

Minutes
Electrical Power Working Group Teleconference Meeting
Wednesday, 29 September & Friday, 1 October 2010
1-719-457-0340 or 1-800-483-6698

Presiding chairman for both days:

Mitch Hefter; Entertainment Technology (Royal Philips Electronics) representing USITT; P; U

Recording secretary:

Karl G. Ruling; ESTA

Members attending on 29 September:

Elizabeth E. (Lizz) Pittsley; I; U

Ken Vannice; Leviton Manufacturing Co., Inc.; P; MP

Tyrone Mellon_Jr.; Lex Products Corp.; A; CP

Louis Bradfield; I; U

W. G. Krokaugger, P. E.; Mole-Richardson Co.; P; CP

Vincent J. Cannavale; Motion Laboratories; P; CP

Michael Lay; Philips Strand Lighting (Royal Philips Electronics); P; MP

Jerry Gorrell; Theatre Safety Programs; P; U

Members attending on 1 October:

James Davey; AC Power Distribution Inc.; P; CP

George Long; Aggreko Event Services (Aggreko); P; DR

Elizabeth E. (Lizz) Pittsley; I; U

Ed Garstkiewicz; Harting Inc., North America (Harting KGAA); A; G

Ken Vannice; Leviton Manufacturing Co., Inc.; P; MP

W. G. Krokaugger, P. E.; Mole-Richardson Co.; P; CP

Vincent J. Cannavale; Motion Laboratories; P; CP

Jerry Gorrell; Theatre Safety Programs; P; U

Visitors: None either day.

1 Opening remarks

Mitch Hefter called the meeting to order at 12:05 on 29 September. He explained that the meeting will run two hours, then recess until noon on Friday 1 October. It will then run until about 14:00 on that day and then adjourn.

2 Attendance and membership

2.1 Introduction of those present and taking attendance

Those on the conference call each day introduced themselves, and their names were checked off against an attendance list. This was done each day.

2.2 Determination of quorum

The meeting started each day with a quorum.

2.3 Recognition of alternate voting members

2.4 Requirements for membership

Mitch Hefter reminded the assembly that working group membership is open to all who are affected by the work of the group. Voters who would be in the designer or dealer/rental company interest category in particular are encouraged to become members. Voting members are required to attend meetings and to vote on letter ballots. Voting members and their alternates may not miss three consecutive meetings or three consecutive letter ballots without a loss of voting status.

2.5 Changes to observer status

Members who have missed the previous two meetings and who will not have met the minimum attendance requirement for voters if this meeting is missed:

None

2.6 Processing of new membership requests

None.

2.7 Consensus body

The full consensus body, including those not present, was:

Name	Company	Representing	Voting status	Int. cat.
James Davey	AC Power Distribution Inc.	AC Power Distribution Inc.	P	CP
Greg Mayberry	AC Power Distribution Inc.	AC Power Distribution Inc.	A	CP
Jeff deRecat	Marinco	Actuant Corporation	P	MP
William Drake	Marinco	Actuant Corporation	A	MP
George Long	Aggreko Event Services	Aggreko	P	DR
Wendy Holt	AMPTP/CSATF	Alliance of Motion Picture and Television Producers	P	G
Nathan Leonard	Bender Group	Bender GmbH & Co. KG	P	MP
Joe Boardman	Bender Inc.	Bender GmbH & Co. KG	A	MP
Torsten Gruhn	Bender Inc.	Bender GmbH & Co. KG	A	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	P	MP
Elizabeth E. (Lizz) Pittsley	Elizabeth Pittsley	Elizabeth Pittsley	I	U
Ian Foulds	IATSE Local 873	Entertainment Electrical Safety Committee of Ontario	P	G
Art Wanuch	Entertainment Electrical Safety Committee of Ontario	Entertainment Electrical Safety Committee of Ontario	A	G
Jody Williquette	Harting Inc., North America	Harting KGAA	P	G
Ed Garstkiewicz	Harting Inc., North America	Harting KGAA	A	G
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
R. Bruce Prochal	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Patric J. Abaravich	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Ken Vannice	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	P	MP
Bill Grande	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	A	MP
Bob Luther	Lex Products Corp.	Lex Products Corp.	P	CP
Tyrone Mellon_Jr.	Lex Products Corp.	Lex Products Corp.	A	CP
Sean Sloat	Lex Products Corp.	Lex Products Corp.	A	CP
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U
W. G. Krokaugger, P. E.	Mole-Richardson Co.	Mole-Richardson Co.	P	CP
Alex Yoon	Mole-Richardson Co.	Mole-Richardson Co.	A	CP
Vincent J. Cannavale	Motion Laboratories	Motion Laboratories	P	CP
Peter Herrmann	Motion Laboratories	Motion Laboratories	A	CP
David Herrmann	Motion Laboratories	Motion Laboratories	A	CP
Ron Bonner	PLASA	PLASA	P	U
Michael Lay	Philips Strand Lighting	Royal Philips Electronics	P	MP
Michael Scudday	SSRC, Inc.	SSRC, Inc.	P	CP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U

Name	Company	Representing	Voting status	Int. cat.
Mitch Hefter	Entertainment Technology (Royal Philips Electronics)	USITT	P	U
		Total votes	21	
		Votes by interest categories	5	CP
			5	MP
			1	DR
			7	U
			3	G
			0	DE

3 Approval of the minutes from the previous meeting

See the draft minutes of the Wednesday, 22 September 2010 minutes, EPmin22-09-2010.pdf

Tyrone Mellon moved that the draft minutes of the 22 September meeting be approved. The motion was seconded. Hefter asked for any abstentions, and Mike Lay abstained. There were no objections and the rest were in favor. The minutes were approved.

4 Reading of the call for patents

The following statement was read to the assembly each day at the start of the meeting by Mitch Hefter:

"ESTA intends not to publish any standard that contains protected intellectual property, unless that information can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent and copyright disclosures to implement its intent. ESTA does not conduct patent or copyright searches and does not warrant that its standards contain no protected intellectual property.

"In keeping with the open disclosures policy, I ask if anyone present wishes to notify this working group of the existence of a patent or copyright or other intellectual property that might protect material in a standard being developed by this working group. You need not be the holder of the patent or copyright to notify this working group of its existence."

No patents or other intellectual property were reported.

5 Reading of the anti-trust statement

The following statement was read to the assembly each day at the start of the meeting by Mitch Hefter:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this working group will reject or nullify any actions that unlawfully restrain trade. Anyone who feels that such an action is being or has been taken is requested to bring that matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately.

"ESTA legal counsel has informed us that violations of the anti-trust laws can have serious consequences. Individuals engaged in certain unlawful conduct can be found criminally liable. An individual convicted of a criminal violation of the Sherman Act may be fined as much as \$1,000,000 and imprisoned for up to ten years. An easy to read pamphlet describing restraint of trade issues is available from the Technical Standards Manager."

No actions in restraint of trade were reported.

6 Approval of agenda

Michael Lay moved that the agenda be approved. The motion was seconded. There were no objections or abstentions. The agenda was approved.

7 Old business — Continued work resolving votes on the comment resolutions for BSR E1.18 portable feeder cable selection and use

The group worked through E1-18-1NonYes73thru128.doc, the non-yes votes for comments 73 through 128. (The results are appended.) Tyrone Melon, Lizz Pittsley, and Michael Lay left the conference call by 13:22 after resolution 101, so that we lost the quorum. However, the remaining group continued through E1-18-1NonYes73thru128.doc, considering the votes and resolutions with less than a quorum.

After the completion of the comments 73 though 128, at 14:00, Mitch Hefter declared the meeting recessed until noon EDT on Friday, October 1.

The meeting reconvened at noon on 1 October 2010 with a quorum. Attendance was taken. Hefter re-read the call for patents and anti-trust statements. There were no comments or anti-trust/restraint of trade issues reported.

Jerry Gorrell moved that the revised resolutions from comments 101 through 128 be accepted. The motion was seconded. The motion was approved. The results of the consideration of the resolutions on comments 73 through 128 are appended to the PDF version of these minutes.

Work continued with the next document E1-18-1NonYes129thru155.doc. Upon completion of that document, the E1-18-1NonYes156thru190.doc document was worked through. The results of the consideration of the resolutions on comments 129 through 155 and comments 156 through 190 are appended to the PDF version of these minutes.

The remaining document, E1-18-1NonYes191thru226.doc, was still to be done when the meeting ended.

8 Schedule for future meetings

Mitch Hefter reminded the group that the next face-to-face working group meeting is scheduled for Friday 22 October 2010, from 19:00 to 23:00, at the Las Vegas Hilton hotel.

9 Adjournment

Jerry Gorrell moved that we adjourn. The motion was seconded. Hearing no objections, Hefter declared the meeting adjourned at 14:15 on 1 October 2010.

Working Group Membership and Contact Information as of 7 October 2010

Name	Company	Representing	Voting status	Int. cat.
James Davey	AC Power Distribution Inc.	AC Power Distribution Inc.	P	CP
Greg Mayberry	AC Power Distribution Inc.	AC Power Distribution Inc.	A	CP
Jeff deRecat	Marinco	Actuant Corporation	P	MP
William Drake	Marinco	Actuant Corporation	A	MP
George Long	Aggreko Event Services	Aggreko	P	DR
Kenny Delahoussaye	Aggreko	Aggreko	O	DR
Richard L. Eberth_Jr.	North Shore Safety	Airpax Corporation	O	MP
Wendy Holt	AMPTP/CSATF	Alliance of Motion Picture and Television Producers	P	G
Mike Skinner	CBS Studio Center	Alliance of Motion Picture and Television Producers	O	U
André Broucke	André Broucke	André Broucke	O	G
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	O	G
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	O	G
Nathan Leonard	Bender Group	Bender GmbH & Co. KG	P	MP
Joe Boardman	Bender Inc.	Bender GmbH & Co. KG	A	MP
Torsten Gruhn	Bender Inc.	Bender GmbH & Co. KG	A	MP
Kevin O'Brien	Bestek Lighting & Staging	Bestek Lighting & Staging	O	U
Lee J. Bloch	Bloch Design Group, Inc.	Bloch Design Group, Inc.	O	G
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	DR
Eric Bouchard	Cirque du Soliel	Cirque du Soliel	O	CP
Wayne Kowalski	Coleman Cable Inc.	Coleman Cable Inc.	O	MP
Ford Sellers	Cornell University	Cornell University	O	U
Don Earl	Earl Girls, Inc.	Earl Girls, Inc.	O	DR

