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

City of Saskatoon

RESIDENTIAL PILES AND GRADE BEAMS

- 1. Foundations which include piles and grade beams that support any fully finished livable floor space must be designed in accordance with Part 4 of the National Building Code and sealed by a professional engineer licensed to consult in the Province of Saskatchewan.
- 2. Foundations which include piles and grade beams that do not support livable floor space including attached garages, detached garages and covered enclosed decks (3 season rooms) shall meet the minimum standards described below.

The following summarizes some of the minimum requirements and how they will be applied to pile and grade beam construction.

Grade Beam Construction

Grade beams must be a minimum of 200mm by 600mm (8" x 24") with 2 – 15M bars top and bottom. Thickened edge slabs are not acceptable as a grade beam without an Engineer's seal. An acceptable void form must be placed under all grade beams. <u>Note: For grade beams > 600mm (24"), adjust pile depth or spacing at 600mm (2') per additional 300mm (12") of grade beam height.</u>

<u>Stirrups</u>

It is the builder's responsibility to assess the soil conditions to determine the need for stirrups.

Void Forms

Void forms must be placed under all grade beams including extensions under garage door openings.

Cutouts in grade beams

Cutouts in a grade beam cannot occur without adequate structural provisions across the opening. The builder is solely responsible for cutouts where the grade beam is not dropped accordingly. Cutouts shall not exceed 300mm (12") or the grade beam must be dropped accordingly. Where cutouts occur it is the builder's responsibility to ensure the top and bottom bars extend across the openings with sufficient overlap. Piles placed under cutouts must extend a minimum of 4m (12') deep. Piles must be placed near the ends of the cutouts.

Pile Construction

Pile sizing and spacing must be designed for the anticipated loads. The following forms a general guide that will be accepted without seal where used as outlined in note 2 above.

- 1. Small loads from single vehicle attached garages, detached garages, 3 season rooms: 200mm diameter by 2400mm deep at 2400mm o.c. (8"dia. X 8' deep at 8' o.c.) concrete piles may be used to support roof spans up to 4.8m (16') or floor joists spans up to 2.4 m (8'). Piles that support floor joists and roof loads must comply with sentence 3 below.
- 2. Moderate loads from double vehicle attached garages, detached garages, 3 season rooms: 250 mm diameter by 3000mm deep piles at 3000 mm o.c. (10" dia. X 10' deep at 10' o.c.) may be used to support roof spans up to 9.8m (32') or floor joists up to 4.9 m (16').
- 3. Combination roof and floor loads covered decks and/or 3 season rooms: 250mm diameter by 3000mm deep piles at 3000mm o.c. (10" dia. X 10' deep at 10' o.c.) may be used to support floor joists and roof spans up to 3m (10'). The span may be increased up to spans noted in sentence 2 above, by reducing the spacing of the piles and/or increasing the length of the piles proportionally.

All piles must be reinforced with a minimum of 1-15M bar full depth of the pile extending to the top bars of the grade beam.

Piles adjacent to a foundation wall

Piles must also be placed within 1.5m (5') of a concrete foundation wall. This pile should be a minimum 4m (12') deep when within 1m (3') of a recent excavation. See below for piles in excavated area.

Piles within 1 meter of a service trench

All piles located within 1m (3') of a service trench are required to be a minimum of 4m (13') deep. It is the builder's responsibility to ensure compliance.

Piles placed in excavated area

Piles must be extended for the depth of the excavation plus the minimum depth required under "Pile Construction" above. This is the builder's responsibility to ensure compliance.