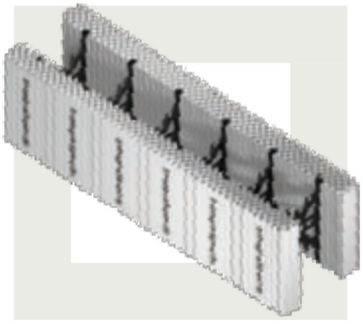
Integra SPEC®

ICF BUILDING SYSTEM

ENGINEERING GUIDE -

TYPICAL DETAILS AND TABLES



AWARD WINNING ICF

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CONTENT

Please Note: This engineering manual is intended as a guide, please refer to your local building code and or structural engineer(s).

Table1 Required Reinforcement for Varying Height Basement Walls (150mm/6")

MAX. HEIGHT OF FINISHED GRADE ABOVE BASEMENT FLOOR (BACKFILL HEIGHT)	REQUIRED VERTICAL REINFORCEMENT FOR MAXIMUM BASEMENT WALL HEIGHT		
	2.4m (8 ft.)	2.7m (9 ft.)	3.0m (10 ft.)
1.2m (4'– 0")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")
1.35m (4'– 6")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")
1.6m (5'- 3")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")
1.8m (6'- 0")	10M (#4) @ 400 (16")	10M (#4) @ 400 (16")	15M (#5) @ 400 (16")
2.0m (6'- 6")	15M (#5) @ 400 (16")	15M (#5) @ 400 (16")	15M (#5) @ 400 (16")
2.2m (7'- 3")	15M(#5) @ 400 (16")	15M (#5) @ 400 (16")	15M (#5) @ 400 (16")
2.35m (7'- 9")	15M (#5) @ 400 (16")	15M (#5) @ 400 (16")	15M (#5) @ 400 (16")
2.6m (8'- 6")	____	15M (#5) @ 200 (8")	15M (#5) @ 200 (8")
2.8m (9'- 3")	____	____	15M (#5) @ 200 (8")
3.0m (9'- 9")	____	____	15M (#5) @ 200 (8")

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Table 1a Required Reinforcement for Varying Height Basement Walls (200mm / 8”)

MAX. HEIGHT OF FINISHED GRADE ABOVE BASEMENT FLOOR (BACKFILL HEIGHT)	REQUIRED VERTICAL REINFORCEMENT FOR MAXIMUM BASEMENT WALL HEIGHT			
	3.0m (10 ft.)	3.3m (11 ft.)	3.6m (12 ft.)	3.9m (13 ft.)
< 2.6m (< 8’ – 6”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)
2.8m (9’ – 2”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.0m (9’ – 10”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.2m (10’ – 6”)	–	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.4m (11’ – 2”)	–	–	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)
3.6m (11’ – 10”)	–	–	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)
3.8m (12’ – 6”)	–	–	–	15M (#5) @ 200 (8”)

Alternative Rebar:

15M (#5) @ 400 (16”) may be replaced by 10M (#4) @ 200 (8”) or 2-10M (#4) @ 400 (16”)
20M (#6) @ 400 (16”) may be replaced by 2-15M (#5) @ 400 (16”) or 15M (#5) @ 400 (16”) + 10M (#4) @ 400 (16”) – alternating bars @ 200 (8”)

Note: For commercial, industrial or institutional applications, minimum horizontal reinforcing steel shall be 15M (#5) @ 300 (12”) or 15M (#5) @ 600 (24”) + 10M (#4) @ 600 (24”) – alternating bars @ 300 (12”).

For residential applications, minimum horizontal steel shall be 10M (#4) @ 600 (24”).

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Table 1b Required Reinforcement for Varying Height Basement Walls (250mm / 10”)

MAX. HEIGHT OF FINISHED GRADE ABOVE BASEMENT FLOOR (BACKFILL HEIGHT)	REQUIRED VERTICAL REINFORCEMENT FOR MAXIMUM BASEMENT WALL HEIGHT			
	3.9m (13 ft.)	4.2m (14 ft.)	4.5m (15 ft.)	4.8m (16 ft.)
< 2.8m (< 9’ – 2”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)
3.0m (9’ – 10”)	15M (#5) @ 400 (16”)	15M (#5) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.2m (10’ – 6”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.4m (11’ – 2”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)
3.6m (11’ – 10”)	20M (#6) @ 400 (16”)	20M (#6) @ 400 (16”)	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)
3.8m (12’ – 6”)	20M (#6) @ 400 (16”)	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)
4.0m (13’ – 1”)	–	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)	15M (#5) @ 200 (8”)
4.2m (13’ – 9”)	–	15M (#5) @ 200 (8”)	20M (#6) @ 200 (8”)	20M (#6) @ 200 (8”)
4.4m (14’ – 5”)	–	–	20M (#6) @ 200 (8”)	20M (#6) @ 200 (8”)
4.6m (15’ – 1”)	–	–	–	20M (#6) @ 200 (8”)
4.8m (15’ – 9”)	–	–	–	20M (#6) @ 200 (8”)

Alternative Rebar:

15M (#5) @ 400 (16”) may be replaced by 10M (#4) @ 200 (8”) or 2-10M (#4) @ 400 (16”)
20M (#6) @ 400 (16”) may be replaced by 2-15M (#5) @ 400 (16”) or 15M (#5) @ 400 (16”) + 10M (#4) @ 400 (16”) – alternating bars @ 200 (8”).

Note: Indicated reinforcement applies to commercial, industrial and institutional applications. Minimum horizontal steel shall be 15M (#5) @ 300 (12”) or 15M (#5) @ 600 (24”) + 10M (#4) @ 600 (24”) – alternating bars @ 300 (12”).

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Notes for Tables 1, 1a, and 1b

- Wall is laterally supported at top and bottom.
- Concrete strength: 20 MPa (3000 P.S.I.).
- Lateral pressures on foundation wall are based on a drained earth material and average stable soil conditions.
- 4.8 kPa (100 P.S.F.) surcharge applied adjacent to wall.
- Yield strength of reinforcing bars: 400 MPa (60 K.S.I.).
- Foundation walls containing openings more than 1200mm (4') in length or which contain openings in more than 25% of their length shall be reinforced around the openings to resist the earth pressure.
- When the length of solid wall between windows is less than the average length of the windows, the outside dimension between the windows shall be considered as a single opening.
- Vertical reinforcing bars are to be secured in position at the interior (tension side) of the wall the following dimension from the exterior concrete face:
    - 110 mm (4¼") for 150 mm (6") wall
    - 160 mm (6¼") for 200 mm (8") wall
    - 210 mm (8¼") for 250 mm (10") wall

  Typical horizontal rebar for residential applications shall be 10M (#4) @ 600 (24") and as noted for commercial, industrial or institutional applications. Vertical bars to extend to top of wall.
- Lap length shall be as follows:
    - 450 mm (18") for 10M (#4) bars
    - 650 mm (26") for 15M (#5) bars
    - 850 mm (34") for 20M (#6) bars
- For unsupported wall heights and grade heights between values shown in table, use next higher value.
- Subfloor installation to be completed or adequate bracing to resist lateral earth pressure to be installed prior to backfilling of wall.

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Table 3 Wall Capacity for Varying Height, Reinforced, Above-Grade Walls* (150mm/6")

Factored Wind Load kPa (PSF)	Horizontal Reinforcing mm (in.)	Vertical Reinforcing mm (in.)	Maximum Factored Axial Load P*f* kN/m (kips/ft)		
			Wall Height		
			2.4 m (8')	3 m (10')	3.6 m (12')
0.50 (10.5)	10M (#4) @ 600 (24")	10M (#4) @ 400 (16") 15M (#5) @ 400 (16")	180 (12.3) 330 (22.6)	165 (11.3) 270 (18.5)	135 (9.3) 225 (15.4)
0.75 (15.7)	10M (#4) @ 600 (24")	10M (#4) @ 400 (16") 15M (#5) @ 400 (16")	175 (12.0) 325 (22.3)	155 (10.6) 265 (18.2)	120 (8.2) 215 (14.7)
1.00 (20.9)	10M (#4) @ 600 (24")	10M (#4) @ 400 (16") 15M (#5) @ 400 (16")	170 (11.6) 320 (21.9)	145 (9.9) 260 (17.8)	105 (7.2) 205 (14.0)
1.25 (26.1)	10M (#4) @ 600 (24")	10M (#4) @ 400 (16") 15M (#5) @ 400 (16")	165 (11.3) 315 (21.6)	130 (8.9) 250 (17.1)	90 (6.2) 195 (13.4)
1.50 (31.3)	10M (#4) @ 600 (24")	10M (#4) @ 400 (16") 15M (#5) @ 400 (16")	160 (11.0) 310 (21.2)	120 (8.2) 240 (16.4)	70 (4.8) 180 (12.3)

* Based on the following assumptions:

Concrete strength *f*'c = 20 MPa (3000 P.S.I.)
Reinforcing steel *f*y = 400 MPa (60 K.S.I.)
Vertical reinforcing placed at centre of wall
Design to CSA A23.3
Maximum eccentricity of applied vertical load = 25mm (1")
Single curvature bending assumed
Top of wall laterally supported

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Table 4. Lintel Table - Metric Steel

Minimum Steel Reinforcement of Lintels [either 150mm (6") or 200mm (8") Core]

Uniformly Distributed Load		Lintel Span in metres (feet)								
plf	kN/m	1.0 (3'–3")	1.5 (5'–0")	2.0 (6'–6")	2.5 (8'–3")	3.0 (9'–9")	3.5 (11'–6")	4.0 (13'–0")	4.5 (14'–9")	5.0 (16'–6")
100	1.5	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M
200	2.9	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M
300	4.4	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–15M
400	5.8	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–15M	2–15M
500	7.3	2–10M	2–10M	2–10M	2–10M	2–10M	2–10M	2–15M	2–15M	2–15M
750	11.0	2–10M	2–10M	2–10M	2–10M	2–10M	2–15M	2–15M	2–15M T 2–20M B	2–15M T 2–20M B
1000	14.6	2–10M	2–10M	2–10M	2–10M	2–15M	2–15M	2–15M T 2–20M B	2–15M T 2–20M B	–
1250	18.3	2–10M	2–10M	2–10M	2–15M	2–15M	2–15M T 2–20M B	2–15M T 2–20M B	–	–
1500	21.9	2–10M	2–10M	2–10M	2–15M	2–15M	2–15M T 2–20M B	–	–	–

- Minimum lintel height = 300 mm (12")
- For lintel height = 250mm (10"), increase bar size to next larger, i.e. 10M to 15M, 15M to 20M etc.
- All Bars Top and Bottom, i.e. 2–10M = 2–10M Top + 2–10M Bottom
- Clear concrete cover = 25 mm (1") [Top and Bottom bars]
- Uniformly distributed load includes service (actual) live and dead loads. If concentrated loads are applied, consider the lintel to have a 50% increase in span to produce the same bending as uniformly distributed load.
- Lintel / load combinations to the right and below solid line require shear reinforcement of 10M stirrups ([ ) at 175 mm (7")
- Concrete strength f'c = 20 MPa
- Reinforcing steel fy = 400 MPa
- Design to CSA A23.3
- Increase bar size to next larger for 250 mm (10") core, i.e. 10M to 15M, 15M to 20M etc.

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Table 4a. Lintel Table - Imperial Steel

Minimum Steel Reinforcement of Lintels [either 150mm (6") or 200mm (8") Core]

Uniformly Distributed Load		Lintel Span in metres (feet)								
plf	kN/m	1.0 (3'–3")	1.5 (5'–0")	2.0 (6'–6")	2.5 (8'–3")	3.0 (9'–9")	3.5 (11'–6")	4.0 (13'–0")	4.5 (14'–9")	5.0 (16'–6")
100	1.5	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#4
200	2.9	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#4
300	4.4	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#5
400	5.8	2#4	2#4	2#4	2#4	2#4	2#4	2#4	2#5	2#5
500	7.3	2#4	2#4	2#4	2#4	2#4	2#4	2#5	2#5	2#5
750	11.0	2#4	2#4	2#4	2#4	2#4	2#5	2#5	2#5 T 2#6 B	2#5 T 2#6 B
1000	14.6	2#4	2#4	2#4	2#4	2#5	2#5	2#5 T 2#6 B	2#5 T 2#6 B	–
1250	18.3	2#4	2#4	2#4	2#5	2#5	2#5 T 2#6 B	2#5 T 2#6 B	–	–
1500	21.9	2#4	2#4	2#4	2#5	2#5	2#5 T 2#6 B	–	–	–

- Minimum lintel height = 300 mm (12")
- For lintel height = 250mm (10"), increase bar size to next larger, i.e. #4 to #5, #5 to #6 etc.
- All Bars Top and Bottom, i.e. 2#4 = 2#4 Top + 2#4 Bottom
- Clear concrete cover = 25 mm (1") [Top and Bottom bars]
- Uniformly distributed load includes service (actual) live and dead loads. If concentrated loads are applied, consider the lintel to have a 50% increase in span to produce the same bending as uniformly distributed load.
- Lintel / load combinations to the right and below solid line require shear reinforcement of #4 stirrups ([ ) at 175 mm (7")
- Concrete strength f'c = 20 MPa (3000 P.S.I.)
- Reinforcing steel fy = 400 MPa (60 K.S.I.)
- Design to CSA A23.3
- Increase bar size to next larger for 250 mm (10") core, i.e. #4 to #5, #5 to #6 etc.