Name	Company	Representing	Voting status	Int. cat.
Edward R. Condit	Edward R. Condit	Edward R. Condit	O	U
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	P	MP
Elizabeth E. (Lizz) Pittsley	Elizabeth Pittsley	Elizabeth Pittsley	I	U
Ian Foulds	IATSE Local 873	Entertainment Electrical Safety Committee of Ontario	P	G
Art Wanuch	Entertainment Electrical Safety Committee of Ontario	Entertainment Electrical Safety Committee of Ontario	A	G
Jody Williquette	Harting Inc., North America	Harting KGAA	P	G
Ed Garstkiewicz	Harting Inc., North America	Harting KGAA	A	G
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Kirk D. Keen	Hollywood Lighting Services, Inc.	Hollywood Lighting, Inc.	O	DR
Pat Miller	Hubbell Wiring Devices	Hubbell Inc.	O	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
R. Bruce Prochal	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Patric J. Abaravich	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Keith S. Woods	Lakhri Impressions Ltd.	IATSE Local 891	O	U
Simon Hunt	IATSE Local 891	IATSE Local 891	O	U
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
David Murray	IPC Resistors Inc.	IPC Resistors Inc.	O	CP
Jose J. Flores	Kino Flo, Inc.	Kino Flo, Inc.	O	MP
Ken Vannice	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	P	MP
Bill Grande	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	A	MP
Bob Luther	Lex Products Corp.	Lex Products Corp.	P	CP
Tyrone Mellon_Jr.	Lex Products Corp.	Lex Products Corp.	A	CP

Name	Company	Representing	Voting status	Int. cat.
Sean Sloat	Lex Products Corp.	Lex Products Corp.	A	CP
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U
Jim Holladay	Luxence	Luxence	O	G
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
Michael J. Carnaby	Mikan Theatricals	Mikan Theatricals	O	DR
W. G. Krokaugger, P. E.	Mole-Richardson Co.	Mole-Richardson Co.	P	CP
Alex Yoon	Mole-Richardson Co.	Mole-Richardson Co.	A	CP
Vincent J. Cannavale	Motion Laboratories	Motion Laboratories	P	CP
Peter Herrmann	Motion Laboratories	Motion Laboratories	A	CP
David Herrmann	Motion Laboratories	Motion Laboratories	A	CP
Natti Pierce-Thomson	North American Theatre Technology	North American Theatre Technology	O	U
Marsha DuBois	Pintech Stage Connectors, Inc.	Pintech Stage Connectors, Inc.	O	CP
Steve DuBois	Pintech Stage Connectors, Inc.	Pintech Stage Connectors, Inc.	O	CP
Ron Bonner	PLASA	PLASA	P	U
James Eade	PLASA	PLASA	O	G
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	O	MP
Douglas Franz	QVC Network	QVC Network	O	U
Eric Tishman	Rosco Laboratories	Rosco Laboratories	O	MP
Richard B. Glickman	Gliconen Corporation	Rosco Laboratories	O	MP
Michael Lay	Philips Strand Lighting	Royal Philips Electronics	P	MP
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	DR
Michael Scudday	SSRC, Inc.	SSRC, Inc.	P	CP
Stephen Vanciel	Stephen Vanciel	Stephen Vanciel	O	U
Reuben Goldberg	Technic Services	Technic Services	O	U
Dominic Vincenty	TPS	Television Production Service	O	DR
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U

Name	Company	Representing	Voting status	Int. cat.
Colin Waters	TMB	TMB	O	DR
Phillip M. Gallo	TMB	TMB	O	DR
Charles (Chuck) Kurten	Underwriters Laboratories, Inc.	Underwriters Laboratories, Inc.	O	G
Richard Wolpert	Union Connector Company (MO)	Union Connector Company	O	CP
Mitch Hefter	Entertainment Technology (Royal Philips Electronics)	USITT	P	U
William L. Maiman	William L. Maiman	William L. Maiman	O	U

Key to codes:

P	principal voting member	MP	mass-market producer interest category
A	alternate voting member	CP	custom-market producer interest category
I	individual voting member	DR	dealer or rental company interest category
O	observer, non-voting	U	user interest category
		G	general-interest interest category
		DE	designer interest category

**Voted on Tables of Non-Yes Votes, Ballot Items 73 through 128, Letter Ballot EP/2010-7002
Reconsidered and Revoted by the EPWG on 29 September 2010**

73 2.2.3 Connector ratings

Existing text:

Single-pole separable connectors shall be rated by maximum ampacity. Voltage rating shall be a minimum of 600 VAC. (FPN)The wire termination range can further reduce the maximum ampacity of the connector. Maximum ampacity of the connector is limited to lowest rated component.)

New Text:

2.2.3 Connector ratings

Single-pole separable connectors shall be rated by maximum ampacity. Voltage rating shall be a minimum of 600 VAC. (FPN)The wire termination range can further reduce the maximum ampacity of the connector. ~~Maximum ampacity of the connector is limited to lowest rated component.)~~

Comment:

The parts of a connector are not rated individually; the whole connector has a amp rating. Remove the last sentence.

Eddie Kramer
1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes with comments	Is this statement redundant because it is a NEMA protocol already, however, as stated, the parts of a connector are not rated individually; the whole connector has a current rating. Remove the FPN entirely.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	

William Krokaugger	Yes	
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Gorrell explained the resolution. No motion was made to change it.

74 2.2.4 Outdoor use

Existing text:

2.2.4 Outdoor use

When used outdoors, single-pole separable connectors shall be Type 3R "Rain tight" or protected from the weather. If connectors are not rated Type 6 they shall not be allowed to come in contact with damp earth or water

New text:

When used outdoors, single-pole separable connectors shall be protected from the weather or be Type 3R "Rain tight" ~~or protected from the weather~~. If ~~e~~Connectors shall not come in contact with damp earth or water; or be are not rated Type 6 they shall not be allowed to come in contact with damp earth or water

Comment:

NEC 520.10 allows the use of indoor equipment temporarily outdoors, "provided the equipment is supervised by qualified personnel while energized and barriered from the general public" Rewrite;

Eddie Kramer
1501

Comment Resolution: Accept in principle, see resolution to comment #75

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	

Tyrone Mellon	Abstain with reasons	See my vote for comment #75
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. Tyrone said that his response could be changed to "Yes."

75 2.2.4 outdoor use

After the word weather, insert

"by being raised up on suitable non-conductive materials or otherwise kept off the ground or covered."

2nd sentence , insert after the word "to" - ' be exposed to hose-directed water or limited submersion in water'---- replacing the rest of the phrase.

Makes the hazard more specific.

EESCO Committee Public review comments

Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Text now reads:

"When used outdoors, single-pole separable connectors shall be protected from the weather by being raised up on suitable non-conductive materials or otherwise kept off the ground or covered or be Type 3R "Rain tight". Connectors shall not come in contact with damp earth or water, be exposed to hose-directed water or limited submersion in water; or be Type 6."

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	1) Rewrite the proposed paragraph to make it easier to read. 2) "limited submersion" implies full submersion is OK. Remove "limited". "When used outdoors, single-pole separable connectors shall be protected from the weather by (a) being raised up on suitable non-conductive materials or (b) otherwise kept off the ground or (c) covered or (d) be Type 3R "Rain tight". Connectors shall not come in contact with damp earth or water. Where connectors are exposed to hose-directed water or submersed in water, they shall be Type 6."

George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes with comments	"When used outdoors, single-pole separable connectors shall be protected from wet weather. Change the to wet there are other types of weather that we do not have to protect the cable from.
Steve Terry	Yes	
Tyrone Mellon	Yes with comments	The last sentence of the new text forbids the use of Type 6 connections or at least could easily be read that way. It needs to be rephrased or broken into two separate sentences. Fix the possible confusion would be a non substantive change.
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The resolution was not changed. The vote accepting the resolution stands.

76 2.2.5 Termination of conductors

Single-pole cable connectors shall be terminated to conductors via crimp or double setscrews. Single setscrew terminations shall not be utilized. Connector assembly shall be per manufacturer's instructions.

This restriction may effectively make unusable the "1015" series of 'cam-loc', which are a listed product.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Reject. E1015 (and E1016) series connectors are Recognized, not Listed. Listing does not guarantee the application is acceptable. BSR E1.18 does not permit #4 AWG, although the CEC does. BSR E1.18 applies the more restrictive approach. Adoption of this standard is voluntary, and local regulations may relax or restrict the requirements within BSR E1.18. Reject.

This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes with comments	Comment #62 seems to accept #6 for clarity.

Edwin S. Kramer	No with reasons	The comment resolution of Reject is correct as is the first two lines of the statement "E1015 (and E1016) series connectors are Recognized, not Listed. Listing does not guarantee the application is acceptable." The rest of the statement is irrelevant and should be deleted
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Canadian document.....
Ken Vannice	Yes with comments	E1016's are Listed
Lizz Pittsley	No with reasons	I agree with the rejection of the comment and the reasons. Is the Canadian reference here in error?
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	Yes with comments	E1016 connectors are Listed--only E1015 connectors are Recognized.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion of the resolution and the listing or lack of listing for the cam connectors. After an explanation of the resolution, Lizz Pittsley said that her vote would be "Yes with comments." The resolution was accepted.

77 2.2.5 Termination of conductors to connectors

Existing text:

2.2.5 Termination of conductors to connectors Single-pole cable connectors shall be terminated to conductors via crimp or double setscrews. Single setscrew terminations shall not be utilized.

New text:

(FPN)When panel mount connectors are employed, typically on equipment, they may be connected to conductors by lugs or terminals via a threaded stud on the single-pole connector, a bus bar may also be attached by the use of nuts with lock washes to the stud. Single or double setscrews as well as crimps may also be used.

Comment:

When panel mount connectors are employed, typically on equipment, they may be connected to conductors by lugs or terminals via a threaded stud on the single-pole connector; a bus bar may also be attached by the use of nuts to the stud. The requirement in this section is for single-pole cable connectors, but no place in this standard is an explanation of what “single-pole cable connectors” are and this can lead to confusion. Add a FPN to explain this.

