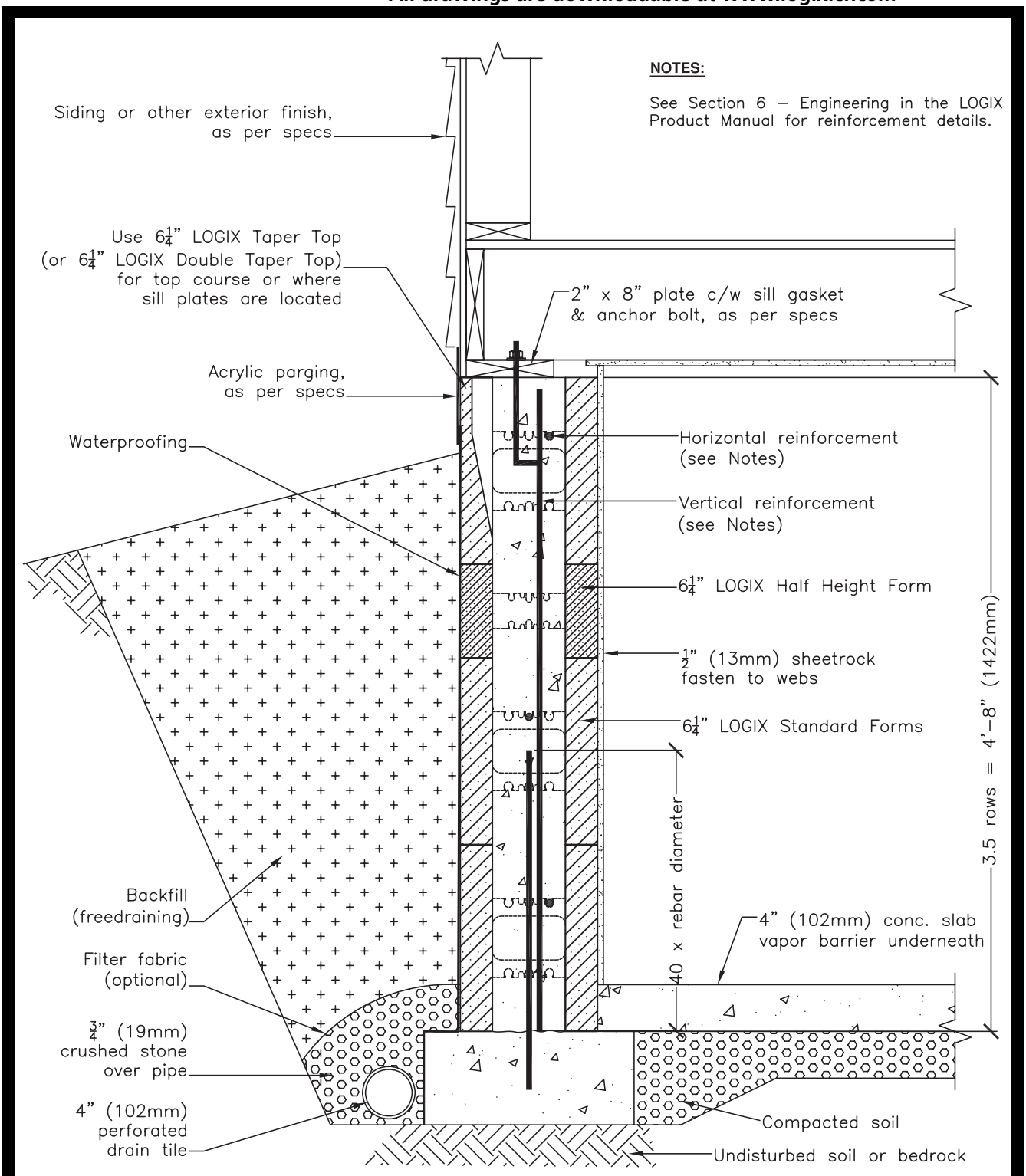
5.2.2 – 4'-8" FROST WALL (CRAWL SPACE)

All drawings are downloadable at www.logixicf.com

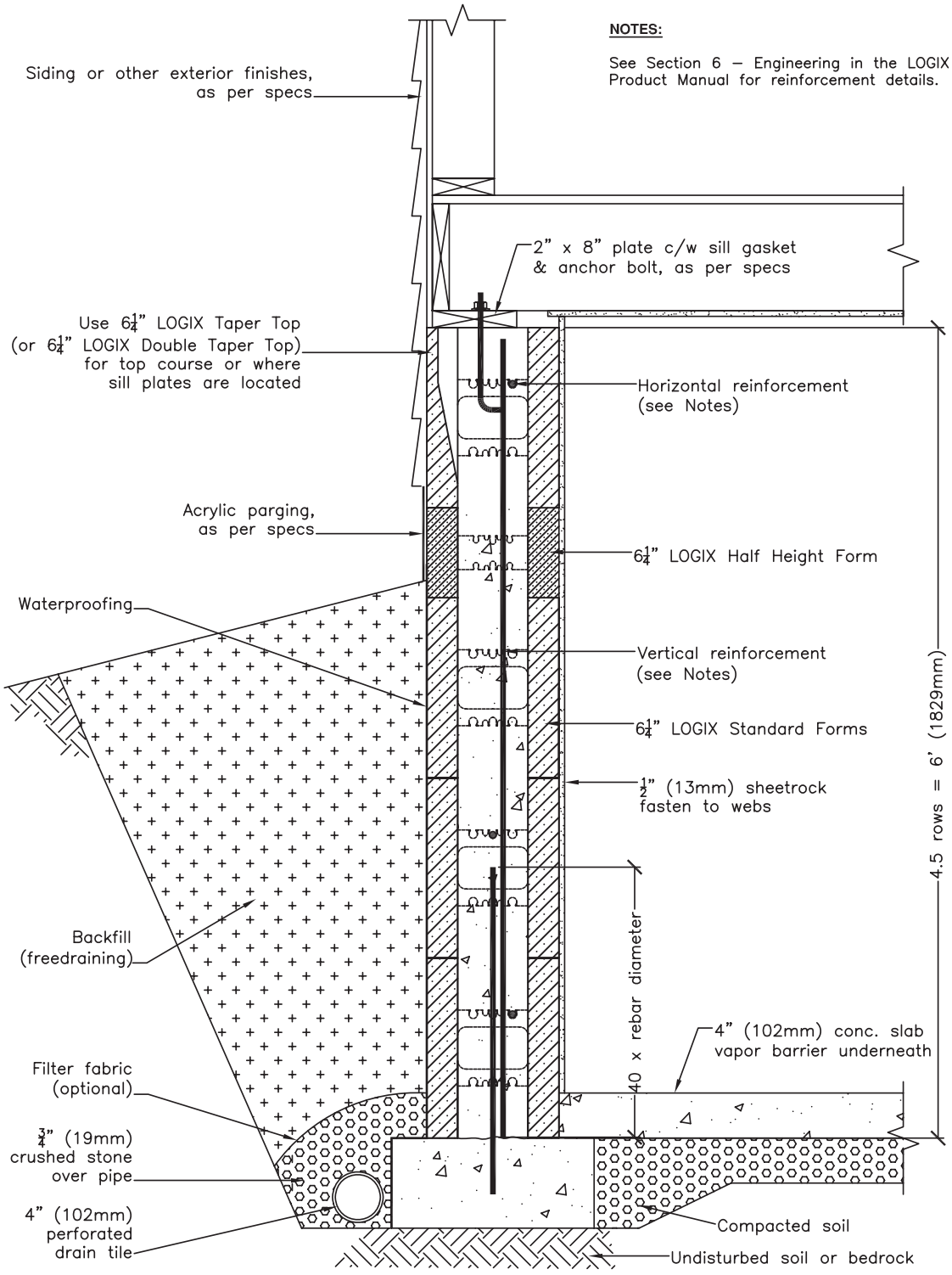


CAD DRAWINGS

5.2.3 – 6' FROST WALL (CRAWL SPACE)

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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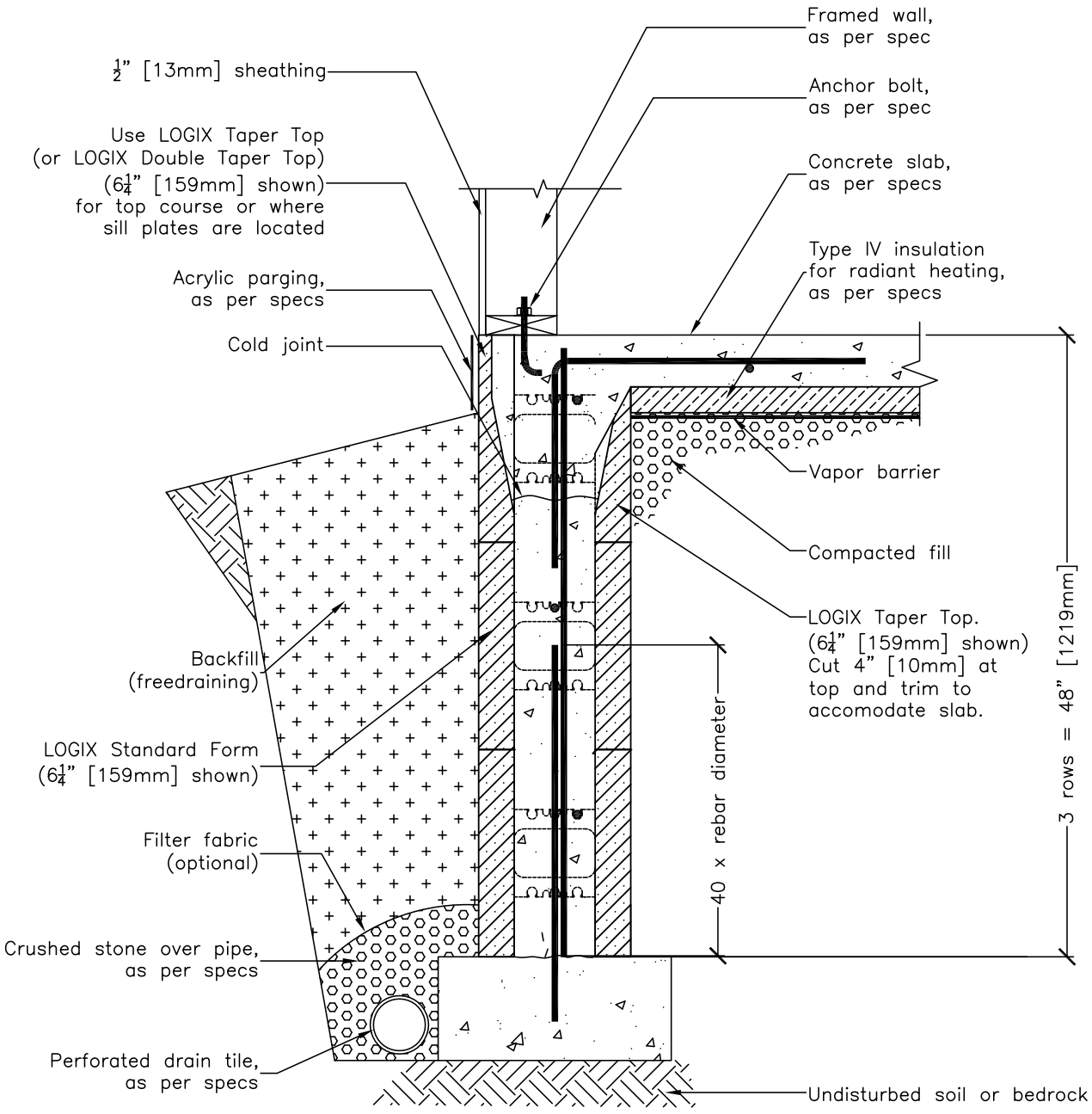
5.2.4 – 4' FROST WALL (INTEGRAL SLAB)

All drawings are downloadable at www.logixicf.com



NOTES:

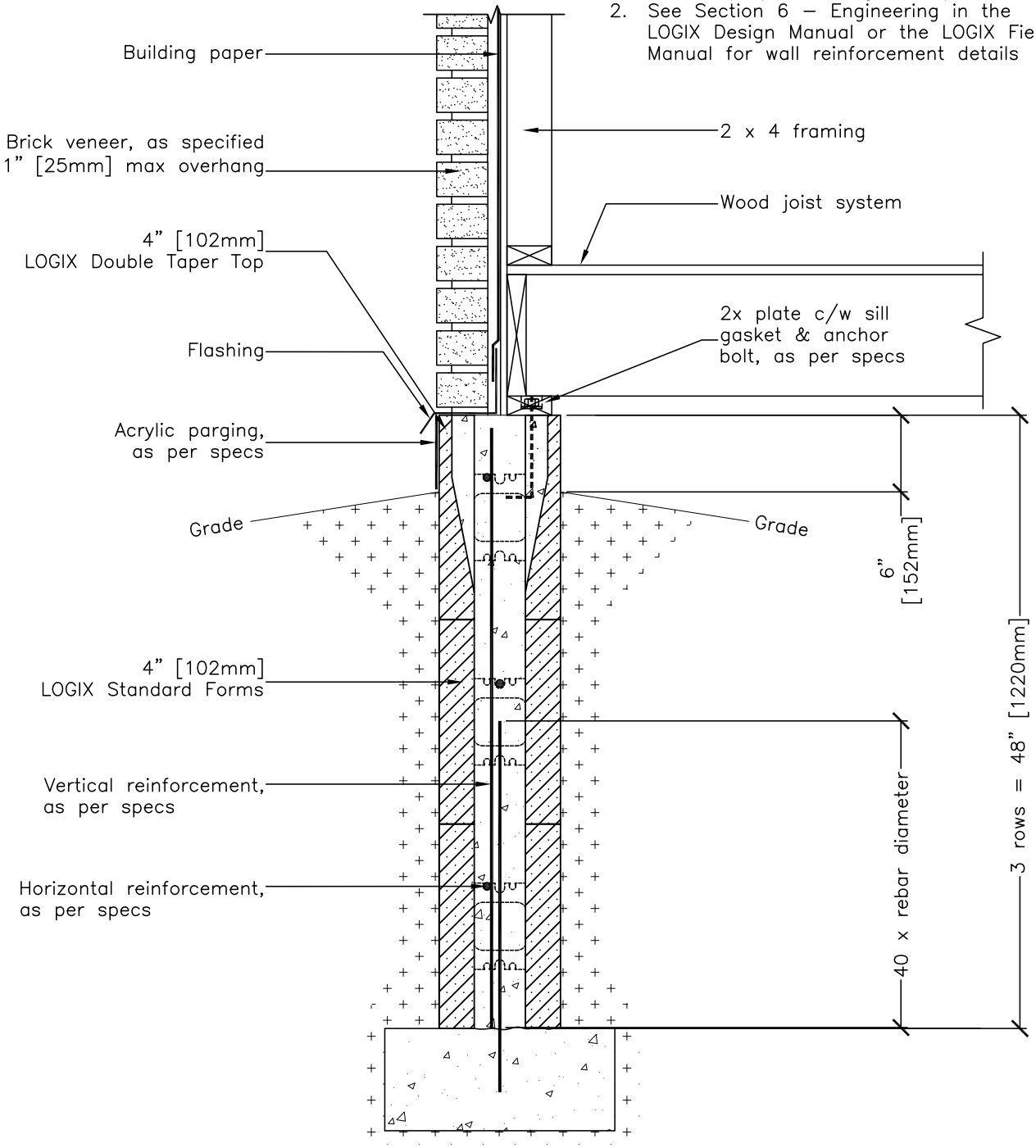
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for wall reinforcement details.

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

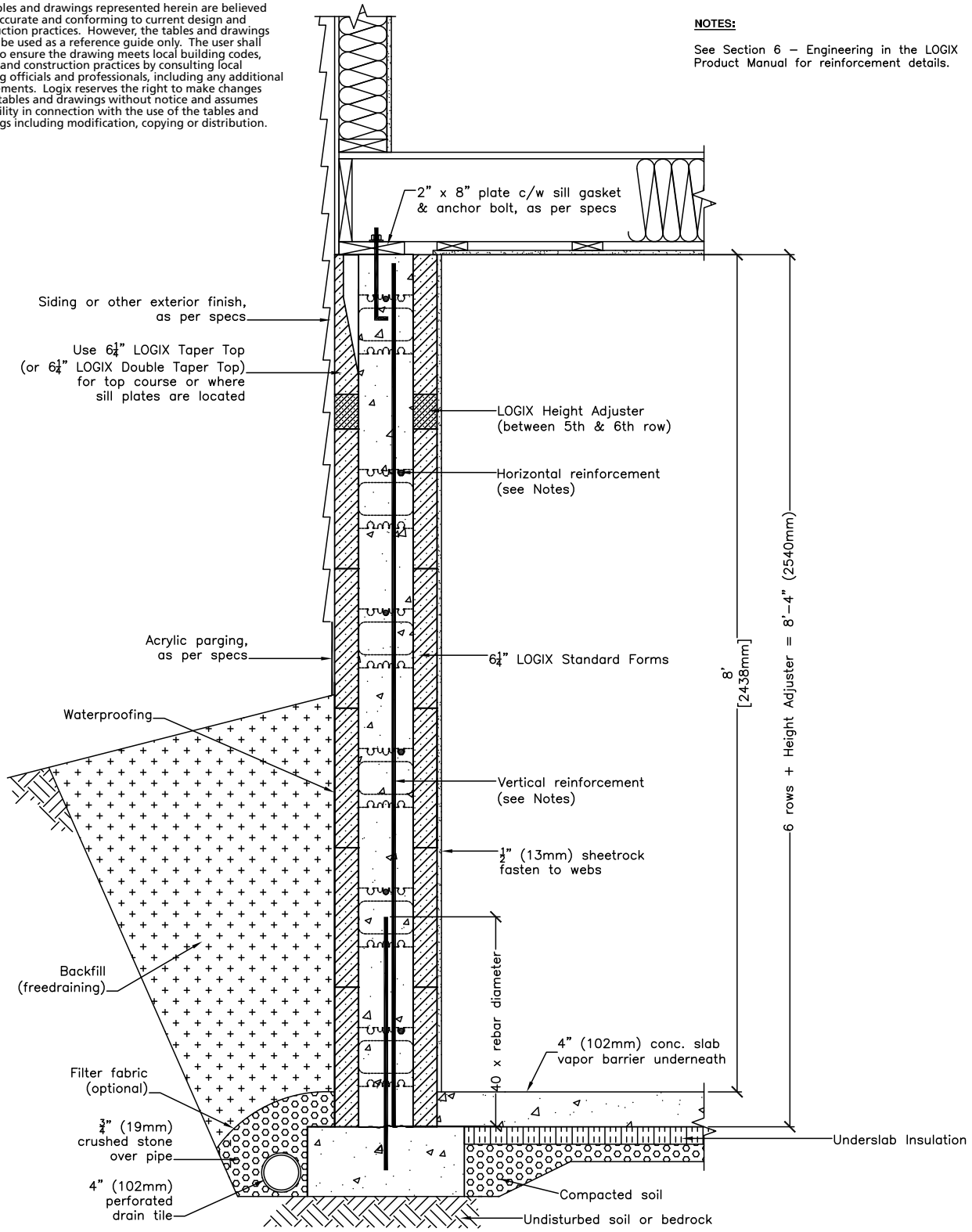


5.3 – FOUNDATION WALLS
5.3.1 – 8' FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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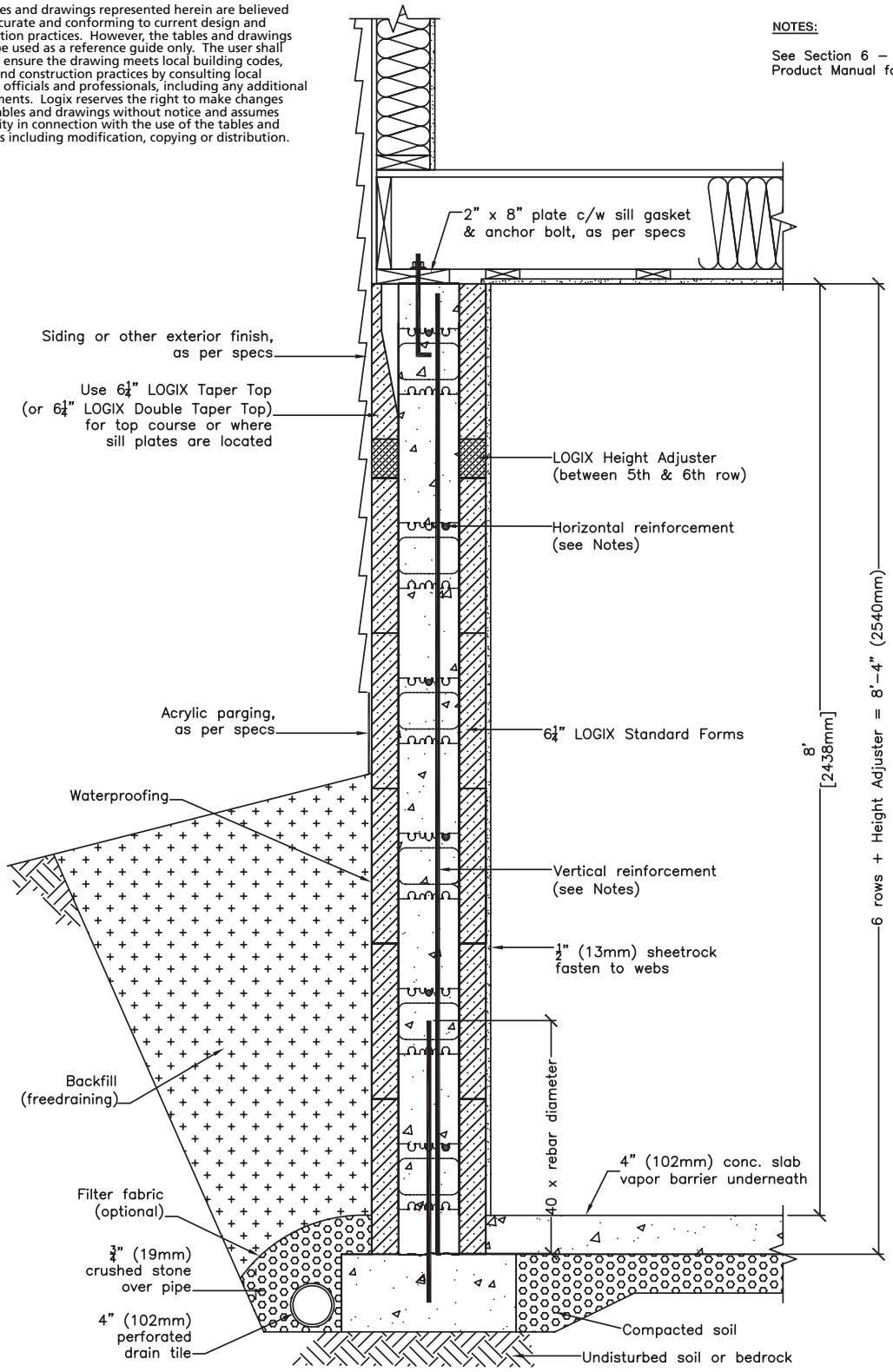
5.3.2 – 8'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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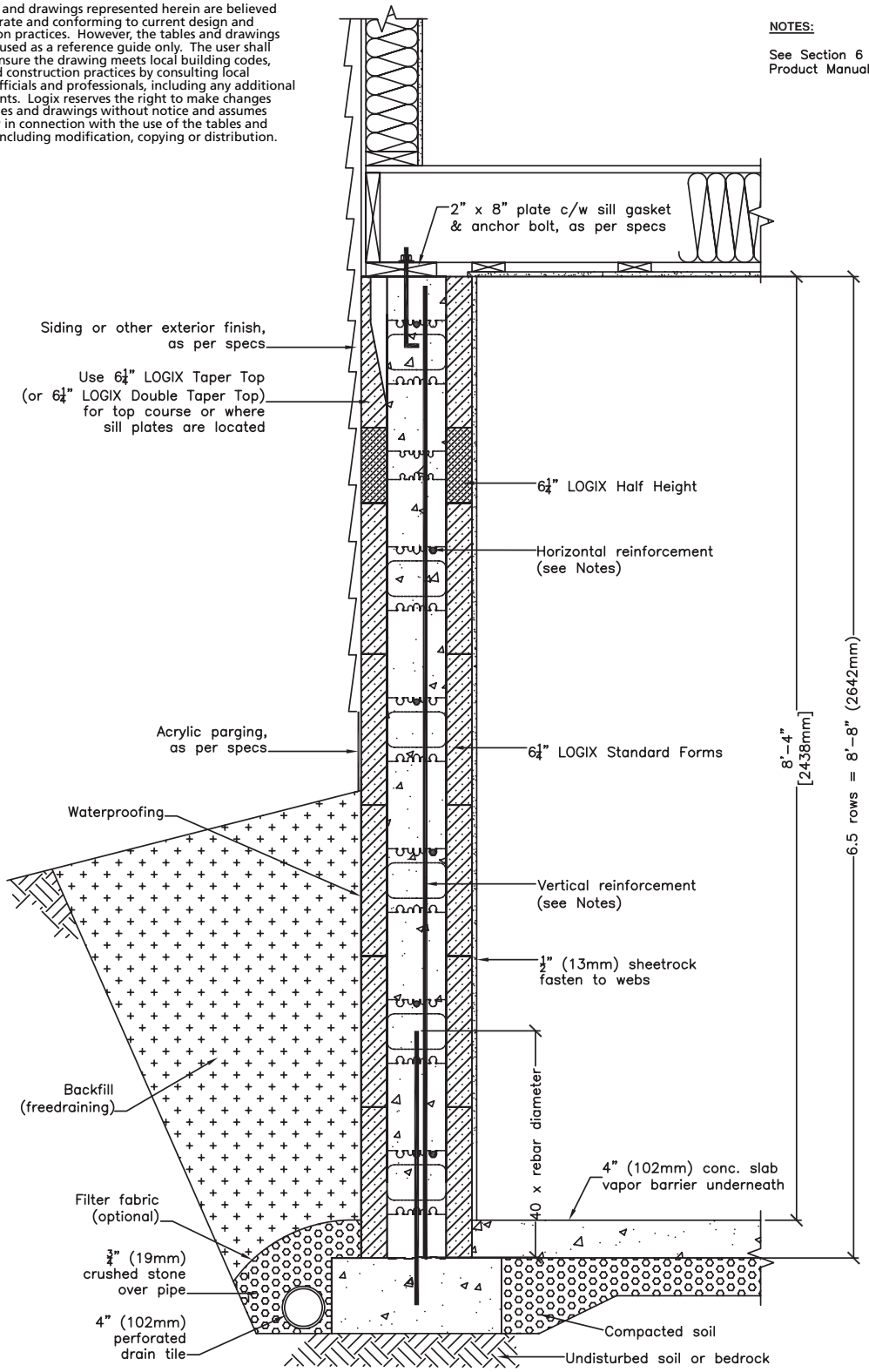
5.3.3 – 8'-8" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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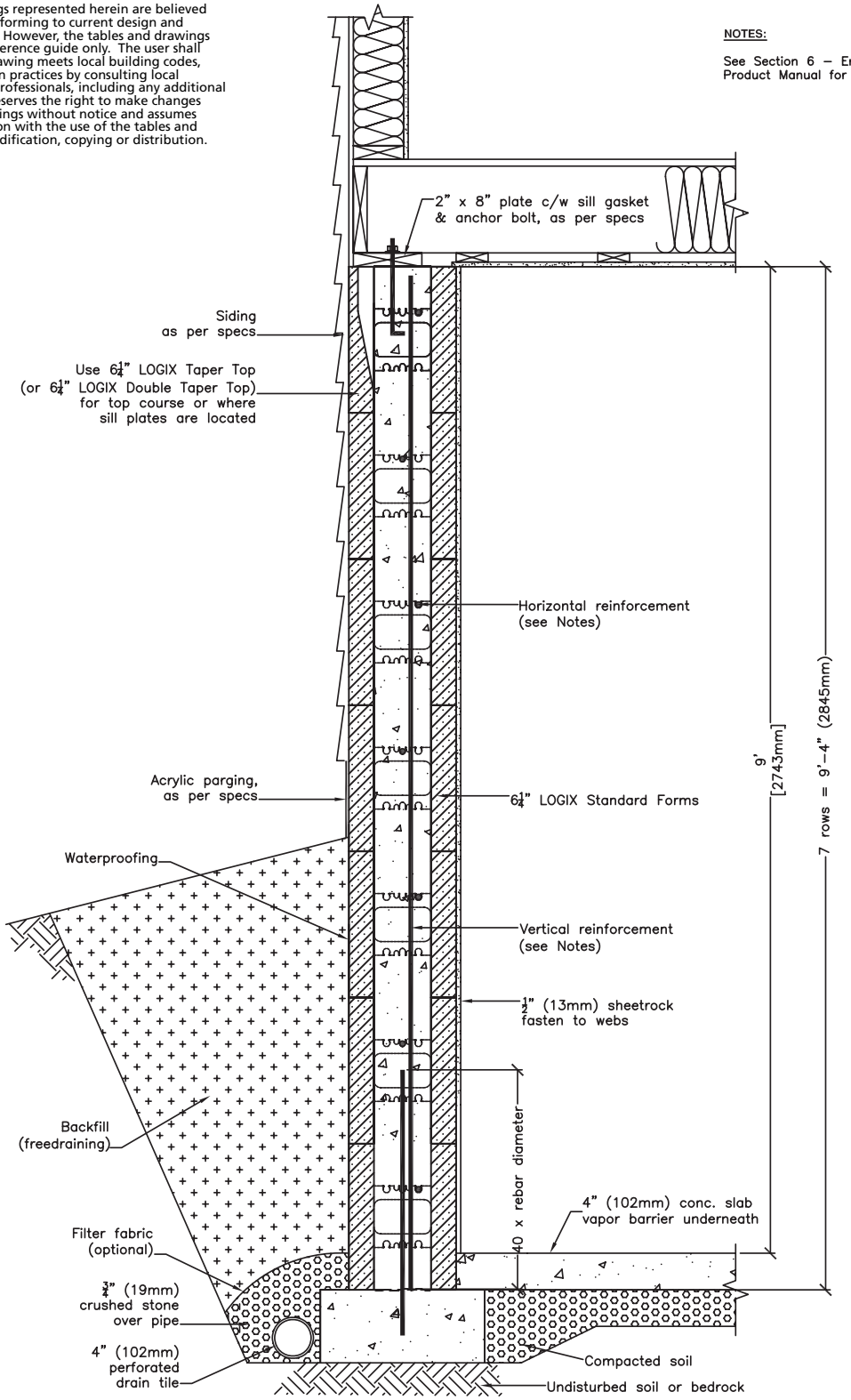
5.3.4 – 9'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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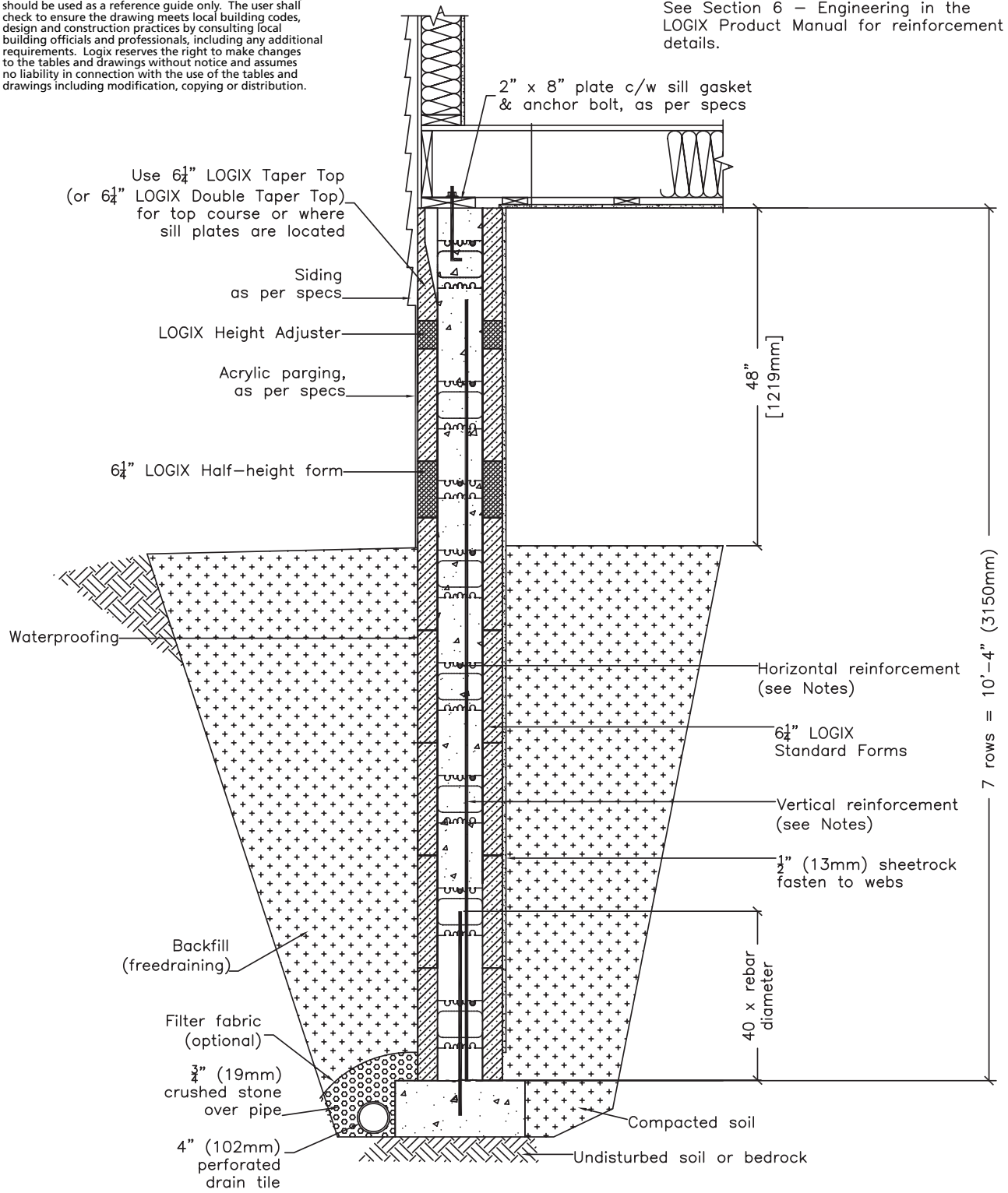
5.3.5 – 10'-4" FOUNDATION

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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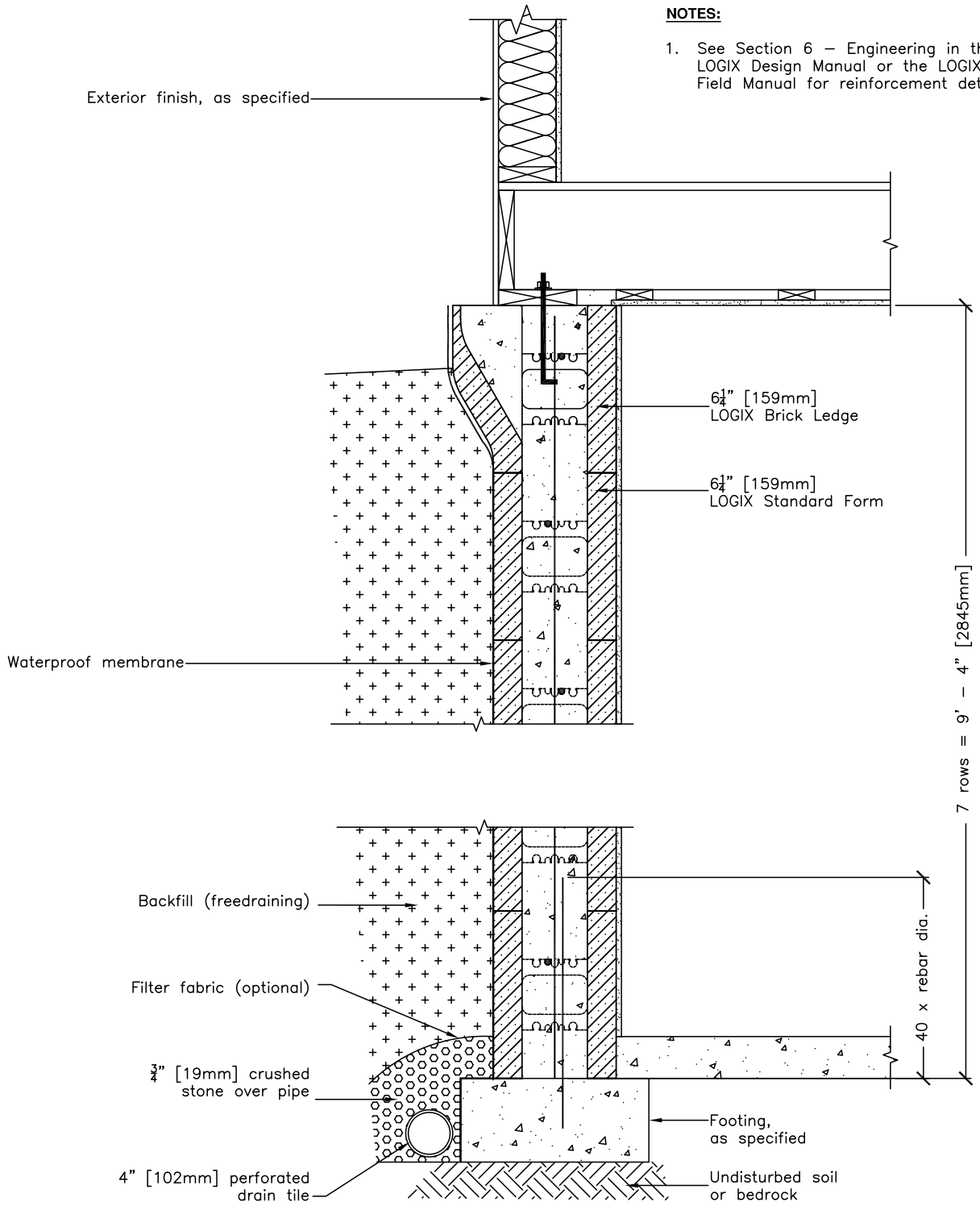
5.3.6 – LOGIX BRICK LEDGE SUPPORTING WOOD FRAME ABOVE GRADE

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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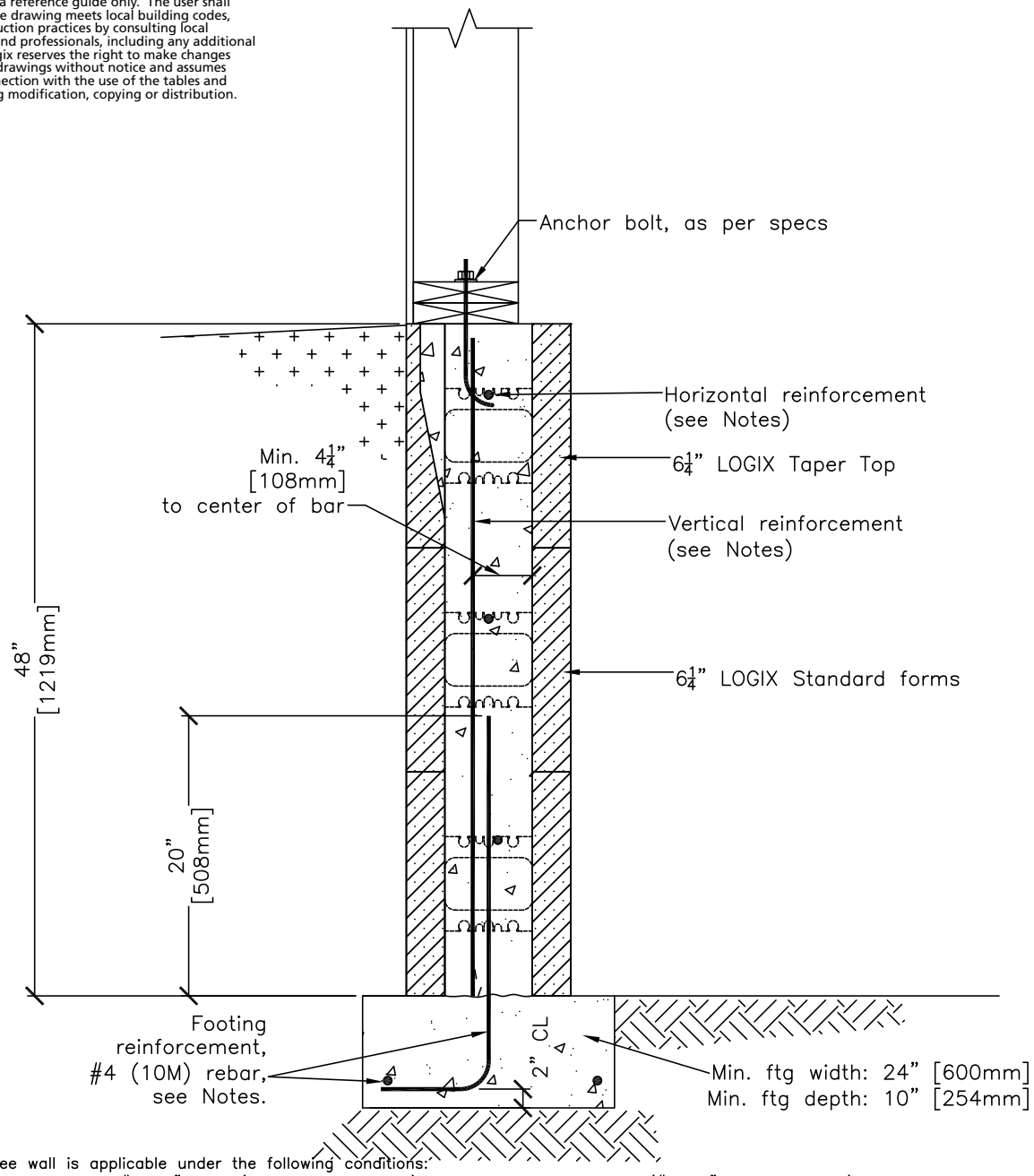
5.3.7 – 4' KNEE WALL WITH 6.25" LOGIX FORMS

All drawings are downloadable at www.logixicf.com



NOTES:

The above knee wall is applicable under the following conditions:

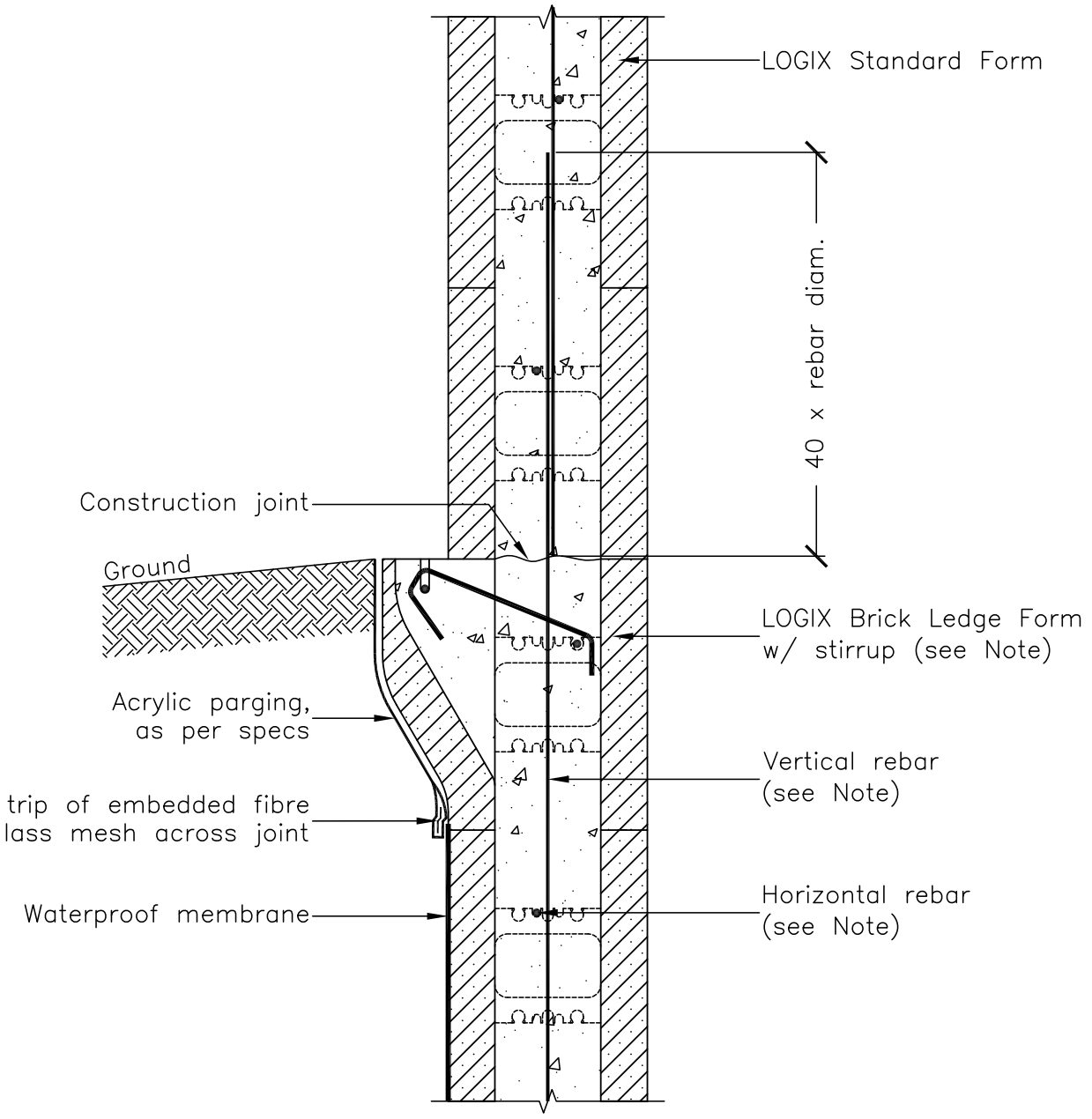
1. Min. vertical rebar, use #4@32" max. (10M@813 mm max.) on center for 60ksi steel (#4@24" for 40ksi steel). Footing dowels to match vertical rebar in wall for size and spacing.
2. Horizontal rebar: #4@16" max (10M@406 mm max.). on center.
3. Max. backfill height: 4 ft (1.2 m); Equivalent fluid density: <= 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.

CAD DRAWINGS

5.3.8 – WATERPROOF DETAIL AROUND BRICK LEDGE (optional)

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

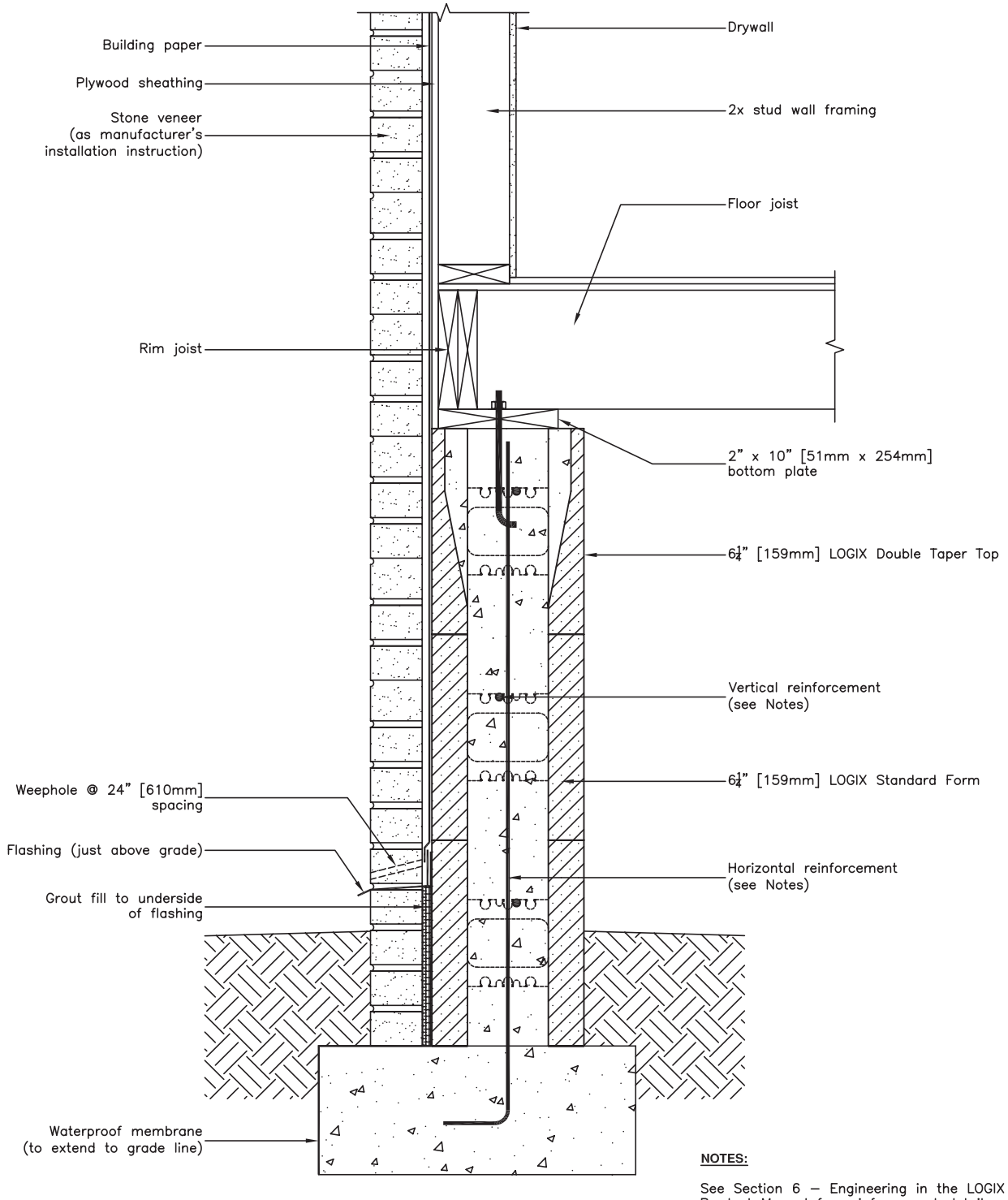


NOTES:

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



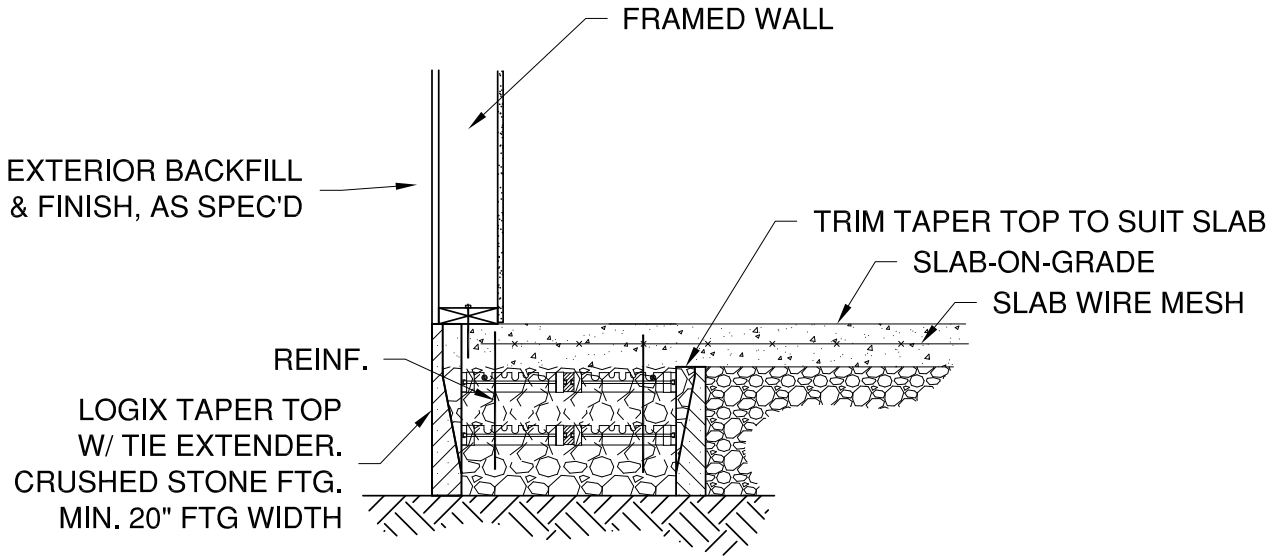
NOTES:

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

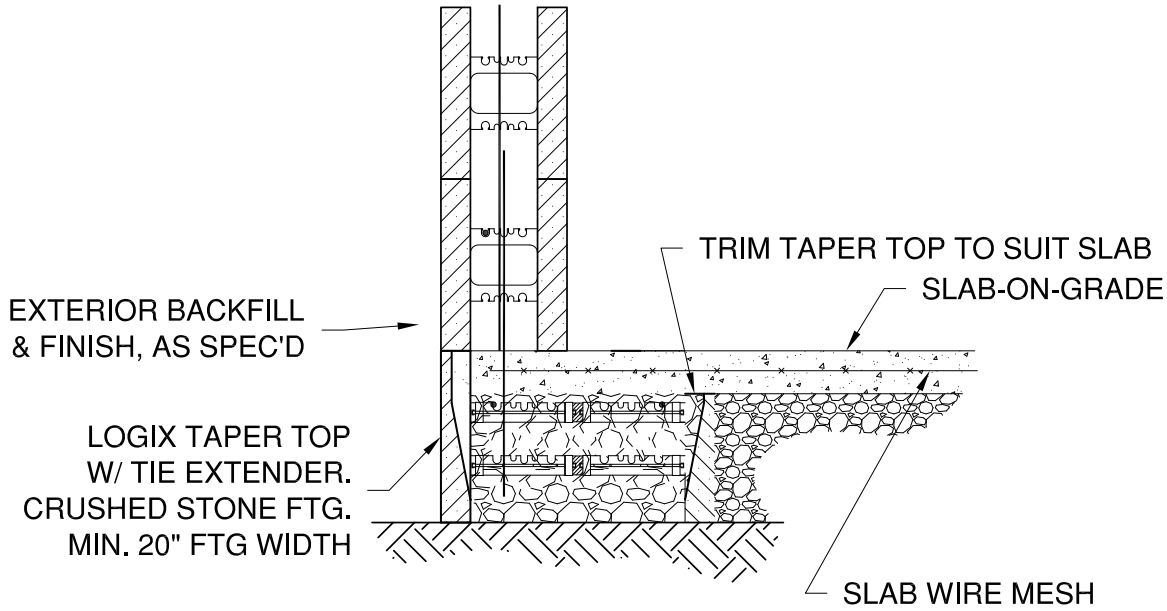
CAD DRAWINGS

5.3.10 – ALASKAN SLAB WITH LOGIX XTENDER

All drawings are downloadable at www.logixicf.com

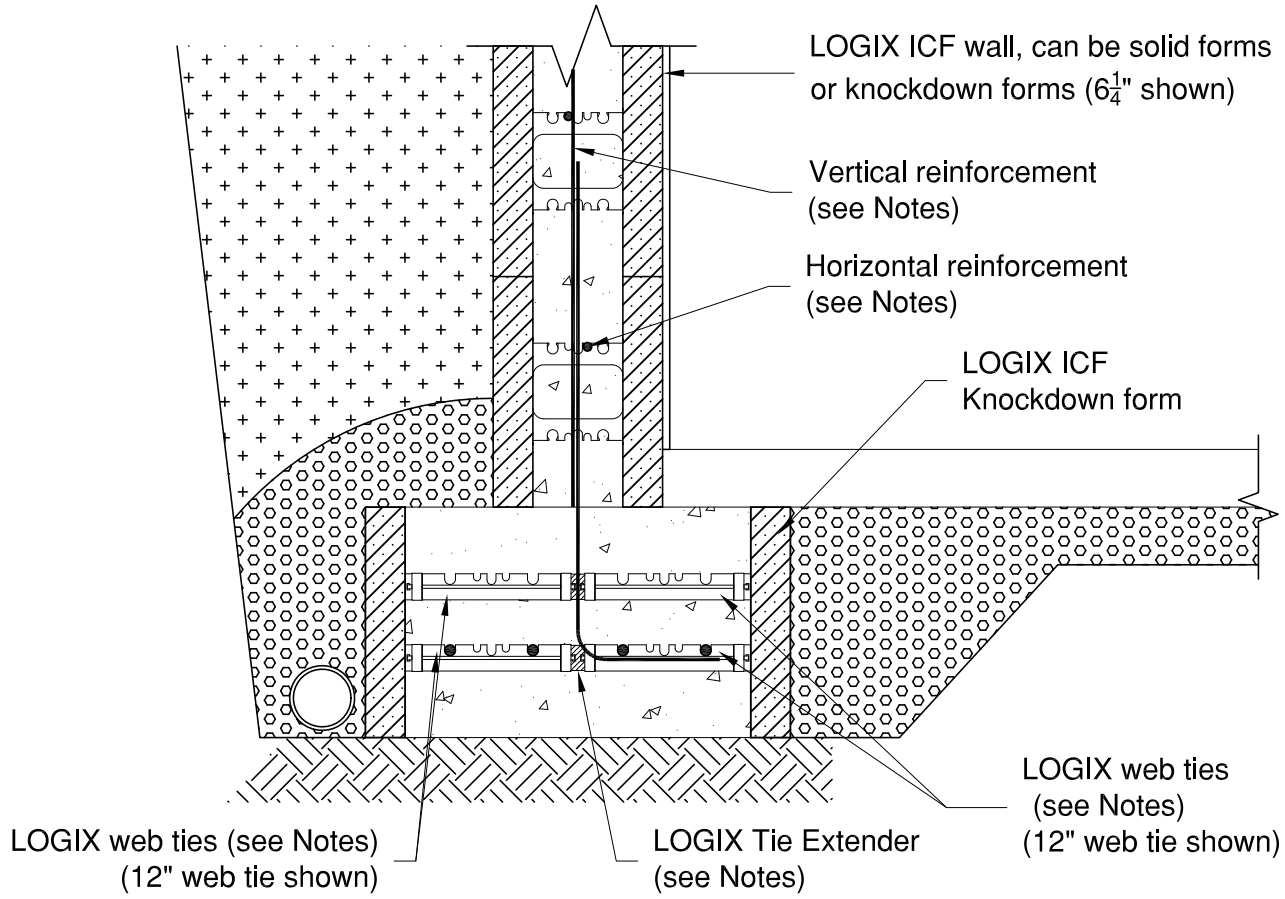


ALASKAN SLAB DETAIL
WITH FRAMED WALL



ALASKAN SLAB DETAIL
WITH CONTINUOUS ICF

5.3.11 – LOGIX FOOTING WITH XTENDER



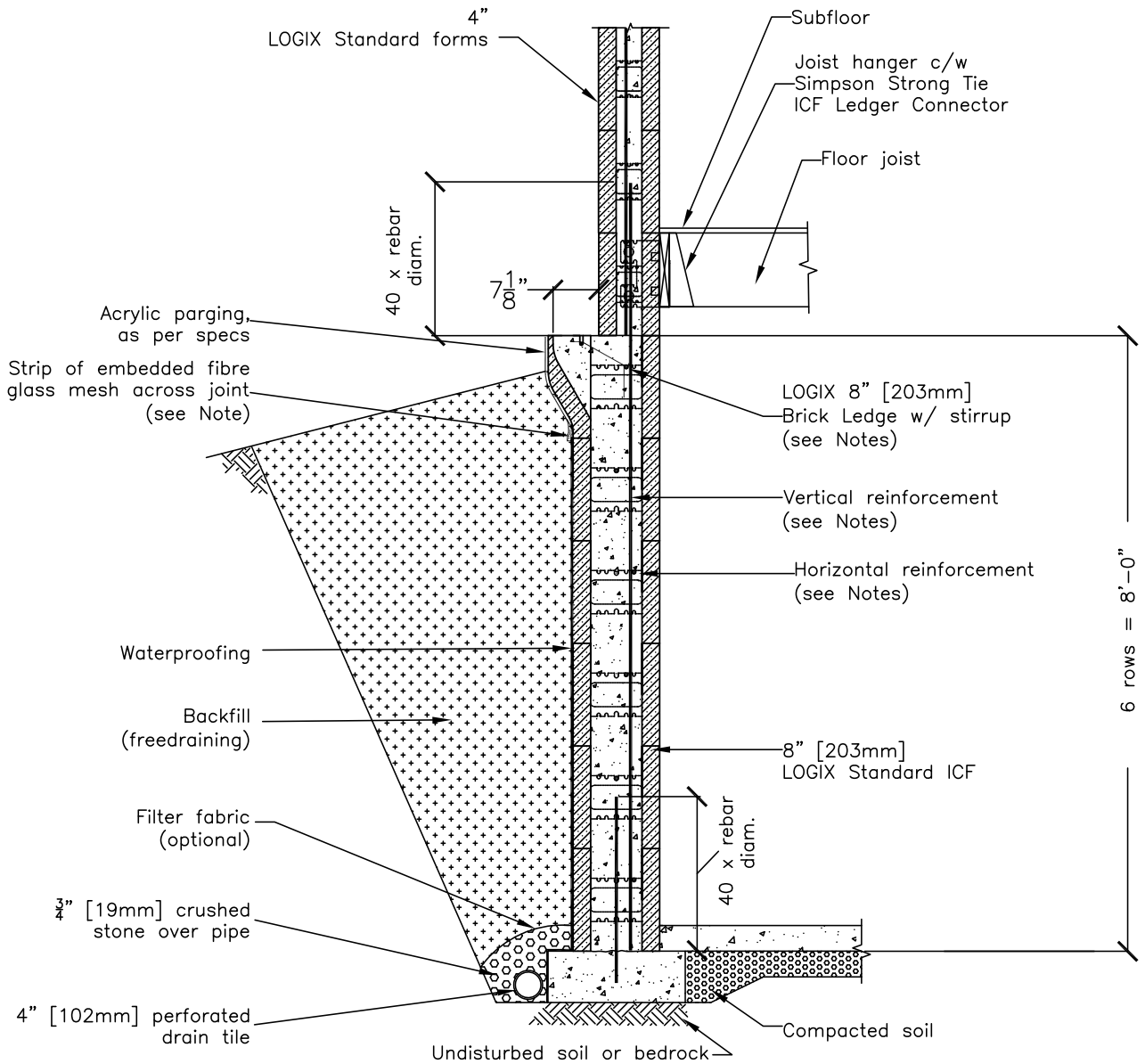
NOTES:

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

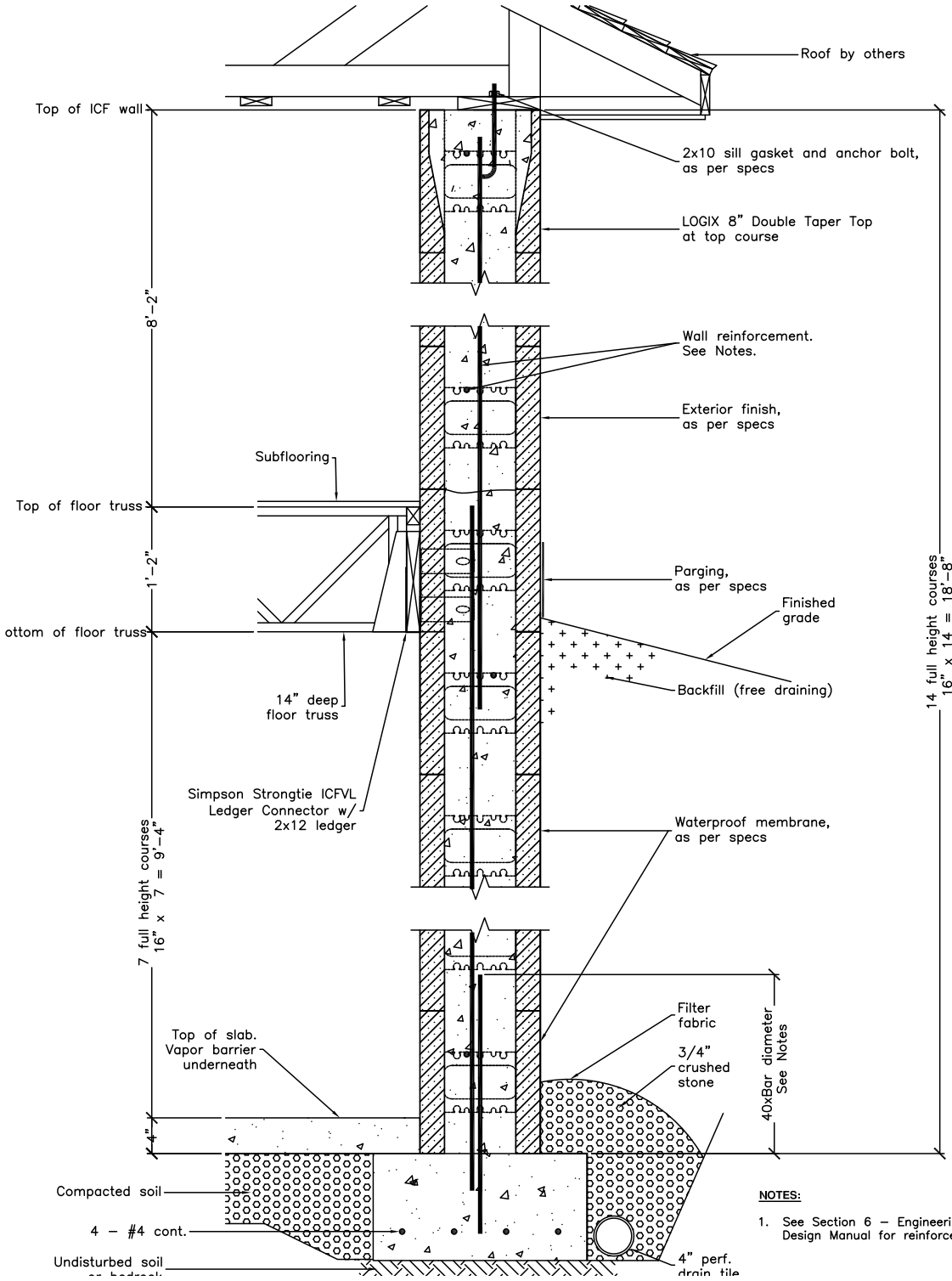
All drawings are downloadable at www.logixicf.com

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



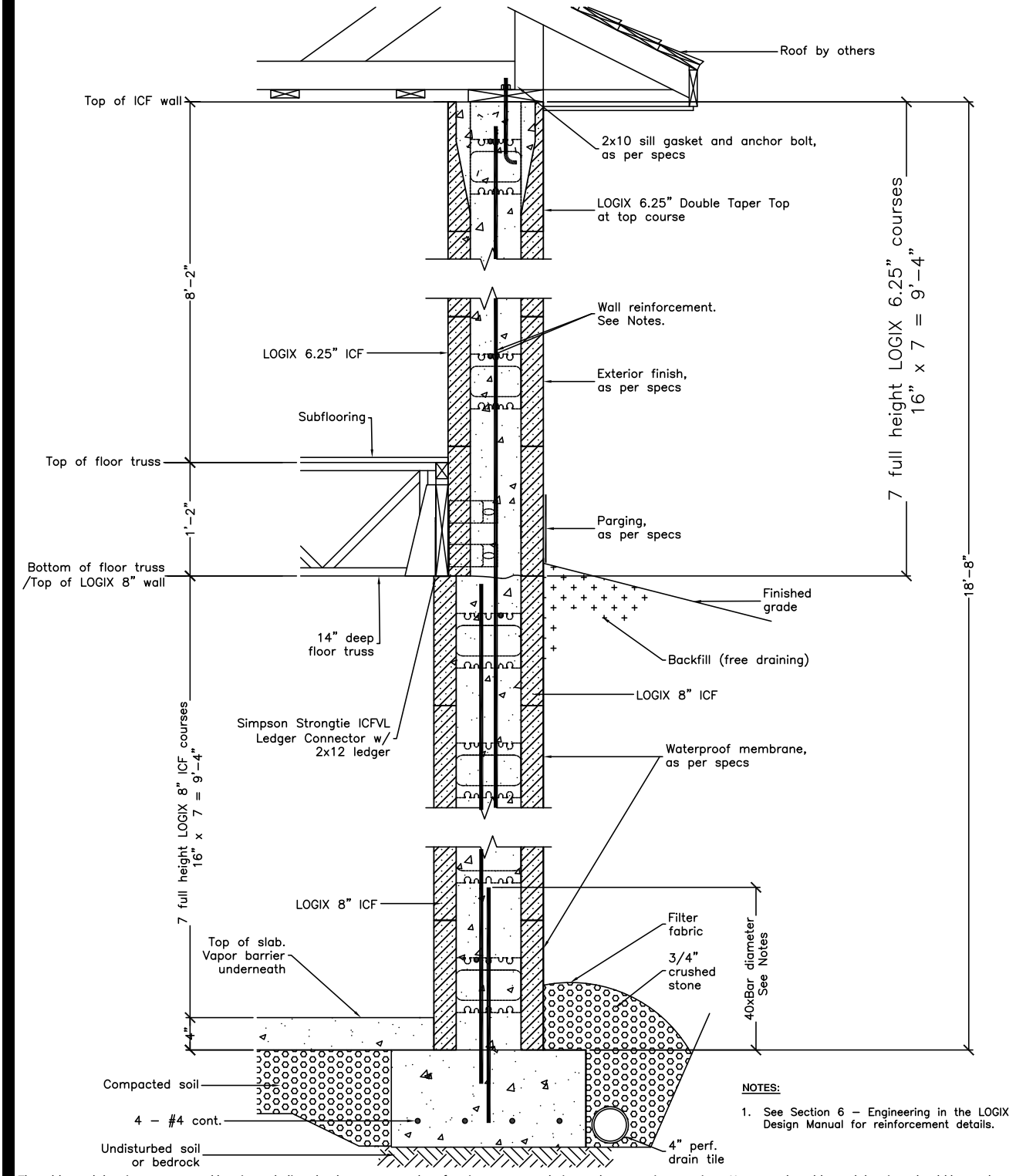
NOTES:

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

5.3.14 – 8" TO 6.25" TRANSITION

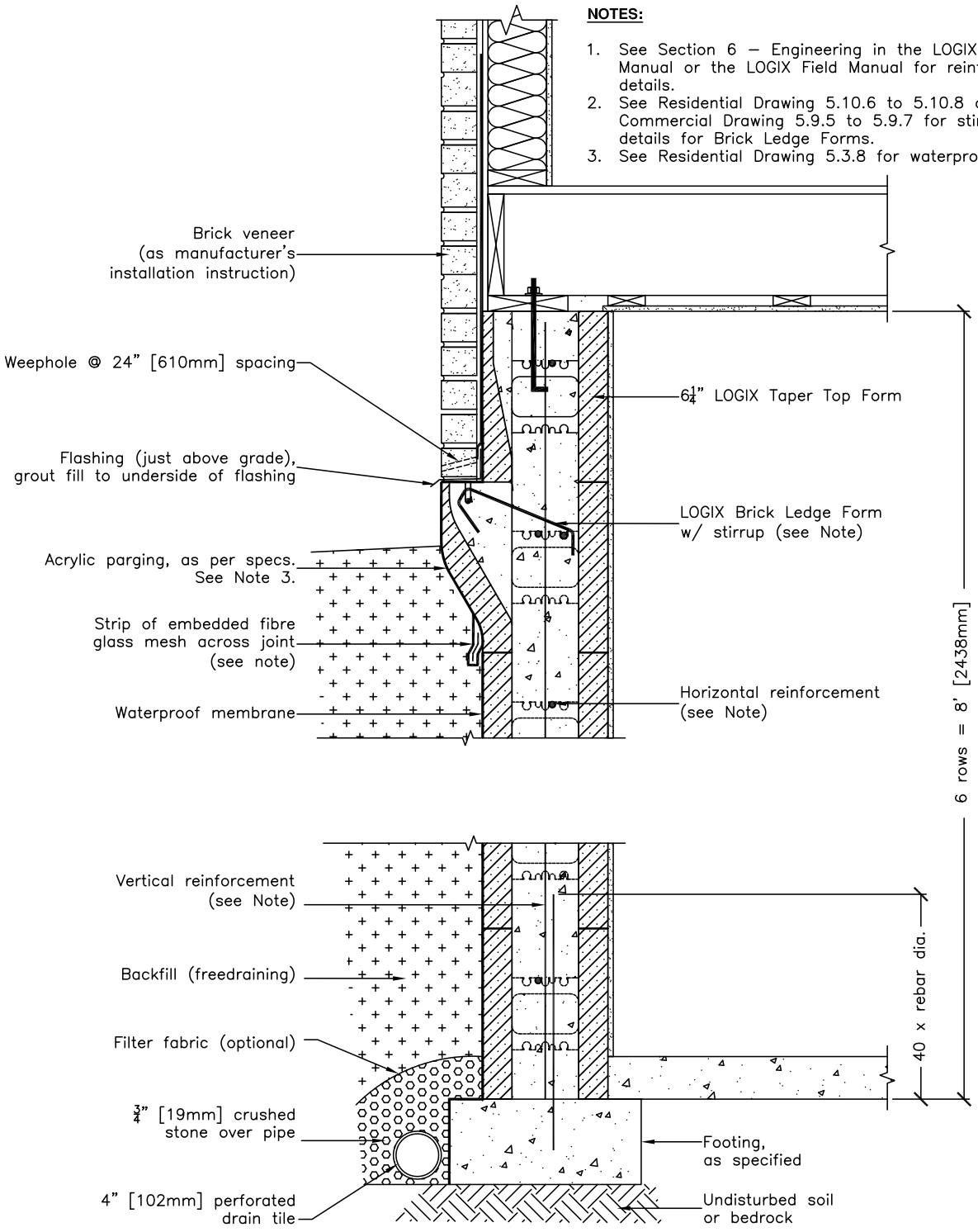
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



5.3.15 – 8' FOUNDATION WALL WITH BRICK LEDGE

All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

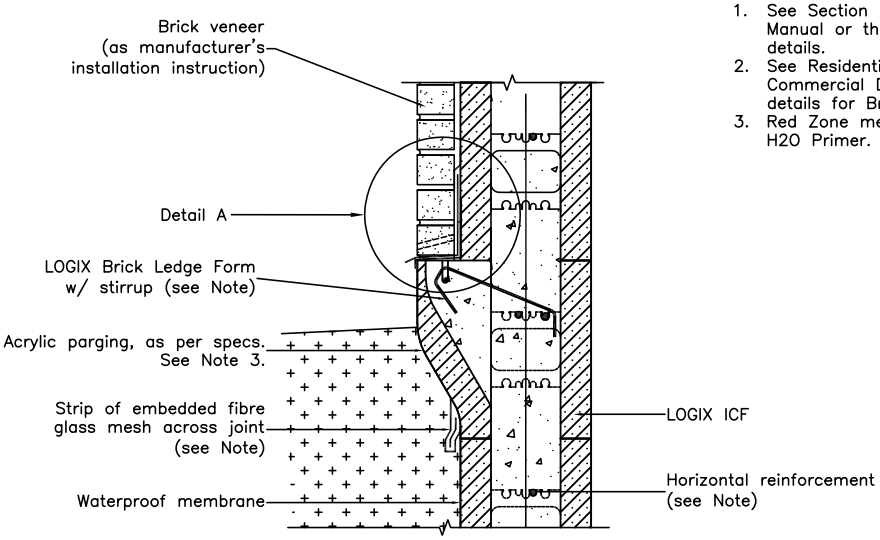
5.3.16 – BRICK LEDGE FLASHING DETAILS

All drawings are downloadable at www.logixicf.com

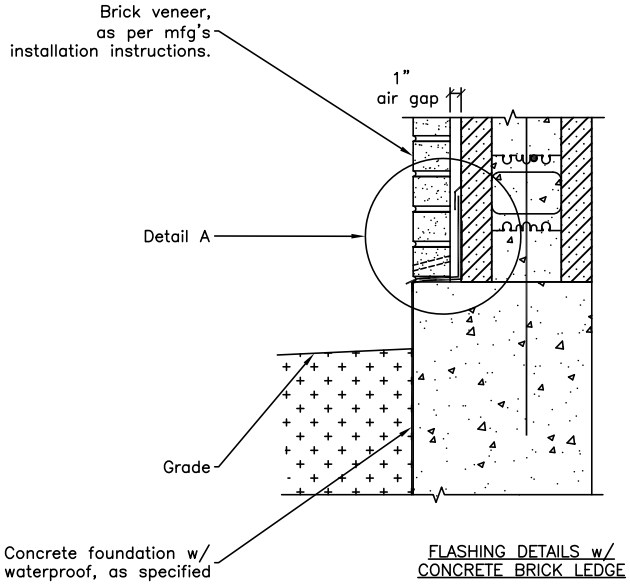
CAD DRAWINGS

NOTES:

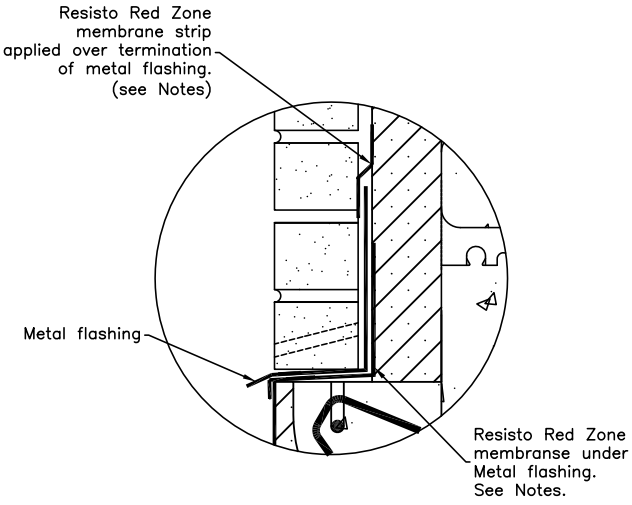
1. See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.
2. See Residential Drawing 5.10.6 to 5.10.8 or Commercial Drawing 5.9.5 to 5.9.7 for stirrup details for Brick Ledge Forms.
3. Red Zone membrane must be adhered with Resisto H2O Primer.



FLASHING DETAILS w/ LOGIX BRICK LEDGE



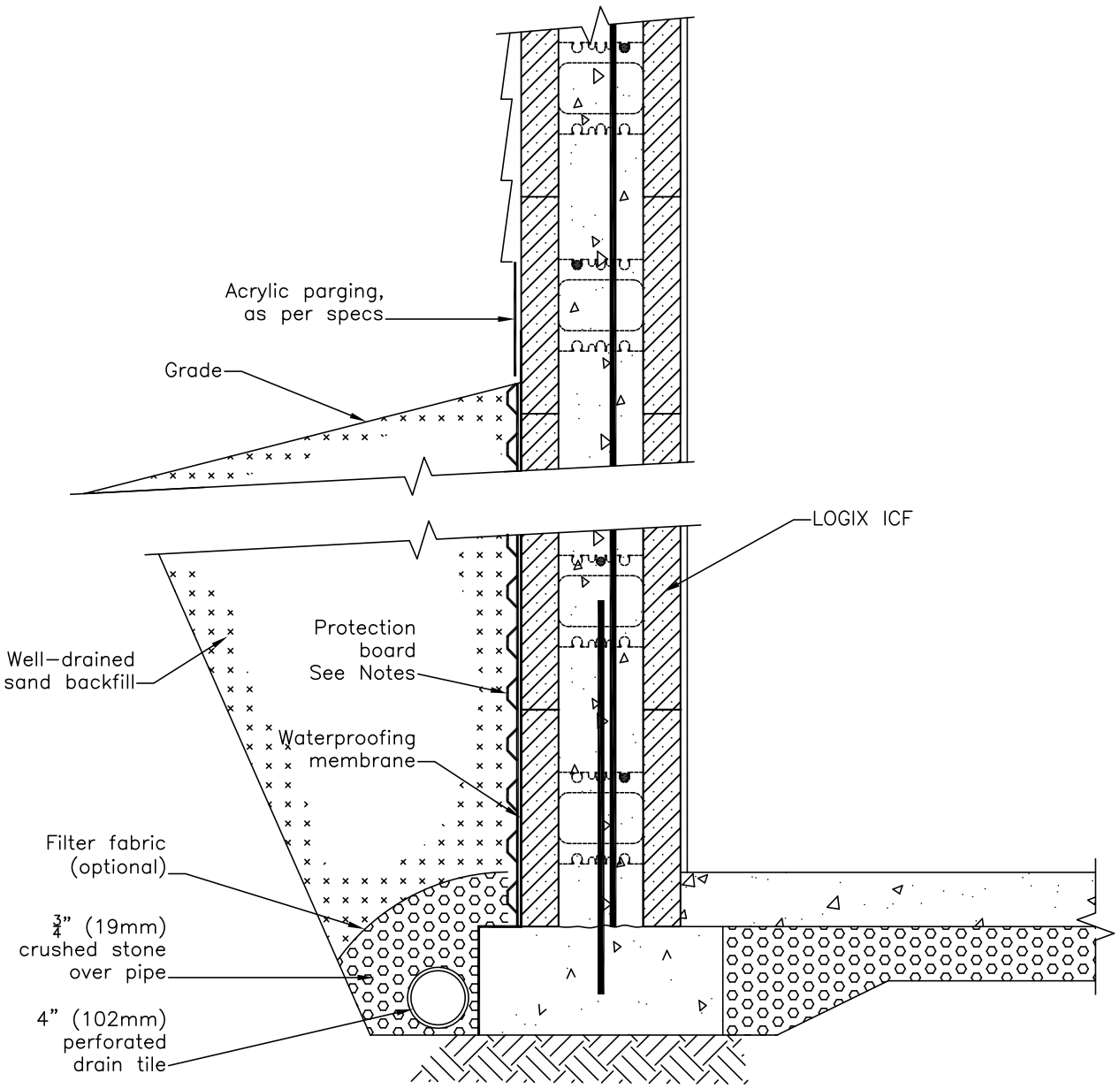
FLASHING DETAILS w/ CONCRETE BRICK LEDGE



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.

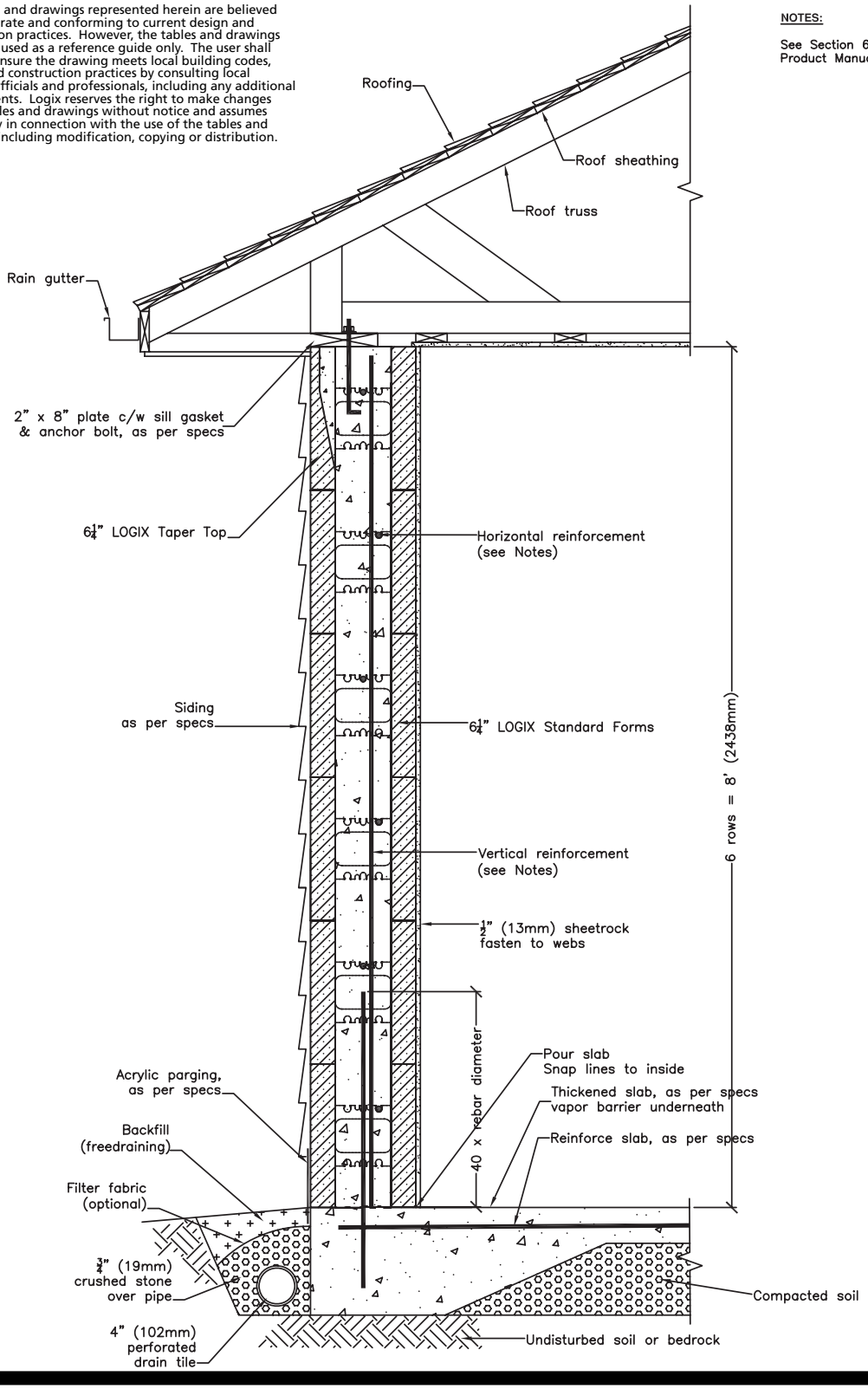
CAD DRAWINGS

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.



CAD DRAWINGS

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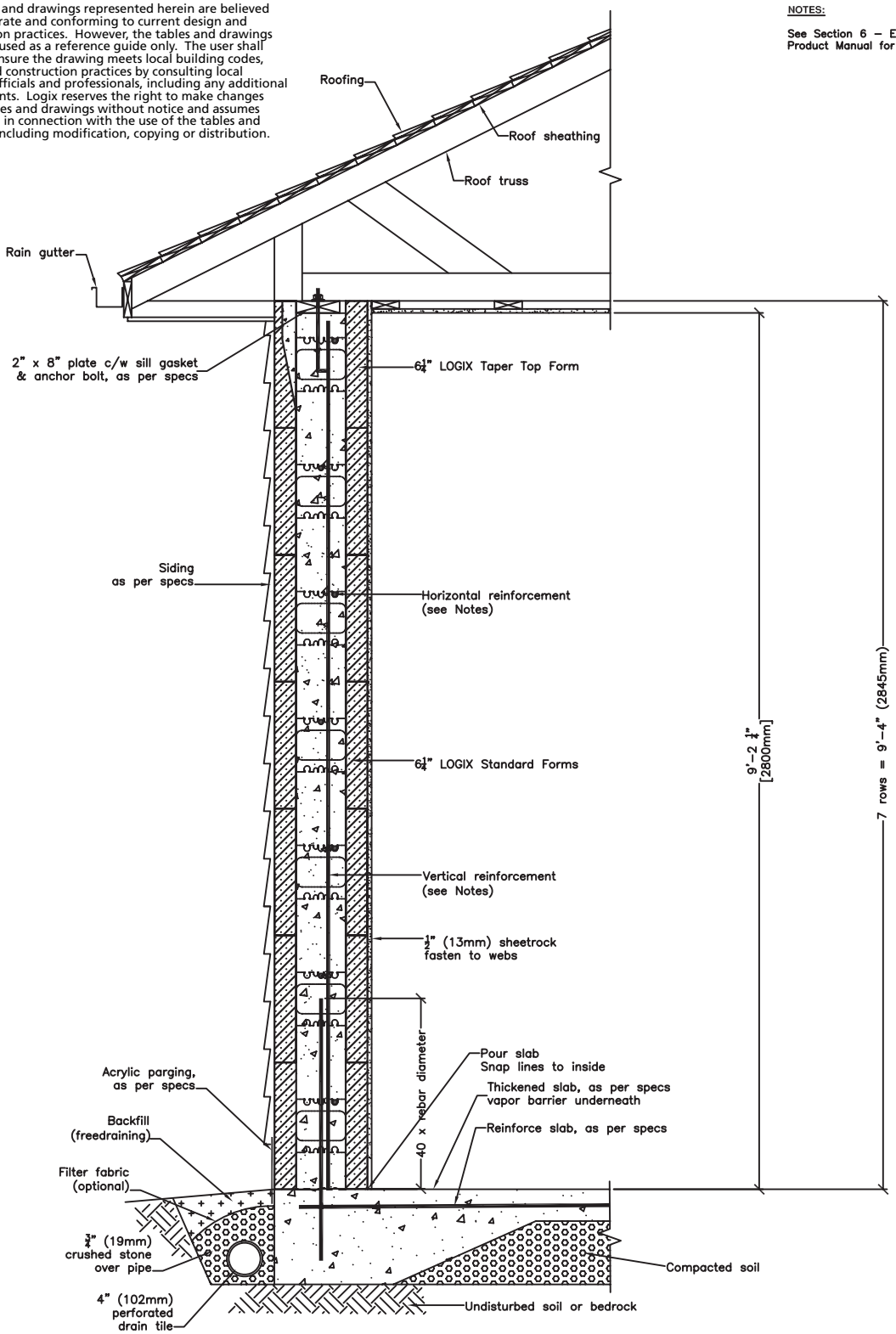
5.4.2 – 9'-4" SLAB ON GRADE

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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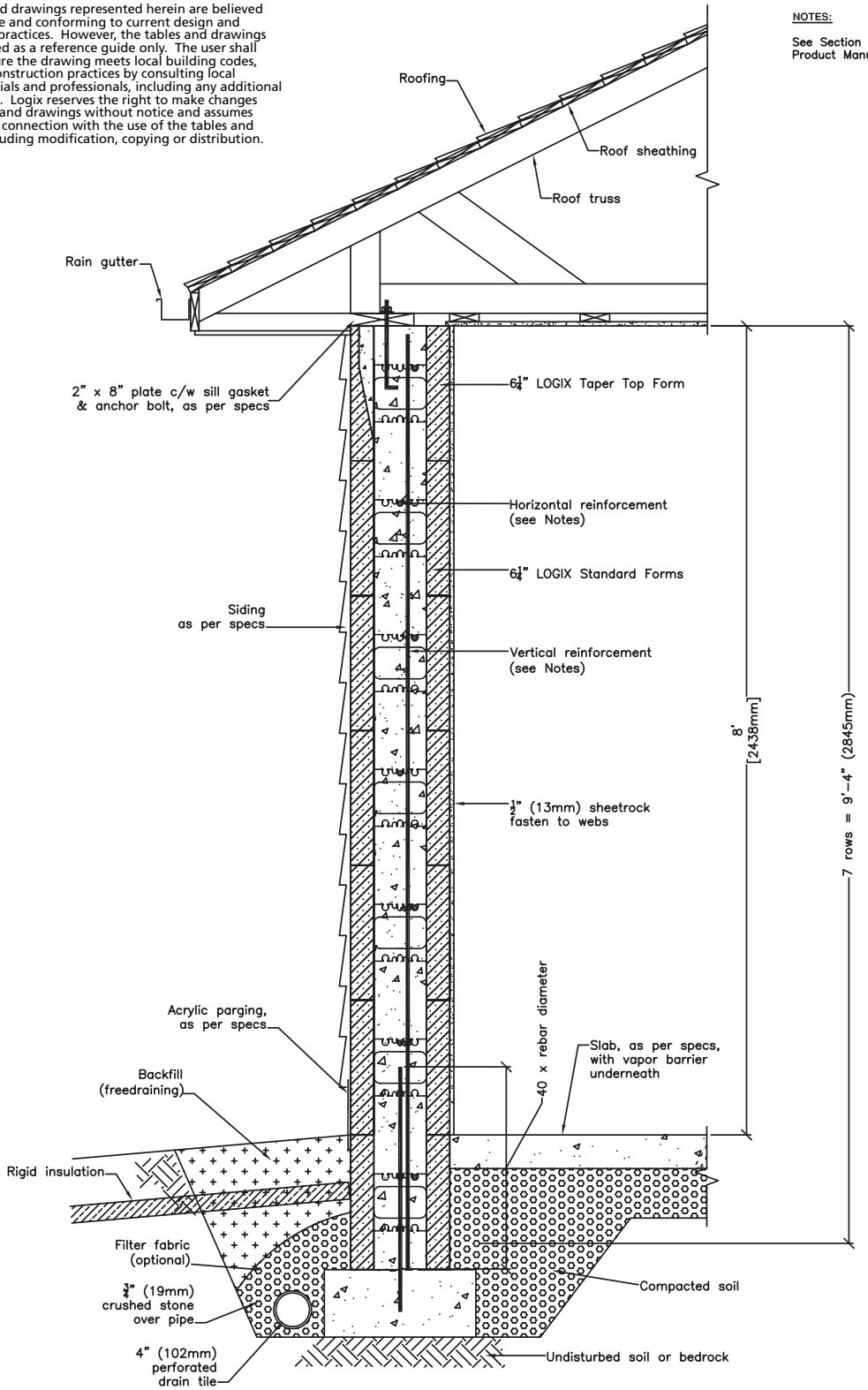
5.4.3 – 8’ SHALLOW FROST WALL

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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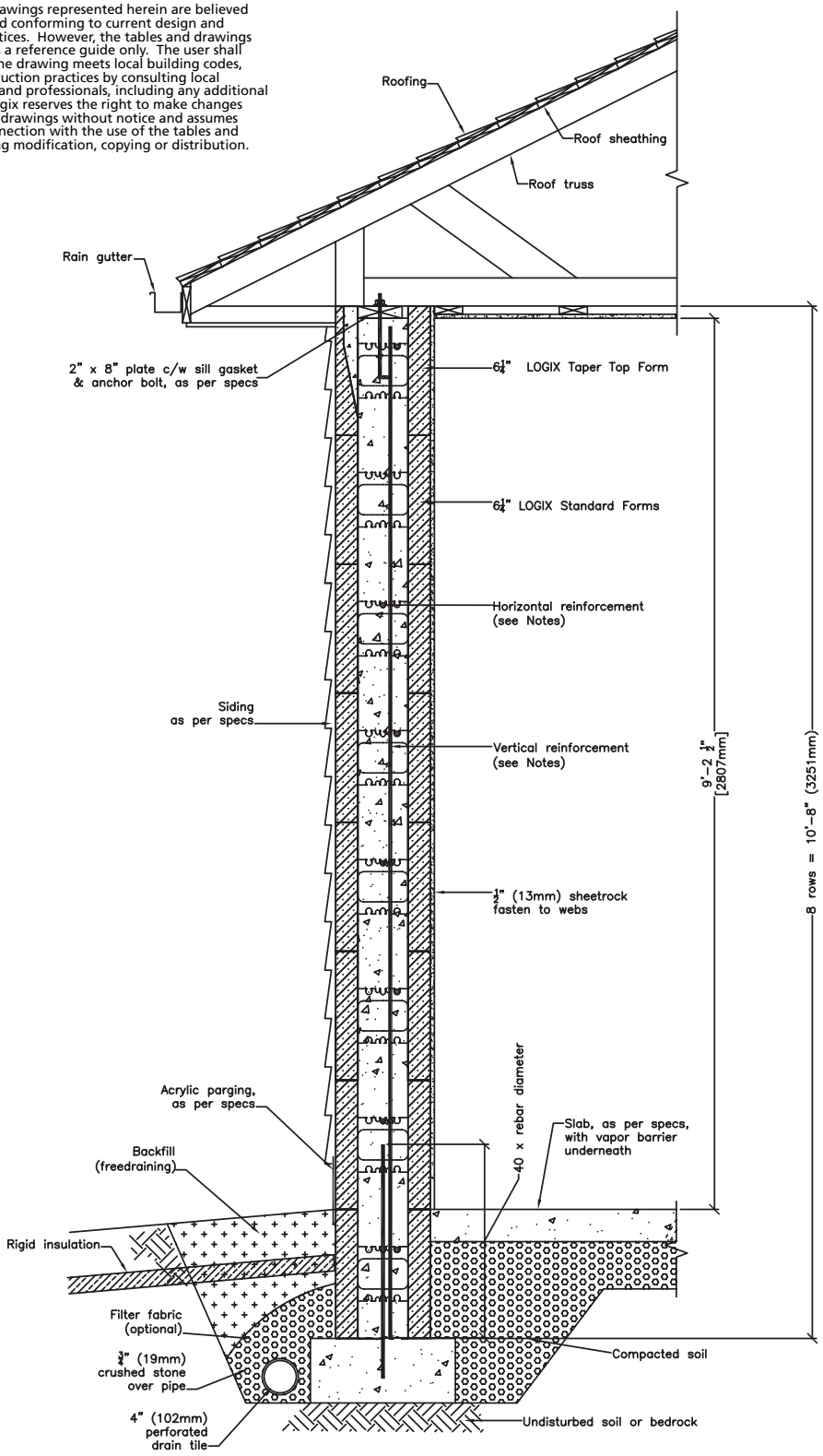
5.4.4 – 9' SHALLOW FROST WALL

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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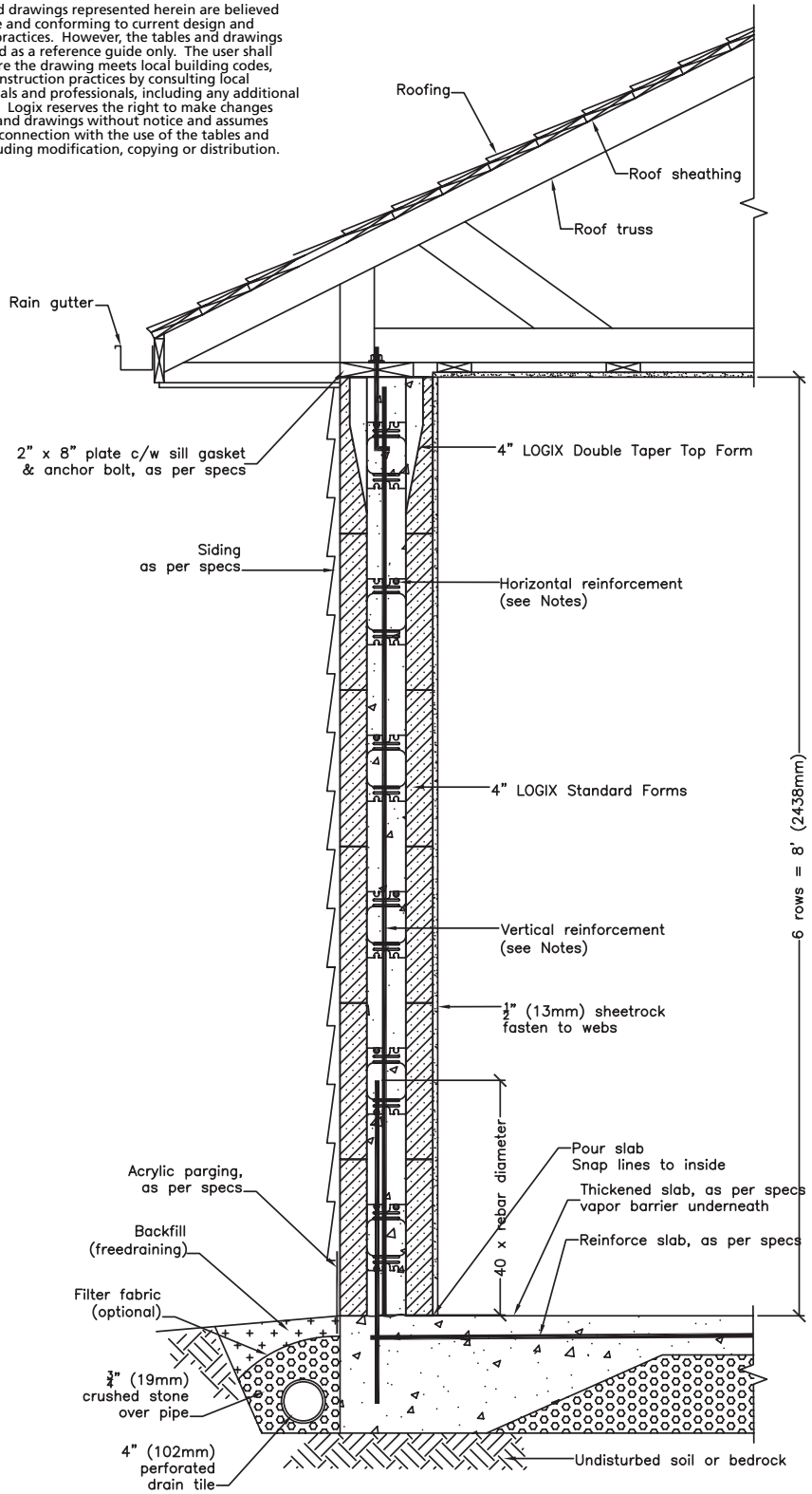
5.4.5 – 8’ WALL SLAB ON GRADE WITH DOUBLE TAPER TOP

All drawings are downloadable at www.logixicf.com

NOTES:

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



CAD DRAWINGS

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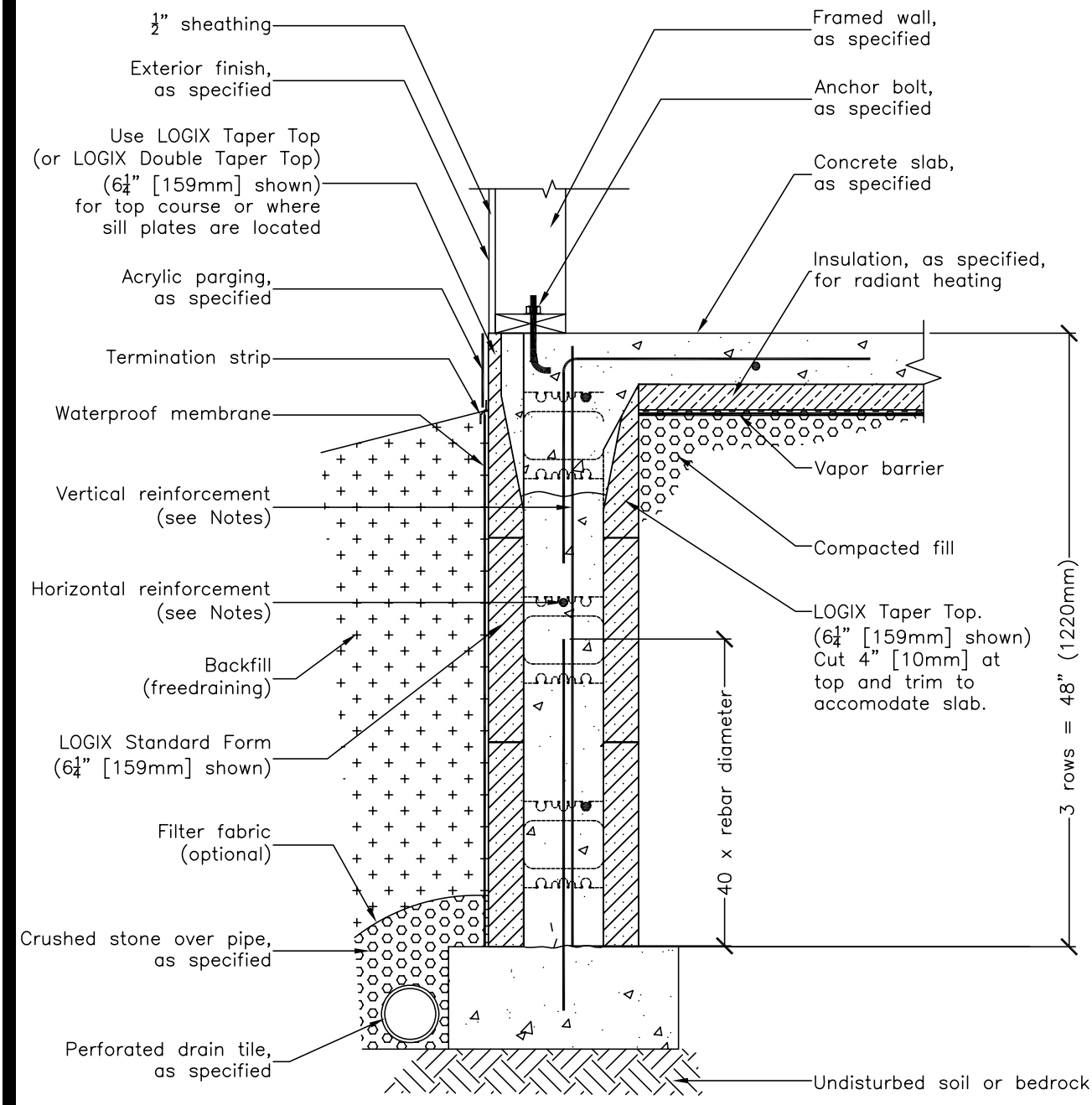
5.4.6 – SLAB ON GRADE WITH RADIANT HEATING

All drawings are downloadable at www.logixicf.com



NOTES:

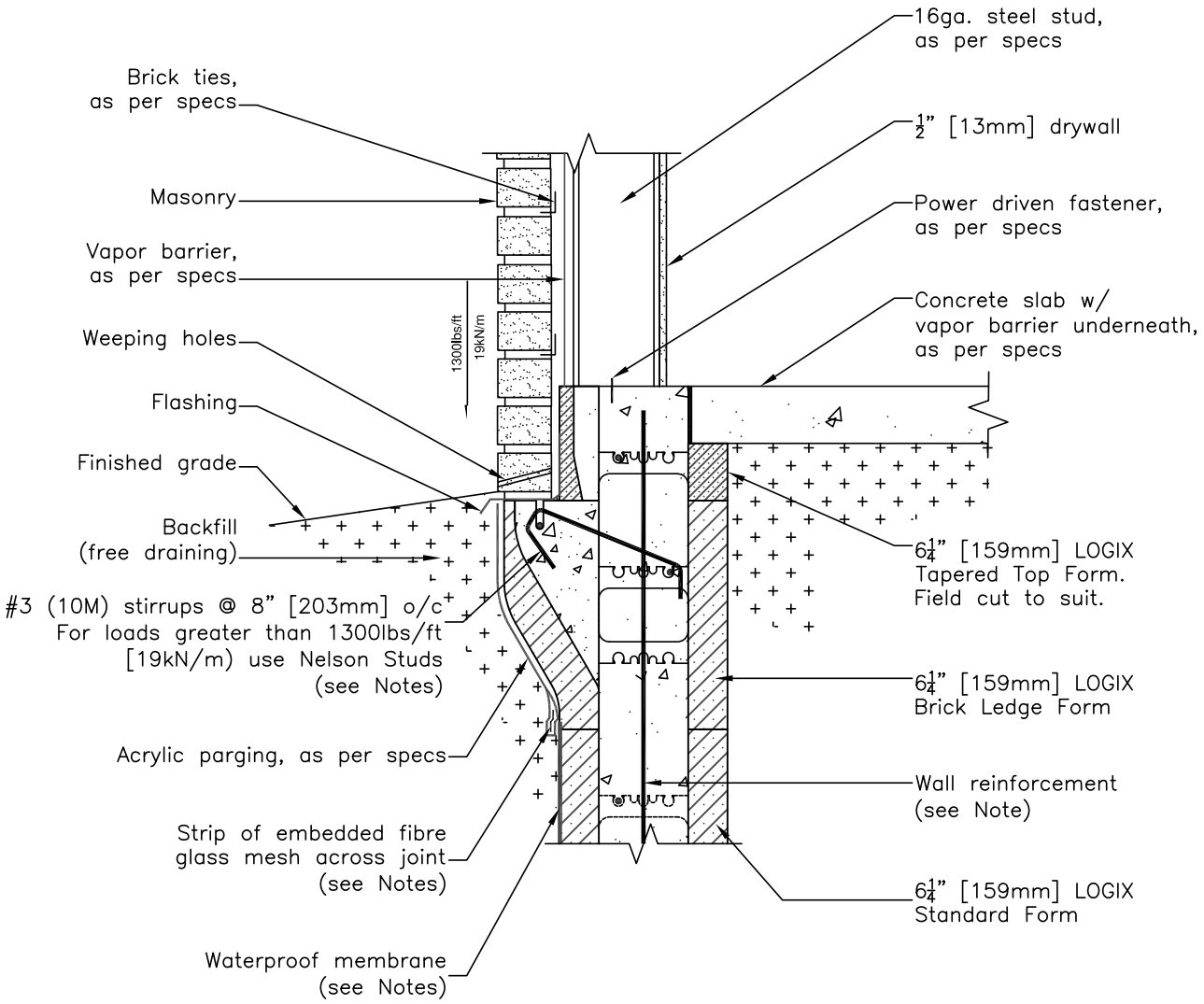
See Section 6 – Engineering in the LOGIX Product Manual for wall reinforcement details.

CAD DRAWINGS

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

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

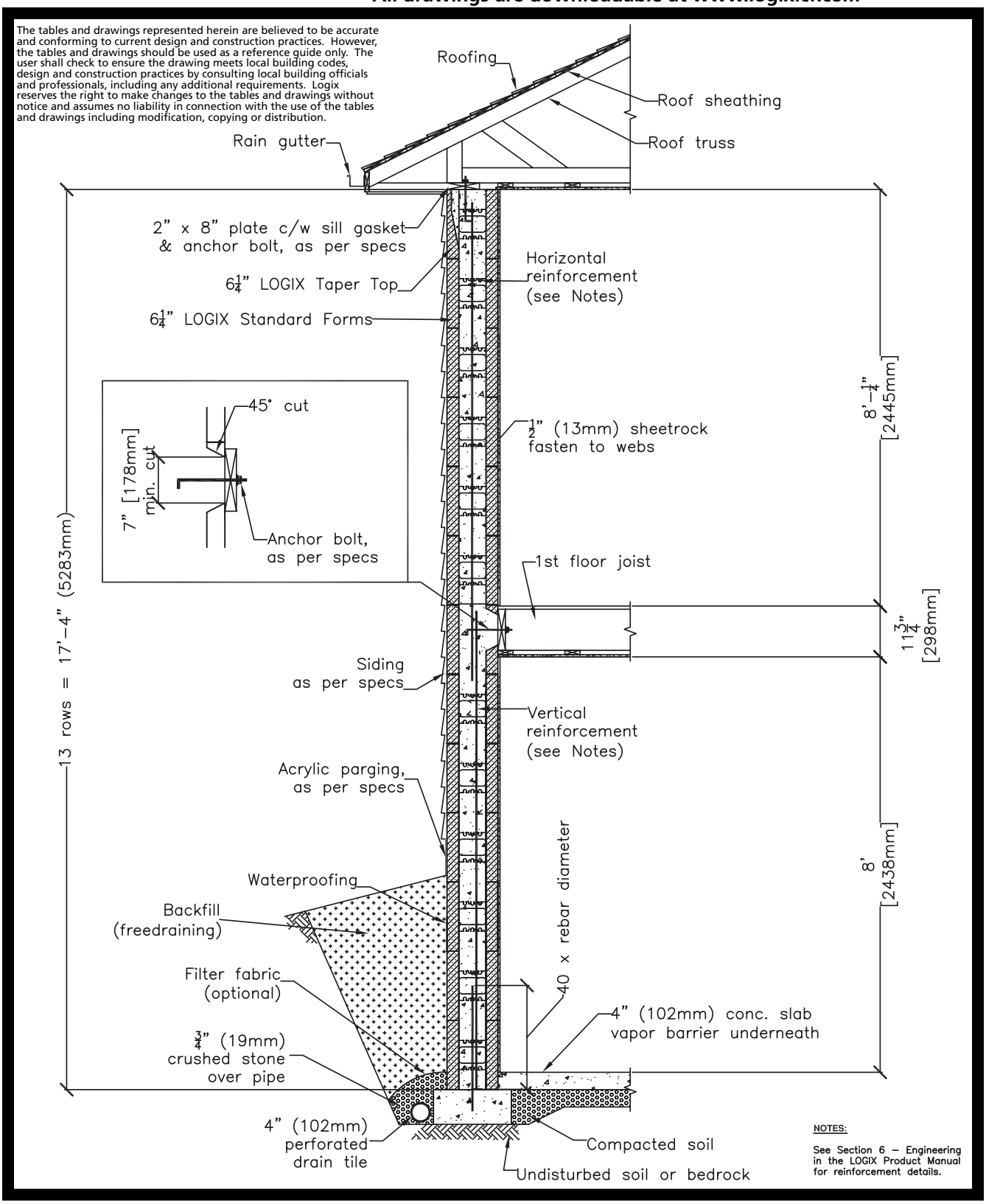


NOTES:

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



CAD DRAWINGS

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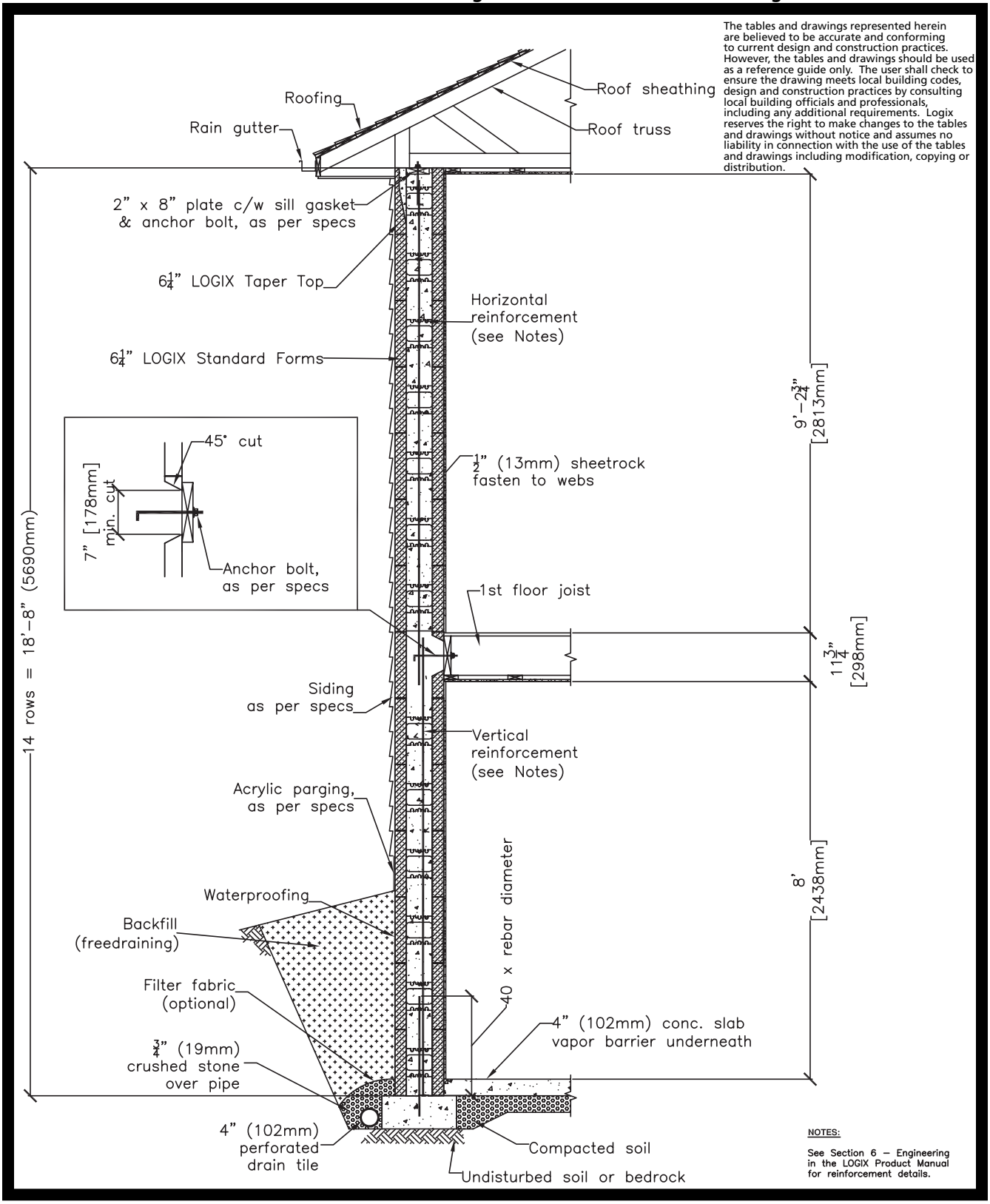
5.5.2 – 8’ FOUNDATION WALL/9’ MAIN FLOOR

All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

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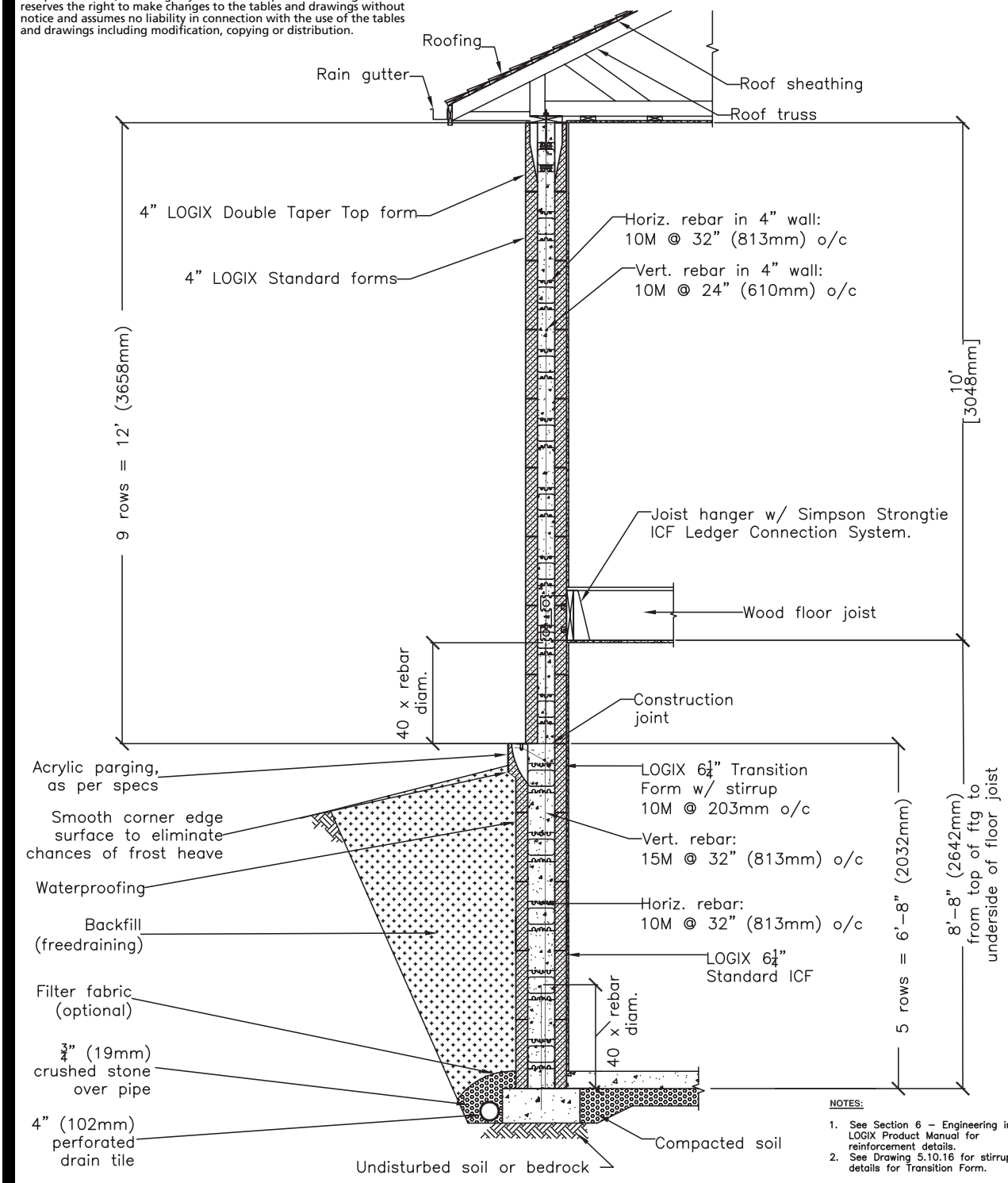
5.5.3 - 8'-8" FOUNDATION WALL/ 10' MAIN FLOOR

All drawings are downloadable at www.logixicf.com



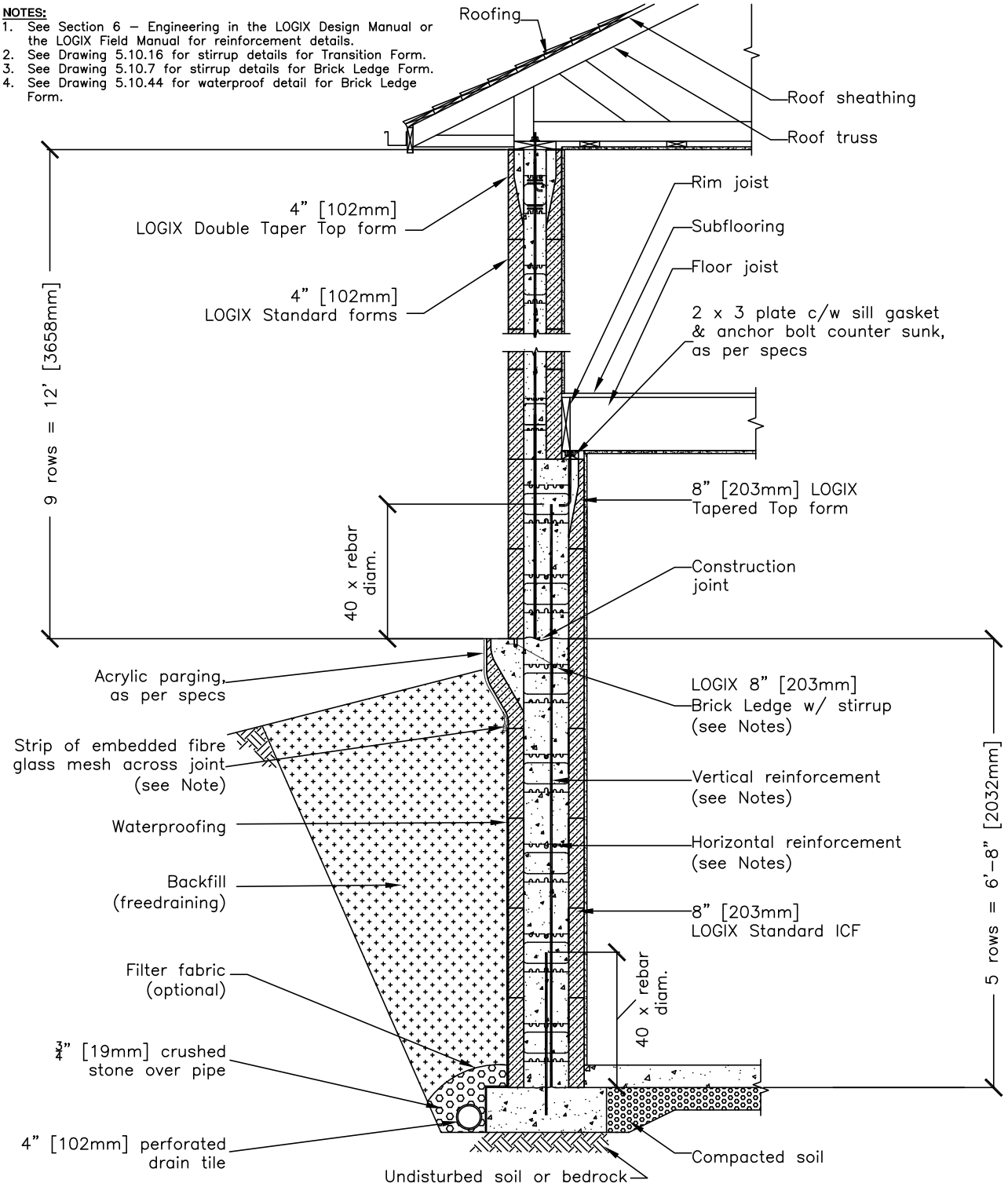
CAD DRAWINGS

5.5.4 - 8" TO 4" TRANSITION WALL SECTION

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

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.