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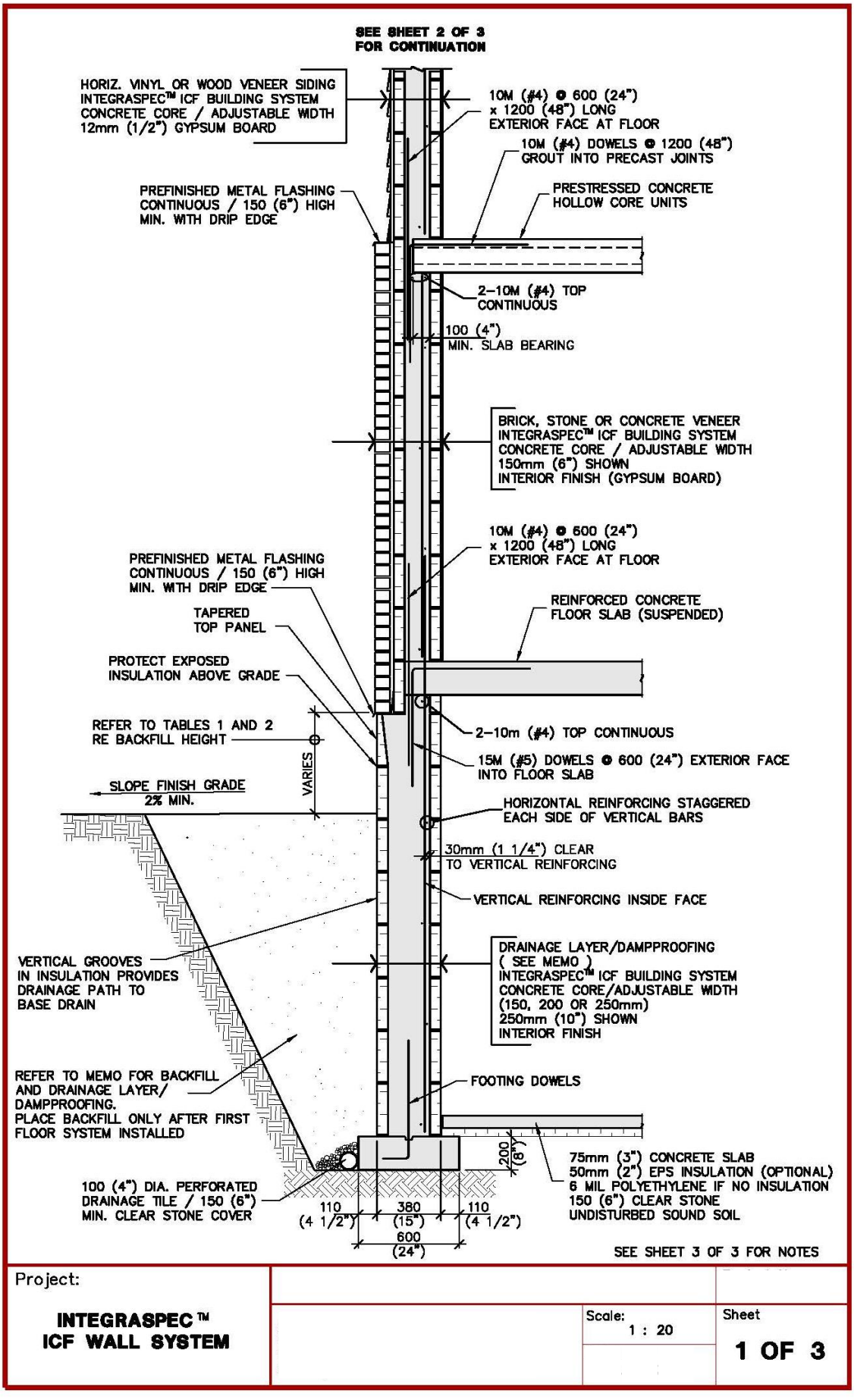

Project:		
INTEGRASPEC™ ICF WALL SYSTEM	Scale: 1 : 20	Sheet **1 OF 3**

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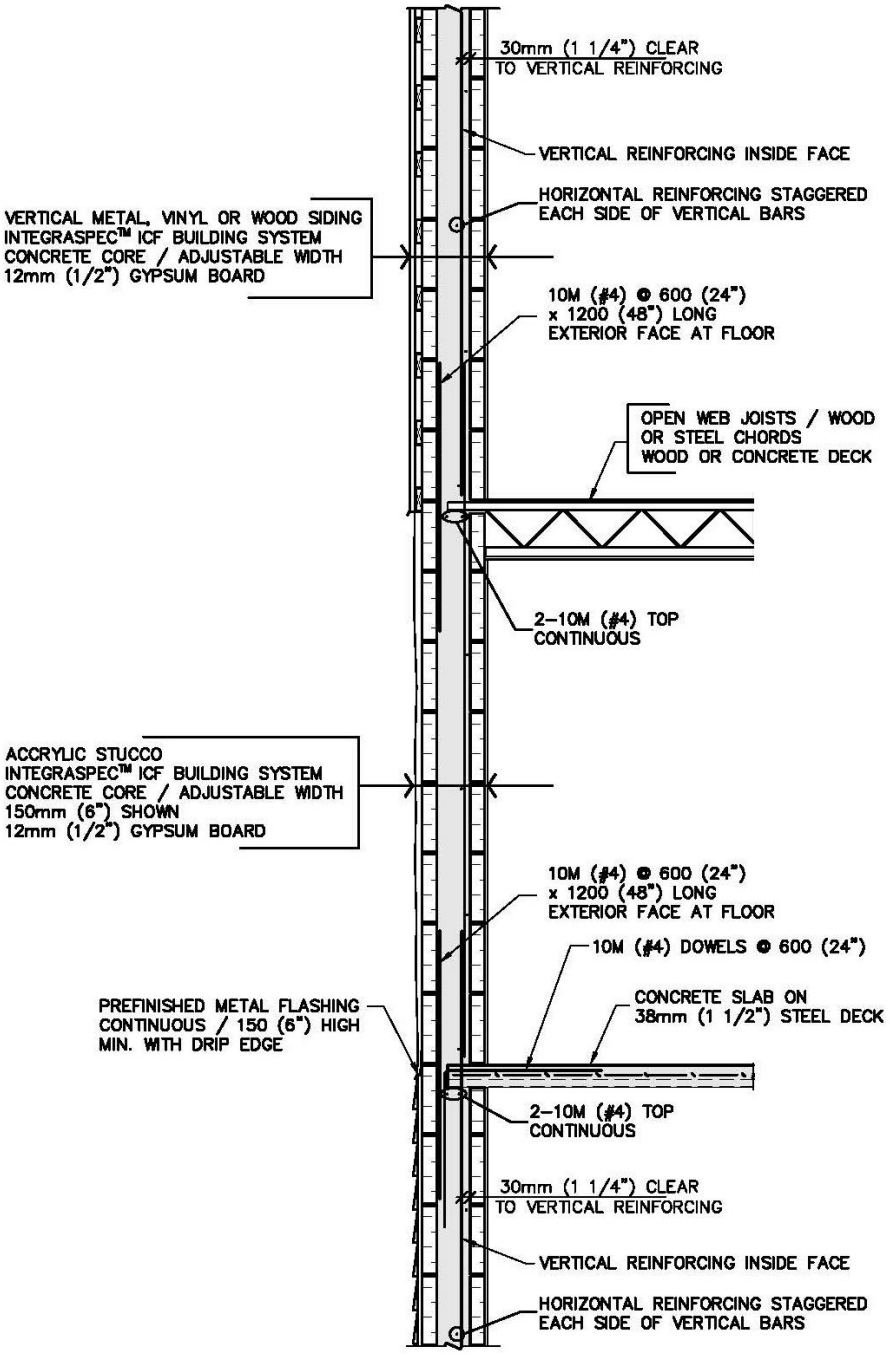
SEE SHEET 3 OF 3
FOR CONTINUATION



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SEE SHEET 3 OF 3 FOR NOTES

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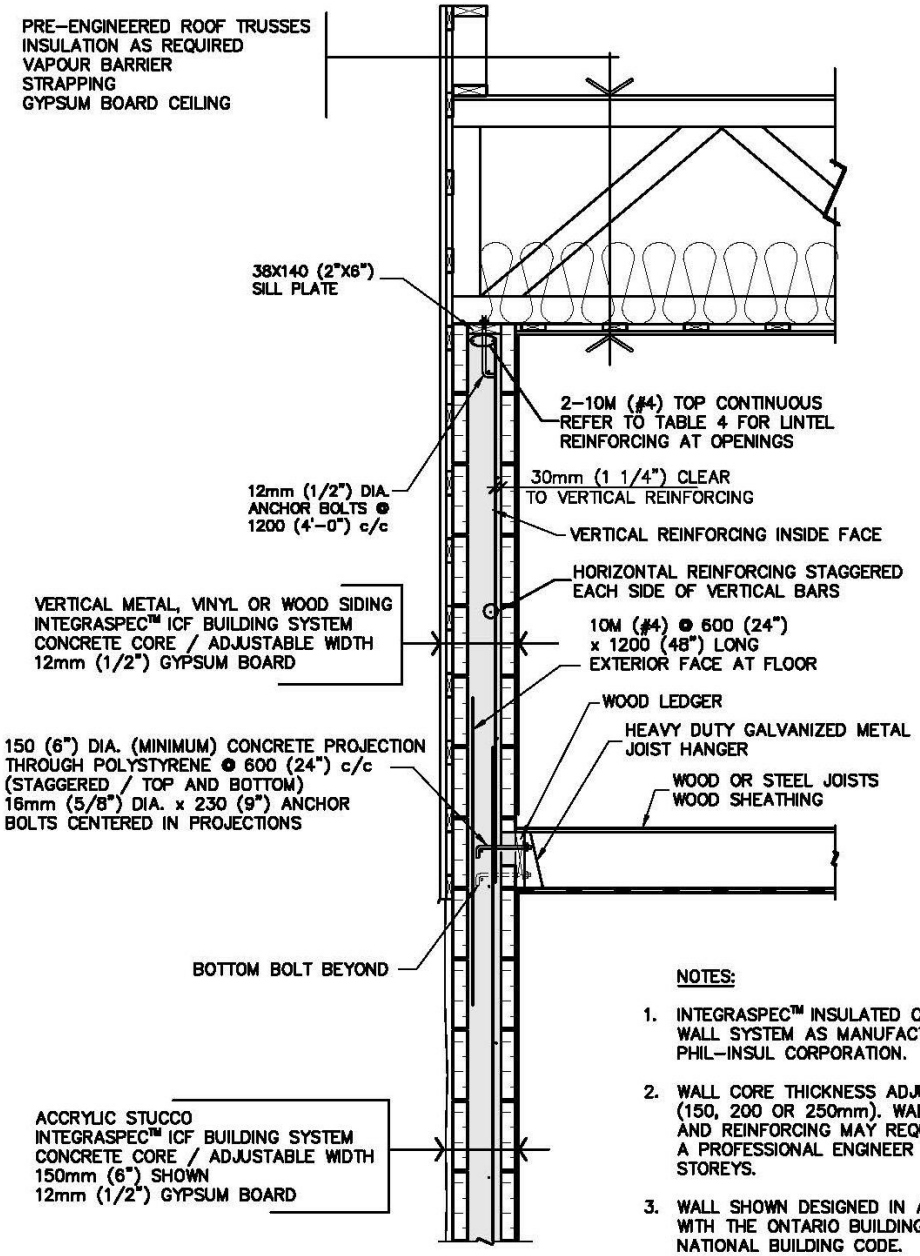

SEE SHEET 2 OF 3 FOR CONTINUATION

NOTES:

1. INTEGRASPEC™ INSULATED CONCRETE FORM WALL SYSTEM AS MANUFACTURED BY PHIL-INSUL CORPORATION.
2. WALL CORE THICKNESS ADJUSTABLE (150, 200 OR 250mm). WALL THICKNESS AND REINFORCING MAY REQUIRE CHECKING BY A PROFESSIONAL ENGINEER ABOVE THREE STOREYS.
3. WALL SHOWN DESIGNED IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND NATIONAL BUILDING CODE.
4. REFER TO TABLES 1, 2, 3, AND 4 FOR REINFORCING REQUIREMENTS.
5. PROVIDE 600x600 (24"x24") HORIZONTAL L BARS EXTERIOR FACE AT CORNERS AT SAME SIZE AND SPACING AS HORIZONTAL BARS INSIDE FACE.
6. VARIETY OF FLOOR SYSTEMS AND EXTERIOR CLADDING TYPES APPLICABLE AS INDICATED IN SHEETS 1, 2 AND 3.
7. CONCRETE STRENGTH AT 28 DAYS 20 MPa (3,000 P.S.I.)
8. REINFORCING STEEL YIELD STRENGTH 400 MPa (60,000 P.S.I.). ALL BARS DEFORMED.

