



Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 2872

Chair: J. Coles

Date: March 28, 2005

Title: Disconnecting Means for "Units", Rule 14-418

Submitted by: Kris Paszkowiak of Electrical Safety Authority, Suite 204, 155A Matheson Blvd. West, Mississauga, Ontario, L5R 3L5, Tel: (905) 712-5363, Fax: (905) 507-4572 on April 12, 1999.

Proposal: Request (Specifically Worded):

Add a rule as follows:

14-418 Disconnecting Means

- (1) A single disconnecting means shall be provided either integral with or adjacent to the distribution equipment:
 - (a) Within each unit of a multi-unit building, other than a dwelling unit;
 - (b) Within each area common to more than one building, such as an underground parking area; or
 - (c) Within each building when fed from another building.
- (2) Subrule (1) does not apply to circuits from part of fire alarm, fire protection and emergency systems.

Add an Appendix B note as follows:

14-418 The term "unit" refers to individual areas such as are found in shopping malls, industrial malls, or similar areas. The term unit does not apply to the breakdown of office space in office buildings to accommodate various tenants.

Reasons for Request:

The proposed rule delivers worker safety

The rule requires disconnecting means within each unit of a multi unit building, within each area common to more than one building and within each building where fed from another building. It is intended to provide a disconnection point for electricians working within the defined spaces e.g. an individual store in a mall.

Although in principle, electricians should be able to go to the main electrical room and isolate specific feeders before working on wiring in a specific portion of the building, in practice, it

doesn't work that way. Tenants are responsible for their own wiring, hire electricians who do not have access to the electrical room. Providing a local disconnecting means allows the electrician more control over their personal safety.

It also requires a single disconnecting means for individual buildings fed from another building – such as an out building. However it does not require the equipment to be service entrance rated.

The rule has been part of the Electrical Safety Code for many years. Although there have been interpretation problems over the years, the Ontario Provincial Advisory Committee voted unanimously in October of 1997 to retain the amendment in the 1998 code.

It is being submitted for inclusion in the Canadian Electrical Code in the interest of national code harmonization.

Chair's Comments: I agree with the proposal.

Result of Section 14 Subcommittee Ballot for Subject 2872

Agree	5
Agree with Comments	1
Disagree	2

Subcommittee Deliberations:

Agree with Comments

This member felt that this rule should also apply to dwelling units, and presumably should specify.

Chairman's Comments. I would think that this application would be covered (mostly) under Section 6 (Services and Service Entrances)

Disagree Reasons

1) One member felt that safety would not be improved, even if convenience would be. He felt that restricting the access to the owners electrical room where multi-tenants were located would give the owner the opportunity to ensure that qualified persons were performing the work on his building.

2) Another member agreed with the Rule proposed, except that it's application in heavy Industrial areas would be over restrictive and impractical. Apparently a lot of electrical equipment is installed in a central room to avoid hostile or volatile environments. To ask for another disconnect close to the equipment could defeat the original purpose of mounting the equipment remote.

This concern was referred to the Submitter's replacement (Ted Olechna) and he agreed with the objection 2) . Ted Olechna asked for a further Subrule 14-418(3) to exempt Heavy Industrial Installations.

Chair's Comments (Second Round)

The Chairman has taken the liberty of rolling the new Subrule 14-418(3) into the proposed Subrule 14-418 (2).

New Proposal for Subject 2872 for Ballot to Section 14 Subcommittee as follows:-

14-418 Disconnecting Means

- (1) A single disconnecting means shall be provided either integral with or adjacent to the distribution equipment:
 - (a) Within each unit of a multi-unit building, other than a dwelling unit;
 - (b) Within each area common to more than one building, such as an underground parking area; or
 - (c) Within each building when fed from another building.

(2) Subrule (1) does not apply to industrial establishments, complex structures, or circuits that form part of the fire alarm, fire protection and emergency systems.