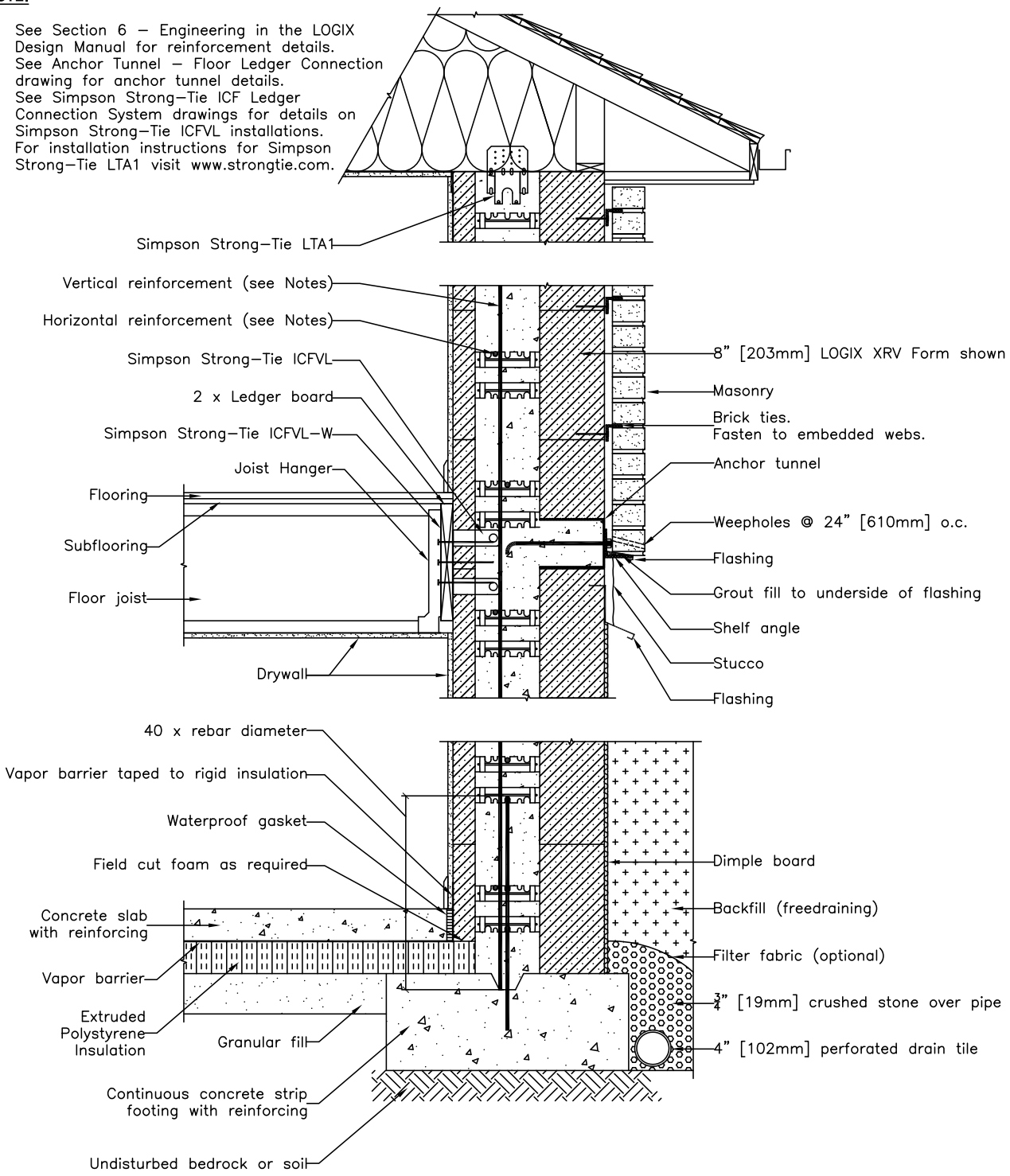


5.5.5 - ONE STOREY WALL SECTION WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

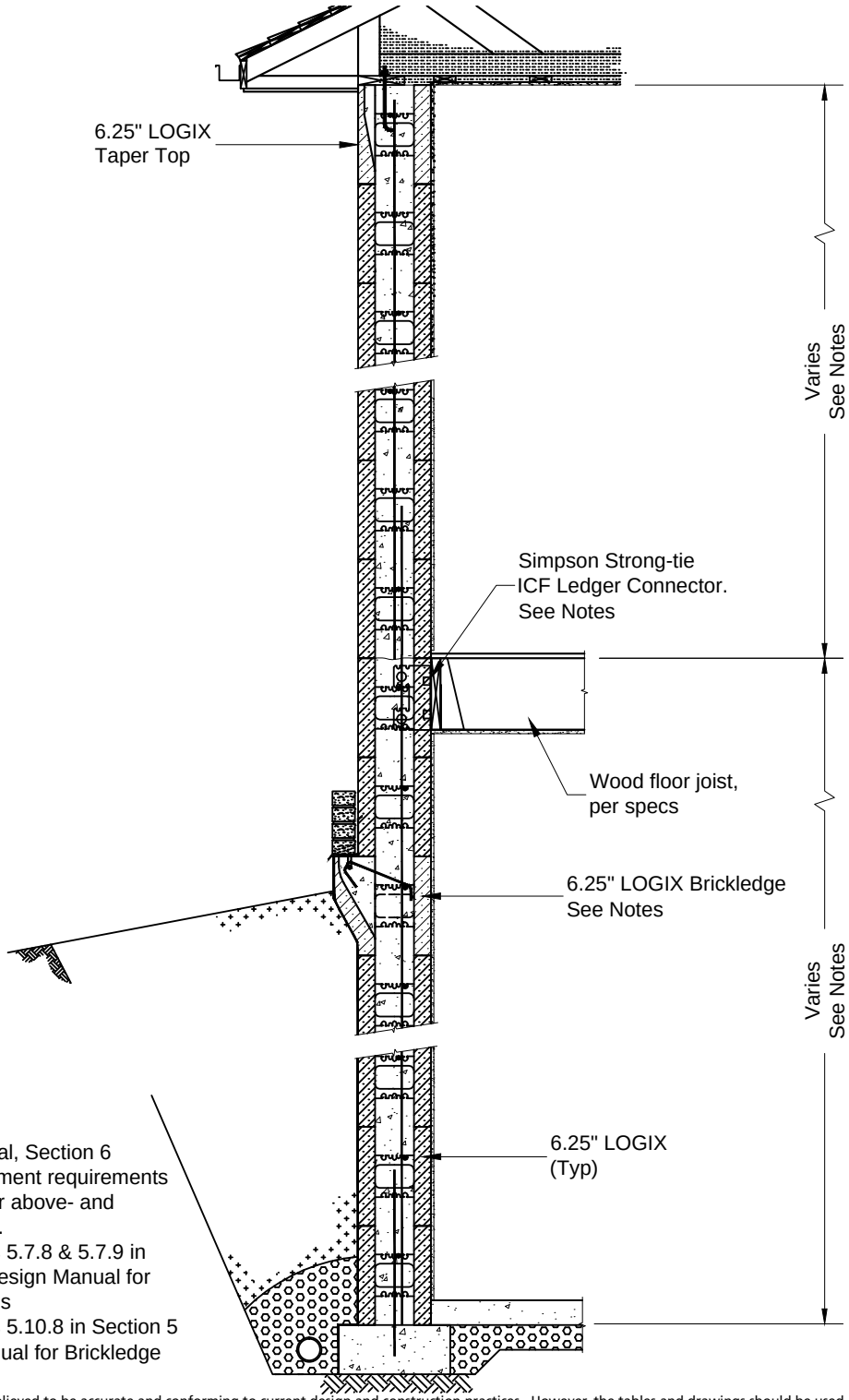
NOTE:

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

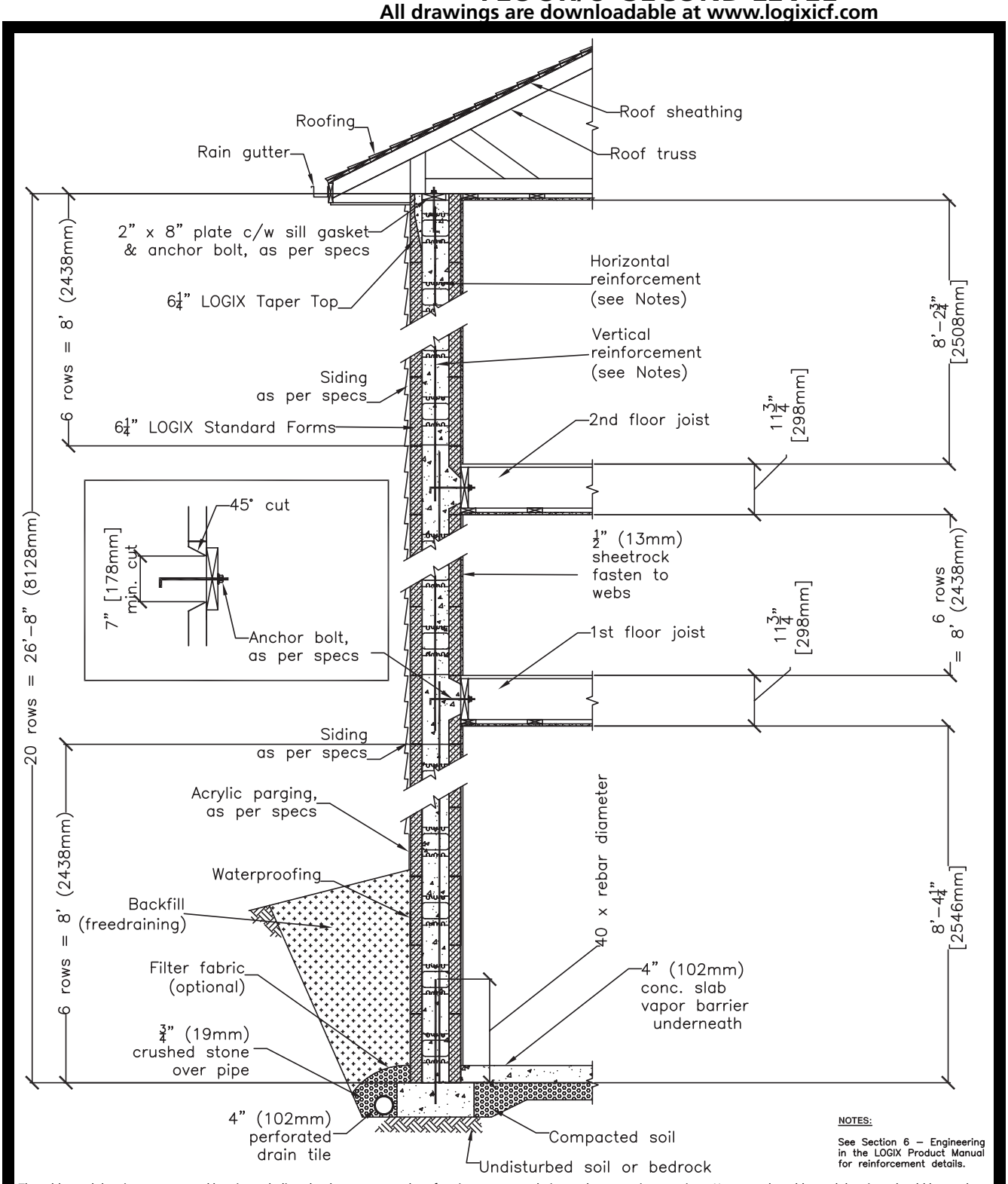


NOTES:

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

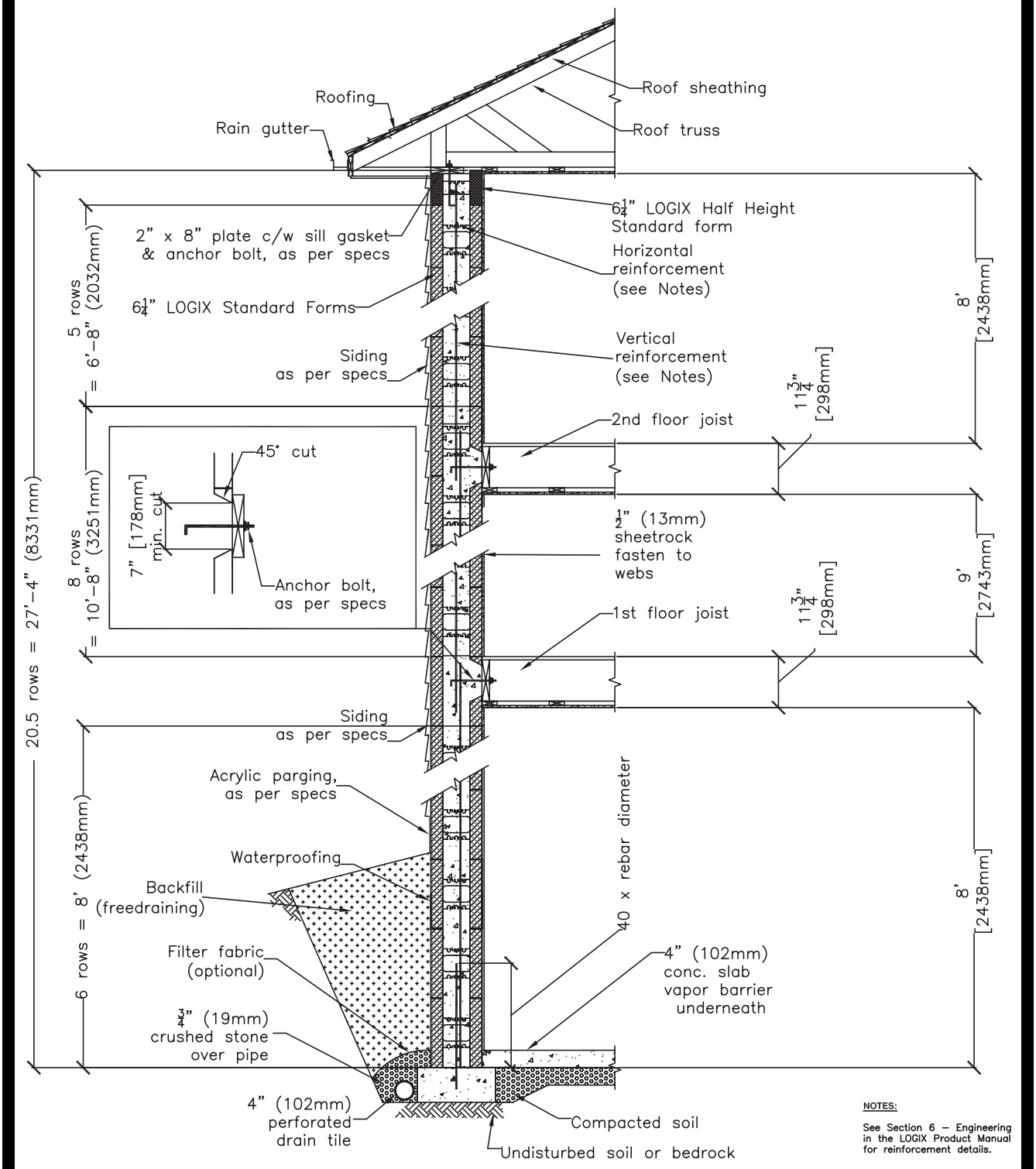


CAD DRAWINGS

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

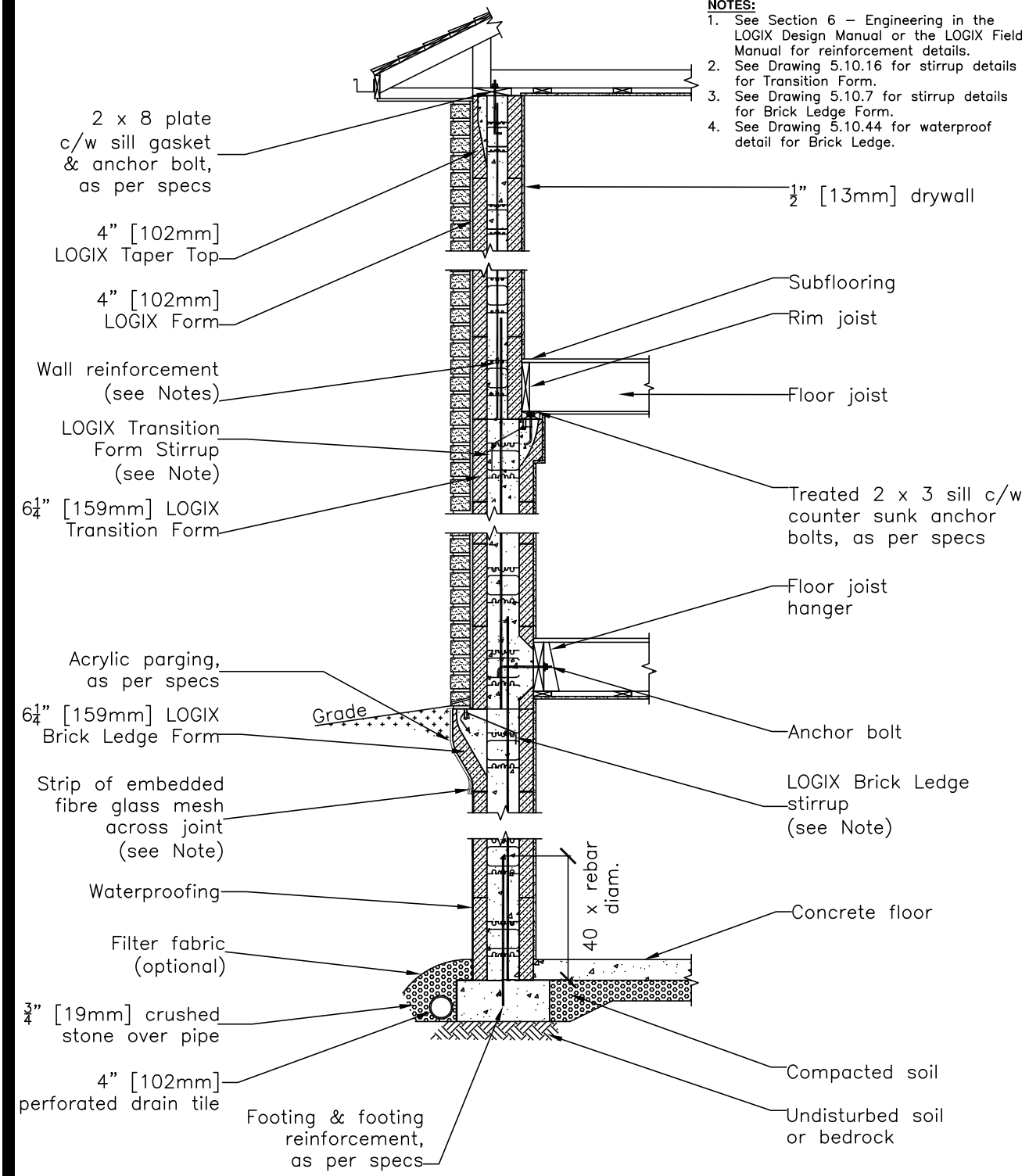
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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

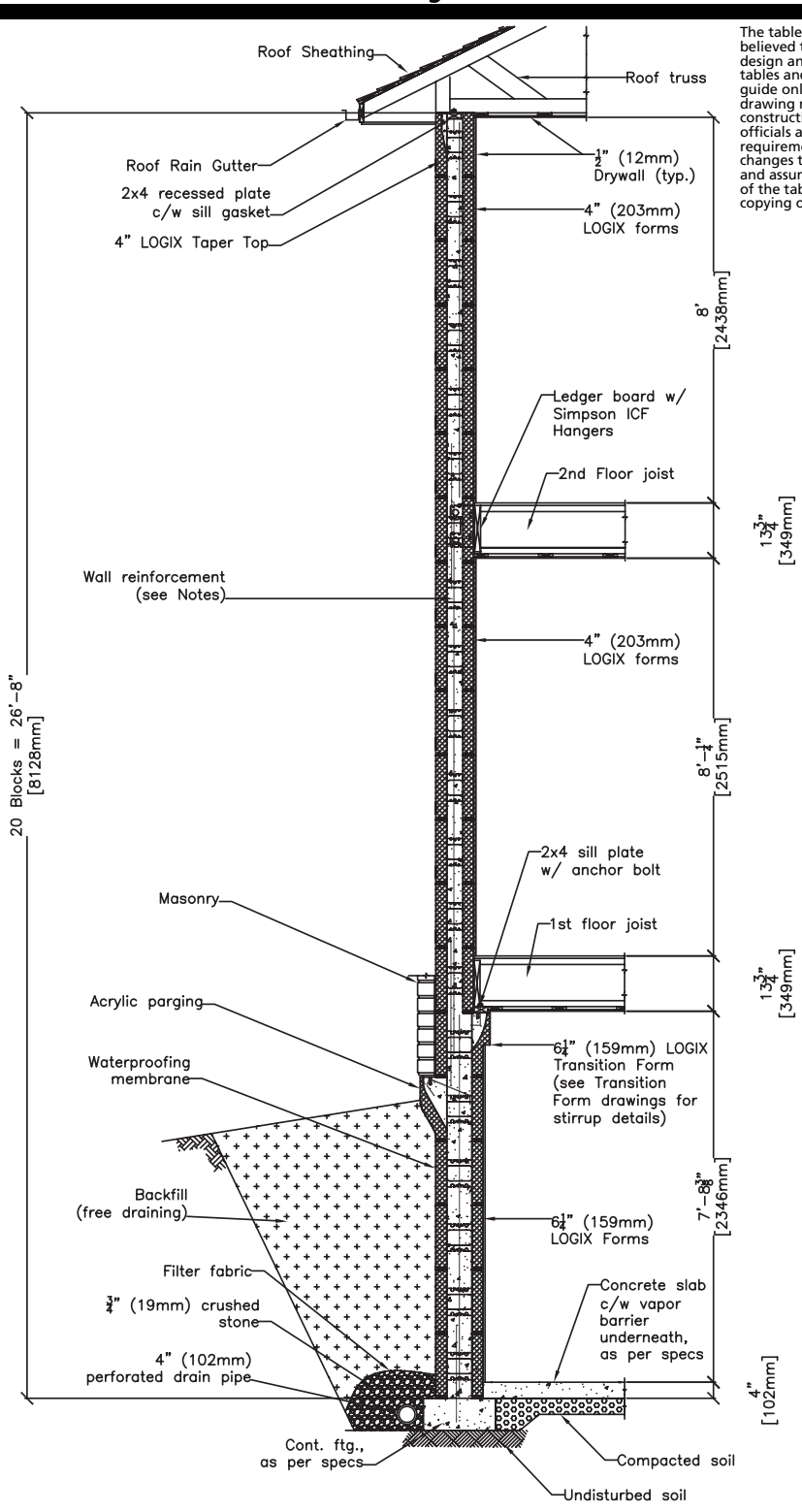
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

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

All drawings are downloadable at www.logixicf.com



NOTES:

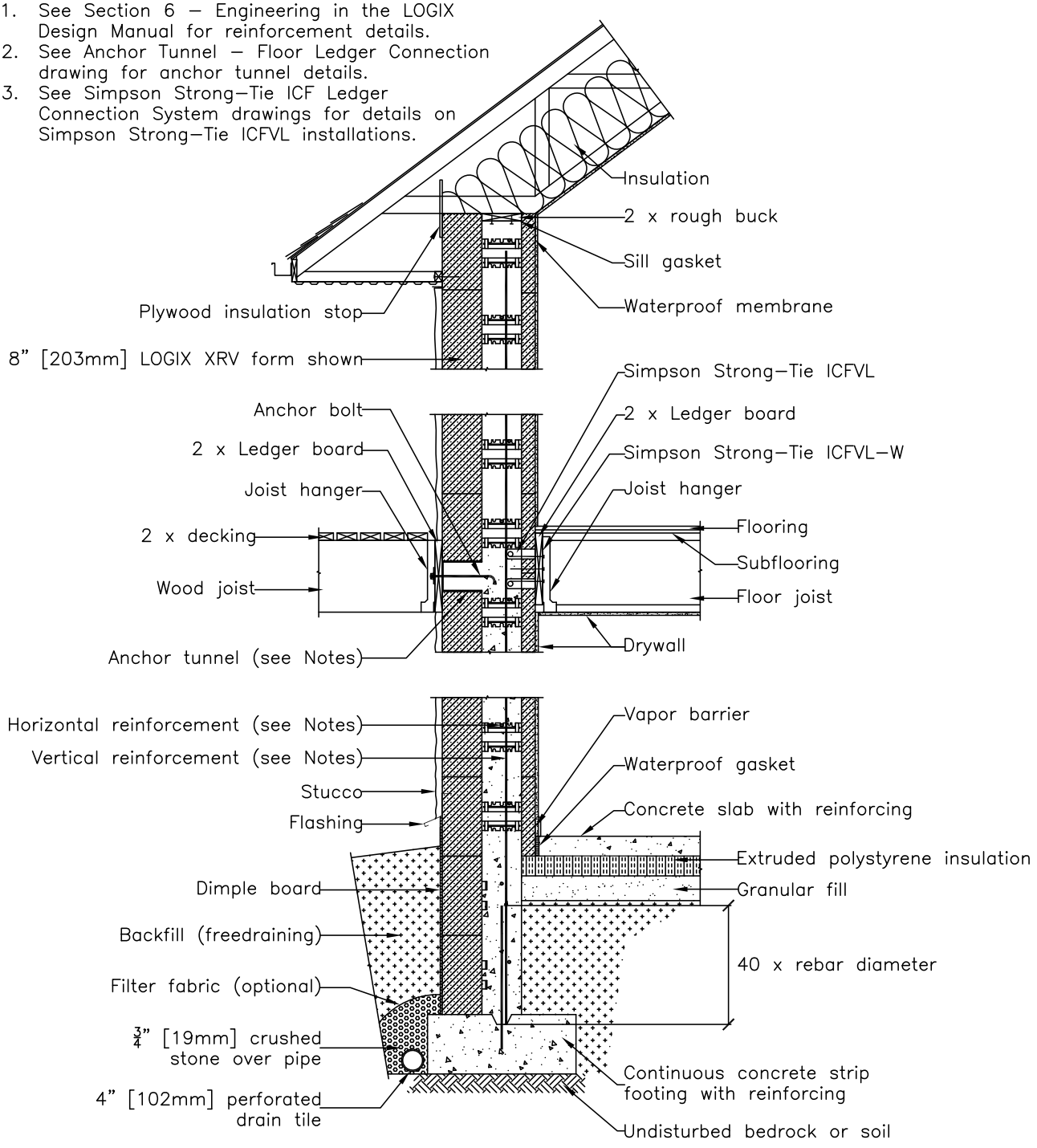
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.5 - TWO STOREY WALL SECTION WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

NOTE:

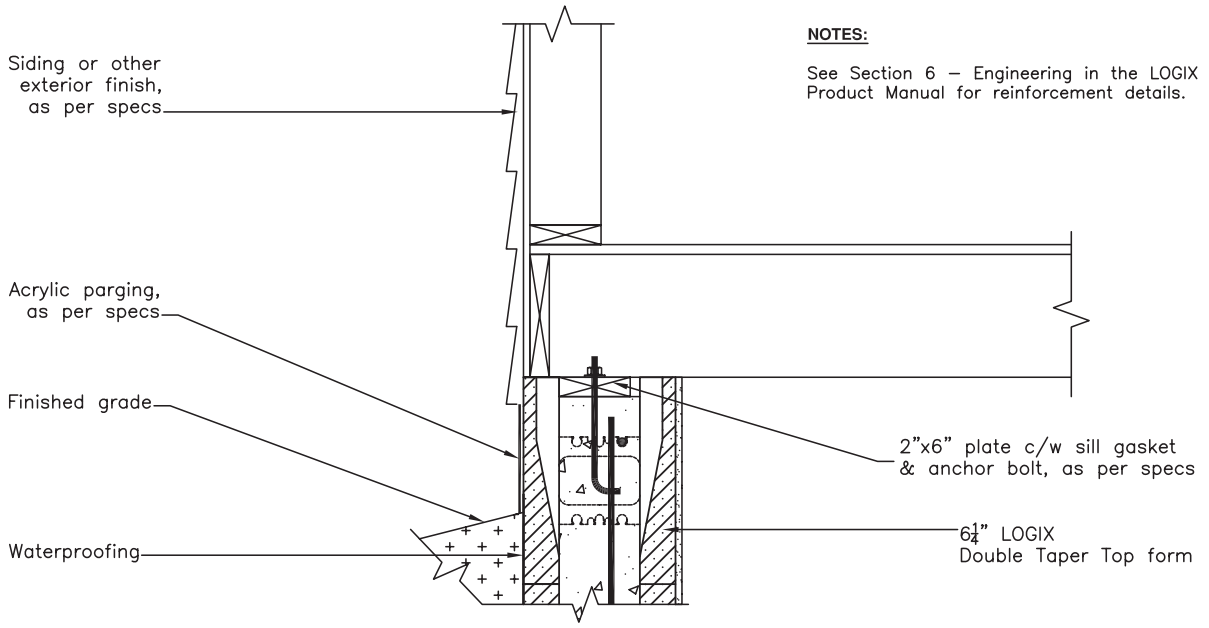
1. See Section 6 – Engineering in the LOGIX Design Manual for reinforcement details.
2. See Anchor Tunnel – Floor Ledger Connection drawing for anchor tunnel details.
3. See Simpson Strong–Tie ICF Ledger Connection System drawings for details on Simpson Strong–Tie ICFVL installations.



5.7 – FLOOR CONNECTIONS

5.7.1 – 2x6 TOP PLATE RECESSED WITH DOUBLE TAPER TOP

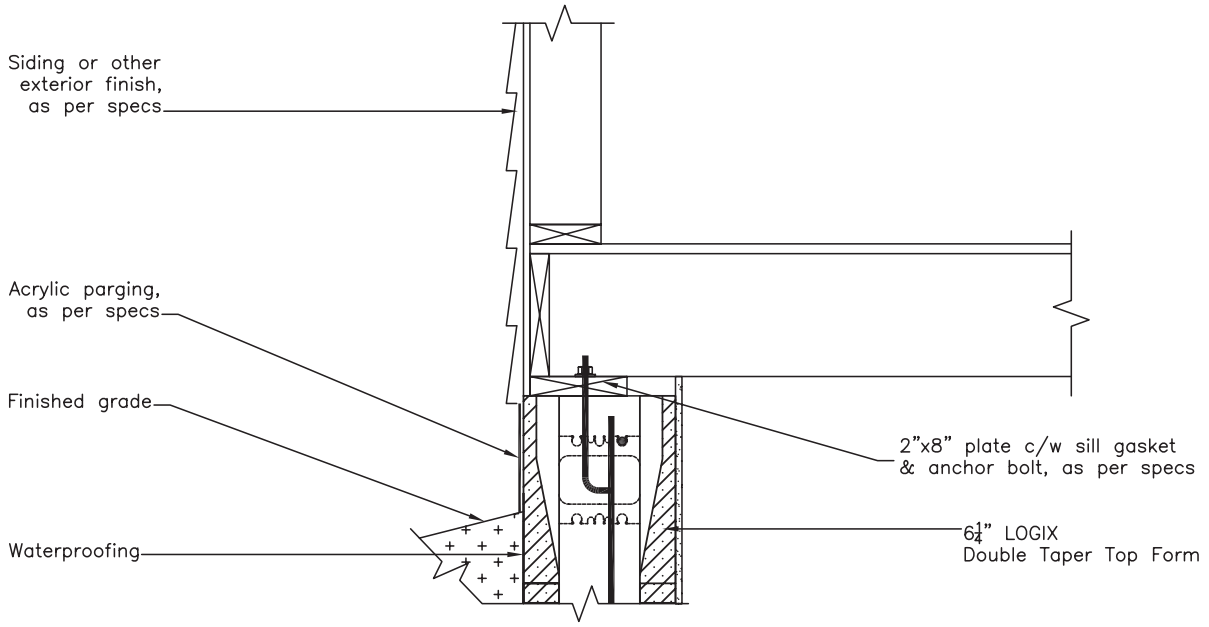
5.7.2 – 2x8 TOP PLATE OVERHUNG WITH DOUBLE TAPER TOP



NOTES:

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

2x6 TOP PLATE RECESSED

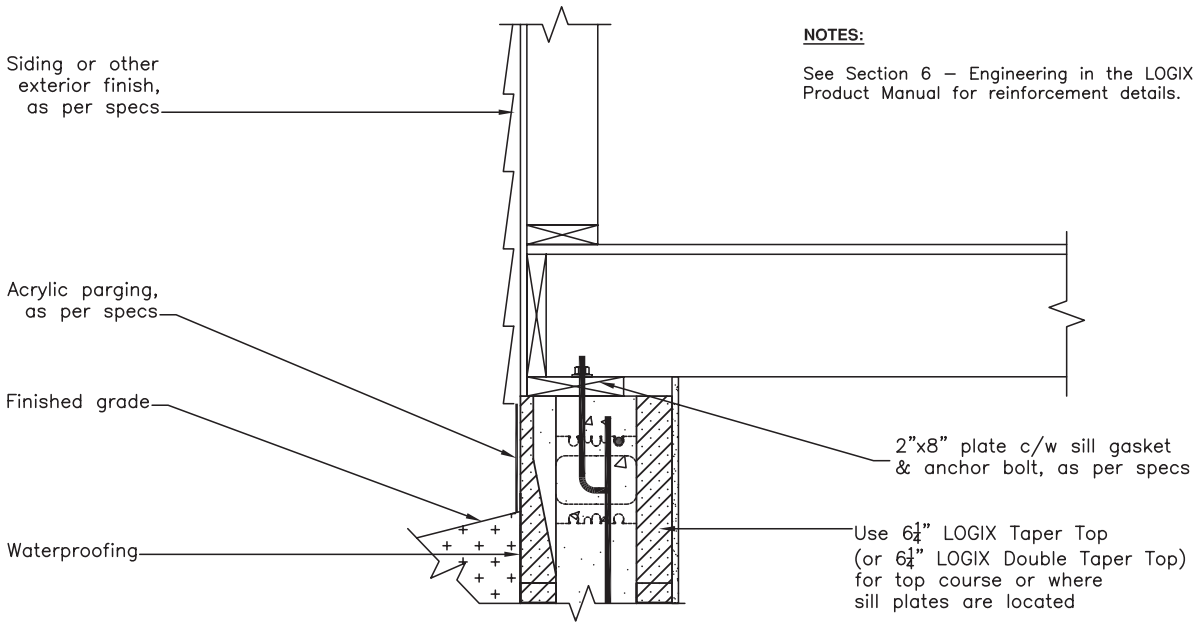


2x8 TOP PLATE OVERHUNG

5.7.3 – 2x8 TOP PLATE OVERHUNG WITH TAPER TOP

5.7.4 – MASONRY VENEER WITH TAPER TOP

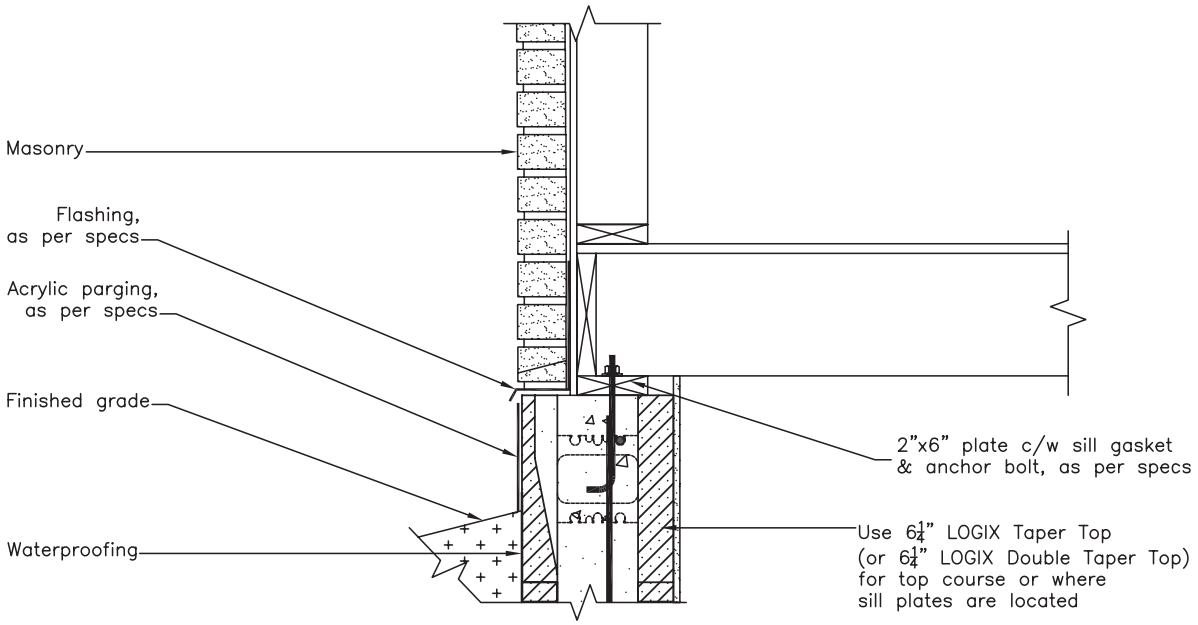
All drawings are downloadable at www.logixicf.com



NOTES:

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

2x8 TOP PLATE OVERHUNG WITH TAPERED TOP FORM

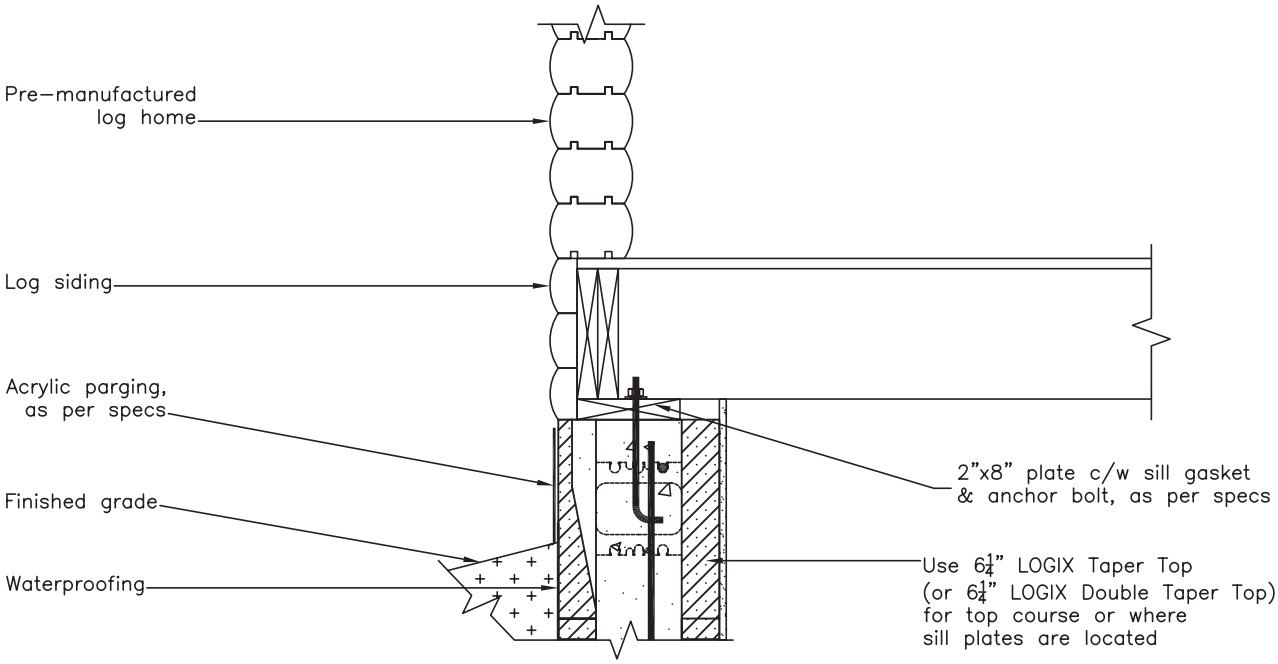


2x6 TOP PLATE OVERHUNG WITH MASONRY AND TAPERED TOP FORM

5.7.5 – TAPER TOP WITH LOG HOME

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



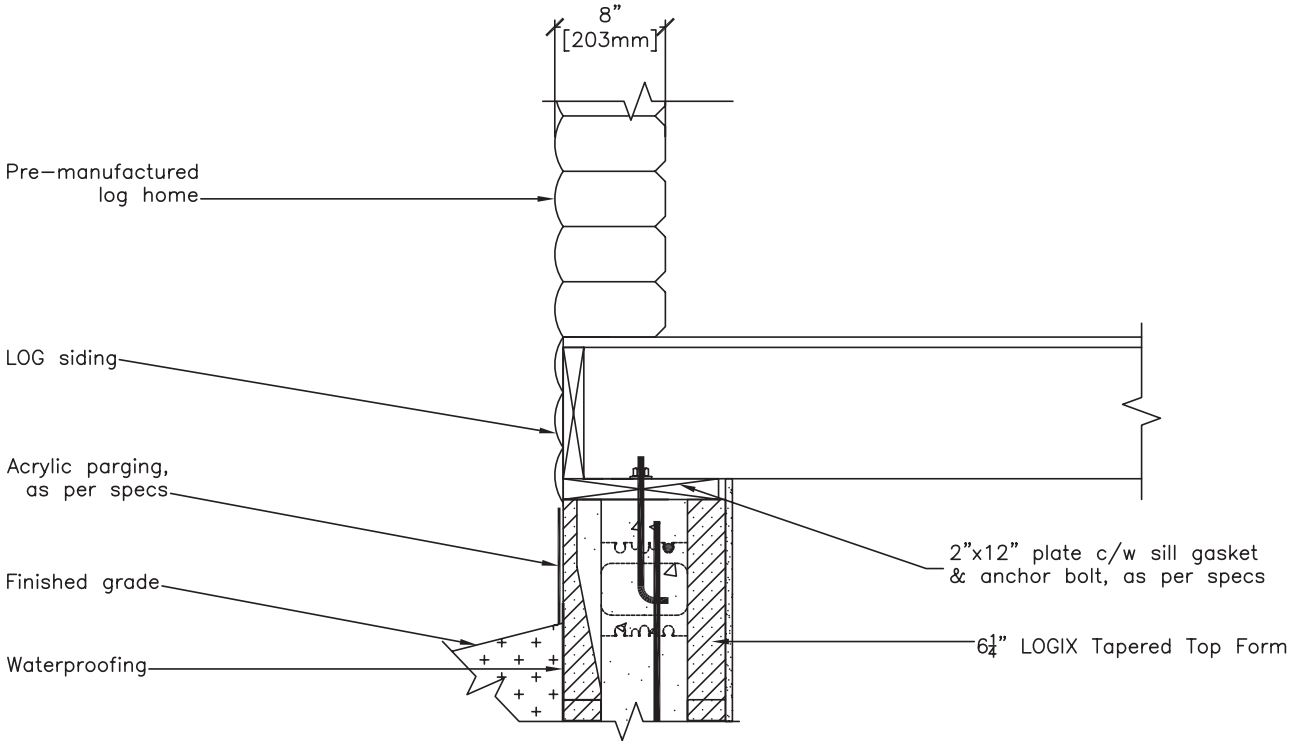
LOG HOME ON 2x8 SILL PLATE & TAPER TOP FORM

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

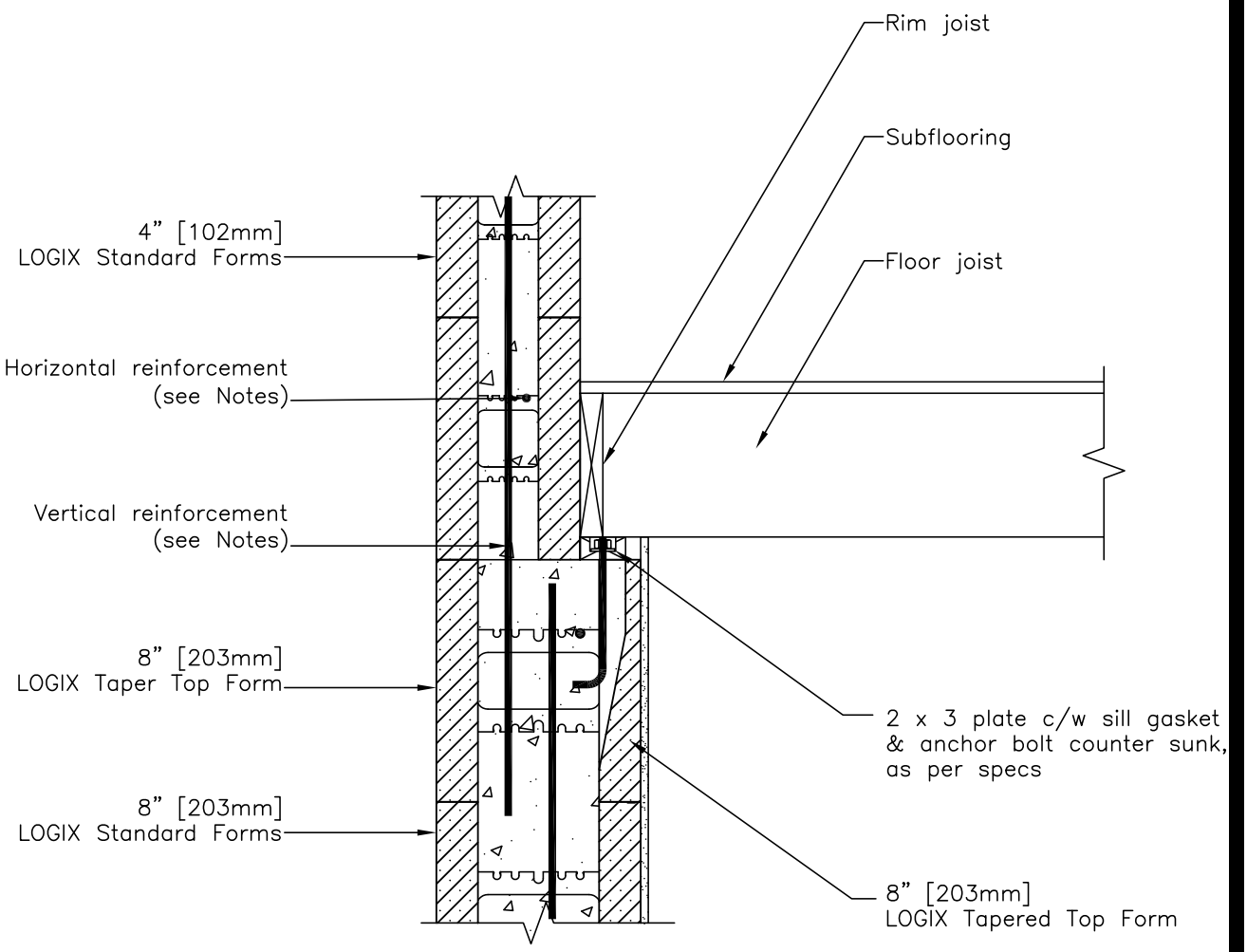
NOTES:

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

CAD DRAWINGS

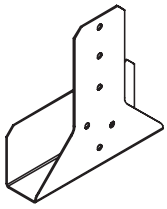


NOTES:

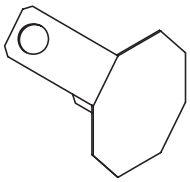
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.7.8 – SIMPSON ICF HANGER

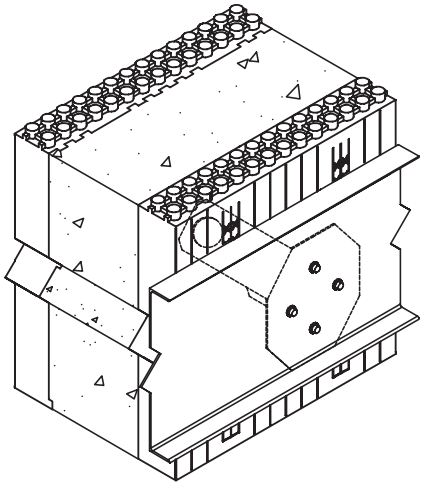
All drawings are downloadable at www.logixicf.com



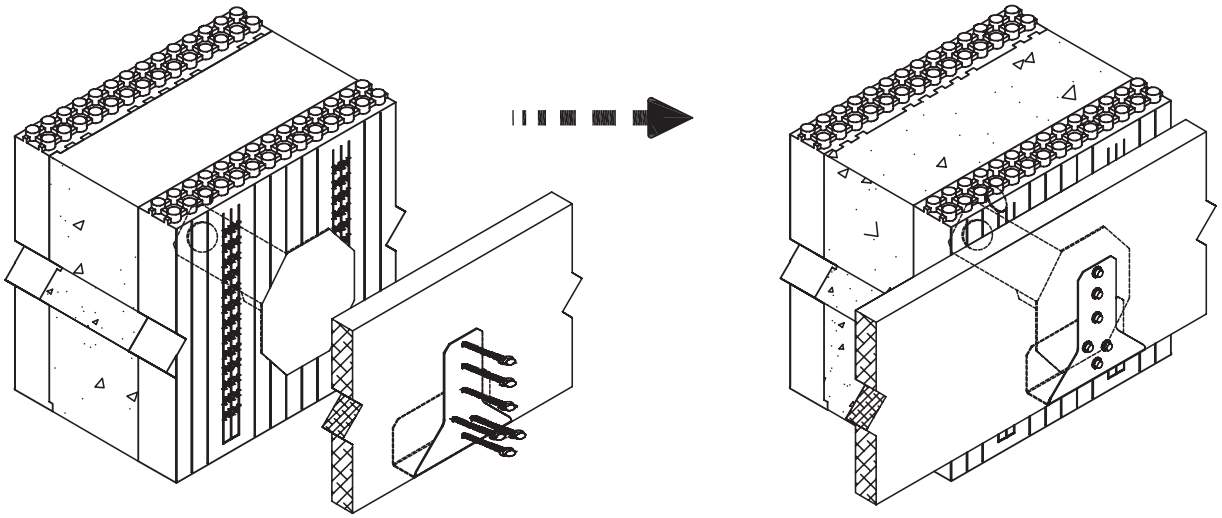
ICFLC-W & ICFLC-CW



ICFVL



STEEL LEDGER INSTALLATION



WOOD LEDGER INSTALLATION

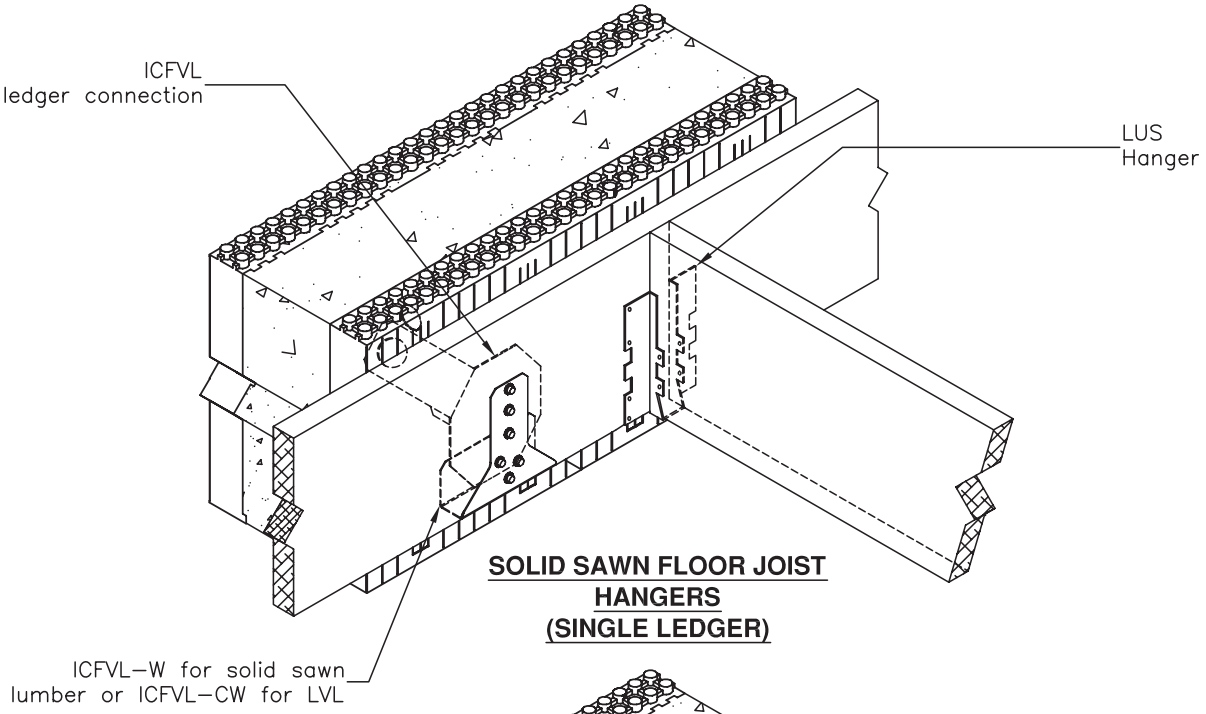
NOTES:

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.

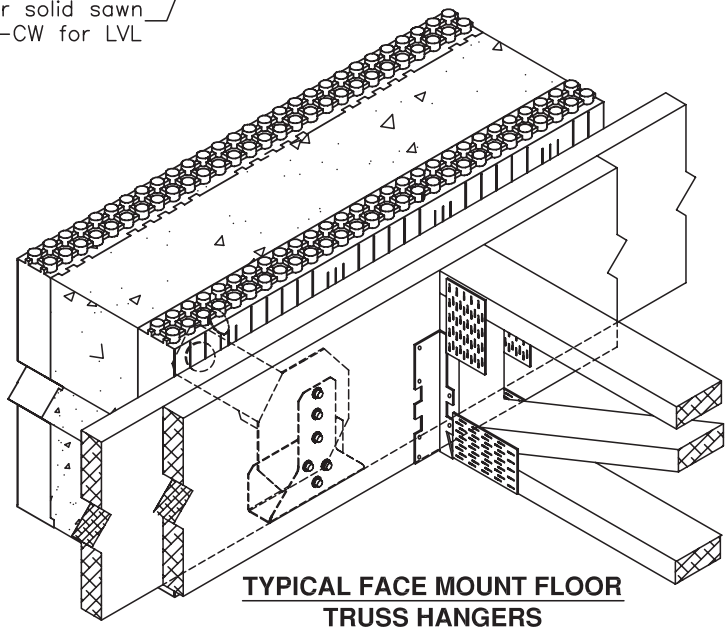
CAD DRAWINGS

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)



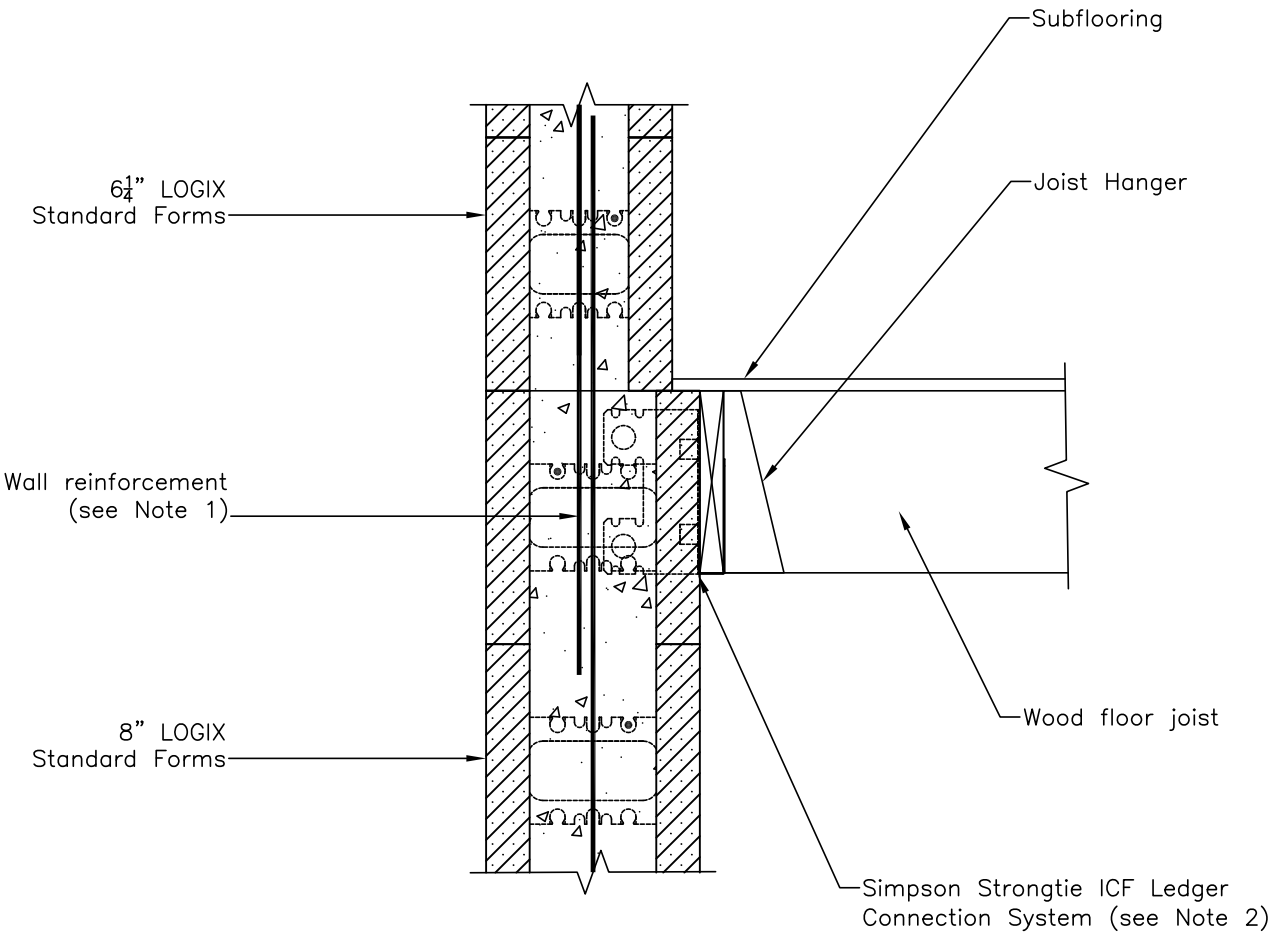
TYPICAL FACE MOUNT FLOOR TRUSS HANGERS (DOUBLE LEDGER)

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

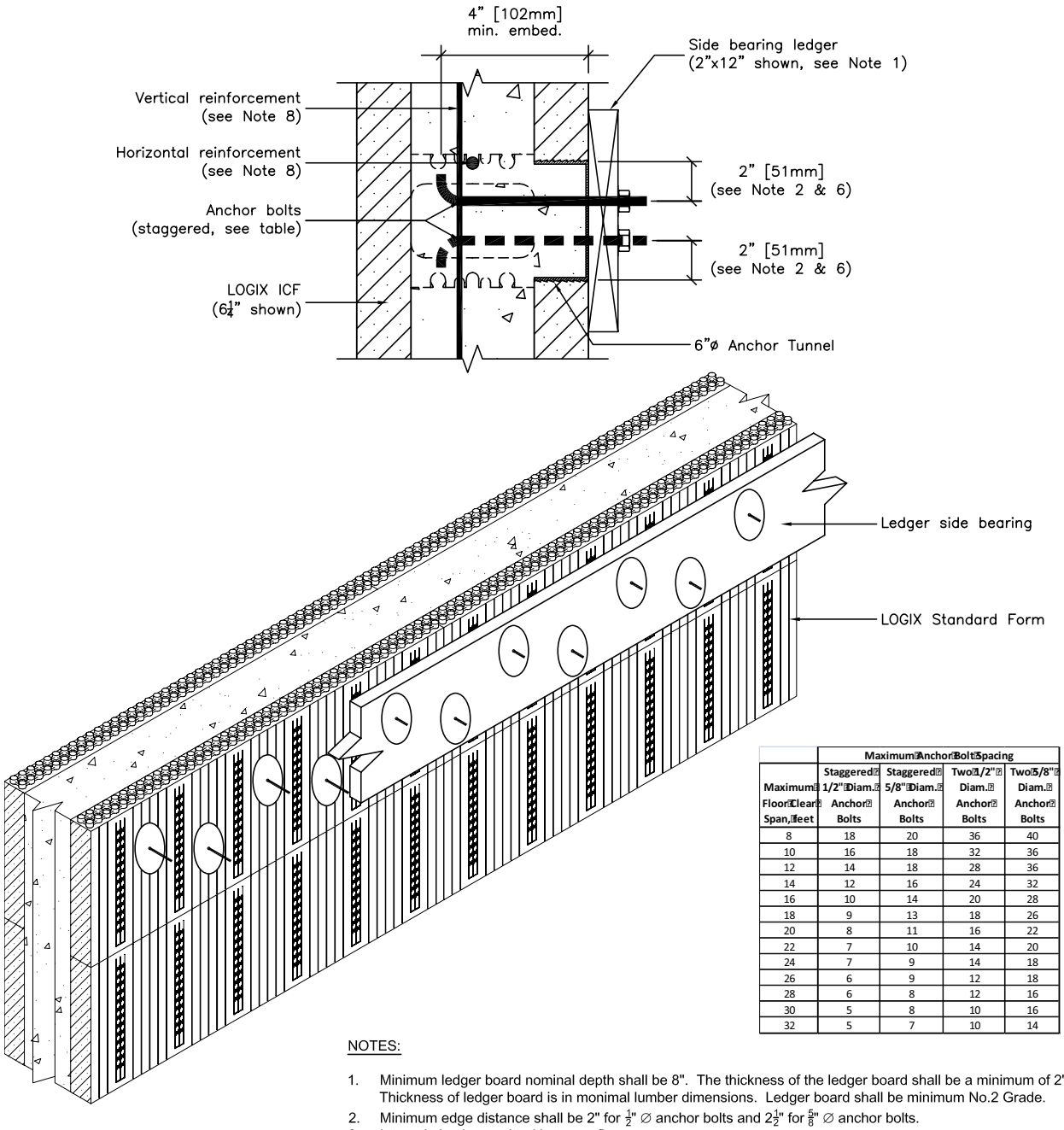


NOTES:

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

All drawings are downloadable at www.logixcf.com



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

NOTES:

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

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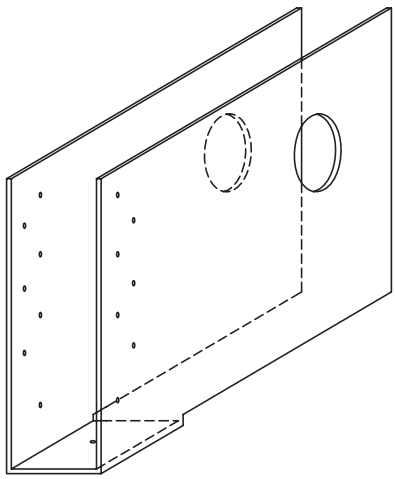
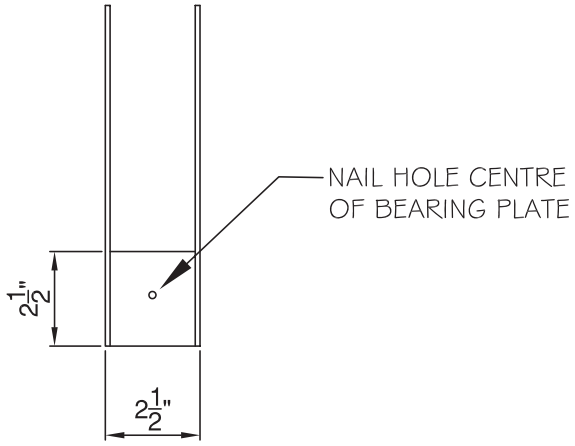
Rev. Sep 23/09

5.7.12 – McMILLAN JOIST HANGER

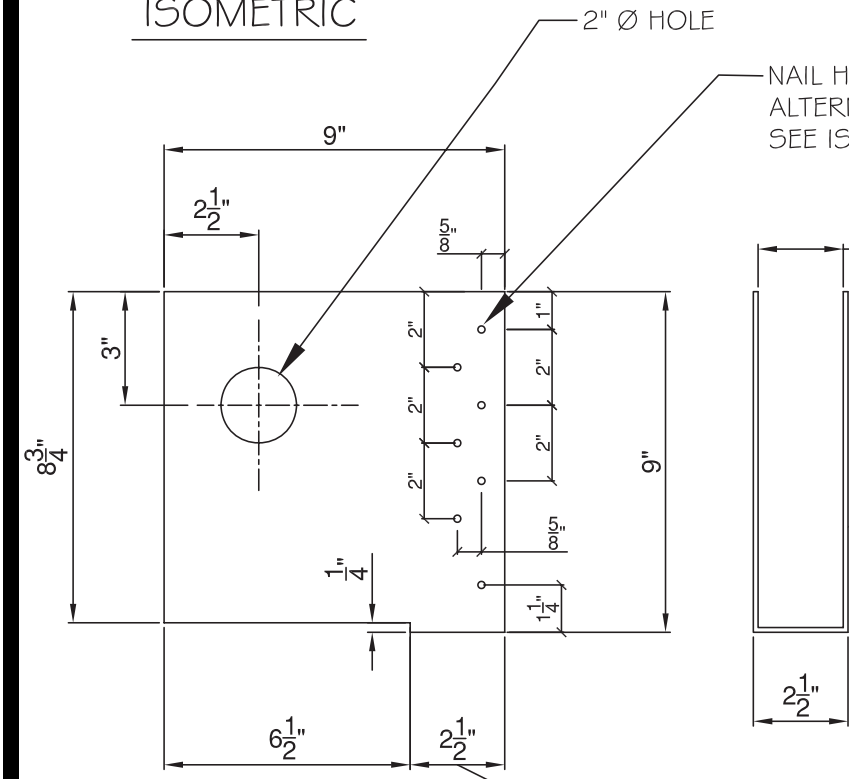
All drawings are downloadable at www.logixicf.com



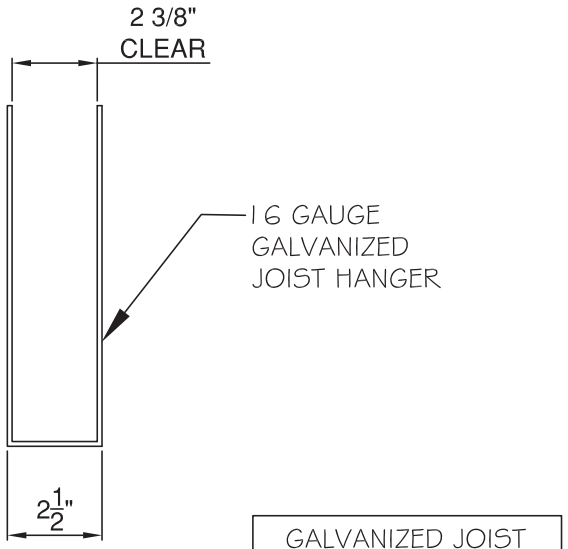
ISOMETRIC



TOP VIEW



SIDE VIEW



END VIEW

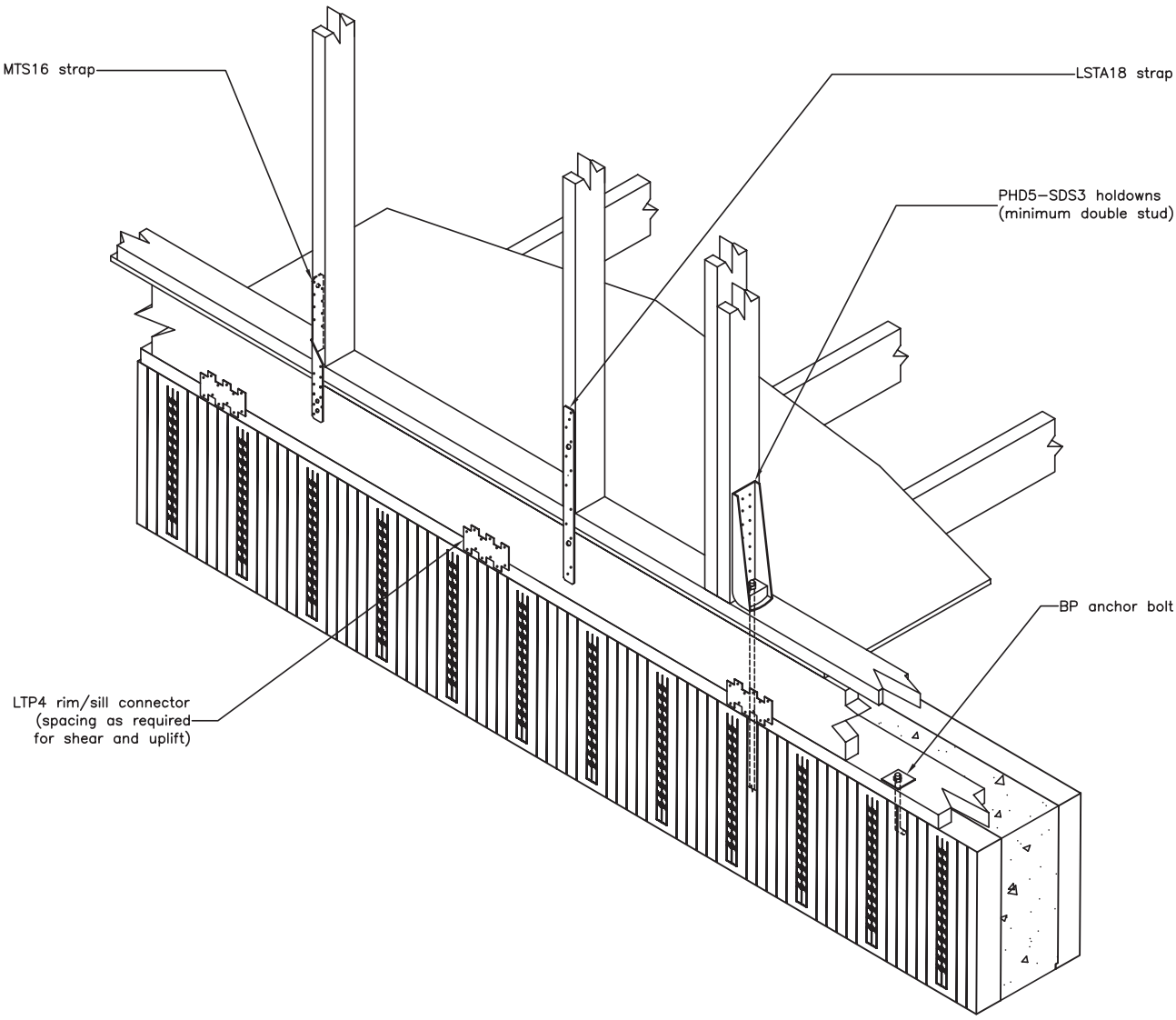
GALVANIZED JOIST
HANGER (16 GAUGE)
DESIGN LOAD 2500 #

CAD DRAWINGS

5.7.13 – SIMPSON STRONG TIE- STUD FRAME CONNECTIONS

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

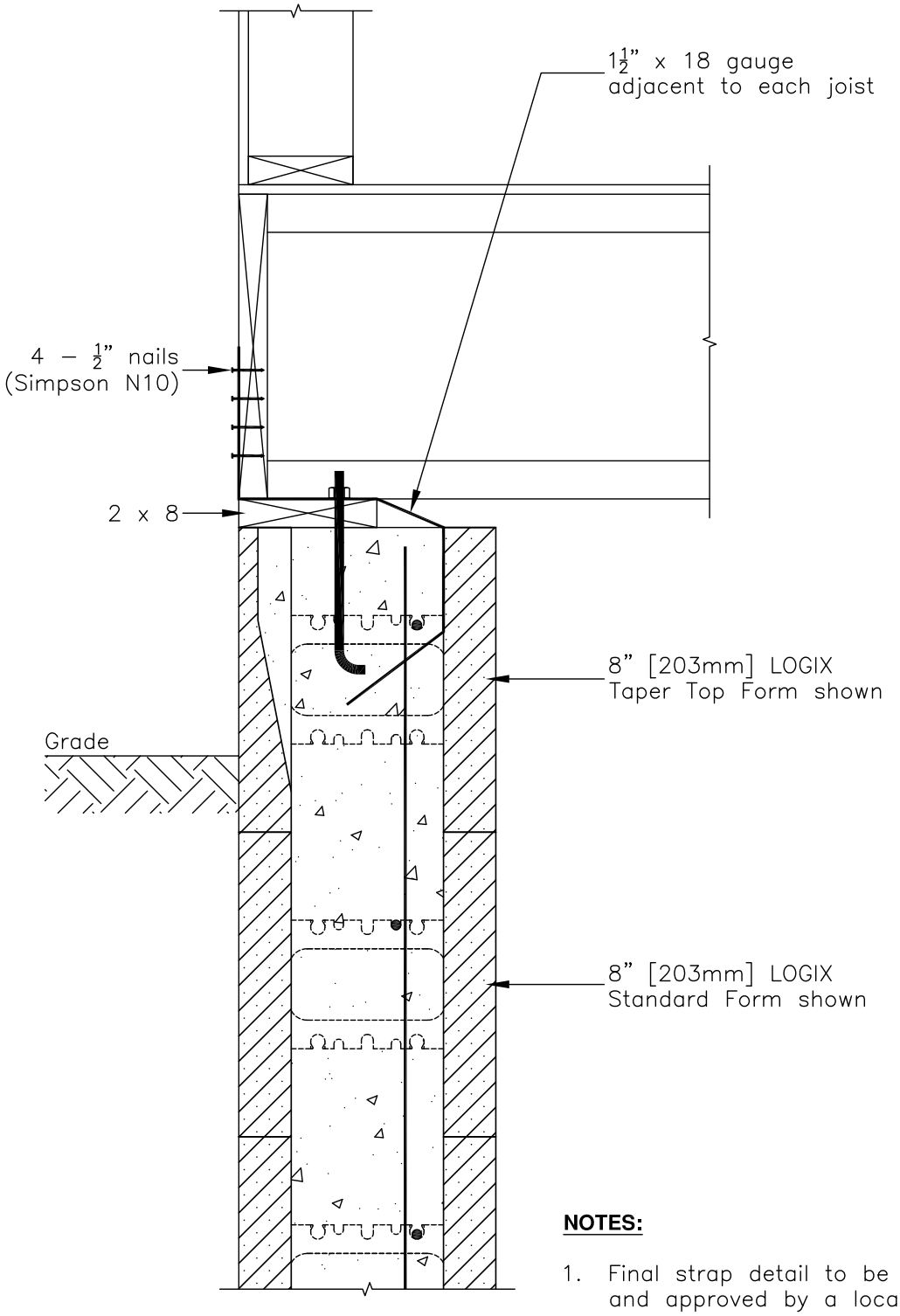


NOTES:

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

5.7.14 – FRAME STRAP ALTERNATIVE

All drawings are downloadable at www.logixicf.com



NOTES:

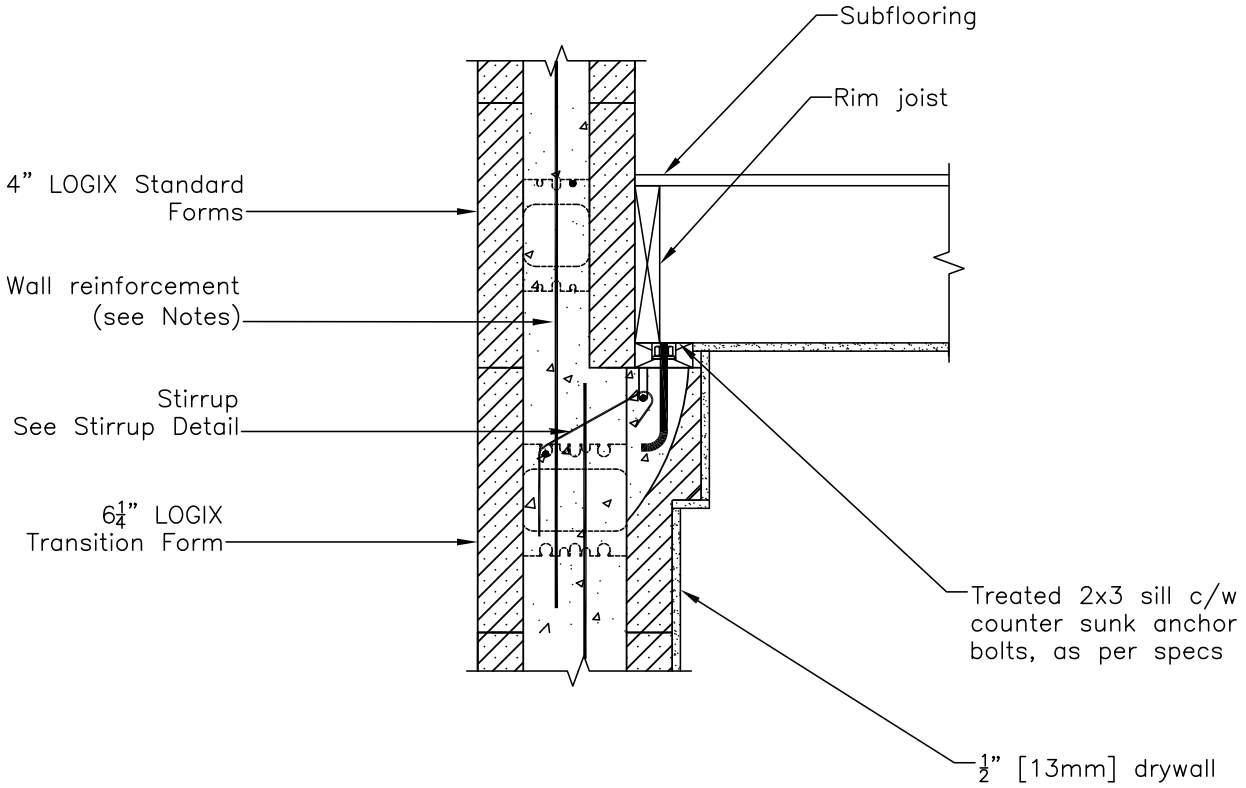
1. Final strap detail to be reviewed and approved by a local engineer.

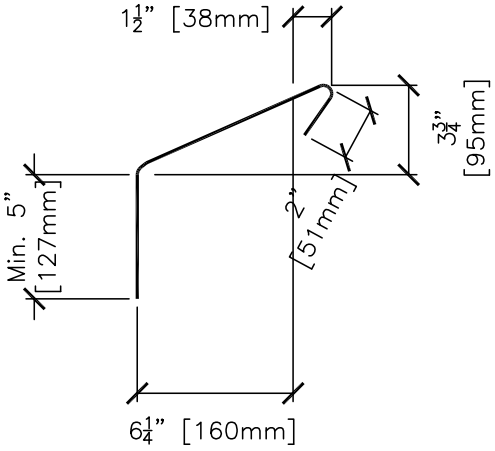
CAD DRAWINGS

5.7.15 – 6.25" TRANSITION FORM SUPPORTING WOOD FLOOR JOIST

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



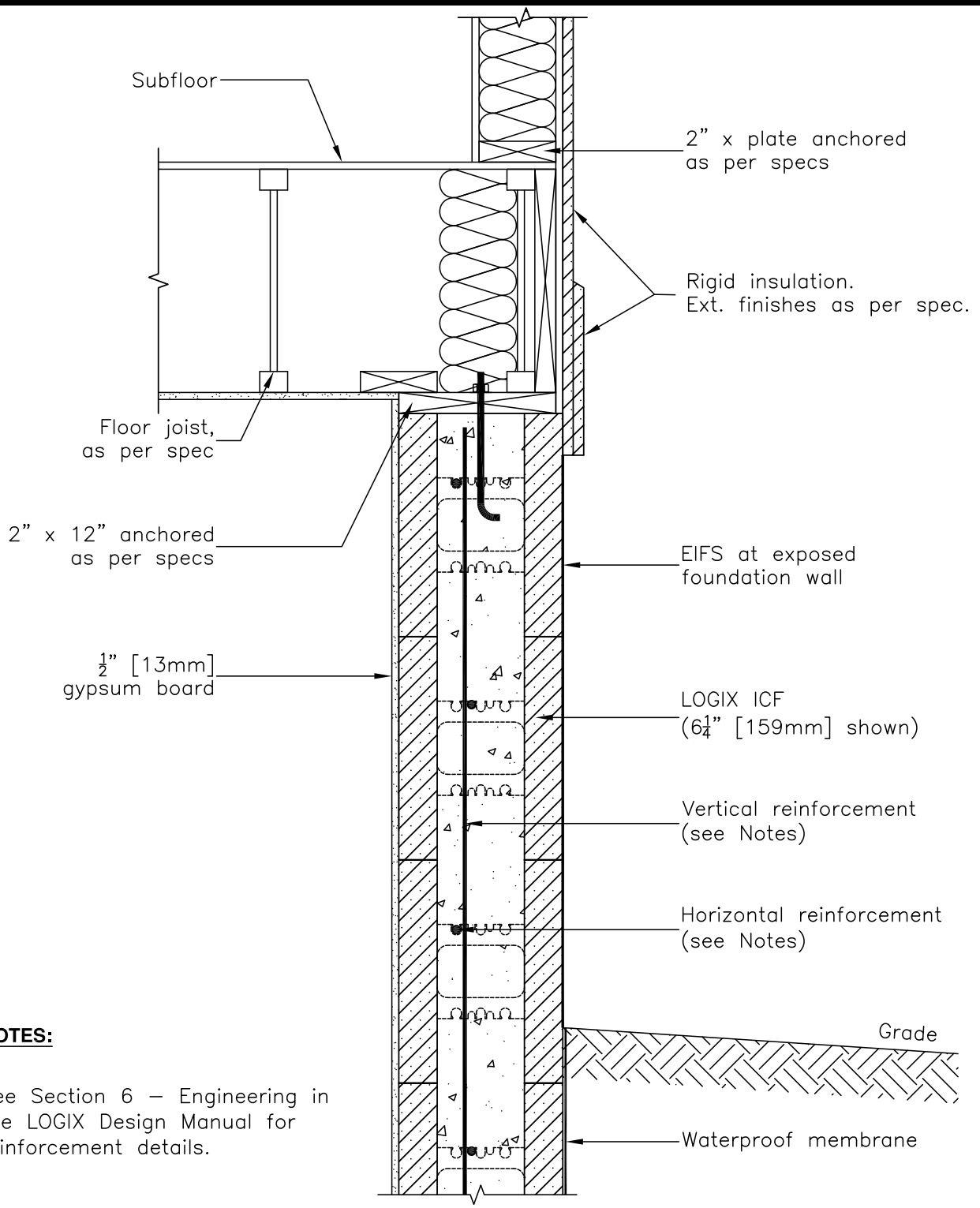


STIRRUP DETAIL

NOTES:

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

All drawings are downloadable at www.logixicf.com

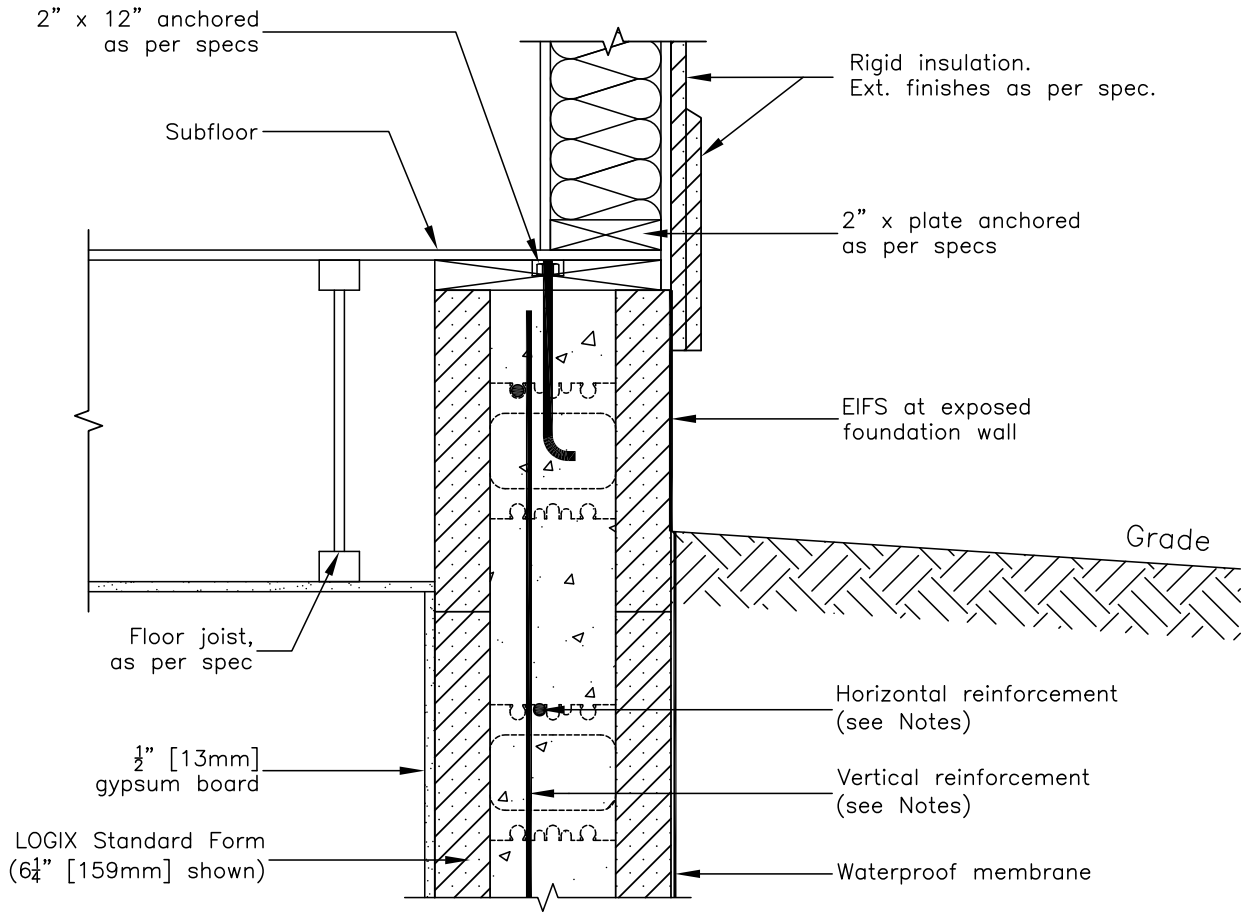


NOTES:

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

CAD DRAWINGS

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

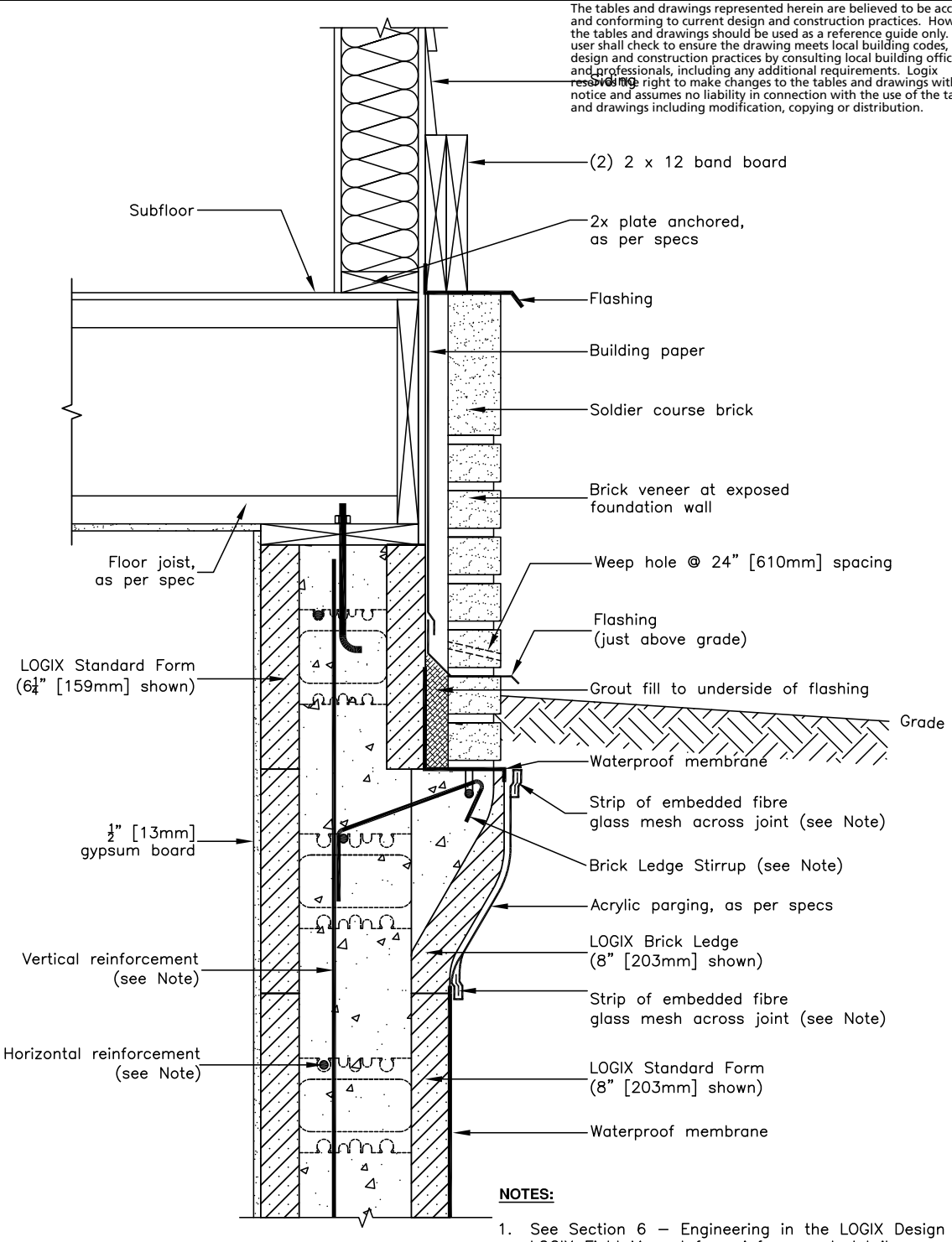


NOTES:

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

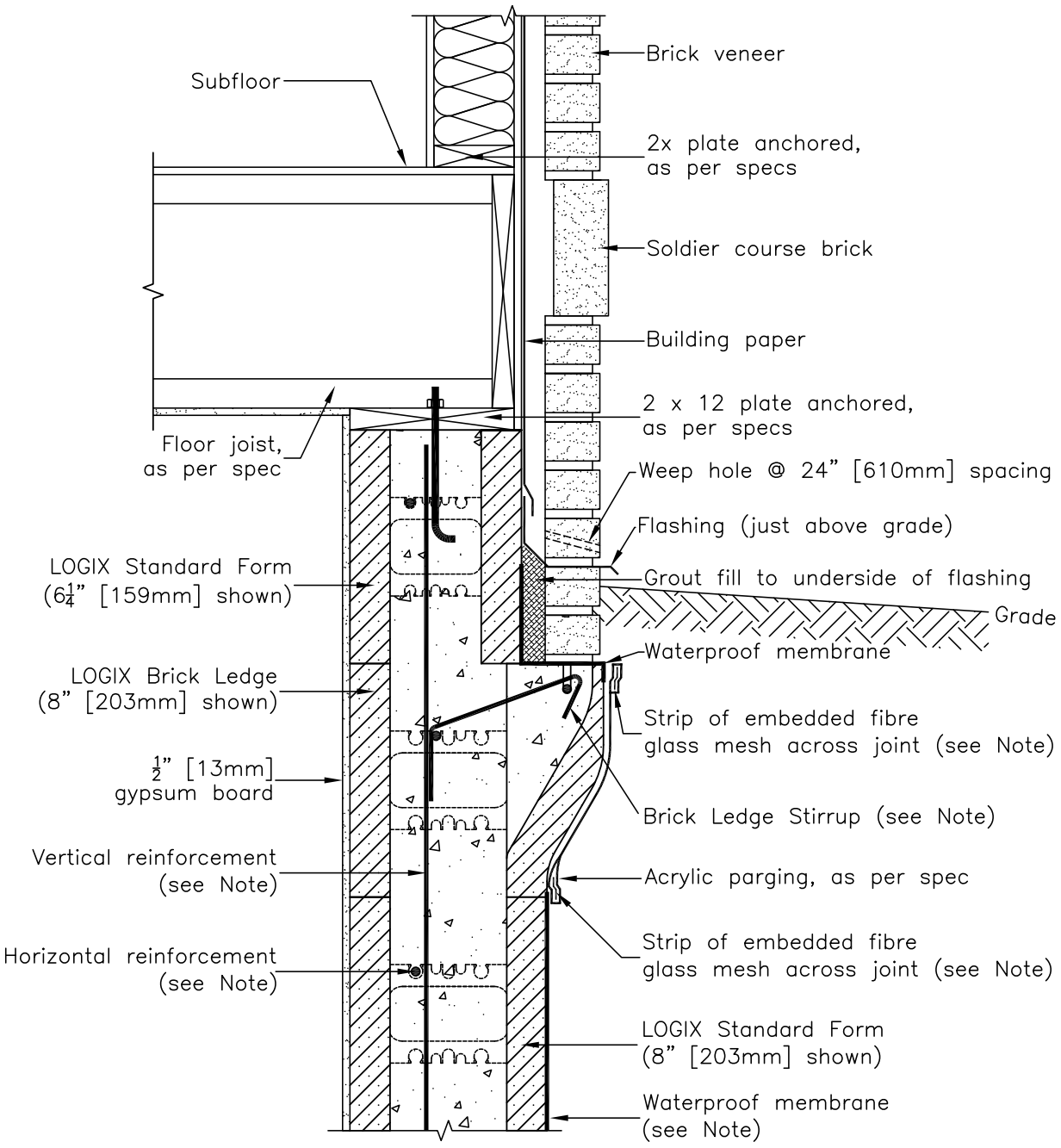


NOTES:

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.

CAD DRAWINGS

5.7.17 – BELOW GRADE BRICK VENEER (2 OF 4)

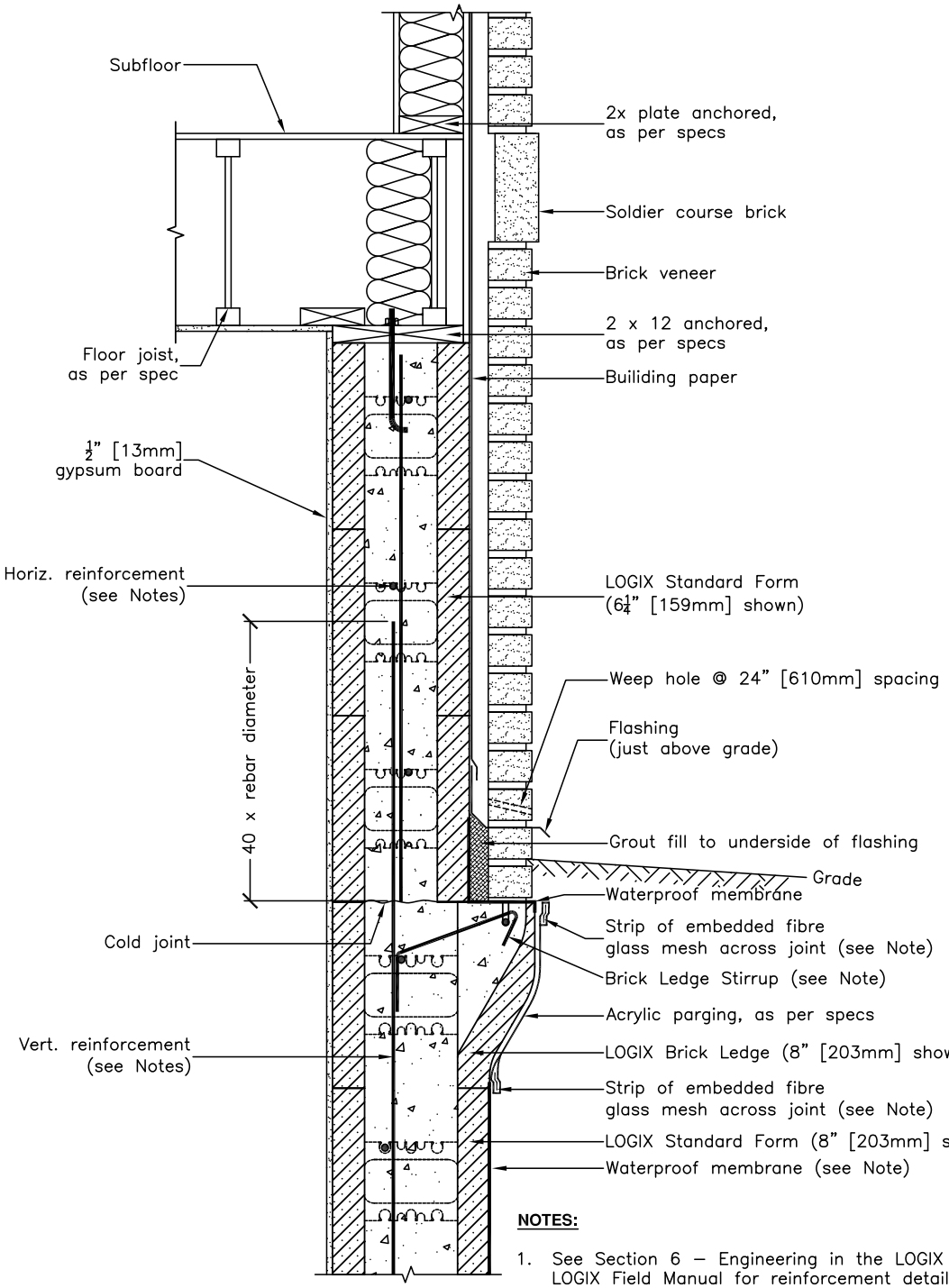


NOTES:

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

5.7.17 – BELOW GRADE BRICK VENEER (3 OF 4)

All drawings are downloadable at www.logixicf.com



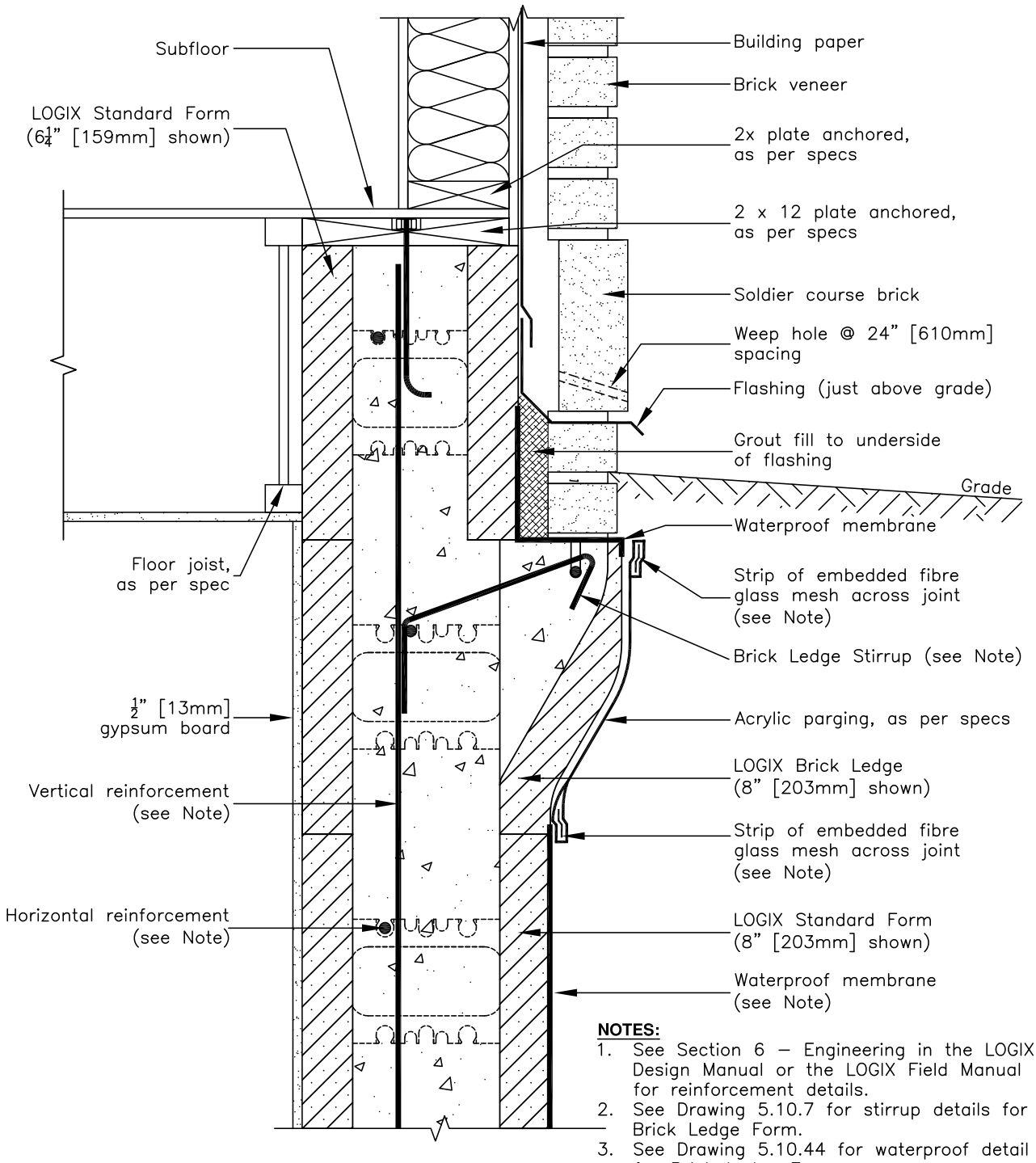
NOTES:

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

CAD DRAWINGS

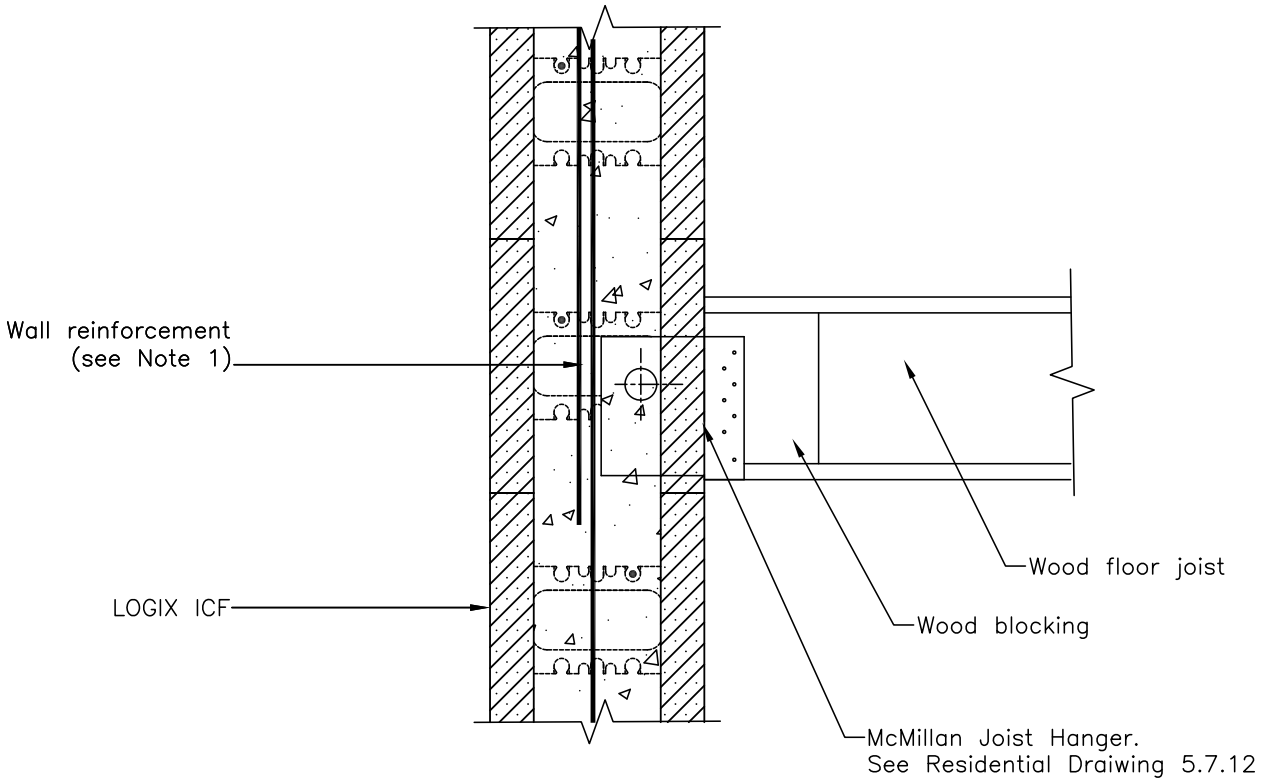


NOTES:

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



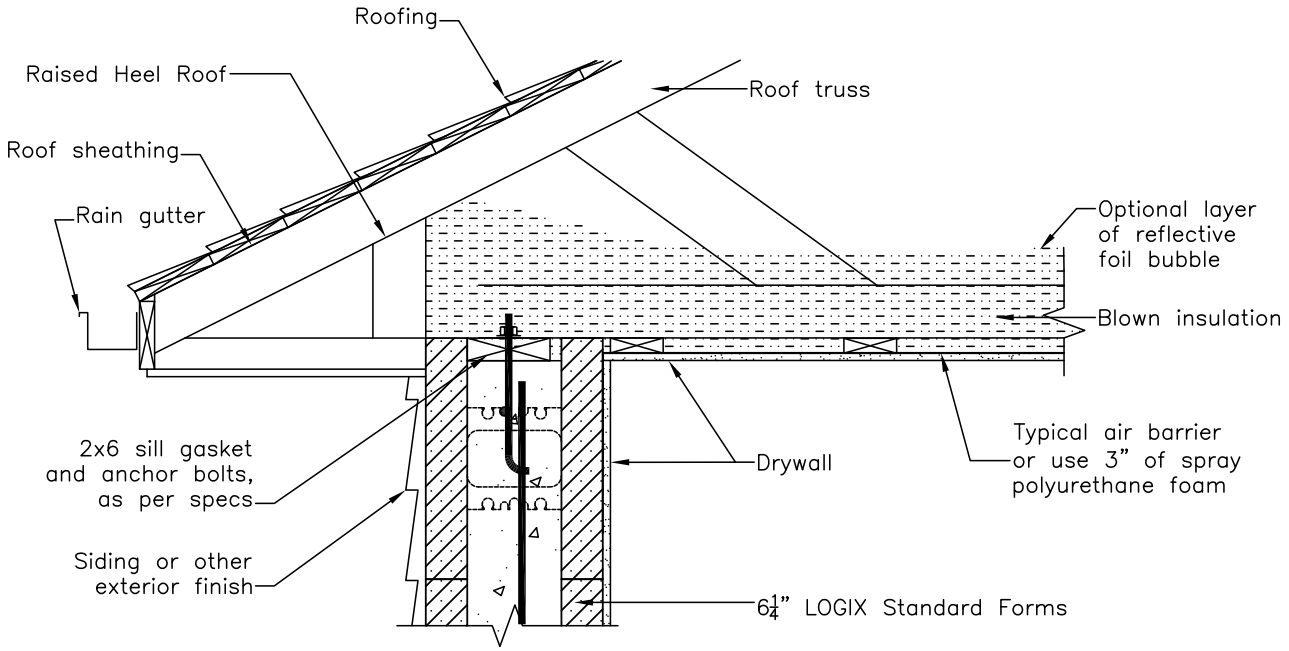
NOTES:

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

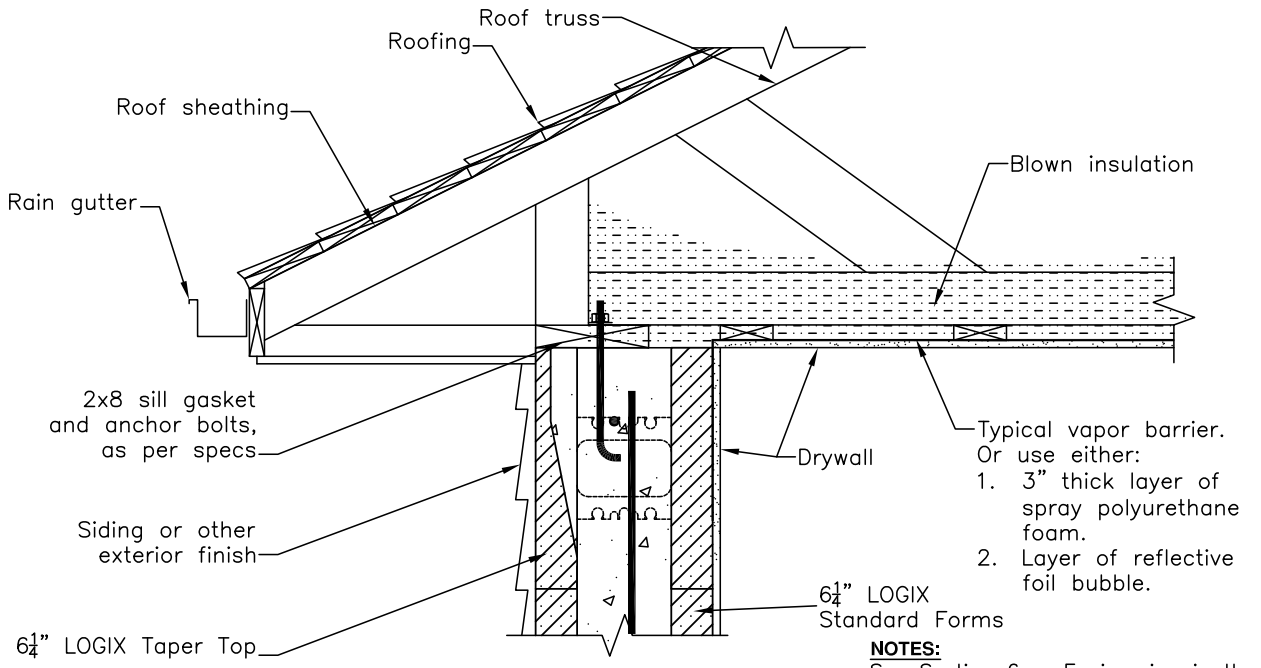
CAD DRAWINGS

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



5.8.2 - 2x8 OVERHUNG TOP PLATE

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

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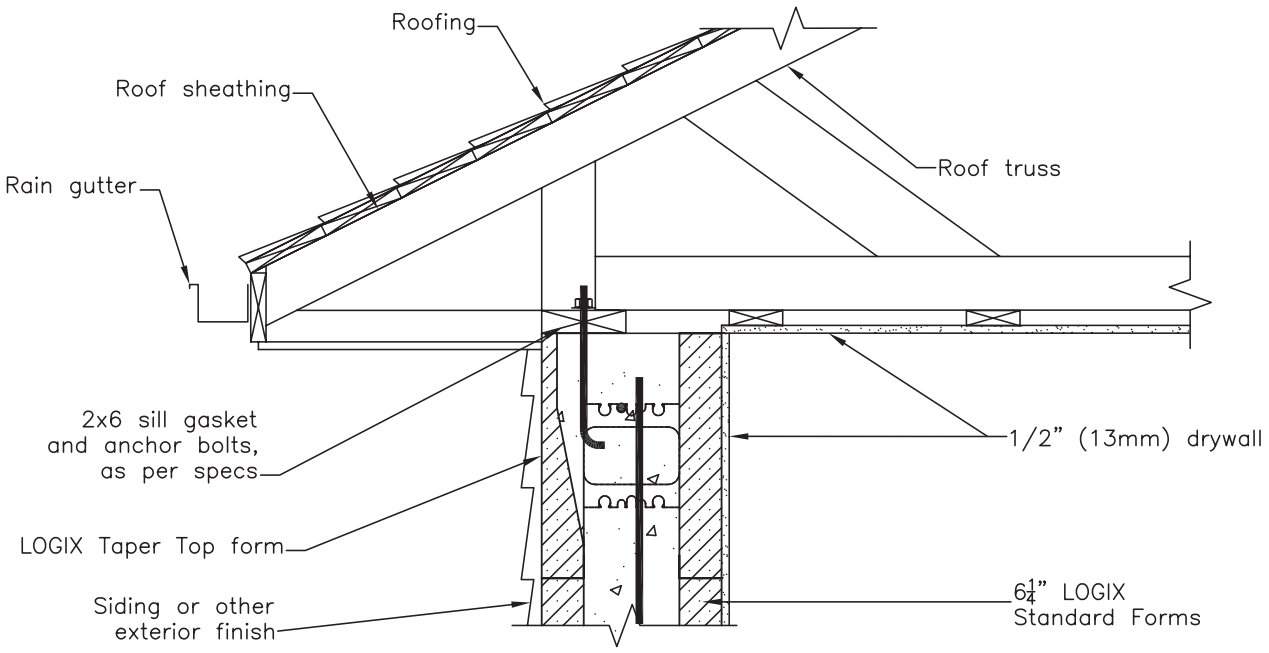
5.8.3 – ROOF - 2x6 WITH TAPER TOP FORM

All drawings are downloadable at www.logixicf.com



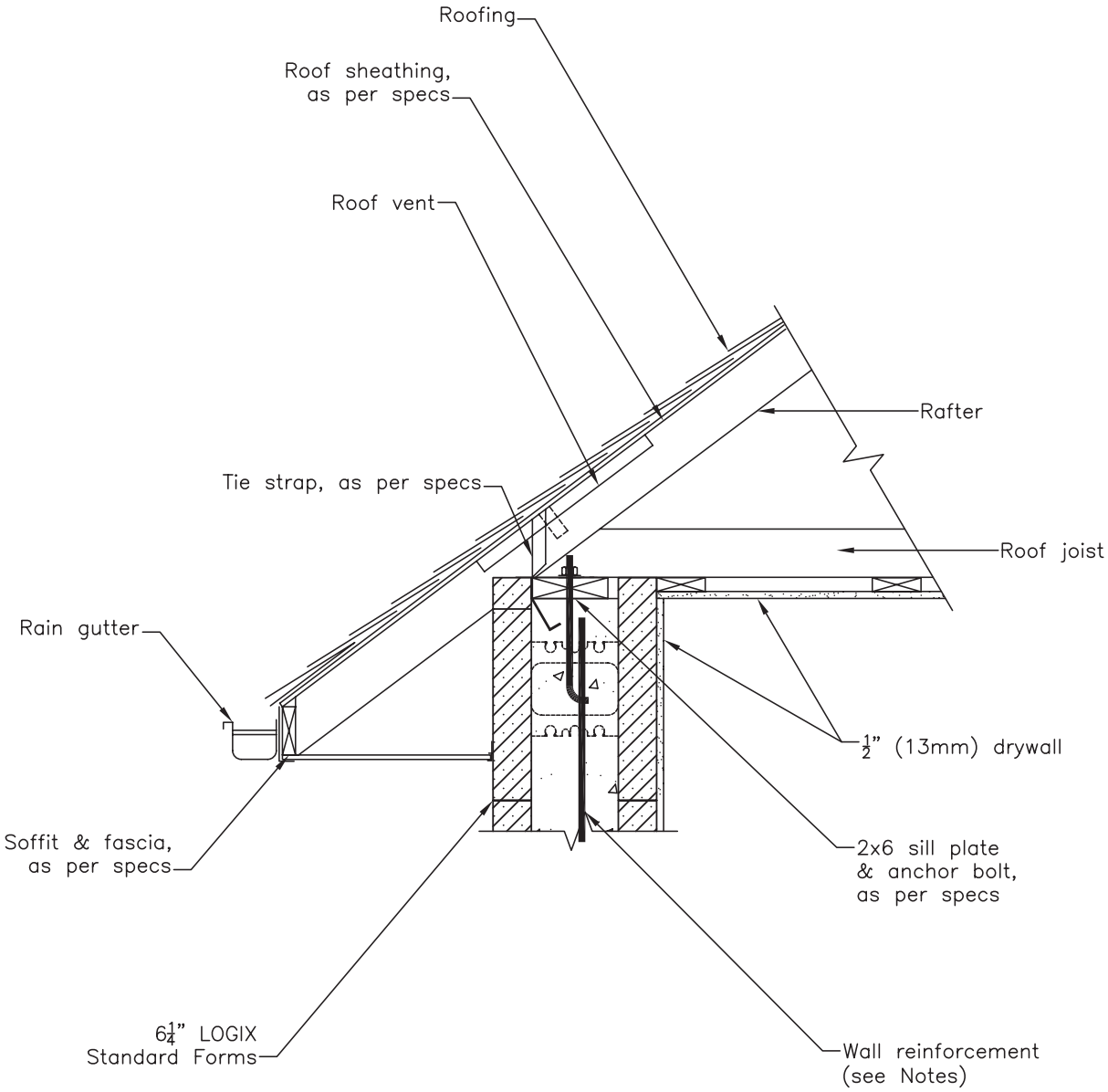
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

5.8.4 – ROOF - HURRICANE TIE DOWN STRAP

All drawings are downloadable at www.logixicf.com

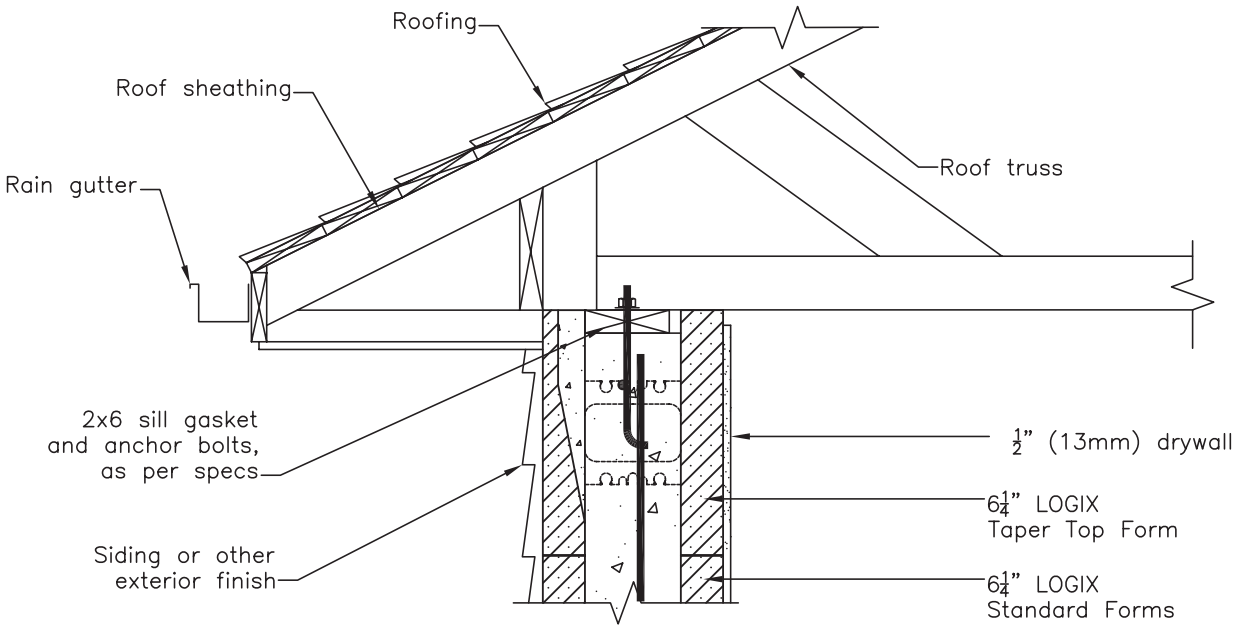
CAD DRAWINGS



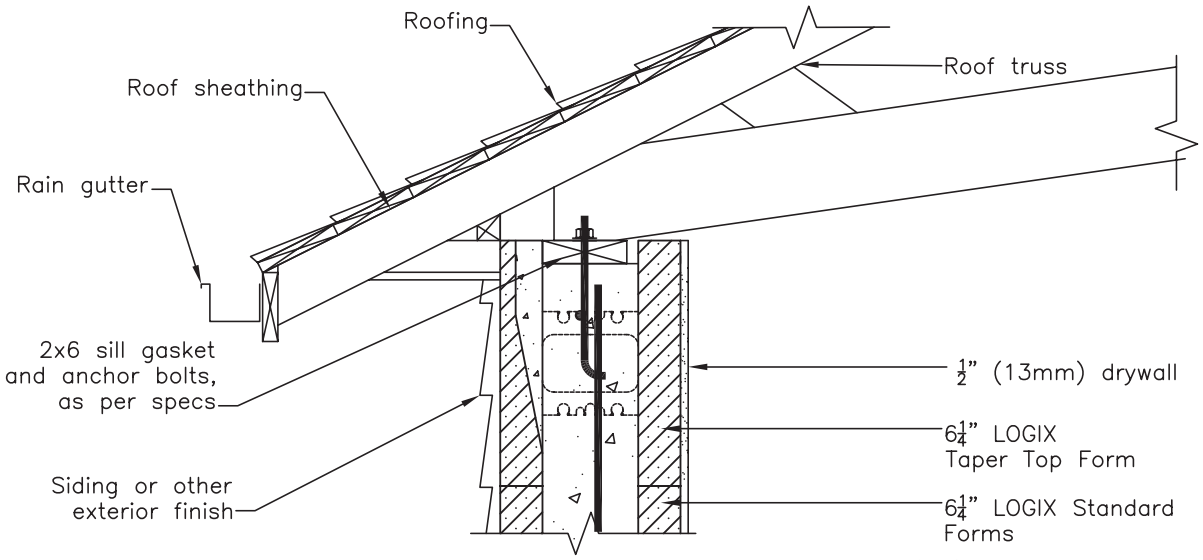
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.8.5 – VAULTED CEILINGS - 1 of 2

All drawings are downloadable at www.logixicf.com



Vaulted Ceiting - A - Frame



Vaulted Ceiling - Scissor Truss

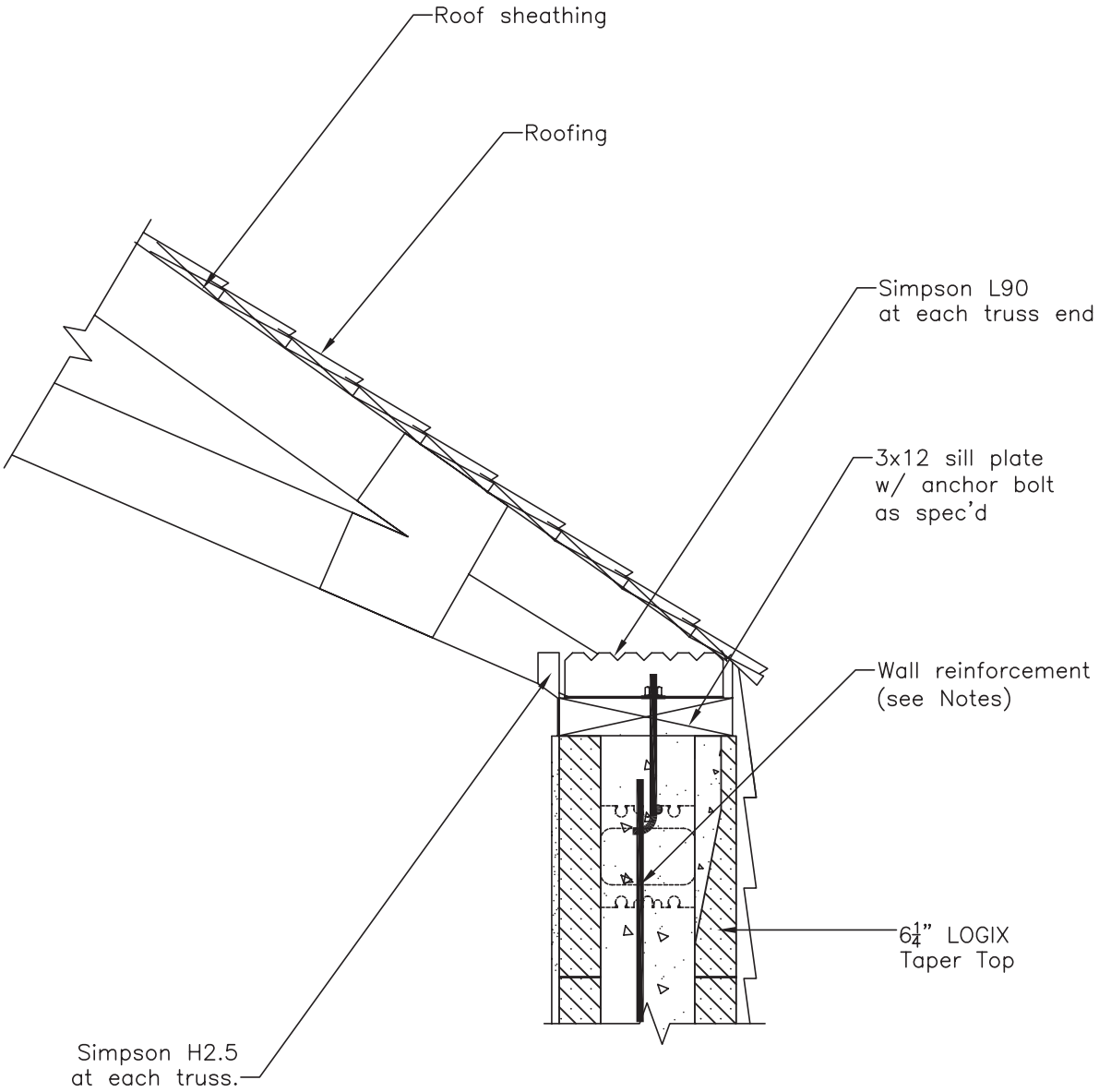
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

5.8.5 – VAULTED CEILINGS - 2 of 2

All drawings are downloadable at www.logixicf.com

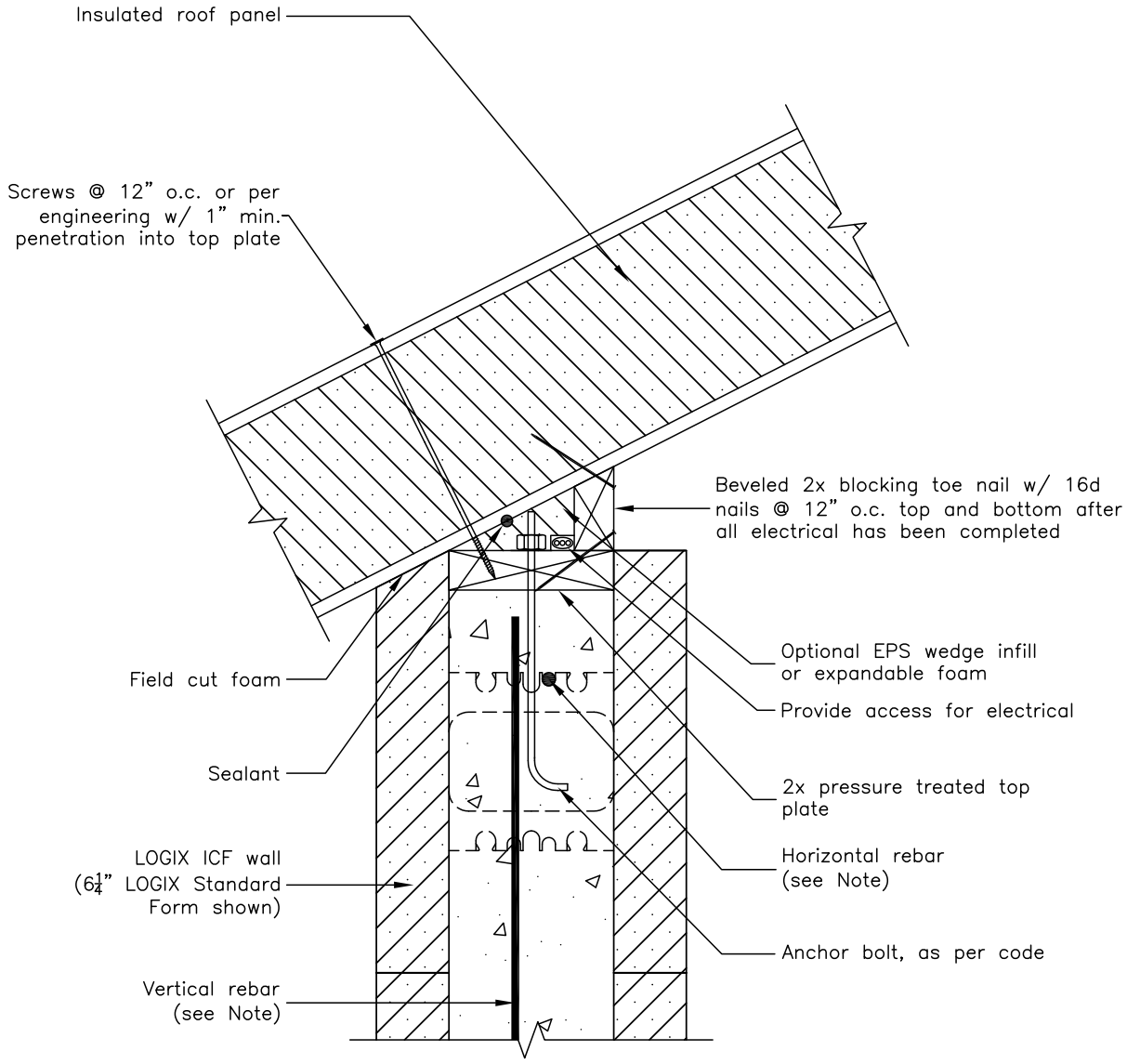
CAD DRAWINGS



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:

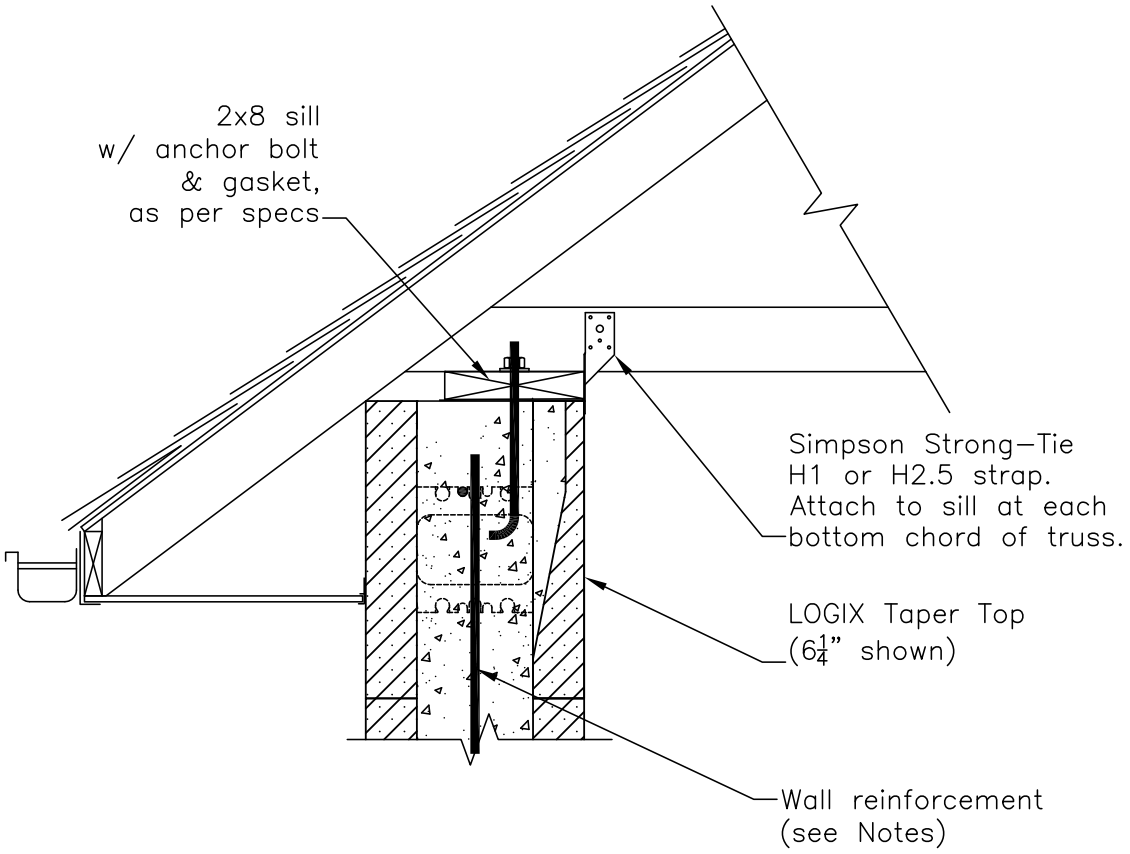
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Helpful Hint: Wedge behind beveled block can be a good place to run electrical wires after screws are in place.

CAD DRAWINGS

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

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

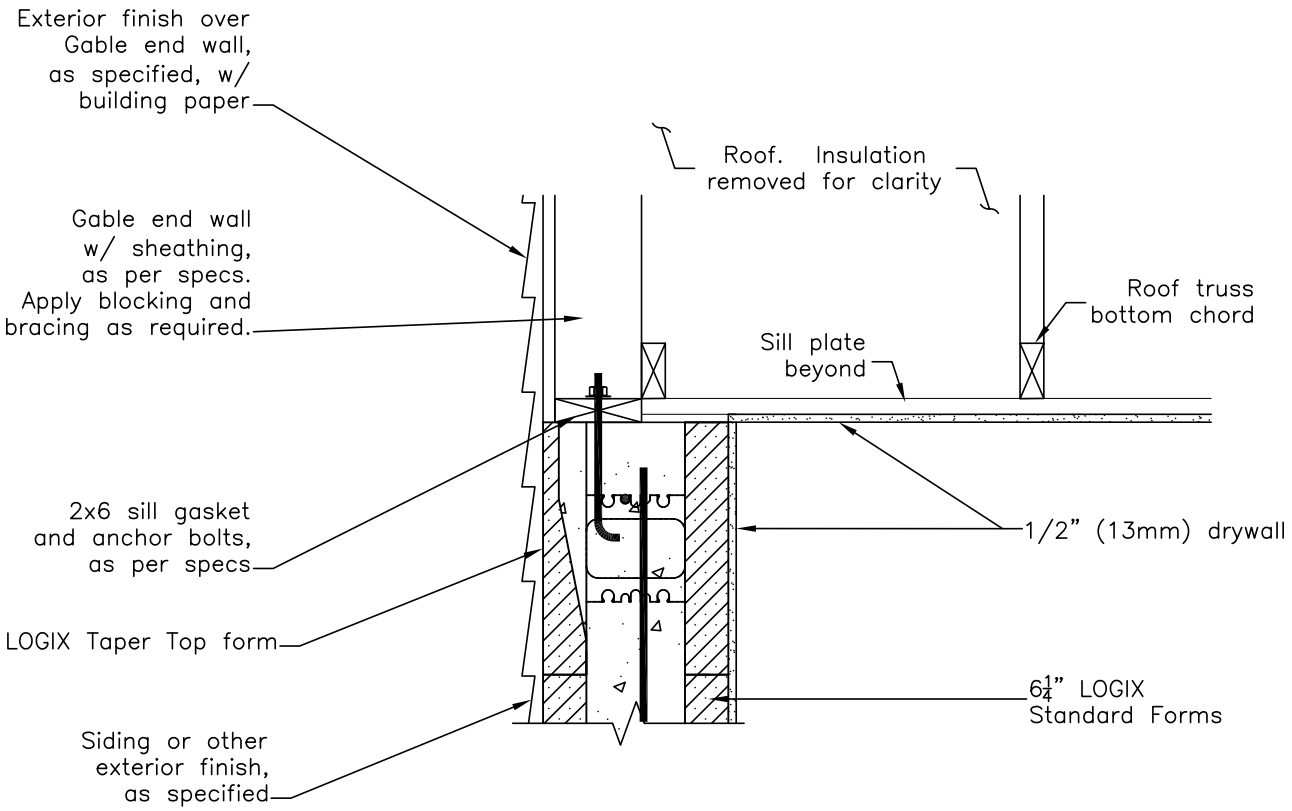


NOTES:

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

5.8.8 – GABLE WALL END WOOD FRAMED CONNECTION

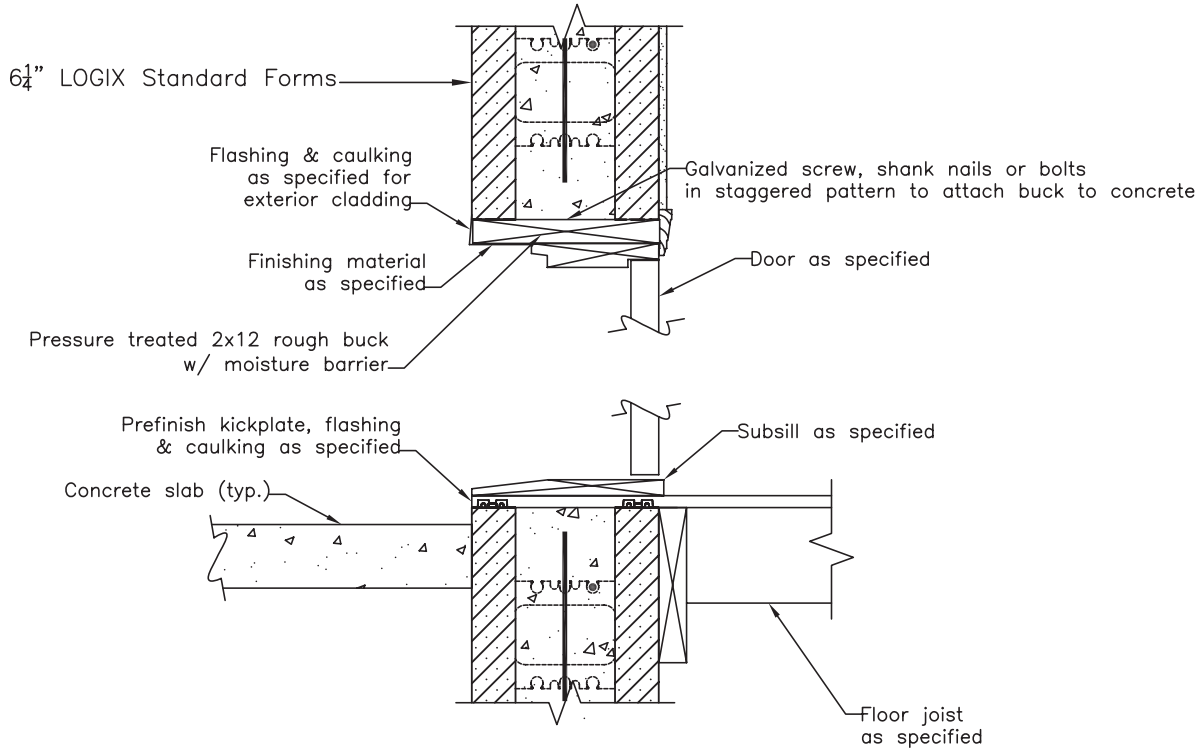
All drawings are downloadable at www.logixicf.com



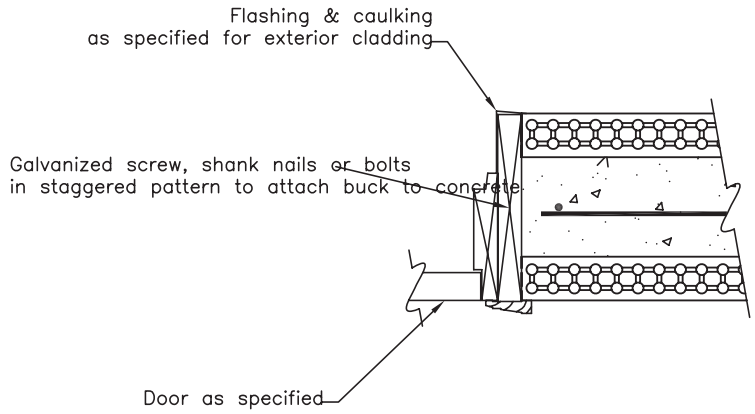
CAD DRAWINGS

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

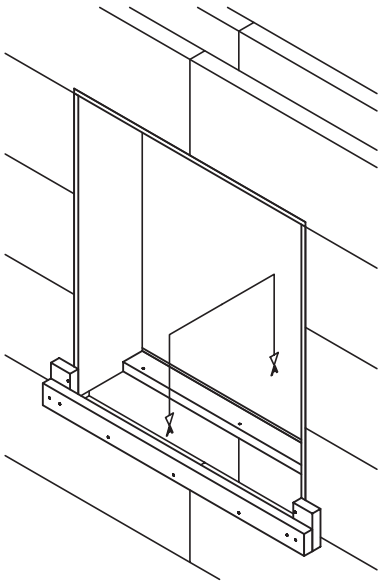


DOOR JAMB USING WOOD BUCKS

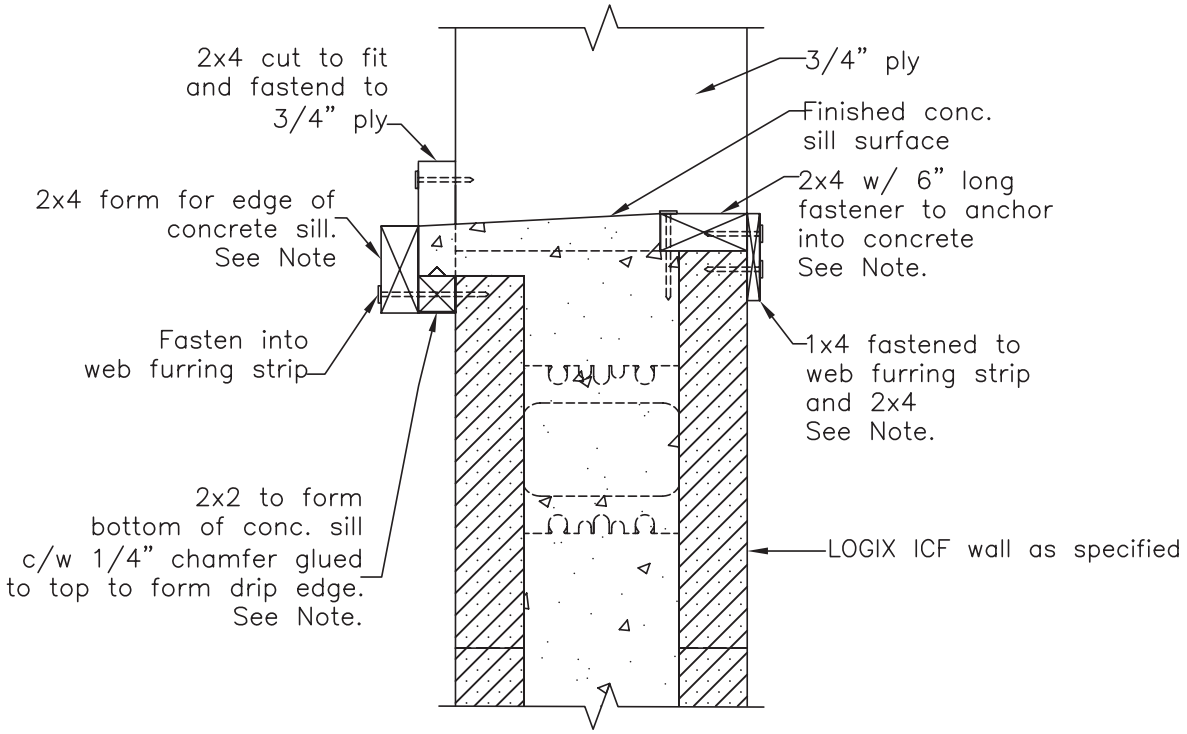
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

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.

