corner form.

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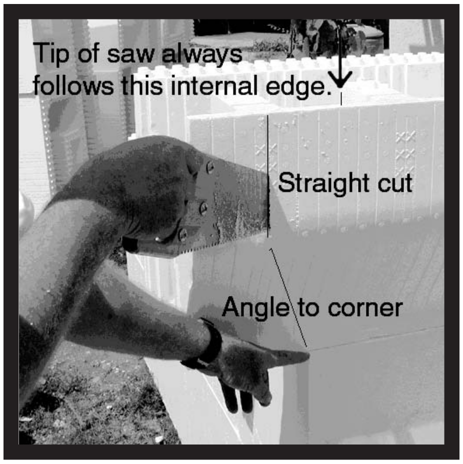
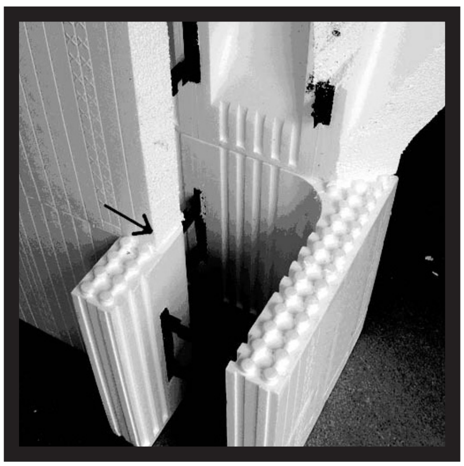


STEP 3: Place the second Brick Ledge in place to cut on the opposing side of the corner.

STEP 4: Cut the second Brick Ledge miter in a manner similar to the first miter.

When cutting the inside panel of the second mitered block, make the cut so it butts against the opposing panel.



STEP 5: Securely tape and foam the mitered corner, applying several rows of tape.

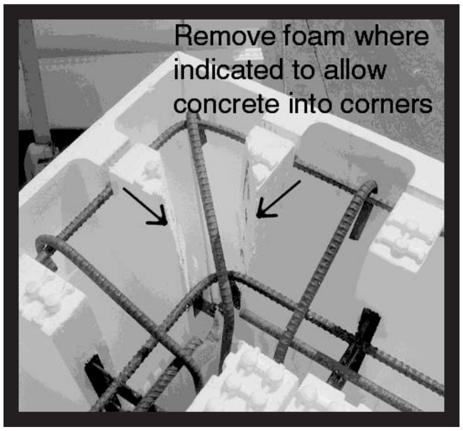
STEP 6: Install rebar in the Brick Ledge, making sure to install two 90° pieces extending 2 feet (0.610 m) in either direction.

Butt joints are preferred for rebar in outer edge of Brick Ledge.

STEP 7: Install long stirrups in each brick ledge cavity, including the every corner. See **Section 5** for stirrup details.

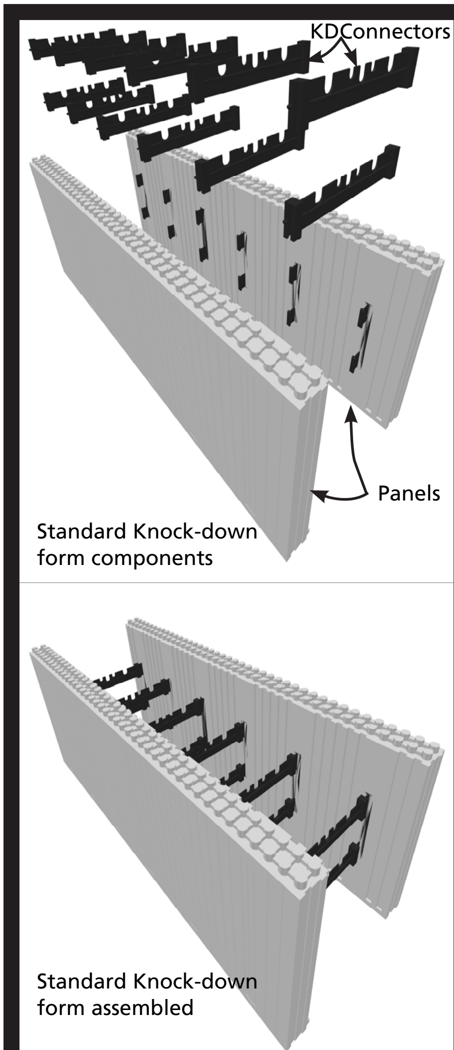
2.7.4 – EXTENDED BRICK LEDGE

CONTINUED



STEP 8: Remove foam form the corner cavity area to facilitate the flow of concrete into the corner cavity.

2.7.5 – KNOCK-DOWN FORMS



Standard Knock-down form components

Standard Knock-down form assembled

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, Transition block-Transition block, etc…)

PRODUCT DESCRIPTION

LOGIX KD forms consists of two expanded polystyrene (EPS) foam panels measuring 16 inches (406 mm) tall x 48 inches (1220 mm) wide x 2.75 inches (70 mm) thick. The panels are connected using KD Connectors, snap-in polypropylene ties spaced 8 inches (203 mm) on center to form the ICF. The KD Connectors are available in varying sizes that create 6.25, 8, 10 and 12 inch (159, 203, 254 and 305 mm) thick concrete walls. Corner panels are also available.

2.7.5 – KNOCKDOWN FORMS

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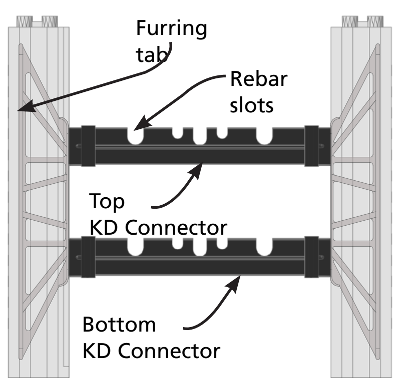
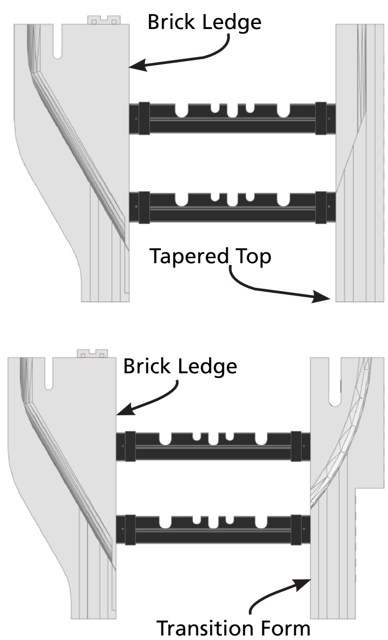


PRODUCT HANDLING

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. In addition, LOGIX XRV panels provide panel thickness up to 8 inches (203 mm). See next section for information on LOGIX XRV panels.

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



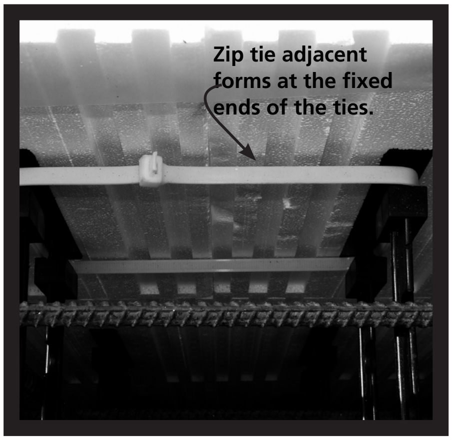
Create custom block configurations with LOGIX KD forms

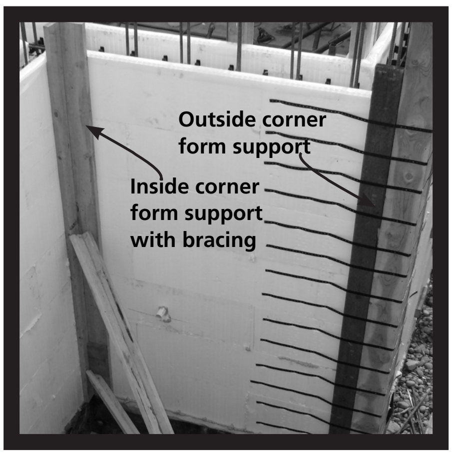
ASSEMBLING AND INSTALLATION

The KD Connectors connect to the polypropylene furring tabs embedded in the form panels. The furring tabs are spaced at 8 inches (203 mm) on center and act as solid attachment areas for drywall, cladding and other wall attachments. A top and bottom KD Connector is required for each furring tab.

To assemble the forms simply snap into place the top and bottom KD Connectors with the rebar slots facing upwards. This will accommodate two layers of rebar.

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





In addition, LOGIX recommends the following:

- Use foam adhesive, 2x4s, steel stud angles or other system that will keep the first course in place and properly aligned during the initial concrete pour.
- Zip tie adjacent forms at the fixed ends of the ties.
- Install bracing every 6 ft.
- Provide additional form support at corners of 12" LOGIX KD forms.

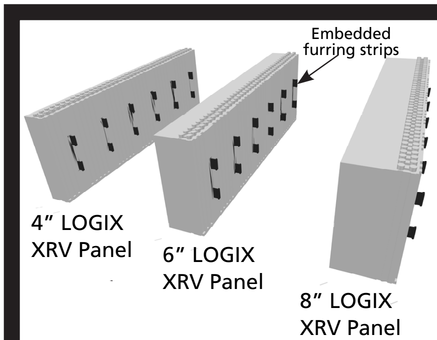
CORNER FORM SUPPORT

For any type of ICF knock-down system it is good practice to provide additional form support at the corners for 12" LOGIX KD forms.

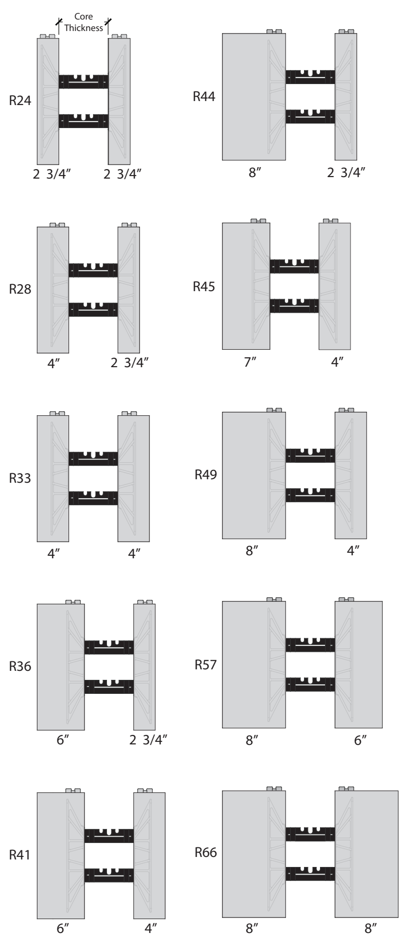
To ensure a safe and proper concrete pour the following corner form support is recommended:

- 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.

2.7.6 – LOGIX XRV PANELS



LOGIX XRV Panels
LOGIX 5″ & 7″ XRV Panels are also available



Examples of R-value* combinations (not all combinations shown)

LOGIX XRV Panels are most useful for buildings in areas requiring higher energy savings or higher insulation values, such as places with extreme temperature swings or extremely cold climates. The LOGIX XRV Panels can provide R-values ranging from R-28 to R-66* by increasing the foam panel thickness from 2.75 inches (70 mm) to 8 inches (203 mm).

LOGIX XRV Panels are available in thicknesses of 4, 5, 6, 7 and 8 inches (102, 127, 152, 178 and 203 mm) and can be used to build walls with concrete cores of 4, 6.25, 8, 10 and 12 inches (102, 159, 203, 254 and 305 mm) thick. LOGIX XRV Panels employ the same tight fitting and secure interlock system found in LOGIX Pro (assembled forms) and the same furring tabs found in LOGIX KD forms. Thus LOGIX XRV Panels can be used in conjunction with LOGIX Pro and LOGIX KD.

STUCCO FINISHES
Cement or acrylic based stucco finishes should be applied according to manufacturer's installation instructions. When attaching wire mesh non-corrosive screws are recommended along with the minimum screw lengths listed below.

Minimum Fastener Lengths
4″ LOGIX XRV Panels -2.75″
5″ LOGIX XRV Panels - 3.75″
6″ LOGIX XRV Panels - 4.75″
7″ LOGIX XRV Panels - 5.75″
8″ LOGIX XRV Panels - 6.75″

Long screws and accessories for stucco applications are available through Wind-Lock at www.wind-lock.com.

*R-values include LOGIX ICF with minimum 4″ concrete wall thickness and airfilm.

2.7.6 – LOGIX XRV PANELS

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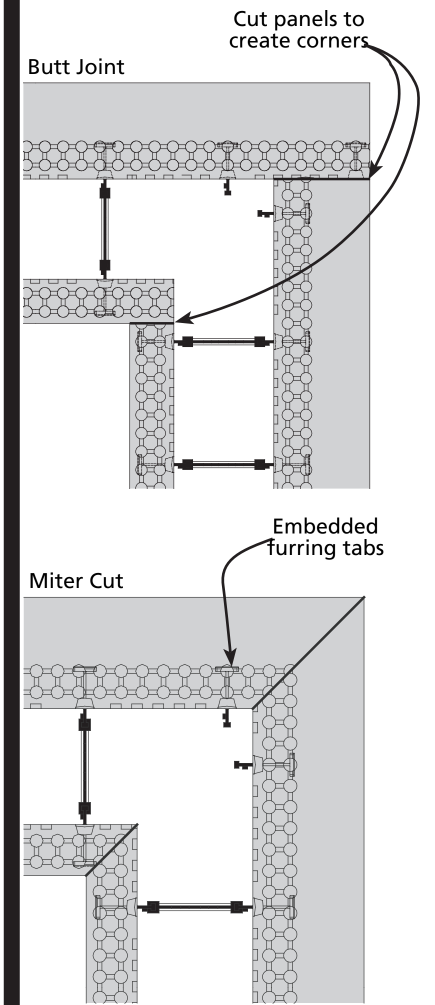


Plan View
Corners

In addition, plastic or fibre mesh can be attached to a base coat applied over the LOGIX XRV Panel surface that has been prepared by rasping the surface.

CORNERS

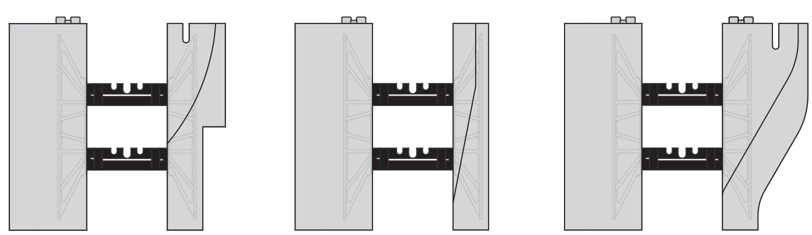
Corners with LOGIX XRV Panels can be created with butt joints or miter cuts. The cuts should be made so that the embedded furring tabs are close to the corner edges. This will provide fastening points for form support and other corner attachments.

Make sure to add additional form support around the corners prior to placing concrete, and avoid placing concrete directly in the corners of LOGIX XRV Panels.

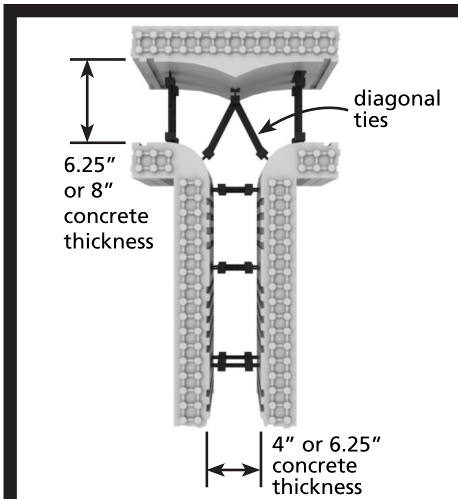
When applying stucco finishes attaching a corner bead or wrapping a plastic or fibre mesh in a base coat around the corners can add strength to the corners.

VERSATILITY

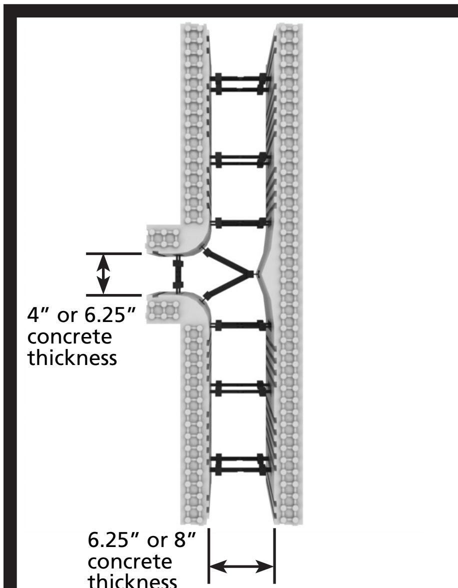
LOGIX is versatile enough to offer a choice of panel thickness, core thickness and web type. For a list of LOGIX KD and XRV combinations see **Section 8.1**.

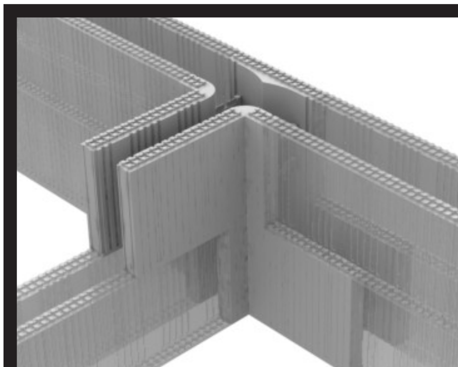


2.7.7 – TEE WALLS



See Dwg 5.1.23, Section 5, LOGIX Design Manual




LOGIX T-wall Forms assembled

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

LOGIX T-WALLS

LOGIX T-walls arrive to the job site assembled or disassembled.

When assembled LOGIX T-walls provide sizes that are commonly used in construction.

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

Each T-wall size comes in two different shapes 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 Section 2 of the LOGIX Design Manual.

FIELD-CUT T-WALLS

Each course of the through wall must have continuous horizontal bar or a minimum of 3 feet (0.914 m) length of rebar at proposed Tee. A pre-bent 90° rebar is required at every course of rebar.

2.7.7 – TEE WALLS

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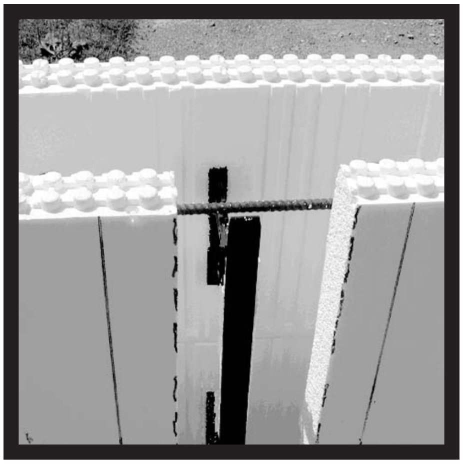
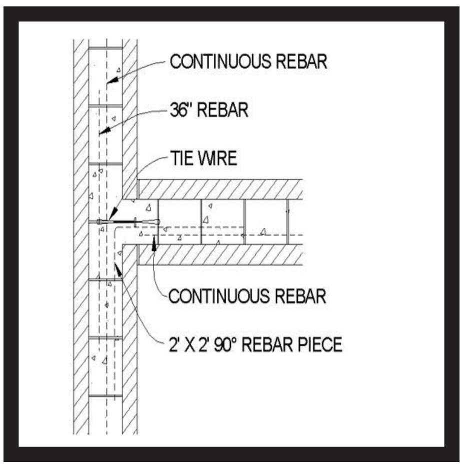
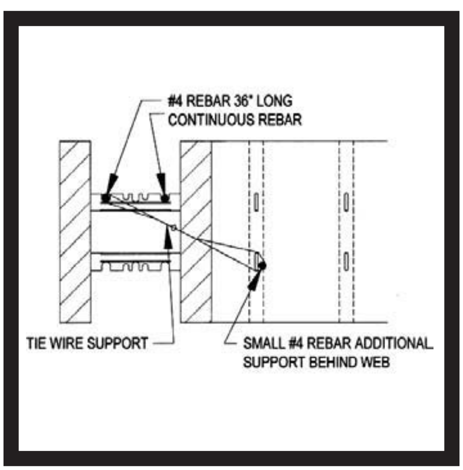




For full size CAD drawing see Section 5, CAD Drawings



For full size CAD drawing see Section 5, CAD Drawings

STEP 1: Complete the first course of the "Through" (continuous) wall.

STEP 2: Use a felt-tip marker to mark the through wall where the Tee wall will butt against it.

STEP 3: Remove the foam from the Through wall where the Tee intersects, to the thickness of the concrete core.

STEP 4: Butt the first course of the Tee up against the Through wall.

STEP 5: Tie the first Tee wall web to the Through wall rebar using a zip tie or tie wire. A short length of rebar should be placed behind the face of the web that is being tied to stiffen it.

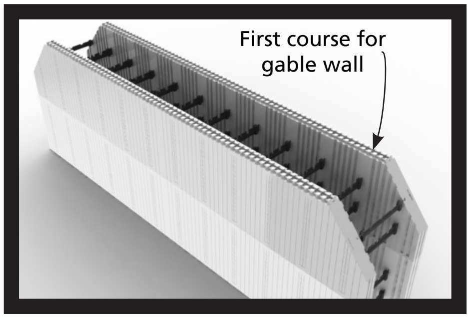
STEP 6: Additional exterior form support should be installed as required at every course.

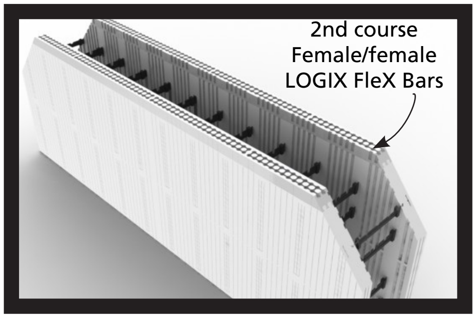
STEP 7: Continue building the walls, following these steps at every course.

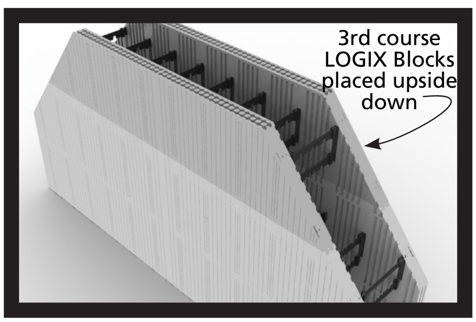
STEP 8: When the entire wall has been checked for plumb and square, apply foam adhesive to the entire butt joint.

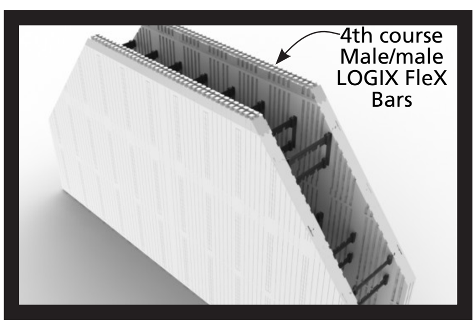
Another option for building a Tee wall is to construct the entire Through wall first. This method requires pre-planning to ensure there is a adequate reinforcements at every course to allow the Tee wall to be attached securely. All other steps above need to be applied.

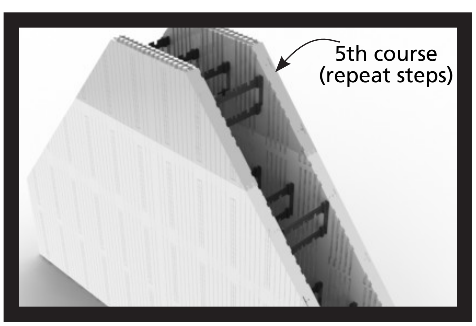
2.7.8 – GABLE WALLS











Gable walls can be constructed efficiently and with minimal job site waste using LOGIX FleX Bars.

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

STEP 1: Lay the first course of LOGIX blocks for the gable wall.

STEP 2: Snap a chalk line for the sloped gable cuts and cut the LOGIX blocks to match the required gable slope at the ends of the wall. Save the remaining cut blocks for later use.

Gable cuts can be made with a pruning, reciprocating or other type of saw.

STEP 3: Place the 2nd course with female/female LOGIX FleX Bars. Cut the LOGIX FleX Bars to match the required gable slope at the ends of the wall. Save the remaining cut FleX Bars. They can be used for the end of the gable wall when placing another course of FleX Bars.

STEP 4: Lay the 3rd course of LOGIX blocks upside down so that the male interlocks of the LOGIX blocks match the female interlocks of the LOGIX FleX Bars from the previous second course. Use the saved cut pieces from the first course for the ends of the gable wall. These pieces when placed upside down will match the gable slope.

2.7.8 – GABLE WALLS

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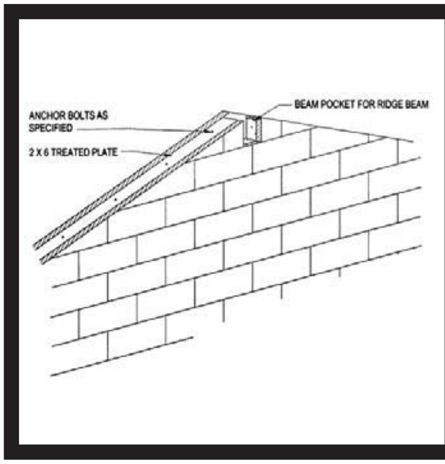
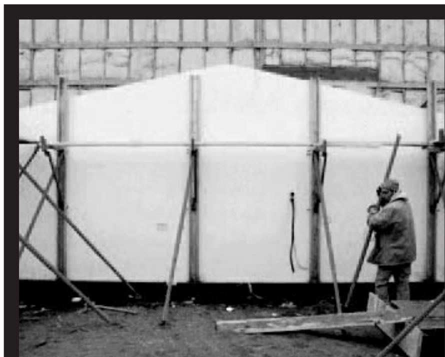




STEP 5: Place the 4th course with male/male LOGIX FleX Bars. Cut the LOGIX FleX Bars to match the required gable slope at the ends of the wall. Save the remaining cut FleX Bars. They can be used for the end of the gable wall when placing another course of FleX Bars.

STEP 6: Continue the process to complete the gable wall.

- Zip tie successive courses of LOGIX blocks, and ensure that webs align vertically between courses.
- Screw 1x4s along the cut gable slope on both sides of the wall. Pieces of plywood can then be screwed into the 1x4s to help contain the concrete during placement.
- Check rebar is in place prior to concrete placement, and all necessary and roof attachment hardware is available, as it must be installed during or immediately after the pour.
- Use appropriate lifting equipment to place the sloped gable wall in place on the squared wall.
- Ensure that appropriate wall alignments and scaffolding system is in place for safe installation.

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.

2.7.9 – RADIUS WALLS

Radius walls are easy to achieve with LOGIX.

STEP 1: Cut forms into 8 inch (203 mm) increments with web in center of each section.

STEP 2: Mark the inside and outside diameter of the curved wall on the footing or slab.

STEP 3: From the center of the circle, snap a radius line to the outside diameter line. This becomes your center radius for the next step.

STEP 4: On the outside diameter line, snap a radius line 4" (102mm) on each side of the center radius.

STEP 5: Set on of the 8 inch (203 mm) form sections, centering the web on the center radius. Line up the outside corners of the form section with the outside radius lines.

STEP 6: Mark the form section at the outside radius lines, and cut angles accordingly.

STEP 7: This form section now becomes a template, form which you can cut the other sections. Mark and cut all form section accordingly.

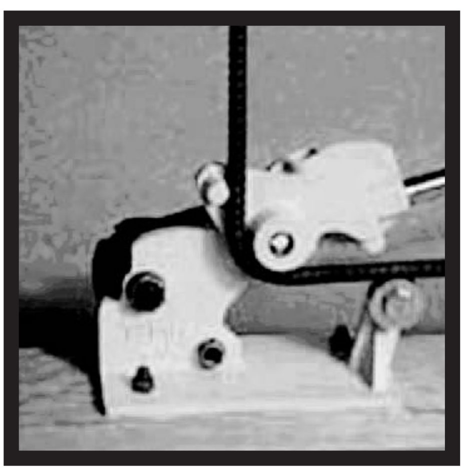
2.7.9 – RADIUS WALLS

CONTINUED

STEP 8: Zip ties, tape, or foam can now be used to connect all the form section into the wall. Repeat the steps for each course of radius wall.

STEP 9: This process will result in vertically stacked joints, and additional form support will be required prior to concrete placement.

2.8 – REINFORCEMENT
2.8.1 – BASIC PRINCIPLES OF 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.

A non-contact splice is typically the splice of choice in LOGIX walls except in heavily reinforced walls or in cases of narrow wall cavities.

Reinforcement around windows and doors needs to be installed as required.

Reinforcing steel must meet the requirements of ASTM A615, ASTM A996, or ASTM A706 for low-alloy steel. Minimum of Grade 40 (300MPa).

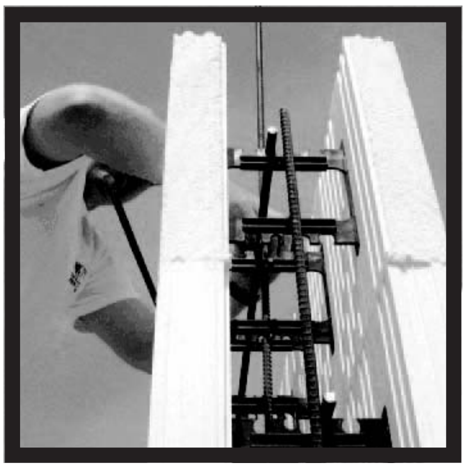
Reinforcing steel in a LOGIX wall must have minimum 3/4 inch (19 mm) concrete cover.

see section 6.0 – Engineering

Refer to LOGIX Design Manual for reinforcing tables or refer to EB118.

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

2.8.2 – HORIZONTAL REINFORCEMENT



STEP 1: Horizontal rebar, sized as required, should be placed in the wall as each course is installed.

STEP 2: Hold the reinforcement back from door and window openings by 2” (51mm).

STEP 3: Maintain the proper overlap splice length of 40d (40 x bar diameter) or 24 inch lap length, whichever is greater, or as otherwise specified when placing horizontal rebar. A non-contact lap splice is recommended.

STEP 4: The notch pattern on the LOGIX web allows for horizontal rebar to be alternated in location, course by course. This allows ideal support and positioning for vertical steel. Vertical rebar diameter will dictate horizontal offset from course to course.

2.8.3 – VERTICAL REINFORCEMENT

STEP 1: Install vertical rebar, as required, after all courses and horizontal reinforcement have been placed.

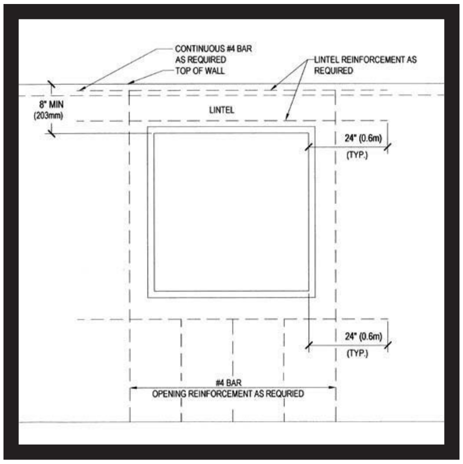
STEP 2: Place vertical reinforcement under windows, if required.

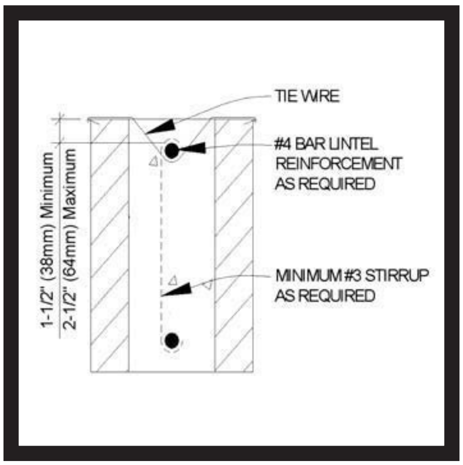
STEP 3: Place vertical rebar on each side of every opening as required. **see section** 6.0 – Engineering

STEP 4: Cold joints between upper floor walls and lower floor walls need to be reinforced with a lap length of 40d or 24 inch (610 mm) lap length, whichever is greater (unless otherwise specified).

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

2.8.4 – LINTELS





For more lintel reinforcement details see Section 6.0 Engineering.

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

STEP 1: Before placing forms across the top of door or window openings, rest the bottom lintel bar on buck material. This provides easier access to rebar for fast lintel steel installs. Check to make sure the bottom lintel steel has enough clearance. It should be 1-1/2 to 2-1/2 inches (38 to 64 mm) from buck material.

STEP 2: Install a course of forms across the top of the buck.

STEP 3: Install Form Lock across the entire length of the course. In some cases it may be require to install top lintel rebar before installing Form Lock, in order to achieve necessary concrete cover.

STEP 4: Suspend the top lintel rebar 1-1/2 to 2-1/2 inches (38 to 64 mm) below the top of the form.

STEP 5: Use stirrups to hang the bottom lintel rebar from the top steel, making sure the bottom rebar is 1-1/2 to 2-1/2 inches (38 to 64 mm) above the buck material.

Consistent stirrup dimensions will maximize efficiency.

The top and bottom lintel rebar must extend 24 inches (610mm) beyond both sides of window and door opening.

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.

Bucks can be made from vinyl or lumber. Pre-building lumber bucks saves time on the job site.

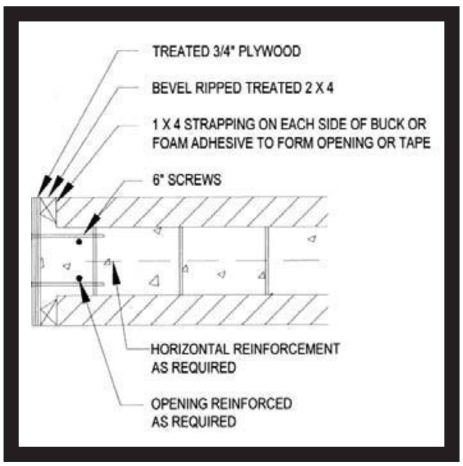
Cross bracing is required for all window and door bucks approximately 18 inches (457 mm) on center to help withstand the pressures of concrete placement.

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.

For more CAD drawings
see Section 5.9 CAD Drawings.

2.9.1 – TREATED PLYWOOD BUCK



For full size CAD drawing see Section 5, CAD Drawings

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.

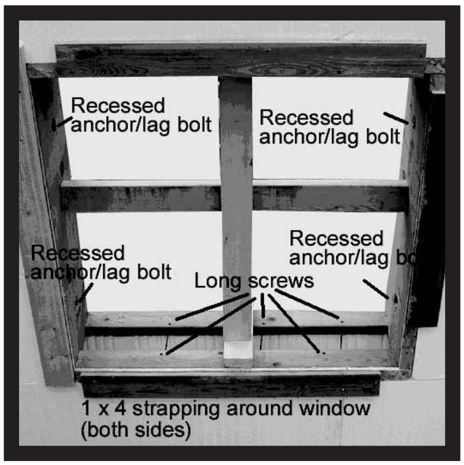
STEP 4: Assemble buck sides and top with access holes cut in bottom piece for placement of concrete. Two 2x4s can also be used for the bottom to allow concrete placements.

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.

2.9.2 – 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.

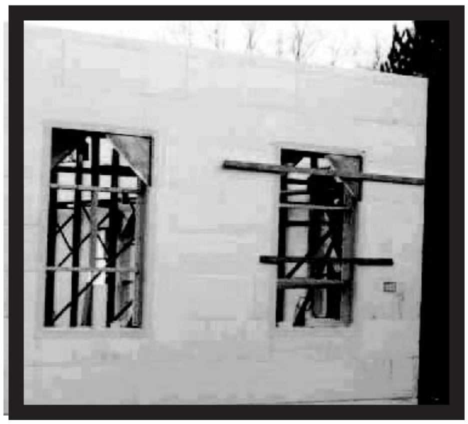
STEP 4: Cut two 2x4s for the bottom to allow concrete placement.

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.

2.9.3 – VINYL BUCK SYSTEM



STEP 1: Cut the top piece of the vinyl buck to the width of the opening.

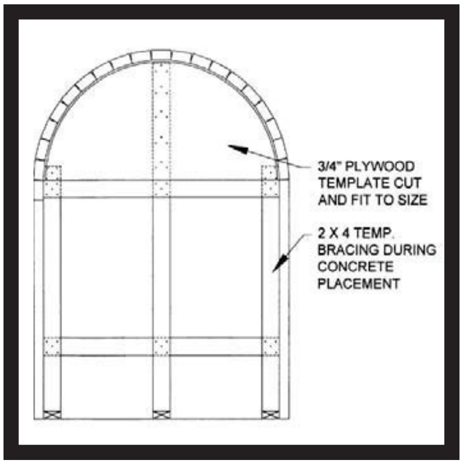
STEP 2: Install the top piece of vinyl buck over the forms so that is eats fully against forms. For additional support, the vinyl buck can be attached to the forms with foam adhesive after being properly cleaned with acetone.

STEP 3: Cut and install the bottom piece of the vinyl buck. Create appropriate holes for concrete placement and consolidation.

STEP 4: Cut and install the side pieces of the vinyl buck to seat against the top piece, resting on the bottom piece. Use foam adhesive for additional support if desired.

STEP 5: Install cross bracing as required.

2.9.4 – RADIUS OPENINGS



Radius windows and doors can be assembled at the site with shortened pieces of vinyl 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

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2.9.4 – RADIUS OPENINGS CONTINUED

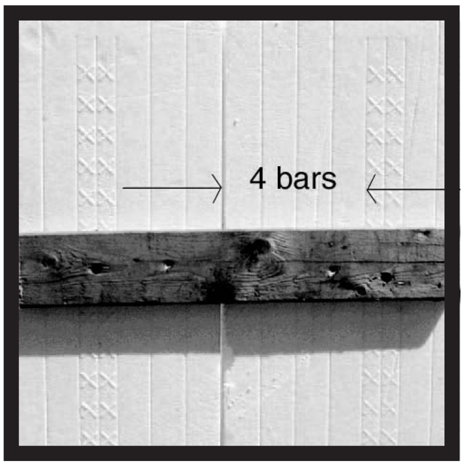
STEP 6: Once the buck is in place, it must be centered and secured. This can be done by attaching 1x4s to the edges of the buck, extending the edge of the 1x4 over the foam to hold the buck firmly in place. Alternately, the buck can be secured with foam adhesive and tape. Insert the radius template in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

- Horizontal wood strapping is required on both the inside and outside of the wall when:
- The offset between joints is less than 8 inches (203 mm) between courses.
- There are more than 3 foam bar beyond a web.
- Vertical joints are directly on top of each other.
- Window or door openings occur less than 4feet (1.220 m) from a corner. (Run strapping across opening to corner).
- Temporary wood straps are required around window and door openings to maintain straightness.
- Cross bracing with 2x4 supports is required inside window and door bucks to hold bucks in place and prevent sagging or bowing.
- Foam adhesive can be used on wood and plastic bucks to provide additional buck support.

2.10 – ADDITIONAL FORM SUPPORT

CONTINUED

- Foam adhesive should be used to secure all Height Adjusters, and FleX Bars.
- All outside corners should be reinforced with tape or wood strapping.
- The top course should be secured with adhesive foam or zip ties.
- Sloped walls should be properly foamed and braced.
- Radius walls should be secured with foam adhesive and flexible strapping material.
- Forms in all lintels should be secured end-to-end with zip ties.
- The middle of large openings should be vertically braced to prevent tipping.
- 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.

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). Attach the bracing system to the webs using #10 screws with a hex head. Screws should be snug, but not tight.

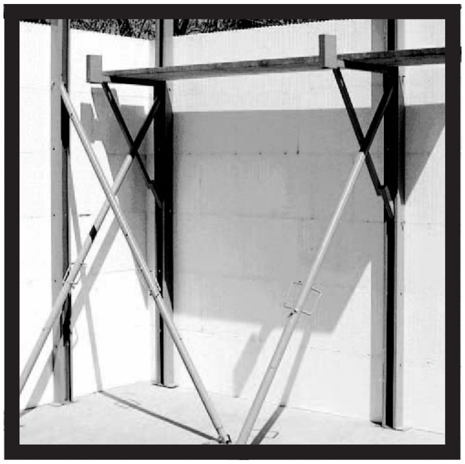
Place bracing units no more than 2 feet (0.610 m) from each corner or wall end, and every 7 feet (2.134 m) or less thereafter in accordance with OSHA/OHSA requirements. Bracing units should also be placed on either side of every door and window opening.

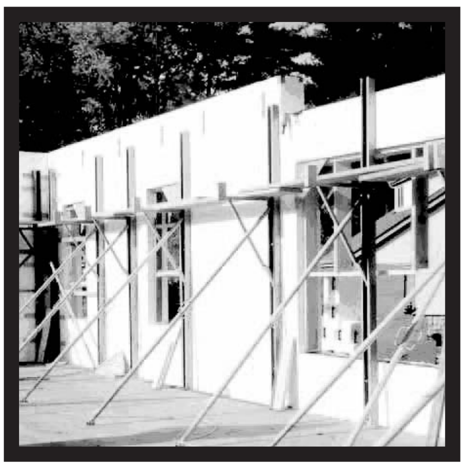
STEP 1: Attach the upright steel channel to the LOGIX webs with a screw in each course. The screws should be snug but not tight. Always place screws near the top of the slots to accommodate settling at the interlock during concrete placement.

STEP 2: Attach a turnbuckle arm to the upright with a bolt and then secure to the floor or ground. In light or sandy soil, additional care must be taken to secure diagonal turnbuckle.

2.11 – WALL BRACING & ALIGNMENT SYSTEM

CONTINUED





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 toeboard and handrail configuration, consult OSHA/OHSA.

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

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

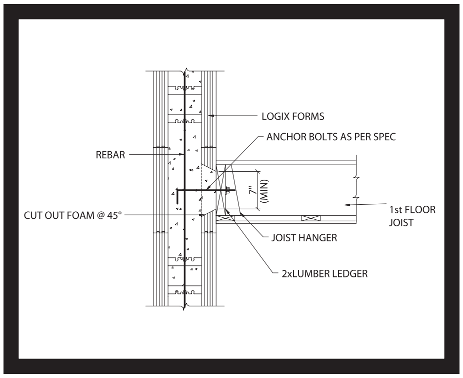
STEP 7: Before, during and after concrete placement, the diagonal turnbuckle arm is used to adjust wall straightness to stringline.

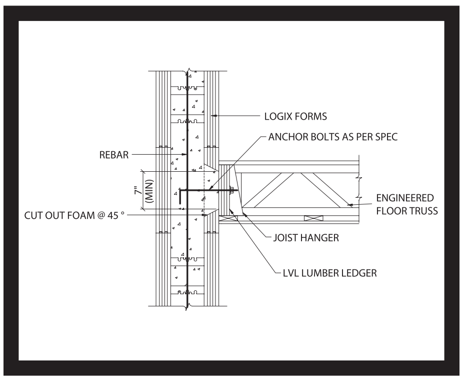
NOTE: For tall wall bracing and alignment see **Section 3.2, Tall Wall Bracing Systems**.

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





For full size CAD drawing see Section 5, CAD Drawings

STEP 1: Place LOGIX blocks to a height allowing 2 inch (51 mm) minimum coverage over embedments.

STEP 2: Snap chalk lines directly on forms to mark the top and bottom of the proposed rim joist.

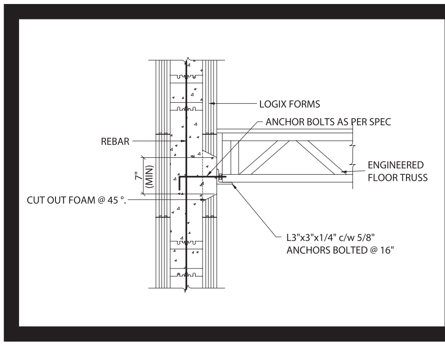
STEP 3: Cut openings between chalk lines to accommodate anchor bolts. The quantity and spacing of anchor bolts will be determined by code or engineering. Make certain that cuts are flared to facilitate proper concrete placement.

STEP 4: Pre-cut ledger to length. Pre-drill and install anchor bolts, washers and nuts as per hole layout and local code.

STEP 5: Attach ledger with screws into webs to hold in place while concrete is placed. Once concrete is cured, tighten anchor bolts.

STEP 6: Attach joist hangers to ledger according to hanger manufacturers' specs.

2.12.2 – STEEL ANGLE IRON LEDGER



For full size CAD drawing see Section 5, CAD Drawings

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**, 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 the foam out as you would with the wooden ledger then screw on 2x4 to cover the bottom of the cutout. The 2x4 temporarily supports the angle assembly so it must be installed level.

STEP 2: Sit the angle assembly on top of the 2x4 and tight up against the forms.

2.12.2 – STEEL ANGLE IRON LEDGER

CONTINUED

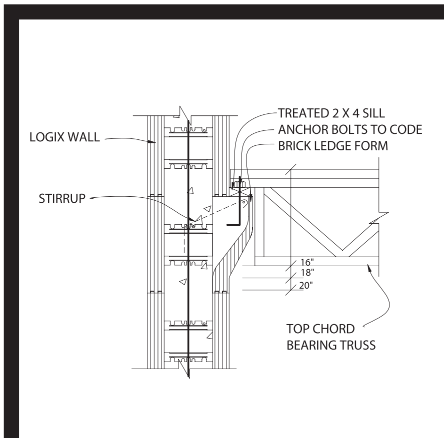
STEP 3: Screw strapping along the top edge of the angle to keep the assembly against the form during pour.

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

STEP 5: After some curing place floor systems on the angle and establish layout. Once layout is complete fasten the floor joist to angle with a tech screw or by ram-set. You may decide to attach a nailing surface to the bottom leg of the angle iron to nail joists to.

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

2.12.3 – BRICK LEDGE FOR TOP & BOTTOM CHORD BEARING SYSTEMS



For full size CAD drawing see Section 5, CAD Drawings

The LOGIX Brick Ledge form can create a load bearing surface to support floor systems, including:

- Top chord bearing trusses
- Bottom chord bearing trusses or joists
- Cast in place concrete floors
- Pre-cast concrete floors

STEP 1: The Brick Ledge and the course above it must be foamed or otherwise secured down along the entire course to eliminate tilting or separating.

STEP 2: 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.

STEP 3: Install rebar in the Brick Ledge as specified. Butt joints are preferred for rebar in outer edge of Brick Ledge. Install 20 inches (508 mm) long stirrups in each Brick Ledge cavity, including the very corner.

STEP 4: As concrete is placed, install embedments as required.

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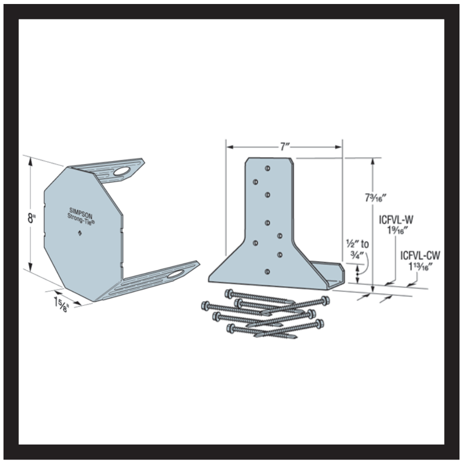
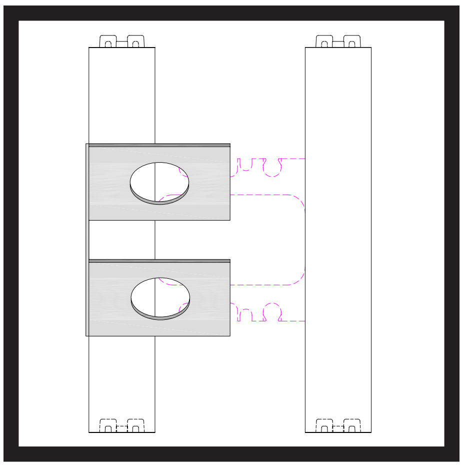
2.12.4 – LEDGER WITH SIMPSON BRACKET & JOIST HANGERS





The ICFVL & ICFVL-W ledger connector system from Simpson Strong-Tie is designed for mounting steel or wood ledgers on ICF walls. The perforations in the embedded leg anchor it within the block. The exposed flange provides a structural surface for mounting either a wood or a steel ledger. The ICFVL bracket is the portion inserted into the block and embedded into the concrete. The ICFVL-W bracket is used with 1-1/2 inch (38 mm) ledger material. The ICFVL-CW bracket is used with 1-3/4 inch (44 mm) engineered wood ledgers. These brackets are installed on the ledger and attached to embedded ICFVL.

STEP 1: Place LOGIX blocks to a height allowing 2 inch (52 mm) minimum coverage over embedments.

STEP 2: Snap chalk lines directly on forms to mark the top or bottom of the proposed rim joist. For ledgers less than 10-3/8 inch (264 mm) deep, brackets should be installed to the top chalk line. For ledgers more than 10-3/8 inch (264 mm) deep, brackets should be installed to the bottom chalk line. For steel floor joists and ledgers, brackets should be centered on the proposed ledger.

STEP 3: Create vertical cuts to accommodate ICFVL bracket. Make sure these cuts are made directly opposite the thinned channels inside the form so that when inserted, the bracket will be exposed to the maximum amount of concrete. The quantity and spacing of brackets will be determined according to the table on **page 2-57**.

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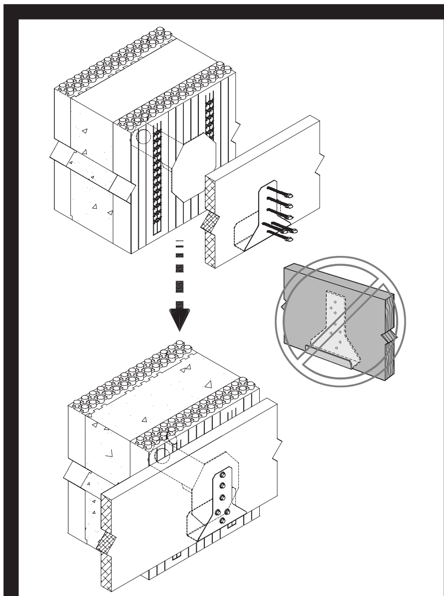
2.12.4 – LEDGER WITH SIMPSON BRACKET & JOIST HANGERS CONTINUED



For full size CAD drawing see Section 5, CAD Drawings

STEP 4: Place concrete and consolidate, ensuring brackets are fully embedded.

STEP 5: For wood or composite ledger, after proper concrete curing, the ICFVL-W or ICFVL-CW and appropriate ledger material can be installed using fasteners provided by Simpson Strong-Tie.

It is recommended to temporarily install ledger to chalk line, fastened to webs within 1 inch (25 mm) of the top edge of the ledger. This will make it easier to complete the installation. Slip ICFVL-W or ICFVL-CW underneath wood ledger and attach the screws as required.

For steel ledger, position ledger against ICFVL, level, and attach using appropriate fasteners as required by floor manufacturer.

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)	-- --	-- --

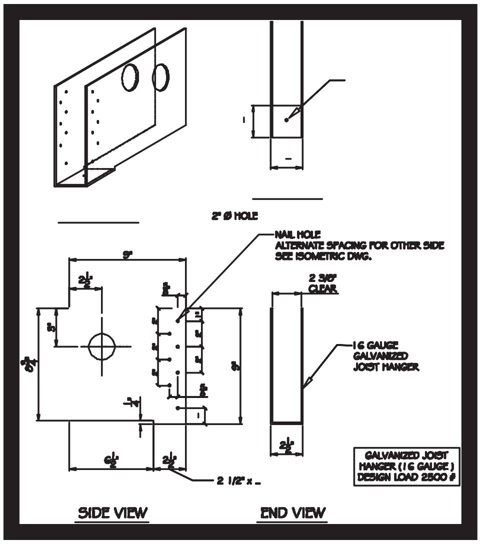
		4” LOGIX ICF	6”, 8” & 10” LOGIX ICF	4” LOGIX ICF	6”, 8” & 10” LOGIX ICF	Spacing to Replace Anchor Bolts[3,4,6]							
Ledger Type	Model No.	Allowable Vertical Resistance[2]	Allowable Vertical Resistance[2]	Factored Vertical Resistance	Factored Vertical Resistance	2-5/8” Dia. Bolts at				3/4” Dia. Bolts 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 – McMILLAN JOIST HANGERS



For full size CAD drawing see Section 5, CAD Drawings

The McMillan Joist Hanger is designed to support wood floor joists to ICF walls. The perforations in the embedded leg anchor it within the block. The exposed end provides a 2.5 inch x 2.5 inch (63.5 mm x 63.5 mm) structural bearing surface for mounting wood joists with optional sizes of 1-9/16 inch (40 mm), 2-9/16 inch (65 mm) and 3-5/8 inch (92mm).

STEP 1: Determine height of floor and subtract height of floor joist.

STEP 2: Level marks with a transit or measuring tape and chalk line.

STEP 3: Screw a 2x4 ledger at chalk line to set joist hanger on.

STEP 4: Place joist hangers to floor joist layout spacing.

STEP 5: Cut two vertical slotted holes with a keyhole saw, slide joist hanger into ICF block, fasten if necessary.

STEP 6: Ensure the joist hangers are sitting straight after the placement of concrete.

NOTE: For more information contact 1-250-318-0062.

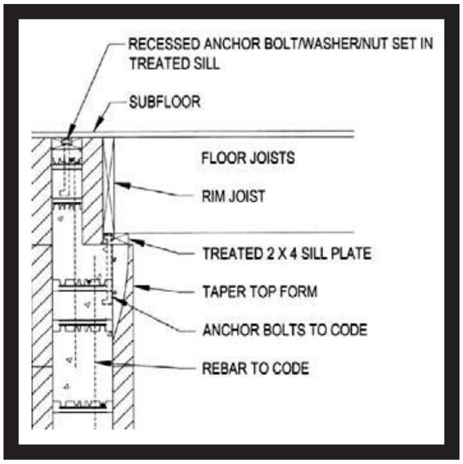
2.12.6 – TRANSITION LEDGE

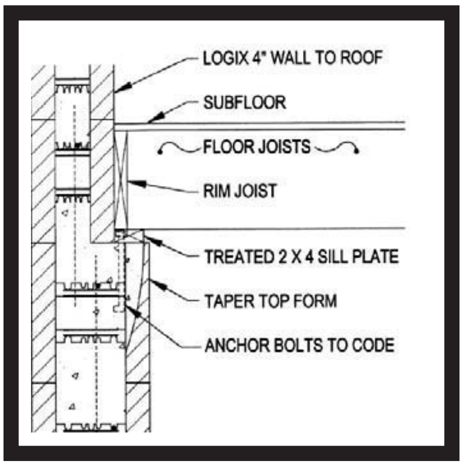
A transition ledge is commonly used when the LOGIX walls will be continuing up to the roofline.

The ledge created when transitioning from a wider to a narrower wall can provide a suitable bearing surface for many types of floor systems.

For additional bearing support LOGIX Taper Top and Transition forms can be used as the top course when transitioning from a 6.25 inch (159 mm) to 4 inch (102 mm) LOGIX wall.

2.12.6.1 – TRANSITION LEDGE WITH TAPER TOP FORMS





LOGIX 6.25 inch (159 mm) Taper Top forms can be used as the top course when transitioning to a 4 inch (102 mm) wall. Alternately, 6.25 inch (159 mm) Standard forms and corner forms can be hand cut to create Taper Top forms.

LOGIX 8 inch (203 mm) Taper Top forms can be used as the top course when transitioning to 4 inch (102 mm) or a 6.25 inch (159 mm) wall.

When hand cutting Taper Top forms, be careful not to drop foam scraps into the wall cavity.

STEP 1: Set Taper Top form as the top course of the lower wall.

STEP 2: Using short lengths of #4 (10M) rebar, provide a bearing support for the unsupported edge of the upper (narrower) form.

STEP 3: Install upper form, using foam adhesive to prevent lifting or tipping at connection.

STEP 4: 1x4 lumber can be attached vertically to the outside of the forms to assist in wall alignment.

STEP 5: Right after concrete placement, trowel off the ledge while checking for level. Insert embedments as required.

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2.12.6.2 – TRANSITION LEDGE WITH LOGIX TRANSITION FORMS

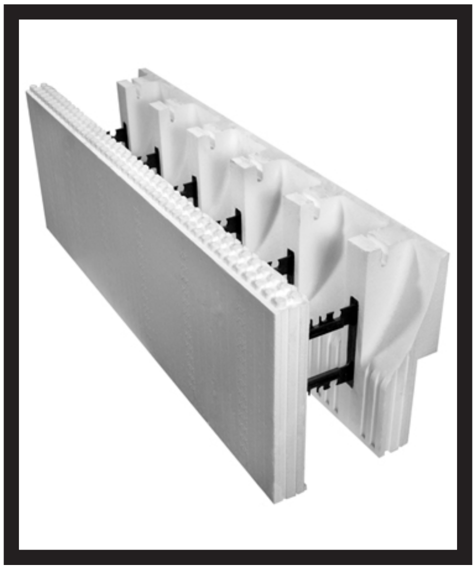


Figure 1a: LOGIX Transition Block

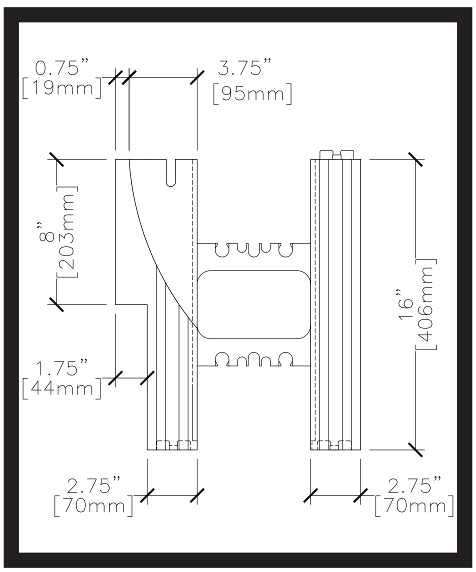
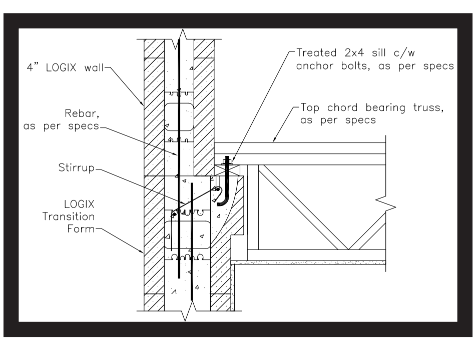


Figure 1b: LOGIX Transition Block End View



LOGIX Transition forms provide more bearing support than the LOGIX Taper Top forms. The Transition forms are available in straight units. See **Figure 1a & 1b**.

When transitioning from a thicker wall to a thinner wall (i.e., 6.25 inch (159 mm) to 4 inch (102 mm) wall) the LOGIX Transition form can provide additional bearing support for heavier loaded floor systems.

The corbel ledge of the Transition forms can support a load of up to 1300lb/ft (19kN/m) providing a total bearing seat length of 3.75 inch (95 mm).

With the corbel extending 1.75 inches (44 mm) form the face of the wall, it also adds an aesthetic crown moulding-like feature when used as the top course of an interior wall.

Creating corner forms are easily installed, and is very similar to creating corner forms with LOGIX Brick Ledge forms (see **Section 2.7.4**).

For bracing installation, refer to **Section 3**. If the bracing is placed on the corbel side of the forms, the upright vertical channel should terminate just under the corbel of the Transition form.

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2.12.6.3 – TRANSITION LEDGE WITH CORNER BLOCKS

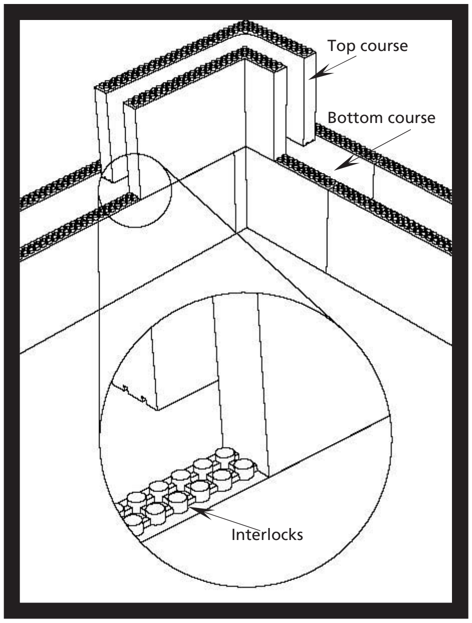


Figure 1a. Proper alignment of top course to bottom course. Interlock aligns with underside of top course.

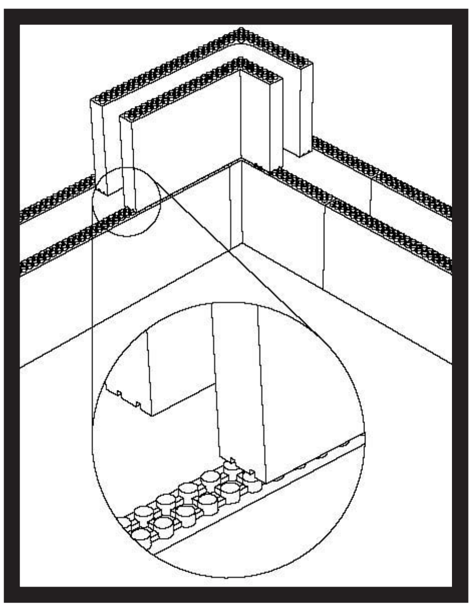


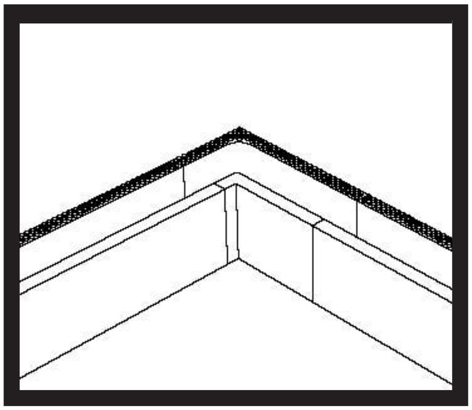
Figure 1b. Improper alignment of top course to bottom course. Interlock does not align with underside of top course.

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 (see **Figure 1a & 1b**).

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

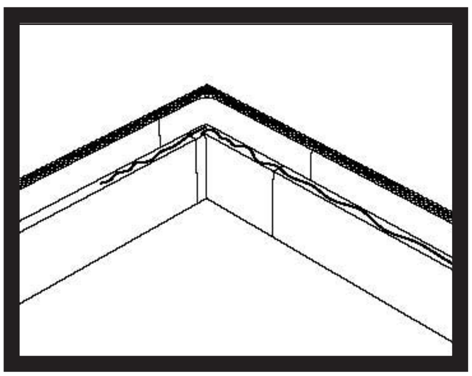
2.12.6.3 – TRANSITION LEDGE WITH CORNER BLOCKS CONTINUED



Step 1

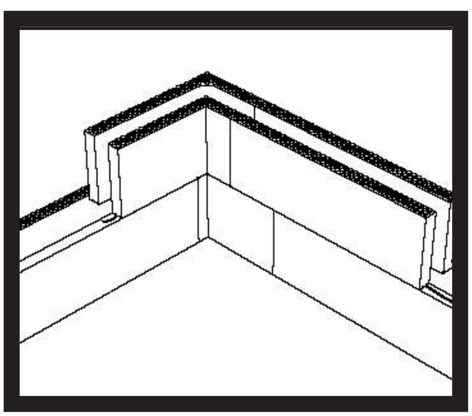
STEP 1: Cut the interlocks off the wider corner blocks (it may be necessary to cut the interlocks off the rest of the blocks on the bottom course to ensure the top course can be placed flush on top of the previous course).

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 wit the top course.



Step 2

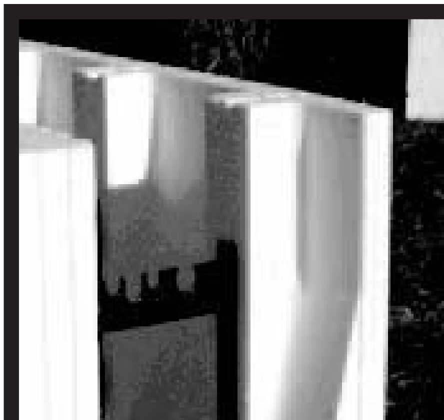
STEP 2: Apply foam adhesive prior to installing the top course.

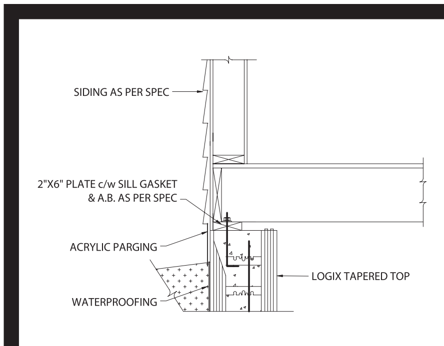


Step 3

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

2.12.7 – TAPER TOP WITH SILL PLATE





For full size CAD drawing see Section 5, CAD Drawings

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.

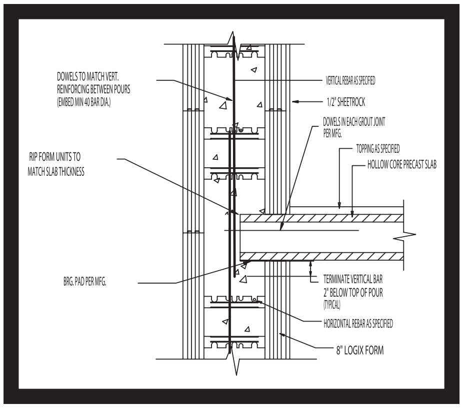
STEP 2: Trowel concrete flush with top of forms, or inset as required. Be sure to check for level.

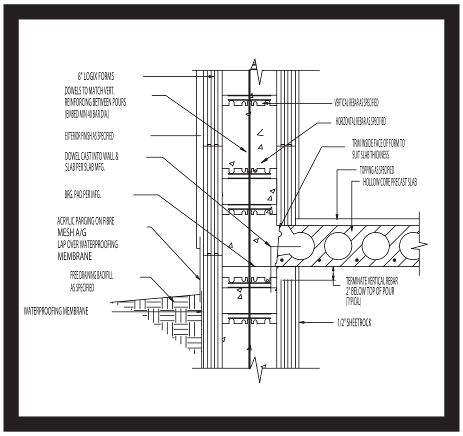
STEP 3: Insert embedments as required.

2.12.8 – 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.

2.12.8.1 – PRECAST CONCRETE FLOORS





For full size CAD drawing see Section 5, CAD Drawings

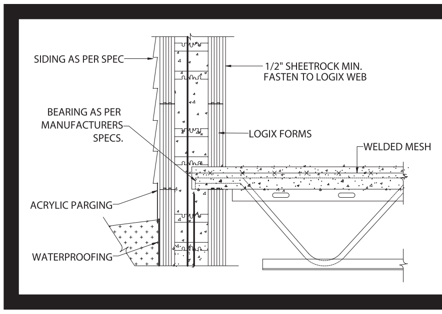
Pre-cast floor systems are poured at the factory and shipped to site then craned in place. They are usually tensioned with steel cables cast in the concrete to provide maximum strength. Pre-cast floor are fast and can have very long clear spans.

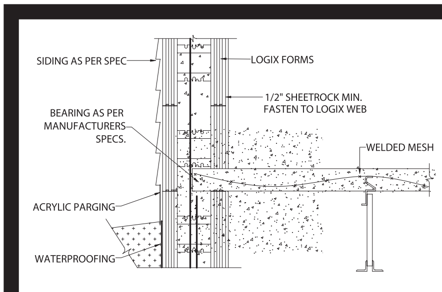
Typically the LOGIX wall is constructed to the desired height and the pre-cast planks sit directly on the cured concrete. The planks, typically 4 feet (1.220 m) wide, are craned in place and the groves between planks are grouted together. A 2 inch (52 mm) topping is poured over the deck to provide a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

2.12.8.2 – HAMBRO FLOOR SYSTEM





For full size CAD drawing see Section 5, CAD Drawings

The Hambro floor system is a proprietary composite floor system that combines open web steel joists and a 2.5”-5” (64mm - 127mm) floor slab. The joists are spaced 4’-1” (1.225m) O.C. and held apart with locking bars. Then temporary plywood forms are placed between the joists and the concrete deck is poured. After sufficient cure the plywood forms are removed. Hambro is a fast and efficient concrete floor system and can span upwards of 25 feet (7.620 m).

The open joist design makes for easy mechanical and utility installation.

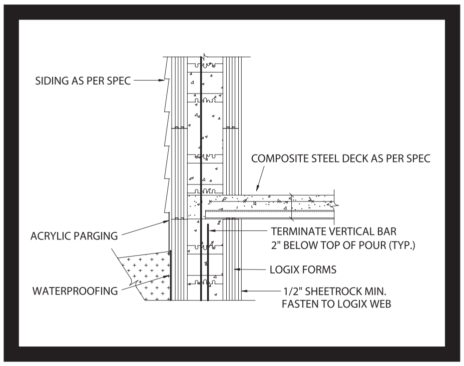
See Hambro for more details: www.hambrosystems.com

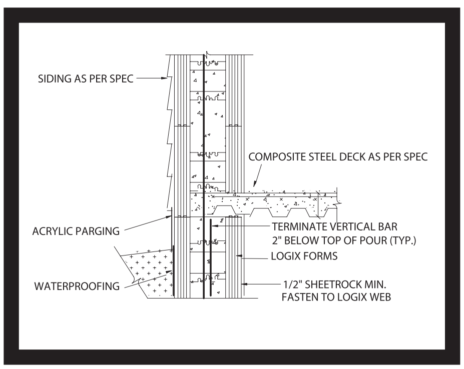
2.12.8.3 – STEEL COMPOSITE FLOOR SYSTEM

Composite floors are a combination of steel and concrete that is bonded together to create a very strong floor. The steel composite decking is a corrugated steel pan that has deformations that bond securely with the concrete. The steel deck is the formwork for the pour and then acts as reinforcement in the concrete. These systems are quick to install and are comparatively thin, resulting in more headroom in the finished.

It may be necessary to temporarily support the pan until the concrete has sufficiently cured.

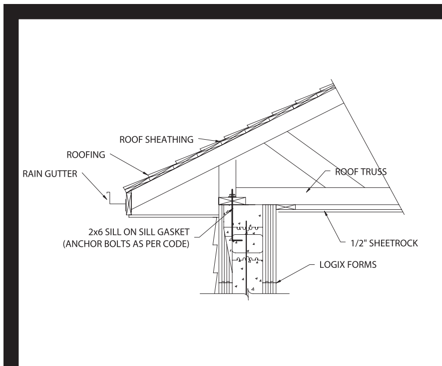
For more info and design consult your floor manufacturer and your local design engineer.





For full size CAD drawing see Section 5, CAD Drawings

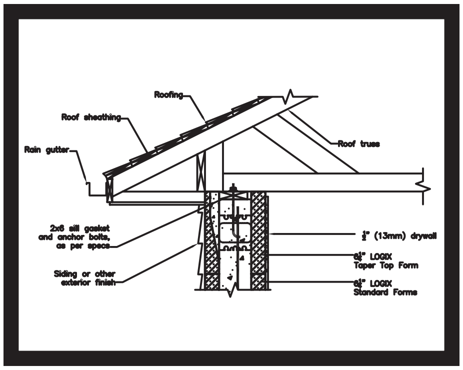
2.13 – ROOF CONNECTIONS



For full size CAD drawing see Section 5, CAD Drawings

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.

2.13.1 – INSET SILL PLATE



For full size CAD drawing see Section 5, CAD Drawings

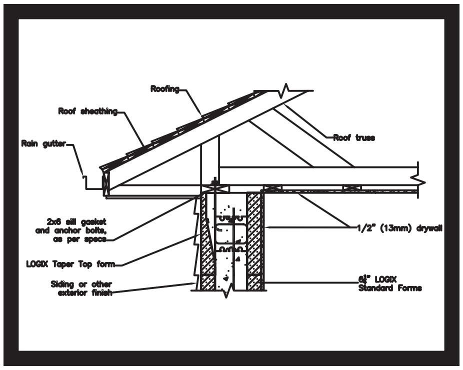
This method of sill plate attachment is on one the most energy efficient. The LOGIX foam on each side provides an excellent thermal barrier.

STEP 1: Trowel the concrete out to a level below the top of the form equal to the depth of the sill plate. Use a site built wood trowel. Be sure to cut the trowel board to the full width of the concrete core.

STEP 2: Install embedments as required.

NOTE: For ease of concrete flow it is recommended to use either LOGIX Taper Top or Double Taper Top for the top course.

2.13.2 – TOP MOUNTED SILL PLATE



For full size CAD drawing see Section 5, CAD Drawings

This method is typically used when additional wall height is required.

STEP 1: Trowel concrete flush with top of form and recheck for level.

STEP 2: Install embedments as required.

NOTE: For ease of concrete flow it is recommended to use either LOGIX Taper Top or Double Taper Top for the top course.

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

2.15 – CONCRETE PLACEMENT

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 and zip tied 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, LOGIX FleX Bars or other covering?
____ 21. Proper concrete mix and slump ordered?
____ 22. Concrete vibrator on site?
____ 23. Pump equipped with double-90 or reducer available?

2.15 – CONCRETE PLACEMENT CONTINUED

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.

Ensure straight walls by placing a string line at the top course set off from the wall using 3/4 inch (19 mm) pieces of wood placed in the corners. Check for straightness by running another 3/4" inch (19 mm) piece of wood between the string and wall. Adjust the turnbuckles as necessary to keep the wall straight during concrete placement. Walls must be perfectly straight or leaning in slightly.

During concrete placement, watch the string lines to monitor the wall for straight and plumb.

Suggested minimum compressive concrete strength of 2,900 psi (20MPa) at 28 days. 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)	3/4 (19)	3/4 (19)	3/4 (19)

Concrete slump should be 5 inch (127 mm) to 6 inches (152mm) for best results.

A pump truck with double 90° elbows or a reducer attached to a rubber extension works best to control the rate of concrete flow.

When placing concrete in 4 inch (102 mm) forms, it is recommended that the pump truck be fitted with a 3 inch (76 mm) flexible hose end.

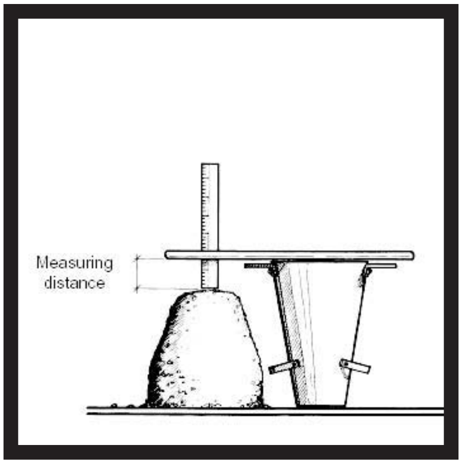
Other methods of placement include conveyor truck, crane and bucket, and directly off the ready mix truck.

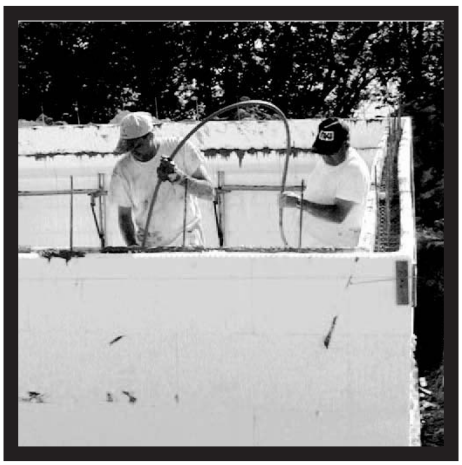
Lift height is determined by many factors, such as air temperature, concrete temperature, slump, etc. In general, lift heights should not exceed 4ft (1.220 m).

Example: on a 60° F (15° C) day with a 6 inch (152 mm) slump, the lift height should be approximately 3 feet (0.914 m). Below is a guide for a lift heights according to varying temperatures and with a 6 inch (152 mm) slump.

Consult local ready mix companies for appropriate concrete mix design.

When placing concrete below freezing or at temperatures above 100° F (38° C), it's important to protect all exposed concrete with insulation.





Proper concrete consolidation is critical in obtaining a structurally solid wall.

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.

Temperature	Lift Height (6” slump)
40^{o}F (4^{o}C)	2’-2.5” (670mm)
50^{o}F (10^{o}C)	2’-9” (840mm)
60^{o}F (15^{o}C)	3’-10.25” (920mm)
70^{o}F (21^{o}C)	3’-10.25” (1170mm)
80^{o}F (27^{o}C)	4’-4.75” (1340mm)
90^{o}F (32^{o}C)	4’-11.5” (1510mm)

2.15 – CONCRETE PLACEMENT CONTINUED

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: As the concrete is being placed, continually check wall alignment using string line. Adjust the wall accordingly to maintain straight and plumb using the adjustable turnbuckle.

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

2.15 – CONCRETE PLACEMENT CONTINUED

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?

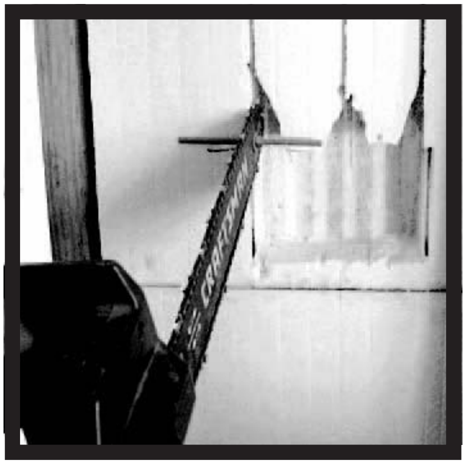
____ 3. In extreme temperatures, has exposed concrete been protected?

____ 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.

2.18 – INTERIOR & EXTERIOR FINISHES
2.18.1 – VAPOR & AIR BARRIERS

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

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

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

2.18.2 – INTERIOR DRYWALL

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

- All webs (studs) are on 8 inch (203 mm) centers from floor to ceiling for easy attachment of any type of interior wall finish.
- The butt joints of the sheetrock do not need to fall on webs (studs) as the foam provides solid backing wherever the joints fall.
- 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.

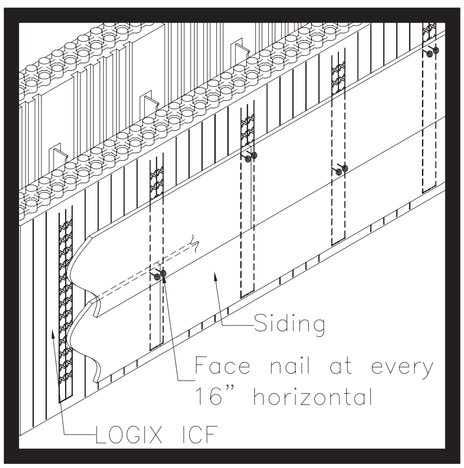
Non-habitable spaces such as crawl spaces, attics, and other types of hidden areas typically do not require a thermal barrier (drywall).

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

2.18.3 – EXTERIOR SIDING

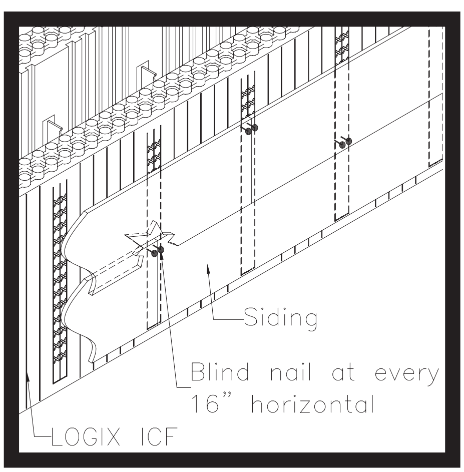
Siding material of some kind must be installed over the EPS foam to protect it from the UV rays of the sun. Foam left exposed to the sun will degrade on the exposed surface by slowly breaking and getting "dusty".

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



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

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



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

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

A plastic corner web is embedded in all corners as a fastening surface. See **Section 5.1.6 & 5.1.7** for further details on the plastic corner web.

2.18.4 – STEEL PANEL SIDING

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

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

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

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

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

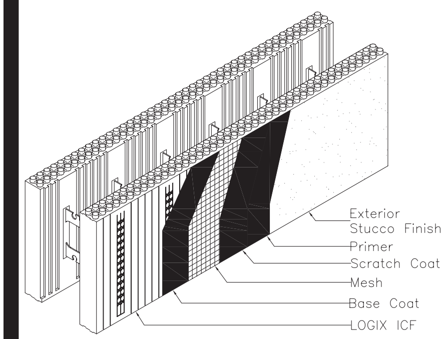
2.18.5 – WOOD SIDING

Any wood siding can be attached to the LOGIX wall in the same manner as to a traditional framed building. The spacing of the web studs on 8 inch (203 mm) centers allows for industry standard spacing of fasteners. Typically, screws are used for attaching wood siding or even half-log siding to the LOGIX wall.

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

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

2.18.6 – EIFS



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

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

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

2.18.7 – TRADITIONAL STUCCO (CEMENT-BASED)

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

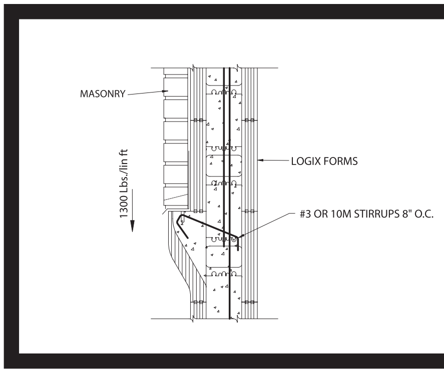
Consult local building codes for vertical and horizontal fastener placement requirements. The center-to-cente fastener spacing requirements for nails and staples must be followed for screws as well. Again, check with local codes for all specific requirements relating to the application of stucco over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

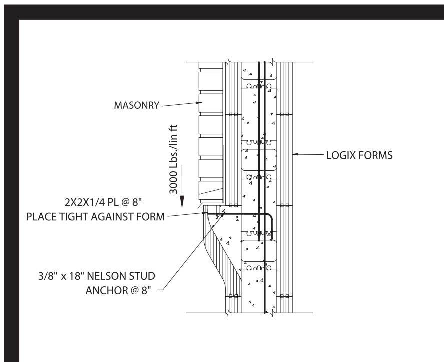
2.18.8 – CEMENT COMPOSITE SIDING

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

Check with your siding manufacturer for specific requirements.

2.18.9 – BRICK VENEER





For full size CAD drawing see
Section 5, CAD Drawings

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

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

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

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

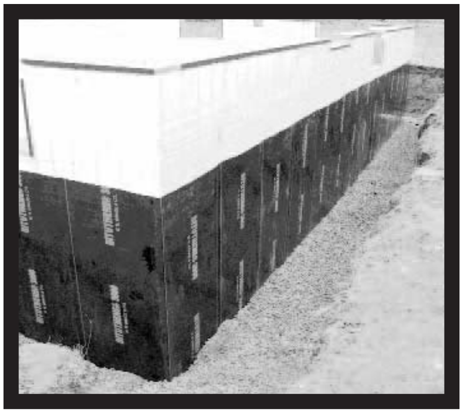
2.18.10 – BELOW GRADE WATERPROOFING, DAMPPROOFING & PARGING

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

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

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

2.18.10.1 – BELOW GRADE WATERPROOFING



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

Free flow drainage material with a maximum fluid density of 30 pcf (480 kg/m^3) is recommended, i.e., sand or sand-gravel mix.

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

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

STEP 2: Snap chalk lines for the "grade" line.

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

2.18.10.1 – BELOW GRADE WATERPROOFING CONTINUED

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

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

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

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

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

2.18.10.2 – ABOVE GRADE PARGING

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

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

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

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

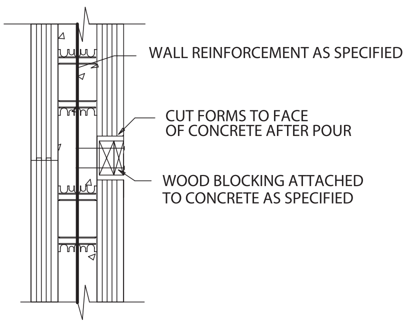
STEP 3: Using a trowel apply a thin, 1/16" - 1/8" (2mm - 3mm) "skim coat" of Prepcoat.

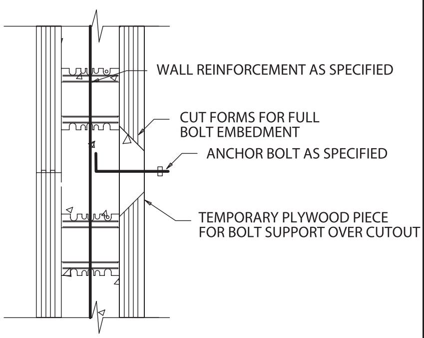
STEP 4: Pre-cut pieces of LOGIX fiber mesh 1" - 2" (25mm - 51mm) wider than the area to be parged. This will allow for an over-lap over the waterproofing membrane to create a "drip ledge".

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

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

2.18.11 – ADDITIONAL SUPPORT FOR GRAB BARS, & OTHER HEAVY FIXTURES





For full size CAD drawing see Section 5, CAD Drawings

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

This can be accomplished in two ways:

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.

2.18.12 – 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.

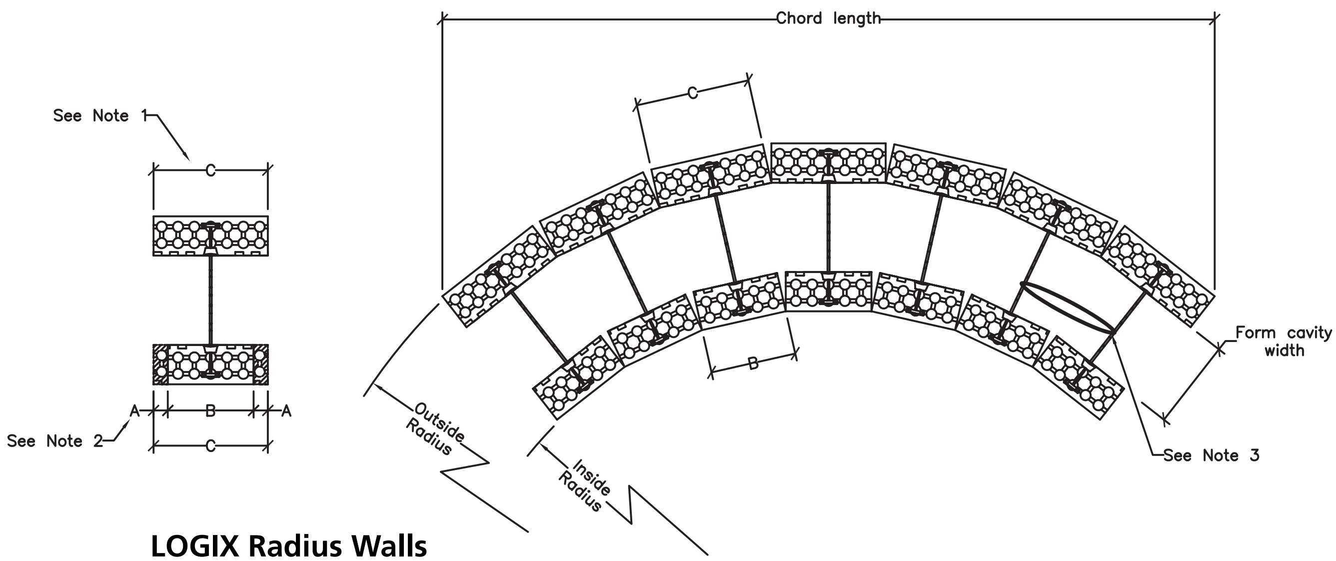
2.19 – COURSE HEIGHT TABLE

COURSE HEIGHT TABLE

This table shows wall heights that are readily achieved using standard LOGIX blocks used in combination with a 4 inch (102 mm) Height Adjusters and/or 8 inch (203 mm) Half-height blocks.

Number of Courses	Height of Wall	Add One Height Adj.	Add One Half-hieght	Add One Height Adj. & One Half-height
1	1' - 4" (406mm)	1' - 8" (508mm)	2' - 0" (610mm)	2' - 4" (711mm)
2	2' - 8" (813mm)	3' - 0" (914mm)	3' - 4" (1016mm)	3' - 8" (1118mm)
3	4' - 0" (1219mm)	4' - 4" (1321mm)	4' - 8" (1422mm)	5' - 0" (1524mm)
4	5' - 4" (1626mm)	5' - 8" (1727mm)	6' - 0" (1829mm)	6' - 4" (1930mm)
5	6' - 8" (2032mm)	7' - 0" (2134mm)	7' - 4" (2235mm)	7' - 8" (2337mm)
6	8' - 0" (2438mm)	8' - 4" (2540mm)	8' - 8" (2642mm)	9' - 0" (2743mm)
7	9' - 4" (2845mm)	9' - 8" (2946mm)	10' - 0" (3048mm)	10' - 4" (3150mm)
8	10' - 8" (3251mm)	11' - 0" (3353mm)	11' - 4" (3454mm)	11' - 8" (3556mm)
9	12' - 0" (3658mm)	12' - 4" (3759mm)	12' - 8" (3861mm)	13' - 0" (3962mm)
10	13' - 4" (4064mm)	13' - 8" (4166mm)	14' - 0" (4267mm)	14' - 4" (4369mm)
11	14' - 8" (4470mm)	15' - 0" (4572mm)	15' - 4" (4674mm)	15' - 8" (4775mm)
12	16' - 0" (4877mm)	16' - 4" (4978mm)	16' - 8" (5080mm)	17' - 0" (5182mm)
13	17' - 4" (5283mm)	17' - 8" (5385mm)	18' - 0" (5486mm)	18' - 4" (5588mm)
14	18' - 8" (5690mm)	19' - 0" (5791mm)	19' - 4" (5893mm)	19' - 8" (5994mm)
15	20' - 0" (6096mm)	20' - 4" (6198mm)	20' - 8" (6299mm)	21' - 0" (6401mm)
16	21' - 4" (6502mm)	21' - 8" (6604mm)	22' - 0" (6706mm)	22' - 4" (6807mm)
17	22' - 8" (6909mm)	23' - 0" (7010mm)	23' - 4" (7112mm)	23' - 8" (7214mm)
18	24' - 0" (7315mm)	24' - 4" (7417mm)	24' - 8" (7518mm)	25' - 0" (7620mm)
19	25' - 4" (7722mm)	25' - 8" (7823mm)	26' - 0" (7925mm)	26' - 4" (8026mm)
20	26' - 8" (8128mm)	27' - 0" (8230mm)	27' - 4" (8331mm)	27' - 8" (8433mm)
21	28' - 0" (8534mm)	28' - 4" (8636mm)	28' - 8" (8738mm)	29' - 0" (8839mm)
22	29' - 4" (8941mm)	29' - 8" (9042mm)	30' - 0" (9144mm)	30' - 4" (9246mm)
23	30' - 8" (9347mm)	31' - 0" (9449mm)	31' - 4" (9550mm)	31' - 8" (9652mm)
24	32' - 0" (9754mm)	32' - 4" (9855mm)	32' - 8" (9957mm)	33' - 0" (10058mm)
25	33' - 4" (10160mm)	33' - 8" (10262mm)	34' - 0" (10363mm)	34' - 4" (10465mm)

2.20 – RADIUS WALLS



LOGIX Radius Walls

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, 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).

2.20 – RADIUS WALLS CONTINUED

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)

2.20 – RADIUS WALLS CONTINUED

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)
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)

2.20 – RADIUS WALLS CONTINUED

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)

2.21 – 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.
- Proper consolidation of concrete can be achieved by adequate vibrating. However, depending on the drop height, and the steel congestion, external vibration should be considered. External vibration should be applied to at least the corners, around openings, and congested areas of rebar. (External

vibrators made specifically for ICFs are available. See **Section 2.23, Supporting Products**).

- Since tall walls are typically poured using a pump truck, using a reducing hose can provide better control of the concrete pour.
- 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, use LOGIX Taper Top blocks 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.

2.22 – TILT-UP WALL CONSTRUCTION

The LOGIX KD panels can provide insulation to the exterior, interior or both sides of tilt-up wall panels.

The use of LOGIX KD to insulate tilt-up walls avoids the need to finish the concrete surface and apply curing and finishing compounds.

Casting of tilt-up walls in cold weather is also possible with LOGIX KD since the walls are thermally protected within the panels.

In addition, the structural design and connections of supporting elements are not affected by the use of LOGIX KD.

CAST AGAINST LOGIX KD
Provided LOGIX KD panels are laid upon a firm level surface, tilt-up wall panels can be cast against LOGIX KD without the need for a casting bed or slab. Release agents are also not required since the walls are poured on top of the LOGIX KD panels.

STEP 1: After the formwork for the tilt-up walls have been placed, lay down the LOGIX KD panels within the formwork area before placing the rebar and concrete.

The formwork should be built high enough to accommodate the thickness of the KD panels and the tilt-up wall. Cover as much of the area within the formwork as required (for full insulation cover lay down the KD panels to cover the entire area within the formwork).

The LOGIX KD panels should be placed in a stack bond pattern with the holding points facing up. This will ensure the holding points will be properly anchored into the concrete during the pour.

Create cutouts in the LOGIX KD panels where inserts will be placed for bracing.

STEP 2: Place the rebar and inserts for lifting or bracing. Pour the concrete, finish and cure the walls as required.

STEP 3: Once the all the tilt-up panels have been erected and braces removed, replace all cutout sections of LOGIX KD panels with similar foam insulation (or insulation with equal or greater R-value).

Apply spray foam between LOGIX KD panel joints if necessary.

STEP 4: Apply interior or exterior finish to the LOGIX KD panels as required.

2.22 – TILT-UP WALL CONSTRUCTION

CONTINUED

WET SETTING LOGIX

Wet setting LOGIX eliminates the need to trowel finish, and apply finishing and curing compounds.

STEP 1: To prepare the LOGIX KD panels for wet setting, lay the panels on a flat surface with the holding points facing down. Keep the LOGIX KD panels slightly elevated from the ground to avoid damaging the holding points.
Lay the LOGIX KD panels in a stack bond pattern and connect the panels together with a metal strongback or 2x4s. Connect the stongback or 2x4s along the embedded furring tabs with wood screws.

STEP 2: Once the concrete for the tilt-up wall panels have been placed and properly screed, the LOGIX KD panels can be wet set into place.

The LOGIX KD panels can be wet set by holding onto the strongbacks or 2x4s. Once the LOGIX KD panels are in place press down firmly to ensure the holding points are properly embedded into the concrete.

Smaller cut pieces of LOGIX KD panels can be wet set by hand to fill in any remaining areas of the formed wall.

The number of LOGIX KD panels should be determined ahead of time, assembled and ready for placement.

2.22 – TILT-UP WALL CONSTRUCTION

CONTINUED

STEP 3: Use a vibrator to along the strongbacks or 2x4s to properly consolidate the concrete.

STEP 4: Remove the strongbacks or 2x4s after the concrete has set.

STEP 5: After the walls are lifted and placed foam spray the joints between the LOGIX KD panels.

STEP 6: Apply interior or exterior finish to the LOGIX KD panels as required.

LOGIX KD PANELS ON BOTH SIDES OF WALL

To apply LOGIX KD panels to both sides of tilt-up walls simply follow the instructions for casting walls against LOGIX KD panels and wet setting LOGIX KD panels on tilt-up walls.

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
Fastfoot	Fab-form Industries	1-888-303-3278	fab-form.com
Form-A-Drain	CertainTeed Corp.	708-301-4449	certainteed.com
Footing Tube	Footing Tube	1-888-929-2011	foottube.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
Protecto Bond	Protecto Wrap	1-800-759-9727	protecowrap.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

CONNECTION SYSTEMS

Product Name	Manufacturer	Contact	Website
ICF Ledger Connector System	Simpson Strong-Tie Co., Inc.	1-800-999-5099	simpsonstrongtie.com
McMillan Joist Hanger	New Tech Concrete Solutions	1-888-835-6655	-
ICF-Connect	ICF-Connect Ltd.	1-866-497-1576	icfconnect.com

BUCK SYSTEMS

Product Name	Manufacturer	Contact	Website
VBuck	Vinyl Technologies, Inc.	1-888-578-2825	vbuck.com

ADHESIVE & SEALANTS

Product Name	Manufacturer	Contact	Website
Enerfoam Sealant/Enerbond Adhesive	Dow Chemical Company	1-800-800-FOAM	dow.com/buildingproducts

WALL BRACING & ALIGNMENT SYSTEMS

Product Name	Manufacturer	Contact	Website
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 – ALIGNMENT & SCAFFOLDING SYSTEMS

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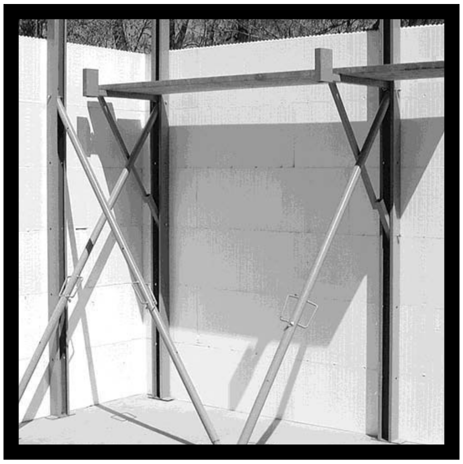
3.1 – WALL BRACING & ALIGNMENT SYSTEMS



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.

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). Attach the bracing system to the webs using #10 screws with a hex head. Screws should be snug, but not tight.

Place bracing units no more than 2ft (0.610m) from each corner or wall end, and every 7ft (2.134m) or less thereafter in accordance with OSHA/OHSA requirements. In addition, every door and window opening should be flanked on either side by bracing units, typically installed on the inner side of the LOGIX wall.

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. Always place screws near the top of the slots to accommodate settling at the interlock during concrete placement.

3.1 – WALL BRACING & ALIGNMENT SYSTEMS CONTINUED

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 toeboard 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.

3.2 – TALL WALL BRACING SYSTEMS

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.

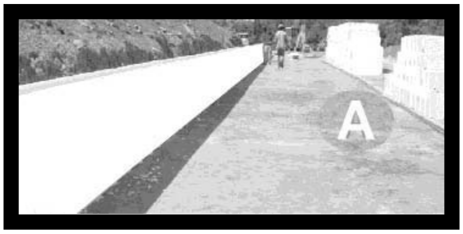
LOGIX can be built to any height using either proprietary bracing systems or traditional scaffolding.

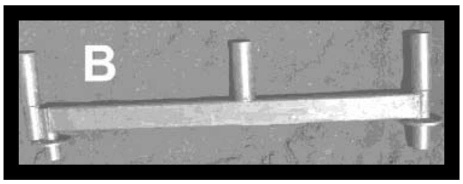
There are a number of proprietary tall wall bracing and alignment systems available. Many of the systems are designed to accommodate walls heights from 30 to 50 feet. For a list of some of these systems see **Section 2.23, Supporting Products**.

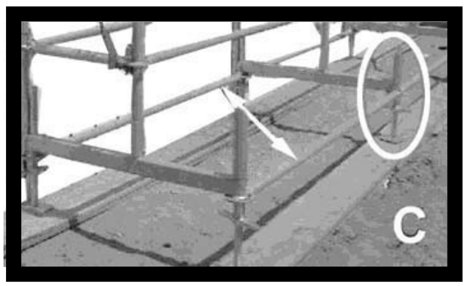
NOTE: When using wall bracing systems always follow the manufacturers recommended installation and instructions, including all required federal and local safety guidelines. Users of LOGIX and bracing systems should always follow OSHA/OHSA guidelines.

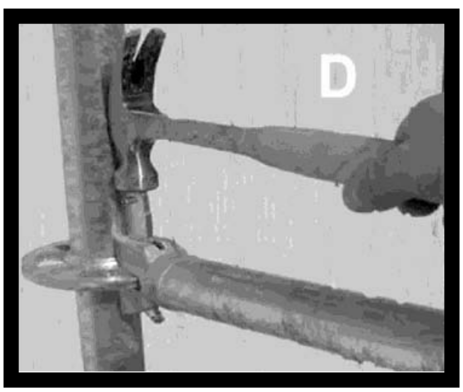
With minor modifications traditional scaffold (masonry scaffold) systems can also be used as the bracing and alignment system for tall walls (see **Section 3.2**). In addition, more experienced builders may have their own custom bracing systems designed to meet their preferred method of construction.

3.3 – 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.

INSTALLATION STEPS

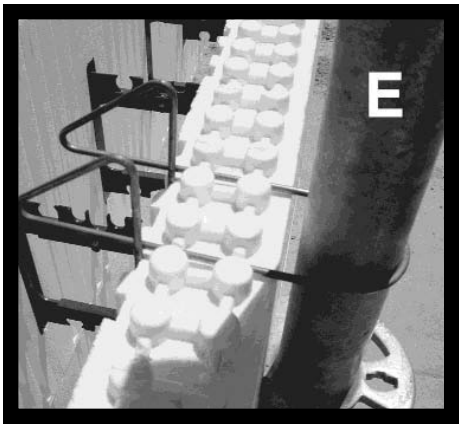
STEP 1: Complete two courses making sure they are straight, level and well anchored (**Figure A**).

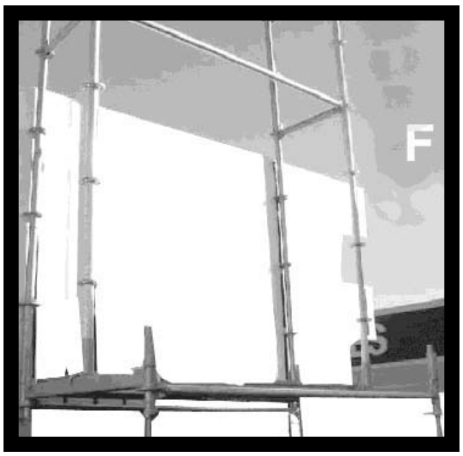
STEP 2: The first scaffolding items needed are the base frames and screw jacks. The left end of the base frame as seen in **Figures B and C** is the end that will sit against the forms to allow the screw jacks to be adjusted.

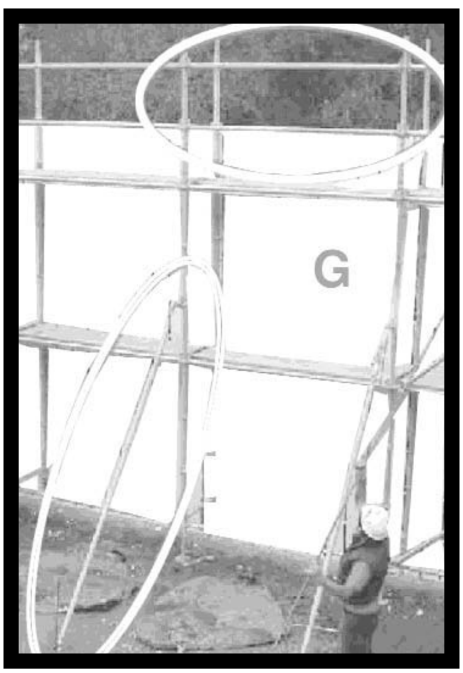
STEP 3: Insert the screw jacks into the base frames as seen in **Figure C**. Create a base frame by attaching two 7ft (2.134m) ledgers (the horizontal pipes) to two base frames. Each ledger end has a wedge to anchor the system together (**Figure D**). To remove, hit from below. Once base frame is in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

3.3 – TALL WALL BRACING SYSTEMS USING SCAFFOLDING CONTINUED







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

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4.1 – ESTIMATING

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

Drawing a wall section on graph paper before estimating a project saves time and effort and is a very helpful thing to do.

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.

NOTE: The LOGIX Estimator program is now available for download **www.logixicf.com.**

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 90° corners (both inside and outside)
____ Number of 45° corner (both inside and outside)
____ Linear feet of Brick Ledge
____ Linear feet of Transition forms
____ 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
Brick Ledge:	5.33sf
Transition:	5.33sf
Taper Top:	5.33sf
Double Taper Top:	5.33sf
90° Corner:	5.33sf (5.89sf for 10” and 12” corner forms)
45° Corner:	3.90sf
Pilaster:	3.49sf max.
4” Height Adjuster:	0.66sf
Half Height Standard:	2.67sf
Half Height 90° Corner:	2.67sf
Half Height 45° Corner:	1.95sf

4.3 – FORM UNITS

ESTIMATING STANDARD FORMS AND 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 3.9 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 5.33 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**).

4.3 – FORM UNITS CONTINUED

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 have one leg that is 16” long, the other 32” long for a total of 48”, and a wall area of 5.33sf. The 10” and 12” Ninety degree corner forms have one leg that is 18.5” long, the other 34.5” long for a total of 53”, and 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: ____________

ESTIMATING 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.

ESTIMATING TRANSITION, 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.

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

Follow **Steps 1 & 2** in **"Estimating Brick Ledge Forms"** to estimate the number of Transition, Taper Top or Double Taper Top forms required.

ESTIMATING 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.

ESTIMATING 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” 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.

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.

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.

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.

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.

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 1ft equals 1523cf divided by 27cf per yard equals 56.4 yards of concrete required. Or divide 1523cf by 35.32 for meters required. In this case, 43.1 meters.

ADD EXTRA CONCRETE FOR BRICK LEDGES

Multiply linear feet of Brick Ledge by 0.007 cubic yards or 0.005 meters to determine the additional yards or meters of concrete needed.

Example: 200lf of Brick Ledge would require 1.4 extra yards of concrete (200 linear feet x 0.007 = 1.4 yards).

ADD EXTRA CONCRETE FOR TRANSITION FORMS

Multiply linear feet of Transition forms by 0.004 cubic yards or 0.003 meters to determine the additional yards or meters of concrete needed.

Example: 200lf of Transition forms would require 0.8 extra yards of concrete (200 linear feet x 0.004 = 0.8 yards).

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).

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).

ESTIMATING

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 and Transition form 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.

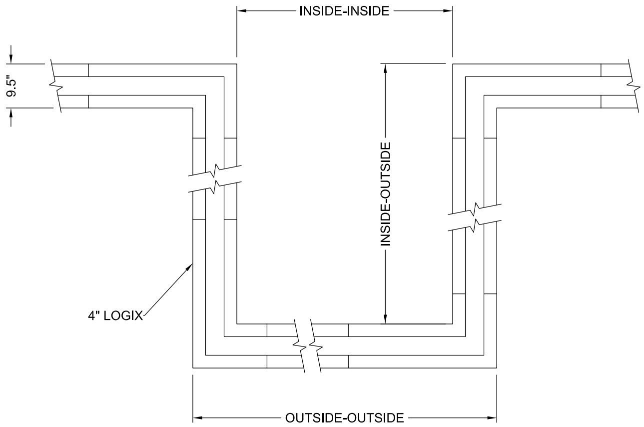
Divide this number by the square footage per bag of parging material to determine the total number of bags required.

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 8” (203mm) Half Height forms.

Number of Courses	Height of Wall	Add One Height Adj.	Add One Half-hieght	Add One Height Adj. & One Half-height
1	1' - 4" (406mm)	1' - 8" (508mm)	2' - 0" (610mm)	2' - 4" (711mm)
2	2' - 8" (813mm)	3' - 0" (914mm)	3' - 4" (1016mm)	3' - 8" (1118mm)
3	4' - 0" (1219mm)	4' - 4" (1321mm)	4' - 8" (1422mm)	5' - 0" (1524mm)
4	5' - 4" (1626mm)	5' - 8" (1727mm)	6' - 0" (1829mm)	6' - 4" (1930mm)
5	6' - 8" (2032mm)	7' - 0" (2134mm)	7' - 4" (2235mm)	7' - 8" (2337mm)
6	8' - 0" (2438mm)	8' - 4" (2540mm)	8' - 8" (2642mm)	9' - 0" (2743mm)
7	9' - 4" (2845mm)	9' - 8" (2946mm)	10' - 0" (3048mm)	10' - 4" (3150mm)
8	10' - 8" (3251mm)	11' - 0" (3353mm)	11' - 4" (3454mm)	11' - 8" (3556mm)
9	12' - 0" (3658mm)	12' - 4" (3759mm)	12' - 8" (3861mm)	13' - 0" (3962mm)
10	13' - 4" (4064mm)	13' - 8" (4166mm)	14' - 0" (4267mm)	14' - 4" (4369mm)
11	14' - 8" (4470mm)	15' - 0" (4572mm)	15' - 4" (4674mm)	15' - 8" (4775mm)
12	16' - 0" (4877mm)	16' - 4" (4978mm)	16' - 8" (5080mm)	17' - 0" (5182mm)
13	17' - 4" (5283mm)	17' - 8" (5385mm)	18' - 0" (5486mm)	18' - 4" (5588mm)
14	18' - 8" (5690mm)	19' - 0" (5791mm)	19' - 4" (5893mm)	19' - 8" (5994mm)
15	20' - 0" (6096mm)	20' - 4" (6198mm)	20' - 8" (6299mm)	21' - 0" (6401mm)
16	21' - 4" (6502mm)	21' - 8" (6604mm)	22' - 0" (6706mm)	22' - 4" (6807mm)
17	22' - 8" (6909mm)	23' - 0" (7010mm)	23' - 4" (7112mm)	23' - 8" (7214mm)
18	24' - 0" (7315mm)	24' - 4" (7417mm)	24' - 8" (7518mm)	25' - 0" (7620mm)
19	25' - 4" (7722mm)	25' - 8" (7823mm)	26' - 0" (7925mm)	26' - 4" (8026mm)
20	26' - 8" (8128mm)	27' - 0" (8230mm)	27' - 4" (8331mm)	27' - 8" (8433mm)
21	28' - 0" (8534mm)	28' - 4" (8636mm)	28' - 8" (8738mm)	29' - 0" (8839mm)
22	29' - 4" (8941mm)	29' - 8" (9042mm)	30' - 0" (9144mm)	30' - 4" (9246mm)
23	30' - 8" (9347mm)	31' - 0" (9449mm)	31' - 4" (9550mm)	31' - 8" (9652mm)
24	32' - 0" (9754mm)	32' - 4" (9855mm)	32' - 8" (9957mm)	33' - 0" (10058mm)
25	33' - 4" (10160mm)	33' - 8" (10262mm)	34' - 0" (10363mm)	34' - 4" (10465mm)

4.9 – LAYOUT TABLE
4” PREFERRED WALL DIMENSIONS

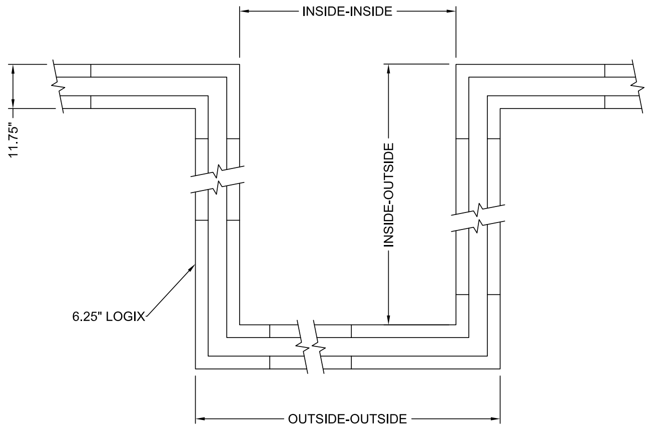


Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
3' 4"	1' 9"	2' 6.5"
4' 0"	2' 5"	3' 2.5"
4' 8"	3' 1"	3' 10.5"
5' 4"	3' 9"	4' 6.5"
6' 0"	4' 5"	5' 2.5"
6' 8"	5' 1"	5' 10.5"
7' 4"	5' 9"	6' 6.5"
8' 0"	6' 5"	7' 2.5"
8' 8"	7' 1"	7' 10.5"
9' 4"	7' 9"	8' 6.5"
10' 0"	8' 5"	9' 2.5"
10' 8"	9' 1"	9' 10.5"
11' 4"	9' 9"	10' 6.5"
12' 0"	10' 5"	11' 2.5"
12' 8"	11' 1"	11' 10.5"
13' 4"	11' 9"	12' 6.5"
14' 0"	12' 5"	13' 2.5"
14' 8"	13' 1"	13' 10.5"
15' 4"	13' 9"	14' 6.5"
16' 0"	14' 5"	15' 2.5"
16' 8"	15' 1"	15' 10.5"
17' 4"	15' 9"	16' 6.5"
18' 0"	16' 5"	17' 2.5"
19' 4"	17' 9"	18' 6.5"
20' 0"	18' 5"	19' 2.5"
20' 8"	19' 1"	19' 10.5"
21' 4"	19' 9"	20' 6.5"
22' 0"	20' 5"	21' 2.5"
22' 8"	21' 1"	21' 10.5"

Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
23' 4"	21' 9"	22' 6.5"
24' 0"	22' 5"	23' 2.5"
24' 4"	22' 9"	23' 6.5"
24' 8"	23' 1"	23' 10.5"
26' 0"	24' 5"	25' 2.5"
26' 8"	25' 1"	25' 10.5"
27' 4"	25' 9"	26' 6.5"
28' 0"	26' 5"	27' 2.5"
28' 8"	27' 1"	27' 10.5"
29' 4"	27' 9"	28' 6.5"
30' 0"	28' 5"	29' 2.5"
30' 8"	29' 1"	29' 10.5"
31' 4"	29' 9"	30' 6.5"
32' 0"	30' 5"	31' 2.5"
32' 8"	31' 1"	31' 10.5"
33' 4"	31' 9"	32' 6.5"
34' 0"	32' 5"	33' 2.5"
34' 8"	33' 1"	33' 10.5"
35' 4"	33' 9"	34' 6.5"
36' 0"	34' 5"	35' 2.5"
36' 8"	35' 1"	35' 10.5"
37' 4"	35' 9"	36' 6.5"
38' 0"	36' 5"	37' 2.5"
39' 4"	37' 9"	38' 6.5"
40' 0"	38' 5"	39' 2.5"
40' 8"	39' 1"	39' 10.5"
41' 4"	39' 9"	40' 6.5"
42' 0"	40' 5"	41' 2.5"
42' 8"	41' 1"	41' 10.5"

NOTES:
1. Preferred wall length dimensions that allow the use of full size LOGIX blocks (no cutting required) are indicated in shaded dimensions.
2. This table shows increments of 8” to allow block webs to be aligned between successive courses for attachment of interior/exterior finishes.
3. Window and door openings can fall anywhere in the wall envelope, window/door openings do not need to fall on cut line.

4.9 – LAYOUT TABLE
6.25” PREFERRED WALL DIMENSIONS



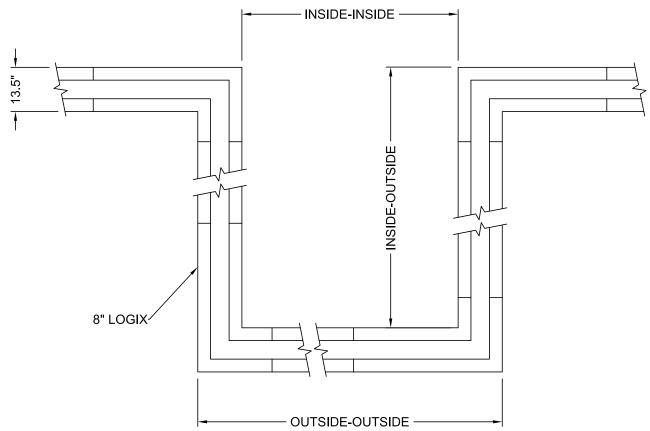
E S T I M A T I N G

Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
3' 4"	1' 4.5"	2' 4.25"
4' 0"	2' 0.5"	3' 0.25"
4' 8"	2' 8.5"	3' 8.25"
5' 4"	3' 4.5"	4' 4.25"
6' 0"	4' 0.5"	5' 0.25"
6' 8"	4' 8.5"	5' 8.25"
7' 4"	5' 4.5"	6' 4.25"
8' 0"	6' 0.5"	7' 0.25"
8' 8"	6' 8.5"	7' 8.25"
9' 4"	7' 4.5"	8' 4.25"
10' 0"	8' 0.5"	9' 0.25"
10' 8"	8' 8.5"	9' 8.25"
11' 4"	9' 4.5"	10' 4.25"
12' 0"	10' 0.5"	11' 0.25"
12' 8"	10' 8.5"	11' 8.25"
13' 4"	11' 4.5"	12' 4.25"
14' 0"	12' 0.5"	13' 0.25"
14' 8"	12' 8.5"	13' 8.25"
15' 4"	13' 4.5"	14' 4.25"
16' 0"	14' 0.5"	15' 0.25"
16' 8"	14' 8.5"	15' 8.25"
17' 4"	15' 4.5"	16' 4.25"
18' 0"	16' 0.5"	17' 0.25"
19' 4"	17' 4.5"	18' 4.25"
20' 0"	18' 0.5"	19' 0.25"
20' 8"	18' 8.5"	19' 8.25"
21' 4"	19' 4.5"	20' 4.25"
22' 0"	20' 0.5"	21' 0.25"
22' 8"	20' 8.5"	21' 8.25"

Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
23' 4"	21' 4.5"	22' 4.25"
24' 0"	22' 0.5"	23' 0.25"
24' 4"	22' 4.5"	23' 4.25"
24' 8"	22' 8.5"	23' 8.25"
26' 0"	24' 0.5"	25' 0.25"
26' 8"	24' 8.5"	25' 8.25"
27' 4"	25' 4.5"	26' 4.25"
28' 0"	26' 0.5"	27' 0.25"
28' 8"	26' 8.5"	27' 8.25"
29' 4"	27' 4.5"	28' 4.25"
30' 0"	28' 0.5"	29' 0.25"
30' 8"	28' 8.5"	29' 8.25"
31' 4"	29' 4.5"	30' 4.25"
32' 0"	30' 0.5"	31' 0.25"
32' 8"	30' 8.5"	31' 8.25"
33' 4"	31' 4.5"	32' 4.25"
34' 0"	32' 0.5"	33' 0.25"
34' 8"	32' 8.5"	33' 8.25"
35' 4"	33' 4.5"	34' 4.25"
36' 0"	34' 0.5"	35' 0.25"
36' 8"	34' 8.5"	35' 8.25"
37' 4"	35' 4.5"	36' 4.25"
38' 0"	36' 0.5"	37' 0.25"
39' 4"	37' 4.5"	38' 4.25"
40' 0"	38' 0.5"	39' 0.25"
40' 8"	38' 8.5"	39' 8.25"
41' 4"	39' 4.5"	40' 4.25"
42' 0"	40' 0.5"	41' 0.25"
42' 8"	40' 8.5"	41' 8.25"

NOTES:
1. Preferred wall length dimensions that allow the use of full size LOGIX blocks (no cutting required) are indicated in shaded dimensions.
2. This table shows increments of 8” to allow block webs to be aligned between successive courses for attachment of interior/exterior finishes.
3. Window and door openings can fall anywhere in the wall envelope, window/door openings do not need to fall on cut line.

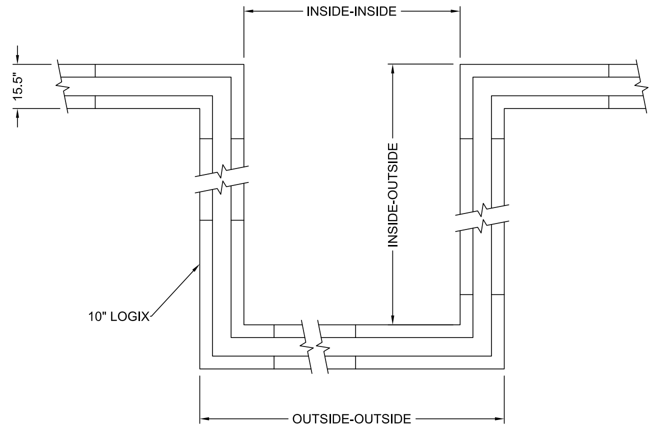
4.9 – LAYOUT TABLE
8” PREFERRED WALL DIMENSIONS



Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
3' 4"	1' 1"	2' 2.5"
4' 0"	1' 9"	2' 10.5"
4' 8"	2' 5"	3' 6.5"
5' 4"	3' 1"	4' 2.5"
6' 0"	3' 9"	4' 10.5"
6' 8"	4' 5"	5' 6.5"
7' 4"	5' 1"	6' 2.5"
8' 0"	5' 9"	6' 10.5"
8' 8"	6' 5"	7' 6.5"
9' 4"	7' 1"	8' 2.5"
10' 0"	7' 9"	8' 10.5"
10' 8"	8' 5"	9' 6.5"
11' 4"	9' 1"	10' 2.5"
12' 0"	9' 9"	10' 10.5"
12' 8"	10' 5"	11' 6.5"
13' 4"	11' 1"	12' 2.5"
14' 0"	11' 9"	12' 10.5"
14' 8"	12' 5"	13' 6.5"
15' 4"	13' 1"	14' 2.5"
16' 0"	13' 9"	14' 10.5"
16' 8"	14' 5"	15' 6.5"
17' 4"	15' 1"	16' 2.5"
18' 0"	15' 9"	16' 10.5"
19' 4"	17' 1"	18' 2.5"
20' 0"	17' 9"	18' 10.5"
20' 8"	18' 5"	19' 6.5"
21' 4"	19' 1"	20' 2.5"
22' 0"	19' 9"	20' 10.5"
22' 8"	20' 5"	21' 6.5"
23' 4"	21' 1"	22' 2.5"
24' 0"	21' 9"	22' 10.5"
24' 4"	22' 1"	23' 2.5"
24' 8"	22' 5"	23' 6.5"
26' 0"	23' 9"	24' 10.5"
26' 8"	24' 5"	25' 6.5"
27' 4"	25' 1"	26' 2.5"
28' 0"	25' 9"	26' 10.5"
28' 8"	26' 5"	27' 6.5"
29' 4"	27' 1"	28' 2.5"
30' 0"	27' 9"	28' 10.5"
30' 8"	28' 5"	29' 6.5"
31' 4"	29' 1"	30' 2.5"
32' 0"	29' 9"	30' 10.5"
32' 8"	30' 5"	31' 6.5"
33' 4"	31' 1"	32' 2.5"
34' 0"	31' 9"	32' 10.5"
34' 8"	32' 5"	33' 6.5"
35' 4"	33' 1"	34' 2.5"
36' 0"	33' 9"	34' 10.5"
36' 8"	34' 5"	35' 6.5"
37' 4"	35' 1"	36' 2.5"
38' 0"	35' 9"	36' 10.5"
39' 4"	37' 1"	38' 2.5"
40' 0"	37' 9"	38' 10.5"
40' 8"	38' 5"	39' 6.5"
41' 4"	39' 1"	40' 2.5"
42' 0"	39' 9"	40' 10.5"
42' 8"	40' 5"	41' 6.5"

NOTES:
1. Preferred wall length dimensions that allow the use of full size LOGIX blocks (no cutting required) are indicated in shaded dimensions.
2. This table shows increments of 8” to allow block webs to be aligned between successive courses for attachment of interior/exterior finishes.
3. Window and door openings can fall anywhere in the wall envelope, window/door openings do not need to fall on cut line.

4.9 – LAYOUT TABLE
10" PREFERRED WALL DIMENSIONS

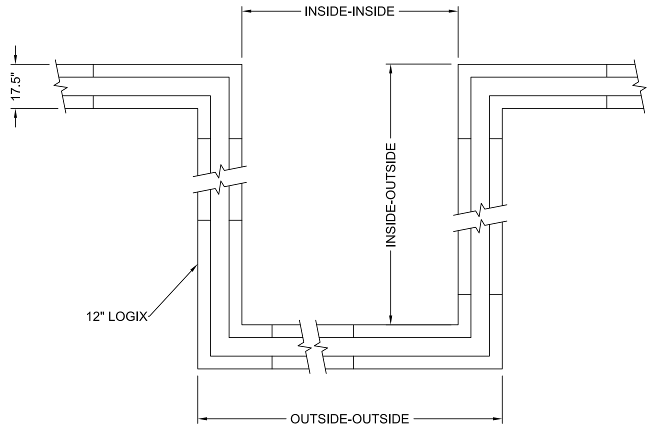


Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
3' 4"	0' 9"	2' 0.5"
4' 0"	1' 5"	2' 8.5"
4' 5"	1' 10"	3' 1.5"
4' 8"	2' 1"	3' 4.5"
5' 4"	2' 9"	4' 0.5"
6' 0"	3' 5"	4' 8.5"
6' 8"	4' 1"	5' 4.5"
7' 4"	4' 9"	6' 0.5"
8' 0"	5' 5"	6' 8.5"
8' 5"	5' 10"	7' 1.5"
8' 8"	6' 1"	7' 4.5"
9' 4"	6' 9"	8' 0.5"
10' 0"	7' 5"	8' 8.5"
10' 8"	8' 1"	9' 4.5"
11' 4"	8' 9"	10' 0.5"
12' 0"	9' 5"	10' 8.5"
12' 5"	9' 10"	11' 1.5"
12' 8"	10' 1"	11' 4.5"
13' 4"	10' 9"	12' 0.5"
14' 0"	11' 5"	12' 8.5"
14' 8"	12' 1"	13' 4.5"
15' 4"	12' 9"	14' 0.5"
16' 0"	13' 5"	14' 8.5"
16' 5"	13' 10"	15' 1.5"
16' 8"	14' 1"	15' 4.5"
17' 4"	14' 9"	16' 0.5"
18' 0"	15' 5"	16' 8.5"
19' 4"	16' 9"	18' 0.5"
20' 0"	17' 5"	18' 8.5"
20' 5"	17' 10"	19' 1.5"
20' 8"	18' 1"	19' 4.5"
21' 4"	18' 9"	20' 0.5"
22' 0"	19' 5"	20' 8.5"
22' 8"	20' 1"	21' 4.5"

Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
23' 4"	20' 9"	22' 0.5"
24' 0"	21' 5"	22' 8.5"
24' 4"	21' 9"	23' 0.5"
24' 5"	21' 10"	23' 1.5"
24' 8"	22' 1"	23' 4.5"
26' 0"	23' 5"	24' 8.5"
26' 8"	24' 1"	25' 4.5"
27' 4"	24' 9"	26' 0.5"
28' 0"	25' 5"	26' 8.5"
28' 5"	25' 10"	27' 1.5"
28' 8"	26' 1"	27' 4.5"
29' 4"	26' 9"	28' 0.5"
30' 0"	27' 5"	28' 8.5"
30' 8"	28' 1"	29' 4.5"
31' 4"	28' 9"	30' 0.5"
32' 0"	29' 5"	30' 8.5"
32' 5"	29' 10"	31' 1.5"
32' 8"	30' 1"	31' 4.5"
33' 4"	30' 9"	32' 0.5"
34' 0"	31' 5"	32' 8.5"
34' 8"	32' 1"	33' 4.5"
35' 4"	32' 9"	34' 0.5"
36' 0"	33' 5"	34' 8.5"
36' 5"	33' 10"	35' 1.5"
36' 8"	34' 1"	35' 4.5"
37' 4"	34' 9"	36' 0.5"
38' 0"	35' 5"	36' 8.5"
39' 4"	36' 9"	38' 0.5"
40' 0"	37' 5"	38' 8.5"
40' 5"	37' 10"	39' 1.5"
40' 8"	38' 1"	39' 4.5"
41' 4"	38' 9"	40' 0.5"
42' 0"	39' 5"	40' 8.5"
42' 8"	40' 1"	41' 4.5"

NOTES:
1. Preferred wall length dimensions that allow the use of full size LOGIX blocks (no cutting required) are indicated in shaded dimensions.
2. This table shows increments of 8" to allow block webs to be aligned between successive courses for attachment of interior/exterior finishes.
3. Window and door openings can fall anywhere in the wall envelope, window/door openings do not need to fall on cut line.

4.9 – LAYOUT TABLE
12" PREFERRED WALL DIMENSIONS



Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
3' 4"	0' 5"	1' 10.5"
4' 0"	1' 1"	2' 6.5"
4' 5"	1' 6"	2' 11.5"
4' 8"	1' 9"	3' 2.5"
5' 4"	2' 5"	3' 10.5"
6' 0"	3' 1"	4' 6.5"
6' 8"	3' 9"	5' 2.5"
7' 4"	4' 5"	5' 10.5"
8' 0"	5' 1"	6' 6.5"
8' 5"	5' 6"	6' 11.5"
8' 8"	5' 9"	7' 2.5"
9' 4"	6' 5"	7' 10.5"
10' 0"	7' 1"	8' 6.5"
10' 8"	7' 9"	9' 2.5"
11' 4"	8' 5"	9' 10.5"
12' 0"	9' 1"	10' 6.5"
12' 5"	9' 6"	10' 11.5"
12' 8"	9' 9"	11' 2.5"
13' 4"	10' 5"	11' 10.5"
14' 0"	11' 1"	12' 6.5"
14' 8"	11' 9"	13' 2.5"
15' 4"	12' 5"	13' 10.5"
16' 0"	13' 1"	14' 6.5"
16' 5"	13' 6"	14' 11.5"
16' 8"	13' 9"	15' 2.5"
17' 4"	14' 5"	15' 10.5"
18' 0"	15' 1"	16' 6.5"
19' 4"	16' 5"	17' 10.5"
20' 0"	17' 1"	18' 6.5"
20' 5"	17' 6"	18' 11.5"
20' 8"	17' 9"	19' 2.5"
21' 4"	18' 5"	19' 10.5"
22' 0"	19' 1"	20' 6.5"
22' 8"	19' 9"	21' 2.5"

Outside-Outside Corner	Inside-Inside Corner	Inside-Outside Corner
23' 4"	20' 5"	21' 10.5"
24' 0"	21' 1"	22' 6.5"
24' 4"	21' 5"	22' 10.5"
24' 5"	21' 6"	22' 11.5"
24' 8"	21' 9"	23' 2.5"
26' 0"	23' 1"	24' 6.5"
26' 8"	23' 9"	25' 2.5"
27' 4"	24' 5"	25' 10.5"
28' 0"	25' 1"	26' 6.5"
28' 5"	25' 6"	26' 11.5"
28' 8"	25' 9"	27' 2.5"
29' 4"	26' 5"	27' 10.5"
30' 0"	27' 1"	28' 6.5"
30' 8"	27' 9"	29' 2.5"
31' 4"	28' 5"	29' 10.5"
32' 0"	29' 1"	30' 6.5"
32' 5"	29' 6"	30' 11.5"
32' 8"	29' 9"	31' 2.5"
33' 4"	30' 5"	31' 10.5"
34' 0"	31' 1"	32' 6.5"
34' 8"	31' 9"	33' 2.5"
35' 4"	32' 5"	33' 10.5"
36' 0"	33' 1"	34' 6.5"
36' 5"	33' 6"	34' 11.5"
36' 8"	33' 9"	35' 2.5"
37' 4"	34' 5"	35' 10.5"
38' 0"	35' 1"	36' 6.5"
39' 4"	36' 5"	37' 10.5"
40' 0"	37' 1"	38' 6.5"
40' 5"	37' 6"	38' 11.5"
40' 8"	37' 9"	39' 2.5"
41' 4"	38' 5"	39' 10.5"
42' 0"	39' 1"	40' 6.5"
42' 8"	39' 9"	41' 2.5"

ESTIMATING

NOTES:
1. Preferred wall length dimensions that allow the use of full size LOGIX blocks (no cutting required) are indicated in shaded dimensions.
2. This table shows increments of 8" to allow block webs to be aligned between successive courses for attachment of interior/exterior finishes.
3. Window and door openings can fall anywhere in the wall envelope, window/door openings do not need to fall on cut line.

4.10 – 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)

E S T I M A T I N G

Quantity	Description	Notes
	Total Number of Forms	
	Standard Forms	
	½ Height Standards	
	90° Corner Forms	
	½ Height 90° Corner Forms	
	Brick Ledge	
	Transition Forms	
	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	

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5.1 – LOGIX ICF FORMS

All drawings are downloadable at www.logixicf.com

LOGIX ICFs are available in many variations designed to accommodate all construction type details.

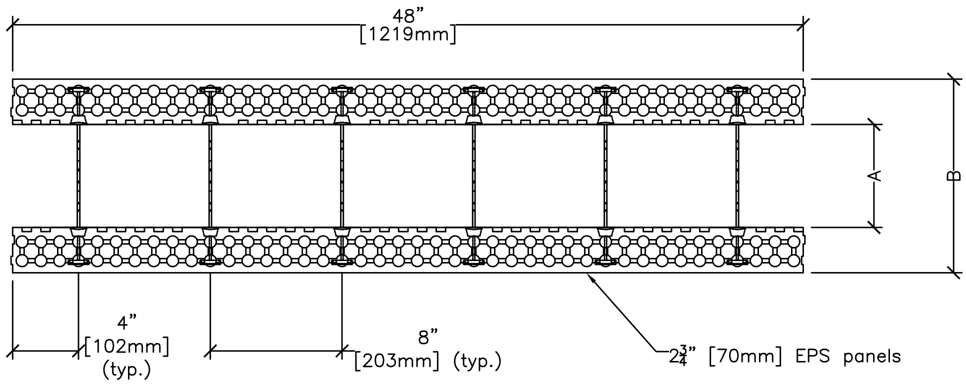
LOGIX carries both assembled form units, known as LOGIX PRO, and unassembled (or knock-down) systems known as LOGIX KD. LOGIX KD is also available in thicker panel forms, known as LOGIX XRV (see Drawings 5.1.18 and 5.1.19, respectively). LOGIX XRV are panelized forms that are available in thicker foam panels ranging from 4 to 8 inches. In addition, LOGIX Xtenders allow LOGIX forms to be used for wider concrete wall thicknesses greater than 12 inches (see Drawing 5.1.22).

For a complete list of LOGIX product lines see Section 8.1.

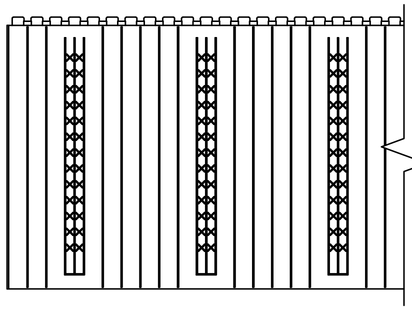
NOTE: The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction 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.

5.1.1 – STANDARD FORM

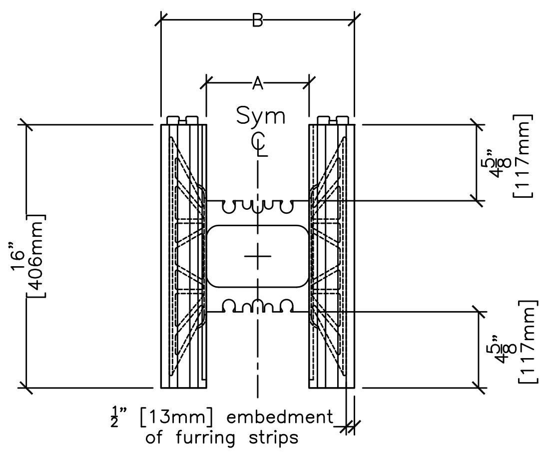
All drawings are downloadable at www.logixicf.com



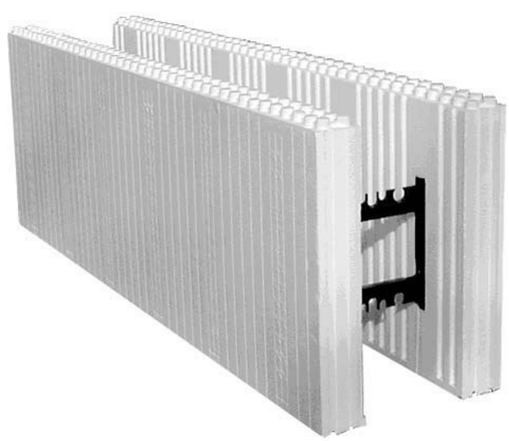
PLAN VIEW



SIDE ELEVATION



END VIEW



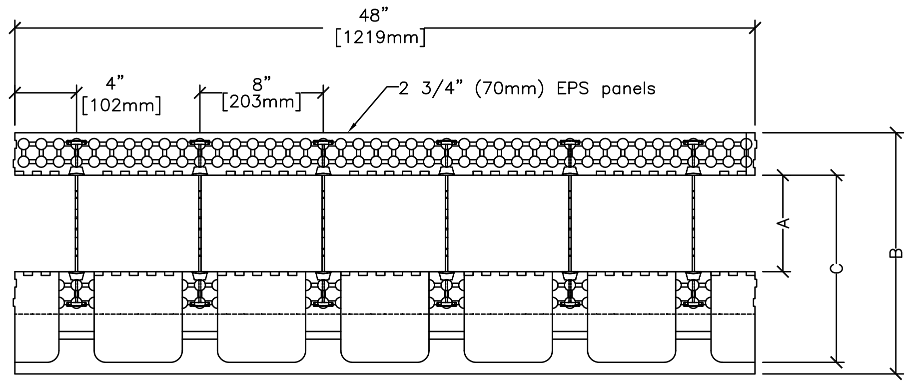
	FORM SIZES				
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**	**12" (305mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)	17.5" (445mm)

NOTES:

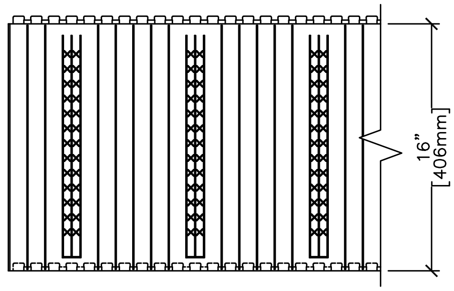
1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xtenders (See 5.1.22).
3. 6¼” [159mm] LOGIX Standard Form shown.

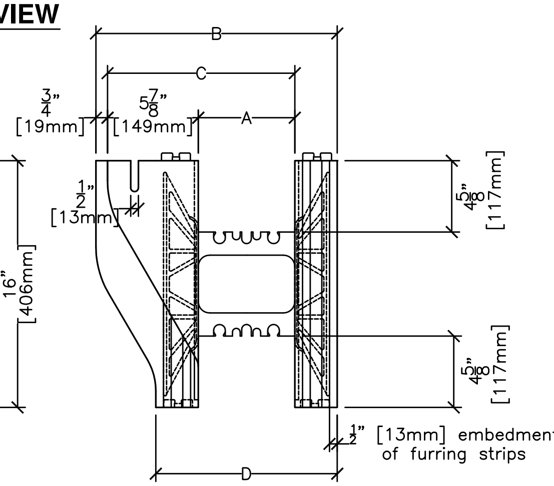
5.1.2 – BRICK LEDGE FORM

All drawings are downloadable at www.logixicf.com



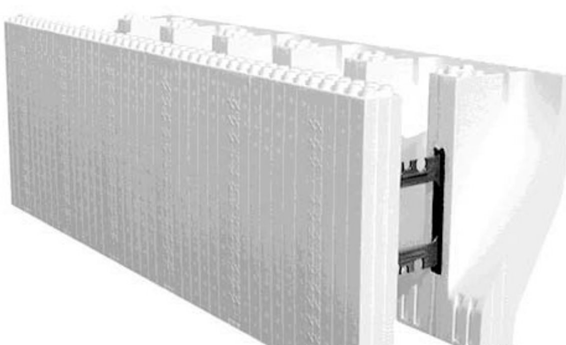
PLAN VIEW





SIDE ELEVATION

END VIEW



	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)
B	13.325" (340mm)	15.625" (397mm)	17.375" (441mm)	19.375" (492mm)	21.375" (543mm)
C	9.875" (251mm)	12.125" (308mm)	13.875" (352mm)	15.875" (403mm)	17.875" (454mm)
D	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)	17.5" (445mm)

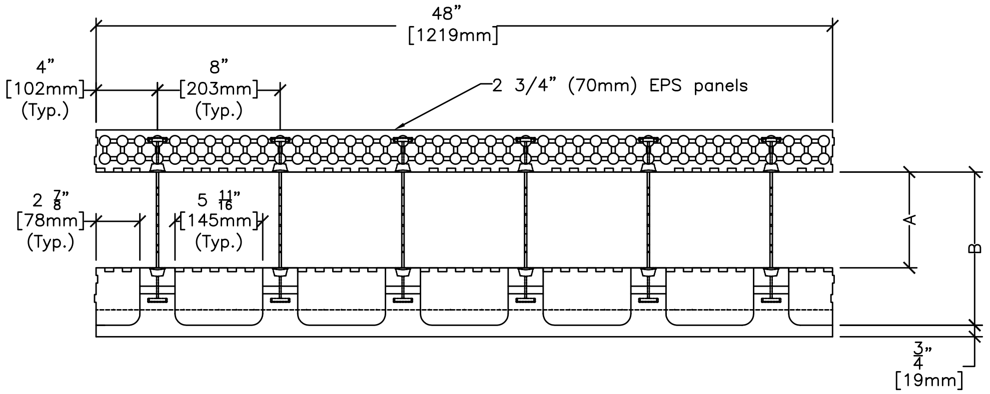
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (or knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xtenders (See 5.1.22).
3. 6¼” [159mm] LOGIX Brick Ledge Form shown.

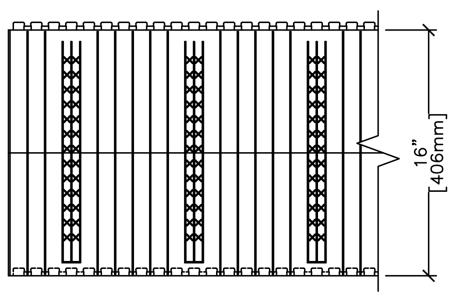
CAD DRAWINGS

5.1.3 – TRANSITION FORM

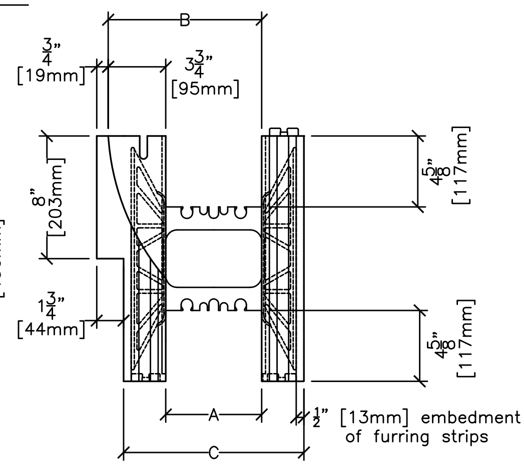
All drawings are downloadable at www.logixicf.com



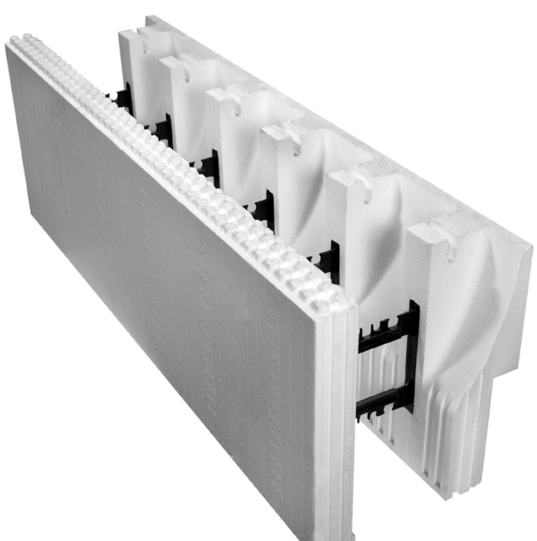
PLAN VIEW



SIDE ELEVATION



END VIEW



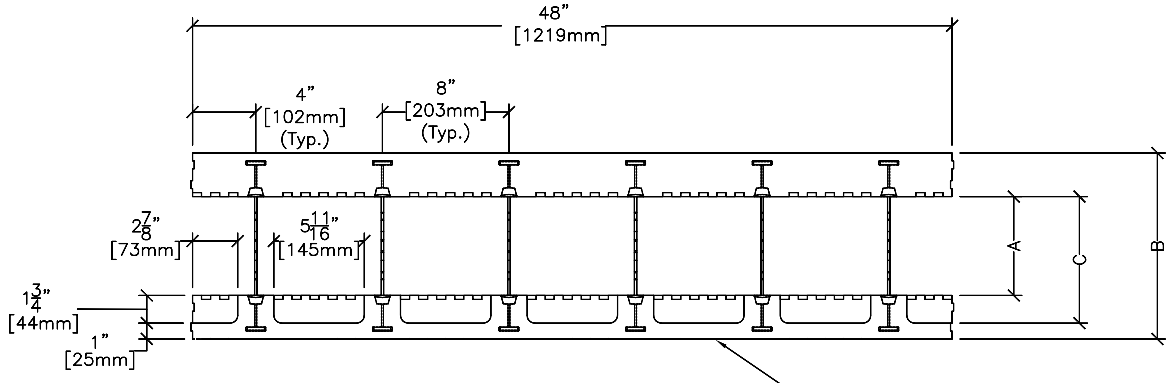
	FORM SIZES				
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**	**12" (305mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
B	8.5" (216mm)	10" (254mm)	11.75" (298mm)	13.75" (349mm)	15.75" (400mm)
C	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)	17.5" (445mm)

NOTES:

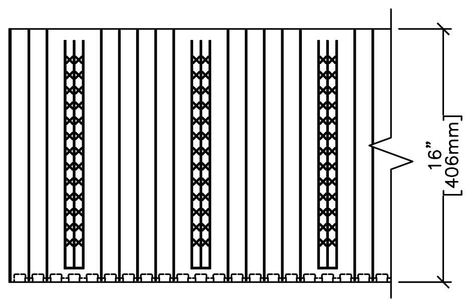
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xtenders (See 5.1.22).
3. Use of LOGIX Transition Forms on the exterior below–grade could subject the EPS face of the corbel ledge to frost heave forces. The LOGIX Brickledge Forms or LOGIX Taper Top Forms are recommended for use below–grade where the ledge is located on the exterior of the structure.

5.1.4 – TAPER TOP FORM

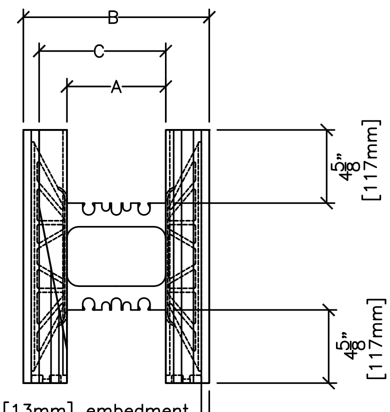
All drawings are downloadable at www.logixicf.com



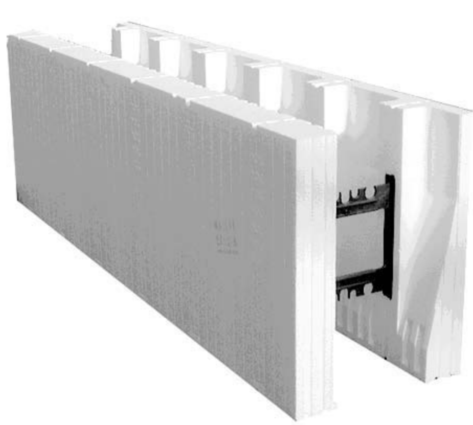
PLAN VIEW



SIDE ELEVATION



END VIEW



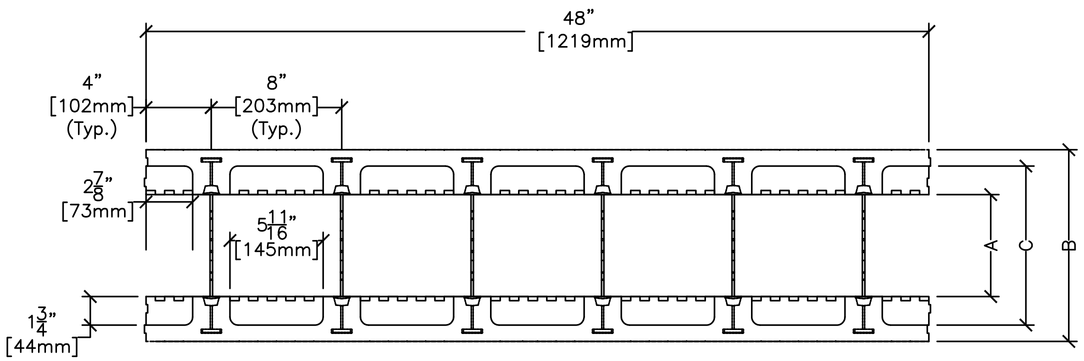
	FORM SIZES				
	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)	17.5" (445mm)
C	5.75" (146mm)	8" (203mm)	9.75" (248mm)	11.75" (298mm)	13.75" (349mm)

NOTES:

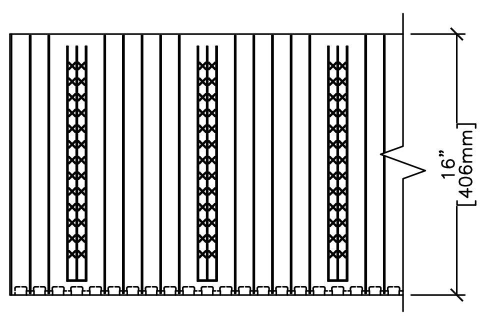
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xenders (See 5.1.22).
3. 6 1/4” [159mm] Taper Top Form shown.

5.1.5 – DOUBLE TAPER TOP FORM

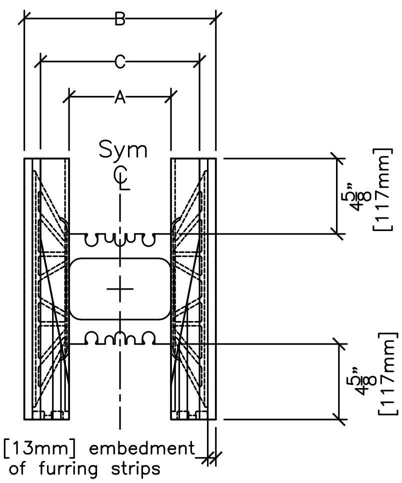
All drawings are downloadable at www.logixicf.com



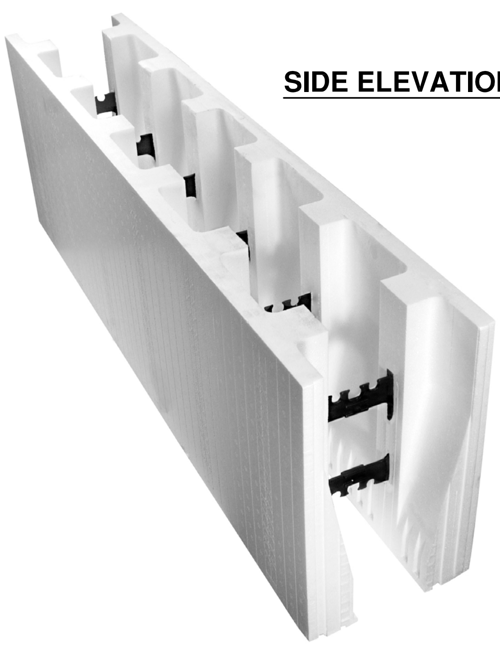
PLAN VIEW



SIDE ELEVATION



END VIEW



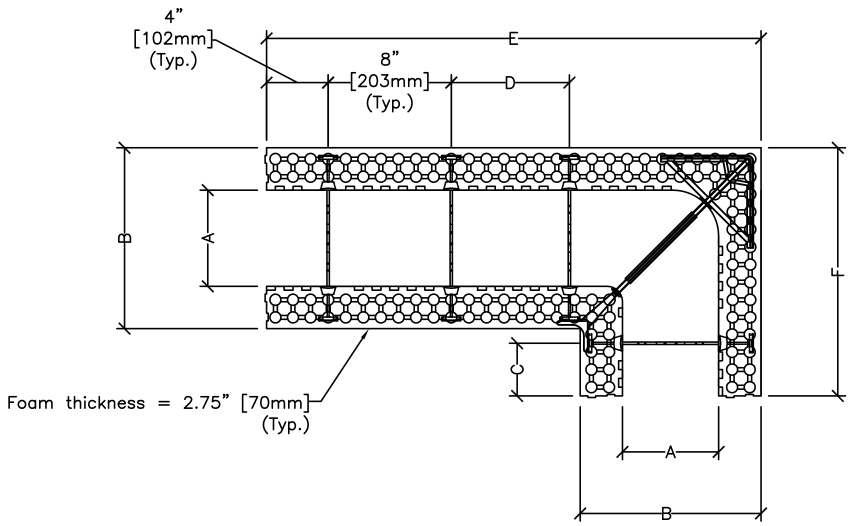
	FORM SIZES				
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**	**12" (305mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)	17.5" (445mm)
C	7.5" (191mm)	9.75" (248mm)	11.5" (292mm)	13.5" (343mm)	15.5" (394mm)

NOTES:

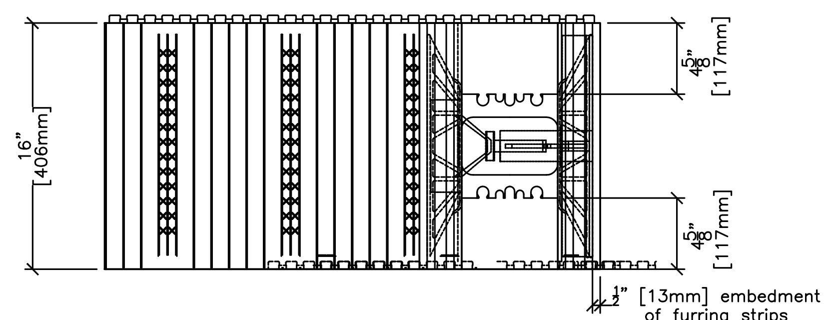
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock-down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xenders (See 5.1.22).
3. 6 1/4" [159mm] Double Tapered Top Form shown.

5.1.6 – LEFT HAND CORNER FORM

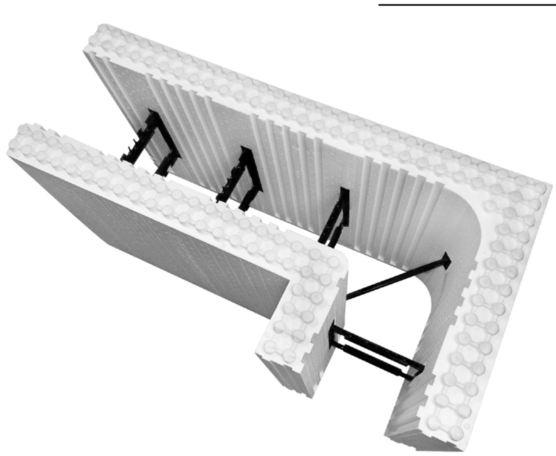
All drawings are downloadable at www.logixicf.com



PLAN VIEW



SIDE ELEVATION



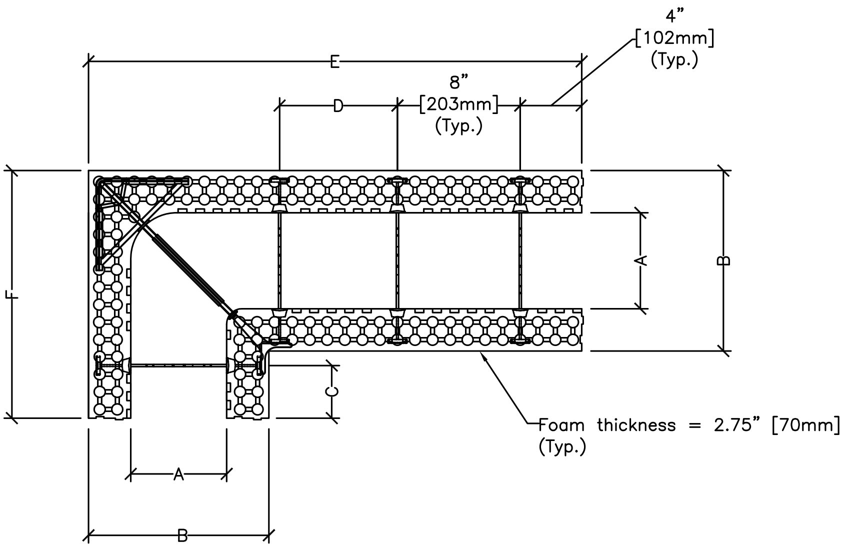
	FORM SIZES			
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)
C	3.5" (90mm)	3.375" (87mm)	2.25" (57mm)	2.125" (55mm)
D	7.67" (195mm)	7.67" (195mm)	6.125" (157mm)	5.875" (150mm)
E	32.125" (816mm)	32.125" (816mm)	32.125" (816mm)	34.5" (876mm)
F	16.125" (410mm)	16.125" (410mm)	16.125" (410mm)	18.5" (470mm)

NOTES:

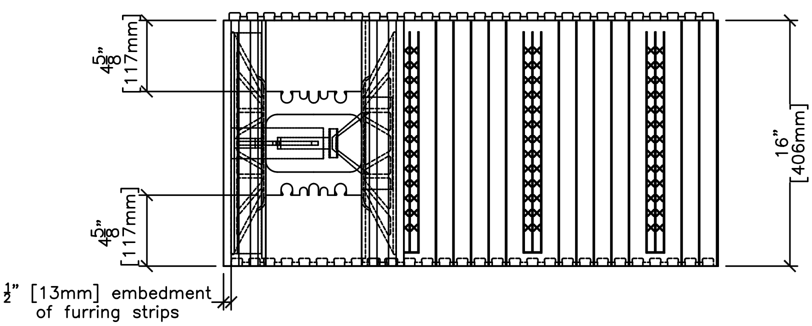
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xenders (See 5.1.22).
3. 6 1/4” [159mm] Left Hand Corner Form shown.

5.1.7 – RIGHT HAND CORNER FORM

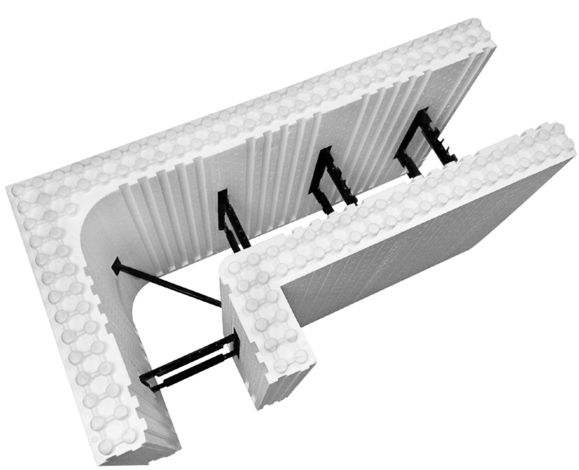
All drawings are downloadable at www.logixicf.com



PLAN VIEW



SIDE ELEVATION



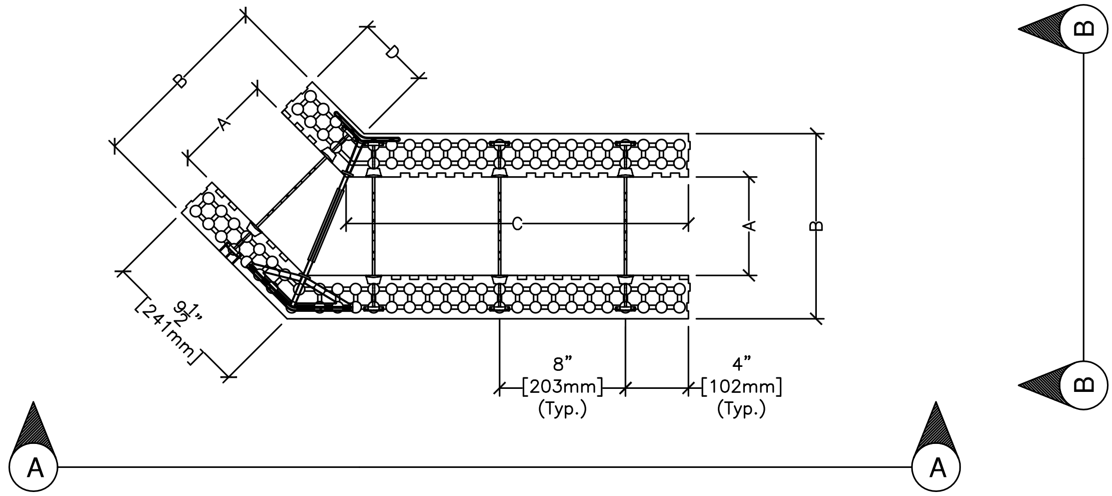
	FORM SIZES			
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**	**10" (254mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)
C	3.5" (90mm)	3.375" (87mm)	2.25" (57mm)	2.125" (55mm)
D	7.67" (195mm)	7.67" (195mm)	6.125" (157mm)	5.875" (150mm)
E	32.125" (816mm)	32.125" (816mm)	32.125" (816mm)	34.5" (876mm)
F	16.125" (410mm)	16.125" (410mm)	16.125" (410mm)	18.5" (470mm)

NOTES:

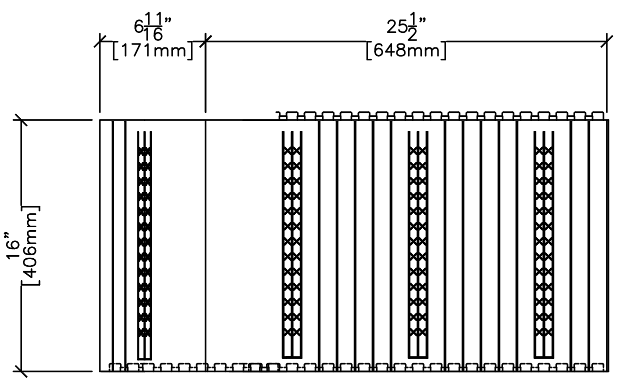
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xenders (See 5.1.22).
3. 6¼" [159mm] Right Hand Corner Form shown.

5.1.8 – LEFT HAND 45° FORM

All drawings are downloadable at www.logixicf.com

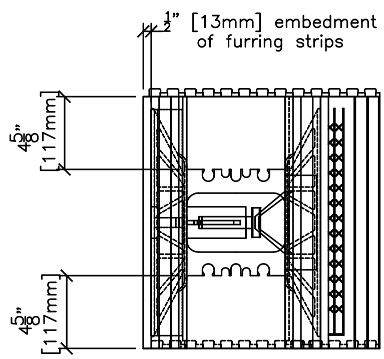


PLAN VIEW



ELEVATION A-A

For clarity knobs partially removed in evelvation views.



ELEVATION B-B

	FORM SIZES		
	4" (102mm)	6.25" (159mm)	8" (203mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	22.75" (577mm)	21.75" (553mm)	21" (535mm)
D	5.5" (141mm)	4.625" (118mm)	3.875" (99mm)

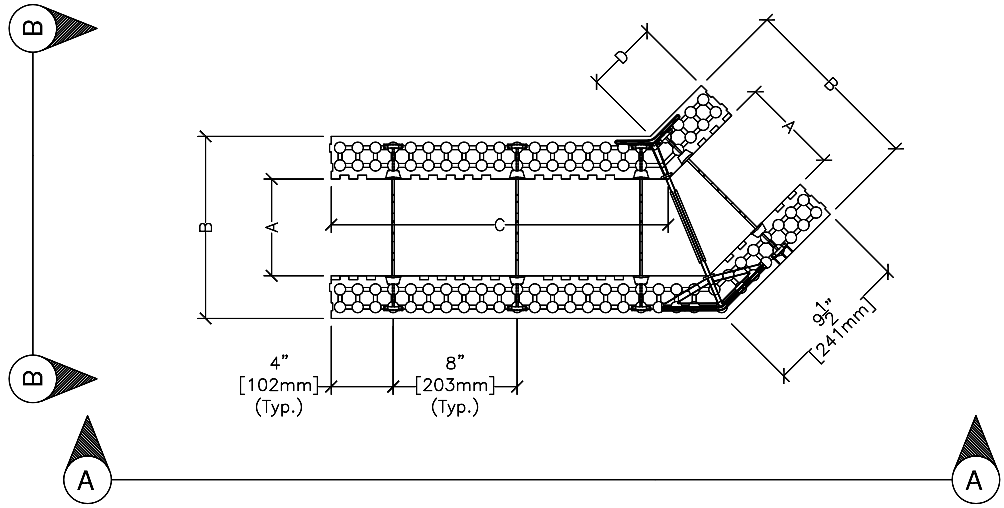
NOTES:

1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xenders (See 5.1.22).
3. 6 1/4" [159mm] Left Hand 45° Corner Form shown.

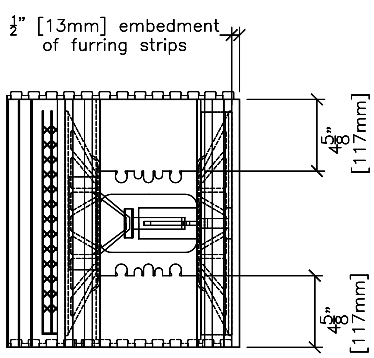
5.1.9 – RIGHT HAND 45° FORM

All drawings are downloadable at www.logixicf.com

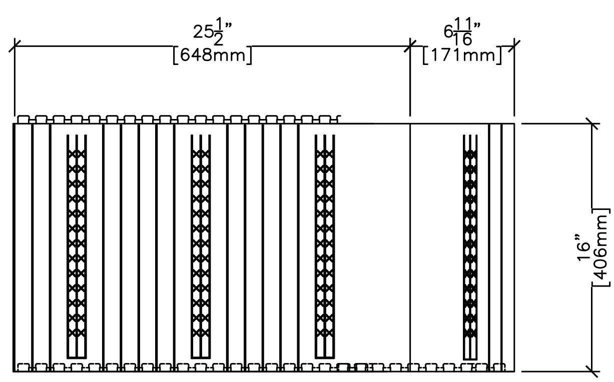
CAD DRAWINGS



PLAN VIEW

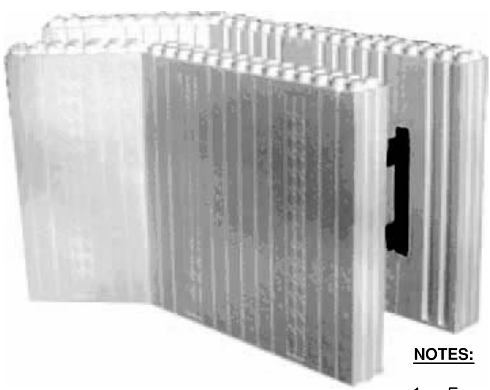


ELEVATION B-B



ELEVATION A-A

For clarity knobs partially removed in evelvation views.



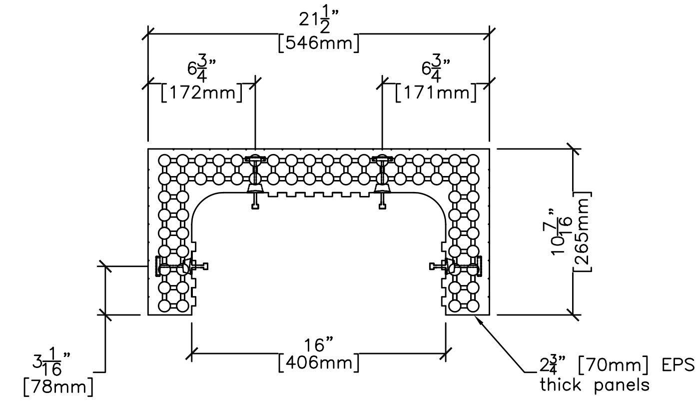
	FORM SIZES		
	4" (102mm)	6.25" (159mm)	8" (203mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	22.75" (577mm)	21.75" (553mm)	21" (535mm)
D	5.5" (141mm)	4.625" (118mm)	3.875" (99mm)

NOTES:

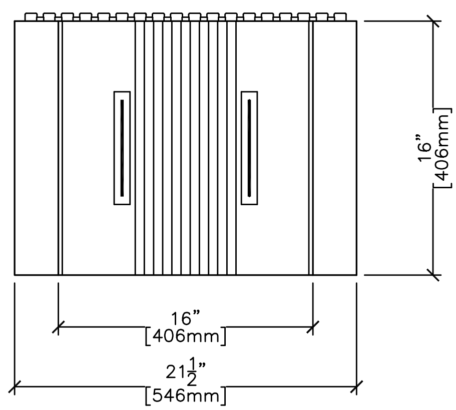
1. Forms are available as assembled (LOGIX PRO) or unassembled (knock–down) form blocks (LOGIX KD. See 5.1.18).
2. Concrete core thickness wider than 12" (305mm) are available using LOGIX Xtenders (See 5.1.22).
3. 6¼" [159mm] Right Hand 45° Corner Form shown.

5.1.10 – PILASTER FORM

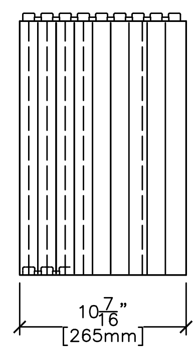
All drawings are downloadable at www.logixicf.com



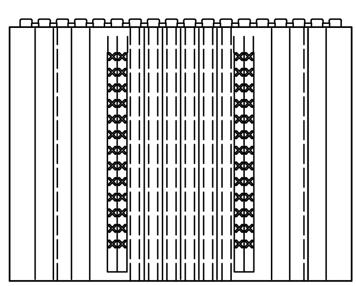
TOP VIEW



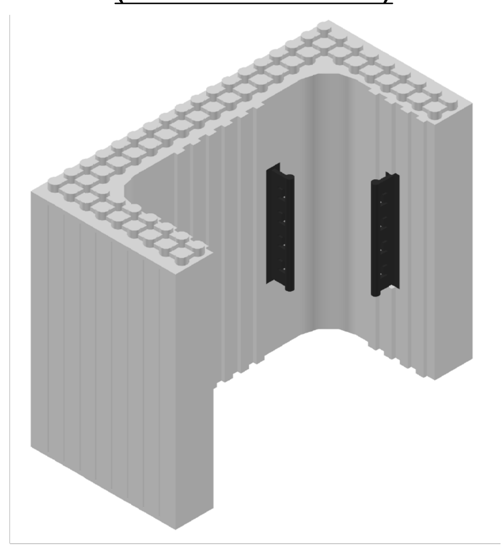
FRONT ELEVATION



RIGHT
(LEFT SIDE SIMILAR)



REAR ELEVATION



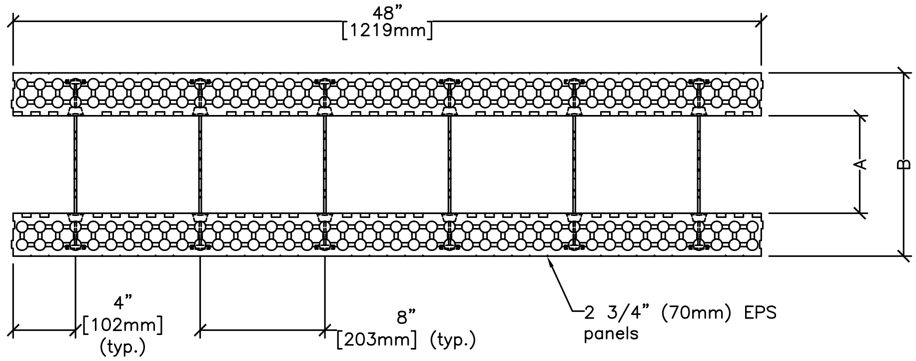
C A D   D R A W I N G S

5.1.11 – HALF HEIGHT STANDARD FORM

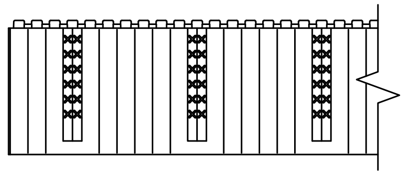
All drawings are downloadable at www.logixicf.com

NOTES:

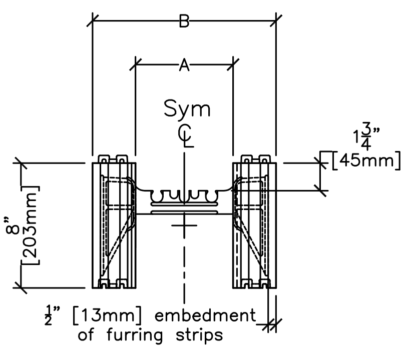
1. 6¼" Half Height Standard Form shown



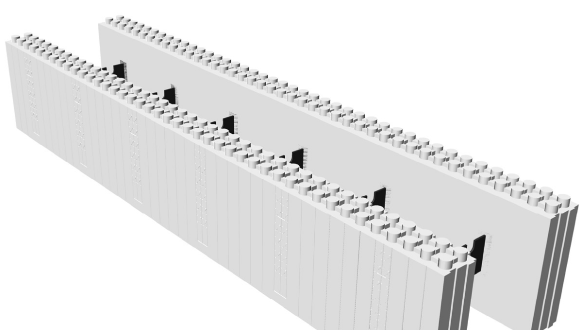
PLAN VIEW



SIDE ELEVATION



END VIEW



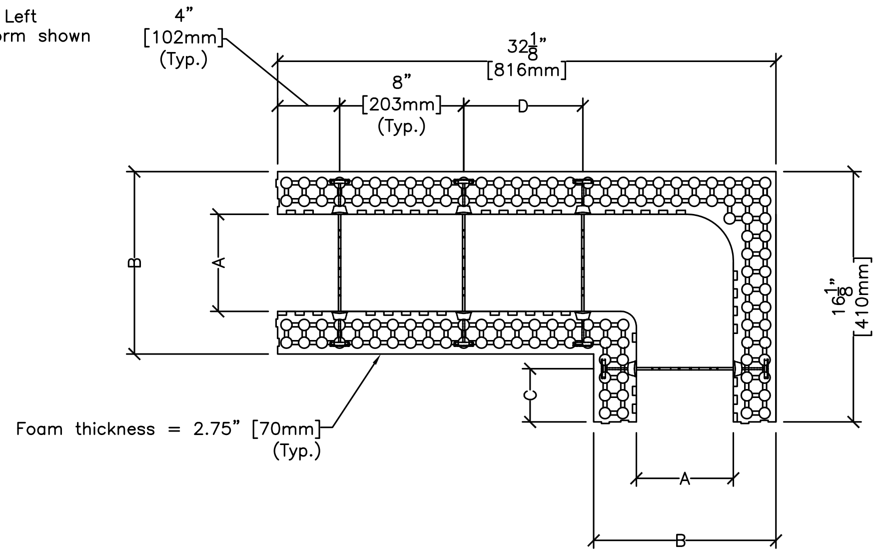
	FORM SIZES		
	4" (102mm)	6.25" (159mm)	8" (203mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)

5.1.12 – HALF HEIGHT LEFT HAND CORNER FORM

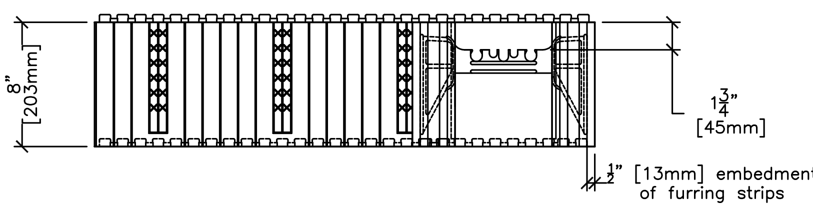
All drawings are downloadable at www.logixicf.com

NOTES:

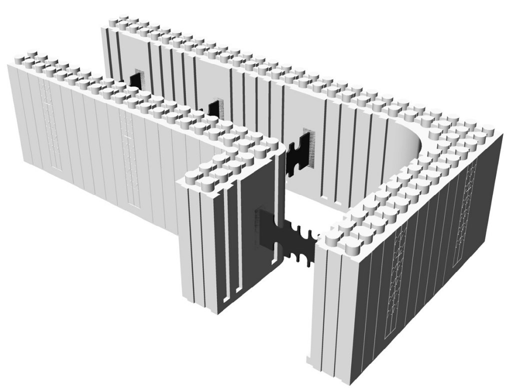
1. $6\frac{1}{4}$” Half Height Left Hand Corner Form shown



PLAN VIEW



SIDE ELEVATION



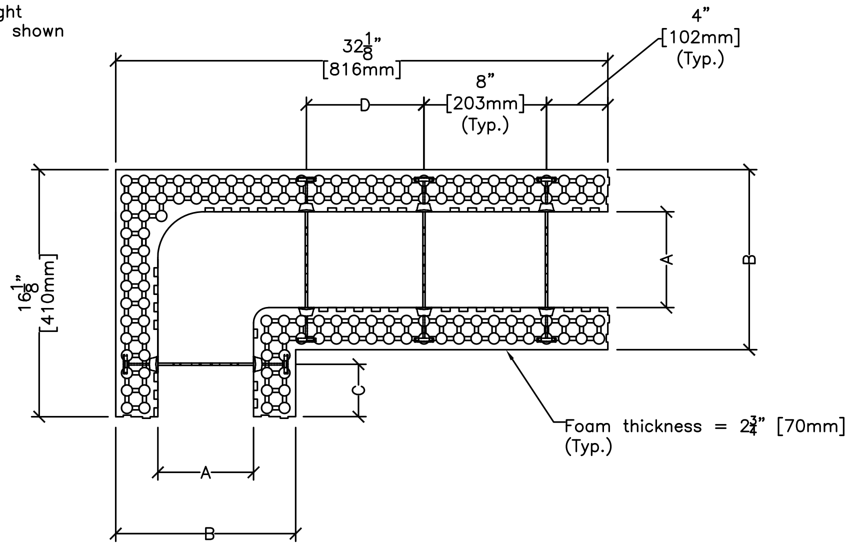
	FORM SIZES		
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	3.5" (90mm)	3.375" (87mm)	2.25" (57mm)
D	7.67" (195mm)	7.67" (195mm)	6.125" (157mm)

5.1.13 – HALF HEIGHT RIGHT HAND CORNER FORM

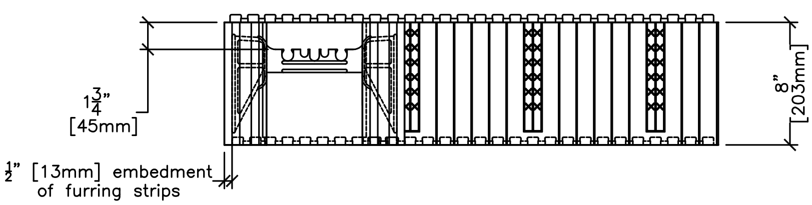
All drawings are downloadable at www.logixicf.com

NOTES:

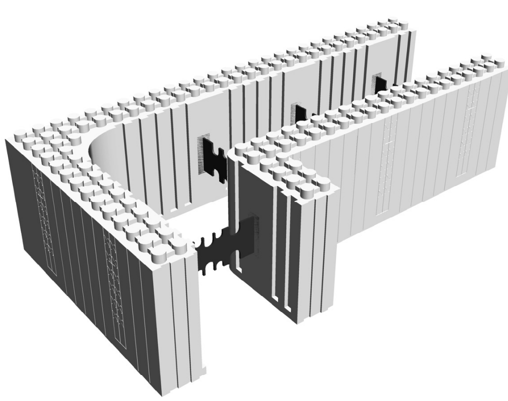
1. 6¼" Half Height Right Hand Corner Form shown



PLAN VIEW



SIDE ELEVATION



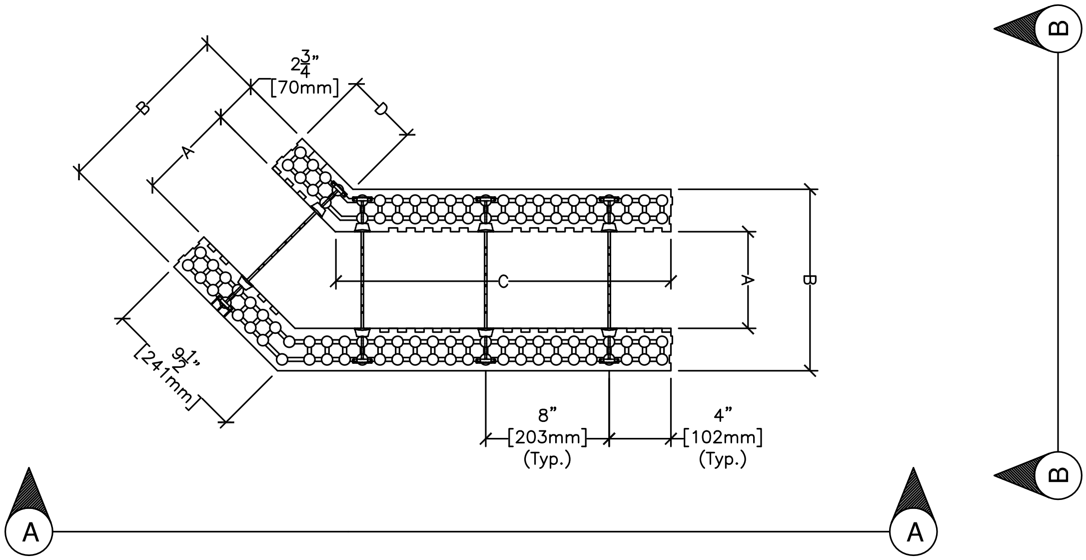
	FORM SIZES		
	4" (102mm)	**6.25" (159mm)**	**8" (203mm)**
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	3.5" (90mm)	3.375" (87mm)	2.25" (57mm)
D	7.67" (195mm)	7.67" (195mm)	6.125" (157mm)

5.1.14 – HALF HEIGHT LEFT HAND 45° FORM

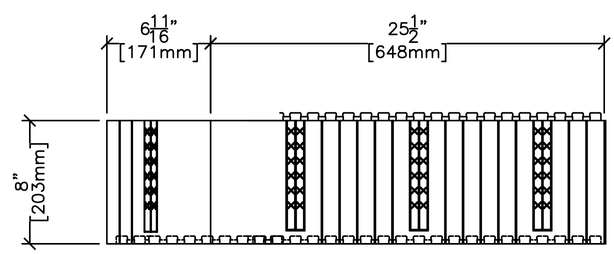
All drawings are downloadable at www.logixicf.com

NOTES:

1. $6\frac{1}{4}$" LOGIX Half Height Left Hand 45° Corner Form shown

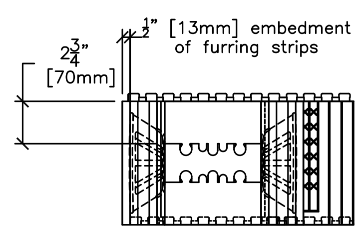


PLAN VIEW

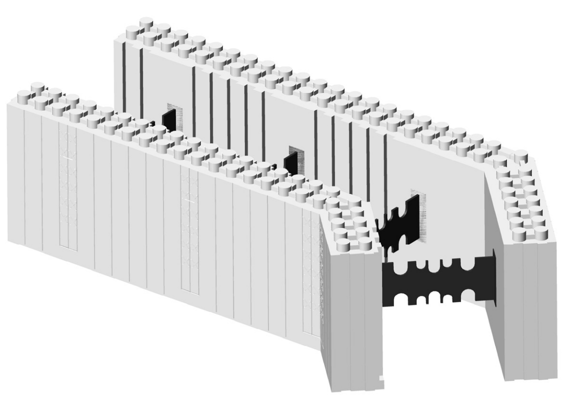


ELEVATION A-A

For clarity knobs partially removed in evelvation views.



ELEVATION B-B



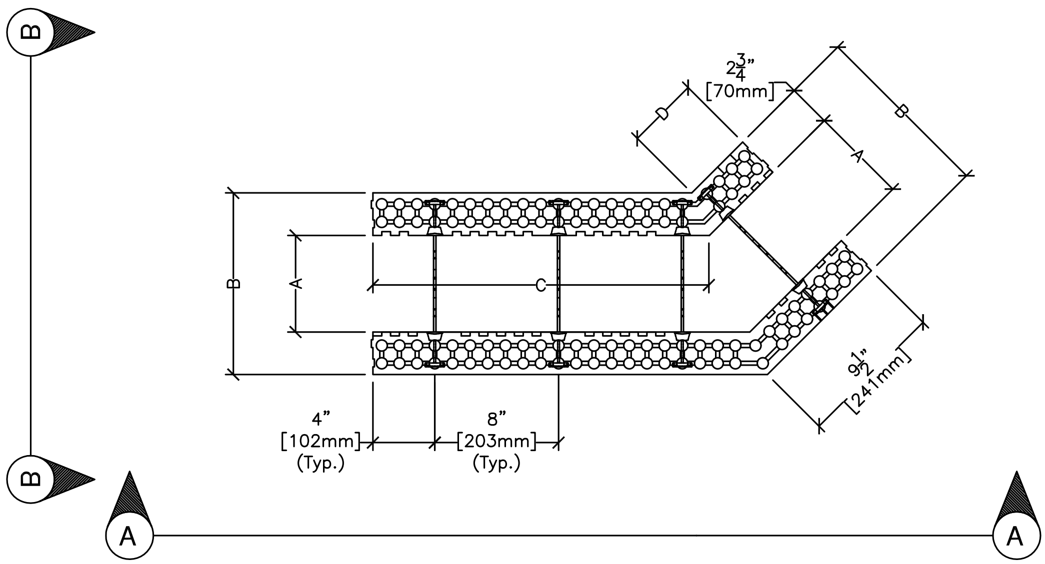
	FORM SIZES		
	4" (102mm)	6.25" (159mm)	8" (203mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	22.75" (577mm)	21.75" (553mm)	21" (535mm)
D	5.5" (141mm)	4.625" (118mm)	3.875" (99mm)

5.1.15 – HALF HEIGHT RIGHT HAND 45^{O} FORM

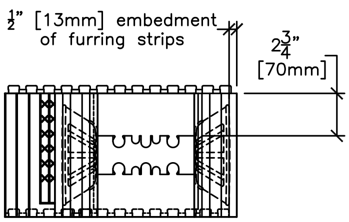
All drawings are downloadable at www.logixicf.com

NOTES:

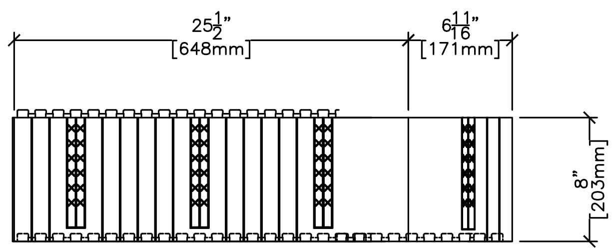
1. 6¼" Half Height Right Hand 45° Corner Form shown



PLAN VIEW

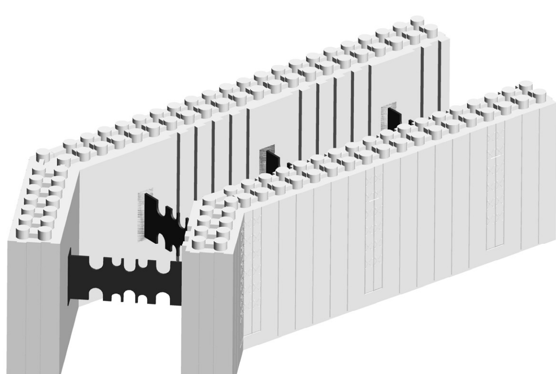


ELEVATION B-B



ELEVATION A-A

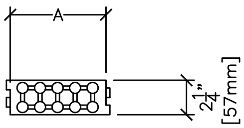
For clarity knobs partially removed in evelvation views.



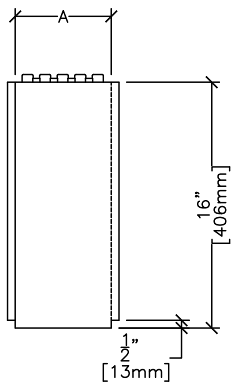
	FORM SIZES		
	4" (102mm)	6.25" (159mm)	8" (203mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)
B	9.5" (241mm)	11.75" (298mm)	13.5" (343mm)
C	22.75" (577mm)	21.75" (553mm)	21" (535mm)
D	5.5" (141mm)	4.625" (118mm)	3.875" (99mm)

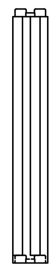
5.1.16 – END CAP & 4” HEIGHT ADJUSTER

All drawings are downloadable at www.logixicf.com



PLAN VIEW

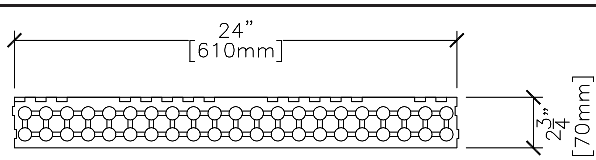




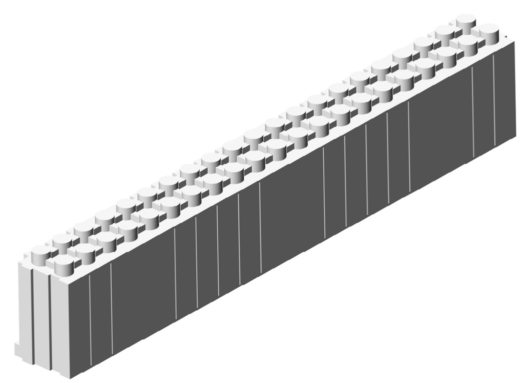
SIDE ELEVATION

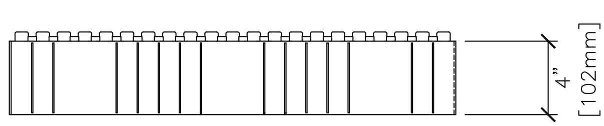
END VIEW

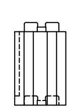
	FORM SIZES				
	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
A	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)



PLAN VIEW







SIDE ELEVATION

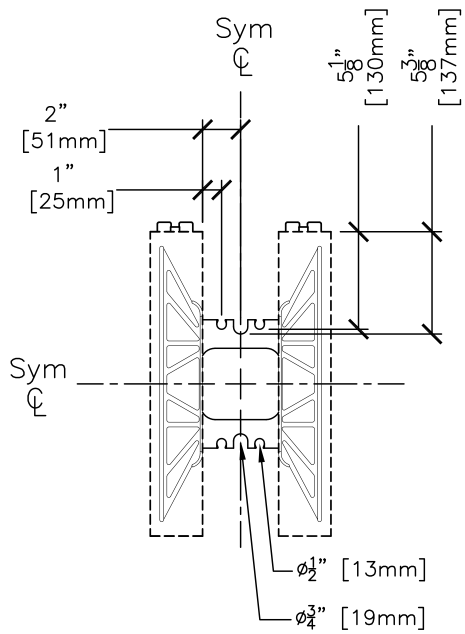
END VIEW

C A D D R A W I N G S

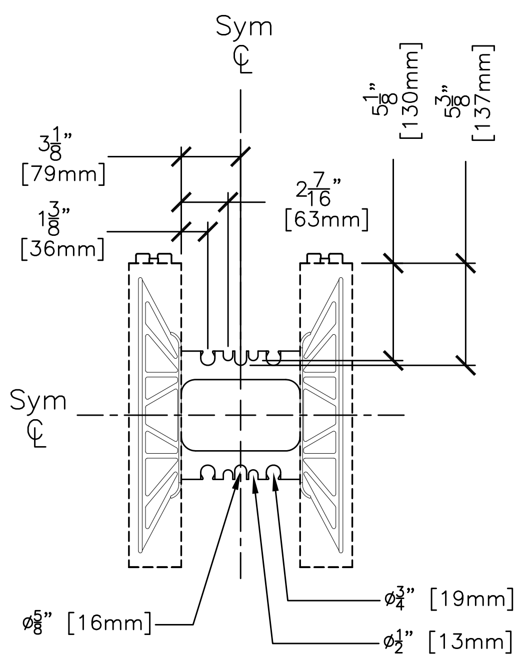
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction 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.