Eddie Kramer
1501

Comment Resolution: Single –Pole connectors are defined in the definitions section. Also see resolutions to comments # 47 and #48

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	When inlet or outlet (panel mount) connectors are used, they may be connected to conductors by lugs or terminals via a threaded stud; a bus bar may also be attached by the use of nuts to the stud. Accept in principle this comment and revise 2.2.5 to; 2.2.5 Termination of conductors to connectors Single-pole cable connectors shall be terminated to conductors via crimp or double setscrews. Single setscrew terminations shall not be utilized. <u>It shall be acceptable to terminate inlet or outlet (panel mount) connectors via a threaded stud provided they are permanently mounted.</u> Connector assembly shall be per manufacturer’s instructions.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	This section is titled "Termination of conductors to connectors." How can it be unclear that the item under discussion is a connector being attached to a cable? If there needs to be further reassurance, the language did change from single-pole connector to single-pole cable connector, indicating that the connector is being connected to cable!
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	Reject the comment. This document does not cover terminations inside equipment.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	

William Krokaugger	Yes	
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The resolution was discussed. The resolution rejected the comment, but does not say "Reject."
Lizz Pittsley moved that the comment resolution shall have the word "reject" added. The motion was seconded. The motion was accepted.

78 2.2.7

should be deleted

This information should be added to 2.2.5 for simplicity

“Connectors shall be rated for ampacity consistent with the cable on which they are installed”

Amp ratings and volt ratings are now on the drawings at the CANENA meetings for E1015, 16, 18 connectors which will rate them as devices and no longer as lugs.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	2.2.5 is “termination of conductors to connectors” while 2.2.7 is “cable size”, combining these two different topics will not simplify but instead make E1.18 harder to use. Reject this comment.
George Long	No with reasons	There is no restriction on using "over rated" connectors on cables provided that protection is based on cable size and not the connector size.
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	Connectors do not have ampacity, only ratings. Conductors have ampacity. Proposed wording must be edited or rejected.
Tyrone Mellon	Yes	

Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion of the proper meaning of "ampacity." The sentence, "Connectors shall have a current carrying ability equal to or greater than the ampacity of the cable on which they are installed," was proposed and discussed, but not accepted.

Lizz Pittsley moved that hat the language of 2.2.7 should be moved into 2.2.5, and the proposed sentence not be used. The motion was seconded, and then approved unanimously. The resolution then would be "Accept in part."

79
Accepted

80
Accepted

81
Accepted

82
Accepted

83
Accepted

84 3.1 General

Existing text:

Feeder cable systems shall consist of a length of cable with a male connector on one end and a female connector on the other end and are longer than 10 feet. Tails - short lengths of cable (less than 10 feet in length) that shall have a connector on one end and bare leads or other connector or fitting on the other end. "Sister lugs" are considered either male or female for the purpose of this standard.

New text:

3.1 General

Feeder cable systems shall consist of a length of cable with a male connector on one end and a female connector on the other end ~~and are longer than 10 feet.~~ Tails - ~~short lengths of cable (less than 10 feet in length)~~ that shall have a connector on one end and bare leads or other connector or fitting on the other end. "Sister lugs" are considered either male or female for the purpose of this standard.

Comment:

Feeder cable systems may be shorter than 10'; a short set of cables used to connect 2 pieces of equipment next to each other can be used. Tails can be longer than 10' there is no reason to limit how long they are.

Eddie Kramer
1501

Comment Resolution: Reject. This description and the associated definitions have been in the document at least since 2005 and the term "tails" to describe a short piece of cable connected to a disconnect is in wide use and limiting them to 10' conforms to the tap rule.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	<p>The explanation for the rejection of the proposal does not make sense. Three reasons are given, none of which justify the action.</p> <p>The first one, "This description and the associated definitions have been in the document at least since 2005" is not valid as other proposed changes to E1.18 have been made to parts of it, which have also been in the document since 2005. The resolution needs to be applied consistently.</p> <p>"[T]he term "tails" to describe a short piece of cable connected to a disconnect is in wide use". Actually, the term is used to describe a piece of cable of any length. 25 and 50 foot long tails are not unknown.</p> <p>Lastly is the statement "limiting them to 10' conforms to the tap rule." In 210.19(A)(3) Exception No. 1 of the NEC is the line, "The taps shall not be longer than necessary for servicing the appliance". In 240.5(B)(2)(1) the taps can be up to 50 Feet long and 240.5(B)(2)(2) has 100 Ft. as the length. 240.21(B)(1) is 10', 240.21(B)(2), (3), and (4) are 25' and in 240.21(B)(5) the taps are of unlimited length. 410.117(C) calls for tap conductors of "of at least 450 mm (18 in.) but not more than 1.8 m (6 ft) in length".</p> <p>While "520.53(H)(3) Supply Conductors Not Over 3.0 m (10 ft) Long" is often called one of the "entertainment industry" tap rules, the term is not used in that paragraph. And "520.53(H)(4) Supply Conductors Not Over 6.0 m (20 ft) Long" is the other "entertainment industry" tap rule.</p> <p>In E1.18 in 3.4 is "the tap rules of sections 3.4 (A), (B), or (C)". Is this the tap rule of the 10' length? While 3.4(A) has no length limit, 3.4(B) has a 10' length, while 3.4(C) is 20".</p> <p>In conclusion, all 3 statements in the explanation of the rejection are illogical, inconsistent or wrong with no</p>

		augments in favor of the resolution. Accept the proposed change.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	No with reasons	In Section 3.5(B), this document refers to requirements for "Single-conductor portable power feeder cable systems that...when not longer than 10 feet between supply and utilization..." If there are requirements for it, then shouldn't it be allowed? After all, it is possible to reach from a company switch to a distro rack with only ten feet of cable. In a simple system, that could be all the feeder cable there is! Also, while we are here, can we replace the "tails" fragment with a real sentence?
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No with reasons	Tails can be longer than 10'. There is no reason to limit how long they are.
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion of whether a feeder cable system less than 10 feet long is a feeder cable system.

Gorrell moved that the resolution be changed to "Accept in part," and deleting "... and are longer than 10 feet" from the first sentence of clause 3.1. The motion was seconded. The motion was approved.

85

Accepted

86 3.2

3.2 and the paragraph directly above it say exactly the same thing. One should be removed due to redundancy. Also, there is no mention of overcurrent protection in this paragraph. What is "Ultimate Insulation Temperature" and how does one know when it has been exceeded? This could be resolved by simply replacing the language with language discussing de-rating of cable due to ambient temperature and state where to find the tables in the respective codes.

Keith S. Woods
Lahkri Impressions Ltd/IATSE Local 891
37 Darney bay

Port Moody, BC V3H 3T9

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 86 1) Accept in part. Accept the first part "3.2 and the paragraph directly above it say exactly the same thing". See # 85 2) As regards to "Also, there is no mention of overcurrent protection in this paragraph". That is true, but so what? 3) As for "Ultimate Insulation Temperature"—it's just a title, and the meaning is apparent from context. Nothing is stated about exceeding it.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	I support accepting this comment. However, I do not see any change in the language of this section in BSRE1-18-1r15. Can this be developed?
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The redundant language was removed from 3.1, but no discussion of derating for ambient temperature was added in 3.2. Should it have been added, as requested by the commenter?

Lizz Pittsley moved that the response should be "accept in principle," and remove clause "3.2 Ultimate insulation temperature," and leave "Feeder cable systems shall not be loaded in excess of their ampacity. In no case shall conductors be associated together in any way (with respect to the type of circuit, the wiring method used, or the number of conductors) that causes the temperature limit of the conductor insulation to be exceeded." in clause 3.1. Renumber the following clauses. The motion was seconded and approved.

87
Accepted

88
Accepted

89 3.4

3.4 The ampacity of the cable and the connector are determined by the code. Pertinent tables need to be referenced here.

All tables in the balance of section 3.4 should be checked to ensure compliance with CEC Part 1, or and FPN with correct tables needs to be added.

Keith S. Woods
Lahkri Impressions Ltd/IATSE Local 891
37 Darney bay
Port Moody, BC V3H 3T9

Comment Resolution: No action required. Ampacities in table 3.4 correspond to 2008 NEC Table 400.5(B) and 2006 CEC Table 12A.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	No with reasons	Either we remove the Canadiana references, or we reference the CEC 2009 edition...
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	

William Krokaugger	Yes	
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There was discussion. The resolution was not changed. The cited ampacities are still consistent with current codes. The codes need not be referenced. The vote accepting the resolution stands.

90 3.4 Ampacity

Delete “ampacity” and add ‘current carrying capability’ at the beginning of sentence. Makes the paragraph more consistent.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 90 Reject. Ampacity is current carrying capability. See # 39.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	Ampacity is the right word for conductors, "current rating" is correct for all other devices. Correct wording accordingly.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. It was decided that the resolution should be "accept in principle." The sentence should read "Ampacity of a cable or current carrying capability of a connector....". This is an editorial correction.

91 3.4 Ampacity

Existing Text:

Ampacity of a cable or a connector shall be limited to a value which will prevent the cable or connector from reaching a temperature higher than its temperature rating or the temperature rating of the equipment it is attached to. Current in a feeder cable assembly shall be limited by the use of an overcurrent device at the supply point to a value not greater than that listed in sections 3.4 or 3.5. Under no circumstances shall the overcurrent device protecting the cable have an ampere rating greater than the ampacity of the cable unless the tap rules of sections 3.5 (A), (B), or (C) apply. Conductor sizes and ampacities of feeder cable systems shall be limited to those described in sections 3.4.1, 3.4.2, 3.4.3, and 3.4.4. Feeder cable systems shall have a temperature rating of at least 90°C. This temperature rating shall apply to all cables, connectors, and terminations that are part of the assembly.

New text:

3.4 Ampacity

Ampacity of a cable or a connector shall be limited to a value which will prevent the cable or connector from reaching a temperature higher than its temperature rating or the temperature rating of the equipment it is attached to. Current in a feeder cable assembly shall be limited by the use of an overcurrent device at the supply point to a value not greater than that listed in sections 3.4 or 3.5. Under no circumstances shall the overcurrent device protecting the cable have an ampere rating greater than the ampacity of the cable unless the tap rules of sections 3.5 (A), (B), or (C) apply. Conductor sizes, and ampacities, and overcurrent devices protecting the cables of feeder cable systems shall be limited to those described in sections 3.4.1, 3.4.2, 3.4.3, and 3.4.4. Feeder cable systems shall have a temperature rating of at least 90°C. This temperature rating shall apply to all cables, connectors, and terminations that are part of the assembly.