Project:		
INTEGRASPEC™ ICF WALL SYSTEM	Scale: 1 : 20	Sheet **3 OF 3**

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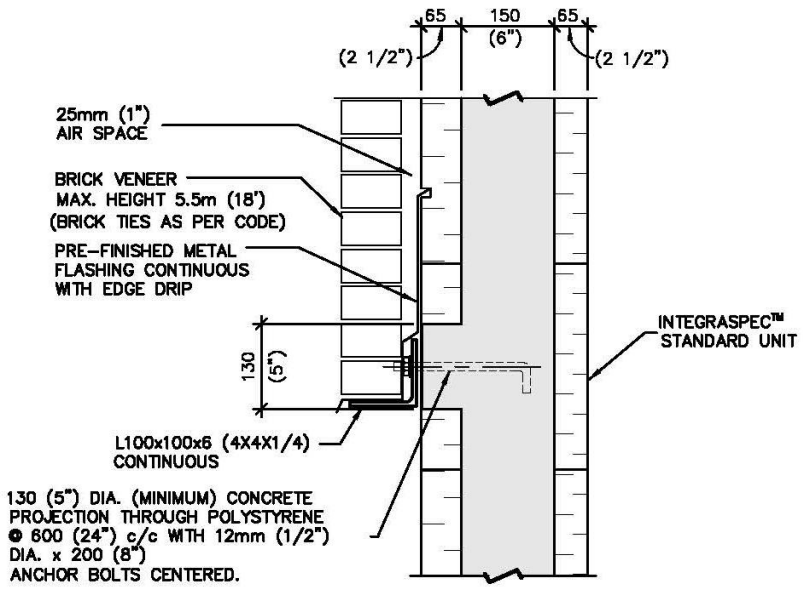
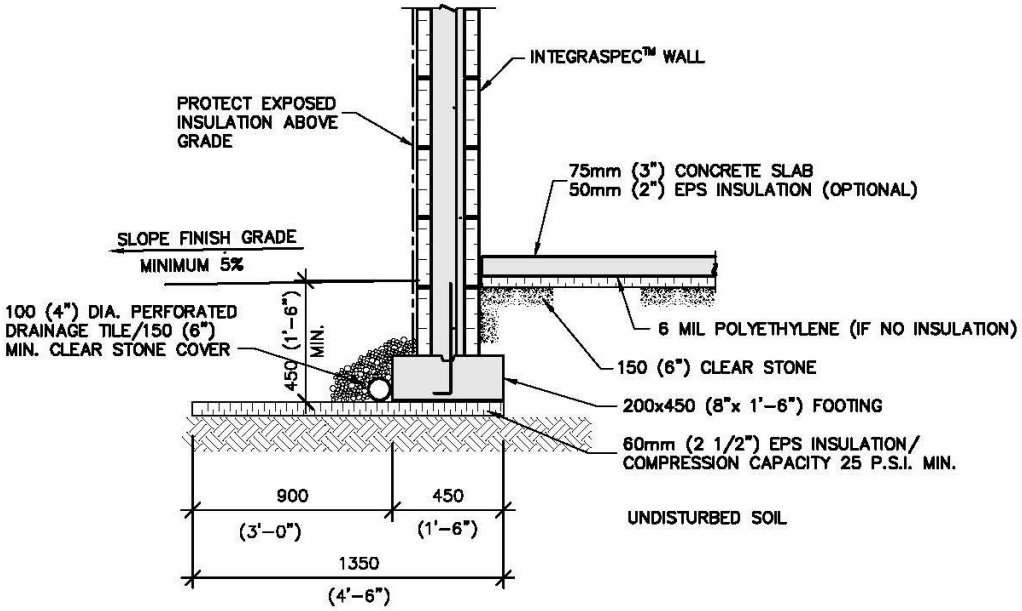
NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS



INTEGRASPEC™ WALL / BRICK SUPPORT ANGLE DETAIL

ANGLE LEG MAY BE TURNED UP (AS SHOWN) OR DOWN



INTEGRASPEC™ WALL / SHALLOW FOOTING DETAIL

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Table 5 a **Foundation Wall Footing Sizes**

Roof : Span = 10m (32'-10") +0.5m (1'-8") overhang

Live Load (0.6 Ss + Sr)	2.1 kPa (44 PSF)
Dead Load (wood trusses)	0.6 kPa (12.5 PSF)

Floors: Span = 4.9m (16.1')

Live Load	1.9 kPa (39.7 PSF)
Dead Load (wood framing)	0.25 kPa (5.2 PSF)

Basement Wall: IntegraSpec™ wall with 150mm (6 in.) concrete core

Exterior Wall (Above Ground Floor)	Design Soil Bearing kPa	PSF	Footing Size 2 Storeys	3 Storeys
IntegraSpec™ 150mm (6in.) core c/w Masonry Veneer	50	(1040)	Design Required	Design Required
	75	(1565)	750mm x 200 (2'-6" x 8")	1000mm x 300 (3'-4" x 12")
	100	(2085)	600mm x 200 (2'-0" x 8")	750mm x 250 (2'-6" x 10")
	125	(2605)	450mm x 150 (1'-6" x 6")	600mm x 200 (2'-0" x 8")
	150	(3125)	450mm x 150 (1'-6" x 6")	500mm x 150 (1'-8" x 6")
	200	(4170)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")

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Exterior Wall (Above Ground Floor)	Design Soil Bearing		Footing Size	
	kPa	PSF	2 Storeys	3 Storeys
IntegraSpec™ 150mm (6 in.) core c/w Wood, Metal or Vinyl Siding	50	(1040)	1050mm x 250 (3'-6" x 10")	Design Required
	75	(1565)	700mm x 200 (2'-4" x 8")	900mm x 250 (3'-0" x 10")
	100	(2085)	550mm x 150 (1'-10" x 6")	650mm x 200 (2'-2" x 8")
	125	(2605)	450mm x 150 (1'-6" x 6")	550mm x 200 (1'-10" x 8")
	150	(3125)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")
	200	(4170)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")

Exterior Wall (Above Ground Floor)	Design Soil Bearing		Footing Size	
	kPa	PSF	2 Storeys	3 Storeys
Wood Stud c/w Masonry Veneer	50	(1040)	850mm x 200 (2'-10" x 8")	1000mm x 250 (3'-4"x10")
	75	(1565)	600mm x 150 (2'-0" x 6")	700mm x 200 (2'-4" x 8")
	100	(2085)	450mm x 150 (1'-6" x 6")	500mm x 150 (1'-8" x 6")
	125	(2605)	450mm x 150 (1'-10" x 6")	450mm x 150 (1'-6"x 6")
	150	(3125)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")
	200	(4170)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")

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Table 5 b **Foundation Wall Footing Sizes**

Roof : Span = 12m (39'-4") +0.5m (1'-8") overhang

Live Load (0.6 Ss + Sr)	2.1 kPa (44 PSF)
Dead Load (wood trusses)	0.6 kPa (12.5 PSF)

Floors: Span = 6m (19'-8")

Live Load	1.9 kPa (39.7 PSF)
Dead Load (wood framing)	0.25 kPa (5.2 PSF)

Basement Wall: IntegraSpec™ wall with 150mm (6 in.) concrete core

Exterior Wall (Above Ground Floor)	Design Soil Bearing		Footing Size	
	kPa	PSF	2 Storeys	3 Storeys
IntegraSpec™ 150mm (6 in.) core c/w Masonry Veneer	50	(1040)	Design Required	Design Required
	75	(1565)	850mm x 250 (2'-10" x 10")	1050mm x 300 (3'-6" x 12")
	100	(2085)	650mm x 200 (2'-2" x 8")	800mm x 250 (2'-8" x 10")
	125	(2605)	500mm x 150 (1'-8" x 6")	700mm x 250 (2'-4" x 10")
	150	(3125)	450mm x 150 (1'-6" x 6")	550mm x 200 (1'-10" x 8")
	200	(4170)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")

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Exterior Wall (Above Ground Floor)	Design Soil Bearing		Footing Size	
	kPa	PSF	2 Storeys	3 Storeys
Wood Stud c/w Wood, Metal or Vinyl Siding	50	(1040)	850mm x 200 (2'-10" x 8")	950mm x 200 (3'-2" x 8")
	75	(1565)	550mm x 150 (1'-10" x 6")	650mm x 200 (2'-2" x 8")
	100	(2085)	450mm x 150 (1'-6" x 6")	500mm x 150 (1'-8" x 6")
	125	(2605)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")
	150	(3125)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")
	200	(4170)	450mm x 150 (1'-6" x 6")	450mm x 150 (1'-6" x 6")

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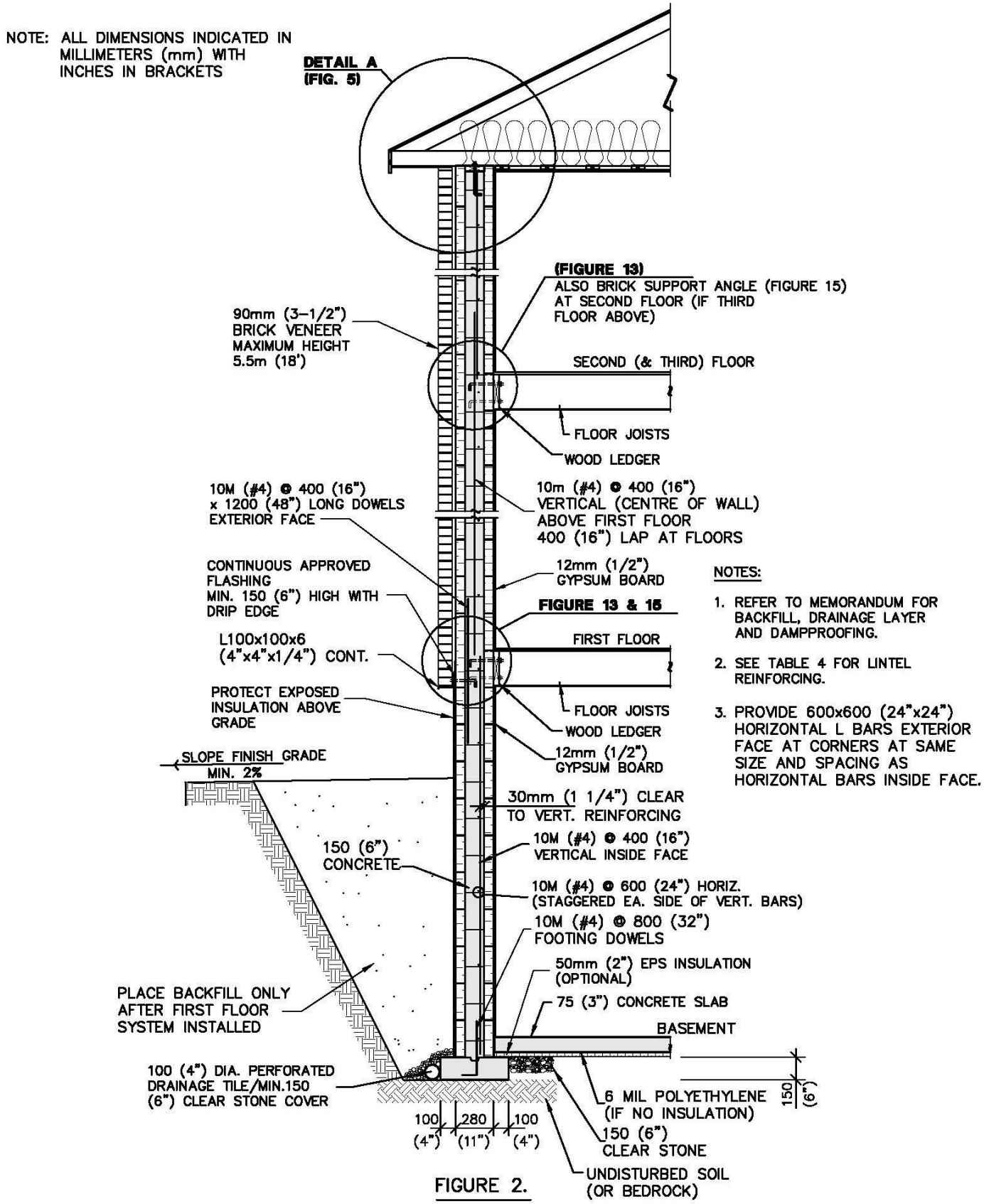

FIGURE 2.