5.1.17 – REBAR SLOT LOCATIONS - LOGIX PRO FORMS (1 of 4)

All drawings are downloadable at www.logixicf.com



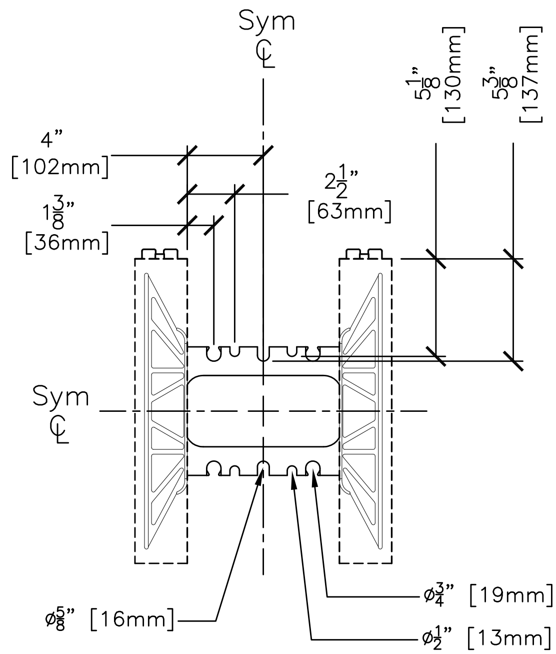
4" LOGIX PRO



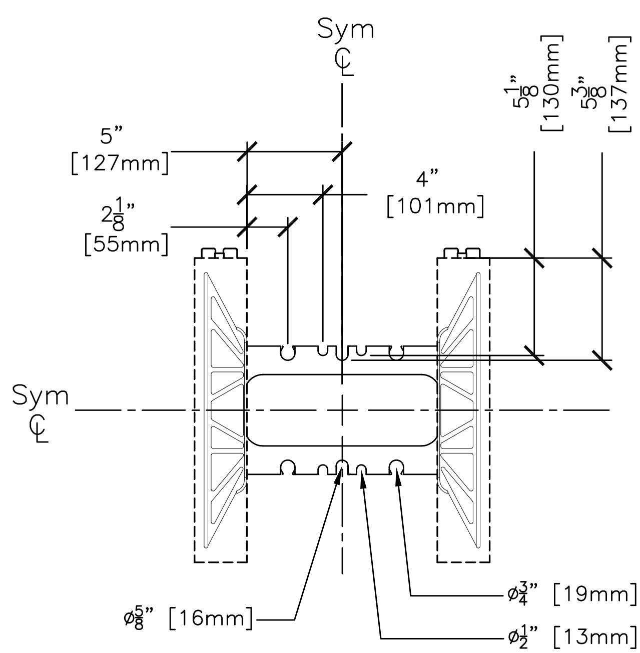
6 1/4" LOGIX PRO

5.1.17 – REBAR SLOT LOCATIONS - LOGIX PRO FORMS (2 of 4)

All drawings are downloadable at www.logixicf.com



8" LOGIX PRO

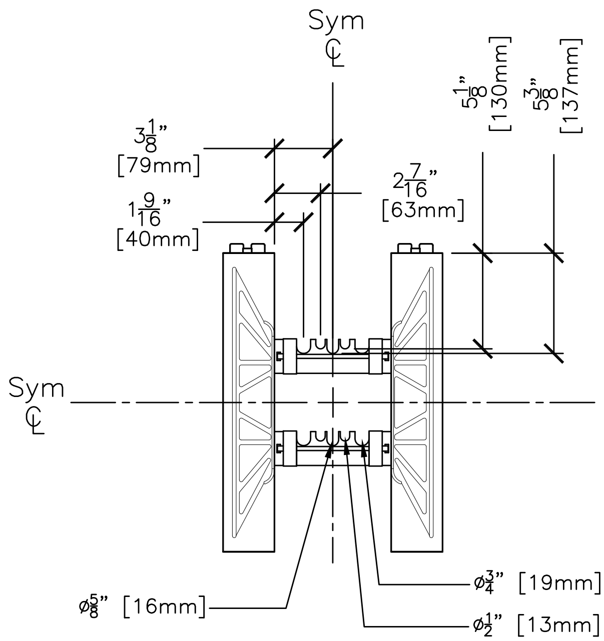


10" LOGIX PRO

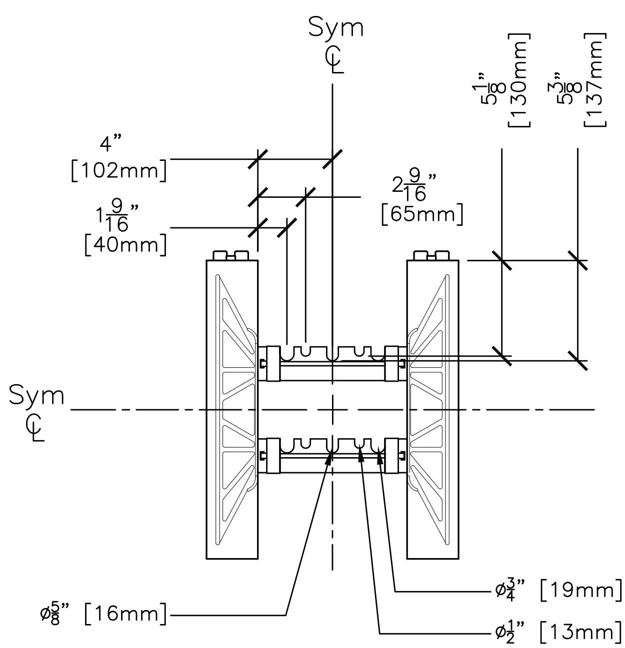
CAD DRAWINGS

5.1.17 – REBAR SLOT LOCATIONS - LOGIX KD FORMS (3 of 4)

All drawings are downloadable at www.logixicf.com



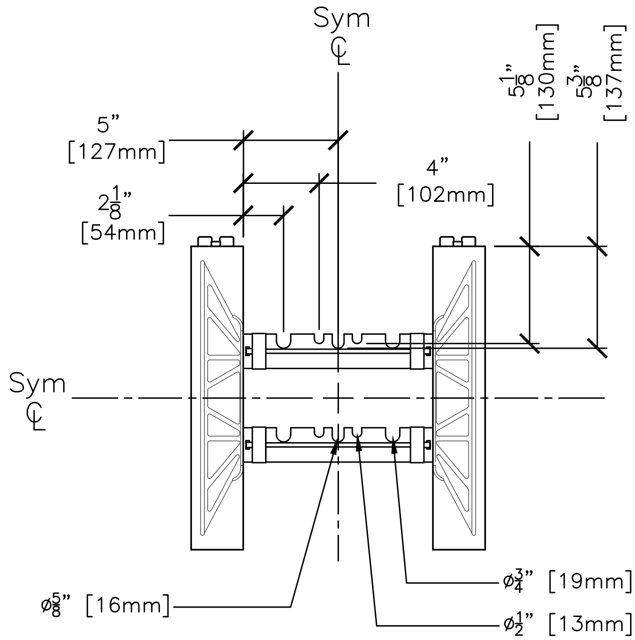
6 1/4" [159mm] LOGIX KD CONNECTORS



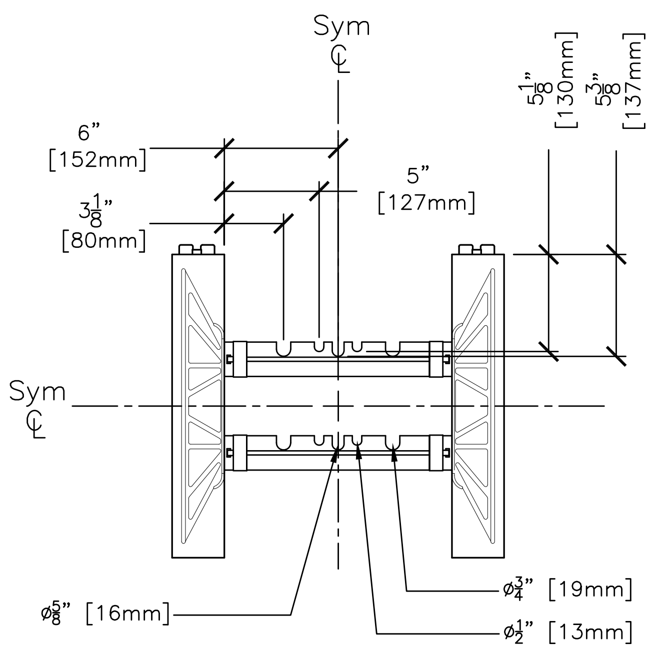
8" [203mm] LOGIX KD CONNECTORS

5.1.17 – REBAR SLOT LOCATIONS - LOGIX KD FORMS (4 of 4)

All drawings are downloadable at www.logixicf.com



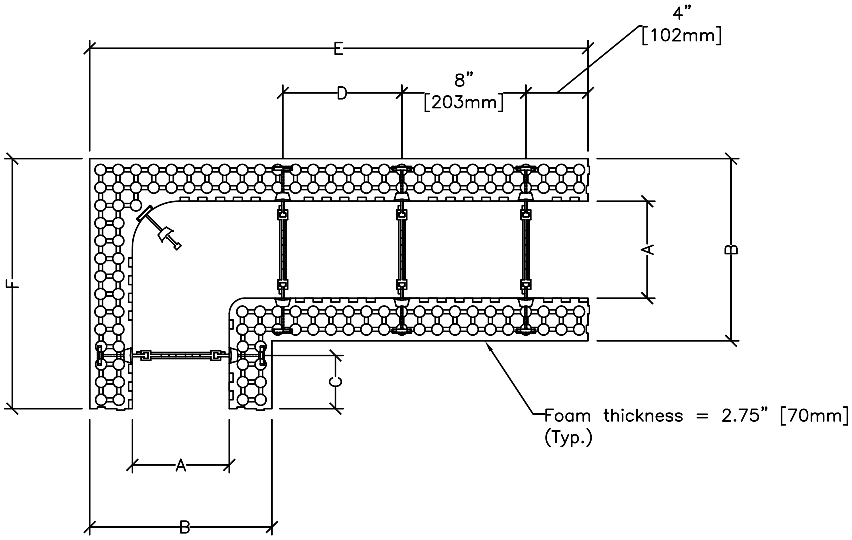
10" [254mm] LOGIX KD CONNECTORS



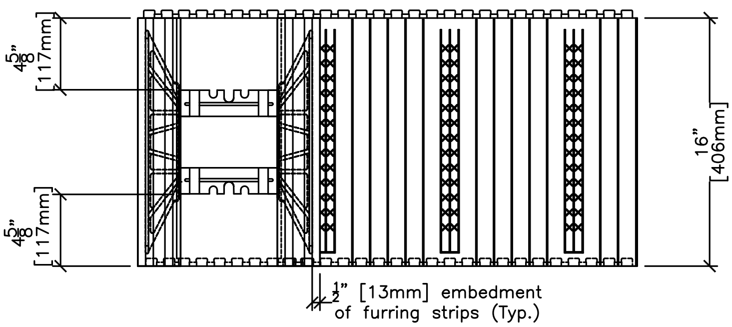
12" [305mm] LOGIX KD CONNECTORS

5.1.18 – LOGIX KD FORMS
5.1.18.1 – LOGIX KD RIGHT-HAND CORNER FORMS

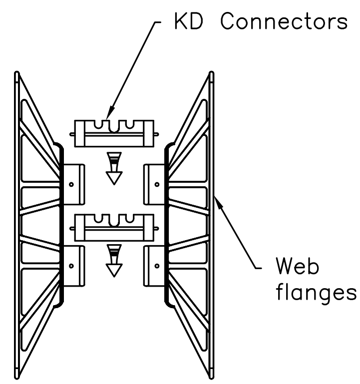
All drawings are downloadable at www.logixicf.com



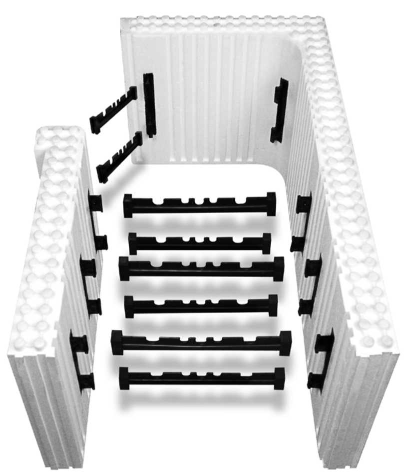
PLAN VIEW



SIDE ELEVATION



WEB COMPONENTS (NTS)

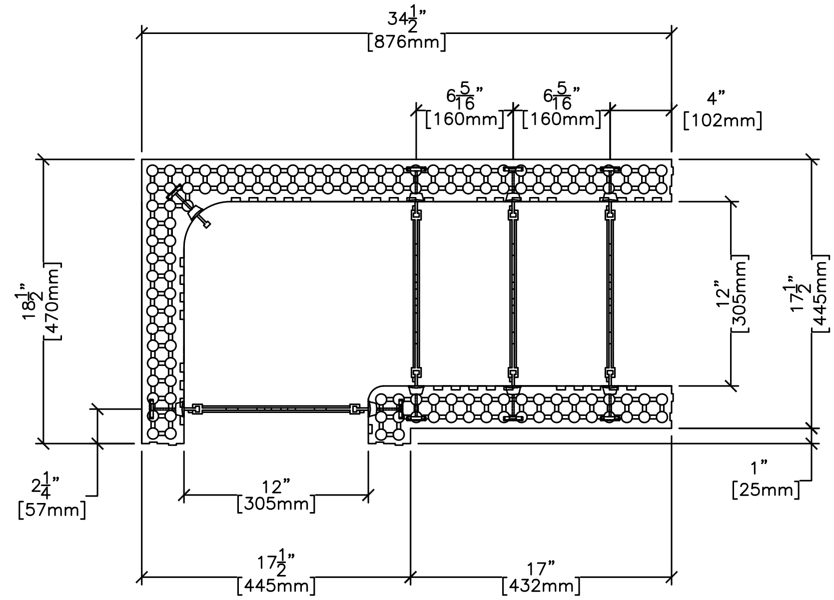


	FORM SIZES			
	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)
A	N//A	6.25" (159mm)	8" (203mm)	10" (254mm)
B	N//A	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)
C	N//A	3.375" (87mm)	2.25" (57mm)	2.125" (55mm)
D	N//A	7.67" (195mm)	6.125" (157mm)	5.875" (150mm)
E	N//A	32.125" (816mm)	32.125" (816mm)	34.5" (876mm)
F	N//A	16.125" (410mm)	16.125" (410mm)	18.5" (470mm)

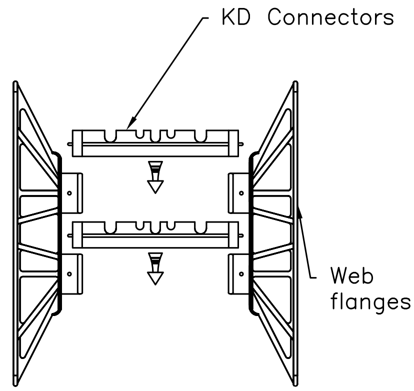
NOTES:
1. 6¼” Right Hand LOGIX KD Corner Form shown.
2. Drawings showing rebar slot locations will be available upon request.
3. For 12” Right Hand LOGIX KD Corner Form see Pg 3/4 or 4/4.

5.1.18.1 – LOGIX KD RIGHT HAND CORNER FORMS CONTINUED

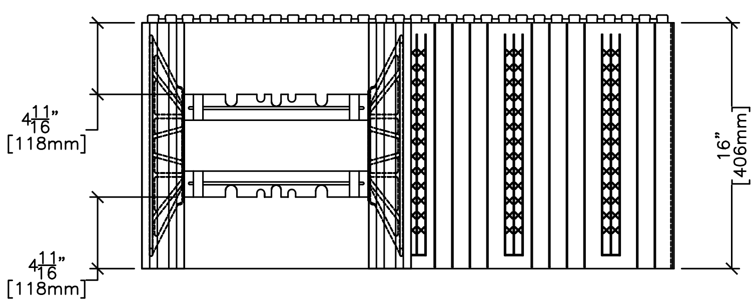
All drawings are downloadable at www.logixicf.com



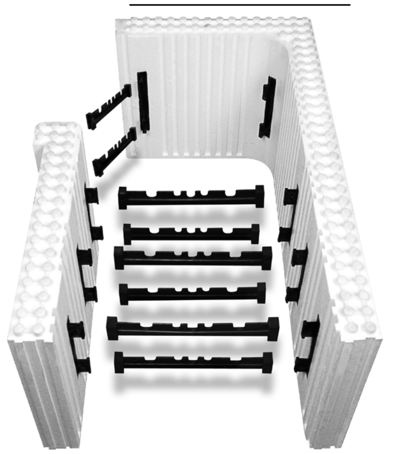
PLAN VIEW

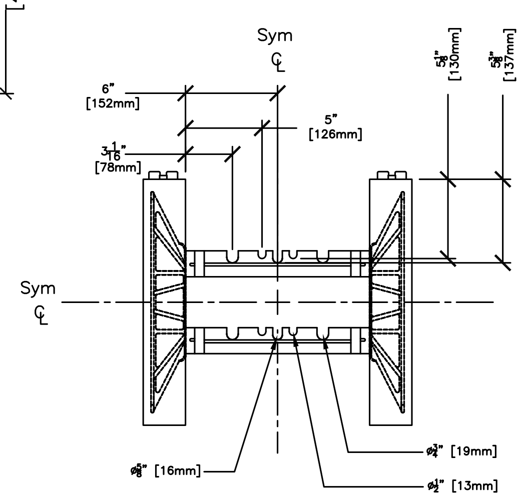


WEB COMPONENTS
(NTS)



SIDE ELEVATION



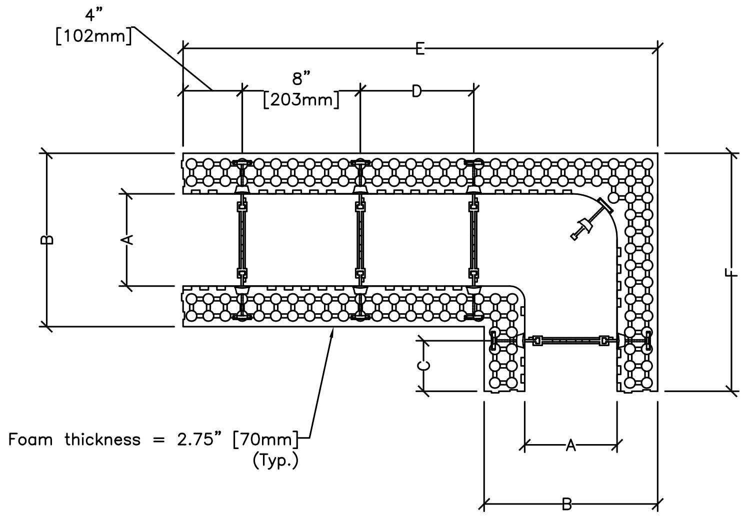


REBAR SLOT
LOCATIONS

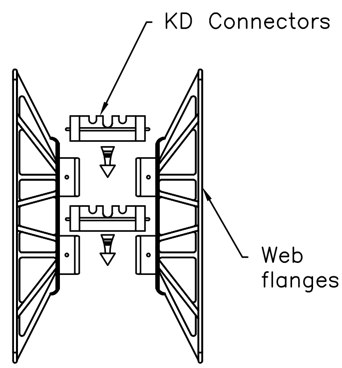
CAD DRAWINGS

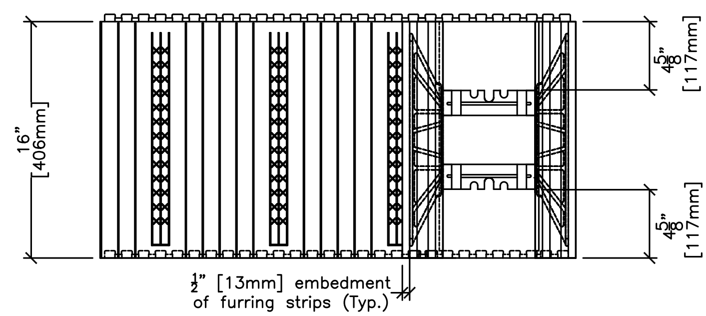
5.1.18.2 – LOGIX KD LEFT HAND CORNER FORMS

All drawings are downloadable at www.logixicf.com



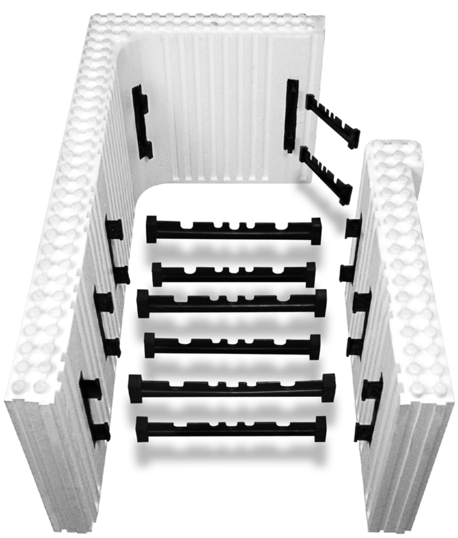
PLAN VIEW





SIDE ELEVATION

WEB COMPONENTS (NTS)



	FORM SIZES			
	4" (102mm)	6.25" (159mm)	8" (203mm)	10" (254mm)
A	N//A	6.25" (159mm)	8" (203mm)	10" (254mm)
B	N//A	11.75" (298mm)	13.5" (343mm)	15.5" (394mm)
C	N//A	3.375" (87mm)	2.25" (57mm)	2.125" (55mm)
D	N//A	7.67" (195mm)	6.125" (157mm)	5.875" (150mm)
E	N//A	32.125" (816mm)	32.125" (816mm)	34.5" (876mm)
F	N//A	16.125" (410mm)	16.125" (410mm)	18.5" (470mm)

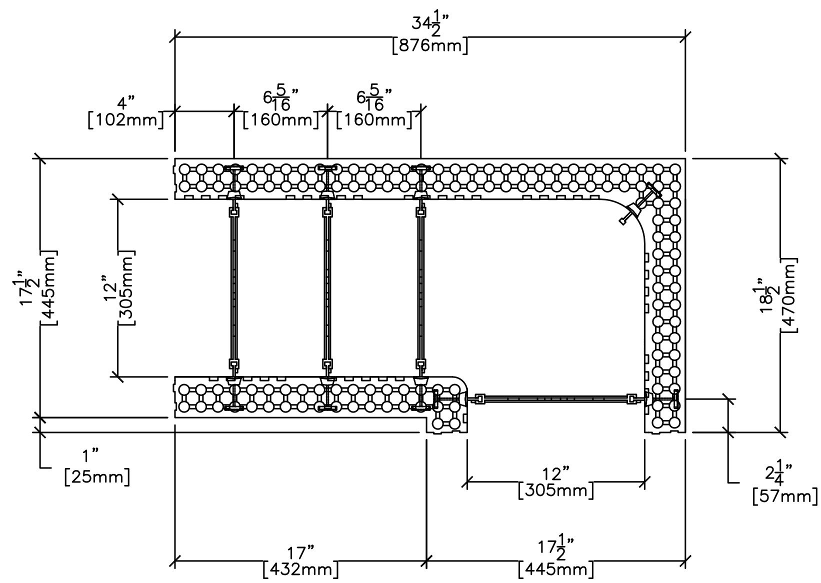
NOTES:

1. 6¼" Right Hand LOGIX KD Corner Form shown.
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.

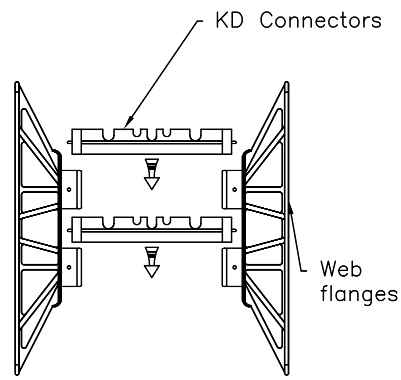
C A D D R A W I N G S

5.1.18.2 – LOGIX KD LEFT HAND CORNER FORMS CONTINUED

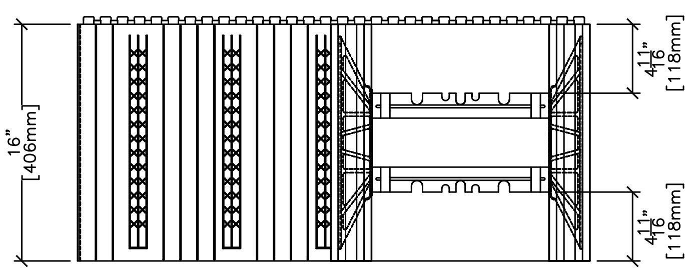
All drawings are downloadable at www.logixicf.com



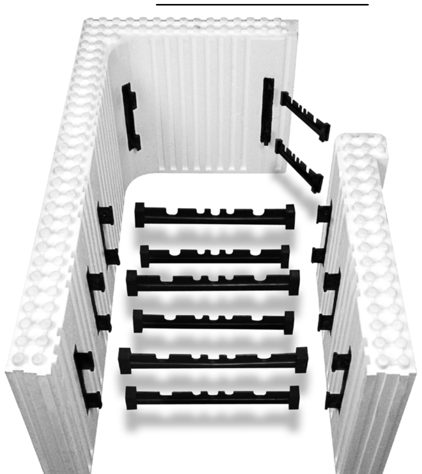
PLAN VIEW

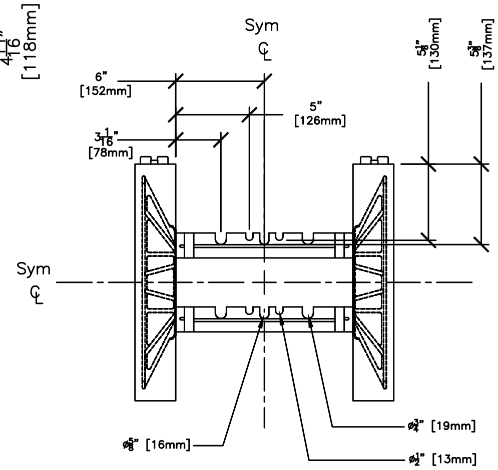


WEB COMPONENTS (NTS)



SIDE ELEVATION





REBAR SLOT LOCATIONS

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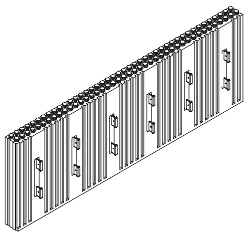
5.1.18.3 – LOGIX KD FORMS

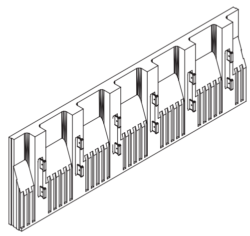
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

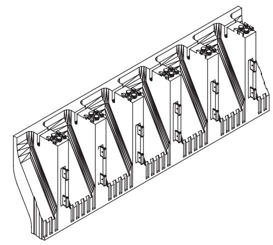
LOGIX KD PANELS



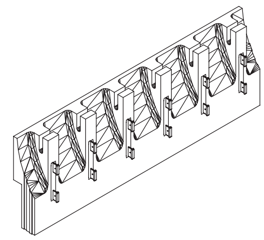
Standard



Taper Top

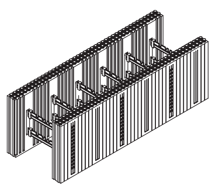


Brick Ledge

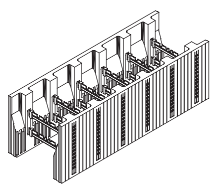


Transition Block

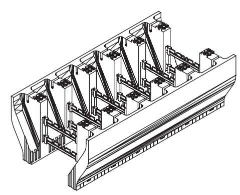
LOGIX KD PANELS



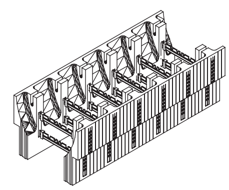
Standard—Standard



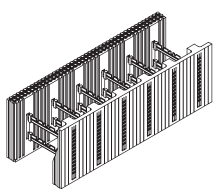
Taper Top—Taper Top



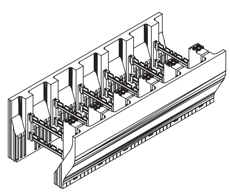
Brick Ledge—Brick Ledge



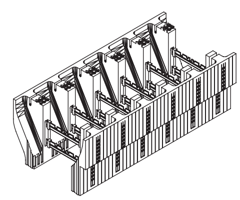
Transition Block —Transition Block



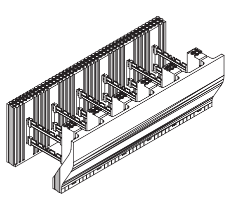
Standard—Taper Top



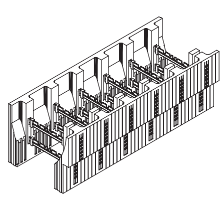
Taper Top—Brick Ledge



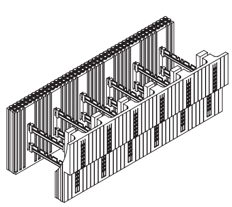
Brick Ledge—Transition Block



Standard—Brick Ledge



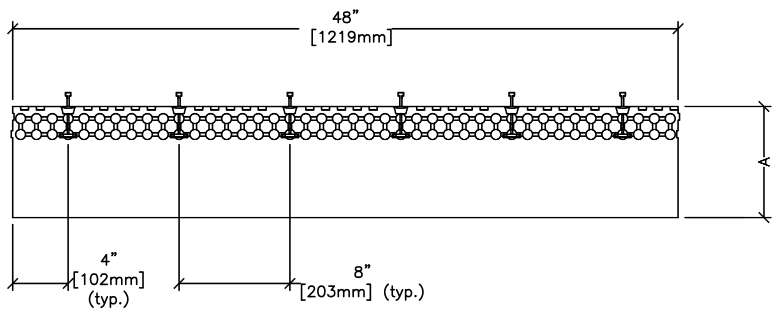
Taper Top—Transition Block



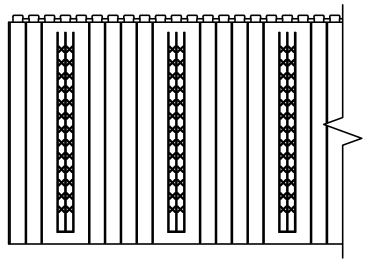
Standard—Transition Block

5.1.19 – XRV PANELS

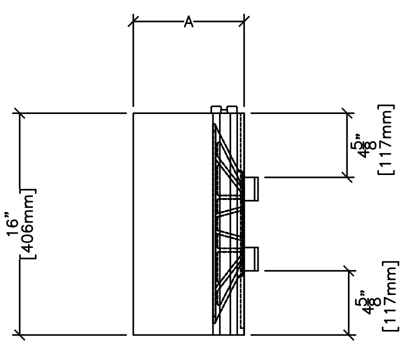
All drawings are downloadable at www.logixicf.com



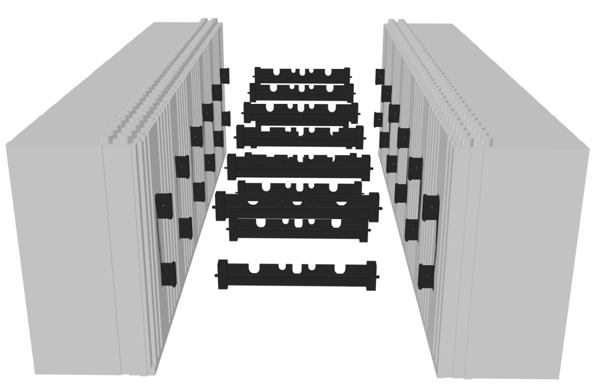
PLAN VIEW

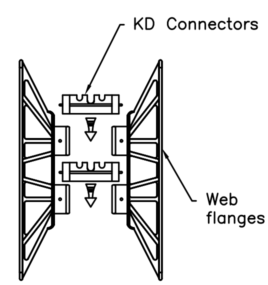


SIDE ELEVATION



END VIEW





WEB COMPONENTS
(NTS) (See Note 2)

	PANEL SIZES				
A	4" (102mm)	5" (127mm)	6" (152mm)	7" (178mm)	8" (203mm)

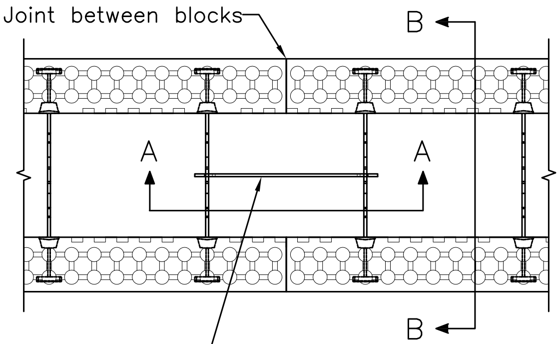
NOTES:

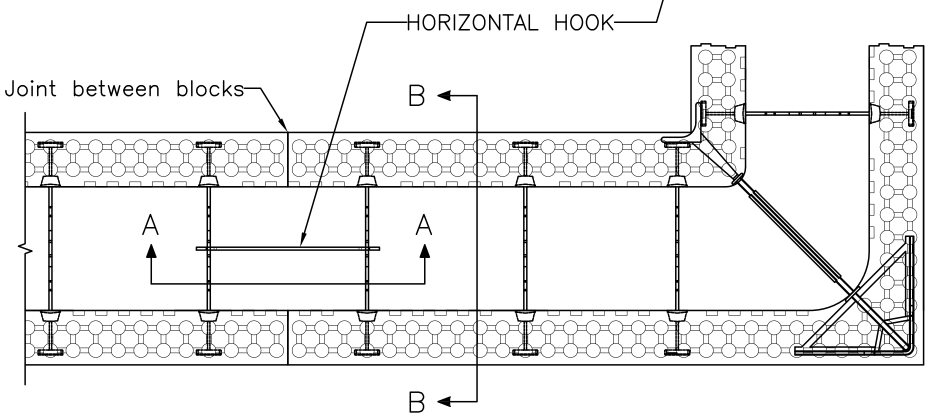
1. 2¾” [159mm] thick panel size is also available.
2. For rebar slot locations on KD Connectors see Knockdown Corner Form dwgs.
3. Concrete core thickness wider than 12” (305mm) are available using LOGIX Xtenders (See 5.1.22).
4. 8” [203mm] LOGIX XRV Panel shown.

5.1.20 – LOGIX HORIZONTAL & VERTICAL STEEL HOOKS

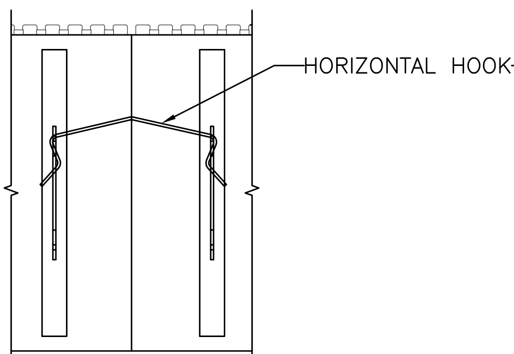
All drawings are downloadable at www.logixicf.com

HORIZONTAL HOOK CONNECTING STANDARD TO STANDARD FORMS – PLAN VIEW
(Applicable for all LOGIX Standard Form sizes)

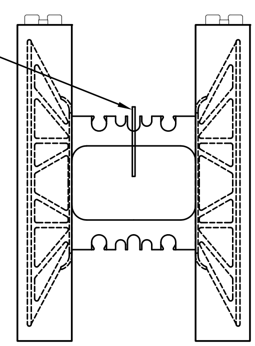




HORIZONTAL HOOK CONNECTING STANDARD TO CORNER FORMS – PLAN VIEW
(see Notes)



SECTION A–A



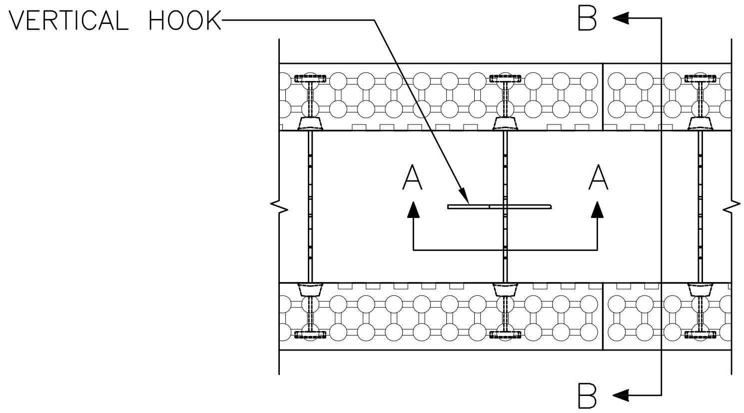
SECTION B–B

NOTES:

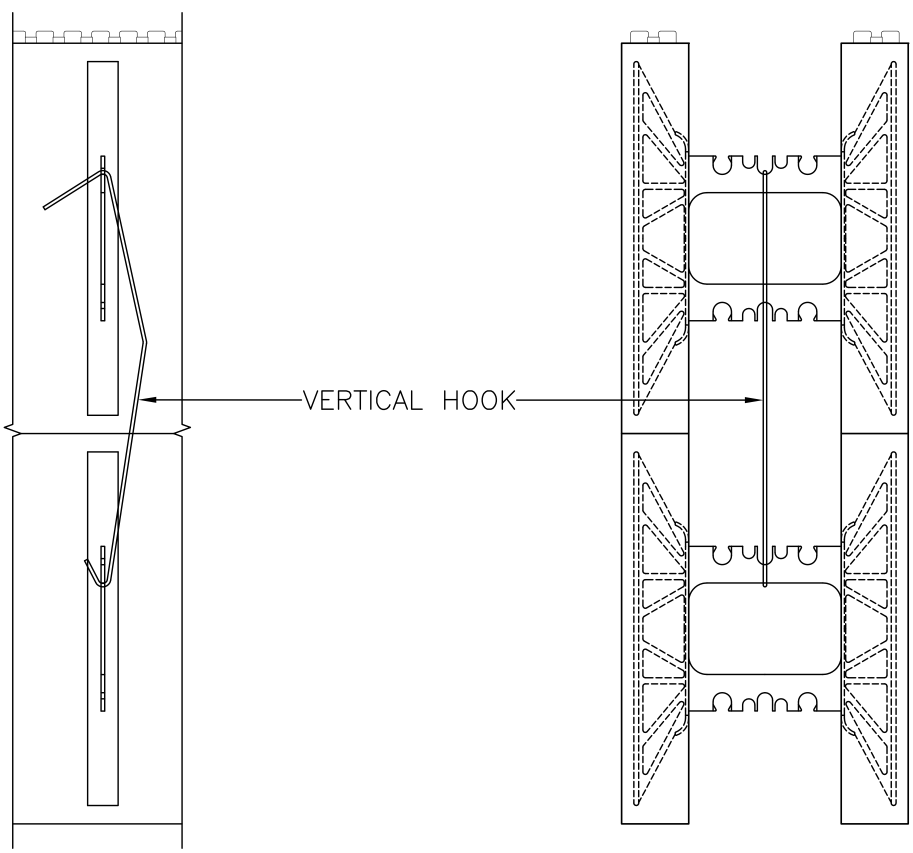
1. Applicable for connecting 4" or 6.25" LOGIX Standard Forms to 4" or 6.25" LOGIX Corner Forms.
2. Use traditional zip ties when connecting the shorter legs of the 8", 10" or 12" LOGIX Corner Forms to LOGIX Standard Forms.
3. When connecting the shorter leg of the 4" LOGIX Corner Form be sure to connect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

5.1.20 – LOGIX HORIZONTAL & VERTICAL STEEL HOOKS CONTINUED

All drawings are downloadable at www.logixicf.com



VERTICAL HOOK CONNECTING COURSES – PLAN VIEW

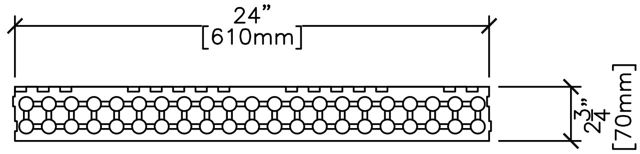


SECTION A–A

SECTION B–B

5.1.21 – LOGIX FLEX BARS

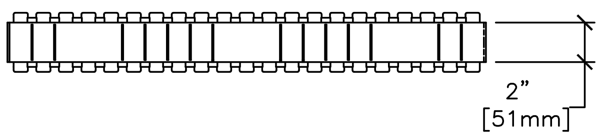
All drawings are downloadable at www.logixicf.com



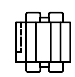
Male/male FleX Bar
(Female/female FleX Bar similar)

PLAN VIEW

Male/male FleX Bar

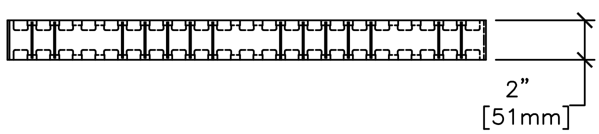


SIDE ELEVATION

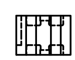


END VIEW

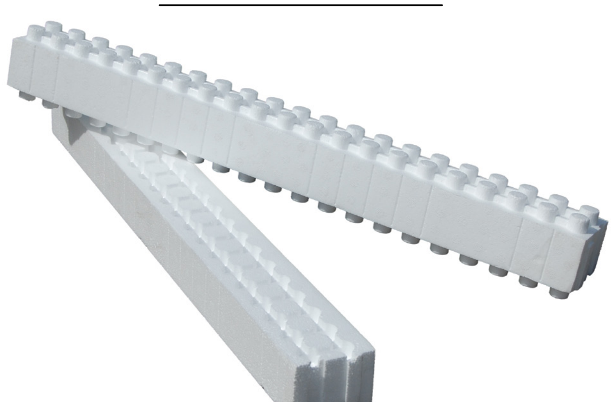
Female/female FleX Bar



SIDE ELEVATION

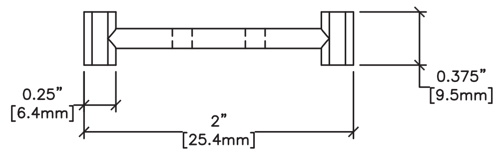


END VIEW

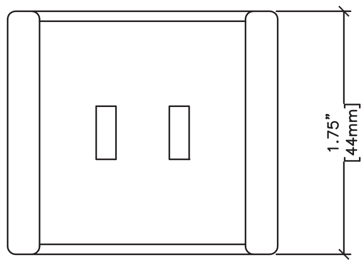


5.1.22 – LOGIX XTENDER

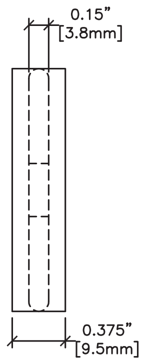
All drawings are downloadable at www.logixicf.com



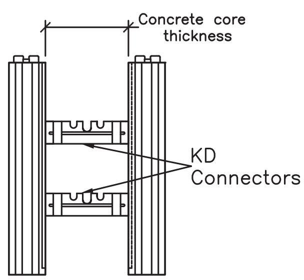
PLAN VIEW



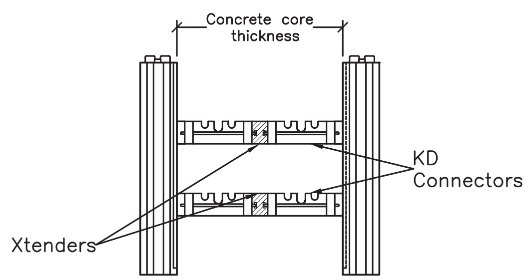
SIDE ELEVATION



END VIEW



SIDE ELEVATION
(without Xtenders)



SIDE ELEVATION
(with Xtenders)

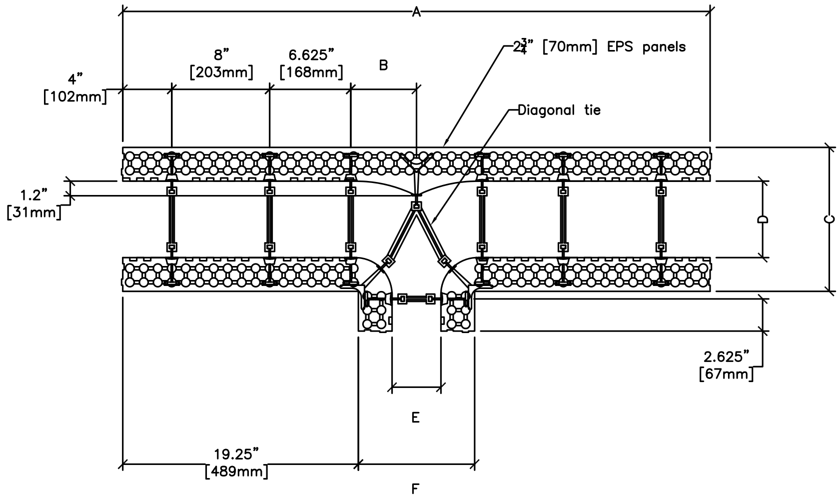
CONCRETE CORE THICKNESS					
		KD Connector Size			
		6.25" (159mm)	8" (203mm)	10" (254mm)	12" (305mm)
KD Connector Size	4" (102mm)	10.25" (260mm)	12" (305mm)	14" (356mm)	16" (406mm)
	6.25" (159mm)	12.5" (318mm)	14.25" (362mm)	16.25" (413mm)	18.25" (464mm)
	8" (203mm)	14.25" (362mm)	16" (406mm)	18" (457mm)	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:

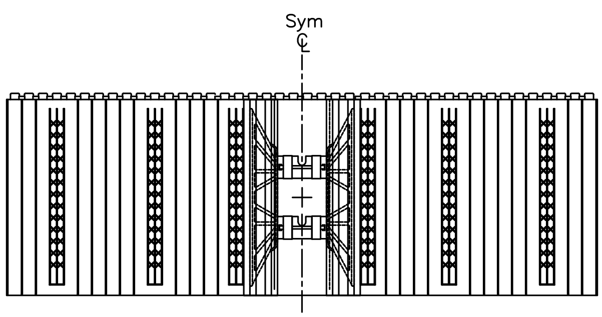
1. Table lists concrete core thickness using two KD Connectors with one Xtender.

5.1.23 – LOGIX T-WALL

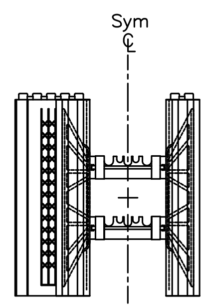
All drawings are downloadable at www.logixicf.com



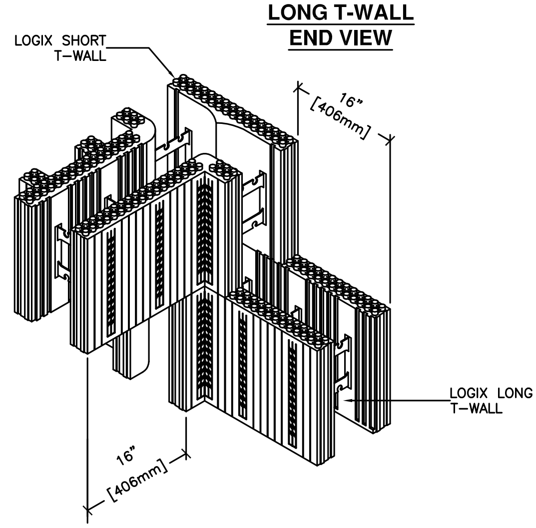
LONG T-WALL
PLAN VIEW



LONG T-WALL
SIDE ELEVATION



LONG T-WALL
END VIEW



T-WALL SIZES

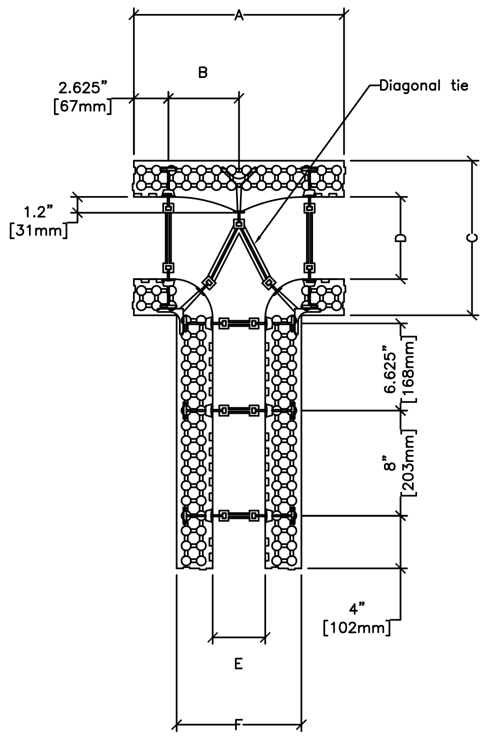
	6¼" to 4" (159mm to 102mm)	6¼" to 6¼" (159mm to 159mm)	8" to 4" (203mm to 102mm)	8" to 6¼" (203mm to 159mm)	10" to 4" (254mm to 102mm)*	10" to 6¼" (254mm to 159mm)*	12" to 4" (305mm to 102mm)*	12" to 6¼" (305mm to 159mm)*
A	48" (1219mm)	50.25" (1276mm)	48" (1219mm)	50.25" (1276mm)	48" (1219mm)	50.25" (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

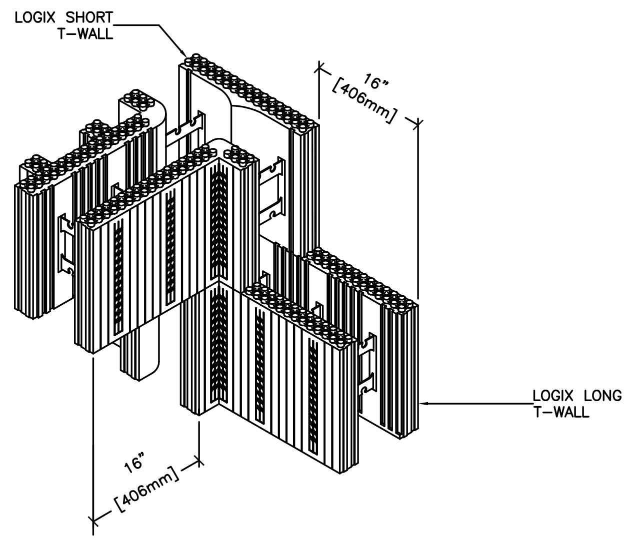
All drawings are downloadable at www.logixicf.com

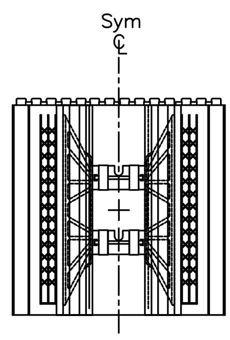
	T-WALL SIZES							
	6¼" to 4" (159mm to 102mm)	6¼" to 6¼" (159mm to 159mm)	8" to 4" (203mm to 102mm)	8" to 6¼" (203mm to 159mm)	10" to 4" (254mm to 102mm)*	10" to 6¼" (254mm to 159mm)*	12" to 4" (305mm to 102mm)*	12" to 6¼" (305mm to 159mm)*
A	16" (406mm)	18.25" (464mm)	16" (406mm)	18.25" (464mm)	16" (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

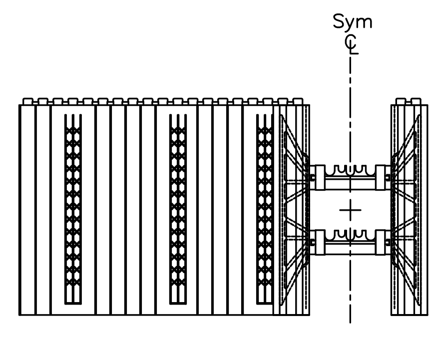


SHORT T-WALL
PLAN VIEW





LONG T-WALL



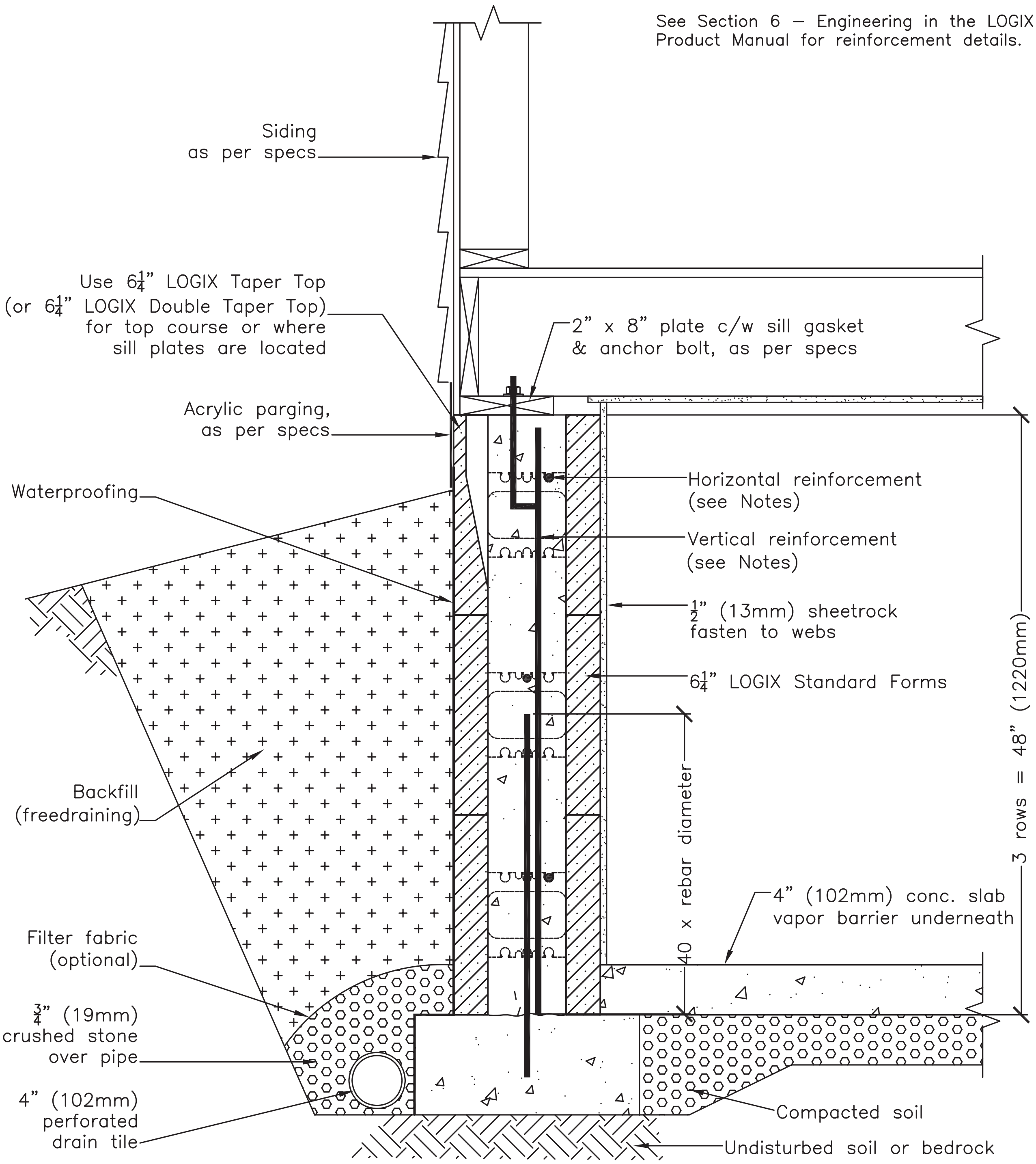
LONG T-WALL

5.2 – FROST WALLS
5.2.1 – 4' FROST WALL (CRAWL SPACE)

All drawings are downloadable at www.logixicf.com

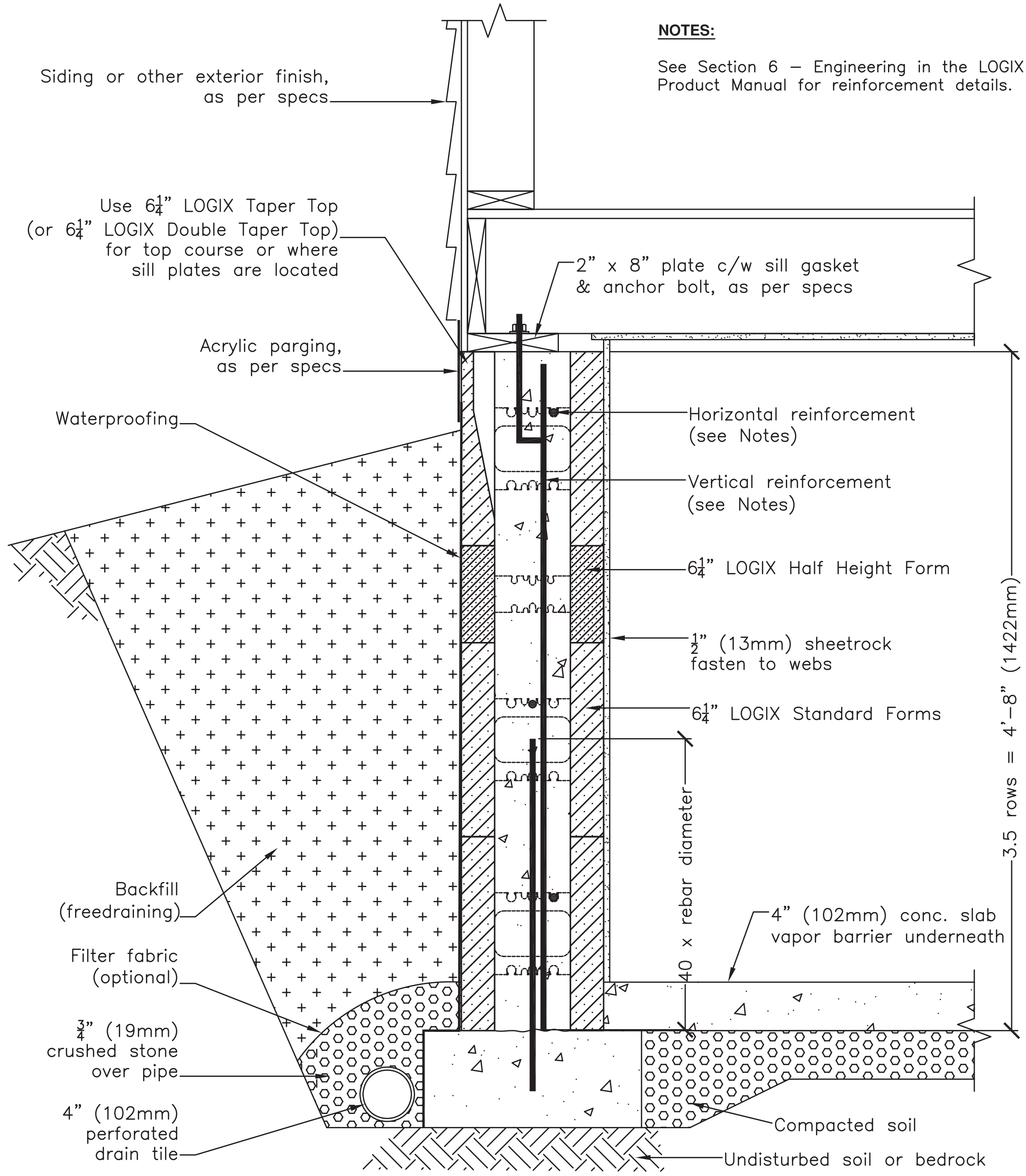
NOTES:

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



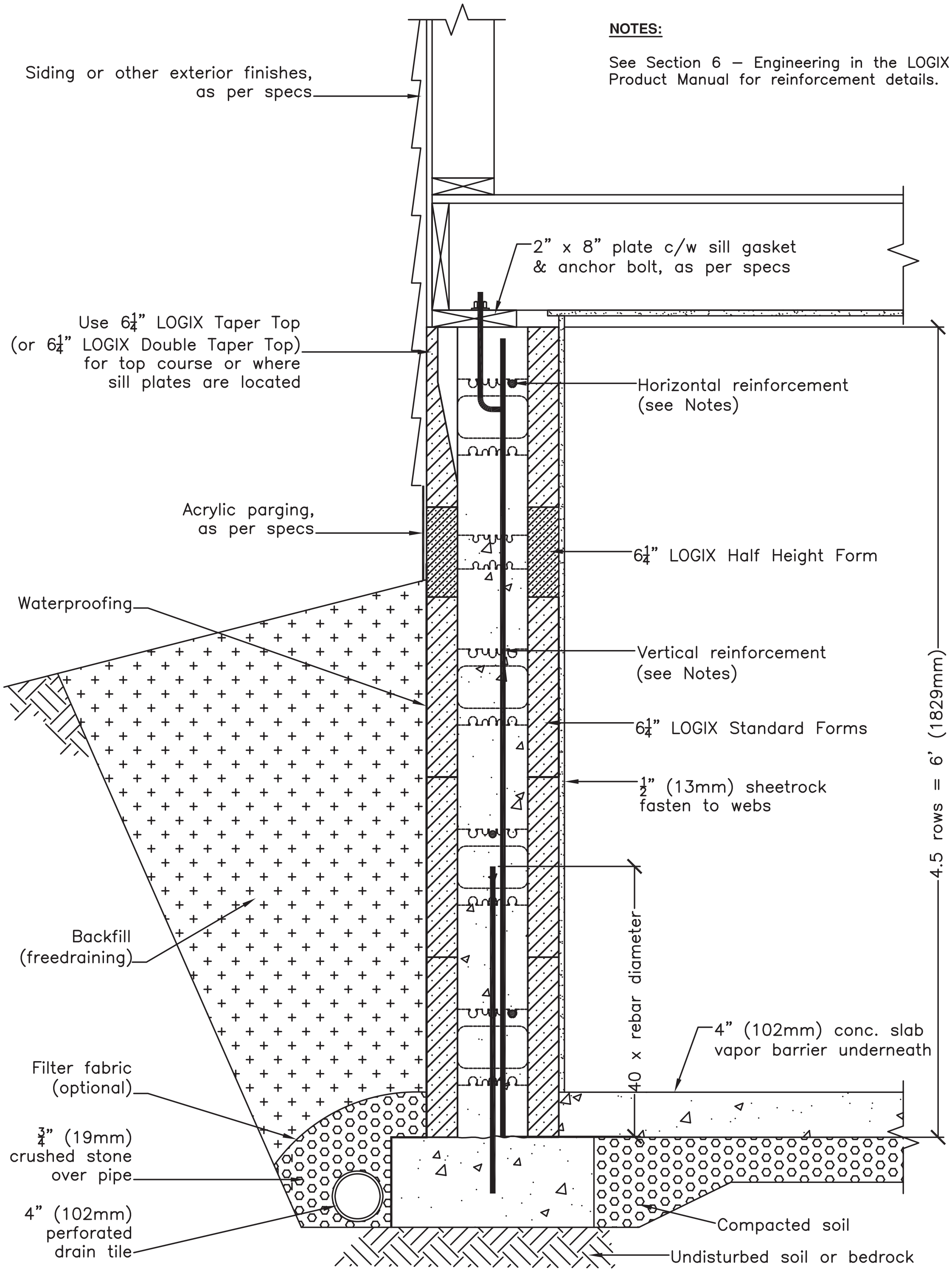
5.2.2 – 4'-8" FROST WALL (CRAWL SPACE)

All drawings are downloadable at www.logixicf.com



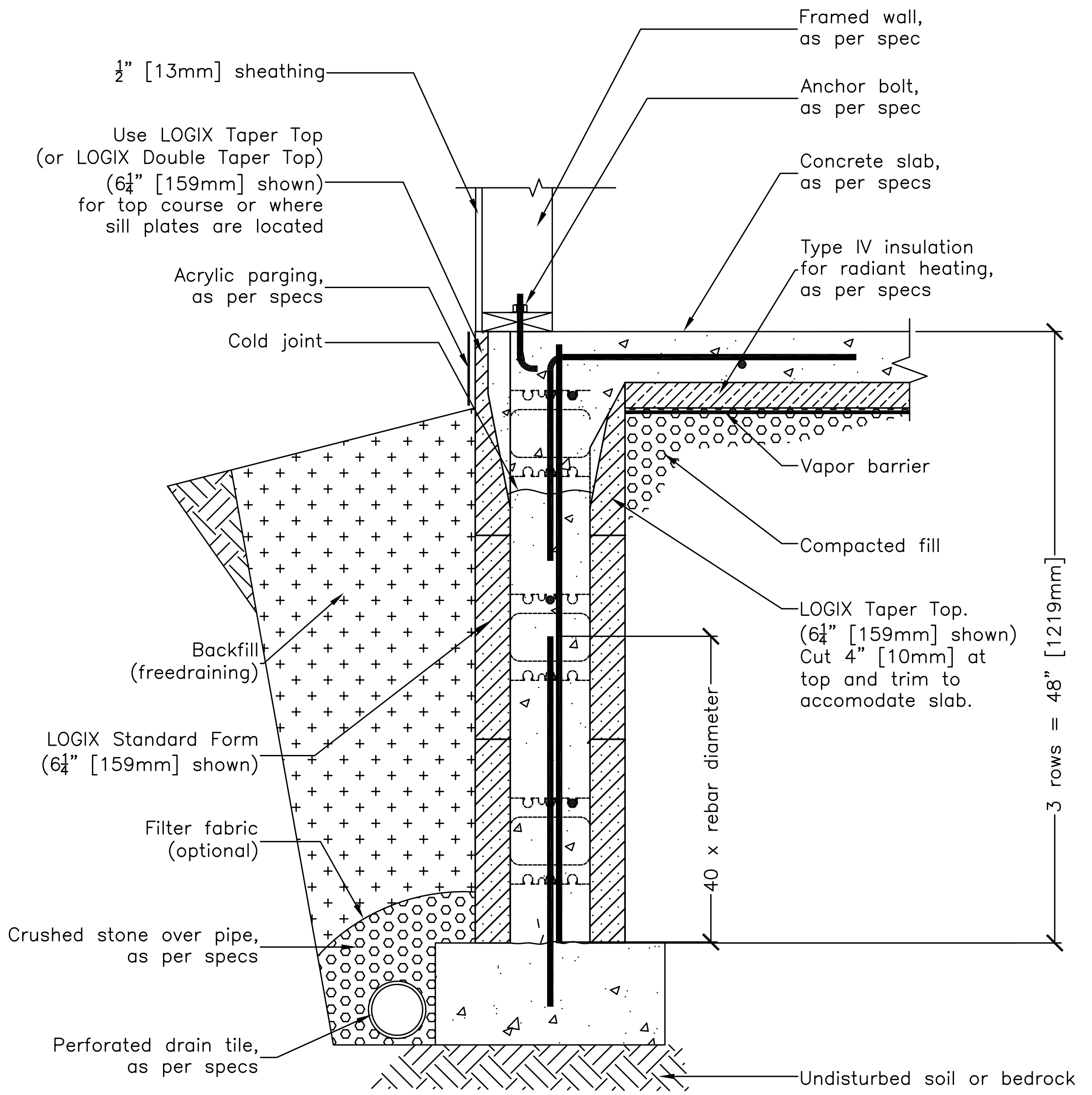
5.2.3 – 6' FROST WALL (CRAWL SPACE)

All drawings are downloadable at www.logixicf.com



5.2.4 – 4’ FROST WALL (INTEGRAL SLAB)

All drawings are downloadable at www.logixicf.com



NOTES:

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

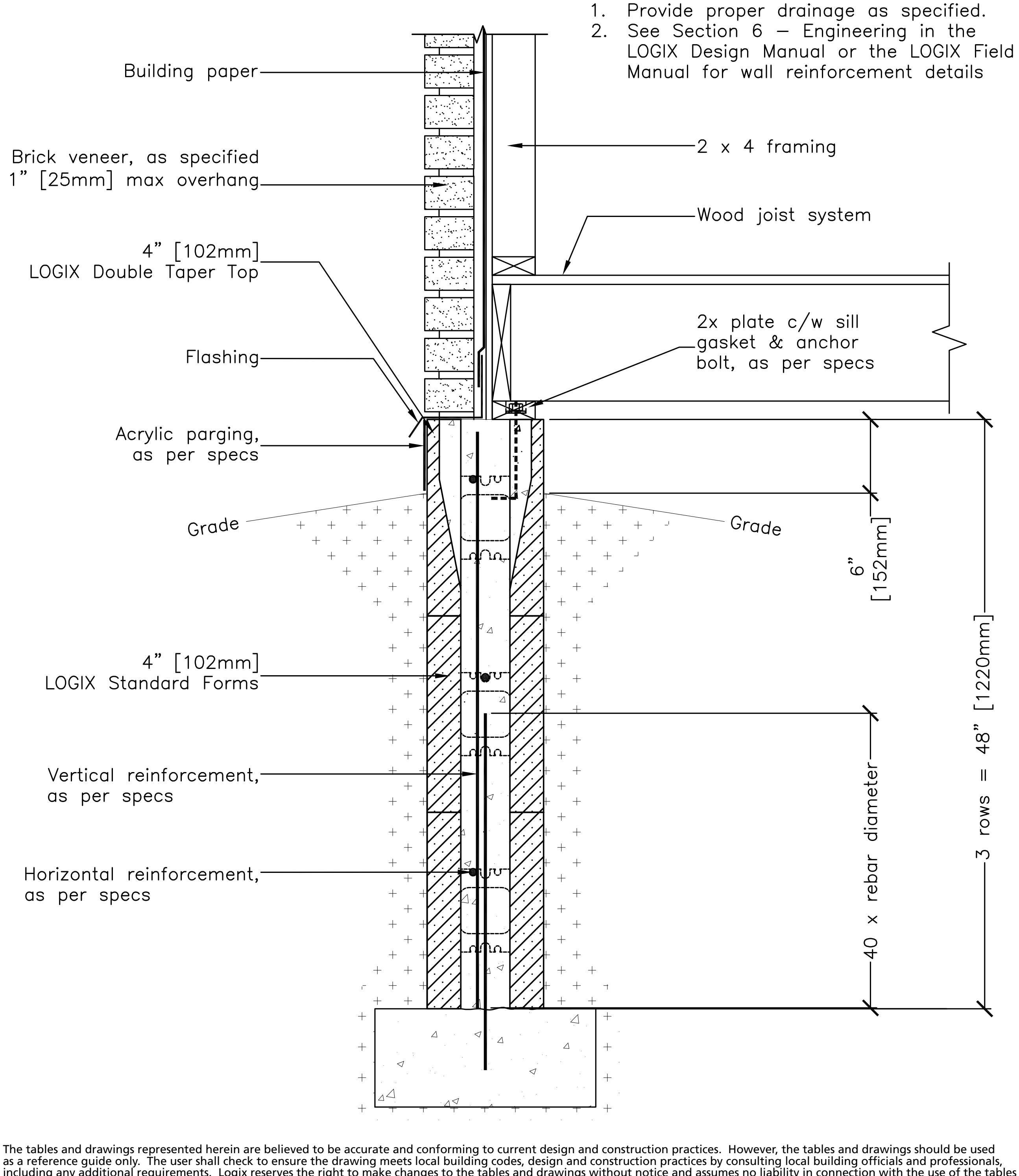
C A D   D R A W I N G S

5.2.5 – 4’ FROST WALL WITH DOUBLE TAPER TOP SUPPORTING WOOD FRAME AND BALANCED BACKFILL

All drawings are downloadable at www.logixicf.com

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

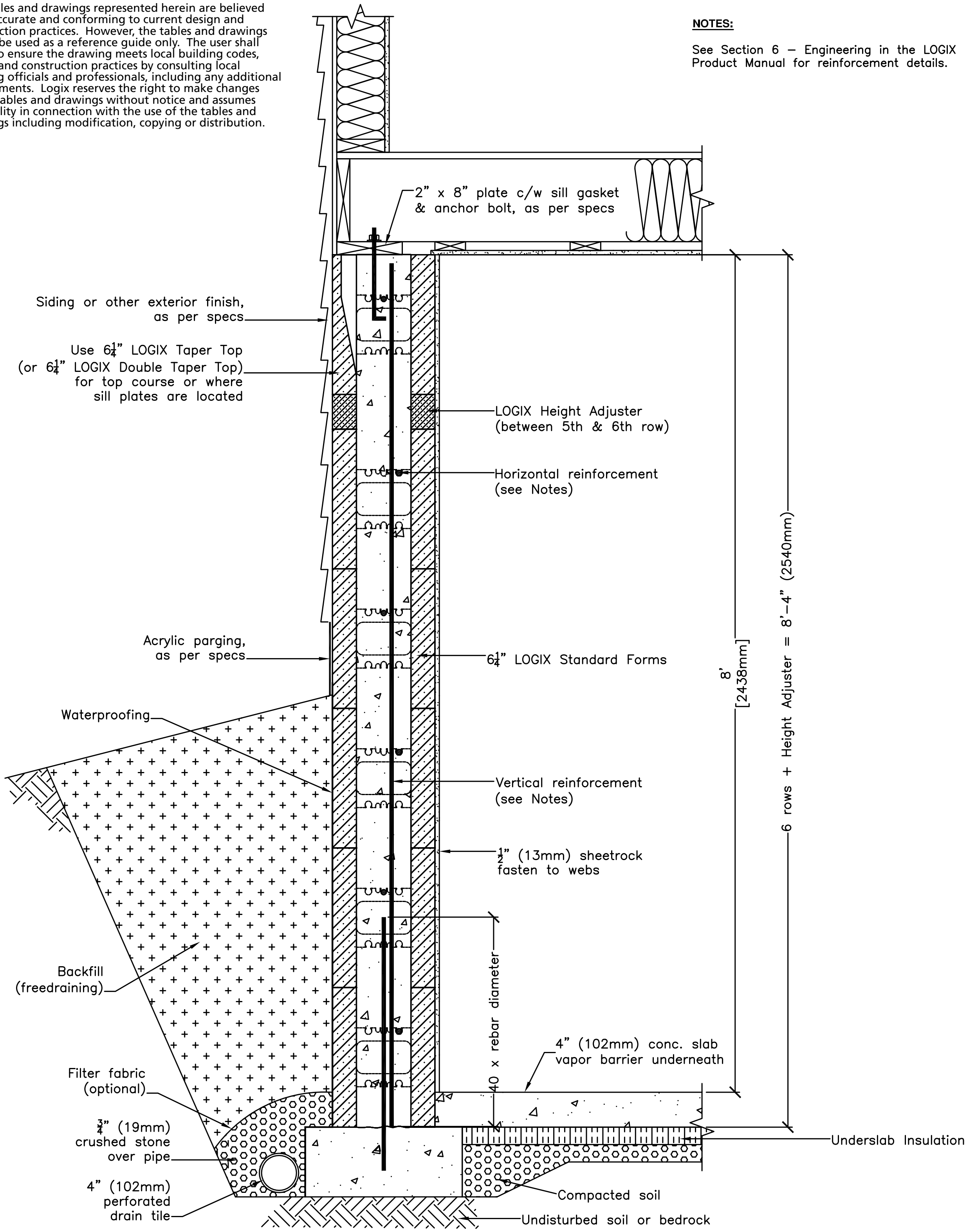


5.3 – FOUNDATION WALLS
5.3.1 – 8' FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



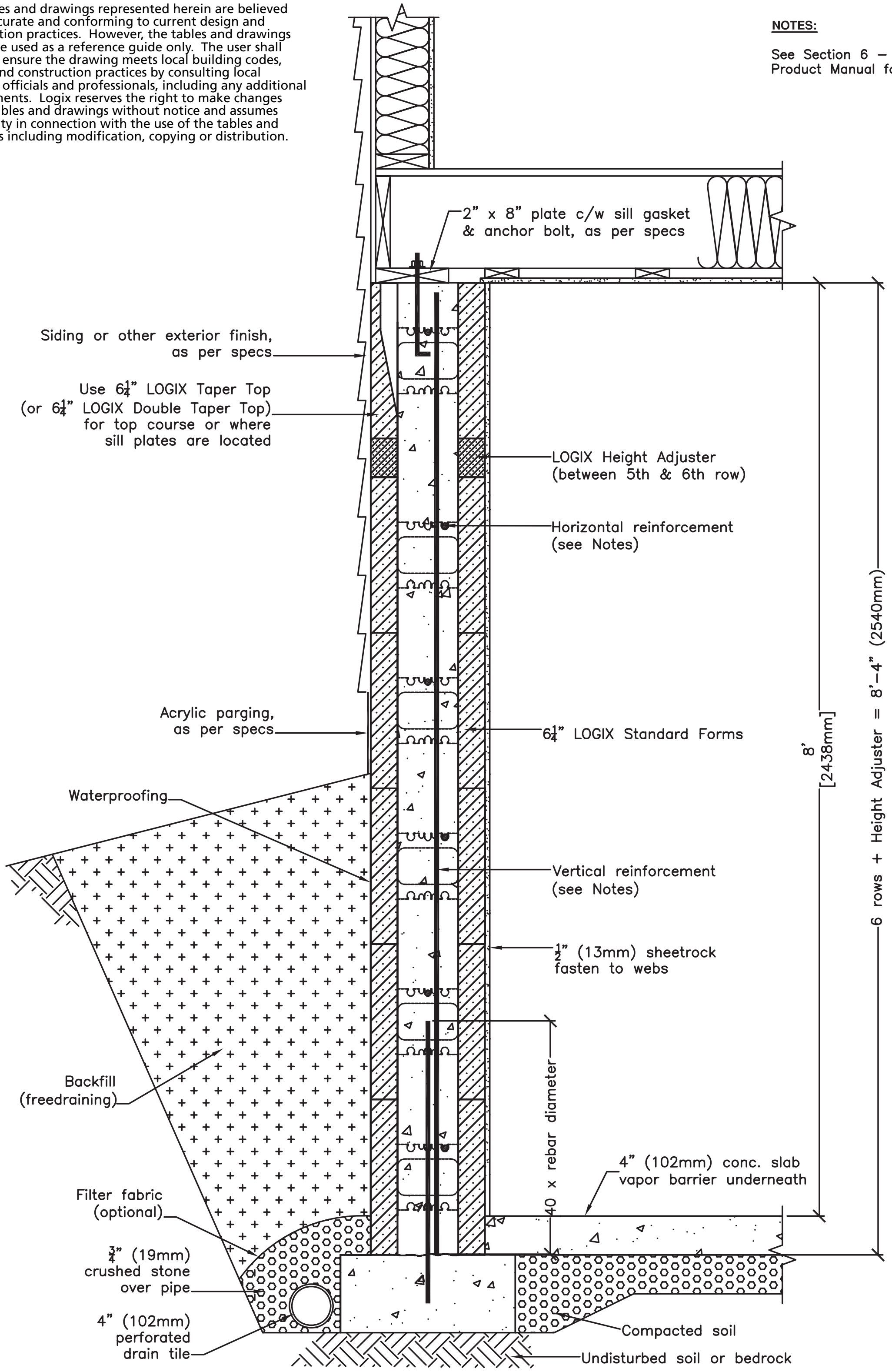
Rev. Sep 23/09

5.3.2 – 8'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



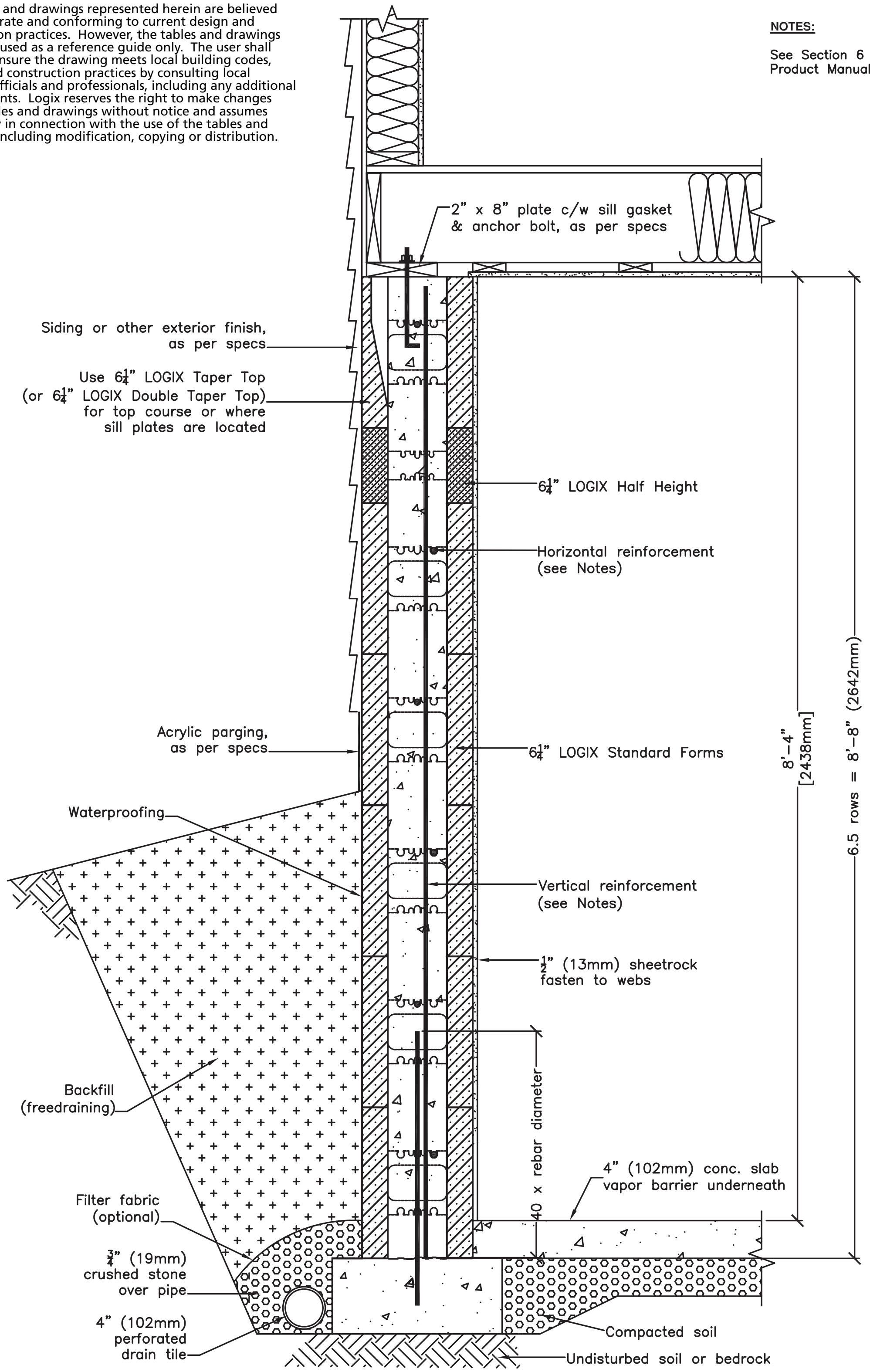
5.3.3 – 8'-8" FOUNDATION

All drawings are downloadable at www.logixicf.com

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.

NOTES:

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

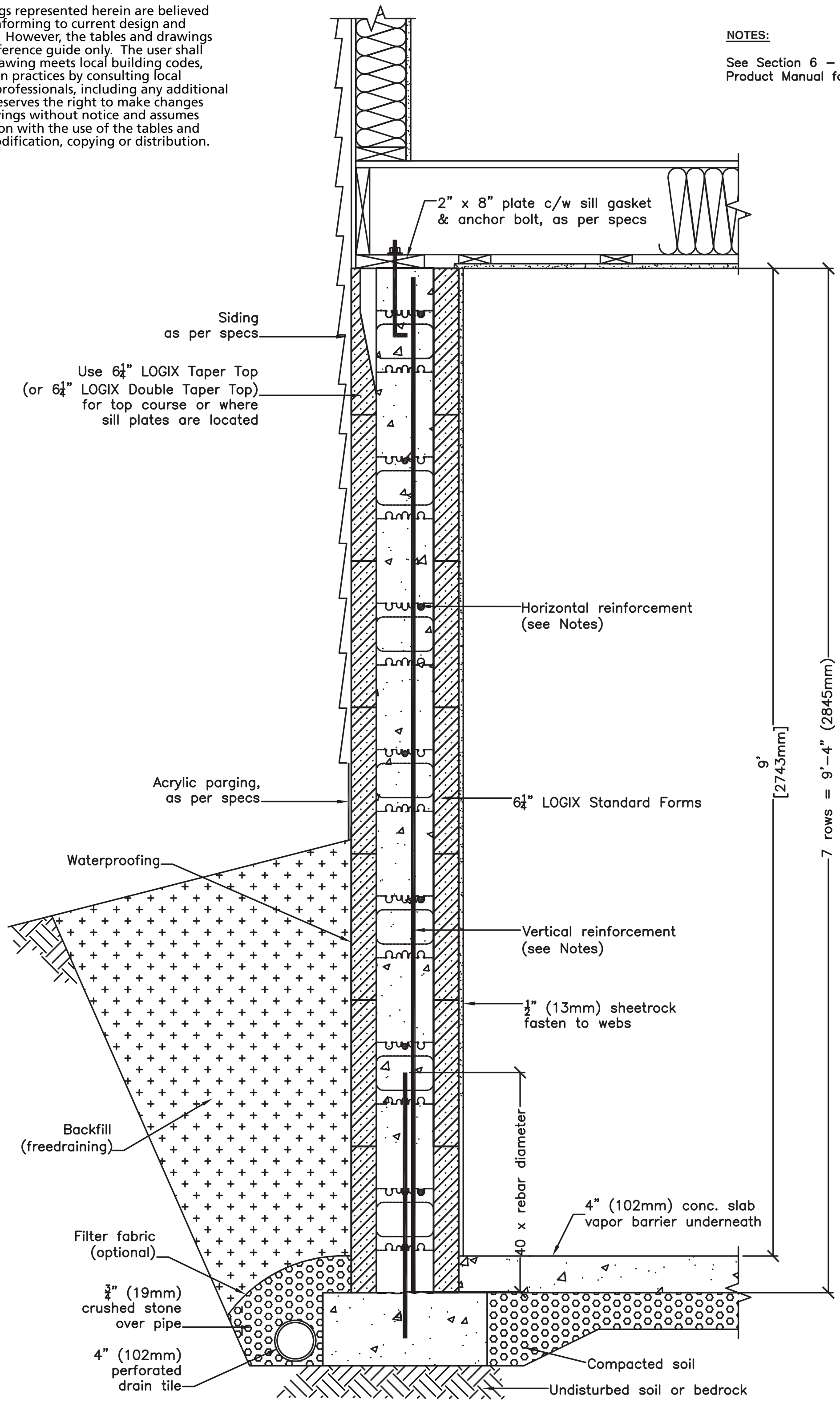


5.3.4 – 9'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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

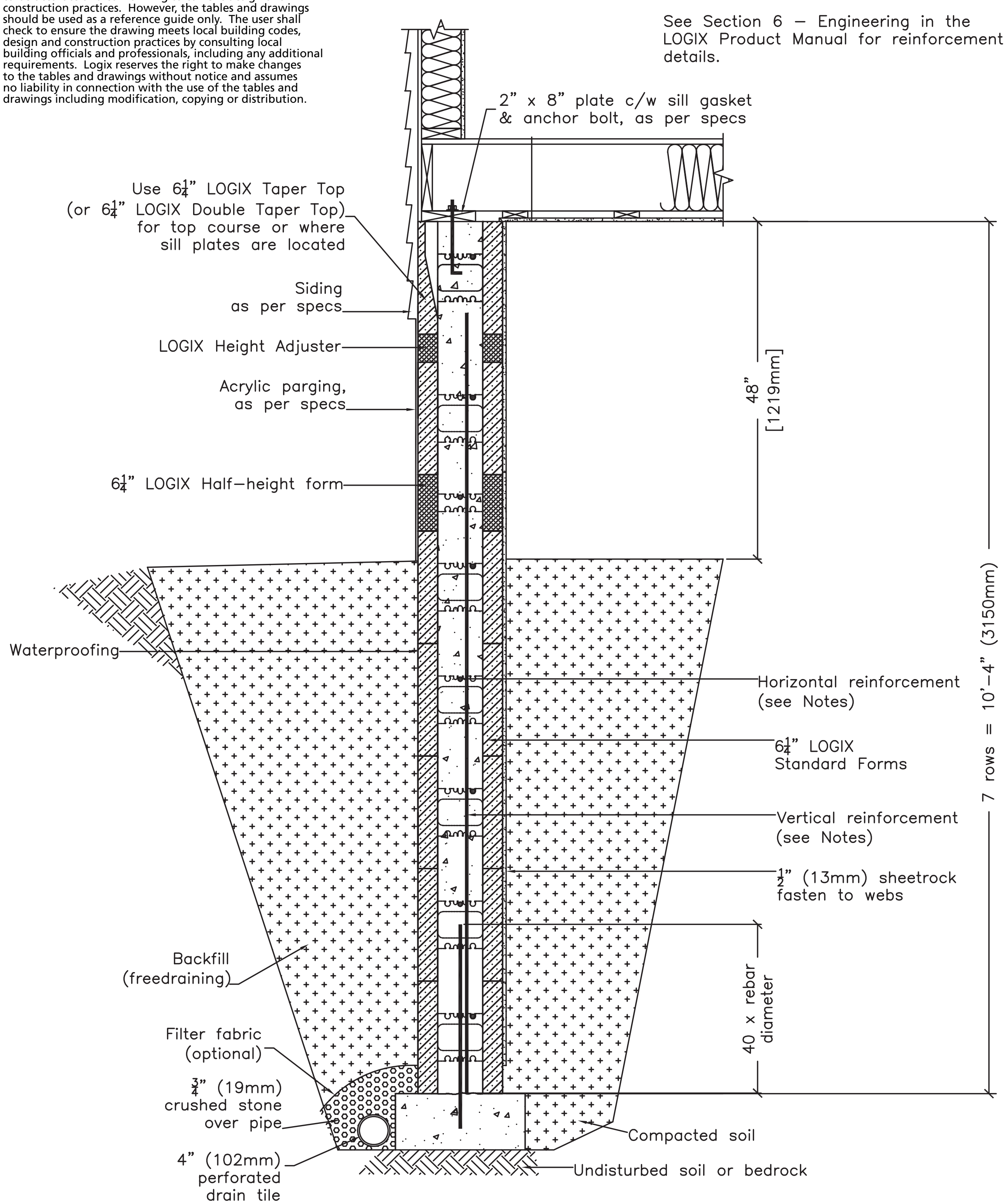


5.3.5 – 10'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

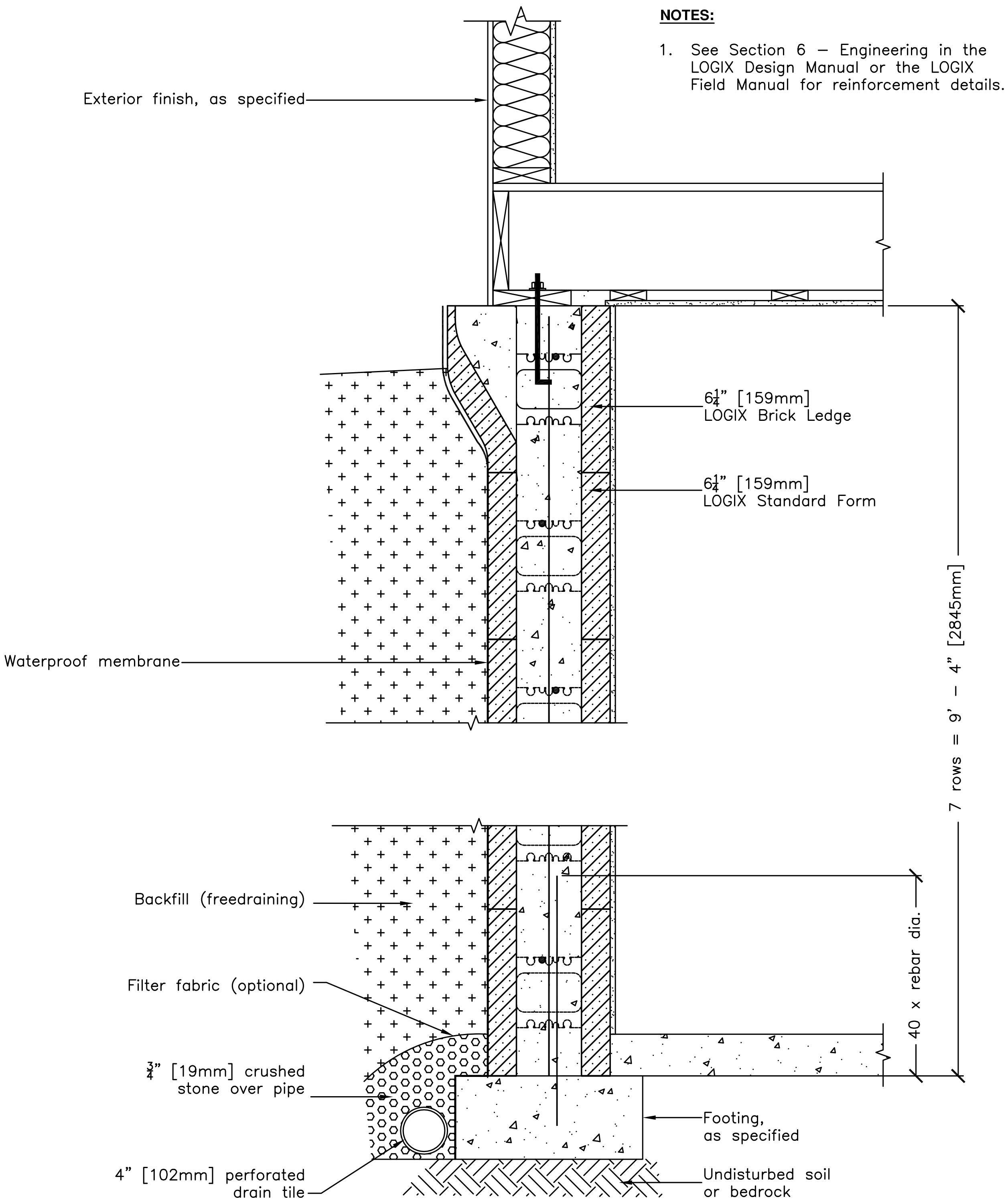
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.



CAD DRAWINGS

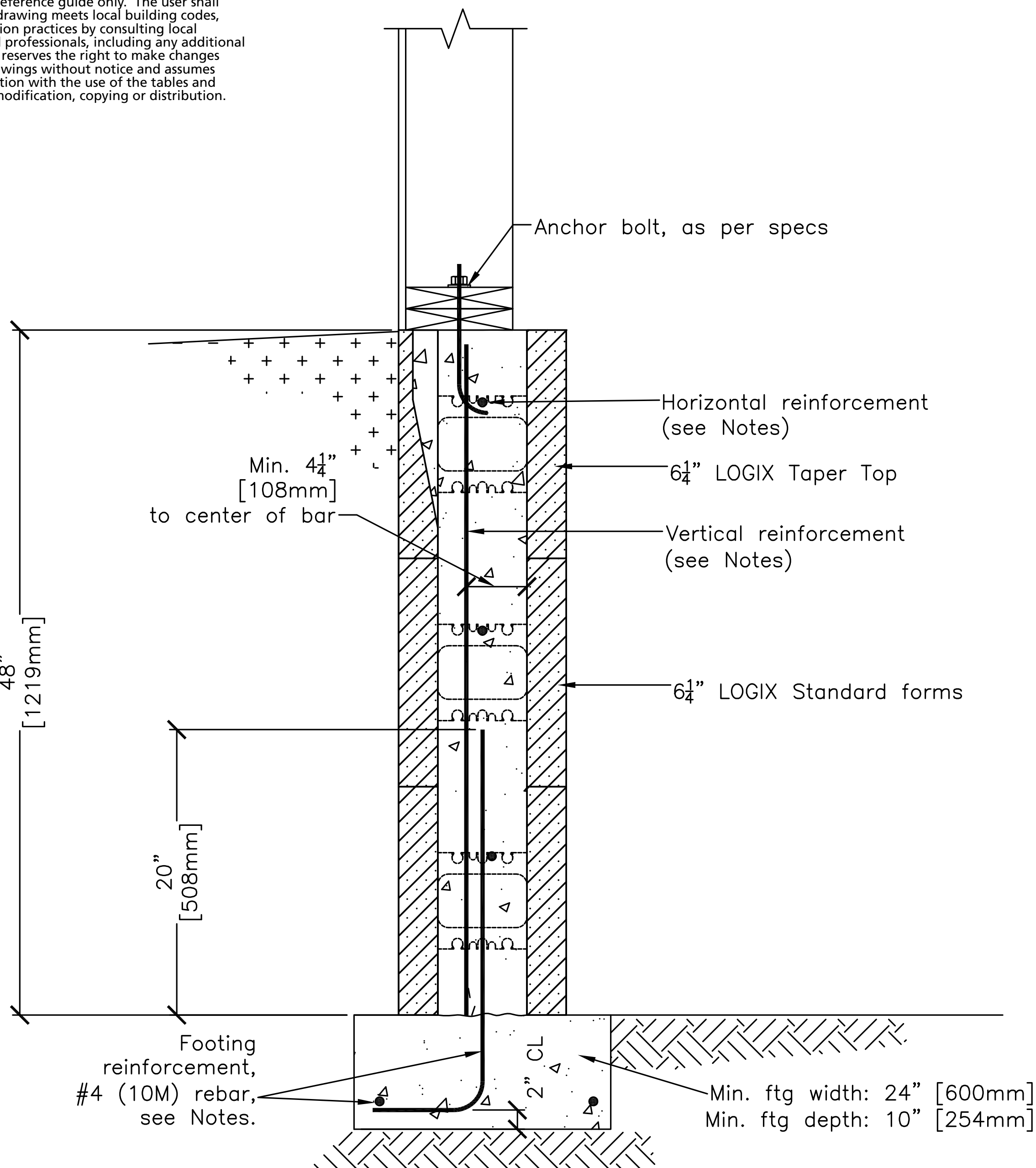
5.3.6 – LOGIX BRICK LEDGE SUPPORTING WOOD FRAME ABOVE GRADE

All drawings are downloadable at www.logixicf.com



5.3.7 – 4' KNEE WALL WITH 6.25" LOGIX FORMS

All drawings are downloadable at www.logixicf.com



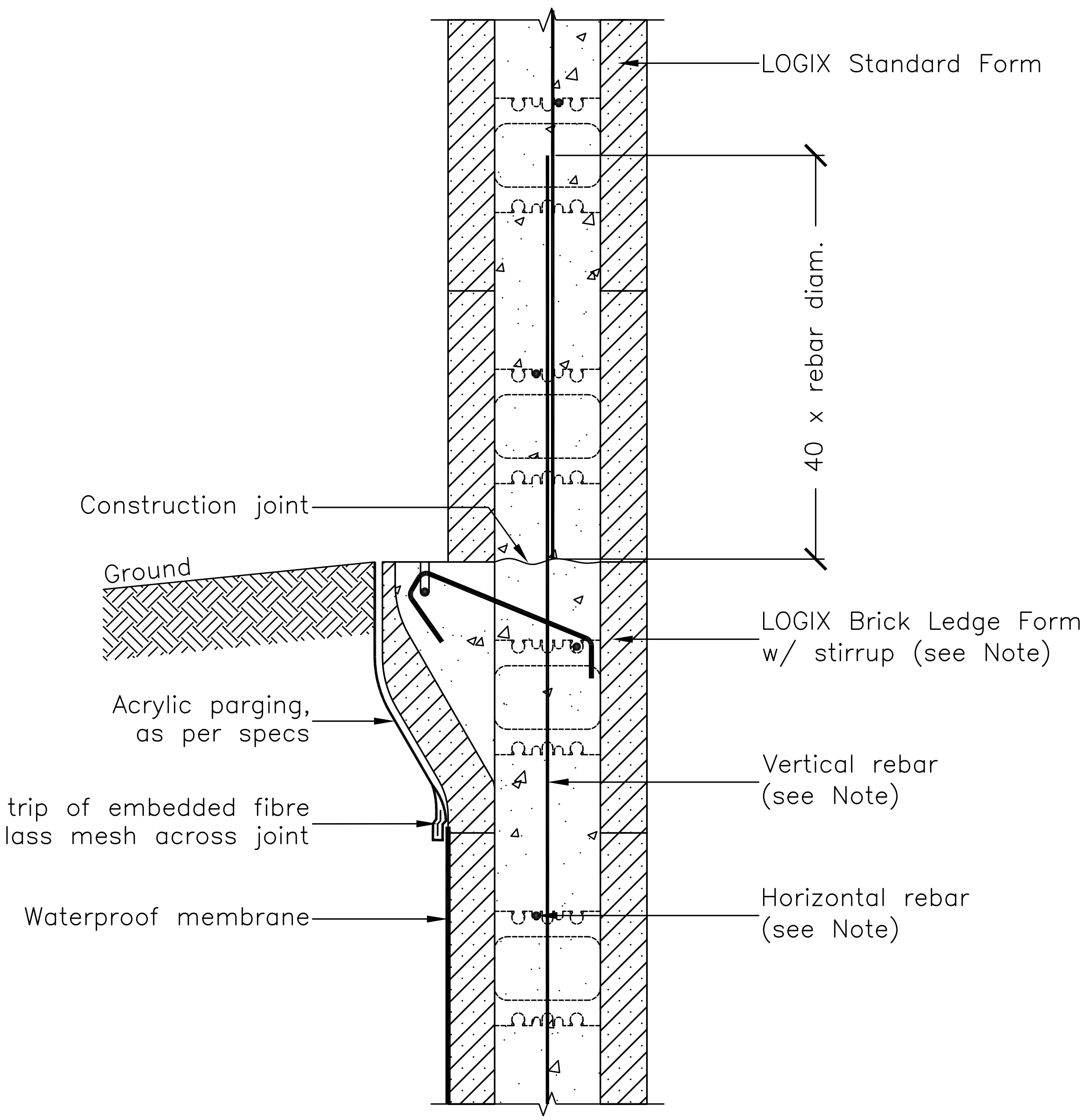
NOTES:

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.

5.3.8 – WATERPROOF DETAIL AROUND BRICK LEDGE (optional)

All drawings are downloadable at www.logixicf.com

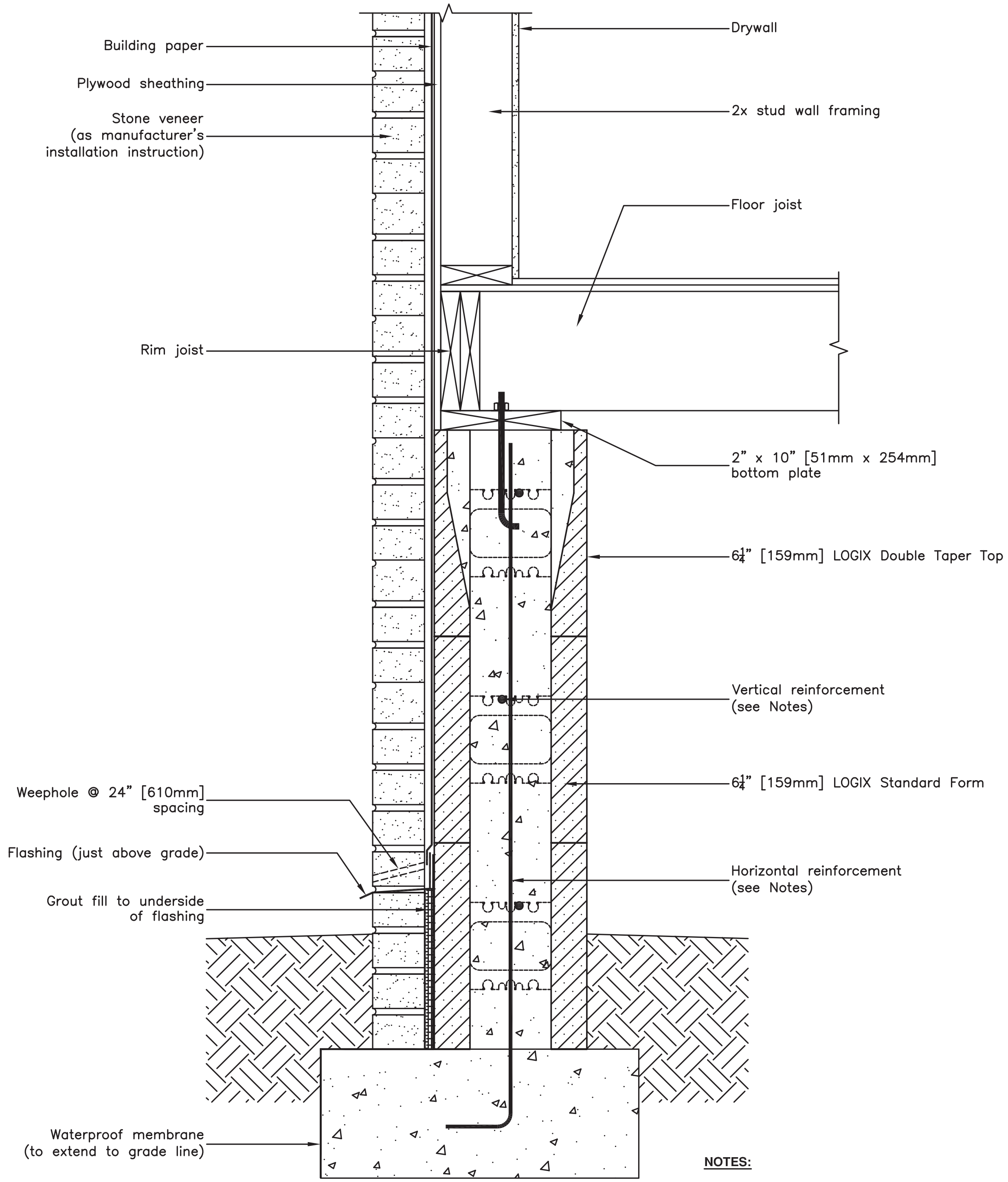


NOTES:

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.

5.3.9 – BELOW GRADE BRICK VENEER

All drawings are downloadable at www.logixicf.com

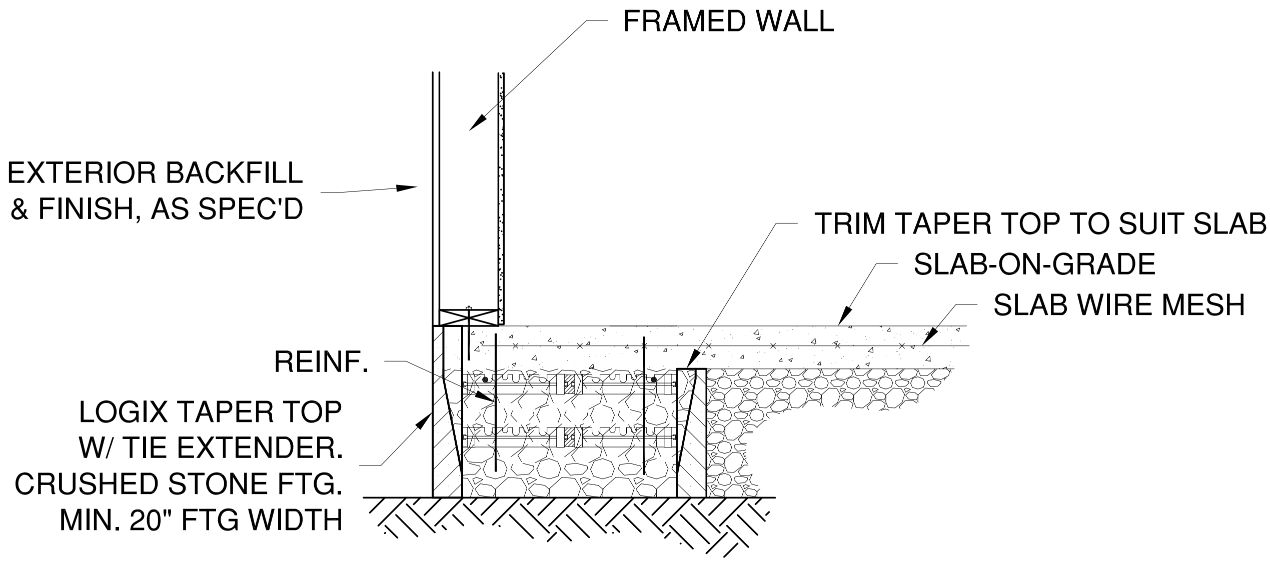


NOTES:

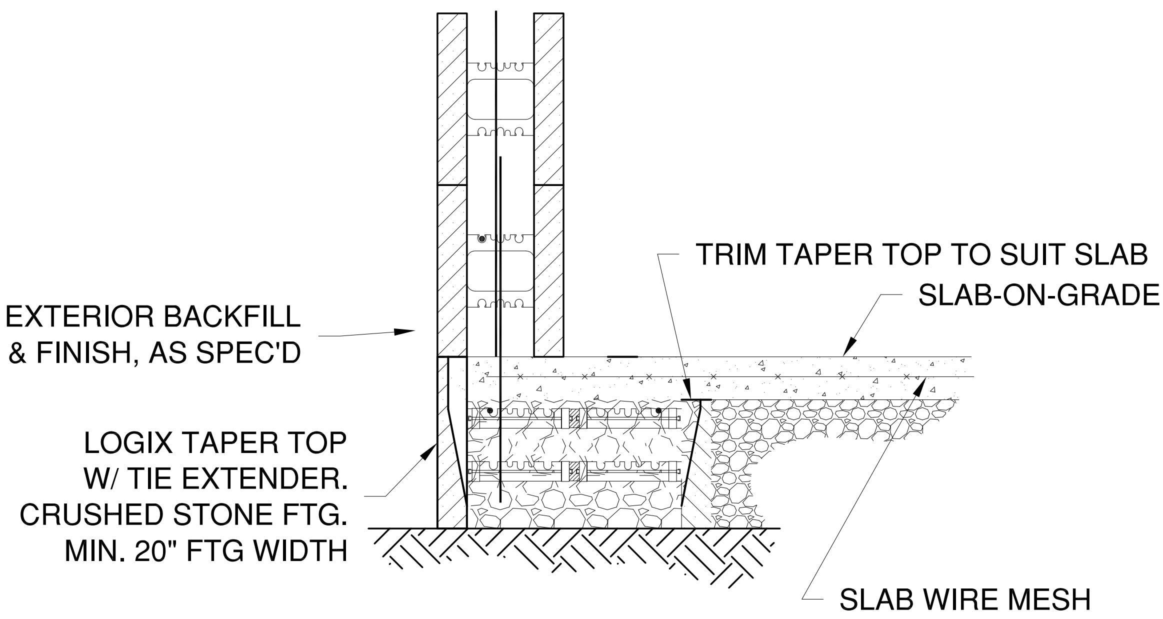
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.10 – ALASKAN SLAB WITH LOGIX XTENDER

All drawings are downloadable at www.logixicf.com



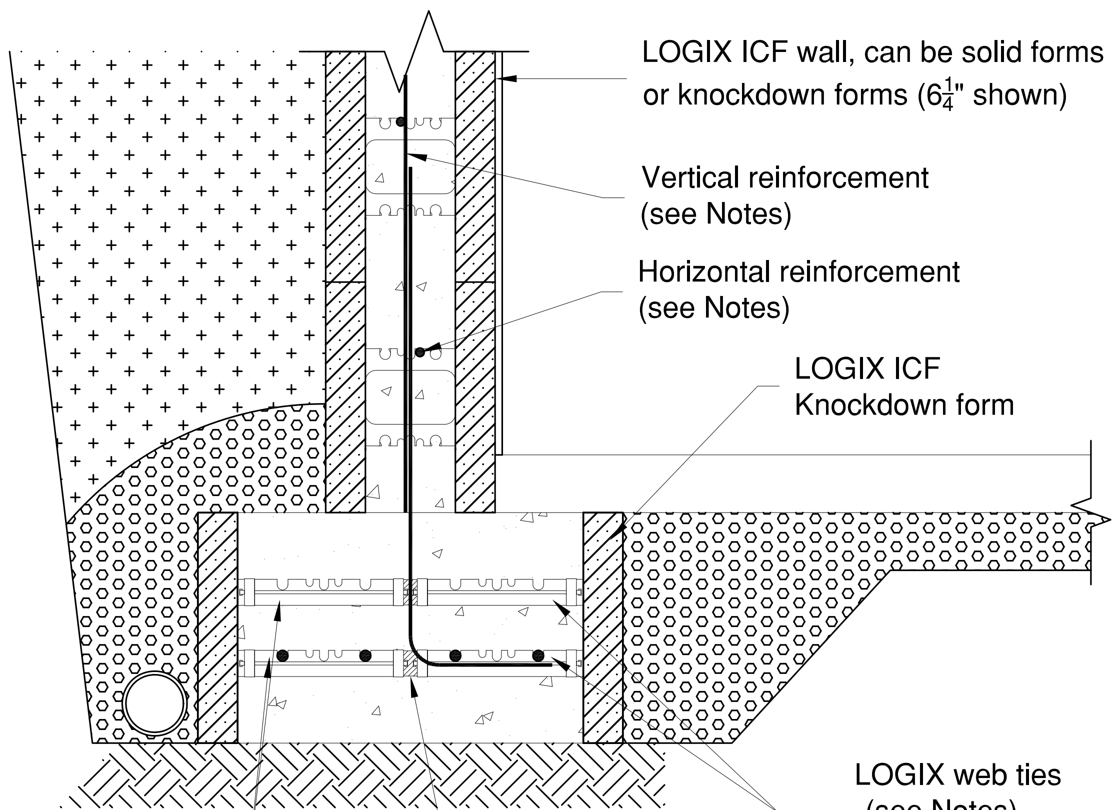
ALASKAN SLAB DETAIL
WITH FRAMED WALL



ALASKAN SLAB DETAIL
WITH CONTINUOUS ICF

5.3.11 – LOGIX FOOTING WITH XTENDER

All drawings are downloadable at www.logixicf.com



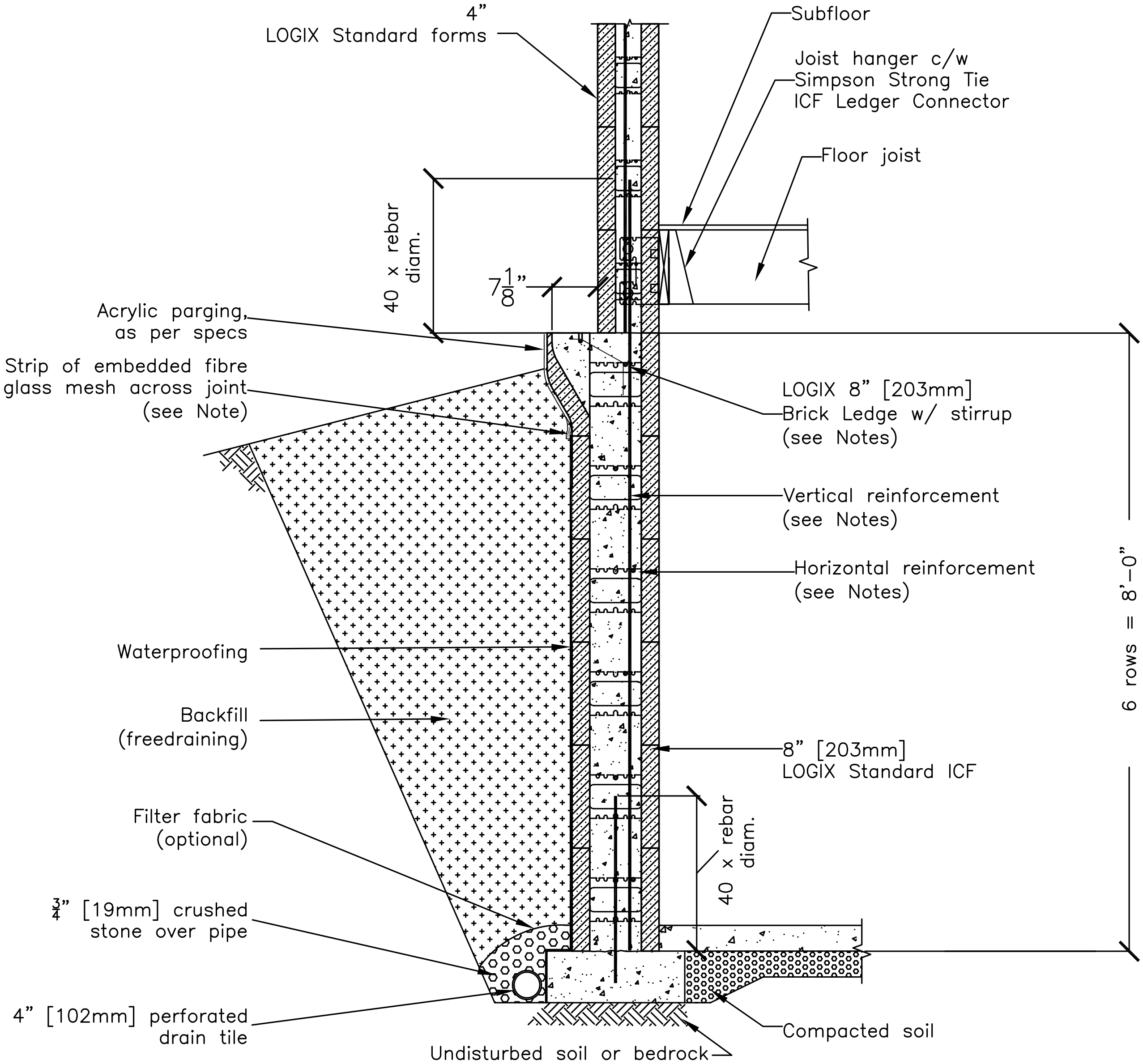
NOTES:

1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For more information on LOGIX Tie Extenders, see Drawing 5.1.22.

5.3.12 – 8" TO 4" TRANSITION

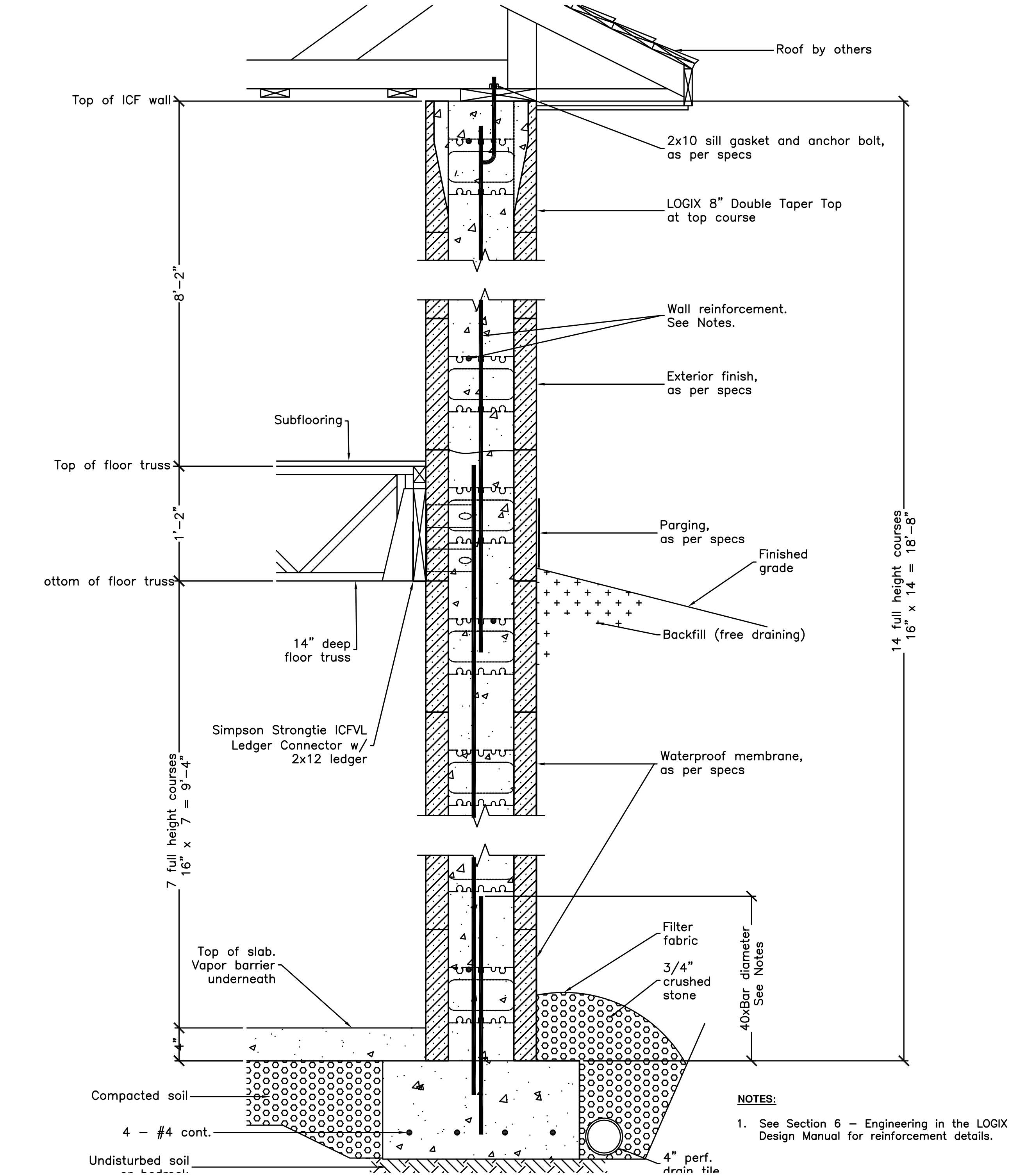
All drawings are downloadable at www.logixicf.com

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.



5.3.13 – 8” TO 8” TRANSITION

All drawings are downloadable at www.logixicf.com

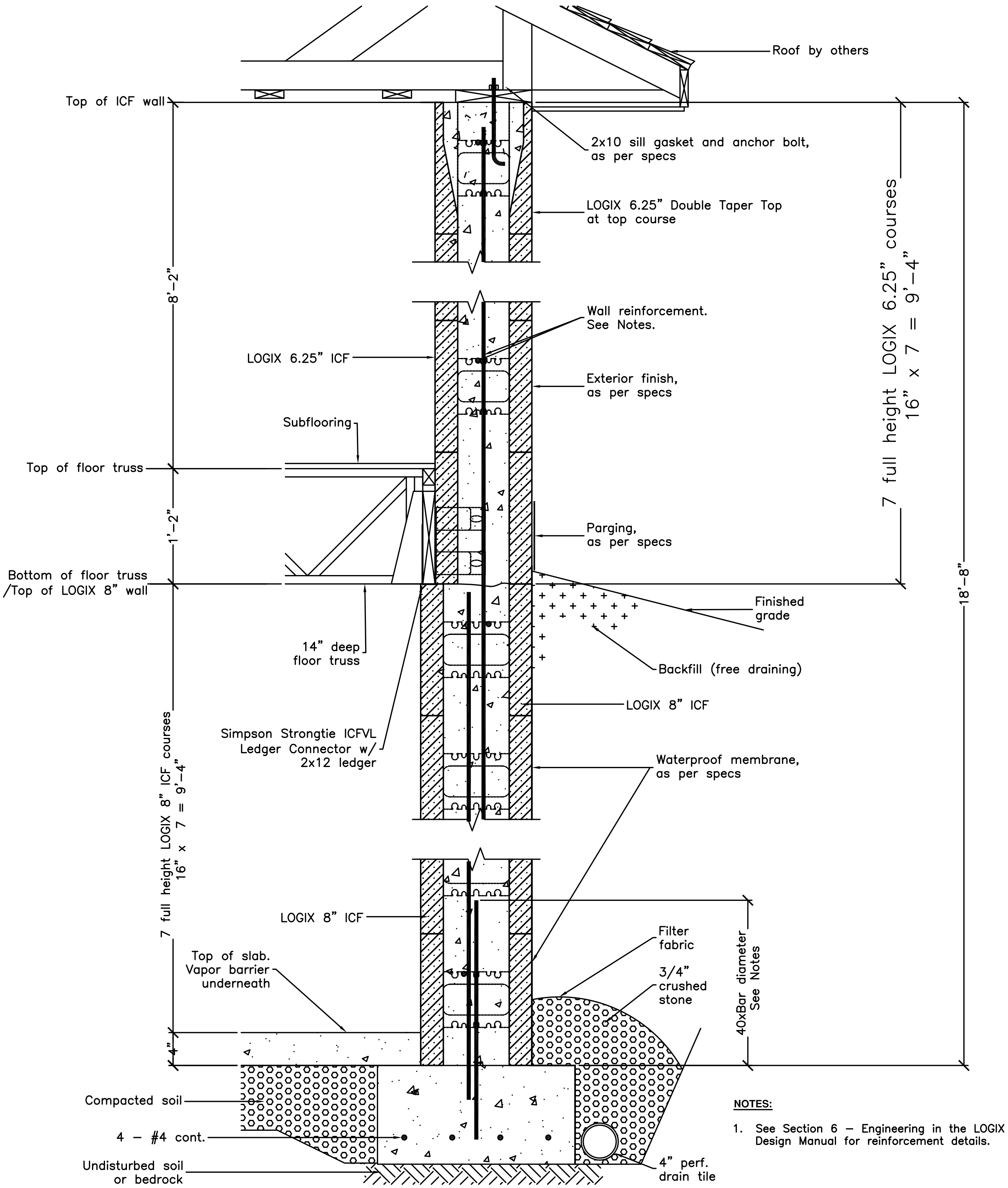


NOTES:

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

5.3.14 – 8" TO 6.25" TRANSITION

All drawings are downloadable at www.logixicf.com



NOTES:

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

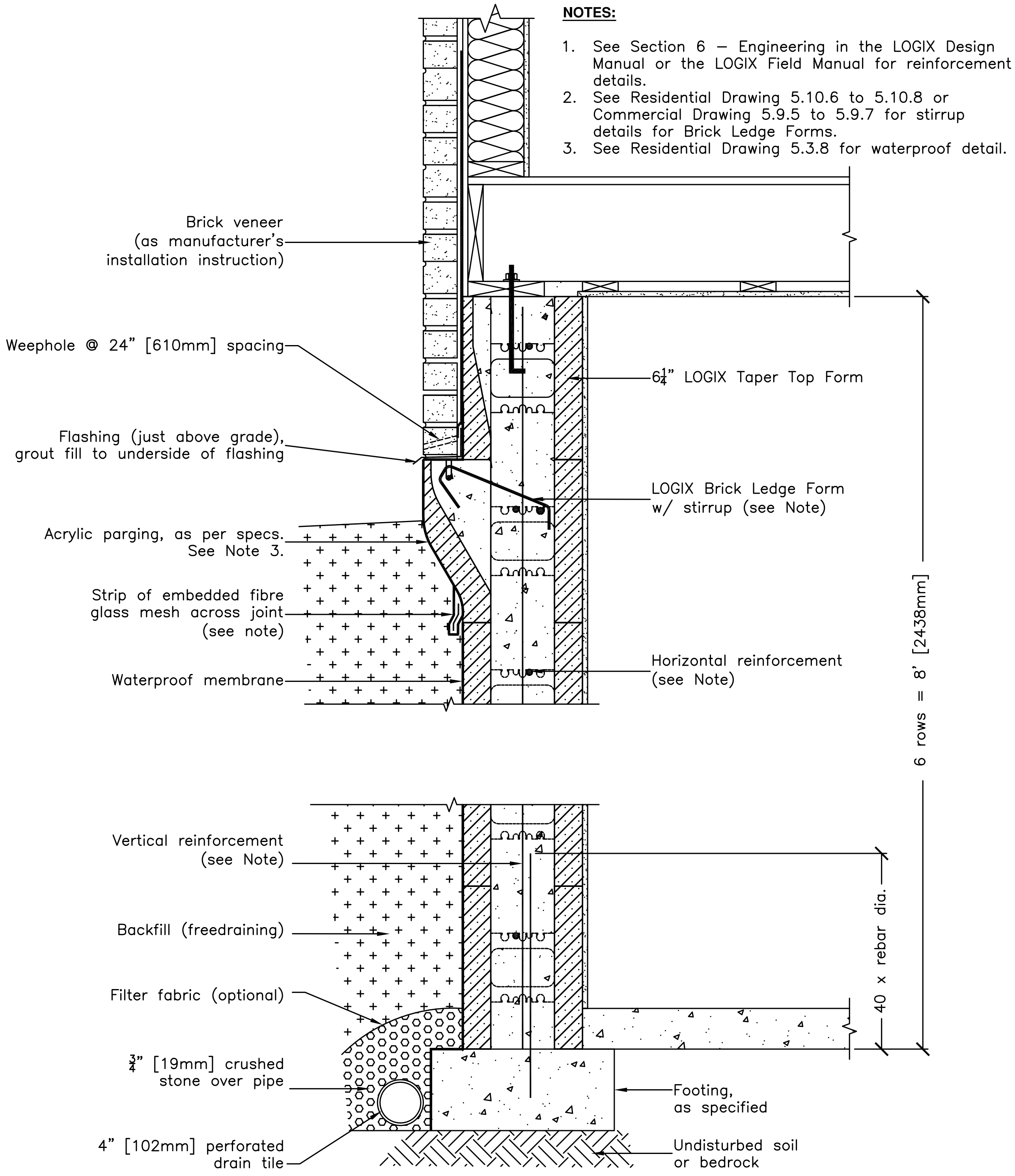
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction 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.

5.3.15 – 8' FOUNDATION WALL WITH BRICK LEDGE

All drawings are downloadable at www.logixicf.com

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.

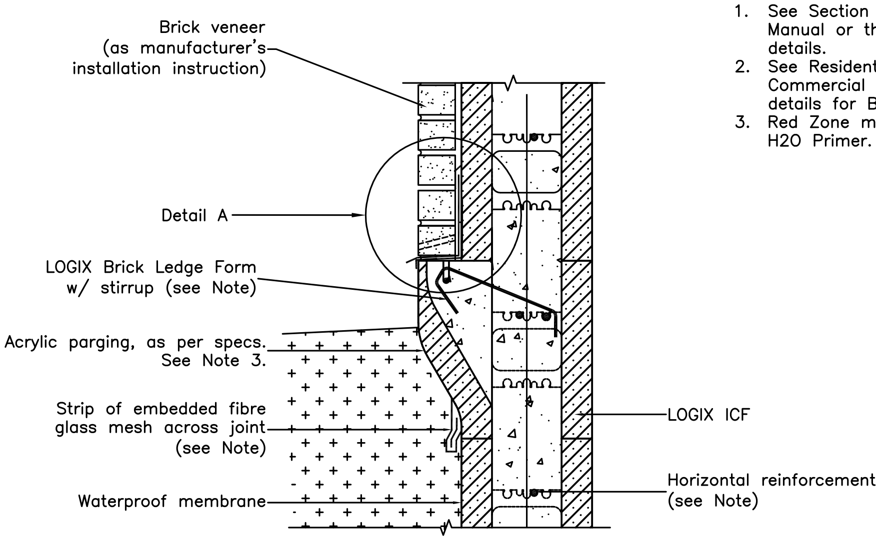


5.3.16 – BRICK LEDGE FLASHING DETAILS

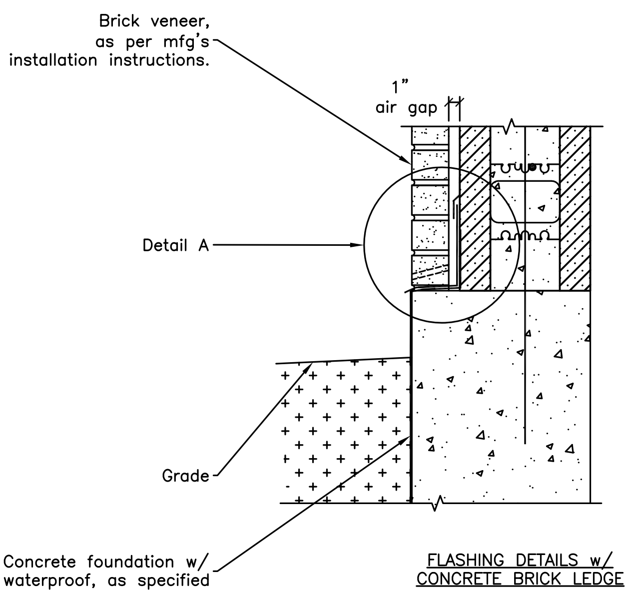
All drawings are downloadable at www.logixicf.com

NOTES:

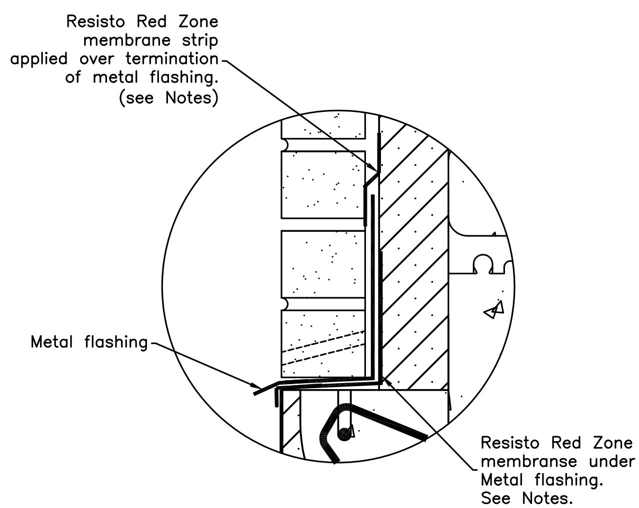
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. Red Zone membrane must be adhered with Resisto H2O Primer.



FLASHING DETAILS w/ LOGIX BRICK LEDGE



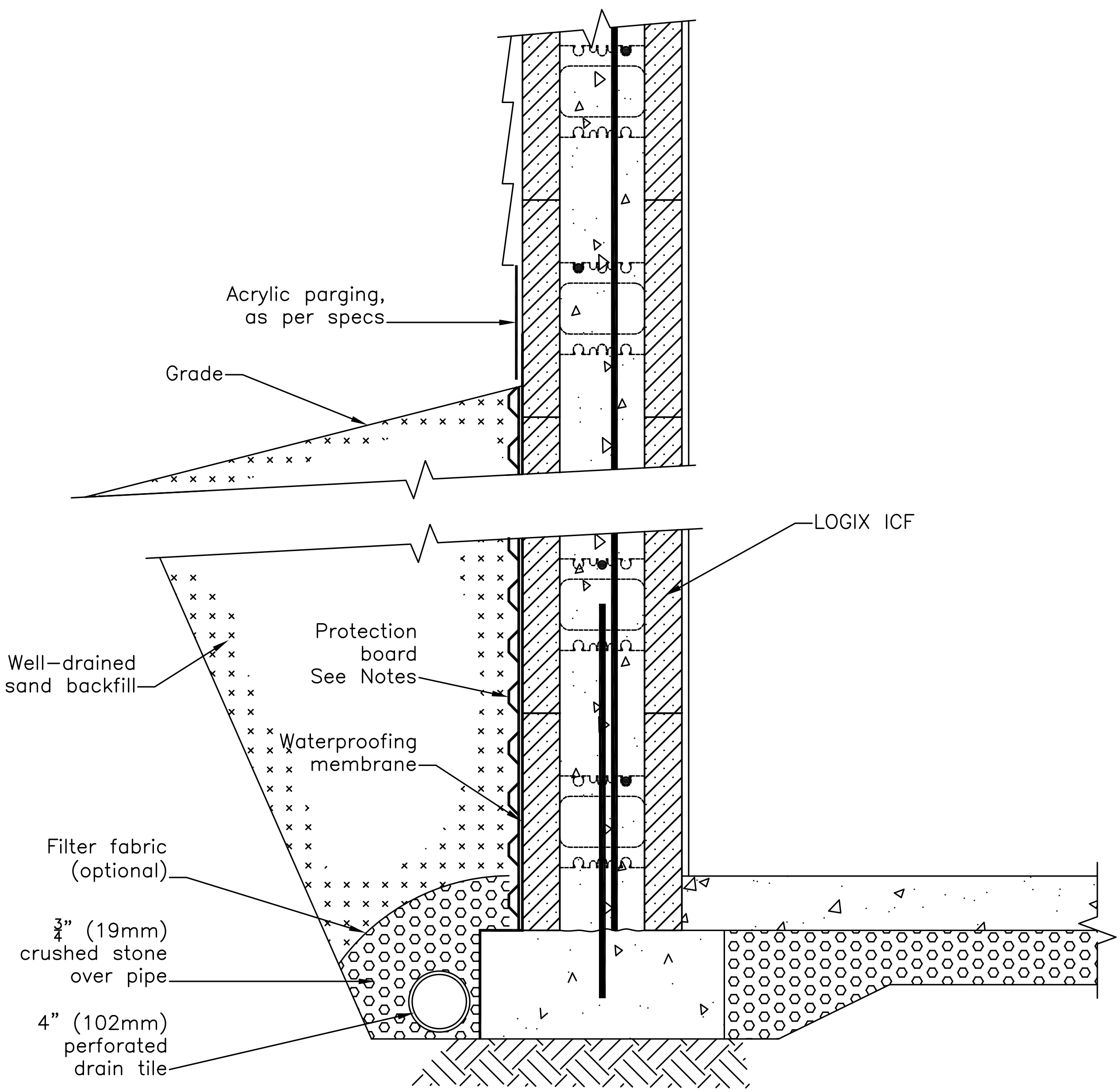
FLASHING DETAILS w/ CONCRETE BRICK LEDGE



DETAIL A: TYPICAL WATERPROOFING DETAIL

5.3.17 – WATERPROOF MEMBRANE PROTECTION

All drawings are downloadable at www.logixicf.com



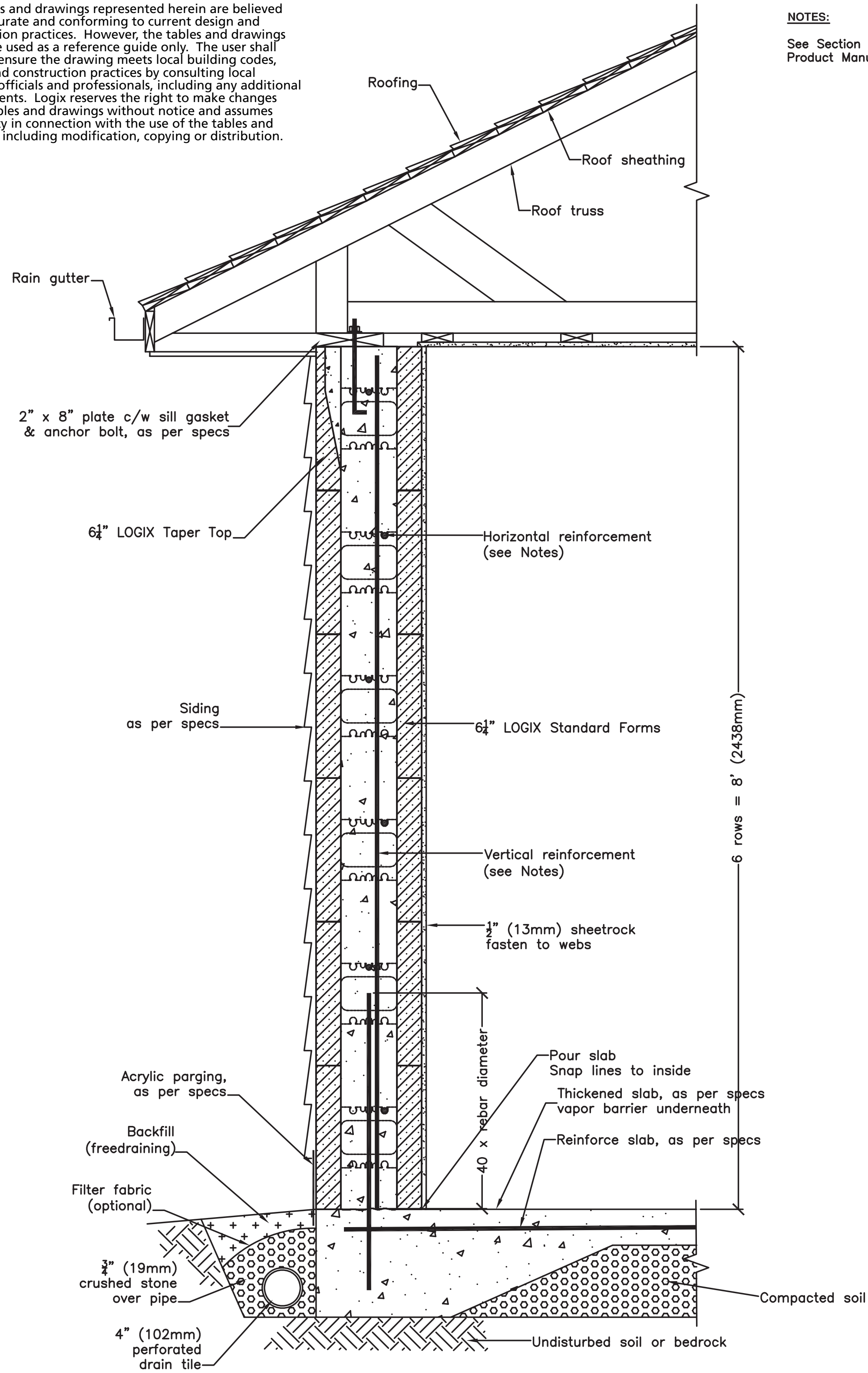
NOTES:
Protection board not required if backfill material consists only of well–drained sand. Backfill material with well–drained gravels or clays require a protection board against damp–proof membrane.

5.4 – SLAB CONSTRUCTION
5.4.1 – 8' SLAB ON GRADE

All drawings are downloadable at www.logixicf.com

NOTES:

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



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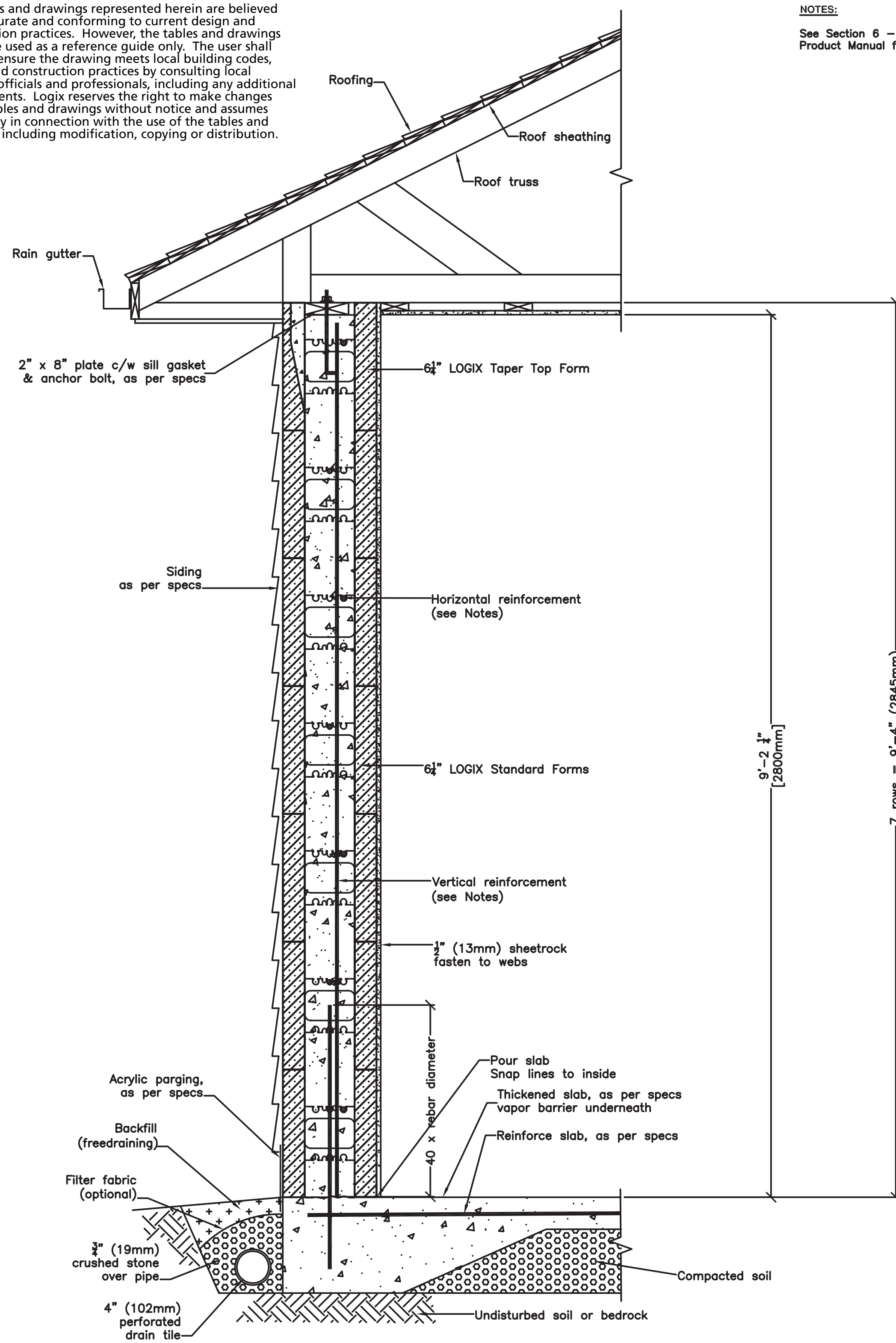
Rev. Sep 23/09

5.4.2 – 9'-4" SLAB ON GRADE

All drawings are downloadable at www.logixicf.com

NOTES:

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



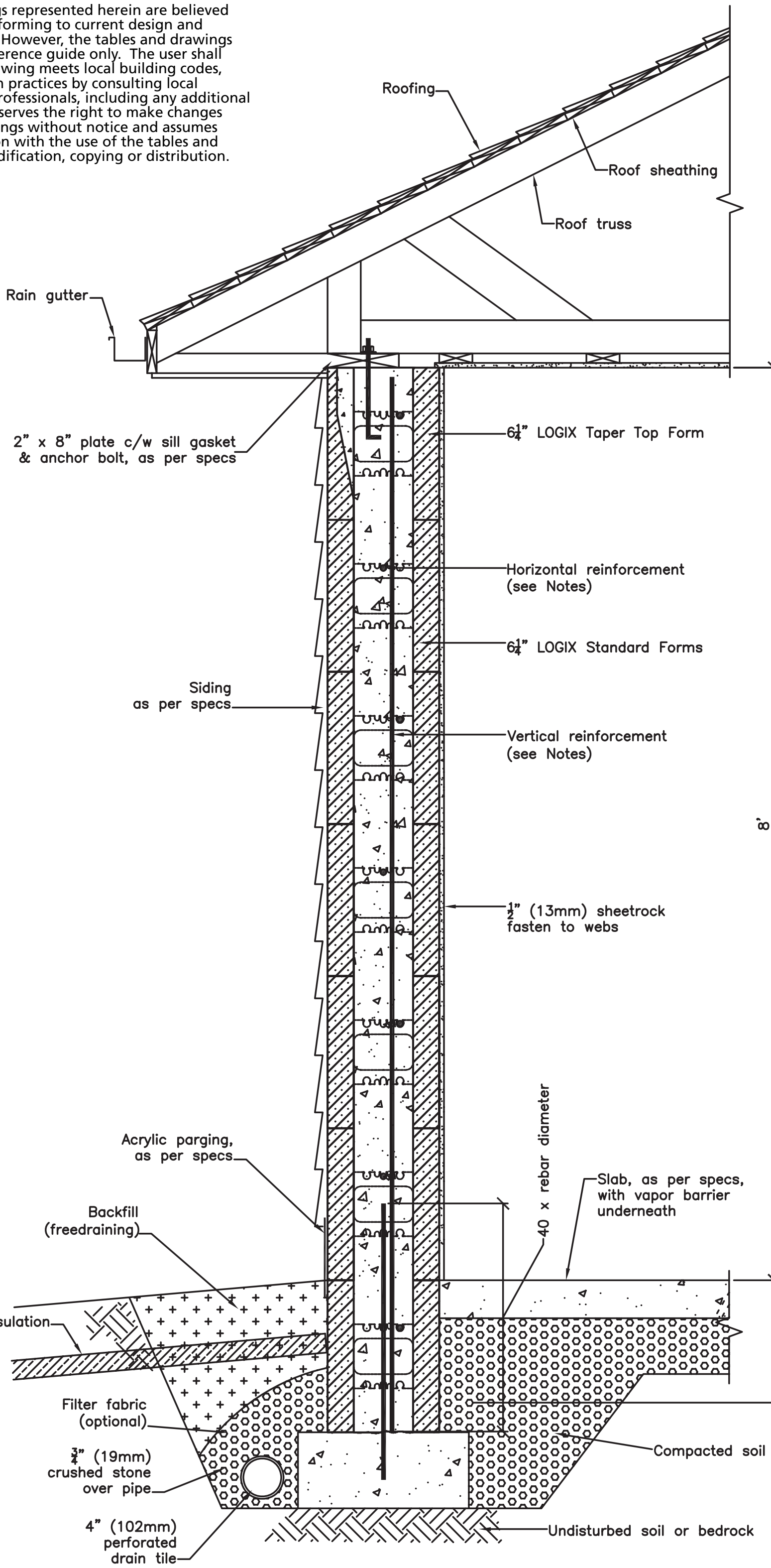
5.4.3 – 8' SHALLOW FROST WALL

All drawings are downloadable at www.logixicf.com

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.

NOTES:

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



C A D D R A W I N G S

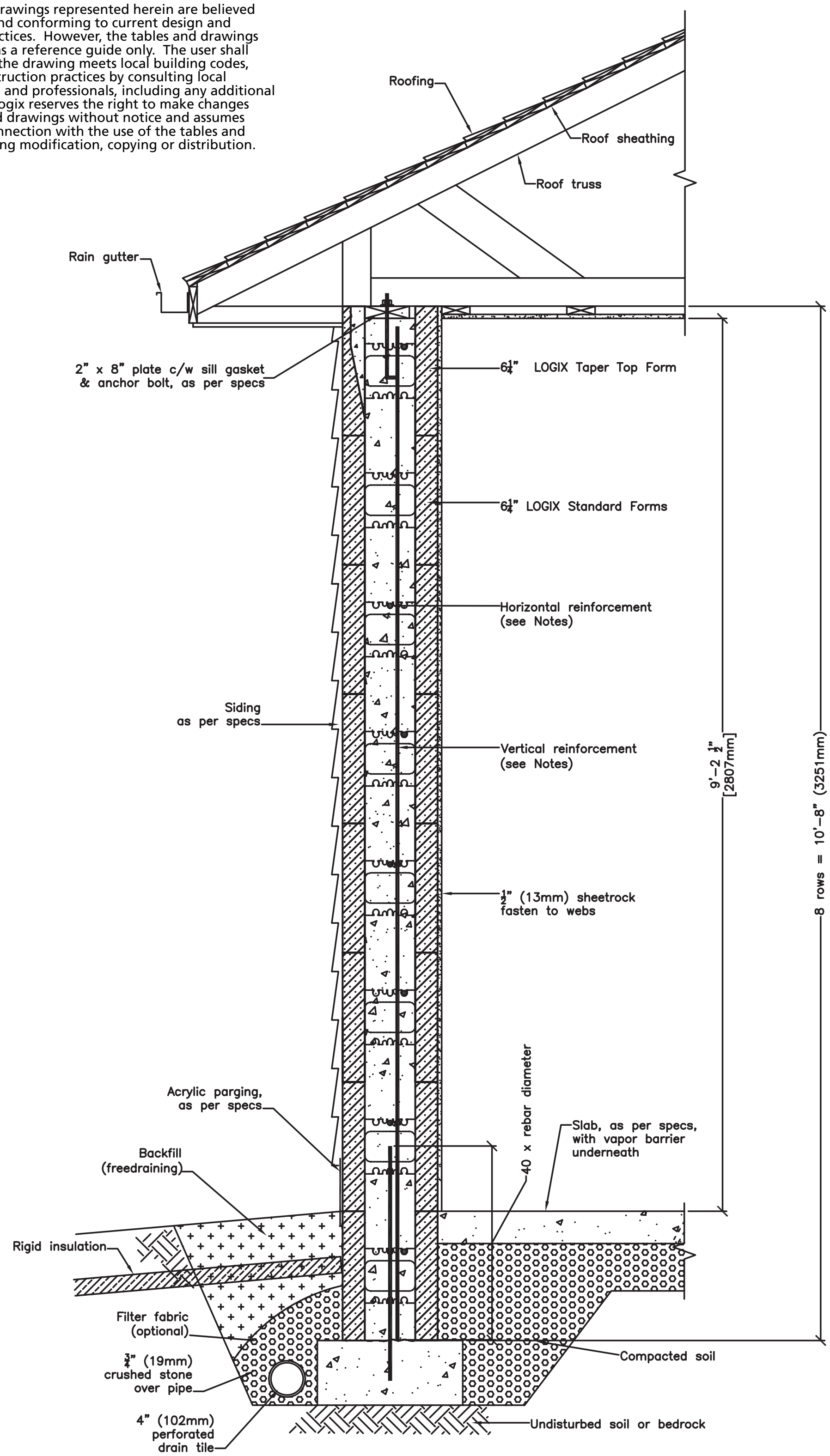
5.4.4 – 9' SHALLOW FROST WALL

All drawings are downloadable at www.logixicf.com

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.

NOTES:

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



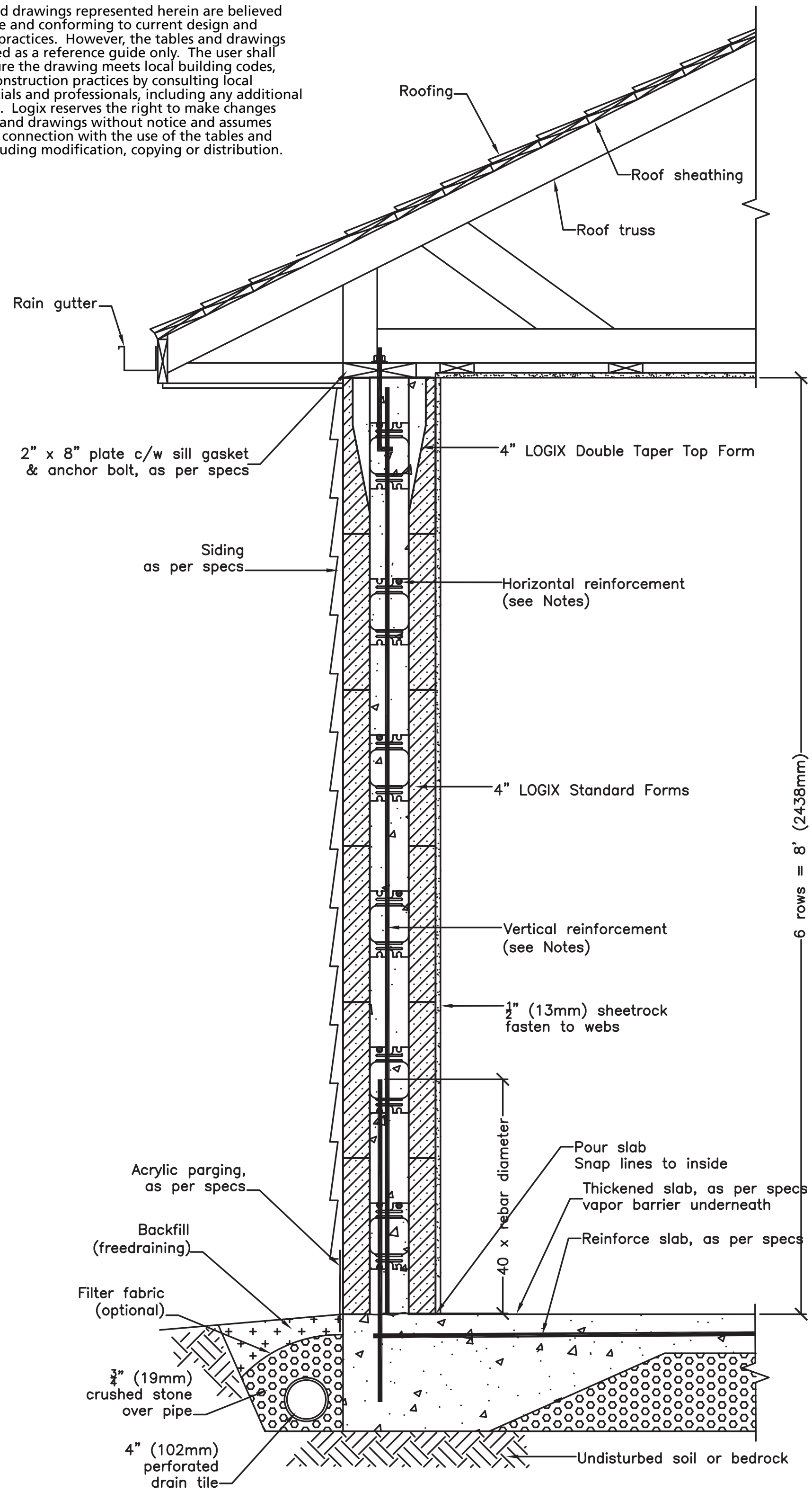
C A D D R A W I N G S

5.4.5 – 8' WALL SLAB ON GRADE WITH DOUBLE TAPER TOP

All drawings are downloadable at www.logixicf.com

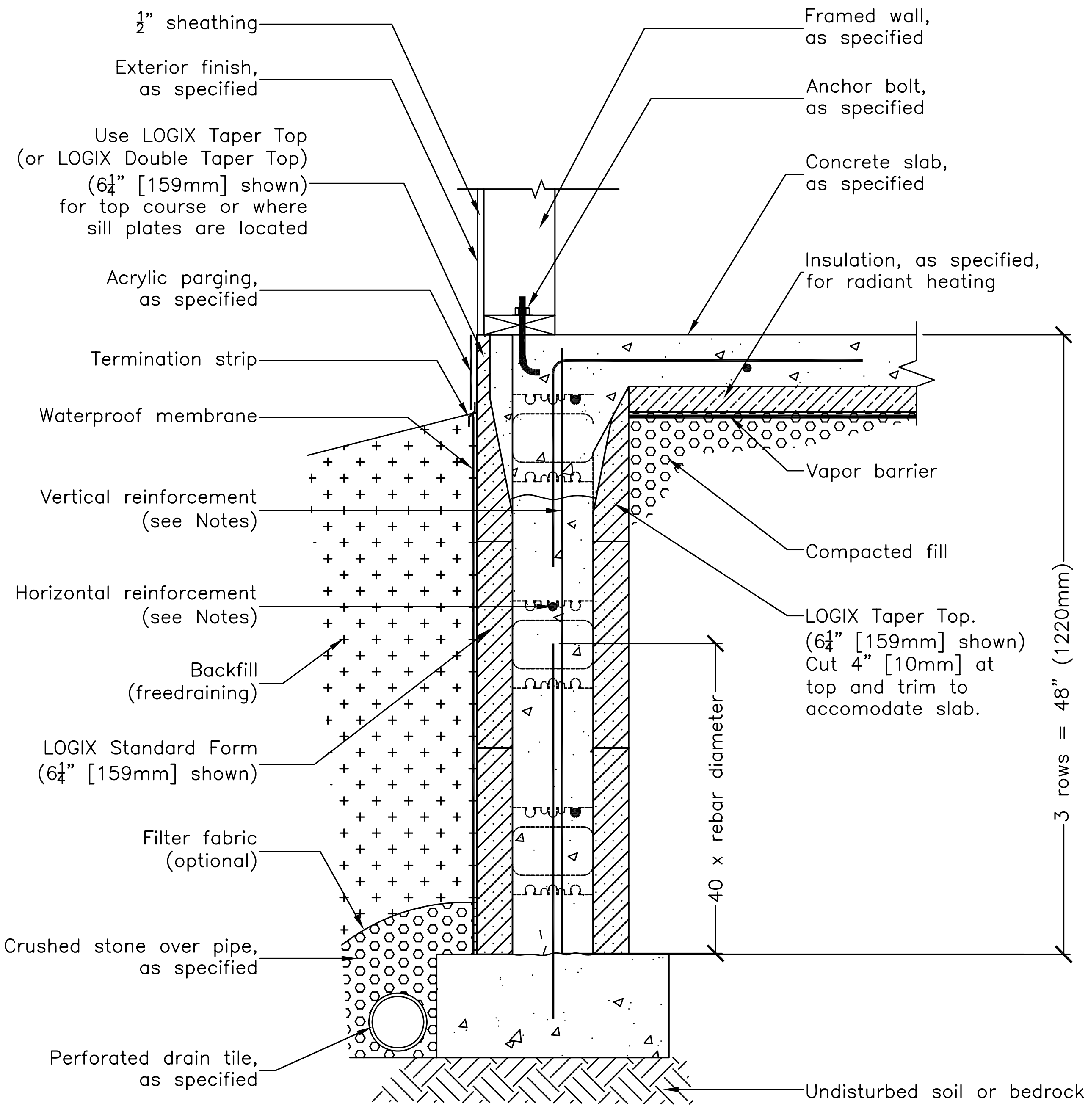
NOTES:

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



5.4.6 – SLAB ON GRADE WITH RADIANT HEATING

All drawings are downloadable at www.logixicf.com

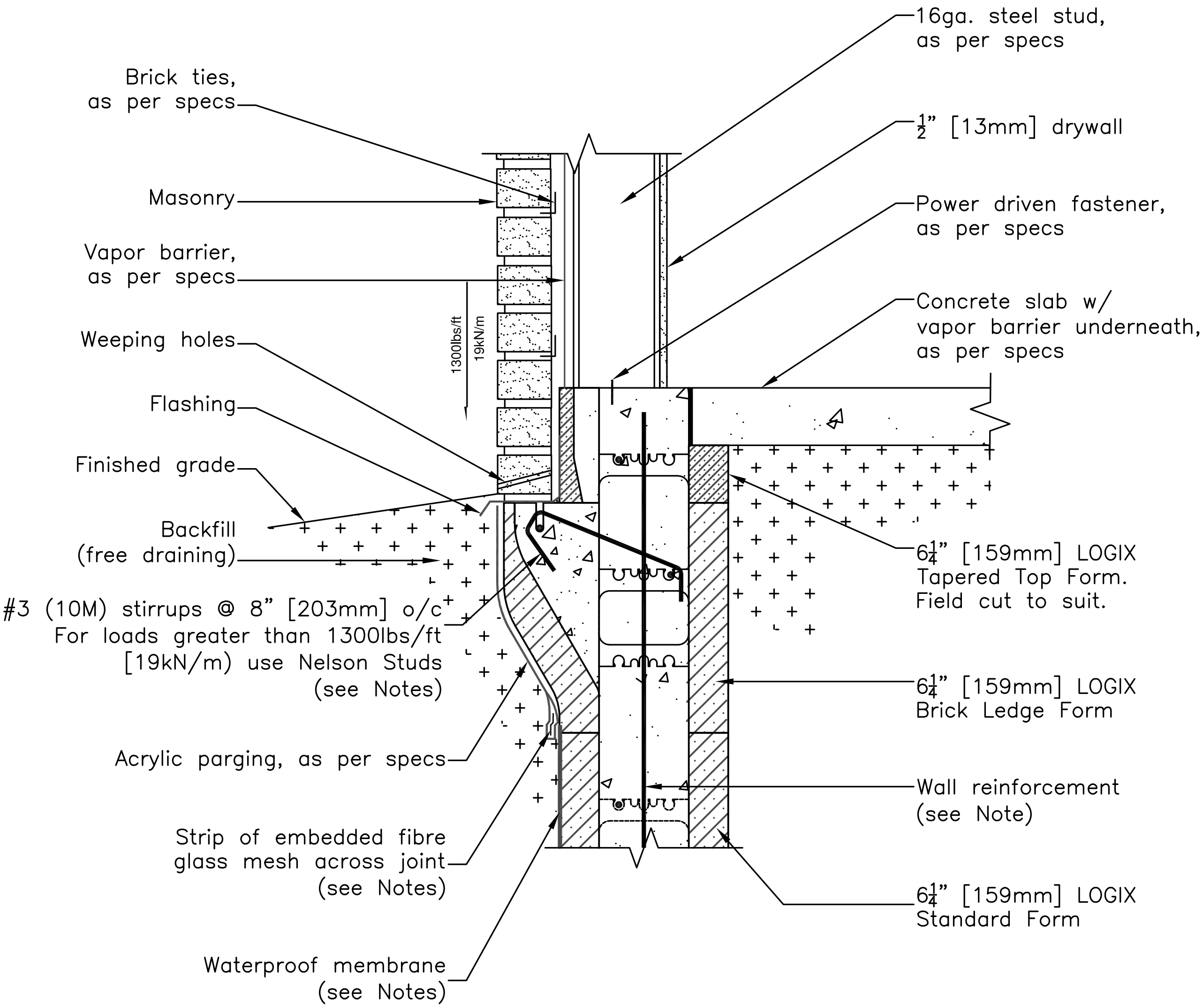


NOTES:

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

5.4.7 – SLAB ON GRADE WITH BRICK LEDGE & MODIFIED TAPER TOP

All drawings are downloadable at www.logixicf.com

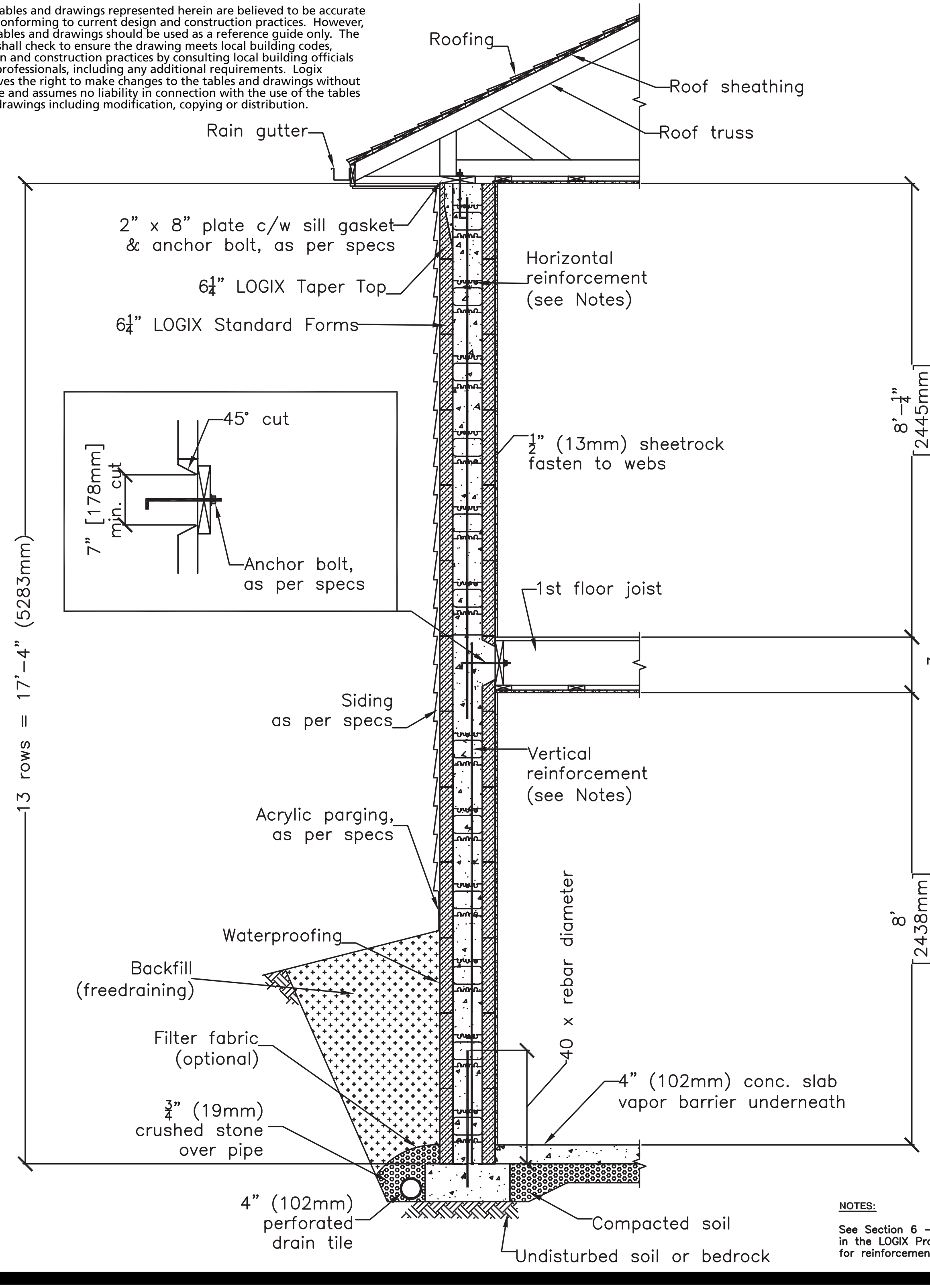


NOTES:

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.

5.5 – ONE STOREY CONSTRUCTION
5.5.1 – 8' FOUNDATION WALL/8' MAIN FLOOR

All drawings are downloadable at www.logixicf.com



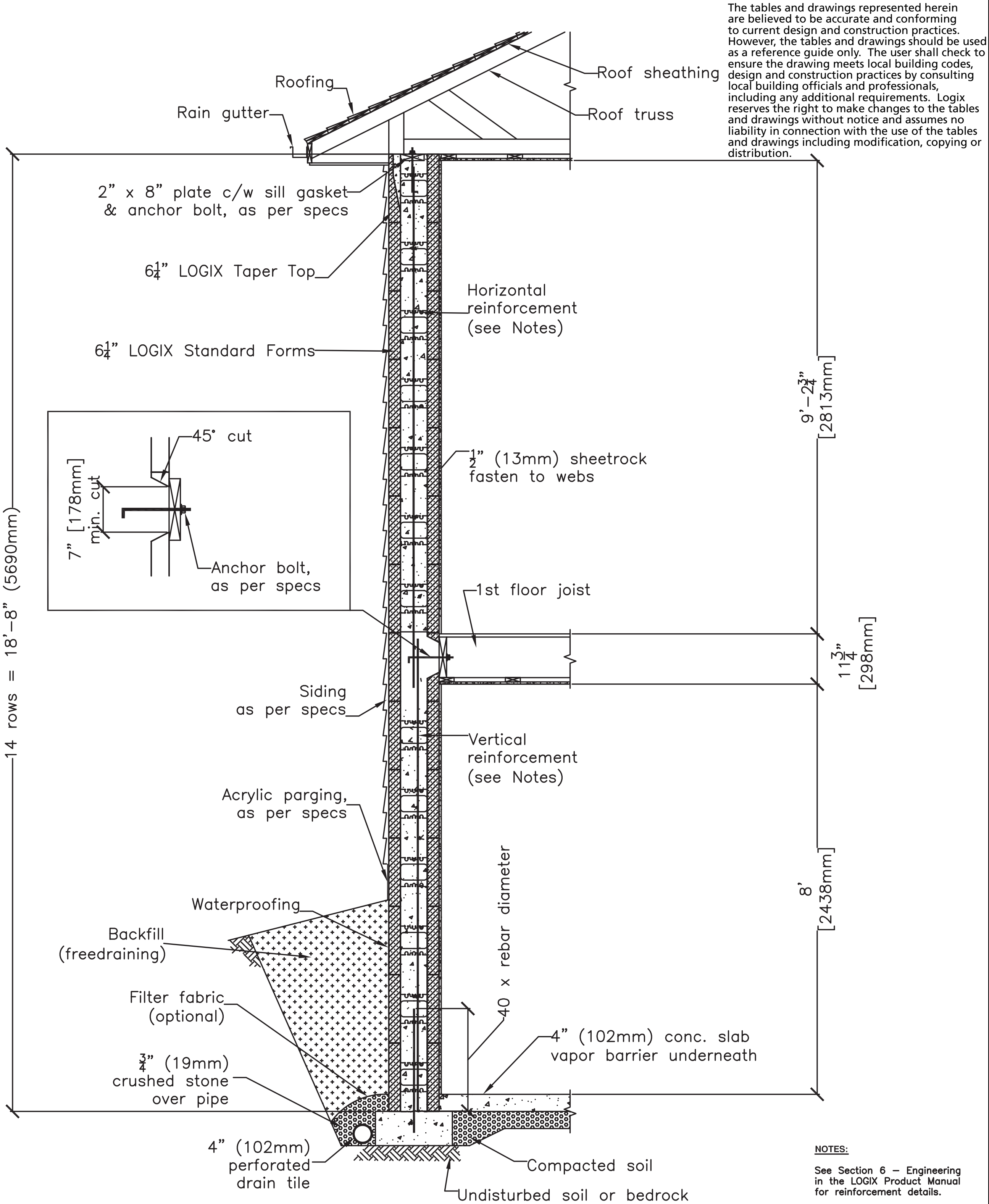
NOTES:

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

C A D D R A W I N G S

5.5.2 – 8’ FOUNDATION WALL/9’ MAIN FLOOR

All drawings are downloadable at www.logixicf.com



NOTES:

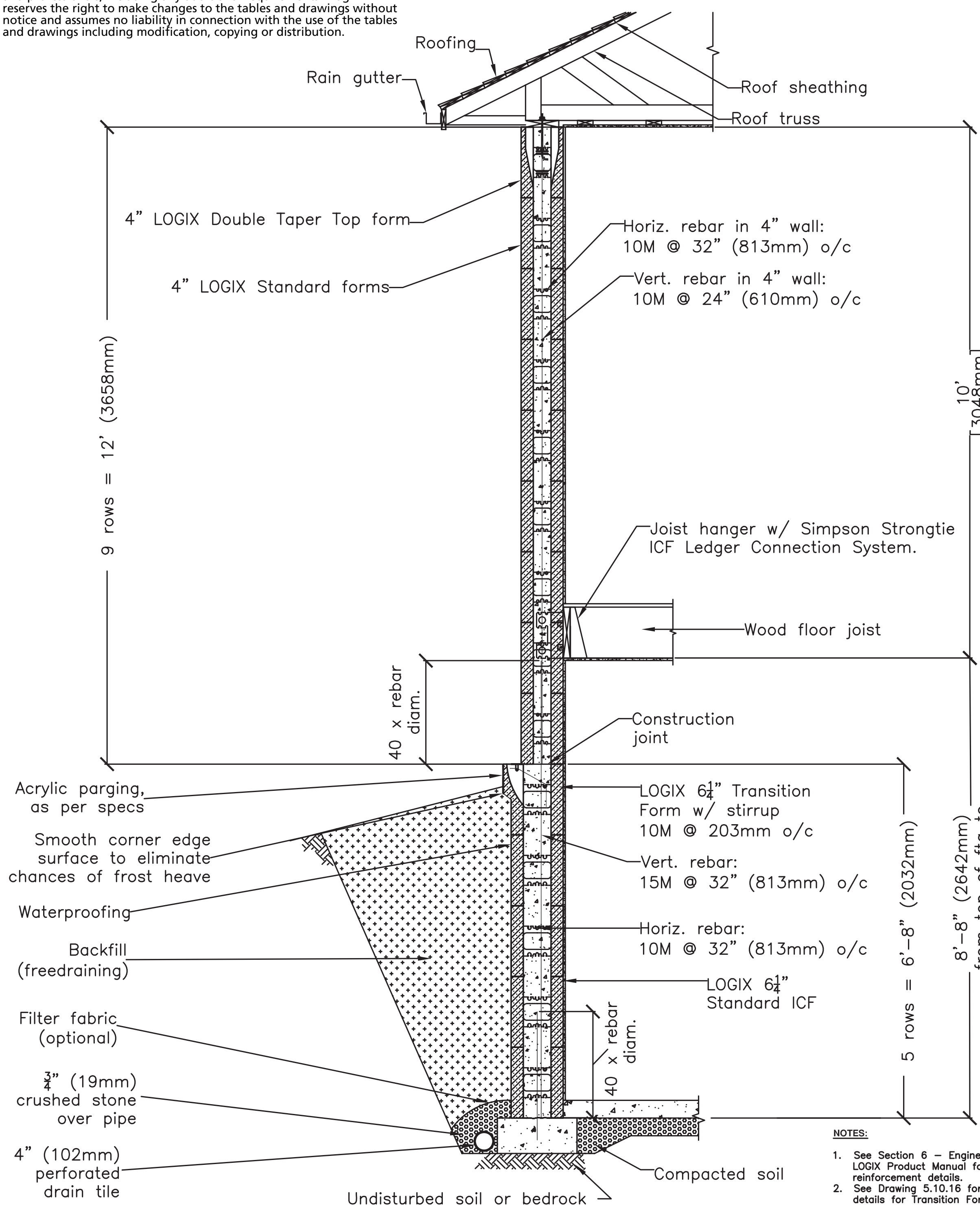
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

C A D D R A W I N G S

5.5.3 - 8'-8" FOUNDATION WALL/ 10' MAIN FLOOR

All drawings are downloadable at www.logixicf.com

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.



NOTES:

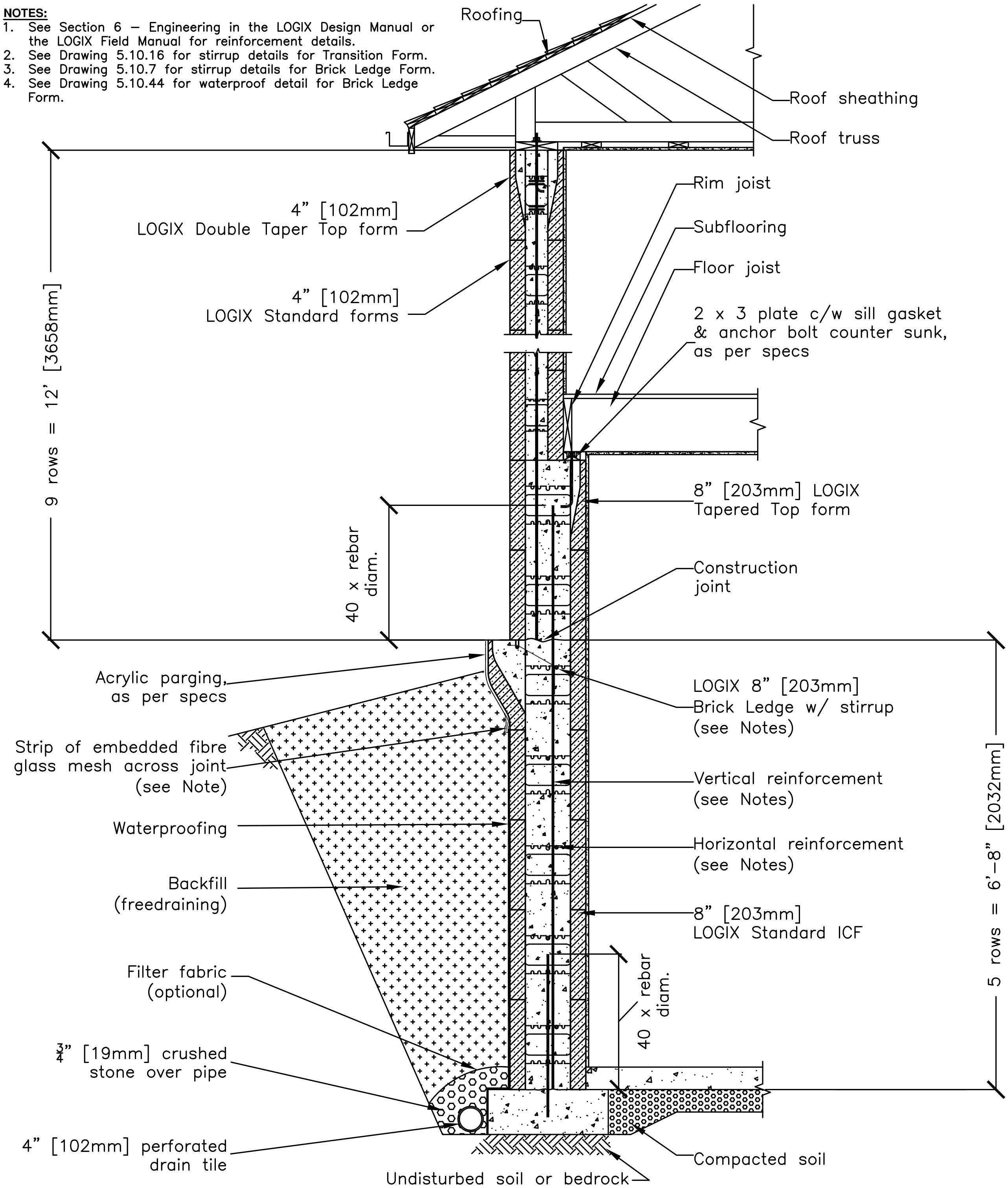
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. See Drawing 5.10.16 for stirrup details for Transition Form.

C A D   D R A W I N G S

5.5.4 - 8” TO 4” TRANSITION WALL SECTION

All drawings are downloadable at www.logixicf.com

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.

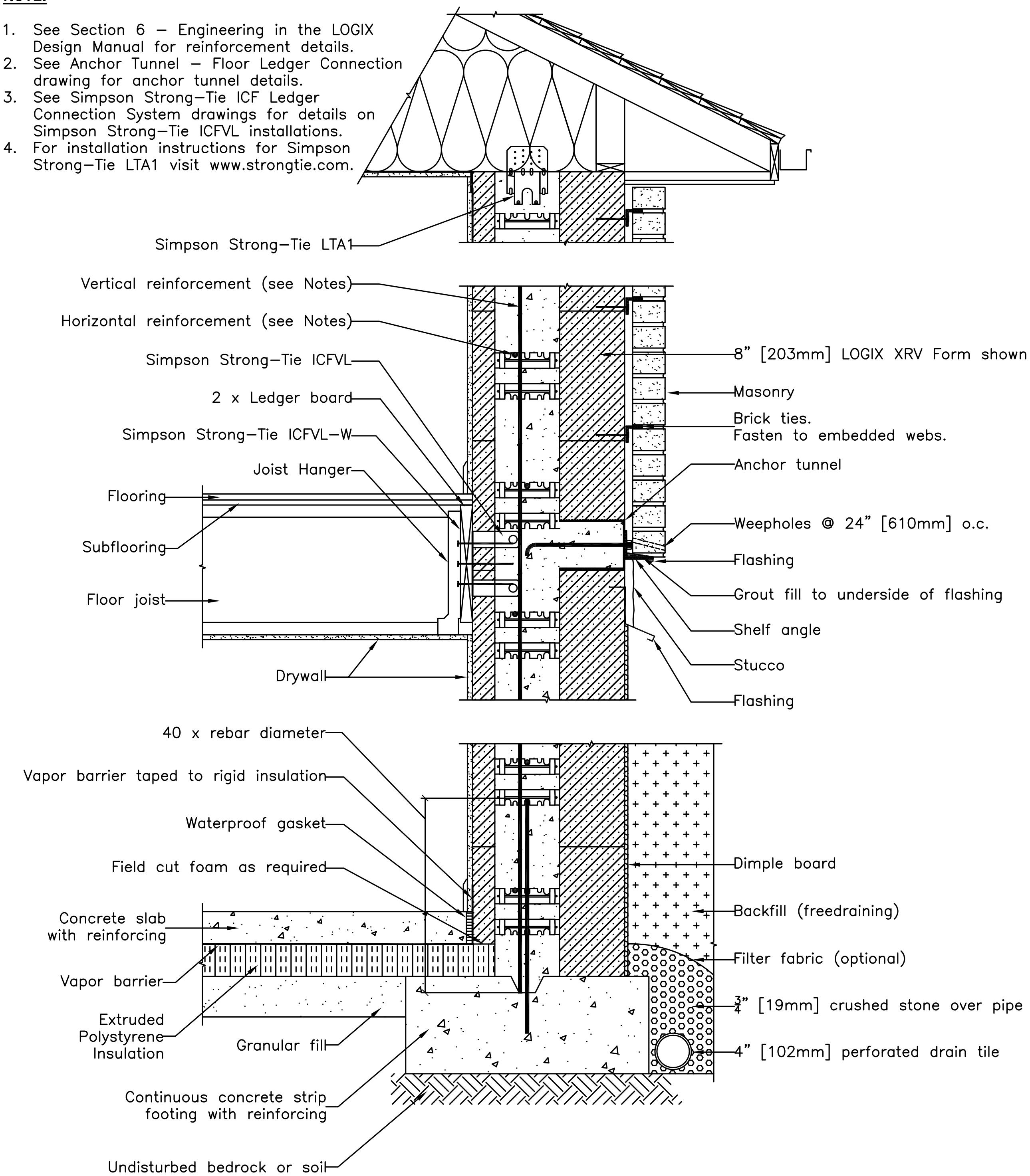


5.5.5 - ONE STOREY WALL SECTION WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

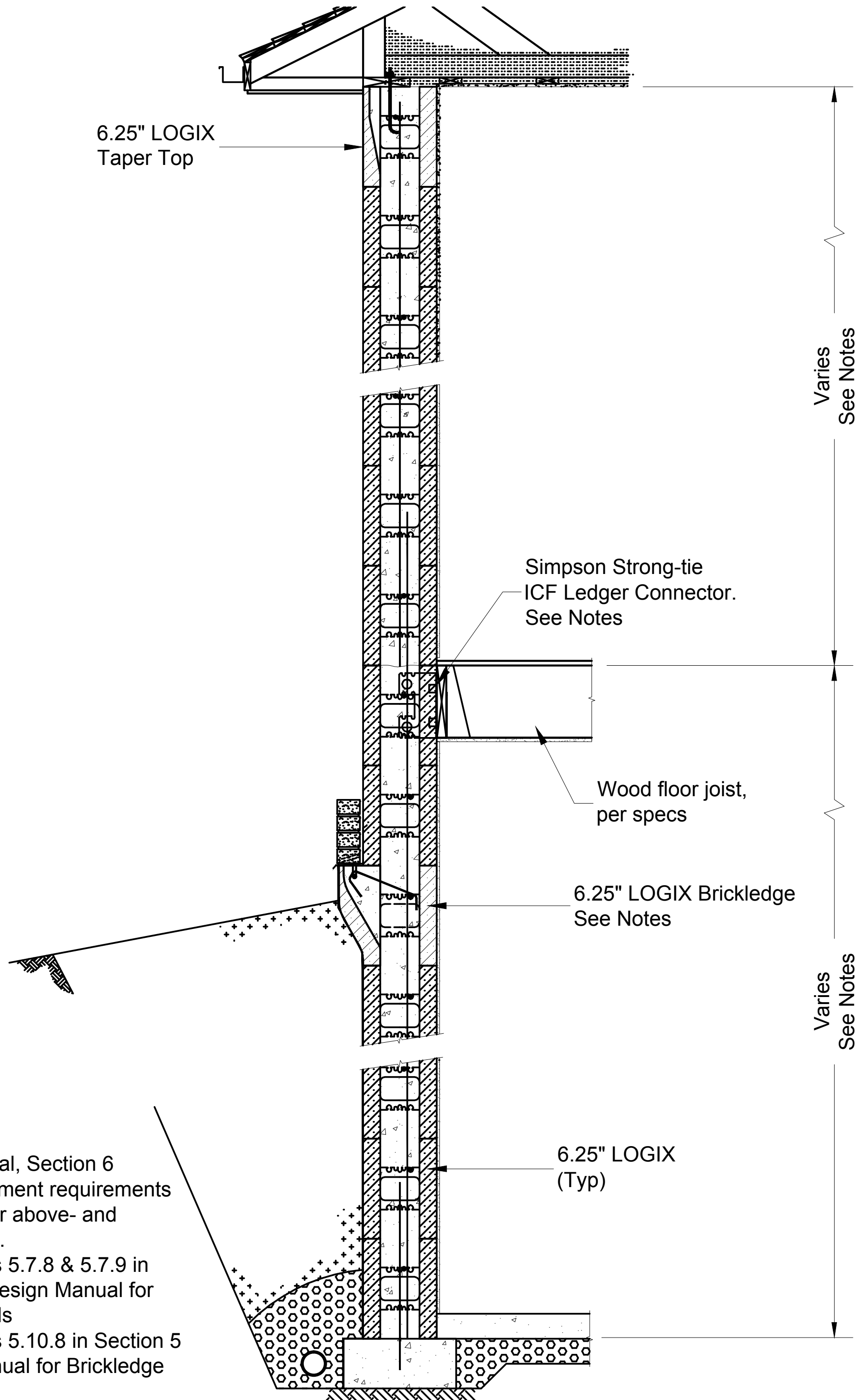
NOTE:

1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.
2. See Anchor Tunnel – Floor Ledger Connection drawing for anchor tunnel details.
3. See Simpson Strong–Tie ICF Ledger Connection System drawings for details on Simpson Strong–Tie ICFVL installations.
4. For installation instructions for Simpson Strong–Tie LTA1 visit www.strongtie.com.