Results of 2nd Ballot

- | | |
|--|---|
| (a) Agree with Chair's comments (second Round) | 6 |
| (b) Agree with Chair's comments (second Round) with comments | 1 |
| (c) Disagree for the reasons stated | 3 |

The following comments were received on the 2nd ballot.

- (i) In the case of dwelling units, Rule: 26-400 Panelboards in Dwelling Units would need to ensure that the occupants of a dwelling unit would have complete control over all electrical branch circuits within that dwelling unit, unless the dwelling is part of a hotel, motel or a dwelling unit created by subdivision of a single dwelling and where the dwelling units are not individually metered.
- (ii) The Rule needs to allow multi-unit buildings for dwelling purposes only, to have the electrical distribution system located elsewhere on the premises, thereby restricting access to the owners of the electrical room, so as to give the owner the opportunity to ensure that qualified persons were performing the work on the building
- (iii) Add Subrule 3, so that these specific installations may have the disconnecting means not within the individual building, but outside or inside the building. There is a need for a disconnect switch and the way the previous subrule 2 was written, it would not require a disconnection means
- (iv) Should Harmonize with NEC Article 225.32 as far as possible.
- (v) In order to be consistent with Appendix C there should be an "and" after each subrule a, and b, and c. As in one installation you might have more than one

subrule apply. As in a multi tower multi-unit dwelling unit with a common garage as well as commercial units on the first floor.

- (vi) Add Appendix B note per the original proposal.

Chair’s Revised Proposal for Rule 14 –418 (3rd Round)

14-418 Disconnecting Means (see Appendix B)

- (1) A single disconnecting means shall be provided either integral with or adjacent to the distribution equipment:
 - (a) Within each unit of a multi-unit building; other than a dwelling unit; and
 - (b) Within each area common to more than one building, such as an underground parking area; and
 - (c) Within each building when fed from another building
- (2) Subrule (1) does not apply to circuits that form part of fire alarm, fire protection, and emergency systems.
- (3) Notwithstanding subrule 1(c) for industrial establishments, complex structures, or dwelling units, under single management, the disconnecting means shall be installed either inside or outside of the building served.

Add an Appendix B note as follows:

14-418 The term “unit” refers to individual areas such as are found in shopping malls, industrial malls, or similar areas. The term unit does not apply to the breakdown of office space in office buildings to accommodate various tenants.

Third round results are as follows

Agree with 3rd round proposal	7
Agree with 3rd round proposal with comments	1
Disagree with 3rd round proposal with reasons	1
CSA staff Comments	1

Summary of comments:-

- 1) 14-418 (1) Replace "disconnecting means" with "all ungrounded conductors"
- 2) 14-418(3) Replace "building with "unit"
- 3) 14-418 (3) Revise to match NEC "...permitted to be located elsewhere on the premises"

Objections:-

- 1) The term "complex structures" used in 14-418 (2) was considered subjective. There is no CEC definition for this term, and yet in Rule 6-102 it is used to describe shopping malls etc.

2) A clarification of which voltages the rule applies to should be included. e.g. Section 36 gives definitions of what voltages apply.

3) It was observed that the second round omitted the Appendix B Note.

Chair's response to comments and objections:-

1) 2) & 3) I don't see any real benefit from these changes, but other Subcommittee members may do so.

Objection 1) Complex structures is somewhat vague, but it gives some latitude to designers and regulators to consider the individual requirements of the prevailing conditions as they affect overall safety

Objection 2) I have not included specific voltages, but a recognition of the need for a single disconnecting means for each voltage system has been added

Objection 3) I agree with the objection. Appendix B note should have been included. This had already been corrected for round 3

Other Clarifications by CSA staff. have been included in the round 4 Subcommittee ballot as follows:-

Revised Proposal for Subject 2872 (4th round)

14-418 Disconnecting Means (see Appendix B)

(1) A single disconnecting means shall be provided for each system voltage, either integral with or adjacent to the distribution equipment, as a means of isolating the electrical power:

- (a) Within each unit of a multi-unit building, other than a dwelling unit; and
- (b) Within each area common to more than one building, such as an underground parking area; and
- (c) Within each building when fed from another building

(2) Subrule (1) does not apply to circuits that form part of fire alarm, fire protection , and emergency systems.

