Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3047 Chair: G.Lobay Date: March 27, 2003

Title: Definition of Protection by Location

Submitted by: R. Edwards of Alcan Cable Canada, 2700 Matheson Blvd., Suite 600, West Tower, Mississauga, Ontario, L4W 5H7, Tel: (905) 206-6880, Fax: (905) 206-6907 on January 15, 2002.

Proposal: Add a new definition to the Code, as follows:

Protection by location means the elimination of a shock hazard by the placement of energized conductors or other live components in space out of unaided human reach.

Reasons for Request: The use of the expression "protection by location" has been recognized in the Code for the first time. (Rule 12-012(5)). A uniform understanding of what this means is desirable, and the words, without a supporting definition can convey alternative meanings, such as locating conductors in the ground, behind walls and partitions, etc.

Supporting Information: Minute Item M106-2895, June 25-27, 2001, St. John's, Newfoundland, which states:

> **Protection by Location, Rule 12-012(5) (from SN 2834)**
> It was reported that the objection during Part I letter balloting was the same as at Subcommittee level and that was regarding the meaning of the term "by location". It was explained that it is used elsewhere in the Code and is quite common in the field as well. It was suggested that possibly a definition was required.
>
> Motion: That the Subcommittee's recommendation as shown on page 276 [of the agenda for the June 2001 Part I meeting] be reaffirmed.

Carried
For - 35
Against - 0

Also, for reference, Rule 12-012(5) in the 2002 Code states:

> Where conductors or cables rise for terminations or splices or where access is otherwise required, they shall be protected from mechanical damage by location or by rigid conduit terminated vertically in the trench and including a bushing or bell end fitting, or other acceptable protection, at the bottom end from 300 mm above ...

Section 0 Chair's Comments:
I did a search through the Code (2002 edition!) to find out how the phrase "by location" was being used.

There are thirteen locations in the Code and Appendices where "by location" is used:

- In 11 out of the 13 locations, the intent clearly is to protect equipment from mechanical damage by location; it's all about mechanical protection of equipment only. The Rules are 12-012(5), 18-118(3), 18-172(1)(b)(i), 18-216(3), 18-266(1)(b)(i), 26-246(2)(a), 30-314, 70-122(4), Appx B 10-904, Appx J 18-116(3), Appx J 18-168(1)(b)(i).

- In Rule 28-012 the reference is to people protection. It says that "Exposed live parts of motors and controllers operating at 50 V or more between terminals shall be guarded against accidental contact by means of enclosures or by location..." so in this case there is an intent to protect people from harm.

- In Appendix B note to Rule 68-060(6) it's arguable. The reference could be to mechanical or people protection, or both.

This proposed definition is written in terms of protecting people from shock hazards, yet there is only one place (or two at the most) in the Code where it is used in that sense.

So if there is a definition needed, as might be suggested by Minute M106-2895 (St. John's meeting), the proposed definition is very deficient in that it does not address the way the term is usually employed in the Code and Appendices.

To be very exact about it, the phrase "protection by location" was the phrase that was proposed. I did a search for that exact whole phrase, it appears nowhere in the body of the Code, and only once in Appendix B (Note to 10-904) and it is in connection with mechanical protection. As has come up before, the Section 0 Chair must disagree (because it's an Appendix C Rule) with proposals for defined terms which in fact do not appear anywhere in the body of the Code.

<u>Note from Chair</u>: In the above Chair's initial comments, I mentioned an Appendix C rule requiring that any defined term has to be employed somewhere in the body of the Code. In double-checking this, it is not in Appendix C. However, the preamble to the Definitions section does say "... where such terms or derivatives thereof appear throughout this Code, they shall be understood to have the meanings that follow." This to me indicates that terms must be used in the Code before they can be defined.

Summary of Subcommittee Deliberations:

Round 1 Deliberations
There was very little support for this proposal from the subcommittee; in fact, no one voted in favour.

One member suggested the matter could be better dealt with at the Section 12 level, where the intent "seems to be an official interpretation of 12-012(5)". He also did agree with the submittor in that protection from mechanical damage will result in protection from fire and shock, but suggested that the Rule be reworded to clearly capture the intent.

A couple of commenters thought that a definition in Section 12 could deal with the issue more directly.

In fairness to the submitter, the Chair agreed to allow a revised proposed definition from the submitter to be circulated to Section 0. This formed the basis of the Round 2 proposal.

Round 2 Deliberations
The Round 2 proposal read as follows:

> **By Location** means the placement of energized conductors or other live components by spatial separation from unaided human contact, when used in connection with expressions such as "protection", "protected", "guarded against", and like phrases.

Again, the voting was not very positive:

- two people agreed with the submission.;
- one person agreed with the submission in principle, but voted negative on the grounds that the wording as stated in the proposal was deficient, and provided revised wording.
- three members disagreed, two on the grounds that the dictionary definition was sufficient, and one on the grounds that the wording was deficient.
- one member disagreed, but did not provide reasons. He was subsequently asked to provide reasons and never did. Therefore that negative is non-germane.
- in spite of a reminder being sent out, four members did not respond.
- two non-permanent members also responded, because they are temporarily on Section 0 by virtue of having other active or recently active subjects in Section 0. One disagreed, and one agreed in principle with a suggestion for revised wording.

There was a lot of discussion about how the wording could be changed to possibly make the definition work. In fairness to all the people who provided their alternate wording, a revised proposal taken from member-provided wording (with the approval of the original submitter) was sent out, which formed the basis of a Round 3 proposal.

Round 3 Deliberations
The Round 3 proposal read as follows:

> **By location**, when used with "protection", "protected", "guarded against" and similar phrases, means the placement of energized conductors or exposed parts of other live electrical equipment by suitable separation from direct human contact or from a source of mechanical damage.

There was somewhat more support this time with 4 in favour and 6 against. There was only one non-responder this time. The reasons for the negatives are summarized as follows:

- 'Exposed parts' does not fit in with the rules for lighting, motors etc.
- The term ‘energized conductors’ is a defined term that covers all forms of wire or cable that exist. This would require all flexible cords, equipment wire, armoured cable, etc. to be placed outside of human reach. Perhaps the intent was to say ‘energized bare conductors’;

- Of the 13 locations in the code where “by location” appears, eight relate to lighting fixtures.There are no live exposed parts on these fixtures neither are conductors not properly protected, assuming adherence to pertinent rules in this code. The proposed rule has no meaning whatsoever for lighting fixtures and would only cause confusion.
- We are changing the context of how the term is used. The intent is to protect equipment, and not primarily "energized conductors" or "exposed parts of other live equipment" as stated in the definition.
- Work is often required within areas ‘out of human reach’. These locations which contain live bare conductors are considered restricted areas and only properly trained individuals are permitted. The proposed definition doesn’t really apply to these restricted locations.
- Dictionary definition is sufficient.

Chair’s Comments
We have tried, and failed, over three rounds, to massage this proposal into something acceptable. People keep coming up with their own revised wording which for various reasons they believe might work. I think the problem here is that attempts are being made to put something which is inherently subjective, into non-subjective terms, and on that basis this proposal has gone about as far as it can go.

Subcommittee Recommendation:
Reject the proposal and close the Subject.