



Appendix A

Reinforcement Schedules



THE FOLLOWING TABLES ARE TAKEN FROM Prescriptive Method for Insulating Concrete Forms in Residential Construction, Second Edition. (Portland Cement Association, Skokie, IL, December 2002) AND ARE TO BE USED ONLY WITHIN THE ASSUMPTIONS AND RESTRICTIONS LAID OUT IN THAT DOCUMENT. THE LOCAL BUILDING CODE OR ORIGINAL ENGINEERING PERFORMED FOR THE SPECIFIC CONSTRUCTION PROJECT SUPERSEDES THESE TABLES. **IN THE EVENT THAT YOUR PROJECT DOES NOT FALL WITHIN THE DESIGN PARAMETERS OF THESE TABLES, AN ENGINEER MUST BE CONSULTED.**

TABLE 3.1
MINIMUM WIDTH OF ICF AND CONCRETE
FOOTINGS FOR ICF WALLS^{1,2,3} (inches)

MAXIMUM NUMBER OF STORIES ⁴	MINIMUM LOAD-BEARING VALUE OF SOIL (psf)				
	2,000	2,500	3,000	3,500	4,000
5.5-Inch Flat, 6-Inch Waffle-Grid, or 6-Inch Screen-Grid ICF Wall Thickness⁵					
One Story ⁶	15	12	10	9	8
Two Story ⁶	20	16	13	12	10
7.5-Inch Flat or 8-Inch Waffle-Grid, or 8-Inch Screen-Grid ICF Wall Thickness⁵					
One Story ⁷	18	14	12	10	8
Two Story ⁷	24	19	16	14	12
9.5-Inch Flat ICF Wall Thickness⁵					
One Story	20	16	13	11	10
Two Story	27	22	18	15	14

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 psf = 47.8804 Pa

- ¹ Minimum footing thickness shall be the greater of one-third of the footing width, 6 inches (152 mm), or 11 inches (279 mm) when a dowel is required in accordance with Section 6.0.
- ² Footings shall have a width that allows for a nominal 2-inch (51-mm) projection from either face of the concrete in the wall to the edge of the footing.
- ³ Table values are based on 32 ft (9.8 m) building width (floor and roof clear span).
- ⁴ Basement walls shall not be considered as a story in determining footing widths.
- ⁵ Actual thickness is shown for flat walls while nominal thickness is given for waffle-grid and screen-grid walls. Refer to Section 2.0 for actual waffle-grid and screen-grid thickness and dimensions.
- ⁶ Applicable also for 7.5-inch (191-mm) thick or 9.5-inch (241-mm) thick flat ICF foundation wall supporting 3.5-inch (88.9-mm) thick flat ICF stories.
- ⁷ Applicable also for 9.5-inch (241-mm) thick flat ICF foundation wall story supporting 5.5-inch (140-mm) thick flat ICF stories.



TABLE 3.2
MINIMUM VERTICAL WALL REINFORCEMENT FOR
ICF CRAWLSPACE WALLS ^{1,2,3,4,5,6}

SHAPE OF CONCRETE WALLS	WALL THICKNESS ⁷ (inches)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 30 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 45 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 60 pcf
Flat	3.5 ⁸	#3@16" #4@32"#	#3@18"; 4@28"; #5@38"	#3@12"; #4@22"; #5@28"
	5.5	#3@24" #4@48"	#3@24" #4@48"	#3@24" #4@48"
	7.5	N/R	N/R	N/R
Waffle-Grid	6	#3@24" #4@48"	#3@24" #4@48"	#3@12"; #4@24"; #5@36"
	8	N/R	N/R	N/R
Screen-Grid	6	#3@24" #4@48"	#3@24" #4@48"	#3@12"; #4@24"; #5@36"

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 pcf = 16.0179 kg/m³

- ¹ Table values are based on reinforcing bars with a minimum yield strength of 40,000 psi (276 MPa) and concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa).
- ² N/R indicates no vertical wall reinforcement is required.
- ³ Spacing of rebar shall be permitted to be multiplied by 1.5 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement, when required, shall not be less than one #4 bar at 48 inches (1.2 m) on center.
- ⁴ Applicable only to crawlspace walls 5 feet (1.5 m) or less in height with a maximum unbalanced backfill height of 4 feet (1.2 m).
- ⁵ Interpolation shall not be permitted.
- ⁶ Walls shall be laterally supported at the top before backfilling.
- ⁷ Actual thickness is shown for flat walls while nominal thickness is given for waffle-grid and screen-grid walls. Refer to Section 2.0 for actual waffle-grid and screen-grid thickness and dimensions.
- ⁸ Applicable only to one-story construction with floor bearing on top of crawlspace wall.



