

## RB14-037

### SERVICE TRENCHES CROSSING UNDER WALL FOUNDATIONS

Reference: Alberta Building Code 2014 Sentence 9.12.4.1.(1), CANICSA-A23.1-09 and CSA A23.3-04

**Sentence 9.12.4.1.(1)** "The *soil* in trenches beneath footings for sewers and water mains shall be compacted by tamping up to the level of the footing base, or shall be filled with concrete having a strength not less than 10 MPa to support the footing."

**CANICSA-A23.1-04** "Concrete Materials and Methods of Concrete Construction"

**CSA A23.3-04** "Design of Concrete Structures"

#### Commentary | Relevant Facts:

The Sentence does not specify permitted excavation widths for service line trenches. Locally, however, two 4" (100 mm) diameter sewer lines and one 3/4" (19 mm) diameter water line are placed into a typical trench. A 2 ft. (600 mm) wide excavation is sufficient for that purpose.

As a certain amount of soil along the sides of the trench is disturbed, and some cave-in of excavation walls is unavoidable, a 4 ft. (1200 mm) effective span for the foundation often results. Good engineering practice suggests this effective span is the maximum acceptable for a plain concrete footing.

#### Conclusion:

To provide adequate support for footings and foundations spanning over utility trenches exceeding 4 ft. (1200 m) in width, a builder who is unable to comply with Sentence 9.12.4.1.(1) must retain a registered professional engineer to design a support complying with CAN/CSA-A23.1-09 and CSA A23.3-04.

The Safety Codes Officer shall be provided with a signed and stamped certificate from the design professional that the work was installed in accordance with his/her design.

Special care must be taken in designing and constructing supports over trenches at corners of buildings and under foundations supporting load-bearing walls exceeding one storey in height.

Undermined foundation pads must be underpinned by methods conforming to good engineering practice. The builder must provide confirmation from the design professional that the work was carried out according to the design.

Formwork material subject to deterioration and rot must be completely removed before backfilling.

Chief Building Inspector

#### Regulation Bulletin General Policy Statement

Unless stated otherwise, the Code references in this Regulations Bulletin are to Division B of the Alberta Building Code 2014 (ABC 2014). Regulation Bulletins do not overrule the ABC 2014 nor constitute a relaxation of the Code. They serve to clarify the Code in areas where the latter is ambiguous or does not cover a specific topic. Regulation Bulletins are City of Calgary clarifications for staff use to enable consistency in the application of the Code. Regulation Bulletins should always be read in the context of the appropriate requirements of the Code