INTEGRASPEC® BASEMENT, FIRST, SECOND AND THIRD FLOOR WALL, WITH BRICK VENEER

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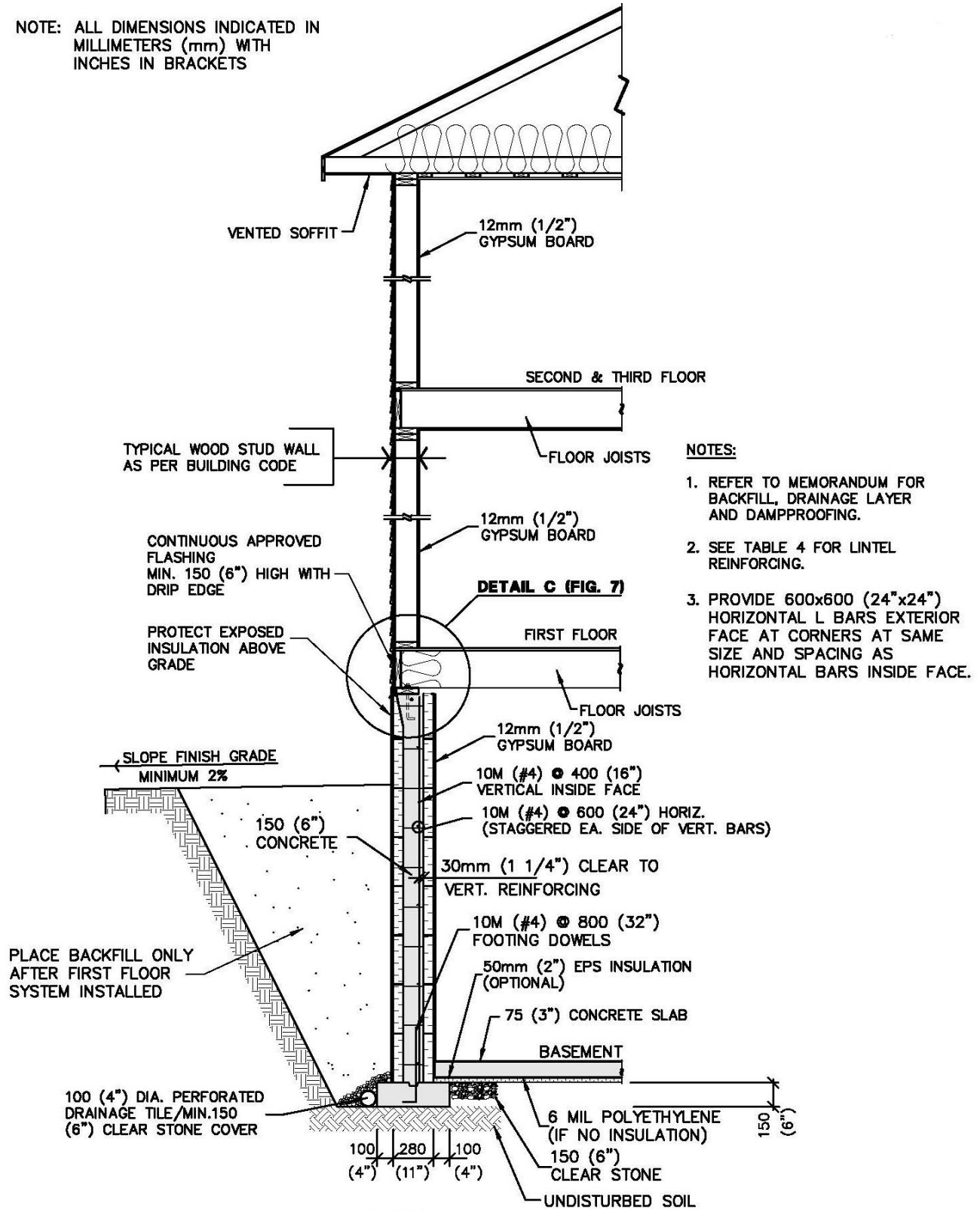

FIGURE 3.

INTEGRASPEC® BASEMENT WALL / WOOD STUD FIRST, SECOND & THIRD FLOOR WALL, WITH WOOD, VINYL OR ALUMINUM SIDING

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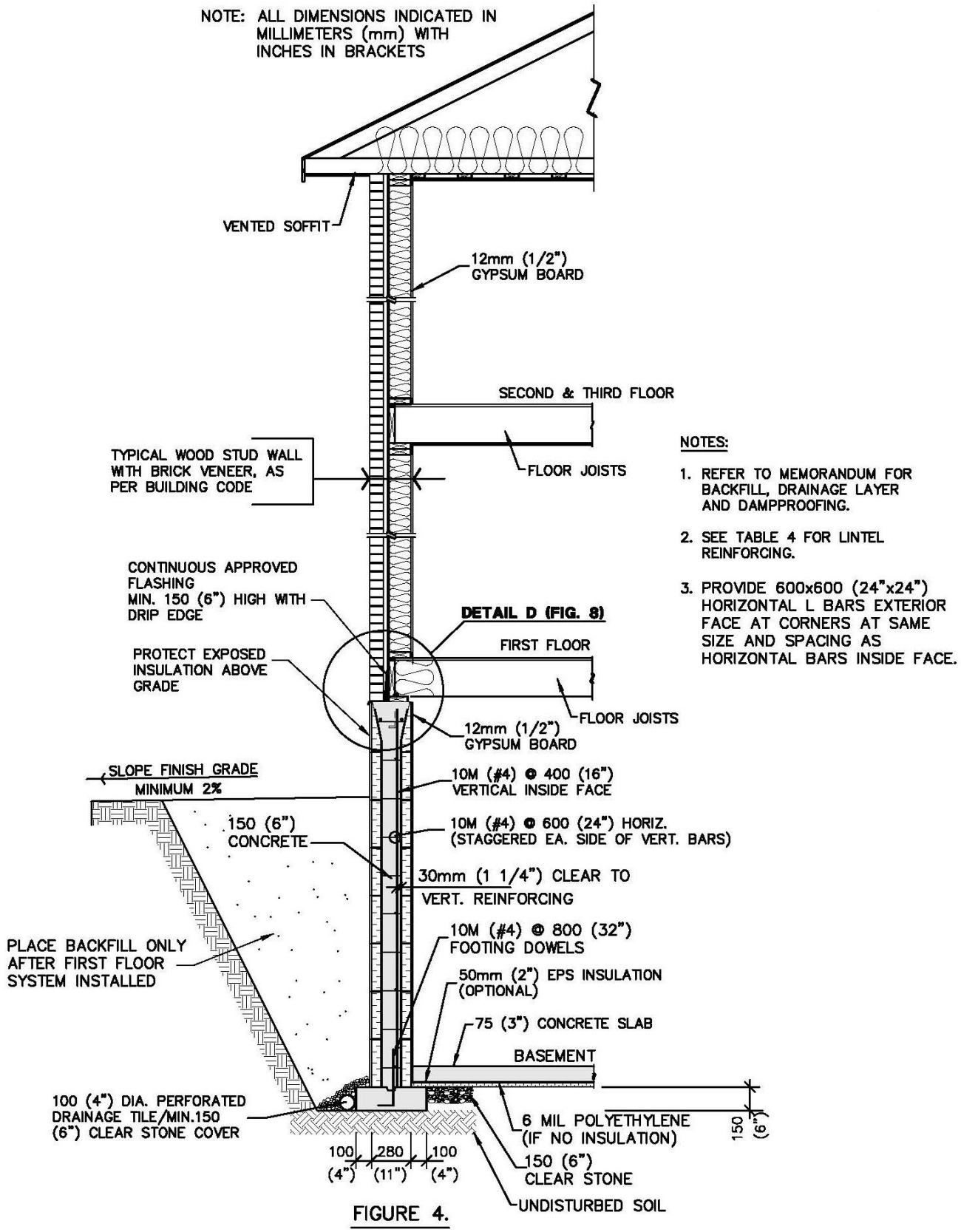

FIGURE 4.

INTEGRASPEC® BASEMENT WALL / WOOD STUD

FIRST, SECOND & THIRD FLOOR WALL, WITH BRICK VENEER

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

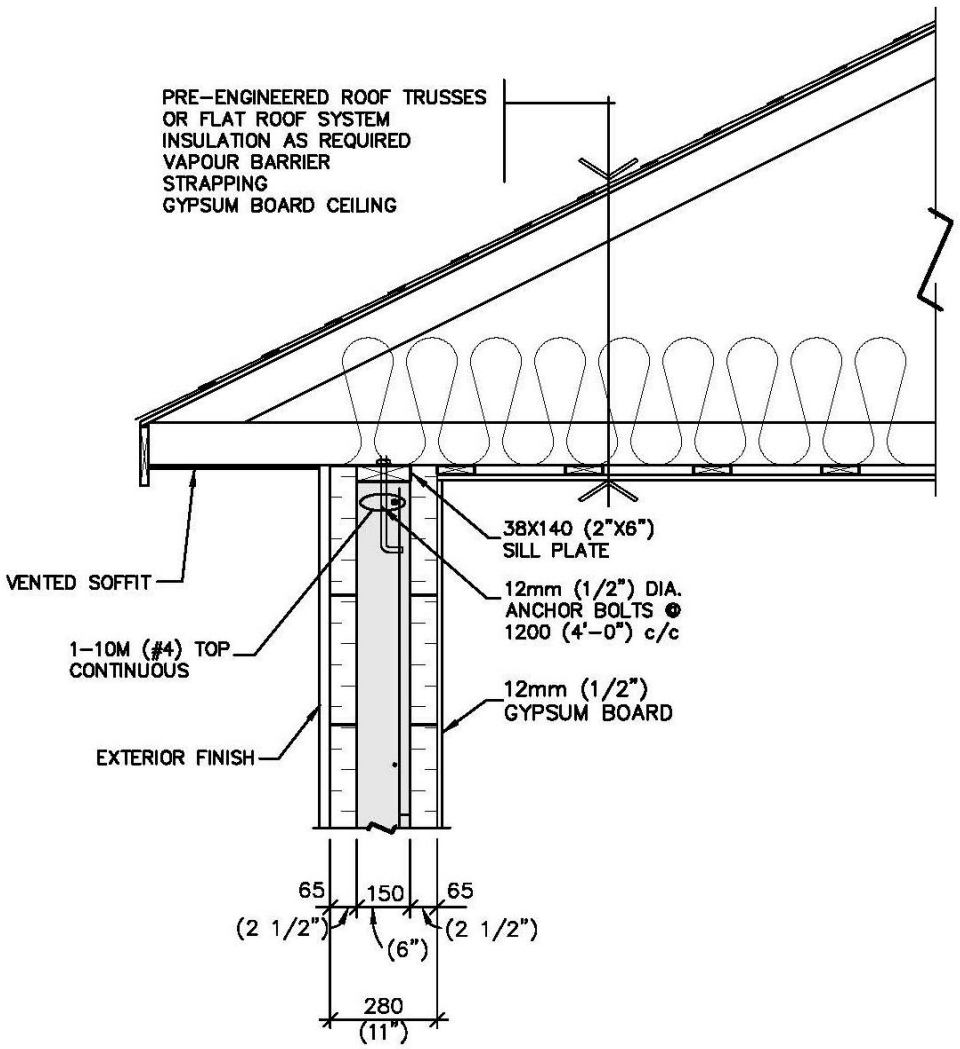

FIGURE 5.