5.5.6 - LOGIX 6.25" BELOW- & ABOVE-GRADE WALL WITH BRICKLEDGE

All drawings are downloadable at www.logixicf.com

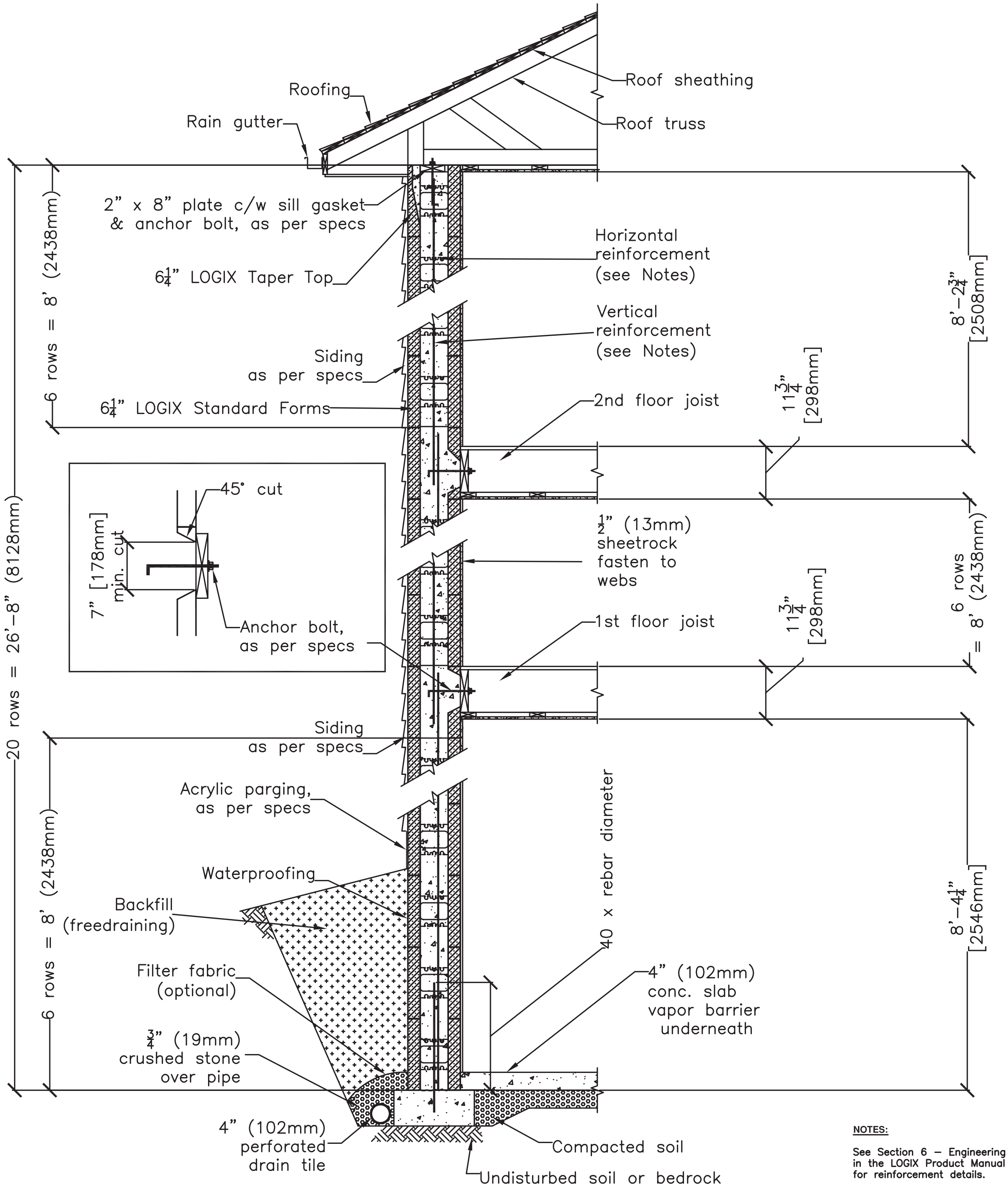


NOTES:

1. See LOGIX Design Manual, Section 6 Engineering, for reinforcement requirements for varying wall heights for above- and below-grade LOGIX walls.
2. See Residential Drawings 5.7.8 & 5.7.9 in Section 5 of the LOGIX Design Manual for Simpson Strong Tie details
3. See Residential Drawings 5.10.8 in Section 5 of the LOGIX Design Manual for Brickledge stirrup detail

5.6 – TWO STOREY CONSTRUCTION
5.6.1 – 8' FOUNDATION WALL/8' MAIN FLOOR/8' SECOND LEVEL

All drawings are downloadable at www.logixicf.com

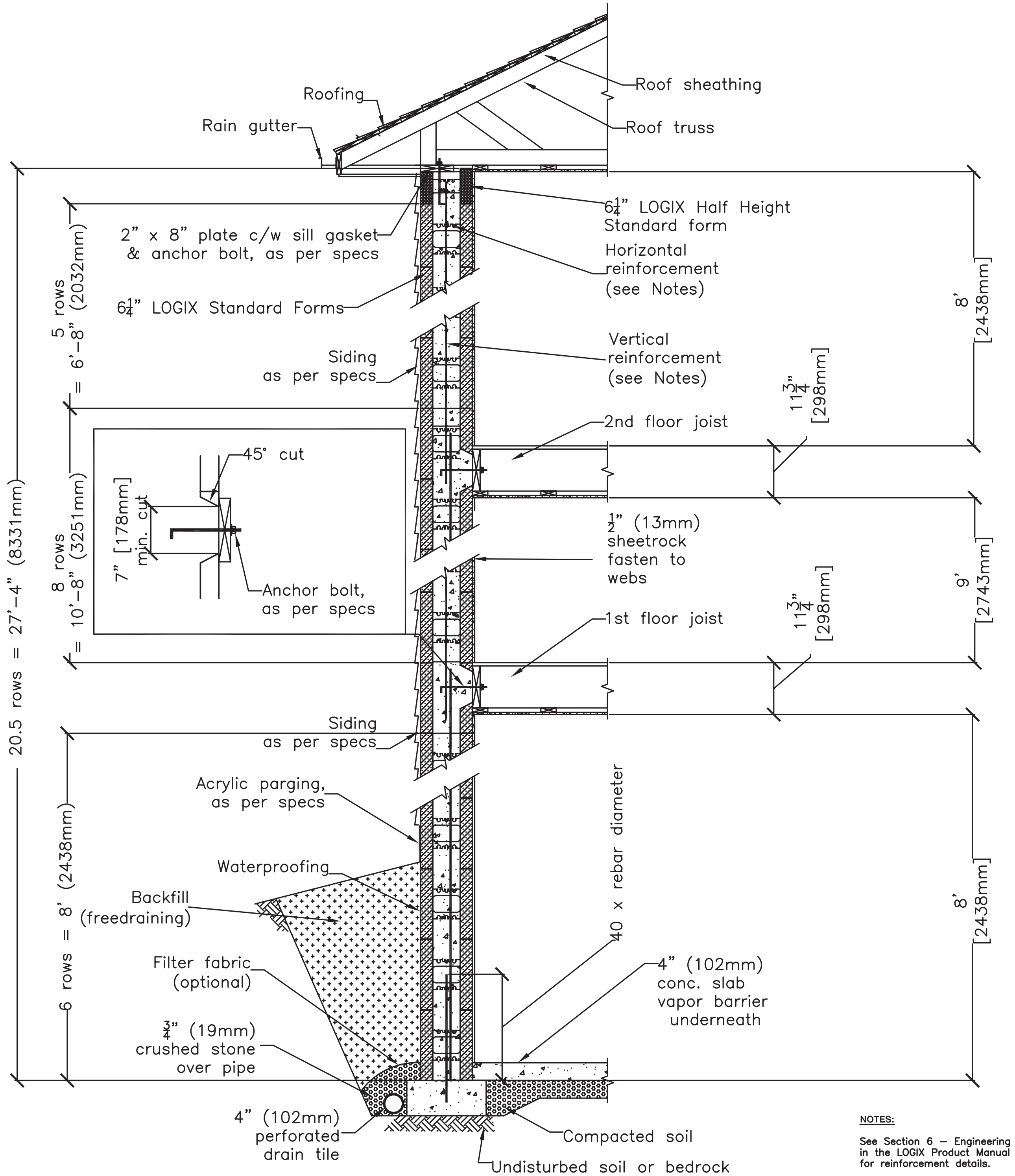


NOTES:

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

5.6.2 – 8' FOUNDATION WALL/9' MAIN FLOOR/8' SECOND LEVEL

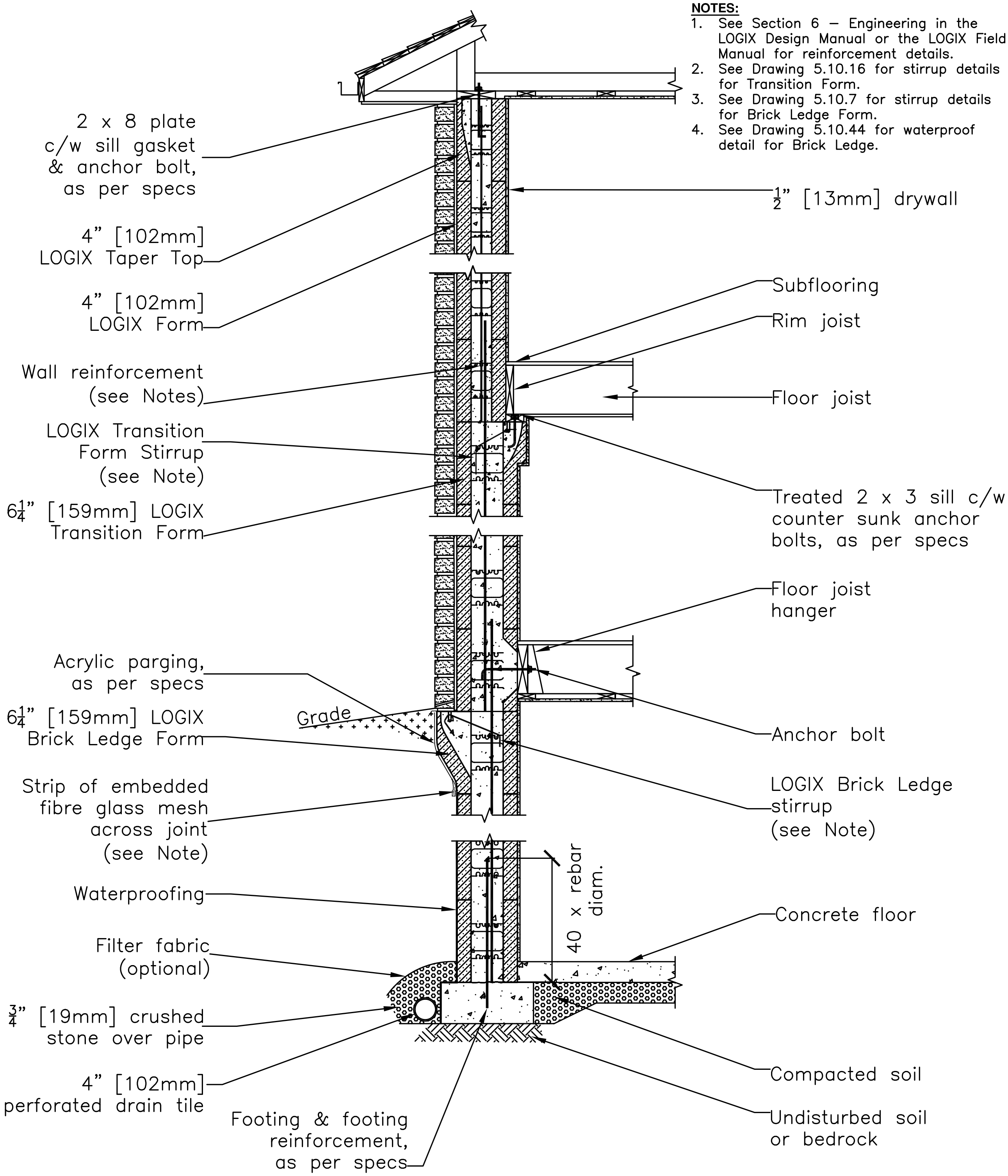
All drawings are downloadable at www.logixicf.com



5.6.3 – TWO STOREY WITH BRICK LEDGE & TRANSITION FORM -1 of 2

All drawings are downloadable at www.logixicf.com

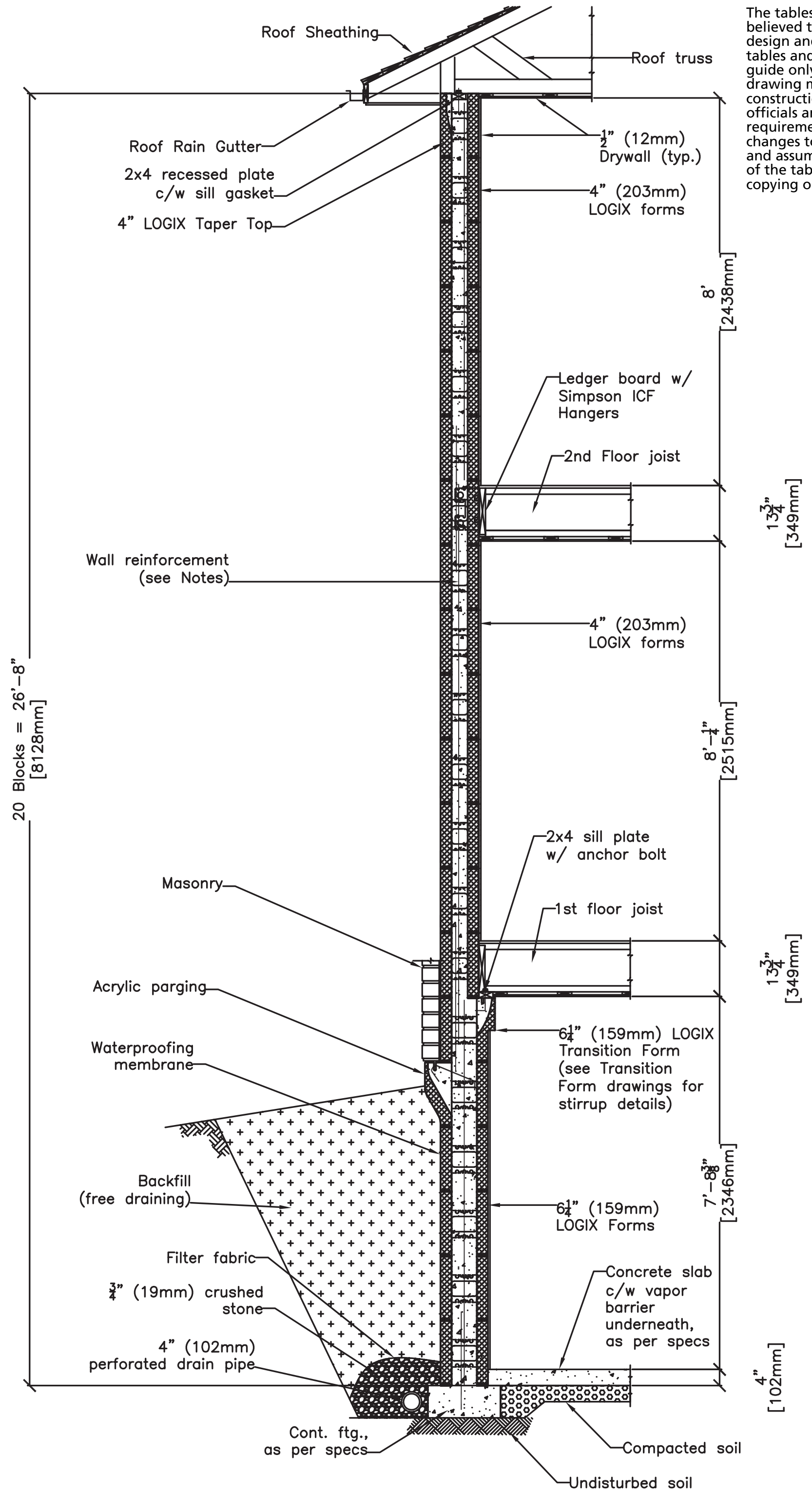
NOTES:
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Drawing 5.10.16 for stirrup details for Transition Form.
3. See Drawing 5.10.7 for stirrup details for Brick Ledge Form.
4. See Drawing 5.10.44 for waterproof detail for Brick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



5.6.4 – TWO STOREY WITH BRICK LEDGE & TRANSITION FORM - 2 of 2

All drawings are downloadable at www.logixicf.com

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.



NOTES:

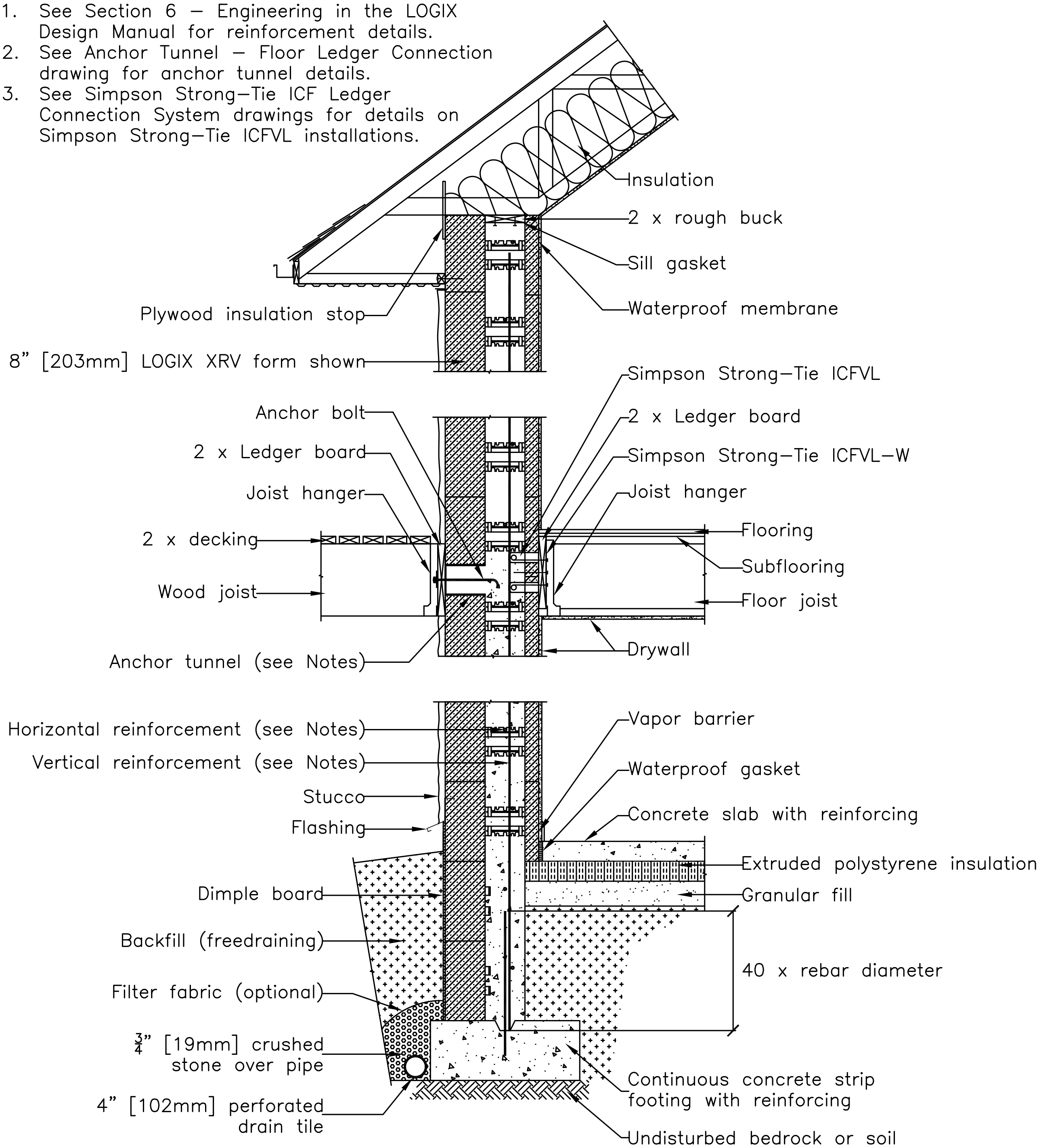
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.5 - TWO STOREY WALL SECTION WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

NOTE:

1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.
2. See Anchor Tunnel – Floor Ledger Connection drawing for anchor tunnel details.
3. See Simpson Strong–Tie ICF Ledger Connection System drawings for details on Simpson Strong–Tie ICFVL installations.



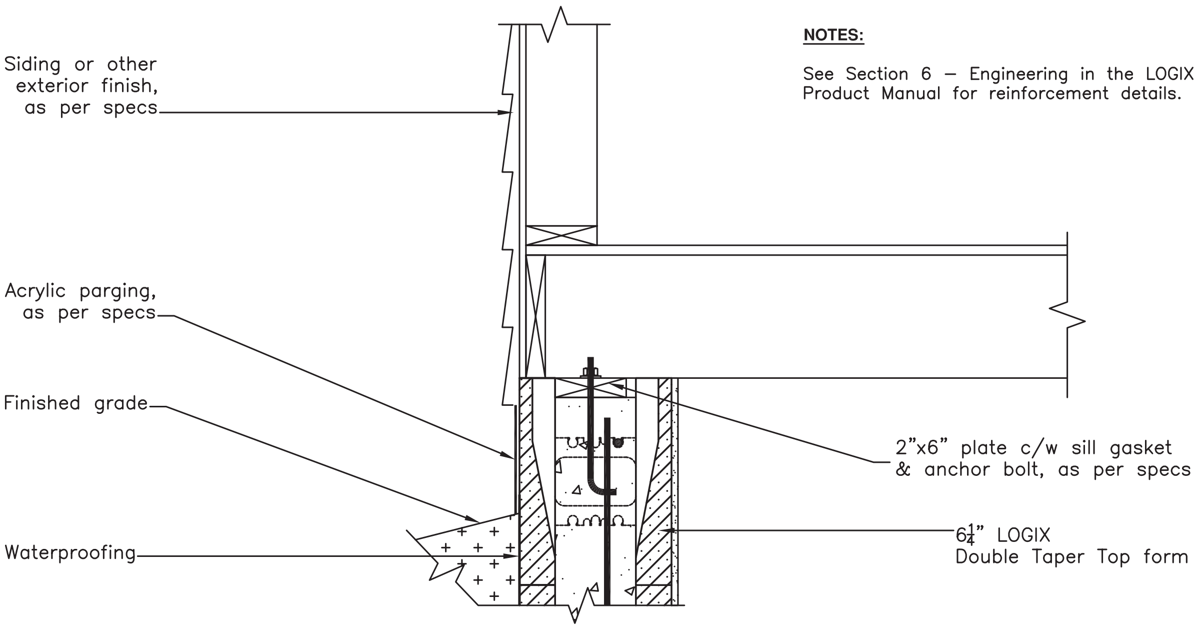
5.7 – FLOOR CONNECTIONS

5.7.1 – 2x6 TOP PLATE RECESSED WITH DOUBLE TAPER TOP

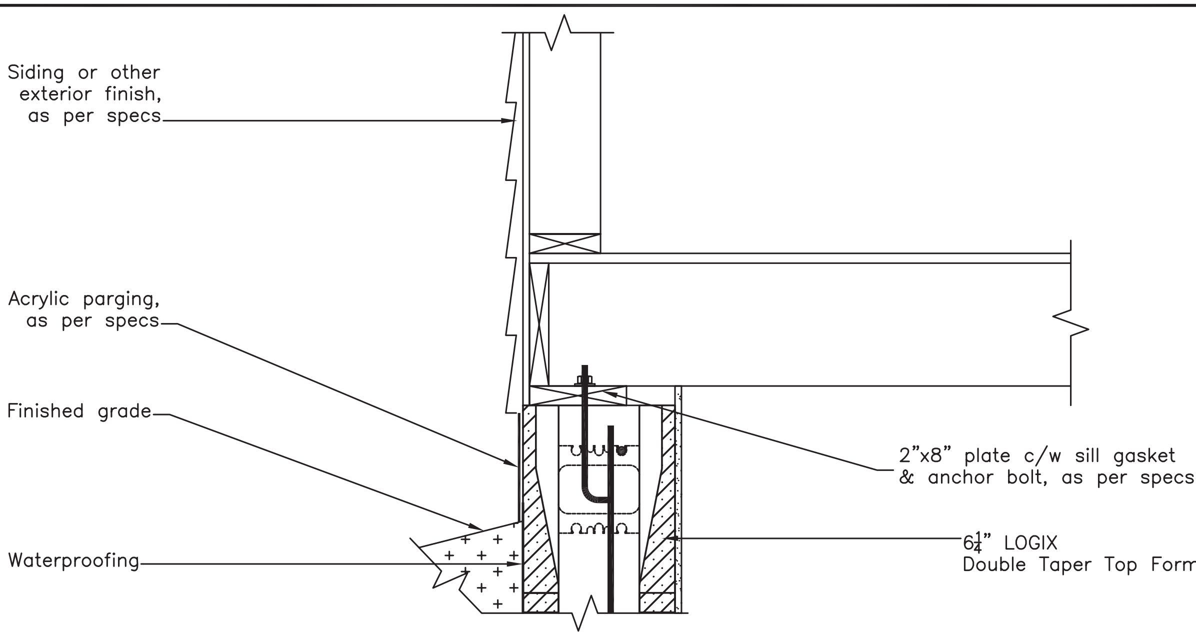
5.7.2 – 2x8 TOP PLATE OVERHUNG WITH DOUBLE TAPER TOP

NOTES:

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



2x6 TOP PLATE RECESSED



2x8 TOP PLATE OVERHUNG

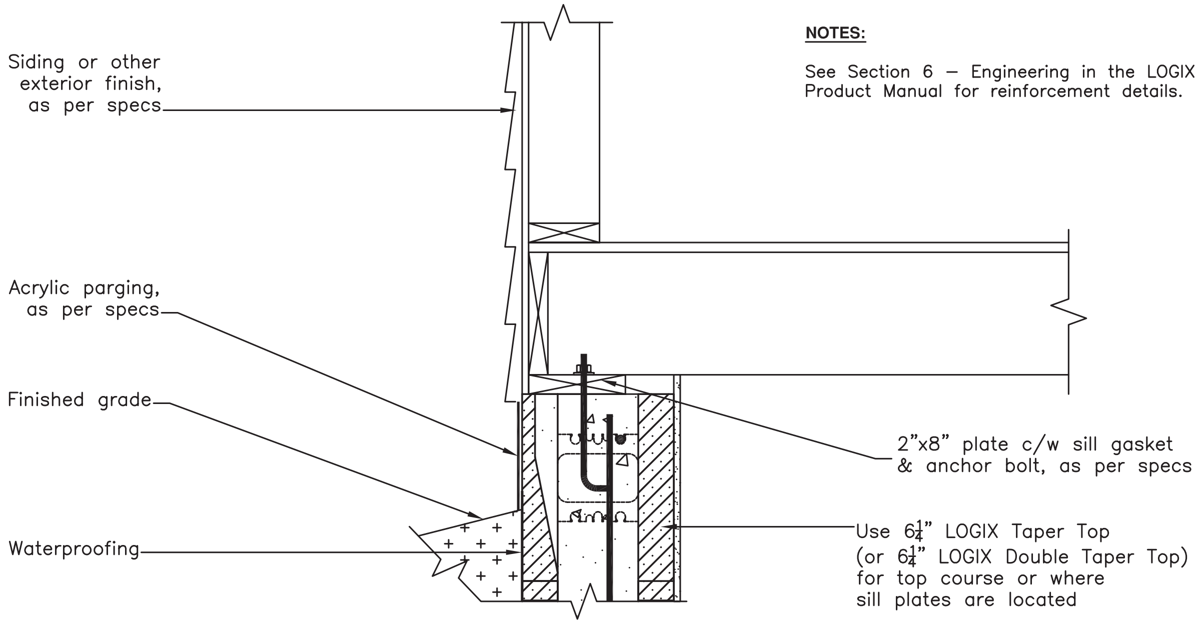
5.7.3 – 2x8 TOP PLATE OVERHUNG WITH TAPER TOP

5.7.4 – MASONRY VENEER WITH TAPER TOP

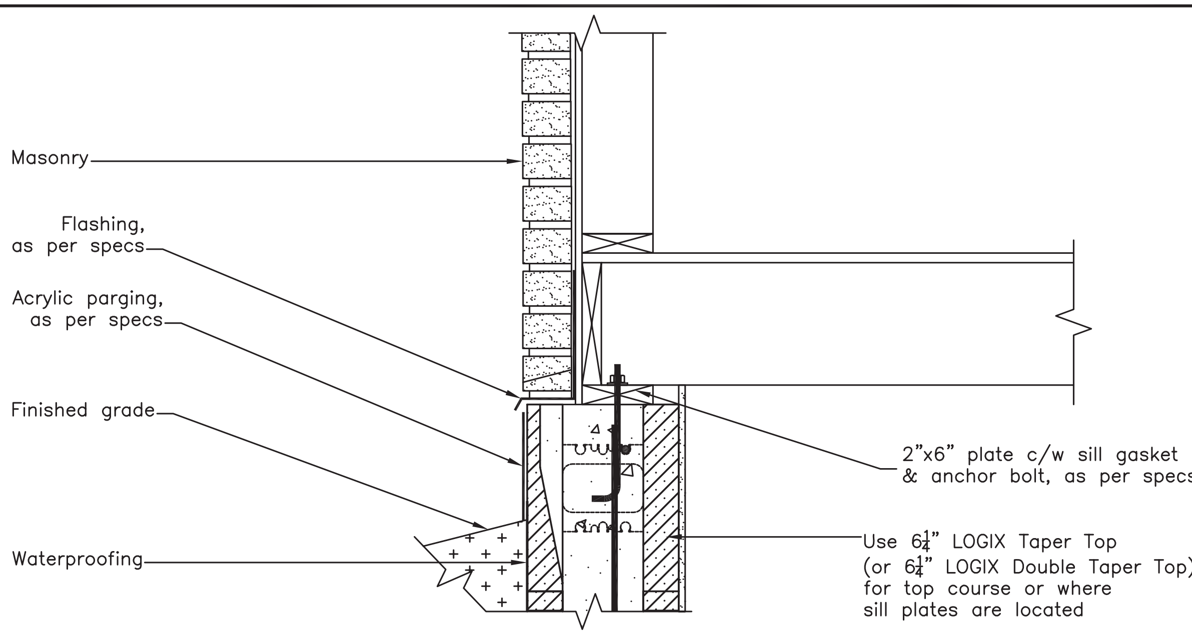
All drawings are downloadable at www.logixicf.com

NOTES:

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



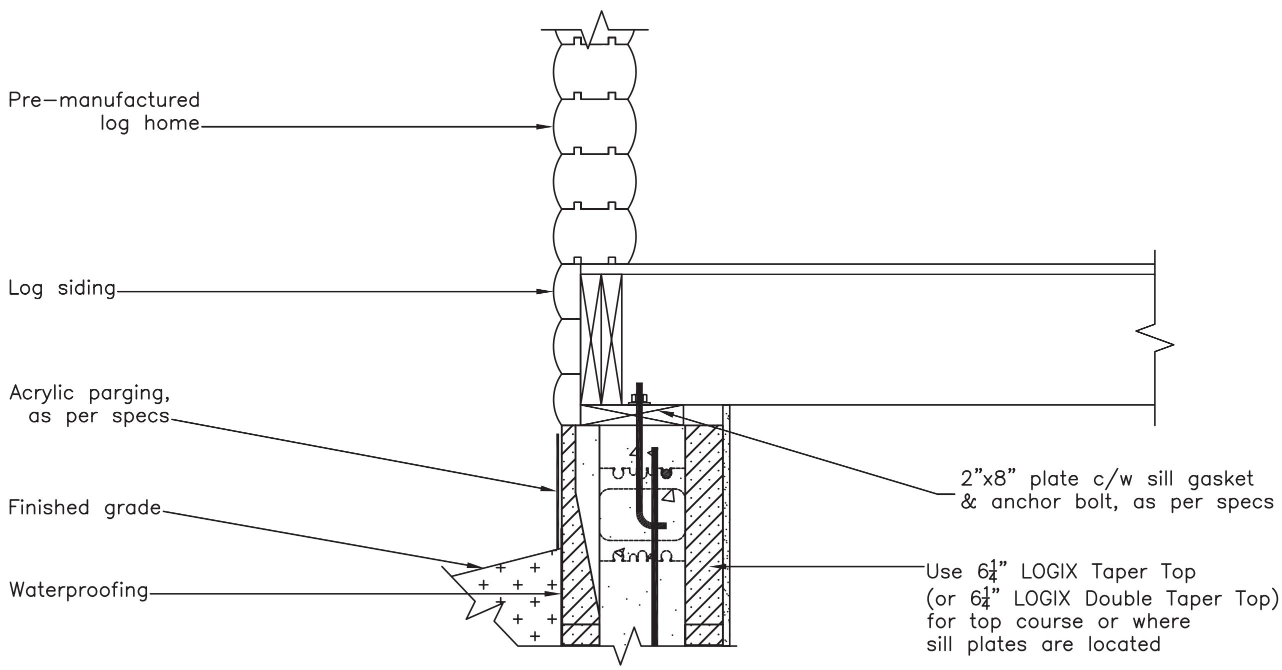
2x8 TOP PLATE OVERHUNG WITH TAPERED TOP FORM



2x6 TOP PLATE OVERHUNG WITH MASONRY AND TAPERED TOP FORM

5.7.5 – TAPER TOP WITH LOG HOME

All drawings are downloadable at www.logixicf.com



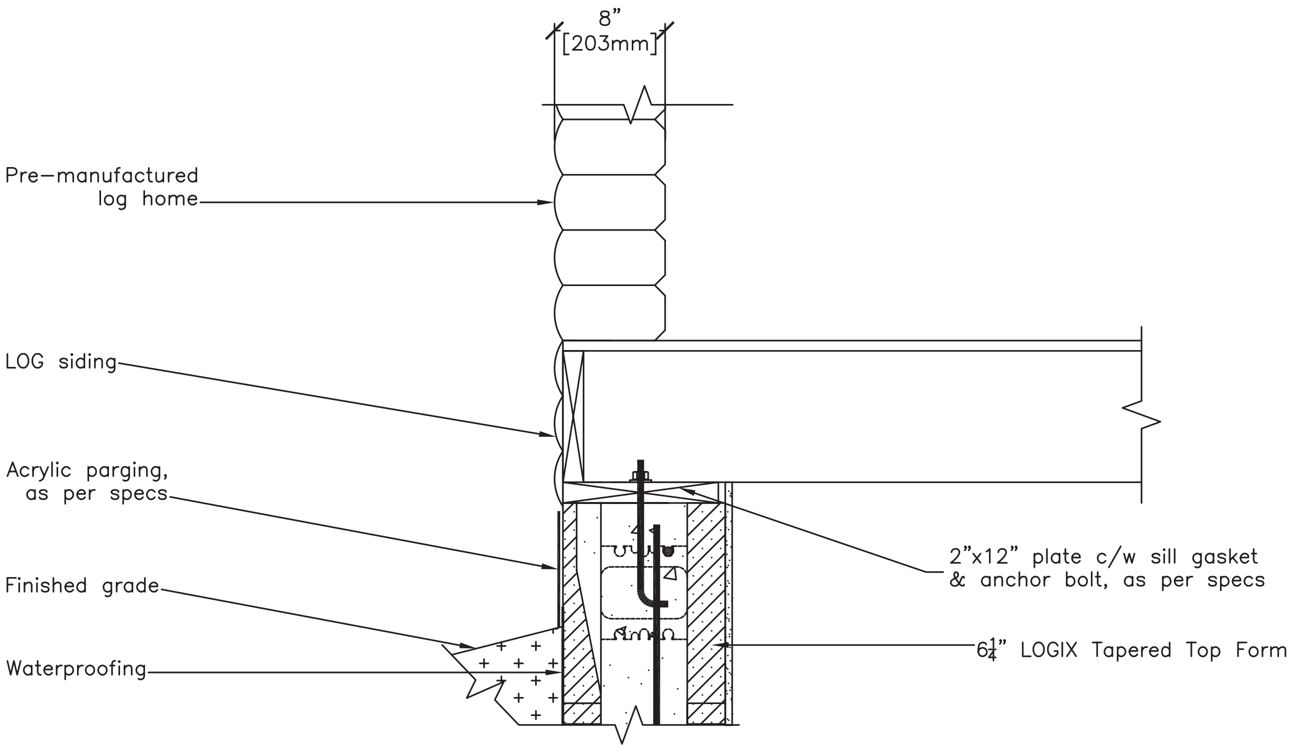
LOG HOME ON 2x8 SILL PLATE & TAPER TOP FORM

NOTES:

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

5.7.6 – TAPER TOP WITH LOG HOME 2x12 SILL PLATE

All drawings are downloadable at www.logixicf.com



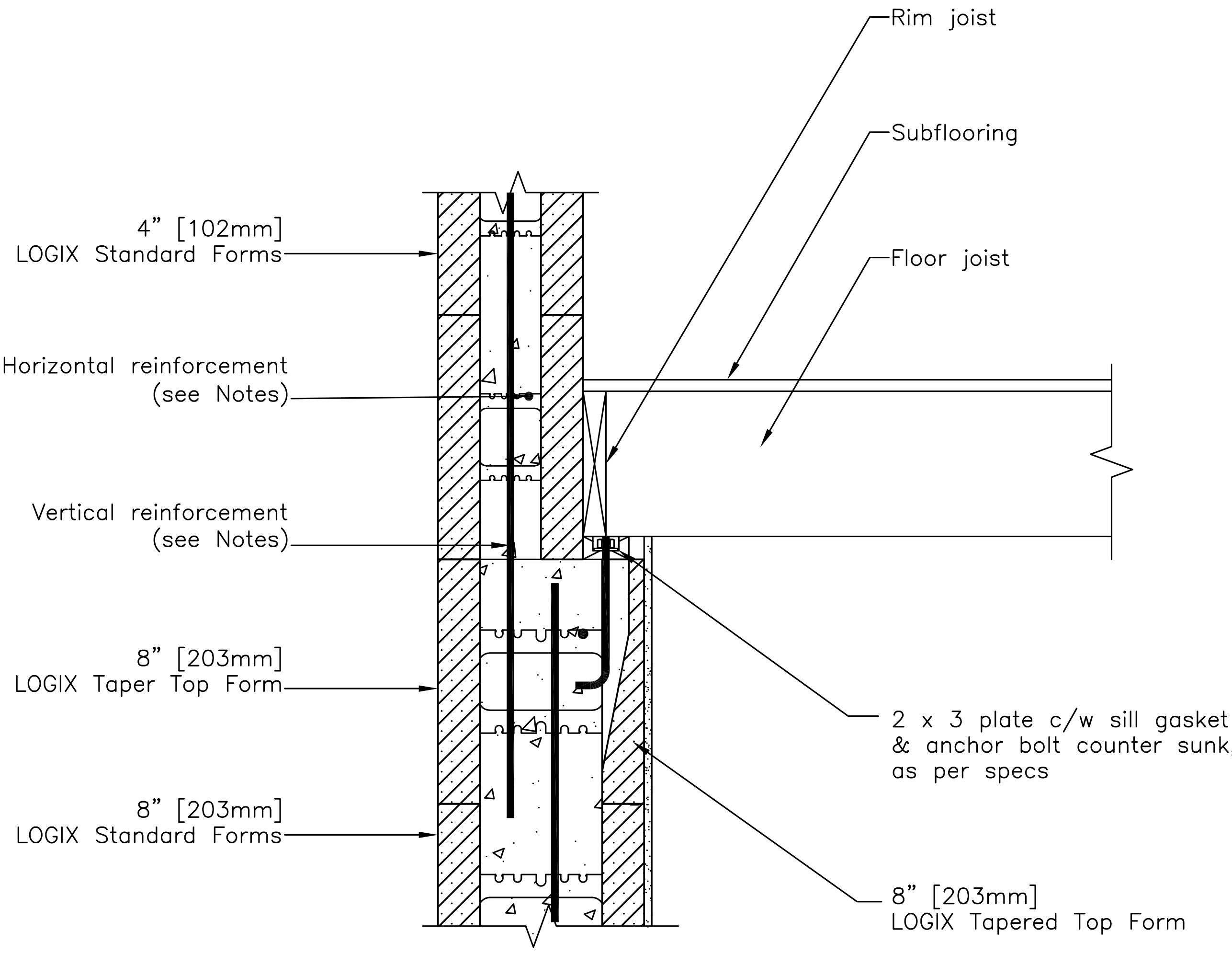
LOG HOME ON 2x12 SILL PLATE & TAPER TOP FORM

NOTES:

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

5.7.7 – TRANSITION - 8” TAPER TOP TO 4” STANDARD

All drawings are downloadable at www.logixicf.com

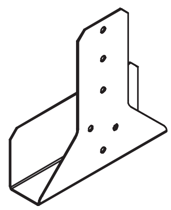


NOTES:

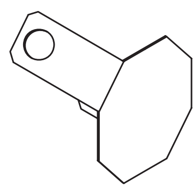
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.7.8 – SIMPSON ICF HANGER

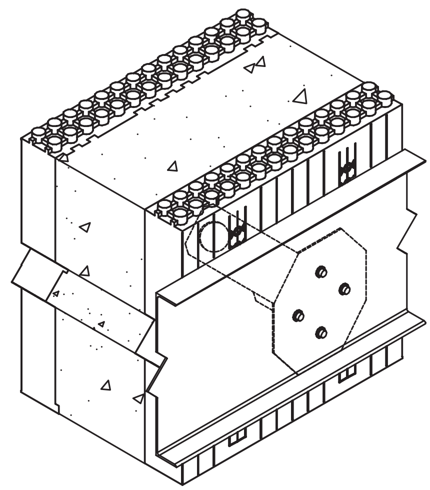
All drawings are downloadable at www.logixicf.com



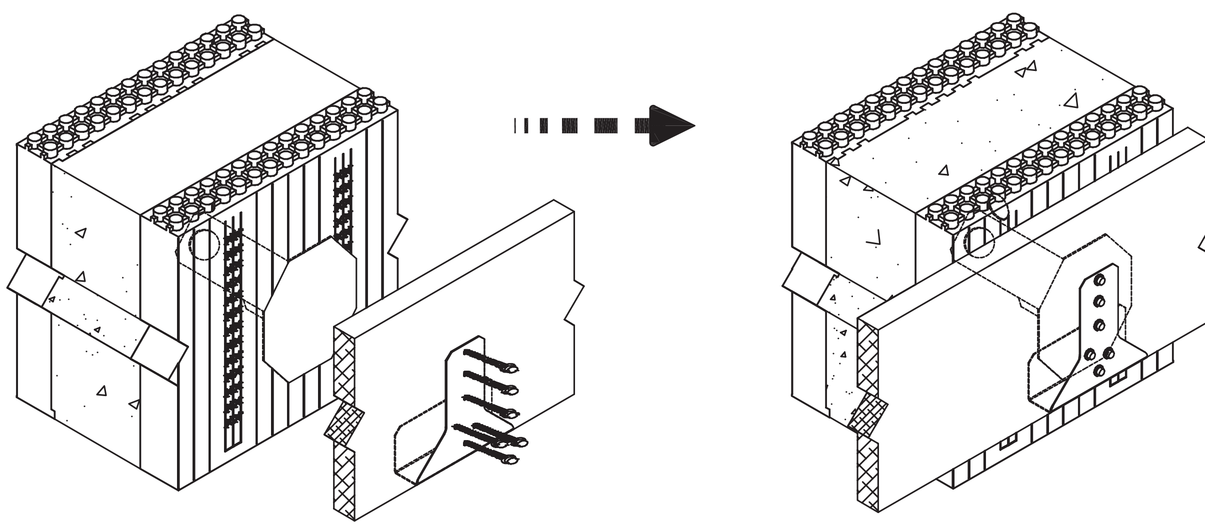
ICFLC-W & ICFLC-CW



ICFVL



STEEL LEDGER INSTALLATION



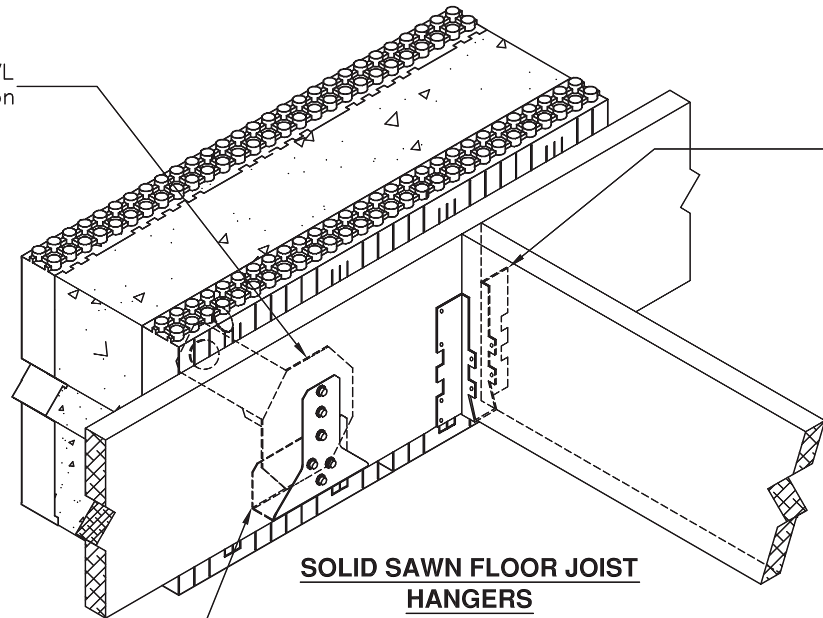
WOOD LEDGER INSTALLATION

NOTES:

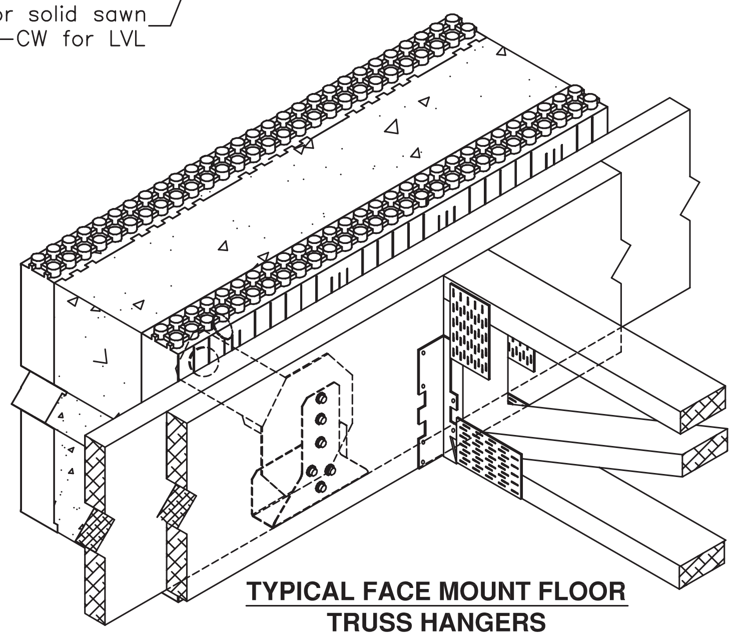
1. For more information see Section 2 of the LOGIX Product Manual or visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999-5099 prior to installation.

5.7.9 – SIMPSON STRONG TIE - ICF LEDGER CONNECTION SYSTEM

All drawings are downloadable at www.logixicf.com



SOLID SAWN FLOOR JOIST HANGERS (SINGLE LEDGER)



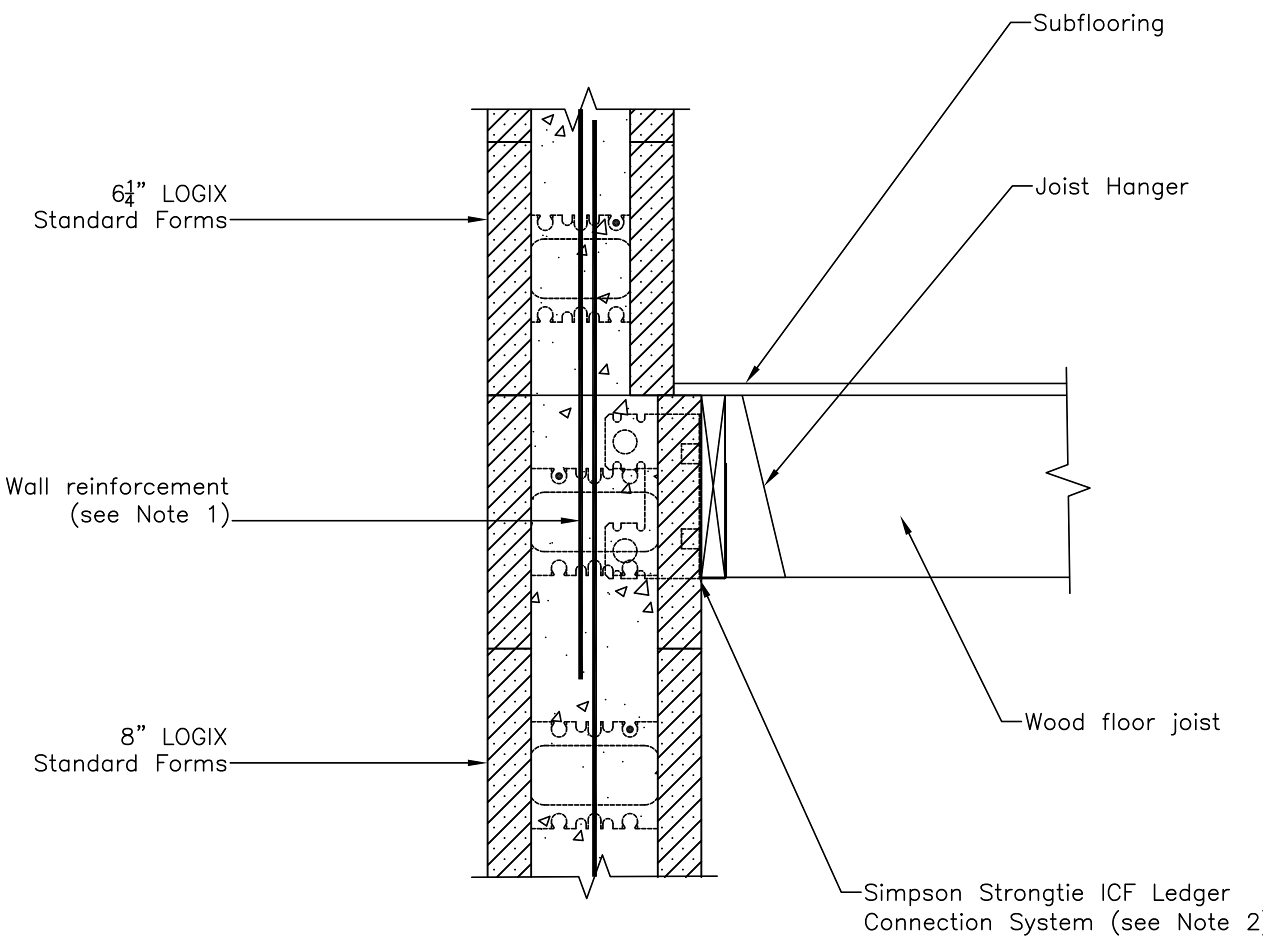
TYPICAL FACE MOUNT FLOOR TRUSS HANGERS (DOUBLE LEDGER)

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.

5.7.10 – 8” TO 6” TRANSITION WITH SIMPSON ICF HANGERS

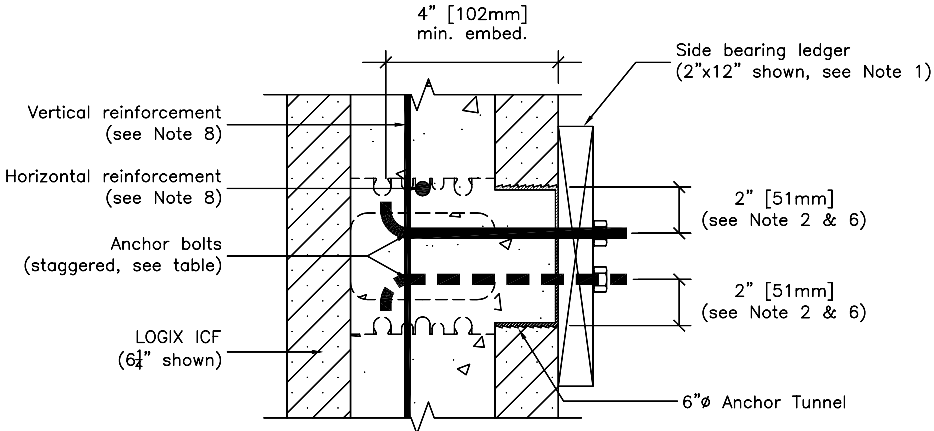
All drawings are downloadable at www.logixicf.com

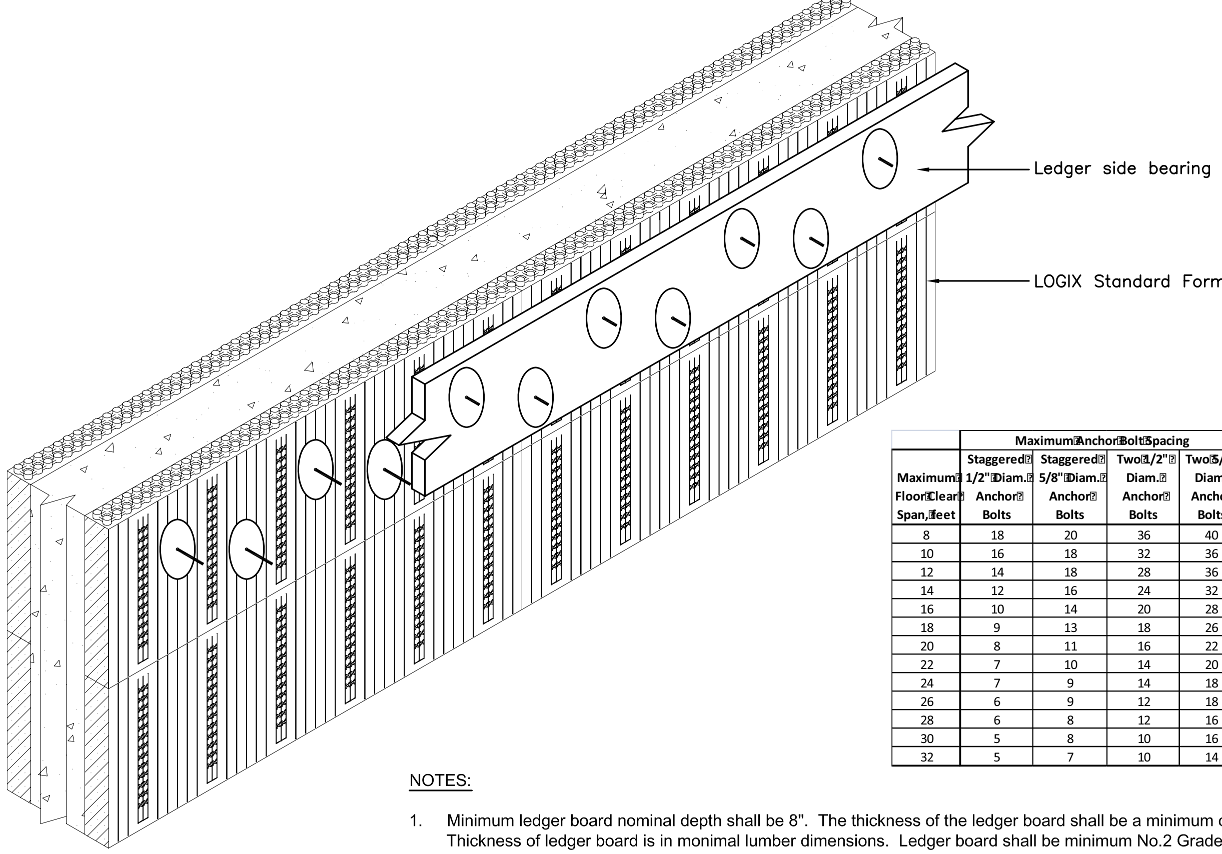


NOTES:

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.

5.7.11 – ANCHOR TUNNEL - FLOOR LEDGER CONNECTION





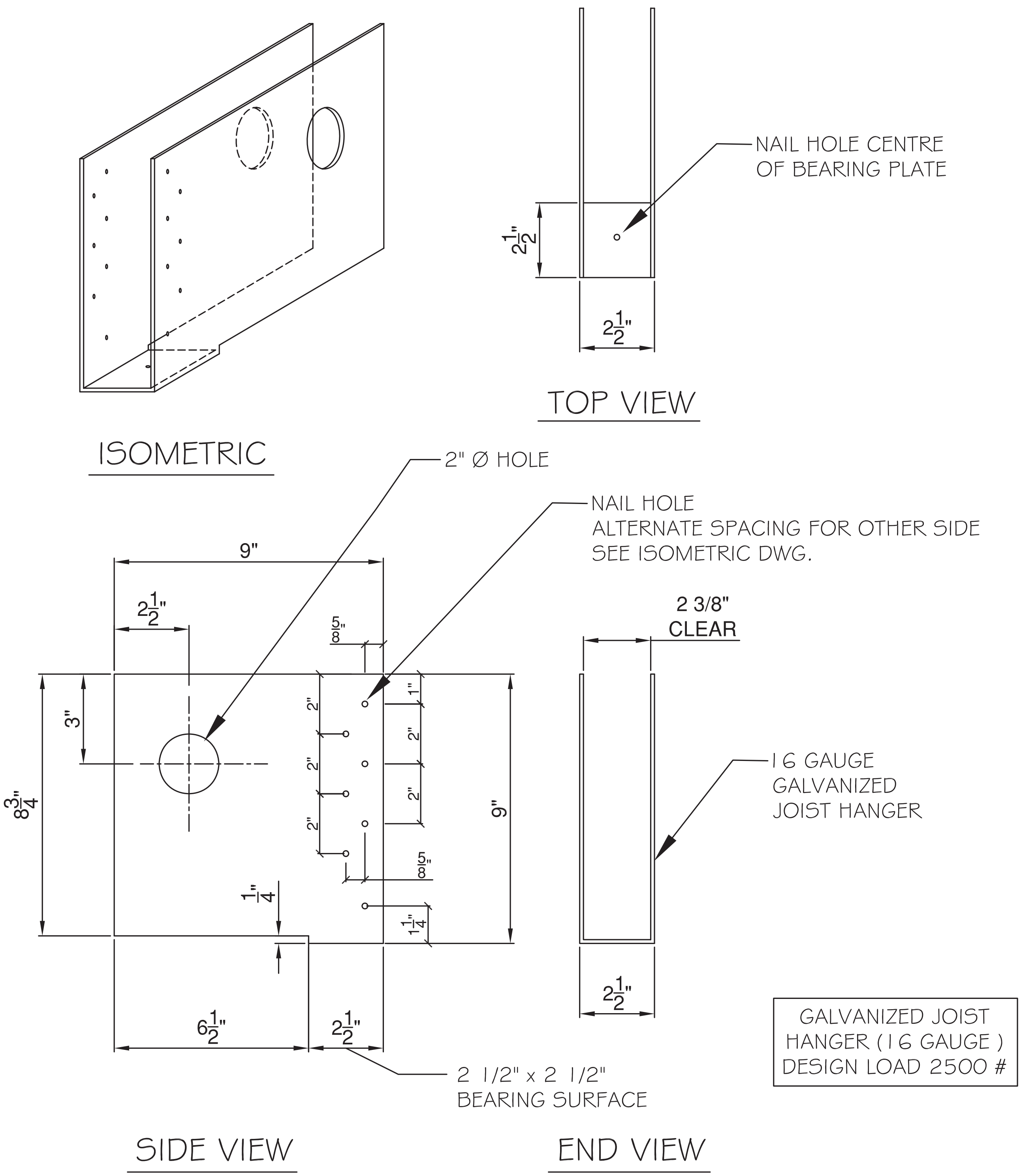
	Maximum Anchor Bolt Spacing			
Maximum Floor Clear Span, feet	Staggered 1/2" Diam. Anchor Bolts	Staggered 5/8" Diam. Anchor Bolts	Two 1/2" Diam. Anchor Bolts	Two 5/8" Diam. Anchor Bolts
8	18	20	36	40
10	16	18	32	36
12	14	18	28	36
14	12	16	24	32
16	10	14	20	28
18	9	13	18	26
20	8	11	16	22
22	7	10	14	20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

5.7.12 – McMILLAN JOIST HANGER

All drawings are downloadable at www.logixicf.com

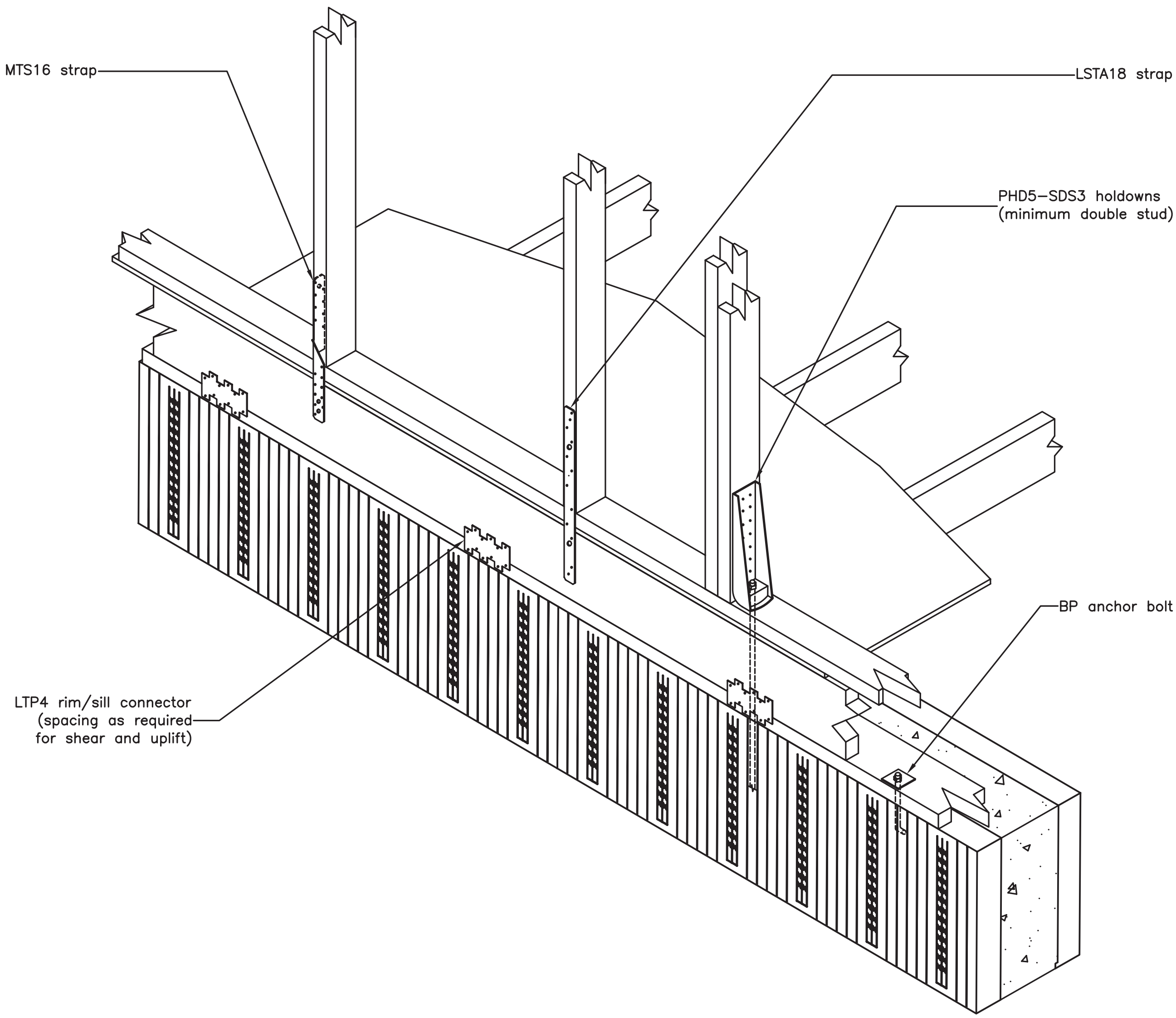


C A D   D R A W I N G S

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.

5.7.13 – SIMPSON STRONG TIE- STUD FRAME CONNECTIONS

All drawings are downloadable at www.logixicf.com

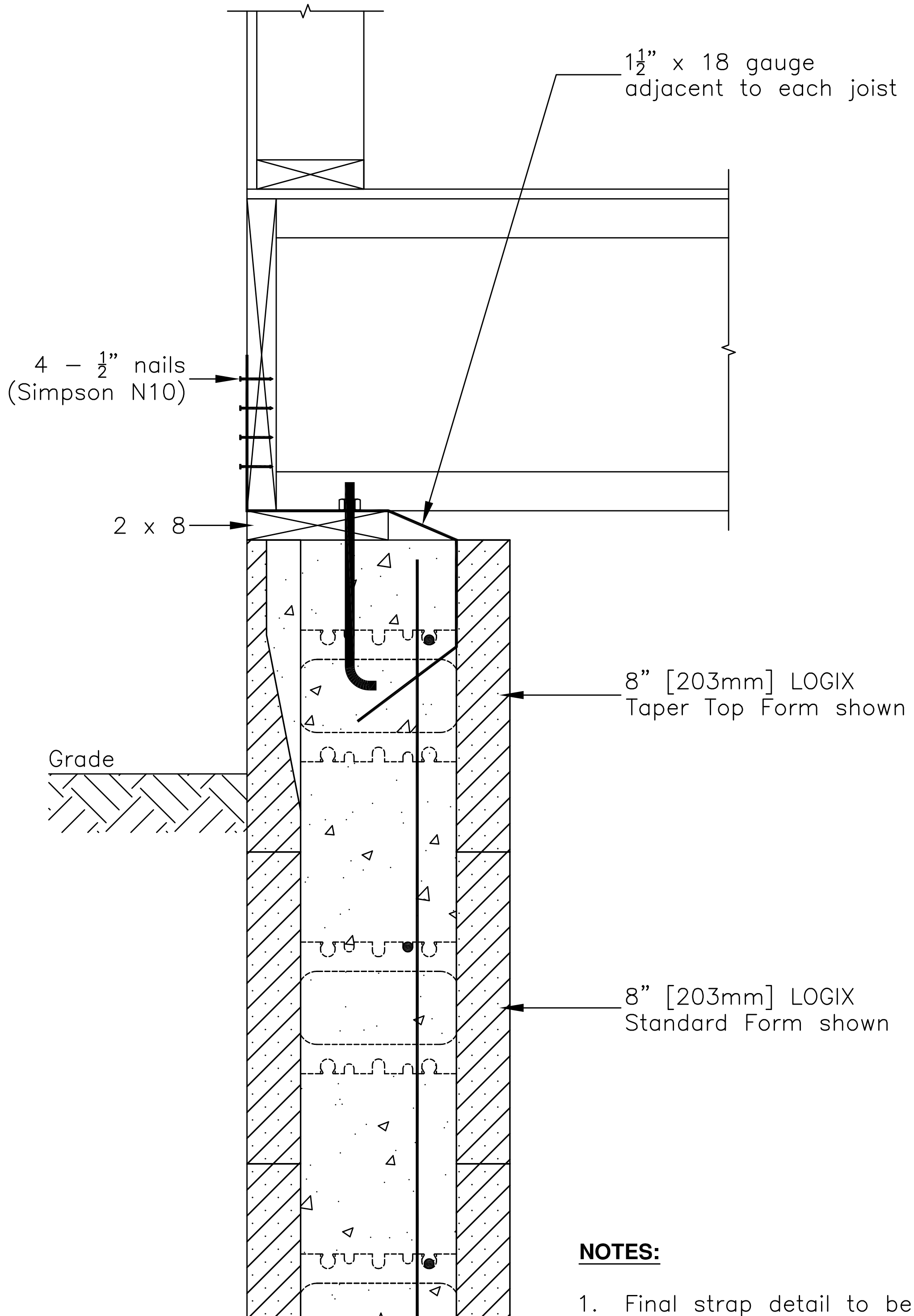


NOTES:

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

5.7.14 – FRAME STRAP ALTERNATIVE

All drawings are downloadable at www.logixicf.com

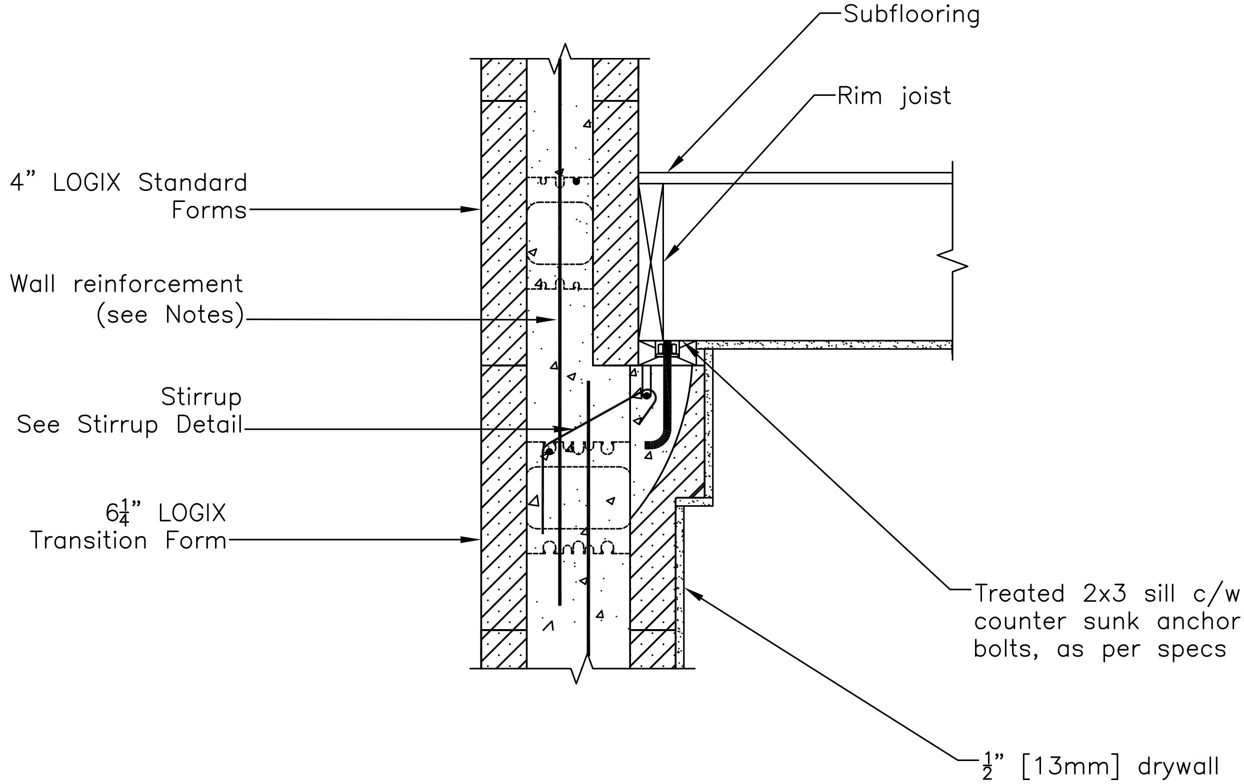


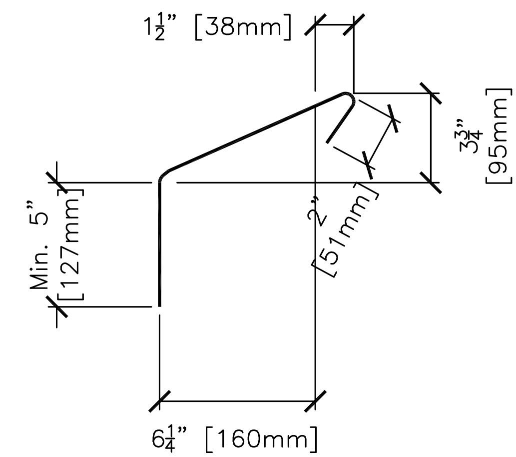
NOTES:

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

5.7.15 – 6.25" TRANSITION FORM SUPPORTING WOOD FLOOR JOIST

All drawings are downloadable at www.logixicf.com





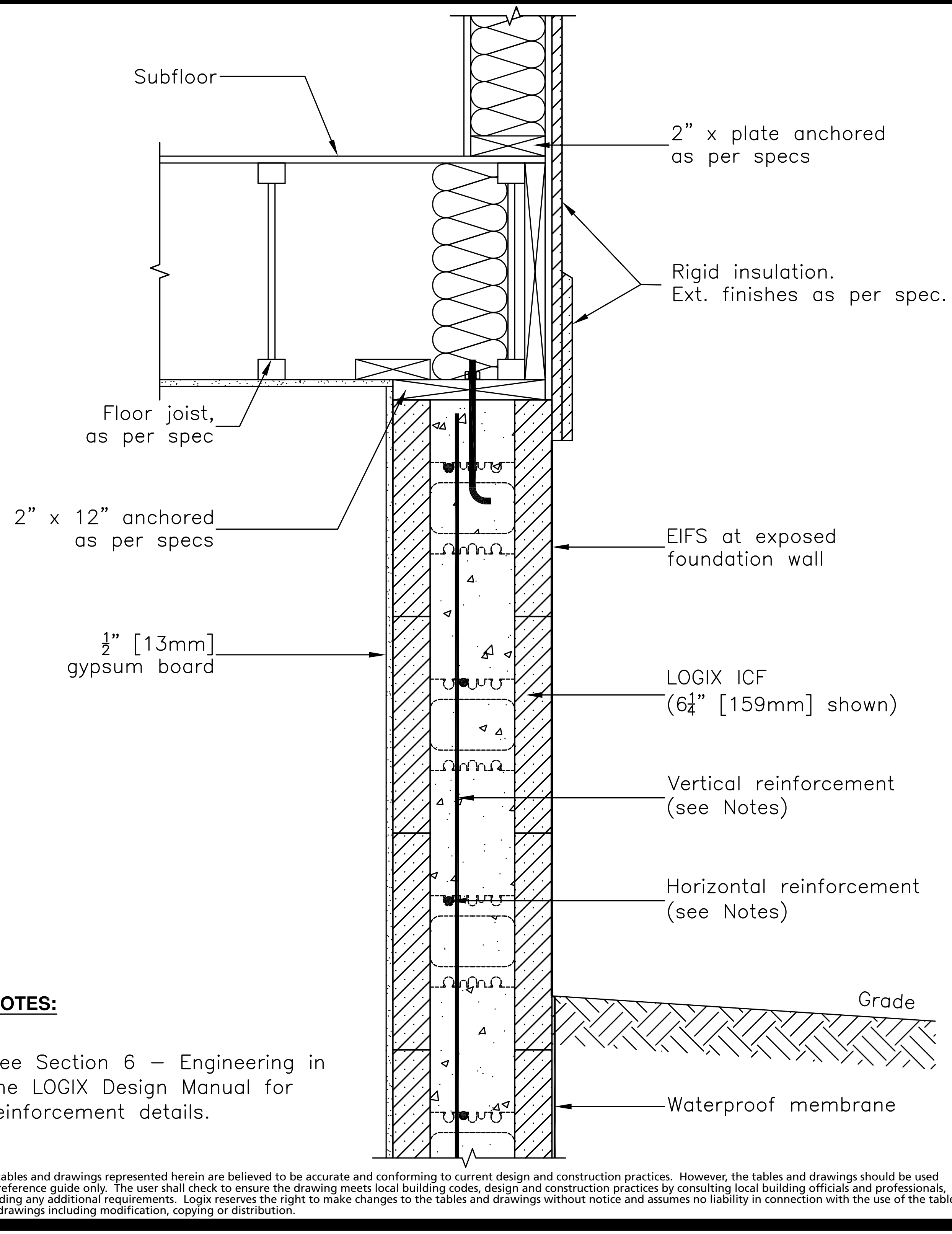
STIRRUP DETAIL

NOTES:

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.

5.7.16 – WOOD FLOOR JOIST PARALLEL TO WALL (1 OF 2)

All drawings are downloadable at www.logixicf.com

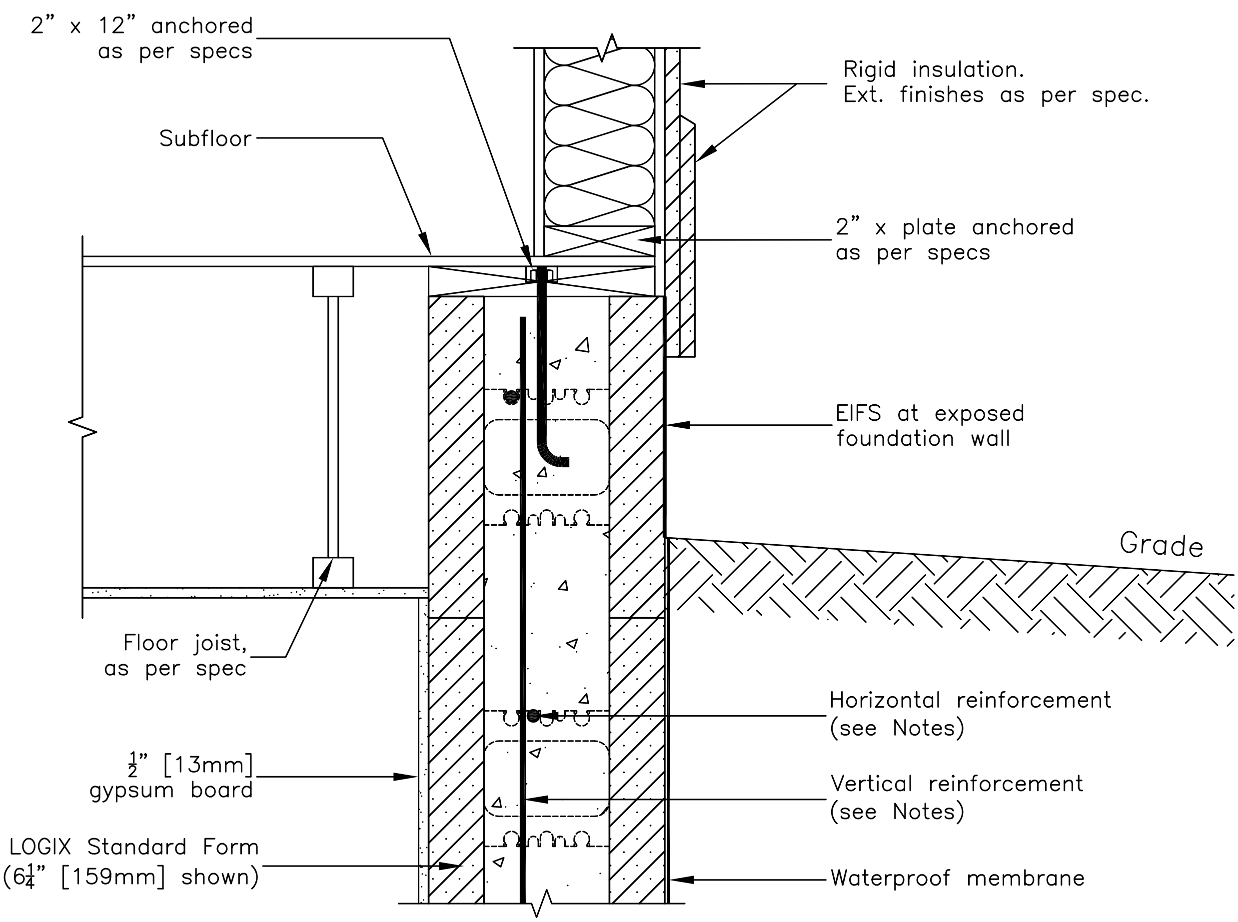


NOTES:

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

5.7.16 – WOOD FLOOR JOIST PARALLEL TO WALL (2 OF 2)

All drawings are downloadable at www.logixicf.com

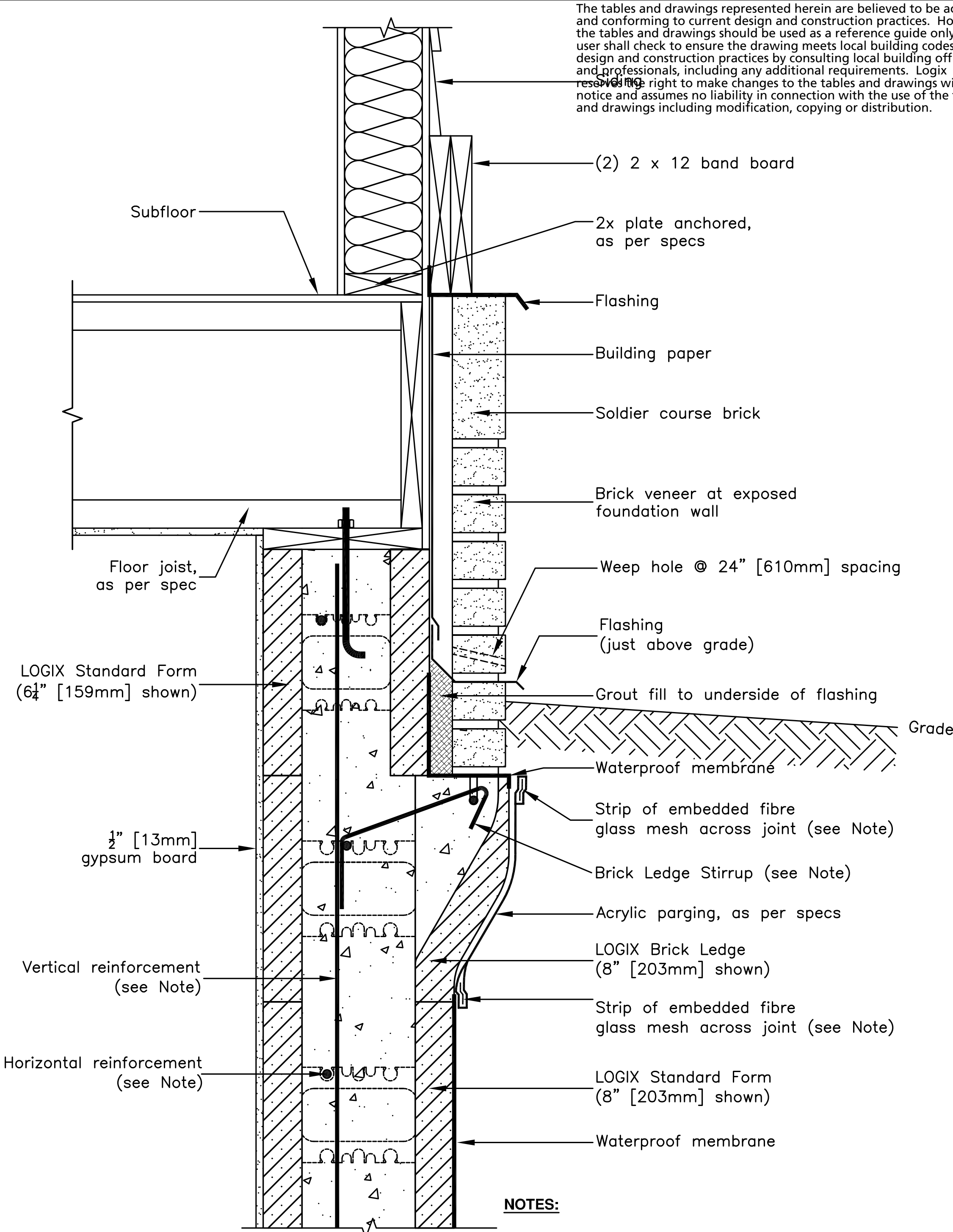


NOTES:

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

5.7.17 – BELOW GRADE BRICK VENEER (1 OF 4)

All drawings are downloadable at www.logixicf.com



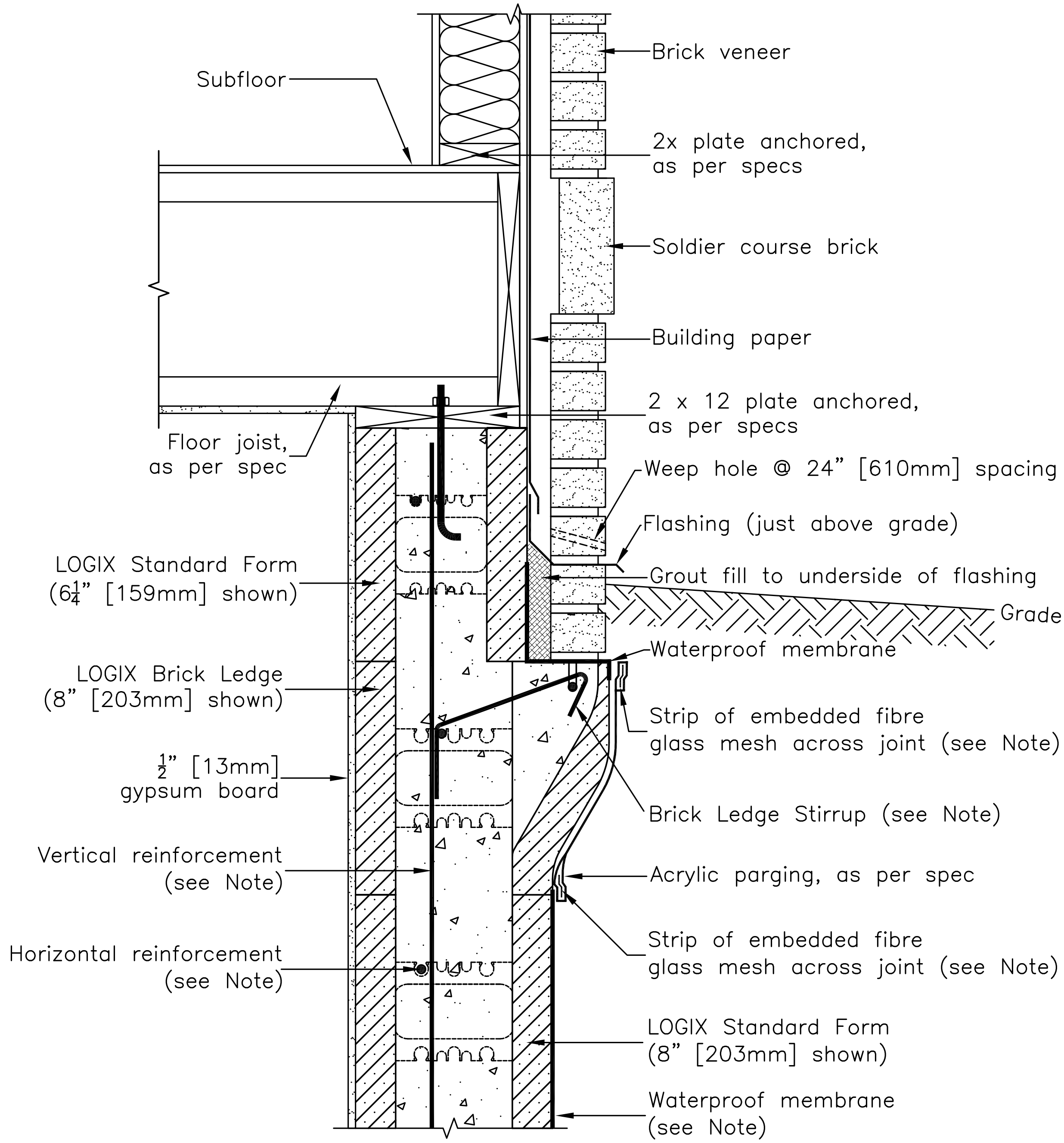
NOTES:

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.

C A D D R A W I N G S

5.7.17 – BELOW GRADE BRICK VENEER (2 OF 4)

All drawings are downloadable at www.logixicf.com

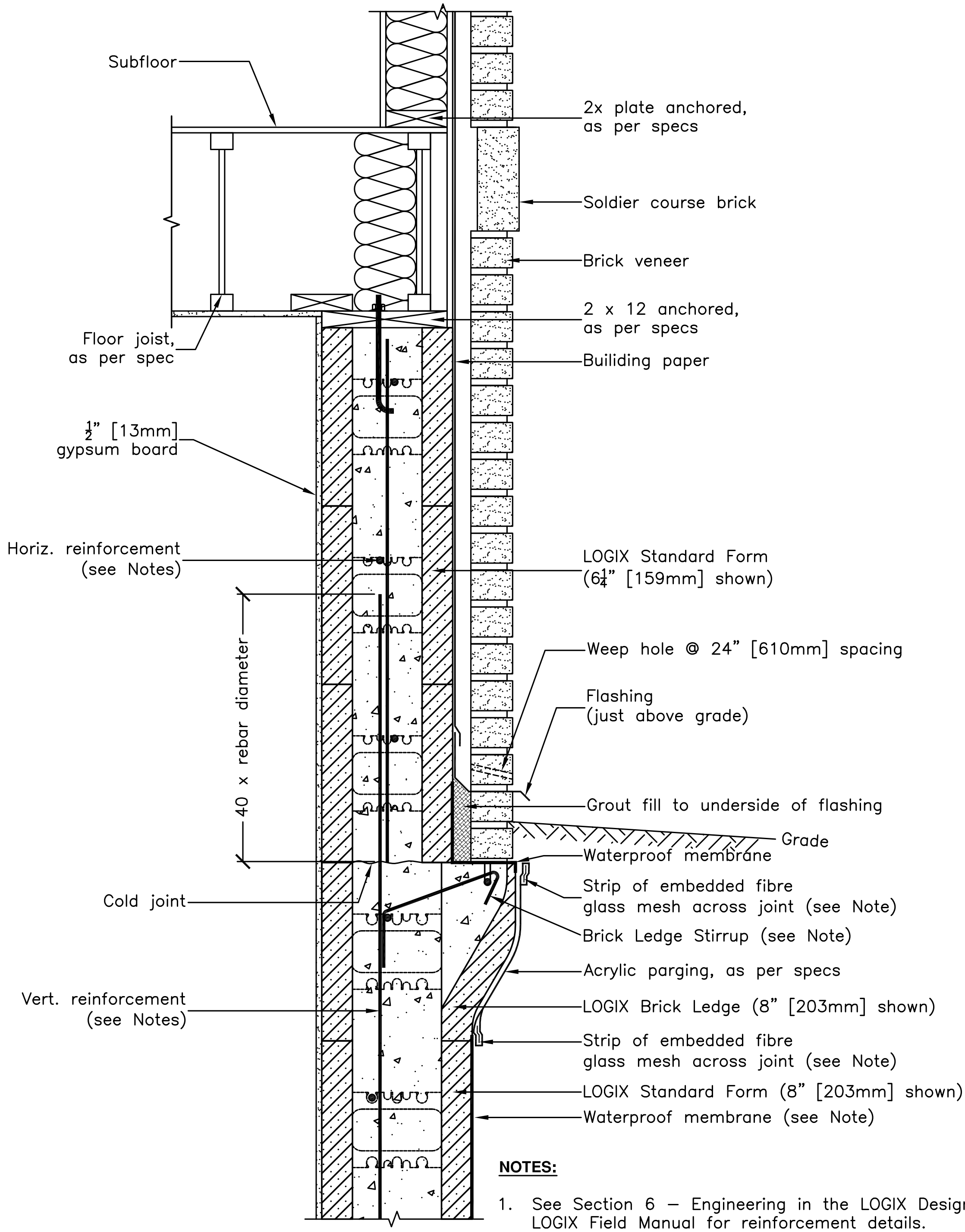


NOTES:

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.

5.7.17 – BELOW GRADE BRICK VENEER (3 OF 4)

All drawings are downloadable at www.logixicf.com

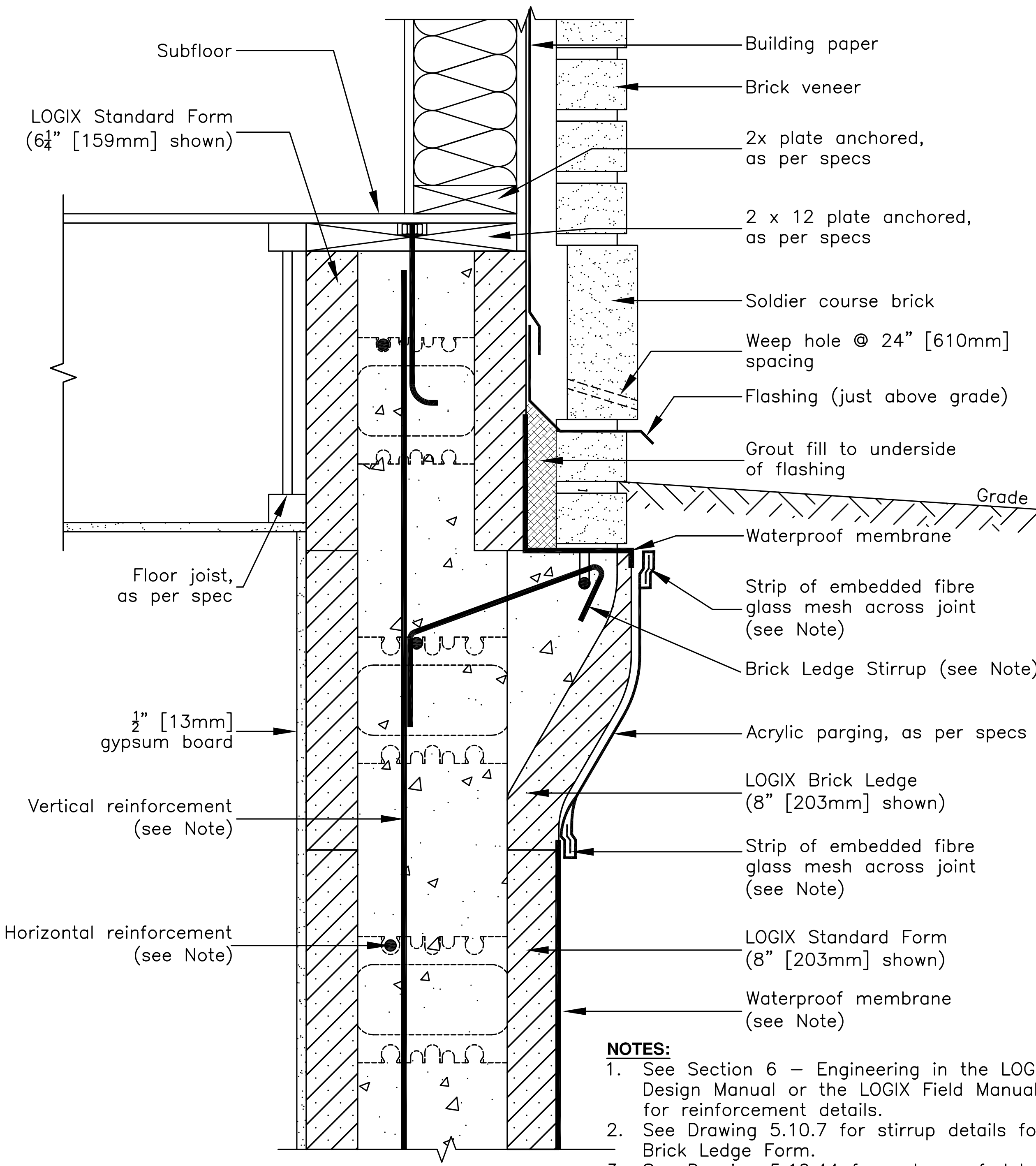


NOTES:

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.

5.7.17 – BELOW GRADE BRICK VENEER (4 OF 4)

All drawings are downloadable at www.logixicf.com

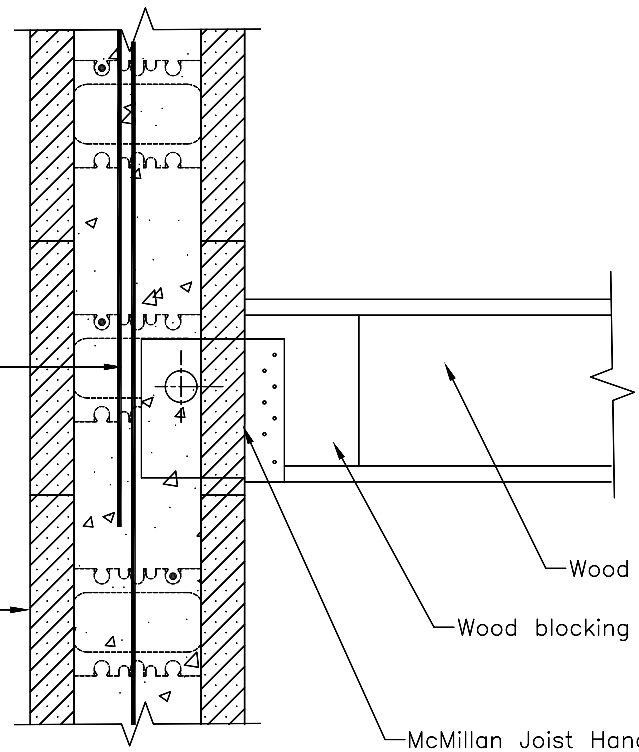


NOTES:

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.

5.7.18 – McMILLAN JOIST HANGER WOOD JOIST CONNECTION

All drawings are downloadable at www.logixicf.com

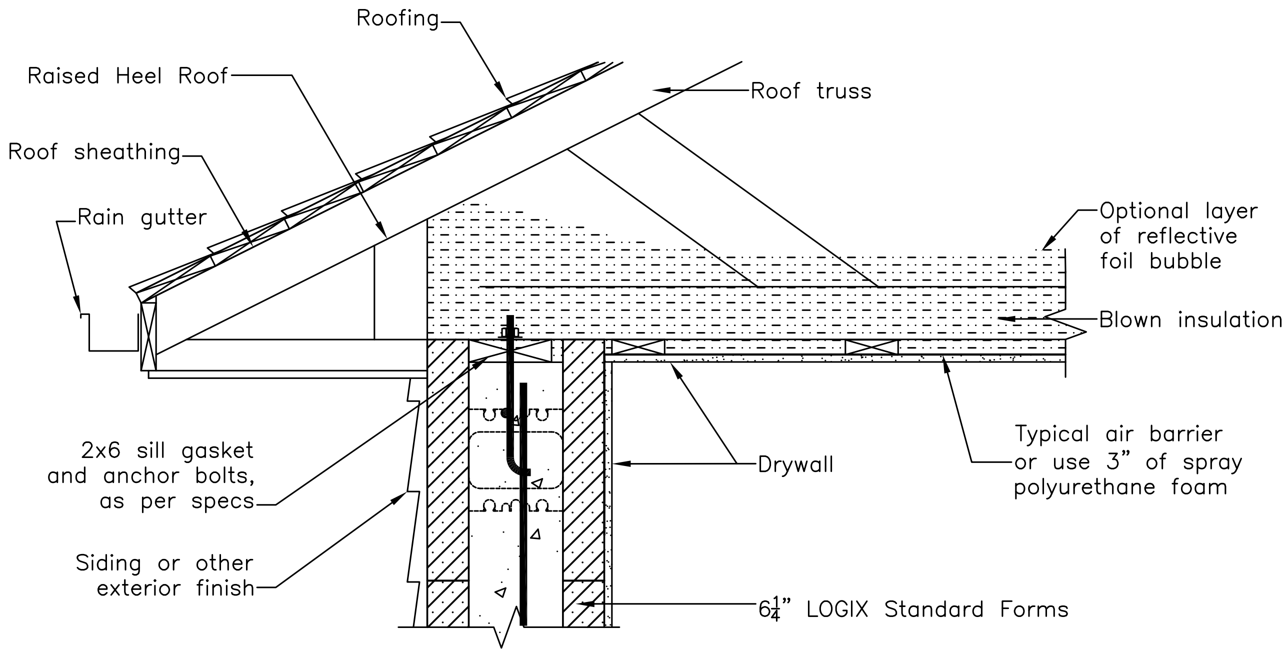


NOTES:

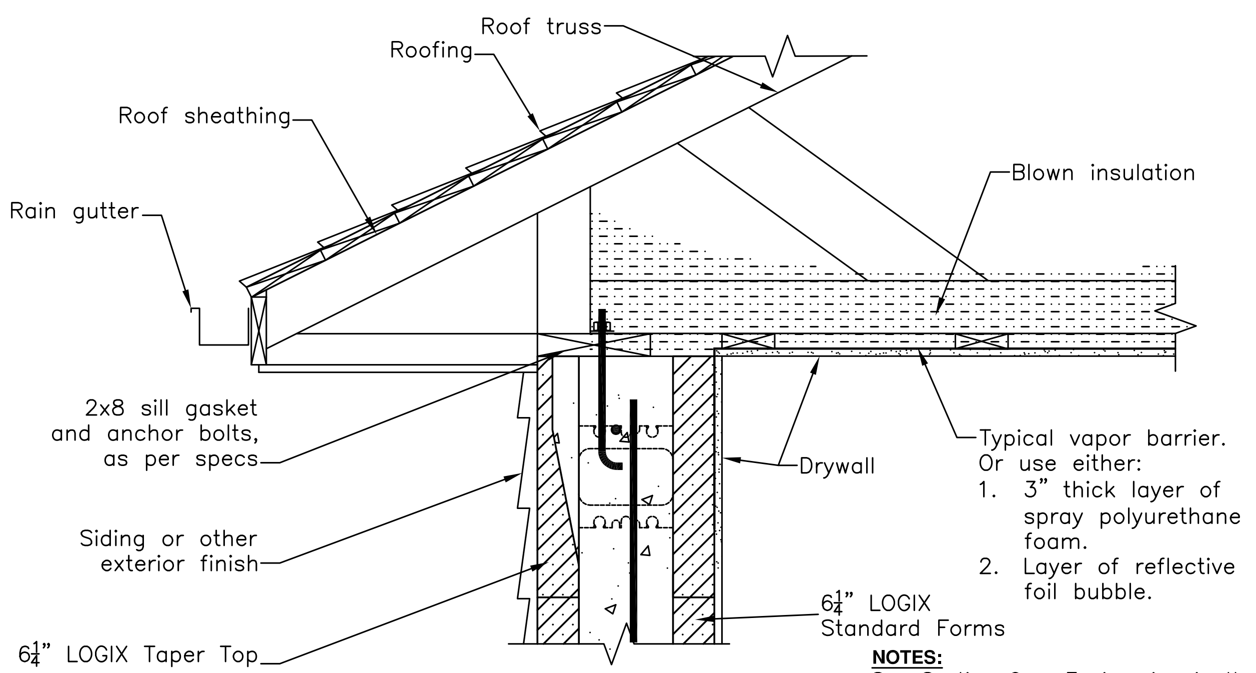
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8 – ROOF CONNECTIONS
5.8.1 – ROOF - 2x6 RECESSED TOP PLATE
5.8.2 – ROOF - 2x8 OVERHUNG TOP PLATE

All drawings are downloadable at www.logixicf.com



5.8.1 - 2x6 RECESSED TOP PLATE

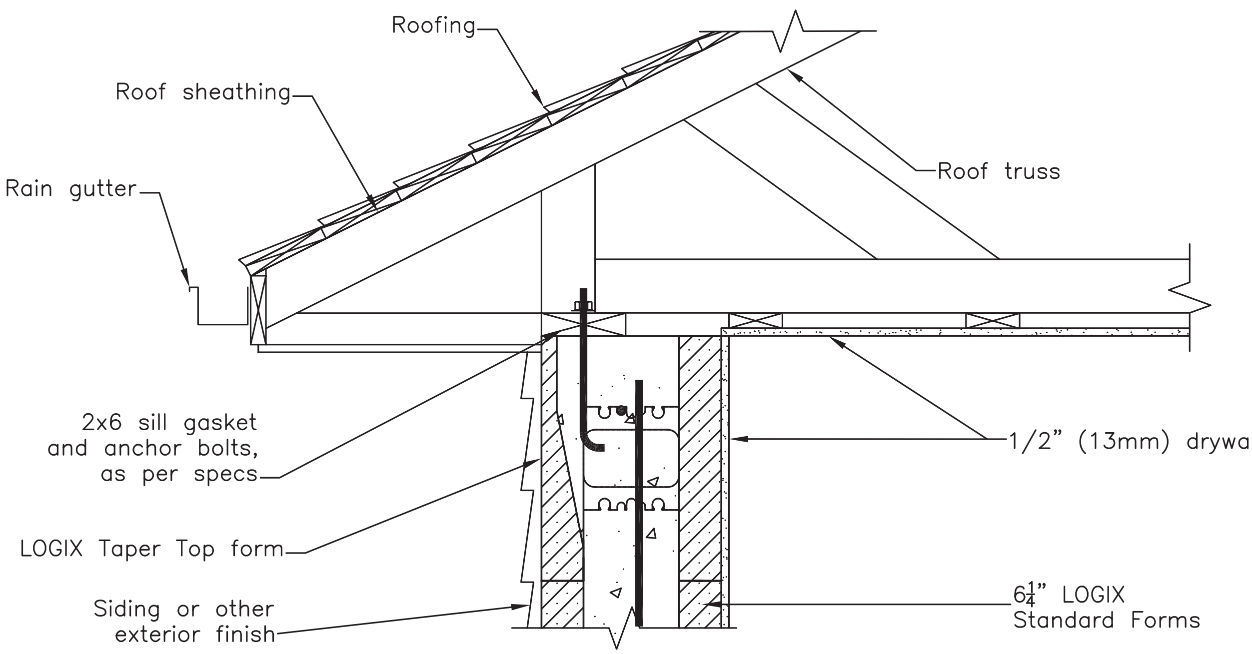


NOTES:
See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.

5.8.2 - 2x8 OVERHUNG TOP PLATE

5.8.3 – ROOF - 2x6 WITH TAPER TOP FORM

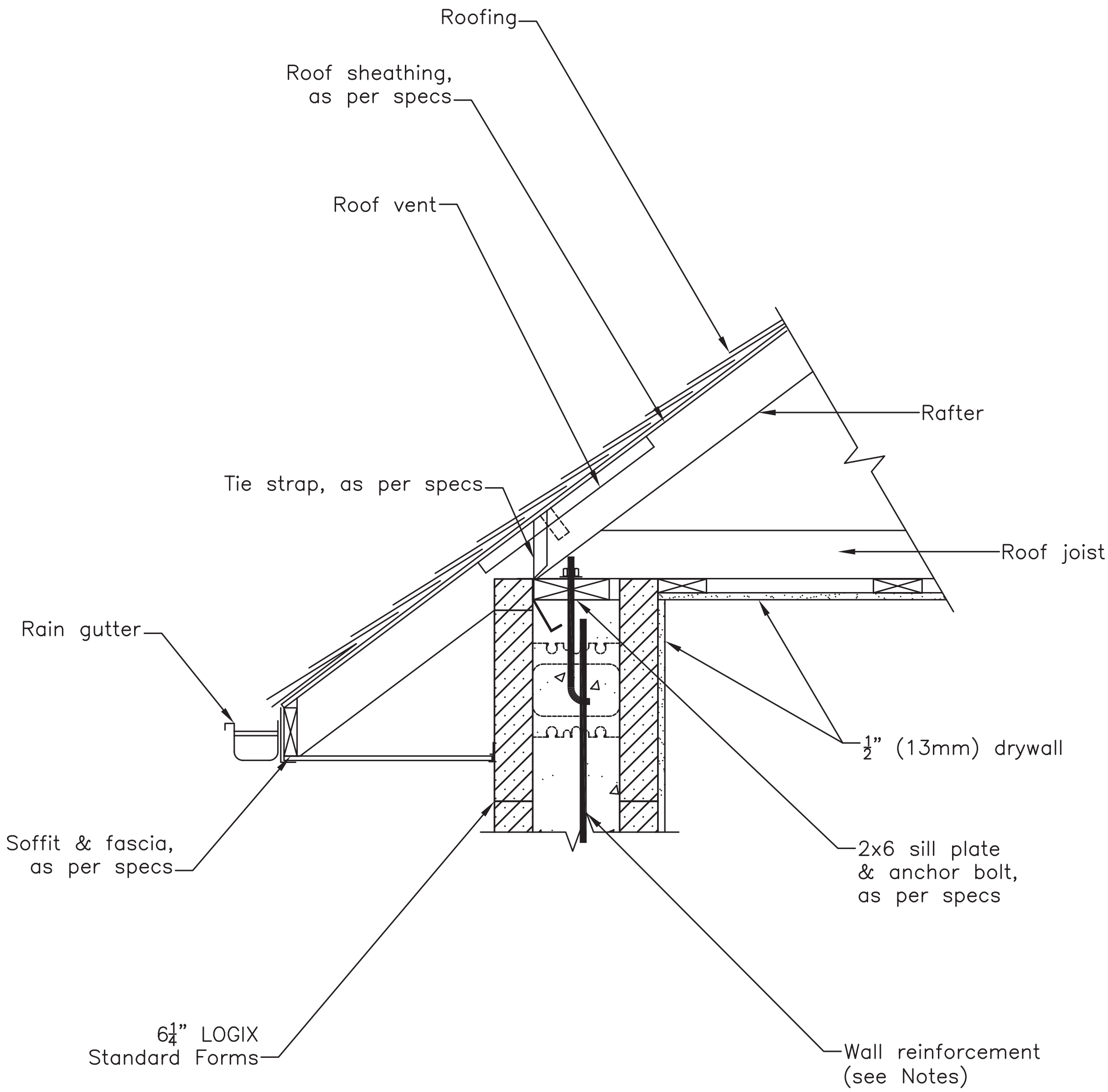
All drawings are downloadable at www.logixicf.com



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

5.8.4 – ROOF - HURRICANE TIE DOWN STRAP

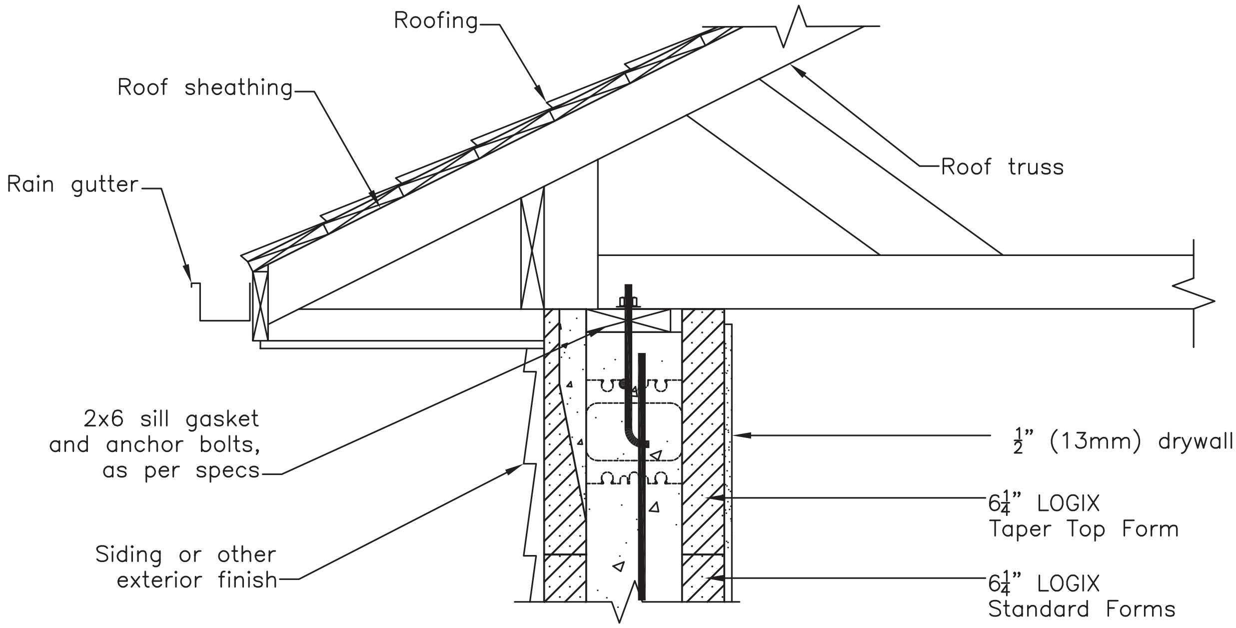
All drawings are downloadable at www.logixicf.com



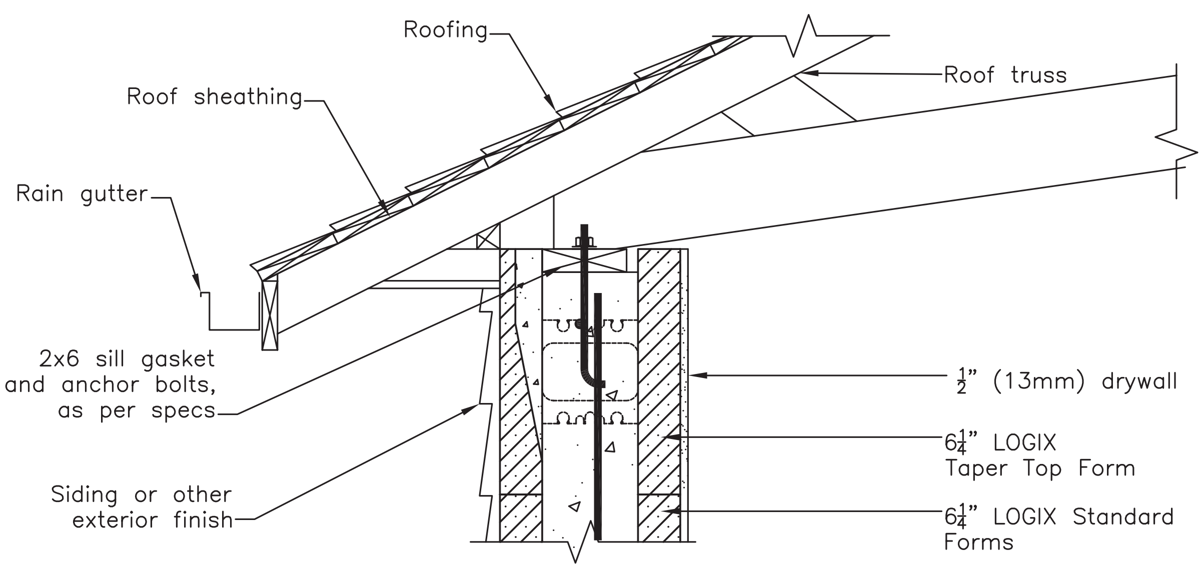
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.5 – VAULTED CEILINGS - 1 of 2

All drawings are downloadable at www.logixicf.com



Vaulted Ceiting - A - Frame

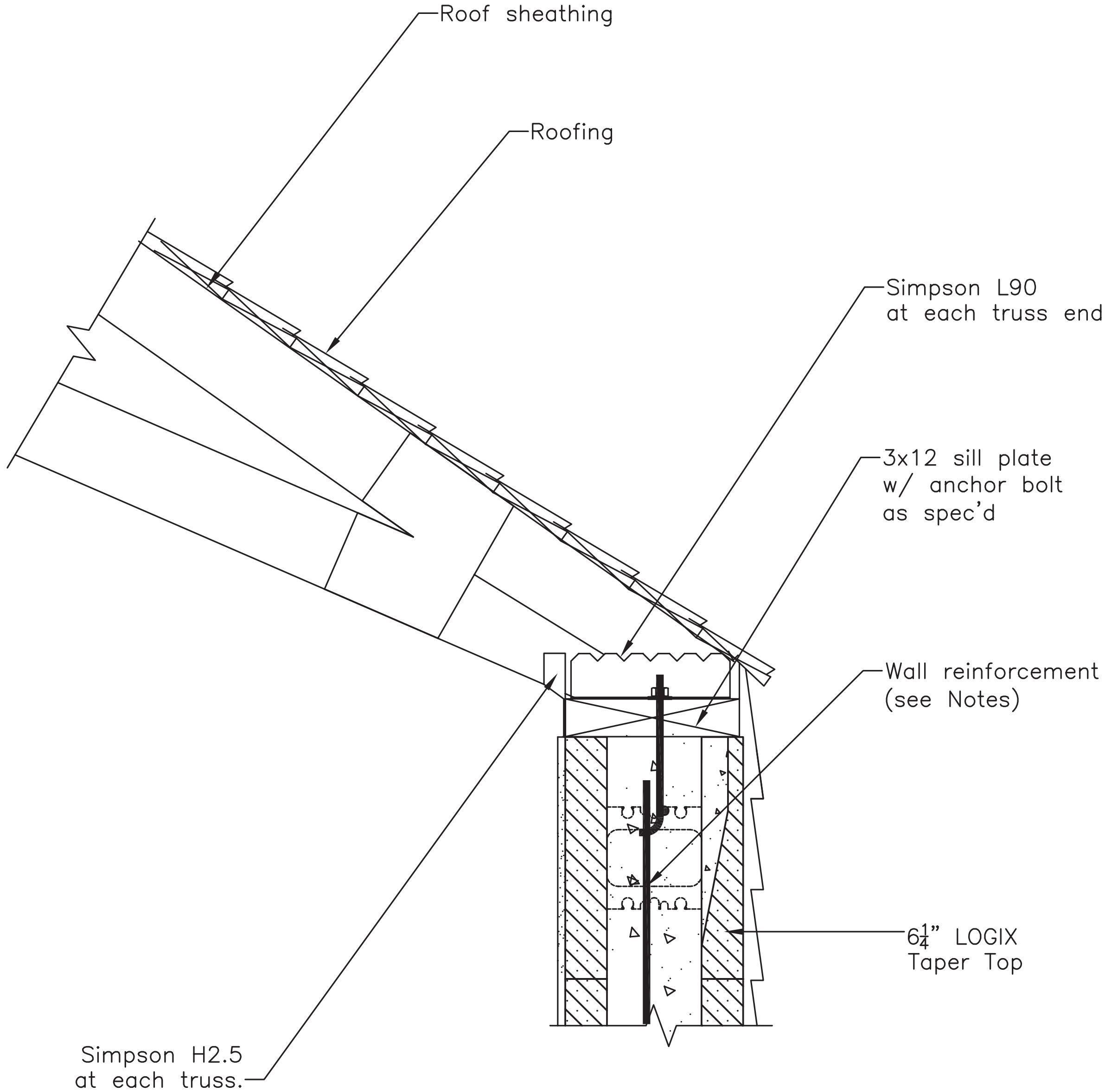


Vaulted Ceiling - Scissor Truss

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

5.8.5 – VAULTED CEILINGS - 2 of 2

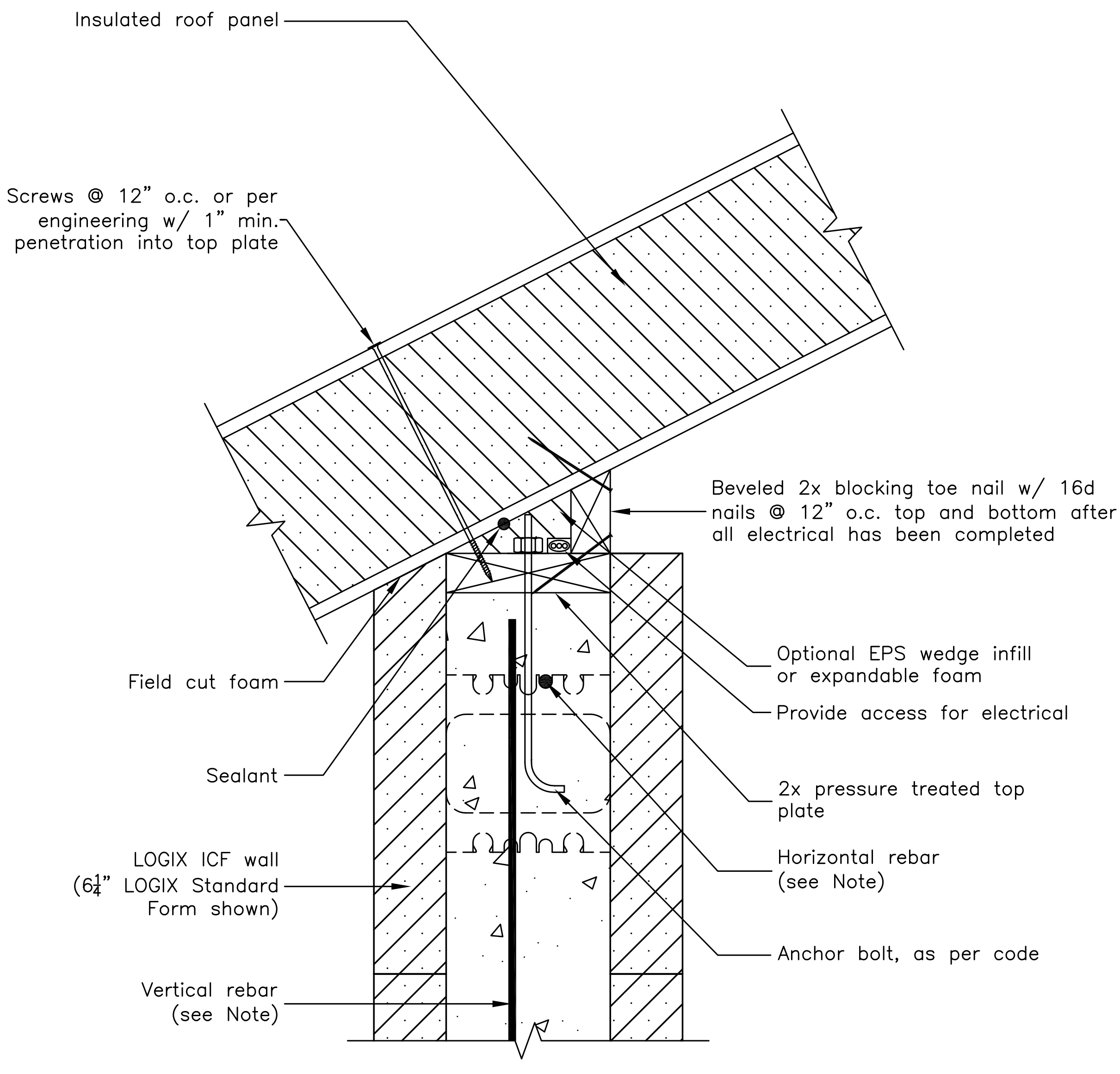
All drawings are downloadable at www.logixicf.com



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

5.8.6 – LOGIX WALL WITH SIP ROOF

All drawings are downloadable at www.logixicf.com

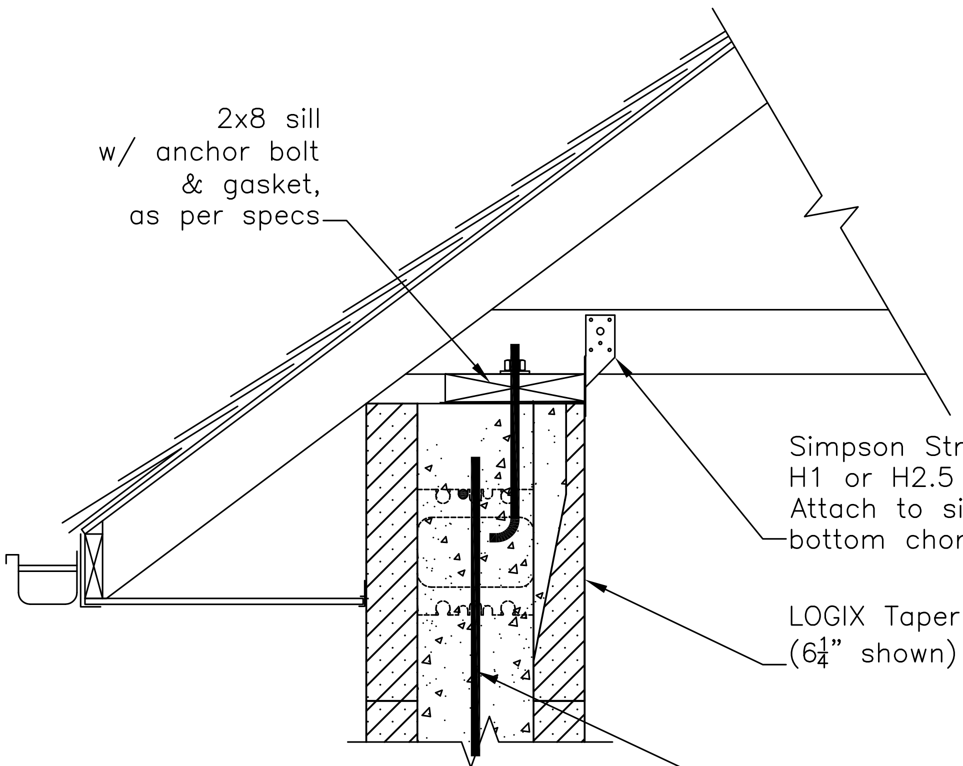


NOTES:

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.

5.8.7 – ROOF DETAIL WITH SIMPSON STRONG-TIE H1/H2.5 STRAP

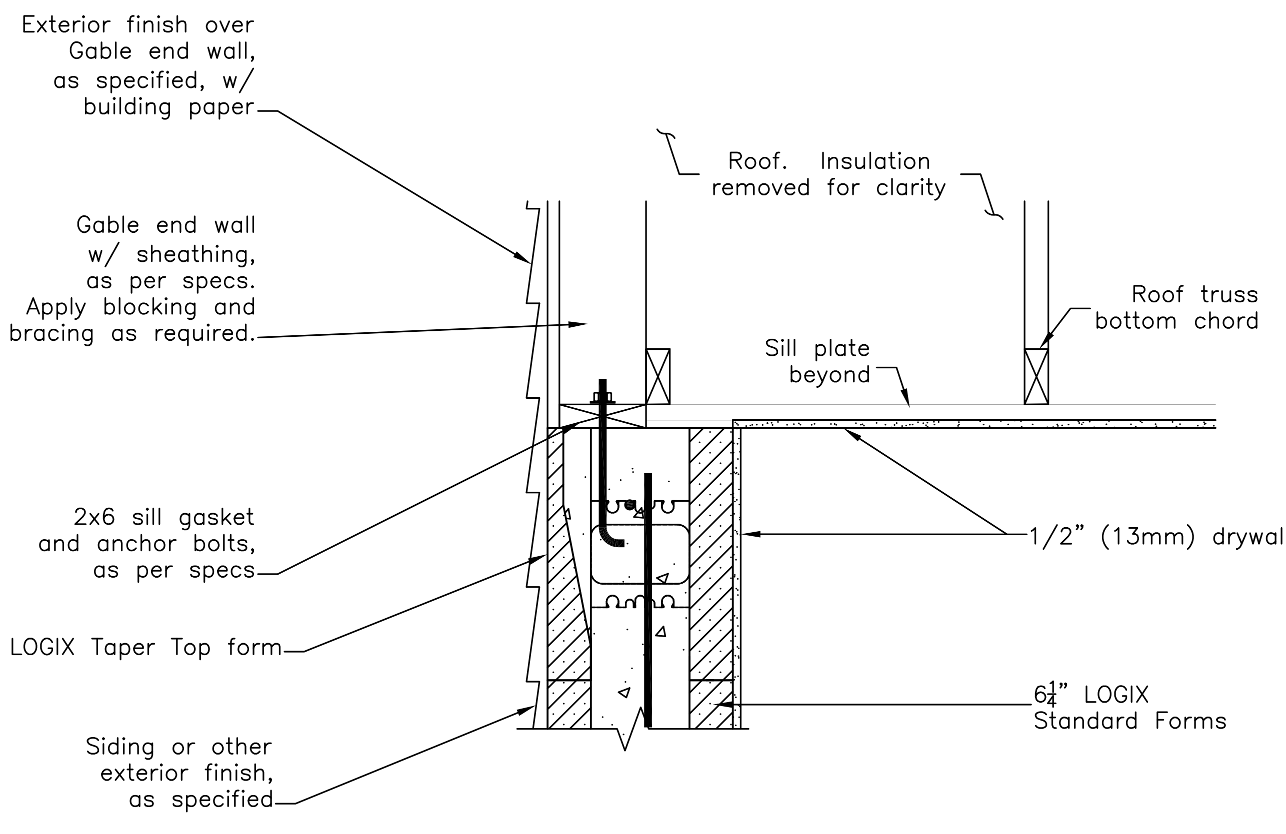
All drawings are downloadable at www.logixicf.com



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

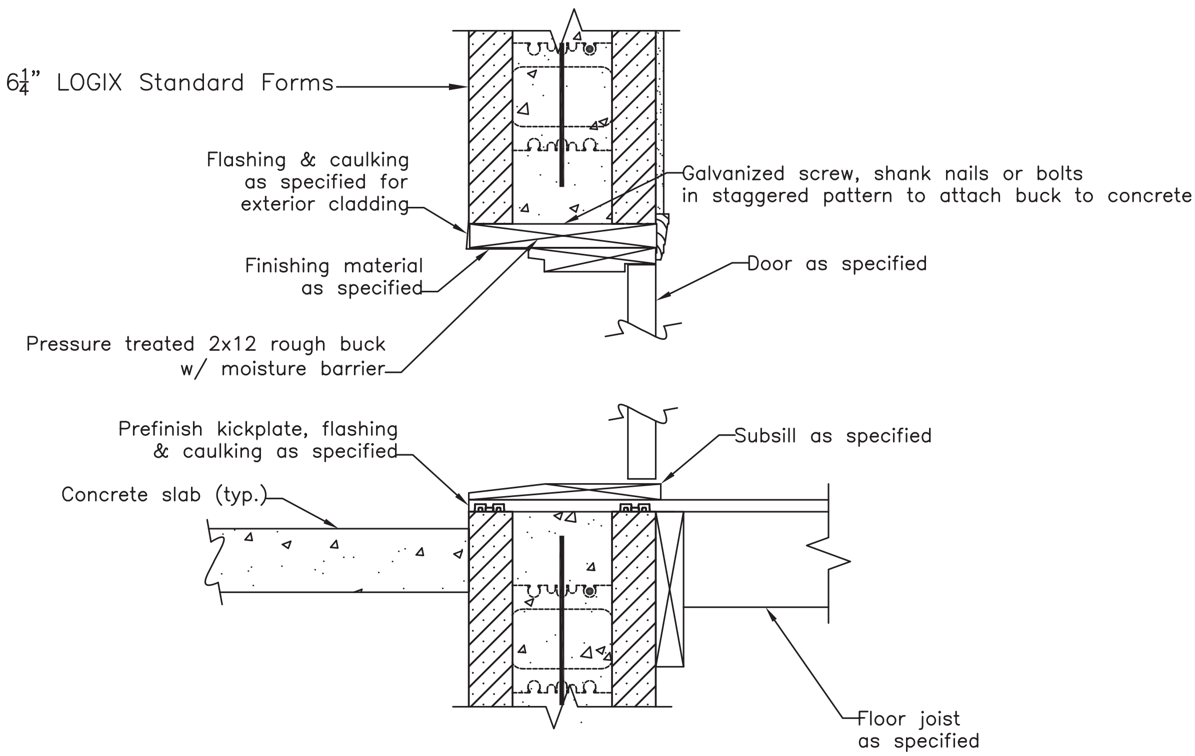
5.8.8 – GABLE WALL END WOOD FRAMED CONNECTION

All drawings are downloadable at www.logixicf.com

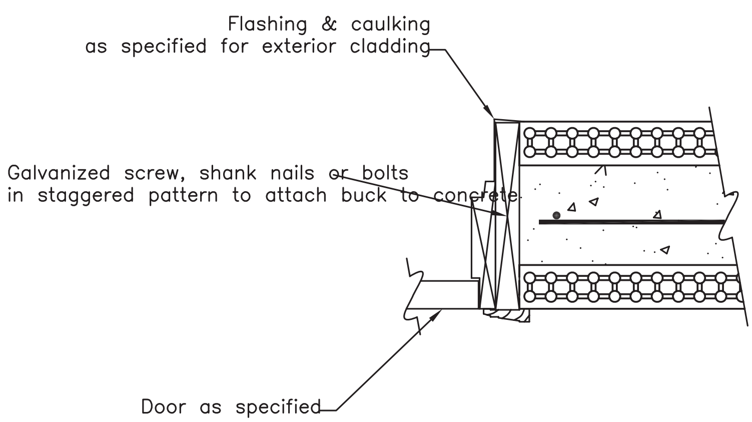


5.9 – WINDOW & DOOR DETAILS
5.9.1 – DOOR JAMB, HEAD & SILL

All drawings are downloadable at www.logixicf.com



DOOR HEAD & SILL USING WOOD BUCKS

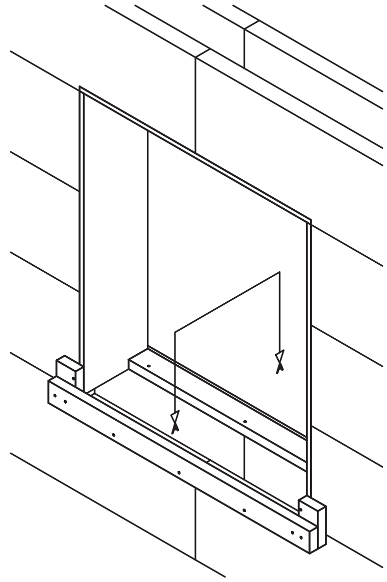


DOOR JAMB USING WOOD BUCKS

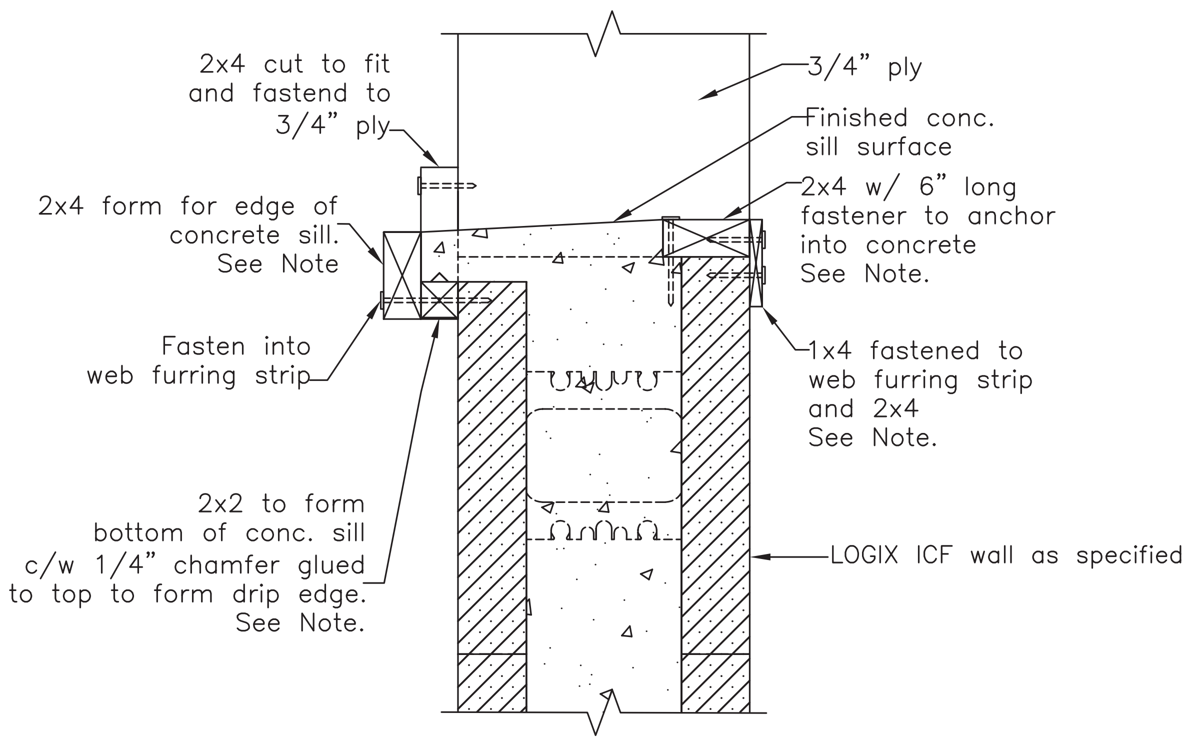
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.9.2 – SLOPED CONCRETE SILL

All drawings are downloadable at www.logixicf.com



WOOD WINDOW BUCK
SLOPED CONCRETE SILL



SECTION A-A

NOTE:
Adjust 2x lumber to suit specified slope of concrete sill.

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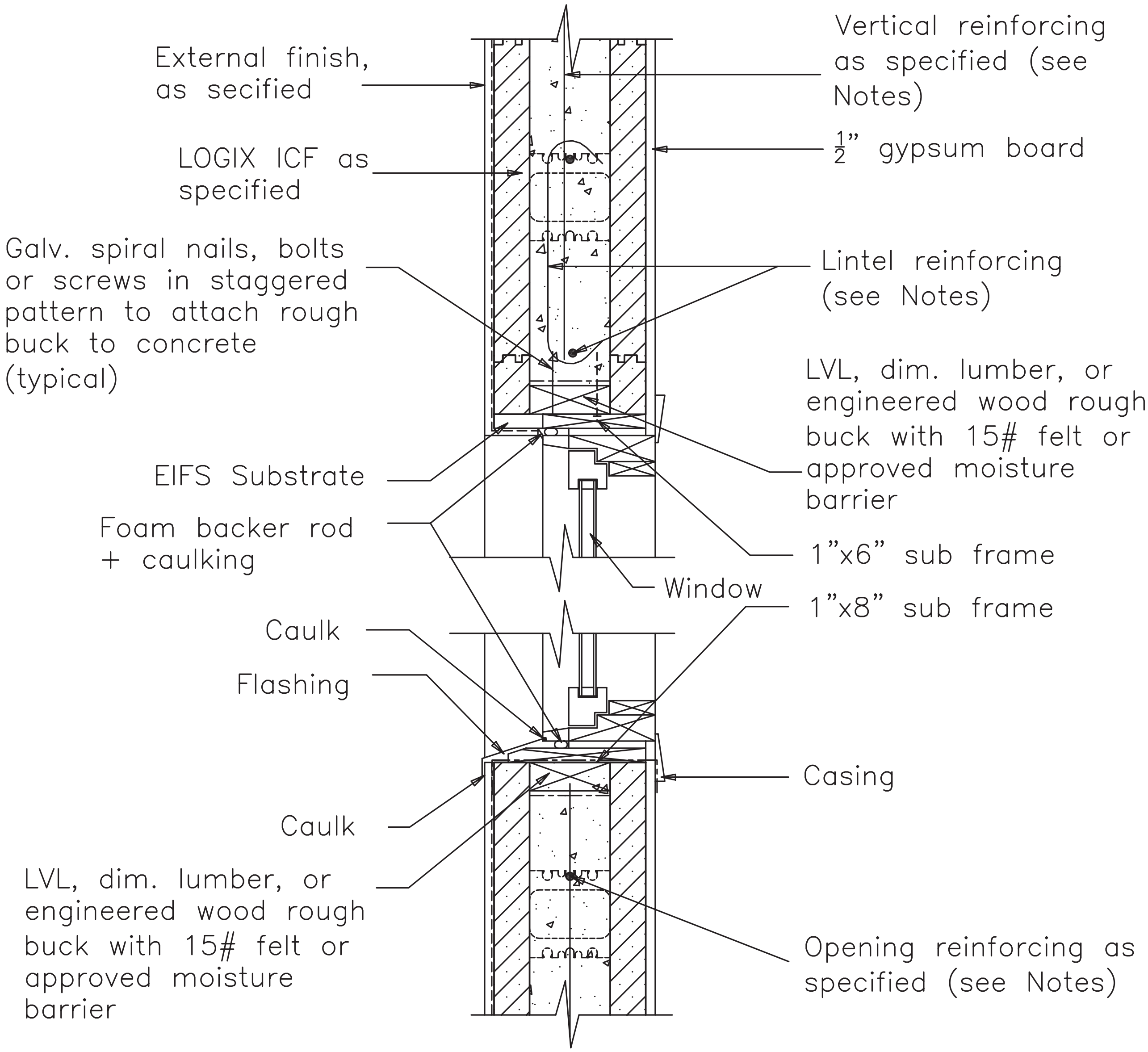
Rev. Sep 23/09

5.9.3 – WINDOW HEAD / SILL DETAIL

All drawings are downloadable at www.logixicf.com

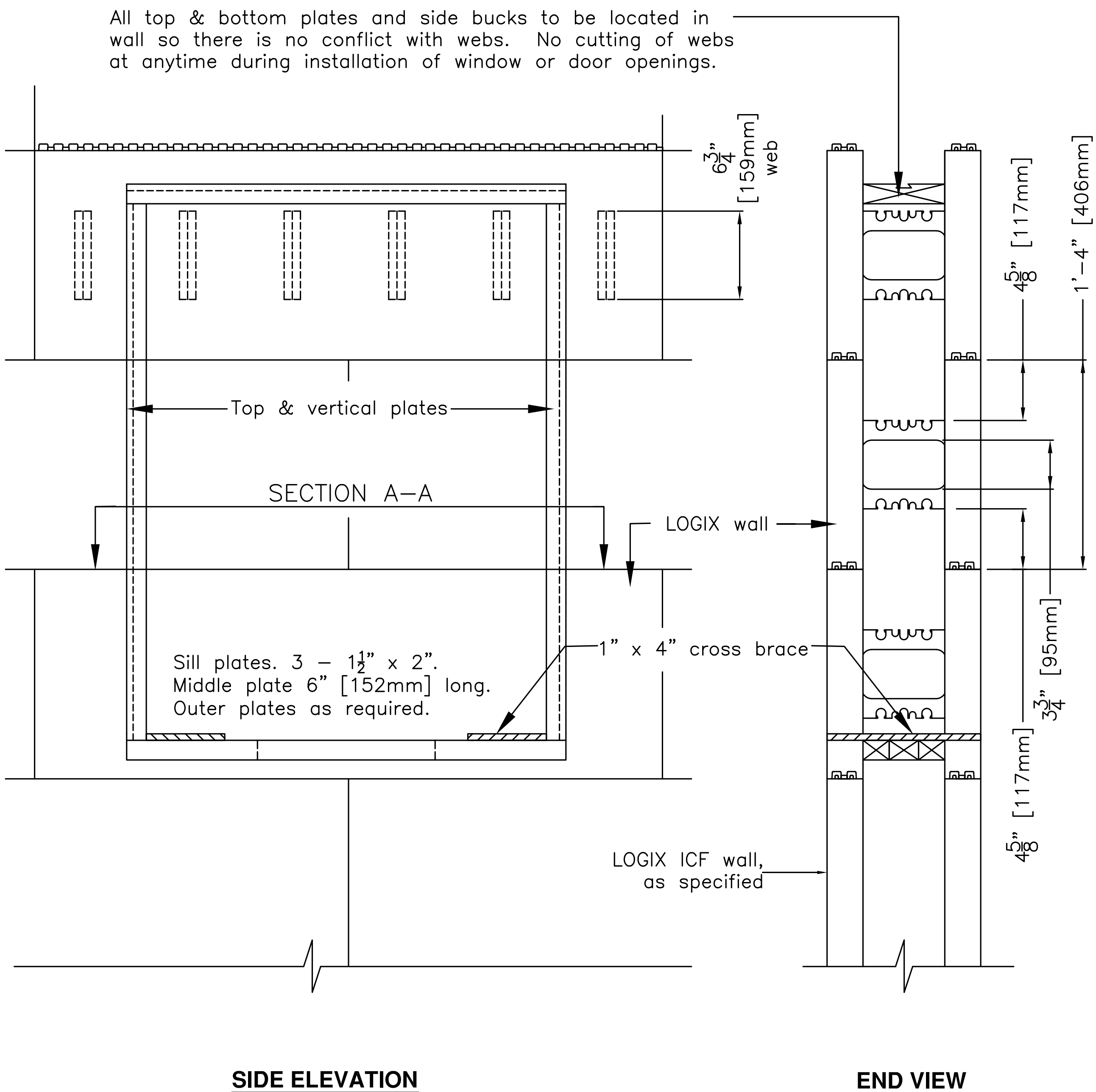


NOTES:

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

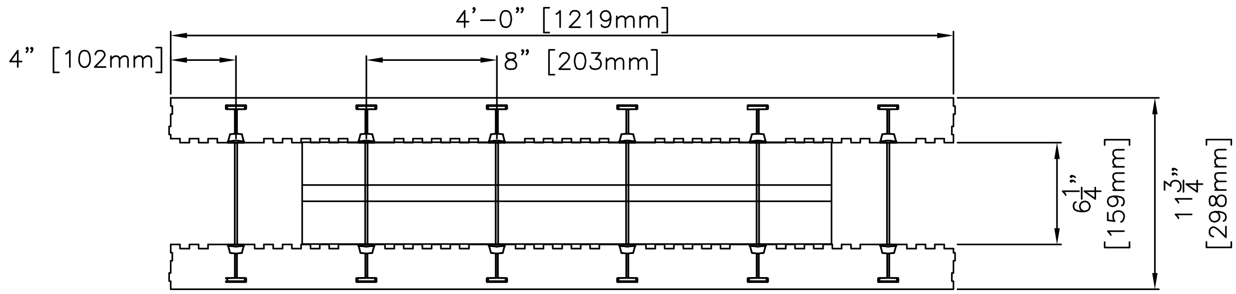
5.9.4 – WINDOW BUCK DETAILS

All drawings are downloadable at www.logixicf.com



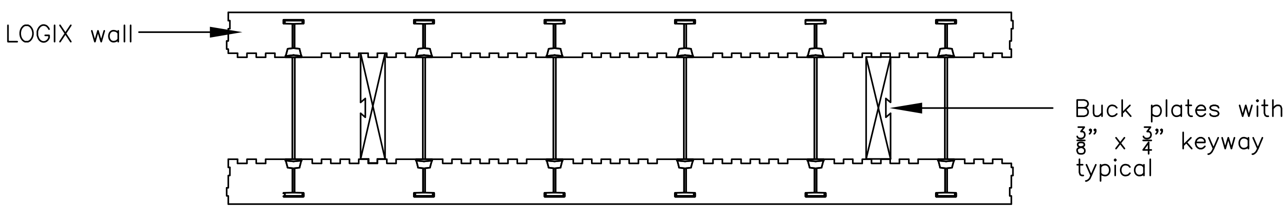
5.9.4 – WINDOW BUCK DETAILS CONTINUED

All drawings are downloadable at www.logixicf.com

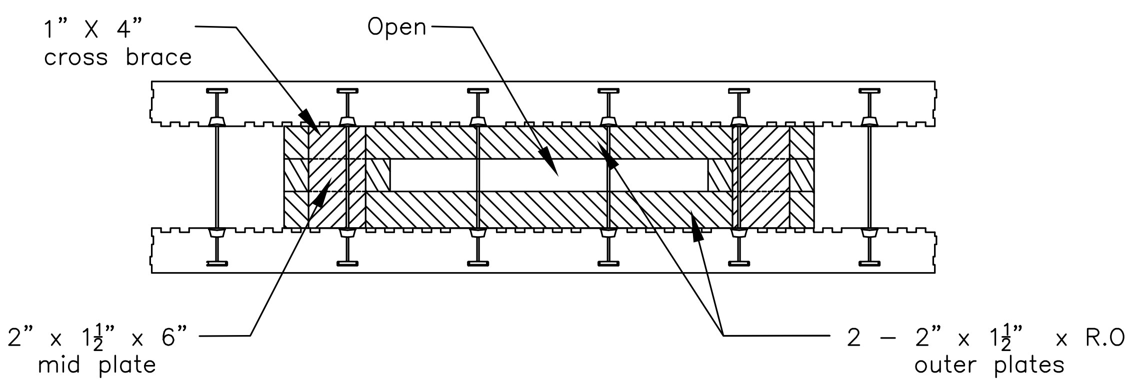


TOP VIEW

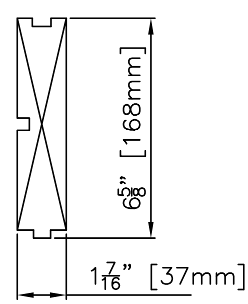
Top & vertical plates for $6\frac{1}{4}$" [159mm] concrete cores width



SECTION A-A



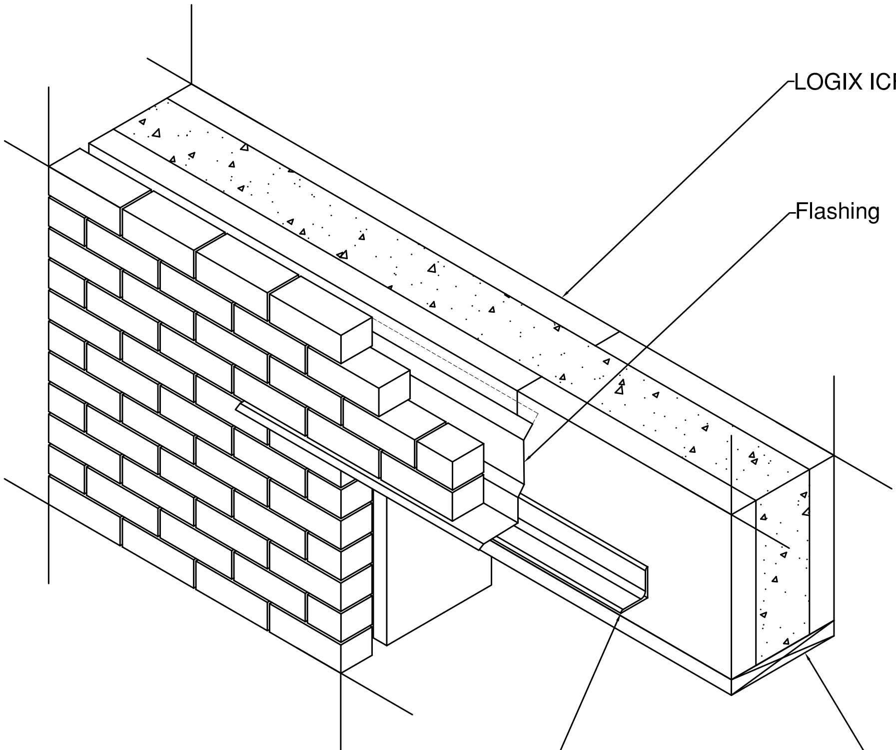
PLAN WINDOW SILL

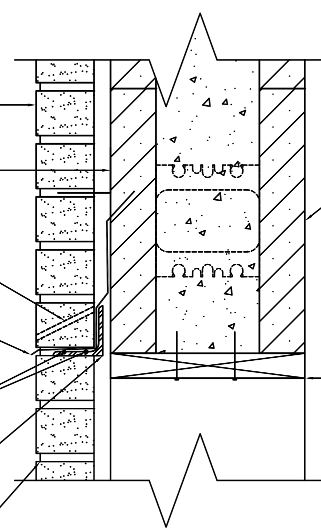


All top & bottom plates and side bucks to be located in wall so there is no conflict with webs. No cutting of webs at anytime during installation of window or door openings.

5.9.5 – STEEL LINTEL WITH BRICK VENEER

All drawings are downloadable at www.logixicf.com



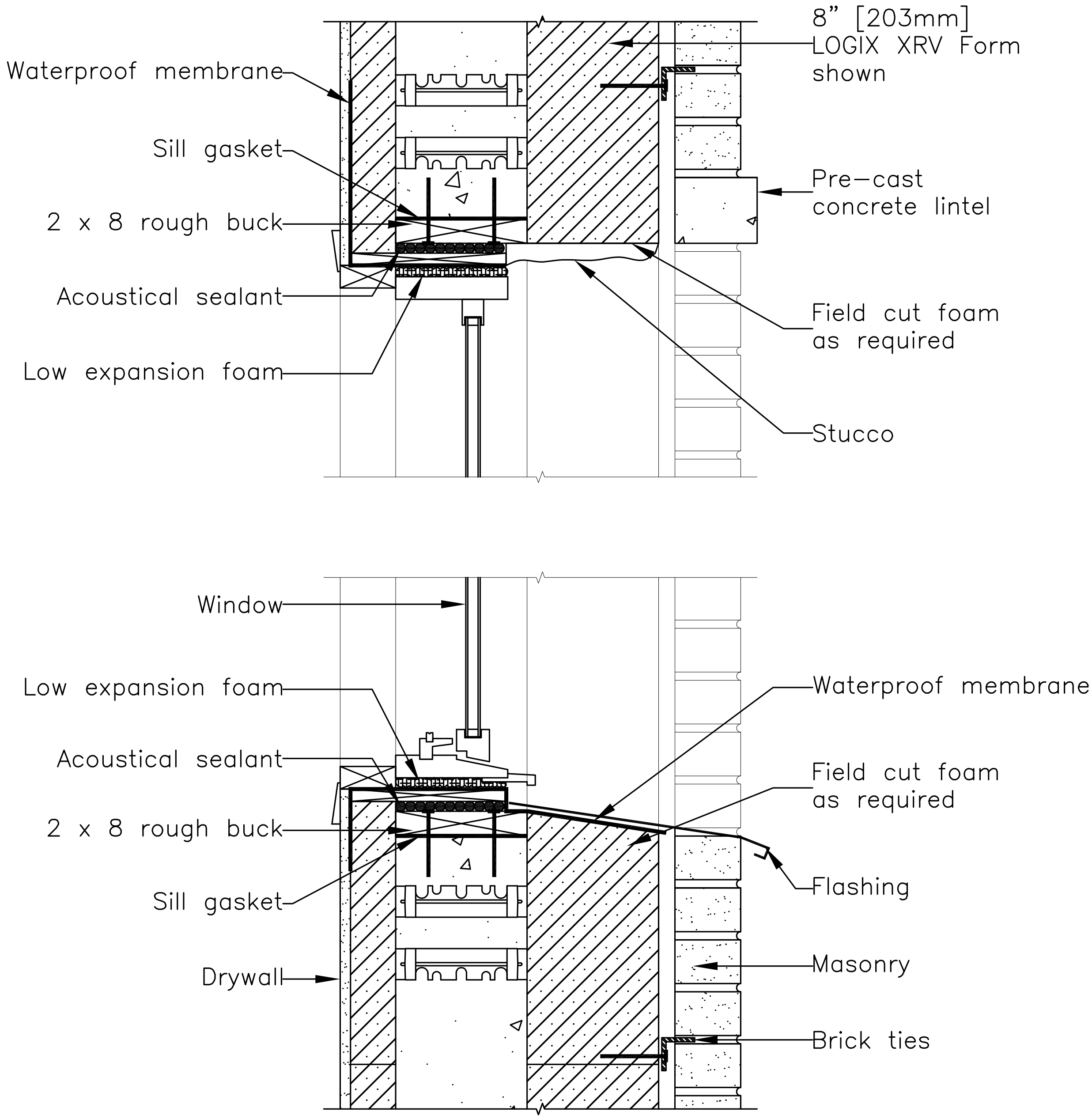


SECTION THROUGH LINTEL

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.

5.9.6 - WINDOW HEAD/SILL DETAIL WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

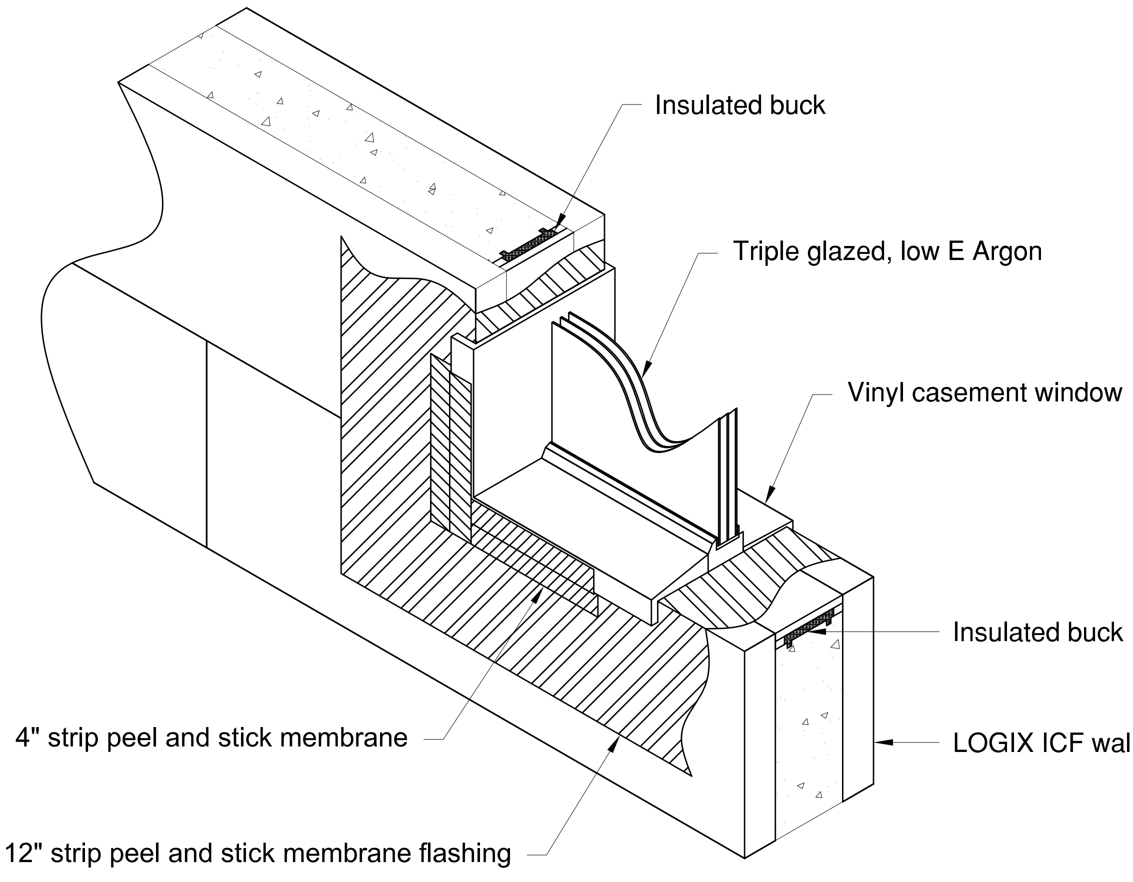


NOTES:

1. See Section 6 – Engineering in the LOGIX Design Manual for wall & lintel reinforcement.

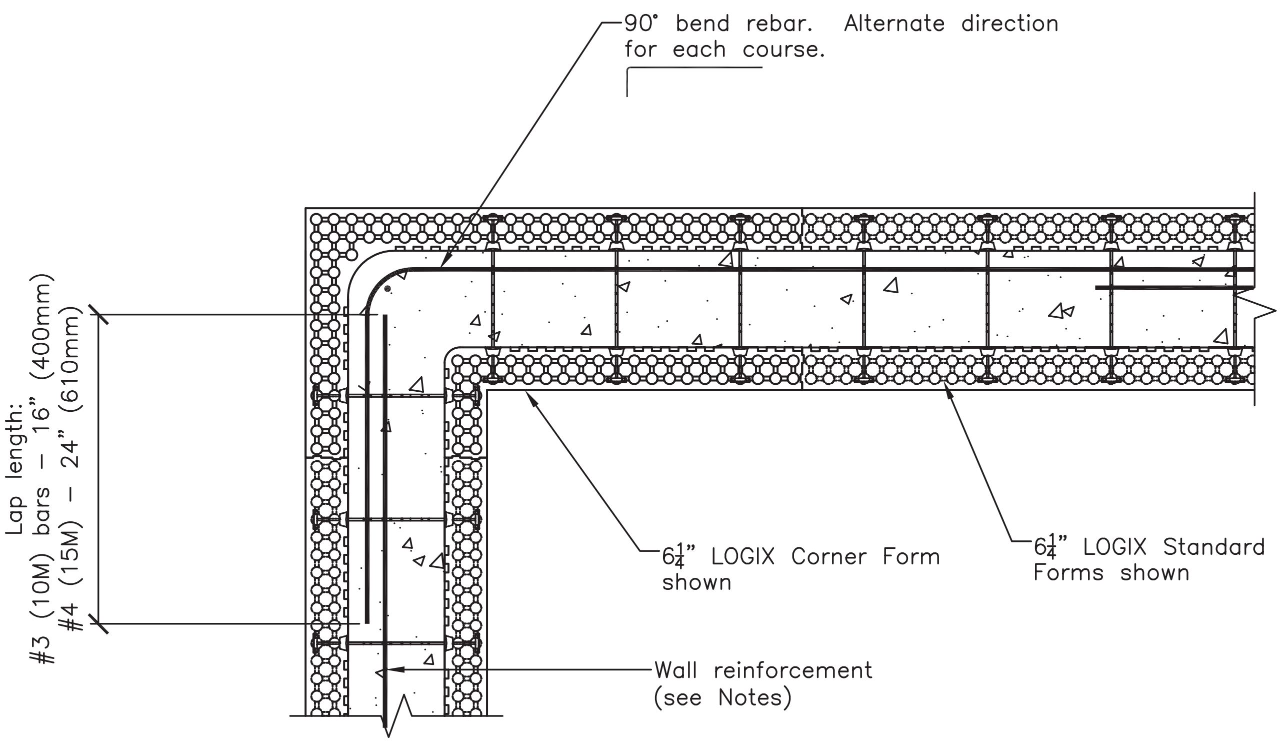
5.9.7 – WINDOW FLASHING DETAIL

All drawings are downloadable at www.logixicf.com



5.10 – SPECIAL DETAILS
5.10.1 – REINFORCING - CORNER WALL

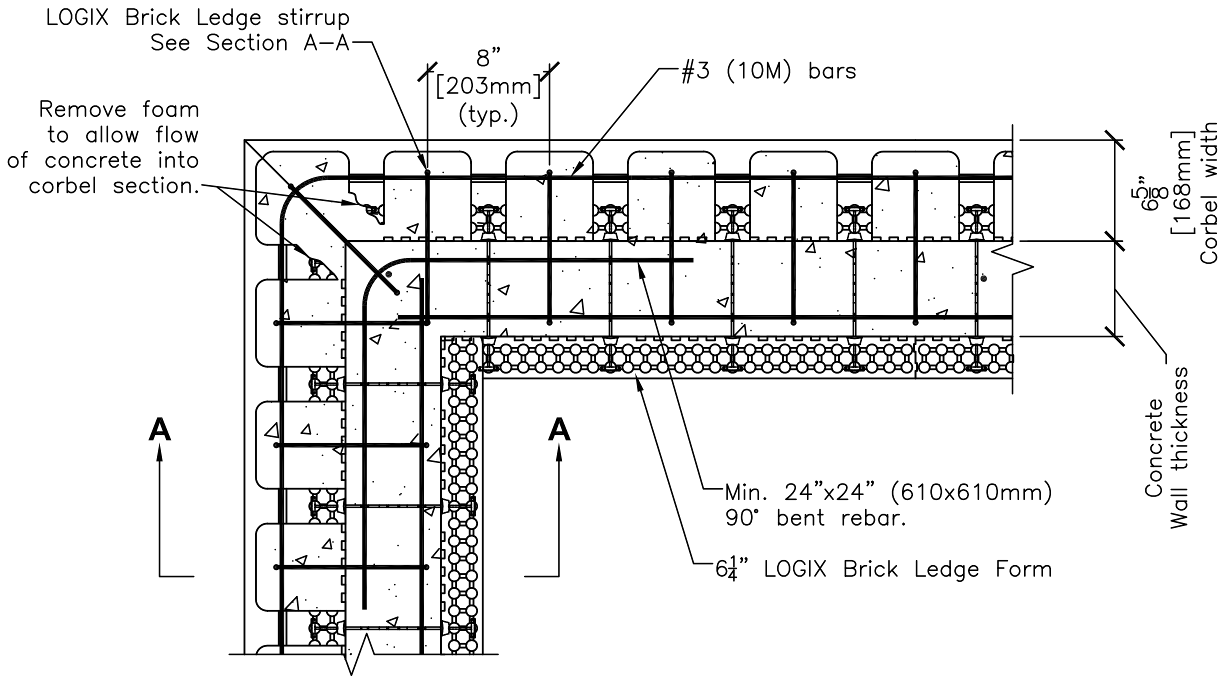
All drawings are downloadable at www.logixicf.com

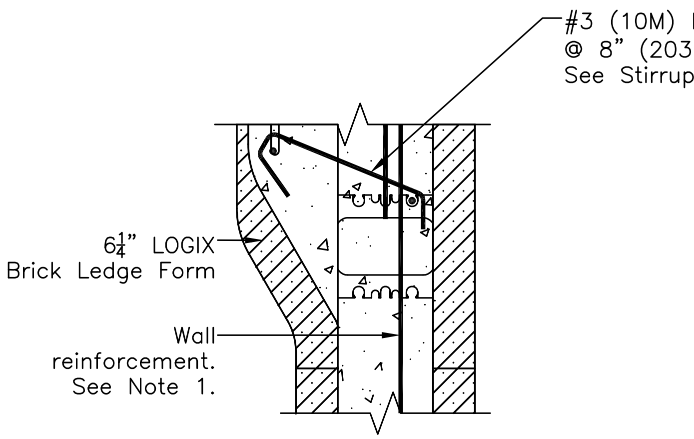


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

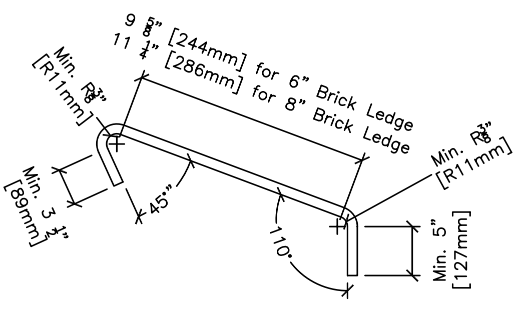
5.10.2 – REINFORCING - CORNER WITH BRICK LEDGE FORMS

All drawings are downloadable at www.logixicf.com





SECTION A-A



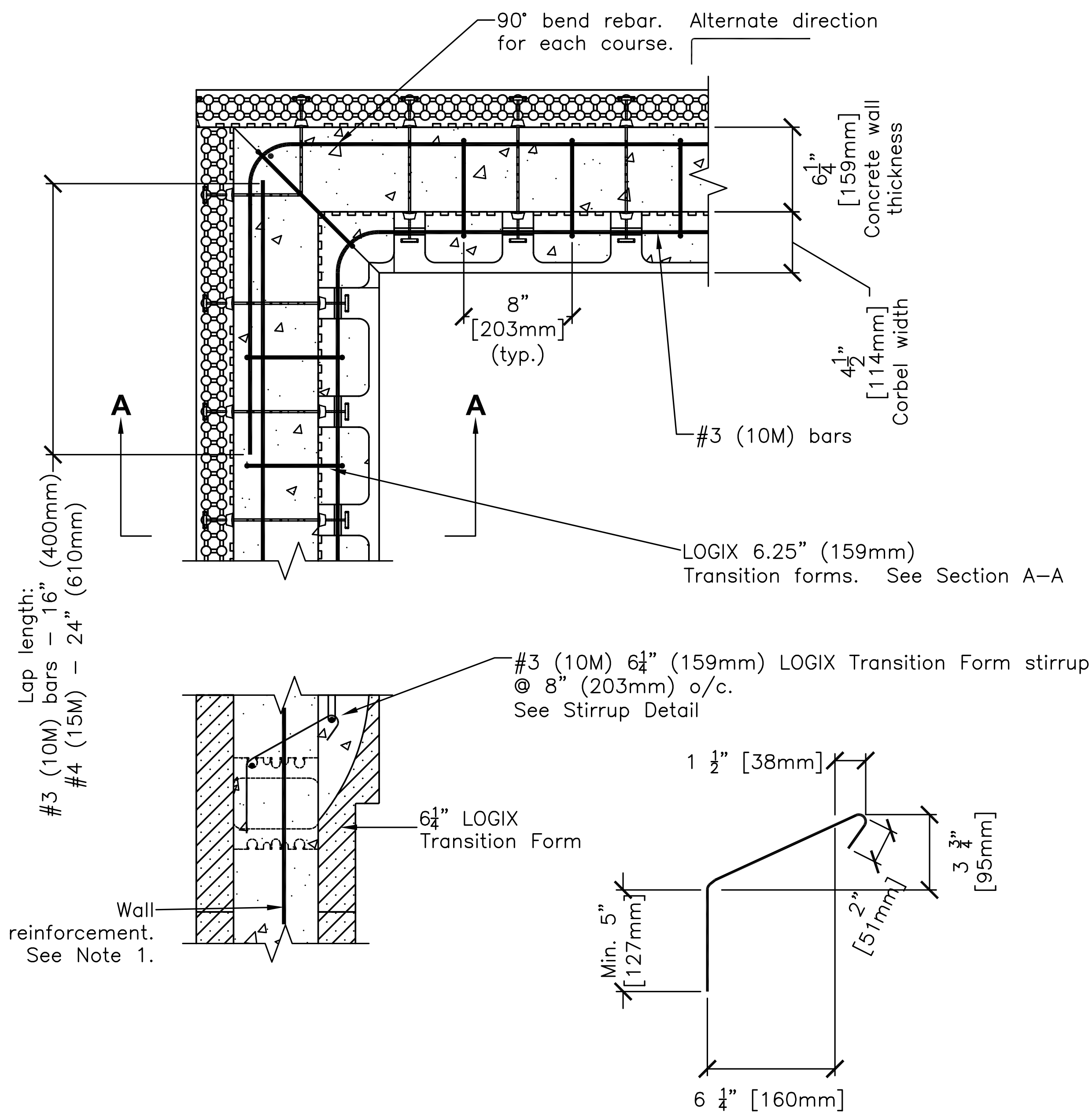
STIRRUP DETAIL
(See Note 2)

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.

5.10.3 – REINFORCING - CORNER WITH 6.25” TRANSITION FORMS

All drawings are downloadable at www.logixicf.com



SECTION A-A

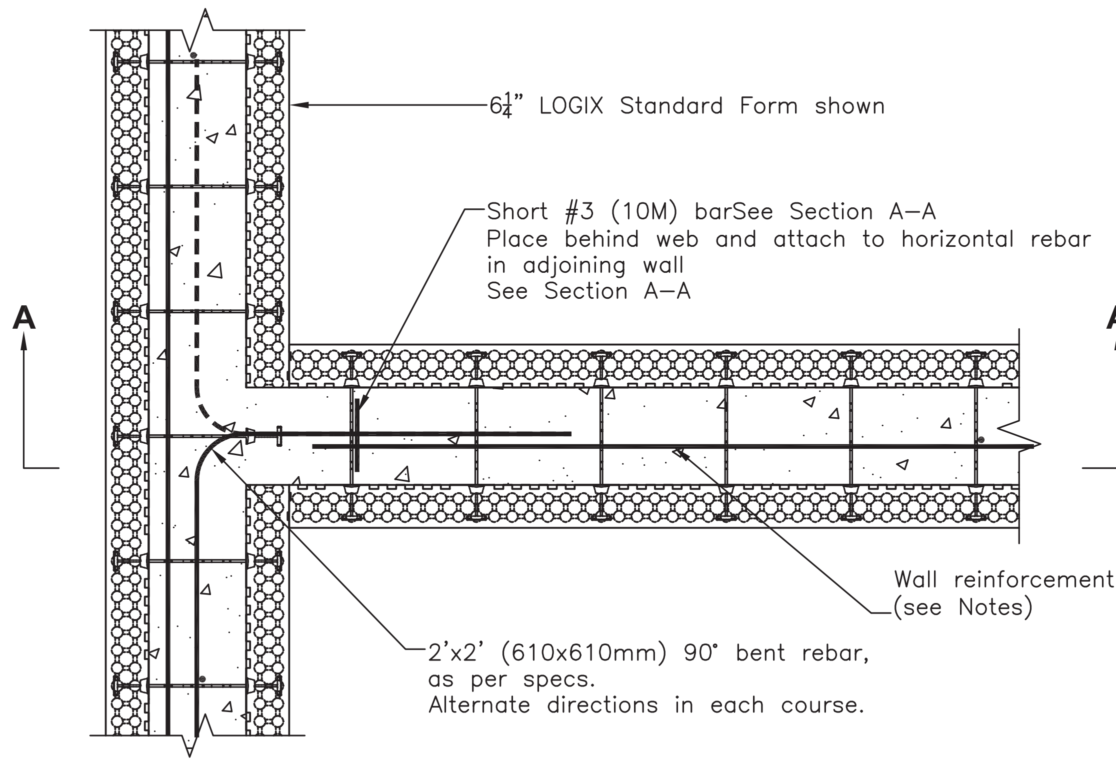
STIRRUP DETAIL
(See Note 2)

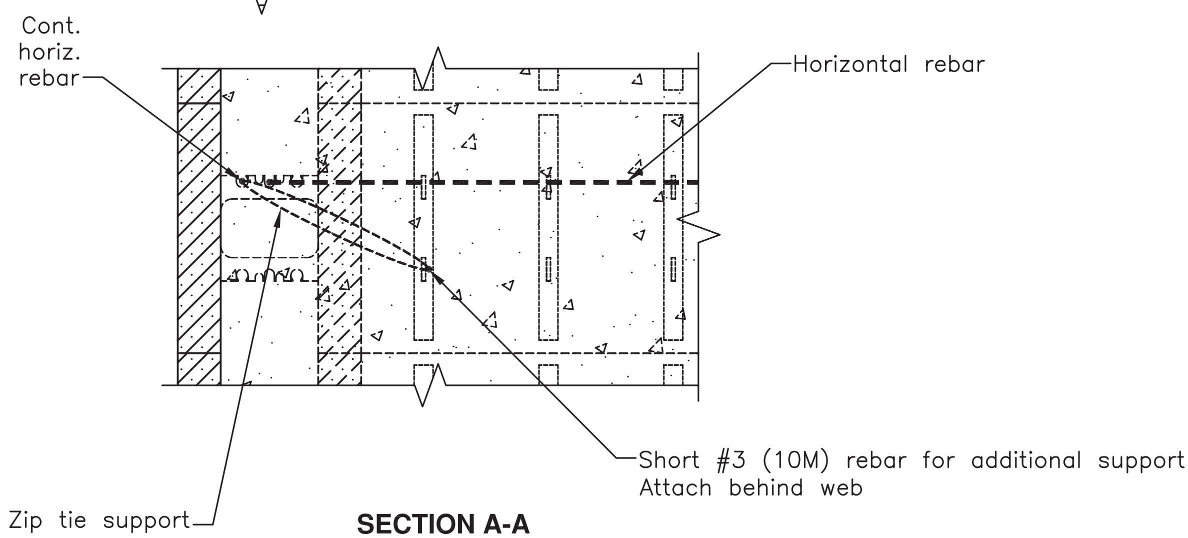
NOTES:

1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Stirrup shown is rated for 1300lbs/ft (19kN/m). Maximum load capacity w/o stirrups – 900lbs/ft (13kN/m).

5.10.4 – REINFORCING - T-WALL

All drawings are downloadable at www.logixicf.com



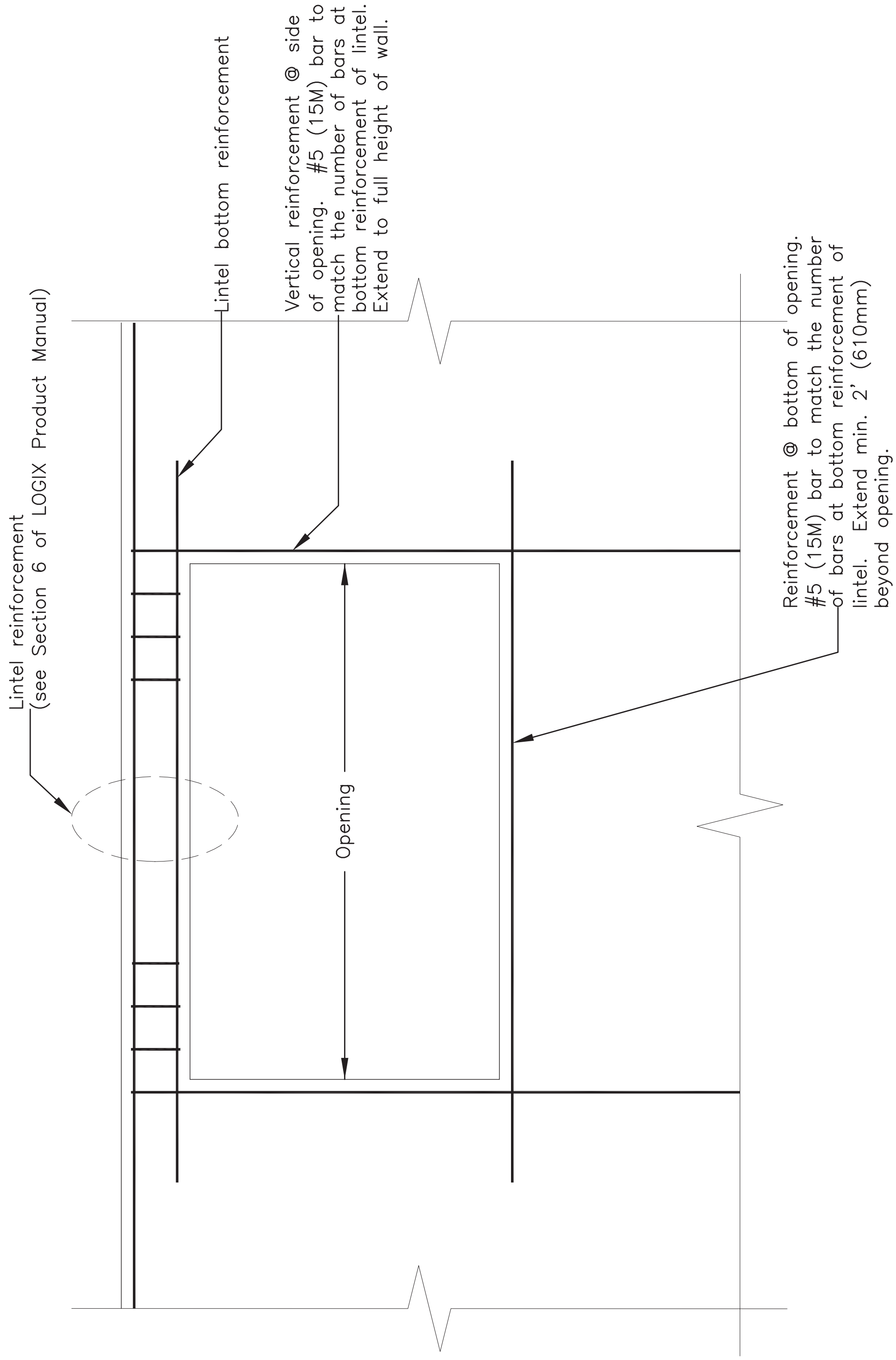


SECTION A-A

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

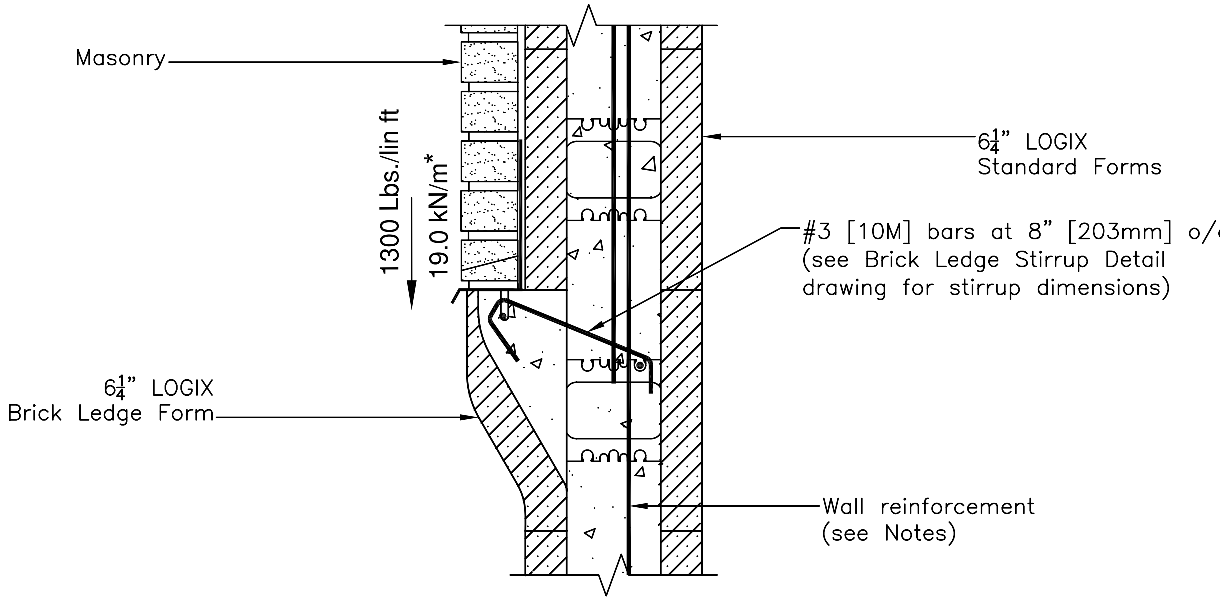
5.10.5 – TYPICAL REINFORCEMENT AROUND OPENINGS

All drawings are downloadable at www.logixicf.com

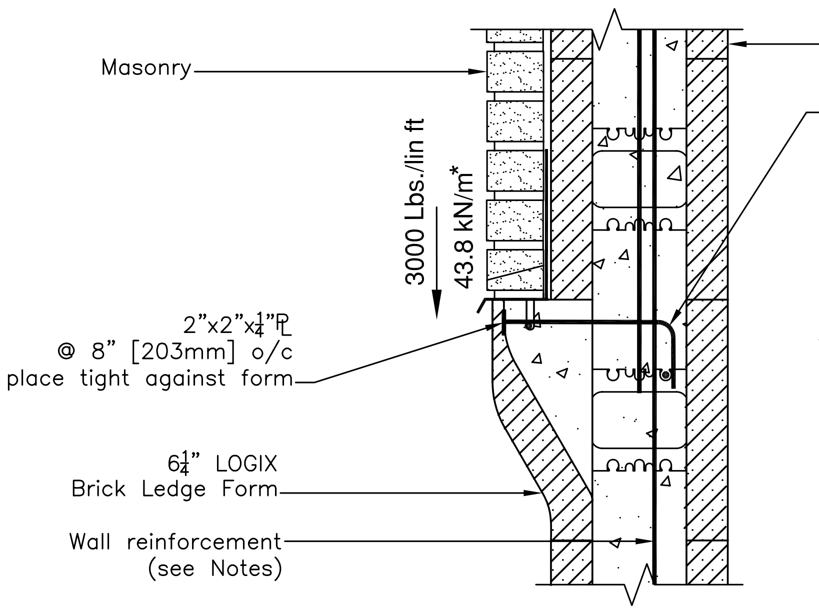


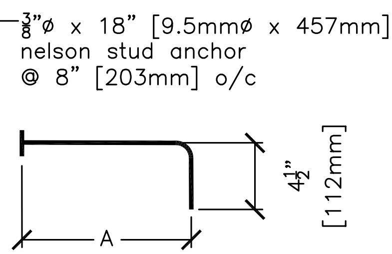
5.10.6 / 5.10.7 – BRICK LEDGE STANDARD REINFORCEMENT / BRICK LEDGE HEAVY REINFORCEMENT

All drawings are downloadable at www.logixicf.com



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.

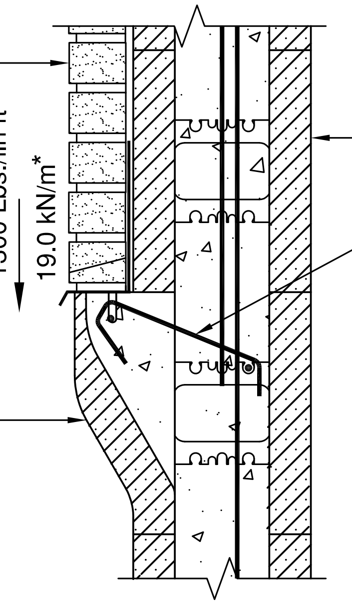
5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

*1kN = 224.8lb

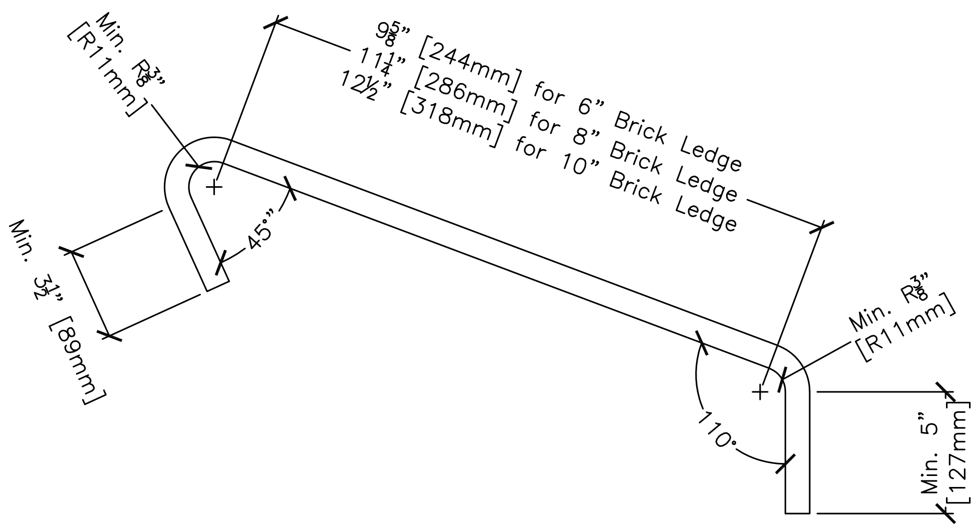
C A D   D R A W I N G S

5.10.8 – BRICK LEDGE STIRRUP DETAIL

All drawings are downloadable at www.logixicf.com



BRICK LEDGE STANDARD REINFORCEMENT



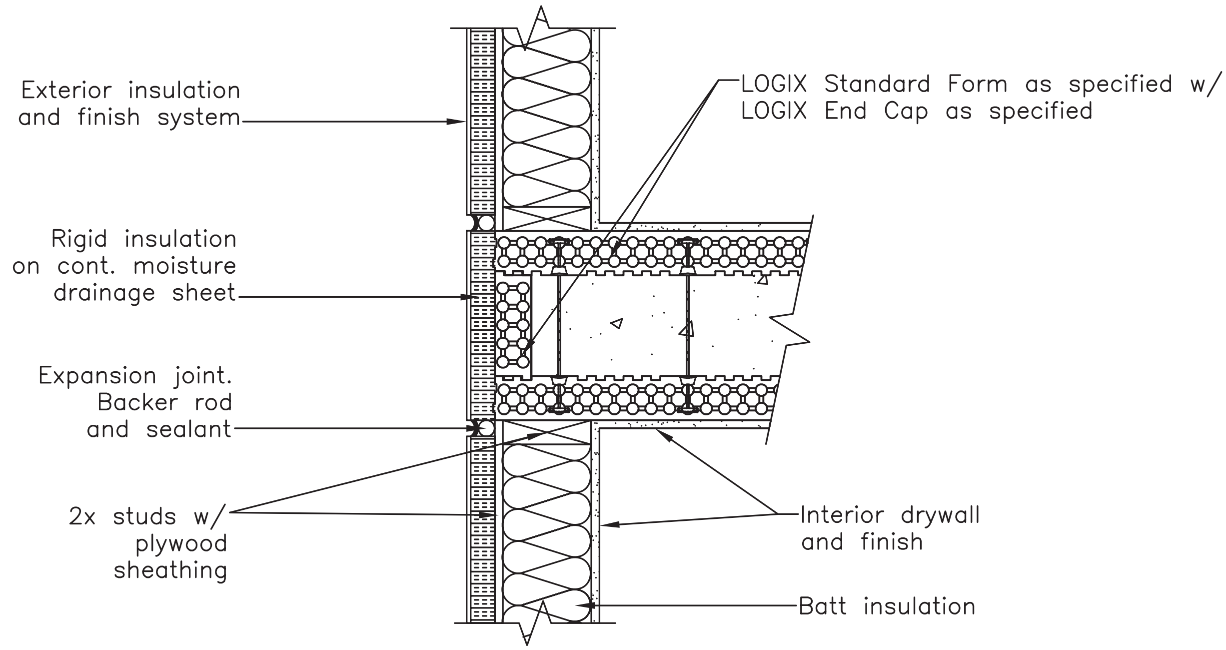
DETAIL A

*1kN = 224.8lb

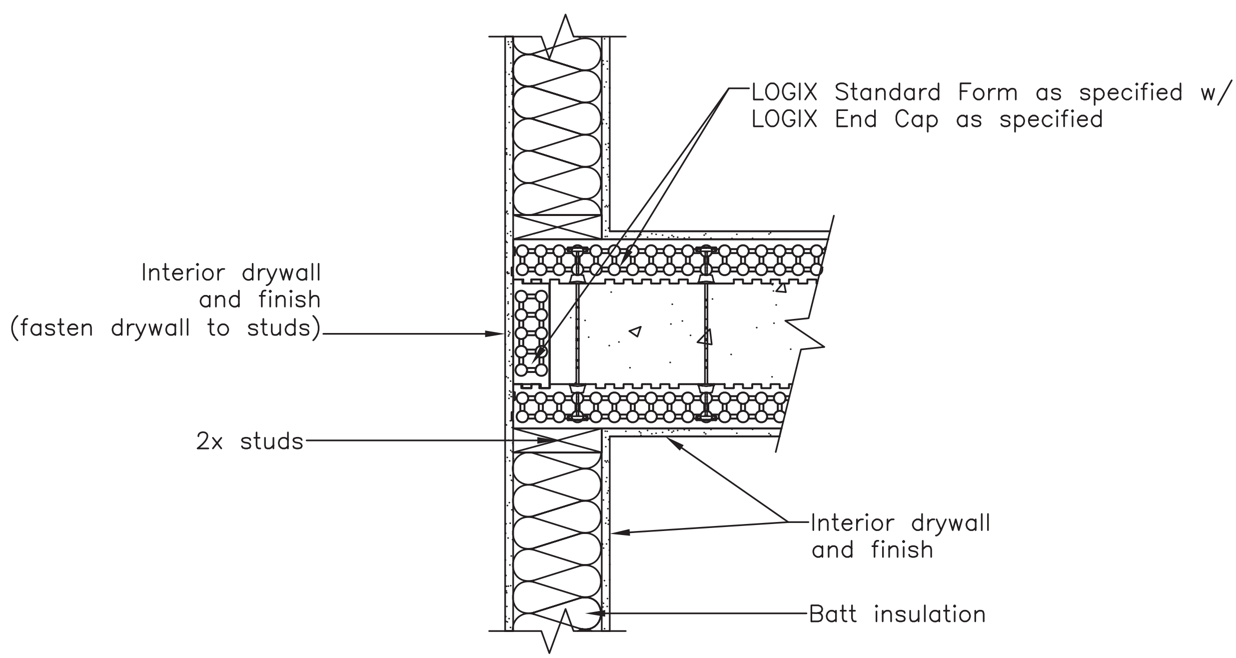
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.9 – ATTACHING TO STUD FRAMED WALLS

All drawings are downloadable at www.logixicf.com



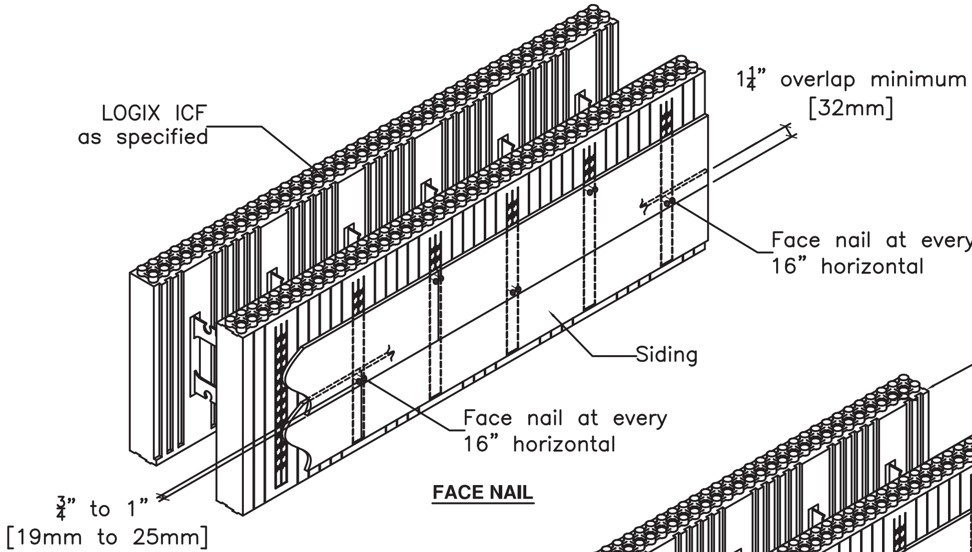
INTERIOR LOGIX WALL TO EXTERIOR STUD FRAMED WALLS



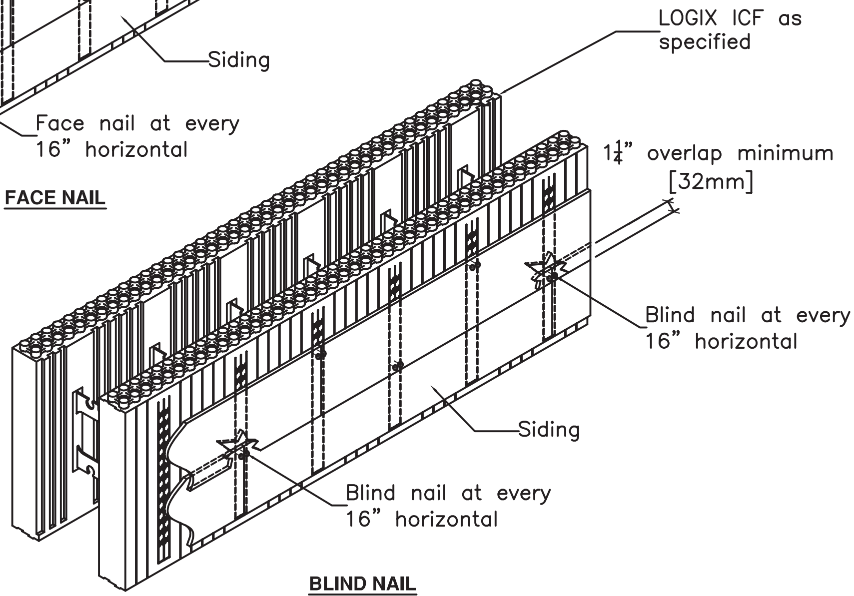
INTERIOR LOGIX WALL TO INTERIOR STUD FRAMED WALLS

5.10.10 – LOGIX ICF WITH EXTERIOR FINISHES

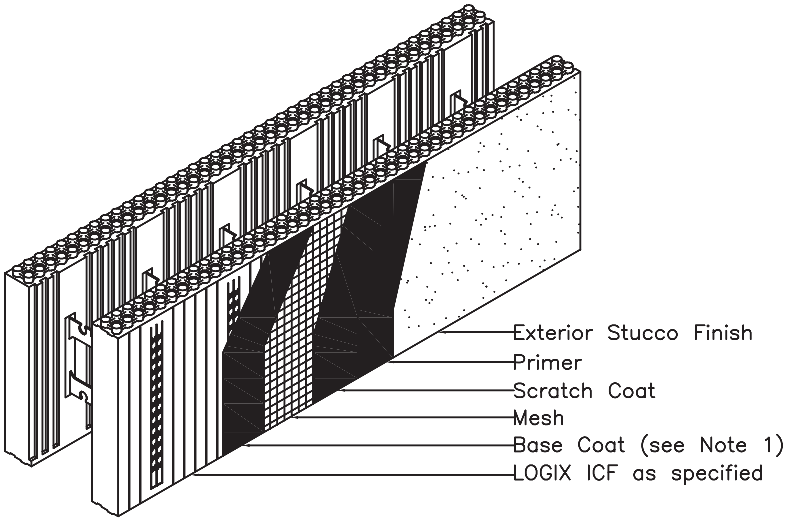
All drawings are downloadable at www.logixicf.com



FACE NAIL



BLIND NAIL

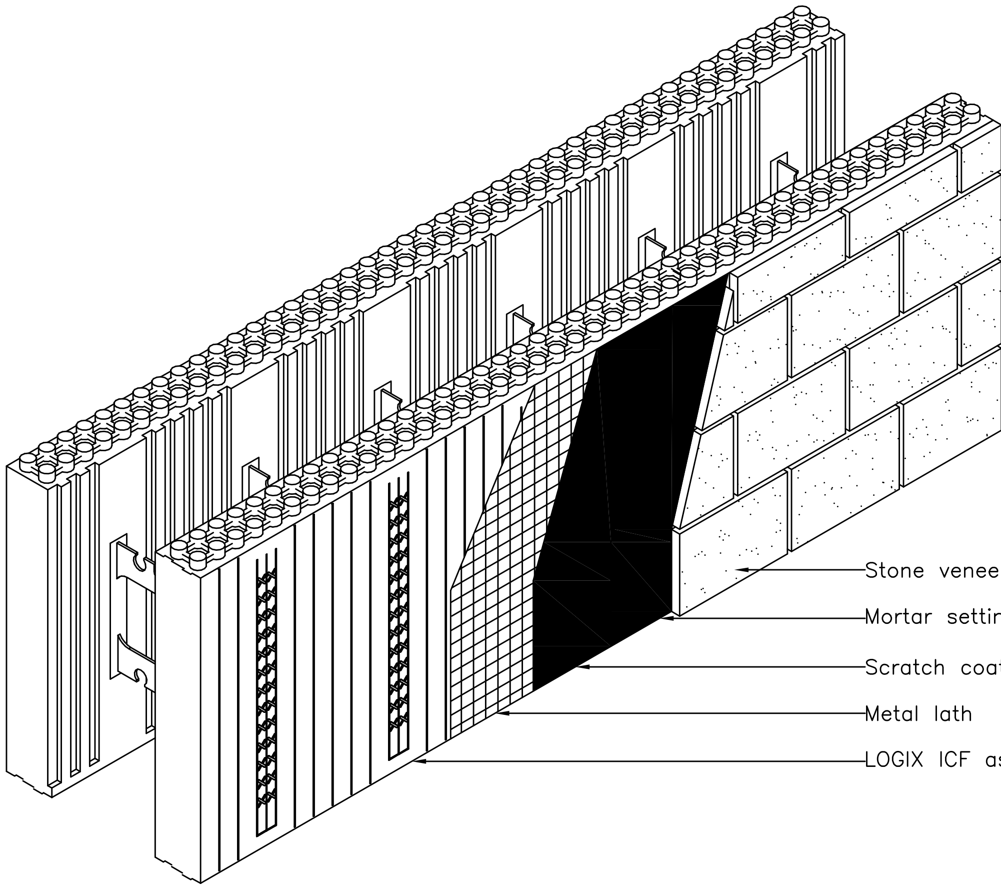


NOTES:

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.