Comment:

While “Conductor sizes and ampacities of feeder cable systems shall be limited to those described in sections 3.4.1, 3.4.2, 3.4.3, and 3.4.4”, it is also important that the overcurrent device protecting the cable be of a suitable size (this is most true for Table 3.4.1 for #2 and 2/0) Add to the 4th sentence “and overcurrent devices protecting the cables”

Eddie Kramer
1501

Comment Resolution: Accept. See resolution to comment # 93

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 91 Comments 91 and 93 although both are about 9.4 of E1.18, they have nothing to do with each other.

		Remove the reference to comment 93.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	Ampacity is the right word for conductors, "current rating" is correct for all other devices. Correct wording accordingly. Addition of overcurrent devices is OK.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. There were no changes. The vote accepting the resolution stands.

92

Accepted

93

Accepted

94

Accepted

95

Accepted

96

Accepted

97

Accepted

98

Accepted

99

Accepted

100 Table 3.4.1

4/0	405	300
300 MCM	???	400

The obvious problem here is that with a system whose largest conductor is 4/0, and much of the system rating being based on 400 amps or multiples thereof, there is no room to de-rate to a reasonable level.

Acknowledging that a larger conductor is required to achieve a nominal 400 amp rating, 300 MCM would fit that requirement, although the connectors would have to be enlarged at the conductor entry to accommodate the larger cable diameter.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: No Change. This text is based on NEC Table 400.5(B). Industry practice (in the U.S. at least) does not see use of cables larger than 4/0. Following that table, 300kCM (not mCM) has an ampacity of 505 Amps. In addition the alternative to increasing the wire size is to reduce the load.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	Regardless of current practice and current tables, 4/0 is inconsistent with derating for voltage drop applied to the other conductors.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes with comments	This document has a premise of paralleling conductors where more than 405 amps of cable ampacity is required or conductors larger than 4/0 are required for derating or voltage drop.
Tyrone Mellon	Yes	
Vincent J.	Yes	

Cannavale		
William Krokaugger	Yes	

There was discussion, but no change. The vote accepting the resolution stands.

101 table 3.4.1

FPN: CEC allows bundles with derating, if spaced a minimum of a bundle diameter apart.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Reject. This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 101 The comment resolution of “reject” is correct, as is the statement, “This document is based on NFPA 70 The National Electrical Code®.” However, announcing, “A separate document based on Canadian code to be developed” commits the EPWG to coming up with one. I believe it is indeed a good idea and should be done, but committing to it is inappropriate for many reasons. Make the last sentence less definitive by changing it to “A separate document based on Canadian code is anticipated.”
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Canadiana references to be removed and put in separate document. Need scope to reflect where this document is relevant.
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	This FPN has not yet been removed from BSRE1-18-1r15.
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J.	Yes	

Cannavale		
William Krokaugger	Yes	

There was discussion but no changes. The vote accepting the resolution stands.

102 table 3.4.2

How relevant are these numbers without the wide availability to rental productions of required ratings of the specified overcurrent devices.

Should vigilance in load monitoring be stressed?

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: No specific action requested. These tables are based on NEC tables.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Abstain with reasons	Regardless of tables, believe the end result is unachievable.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was a brief discussion. No changes were made; no motions offered. The vote accepting the resolution stands.

103

Accepted

104

Accepted

105

Accepted

106

Accepted

107

Accepted

108

Accepted

109

Accepted

110 3.5(B) & (C)

Existing Text:

In a theater, single-conductor portable power feeder cables no longer than 10 feet between supply and utilization equipment or supply and a subsequent overcurrent device, if the load on the cables is not greater than the values given in 3.4, the overcurrent device supplying the feeder cable shall not exceed 400 percent of the ampacity of the feeder as given in 3.4 where all of the following conditions are met:

- (1) The feeder cable shall terminate in over-current protection device(s) that limits the load to the ampacity of the feeder cable. If multiple parallel overcurrent devices are used on the load side of the feeder cable, the total of the over-current device(s) shall not be greater than the ampacity of the feeder cable.
- (2) The feeder cable shall not penetrate walls, floors, or ceilings or be run through doors or traffic areas.
- (3) The feeder cable shall be protected from physical damage.
- (4) Conductors shall be continuous without splices.
- (5) Conductors shall not be bundled.3.5(C) In a theater, single-conductor portable power feeder cables not longer then 20 feet between supply and utilization equipment or supply and a subsequent overcurrent device, if the load on the cables is not greater than the values given in 3.4, the overcurrent device supplying the feeder cable shall not exceed 200 percent of the ampacity of the feeder as given in 3.4where all of the following conditions are met:

- (1) The feeder cable shall terminate in over-current protection device(s) that limits the load to the ampacity of the feeder cable. If multiple parallel overcurrent devices are used on the load side of the feeder cable, the total of the over-current device(s) shall not be greater than the ampacity of the feeder cable.
- (2) The feeder cable shall not penetrate walls, floors, or ceilings or be run through doors or traffic areas.
- (3) The feeder cable shall be protected from physical damage.
- (4) Conductors shall be continuous without splices.
- (5) Conductors shall not be bundled.

New text:

3.5(B) Single-conductor portable power feeder cables that:

- (1) Terminate in over-current protection device(s) that limits the load to the current rating of the overcurrent protection device protecting the feeder cable. If multiple parallel overcurrent devices are used on the load side of the feeder cable, the total of the over-current device(s) shall not be greater than the current rating of the overcurrent protection device protecting the feeder cable. And.
- (2) Do not penetrate walls, floors, or ceilings or be run through doors or traffic areas. And.
- (3) Are be listed extra hard usage cables and protected from physical damage. And.
- (4) Are continuous without splices. And.
- (5) Are not bundled and
- (6) if the load on the cables is not greater than the values given in 3.4.

When not longer then 20 feet between supply and utilization equipment or supply and a subsequent overcurrent device the overcurrent device supplying the feeder cable shall not exceed 200 percent of the current rating of the overcurrent protection device protecting the feeder as given in 3.4

When not longer then 10 feet between supply and utilization equipment or supply and a subsequent overcurrent device the overcurrent device supplying the feeder cable shall not exceed 400 percent of the current rating of the overcurrent protection device protecting the feeder as given in 3.4

Comment:

3.5(B) and 3.5(C) are the same except for “200”, “20”, “400”, and “10”. Rewrite it into one paragraph and clean it up editorially.

Eddie Kramer
1501

Comment Resolution: Accept in principle. Text now reads:

“3.5(B) Single-conductor portable power feeder cable systems that;

- (1) Terminate in over-current protection device(s) that limits the load to the current rating of the overcurrent protection device protecting the feeder cable system. If multiple parallel overcurrent devices are used on the load side of the feeder cable system, the total of the over-current device(s) shall not be greater than the current rating of the overcurrent protection device protecting the feeder cable system and;**

- (2) Do not penetrate walls, floors, or ceilings or be run through doors or traffic areas and;
- (3) Are to be listed extra hard usage cables and protected from physical damage and,
- (4) Are continuous without splices and;
- (5) Are not bundled and;
- (6) The load on the cables is not greater than the values given in 3.4.

When not longer then 20 feet between supply and utilization equipment or supply and a subsequent overcurrent device, the overcurrent device supplying the feeder cable system shall not exceed 200 percent of the current rating of the overcurrent protection device protecting the feeder as given in 3.4

When not longer than 10 feet between supply and utilization equipment or supply and a subsequent overcurrent device, the overcurrent device supplying the feeder cable system shall not exceed 400 percent of the current rating of the overcurrent protection device protecting the feeder as given in 3.4”

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	There are some remaining references to 3.5(C) within the document. These should be deleted. Also, the second paragraph should read, "When not longer <i>than</i> 20 feet..."
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Editorial corrections were noted. No motions were offered. The vote accepting the resolution stands.

111
Accepted

112
Accepted

113
Accepted

114
Accepted

115 3.7.2 Branch circuits

Existing text:

3.7.2 Branch circuits

While outside the scope of this standard, it is recommended that the maximum voltage reduction in the branch circuit be limited to 2 percent of the supply voltage.

Comment: If it's outside the scope, delete it. Keeping it in will not enhance the safety or usability of these kinds of systems. The NEC covers this in 210.19(A)(1)

New text:

~~3.7.2 Branch circuits~~

~~While outside the scope of this standard, it is recommended that the maximum voltage reduction in the branch circuit be limited to 2 percent of the supply voltage.~~

Eddie Kramer
1501

Comment Resolution: Reject. This is a guidance document and inclusion of this number will assist the user. However the 2% will be changed to 3% to conform to the CEC. See Comment #117.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 115 1) If it's not in the scope, and it will remain in the document, change the scope.

		2) The 2% is from the NEC, while the proposed 3% is from the Canadian code. This is a NEC based document, and no reason is given other than to conform to the CEC. Reject this.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Use the NEC, as the CEC is not in the scope of this document.
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No with reasons	If we are doing a separate document for Canada why change it to 3%?
Steve Terry	No with reasons	If E1.18-1 is an NEC-based document, use the voltage drop figure from the NEC, which is 3% on branch circuits and 5% total drop including feeders.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	This is an NEC based document.
William Krokaugger	Yes	

Jerry Gorrell moved that the shall be changed to "Comment Resolution: Reject. This is a guidance document and inclusion of this number will assist the user. However the 2% will be changed to 3%." Remove the reference to the CEC. The motion was seconded and approved by all present on the conference call.

116
Accepted

117 3.7.3 the CEC states

8-102 Voltage drop (see Appendix D)

(1) Voltage drop in an installation shall

(a) be based upon the calculated demand load of the feeder or branch circuit;

(c) not exceed 3% in a feeder or branch circuit.

Can this be incorporated into the paragraph?

EESCO Committee Public review comments

Submitted by R. Dean – Secretary

Comment Resolution: Accept in Principle in Part. Adding “Voltage drop shall be based on the connected load” at the end of 3.7.3. Annex B gives different tolerances for different load types, so 3% may not always be the appropriate choice.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 117 Reject this comment. It's based on the Canadian code. This is a US centric document, based on the NEC, and adding information from the Canadian Code does not increase its usefulness.
George Long	Yes	
Jerry Gorrell	Yes with comments	Delete FPN.
Keith S. Woods	No with reasons	Suggest removal of this as we are not dealing with the CEC any longer in this document.
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	I agree, except the CEC (FPN) should be saved for the Canadian document.
Michael M. Lay	Yes	
Mitch Heffer	No with reasons	Accept in Part. FPN is not required due to Canadian specific issues are being separated out to another document.
Roger Lattin	No with reasons	If we are making a Canadian version of this why include this here?
Steve Terry	No with reasons	CEC references are no longer germane to this document and should be removed.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	This is an NEC based document.
William Krokaugger	Yes	

Vincent Cannavale and Mitch Heffer changed their votes to Yes. Louis Bradfield said that he would cast his vote as Yes. (He hadn't voted on the letter ballot but was eligible.) The resolution was accepted.