INTEGRASPEC® WALL DETAIL A
TOP PLATE / EAVE / ROOF TRUSS

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

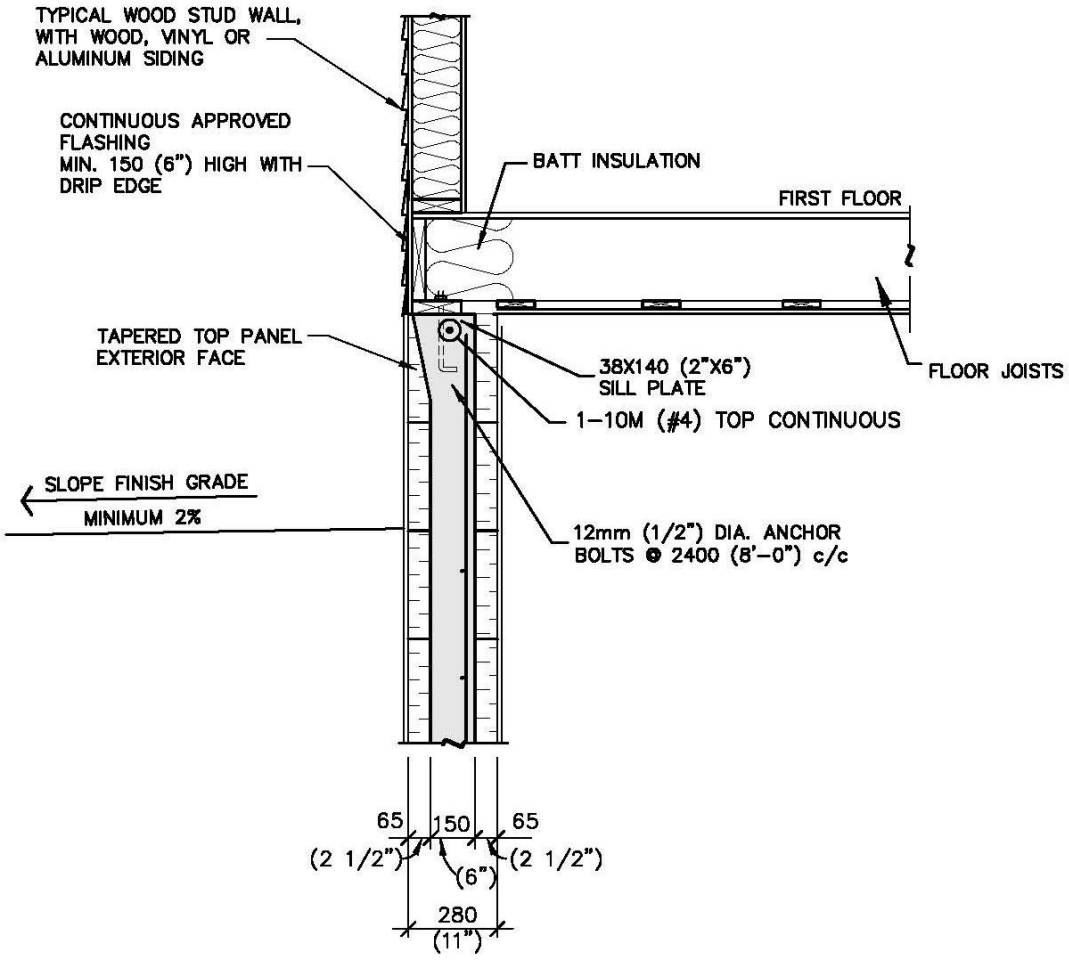

FIGURE 7.

INTEGRASPEC® WALL DETAIL C / FLOOR PLATE

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

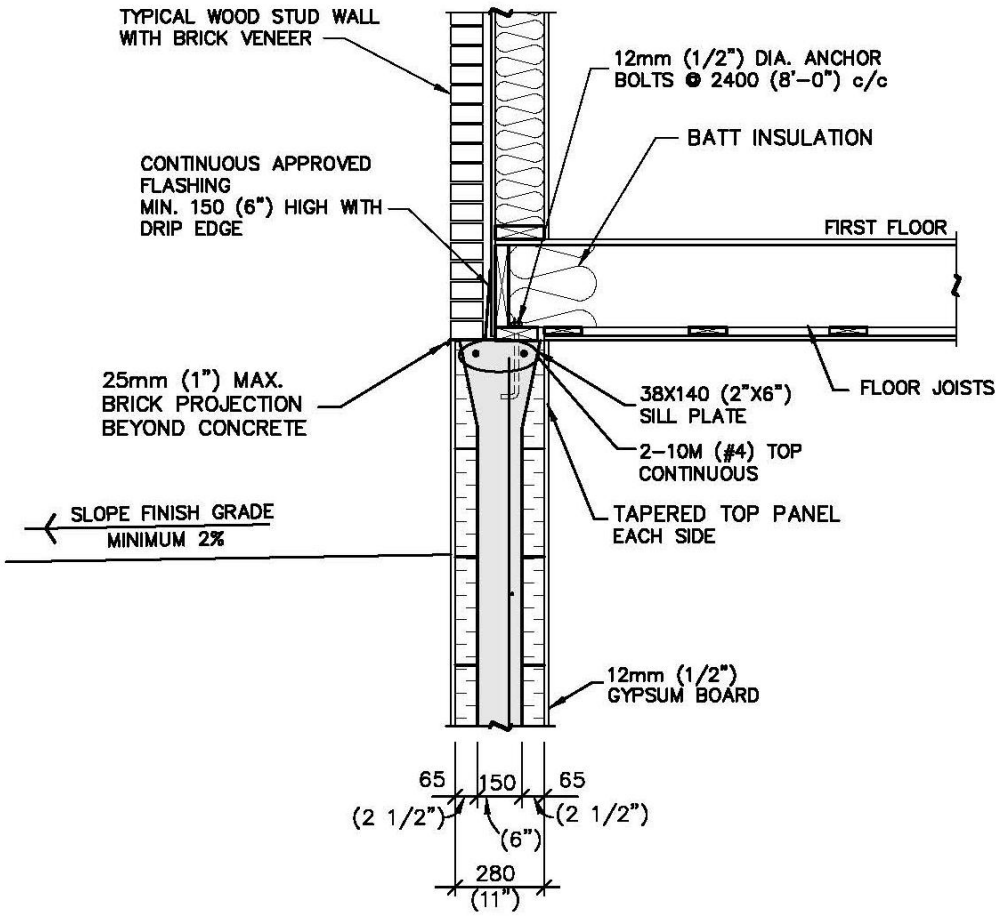

FIGURE 8.

INTEGRASPEC® WALL DETAIL D / FLOOR PLATE

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

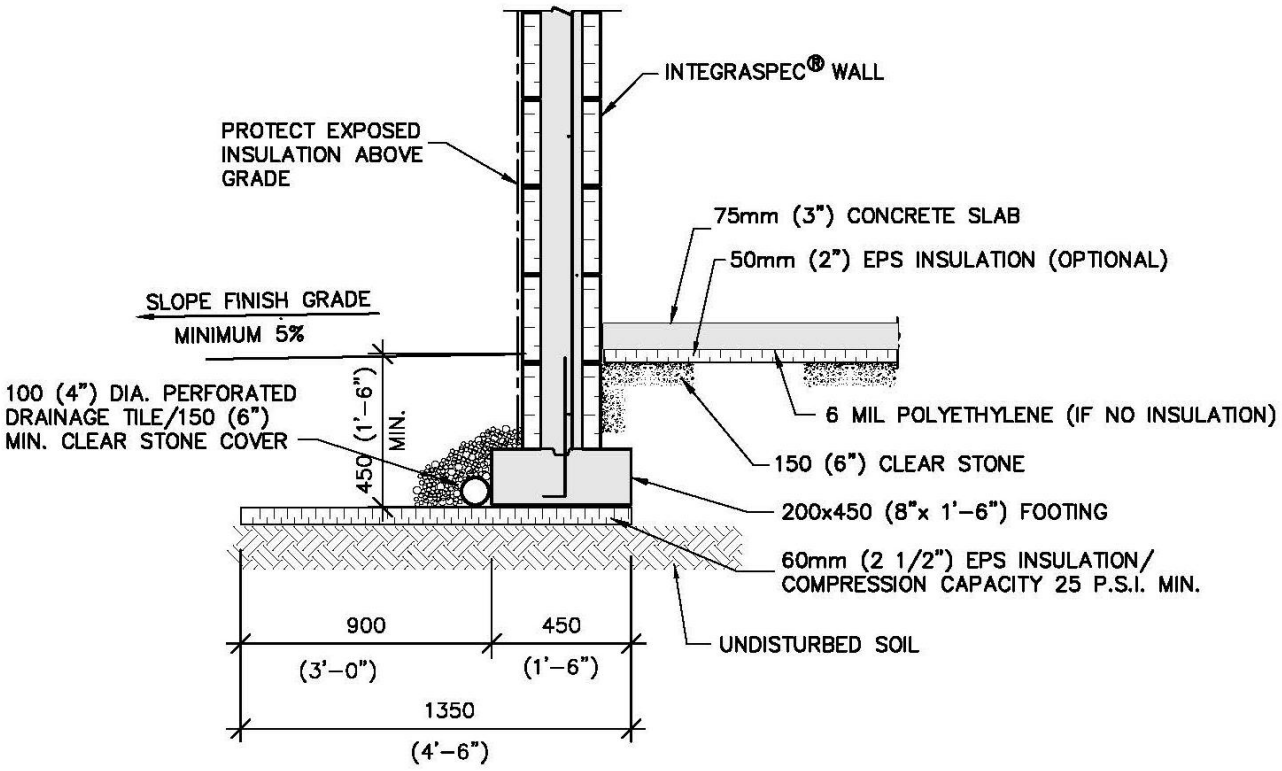

FIGURE 9.

INTEGRASPEC® WALL / SHALLOW FOOTING DETAIL

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NOTE: ALL DIMENSIONS INDICATED IN
MILLIMETERS (mm) WITH
INCHES IN BRACKETS

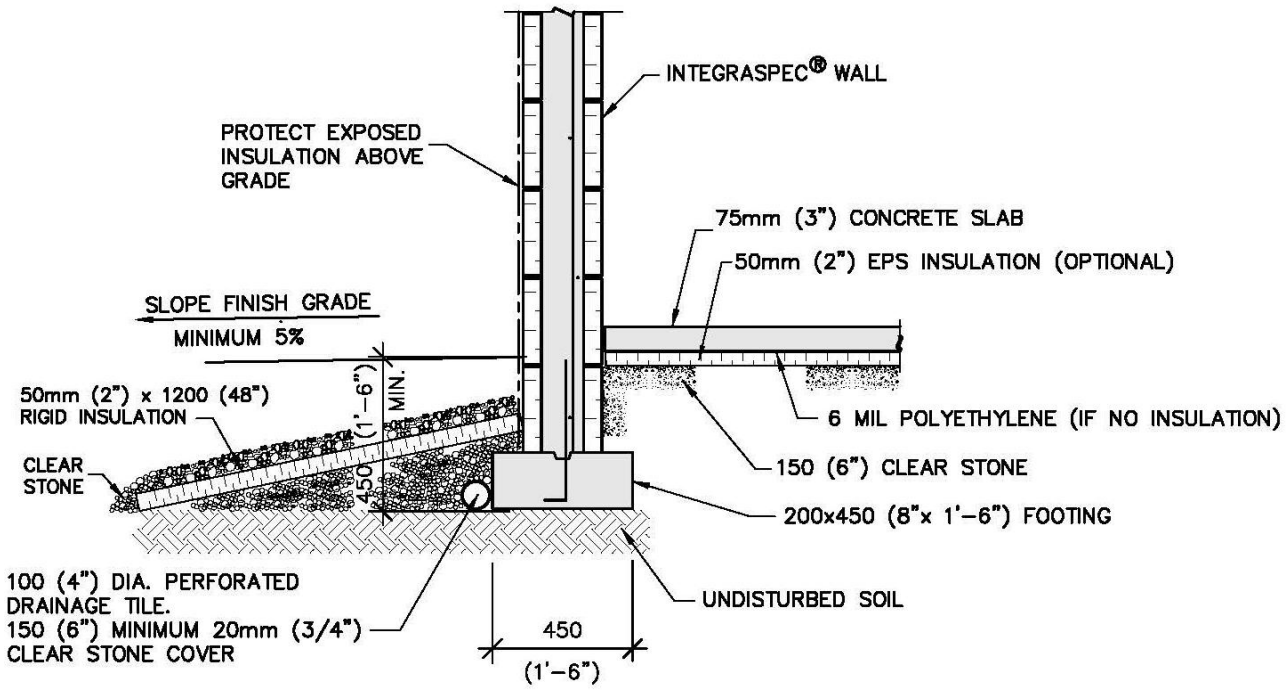

FIGURE 9a.