5.10.11 – LOGIX ICF WITH STONE VENEER

All drawings are downloadable at www.logixicf.com



NOTES:

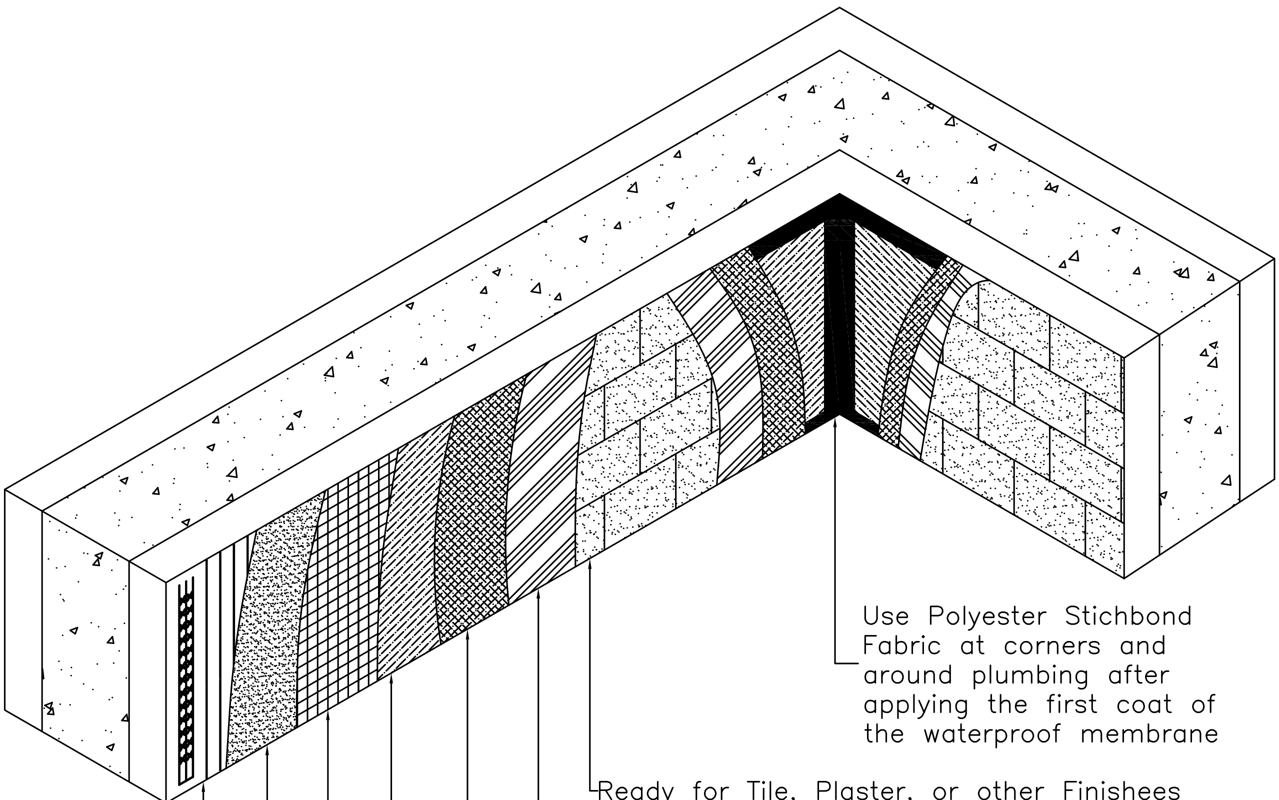
1. All fasteners to be attached to the embedded furring tabs.
2. Recommended min. fastener spacings:
   1. Grabber construction non-corrosive screws: No.8 min. 1.25" long, 8" o.c. horiz., 12" o.c. vert. spacing.

   OR

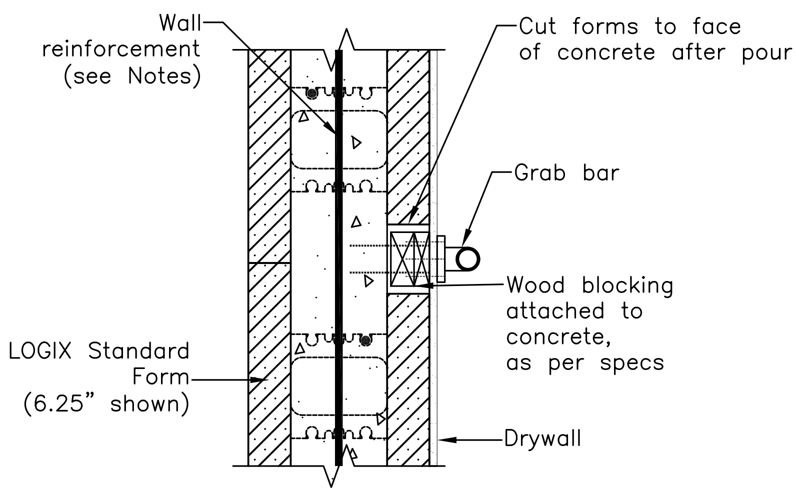
   2. Staples 1.59mm 16ga. min. 1.25" long, 8" o.c. horiz., 5" o.c. vert. spacing.
3. Always follow manufacturer's instructions or recommendations.

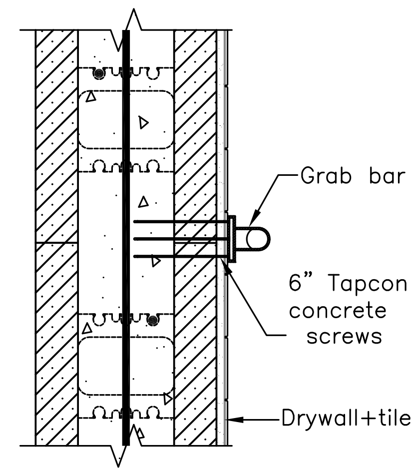
5.10.12 – LOGIX ICF POOL APPLICATION

All drawings are downloadable at www.logixicf.com



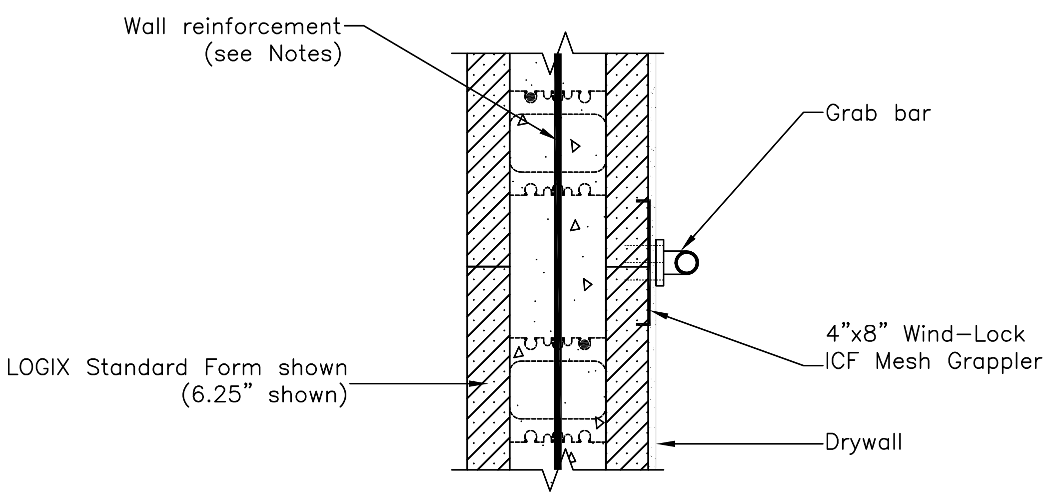
All drawings are downloadable at www.logixicf.com





WOOD BLOCKING

TAPCON CONCRETE SCREWS



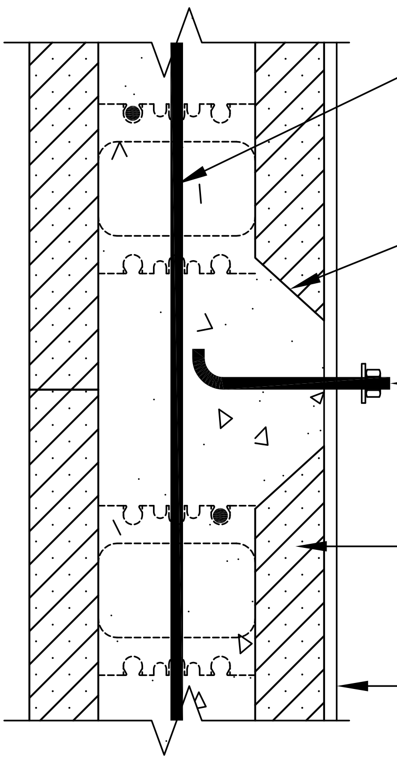
ICF MESH GRAPPLER

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

C A D D R A W I N G S

5.10.14 – DECK ATTACHMENT

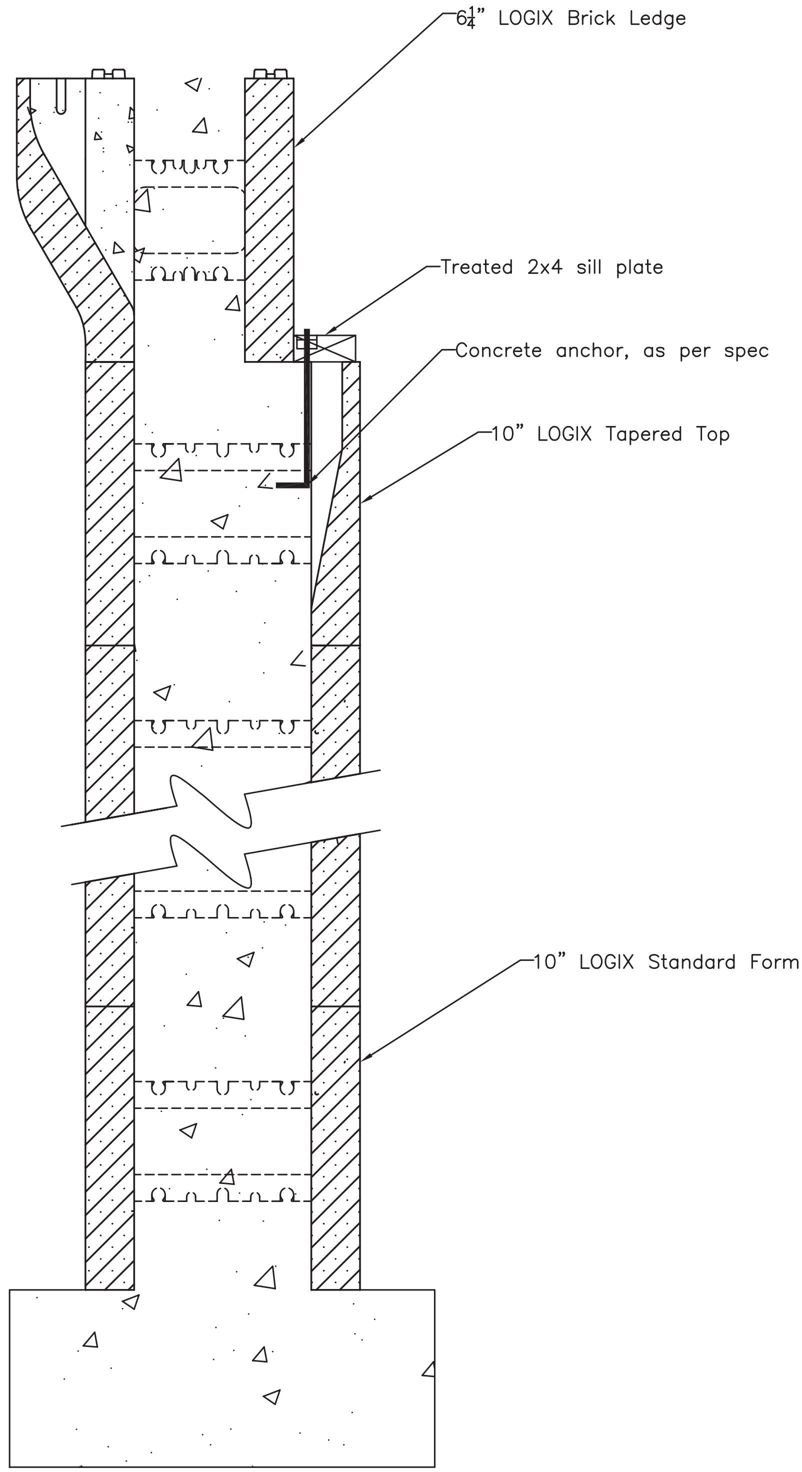
All drawings are downloadable at www.logixicf.com



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

5.10.15 – TRANSITION FROM TAPER TOP TO BRICK LEDGE

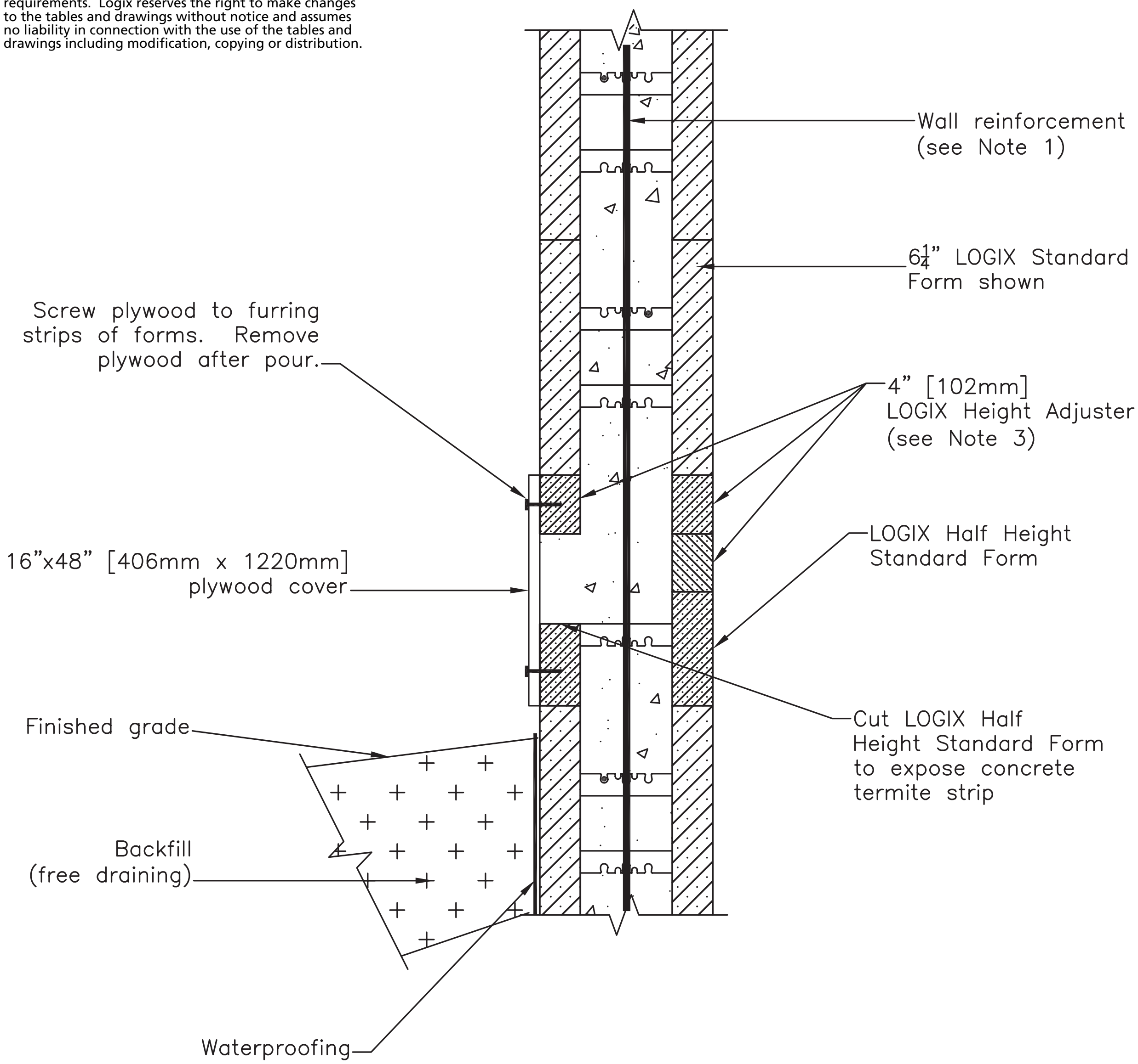
All drawings are downloadable at www.logixicf.com



10" TAPERED TOP TO 8" BRICK LEDGE TRANSITION

5.10.16 – TERMITE STRIP

All drawings are downloadable at www.logixicf.com



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. The use of 4" Height Adjusters will ensure there is an 8" gap exposing any termite presence in the wall.
4. Please refer to local building codes for more information on termite control.

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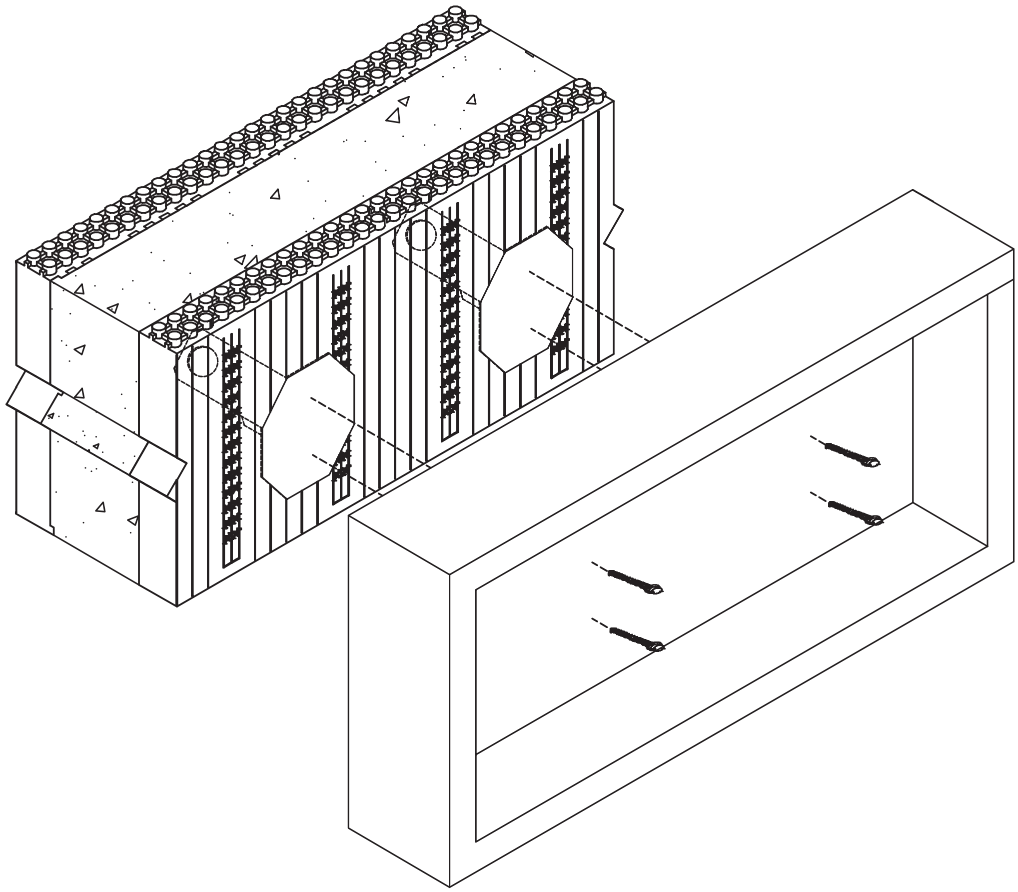
5.10.17 – SIMPSON STRONG TIE WITH CABINETS

All drawings are downloadable at www.logixicf.com



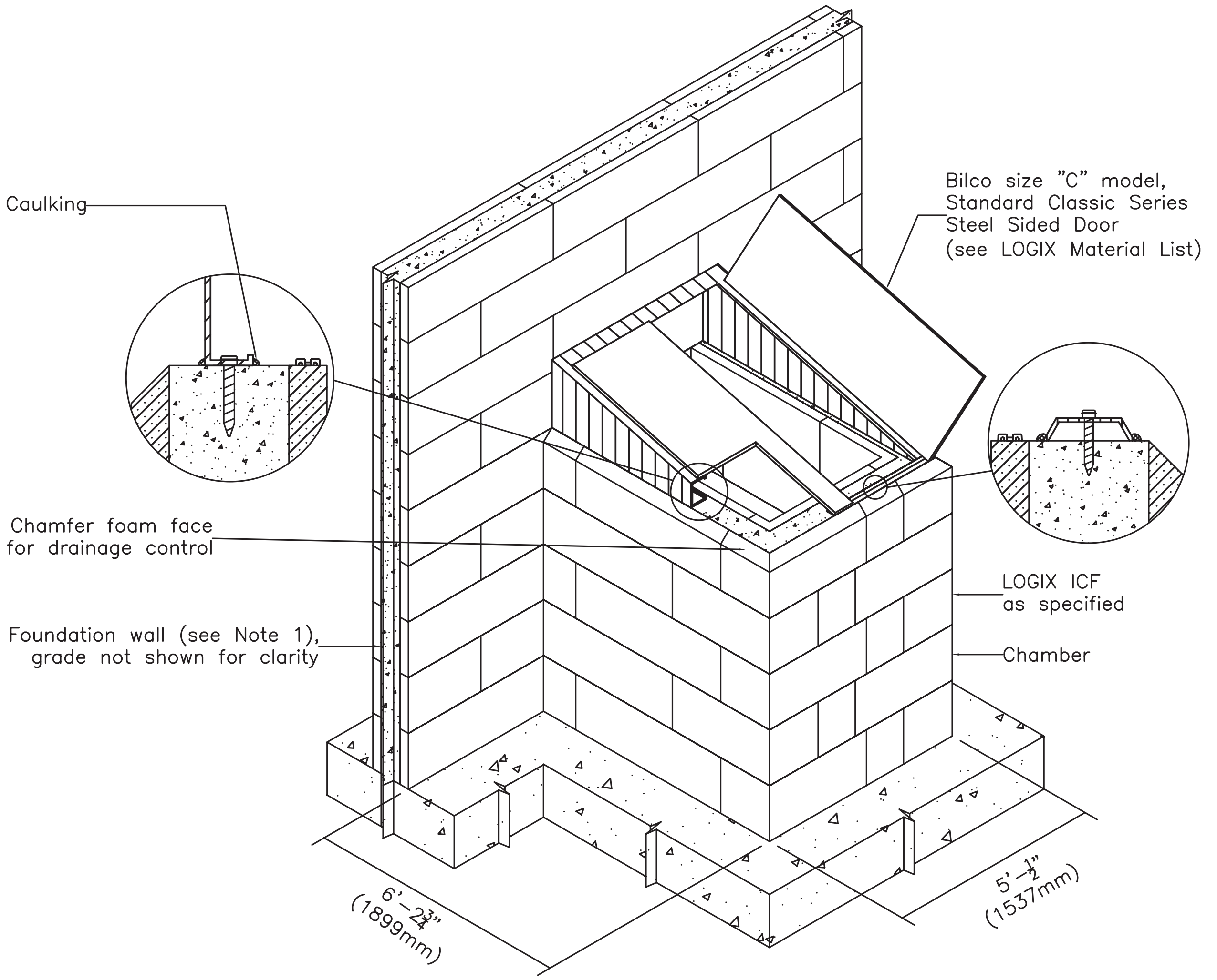
CABINET INSTALLATION

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.

5.10.18– LOGIX ICF WITH BILCO SIZE "C" STANDARD CLASSIC SERIES DOORS

All drawings are downloadable at www.logixicf.com



LOGIX Material List for Bilco Size "C" Doors:

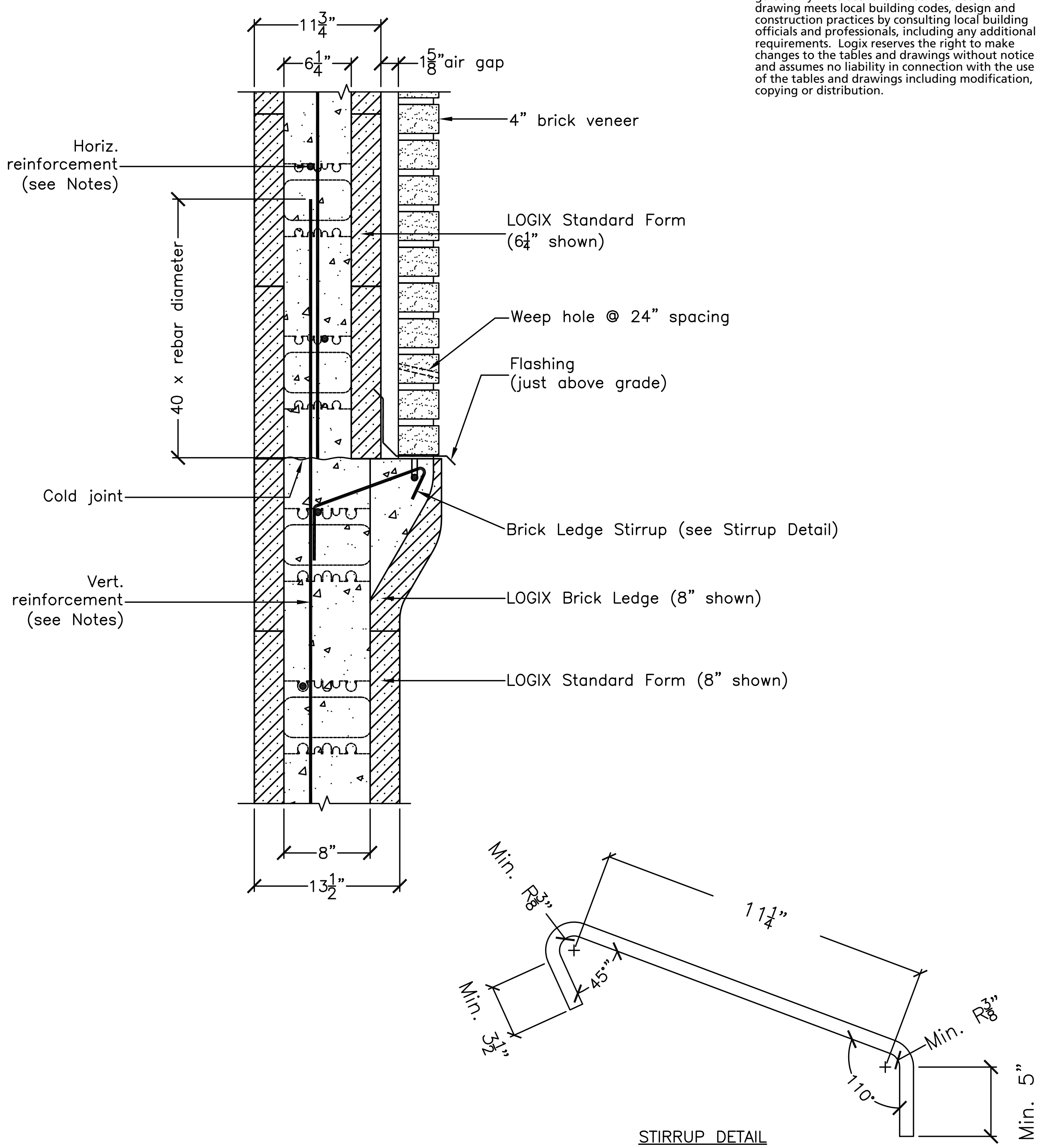
90° Corner Forms (per course) – 2
Standards (per course) – 3 (Field cut to size)

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

5.10.19 – LOGIX 6.25" ON 8" BRICK LEDGE

All drawings are downloadable at www.logixicf.com

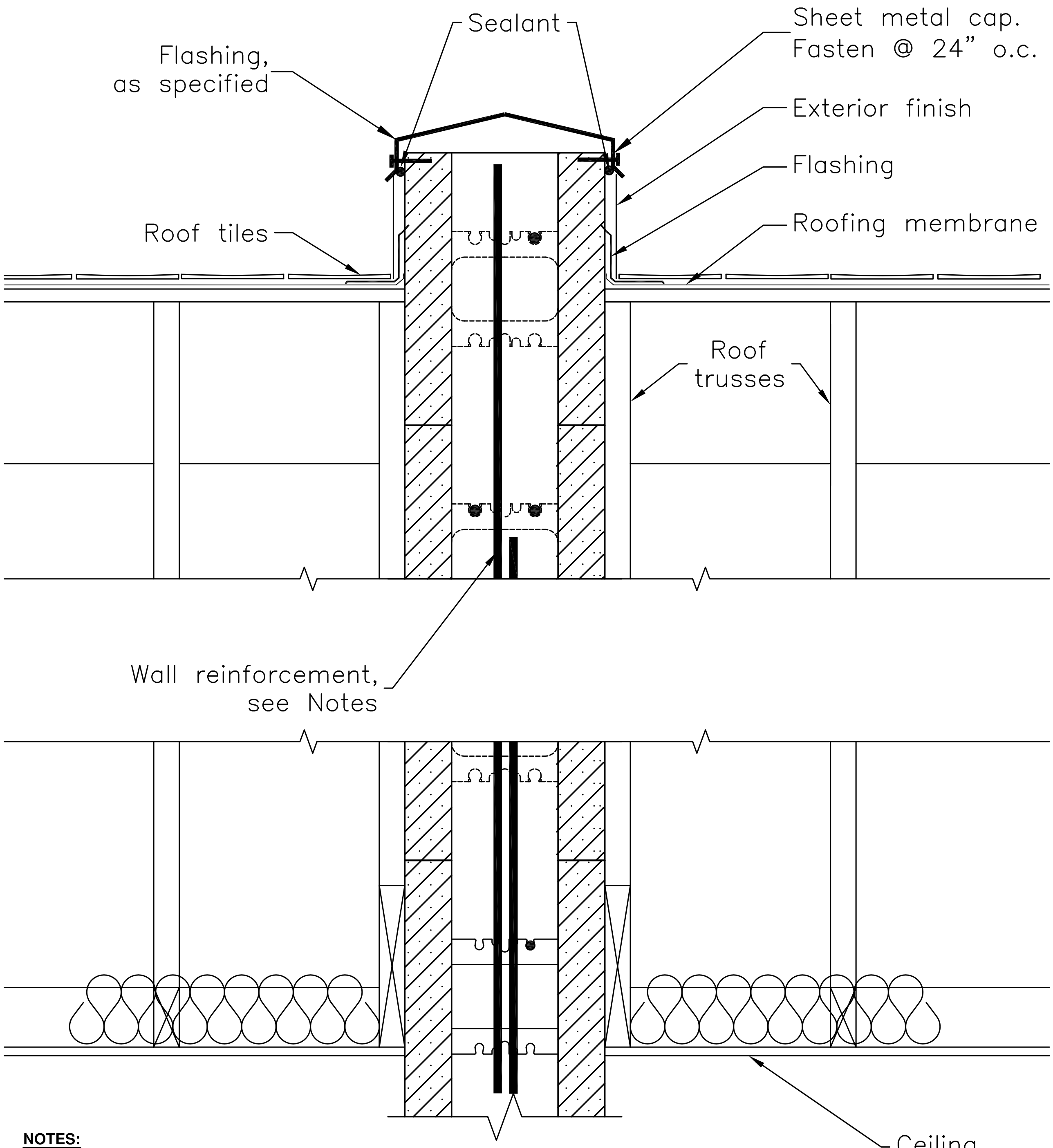


NOTES:

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

5.10.20 – FIRE WALL ABOVE ROOF LINE

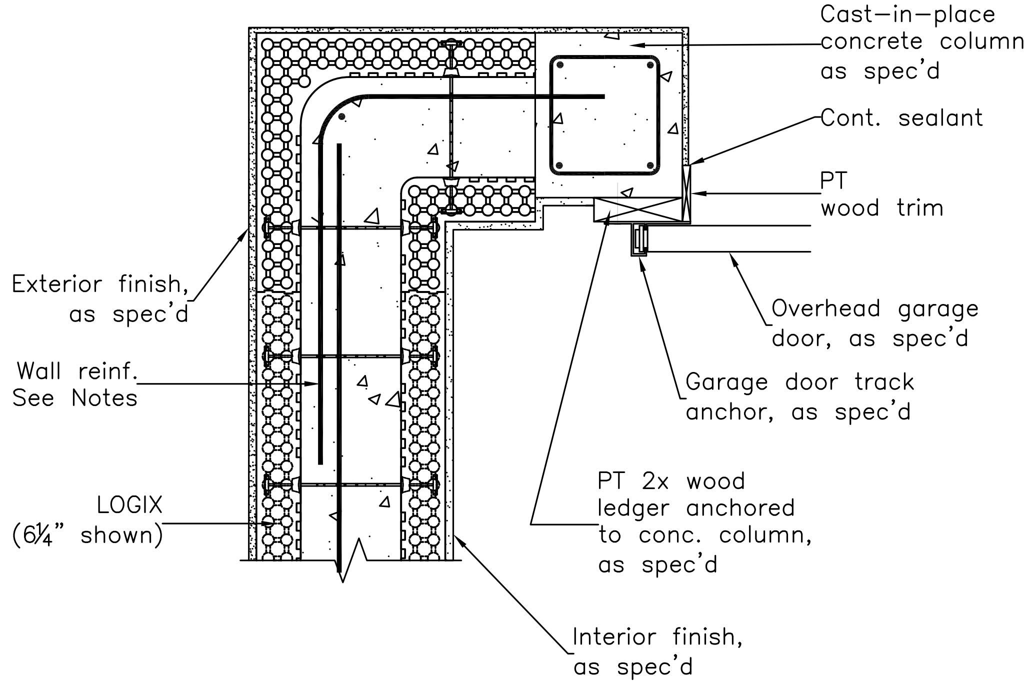
All drawings are downloadable at www.logixicf.com



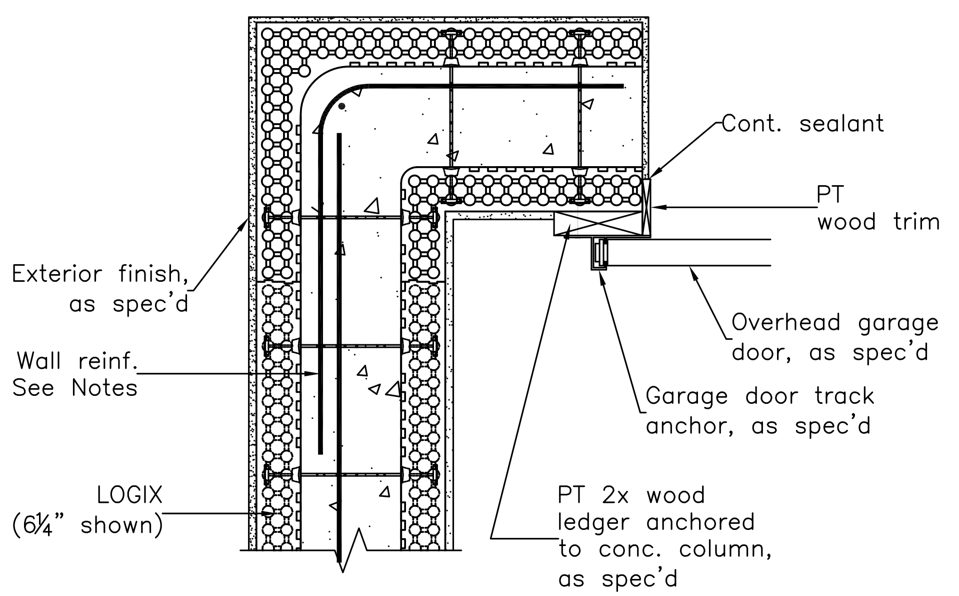
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.21 – OVERHEAD GARAGE DOOR

All drawings are downloadable at www.logixicf.com



AGAINST CAST-IN-PLACE CONCRETE

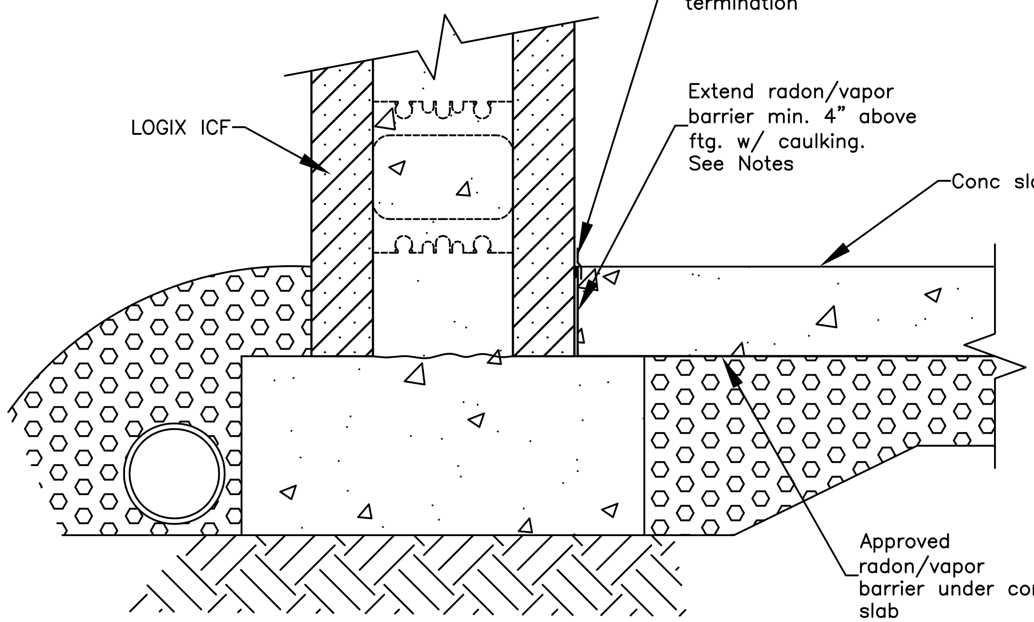


AGAINST LOGIX

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

5.10.22 – RADON BARRIER UNDER SLAB

All drawings are downloadable at www.logixicf.com

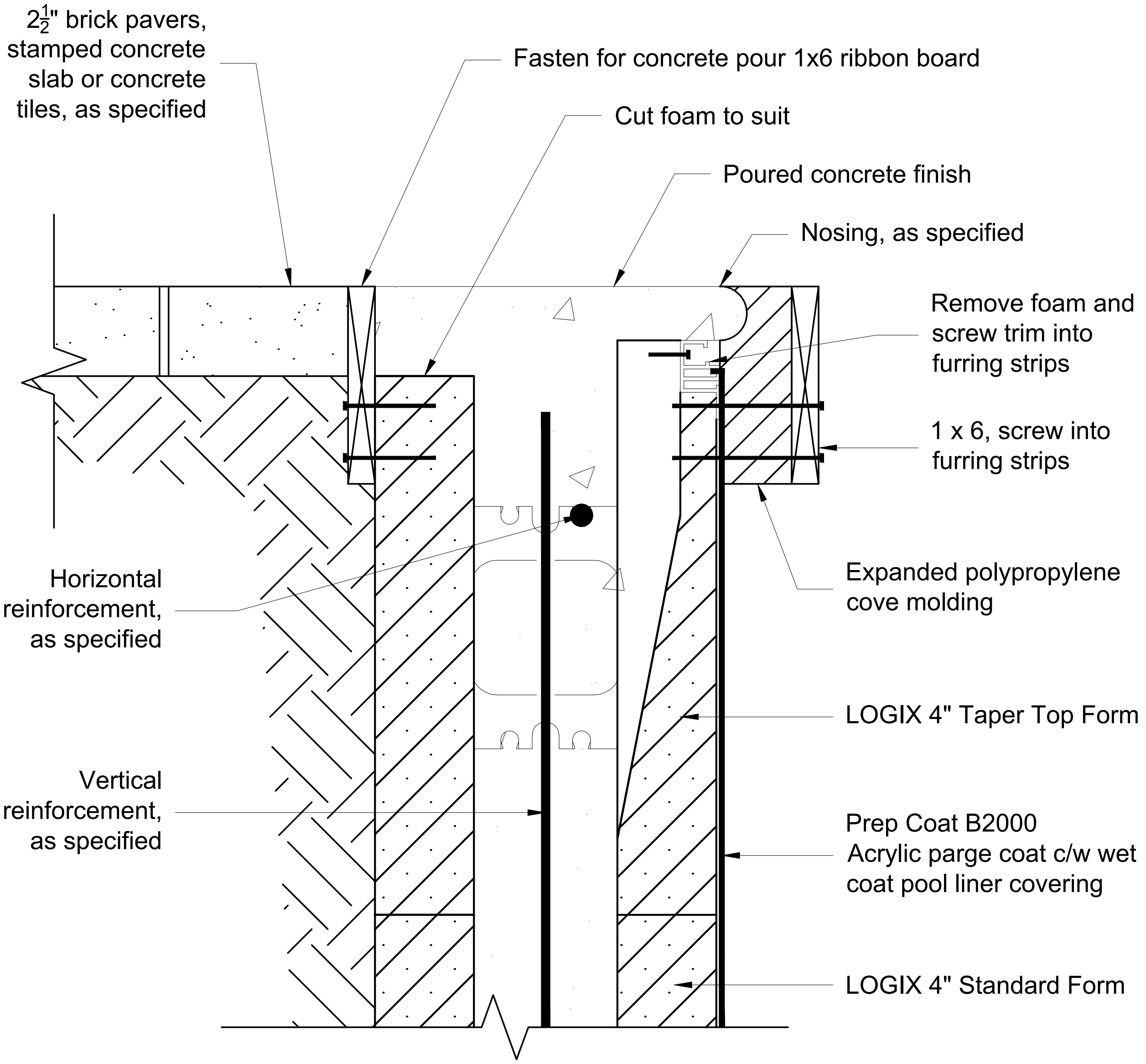


C A D D R A W I N G S

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

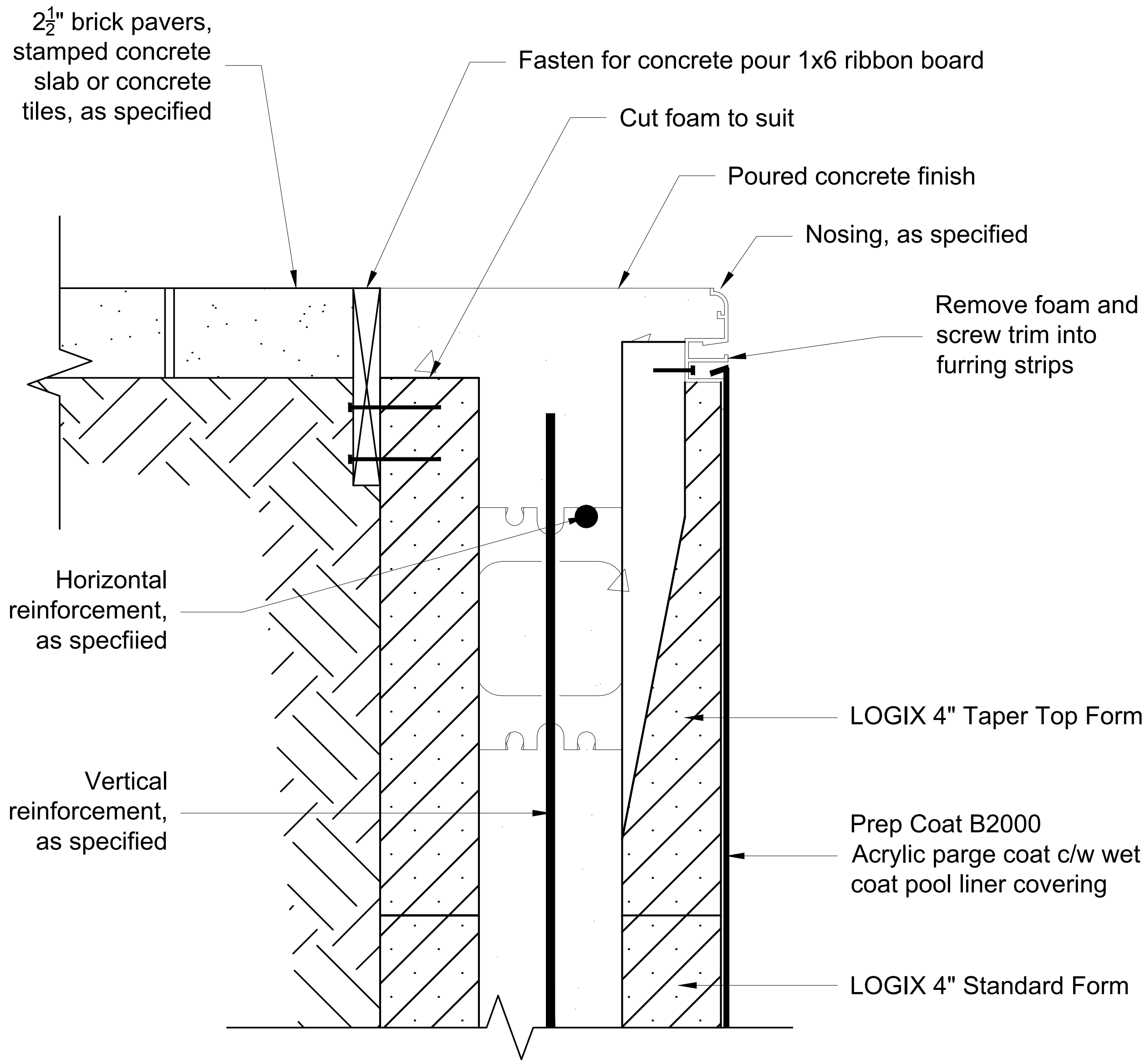
5.10.23 – POOL DETAIL FORMING FOR COPING OPTION 1 (1 OF 5)

All drawings are downloadable at www.logixicf.com



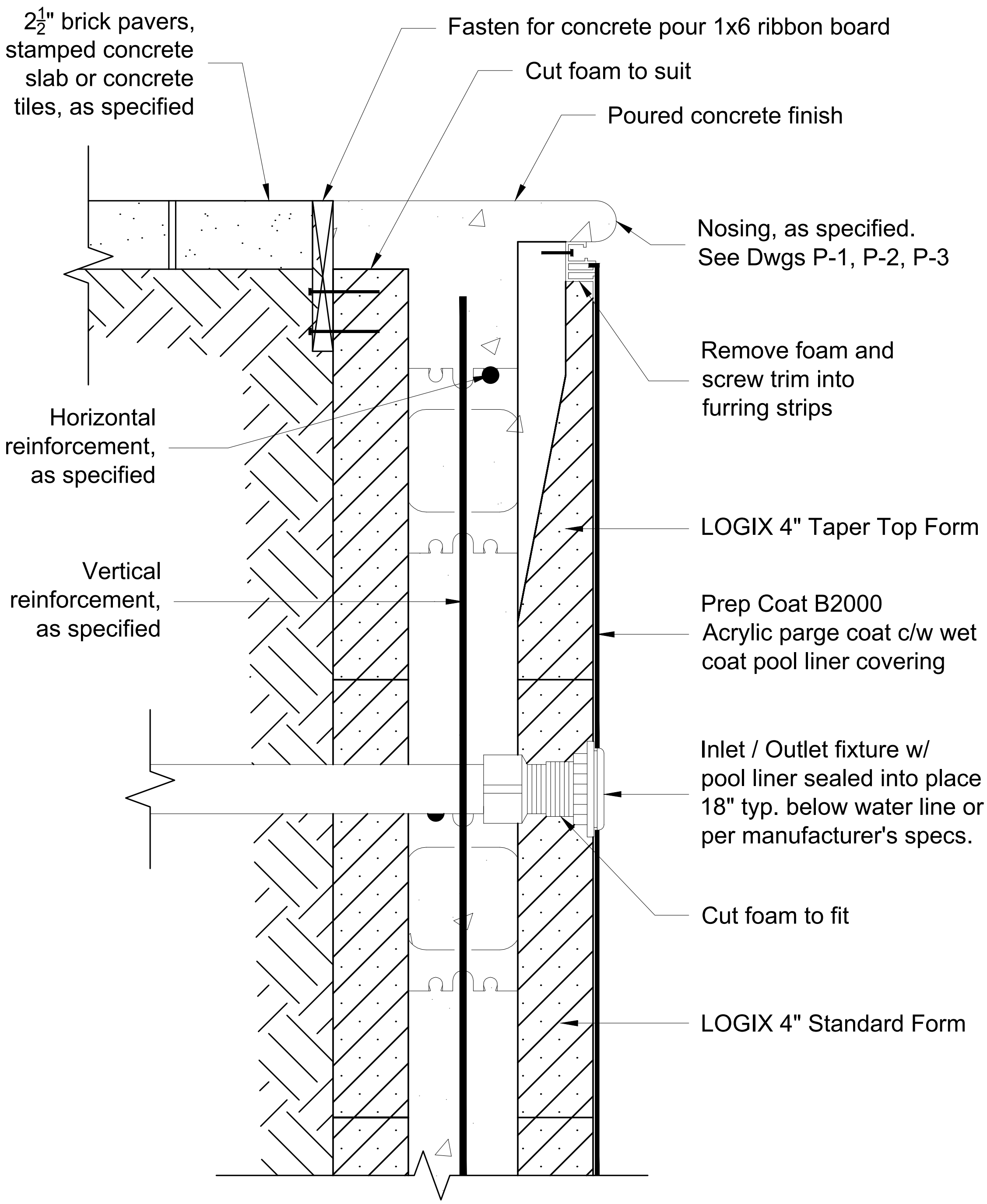
5.10.24 – POOL DETAIL FORMING FOR COPING OPTION 2 (2 OF 5)

All drawings are downloadable at www.logixicf.com



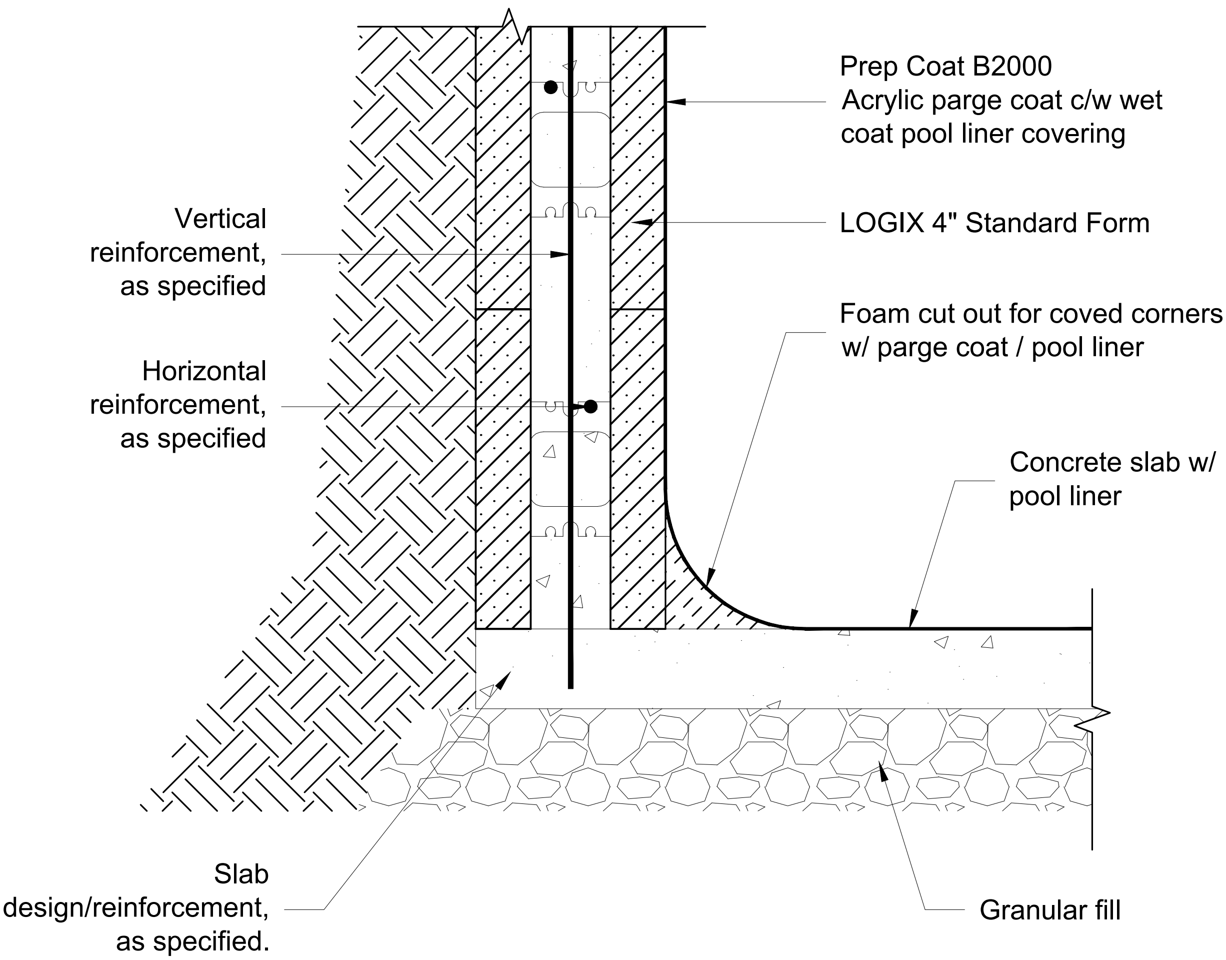
5.10.25 – POOL DETAIL OF INLET / OUTLET FIXTURE (3 OF 5)

All drawings are downloadable at www.logixicf.com



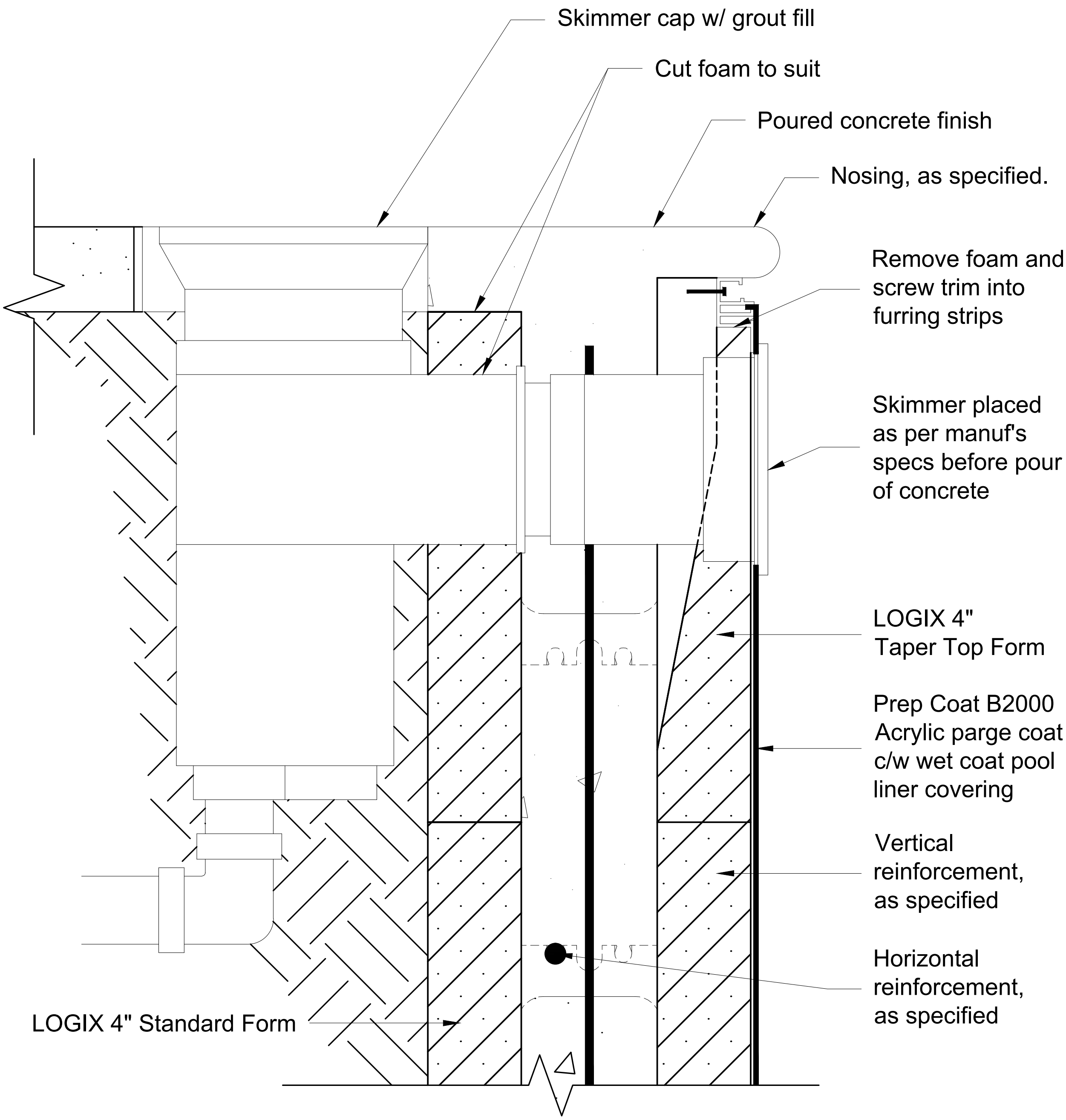
5.10.26 – POOL DETAIL AT FOOTING (4 OF 5)

All drawings are downloadable at www.logixicf.com



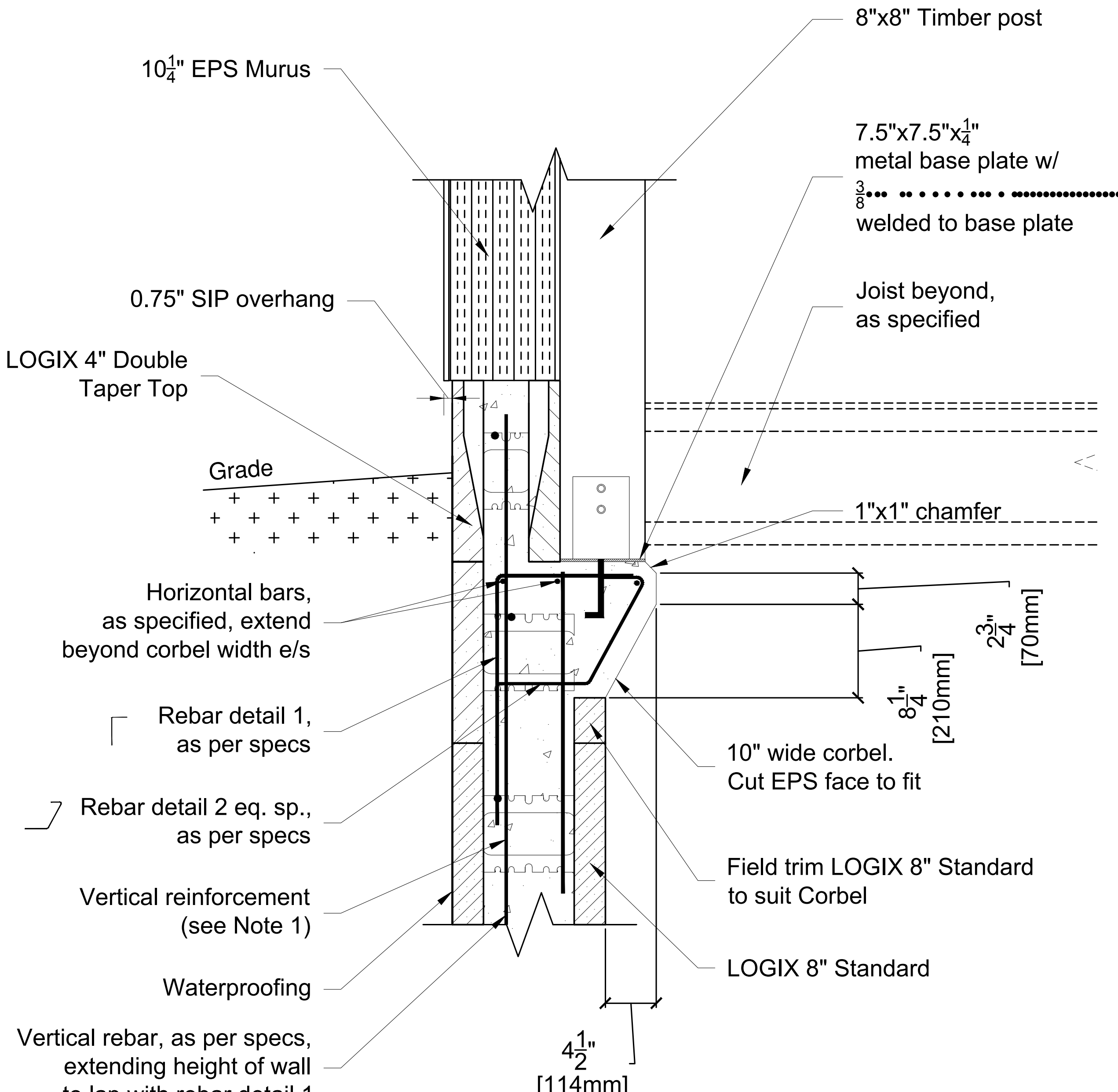
5.10.27 – POOL SKIMMER (5 OF 5)

All drawings are downloadable at www.logixicf.com



5.10.28 – BRICK LEDGE WITH TIMBER POST

All drawings are downloadable at www.logixicf.com



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.

5.0 – CAD DRAWINGS

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5.1 – LOGIX ICF FORMS

All drawings are downloadable at www.logixicf.com

LOGIX ICFs are available in many variations designed to accommodate all construction type details.

LOGIX carries both assembled form units, known as LOGIX PRO, and unassembled (or knock-down) systems known as LOGIX KD. LOGIX KD is also available in thicker panel forms, known as LOGIX XRV (see Drawings 5.1.18 and 5.1.19, respectively). LOGIX XRV are panelized forms that are available in thicker foam panels ranging from 4 to 8 inches. In addition, LOGIX Xtenders allow LOGIX forms to be used for wider concrete wall thicknesses greater than 12 inches (see Drawing 5.1.22).

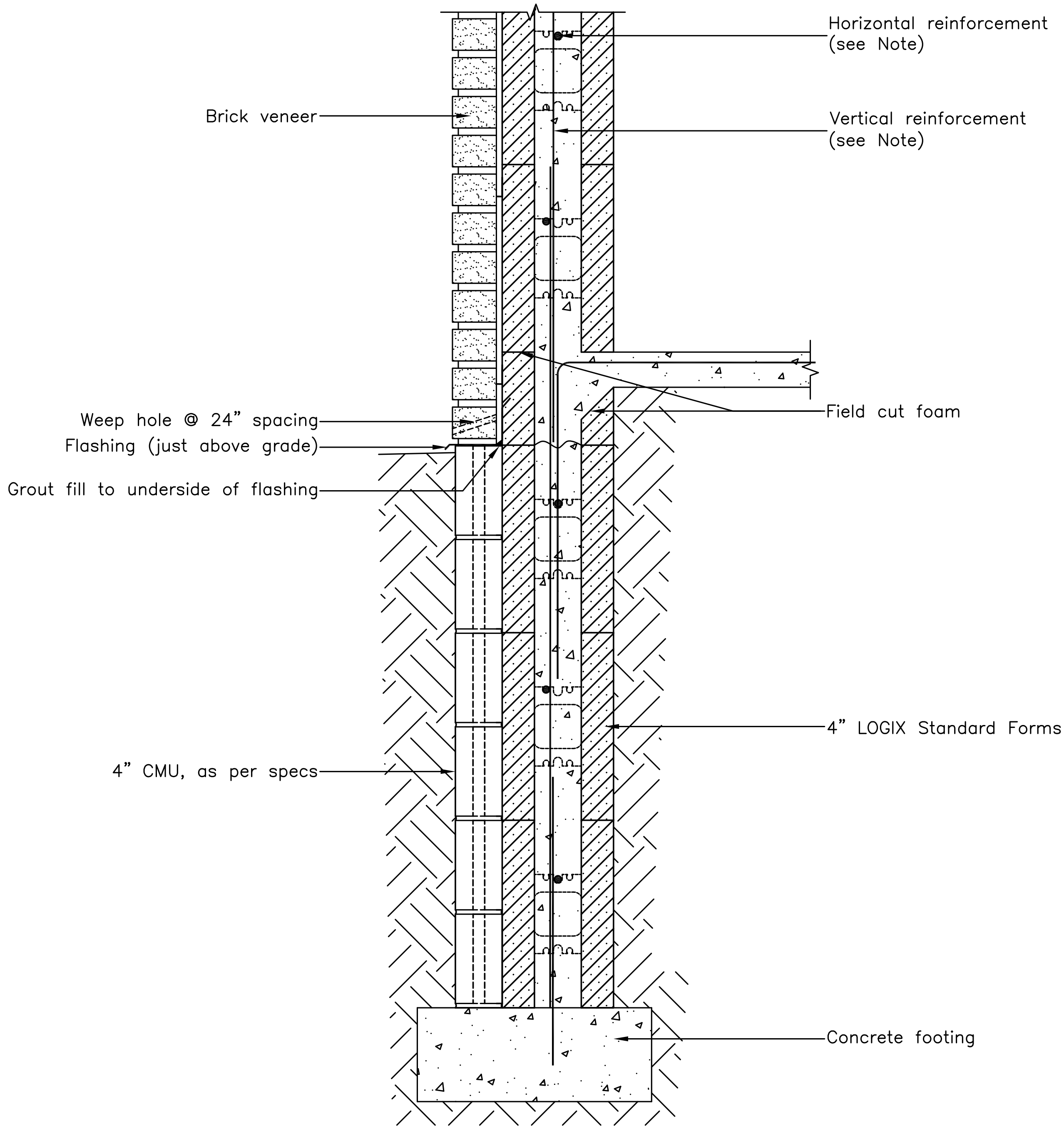
For a complete list of LOGIX product lines see Section 8.1.

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.

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 – FOUNDATION DETAILS
5.2.1 – LOGIX WALL WITH CMU BRICK LEDGE

All drawings are downloadable at www.logixicf.com



NOTES:

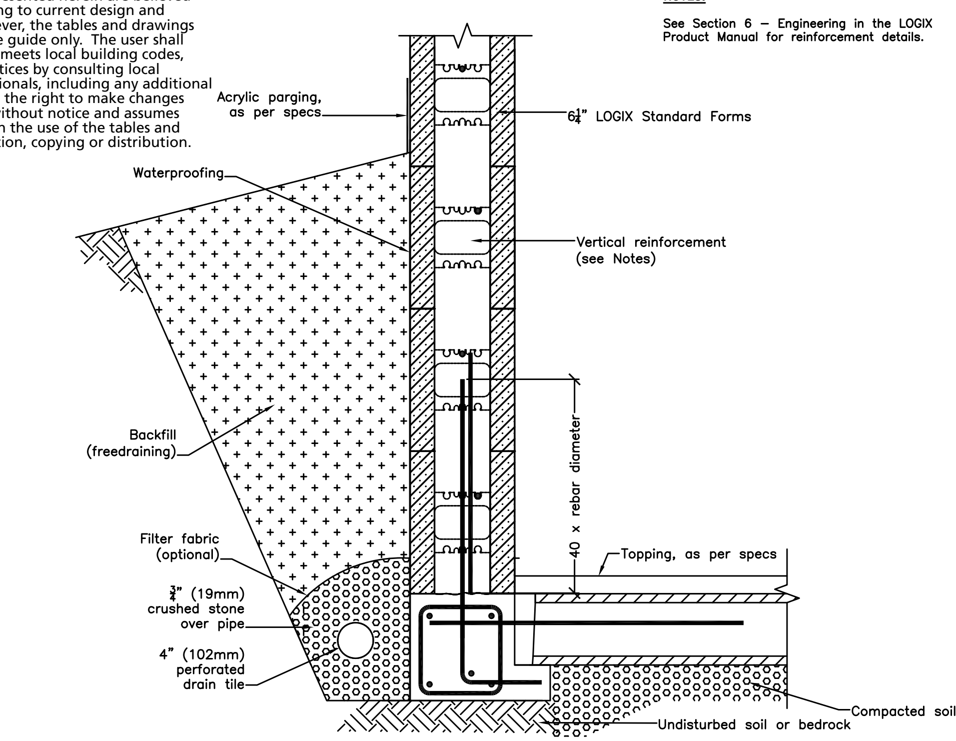
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

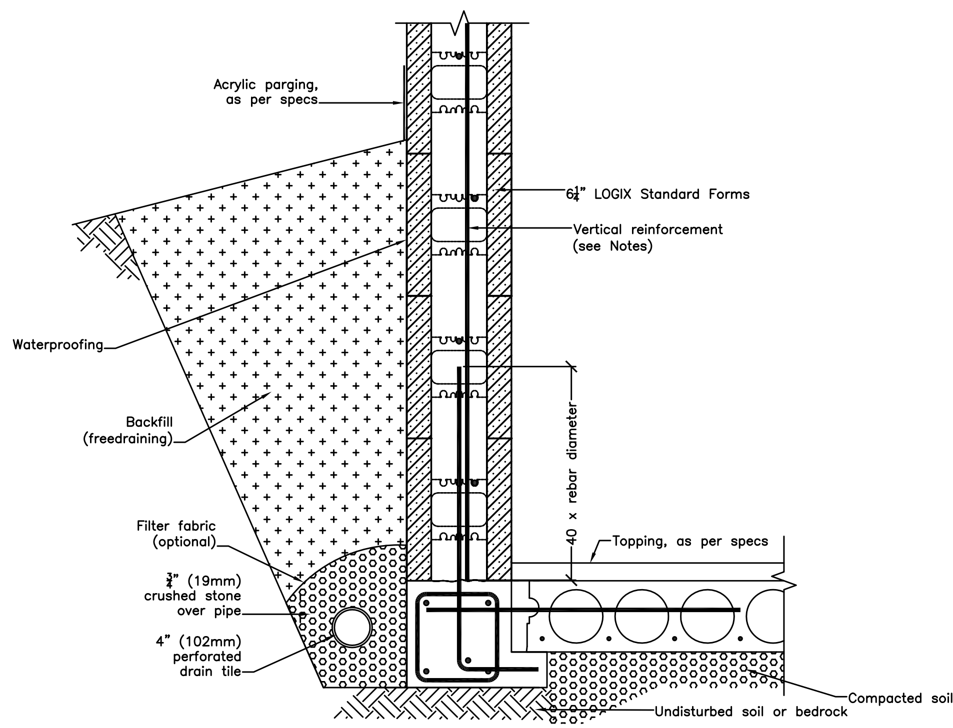
5.2.2 – HOLLOW CORE SLAB ON GRADE

All drawings are downloadable at www.logixicf.com

NOTES:

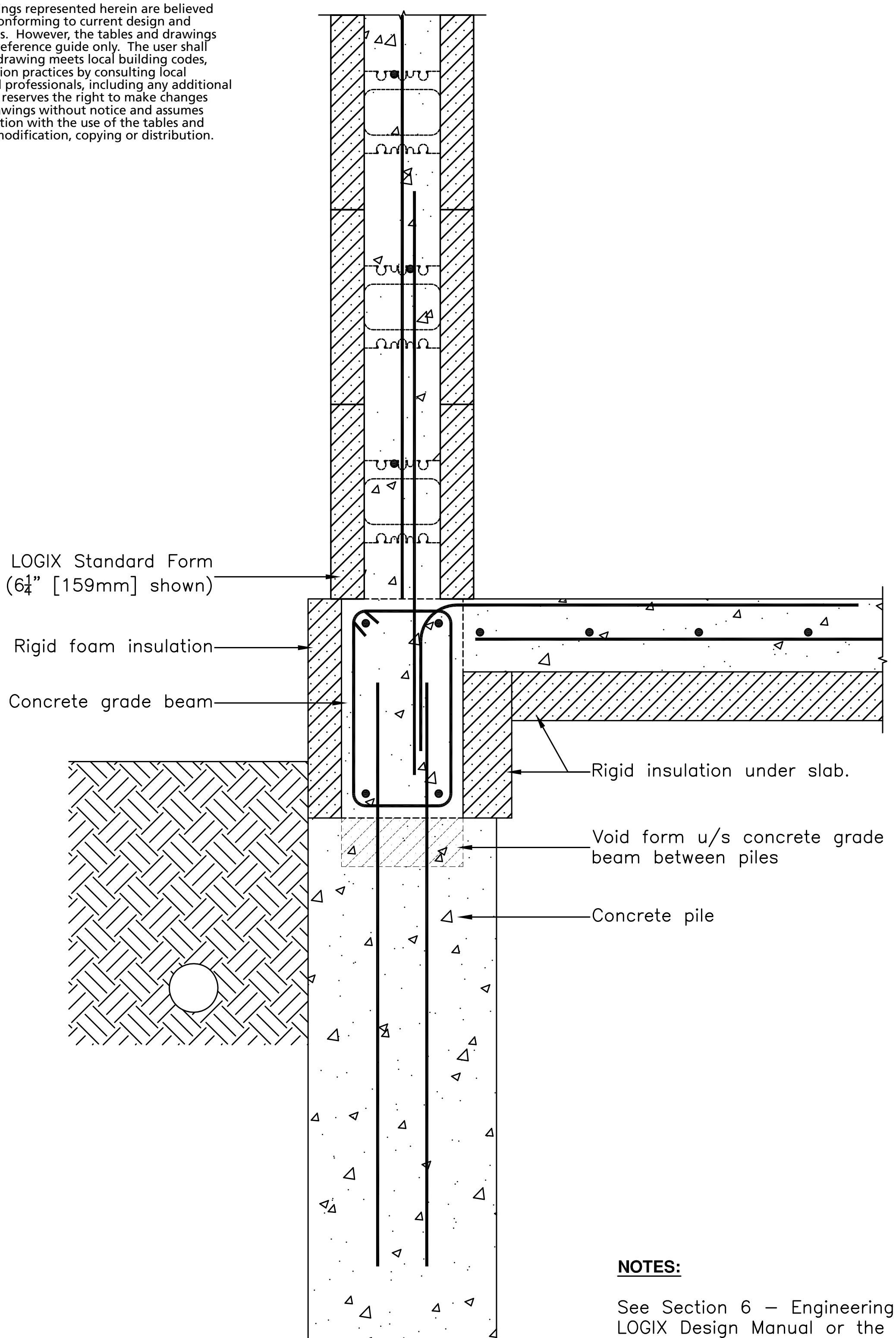
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.





5.2.3 – EXTERIOR WALL ON PILE SUPPORTED GRADE BEAM

All drawings are downloadable at www.logixicf.com

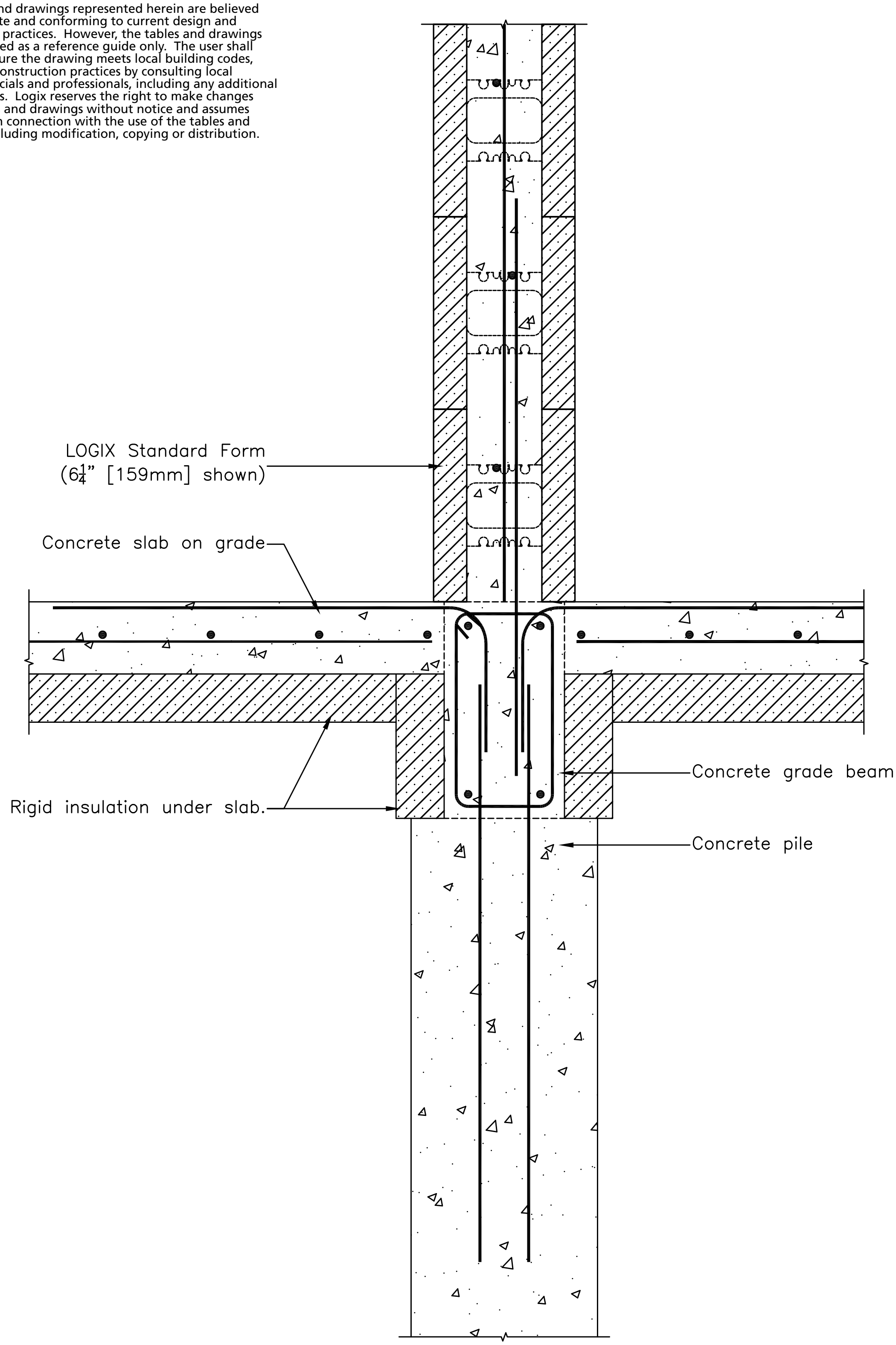


NOTES:

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

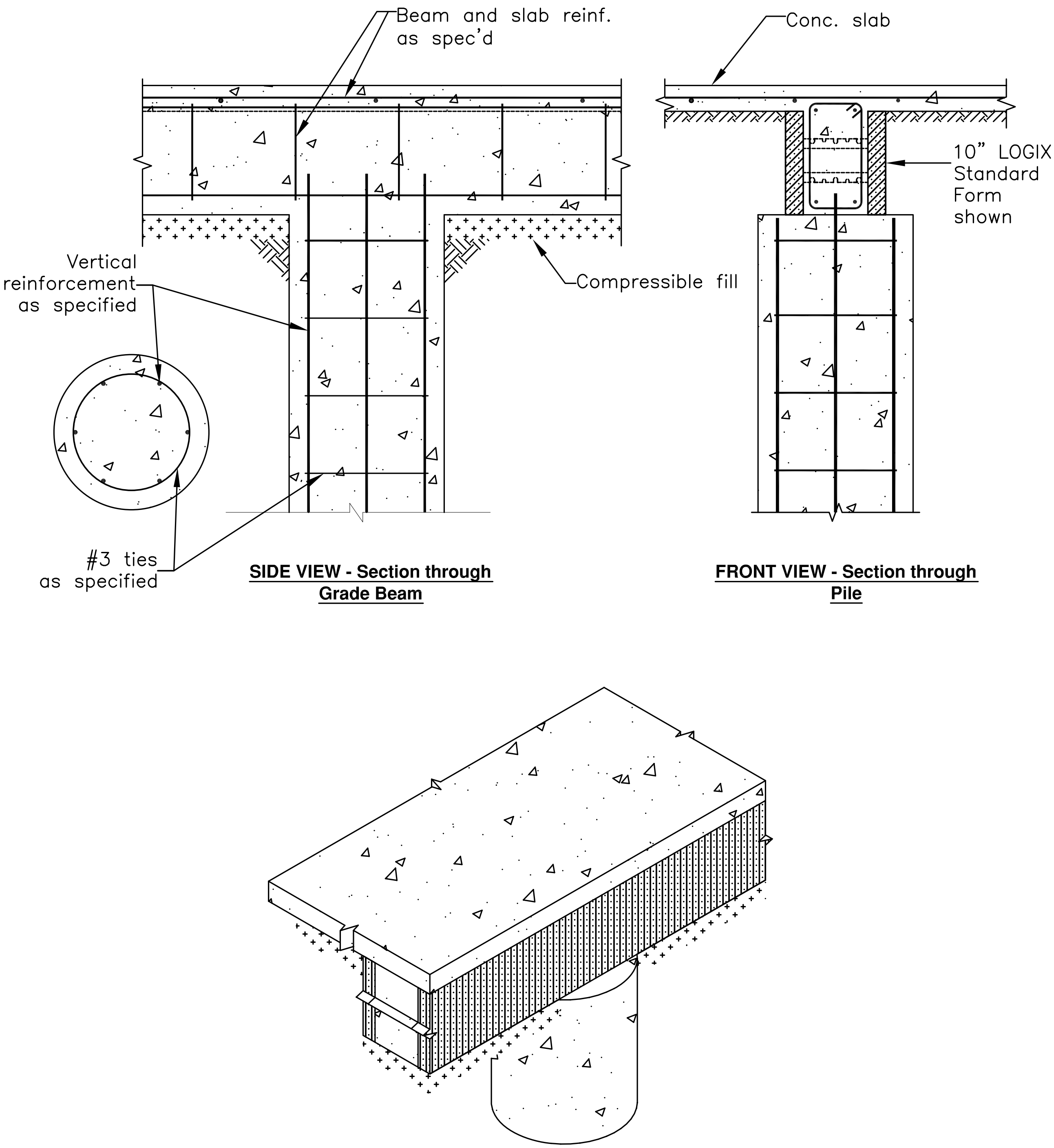
5.2.4 – INTERIOR WALL ON PILE SUPPORTED GRADE BEAM

All drawings are downloadable at www.logixicf.com



5.2.5 – LOGIX ICF GRADE BEAM

All drawings are downloadable at www.logixicf.com

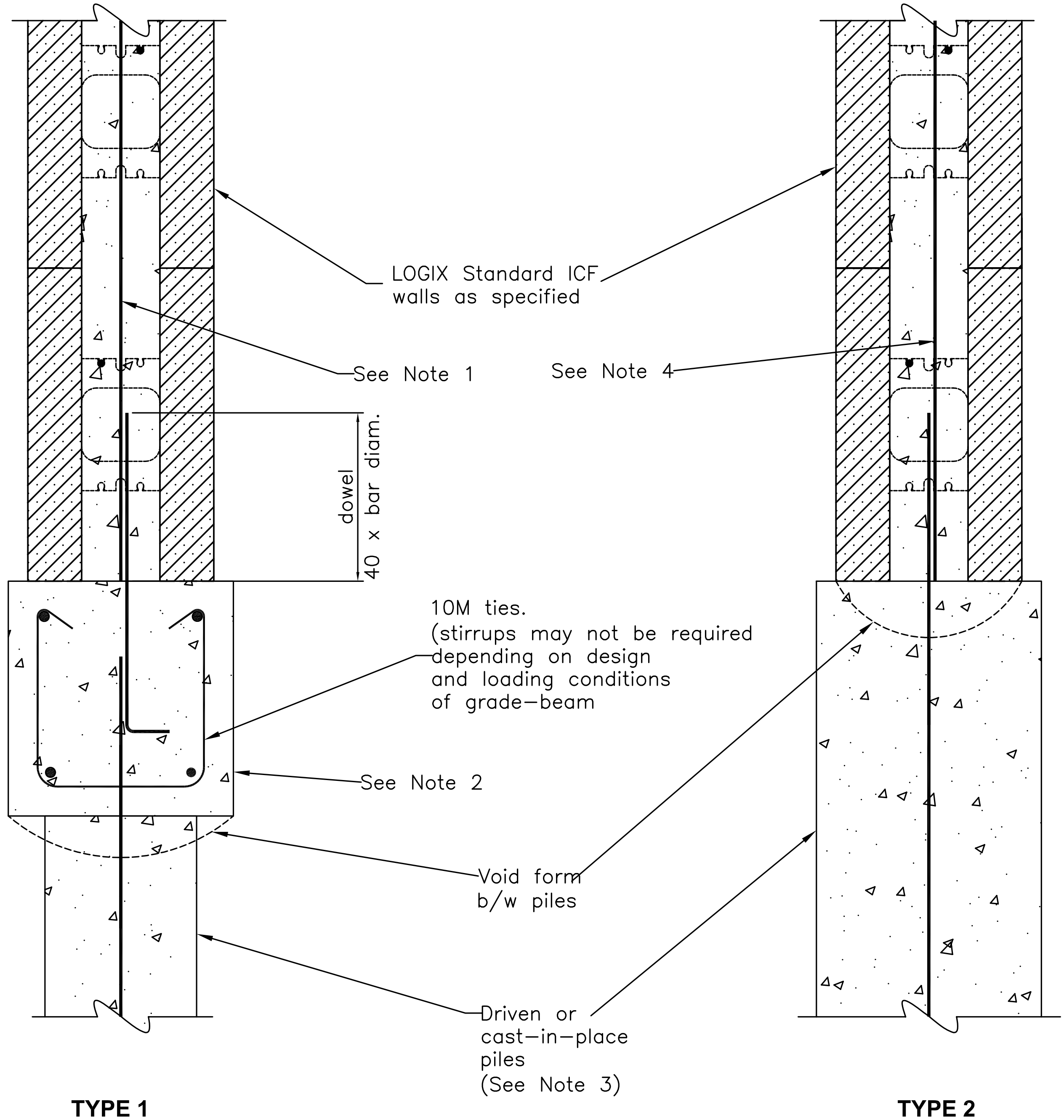


SIDE VIEW - Section through Grade Beam

FRONT VIEW - Section through Pile

5.2.6 – PILE SUPPORTED GRADE BEAMS

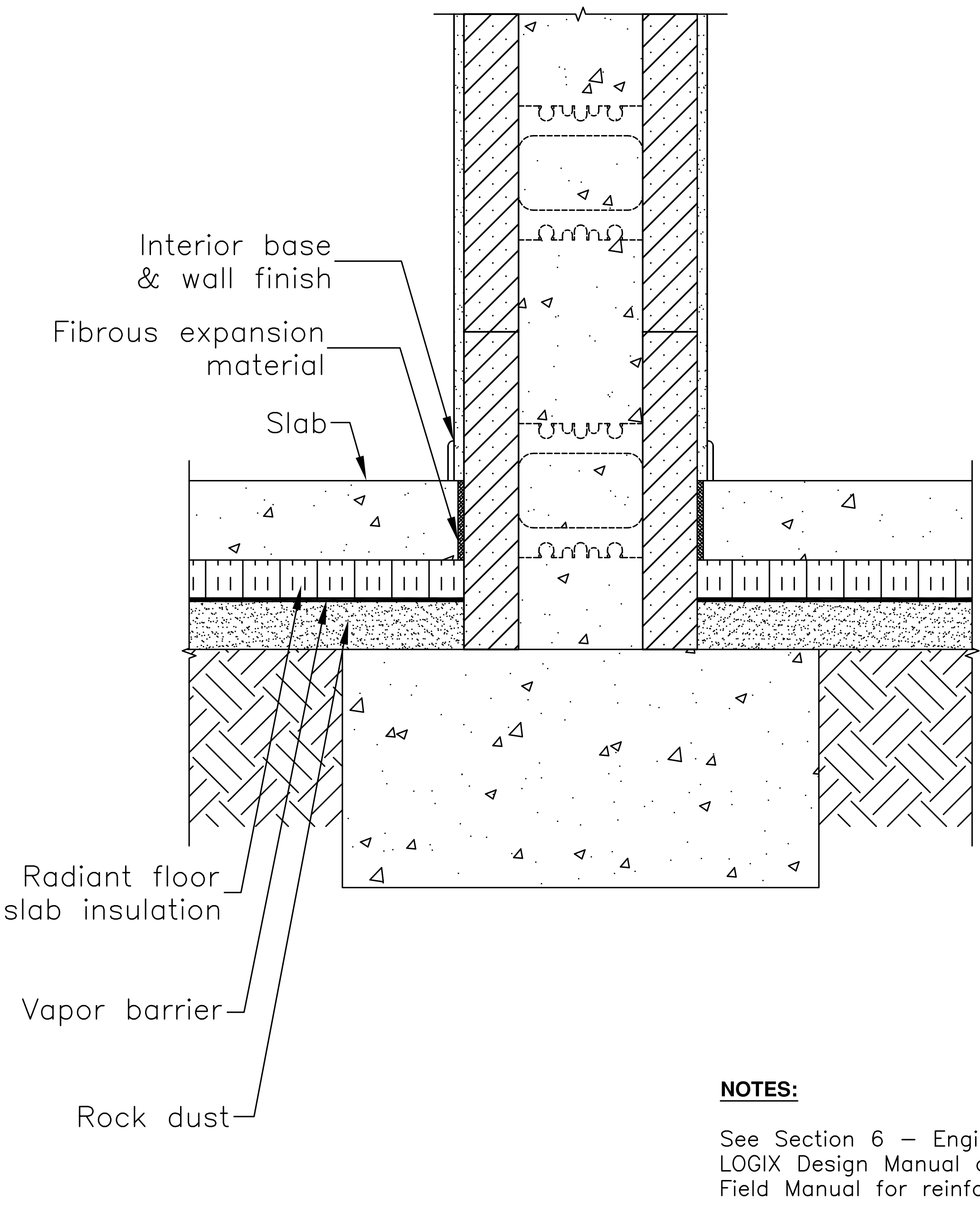
All drawings are downloadable at www.logixicf.com



NOTES:
1. Refer to Section 6 of Logix Product Manual for additional information on vertical reinforcement for above– and below–grade walls.
2. Size and reinforcement for grade–beam to be designed as site specific.
3. Size, spacing and reinforcing for piles to be designed as site specific.
4. Reinforcing in wall to be designed as site specific.

5.2.7 – ICF BASE AT INTERIOR WALL

All drawings are downloadable at www.logixicf.com

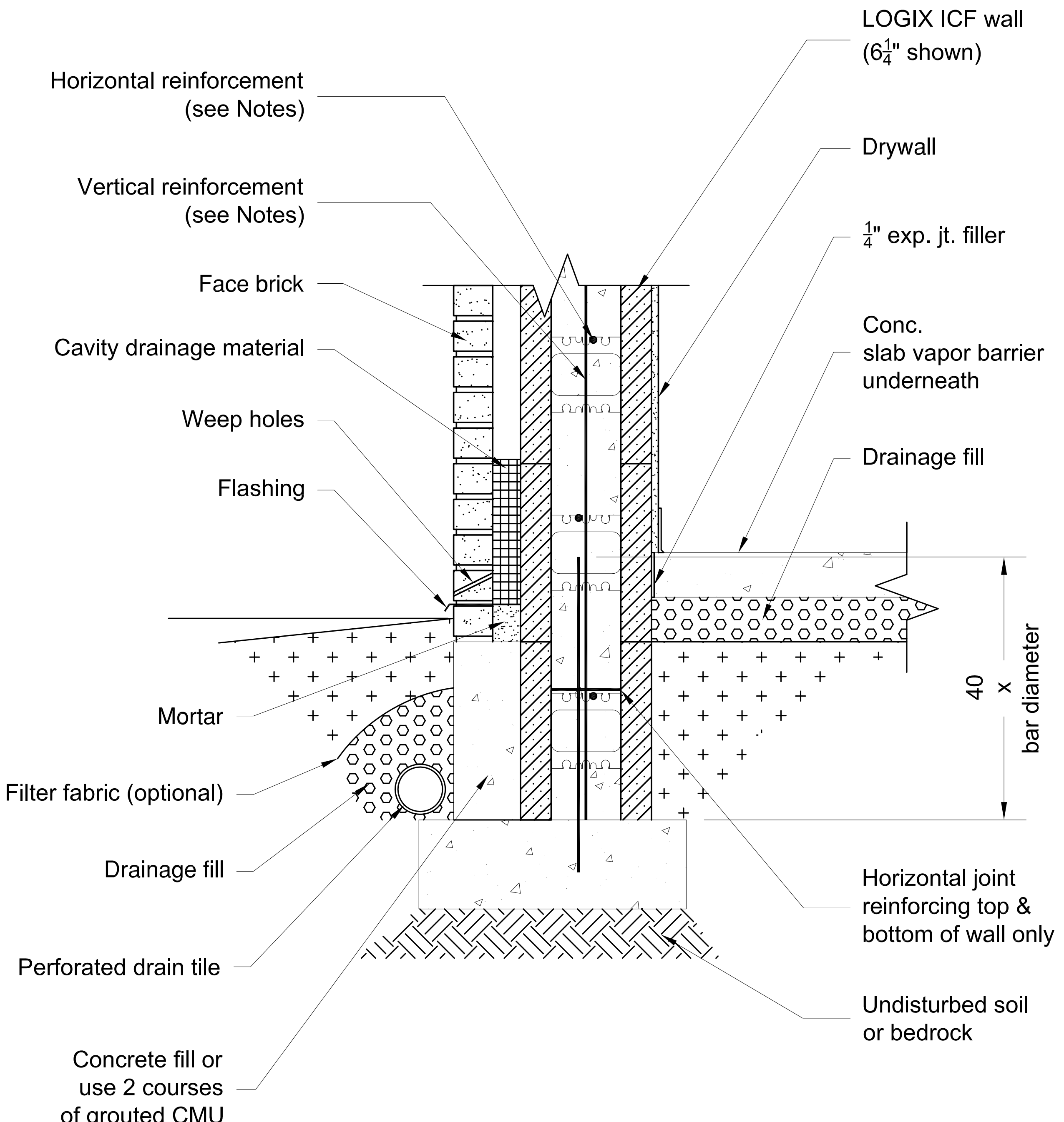


NOTES:

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

5.2.8 – BRICK VENEER ON CONCRETE FILL

All drawings are downloadable at www.logixicf.com

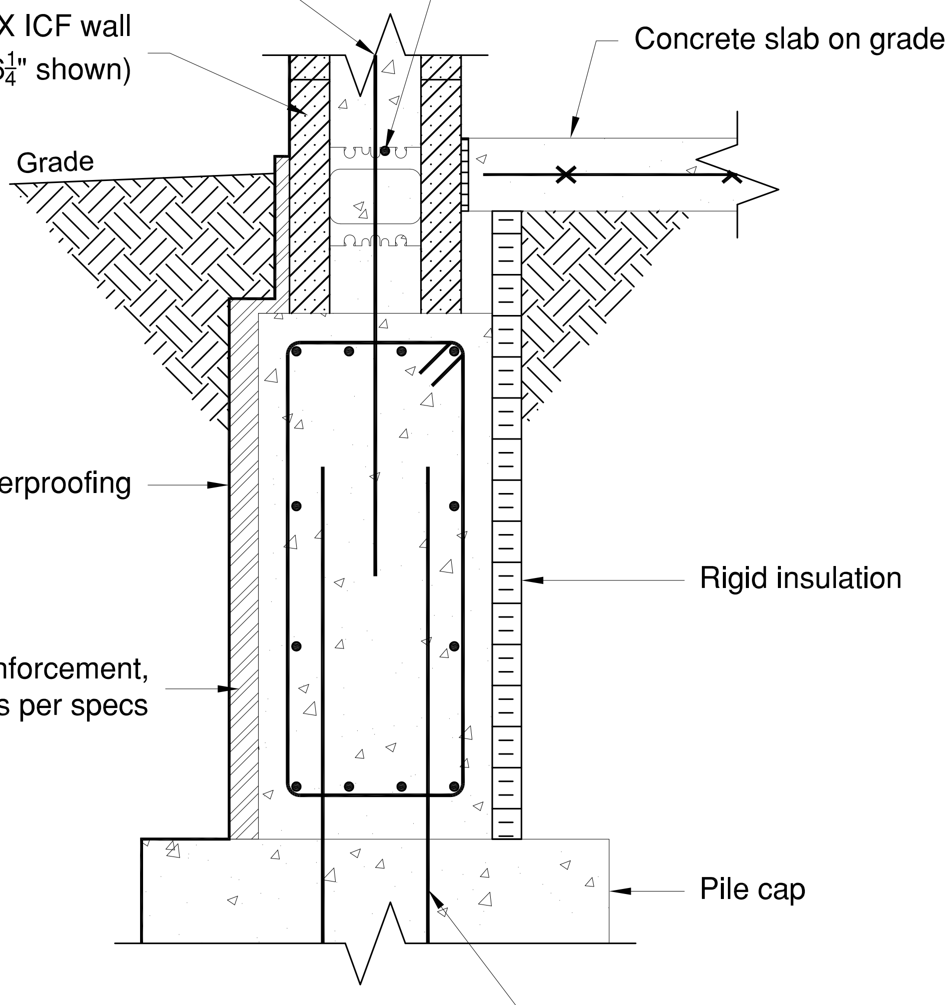


NOTES:

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

5.2.9 – DEEP GRADE BEAM ON PILE CAP

All drawings are downloadable at www.logixicf.com

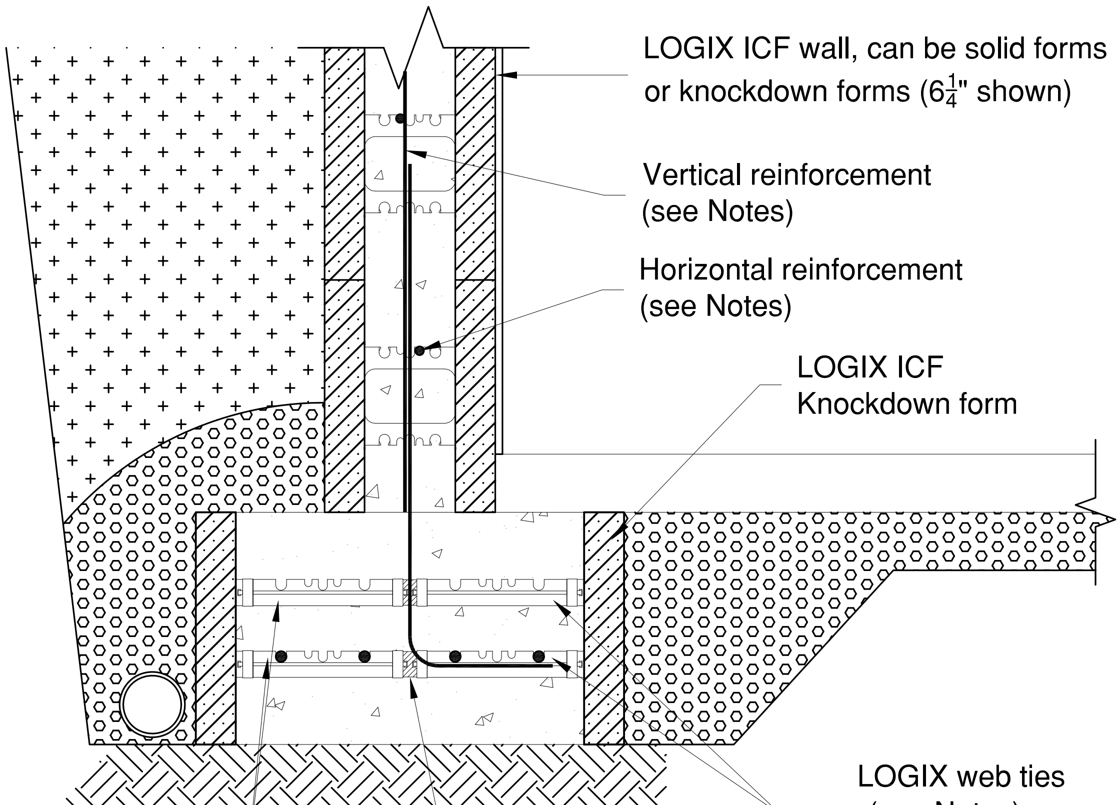


NOTES:

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

5.2.10 – LOGIX FOOTING WITH XTENDER

All drawings are downloadable at www.logixicf.com



NOTES:

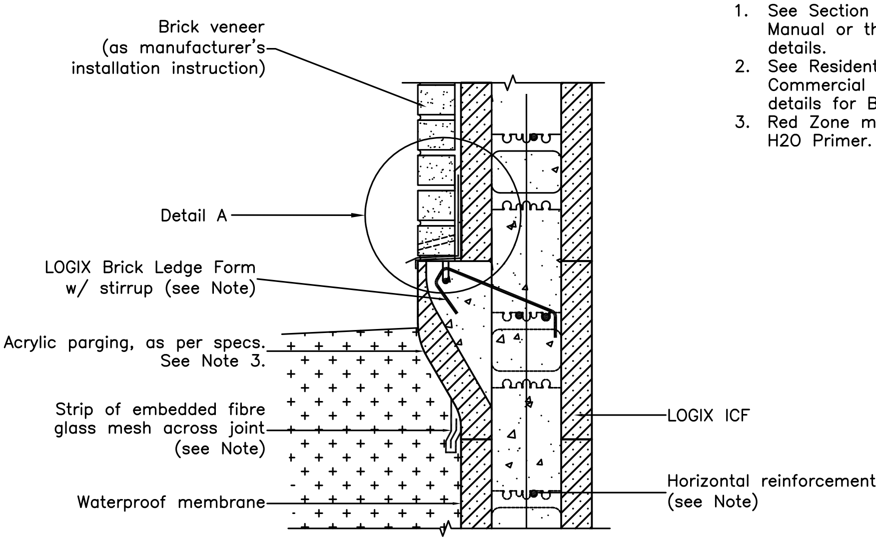
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.
2. For more information on LOGIX Tie Extenders, see Drawing 5.1.22..

5.2.11 – BRICK LEDGE FLASHING DETAILS

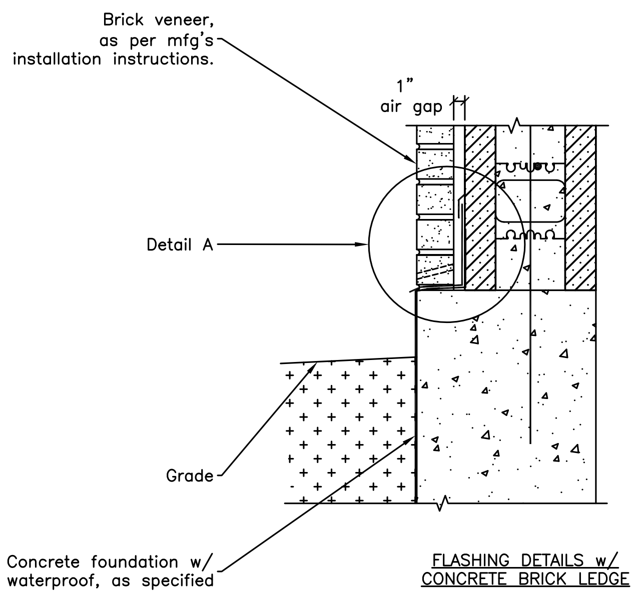
All drawings are downloadable at www.logixicf.com

NOTES:

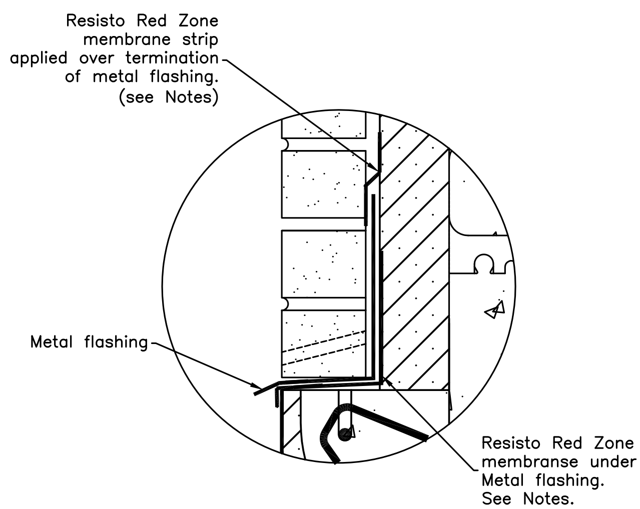
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. Red Zone membrane must be adhered with Resisto H20 Primer.



FLASHING DETAILS w/ LOGIX BRICK LEDGE



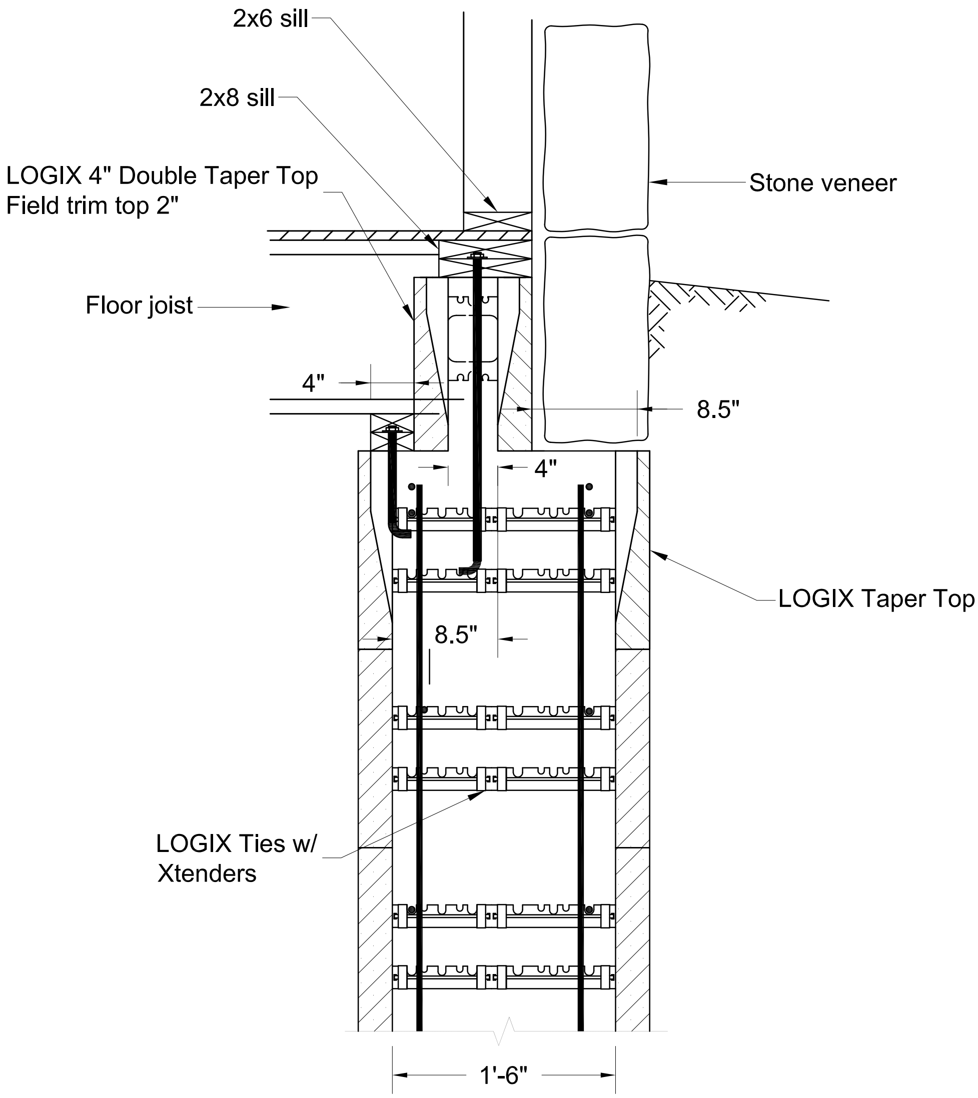
FLASHING DETAILS w/ CONCRETE BRICK LEDGE



DETAIL A: TYPICAL WATERPROOFING DETAIL

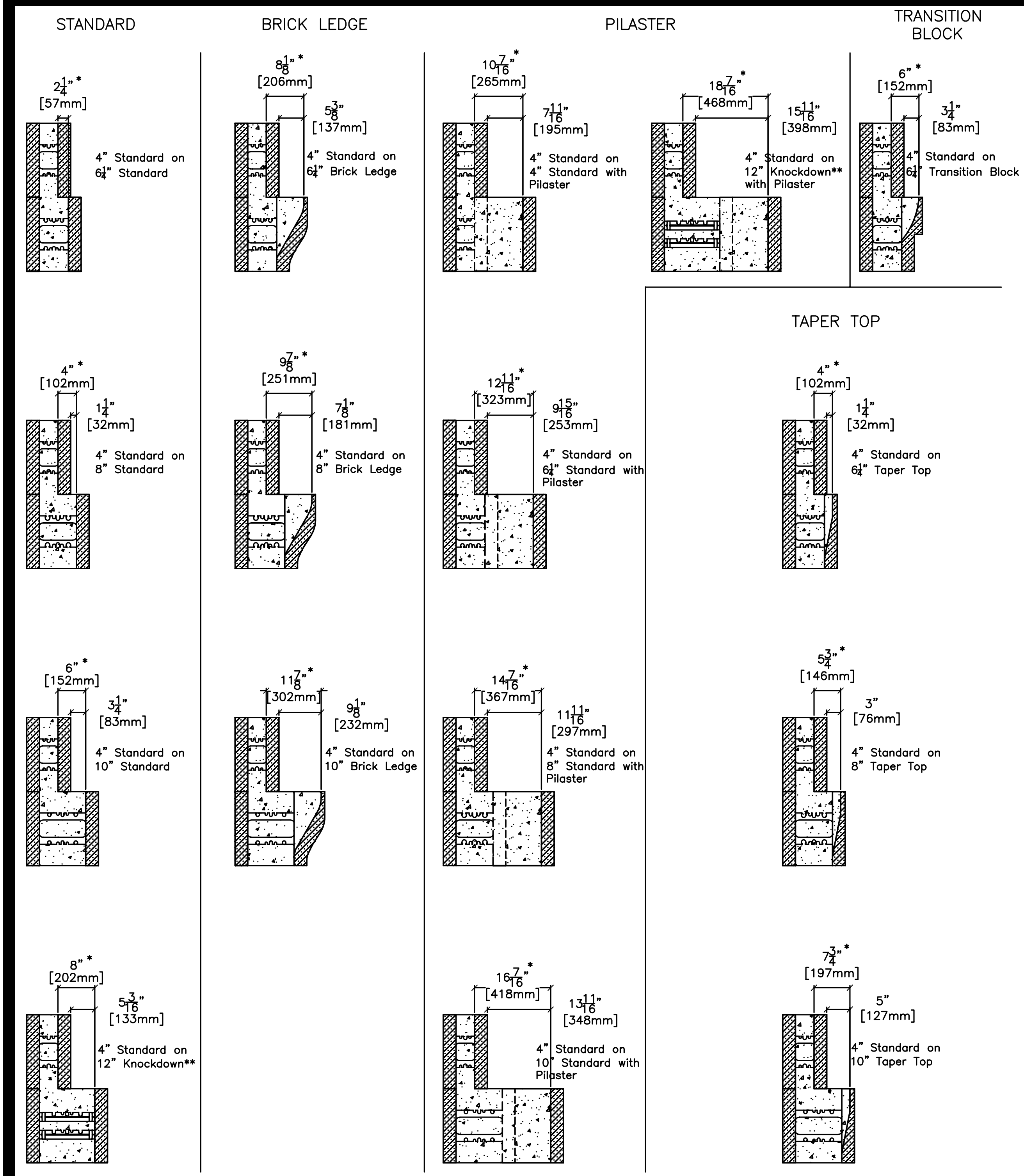
5.2.12 – FOUNDATION WITH TIE XTENDERS SUPPORTING STONE VENEER

All drawings are downloadable at www.logixicf.com



5.3 – FLOOR CONNECTIONS
5.3.1 – BEARING LENGTHS - 4" LOGIX STANDARD FORM ON TOP

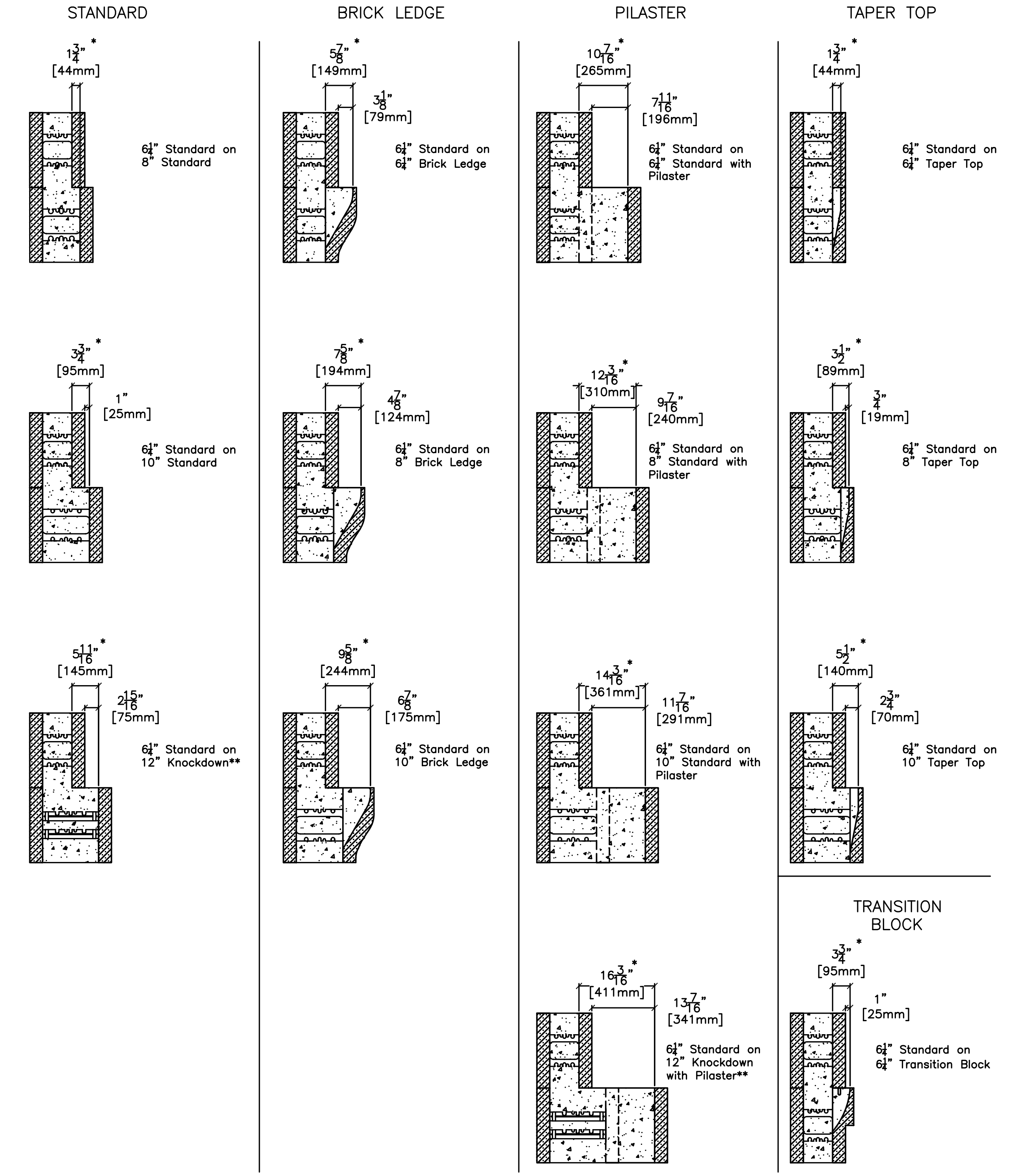
All drawings are downloadable at www.logixicf.com



* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

5.3.1 – BEARING LENGTHS - 6.25" LOGIX STANDARD FORM ON TOP CONTINUED

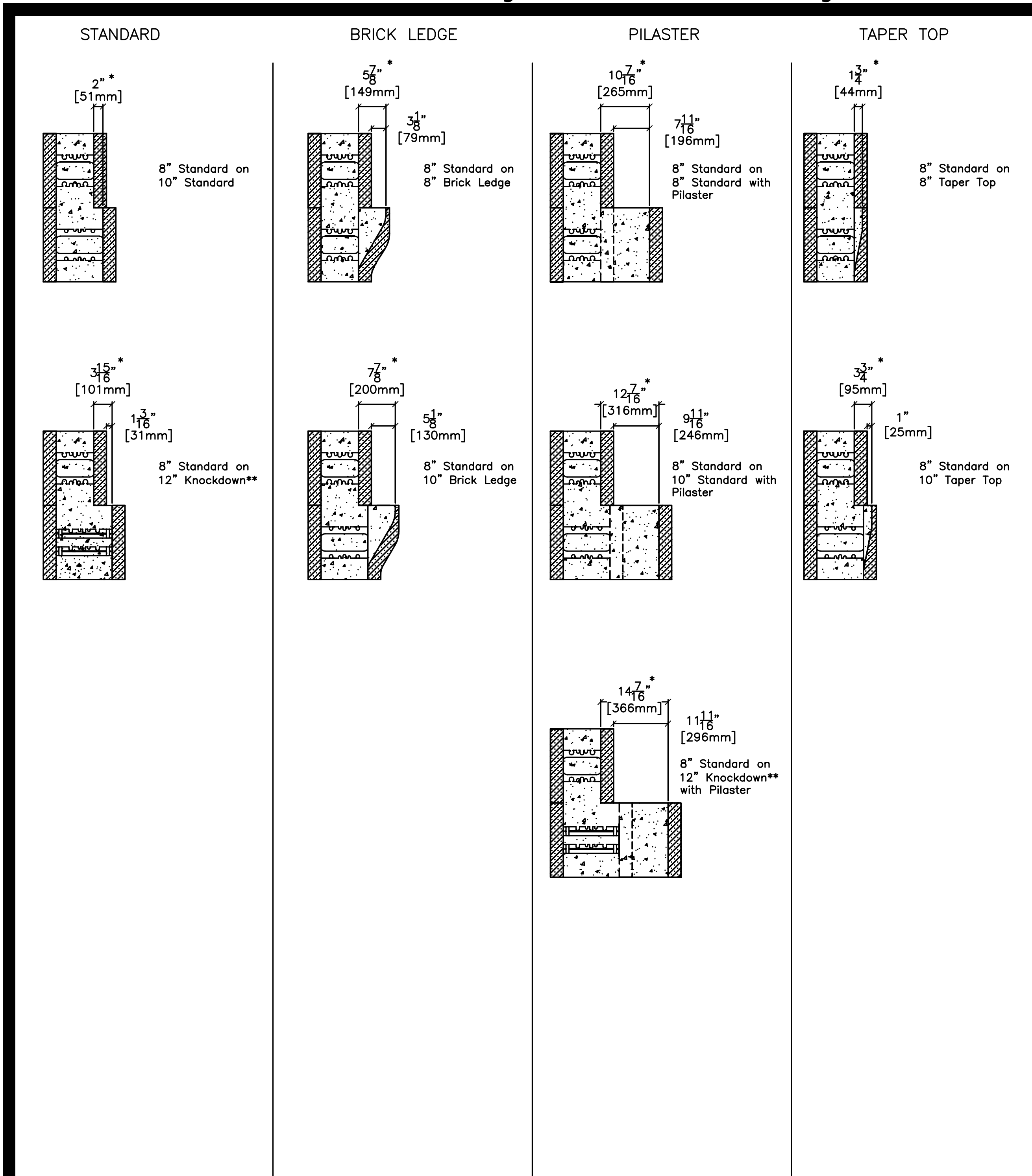
All drawings are downloadable at www.logixicf.com



* Remove foam to achieve bearing length   ** LOGIX 12" Knockdown Form available in 2008.

5.3.1 – BEARING LENGTHS - 8” LOGIX STANDARD FORM ON TOP CONTINUED

All drawings are downloadable at www.logixicf.com



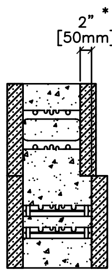
* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

5.3.1 – BEARING LENGTHS - 10” & 12” LOGIX STANDARD FORM ON TOP CONTINUED

All drawings are downloadable at www.logixicf.com

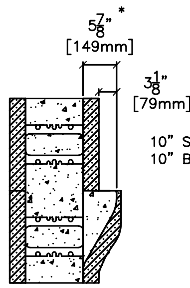
10" LOGIX STANDARD FORM ON TOP

STANDARD



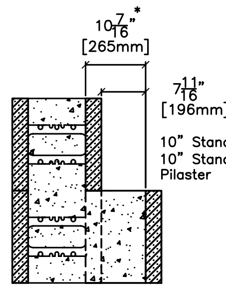
10" Standard on
12" Knockdown**

BRICK LEDGE



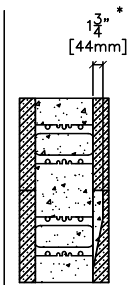
10" Standard on
10" Brick Ledge

PILASTER

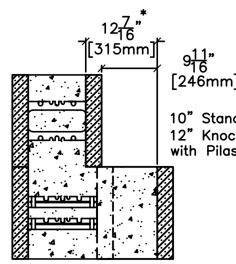


10" Standard on
10" Standard with
Pilaster

TAPER TOP



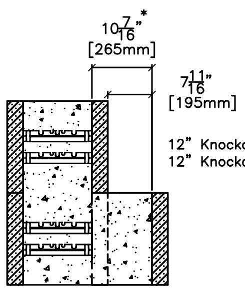
10" Standard on
10" Taper Top



10" Standard on
12" Knockdown**
with Pilaster

12" LOGIX KNOCKDOWN** FORM ON TOP

PILASTER

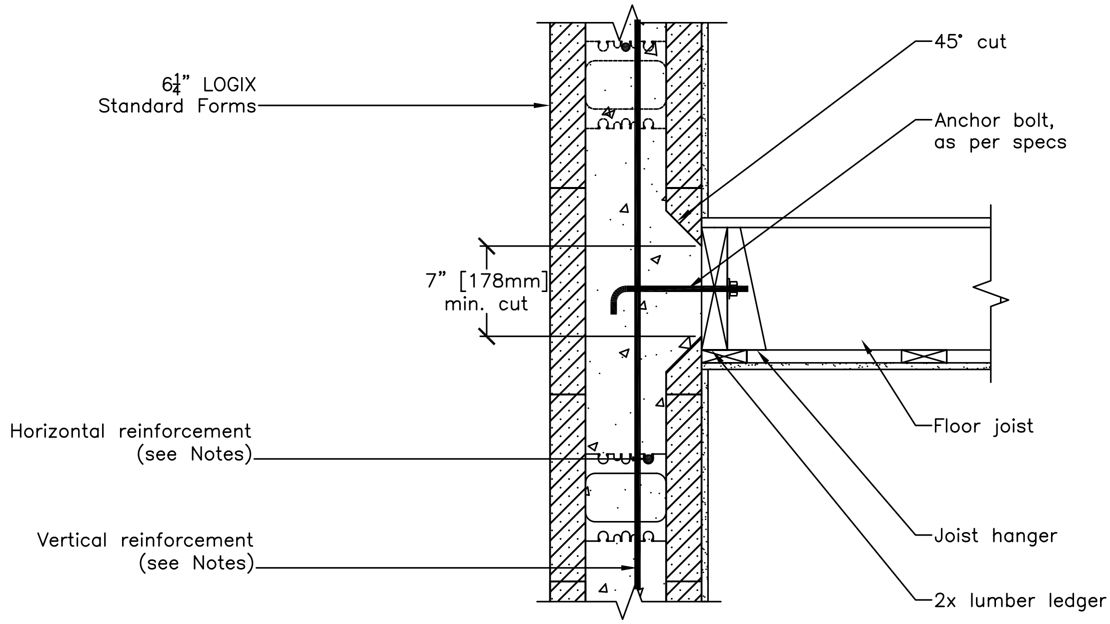


12" Knockdown** on
12" Knockdown** with Pilaster

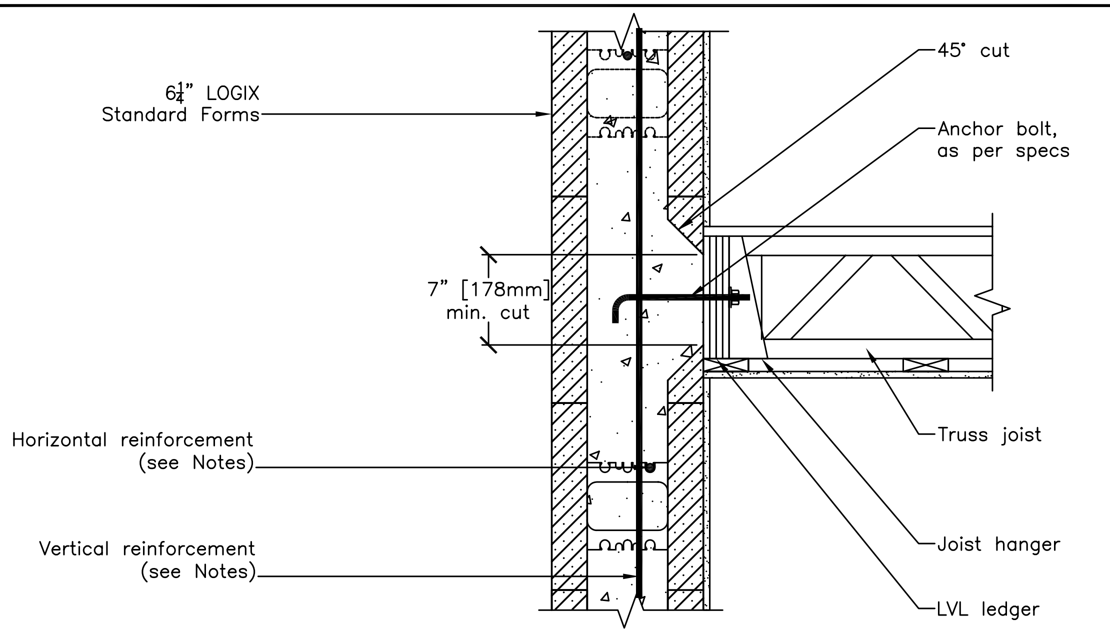
* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

5.3.2 – 2x LUMBER LEDGER
5.3.3 – LVL LUMBER LEDGER

All drawings are downloadable at www.logixicf.com



LUMBER LEDGER



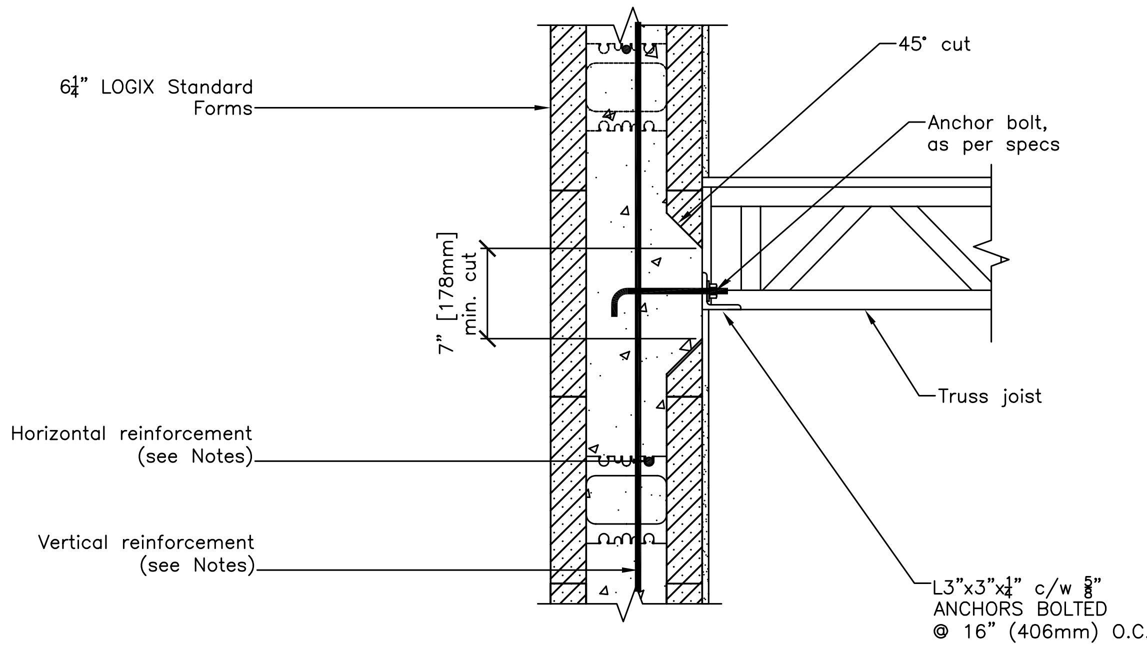
LVL LEDGER

NOTES:

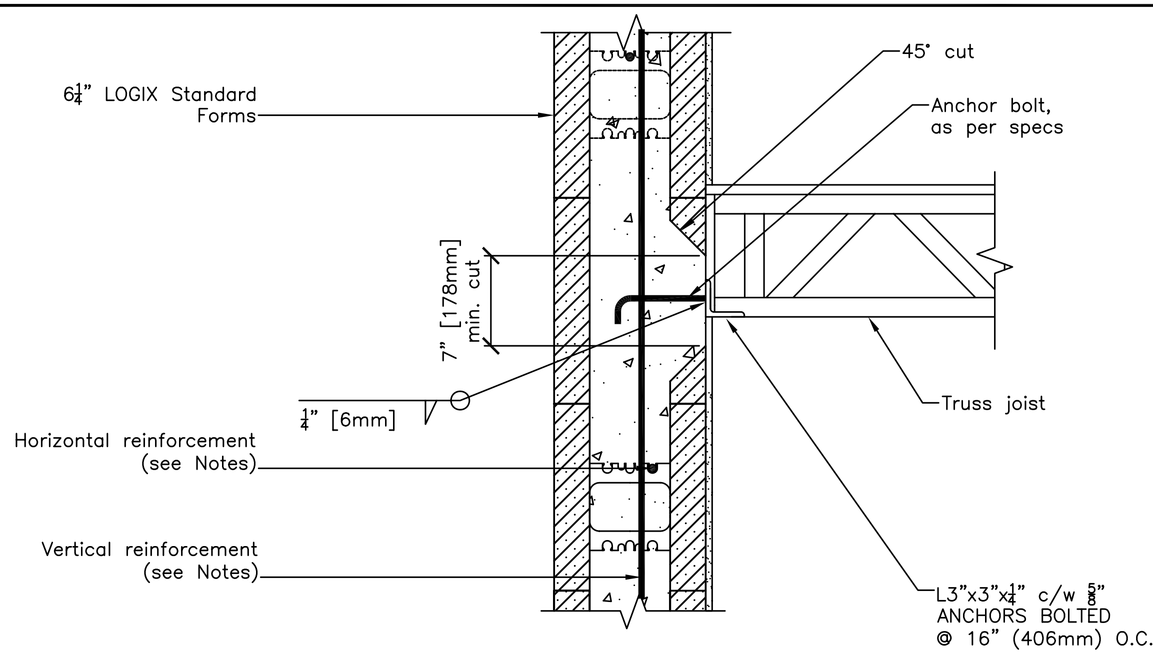
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.4 – ANGLE IRON LEDGER

All drawings are downloadable at www.logixicf.com



BOLTED ANGLE SEAT DETAIL



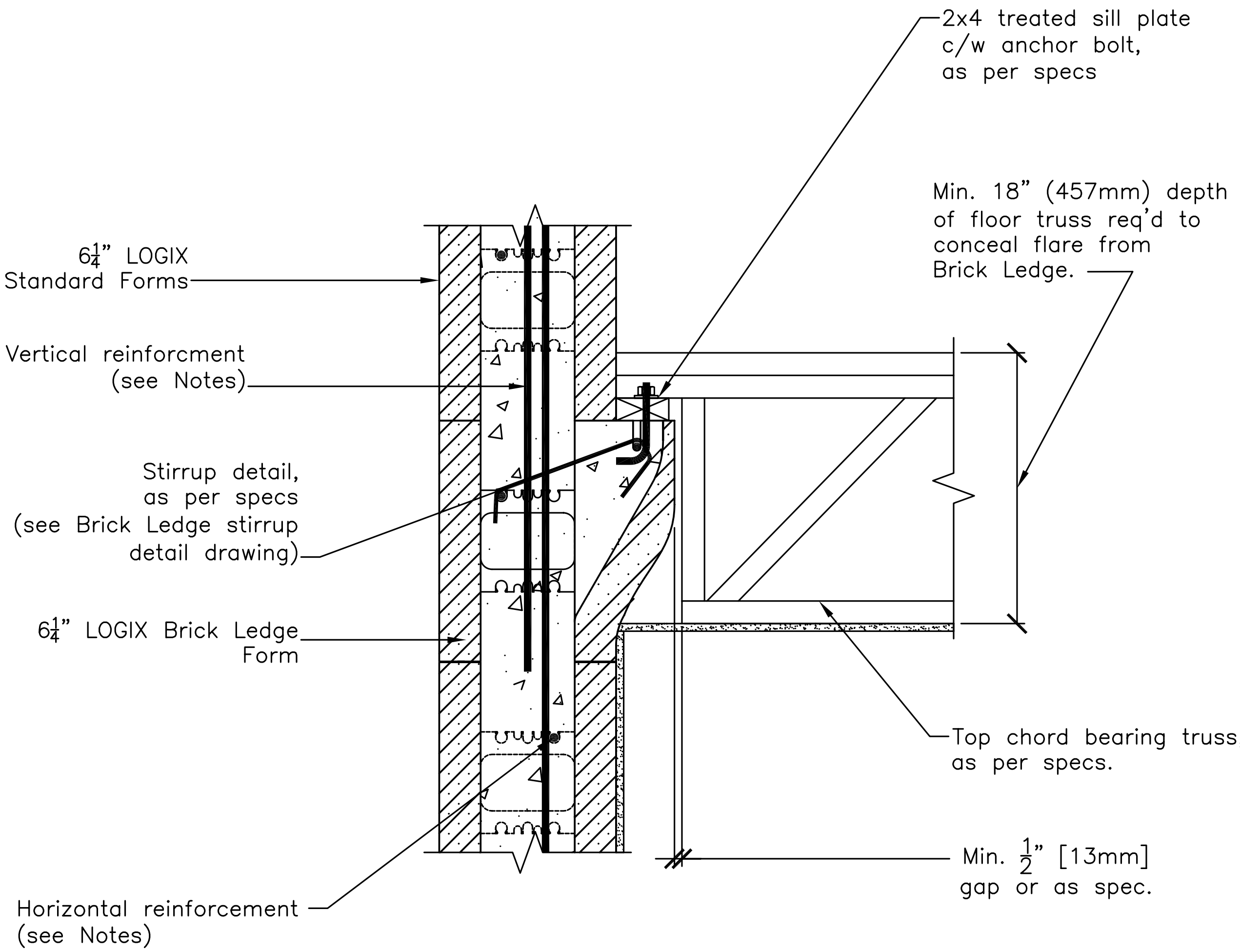
WELDED ANGLE SEAT DETAIL

NOTES:

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

5.3.5 – BRICK LEDGE WITH TOP CHORD BEARING

All drawings are downloadable at www.logixicf.com

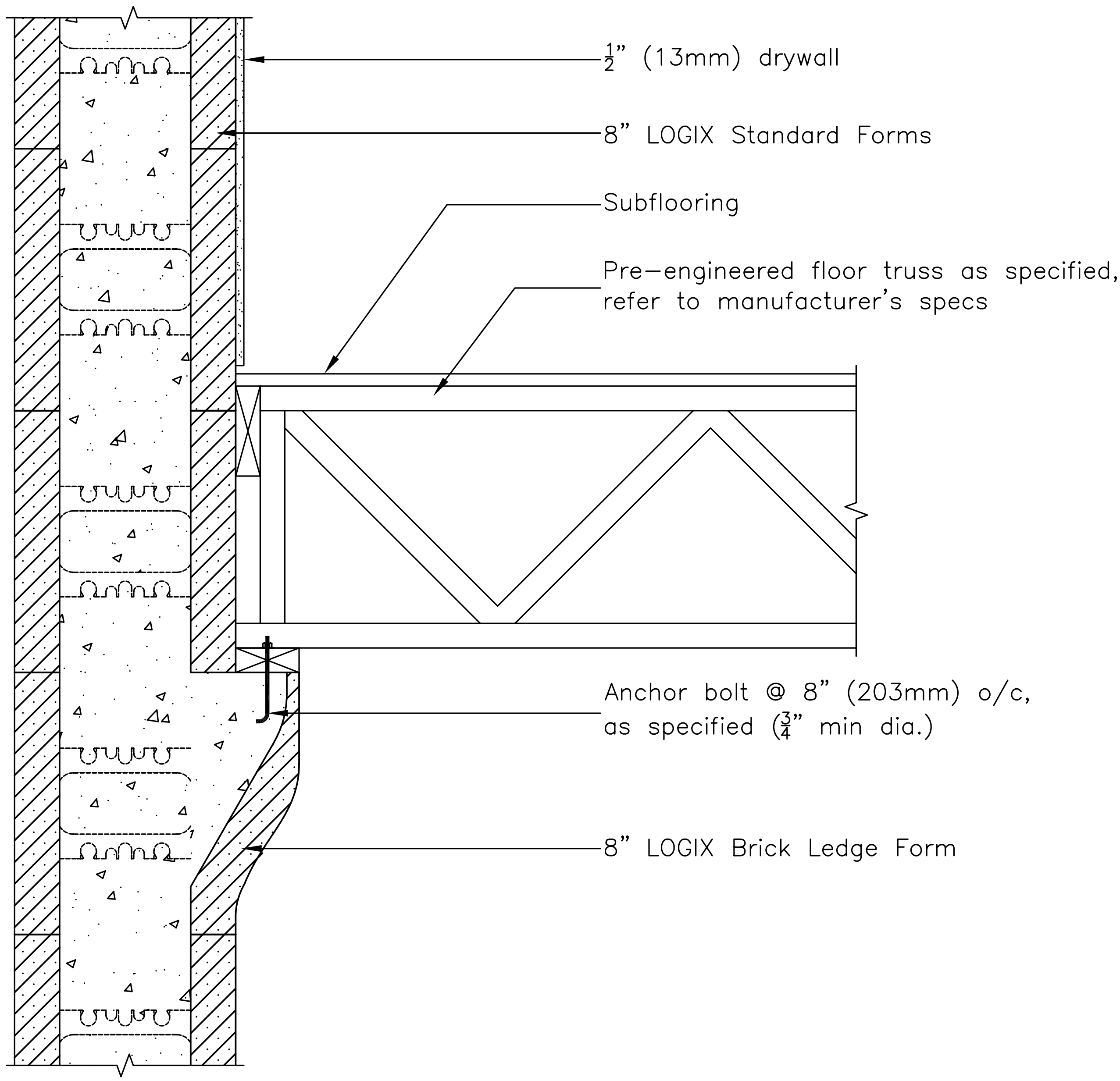


NOTES:

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

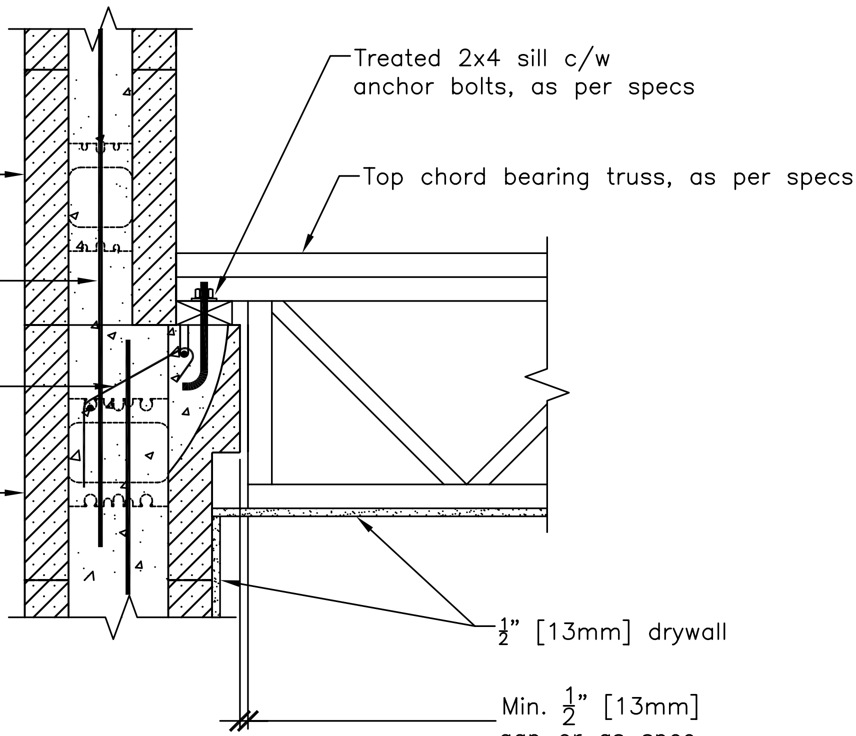
5.3.6 – BOTTOM CHORD BEARING TRUSS

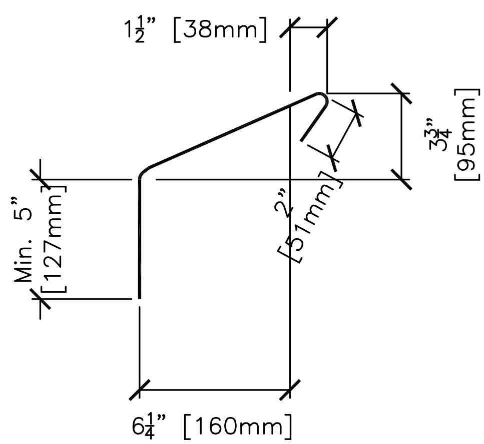
All drawings are downloadable at www.logixicf.com



5.3.7 – 6.25" TRANSITION FORM SUPPORTING OPEN WEB FLOOR JOIST

All drawings are downloadable at www.logixicf.com





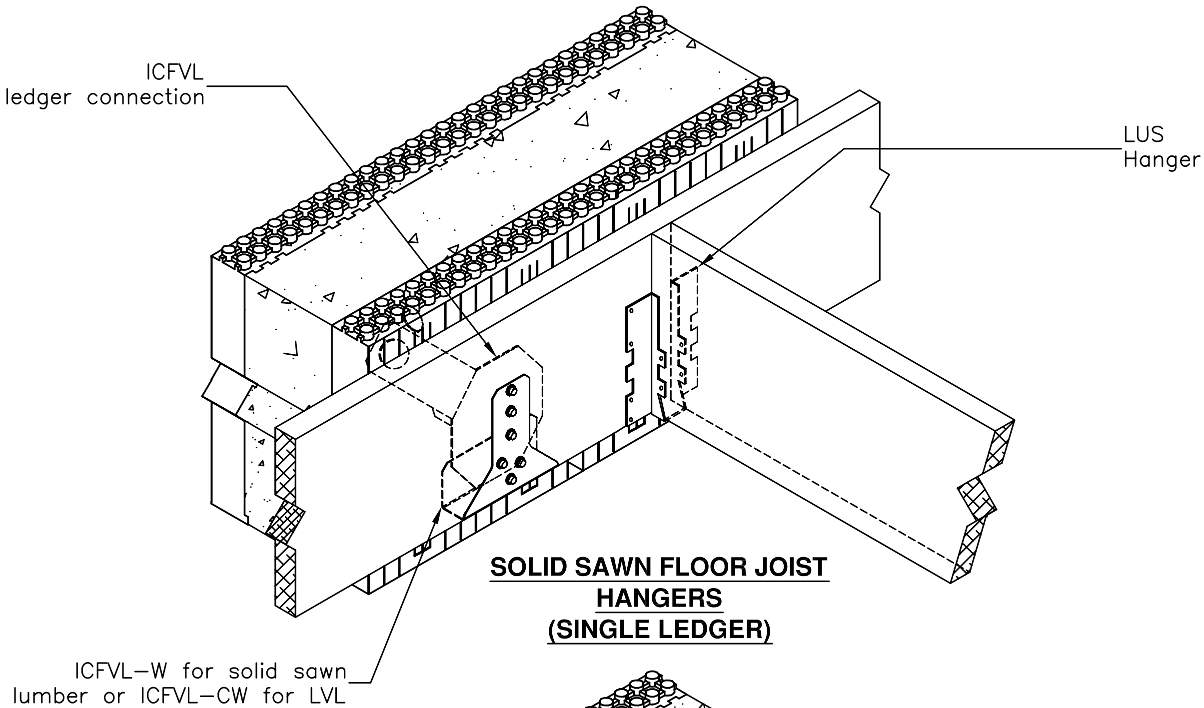
STIRRUP DETAIL

NOTES:

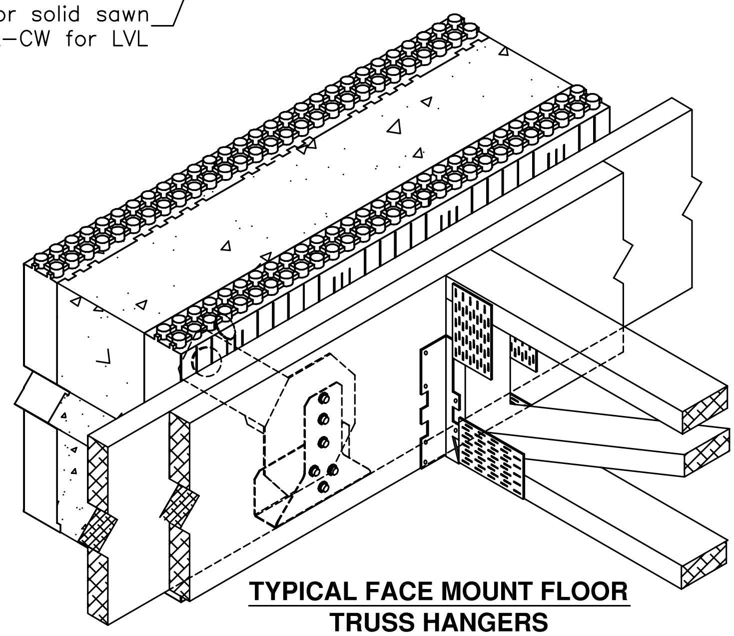
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.8 – SIMPSON STRONG TIE - ICF LEDGER CONNECTION SYSTEM

All drawings are downloadable at www.logixicf.com



SOLID SAWN FLOOR JOIST HANGERS (SINGLE LEDGER)



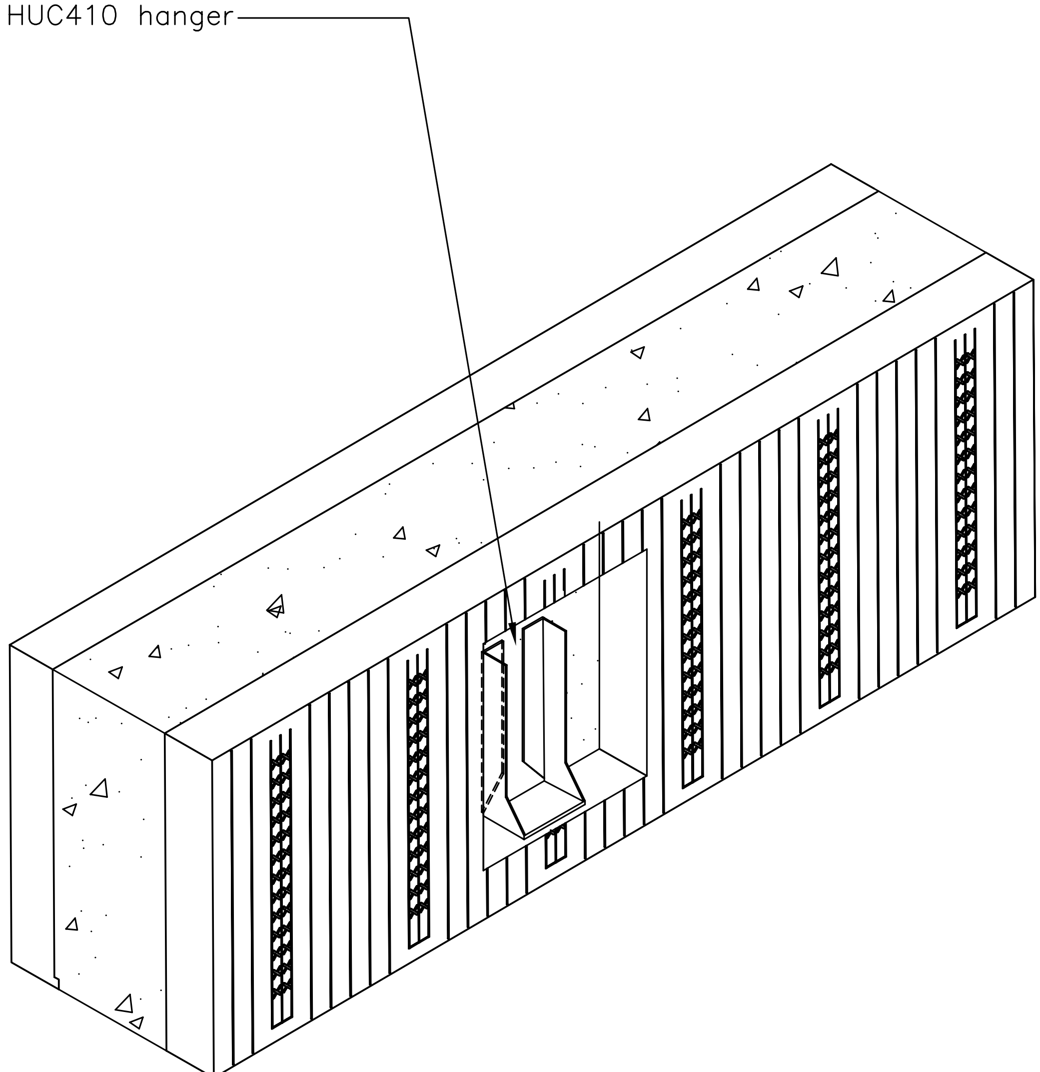
TYPICAL FACE MOUNT FLOOR TRUSS HANGERS (DOUBLE LEDGER)

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.

5.3.9 – SIMPSON STRONG TIE - JOIST HANGER

All drawings are downloadable at www.logixicf.com

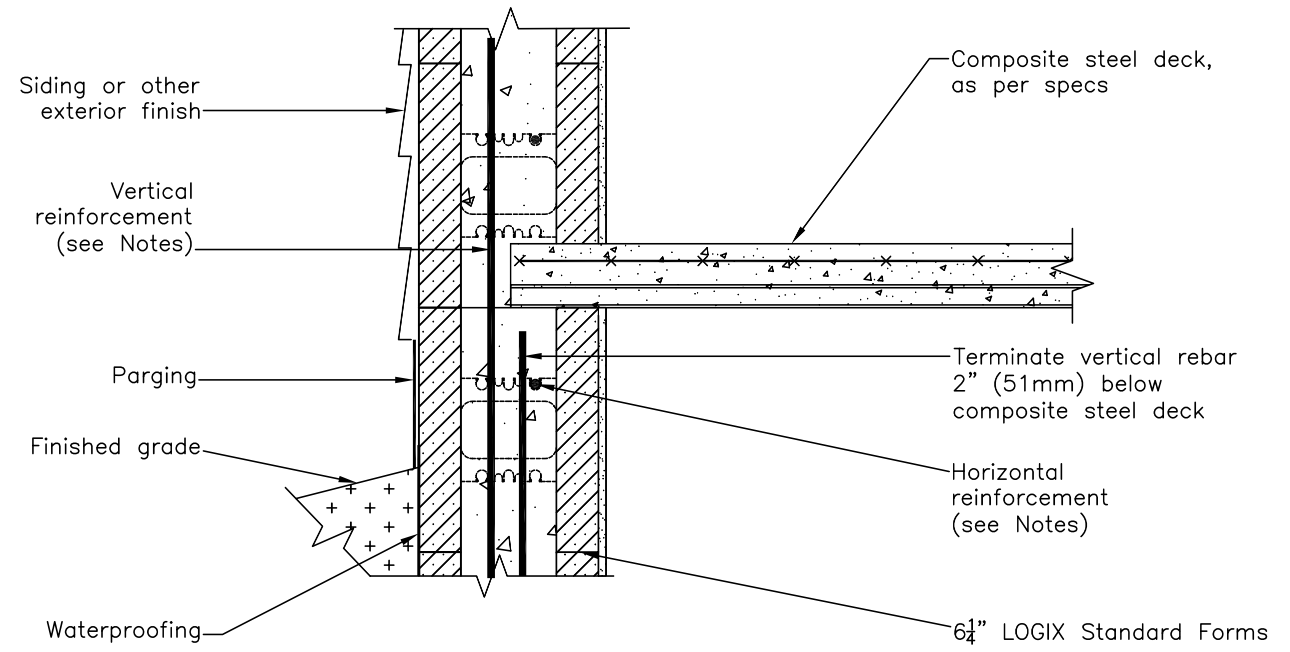


JOIST HANGER
(Installed on face of concrete in ICF)

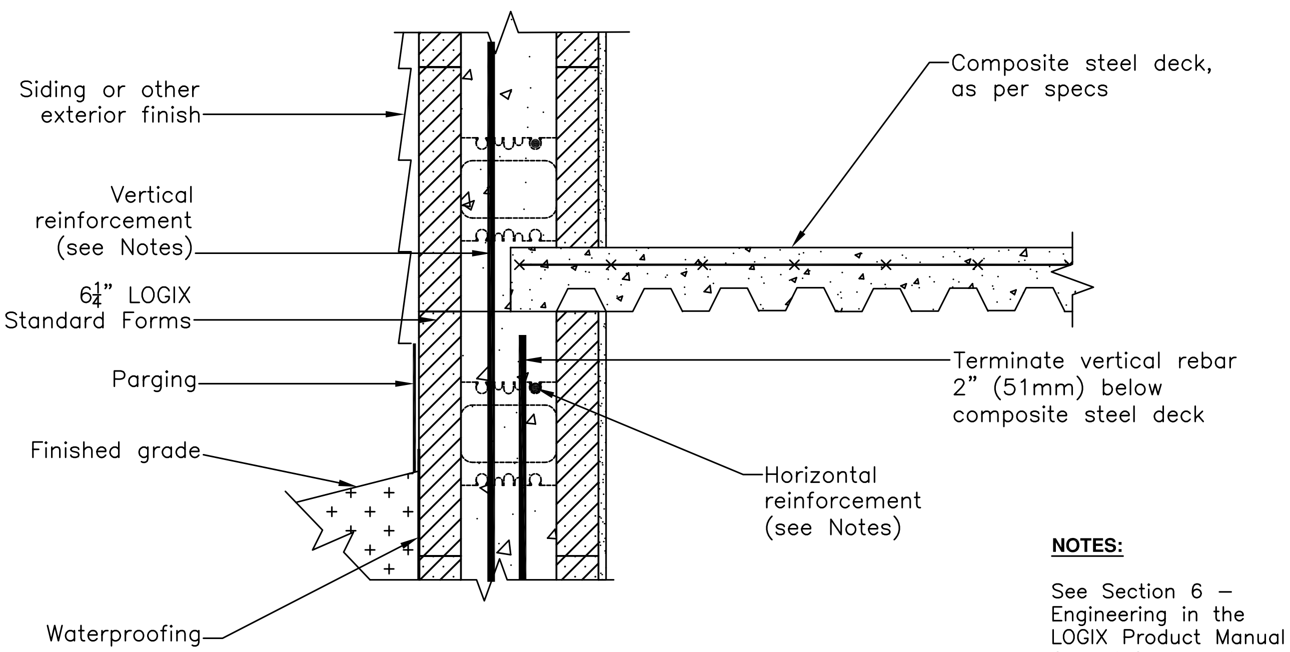
NOTES:

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.

All drawings are downloadable at www.logixicf.com



STEEL COMPOSITE DECK (BEARING END)



STEEL COMPOSITE DECK (NON-BEARING END)

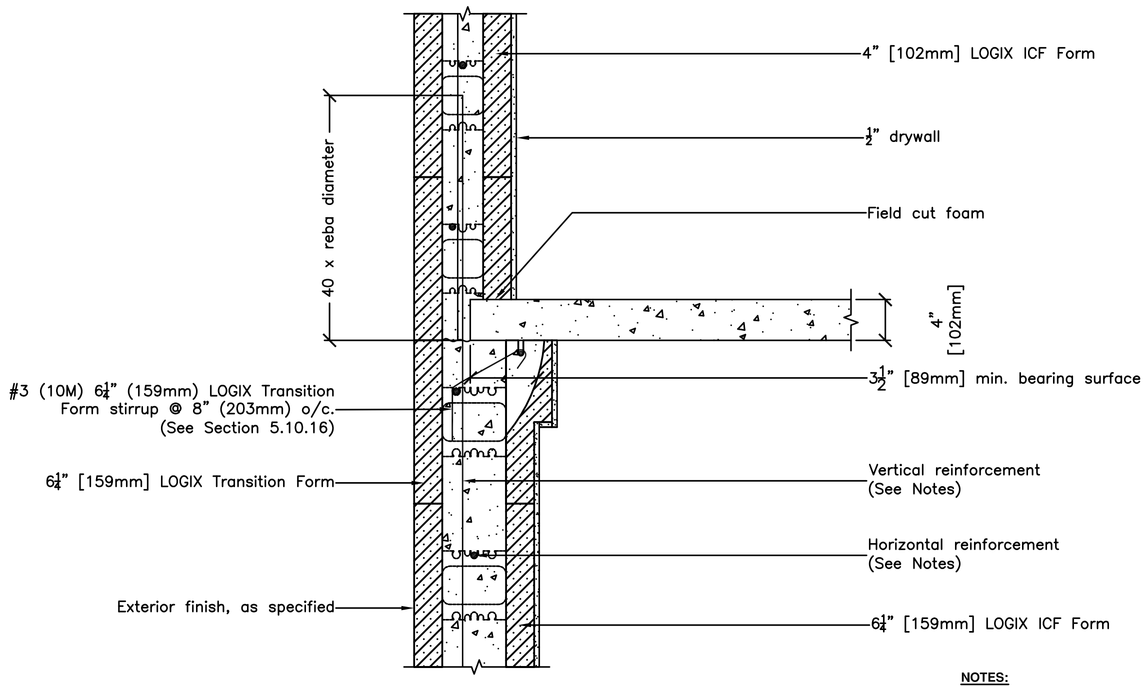
NOTES:

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

C A D D R A W I N G S

5.3.11 – 6.25" TO 4" TRANSITION WALL WITH PRECAST CONCRETE WALL

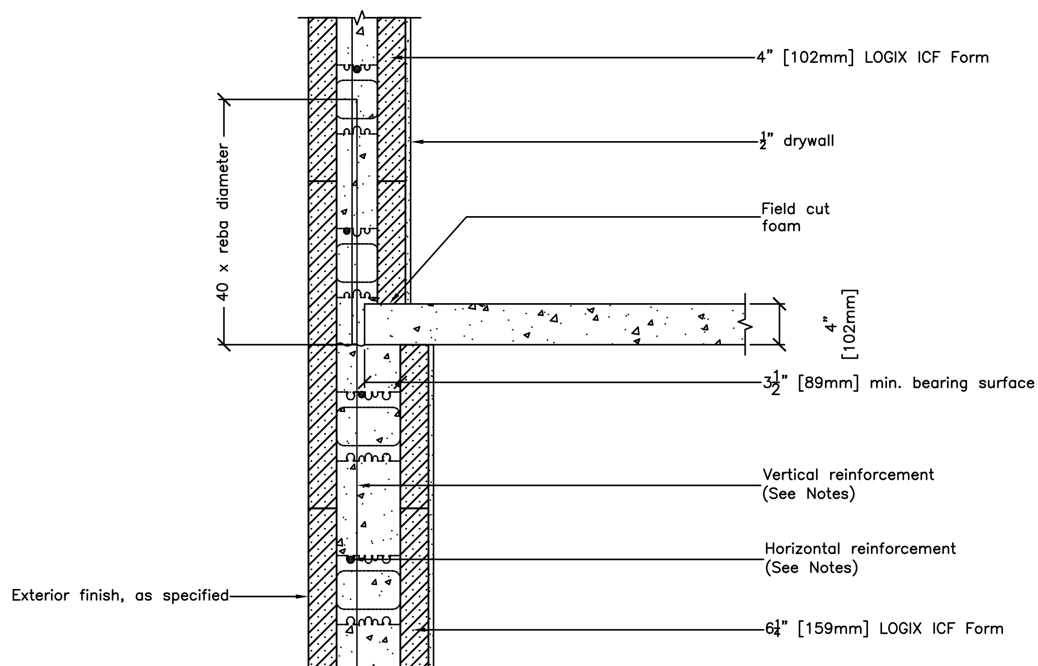
All drawings are downloadable at www.logixicf.com



PRECAST CONCRETE SITTING ON TOP OF 6.25" TRANSITION FORM

NOTES:

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



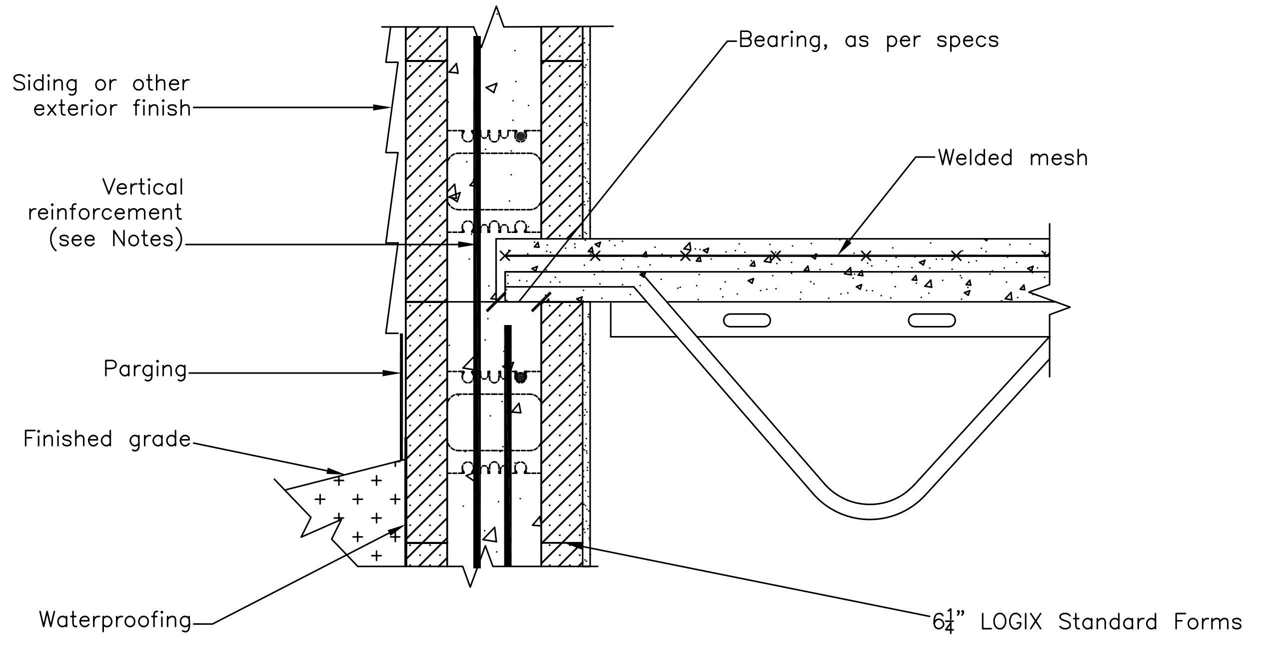
PRECAST CONCRETE SITTING ON TOP OF 6.25" STANDARD FORM

NOTES:

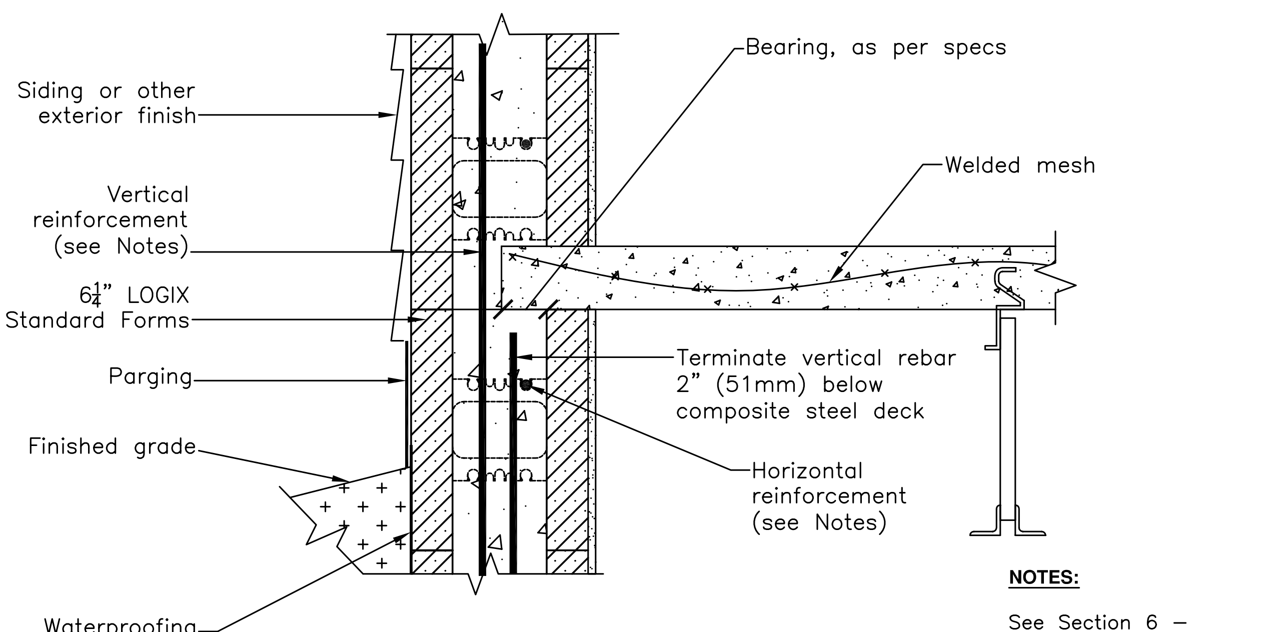
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.12 – HAMBRO FLOOR

All drawings are downloadable at www.logixicf.com



HAMBRO FLOOR SYSTEM (BEARING END)



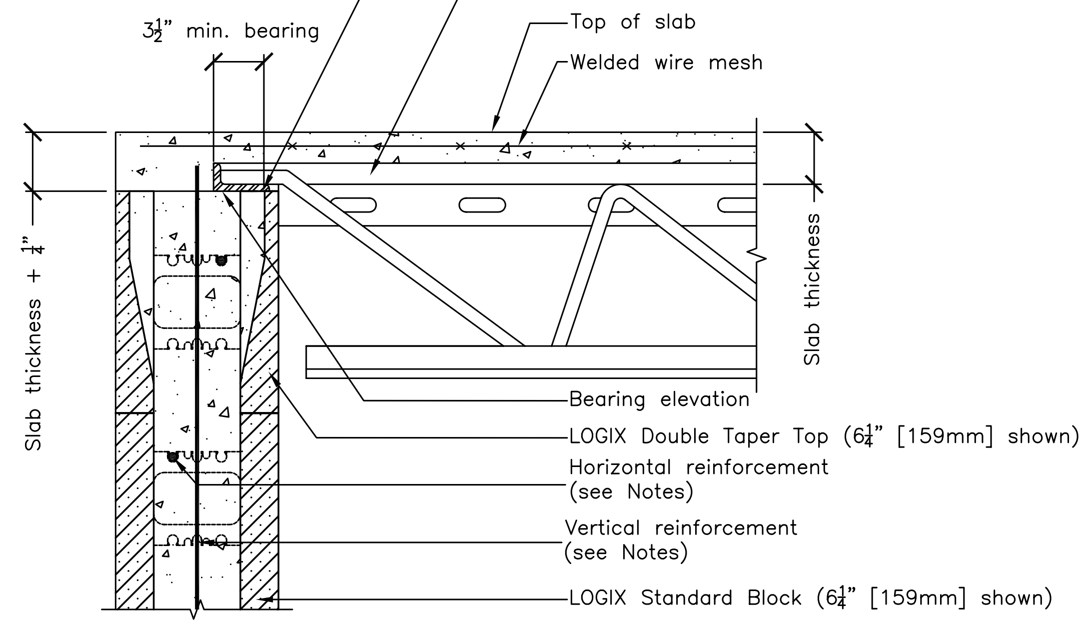
HAMBRO FLOOR SYSTEM (NON-BEARING END)

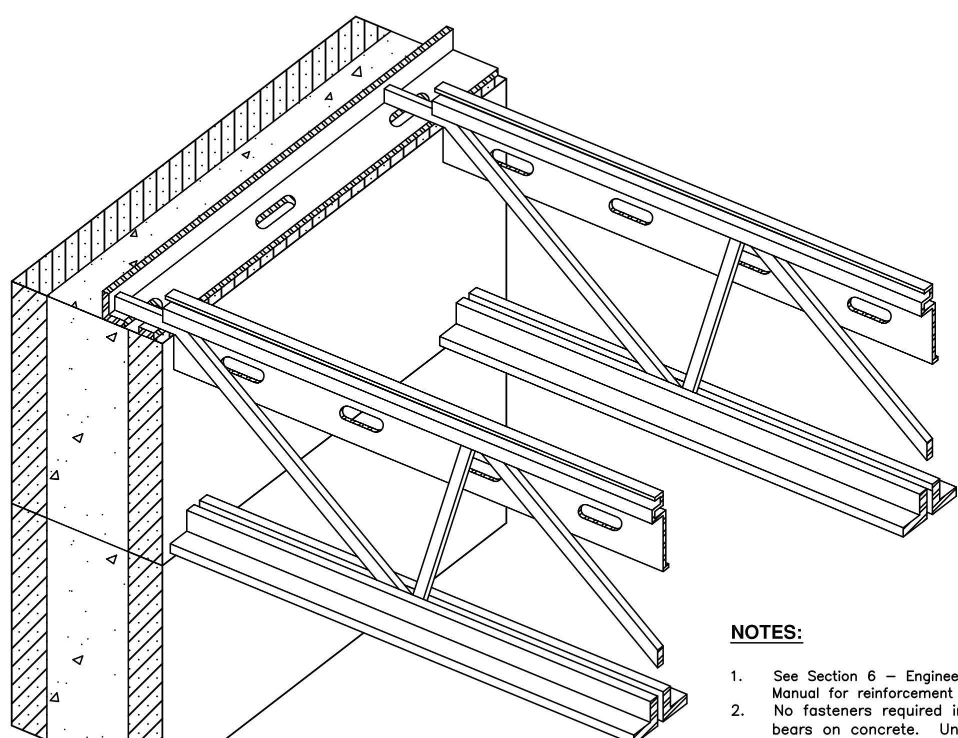
NOTES:

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

5.3.13 – HAMBRO JOISTS BUTTED UP ON LOGIX ICF WALL (1 OF 2)

All drawings are downloadable at www.logixicf.com





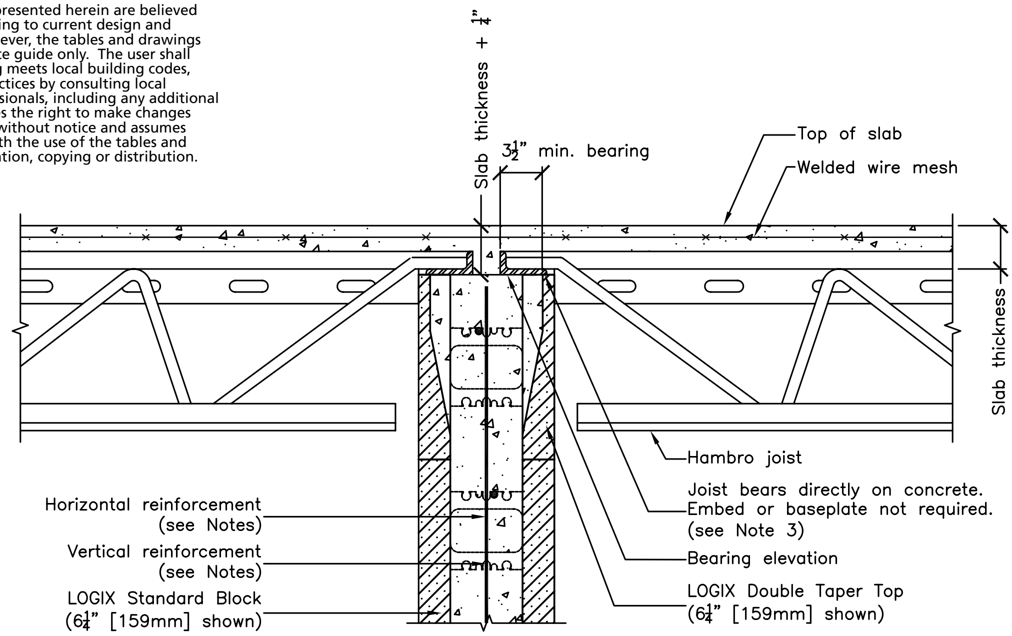
(Slab not shown for clarity)

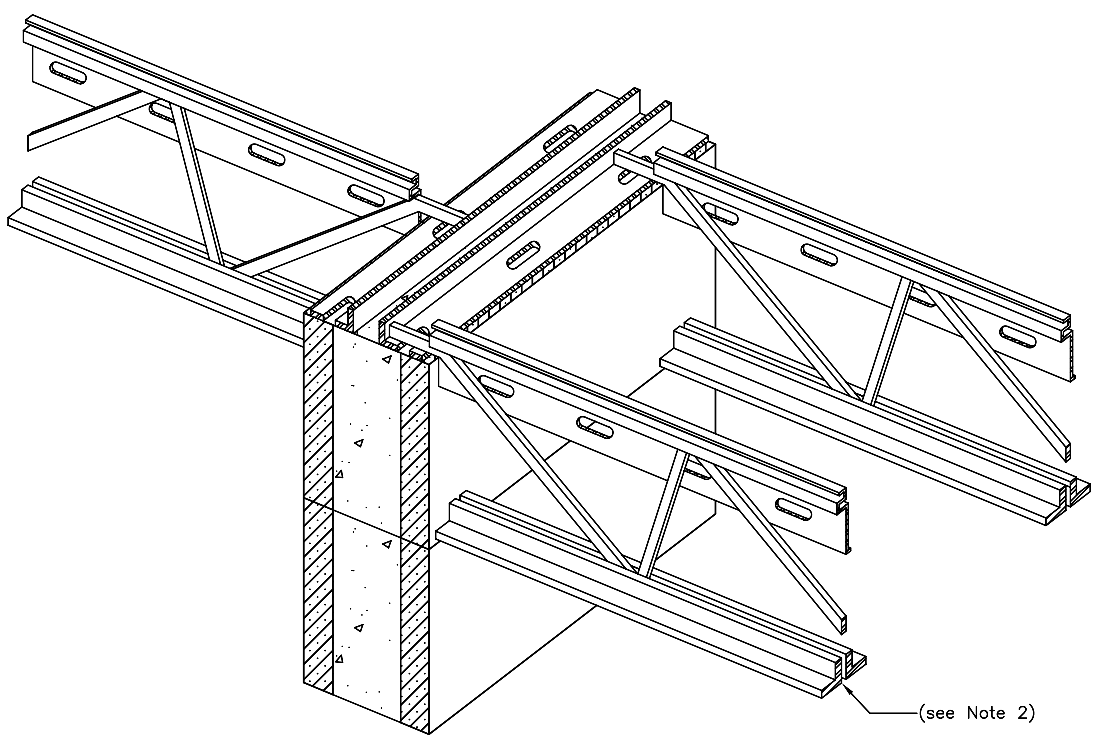
NOTES:

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.

5.3.14 – HAMBRO JOISTS BUTTED UP ON LOGIX ICF WALL (2 OF 2)

All drawings are downloadable at www.logixicf.com





(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.

