



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

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Subject No. 3111

Chair: T. Olechna

Date: November 19, 2003

Title: Contact with a Bare Bonding Conductor, Rule 24-104(1)(b)

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**Submitted by:** A.Z. Tsisserev of The City of Vancouver on February 28, 2003

**Proposal:** Amend Rule 24-104(1)(b) to read as follows:

24-104(1)(b) "Incorporated into a cable assembly that is constructed in such a manner that contact between any metal shield or armour, if it is present, and a bare bonding conductor is not possible".

**Reasons for Request and Supporting Information:** Present wording of this requirement implies that field modifications may be made to the certified product in order to ensure that contact between a bare bonding conductor and armour is prevented. Some contractors cut the bare conductor in a BX cable in order to meet the requirement of this Rule. Regulators also utilize requirements of this rule without consistency. The proposed amendment will clarify intent of this requirement and will allow the Code users to apply only the product that is suitable for use. I discussed this matter with Nino and advised him that I will recommend the change to this Rule.

**Chair's Comments:**

**The following is the actual change as underlined**

**24-104 Bonding to Ground in Basic Care Areas (see Appendix B )**

(1) Bonding conductors shall be insulated unless they are:

(a) Installed in nonmetallic conduit; or

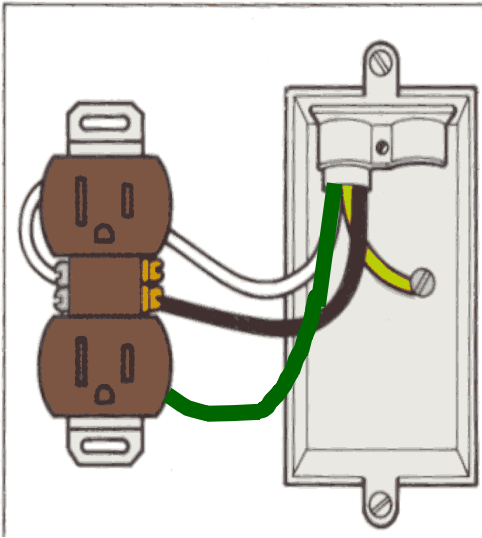
(b) Incorporated into a cable assembly that is constructed in such a manner that contact between any metal shield or armour, if it is present, and a bare bonding conductor is not possible.

**Rationale:**

This will clear up some of the confusion, as it will require approved cable assemblies with insulated bond

Teck90 cable has a PVC jacket between the Cable and the sheath and therefore would meet this requirement.

Normal AC90 cable (BX) would not satisfy the requirements of this rule unless a insulated bond conductor was incorporated in the cable as illustrated. There are BX cables that currently have an insulated #12 as well as a bare. Cutting the bare is not allowed. By terminating the insulated on the receptacle and the bond to the outlet box , when the receptacle is mated to the outlet box, the connecting screws keep this all bonded together and for testing purposes , the insulated conductor can be lifted and measured



**Subcommittee Deliberations:** Seven members agreed and one member disagreed .

Member's negative comment:

- The present rule is adequate to ensure an insulated bonding conductor.
- I see no problem with rendering the bare bonding conductor unusable in a three-wire armored cable assembly and substituting the third conductor as the bonding conductor – provided it is taped green.

The negative is not taken into consideration as this practice was permitted in the past and is in direct contravention of Rule

#### **4-036 Colour of Conductors**

(1) Insulated grounding or bonding conductors shall:

- (a) Have a continuous outer finish that is either green or green with one or more yellow stripes; or
- (b) If larger than No. 2 AWG, be permitted to be suitably labelled or marked in a permanent manner with a green colour or green with one or more yellow stripes at each end and at each point where the conductor is accessible.

Therefore conductors that are smaller than 2 AWG shall not be taped or painted.

In Ontario as of January 1, 2002 the taping or painting of an insulated bond is not permitted. and this has been documented. There are products that are available that have the proper insulation colour and configuration

**Subcommittee Recommendation:** Accept the proposal as submitted.