INTEGRASPEC® WALL / ALTERNATE SHALLOW FOOTING DETAIL

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

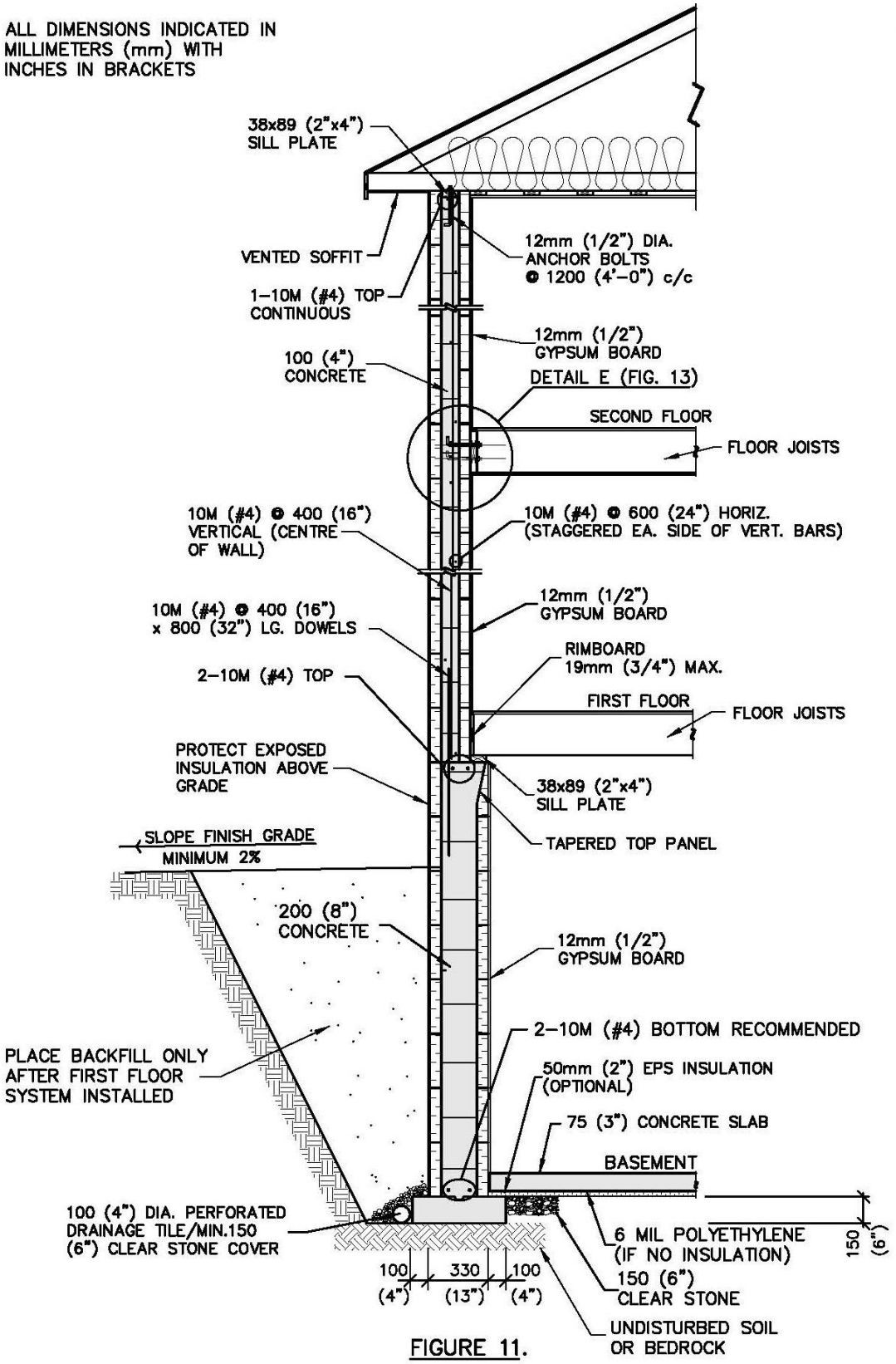

FIGURE 11.

INTEGRASPEC® BASEMENT, FIRST AND SECOND FLOOR WALL WITH WOOD, VINYL, ALUMINUM SIDING OR STUCCO

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

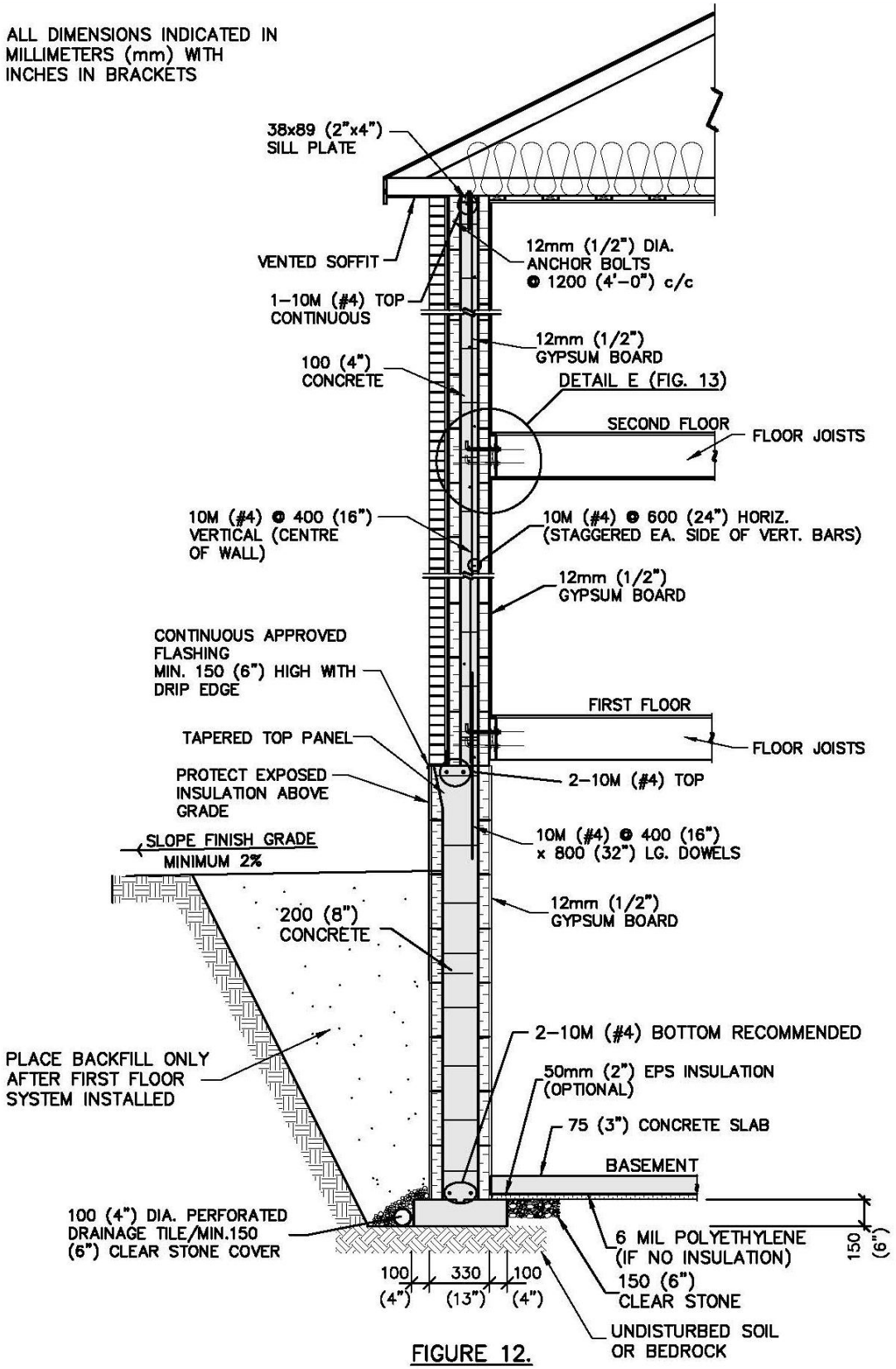

FIGURE 12.

INTEGRASPEC® BASEMENT, FIRST AND SECOND FLOOR WALL WITH BRICK VENEER

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

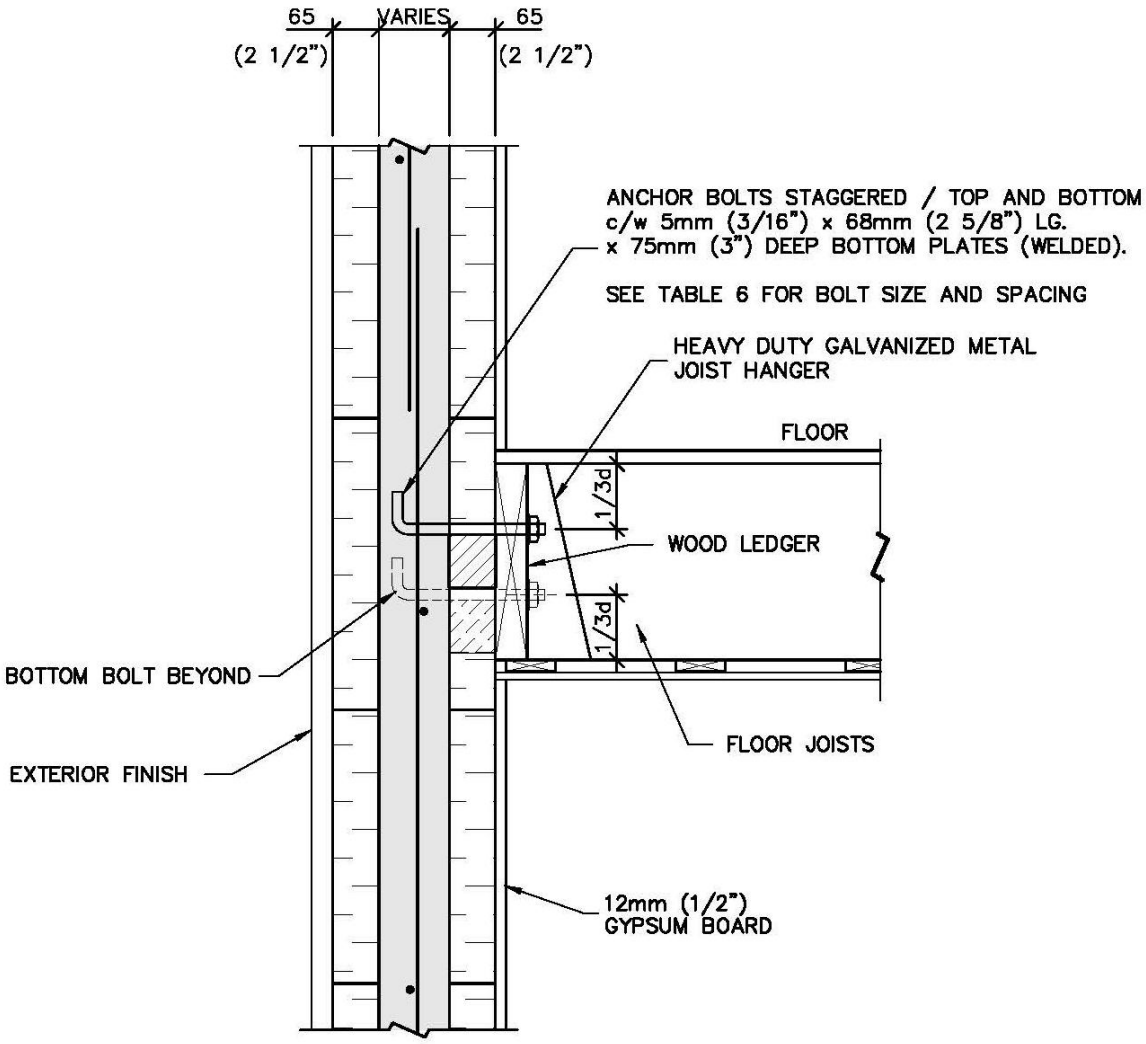

FIGURE 13.