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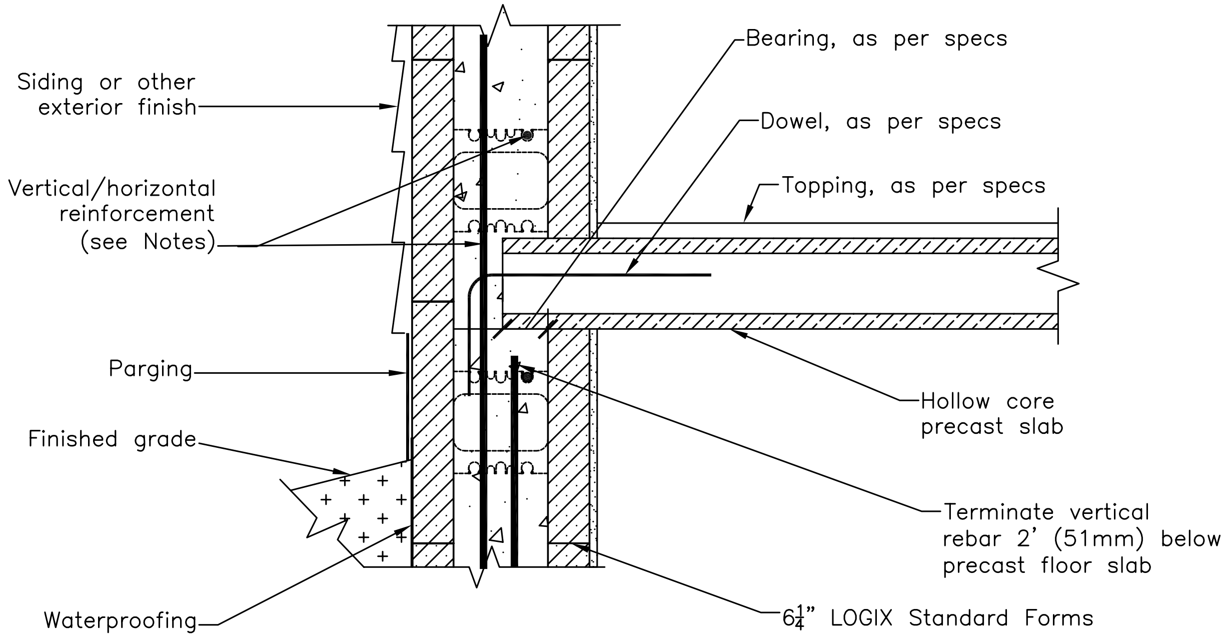
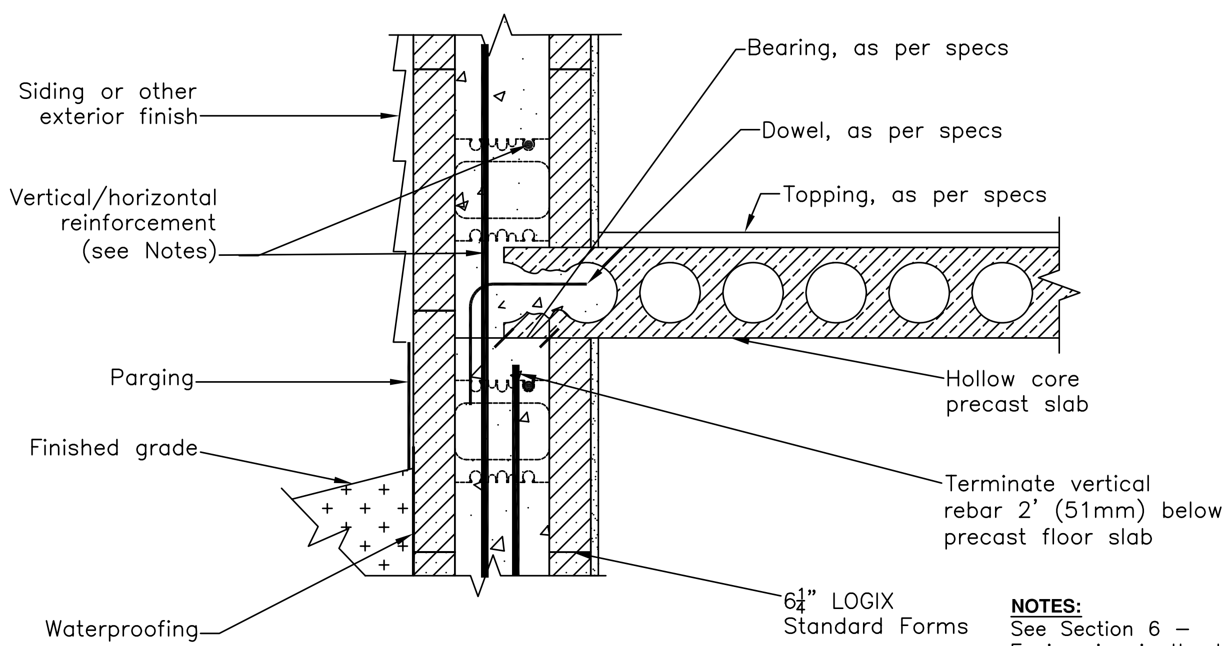
5.3.15 – HOLLOW CORE SLAB WITH LOGIX

All drawings are downloadable at www.logixicf.com



HOLLOW CORE PRECAST CONCRETE SLAB (BEARING END)



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

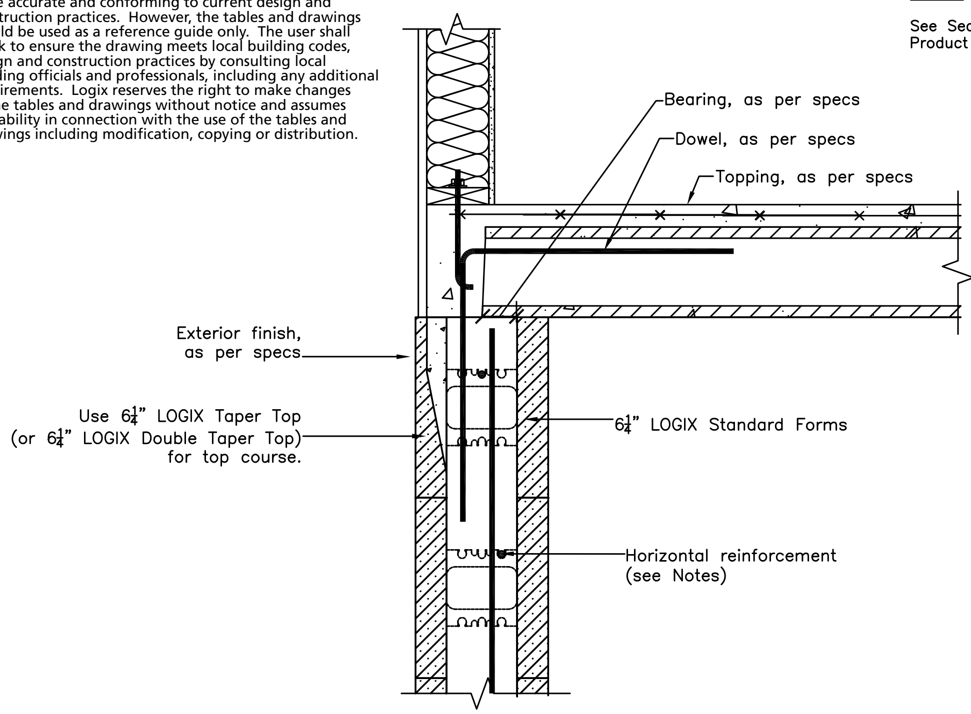
HOLLOW CORE PRECAST CONCRETE SLAB (NON-BEARING END)

5.3.16 – HOLLOW CORE SLAB WITH FRAMED WALL

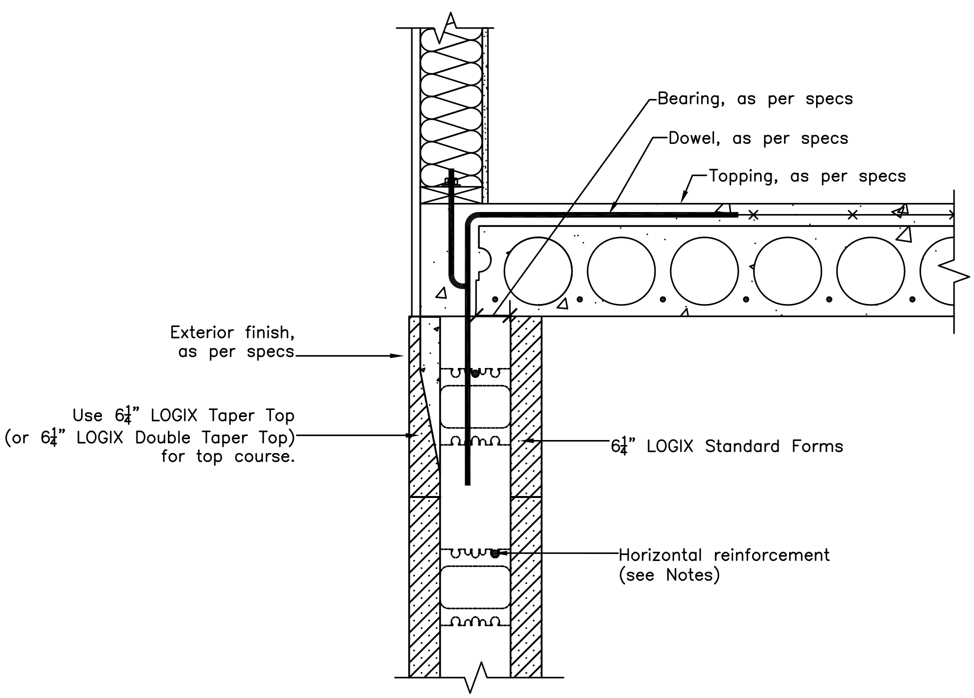
All drawings are downloadable at www.logixicf.com

NOTES:

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



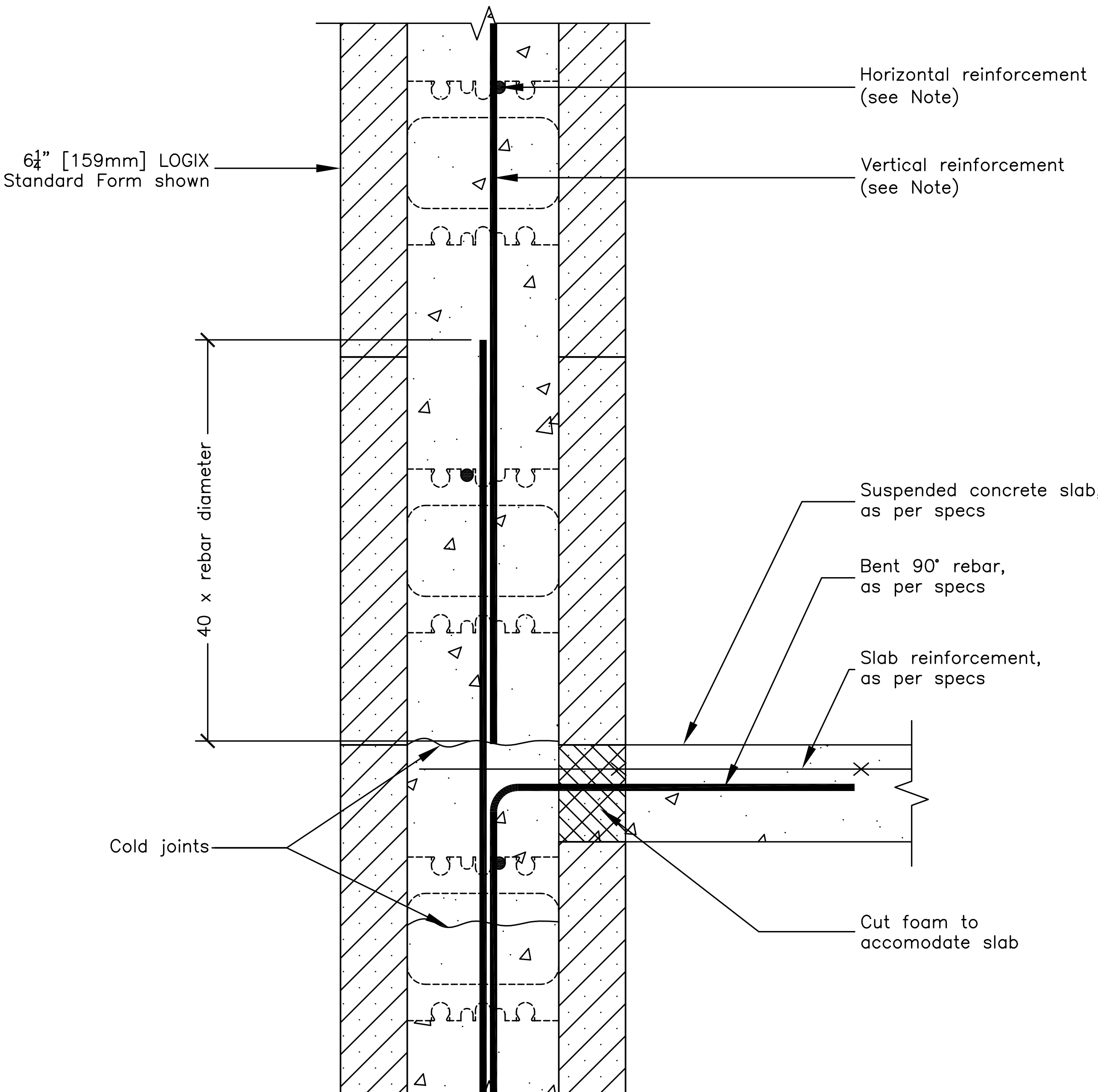
BEARING END



NONBEARING END

5.3.17 – SUSPENDED SLAB (CAST-IN-PLACE)

All drawings are downloadable at www.logixicf.com

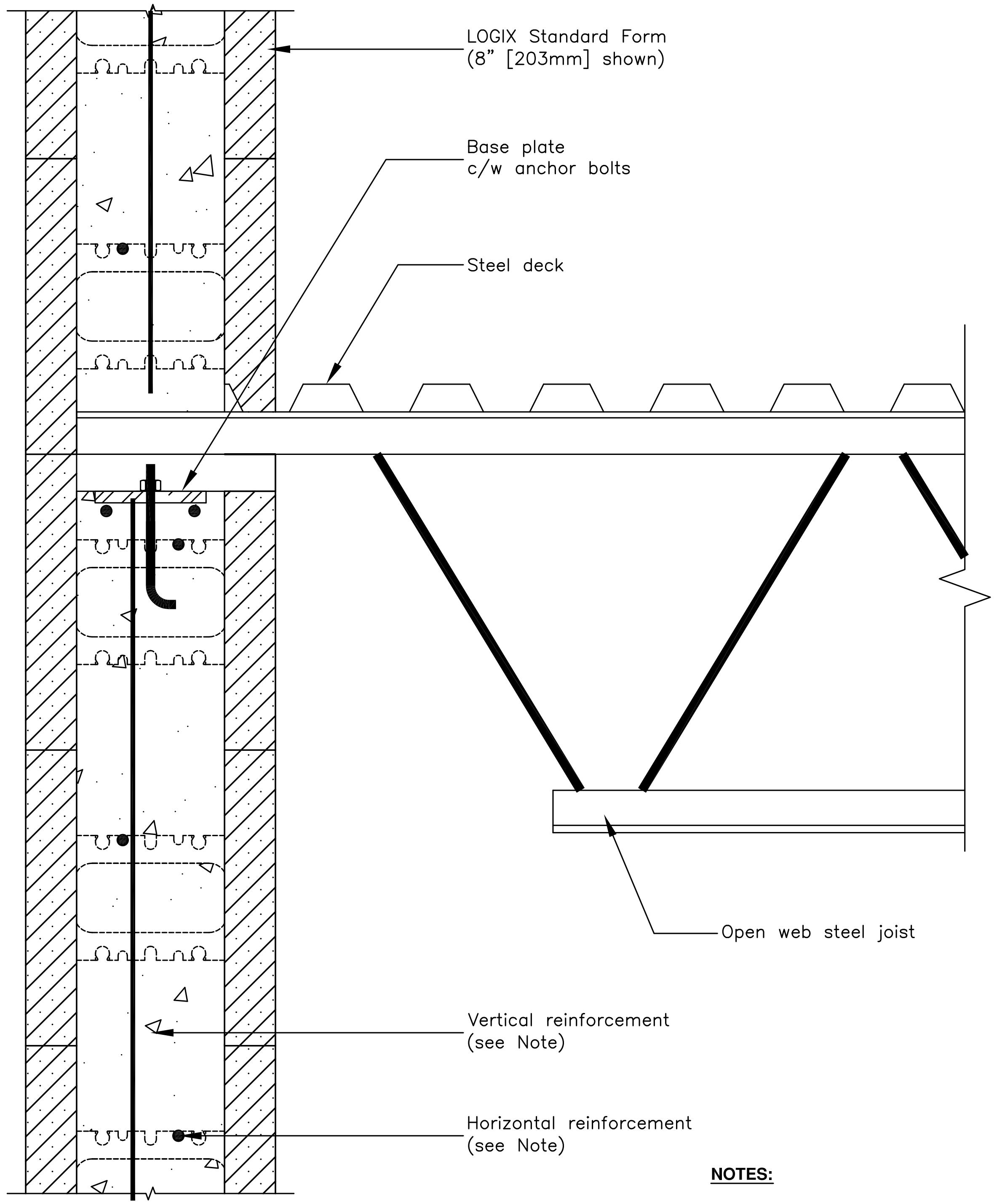


NOTES:

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

5.3.18 – STEEL DECK ON OPEN WEB STEEL JOIST (BEARING END)

All drawings are downloadable at www.logixicf.com



NOTES:

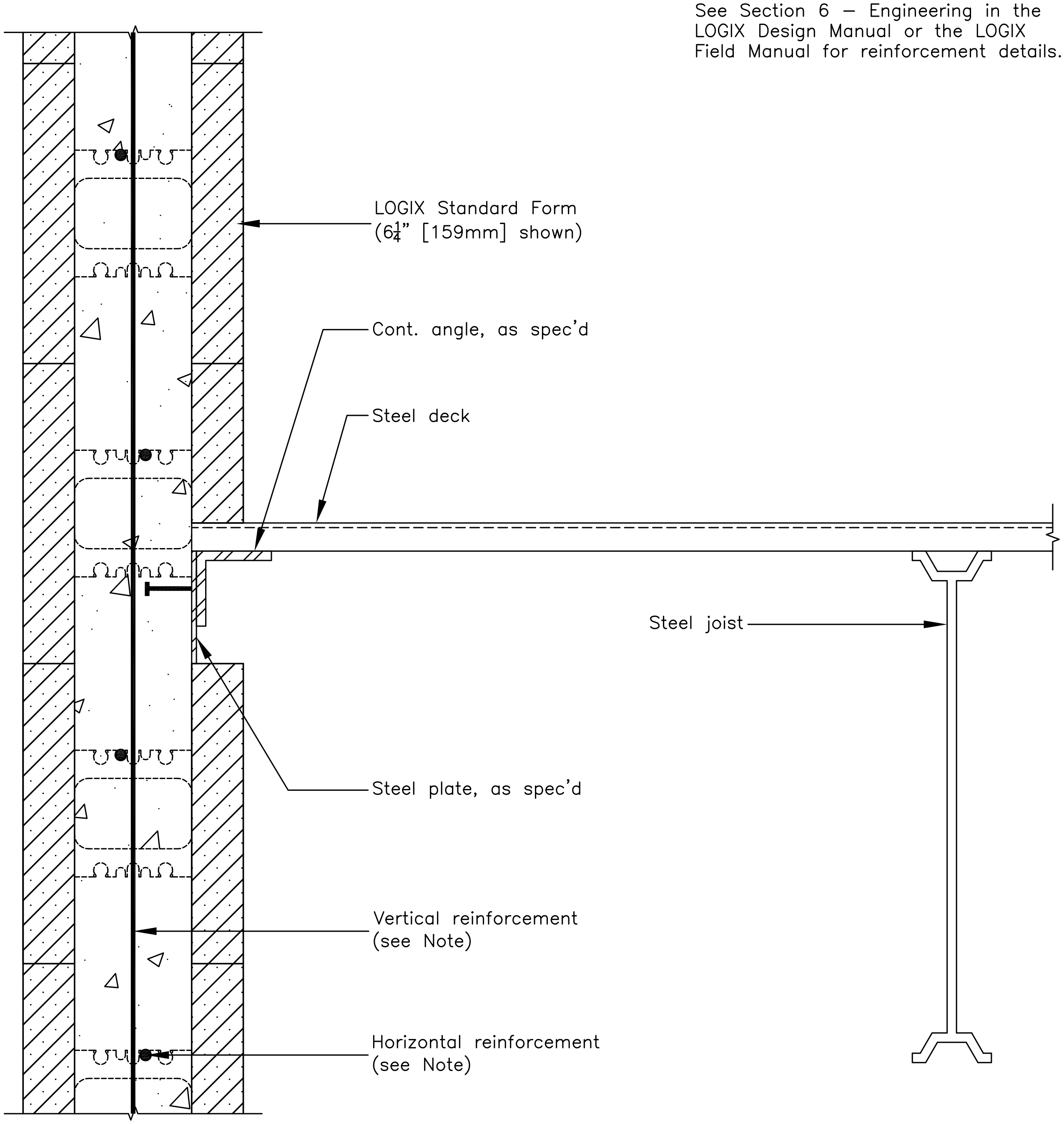
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.3.19 – STEEL DECK ON OPEN WEB STEEL JOIST (NONBEARING END)

All drawings are downloadable at www.logixicf.com

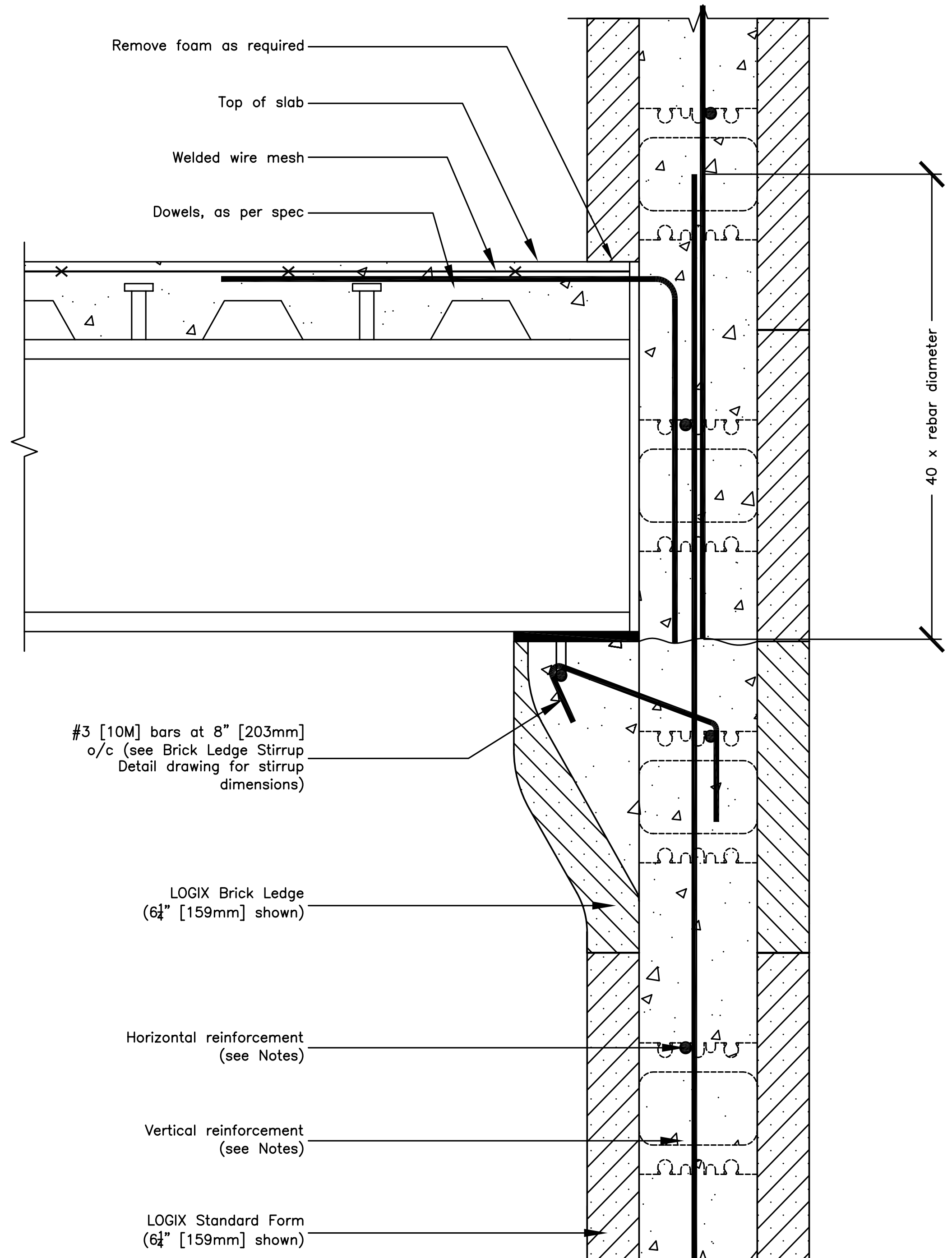
NOTES:

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



5.3.20 – COMPOSITE STEEL BEAM ON BRICK LEDGE

All drawings are downloadable at www.logixicf.com

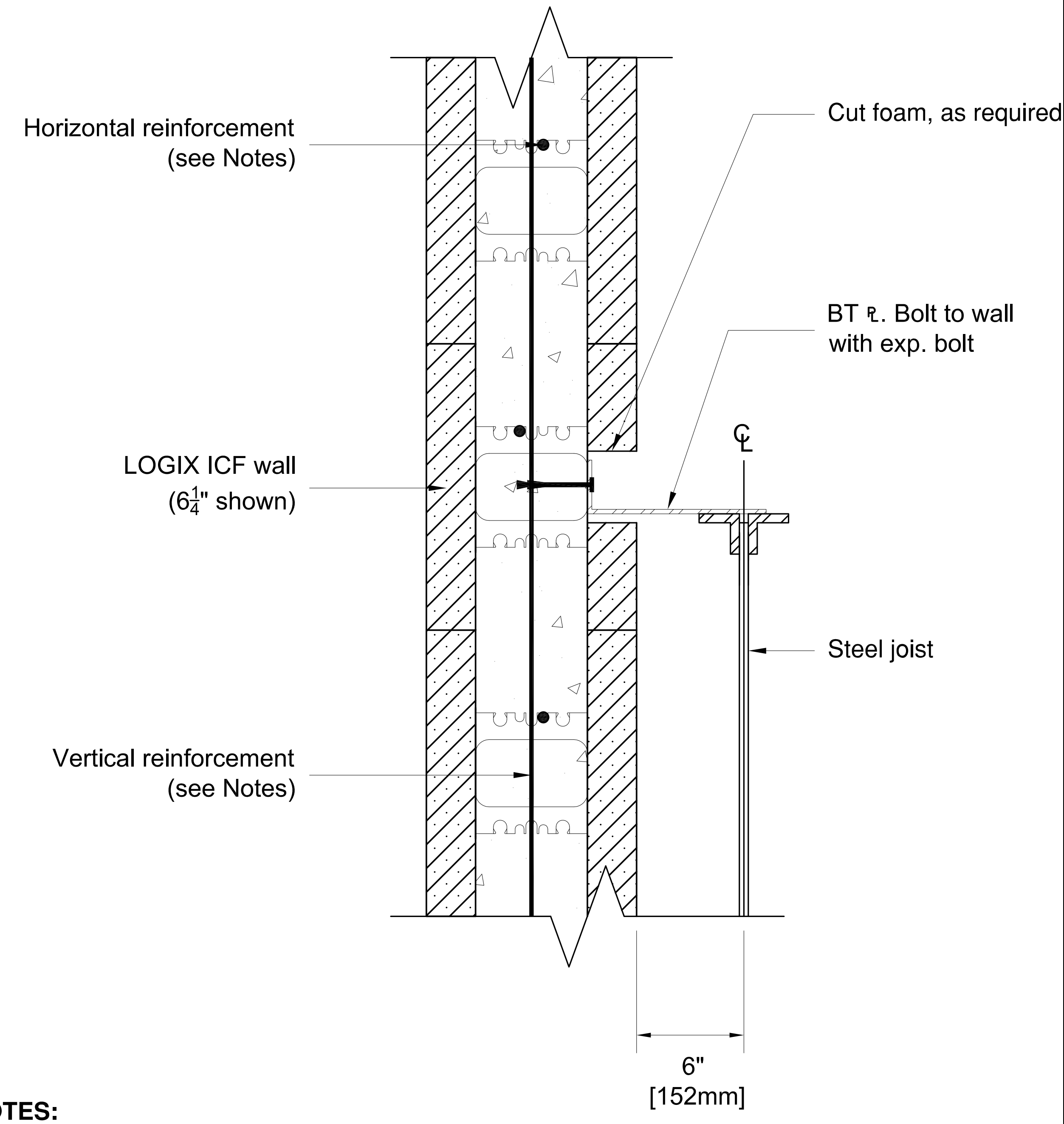


NOTES:

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

5.3.21 – STEEL ANGLE TO FLOOR JOIST

All drawings are downloadable at www.logixicf.com



NOTES:

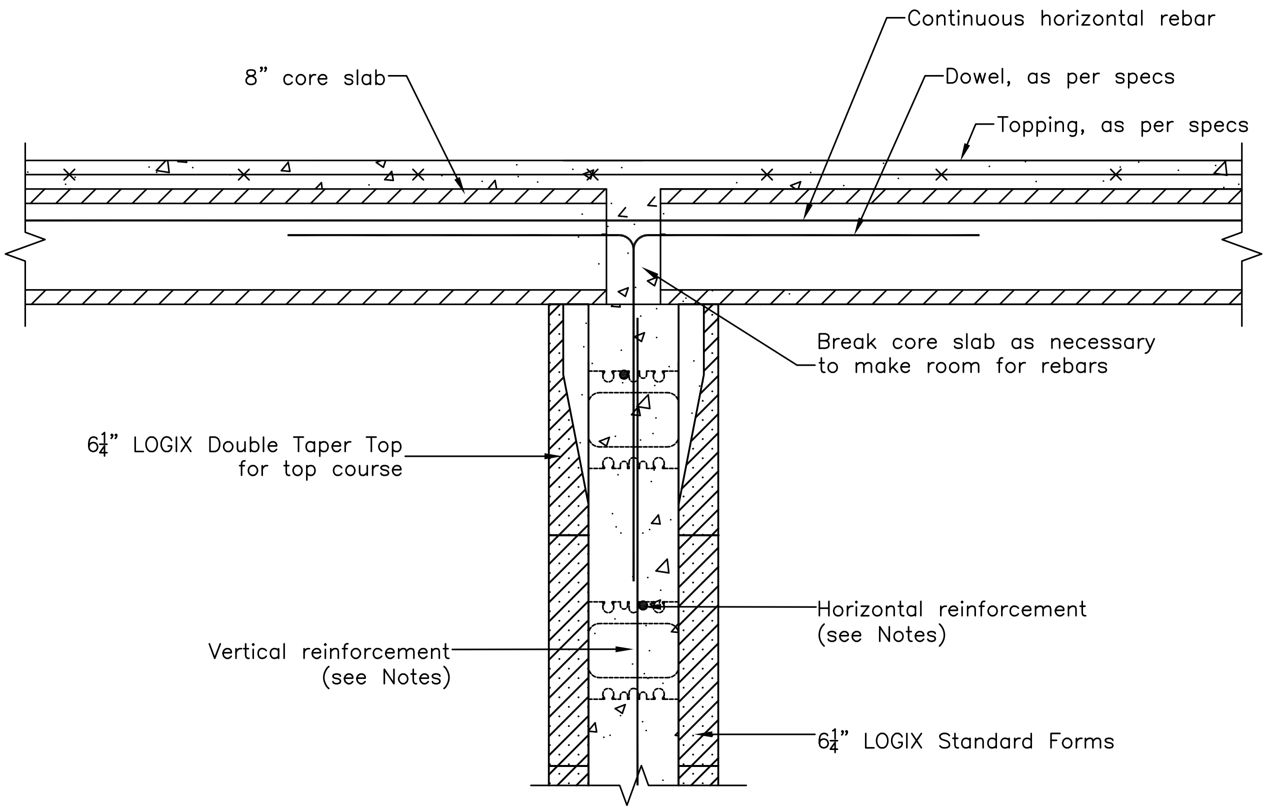
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.3.22 – 8” CORE SLAB ON DOUBLE TAPER TOP

All drawings are downloadable at www.logixicf.com

NOTES:

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



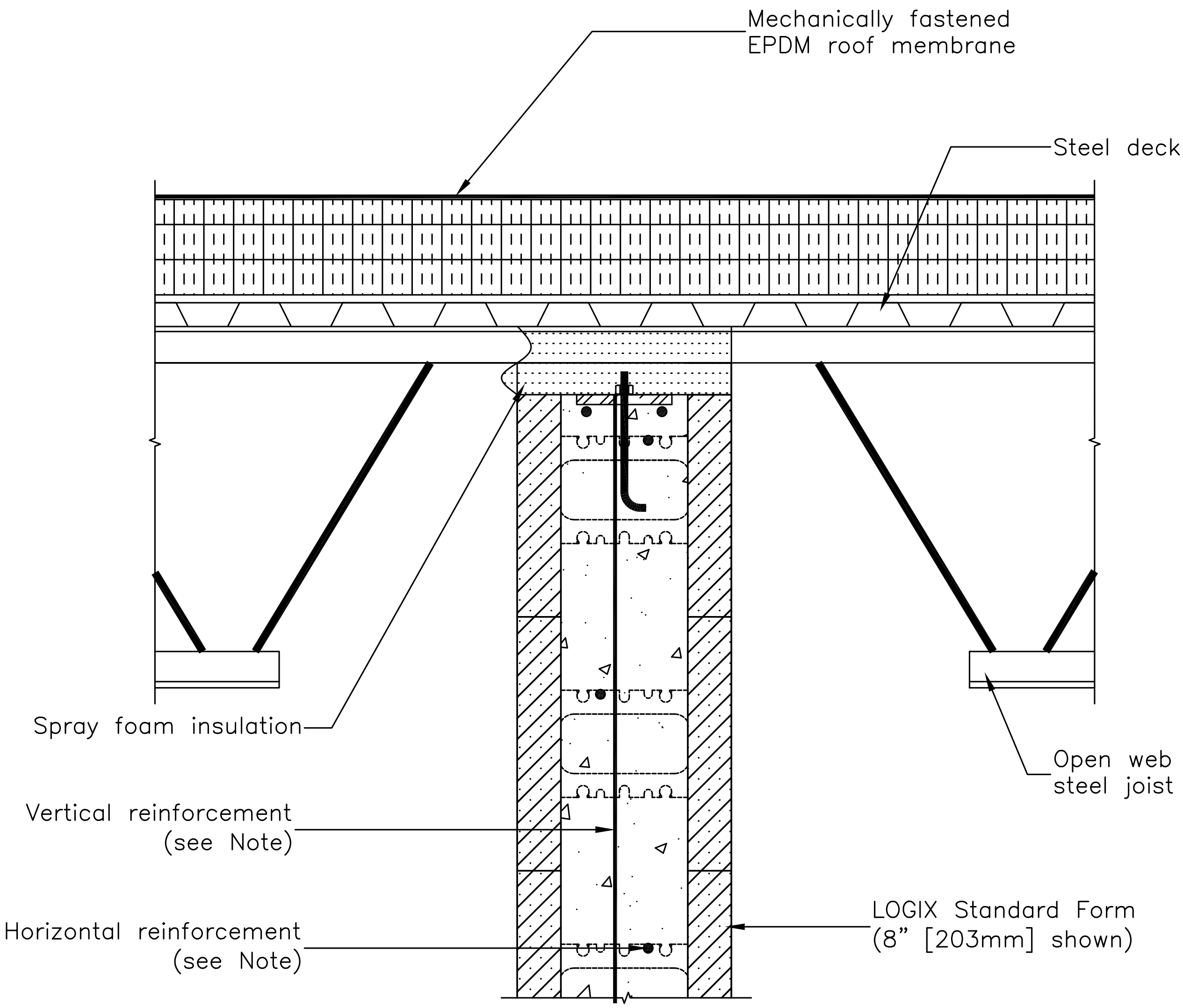
BEARING END

5.4 – ROOF DETAILS
5.4.1 – INTERIOR WALL SUPPORTING OPEN WEB STEEL JOIST

All drawings are downloadable at www.logixicf.com

NOTES:

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



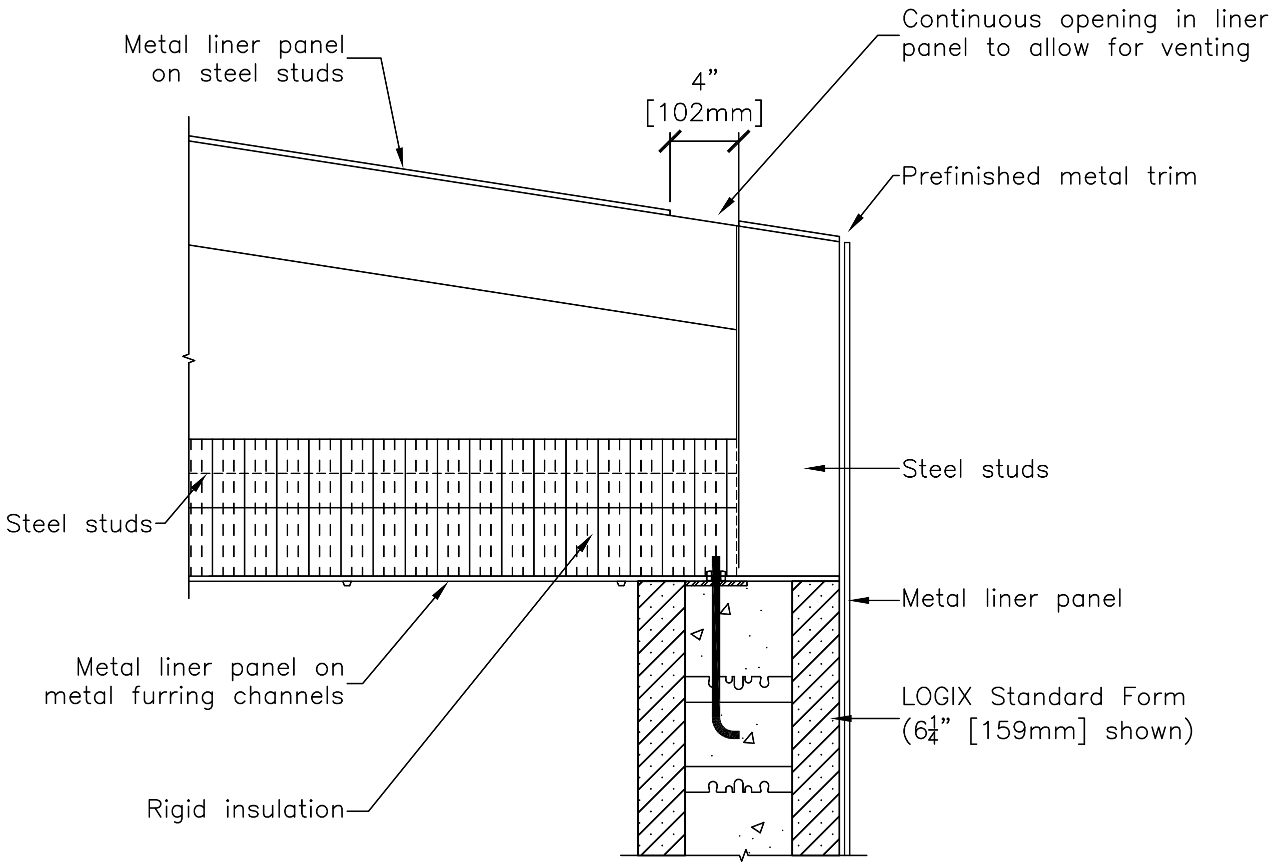
C A D   D R A W I N G S

5.4.2 – METAL LINER ROOF PANELS

All drawings are downloadable at www.logixicf.com

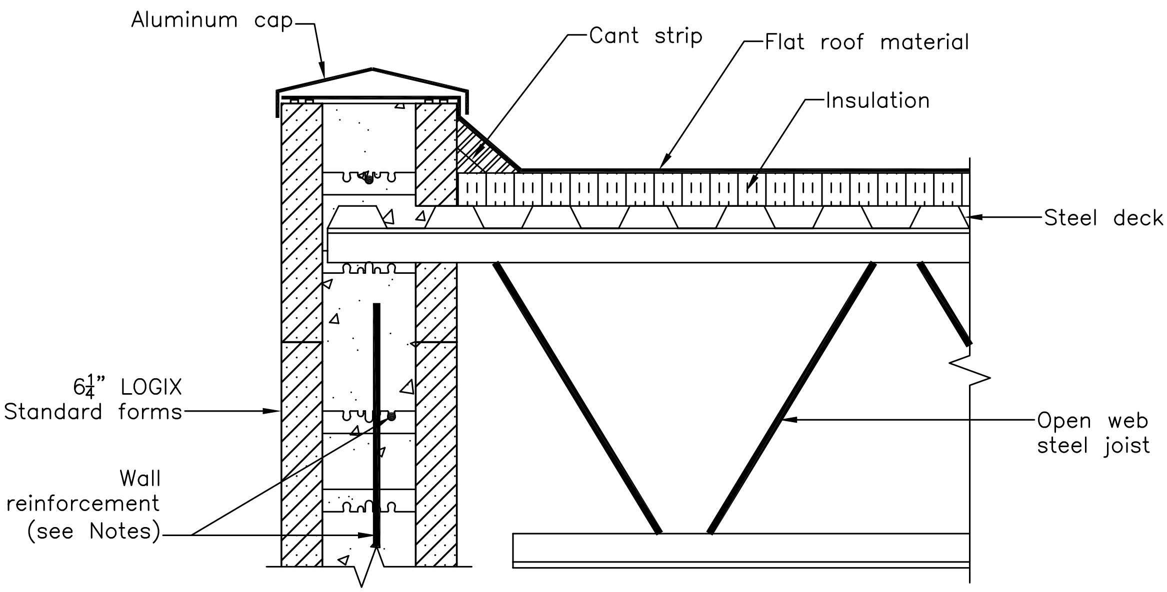
NOTES:

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

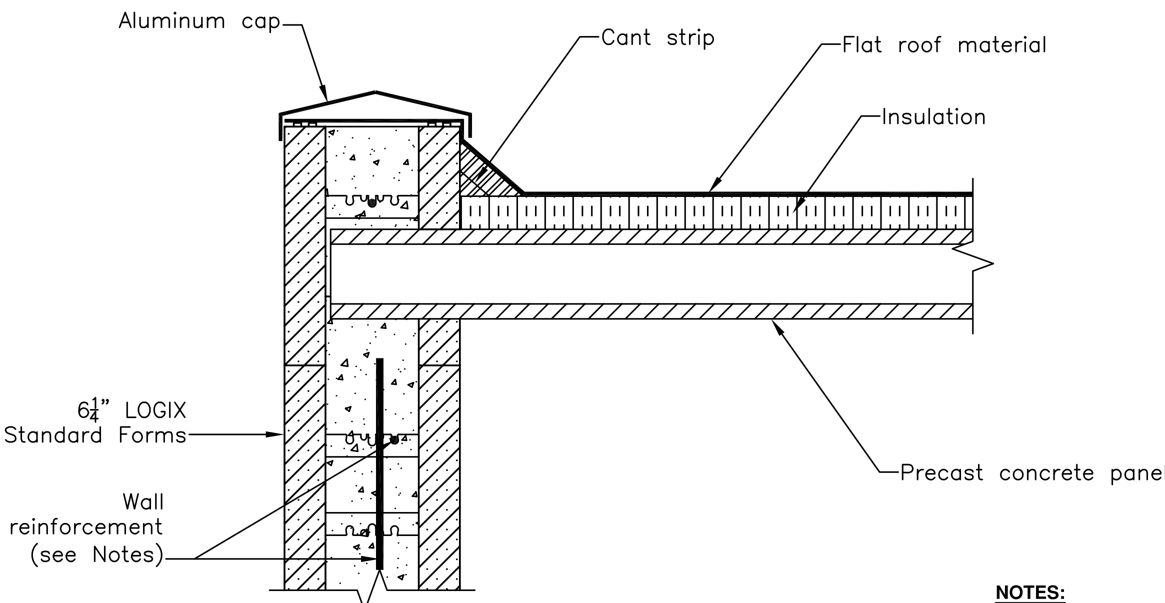


5.4.3 – OPEN WEB STEEL FLAT ROOF
5.4.4 – PRECAST CONCRETE FLAT ROOF

All drawings are downloadable at www.logixicf.com



5.8.5 - STEEL DECK ROOF ON OPEN WEB JOIST

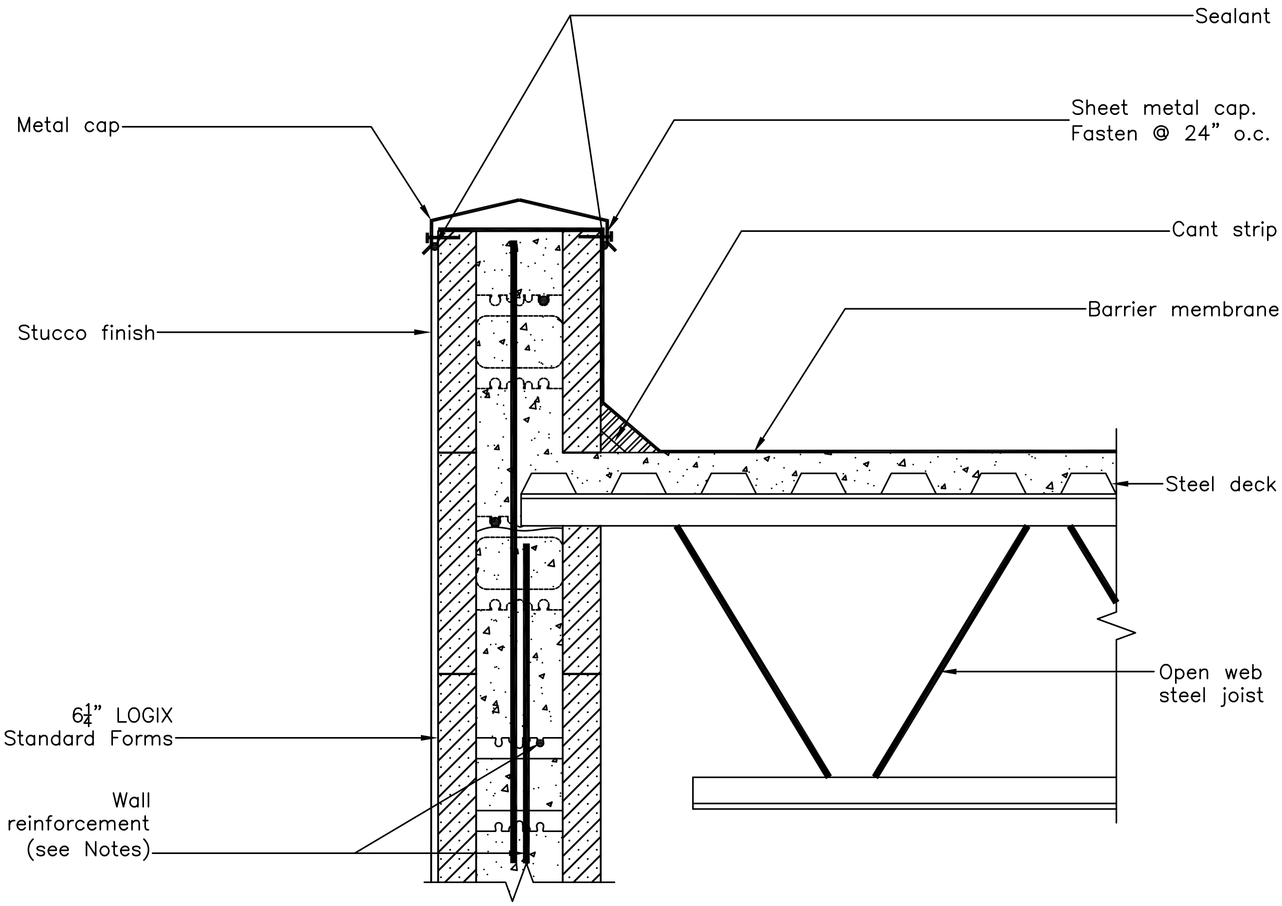


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.6 - PRECAST CONCRETE FLAT ROOF

5.4.5 – ICF PARAPET: FLAT ROOF ON OPEN WEB JOIST

All drawings are downloadable at www.logixicf.com



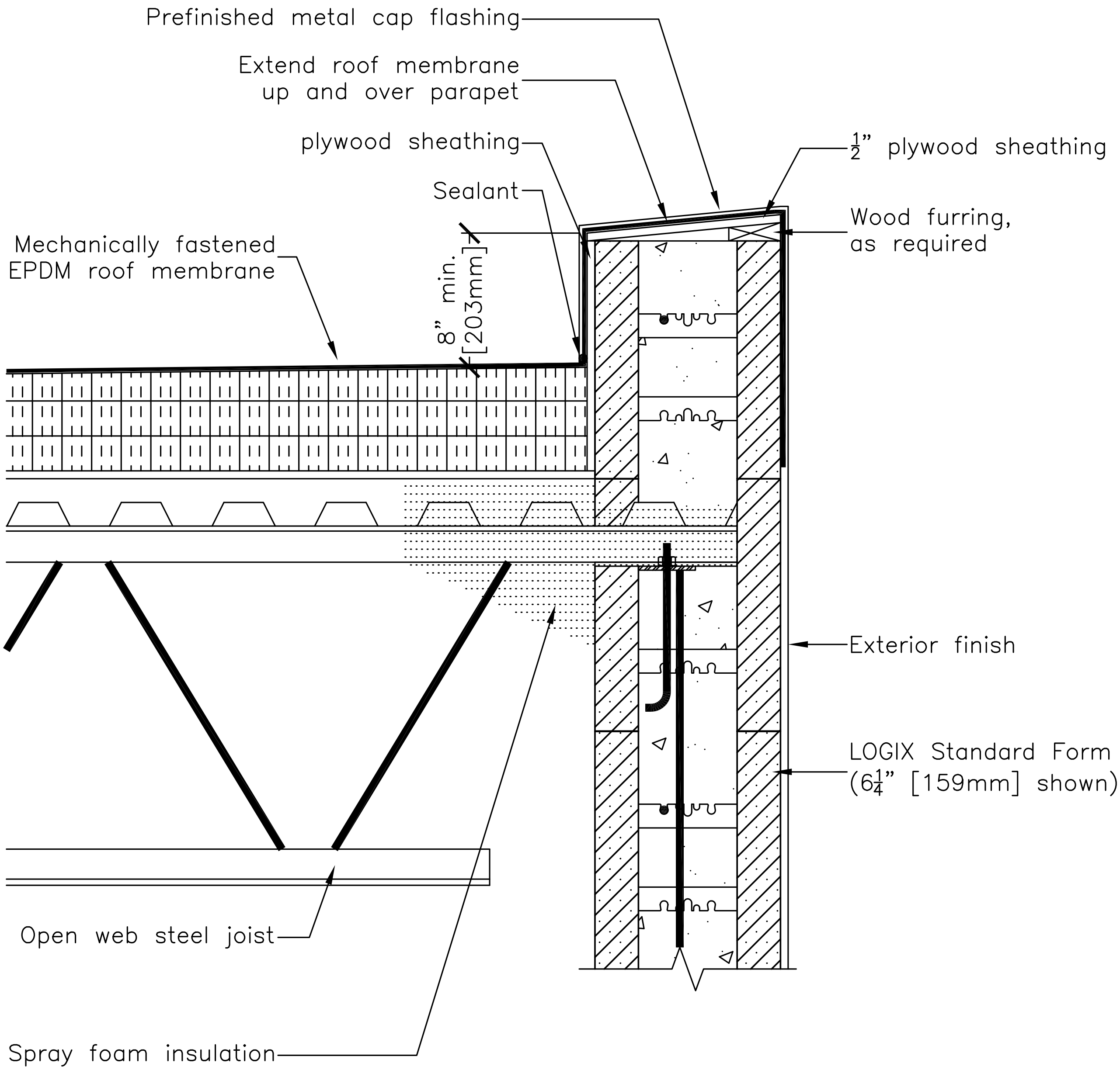
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.4.6 – ICF PARAPET: FLAT ROOF ON OPEN WEB JOIST WITH INSULATION

All drawings are downloadable at www.logixicf.com

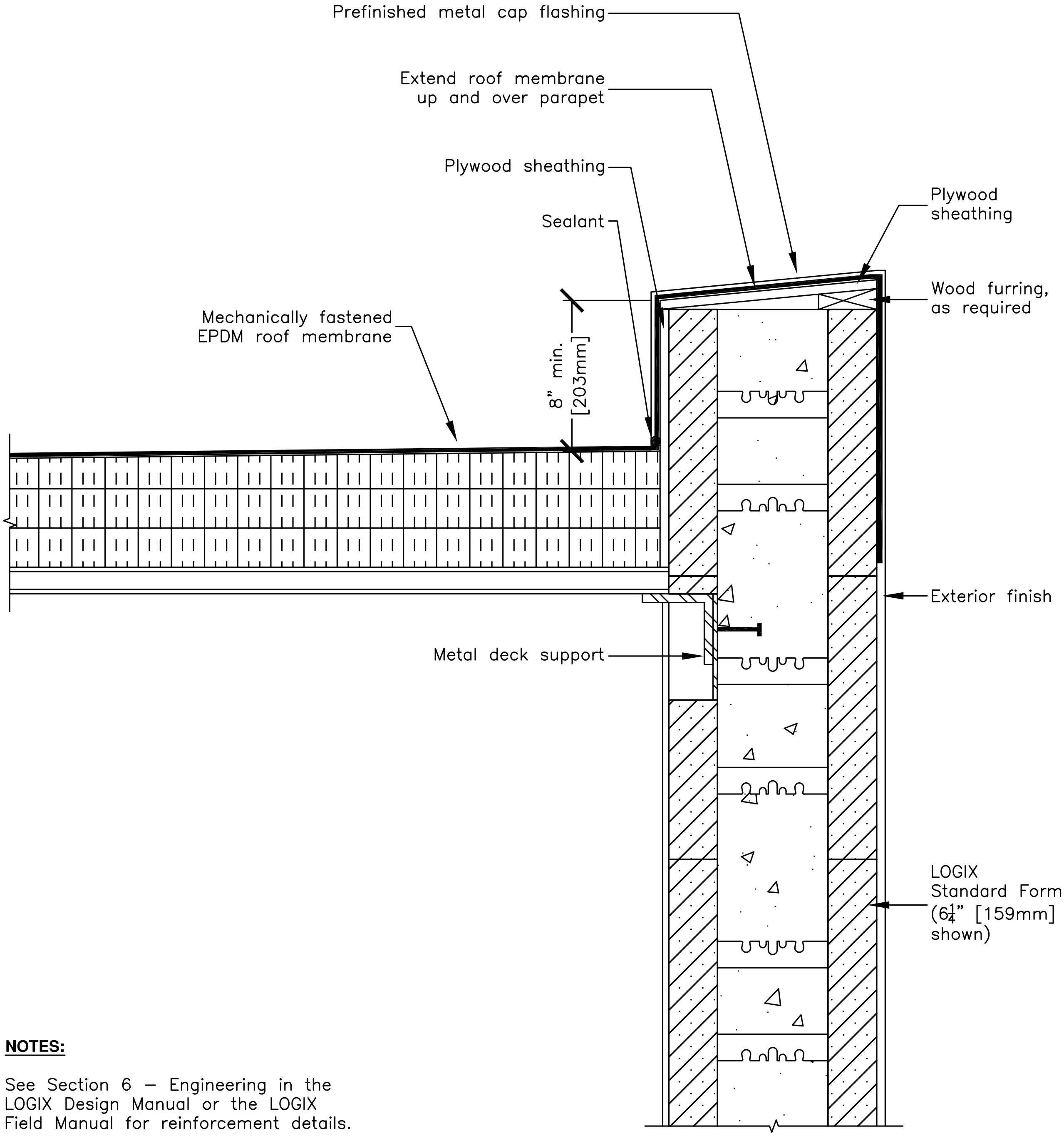
NOTES:

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



5.4.7 – ICF PARAPET: FLAT ROOF WITH DECK SUPPORT

All drawings are downloadable at www.logixicf.com

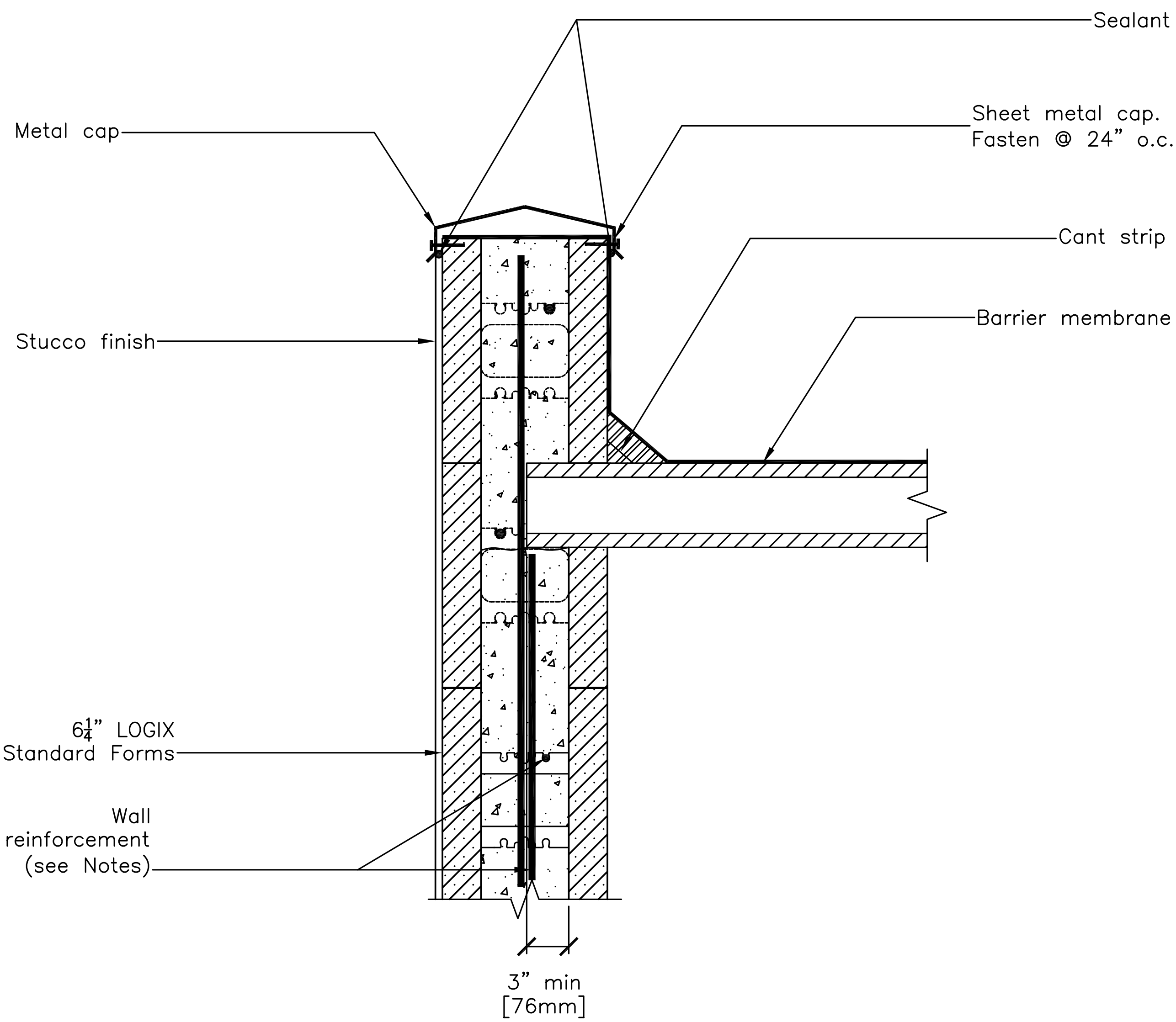


NOTES:

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

5.4.8 – ICF PARAPET: FLAT ROOF WITH PRECAST CONCRETE PANEL

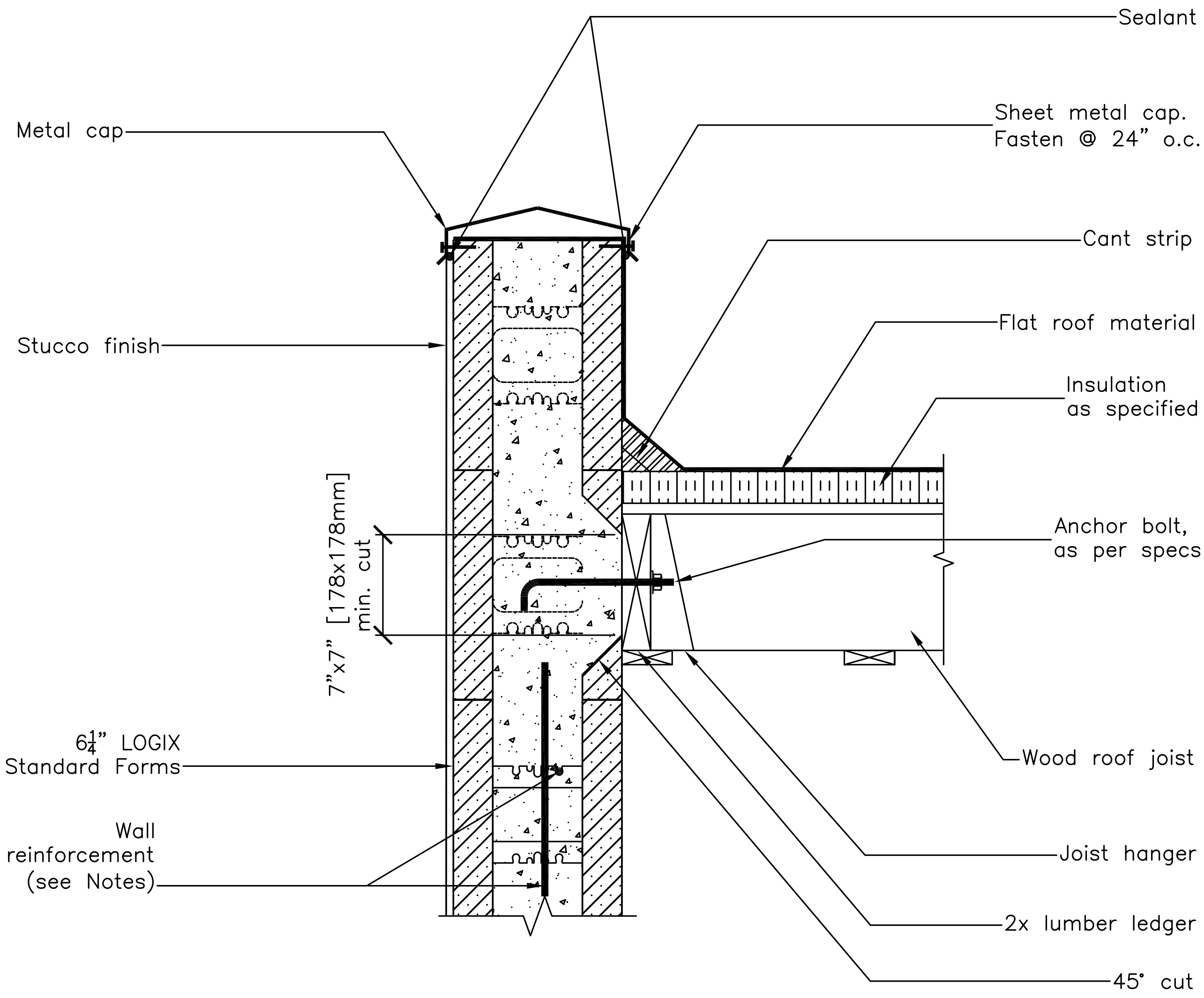
All drawings are downloadable at www.logixicf.com



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

5.4.9 – ICF PARAPET: FLAT ROOF ON WOOD JOISTS WITH METAL CAP

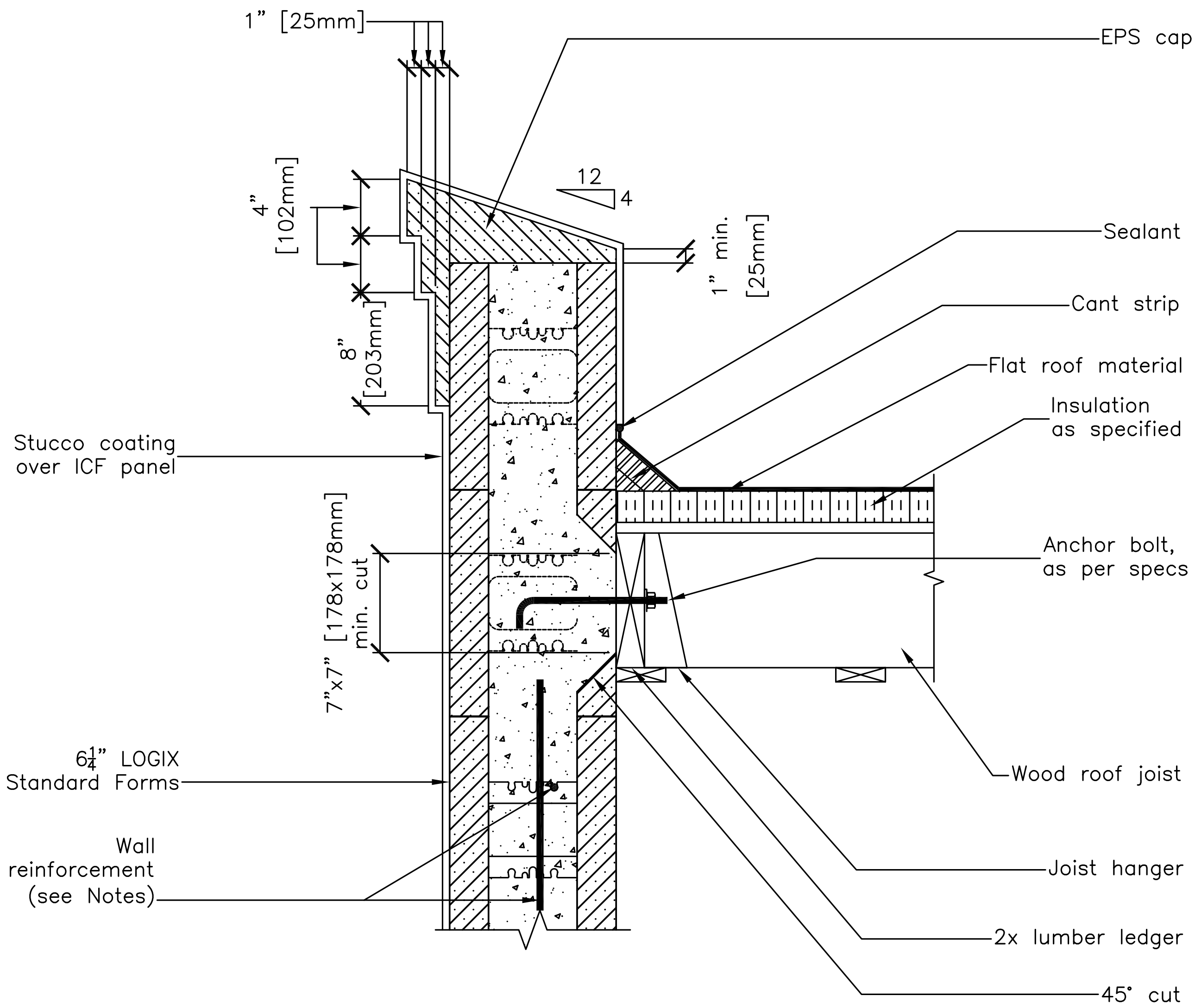
All drawings are downloadable at www.logixicf.com



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

5.4.10 – ICF PARAPET: FLAT ROOF ON WOOD JOISTS WITH EPS COPING

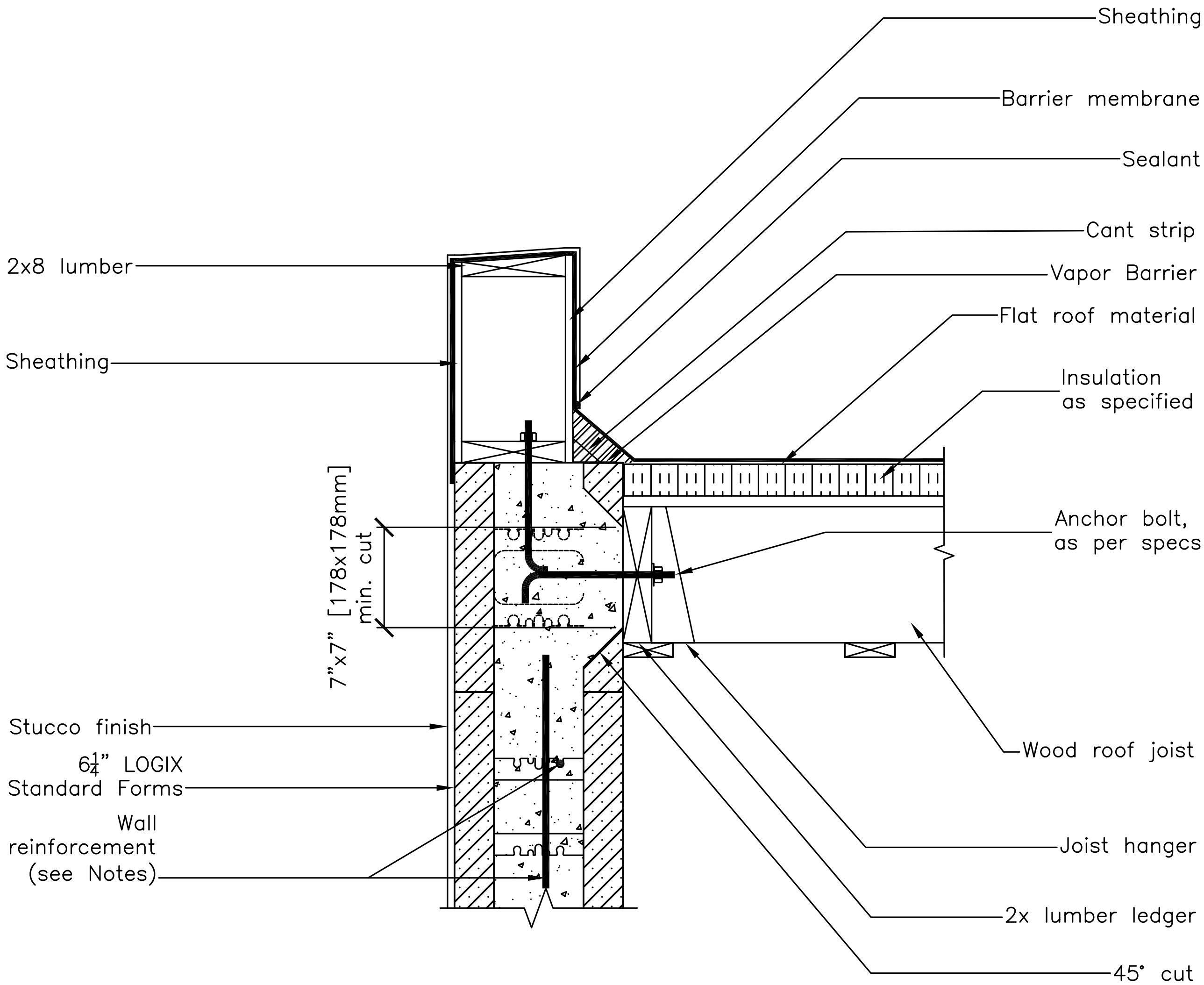
All drawings are downloadable at www.logixicf.com



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

5.4.11 – WOOD PARAPET ON WOOD JOISTS

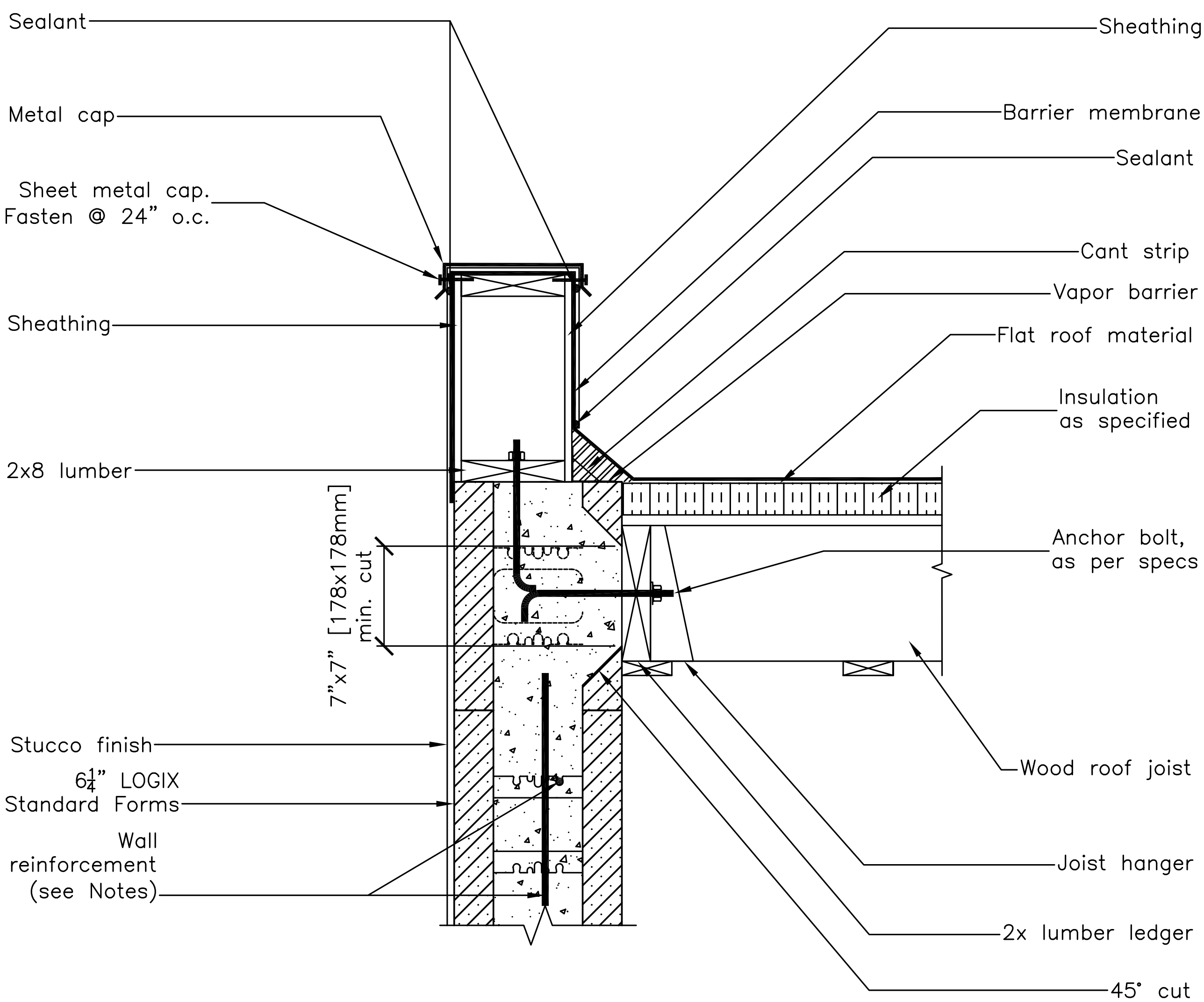
All drawings are downloadable at www.logixicf.com



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

5.4.12 – WOOD PARAPET ON WOOD JOISTS WITH METAL CAP

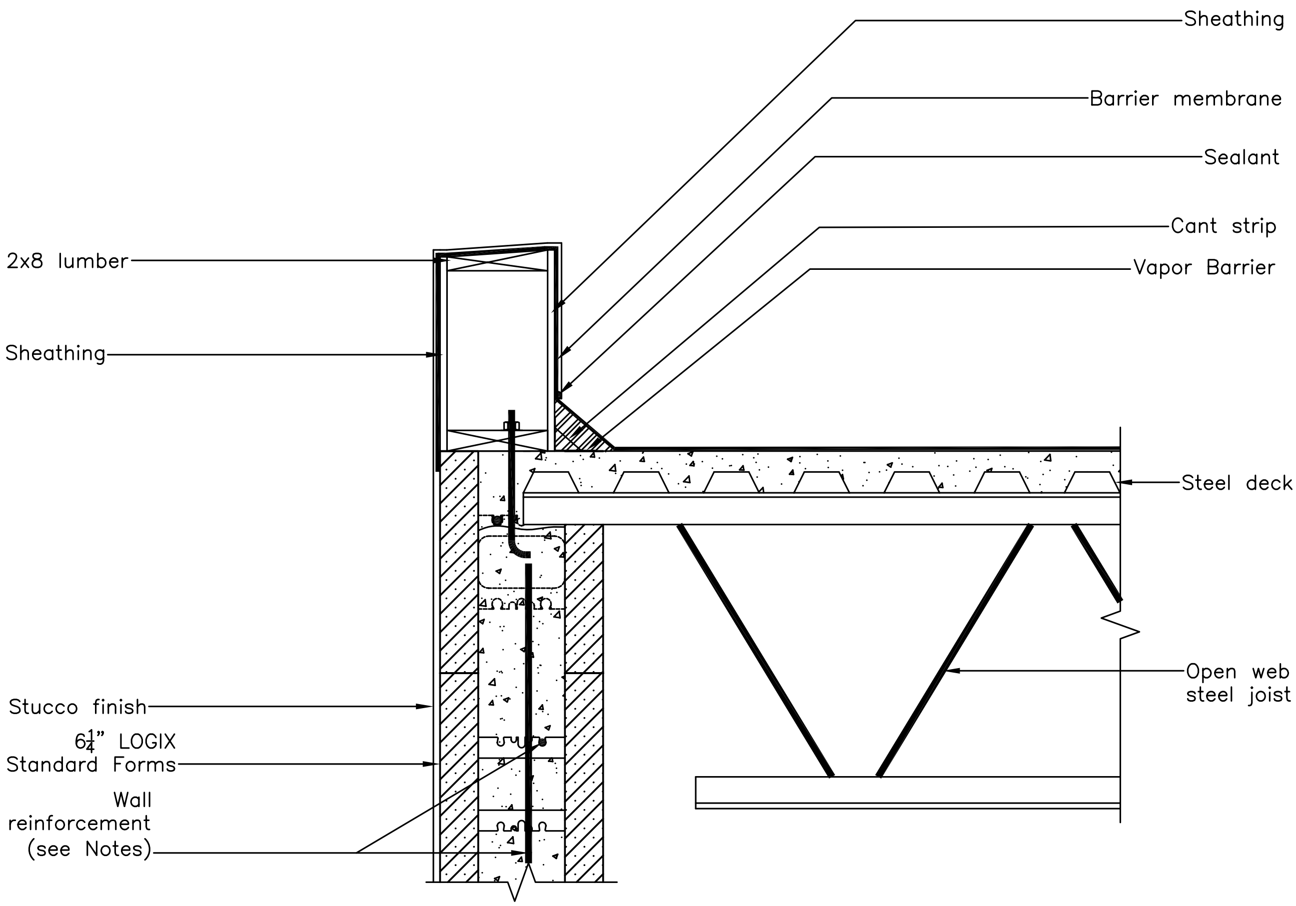
All drawings are downloadable at www.logixicf.com



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

5.4.13 – WOOD PARAPET WITH OPEN WEB STEEL JOIST

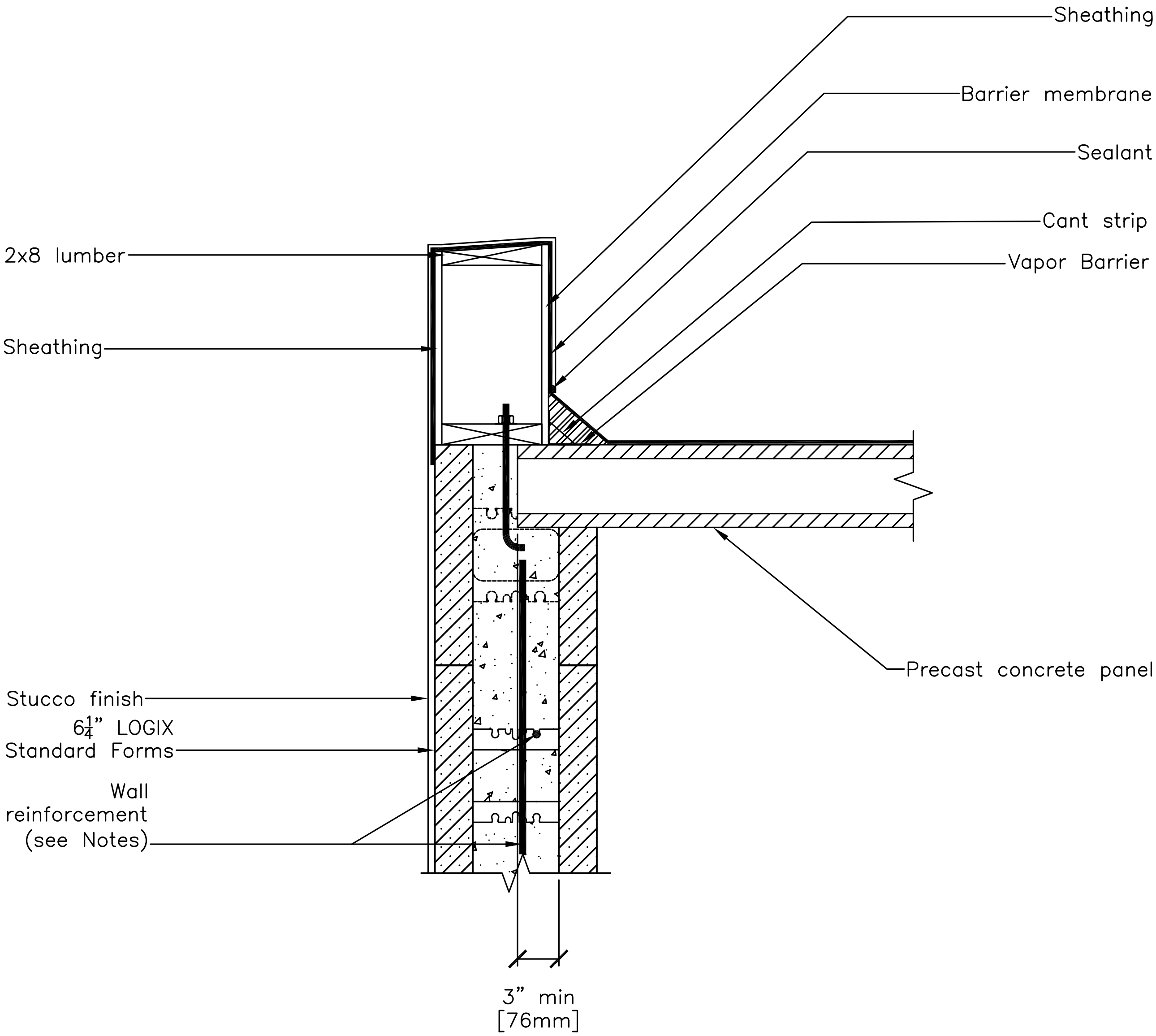
All drawings are downloadable at www.logixicf.com



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

5.4.14 – WOOD PARAPET WITH PRECAST CONCRETE PANEL ROOF

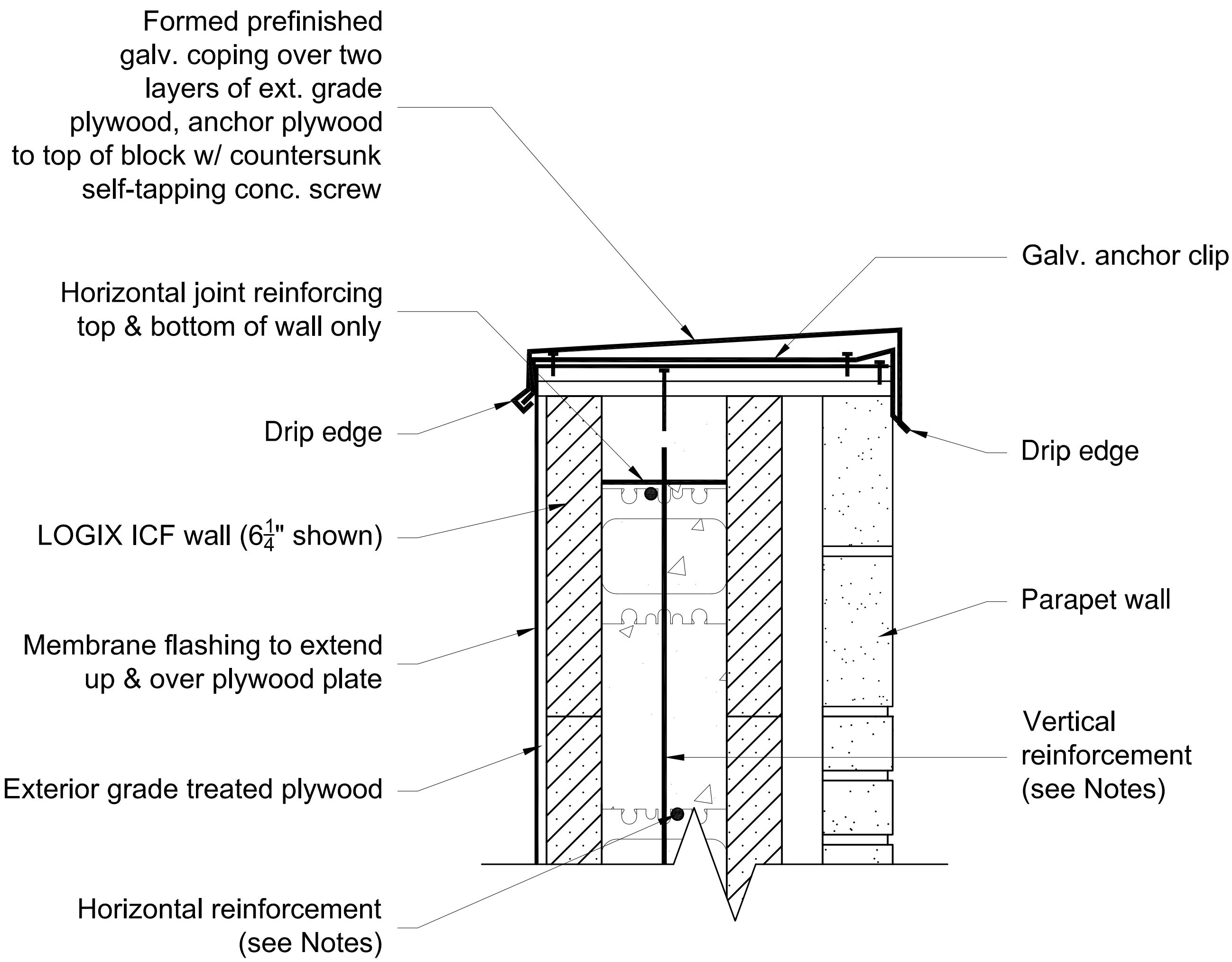
All drawings are downloadable at www.logixicf.com



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

5.4.15 – PARAPET - METAL COPING W/ BRICK VENEER

All drawings are downloadable at www.logixicf.com

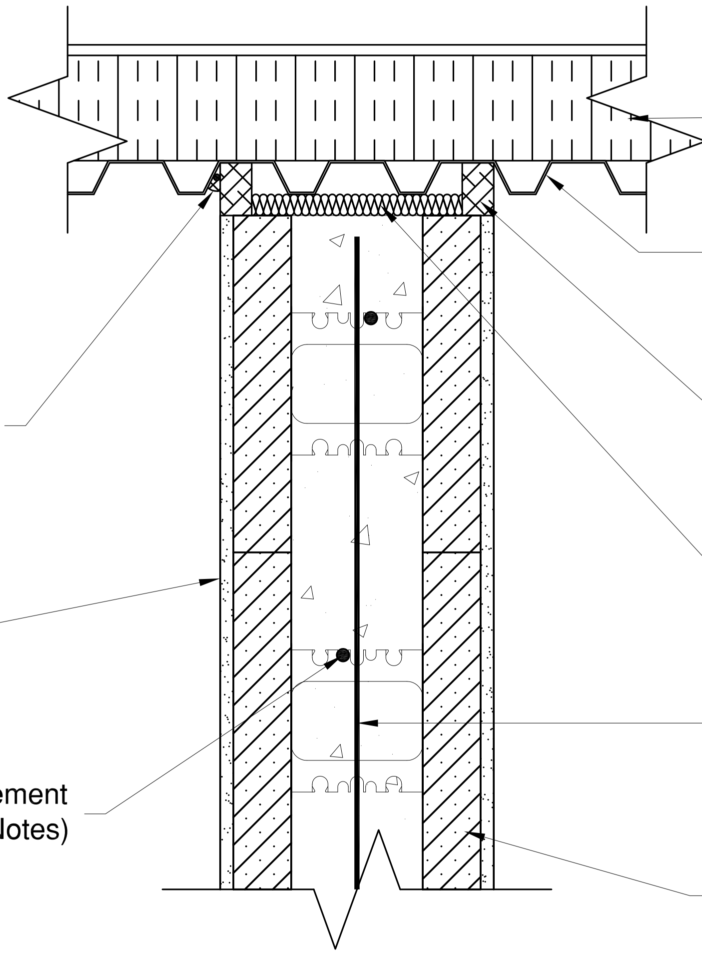


NOTES:

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

5.4.16 – STEEL DECK ON LOGIX

All drawings are downloadable at www.logixicf.com

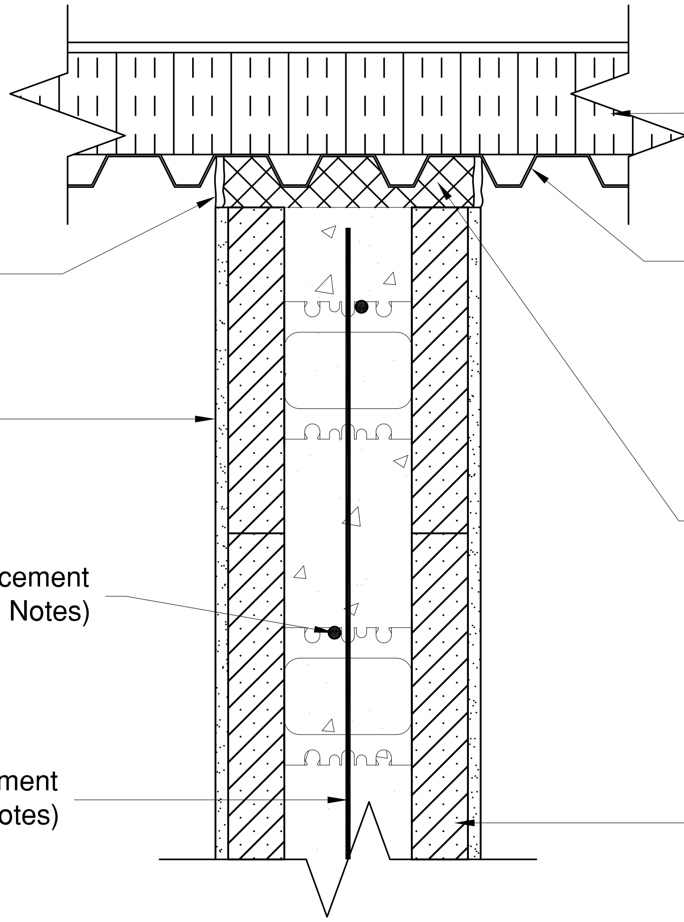


NOTES:

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

5.4.17 – STEEL DECK ON LOGIX W/ FIRE SEALANT

All drawings are downloadable at www.logixicf.com

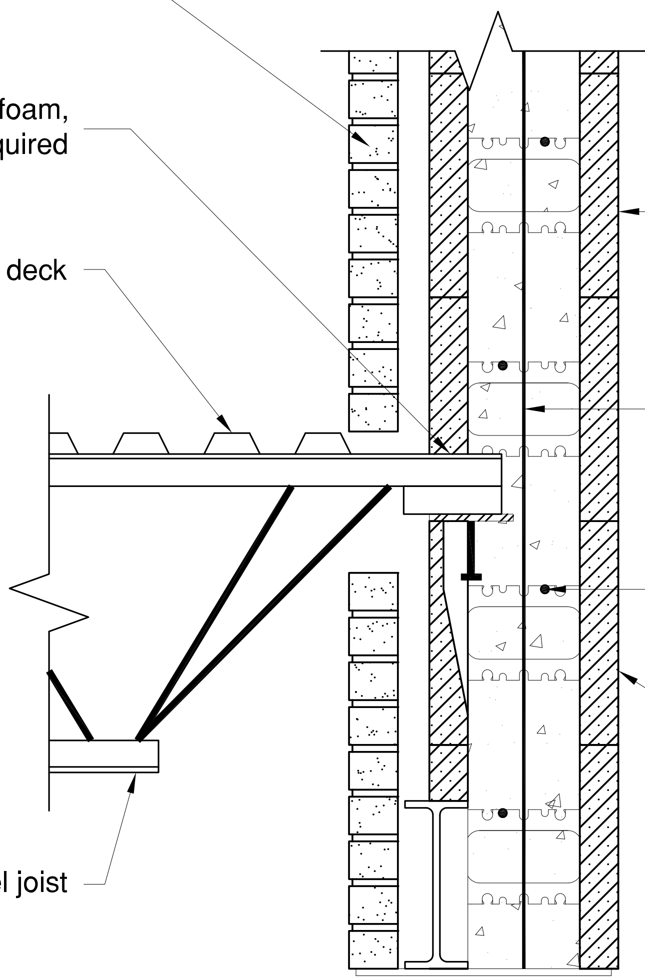


NOTES:

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

5.4.18 – ROOF DECK ON STEEL JOIST W/ LOGIX TAPER TOP

All drawings are downloadable at www.logixicf.com

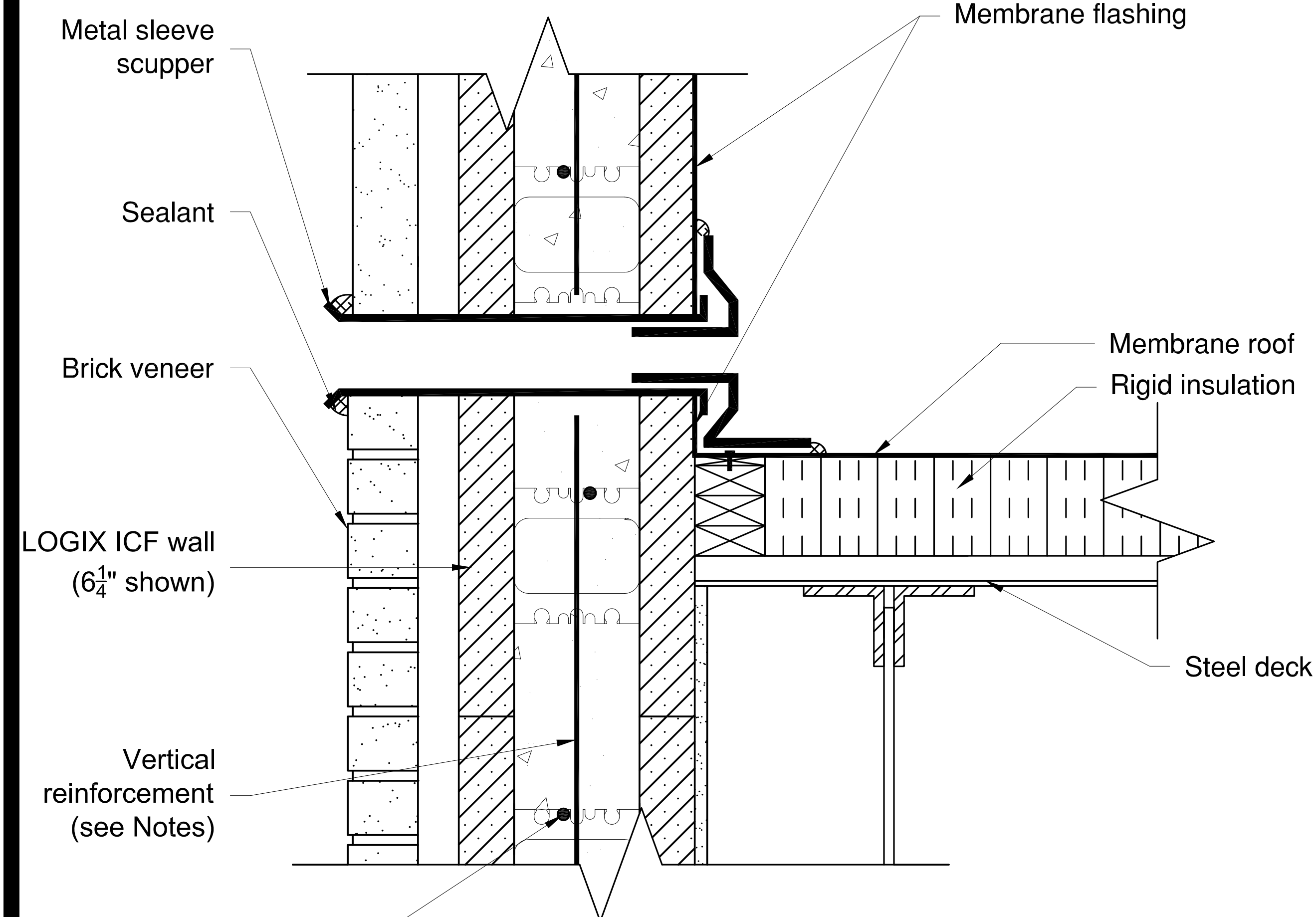


NOTES:

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

5.4.19 – SCUPPER DETAIL

All drawings are downloadable at www.logixicf.com

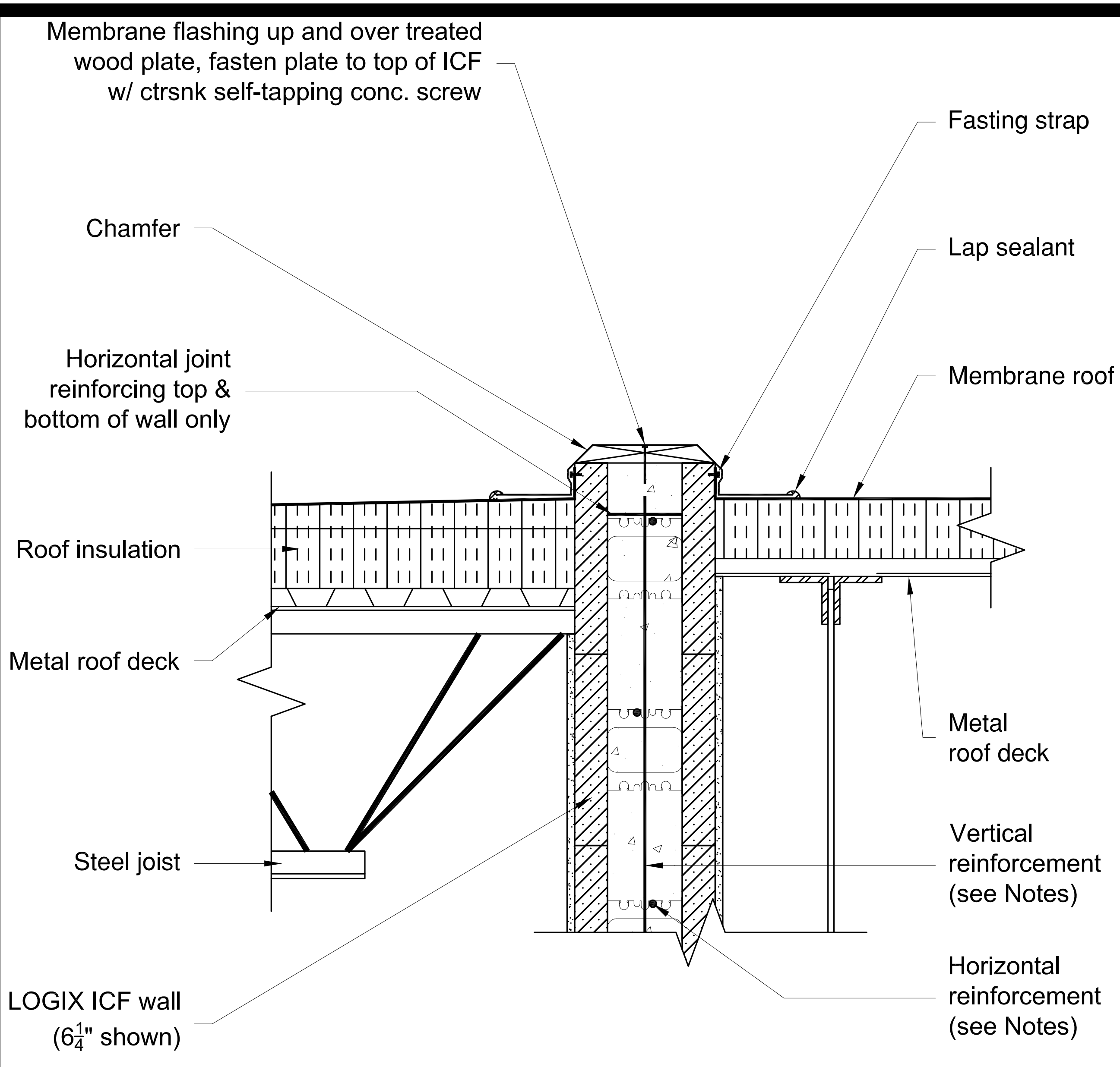


NOTES:

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

5.4.20 – SEPARATION WALL

All drawings are downloadable at www.logixicf.com



NOTES:

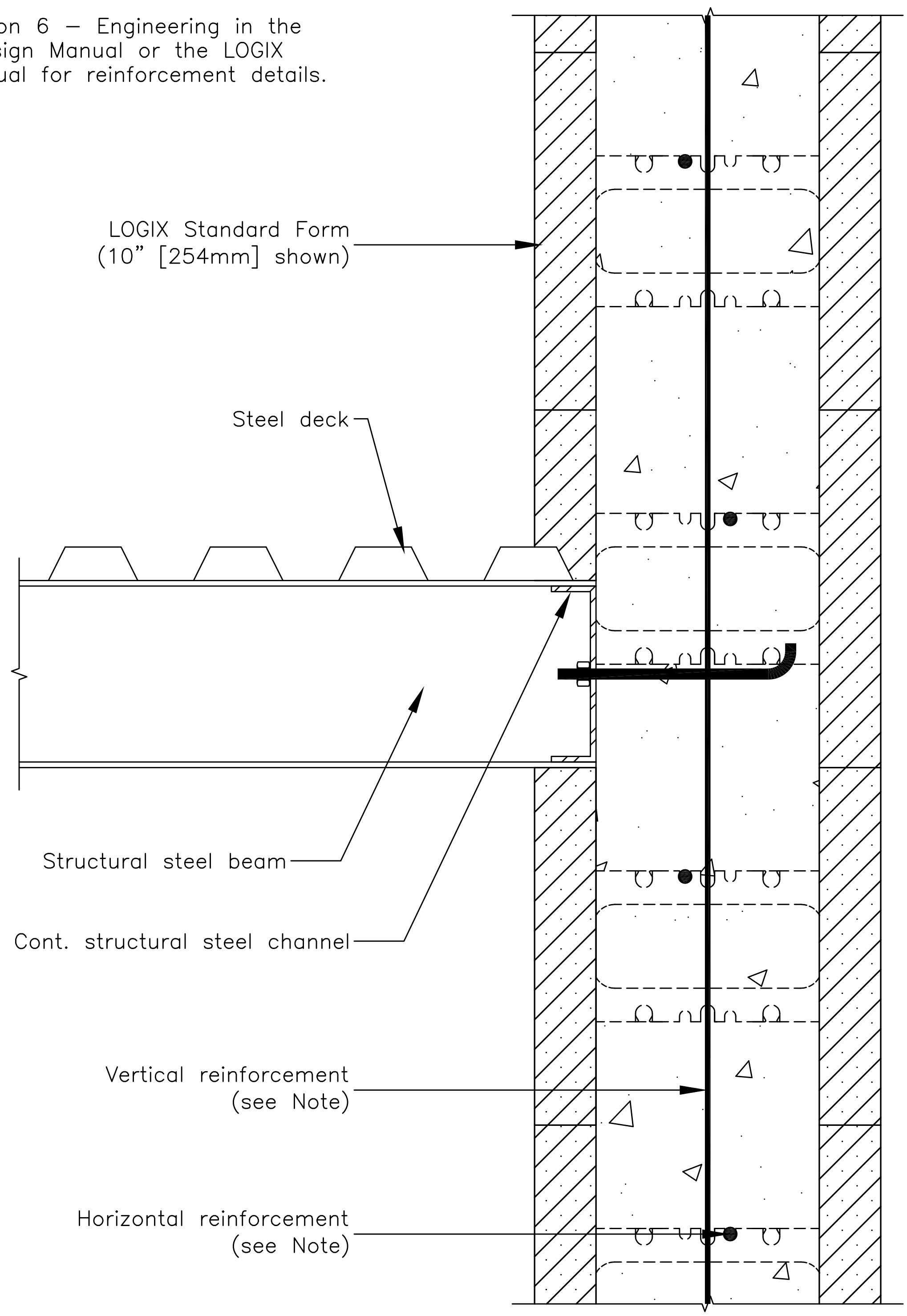
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.5 – BEAM CONNECTIONS
5.5.1 – STEEL DECK ON STRUCTURAL BEAM

All drawings are downloadable at www.logixicf.com

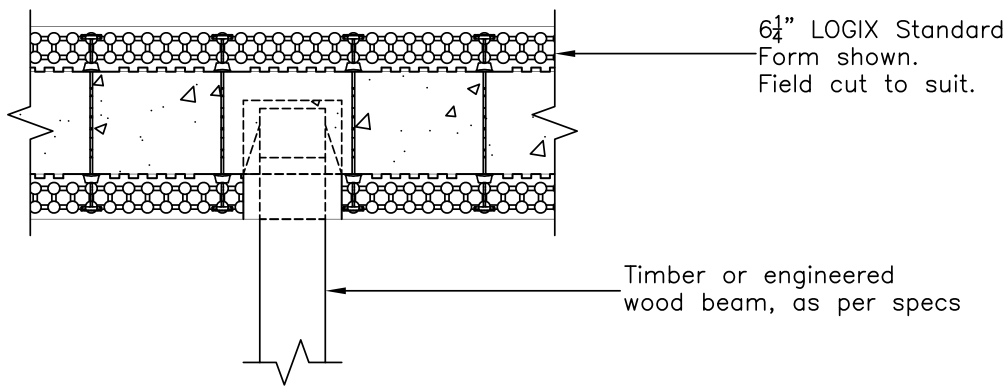
NOTES:

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

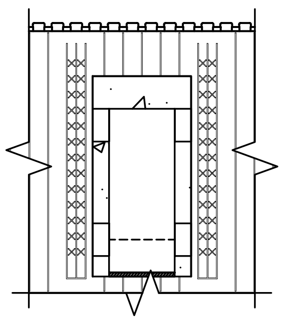


5.5.2 – WOOD BEAM WITH FIRE CUT

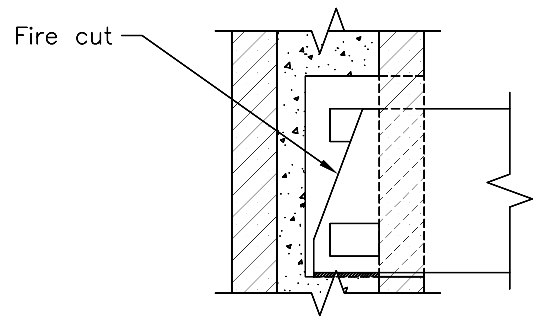
All drawings are downloadable at www.logixicf.com



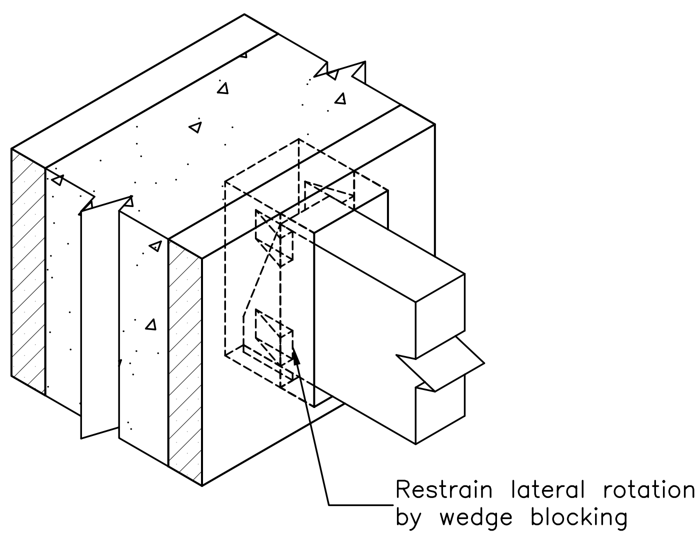
PLAN VIEW - Section at beam
(Reinforcement not shown for clarity)



FRONT ELEVATION

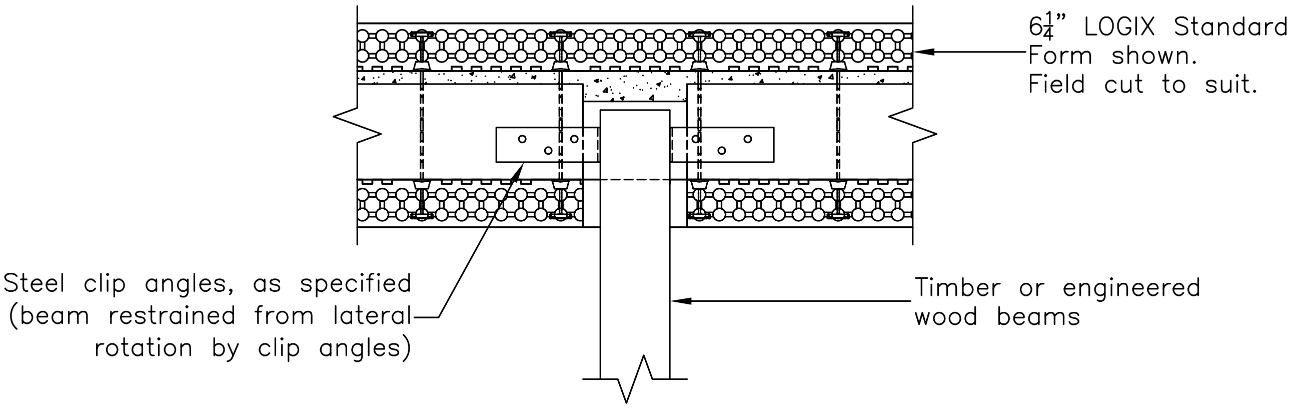


SIDE VIEW - Section at beam side

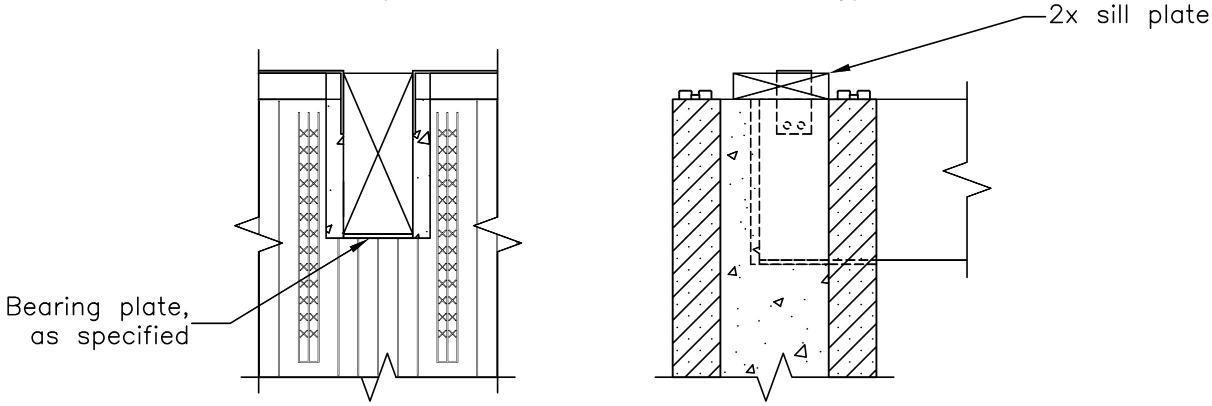


5.5.3 – WOOD BEAM WITH CLIP ANGLES

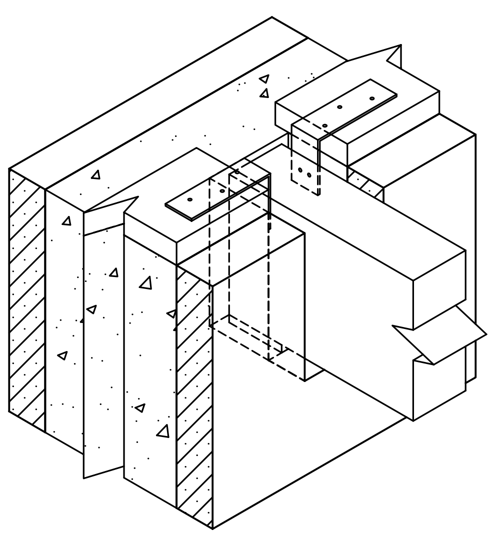
All drawings are downloadable at www.logixicf.com



PLAN VIEW - Section at beam
(Reinforcement not shown for clarity)



FRONT VIEW **SIDE VIEW**

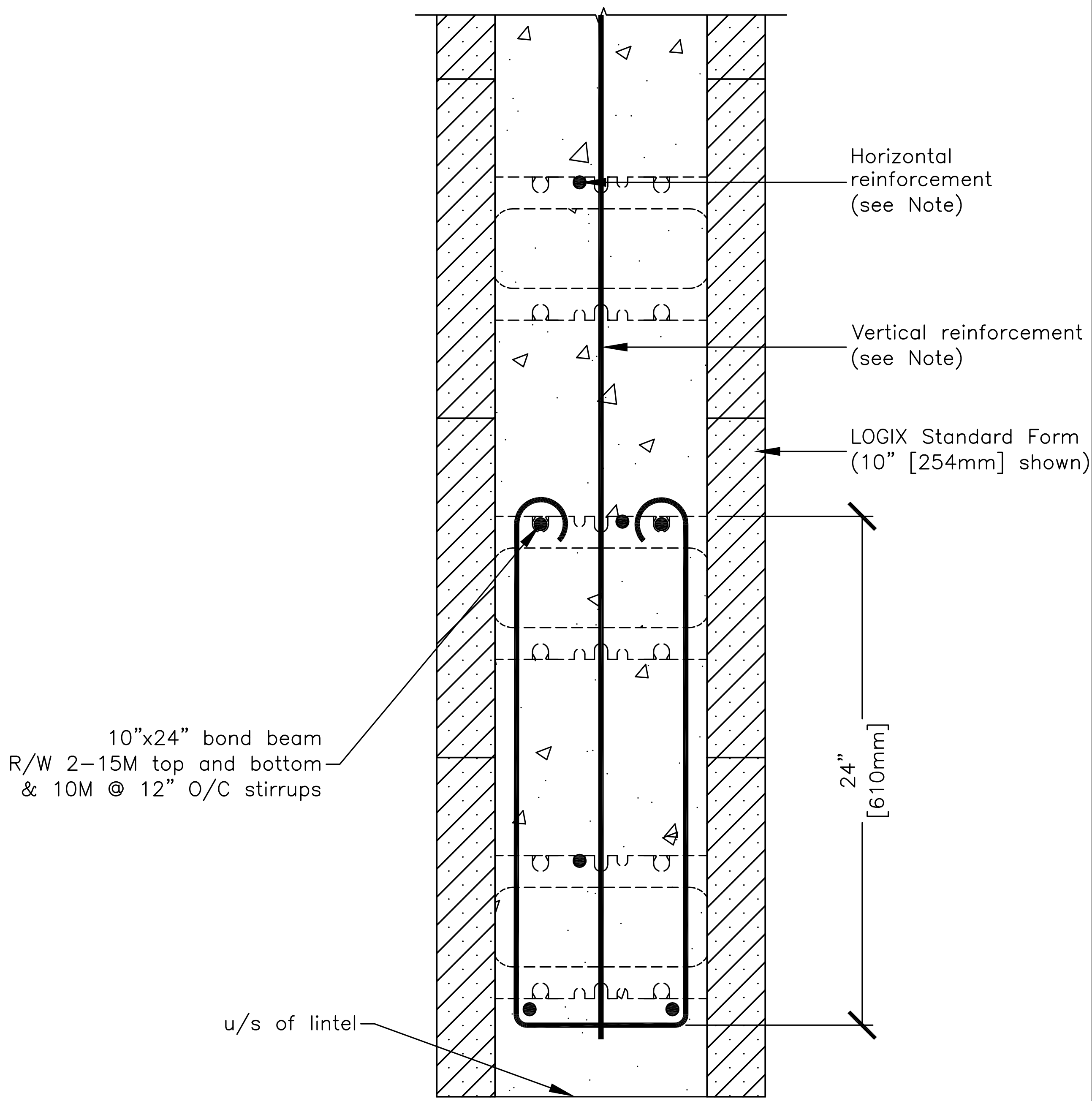


5.5.4 – BOND BEAM

All drawings are downloadable at www.logixicf.com

NOTES:

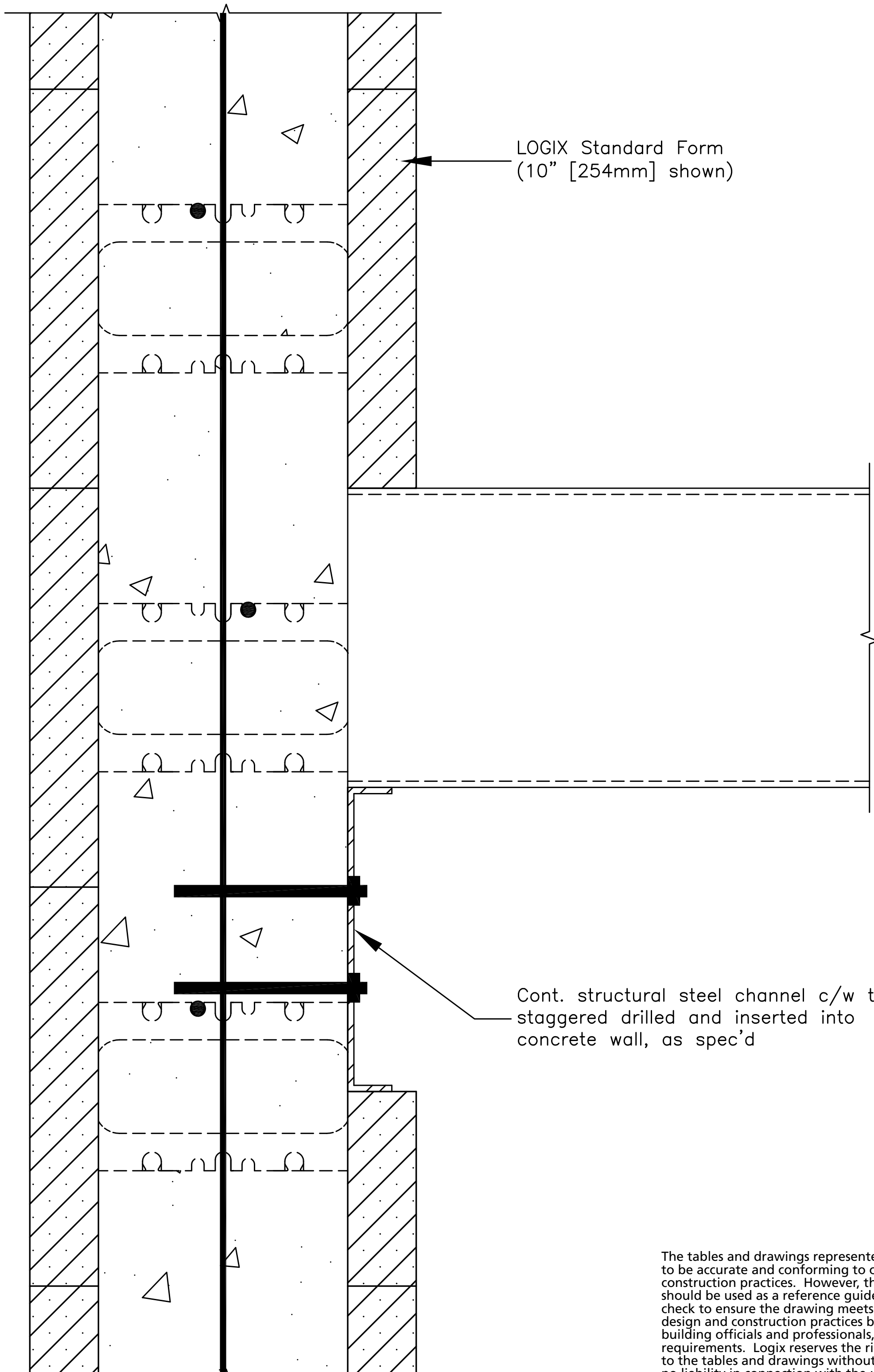
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



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.

5.5.5 – STRUCTURAL STEEL CHANNEL BEAM

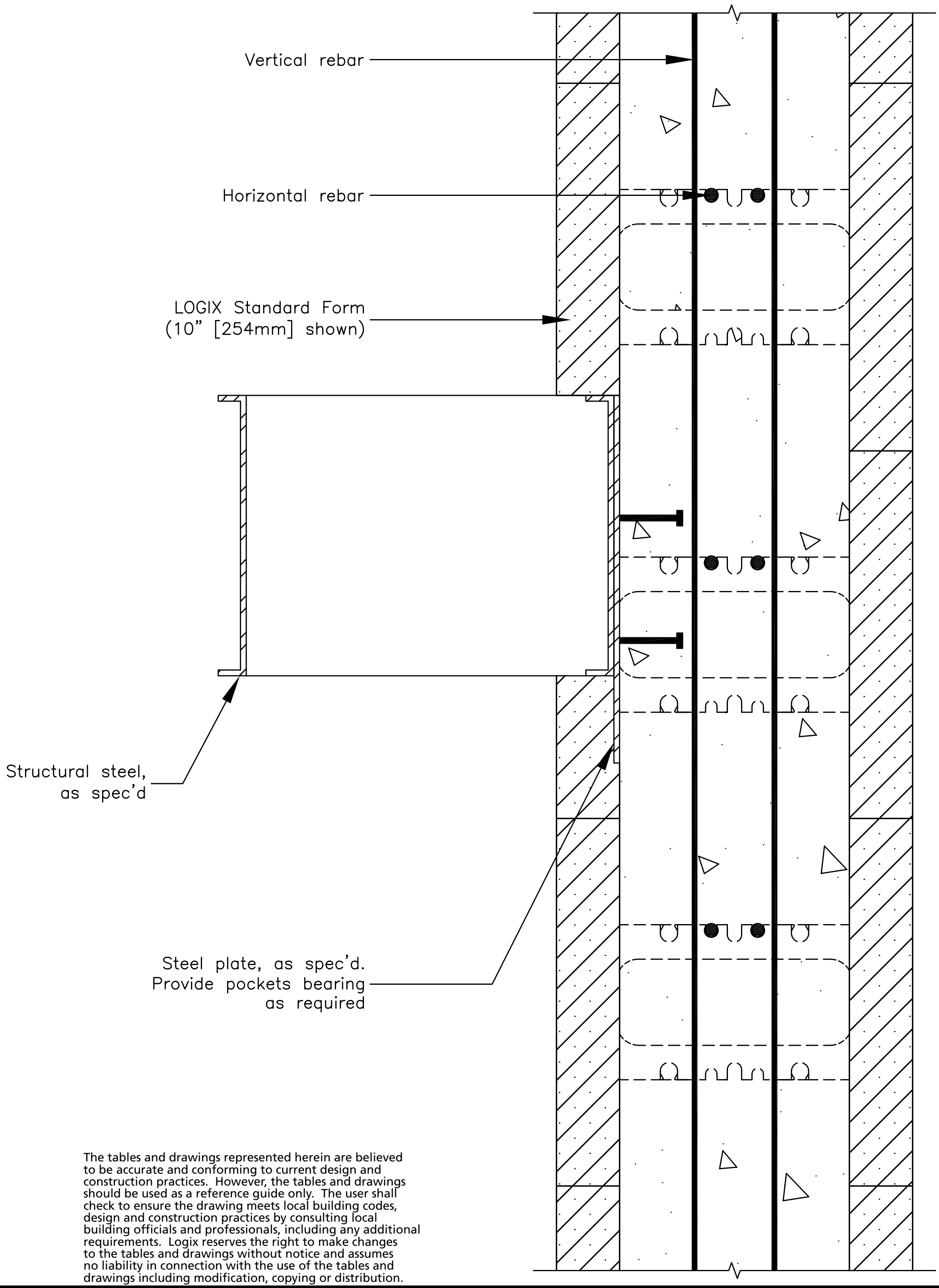
All drawings are downloadable at www.logixicf.com



5.5.5 – STRUCTURAL STEEL CHANNEL BEAM

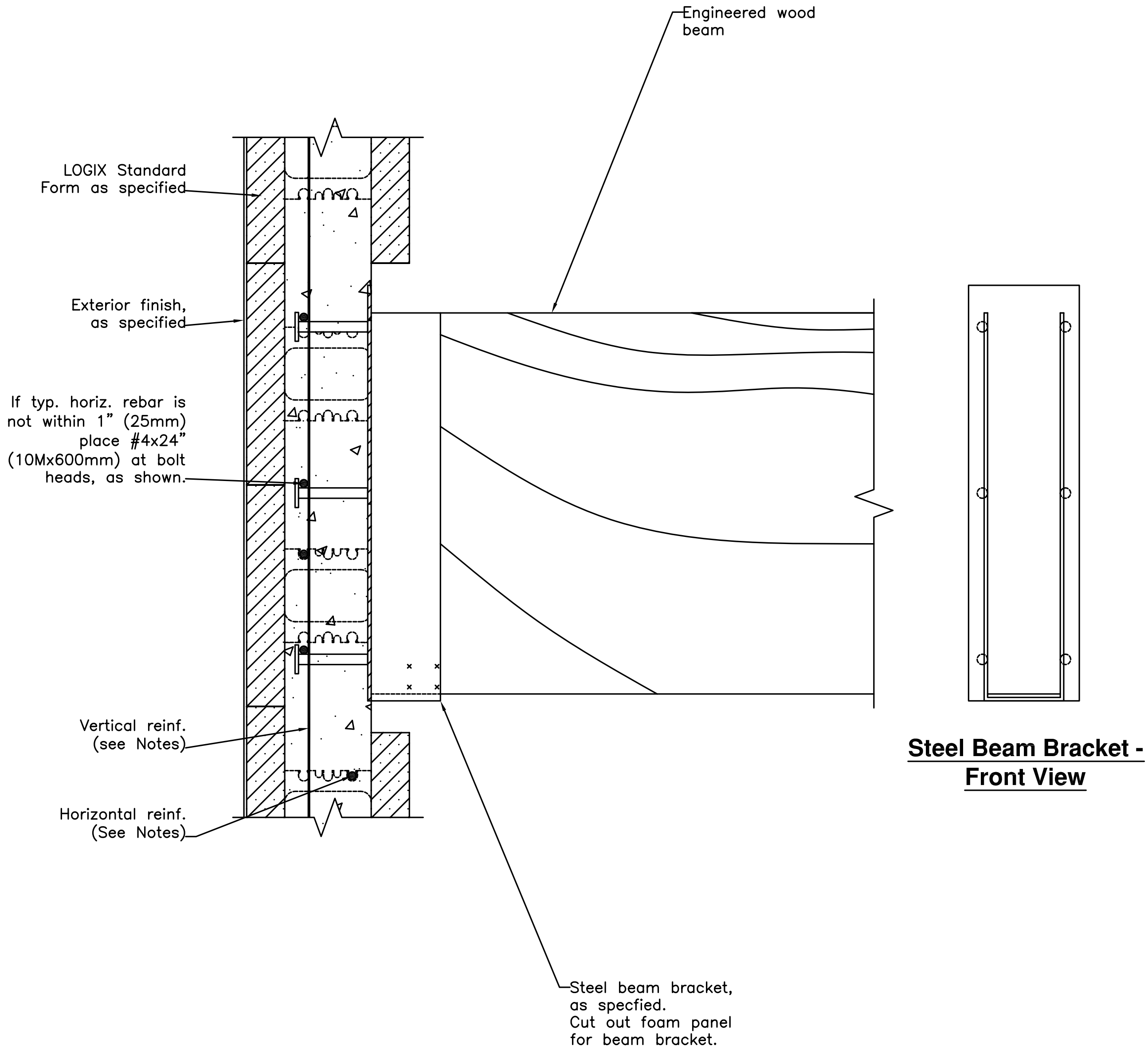
CONTINUED

All drawings are downloadable at www.logixicf.com



5.5.6 – STEEL BEAM BRACKET SUPPORTING WOOD BEAM

All drawings are downloadable at www.logixicf.com

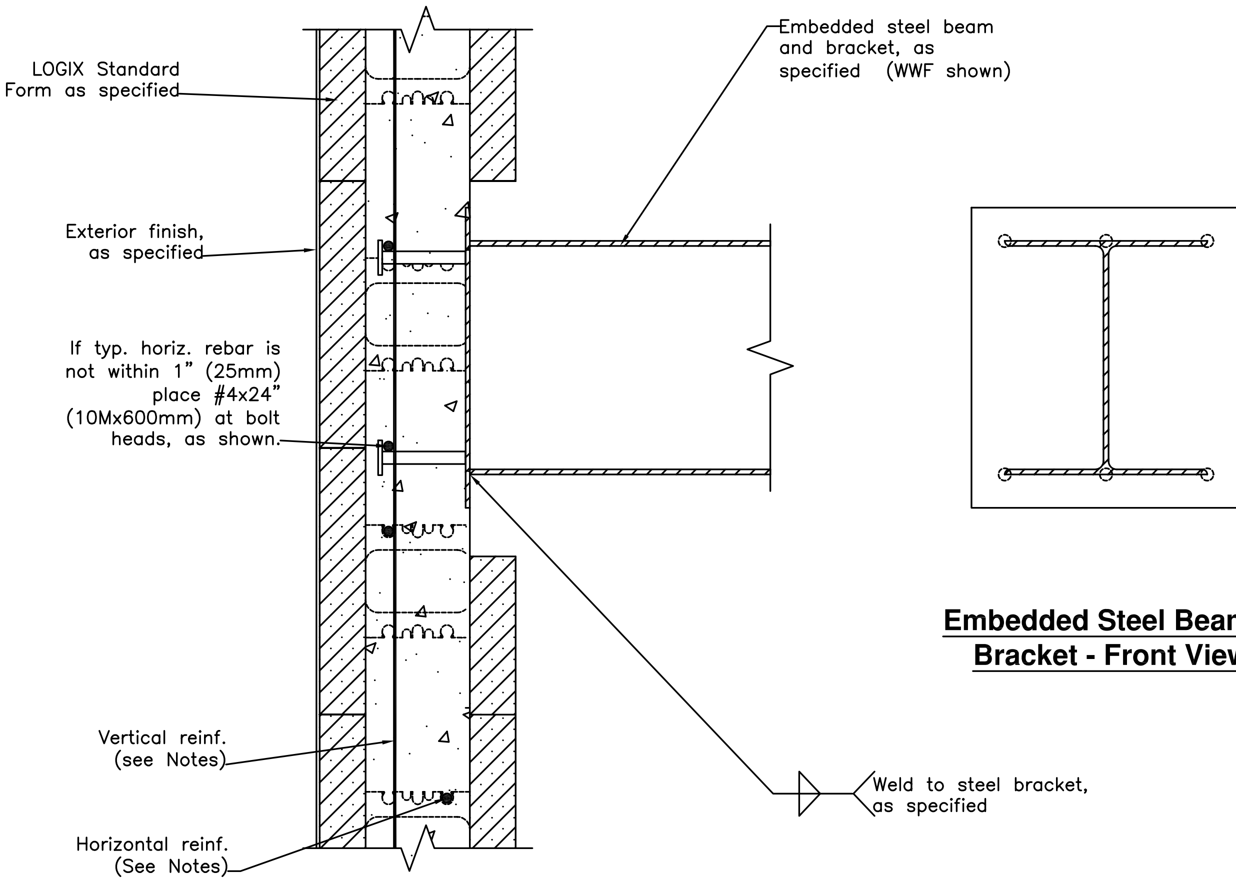


NOTES:

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

5.5.7 – STEEL BEAM BRACKET SUPPORTING STEEL BEAM

All drawings are downloadable at www.logixicf.com



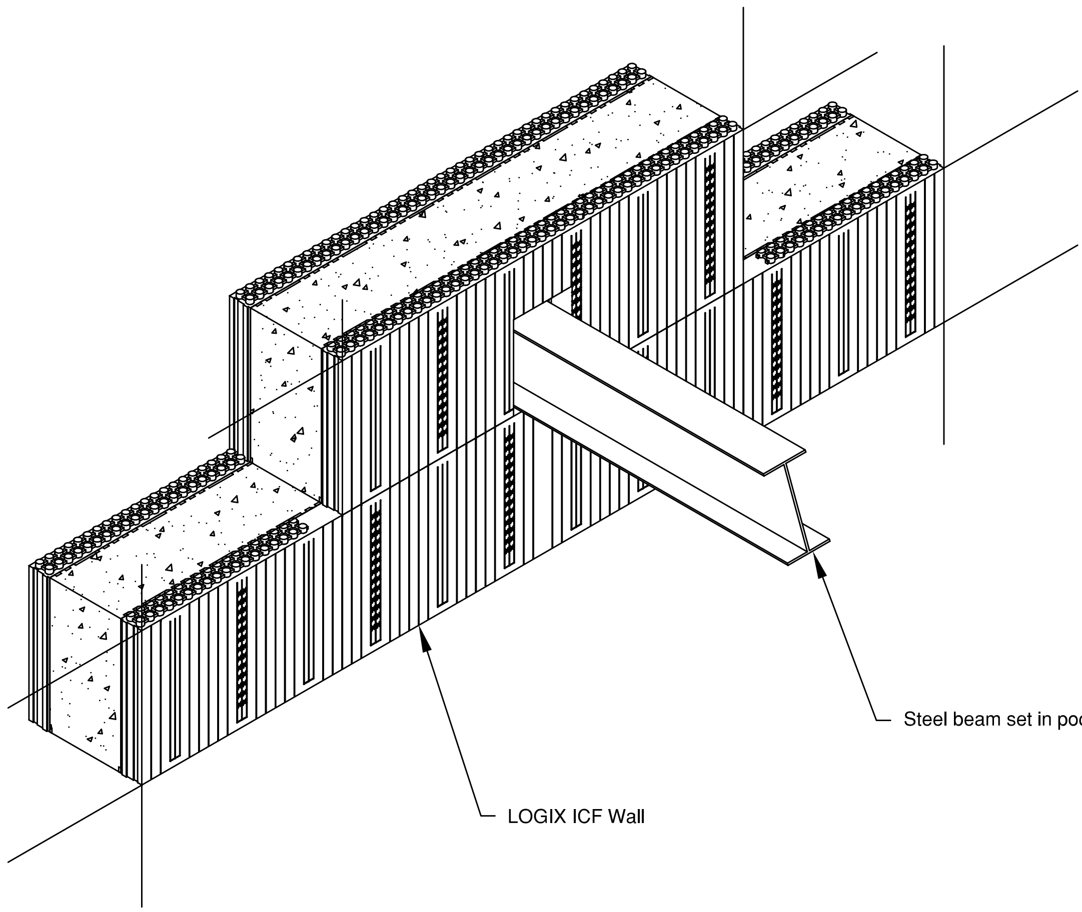
Embedded Steel Beam & Bracket - Front View

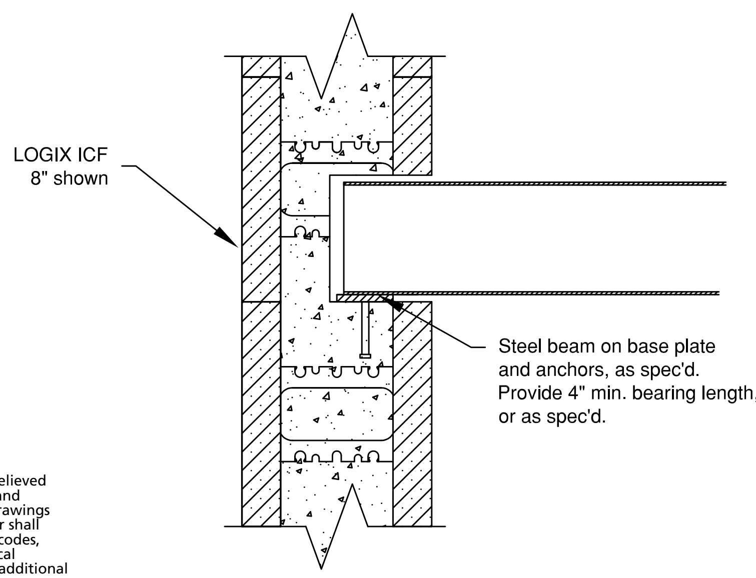
NOTES:

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

5.5.8 – STEEL BEAM POCKET

All drawings are downloadable at www.logixicf.com

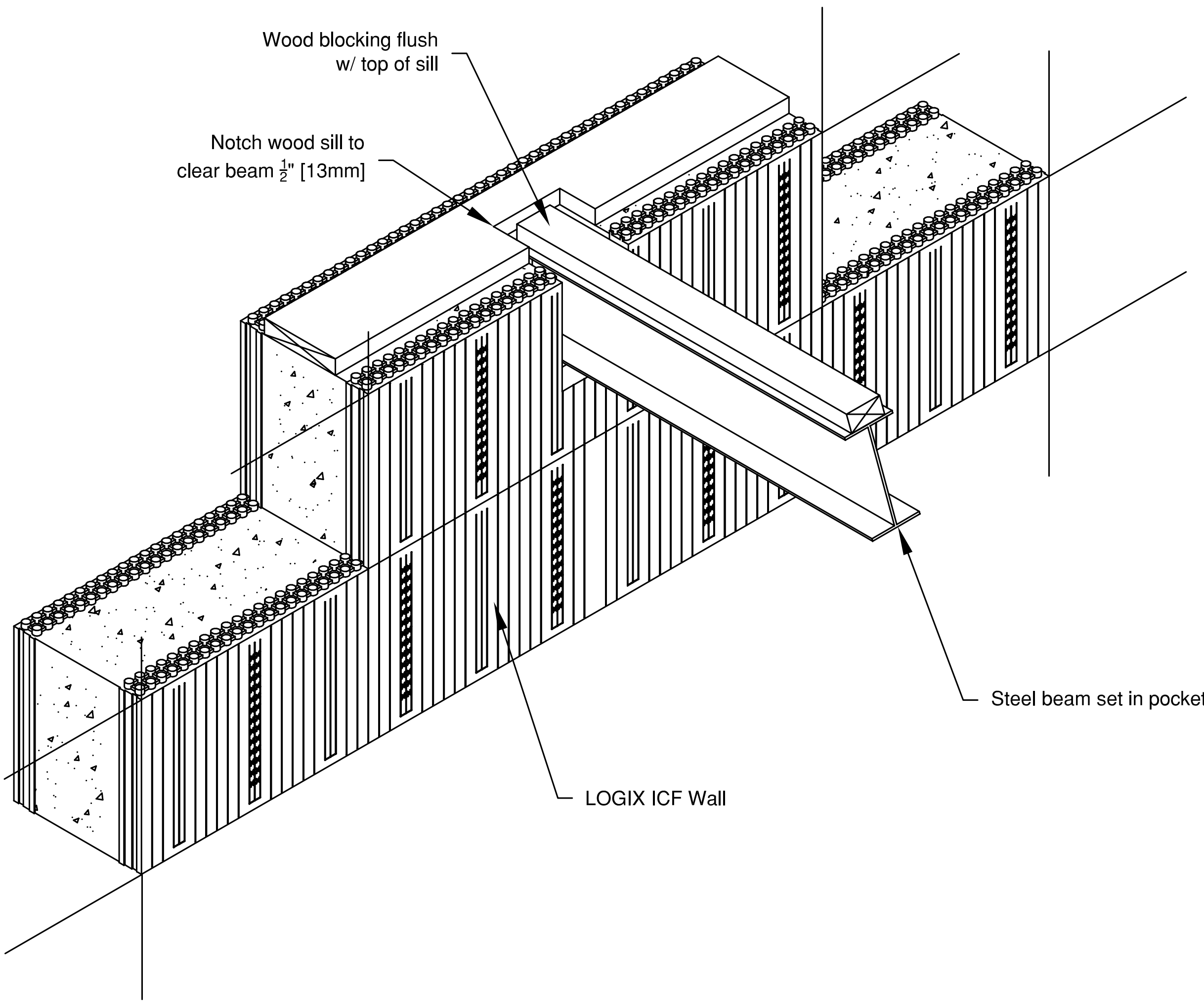


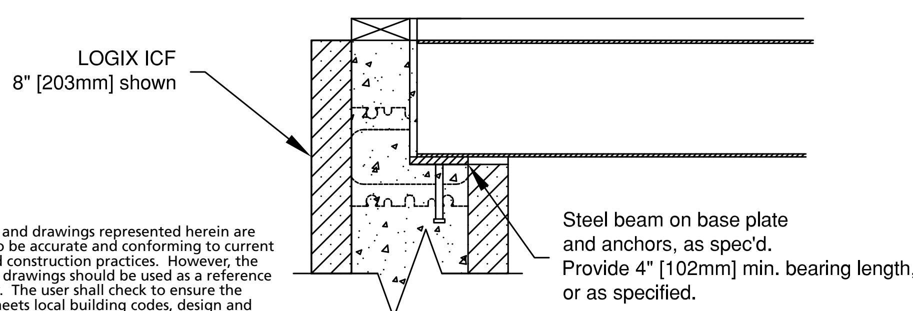


Section through Wall at Beam Pocket

5.5.9 – STEEL BEAM POCKET FLUSH WITH SILL

All drawings are downloadable at www.logixicf.com

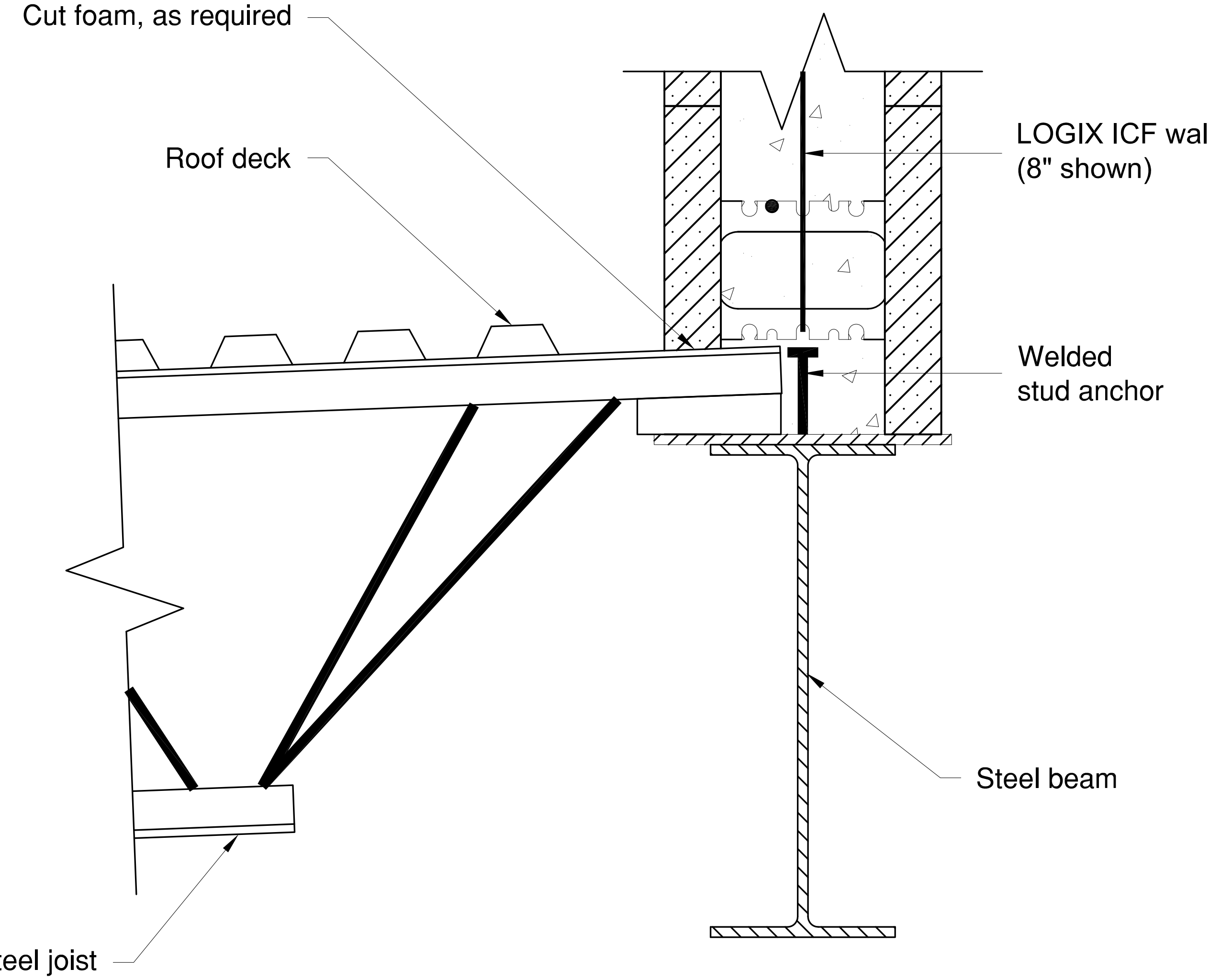




Section through Wall at Beam Pocket

5.5.10 – JOIST BEARING ON STEEL BEAM

All drawings are downloadable at www.logixicf.com

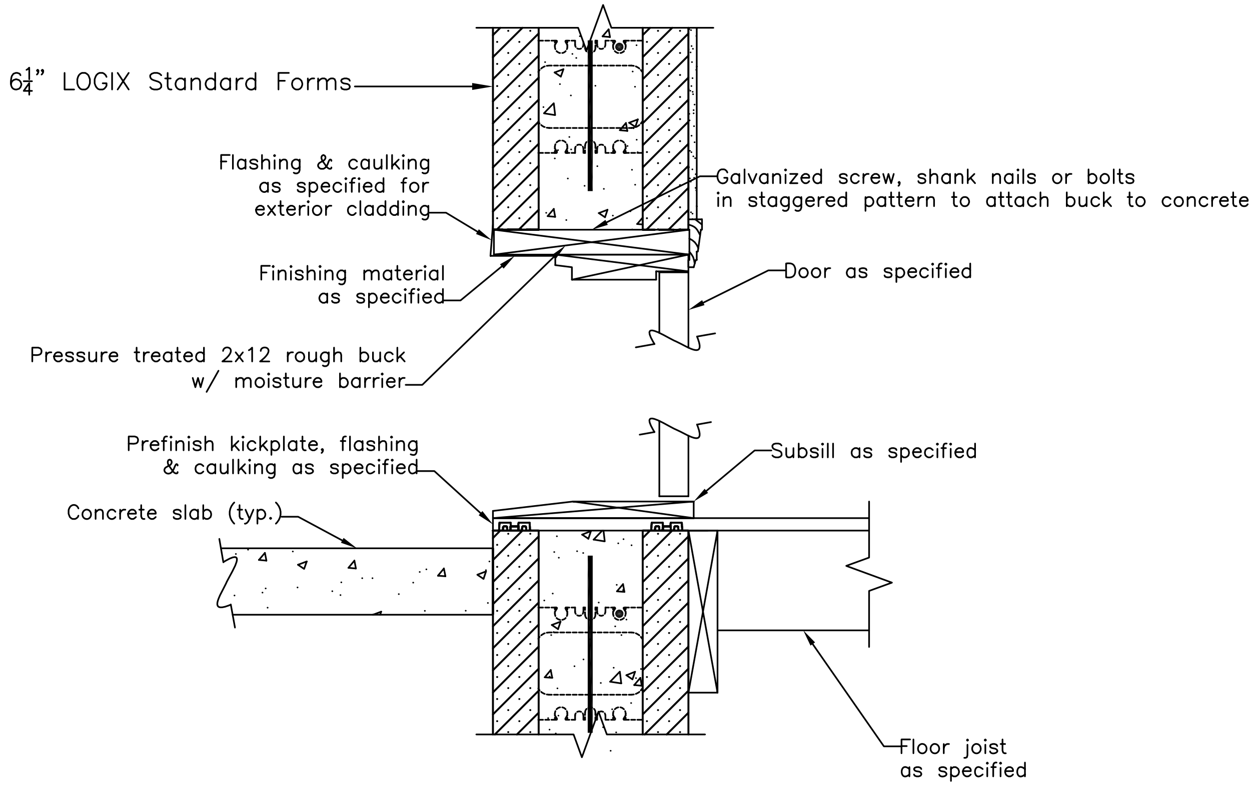


NOTES:

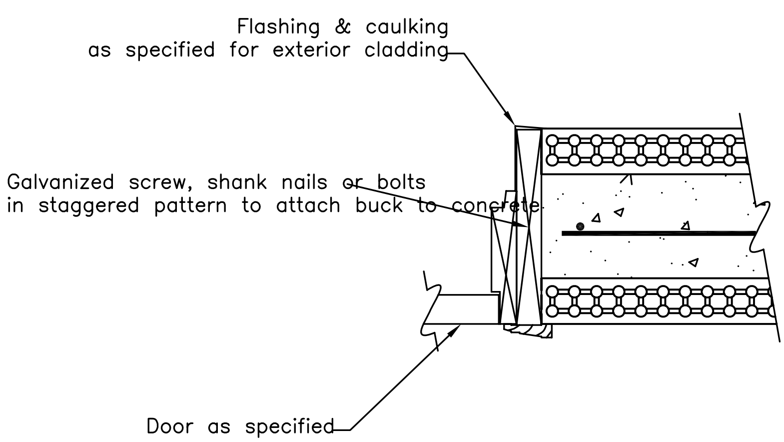
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.6 – WINDOW & DOOR DETAILS
5.6.1 – DOOR JAMB, HEAD & SILL

All drawings are downloadable at www.logixicf.com



DOOR HEAD & SILL USING WOOD BUCKS

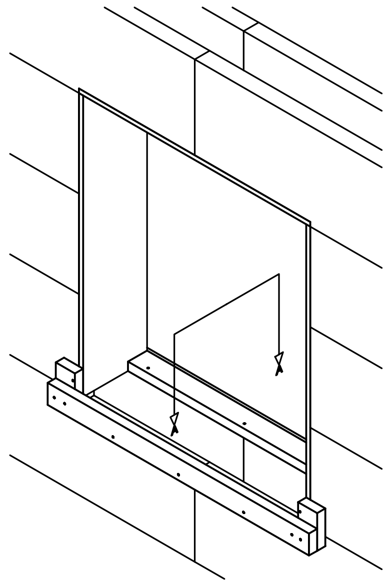


DOOR JAMB USING WOOD BUCKS

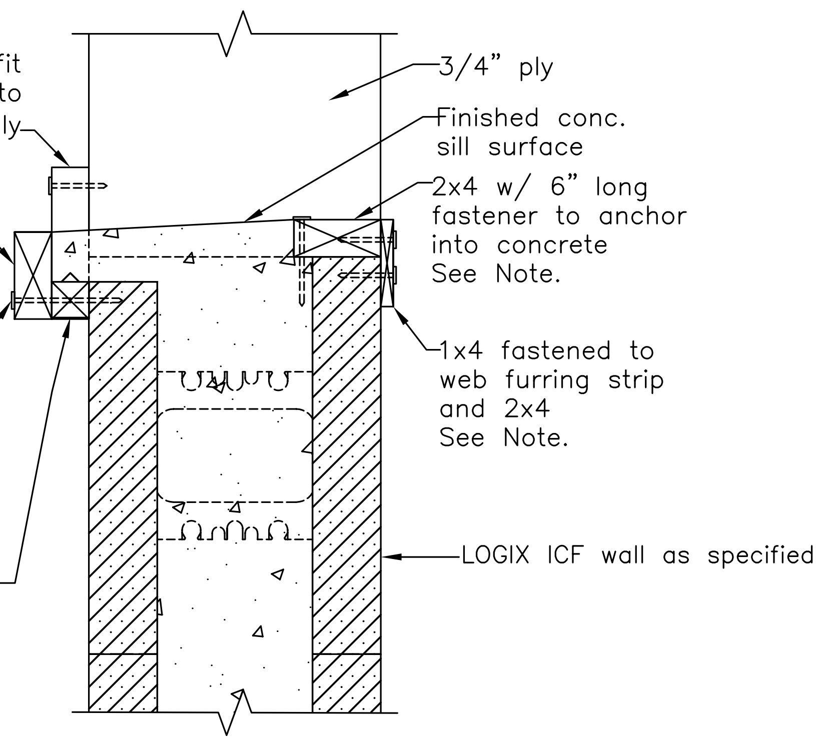
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.2 – SLOPED CONCRETE SILL

All drawings are downloadable at www.logixicf.com



WOOD WINDOW BUCK
SLOPED CONCRETE SILL

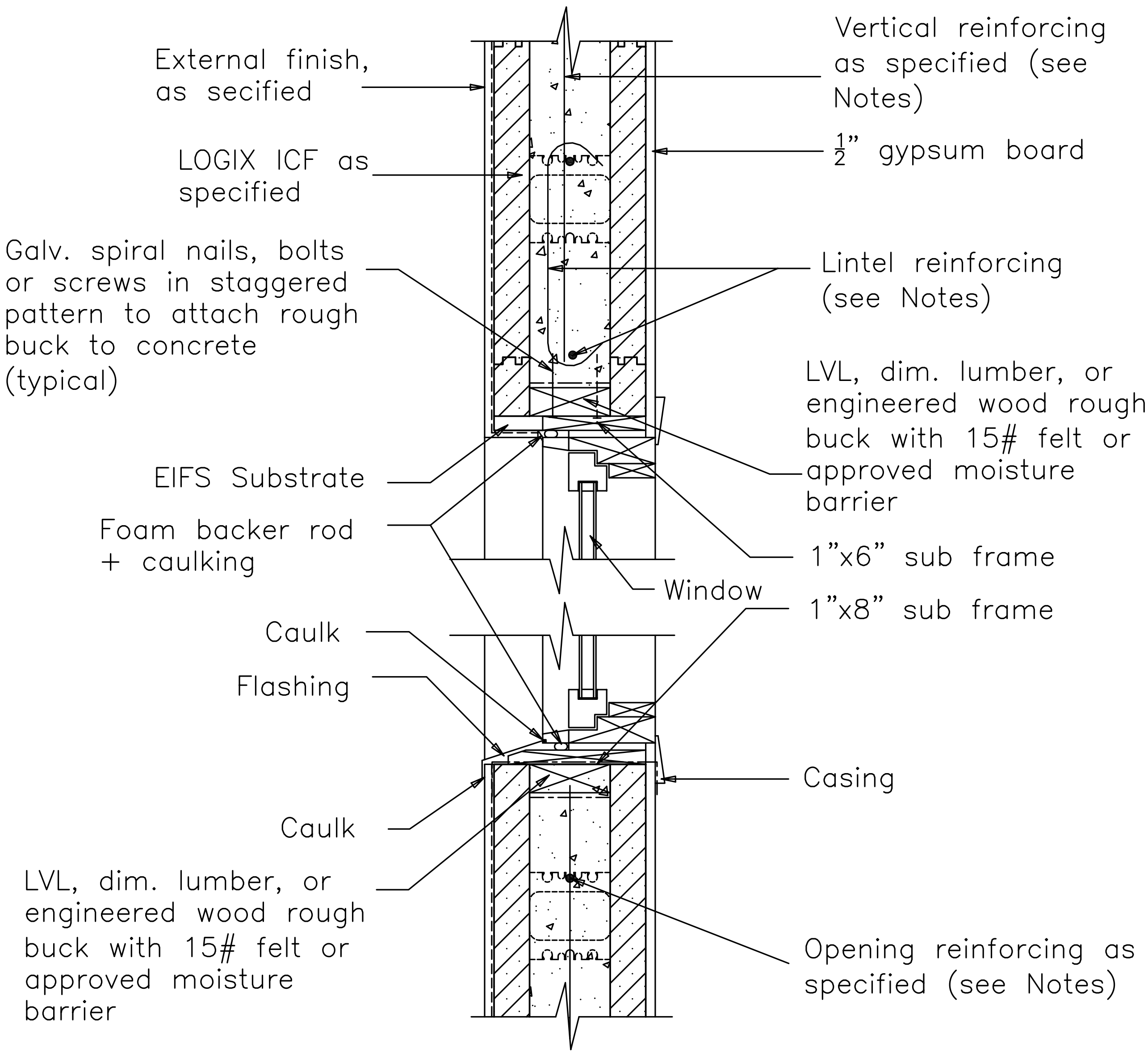


SECTION A-A

NOTE:
Adjust 2x lumber to suit specified slope of concrete sill.

5.6.3 – WINDOW HEAD / SILL DETAIL

All drawings are downloadable at www.logixicf.com



NOTES:

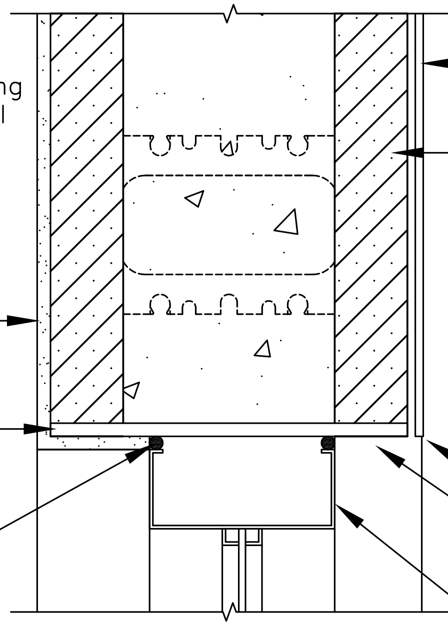
1. For wall & lintel reinforcement, see LOGIX Product Manual Section 6, Engineering.

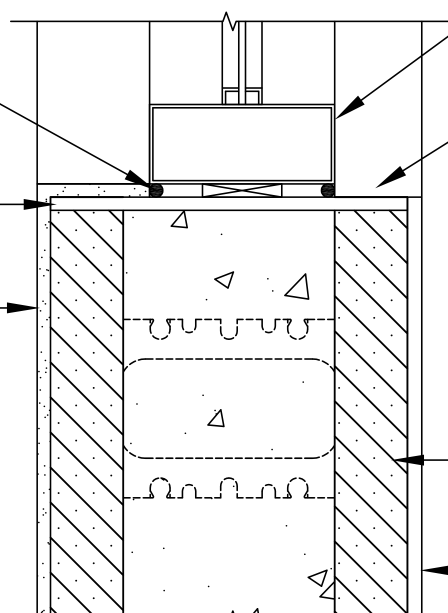
5.6.4 – WINDOW HEAD / SILL STEEL FRAME

All drawings are downloadable at www.logixicf.com

NOTES:

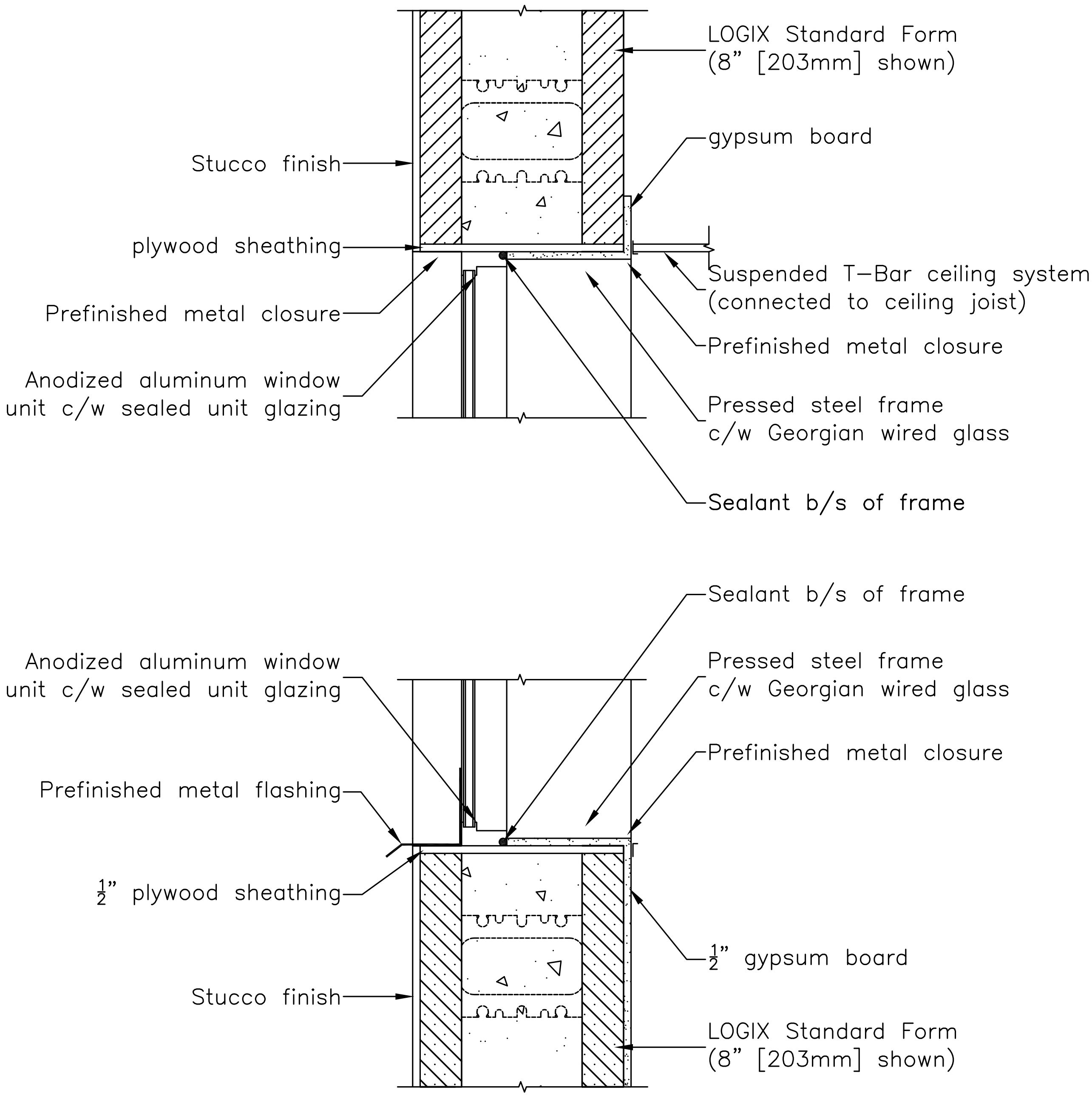
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.





5.6.5 – ALUMINUM WINDOW HEAD / SILL

All drawings are downloadable at www.logixicf.com

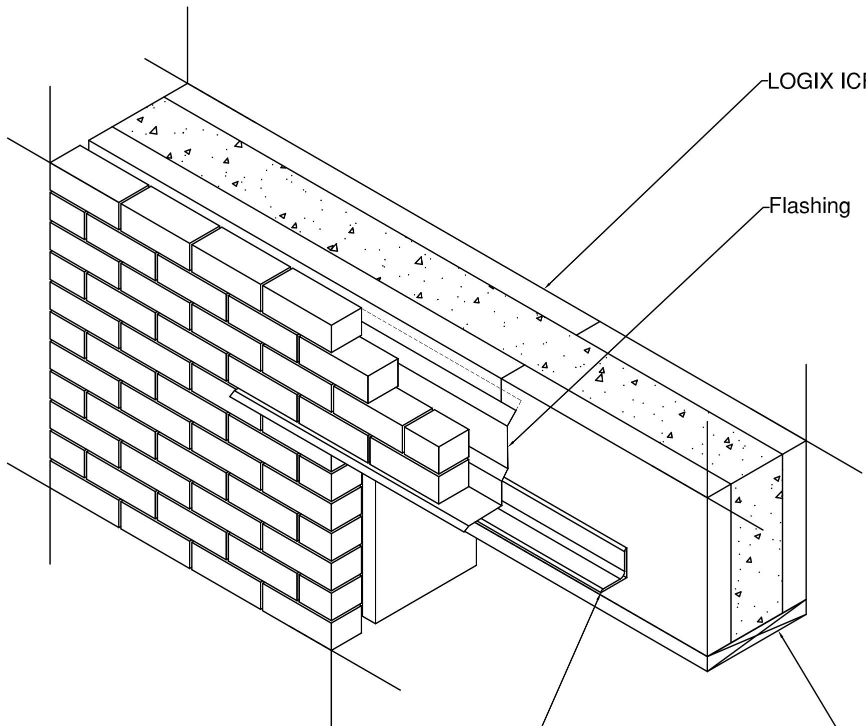


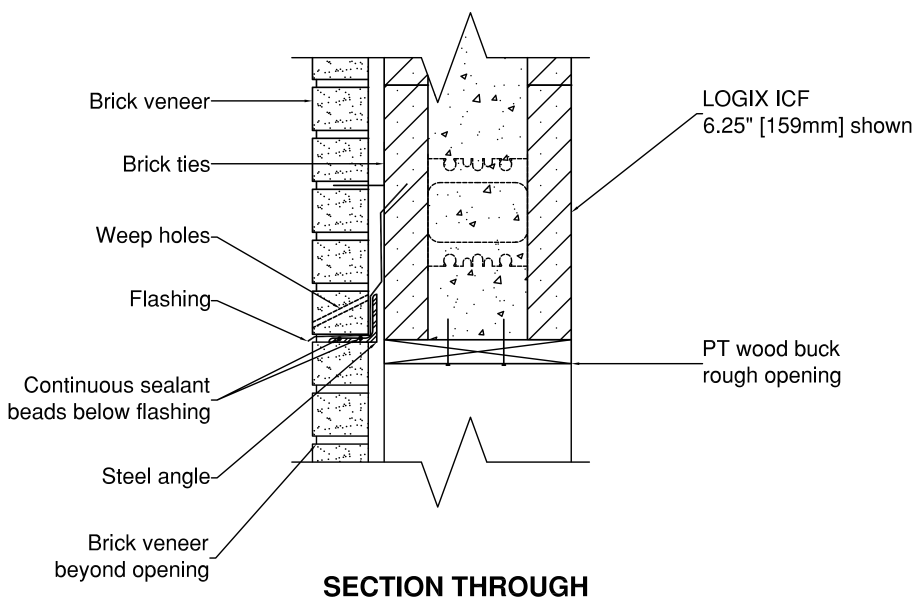
NOTES:

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

5.6.6 – STEEL LINTEL WITH BRICK VENEER

All drawings are downloadable at www.logixicf.com

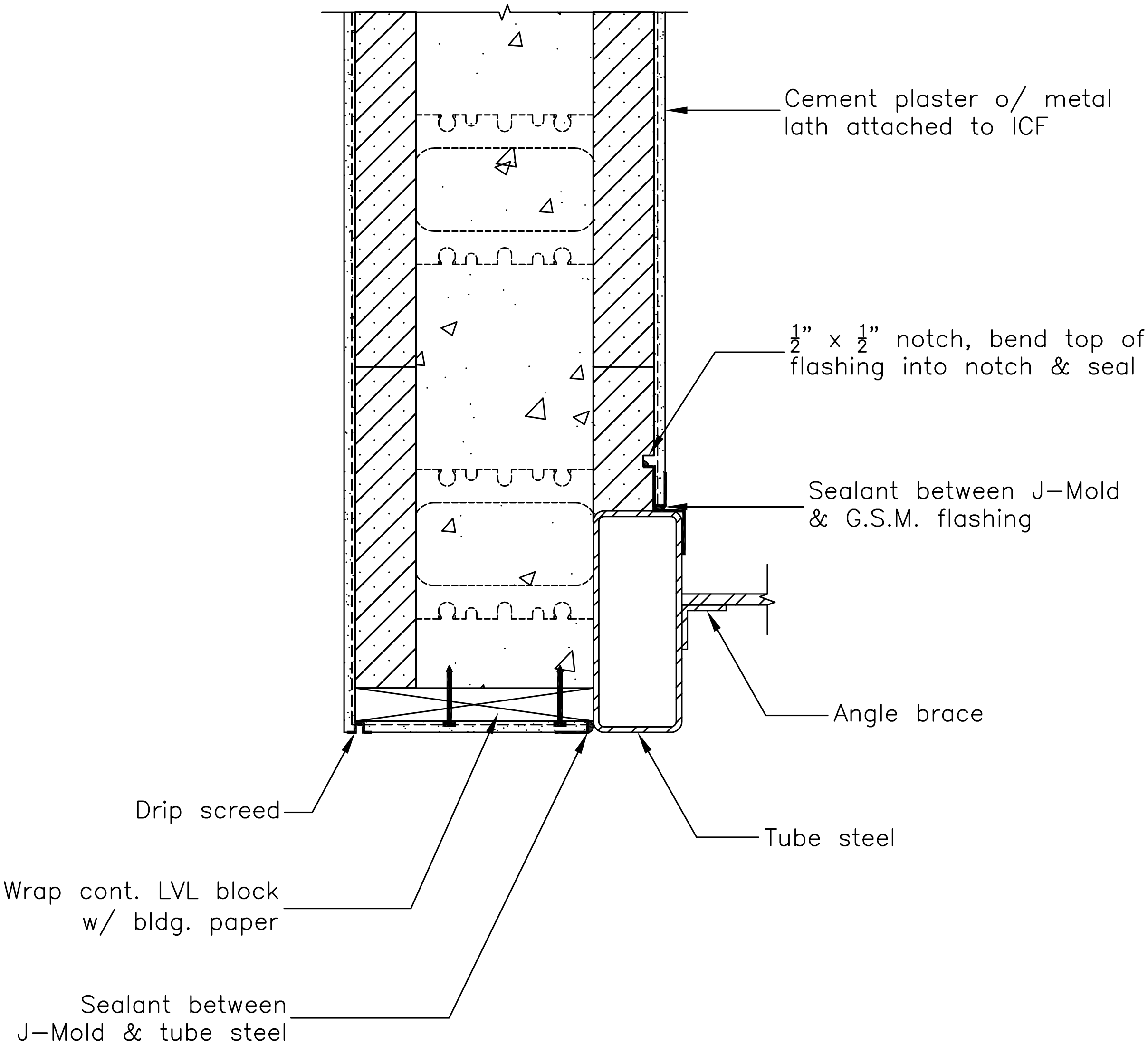




SECTION THROUGH LINTEL

5.6.7 – WINDOW SCREEN

All drawings are downloadable at www.logixicf.com

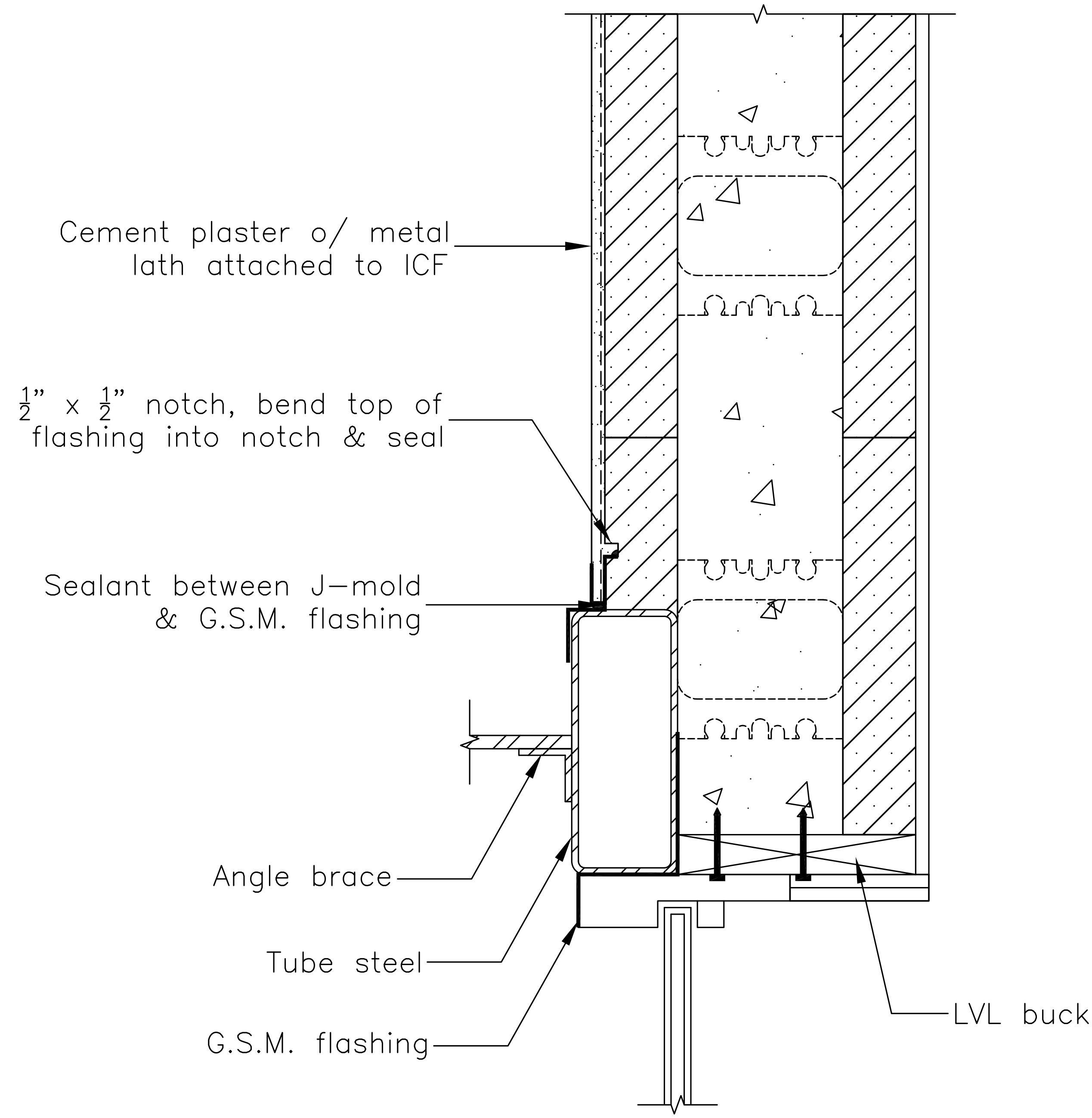


NOTES:

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

5.6.8 – EXTERIOR WINDOW SCREEN

All drawings are downloadable at www.logixicf.com

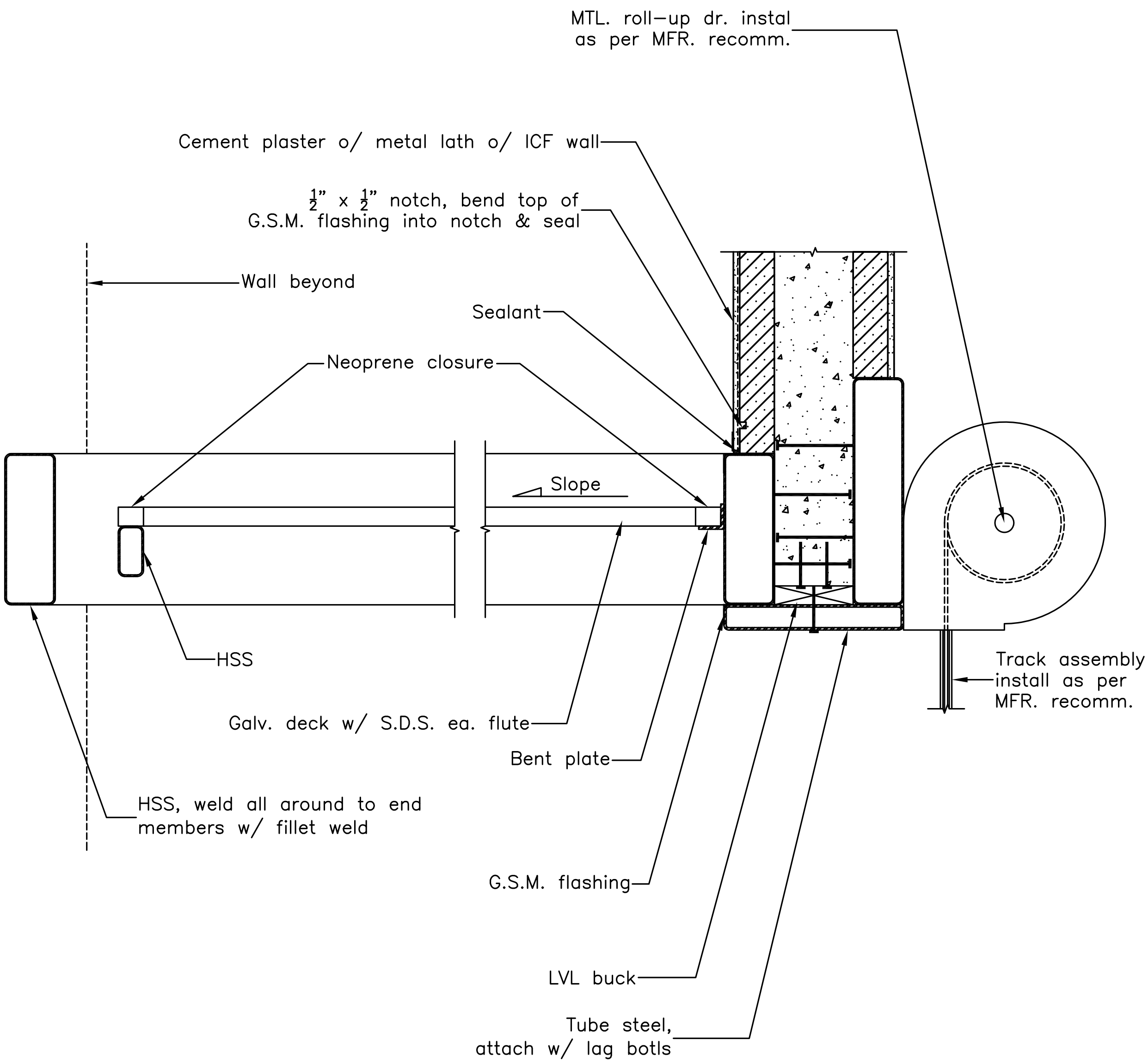


NOTES:

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

5.6.9 – CANOPY & ROLL-UP DOOR

All drawings are downloadable at www.logixicf.com

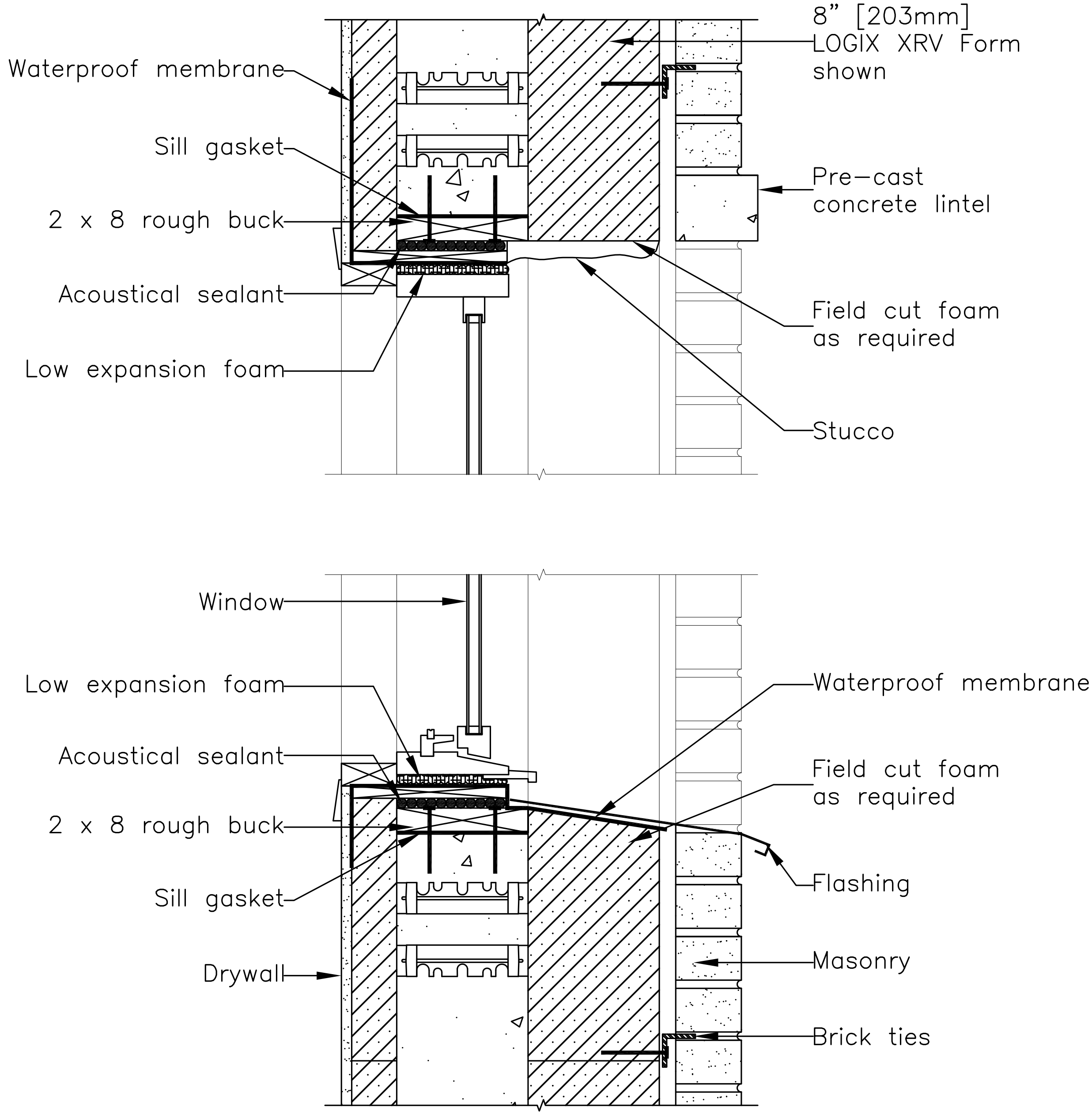


NOTES:

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

5.6.10 – WINDOW HEAD/SILL DETAIL WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

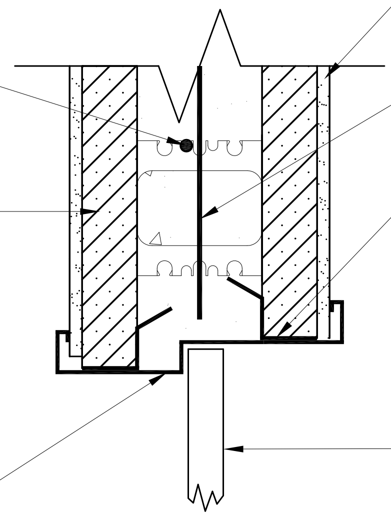


NOTES:

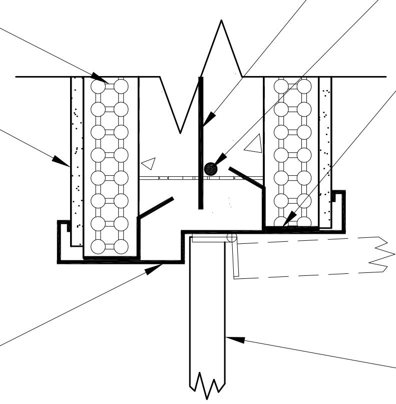
1. See Section 6 – Engineering in the LOGIX Design Manual for wall & lintel reinforcement.

5.6.11 – WELDED PRESS STEEL DOOR FRAME - CENTER MOUNTED

All drawings are downloadable at www.logixicf.com



INTERIOR DOOR FRAME - HEAD
CENTER MOUNTED DOOR



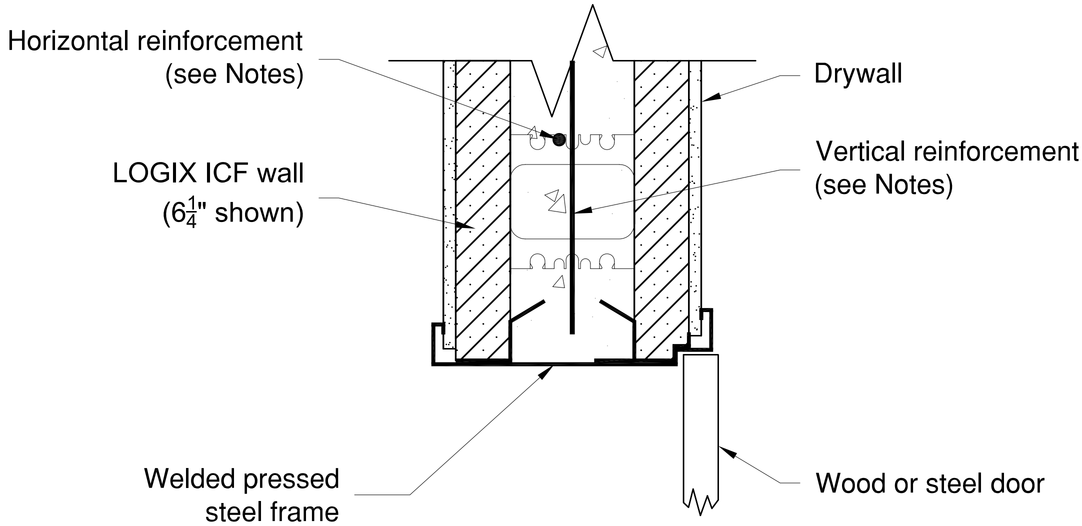
INTERIOR DOOR FRAME - JAMB
CENTER MOUNTED DOOR

NOTES:

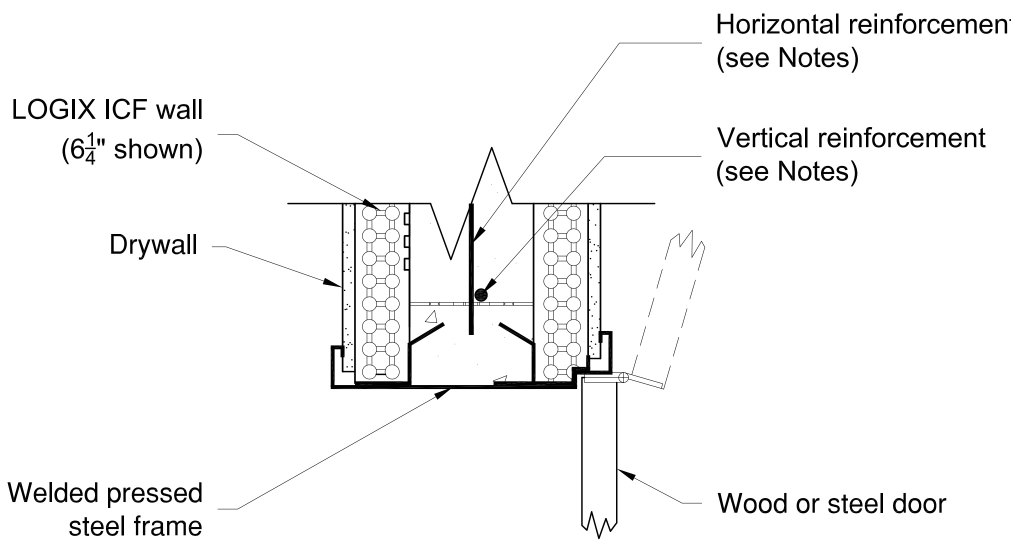
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.6.12 – WELDED PRESSED STEEL DOOR FRAME - FLUSH MOUNTED

All drawings are downloadable at www.logixicf.com



INTERIOR DOOR FRAME - HEAD
FLUSH MOUNTED DOOR



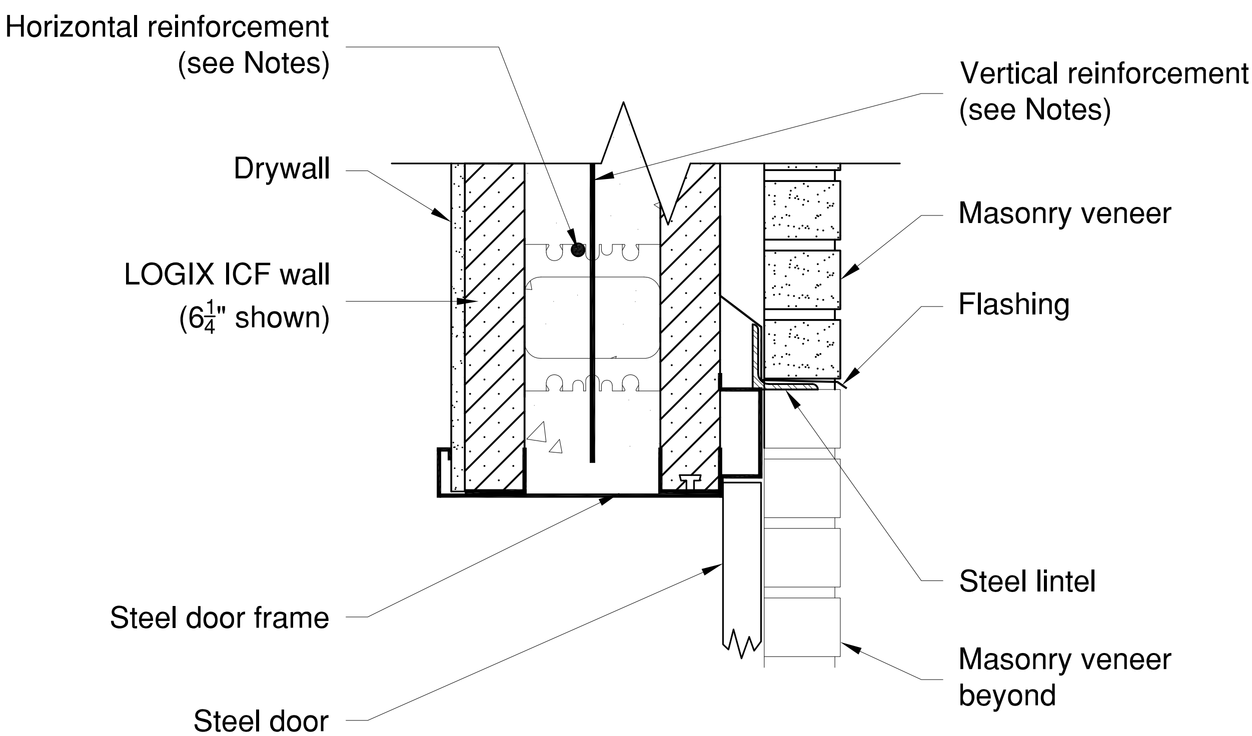
INTERIOR DOOR FRAME - JAMB
FLUSH MOUNTED DOOR

NOTES:

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

5.6.13 – BRICK VENEER OVER DOOR OPENING

All drawings are downloadable at www.logixicf.com

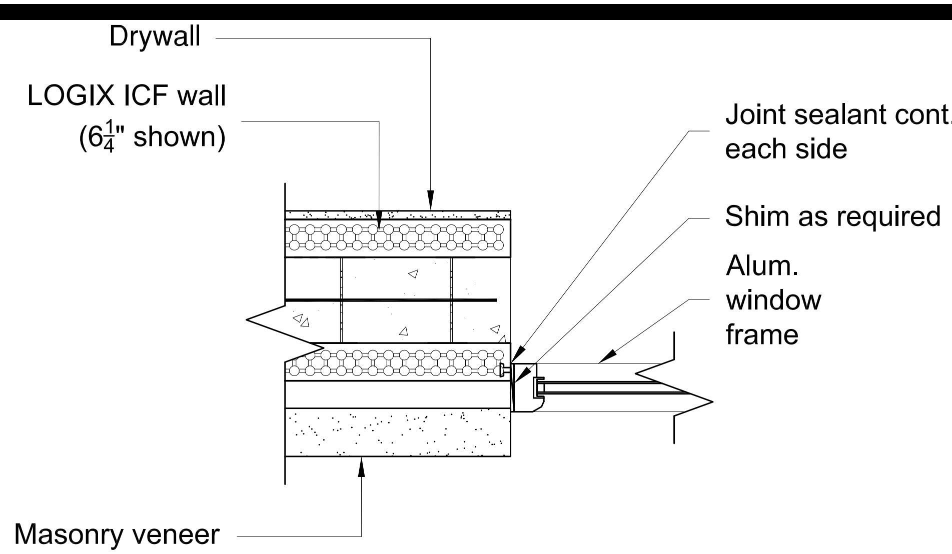


NOTES:

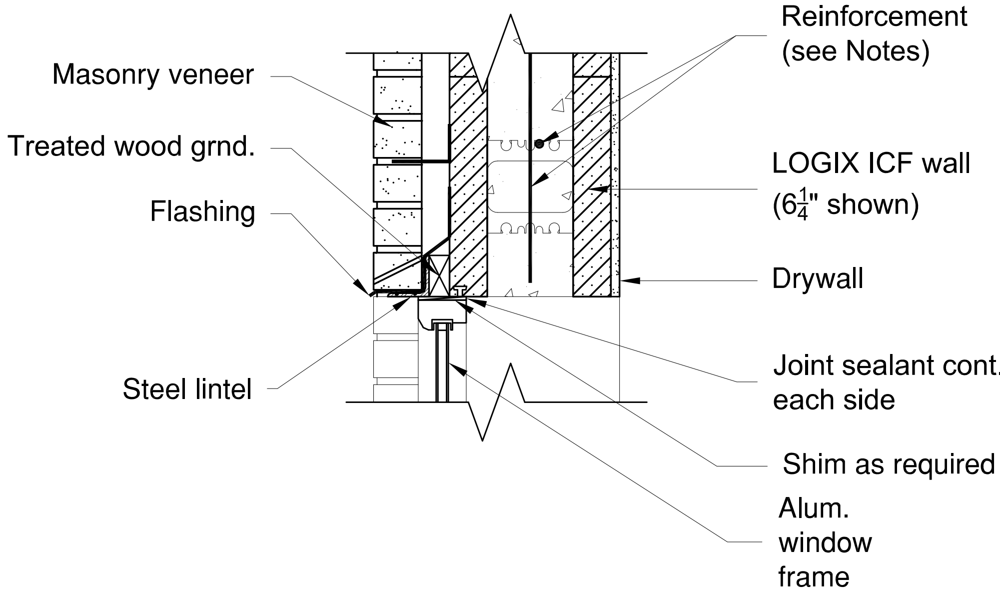
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.6.14 – ALUMINUM WINDOW FRAME

All drawings are downloadable at www.logixicf.com



ALUMINUM WINDOW JAMB



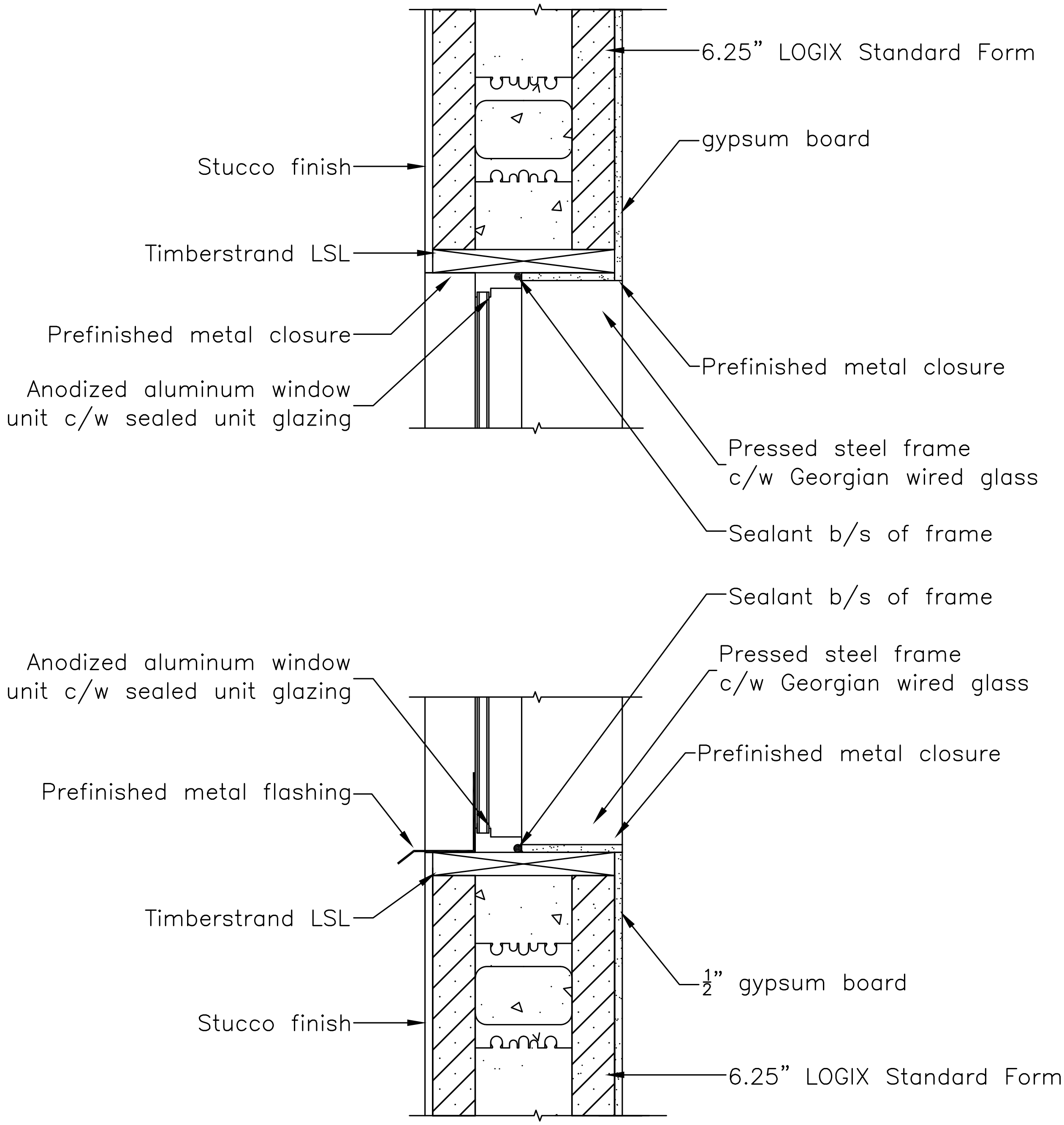
ALUMINUM WINDOW HEAD

NOTES:

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

5.6.15 – ALUMINUM WINDOW HEAD/SILL W/ TIMBERSTRAND LSL

All drawings are downloadable at www.logixicf.com

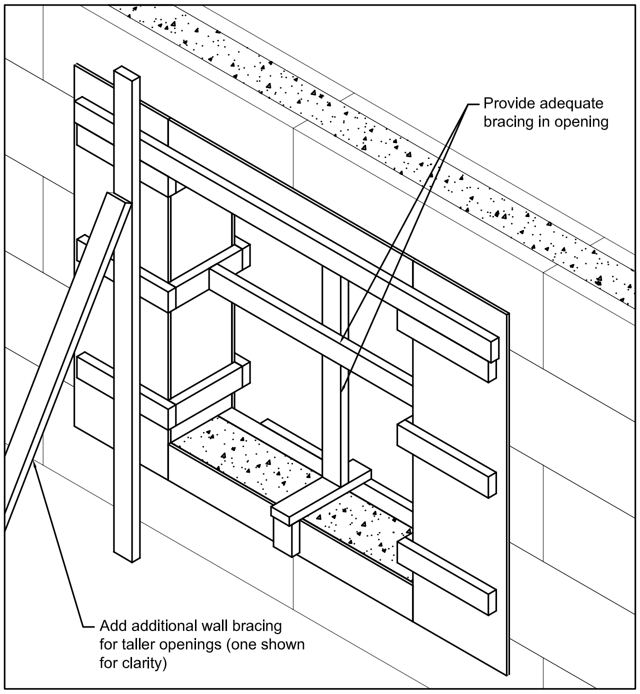


NOTES:

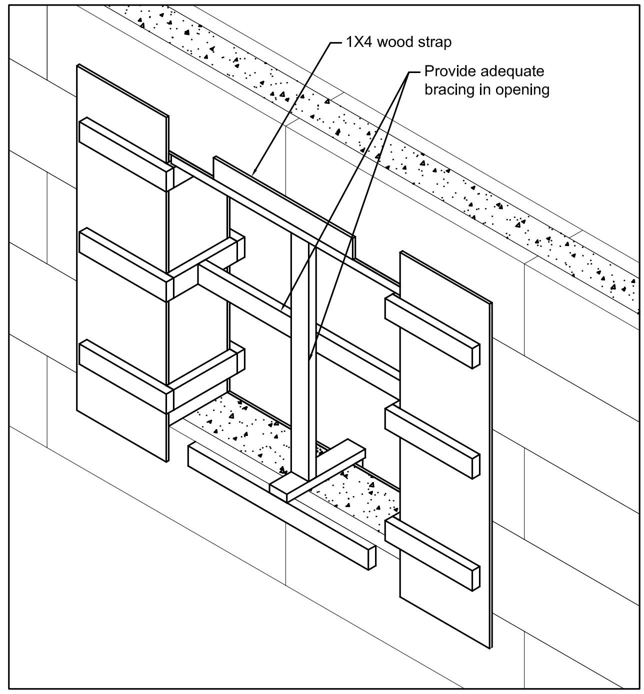
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.6.16 – WINDOW OPENING - TEMPORARY FORM SUPPORT FOR EXPOSED CONCRETE W/ 4” TRIM

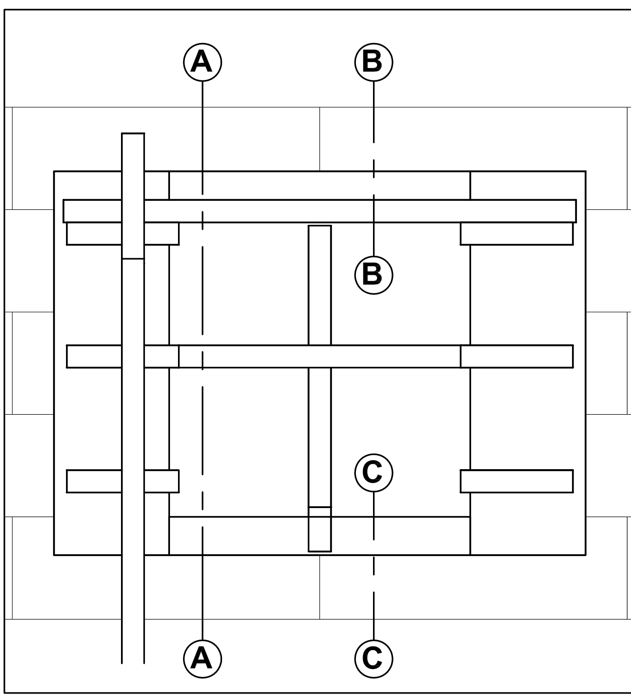
All drawings are downloadable at www.logixicf.com



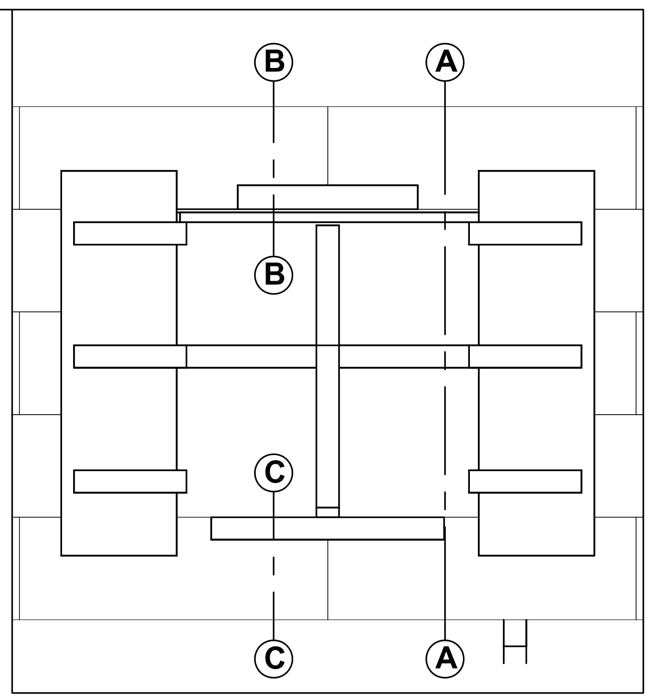
FORM SUPPORT - EXTERIOR SIDE



FORM SUPPORT - iNTERIOR SIDE



ELEVATION - EXTERIOR SIDE



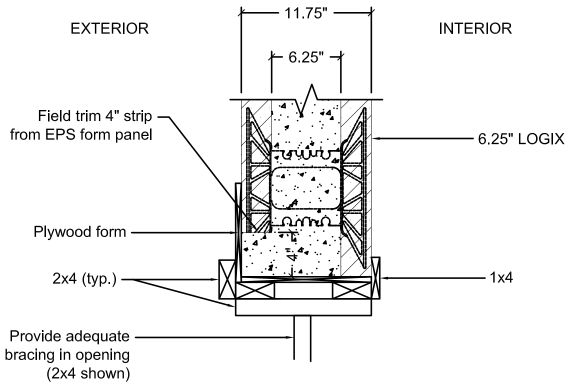
ELEVATION - INTERIOR SIDE

NOTE:

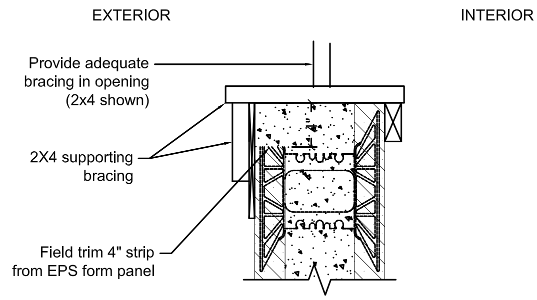
1. For 4" exposed concrete trim around opening on the interior face apply same form support and detail as shown for exterior face details.
2. Unless otherwise shown, temporary form work material includes 2x4 and plysheets.

