



Canadian Standards Association  
Mississauga, Ontario  
**To the Part I Committee**

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Subject No. 3102

Chair: T. Olechna

Date: January 18, 2005

Title: Thickness of Concrete Embedment, Rule 6-208(1)(a)

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**Submitted by:** John Biollo of Electrical Inspectors Association of Alberta, 60 Caledonia Drive, Leduc, Alberta, T9E 6S6, Tel: (780) 986-8864, Fax: (780) 986-2852 on January 17, 2003.

**Proposal:** Amend Rule 6-208(1)(a) to read:

- (1) Raceways or cables containing consumer's service conductors shall be located outside of buildings unless they are:
  - (a) Embedded in and encircled by not less than 100 mm of reinforced concrete or masonry where permitted by Section 12; or

**Reasons for Request:** There is concern for areas where service conductors having fault current as high as 200 ka enter a building. Where there is only 50 mm of concrete it simply breaks up and falls away. Where there is 100 mm of reinforced concrete it will withstand damage better than 50 mm of concrete.

**Supporting Information:** Various Inspection Authorities in Alberta have reported installations where the 50 mm of concrete without reinforcement has broken away.

**Chair's Comments:**

The reliance on the 50 mm as a protection for service conductors has been around for a long time, I have not found any rationale for the thickness. One hard fact that I did find was that in the Building Code in table 8.1 a 140mm (6 Inch) hollow concrete block has a 1 hour fire rating. Consider that the walls of a hollow concrete block is somewhere around 20-25 mm, therefore the block has two walls, therefore times 2 gives you the one hour rating I am having difficulty in rationalizing 50 mm in actually performing the job. The expectation is to have at least a two hour fire rating for the building separation.

**Comments from subcommittee members**

Agree

While the 100mm will provide better protection, it will take more space to accommodate the encased conduit and horizontal runs in particular will require more structural support

Agree

This should be returned to the building code people. Perhaps there has been testing done. If not it should be considered

Agree

Concrete encasement of service raceway is used to meet intent of 6-206(e) in some cases.

Disagree

Encircled Reinforcing may cause more problems with sheath currents. Need more details on the concrete that broke away , maybe bad concrete

Disagree

Agree with Chair's comments , fault current of 200 kA is not realistic

**Chair Comments:**

The voting was, three agree and three agreed with comment and two disagreed.

That is a six for and two against, which states that the majority of individuals do support this proposal

Some clarification on the comments made:

Questions were raised if "Shaft" is a common term used in the building code, and I scanned the Building Code and that term appears in 30 rules. This requirement would fall under the Building Code jurisdiction and there are specific rules for fire stops, etc .

If sheath currents are an issue then follow Rule 4-008 and Appendix B.

**Subcommittee Recommendation:**

The subcommittee recommendation based on this discussion is to accept the proposal.

**Proposal as submitted: Amend Rule 6-208(1)(a) to read;**

(1) Raceways or cables containing consumer's service conductors shall be located outside of buildings unless they are:

- (a) Embedded in and encircled by not less than ~~50 mm of~~ 100 mm of reinforced concrete or masonry where permitted by Section 12; or