

B-4. Group-II. *Low-rise residential buildings with expanded Limitations.*

This group include Tables for selection of reinforcement for the basement and above grade walls with height 3.7m (12') and Equivalent Fluid Density of Soil =1,280 kg/m³ (80 pcf), for the typical construction conditions. *Other limitations are in full compliance with data in Table B-2.1*

MINIMUM VERTICAL WALL REINFORCEMENT FOR
150, 200, 250 mm THICK BASEMENT WALLS WITH
MAXIMUM EQUIVALENT FLUID DENSITY 12.8 kN/m³

Table B-3.2.10.

MAX. WALL HEIGHT (metre)	MAXIMUM UNBALANCED BACKFILL HEIGHT (metre)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 12.8 kN/m ³		
		150mm thick concrete wall	200mm thick concrete wall	250mm thick concrete wall
2.44	1.83	10M@400	10M@400	10M@400
	2.14	15M@400	15M@400	10M@400
2.75	1.83	10M@400	10M@400	10M@400
	2.14	15M@400	15M@400	10M@400
	2.44	15M@400	15M@400	15M@400
3.05	1.83	10M@400	10M@400	10M@400
	2.14	15M@400	15M@400	10M@400
	2.44	15M@200	15M@400	15M@400
	2.75	15M@200	20M@400	15M@400
3.35	1.83		10M@400	10M@400
	2.14		15M@400	10M@400
	2.44		15M@400	15M@400
	2.75		20M@400	15M@400
	3.05		20M@400	20M@400
3.66	1.83		10M@400	10M@400
	2.14		15M@400	10M@400
	2.44		15M@400	15M@400
	2.75		20M@400	15M@400
	3.05		15M@200	20M@400
	3.35		20M@200	20M@200

Notes:

- Horizontal Rebar Requirements: 10M @ 400mm o.c. - for 150mm thick concrete wall;
15M @ 400mm o.c - for 200-250mm thick concrete wall.
- Calculations are based on maximum two floors above the basement
- Concrete strength $f'_c = 20$ MPa
- Reinforcing steel $f_y = 400$ MPa
- Vertical reinforcement should be placed on the tension side of the wall and shall be covered by 40mm thick concrete.
- If wall is bearing pure axial load the reinforcement must be placed in the middle third of the wall.
- Wall shall be laterally supported at the top before backfilling



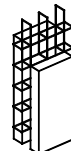
MINIMUM VERTICAL WALL REINFORCEMENT FOR
5.5, 7.5, 9.5-inch- THICK BASEMENT WALLS WITH
MAXIMUM EQUIVALENT FLUID DENSITY 80 pcf

Table B-3.2.11.

MAX. WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT (feet)	MINIMUM VERTICAL REINFORCEMENT		
		MAXIMUM EQUIVALENT FLUID DENSITY 80 pcf		
		5.5-inch- thick concrete wall	7.5-inch- thick concrete wall	9.5-inch- thick concrete wall
8	4	#4@24"	#4@24"	#4@24"
	5	#4@24"	#4@24"	#4@24"
	6	#4@16"	#4@16"	#4@24"
	7	#5@16"	#5@16"	#4@16"
9	4	#4@24"	#4@24"	#4@24"
	5	#4@24"	#4@24"	#4@24"
	6	#4@16"	#4@16"	#4@24"
	7	#5@16"	#5@16"	#4@16"
10	8	#6@16"	#6@16"	#5@16"
	4	#4@24"	#4@24"	#4@24"
	5	#4@24"	#4@24"	#4@24"
	6	#4@16"	#4@16"	#4@24"
	7	#5@16"	#5@16"	#4@16"
11	8	#5@8"	#6@16"	#5@16"
	9	#6@8"	#6@8"	#6@16"
	4		#4@24"	#4@24"
	5		#4@24"	#4@24"
	6		#4@16"	#4@16"
	7		#5@16"	#4@16"
12	8		#6@16"	#5@16"
	9		#5@8"	#6@16"
	10		#6@8"	#5@8"
	4		#4@24"	#4@24"
	5		#4@24"	#4@24"
	6		#4@16"	#4@16"
	7		#5@16"	#4@16"
12	10		#6@8"	#5@8"
	11		#6@8"	#6@8"

Notes:

- Horizontal Rebar Requirements: #4 @ 16" o.c. - for 5.5" thick concrete wall;
#5 @ 16" o.c - for 7.5", 9.5" thick concrete wall.
- Calculations are based on maximum two floors above the basement
- Concrete strength $f'_c = 2,850$ psi
- Reinforcing steel $f_y = 40,000$ psi
- Vertical reinforcement should be placed on the tension side of the wall and shall be covered by 40mm thick concrete.
- If wall is bearing pure axial load the reinforcement must be placed in the middle third of the wall.
- Wall shall be laterally supported at the top before backfilling



Minimum Vertical Wall Reinforcement for Flat ICF
Above-Grade Walls ^{1,2,3}

Table B-4.1.5.*

Design Wind Pres. [kPa], (psf)	Max. Wall Height per Storey [m] (feet.)	Minimum Vertical Reinforcement ^{4,5,6}							
		Supporting Roof or Non-Load Bearing Wall		Supporting Light-Frame Second Storey and Roof		Supporting ICF Second Storey and Light-Frame Roof			
		Minimum Wall Thickness							
		7.5-inch-	200 mm	7.5-inch-	200 mm	7.5-inch-	200 mm	7.5-inch-	200 mm
0.96 (20)	2.4(8)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	2.7(9)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	3.0(10)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
1.44 (30)	2.4(8)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	2.7(9)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	3.0(10)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
1.91 (40)	2.4(8)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	2.7(9)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	3.0(10)	#4@40"	10M@1200	#4@40"	10M@1200	#4@40"	10M@1200	#4@40"	10M@1200
2.39 (50)	2.4(8)	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200	#4@48"	10M@1200
	2.7(9)	#4@40"	10M@1000	#4@40"	10M@1000	#4@40"	10M@1000	#4@40"	10M@1000
	3.0(10)	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000
2.87 (60)	2.4(8)	#4@40"	10M@1200	#4@40"	10M@1200	#4@40"	10M@1200	#4@40"	10M@1200
	2.7(9)	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000
	3.0(10)	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800
3.35 (70)	2.4(8)	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000
	2.7(9)	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800
	3.0(10)	#4@16"	10M@800	#4@16"	10M@800	#4@16"	10M@800	#4@16"	10M@800
3.83 (80)	2.4(8)	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000	#4@32"	10M@1000
	2.7(9)	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800	#4@24"	10M@800
	3.0(10)	#4@16"	10M@600	#4@16"	10M@600	#4@16"	10M@600	#4@16"	10M@600

* Table is based on Table 4.2 [1]

1. This table for 7.5 inch walls based on Reinforcing bars with a minimum yield strength of 40,000 psi, and Concrete F'c = 2,850 psi.
2. This table for 200 mm walls based on Reinforcing bars with a minimum yield strength of 400 MPa, and Concrete F'c = 20 MPa.
- 3.. Deflection criterion is L/240, were L is the height of the wall storey in mm (inches).
4. Interpolation shall not be permitted
5. Vertical reinforcement should be placed on the tension side of the wall and shall be covered by 40 mm (1 1/2") thick concrete.
6. If wall is bearing pure axial load the reinforcement must be placed in the middle third of the wall.