5.6.16 – WINDOW OPENING - TEMPORARY FORM SUPPORT FOR EXPOSED CONCRETE W/ 4" TRIM CONTINUED

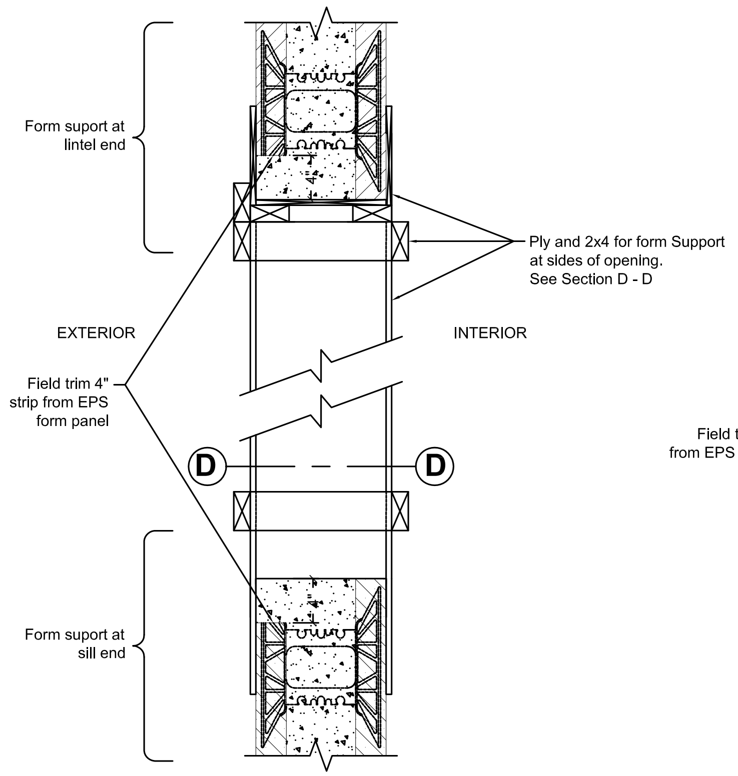
All drawings are downloadable at www.logixicf.com



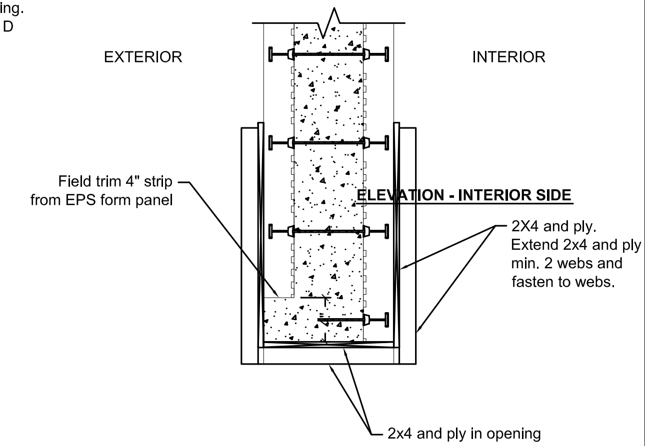
A - A
FORM SUPPORT ALONG LINTEL



B - B
FORM SUPPORT ALONG SILL



C - C
FORM SUPPORT AT LINTEL AND SILL END

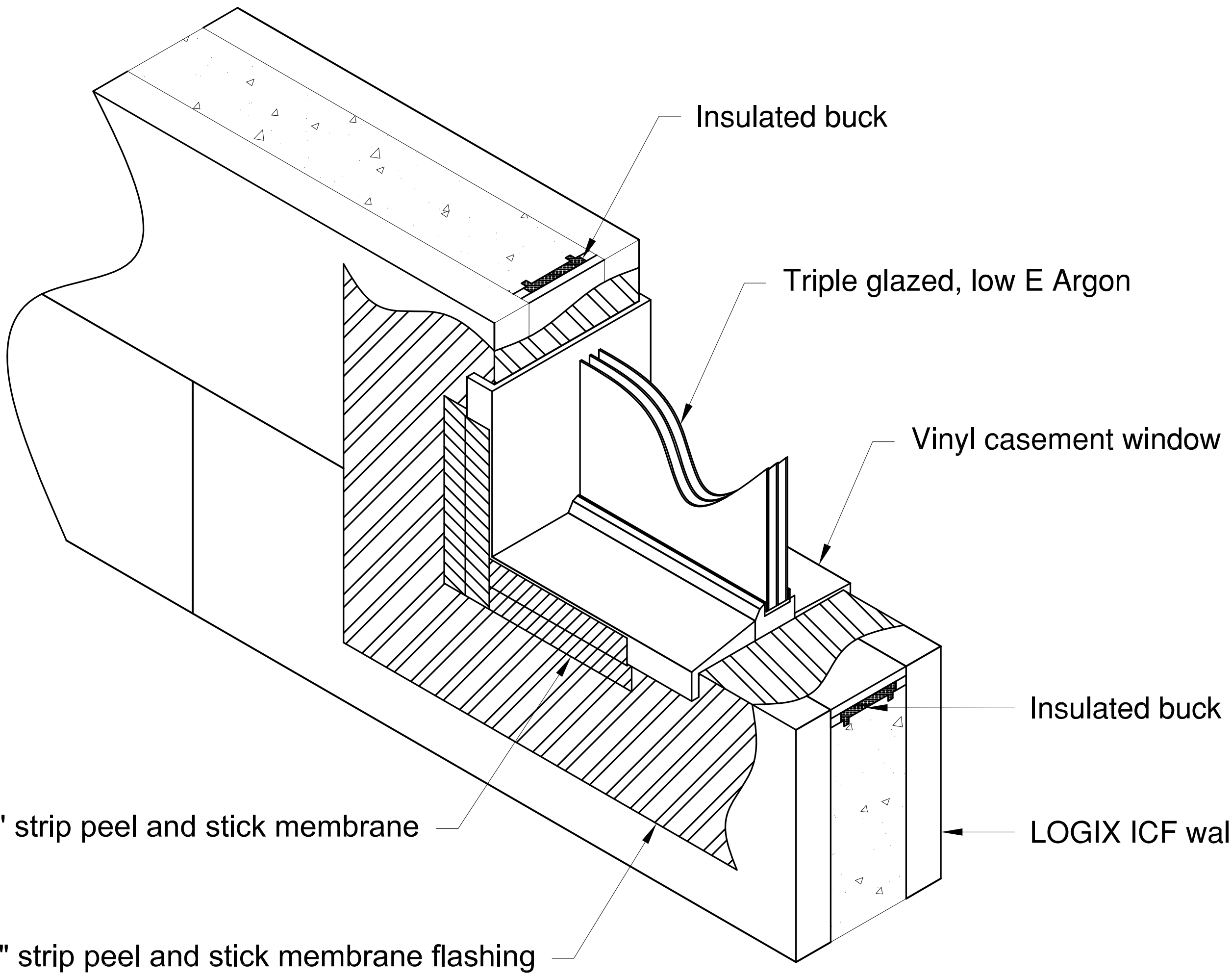


D - D
FORM SUPPORT AT SIDES OF OPENING

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.

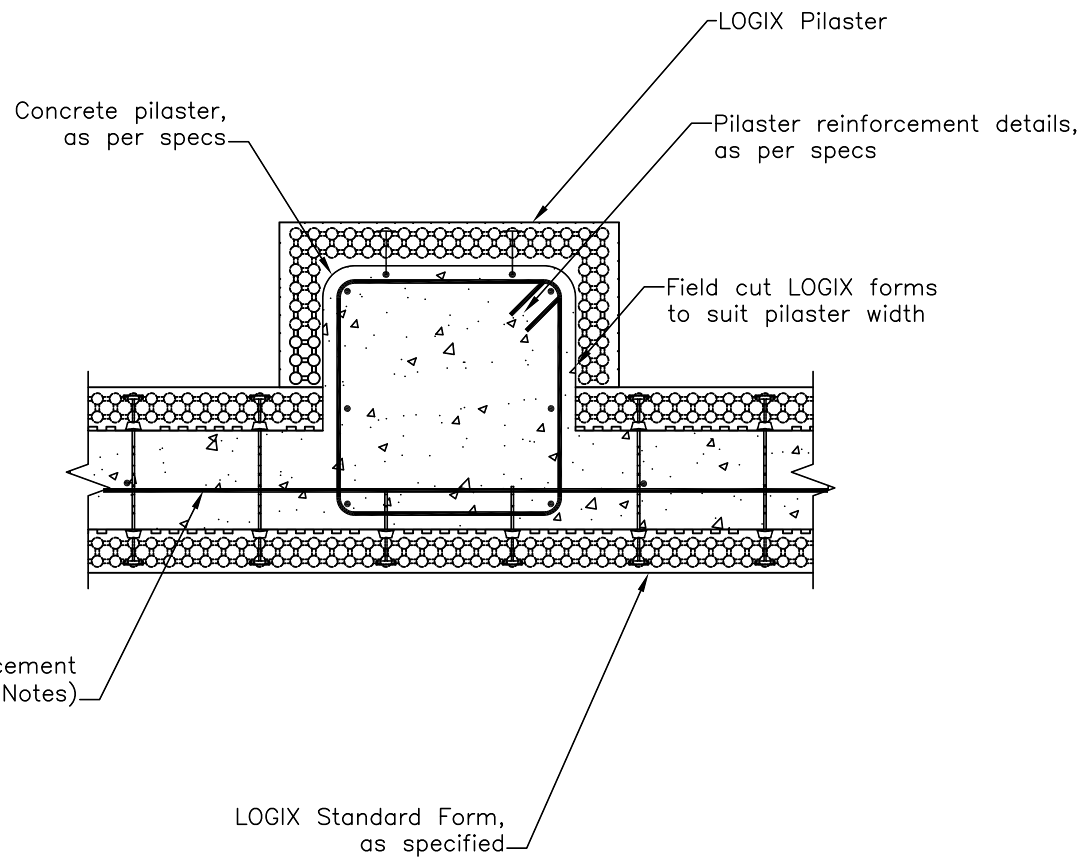
5.6.17 – WINDOW FLASHING DETAIL

All drawings are downloadable at www.logixicf.com



5.7 – PILASTER DETAILS
5.7.1 – REINFORCING - LOGIX PILASTER

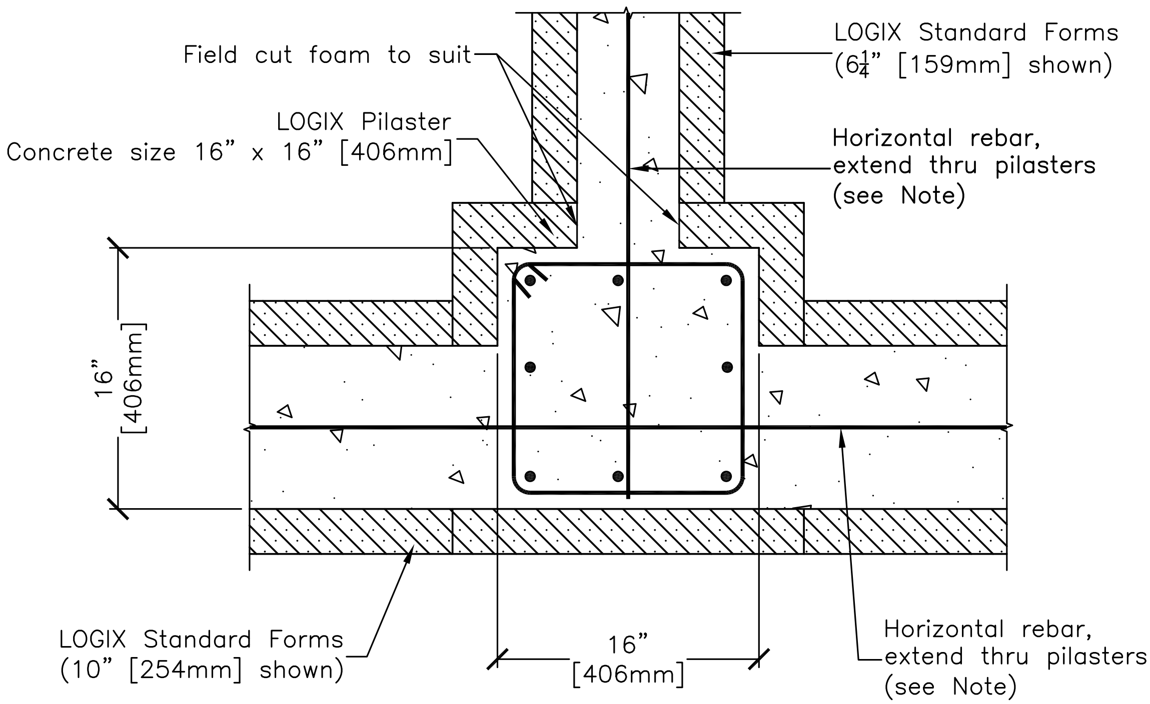
All drawings are downloadable at www.logixicf.com



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

5.7.2 – LOGIX PILASTER AT TEE-WALL

All drawings are downloadable at www.logixicf.com



NOTES:

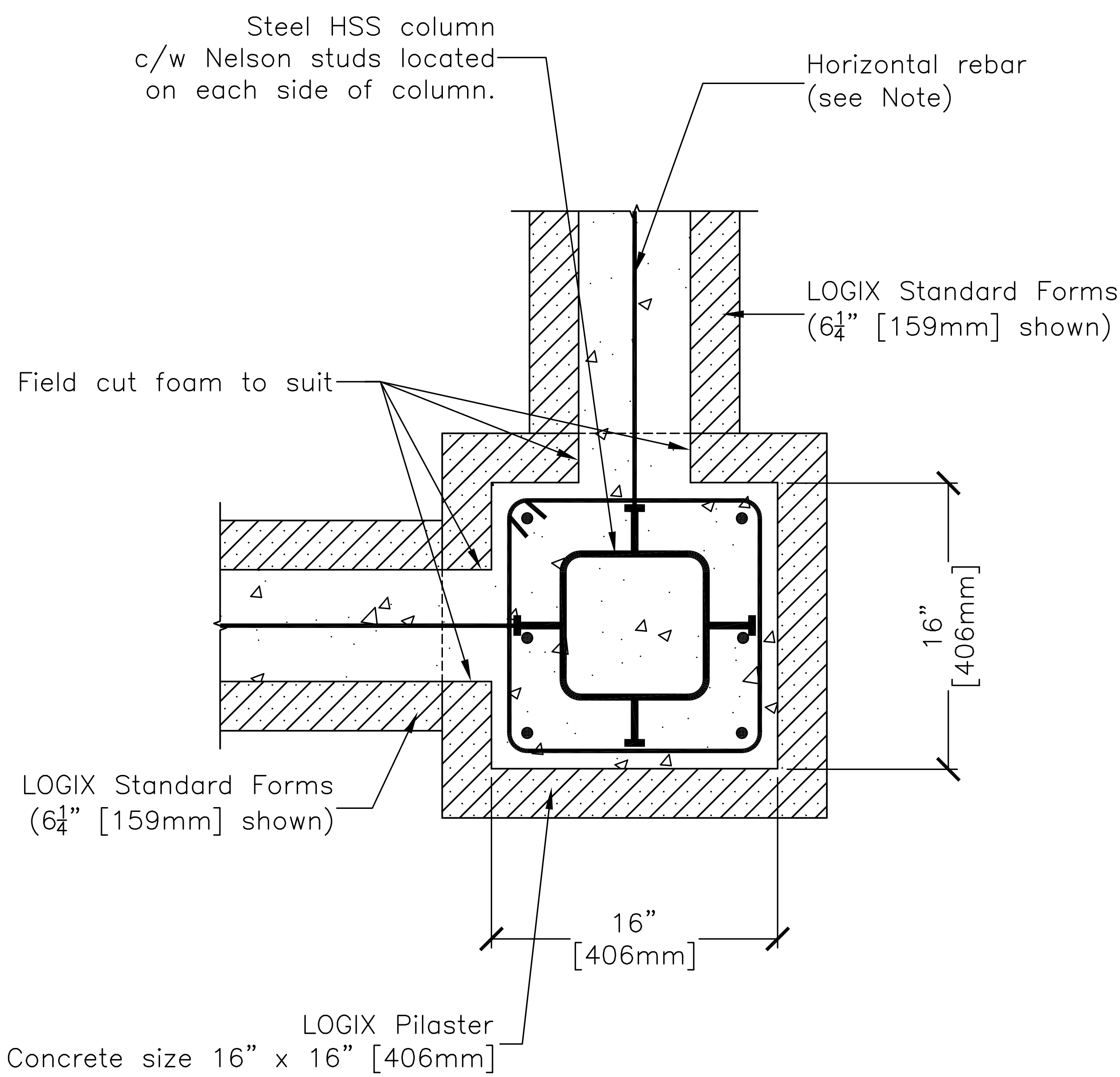
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.7.3 – LOGIX PILASTER AT CORNER WITH STRUCTURAL STEEL COLUMN

All drawings are downloadable at www.logixicf.com

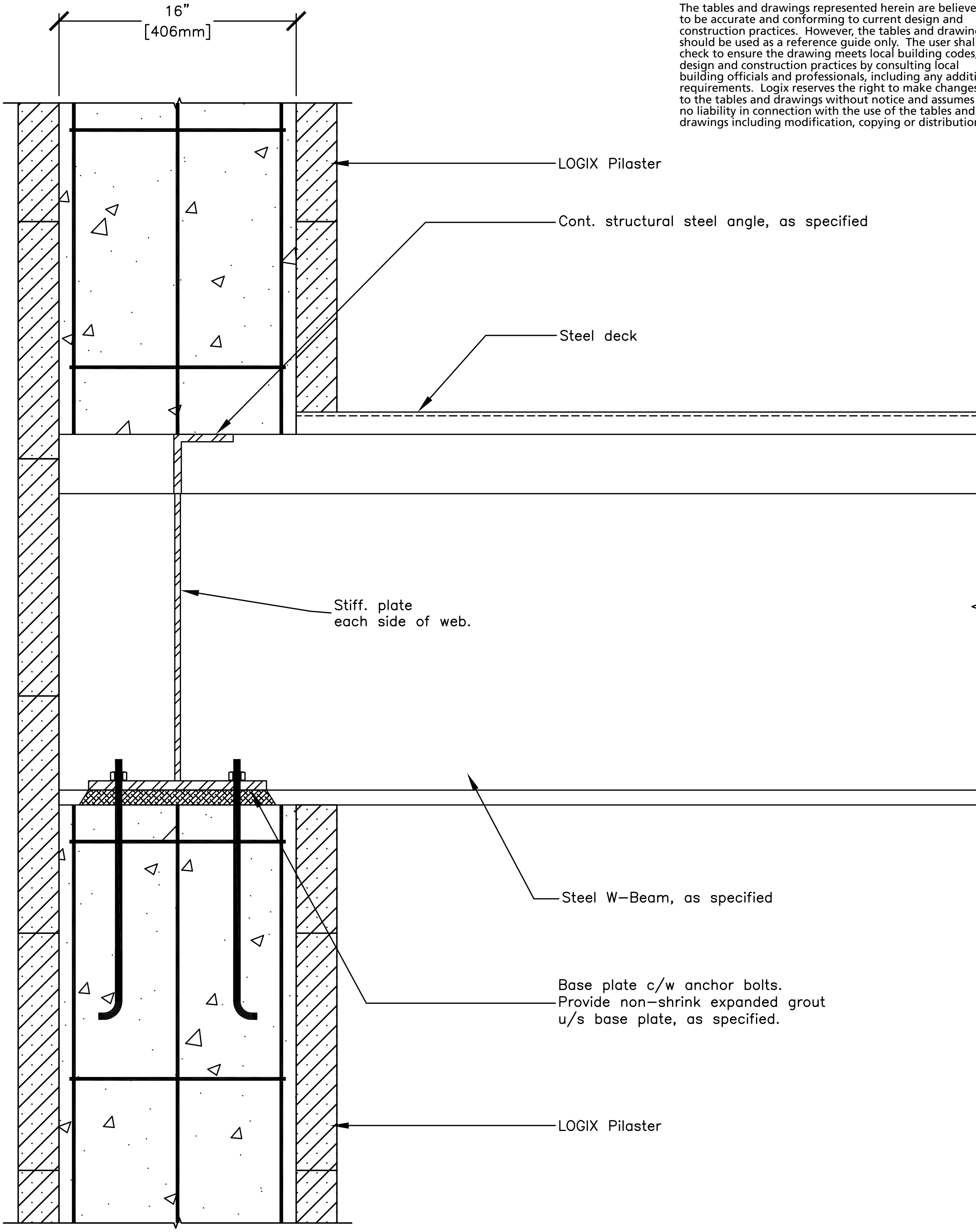
NOTES:

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



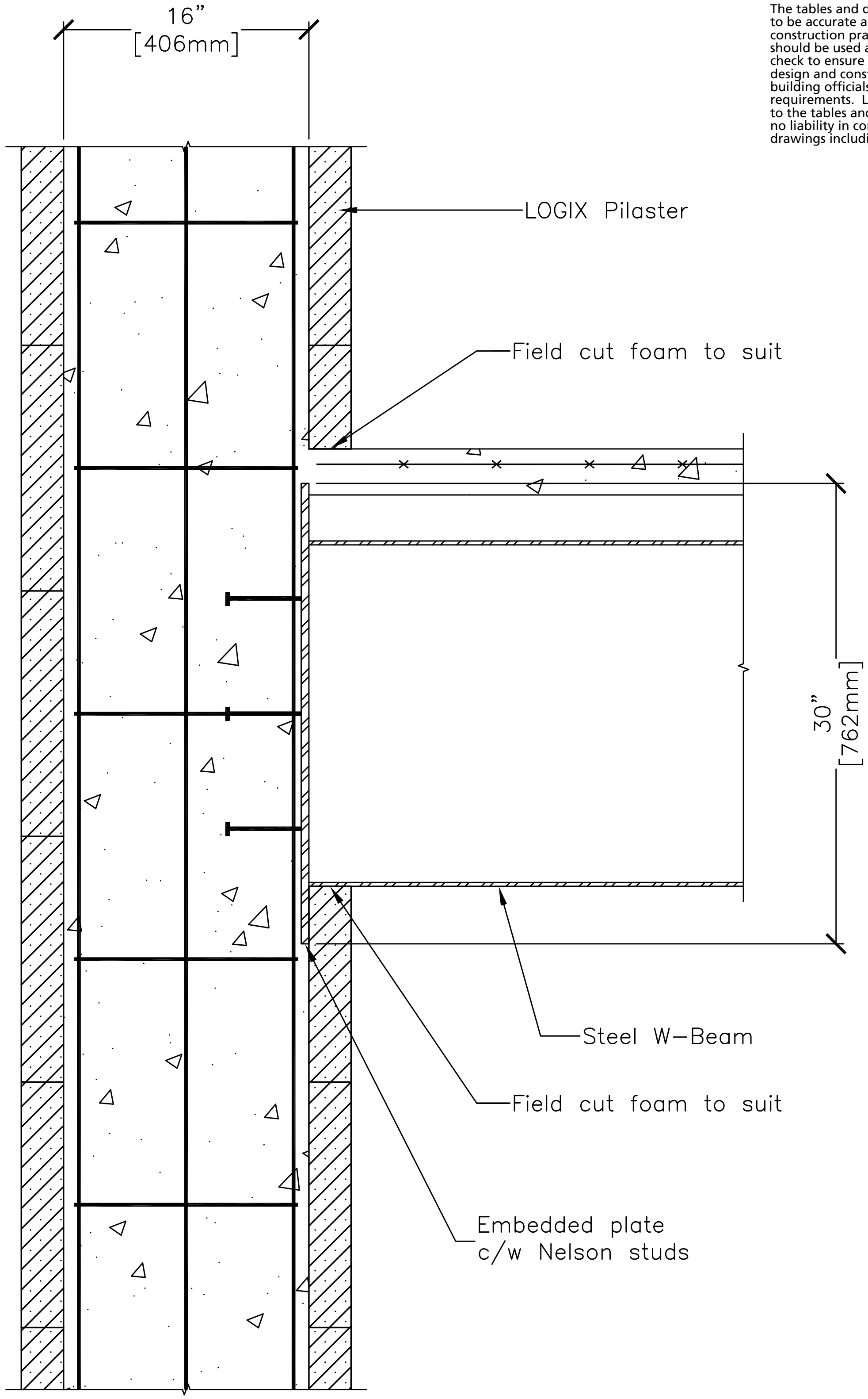
5.7.4 – STRUCTURAL BEAM WITH BASE PLATE

All drawings are downloadable at www.logixicf.com



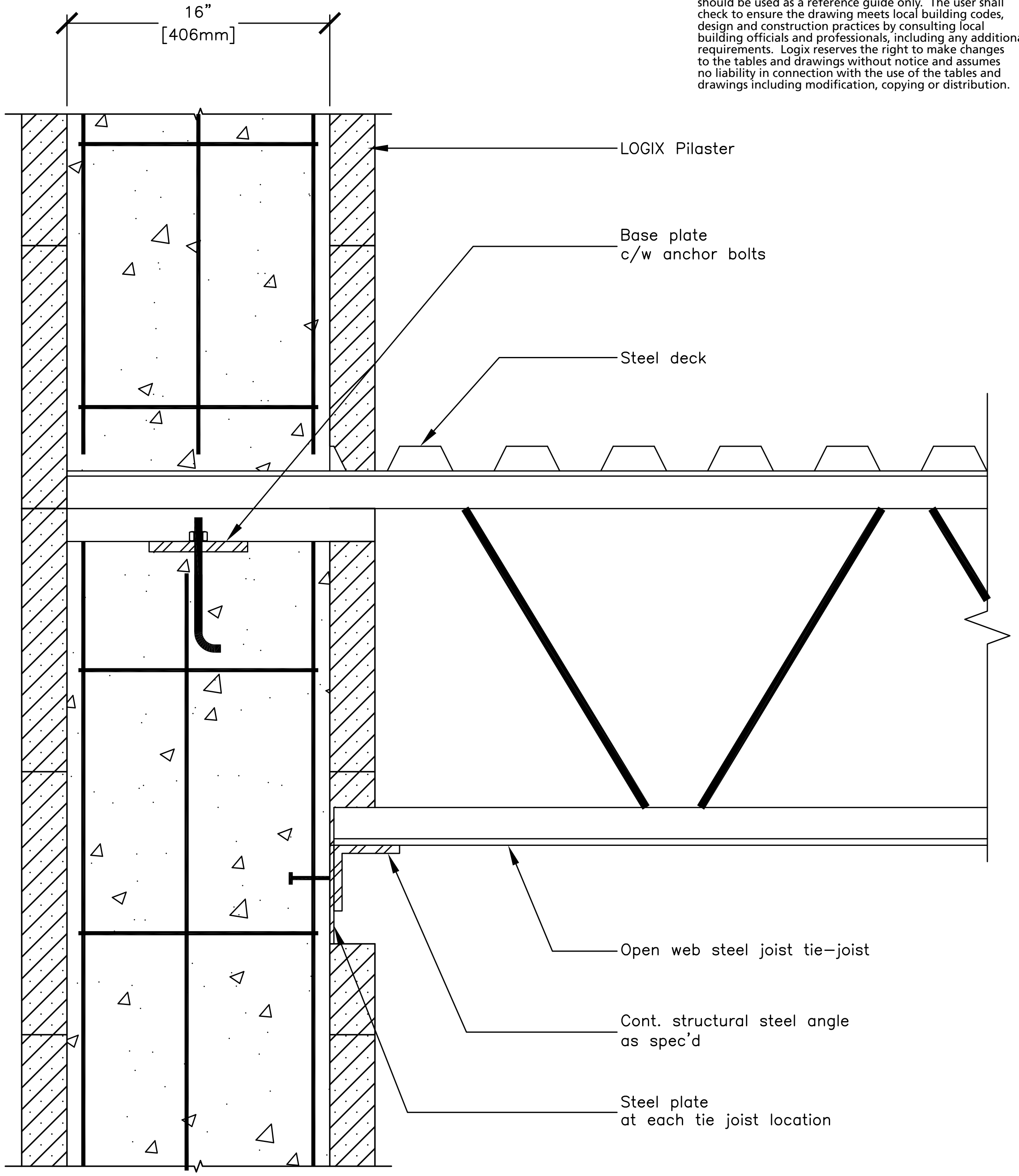
5.7.5 – STRUCTURAL BEAM WITH STUDS

All drawings are downloadable at www.logixicf.com



5.7.6 – STEEL DECK ON OPEN WEB JOIST

All drawings are downloadable at www.logixicf.com

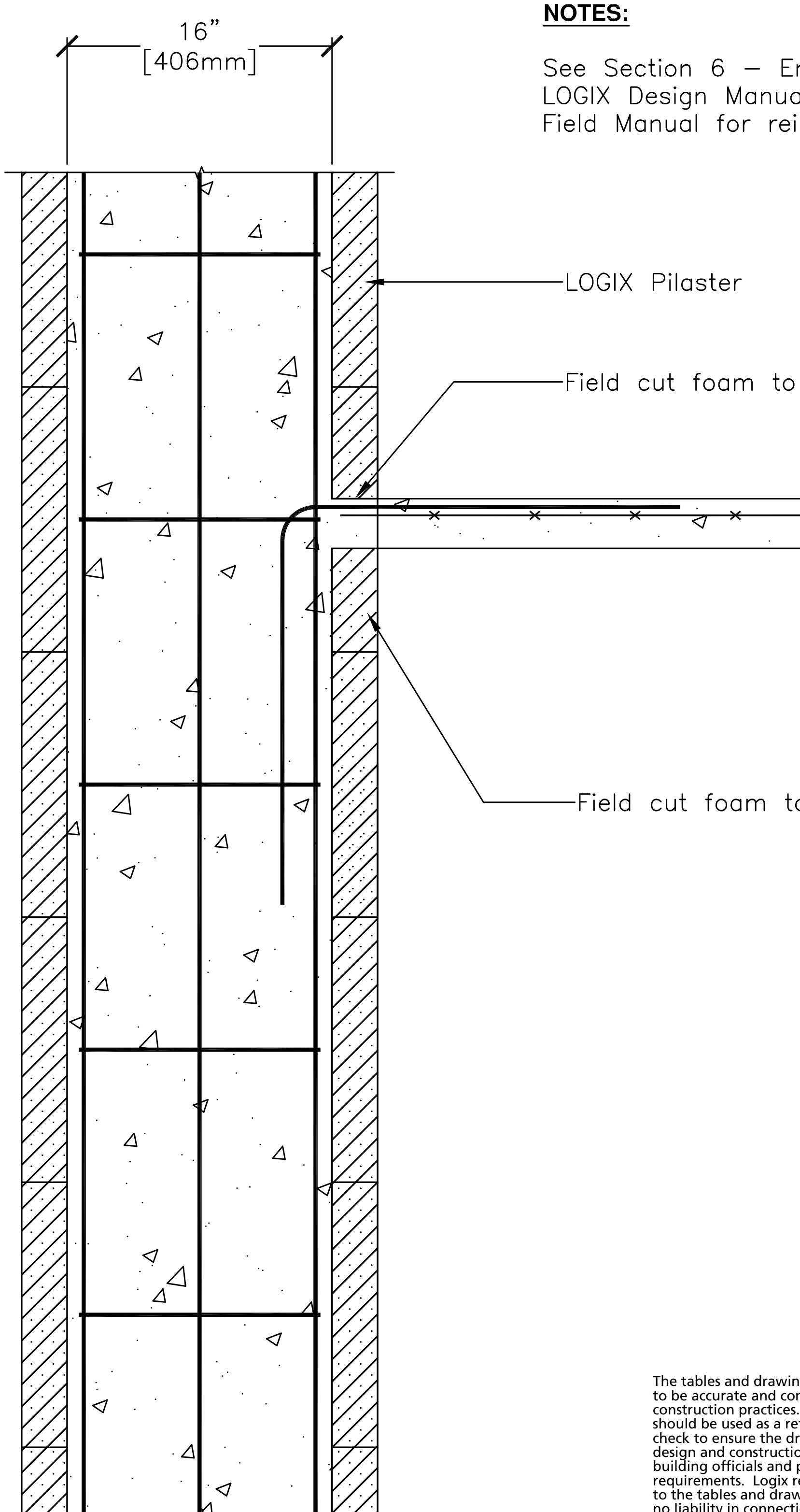


5.7.7 – INTEGRAL SLAB

All drawings are downloadable at www.logixicf.com

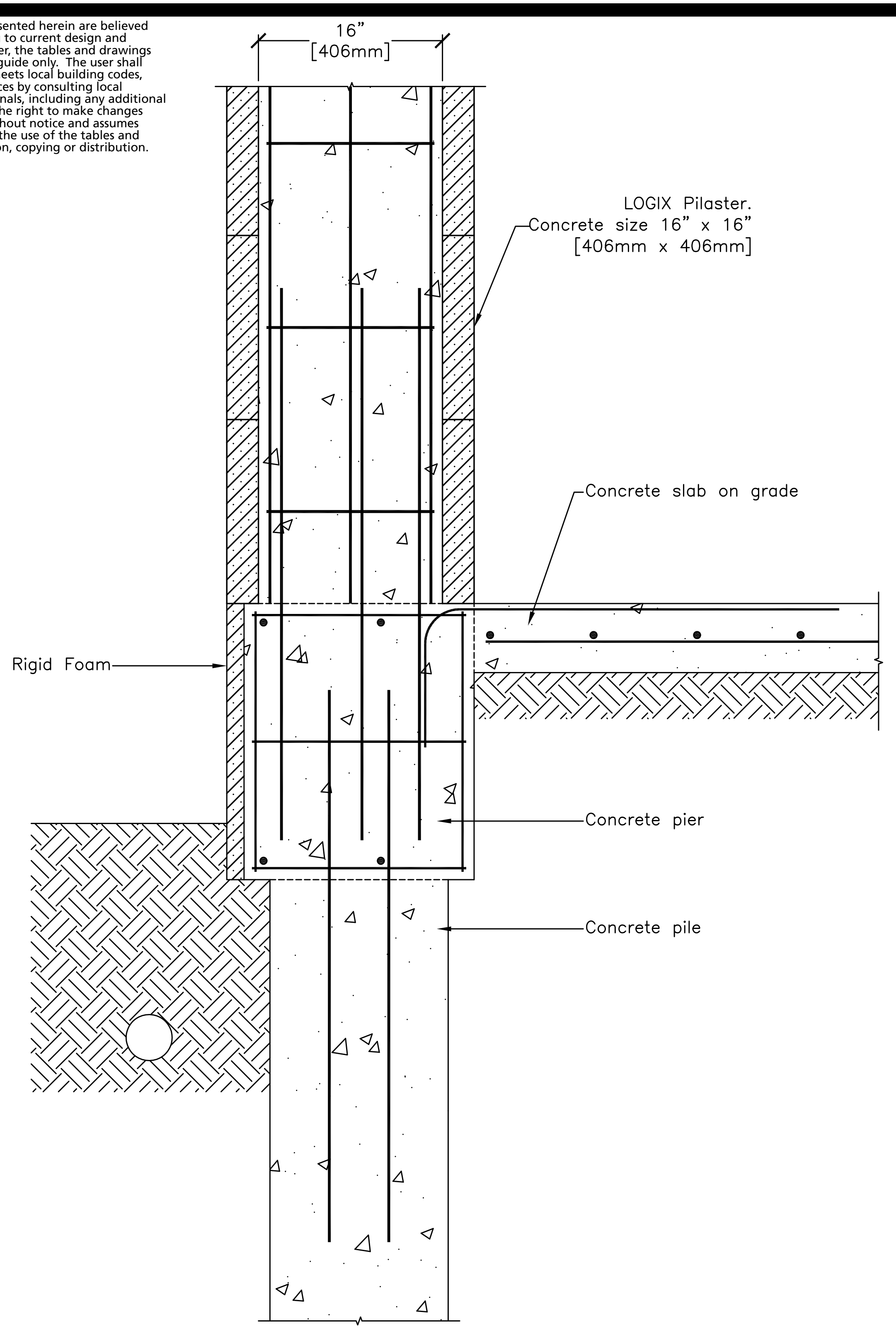
NOTES:

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



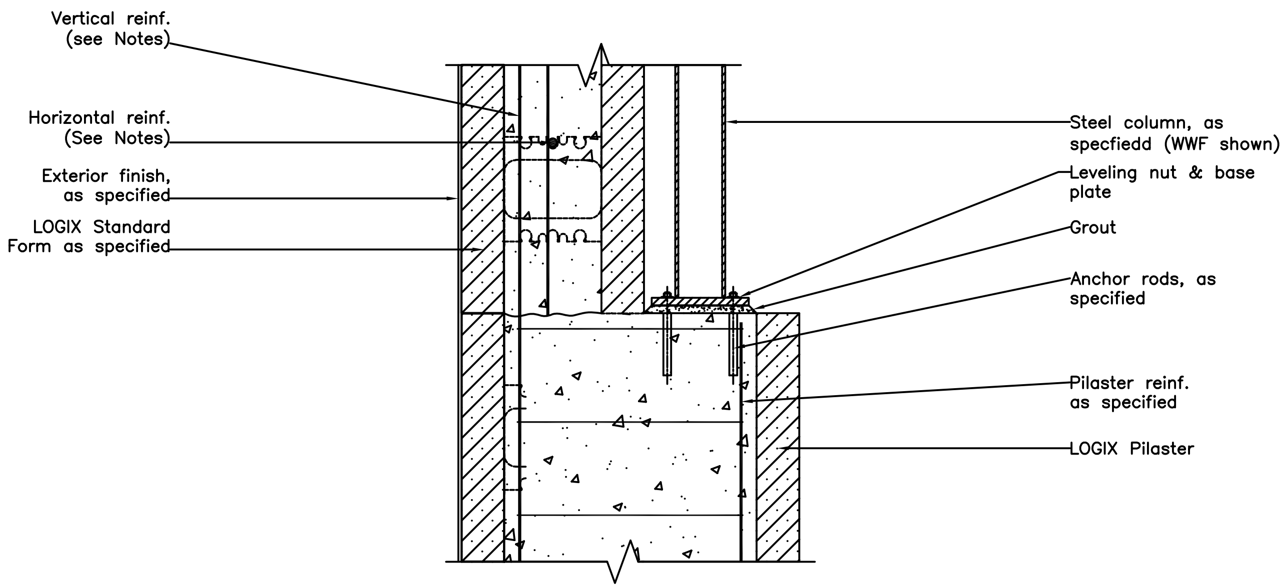
5.7.8 – LOGIX PILASTER ON CONCRETE PIER

All drawings are downloadable at www.logixicf.com

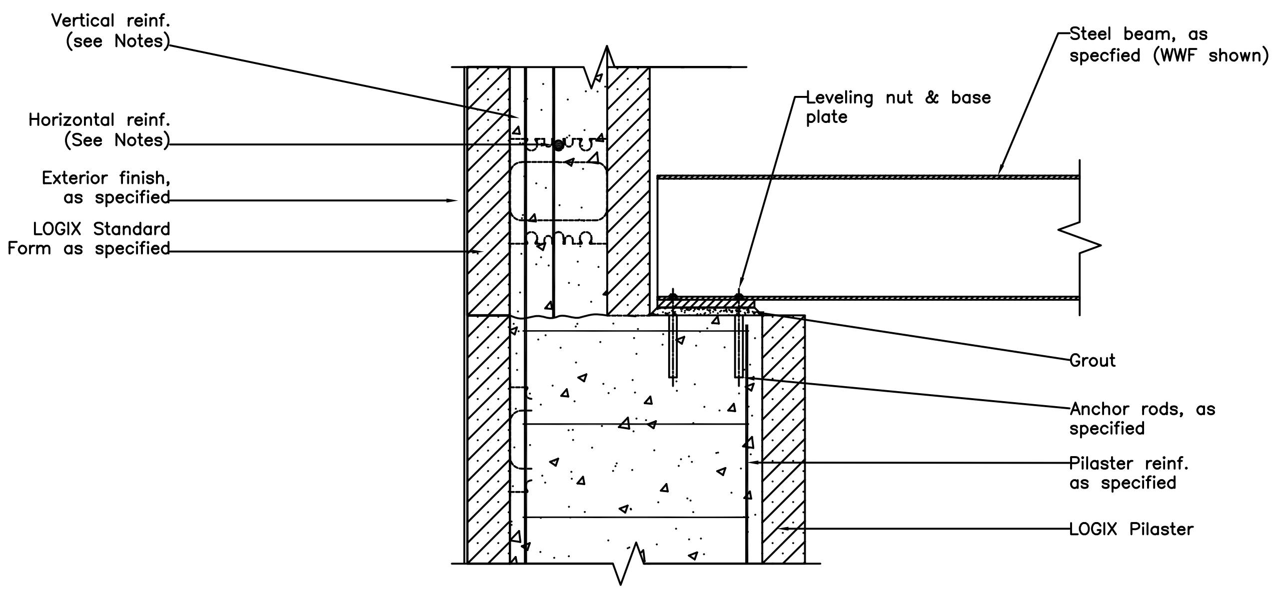


5.7.9 – LOGIX PILASTER SUPPORTING STEEL BEAM & COLUMN

All drawings are downloadable at www.logixicf.com



Logix Pilaster Supporting Steel Column



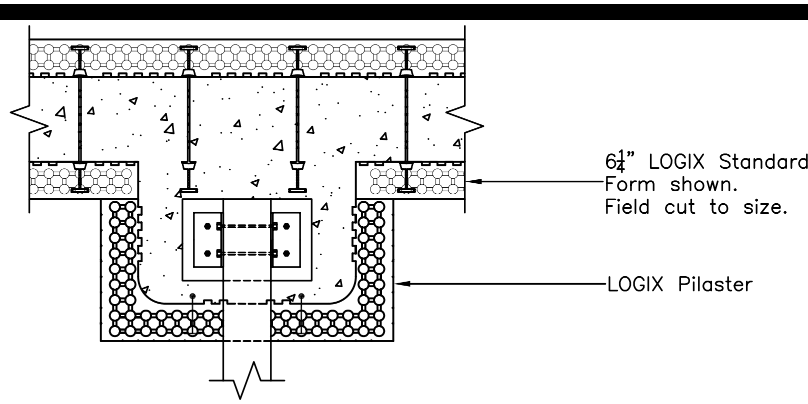
Logix Pilaster Supporting Steel Beam

NOTES:

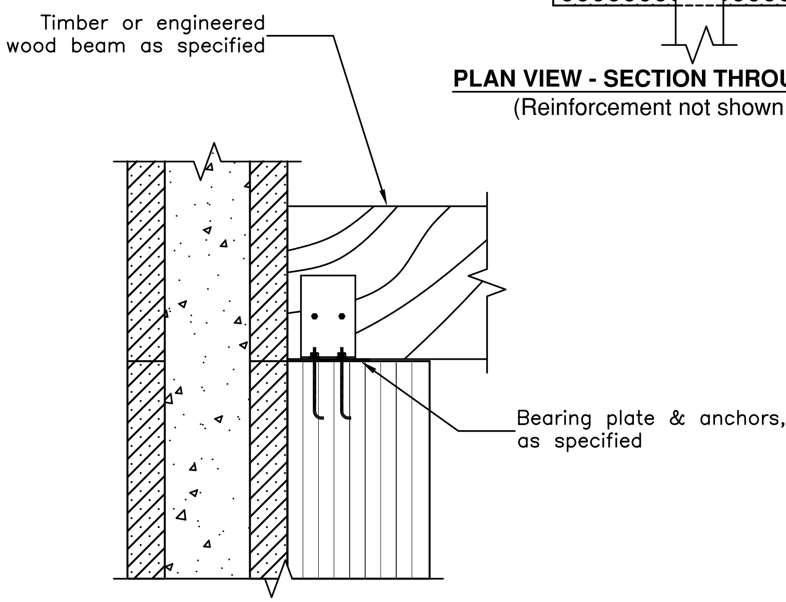
For reinforcement details in walls, see Section 6 — Engineering in the LOGIX Product Manual.

5.7.10 – WOOD BEAM ON LOGIX PILASTER

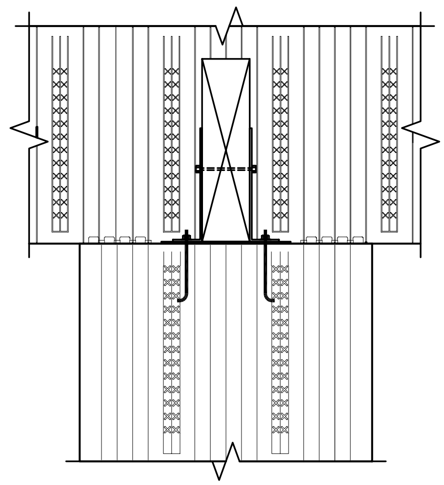
All drawings are downloadable at www.logixicf.com



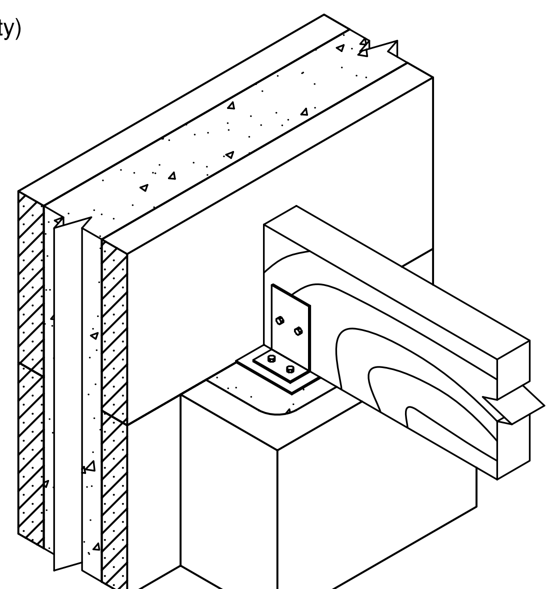
PLAN VIEW - SECTION THROUGH PILASTER
(Reinforcement not shown for clarity)



SIDE ELEVATION
(Reinforcement not shown for clarity)



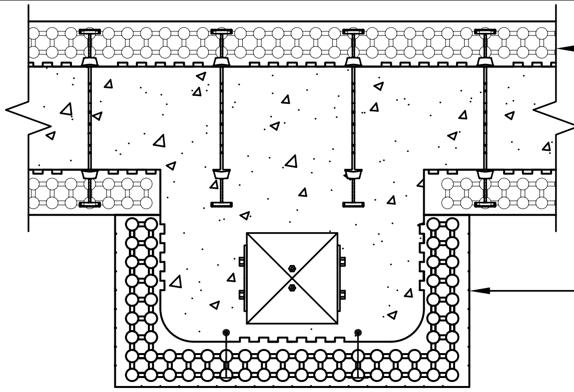
FRONT VIEW



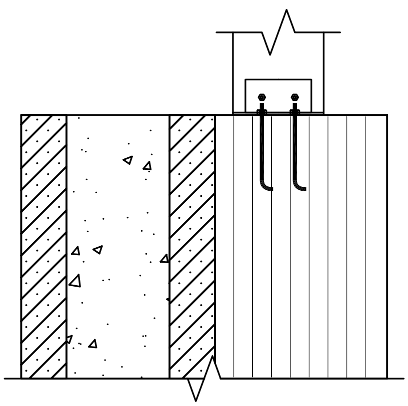
The tables and drawings represented herein are believed to be accurate and conforming to current design and construction practices. However, the tables and drawings should be used as a reference guide only. The user shall check to ensure the drawing meets local building codes, design and construction 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.

5.7.11 – WOOD COLUMN ON LOGIX PILASTER

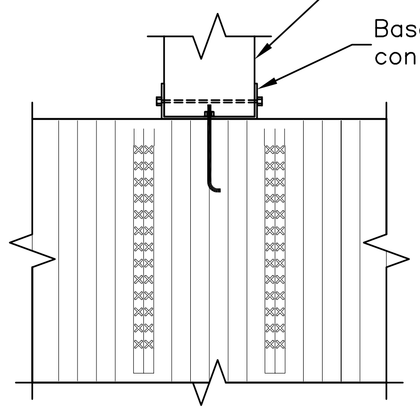
All drawings are downloadable at www.logixicf.com



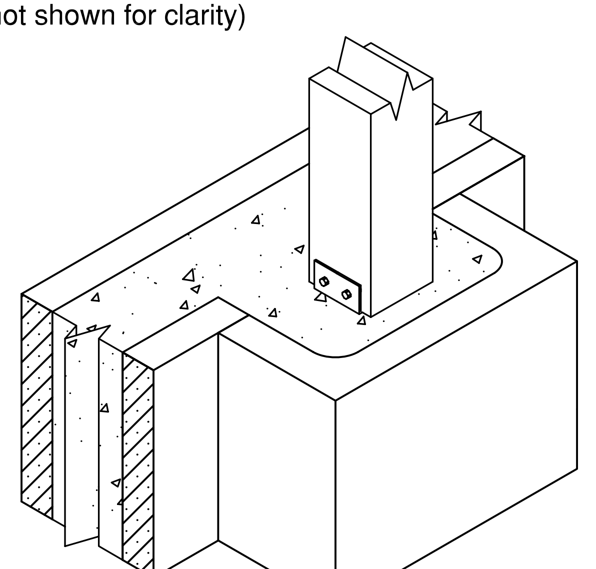
PLAN VIEW
(Reinforcement not shown for clarity)



SIDE VIEW
(Reinforcement not shown for clarity)



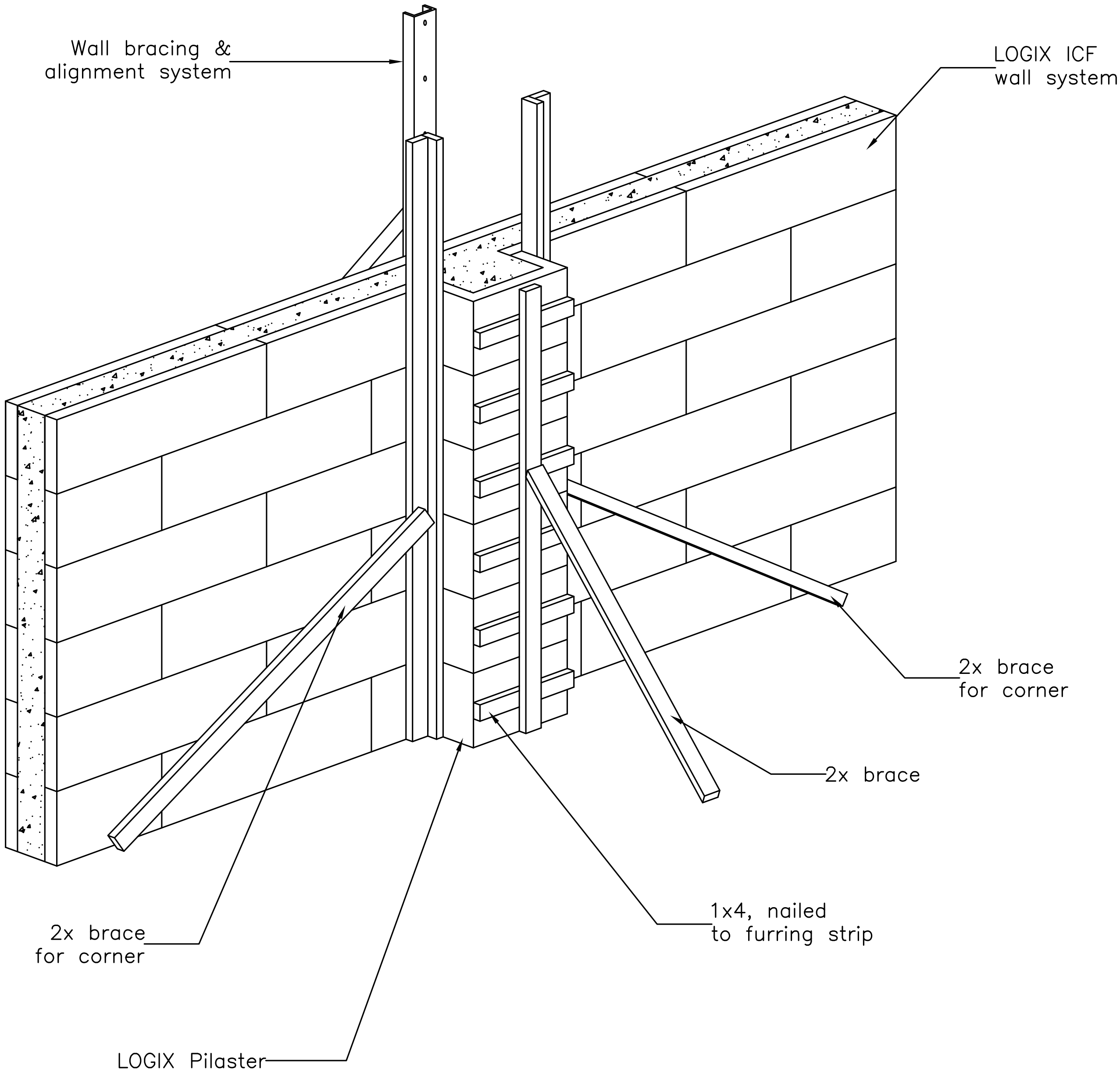
FRONT VIEW



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.

5.7.12 – BRACING - LOGIX PILASTER

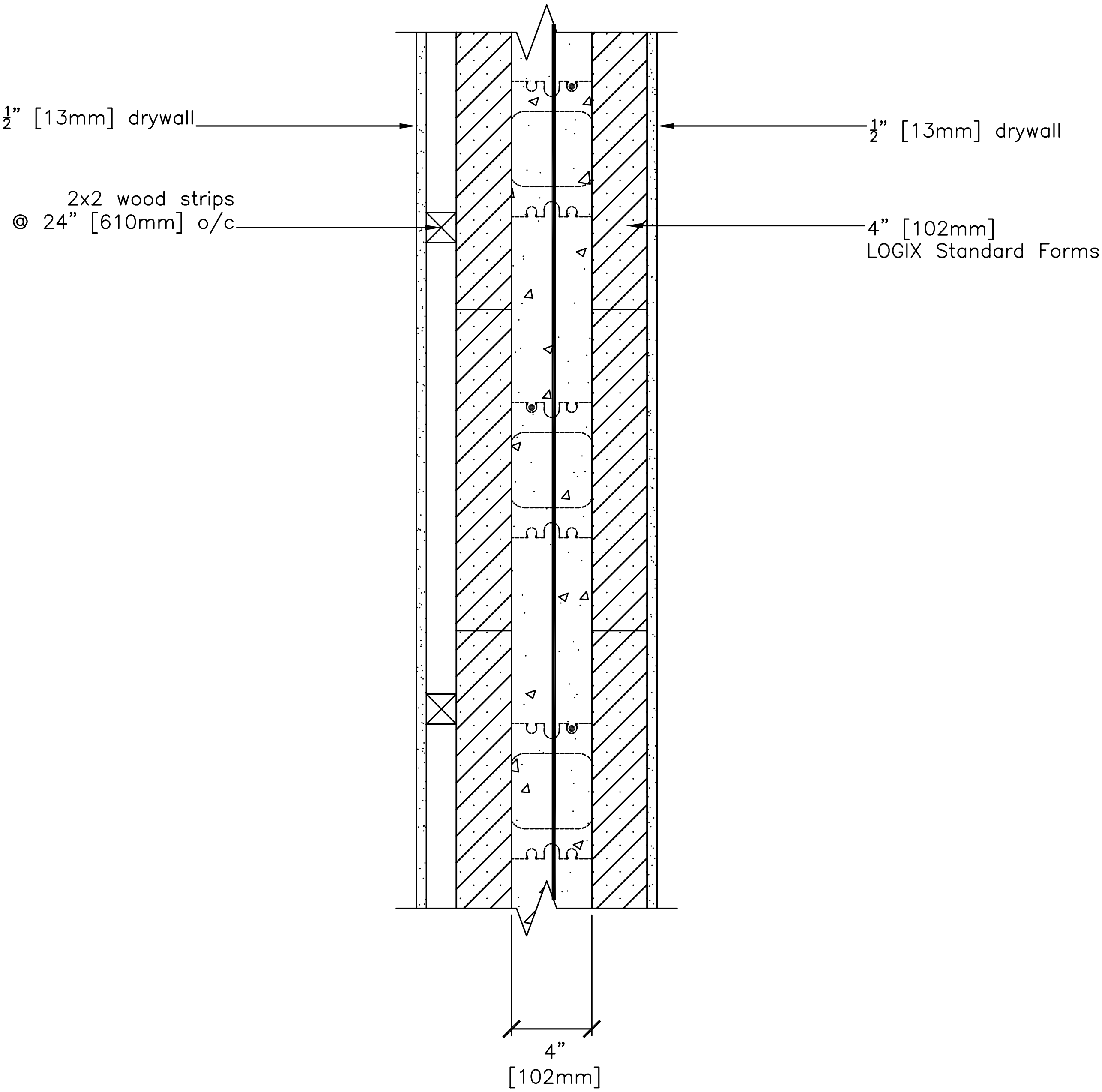
All drawings are downloadable at www.logixicf.com



5.8 – SOUND TRANSMISSION CLASSIFICATION (STC)

5.8.1 – 4" LOGIX WALL LAYOUT (STC 50)

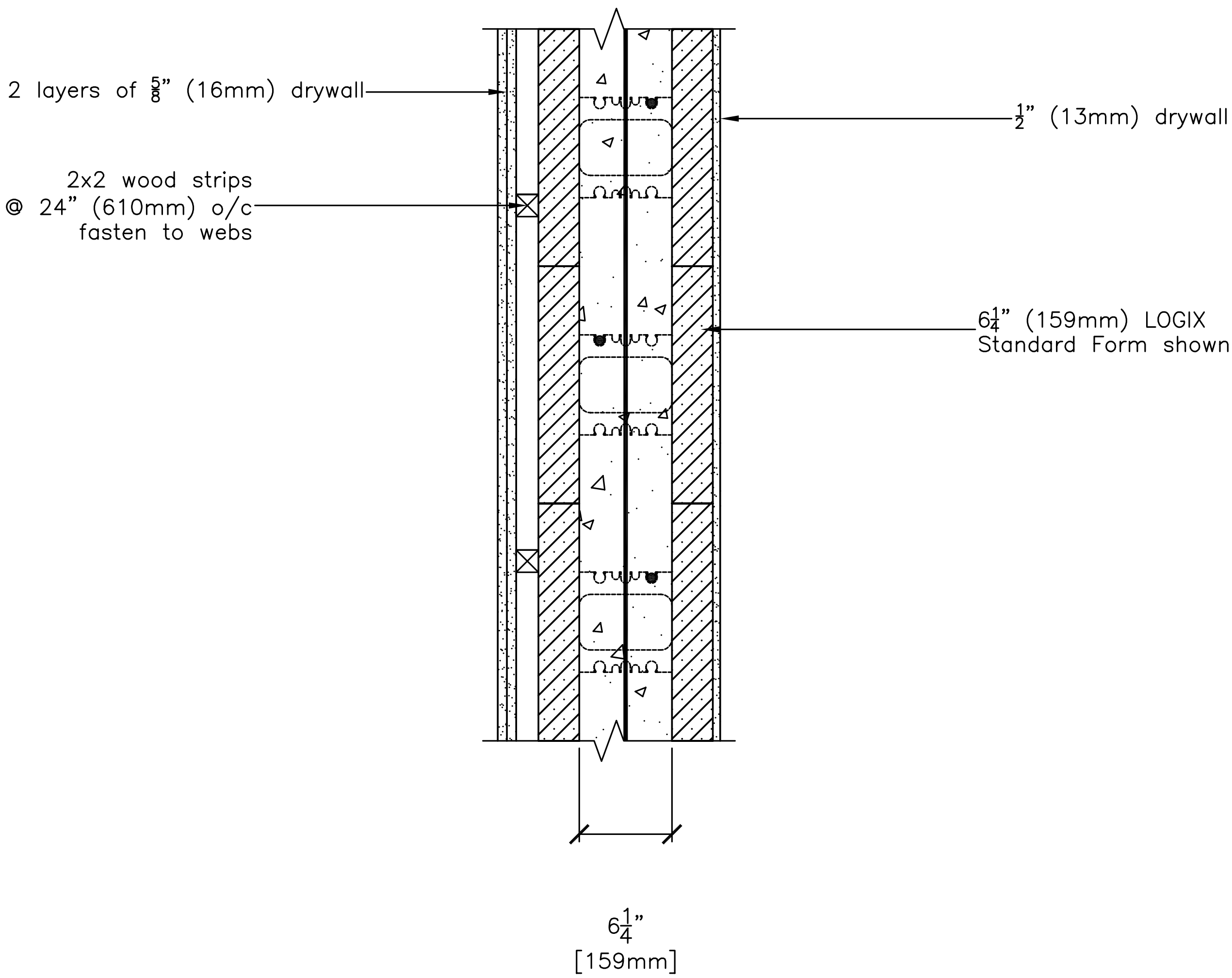
All drawings are downloadable at www.logixicf.com



STC50 - 4" [102mm] LOGIX WALL

5.8.2 – 6.25" LOGIX WALL LAYOUT (STC 56)

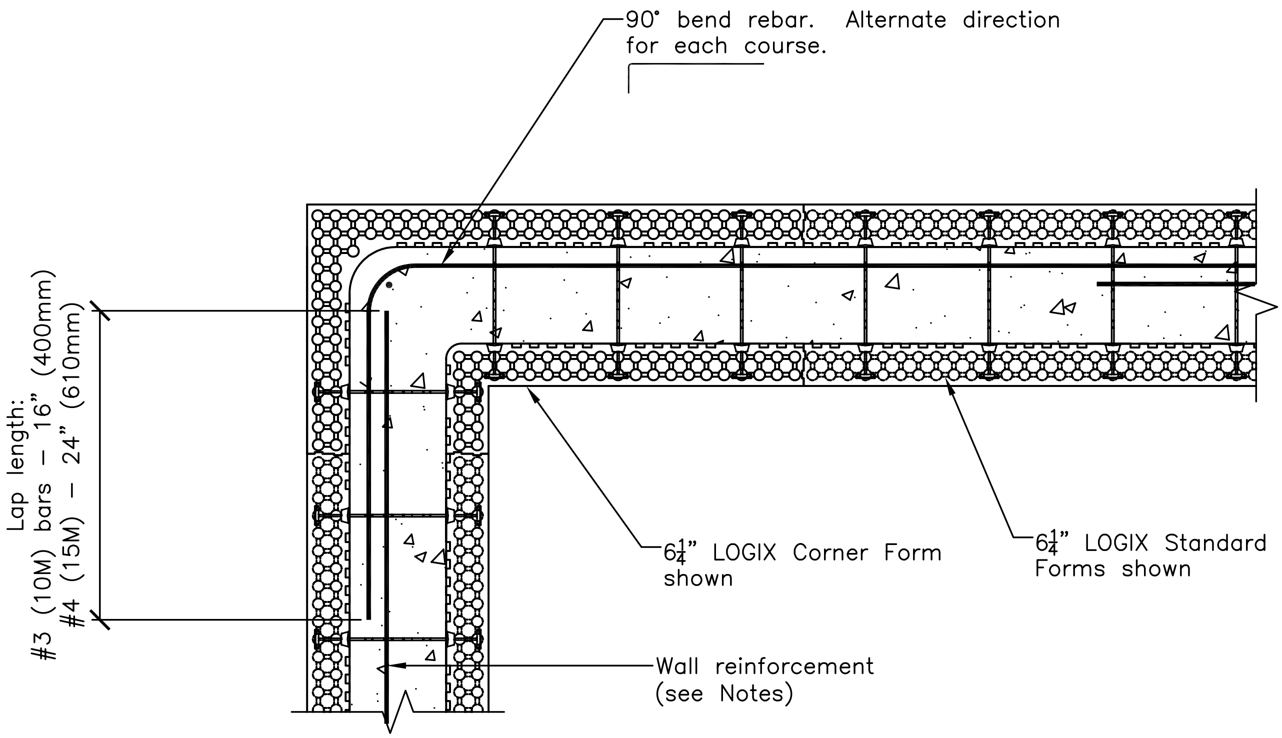
All drawings are downloadable at www.logixicf.com



STC56 - 6.25" [159mm] LOGIX WALL

5.9 – SPECIAL DETAILS
5.9.1 – REINFORCING - CORNER WALL

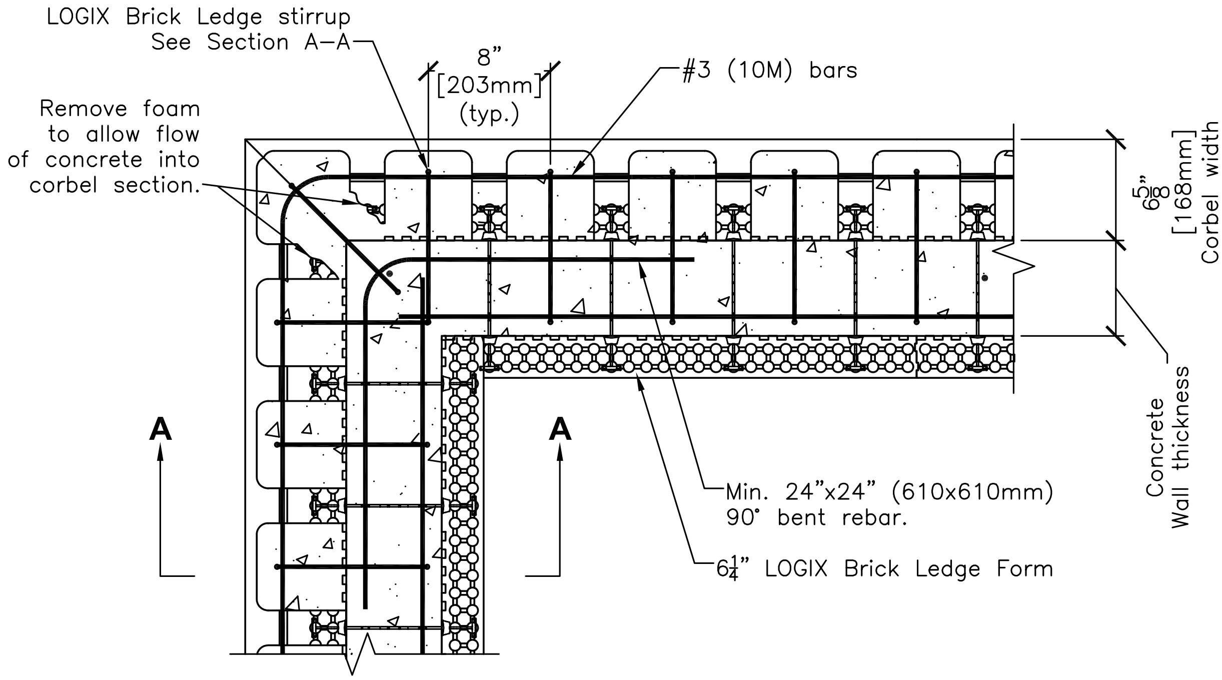
All drawings are downloadable at www.logixicf.com



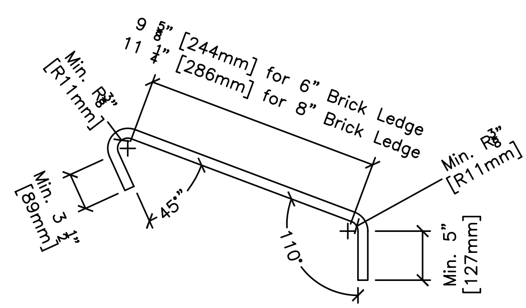
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.9.2 – REINFORCING - CORNER WITH BRICK LEDGE FORMS

All drawings are downloadable at www.logixicf.com



SECTION A-A



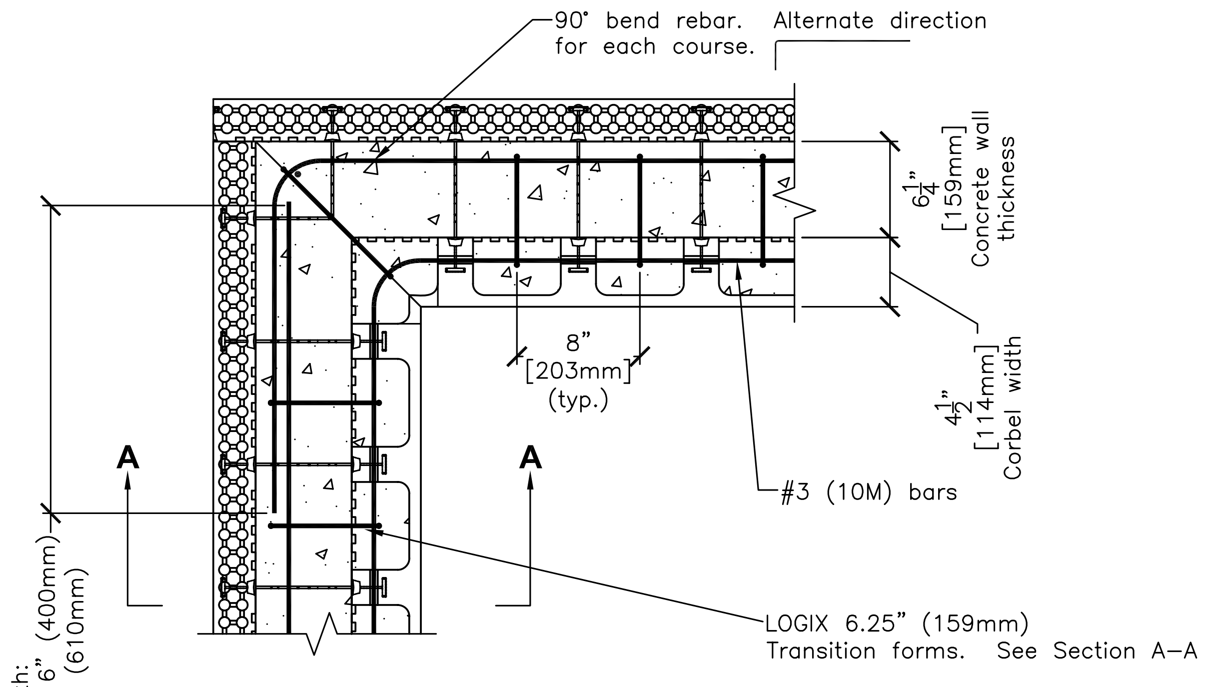
STIRRUP DETAIL
(See Note 2)

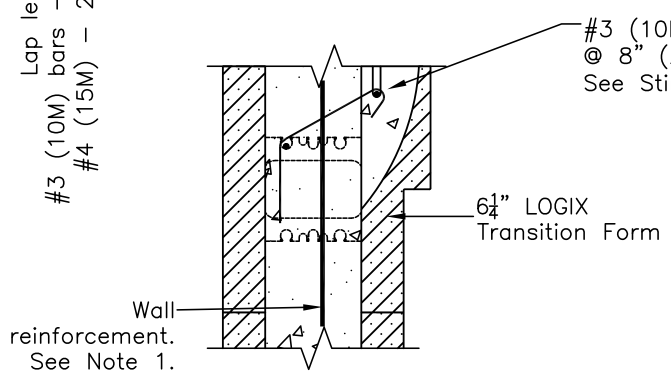
NOTES:

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.

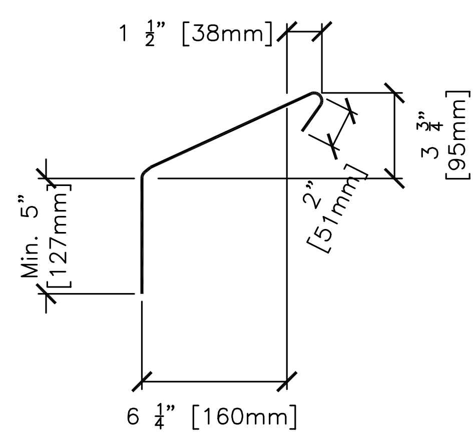
5.9.3 – REINFORCING - CORNER WITH 6.25" TRANSITION FORMS

All drawings are downloadable at www.logixicf.com





SECTION A-A



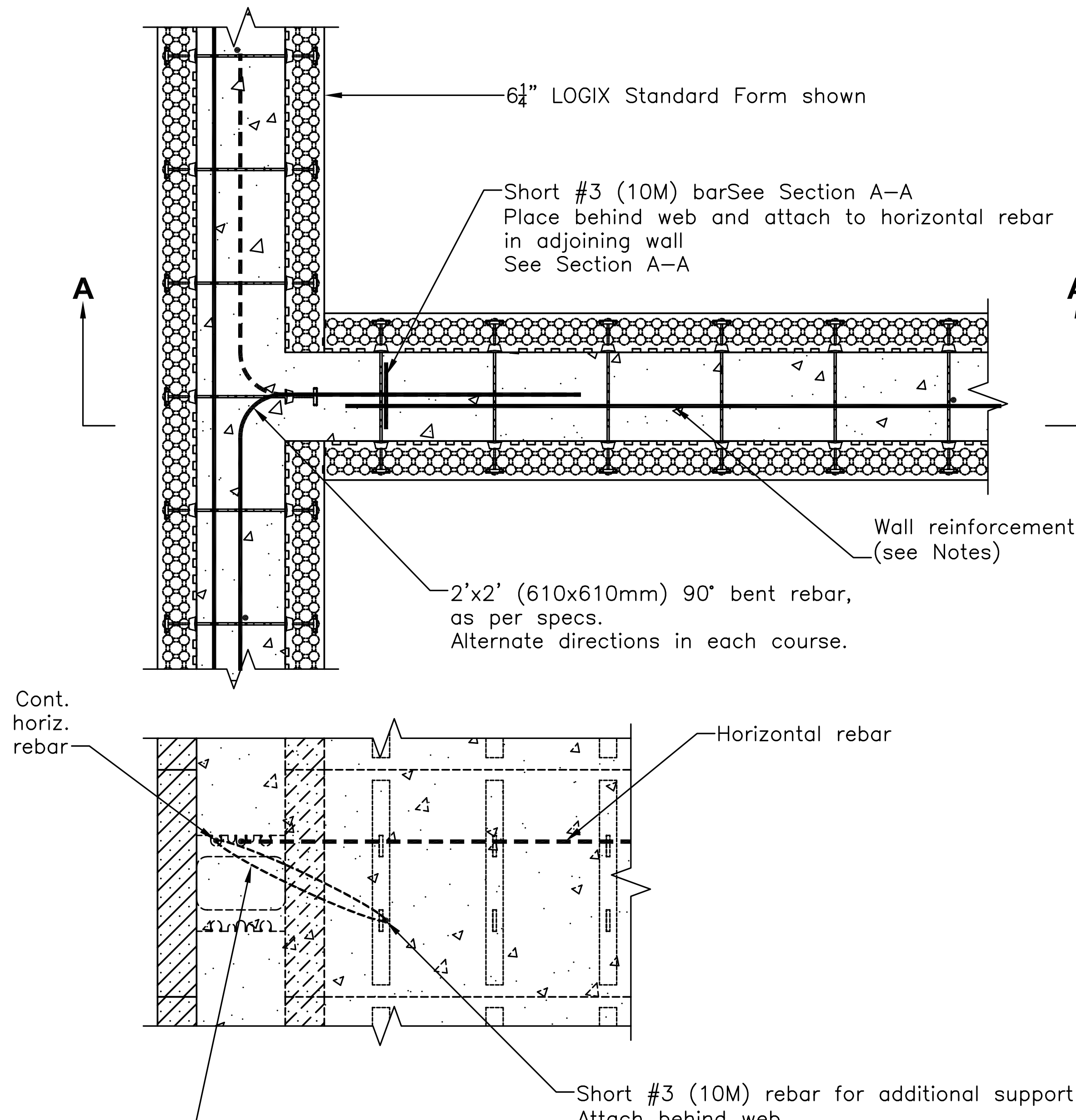
STIRRUP DETAIL
(See Note 2)

NOTES:

1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Stirrup shown is rated for 1300lbs/ft (19kN/m). Maximum load capacity w/o stirrups – 900lbs/ft (13kN/m).

5.9.4 – REINFORCING - TEE-WALL

All drawings are downloadable at www.logixicf.com

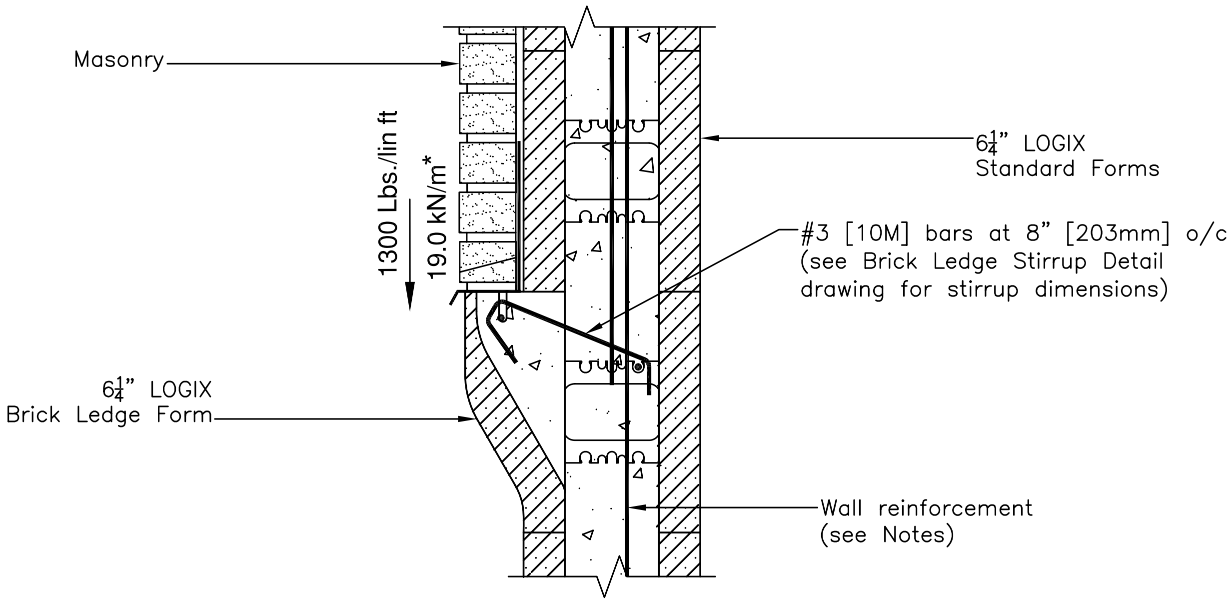


SECTION A-A

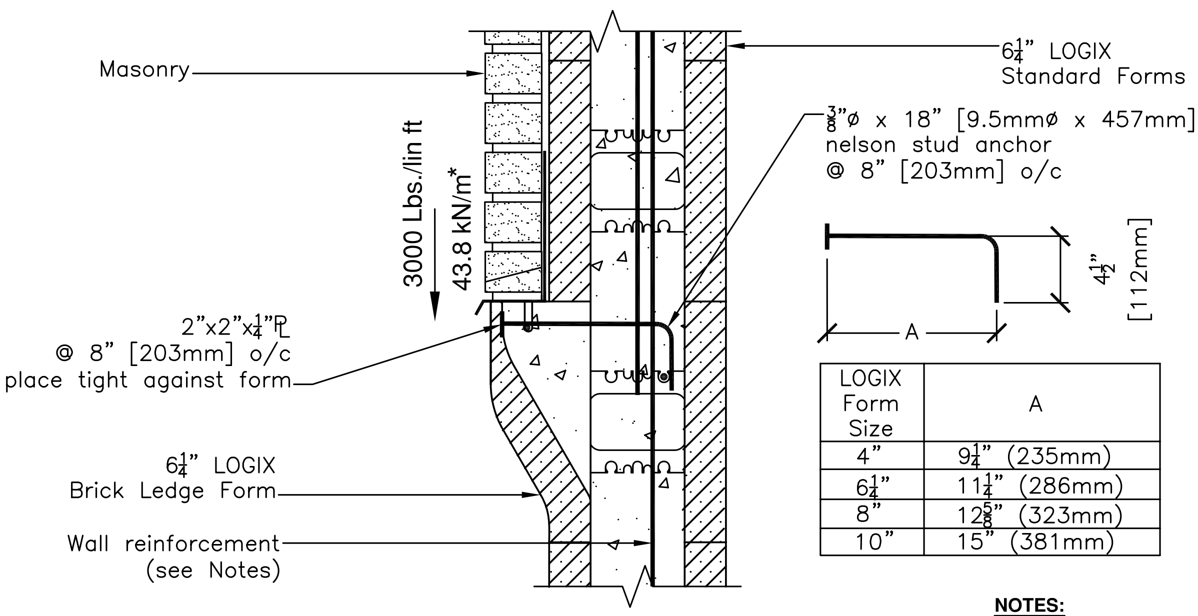
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.9.5 / 5.9.6 – BRICK LEDGE STANDARD REINFORCEMENT / BRICK LEDGE HEAVY REINFORCEMENT

All drawings are downloadable at www.logixicf.com



5.10.5 - BRICK LEDGE STANDARD REINFORCEMENT



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

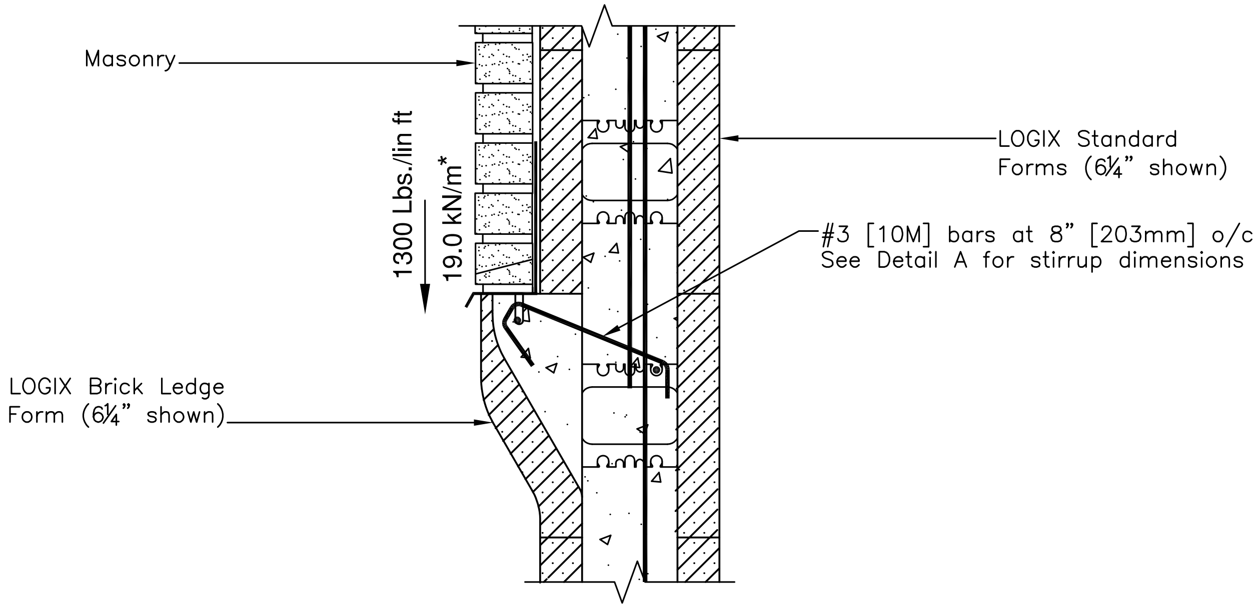
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

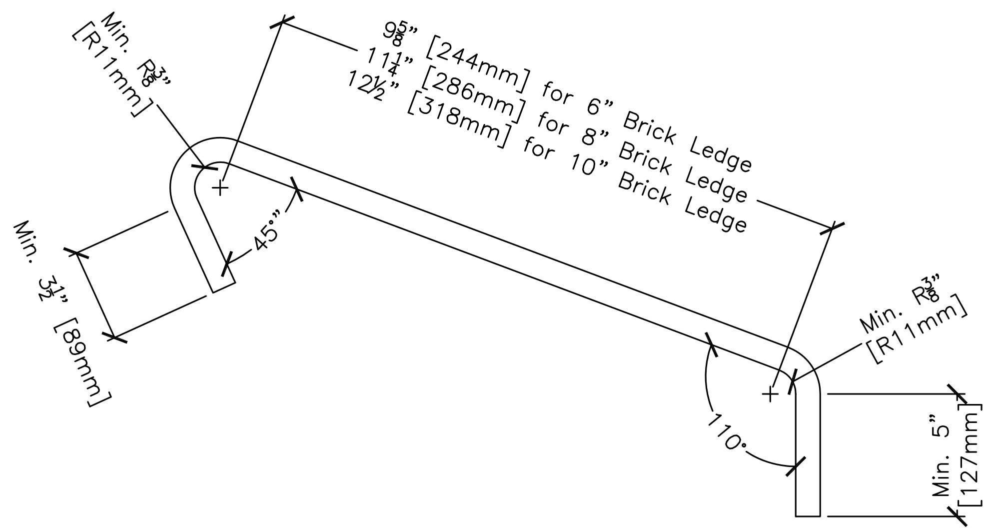
*1kN = 224.8lb

5.9.7 – BRICK LEDGE STIRRUP DETAIL

All drawings are downloadable at www.logixicf.com



BRICK LEDGE STANDARD REINFORCEMENT



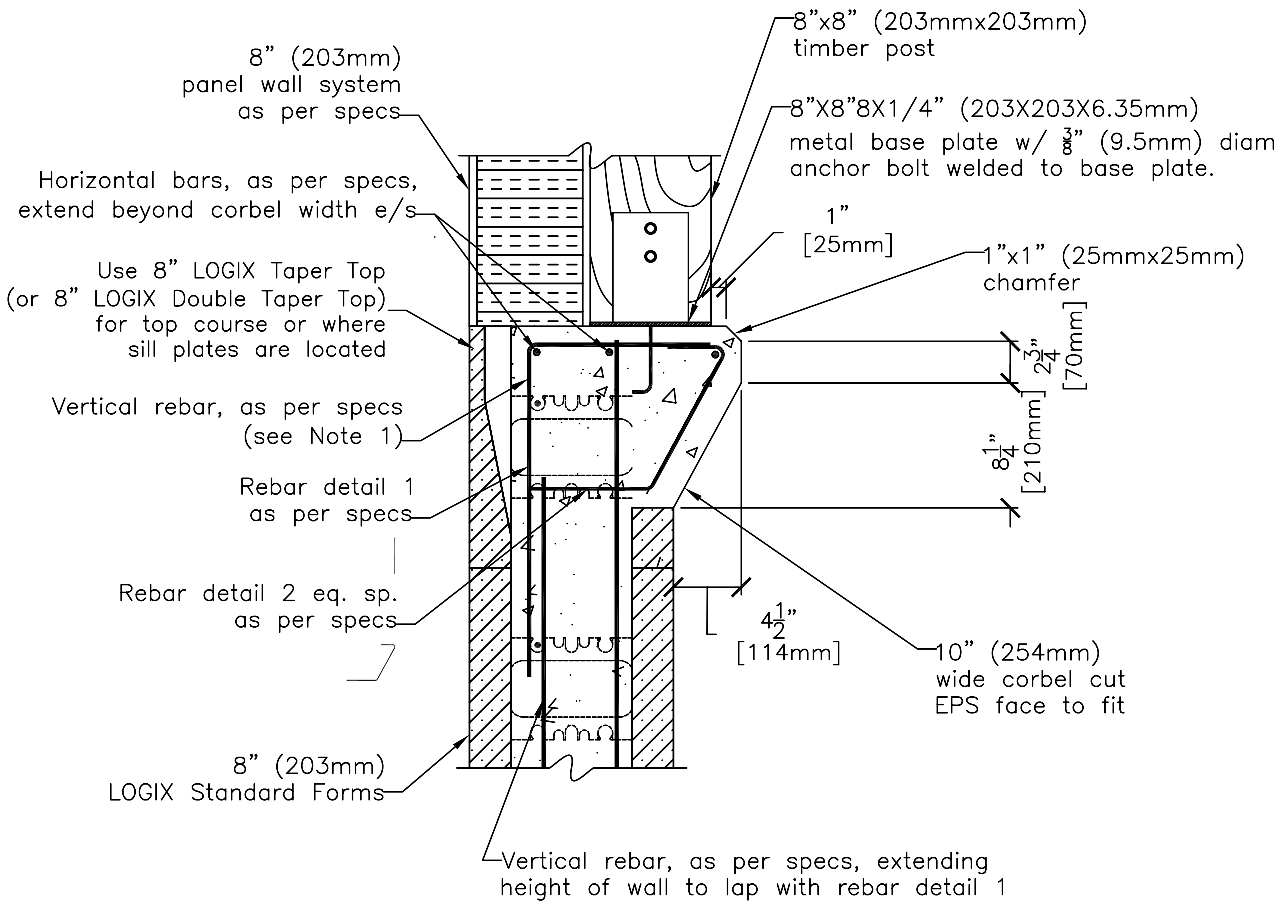
DETAIL A

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

*1kN = 224.8lb

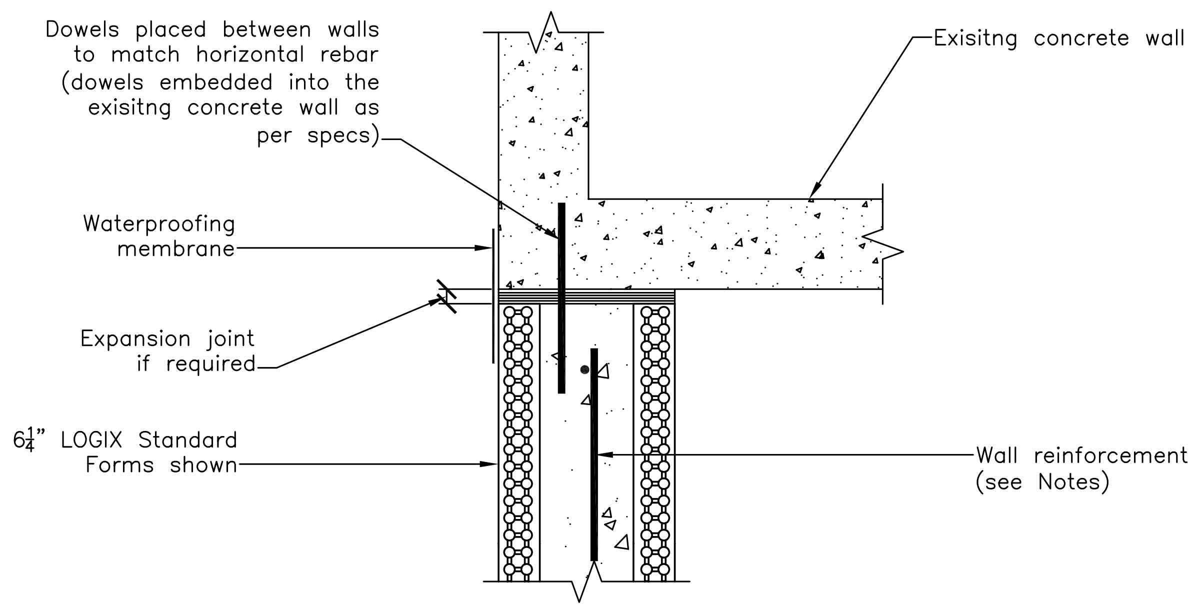
5.9.8 – CORBEL SUPPORTING TIMBER POST

All drawings are downloadable at www.logixicf.com

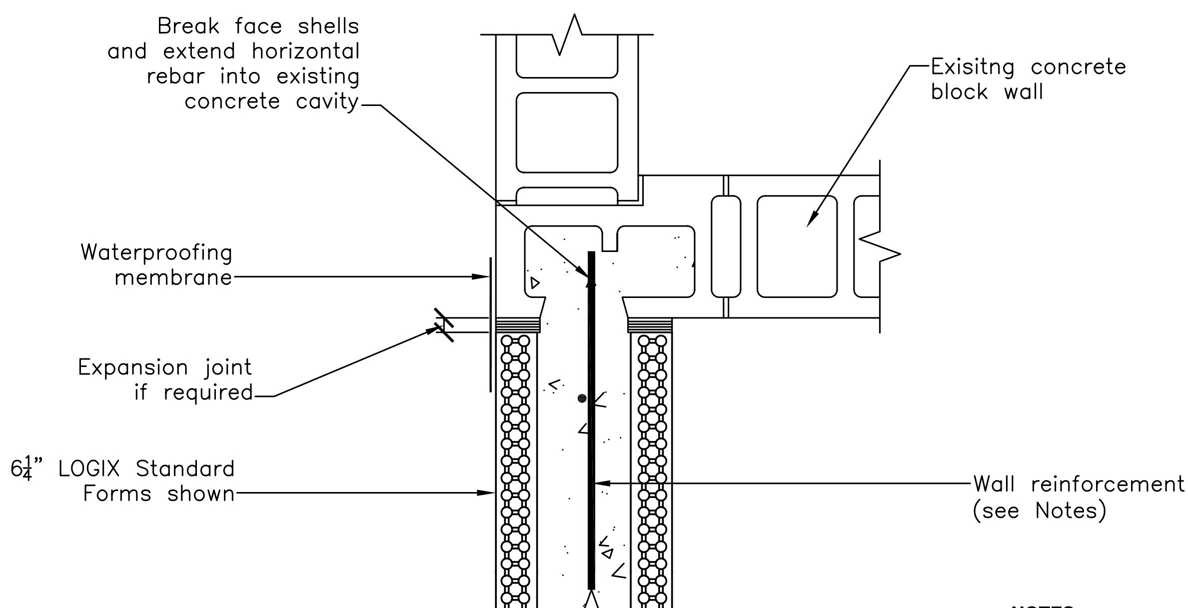


NOTES
1. Install vertical rebar 6" (150) beyond corbel width for full height of wall each face.
2. Reinforcement details should be reviewed by a local licensed professional engineer.

All drawings are downloadable at www.logixicf.com



5.9.1 - LOGIX WALL ATTACHMENT TO EXISTING CONCRETE WALL

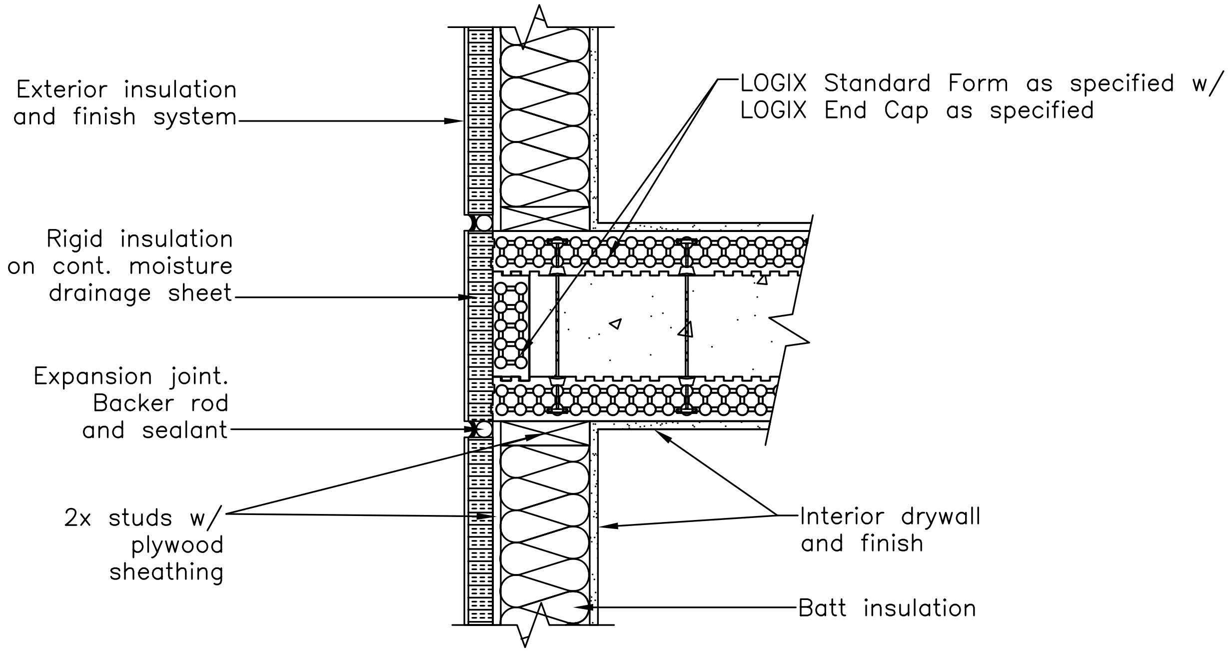


5.9.2 - LOGIX WALL ATTACHMENT TO EXISTING CONCRETE MASONRY WALL

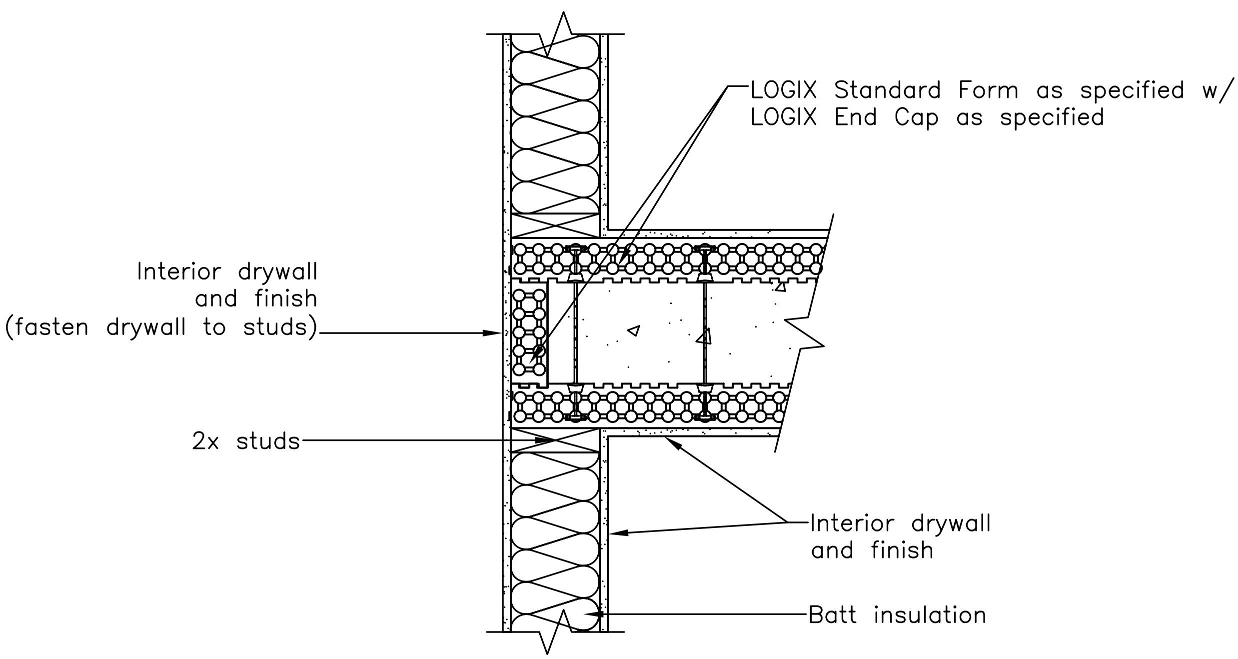
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.9.11 – ATTACHING TO STUD FRAMED WALLS

All drawings are downloadable at www.logixicf.com



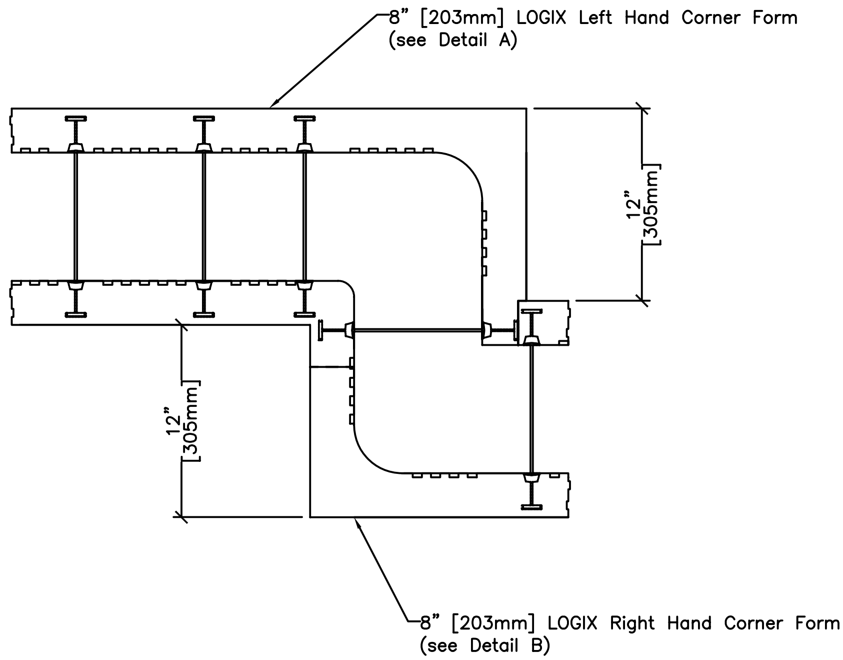
INTERIOR LOGIX WALL TO EXTERIOR STUD FRAMED WALLS



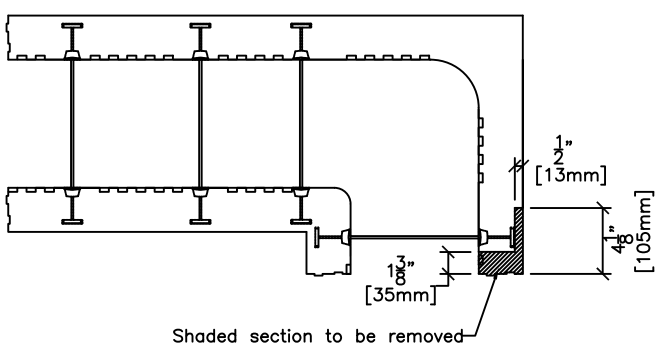
INTERIOR LOGIX WALL TO INTERIOR STUD FRAMED WALLS

5.9.12 – 12" WALL JOGS

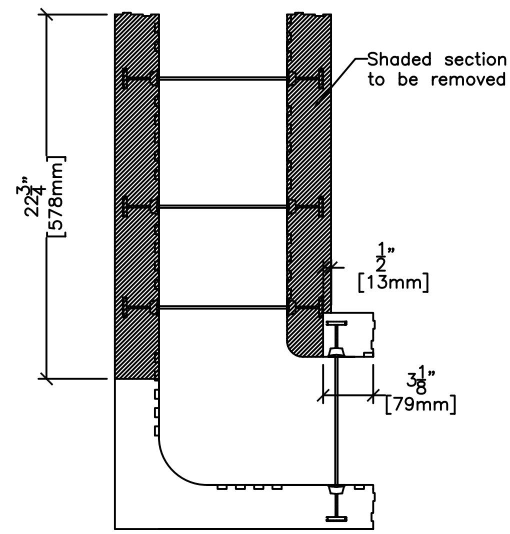
All drawings are downloadable at www.logixicf.com



PLAN VIEW



DETAIL A



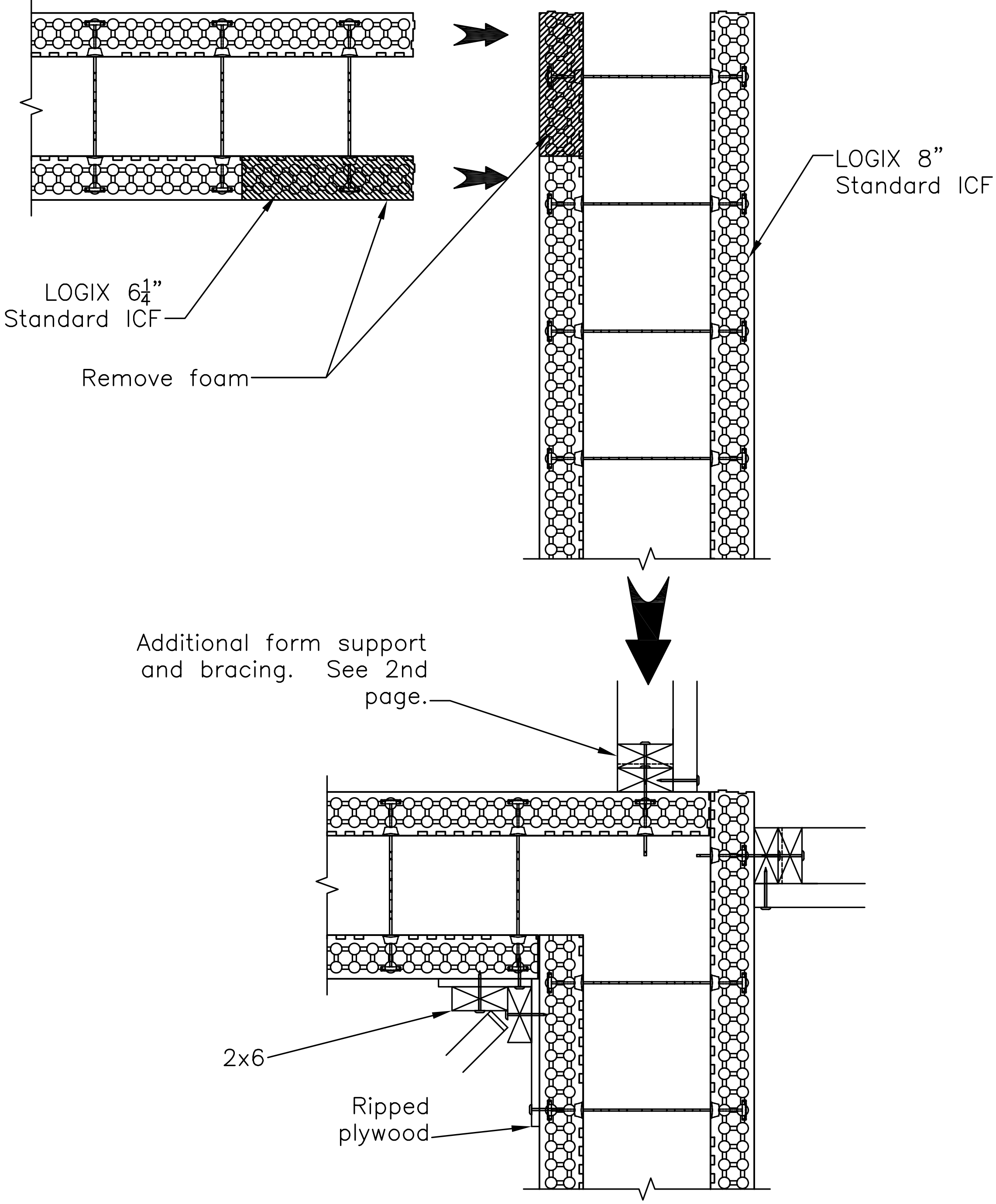
DETAIL B

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.

5.9.13 – HORIZONTAL TRANSITION - 6.25" TO 8" CORNER WALL

All drawings are downloadable at www.logixicf.com



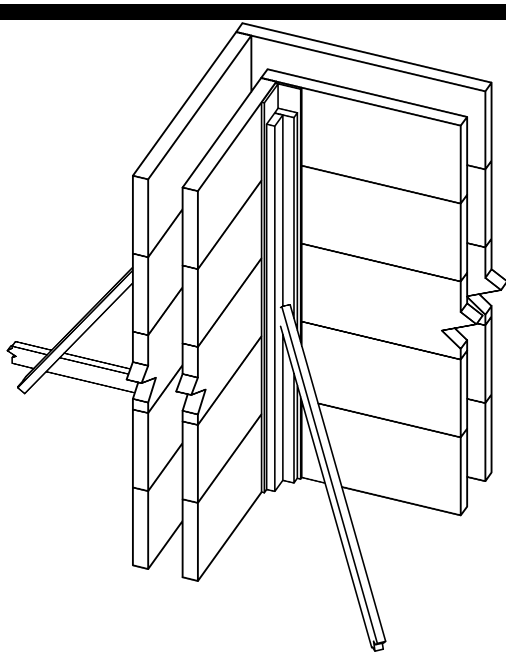
Notes:

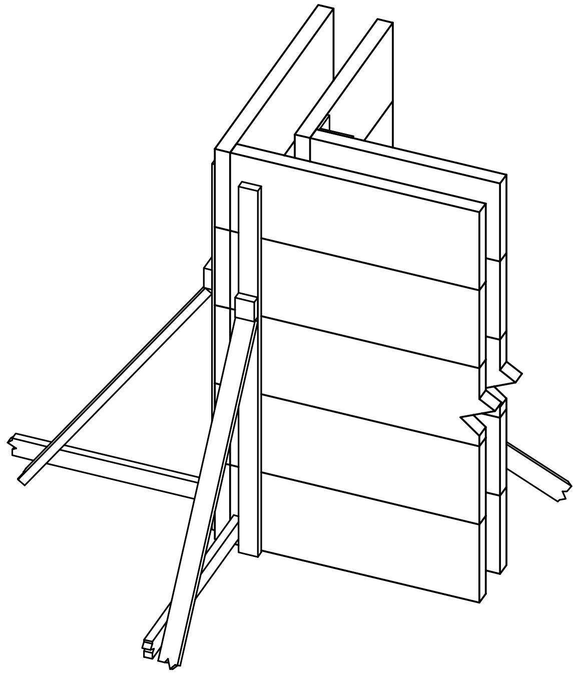
1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete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

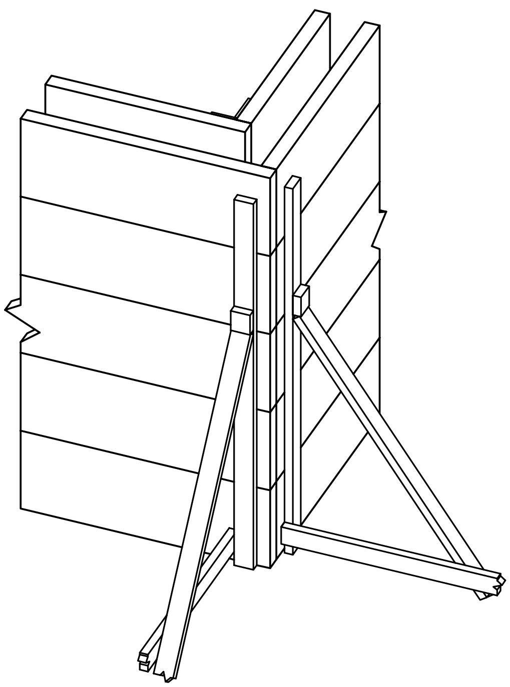
5.9.13 – HORIZONTAL TRANSITION - 6.25" TO 8" CORNER WALL

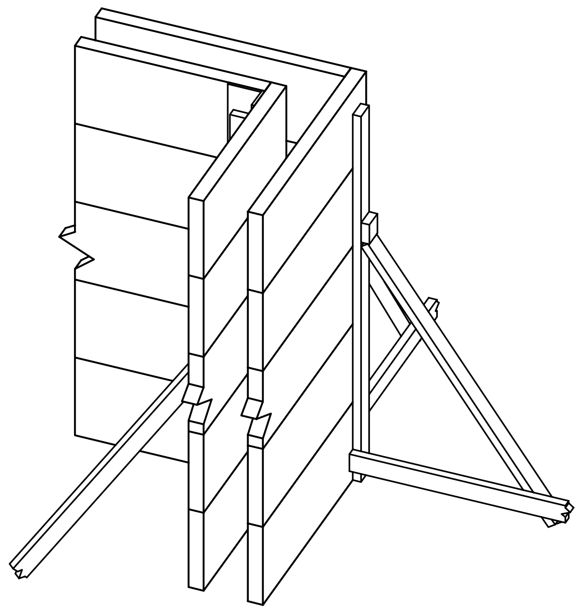
CONTINUED

All drawings are downloadable at www.logixicf.com







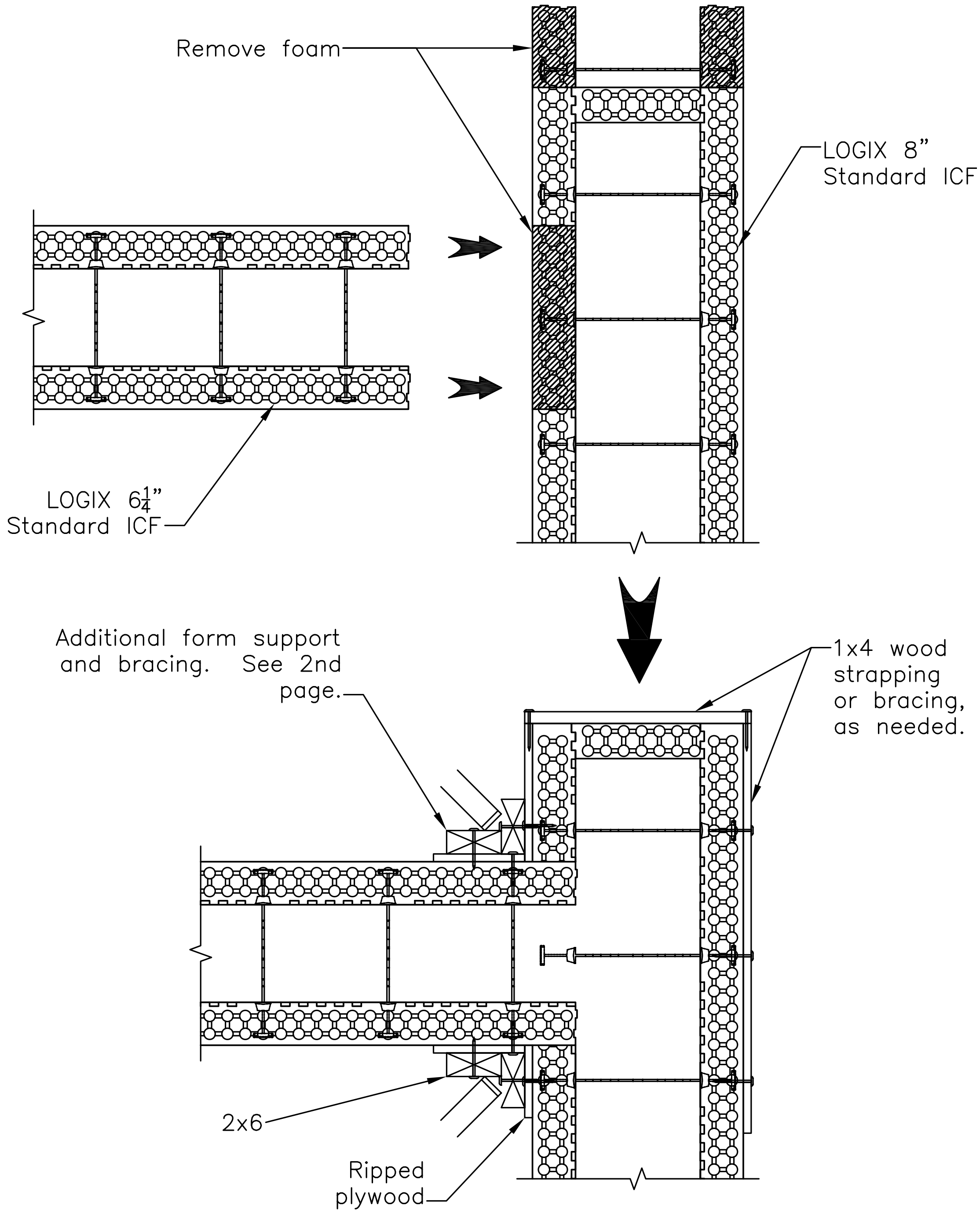


Notes:

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.

5.9.14 – HORIZONTAL TRANSITION - 6.25" TO 8" TEE WALL WITH END CAP

All drawings are downloadable at www.logixicf.com

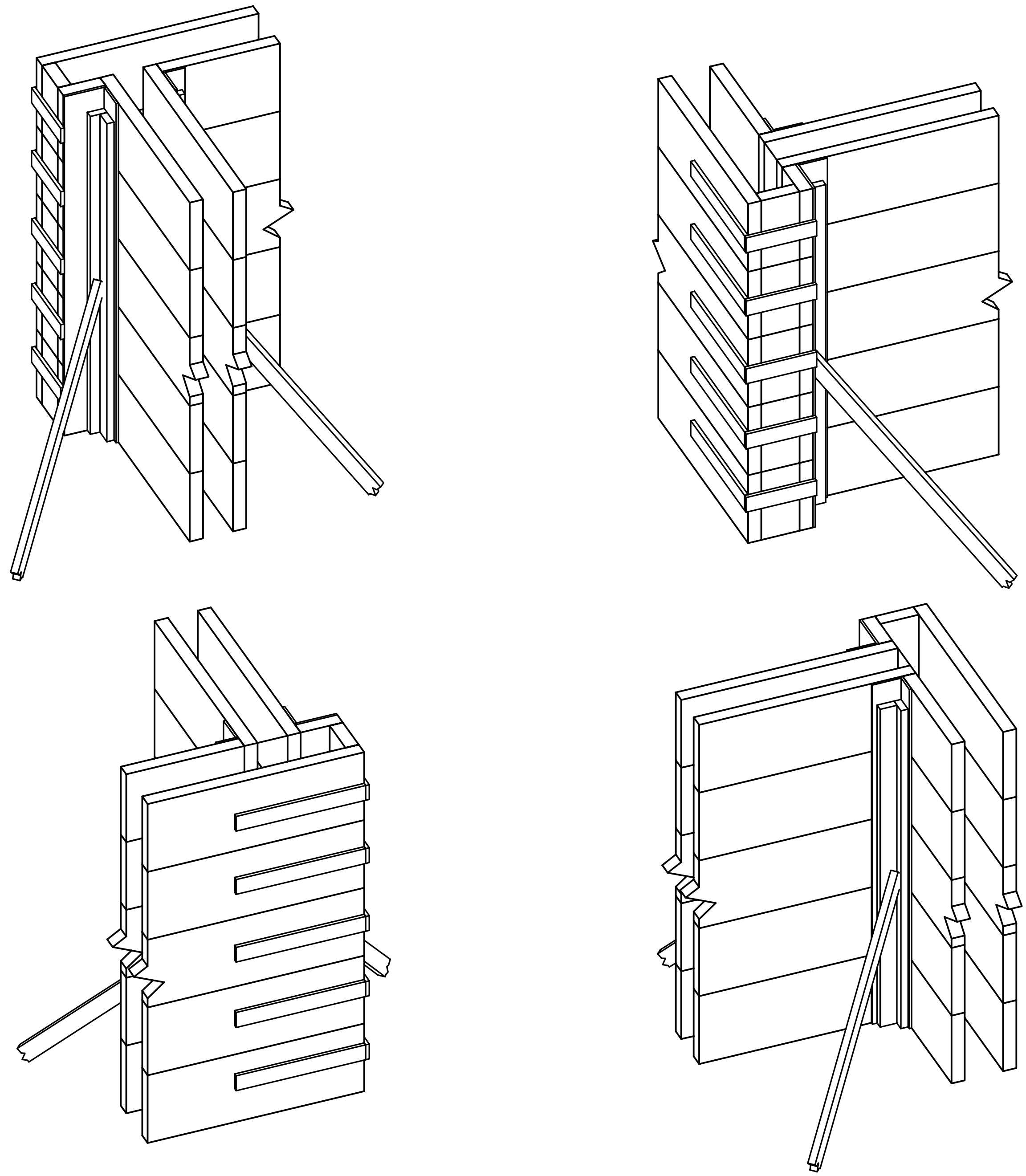


Notes:

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.

5.9.14 – HORIZONTAL TRANSITION - 6.25” TO 8” TEE WALL WITH END CAP CONTINUED

All drawings are downloadable at www.logixicf.com

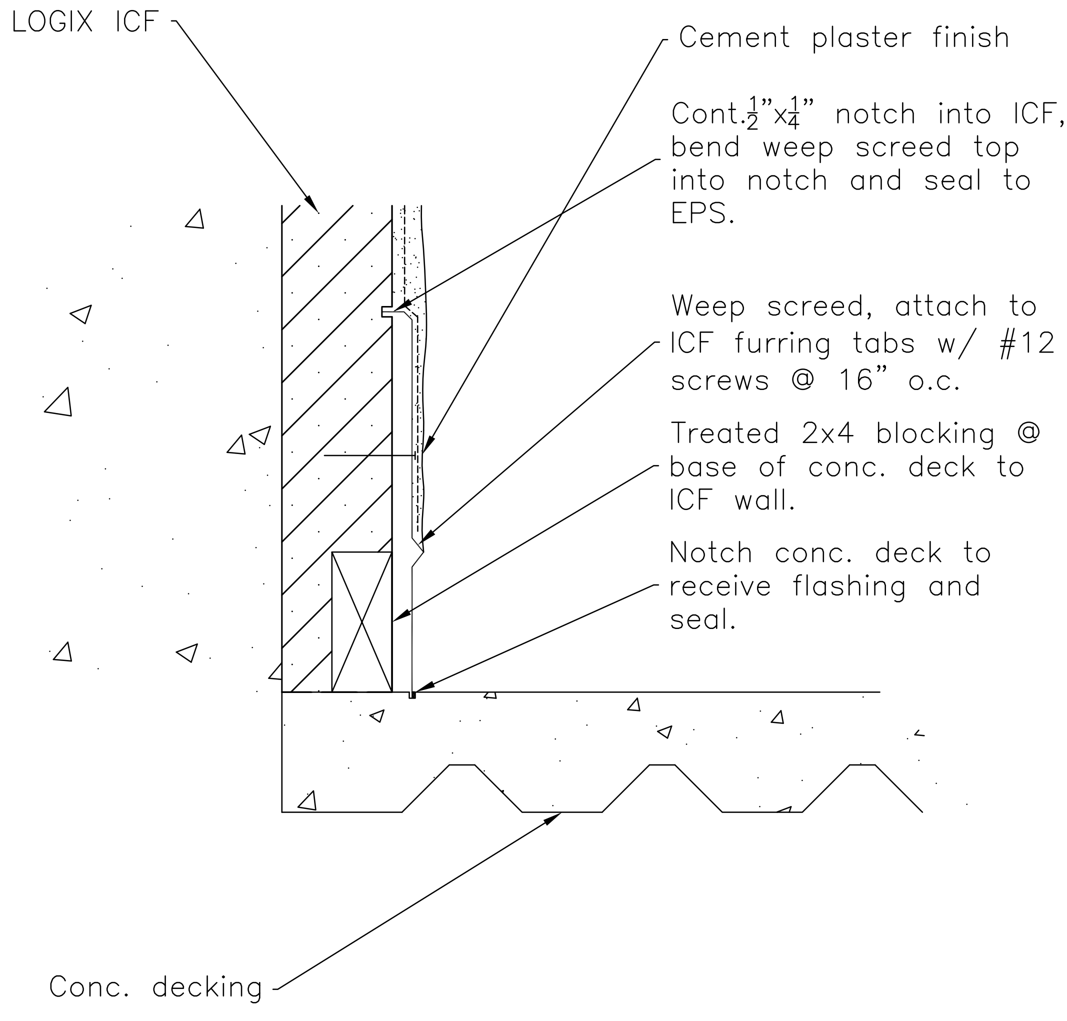


Notes:

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.

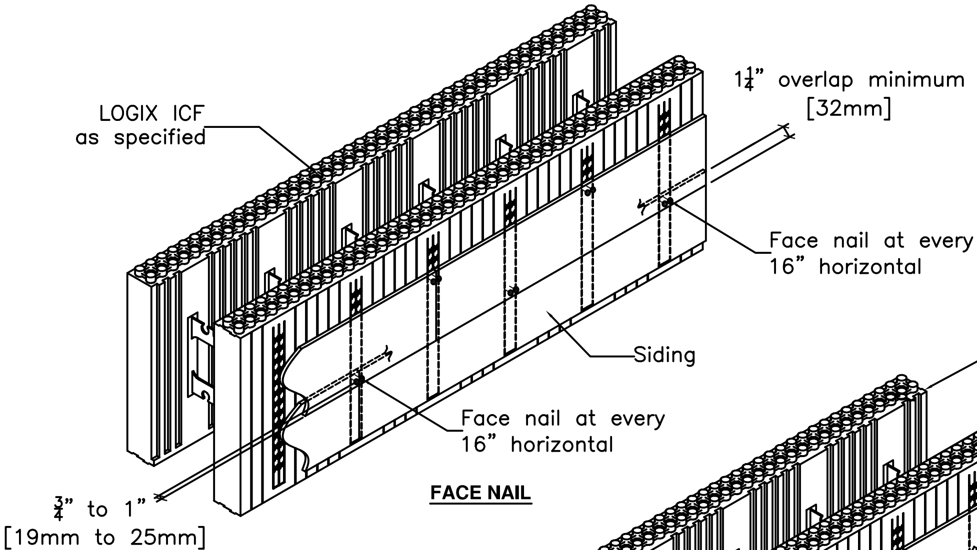
5.9.15 – WEEP SCREED & FLASHING AT CONCRETE DECK

All drawings are downloadable at www.logixicf.com

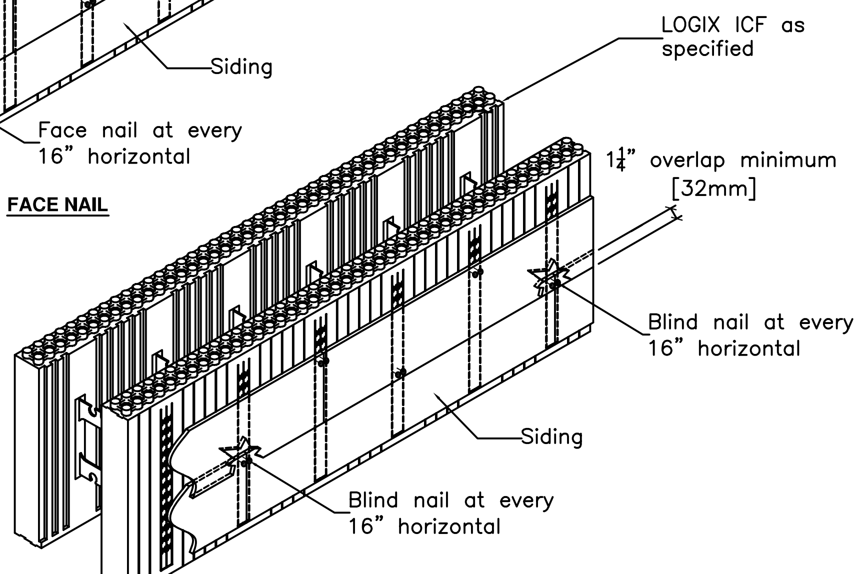


5.9.16 – EXTERIOR FINISHES

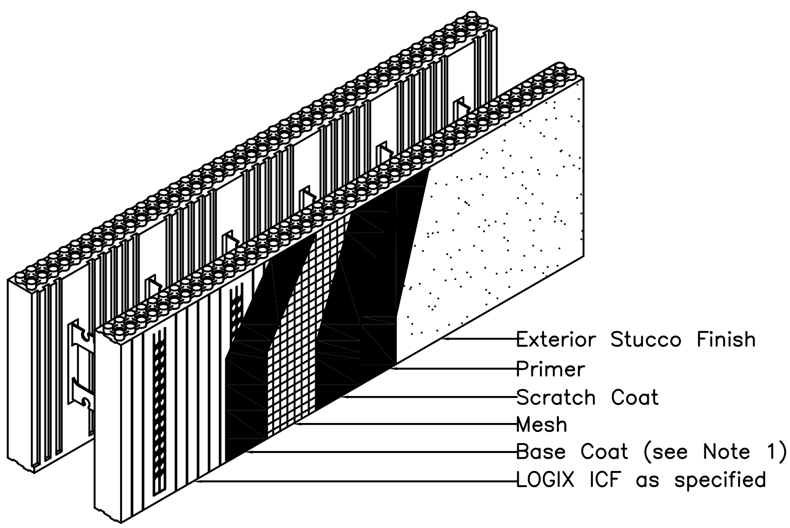
All drawings are downloadable at www.logixicf.com



FACE NAIL



BLIND NAIL

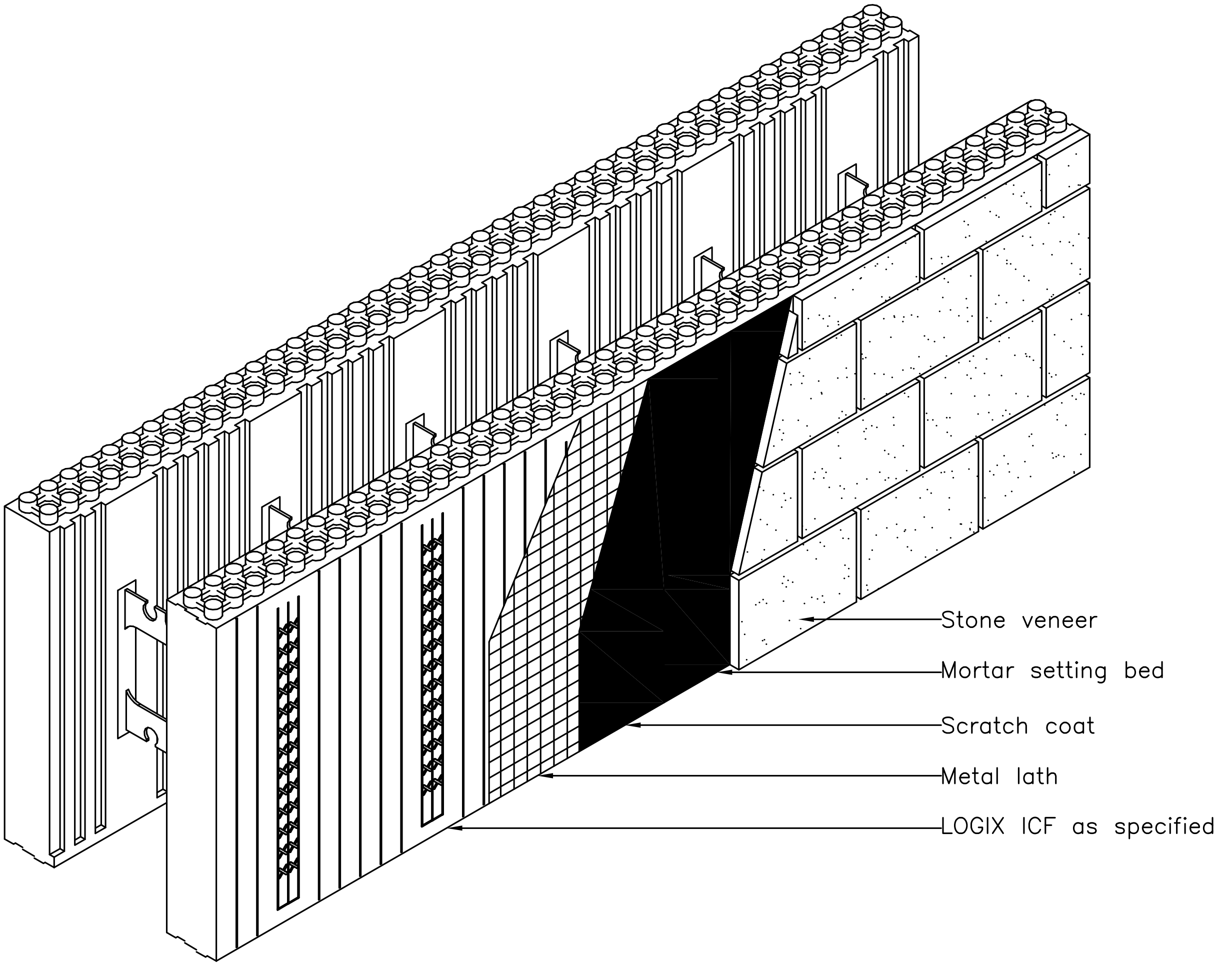


NOTES:

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.

5.9.17 – LOGIX ICF WITH STONE VENEER

All drawings are downloadable at www.logixicf.com



NOTES:

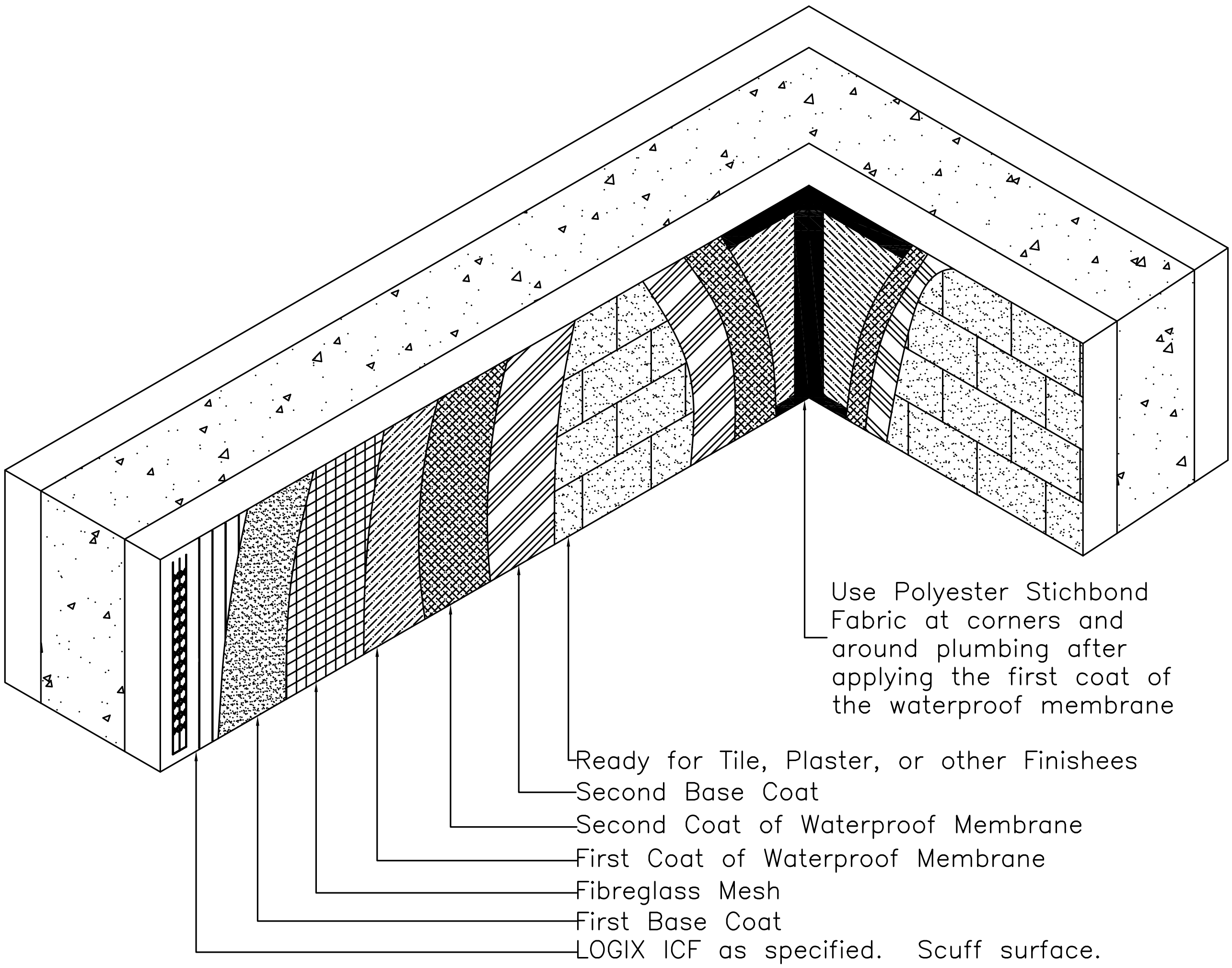
1. All fasteners to be attached to the embedded furring tabs.
2. Recommended min. fastener spacings:
   1. Grabber construction non–corrosive screws: No.8 min. 1.25" long, 8" o.c. horiz., 12" o.c. vert. spacing.

   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.

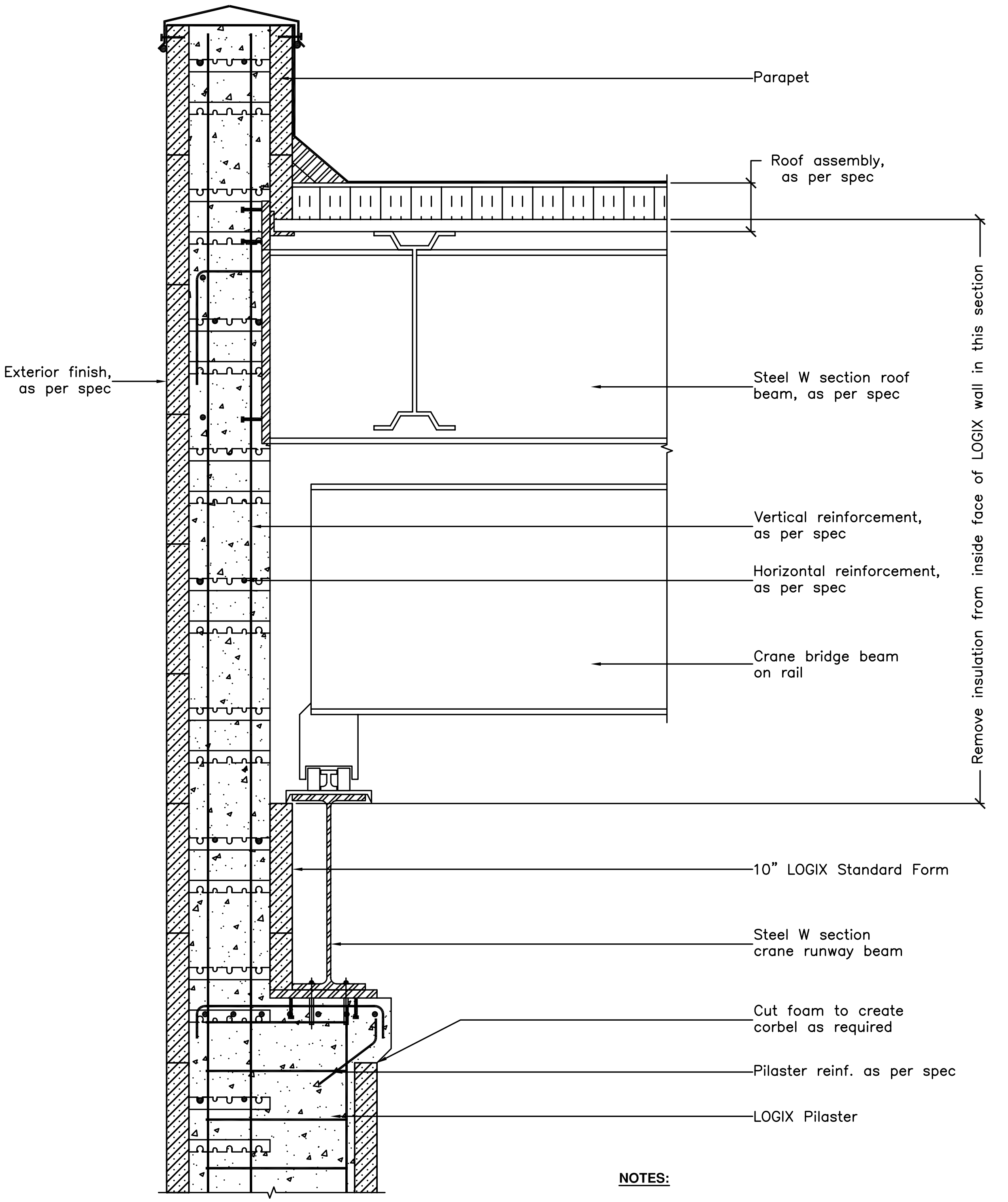
5.9.18 – LOGIX ICF POOL APPLICATION

All drawings are downloadable at www.logixicf.com



5.9.19 – GANTRY SYSTEM ON LOGIX PILASTER

All drawings are downloadable at www.logixicf.com

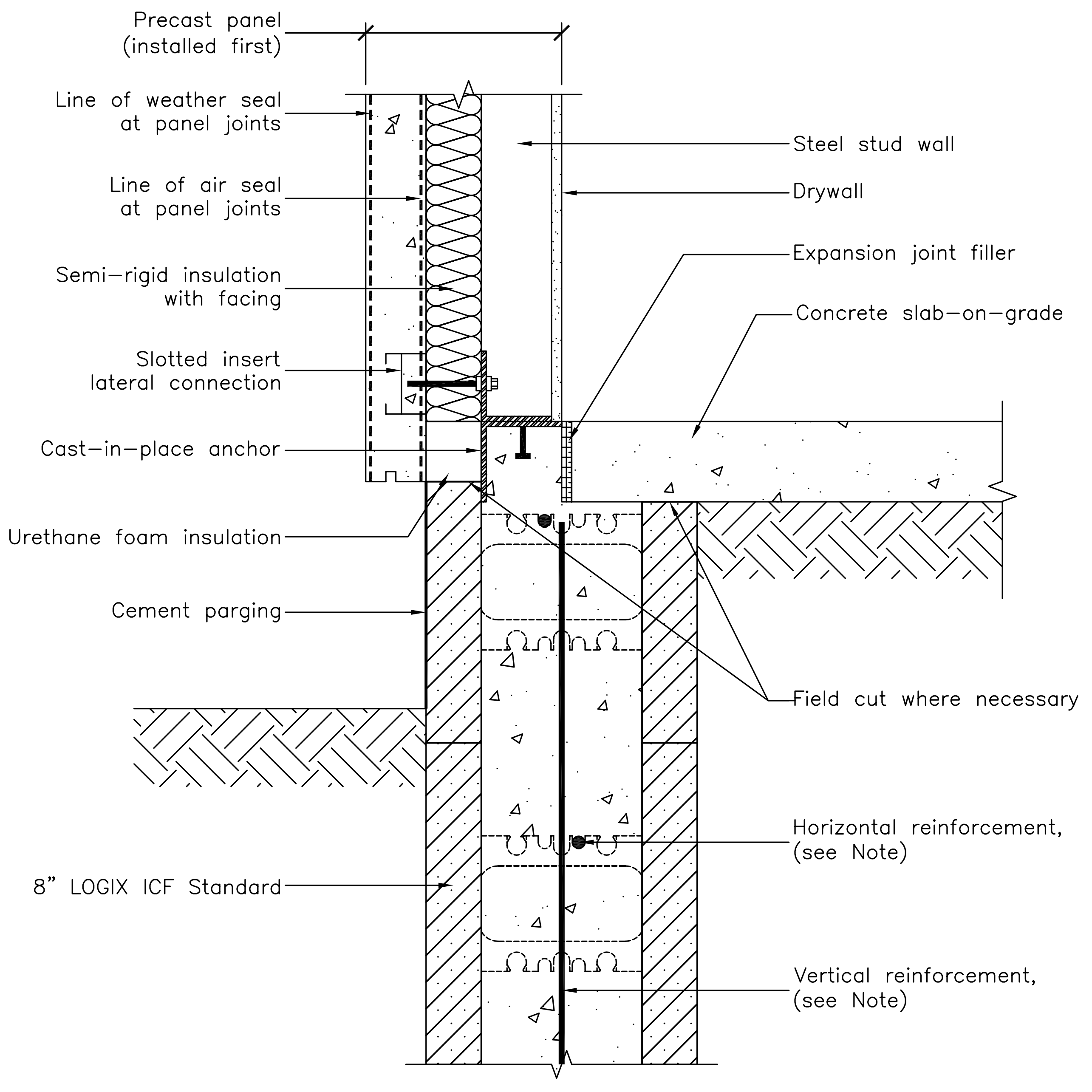


NOTES:

All embedded plates & and anchors as per specs.

5.9.20 – PRECAST PANEL WALL

All drawings are downloadable at www.logixicf.com

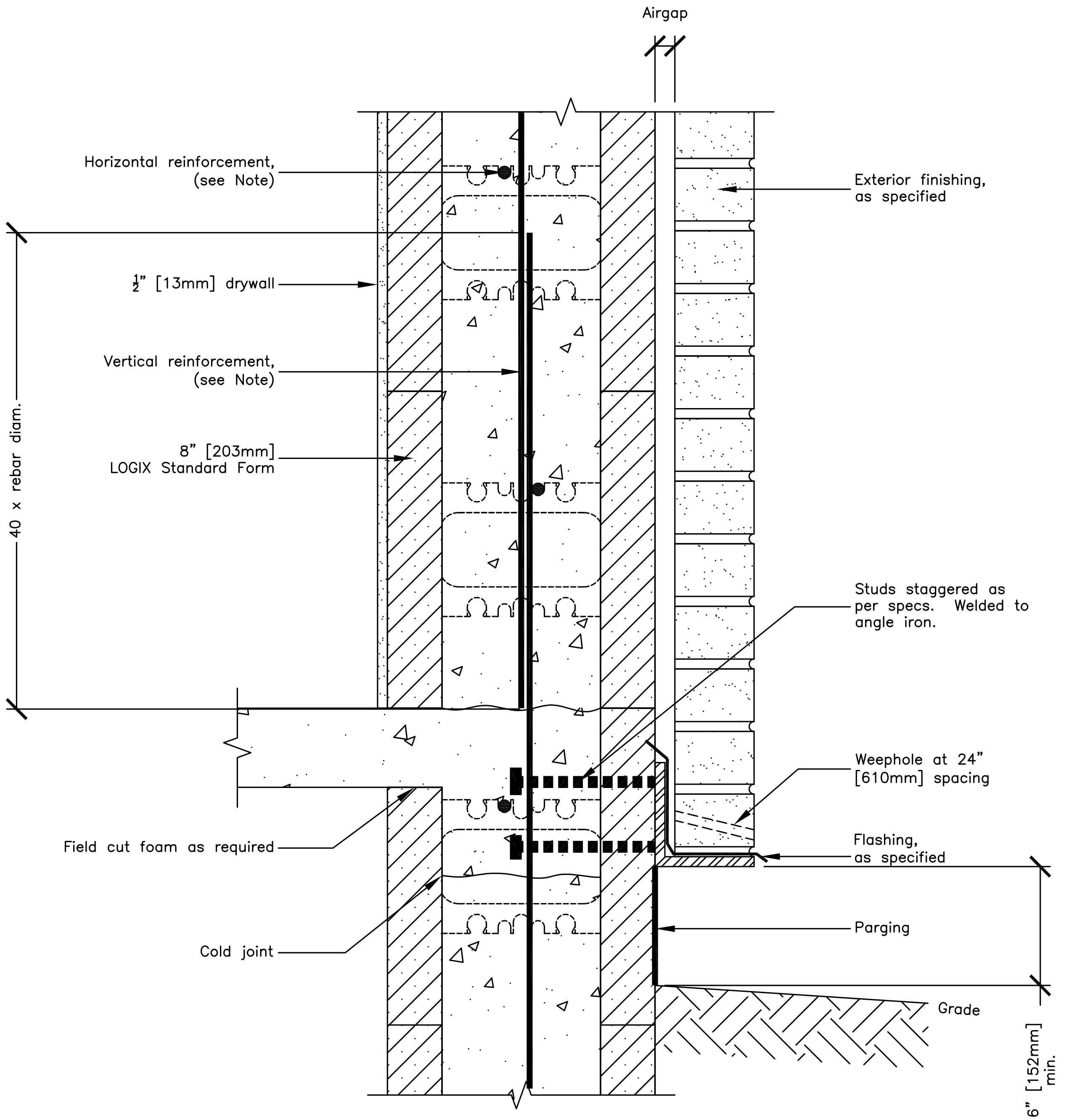


NOTES:

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

5.9.21 – ANGLE IRON SUPPORTING BRICK VENEER

All drawings are downloadable at www.logixicf.com



NOTES:

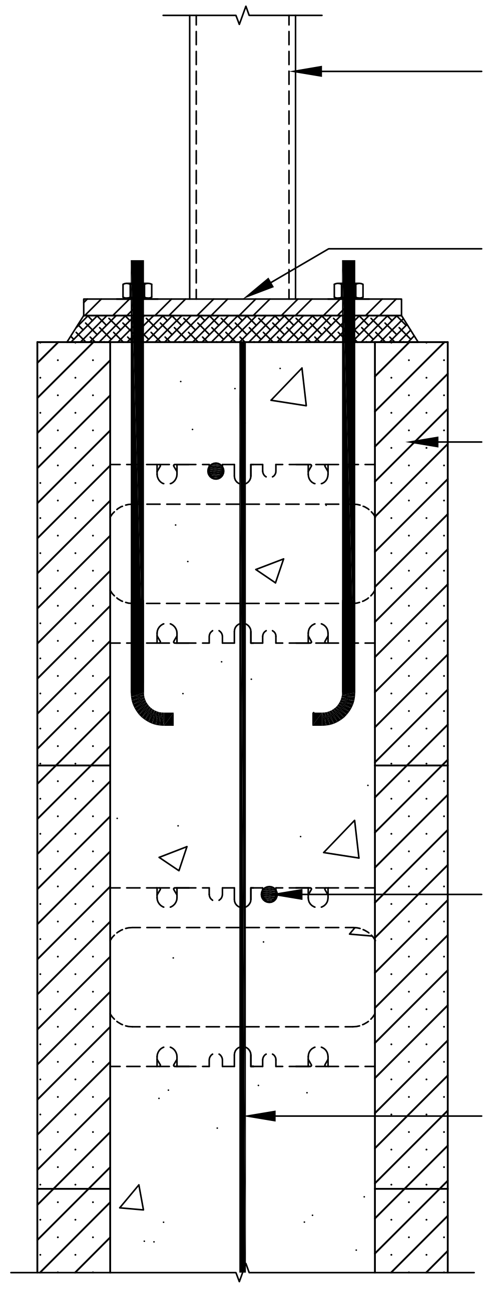
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.9.22 – HSS COLUMN ON LOGIX

All drawings are downloadable at www.logixicf.com

NOTES:

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

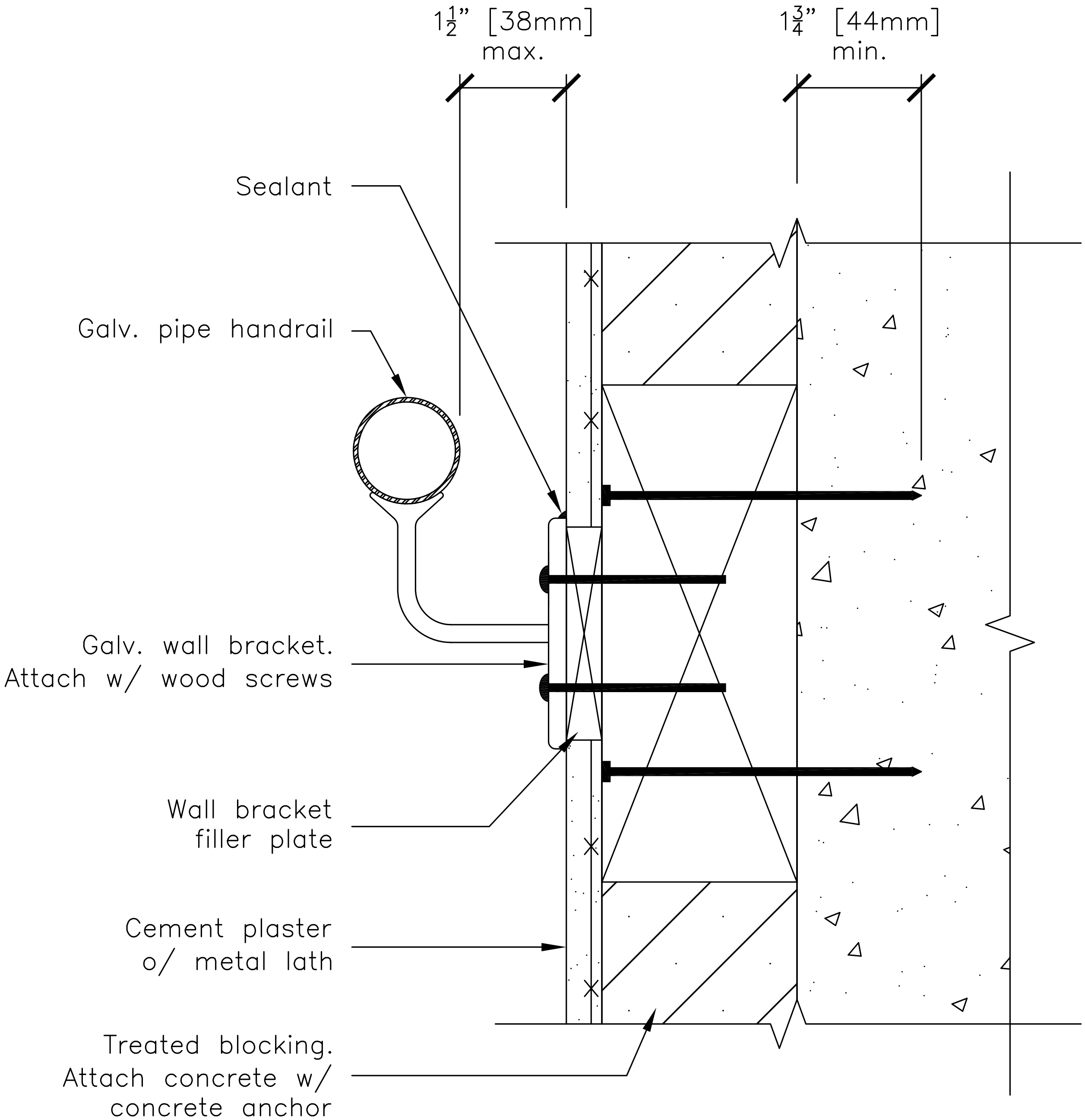


5.9.23 – METAL HANDRAIL

All drawings are downloadable at www.logixicf.com

NOTES:

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

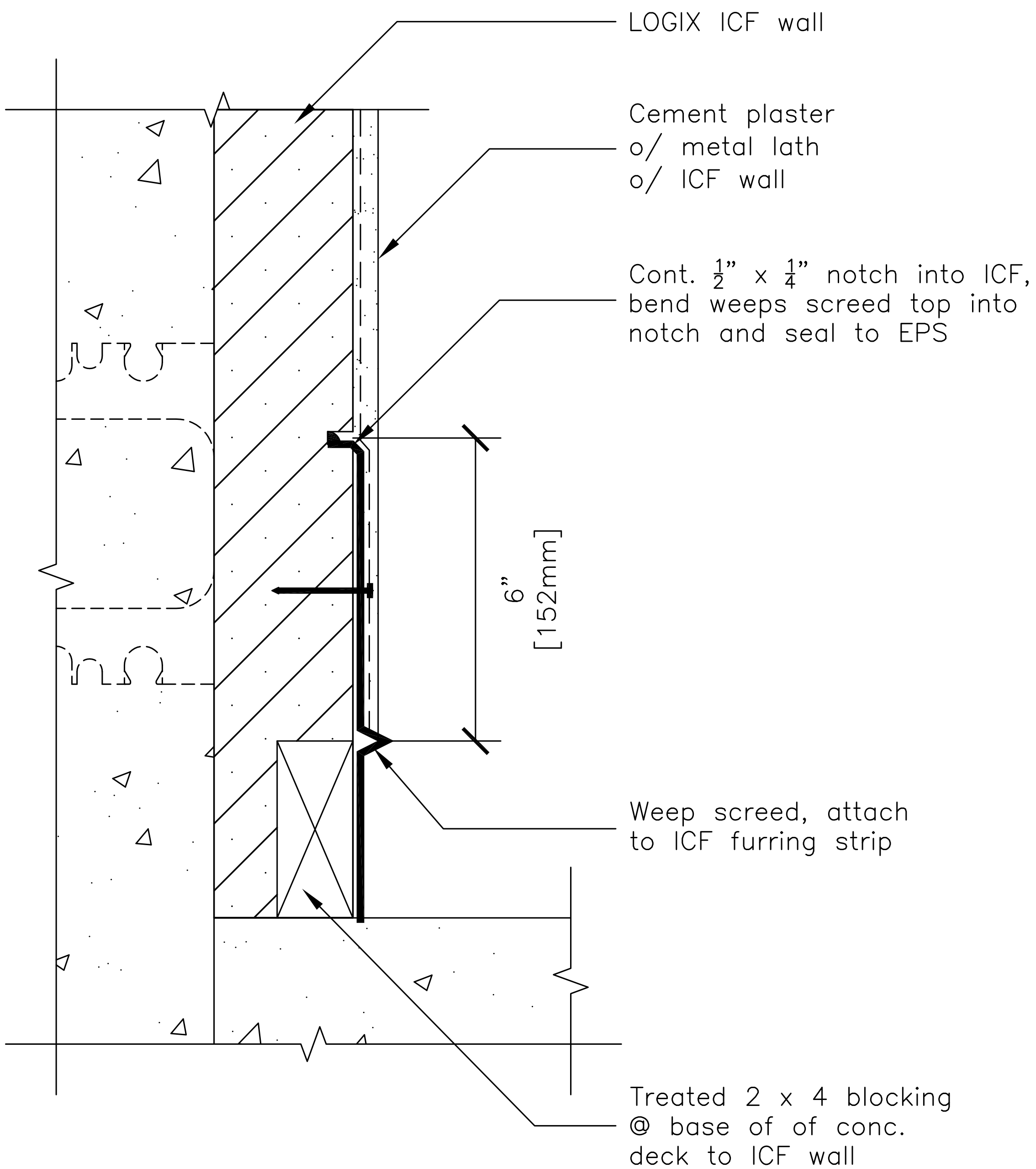


5.9.24 – WALL BASE WEEP SCREED

All drawings are downloadable at www.logixicf.com

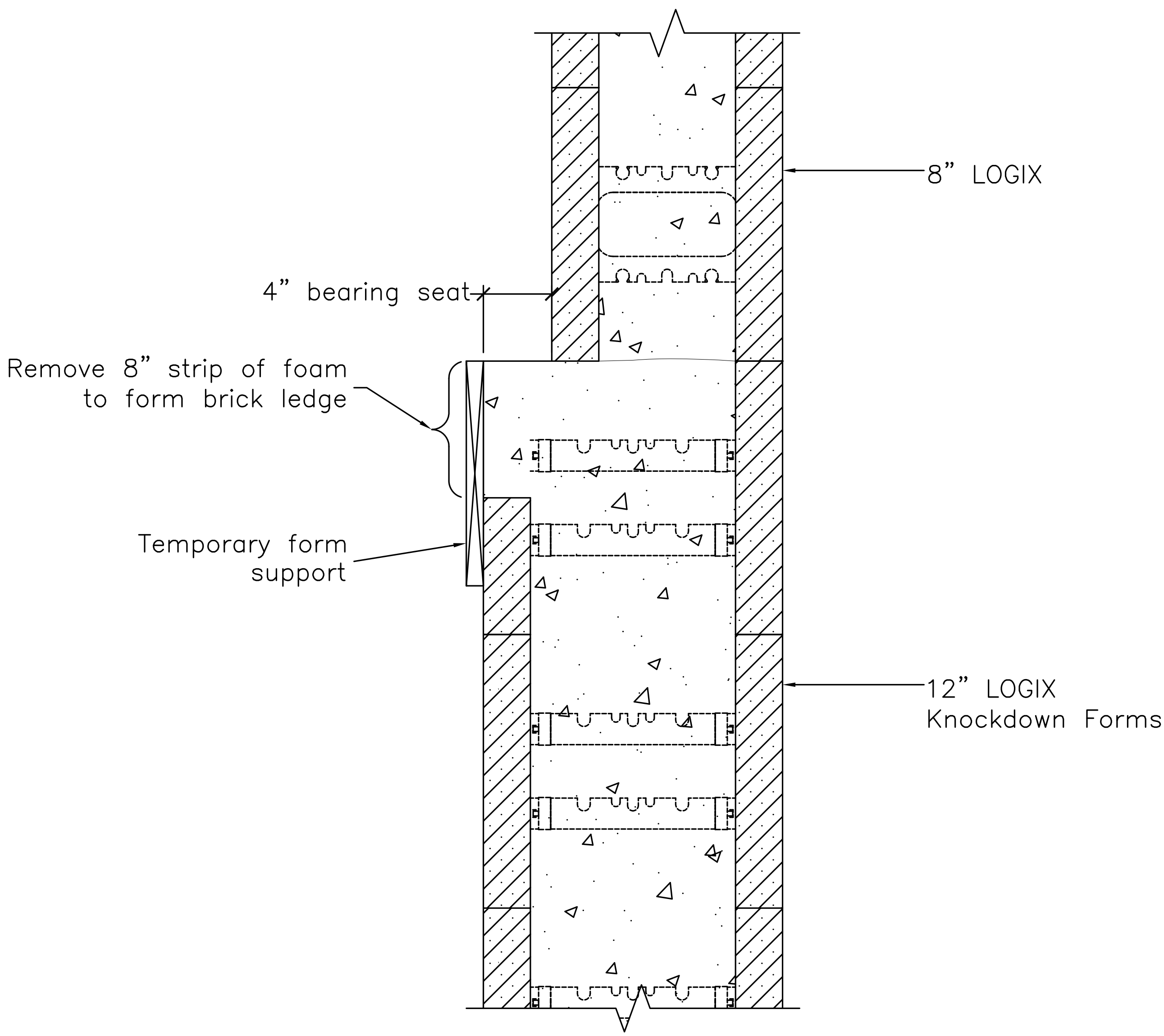
NOTES:

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



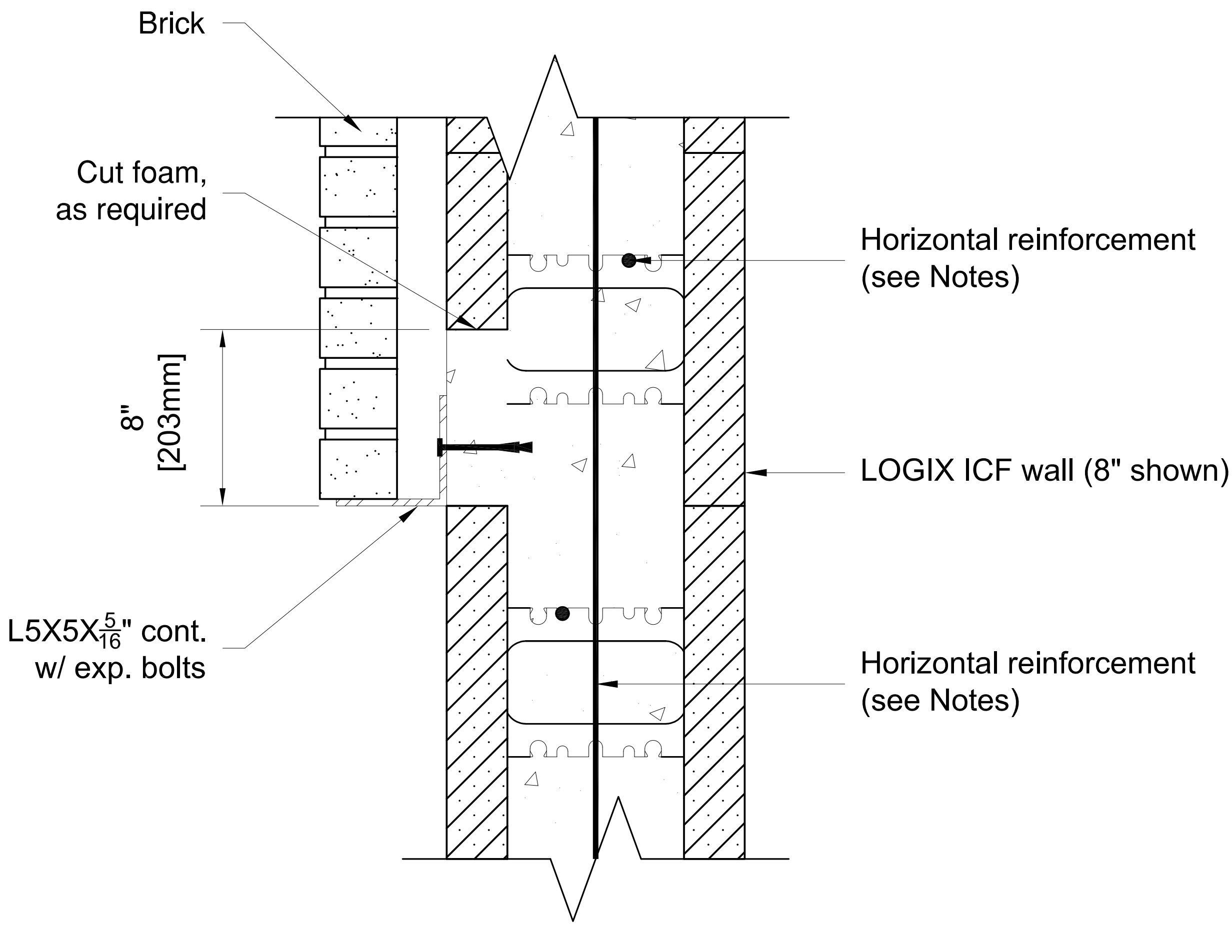
5.9.25 – BRICKLEDGE FORMED WITH 12" KD FORMS

All drawings are downloadable at www.logixicf.com



5.9.26 – STEEL ANGLE SUPPORTING BRICK VENEER

All drawings are downloadable at www.logixicf.com

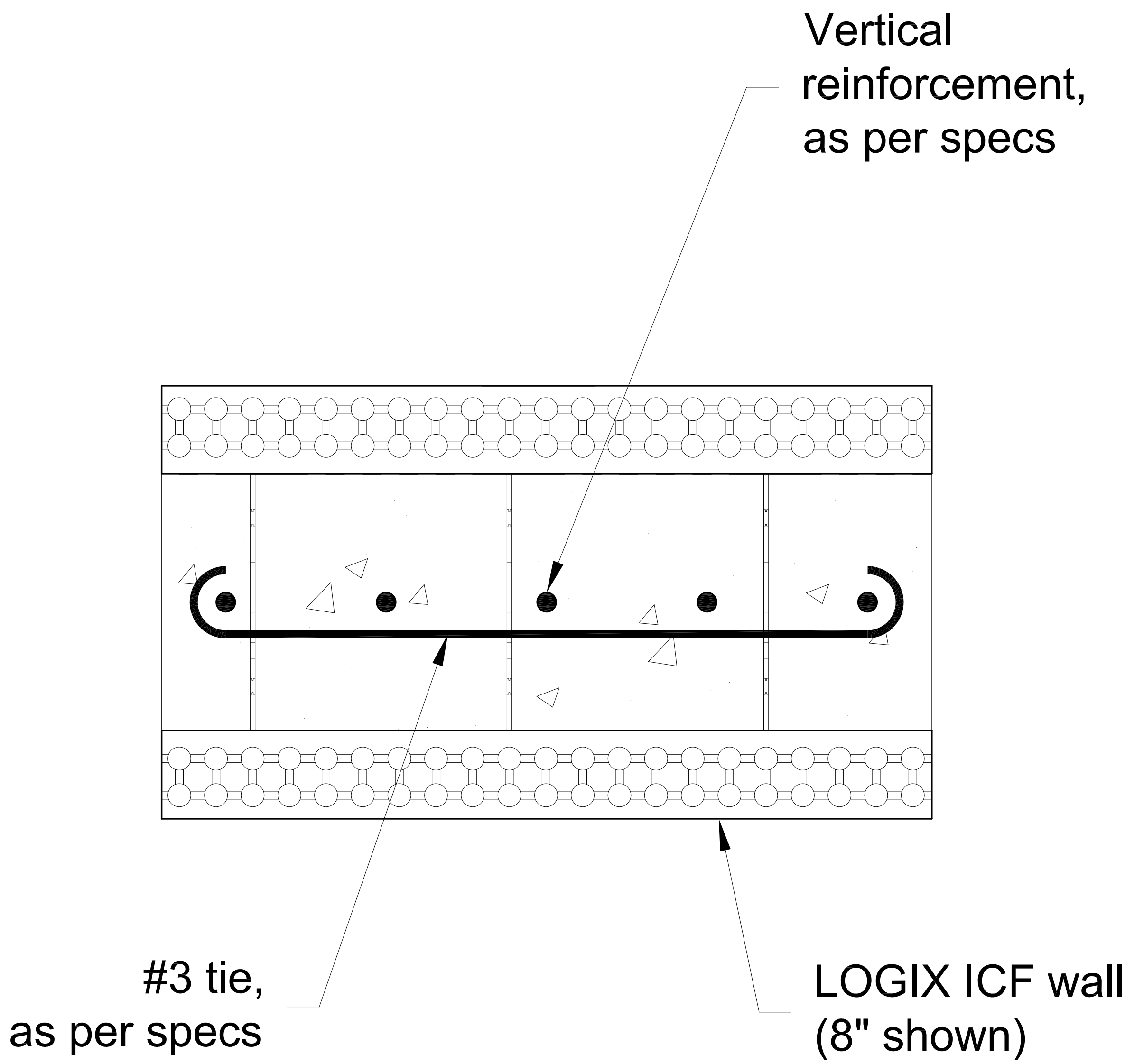


NOTES:

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

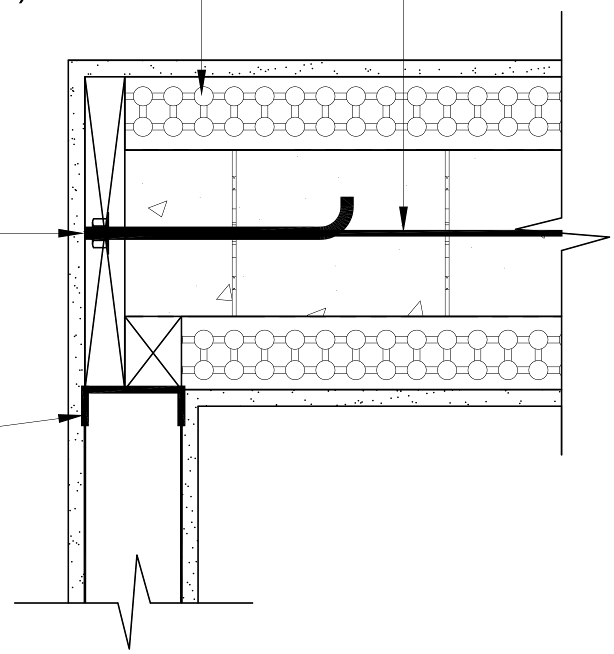
5.9.27 – LOGIX ICF COLUMN

All drawings are downloadable at www.logixicf.com



5.9.28 – STUD WALL CLOSURE ATTACHMENT

All drawings are downloadable at www.logixicf.com

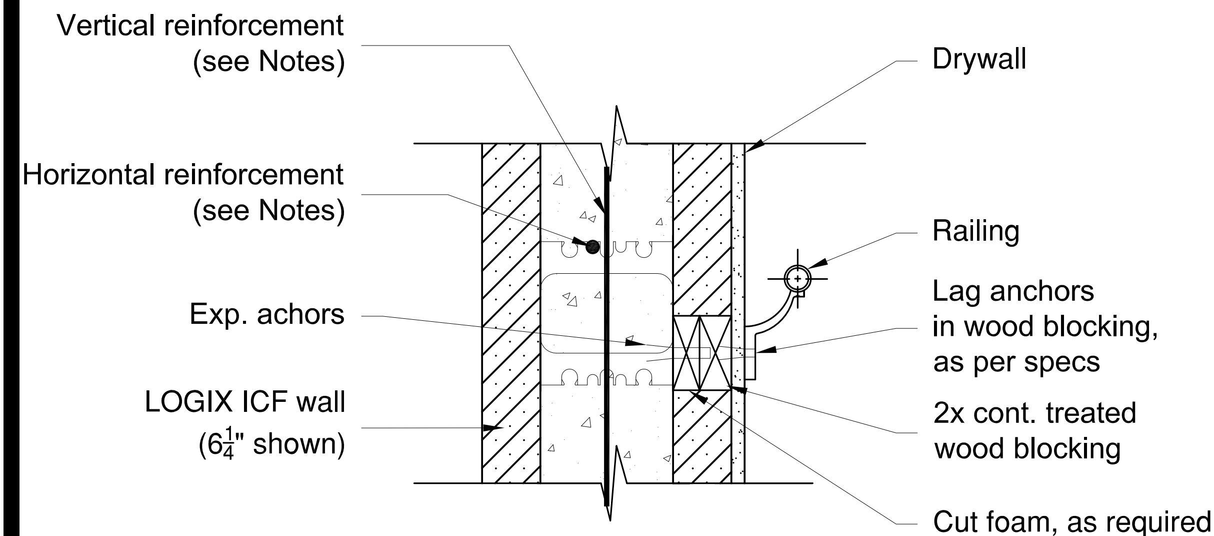


NOTES:

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

5.9.29 – HAND RAIL

All drawings are downloadable at www.logixicf.com



NOTES:

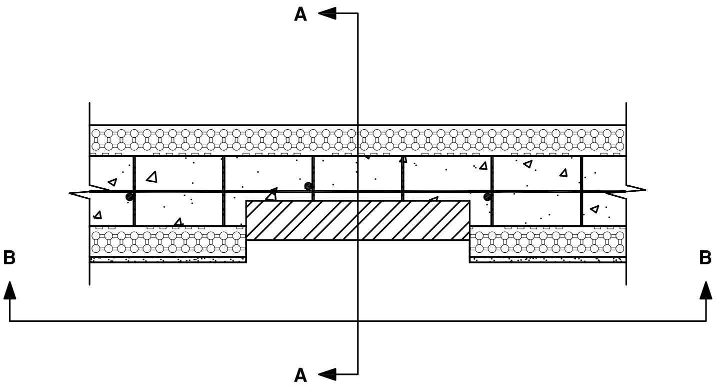
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.9.30 – LOGIX WITH PANELBOARD (1 of 2)

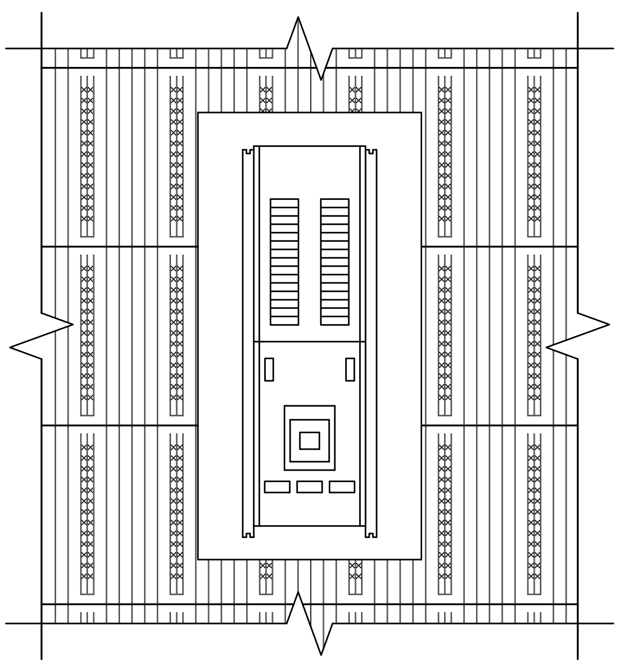
(applicable for LOGIX 6.25" & larger)
All drawings are downloadable at www.logixicf.com

NOTES:

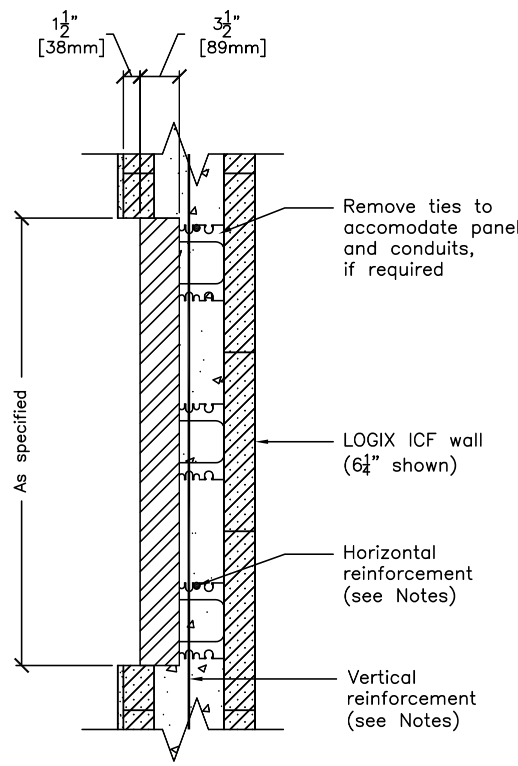
1. 6¼" [159mm] LOGIX Standard Form shown.
2. See Section 6 – Engineering in the LOGIX Design Manual for wall reinforcement details.



PLAN VIEW



FRONT VIEW B-B



END VIEW A-A

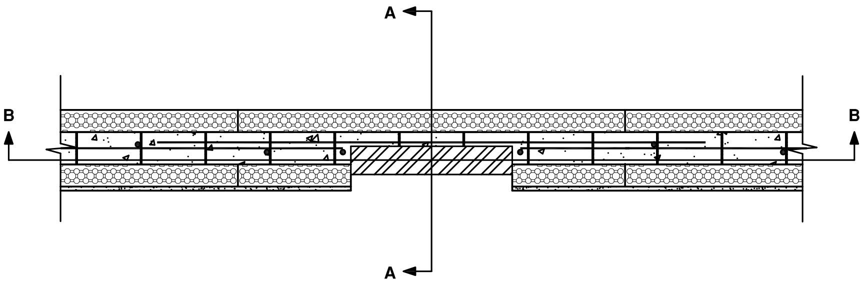
5.9.30 – 4” LOGIX WITH PANELBOARD (2 of 2)

CONTINUED

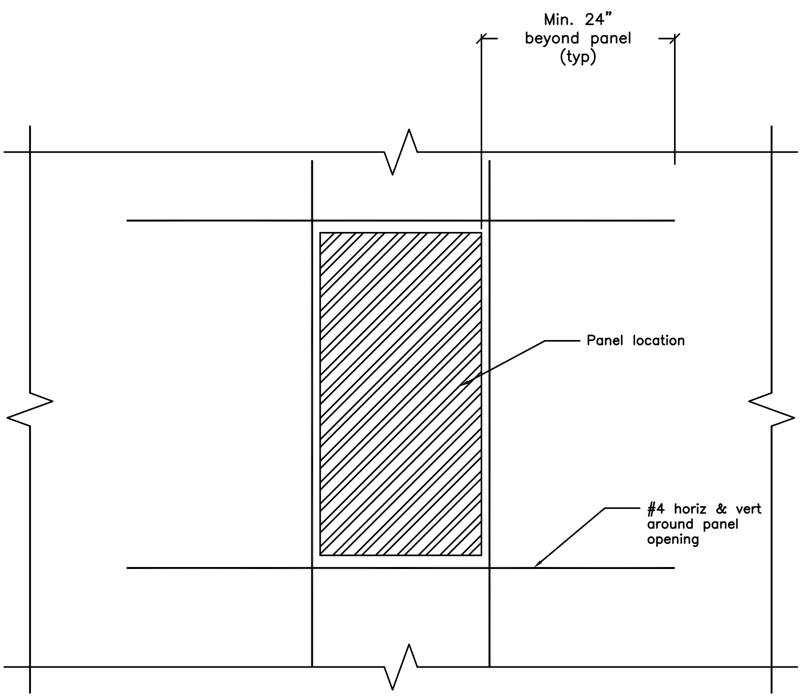
All drawings are downloadable at www.logixicf.com

NOTES:

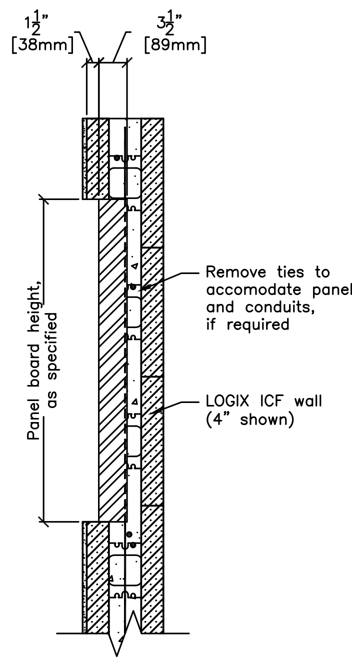
1. 4” [102mm] LOGIX Standard Form shown.
2. For more horizontal and vertical rebar reinforcement details, see Section 6 – Engineering in the LOGIX Design Manual.
3. For more lintel reinforcement details, see Section 6 – Engineering in the LOGIX Design Manual.