INTEGRASPEC® WALL DETAIL E
WOOD RIM LEDGER/FLOOR JOIST SUPPORT DETAIL

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NOTE: ALL DIMENSIONS INDICATED IN
MILLIMETERS (mm) WITH
INCHES IN BRACKETS

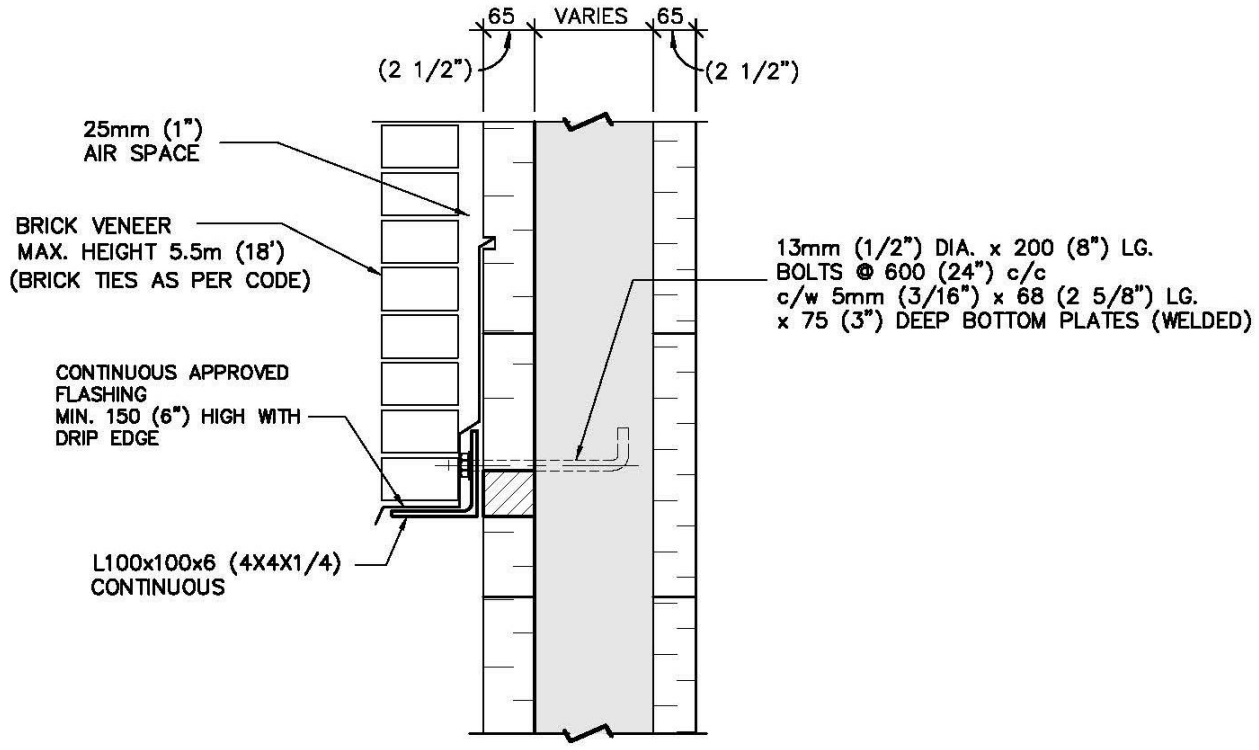

FIGURE 15.

INTEGRASPEC® WALL / BRICK SUPPORT ANGLE DETAIL

ANGLE LEG MAY BE TURNED UP (AS SHOWN) OR DOWN

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

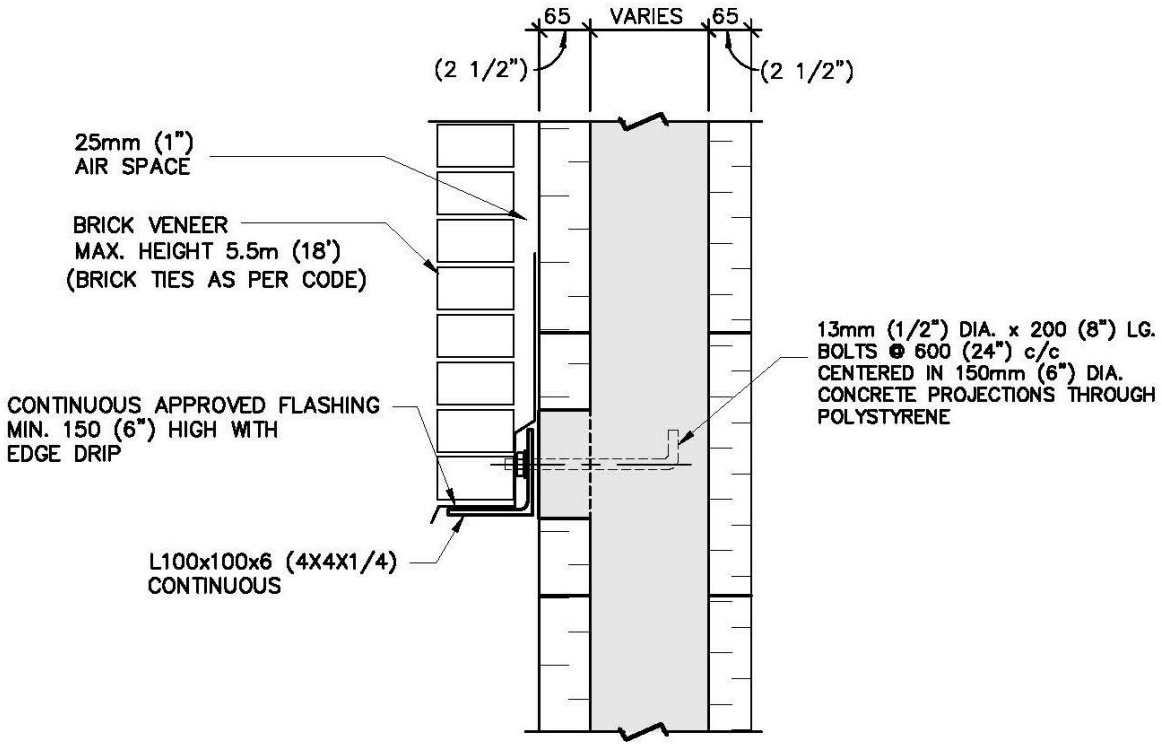

FIGURE 15a

INTEGRASPEC® WALL / ALTERNATIVE BRICK SUPPORT ANGLE DETAIL

ANGLE LEG MAY BE TURNED UP (AS SHOWN) OR DOWN

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Table 6 **Anchor Bolts vs. Joist Span Table**

BOLT SIZE	JOIST SPAN	BOLT SPACING
1/2" (13mm)	UP TO 6'-0" (1.8m)	32" (800mm)
1/2" (13mm)	6'-1" TO 8'-0" (1.8m TO 2.4m)	24" (600mm)
1/2" (13mm)	8'-1' to 12'-0" (2.4m TO 3.6m)	16" (400mm)
1/2" (13mm)	12'-1" to 16'-0" (3.6m TO 4.8m)	12" (300mm)
1/2" (13mm)	16'-1" TO 23'-11" (4.8m TO 7.2m)	8" (200mm)
2x1/2" (13mm)	UP TO 9'-7" (3.0m)	32" (800mm)
2x1/2" (13mm)	9'-8" TO 12'-9" (3.0m TO 4.0m)	24" (600mm)
2x1/2" (13mm)	12'-10" TO 19'-2" (4.0m TO 5.8m)	16" (400mm)
2x1/2" (13mm)	19'-3" TO 25'-7" (5.8m TO 7.8m)	12" (300mm)
2x1/2" (13mm)	25'-8" TO 38'-3" (7.8m TO 11.6m)	8" (200mm)
5/8" (16mm)	UP TO 7'-7" (2.3m)	32" (800mm)
5/8" (16mm)	7'-8" TO 10'-1" (2.3m TO 3.1m)	24" (600mm)
5/8" (16mm)	10'-2" TO 15'-2" (3.1m TO 4.6m)	16" (400mm)
5/8" (16mm)	15'-3" TO 20'-2" (4.6m TO 6.2m)	12" (300mm)
5/8" (16mm)	20'-3" TO 30'-2" (6.2m TO 9.2m)	8" (200mm)

Notes:

1. Table to be read in conjunction with Figure 13.
2. Bolts shall be 8" (200 mm) minimum long, excluding hook.
3. Table is based on a specified live load of 40 PSF (1.9 kPa) and a specified dead load of 10 PSF (0.5 kPa).
4. Joist span is clear span between supports.

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NOTE: ALL DIMENSIONS INDICATED IN MILLIMETERS (mm) WITH INCHES IN BRACKETS

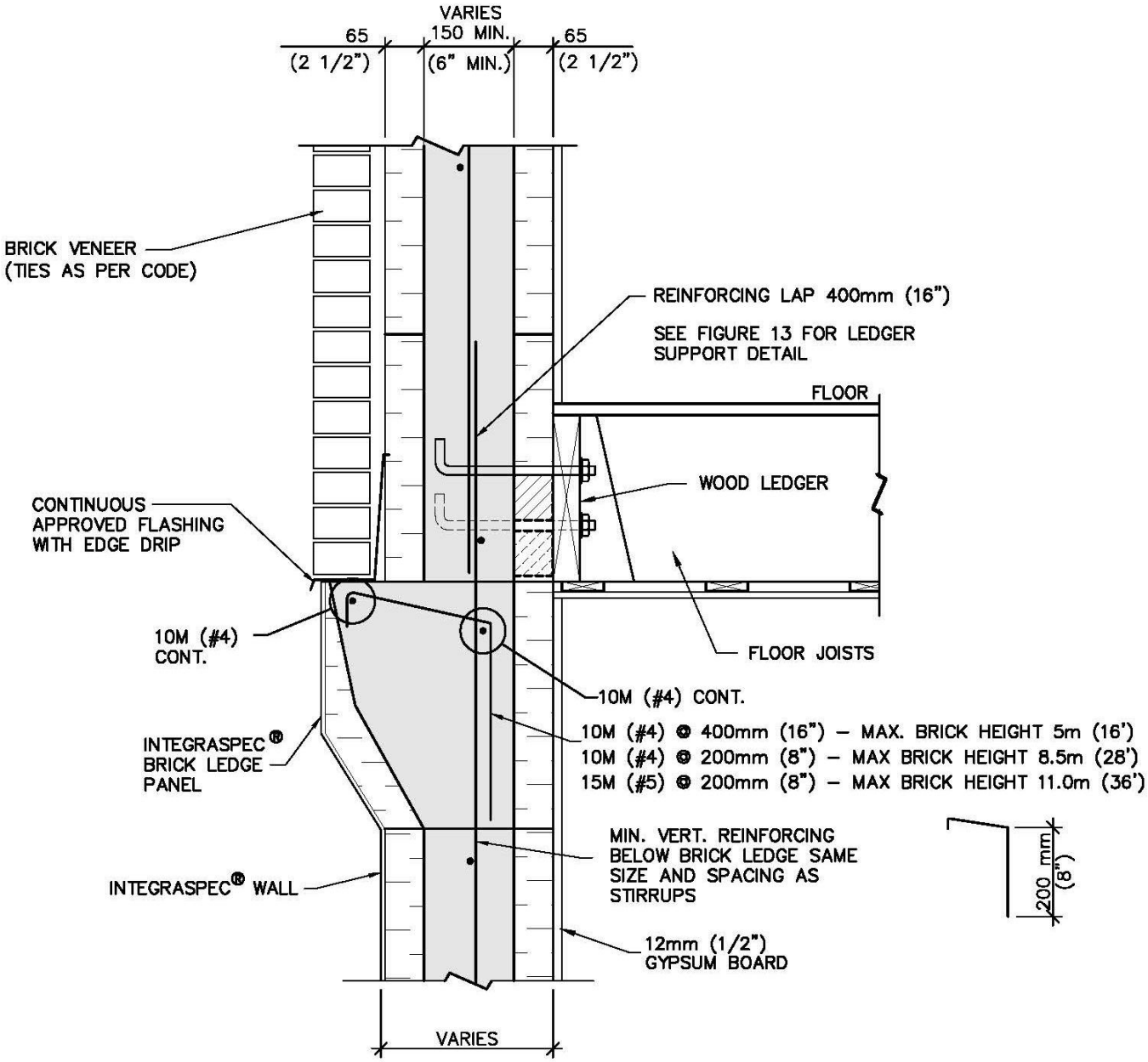

FIGURE 14.