CAD DRAWINGS

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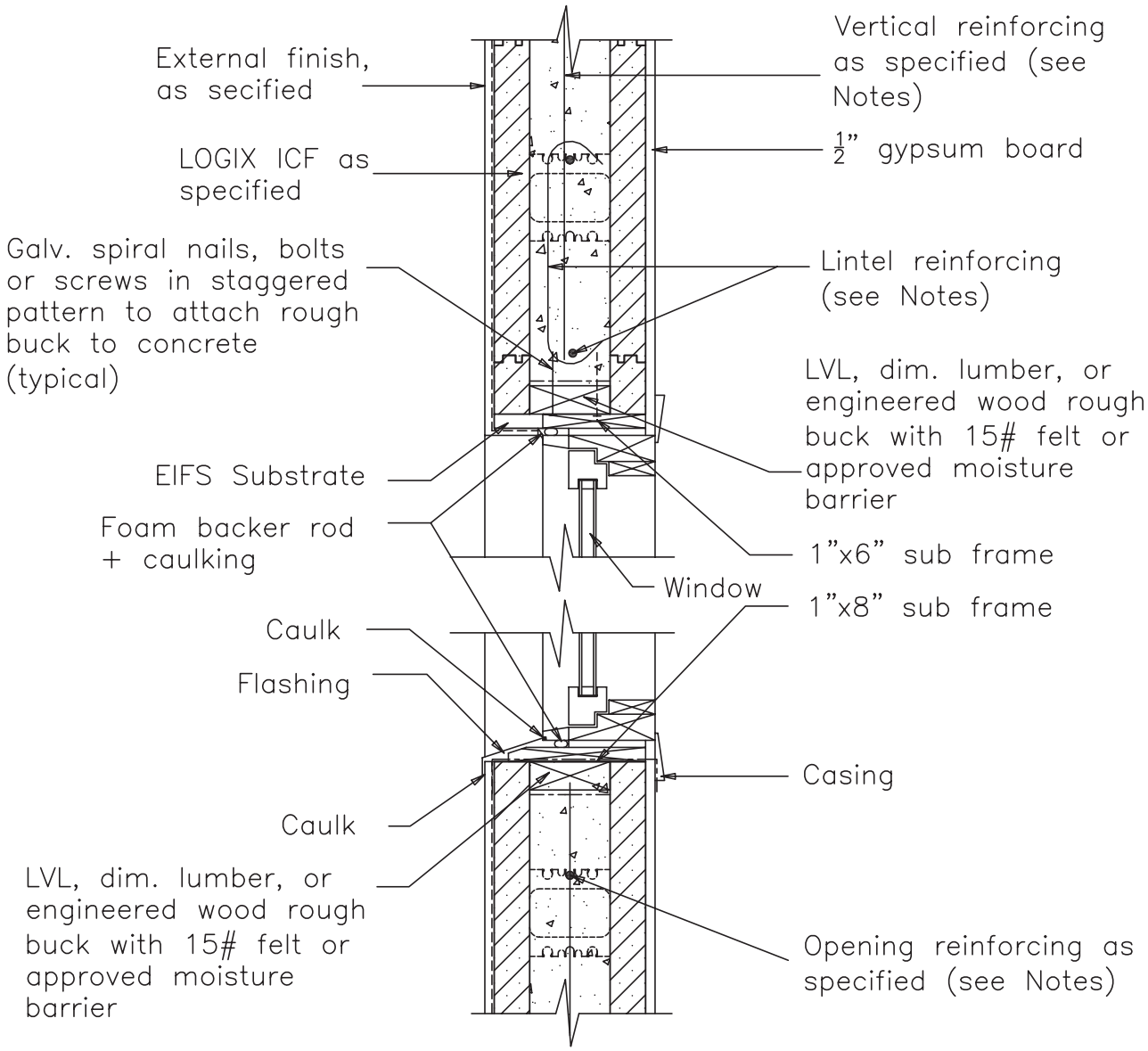
5.9.3 – WINDOW HEAD / SILL DETAIL

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

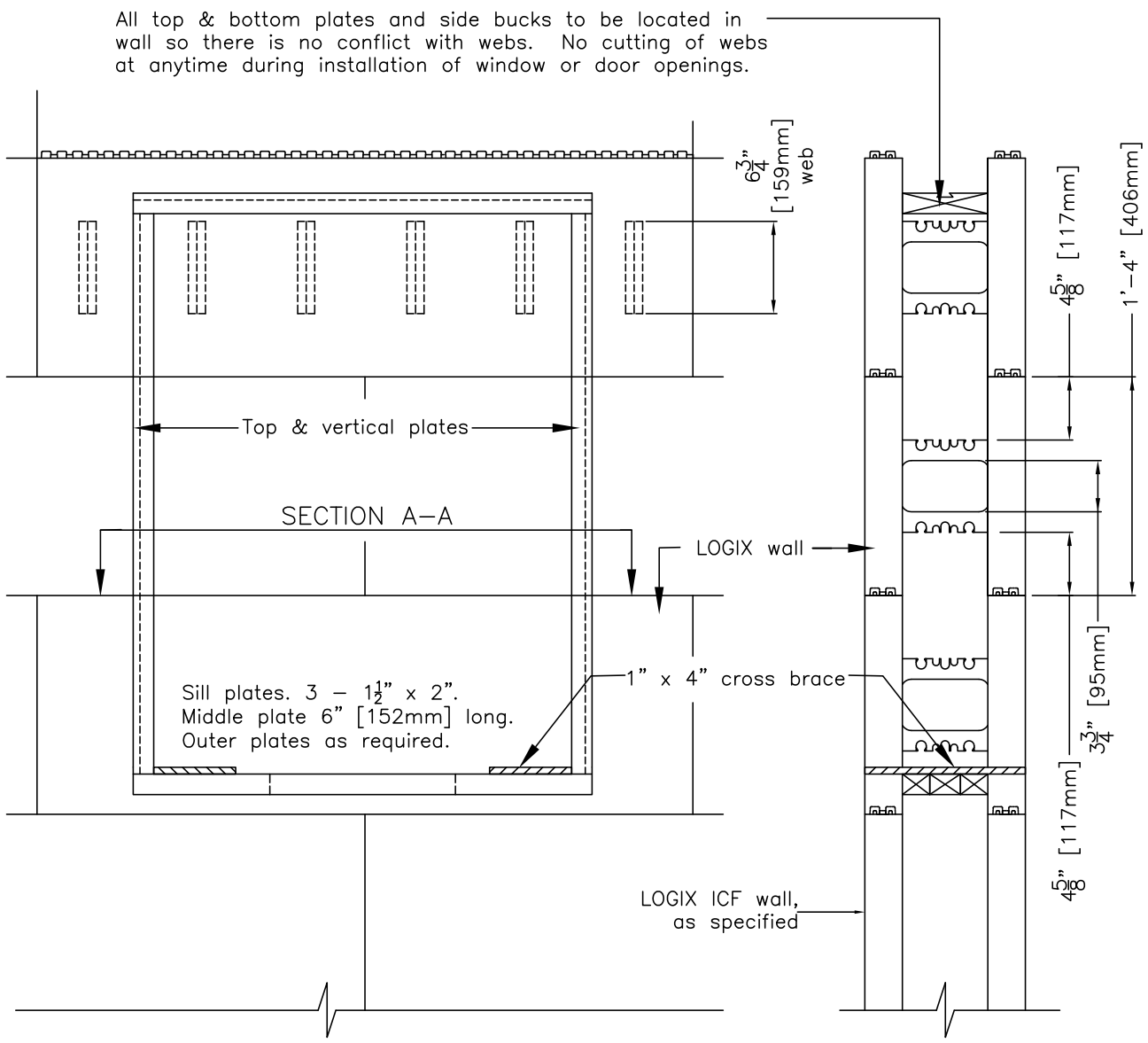


NOTES:

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

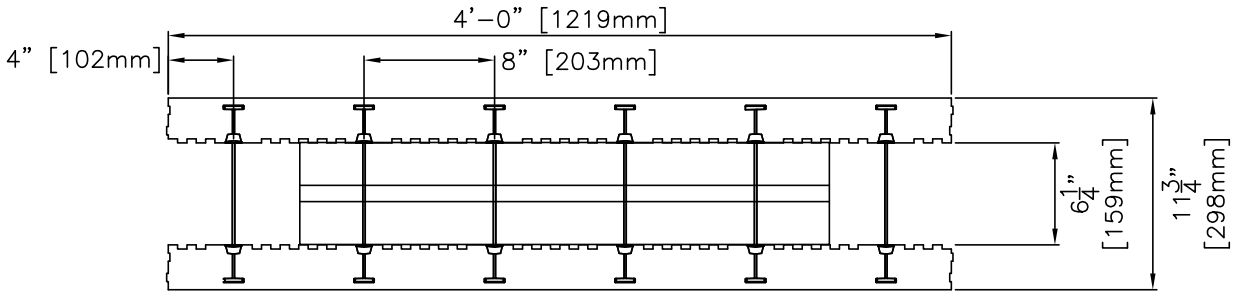


SIDE ELEVATION **END VIEW**

CAD DRAWINGS

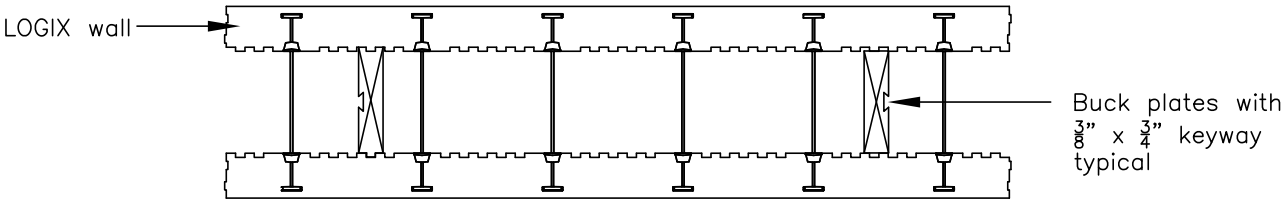
5.9.4 – WINDOW BUCK DETAILS CONTINUED

All drawings are downloadable at www.logixicf.com

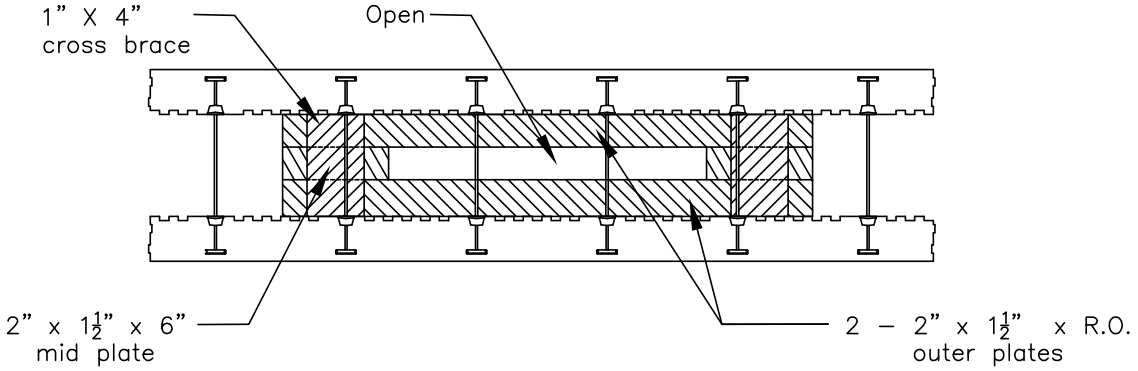


TOP VIEW

Top & vertical plates for 6¼" [159mm] concrete cores width

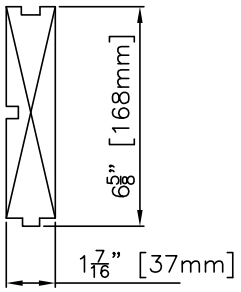


SECTION A-A



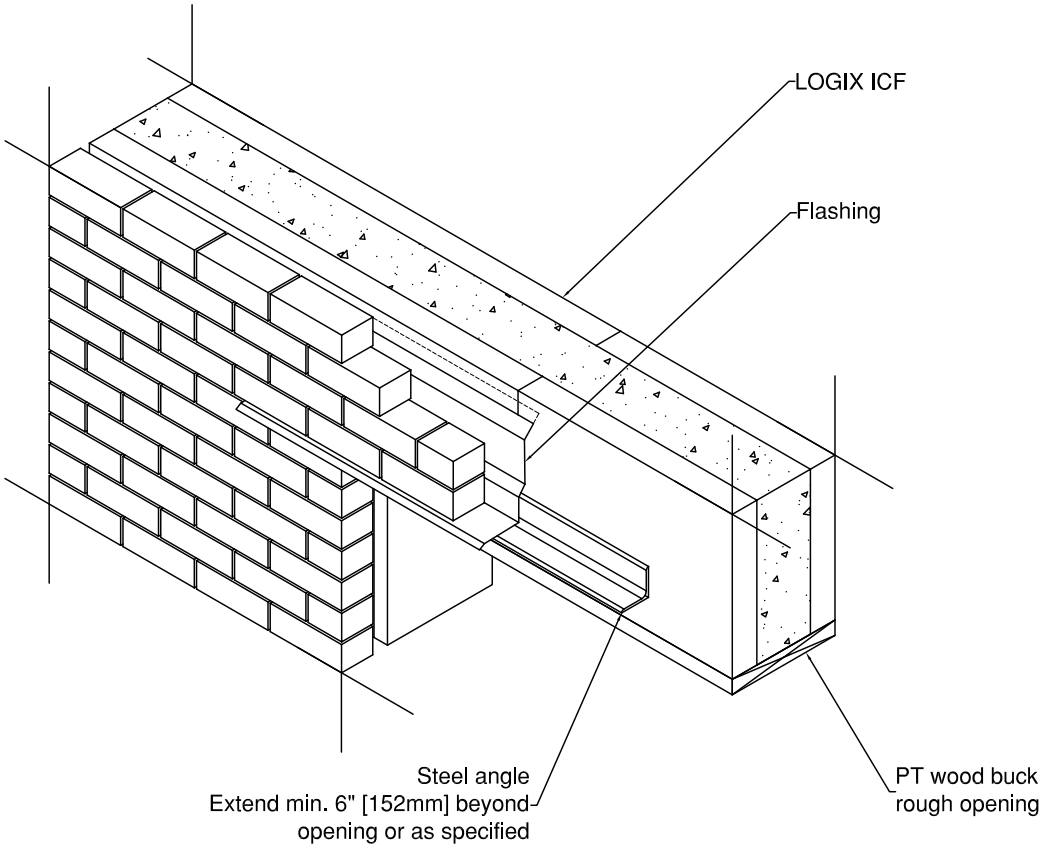
PLAN WINDOW SILL

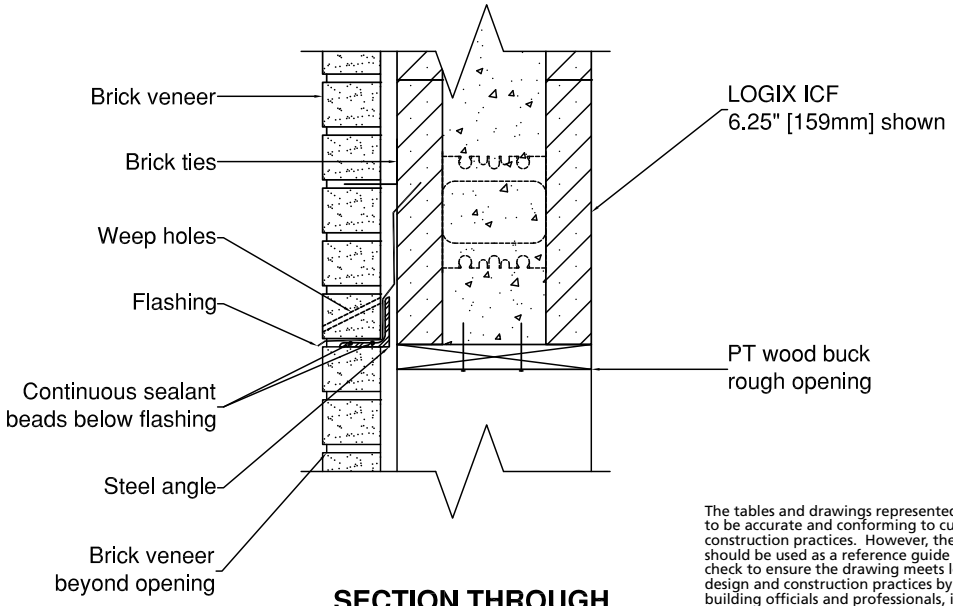
All top & bottom plates and side bucks to be located in wall so there is no conflict with webs. No cutting of webs at anytime during installation of window or door openings.



5.9.5 – STEEL LINTEL WITH BRICK VENEER

All drawings are downloadable at www.logixicf.com





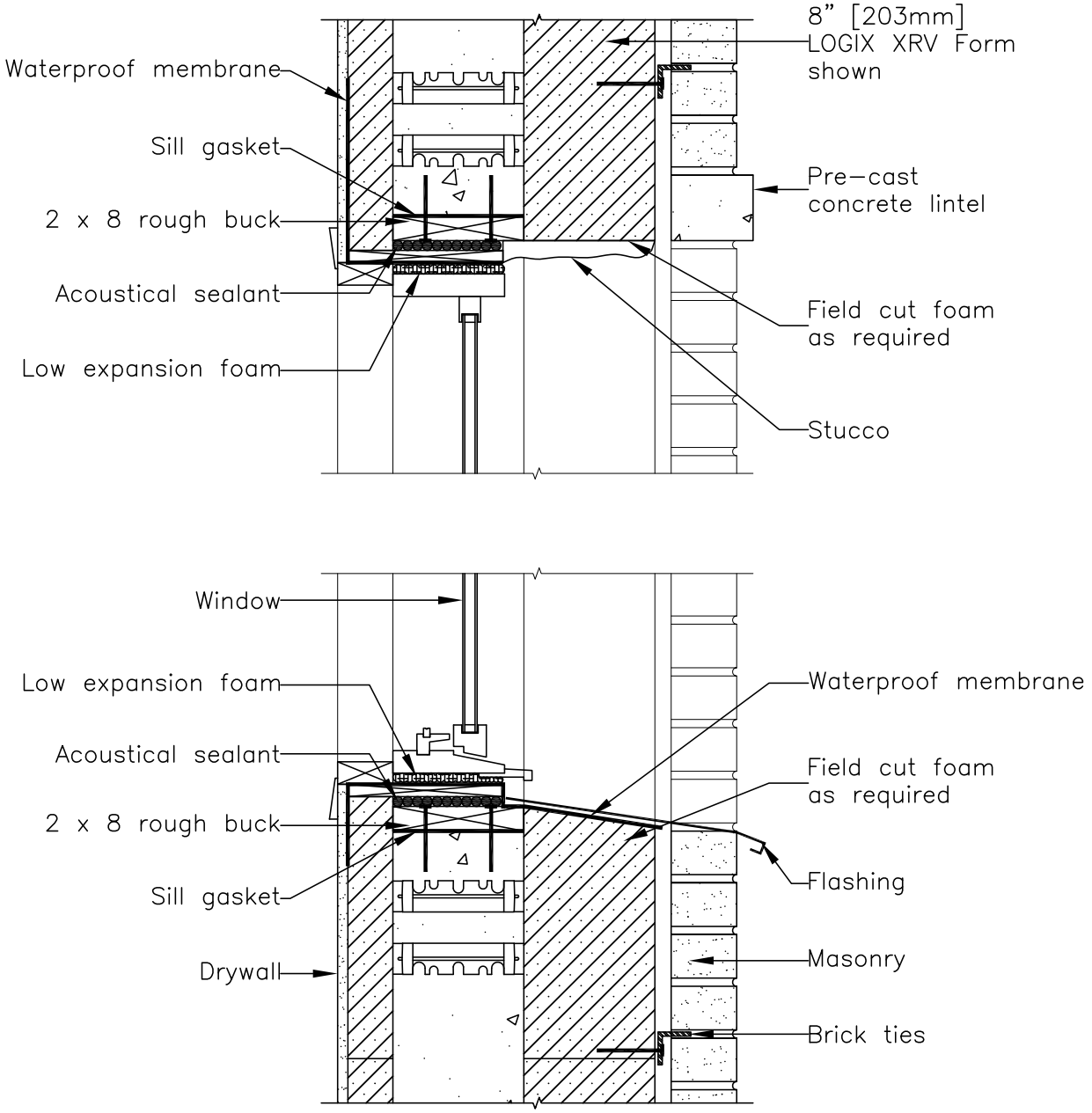
SECTION THROUGH LINTEL

CAD DRAWINGS

5.9.6 - WINDOW HEAD/SILL DETAIL WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

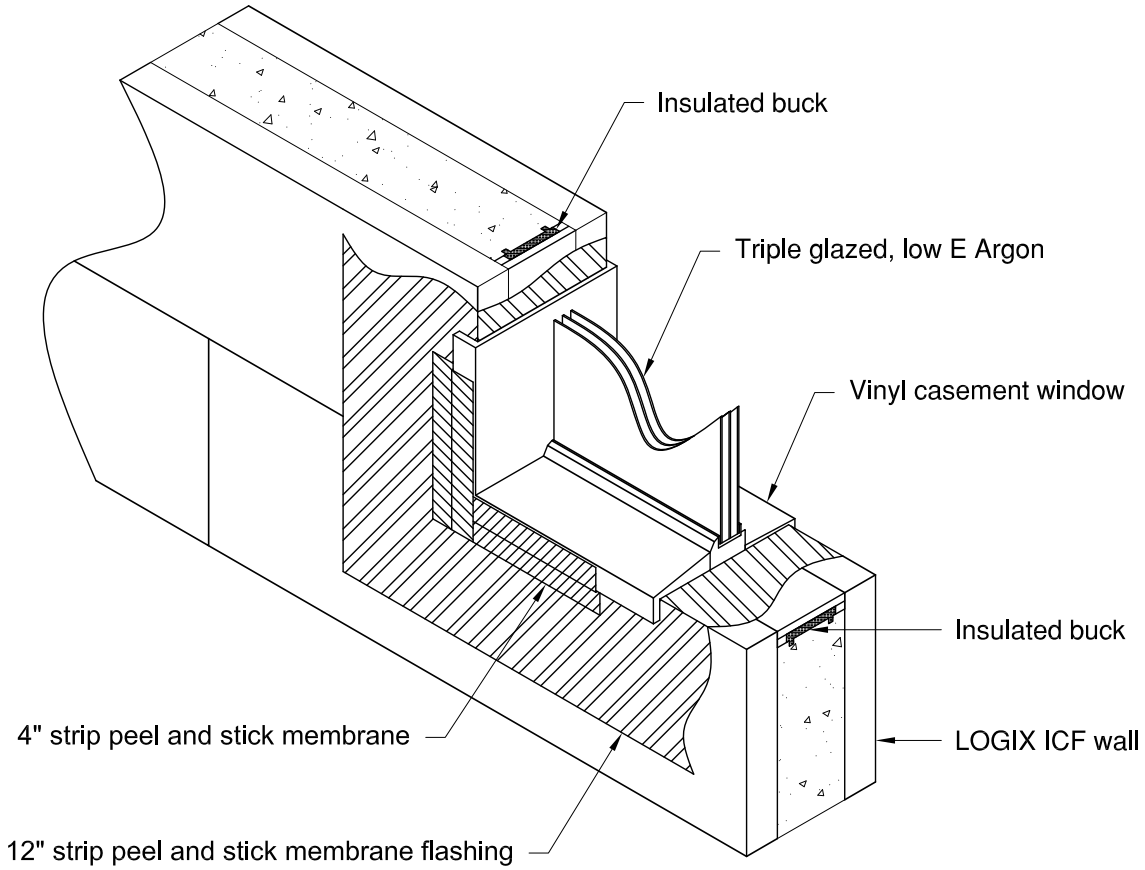


NOTES:

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

5.9.7 – WINDOW FLASHING DETAIL

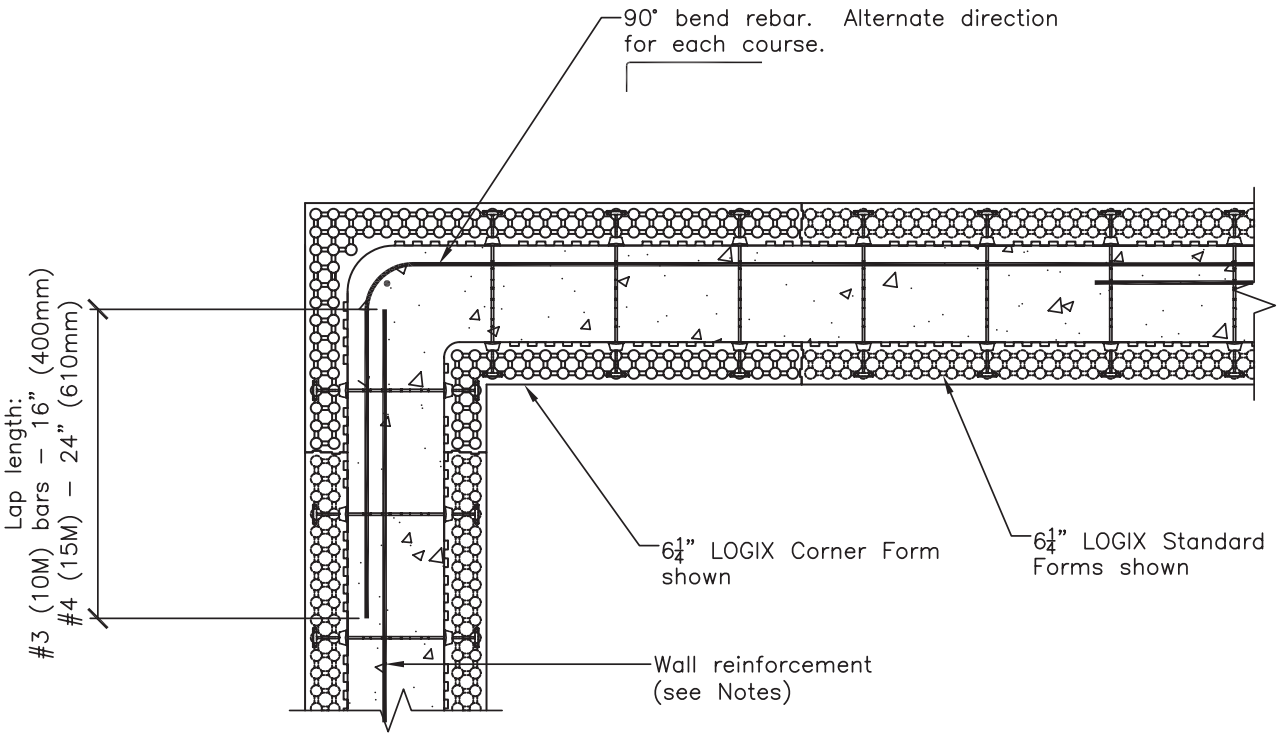
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

5.10 – SPECIAL DETAILS
5.10.1 – REINFORCING - CORNER WALL

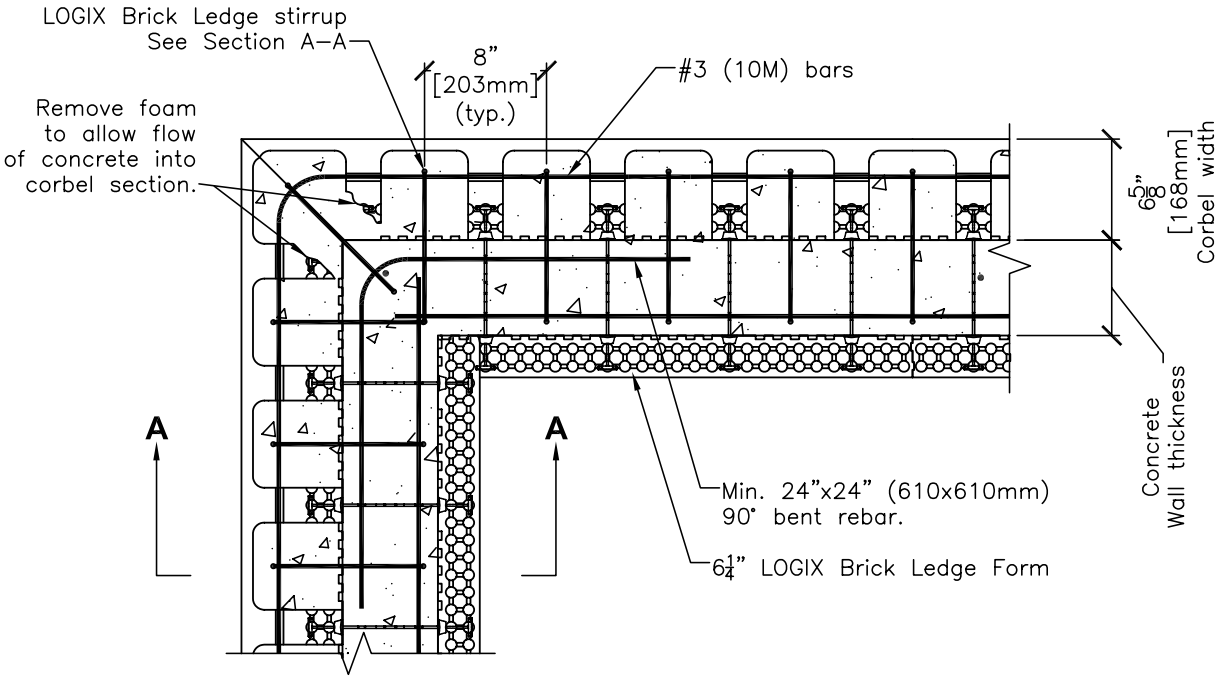
All drawings are downloadable at www.logixicf.com

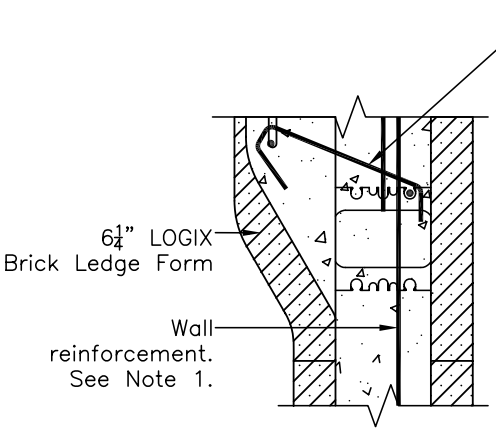


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

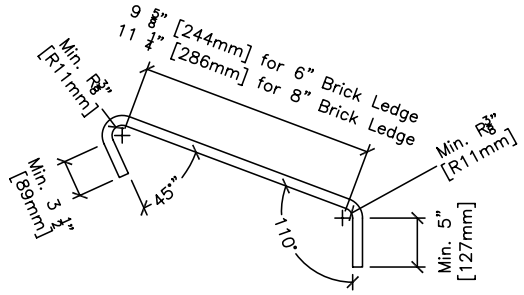
5.10.2 – REINFORCING - CORNER WITH BRICK LEDGE FORMS

All drawings are downloadable at www.logixicf.com





SECTION A-A



STIRRUP DETAIL
(See Note 2)

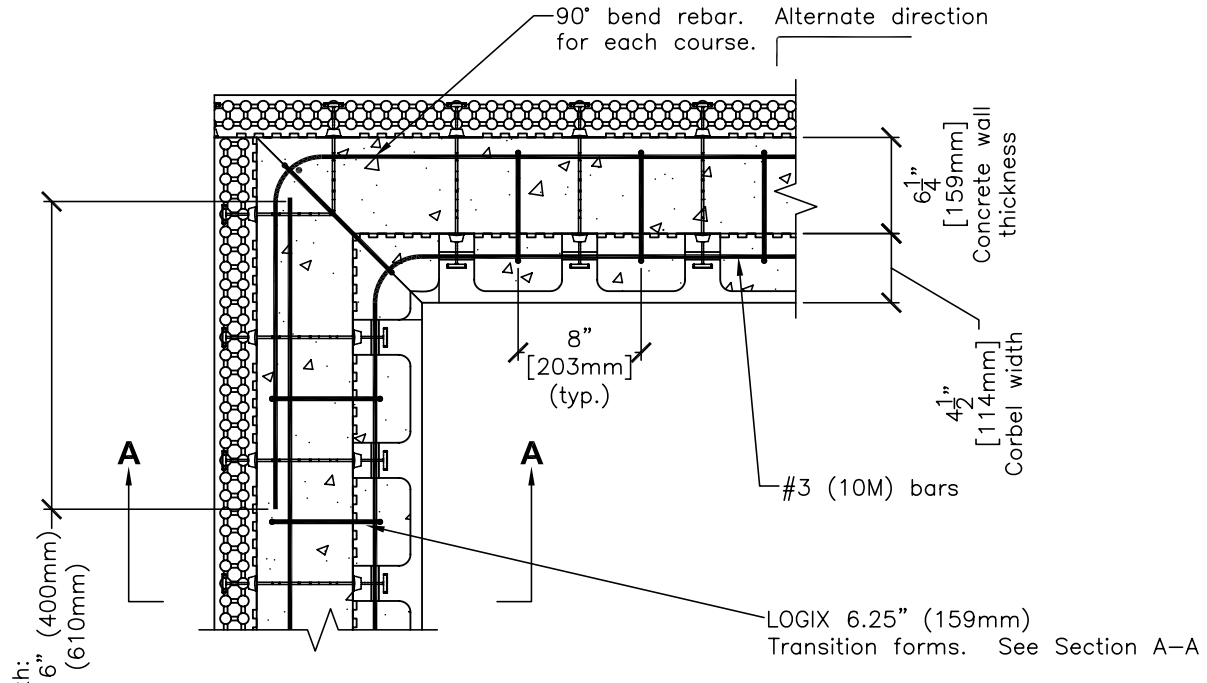
NOTES:

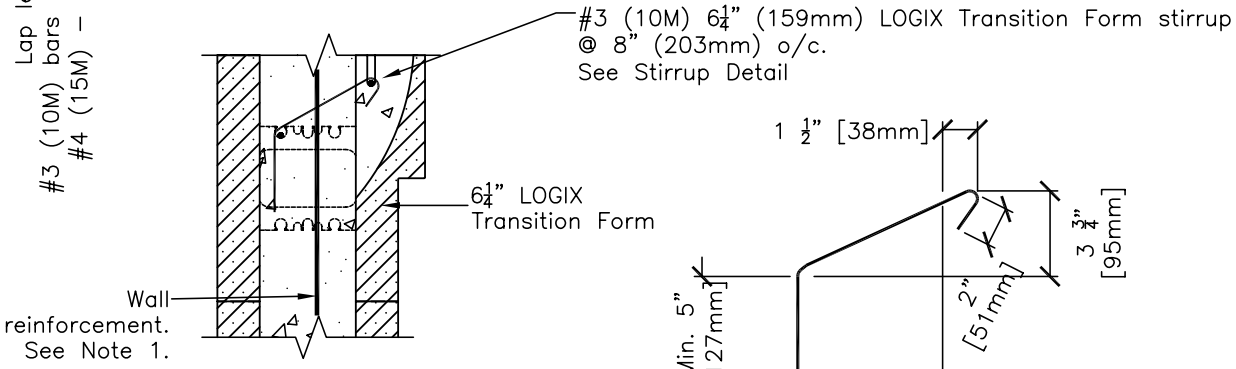
1. See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.
2. Stirrup shown is rated for 1300lbs/ft (19kN/m). For heavier load conditions and stirrup dimensions see Brick Ledge Stirrup details drawings.

5.10.3 – REINFORCING - CORNER WITH 6.25" TRANSITION FORMS

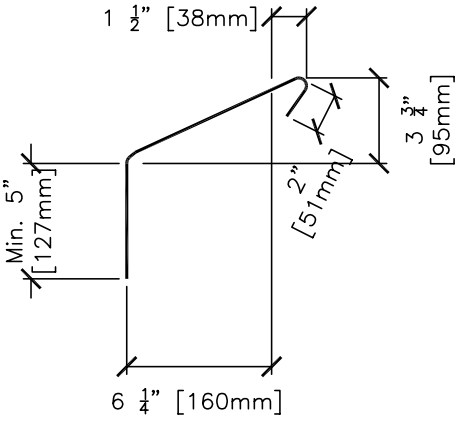
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS





SECTION A-A



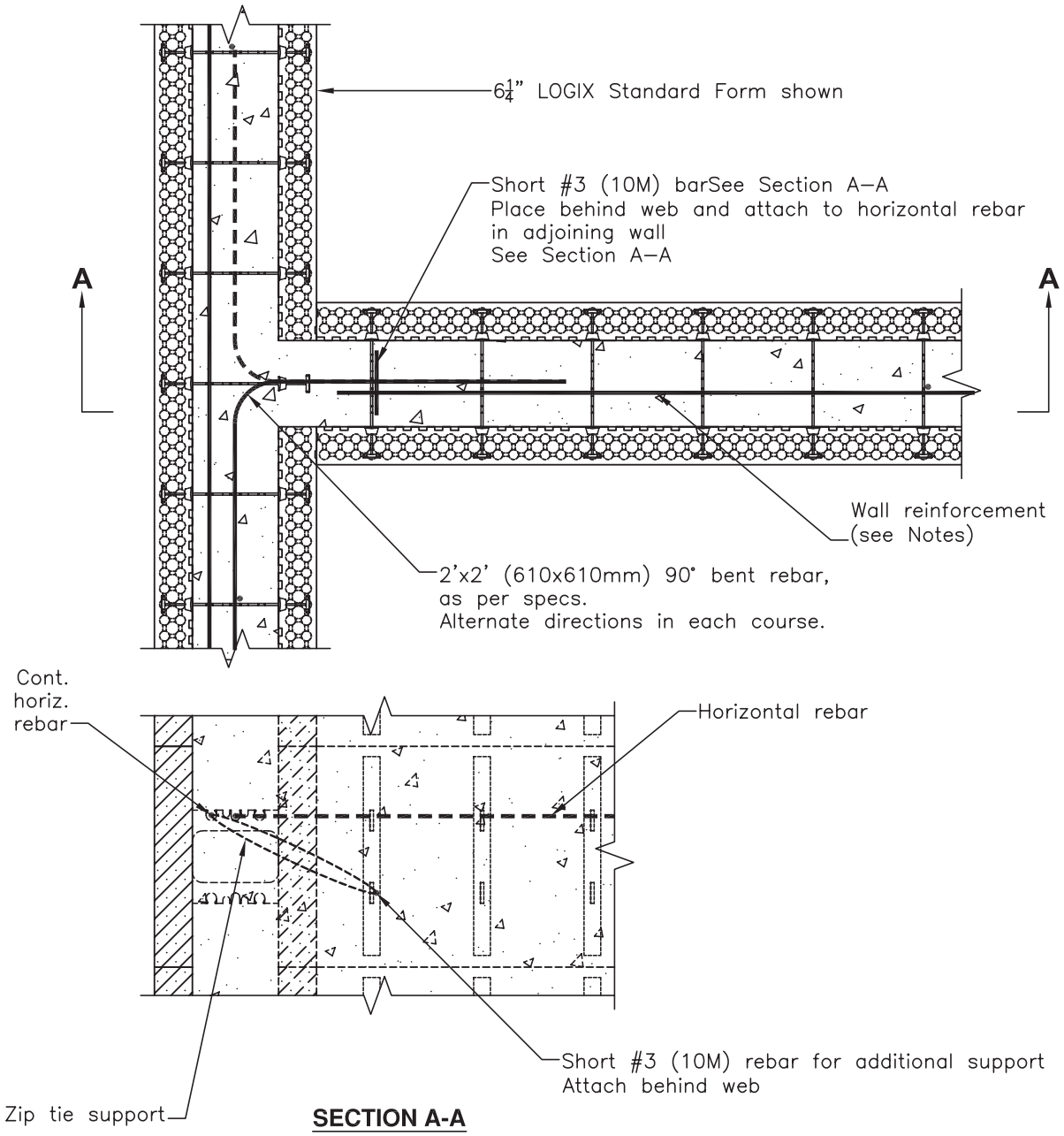
STIRRUP DETAIL
(See Note 2)

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

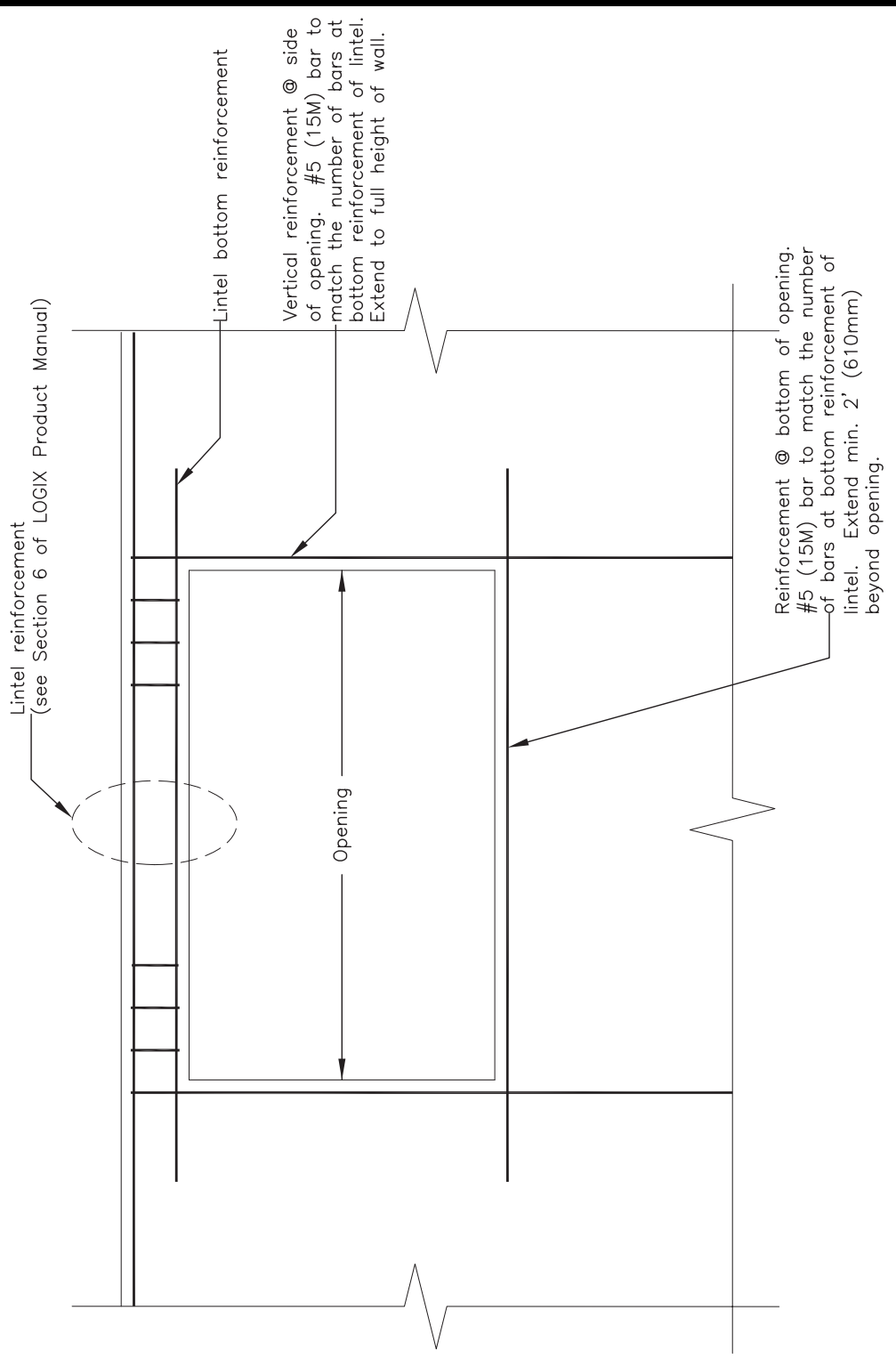
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

5.10.5 – TYPICAL REINFORCEMENT AROUND OPENINGS

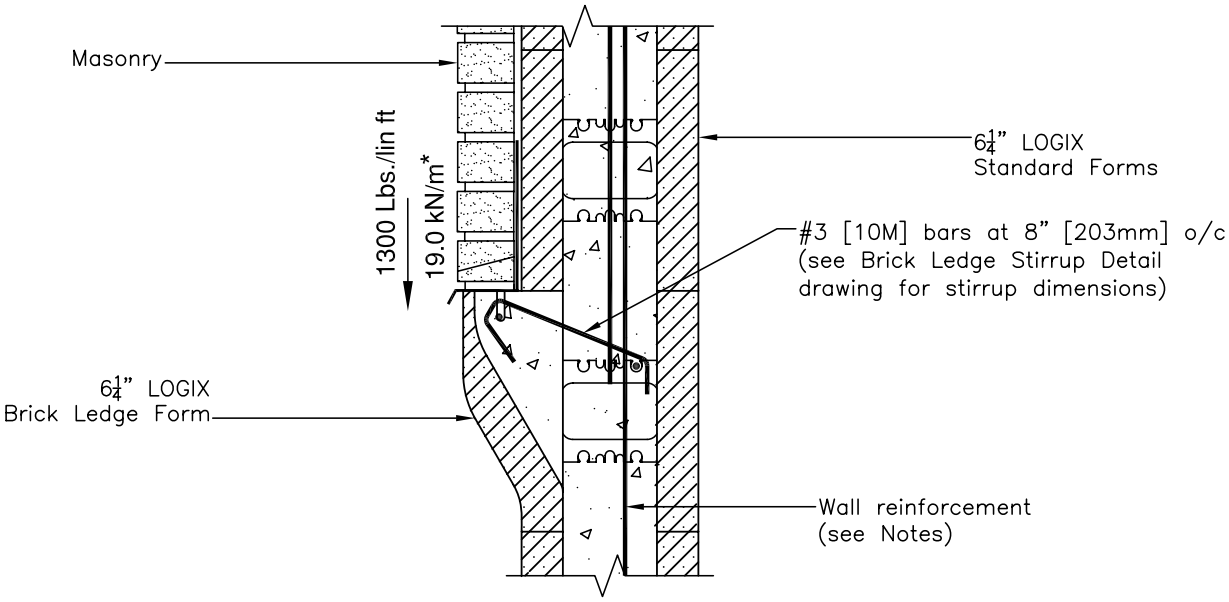
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

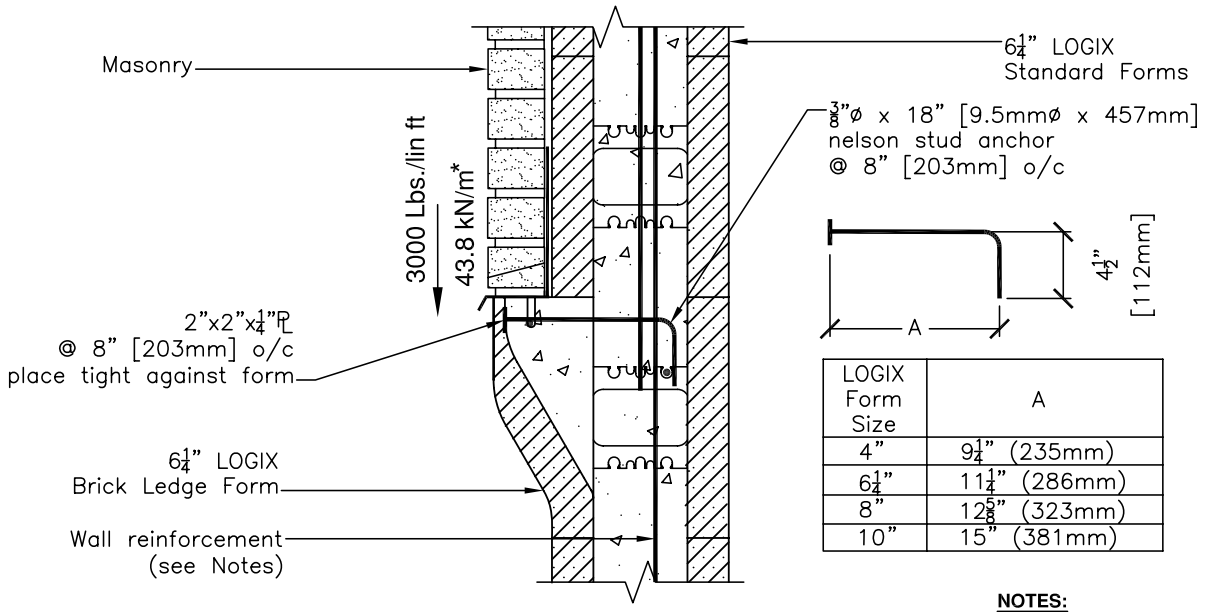


5.10.6 / 5.10.7 – BRICK LEDGE STANDARD REINFORCEMENT / BRICK LEDGE HEAVY REINFORCEMENT

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)

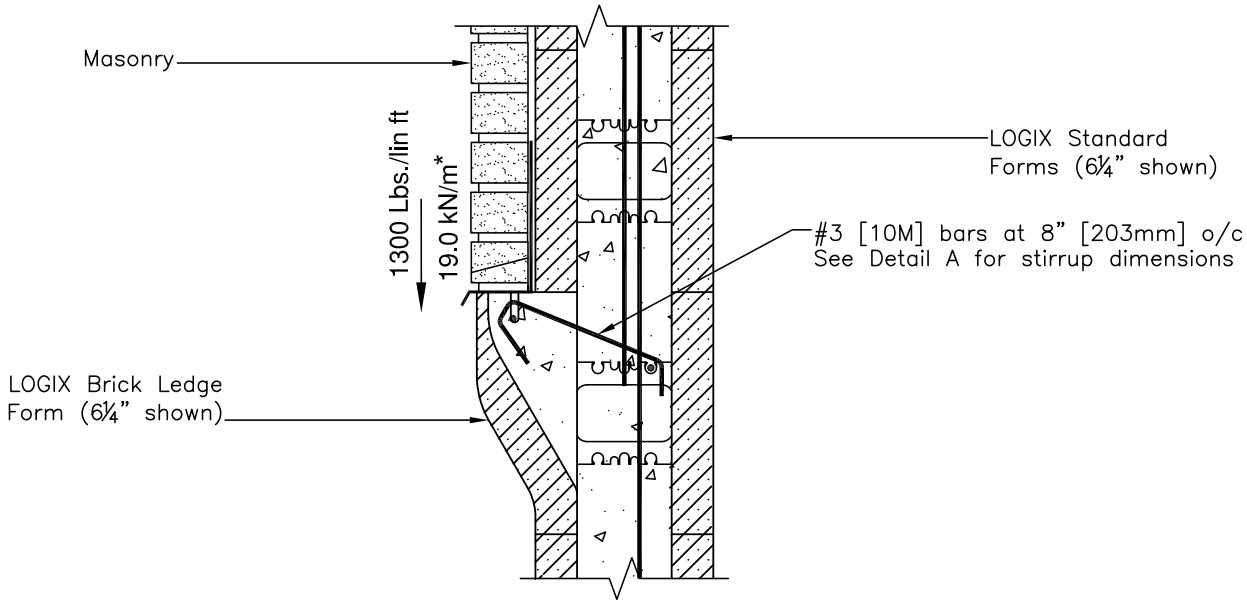
5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

*1kN = 224.8lb

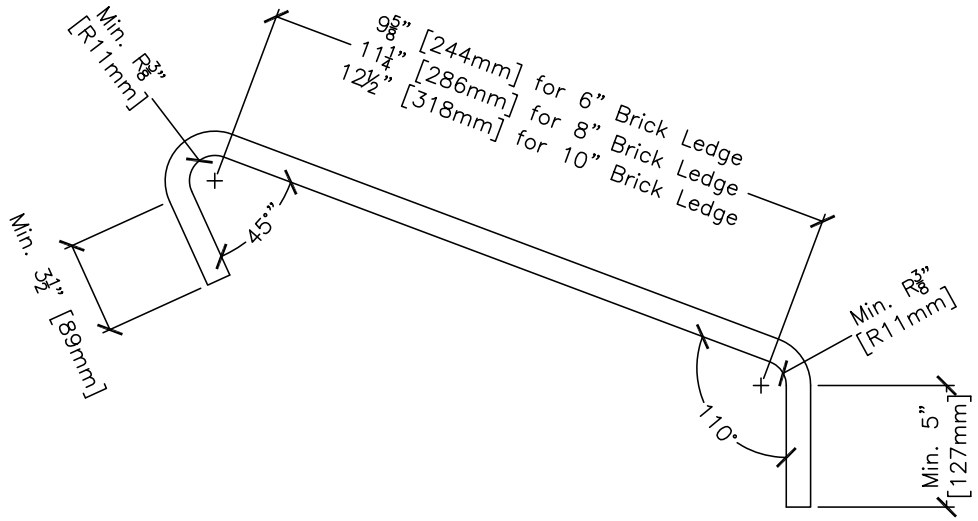
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.8 – BRICK LEDGE STIRRUP DETAIL

All drawings are downloadable at www.logixicf.com



BRICK LEDGE STANDARD REINFORCEMENT



DETAIL A

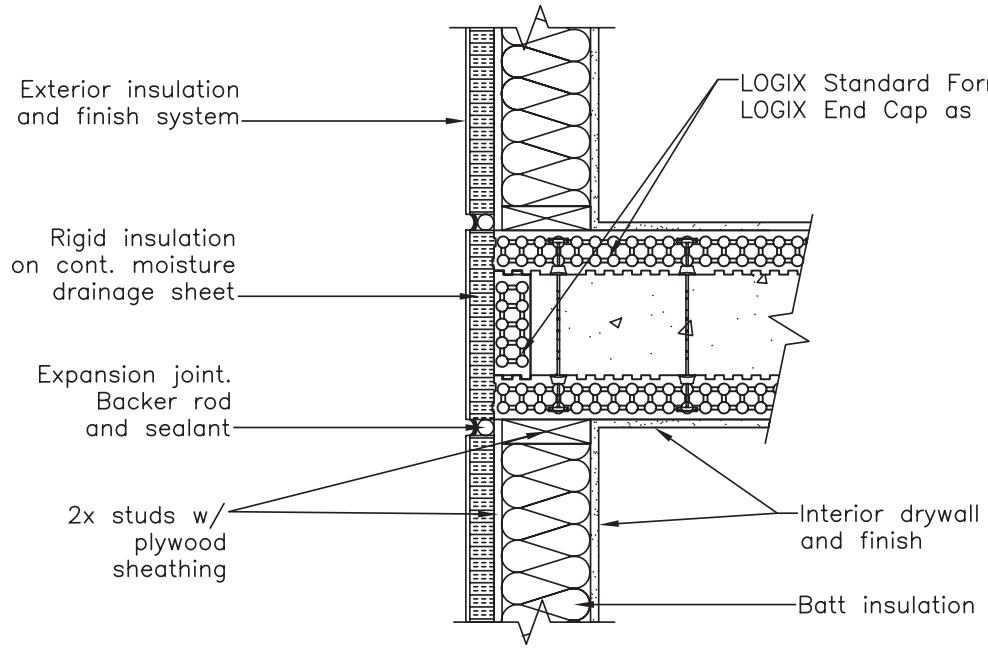
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

*1kN = 224.8lb

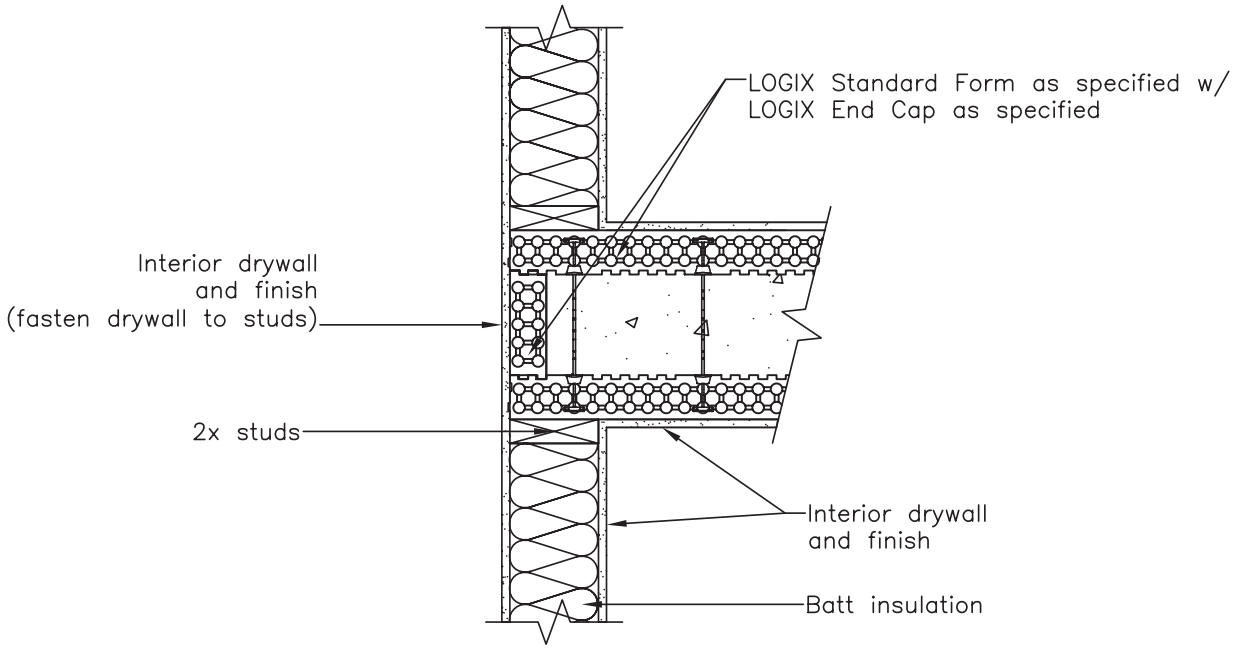
CAD DRAWINGS

5.10.9 – ATTACHING TO STUD FRAMED WALLS

All drawings are downloadable at www.logixicf.com



INTERIOR LOGIX WALL TO EXTERIOR STUD FRAMED WALLS



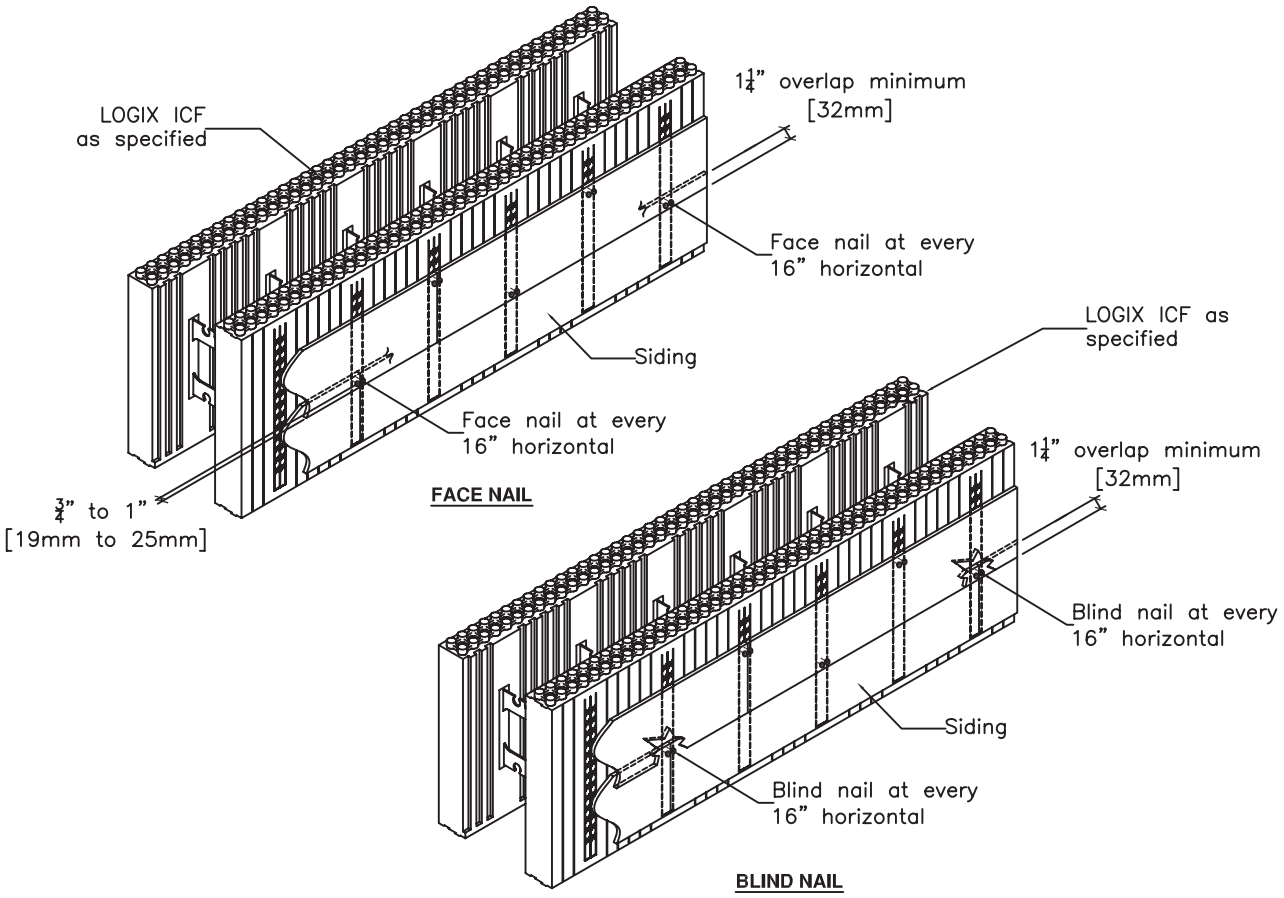
INTERIOR LOGIX WALL TO INTERIOR STUD FRAMED WALLS

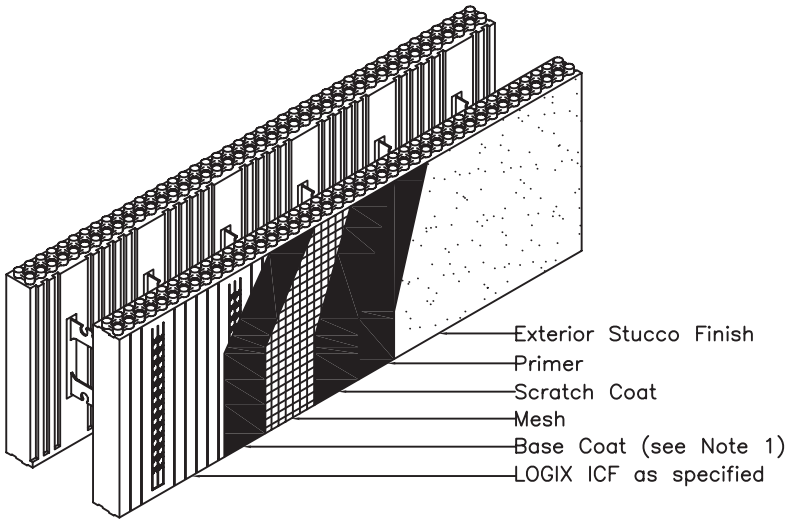
CAD DRAWINGS

5.10.10 – LOGIX ICF WITH EXTERIOR FINISHES

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



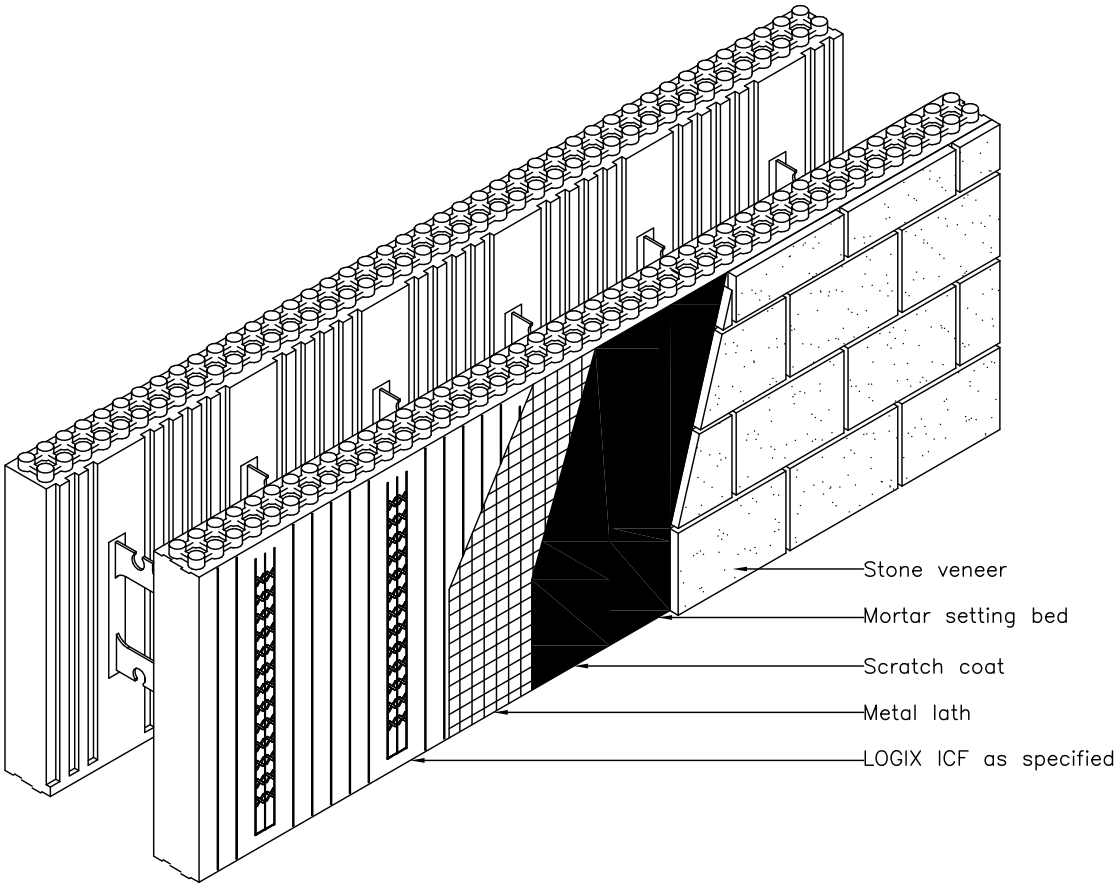


NOTES:

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



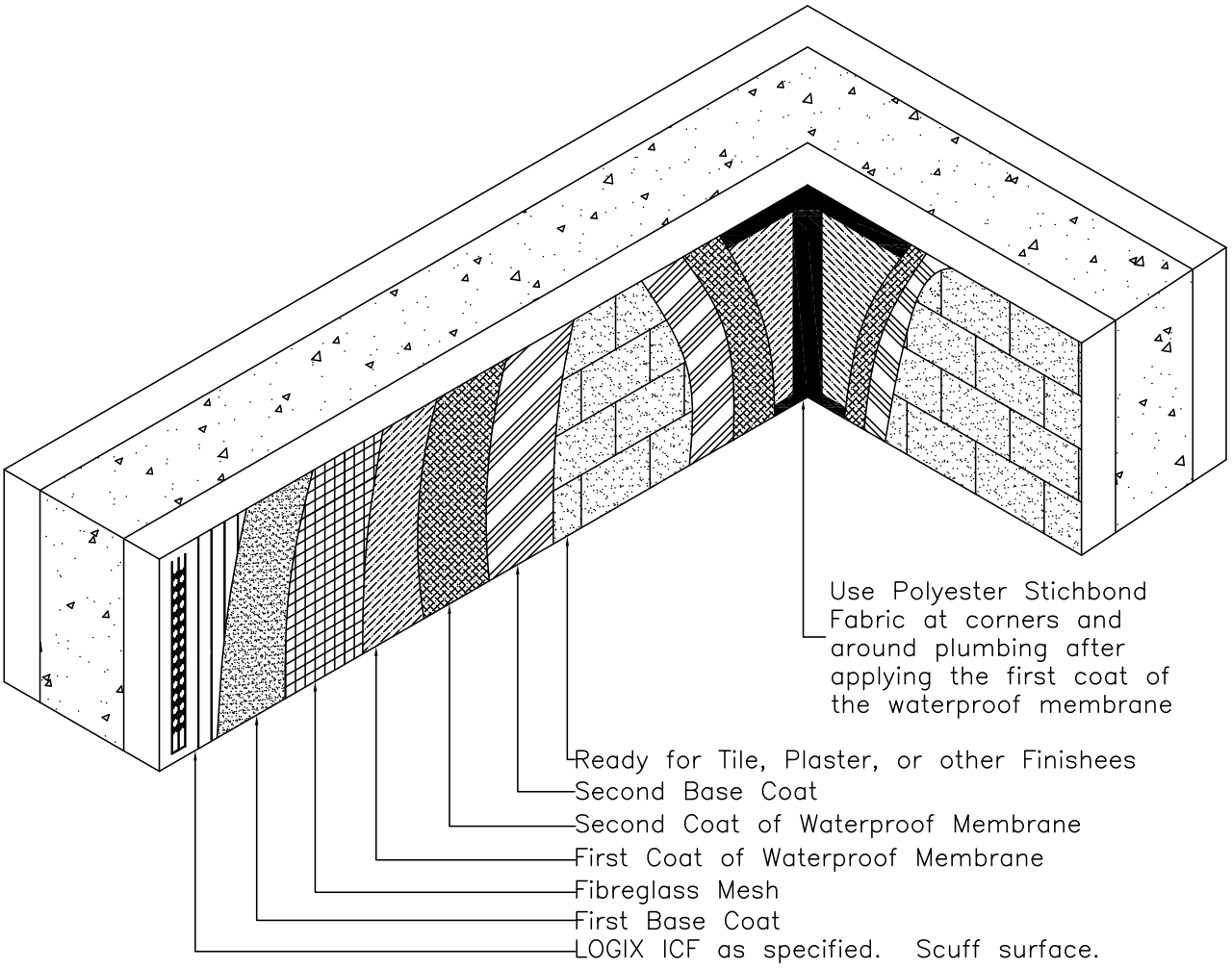
NOTES:

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

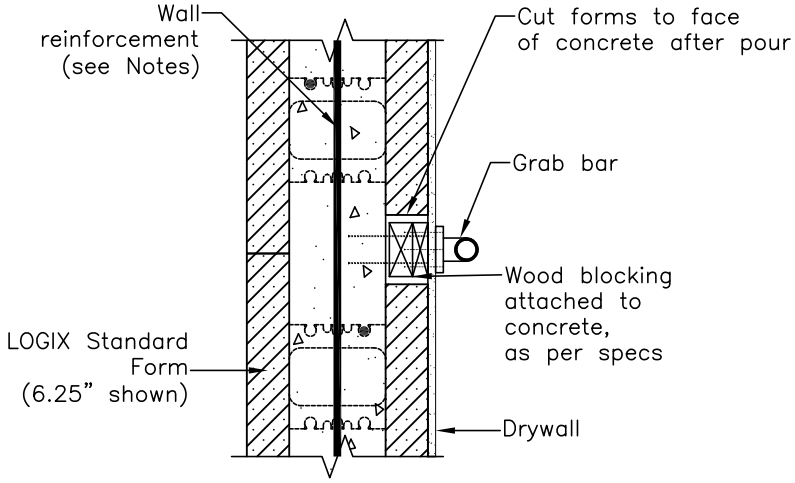
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

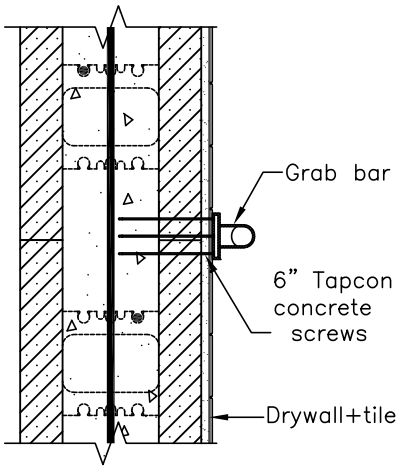


5.10.13 – GRAB BAR SUPPORT

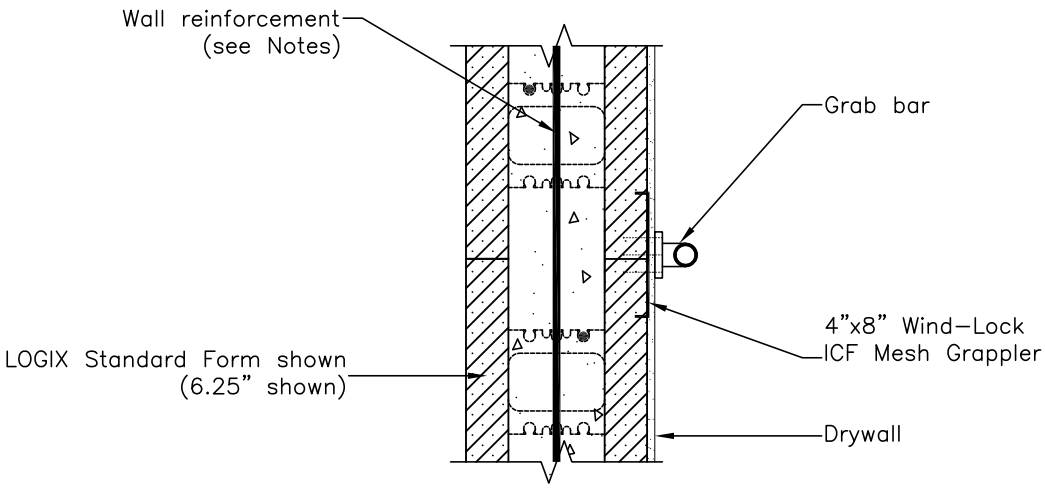
All drawings are downloadable at www.logixicf.com



WOOD BLOCKING



TAPCON CONCRETE SCREWS

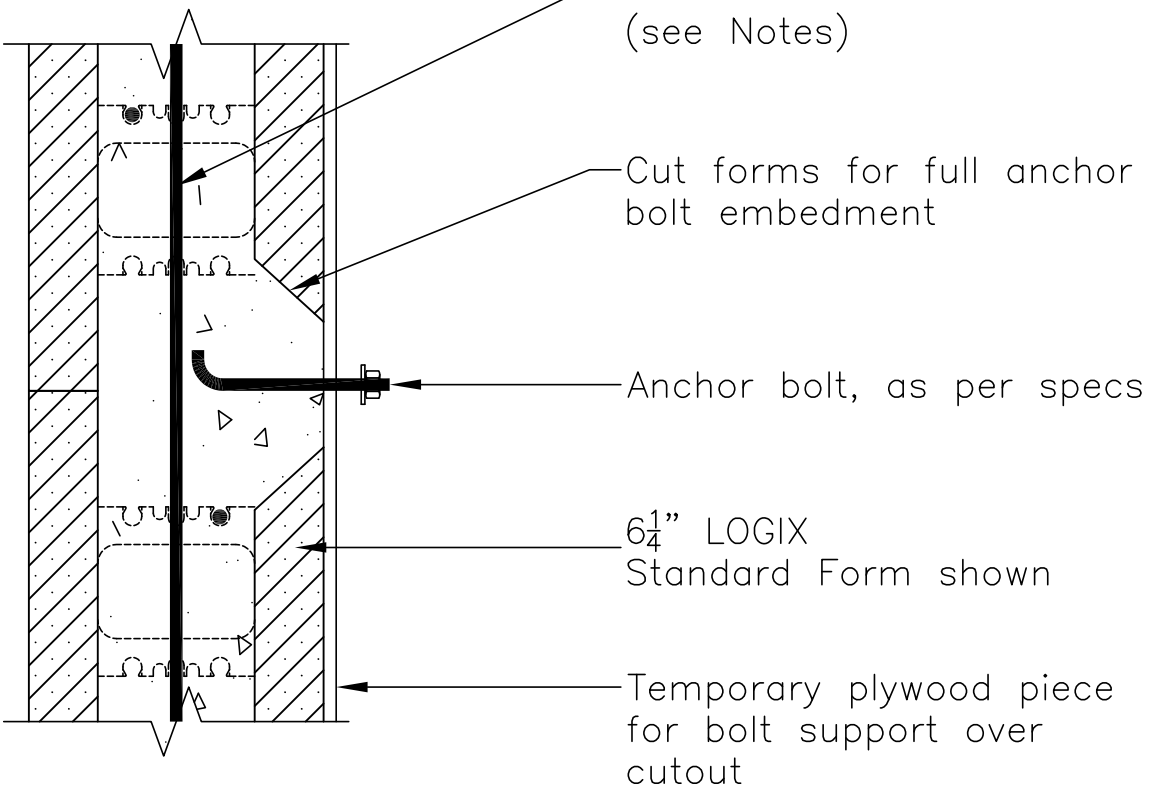


ICF MESH GRAPPLER

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

CAD DRAWINGS

5.10.14 – DECK ATTACHMENT

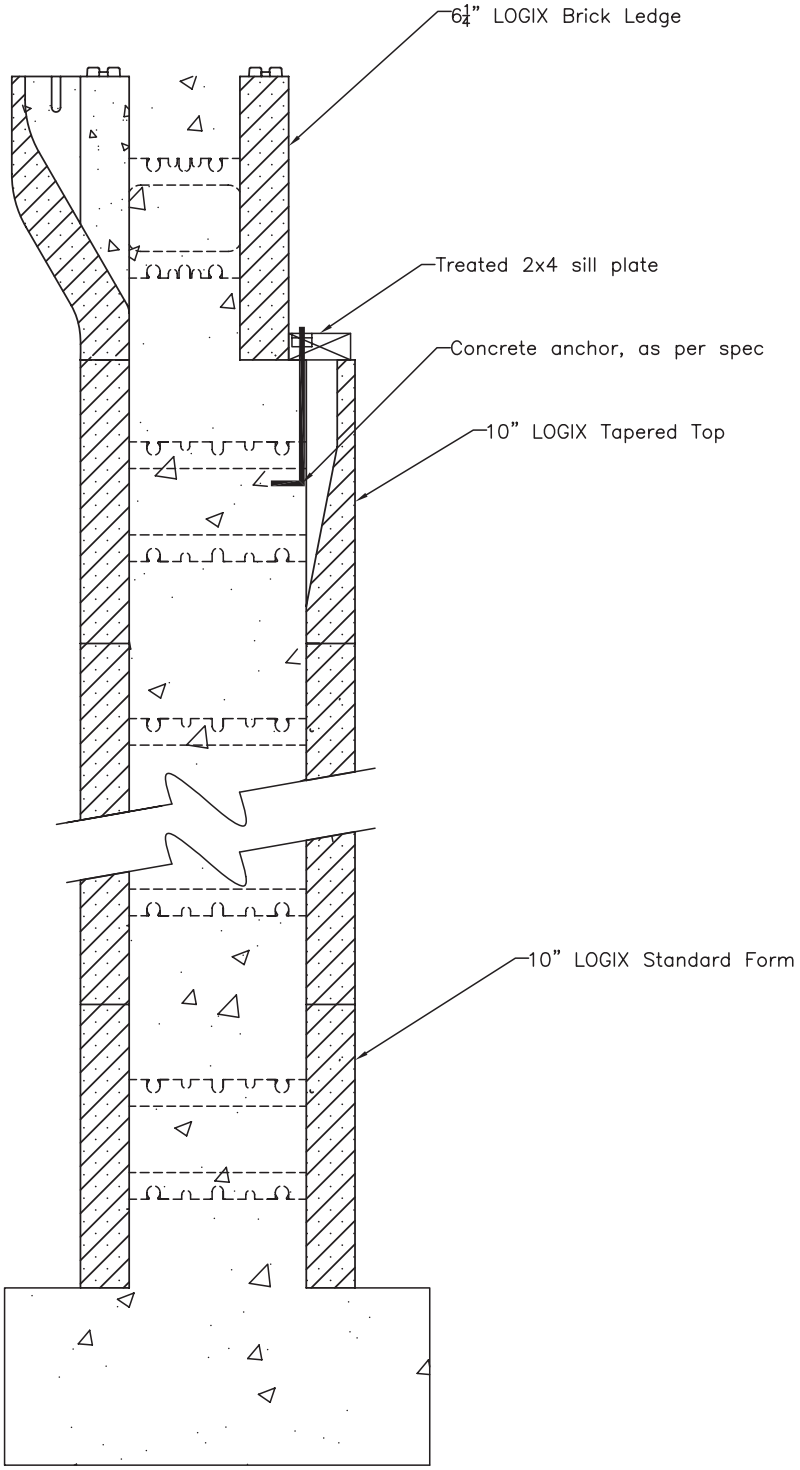


NOTES:

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

CAD DRAWINGS

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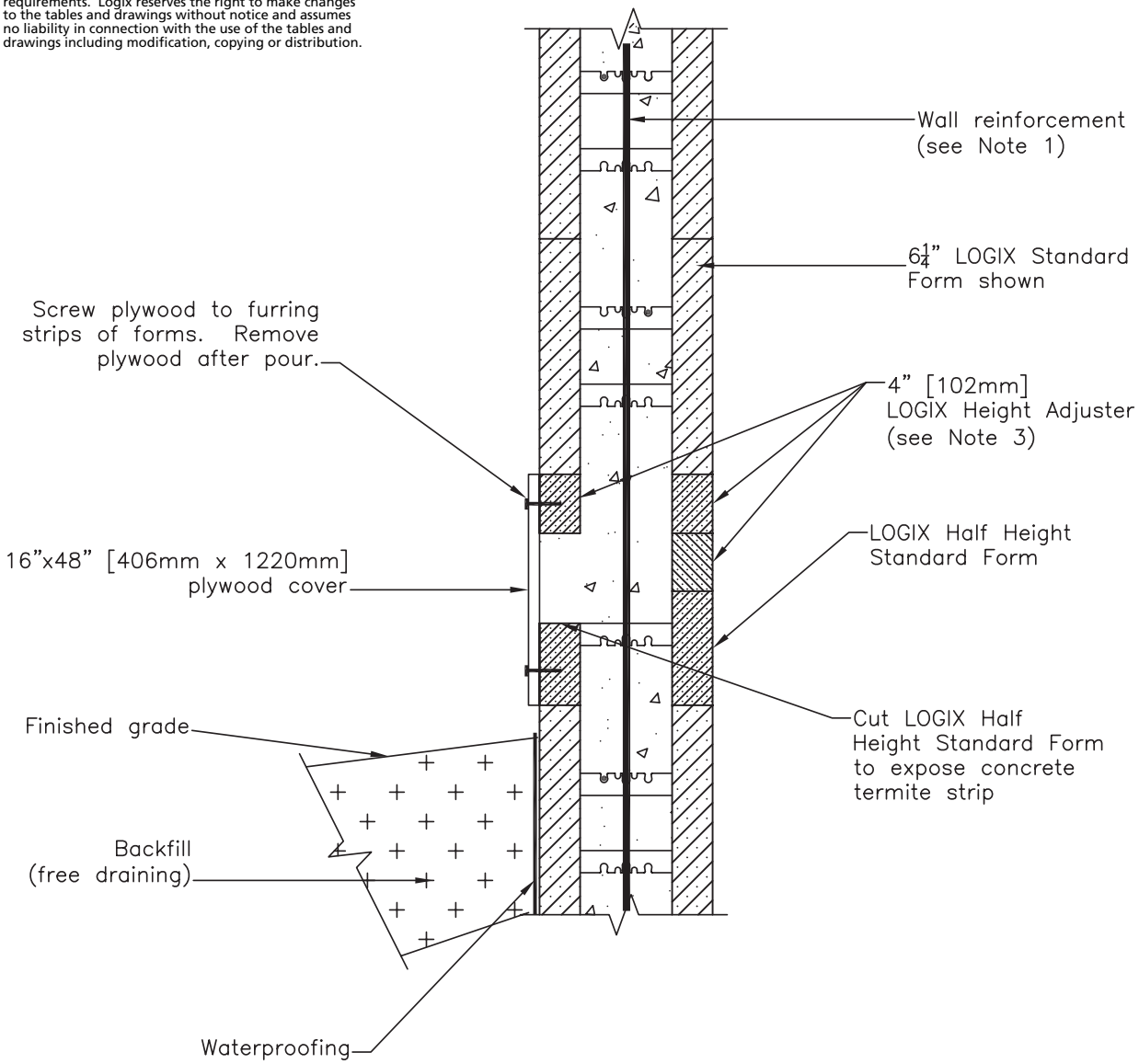
Rev. Sep 23/09

5.10.16 – TERMITE STRIP

All drawings are downloadable at www.logixicf.com

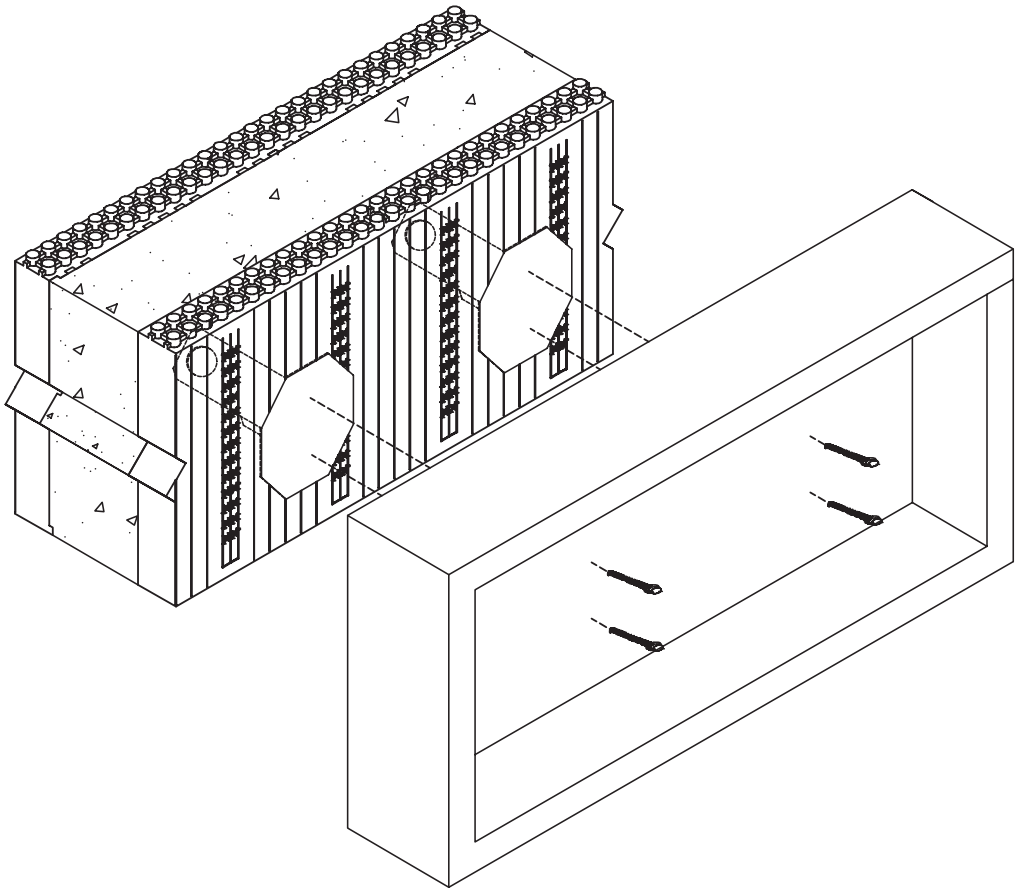


NOTES:

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.

5.10.17 – SIMPSON STRONG TIE WITH CABINETS

All drawings are downloadable at www.logixicf.com



CABINET INSTALLATION

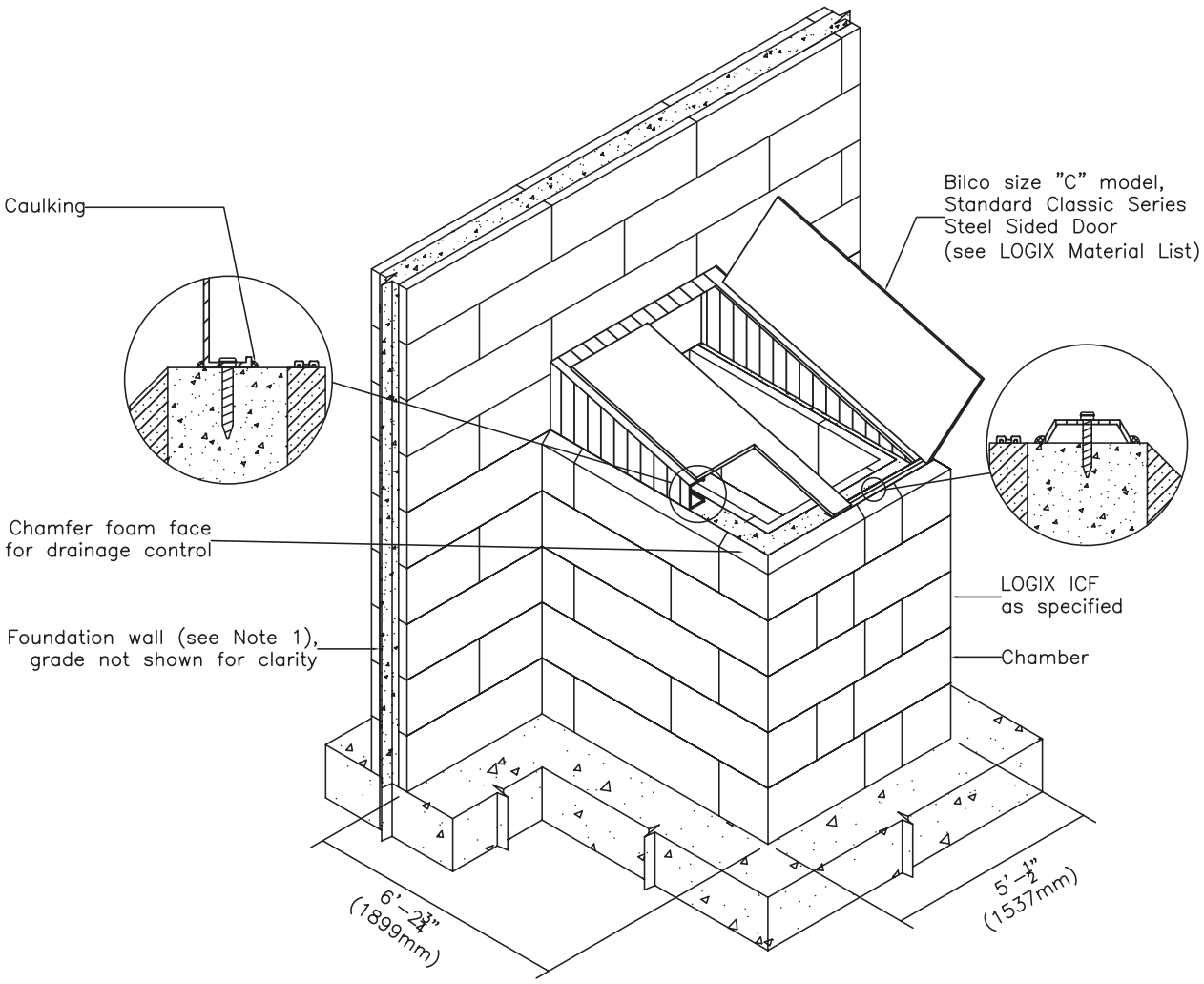
NOTES:

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

CAD DRAWINGS



LOGIX Material List for Bilco Size "C" Doors:

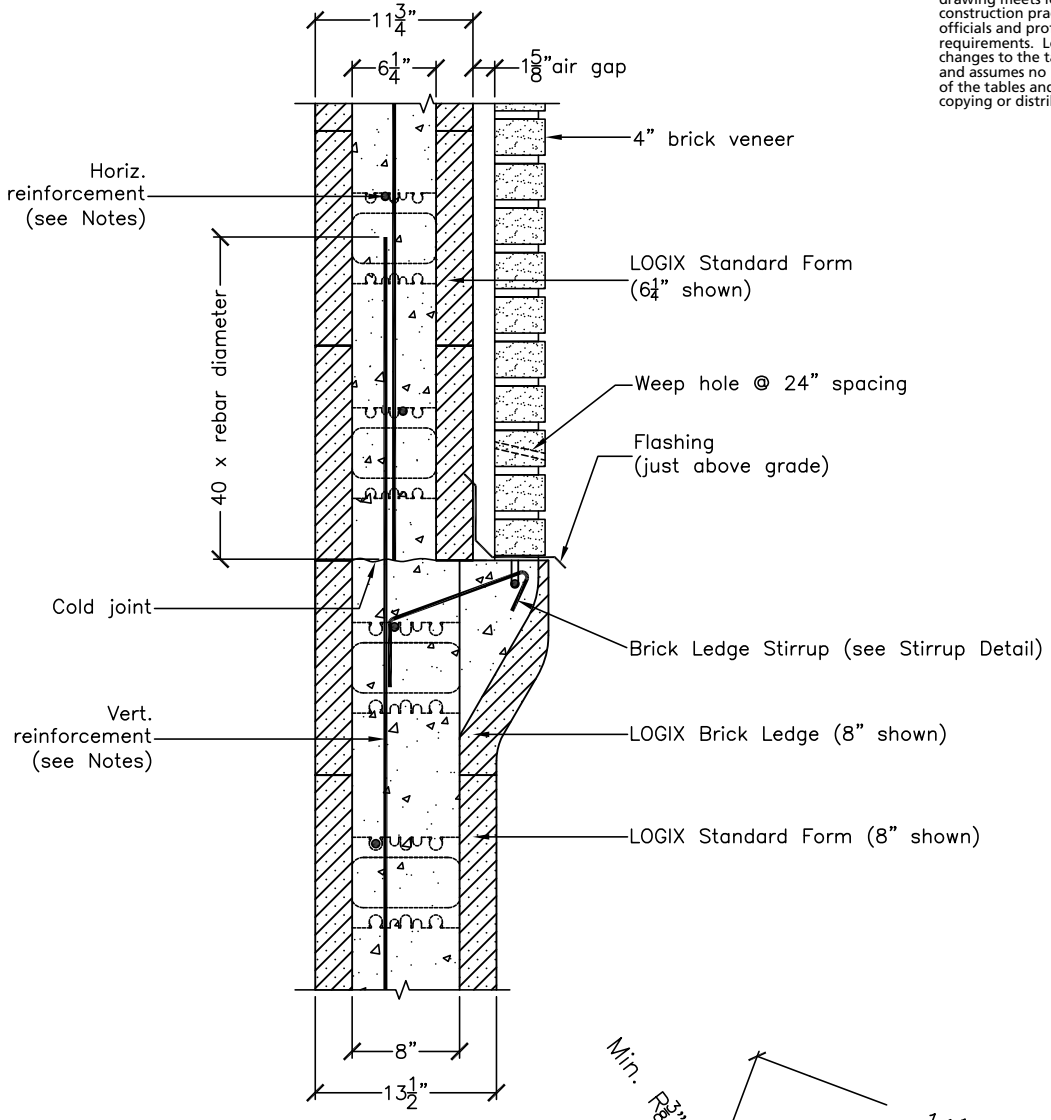
90° Corner Forms (per course) – 2
Standards (per course) – 3 (Field cut to size)

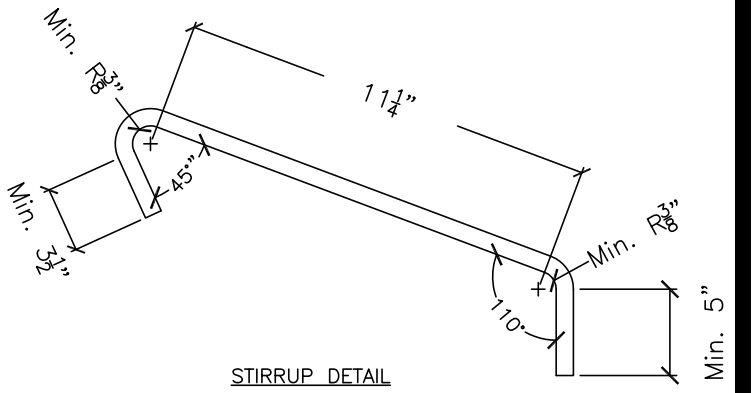
NOTES:

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





STIRRUP DETAIL

NOTES:

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

CAD DRAWINGS

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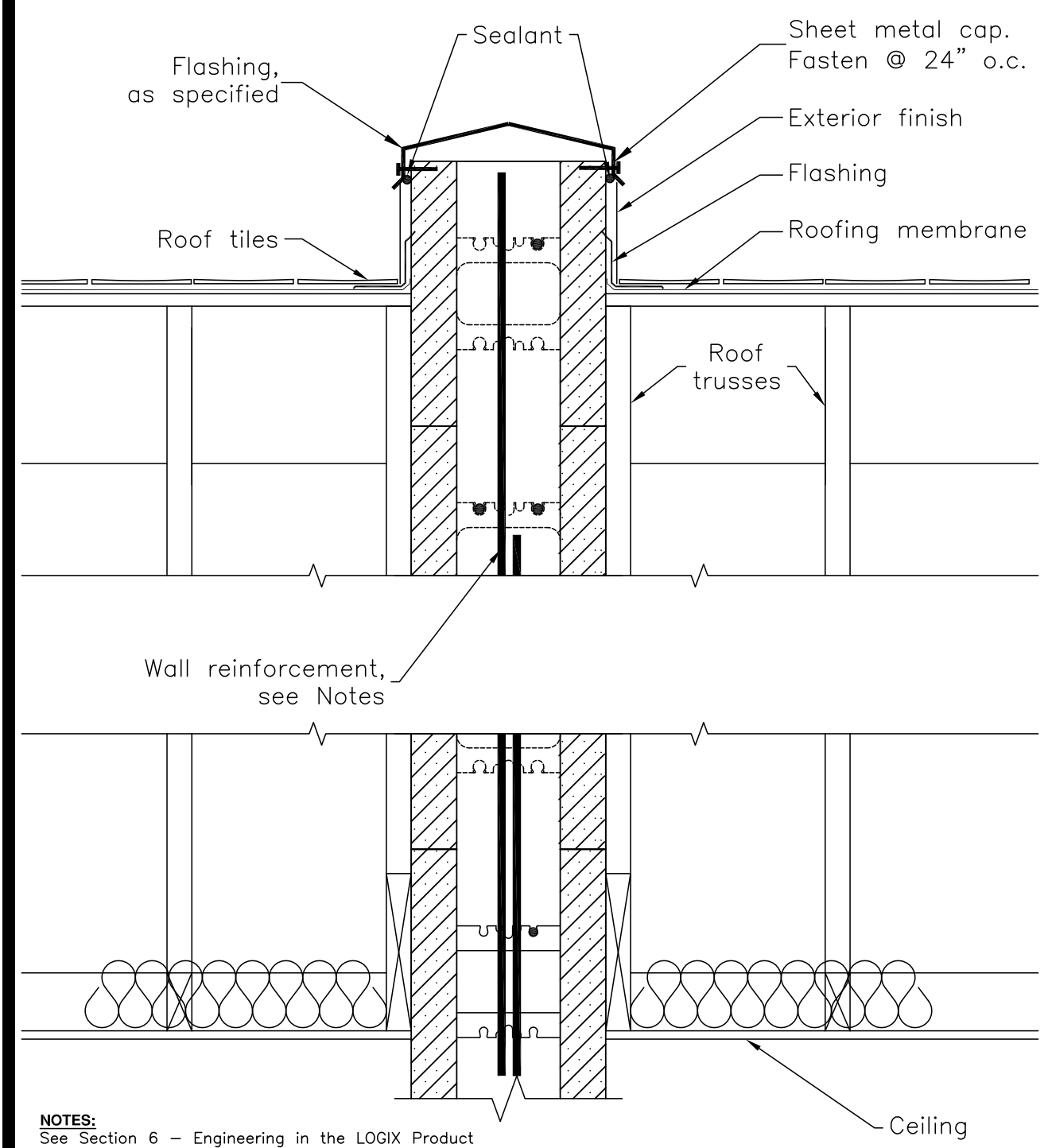
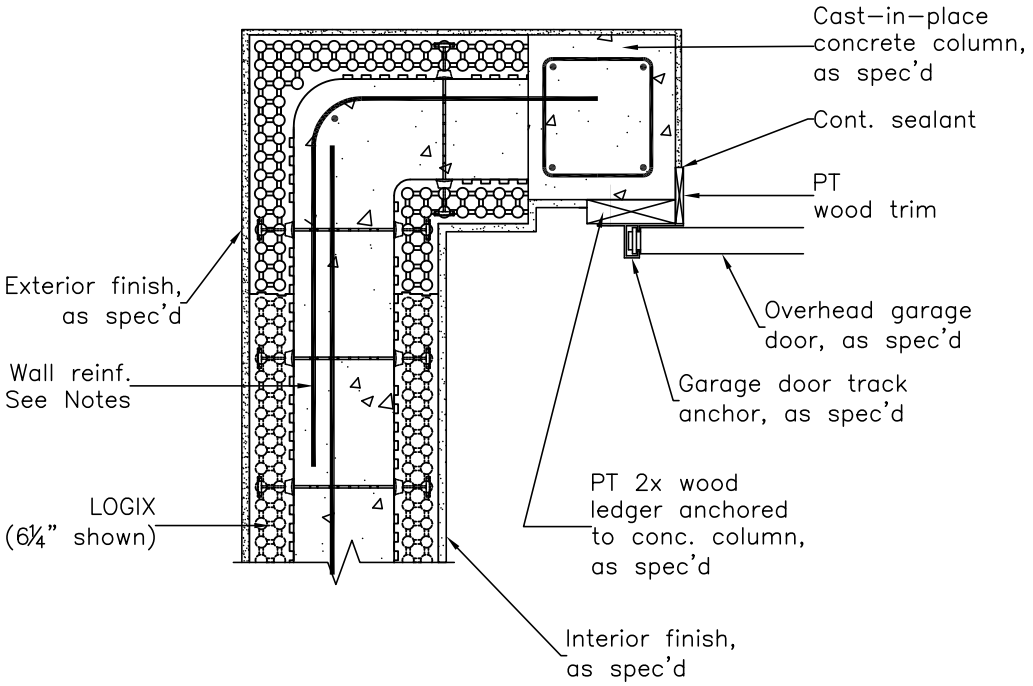
5.10.20 – FIRE WALL ABOVE ROOF LINE

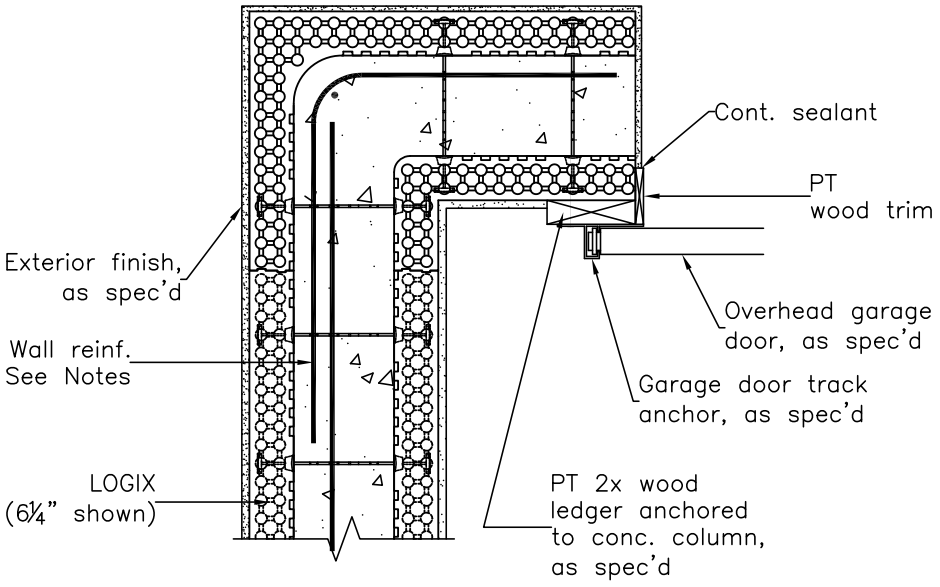


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.21 – OVERHEAD GARAGE DOOR



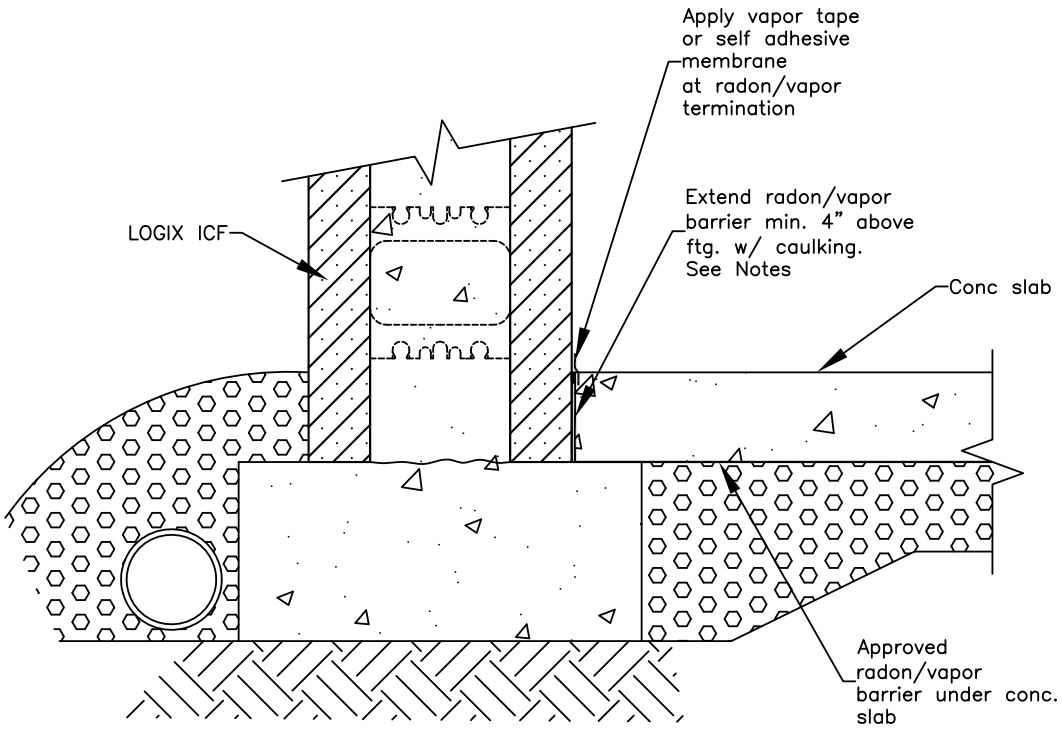
AGAINST CAST-IN-PLACE CONCRETE



AGAINST LOGIX

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

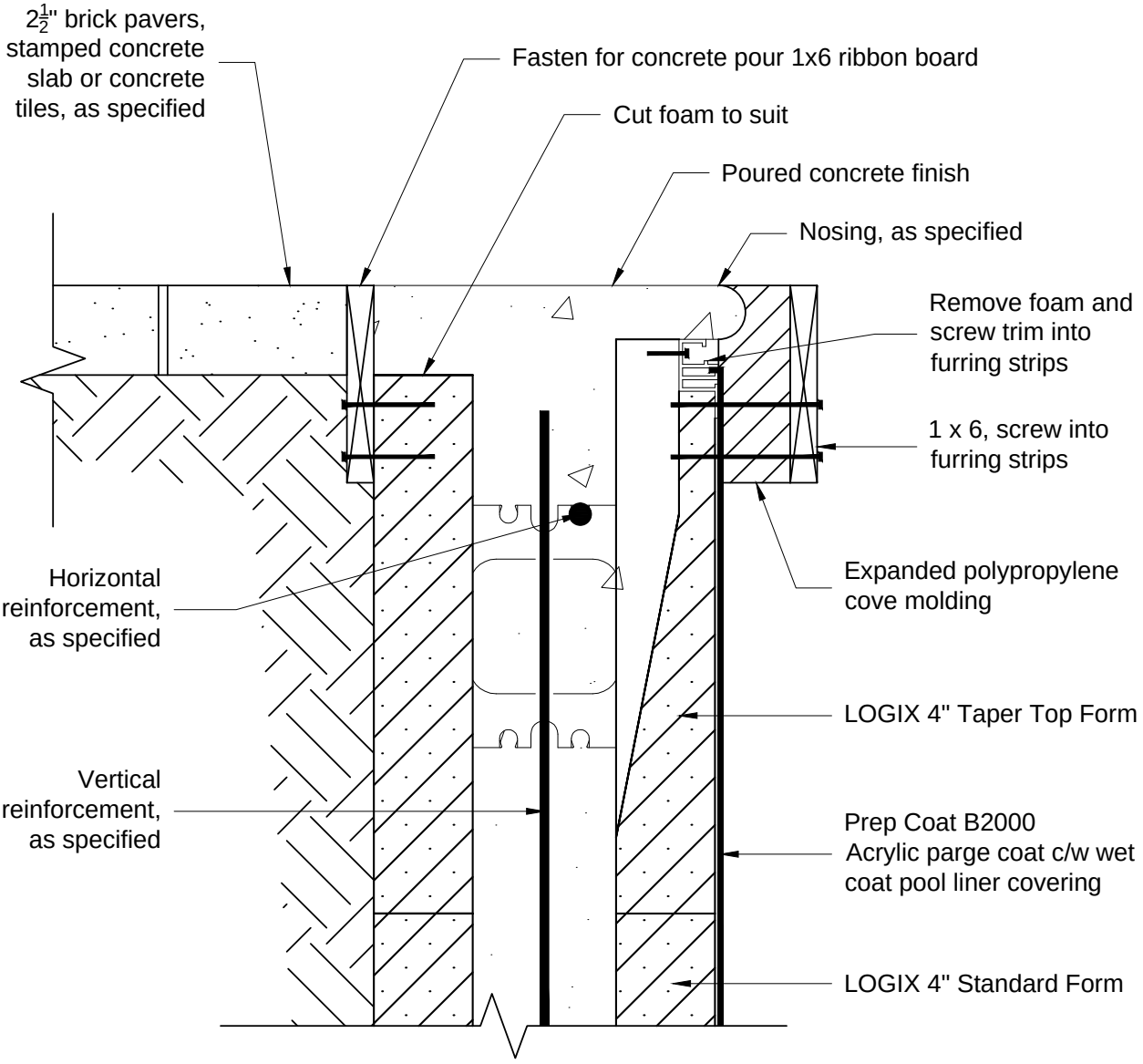
5.10.22 – RADON BARRIER UNDER SLAB



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

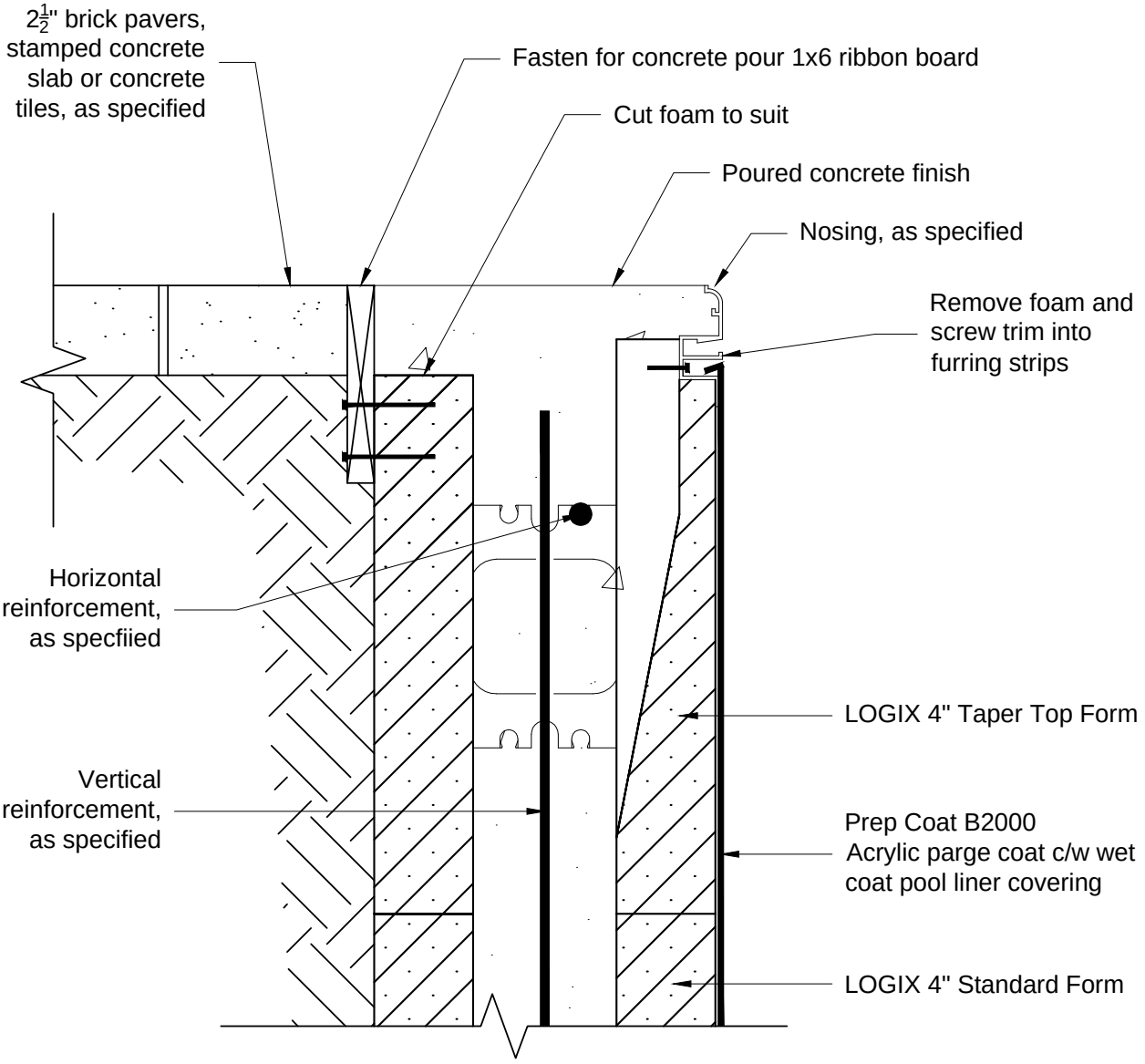


CAD DRAWINGS

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

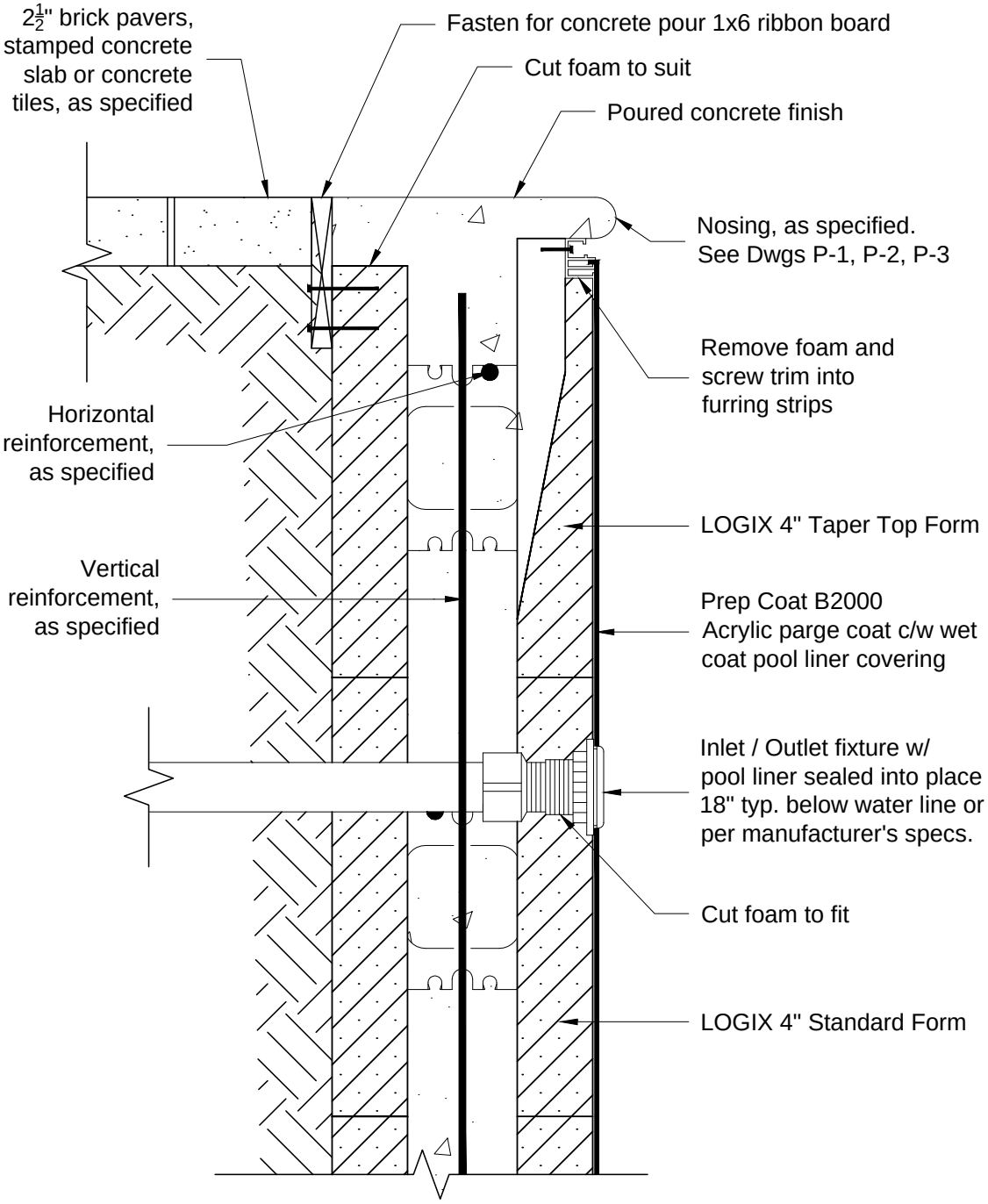
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



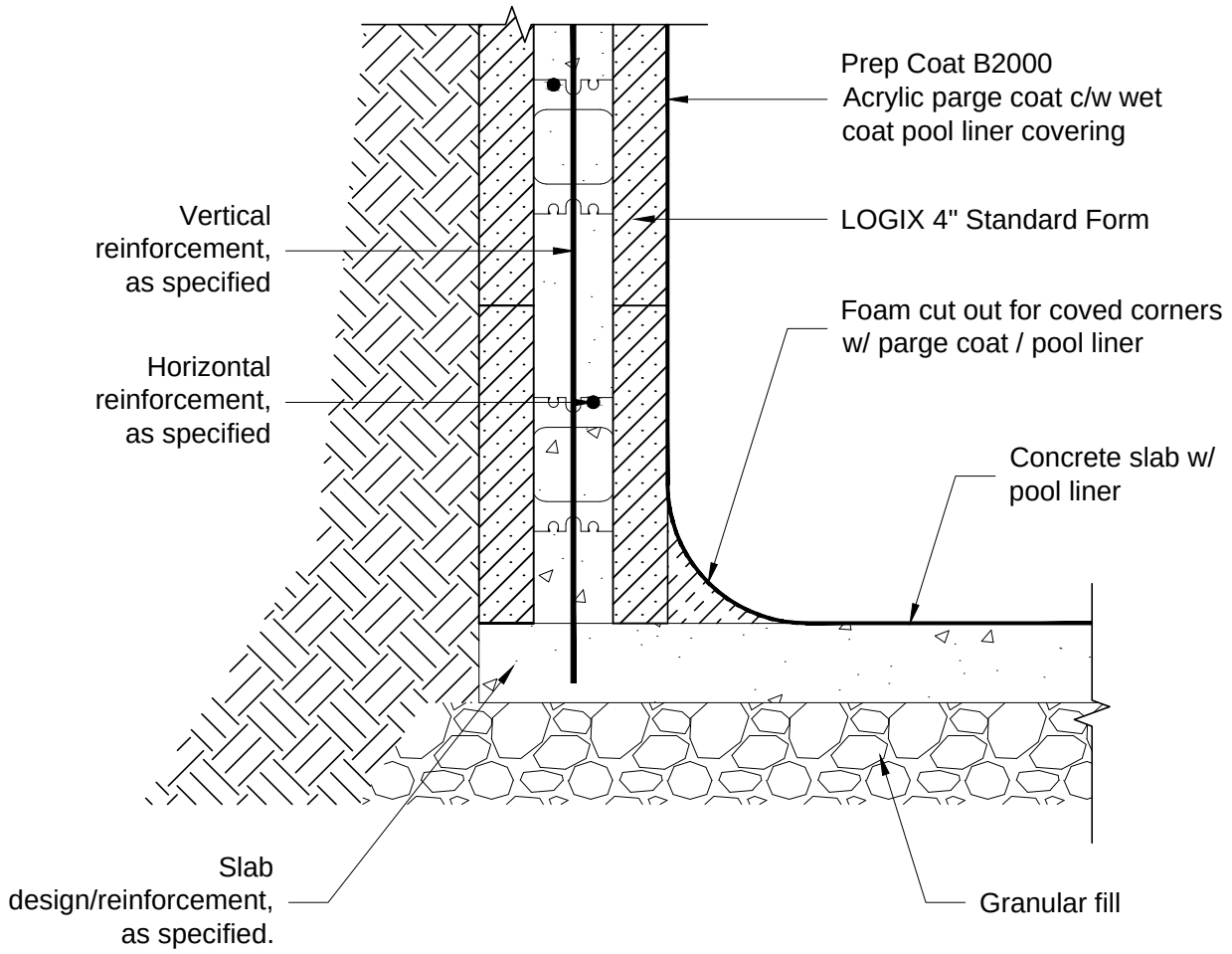
5.10.25 – POOL DETAIL OF INLET / OUTLET FIXTURE (3 OF 5)

All drawings are downloadable at www.logixicf.com



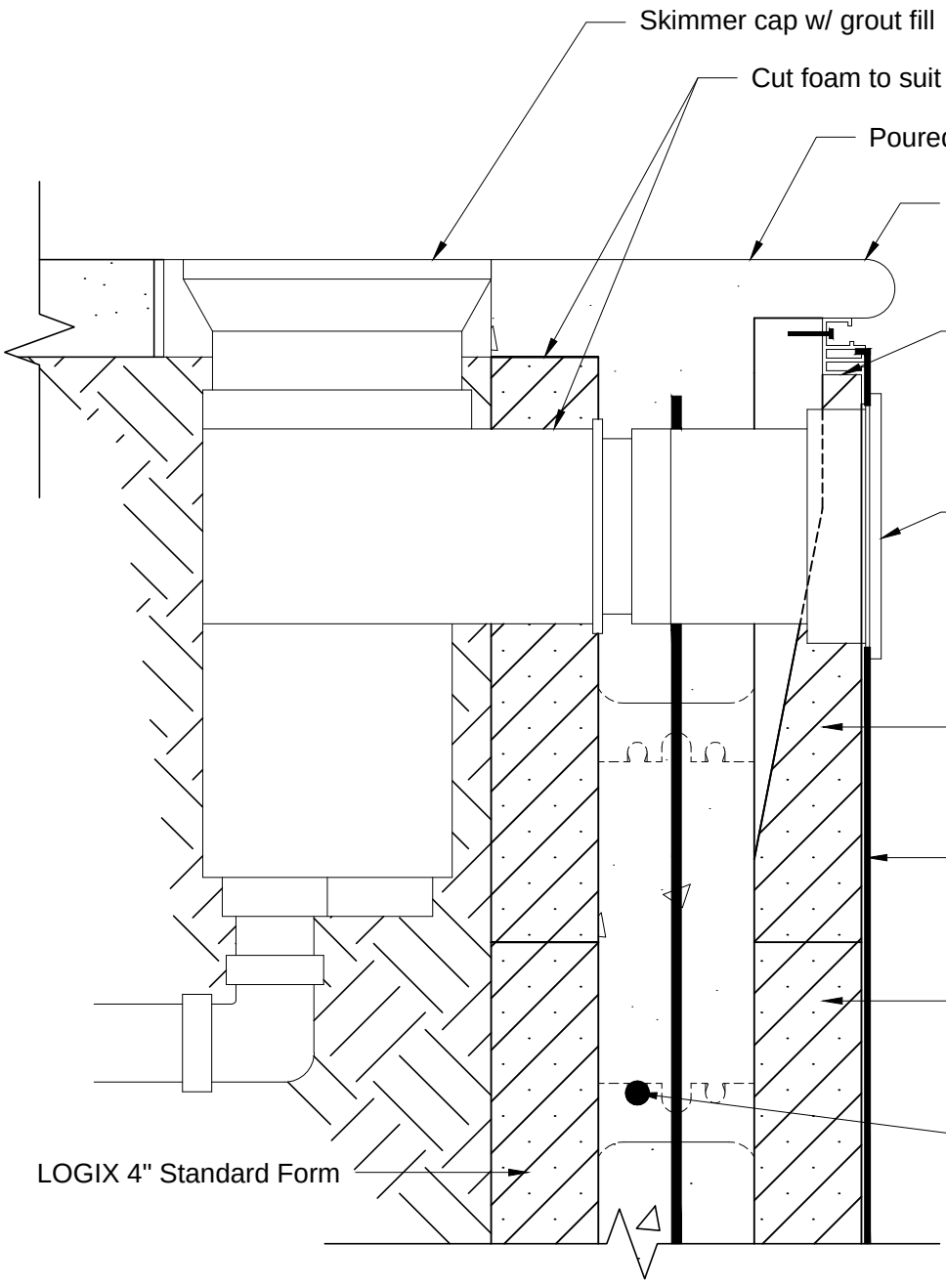
CAD DRAWINGS

5.10.26 – POOL DETAIL AT FOOTING (4 OF 5)



5.10.27 – POOL SKIMMER (5 OF 5)

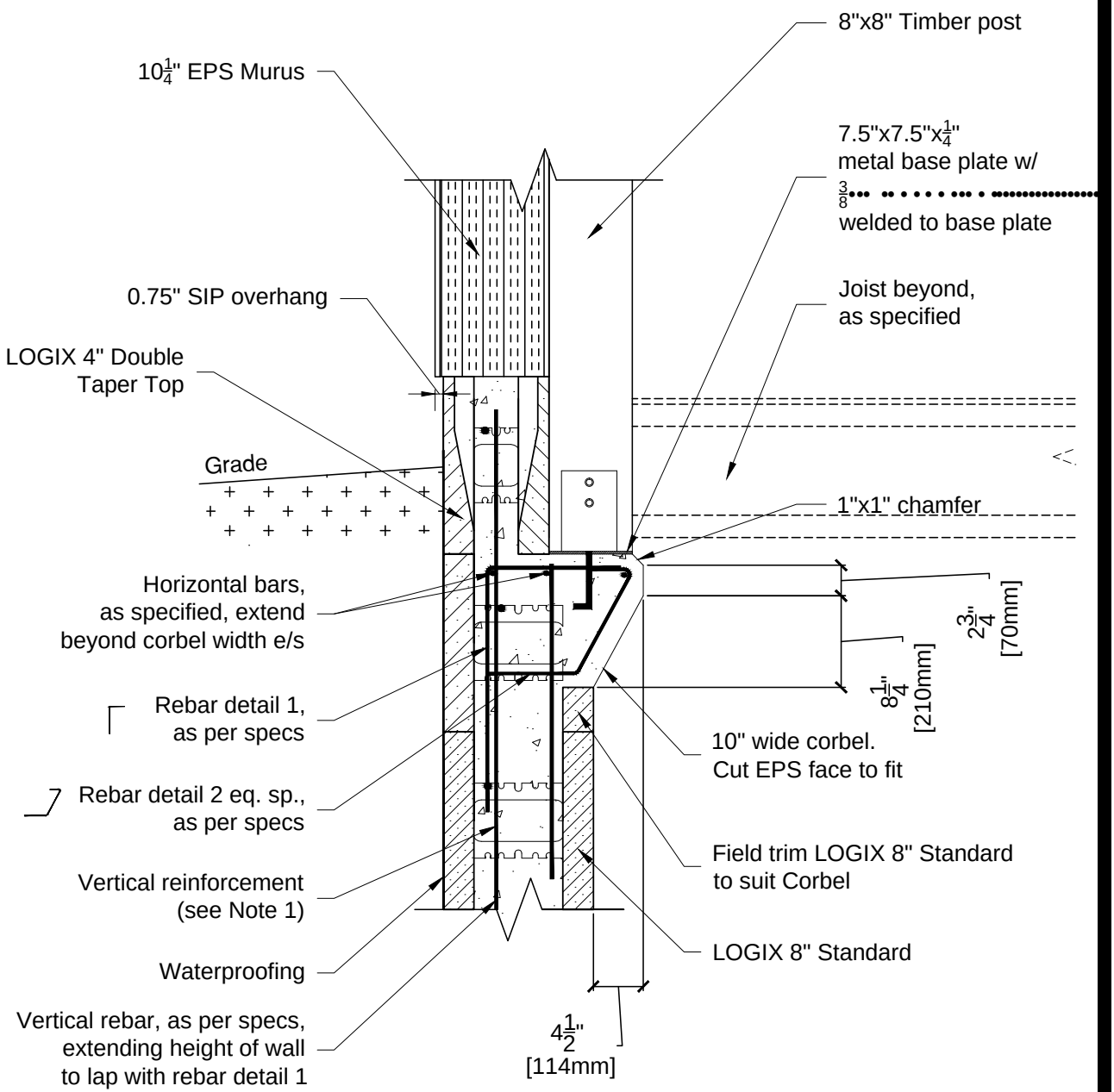
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

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.