TABLE 3.3
MINIMUM HORIZONTAL WALL REINFORCEMENT FOR
ICF BASEMENT WALLS

MAXIMUM HEIGHT OF BASEMENT WALL FEET (METERS)	LOCATION OF HORIZONTAL REINFORCEMENT
8 (2.4)	One No. 4 bar within 12 inches (305 mm) of the top of the wall story and one No. 4 bar near mid-height of the wall story
9 (2.7)	One No. 4 bar within 12 inches (305 mm) of the top of the wall story and one No. 4 bar near third points in the wall story
10 (3.0)	One No. 4 bar within 12 inches (305 mm) of the top of the wall story and one No. 4 bar near third points in the wall story

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 pcf = 16.0179 kg/m³

¹ Horizontal reinforcement requirements are for reinforcing bars with a minimum yield strength from 40,000 psi (276 MPa) and concrete with a minimum concrete compressive strength 2,500 psi (17.2 MPa).

TABLE 6.1
FLOOR LEDGER-ICF WALL CONNECTION (SIDE-BEARING CONNECTION)
REQUIREMENTS^{1,2,3}

MAXIMUM FLOOR CLEAR SPAN ⁴ (feet)	MAXIMUM ANCHOR BOLT SPACING ⁵ (inches)			
	STAGGERED 1/2-INCH- DIAMETER ANCHOR BOLTS	STAGGERED 5/8-INCH- DIAMETER ANCHOR BOLTS	TWO 1/2-INCH- DIAMETER ANCHOR BOLTS ⁶	TWO 5/8-INCH- DIAMETER ANCHOR BOLTS ⁶
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

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm

- ¹ Minimum ledger board nominal depth shall be 8 inches (203 mm). The actual thickness of the ledger board shall be a minimum of 1.5 inches (38 mm). Ledger board shall be minimum No. 2 Grade.
- ² Minimum edge distance shall be 2 inches (51 mm) for 1/2-inch- (13-mm-) diameter anchor bolts and 2.5 inches (64 mm) for 5/8-inch- (16-mm-) diameter anchor bolts.
- ³ Interpolation is permitted between floor spans.
- ⁴ Floor span corresponds to the clear span of the floor structure (i.e., joists or trusses) spanning between load-bearing walls or beams.
- ⁵ Anchor bolts shall extend through the ledger to the center of the flat ICF wall thickness or the center of the horizontal or vertical core thickness of the waffle-grid or screen-grid ICF wall system.
- ⁶ Minimum vertical clear distance between bolts shall be 1.5 inches (38 mm) for 1/2-inch- (13-mm-) diameter anchor bolts and 2 inches (51 mm) for 5/8-inch- (16-mm-) diameter anchor bolts.

TABLE 6.2
DESIGN TENSILE STRENGTH OF HEADED BOLTS CAST IN CONCRETE¹

Diameter of Bolt - inches	Minimum Embedment Depth (inches)	Design Tensile Strength, (pounds)
1/4	2	1040
3/8 with washer ³	2-3/4	2540
1/2 with washer	4	4630

- ¹ Applicable to concrete of all strengths. See Notes (3) and (4)
- ² Values are based on ASTM F1554, Grade 36 bolts. Where ASTM A307, Grade A headed bolts are used, the strength shall be increased by 1.034.
- ³ A hardened washer shall be installed at the nut embedded in the concrete or head of the bolt to increase the bearing area. The washer is not required where the concrete strength is 4000 psi or greater.
- ⁴ Embedment depth shall be permitted to be reduced 1/4-inch where 4000 psi concrete is used.



**TABLE 5.14
MAXIMUM ALLOWABLE CLEAR SPANS FOR
ICF LINTELS IN GABLE END (NON-LOAD-BEARING) WALLS WITHOUT STIRRUPS^{1,2}
(NO. 4 BOTTOM BAR SIZE)**

MINIMUM LINTEL THICKNESS, T (inches)	MINIMUM LINTEL DEPTH, D (inches)	MAXIMUM CLEAR SPAN	
		SUPPORTING LIGHT-FRAME GABLE END WALL (feet-inches)	SUPPORTING ICF SECOND STORY AND GABLE END WALL (feet-inches)
Flat ICF Lintel			
3.5	8	11-1	3-1
	12	15-11	5-1
	16	16-3	6-11
	20	16-3	8-8
	22	16-3	10-5
5.5	8	16-3	4-4
	12	16-3	7-0
	16	16-3	9-7
	20	16-3	12-0
	22	16-3	14-3
7.5	8	16-3	5-6
	12	16-3	8-11
	16	16-3	12-2
	20	16-3	15-3
	22	16-3	16-3
9.5	8	16-3	6-9
	12	16-3	10-11
	16	16-3	14-10
	20	16-3	16-3
	22	16-3	16-3
Waffle-Grid ICF Lintel			
6 or 8	8	9-1	2-11
	12	13-4	4-10
	16	16-3	6-7
	20	16-3	8-4
	22	16-3	9-11
Screen-Grid Lintel			
6	12	5-8	4-1
	24	16-3	9-1

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 psf = 47.8804 Pa

¹ Deflection criterion is L/240, where L is the clear span of the lintel in inches.