(3) Notwithstanding Subrule 1(c) for industrial establishments, complex structures, or dwelling units under single management the disconnecting means shall be installed either inside or outside of the building served.

Appendix B note

14-418 The term "unit" refers to individual areas such as are found in shopping malls, or similar areas. The term unit does not apply to the breakdown of office space in office buildings to accommodate various tenants.

4th Round Section 14 Subcommittee results

Agree with 4 th Round Proposal	5
Agree with 4 th Round Proposal (with comments)	2
Disagree with 4 th Round Proposal	0

Summary of comments

- 1) One member suggested that “For the purpose of this rule” be added to the beginning of the Appendix B note (This is now included in the 5th round proposal below).
- 2) Another member made comments concerning the wording in the 4th Round Proposal as it applies to industrial installations.. This comment (in the opinion of the Chair) was really a vote against the 4th Round proposal
In reviewing the comments with the Section 14 member, I learned that are many industrial electrical systems where it is necessary for the disconnects to be located other than in (or near) the utilisation or distribution equipment. Two examples are as follows:-
 - a) Where the motors are located in a hazardous location, but the disconnect (or controller) could not be.
 - b) Another is where the atmosphere where machinery is located is corrosive, and control and/or disconnects could not withstand the corrosion.

I will spare the Subcommittee all the details of this need, but if anyone wishes more information I can supply it as required.

I am therefore proposing a 5th Round Ballot for Subject 2872 as follows:-

A new rule 14-418

14-418 Disconnecting Means (see Appendix B)

- (1) A single disconnecting means shall be provided for each system voltage, either integral with or adjacent to the distribution equipment, as a means of isolating the electrical power:**
 - (a) Within each unit of a multi-unit building, other than a dwelling unit; and**
 - (b) Within each area common to more than one building, such as an underground parking area; And**
 - (c) Within each building when fed from another building.**
- (2) Subrule (1) does not apply to that form part of fire alarm, fire protection, and emergency systems.**
- (3) Notwithstanding Subrule 1(c) for units under single management the disconnecting means may be installed either inside or outside of the unit served.**
- (4) This Rule does not apply to industrial electrical systems, where it is necessary to locate the disconnect means remote from the building served.**

Appendix B Note

14-418 For the purpose of this rule the term “unit” refers to individual areas such as are found in shopping malls, or similar areas. The term unit does not apply to the breakdown of office space in office buildings to accommodate various tenants.

Results of 5th Round Ballot

(a)	Agree with Chair’s comments (fifth round)	8
(b)	Agree with Chair’s comments (fifth round) with comments	2
(c)	Disagree with reasons	0
(d)	No reply	3
CSA staff (a) 1		
(b) 1		

All comments received were editorial in nature. I have included appropriate editorial comments in the Sub-committee recommendations that follows. I declare that this Subject has Sub-committee consensus.

Subcommittee recommendation

A new rule 14-418

14-418 Disconnecting Means (see Appendix B)

- (1) A single disconnecting means shall be provided for each system voltage, as a means of isolating the electrical power, either integral with or adjacent to the electrical equipment:
 - (a) Within each unit of a multi-unit building, other than a dwelling unit; and
 - (b) Within each area common to more than one building, such as an underground parking area; and
 - (c) Within each building when fed from another building.
- (2) Subrule (1) does not apply to circuits that form part of fire alarm, fire protection, and emergency systems.
- (3) Notwithstanding Subrule 1(c) for units under single management the disconnecting means may be installed either inside or outside of the unit served.
- (4) This Rule does not apply too industrial electrical systems, where it is necessary to locate the disconnect means remote from the building served.

Appendix B Note

14-418 For the purpose of this rule the term “unit” refers to individual areas such as are found in shopping malls, or similar areas. The term unit does not apply to the breakdown of office space in office buildings to accommodate various tenants.