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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.

5.2 – FOUNDATION DETAILS
5.2.1 – LOGIX WALL WITH CMU BRICK LEDGE

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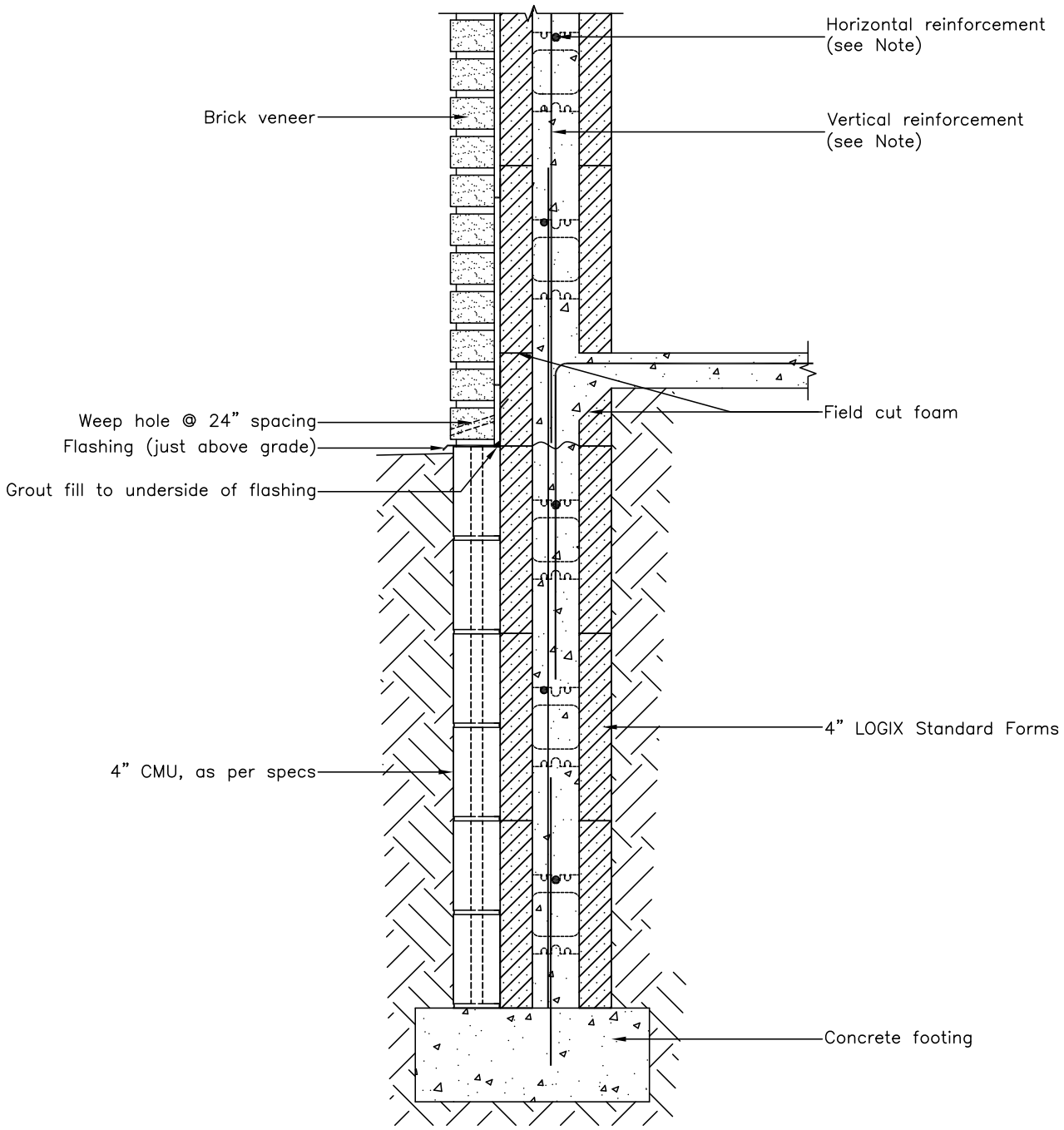


NOTES:

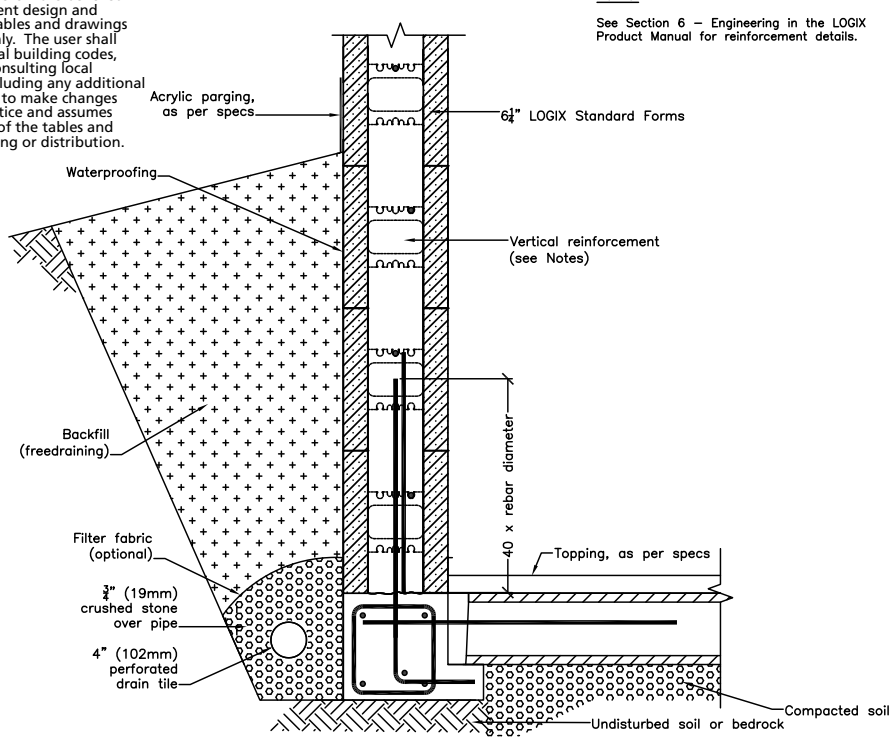
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

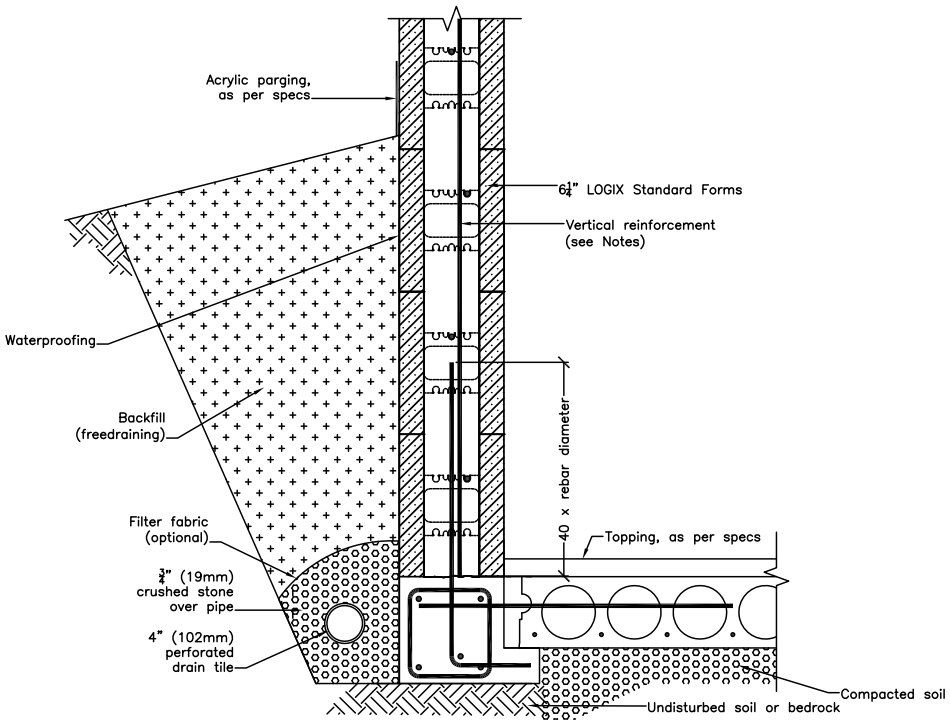
5.2.2 – HOLLOW CORE SLAB ON GRADE

All drawings are downloadable at www.logixicf.com

NOTES:

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





CAD DRAWINGS

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5.2.3 – EXTERIOR WALL ON PILE SUPPORTED GRADE BEAM

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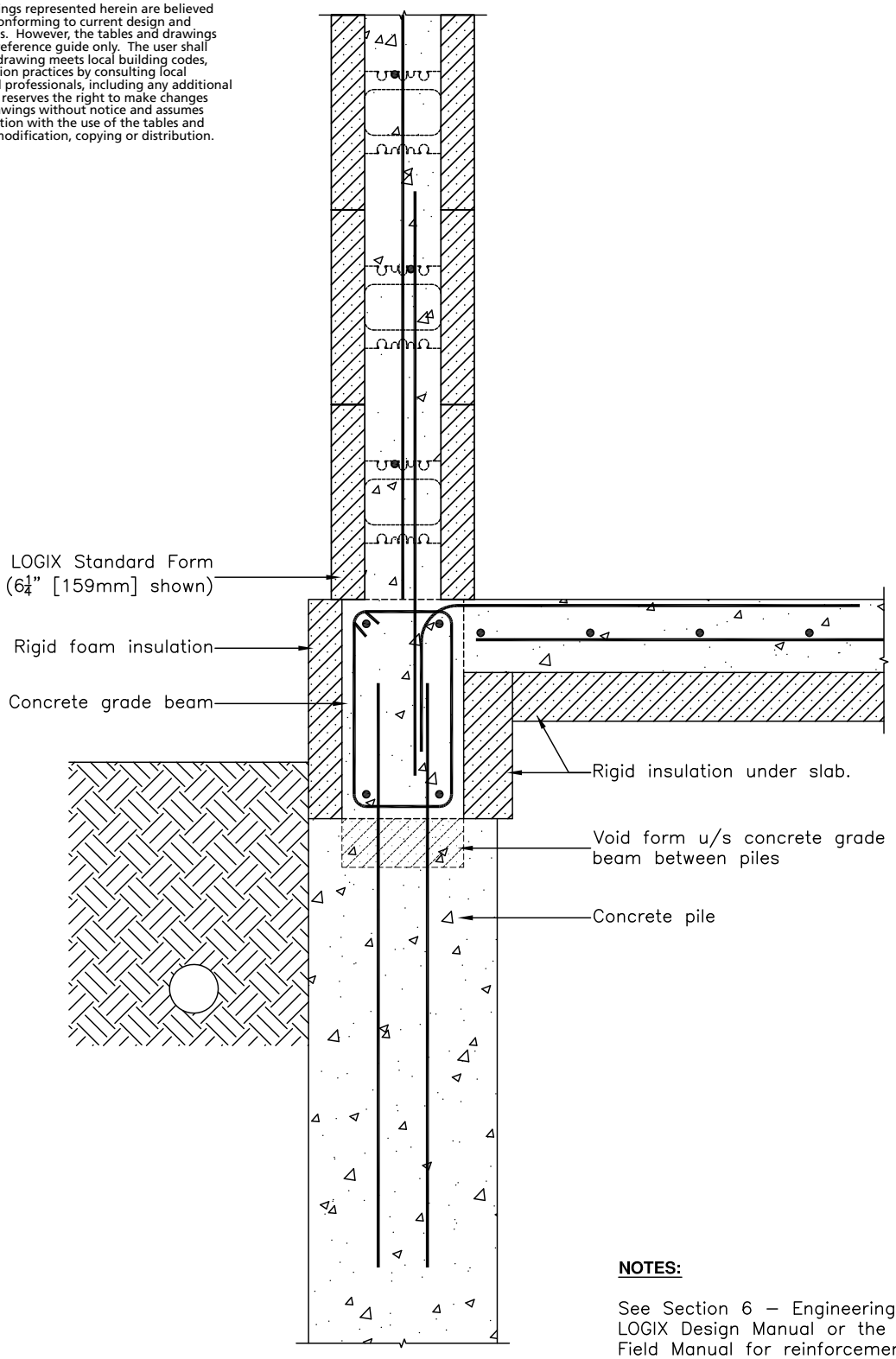

NOTES:

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

CAD DRAWINGS

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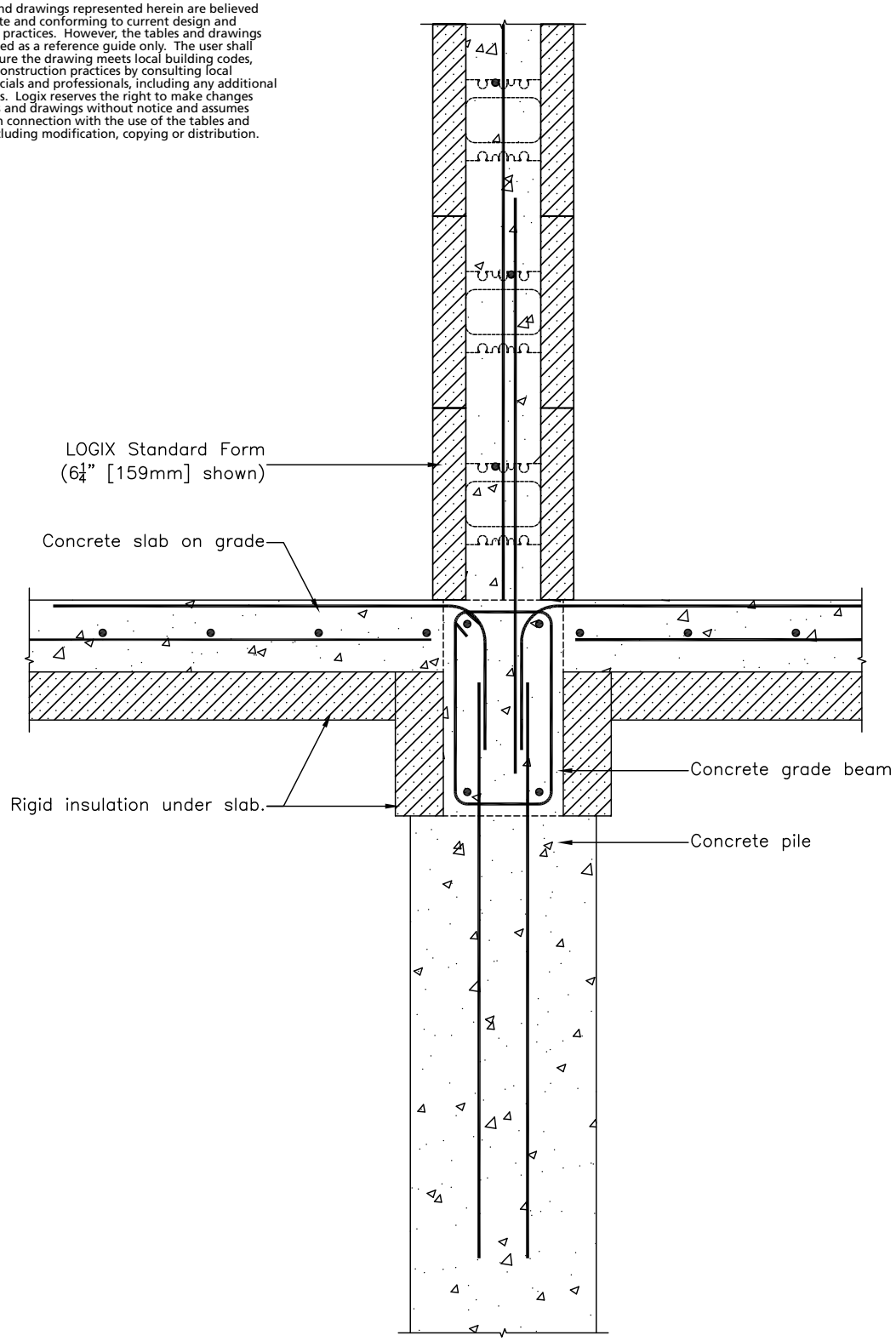
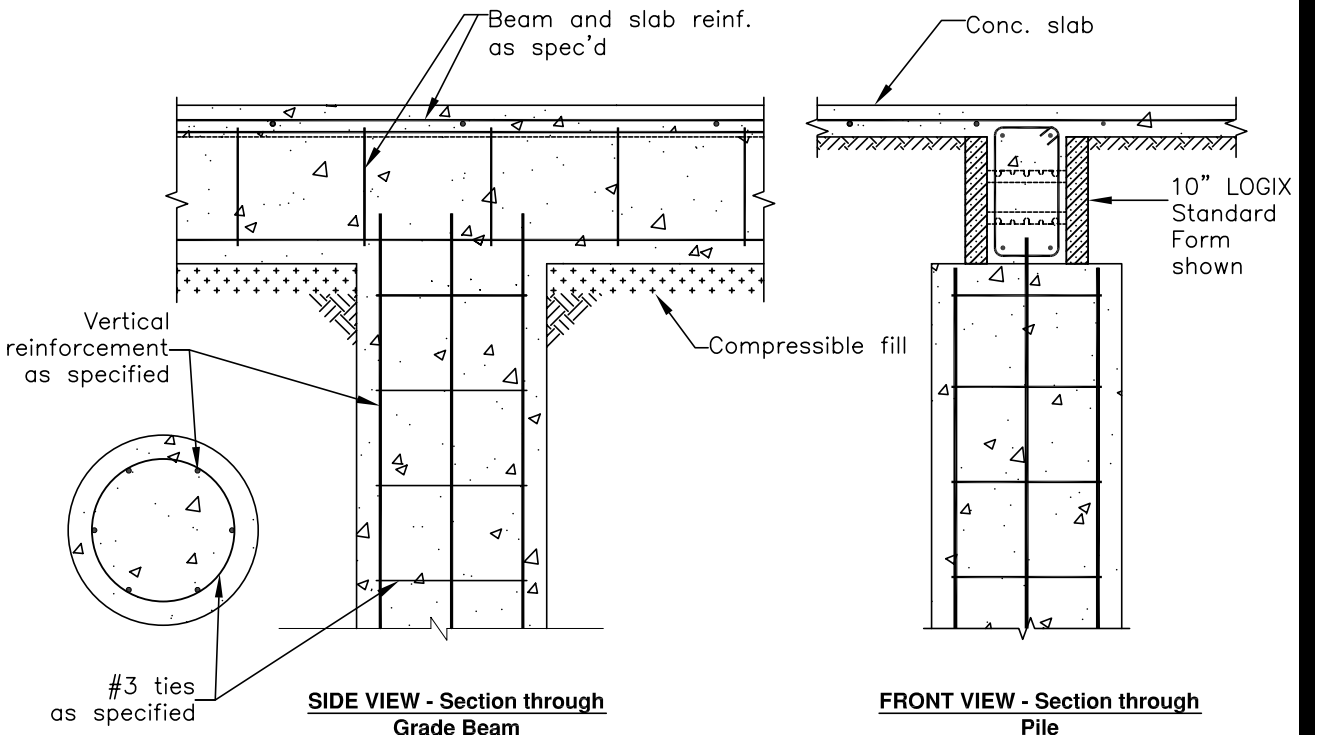
5.2.4 – INTERIOR WALL ON PILE SUPPORTED GRADE BEAM

All drawings are downloadable at www.logixicf.com



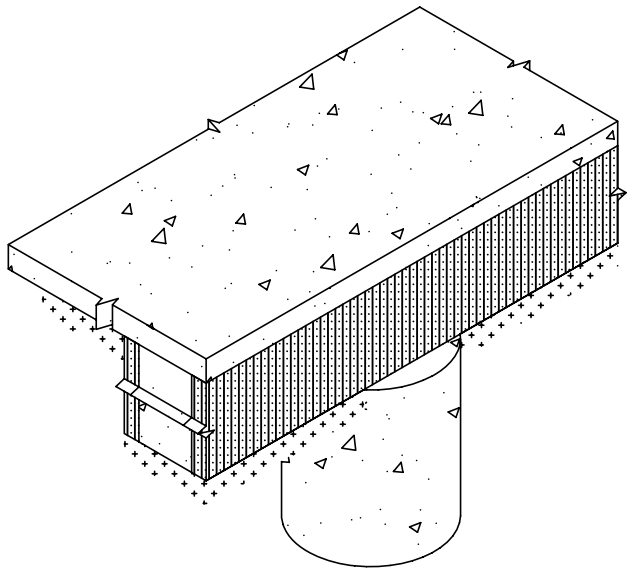
5.2.5 – LOGIX ICF GRADE BEAM

All drawings are downloadable at www.logixicf.com



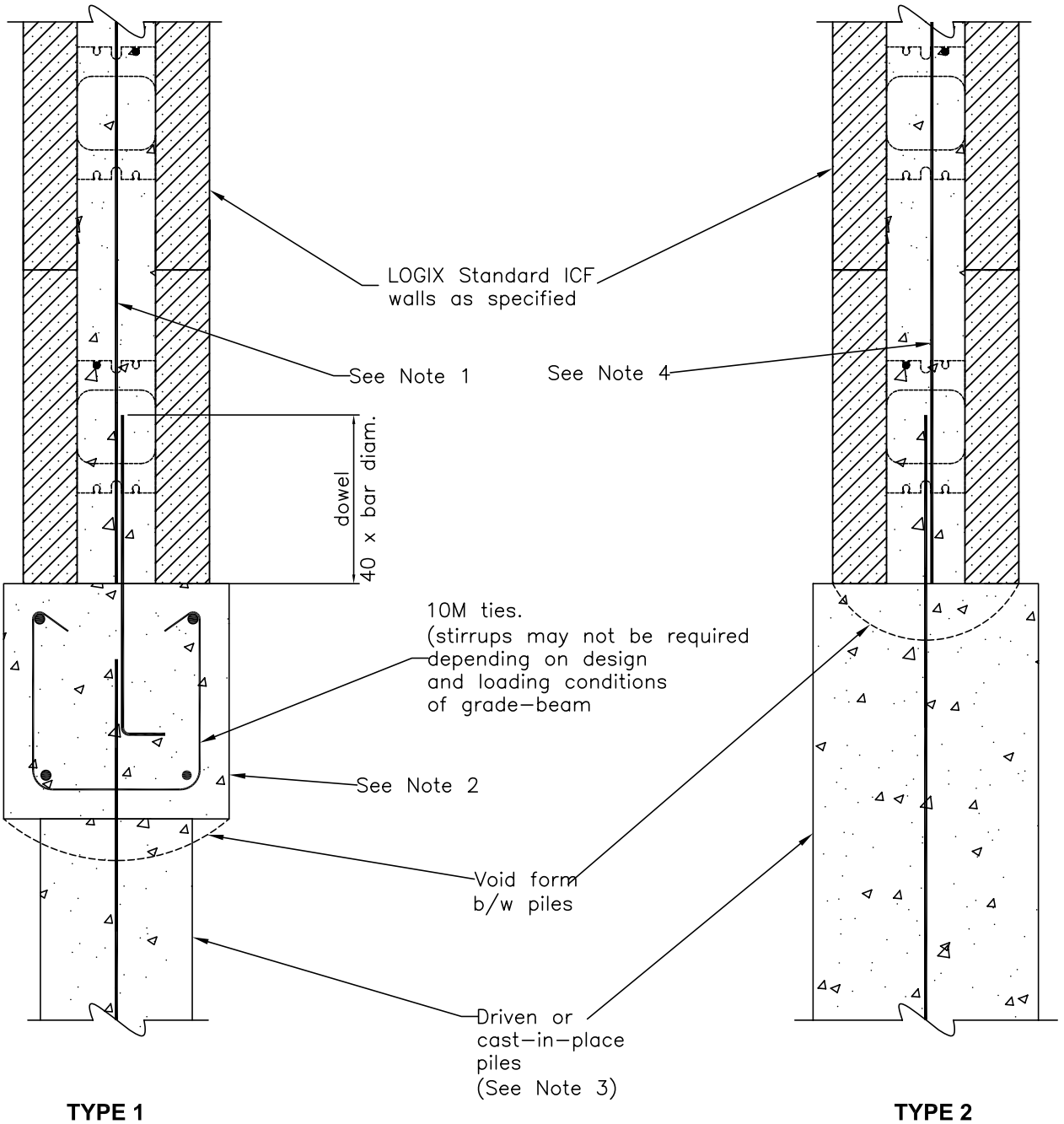
SIDE VIEW - Section through Grade Beam

FRONT VIEW - Section through Pile



5.2.6 – PILE SUPPORTED GRADE BEAMS

All drawings are downloadable at www.logixicf.com



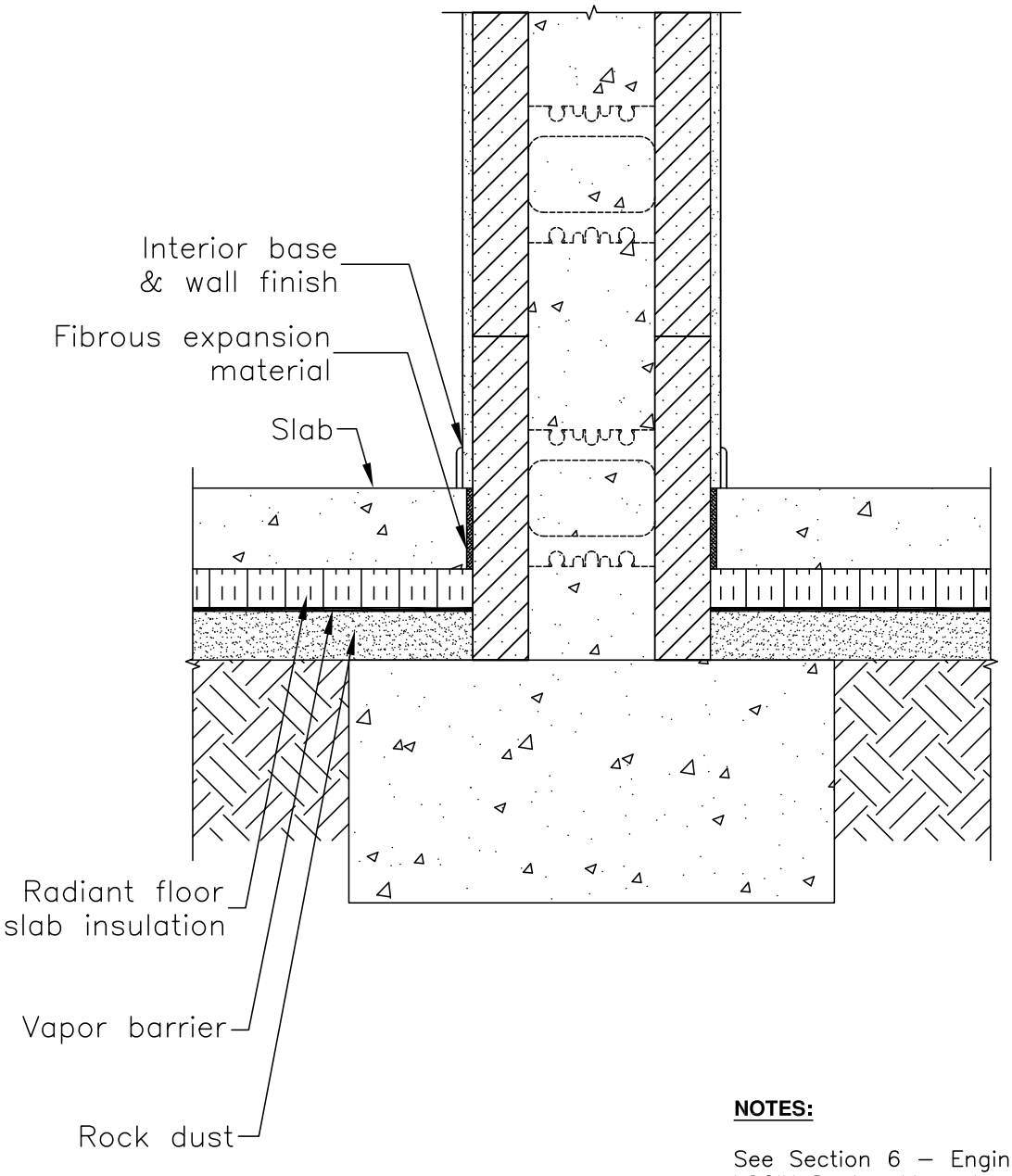
TYPE 1 **TYPE 2**

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

CAD DRAWINGS

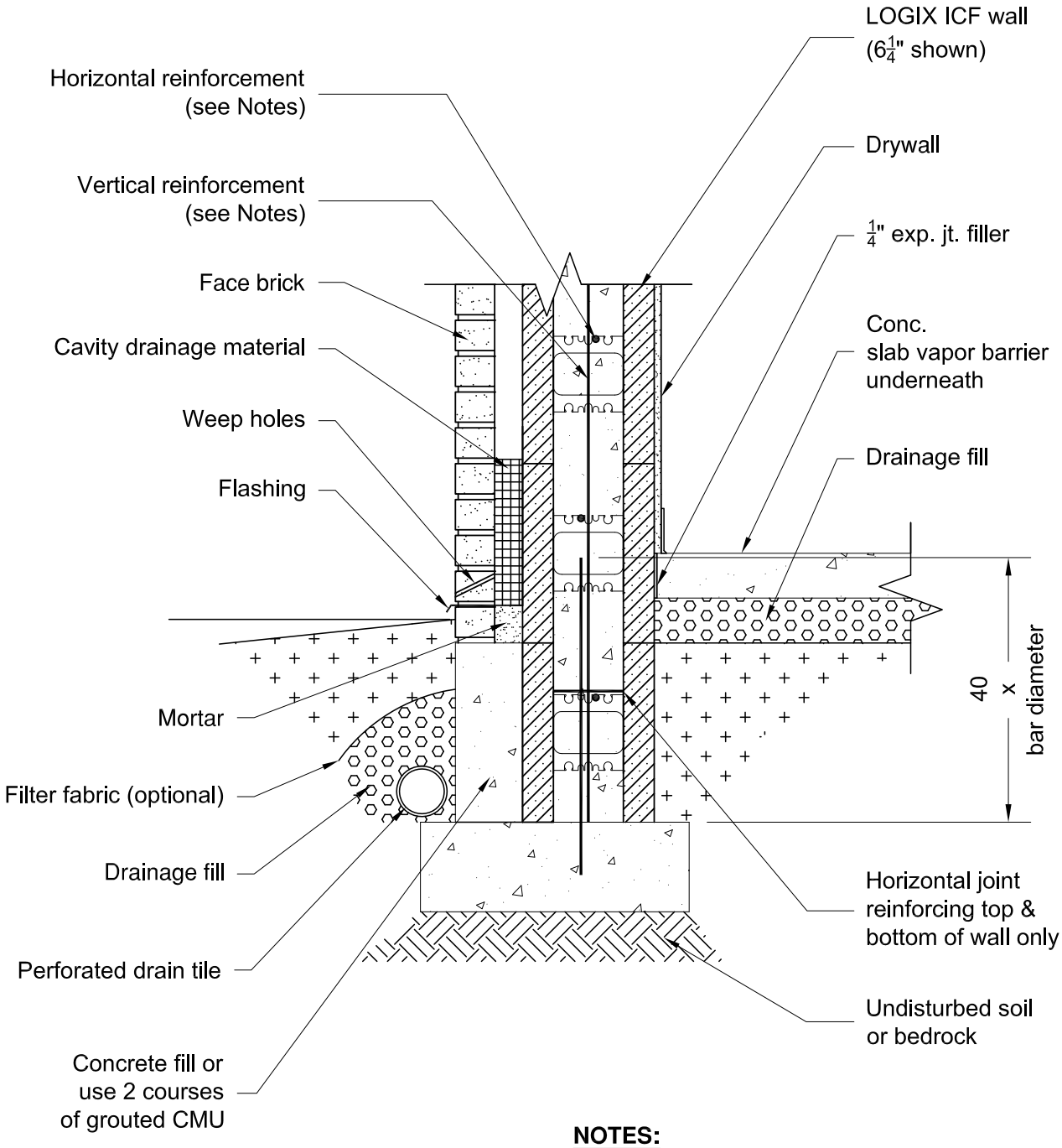


NOTES:

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



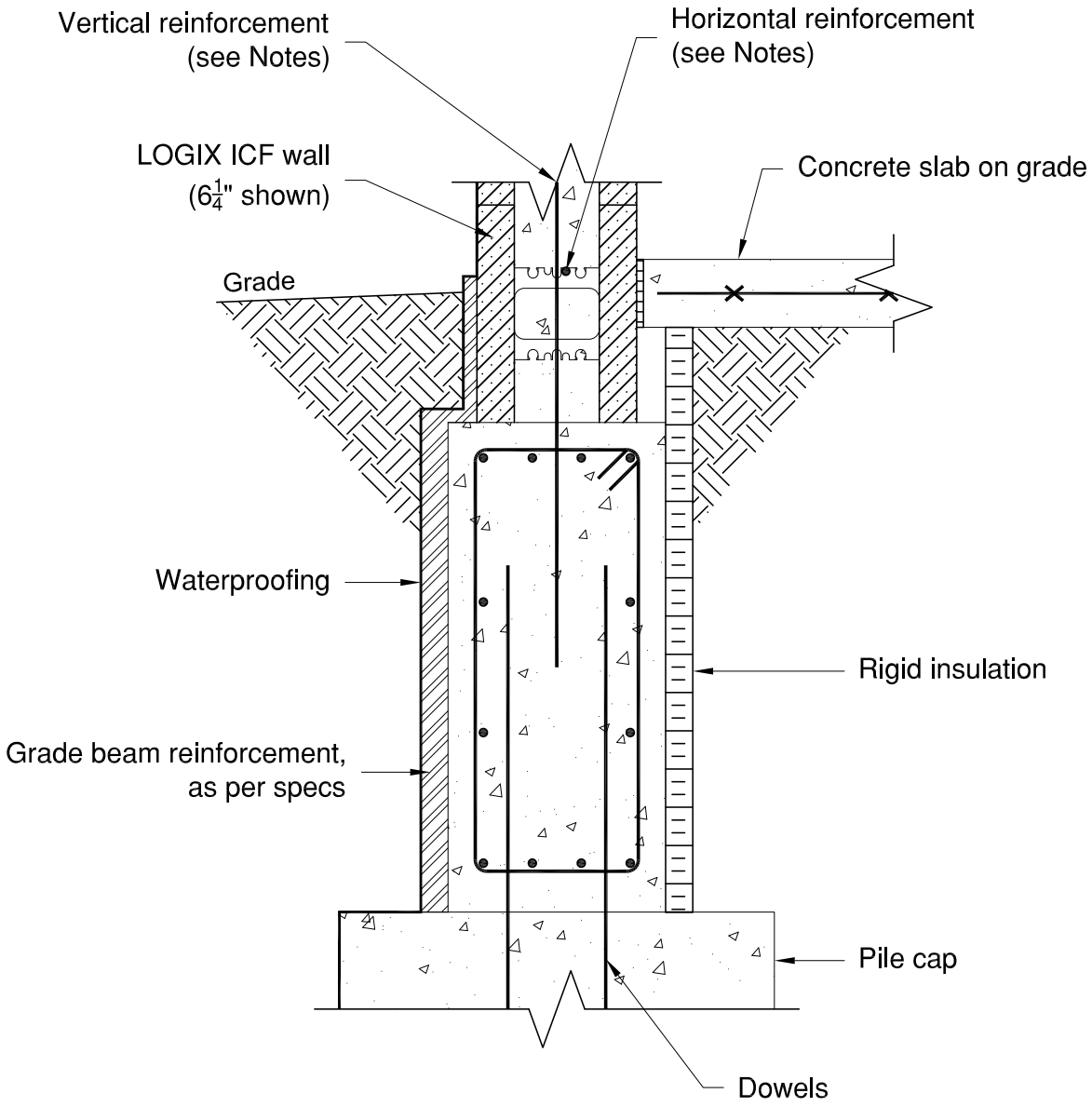
NOTES:

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

CAD DRAWINGS

5.2.9 – DEEP GRADE BEAM ON PILE CAP

All drawings are downloadable at www.logixicf.com

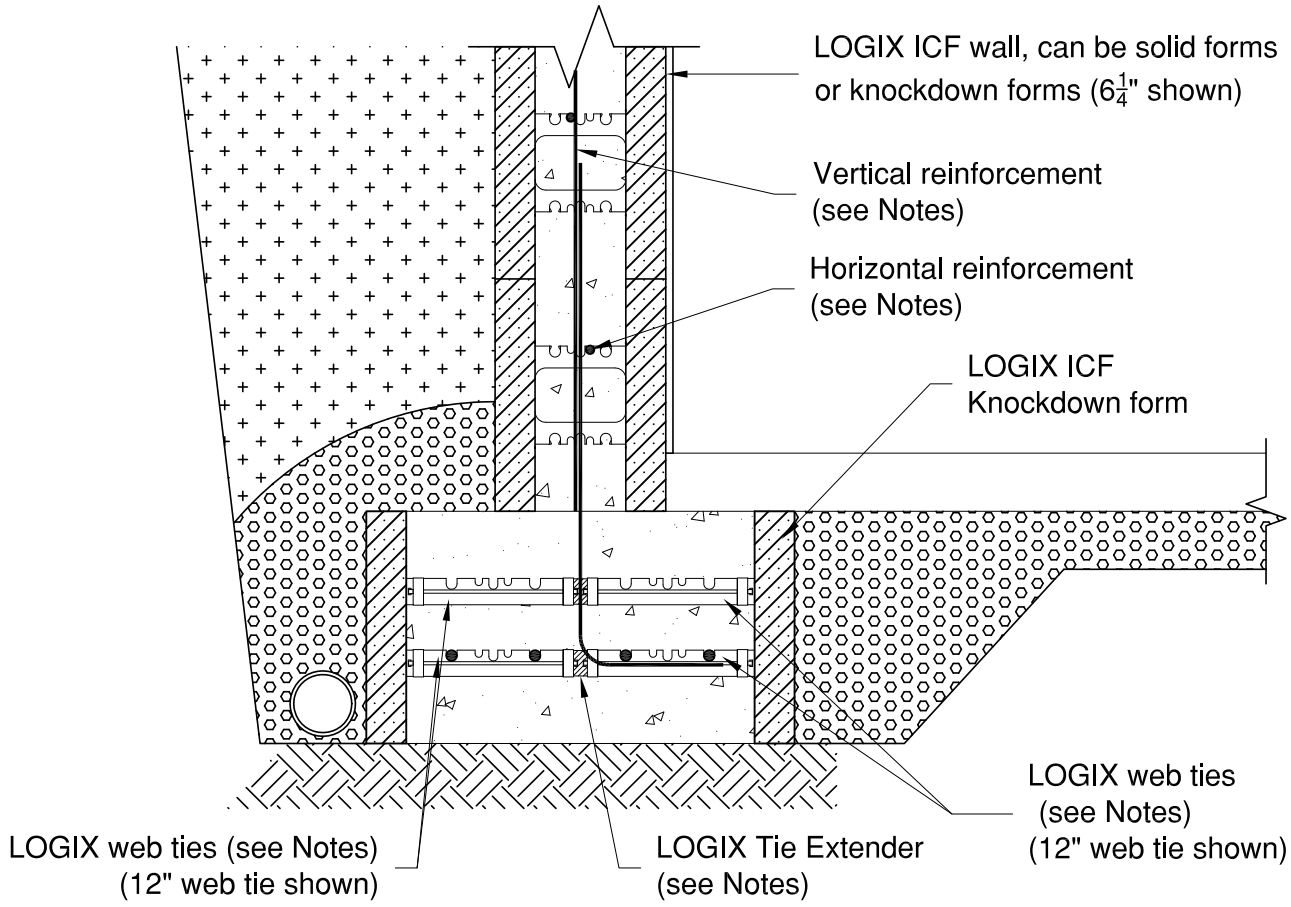


NOTES:

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



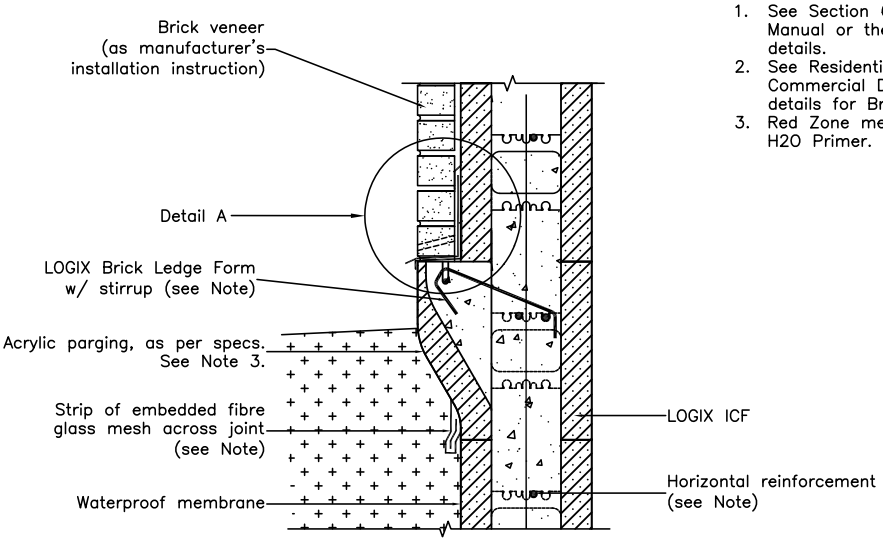
NOTES:

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

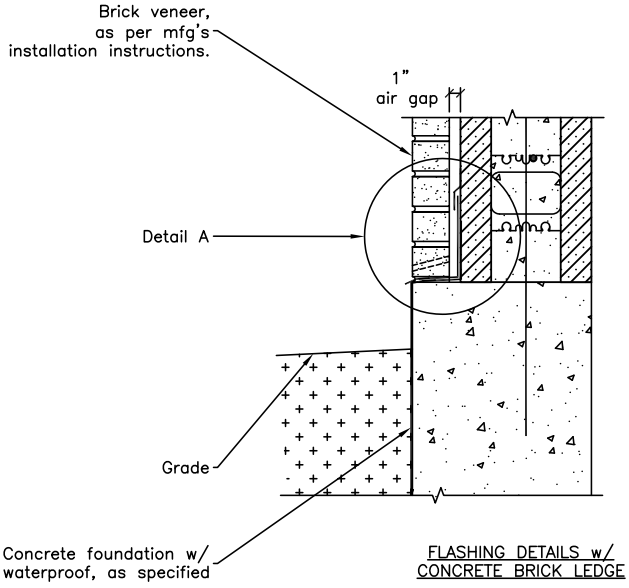
CAD DRAWINGS



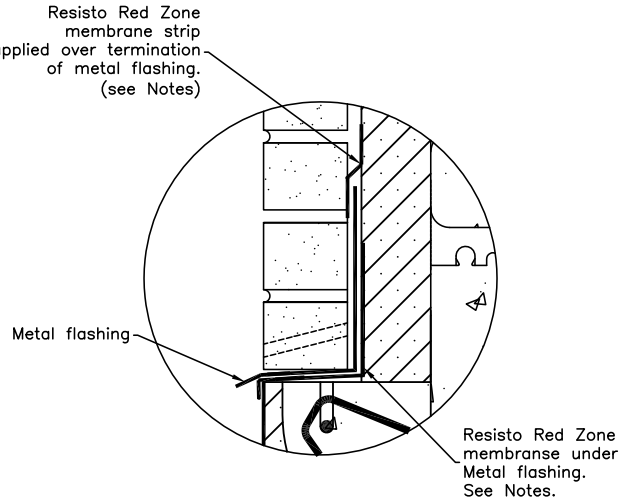
FLASHING DETAILS w/
LOGIX BRICK LEDGE

NOTES:

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



FLASHING DETAILS w/
CONCRETE BRICK LEDGE



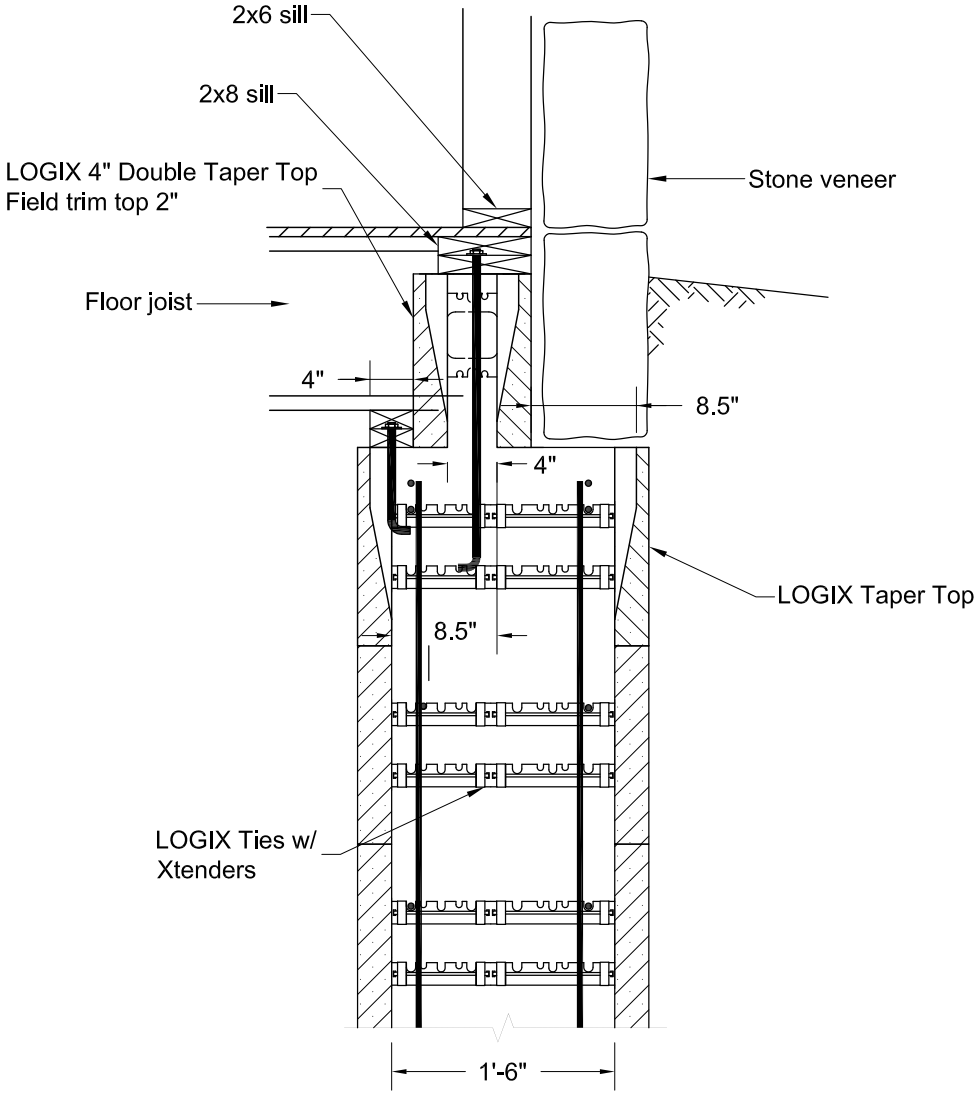
DETAIL A:
TYPICAL WATERPROOFING
DETAIL

REPRINTED 2013

Rev. Nov 04/11

5.2.12 – FOUNDATION WITH TIE XTENDERS SUPPORTING STONE VENEER

All drawings are downloadable at www.logixicf.com

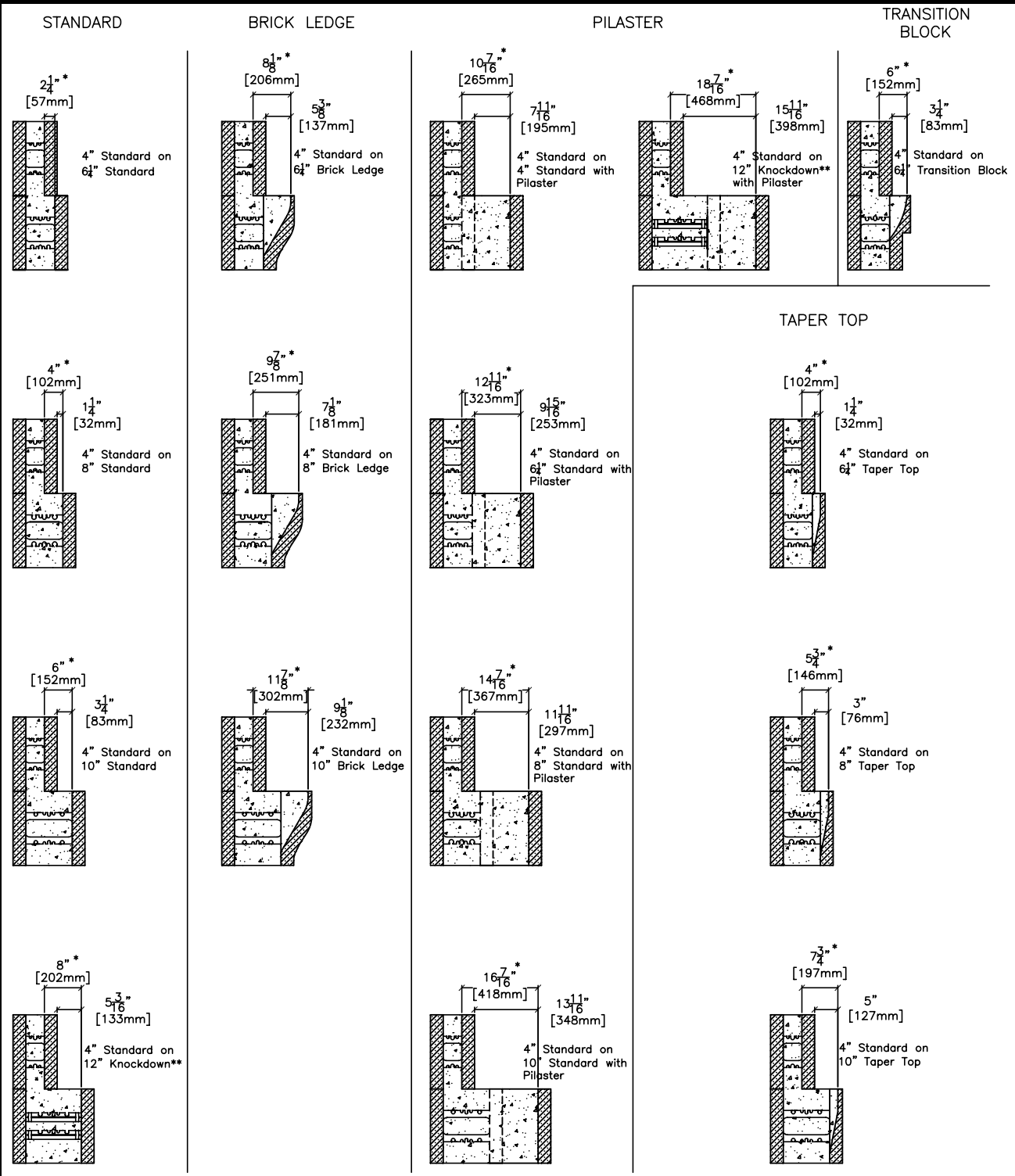


CAD DRAWINGS

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

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

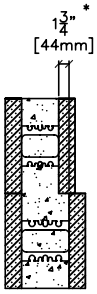


* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

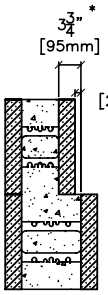
5.3.1 – BEARING LENGTHS - 6.25" LOGIX STANDARD FORM ON TOP CONTINUED

All drawings are downloadable at www.logixicf.com

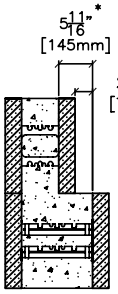
STANDARD



6¼" Standard on 8" Standard

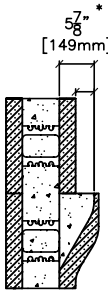


6¼" Standard on 10" Standard

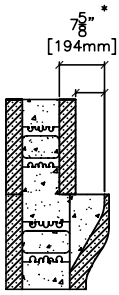


6¼" Standard on 12" Knockdown**

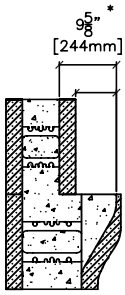
BRICK LEDGE



6¼" Standard on 6¼" Brick Ledge

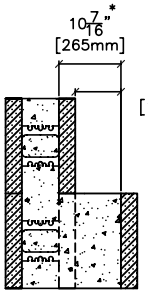


6¼" Standard on 8" Brick Ledge

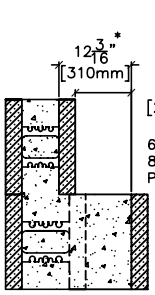


6¼" Standard on 10" Brick Ledge

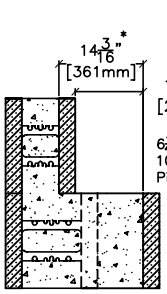
PILASTER



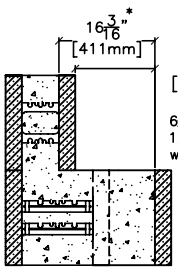
6¼" Standard on 6¼" Standard with Pilaster



6¼" Standard on 8" Standard with Pilaster

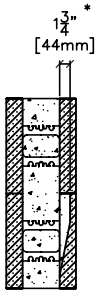


6¼" Standard on 10" Standard with Pilaster

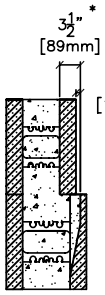


6¼" Standard on 12" Knockdown with Pilaster**

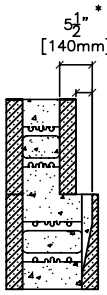
TAPER TOP



6¼" Standard on 6¼" Taper Top

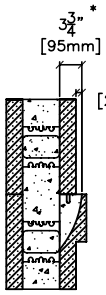


6¼" Standard on 8" Taper Top



6¼" Standard on 10" Taper Top

TRANSITION BLOCK



6¼" Standard on 6¼" Transition Block

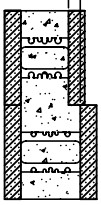
* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

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

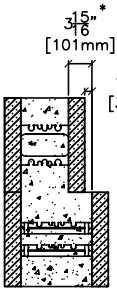
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

STANDARD

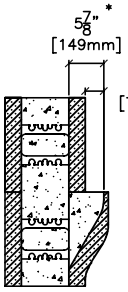


8" Standard on 10" Standard

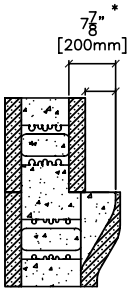


8" Standard on 12" Knockdown**

BRICK LEDGE

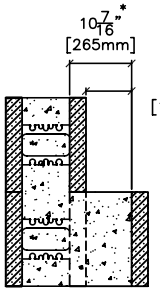


8" Standard on 8" Brick Ledge

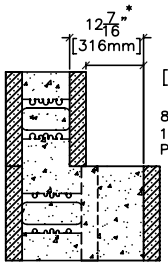


8" Standard on 10" Brick Ledge

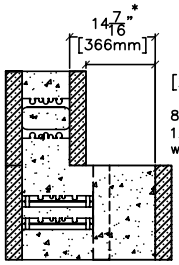
PILASTER



8" Standard on 8" Standard with Pilaster

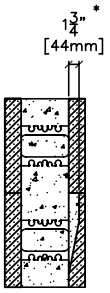


8" Standard on 10" Standard with Pilaster

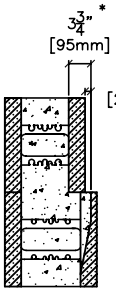


8" Standard on 12" Knockdown** with Pilaster

TAPER TOP



8" Standard on 8" Taper Top



8" Standard on 10" Taper Top

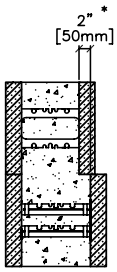
* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

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

All drawings are downloadable at www.logixicf.com

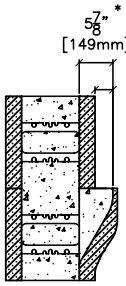
10" LOGIX STANDARD FORM ON TOP

STANDARD



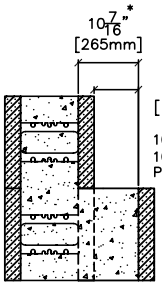
10" Standard on
12" Knockdown**

BRICK LEDGE

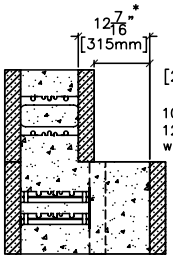


10" Standard on
10" Brick Ledge

PILASTER

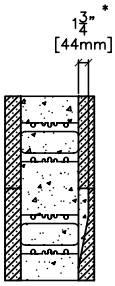


10" Standard on
10" Standard with
Pilaster



10" Standard on
12" Knockdown**
with Pilaster

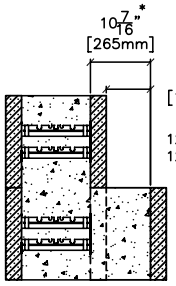
TAPER TOP



10" Standard or
10" Taper Top

12" LOGIX KNOCKDOWN** FORM ON TOP

PILASTER

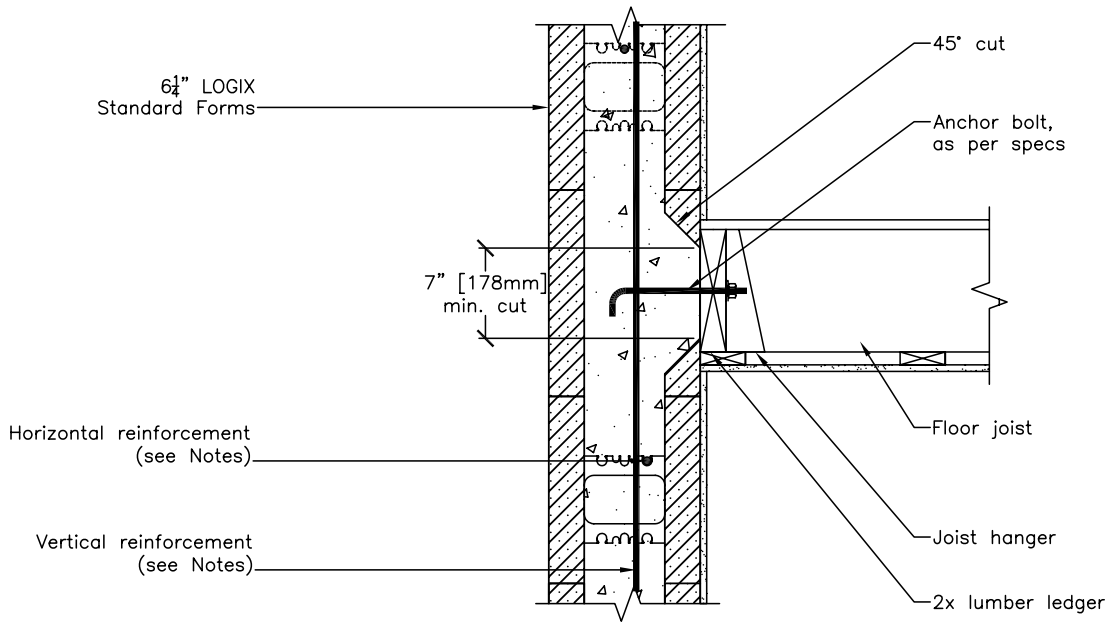


12" Knockdown** on
12" Knockdown** with Pilaster

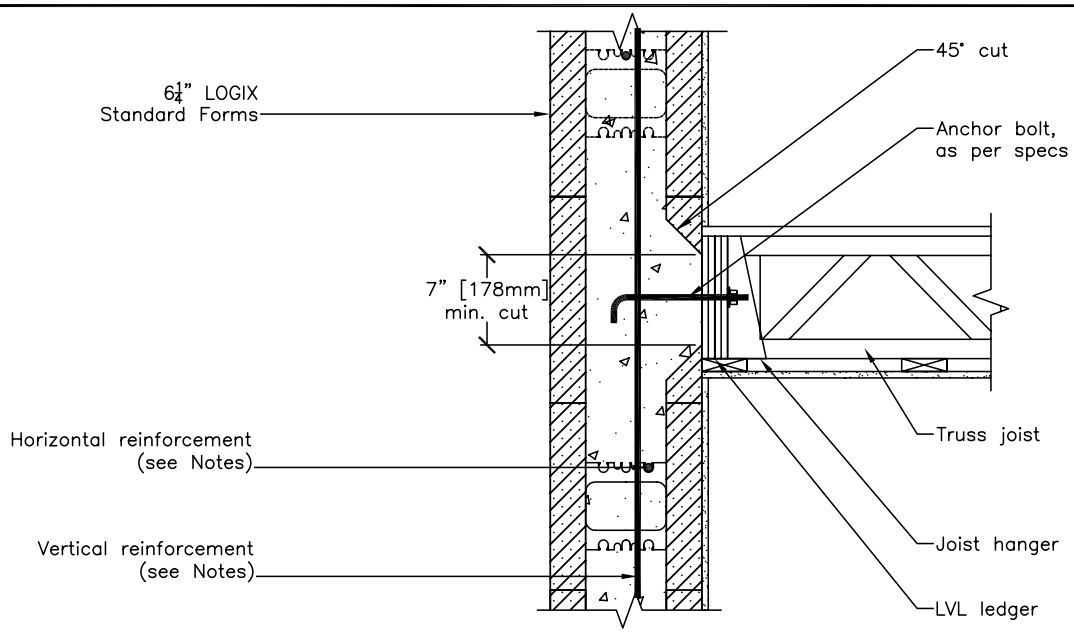
* Remove foam to achieve bearing length ** LOGIX 12" Knockdown Form available in 2008.

5.3.2 – 2x LUMBER LEDGER
5.3.3 – LVL LUMBER LEDGER

All drawings are downloadable at www.logixicf.com



LUMBER LEDGER



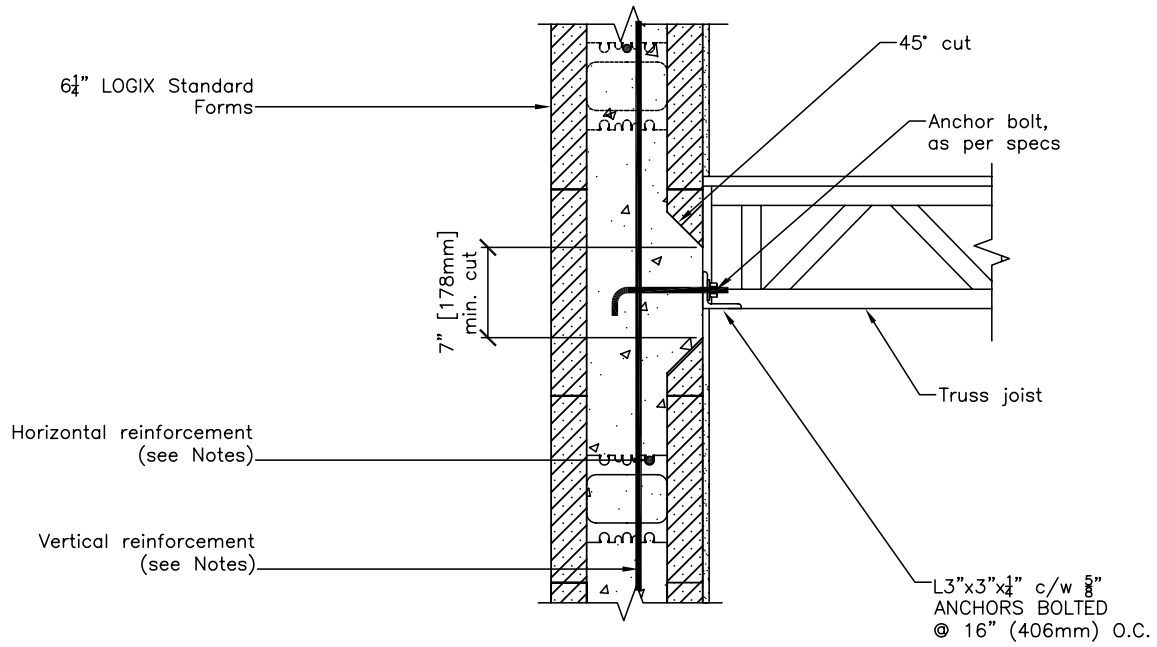
LVL LEDGER

NOTES:

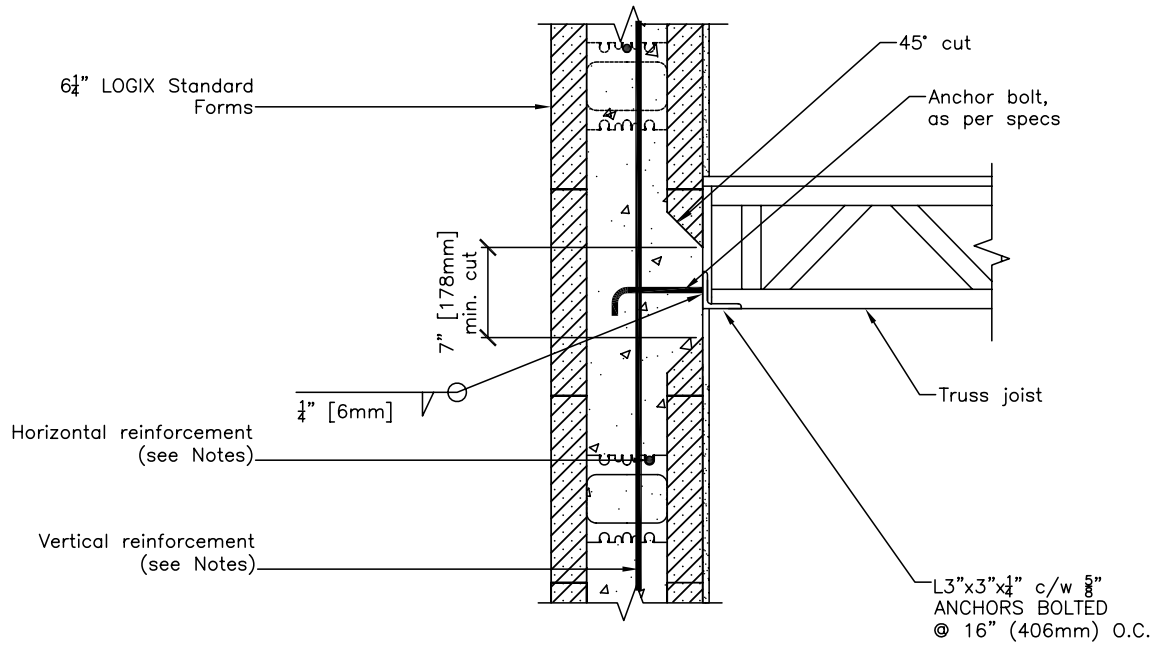
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.4 – ANGLE IRON LEDGER

All drawings are downloadable at www.logixicf.com



BOLTED ANGLE SEAT DETAIL



WELDED ANGLE SEAT DETAIL

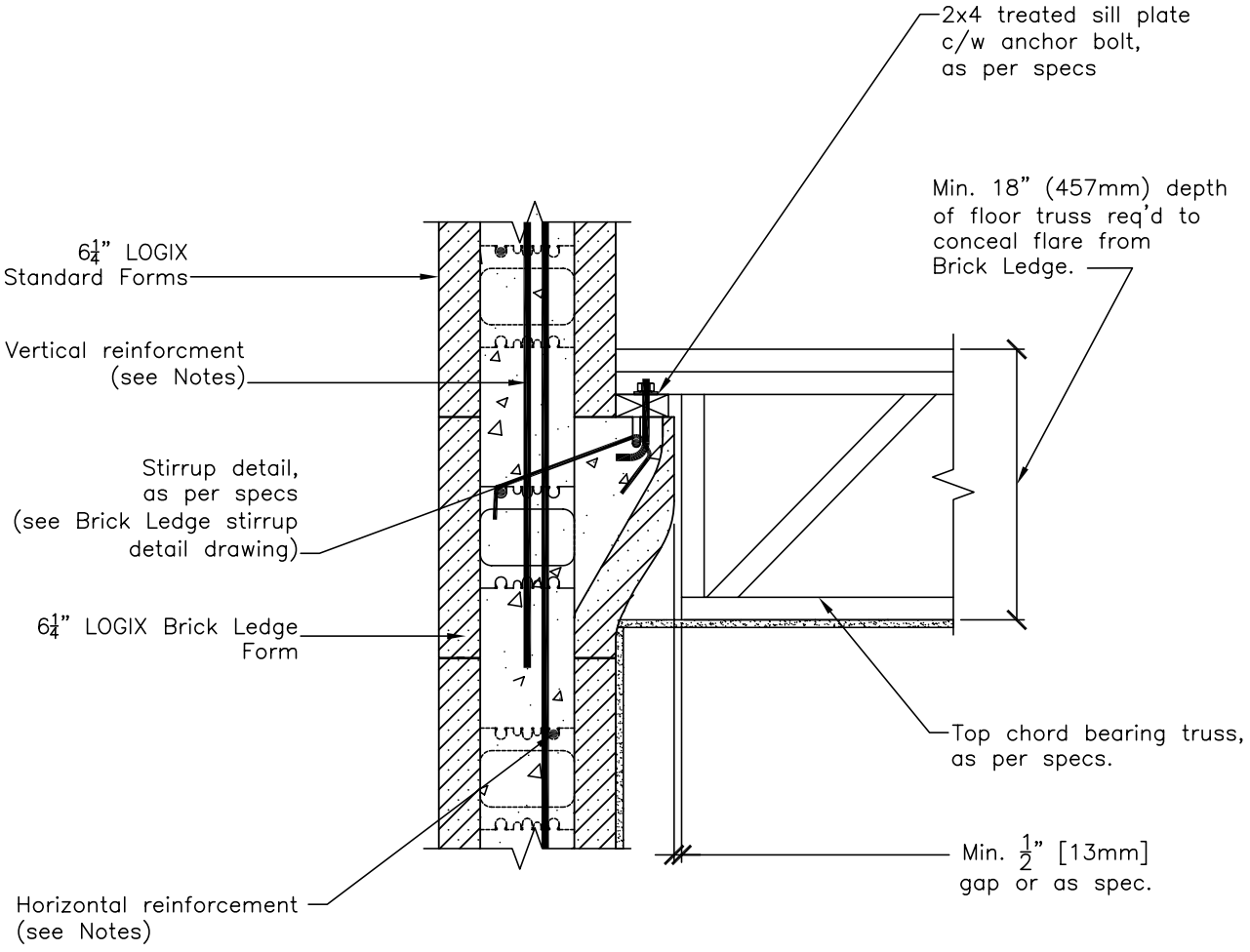
NOTES:

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

CAD DRAWINGS

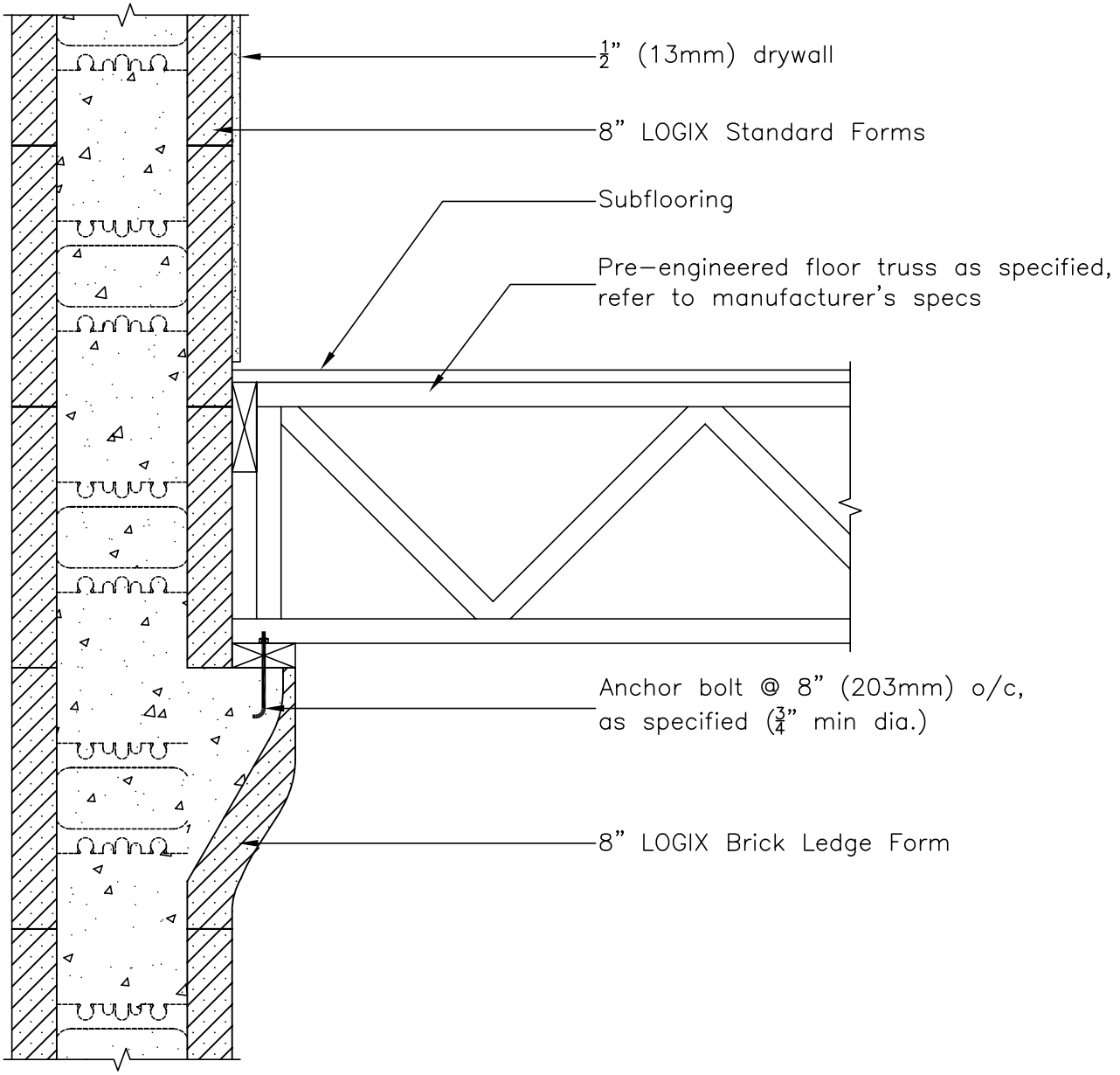


NOTES:

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

5.3.6 – BOTTOM CHORD BEARING TRUSS

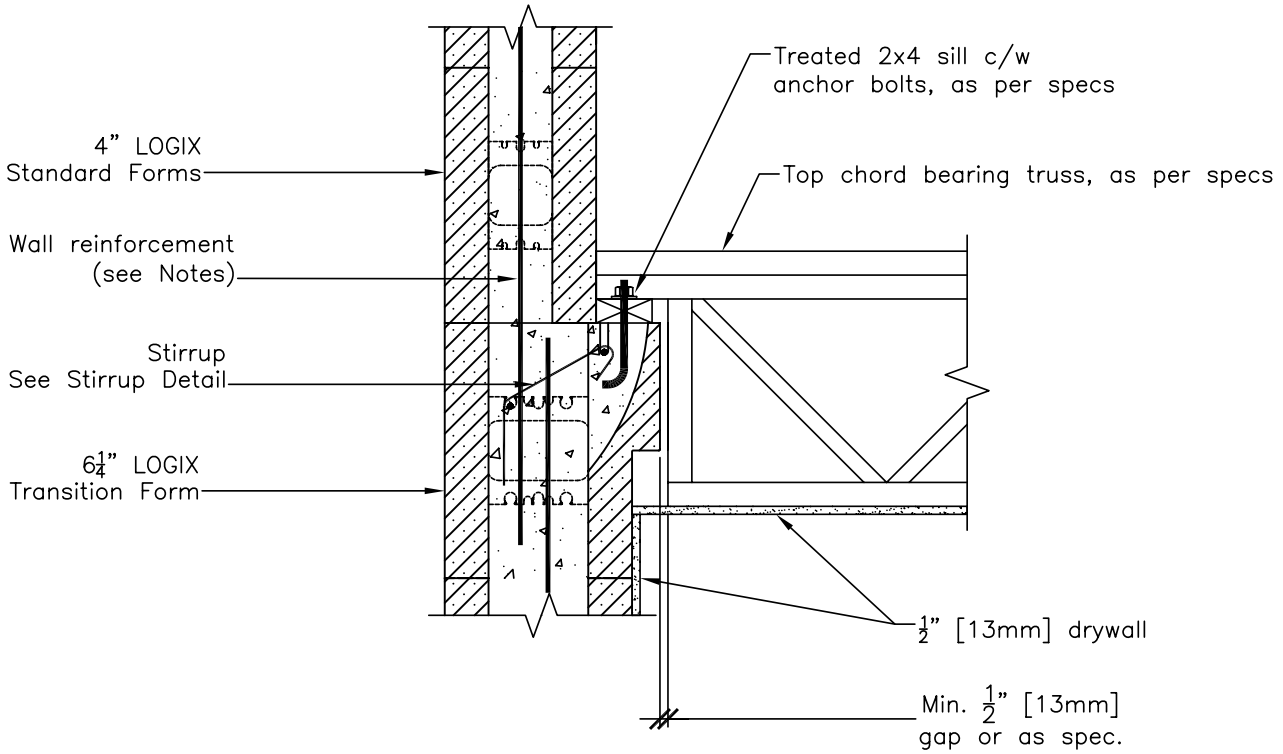
All drawings are downloadable at www.logixicf.com

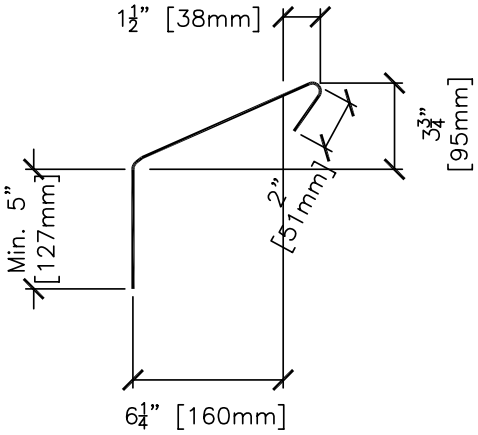


CAD DRAWINGS

5.3.7 – 6.25" TRANSITION FORM SUPPORTING OPEN WEB FLOOR JOIST

All drawings are downloadable at www.logixicf.com





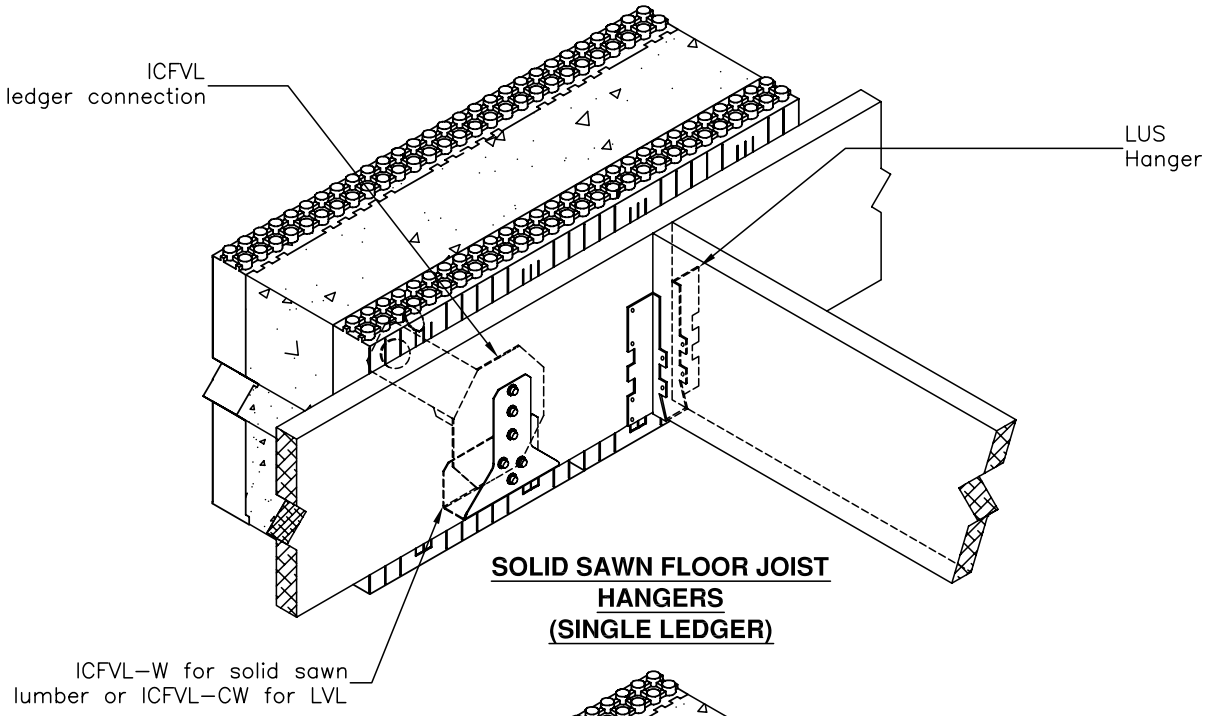
STIRRUP DETAIL

NOTES:

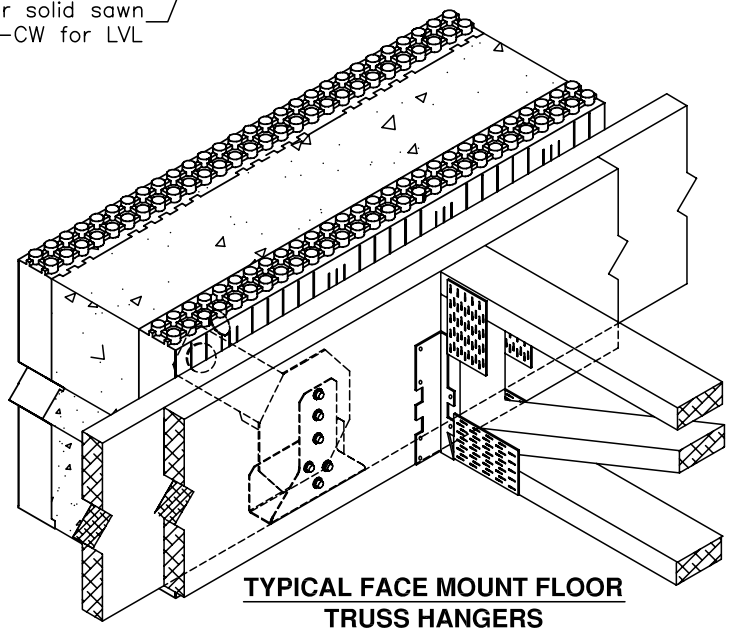
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

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)



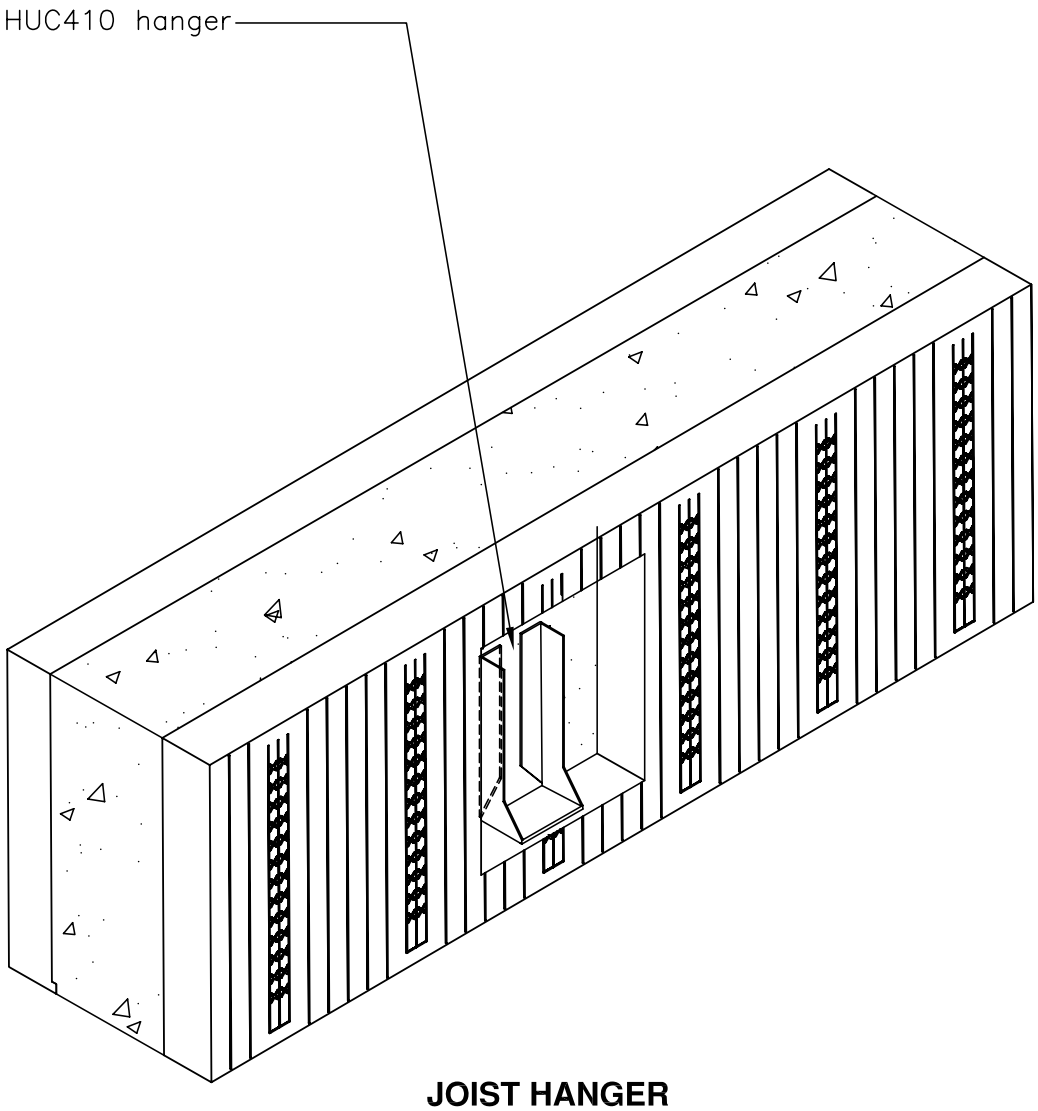
TYPICAL FACE MOUNT FLOOR TRUSS HANGERS (DOUBLE LEDGER)

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



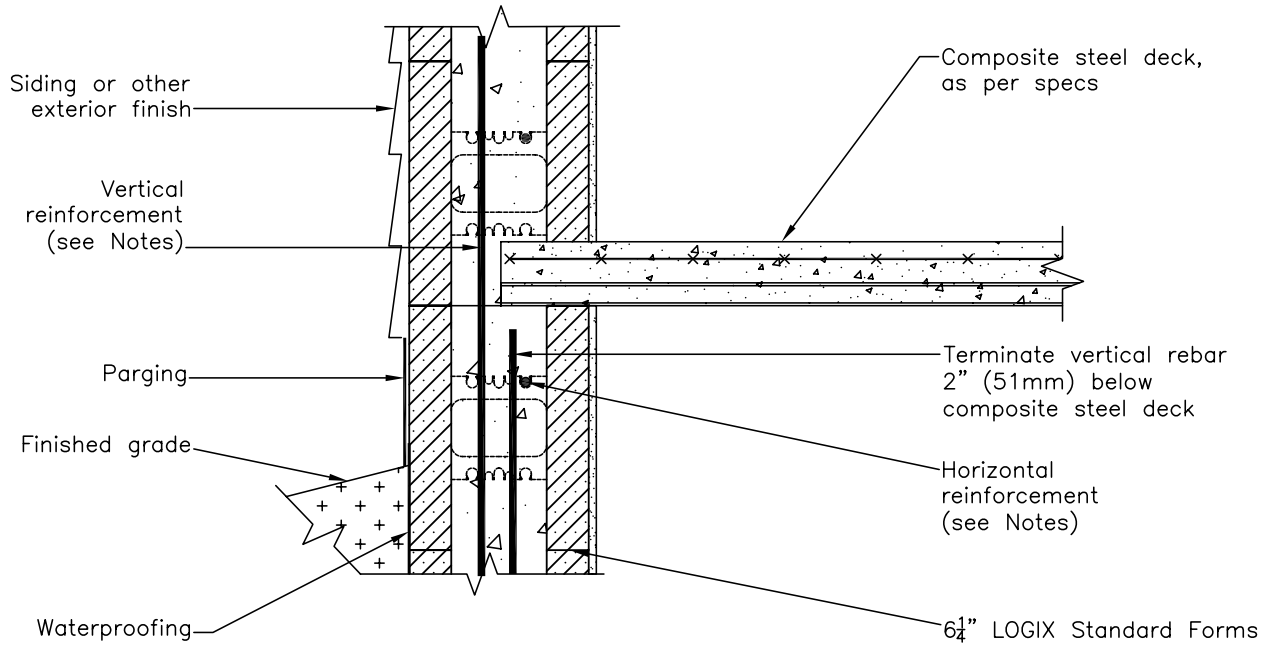
JOIST HANGER
(Installed on face of concrete in ICF)

NOTES:

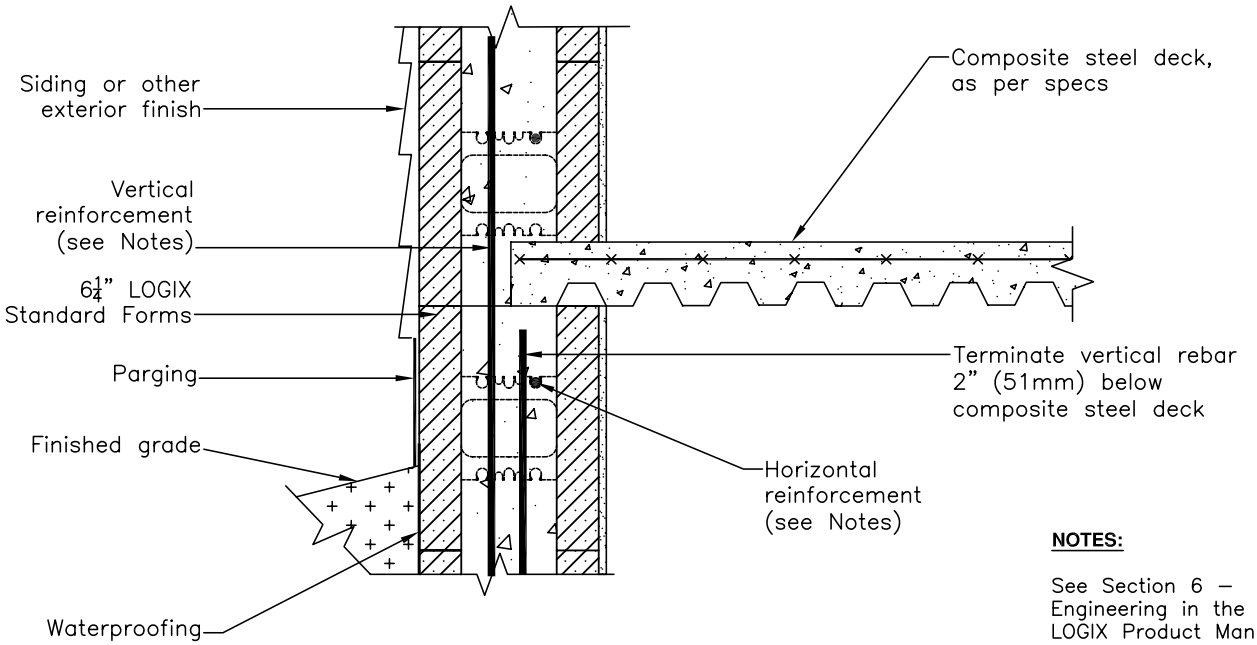
1. For more information see Section 2 of the LOGIX Product Manual or visit www.strongtie.com.
2. Use extra caution when installing Simpson ICF Ledger Connection systems on both sides of a wall. Consult your local Simpson Strongtie rep or call Simpson Strongtie at (800) 999–5099 prior to installation.

5.3.10 – STEEL COMPOSITE DECK

All drawings are downloadable at www.logixicf.com



STEEL COMPOSITE DECK (BEARING END)



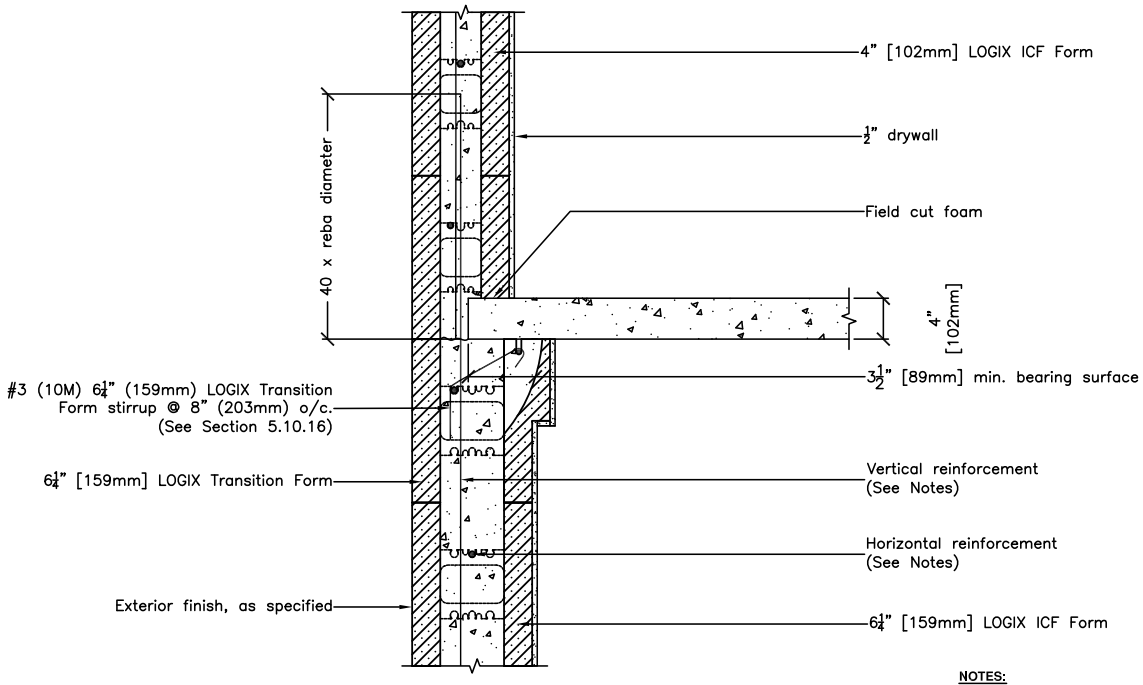
STEEL COMPOSITE DECK (NON-BEARING END)

NOTES:

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

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

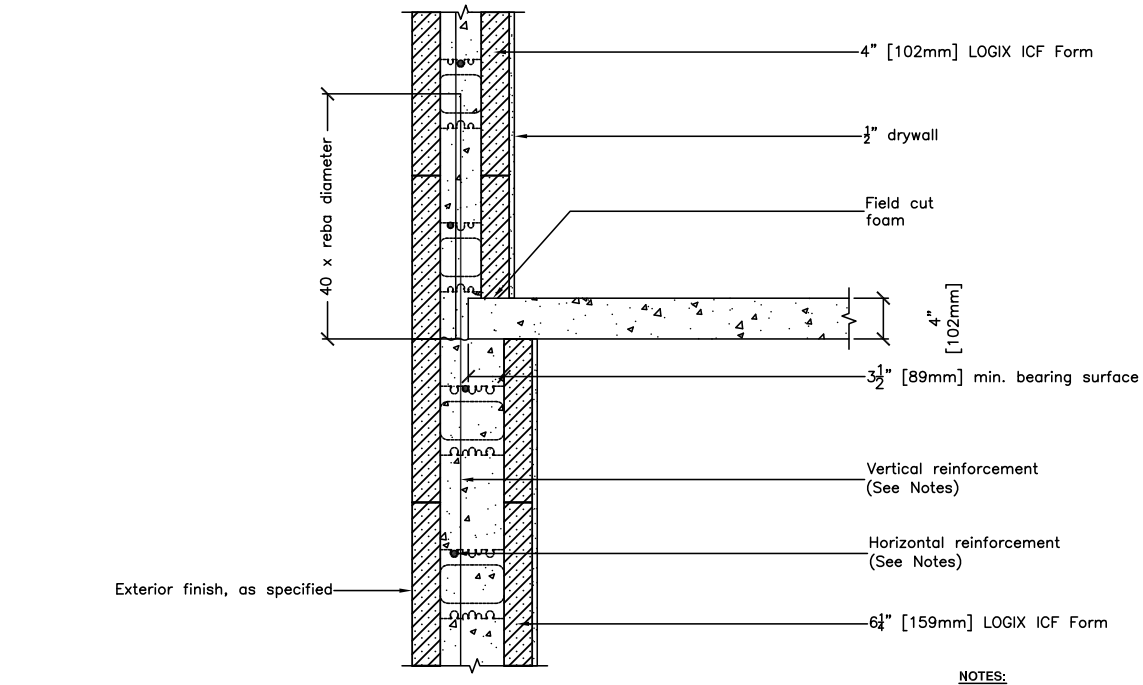
All drawings are downloadable at www.logixicf.com



PRECAST CONCRETE SITTING ON TOP OF 6.25" TRANSITION FORM

NOTES:

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



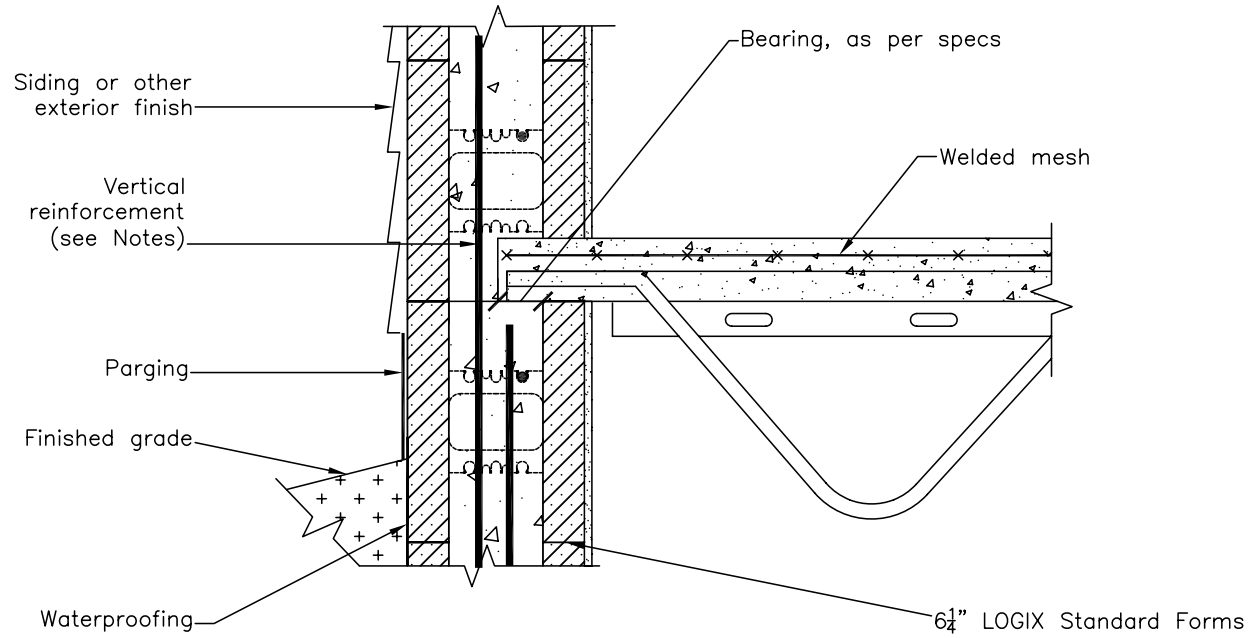
PRECAST CONCRETE SITTING ON TOP OF 6.25" STANDARD FORM

NOTES:

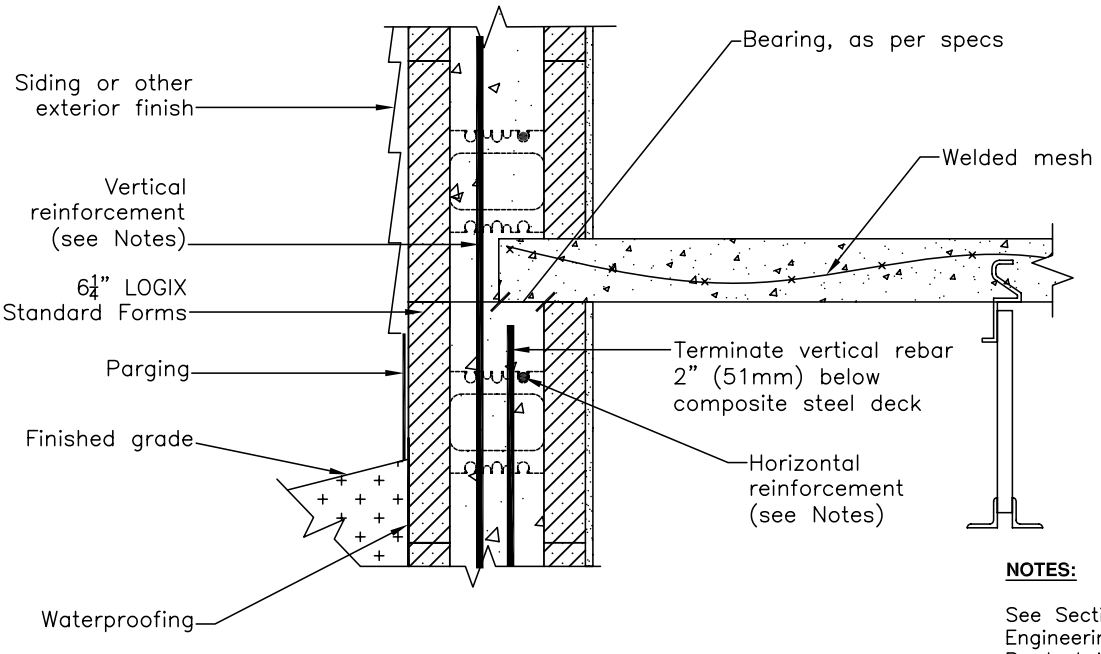
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.12 – HAMBRO FLOOR

All drawings are downloadable at www.logixicf.com



HAMBRO FLOOR SYSTEM (BEARING END)



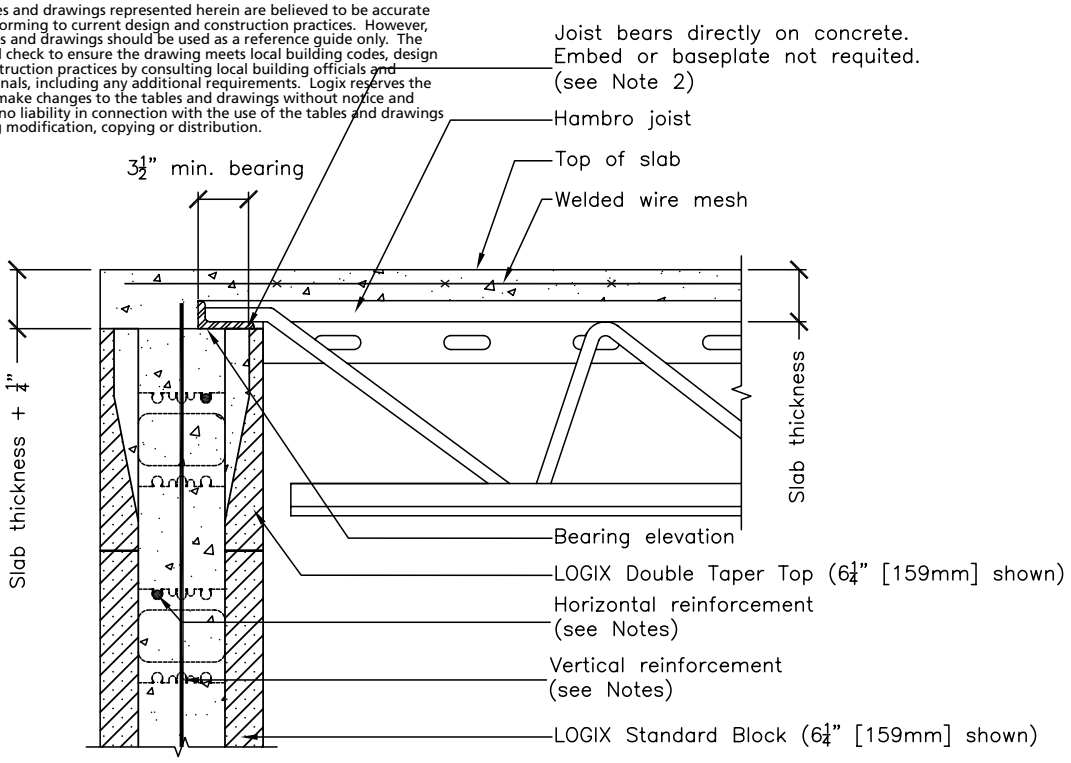
HAMBRO FLOOR SYSTEM (NON-BEARING END)

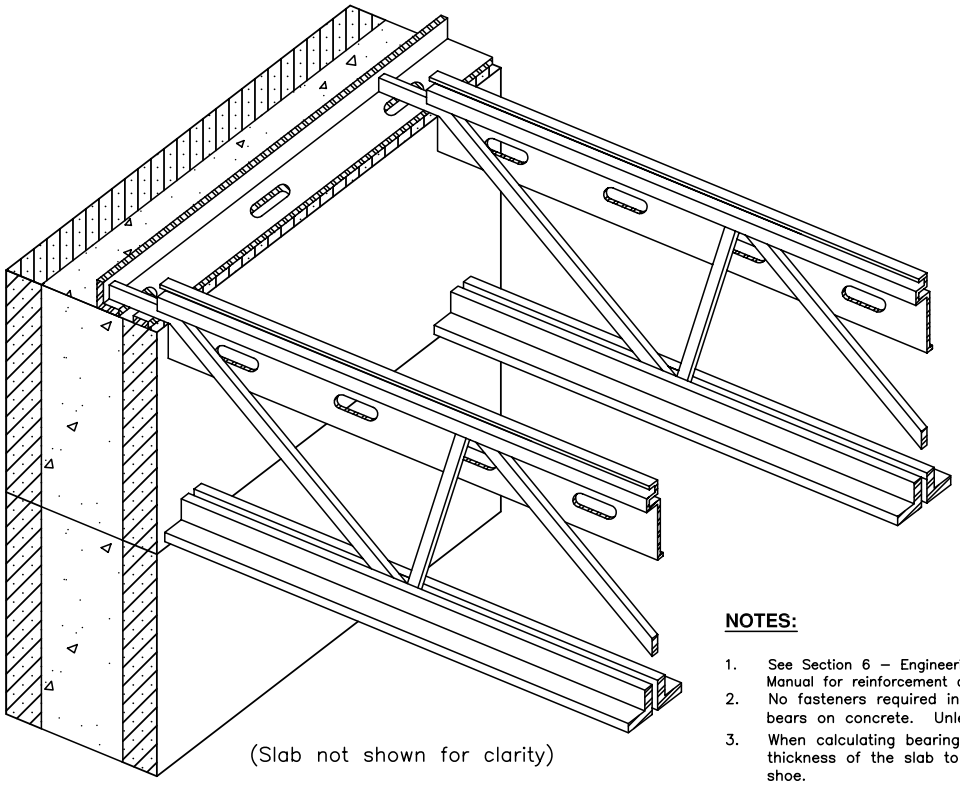
NOTES:

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.

CAD DRAWINGS

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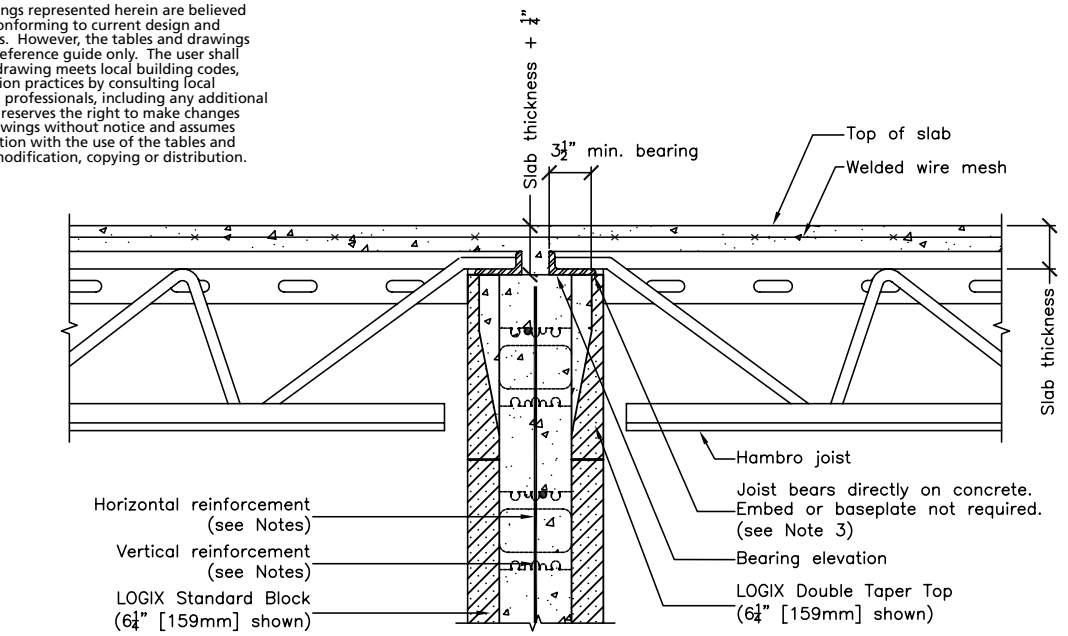
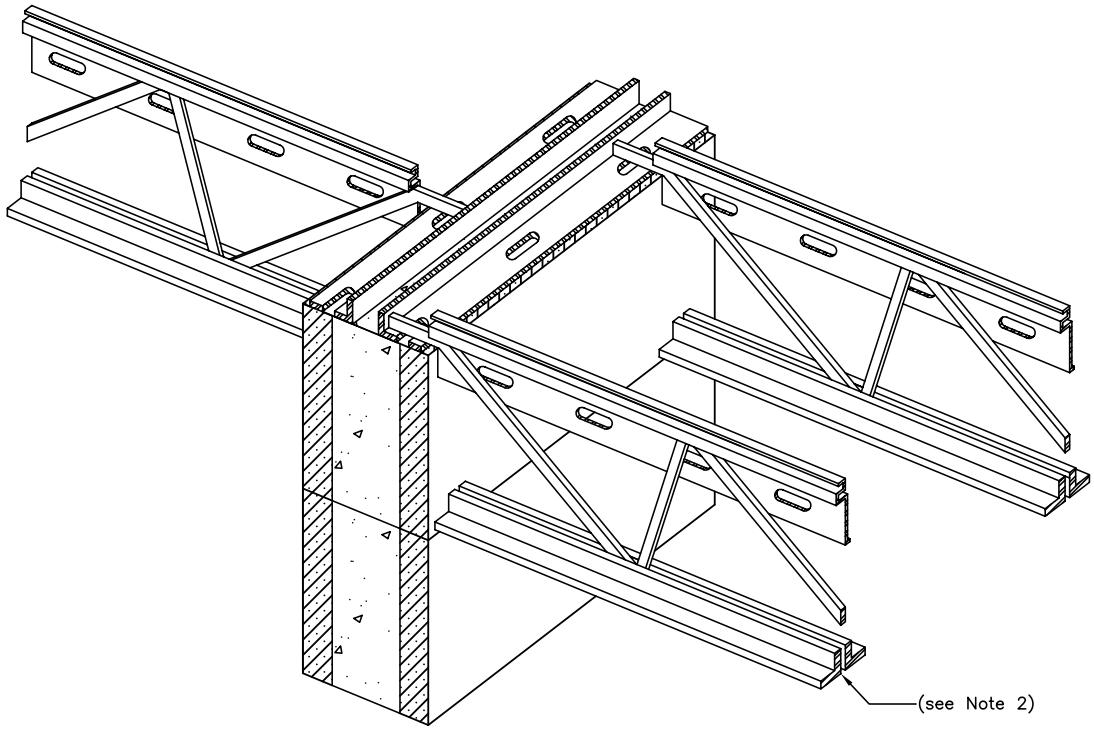
5.3.14 – HAMBRO JOISTS BUTTED UP ON LOGIX ICF WALL (2 OF 2)

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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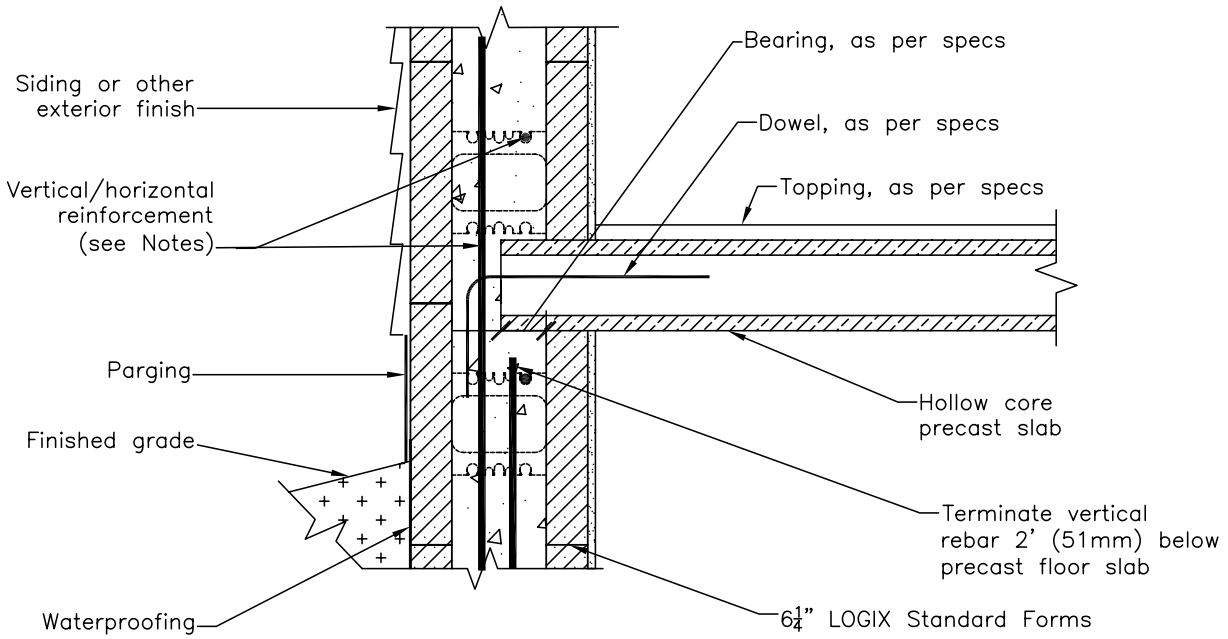
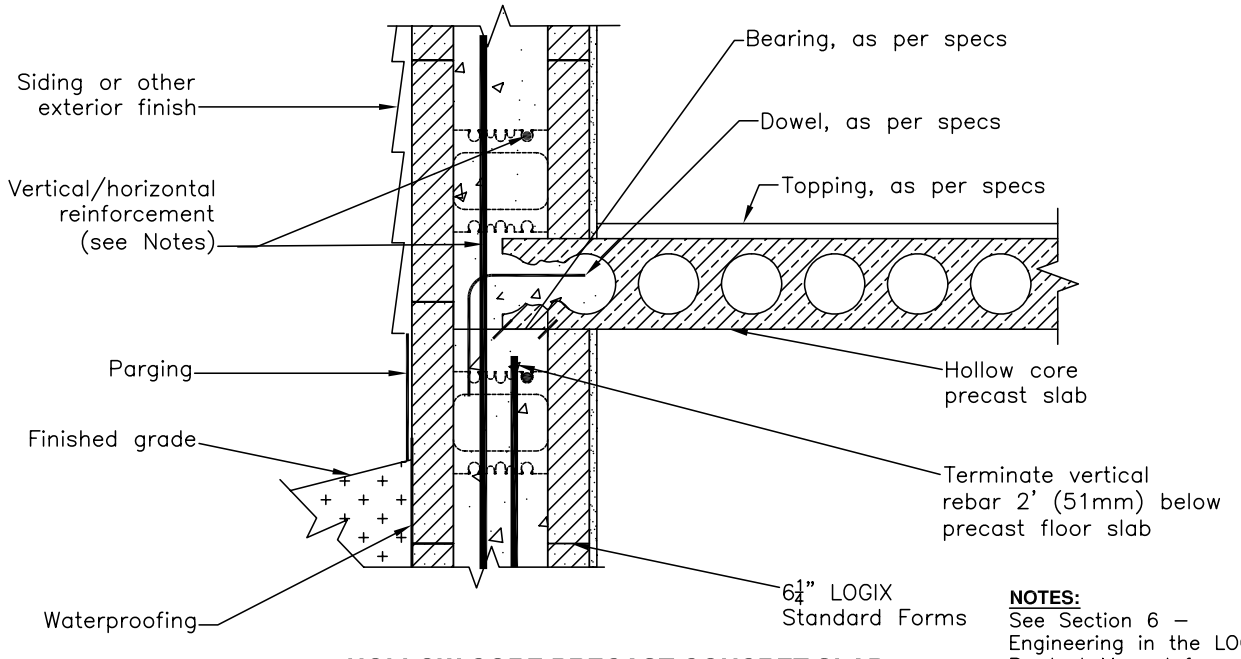
5.3.15 – HOLLOW CORE SLAB WITH LOGIX

All drawings are downloadable at www.logixicf.com



HOLLOW CORE PRECAST CONCRET SLAB (BEARING END)



HOLLOW CORE PRECAST CONCRET SLAB (NON-BEARING END)

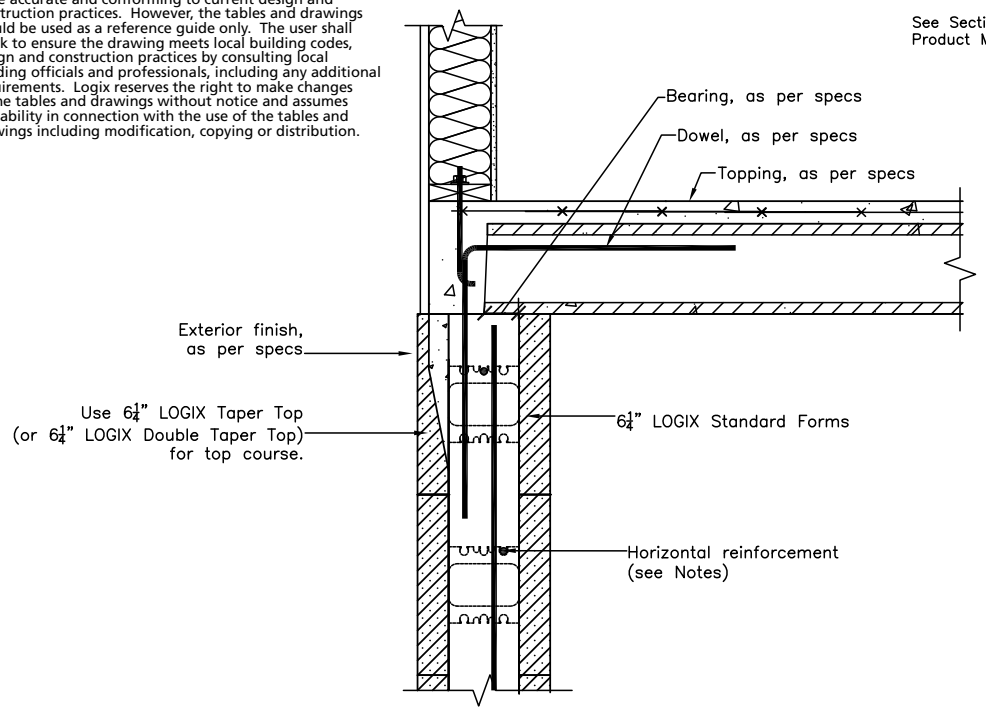
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.3.16 – HOLLOW CORE SLAB WITH FRAMED WALL

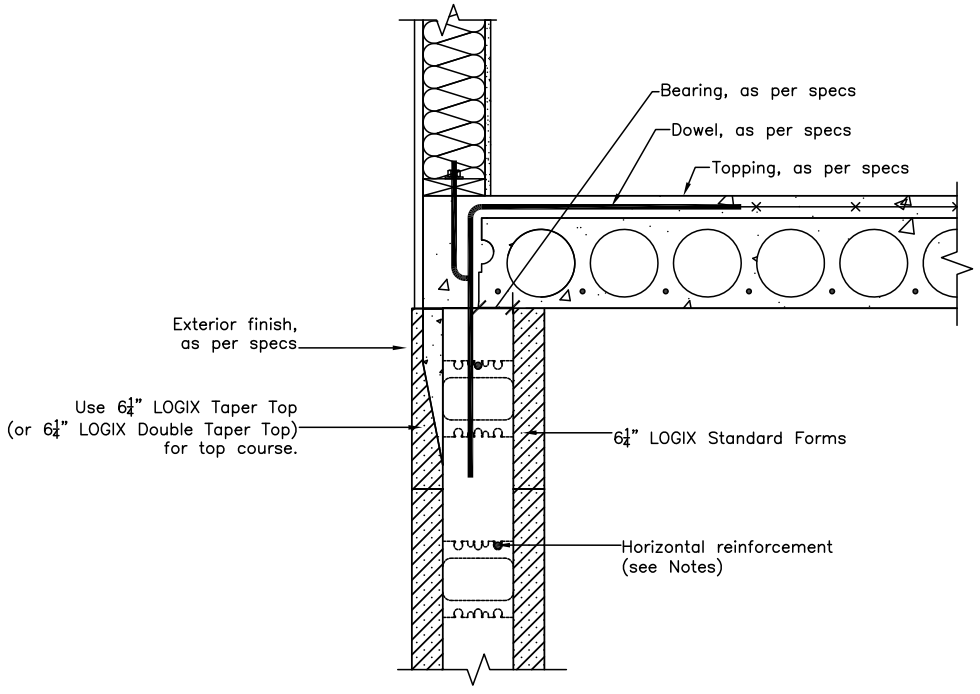
All drawings are downloadable at www.logixicf.com

NOTES:

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



BEARING END



NONBEARING END

CAD DRAWINGS

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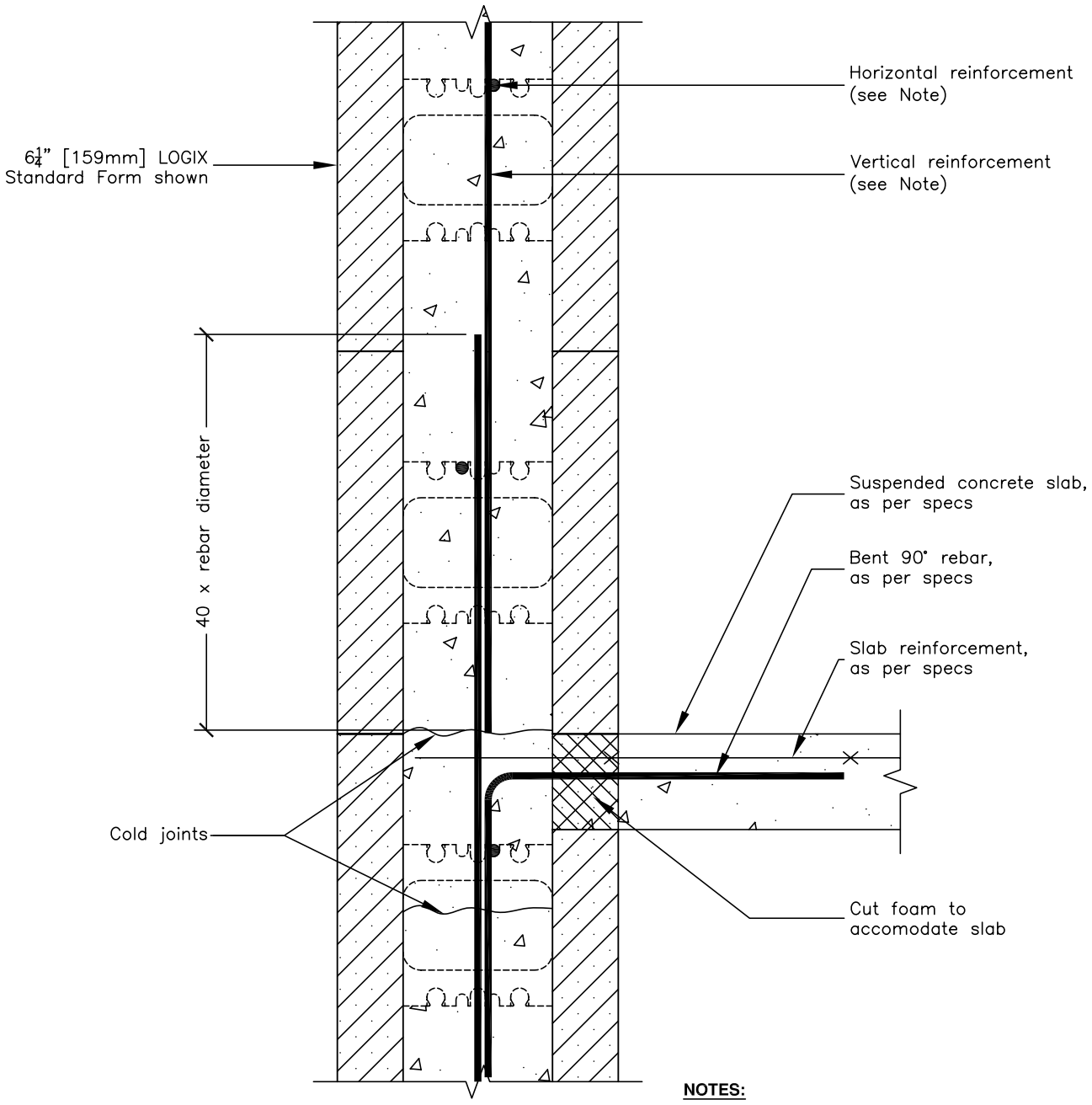
5.3.17 – SUSPENDED SLAB (CAST-IN-PLACE)

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

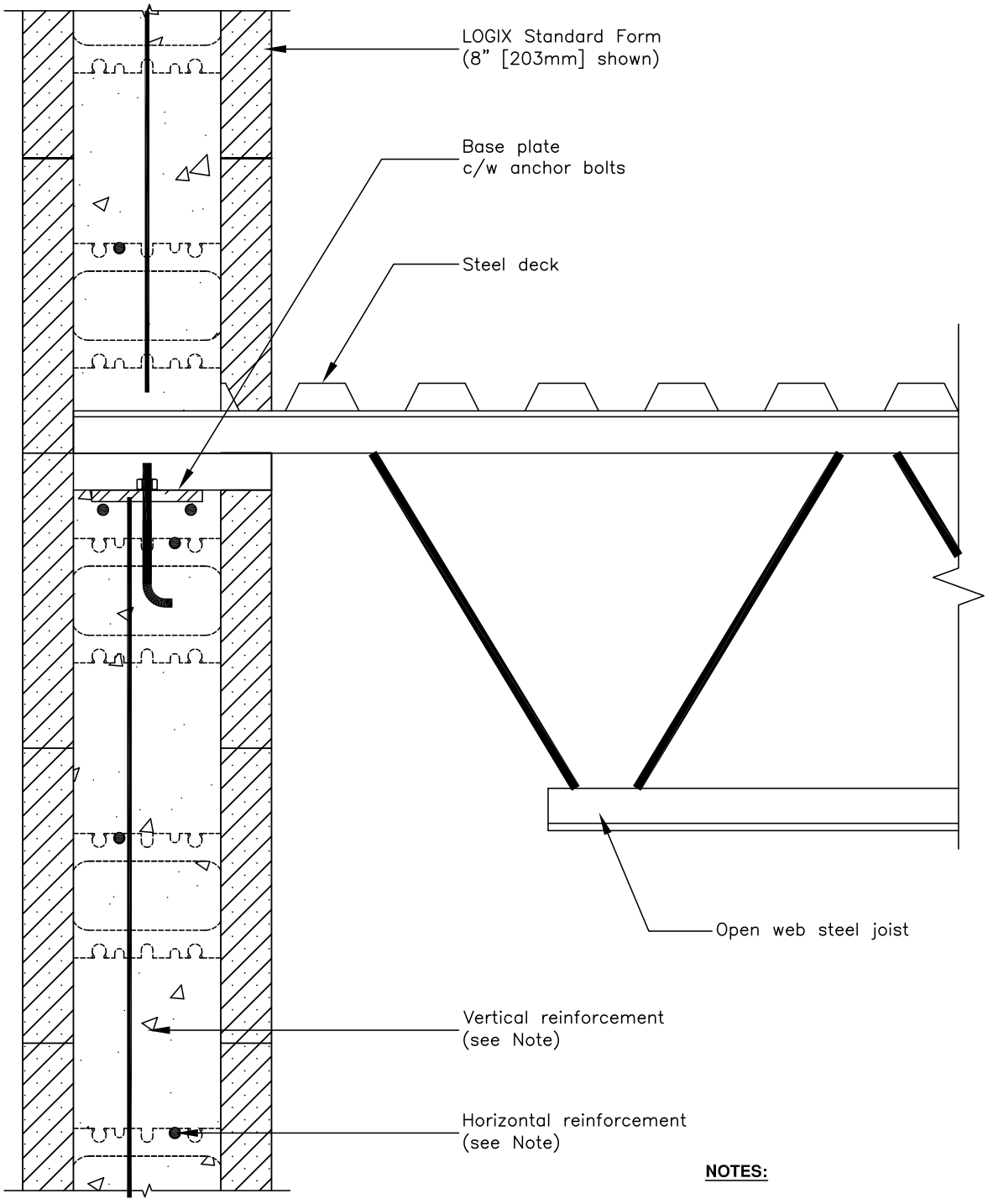


NOTES:

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.

