Article 9.15.4.3 of the 2010 National Building Code requires openings in concrete foundation walls wider than 1.2 m (4') to be reinforced to be considered laterally supported.

Building Standards engaged the services of a structural engineer to provide engineered designs for window openings in concrete foundation walls exceeding 1.2 m (4') in width. The tables below are the result of that report. Any opening in a foundation wall exceeding 1.2 m (4') in width within the City of Saskatoon must meet these minimum requirements or be sealed by a structural engineer or registered architect licensed to consult in Saskatchewan.

Table1.1

Required Reinforcing for <= 8'-4" high basement wall		
Width of Window Opening (ft)	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4 – 4.5	1 – 15M	1 – 10 M
5 – 7	1 – 15M	1 – 15M
7.5	1 – 15M	1 – 20M

Table 1.2

Required Reinforcing for > 8'-4" and <= 9' high basement wall		
Width of Window Opening (ft)	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4 – 5	1 – 20M	1 – 15 M
5.5 – 6.5	1 – 20M	1 – 20M
7	1 – 20M	2 – 15M
7.5 – 8	2 – 15M	2 – 15M

Table 1.3

Required Reinforcing for > 9' and <= 10' high basement wall		
Width of Window Opening (ft)	# of Vertical bars E/S of Window (Each Face)	# of Horizontal bars (Each Face)
4	2 – 15M	1 – 15 M
4.5 – 5.5	2 – 15M	1 – 20M
6	2 – 20M	2 – 15M
6.5 – 8	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).

Designs Assumptions
1. 20 MPa HS Type 50 Cement
2. Minimum concrete cover of 25 mm (1") and a maximum concrete cover of 50 mm (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 to be 2-10m top and bottom, with 2-10m mid-height for walls over 2.5 m (8'-4") high.

Figure 1 – Diagrams for Window Opening Reinforcement