118
Accepted

119
Accepted

120 3.8 Transient connection assemblies (tails)

Existing text:

3.8 Transient connection assemblies (tails)Text

The length of cable of a transient connection assembly (tails) shall be not less than four feet and not greater than 10 feet.

New Text

The length of cable of a transient connection assembly (tails) shall be not less than four feet ~~and not greater than 10 feet.~~

Comment: Why shorter then 10'? Let the tails be as long as needed
Remove the 10' length.

Eddie Kramer
1501

Comment Resolution: Reject. See resolution to comment #84

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	<p># 120</p> <p>The explanation for the rejection of proposal 84 does not make sense. Three reasons were given, none of which justify the action.</p> <p>The first one, "This description and the associated definitions have been in the document at least since 2005" is not valid as other proposed changes to E1.18 have been made to parts of it, which have also been in the document since 2005. The resolution needs to be applied consistently.</p> <p>"[T]he term "tails" to describe a short piece of cable connected to a disconnect is in wide use". Actually, the term is used to describe a piece of cable of any length. 25 and 50 foot long tails are not unknown.</p>

		<p>Lastly is the statement “limiting them to 10’ conforms to the tap rule.” In 210.19(A)(3) Exception No. 1 of the NEC is the line, “The taps shall not be longer than necessary for servicing the appliance”. In 240.5(B)(2)(1) the taps can be up to 50 Feet long and 240.5(B)(2)(2) has 100 Ft. as the length. 240.21(B)(1) is 10’, 240.21(B)(2), (3), and (4) are 25’ and in 240.21(B)(5) the taps are of unlimited length. 410.117(C) calls for tap conductors of “of at least 450 mm (18 in.) but not more than 1.8 m (6 ft) in length”.</p> <p>While “520.53(H)(3) Supply Conductors Not Over 3.0 m (10 ft) Long” is often called one of the “entertainment industry” tap rules, the term is not used in that paragraph. And “520.53(H)(4) Supply Conductors Not Over 6.0 m (20 ft) Long” is the other “entertainment industry” tap rule.</p> <p>In E1.18 in 3.4 is “the tap rules of sections 3.4 (A), (B), or (C)”. Is this the tap rule of the 10’ length? While 3.4(A) has no length limit, 3.4(B) has a 10’ length, while 3.4(C) is 20”.</p> <p>In conclusion, all 3 statements in the explanation of the rejection are illogical, inconsistent or wrong with no arguments in favor of the resolution. Accept the proposed change.</p>
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No with reasons	Let the tails be as long as needed, sometimes the tap rules are not used with long cables.
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. No motions were offered. The vote accepting the resolution stands.

121 3.8

3.8 A tail has already been defined in 3.1. Remove wording to read "When permanently installed connectors (panel mount) for connecting the portable power distribution system are not used, the connection shall be by means of a tail."

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Accept in part. Text now reads:

“When permanently installed connectors (panel mount) for connecting the portable power distribution system are not used, the connection shall be by means of a transient connection assembly (tails) connected to the power source. This style of connection shall be connected just prior to the initial system energization and shall be removed immediately upon decommissioning of the system.”

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes with comments	tail (singular)
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The editorial correction was noted. The vote accepting the resolution stands.

122 3.8

3.8 Remove last paragraph of 3.8 and specify in 3.1 that a tail shall not be less than four feet. The definition of a tail in 3.1 would then read, "A tail shall consist of a length of cable that is no less than four feet but no greater than ten feet, with a female connector on one end, and bare leads, male connector, or other similar fitting on the other end."

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	<p># 122</p> <p>3.1 Is “general”, which gives brief description of the elements of feeder cable systems to aid in the selection of its components. 3.8 is “transient connection assemblies (tails)” which contains the requirements of an installation of tails.</p> <p>The definition, found in 1.3.5 is: transient connector assemblies (tails): A short length of cable (less than 10 feet in length) and having a connector on one end and bare leads or other connector or fitting on the other end, which is temporally connected to supply equipment (commonly called “female tails set”) or to utilization equipment (commonly called “male tails set”).</p> <p><i>(FPN 1) A female tails set may have male or female grounded circuit conductor (Neutral) connector(s). It may also have male or female grounding circuit conductor connector(s).</i></p> <p><i>(FPN 2) A male tails set may have male or female grounded circuit conductor (Neutral) connector(s). It may also have male or female grounding circuit conductor connector(s)</i></p> <p>This resolution should be rejected.</p>
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	No with reasons	It has already been stated in the definition that a tail is between 4 and 10 feet. To repeat that definition in 3.1 seems redundant.
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No with reasons	Let the tails be as long as needed, sometimes the tap rules are not used with long cables.
Steve Terry	No with reasons	There is no valid substantiation provided to limit the minimum length to four feet.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Jerry Gorell moved that the resolution should be changed to "Reject. There is no substantiation that the minimum length should be 4 feet." The motion was seconded. The motion was approved by all present.

123

Accepted

124 4 Connection panel Assemblies

"Equipment employing panel-mount connectors shall be Listed by a Recognized testing Laboratory"

Recommend that this provision be deleted. This requirement goes substantially beyond the stated scope of this document.

Rick Berry
Bandit Lites, Inc.

Comment Resolution: Reject. The panels are part of the system, hence part of the scope. UL 1640 is the most commonly applied standard to such panel assemblies when done by touring companies, and UL 891 and 508 by manufacturers.

1) OSHA requires the use of Listed equipment.. 2) Being Listed is the only way for the end user to know it is acceptable for the purpose. 3) In the event of an inspection by the AHJ, they will very likely look for listed equipment and reject any equipment not listed for the purpose.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes with comments	The text should read 'Nationally Recognized Testing Laboratory.'
Roger Lattin	No with reasons	"Equipment employing panel-mount connectors shall be Listed by a Recognized testing Laboratory", shouldn't it be Nationally Recognized Testing Laboratory?
Steve Terry	Yes	
Tyrone Mellon	Yes	

Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The editorial correction was noted. The vote accepting the resolution stands.

125 4 Connection panel Assemblies

"Equipment employing panel-mount connectors shall be Listed by a Recognized testing Laboratory"

Recommend that this provision be deleted. This requirement goes substantially beyond the stated scope of this document.

Pete Heffernan
Bandit Lites, Inc.

Comment Resolution: Reject. See resolution to comment #124

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No with reasons	"Equipment employing panel-mount connectors shall be Listed by a Recognized testing Laboratory", shouldn't it be Nationally Recognized Testing Laboratory?
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The editorial correction was noted. The vote accepting the resolution stands.

126

Accepted

127 3.5A - C

3.5A-C exceeding the ampacity of the cable to anything over it's allowable ampacity is not allowed in CEC Part 1 FPN needs to be added to state this.

Keith S. Woods
Lahkri Impressions Ltd/IATSE Local 891
37 Darney bay
Port Moody, BC V3H 3T9

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 127 Reject. This is a US centric document, based on the NEC and the information about the Canadian Code does not increase its usefulness.
George Long	Yes	
Jerry Gorrell	No with reasons	Not needed in this document - is a Canadian requirement.
Keith S. Woods	No with reasons	Canadiana references need to be struck to make this a solely US document. Scope to mention this.
Ken Vannice	Yes	
Lizz Pittsley	No with reasons	This needs to be consistent with the resolutions of the other comments dealing with the CEC: Comment Resolution: Reject. This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.
Michael M. Lay	Yes	
Mitch Hefter	No with reasons	Canadian specific issues are being separated out to another document.
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	Again, this is NEC based.

William Krokaugger	Yes	
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Gorrell moved that the resolution should be "Reject. Canadian requirements will be covered in a separate document." The motion was seconded, and then approved by all present.

128 4.

Recommend adding the following statement regarding the installation of panel-mount connectors:
 Panel or chassis mount single pole connectors shall be installed;

a) from the inside of enclosures, with attaching fasteners adequately clear of possible contact with terminals or busses.

experience has shown that panel mounts, installed on the exterior face of enclosures, have diminished pull-out resistance, and depending on the wall thickness of the enclosure, bring mounting fasteners unacceptably close to or in contact with terminals or buss bars.

EESCO Committee Public review comments
 Submitted by R. Dean – Secretary

Comment Resolution: Reject. While mounting connectors from the inside of enclosures, telling manufacturers how to make their equipment is beyond the scope of this document.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	We believe that the practice of mounting these devices on the exterior of enclosures is a safety hazard, affording the least amount of pull out resistance in the instance of any untoward event, as well as creating a situation where connections (& busses) are in unacceptable proximity to the mounting fasteners.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes with comments	The listing on panel mount single-pole connectors does not require the connector flange to be on a specific side of the panel.
Tyrone Mellon	Yes	
Vincent J.	Yes	

Cannavale		
William Krokaugger	Yes	

There was discussion. No motions were offered. The vote accepting the resolution stands.

**Voted on Tables of Non-Yes Votes, Ballot Items 129 through 155, Letter Ballot EP/2010-7002
Reconsidered and Revoted by the EPWG on 1 October 2010**

129 4.1 All panel assemblies

Existing text:

Multiple connectors per pole shall be permitted to provide for parallel conductors. Multiple connectors should be bused together such that any connector can be used to its individual rating and the assembly used to the rating of the assembly.

Neutrals supplying phase control dimmers shall be provided with an ampacity of at least 130% of the phase rating.

Where parallel or feed-through connectors are provided, the second and additional sets of input (supply or line) and all output (load) connectors shall have an automatic closing cover that shall prevent accidental contact with energized elements.

Connectors of the same pole should be grouped together and permanently marked as to function (phase, neutral, etc.).

The space between adjacent connectors should be sufficient to allow their mating connector to be turned with both hands.

(FPN) With respect to connectors, this may be achieved by adding a second paralleled connector

New text:

4.1 All panel assemblies

Multiple connectors per pole shall be permitted to provide for parallel conductors. Multiple connectors should be bused together such that any connector can be used to its individual rating and the assembly used to the rating of the assembly.

Neutrals supplying phase control dimmers shall be provided with an ampacity of at least 130% of the phase rating.