CAD DRAWINGS

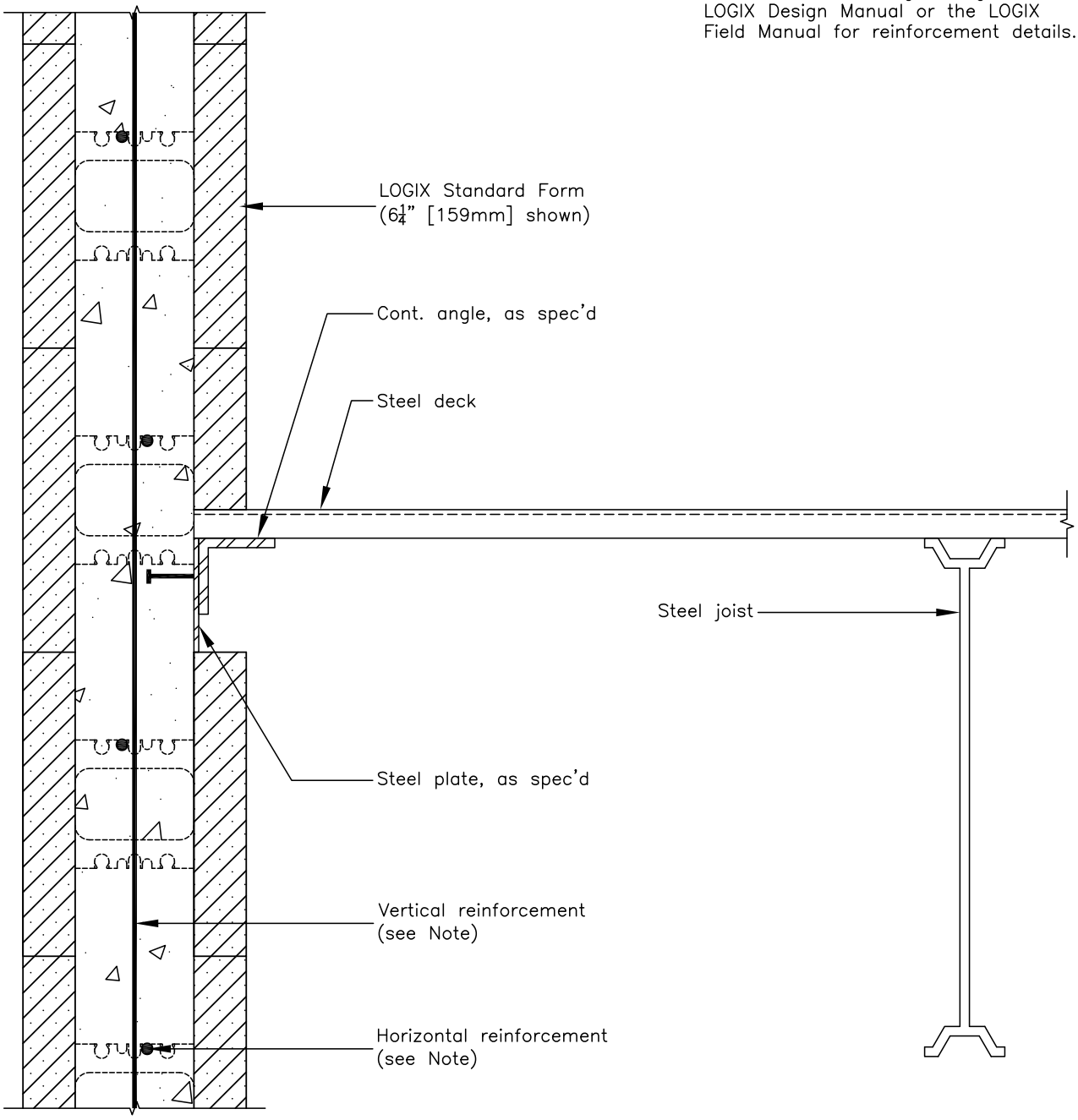
5.3.19 – STEEL DECK ON OPEN WEB STEEL JOIST (NONBEARING END)

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

NOTES:

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



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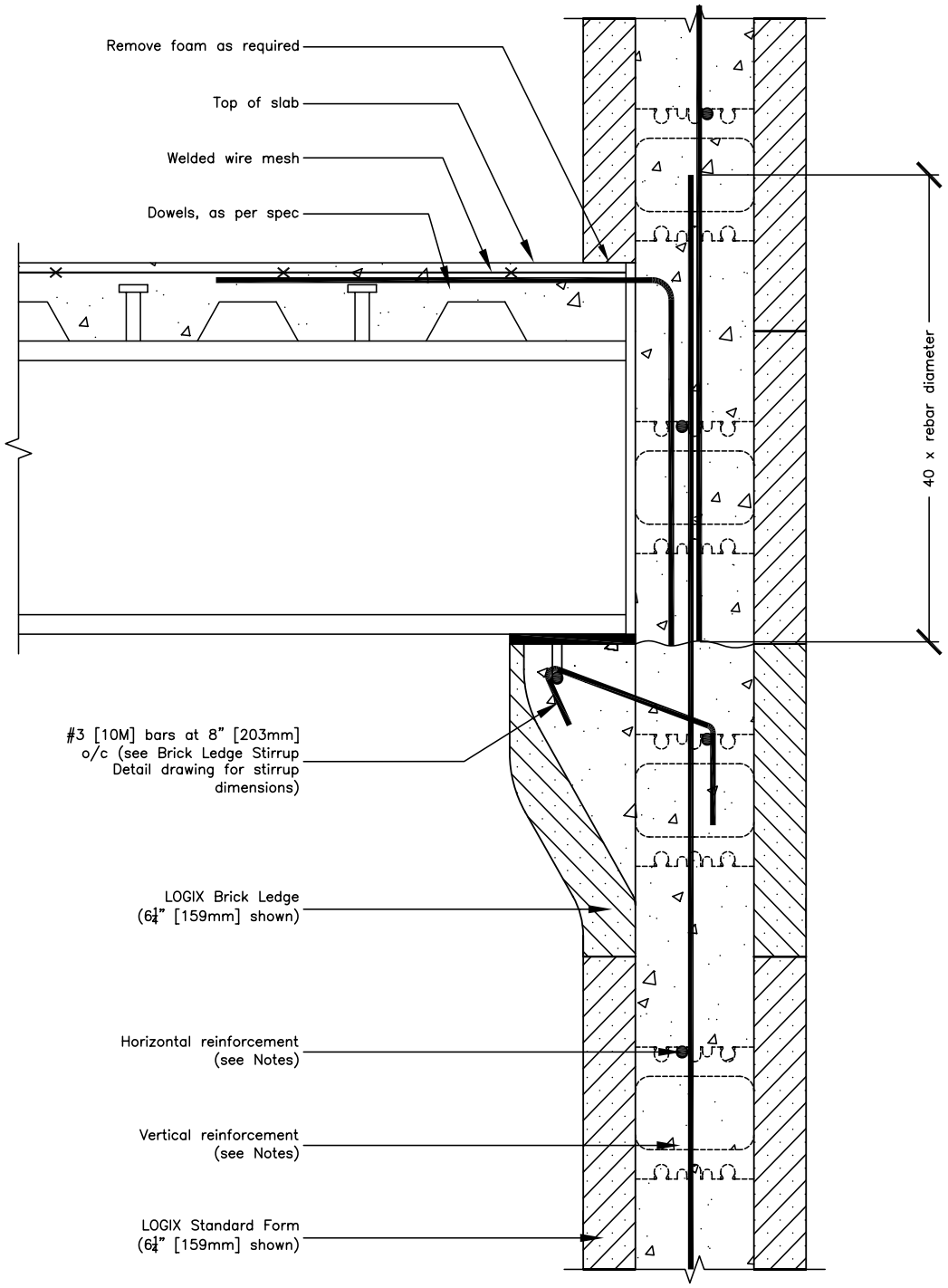
5.3.20 – COMPOSITE STEEL BEAM ON BRICK LEDGE

All drawings are downloadable at www.logixicf.com

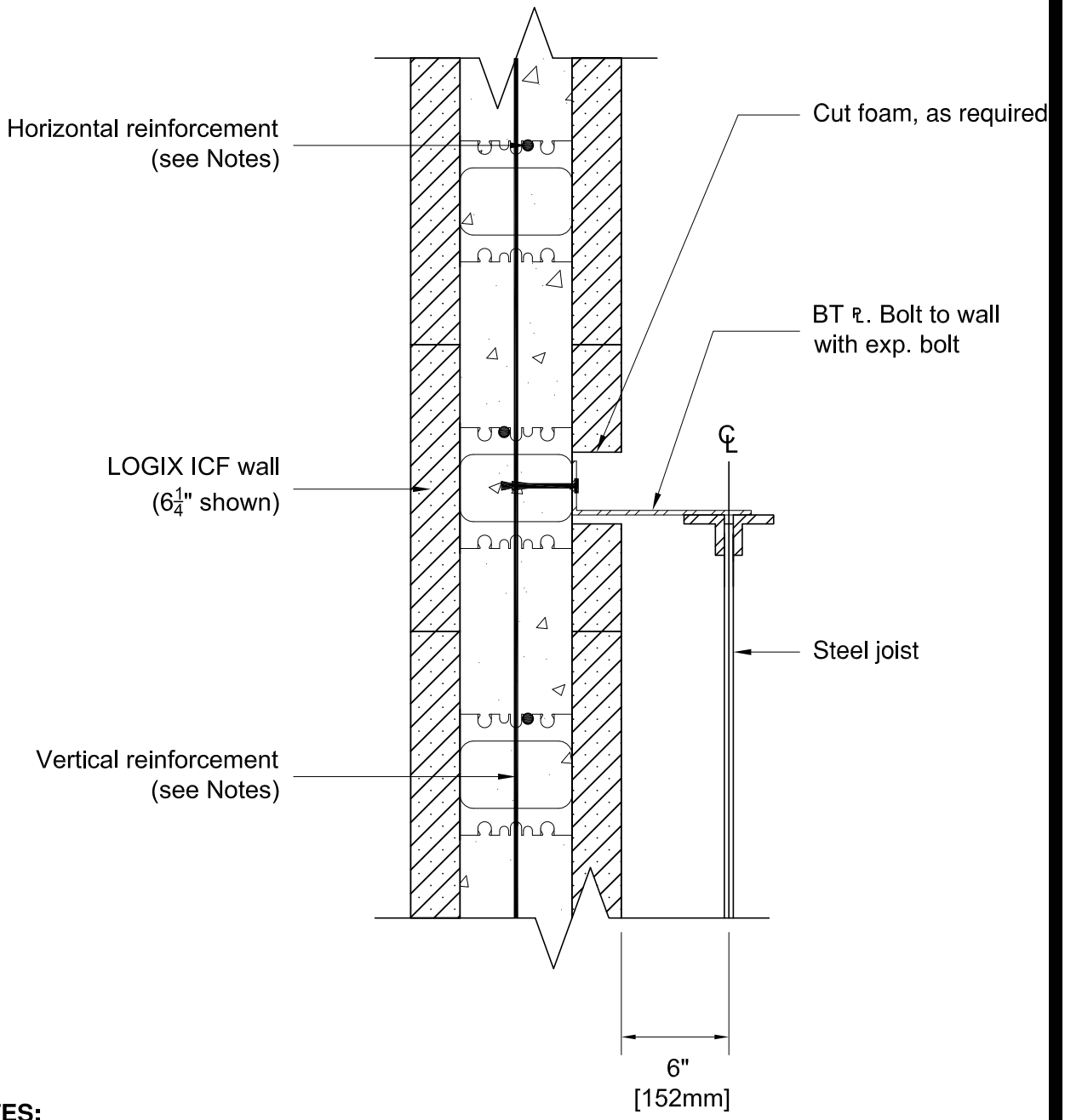


NOTES:

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

CAD DRAWINGS

5.3.21 – STEEL ANGLE TO FLOOR JOIST



NOTES:

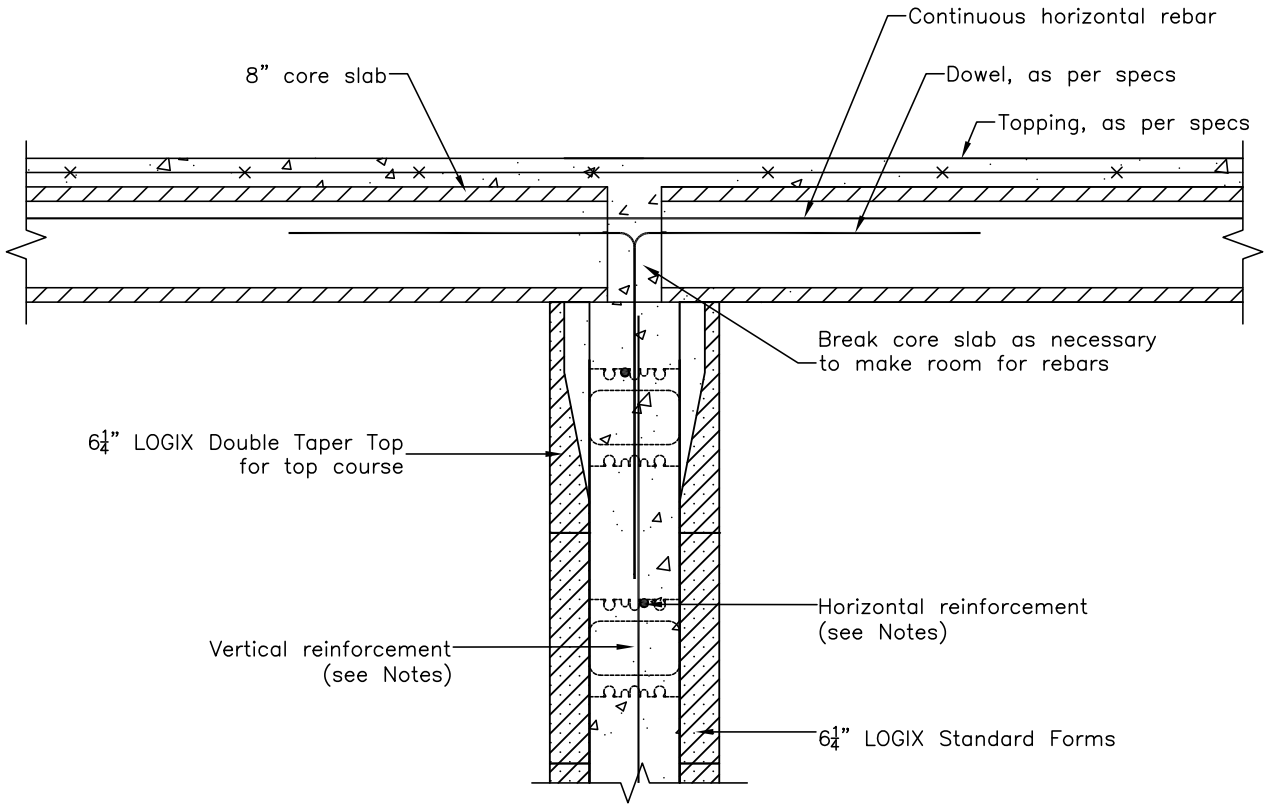
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

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.



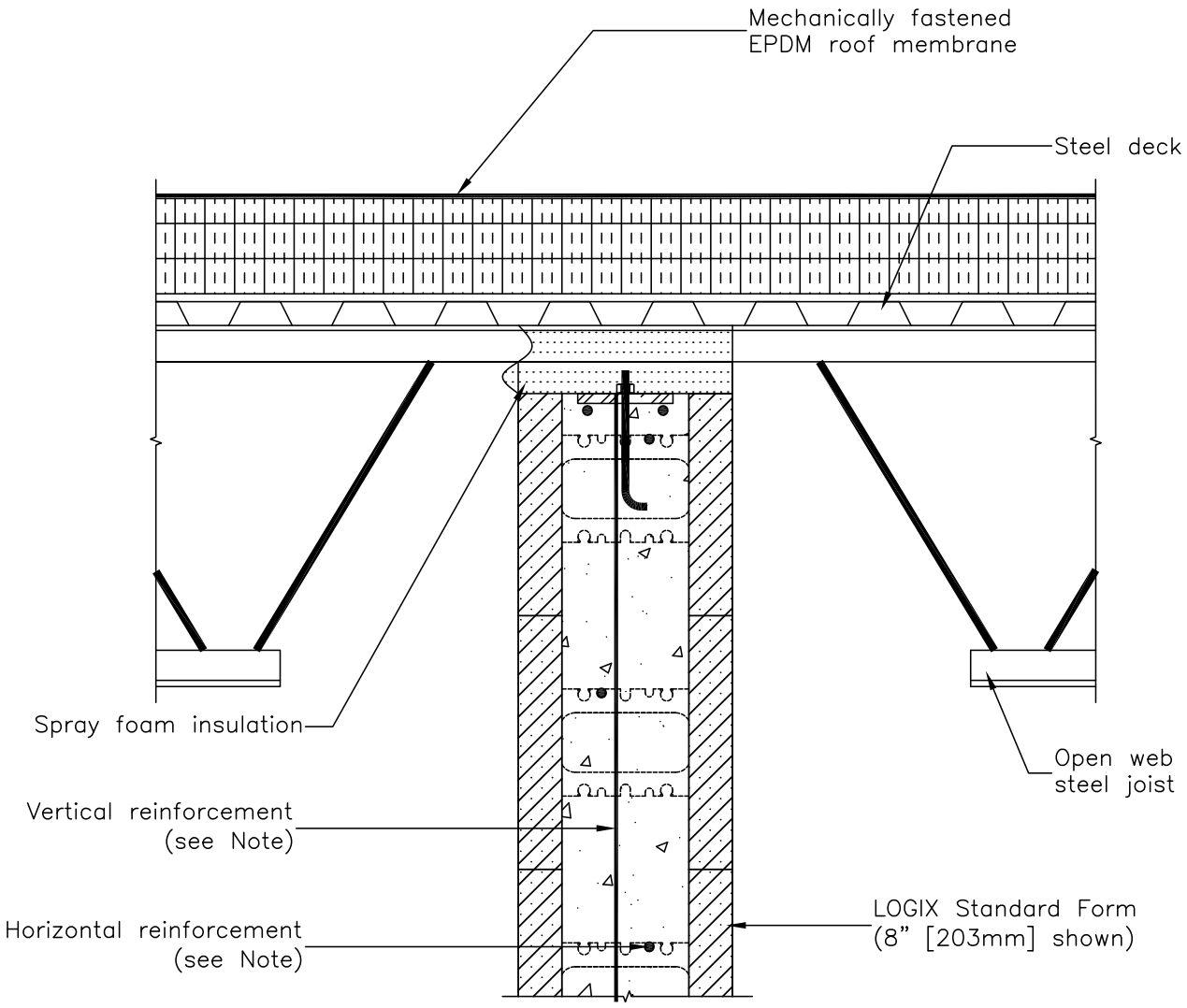
BEARING END

CAD DRAWINGS

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

NOTES:

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

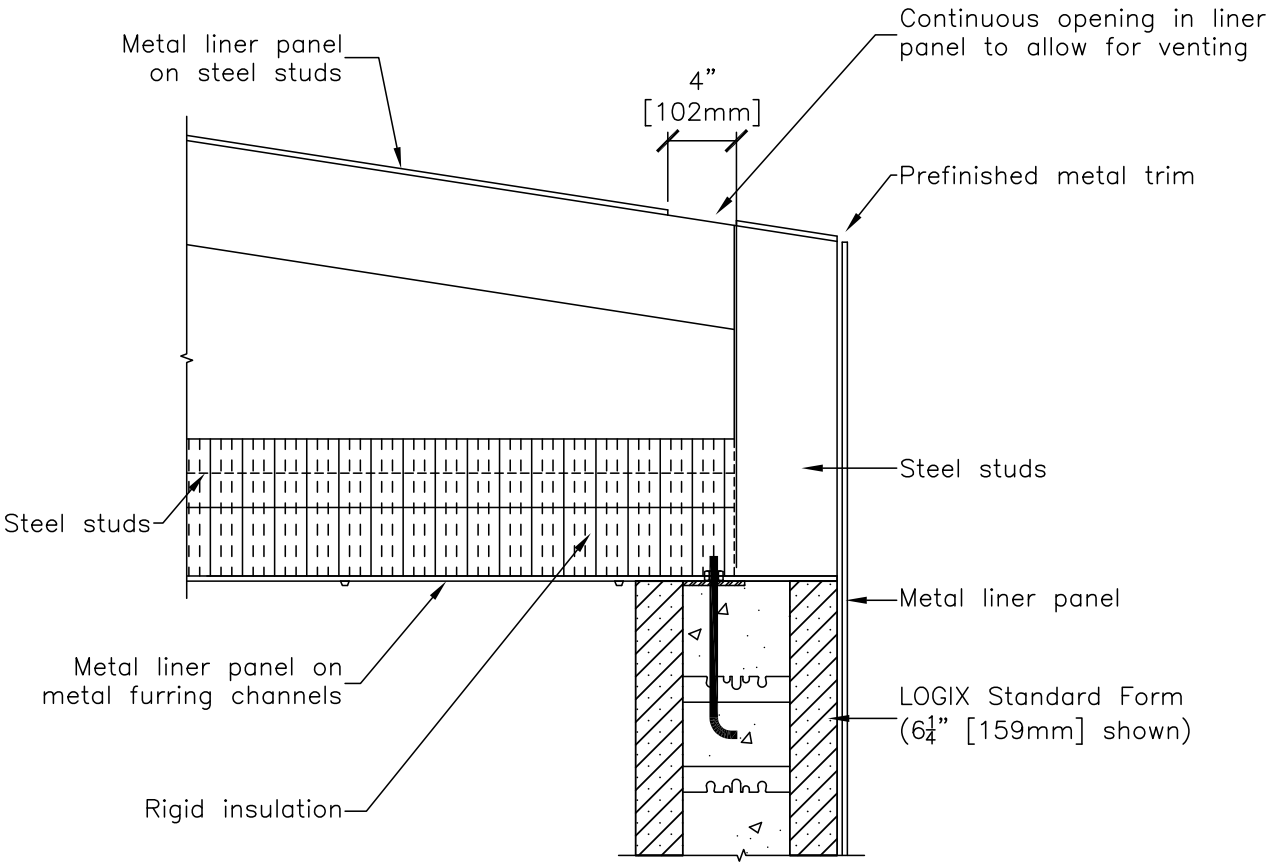


5.4.2 – METAL LINER ROOF PANELS

All drawings are downloadable at www.logixicf.com

NOTES:

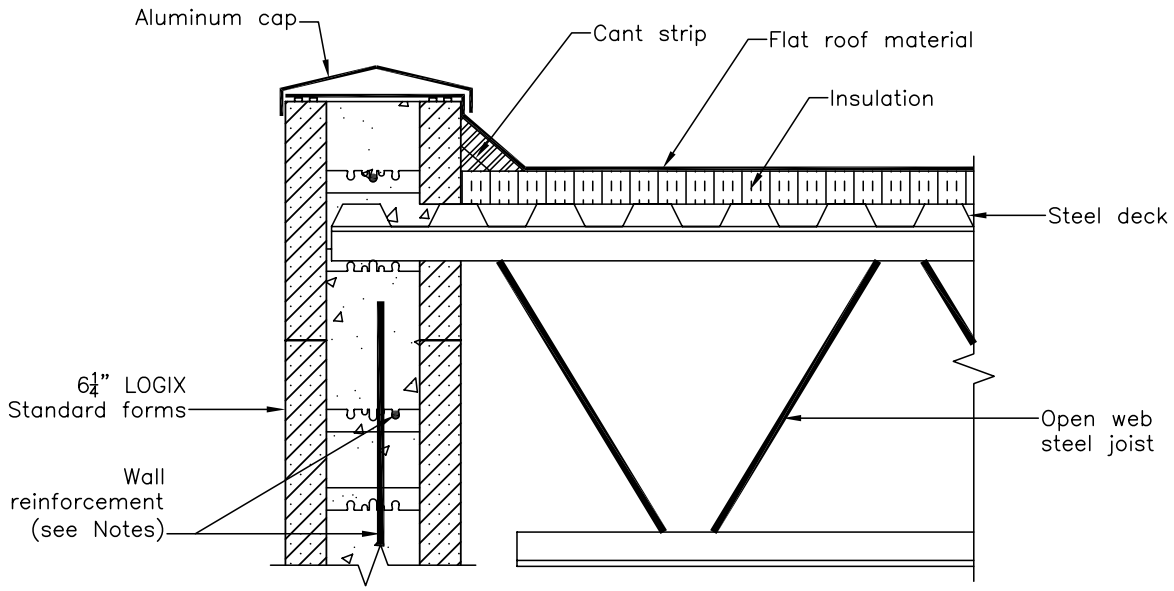
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



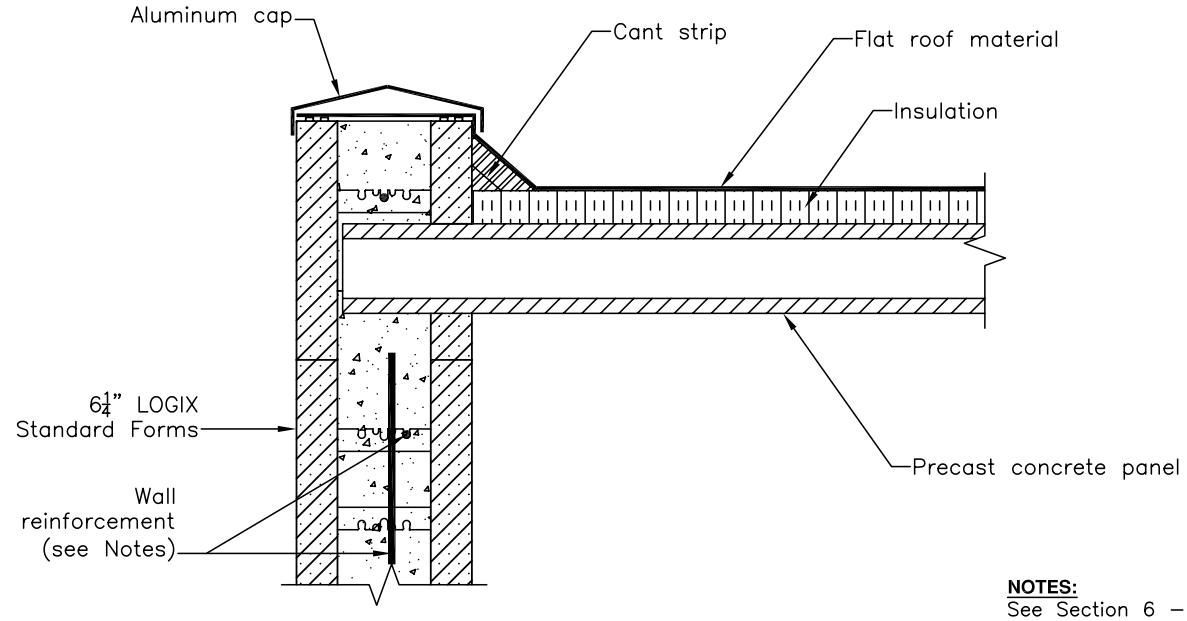
CAD DRAWINGS

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

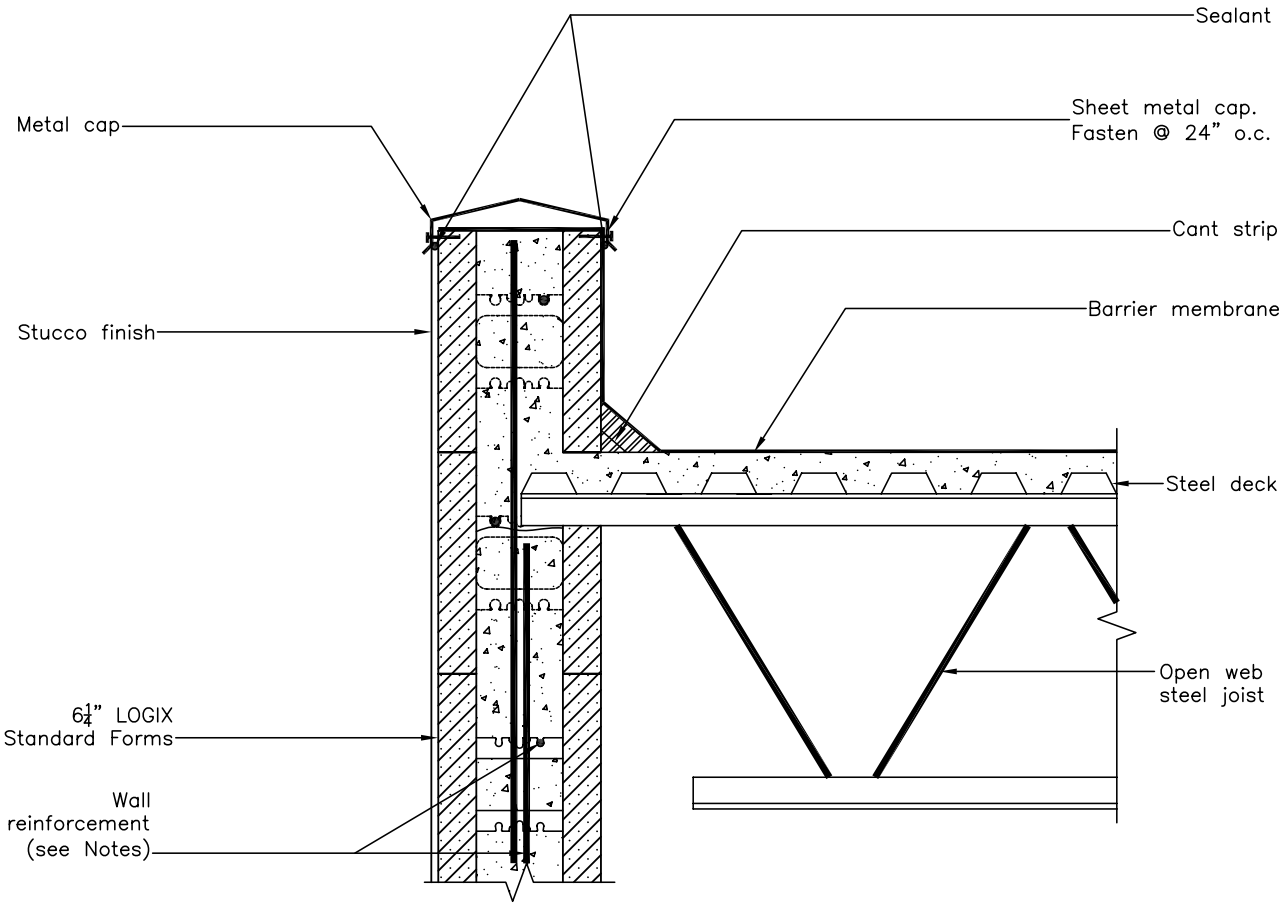


5.8.6 - PRECAST CONCRETE FLAT ROOF

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

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.

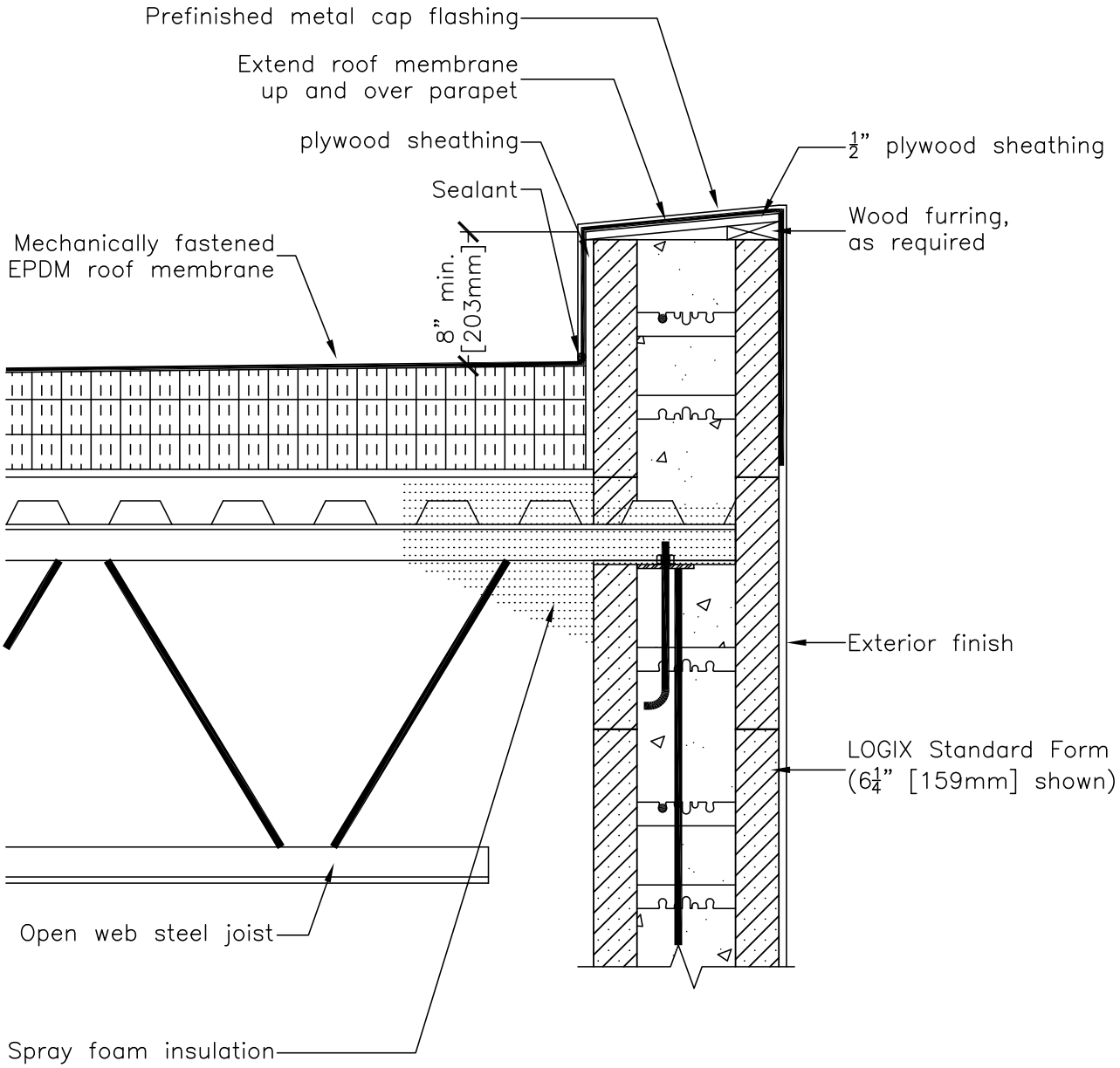
CAD DRAWINGS

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.



CAD DRAWINGS

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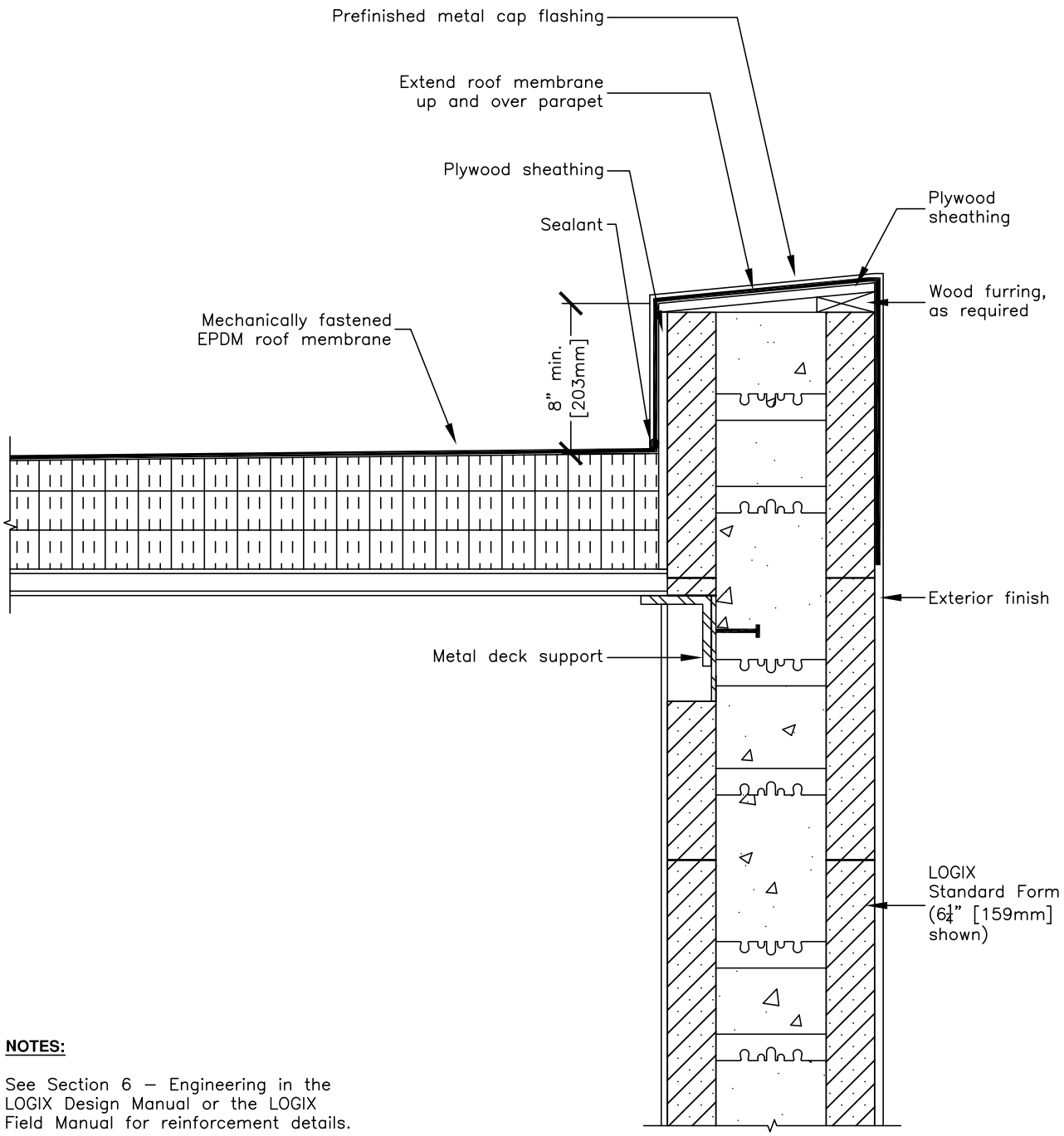
5.4.7 – ICF PARAPET: FLAT ROOF WITH DECK SUPPORT

All drawings are downloadable at www.logixicf.com



NOTES:

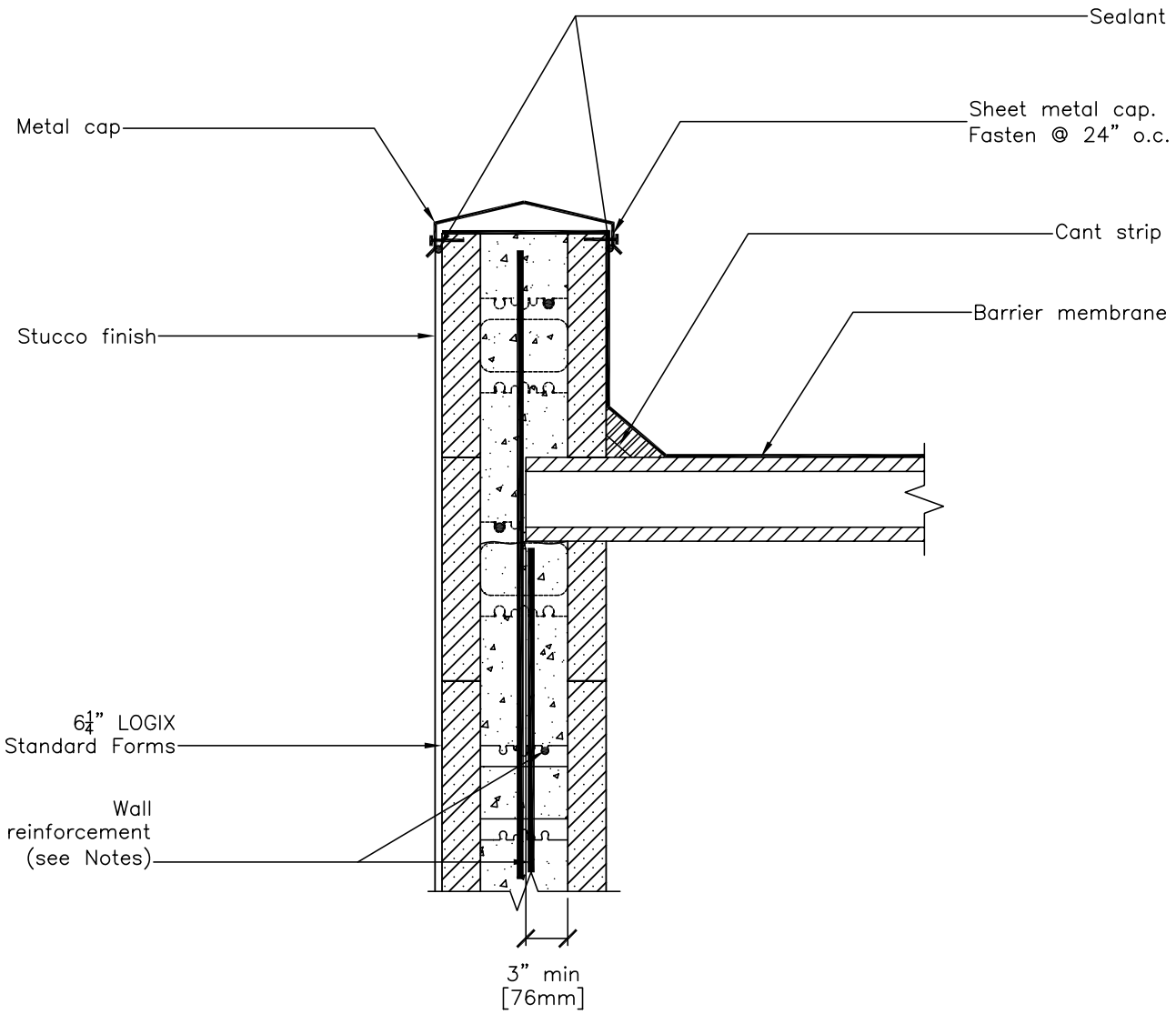
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

CAD DRAWINGS

5.4.8 – ICF PARAPET: FLAT ROOF WITH PRECAST CONCRETE PANEL

All drawings are downloadable at www.logixicf.com

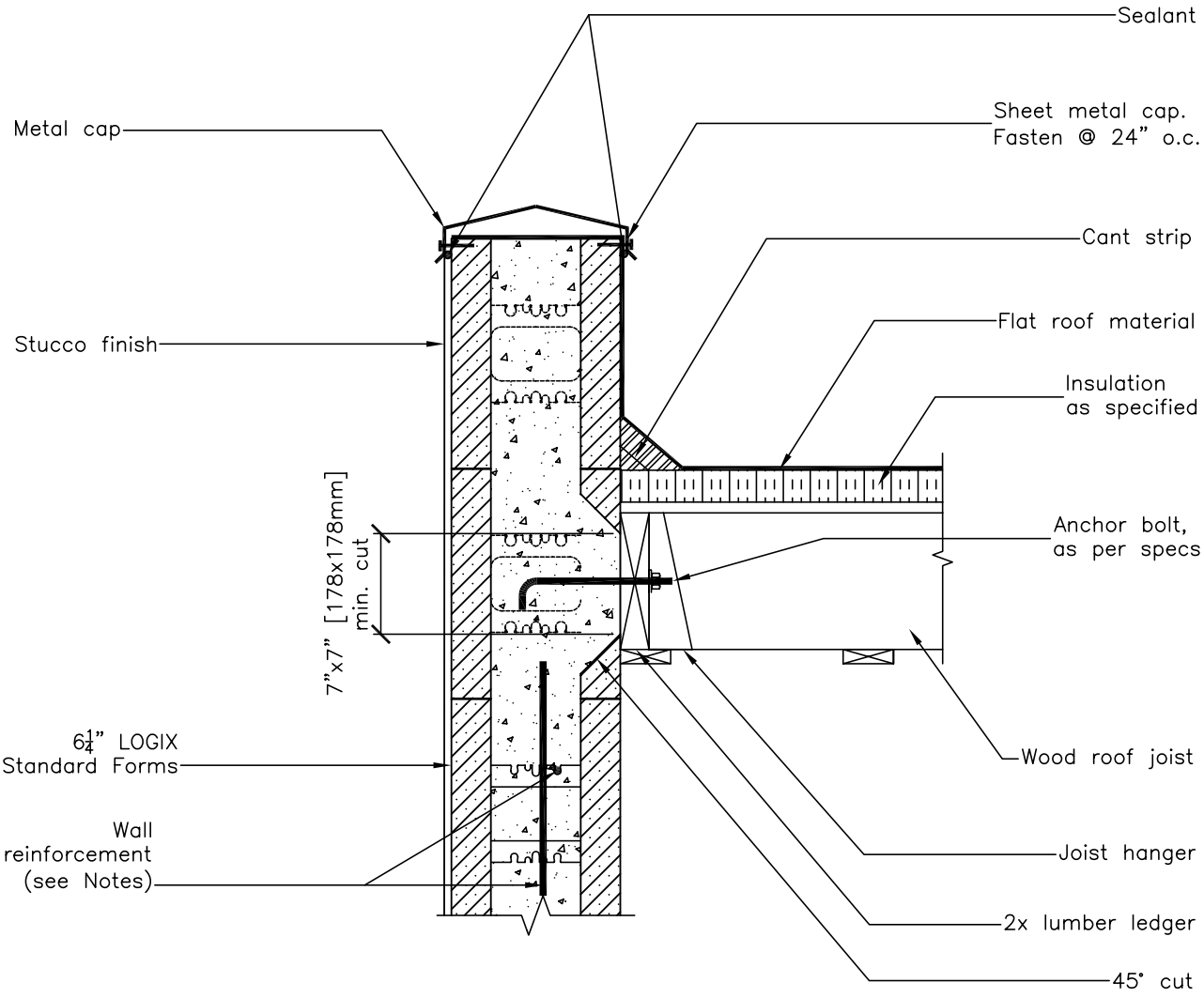
CAD DRAWINGS



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



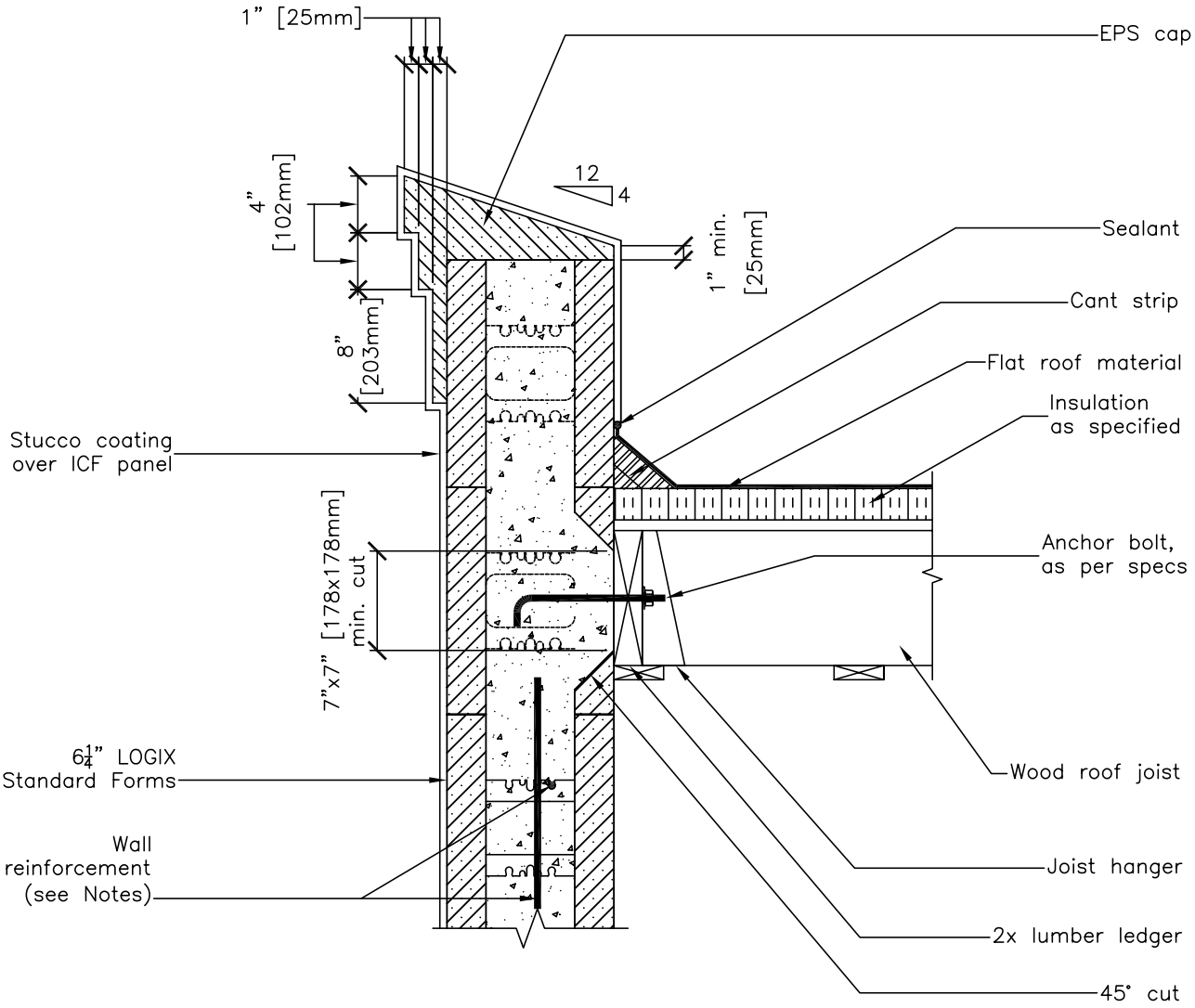
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

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

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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

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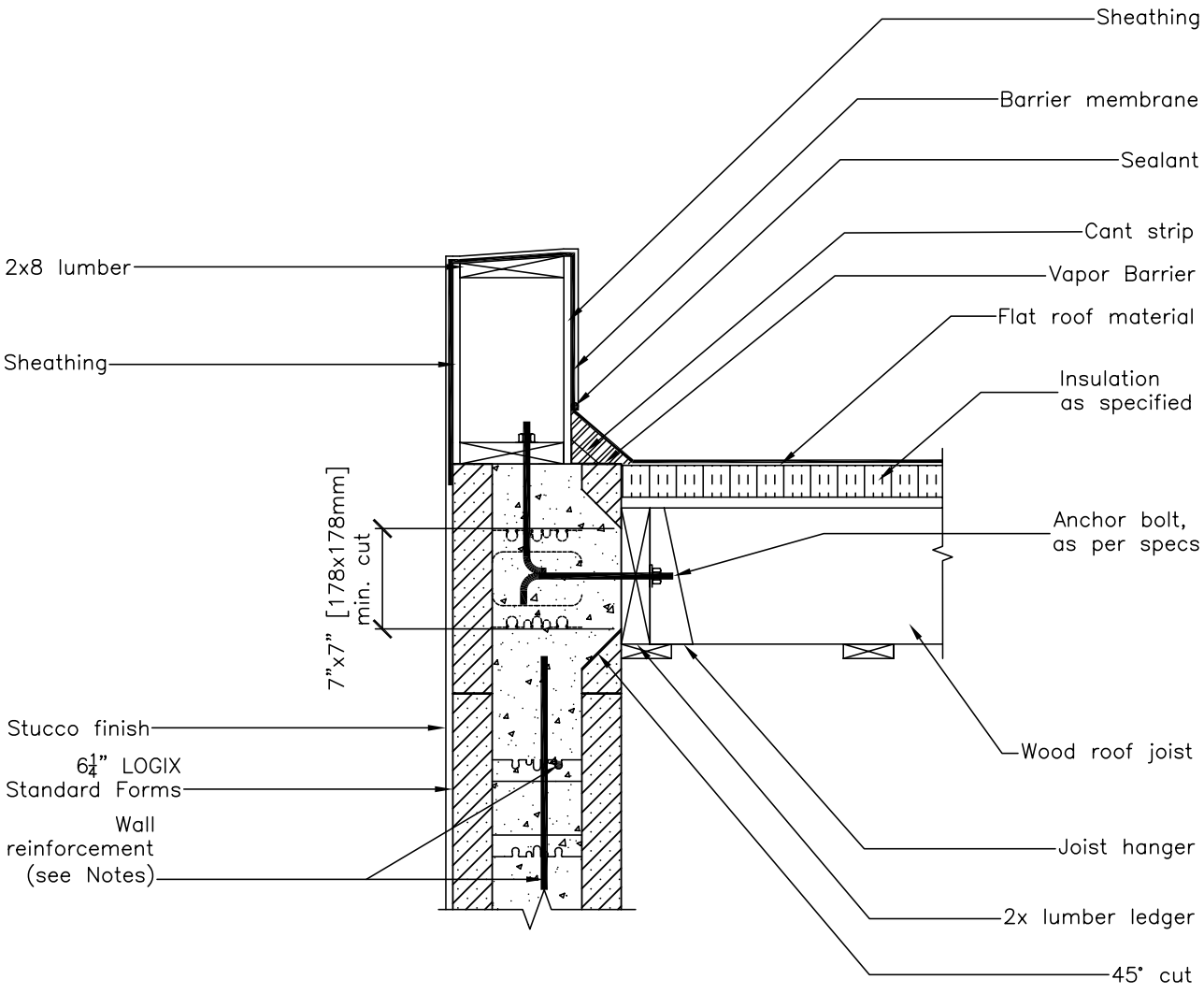
5.4.11 – WOOD PARAPET ON WOOD JOISTS

All drawings are downloadable at www.logixicf.com



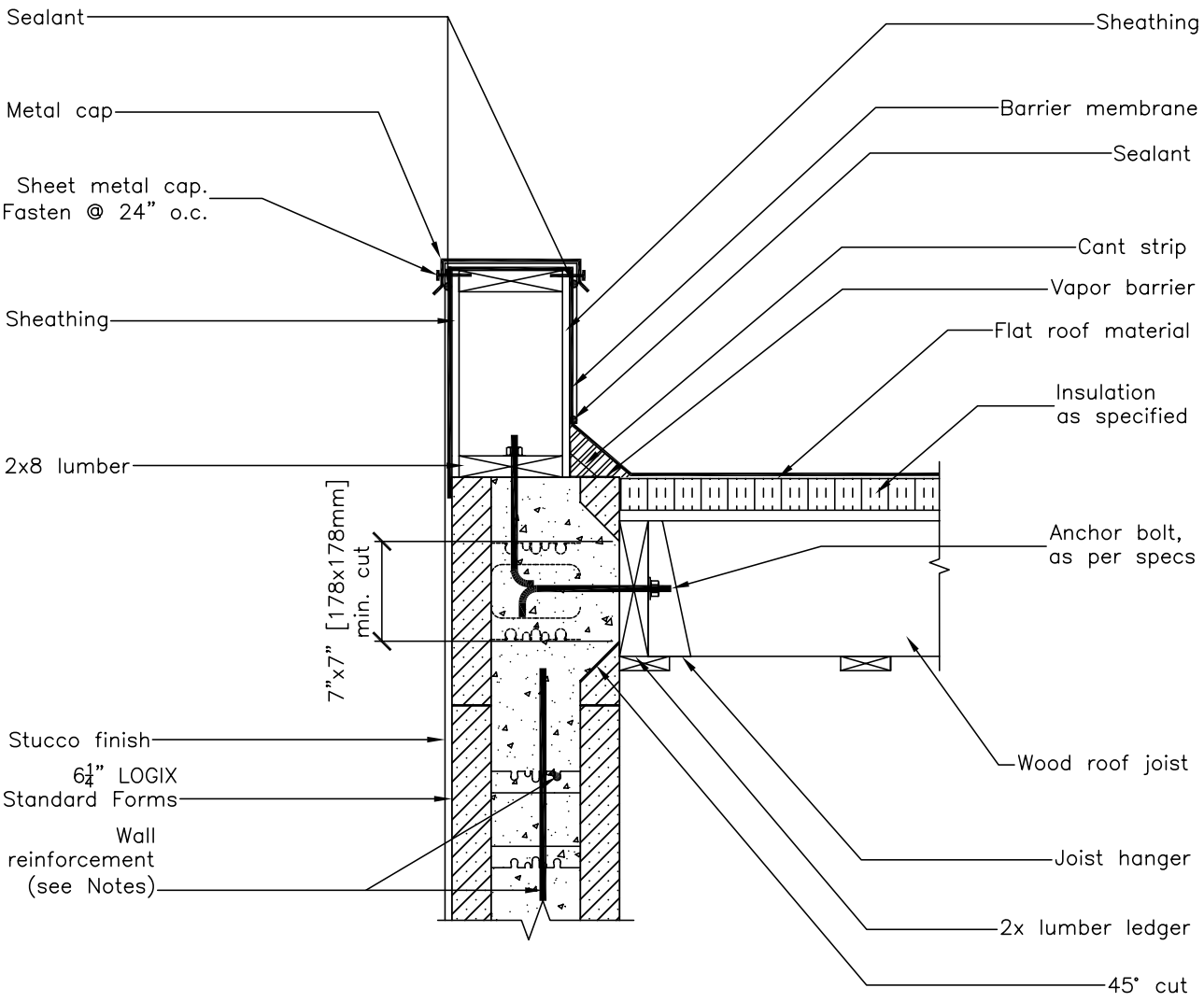
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

5.4.12 – WOOD PARAPET ON WOOD JOISTS WITH METAL CAP

All drawings are downloadable at www.logixicf.com

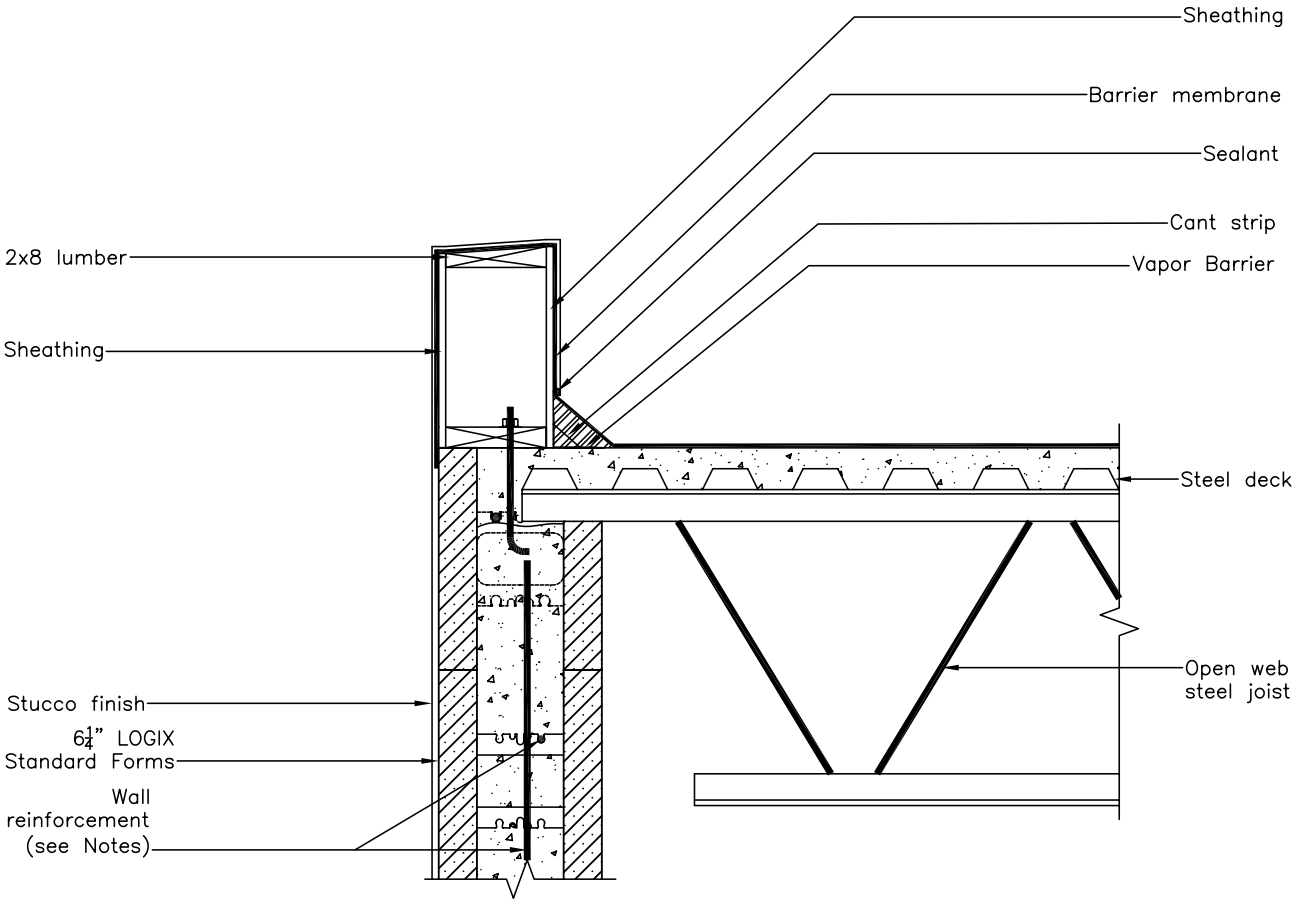
CAD DRAWINGS



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

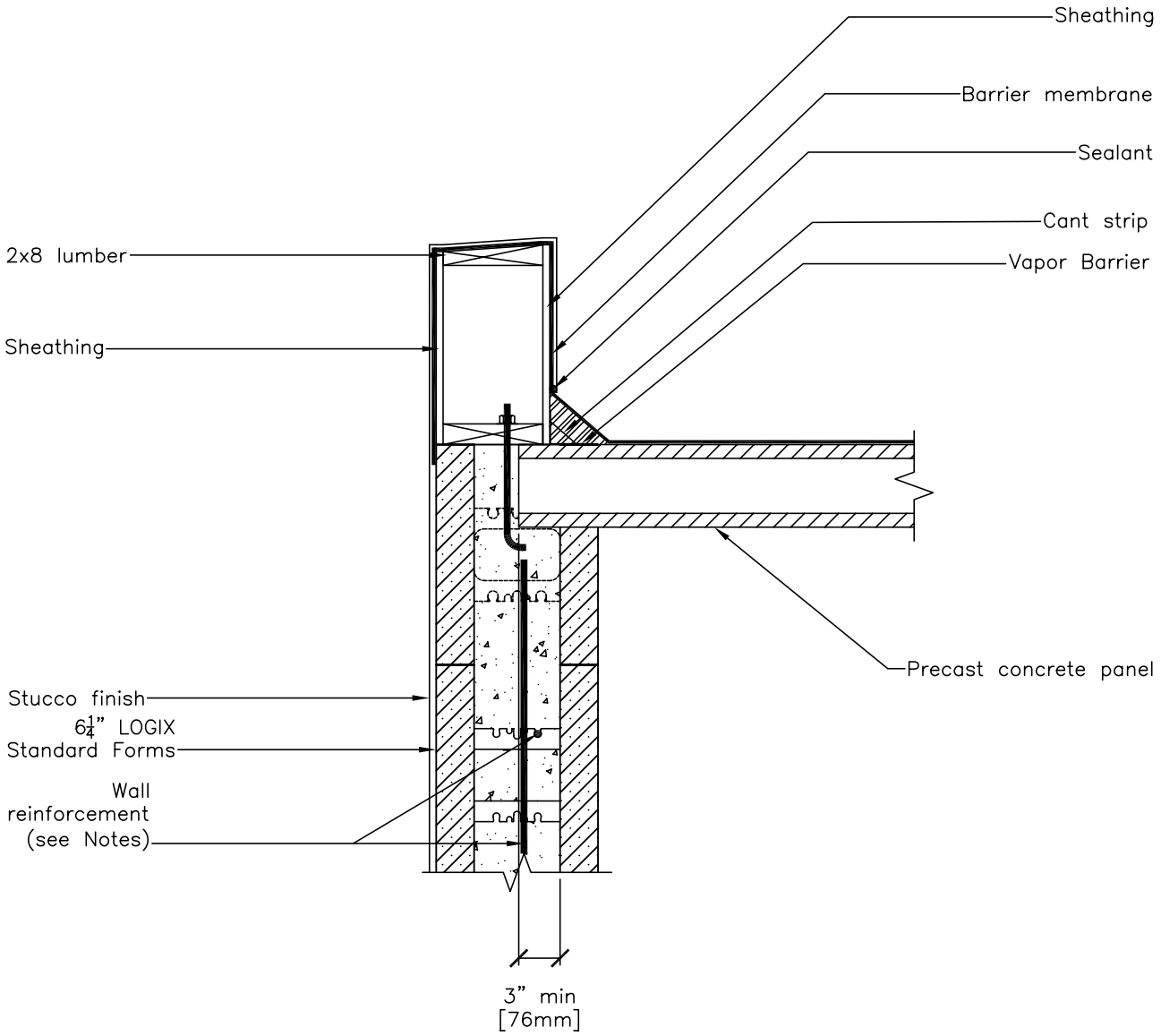


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.4.14 – WOOD PARAPET WITH PRECAST CONCRETE PANEL ROOF

All drawings are downloadable at www.logixicf.com

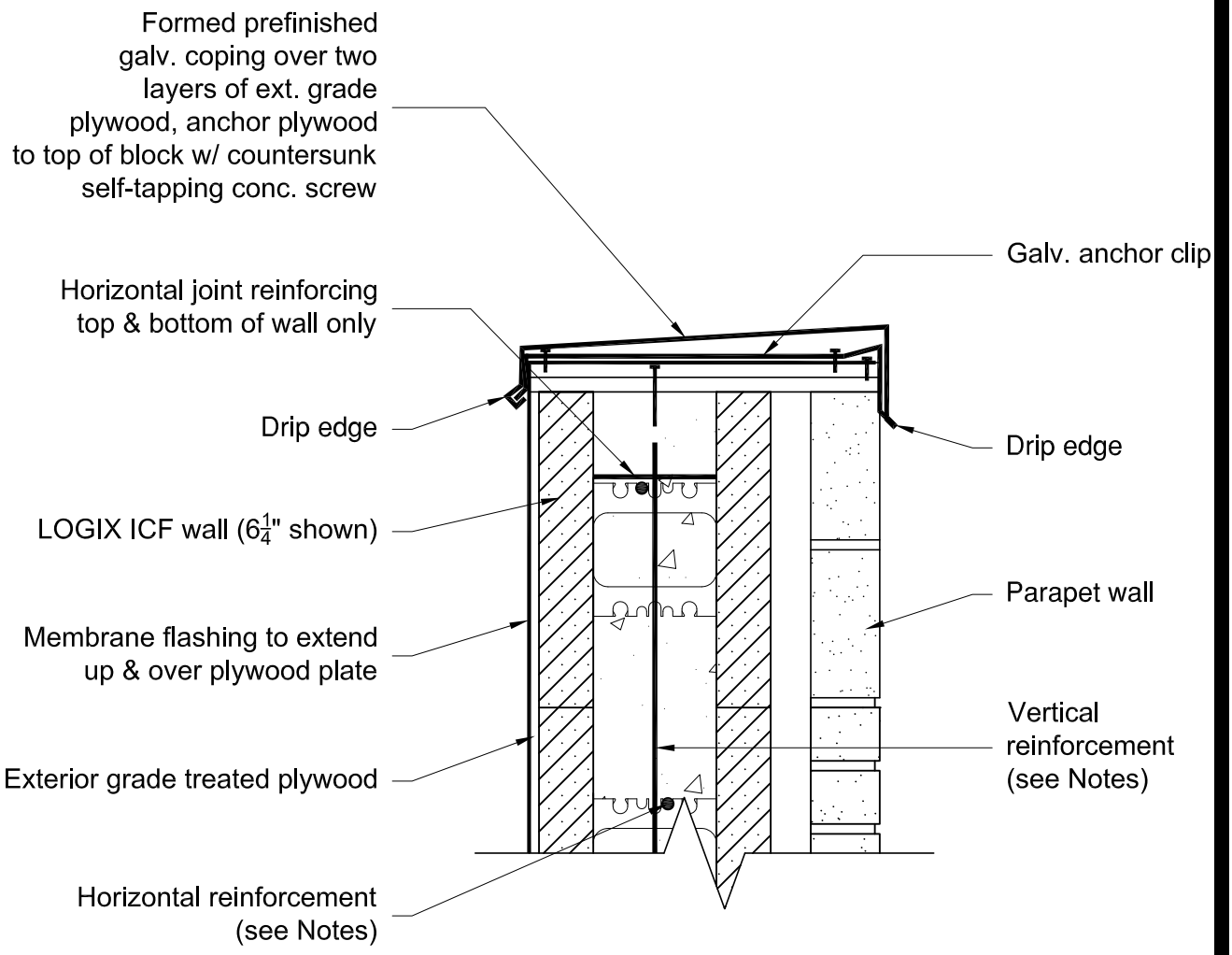
CAD DRAWINGS



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



CAD DRAWINGS

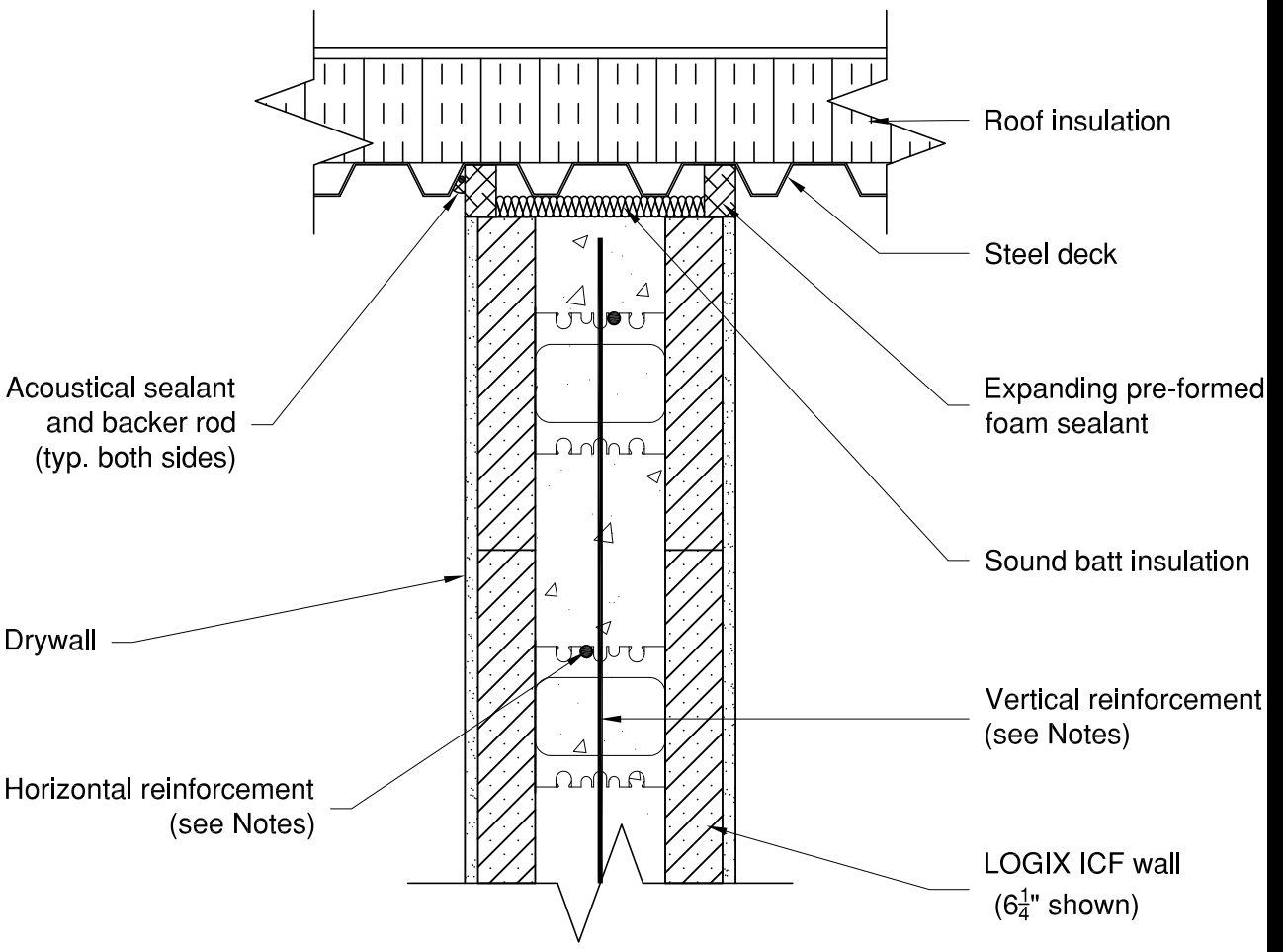
NOTES:

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

CAD DRAWINGS

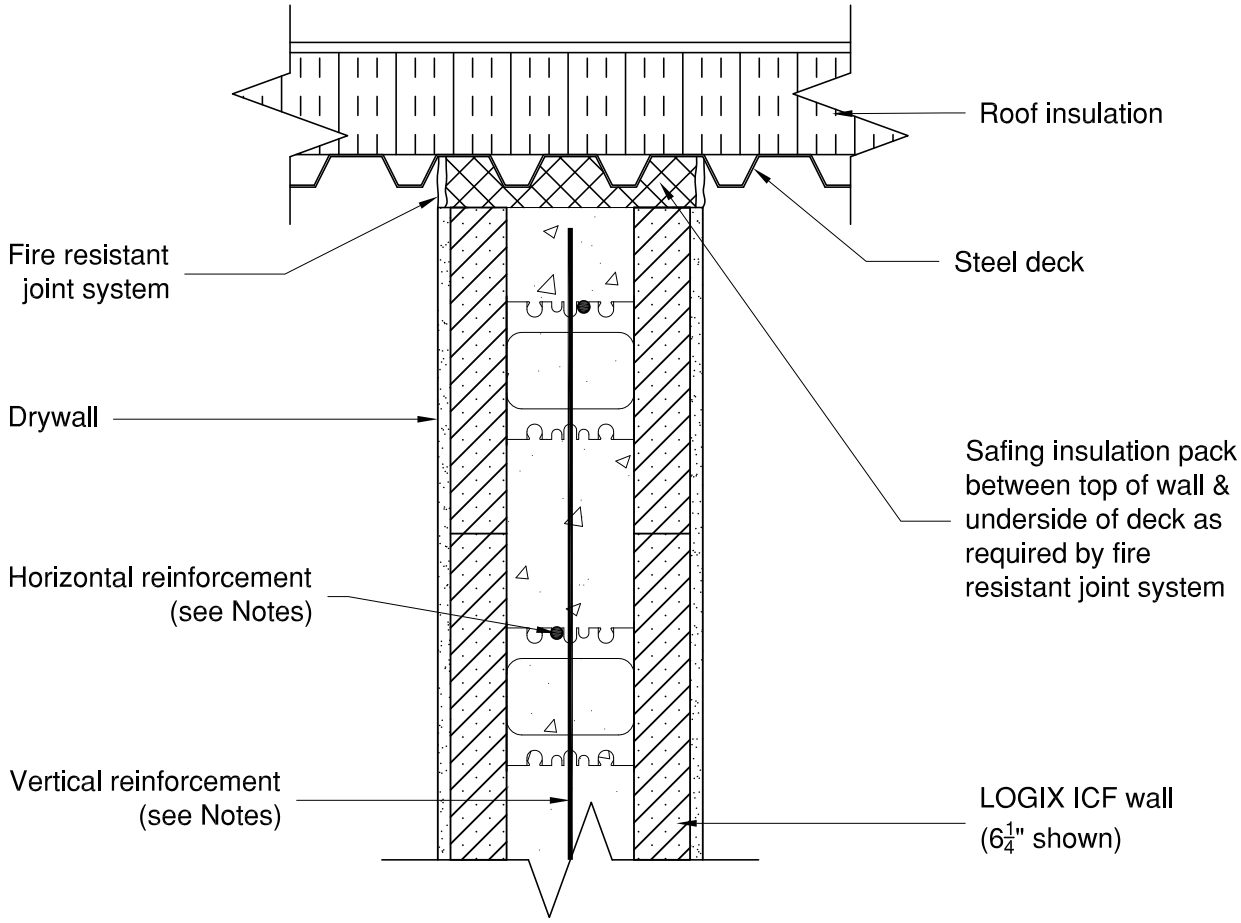


NOTES:

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

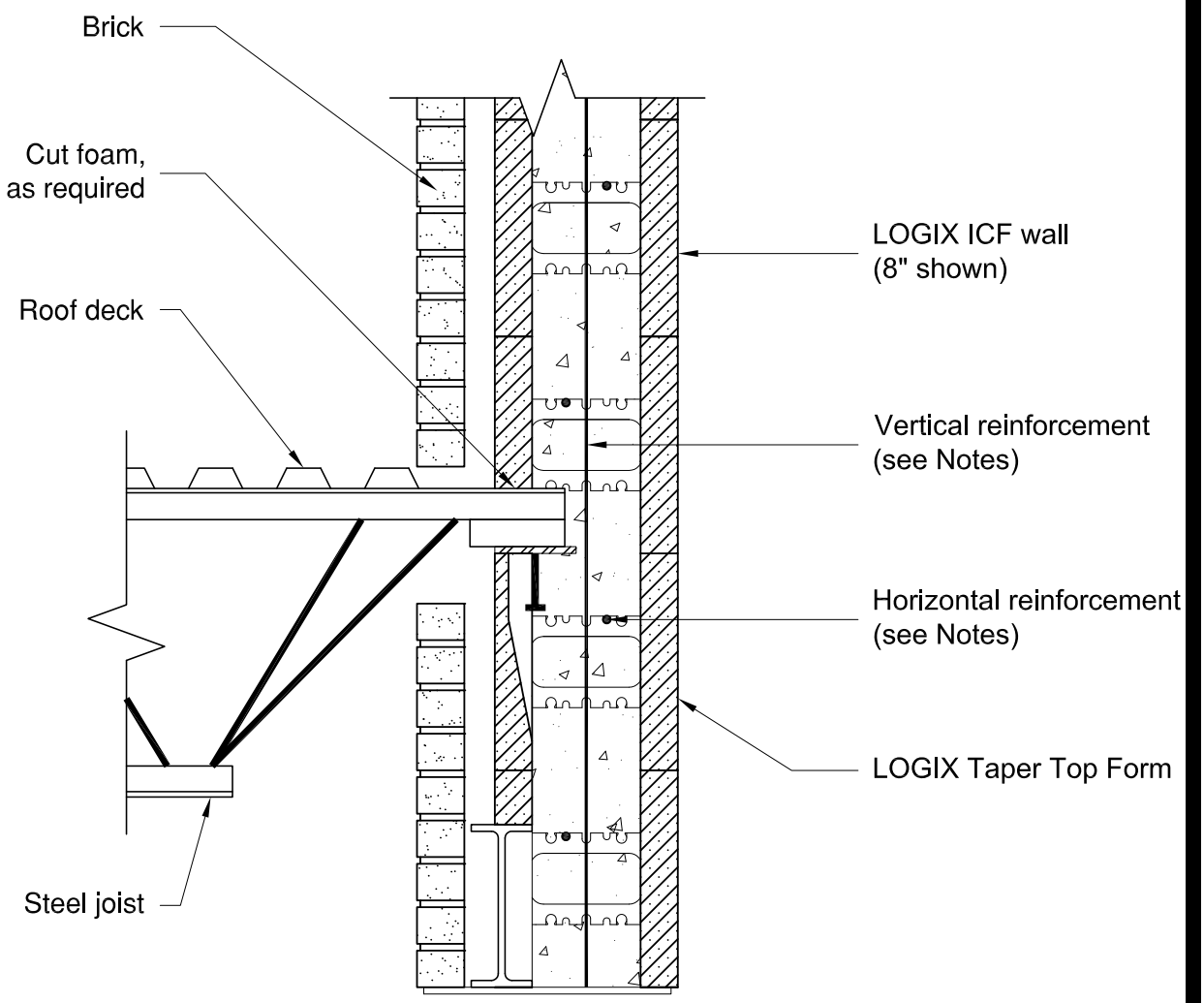


NOTES:

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

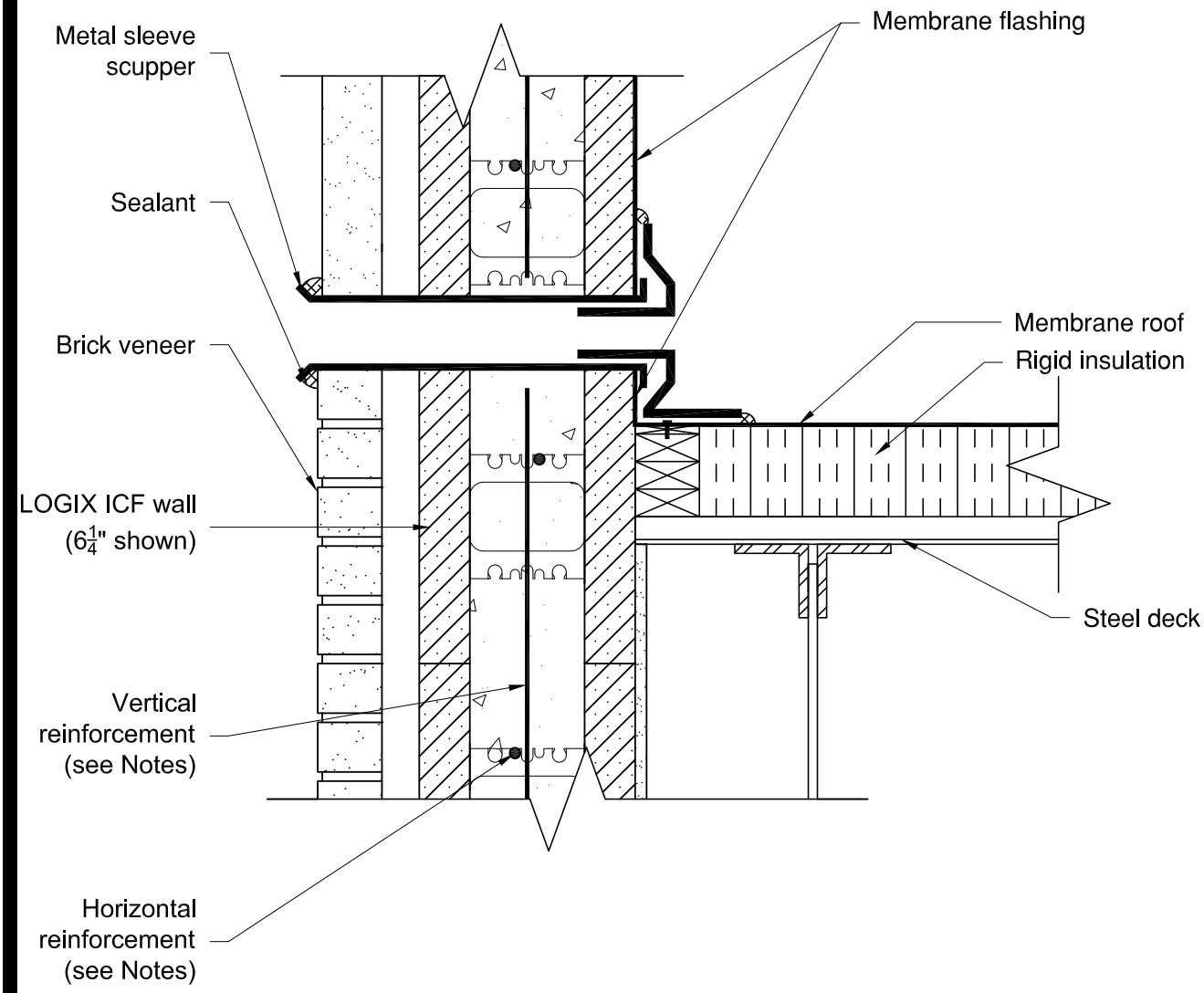


NOTES:

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



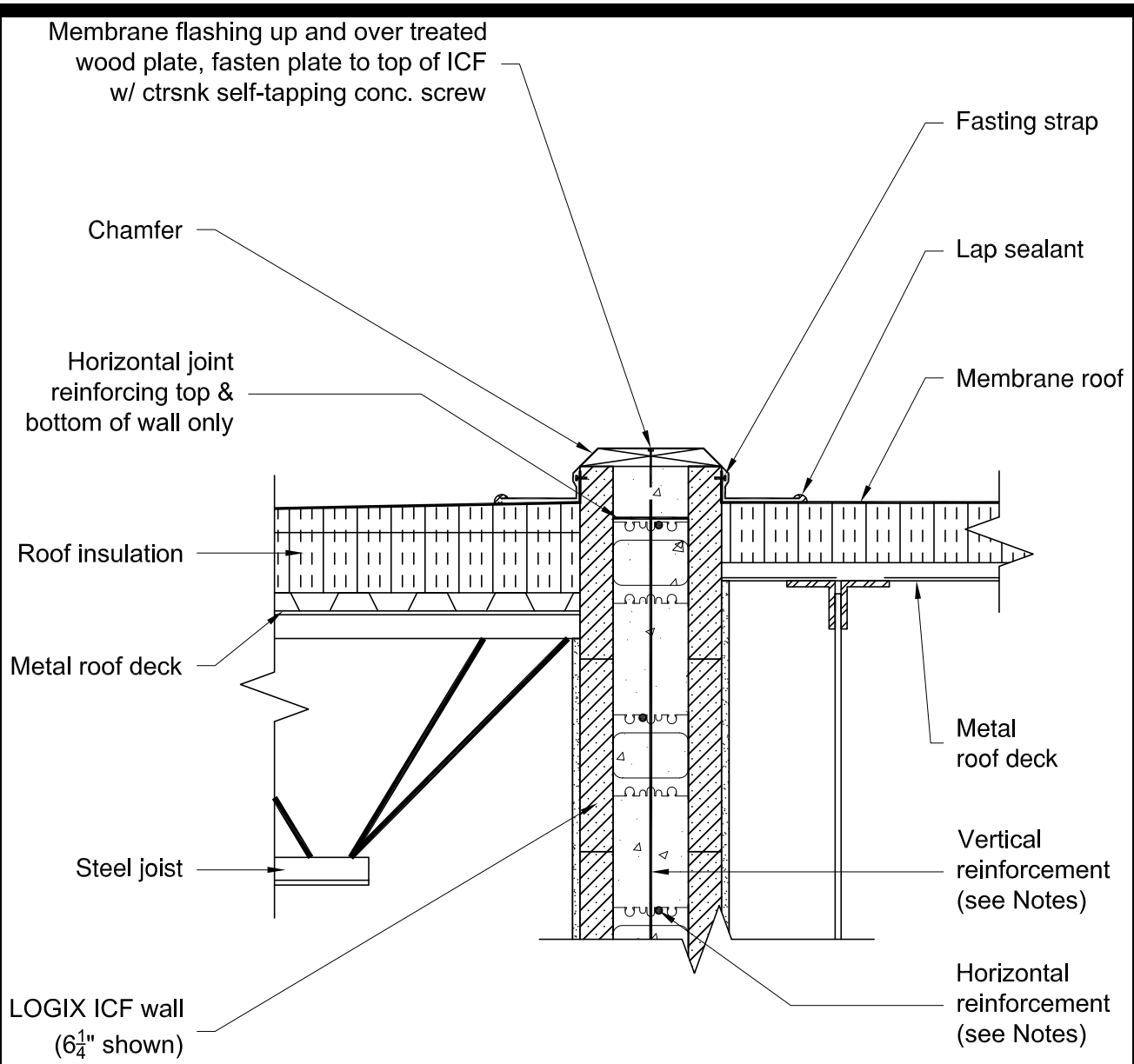
NOTES:

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

CAD DRAWINGS

5.4.20 – SEPARATION WALL

All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

NOTES:

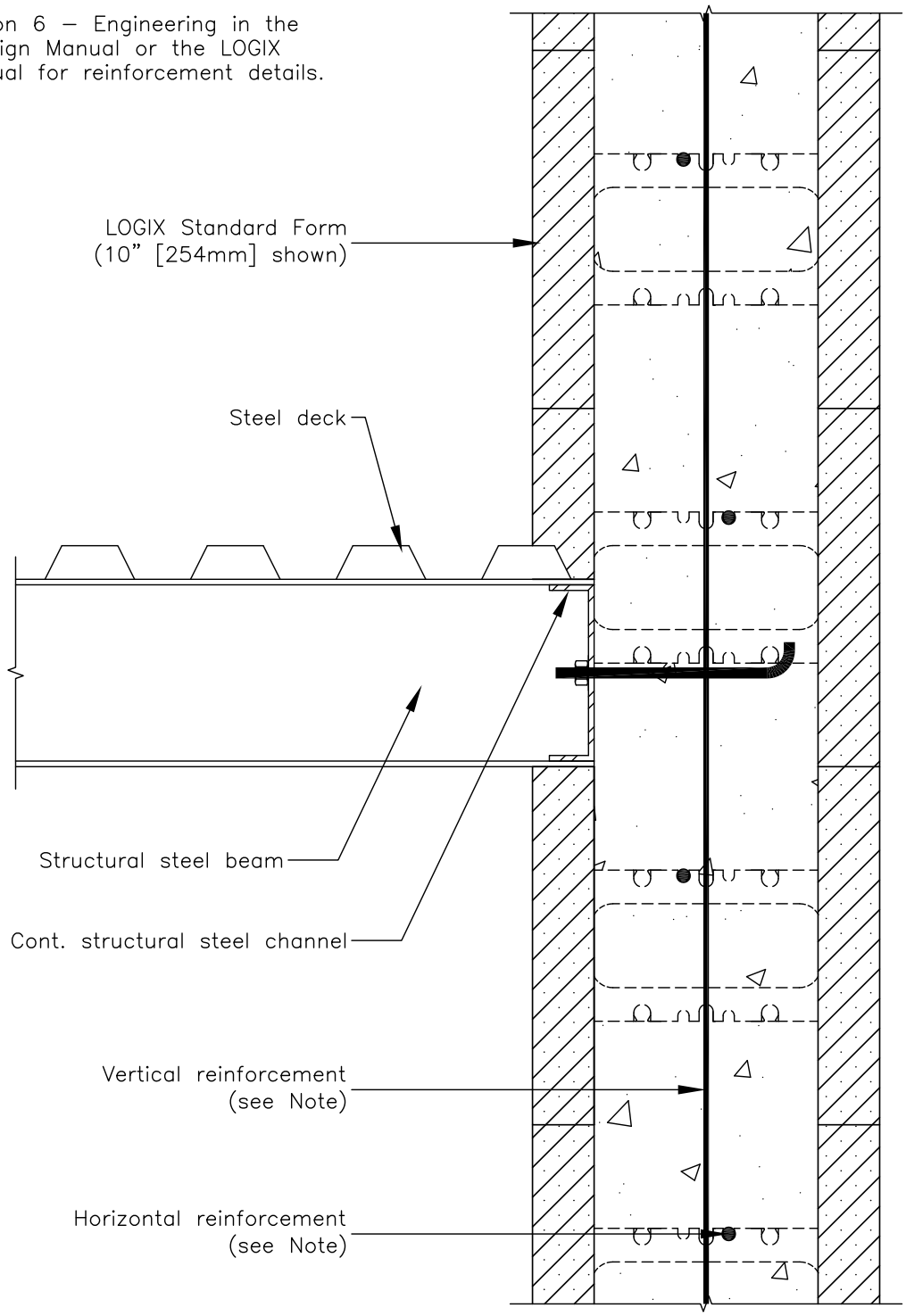
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.5 – BEAM CONNECTIONS
5.5.1 – STEEL DECK ON STRUCTURAL BEAM

All drawings are downloadable at www.logixicf.com

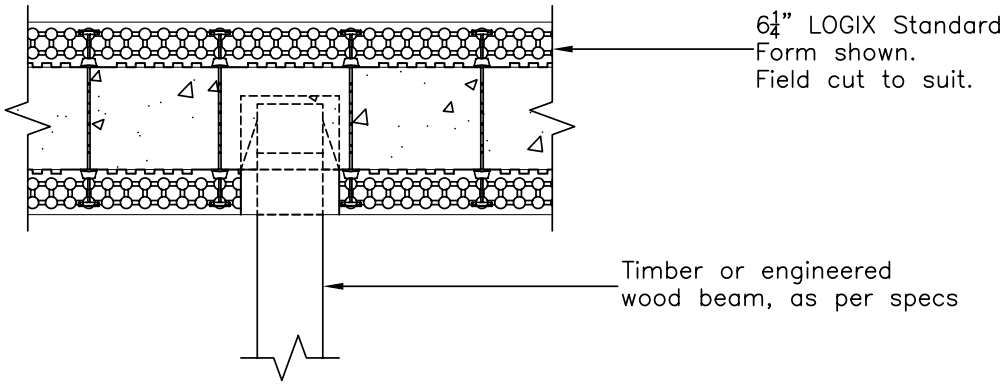
NOTES:

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

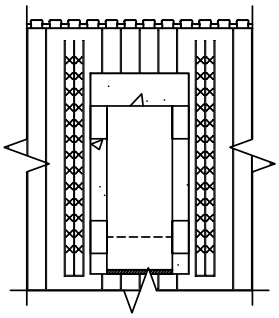


5.5.2 – WOOD BEAM WITH FIRE CUT

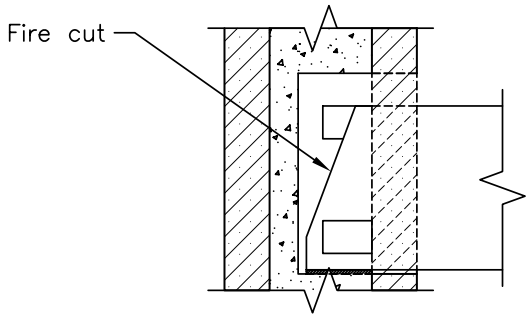
All drawings are downloadable at www.logixicf.com



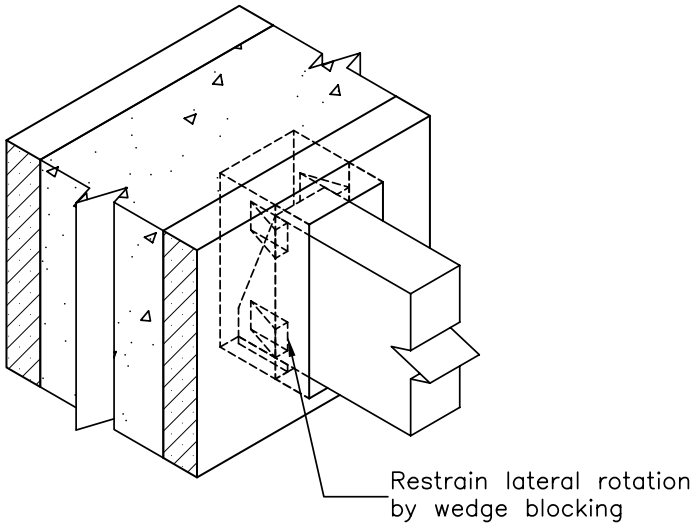
PLAN VIEW - Section at beam
(Reinforcement not shown for clarity)



FRONT ELEVATION

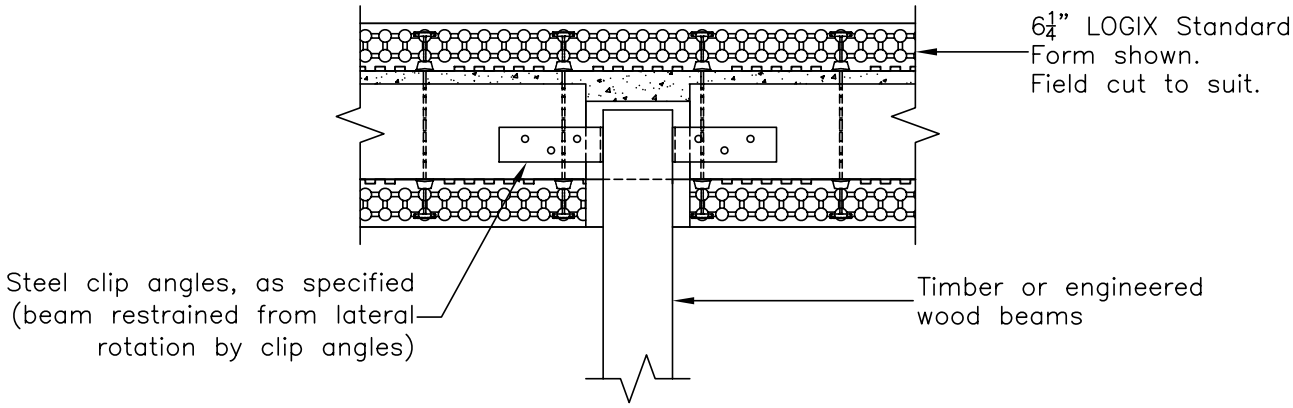


SIDE VIEW - Section at beam side

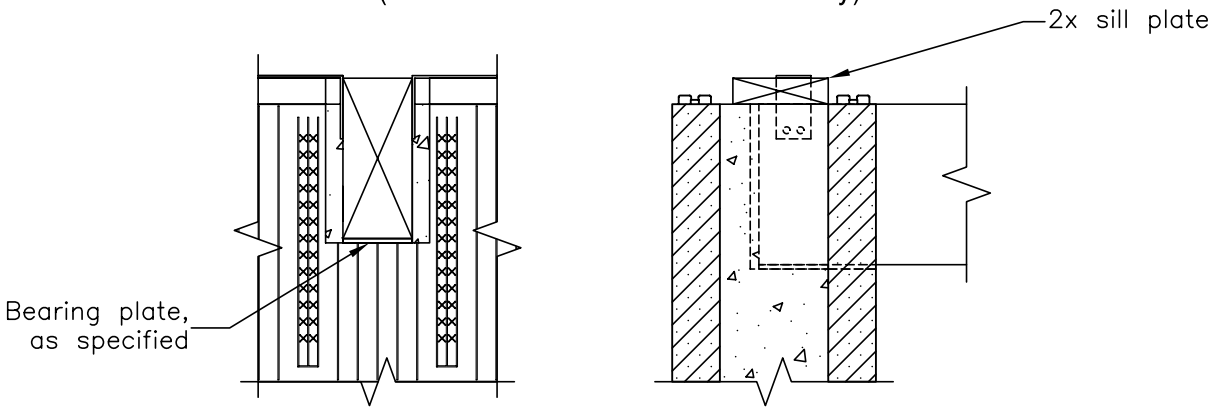


5.5.3 – WOOD BEAM WITH CLIP ANGLES

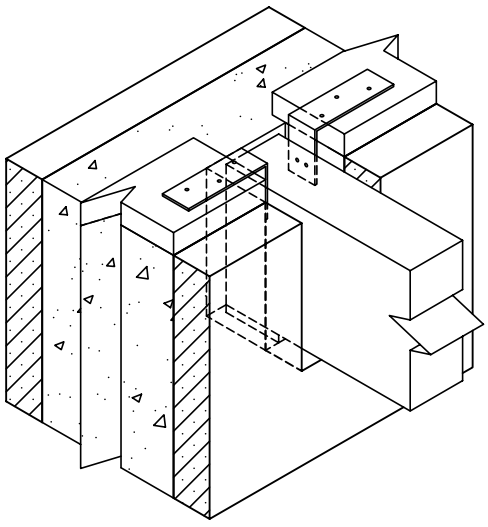
All drawings are downloadable at www.logixicf.com



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



FRONT VIEW **SIDE VIEW**

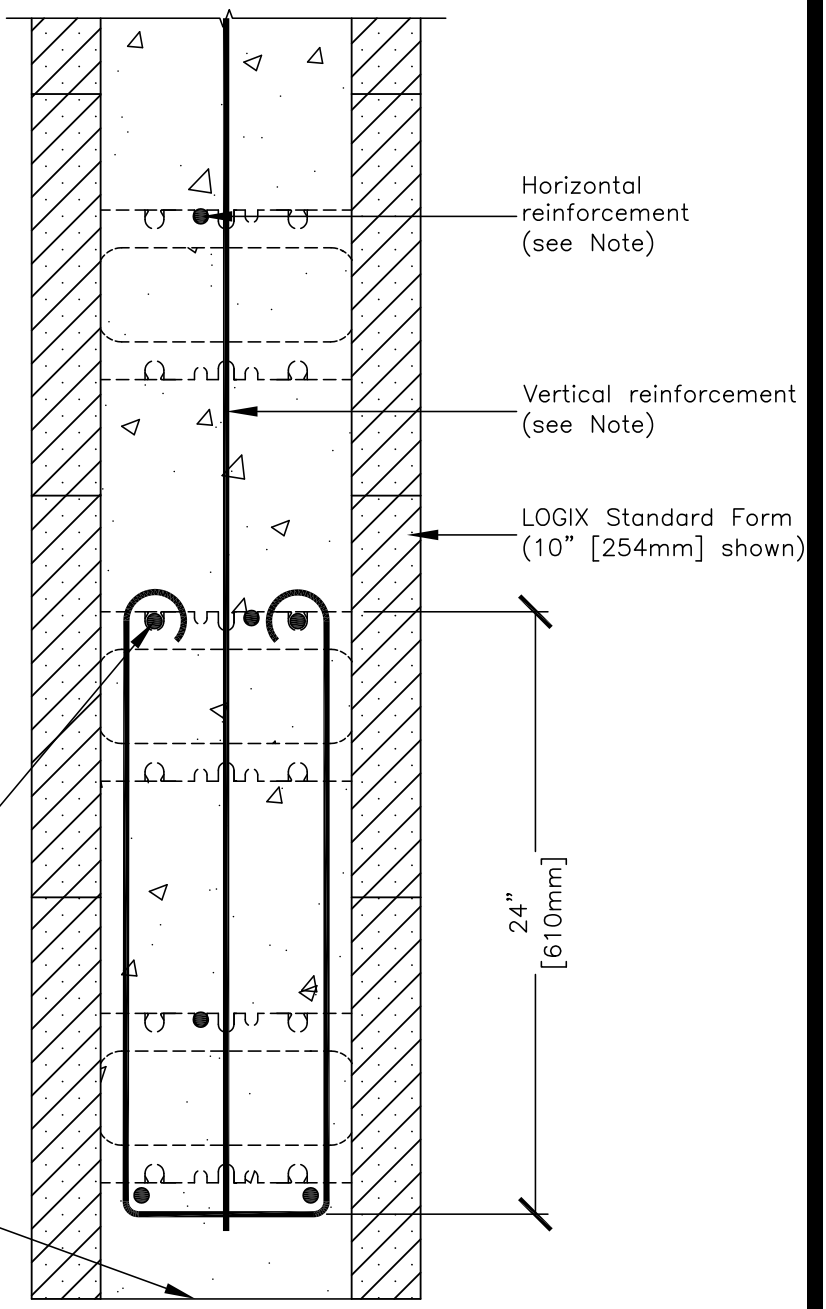


5.5.4 – BOND BEAM

All drawings are downloadable at www.logixicf.com

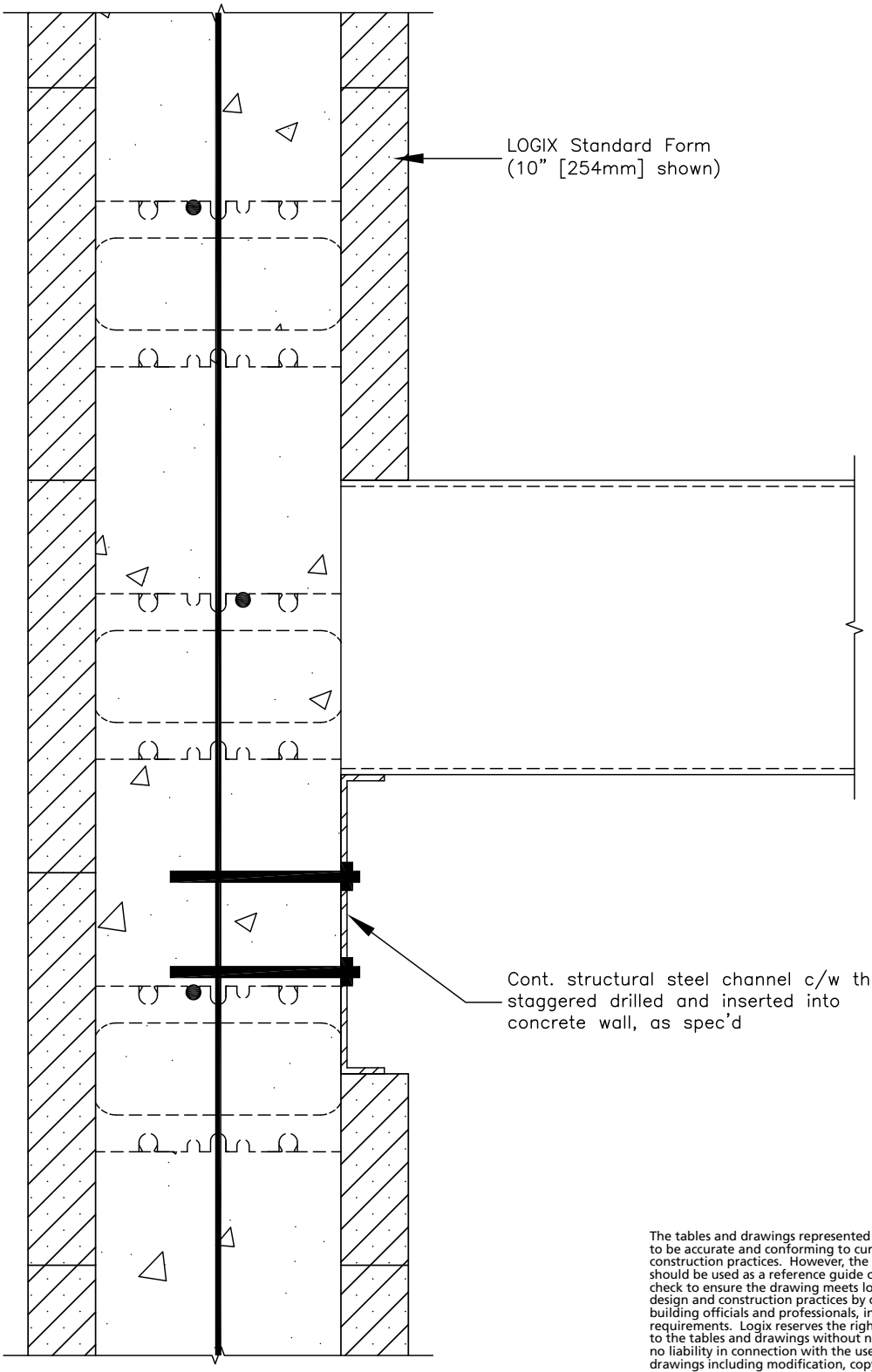
NOTES:

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



5.5.5 – STRUCTURAL STEEL CHANNEL BEAM

All drawings are downloadable at www.logixicf.com

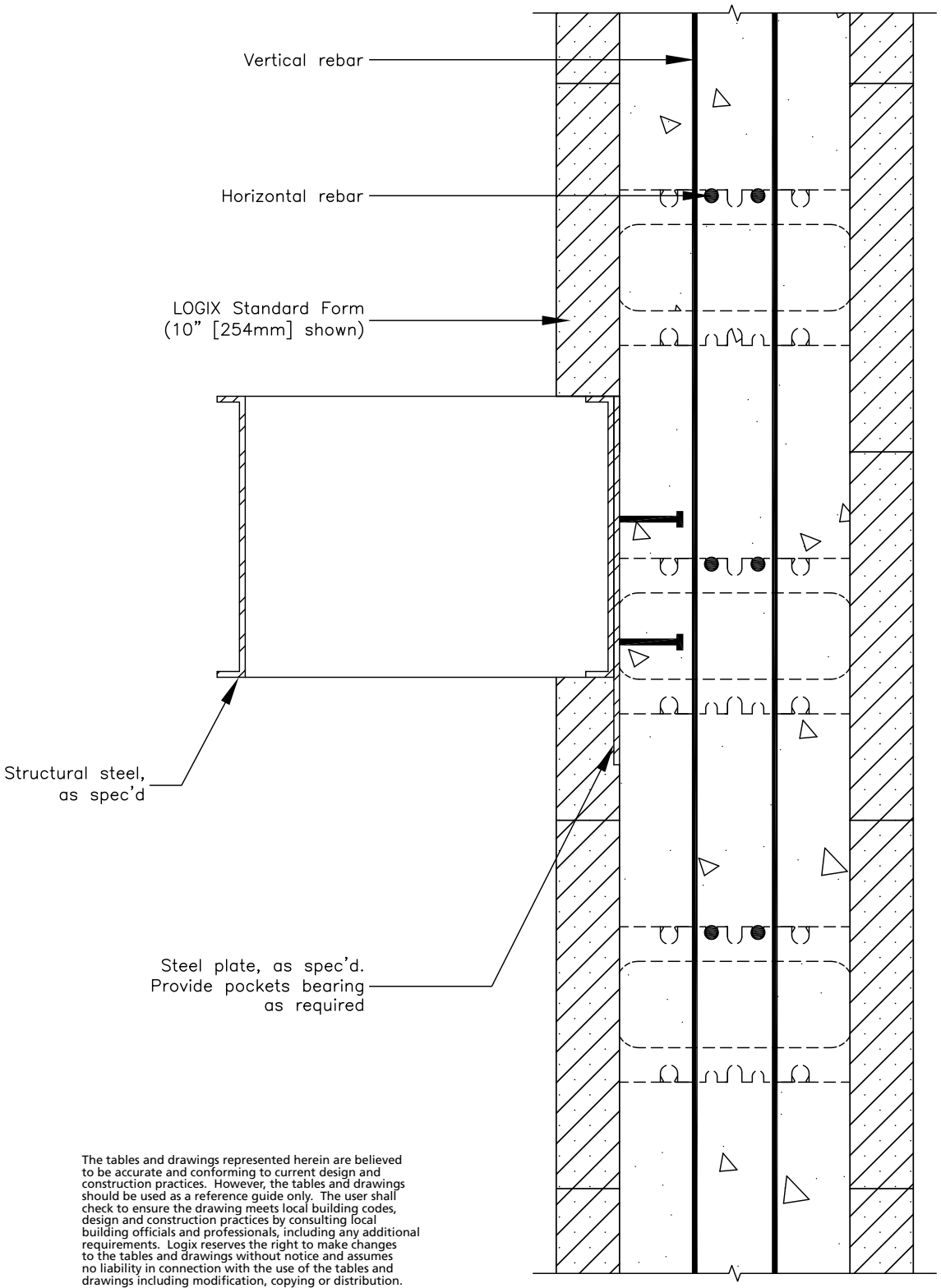


CAD DRAWINGS

5.5.5 – STRUCTURAL STEEL CHANNEL BEAM

CONTINUED

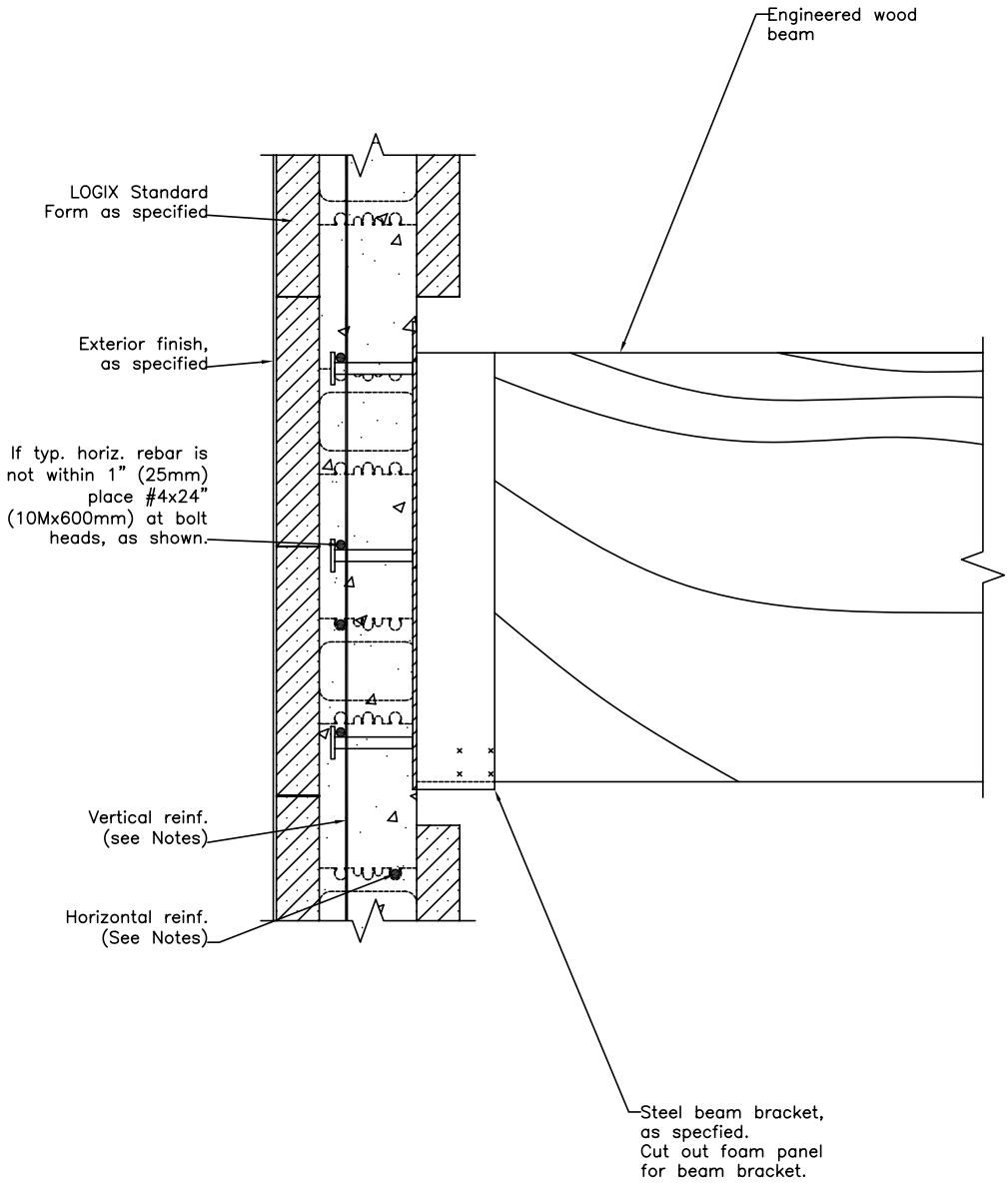
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

5.5.6 – STEEL BEAM BRACKET SUPPORTING WOOD BEAM

All drawings are downloadable at www.logixicf.com



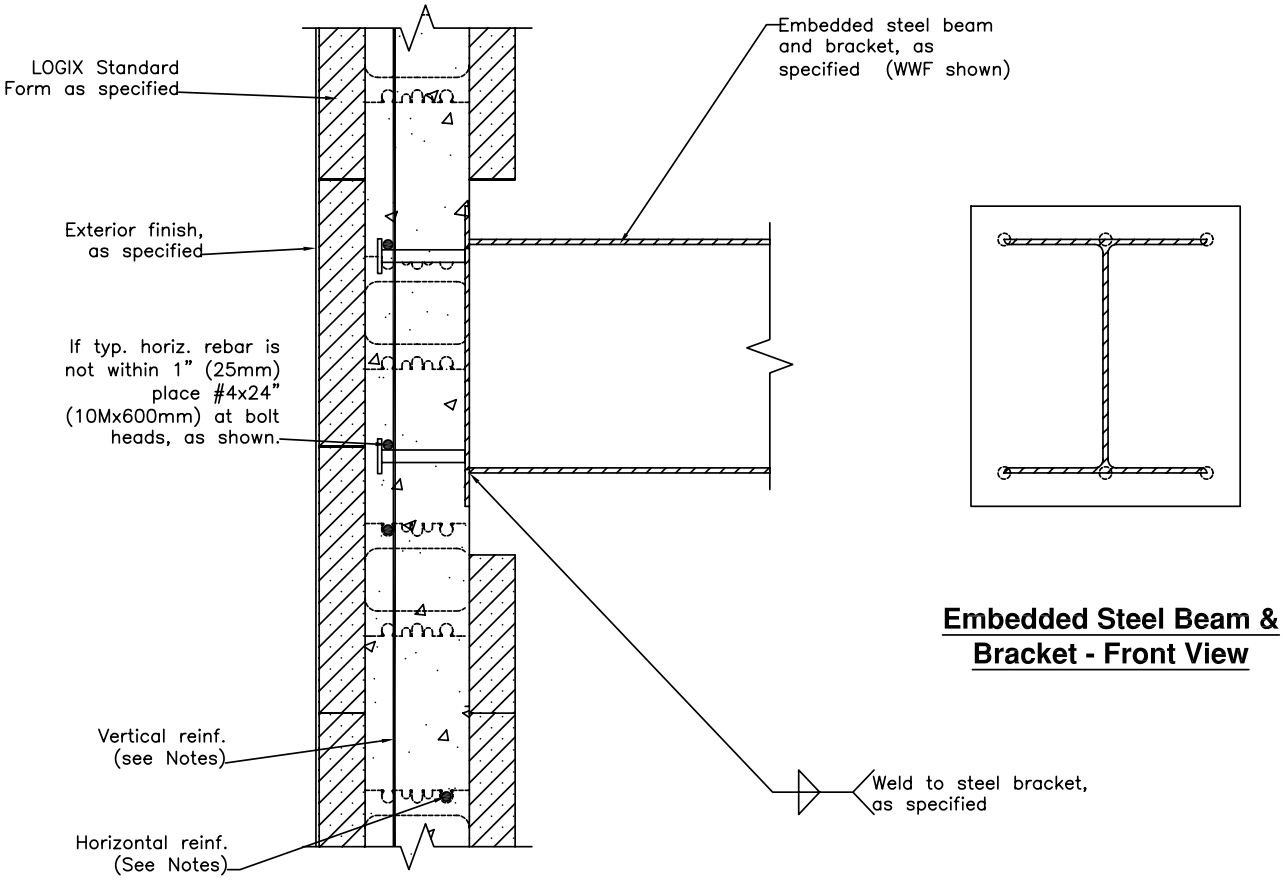
Steel Beam Bracket - Front View

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



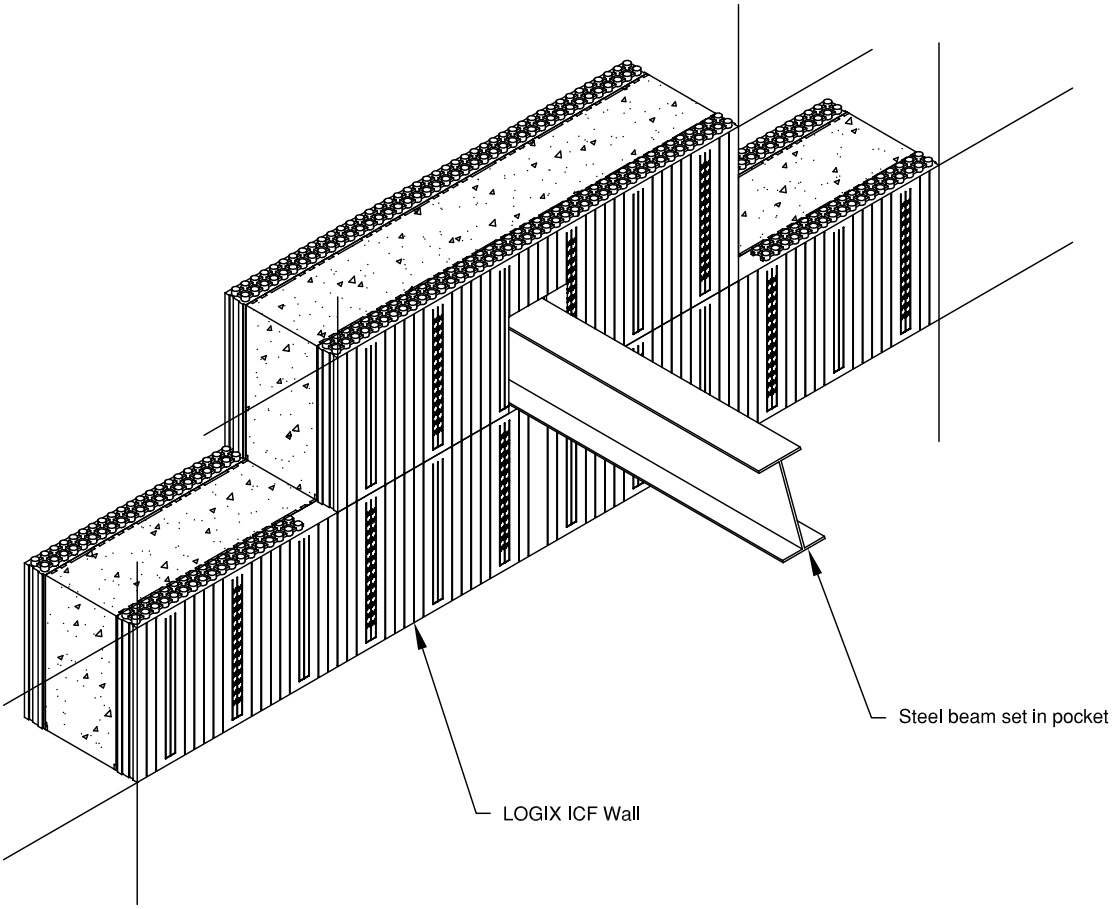
Embedded Steel Beam & Bracket - Front View

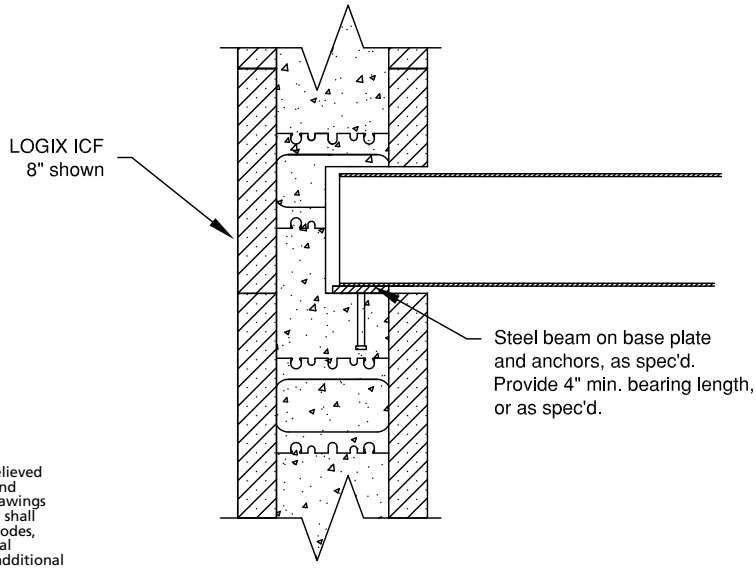
NOTES:

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



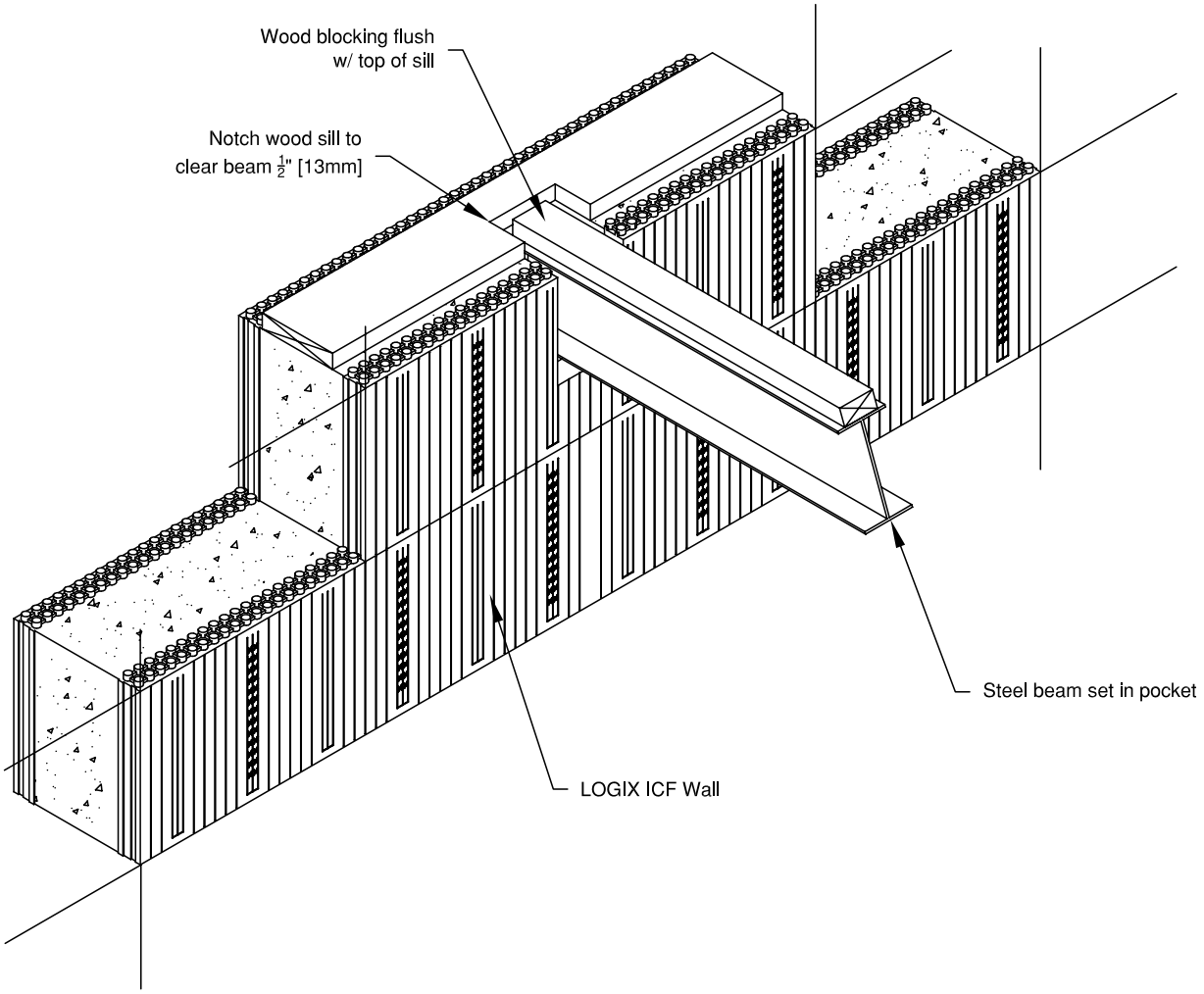


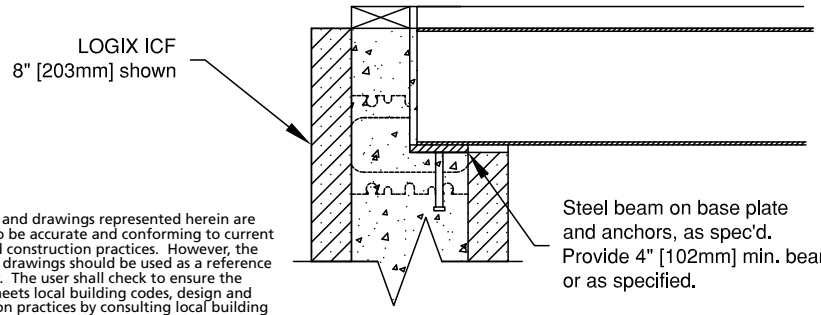
Section through Wall at Beam Pocket

CAD DRAWINGS

5.5.9 – STEEL BEAM POCKET FLUSH WITH SILL

All drawings are downloadable at www.logixicf.com





Section through Wall at Beam Pocket

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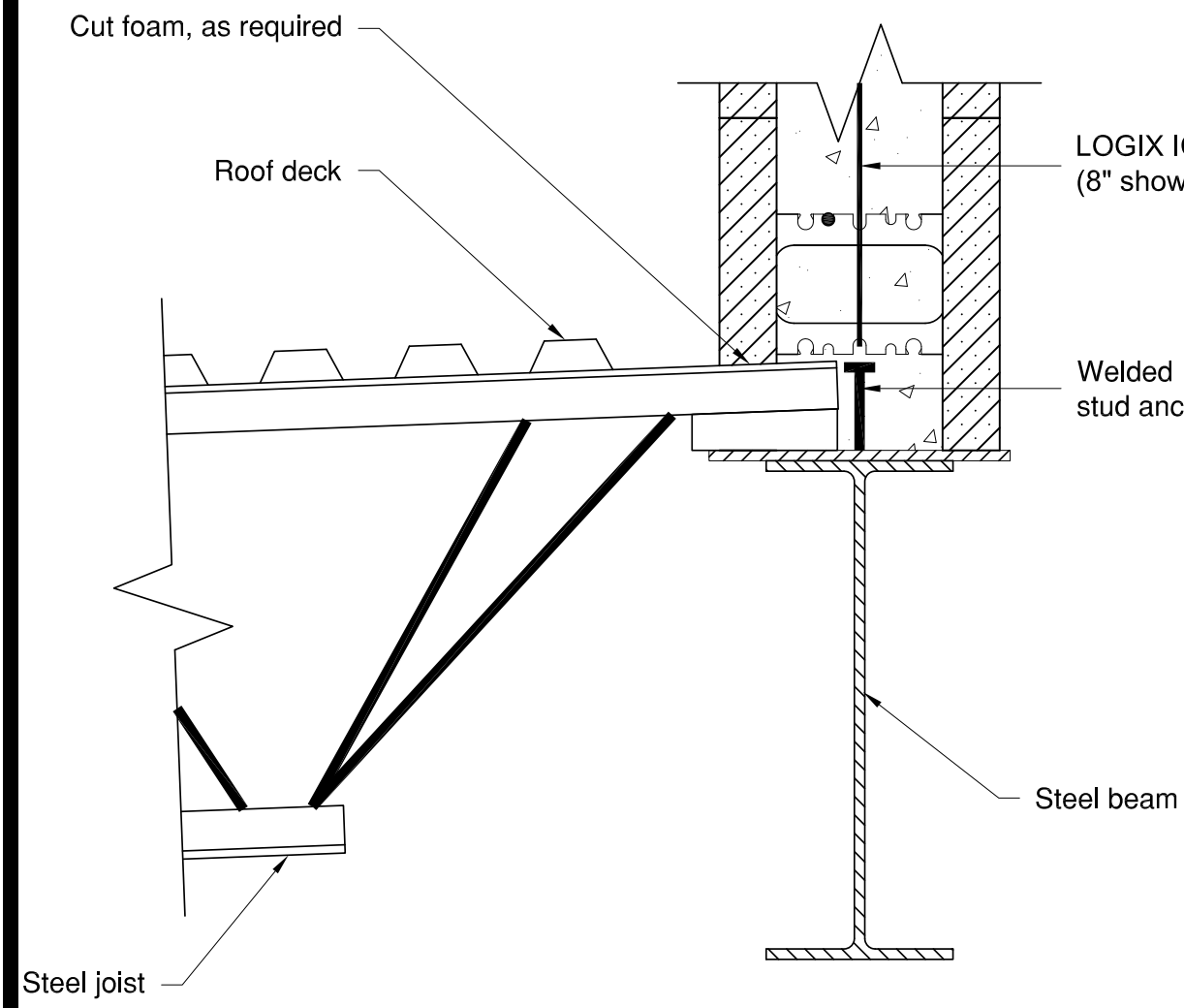
5.5.10 – JOIST BEARING ON STEEL BEAM

All drawings are downloadable at www.logixicf.com



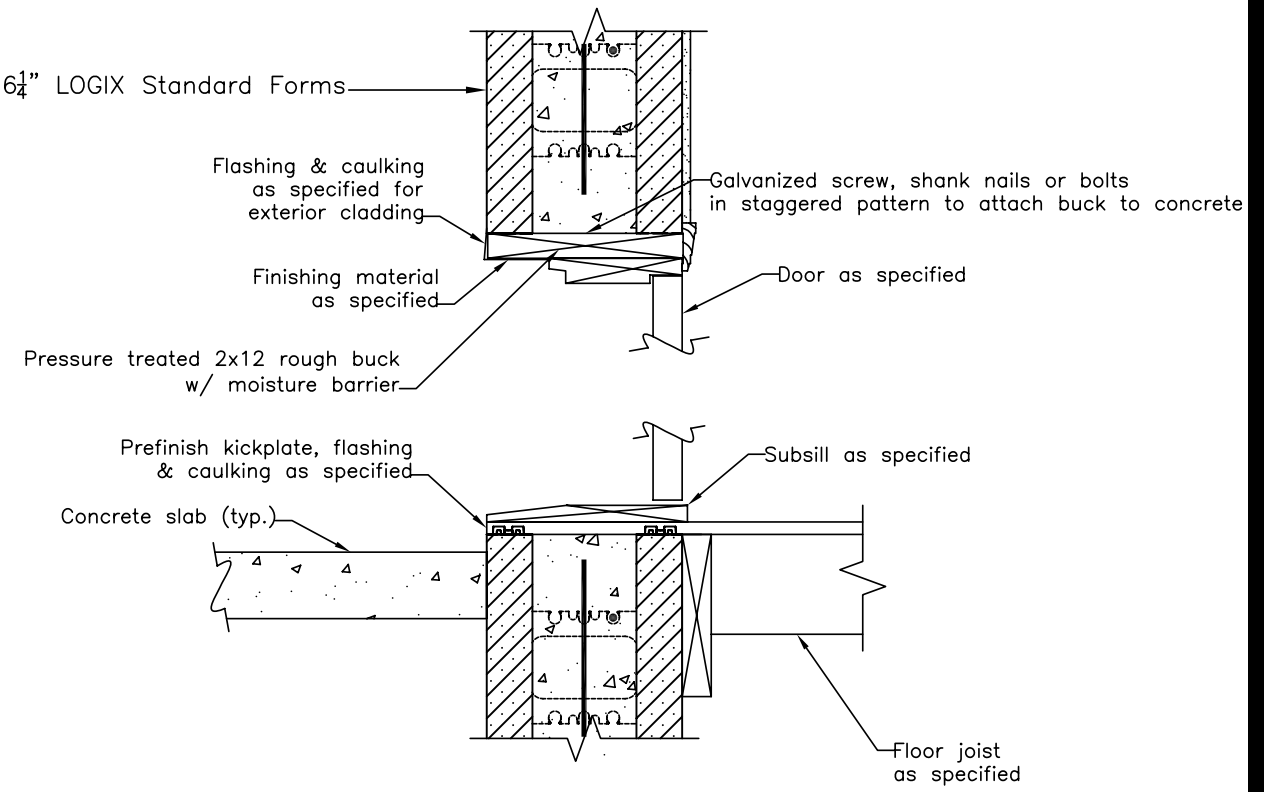
CAD DRAWINGS

NOTES:

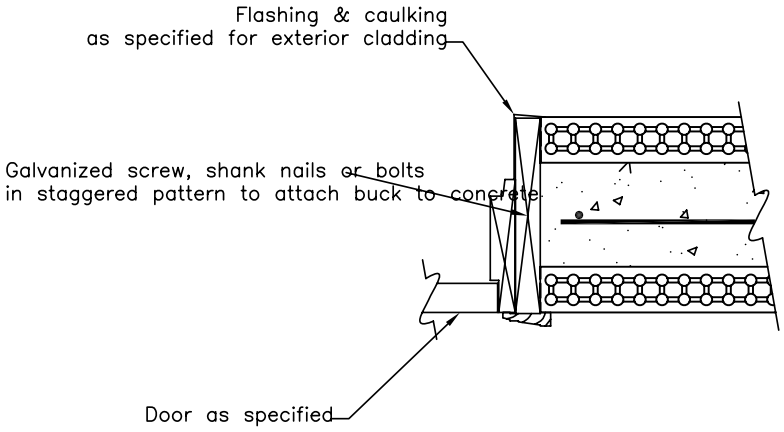
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

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



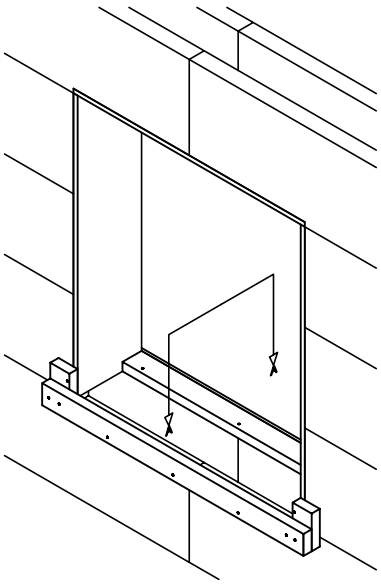
DOOR JAMB USING WOOD BUCKS

NOTES:

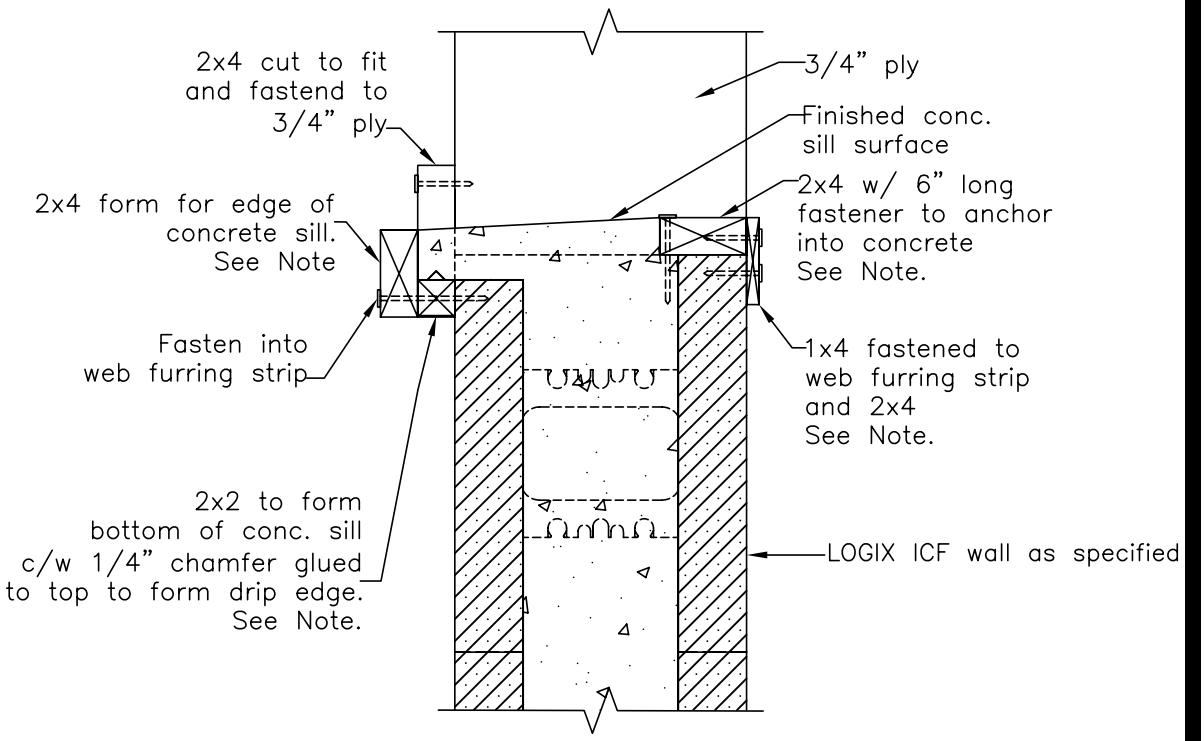
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.6.2 – SLOPED CONCRETE SILL

All drawings are downloadable at www.logixicf.com



WOOD WINDOW BUCK
SLOPED CONCRETE SILL



SECTION A-A

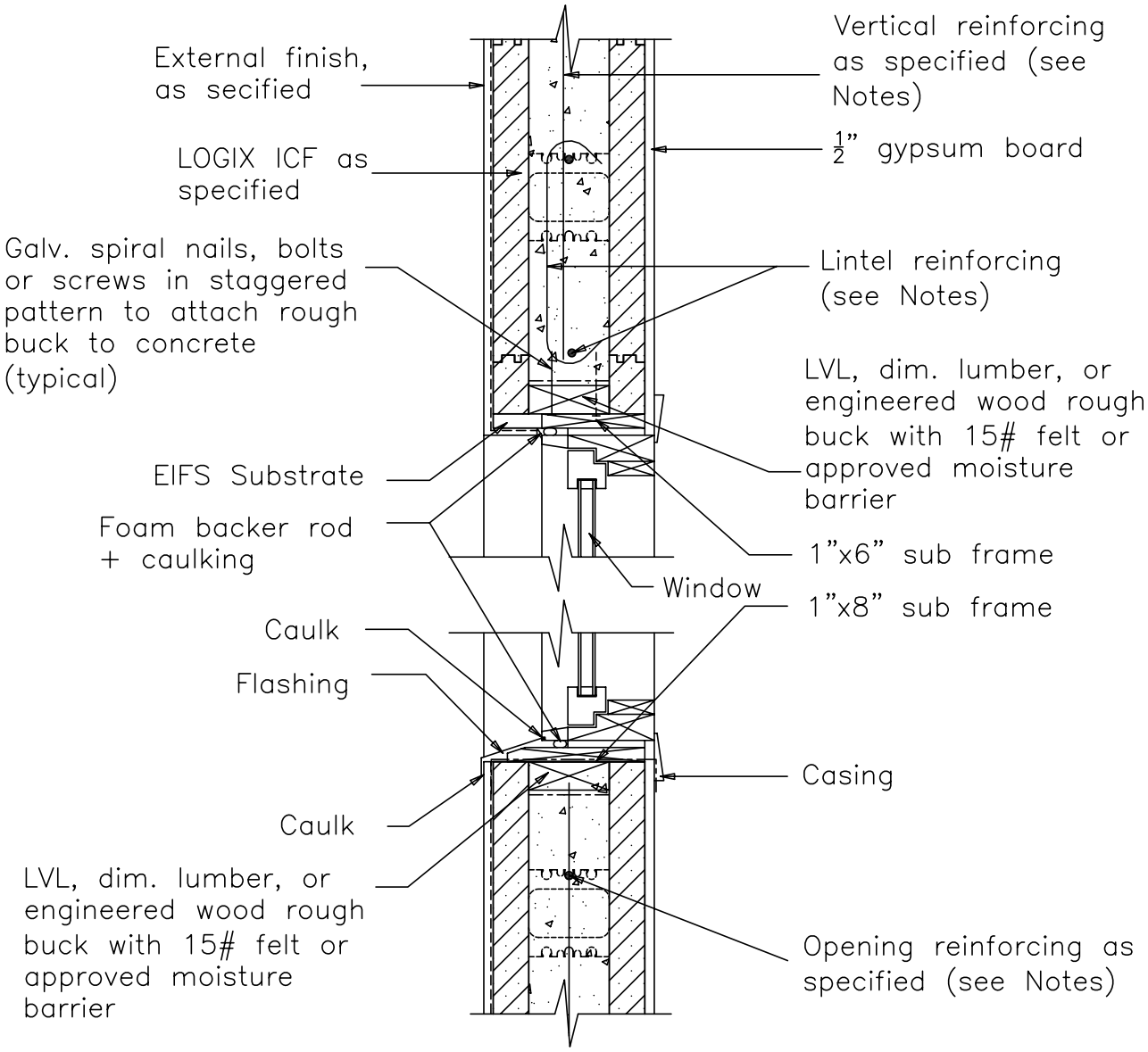
NOTE:
Adjust 2x lumber to suit specified slope of concrete sill.