² Linear interpolation is permitted between lintel depths.

TABLE 5.12
MIDDLE PORTION OF SPAN, A, WHERE STIRRUPS ARE NOT REQUIRED FOR
FLAT ICF LINTELS^{1,2,3,4,5,6,7}
(NO. 4 or NO. 5 BOTTOM BAR SIZE)

MINIMUM LINTEL THICKNESS, T (inches)	MINIMUM LINTEL DEPTH, D (inches)	MIDDLE SPAN NOT REQUIRING STIRRUPS (feet – inches)					
		SUPPORTING LIGHT-FRAME ROOF ONLY		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF	
		MAXIMUM GROUND SNOW LOAD (psf)					
		30	70	30	70	30	70
3.5	8	1-2	0-9	0-8	0-6	0-6	0-5
	12	1-11	1-3	1-1	0-10	0-10	0-8
	16	2-7	1-9	1-6	1-2	1-2	1-0
	20	3-3	2-3	1-11	1-6	1-6	1-3
	24	3-11	2-8	2-4	1-10	1-10	1-6
5.5	8	1-10	1-2	1-0	0-9	0-10	0-8
	12	3-0	2-0	1-8	1-4	1-4	1-1
	16	4-1	2-9	2-4	1-10	1-11	1-6
	20	5-3	3-6	3-0	2-4	2-5	2-0
	24	6-3	4-3	3-8	2-10	2-11	2-5
7.5	8	2-6	1-8	1-5	1-1	1-1	0-11
	12	4-1	2-9	2-4	1-10	1-10	1-6
	16	5-7	3-9	3-3	2-6	2-7	2-1
	20	7-1	4-10	4-1	3-3	3-4	2-9
	24	8-6	5-9	5-0	3-11	4-0	3-3
9.5	8	3-2	2-1	1-9	1-4	1-5	1-2
	12	5-2	3-5	2-11	2-3	2-4	1-11
	16	7-1	4-9	4-1	3-2	3-3	2-8
	20	9-0	6-1	5-3	4-1	4-2	3-5
	24	10-9	7-4	6-4	4-11	5-1	4-2

For SI: 1 inch = 25.4 mm; 1 psf = 0.0479 kN/m²; 1 ft = 0.3 m

- ¹ This table is applicable to Tables 5.8A and 5.8B. The values are based on concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa), reinforcing steel with a minimum yield strength of 40,000 psi (276 MPa), and a building width (floor and roof clear span) of 32 feet (9.8m).
- ² Deflection criterion is L/240, where L is the clear span of the lintel in inches.
- ³ Linear interpolation is permitted between ground snow loads and between lintel depths. Lintel depth, D, is permitted to include the available height of ICF wall located directly above the lintel, provided that the increased lintel depth spans the entire length of the lintel.
- ⁴ The middle portion of the span, A, shall be permitted to be multiplied by 1.09 when concrete with a minimum compressive strength of 3,000 psi (20.7 MPa) is used.
- ⁵ The middle portion of the span, A, shall be permitted to be multiplied by 1.26 when concrete with a minimum compressive strength of 4,000 psi (27.6 MPa) is used.
- ⁶ The middle portion of the span, A, shall be permitted to be multiplied by 1.1 for a building width (floor and roof clear span) of 28 feet (8.5 m).
- ⁷ The middle portion of the span, A, shall be permitted to be multiplied by 1.2 for a building width (floor and roof clear span) of 24 feet (7.3 m).



TABLE 5.11
MINIMUM BOTTOM BAR ICF LINTEL REINFORCEMENT FOR
LARGE CLEAR SPANS WITH STIRRUPS IN LOAD-BEARING WALLS^{1,2,3,4,5}

