Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3088 Chair: D.E. Clements Date: February 13, 2003

Title: Change of Calculation, Table D3, Note (9)

Submitted by: R. Leduc of Alberta Municipal Affairs, 16th floor, Commerce Place, Edmonton, Alberta, T5J 4L4 Tel: *780) 415-0481, Fax: (780) 427-8686 on October 1, 2002.

Proposal: Under Note (9) in the second calculation at the end of the note, revise figures as follows:

*Beyond this distance a larger size of conductor is required, ie, No. 10 AWG (30 A allowable ampacity) beyond 37 m up to and including ~~62~~ **60.5** m.*

9.7 m x 3(%) x ~~1.06~~**1.04** x 240 V/120 V = ~~62~~**60.5** m

Reason for Request:

When coming up with the calculated "Per Cent Allowable Ampacity" in this example we take the 16 A and divide it by the 30 A allowable ampacity for 10 AWG as per table 2 for 90 degree conductor. 16 divided by 30 equals 53.3%. When applying the Table for Distance Correction Factor, common practice is to use the column having the next highest value to the calculated "Percent of Allowable Ampacity". In this case we should be using the value in the '60' column which would be 1.04 and the resulting value would be 60.5 m.

Chair's Comments: The Chair agrees with the proposal. I agree with the submittor that the higher value is used which will result in the conductor run being a lesser distance.

The Chair recommends that Note (9) be revised as noted.

First Round Deliberations

Of the ten members , seven responded as follows:
Five agreeing with the proposal
Two agreeing with comments

The comments from the 2 members are:

1. While I agree that the sample calculation should be revised to reflect the proper selection of the Distance Correction Factor, I find the Notes regarding the use of Table D3 to be confusing, largely as the result of the wording of Note (9). I had to read Rule 8-102,

Table D3, and the associated notes several times to determine how the Table should be correctly applied, after reading the proposal.

First, however, I would suggest that Note (3) be modified to gaurd against the incorrect selection of the appropriate factor and to reflect what the Submitter refers to at the "common practice", which not everyone may be as familiar with as the submittor. Could an additional sentance be added at the end of Note (3) as follows: ***Where the calculated percentage falls between two columns, the factor in the higher percentage column shall be used."***

In Note (9), the use of the word "*beyond"* can, in my opinion, lead to confusion. It could be possible to interpret the example as meaning that the No. 12 AWG conductor should be used for the initial 37 m and that the larger No. 10 AWG conductor should be used beyond that location, up to a distance of 60.5 m, which I don't believe to be correct. I would suggest revising the wording to read as follows: ***If the distance is greater than 37 m, up to a maximum distance of 60.5 m, a larger size of conductor is required, ie, No. 10 AWG (30 A allowable ampacity)***

The numeric calculation with the corrected Distance Factor should then follow.

2. I don't have a problem with the change in calculation, primarily because few use Table D3. In my opinion, Table D3 should be replaced with a user friendly model. But this is a question for another time as is I suppose the remainder of these comments.

However, if Note 9 requires any type of change it should be with the wording in the last sentence of the example … "**Beyond this distance a larger size of conductor is required, i.e., No. 10 AWG (30 A allowable ampacity) beyond 37 m up to and including 62 m."**

Unless my understanding of the English language is totally inadequate the exact reading of this would indicate that I would run a # 12 conductor up to the 37 m mark, and then attach a # 10 to it, which now can be run up to the 62 meter mark.

We in the electrical field understand that once the length of the run exceed 37 m we must install a # 10 conductor throughout the complete run. But this is not what the statement in the example says.

A possible change to …. "**Once 37 m is exceeded a larger size conductor is required, i.e. No. 10 AWG (30 A allowable ampacity) through the run up to and including 62 m."**

Chair's Comments (Second Round)

The chair agrees with the comments from both members and proposes the wording to be revised as per J.E.C Whites comments.

Add the following wording at the end of Note (3) **Where the calculated percentage falls between two columns, the factor in the higher percentage column shall be used."**

Under note (9) new wording to read;

If the distance is greater than 37 m, up to a maximum distance of 60.5 m, a larger size of conductor is required, ie, No. 10 AWG (30 A allowable ampacity)

9.7 m x 3(%) x 1.04 X 240 V/ 120 V + 60.5 m

Subcommittee Deliberation: Of the ten members, eight responded, all in agreement with the second round Chair's comments.

Subcommittee Recommendation: The Chair declares consensus for the proposal.