CAD DRAWINGS

5.6.3 – WINDOW HEAD / SILL DETAIL

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



NOTES:

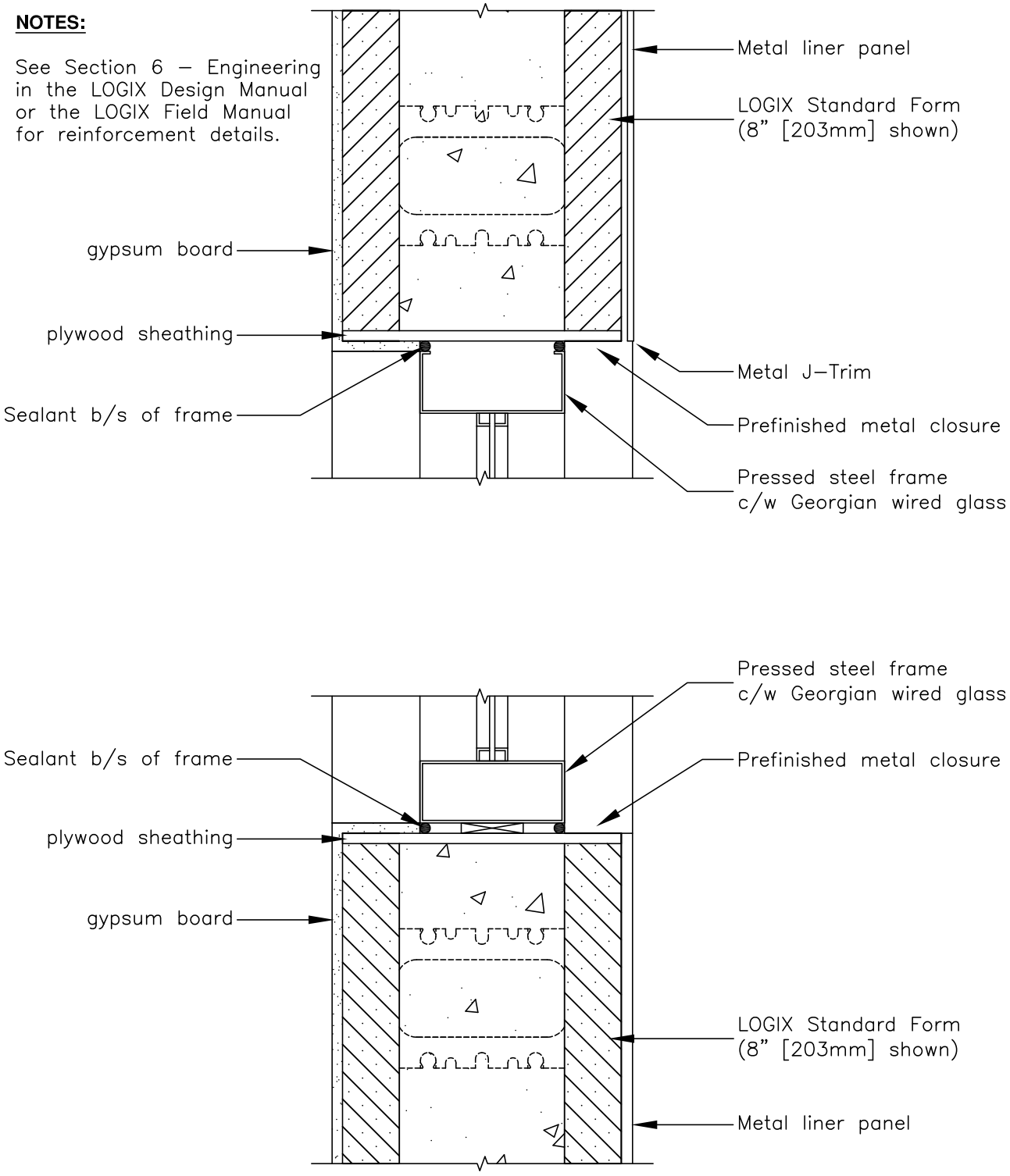
1. For wall & lintel reinforcement, see LOGIX Product Manual Section 6, Engineering.

5.6.4 – WINDOW HEAD / SILL STEEL FRAME

All drawings are downloadable at www.logixicf.com

NOTES:

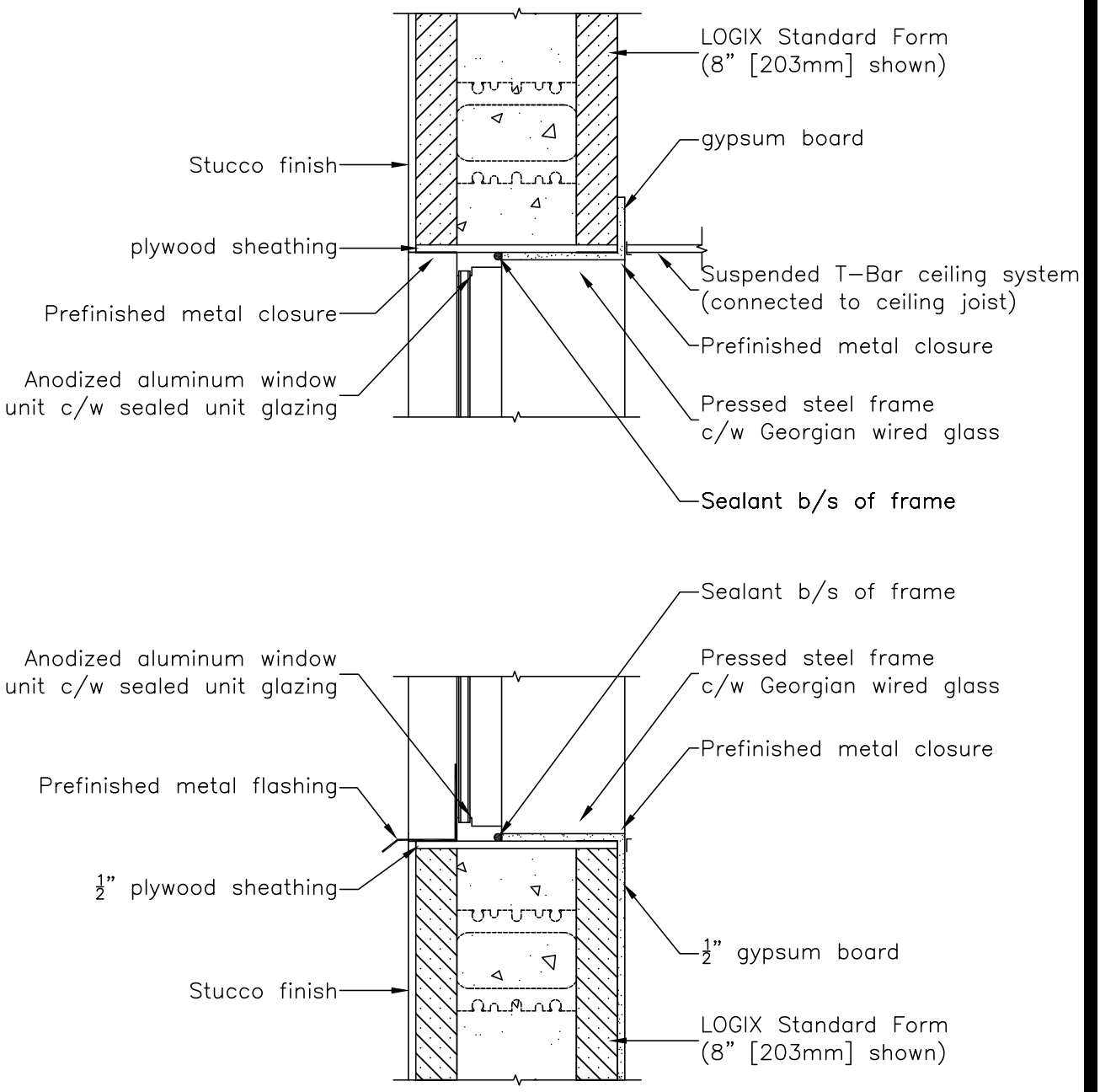
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



CAD DRAWINGS

5.6.5 – ALUMINUM WINDOW HEAD / SILL

All drawings are downloadable at www.logixicf.com

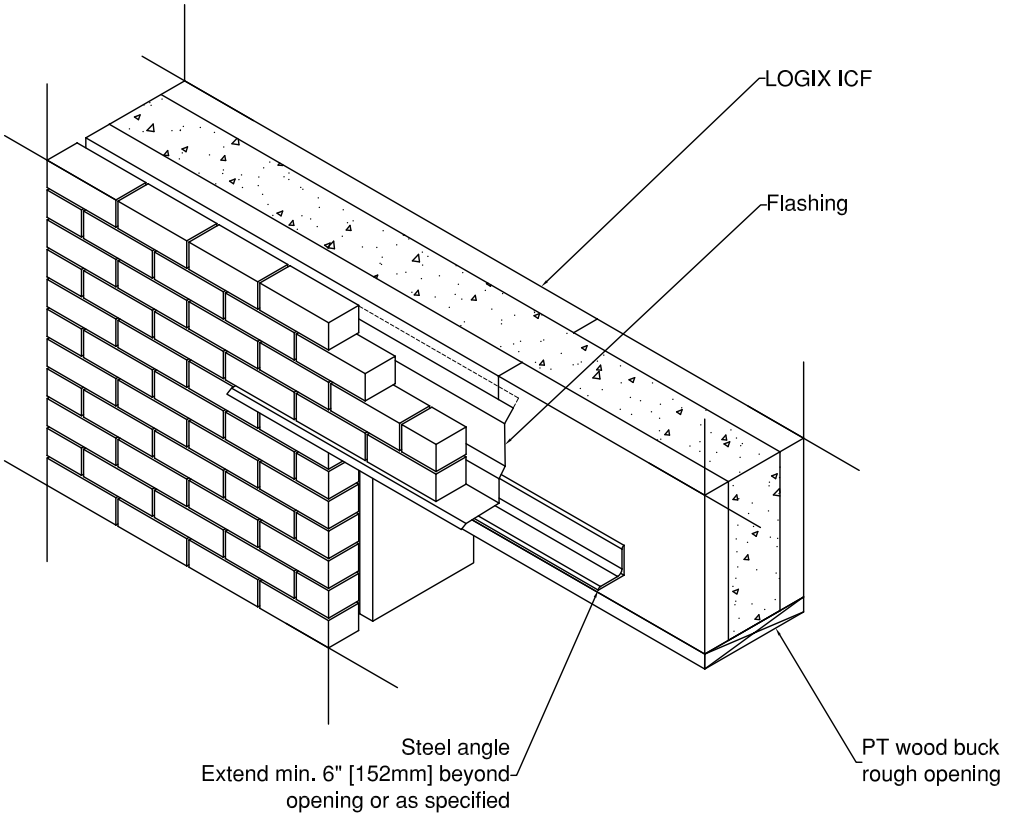


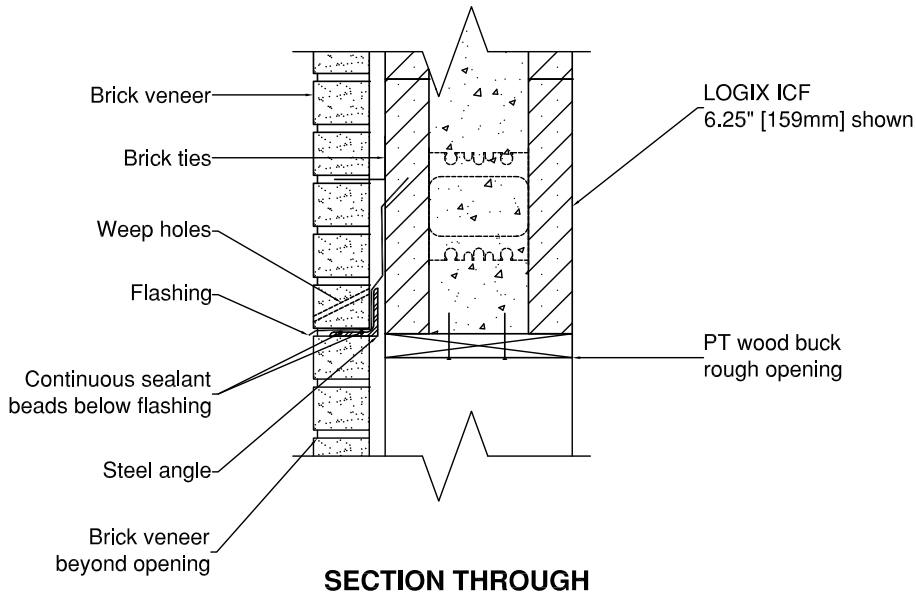
NOTES:

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





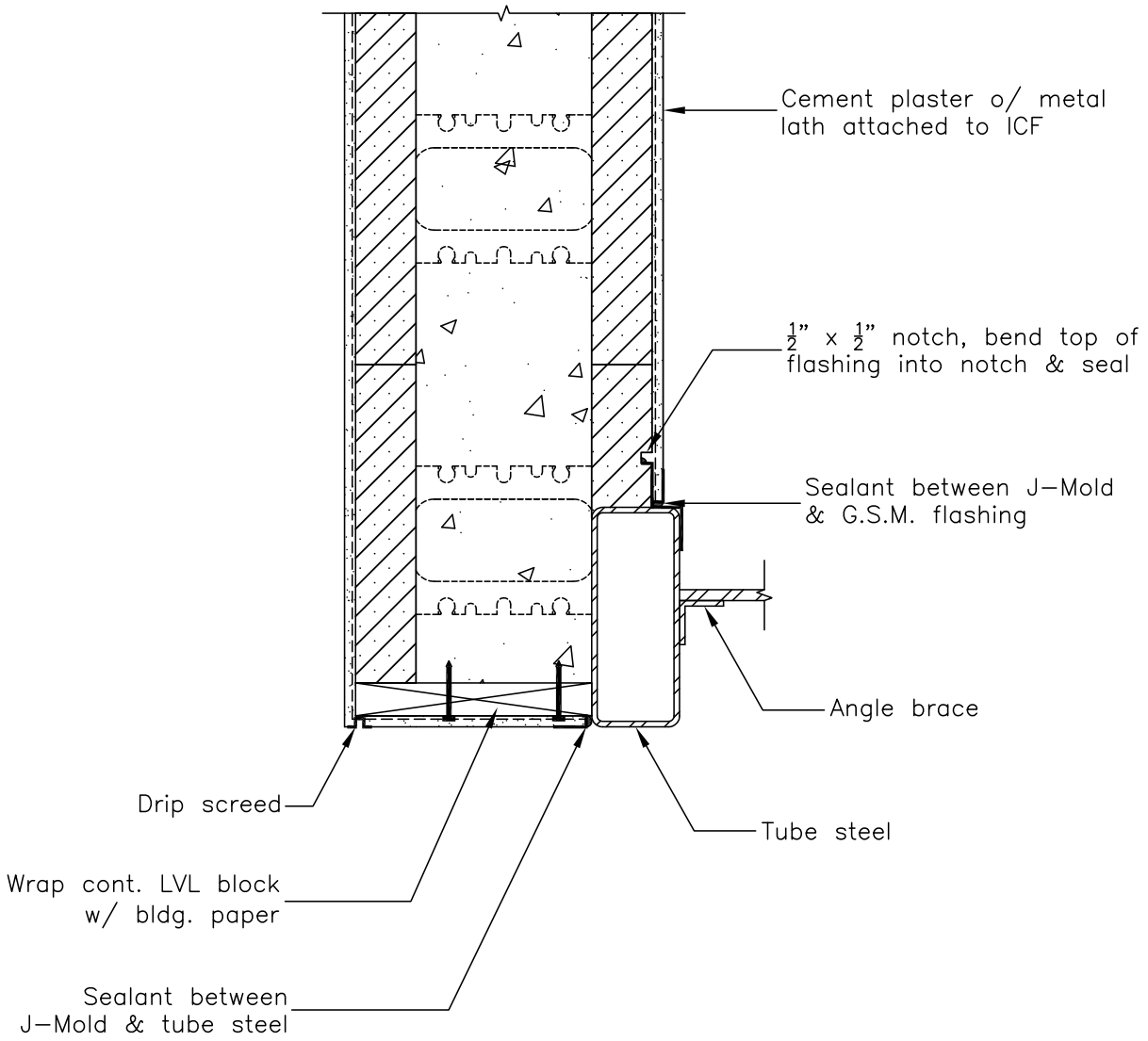
SECTION THROUGH LINTEL

CAD DRAWINGS

5.6.7 – WINDOW SCREEN

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS

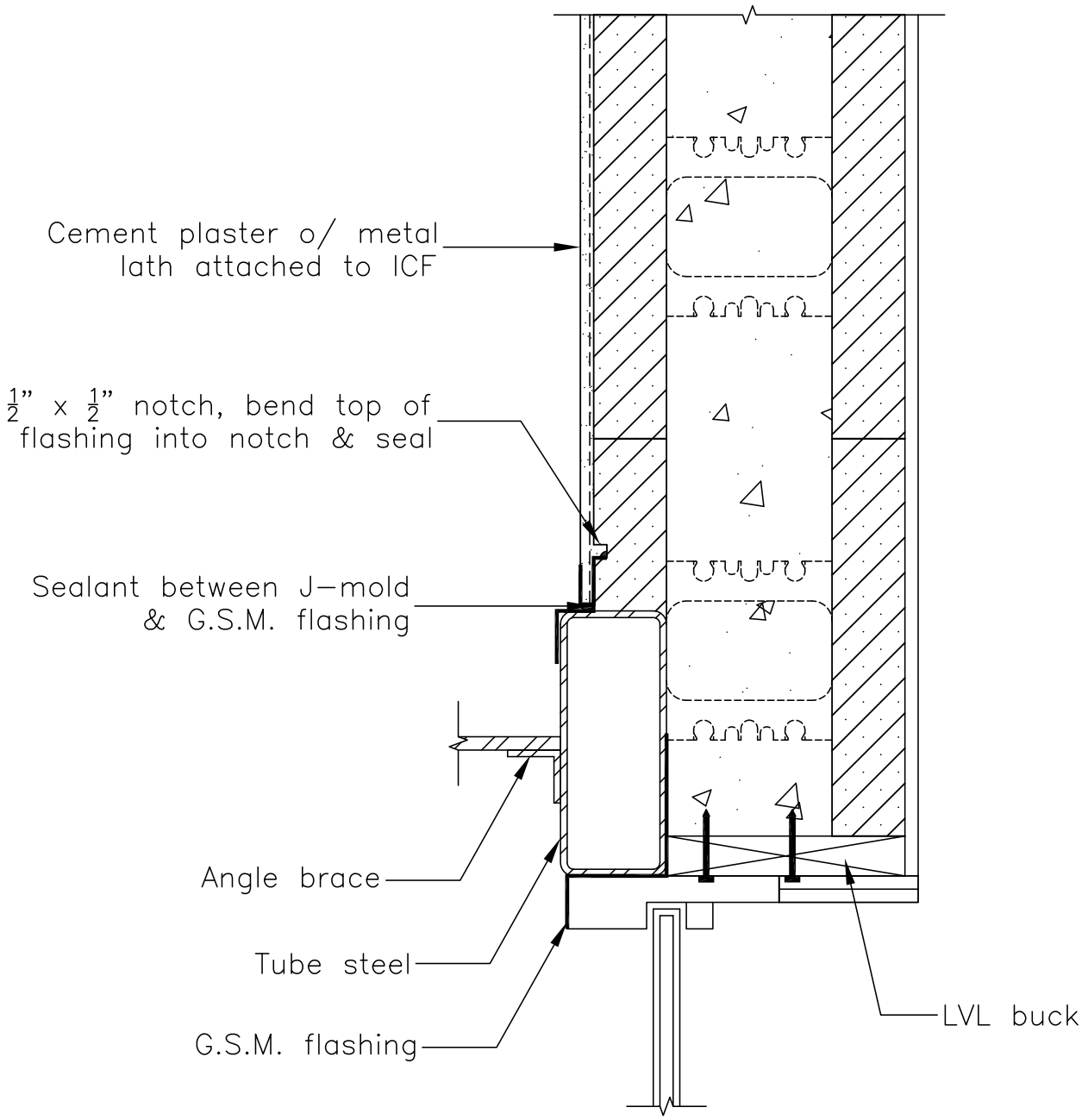


NOTES:

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:

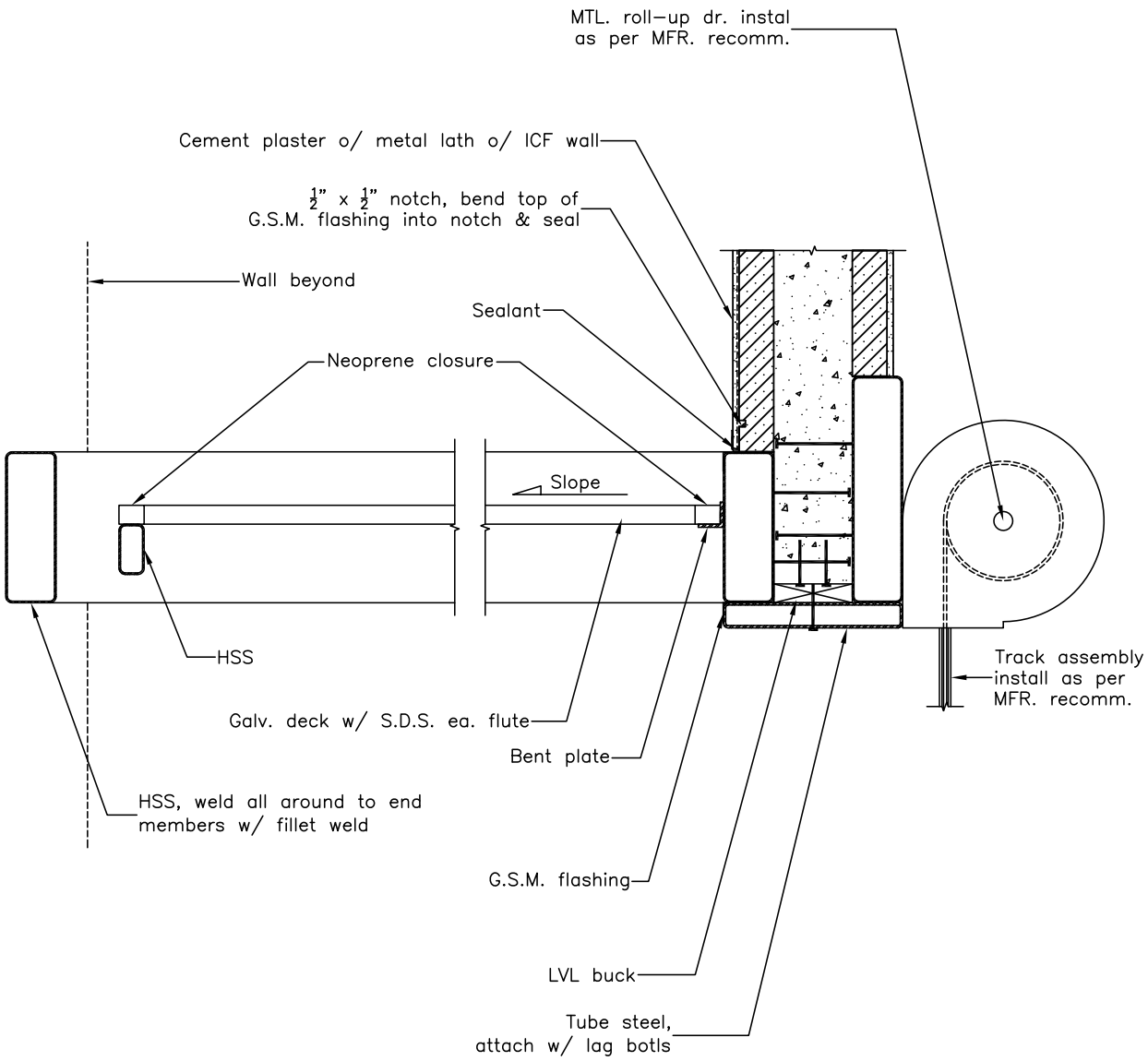
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

CAD DRAWINGS

5.6.9 – CANOPY & ROLL-UP DOOR

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



NOTES:

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

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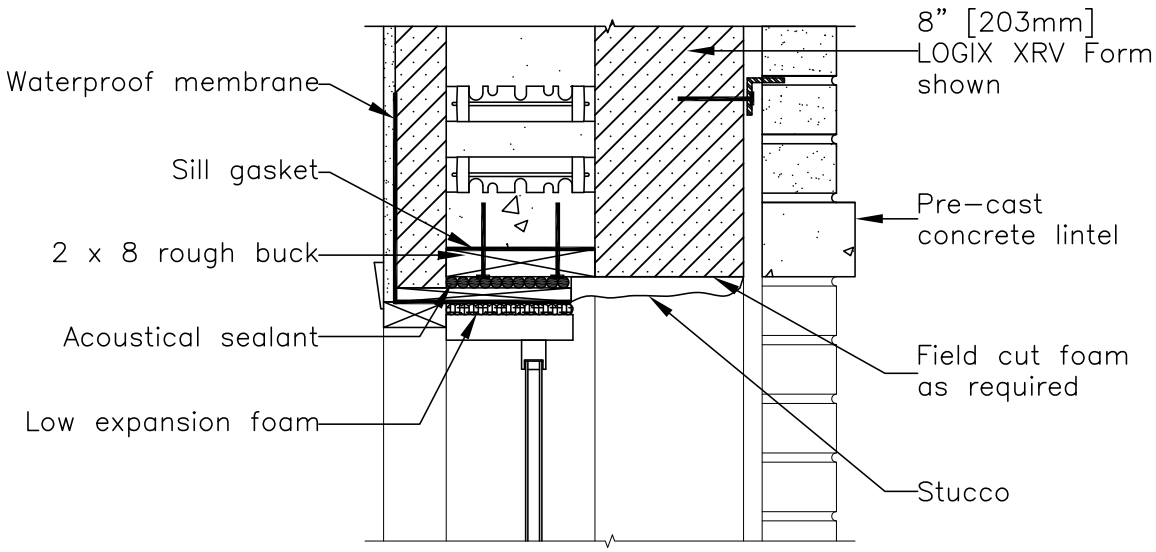
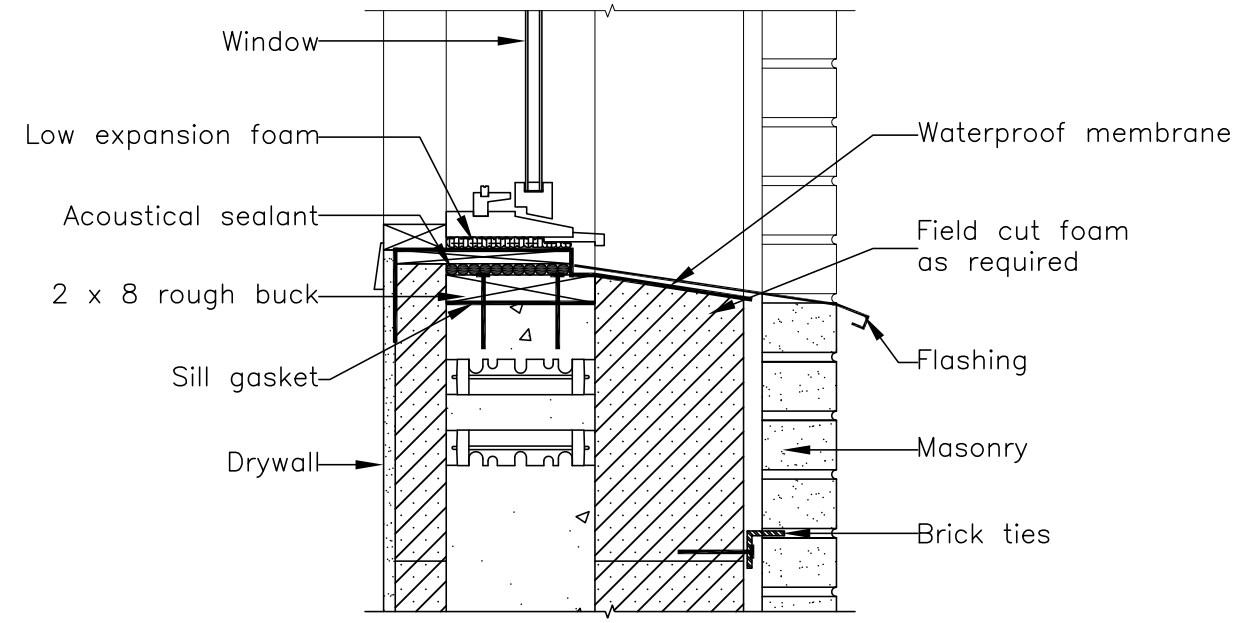
5.6.10 – WINDOW HEAD/SILL DETAIL WITH LOGIX XRV

All drawings are downloadable at www.logixicf.com



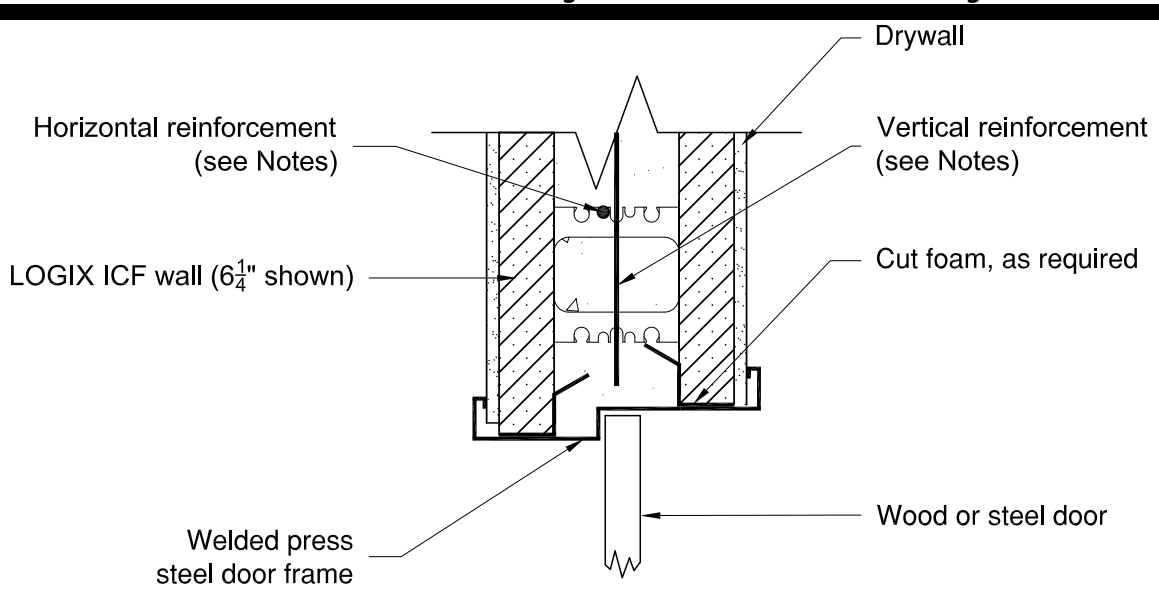


NOTES:

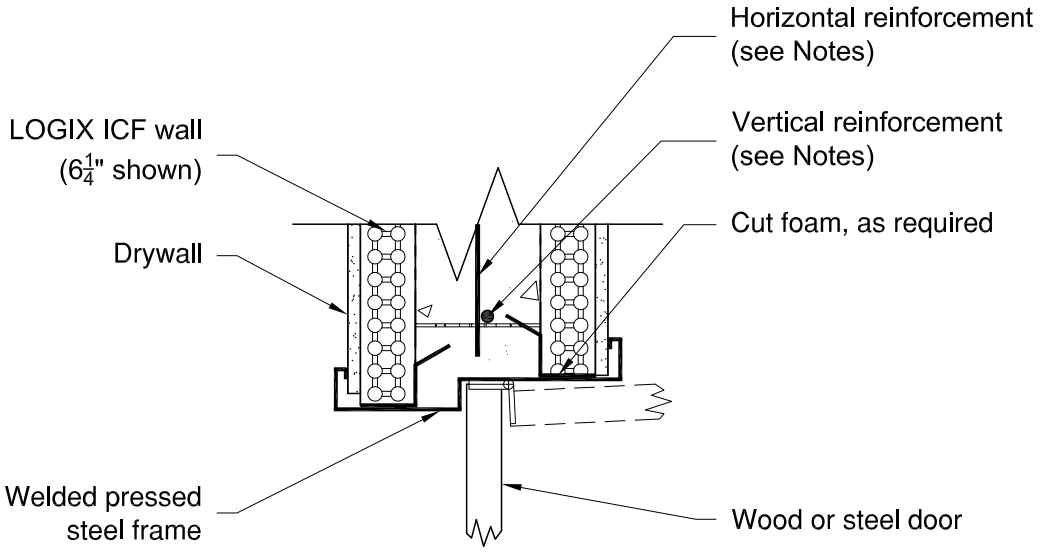
1. See Section 6 – Engineering in the LOGIX Design Manual for wall & lintel reinforcement.

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



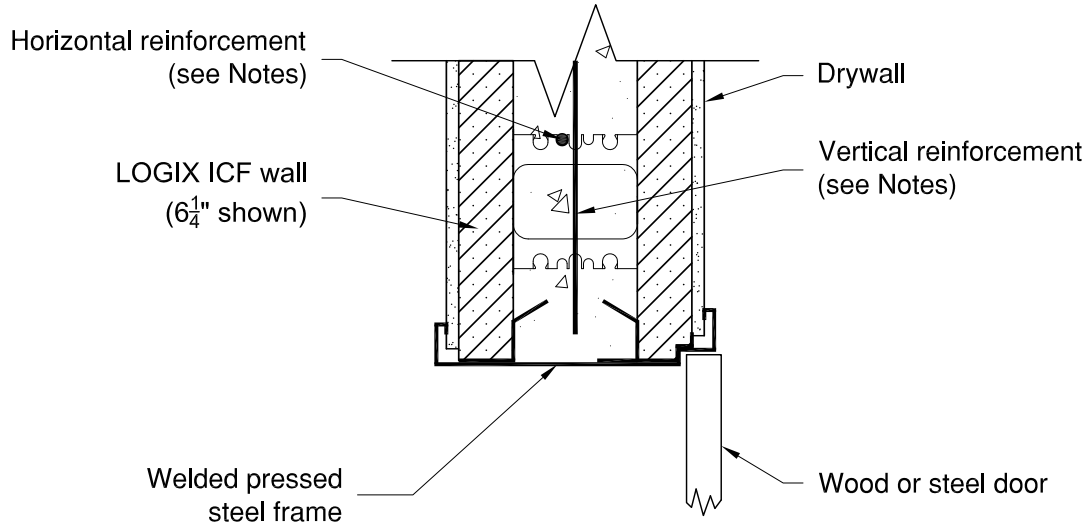
INTERIOR DOOR FRAME - JAMB
CENTER MOUNTED DOOR

NOTES:

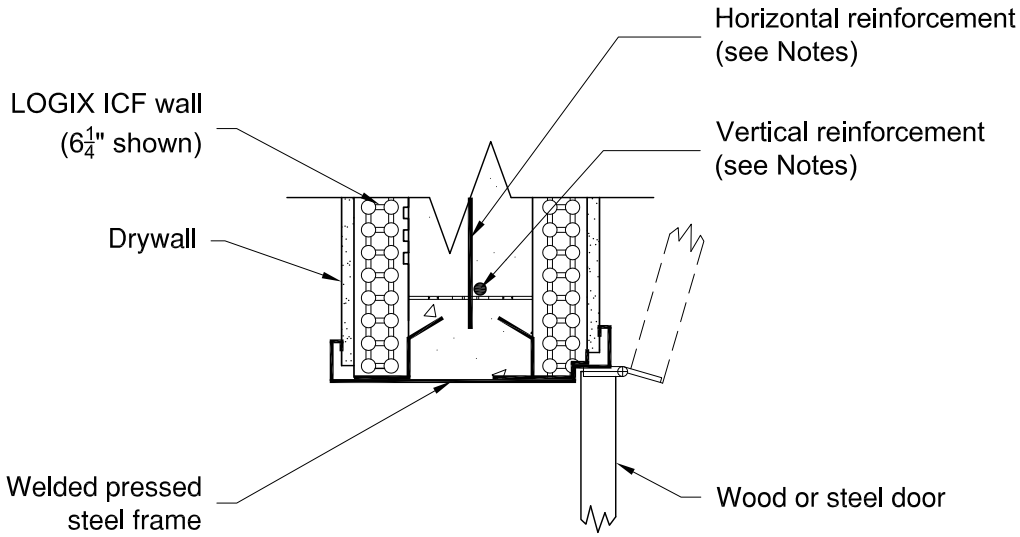
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

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



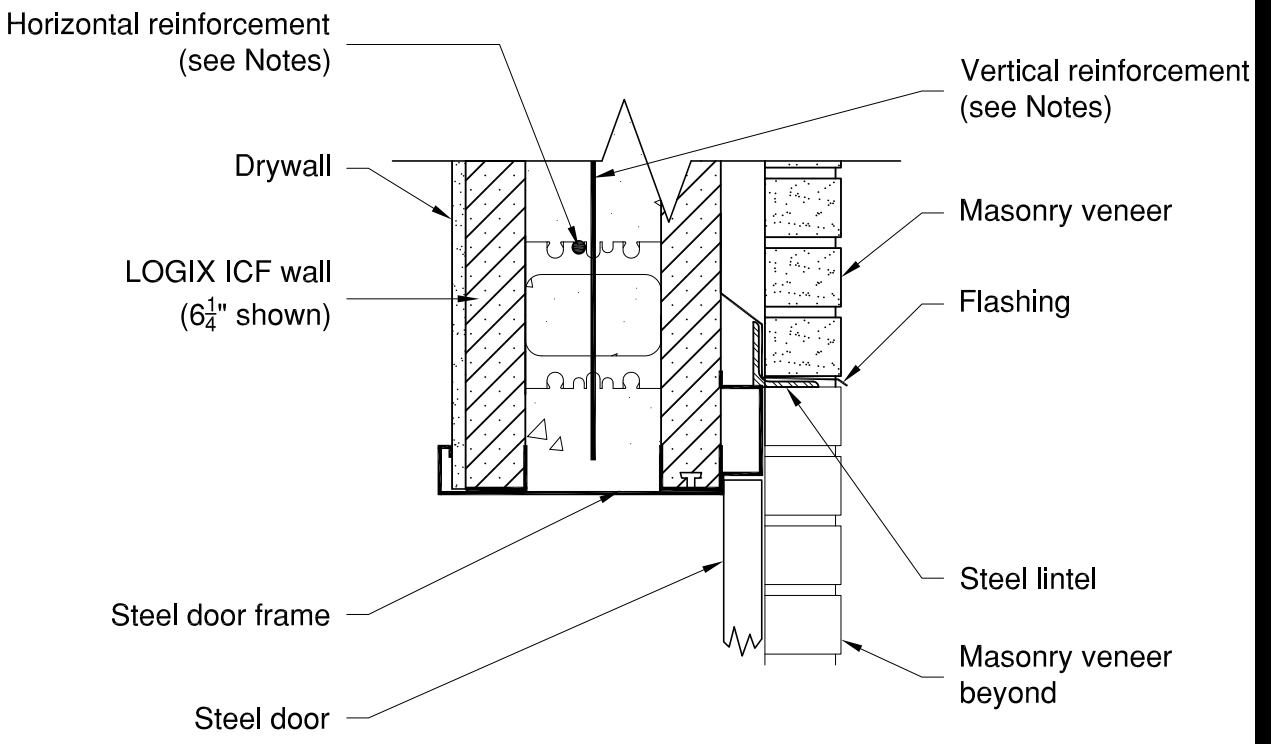
INTERIOR DOOR FRAME - JAMB
FLUSH MOUNTED DOOR

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

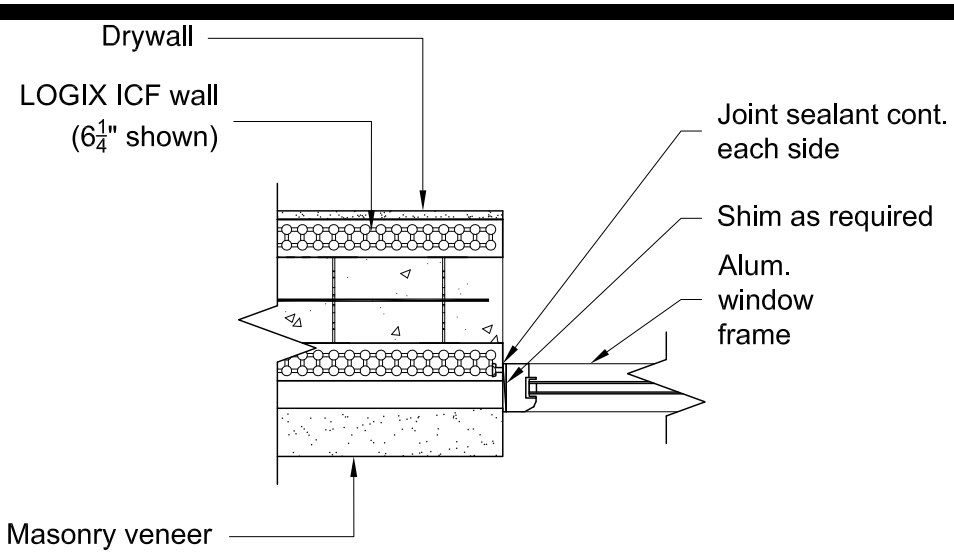


NOTES:

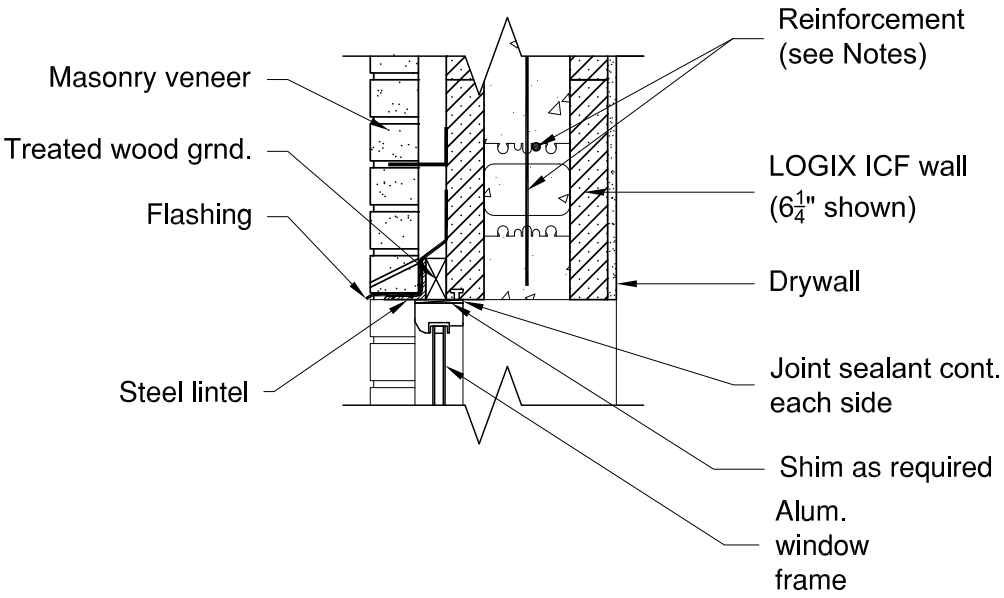
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.6.14 – ALUMINUM WINDOW FRAME

All drawings are downloadable at www.logixicf.com



ALUMINUM WINDOW JAMB



ALUMINUM WINDOW HEAD

NOTES:

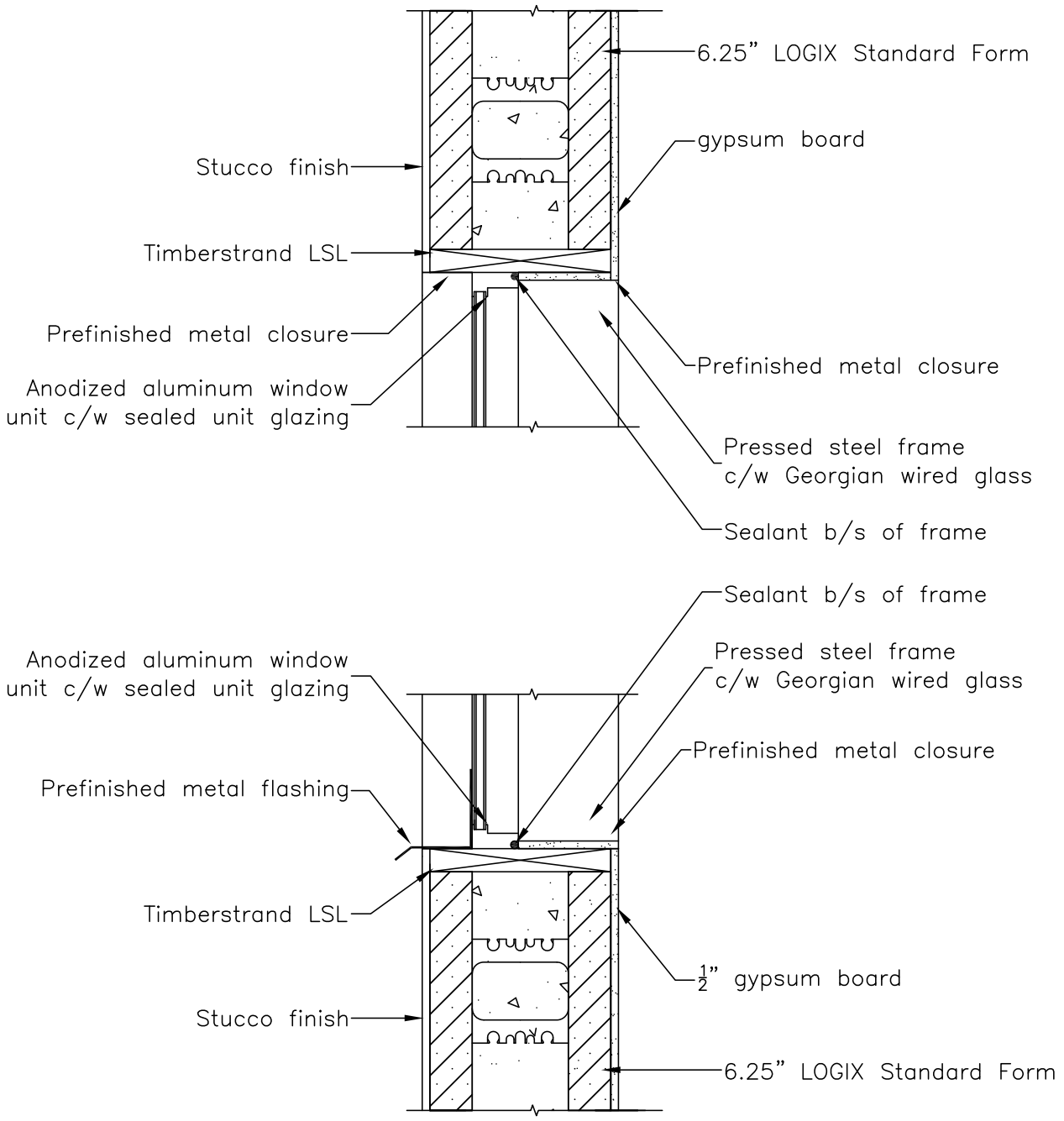
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

CAD DRAWINGS

5.6.15 – ALUMINUM WINDOW HEAD/SILL W/ TIMBERSTRAND LSL

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



NOTES:

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

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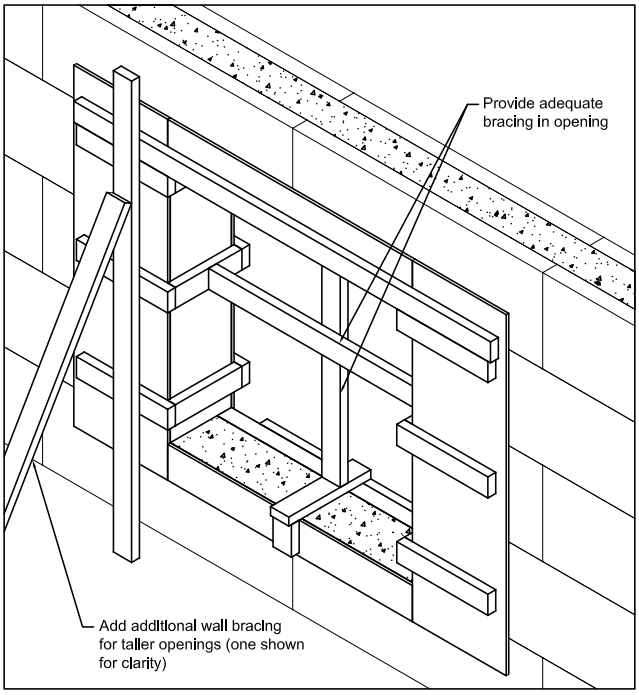
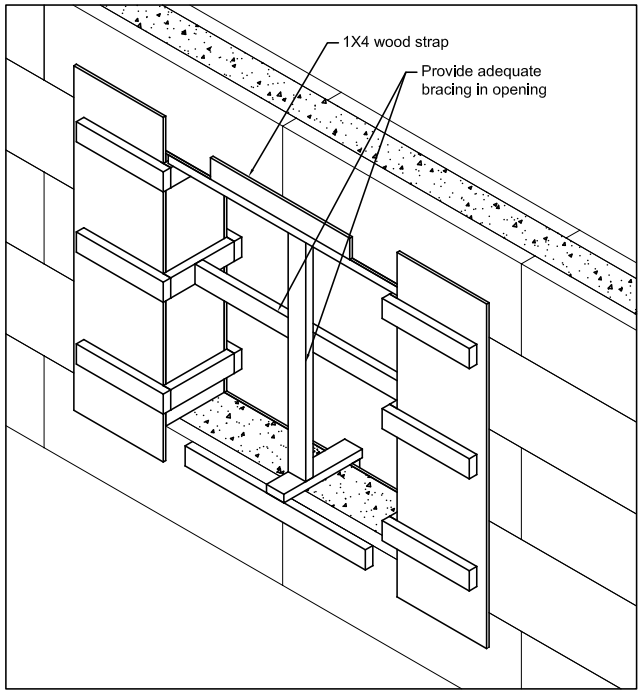
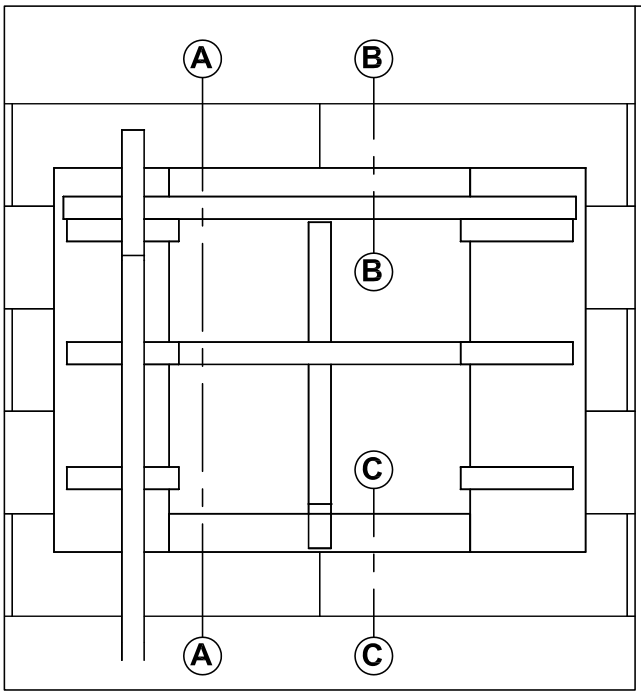
5.6.16 – WINDOW OPENING - TEMPORARY FORM SUPPORT FOR EXPOSED CONCRETE W/ 4" TRIM



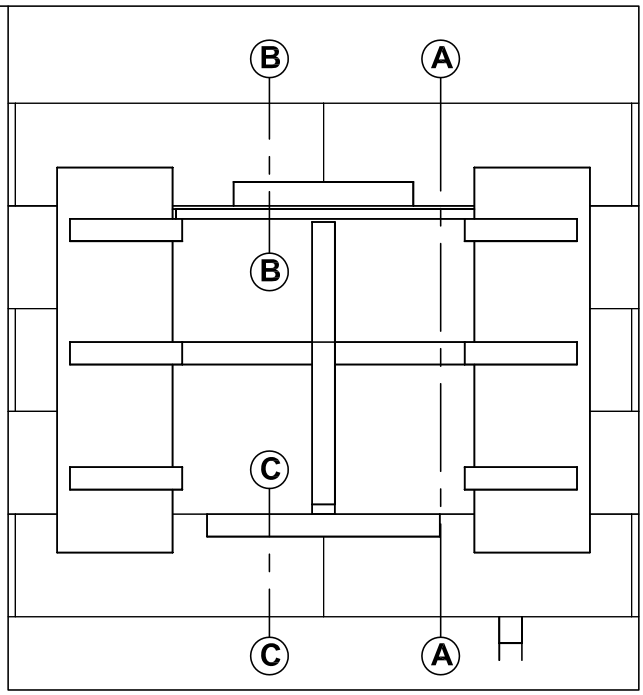
FORM SUPPORT - EXTERIOR SIDE



FORM SUPPORT - INTERIOR SIDE



ELEVATION - EXTERIOR SIDE



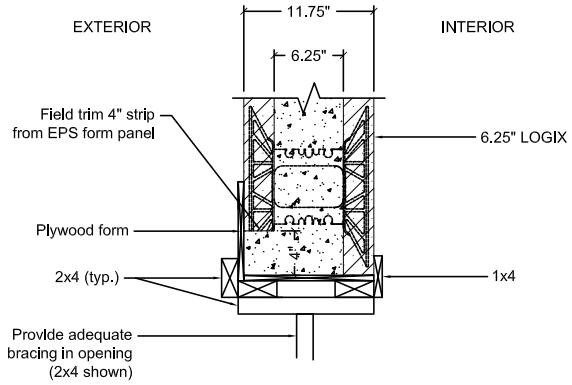
ELEVATION - INTERIOR SIDE

NOTE:

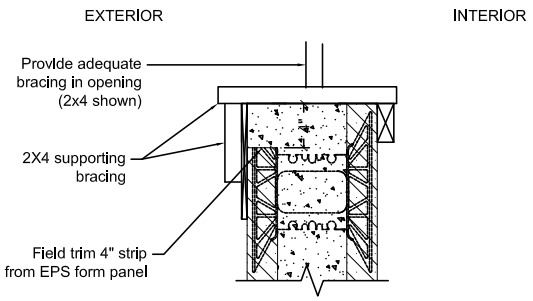
1. For 4" exposed concrete trim around opening on the interior face apply same form support and detail as shown for exterior face details.
2. Unless otherwise shown, temporary form work material includes 2x4 and plysheets.

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

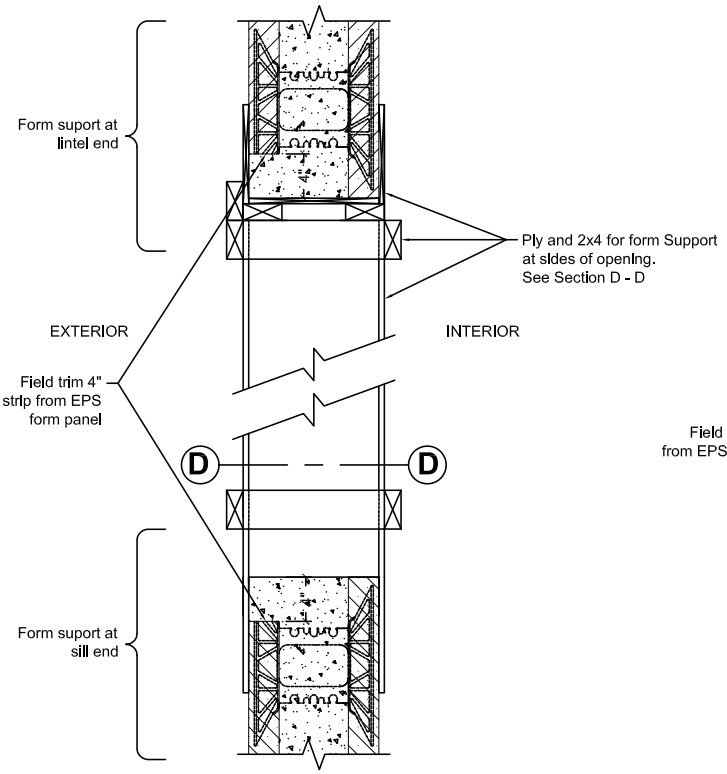
All drawings are downloadable at www.logixicf.com



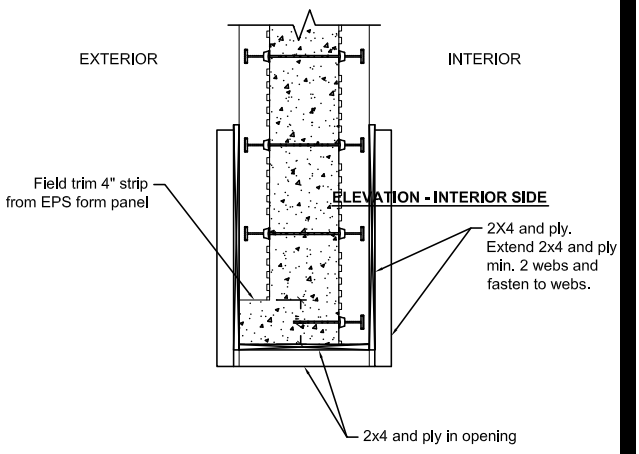
A - A
FORM SUPPORT ALONG LINTEL



B - B
FORM SUPPORT ALONG SILL



C - C
FORM SUPPORT AT LINTEL AND SILL END



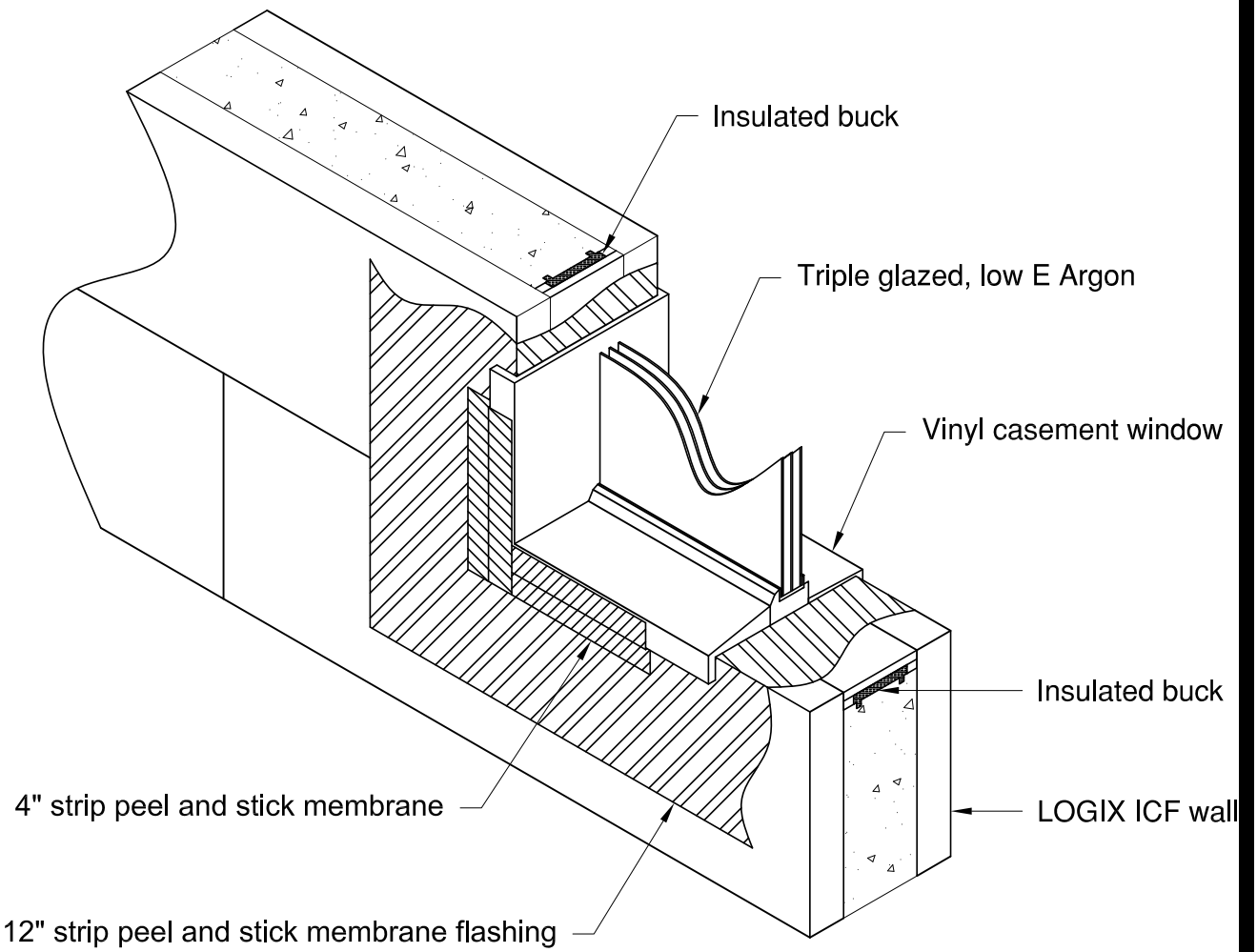
D - D
FORM SUPPORT AT SIDES OF OPENING

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

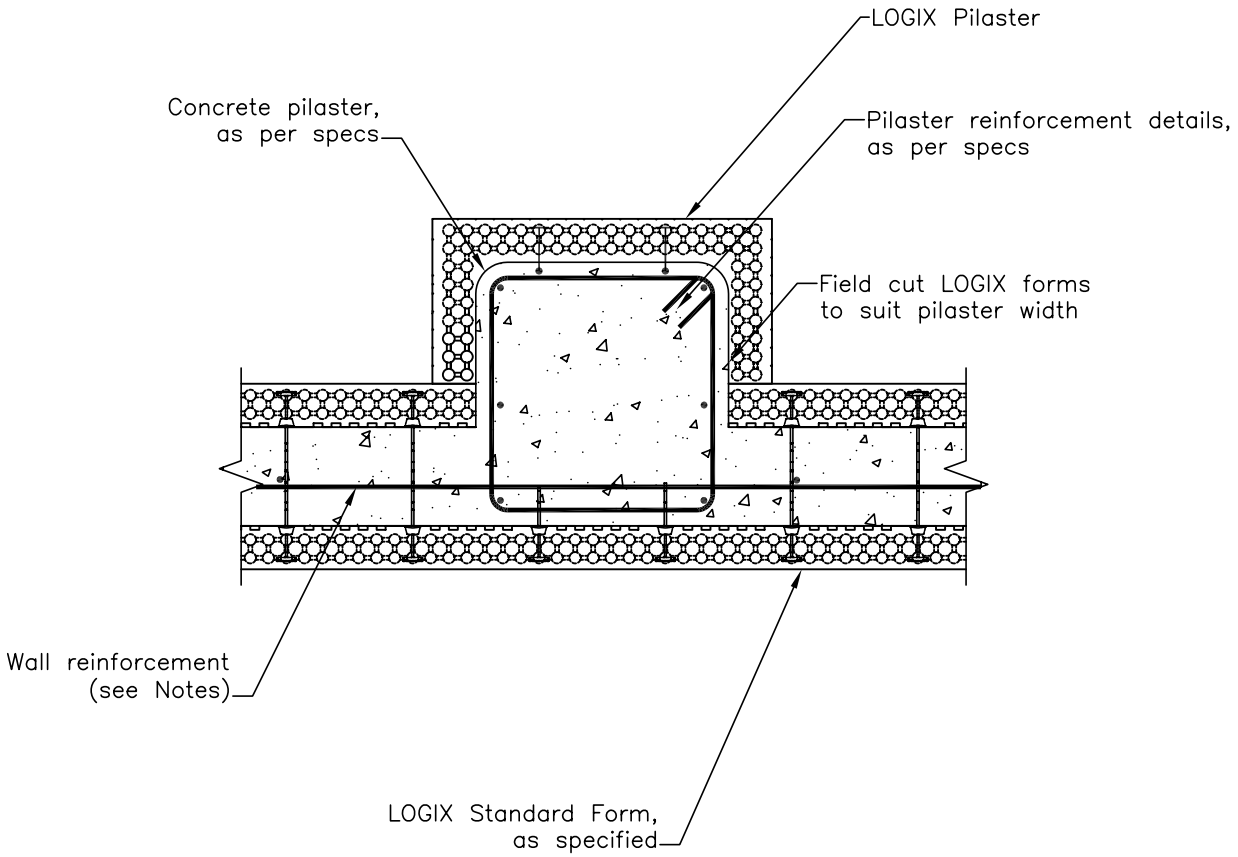


CAD DRAWINGS

5.7 – PILASTER DETAILS
5.7.1 – REINFORCING - LOGIX PILASTER

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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

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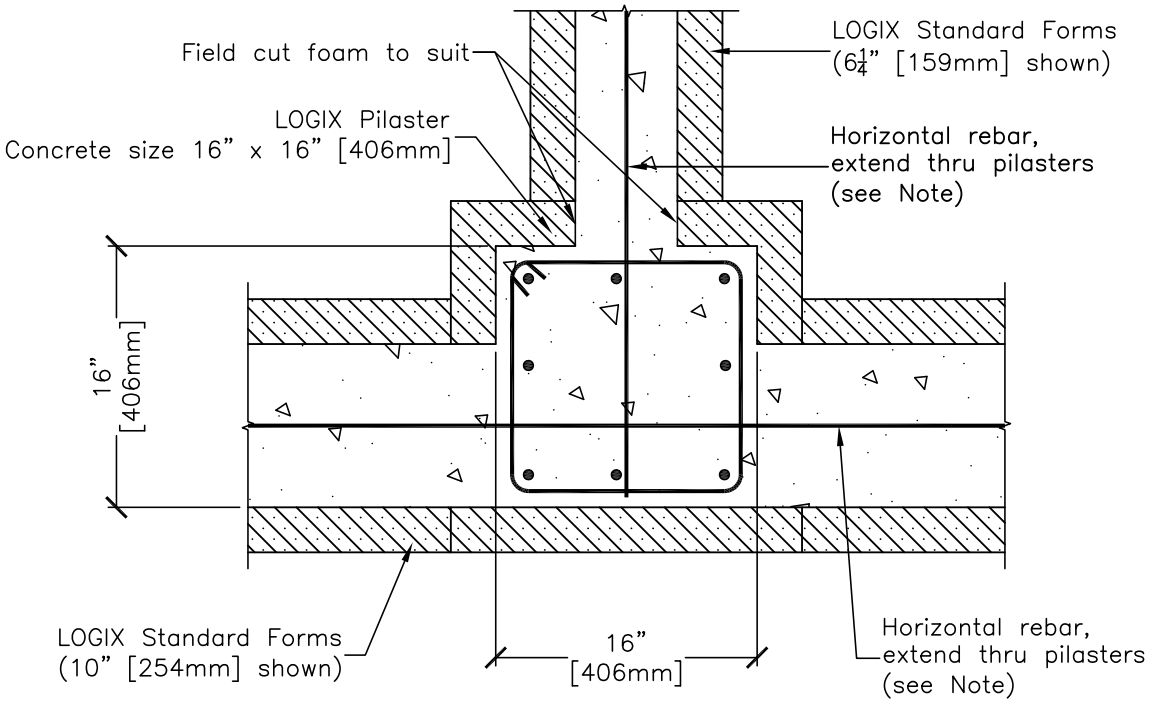
5.7.2 – LOGIX PILASTER AT TEE-WALL

All drawings are downloadable at www.logixicf.com



NOTES:

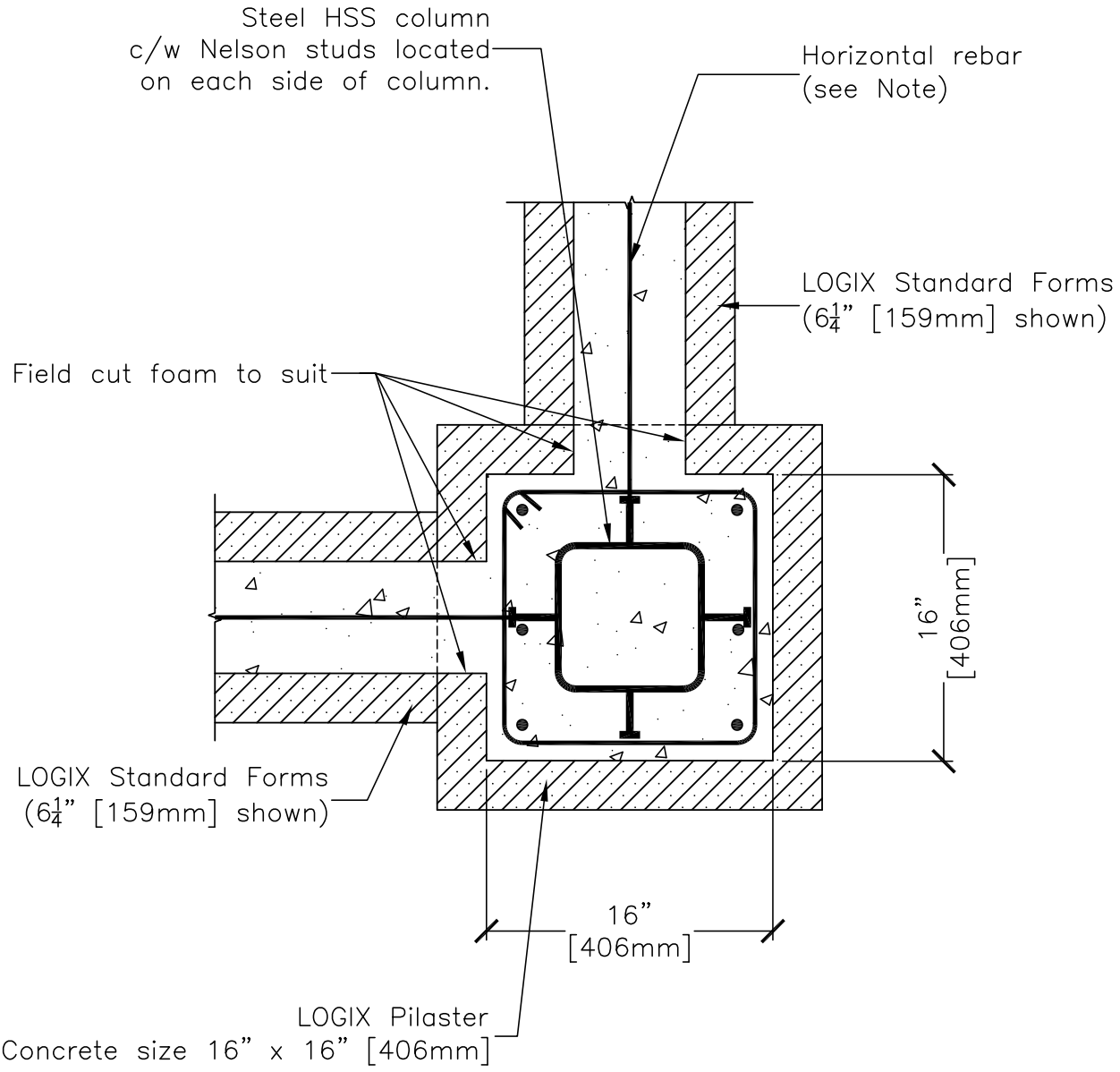
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.

5.7.3 – LOGIX PILASTER AT CORNER WITH STRUCTURAL STEEL COLUMN

All drawings are downloadable at www.logixicf.com

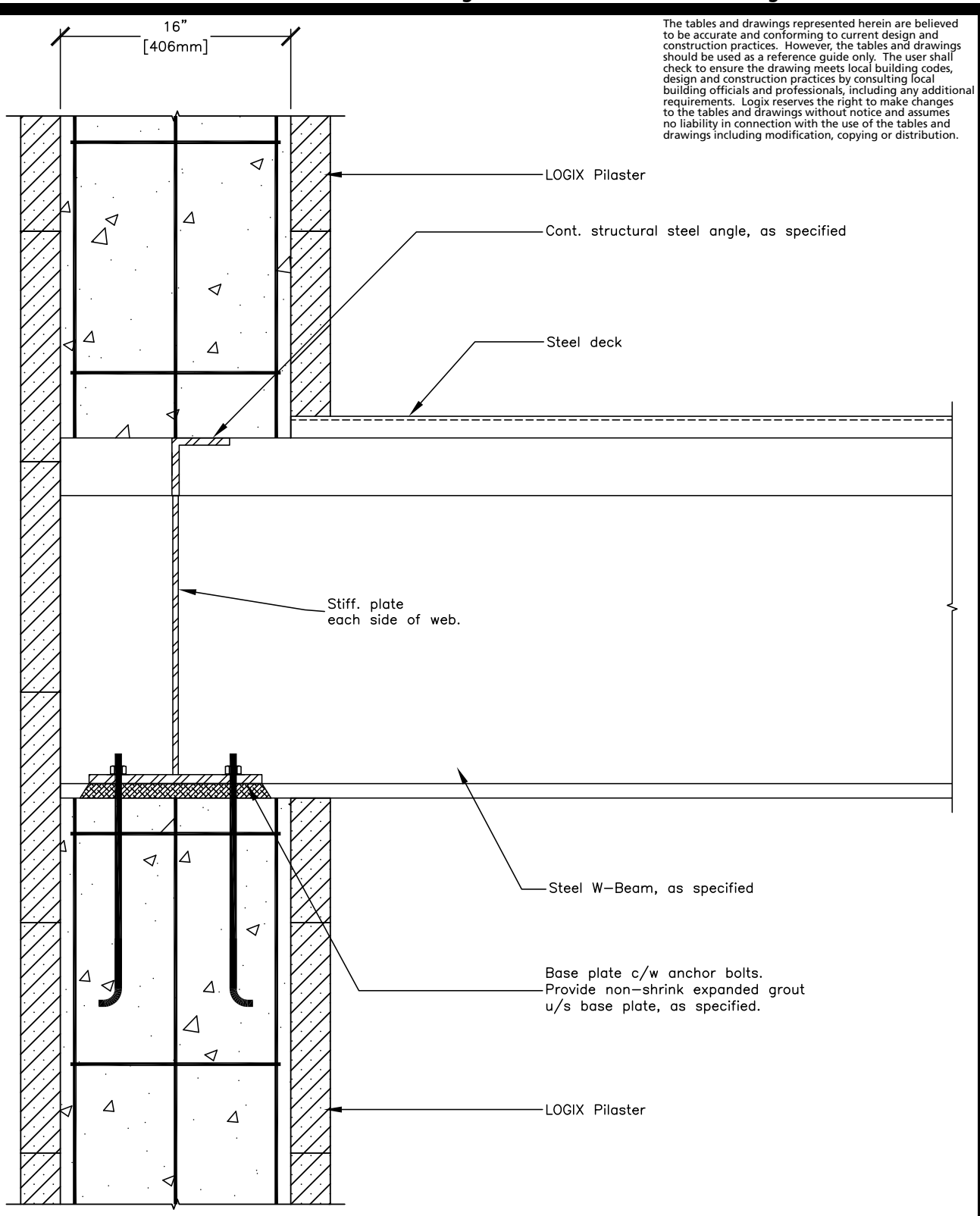
NOTES:

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



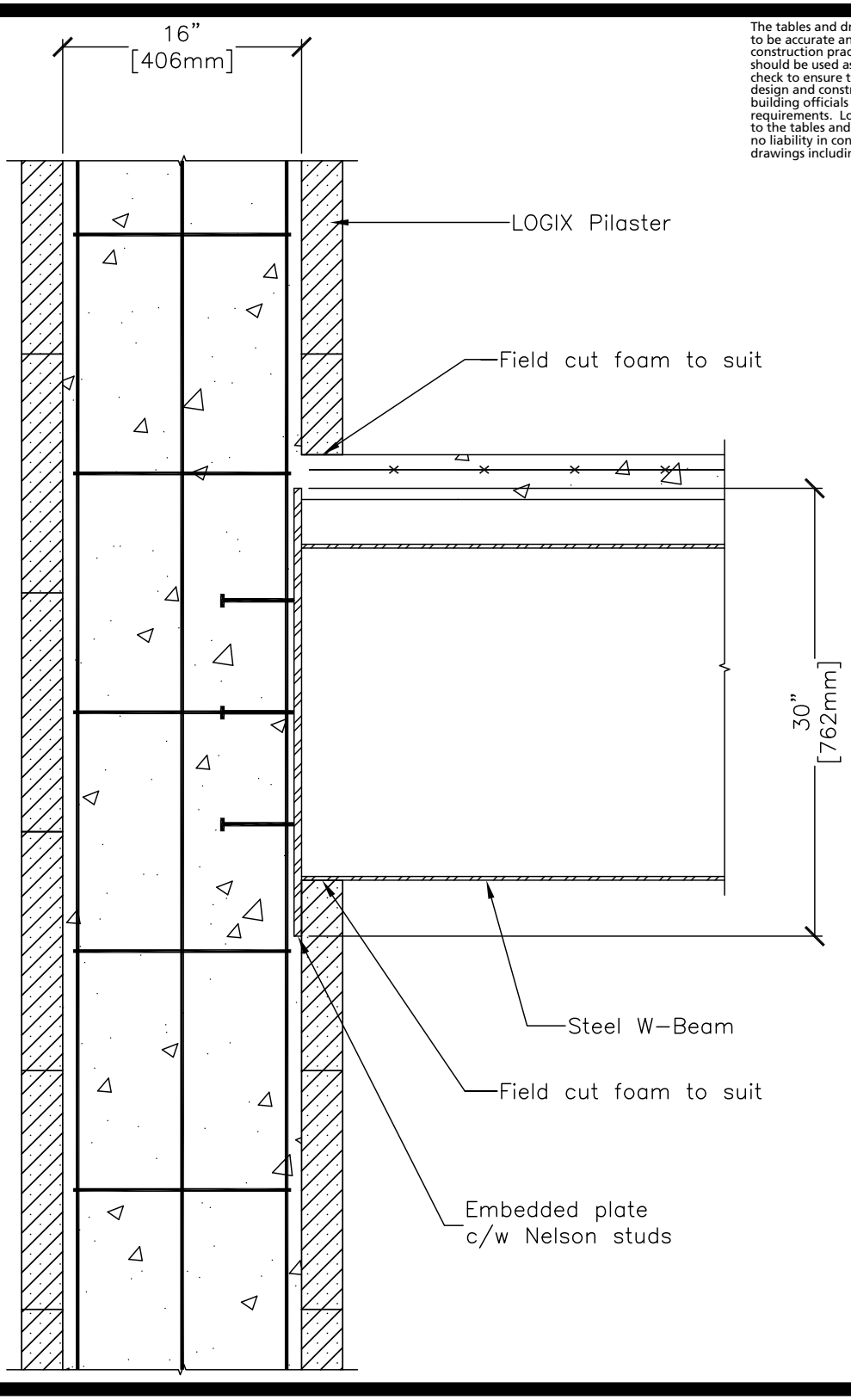
5.7.4 – STRUCTURAL BEAM WITH BASE PLATE

All drawings are downloadable at www.logixicf.com



5.7.5 – STRUCTURAL BEAM WITH STUDS

All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

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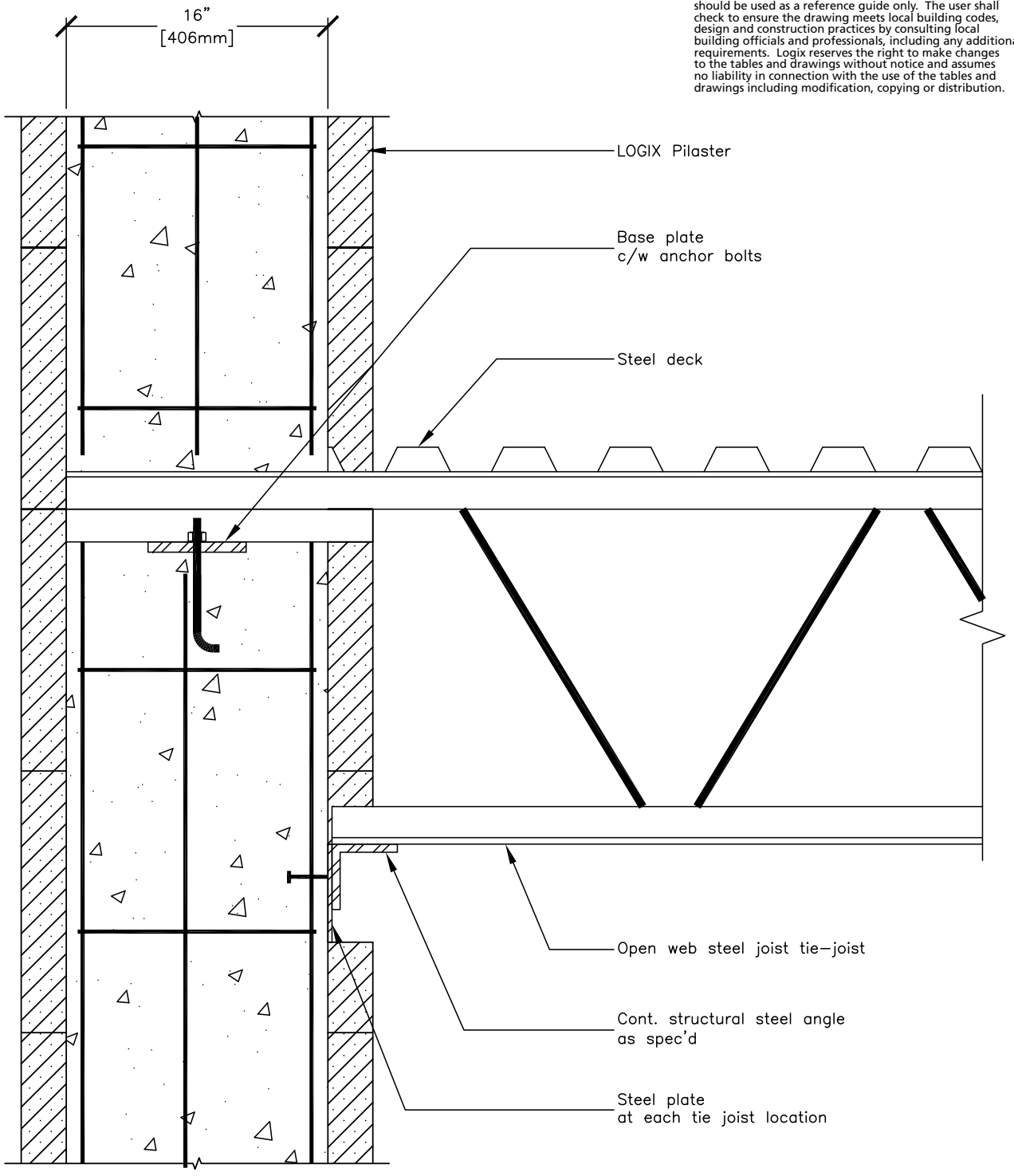
5.7.6 – STEEL DECK ON OPEN WEB JOIST

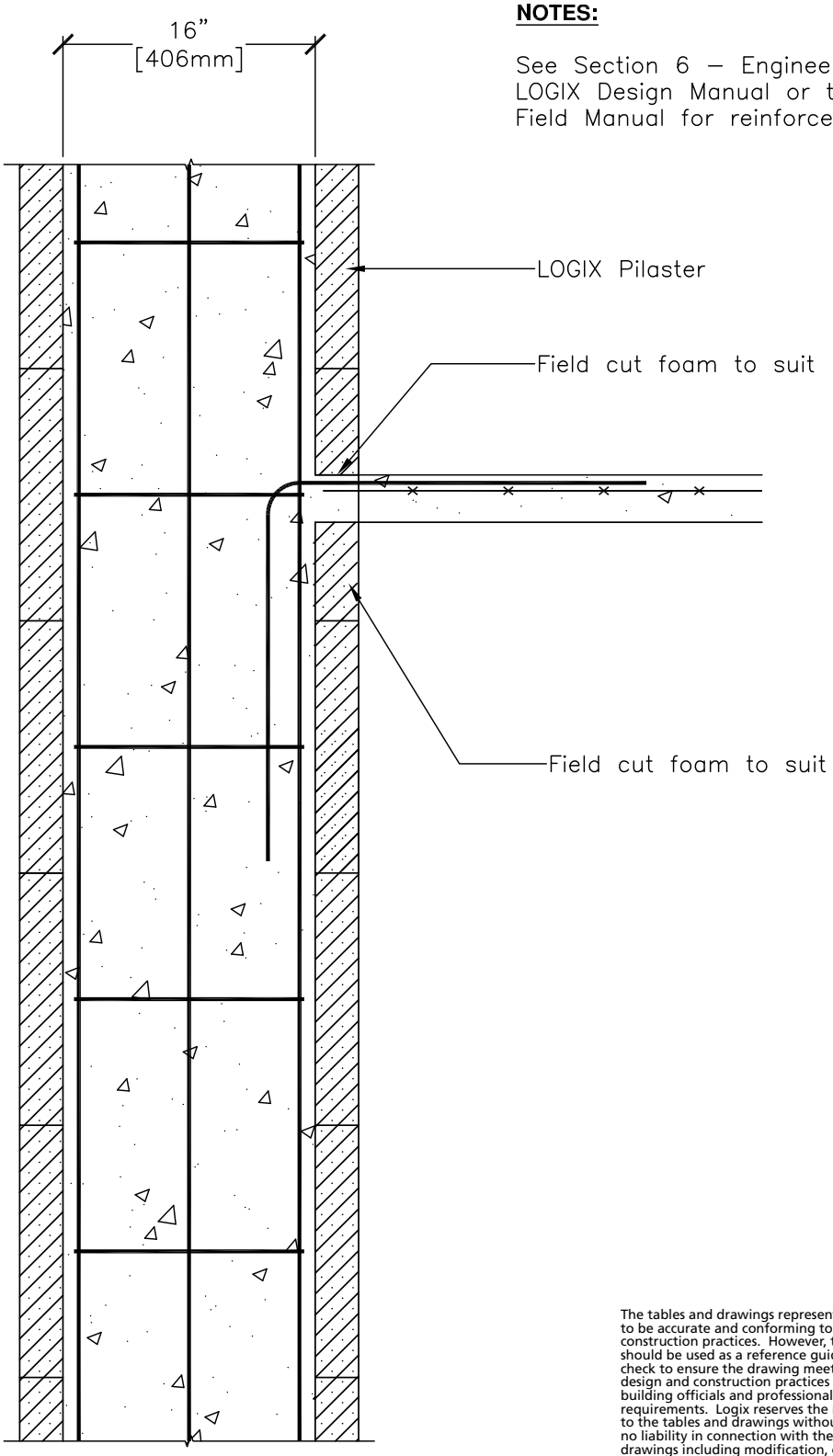
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

5.7.7 – INTEGRAL SLAB

All drawings are downloadable at www.logixicf.com



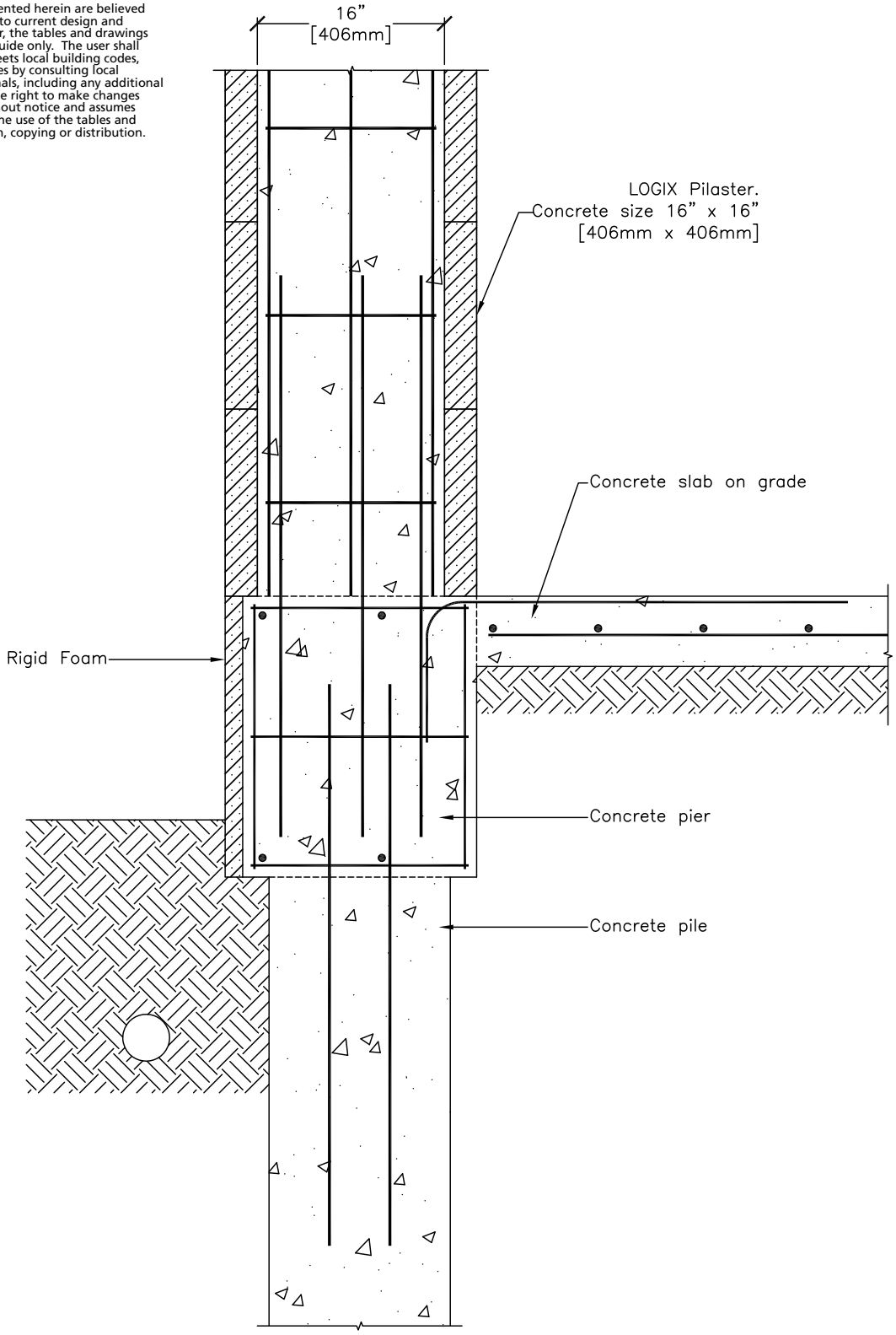
NOTES:

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

CAD DRAWINGS

5.7.8 – LOGIX PILASTER ON CONCRETE PIER

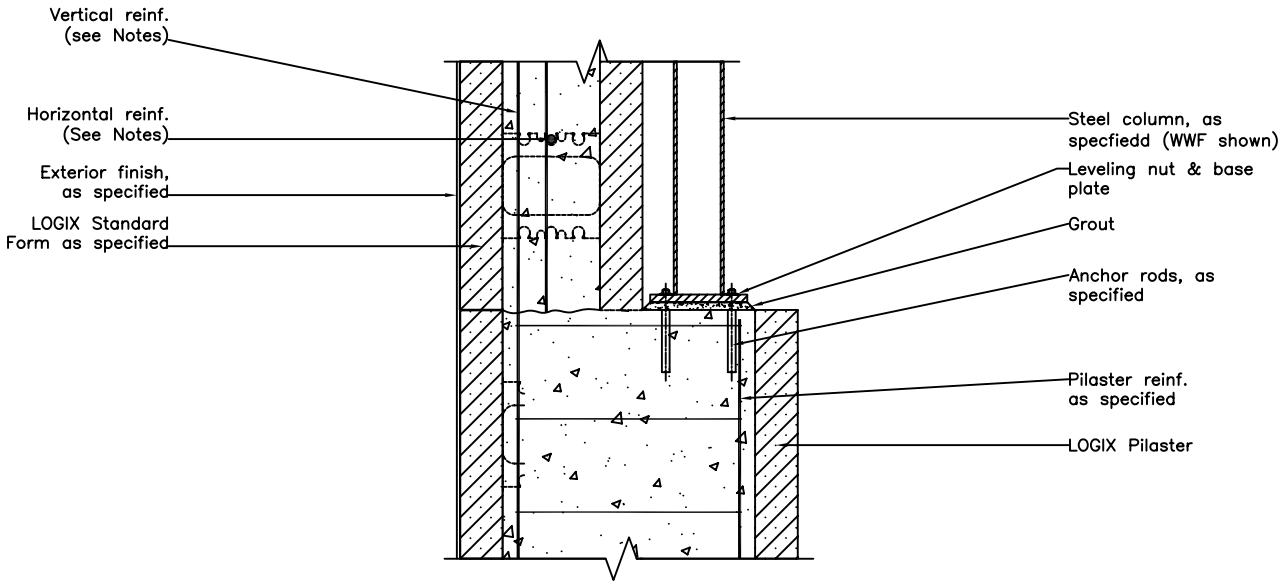
All drawings are downloadable at www.logixicf.com



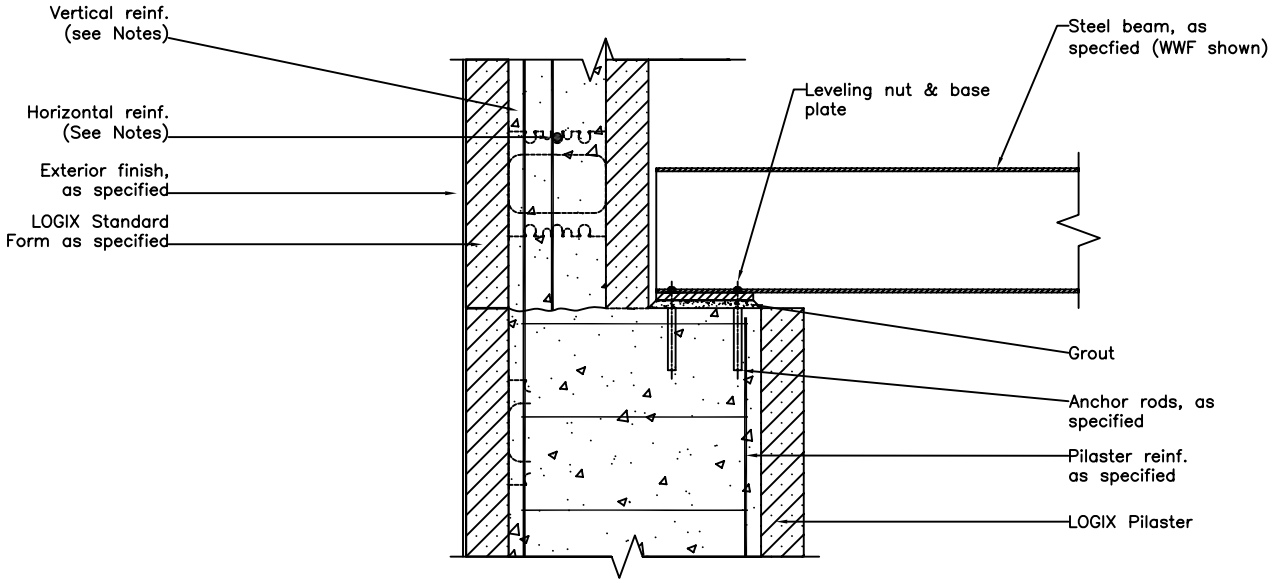
CAD DRAWINGS

5.7.9 – LOGIX PILASTER SUPPORTING STEEL BEAM & COLUMN

All drawings are downloadable at www.logixicf.com



Logix Pilaster Supporting Steel Column



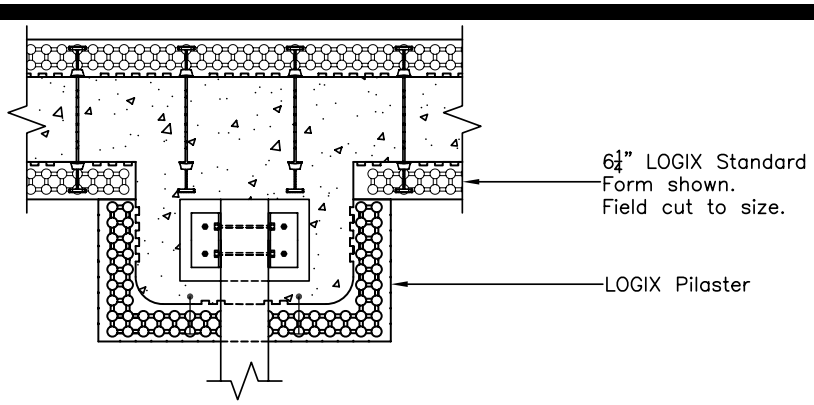
Logix Pilaster Supporting Steel Beam

NOTES:

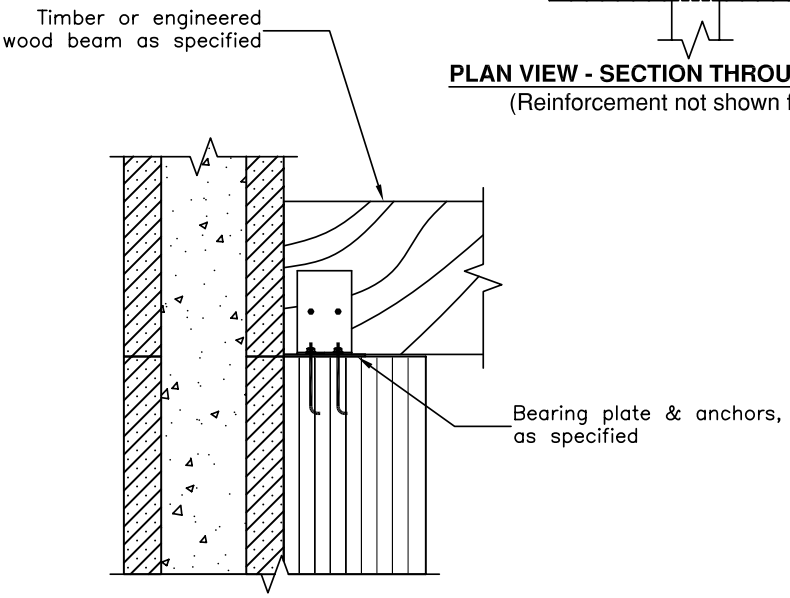
For reinforcement details in walls, see Section 6 – Engineering in the LOGIX Product Manual.

5.7.10 – WOOD BEAM ON LOGIX PILASTER

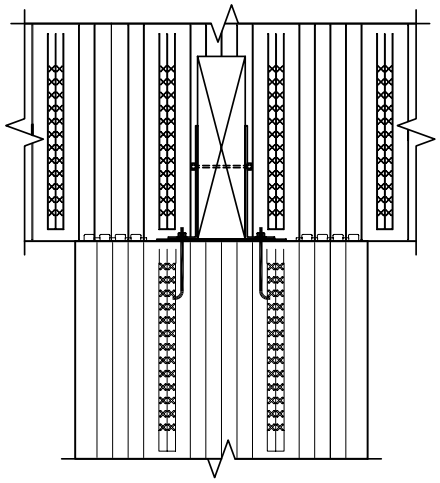
All drawings are downloadable at www.logixicf.com



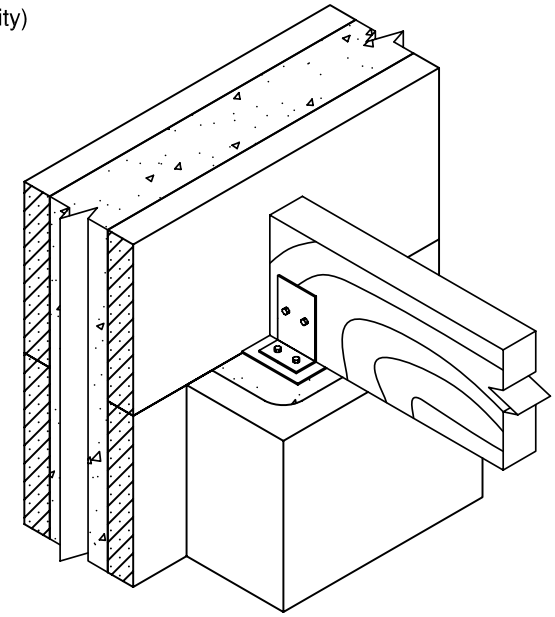
PLAN VIEW - SECTION THROUGH PILASTER
(Reinforcement not shown for clarity)



SIDE ELEVATION
(Reinforcement not shown for clarity)



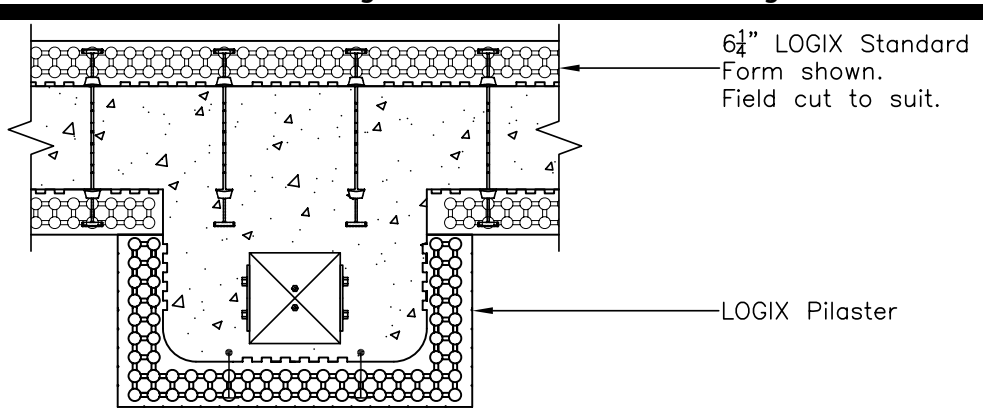
FRONT VIEW



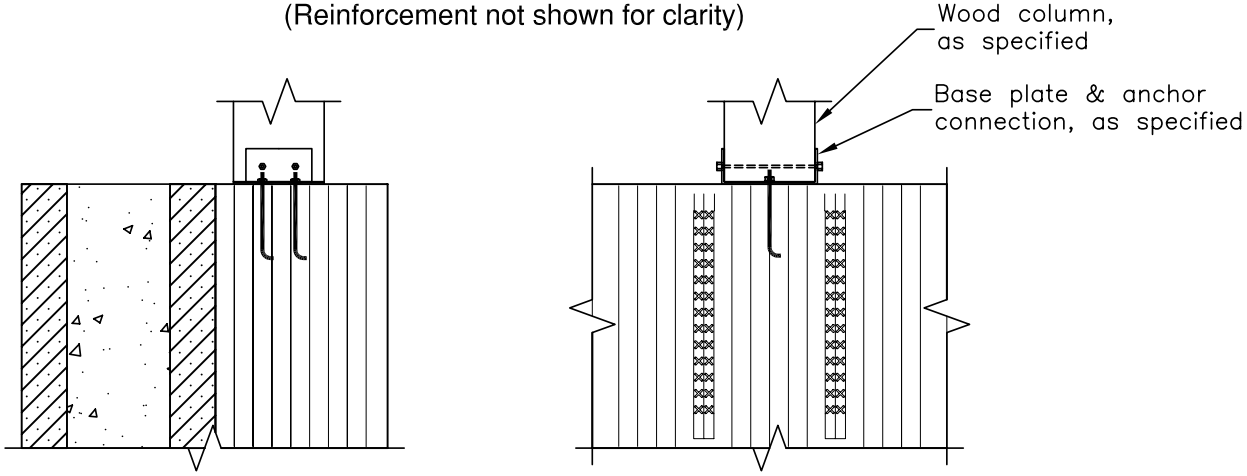
CAD DRAWINGS

5.7.11 – WOOD COLUMN ON LOGIX PILASTER

All drawings are downloadable at www.logixicf.com

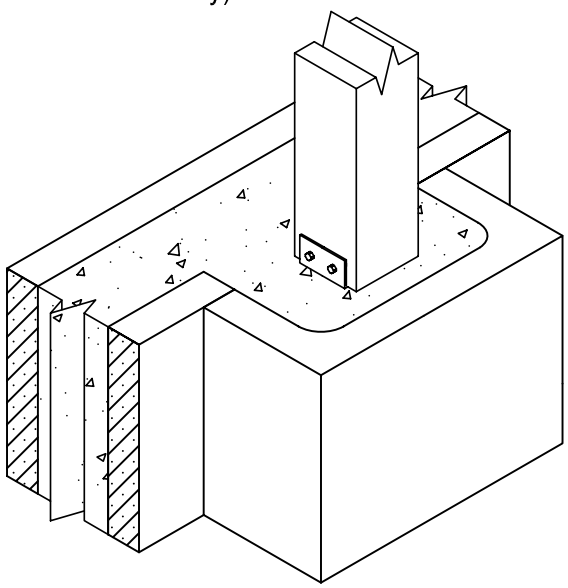


PLAN VIEW
(Reinforcement not shown for clarity)



SIDE VIEW
(Reinforcement not shown for clarity)

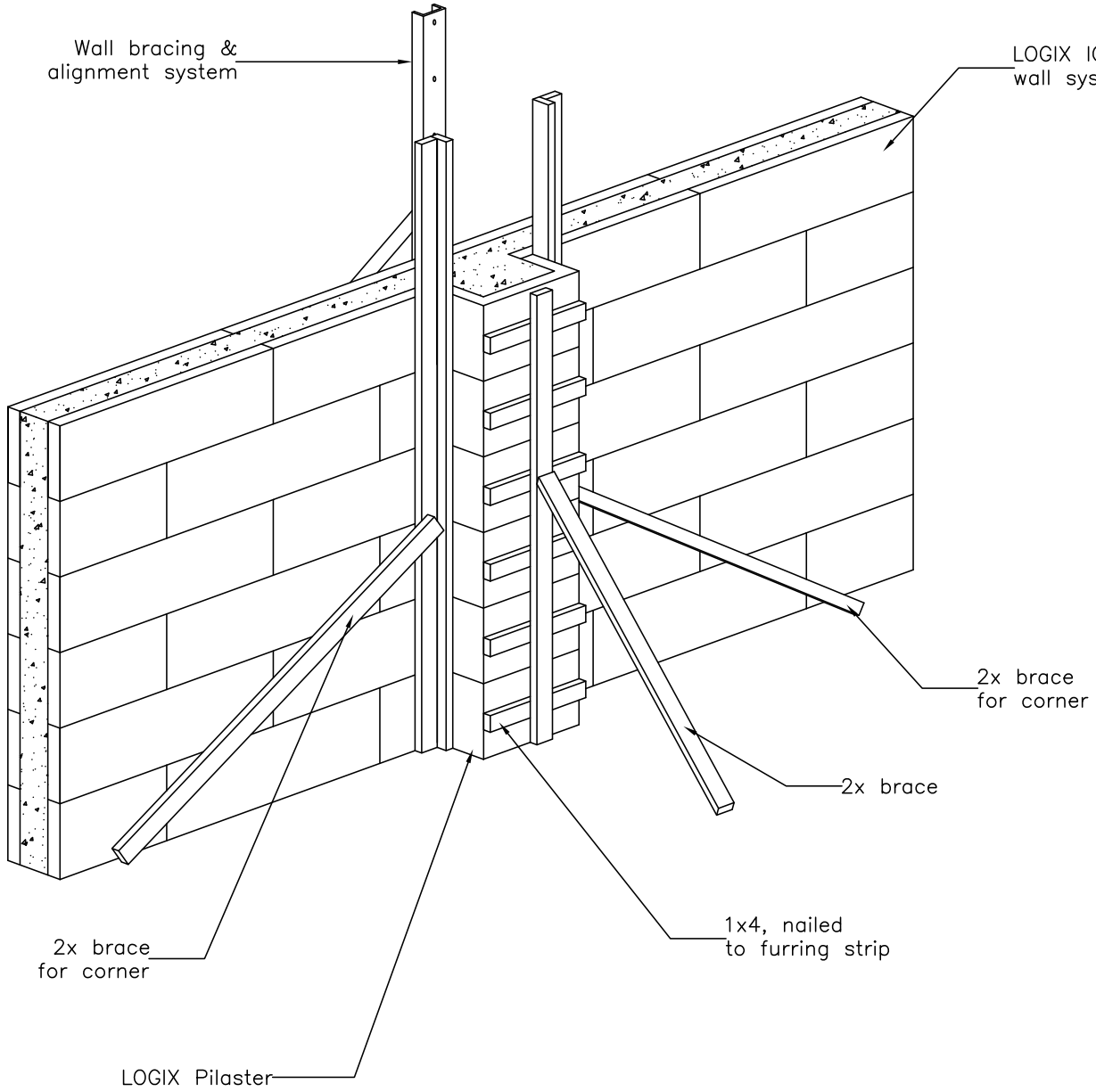
FRONT VIEW



CAD DRAWINGS

5.7.12 – BRACING - LOGIX PILASTER

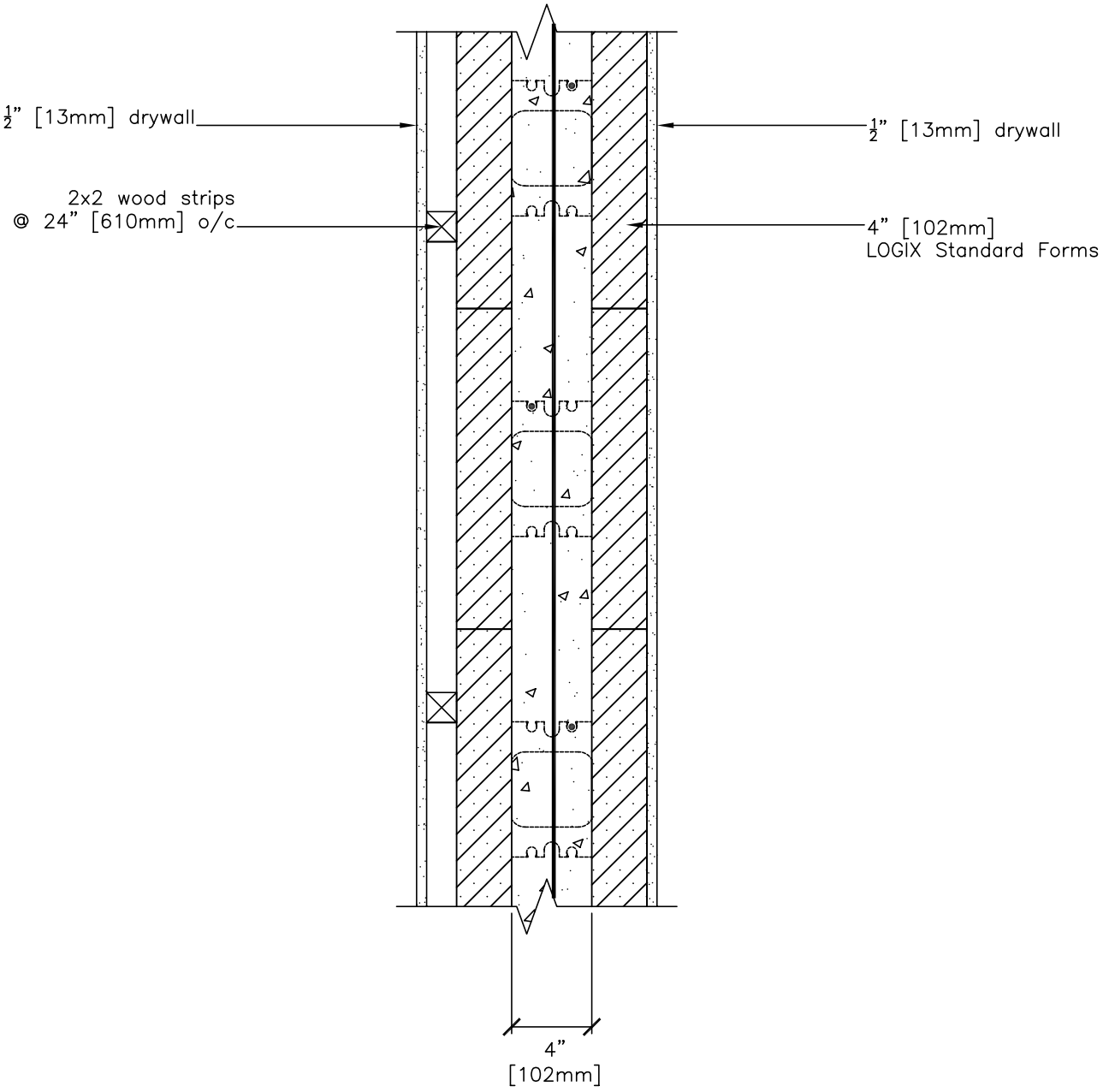
All drawings are downloadable at www.logixicf.com



CAD DRAWINGS

5.8 – SOUND TRANSMISSION CLASSIFICATION (STC)
5.8.1 – 4" LOGIX WALL LAYOUT (STC 50)

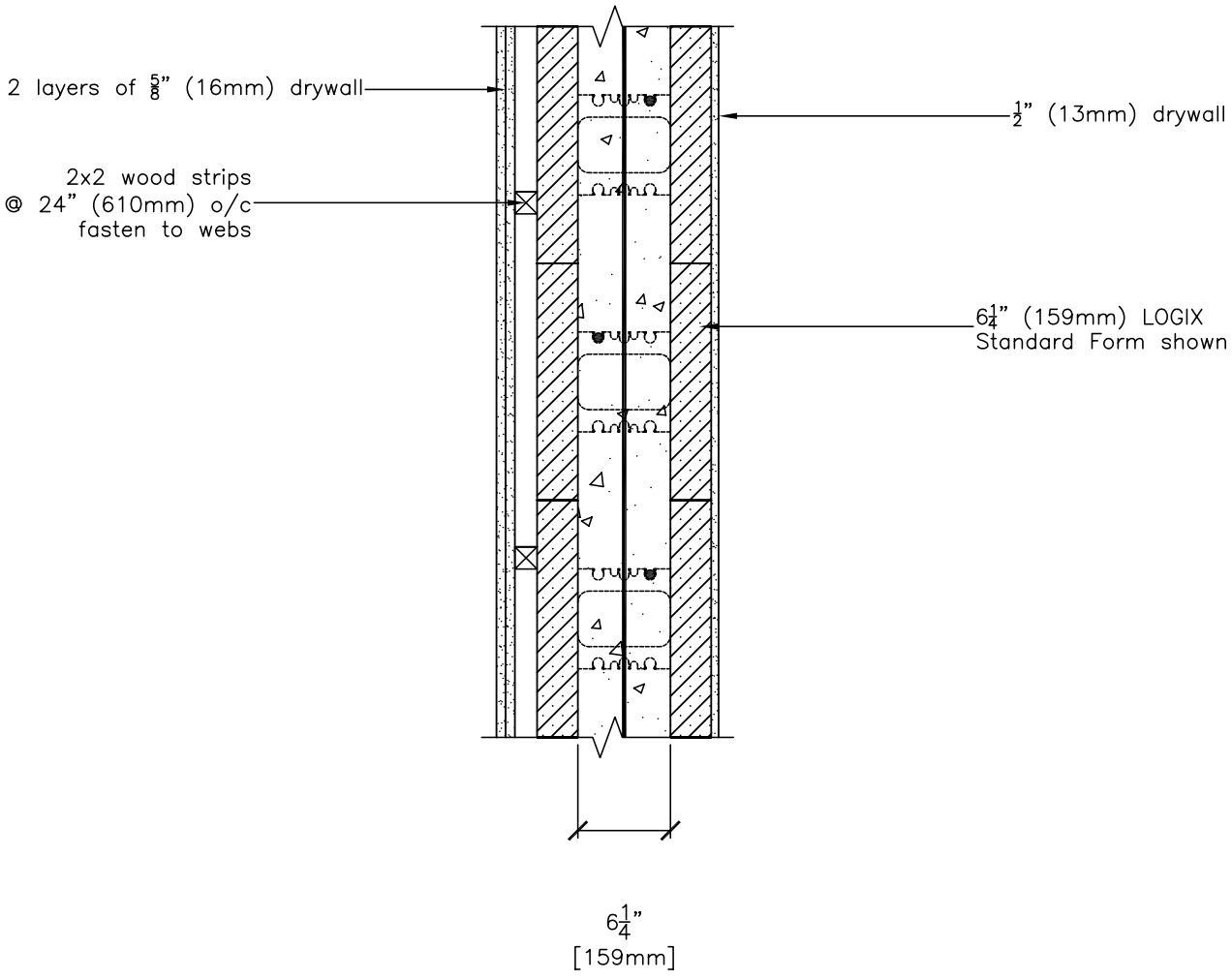
All drawings are downloadable at www.logixicf.com



STC50 - 4" [102mm] LOGIX WALL

5.8.2 – 6.25" LOGIX WALL LAYOUT (STC 56)