PLAN VIEW



FRONT VIEW B-B

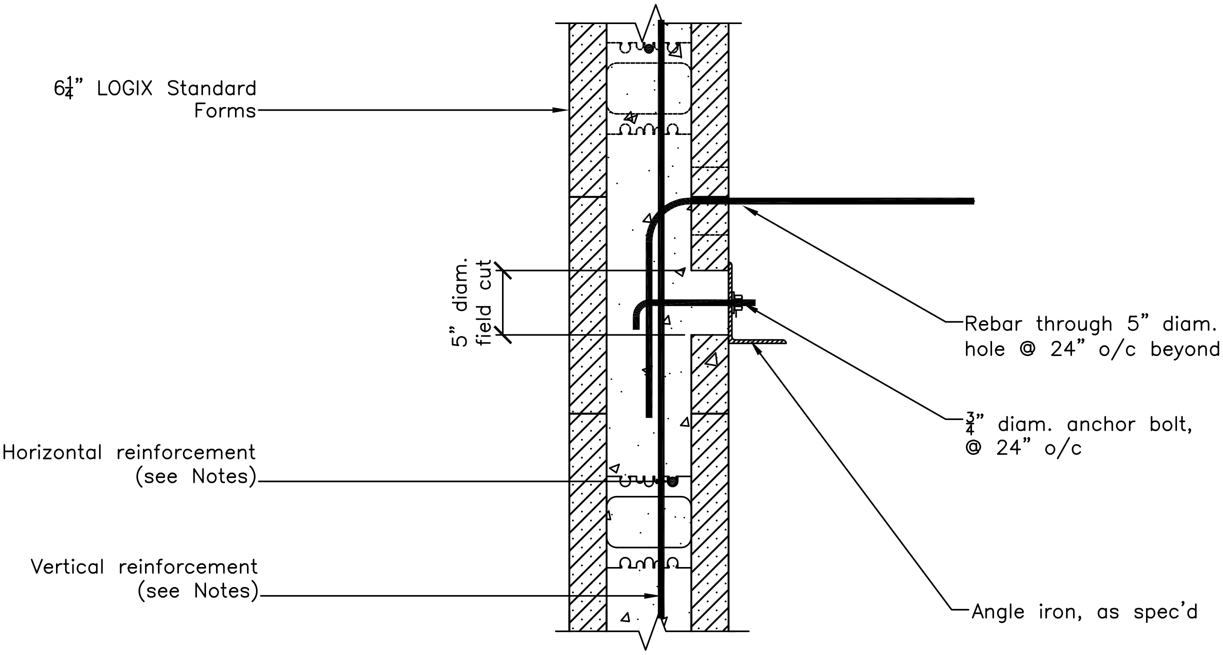


END VIEW A-A

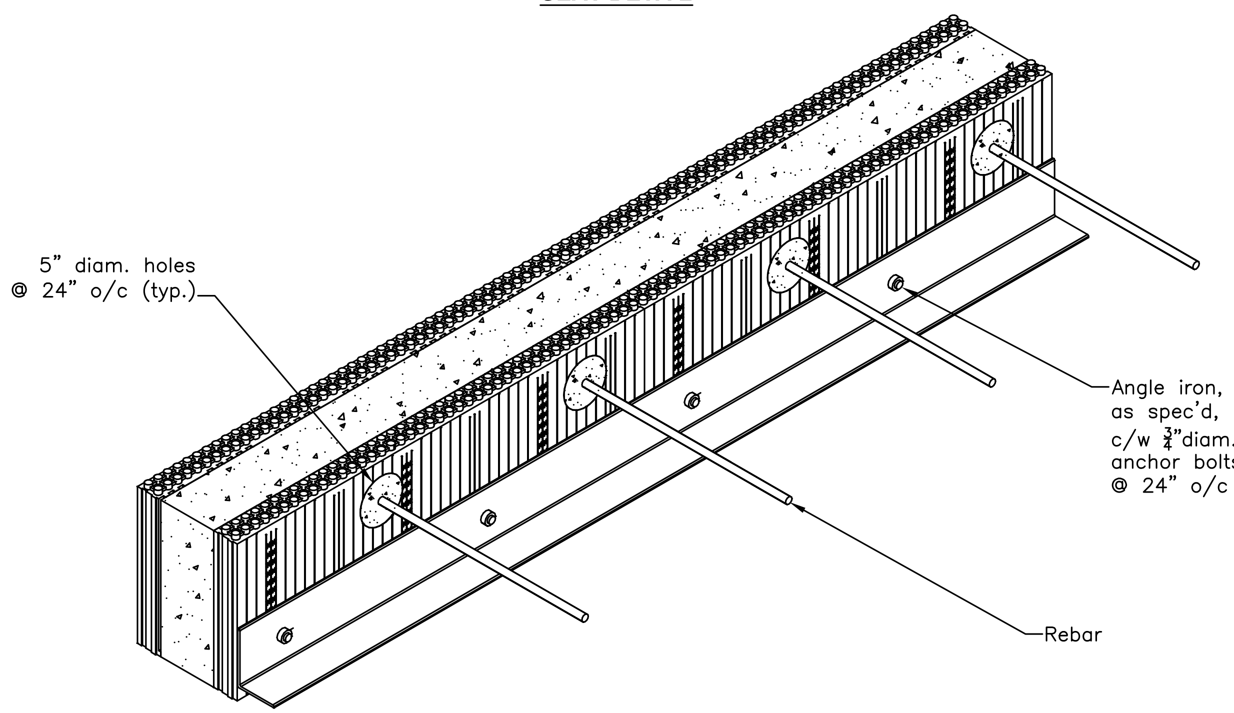
C A D D R A W I N G S

5.9.31 – ANGLE SEAT DETAILS

All drawings are downloadable at www.logixicf.com



SECTION AT BOLTED ANGLE SEAT DETAIL

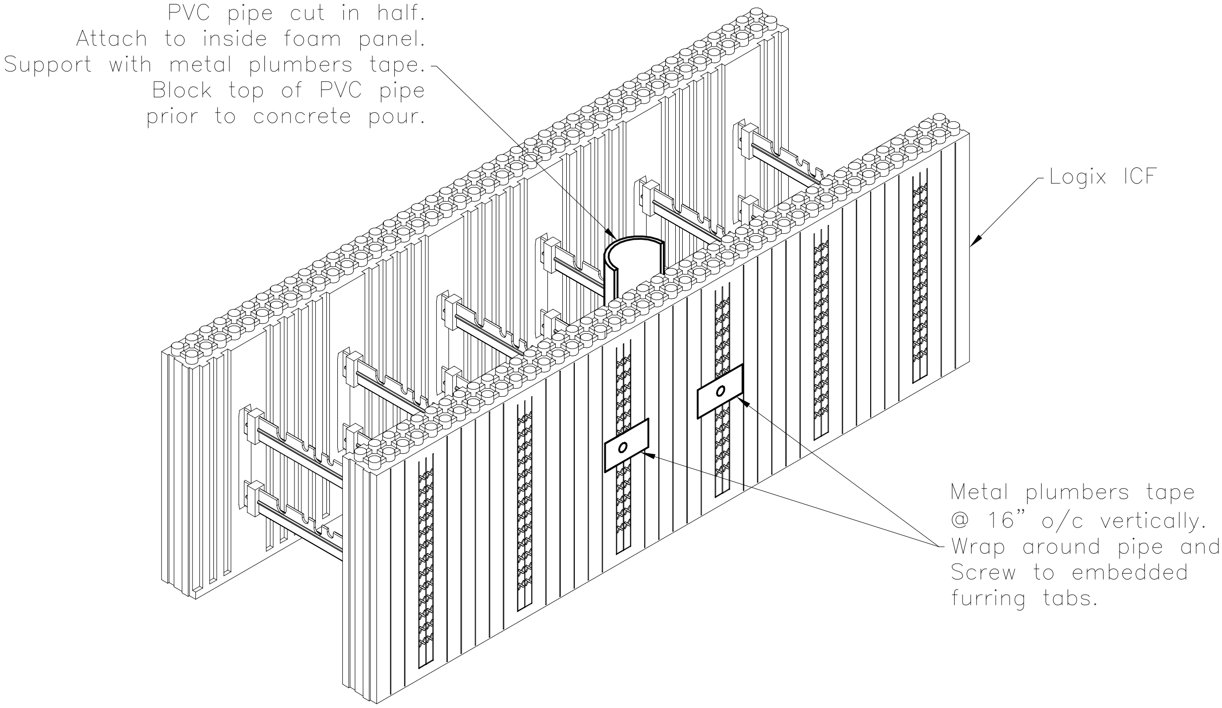


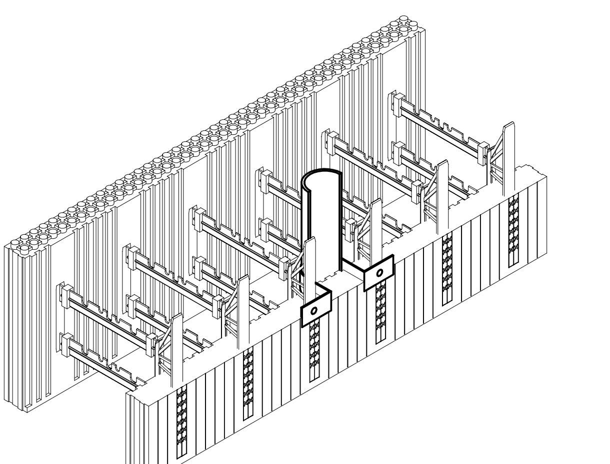
NOTES:

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

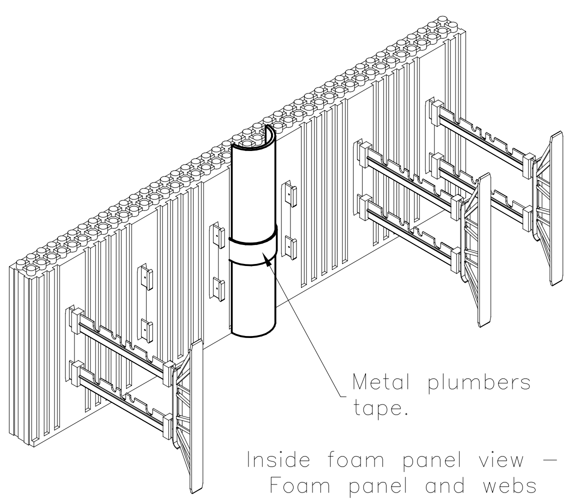
5.9.32 – EMBEDDED VERTICAL PIPE

All drawings are downloadable at www.logixicf.com





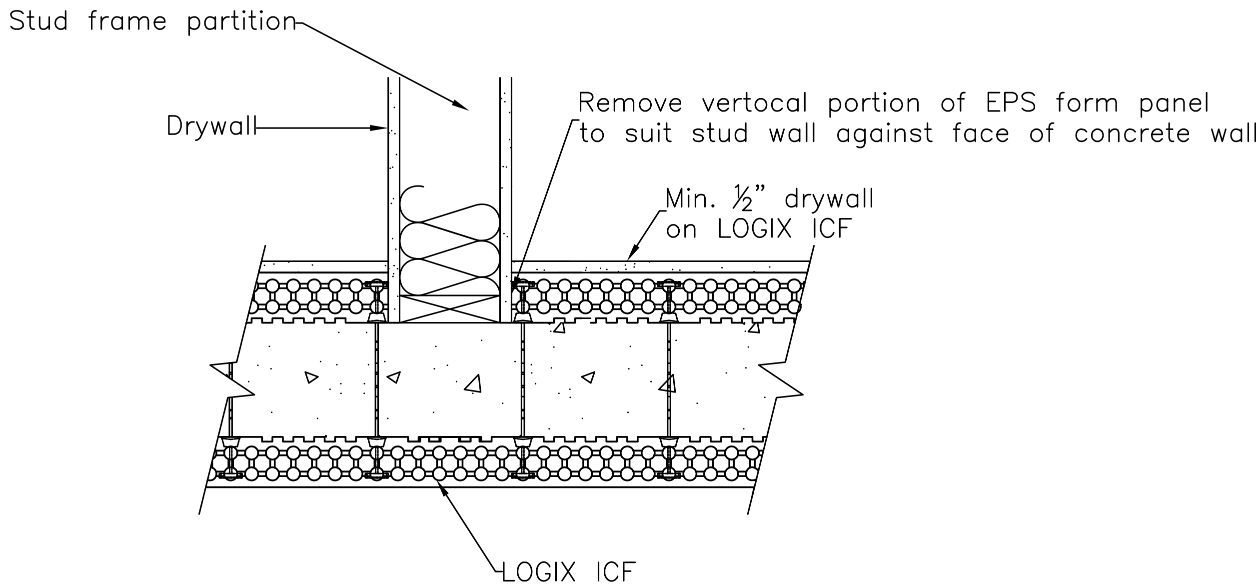
Embedded vertical pipe –
Foam panel partially
removed for clarity



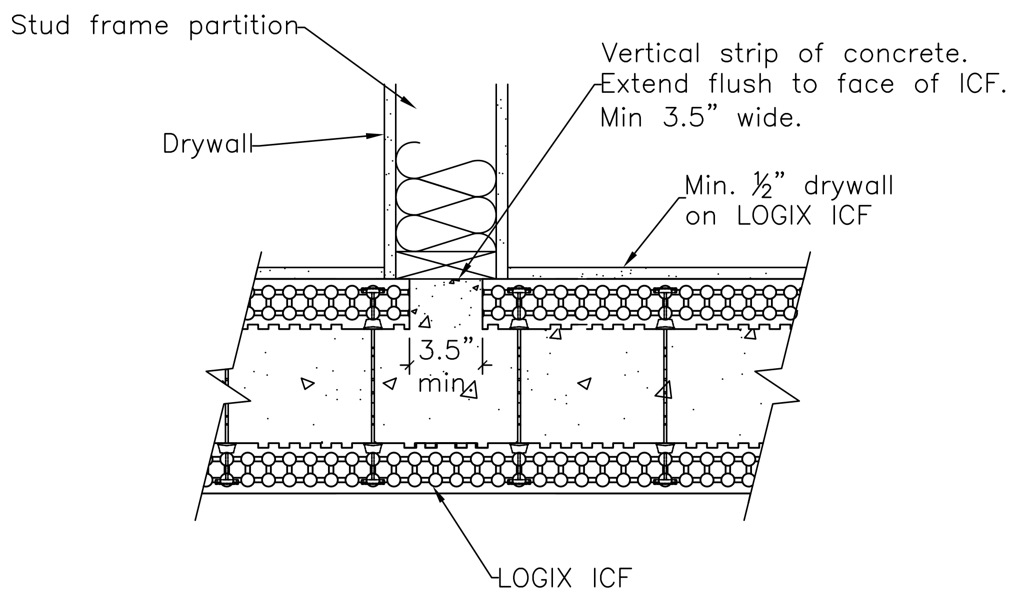
Inside foam panel view –
Foam panel and webs
partially removed for
clarity.

5.9.33 – 1 HR FIRE RATED WALL DETAIL AT PARTITION/ICF WALL JOINT

All drawings are downloadable at www.logixicf.com



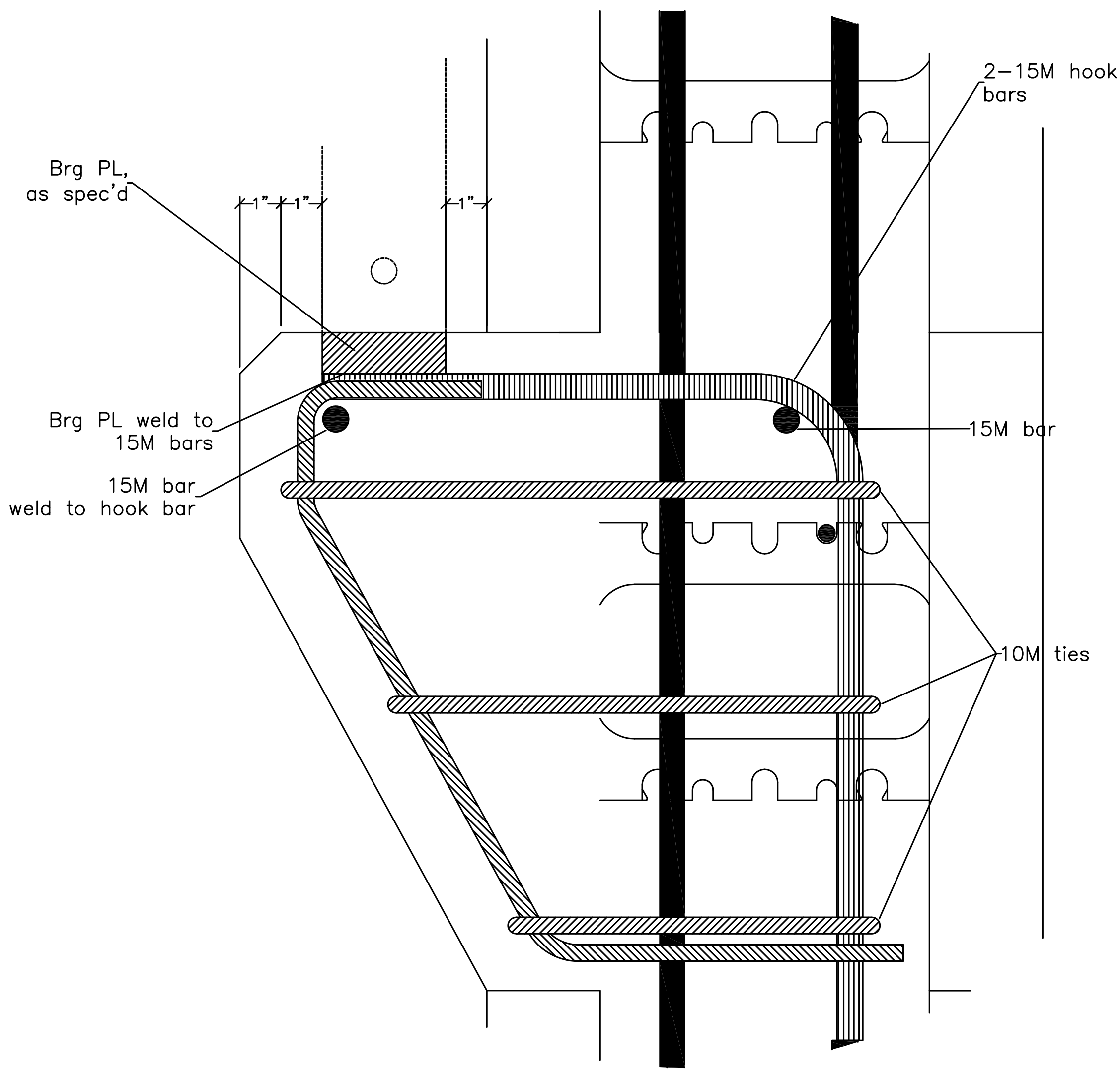
STUD WALL INSET OF LOGIX



STUD WALL FLUSH TO ICF

5.9.34 – CORBEL REINFORCING DETIALS

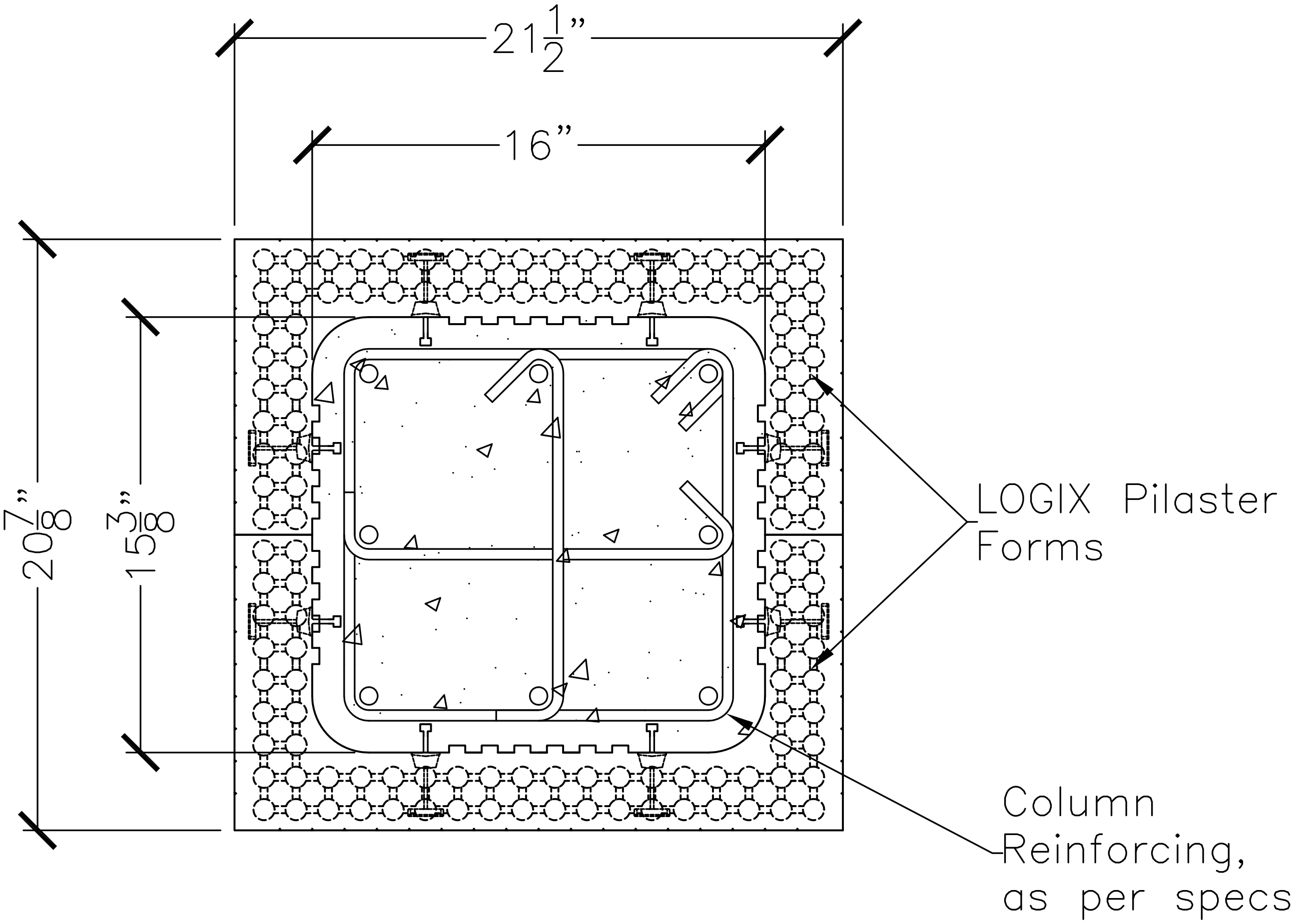
All drawings are downloadable at www.logixicf.com



NOTES:
1. Corbel steel details to be verified and approved by a locally licensed engineer.

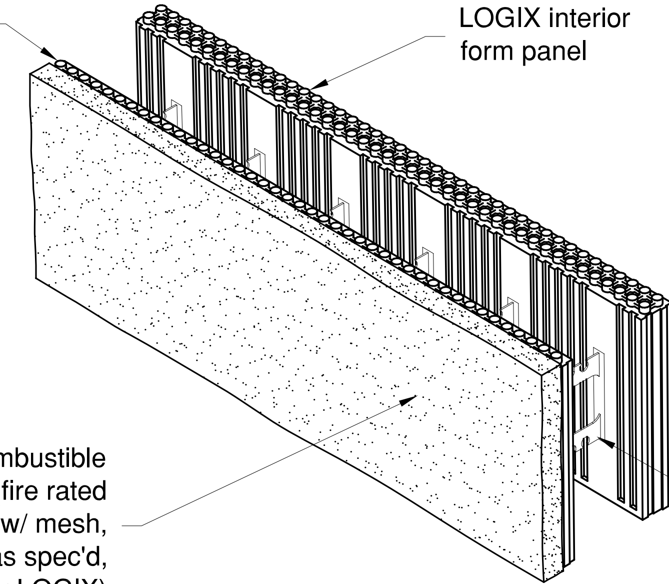
5.9.35 – COLUMN W/ LOGIX PILASTER

All drawings are downloadable at www.logixicf.com

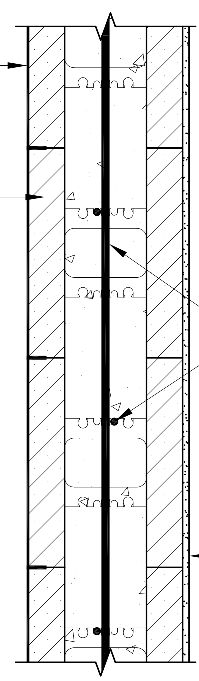


5.9.36 – ZERO LOT LINE CONSTRUCTION DETAIL

All drawings are downloadable at www.logixicf.com



LOGIX ICF FORM BLOCK



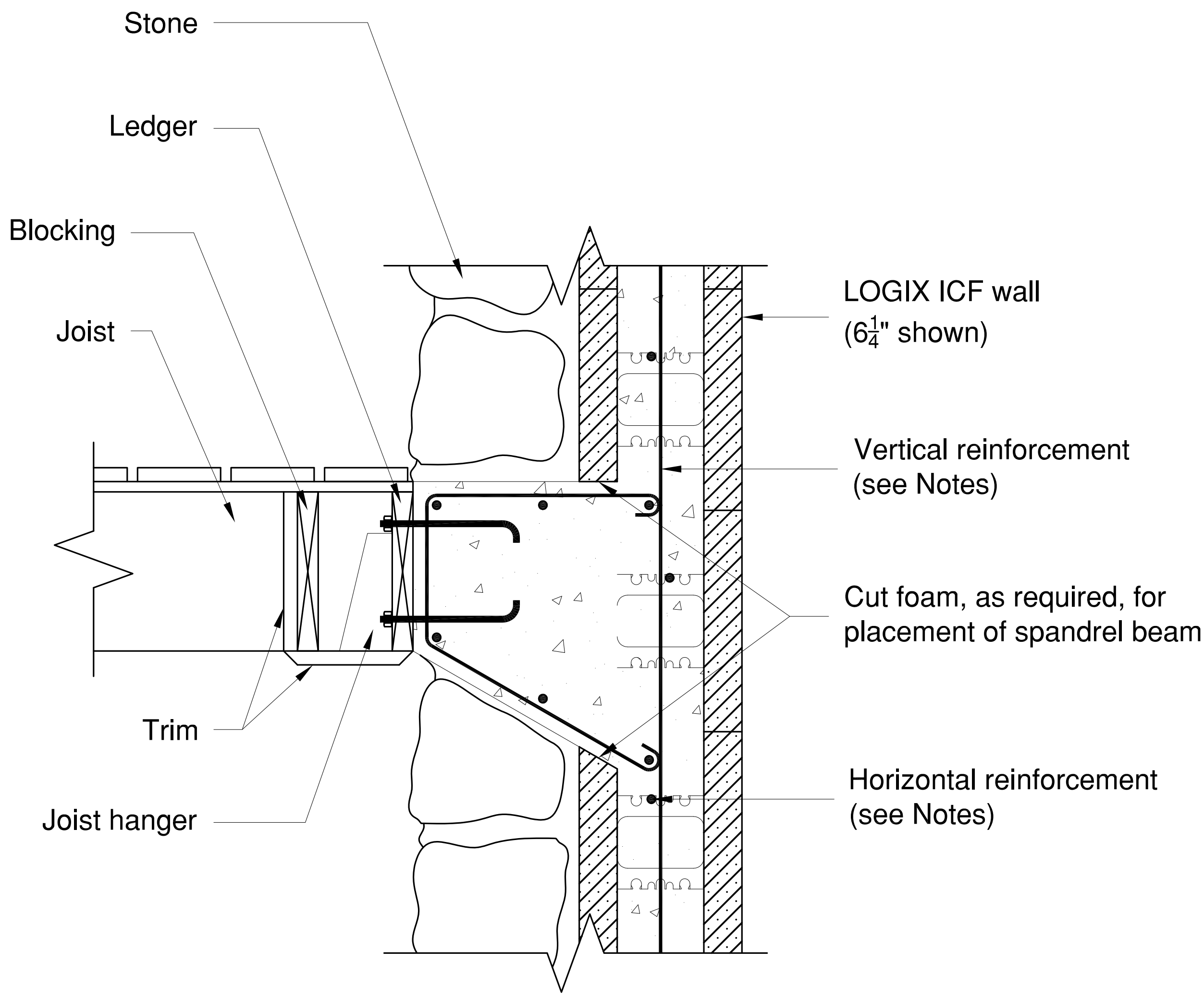
LOGIX WALL SECTION

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 $\frac{3}{8}$" 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.

5.9.37 – CORBEL SUPPORTING DECK AND STONE VENEER

All drawings are downloadable at www.logixicf.com

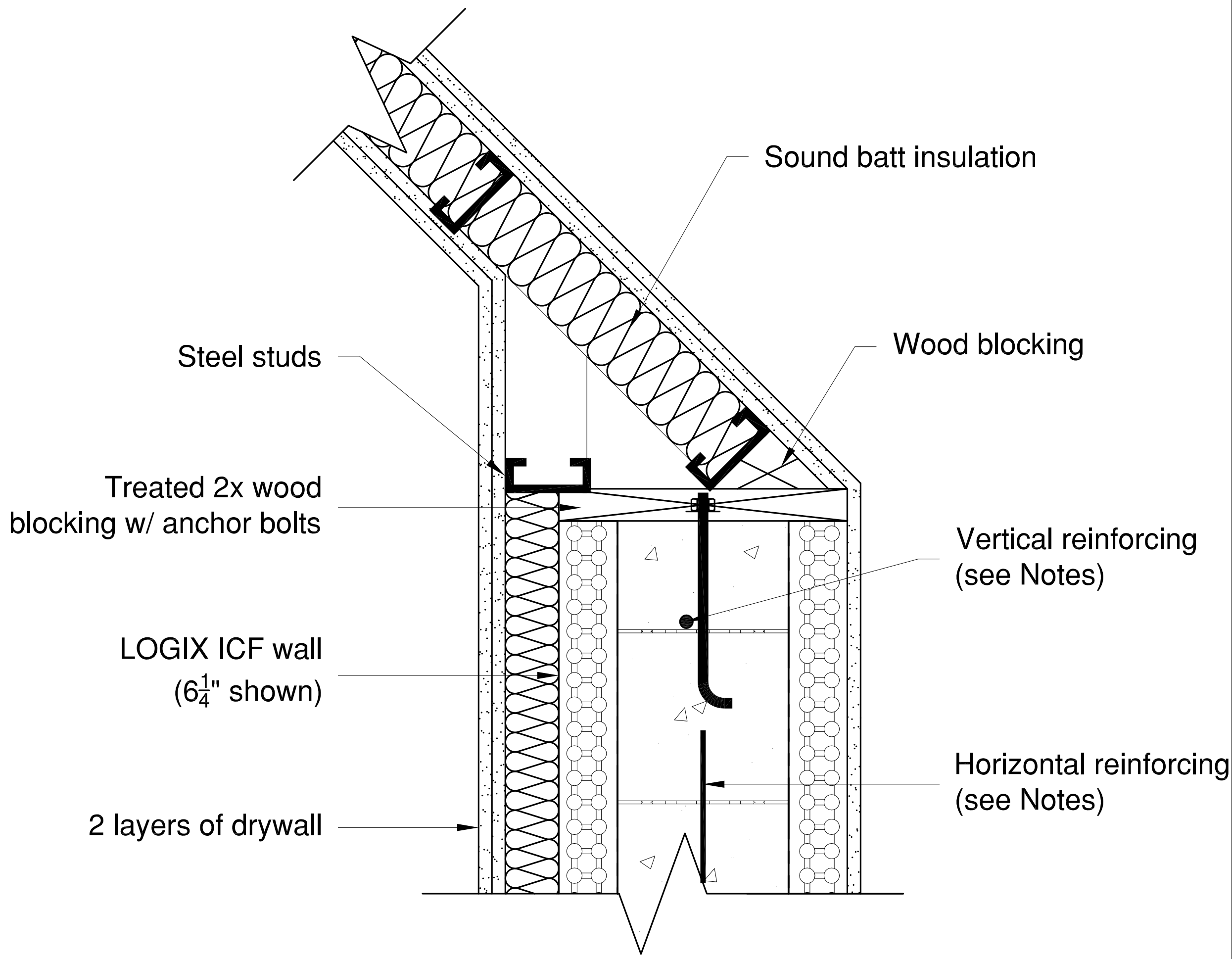


NOTES:

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

5.9.38 – ANGLED STUD FRAMED WALL ATTACHMENT

All drawings are downloadable at www.logixicf.com

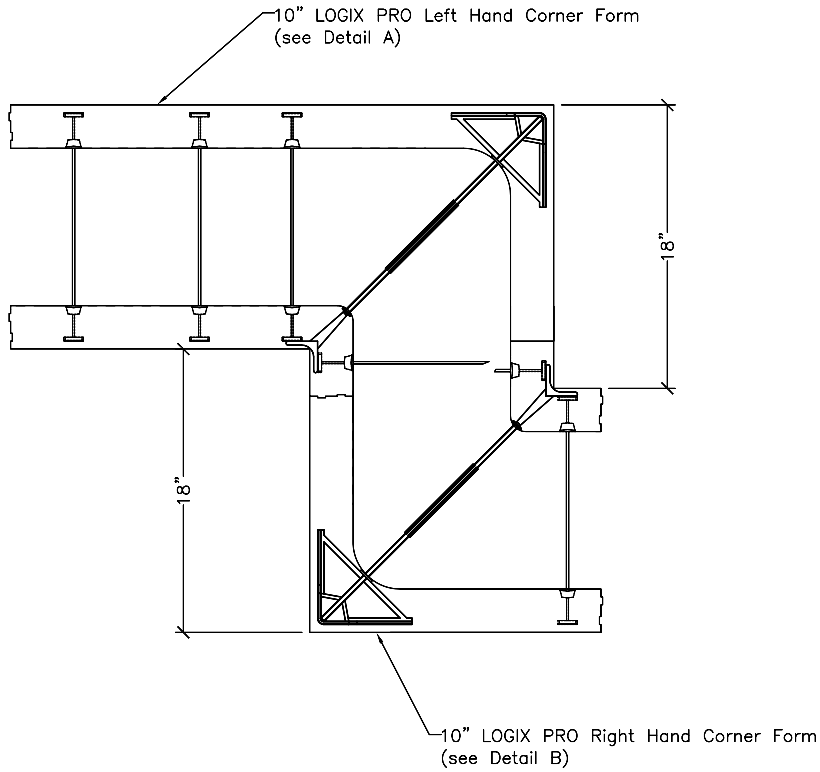


NOTES:

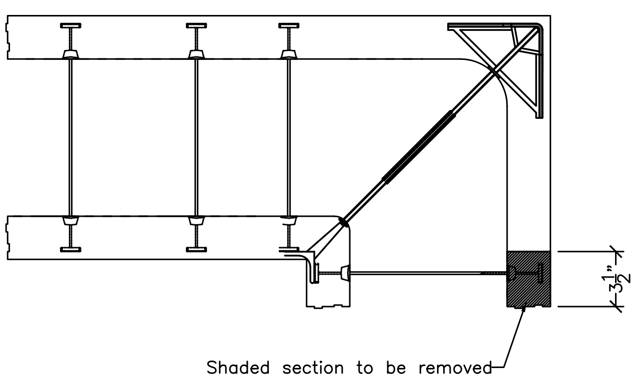
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.9.39 – 18” JOGS WITH LEFT & RIGHT HAND 10” LOGIX PRO CORNER FORMS

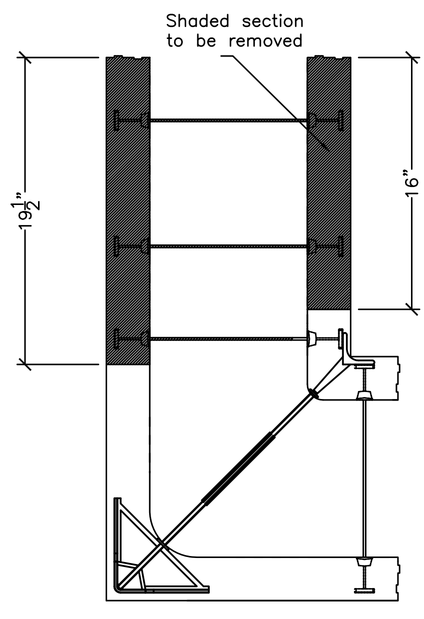
All drawings are downloadable at www.logixicf.com



PLAN VIEW



DETAIL A



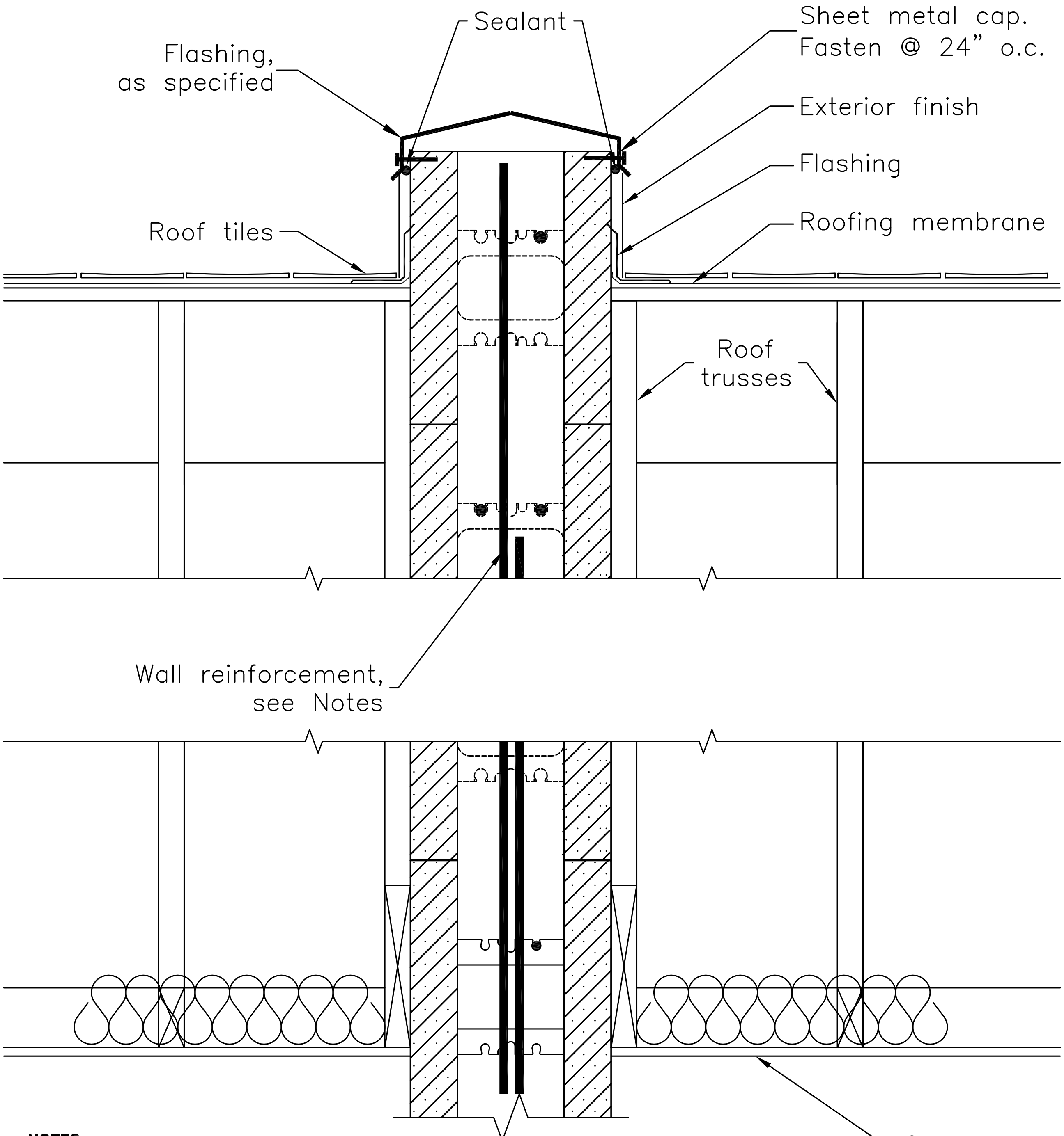
DETAIL B

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.

5.9.40 – FIRE WALL ABOVE ROOF LINE

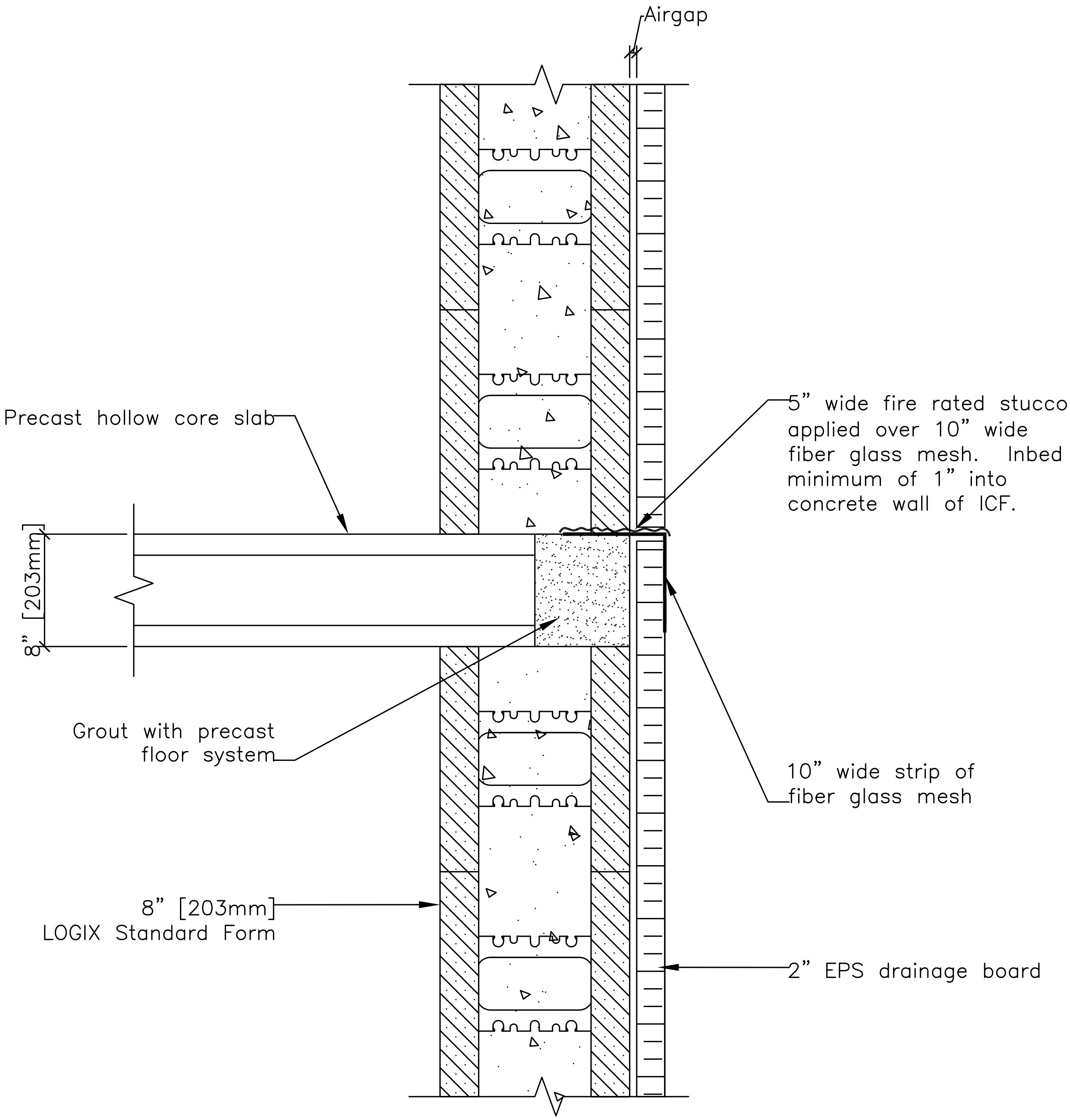
All drawings are downloadable at www.logixicf.com



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

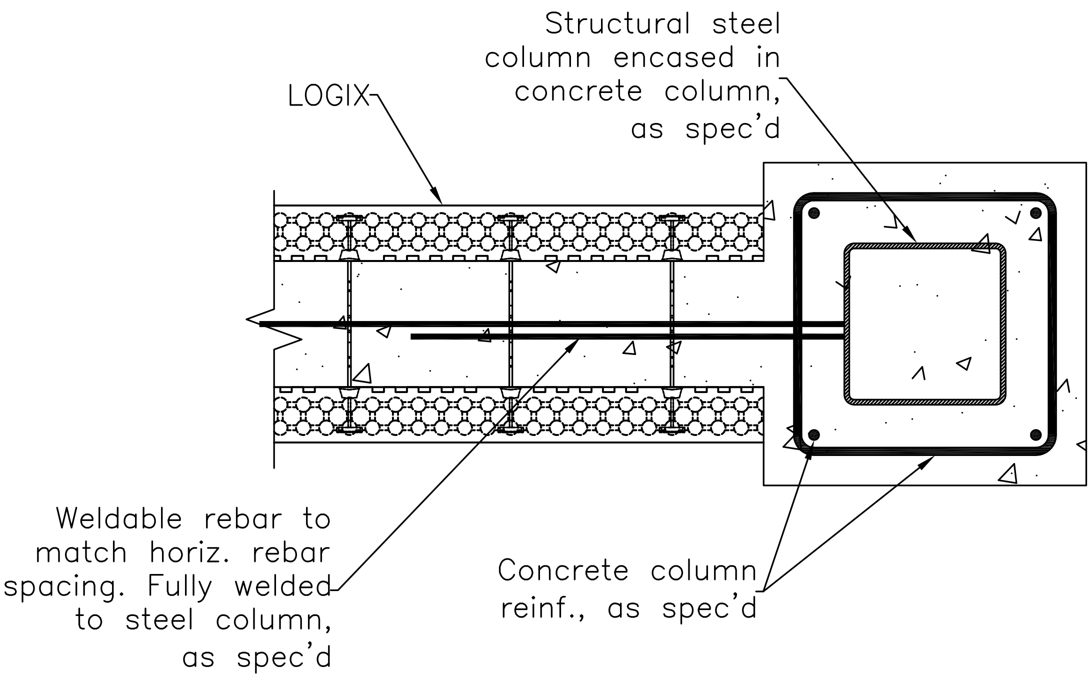
5.9.41 – FIRE BREAK AT CEILING/FLOOR

All drawings are downloadable at www.logixicf.com



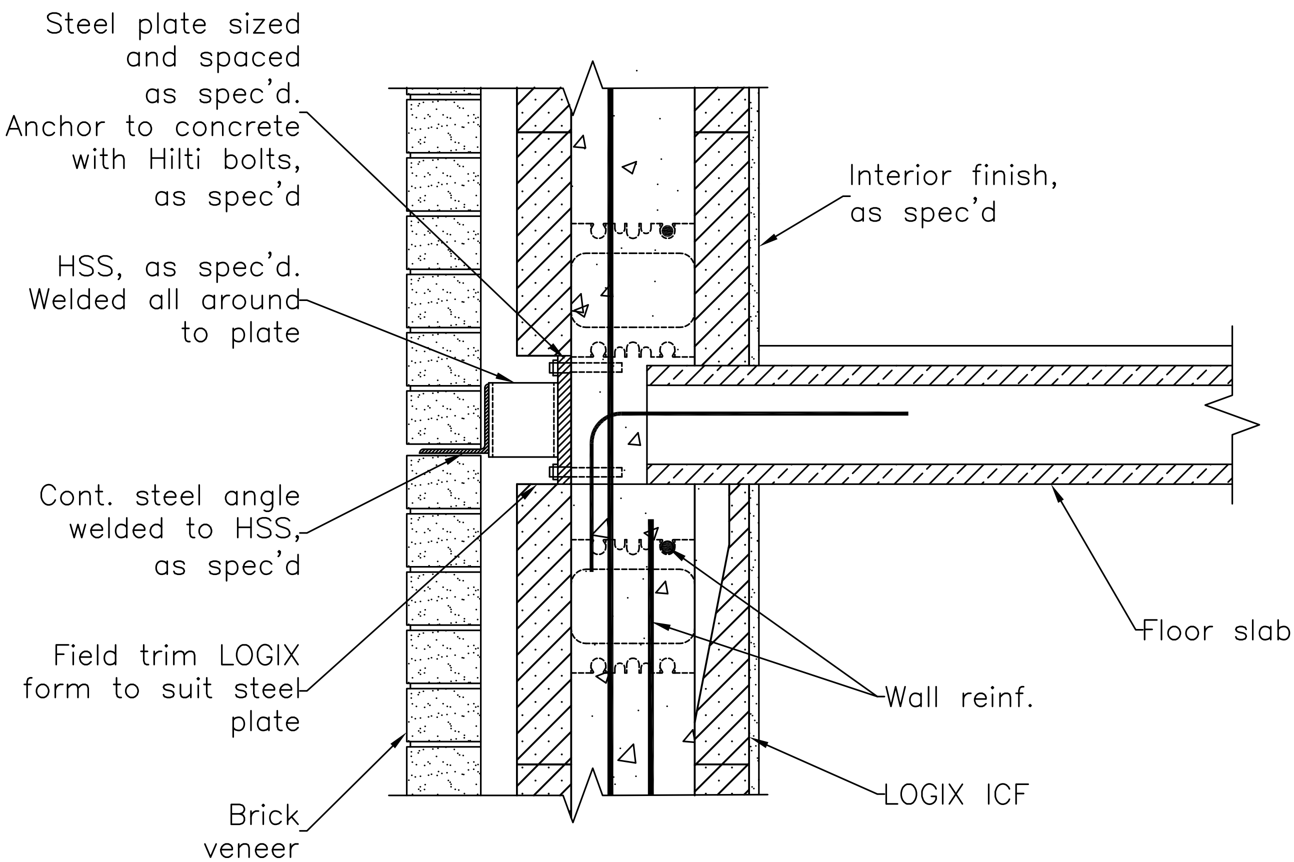
5.9.42 – CONCRETE ENCASED STEEL COLUMN

All drawings are downloadable at www.logixicf.com



5.9.43 – BRICK LEDGE SHELF ANGLE

All drawings are downloadable at www.logixicf.com



6.0 – ENGINEERING

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APPENDIX

LOGIX below-grade tables with seismic loading considered are available for download at www.logixicf.com by clicking "Technical Library", "Design Manual", "Engineering".

The tables are grouped into the following provinces:

- AB, SK, MB, NF, PEI, NS
- ON, NB
- BC, QB

APPENDIX A - BELOW-GRADE REINFORCEMENT TABLES FOR AB, SK, MB, NF, PEI, NS

APPENDIX B - BELOW-GRADE REINFORCEMENT TABLES FOR ON, NB

APPENDIX C - BELOW-GRADE REINFORCEMENT TABLES FOR BC, QB

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.

RSJR Engineering LTD

6913 Young Court • Woodridge, Illinois 60517 • (630) 963-7817

November 1, 2010 RSJR No. 10-151MY

AMC Foam Technologies
LOGIX Insulated Concrete Forms
151 Paramount Road
Winnipeg, MB R2X2W6

Re: LOGIX ICF (Insulated Concrete Form) Engineering Approval – Illinois

To Whom It May Concern:

As per your request, we have completed a review of the U.S. Engineering Analysis Report included in Chapter 6 of the LOGIX ICF Product Manual. We approve the use of Tables 1, 2A, 2B, 2C, 2D, 3, 4A, 4B, 4C, 4D, 4E, 5A, 5B, 5C, 5D, and 5E dated Sep 23/09 for use in the State of Illinois. The tables meet or exceed the requirements of the 2006 International Building Code and are in compliance with American Concrete Institute Building Code Requirements for Structural Concrete (ACI 318).

Respectfully submitted for:
RSJR Engineering LTD
By:

STATE OF ILLINOIS
ROMAN SZCZESNIAK
081-005042
WOODRIDGE, IL
LICENSED STRUCTURAL ENGINEER

Roman Szczesniak, S.E.
RSJR Engineering LTD

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 and lintel reinforcement tables are provided in this report. The tables were developed using the applicable sections of Chapter 16 of the International Building Code 2012, 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 2012, 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.

Building limitations used to develop Tables 2A to 2D, and Tables 3A and 3B 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.

BELOW-GRADE WALL REINFORCEMENT TABLES

NOTES FOR TABLE 1 - BELOW-GRADE TABLE ADAPTED FROM IRC 2012

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 2012. 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)):
   - 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
   - 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
4. Walls are not subject to hydrostatic pressure from ground water
5. Walls must be laterally supported at top and bottom of wall before backfilling
6. Interpolation is not permitted
7. 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.
8. 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
9. In Seismic Design Category D0, D1, and D2, where Table 1 permits plain concrete, and supporting light-frame walls shall comply with the following:
   - Wall height shall not exceed 8 feet
   - Unbalanced backfill height shall not exceed 4 feet
   - 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
   - Minimum reinforcement shall consist of one #4 horizontal bar within the top 12 inches of the wall
10. 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.
11. 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 REINFORCEMENT - IRC2012

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	NR	NR	NR	NR
	8	RR	RR	RR	RR	RR	RR	NR	NR	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.
2. "RR" denotes reinforcement required. Refer to Tables 2A to 2D for LOGIX Below-grade tables.
3. **Table 1** shall be read in conjunction with "Notes for Table 1 - Below-grade Table Adapted from IRC 2012".

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.

LOGIX below-grade 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.

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

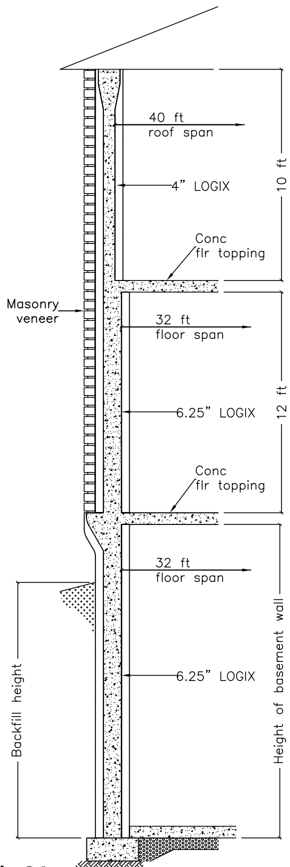

Fig 2A
Assumed typical flooring, wall & roof for **Table 2A**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 6.7 kips/ft.

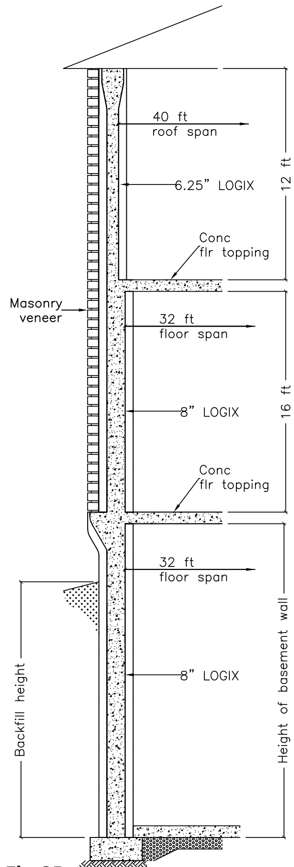

Fig 2B
Assumed typical flooring, wall & roof for **Table 2B**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

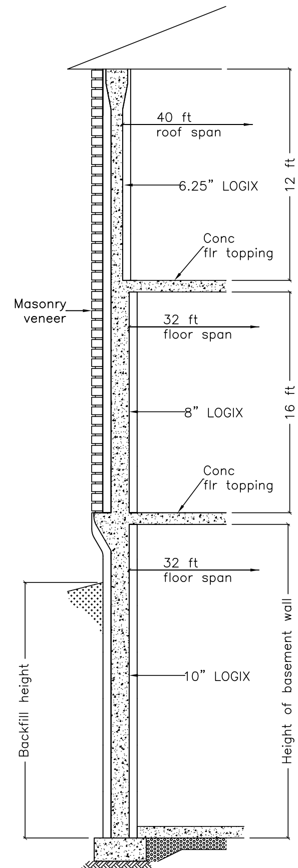

Fig 2C
Assumed typical flooring, wall & roof for **Table 2C**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

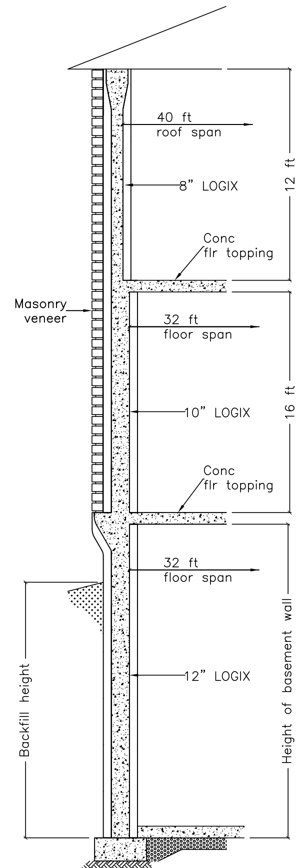

Fig 2D
Assumed typical flooring, wall & roof for **Table 2D**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 9 kips/ft.

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

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 of 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	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
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	8	32	48	48	48	48	16	24	32	48	48	8	16	16	24	40	8	12	16	16	24
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	6	48	48	48	48	48	40	48	48	48	48	16	32	48	48	48	12	24	32	40	48
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	6	48	48	48	48	48	32	48	48	48	48	16	24	32	48	48	12	16	24	32	48
	7	32	48	48	48	48	16	24	32	40	48	8	12	16	24	32	6	12	16	16	24
	8	16	24	40	48	48	8	12	16	24	32	6	8	12	16	24	-	8	8	12	16
	9	12	16	24	32	48	6	8	16	16	24	-	6	8	12	16	-	-	8	6	12
	10	8	12	16	24	32	-	8	12	16	16	-	6	8	6	12	-	-	6	6	6
11	4	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	5	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	32	40	48	48
	6	48	48	48	48	48	24	32	48	48	48	12	16	32	40	48	8	16	16	24	40
	7	24	32	48	48	48	12	16	24	32	48	8	12	16	24	32	6	8	12	16	24
	8	12	16	32	40	48	8	12	16	24	32	-	8	12	16	16	-	6	8	12	16
	9	8	16	16	24	32	6	8	12	16	16	-	6	8	12	6	-	-	6	6	6
	10	6	8	16	16	24	-	6	8	12	16	-	-	6	6	6	-	-	-	6	6
	11	6	8	12	16	16	-	-	6	6	6	-	-	-	6	6	-	-	-	-	6
12	4	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	5	48	48	48	48	48	40	48	48	48	48	24	32	48	48	48	16	24	32	48	48
	6	40	48	48	48	48	16	24	40	48	48	12	16	24	32	40	8	12	16	24	32
	7	16	24	40	48	48	8	16	16	24	40	6	8	12	16	24	-	8	12	16	16
	8	12	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	8	6	6
	9	8	12	16	24	24	-	6	8	12	16	-	-	6	6	6	-	-	-	6	6
	10	6	8	12	16	16	-	-	8	6	6	-	-	-	6	6	-	-	-	-	6
	11	-	6	8	12	16	-	-	6	6	6	-	-	-	-	6	-	-	-	-	-
	12	-	6	8	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) = 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.

TABLE 2B - LOGIX 8" BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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 of 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	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48	16	24	40	48	48
9	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	24	32	48	48	48
	8	48	48	48	48	48	40	48	48	48	48	16	32	40	48	48	12	16	24	40	48
	9	48	48	48	48	48	24	32	48	48	48	12	16	24	40	48	8	12	16	24	32
	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	24	40	48	48
	8	48	48	48	48	48	32	48	48	48	48	16	24	32	48	48	8	16	24	32	40
	9	48	48	48	48	48	16	24	40	48	48	8	16	24	32	40	8	12	16	16	24
	10	24	40	48	48	48	12	16	24	32	48	8	12	16	16	24	6	8	12	16	16
11	4-5	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48	16	24	32	48	48
	8	48	48	48	48	48	24	32	48	48	48	12	16	24	40	48	8	12	16	24	32
	9	32	48	48	48	48	12	16	32	40	48	8	12	16	24	32	6	8	12	16	24
	10	16	32	40	48	48	8	16	16	24	32	6	8	12	16	24	-	6	8	12	16
	11	12	16	32	40	48	6	12	16	16	24	-	8	8	12	16	-	6	8	8	12
12	4-5	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	7	48	48	48	48	48	40	48	48	48	48	16	32	40	48	48	12	16	24	40	48
	8	48	48	48	48	48	16	32	40	48	48	12	16	24	32	40	8	12	16	24	32
	9	24	40	48	48	48	12	16	24	32	40	8	12	16	24	24	6	8	12	16	16
	10	16	24	32	48	48	8	12	16	24	32	-	8	12	16	16	-	6	8	12	16
	11	12	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	12	8	12	16	24	32	-	8	8	12	16	-	-	6	8	12	-	-	-	8	6
14	4-5	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	6	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	16	32	48	48	48
	7	48	48	48	48	48	24	40	48	48	48	16	24	32	48	48	8	16	24	32	40
	8	32	48	48	48	48	12	16	32	40	48	8	12	16	24	32	6	8	12	16	24
	9	16	24	40	48	48	8	12	16	24	32	6	8	12	16	24	-	6	8	12	16
	10	12	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	11	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	6
	12	6	8	12	16	24	-	6	8	8	12	-	-	-	8	6	-	-	-	6	6
	13	-	8	8	12	16	-	-	6	8	12	-	-	-	6	6	-	-	-	-	6
	14	-	6	8	12	16	-	-	-	6	6	-	-	-	-	6	-	-	-	-	-
16	4-5	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	6	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48	16	24	32	48	48
	7	48	48	48	48	48	16	24	40	48	48	12	16	24	32	40	8	12	16	24	32
	8	24	32	48	48	48	8	16	24	32	40	6	8	16	16	24	-	8	12	16	16
	9	12	16	24	32	48	6	8	16	16	24	-	6	8	12	16	-	-	8	8	12
	10	8	12	16	24	32	-	8	8	12	16	-	-	6	8	12	-	-	6	8	6
	11	6	8	12	16	24	-	6	8	8	12	-	-	6	8	6	-	-	-	6	6
	12	-	6	8	12	16	-	-	6	8	6	-	-	-	6	6	-	-	-	-	6
	13	-	6	8	8	12	-	-	-	6	6	-	-	-	-	6	-	-	-	-	-
	14	-	-	6	8	12	-	-	-	6	6	-	-	-	-	-	-	-	-	-	-
	15	-	-	6	8	6	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
	16	-	-	-	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.

TABLE 2C - LOGIX 10" BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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 of 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	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	9	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	24	40	48	48
10	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	24	32	48	48	48
	9	48	48	48	48	48	48	48	48	48	48	24	32	48	48	48	12	16	32	40	48
	10	48	48	48	48	48	24	40	48	48	48	12	24	32	40	48	8	16	16	32	40
11	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	32	40	48	48
	9	48	48	48	48	48	40	48	48	48	48	16	24	40	48	48	12	16	24	32	48
	10	48	48	48	48	48	16	32	48	48	48	12	16	24	32	48	8	12	16	24	32
	11	40	48	48	48	48	12	24	32	40	48	8	12	16	24	32	6	8	12	16	24
12	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	24	40	48	48
	9	48	48	48	48	48	32	48	48	48	48	16	24	32	48	48	8	16	24	32	40
	10	48	48	48	48	48	16	24	40	48	48	8	16	24	32	40	8	12	16	16	24
	11	24	40	48	48	48	12	16	24	32	48	8	12	16	24	32	6	8	12	16	16
	12	16	32	40	48	48	8	12	16	24	32	6	8	12	16	24	-	6	8	12	16
14	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	24	32	48	48	48	12	16	32	40	48
	9	48	48	48	48	48	24	32	48	48	48	12	16	24	40	48	8	12	16	24	32
	10	32	48	48	48	48	12	16	32	40	48	8	12	16	24	32	6	8	12	16	24
	11	16	32	40	48	48	8	16	16	24	32	6	8	12	16	24	-	6	8	12	16
	12	12	16	32	40	48	6	12	16	16	24	-	8	8	12	16	-	-	8	8	12
	13	8	16	24	32	40	6	8	12	16	16	-	6	8	12	16	-	-	6	8	12
	14	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	8
16	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48
	8	48	48	48	48	48	40	48	48	48	48	16	24	40	48	48	12	16	24	32	48
	9	48	48	48	48	48	16	24	40	48	48	8	16	24	32	40	8	12	16	24	24
	10	24	40	48	48	48	12	16	24	32	40	6	12	16	16	24	-	8	12	16	16
	11	16	24	32	48	48	8	12	16	24	32	-	8	12	16	16	-	6	8	12	16
	12	12	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	13	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	8
	14	6	8	12	16	24	-	6	8	12	12	-	-	6	8	8	-	-	-	6	8
	15	-	8	12	16	16	-	-	6	8	12	-	-	-	6	8	-	-	-	-	6
	16	-	6	8	12	16	-	-	6	8	8	-	-	-	-	6	-	-	-	-	-

NOTES:
See next page.

TABLE 2C - LOGIX 10” BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT Cont’d

Maximum Height of 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				
18	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	16	32	48	48	48
	8	48	48	48	48	48	32	48	48	48	48	16	24	32	48	48	8	16	24	32	40
	9	40	48	48	48	48	16	24	32	48	48	8	12	16	24	32	6	8	12	16	24
	10	16	32	48	48	48	8	16	16	24	40	6	8	12	16	24	-	6	8	12	16
	11	12	16	24	40	48	6	8	16	16	24	-	6	8	12	16	-	-	8	8	12
	12	8	12	16	24	32	-	8	12	16	16	-	-	8	8	12	-	-	6	8	8
	13	6	8	16	16	24	-	6	8	12	16	-	-	6	8	8	-	-	-	6	8
	14	-	8	12	16	16	-	-	6	8	12	-	-	-	6	8	-	-	-	-	6
	15	-	6	8	12	16	-	-	6	8	8	-	-	-	-	6	-	-	-	-	-
	16	-	6	8	8	12	-	-	-	6	8	-	-	-	-	6	-	-	-	-	-
	17	-	-	6	8	12	-	-	-	6	6	-	-	-	-	-	-	-	-	-	-
	18	-	-	6	8	8	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
20	4-6	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	7	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48	16	24	40	48	48
	8	48	48	48	48	48	24	40	48	48	48	12	16	32	40	48	8	12	16	24	32
	9	32	48	48	48	48	12	16	24	40	48	8	12	16	24	32	6	8	12	16	24
	10	16	24	40	48	48	8	12	16	24	32	6	8	12	16	16	-	6	8	12	16
	11	12	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	12	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	8
	13	6	8	12	16	24	-	-	8	8	12	-	-	-	6	8	-	-	-	-	6
	14	-	6	8	12	16	-	-	6	8	8	-	-	-	6	6	-	-	-	-	6
	15	-	6	8	12	12	-	-	-	6	8	-	-	-	-	6	-	-	-	-	-
	16	-	-	6	8	12	-	-	-	6	6	-	-	-	-	-	-	-	-	-	-
	17	-	-	6	8	8	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
	18	-	-	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19	-	-	-	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	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.

TABLE 2D - LOGIX 12" BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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 of 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	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	32	48	48	48	48
	9	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48	16	24	32	48	48
	10	48	48	48	48	48	32	48	48	48	48	16	24	32	40	48	8	16	16	24	40
	11	48	48	48	48	48	16	24	40	48	48	8	16	16	24	40	6	8	16	16	24
	12	32	48	48	48	48	12	16	24	32	48	8	12	16	16	24	-	8	12	16	16
	13	16	32	40	48	48	8	12	16	24	32	6	8	12	16	24	-	6	8	12	16
	14	12	16	32	40	48	6	8	16	16	24	-	6	8	12	16	-	-	8	8	12
16	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48
	9	48	48	48	48	48	48	48	48	48	48	16	32	48	48	48	12	16	24	40	48
	10	48	48	48	48	48	24	32	48	48	48	12	16	24	32	48	8	12	16	24	32
	11	40	48	48	48	48	12	16	32	40	48	8	12	16	24	32	6	8	12	16	24
	12	16	32	48	48	48	8	16	16	24	40	6	8	12	16	24	-	6	8	12	16
	13	12	24	32	40	48	6	12	16	16	24	-	8	8	12	16	-	-	8	8	12
	14	8	16	24	32	40	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	15	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	8
	16	6	8	16	16	24	-	6	8	12	16	-	-	6	8	8	-	-	-	6	8
18	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	16	32	48	48	48
	9	48	48	48	48	48	40	48	48	48	48	16	24	40	48	48	12	16	24	32	48
	10	48	48	48	48	48	16	24	40	48	48	8	16	24	32	40	8	12	16	16	24
	11	32	48	48	48	48	12	16	24	32	48	6	12	16	16	24	-	8	12	16	16
	12	16	24	40	48	48	8	12	16	24	32	-	8	12	16	16	-	6	8	12	16
	13	12	16	24	32	48	6	8	12	16	24	-	6	8	12	16	-	-	6	8	12
	14	8	12	16	24	32	-	8	8	12	16	-	-	6	8	12	-	-	-	8	8
	15	6	8	16	16	24	-	6	8	12	16	-	-	6	8	8	-	-	-	6	8
	16	6	8	12	16	24	-	-	6	8	12	-	-	-	6	8	-	-	-	-	6
	17	-	8	8	12	16	-	-	6	8	8	-	-	-	6	8	-	-	-	-	6
	18	-	6	8	12	16	-	-	-	6	8	-	-	-	-	6	-	-	-	-	-
20	4-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	8	48	48	48	48	48	48	48	48	48	48	40	48	48	48	48	16	32	40	48	48
	9	48	48	48	48	48	32	48	48	48	48	16	24	32	48	48	8	16	24	32	40
	10	48	48	48	48	48	16	24	32	48	48	8	16	16	24	40	6	8	12	16	24
	11	24	40	48	48	48	8	16	24	32	40	6	8	12	16	24	-	8	8	12	16
	12	16	24	32	40	48	6	12	16	16	24	-	8	8	12	16	-	6	8	8	12
	13	8	16	24	32	40	6	8	12	16	16	-	6	8	8	12	-	-	6	8	8
	14	8	12	16	24	32	-	6	8	12	16	-	-	6	8	12	-	-	-	6	8
	15	6	8	12	16	24	-	-	8	8	12	-	-	-	6	8	-	-	-	-	6
	16	-	8	8	16	16	-	-	6	8	12	-	-	-	6	8	-	-	-	-	6
	17	-	6	8	12	16	-	-	-	6	8	-	-	-	-	6	-	-	-	-	-
	18	-	6	8	8	12	-	-	-	6	8	-	-	-	-	6	-	-	-	-	-
	19	-	-	6	8	12	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
	20	-	-	6	8	8	-	-	-	-	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 in conjunction with **Fig 2D**, and section "Notes for Tables 2A to 2D - LOGIX Below-grade Tables."
4. Steel yield strength = 40 ksi, 28 day concrete compressive strenght = 3 ksi.

E N G I N E E R I N G

ABOVE-GRADE WALL REINFORCEMENT TABLES

NOTES FOR ABOVE-GRADE WALL TABLES - Tables 3A & 3B
Table 3A covers reinforcement for LOGIX above-grade walls with wind speeds upto 150mph. For larger wind speeds see Table 3B, which covers wind speeds upto 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.

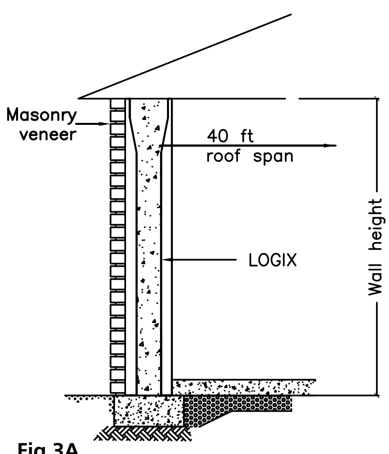

Fig 3A
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting Roof Only**.

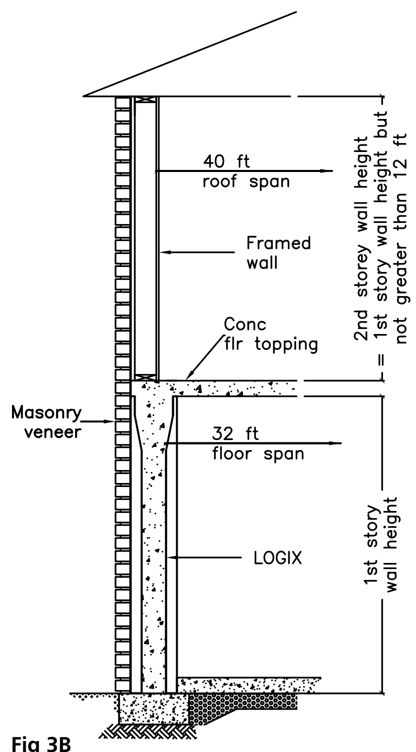

Fig 3B
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting 2nd Story Wood Frame & Roof Structure**.

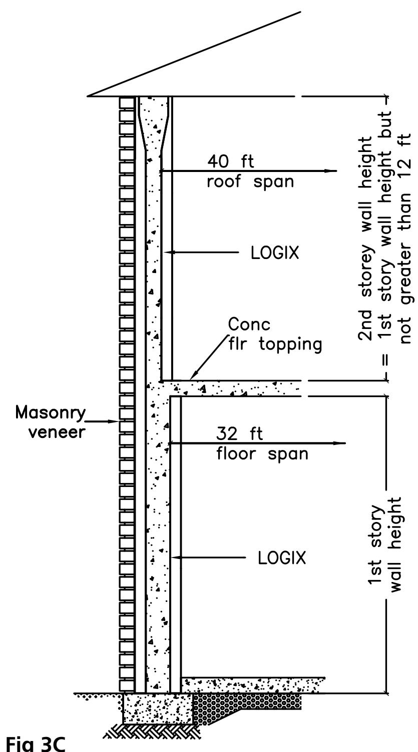

Fig 3C
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting 2nd Story LOGIX & Roof Structure**.

NOTES FOR ABOVE-GRADE WALL TABLES 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 is based on 40 ksi reinforcing steel multiply bar 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 **Table 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. Tables R301.2.1.3 and R611.3(1) are taken from the 2006 International Residential Code. These tables can be used to convert wind speeds to wind loads used in Table 3A, Logix Above-Grade Wall Minimum Vertical Reinforcement.
18. For larger wind speeds greater than 150mph see Table 3B.

TABLE R301.2.1.3
EQUIVALENT BASIC WIND SPEEDS[a]

3-second gust, V_{3s}	85	90	100	105	110	120	125	130	140	145	150	160	170
Fastest mile, V_{fm}	71	76	85	90	95	104	109	114	123	128	133	142	152

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.

ENGINEERING

6.1 – U.S. ENGINEERING ANALYSIS REPORT

TABLE 3A - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT (WIND SPEEDS UP TO 150 MPH)

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.

LOGIX ABOVE-GRADE WALLS - VERTICAL REINFORCEMENT SPACING, in.

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness					
	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	48	32	16	12	8	48	48	48	48	40	24	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	48	40	16	12	8	6	48	48	48	32	24	16	48	48	48	48	48	24	48	48	48	48	48	48	48	48	48	48	48	48
10	48	24	12	8	6	-	48	48	40	24	16	12	48	48	48	40	32	16	48	48	48	48	48	32	48	48	48	48	48	48
12	32	12	6	-	-	-	48	48	16	12	8	6	48	48	40	16	16	8	48	48	48	32	24	16	48	48	48	48	48	48
14	12	6	-	-	-	-	40	24	12	6	6	-	48	48	16	12	8	6	48	48	32	16	16	8	48	48	48	32	32	24
16	6	-	-	-	-	-	16	12	8	-	-	-	24	24	12	8	6	-	40	40	16	12	8	6	48	48	32	16	16	12
18	-	-	-	-	-	-	12	8	-	-	-	-	12	12	8	6	-	-	16	16	12	8	6	-	24	24	16	12	12	8
20	-	-	-	-	-	-	6	6	-	-	-	-	8	8	6	-	-	-	12	12	8	6	-	-	12	12	12	8	8	6

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness					
	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	48	32	16	12	8	48	48	48	48	48	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	48	48	16	12	8	6	48	48	48	48	32	16	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
10	32	24	12	8	6	-	48	48	48	24	16	12	48	48	48	48	48	24	48	48	48	48	48	48	48	48	48	48	48	48
12	12	8	6	-	-	-	48	48	24	12	8	8	48	48	48	24	16	12	48	48	48	48	40	24	48	48	48	48	48	40
14	6	-	-	-	-	-	24	24	12	8	6	-	48	48	24	12	12	8	48	48	48	24	16	12	48	48	48	48	32	16
16	-	-	-	-	-	-	12	12	8	-	-	-	16	16	12	8	6	-	32	32	24	12	12	8	48	48	48	24	16	12
18	-	-	-	-	-	-	8	8	-	-	-	-	12	12	8	6	-	-	16	16	16	8	8	-	16	16	16	12	12	8
20	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	-	-	-	8	8	8	6	6	-	12	12	12	8	8	6

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness					
	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	48	32	16	12	8	48	48	48	48	48	40	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	48	48	16	12	8	6	48	48	48	48	48	24	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
10	24	24	12	6	6	-	48	48	48	32	24	16	48	48	48	48	48	40	48	48	48	48	48	48	48	48	48	48	48	48
12	8	8	-	-	-	-	40	40	32	16	12	8	48	48	48	40	24	12	48	48	48	48	48	40	48	48	48	48	48	48
14	-	-	-	-	-	-	16	16	12	8	6	-	32	32	32	16	12	8	48	48	48	48	32	16	48	48	48	48	48	32
16	-	-	-	-	-	-	8	8	8	-	-	-	12	12	12	8	8	-	16	16	16	16	12	8	32	32	32	32	24	12
18	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	6	-	-	8	8	8	8	8	6	12	12	12	12	12	8
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	-	8	8	8	8	8	6

NOTES:

1. **Table 3A** must be used in conjunction 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 compressive strenght = 3 ksi.

TABLE 3B - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT (WIND SPEEDS GREATER THAN 150 MPH)

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.

LOGIX ABOVE-GRADE WALLS - VERTICAL REINFORCEMENT SPACING, in.

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	4" LOGIX Wall Thickness Wind Speed, mph				6.25" LOGIX Wall Thickness Wind Speed, mph				8" LOGIX Wall Thickness Wind Speed, mph				10" LOGIX Wall Thickness Wind Speed, mph				12" LOGIX Wall Thickness 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	6	-	-	24	12	8	8	32	16	12	12	48	24	16	16	48	32	24	16
9	8	-	-	-	16	8	8	6	24	12	8	8	32	16	12	12	48	24	16	12
10	6	-	-	-	12	6	6	-	16	8	8	6	24	12	8	8	32	16	12	12
12	-	-	-	-	8	-	-	-	8	6	-	-	16	8	6	-	16	8	8	6
14	-	-	-	-	-	-	-	-	6	-	-	-	8	6	-	-	12	6	6	-
16	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	8	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Ground Floor LOGIX Supporting 2nd Storey LOGIX (or 2nd Storey Wood Frame) & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness Wind Speed, mph				6.25" LOGIX Wall Thickness Wind Speed, mph				8" LOGIX Wall Thickness Wind Speed, mph				10" LOGIX Wall Thickness Wind Speed, mph				12" LOGIX Wall Thickness Wind Speed, mph			
	200	250	275	300	200	250	275	300	200	250	275	300	200	250	275	300	200	250	275	300
8	6	-	-	-	24	12	8	8	48	16	12	12	48	32	24	16	48	32	24	16
9	6	-	-	-	16	8	6	-	24	12	8	8	48	16	16	12	48	24	16	12
10	-	-	-	-	12	6	-	-	16	8	8	6	32	16	12	8	48	16	12	12
12	-	-	-	-	6	-	-	-	8	6	-	-	16	8	6	-	24	8	8	6
14	-	-	-	-	-	-	-	-	6	-	-	-	8	-	-	-	16	8	6	-
16	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	8	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

1. **Table 3B** must be used in conjunction 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. Closer spacing of vertical and horizontal rebar (at least 12" on center, each way) provides better resistance from impact due to wind borne debris.
4. Steel yield strength = 60 ksi, 28 day concrete compressive strenght = 3 ksi.

LINTEL REINFORCEMENT TABLES

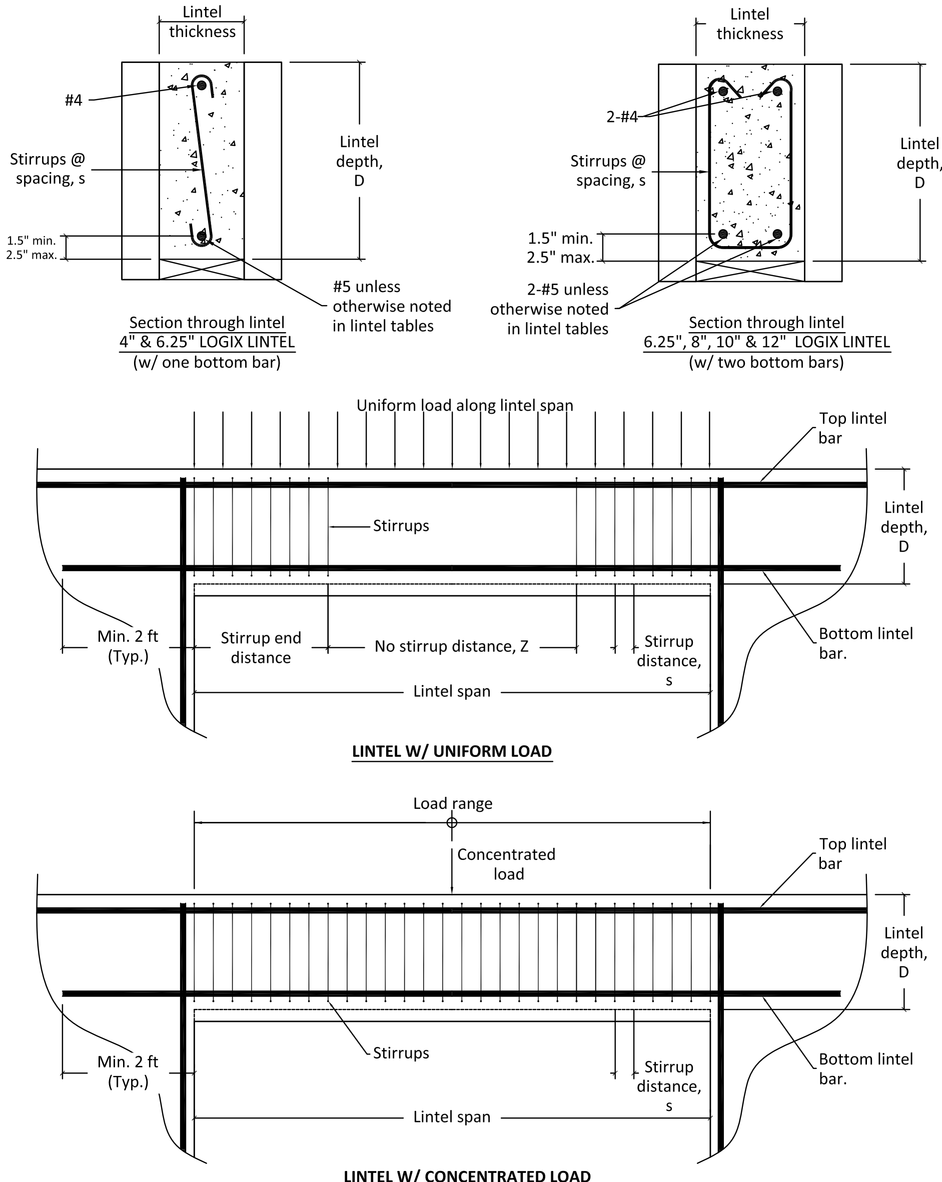

Fig 4
Lintel reinforcement

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.

TABLE 4A - LOGIX 4" LINTEL REINFORCEMENT WITH UNIFORM LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 1-#5

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 Uniform Load, lb/ft					
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.)	49	25	17	13	10	8

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
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.)		34	23	17	14	12

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
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.)	81	43	29	22	18	15

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
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.)		60	41	31	25	21

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
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.)			52	40	32	27

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
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.)			63	49	39	33

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
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.)			79	61	50	42

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)

TABLE 4B - LOGIX 6.25” LINTEL REINFORCEMENT WITH UNIFORM LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 1-#5

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 Uniform Load, lb/ft					
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.)		39	26	20	16	13

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
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 - #6	-
9		1 - #6	2 - #6	-	-	-
10		2 - #5	2 - #6	-	-	-
12	1 - #6	-	-	-	-	-
14	2 - #6	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		52	36	27	22	18

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
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.)		65	45	34	27	23

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
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.)		89	62	48	39	32

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
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.)		112	79	61	49	42

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
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.)			94	73	60	51

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
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.)			117	91	75	64

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)

TABLE 4C - LOGIX 8" LINTEL REINFORCEMENT WITH UNIFORM LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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 Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6					2 - #6	2 - #6
7				2 - #6	-	-
8			2 - #6	-	-	-
9		2 - #6	-	-	-	-
10		-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		49	33	25	20	17

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					2 - #6	2 - #6
8				2 - #6	2 - #6	-
9			2 - #6	2 - #6	-	-
10			2 - #6	-	-	-
12		-	-	-	-	-
14	2 - #6	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)			45	34	28	23

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
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 - #6	-	-	-	-
16	2 - #6	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		81	56	43	35	29

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
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	-	-
14			-	-	-	-
16		2 - #6	-	-	-	-
18		-	-	-	-	-
20	2 - #6	-	-	-	-	-
No stirrup distance, Z (in.)				60	49	41

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - #6
12				2 - #6	2 - #6	-
14			2 - #6	-	-	-
16		2 - #6	-	-	-	-
18		2 - #6	-	-	-	-
20		-	-	-	-	-
No stirrup distance, Z (in.)					62	52

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12					2 - #6	2 - #6
14				2 - #6	-	-
16			2 - #6	-	-	-
18		2 - #6	-	-	-	-
20		2 - #6	-	-	-	-
No stirrup distance, Z (in.)						63

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14					2 - #6	2 - #6
16				2 - #6	-	-
18			2 - #6	-	-	-
20		2 - #6	-	-	-	-
No stirrup distance, Z (in.)						79

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)

ENGINEERING

TABLE 4D - LOGIX 10” LINTEL REINFORCEMENT WITH UNIFORM LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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 Uniform Load, lb/ft					
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.)			41	31	25	21

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
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.)		79	55	42	34	29

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
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.)			69	53	43	36

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
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.)			94	73	60	51

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
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.)			118	92	76	64

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
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.)				110	91	78

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
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.)					113	97

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)

TABLE 4E - LOGIX 12” LINTEL REINFORCEMENT WITH UNIFORM LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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 Uniform Load, lb/ft					
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.)			49	37	30	25

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
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.)			65	50	41	34

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
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.)			81	62	51	43

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
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.)					70	60

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
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.)					89	76

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
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.)					107	91

D=30"						
Opening	Factored Uniform Load, lb/ft					
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.)						

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)

TABLE 5A - LOGIX 4” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 1-#5

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	-	-
4									1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-
5								1 - #6	1 - #6	-	-	-	-	-	-	-	-
6						1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
7					1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-
8					1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
9				1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-
10			1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	1 - #6
4													1 - #6	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	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

E N G I N E E R I N G

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	1 - #6	-	-	-
7										1 - #6	1 - #6	1 - #6	-	-	-	-	-
8								1 - #6	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	-	-	-	-	-	-	-
14						1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-	-
16					1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
18				1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-
20				1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 5A - LOGIX 4" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont'd

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

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	-
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	1 - #6	-	-	-	-	-	-
16							1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-	-
18						1 - #6	1 - #6	-	-	-	-	-	-	-	-	-	-
20					1 - #6	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
10															1 - #6	1 - #6	1 - #6
12												1 - #6	1 - #6	1 - #6	1 - #6	-	-
14										1 - #6	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	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
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	1 - #6	-	-	-	-	-
20							1 - #6	1 - #6	1 - #6	1 - #6	-	-	-	-	-	-	-

E N G I N E E R I N G

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 Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)

TABLE 5B - LOGIX 6.25" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 1-#5

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 ft	Factored Point Load, lb 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	2 - #5
4										1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	-	-
5								1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	-	-	-	-
6							1 - #6	1 - #6	2 - #5	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				2 - #5	-	-	-	-	-	-	-	-	-	-	-	-	-
12			2 - #5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		2 - #5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	1 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=4", D=10"

Opening ft	Factored Point Load, lb 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	1 - #6	1 - #6	2 - #5
5											1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #6
6									1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
7								1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-
8						1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	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 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-
14			1 - #6	2 - #5	2 - #6	2 - #6	-	-	-	-	-	-	-	-	-	-	-
16			2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		2 - #5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	1 - #6	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=5", D=12"

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																1 - #6	1 - #6
5														1 - #6	1 - #6	1 - #6	2 - #5
6											1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5
7										1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
8								1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6
9							1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-
10						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	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-
14				1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-	-	-
16			1 - #6	1 - #6	2 - #5	2 - #6	-	-	-	-	-	-	-	-	-	-	-
18			1 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-
20		1 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-	-	-	-	-	-

E N G I N E E R I N G

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																	
4																	
5																	1 - #6
6															1 - #6	1 - #6	1 - #6
7														1 - #6	1 - #6	1 - #6	2 - #5
8												1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5
9										1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #6
10									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	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6
14						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	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-
18				1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-	-	-
20			1 - #6	1 - #6	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	-	-	-	-	-	-	-	-

TABLE 5B - LOGIX 6.25” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

s=9", 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																	
4																	
5																	
6																	
7																1 - #6	1 - #6
8															1 - #6	1 - #6	1 - #6
9													1 - #6	1 - #6	1 - #6	1 - #6	2 - #5
10												1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5
12									1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6
14							1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6
16						1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-
18					1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	-	-
20				1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	-	-	-

s=11", 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
3-7																	
8																	1 - #6
9															1 - #6	1 - #6	1 - #6
10														1 - #6	1 - #6	1 - #6	1 - #6
12											1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5
14									1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #6
16							1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
18						1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6
20				1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #6	2 - #6	-	-

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
3-9																	
10																1 - #6	1 - #6
12														1 - #6	1 - #6	1 - #6	1 - #6
14												1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5
16									1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5
18							1 - #6	1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6
20						1 - #6	1 - #6	1 - #6	1 - #6	2 - #5	2 - #5	2 - #5	2 - #5	2 - #5	2 - #6	2 - #6	2 - #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 stirrups. 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)

TABLE 5C - LOGIX 8" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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 - #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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	2 - #8	-	-	-	-	-	-	-
20				2 - #6	2 - #7	2 - #8	2 - #8	-	-	-	-	-	-	-	-	-	-

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																	
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	-	-

TABLE 5C - LOGIX 8" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont'd

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

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																	
12																	2 - #6
14															2 - #6	2 - #6	2 - #6
16													2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
18											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 - #7	2 - #7	2 - #7	2 - #8

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																	
14																	2 - #6
16															2 - #6	2 - #6	2 - #6
18													2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
20											2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7

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
3-17																	
18																2 - #6	2 - #6
20														2 - #6	2 - #6	2 - #6	2 - #6

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 Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)

TABLE 5D - LOGIX 10" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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	-	-	-	-	-	-	-	-	-	-

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																	
9																	2 - #6
10																2 - #6	2 - #6
12														2 - #6	2 - #6	2 - #6	2 - #6
14											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 - #7	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 - #7	2 - #8	2 - #8	-	-

TABLE 5D - LOGIX 10" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont'd

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

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																	
12																2 - #6	2 - #6
14															2 - #6	2 - #6	2 - #6
16												2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
18										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 - #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																	
14																2 - #6	2 - #6
16															2 - #6	2 - #6	2 - #6
18												2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7
20										2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	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																	
16																	2 - #6
18															2 - #6	2 - #6	2 - #6
20													2 - #6	2 - #6	2 - #6	2 - #6	2 - #6

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 Point Load includes 1.2, and 1.6 for dead and live load, respectively. For example, (1.2*dead load)+(1.6*live load)

TABLE 5E - LOGIX 12" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

Where not shown otherwise, bottom steel is 2-#5

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	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	-	-	-	-	-	-	-	-	-	-

	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																	
9																	2 - #6
10																2 - #6	2 - #6
12														2 - #6	2 - #6	2 - #6	2 - #7
14											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 - #7	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	2 - #8
20					2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8	-	-

TABLE 5E - LOGIX 12” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

Based on 40 ksi reinforcing steel. Lintels tables for 60 ksi reinforcing steel are available for download at www.logixicf.com.

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																	
12																2 - #6	2 - #6
14														2 - #6	2 - #6	2 - #6	2 - #6
16											2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
18									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 - #7	2 - #7	2 - #7	2 - #7	2 - #8	2 - #8

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																	
14																2 - #6	2 - #6
16														2 - #6	2 - #6	2 - #6	2 - #6
18											2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7
20									2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #7	2 - #7	2 - #7

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																	
16																2 - #6	2 - #6
18														2 - #6	2 - #6	2 - #6	2 - #6
20											2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	2 - #6	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 stirrups. 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)

SHEAR WALLS

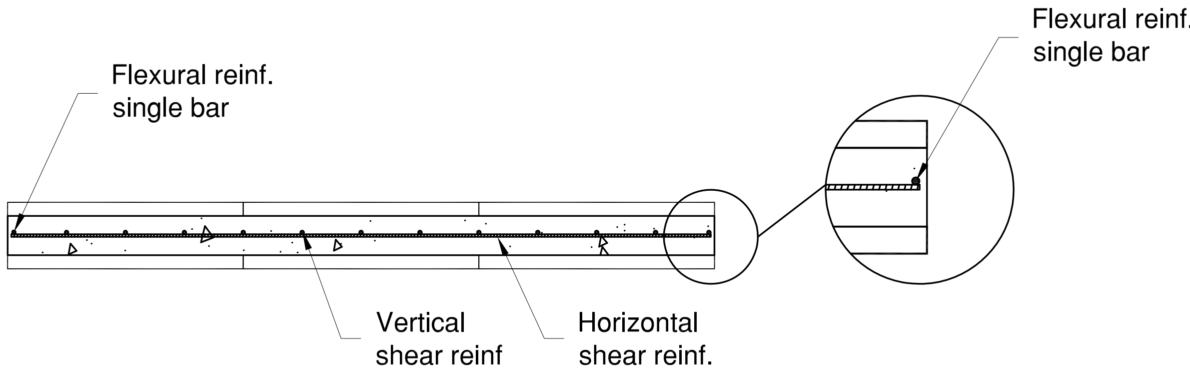

FIGURE 2: PLAN VIEW
LOGIX SHEAR WALL - SINGLE BAR FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

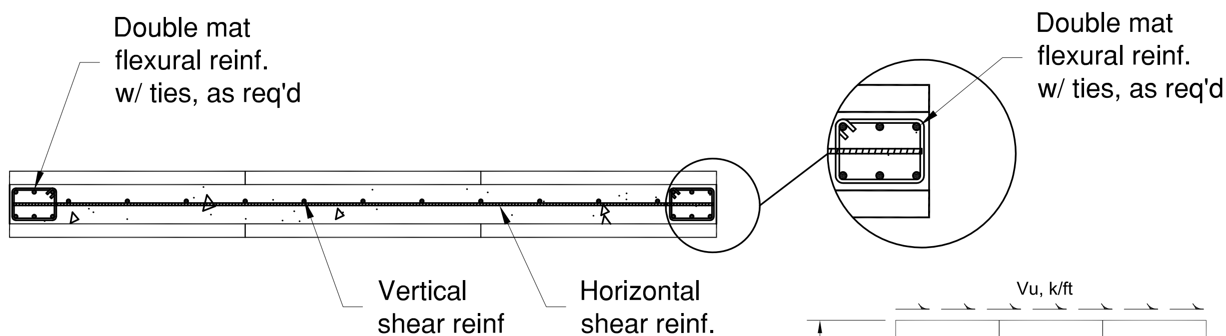

FIGURE 3: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

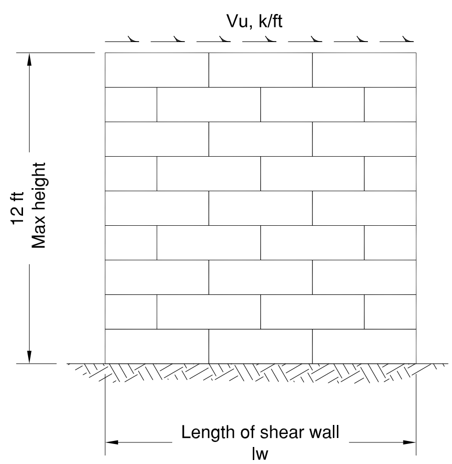

FIGURE 1: ELEVATION

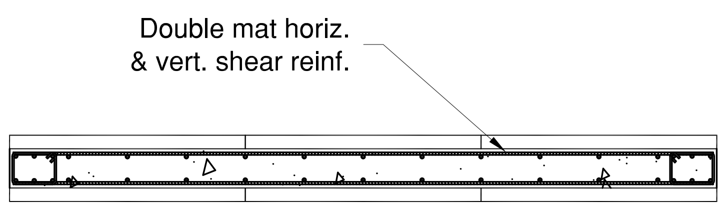

FIGURE 4: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL & SHEAR REINF.
(Applies to 12" LOGIX)

NOTES:

1. Shear wall Figures 1 to 4 to be used in conjunction with Tables 6A and 6B.
2. Provide double mat of reinforcement for 12” LOGIX wall. See Figure 4.
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.

TABLE 6A - SHEAR WALL: HORIZONTAL & VERTICAL SHEAR REINFORCEMENT

4" LOGIX SHEAR WALL REINFORCEMENT SPACING, in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

		SHEAR FORCE, Vu, kpf															
	Wall	0.5		1		1.5		2		2.5		3		3.5		4	
Bar Size	Length,	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	4	4	4	4	4	4	4	4	4	4	4	4
	4	12	12	12	12	8	8	8	8	8	8	8	8	8	8	8	8
	>4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

6.25" LOGIX SHEAR WALL REINFORCEMENT SPACING, in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

		SHEAR FORCE, Vu, kpf															
	Wall	1		2		3		4		5		6		7		8	
Bar Size	Length,	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	16	16	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	4	16	16	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	6	16	16	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	>6	16	16	16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16

8" LOGIX SHEAR WALL REINFORCEMENT SPACING, in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

		SHEAR FORCE, Vu, kpf															
	Wall	1.5		2.5		5		6		7		8		9		10	
Bar Size	Length,	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	12, 12, 16	4, 16, 16	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	4	12, 12, 16	8, 16, 16	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	6	12, 12, 16	12, 16, 16	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12
	>6	12, 12, 16	16	12, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16

10" LOGIX SHEAR WALL REINFORCEMENT SPACING, in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

		SHEAR FORCE, Vu, kpf															
	Wall	1.5		2.5		5		6		7		8		9		10	
Bar Size	Length,	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, 4	16, 16, 4	4	4	4	4	4	4	4	4	4	4	4	4
	4	8, 12, 16	16	8, 12, 8	16, 16, 8	8	8	8	8	8	8	8	8	8	8	8	8
	6	8, 12, 16	16	8, 12, 12	16, 16, 12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12	8, 12, 12	12
	>6	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16	8, 12, 16	16

12" LOGIX SHEAR WALL REINFORCEMENT SPACING, in

SHEAR REINFORCEMENT (applies to horizontal & vertical reinforcement)

		SHEAR FORCE, Vu, kpf															
	Wall	1.5		2.5		5		6		7		8		9		10	
Bar Size	Length,	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
#4, #5, or #6	2	16	4, 16, 16	16	4, 16, 16	4	4	4	4	4	4	4	4	4	4	4	4
	4	16	8, 16, 16	16	8, 16, 16	8	8	8	8	8	8	8	8	8	8	8	8
	6	16	12, 16, 16	16	12, 16, 16	12	12	12	12	12	12	12	12	12	12	12	12
	>6	16	16	16	16	16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16	12, 16, 16	16

NOTES:

1. Table 6A to be read in conjunction with Shear Wall Figures 1 to 4.

TABLE 6B - SHEAR WALL: FLEXURAL REINFORCEMENT

4" LOGIX - FLEXURAL REINFORCEMENT

	SHEAR FORCE, Vu, kpf							
Wall Length, lw, ft	**0.5**	**1**	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**
2	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	2 - #6	-	-	-
4	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #6
6	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #4, 4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #6
8	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #4, 4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #6
10	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #4, 4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #6
15	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #4, 4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #5 or 4 - #6
20	1 - #4, 1 - #5 or 1 - #6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #4, 4 - #5 or 2 - #6	4 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #5 or 4 - #6

6.25" LOGIX - FLEXURAL REINFORCEMENT

	SHEAR FORCE, Vu, kpf							
Wall Length, lw, ft	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	4 - #5 or 4 - #6	4 - #6	-	-	-	-
4	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	6 - #5 or 4 - #6	6 - #5 or 4 - #6	8 - #5 or 6 - #6	6 - #6	8 - #6
6	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	6 - #4, 6 - #5 or 4 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	10 - #5 or 6 - #6	10 - #5 or 8 - #6
8	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	6 - #4, 6 - #5 or 4 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 8 - #5 or 6 - #6	10 - #5 or 8 - #6
10	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	6 - #4, 4 - #5 or 4 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 8 - #5 or 6 - #6	10 - #5 or 6 - #6
15	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	10 - #4, 6 - #5 or 4 - #6	10 - #4, 8 - #5 or 6 - #6	12 - #4, 8 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #6
20	2 - #4, 1 - #5 or 1 - #6	4 - #4, 2 - #5 or 2 - #6	6 - #4, 4 - #5 or 2 - #6	6 - #4, 4 - #5 or 4 - #6	10 - #4, 6 - #5 or 4 - #6	10 - #4, 8 - #5 or 6 - #6	12 - #4, 8 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #6

8" to 12" LOGIX - FLEXURAL REINFORCEMENT

	SHEAR FORCE, Vu, kpf							
Wall Length, lw, ft	**1.5**	**2.5**	**5**	**6**	**7**	**8**	**9**	**10**
2	4 - #4, 2 - #5 or 1 - #6	4 - #5 or 2 - #6	4 - #7	4 - #7	-	-	-	-
4	4 - #4, 2 - #5 or 1 - #6	6 - #4, 4 - #5 or 2 - #6	6 - #5 or 4 - #6	6 - #6	6 - #6	4 - #8	6 - #7	6 - #8
6	4 - #4, 2 - #5 or 1 - #6	4 - #4, 4 - #5 or 2 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 8 - #5 or 6 - #6	10 - #5 or 6 - #7	6 - #7	6 - #7
8	4 - #4, 2 - #5 or 1 - #6	4 - #4, 4 - #5 or 2 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 8 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #6	18 - #4, 12 - #5 or 6 - #7	12 - #5 or 6 - #7
10	4 - #4, 2 - #5 or 1 - #6	4 - #4, 4 - #5 or 2 - #6	10 - #4, 6 - #5 or 4 - #6	12 - #4, 8 - #5 or 6 - #6	12 - #4, 8 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #6	18 - #4, 10 - #5 or 6 - #7	20 - #4, 12 - #5 or 6 - #7
15	4 - #4, 2 - #5 or 1 - #6	4 - #4, 4 - #5 or 2 - #6	10 - #4, 6 - #5 or 4 - #6	10 - #4, 8 - #5 or 6 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 10 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #7	18 - #4, 12 - #5 or 6 - #7
20	4 - #4, 2 - #5 or 1 - #6	4 - #4, 4 - #5 or 2 - #6	8 - #4, 6 - #5 or 4 - #6	10 - #4, 8 - #5 or 6 - #6	12 - #4, 8 - #5 or 6 - #6	14 - #4, 10 - #5 or 6 - #6	16 - #4, 10 - #5 or 6 - #7	18 - #4, 12 - #5 or 6 - #7

NOTES:

1. Table 6B to be used in conjunction with Shear Wall Figures 1 to 4.
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 3 (or Figure 4 for 12" LOGIX).

LOGIX
CANADIAN
ENGINEERING REPORT

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- Introduction
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- Below Grade Wall Tables
- Figures 2A, 2B, 2C and 2D, Below-grade wall sections
- Tables 1A, 1B, 1C and 1D, Below-grade Wall Minimum Vertical Reinforcement for LOGIX 6.25, 8, 10 and 12 inch, respectively
- Above Grade Wall Table
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- Tables 4A, 4B, 4C, 4D and 4E, Lintel Reinforcement with Concentrated Load for LOGIX 4, 6.25, 8, 10 and 12 inch, respectively.

Reviewed for projects constructed in the following provinces:

British Columbia, Alberta, Saskatchewan, Manitoba and Ontario

by:
Colinares Consulting….

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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 and 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 a second floor 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 Product 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 and lintels were developed using the design criteria of Part 4 of the National Building Code of Canada 2005, and CSA A23.3-04, Design of Concrete Structures.

The reinforcement tables allow for bar spacings common in residential construction. In addition, the above-grade wall reinforcement tables have been properly developed to include LOGIX with a 4 inch concrete core. This is provided to reflect the construction industry's common practice of using 4 inch concrete walls above-grade with both traditional concrete and ICF walls. This is further reflected by the fact that building codes in the United States (International Residential Code 2012) allows for larger bar spacings, and the use of ICF walls above-grade with concrete core thicknesses of 3.5 inches.

Building limitations used to develop Tables 1A to 1D, and Table 2 include:

Building perimeter = 24.384 m (80 ft) max x 12.192 m (40 ft) max
Roof clear span = 12.192 m (40 ft) max
Floor clear span = 6.096 m (20 ft) max
Number of stories above grade = 2 max
Number of stories below grade = 1

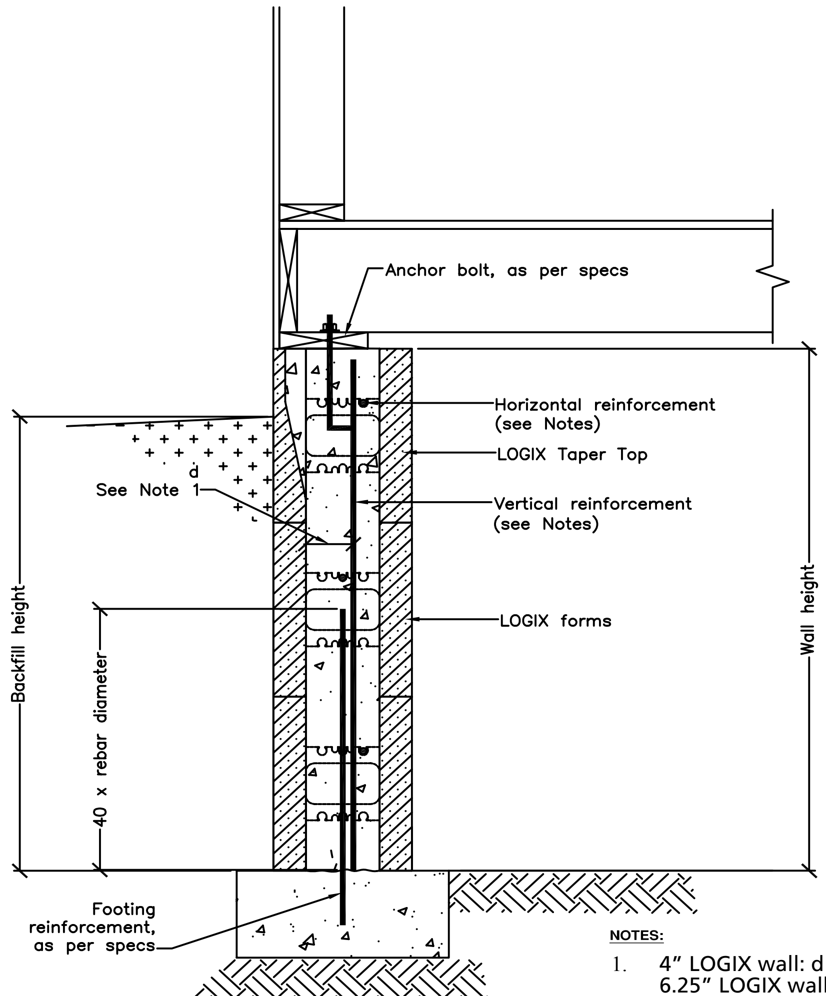
Tables 3A to 3E and Tables 4A to 4E provide lintel tables for factored uniform and concentrated loading conditions, respectively.

In addition, crawl space reinforcement requirements were developed and can be found in Figure 1.

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

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

FIGURE 1 - CRAWL SPACE REINFORCEMENT REQUIREMENT



NOTES:

1. 4″ LOGIX wall: d = 2.5″
   6.25″ LOGIX wall: d = 4.375″
   8″ LOGIX wall: d = 6″
   10″ LOGIX wall: d = 8″
   12″ LOGIX wall: d = 10″

2. Min. vertical rebar: use 10M @ max. 48″ on center spacing for the following conditions (applicable to all LOGIX wall sizes):
   Wall height: <= 4′ - 10″
   Equivalent fluid density: <= 75 pcf (12 kN/m^3) w/ no surcharge.

3. Horizontal rebar (applicable to all LOGIX wall sizes: 10M @ 32″ on center max spacing. Provide at least one 10M horizontal bar in bottom and top course.

4. For 12″ LOGIX wall provide additional mat of 10M rebar near exterior side of wall. Vertical and horizontal rebar spacing to match spacing of interior rebar.

BELOW-GRADE WALL TABLES

NOTE FOR BELOW-GRADE WALL TABLES

LOGIX below-grade Tables 1A to 1D 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. Tables do not consider seismic loads. For seismic load considerations refer to the Appendix in the Table of Contents. Factored snow load = 3.54 kPa
2. Horizontal rebar shall be 10M @ 32” o/c. Provide at least one 10M bar to be placed at the bottom course and top course.
3. Steel yield strength = 400MPa, 28 day concrete compressive strength = 20MPa
4. Deflection criteria = L/240
5. Assumed eccentricity = 3” (to account for loads on LOGIX Brick Ledge).
6. The basement walls must be supported at the top and bottom of the wall.
7. For light vehicles parked or travelling near the wall use reinforcement corresponding to 1 ft higher backfill.
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. Provide two 15M bars (One 15M bar for 4” concrete core thickness) should be placed around all openings (along the vertical sides and bottom of opening), and extend a minimum of 2 ft beyond openings.
10. For walls with over 50% of height exposed to wind, also check rebar requirements for above-grade walls.
11. Carefully consider floor/wall connection details for lateral loads, especially with higher backfills, walkout basements, and active seismic areas.
12. Soil density is often referred to as “equivalent fluid density”, and is the density of a liquid which would exert an equivalent horizontal load on a wall. The actual soil density is generally greater – ranging between 90 & 120pcf.
13. Consult a local licensed engineer for design of walls that fall outside the scope of the tables.

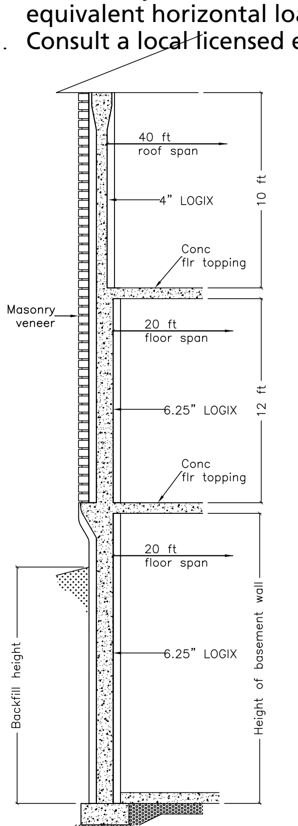


Fig 2A
Assumed typical flooring, wall & roof for **Table 1A**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 6 kips/ft.

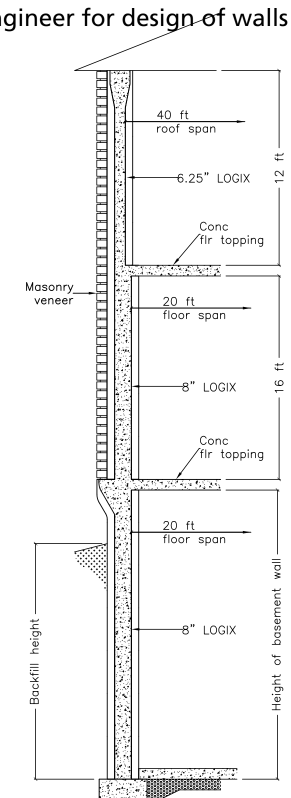


Fig 2B
Assumed typical flooring, wall & roof for **Table 1B**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 7.5 kips/ft.

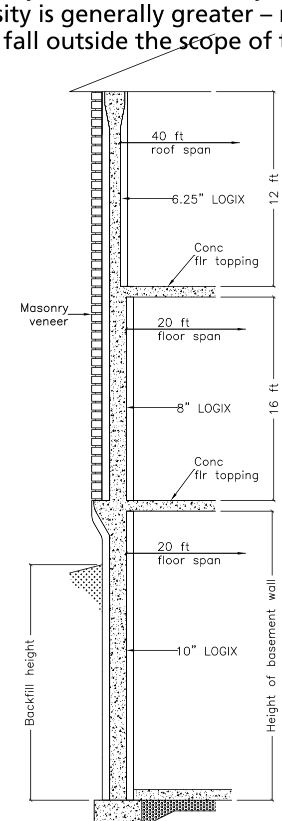


Fig 2C
Assumed typical flooring, wall & roof for **Table 1C**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 7.5 kips/ft.

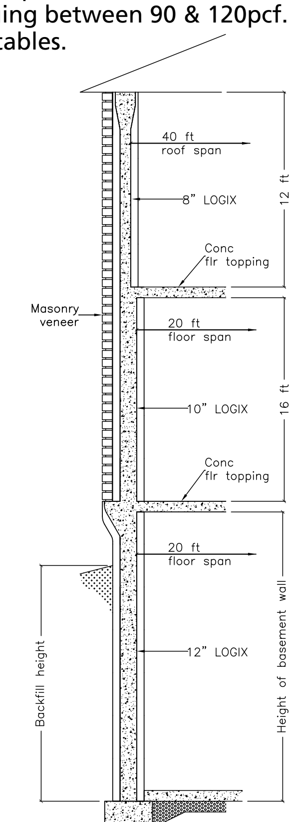


Fig 2D
Assumed typical flooring, wall & roof for **Table 1D**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8.3 kips/ft.

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 1A - LOGIX 6.25” BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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.

Max. Height of Basement Wall, ft	Max. Unbalanced Backfill Height, ft	Vertical Bar Spacing, in.															
		Maximum Equivalent Density 30pcf				Maximum Equivalent Density 45pcf				Maximum Equivalent Density 60pcf				Maximum Equivalent Density 75pcf			
8	4	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	5	16	40	48	48	16	40	48	48	16	32	48	48	16	32	48	48
	6	16	40	48	48	16	32	48	48	12	24	40	48	8	16	32	48
	7	16	32	48	48	12	24	32	48	8	16	24	48	8	16	24	40
	8	12	24	40	48	8	16	24	48	8	16	24	32	6	12	16	24
9	4	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	5	16	40	48	48	16	40	48	48	16	32	48	48	12	24	40	48
	6	16	40	48	48	16	32	48	48	12	24	32	48	8	16	24	48
	7	16	32	48	48	12	24	32	48	8	16	24	40	6	12	16	32
	8	12	24	40	48	8	16	24	40	6	12	16	32	-	8	16	24
	9	8	16	32	48	6	12	16	32	-	8	16	24	-	8	12	16
10	4	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	5	16	40	48	48	16	40	48	48	16	32	48	48	12	24	40	48
	6	16	40	48	48	12	24	40	48	12	24	32	48	8	16	24	40
	7	16	24	40	48	8	16	32	48	8	16	24	40	6	12	16	32
	8	12	24	32	48	8	16	24	40	6	12	16	24	-	8	12	24
	9	8	16	24	40	6	12	16	32	-	8	12	16	-	6	8	16
	10	8	16	24	32	-	8	16	24	-	8	8	16	-	6	8	12
11	4	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	5	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	6	16	32	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	7	12	24	40	48	8	16	24	48	8	16	16	32	6	12	16	24
	8	8	16	32	48	8	12	16	32	6	8	16	24	-	8	12	16
	9	8	16	24	40	6	12	16	24	-	8	12	16	-	6	8	16
	10	6	12	16	32	-	8	12	16	-	6	8	16	-	-	6	12
	11	6	12	16	24	-	6	8	16	-	-	8	12	-	-	-	8
12	4	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	5	16	32	48	48	16	32	48	48	16	24	40	48	12	24	32	48
	6	16	32	48	48	12	24	40	48	8	16	24	48	8	16	24	40
	7	12	24	40	48	8	16	24	40	6	12	16	32	6	12	16	24
	8	8	16	24	48	6	12	16	32	-	8	16	24	-	8	12	16
	9	8	16	24	32	-	8	16	24	-	8	8	16	-	6	8	12
	10	6	12	16	24	-	8	12	16	-	6	8	12	-	-	6	8
	11	-	8	12	24	-	6	8	16	-	-	6	8	-	-	-	-
	12	-	8	12	16	-	-	8	12	-	-	-	6	-	-	-	-
		10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M
		Bar size															

NOTES:
1. Tables do not consider seismic loads. For seismic load considerations refer to the Appendix in the Table of Contents.
2. 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”
3. **Table 1A** shall be read in conjunction with **Fig 2A**, and section “Notes for Below-grade Wall Tables.”
4. 1 ft = 0.3048 m, 1 in = 25.4 mm, 1 pcf = 16.02 kg/m^3 = 0.157 kN/m^3

TABLE 1B - LOGIX 8" BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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.

Max. Height of Basement Wall, ft	Max. Unbalanced Backfill Height, ft	Vertical Bar Spacing, in.															
		Maximum Equivalent Density 30pcf				Maximum Equivalent Density 45pcf				Maximum Equivalent Density 60pcf				Maximum Equivalent Density 75pcf			
8	4-5	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	6	16	40	48	48	16	40	48	48	16	40	48	48	16	32	48	48
	7	16	40	48	48	16	32	48	48	12	24	40	48	12	24	32	48
	8	16	40	48	48	12	24	40	48	12	24	32	48	8	16	24	48
9	4-5	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	6	16	40	48	48	16	40	48	48	16	32	48	48	12	24	40	48
	7	16	40	48	48	16	32	48	48	12	24	40	48	8	16	32	48
	8	16	32	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	9	16	32	40	48	8	16	32	48	8	16	24	40	6	12	16	32
10	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	7	16	32	48	48	16	32	48	48	12	24	32	48	8	16	24	48
	8	16	32	48	48	12	24	32	48	8	16	24	40	8	16	16	32
	9	12	24	40	48	8	16	24	48	6	12	16	32	6	12	16	24
	10	12	24	32	48	8	16	24	40	6	12	16	24	-	8	12	24
11	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	7	16	32	48	48	12	24	40	48	12	24	32	48	8	16	24	40
	8	16	32	48	48	12	16	32	48	8	16	24	40	6	12	16	32
	9	12	24	32	48	8	16	24	40	6	12	16	32	-	8	16	24
	10	8	16	32	48	6	12	16	32	-	8	16	24	-	8	12	16
	11	8	16	24	40	6	12	16	24	-	8	12	16	-	6	8	16
12	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	16	24	40	48	12	24	32	48
	7	16	32	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	8	16	24	40	48	8	16	32	48	8	16	24	40	6	12	16	32
	9	12	24	32	48	8	16	24	40	6	12	16	24	-	8	12	24
	10	8	16	24	48	6	12	16	32	-	8	12	24	-	8	12	16
	11	8	16	24	40	-	8	16	24	-	8	12	16	-	6	8	12
	12	6	12	16	32	-	8	12	16	-	6	8	16	-	-	8	12
14	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	12	24	40	48	12	24	32	48
	7	16	32	48	48	12	24	32	48	8	16	24	48	8	16	24	40
	8	12	24	40	48	8	16	24	40	6	12	16	32	6	12	16	24
	9	8	16	32	48	6	12	16	32	-	8	16	24	-	8	12	16
	10	8	16	24	40	6	8	16	24	-	8	12	16	-	6	8	16
	11	6	12	16	32	-	8	12	16	-	6	8	16	-	-	8	12
	12	6	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
	13	-	8	12	24	-	6	8	12	-	-	6	8	-	-	-	8
	14	-	8	12	16	-	-	8	12	-	-	-	8	-	-	-	6
16	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	12	24	40	48	8	16	32	48
	7	16	32	48	48	12	24	32	48	8	16	24	40	6	12	16	32
	8	12	24	32	48	8	16	24	40	6	12	16	32	-	8	16	24
	9	8	16	24	48	6	12	16	32	-	8	12	24	-	8	8	16
	10	6	12	16	32	-	8	12	24	-	6	8	16	-	6	8	12
	11	6	12	16	24	-	8	12	16	-	6	8	12	-	-	6	8
	12	-	8	12	24	-	6	8	16	-	-	6	8	-	-	-	8
	13	-	8	12	16	-	-	8	12	-	-	-	8	-	-	-	6
	14	-	6	8	16	-	-	6	8	-	-	-	6	-	-	-	-
	15	-	6	8	12	-	-	-	8	-	-	-	-	-	-	-	-
	16	-	-	6	12	-	-	-	6	-	-	-	-	-	-	-	-
		10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M
		Bar size															

NOTES:
1. Tables do not consider seismic loads. For seismic load considerations refer to the Appendix in the Table of Contents.
2. 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"
3. **Table 1B** shall be read in conjunction with **Fig 2B**, and section "Notes for Below-grade Wall Tables."
4. 1 ft = 0.3048 m, 1 in = 25.4 mm, 1 pcf = 16.02 kg/m^3 = 0.157 kN/m^3

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 1C - LOGIX 10” BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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.

Max. Height of Basement Wall, ft	Max. Unbalanced Backfill Height, ft	Vertical Bar Spacing, in. — Maximum Equivalent Density 30pcf				Maximum Equivalent Density 45pcf				Maximum Equivalent Density 60pcf				Maximum Equivalent Density 75pcf			
14	4-5	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	6	16	40	48	48	16	40	48	48	16	40	48	48	16	32	48	48
	7	16	40	48	48	16	32	48	48	12	24	40	48	12	24	32	48
	8	16	40	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	9	16	32	40	48	8	16	32	48	8	16	24	40	6	12	16	32
	10	12	24	32	48	8	16	24	40	6	12	16	32	-	8	12	24
	11	8	16	24	48	6	12	16	32	-	8	12	24	-	8	12	16
	12	8	16	24	40	6	8	16	24	-	8	12	16	-	6	8	16
	13	6	12	16	32	-	8	12	24	-	6	8	16	-	-	8	12
	14	6	12	16	24	-	8	12	16	-	6	8	12	-	-	6	12
16	4-5	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	6	16	40	48	48	16	40	48	48	16	32	48	48	16	32	48	48
	7	16	40	48	48	16	32	48	48	12	24	40	48	8	16	32	48
	8	16	32	48	48	12	24	32	48	8	16	24	48	8	16	24	40
	9	12	24	40	48	8	16	24	48	6	12	16	32	6	12	16	24
	10	8	16	32	48	8	12	16	32	6	12	16	24	-	8	12	16
	11	8	16	24	40	6	12	16	24	-	8	12	16	-	6	8	16
	12	6	12	16	32	-	8	12	24	-	6	8	16	-	6	8	12
	13	6	12	16	32	-	8	12	16	-	6	8	12	-	-	6	12
	14	-	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
	15	-	8	12	16	-	6	8	12	-	-	6	8	-	-	-	8
	16	-	8	12	16	-	-	8	12	-	-	-	8	-	-	-	6
18	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	7	16	32	48	48	16	32	48	48	12	24	32	48	8	16	24	48
	8	16	32	48	48	12	24	32	48	8	16	24	40	6	12	16	32
	9	12	24	40	48	8	16	24	40	6	12	16	32	-	8	16	24
	10	8	16	24	48	6	12	16	32	-	8	16	24	-	8	12	16
	11	8	16	24	40	-	8	16	24	-	8	12	16	-	6	8	16
	12	6	12	16	32	-	8	12	16	-	6	8	16	-	-	8	12
	13	-	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
	14	-	8	12	24	-	6	8	12	-	-	6	8	-	-	-	8
	15	-	8	12	16	-	-	8	12	-	-	-	8	-	-	-	6
	16	-	6	8	16	-	-	6	8	-	-	-	8	-	-	-	-
	17	-	6	8	12	-	-	6	8	-	-	-	6	-	-	-	-
	18	-	-	8	12	-	-	-	8	-	-	-	-	-	-	-	-
20	4-5	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	6	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	7	16	32	48	48	16	32	40	48	12	24	32	48	8	16	24	48
	8	16	32	48	48	8	16	32	48	8	16	24	40	6	12	16	32
	9	12	24	32	48	8	16	24	40	6	12	16	32	-	8	12	24
	10	8	16	24	48	6	12	16	32	-	8	12	24	-	8	8	16
	11	8	12	16	32	-	8	12	24	-	6	8	16	-	6	8	12
	12	6	12	16	24	-	8	12	16	-	6	8	12	-	-	6	8
	13	-	8	12	24	-	6	8	16	-	-	6	12	-	-	-	8
	14	-	8	12	16	-	-	8	12	-	-	6	8	-	-	-	6
	15	-	6	8	16	-	-	6	8	-	-	-	8	-	-	-	6
	16	-	6	8	12	-	-	6	8	-	-	-	6	-	-	-	-
	17	-	-	8	12	-	-	-	8	-	-	-	-	-	-	-	-
	18	-	-	6	8	-	-	-	6	-	-	-	-	-	-	-	-
	19	-	-	6	8	-	-	-	6	-	-	-	-	-	-	-	-
	20	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
		10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M
		Bar size															

NOTES:
1. Tables do not consider seismic loads. For seismic load considerations refer to the Appendix in the Table of Contents.
2. 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”
3. **Table 1C** shall be read in conjunction with **Fig 2C**, and section “Notes for Below-grade Wall Tables.”
4. 1 ft = 0.3048 m, 1 in = 25.4 mm, 1 pcf = 16.02 kg/m³ = 0.157 kN/m³

TABLE 1D - LOGIX 12” BELOW-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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.

Max. Height of Basement Wall, ft	Max. Unbalanced Backfill Height, ft	Vertical Bar Spacing, in.															
		Maximum Equivalent Density 30pcf				Maximum Equivalent Density 45pcf				Maximum Equivalent Density 60pcf				Maximum Equivalent Density 75pcf			
14	4-6	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	7	16	40	48	48	16	40	48	48	16	32	48	48	12	24	40	48
	8	16	40	48	48	16	32	48	48	12	24	40	48	8	16	32	48
	9	16	40	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	10	16	32	48	48	8	16	32	48	8	16	24	40	6	12	16	32
	11	12	24	40	48	8	16	24	40	6	12	16	32	-	8	16	24
	12	8	16	32	48	6	12	16	32	-	8	16	24	-	8	12	16
	13	8	16	24	40	6	12	16	32	-	8	12	16	-	6	8	16
	14	8	16	24	40	-	8	16	24	-	8	12	16	-	6	8	16
16	4-6	16	40	48	48	16	40	48	48	16	40	48	48	16	40	48	48
	7	16	40	48	48	16	40	48	48	16	32	48	48	12	24	40	48
	8	16	40	48	48	16	32	48	48	12	24	32	48	8	16	24	48
	9	16	32	48	48	12	24	32	48	8	16	24	48	8	16	16	32
	10	12	24	40	48	8	16	24	48	6	12	16	32	6	12	16	24
	11	12	24	32	48	8	16	24	40	6	12	16	24	-	8	12	24
	12	8	16	24	48	6	12	16	32	-	8	12	24	-	8	12	16
	13	8	16	24	40	-	8	16	24	-	8	12	16	-	6	8	16
	14	6	12	16	32	-	8	12	16	-	6	8	16	-	-	8	12
	15	6	12	16	24	-	8	12	16	-	6	8	12	-	-	6	8
	16	-	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
18	4-6	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	7	16	32	48	48	16	32	48	48	16	32	48	48	12	24	40	48
	8	16	32	48	48	16	32	40	48	12	24	32	48	8	16	24	48
	9	16	32	48	48	12	24	32	48	8	16	24	40	6	12	16	32
	10	12	24	40	48	8	16	24	40	6	12	16	32	-	8	16	24
	11	8	16	32	48	6	12	16	32	-	8	16	24	-	8	12	16
	12	8	16	24	40	6	12	16	24	-	8	12	16	-	6	8	16
	13	6	12	16	32	-	8	12	24	-	6	8	16	-	6	8	12
	14	6	12	16	32	-	8	12	16	-	6	8	12	-	-	6	12
	15	-	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
	16	-	8	12	24	-	6	8	12	-	-	6	8	-	-	-	8
	17	-	8	12	16	-	-	8	12	-	-	6	8	-	-	-	6
	18	-	6	8	16	-	-	6	12	-	-	-	8	-	-	-	6
20	4-6	16	32	48	48	16	32	48	48	16	32	48	48	16	32	48	48
	7	16	32	48	48	16	32	48	48	16	32	48	48	12	24	32	48
	8	16	32	48	48	12	24	40	48	8	16	32	48	8	16	24	40
	9	16	32	48	48	8	16	32	48	8	16	24	40	6	12	16	32
	10	12	24	32	48	8	16	24	40	6	12	16	32	-	8	16	24
	11	8	16	24	48	6	12	16	32	-	8	12	24	-	8	12	16
	12	8	16	24	40	-	8	16	24	-	8	12	16	-	6	8	16
	13	6	12	16	32	-	8	12	16	-	6	8	16	-	-	8	12
	14	6	8	16	24	-	6	8	16	-	-	8	12	-	-	6	8
	15	-	8	12	24	-	6	8	16	-	-	6	8	-	-	-	8
	16	-	8	12	16	-	-	8	12	-	-	6	8	-	-	-	6
	17	-	6	8	16	-	-	6	12	-	-	-	8	-	-	-	6
	18	-	6	8	16	-	-	6	8	-	-	-	6	-	-	-	-
	19	-	6	8	12	-	-	-	8	-	-	-	6	-	-	-	-
	20	-	-	8	12	-	-	-	8	-	-	-	-	-	-	-	-
		10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M	10M	15M	20M	25M
		Bar size															

NOTES:
1. Tables do not consider seismic loads. For seismic load considerations refer to the Appendix in the Table of Contents.
2. Effective depth (out face of concrete to center of vertical rebar = 10”
3. Provide additional mat of rebar near exterior face of concrete surface:
   - Horizontal = 10M @ 32” o/c.
   - Vertical = 10M to match vertical rebar spacing
4. **Table 1D** shall be read in conjunction with **Fig 2D**, and section “Notes for Below-grade Wall Tables.”
5. 1 ft = 0.3048 m, 1 in = 25.4 mm, 1 pcf = 16.02 kg/m^3 = 0.157 kN/m^3

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

ABOVE-GRADE WALL TABLE

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.

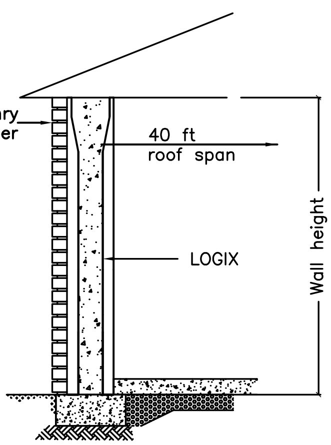


Fig 3A
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting Roof Only**.

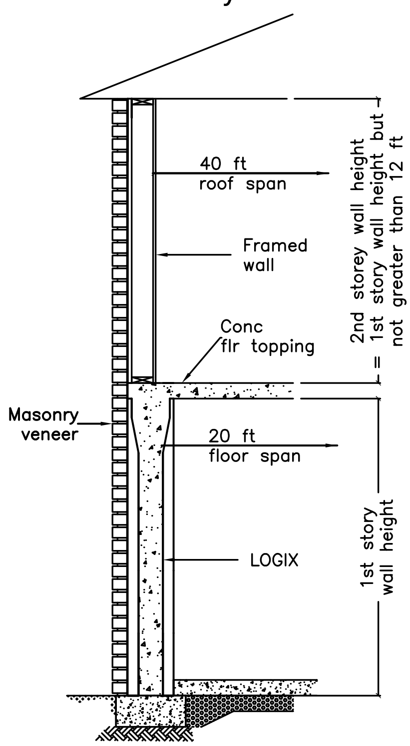


Fig 3B
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story Wood Frame & Roof Structure**.

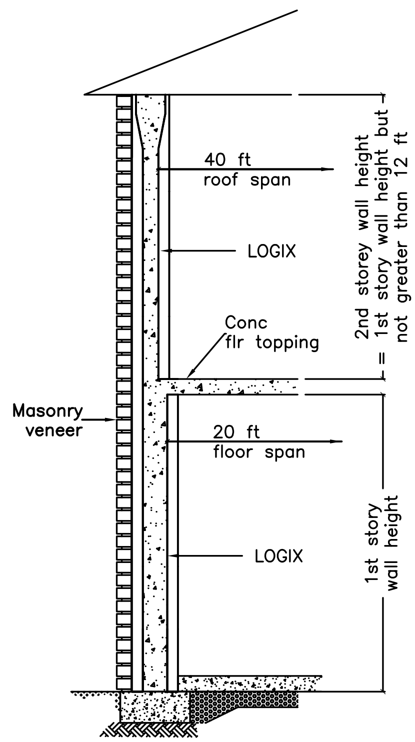


Fig 3C
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story LOGIX & Roof Structure**.

NOTES FOR ABOVE-GRADE WALL TABLES

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. 28 day concrete compressive strength = 20 MPa. Steel yield strength = 400 MPa.
2. Vertical rebar to be placed in middle of wall. Minimum horizontal rebar shall be:
   - 4” & 6.25” LOGIX = 10M @ 32” o/c
   - 8”, 10” & 12” LOGIX = 10M @ 16” o/c.

   Provide additional mat of rebar for 12” LOGIX
   - Horizontal rebar = 10M @ 16” o/c
   - Vertical rebar = to match vertical bar spacing in **Table 2**
3. Provide at least one 10M bar to be placed at the bottom course and top course.
4. Max roof clear span = 40 ft. Max floor clear span = 20 ft.
5. Deflection criteria = L/240
6. Assumed eccentricity = 1”.
7. Provide two 15M bars (One 15M bar for 4” concrete core thickness) to be placed around all openings (along the vertical sides and bottom of opening), and extend a minimum of 2 ft beyond openings.
8. The walls must be supported at the top and bottom of the wall.
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. Carefully consider floor/wall connection details for lateral loads, especially with higher backfills, walkout basements, and active seismic areas.
11. Consult a local licensed engineer for design of walls that fall outside the scope of the above table.
12. 1 psf = 0.0479 kPa.
13. Governing load case is predominantly wind loading. Factored wind loading applicable by Provinces:

    British Columbia: 35psf
    Alberta: 40 psf
    Saskatchewan: 30psf
    Manitoba: 30psf
    Ontario: 25psf
    Quebec: 45psf
    New Brunswick: 35psf
    Nova Scotia: 35psf
    New Foundland: 55psf
    Prince Edward Island: 35psf

TABLE 2 - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

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.

LOGIX ABOVE-GRADE WALLS - VERTICAL REINFORCEMENT SPACING, in.

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness					
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf					
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55
8	48	48	48	48	40	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	48	48	40	40	32	24	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
10	48	40	32	32	24	16	48	48	48	48	48	40	48	48	48	48	48	48	48	48	48	48	48	48
12	32	24	24	16	16	12	48	48	40	40	32	24	48	48	48	48	48	32	48	48	48	48	48	48
14	16	16	12	12	8	8	32	32	32	24	24	16	40	40	40	32	32	24	40	40	40	40	40	32
16	12	12	8	6	-	-	24	24	24	16	16	12	24	24	24	24	24	16	24	24	24	24	24	24
18	6	6	-	-	-	-	16	16	16	16	12	8	16	16	16	16	16	16	16	16	16	16	16	16
20	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	12	12	12	12	12	12

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness					
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf					
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55
8	40	40	40	40	40	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	32	32	32	32	32	24	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
10	32	32	32	24	24	16	40	40	40	40	40	40	48	48	48	48	48	48	48	48	48	48	48	48
12	16	16	16	16	12	8	32	32	32	32	32	24	40	40	40	40	40	32	40	40	40	40	40	40
14	8	8	8	8	6	-	24	24	24	24	16	16	32	32	32	32	32	24	32	32	32	32	32	32
16	-	-	-	-	-	-	16	16	16	16	16	12	16	16	16	16	16	16	24	24	24	24	24	24
18	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16
20	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8	12	12	12	12	12	12

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness					
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf					
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55
8	24	24	24	24	24	24	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
9	24	24	24	24	24	16	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
10	24	24	24	16	16	16	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	12	8	8	24	24	24	24	24	24	24	24	24	24	24	24	32	32	32	32	32	32
14	-	-	-	-	-	-	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
16	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16
18	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8	12	12	12	12	12	12
20	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8

NOTES:

1. **Table 2** must be used in conjunction with the notes listed under **"Notes For Above-Grade Wall Table"**.
2. Vertical bar spacing is for 15M rebar. 10M rebar can be substituted provided the spacing is multiplied by 0.5. Spacing shall be no more than 48 inches on center.
3. See **"Notes For Above-Grade Wall Table"** for wind loading applicable by Provinces.
4. 1 psf = 0.0479 kPa, 1" = 25.4 mm, 1 ft = 0.3048 m

LINTEL TABLES

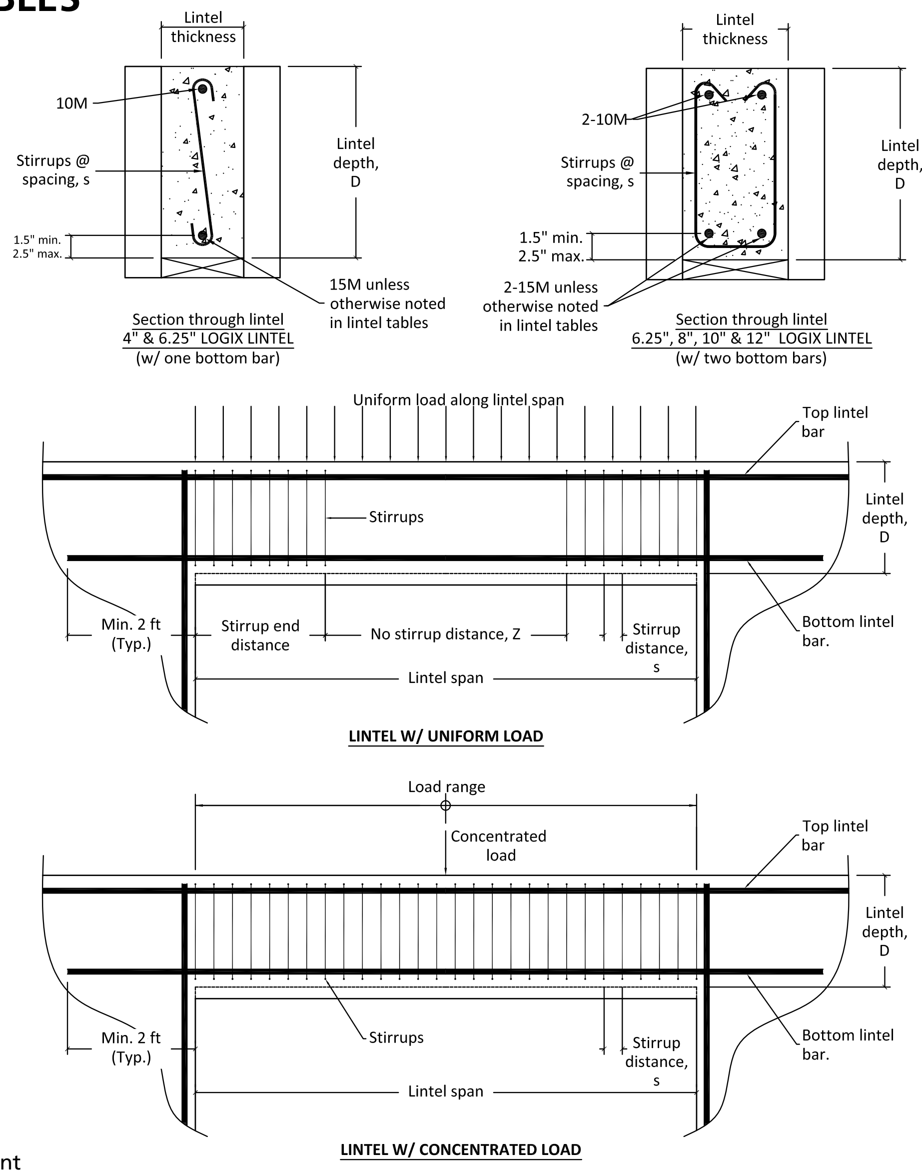


Fig 4
Lintel reinforcement

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 = 20 MPa. Steel yield strength = 400 MPa.
2. Stirrups are D9.5 wire or 10M bars, bent as shown, and conforming to CSA -A23.1.
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.

TABLE 3A - LOGIX 4” LINTEL REINFORCEMENT WITH UNIFORM LOAD

Where not shown otherwise, bottom steel is 1-15M

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 Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5					-	-
6			-	-	-	-
7			-	-	-	-
8		-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	47	25	17	13	10	9

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6					1 - 20M	-
7				1 - 20M	-	-
8			1 - 20M	-	-	-
9		1 - 20M	-	-	-	-
10		-	-	-	-	-
12	1 - 20M	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	58	31	21	16	13	11

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						1 - 20M
7					1 - 20M	-
8				1 - 20M	-	-
9			1 - 20M	-	-	-
10		1 - 20M	-	-	-	-
12		-	-	-	-	-
14	1 - 20M	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	68	36	25	19	15	13

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					1 - 20M	1 - 20M
9				1 - 20M	1 - 20M	-
10			1 - 20M	1 - 20M	-	-
12		1 - 20M	-	-	-	-
14		1 - 20M	-	-	-	-
16		-	-	-	-	-
18	1 - 20M	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)	91	50	34	26	21	18

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9					1 - 20M	1 - 20M
10				1 - 20M	1 - 20M	-
12			1 - 20M	-	-	-
14		1 - 20M	-	-	-	-
16		1 - 20M	-	-	-	-
18		-	-	-	-	-
20	1 - 20M	-	-	-	-	-
No stirrup distance, Z (in.)	113	63	44	34	27	23

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10					1 - 20M	1 - 20M
12				1 - 20M	-	-
14			1 - 20M	-	-	-
16		1 - 20M	-	-	-	-
18		1 - 20M	-	-	-	-
20	1 - 20M	-	-	-	-	-
No stirrup distance, Z (in.)		76	53	41	33	28

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12					1 - 20M	1 - 20M
14				1 - 20M	-	-
16			1 - 20M	-	-	-
18		1 - 20M	-	-	-	-
20		1 - 20M	-	-	-	-
No stirrup distance, Z (in.)		94	66	51	42	35

Notes:

1. Where not shown otherwise, bottom steel is 1-15M
2. Table is to be read in conjunction w/ **Fig 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 **Fig 4**.
5. Factored Uniform Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 3B - LOGIX 6.25" LINTEL REINFORCEMENT WITH UNIFORM LOAD

Where not shown otherwise, bottom steel is 1-15M

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 Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5					1 - 20M	1 - 20M
6				1 - 20M	2 - 15M	-
7			1 - 20M	-	-	-
8		1 - 20M	-	-	-	-
9		-	-	-	-	-
10	1 - 20M	-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		**38**	**26**	**20**	**16**	**13**

s=4", D=10"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6					1 - 20M	1 - 20M
7				1 - 20M	2 - 15M	1 - 25M
8			1 - 20M	2 - 15M	1 - 25M	-
9		1 - 20M	2 - 15M	1 - 25M	-	-
10		1 - 20M	1 - 25M	-	-	-
12	1 - 20M	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		**46**	**32**	**24**	**20**	**17**

s=5", D=12"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6						1 - 20M
7					1 - 20M	1 - 20M
8				1 - 20M	2 - 15M	2 - 15M
9			1 - 20M	2 - 15M	2 - 20M	2 - 20M
10		1 - 20M	2 - 15M	2 - 20M	2 - 20M	-
12		2 - 15M	2 - 20M	-	-	-
14	1 - 20M	2 - 20M	-	-	-	-
16	2 - 20M	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		**55**	**38**	**29**	**23**	**20**

s=7", D=16"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6						
7						
8					1 - 20M	1 - 20M
9				1 - 20M	1 - 20M	2 - 15M
10			1 - 20M	1 - 20M	2 - 15M	2 - 20M
12		1 - 20M	2 - 15M	2 - 20M	2 - 20M	-
14		1 - 20M	2 - 20M	2 - 20M	-	-
16	1 - 20M	2 - 15M	-	-	-	-
18	1 - 20M	2 - 20M	-	-	-	-
20	2 - 15M	-	-	-	-	-
No stirrup distance, Z (in.)		**74**	**52**	**40**	**32**	**27**

s=9", D=20"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6						
7						
8						
9					1 - 20M	1 - 20M
10				1 - 20M	1 - 20M	2 - 15M
12			1 - 20M	2 - 15M	2 - 15M	2 - 20M
14		1 - 20M	2 - 15M	2 - 20M	2 - 20M	-
16		1 - 20M	2 - 20M	2 - 20M	-	-
18	1 - 20M	2 - 15M	2 - 20M	-	-	-
20	1 - 20M	2 - 20M	-	-	-	-
No stirrup distance, Z (in.)		**93**	**66**	**51**	**41**	**35**

s=11", D=24"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6						
7						
8						
9						
10					1 - 20M	1 - 20M
12				1 - 20M	2 - 15M	2 - 15M
14			1 - 20M	2 - 15M	2 - 20M	2 - 20M
16		1 - 20M	2 - 15M	2 - 20M	2 - 20M	-
18		2 - 15M	2 - 20M	2 - 20M	-	-
20	1 - 20M	2 - 15M	2 - 20M	-	-	-
No stirrup distance, Z (in.)		**110**	**79**	**61**	**50**	**42**

s=14", D=30"						
Opening	**Factored Uniform Load, lb/ft**					
ft	**400**	**800**	**1200**	**1600**	**2000**	**2400**
3						
4						
5						
6						
7						
8						
9						
10						
12					1 - 20M	1 - 20M
14			1 - 20M	1 - 20M	2 - 15M	2 - 15M
16			1 - 20M	2 - 15M	2 - 20M	2 - 20M
18		1 - 20M	2 - 15M	2 - 20M	2 - 20M	-
20		2 - 15M	2 - 20M	2 - 20M	-	-
No stirrup distance, Z (in.)			**97**	**76**	**63**	**53**

Notes:

1. Where not shown otherwise, bottom steel is 1-15M
2. Table is to be read in conjunction w/ **Fig 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 **Fig 4**.
5. Factored Uniform Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

E N G I N E E R I N G

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 3C - LOGIX 8" LINTEL REINFORCEMENT WITH UNIFORM LOAD

Where not shown otherwise, bottom steel is 2-15M

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 Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						-
7					-	-
8			-	-	-	-
9		-	-	-	-	-
10		-	-	-	-	-
12	-	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		47	33	25	20	17

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - 20M	2 - 20M
9				2 - 20M	2 - 20M	-
10			2 - 20M	-	-	-
12		2 - 20M	-	-	-	-
14	2 - 20M	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		58	40	31	25	21

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9					2 - 20M	2 - 20M
10				2 - 20M	2 - 20M	-
12			2 - 20M	-	-	-
14		2 - 20M	-	-	-	-
16		-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		68	47	36	30	25

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - 20M
12				2 - 20M	2 - 20M	2 - 25M
14			2 - 20M	2 - 20M	2 - 25M	2 - 25M
16			2 - 20M	2 - 25M	-	-
18		2 - 20M	2 - 25M	-	-	-
20		2 - 25M	-	-	-	-
No stirrup distance, Z (in.)		91	65	50	41	34

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						2 - 20M
14				2 - 20M	2 - 20M	2 - 25M
16			2 - 20M	2 - 20M	2 - 25M	2 - 25M
18			2 - 20M	2 - 25M	2 - 25M	-
20		2 - 20M	2 - 25M	2 - 25M	-	-
No stirrup distance, Z (in.)		113	81	63	52	44

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14					2 - 20M	2 - 20M
16				2 - 20M	2 - 20M	2 - 25M
18			2 - 20M	2 - 20M	2 - 25M	2 - 25M
20		2 - 20M	2 - 20M	2 - 25M	2 - 25M	-
No stirrup distance, Z (in.)			97	76	63	53

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14						
16					2 - 20M	2 - 20M
18				2 - 20M	2 - 20M	2 - 25M
20			2 - 20M	2 - 20M	2 - 25M	2 - 25M
No stirrup distance, Z (in.)			119	94	78	66

Notes:

1. Where not shown otherwise, bottom steel is 2-15M
2. Table is to be read in conjunction w/ **Fig 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 **Fig 4**.
5. Factored Uniform Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 3D - LOGIX 10" LINTEL REINFORCEMENT WITH UNIFORM LOAD

Where not shown otherwise, bottom steel is 2-15M

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 Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					2 - 20M	-
8				-	-	-
9			-	-	-	-
10		-	-	-	-	-
12	2 - 20M	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)			40	31	25	21

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - 20M	2 - 20M
9				2 - 20M	2 - 20M	-
10			2 - 20M	-	-	-
12		2 - 20M	-	-	-	-
14		-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		70	49	38	31	26

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9					2 - 20M	2 - 20M
10				2 - 20M	2 - 20M	2 - 25M
12			2 - 20M	2 - 25M	2 - 25M	-
14		2 - 20M	2 - 25M	-	-	-
16		2 - 25M	-	-	-	-
18	2 - 25M	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		82	58	45	36	31

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - 20M
12				2 - 20M	2 - 20M	2 - 25M
14			2 - 20M	2 - 20M	2 - 25M	2 - 25M
16		2 - 20M	2 - 20M	2 - 25M	-	-
18		2 - 20M	2 - 25M	-	-	-
20		2 - 25M	-	-	-	-
No stirrup distance, Z (in.)		109	78	61	50	42

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						2 - 20M
14				2 - 20M	2 - 20M	2 - 25M
16			2 - 20M	2 - 20M	2 - 25M	2 - 25M
18		2 - 20M	2 - 20M	2 - 25M	2 - 25M	-
20		2 - 20M	2 - 25M	2 - 25M	-	-
No stirrup distance, Z (in.)			98	77	63	54

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14					2 - 20M	2 - 20M
16				2 - 20M	2 - 20M	2 - 25M
18			2 - 20M	2 - 25M	2 - 25M	2 - 25M
20		2 - 20M	2 - 20M	2 - 25M	2 - 25M	-
No stirrup distance, Z (in.)			116	92	76	65

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14						2 - 20M
16					2 - 20M	2 - 20M
18				2 - 20M	2 - 20M	2 - 25M
20			2 - 20M	2 - 25M	2 - 25M	2 - 25M
No stirrup distance, Z (in.)				113	94	81

Notes:

1. Where not shown otherwise, bottom steel is 2-15M
2. Table is to be read in conjunction w/ **Fig 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 **Fig 4**.
5. Factored Uniform Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 3E - LOGIX 12” LINTEL REINFORCEMENT WITH UNIFORM LOAD

Where not shown otherwise, bottom steel is 2-15M

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 Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7					2 - 20M	2 - 20M
8				2 - 20M	-	-
9			-	-	-	-
10		2 - 20M	-	-	-	-
12	2 - 20M	-	-	-	-	-
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)			47	36	30	25

s=4", D=10"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8					2 - 20M	2 - 20M
9				2 - 20M	2 - 20M	2 - 25M
10				2 - 20M	2 - 25M	-
12		2 - 20M	2 - 25M	-	-	-
14		-	-	-	-	-
16	2 - 25M	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)			58	45	36	31

s=5", D=12"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9					2 - 20M	2 - 20M
10				2 - 20M	2 - 20M	2 - 25M
12			2 - 20M	2 - 25M	2 - 25M	-
14		2 - 20M	2 - 25M	-	-	-
16		2 - 25M	-	-	-	-
18	2 - 25M	-	-	-	-	-
20	-	-	-	-	-	-
No stirrup distance, Z (in.)		95	68	53	43	36

s=7", D=16"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						2 - 20M
12				2 - 20M	2 - 20M	2 - 25M
14			2 - 20M	2 - 20M	2 - 25M	2 - 25M
16		2 - 20M	2 - 20M	2 - 25M	2 - 25M	-
18		2 - 20M	2 - 25M	-	-	-
20	2 - 20M	2 - 25M	-	-	-	-
No stirrup distance, Z (in.)			91	72	59	50

s=9", D=20"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						2 - 20M
14				2 - 20M	2 - 20M	2 - 25M
16			2 - 20M	2 - 20M	2 - 25M	2 - 25M
18		2 - 20M	2 - 20M	2 - 25M	2 - 25M	-
20		2 - 20M	2 - 25M	2 - 25M	-	-
No stirrup distance, Z (in.)			113	90	74	63

s=11", D=24"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14					2 - 20M	2 - 20M
16				2 - 20M	2 - 20M	2 - 25M
18			2 - 20M	2 - 25M	2 - 25M	2 - 25M
20		2 - 20M	2 - 25M	2 - 25M	2 - 25M	-
No stirrup distance, Z (in.)				107	89	76

s=14", D=30"						
Opening	Factored Uniform Load, lb/ft					
ft	400	800	1200	1600	2000	2400
3						
4						
5						
6						
7						
8						
9						
10						
12						
14						2 - 20M
16					2 - 20M	2 - 20M
18				2 - 20M	2 - 20M	2 - 25M
20			2 - 20M	2 - 25M	2 - 25M	2 - 25M
No stirrup distance, Z (in.)					109	94

Notes:

1. Where not shown otherwise, bottom steel is 2-15M
2. Table is to be read in conjunction w/ **Fig 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 **Fig 4**.
5. Factored Uniform Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

E N G I N E E R I N G

TABLE 4A - LOGIX 4” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Where not shown otherwise, bottom steel is 1-15M

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												-	-	-	-	-	-
5										-	-	-	-	-	-	-	-
6								-	-	-	-	-	-	-	-	-	-
7							-	-	-	-	-	-	-	-	-	-	-
8						-	-	-	-	-	-	-	-	-	-	-	-
9					-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
4																1 - 20M	1 - 20M
5														1 - 20M	1 - 20M	-	-
6											1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-
7										1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-
8								1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-
9							1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-
10							1 - 20M	1 - 20M	-	-	-	-	-	-	-	-	-
12					1 - 20M	1 - 20M	-	-	-	-	-	-	-	-	-	-	-
14				1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-
16			1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
5																1 - 20M	1 - 20M
6															1 - 20M	1 - 20M	-
7												1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-
8											1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-
9										1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-
10									1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-
12							1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-
14						1 - 20M	1 - 20M	-	-	-	-	-	-	-	-	-	-
16					1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-
18				1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	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																	
6																	
7																1 - 20M	1 - 20M
8															1 - 20M	1 - 20M	1 - 20M
9														1 - 20M	1 - 20M	1 - 20M	-
10												1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-
12										1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-
14								1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-
16							1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-
18						1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-	-
20					1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-	-	-

TABLE 4A - 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																	
8																	
9																1 - 20M	1 - 20M
10															1 - 20M	1 - 20M	1 - 20M
12													1 - 20M	1 - 20M	1 - 20M	1 - 20M	-
14											1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-
16									1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-	-
18								1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-
20							1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-	-	-	-

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																	
9																	
10																	1 - 20M
12															1 - 20M	1 - 20M	1 - 20M
14														1 - 20M	1 - 20M	1 - 20M	-
16												1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-
18										1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-
20								1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-	-	-	-

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																	
12																	
14																1 - 20M	1 - 20M
16															1 - 20M	1 - 20M	1 - 20M
18													1 - 20M	1 - 20M	1 - 20M	1 - 20M	-
20											1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	-	-

Notes:
1. Where not shown otherwise, bottom steel is 1-15M
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 Point Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 4B - LOGIX 6.25” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Where not shown otherwise, bottom steel is 1-15M

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 ft	Factored Point Load, lb 500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																1 - 20M	1 - 20M
4													1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M
5										1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-
6									1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-	-	-
7							1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-	-	-	-	-
8						1 - 20M	1 - 20M	1 - 20M	2 - 15M	-	-	-	-	-	-	-	-
9						1 - 20M	1 - 20M	2 - 15M	-	-	-	-	-	-	-	-	-
10					1 - 20M	2 - 15M	-	-	-	-	-	-	-	-	-	-	-
12				2 - 15M	-	-	-	-	-	-	-	-	-	-	-	-	-
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	1 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=4", D=10"

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																1 - 20M	1 - 20M
5														1 - 20M	1 - 20M	1 - 20M	2 - 15M
6												1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M
7										1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-
8									1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	-	-	-
9								1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-	-	-	-
10							1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-	-	-	-	-
12					1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	-	-	-	-	-	-	-	-
14				1 - 20M	1 - 20M	2 - 15M	-	-	-	-	-	-	-	-	-	-	-
16				2 - 15M	-	-	-	-	-	-	-	-	-	-	-	-	-
18			2 - 15M	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

s=5", D=12"

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																1 - 20M	1 - 20M
6															1 - 20M	1 - 20M	1 - 20M
7													1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M
8											1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 20M
9										1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 20M	2 - 20M
10									1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M
12							1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	-	-
14						1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-
16					1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	-	-	-	-	-	-	-
18				1 - 20M	2 - 15M	2 - 20M	2 - 20M	-	-	-	-	-	-	-	-	-	-
20			1 - 20M	2 - 15M	2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-

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																	
4																	
5																	
6																	
7																1 - 20M	1 - 20M
8															1 - 20M	1 - 20M	1 - 20M
9														1 - 20M	1 - 20M	1 - 20M	1 - 20M
10												1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M
12										1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 20M
14								1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M
16							1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	-
18					1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-
20				1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-

TABLE 4B - LOGIX 6.25” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

s=9", 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																	
4																	
5																	
6																	
7																	
8																	
9																1 - 20M	1 - 20M
10															1 - 20M	1 - 20M	1 - 20M
12													1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M
14											1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M
16									1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 20M	2 - 20M
18							1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M
20						1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M	2 - 20M	-

s=11", 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																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	1 - 20M
12															1 - 20M	1 - 20M	1 - 20M
14													1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M
16											1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M
18									1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 20M
20							1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M	2 - 15M	2 - 20M	2 - 20M

s=14", 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
3-11																	
12																	1 - 20M
14																1 - 20M	1 - 20M
16														1 - 20M	1 - 20M	1 - 20M	1 - 20M
18											1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M
20									1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	1 - 20M	2 - 15M	2 - 15M	2 - 15M

Notes:
1. Where not shown otherwise, bottom steel is 1-15M
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 Point Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 4C - LOGIX 8" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Where not shown otherwise, bottom steel is 2-15M

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																	
5																-	-
6															-	-	-
7													-	-	-	-	-
8											-	-	-	-	-	-	-
9										-	-	-	-	-	-	-	-
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																	
4																	
5																	
6																	
7																2 - 20M	2 - 20M
8															2 - 20M	2 - 20M	2 - 20M
9														2 - 20M	2 - 20M	2 - 20M	-
10												2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-
12										2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-	-
14							2 - 20M	2 - 20M	-	-	-	-	-	-	-	-	-
16					2 - 20M	2 - 20M	-	-	-	-	-	-	-	-	-	-	-
18				2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
5																	
6																	
7																	
8																	
9																2 - 20M	2 - 20M
10															2 - 20M	2 - 20M	2 - 20M
12													2 - 20M	2 - 20M	2 - 20M	2 - 20M	-
14											2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-
16									2 - 20M	2 - 20M	2 - 20M	-	-	-	-	-	-
18							2 - 20M	2 - 20M	-	-	-	-	-	-	-	-	-
20					2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-

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																	
6																	
7																	
8																	
9																	
10																	
12																	2 - 20M
14															2 - 20M	2 - 20M	2 - 20M
16														2 - 20M	2 - 20M	2 - 20M	2 - 25M
18											2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M
20										2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M

TABLE 4C - LOGIX 8" 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																	
8																	
9																	
10																	
12																	
14																	
16																2 - 20M	2 - 20M
18															2 - 20M	2 - 20M	2 - 20M
20													2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M

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																	
14																	
16																	
18																	2 - 20M
20															2 - 20M	2 - 20M	2 - 20M

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
3-20																	

Notes:
1. Where not shown otherwise, bottom steel is 2-15M
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 Point Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 4D - LOGIX 10" LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Where not shown otherwise, bottom steel is 2-15M

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																	
5																	2 - 20M
6															2 - 20M	2 - 20M	2 - 20M
7													2 - 20M	2 - 20M	2 - 20M	-	-
8											2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-
9										2 - 20M	2 - 20M	2 - 20M	-	-	-	-	-
10									2 - 20M	2 - 20M	-	-	-	-	-	-	-
12						2 - 20M	-	-	-	-	-	-	-	-	-	-	-
14				2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
4																	
5																	
6																	
7																	2 - 20M
8															2 - 20M	2 - 20M	2 - 20M
9														2 - 20M	2 - 20M	2 - 20M	-
10													2 - 20M	2 - 20M	2 - 20M	-	-
12										2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-	-
14								2 - 20M	2 - 20M	-	-	-	-	-	-	-	-
16						2 - 20M	-	-	-	-	-	-	-	-	-	-	-
18				2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
5																	
6																	
7																	
8																	
9																	2 - 20M
10																2 - 20M	2 - 20M
12													2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M
14											2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M
16									2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	-	-
18							2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	2 - 25M	-	-	-	-
20					2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	-	-	-	-	-	-	-	-

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																	
6																	
7																	
8																	
9																	
10																	
12																	2 - 20M
14															2 - 20M	2 - 20M	2 - 20M
16													2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M
18											2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M
20									2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 4D - LOGIX 10” 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
3-15																	
16																2 - 20M	2 - 20M
18															2 - 20M	2 - 20M	2 - 20M
20												2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M

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
3-17																	
18																2 - 20M	2 - 20M
20															2 - 20M	2 - 20M	2 - 20M

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
3-19																	
20																	2 - 20M

Notes:
1. Where not shown otherwise, bottom steel is 2-15M
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 Point Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

TABLE 4E - LOGIX 12” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD

Where not shown otherwise, bottom steel is 2-15M

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																	
5																	2 - 20M
6															2 - 20M	2 - 20M	2 - 20M
7														2 - 20M	2 - 20M	2 - 20M	-
8												2 - 20M	2 - 20M	2 - 20M	-	-	-
9										2 - 20M	2 - 20M	2 - 20M	2 - 20M	-	-	-	-
10									2 - 20M	2 - 20M	2 - 20M	-	-	-	-	-	-
12							2 - 20M	-	-	-	-	-	-	-	-	-	-
14					-	-	-	-	-	-	-	-	-	-	-	-	-
16			2 - 20M	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	
4																	
5																	
6																	
7																	2 - 20M
8																2 - 20M	2 - 20M
9															2 - 20M	2 - 20M	2 - 20M
10													2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M
12										2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M
14								2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	-	-	-	-
16							2 - 20M	2 - 25M	2 - 25M	-	-	-	-	-	-	-	-
18					2 - 20M	2 - 25M	2 - 25M	-	-	-	-	-	-	-	-	-	-
20			2 - 20M	2 - 25M	-	-	-	-	-	-	-	-	-	-	-	-	-

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																	
8																	
9																	2 - 20M
10																2 - 20M	2 - 20M
12													2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M
14											2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M
16									2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	2 - 25M	-
18							2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	2 - 25M	-	-	-	-
20						2 - 20M	2 - 25M	2 - 25M	2 - 25M	-	-	-	-	-	-	-	-

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
3-6																	
9																	
10																	
12																	2 - 20M
14															2 - 20M	2 - 20M	2 - 20M
16													2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M
18										2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M
20								2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M	2 - 25M	2 - 25M	2 - 25M

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TABLE 4E - LOGIX 12” LINTEL REINFORCEMENT WITH CONCENTRATED LOAD Cont’d

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
3-15																	
16																2 - 20M	2 - 20M
18														2 - 20M	2 - 20M	2 - 20M	2 - 20M
20											2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 20M	2 - 25M

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
3-17																	
18																2 - 20M	2 - 20M
20														2 - 20M	2 - 20M	2 - 20M	2 - 20M

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
3-19																	
20																2 - 20M	2 - 20M

Notes:
1. Where not shown otherwise, bottom steel is 2-15M
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 Point Load includes 1.25, and 1.5 for dead and live load, respectively. For example, (1.25*dead load)+(1.5*live load)

6.3 – SOIL CLASSIFICATION TABLES

Reprinted from: PRESCRIPTIVE METHOD FOR INSULATING CONCRETE FORMS IN RESIDENTIAL CONSTRUCTION by NAHB Research Centre, Inc.

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

6.4 – FOOTING WIDTH TABLES

Reprinted from: PRESCRIPTIVE METHOD FOR INSULATING CONCRETE FORMS IN RESIDENTIAL CONSTRUCTION by NAHB Research Centre, Inc.

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 sesimic. 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.

7.0 – EVALUATION REPORTS

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ICC EVALUATION SERVICE
Most Widely Accepted and Trusted

ICC-ES Evaluation Report **ESR-1642**
Reissued October 1, 2012
This report is subject to renewal September 1, 2013.

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DIVISION: 03 00 00—CONCRETE
Section: 03 11 19—Insulating Concrete Forming

REPORT HOLDER:

LOGIX INSULATED CONCRETE FORMS LTD.
1917 WEST 4TH AVENUE
VANCOUVER, BRITISH COLUMBIA V6J 1M7
CANADA
(866) 944-0153
www.logixicf.com
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EVALUATION SUBJECT:

LOGIX INSULATING CONCRETE FORMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 *International Building Code®* (IBC)
- 2009 *International Residential Code®* (IRC)
- Other Codes (see Section 8.0)

Properties evaluated

- Structural
- Surface burning characteristics
- Attic and Crawl space fire evaluation
- Fire resistance
- Noncombustible construction

2.0 USES

The Logix Insulating Concrete Forms (ICFs) are used as stay-in-place formwork for structural concrete, load-bearing and nonload-bearing, below-grade and above-grade walls. The forms are used in construction of plain and reinforced concrete beams, lintels, exterior and interior walls, and foundation and retaining walls. The forms remain in place after placement and curing of concrete and must be covered with approved interior and exterior finish material. The forms may be used in Type V construction; for use in buildings of Type I, II, III and IV construction, installation must be in accordance with Section 4.4.

3.0 DESCRIPTION

3.1 General:

The Logix ICFs are classified as a flat ICF wall system in accordance with Section R611.3 of the IRC.

3.2 Materials:

3.2.1 Logix Insulating Concrete Forms: The Logix ICFs consist of two expanded polystyrene (EPS) foam plastic boards separated by injection molded polypropylene cross ties, which are partially embedded into the EPS boards. The polypropylene cross ties, which are spaced 8 inches (203 mm) on center horizontally, maintain the EPS board facings at a fixed clear distance of 4 inches (102 mm), $6^1/_4$ inches (158 mm), 8 inches (203 mm), 10 inches (254 mm) or 12 inches (305 mm). For the standard forms, the EPS boards are 16 inches (406 mm) high by 48 inches (1219 mm) long. The EPS boards have a maximum thickness of $2^3/_4$ inches (70 mm). When stacked in a running bond pattern, the Logix ICFs create a cavity where steel reinforcement bars and concrete are placed. In addition to the standard forms, 45-degree angle forms, 90-degree angle corner forms, taper top blocks, brick ledge blocks and transition blocks are also available. See Figure 1 for illustration of the forms.

The 45-degree-angle forms and 90-degree-angle corner forms are used to construct wall intersections. The taper top block is used to construct corbels in the wall at the desired locations. The brick ledge blocks are used to construct corbels that serve as ledges, for supporting exterior brick veneers. The EPS foam boards are molded from beads specified in the approved quality control manuals. The foam plastic has a nominal density of 1.45 pcf (23.2 kg/m^3), and has a flame-spread index of 25 or less and a smoke-density index of 450 or less when tested in accordance with ASTM E 84. The foam plastic insulation complies with ASTM C 578 as Type II.

3.2.2 Cross Ties: The cross ties are 8.5 inches (216 mm), 10.75 inches (273 mm), 12.5 inches (318 mm) or 14.5 inches (368 mm) in length and have a 1.25-inch-wide-by-14.25-inch-high (32 mm by 362 mm), 0.1875-inch-thick (4.8 mm) flange. The plastic flanges, embedded $^1/_2$ inch (13 mm) below the outside surface of the EPS foam boards, provide supports for attaching interior and exterior wall coverings. Refer to Figure 1 for details.

3.2.3 Concrete: Concrete must be normal-weight concrete complying with the applicable code, having a maximum aggregate size of $^3/_4$ inch (19 mm) and a maximum slump of 6 inches (152 mm). The maximum water–cementitious materials ratio must be 0.5, unless otherwise approved by the code official. Concrete must have a 28-day minimum compressive strength of 3,000 psi (20.7 MPa). Under the IRC, concrete must comply with IRC Sections R404.1 4 and R611.5.1.

3.2.4 Reinforcement: Walls must be reinforced with deformed steel bars, having a minimum yield stress of 40 ksi (275 MPa). The deformed steel bars must comply with Section 3.5.3.1 of ACI 318-05. If construction is based on the IRC, reinforcement must comply with IRC Sections R404.1.2.3.7 and R611.5.2.

3.2.5 Other Components: Wood members in contact with concrete for plates of window and door framing must be treated with an approved wood preservative or be a naturally durable species, and must be attached with corrosion-resistant fasteners complying with IBC Section 2304.9.5 or IRC Section 317.3, as applicable. Materials other than wood, such as vinyl, are permitted for window and door framing if approved by the code official.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 IBC Design Method, Including Alternate IBC Wind Design in Accordance with ICC-600-2008: Concrete walls formed by Logix ICFs must be designed and constructed in accordance with IBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with IBC Chapter 18.

Solid concrete walls formed by flat ICFs may be designed and constructed in accordance with the prescriptive provisions of Section 209 of the ICC Standard for Residential Construction in High Wind Regions (ICC 600-2008), subject to the limitations in Exception 1 of IBC Sections 1609.1.1 and 1609.1.1.1. Design and construction under the provisions of ICC 600-2008 are limited to resistance to wind forces.

4.1.2 IRC Design Method: Insulating concrete walls formed by the Logix ICFs, which comply with IRC Section R611.3.1 as flat insulating concrete wall forms, must be designed and constructed in accordance with IRC Sections R404.1.2 and R611, for flat wall systems. Logix ICFs not complying with the dimensional requirements found in IRC Table R611.3 [i.e., solid concrete walls thicker than 10 inches (254 mm)] must be designed and constructed in accordance with the provisions of Section 4.1.1 of this report.

The $6^{1}/_{4}$-, 8- and 10-inch-thick (158.75, 203.2 and 254 mm) concrete walls are limited to above-grade construction in accordance with IRC Section R611.

Footings and foundations must be designed and constructed in accordance with IRC Chapter 4.

4.1.3 Alternate IRC Design Method: When the Logix ICFs are used to construct buildings that do not conform to the applicability limits of IRC Sections R404.1.2 and R611.2, construction must be in accordance with the prescriptive provisions of the 2007 Prescriptive Design of Exterior Concrete Walls (PCA 100), or the structural analysis and design of the concrete must be in accordance with ACI 318 and IBC Chapters 16, 18 and 19, as noted in Section 4.1.1 of this report.

4.2 Installation:

4.2.1 General: The Logix ICFs must be installed in accordance with this report, the applicable code and Logix's published installation instructions. The published installation instructions and this report must be strictly adhered to, and a copy of these instructions must be available at the jobsite at all times during installation.

The Logix ICF wall system must be supported on concrete footings complying with IBC Chapters 18 and 19, or IRC Chapter 4, as applicable. Vertical reinforcement bars embedded in the footing must extend into the base of the wall system the minimum development length necessary for compliance with Chapter 12 of ACI 318 (IBC and IRC). Vertical and horizontal reinforcement bars must have concrete protection in accordance with, and must be placed as required by, the design and the applicable code. Additional reinforcement around doors and windows must be described in the approved plans. Concrete quality, mixing and placement must comply with IBC Section 1905 or IRC Sections R404.1.2.3 and R611.5.1, as applicable. Window and door openings must be built into the forms, with the same dimensions as the "rough stud opening" specified by the window or door manufacturer, prior to the placement of the concrete. Connections of concrete walls to footings, floors, ceilings and roofs must be in accordance with IRC Section R611.9, or be engineered in accordance with the IBC, whichever code is applicable. Anchor bolts used to connect wood ledgers and plates to the concrete must be cast in place, with the bolts sized and spaced as required by design and the applicable code. Details must be prepared to accommodate the specific job situation, in accordance with the applicable code and the requirements of this report, subject to the approval of the code official.

4.2.2 Interior Finish:

4.2.2.1 General: The installation details in this section (Section 4.2.2) address compliance with the thermal barrier and interior finish requirements of the codes. Logix ICFs exposed to the interior of the building must be finished with minimum $^{1}/_{2}$-inch-thick (13 mm) regular gypsum wallboard complying with ASTM C 36 or C 1396, attached to the flanges of the cross ties. The wallboard must be installed vertically and attached to the flanges of the cross ties with minimum 2-inch-long (51 mm), No. 6, Type W, coarse thread, gypsum wallboard screws spaced 16 inches (406 mm) on center horizontally, and 12 inches (305 mm) vertically. Gypsum wallboard joints must be taped and filled with joint compound in accordance with GA-216 or ASTM C 840. See Section 4.2.2.2 for installation details when use is as walls of crawl spaces without a covering on the interior face.

4.2.2.2 Attic and Crawl Space Installation: When the Logix ICFs are used as walls of attics and crawl spaces and no ignition barrier is applied to the interior space side of the foam plastic, all of the following conditions must be met:

- Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
- There are no interconnected attic or basement areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, as applicable.
- Under-floor (crawl space) ventilation is provided when required by IBC Section 1203.3 or IRC Section R408.1, as applicable.
- Combustion air is provided in accordance with IMC (*International Mechanical Code*®) Section 701.

4.2.3 Exterior Finish:

4.2.3.1 Above Grade: The Logix ICFs must be covered on the exterior with an approved wall covering in accordance with the applicable code. Under the IRC, the walls must be flashed in accordance with IRC Section R703.8. The approved wall covering must be attached to the flanges of the cross ties with the fasteners described in Table 1. The fasteners must be corrosion-resistant and

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have sufficient length to protrude through the flanges of the cross ties a minimum of $^{1}/_{4}$ inch (6.4 mm). The fasteners have the allowable withdrawal and lateral capacities shown in Table 1. The maximum fastener spacing must be designed to support the gravity loads of the wall covering and resist the negative wind pressures. Negative wind pressure capacity of the exterior finish material must be the same as that recognized in the code for generic materials, or in a current ICC-ES evaluation report for proprietary materials.

4.2.3.2 Below-grade: Materials used to dampproof basement walls must be specified by Logix Insulated Concrete Forms, and must comply with the applicable code or a current ICC-ES evaluation report, and must be compatible with foam plastic forms. Applicable dampproofing and waterproofing requirements are in IBC Section 1805 and IRC Section R406, as applicable. Compliance is required with the drainage requirements in IBC Section 1805.4 or IRC Section R405.1, as applicable. No backfill is permitted to be applied against the wall until the complete floor system is in place, unless the wall is designed as a freestanding wall that does not rely on the floor system for structural support.

4.2.4 Foundation Walls: The Logix ICFs are permitted to be used as a foundation stem wall when supporting wood-framed or concrete construction and when the structure is supported on concrete footings complying with the applicable code. Design and installation of the Logix ICF system as foundation stem walls must comply with IBC Section 1807.1.5 or IRC Sections R404 and R404.1.2, as applicable. For concrete foundation walls under the IRC, vertical reinforcement size and spacing must be in accordance with IRC Tables R404.1.2(2), R404.1.2(3), R404.1.2(4) and R404.1.2(8). For concrete foundation walls under the IBC, vertical reinforcement size and spacing must be in accordance with IBC Table 1807.1.6.2. Under the IRC, alternate design and construction may be in accordance with ACI 318, ACI 332 or PCA 100.

4.2.5 Retaining Walls: The Logix ICFs used to form concrete retaining walls are to be reinforced with reinforcement designed in accordance with accepted engineering principles and Section 4.1 of this report.

4.2.6 Protection Against Termites: Where the probability of termite infestation is defined as "very heavy" by the code official, the forms must be installed in accordance with IBC Section 2603.8 or IRC Section R318.4, as applicable. Areas of very heavy termite infestation must be determined in accordance with IBC Figure 2603.8 or IRC Figure R301.2(6), as applicable.

4.3 Fire-resistance-rated Construction:

Walls constructed with Logix ICFs have fire-resistance ratings for bearing and nonbearing wall assemblies as shown in Table 2.

4.4 Installation in Buildings Required to Be of Type I, II, III and IV Construction:

4.4.1 General: Exterior walls constructed with Logix ICFs are permitted to be used in buildings required to be of Type I, II, II and IV construction, provided the applicable conditions cited below are met. The assemblies described in this section (Section 4.4) comply with IBC Section 1406.2.1.1.

4.4.2 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^{1}/_{2}$-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.4.3 EIFS Exterior Finish: The following EIFS lamina may be installed over the exterior of the forms when applied using their respective reinforcing fabric or lath, base coat and finish coat materials described in their respective evaluation reports:

- Sto Corporation STOTherm Classic EIFS as described in ESR-1720.
- Sto Corporation STOTherm Classic NexT® EIFS as described in ESR-1748.

4.4.4 Fireblocking: For applications on buildings of any height, floor-to-wall intersections must be fireblocked in accordance with the applicable code to prevent the passage of flame, smoke and hot gases from one story to another. The foam plastic insulation on the interior side of the exterior walls and on both sides of interior walls must be discontinuous from one story to another. See Figure 3. Details of typical floor-to-wall intersections must be provided, to the code official, on approved drawings.

4.4.5 One-story Buildings: The following conditions apply:

4.4.5.1 Fire Sprinklers: The building must be equipped throughout with an automatic sprinkler system in accordance with the applicable code.

4.4.5.2 Exterior Finish: The foam plastic on the exterior face of the foam wall must be covered with aluminum of a thickness of not less than 0.019 inch (0.48 mm), or corrosion-resistant steel having a base-metal thickness of 0.0160 inch (0.41 mm). Attachment of the metal wall covering must be designed by a registered design professional.

4.4.5.3 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^{1}/_{2}$-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.5 Special Inspection:

4.5.1 IBC: Special inspection is required as noted in IBC Section 1704 for placement of reinforcing steel and concrete, and for concrete cylinder testing. Special inspections in accordance with IBC Sections 1704.1 and 1704.14 are required when the EIFS wall covering system is applied. Duties of the special inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components, installation of joints and sealants.

4.5.2 IRC: For walls designed and constructed in accordance with Section 4.1.2 or PCA 100 as described in Section 4.1.3, special inspection is not required. For walls designed for use under the IRC, in accordance with the IBC as described in Sections 4.1.1 and 4.1.3, special inspection in accordance with Section 4.5.1 is required.

5.0 CONDITIONS OF USE

The Logix Insulating Concrete Forms described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Forms are manufactured, identified and installed in accordance with this report and Logix's published installation instructions. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The forms are separated from the building interior as described in Section 4.2.2.1, except for crawl space construction described in Section 4.2.2.2.

5.3 When used in attics and crawl space construction as described in Section 4.2.2.2, the Logix ICFs must have at least one label as described in Section 7.0 visible in every 160 square feet (14.7 m^2) of exposed interior wall area.

5.4 When use is as part of a fire-resistance-rated assembly, construction must be as described in Section 4.3.

5.5 Except as described in Section 4.4, use of the Logix ICFs is limited to Type V construction as defined in IBC Chapter 6, and to construction in accordance with the IRC.

5.6 When use is in buildings required to be of Types I through IV (noncombustible) construction, as described in Section 4.4, the Logix ICFs must have at least one label as described in Section 7.0 visible in every 160 square feet (14.7 m^2) of wall area, prior to the application of wall covering.

5.7 When required by the code official, calculations showing compliance with the general design requirements of IBC Chapter 16 must be submitted to the code official for approval, except that calculations are not required when the building design is based on the prescriptive methods noted in Sections 4.1.2 and 4.1.3. The calculations and details must be prepared by a registered design professional where required by the status of the jurisdiction in which the project is to be constructed.

5.8 In areas where the probability of termite infestation is defined as "very heavy" and when ICFs are used with wood construction, the foam plastic must be installed in accordance with Section 4.2.6.

5.9 Concrete quality, mixing and placement must comply with IBC Section 1905, or IRC Section R611.5.1, as applicable.

5.10 Special inspection must be provided in accordance with Section 4.5.

5.11 When required by the code official, calculations showing compliance with IRC Sections R611.5.3 and R404.1.2.3.6 must be submitted to the code official for approval. The calculations and details, establishing the the ICFs provide sufficient strength to contain concrete during placement and that the cross-ties are capable of resisting the forces created by fluid pressure of fresh concrete, must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.12 Logix Insulating Concrete Forms are manufactured for Logix by Beaver Plastics Ltd., located in Acheson, Alberta, Canada, and Chilliwack, British Columbia, Canada; AMC Foam Technologies Inc. , in Winnipeg, Manitoba, Canada; Form Solutions in Cobourg, Ontario, Canada; Form Systems Inc., in Hayesville, Kansas; Perma R Products Inc. in Johnson City, Tennessee; Pacific Allied Products Ltd. in Kapolei, Hawaii; APTCO LLC in McFarland, California; and Plymouth Foam Inc. in Becker, Minnesota. Logix Insulating Concrete Forms are produced under a quality control program with inspections conducted by QAI Laboratories, Inc. (AA-723).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Stay-in-place Foam Plastic Insulating Concrete Form (ICF) Systems for Solid Concrete Walls (AC353), dated October 2010.

7.0 IDENTIFICATION

Each bundle of Logix ICFs must bear a label specifying the company name (Logix Insulated Concrete Forms Ltd.), the evaluation report number (ESR-1642), the manufacturing location, the date of production, the name and logo of the inspection agency (QAI Laboratories, Inc.); and the phrase, "Acceptable for use in attics and crawl spaces." Also, one ICF panel in each bundle is labeled on the outer side of the panel with the same information.

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes referenced in Section1.0, the products in this report were evaluated for compliance with the requirements of the 2006 *International Building Code*® (IBC), the 2006 *International Residential Code*® (IRC), the *BOCA*® *National Building Code*/1999 (BNBC), the 1999 *Standard Building Code*© (SBC) and the 1997 *Uniform Building Code*™ (UBC).

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0, except for following revisions:

- Revise Section 3.2.3 to say that concrete must comply with 2006 IRC Sections R404.4 and R611.6.1, BNBC Section 1906, SBC Section 1916.6.1 or UBC Section 1905, as applicable.
- Revise Section 3.2.4 to say that steel reinforcement must comply with 2006 IRC Sections R404.4.6 and R611.6.2, Section 3.5.3.1 of ACI 318-95 (BNBC), SBC Section 1916.6.2 or UBC Section 1903.5, as applicable.
- Revise Section 3.2.5 to say that attachment of wood members in contact with concrete must comply with 2006 IRC Section R319.3, BNBC Section 2311.3.3, SBC Section 2306.3 or UBC Section 2304.3, as applicable.

8.4 Design and Installation:

8.4.1 Design:

8.4.1.1 IBC Method: Concrete walls formed by the Logix ICFs must be designed and constructed in accordance with 2006 IBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with 2006 IBC Chapter 18.

8.4.1.2 IRC Method: Concrete walls formed by the Logix ICFs must be designed and constructed in accordance with 2006 IRC Sections R404.4 and R611 for flat ICF wall systems. Footings and foundations must be designed and constructed in accordance with 2006 IRC Chapter 4.

8.4.1.3 Alternate IRC Method: When buildings constructed under the 2006 IRC provisions do not conform to the applicability limits of 2006 IRC Sections R404.4.1 and R611.2, the structural analysis and design of the concrete must be in accordance with ACI 318 and 2006 IBC Chapter 19. The empirical design approach specified in ACI 318 Section 14.5 is applicable to the design of concrete walls formed by the Logix ICFs.

8.4.1.4 UBC or BNBC: Concrete walls formed by Logix ICFs must be designed and constructed in accordance with UBC or BNBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with UBC or BNBC Chapter 18, as applicable.

8.4.1.5 Alternate UBC Design Method: Walls limited to a maximum of two stories plus a basement, and a maximum unsupported wall span of 10 feet (3048 mm), may be designed in accordance with Publication No. EB118, Prescriptive Method for Insulating Concrete Forms in Residential Construction, dated May 1998, published by the Portland Cement Association, subject to all applicability limits in Table 1.1 of that document.

8.4.1.6 Design in accordance with SBC: Walls constructed with the Logix ICFs comply with SBC Figure 1916.3 as flat insulating concrete forms. Wall design, construction and materials must comply with SBC Sections 1804.6.2 and 1916, as applicable, for flat insulating concrete form wall systems.

8.4.1.7 Alternate SBC Design Method: When Logix ICFs are used to construct buildings that do not conform to the applicability limits of the SBC Sections 1916.2 and 1804.6.2.1, the structural analysis and design of the concrete must be in accordance with ACI 318 and SBC Chapter 19.

8.4.2 Installation:

8.4.2.1 IBC and IRC: Same as Section 4.2, except for the following revisions:

- Revise Section 4.2.1 to say that concrete quality, mixing and placement must comply with 2006 IBC Section 1905 or 2006 IRC Section R611.6.1, as applicable. Anchorage of wood ledger boards supporting bearing ends of joists or trusses to flat ICF walls must be in accordance with 2006 IRC Section R611.8.2, or must be engineered in accordance with the IBC, whichever code is applicable.
- Revise Section 4.2.2.2 to say that combustion air is provided in accordance with 2006 IMC Sections 701 and 703.
- Revise Section 4.2.3.2 to say that compliance is required with drainage requirements in 2006 IBC Section 1807.4 or 2006 IRC Section R405.1, as applicable.
- Revise Section 4.2.4 to say that design and installation of foundation stem walls must comply with 2006 IBC Section 1805.5 or 2006 IRC Sections R404 and R404.1.2, as applicable.
- Revise Section 4.2.6 to say that where the probability of termite infestation is defined as "very heavy" by the code official, the foam plastic must be installed in accordance with 2006 IBC Section 2603.8 or 2006 IRC Section R320.5, as applicable.

8.4.2.2 BNBC, SBC and UBC: Same as Section 4.2, except for the following revisions:

- Revise Section 4.2.1 to say that the Logix ICFs and resulting concrete walls must be supported on concrete footings complying with BNBC or SBC Chapter 18 or UBC Chapters 18 and 19, as applicable. Vertical reinforcement bars embedded in the footing must extend into the base of the wall system the minimum development length necessary for compliance with Chapter 12 of ACI 318-98 (BNBC and SBC) or UBC Section 1912, as applicable. Concrete quality, mixing and placement must comply with Chapter 5 of ACI 318-95 (BNBC), SBC Section 1916.6.1 or UBC Section 1905, as applicable. Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast-in-place, with the bolts sized and spaced as required by the design and the applicable code.
- Revise Section 4.2.2.2 to say under-floor ventilation is provided that complies with BNBC Section 1210.2, SBC Section 1804.6.3.1 or UBC Section 2306.7, as applicable.
- Revise Section 4.2.3.2 to say applicable dampproofing and waterproofing requirements are in BNBC Section 1813.0, SBC Section 1814 or UBC Appendix Chapter 18, as applicable. Compliance is required with drainage requirements in BNBC Section 1813.5, SBC Section 1814 or UBC Section 1804.7, as applicable.
- Revise Section 4.2.4 to say that design and installation of foundation stem walls must comply with BNBC Secion 1812.0, SBC Section 1804.6.2 or UBC Table 18-I-C, as applicable.
- Revise Section 4.2.6 to say that, under the SBC, where the probability of termite infestation is defined as "very heavy" by the code official, the foam plastic must be installed in accordance with SBC Sections 1916.7 and 2603.3. Areas of very heavy termite infestation must be determined in accordance with SBC Figure 2304.1.4.

8.4.3 Special Inspection:

8.4.3.1 IBC: Special inspection is required as noted in 2006 IBC Section 1704 for placement of reinforcing steel and concrete, and for concrete cylinder testing. Special inspection, in accordance with 2006 IBC Sections 1704.1 and 1704.12, is required when an EIFS wall covering is applied. Duties of the special inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components, and installation of joints and sealants.

8.4.3.2 IRC: For walls designed and constructed in accordance with Section 8.4.1.2, special inspection is not required. For walls designed for use under the IRC, in accordance with Section 8.4.1.3 of this report, special inspection in accordance with Section 8.4.5.1 is required.

8.4.3.3 BNBC: Special inspection is required as noted in BNBC Section 1704.5, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.

8.4.3.4 SBC: Special inspection is required as noted in SBC Section 1707.1, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.

8.4.3.5 UBC: Special inspection is required as noted in UBC Section 1701 for placement of reinforcing steel and concrete, and for concrete cylinder testing. When approved by the code official, special inspection may be waived when all of the following conditions are met:

1. Wall systems are a maximum of 8 feet high (2.4 m) and are limited to use in single-story construction of Group R, Division 3, or Group U Occupancies.
2. Maximum height of a concrete lift is 48 inches (1219 mm). Succeeding lifts must be placed in accordance with UBC Section 1905.10.5.
3. Installation is by properly trained installers approved by Logix Insulated Concrete Forms Ltd.
4. The installation instructions indicate methods used to verify proper placement of concrete.
5. Half the allowable stresses or loads permitted by the UBC are used for the design of the walls.

8.5 Conditions of Use:

8.5.1 IBC and IRC: Same as Section 5.0, except for the following revisions:

- Revise Section 5.7 to say that when required by the code official, calculations showing compliance with the general design requirements of Chapter 16 of the BNBC or UBC, as applicable, must be submitted to the code official for approval, except that calculations are not required when the building design is based on the prescriptive method noted in Section 8.4.1.5 or 8.4.1.6. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- Revise Section 5.8 to say that in areas where the probability of termite infestation is defined as “very heavy” and when ICFs are used with wood construction, the foam plastic must be installed in accordance with Section 8.4.2.1
- Revise Section 5.9 to say that concrete quality, mixing and placement must comply with 2006 IBC Section 1905 or 2006 IRC Section R611.6.1, as applicable.
- Revise Section 5.10 to say that special inspection must be in accordance with Section 8.4.5.1 or 8.4.5.2, as applicable.
- Section 5.11 is not applicable.