MINIMUM LINTEL THICKNESS, T ⁶ (inches)	MINIMUM LINTEL DEPTH, D (inches)	MINIMUM BOTTOM LINTEL REINFORCEMENT (quantity – size)					
		SUPPORTING LIGHT-FRAME ROOF ONLY		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF ⁷	
		MAXIMUM GROUND SNOW LOAD (psf)					
		30	70	30	70	30	70
Flat ICF Lintel, 12 feet – 3 inches Maximum Clear Span							
3.5	24	1-#5	D/R	D/R	D/R	D/R	D/R
5.5	20	1-#6; 2-#4	2-#5	D/R	D/R	D/R	D/R
	24	1-#5	2-#5	2-#5	2-#6	2-#6	D/R
7.5	16	2-#5	D/R	D/R	D/R	D/R	D/R
	20	1-#6; 2-#4	2-#5	2-#6	D/R	D/R	D/R
	24	1-#6; 2-#4	2-#5	2-#5	2-#6	2-#6	2-#6
9.5	16	2-#5	D/R	D/R	D/R	D/R	D/R
	20	1-#6; 2-#4	2-#5	2-#6	2-#6	2-#6	2-#6
	24	1-#6; 2-#4	2-#5	2-#5	2-#6	2-#6	2-#6
Flat ICF Lintel, 16 feet – 3 inches Maximum Clear Span							
5.5	24	2-#5	D/R	D/R	D/R	D/R	D/R
7.5	24	2-#5	D/R	D/R	D/R	D/R	D/R
9.5	24	2-#5	2-#6	2-#6	D/R	D/R	D/R
Waffle-Grid ICF Lintel, 12 feet – 3 inches Maximum Clear Span							
6	20	1-#6; 2-#4	D/R	D/R	D/R	D/R	D/R
	24	1-#5	2-#5	2-#5	2-#6	2-#6	D/R
8	16	2-#5	D/R	D/R	D/R	D/R	D/R
	20	1-#6; 2-#4	2-#5	2-#6	D/R	D/R	D/R
	24	1-#5	2-#5	2-#5	2-#6	2-#6	2-#6
Screen-Grid ICF Lintel, 12 feet – 3 inches Maximum Clear Span							
6	24	1-#5	D/R	D/R	D/R	D/R	D/R

For SI: 1 inch = 25.4 mm; 1 psf = 0.0479 kN/m²; 1 ft = 0.3 m

- ¹ Table values are based on concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa), reinforcing steel with a minimum yield strength of 40,000 psi (276 MPa), and a building width (floor and roof clear span) of 32 feet (9.8m).
- ² D/R indicates design is required.
- ³ Deflection criterion is L/240, where L is the clear span of the lintel in inches.
- ⁴ Linear interpolation is permitted between ground snow loads and between lintel depths. Lintel depth, D, is permitted to include the available height of ICF wall located directly above the lintel, provided that the increased lintel depth spans the entire length of the lintel.
- ⁵ The required reinforcement(s) in the shaded cells shall be permitted to be reduced to the next smallest bar diameter when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used.
- ⁶ Actual thickness is shown for flat lintels while nominal thickness is given for waffle-grid and screen-grid lintels. Refer to Section 2.0 for actual wall thickness of waffle-grid and screen-grid ICF construction.
- ⁷ Supported ICF wall dead load varies based on wall thickness using 150 pcf (2403 kg/m³) concrete density.



TABLE 5.8B
MAXIMUM ALLOWABLE CLEAR SPANS FOR
FLAT ICF LINTELS WITH STIRRUPS IN LOAD-BEARING WALLS^{1,2,3,4,5,6,7}
(NO. 5 BOTTOM BAR SIZE)

MINIMUM LINTEL THICKNESS, T (inches)	MINIMUM LINTEL DEPTH, D (inches)	MAXIMUM CLEAR SPAN (feet – inches)					
		SUPPORTING LIGHT-FRAME ROOF ONLY		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF ⁸	
		MAXIMUM GROUND SNOW LOAD (psf)					
		30	70	30	70	30	70
3.5	8	4-9	4-2	3-11	3-7	3-7	3-5
	12	7-2	6-3	5-11	5-5	5-5	5-0
	16	9-6	8-0	7-4	6-6	6-7	5-11
	20	11-1	9-1	8-4	7-5	7-6	6-9
	24	12-2	10-0	9-3	8-2	8-4	7-6
5.5	8	5-6	4-10	4-7	4-2	4-2	3-10
	12	8-3	6-9	6-3	5-6	5-7	5-0
	16	9-9	8-0	7-5	6-6	6-7	6-0
	20	10-11	9-0	8-4	7-5	7-6	6-9
7.5	24	12-0	9-11	9-3	8-2	8-3	7-6
	8	6-1	5-2	4-9	4-3	4-3	3-10
	12	8-2	6-9	6-3	5-6	5-7	5-0
	16	9-7	7-11	7-4	6-6	6-7	6-0
	20	10-10	8-11	8-4	7-4	7-6	6-9
9.5	24	11-10	9-10	9-2	8-1	8-3	7-5
	8	6-4	5-2	4-10	4-3	4-4	3-11
	12	8-2	6-8	6-2	5-6	5-7	5-0
	16	9-6	7-11	7-4	6-6	6-7	5-11
	20	10-8	8-10	8-3	7-4	7-5	6-9
	24	11-7	9-9	9-0	8-1	8-2	7-5

For SI: 1 inch = 25.4 mm; 1 psf = 0.0479 kN/m²; 1 ft = 0.3 m

- ¹ Table values are based on concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa), reinforcing steel with a minimum yield strength of 40,000 psi (276 MPa), and a building width (floor and roof clear span) of 32 feet (9.8m).
- ² Deflection criterion is L/240, where L is the clear span of the lintel in inches.
- ³ Linear interpolation is permitted between ground snow loads and between lintel depths.
- ⁴ Lintel depth, D, is permitted to include the available height of ICF wall located directly above the lintel, provided that the increased lintel depth spans the entire length of the lintel.
- ⁵ Spans located in shaded cells shall be permitted to be multiplied by 1.2 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used.
- ⁶ Spans shall be permitted to be multiplied by 1.05 for a building width (floor and roof clear span) of 28 feet (8.5 m).
- ⁷ Spans shall be permitted to be multiplied by 1.1 for a building width (floor and roof clear span) of 24 feet (7.3 m) or less.
- ⁸ Supported ICF wall dead load is 69 psf (3.3 kPa).