~~(FPN) With respect to connectors, this may be achieved by adding a second paralleled connector~~

Where parallel or feed-through connectors are provided, the second and additional sets of input (supply or line) and all output (load) connectors shall have an automatic closing cover that shall prevent accidental contact with energized elements.

Connectors of the same pole should be grouped together and permanently marked as to function (phase, neutral, etc.).

The space between adjacent connectors should be sufficient to allow their mating connector to be turned with both hands.

Comment: Editorial

Eddie Kramer

1501

Comment Resolution: Revised text:

“Multiple connectors per pole shall be permitted to provide for parallel conductors. Multiple connectors should be bused together such that any connector can be used to its individual rating and the assembly used to the rated ampacity of the assembly.

Neutrals supplying phase control dimmers shall be provided with an ampacity of at least 130% of the phase rating.

(FPN) This may be achieved by adding a second paralleled connector.

Where parallel or feed-through connectors are provided, the second and additional sets of input (supply or line) and all output (load) connectors shall have an automatic closing cover that shall prevent accidental contact with energized elements, or a cap manufactured for the purpose and retained to the assembly in a non-removable manner

Connectors of the same pole should be grouped together and permanently identified as to function (phase, neutral, etc.”

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 129 It looks like a transcription error occurred. From the last paragraph of the revised (by the comment resolution) text “Connectors of the same pole should be grouped together and permanently identified as to function (phase, neutral, etc.” ends with an open parenthesis. There was also a last paragraph in the original document (E1.18-1r13), which was left unchanged in comment 129. The FPN of that paragraph was moved. Accept the original comment or accept in principle and add back the missing text “). The space between adjacent connectors should be sufficient to allow their mating connector to be turned with both hands.)”
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Typo...replace parentheses with quotations at end
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	

Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. The missing parenthesis was noted. No motion was made to change the resolution. The revised text did what the commenter originally asked. We can add a parenthesis to the commentary, but that doesn't change the resolution or change the revised draft standard. The vote to accept the resolution stands.

130 4.1 All panel assemblies

The obvious issue here is whose hands? The spacing needs to be specified as definition of actual minimum spacing, especially given that that this requirement may not be practicable, yet the resultant assembly may still be safe.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept. Text has been substantially revised. See resolution to comment #129

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 130 It is a well-known and accepted truth that connectors must be made tight. When single pole separable connectors are loose, overheating will occur. With hundreds of amps passing through a connector, a slight increase in impedance will result in overheating, with fire as a possible result. When panel mount connectors are physically touching each other, it becomes difficult, if not impossible, to tighten some plugs. A loose connection is not safe, and E1.18-1 needs to address this. Reject this comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	

Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion, but no motions were offered to change the resolution. The vote to accept the resolution stands.

131

Accepted

132 All panel assemblies:

Recommend adding at the end of existing statement:

"or a cap manufactured for the purpose and retained to the assembly in a non-removable manner".

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: See resolution to comment #129

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	

Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	I don't see the rewritten comments.
William Krokaugger	Yes	

No change was made. The vote to accept the resolution stands.

133 Clause 5 Laying out the System. Clauses have been re-numbered. "Parallel conductors" has been relocated to clause 5.2.5.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 133 The alleged "rewritten and reorganized" Section 5 has not been provided so I cannot vote to accept the comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	I am rejecting this comment resolution and all others that refer to the re-write of section 5. New section 5 contains new material and incorrect material, and requires major overhaul. I am assuming we will do this in a WG meeting.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The consensus was that there was no action that could be taken in this comment resolution to address Terry's concerns. The vote to accept the resolution stands.

134 5.1

5.1 paralleling conductors only allowable for voltage drop as per CEC part 1. FPN needed to explain this

Keith S. Woods
Lahkri Impressions Ltd/IATSE Local 891
37 Darney bay
Port Moody, BC V3H 3T9

Comment Resolution: Reject. This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 134 The comment resolution of “reject” is correct, as is the statement, “This document is based on NFPA 70 The National Electrical Code®.” However, announcing, “A separate document based on Canadian code to be developed” commits the EPWG to coming up with one. I believe it is indeed a good idea and should be done, but committing to it is inappropriate for many reasons. Make the last sentence less definitive by changing it to “A separate document based on Canadian code is anticipated.”
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	More Canadiana to omit. One quick note...I find it odd that at times I have comments rejected as we are not having this document written for Canada and at other times we are...they are accepted and FPNs are added...see comment #55. It is becoming aggravating to say the least, as there is no consistency in what is being considered when comments are being resolved. I am ready to accept a solely US centric document, with a Canadian one to follow, but there is no consistency now when these comments were made on a document that was for both jurisdictions. See comment #151 which was accepted even though it is purely CEC centric language.
Ken Vannice	Yes	

Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	Again, there will be a separate Canadian document. Thus is a NEC / NFPA 70 based spec.
William Krokaugger	Yes	

Cannavale changed his vote to Yes.

There was discussion. Terry's objection is unresolvable in itself. Any revised document will be thoroughly vetted. The vote to accept the resolution stands.

135 Clause 5.1 Basic System Design and layout

A basic system consists of a single piece of distribution equipment (dimmer rack, distribution box etc.) fed from a single power source (company switch, bull switch, etc.). Single conductor portable power *cable may* be used to supply large pieces of utilization equipment.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	<p># 135</p> <p>The comment resolution of “Accept in principal. Note that Section 5 has been rewritten and reorganized” is unacceptable. The alleged “rewritten and reorganized” Section 5 has not been provided so I cannot vote to accept the comment.</p> <p>The comment should be “Section 5 <u>will</u> be rewritten and reorganized” and information provided about the changes to allow me to determine if I agreed with them.</p> <p>Note that this change is in conflict with the resolution of 136 and should be accepted in principle with a</p>

		comment about 136.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	I don't see the rewritten comments.
William Krokaugger	Yes	

Cannavale changed his vote to Yes.

The text had been rewritten and the new text provided. The resolution remains as accepted.

136 5.2 Basic system design and layout

Existing text:

A basic system consists of a single piece of distribution equipment (dimmer rack, distribution box, etc.) fed from a single power source (company switch, bull switch, etc.). While technically a branch circuit single-conductor portable power feeder systems shall be used to supply large pieces of utilization equipment

Remove the last sentence and put it in the scope, after tweaking the words.

New text:

5.2 Basic system design and layout

A basic system consists of a single piece of distribution equipment (dimmer rack, distribution box, etc.) fed from a single power source (company switch, bull switch, etc.). ~~While technically a branch circuit single-conductor portable power feeder systems shall be used to supply large pieces of utilization equipment~~

1.2 Scope

This standard covers the selection, installation, and safe use of single-conductor portable power feeder cable systems (herein called feeder cable systems) used in the entertainment and live-event industries as a portable power distribution system operating at 600 Volts nominal or less. While

technically a branch circuit, single-conductor portable power feeder systems are also covered when used to supply large pieces of utilization equipment For the purposes of this Standard, “single-conductor portable power feeder cable system “covers all cable and connectors, both cable and panel mounted, between the load terminals of the main overcurrent protection device used to energize the system and the line terminals of the feeder inlet of the last portable power distribution or utilization equipment. Closed Loop Systems present very high risk safety hazards requiring both specialized installation and personnel training. Closed Loop Systems are outside the scope of this standard. This standard is generally in accordance with the National Electrical Code© NFPA-70, an international code produced by the NFPA, commonly used in many parts of the USA. The application of this standard may be modified by regional and local codes. Specifically, the application of this standard in Canada may be modified by the Canadian Electrical Code CECC22.1 part 1.

Comment:

If single-conductor portable power feeder systems are permitted supply large pieces of utilization equipment, (how big, and is it physical or electrical?) this needs to be in the scope.

Eddie Kramer
1501

Comment Resolution: Accept in principle and in part. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 136 The comment “Note that Section 5 has been rewritten and reorganized” is unacceptable. The alleged “rewritten and reorganized” Section 5 has not been provided so I cannot vote to accept the comment. The comment should be “Section 5 <u>will be</u> rewritten and reorganized” and information provided about the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	No with reasons	I reject the part about changing the scope. The language "While technically a branch circuit...pieces of utilization equipment" is incorrect. A branch circuit is defined in the NEC (Article 100) as " Branch Circuit ." The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s)." So actually everything is a feeder until the very last.

Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	Where are the rewritten and organized comments?
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The consensus was that the language in the revised scope will be cleaned up to make it more clear that the document applies to portable power feeder cable systems and also to the equipment used in these systems when they are used in high-current branch circuits.

137 5.2

5.2 It is unclear what this section is requiring. If it trying to provide an overview of how a main system and branch circuit system are laid out, it is informative information and should be in the annex, or become a FPN. If it is stating a requirement, it should be worded, "A basic system shall consist of a single piece of distribution equipment fed from a single power source." Additionally, the sentence regarding branch circuits is not constructed properly; its meaning is confusing.

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Reject. Section simply describes, in general, the system covered. Note section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 137 The comment resolution of "Reject Section simply describes, in general, the system covered" is fine. The fact that "Section 5 has been rewritten and reorganized" is unacceptable. The alleged "rewritten and reorganized" Section 5 has not been provided so I cannot vote to accept the comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	

Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	I don't see the rewritten comments.
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The text had been provided, so objections to the resolution because the text had not been provided do not seem reasonable. The resolution was accepted.

138 5.2.1 Remove the word "for" in the first sentence.

John Ringelman

Stage Rigging, Inc.

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 138 The comment resolution of "Accept in principle" is fine. The fact that "Section 5 has been rewritten and reorganized" is unacceptable. The alleged "rewritten and reorganized" Section 5 has not been provided so I cannot vote to accept the comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.

Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The resolution stands.

139 5.2.2

5.2.2 what determined that 3 hours constituted continuous connected loading? The statement is rather misleading and should be struck from the document. The CEC does not allow for the 125% overrating

Keith S. Woods
 Lahkri Impressions Ltd/IATSE Local 891
 37 Darney bay
 Port Moody, BC V3H 3T9

Comment Resolution: Reject. The NEC defines continuous as being on for three hours or more as continuous. This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 139 The comment resolution of “reject” is correct, as is the statement, “This document is based on NFPA 70 The National Electrical Code®.” However, announcing, “A separate document based on Canadian code to be developed” commits the EPWG to coming up with one. I believe it is indeed a good idea and should be done, but committing to it is inappropriate for many reasons. Make the last sentence less definitive by changing it to “A separate document based on Canadian code is anticipated.”
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Removal of all things Canadian.
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	

Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The resolution stands. The text had been provided. Further vetting of the text will be done in the working group, but the text has been rewritten.