8.5.2 BNBC, SBC and UBC: Same as Section 5.0, except for the following revisions:

- Revise Section 5.5 to say that, except as described in Section 8.4.4, the concrete walls formed by the Logix ICFs are limited to combustible construction as defined in Chapter 6 of the BNBC, SBC or UBC, as applicable.
- Revise Section 5.7 to say that when required by the code official, calculations showing compliance with the design requirements of Section 8.4.1.1 must be submitted to the code official for approval, except calculations are not required when the building design is based on the prescriptive method noted in Section 8.4.1.5 (UBC) or Section 8.4.1.6 (SBC) as applicable. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- Revise Section 5.8 to say that in areas where the probability of termite infestation is defined as “very heavy” and when ICFs are used with wood construction, the foam plastic must be installed in accordance with Section 8.4.2.2, as applicable.
- Revise Section 5.9 to say that concrete quality, mixing and placement must comply with Chapter 5 of ACI 318-95 (BNBC), SBC Section 1916.6.1 or UBC Section 1905, as applicable.
- Revise Section 5.10 to say that special inspection must be in accordance with Sections 8.4.5.3 (BNBC), 8.4.5.4 (SBC) or 8.4.5.5 (UBC), as applicable.
- Section 5.11 is not applicable.

8.6 Evidence Submitted:

Data in accordance with the ICC-ES Acceptance Criteria for Stay-in-place Foam Plastic Insulating Concrete Form (ICF) Systems for Solid Concrete Walls (AC353), dated October 2007 (editorially revised April 2008).

8.7 Identification:

See Section 7.0.

TABLE 1—ALLOWABLE WITHDRAWAL AND LATERAL CAPACITIES OF SCREWS[1]

SCREW TYPE	ALLOWABLE CAPACITY (pounds)	
	Withdrawal Capacity	Lateral Capacity
No. 6, Type W, coarse-thread, corrosion-resistant gypsum wallboard screw	31	68

For **SI:** 1 pound = 4.45 N.

[1]Screws must be corrosion-resistant and have sufficient length to penetrate the flanges of the cross ties at least $^1/_4$ inches (6 mm).

TABLE 2—LOGIX INSULATING CONCRETE FORMS IN FIRE-RESISTANCE-RATED ASSEMBLIES[1,2]

TYPE-RATING	CAVITY THICKNESS (inches)	INTERIOR WALL FINISH	EXTERIOR WALL FINISH	STEEL REINFORCEMENT
Bearing and nonbearing wall-3 hr. Allowable axial load 36600 pounds per foot[3].	$6^1/_4$	$^1/_2$-inch-thick gypsum wallboard, 48 inches wide, fastened to the flanges of cross ties with 2-inch-long gypsum wallboard screws as specified in Table 1. Joints covered with joint compound, covered with tape, and additional coat of joint compound in accordance with GA-216 or ASTM C840.	Not required	No. 4 steel rebars horizontally within cross ties. No. 4 rebars vertically in the center of ICF at 16 in. o.c.

For **SI:** 1 lbf/ft = 14.5935 N/m; 1 inch = 25.4 mm.

[1]Concrete must be normal-weight concrete (145±5 psf) (2323-2404 kg/m^3) with a minimum 3000 psi (20.7 MPa) compressive strength at 28 days.
[2]The wall assembly may be used as either interior or exterior wall. When used as interior wall, both sides of the form must be protected with the interior wallboard as noted in the table.
[3]Per 10-foot wall height.

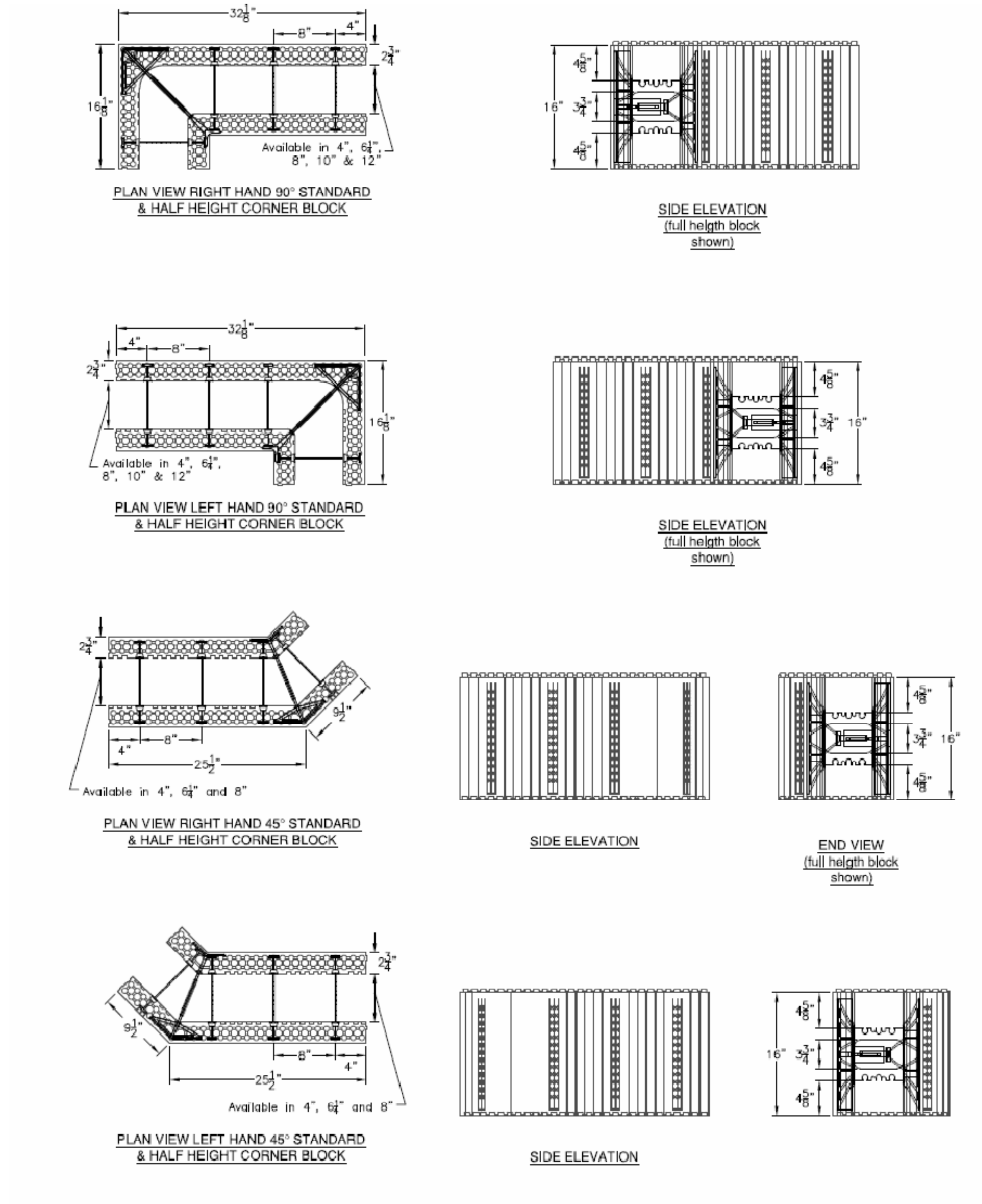

FIGURE 1—LOGIX INSULATING CONCRETE FORMS

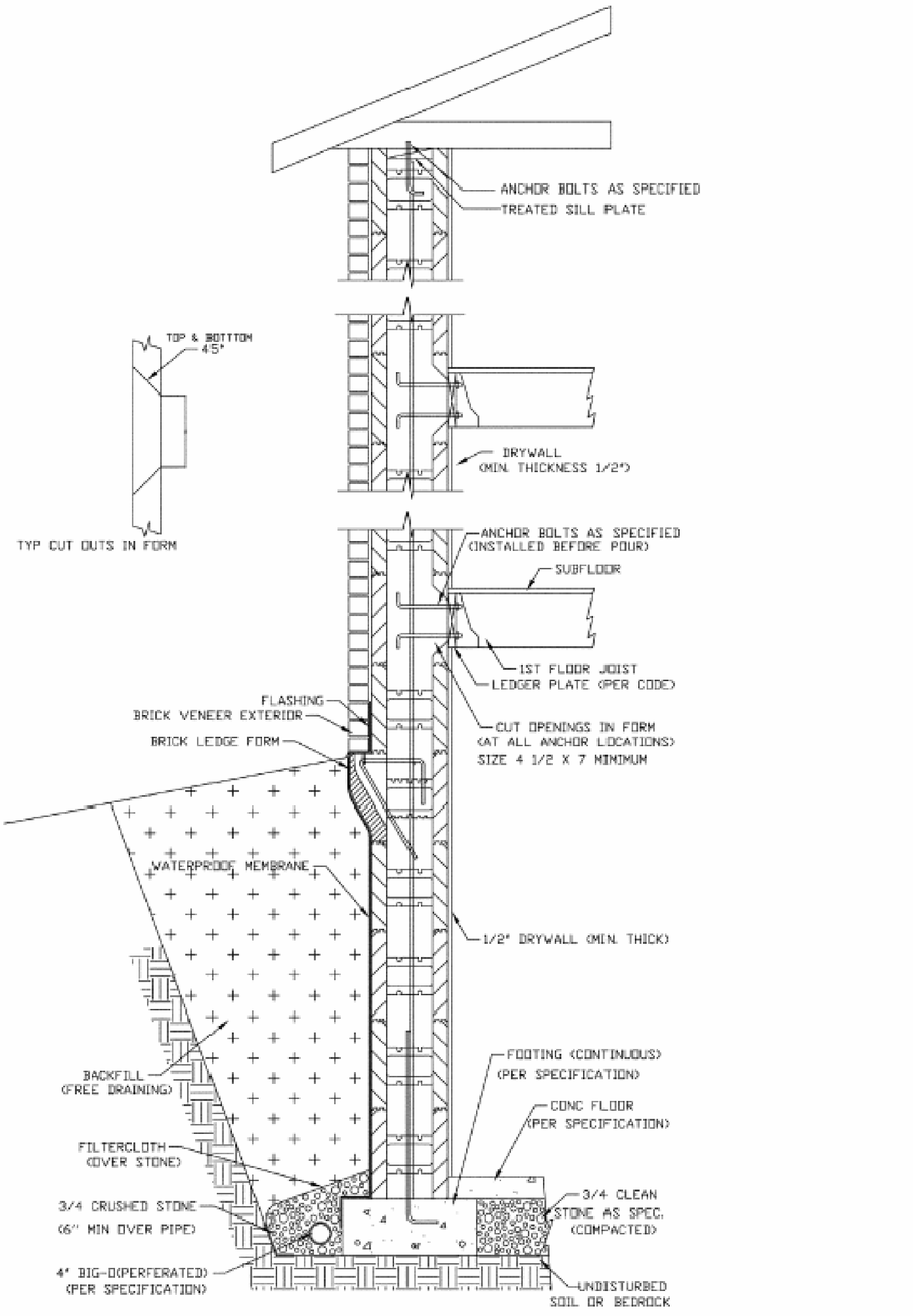

FIGURE 2—TYPICAL INSTALLATION DETAILS

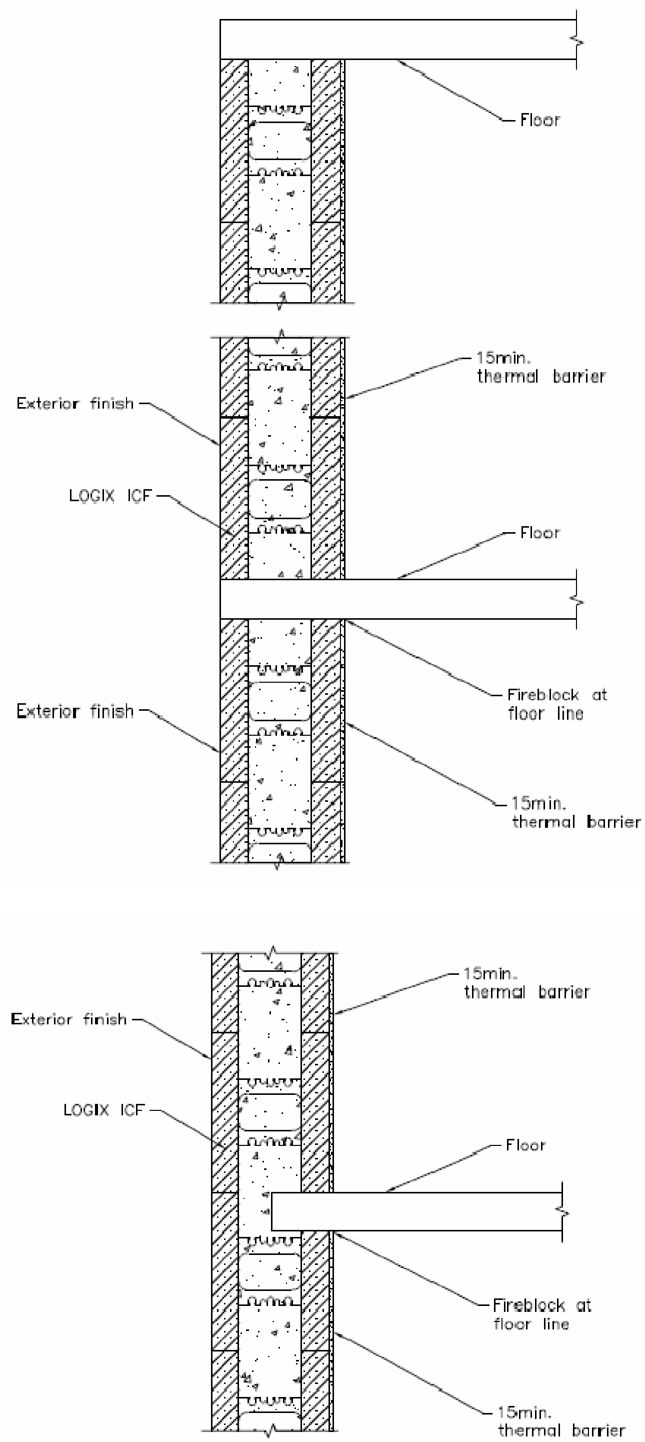

FIGURE 3—TYPICAL FLOOR-WALL DETAIL FOR NONCOMUSTIBLE CONSTRUCTION

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ESR-1642 Supplement

Reissued October 1, 2012

This report is subject to renewal September 1, 2013.

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DIVISION: 03 00 00—CONCRETE
Section: 03 11 19—Insulating Concrete Forming

REPORT HOLDER:

LOGIX INSULATED CONCRETE FORMS LTD.
1917 WEST 4TH AVENUE, SUITE 199
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www.logixicf.com
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EVALUATION SUBJECT:

LOGIX INSULATING CONCRETE FORMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2007 *Florida Building Code—Residential*
- 2007 *Florida Building Code—Building*

Properties Evaluated:

- Structural
- Surface-burning Characteristics
- Crawl space fire evaluation
- Fire resistance

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the Logix insulating concrete forms (ICFs) described in Sections 2.0 through 7.0 of the master report comply with the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential*, when designed and installed in accordance with the master evaluation report.

Use of the Logix ICFs described in the master evaluation report for compliance with the High-Velocity Hurricane Zone provisions of the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report reissued October 1, 2012.

Wisconsin Department of Commerce

Evaluation # 200721-I

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material	Logix Insulated Concrete Form
Manufacturers	AMC Foam Technologies, Inc. 151 Paramount Rd. Winnipeg, MB R2X2W6 Canada
	Plymouth Foam Inc. 13900 Industry Ave. Becker, MN 55308 USA

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of the Logix Insulated Concrete Form Wall System, manufactured by AMC Foam Technologies, Inc., and Plymouth Foam 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 the cited **Comm** code requirements below 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 **s. Comm 21.11**.
- **Structural:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the structural requirements of **ss. Comm 21.02,** and **21.02(3)(c)**.

This review includes the cited **International Building Code (IBC)** requirements below in accordance with the **Wisconsin Amended IBC Code:**

- **Foam Plastic:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the fire safety requirements **ss. IBC 2603.1**, **2603.2**, and **2603.3**.
- **Structural:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the requirements of **IBC Chapter 16**.

SBD-5863 (R. 10/00)

- **Fire Endurance:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the requirements of **ss. IBC 2603.4**, **2603.5.1**, and **2603.5.2**.
- **Fire-Resistance Rating and Fire Tests:** The Logix Insulated Concrete Form Wall System was evaluated in accordance with the requirements of **ss. IBC 703.1** and **703.2 [Comm 62.0703]**.

Note: Structural calculations shall be submitted (job-to-job basis) in accordance with IBC Chapter 16 for 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 or 12-inch-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, basement wall, shear wall, exterior load-bearing wall 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 9 1/2 inches wide. The 6.25-inch Logix form for 6-inch-thick reinforced concrete walls is 113/4 inches wide. The 8-inch Logix form for 8-inch-thick reinforced concrete walls is 13 1/2 inches wide. The 10-inch Logix form for 10-inch-thick reinforced concrete walls is 15 1/2 inches wide. The 12-inch Logix form for 12-inch-thick reinforced concrete walls is 17 1/2 inches wide. 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. Manufacturer 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 **s. Comm 21.02(3)(b)**, and **s. IBC 1903.1** with maximum aggregate size of 3/4 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 **s. IBC 1903.5**.

Each pallet of Logix forms shall bear a label with the manufacturer's name, and the quality control inspection agency (Underwriter's Laboratory Certification).

TESTS AND RESULTS

The tests and results listed below cover both the current WI Building Code **Comm** and future **IBC** requirements:

Intertek Testing Services, ETL SEMKO, conducted testing on the Logix forms. The Logix insulated concrete forms produced by Foam Technologies, Inc., and Plymouth Foam 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 4-hour fire rating in accordance with ASTM E119 and CAN/ULC S10 conducted by Underwriter's Laboratories, See Design No. U933 located at the end of this report.

Assembly Rating, h	Minimum ICF Cavity Thickness, in.

COMMERCE Product Evaluation No. 200721-I (Replaces 200266-I)
Page 3

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 ICBOES requirements.
- Conforms to ASTM C578, with equivalency CAN/ULC S701 (standard Specification for Rigid, Cellular Polystyrene Thermal Insulation).
- 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 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

- **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 of polypropylene reinforcing web material was performed in general accordance with the following test methods:

- **Screw Withdrawal:** ICBO 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)

	Fastener Type	Withdrawal Max Load (lbs)	Lateral 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 %

- **Lateral Screw Resistance:** ICBO 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 20

	Ultimate Tensile Strength (lbs)
Average	842
COV	1.7 %

- **Tensile Strength:** ASTM D638-01 "Standard Test Method for Tensile Properties of Plastics"

DISCUSSION: ICBO 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 ICBO 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 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, we suggest 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. We 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.

CONCLUSIONS:

1. <u>Physical Properties of Polypropylene Reinforcing Webs</u>

The polypropylene reinforcing webs were found to have the following allowable loads, as recommended by ITS when analyzed in accordance with ICBO ES AC 116 (July 2001) "Acceptance Criteria for Nails and Spikes." (The withdrawal resistance utilized a safety factor of five as per ICBO 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 ICBO 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 ICBO 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 (psf)
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,

EVALUATION REPORTS

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 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.

- See Design No. U932 located at the end of this report.

LIMITATIONS OF APPROVAL

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 **s. Comm 21.11(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 **s. Comm 21.11**. In one- or two-family dwellings, thermal barriers shall be provided to separate the forms from the occupied space of the dwellings per **s. Comm 21.11**.
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 21.18-A** 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 department by a Wisconsin registered professional engineer or architect.
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 Plymouth Foam 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 VI, ss. Comm 22.20**, **22.21**, **22.23**, **22.25**, **22.27**, **22.28**, and **22.31**. of the current UDC.

The **IBC** limitations below are in accordance with the current **Wisconsin Amended IBC 2000 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 **s. IBC 2603.4.**

1. In accordance with **s. 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 1-1/2" 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.
3. The exterior face of the blocks shall be finished with an approved weather covering and must be protected from ultraviolet light.

4. 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.

- **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 **s. IBC 1901.2.** Use of the empirical design approach specified in **s. 2109.1 [Comm 62.2109(1)]** 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 **s. 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 **s. 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 **ss. IBC 1901.2** and **1910**.
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-proofed in accordance with **s. IBC 1806**.
10. Damp-proofing and water-proofing materials shall be approved by AMC Foam Technologies, Inc., and Plymouth Foam Inc., and the local building official, and shall be free of solvents that will adversely affect the EPS foam.
11. Special inspection is required as noted in **s. IBC 1704**, for placement of reinforcing steel and concrete, and for concrete cylinder testing, except that special inspection is not required for foundation stem walls conforming to **Table 1805.4.2** of the **IBC**.

    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 **s. IBC 1905.10.**
    c) Installation is by properly trained installers approved by AMC Foam Technologies, Inc., and Plymouth Foam 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 Method for Insulating Concrete Forms in Residential Construction* (publication No. EB118), dated May 1998, 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.

NOTE: The Logix Insulated Concrete Form Wall System was **not** evaluated for compliance with the thermal requirements of **s. Comm 63.1018**.

Identification: Each package bears a label specifying the name and address of the manufacturer (AMC Foam Technologies, Inc., Winnipeg, MB R2X2W6, Canada or, Plymouth Foam Inc., Becker, MN 55308, USA). Additionally, product labels indicate the Wisconsin Building Product Evaluation Number (**200721-I**), and the name and logo of the quality control agency.

This approval will be valid through December 31, 2012, 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.

COMMERCE Product Evaluation No. 200721-I (Replaces 200266-I)
Page 7

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:
Approval Date: January 22, 2008 By: ________________________________

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

200721-I.doc

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(866) 944-0153

ESEARCH REPORT: RR 25518
(CSI # 03100)

BASED UPON ICC EVALUATION SERVICE
REPORT NO. ESR-1642

REEVALUATION DUE DATE:
August 1, 2010
Issued Date: August 1, 2009
Code: 2008 LABC

GENERAL APPROVAL - Logix Insulated Concrete Forms

DETAILS

The above assemblies and/or products are approved when in compliance with the description, use, identification and findings of Report No. ESR-1642 dated July 1, 2009, of the ICC Evaluation Services, Incorporated. The report, in its entirely, is attached and made part of this general approval.

The parts of Report No.ESR-1642 marked by asterisk are modified by the Los Angeles Building Department from this approval.

The approval is subject to the following conditions:

1. Complete design and calculation shall be prepared by an engineer licensed in the State of California and approved by the structural plan check.

2. The maximum allowable pour rate of the forms shall be 4 feet per hour.

3. Continuous inspection by Deputy Inspectors shall be provided when the EIFS wall covering system is applied and for the placement of reinforcing steel and concrete as noted in Section 1704 of the City of Los Angeles Building Code. Any exception shall be approved by structural plan check supervisors.

RR 25518
Page 1 of 2

Logix Insulated Concrete Forms Ltd.
Re: Logix Insulated Concrete Forms

DISCUSSION

This report is in compliance with the 2008 City of Los Angeles Building Code.

The approval is based on tests in accordance with ICC-ES Acceptance Criteria for Stay-in-place Foam Plastic Insulating Concrete Form (ICF) Systems for Solid Concrete Walls (AC353), dated October 2007 (editorially revised April 2008).

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revision to the report must be submitted to this Department for review with appropriate fee to continue the approval of the revised report.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

Yeuan Chou

YEUAN CHOU, Chief
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Attachments: ICC ES Report No. ESR-1642 (10 Pages)

RR 25518
Page 2 of 2

ICC-ES Evaluation Report

ESR-1642

Reissued July 1, 2009

This report is subject to re-examination in one year.

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DIVISION: 03—CONCRETE
Section: 03130—Permanent Forms

REPORT HOLDER:

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EVALUATION SUBJECT

LOGIX INSULATING CONCRETE FORMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code®* (IBC)
- * ~~2006 *International Residential Code®* (IRC)~~
- * ~~Other Codes (see Section 8.0)~~

Properties evaluated

- Structural
- Surface burning characteristics
- Crawl space fire evaluation
- Fire resistance
- Noncombustible construction

2.0 USES

The Logix Insulating Concrete Forms (ICFs) are used as stay-in-place formwork for structural concrete, load-bearing and nonload-bearing, below-grade and above-grade walls. The forms are used in construction of plain and reinforced concrete beams, lintels, exterior and interior walls, and foundation and retaining walls. The forms remain in place after placement and curing of concrete and must be covered with approved interior and exterior finish material. The forms may be used in Type V construction; for use in buildings of Type I, II, III and IV construction, installation must be in accordance with Section 4.4.

3.0 DESCRIPTION

3.1 General:

* ~~The Logix ICFs are classified as a flat ICF wall system in accordance with Section R611.3 of the IRC.~~

3.2 Materials:

3.2.1 Logix Insulating Concrete Forms: The Logix ICFs consist of two expanded polystyrene (EPS) foam plastic boards separated by injection molded polypropylene cross ties, which are partially embedded into the EPS boards. The polypropylene cross ties, which are spaced 8 inches (203 mm) on center horizontally, maintain the EPS board facings at a fixed clear distance of 4 inches (102 mm), $6^1/_4$ inches (158 mm), 8 inches (203 mm), 10 inches (254 mm) or 12 inches (305 mm). For the standard forms, the EPS boards are 16 inches (406 mm) high by 48 inches (1219 mm) long. The EPS boards have a maximum thickness of $2^3/_4$ inches (70 mm). When stacked in a running bond pattern, the Logix ICFs create a cavity where steel reinforcement bars and concrete are placed. In addition to the standard forms, 45-degree angle forms, 90-degree angle corner forms, taper top blocks, brick ledge blocks and transition blocks are also available. See Figure 1 for illustration of the forms.

The 45-degree-angle forms and 90-degree-angle corner forms are used to construct wall intersections. The taper top block is used to construct corbels in the wall at the desired locations. The brick ledge blocks are used to construct corbels that serve as ledges, for supporting exterior brick veneers. The EPS foam boards are molded from beads specified in the approved quality control manuals. The foam plastic has a nominal density of 1.45 pcf (23.2 kg/m^3), and has a flame-spread index of 25 or less and a smoke-density index of 450 or less when tested in accordance with ASTM E 84. The foam plastic insulation complies with ASTM C 578 as Type II.

3.2.2 Cross Ties: The cross ties are 8.5 inches (216 mm), 10.75 inches (273 mm), 12.5 inches (318 mm) or 14.5 inches (368 mm) in length and have a 1.25-inch-wide-by-14.25-inch-high (32 mm by 362 mm), 0.1875-inch-thick (4.8 mm) flange. The plastic flanges, embedded $^1/_2$ inch (13 mm) below the outside surface of the EPS foam boards, provide supports for attaching interior and exterior wall coverings. Refer to Figure 1 for details.

3.2.3 Concrete: Concrete must be normal-weight concrete complying with the applicable code, having a maximum aggregate size of $^3/_4$ inch (19 mm) and a maximum slump of 6 inches (152 mm). The maximum water–cementitious materials ratio must be 0.5, unless otherwise approved by the code official. Concrete must have a 28-day minimum compressive strength of 3,000 psi (20.7 MPa). ~~Under the IRC, concrete must comply with IRC Sections R404.4 and R611.6.1.~~ *

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3.2.4 Reinforcement: Walls must be reinforced with deformed steel bars, having a minimum yield stress of 40 ksi (275 MPa). The deformed steel bars must comply with Section 3.5.3.1 of ACI 318-05. ~~If construction is based on the IRC, reinforcement must comply with IRC Sections R404.4.6 and R611.6.2.~~ *

3.2.5 Other Components: Wood members in contact with concrete for plates of window and door framing must be treated with an approved wood preservative or be a naturally durable species, and must be attached with corrosion-resistant fasteners complying with IBC Section 2304.9.5 ~~or IRC Section R319.3, as applicable.~~ * Materials other than wood, such as vinyl, are permitted for window and door framing if approved by the code official.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 IBC Design: Concrete walls formed by Logix ICFs must be designed and constructed in accordance with IBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with IBC Chapter 18.

* ~~**4.1.2 IRC Design:** Walls constructed with the Logix ICFs comply with IRC Figure R611.3 as flat ICFs. Wall design, construction and materials must comply with IRC Sections R404.4 and R611, for flat ICF wall systems.~~

* ~~**4.1.3 Alternate IRC Design Method:** When Logix ICFs are used to construct buildings that do not conform to the applicability limits of the IRC sections R404.4.1 and R611.2, the structural analysis and design of the concrete must be in accordance with ACI 318 and IBC Chapter 19. Use of the empirical design approach specified in Section 14.5 of ACI 318 is permitted for the design of concrete walls formed by the Logix ICFs.~~

4.2 Installation:

4.2.1 General: The Logix ICFs must be installed in accordance with the Logix published installation instructions, this report and the applicable code. The published installation instructions and this report must be strictly adhered to, and a copy of these instructions must be available at all times on the jobsite during installation. The Logix ICFs must be supported on concrete footings complying with Chapter 18 of the IBC, ~~or Chapter 4 of the IRC.~~

Vertical reinforcement bars, embedded in the footing, must extend a minimum of 24 inches (610 mm) into the block wall system. The Logix ICFs must be stacked in a running bond pattern such that the cross ties align vertically. Vertical and horizontal reinforcement bars must be placed as required by the design and the applicable code. All horizontal and vertical reinforcement bars must have minimum concrete protection in accordance with the applicable code.

Concrete quality, mixing, and placing must comply with the applicable code. Refer to Figure 2 for typical installation details.

* ~~When regulation is under the IRC, reinforcing steel for the Logix ICFs used above grade must comply with Section R611 of the IRC.~~

Pressure-preservative-treated wood ledgers must be attached to the concrete wall by removing the face shell of the EPS units, with the height of the removed portion equal to the depth of the wood ledger. The minimum ambient temperature during placement must be in accordance with ACI 306. When concrete is placed into the wall system, the concrete-filled volume, provided for the anchor bolts, forms solid corbels that serve as ledges for supporting loads such as brick veneer and heavier floor loads. The transition blocks serve the same function as brick ledge blocks but provide larger bearing lengths to support heavier loads. The spacing and embedment depth of the anchor bolts must comply with the structural design and code requirements. Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast-in-place, with the bolts sized and spaced as required by the design using values as indicated in Section 1912 or Section 1913 of the IBC.

4.2.2 Interior Finish:

4.2.2.1 General: Logix ICFs exposed to the interior of the building must be finished with minimum $^1/_2$-inch-thick (13 mm) regular gypsum wallboard complying with ASTM C 36 or C 1396, attached to the flanges of the cross ties. The wallboard must be installed vertically and attached to the flanges of the cross ties with minimum 2-inch-long (51 mm), No. 6, Type W, coarse thread, gypsum wallboard screws spaced 16 inches (406 mm) on center horizontally, and 12 inches (305 mm) vertically. Gypsum wallboard joints must be taped and filled with joint compound in accordance with GA-216 or ASTM C 840. See Section 4.2.2.2 for installation details when use is as walls of crawl spaces without a covering on the interior face.

4.2.2.2 Crawl Space Installation: Logix ICFs located in under-floor crawl spaces are permitted to be exposed to the crawl space, subject to all of the following conditions:

- Entry to the crawl space is only to service utilities, and heat-producing appliances are not permitted.
- There are no interconnected basement areas.
- Air in the crawl space is not circulated to other parts of the building.
- Under-floor ventilation of the crawl space is provided in accordance with IBC Section 1203.3 ~~or IRC Section R408, as applicable.~~ *

4.2.3 Exterior Finish:

4.2.3.1 Above Grade: The Logix ICFs must be covered on the exterior with an approved wall covering in accordance with the applicable code. ~~Under the IRC, the walls must be flashed in accordance with IRC Section R703.8.~~ * The approved wall covering must be attached to the flanges of the cross ties with the fasteners described in Table 1. The fasteners must be corrosion-resistant and have sufficient length to protrude through the flanges of the cross ties a minimum of $^1/_4$ inch (6.4 mm). The fasteners have the allowable withdrawal and lateral capacities shown in Table 1. The maximum fastener spacing must be designed to support the gravity loads of the wall covering and resist the negative wind pressures. Negative wind pressure capacity of the exterior finish material must be the same as that recognized in the code for generic materials, or in a current ICC-ES evaluation report for proprietary materials.

4.2.3.2 Below-grade: Materials used to dampproof basement walls must be specified by Logix Insulated Concrete Forms, and must comply with the applicable code or a current evaluation report, and must be compatible with foam plastic forms. Applicable dampproofing and waterproofing requirements are in IBC Section 1807~~and IRC Section R406.~~ * Compliance is required with the drainage requirements in IBC Section 1807.4 ~~or IRC Section R405.1.~~ * No backfill is permitted to be applied against the wall until the complete floor system is in place, unless the wall is designed as a freestanding wall that does not rely on the floor system for structural support.

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4.2.4 Foundation Walls: The Logix ICFs are permitted to be used as a foundation stem wall when supporting wood-framed or concrete construction and when the structure is supported on concrete footings complying with the applicable code. Design and installation of the Logix ICF system as foundation stem walls must comply with IBC * Section 1805.5 ~~or IRC Section R404.4, as applicable.~~

4.2.5 Retaining Walls: The Logix ICFs used to form concrete retaining walls are to be reinforced with reinforcement designed in accordance with accepted engineering principles and Section 4.1 of this report.

4.2.6 Protection Against Termites: Where the probability of termite infestation is defined as "very heavy" by the code official, the forms must be installed in * accordance with IBC Section 2603.8 ~~or IRC Section R320.5, as applicable~~. Areas of very heavy termite infestation must be determined in accordance with IBC * Figure 2603.8 ~~or IRC Figure R301.2(6), as applicable.~~

4.3 Fire-resistance-rated Construction:

Walls constructed with Logix ICFs have fire-resistance rating for bearing and nonbearing wall assemblies as shown in Table 2.

4.4 Installation in Buildings Required to Be of Type I, II, III and IV Construction:

4.4.1 General: Exterior walls constructed with Logix ICFs are permitted to be used in buildings required to be of Type I, II, II and IV construction, provided the applicable conditions cited below are met. The assemblies described in this section (Section 4.4) comply with IBC Section 1406.2.1.1.

4.4.2 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^1/_2$-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.4.3 EIFS Exterior Finish: The following EIFS lamina may be installed over the exterior of the forms when applied using their respective reinforcing fabric or lath, base coat and finish coat materials described in their respective evaluation reports:

- Sto Corporation STOTherm Classic EIFS as described in ESR-1720.
- Sto Corporation STOTherm Classic NexT® EIFS as described in ESR-1748.

4.4.4 Fireblocking: For applications on buildings of any height, floor-to-wall intersections must be fireblocked in accordance with the IBC to prevent the passage of flame, smoke and hot gases from one story to another. The foam plastic insulation on the interior side of the exterior walls and on both sides of interior walls must be discontinuous from one story to another. See Figure 3. Details of typical floor-to-wall intersections must be provided, to the code official, on approved drawings.

4.4.5 One-story Buildings: The following conditions apply:

4.4.5.1 Fire Sprinklers: The building must be equipped throughout with an automatic sprinkler system in accordance with the IBC.

4.4.5.2 Exterior Finish: The foam plastic on the exterior face of the foam wall must be covered with aluminum of a thickness of not less than 0.019 inch (0.48 mm), or corrosion-resistant steel having a base-metal thickness of 0.0160 inch (0.41 mm). Attachment of the metal wall covering must be designed by a registered design professional.

4.4.5.3 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^1/_2$-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.5 Special Inspection:

4.5.1 IBC: Special inspection is required as noted in IBC Section 1704 for placement of reinforcing steel and concrete, and for concrete cylinder testing.

Special inspections in accordance with IBC Sections 1704.1 and 1704.12 are required when the EIFS wall covering system is applied. Duties of the special inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components, installation of joints and sealants.

~~**4.5.2 IRC:** For walls designed and constructed in accordance with Section 4.1.2 of this report, special inspections are not required. For walls designed in accordance with the Section 4.1.3, special inspection in accordance with Section 4.5.1 is required.~~ *

5.0 CONDITIONS OF USE

The Logix Insulating Concrete Forms described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Forms are manufactured, identified and installed in accordance with this report and Logix's published installation instructions. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The forms are separated from the building interior as described in Section 4.2.2.1, except for crawl space construction described in Section 4.2.2.2.

5.3 When use is as a part of a fire-resistance-rated assembly, Section 4.3 of this report applies.

5.4 Except as described in Section 4.4, concrete walls formed by the Logix ICFs are limited to combustible construction as defined in IBC Chapter 6 ~~and to construction in accordance with the IRC.~~ *

5.5 When required by the code official, calculations showing compliance with the general design requirements of IBC Chapter 16 must be submitted to the code official for approval, ~~except that calculations are not required when the building design is based on Sections 4.1.2 of this report.~~ * The calculations and details must be prepared by a registered design professional where required by the status of the jurisdiction in which the project is to be constructed.

5.6 Concrete quality, mixing and placement must comply with IBC Section 1905, ~~or IRC Section R611.6.1, as applicable.~~ *

5.7 Special inspection must be provided in accordance with Section 4.5.

5.8 Logix Insulating Concrete Forms are manufactured by Beaver Plastics Ltd., located in Edmonton, Alberta, Canada, and Chilliwack, British Columbia, Canada; AMC Insulation Corporation, in Winnipeg, Manitoba, Canada; Form Systems Inc., in Hayesville, Kansas; Perma R Products Inc. in Johnson City, Tennessee; and PSC Moulding Corporation in Cobourg, Ontario, Canada. Logix Insulating Concrete Forms are produced under a quality control program with inspections conducted by Underwriters Laboratories Inc. (AA-668).

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6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Stay-in-place Foam Plastic Insulating Concrete Form (ICF) Systems for Solid Concrete Walls (AC353), dated October 2007 (editorially revised April 2008).

7.0 IDENTIFICATION

Each pallet of Logix ICFs must bear a label specifying the company name (Logix Insulated Concrete Forms Ltd.), the evaluation report number (ESR-1642), the manufacturing location, the date of production, and the name and logo of the inspection agency (Underwriters Laboratories Inc.)

When used in buildings required to be of Type I, II, III, or IV construction, as described in Section 4.4, the forms must have at least one label visible in every 160 square feet (14.9 m^2) of wall area.

* ~~**8.0 OTHER CODES**~~

* ~~**8.1 Evaluation Scope:**~~

~~In addition to the codes referenced in Section1.0, the products in this report were evaluated for compliance with the requirements of the BOCA® *National Building Code*/1999 (BNBC), the 1999 *Standard Building Code*® (SBC) and the 1997 *Uniform Building Code*™ (UBC).~~

* ~~**8.2 Uses:**~~

~~See Section 2.0.~~

* ~~**8.3 Description:**~~

~~See Section 3.0, except that under the UBC reinforcement must comply with Section 1903 of the UBC, and fastening of wood members in contact with concrete must be in accordance with UBC 2304.3.~~

* ~~**8.3.1 Concrete:** Under the SBC, concrete must comply with SBC Section 1916.6.1; and under the BNBC, concrete must comply with Section 1906.~~

* ~~**8.3.2 Reinforcement:** The deformed steel bars must comply with Section 3.5.3.1 of ACI 318-05 and UBC Section 1903.5 (UBC), Section 3.5.3.1 of ACI 318-95 (BNBC), or SBC Section 1916.6.2, as applicable.~~

* ~~**8.3.3 Other Components:** Wood members in contact with concrete for plates of window and door framing must be treated with an approved wood preservative or be a naturally durable species, and must be attached with corrosion-resistant fasteners complying with the UBC Section 2304.3, BNBC Section 2311.3.3, or SBC Section 2306.3, as applicable.~~

* ~~**8.4 Design and Installation:**~~

* ~~**8.4.1 UBC or BNBC:** Concrete walls formed by Logix ICFs must be designed and constructed in accordance with UBC or BNBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with UBC or BNBC Chapter 18, as applicable.~~

* ~~**8.4.2 Alternate UBC Design Method:** Walls limited to a maximum of two stories plus a basement, and a maximum unsupported wall span of 10 feet (3048 mm), may be designed in accordance with Publication No. EB118, Prescriptive Method for Insulating Concrete Forms in Residential Construction, dated May 1998, published by the Portland Cement Association, subject to all applicability limits in Table 1.1 of that document.~~

* ~~**8.4.3 Design in accordance with SBC:** Walls constructed with the Logix Insulating Concrete Forms comply with SBC Figure 1916.3 as flat insulating concrete forms. Wall design, construction and materials must comply with SBC Sections 1804.6.2 and 1916, as applicable, for flat insulating concrete form wall systems.~~

~~**8.4.4 Alternative SBC design Method:** When Logix forms are used to construct buildings that do not conform to the applicability limits of the SBC Sections 1916.2 and 1804.6.2.1, the structural analysis and design of the concrete must be in accordance with ACI 318 and SBC Chapter 19.~~ *

~~**8.4.5 Installation:** The Logix Insulating Concrete Forms must be supported on concrete footings complying with Chapter 18 of the UBC.~~ *

~~Vertical reinforcement bars, embedded in the footing, must extend a minimum of 24 inches (610 mm) into the block wall system. The Logix Insulating Concrete Form blocks must be stacked in a running bond pattern such that the polypropylene webs align vertically. Vertical and horizontal reinforcement bars must be placed as required by the design and the applicable code. All horizontal and vertical reinforcement bars must have minimum concrete protection in accordance with the applicable code. Concrete quality, mixing, and placing must comply with the applicable code. Refer to Figure 2 for typical installation details.~~

~~Pressure-preservative-treated wood ledgers must be attached to the concrete wall by removing the face shell of the EPS units, with the height of the removed portion equal to the depth of the wood ledger. The minimum ambient temperature during placement must be in accordance with ACI 306. When concrete is placed into the wall system, the concrete-filled volume, provided for the anchor bolts, forms solid corbels that serve as ledges for supporting loads such as brick veneer and heavier floor loads. The transition blocks serve the same function as brick ledge blocks but provide larger bearing lengths to support heavier loads. The spacing and embedment depth of the anchor bolts must comply with the structural design and code requirements. Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast in place, with the bolts sized and spaced as required by the design using values as indicated in Section 1923 of the UBC.~~ *

~~Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast in place, with the bolts sized and spaced as required by the design using values as indicated in Section 1923 of the UBC.~~

~~**8.4.5.1 Below Grade:** Materials used to dampproof basement walls must be specified by Logix Insulating Concrete Forms, and must comply with the applicable code or a current evaluation report, and must be compatible with foam plastic forms. Applicable dampproofing and waterproofing requirements are in UBC Appendix Chapter 18, BNBC Section 1813 and SBC Section 1814. Compliance is required with the drainage requirements in UBC Section 1804.7, BNBC Section 1813.5 or SBC Section 1814. No backfill is permitted to be applied against the wall until the complete floor system is in place, unless the wall is designed as a freestanding wall that does not rely on the floor system for structural support.~~ *

~~**8.4.5.2 Foundation Walls:** The Logix ICFs are permitted to be used as a foundation stem wall when supporting wood-framed or concrete construction and when the structure is supported on concrete footings complying with the applicable code. Design and installation of the Logix ICF system as foundation stem walls must comply with BNBC Section 1812 or SBC Section 1804.6.2, as applicable. In jurisdictions adopting the UBC, compliance with Table 18-1-C is required.~~ *

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E V A L U A T I O N R E P O R T S

* ~~**8.4.6 Protection Against Termites:** For applications governed by the SBC, Logix Insulating Concrete Forms must be installed in accordance with SBC Sections 1916.7.5 and 2603.3, as applicable. Areas of very heavy termite infestation must be determined in accordance with SBC Figure 2304.1.4.~~

* ~~**8.4.7 Installation in Buildings Required to be of Noncombustible Construction (UBC, BNBC and SBC):** Exterior walls constructed with Logix ICFs are permitted to be used in noncombustible construction (UBC, BNBC and SBC), provided the applicable conditions cited below are met:~~

* ~~**8.4.7.1 General:** Exterior walls constructed with Logix ICFs are permitted to be used in non-combustible construction (UBC, BNBC and SBC), provided the applicable conditions cited below are met:~~

* ~~**8.4.7.1.1 Interior Finish:** The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^1/_2$-inch-thick (13 mm) gypsum board as required by the applicable code. The gypsum board must be installed and attached as described in Section 4.2.2.1.~~

* ~~**8.4.7.1.2 EIFS Exterior Finish:** The following EIFS lamina may be installed over the exterior of the forms when applied using their respective reinforcing fabric or lath, base coat and finish coat materials described in their respective evaluation reports:~~

- ~~Sto Corporation STOTherm Classic EIFS as described in ESR-1720.~~
- ~~Sto Corporation STOTherm Classic NexT® EIFS as described in ESR-1748.~~

* ~~**8.4.7.1.3 Fireblocking:** For applications on buildings of any height, floor-to-wall intersections must be fireblocked in accordance with the applicable code to prevent the passage of flame, smoke and hot gases from one story to another. The foam plastic insulation on the interior side of the exterior walls and on both sides of interior walls must be discontinuous from one story to another. See Figure 3. Details of typical floor-to-wall intersections must be provided, to the code official, on approved drawings.~~

* ~~**8.4.7.2 One-story Buildings:** The following conditions apply:~~

* ~~**8.4.7.2.1 Fire Sprinklers:** The building must be equipped throughout with an automatic sprinkler system in accordance with the applicable code.~~

* ~~**8.4.7.2.2 Exterior Finish:** The foam plastic on the exterior face of the foam wall must be covered with aluminum of a thickness of not less than 0.019 inch (0.48 mm), or corrosion-resistant steel having a base-metal thickness of 0.0160 inch (0.41 mm). Attachment of the metal wall covering must be designed by a registered design professional.~~

* ~~**8.4.7.2.3 Interior Finish:** The forms must be finished on the interior with an approved 15-minute thermal barrier such as $^1/_2$-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.~~

* ~~**8.4.8 Special Inspection (UBC):**~~

* ~~**8.4.8.1 UBC:** Special inspection is required as noted in UBC Section 1701 for placement of reinforcing steel and concrete, and for concrete cylinder testing. When approved by the code official, special inspection may be waived when all of the following conditions are met:~~

1. ~~Wall systems are a maximum of 8 feet high (2.4 m) and are limited to use in single-story construction of Group R, Division 3, or Group U Occupancies.~~
2. ~~Maximum height of a concrete lift is 48 inches (1219 mm). Succeeding lifts must be placed in accordance with Section 1905.10.5 of the UBC.~~
3. ~~Installation is by properly trained installers approved by Logix Insulated Concrete Forms Ltd.~~
4. ~~The installation instructions indicate methods used to verify proper placement of concrete.~~
5. ~~Half the allowable stresses or loads permitted by the UBC are used for the design of the walls.~~

~~**8.4.8.2 BNBC:** Special inspections is required as noted in BNBC Section 1704.5, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.~~ *

~~**8.4.8.3 SBC:** Special inspection is required as noted in SBC Section 1707.1, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.~~ *

~~**8.5 Conditions of Use:**~~ *

~~8.5.1 Logix ICFs are manufactured, identified, designed and installed in accordance with this report and the manufacturer's published installation instructions.~~ *

~~8.5.2 Except as described in Section 8.4.7, concrete walls formed by the Logix ICFs are limited to combustible construction as defined in Chapter 6 of the BNBC, SBC or UBC, as applicable.~~ *

~~8.5.3 When required by the code official, calculations showing compliance with the general design requirements of Chapter 16 of the BNBC or UBC must be submitted to the code official for approval, except calculations are not required when the building design is based on Sections 8.4.2 or 8.4.3 of this report. The calculations and details must be prepared by a registered design professional where required by the status of the jurisdiction in which the project is to be constructed.~~ *

~~8.5.4 The ICF forms are separated from the building interior with and must be finished with minimum ½-inch-thick (13 mm) regular gypsum wallboard complying attached to the flanges of the cross ties.~~ *

~~8.5.5 When regulation is under the UBC, BNBC or SBC, special inspection is required in accordance with Section 8.4.8 of this report.~~

~~8.5.6 Concrete quality, mixing and placement must comply with UBC Section 1905, Chapter 5 of ACI 318-95 (BNBC) or SBC Section 1916.6.1, as applicable.~~ *

~~8.5.7 When use is in buildings required to be of noncombustible construction, as described in Section 8.4.7, the forms must have at least one label as described in Section 7.0 visible in every 160 square feet (14.9 m^2) of wall area.~~ *

~~**8.6 Evidence Submitted:**~~ *

~~See Section 6.0.~~

~~**8.7 Identification:**~~ *

~~See Section 7.0.~~

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TABLE 1—ALLOWABLE WITHDRAWAL AND LATERAL CAPACITIES OF SCREWS[1]

SCREW TYPE	ALLOWABLE CAPACITY (pounds)	
	Withdrawal Capacity	Lateral Capacity
No. 6, Type W, coarse-thread, corrosion-resistant gypsum wallboard screw	31	68

For **SI:** 1 pound = 4.45 N.

[1]Screws must be corrosion-resistant and have sufficient length to penetrate the flanges of the cross ties at least $^1/_4$ inches (6 mm).

TABLE 2—LOGIX INSULATING CONCRETE FORMS IN FIRE-RESISTANCE-RATED ASSEMBLIES[1, 2]

TYPE-RATING	CAVITY THICKNESS (inches)	INTERIOR WALL FINISH	EXTERIOR WALL FINISH	STEEL REINFORCEMENT
Bearing and nonbearing wall-3 hr. Allowable axial load 36600 pounds per foot[3].	$6^1/_4$	$^1/_2$-inch-thick gypsum wallboard, 48 inches wide, fastened to the flanges of cross ties with 2-inch-long gypsum wallboard screws as specified in Table 1. Joints covered with joint compound, covered with tape, and additional coat of joint compound in accordance with GA-216 or ASTM C840.	Not required	No. 4 steel rebars horizontally within cross ties. No. 4 rebars vertically in the center of ICF at 16 in. o.c.

For **SI:** 1 lbf/ft = 14.5935 N/m; 1 inch = 25.4 mm.

[1]Concrete must be normal-weight concrete (145±5 psf) (2323-2404 kg/m^3) with a minimum 3000 psi (20.7 MPa) compressive strength at 28 days.
[2]The wall assembly may be used as either interior or exterior wall. When used as interior wall, both sides of the form must be protected with the interior wallboard as noted in the table.
[3]Per 10-foot wall height.

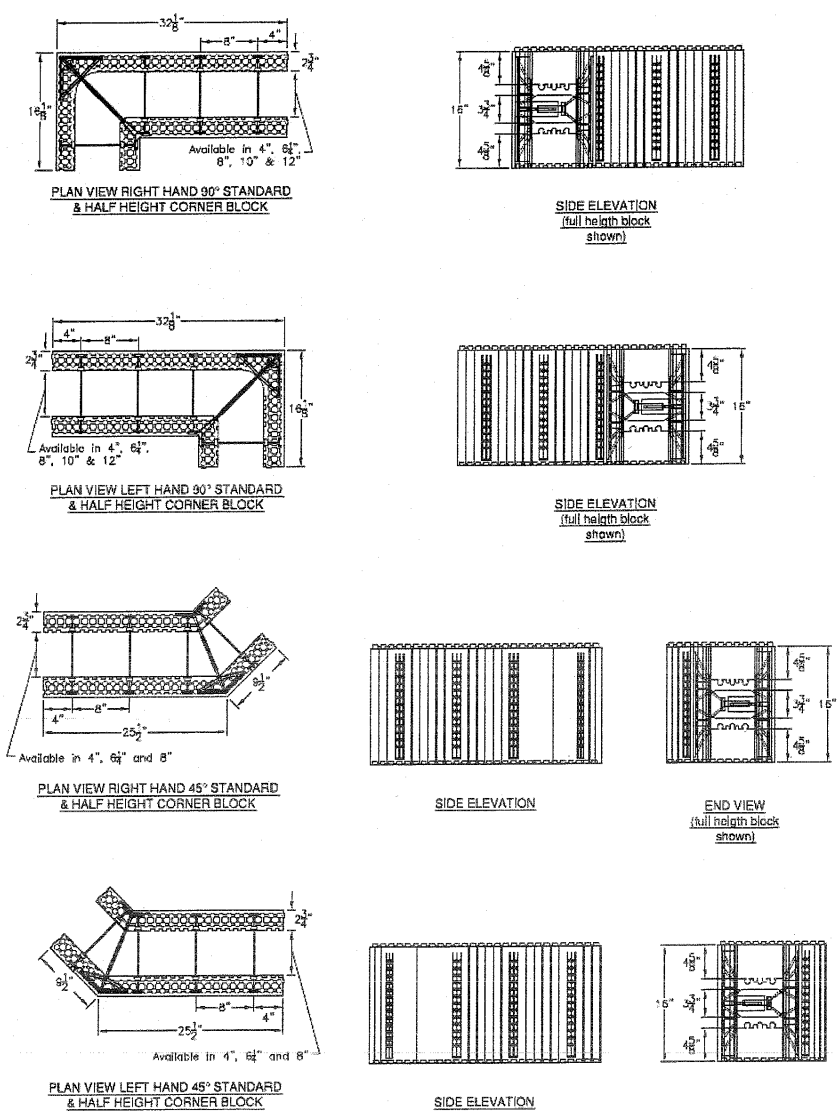

FIGURE 1—LOGIX INSULATING CONCRETE FORMS

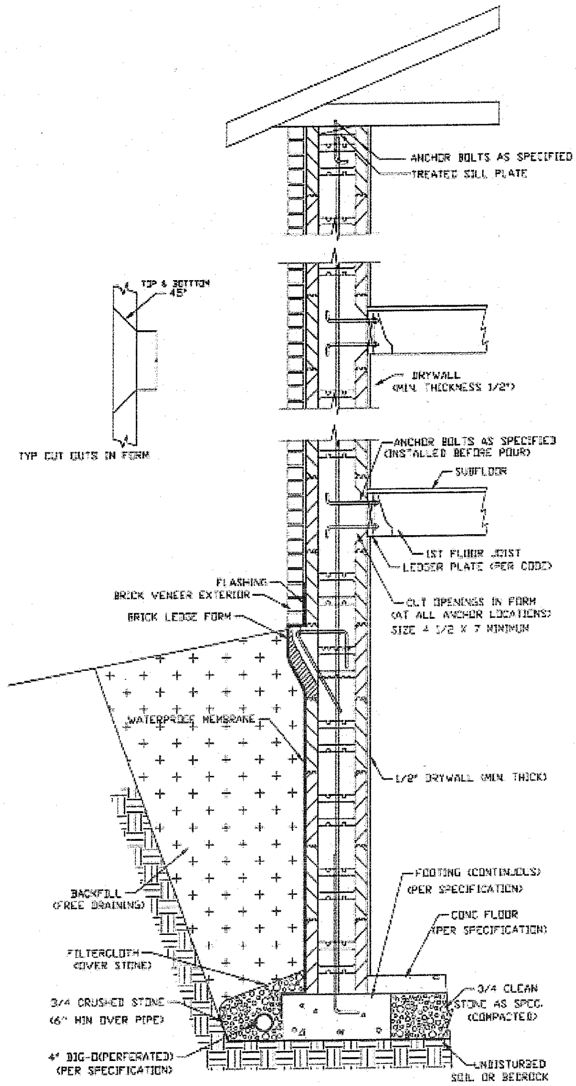

FIGURE 2—TYPICAL INSTALLATION DETAILS

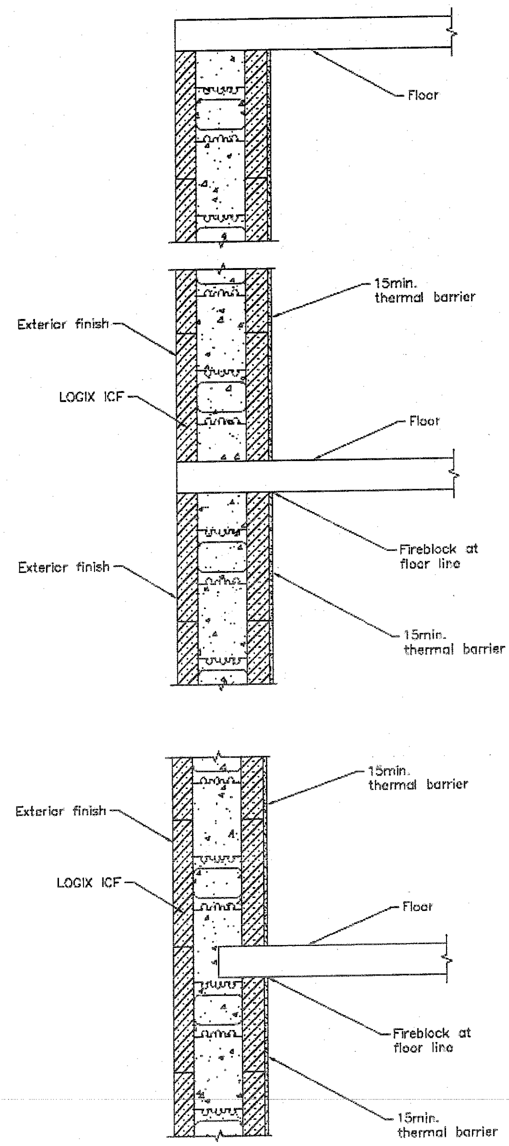

FIGURE 3—TYPICAL FLOOR-WALL DETAIL FOR NONCOMUSTIBLE CONSTRUCTION

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DIVISION: 03—CONCRETE
Section: 03130—Permanent Forms

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EVALUATION SUBJECT:

LOGIX INSULATING CONCRETE FORMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2007 *Florida Building* Code—*Residential*
- 2007 *Florida Building Code—Building*

Properties Evaluated:

- Structural
- Surface-burning Characteristics
- Crawl space fire evaluation
- Fire resistance

*

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the Logix insulating concrete forms (ICFs) described in Sections 2.0 through 7.0 of the master report comply with the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential*, when designed and installed in accordance with the master evaluation report.

Use of the Logix ICFs described in the master evaluation report for compliance with the High-Velocity Hurricane Zone provisions of the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 9B-72, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report issued July 1, 2009.

*

7.1.4 – STATE OF FLORIDA CERTIFICATE OF APPROVAL

Product Approval
USER: Public User

Product Approval Menu > Product or Application Search > Application List > **Application Detail**

FL #	FL14469
Application Type	New
Code Version	2010
Application Status	Approved
	*Approved by DCA. Approvals by DCA 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 W4th AVe 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	Quality Auditing Institute Ltd.
Validated By	Chris Bowness, P.E.
	☑ Validation Checklist - Hardcopy Received

Referenced Standard and Year (of Standard)

Standard	Year
ASTM C578	2007
ASTM D1761-88(2000)	2000
ASTM D1929-96(2000)e1	2000
ASTM D635	2006
ASTM E119	2007
ASTM E84	2007

Equivalence of Product Standards Certified By	
Product Approval Method	Method 1 Option A
Date Submitted	05/22/2012
Date Validated	06/07/2012

Product Approval Method	Method 1 Option A
Date Submitted	05/22/2012
Date Validated	06/07/2012
Date Pending FBC Approval	
Date Approved	06/19/2012

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_R0_C_CAC_LOGIX FBC LISTING LETTER 4 June 2012.pdf **Quality Assurance Contract Expiration Date** 09/10/2014 **Installation Instructions** FL14469_R0_II_logix installation guide.pdf Verified By: Quality Auditing Institute Ltd. Created by Independent Third Party: **Evaluation Reports** Created by Independent Third Party:

Back Next

MIAMI-DADE COUNTY

BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 372-6339
www.miamidade.gov/buldingcode

NOTICE OF ACCEPTANCE (NOA)

Logix Insulated Concrete Forms
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 by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) 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 Division (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. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division 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. **MDSB-1**, titled "Logix ICF Standard Forms", sheet 1 of 1, prepared by Logix Insulated Concrete Forms, signed and sealed by Rahimuddin Rahimi, P.E., bearing the Miami-Dade County Product Control Renewal stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Division.

MISSILE IMPACT RATING: None

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state 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 NOA # 03-0319.01** 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

10/26/09

NOA No 09-0714.03
Expiration Date: September 23, 2014
Approval Date: November 18, 2009
Page 1

EVALUATION REPORTS

Logix Insulated Concrete Forms

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Drawing No. **MDSB-1**, titled "Logix ICF Standard Forms", sheet 1 of 1, prepared by Logix Insulated Concrete Forms, signed and sealed by Rahimuddin Rahimi, P.E.
   "Submitted under NOA # 03-0319.01"

B. TESTS

	Report	Test	Date	Signature
1.	RAD-3015	ASTM C-303	April 2002	J. D. Waldman
2.	RAD-3015	ASTM C-518	April 2002	J. D. Waldman
3.	RAD-3015	ASTM E-96	April 2002	J. D. Waldman
4.	RAD-3015	ASTM C-272	April 2002	J. D. Waldman
5.	RAD-2725	ASTM D-1929	Feb 2001	M. L. Zieman.
6.	UL R-7503	ASTM E-84	06/18/98	No signature.
7.	UL R-7503	ASTM E-84	06/18/98	No signature.
8.	ETL 3050535	ASTM G-21	03/17/04	S. J, Emermas, P.E.

"Submitted under NOA # 03-0319.01"

C. CALCULATION

1. None.

D. MATERIAL CERTIFICATION

1. None.

E. STATEMENTS

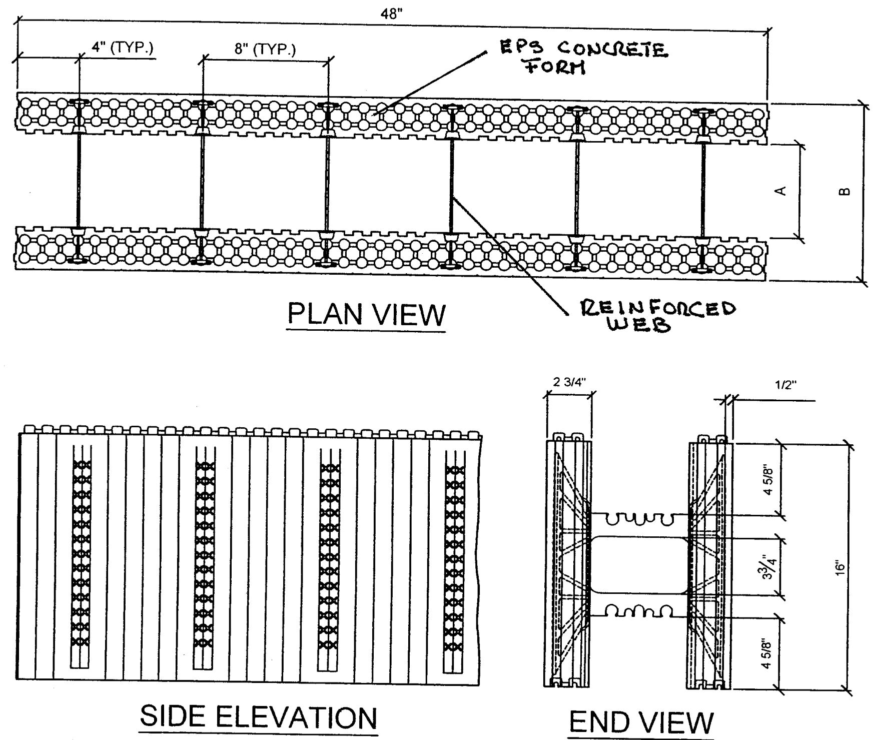
1. No change letter issued by Logix Insulated Concrete Forms, dated 07/06/09, signed Francis Roma, CDT, P.E.
2. Code compliance letter issued by Applied Consumer Services, Inc on 07/15/04, signed by R. Rahimi, P.E. and notarized by G. Tuninskaya.
3. No financial interest letter issued by Applied Consumer Services, Inc on 07/15/04, signed by R. Rahimi, P.E. and notarized by G. Tuninskaya.
   "Submitted under NOA # 03-0319.01"

10/26/09

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No 09-0714.03
Expiration Date: September 23, 2014
Approval Date: November 18, 2009

E - 1

EVALUATION REPORTS



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 of Huntsman

Description	Properties	Test
Density	1.39 pcf	ASTM C303
Flame Spread	5	ASTM E84
Smoke Development	400	ASTM E84
Self Ignition Temperature	752°F	ASTM D1929
Thermal Conductivity	0.237 Btu-in/hr-ft^2-°F	ASTM C518
Odor Emission	Not detected	AATCC-112
Water Vapor Transmission	3.10 perms	ASTM E96
Water Absorption	0.76% Water abs. vol.	ASTM C272
Fungus Resistance	No bacterial growth	ASTM G21

NOTES:

1) This approval pertains to the insulation properties of the Logix Insulated Concrete Forms and it does not approve the concrete, the strucuture and/or the forming capacity of the material and the system.
2) The forming system shall comply with the requirements of ACI 347.
3) The concrete walls shall comply with the requirements of ACI 318.
4) EPS FOAM TYPE II IS SUPPLIED BY HUNTSMAN CHEMICAL CORPORATION

Standard Form				
Form Size	4" (100mm)	6" (152mm)	8" (203mm)	10" (254mm)
A	4"	6 1/4"	8"	10"
B	9 1/2"	11 3/4"	13 1/2"	15 1/2"

PRODUCT RENEWED as complying with the Florida Building Code
Acceptance No 02-0714.03
Expiration Date 09/23/2004
By
Miami Dade Product Control Division

Approved as complying with the Florida Building Code
Date 09/23/04
NOA# 03-0319.01
Miami Dade Product Control Division
By

5/20/04

ENGINEER: RAHIMUDDIN RAHIMI
DISCIPLINE: CIVIL ENGINEERING
NUMBER: 51484

MANUFACTURER: LOGIX™ INSULATED CONCRETE FORMS Good. Solid. Logix.™ www.logixicf.com
P.O. Box 5235
Johnson City, TN
37603

DWG. TITLE: LOGIX ICF STANDARD FORMS

DWG. NO.:	SHEET NO.:	DWG DATE:	REV. DATE:
MDSB-1	1 of 1	JAN 2004	JAN 2004

NYC BUILDINGS

Report of Materials and Equipment Acceptance Division

NYC Department of Buildings
280 Broadway, New York, NY 10007
Patricia Lancaster, FAIA, Commissioner
(212) 566-5000, TTY: (212) 566-4769

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

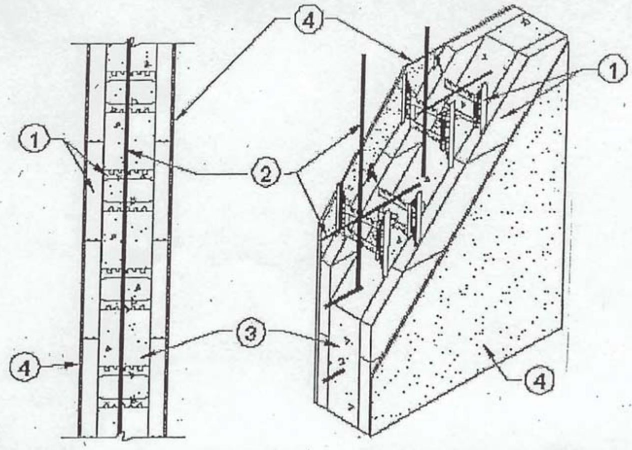


Figure 1. Logix Insulated Concrete Form wall system

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 Derakhdam

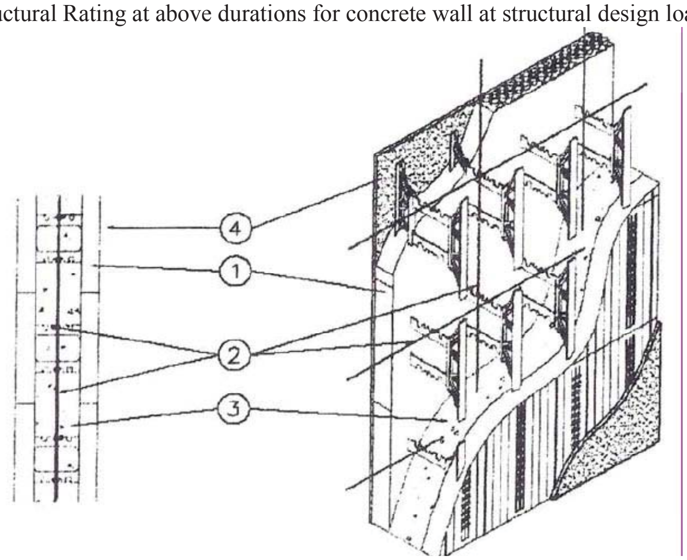
MEA 273-04-M Page 2 of 2

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.

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.

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: K. Kooner Reviewed By: P Gildenstern

Kal Kooner, EIT
Engineer, Building Products

Peter Gildenstern, AScT
Asst. Mgr., Engineering Services

Enclosure

E V A L U A T I O N   R E P O R T S

REPRINTED 2013

7.1.9 – 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.

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."

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

Intertek ETL SEMKO
Testing everywhere for markets anywhere.

E V A L U A T I O N R E P O R T S

7.1.10 – GREENGUARD INDOOR AIR QUALITY CERTIFIED

GREENGUARD® Indoor Air Quality Certified

Certificate of Compliance

Certification Details:

Certificate No: 938-00

Status: Certified

Period: 11/2010 - 10/2011

Restrictions: NONE

LOGIX Platinum Series

LOGIX Insulated Concrete Forms, Ltd.

This product has been certified according to the GREENGUARD Indoor Air Quality (IAQ) Certification Program for Low Emitting Products

Reference Standard: GGPS.001 GREENGUARD IAQ Standard for Building Materials, Finishes, and Furnishings

Product Type: Insulation and HVAC Products

Criteria	Allowable Limits
TVOC[1]	≤ 0.5 mg/m^3
Formaldehyde	≤ 0.05 ppm
Total Aldehydes[2]	≤ 0.1 ppm
Individual VOCs[3]	≤ 0.1 TLV
Respirable Particles (PM_{10}) (mg/m^3)	≤ 0.05 mg/m^3
Listing of measured carcinogens and reproductive toxins as identified by California Proposition 65, the U.S. National Toxicology Program (NTP), and the International Agency on Research on Cancer (IARC) must be provided.	
Any pollutant regulated as a primary or secondary outdoor air pollutant must meet a concentration that will not generate an air concentration greater than that promulgated by the National Ambient Air Quality Standard (U.S. EPA, code of Federal Regulations, Title 40, Part 50).	

See referenced standard for a complete technical explanation.

[1] Defined to be the total response of measured VOCs falling within the C_6-C_{16} range, with responses calibrated to a toluene surrogate.

[2] Defined to be the total response of a target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[3] Any pollutant not listed must produce an air concentration level no greater than 1/10 the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438).

[4] Particles are applicable to fibrous, particle-releasing products with exposed surface area in air streams.

GREENGUARD Certification affirms that products meet the criteria of the referenced standard and the requirements of the specific certification program. Certification testing is conducted according to a consistent, defined protocol. The testing does not evaluate emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical and particle emissions.

The GREENGUARD Environmental Institute (GEI) is an industry independent, third-party certification organization that qualifies products for low chemical emissions. GREENGUARD Certification programs use defined product standards, test methodologies, product sample collection and handling procedures, program application processes and on-going verification procedures. GREENGUARD standards, methods, and procedures are available at www.GREENGUARD.org.

Children & Schools
GREENGUARD®
Indoor Air Quality Certified

Certificate of Compliance

Certification Details:

Certificate No: 938-00

Status: Certified

Period: 11/2010 - 10/2011

Restrictions: NONE

LOGIX Platinum Series

LOGIX Insulated Concrete Forms, Ltd.

This product has been certified according to the GREENGUARD Children & Schools Certification Program for Low Emitting Products

Reference Standard: GGPS.002 GREENGUARD Children & Schools℠ Standard

Product Type: All Products

Criteria	Allowable Limits
Individual VOCs[1,2]	≤ 1/100 TLV and ≤ ½ CA chronic REL (Office Seating ≤ 1/100 TLV and ≤ ¼ CA CREL)
Formaldehyde	≤ 0.0135 ppm /13.5 ppb (Office Seating ≤ 0.0675 ppm / 6.75 ppb)
TVOC[3]	≤ 0.22 mg/m³
Total Aldehydes[4]	≤ 0.043 ppm /43 ppb
Total Phthalates[5]	≤ 0.01 mg/m³
Total Particles[6]	≤ 0.02 mg/m³

See referenced standard for a complete technical explanation.

[1]Any VOC not listed must produce an air concentration level no greater than 1/100 the Threshold Limit Value (TLV) industrial work place criterion (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438) and no greater than 1/2 the CA Chronic Reference Exposure Level (CREL) http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html - (CRELs) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA), December 2008).

[2]1-Methyl-2-Pyrrolidinone must be ≤ 0.16 mg/m³ for Office Furniture or ≤ 0.080 mg/m³ for Office Seating.

[3]Defined to be the total response of measured VOCs falling within the C_6–C_{16} range, with responses calibrated to a toluene surrogate.

[4]Defined to be the total response of a target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[5]Total phthalates include dibutyl (DBP), diethylhexyl (DEHD), diethyl (DEP), butylbenzyl (BBP), di-octyl (DOP), and dimethyl (DMP) phthalates.

[6]Particles are only applicable to fibrous, particle-releasing products with exposed surface area in air streams.

Complies with California Department of Health Services' "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1 (CA section 01350)

GREENGUARD Certification affirms that products meet the criteria of the referenced standard and the requirements of the specific certification program. Certification testing is conducted according to a consistent, defined protocol. The testing does not evaluate emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical and particle emissions.

The GREENGUARD Environmental Institute (GEI) is an industry independent, third-party certification organization that qualifies products for low chemical emissions. GREENGUARD Certification programs use defined product standards, test methodologies, product sample collection and handling procedures, program application processes and on-going verification procedures. GREENGUARD standards, methods, and procedures are available at www.GREENGUARD.org.

BUILDING PRODUCTS LISTING PROGRAM

Class: Insulation

Customer: LOGIX Insulated Concrete Forms, Ltd.
Location: 199-1917 West 4th Avenue, Vancouver, BC V6J 1M7

Listing No. B1031
Effective Date: September 27, 2010
Last Revised: October 15, 2010
Expires: N/A

Product: Insulated Concrete Forms (ICFs) with expanded polystyrene (EPS) panels and polypropylene web tie connectors.

Bead Types: Only approved bead types meeting certification requirements

Label: Product units are marked with the following: Manufacturer's Name, Trademark or other recognized symbol of identification, Model Designation, Month and Year of Manufacture or equivalent, QAI logo with the "US" and "C" identifier, listing number, and the standard numbers and ratings.

Standard: ASTM E84 - "Standard Test Method for Surface Burning Characteristics of Building Materials"

Ratings:	Component	Product Density	Maximum Thickness	Flame Spread Index (FSI)	Smoke Developed Index (SDI)
	EPS Panels	1.35 pcf	2.75 inches	25	450

Standards: ASTM C578 - "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation";

CAN/ULC S701 – "Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering"

	Component	EPS Classification
ASTM C578 Ratings:	EPS Panels	Type II
CAN/ULC S701 Ratings:	EPS Panels	Type 2

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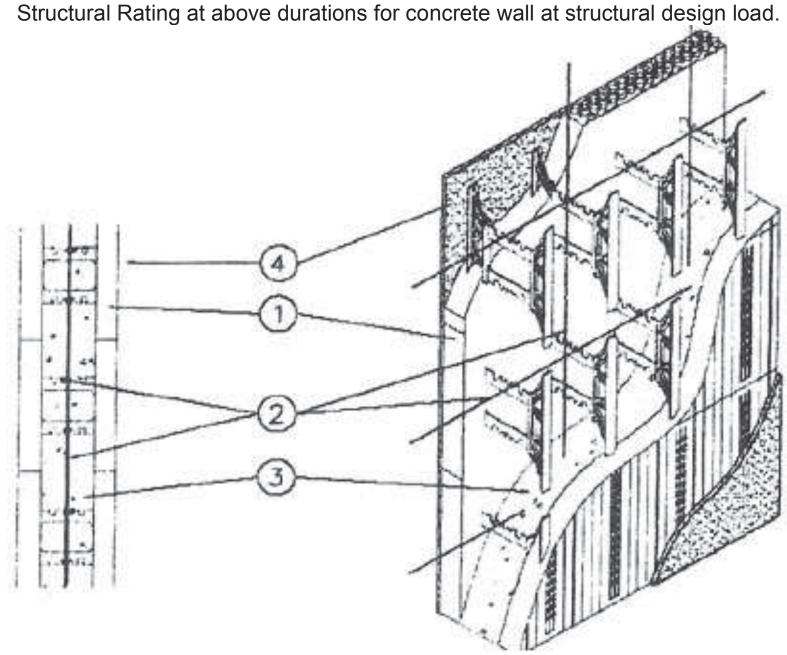
Standards: ASTM E119 - "Standard Test Methods for Fire Tests of Building Construction and Materials";

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.

Standard: ASTM D1761 - “Standard Test Methods for Mechanical Fasteners in Wood”

	Component	Allowable cladding pressures (based on fastener withdrawal values)
ASTM D1761	ICF System	As per tables below

ASTM D1761 Allowable fastener values (psf) per fastener spacings for LOGIX ICFs:

Fastener Type	Fastener Length	Withdrawal Resistance with Factor of Safety of 3.0	8” Hor. / 12” Vert.	8” Hor. / 16” Vert.	16” Hor. / 16” Vert.
#6 Coarse Drywall Screw	1 5/8 in.	59 lbs	88.5	66.4	33.2
#6 Fine Drywall Screw	1 5/8 in.	57 lbs	86.0	64.5	32.3
16 gauge staple	1 1/2 in.	9 lbs	14.0	10.5	5.3
#8 Wood Screw	2 in.	69 lbs	103.5	77.6	38.8
#8 Exterior Deck Screw	2 in.	70 lbs	105.0	78.8	39.4
#10 Wood Screw	2 in.	66 lbs	99.0	74.3	37.1

ASTM D1761 Allowable fastener values (kPa) per fastener spacings for LOGIX ICFs:

Fastener Type	Fastener Length	Withdrawal Resistance with Factor of Safety of 3.0	200mm Hor. / 305 mm Vert.	200 mm Hor. / 400 mm Vert.	400 mm Hor. / 400 mm Vert.
#6 Coarse Drywall Screw	41.3 mm	26.8 kg	4.24	3.18	1.59
#6 Fine Drywall Screw	41.3 mm	26.0 kg	4.12	3.09	1.54
16 gauge staple	38.1 mm	4.2 kg	0.67	0.50	0.25
#8 Wood Screw	50.8 mm	31.3 kg	4.96	3.72	1.86
#8 Exterior Deck Screw	50.8 mm	31.8 kg	5.03	3.77	1.89
#10 Wood Screw	50.8 mm	29.9 kg	4.74	3.56	1.78

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Standards: ASTM D635 - "Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position"; ASTM D1929 – "Standard Test Method for Determining Ignition Temperature of Plastics"

	Component	Rating
ASTM D635	Polypropylene Web Ties	HB (Horizontal Burning)
ASTM D1929	Polypropylene Web Ties	Pass

Notes: Also meets Florida Building Code (FBC) High Velocity Hurricane Zone (HVHZ) requirements as per Chapter 26 of the FBC.

These products are subjected to limitations as specified above and must be installed in accordance with the manufacturers' instructions. Authorities having jurisdiction should be consulted regarding allowable applications. See manufacturer's listings for other standards listed under QAI certification programs.

***

7.2 – CANADIAN CODE REPORTS
7.2.1 – CCMC (CANADIAN CONSTRUCTION MATERIALS CENTRE)

NRC-CNRC
Institute for Research in Construction

Evaluation Report
CCMC 13110-R

MASTERFORMAT:	03 11 19.01
Issued:	2003-04-17
Re-evaluated:	2009-07-14
Revised:	2009-12-17
Re-evaluation due:	2012-04-17

Logix™ Insulated Concrete Forms

1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that "Logix™ Insulated Concrete Forms" when used as an insulated concrete form in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code 2005:

- Clause 1.2.1.1.(1)(a), Division A, using the following acceptable solutions from Division B:
  - Article 3.1.5.12. Combustible Insulations and its Protection
  - Article 4.1.1.3. Design Requirements (structural loads and procedures)
  - Article 4.3.3.1. Design Basis for Plain, Reinforced and Pre-Stressed Concrete
  - Subsection 9.3.1. Concrete
  - Section 9.4. Structural Requirements
  - Article 9.10.17.10. Protection of Foamed Plastics
  - Clause 9.15.1.1.(1)(c) General (footings and foundations)
  - Article 9.15.3.3. Application of Footing Width and Area Requirements
  - Clause 9.15.3.5.(1)(c) Adjustments of Footing Widths for Exterior Walls
  - Subsection 9.15.4. Foundation Walls
  - Clause 9.20.1.1.(1)(b) General (masonry and insulating concrete form walls not in contact with the ground)
  - Clause 9.20.1.1.(2) General (masonry and insulating concrete form walls not in contact with the ground)
  - Article 9.20.1.2 . Earthquake Reinforcement
  - Subsection 9.20.17. Above-Ground Flat Insulating Concrete Form Walls

This opinion is based on CCMC's evaluation of the technical evidence in Section 4.1 provided by the Report Holder.

Ruling No. 05-11-135 (13110-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 2005-05-13 pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

2. Description

"Logix™ Insulated Concrete Forms" units are modular, interlocking concrete forms consisting of two Type 2 expanded-polystyrene (EPS) panels. The two polystyrene panels are connected by polypropylene webs which are molded into the polystyrene panels and equally spaced at 203 mm. The extremities of the polypropylene connectors are embedded 12.7 mm below the exterior surface of the molds.

The polystyrene panels have a preformed interlocking mechanism along their top and bottom edges to facilitate stacking and to prevent the leakage of freshly placed concrete.

The forms are dry-laid and stacked in a running (staggered) configuration. The stacked units form a rectangular space which, after being filled with concrete, forms an insulated, monolithic concrete wall of uniform thickness.

Reinforcement is placed as required to satisfy strength requirements for above- or below-grade loadbearing walls, beams, lintels and shear walls.

The units have external dimensions of 1220 mm in length and 405 mm in height. The polystyrene panels are 70 mm thick, resulting in an overall wall thickness of 240 mm, 290 mm, 340 mm and 390 mm that in turn, encloses a 100 mm, 150 mm, 200 mm and 250 mm concrete walls.

A standard unit is illustrated in Figure 1. Typical wall section details for residential construction are shown in Figure 2. Additional details are available in the Logix Installation Guide, dated November 8, 2008 and/or at www.logixicf.com.

Figure 1. "Logix™ Insulated Concrete Forms" standard unit

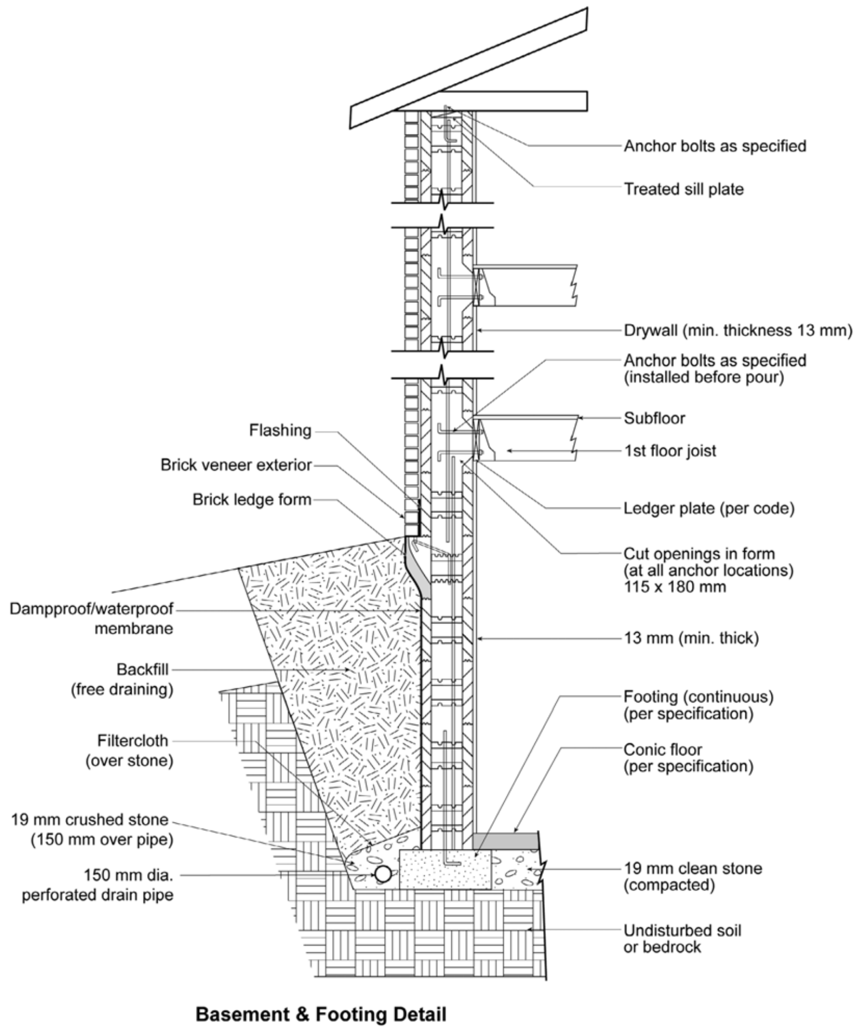


Figure 2. Typical wall section

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the "Logix™ Insulated Concrete Forms" being used in accordance with the conditions and limitations set out below.

- The use of "Logix™ Insulated Concrete Forms" is permitted in the construction of houses and small buildings up to two storeys high that fall under the provisions of Part 9 of Division B of the NBC 2005, subject to all of the conditions listed below.
- The structural applications of "Logix™ Insulated Concrete Forms" must be in strict accordance with the design analysis as prepared for Logix ICF Ltd. by CHIDIAC & Associated Limited, and included in Report No. 080411.1, dated 13 November 2008, from which Tables 4.1.2.1.1 to 4.1.2.1.19 have been reproduced. When "Logix™ Insulated Concrete Forms" is used in structural applications outside the scope of the referenced design analysis, a registered professional engineer skilled in concrete design must certify the design analysis and the design drawings for such applications. The engineer must certify that the construction provides a level of performance equivalent to that required by Part 4 and/or Part 9 of the NBC 2005.
- The attachment of exterior cladding and interior finishing materials has not been assessed by the present evaluation.
- For load-bearing and shear wall applications, the minimum core thickness of "Logix™ Insulated Concrete Forms" must be 150 mm.
- For non-load-bearing wall applications, the minimum core thickness of "Logix™ Insulated Concrete Forms" must be 100 mm.
- The concrete used in "Logix™ Insulated Concrete Forms" must be Type 10 or Type 30 with a minimum compressive strength of 20 MPa and a maximum slump of 150 mm ± 12 mm.
- The maximum aggregate size to be used in conjunction with "Logix™ Insulated Concrete Forms" must be no greater than 14 mm.
- For the wall heights indicated in Tables 4.1.2.1.1 and 4.1.2.1.2, the pouring of concrete must be made at a rate of 1.3 m per hour in consecutive lifts; each lift is limited to a maximum height of 1.3 m.
- The EPS insulation used in this system must comply with CAN/ULC-S701-97 "Standard For Thermal Insulation, Polystyrene, Boards and Pipe Covering," Type 2. EPS insulation manufactured at the Cobourg, Ontario and Chilliwack, British Columbia plants must be made using BASF BFL 422 beads. EPS insulation manufactured at the Edmonton, Alberta plant must be made using Huntsman S7454 beads, while EPS insulation manufactured at Winnipeg, Manitoba plant must be made using Huntsman 5340 beads.
- "Logix™ Insulated Concrete Forms" EPS insulation panels must be aged for at least three weeks from their date of manufacturing.
- The interior face of "Logix™ Insulated Concrete Forms" panels must be protected from the inside of the building in accordance with Sentence 9.10.17.10.(1) of Division B of the NBC 2005.
- For above-grade installations, the exterior face of "Logix™ Insulated Concrete Forms" must be protected with materials conforming to Article 9.20.6.4., Masonry Veneer, and Sections 9.27., Cladding, and/or 9.28., Stucco, of Division B of the NBC 2005.
- The concrete must be cured a minimum of seven days before backfilling. The top of the foundation wall must be supported by the first floor prior to backfilling.
- For below-grade installations, dampproofing material that is compatible with the EPS insulation must be provided in accordance with Article 9.13.2.2., Material Standards (dampproofing), of Division B of the NBC 2005.
- Where hydrostatic pressure exists, waterproofing that is compatible with the EPS insulation must be provided in accordance with Article 9.13.3.2., of Division B of the NBC 2005.
- For foundation-wall installations, the backfill must be placed in such a way as to avoid damaging the wall, the exterior insulation panel and the waterproofing and dampproofing protection. The backfill material must be well drained and a drainage system must be installed around the footing in accordance with the requirements of the NBC 2005.
- The installation of "Logix™ Insulated Concrete Forms" must be in strict compliance with the Logix Installation Guide, dated

November 8, 2008. Only installers trained and authorized by Logix ICF Ltd. shall be contracted to set up the wall system.

4. Technical Evidence

CCMC's Technical Guide for "Logix™ Insulated Concrete Forms" sets out the nature of the technical evidence required by CCMC to enable it to evaluate a product as an acceptable or alternative solution in compliance with the NBC 2005. The Report Holder has submitted test results and engineering design analyses for CCMC's evaluation. Testing was conducted at independent laboratories recognized by CCMC. The corresponding test results for "Logix™ Insulated Concrete Forms" are summarized below.

4.1 NBC 2005 Compliance Data for "Logix™ Insulated Concrete Forms" on which CCMC Based its Opinion in Section 1

4.1.1 Material Requirements

4.1.1.1 Conformance of the EPS

Compliance of the expanded polystyrene thermal insulation with the requirements of CAN/ULC-S701-01 is covered under Intertek Testing Services NA LTD. certification program.

4.1.2 Design Requirements

4.1.2.1 Conformance of Structural Capacity (Steel Reinforcement Designs)

The design analysis in Report No. 080411.1 (see Conditions and Limitations for complete reference) of walls using "Logix™ Insulated Concrete Forms" provides a level of performance equivalent to that required by applicable provisions in Part 4 and/or Part 9 of Division B of the NBC 2005. The corresponding design analysis is summarized in Tables 4.1.2.1.1 to 4.1.2.1.19. The tables provide steel reinforcement specifications for a number of different wall and lintel applications based on specific structural loads. The design assumptions are indicated below each table.

Table 4.1.2.1.1 Vertical and horizontal steel reinforcement for below-grade walls(1)

Wall Height (m)	Backfill Height (m)	Max. Spacing for Vertical Reinforcement (mm)			Max. Spacing for Horizontal Reinforcement (mm)		
		150-mm Wall	200-mm Wall	250-mm Wall	150-mm Walls	200-mm Wall	250-mm Wall
2.44	1.22	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.52	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.82	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.12	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.05	1.22	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.52	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.82	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.12	15M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.42	15M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.74	15M @ 200	15M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.66	1.22	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.52	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	1.82	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.12	15M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.52	15M @ 200	15M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
	2.82	–	15M @ 200	10M @ 200	–	10M @ 200	10M @ 200
	3.12	–	–	15M @ 200	–	–	10M @ 200
	3.35	–	–	15M @ 200	–	–	10M @ 200

Notes to Table 4.1.2.1.1: Table cells without a value indicate that the spacing is not feasible with respect to the proposed backfill height.

(1) Table 4.1.2.1.1. is based on the following assumptions:

- The design is applicable to seismic zones up to $S_a(1.2)$ for soil Type A.
- Maximum building width is 24.0 m.
- Maximum building length is 18.0 m.
- Maximum clear floor span is 8.0 m.
- Maximum clear roof span is 12.0 m with supports at mid-point.
- Maximum number of storeys above grade is two (2).
- Maximum number of storeys below grade is one (1).
- Roof slope is 1:3.
- Roof dead load is 0.60 kPa.
- Floor dead load is 0.70 kPa.
- Roof live load is 0.50 kPa.
- Floor live load is 1.9 kPa.
- Snow load is 1.9 kPa.
- Loads include earth pressure and surcharge loads, plus gravity load. Gravity load assumes 2 ICF storeys and wood-frame roof.
- Wall height above ground is taken 3.05 m.
- The exterior walls are assumed to be clad with clay bricks.
- Specified compressive strength of concrete, f'_c at 28 days is 20 MPa.
- Reinforcing bars shall be hard-grade deformed bars conforming to CAN/CSA G30.12, "Billet-Steel Bars for Concrete Reinforcement," Grade 400. Specified yield strength of reinforcement, f_y, is 400 MPa.
- Wall design detailing bends, placement, spacing, splicing and protection of reinforcement shall be in accordance with CAN/CSA A23.3 (R2000), "Design of Concrete Structures."
- Minimum concrete cover for reinforcement is 20 mm from the inside face of concrete.
- Two 15M bars shall be placed around all openings and extend 600 mm (24") beyond each side of the openings.

- Minimum 28-day concrete yield strength of 20 MPa. Mix designs in accordance with the manufacturer's recommendations.
- Concrete shall be allowed to cure for a minimum of seven days prior to backfilling.
- Basement walls are considered to be supported by the floor system at the top.
- Floor and roof connections to ICF walls shall be designed to accommodate diaphragm action in seismic zones and zones of high wind pressure.
- All materials and workmanship shall conform to the requirements of the NBC 2005 including any Revisions and Errata that have been released as of the issue date of this table.

Table 4.1.2.1.2 Vertical and horizontal steel reinforcement for above-grade walls(2)

Wall Height (m)	Max. Spacing for Vertical Reinforcement (mm)			Max. Spacing for Horizontal Reinforcement (mm)		
	150-mm Wall	200-mm Wall	250-mm Wall	150-mm Wall	200-mm Wall	200-mm Wall
Single-storey concrete construction supporting a wood-frame roof structure						
2.44	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.05	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.66	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
Ground floor concrete construction supporting a second storey wood-frame construction and wood frame roof structure						
2.44	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.05	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.66	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
Ground floor concrete construction supporting a second storey concrete construction and a wood-frame roof structure						
2.44	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.05	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200
3.66	10M @ 400	10M @ 200	10M @ 200	10M @ 200	10M @ 200	10M @ 200

Notes to Table 4.1.2.1.2:

(2) Table 4.1.2.1.2 is based on the following assumptions:

- The design is applicable to seismic zones up to $S_a(1.2)$ for soil Type A.
- Applicable to a maximum factored wind pressure of 3.15 kPa.
- Loads include all applicable gravity loads and wind loads.
- Specified compressive strength of concrete, f'_c at 28 days is 20 MPa.
- Specified yield strength of reinforcement, f_y, is 400 MPa.
- Two 15M bars should be placed around all openings and shall extend at least 600 mm beyond each corner of the opening.

Table 4.1.2.1.3 Minimum steel reinforcement of lintels with a 250-mm core made with "Logix™ Insulated Concrete Forms"(3)

Opening Width	Factored Uniformly Distributed Load (kN/m)													
	2.0		5.0		10.0		15.0		20.0		25.0		30.0	
(mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)
1000	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0
1500	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	55
2000	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	167	1-15M	305
2500	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	208	1-15M	417	1-20M	555
3000	1-15M	0	1-15M	0	1-15M	0	1-15M	111	1-15M	458	1-20M	667	1-20M	805
3500	1-15M	0	1-15M	0	1-15M	0	1-15M	361	1-20M	708	2-15M	917	1-25M	1055
4000	1-15M	0	1-15M	0	1-15M	0	1-20M	611	2-15M	958	1-25M	1167	2-20M	1305
4500	1-15M	0	1-15M	0	1-20M	166	2-15M	861	1-25M	1208	2-20M	1417	2-25M	1515
5000	1-15M	0	1-15M	0	1-20M	416	1-25M	1111	2-20M	1458	2-25M	1667	2-25M	1805

Table 4.1.2.1.4 Minimum steel reinforcement of lintels with a 200-mm core made with "Logix™ Insulated Concrete Forms"(3)

Opening Width	Factored Uniformly Distributed Load (kN/m)													
	2.0		5.0		10.0		15.0		20.0		25.0		30.0	
(mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)
1000	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0
1500	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	83	1-15M	194
2000	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	167	1-15M	333	1-15M	444
2500	1-15M	0	1-15M	0	1-15M	0	1-15M	139	1-15M	417	1-15M	583	1-20M	694
3000	1-15M	0	1-15M	0	1-15M	0	1-15M	389	1-15M	667	1-20M	833	2-15M	944
3500	1-15M	0	1-15M	0	1-15M	83	1-15M	639	1-20M	917	2-15M	1083	1-25M	1194
4000	1-15M	0	1-15M	0	1-15M	333	1-20M	889	2-15M	1167	1-25M	1333	2-20M	1444
4500	1-15M	0	1-15M	0	1-20M	583	2-15M	1139	1-25M	1417	1-30M	1583	2-25M	1694
5000	1-15M	0	1-15M	0	1-20M	833	1-25M	1389	1-30M	1667	2-25M	1833	–	–

Table 4.1.2.1.5 Minimum steel reinforcement of lintels with a 150-mm core made with "Logix™ Insulated Concrete Forms"(3)

Opening Width (mm)	Factored Uniformly Distributed Load (kN/m)													
	2.0		5.0		10.0		15.0		20.0		25.0		30.0	
	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)	Bottom Steel	Stirrup End Dist. (mm)
1000	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	83
1500	1-15M	0	1-15M	0	1-15M	0	1-15M	0	1-15M	125	1-15M	250	1-15M	333
2000	1-15M	0	1-15M	0	1-15M	0	1-15M	167	1-15M	375	1-15M	500	1-15M	583
2500	1-15M	0	1-15M	0	1-15M	0	1-15M	417	1-15M	625	1-15M	750	1-20M	833
3000	1-15M	0	1-15M	0	1-15M	250	1-15M	667	1-15M	875	1-20M	1000	2-15M	1083
3500	1-15M	0	1-15M	0	1-15M	500	1-20M	917	1-20M	1125	2-15M	1250	1-25M	1133
4000	1-15M	0	1-15M	0	1-15M	750	1-20M	1167	2-15M	1375	1-25M	1500	–	–
4500	1-15M	0	1-15M	0	1-20M	1000	2-15M	1417	1-25M	1625	–	–	–	–
5000	1-15M	0	1-15M	0	1-20M	1250	1-25M	1667	–	–	–	–	–	–

Note to Tables 4.1.2.1.3 to 4.1.2.1.5: Table cells without a value indicate that the load is not feasible with respect to the proposed core thickness.

(3) Tables 4.1.2.1.3 to 4.1.2.1.5 are based on the following assumptions:

- The factored uniformly distributed load includes live and dead loads.
- The minimum height of the lintel is 400 mm.
- Stirrups are single leg fabricated from 10M bars spaced at 170 mm on centre.
- Lintel reinforcing is located at the bottom of the lintel and projects 200 mm into the lintel support on each side.
- Specified compressive strength of concrete, at 28 days f'_c, is 20 MPa.
- Specified yield strength of reinforcement, f_y, is 400 MPa.
- Two 15M bars should be placed around all openings and shall extend at least 600 mm beyond each corner of the opening.

Table 4.1.2.1.6 Minimum solid shear wall length for wind pressure equal to 0.35 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.62	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
18	6	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.62	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

Table 4.1.2.1.7 Minimum solid shear wall length for wind pressure equal to 0.45 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.56	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.82	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	2.08	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
18	6	1.50	1.50	1.50	1.56	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.56	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.56	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.56	1.56	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.56	1.82	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.56	2.08	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

Table 4.1.2.1.8 Minimum solid shear wall length for wind pressure equal to 0.55 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.59	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.90	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	2.22	1.50	1.50	1.50	1.59	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	2.54	1.50	1.50	1.50	1.82	1.50	1.50	1.50	1.50
18	6	1.50	1.50	1.50	1.90	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.90	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.59	1.90	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.90	1.90	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.90	2.22	1.50	1.50	1.50	1.59	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.90	2.54	1.50	1.50	1.50	1.82	1.50	1.50	1.50	1.50

Table 4.1.2.1.9 Minimum solid shear wall length for wind pressure equal to 0.65 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.88	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	2.25	1.50	1.50	1.50	1.61	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	2.63	1.50	1.50	1.50	1.88	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	3.00	1.50	1.50	1.50	2.15	1.50	1.50	1.50	1.61
18	6	1.50	1.50	1.50	2.25	1.50	1.50	1.50	1.61	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	2.25	1.50	1.50	1.50	1.61	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.88	2.25	1.50	1.50	1.50	1.61	1.50	1.50	1.50	1.50
	18	1.50	1.50	2.25	2.25	1.50	1.50	1.61	1.61	1.50	1.50	1.50	1.50
	21	1.50	1.50	2.25	2.63	1.50	1.50	1.61	1.88	1.50	1.50	1.50	1.50
	24	1.50	1.50	2.25	3.00	1.50	1.50	1.61	2.15	1.50	1.50	1.50	1.61

Table 4.1.2.1.10 Minimum solid shear wall length for wind pressure equal to 0.75 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	1.73	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.73	1.73	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.73	2.16	1.50	1.50	1.50	1.55	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.73	2.60	1.50	1.50	1.50	1.86	1.50	1.50	1.50	1.50
	21	1.50	1.51	1.73	2.03	1.50	1.50	1.50	2.17	1.50	1.50	1.50	1.63
	24	1.50	1.73	1.73	3.46	1.50	1.50	1.50	2.48	1.50	1.50	1.50	1.86
18	6	1.50	1.50	1.50	2.60	1.50	1.50	1.50	1.86	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.73	2.60	1.50	1.50	1.50	1.86	1.50	1.50	1.50	1.50
	15	1.50	1.50	2.16	2.60	1.50	1.50	1.55	1.86	1.50	1.50	1.50	1.50
	18	1.50	1.50	2.60	2.60	1.50	1.50	1.86	1.86	1.50	1.50	1.50	1.50
	21	1.50	1.51	2.60	3.03	1.50	1.50	1.86	2.17	1.50	1.50	1.50	1.63
	24	1.50	1.73	2.60	3.46	1.50	1.50	1.86	2.48	1.50	1.50	1.50	1.86

Table 4.1.2.1.11 Minimum solid shear wall length for wind pressure equal to 0.95 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	2.19	1.50	1.50	1.50	1.57	1.50	1.50	1.50	1.50
	12	1.50	1.50	2.19	2.19	1.50	1.50	1.57	1.57	1.50	1.50	1.50	1.50
	15	1.50	1.50	2.19	2.74	1.50	1.50	1.57	1.96	1.50	1.50	1.50	1.50
	18	1.50	1.64	2.19	3.29	1.50	1.50	1.57	2.36	1.50	1.50	1.50	1.77
	21	1.50	1.92	2.19	3.84	1.50	1.50	1.57	2.75	1.50	1.50	1.50	2.06
	24	1.50	2.19	2.19	4.39	1.50	1.57	1.57	3.14	1.50	1.50	1.50	2.35
18	6	1.50	1.64	1.50	3.29	1.50	1.50	1.50	2.36	1.50	1.50	1.50	1.77
	12	1.50	1.64	2.19	3.29	1.50	1.50	1.57	2.36	1.50	1.50	1.50	1.77
	15	1.50	1.64	2.74	3.29	1.50	1.50	1.96	2.36	1.50	1.50	1.50	1.77
	18	1.64	1.64	3.29	3.29	1.50	1.50	2.36	2.36	1.50	1.50	1.77	1.77
	21	1.64	1.92	3.29	3.84	1.50	1.50	2.36	2.75	1.50	1.50	1.77	2.06
	24	1.64	2.19	3.29	4.39	1.50	1.57	2.36	3.14	1.50	1.50	1.77	2.35

Table 4.1.2.1.12 Minimum solid shear wall length for wind pressure equal to 1.25 kPa(4)

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)											
		150				200				250			
		2nd Floor		1st Floor		2nd Floor		1st Floor		2nd Floor		1st Floor	
		Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir.	Short dir.	Long dir
12	6	1.50	1.50	1.50	2.89	1.50	1.50	1.50	2.07	1.50	1.50	1.50	1.55
	12	1.50	1.50	2.89	2.89	1.50	1.50	2.07	2.07	1.50	1.50	1.55	1.55
	15	1.50	1.80	2.89	3.61	1.50	1.50	2.07	2.58	1.50	1.50	1.55	1.94
	18	1.50	2.16	2.89	4.33	1.50	1.55	2.07	3.10	1.50	1.50	1.55	2.32
	21	1.50	2.52	2.89	5.05	1.50	1.81	2.07	3.62	1.50	1.50	1.55	2.71
	24	1.50	2.89	2.89	5.77	1.50	2.07	2.07	4.13	1.50	1.55	1.55	3.10
18	6	1.50	2.16	1.50	4.33	1.50	1.55	1.50	3.10	1.50	1.50	1.50	2.32
	12	1.50	2.16	2.89	4.33	1.50	1.55	2.07	3.10	1.50	1.50	1.55	2.32
	15	1.80	2.16	3.61	4.33	1.50	1.55	2.58	3.10	1.50	1.50	1.94	2.32
	18	2.16	2.16	4.33	4.33	1.55	1.55	3.10	3.10	1.50	1.50	2.32	2.32
	21	2.16	2.52	4.33	5.05	1.55	1.81	3.10	3.62	1.50	1.50	2.32	2.71
	24	2.16	2.89	4.33	5.77	1.55	2.07	3.10	4.13	1.50	1.55	2.32	3.10

Notes to Tables 4.1.2.1.6 to 4.1.2.1.12:

(4) Table 4.1.2.1.6 to 4.1.2.1.12 are based on the following assumptions:

- Linear interpolation is permitted between hourly wind pressures and building lengths.
- Design applicable to soil Type A.
- Specified compressive strength of concrete, f'_c, at 28 days is 20 MPa.
- Specified yield strength of reinforcement, f_y, is 400 MPa.

Table 4.1.2.1.13 Minimum solid shear wall length for $S_a(0.2) \leq 0.2$(5) and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)					
		150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.50	1.50	1.50
18	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.50	1.50	1.50

Table 4.1.2.1.14 Minimum solid shear wall length for $S_a(0.2)$ equals 0.3$^{(5)}$ and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)					
		150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.50	1.50	1.50
18	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.50	1.50	1.50	1.50	1.50
	18	1.50	1.50	1.50	1.50	1.50	1.50
	21	1.50	1.50	1.50	1.50	1.50	1.50
	24	1.50	1.50	1.50	1.50	1.50	1.50

Table 4.1.2.1.15 Minimum solid shear wall length for $S_a(0.2)$ equals 0.45$^{(5)}$ and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)					
		150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.50	1.50	1.50	1.50	1.50
	15	1.50	1.58	1.50	1.50	1.50	1.50
	18	1.50	1.80	1.50	1.50	1.50	1.50
	21	1.50	2.02	1.50	1.67	1.50	1.50
	24	1.50	2.25	1.50	1.86	1.50	1.57
18	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	1.80	1.50	1.50	1.50	1.50
	15	1.50	2.08	1.50	1.71	1.50	1.50
	18	1.50	2.36	1.50	1.94	1.50	1.63
	21	1.50	2.64	1.50	2.16	1.50	1.81
	24	1.65	2.92	1.50	2.38	1.50	2.00

Table 4.1.2.1.16 Minimum solid shear wall length for $S_a(0.2)$ equals 0.66[(5)] and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm) 150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	1.50	1.50	1.50	1.50	1.50
	12	1.50	2.16	1.50	1.81	1.50	1.55
	15	1.50	2.52	1.50	2.10	1.50	1.79
	18	1.58	2.88	1.50	2.39	1.50	2.04
	21	1.79	3.24	1.50	2.68	1.50	2.28
	24	1.99	3.60	1.61	2.97	1.50	2.52
18	6	1.50	1.99	1.50	1.68	1.50	1.50
	12	1.58	2.88	1.50	2.39	1.50	2.04
	15	1.85	3.33	1.50	2.74	1.50	2.33
	18	2.11	3.78	1.70	3.10	1.50	2.62
	21	2.38	4.23	1.91	3.45	1.58	2.90
	24	2.65	4.67	2.11	3.80	1.75	3.19

Table 4.1.2.1.17 Minimum solid shear wall length for $S_a(0.2)$ equals 0.75[(5)] and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm) 150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	1.72	1.50	1.50	1.50	1.50
	12	1.50	2.57	1.50	2.15	1.50	1.85
	15	1.64	3.00	1.50	2.50	1.50	2.14
	18	1.88	3.43	1.53	2.84	1.50	2.42
	21	2.13	3.86	1.73	3.19	1.50	2.71
	24	2.37	4.28	1.92	3.53	1.60	3.00
18	6	1.50	2.36	1.50	2.00	1.50	1.73
	12	1.88	3.43	1.53	2.84	1.50	2.42
	15	2.20	3.96	1.78	3.27	1.50	2.77
	18	2.52	4.50	2.02	3.69	1.68	3.11
	21	2.83	5.03	2.27	4.11	1.88	3.46
	24	3.15	5.56	2.52	4.53	2.08	3.80

Table 4.1.2.1.18 Minimum solid shear wall length for $S_a(0.2)$ equals 0.94(5) and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)					
		150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	2.16	1.50	1.84	1.50	1.59
	12	1.74	3.23	1.50	2.70	1.50	2.32
	15	2.05	3.76	1.68	3.13	1.50	2.68
	18	2.36	4.30	1.92	3.57	1.61	3.04
	21	2.67	4.83	2.16	4.00	1.81	3.40
	24	2.97	5.37	2.41	4.43	2.01	3.76
18	6	1.56	2.96	1.50	2.51	1.50	2.17
	12	2.36	4.30	1.92	3.57	1.61	3.04
	15	2.76	4.97	2.23	4.09	1.86	3.47
	18	3.15	5.63	2.54	4.62	2.11	3.90
	21	3.55	6.30	2.84	5.15	2.36	4.33
	24	3.95	6.97	3.15	5.67	2.60	4.76

Table 4.1.2.1.19 Minimum solid shear wall length for $S_a(0.2) > 0.94 \leq 1.2$(5) and soil Type A

Wall Length (m)	Wall Width (m)	Wall Thickness (mm)					
		150		200		250	
		2nd Floor	1st Floor	2nd Floor	1st Floor	2nd Floor	1st Floor
12	6	1.50	2.75	1.50	2.34	1.50	2.04
	12	2.22	4.12	1.83	3.45	1.54	2.96
	15	2.62	4.80	2.14	4.00	1.80	3.42
	18	3.01	5.49	2.45	4.55	2.06	3.88
	21	3.40	6.17	2.76	5.10	2.31	4.34
	24	3.80	6.85	3.07	5.66	2.57	4.80
18	6	1.99	3.78	1.66	3.21	1.50	2.77
	12	3.01	5.49	2.45	4.55	2.06	3.88
	15	3.52	6.34	2.84	5.22	2.37	4.43
	18	4.04	7.19	3.24	5.90	2.69	4.98
	21	4.53	8.05	3.63	6.57	3.01	5.53
	24	5.04	8.90	4.02	7.24	3.32	6.08

Notes to Tables 4.1.2.1.13 to 4.1.2.1.19:

(5) Table 4.1.2.1.13 to 4.1.2.1.19 are based on the following assumptions:

- Linear interpolation is permitted between hourly wind pressures and building lengths.
- Design applicable to soil Type A.
- Specified compressive strength of concrete, f'_c, at 28 days is 20 MPa.
- Specified yield strength of reinforcement, f_y, is 400 MPa.

Report Holder: Beaver Plastics Ltd.
Suite 199, 1917 West 4th Ave
Vancouver, BC V6J 1M7
Tel: 1-866-944-0153
604-734-9244
Fax: 604-734-9144

Plant(s): Chilliwack, BC
Cobourg, ON
Edmonton, AB
Winnipeg, MB

This Report is issued by the Canadian Construction Materials Centre, a program of the Institute for Research in Construction at the National Research Council of Canada. The Report must be read in the context of the entire CCMC Registry of Product Evaluations, including, without limitation, the introduction therein which sets out important information concerning the interpretation and use of CCMC Evaluation Reports.

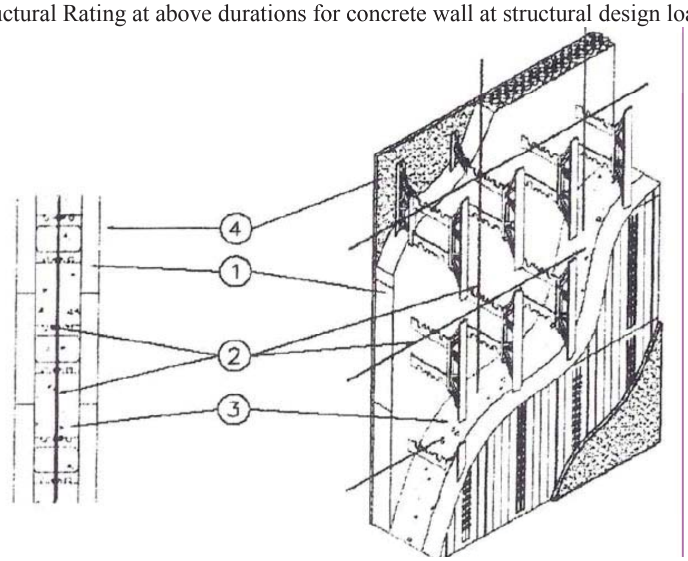
Readers must confirm that the Report is current and has not been withdrawn or superseded by a later issue. Please refer to http://www.nrc-cnrc.gc.ca/eng/services/irc/ccmc.html, or contact the Canadian Construction Materials Centre, Institute for Research in Construction, National Research Council of Canada, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6. Telephone (613) 993-6189. Fax (613) 952-0268.

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.

7.2.3 – NON-COMBUSTIBLE CONSTRUCTION (NATIONAL BUILDING CODE OF CANADA)

Intertek Testing Services, an independent, nationally accredited testing agency, conducted a fire evaluation and determined the products listed below meets clause 3.2.3.8 when used with LOGIX for exterior walls for building over 3 storeys.

Copies of the evaluation reports can be downloaded at www.logixicf.com.

Products evaluated:

- Dryvit Exsulation 2000 System
- Dryvit Infinity System
- Dryvit Exsulation 2000 System
- Dryvit Fedderlite 2000 System
- Dryvit Outsulation System
- Dryvit Outsulation MD System
- Sto EIFS
- Sto Signature System
- Sto CLASSIC NExT
- Sto CLASSIC NExT NC
- Sto SIGNATURE SYSTEM NC
- Standard ADEX System
- Standard ADEX RF System
- Durock ICF Finish System

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."

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

Logix Insulated Concrete Forms Ltd.
Project No. 3109888-R1

January 30, 2007
Revised: January 31, 2007
Page 4 of 4

REVISION SUMMARY

DATE	SUMMARY
February 1, 2007	Added additional reference to 2005 NBC and maximum permeance requirements

Intertek ETL SEMKO
Testing everywhere for markets anywhere.

GREENGUARD® Indoor Air Quality Certified

Certificate of Compliance

Certification Details:

Certificate No: 938-00

Status: Certified

Period: 11/2010 - 10/2011

Restrictions: NONE

LOGIX Platinum Series

LOGIX Insulated Concrete Forms, Ltd.

This product has been certified according to the GREENGUARD Indoor Air Quality (IAQ) Certification Program for Low Emitting Products

Reference Standard: GGPS.001 GREENGUARD IAQ Standard for Building Materials, Finishes, and Furnishings

Product Type: Insulation and HVAC Products

Criteria	Allowable Limits
TVOC[1]	≤ 0.5 mg/m³
Formaldehyde	≤ 0.05 ppm
Total Aldehydes[2]	≤ 0.1 ppm
Individual VOCs[3]	≤ 0.1 TLV
Respirable Particles (PM_{10}) (mg/m³)	≤ 0.05 mg/m³
Listing of measured carcinogens and reproductive toxins as identified by California Proposition 65, the U.S. National Toxicology Program (NTP), and the International Agency on Research on Cancer (IARC) must be provided.	
Any pollutant regulated as a primary or secondary outdoor air pollutant must meet a concentration that will not generate an air concentration greater than that promulgated by the National Ambient Air Quality Standard (U.S. EPA, code of Federal Regulations, Title 40, Part 50).	

See referenced standard for a complete technical explanation.

[1] Defined to be the total response of measured VOCs falling within the C_6-C_{16} range, with responses calibrated to a toluene surrogate.

[2] Defined to be the total response of a target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[3] Any pollutant not listed must produce an air concentration level no greater than 1/10 the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438).

[4] Particles are applicable to fibrous, particle-releasing products with exposed surface area in air streams.

GREENGUARD Certification affirms that products meet the criteria of the referenced standard and the requirements of the specific certification program. Certification testing is conducted according to a consistent, defined protocol. The testing does not evaluate emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical and particle emissions.

The GREENGUARD Environmental Institute (GEI) is an industry independent, third-party certification organization that qualifies products for low chemical emissions. GREENGUARD Certification programs use defined product standards, test methodologies, product sample collection and handling procedures, program application processes and on-going verification procedures. GREENGUARD standards, methods, and procedures are available at www.GREENGUARD.org.

Children & Schools
GREENGUARD®
Indoor Air Quality Certified

Certificate of Compliance

Certification Details:

Certificate No: 938-00

Status: Certified

Period: 11/2010 - 10/2011

Restrictions: NONE

LOGIX Platinum Series

LOGIX Insulated Concrete Forms, Ltd.

This product has been certified according to the GREENGUARD Children & Schools Certification Program for Low Emitting Products

Reference Standard: GGPS.002 GREENGUARD Children & Schools℠ Standard

Product Type: All Products

Criteria	Allowable Limits
Individual VOCs[1],[2]	≤ 1/100 TLV and ≤ ½ CA chronic REL (Office Seating ≤ 1/100 TLV and ≤ ¼ CA CREL)
Formaldehyde	≤ 0.0135 ppm /13.5 ppb (Office Seating ≤ 0.0675 ppm / 6.75 ppb)
TVOC[3]	≤ 0.22 mg/m^3
Total Aldehydes[4]	≤ 0.043 ppm /43 ppb
Total Phthalates[5]	≤ 0.01 mg/m^3
Total Particles[6]	≤ 0.02 mg/m^3

See referenced standard for a complete technical explanation.

[1]Any VOC not listed must produce an air concentration level no greater than 1/100 the Threshold Limit Value (TLV) industrial work place criterion (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438) and no greater than 1/2 the CA Chronic Reference Exposure Level (CREL) http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html - (CRELs) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA), December 2008).

[2]1-Methyl-2-Pyrrolidinone must be ≤ 0.16 mg/m^3 for Office Furniture or ≤ 0.080 mg/m^3 for Office Seating.

[3]Defined to be the total response of measured VOCs falling within the C_6–C_{16} range, with responses calibrated to a toluene surrogate.

[4]Defined to be the total response of a target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[5]Total phthalates include dibutyl (DBP), diethylhexyl (DEHD), diethyl (DEP), butylbenzyl (BBP), di-octyl (DOP), and dimethyl (DMP) phthalates.

[6]Particles are only applicable to fibrous, particle-releasing products with exposed surface area in air streams.

Complies with California Department of Health Services' "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1 (CA section 01350)

GREENGUARD Certification affirms that products meet the criteria of the referenced standard and the requirements of the specific certification program. Certification testing is conducted according to a consistent, defined protocol. The testing does not evaluate emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical and particle emissions.

The GREENGUARD Environmental Institute (GEI) is an industry independent, third-party certification organization that qualifies products for low chemical emissions. GREENGUARD Certification programs use defined product standards, test methodologies, product sample collection and handling procedures, program application processes and on-going verification procedures. GREENGUARD standards, methods, and procedures are available at www.GREENGUARD.org.

BUILDING PRODUCTS LISTING PROGRAM

Class: Insulation

Customer: LOGIX Insulated Concrete Forms, Ltd.
Location: 199-1917 West 4th Avenue, Vancouver, BC V6J 1M7

Listing No. B1031
Effective Date: September 27, 2010
Last Revised: October 15, 2010
Expires: N/A

Product: Insulated Concrete Forms (ICFs) with expanded polystyrene (EPS) panels and polypropylene web tie connectors.

Bead Types: Only approved bead types meeting certification requirements

Label: Product units are marked with the following: Manufacturer's Name, Trademark or other recognized symbol of identification, Model Designation, Month and Year of Manufacture or equivalent, QAI logo with the "US" and "C" identifier, listing number, and the standard numbers and ratings.

Standard: ASTM E84 - "Standard Test Method for Surface Burning Characteristics of Building Materials"

Ratings:	Component	Product Density	Maximum Thickness	Flame Spread Index (FSI)	Smoke Developed Index (SDI)
	EPS Panels	1.35 pcf	2.75 inches	25	450

Standards: ASTM C578 - "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation";

CAN/ULC S701 – "Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering"

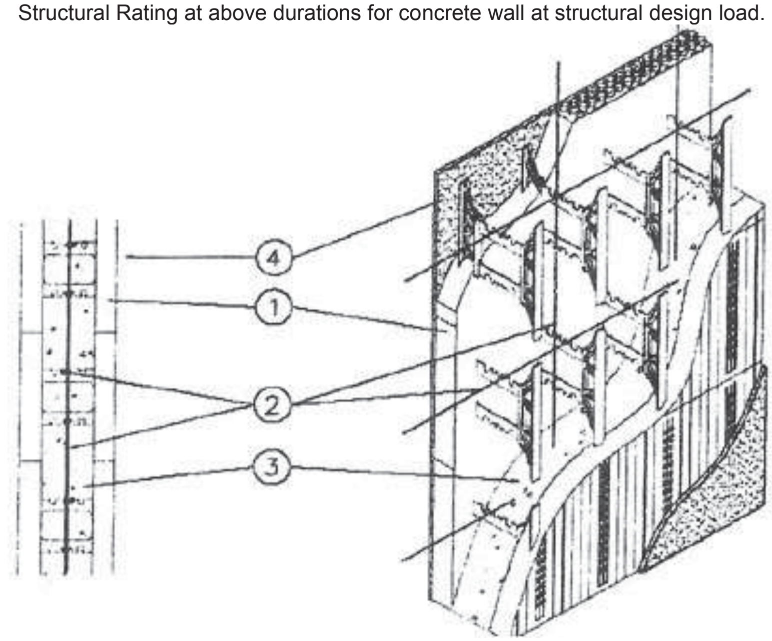
	Component	EPS Classification
ASTM C578 Ratings:	EPS Panels	Type II
CAN/ULC S701 Ratings:	EPS Panels	Type 2

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.

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Standard: ASTM D1761 - “Standard Test Methods for Mechanical Fasteners in Wood”

	Component	Allowable cladding pressures (based on fastener withdrawal values)
ASTM D1761	ICF System	As per tables below

ASTM D1761 Allowable fastener values (psf) per fastener spacings for LOGIX ICFs:

Fastener Type	Fastener Length	Withdrawal Resistance with Factor of Safety of 3.0	8” Hor. / 12” Vert.	8” Hor. / 16” Vert.	16” Hor. / 16” Vert.
#6 Coarse Drywall Screw	1 5/8 in.	59 lbs	88.5	66.4	33.2
#6 Fine Drywall Screw	1 5/8 in.	57 lbs	86.0	64.5	32.3
16 gauge staple	1 1/2 in.	9 lbs	14.0	10.5	5.3
#8 Wood Screw	2 in.	69 lbs	103.5	77.6	38.8
#8 Exterior Deck Screw	2 in.	70 lbs	105.0	78.8	39.4
#10 Wood Screw	2 in.	66 lbs	99.0	74.3	37.1

ASTM D1761 Allowable fastener values (kPa) per fastener spacings for LOGIX ICFs:

Fastener Type	Fastener Length	Withdrawal Resistance with Factor of Safety of 3.0	200mm Hor. / 305 mm Vert.	200 mm Hor. / 400 mm Vert.	400 mm Hor. / 400 mm Vert.
#6 Coarse Drywall Screw	41.3 mm	26.8 kg	4.24	3.18	1.59
#6 Fine Drywall Screw	41.3 mm	26.0 kg	4.12	3.09	1.54
16 gauge staple	38.1 mm	4.2 kg	0.67	0.50	0.25
#8 Wood Screw	50.8 mm	31.3 kg	4.96	3.72	1.86
#8 Exterior Deck Screw	50.8 mm	31.8 kg	5.03	3.77	1.89
#10 Wood Screw	50.8 mm	29.9 kg	4.74	3.56	1.78

Standards: ASTM D635 - “Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position”; ASTM D1929 – “Standard Test Method for Determining Ignition Temperature of Plastics”

	Component	Rating
ASTM D635	Polypropylene Web Ties	HB (Horizontal Burning)
ASTM D1929	Polypropylene Web Ties	Pass

Notes: Also meets Florida Building Code (FBC) High Velocity Hurricane Zone (HVHZ) requirements as per Chapter 26 of the FBC.

These products are subjected to limitations as specified above and must be installed in accordance with the manufacturers’ instructions. Authorities having jurisdiction should be consulted regarding allowable applications. See manufacturer’s listings for other standards listed under QAI certification programs.

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July 17, 2009

Francis Roma
LOGIX
Suite 199, 1917 West 4th Ave
Vancouver, BC, Canada
V6J 1M7

Dear Francis,

Re: LOGIX ICF Technical Bulletins No's. 18 and 19

I have reviewed the above referenced Technical Bulletins in order to verify the accuracy of claims made with respect to the potential for LOGIX ICFs to help earn LEED points.

Technical Bulletin No. 18 which deals with LEED NC v3 makes fair and valid claims as to how the use of LOGIX ICFs can help projects earn LEED points under the LEED NC v3 guidelines. I reviewed this Technical Bulletin using the CaGBC's LEED NC v.1 guidelines which are very similar, but not identical to the USGBC's guidelines for new construction and major renovations.

Technical Bulletin No. 19 which deals with LEED for Schools v3 makes fair and valid claims as to how the use of LOGIX ICFs can help projects earn LEED points under the LEED for Schools v3 guidelines. It should be noted that I reviewed this Technical Bulletin using the USGBC's LEED for Schools v3 online guidelines. This online resource is not detailed but provides sufficient information to convince me that the claims made in Bulletin No. 19 are fair and reasonable.

For further clarification on how LOGIX ICFs contribute to LEED projects please contact me at the coordinates below.

Sincerely,

Alastair Moore, MRM, LEED AP
D&A Planning Inc.
Tel: 778 239 1965

TECHNICAL BULLETIN
No.18 - 071009

LOGIX Potential LEED Contribution - LEED for New Construction & Major Renovations v3 (LEED-NC v3)

The United States Green Building Council (USGBC) has recently released the latest version of the LEED Rating System for New Construction & Major Renovations - LEED-NC v3. Beginning in June 2009 all new LEED projects in the United States are required to comply to the latest LEED rating systems.

Below is a summary of the LEED-NC v3 credits to which LOGIX can potentially contribute. In total, LOGIX can potentially help to earn 27* of the 40 points required to achieve LEED-NC certification. Under Building Reuse Credit, 4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site.

For information on the new LEED Rating Systems see LOGIX Technical Bulletin No.17, "LEED 2009 Rating System - Major Differences Between v2.2 & v3" at www.logixicf.com or visit www.usgbc.gov.

POTENTIAL LEED POINTS WITH LOGIX ICF*: LEED-NC v3

Sustainable Sites	Points	Comments
Site Development: Protect or Restore Habitat	1	• 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	Points	Comments
Optimize Energy Performance	Up to 19	Improved building energy can be enhanced by the combination of foam insulation and the thermal mass properties of the insulated concrete. LOGIX panels provide: • high thermal resistance for a LOGIX wall system – R24 (35+ effective Rvalue). Larger Rvalues can be achieved when using LOGIX XRV panels which have thicknesses of up to 8 inches. • reduction in the peak heating and cooling loads on the building • air tight structure which reduces air leakage and energy use.

Materials & Resources	Points	Comments
Construction Waste Management: Divert 50% to 75% from Disposal	Up to 2	Any on-site waste can be fully recycled.
Recycled Content: 10% to 20% (post-consumer + 1/2 pre-consumer)	Up to 2	LOGIX foam panels are made from a maximum of 10% recycled EPS. The webs are made of 100% recycled polypropylene.
Regional Materials: 10% to 20% Extracted, Processed & Manufactured Regionally	Up to 2	LOGIX currently has 8 manufacturing facilities throughout North America. The concrete is obtained through local suppliers.
4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site. Under the Building Reuse Credit, points are achieved as follows: Maintain 55% to 95% of existing walls, floors and roofs (3 points); Maintain 50% of interior non-structural elements (1 point).		

Indoor Envir. Quality	Points	Comments
Thermal Comfort: Design	1	ICFs are air tight structures, which make air flow and ventilation easier to control and monitor. The end result is a healthier, comfortable environment for occupants, and a reduction in HVAC capacity.
Minimum Indoor Air Quality Performance is a pre-requisite under LEED. Therefore, there are no points to be achieved. However, LOGIX can still contribute to improved Minimum Indoor Air Quality Performance.		
TOTAL LEED-NC V3*	**27**	

*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.

TECHNICAL BULLETIN
No.19 - 071009

LOGIX Potential LEED Contribution - LEED for Schools v3

The United States Green Building Council (USGBC) has recently released the latest version of the LEED Rating System for Schools v3. Beginning in June 2009 all new LEED projects for schools in the United States are required to comply to the latest LEED for Schools rating systems.

Below is a summary of the LEED-NC v3 credits to which LOGIX can potentially contribute. In total, LOGIX can potentially help to earn 28* of the 40 points required to achieve LEED for schools certification. Under Building Reuse Credit, 4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site.

For information on the new LEED Rating Systems see LOGIX Technical Bulletin No.17, "LEED 2009 Rating System - Major Differences Between v2.2 & v3" at www.logixicf.com or visit www.usgbc.gov.

POTENTIAL LEED POINTS WITH LOGIX ICF*: LEED for Schools v3

Sustainable Sites	Points	Comments
Site Development: Protect or Restore Habitat	1	• 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	Points	Comments
Optimize Energy Performance	Up to 19	Improved building energy performance can be enhanced by the combination of foam insulation and the thermal mass properties of the insulated concrete. LOGIX panels provide: • high thermal resistance for a LOGIX wall system – R24 (35+ effective Rvalue). Larger Rvalues can be achieved when using LOGIX XRV panels which have thicknesses of up to 8 inches. • reduction in the peak heating and cooling loads on the building • air tight structure which reduces air leakage and energy use.

Materials & Resources	Points	Comments
Construction Waste Management: Divert 50% to 75% from Disposal	Up to 2	Any on-site waste can be fully recycled.
Recycled Content: 10% to 20% (post-consumer + 1/2 pre-consumer)	Up to 2	LOGIX foam panels are made from a maximum of 10% recycled EPS. The webs are made of 100% recycled polypropylene.
Regional Materials: 10% to 20% Extracted, Processed & Manufactured Regionally	Up to 2	LOGIX currently has 8 manufacturing facilities throughout North America. The concrete is obtained through local suppliers.
4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site. Under the Building Reuse Credit, points are achieved as follows: Maintain 55% to 95% of existing walls, floors and roofs (3 points); Maintain 50% of interior non-structural elements (1 point).		

Indoor Envir. Quality	Points	Comments
Thermal Comfort: Design	1	ICFs are air tight structures, which make air flow and ventilation easier to control and monitor. The end result is a healthier, comfortable environment for occupants, and a reduction in HVAC capacity.
Enhanced Acoustical Performance	1	LOGIX can provide walls with STC50+, which is well above the required STC35.
Minimum Indoor Air Quality Performance is a pre-requisite under LEED. Therefore, there are no points to be achieved. However, LOGIX can still contribute to improved Minimum Indoor Air Quality Performance.		
TOTAL LEED-NC V3*	**28**	

*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.

July 17, 2009

Francis Roma
LOGIX
Suite 199, 1917 West 4th Ave
Vancouver, BC, Canada
V6J 1M7

Dear Francis,

Re: LOGIX ICF Technical Bulletins No's. 18 and 19

I have reviewed the above referenced Technical Bulletins in order to verify the accuracy of claims made with respect to the potential for LOGIX ICFs to help earn LEED points.

Technical Bulletin No. 18 which deals with LEED NC v3 makes fair and valid claims as to how the use of LOGIX ICFs can help projects earn LEED points under the LEED NC v3 guidelines. I reviewed this Technical Bulletin using the CaGBC's LEED NC v.1 guidelines which are very similar, but not identical to the USGBC's guidelines for new construction and major renovations.

Technical Bulletin No. 19 which deals with LEED for Schools v3 makes fair and valid claims as to how the use of LOGIX ICFs can help projects earn LEED points under the LEED for Schools v3 guidelines. It should be noted that I reviewed this Technical Bulletin using the USGBC's LEED for Schools v3 online guidelines. This online resource is not detailed but provides sufficient information to convince me that the claims made in Bulletin No. 19 are fair and reasonable.

For further clarification on how LOGIX ICFs contribute to LEED projects please contact me at the coordinates below.

Sincerely,

Alastair Moore, MRM, LEED AP
D&A Planning Inc.
Tel: 778 239 1965

TECHNICAL BULLETIN
No.25 - 012211
Revised 030912

LEED Canada for New Construction & Major Renovations 2009 - LOGIX Potential LEED Contribution

The Canada Green Building Council (CaGBC) released the latest version of the LEED Rating System for New Construction & Major Renovations - LEED Canada NC 2009. Since June 2010 all new LEED projects in the Canada are required to comply to the latest LEED rating systems.

LEED Canada NC 2009 is based on the United States Green Building Council (USGBC) LEED-NC v3 rating system. The Canadian version, however, also includes one point for "Durable Building" requirements. Below is a summary of the LEED Canada NC 2009 credits to which LOGIX can potentially contribute. In total, LOGIX can potentially help to earn 28* of the 40 points required to achieve LEED-NC certification. Under Building Reuse Credit, 4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site.

POTENTIAL LEED POINTS WITH LOGIX ICF*: LEED Canada NC 2009

Sustainable Sites	Points	Comments
Site Development: Protect or Restore Habitat	1	• 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	Points	Comments
Optimize Energy Performance	Up to 19	Improved building energy can be enhanced by the combination of foam insulation and the thermal mass properties of the insulated concrete. LOGIX panels provide: • high thermal resistance for a LOGIX wall system – R24 (35+ effective Rvalue). Larger Rvalues can be achieved when using LOGIX XRV or LOGIX Platinum Series (upto R77 can be achieved). • reduction in the peak heating and cooling loads on the building • air tight structure which reduces air leakage and energy use.

Materials & Resources	Points	Comments
Construction Waste Management: Divert 50% to 75% from Disposal	Up to 2	Any on-site waste can be fully recycled.
Recycled Content: 10% to 20% (post-consumer + 1/2 pre-consumer)	Up to 2	LOGIX foam panels are made from a maximum of 10% recycled EPS. The webs are made of 100% recycled polypropylene.
Regional Materials: 10% to 20% Extracted, Processed & Manufactured Regionally	Up to 2	LOGIX currently has 9 manufacturing facilities throughout North America. The concrete is obtained through local suppliers.
4 additional points may apply to projects wherein ICFs, found in an existing building, are salvaged during de-construction and included in a new building constructed on the same site. Under the Building Reuse Credit, points are achieved as follows: Maintain 55% to 95% of existing walls, floors and roofs (3 points); Maintain 50% of interior non-structural elements (1 point).		

TECHNICAL BULLETIN
No.25 - 012211
Revised 030912

LEED Canada for New Construction & Major Renovations 2009 - LOGIX Potential LEED Contribution

Indoor Envir. Quality	Points	Comments
Minimum Indoor Air Quality Performance	n/a	Minimum Indoor Air Quality Performance is a pre-requisite under LEED. Therefore, there are no points to be achieved. However, LOGIX can still contribute to improved Minimum Indoor Air Quality Performance.
Thermal Comfort: Design	1	ICFs are air tight structures, which make air flow and ventilation easier to control and monitor. The end result is a healthier, comfortable environment for occupants, and a reduction in HVAC capacity.

Regional Priority	Points	Comments
Durable Building	1	Concrete is one of the most durable building materials available and is known to last for decades. With the protected layer of ICF foam panels, a LOGIX wall system can last indefinitely and will not promote the growth of mold or mildew.
TOTAL LEED-NC V3*	**28**	

*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.

Related articles:

- Technical Bulletin No.09: "LEED Rating System with Logix Insulated Concrete Forms"
- Technical Bulletin No.18: "LEED for New Construction & Major Renovations v3 (US version) - LOGIX Potential LEED Contribution"
- Technical Bulletin No.19: "LEED for Schools v3 - LOGIX Potential LEED Contribution"

TECHNICAL BULLETIN NO.25-JAN 2011

EVALUATION REPORTS

8.0 – TECHNICAL SPECIFICATIONS + REFERENCES

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FOR PLACING REINFORCING BARS .... P. 8-23
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Updated 07/20/11

LOGIX INSULATED CONCRETE FORMS

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LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS 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, and can range in thickness of 70 (2.75 inches), 102 (4 inches), 127 (5 inches), 152 (6 inches), 178 (7 inches) and 203 mm (8 inches), which gives a total EPS foam board thickness of 140 (5.50 inches), 203 (8 inches), 254 (10 inches), 305 (12 inches), 356 (14 inches) and 406 mm (16 inches), respectively.
- 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

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GENERAL SPECIFICATIONS SHEET, CONT'D

2 CODE/CERTIFICATION APPROVALS

- International Code Council Evaluation Report No. 1642
- CCMC Report No. 13110-R
- City of Los Angeles Research Report No. 25518
- Miami-Dade County Approval No.09-0714.03
- State of Florida Certification of Approval No.FL14109
- Wisconsin Building Products Evaluation No.200266-I
- City of New York Materials and Equipment Acceptance – MEA 273-04-M
- QAI listed QM0503

3 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 of EPS) per inch (per 25.4mm)	R 4.13 (RSI 0.72)	Min. R 4.00 (RSI 0.70)	ASTM C518
U-Value (Thermal Conductance of EPS) per inch (per 25.4mm)	1/R = 1/4.13 = 0.242 (1.39)	N/A	N/A
Water Absorption	0.18%	Max. 3.0%	ASTM D2842
Water Vapor Presence	94.0ng/Pa-s-m2 (1.64perm-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

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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.

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

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GENERAL SPECIFICATIONS SHEET, CONT'D

Test Description	Result	US Requirements	Referenced Standard Test Method
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)
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

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GENERAL SPECIFICATIONS SHEET, CONT'D

Test Description	Result	US Requirements	Referenced Standard Test Method
#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)

4 MANUFACTURED UNITS

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.

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LOGIX INSULATED CONCRETE FORMS

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LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

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 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).

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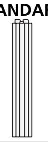
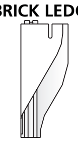
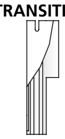
GENERAL SPECIFICATIONS SHEET, CONT'D

STRAIGHT FORMS

LOGIX FORM PANELS

STANDARD  TAPER TOP  BRICK LEDGE  TRANSITION 

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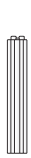
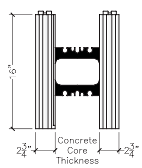
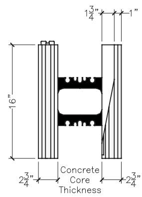
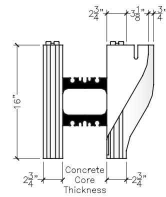
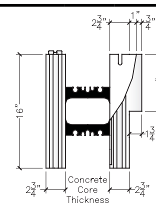




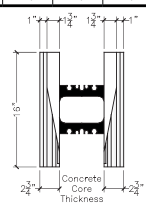


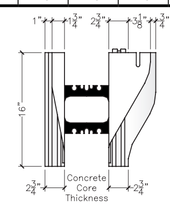


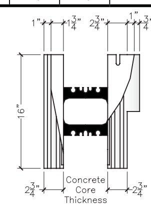


	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	13.375	15.625	17.375	19.375	21.375	11.25	13.5	15.25	17.25	19.25
Width Bot.[1]	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	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	KD/P	KD/P	KD/P	KD	KD

TAPER TOP

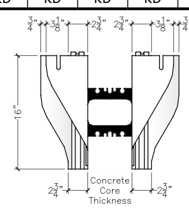


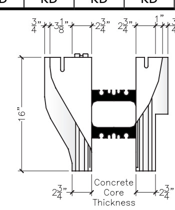




	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness						4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]						9.5	11.75	13.5	15.5	17.5	13.375	15.625	17.375	19.375	21.375	11.25	13.5	15.25	17.25	19.25
Width Bot.[1]						9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5	9.5	11.75	13.5	15.5	17.5
Form Type[2]						KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

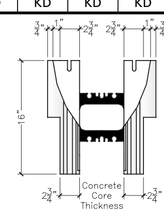
BRICK LEDGE





	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness											4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]											17.25	19.5	21.25	23.25	25.25	15.125	17.375	19.125	21.125	23.125
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

TRANSITION



	STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
Conc.Core Thickness																4	6.25	8	10	12
Width Top[1]																13	15.25	17	19	21
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.

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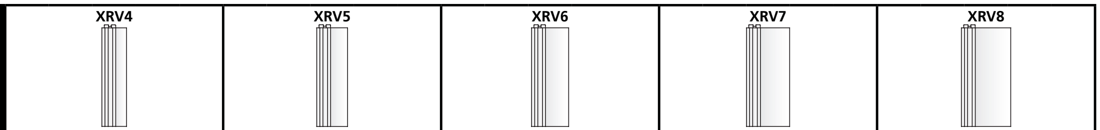
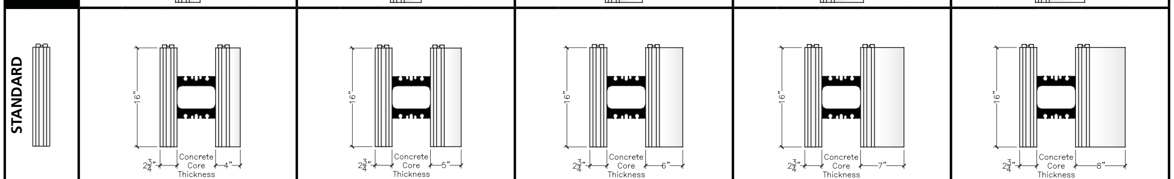
STRAIGHT FORMS WITH XRV

LOGIX FORM PANELS: XRV4, XRV5, XRV6, XRV7, XRV8

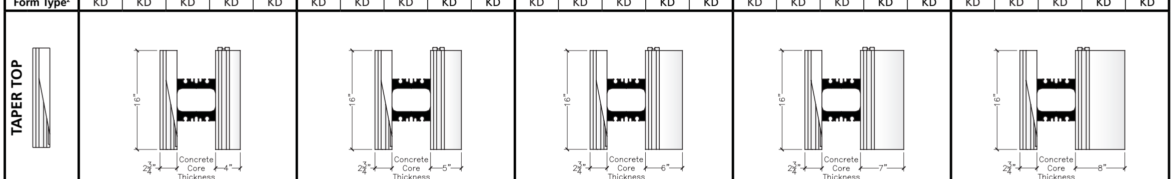


STANDARD



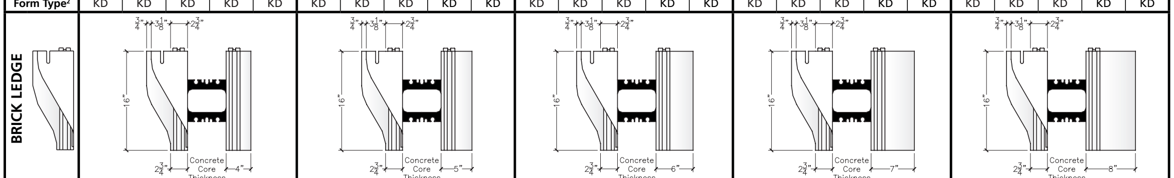
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

TAPER TOP



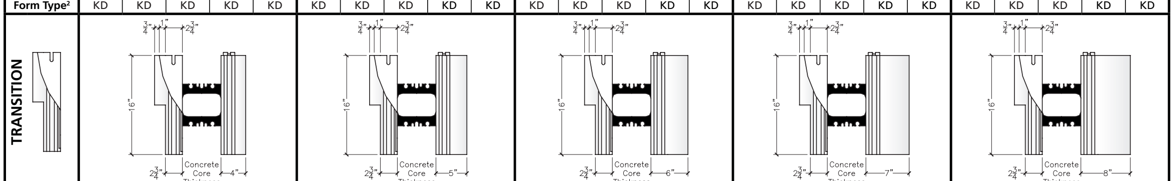
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

BRICK LEDGE



Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	14.625	16.875	18.625	20.625	22.625	15.625	17.875	19.625	21.625	23.625	16.625	18.875	20.625	22.625	24.625	17.625	19.875	21.625	23.625	25.625	18.625	20.875	22.625	24.625	26.625
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD

TRANSITION



Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	12.5	14.75	16.5	18.5	20.5	13.5	15.75	17.5	19.5	21.5	14.5	16.75	18.5	20.5	22.5	15.5	17.75	19.5	21.5	23.5	16.5	18.75	20.5	22.5	24.5
Width Bot.[1]	10.75	13	14.75	16.75	18.75	11.75	14	15.75	17.75	19.75	12.75	15	16.75	18.75	20.75	13.75	16	17.75	19.75	21.75	14.75	17	18.75	20.75	22.75
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	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.

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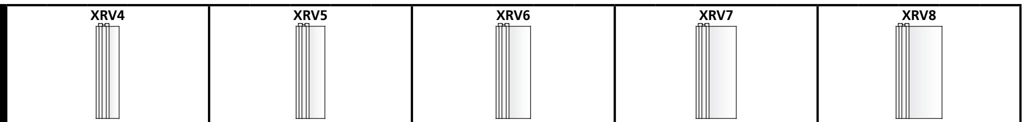
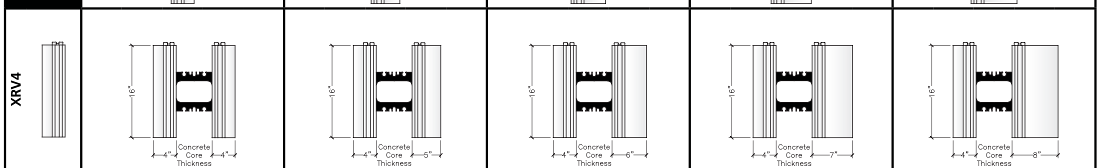
XRV FORMS

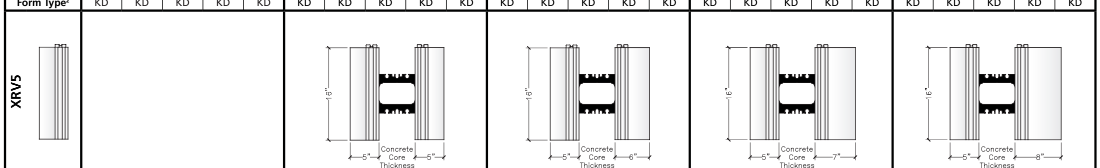
LOGIX FORM PANELS



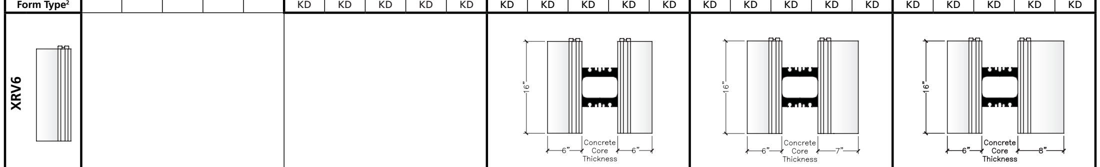
	XRV4					XRV5					XRV6					XRV7					XRV8				
XRV4																									
Conc.Core Thickness	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]	12	14.25	16	18	20	13	15.25	17	19	21	14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24
Width Bot.[1]	12	14.25	16	18	20	13	15.25	17	19	21	14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24
Form Type[2]	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD



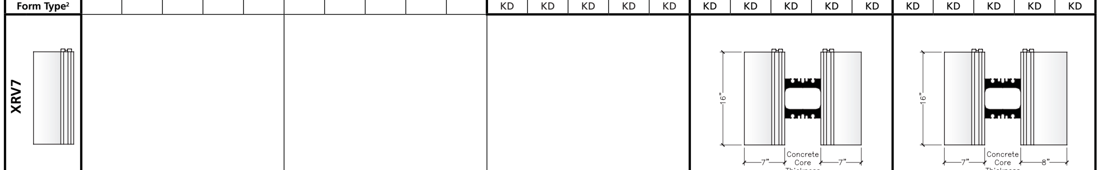
	XRV4					XRV5					XRV6					XRV7					XRV8				
XRV5																									
Conc.Core Thickness						4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]						14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24	17	19.25	21	23	25
Width Bot.[1]						14	16.25	18	20	22	15	17.25	19	21	23	16	18.25	20	22	24	17	19.25	21	23	25
Form Type[2]						KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD



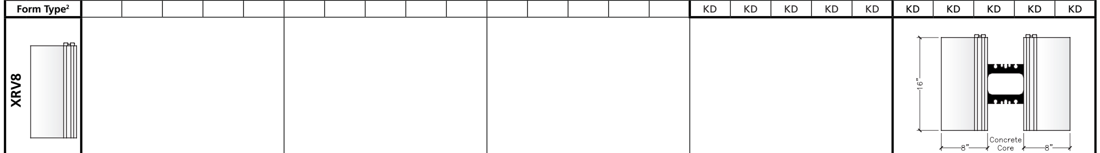
	XRV4					XRV5					XRV6					XRV7					XRV8				
XRV6																									
Conc.Core Thickness											4	6.25	8	10	12	4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]											16	18.25	20	22	24	17	19.25	21	23	25	18	20.25	22	24	26
Width Bot.[1]											16	18.25	20	22	24	17	19.25	21	23	25	18	20.25	22	24	26
Form Type[2]											KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD	KD



	XRV4					XRV5					XRV6					XRV7					XRV8				
XRV7																									
Conc.Core Thickness																4	6.25	8	10	12	4	6.25	8	10	12
Width Top[1]																18	20.25	22	24	26	19	21.25	23	25	27
Width Bot.[1]																18	20.25	22	24	26	19	21.25	23	25	27
Form Type[2]																KD	KD	KD	KD	KD	KD	KD	KD	KD	KD



	XRV4					XRV5					XRV6					XRV7					XRV8				
XRV8																									
Conc.Core Thickness																					4	6.25	8	10	12
Width Top[1]																					20	22.25	24	26	28
Width Bot.[1]																					20	22.25	24	26	28
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.

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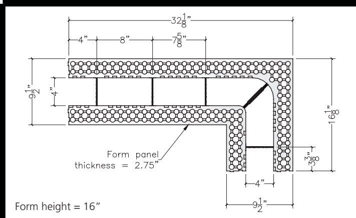
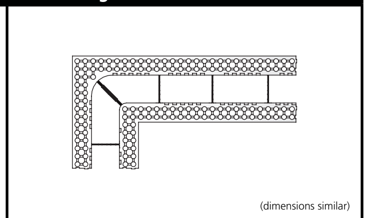
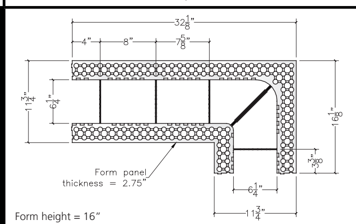
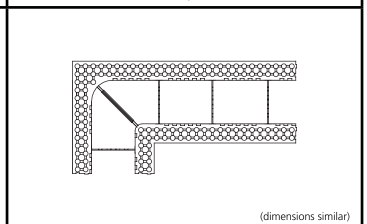
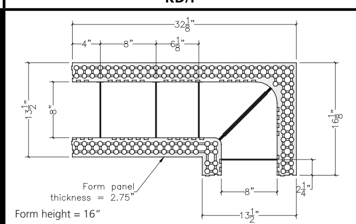
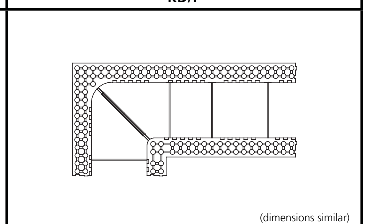
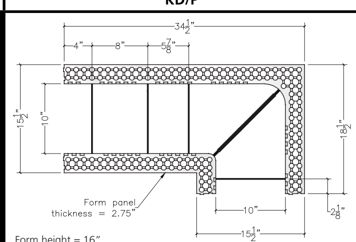
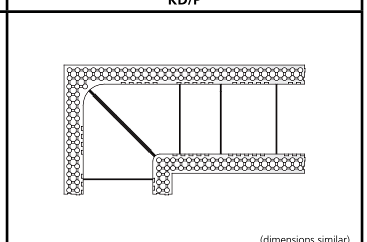
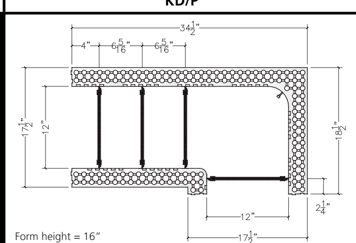
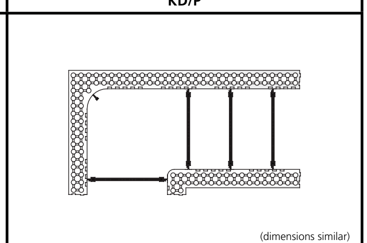
GENERAL SPECIFICATIONS SHEET, CONT'D

CORNER FORMS

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

1. "KD" and "P" denotes LOGIX KD (unassembled forms) and LOGIX PRO (assembled forms), respectively.

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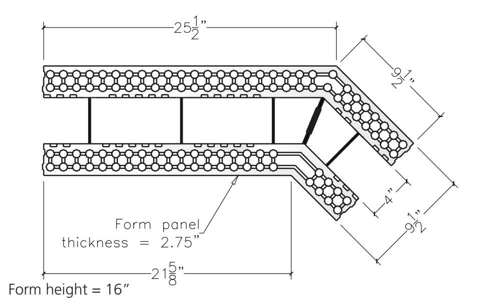
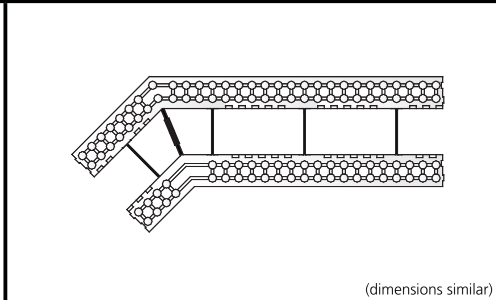
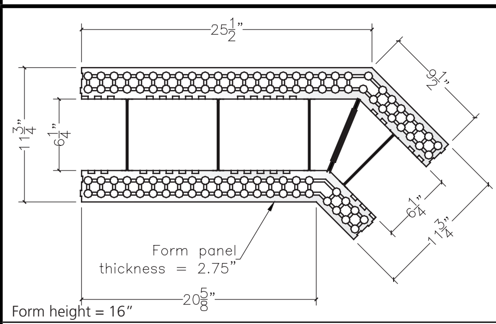
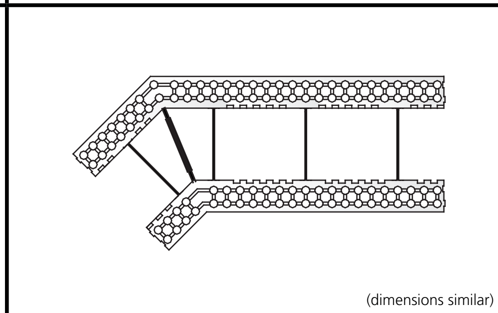
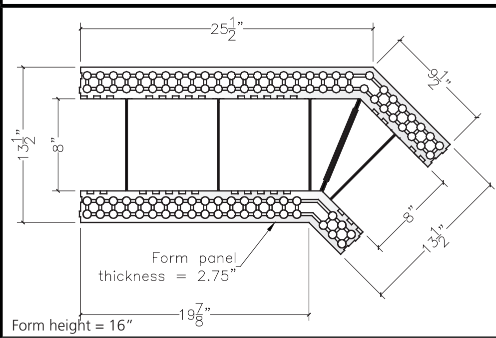
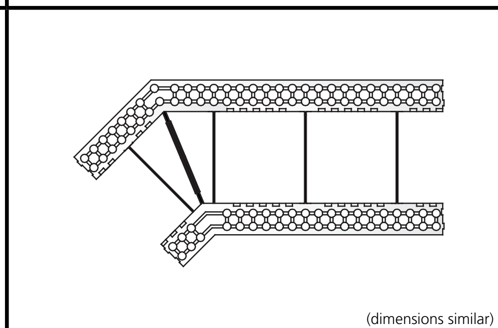
45° FORMS

	Left Hand 45° Form	Right Hand 45° Form
4 inch Concrete Core Thickness		
Form Type[1]	KD/P	KD/P
6.25 inch Concrete Core Thickness		
Form Type[1]	KD/P	KD/P
8 inch Concrete Core Thickness		
Form Type[1]	KD/P	KD/P

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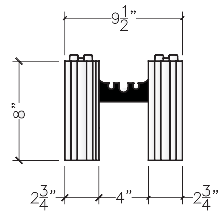
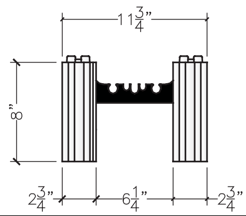
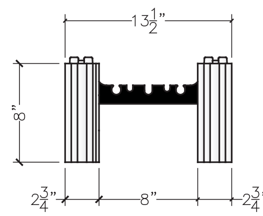
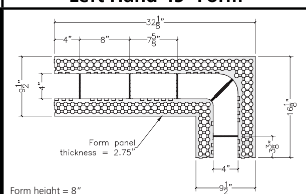
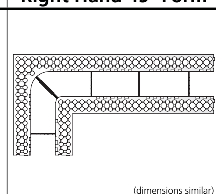
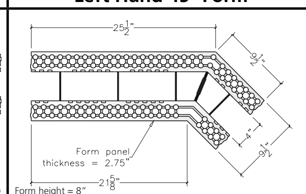
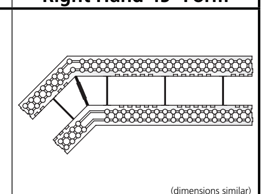
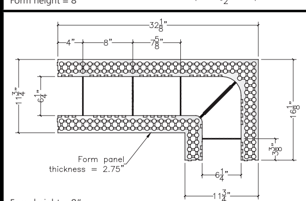
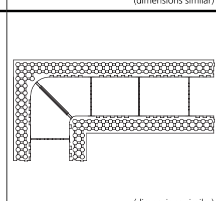
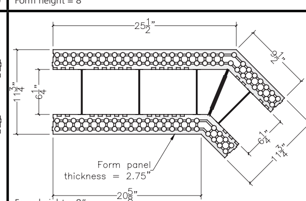
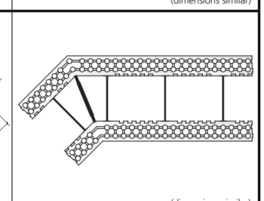
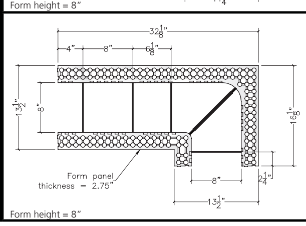
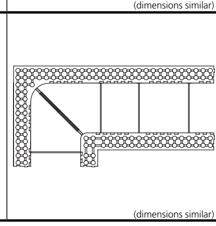
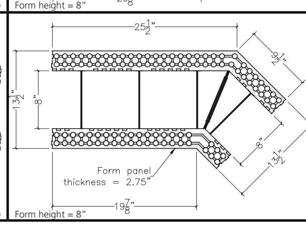
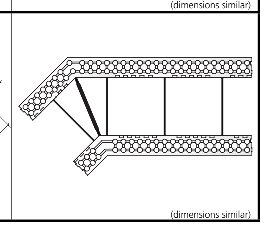
HALF HEIGHT FORMS

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				
6.25 inch Concrete Core Thickness				
8 inch Concrete Core Thickness				

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

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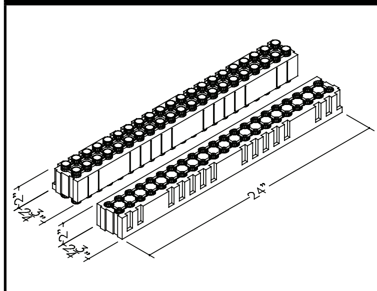
GENERAL SPECIFICATIONS SHEET, CONT'D

ACCESSORIES

LOGIX ACCESSORIES



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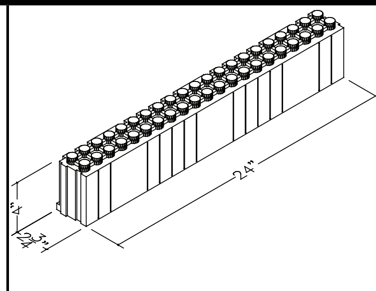

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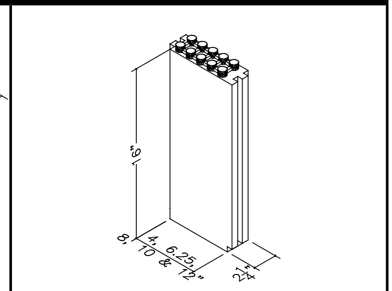

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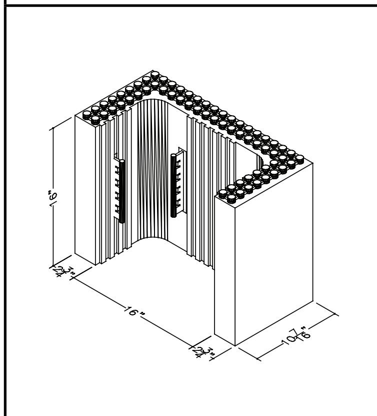

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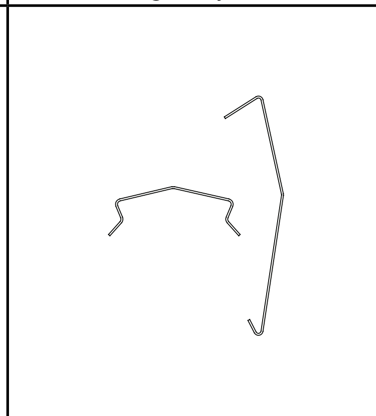
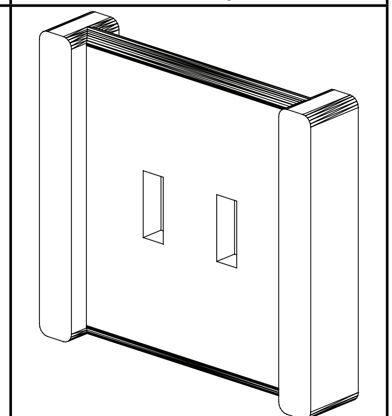


Horizontal & Vertical Hooks



Xtender

FURRING STRIP DIMENSIONS

	Block Size				
	100mm (4")	**159mm (6.25")**	**203mm (8")**	**254mm (10")**	**305mm (12")**
Height (full height blocks)	362mm (14.25")	362mm (14.25")	362mm (14.25")	362mm (14.25")	362mm (14.25")
Height (half height blocks)	159mm (6.25")	159mm (6.25")	159mm (6.25")	n/a	n/a
Width	32mm (1.25")	32mm (1.25")	32mm (1.25")	32mm (1.25")	32mm (1.25")
Thickness	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")

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90^0 CORNER FURRING STRING DIMENSIONS (full height blocks)

	Block Size				
	100mm (4")	**159mm (6.25")**	**203mm (8")**	**254mm (10")**	**305mm (12")**
Height (Vertical Strip)	362mm (14.25")	362mm (14.25")	362mm (14.25")	362mm (14.25")	362mm (14.25")
Height (Horizontal Strip)	50mm (2")	50mm (2")	50mm (2")	50mm (2")	50mm (2")
Width (Vertical Strip – one side of corner)	48mm (1.875")	48mm (1.875")	48mm (1.875")	48mm (1.875")	48mm (1.875")
Width (Horizontal Strip – one side of corner)	147mm (5.75")	147mm (5.75")	147mm (5.75")	147mm (5.75")	147mm (5.75")
Thickness	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")	4.8mm (0.1875")

5 DESIGN PROPERTIES OF STEEL

Property	**Value**
Yield Stress, fy	Min. 276Mpa (40ksi)

6 DESIGN PROPERTIES OF CONCRETE

	Value for each Block Size				
Properties	**100mm (4")**	**159mm (6.25")**	**203mm (8")**	**254mm (10")**	**305mm (12")**
28day Compressive Strength	20Mpa (2900psi)	20Mpa (2900psi)	20Mpa (2900psi)	20Mpa (2900psi)	20Mpa (2900psi)
Recommended Max. Aggregate Size	9.5mm (0.375")	9.5mm (0.375")	9.5mm (0.375")	9.5mm (0.375")	9.5mm (0.375")
Recommended Slump	127-178mm (5 – 7in.)	127-178mm (5 – 7in.)	127-178mm (5 – 7in.)	127-178mm (5 – 7in.)	127-178mm (5 – 7in.)
Min. Concrete Cover Attainable	25mm (1in.)	25mm (1in.)	25mm (1in.)	25mm (1in.)	25mm (1in.)

7 QUALITY ASSURANCE

Manufacturers of Logix ICF are certified under QAI carrying the QAI labels. Unannounced quality control inspections are conducted by QAI at least 4 times a year to ensure strict compliance with established quality control procedures.

APPENDIX

TEST DESCRIPTIONS

To be read in reference to the tabulated test results in Section 3

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GENERAL SPECIFICATIONS SHEET, CONT'D

Compressive Strength – indication of the amount of pressure required to compress the EPS to its yield point or by 10% of its original dimension, whichever occurs first.

Concrete Pour-in-place – assembly of a Logix ICF wall in which observations were recorded visually for the behaviour of the ICF wall during concrete pouring. Deflections before, during and after the pour were recorded. In addition, the form was structurally inspected to check for any structural damage caused to the ICF form during the pour. Using 203mm (8in) Logix ICF blocks, the wall size was 3.66m (12ft) high by 2.44m (8ft) wide.

Density – a measure of the weight of EPS per unit volume.

Dimensions – length, width and thickness of full size (finished product) EPS panels measured to ensure the final dimensions are within acceptable tolerances.

Dimensional Stability, Thermal & Humid Aging – a measure of dimensional change in EPS after exposure to hot and cold temperatures at high relative humidity for seven days. The EPS is normally exposed to temperatures of 70°C (158°F) and -40°C (-40°F) for seven days at 97% or ambient humidity. After exposure the dimensions of the EPS samples are measured at room temperature. The tabulated value is expressed as a percent change in dimensions before and after exposure. The smaller the percent change the smaller the change in dimensions.

Fire Endurance Test – fire test of a wall assembly,with cast-in-place concrete. The non-fire exposed side of the wall has no cover or protective barrier; the fire exposed side is covered with 25.4mm (½”) drywall over the EPS. The wall assembly is subjected to a bearing load of 360kips while exposed to fire until a certain temperature on the wall is reached. The time to reach that temperature including observations are recorded. After the fire test the wall assembly is subjected to the impact, cooling and erosion effects of a hose stream – the hose stream test.

Flammability – fire test on the polypropylene web to determine the burning characteristics of the web material. With the web supported in a horizontal position, a flame is applied at one end. The flame front distance is the distance the flame travels from the applied end to the point the flame goes out. The linear burn rate is the rate it takes to travel the flame front distance.

Flame Spread & Smoke Developed Rating – flame spread and smoke developed rating is determined from a fire test. Flame spread and smoke developed rating is a surface burning characteristic of a material and is not related to the fire resistance of a material. Flame spread rating is an indication of how fast fire will spread over the EPS from the original flame source. Smoke developed rating is an indication of how much smoke is generated during the fire test. The tabulated values are relative numbers based on calculations from the fire test results. The number is compared to asbestos and red oak, which have a rating of 0 and 100, respectively. Flame spread ratings provide an indication, particularly useful for fire officials, of how fast fire may spread in a building based on the building's materials. The National Fire Protection Agency (NFPA) classifies a material's suitability for use in construction based on its flame spread index.

Flexural Strength – measured as the amount of pressure it takes to reach the breaking load of EPS samples in bending. Samples are supported at the ends and a concentrated load is applied at the mid-span of the samples. The load is gradually increased until the samples fail.

Formaldehyde Emission – a measure of the amount of formaldehyde released from the EPS when heated to 120°F (49°C).

Fungi Resistance – a measure of the amount of fungi growth on the EPS when exposed to certain types of fungi.

Lateral Fastener Resistance – test to determine the lateral strength of Type S and Type W drywall screws fastened to the web. A concentrated load is applied perpendicular to the axis of the screw, which is fastened to the web. The load is gradually increased and tested to failure. Deflections are recorded during the duration of the tests.

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GENERAL SPECIFICATIONS SHEET, CONT'D

Limiting Oxygen Index – a measure of the EPS to sustain a flame. The measurement is described as the amount of oxygen required (expressed as a percentage) to just support flaming combustion of the EPS when exposed to a flowing mixture of nitrogen and oxygen. The tabulated value is the amount of oxygen in the nitrogen/oxygen mixture required to just keep the EPS aflame.

Shear Strength – test to determine the shear strength of the polypropylene web.

Smoke Density Rating – a measure of the relative amount of smoke produced by the burning of the polypropylene web. The tabulated value is the amount of loss of light transmission through the smoke produced from the burning of the web, expressed as a percentage.

Smoke Developed Rating – see Flame Spread Rating.

Standard Room Fire Test – fire test of a room assembly where one corner of the room is built with Logix ICF blocks with cast-in-place concrete, and covered with ½" drywall. The room is exposed to a column of fire originating in the corner of the room adjacent to the ICF. The ICF is exposed to the fire for 15 minutes and observations recorded. The tabulated value is based on observations that showed melting of the EPS did not extend outside of the column of fire, smoke generated was not excessive, and since there was no damage to the concrete the structural integrity of the wall remained in place. Using 159mm (6.25in) ICF blocks, the size of the corner built with ICF was 2.44m (8ft) long in one direction, 2.44m (8ft) long in the other direction, and 2.44m (8ft) high.

Tensile Strength – test to determine the tensile strength of the polypropylene web.

Thermal Resistance – a measure of a materials resistance to heat flow through the EPS. The higher the R-value the greater the resistance to heat flow, the better the insulator.

Water Absorption – a measure of the ability of the EPS to absorb water. The tabulated value is a ratio of the weight of water absorbed by the EPS to the weight of the EPS dry, expressed as a percentage. The smaller the value the less water absorbed by the EPS.

Water Vapour Permeance – the rate at which water vapour will pass through the EPS. During the test, a vapour pressure difference between the two sides of the EPS is produced. The tabulated value is the rate at which the vapour passes through the EPS. The smaller the value the lower the water vapour permeance of the EPS.

Withdrawal Fastener Resistance – test to determine the withdrawal strength (or pullout strength) of Type S and Type W drywall screws fastened to the web. A concentrated load was applied parallel to the axis of the screw, which is fastened to the web. The load is gradually increased and tested to failure.

MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet – Expanded Polystyrene (EPS)
in Logix Insulated Concrete Forms

SECTION 1 - PRODUCT INFORMATION

Manufacturer Name:	LOGIX INSULATED CONCRETE FORMS LTD.
Address:	199 – 1917 West 4th Ave Vancouver, British Columbia, Canada V6J 1M7
Emergency Phone:	604-831-8528
Product Use:	Stay-In-Place Insulated Concrete Forms
Suppliers:	Flint Hills Resources PO Box 2917 Wichita, Kansas 67201 316-828-3477

SECTION 2 - PREPARATION INFORMATION

Contact Name:	Francis B Roma
Phone:	1-866-944-0153
Date Issued:	July 31, 2010

SECTION 3 - HAZARDOUS INGREDIENTS

Chemical Name	CAS No.	Content
Benzene Ethenyl-Homopolymer (Common Name: Polystyrene)	9003-53-6	99%
Pentane	109-66-0	<1%

SECTION 4 - PHYSICAL DATA

Physical State:	Solid
Odour & appearance:	Slight Hydrocarbon Odour, White In Color
Specific Gravity:	(Water = 1) 0.02 To 0.03
Vapour Pressure:	N/A
Evaporation Rate:	None
Boiling Point:	N/A
Freezing Point:	N/A
Melting Point:	Softens at 100°C (212°F) & begins melting at higher temperatures.

LOGIX INSULATED CONCRETE FORMS

Material Safety Data Sheet - Expanded Polystyrene (EPS) in Logix Insulated Concrete Forms

Issue Date: July, 2010

SECTION 5 - FIRE OR EXPLOSION HAZARDS

Explosive Hazards:	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.
Means of Extinction:	Use water spray, dry chemical, foam or carbon dioxide to extinguish flames.
Flash Point:	698°F (370°C)
Auto Ignition Temperature:	880°F (471°C)

SECTION 6 - REACTIVITY DATA

Unstable Conditions:	Unstable when exposed to high temperatures. Recommended maximum use temperature of 165°F (75°C).
Incompatible materials:	Not compatible with materials containing primarily of hydrocarbons, aldehydes, esters and amines
Hazardous Polymerization:	Does not occur
Hazardous Decomposition:	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.
Conditions of reactivity:	Products react to high temperatures and strong oxidizers.

SECTION 7 - PREVENTATIVE MEASURES

Personal Protective Equipment:

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.
Ventilation:	Maintain proper ventilation in areas prone to static discharge (high dust environment) or products prone to combustion. Wear approved dust masks and maintain proper ventilation when hot-knifing product in enclosed areas.
Leaks or Spills:	Loose material can be vacuumed or swept and placed in disposal containers.
Waste disposal:	This material can be disposed of in accordance with local, state/provincial and federal regulations. This material is not considered a hazardous waste.
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.

Storage:	Storage locations should be in an area that will minimize damage or soiling to products. Protection should be provided in cases where stored products could be exposed, for more than 2 weeks, to UV or freezing rain or snow conditions. Keep products away from heat, sparks, flames or other ignition sources.

SECTION 8 - FIRST AID MEASURES

Eyes:	Flush eyes with water for several minutes. Get medical attention if eye irritation persists or particulates are difficult to remove from the eye.
Skin:	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.
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.

SECTION 9 - TOXICOLOGICAL PROPERTIES

Primary Route of Entry:	Eyes, Skin, 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.

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.

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.

8.4 – STANDARD PRACTICE - SPLICING & DOWELS

Lap Splices

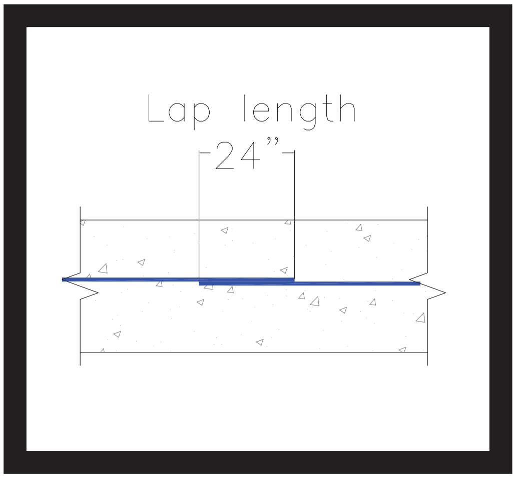


Figure 1a: Contact lap splices

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.

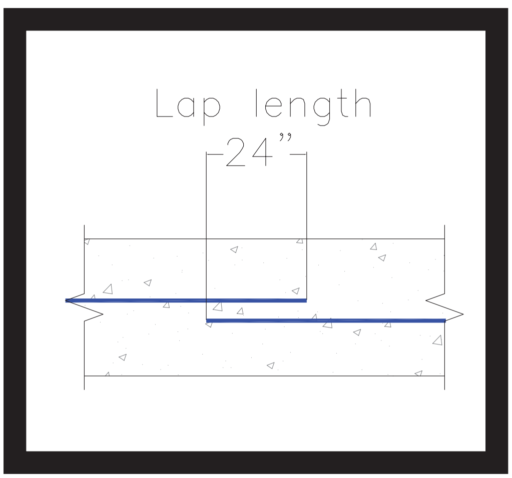


Figure 1b: Non-contact lap splices

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,

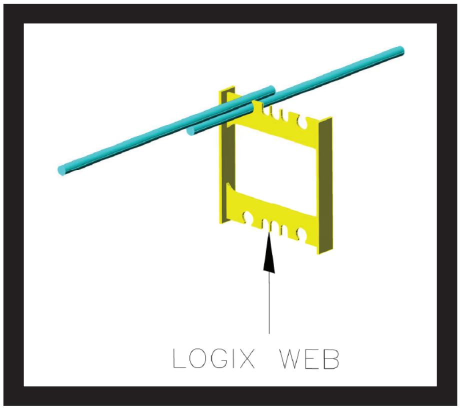


Figure 2a: Contact lap splices

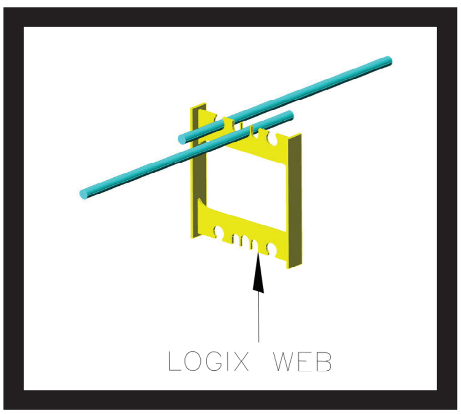


Figure 2b: Non-contact lap splices

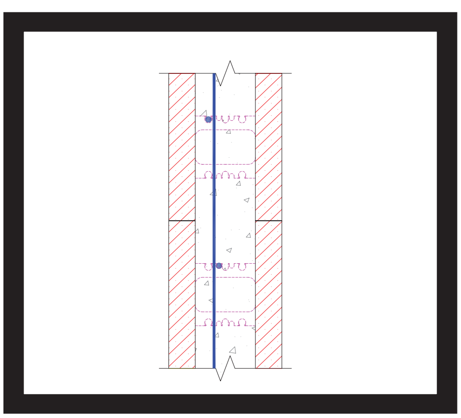


Figure 3: Vertical rebar in LOGIX ICF wall system

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**).

Footing Dowels

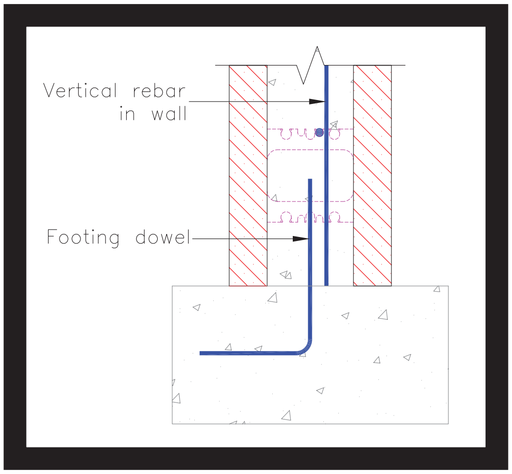
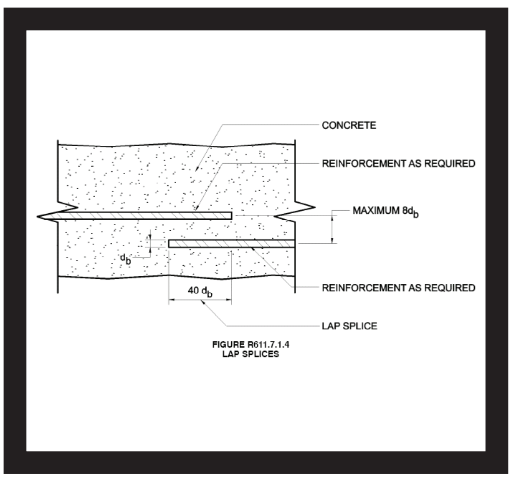


Figure 4: Wall/Footing connection

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.”

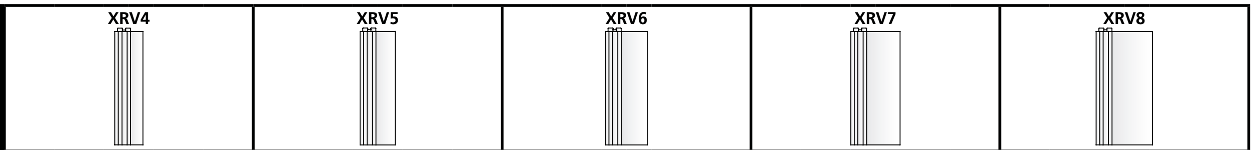
8.5 – LOGIX R-VALUES

LOGIX FORM PANELS	STANDARD		TAPER TOP		BRICK LEDGE		TRANSITION	
STANDARD	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]	23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)
TAPER TOP			LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]			23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)
BRICK LEDGE					LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]					23/24 (4/4.25)	26/27 (4.56/4.81)	23/24 (4/4.25)	26/27 (4.56/4.81)
TRANSITION							LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]							23/24 (4/4.25)	26/27 (4.56/4.81)

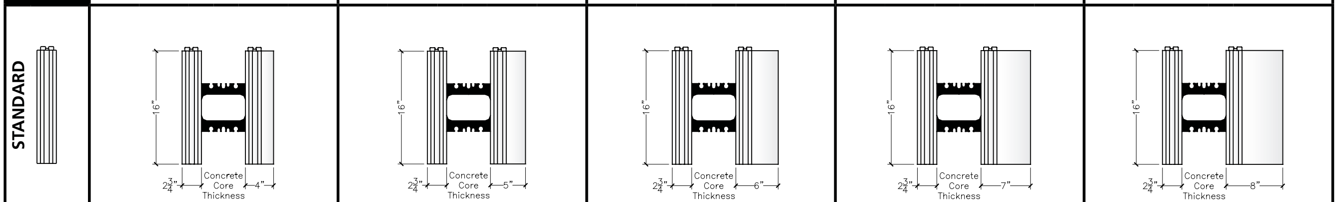
1. R1 denotes total R-value of form panels only (per ASTM C518 at average mean temperature of 75deg F.). R2 denotes total R-value of a wall assembly consisting of form panels, 4 inch concrete core, 1/2 inch drywall and interior airfilm. R1 and R2 are based on imperial units. R-values are based on independent testing conducted by Intertek Testing Services.

8.5 – LOGIX R-VALUES CONTINUED

LOGIX FORM PANELS: XRV4, XRV5, XRV6, XRV7, XRV8

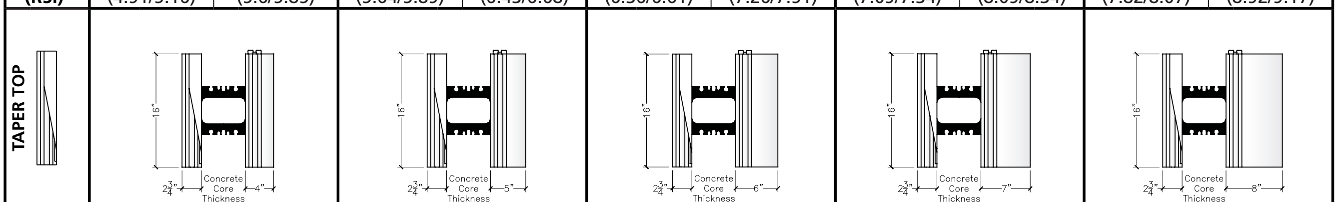


STANDARD



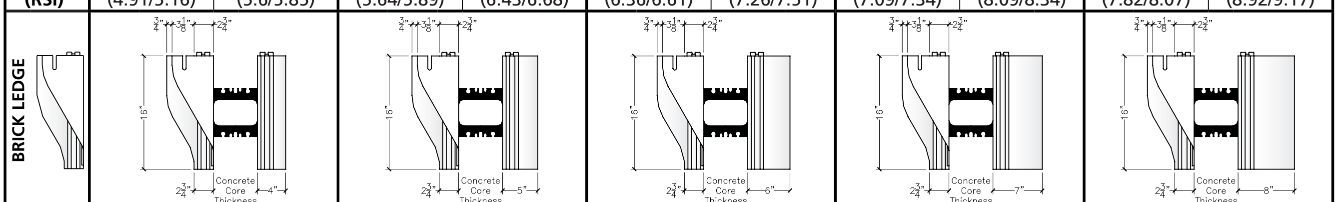
	XRV4 LOGIX	XRV4 LOGIX PLATINUM	XRV5 LOGIX	XRV5 LOGIX PLATINUM	XRV6 LOGIX	XRV6 LOGIX PLATINUM	XRV7 LOGIX	XRV7 LOGIX PLATINUM	XRV8 LOGIX	XRV8 LOGIX PLATINUM
R1/R2 (RSI)[1]	28/29 (4.91/5.16)	32/33 (5.6/5.85)	32/33 (5.64/5.89)	37/38 (6.43/6.68)	36/38 (6.36/6.61)	41/43 (7.26/7.51)	40/42 (7.09/7.34)	46/47 (8.09/8.34)	44/46 (7.82/8.07)	51/52 (8.92/9.17)

TAPER TOP



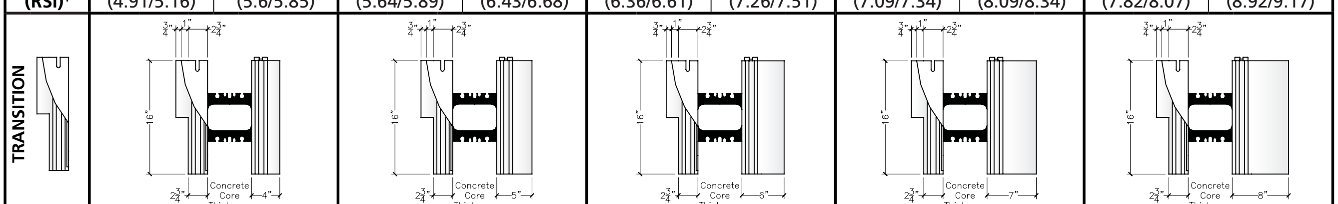
	XRV4 LOGIX	XRV4 LOGIX PLATINUM	XRV5 LOGIX	XRV5 LOGIX PLATINUM	XRV6 LOGIX	XRV6 LOGIX PLATINUM	XRV7 LOGIX	XRV7 LOGIX PLATINUM	XRV8 LOGIX	XRV8 LOGIX PLATINUM
R1/R2 (RSI)[1]	28/29 (4.91/5.16)	32/33 (5.6/5.85)	32/33 (5.64/5.89)	37/38 (6.43/6.68)	36/38 (6.36/6.61)	41/43 (7.26/7.51)	40/42 (7.09/7.34)	46/47 (8.09/8.34)	44/46 (7.82/8.07)	51/52 (8.92/9.17)

BRICK LEDGE



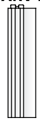
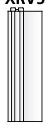
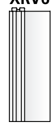
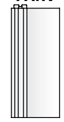
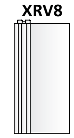
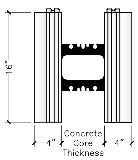
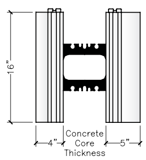
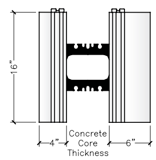
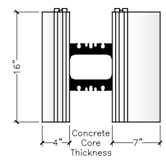
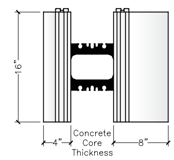
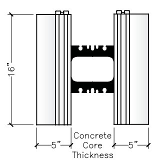
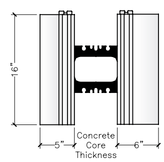
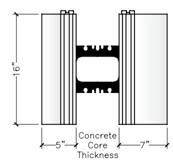
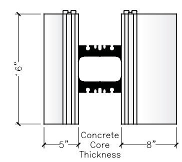
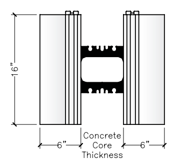
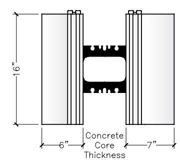
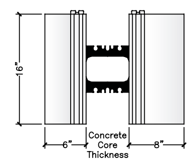
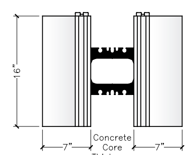
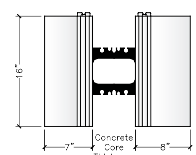
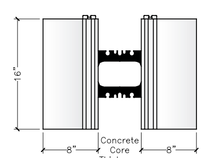
	XRV4 LOGIX	XRV4 LOGIX PLATINUM	XRV5 LOGIX	XRV5 LOGIX PLATINUM	XRV6 LOGIX	XRV6 LOGIX PLATINUM	XRV7 LOGIX	XRV7 LOGIX PLATINUM	XRV8 LOGIX	XRV8 LOGIX PLATINUM
R1/R2 (RSI)[1]	28/29 (4.91/5.16)	32/33 (5.6/5.85)	32/33 (5.64/5.89)	37/38 (6.43/6.68)	36/38 (6.36/6.61)	41/43 (7.26/7.51)	40/42 (7.09/7.34)	46/47 (8.09/8.34)	44/46 (7.82/8.07)	51/52 (8.92/9.17)

TRANSITION



	XRV4 LOGIX	XRV4 LOGIX PLATINUM	XRV5 LOGIX	XRV5 LOGIX PLATINUM	XRV6 LOGIX	XRV6 LOGIX PLATINUM	XRV7 LOGIX	XRV7 LOGIX PLATINUM	XRV8 LOGIX	XRV8 LOGIX PLATINUM
R1/R2 (RSI)[1]	28/29 (4.91/5.16)	32/33 (5.6/5.85)	32/33 (5.64/5.89)	37/38 (6.43/6.68)	36/38 (6.36/6.61)	41/43 (7.26/7.51)	40/42 (7.09/7.34)	46/47 (8.09/8.34)	44/46 (7.82/8.07)	51/52 (8.92/9.17)

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.

LOGIX FORM PANELS	XRV4		XRV5		XRV6		7XRV		XRV8	
										
XRV4 										
	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]	33/34 (5.82/6.07)	38/39 (6.64/6.89)	37/39 (6.55/6.8)	42/44 (7.47/7.72)	41/43 (7.27/7.52)	47/49 (8.29/8.54)	45/47 (8/8.25)	52/53 (9.12/9.37)	50/51 (8.73/8.98)	57/58 (9.95/10.2)
XRV5 										
			LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]			41/43 (7.27/7.52)	47/49 (8.29/8.54)	45/47 (8/8.25)	52/53 (9.12/9.37)	50/51 (8.73/8.98)	57/58 (9.95/10.2)	54/55 (9.46/9.71)	61/63 (10.78/11.03)
XRV6 										
					LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]					50/51 (8.73/8.98)	57/58 (9.95/10.2)	54/55 (9.46/9.71)	61/63 (10.78/11.03)	58/59 (10.18/10.43)	66/67 (11.61/11.86)
XRV7 										
							LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]							58/59 (10.18/10.43)	66/67 (11.61/11.86)	62/63 (10.91/11.16)	71/72 (12.44/12.69)
XRV8 										
									LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]									66/67 (11.64/11.89)	75/77 (13.27/13.52)

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.

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