INTEGRASPEC® WALL TYPICAL BRICK LEDGE DETAIL

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Table 7

4" (100mm) Lintel Table

Single Storey or Top
Floor of 2 or 3 Storey

Lintel Height (H) in. (mm)	Bottom Bar	Maximum Lintel Span (Ls)			
		Composite Snow Load - kPa (P.S.F.)			
		1.0 (21)	1.5 (31)	2.0 (42)	2.5 (52)
10 (250)	10M (#4)	4'–11" (1.50m)	4'–5" (1.35m)	4'–0" (1.22m)	3'–9" (1.15m)
12 (300)	10M (#4)	5'–6" (1.68m)	4'–11" (1.50m)	4'–6" (1.37m)	4–2" (1.27m)
16 (400)	10M (#4)	6'–6" (1.98m)	5'–10" (1.78m)	5'–4" (1.63m)	4'–11" (1.50m)
10 (250)	15M (#5)	7'–1" (2.16m)	6'–4" (1.93m)	5'–9" (1.76m)	5'–4" (1.63m)
12 (300)	15M (#5)	7'–10" (2.39m)	7'–0" (2.14m)	6'–5" (1.96m)	5'–11" (1.81m)
16 (400)	15M (#5)	9'–3" (2.82m)	8'–3" (2.52m)	7'–7" (2.31m)	7'–0" (2.14m)
20 (500)	15M (#5)	10'–5" (3.18m)	9'–4" (2.85m)	8'–7" (2.62m)	7'–11" (2.42m)
24 (600)	15M (#5)	11'–5" (3.48m)	10'–3" (3.13m)	9'–5" (2.87m)	8'–9" (2.67m)

Notes

1. Design Criteria

   Maximum roof span = 40 ft. (12.2m) plus 2 ft. (0.6m) eave
   Roof snow load as per table
   Roof dead load = 12 P.S.F. (0.6 kPa)
   Attic live load = 10 P.S.F. (0.5 kPa)

2. Concrete strength f'c = 20 MPa (3000 P.S.I.)

3. Reinforcing steel CSA G30.18 deformed (Fy = 400 MPa/ 60 K.S.I.)

4. All lintels shall have 1–10M (#4) bar top in addition to bottom bar specified.

5. Lintels supporting beam and girder truss point loads shall be designed by a professional engineer.

6. Design to CSA A23.3

7. For lintels beyond the scope of Tables 7, 8, and 9, a wood or steel beam may be used, which shall have a minimum bearing of 6" (150 mm) each side of opening, and shall be designed by a professional engineer.

Project:	4" (100mm) LINTEL TABLE		
INTEGRASPEC® ICF WALL SYSTEM		Scale: AS NOTED	Drawing S7

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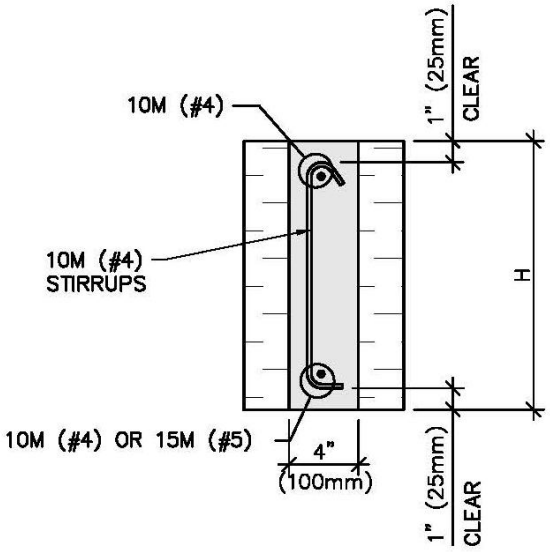
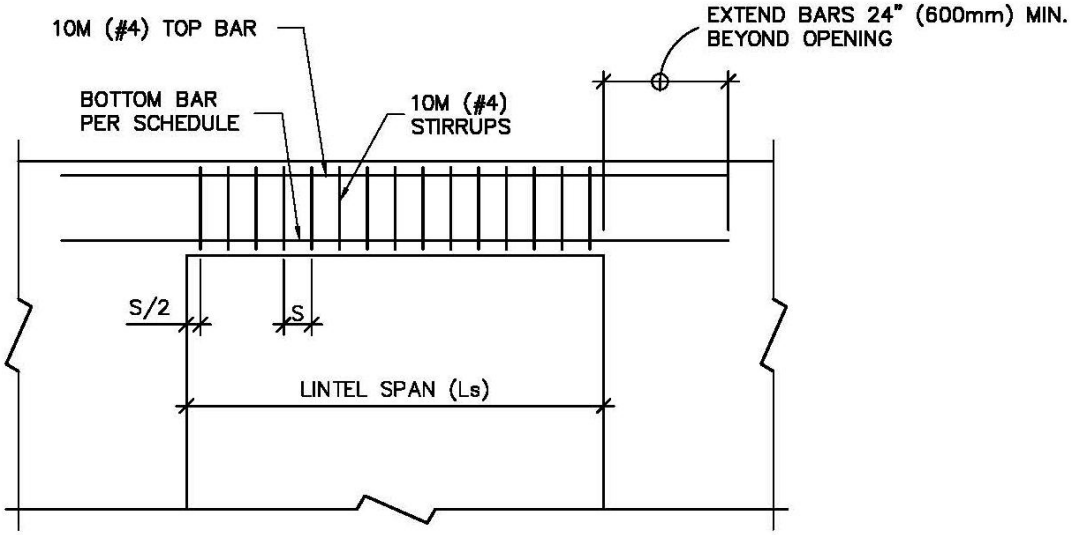
Lintel Height H in. (mm)	Stirrup Spacing S in. (mm)
10 (250)	5 1/2 (140)
12 (300)	7 (175)
16 (400)	9 3/4 (240)
20 (500)	12 1/2 (300)
24 (600)	15 1/2 (380)

No stirrups required where lintel span Ls is less than 3'–0" (900mm)

STIRRUP SPACING



TYPICAL LINTEL



LINTEL ELEVATION

Project: **INTEGRASPEC®** **ICF WALL SYSTEM**	4" (100mm) LINTEL TABLE		
		Scale: AS NOTED	Drawing S7a

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Table 8

4" (100mm) Lintel Table

Lower Floor of 2 Storey or
Middle Floor of 3 Storey

Floor Span ft. (m)	Lintel Height (H) in. (mm)	Bottom Bar	Maximum Lintel Span (Ls)			
			Composite Snow Load - kPa (P.S.F.)			
			1.0 (21)	1.5 (31)	2.0 (42)	2.5 (52)
16'-0" (4.88m) 50% of floor span supported by lintel						
	10 (250)	10M (#4)	4'-2" (1.28m)	4'-0" (1.23m)	3'-11" (1.19m)	3'-9" (1.14m)
	12 (300)	10M (#4)	4'-9" (1.44m)	4'-7" (1.39m)	4'-5" (1.34m)	4-3" (1.29m)
	16 (400)	10M (#4)	5'-8" (1.72m)	5'-5" (1.65m)	5'-3" (1.59m)	5'-1" (1.54m)
	10 (250)	15M (#5)	5'-8" (1.74m)	5'-6" (1.68m)	5'-3" (1.61m)	5'-1" (1.56m)
	12 (300)	15M (#5)	6'-6" (1.98m)	6'-3" (1.91m)	6'-0" (1.84m)	5'-10" (1.78m)
	16 (400)	15M (#5)	7'-10" (2.39m)	7'-7" (2.30m)	7'-3" (2.22m)	7'-0" (2.14m)
	20 (500)	15M (#5)	8'-11" (2.73m)	8'-8" (2.63m)	8'-4' (2.54m)	8'-0" (2.45m)
	24 (600)	15M (#5)	9'-11" (3.03m)	9'-7" (2.92m)	9'-3" (2.82m)	8'-11" (2.72m)
24'-0" (7.32m) 50% of floor span supported by lintel						
	10 (250)	10M (#4)	3'-10" (1.16m)	3'-8" (1.11m)	3'-6" (1.06m)	3'-4" (1.02m)
	12 (300)	10M (#4)	4'-4" (1.31m)	4'-1" (1.25m)	3'-11" (1.20m)	3'-9" (1.15m)
	16 (400)	10M (#4)	5'-1" (1.56m)	4'-11" (1.49m)	4'-8" (1.43m)	4'-6" (1.38m)
	10 (250)	15M (#5)	5'-2" (1.58m)	4'-11" (1.51m)	4'-9" (1.45m)	4'-7" (1.39m)
	12 (300)	15M (#5)	5'-11" (1.80m)	5'-8" (1.72m)	5'-5" (1.65m)	5'-3" (1.59m)
	16 (400)	15M (#5)	7'-2" (2.18m)	6'-10" (2.08m)	6'-6" (1.99m)	6'-4" (1.92m)
	20 (500)	15M (#5)	8'-2" (2.49m)	7'-10" (2.38m)	7'-6" (2.28m)	7'-3" (2.20m)
	24 (600)	15M (#5)	9'-1" (2.77m)	8'-8" (2.64m)	8'-4" (2.54m)	8'-0" (2.44m)

Notes

1. Design Criteria

   Maximum roof span = 40 ft. (12.2m) plus 2 ft. (0.6m) eave
   Roof snow load as per table
   Roof dead load = 12 P.S.F. (0.6 kPa)
   Attic live load = 10 P.S.F. (0.5 kPa)

   Total floor span = 16 ft. and 24 ft. (4.88m and 7.32m)
   Floor live load = 40 P.S.F. (1.9 kPa)
   Floor dead load = 10 P.S.F. (0.5 kPa)
   Floor to floor height = 9 ft. (2.75m)

2. Refer to drawing S7 for additional notes and to drawing S7a for details.

Project:	4" (100mm) LINTEL TABLE		
INTEGRASPEC® ICF WALL SYSTEM		Scale: AS NOTED	Drawing S8

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Table 9

4" (100mm) Lintel Table

Bottom Floor of 3 Storey

Floor Span ft. (m)	Lintel Height (H) in. (mm)	Bottom Bar	Maximum Lintel Span (Ls)			
			Composite Snow Load - kPa (P.S.F.)			
			1.0 (21)	1.5 (31)	2.0 (42)	2.5 (52)
16'-0" (4.88m) 50% of floor span supported by lintel	10 (250)	10M (#4)	3'-2" (0.98m)	3'-1" (0.95m)	3'-1" (0.93m)	3'-0" (0.91m)
	12 (300)	10M (#4)	3'-7" (1.10m)	3'-6" (1.08m)	3'-5" (1.05m)	3'-5" (1.03m)
	16 (400)	10M (#4)	4'-4" (1.32m)	4'-3" (1.29m)	4'-2" (1.26m)	4'-0" (1.23m)
	10 (250)	15M (#5)	4'-4" (1.33m)	4'-3" (1.30m)	4'-2" (1.27m)	4'-1" (1.24m)
	12 (300)	15M (#5)	5'-0" (1.52m)	4'-10" (1.48m)	4'-9" (1.45m)	4'-8" (1.42m)
	16 (400)	15M (#5)	6'-0" (1.84m)	5'-11" (1.80m)	5'-9" (1.75m)	5'-8" (1.72m)
	20 (500)	15M (#5)	6'-11" (2.11m)	6'-9" (2.06m)	6'-7" (2.01m)	6'-6" (1.97m)
	24 (600)	15M (#5)	7'-8" (2.35m)	7'-6" (2.29m)	7'-4" (2.24m)	7'-2" (2.19m)
24'-0" (7.32m) 50% of floor span supported by lintel	10 (250)	10M (#4)	2'-11" (0.90m)	2'-10" (0.87m)	2'-9" (0.85m)	2'-8" (0.82m)
	12 (300)	10M (#4)	3'-4" (1.02m)	3'-3" (0.99m)	3'-2" (0.96m)	3'-1" (0.93m)
	16 (400)	10M (#4)	4'-0" (1.22m)	3'-10" (1.18m)	3'-9" (1.15m)	3'-8" (1.12m)
	10 (250)	15M (#5)	4'-0" (1.23m)	3'-11" (1.19m)	3'-10" (1.16m)	3'-8" (1.13m)
	12 (300)	15M (#5)	4'-7" (1.40m)	4'-6" (1.36m)	4'-4" (1.32m)	4'-3" (1.29m)
	16 (400)	15M (#5)	5'-7" (1.70m)	5'-5" (1.65m)	5'-3" (1.61m)	5'-1" (1.56m)
	20 (500)	15M (#5)	6'-5" (1.95m)	6'-2" (1.89m)	6'-0" (1.84m)	5'-11" (1.80m)
	24 (600)	15M (#5)	7'-1" (2.17m)	6'-11" (2.11m)	6'-9" (2.05m)	6'-7" (2.00m)

Notes

1. See drawings S7, S7a and S8 for notes and details.

Project:	4" (100mm) LINTEL TABLE		
INTEGRASPEC® ICF WALL SYSTEM		Scale: AS NOTED	Drawing S9

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