TABLE 5.8A
MAXIMUM ALLOWABLE CLEAR SPANS FOR
FLAT ICF LINTELS WITH STIRRUPS IN LOAD-BEARING WALLS^{1,2,3,4,5,6,7}
(NO. 4 BOTTOM BAR SIZE)

MINIMUM LINTEL THICKNESS, T (inches)	MINIMUM LINTEL DEPTH, D (inches)	MAXIMUM CLEAR SPAN (feet – inches)					
		SUPPORTING LIGHT-FRAME ROOF ONLY		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF ⁸	
		MAXIMUM GROUND SNOW LOAD (psf)					
		30	70	30	70	30	70
3.5	8	4-9	4-2	3-10	3-4	3-5	3-1
	12	6-8	5-5	5-0	4-5	4-6	4-0
	16	7-11	6-5	6-0	5-3	5-4	4-10
	20	8-11	7-4	6-9	6-0	6-1	5-6
	24	9-10	8-1	7-6	6-7	6-9	6-1
5.5	8	5-2	4-2	3-10	3-5	3-5	3-1
	12	6-8	5-5	5-0	4-5	4-6	4-1
	16	7-10	6-5	6-0	5-3	5-4	4-10
	20	8-10	7-3	6-9	6-0	6-1	5-6
7.5	24	9-8	8-0	7-5	6-7	6-8	6-0
	8	5-2	4-2	3-11	3-5	3-6	3-2
	12	6-7	5-5	5-0	4-5	4-6	4-1
	16	7-9	6-5	5-11	5-3	5-4	4-10
	20	8-8	7-2	6-8	5-11	6-0	5-5
9.5	24	9-6	7-11	7-4	6-6	6-7	6-0
	8	5-2	4-2	3-11	3-5	3-6	3-2
	12	6-7	5-5	5-0	4-5	4-6	4-1
	16	7-8	6-4	5-11	5-3	5-4	4-10
	20	8-7	7-2	6-8	5-11	6-0	5-5
	24	9-4	7-10	7-3	6-6	6-7	6-0

For SI: 1 inch = 25.4 mm; 1 psf = 0.0479 kN/m²; 1 ft = 0.3 m

- ¹ Table values are based on concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa), reinforcing steel with a minimum yield strength of 40,000 psi (276 MPa), and a building width (floor and roof clear span) of 32 feet (9.8m).
- ² Deflection criterion is L/240, where L is the clear span of the lintel in inches.
- ³ Linear interpolation is permitted between ground snow loads and between lintel depths.
- ⁴ Lintel depth, D, is permitted to include the available height of ICF wall located directly above the lintel, provided that the increased lintel depth spans the entire length of the lintel.
- ⁵ Spans located in shaded cells shall be permitted to be multiplied by 1.2 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used.
- ⁶ Spans shall be permitted to be multiplied by 1.05 for a building width (floor and roof clear span) of 28 feet (8.5 m).
- ⁷ Spans shall be permitted to be multiplied by 1.1 for a building width (floor and roof clear span) of 24 feet or less (7.3 m).
- ⁸ Supported ICF wall dead load is 69 psf (3.3 kPa).



TABLE 5.7
MAXIMUM ALLOWABLE CLEAR SPANS FOR
ICF LINTELS WITHOUT STIRRUPS IN LOAD-BEARING WALLS^{1,2,3,4,5,6,7}
(NO. 4 OR NO. 5 BOTTOM BAR SIZE)