140 Clause 5.2.2 Load

If the load contains phase-controlled dimming or non-linear loads such as solid-state ballasts, the neutral of the distribution equipment shall have the ampacity of at least 130% of the input nameplate rating or the capacity listed on the input nameplate rating shall be reduced to 77%.

What is the rationale for the 130% requirement?

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Since there is little margin with these cables, the 130% is necessary to deal with excess neutral current due to harmonics.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	No with reasons	Agree with comment, where does the 130% requirement come from? Is this in the code? If so, we need that stated in the document...
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes with comments	[5.2.2] This rule also comes from the NEC - 520.53(O)(2).
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.

Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The vote was discussed. The 130% comes from the NEC, so that reference will be added to the resolution, making it read: "Since there is little margin with these cables, the 130% is necessary to deal with excess neutral current due to harmonics. The 130% specification comes from NEC 520.53 (O)(2)." Gorrell so moved. Seconded. Approved by all on the conference call.

141 Clause 5.2.2 Source

What is "source" referring to? Is it referring to a generator or an over current device?

The source shall be the voltage, frequency, phases and *capacity* as required by the connected load. If the connected load is continuous (on at full current for 3 hours or more), the source shall be capable of providing 125% of the current of the connected load, *unless a 100% rated overcurrent device is used.*

Canadian systems employ 100% over current devices.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accent in principle. Will be reworded for clarity. Note that power source is defined. Reject. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 141 Accept the "accept in principle" part. Note also that the comment resolution of "reject" is correct. However, announcing, "A separate document based on Canadian code to be developed" commits the EPWG to coming up with one. I believe it is indeed a good idea and should be done, but committing to it is inappropriate for many reasons. Make the last sentence less definitive by changing it to "A separate document based on Canadian code is anticipated."
George Long	Yes	
Jerry Gorrell	Yes with comments	References to Canadian codes should be removed.
Keith S. Woods	No with	Removal of Canadiana is necessary.

	reasons	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	This is an NEC based document.
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The resolution stands, but we'll change "accent" to "accept."

142 5.2.2 Source

Existing text:

The source shall be of the voltage, frequency, phases and wires as required by the load. The source shall be capable of providing the current required by the connected load. If the connected load is continuous (on at full current for 3 hours or more), the source shall be capable of providing 125% of the current of the connected load.

New text:

5.2.2 Source

The source shall be of the voltage, frequency, phases and wires as required by the load. The source shall be capable of providing the current required by the coincident demand ~~connected load~~. If the coincident demand ~~connected load~~ is continuous (on at full current for 3 hours or more), the source shall be capable of providing 125% of the current of the coincident demand ~~connected load~~.

Comment:

The connected load is defined in this document as "The sum of the loads..." while the IEEE in its Authoritative Dictionary of IEEE Standards Terms, calls it "The sum of the continuous ratings of the power consuming apparatus connected to the system..." The requirement of having the source be capable of supplying the connected load is not the best option, a good idea, but not the best practice. There is no allowance for the duty cycle of the loads in a connected load calculation.

Change "connected load" to "coincident demand" in 3 places in this paragraph.

This allows for the diversity inherent in entertainment industry loads.

Eddie Kramer
1501

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 142 The comment resolution of "Accept in principle" is fine. The note should be "Section 5 will be rewritten and reorganized" and information should be provided about the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	References to coincident demand should be removed. See my comments on #'s 21 and 22.
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	No with reasons	I disagree with the use of coincident demand per my reasons in not accepting resolution 22:† The NEC only discusses noncoincident load in one section (220.60).† The calculation of the connected load is already defined by the NEC and allows for demand factors, the use of noncoincidence is only one factor.† By solely defining coincident demand as a replacement from the understood and Code defined term "connected load," the user may be misled into improper application of demand factors, and may also result in problems with the AHJ.†† In fact, with the "allowance " we already have from Table 400.5(B) that permits us to load single-conductor cables to a higher level than would otherwise be permitted elsewhere, I believe the use of demand factors of any sort must be undertaken with great care.† Coincident demand and be risky if there is an "all on" action.† Calculate the connected load with the appropriate conservative demand factors.† Don't redefine the connected load as coincident load and raise concerns of double-dipping on demand factors.
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	Where is the rewritten document?

William Krokaugger	Yes	
--------------------	-----	--

Cannavale changed his vote to Yes. The resolution was accepted.

143 5.2.3 Feeder cable system

Existing text:

5.2.3 Feeder cable system

A feeder cable assembly shall be selected with each ungrounded, grounded (neutral) and grounding (ground) conductor having a voltage and ampacity rating suitable for the connected load. If parallel neutrals are employed they shall meet the requirements of 5.1 Parallel conductors.

Comment:

The requirement of having the cable be capable of carrying the connected load is not the best option, a good idea, but not the best practice. There is no allowance for the duty cycle of the loads in a connected load calculation.

Change “connected load” to “coincident demand” in this paragraph.
This allows for the diversity inherent in entertainment industry loads.

Eddie Kramer
1501

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 143 The comment resolution of “Accept in principle” is fine. The note should be “Section 5 will be rewritten and reorganized” and information should be provided about the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	

Mitch Heffer	No with reasons	I disagree with the use of coincident demand per my reasons in not accepting resolution 22: The NEC only discusses noncoincident load in one section (220.60). The calculation of the connected load is already defined by the NEC and allows for demand factors, the use of noncoincidence is only one factor. By solely defining coincident demand as a replacement from the understood and Code defined term "connected load," the user may be misled into improper application of demand factors, and may also result in problems with the AHJ. In fact, with the "allowance " we already have from Table 400.5(B) that permits us to load single-conductor cables to a higher level than would otherwise be permitted elsewhere, I believe the use of demand factors of any sort must be undertaken with great care. Coincident demand can be risky if there is an "all on" action. Calculate the connected load with the appropriate conservative demand factors. Don't redefine the connected load as coincident load and raise concerns of double-dipping on demand factors.
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The consensus was that the issue of "connected load" versus "coincident demand" needs to be revisited and discussed by the working group at the LDI meeting.

144 Clause 5.2.3 Feeder Cable System

A feeder cable assembly shall be *designed and implemented* with each ungrounded, grounded (neutral) and *bonding* (grounding) (ground) conductor having a voltage and ampacity rating suitable for the connected load.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	# 144 The comment resolution of "Accept in principle" is fine.

		The note should be "Section 5 will be rewritten and reorganized" and information should be provided about the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	Typo in ampacity.
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The typo was noted. No motion was made. The resolution stands. We will discuss "connected load" versus "coincident load" at the LDI meeting.

145 Clause 5.2.4 Overcurrent protection

Over current protection shall be sized to that of the *load supply* cable or that of the connected load or input nameplate rating of the distribution equipment, whichever is less.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 145 The comment resolution of "Accept in principle" is fine. The note should be "Section 5 will be rewritten and reorganized" and information should be provided about

		the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

No changes were made. The resolution stands.

146 5.2.4 Overcurrent Protection

Existing Text:

5.2.4 Overcurrent protection

Overcurrent Protection shall be sized to that of the cable or that of the connected load or the input nameplate rating of the distribution equipment, which ever is less

New text:

5.2.4 Overcurrent protection

Overcurrent Protection shall be sized to that of the cable ~~or that of the connected load~~ or the input nameplate rating of the distribution equipment, which ever is less

Comment:

If the feeder cable and the distribution equipment can handle the load, what advantage is there in limiting it to that of the connected load?

Remove the term “connected load”

Eddie Kramer

1501

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 146 The comment resolution of "Accept in principle" is fine. The note should be "Section 5 will be rewritten and reorganized" and information should be provided about the changes to allow me to determine if I agreed with them.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	No with reasons	I think there are other problems with this clause. This clause, either existing or as proposed to be resolved, conflicts with the "tap" rules in 520.53(H).
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Hefter commented that his reason was "uncharacteristically vague." The consensus was that the revision should be reviewed in light of the tap rules.

147 5.2.4 Overcurrent protection

Existing

5.2.4 Overcurrent protection

Text Overcurrent Protection shall be sized to that of the cable or that of the connected load or the input nameplate rating of the distribution equipment, which ever is less

Comment:

If the comment to remove the term “connected load” is rejected, then please consider that there is no allowance for the duty cycle of the loads in a connected load calculation.

Change “connected load” to “coincident demand” in this paragraph.

Eddie Kramer
1501

Comment Resolution: Reject. See resolution to comment #146

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	No with reasons	I disagree with the use of coincident demand per my reasons in not accepting resolution 22: The NEC only discusses noncoincident load in one section (220.60). The calculation of the connected load is already defined by the NEC and allows for demand factors, the use of noncoincidence is only one factor. By solely defining coincident demand as a replacement from the understood and Code defined term "connected load," the user may be misled into improper application of demand factors, and may also result in problems with the AHJ. In fact, with the "allowance " we already have from Table 400.5(B) that permits us to load single-conductor cables to a higher level than would otherwise be permitted elsewhere, I believe the use of demand factors of any sort must be undertaken with great care. Coincident demand can be risky if there is an "all on" action. Calculate the connected load with the appropriate conservative demand factors. Don't redefine the connected load as coincident load and raise concerns of double-dipping on demand factors.
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution stands, but the consensus was that "coincident" versus "connected" load should be considered by the working group at LDI.

148 Clause 5.2.5 Parallel conductors

Many layouts employ the use of parallel runs of single-conductor cable. When more than one conductor is connected between a pole (bus) of one piece of equipment to a pole (bus) of another piece of equipment (electrically joined at both ends – not in series), they are considered to be connected in parallel.

Parallel conductors shall be of the same gauge, length, material, stranding and insulation. They shall be terminated in the same manner with the same type of termination device and run in the same configuration.

(FPN) The effective resistance of each conductor in the parallel arrangement must be equal or they will not share the current equally. Should there be a labeling requirement?

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept in principle. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 148 The comment resolution of “Accept in principle” is fine. The note should be “Section 5 will be rewritten and reorganized” and information should be provided about the changes to allow me to determine if I agreed with the changes.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with	See my negative comment on 133.

	reasons	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was discussion. The resolution stands.