All drawings are downloadable at www.logixicf.com

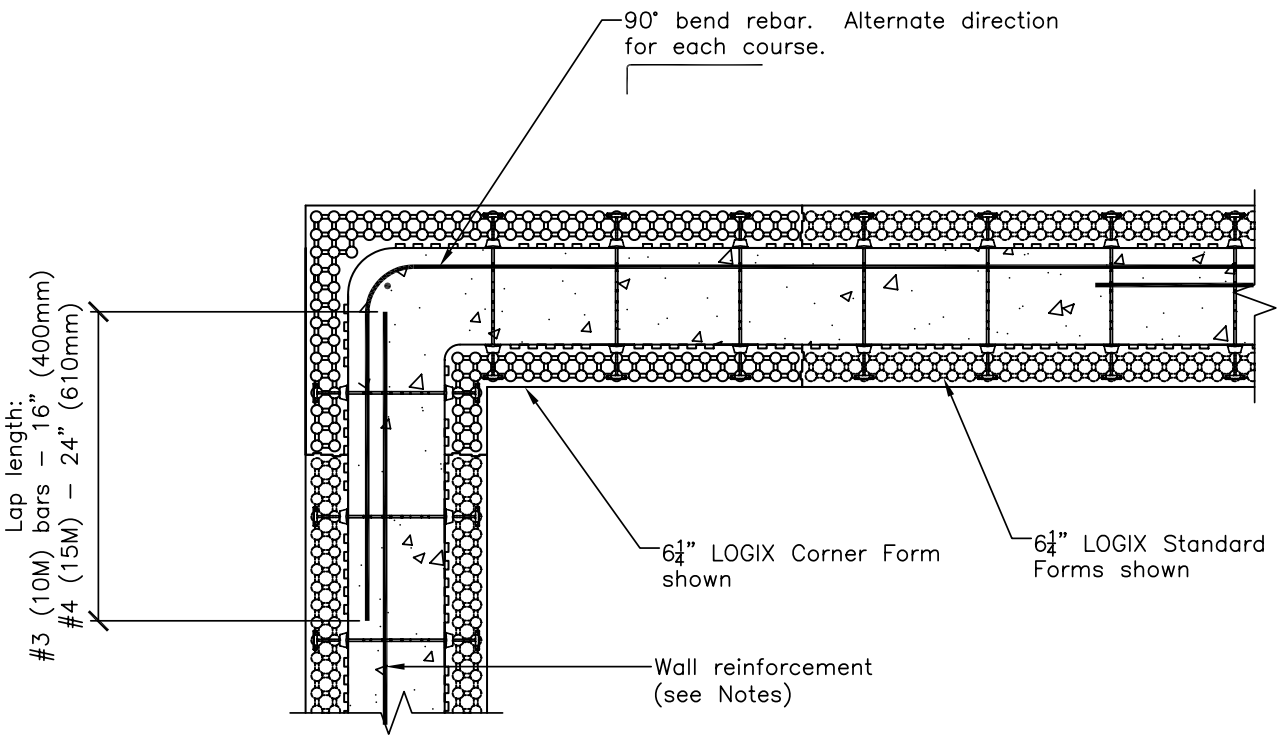


STC56 - 6.25" [159mm] LOGIX WALL

CAD DRAWINGS

5.9 – SPECIAL DETAILS
5.9.1 – REINFORCING - CORNER WALL

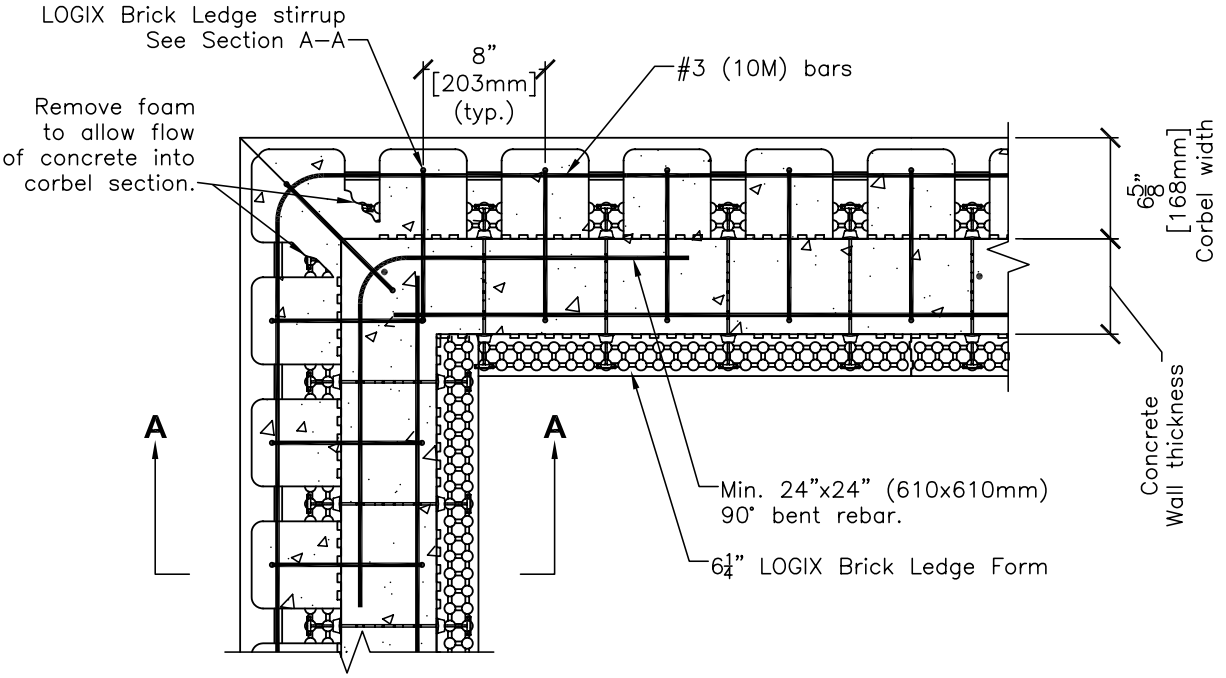
All drawings are downloadable at www.logixicf.com

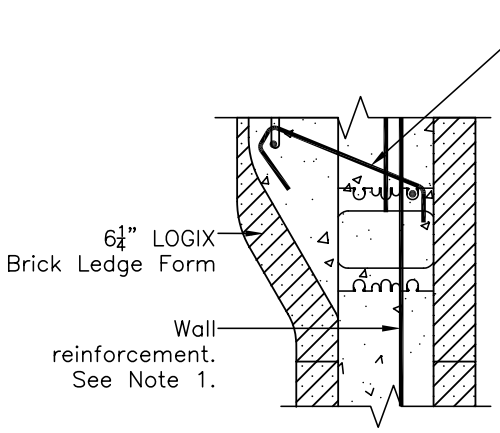


NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

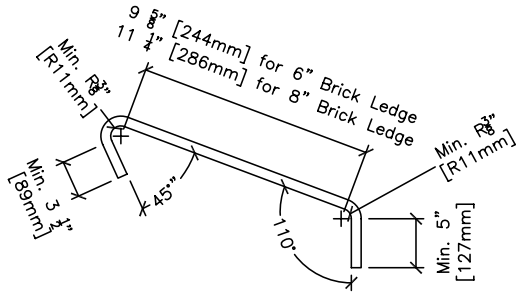
5.9.2 – REINFORCING - CORNER WITH BRICK LEDGE FORMS

All drawings are downloadable at www.logixicf.com





SECTION A-A



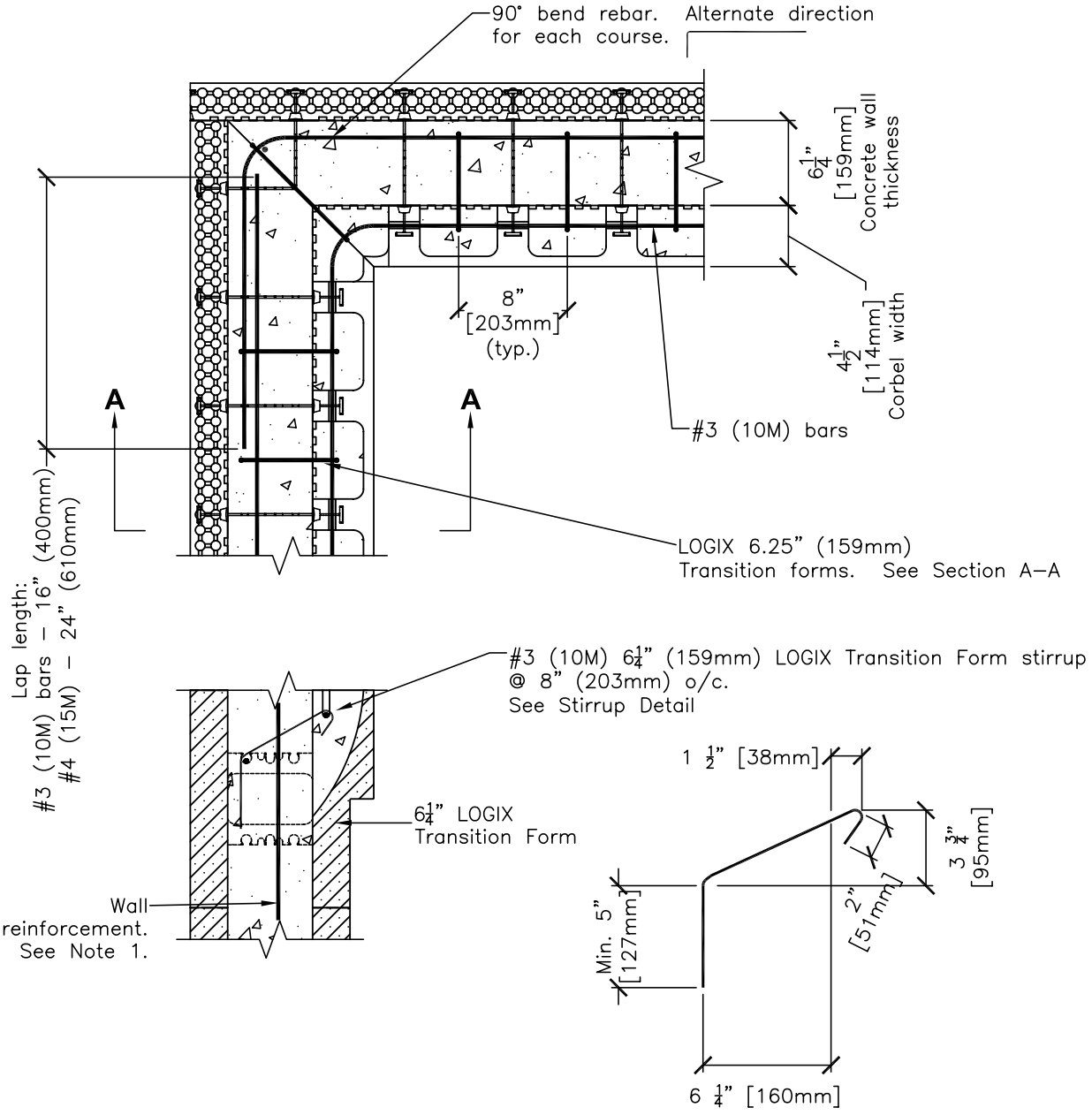
STIRRUP DETAIL
(See Note 2)

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

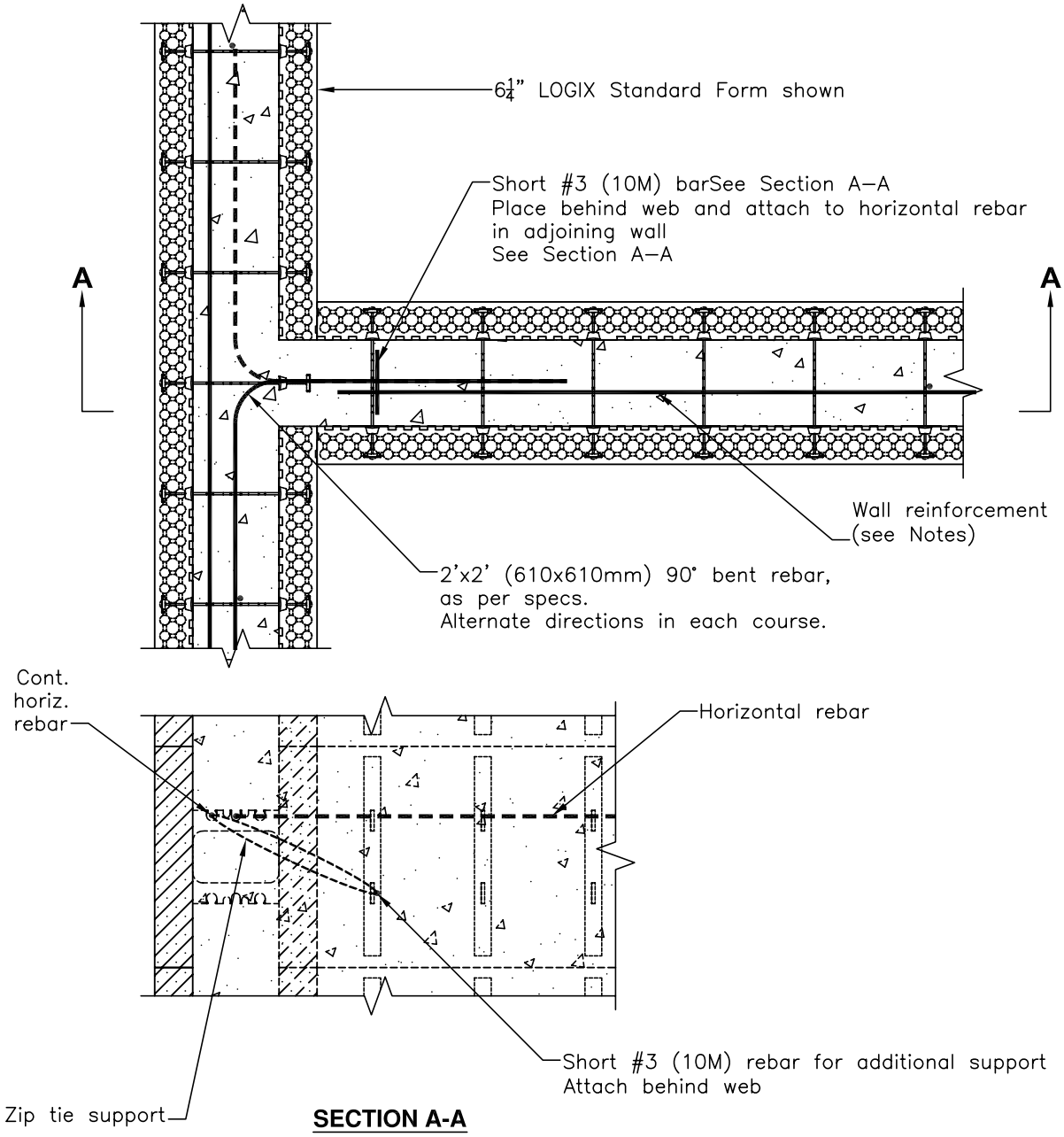
STIRRUP DETAIL (See Note 2)

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

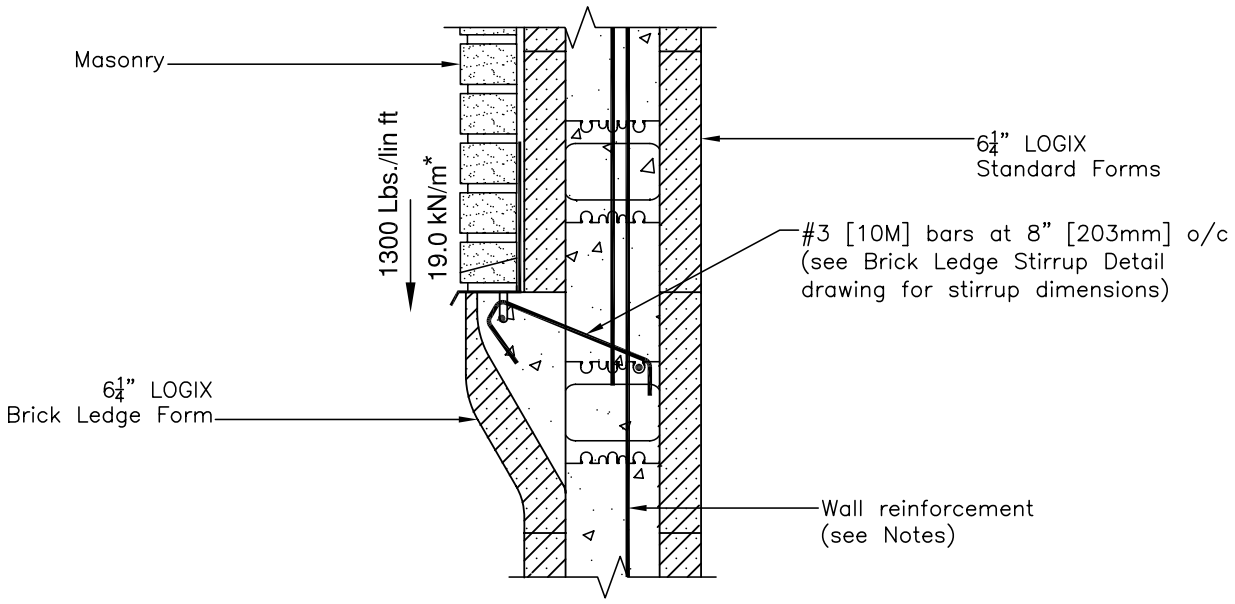


SECTION A-A

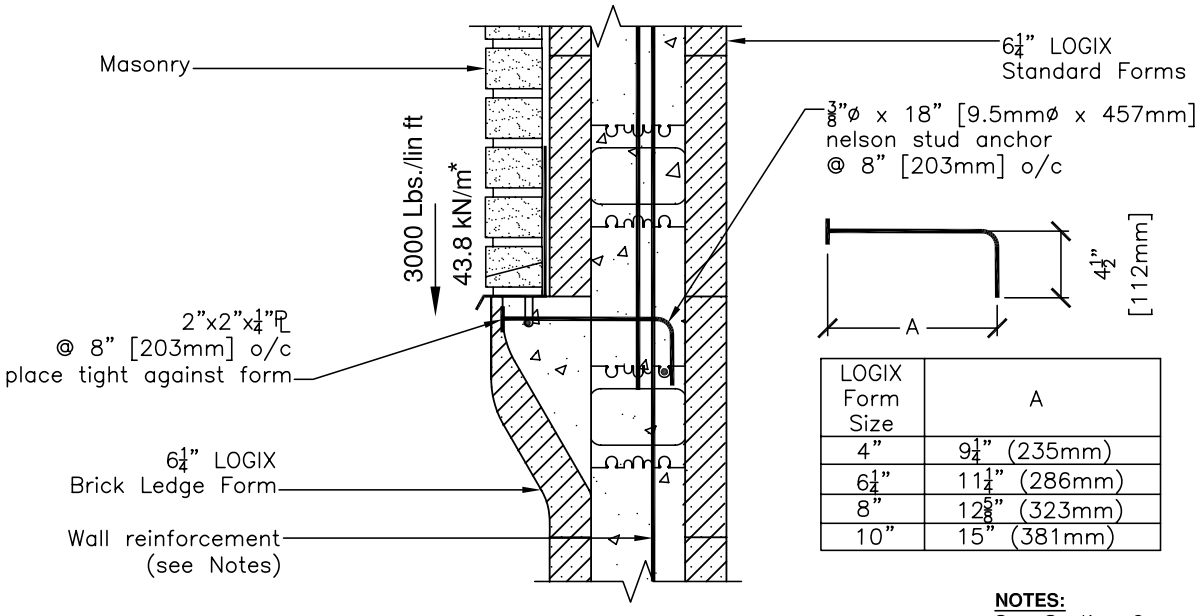
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

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)

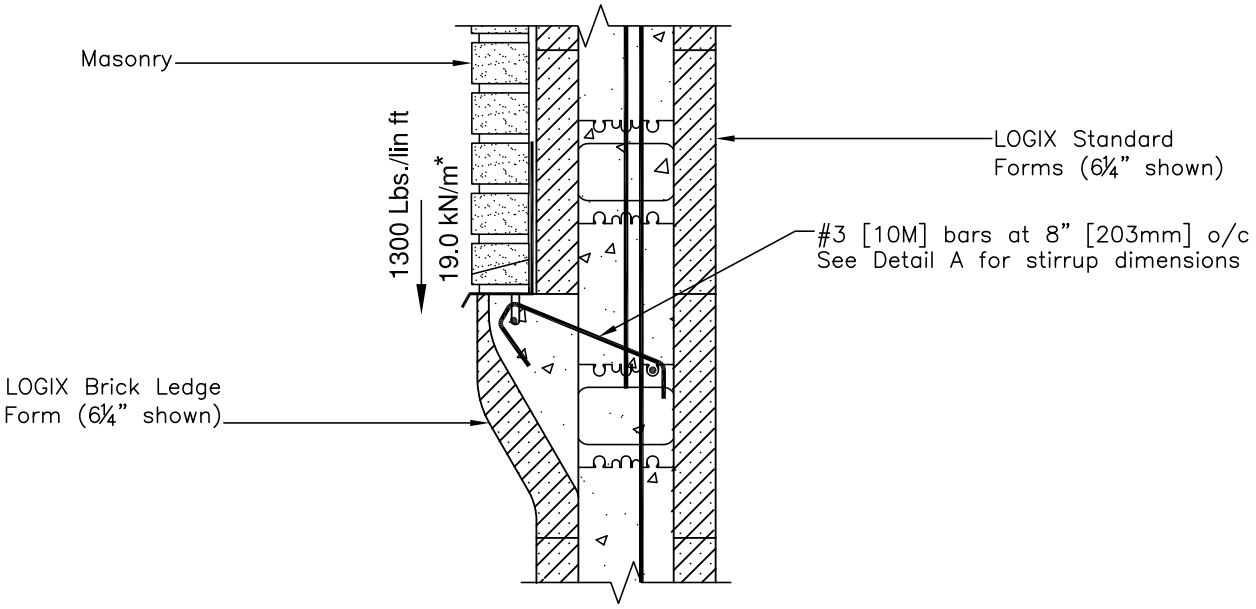
NOTES:
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

5.10.6 - BRICK LEDGE HEAVY REINFORCEMENT

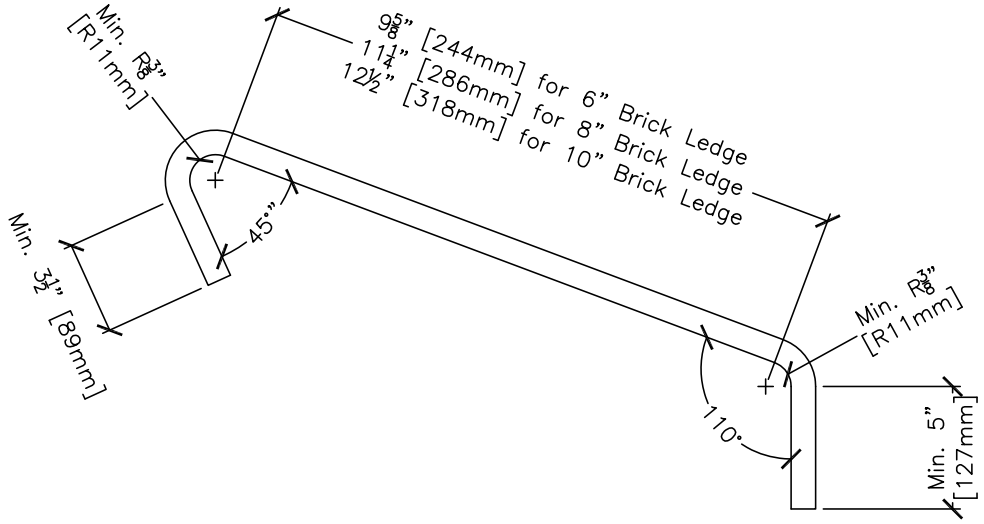
*1kN = 224.8lb

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.

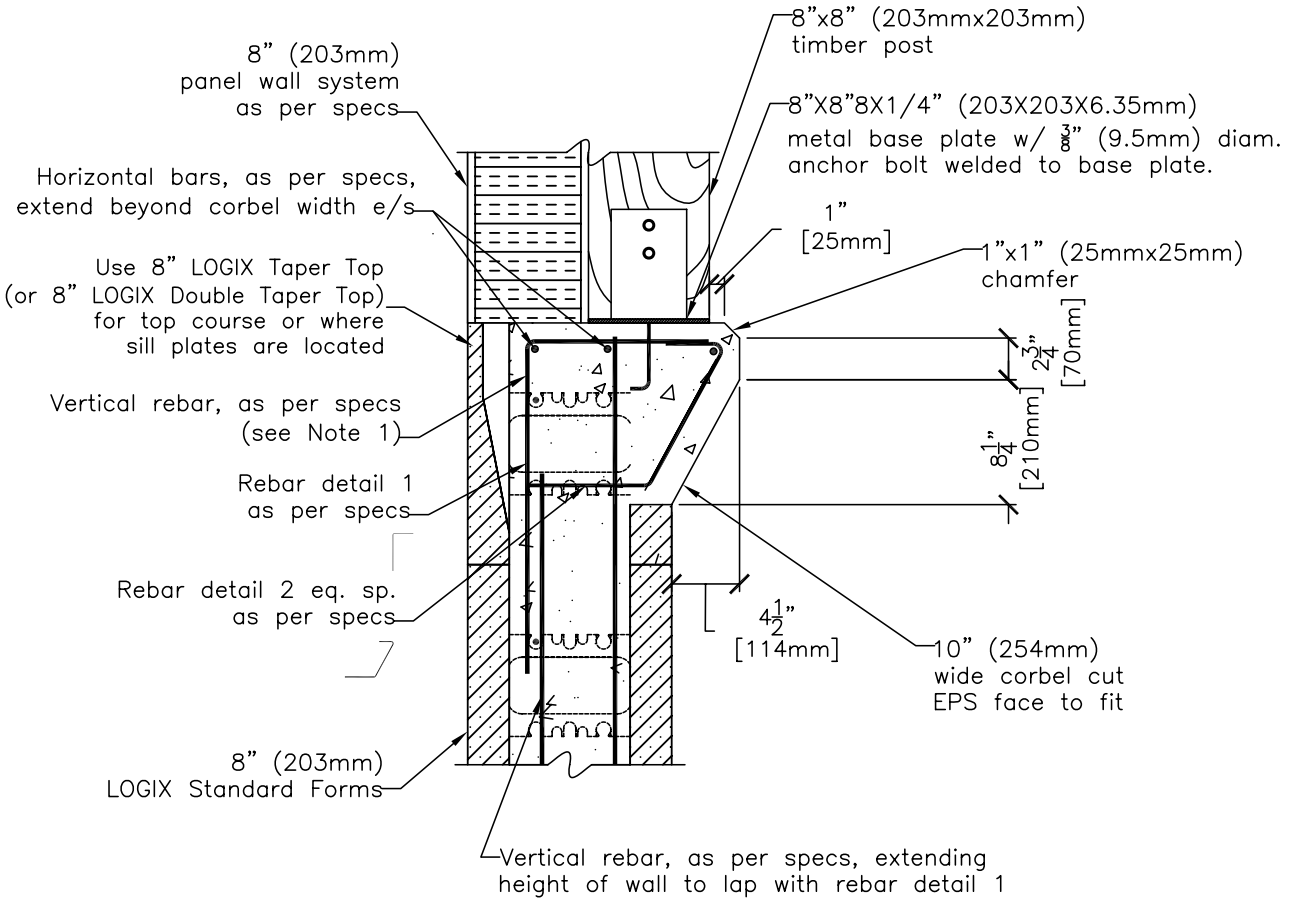
*1kN = 224.8lb

CAD DRAWINGS

5.9.8 – CORBEL SUPPORTING TIMBER POST

All drawings are downloadable at www.logixicf.com

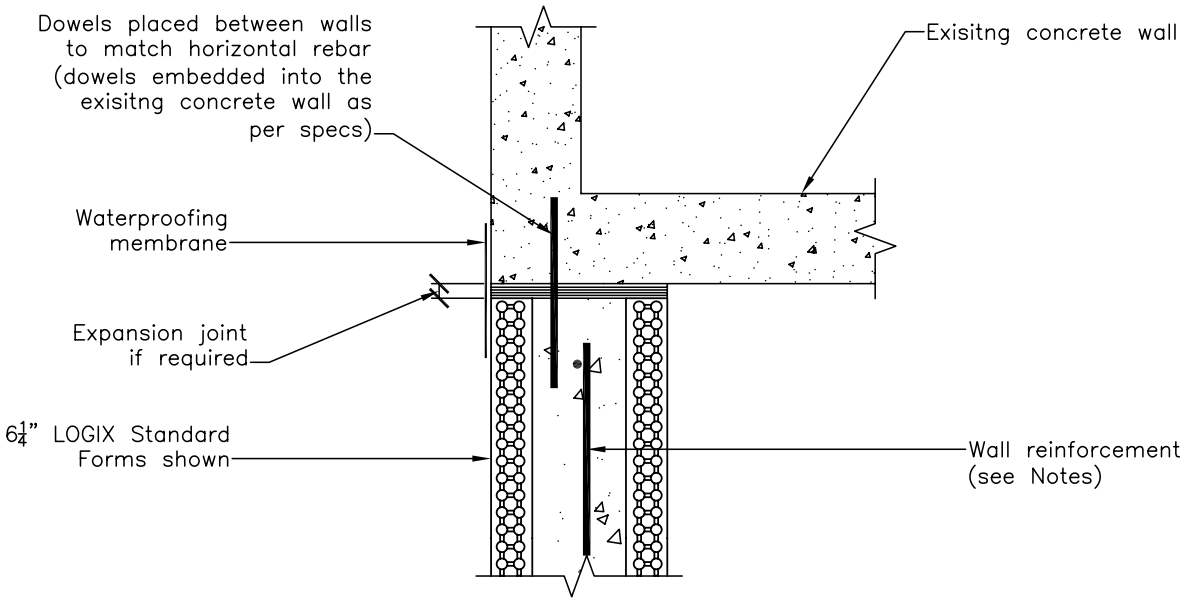
CAD DRAWINGS



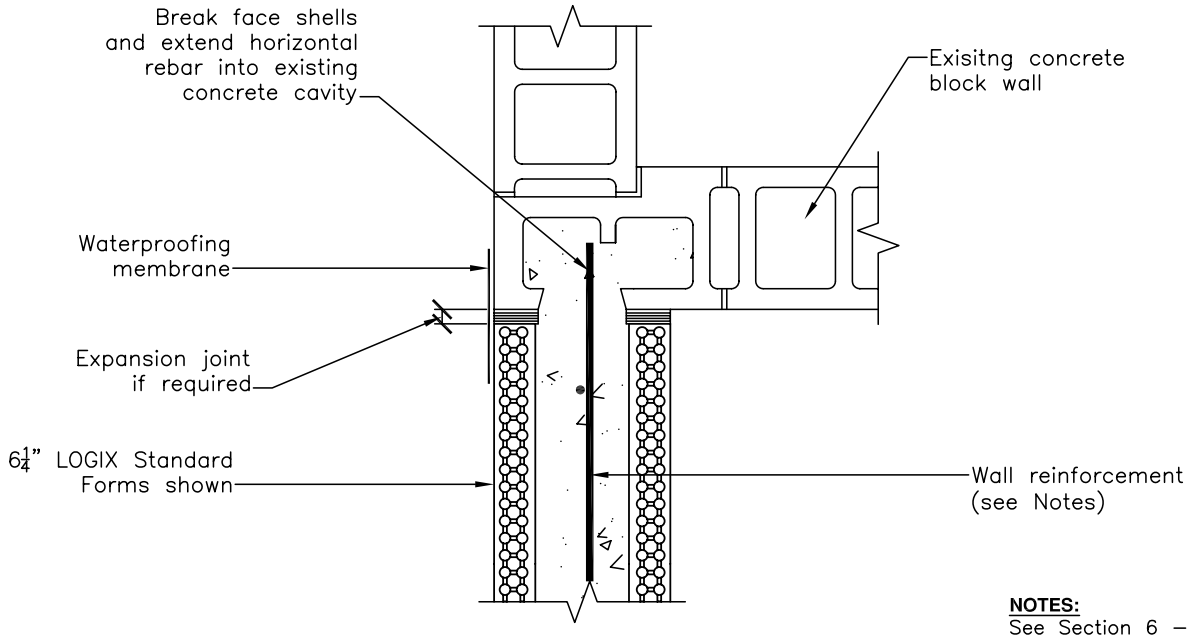
NOTES

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



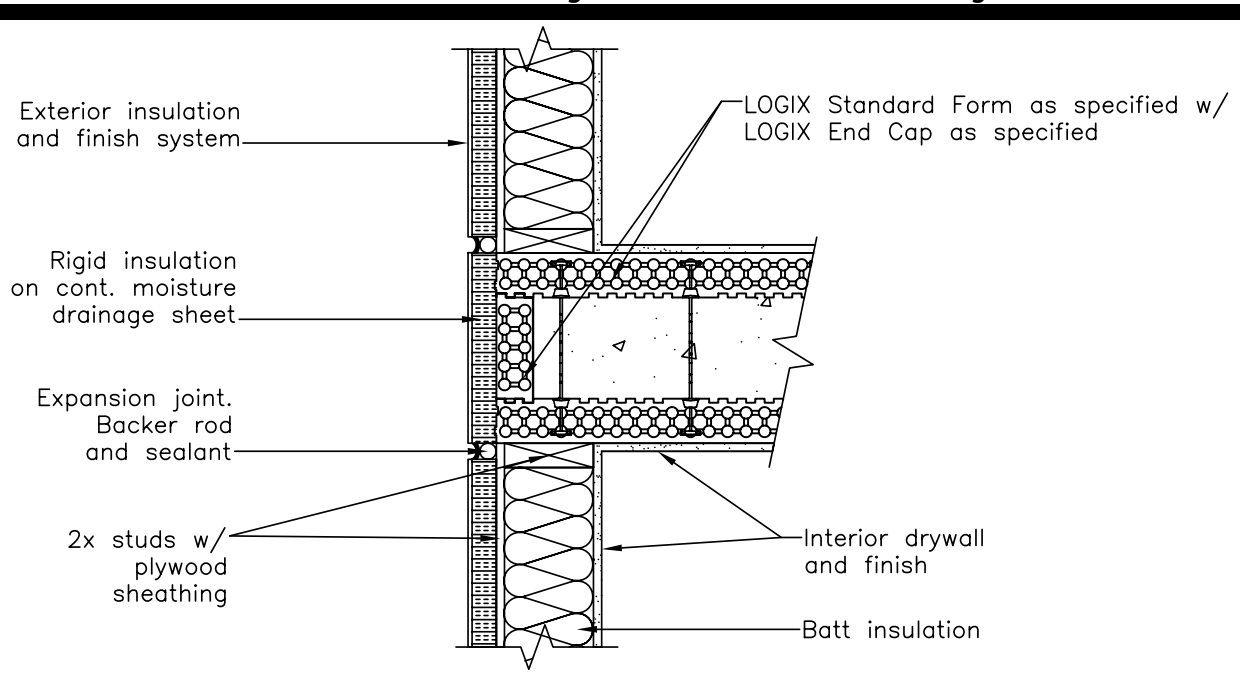
5.9.2 - LOGIX WALL ATTACHMENT TO EXISTING CONCRETE MASONRY WALL

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

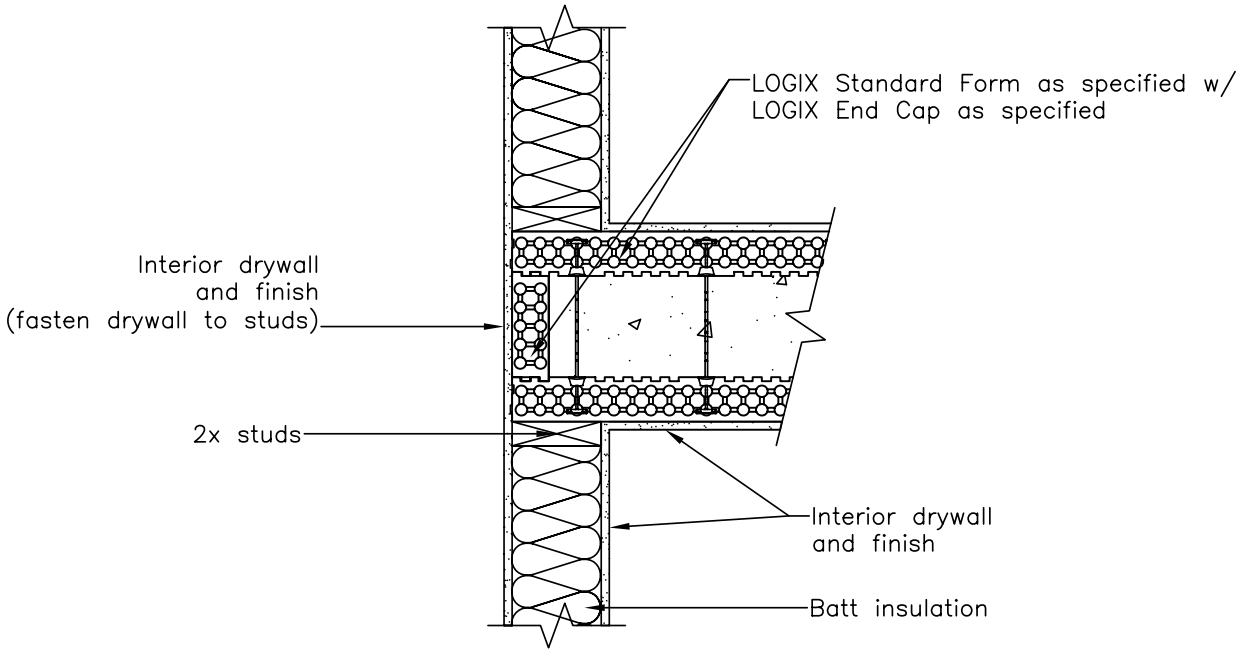
CAD DRAWINGS

5.9.11 – ATTACHING TO STUD FRAMED WALLS

All drawings are downloadable at www.logixicf.com



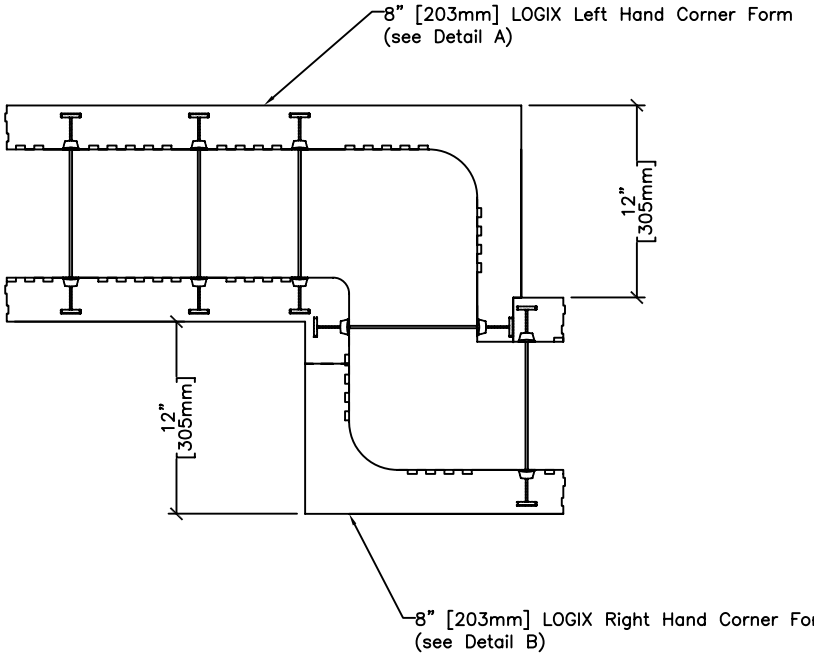
INTERIOR LOGIX WALL TO EXTERIOR STUD FRAMED WALLS



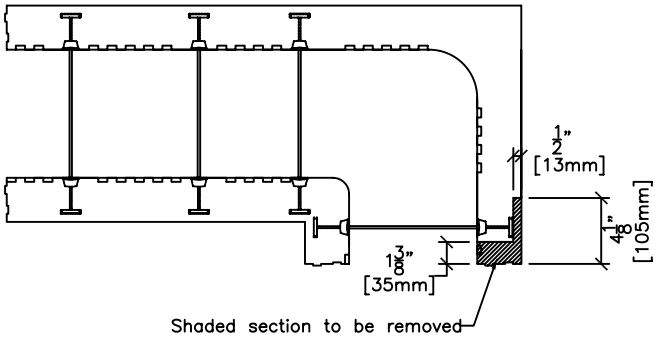
INTERIOR LOGIX WALL TO INTERIOR STUD FRAMED WALLS

5.9.12 – 12" WALL JOGS

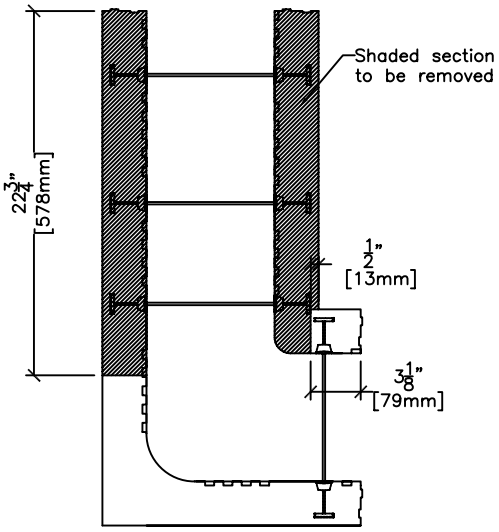
All drawings are downloadable at www.logixicf.com



PLAN VIEW



DETAIL A



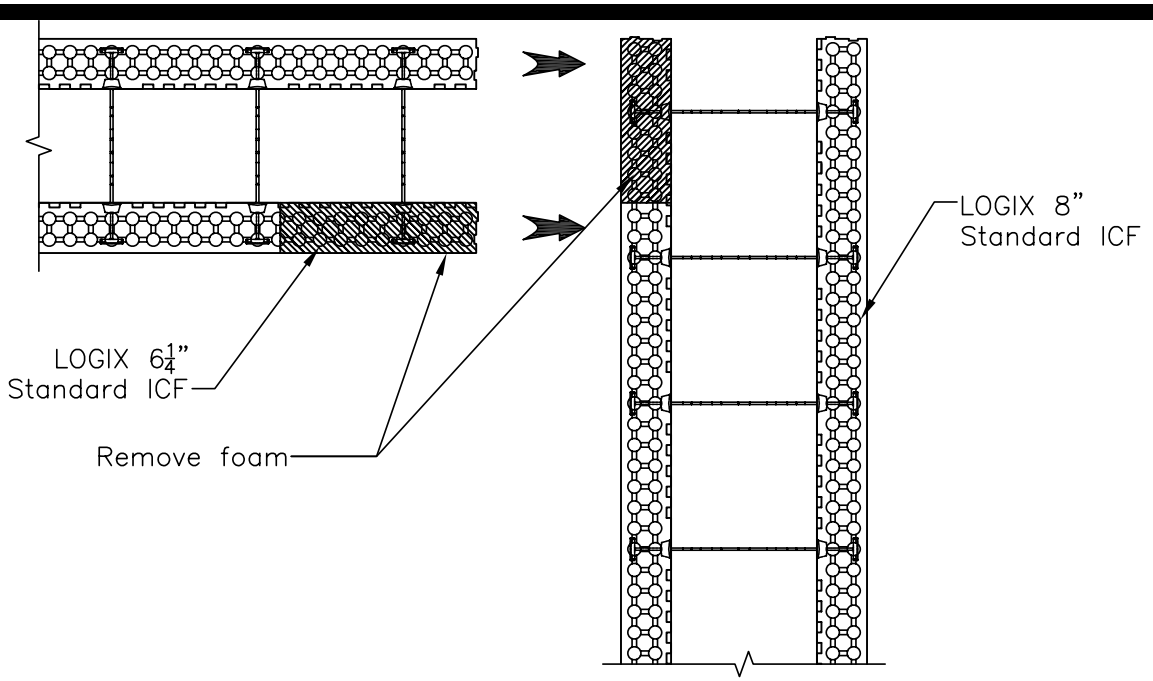
DETAIL B

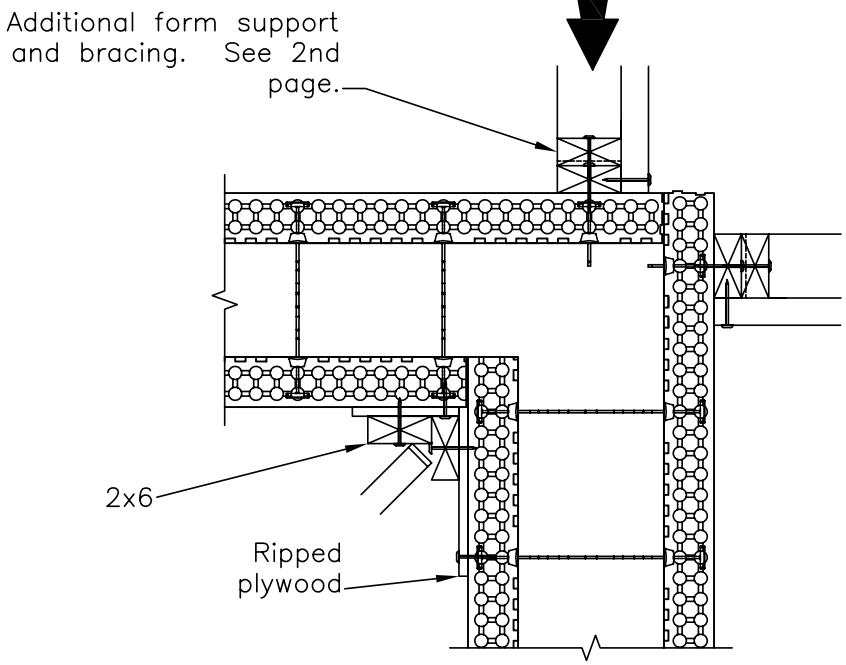
NOTES:

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





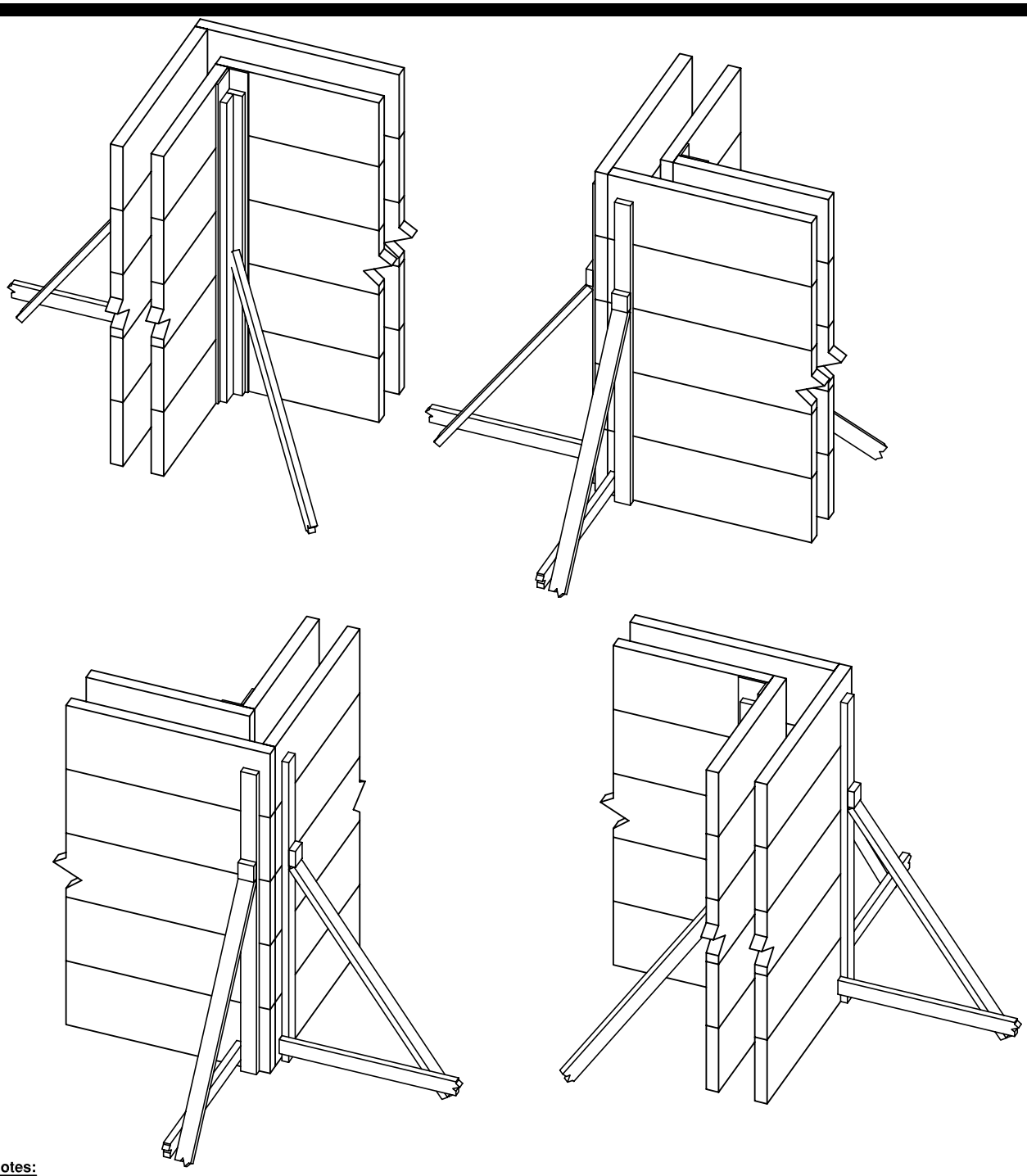
Notes:

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



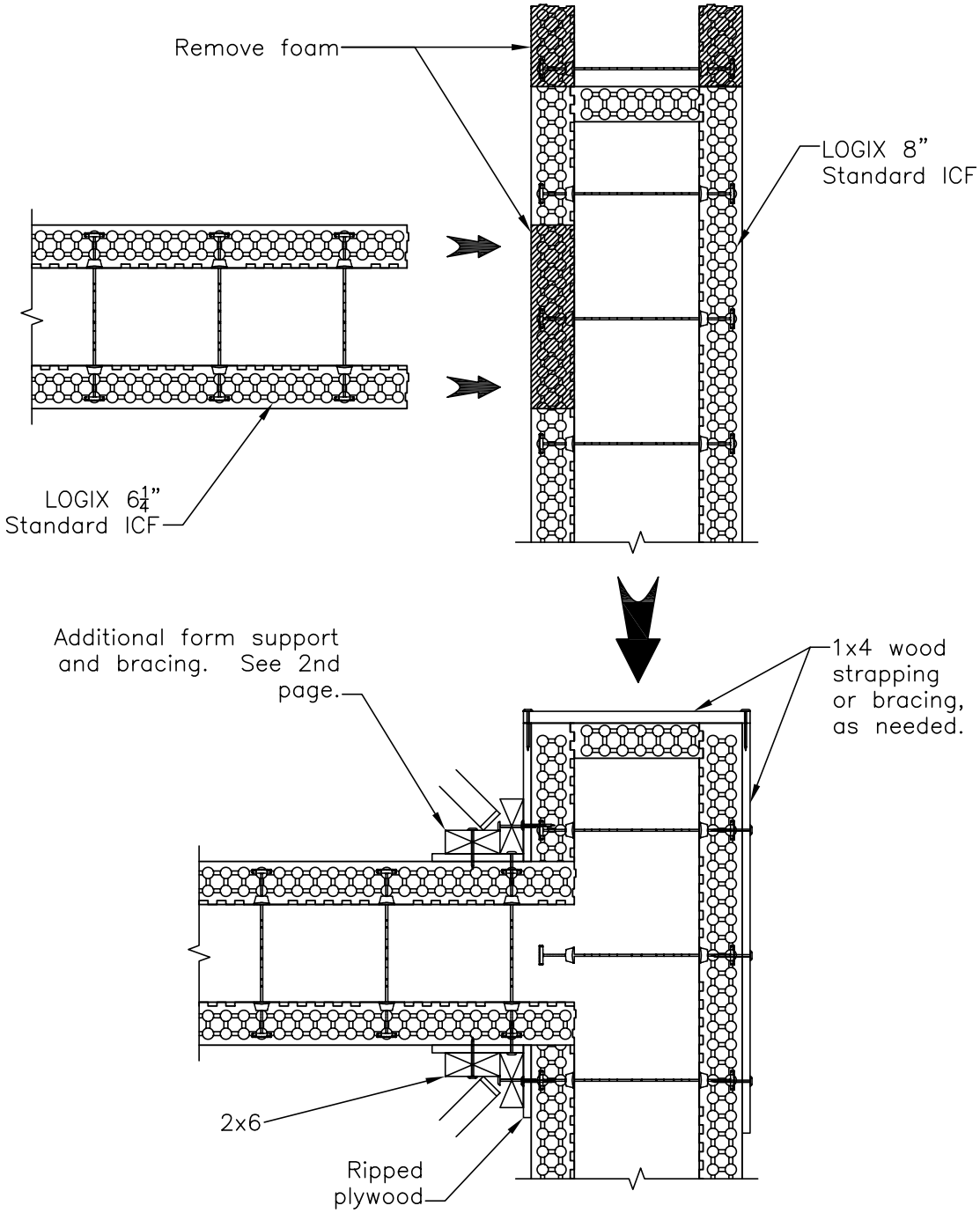
Notes:

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

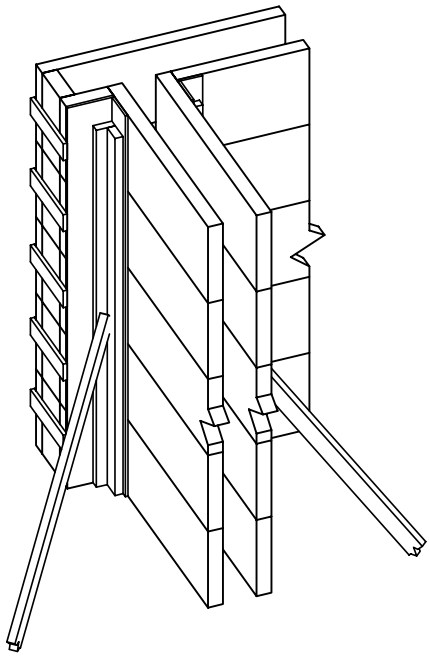
CAD DRAWINGS

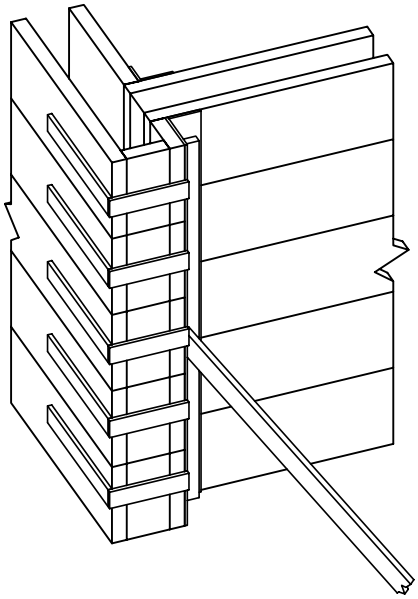


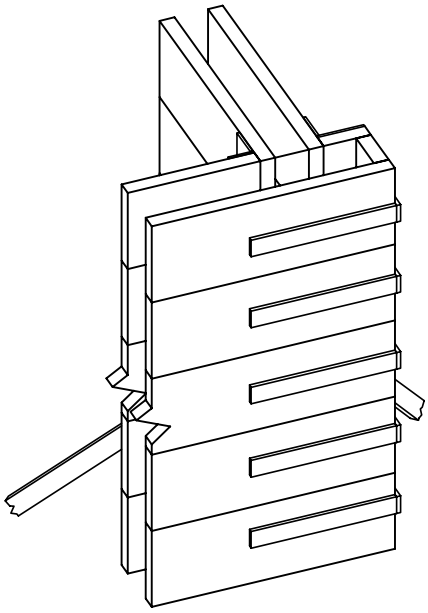
Notes:

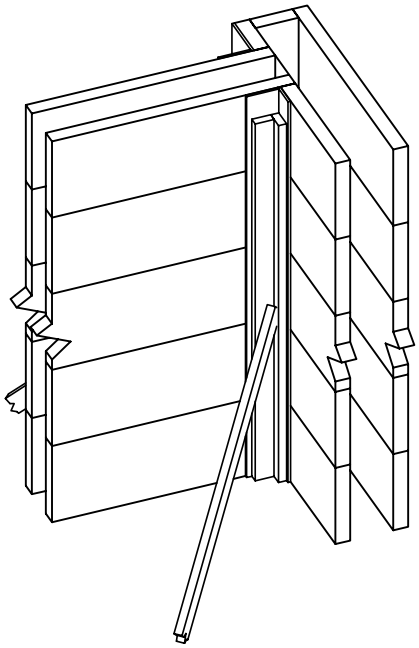
1. These drawings illustrate an example of wall bracing for horizontal wall transitions at corners. The contractor shall practice sound judgement (based on wall structure, pouring sequence and other site-conditions) to determine if additional form support and bracing is required.
2. Avoid placing concrete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









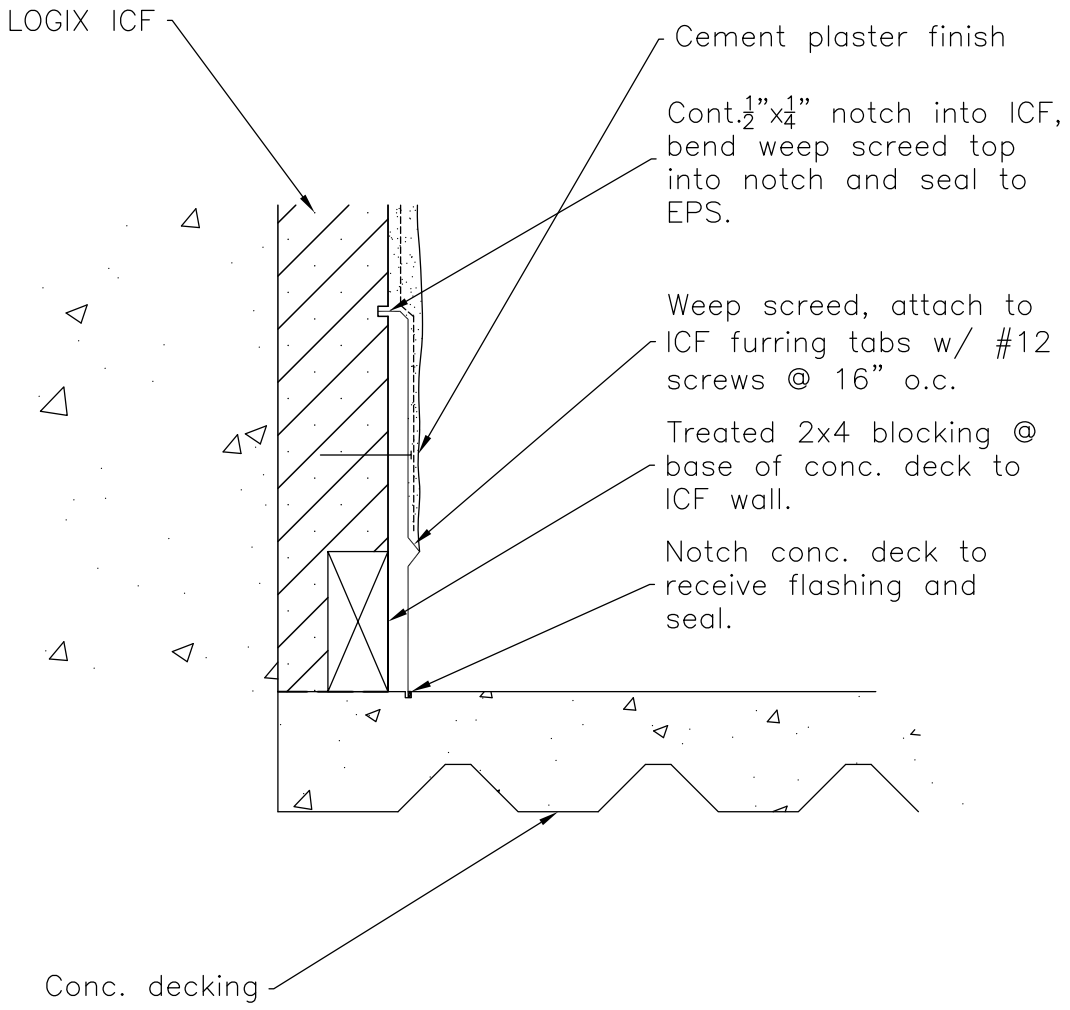
Notes:

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

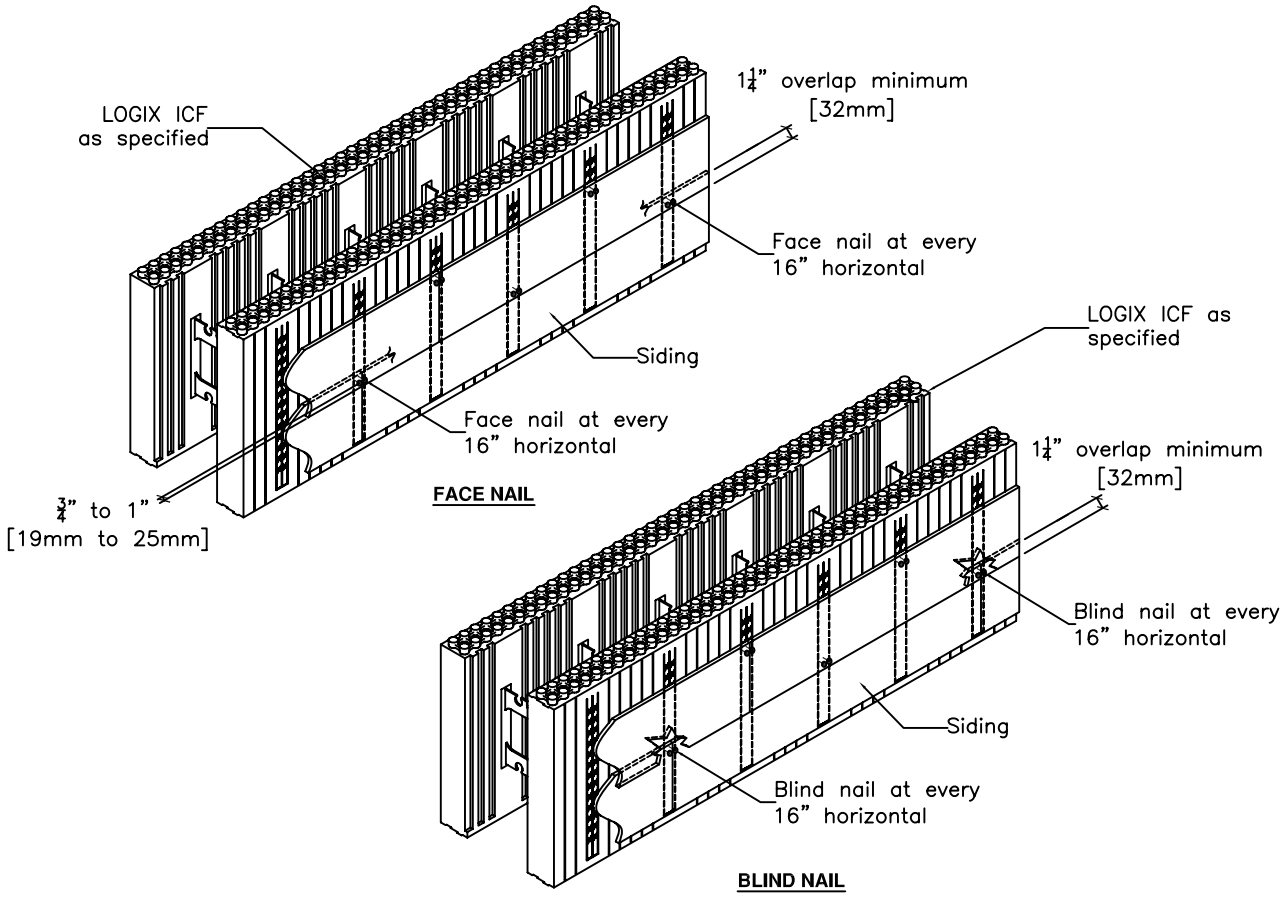
All drawings are downloadable at www.logixicf.com

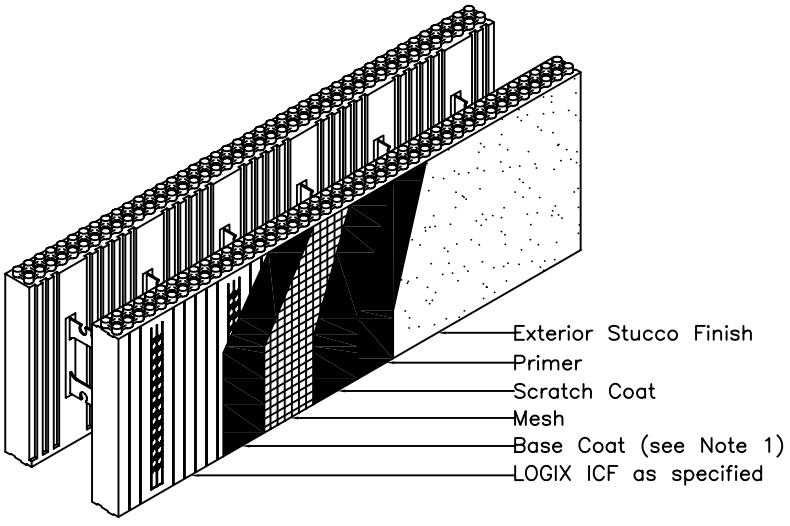
CAD DRAWINGS



5.9.16 – EXTERIOR FINISHES

All drawings are downloadable at www.logixicf.com





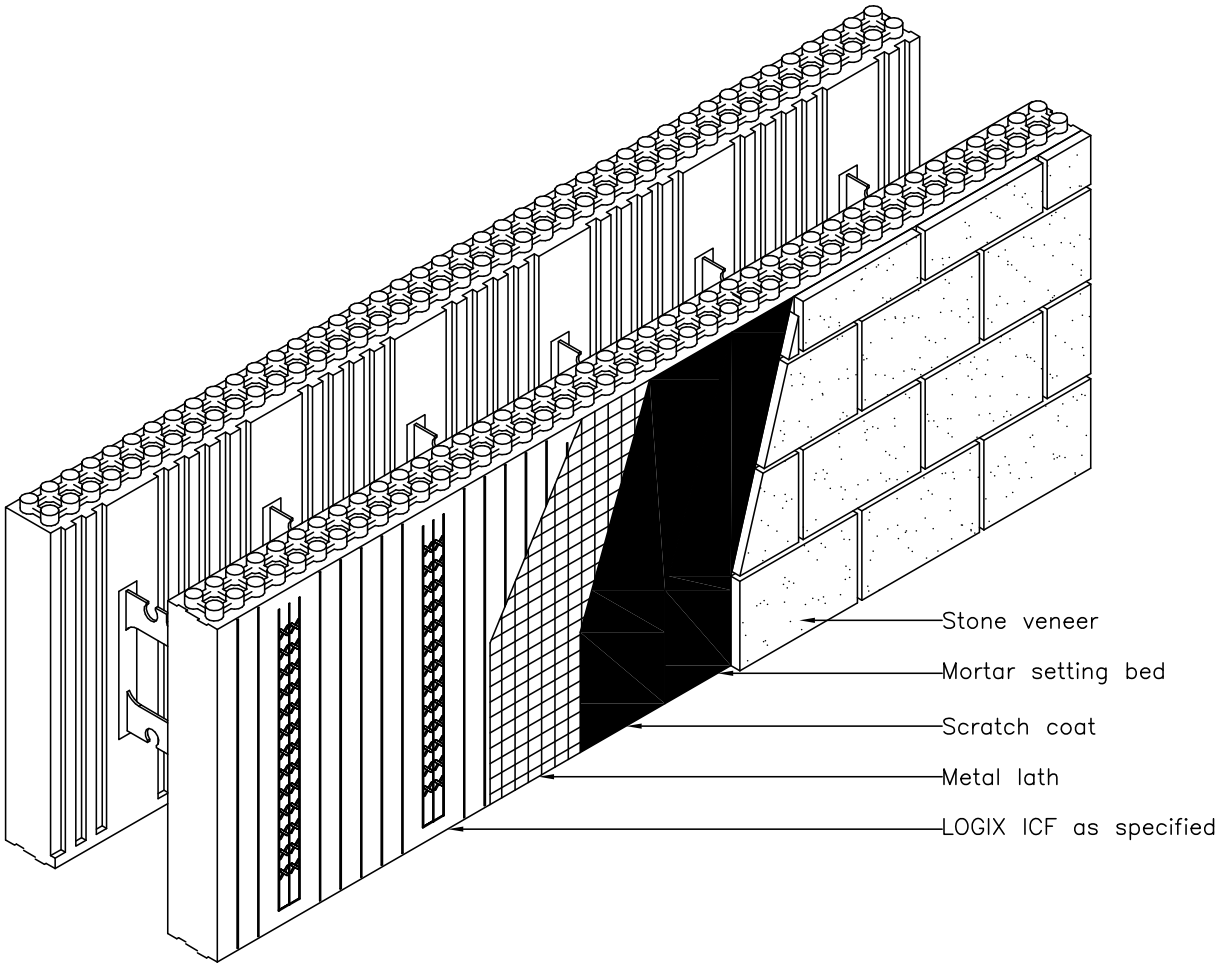
NOTES:

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

CAD DRAWINGS



NOTES:

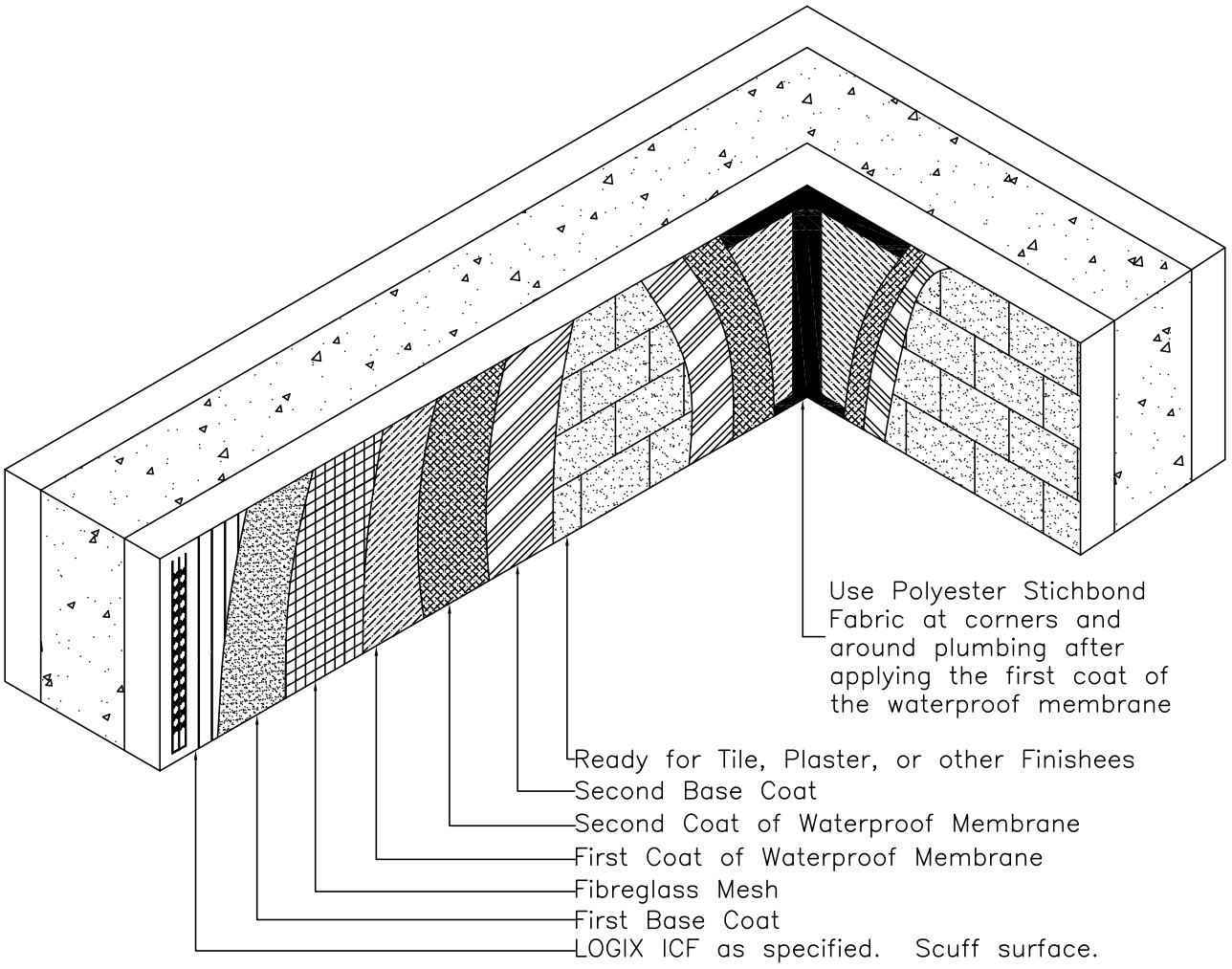
1. All fasteners to be attached to the embedded furring tabs.
2. Recommended min. fastener spacings:
   1. Grabber construction non–corrosive screws: No.8 min. 1.25" long, 8" o.c. horiz., 12" o.c. vert. spacing.

   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

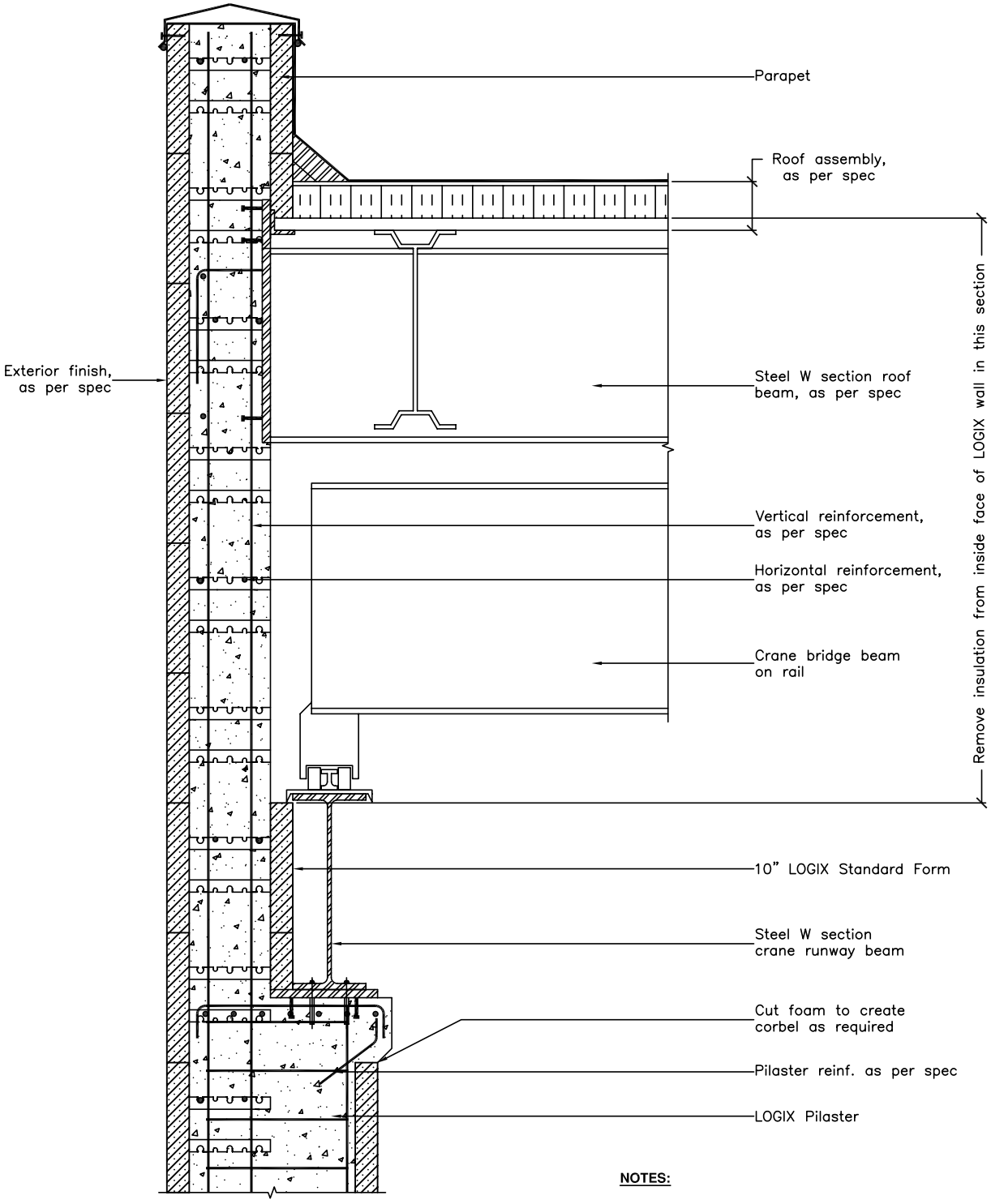


CAD DRAWINGS

5.9.19 – GANTRY SYSTEM ON LOGIX PILASTER

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



NOTES:

All embedded plates & and anchors as per specs.

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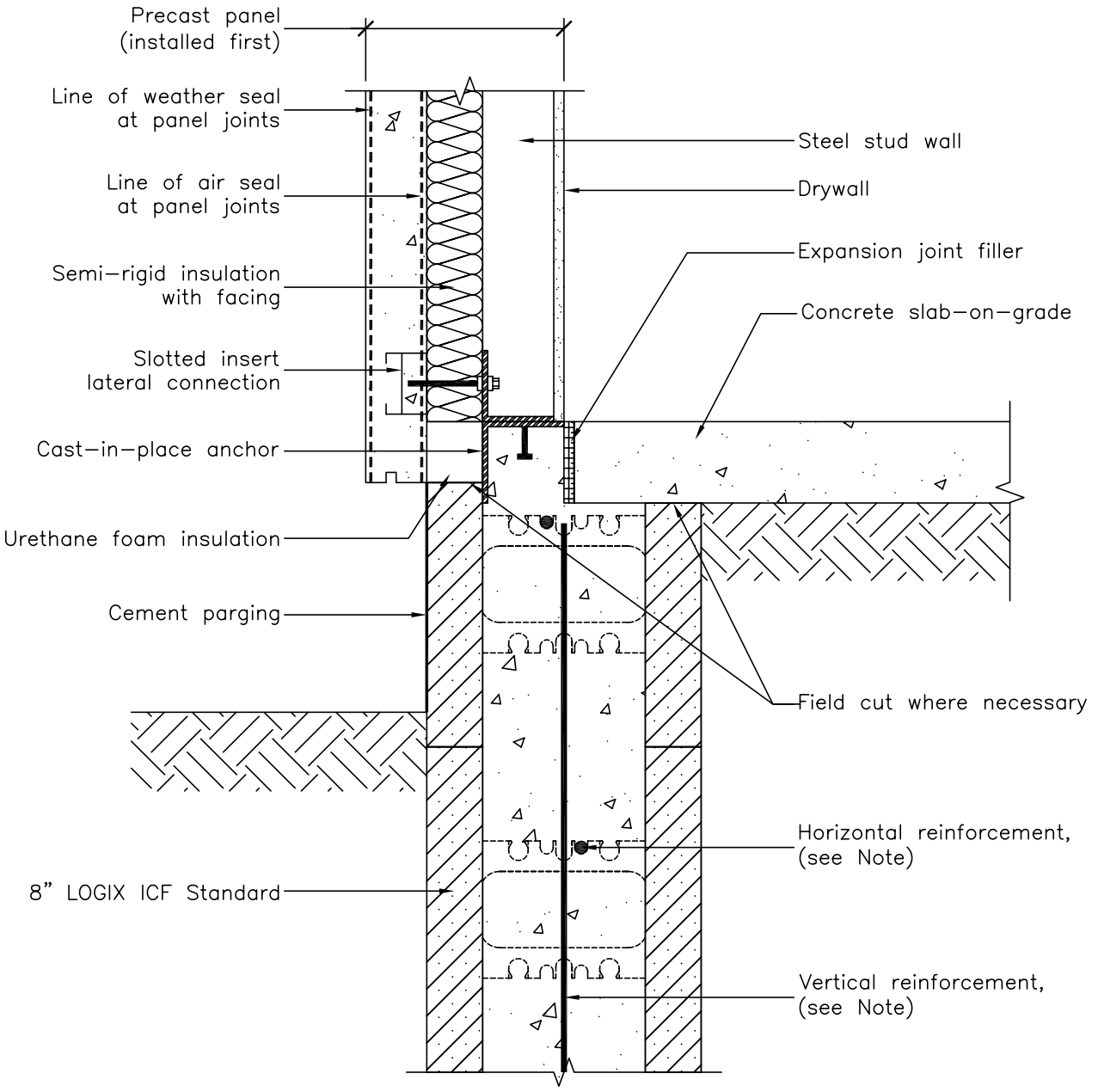
Rev. Sep 23/09

5.9.20 – PRECAST PANEL WALL

All drawings are downloadable at www.logixicf.com



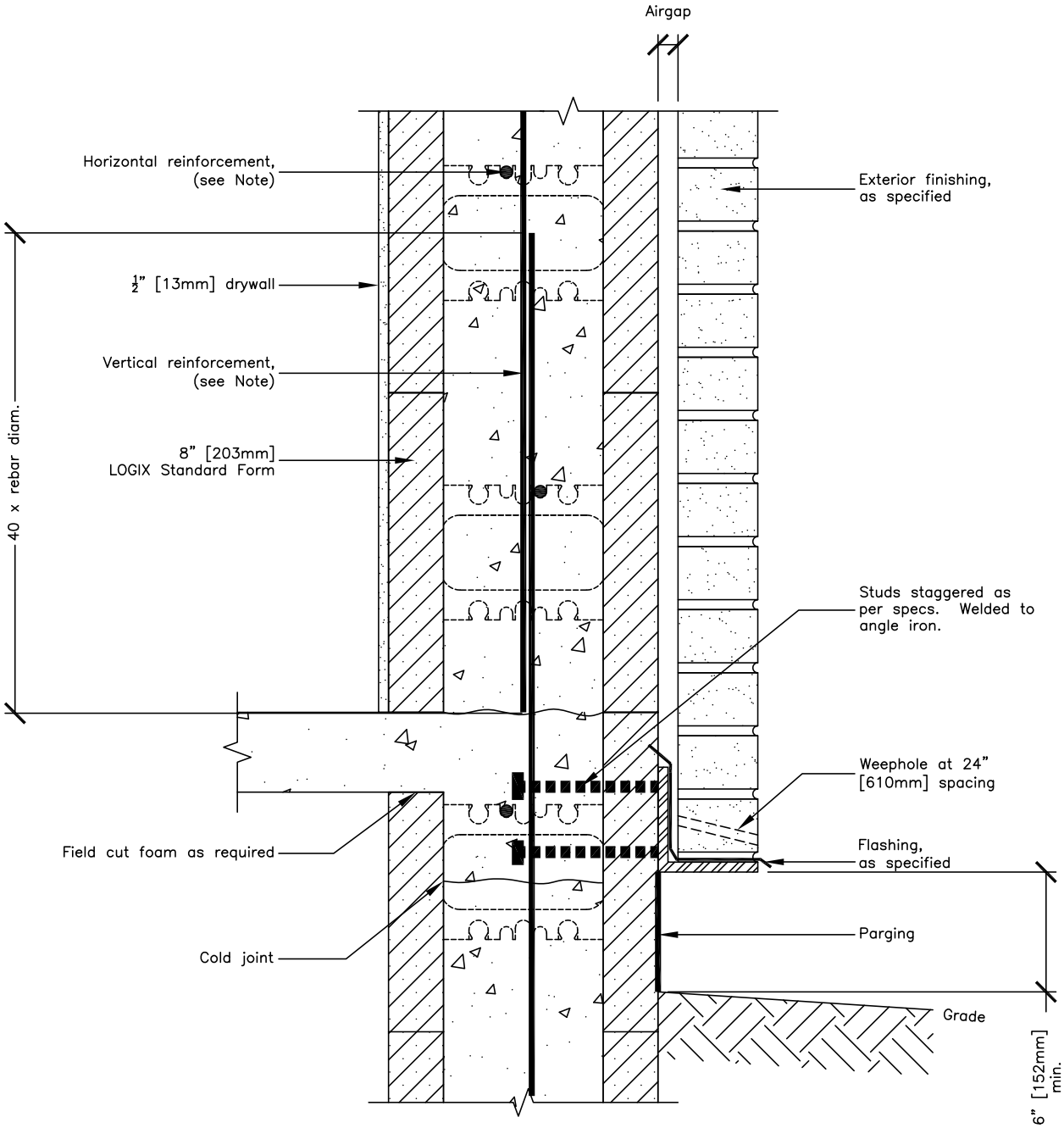
NOTES:

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

CAD DRAWINGS



NOTES:

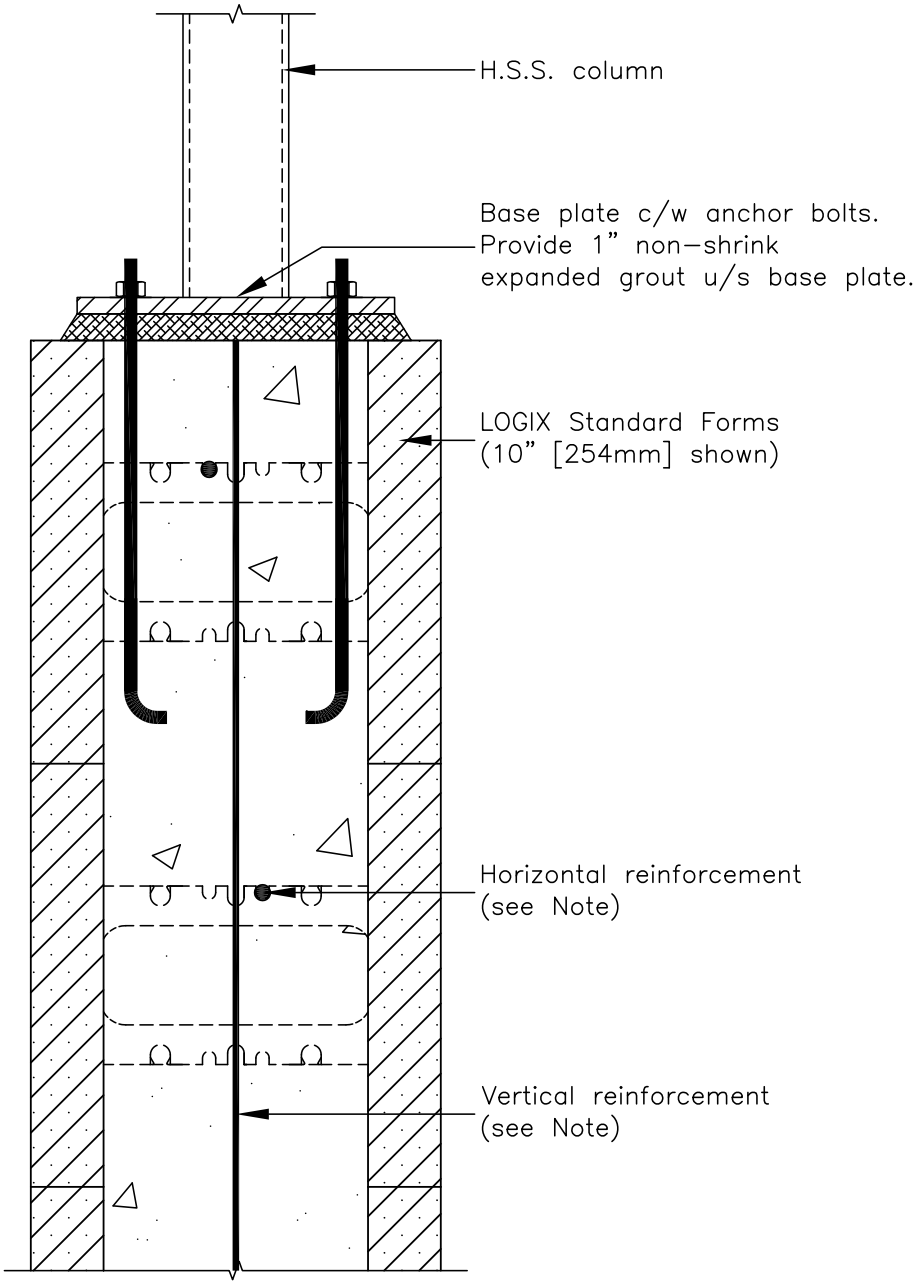
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

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.

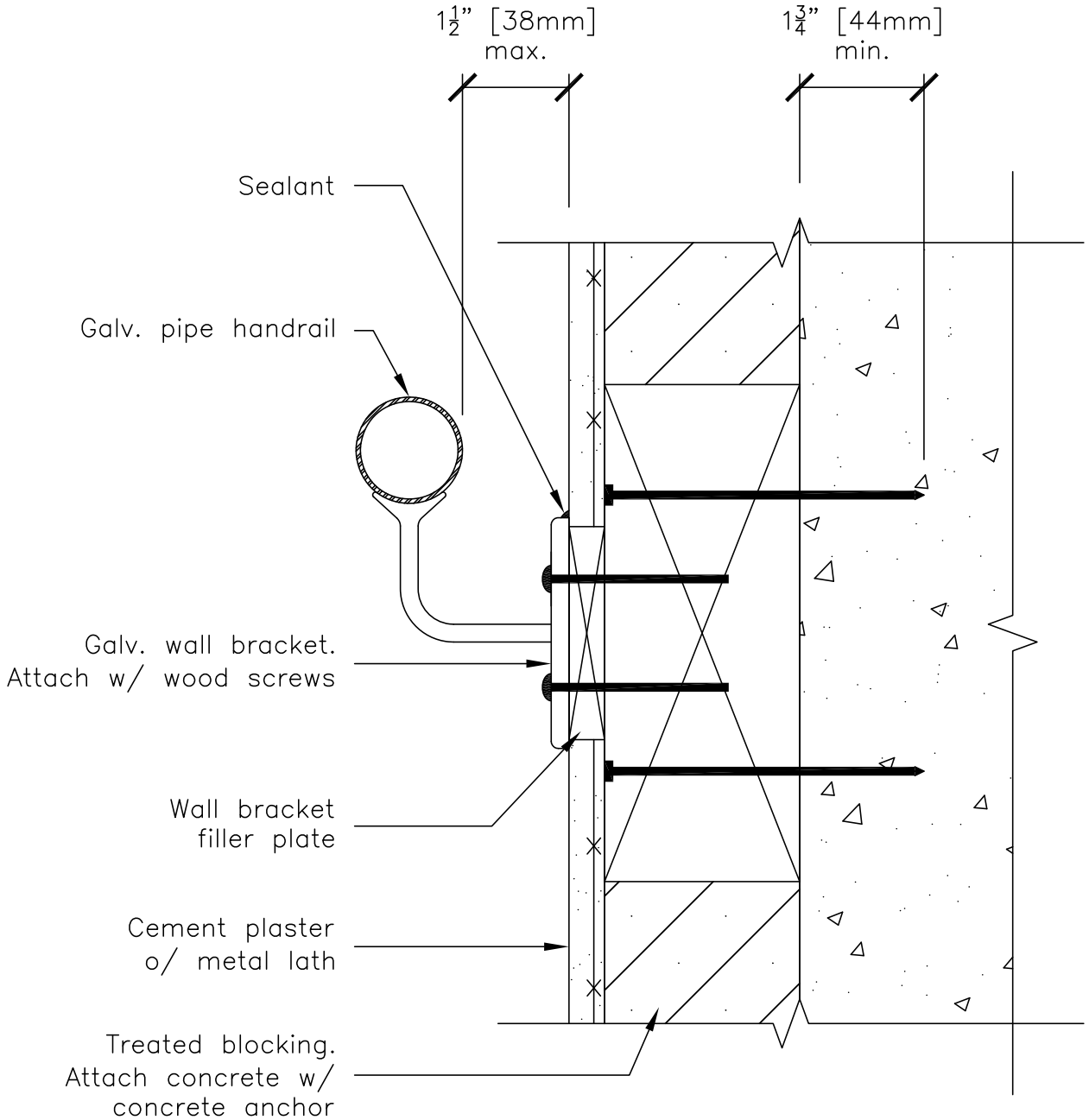


CAD DRAWINGS

5.9.23 – METAL HANDRAIL

NOTES:

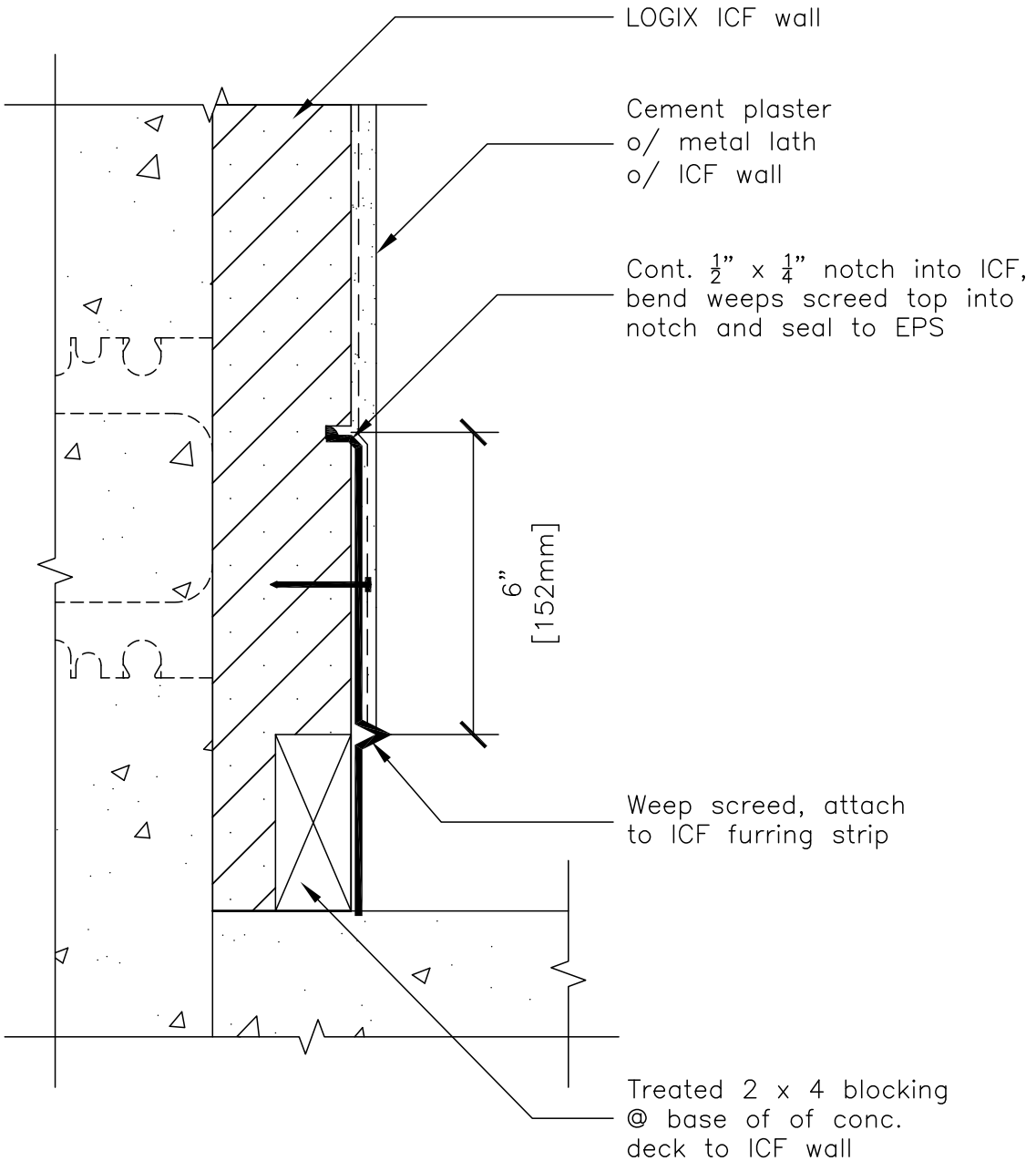
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



5.9.24 – WALL BASE WEEP SCREED

NOTES:

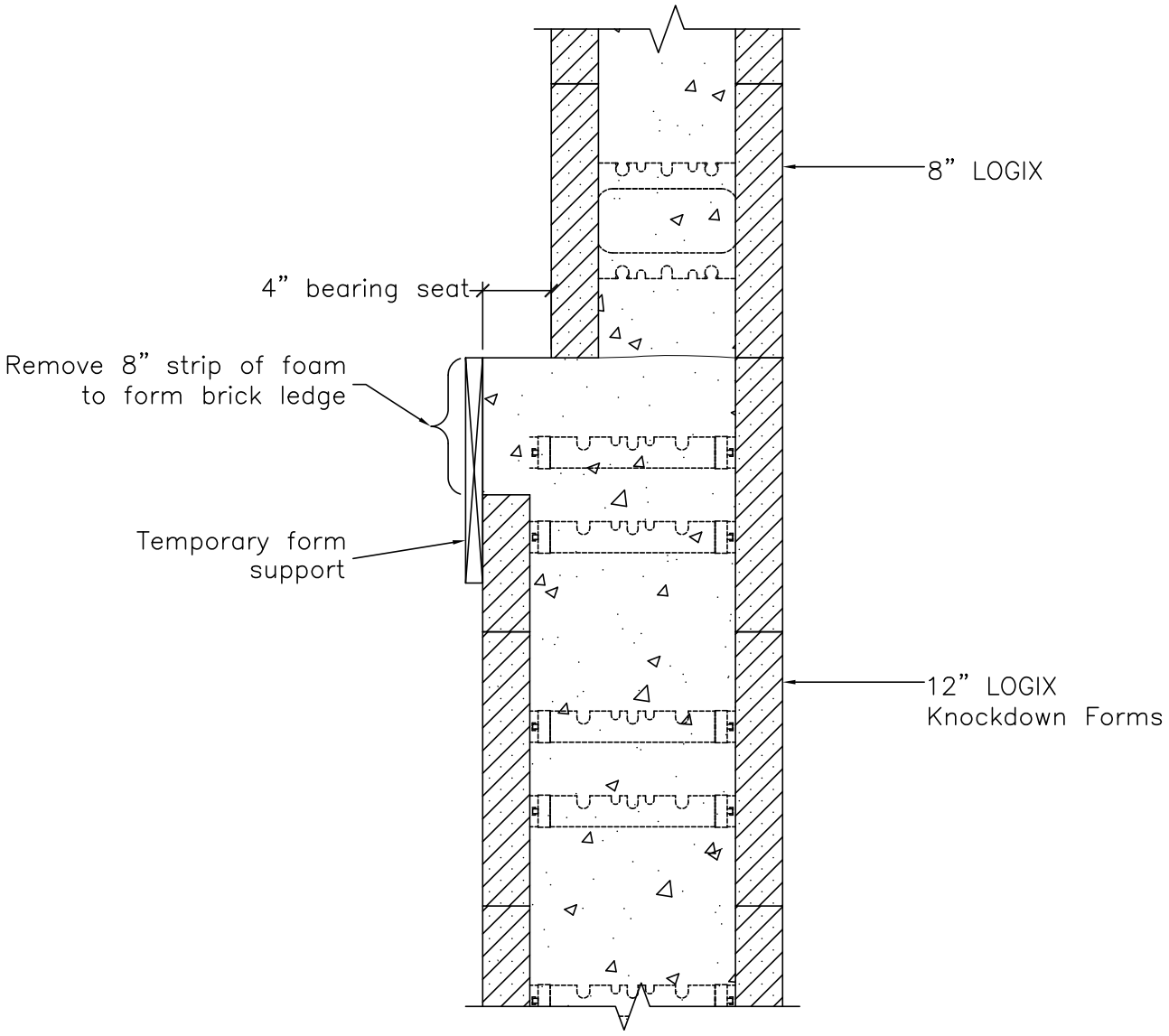
See Section 6 – Engineering in the LOGIX Design Manual or the LOGIX Field Manual for reinforcement details.



5.9.25 – BRICKLEDGE FORMED WITH 12" KD FORMS

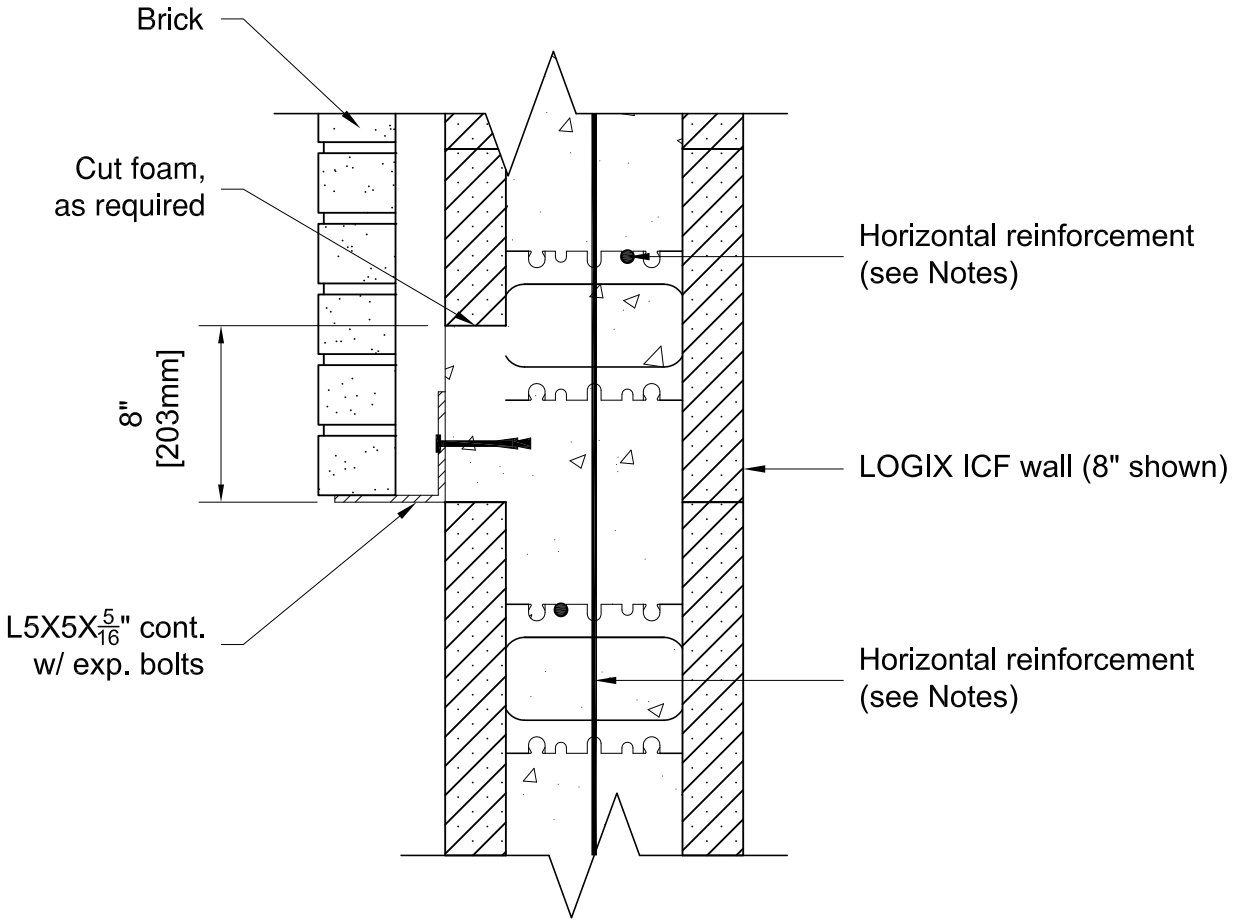
All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



5.9.26 – STEEL ANGLE SUPPORTING BRICK VENEER

All drawings are downloadable at www.logixicf.com



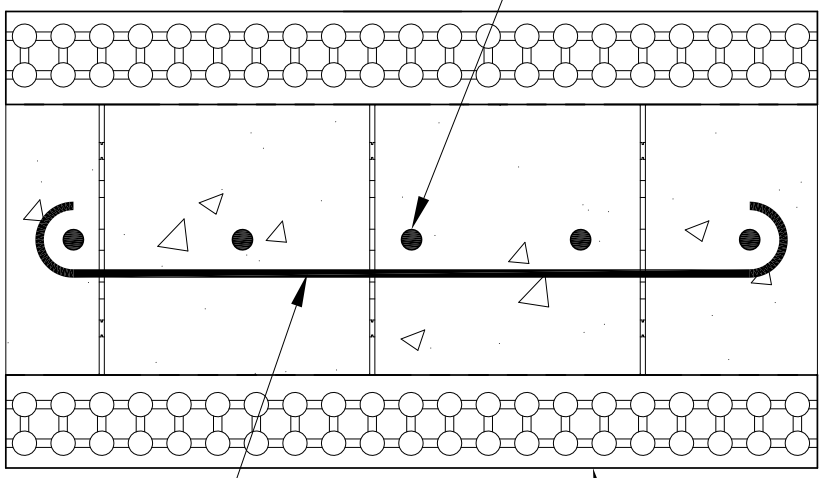
CAD DRAWINGS

NOTES:

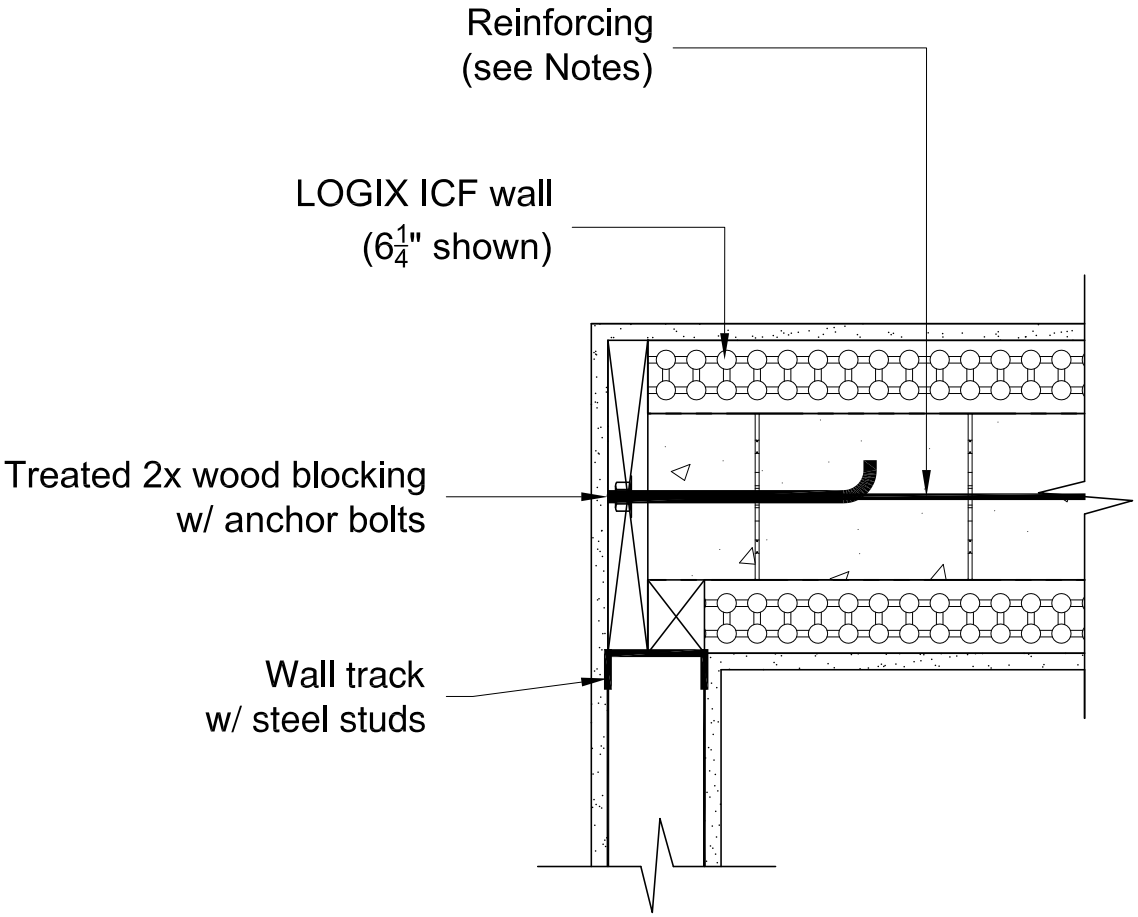
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.9.27 – LOGIX ICF COLUMN

All drawings are downloadable at www.logixicf.com



5.9.28 – STUD WALL CLOSURE ATTACHMENT

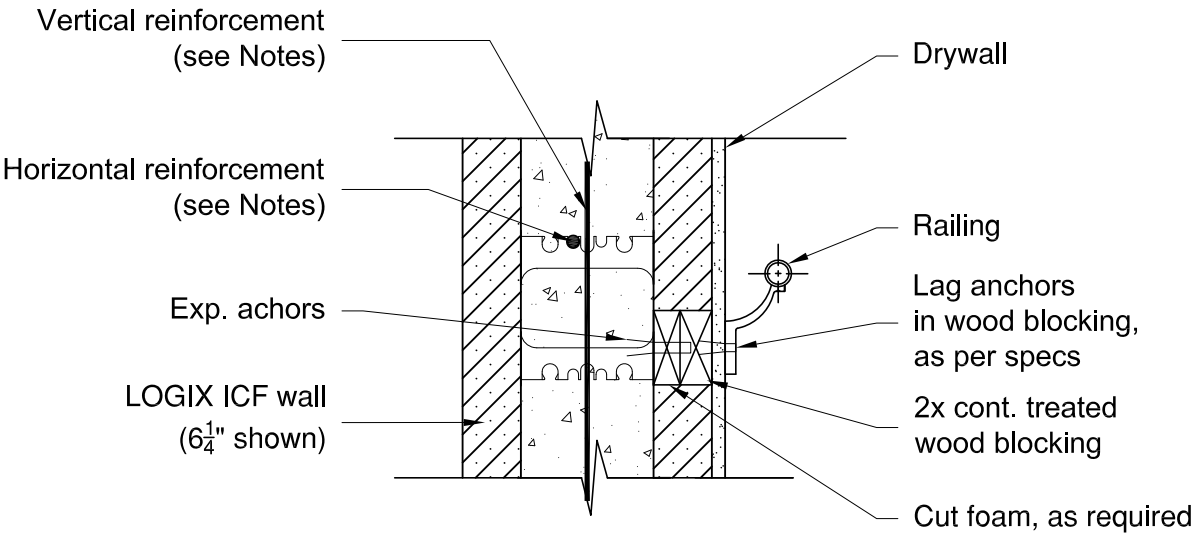


CAD DRAWINGS

NOTES:

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

5.9.29 – HAND RAIL



NOTES:

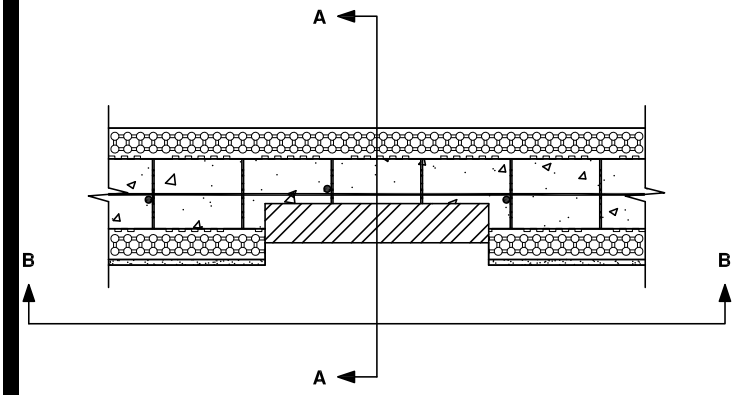
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

5.9.30 – LOGIX WITH PANELBOARD (1 of 2)

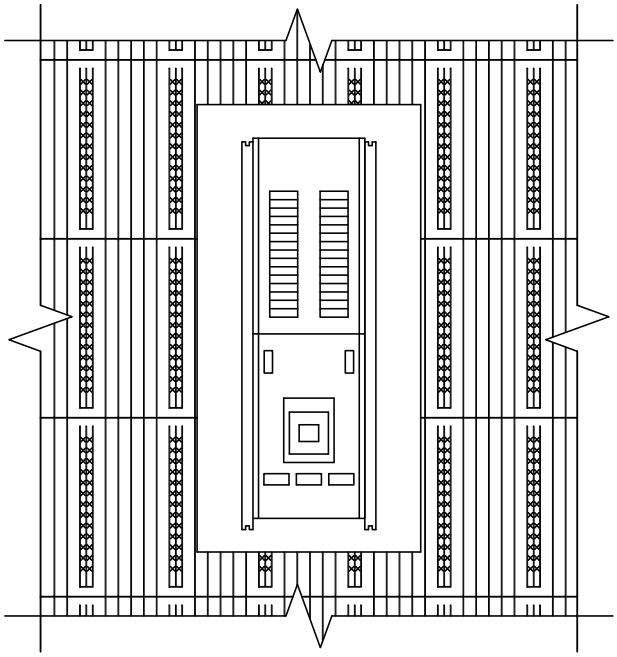
(applicable for LOGIX 6.25" & larger)
All drawings are downloadable at www.logixicf.com

NOTES:

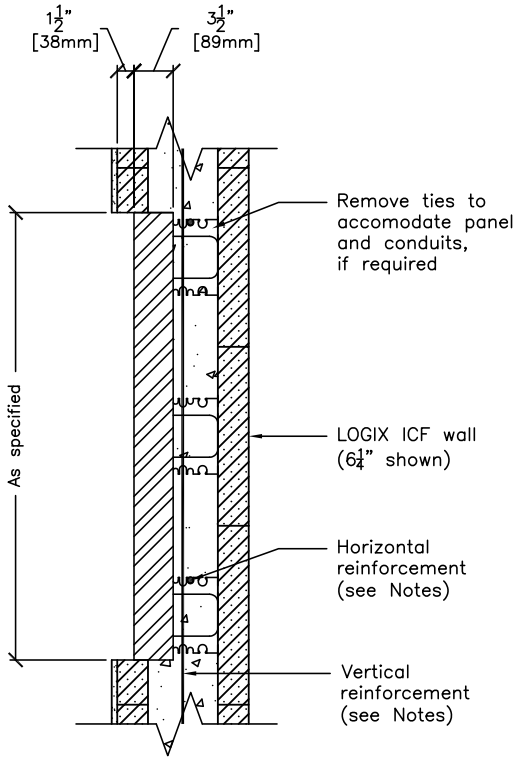
1. $6\frac{1}{4}$" [159mm] LOGIX Standard Form shown.
2. See Section 6 – Engineering in the LOGIX Design Manual for wall reinforcement details.



PLAN VIEW



FRONT VIEW B-B



END VIEW A-A

CAD DRAWINGS

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

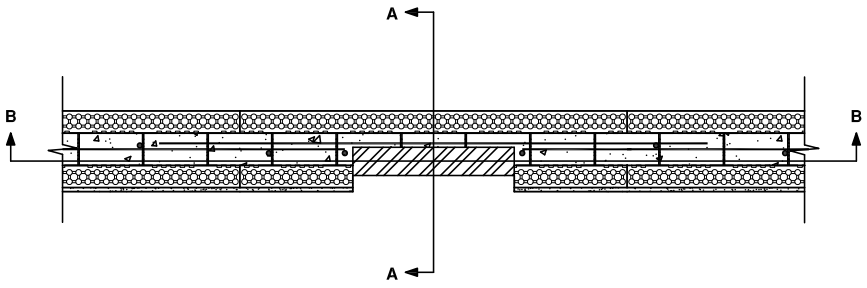
CONTINUED

All drawings are downloadable at www.logixicf.com

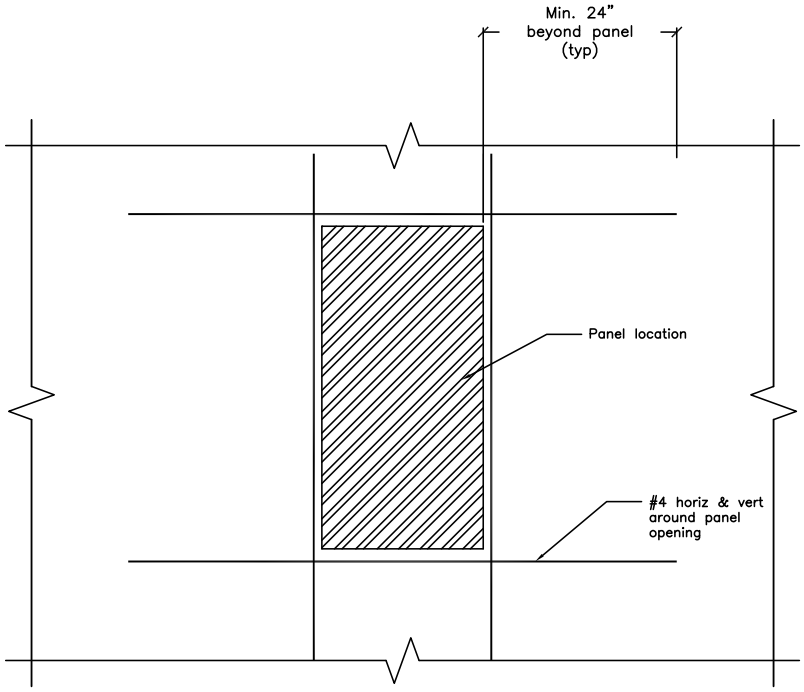
CAD DRAWINGS

NOTES:

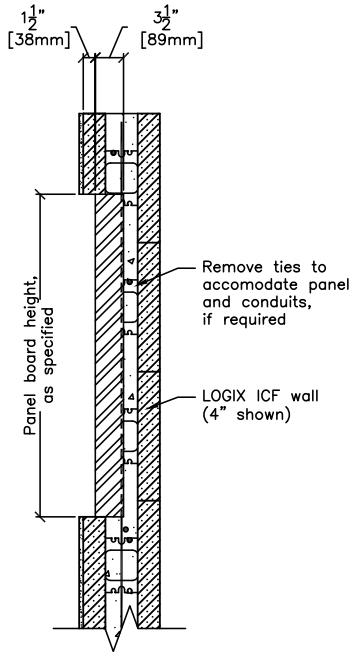
1. 4" [102mm] LOGIX Standard Form shown.
2. For more horizontal and vertical rebar reinforcement details, see Section 6 – Engineering in the LOGIX Design Manual.
3. For more lintel reinforcement details, see Section 6 – Engineering in the LOGIX Design Manual.



PLAN VIEW



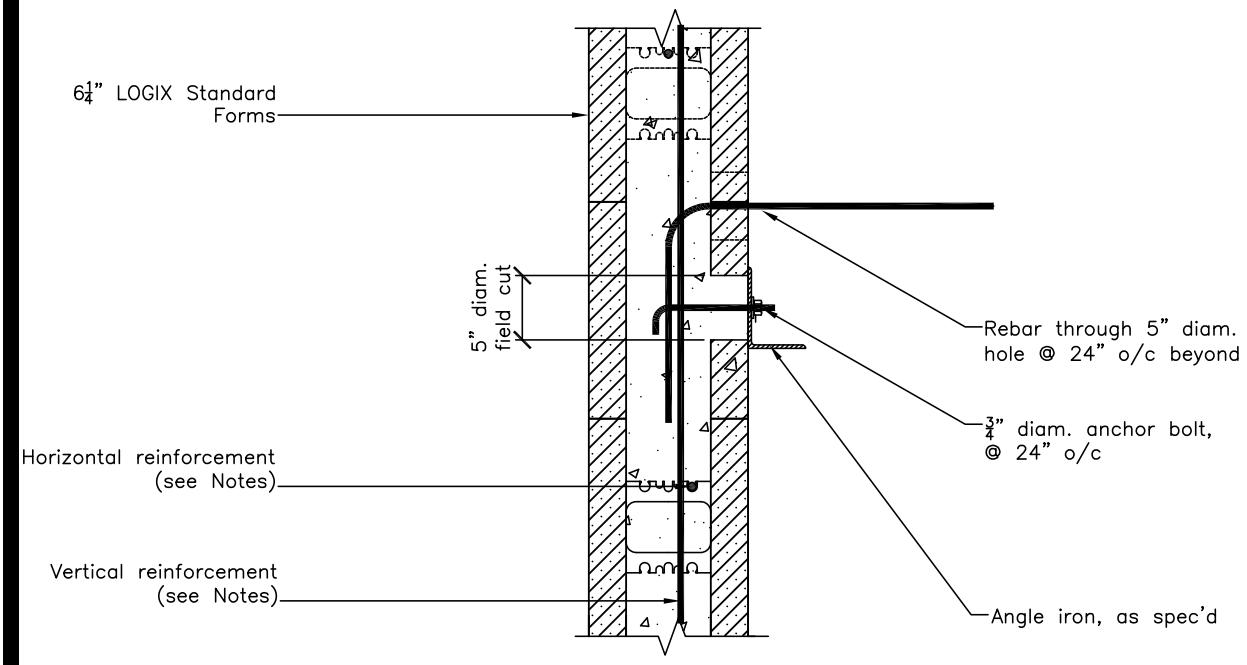
FRONT VIEW B-B



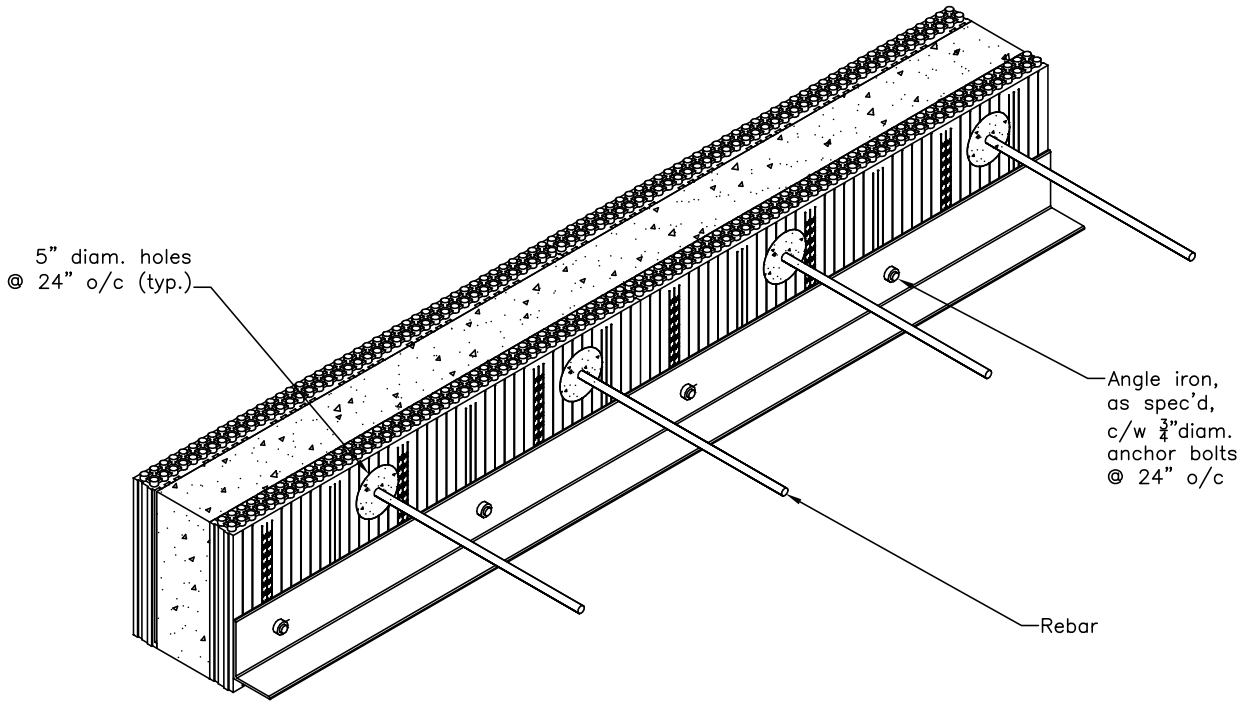
END VIEW A-A

5.9.31 – ANGLE SEAT DETAILS

All drawings are downloadable at www.logixicf.com



SECTION AT BOLTED ANGLE SEAT DETAIL



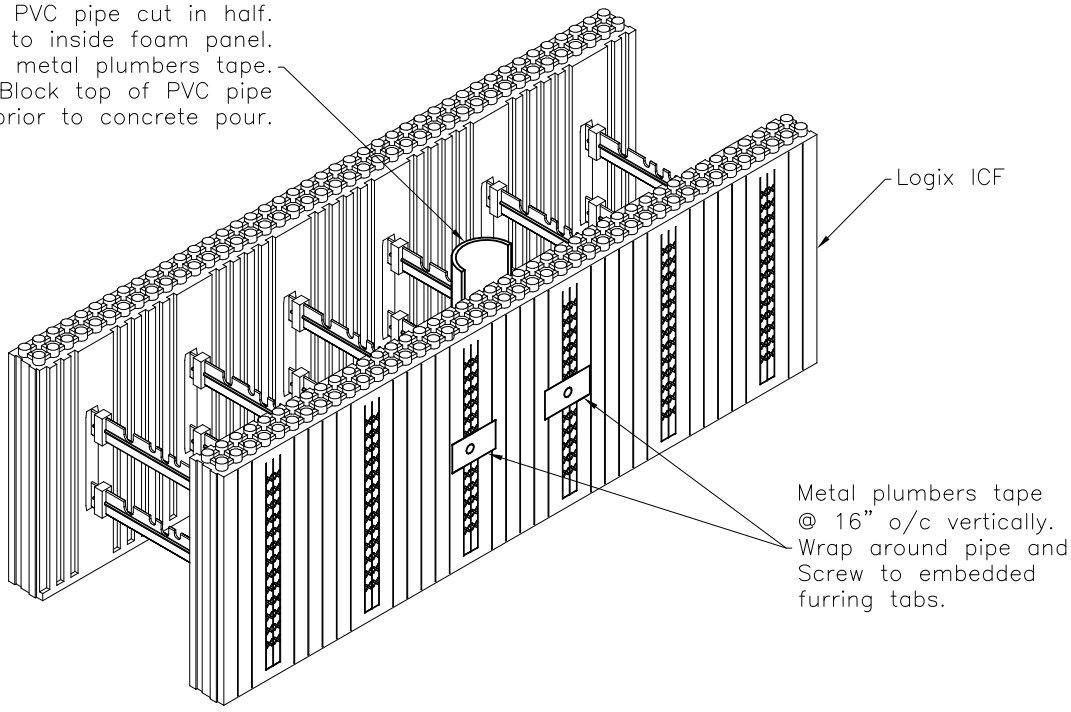
NOTES:

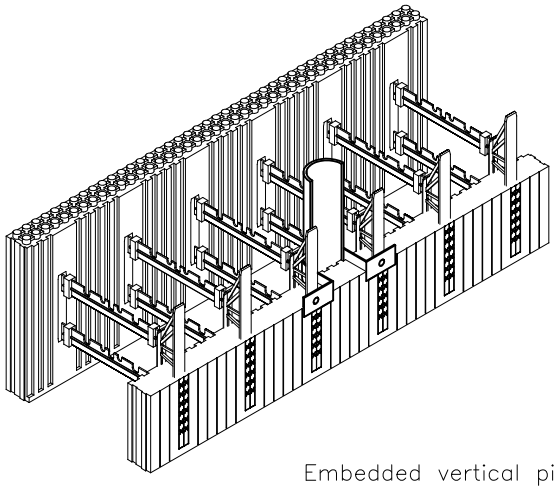
See Section 6 – Engineering in the LOGIX Product Manual for reinforcement details.

CAD DRAWINGS

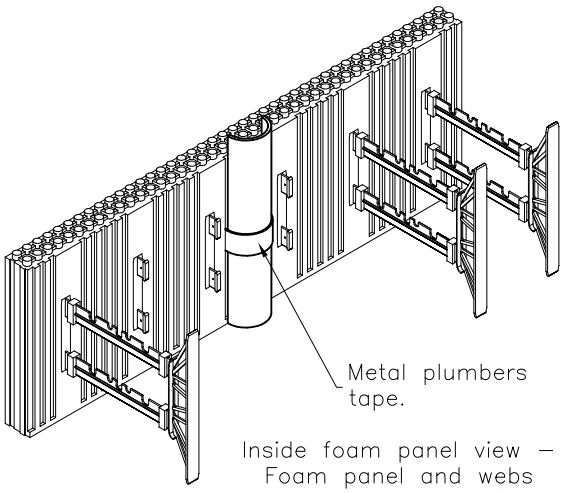
5.9.32 – EMBEDDED VERTICAL PIPE

All drawings are downloadable at www.logixicf.com





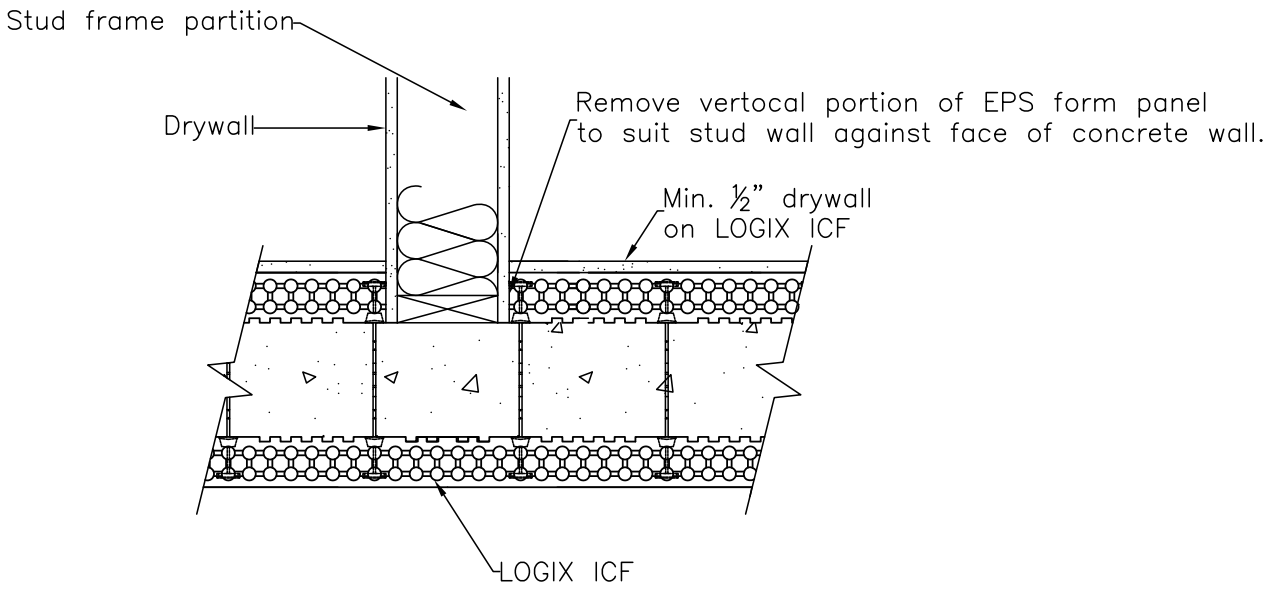
Embedded vertical pipe – Foam panel partially removed for clarity



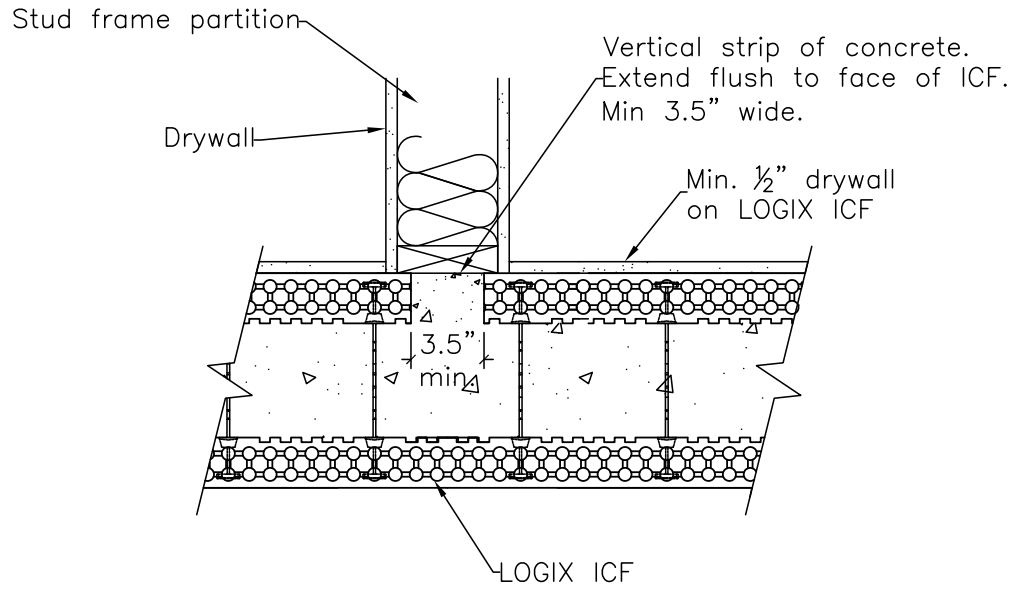
Inside foam panel view – Foam panel and webs partially removed for clarity.