MINIMUM LINTEL THICKNESS, T (inches)	MINIMUM LINTEL DEPTH, D (inches)	MAXIMUM CLEAR SPAN (feet – inches)					
		SUPPORTING LIGHT-FRAME ROOF ONLY		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF ⁸	
		MAXIMUM GROUND SNOW LOAD (psf)					
		30	70	30	70	30	70
Flat ICF Lintel							
3.5	8	2-6	2-6	2-6	2-4	2-5	2-2
	12	4-2	4-2	4-1	3-10	3-10	3-7
	16	4-11	4-8	4-6	4-2	4-2	3-10
	20	6-3	5-3	4-11	4-6	4-6	4-3
	24	7-7	6-4	6-0	5-6	5-6	5-2
5.5	8	2-10	2-6	2-6	2-5	2-6	2-2
	12	4-8	4-4	4-3	3-11	3-10	3-7
	16	6-5	5-1	4-8	4-2	4-3	3-10
	20	8-2	6-6	6-0	5-4	5-5	5-0
	24	9-8	7-11	7-4	6-6	6-7	6-1
7.5	8	3-6	2-8	2-7	2-5	2-5	2-2
	12	5-9	4-5	4-4	4-0	3-10	3-7
	16	7-9	6-1	5-7	4-10	4-11	4-5
	20	8-8	7-2	6-8	5-11	6-0	5-5
	24	9-6	7-11	7-4	6-6	6-7	6-0
9.5	8	4-2	3-1	2-9	2-5	2-5	2-2
	12	6-7	5-1	4-7	3-11	4-0	3-7
	16	7-10	6-4	5-11	5-3	5-4	4-10
	20	8-7	7-2	6-8	5-11	6-0	5-5
	24	9-4	7-10	7-3	6-6	6-7	6-0
Waffle-Grid ICF Lintel							
6 or 8	8	2-6	2-6	2-6	2-4	2-4	2-2
	12	4-2	4-2	4-1	3-8	3-9	3-5
	16	5-9	5-8	5-7	5-1	5-2	4-8
	20	7-6	7-4	6-9	6-0	6-3	5-7
	24	9-2	8-1	7-6	6-7	6-10	6-2

For SI: 1 inch = 25.4 mm; 1 psf = 0.0479 kN/m²; 1 ft = 0.3 m

¹Table values are based on tensile reinforcement with a minimum yield strength of 40,000 psi (276 MPa), concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa), and a building width (floor and roof clear span) of 32 feet (9.8m).

²Deflection criterion is L/240, where L is the clear span of the lintel in inches.

³Linear interpolation shall be permitted between ground snow loads and between lintel depths.

⁴Lintel depth, D, shall be permitted to include the available height of ICF wall located directly above the lintel, provided that the increased lintel depth spans the entire length of the opening.

⁵Spans located in shaded cells shall be permitted to be multiplied by 1.05 when concrete with a minimum compressive strength of 3,000 psi (20.7 MPa) is used or by 1.1 when concrete with a minimum compressive strength of 4,000 psi (27.6 MPa) is used.

⁶Spans shall be permitted to be multiplied by 1.05 for a building width (floor and roof clear span) of 28 feet (8.5 m).

⁷Spans shall be permitted to be multiplied by 1.1 for a building width (floor and roof clear span) of 24 feet (7.3 m) or less.

⁸Supported ICF wall dead load varies based on wall thickness using 150 pcf (2403 kg/m³) concrete density



TABLE 4.2
MINIMUM VERTICAL WALL REINFORCEMENT
FOR FLAT ICF ABOVE-GRADE WALLS ^{1,2,3}

DESIGN WIND PRESSURE (TABLE 4.1) (psf)	MAXIMUM WALL HEIGHT PER STORY (feet)	MINIMUM VERTICAL REINFORCEMENT ^{4,5}					
		SUPPORTING ROOF OR NON-LOAD-BEARING WALL		SUPPORTING LIGHT-FRAME SECOND STORY AND ROOF		SUPPORTING ICF SECOND STORY AND LIGHT-FRAME ROOF	
		MINIMUM WALL THICKNESS (inches)					
		3.5	5.5	3.5	5.5	3.5	5.5
20	8	#4@48	#4@48	#4@48	#4@48	#4@48	#4@48
	9	#4@48	#4@48	#4@48	#4@48	#4@48	#4@48
	10	#4@38	#4@48	#4@40	#4@48	#4@42	#4@48
30	8	#4@42	#4@48	#4@46	#4@48	#4@48	#4@48
	9	#4@32; #5@48	#4@48	#4@34; #5@48	#4@48	#4@34; #5@48	#4@48
	10	Design Required	#4@48	Design Required	#4@48	Design Required	#4@48
40	8	#4@30; #5@48	#4@48	#4@30; #5@48	#4@48	#4@32; #5@48	#4@48
	9	Design Required	#4@42	Design Required	#4@46	Design Required	#4@48
	10	Design Required	#4@32; #5@48	Design Required	#4@34; #5@48	Design Required	#4@38
50	8	#4@20; #5@30	#4@42	#4@22; #5@34	#4@46	#4@24; #5@36	#4@48
	9	Design Required	#4@34; #5@48	Design Required	#4@34; #5@48	Design Required	#4@38
	10	Design Required	#4@26; #5@38	Design Required	#4@26; #5@38	Design Required	#4@28; #5@46
60	8	Design Required	#4@34; #5@48	Design Required	#4@36	Design Required	#4@40
	9	Design Required	#4@26; #5@38	Design Required	#4@28; #5@46	Design Required	#4@34; #5@48
	10	Design Required	#4@22; #5@34	Design Required	#4@22; #5@34	Design Required	#4@26; #5@38
70	8	Design Required	#4@28; #5@46	Design Required	#4@30; #5@48	Design Required	#4@34; #5@48
	9	Design Required	#4@22; #5@34	Design Required	#4@22; #5@34	Design Required	#4@24; #5@36
	10	Design Required	#4@16; #5@26	Design Required	#4@18; #5@28	Design Required	#4@20; #5@30
80	8	Design Required	#4@26; #5@38	Design Required	#4@26; #5@38	Design Required	#4@28; #5@46
	9	Design Required	#4@20; #5@30	Design Required	#4@20; #5@30	Design Required	#4@21; #5@34
	10	Design Required	#4@14; #5@24	Design Required	#4@14; #5@24	Design Required	#4@16; #5@26

