

Article 9.15.4.3 of the 2005 National Building Code requires openings in concrete foundation walls greater than 1.2m to be reinforced to be considered laterally supported.

The Building Standards Branch engaged the services of a structural engineer to provide engineered designs for window openings in concrete foundation walls exceeding 1.2m in width. The tables below are the result of that report. Effective June 1, 2008, any opening in a foundation wall exceeding 1.2 m in width within the City of Saskatoon must meet these minimum requirements or be sealed by a structural engineer or registered architect licensed to practice in Saskatchewan.

Table 1.1

Required Reinforcing for $\leq 2.5\text{m}$ high basement wall (Assume minimum 2-10M T/B Horizontal)		
Width of Window Opening	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4 – 4.5 ft	1 – 15M	1 – 10 M
5 – 7 ft	1 – 15M	1 – 15M
7.5 ft	1 – 15M	1 – 20M

Table 1.2

Required Reinforcing for $> 2.5\text{m}$ and $\leq 2.75\text{m}$ high basement wall (Assume minimum 2-10M T/M/B Horizontal)		
Width of Window Opening	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4 – 5 ft	1 – 20M	1 – 15 M
5.5 – 6.5 ft	1 – 20M	1 – 20M
7 ft	1 – 20M	2 – 15M
7.5 – 8 ft	2 – 15M	2 – 15M

Table 1.3

Required Reinforcing for $> 2.75\text{m}$ and $\leq 3\text{m}$ high basement wall (Assume minimum 2-10M T/M/B Horizontal)		
Width of Window Opening	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4 ft	2 – 15M	1 – 15 M
4.5 – 5.5 ft	2 – 15M	1 – 20M
6 ft	2 – 20M	2 – 15M
6.5 – 8 ft	2 – 20M	2 – 20M

Note: 1-10M bar minimum 36 inches long is required on the diagonal on each side of the lower corners of the window (both faces)

Assumptions

1. 20 MPa, Type 50 Cement
2. Minimum concrete cover of 1" and a maximum concrete cover of 2"
3. Both faces means one (or two) bar(s) adjacent to inside face and one (or two) bar(s) adjacent to the outside face.
4. Horizontal reinforcement is provided as per table.

Figure 1 – Diagram for Window Opening Reinforcement

