City of Saskatoon

BUILDING STANDARDS
222-3rd AVE NORTH, SASKATOON, SK S7K 0J5

FOUNDATION WALL REINFORCEMENT

Article 9.15.4.2 of the 2015 National Building Code limits the maximum height of an unreinforced 200 mm (8") concrete foundation wall to 3 m (10 ft). Table 9.15.4.2-A lists the maximum allowable backfill height for unreinforced concrete walls.

Building Standards engaged the services of a structural engineer to provide engineered designs for foundation walls in residential buildings exceeding 2.5m (8 ft 2 in). The tables below are the result of that report.

Design Assumptions:

1. 200 mm (8 in) thick concrete with a minimum strength of 20 MPa, HS (Type 50).
2. The foundation wall is laterally supported at the top and bottom as per NBC Articles 9.15.4.3 and 9.15.4.4.
3. Reinforcement to be on the inside face with a minimum cover of 25 mm (1 in) and a maximum cover of 50 mm (2 in).
4. Basement wall height is measured from the top of the concrete floor to the underside of floor joists.
5. Final grade height is measure from the top of the basement floor to the maximum grade adjacent to the foundation wall.
6. Horizontal reinforcement is to be minimum 2-10M top, mid-height and bottom.
7. Even when reinforcing is not required, it is still recommended that the horizontal bars and additional vertical reinforcing are installed.
8. Additional reinforcing may be required in laterally unsupported portions of walls. Also see *Foundation Wall Window Opening Reinforcement*.

Table 1

Vertical reinforcing for > 8'-2" and <= 9'-0" high foundation wall		
Final grade Height (ft)	Size of Vertical Bars	Bar Spacing (inches)
<7.5	Reinforcing not required	
7.5	15M	24
8.0	15M	20
8.5	15M	18

Table 2

Vertical reinforcing for > 9'-0" and <= 10'-0" high foundation wall		
Final Grade Height(ft)	Size of Vertical Bars	Bar Spacing (inches)
<7.2	Reinforcing not required	
7.0	15M	22
7.5	15M	18
8.0	15M	16
8.5	15M	12

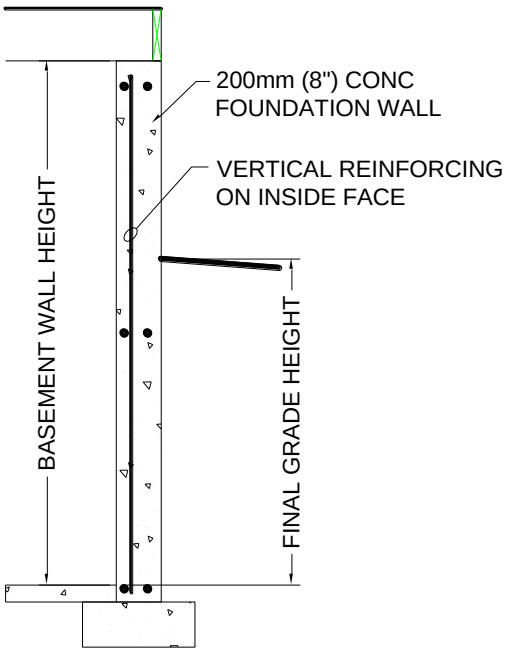

Figure 1 – Diagram for high foundation walls