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 mph = 1.6093 km/hr

¹ This table is based on reinforcing bars with a minimum yield strength of 40,000 psi (276 MPa) and concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa).

² Deflection criterion is L/240, where L is the height of the wall story in inches.

³ Interpolation shall not be permitted.

⁴ Reinforcement spacing for 3.5 inch (88.9 mm) walls shall be permitted to be multiplied by 1.6 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement shall not be less than one #4 bar at 48 inches (1.2 m) on center.

⁵ Reinforcement spacing for 5.5 inch (139.7 mm) walls shall be permitted to be multiplied by 1.5 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement shall not be less than one #4 bar at 48 inches (1.2 m) on center.

⁶ A 3.5-inch wall shall not be permitted if wood ledgers are used to support floor or roof loads.

TABLE 3.6
MINIMUM VERTICAL WALL REINFORCEMENT FOR
9.5-inch- (241-mm-) THICK FLAT ICF BASEMENT WALLS ^{1,2,3,4,5,6}

MAX. WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT ⁷ (feet)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 30 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 45 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 60 pcf
8	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	N/R
	7	N/R	N/R	N/R
9	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	N/R
	7	N/R	N/R	#4@12"; #5@18"; #6@26"
	8	N/R	#4@12"; #5@18"; #6@26"	#4@8"; #5@14"; #6@18"
10	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	#4@18"; #5@26"; #6@36"
	7	N/R	N/R	#4@10"; #5@18"; #6@24"
	8	N/R	#4@12"; #5@16"; #6@24"	#4@8"; #5@12"; #6@16"
	9	N/R	#4@8"; #5@12"; #6@18"	#4@6"; #5@10"; #6@12"

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 pcf = 16.0179 kg/m³

¹ Table values are based on reinforcing bars with a minimum yield strength of 40,000 psi (276 MPa) and concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa).

² Spacing of rebar shall be permitted to be multiplied by 1.5 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement, when required, shall not be less than one #4 bar at 48 inches (1.2 m) on center.

³ N/R indicates no reinforcement is required.

⁴ Deflection criterion is L/240, where L is the height of the basement wall in inches.

⁵ Interpolation shall not be permitted.

⁶ Walls shall be laterally supported at the top before backfilling.

⁷ Refer to Section 1.0 for the definition of unbalanced backfill height.



TABLE 3.5
MINIMUM VERTICAL WALL REINFORCEMENT FOR
7.5-inch- (191-mm-) THICK FLAT ICF BASEMENT WALLS ^{1,2,3,4,5,6}

MAX. WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT ⁷ (feet)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 30 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 45 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 60 pcf
8	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	N/R
	7	N/R	#4@14"; #5@20"; #6@28"	#4@10"; #5@16"; #6@20"
9	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	#4@14"; #5@20"; #6@28"
	7	N/R	#4@12"; #5@18"; #6@26"	#4@8"; #5@14"; #6@18"
	8	#4@14"; #5@22"; #6@28"	#4@8"; #5@14"; #6@18"	#4@6"; #5@10"; #6@14"
10	4	N/R	N/R	N/R
	5	N/R	N/R	N/R
	6	N/R	N/R	#4@12"; #5@18"; #6@26"
	7	N/R	#4@12"; #5@18"; #6@24"	#4@8"; #5@12"; #6@18"
	8	#4@12"; #5@20"; #6@26"	#4@8"; #5@12"; #6@16"	#4@6"; #5@8"; #6@12"
	9	#4@10"; #5@14"; #6@20"	#4@6"; #5@10"; #6@12"	#4@4"; #5@6"; #6@10"

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 pcf = 16.0179 kg/m³

- ¹ Table values are based on reinforcing bars with a minimum yield strength of 40,000 psi (276 MPa) and concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa).
- ² Spacing of rebar shall be permitted to be multiplied by 1.5 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement, when required, shall not be less than one #4 bar at 48 inches (1.2 m) on center.
- ³ N/R indicates no reinforcement is required.
- ⁴ Deflection criterion is L/240, where L is the height of the basement wall in inches.
- ⁵ Interpolation shall not be permitted.
- ⁶ Walls shall be laterally supported at the top before backfilling.
- ⁷ Refer to Section 1.0 for the definition of unbalanced backfill height.