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

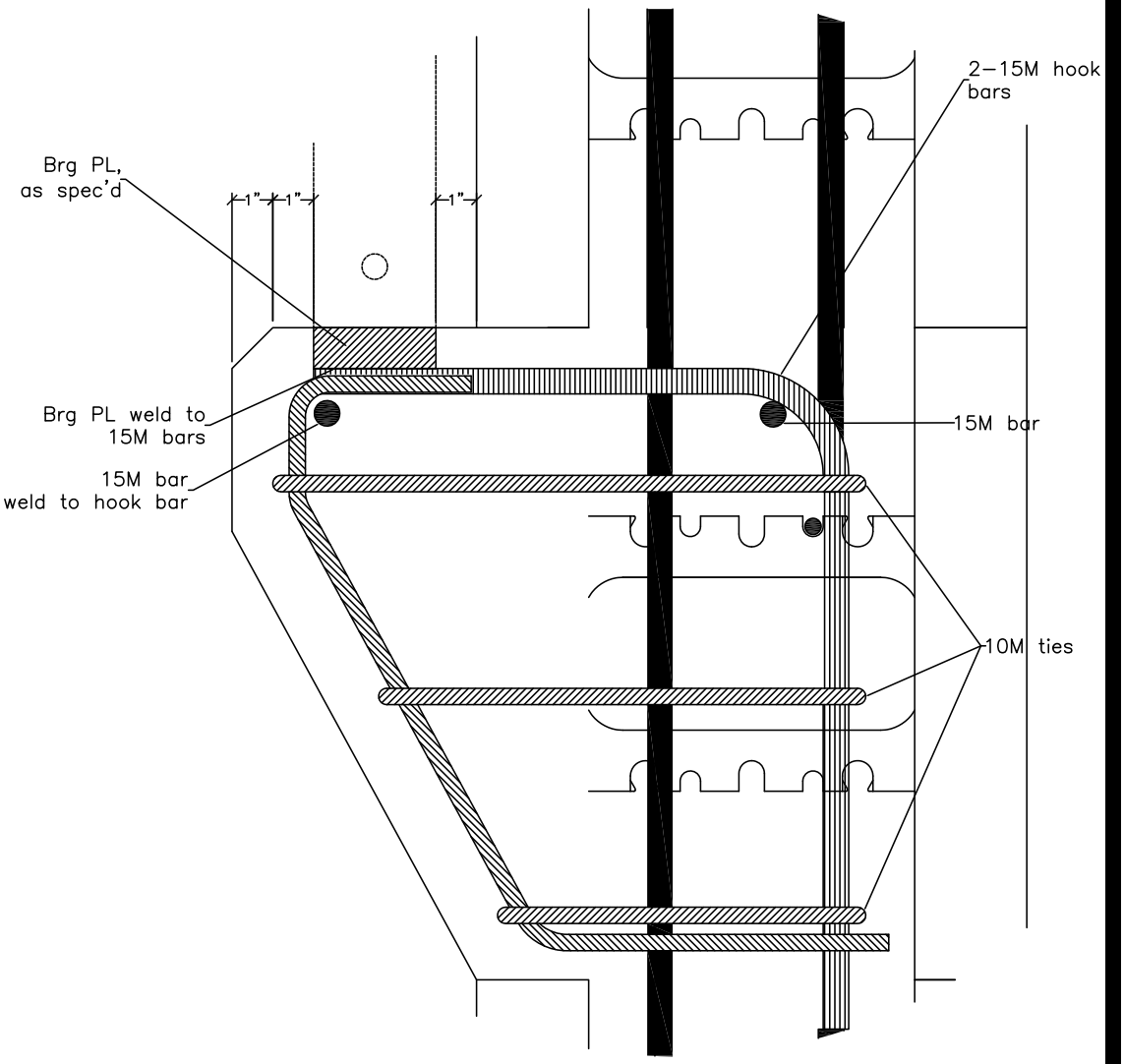


STUD WALL FLUSH TO ICF

CAD DRAWINGS

5.9.34 – CORBEL REINFORCING DETIALS

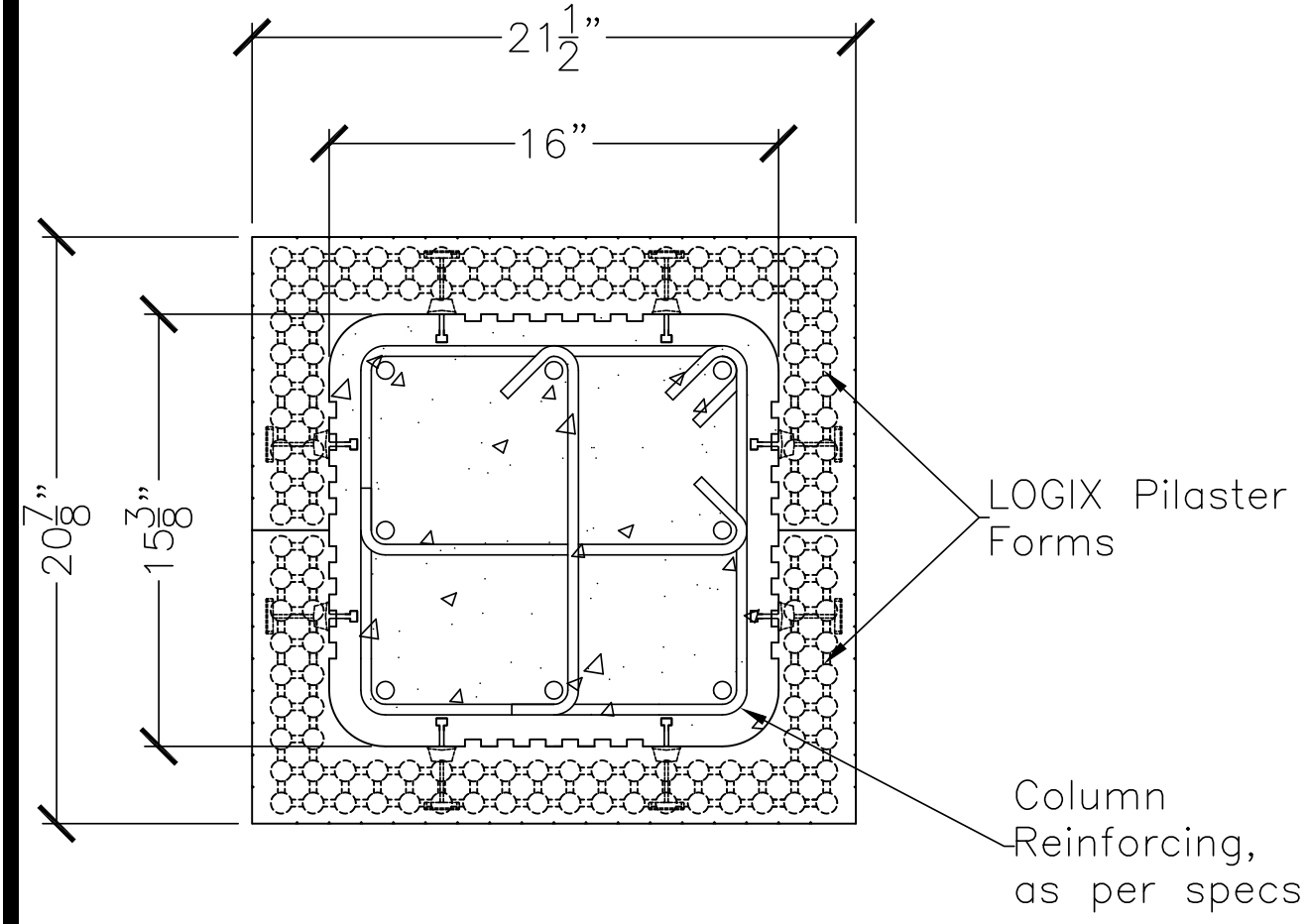
All drawings are downloadable at www.logixicf.com



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

5.9.35 – COLUMN W/ LOGIX PILASTER

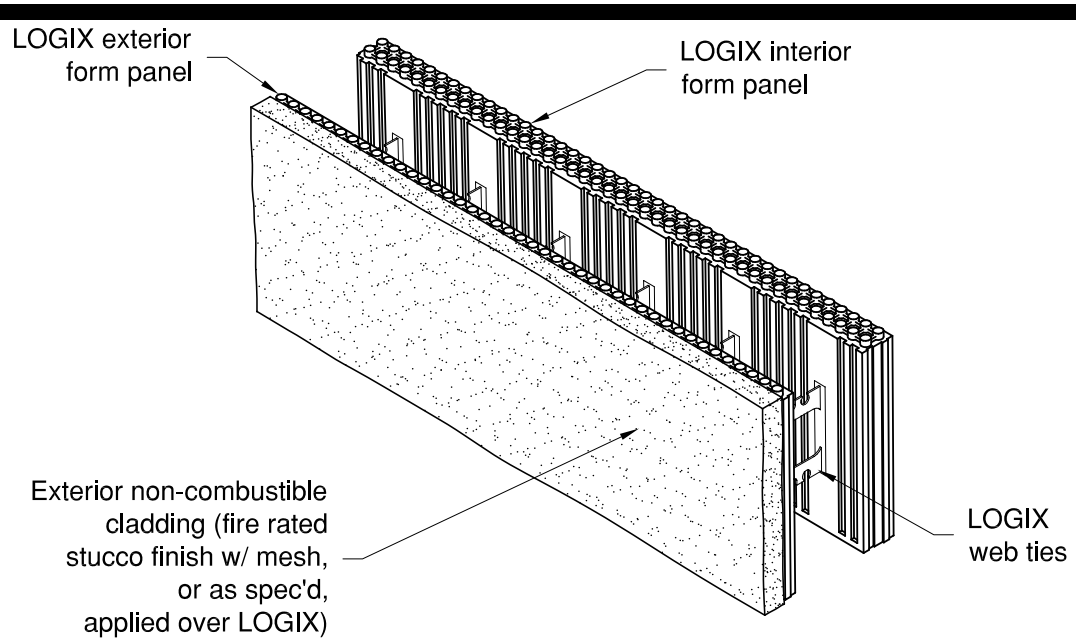
All drawings are downloadable at www.logixicf.com



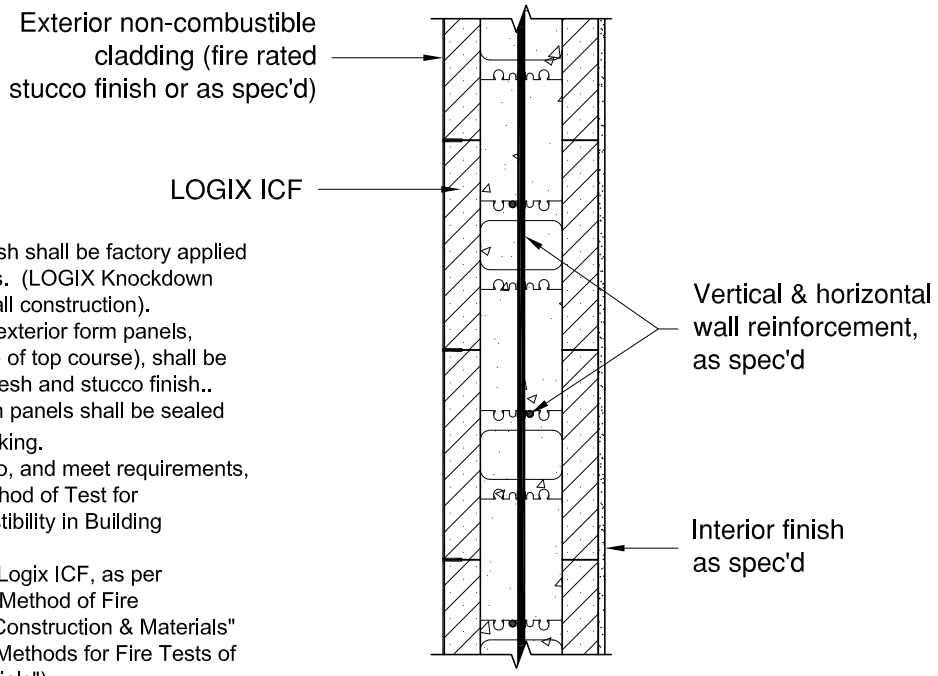
CAD DRAWINGS

5.9.36 – ZERO LOT LINE CONSTRUCTION DETAIL

All drawings are downloadable at www.logixicf.com



LOGIX ICF FORM BLOCK



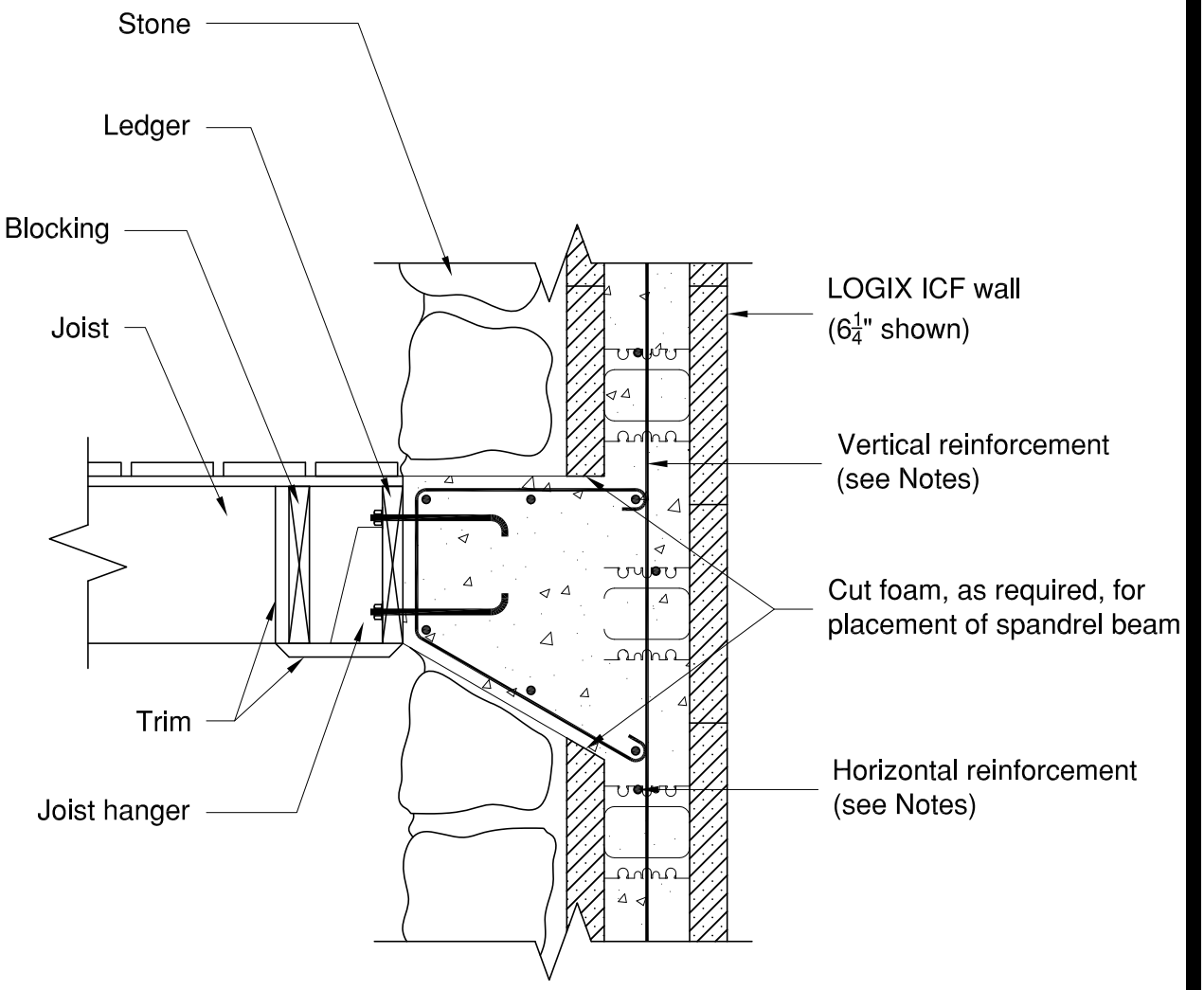
LOGIX WALL SECTION

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



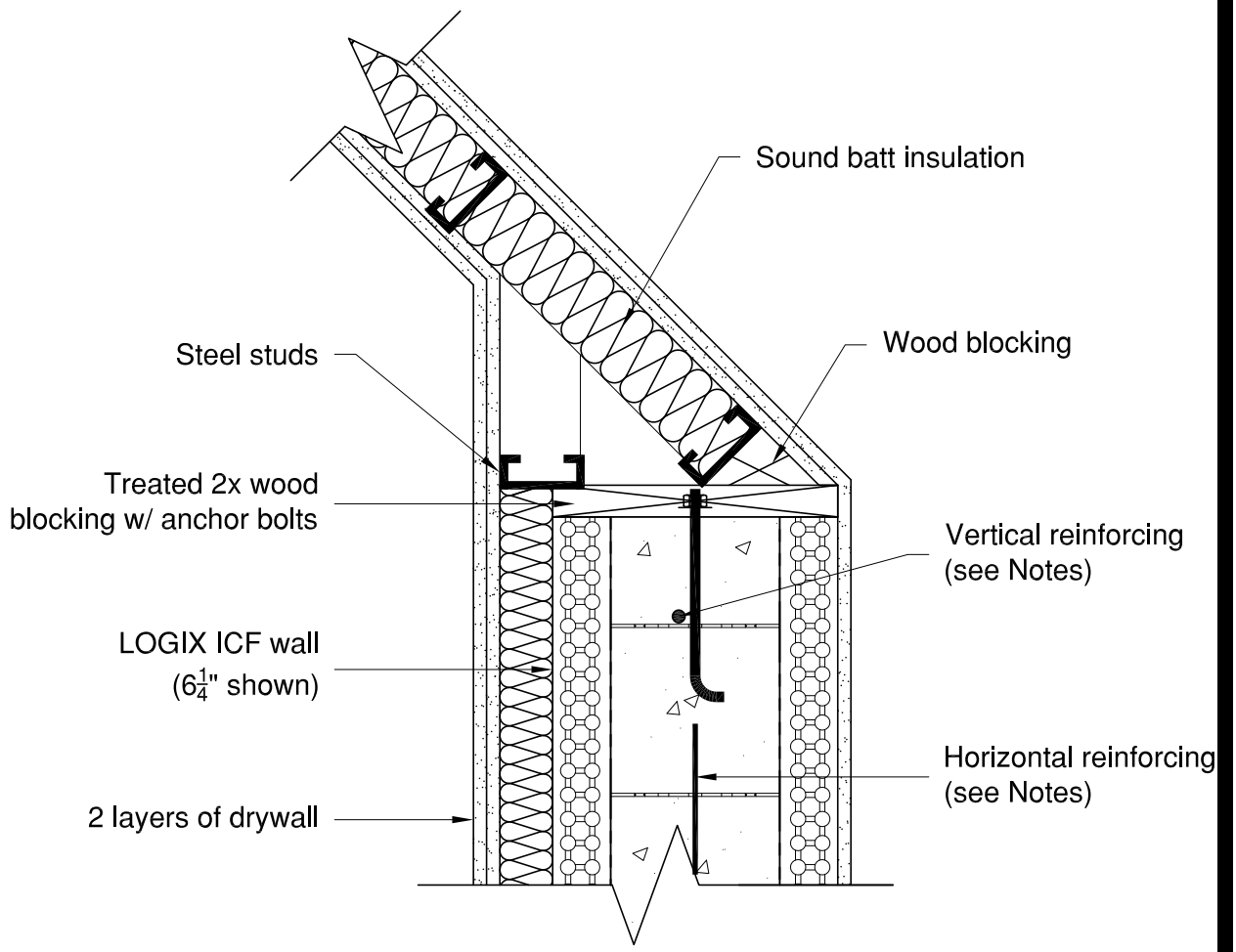
CAD DRAWINGS

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

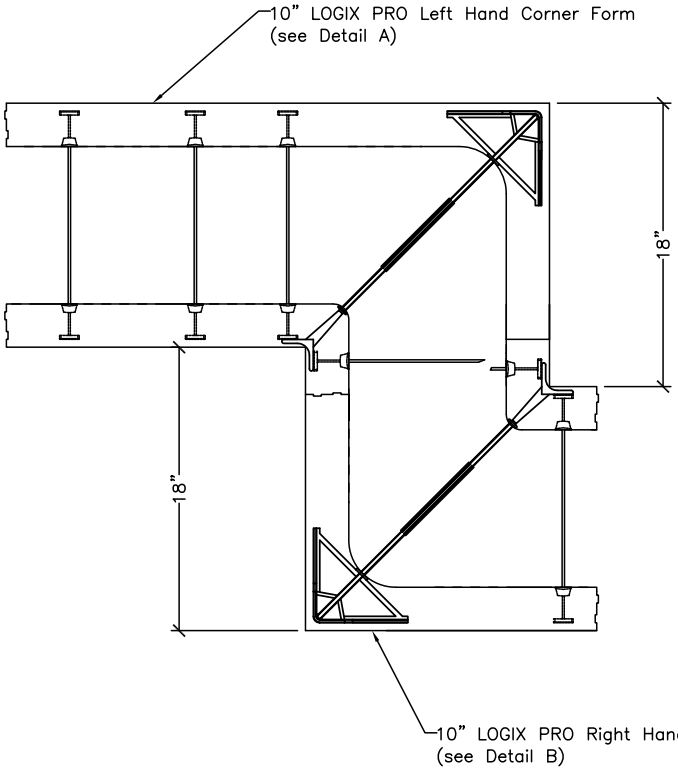


NOTES:

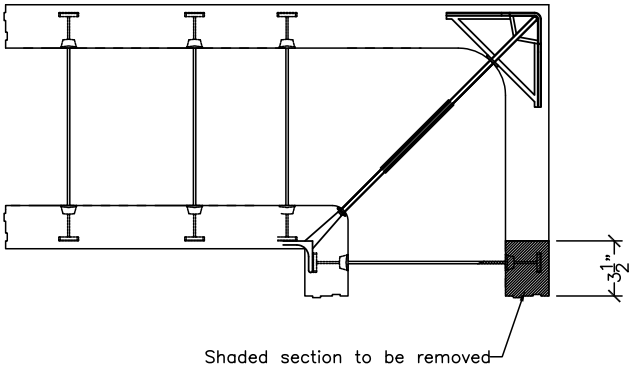
1. See Section 6 - Engineering in the LOGIX Design Manual for reinforcement details.

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

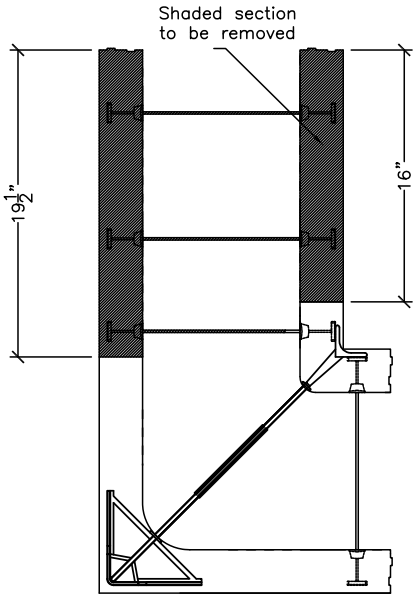
All drawings are downloadable at www.logixicf.com



PLAN VIEW



DETAIL A



DETAIL B

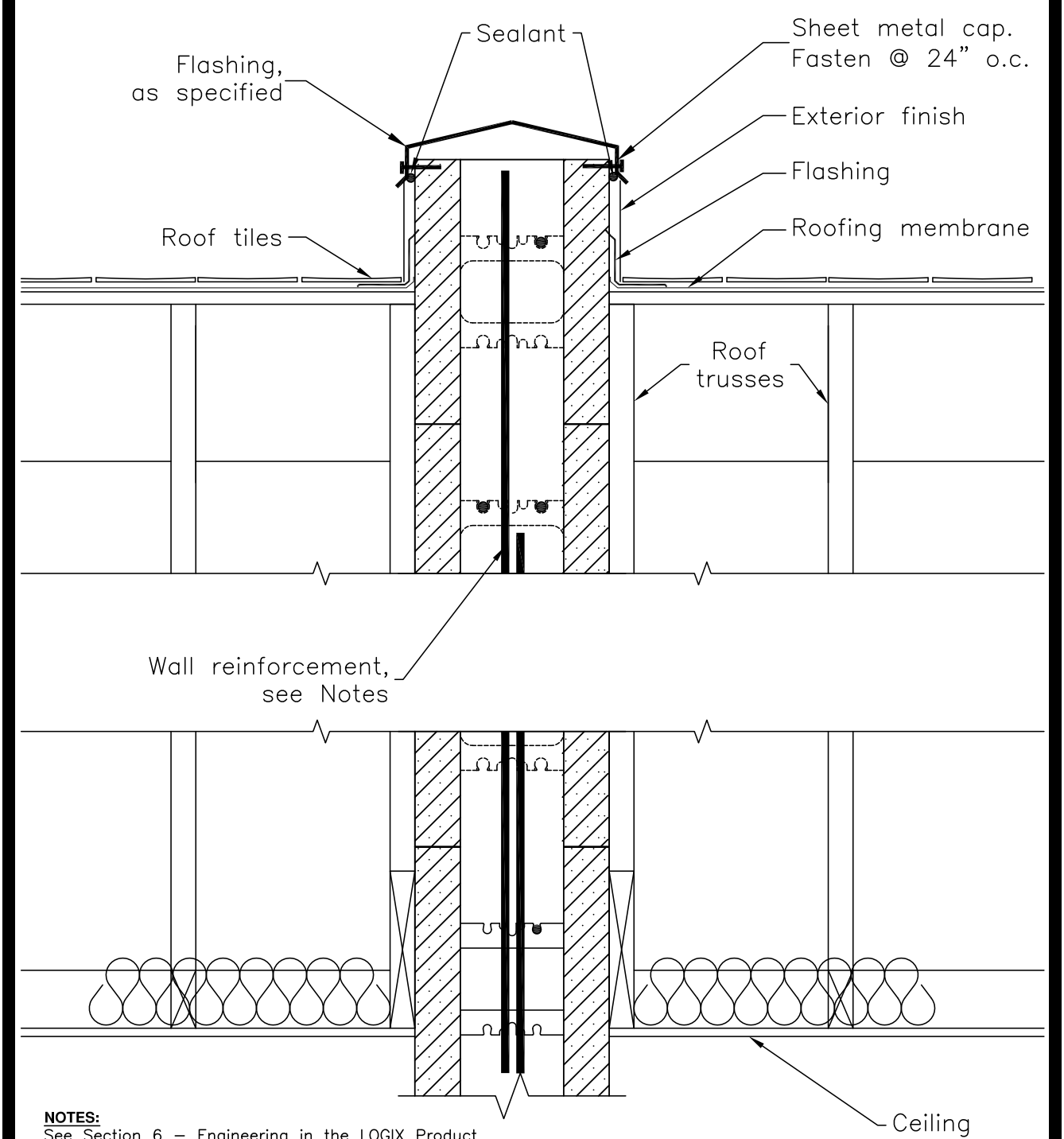
NOTES:

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

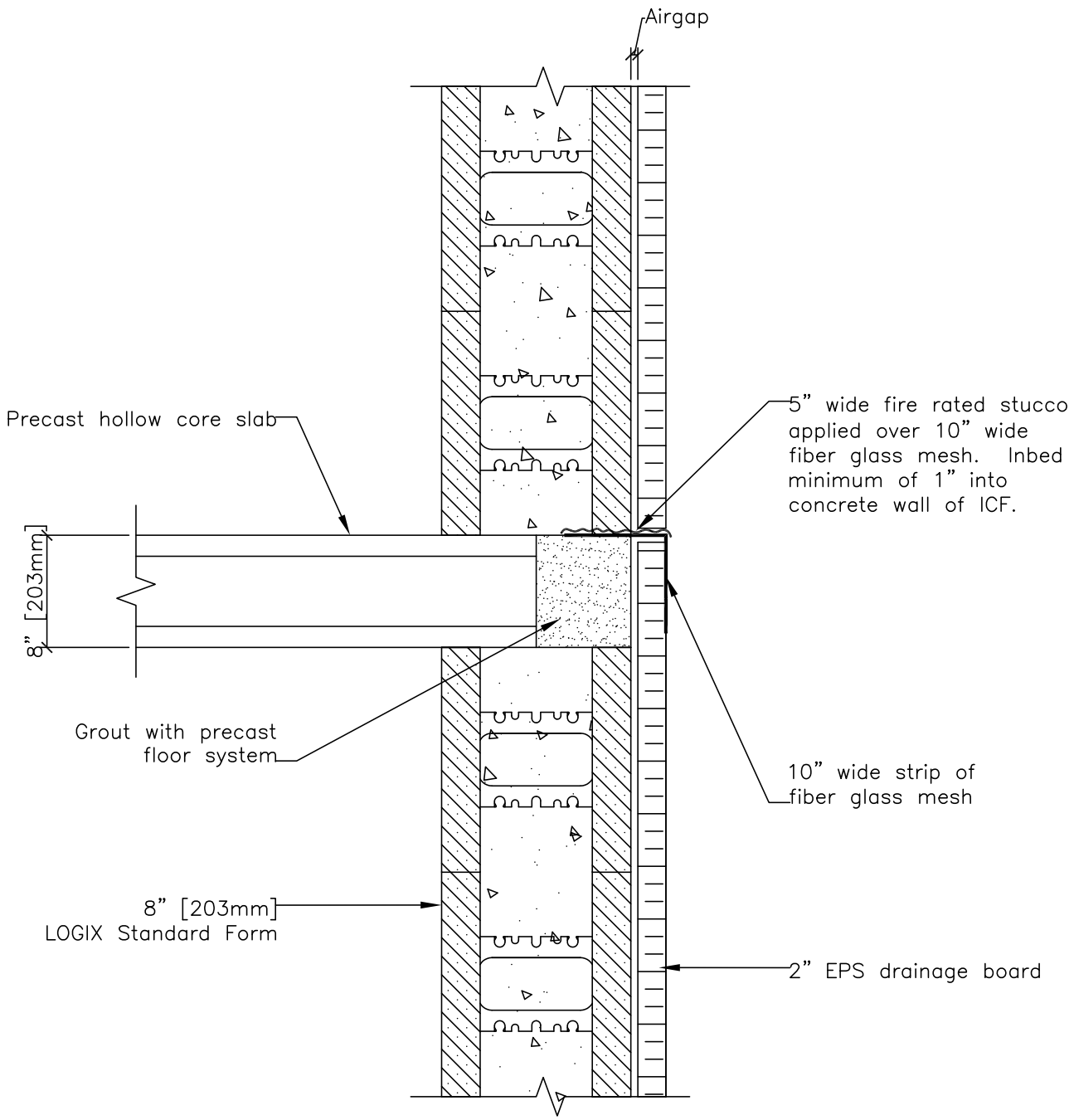
CAD DRAWINGS



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

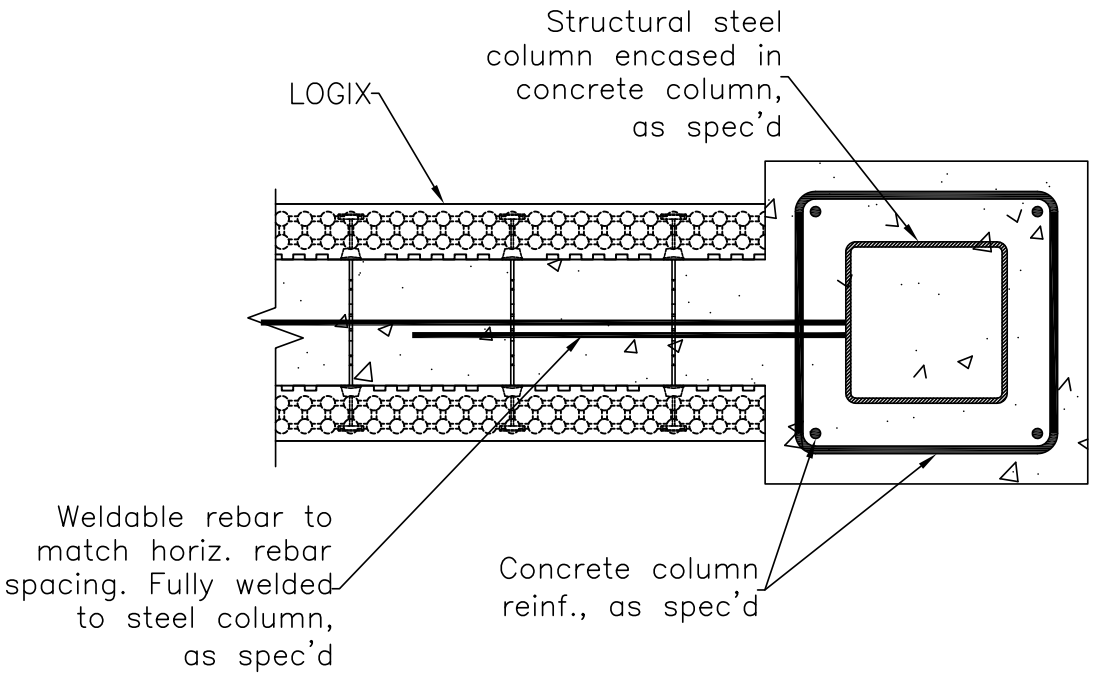


CAD DRAWINGS

5.9.42 – CONCRETE ENCASED STEEL COLUMN

All drawings are downloadable at www.logixicf.com

CAD DRAWINGS



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5.9.43 – BRICK LEDGE SHELF ANGLE

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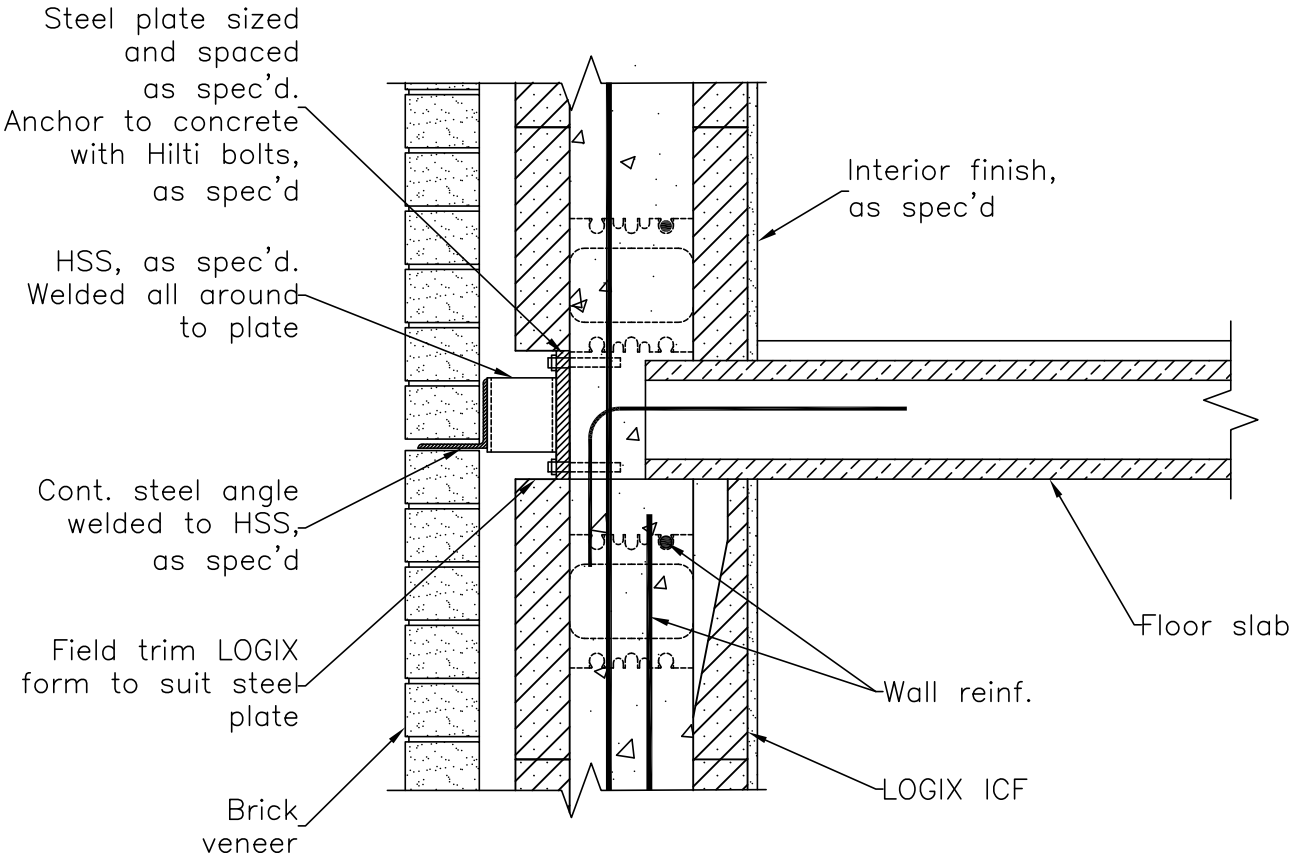

CAD DRAWINGS

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:

Roman Szczesniak, S.E.
RSJR Engineering LTD

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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

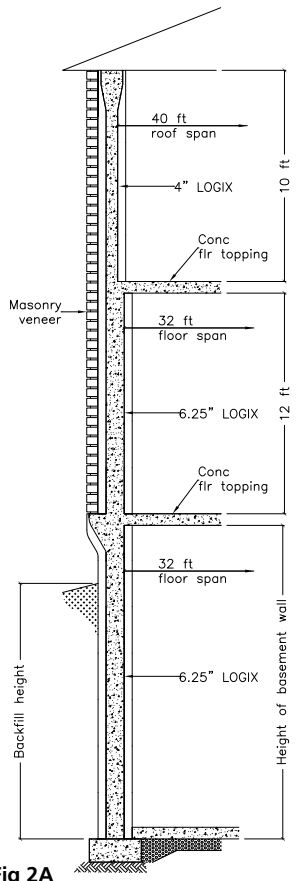

Fig 2A
Assumed typical flooring, wall & roof for **Table 2A**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 6.7 kips/ft.

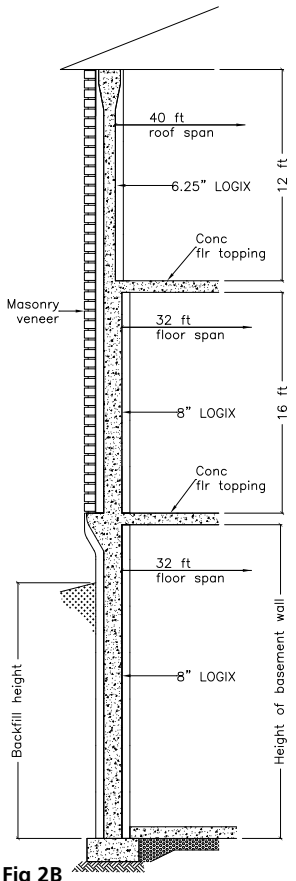

Fig 2B
Assumed typical flooring, wall & roof for **Table 2B**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

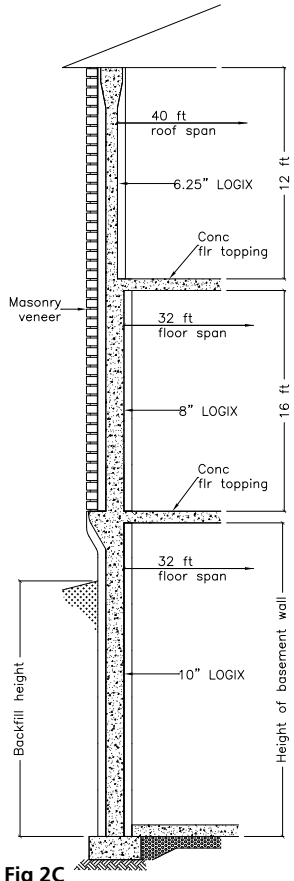

Fig 2C
Assumed typical flooring, wall & roof for **Table 2C**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8 kips/ft.

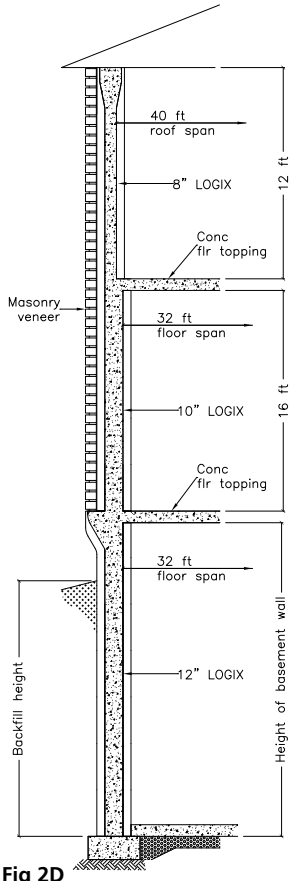

Fig 2D
Assumed typical flooring, wall & roof for **Table 2D**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 9 kips/ft.

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
	6	48	48	48	48	48	48	48	48	48	48	24	40	48	48	48	16	24	40	48	48
	7	48	48	48	48	48	24	40	48	48	48	16	24	32	40	48	8	16	24	32	40
	8	32	48	48	48	48	16	24	32	48	48	8	16	16	24	40	8	12	16	16	24
9	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	48	48	48	48	48	32	48	48	48	48
	6	48	48	48	48	48	40	48	48	48	48	16	32	48	48	48	12	24	32	40	48
	7	48	48	48	48	48	16	32	40	48	48	12	16	24	32	48	8	12	16	24	32
	8	24	40	48	48	48	12	16	24	32	48	8	12	16	24	24	6	8	12	16	16
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10	4	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
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	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
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	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
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	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	-	-	-	-	-

ENGINEERING

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.

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.

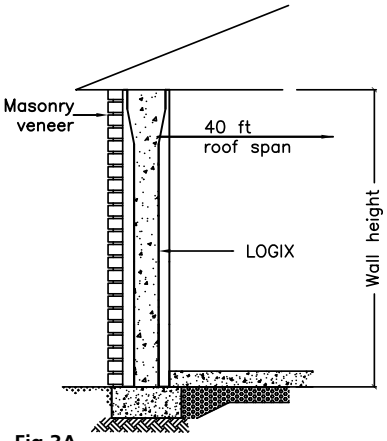

Fig 3A
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting Roof Only**.

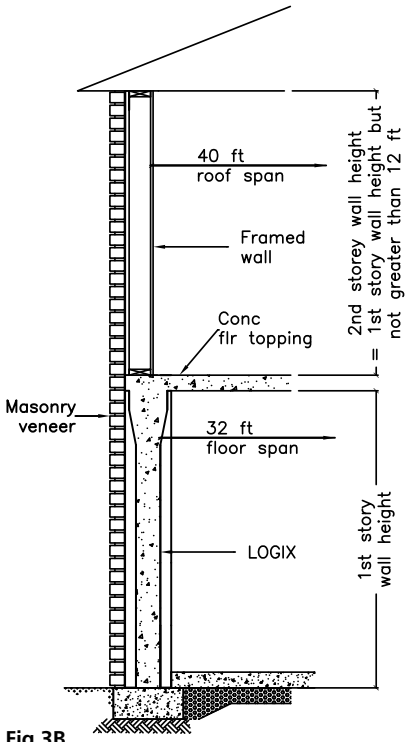

Fig 3B
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting 2nd Story Wood Frame & Roof Structure**.

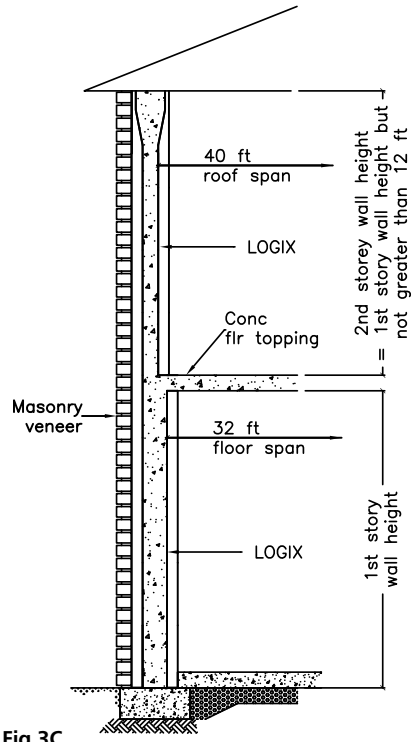

Fig 3C
Assumed typical flooring, wall & roof section for **Tables 3A and 3B, LOGIX Supporting 2nd Story LOGIX & Roof Structure**.

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.

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 Unfactored Wind Load, psf						6.25" LOGIX Wall Thickness Unfactored Wind Load, psf						8" LOGIX Wall Thickness Unfactored Wind Load, psf						10" LOGIX Wall Thickness Unfactored Wind Load, psf						12" LOGIX Wall Thickness 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 Unfactored Wind Load, psf						6.25" LOGIX Wall Thickness Unfactored Wind Load, psf						8" LOGIX Wall Thickness Unfactored Wind Load, psf						10" LOGIX Wall Thickness Unfactored Wind Load, psf						12" LOGIX Wall Thickness 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 Unfactored Wind Load, psf						6.25" LOGIX Wall Thickness Unfactored Wind Load, psf						8" LOGIX Wall Thickness Unfactored Wind Load, psf						10" LOGIX Wall Thickness Unfactored Wind Load, psf						12" LOGIX Wall Thickness 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

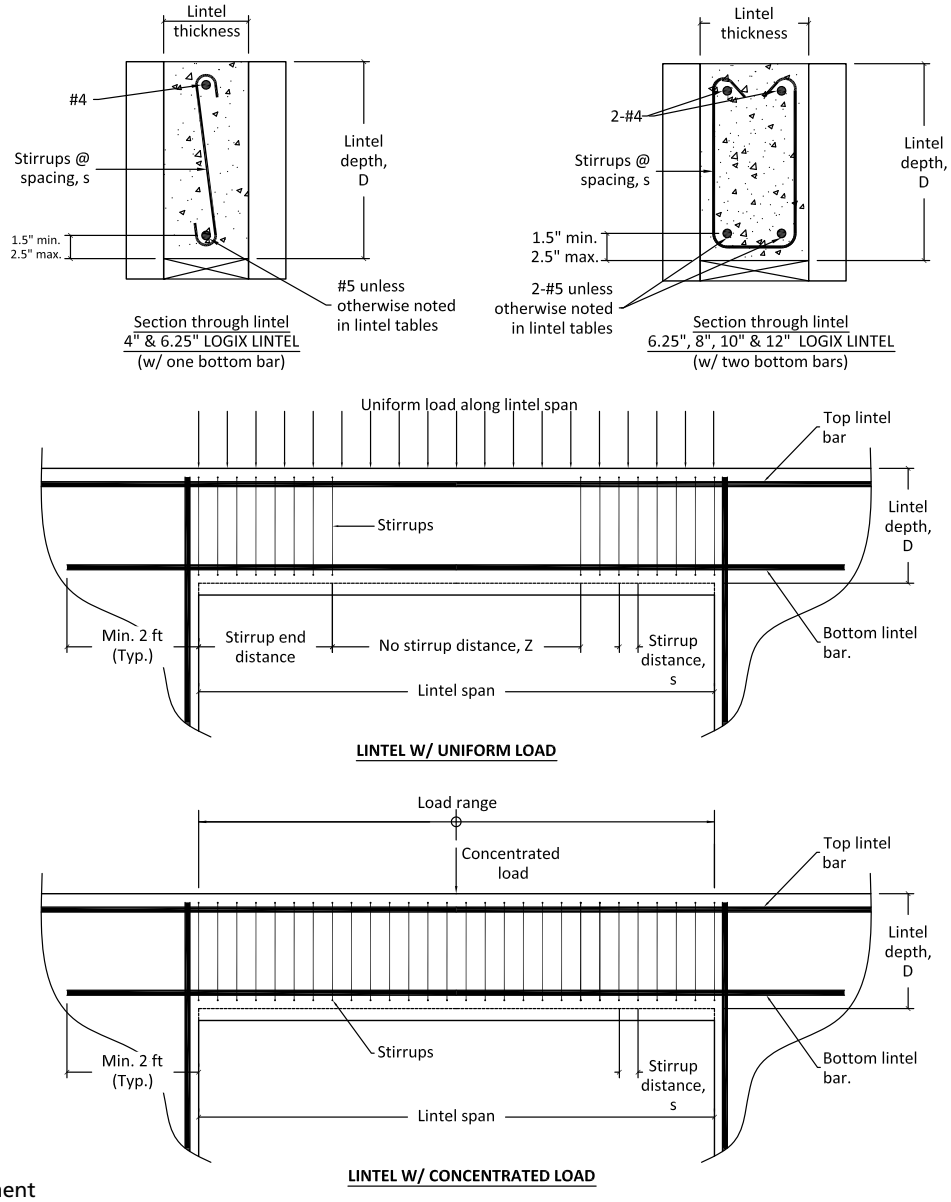

Fig 4
Lintel reinforcement

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)

ENGINEERING

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)

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	-	-	-	-	-	-	-	-	-	-	-	-

ENGINEERING

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	-	-	-	-	-	-	-

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	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3													1 - #6	1 - #6	1 - #6	2 - #5	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	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	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	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	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	-	-	-	-	-	-	-	-	-	-	-	-	-

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	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	Factored Point Load, lb																
ft	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000	9000	10000
3																	
4																	
5																	
6																	
7																1 - #6	1 - #6
8															1 - #6	1 - #6	1 - #6
9													1 - #6	1 - #6	1 - #6	1 - #6	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	Factored Point Load, lb																
ft	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	Factored Point Load, lb																
ft	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	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
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	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
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	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
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

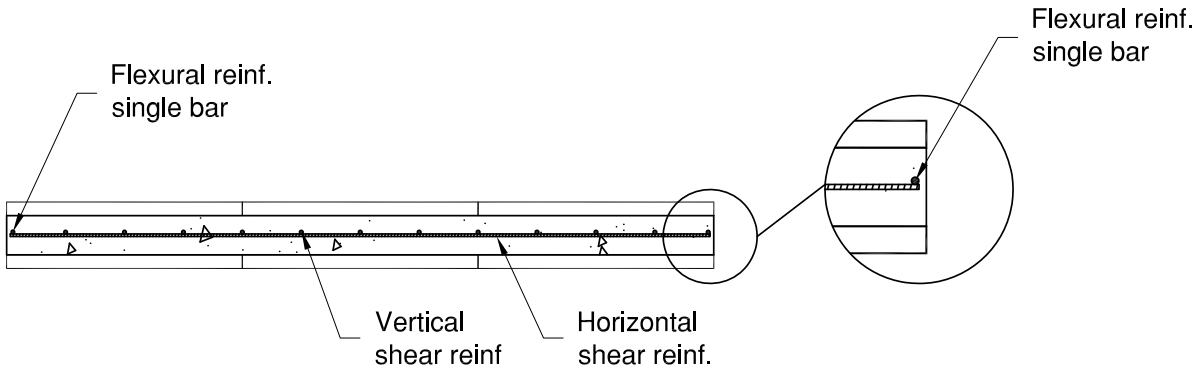

FIGURE 2: PLAN VIEW
LOGIX SHEAR WALL - SINGLE BAR FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

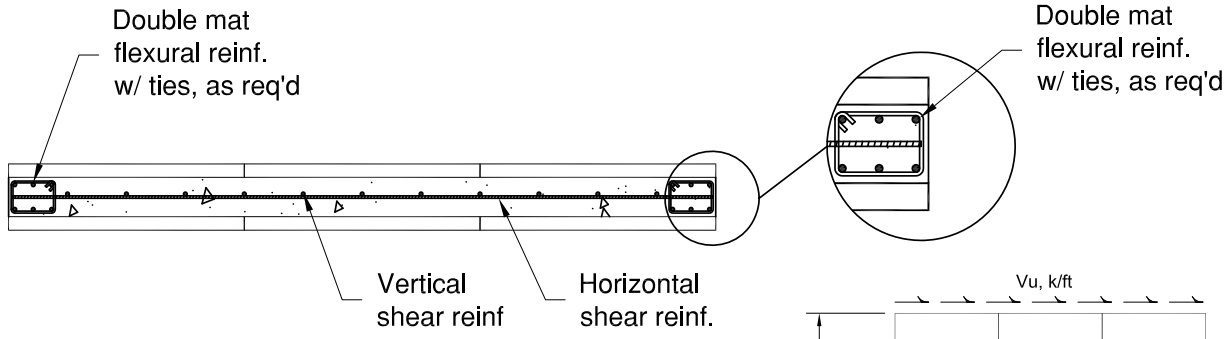

FIGURE 3: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL REINF.
(Applies to 4, 6.25, 8 & 10" LOGIX)

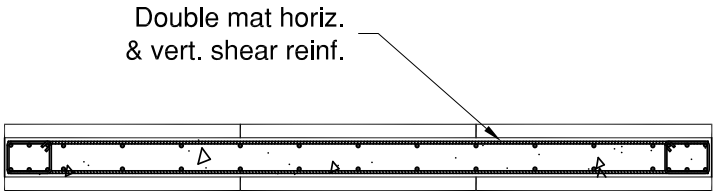

FIGURE 4: PLAN VIEW
LOGIX SHEAR WALL - DOUBLE MAT FLEXURAL & SHEAR REINF.
(Applies to 12" LOGIX)

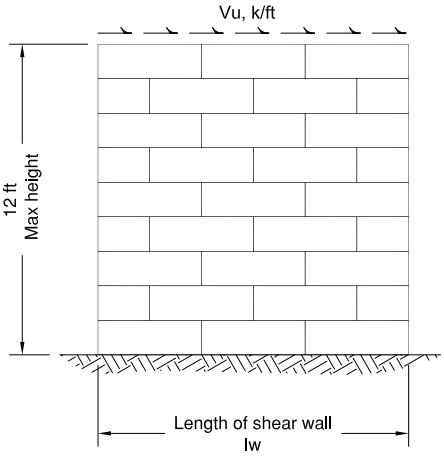

FIGURE 1: ELEVATION

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															
		0.5		1		1.5		2		2.5		3		3.5		4	
Bar Size	Wall 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															
		1		2		3		4		5		6		7		8	
Bar Size	Wall 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															
		1.5		2.5		5		6		7		8		9		10	
Bar Size	Wall 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															
		1.5		2.5		5		6		7		8		9		10	
Bar Size	Wall 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															
		1.5		2.5		5		6		7		8		9		10	
Bar Size	Wall 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

Wall Length, lw, ft	SHEAR FORCE, Vu, kpf							
	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

Wall Length, lw, ft	SHEAR FORCE, Vu, kpf							
	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

Wall Length, lw, ft	SHEAR FORCE, Vu, kpf							
	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
- Structural Design & Performance
- Reinforcement Tables
- Figure 1 Crawl Space Reinforcement Requirements
- 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
- Figures 3A, 3B and 3C, Above-grade wall sections
- Table 2, LOGIX Above-Grade Wall Minimum Reinforcement
- Lintel Tables
- Figure 4, Lintel Reinforcement
- Tables 3A, 3B, 3C, 3D and 3E, Lintel Reinforcement with Uniform Load for LOGIX 4, 6.25, 8, 10 and 12 inch, respectively.
- 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....

ENGINEERING

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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

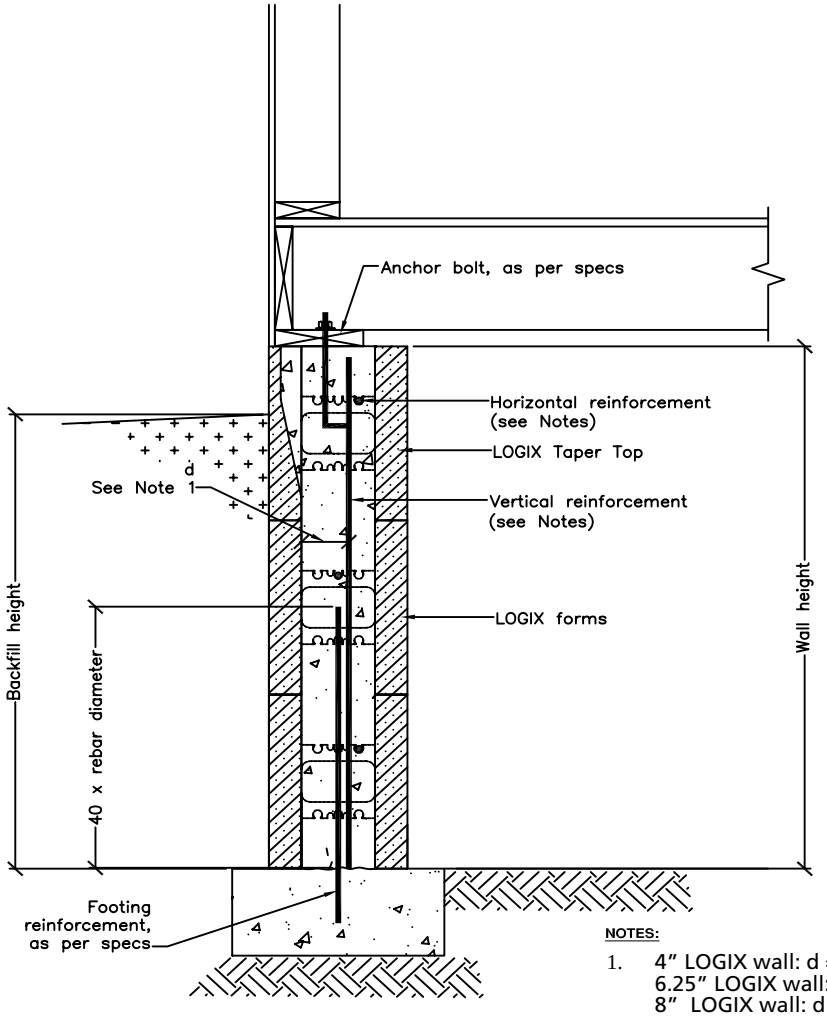
Tables 3A to 3E and Tables 4A to 4E provide lintel tables for factored uniform and concentrated loading conditions, respectively.

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.

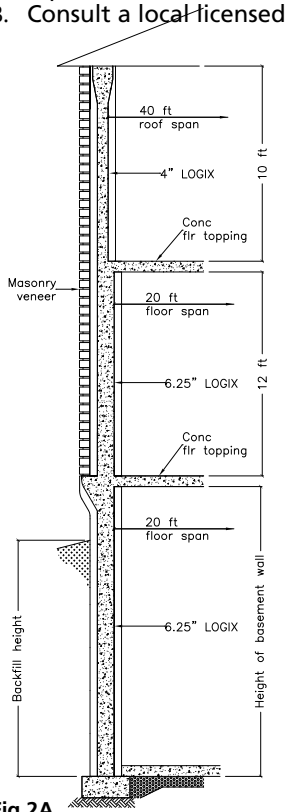


Fig 2A
Assumed typical flooring, wall & roof for **Table 1A**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 6 kips/ft.

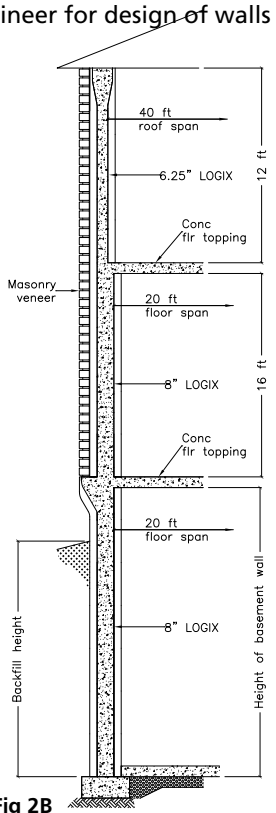


Fig 2B
Assumed typical flooring, wall & roof for **Table 1B**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 7.5 kips/ft.

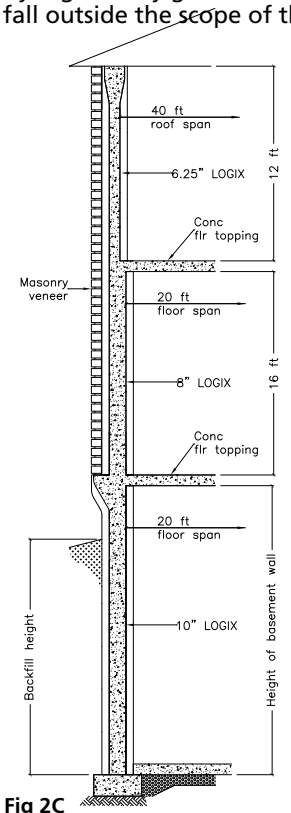


Fig 2C
Assumed typical flooring, wall & roof for **Table 1C**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 7.5 kips/ft.

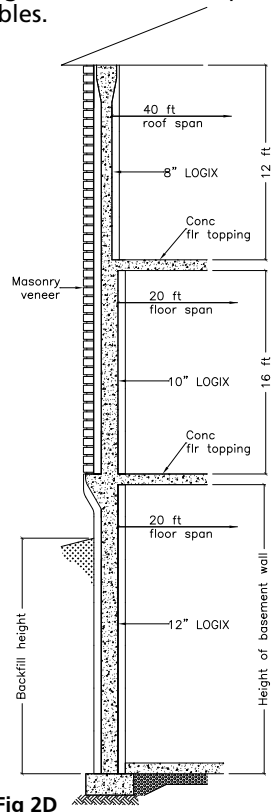


Fig 2D
Assumed typical flooring, wall & roof for **Table 1D**. Height & thickness of above-grade walls, floor & roof spans, including materials (i.e., wood frame, concrete, and cladding) can vary provided the total factored load on basement wall does not exceed 8.3 kips/ft.

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

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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/m^3 = 0.157 kN/m^3

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.

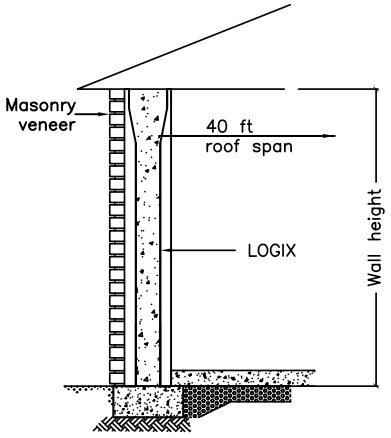

Fig 3A
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting Roof Only**.

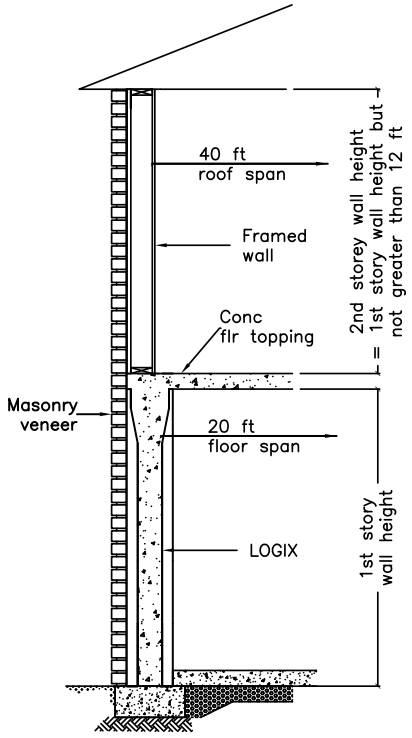

Fig 3B
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story Wood Frame & Roof Structure**.

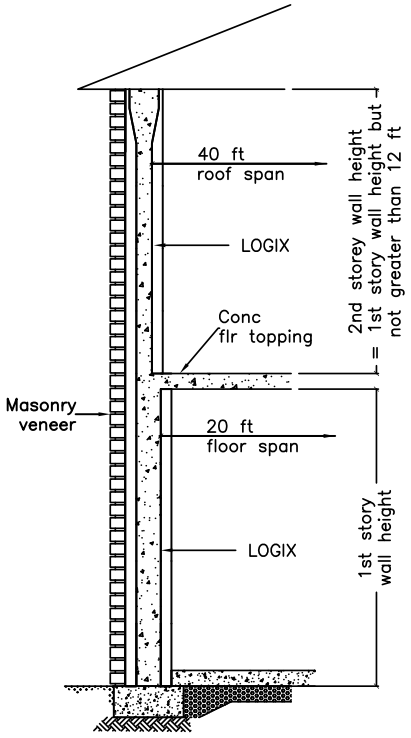

Fig 3C
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story LOGIX & Roof Structure**.

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

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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 Factored Wind Load, psf						6.25" LOGIX Wall Thickness Factored Wind Load, psf						8" LOGIX Wall Thickness Factored Wind Load, psf						10" LOGIX Wall Thickness 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 Factored Wind Load, psf						6.25" LOGIX Wall Thickness Factored Wind Load, psf						8" LOGIX Wall Thickness Factored Wind Load, psf						10" LOGIX Wall Thickness 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 Factored Wind Load, psf						6.25" LOGIX Wall Thickness Factored Wind Load, psf						8" LOGIX Wall Thickness Factored Wind Load, psf						10" LOGIX Wall Thickness 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

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LINTEL TABLES

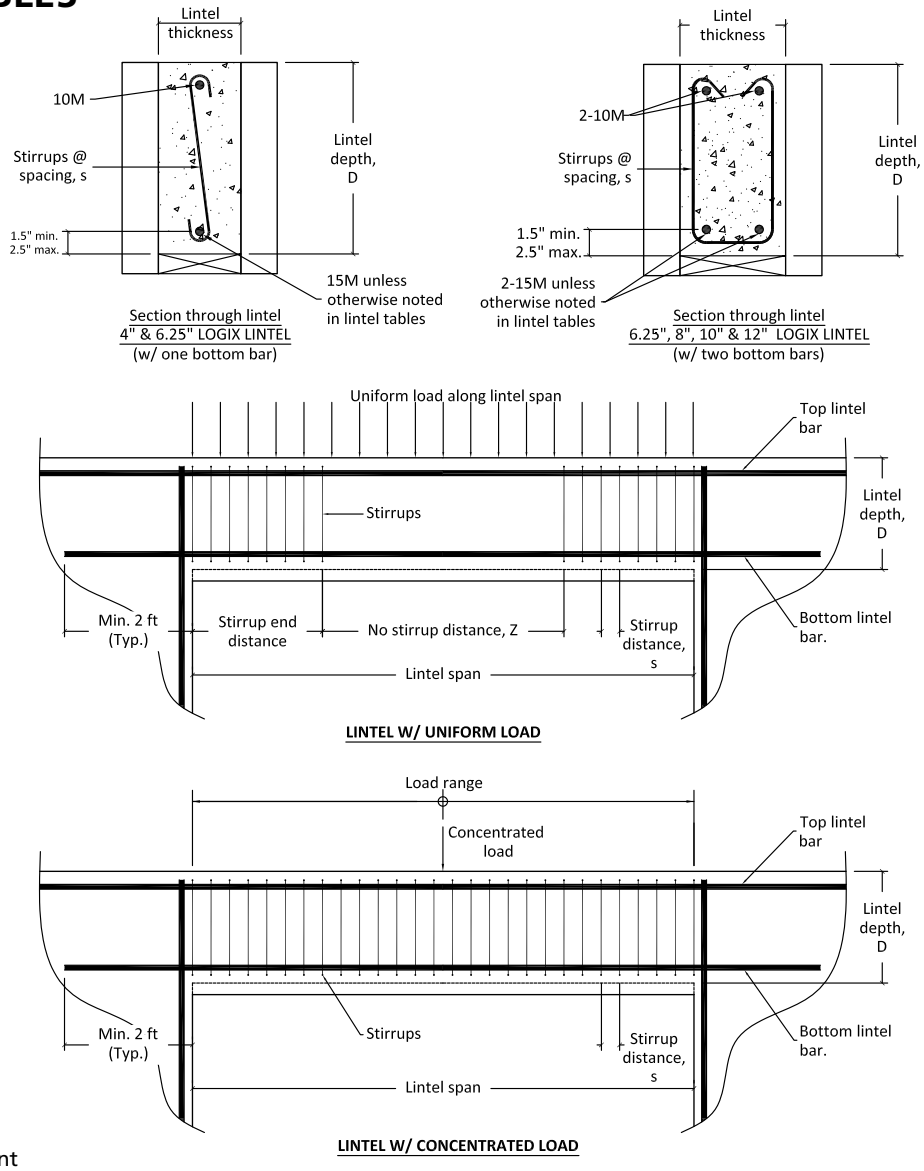

Fig 4
Lintel reinforcement

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.

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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)

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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)

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)

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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)

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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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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 ft	Factored Uniform Load, lb/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)

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6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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	-	-	-	-	-	-	-	-	-	-

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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	Factored Point Load, lb																
ft	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	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	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	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	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	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	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	-	-	-

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

TABLE 4B - LOGIX 6.25" 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	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	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	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	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																	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)

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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

ENGINEERING

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)

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6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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

ENGINEERING

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)

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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

ENGINEERING

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

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)

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

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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"

ENGINEERING

- 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.

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ICC-ES Evaluation Report

ESR-1642

Reissued October 1, 2012

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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
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francis@logixicf.com

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

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.

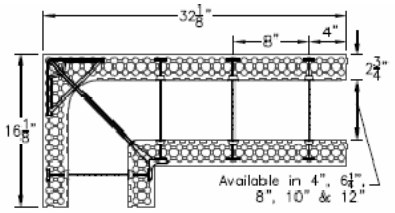
[1]Screws must be corrosion-resistant and have sufficient length to penetrate the flanges of the cross ties at least $^1/_4$ inches (6 mm).

TABLE 2—LOGIX INSULATING CONCRETE FORMS IN FIRE-RESISTANCE-RATED ASSEMBLIES[1,2]

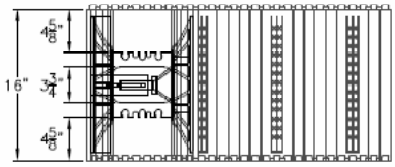
TYPE-RATING	CAVITY THICKNESS (inches)	INTERIOR WALL FINISH	EXTERIOR WALL FINISH	STEEL REINFORCEMENT
Bearing and nonbearing wall-3 hr. Allowable axial load 36600 pounds per foot[3].	$6^1/_4$	$^1/_2$-inch-thick gypsum wallboard, 48 inches wide, fastened to the flanges of cross ties with 2-inch-long gypsum 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.

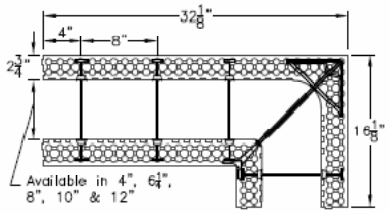
[1]Concrete must be normal-weight concrete (145±5 psf) (2323-2404 kg/m^3) with a minimum 3000 psi (20.7 MPa) compressive strength at 28 days.
[2]The wall assembly may be used as either interior or exterior wall. When used as interior wall, both sides of the form must be protected with the interior wallboard as noted in the table.
[3]Per 10-foot wall height.



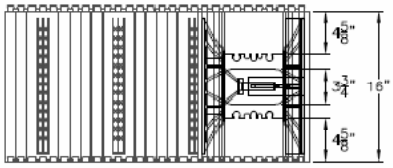
PLAN VIEW RIGHT HAND 90° STANDARD & HALF HEIGHT CORNER BLOCK



SIDE ELEVATION (full helgth block shown)



PLAN VIEW LEFT HAND 90° STANDARD & HALF HEIGHT CORNER BLOCK



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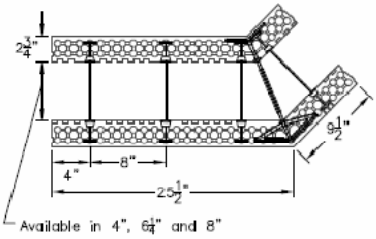
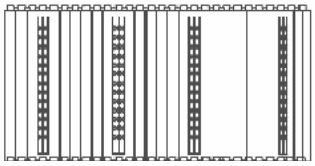
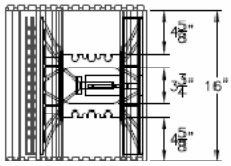


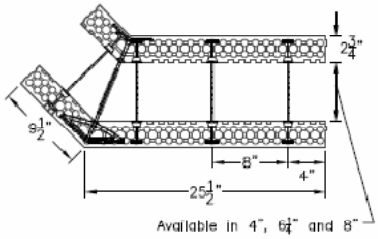
PLAN VIEW RIGHT HAND 45° STANDARD & HALF HEIGHT CORNER BLOCK



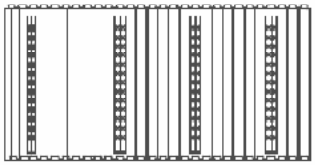
SIDE ELEVATION



END VIEW (full helgth block shown)



PLAN VIEW LEFT HAND 45° STANDARD & HALF HEIGHT CORNER BLOCK



SIDE ELEVATION

FIGURE 1—LOGIX INSULATING CONCRETE FORMS

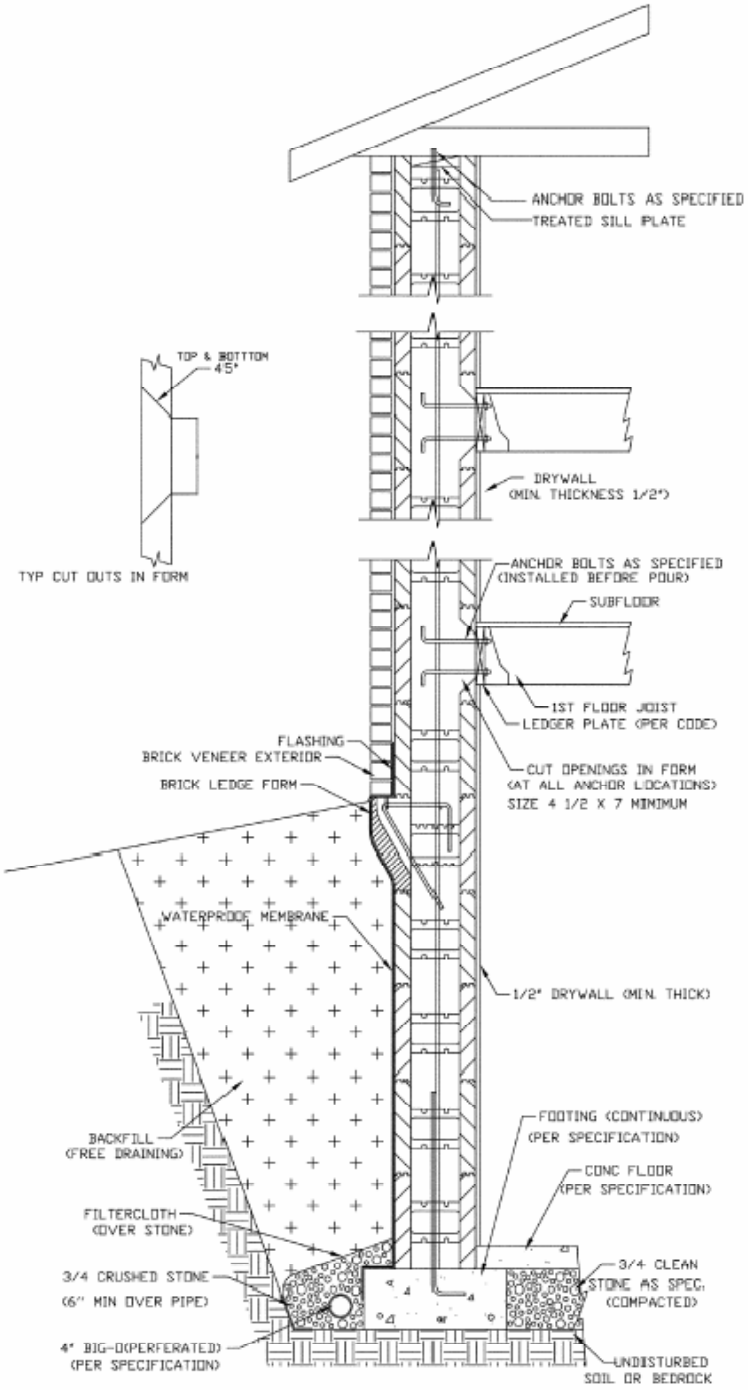


FIGURE 2—TYPICAL INSTALLATION DETAILS

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Rev. Nov 30/12

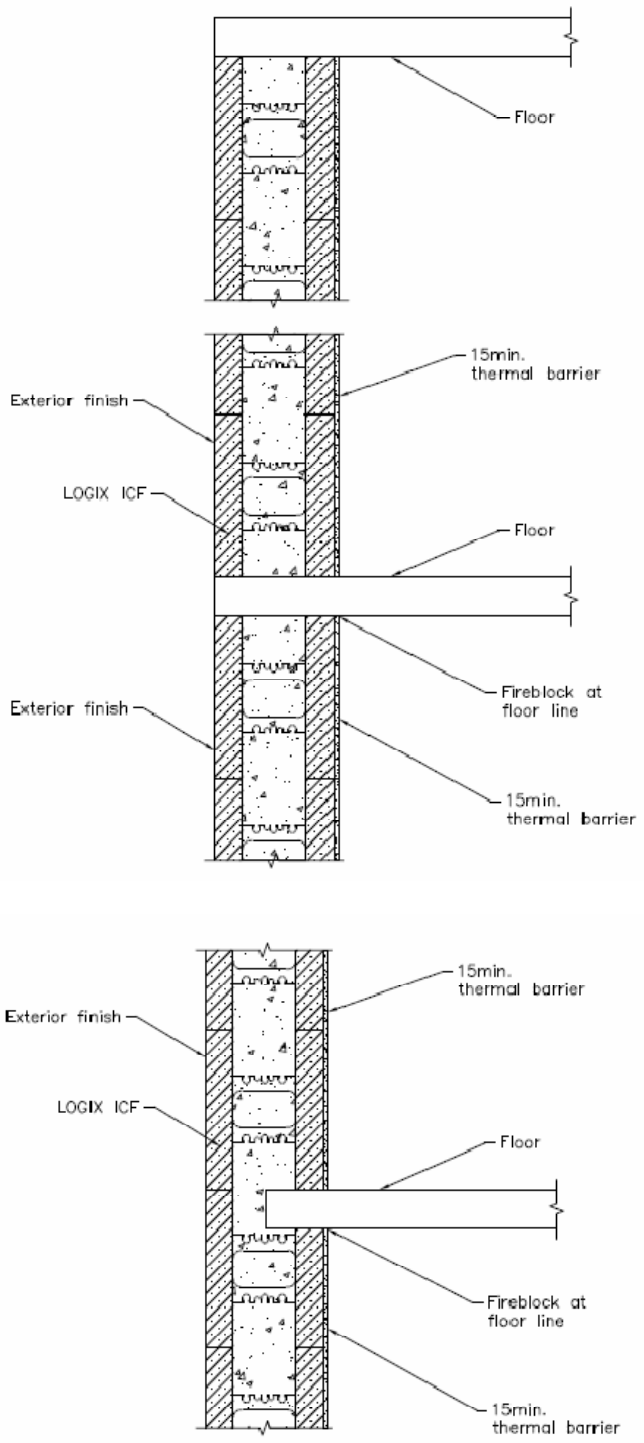

FIGURE 3—TYPICAL FLOOR-WALL DETAIL FOR NONCOMUSTIBLE CONSTRUCTION

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ICC-ES Evaluation Report

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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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.

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	Lateral
		Max Load (lbs)	Max Load (lbs)
Average	Type 'W' Coarse Thread Drywall Screw	166	367
COV	Type 'W' Coarse Thread Drywall Screw	10.6 %	8.4 %
Average	Type 'S' Fine Thread Drywall Screw	169	328
COV	Type 'S' Fine Thread Drywall Screw	8.4 %	4.1 %

- **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. Physical Properties of Polypropylene Reinforcing Webs

The polypropylene reinforcing webs were found to have the following allowable loads, as recommended by ITS when analyzed in accordance with 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,

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.

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

Logix Insulated Concrete Forms Ltd.
1917 West 4th Avenue
Vancouver, BC, Canada, V6J 1M7

Attn: Francis Roma
(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, Chief
Engineering Research Section
201 N. Figueroa St., Room 880
Los Angeles, CA 90012
Phone - 213-202-9812
Fax - 213-202-9942

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Attachments: ICC ES Report No. ESR-1642 (10 Pages)

EVALUATION REPORTS

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ESR-1642

Reissued July 1, 2009

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DIVISION: 03—CONCRETE
Section: 03130—Permanent Forms

REPORT HOLDER:

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www.logixicf.com
francis@logixicf.com

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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* **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.

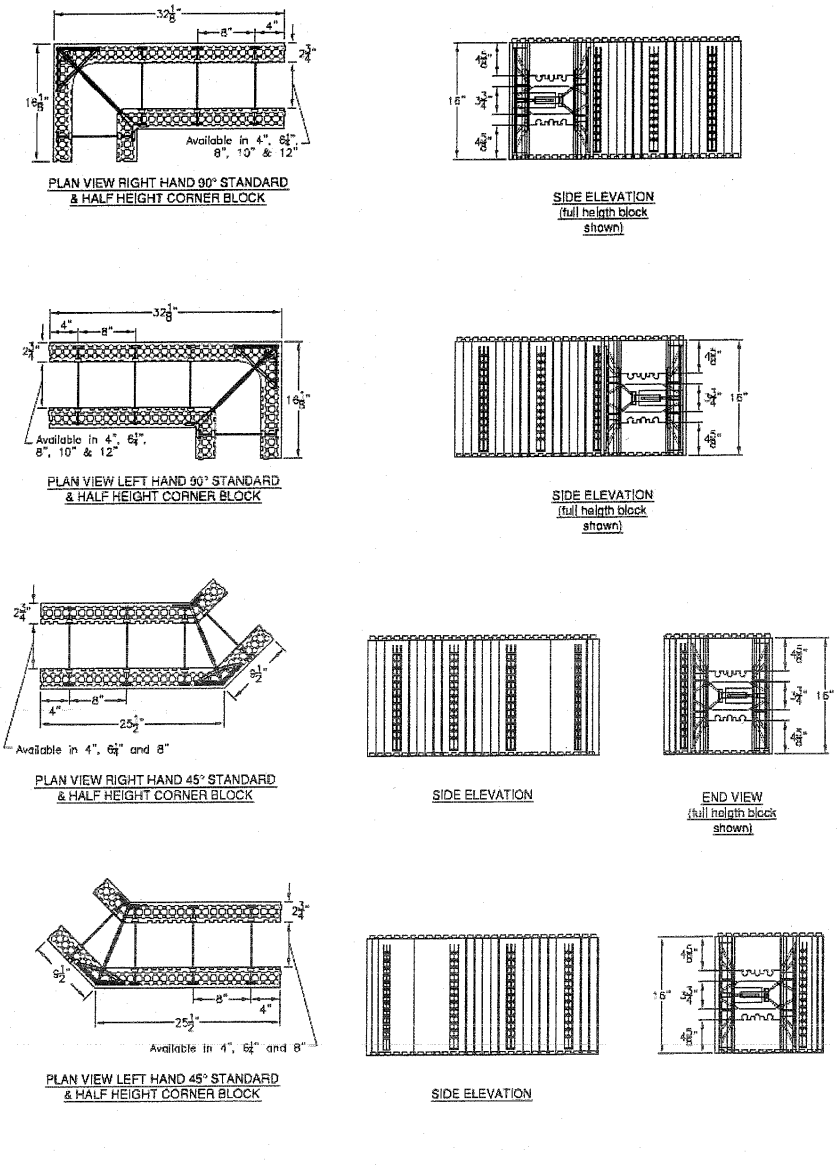

FIGURE 1—LOGIX INSULATING CONCRETE FORMS

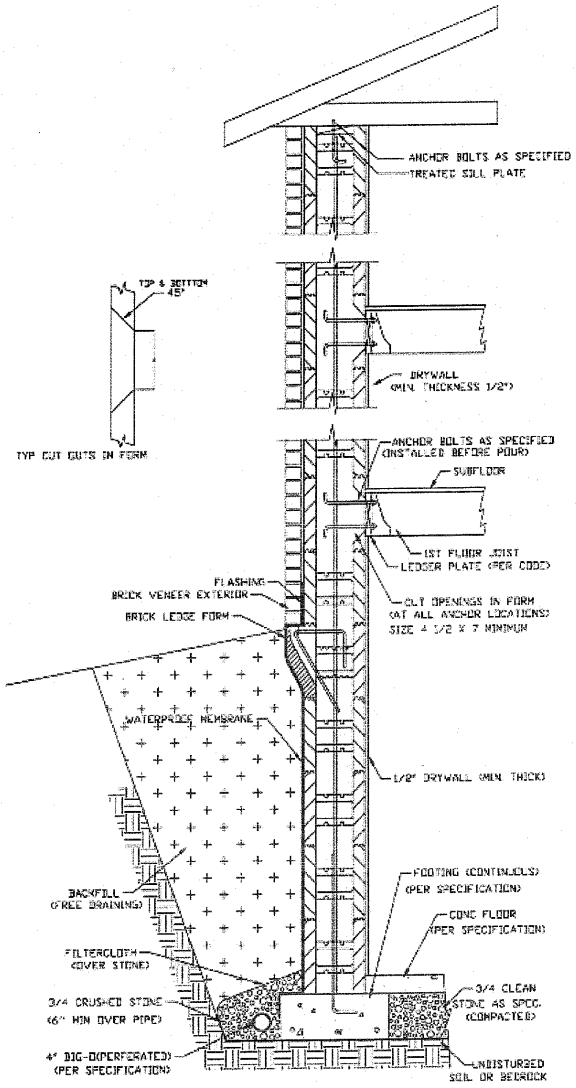

FIGURE 2—TYPICAL INSTALLATION DETAILS

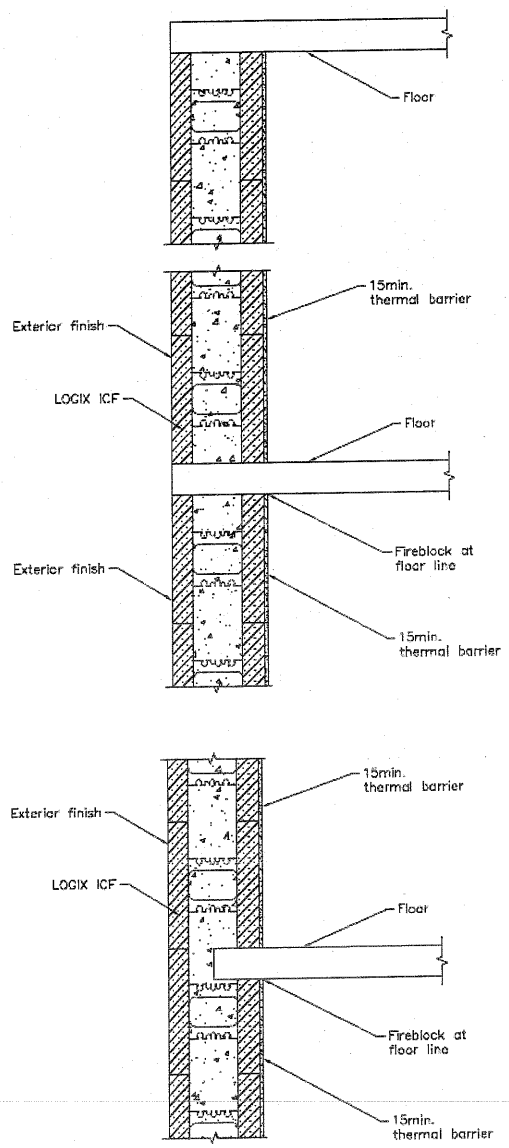

FIGURE 3—TYPICAL FLOOR-WALL DETAIL FOR NONCOMUSTIBLE CONSTRUCTION

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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

FLORIDA DEPARTMENT OF
Business & Professional Regulation

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Florida Department of Business Professional Regulation
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OFFICE OF THE SECRETARY

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

EVALUATION REPORTS

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, 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

BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

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

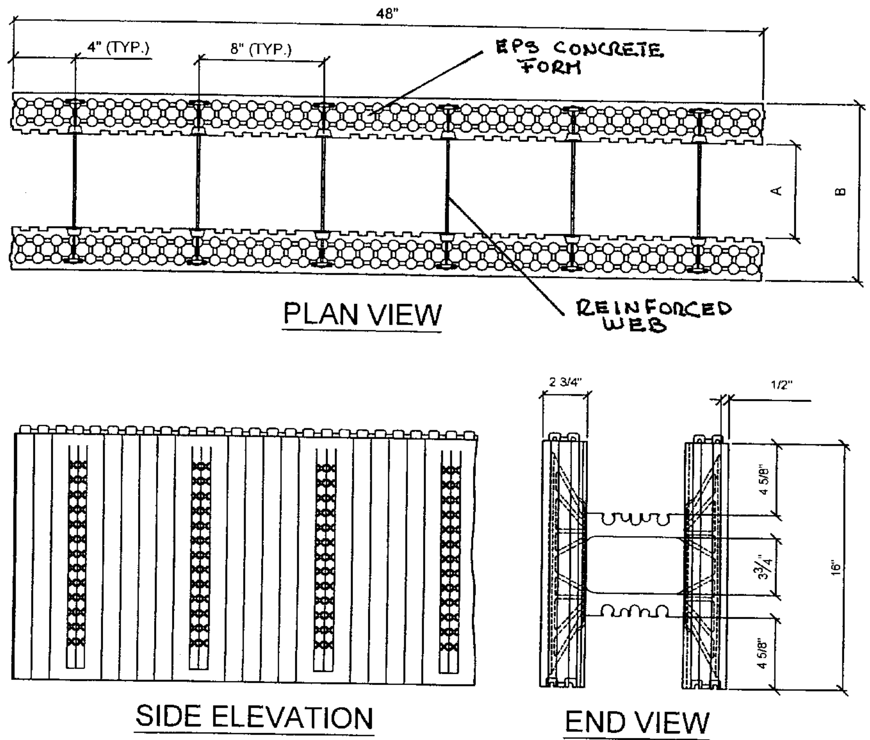
1. No change letter issued by Logix Insulated Concrete Forms, dated 07/06/09, signed Francis Roma, CDT, P.E.
2. Code compliance letter issued by Applied Consumer Services, Inc on 07/15/04, signed by R. Rahimi, P.E. and notarized by G. Tuninskaya.
3. No financial interest letter issued by Applied Consumer 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-ft²-°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# 03-0319.07
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

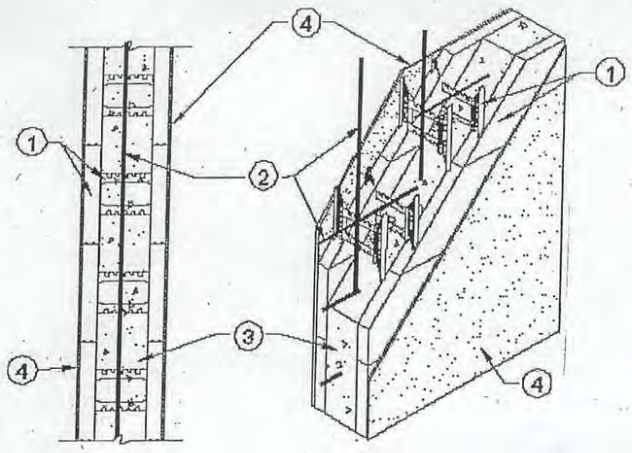


Figure 1. Logix Insulated Concrete Form wall system

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 Simm Derkhudam

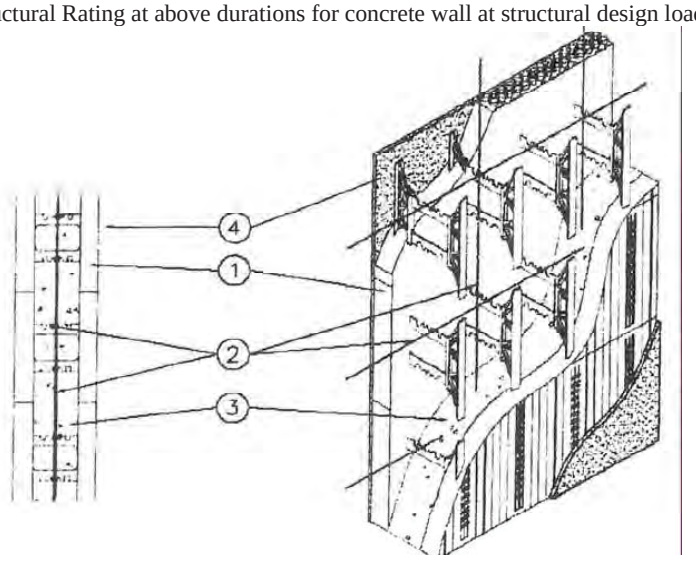
MEA 273-04-M Page 2 of 2

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: _____ Reviewed By: _____

Kal Kooner, EIT
Engineer, Building Products

Peter Gildenstern, AScT
Asst. Mgr., Engineering Services

Enclosure

EVALUATION REPORTS

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, EIT
Engineer, Building Products

Reviewed by: _____
Kal Kooner, EIT
Team Leader, Engineering Services Canada

Intertek ETL SEMKO
Testing everywhere for markets anywhere.

EVALUATION REPORTS

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/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.

7.1.11 – GREENGUARD CHILDREN AND SCHOOLS 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"

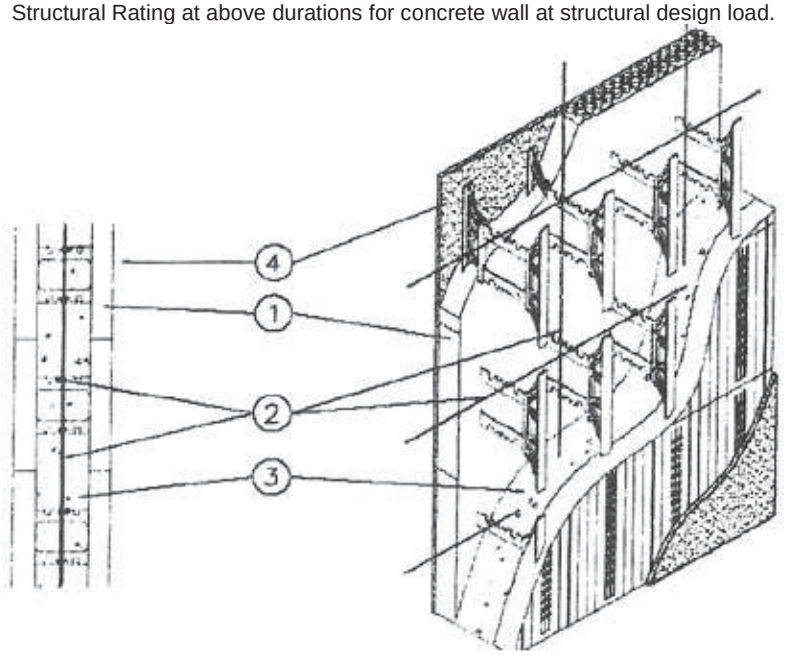
	Component	EPS Classification
ASTM C578 Ratings:	EPS Panels	Type II
CAN/ULC S701 Ratings:	EPS Panels	Type 2

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

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.

***

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

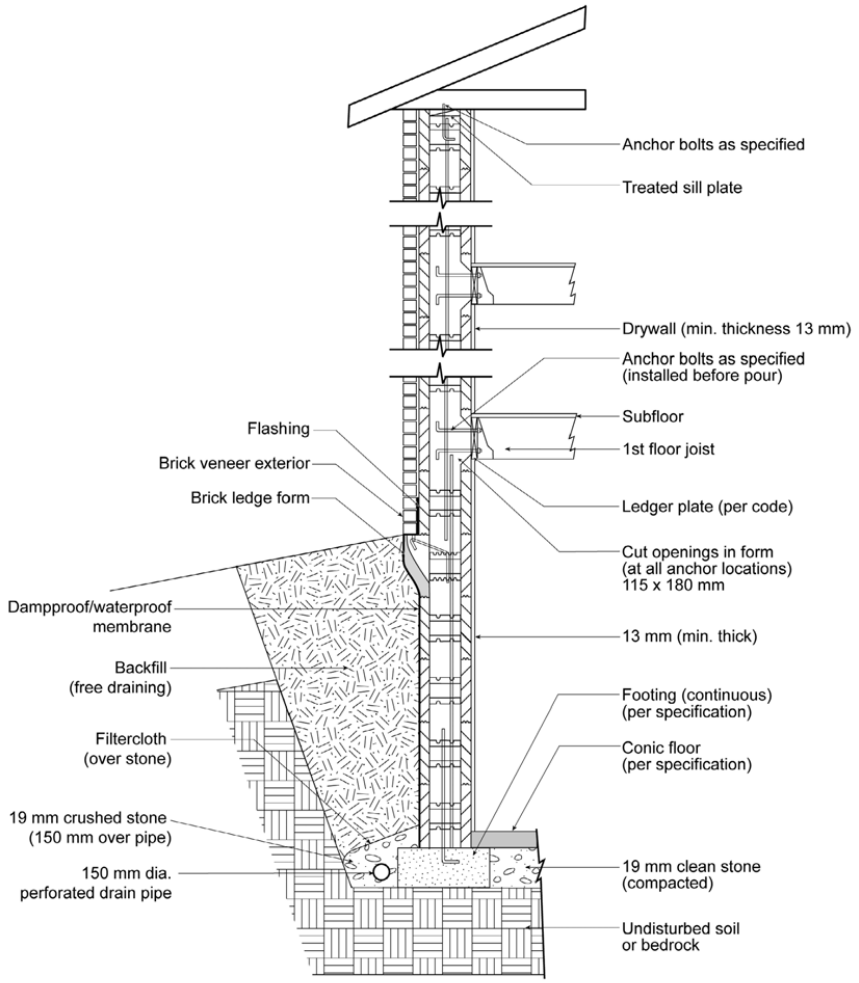


Figure 2. Typical wall section

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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

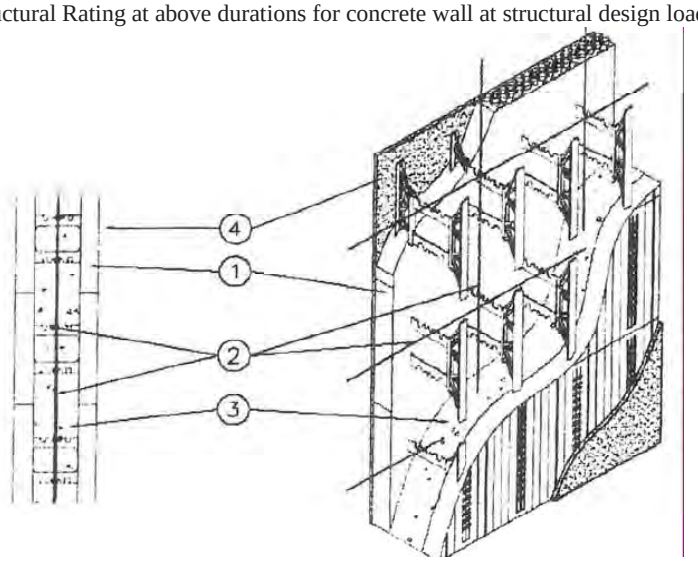
Plant(s): Chilliwack, BC
Cobourg, ON
Edmonton, AB
Winnipeg, MB

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

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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, EIT
Engineer, Building Products

Reviewed by: _____
Kal Kooner, EIT
Team Leader, Engineering Services Canada

Intertek ETL SEMKO
Testing everywhere for markets anywhere.

REVISION SUMMARY

DATE	SUMMARY
February 1, 2007	Added additional reference to 2005 NBC and maximum permeance requirements

7.2.5 – 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/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"

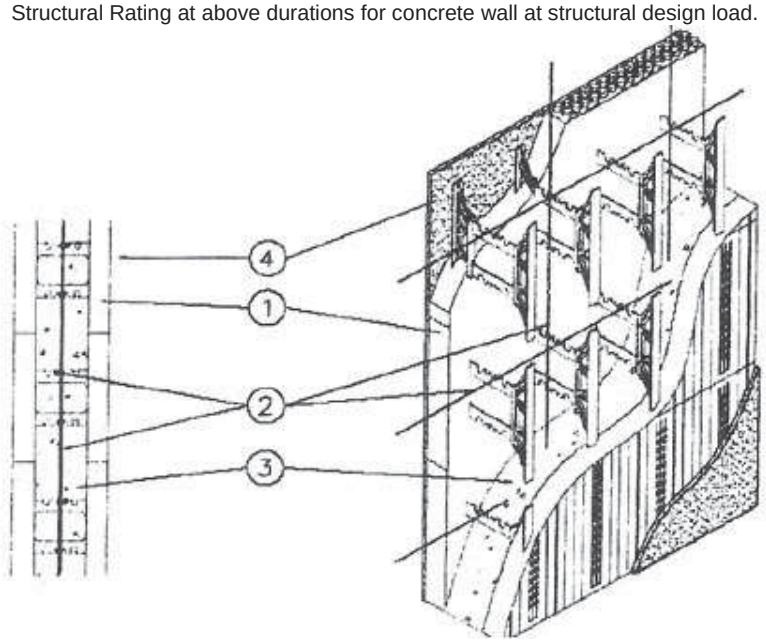
	Component	EPS Classification
ASTM C578 Ratings:	EPS Panels	Type II
CAN/ULC S701 Ratings:	EPS Panels	Type 2

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

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.

***

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.

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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.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).		

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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"

8.0 – TECHNICAL SPECIFICATIONS + REFERENCES

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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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LOGIX INSULATED CONCRETE FORMS
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LOGIX INSULATED CONCRETE FORMS
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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LOGIX INSULATED CONCRETE FORMS
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

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
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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STRAIGHT FORMS

LOGIX FORM PANELS		STANDARD					TAPER TOP					BRICK LEDGE					TRANSITION				
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
	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	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	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	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.

TECHNICAL SPECIFICATIONS + REFERENCES

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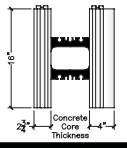
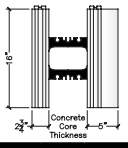
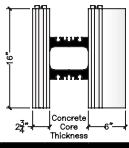
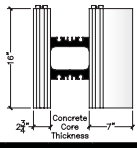
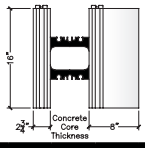
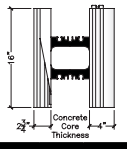
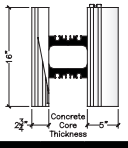
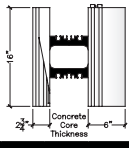
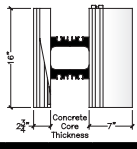
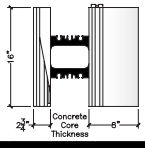
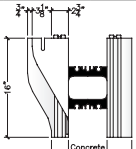
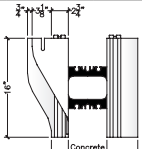
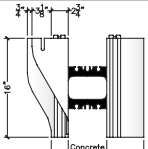
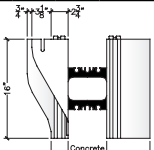
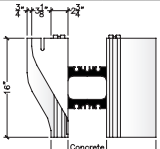
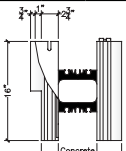
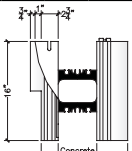
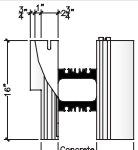
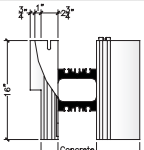
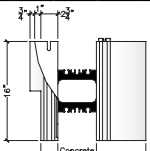
LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

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

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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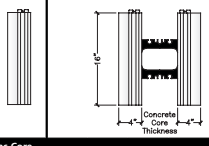
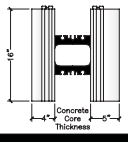
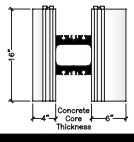
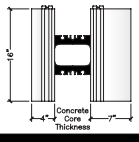
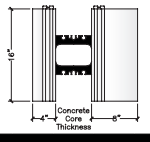
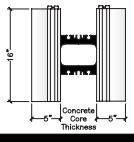
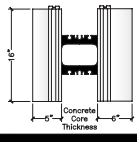
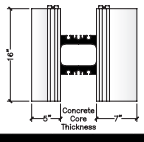
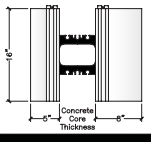
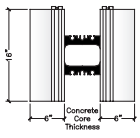
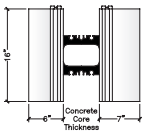
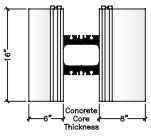
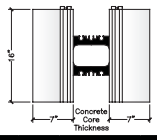
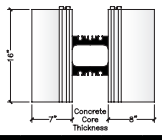
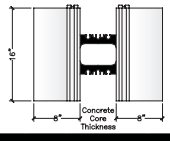
XRV FORMS

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
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
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
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
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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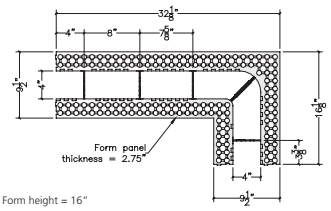
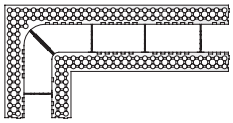
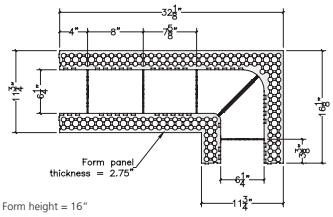
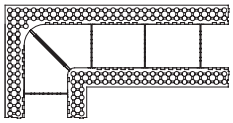
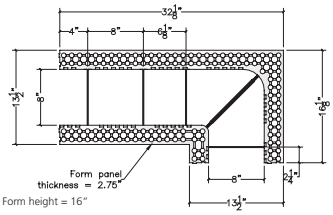
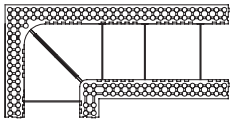
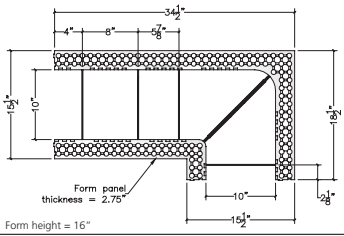
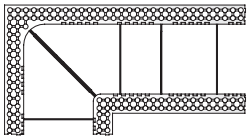
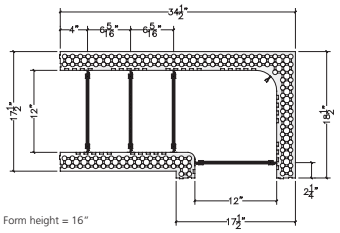
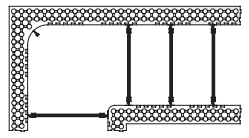
CORNER FORMS

	Left Hand Corner Form	Right Hand Corner Form
4 inch Concrete Core Thickness		
Form 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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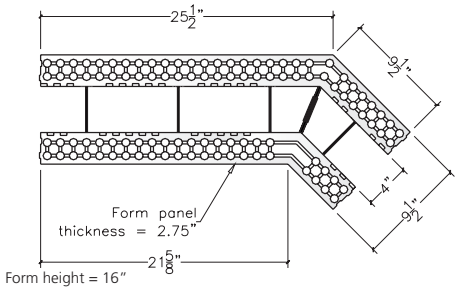
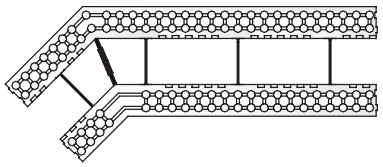
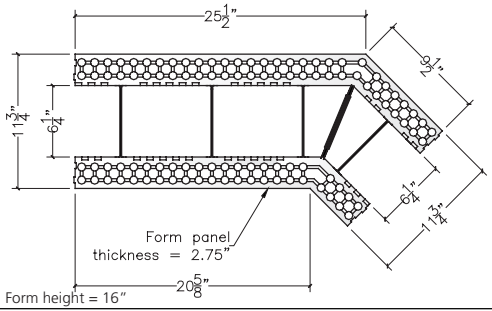
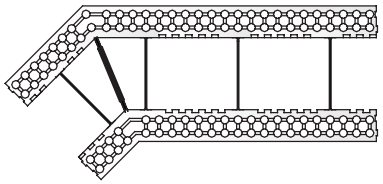
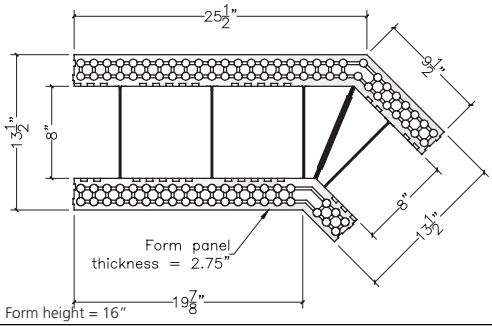
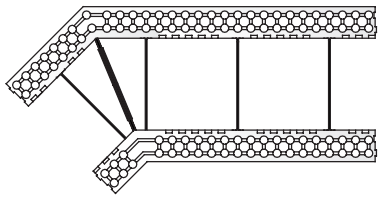
45° FORMS

	Left Hand 45° Form	Right Hand 45° Form
4 inch Concrete Core Thickness	 Form 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

TECHNICAL SPECIFICATIONS + REFERENCES

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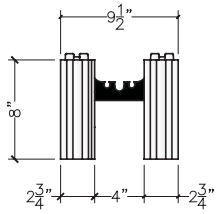
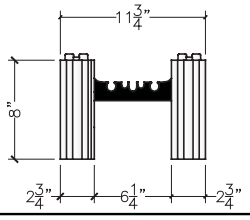
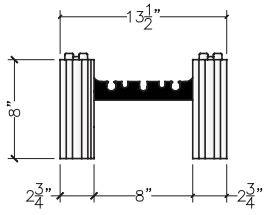
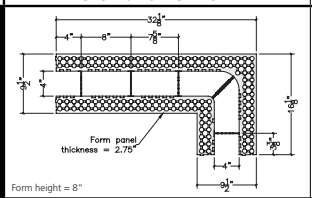
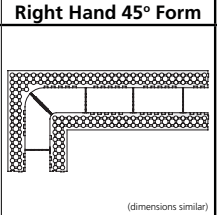
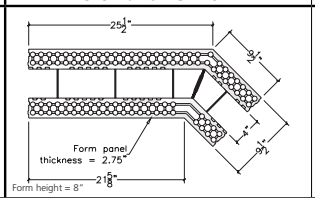
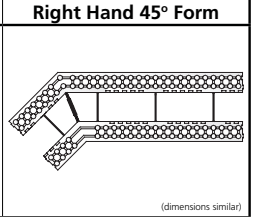
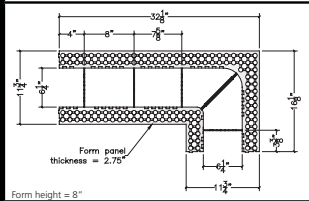
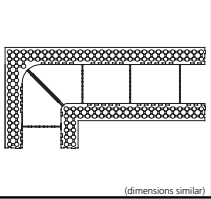
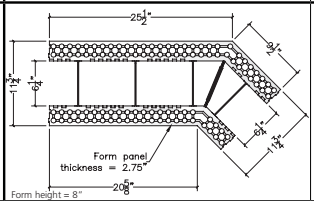
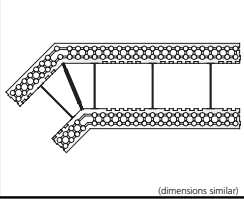
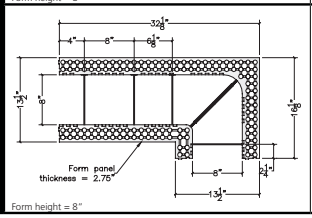
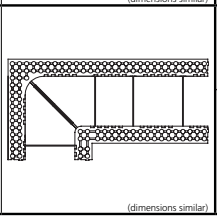
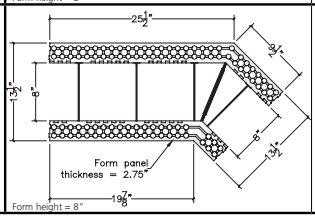
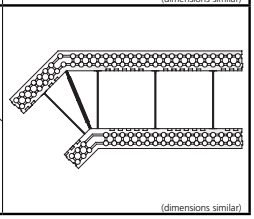
GENERAL SPECIFICATIONS SHEET, CONT'D

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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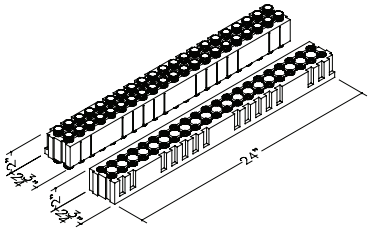
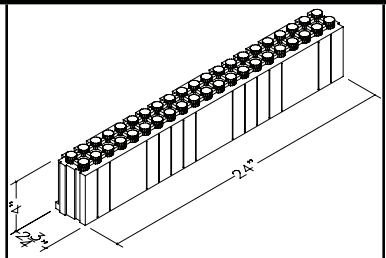
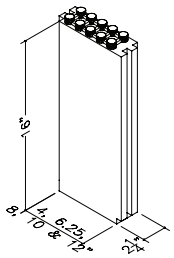
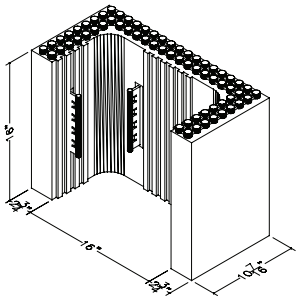
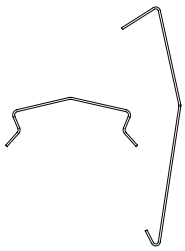
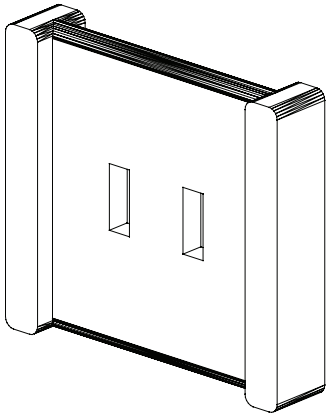
LOGIX INSULATED CONCRETE FORMS
GENERAL SPECIFICATIONS SHEET, CONT'D

ACCESSORIES

LOGIX ACCESSORIES

		
FleX Bars	**Height Adjuster**	**End Cap**
		
Pilaster	**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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GENERAL SPECIFICATIONS SHEET, CONT'D

90⁰ 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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LOGIX INSULATED CONCRETE FORMS
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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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.

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.

Reprinted from: THE MANUAL OF STANDARD PRACTICE by the Concrete Reinforcing Steel Institute, January 1997.

RECOMMENDED INDUSTRY PRACTICE FOR PLACING REINFORCING BARS*

1. Introduction

These recommendations for placing reinforcing bars are partially based upon the ACI Building Code.

2. General

Reinforcing bars should be accurately placed in the positions shown on the placing drawings and adequately tied and supported before concrete is placed, and secured against displacement within the tolerances recommended in Section 8.

Welding of crossing bars (tack welding) should not be permitted for assembly of reinforcement unless authorized by the Architect/Engineer.

3. Surface Condition of Reinforcement

At the time of concrete placement, all reinforcing bars should be free of mud, oil, or other deleterious materials. Reinforcing bars with rust, mill scale, or a combination of both should be considered as satisfactory, provided the minimum dimensions, weight, and height of deformations of a hand-wire-brushed test specimen are not less than the applicable ASTM specification requirements.

4. Bending

Reinforcing bars should not be bent or straightened in a manner that will injure the material. Bars with kinks or improper bends should not be used. Except for realignment of #7 through #18 rebar up to about 30° bend and #3 through #6 rebar up to about a 45° bend, no bars partially embedded in concrete should be field bent, except as shown on the project drawings or permitted by the Architect/Engineer.

5. Spacing of Reinforcement

The clear distance between parallel reinforcing bars in a layer should not be less than the nominal diameter of the bars, nor 1 in. Clear distance should also not be less than one and one-third times the nominal maximum size of the coarse aggregate, except if in the judgement of the Architect/Engineer, workability and methods of consolidation are such that concrete can be placed without honeycomb or voids.

Where parallel reinforcement is placed in two or more layers, the bars in the upper layers should be placed directly above those in the bottom layer with the clear distance between layers not less than 1 in.

Groups of parallel reinforcing bars bundled in contact, assumed to act as a unit, not more than four in any one bundle may be used only when stirrups or ties enclose the bundle. Bars larger than #11 should not be bundled in beams or girders. Individual bars in a bundle cut off within the span of flexural members should terminate at different points with at least 40 bar diameters stagger. Where spacing limitations and minimum clear cover are based on bar size, a unit of bundled bars should be treated as a single bar of a diameter derived from the equivalent total area.

In walls and slabs other than concrete joist construction, the principal reinforcement should not be spaced farther apart than three times the wall or slab thickness, nor more than 18 in.

In spirally reinforced and tied columns, the clear distance between longitudinal bars should not be less than one and one-half times the nominal bar diameter, nor 1½ in.

The clear distance limitation between bars should also apply to the clear distance between a contact lap splice and adjacent splices or bars.

6. Splices in Reinforcement**

6.1 General

Splicing of reinforcing bars should be either by lapping, mechanical connections, or by welding.

Splices of reinforcing bars should be made only as required or permitted on the project drawings or in the project specifications, or as authorized by the Architect/Engineer. All welding should conform to the current edition of "Structural Welding Code—Reinforcing Steel" (ANSI/AWS D1.4).

6.2 Lap Splices

Lap splices of #14 and #18 bars should not be used, except in compression only to #11 and smaller bars.

Lap splices of bundled bars should be based on the lap splice length recommended for individual bars of the same size as the bars spliced, and such individual splices within the bundle should not overlap each other. The length of lap should be increased 20 percent for a 3-bar bundle and 33 percent for a 4-bar bundle.

Bar laps placed in contact should be securely wired together in such a manner as to maintain the alignment of the bars and to provide minimum clearances.

Bars spliced by noncontact lap splices in flexural members should not be spaced transversely farther apart than one-fifth the required length of lap nor 6 in.

*For more complete recommendations on bar placement, see *Placing Reinforcing Bars* available from the Concrete Reinforcing Steel Institute.
**See *Reinforcement, Anchorages, Lap Splices and Connections* by the Concrete Reinforcing Steel Institute.

8.4 – STANDARD PRACTICE - SPLICING & DOWELS

Lap Splices

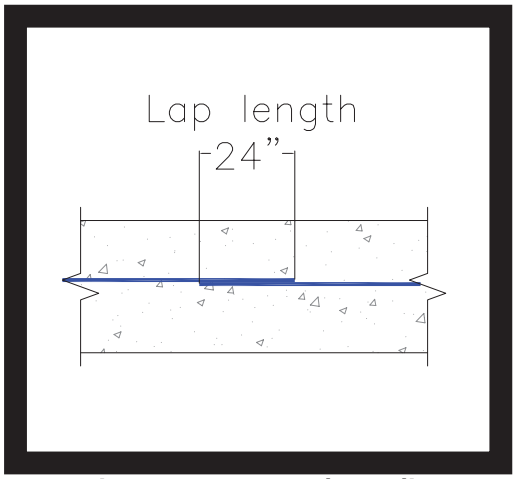

Figure 1a: Contact lap splices

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.

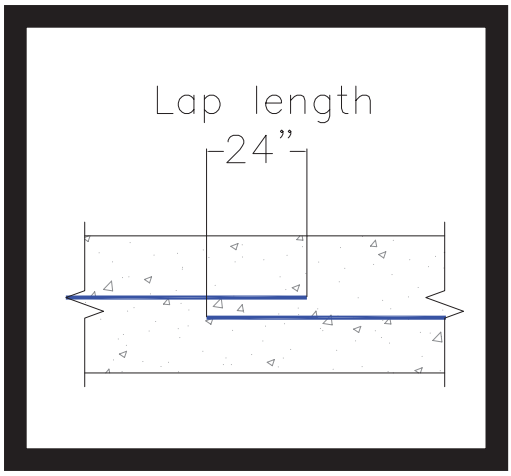

Figure 1b: Non-contact lap splices

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,

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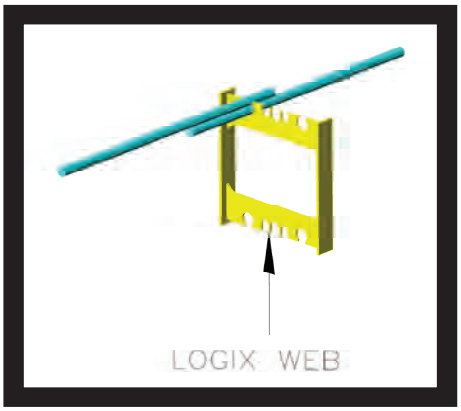

Figure 2a: Contact lap splices

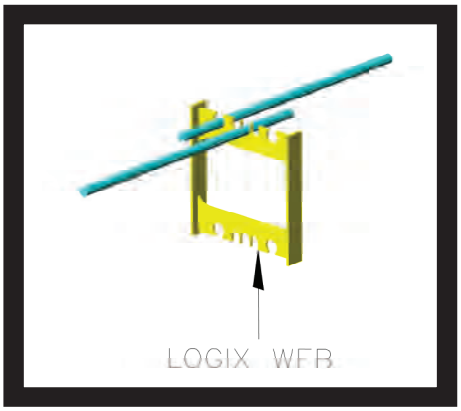

Figure 2b: Non-contact lap splices

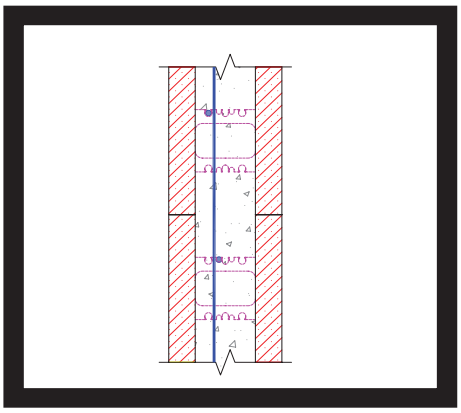

Figure 3: Vertical rebar in LOGIX ICF wall system

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**).

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8.4 – STANDARD PRACTICE - SPLICING & DOWELS CONTINUED

Footing Dowels

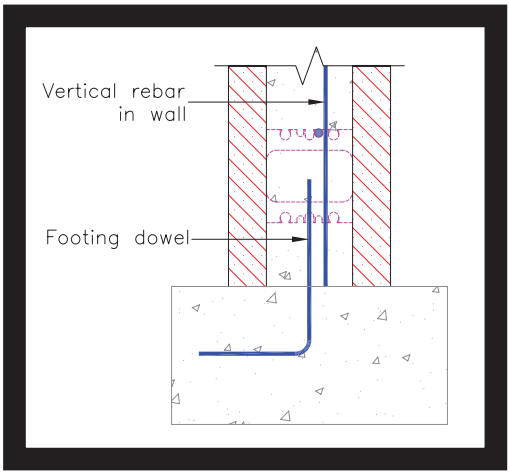
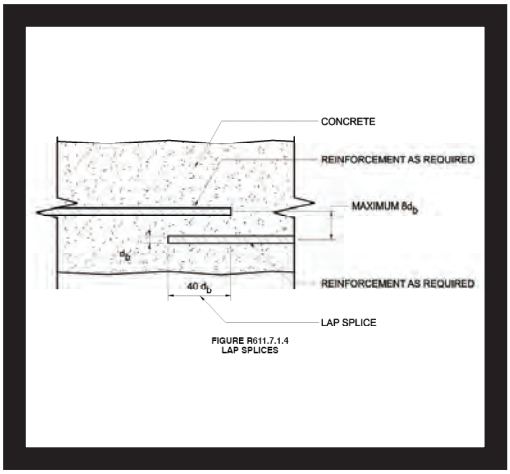


Figure 4: Wall/Footing connection

Footing dowels connects the wall to the footing (see **Figure 4**). This prevents wall movement at the wall/footing joint caused mainly by soil loads. In residential construction, the vertical rebar in the wall itself does not contribute to the strength of the wall/footing connection and hence is not required to splice with the footing or match the spacing of the footing dowels. In cases, where lap splice may be required, non-contact lap splices are permitted.



R611.7.1.4

Lap Splices –Building & Design Code References

International Building Code 2003 (IBC 2003), R611.7.1.4:

"R611.7.1.4 Lap Splices. Where lap slicing of vertical or horizontal reinforcing steel is necessary, the lap slice shall be in accordance with Figure R611.7.1.4 and a minimum of 40db, where db is the diameter of the smaller. The maximum distance between noncontact parallel bars at a lap slice shall not exceed 8db."

National Building Code 1995 (NBC 1995), 4.3.3.1:

Clause 4.3.3.1 references concrete design code, CSA A23.3 (specifically CSA A23.3, 12.14.2.3):

"12.14.2.3
Bars spliced by lap splices in flexural members shall have a transverse spacing not exceeding the lesser of one-fifth of the required lap splice length or 150mm."

8.5 – LOGIX R-VALUES

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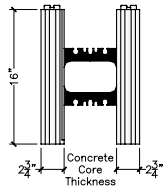
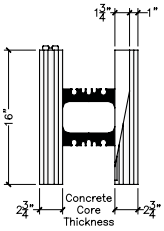
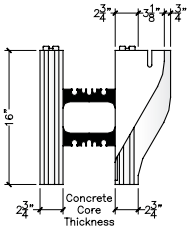
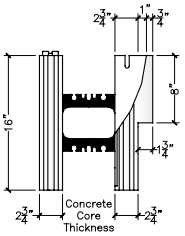
STANDARD 								
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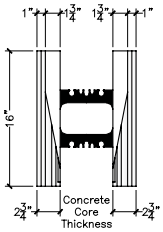
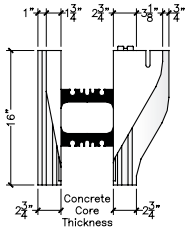
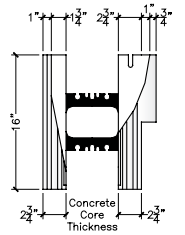
TAPER TOP 								
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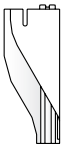
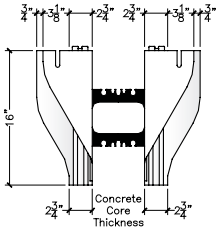
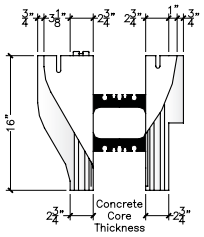
BRICK LEDGE 								
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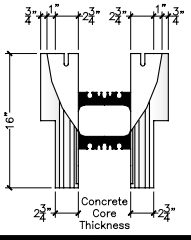
TRANSITION 								
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1. R1 denotes total R-value of form panels only (per ASTM C518 at average mean temperature of 75deg F.). R2 denotes total R-value of a wall assembly consisting of form panels, 4 inch concrete core, 1/2 inch drywall and interior airfilm. R1 and R2 are based on imperial units. R-values are based on independent testing conducted by Intertek Testing Services.

8.5 – LOGIX R-VALUES CONTINUED

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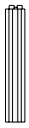
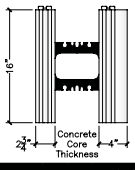
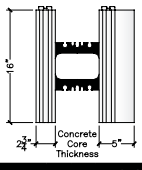
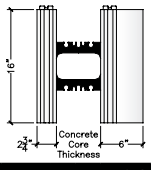
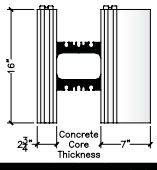
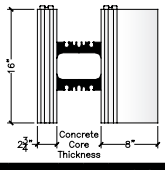
STANDARD 										
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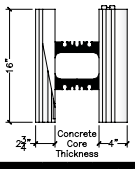
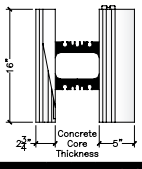
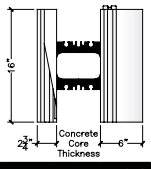
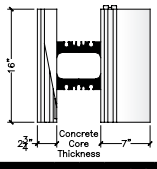
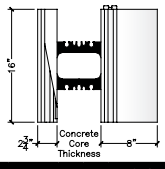
TAPER TOP 										
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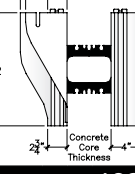
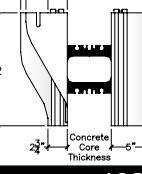
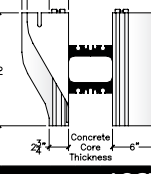
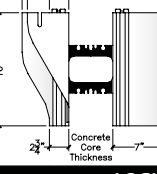
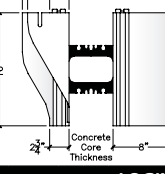
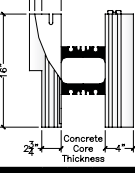
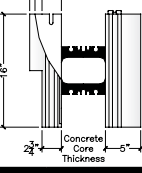
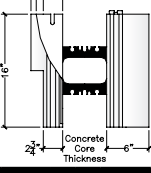
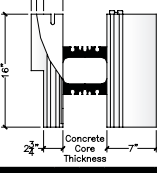
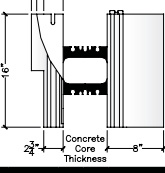
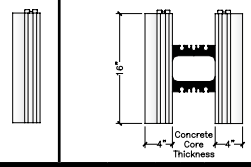
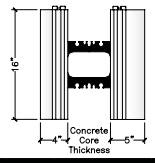
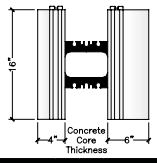
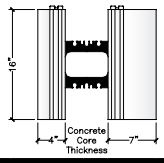
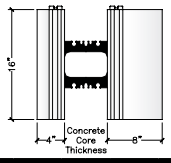
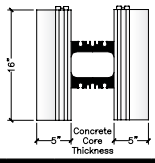
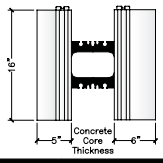
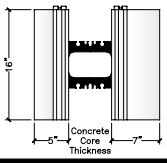
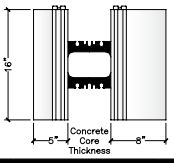
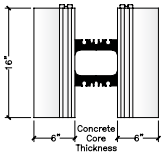
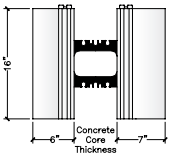
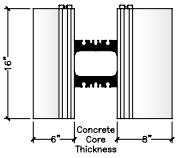
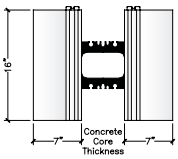
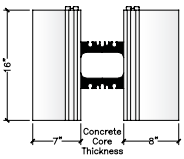
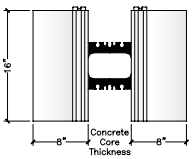
BRICK LEDGE 										
	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM
R1/R2 (RSI)[1]	28/29 (4.91/5.16)	32/33 (5.6/5.85)	32/33 (5.64/5.89)	37/38 (6.43/6.68)	36/38 (6.36/6.61)	41/43 (7.26/7.51)	40/42 (7.09/7.34)	46/47 (8.09/8.34)	44/46 (7.82/8.07)	51/52 (8.92/9.17)
TRANSITION 										
	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	LOGIX PLATINUM	LOGIX	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.