TABLE 3.4
MINIMUM VERTICAL WALL REINFORCEMENT FOR
5.5-inch- (140-mm-) THICK FLAT ICF BASEMENT WALLS ^{1,2,3,4,5}

MAX. WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT ⁶ (feet)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 30 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 45 pcf	MAXIMUM EQUIVALENT FLUID DENSITY 60 pcf
8	4	#4@48"	#4@48"	#4@48"
	5	#4@48"	#3@12"; #4@22"; #5@32"; #6@40"	#3@8"; #4@14"; #5@20"; #6@26"
	6	#3@12"; #4@22"; #5@30"; #6@40"	#3@8"; #4@14"; #5@20"; #6@24"	#3@6"; #4@10"; #5@14"; #6@20"
	7	#3@8"; #4@14"; #5@22"; #6@26"	#3@5"; #4@10"; #5@14"; #6@18"	#3@4"; #4@6"; #5@10"; #6@14"
	4	#4@48"	#4@48"	#4@48"
9	5	#4@48"	#3@12"; #4@20"; #5@28"; #6@36"	#3@8"; #4@14"; #5@20"; #6@22"
	6	#3@10"; #4@20"; #5@28"; #6@34"	#3@6"; #4@12"; #5@18"; #6@20"	#4@8"; #5@14"; #6@16"
	7	#3@8"; #4@14"; #5@20"; #6@22"	#4@8"; #5@12"; #6@16"	#4@6"; #5@10"; #6@12"
	8	#3@6"; #4@10"; #5@14"; #6@16"	#4@6"; #5@10"; #6@12"	#4@4"; #5@6"; #6@8"
10	4	#4@48"	#4@48"	#4@48"
	5	#4@48"	#3@10"; #4@18"; #5@26"; #6@30"	#3@6"; #4@14"; #5@18"; #6@20"
	6	#3@10"; #4@18"; #5@24"; #6@30"	#3@6"; #4@12"; #5@16"; #6@18"	#3@4"; #4@8"; #5@12"; #6@14"
	7	#3@6"; #4@12"; #5@16"; #6@18"	#3@4"; #4@8"; #5@12"	#4@6"; #5@8"; #6@10"
	8	#3@4"; #4@8"; #5@12"; #6@14"	#4@6"; #5@8"; #6@12"	#4@4"; #5@6"; #6@8"
	9	#3@4"; #4@6"; #5@10"; #6@12"	#4@4"; #5@6"; #6@8"	#5@4"; #6@6"

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 pcf = 16.0179 kg/m³

- ¹ Table values are based on reinforcing bars with a minimum yield strength of 40,000 psi (276 MPa) and concrete with a minimum specified compressive strength of 2,500 psi (17.2 MPa).
- ² Spacing of rebar shall be permitted to be multiplied by 1.5 when reinforcing steel with a minimum yield strength of 60,000 psi (414 MPa) is used. Reinforcement shall not be less than one #4 bar at 48 inches (1.2 m) on center.
- ³ Deflection criterion is L/240, where L is the height of the basement wall in inches.
- ⁴ Interpolation shall not be permitted.
- ⁵ Walls shall be laterally supported at the top before backfilling.
- ⁶ Refer to Section 1.0 for the definition of unbalanced backfill height.



TABLE 6.3
MINIMUM DESIGN VALUES (plf) FOR FLOOR JOIST-TO-WALL ANCHORS REQUIRED IN SEISMIC DESIGN CATEGORIES C, D1, AND D2

WALL TYPE	SEISMIC DESIGN CATEGORY		
	C	D1	D2
Flat 3.5	193	320	450
Flat 5.5	303	502	708
Flat 7.5	413	685	965
Flat 9.5	523	867	1,223
Waffle 6	246	409	577
Waffle 8	334	555	782
Screen 6	233	387	546

For SI: 1plf = 14.59 N/m

1. Table values are based on IBC Equation 16-63 using a tributary wall height of 11 feet (3,353 mm). Table values may be reduced for tributary wall heights less than 11 feet (3.3 m) by multiplying the table values by $X/11$, where X is the tributary wall height.
2. Table values may be reduced by 30 percent to determine minimum allowable stress design values for anchors.

TABLE 6.4
TOP SILL PLATE-ICF WALL CONNECTION REQUIREMENTS

MAXIMUM WIND SPEED (mph)	MAXIMUM ANCHOR BOLT SPACING 1/2-INCH-DIAMETER ANCHOR BOLT
90	6'-0"
100	6'-0"
110	6'-0"
120	4'-0"
130	4'-0"
140	2'-0"
150	2'-0"

For SI: 1 foot = 0.3048 m; 1 inch = 25.4 mm; 1 mph = 1.609344 km/hr