149 5.3 Designing for higher currents

Existing text:

5.3 Designing for higher currents

It shall be permissible to increase the ampacity of the feeder system by employing parallel conductors of the same capacity and length.

New text:

5.3 Designing for higher currents

It shall be permissible to increase the ampacity of the feeder system by using larger cable sizes, or by employing parallel conductors meeting the requirements of 5.1 ~~of the same capacity and length.~~

(FPN) ~~This practice~~ Paralleling entertainment industry portable feeder conductors for increased capacity is not allowed by the Canadian Electrical Code.

Comment:

- 1) The capacity of the feeder system may also be increased by using larger cable sizes. This is also in accord with the Canadian Electrical Code.
- 2) The requirements for the use of parallel conductors are given in 5.1, directing the user to this paragraph is more useful than restating them.

Add “using larger cable sizes, or by”

Replace “of the same capacity and length” with “meeting the requirements of 5.1”

Also make editorial changes to the FPN

Eddie Kramer
1501

Comment Resolution: Section has been rewritten and reorganized. We believe it meets the intention of the commenter.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 149 There is no comment resolution given, just a statement, "Section has been rewritten and reorganized. We believe it meets the intention of the commenter". Information should be provided about the changes to allow me to determine if I agreed with the changes or not.
George Long	Yes	
Jerry Gorrell	Yes with comments	Delete references to the CEC.
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	Where is the resolution?
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The resolution was accepted.

150 Clause 5.3 Designing for higher currents

It shall be permissible to reduce the voltage drop of the feeder system by employing parallel or larger grounded or ungrounded conductors.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: See resolution to comment #149. Section has been significantly reorganized and rewritten.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	

Edwin S. Kramer	No with reasons	# 150 There is no comment resolution given, just a statement, "See resolution to comment #149. Section has been significantly reorganized and rewritten." Information should be provided about the changes to allow me to determine if I agreed with them or not.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	Where is the resolution?
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The resolution was accepted.

151 5.3

5.3 FPN should be rewritten to state "Paralleling of cable is only allowable for voltage drop as per the CEC Part 1."

Keith S. Woods
Lahkri Impressions Ltd/IATSE Local 891
37 Darney bay
Port Moody, BC V3H 3T9

Comment Resolution: Accept in principle. Section has been reorganized and suggested information added.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 151 Reject. This is a US centric document, based on the NEC and the information about the Canadian Code

		does not increase its usefulness.
George Long	Yes	
Jerry Gorrell	No with reasons	Not part of the scope of this document.
Keith S. Woods	No with reasons	Removal of Canadian references is necessary. Again the scope statement.
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	No with reasons	Canadian specific issues are being separated out to another document
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Gorrell said that the resolution should be "Reject. Canadian requirements are not part of this document." Gorrell so moved. Seconded. Approved.

152 Clause 5.4 Designing for Voltage Drop

(FPN) A definition is required for "Voltage Drop".

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept. Definition added. Note that Section 5 has been rewritten and reorganized.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 152 The comment resolution of accept is wrong. The comment was to add a FPN of 'A definition is required for "Voltage Drop".' Accept is to use the provided language.

		What was meant is to add a definition of "Voltage Drop". We need to accept in principle and put the definition in 1.5.3 with all the other definitions.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	Yes	
Steve Terry	No with reasons	See my negative comment on 133.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Gorrell said that the definition was added, but not as a fine print note. The resolution should be "accept in principle." Gorrell so moved. Seconded. The motion was accepted.

153

Accepted

154

Accepted

155 6.1.1

6.1.1 States "Cable shall not be routed through egress paths." This is in conflict with 6.1.4.2.

Robert Tooker
Production Resources Group

Comment Resolution: Refrence added to 6.1.4.2 and 6.1.4.2 has been made more restrictive.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	

Edwin S. Kramer	No with reasons	# 155 The proposed resolution seems acceptable, however while making 6.1.4.2 more restrictive sounds good, I need to see it. Like in grade school -> show your work.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes with comments	Typo in Reference
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

There was no change to the resolution. The implemented resolution was part of the vote packet. The typo was noted.

**Voted on Tables of Non-Yes Votes, Ballot Items 156 through 190, Letter Ballot EP/2010-7002
Reconsidered and Revoted by the EPWG on 1 October 2010**

156 6.1.2.2 Rack jumps (adjunct single-conductor portable power feeder cable)

Existing text:

6.1.2.2 Rack jumps (adjunct single-conductor portable power feeder cable) Where multiple pieces of distribution equipment are located within 10 feet of each other, it shall be permissible to interconnect them.

New Text

6.1.2.2 Rack jumps (adjunct single-conductor portable power feeder cable)

Where multiple pieces of distribution equipment are ~~located within 10 feet of each other~~ used, it shall be permissible to interconnect them.

Comment: Why located within 10 feet of each other? Are interconnect pieces of distribution equipment located 11' apart unsafe; how about 15 or 20 feet?

Remove the 10' length.

Eddie Kramer
1501

Comment Resolution: Accept.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	In conflict with the definitions of a "Rack jump" suggest using other phraseology.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J.	Yes	

Cannavale		
William Krokaugger	Yes	

There was no motion, but Gorrell suggested that we might be able to delete the term "rack jump" if it is not used elsewhere. The bottom line is that you can interconnect the equipment. Vannice asked why make any rules about rack jumps? We could omit the whole clause. This would respond to Kramer's objection to the 10-foot limit.

157

Accepted

158 6.1.3

6.1.3 "When the location of the source of supply and the distribution equipment is such that the cable path is not a standard cable length" should be removed from the sentence. If it is permissible to store 50 feet of excess cable, it does not need to be stated why the excess exists, just that it is permissible to store it. There may be other reasons why this excess exists (e.g. only having a 75' cable run, but being 50' from the power source; both are "standard lengths").

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Accept in principle. First part of sentence now reads:

"When the location of the source of supply and the distribution equipment is such that the cable path exceeds the length of the available cable,"

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	No with reasons	The resolution is wrong and should read: "When the length of the available cable exceeds the length of the cable path between the location of the

		source of supply and the distribution equipment."
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The objection was discussed. Gorrell moved that Terry's resolution be adopted. The motion was seconded, and then approved by all on the conference call.

159

Accepted

160 6.1.3 Excess length

Existing text:

6.1.3 Excess length

When the location of the source of supply and the distribution equipment is such that the cable path is not a standard cable length, it shall be permissible to store a maximum of 50 feet of excess cable provided the excess cable is less than 50% of the distance. Excess cable shall be stored by coiling it in a figure eight or by "over & undering"; however ampacity reductions as given in part 3 shall be used. There shall be no metallic objects in the loops

New Text

6.1.3 Excess length

When the location of the source of supply and the distribution equipment is such that the cable path is not a ~~standard~~ stock cable length, it shall be permissible to store a maximum of 50 feet of excess cable provided the excess cable is less than 50% of the distance. Excess cable shall be stored by coiling it in a figure eight or by "over & undering"; however ampacity reductions as given in part 3 shall be used. There shall be no metallic objects in the loops.

Comment:

Every equipment supplier has different "standard" cable lengths. Is 100' standard? or 96' or 30m (98.43 ft)? However, each supplier has their own stock cable lengths, and substituting "stock" for "standard", clears this up.

Eddie Kramer

1501

Comment Resolution: Accept in principle. See resolution to comment #158

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	No with reasons	See my negative comment on 158.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The consensus of the group was that the new resolution to 158 is appropriate for 160, too.

161

Accepted

162 6.1.4.2C

6.1.4.2 c. allows passing cable through a fire or smoke control door so long as "it is possible to disconnect the cable to allow the window or door to close".

This provision allows for a clear safety violation without providing for any method by which a safety device may function. Merely having the possibility of disconnection does nothing to ensure that it is disconnected and the opening closed in a fire. Provisions (a) and (b) of this section are written to provide some assurance that the fire door or window will function; this one does not.

Beyond that, even if the location was staffed by someone prepared to disconnect the cables, there is no provision made for proper sequencing of the disconnection, and no requirement for disconnecting power from the cable, potentially leaving energized connections exposed at an egress point in a fire.

This provision codifies a practice that may be used in the industry but is in fact unlikely to meet with the approval of a local AHJ. It should not be a part of this standard.

Robert Tooker
Production Resources Group

Comment Resolution: Accept in principle. Note that in fact a number of AHJs do allow it with the provisos in this document. Text now reads:
“6.1.4.2 Fire or Smoke Control Windows or Doors or Egress Doors

Cable shall not be routed through fire or smoke control windows or doors or egress doors, unless Listed extra hard usage cable is used and:

1. Is allowed by the Authority Having Jurisdiction (AHJ)
2. Provisions are made to allow the door or window to be closed or,
3. The opening is made smoke-tight or,
4. It is possible to disconnect the cable to allow the window or door to close or,
5. When in use, the opening is sealed with a temporary seal of a listed fire stop material.
6. Meeting any requirements of the AHJ.

(FPN) Currently routing cables through fire or smoke control windows or doors or egress doors is not permitted by OSHA and most building and fire codes. Permission to route cables through these openings must be obtained from the AHJ.”

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 162 I believe there is a typo with the proposed new language: “Cable shall not be routed through fire or smoke control windows or doors or egress doors, unless Listed extra hard usage cable is used and: A) Is allowed by the Authority Having Jurisdiction (AHJ) B) Provisions are made to allow the door or window to be closed or, C) The opening is made smoke-tight or, D) It is possible to disconnect the cable to allow the window or door to close or, E) When in use, the opening is sealed with a temporary seal of a listed fire stop material. F) Meeting any requirements of the AHJ.”

		F seems to be redundant with A, but it makes sense for the temporary seal of E to meet any requirements of the AHJ. Change "E" to "E) When in use, the opening is sealed with a temporary seal of a listed fire stop material <u>meeting any requirements of the AHJ</u> . Eliminate "F".
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. No motions were offered. The resolution stands.

163 6.1.4.4 Crossing walkways and paths

Existing text:

6.1.4.4 Crossing walkways and paths

When crossing sidewalks, paths and other walkways with public access the cable crossing shall meet the current requirements of the ADA.

Comment:

What "current requirements", the ones in affect when this was approved, or when printed, or at some other time? Remove "current".

New text

6.1.4.4 Crossing walkways and paths

When crossing sidewalks, paths and other walkways with public access the cable crossing shall meet the ~~current~~ requirements of the ADA.

Eddie Kramer
1501

Comment Resolution: Reject. Current requirements of the ADA means exactly what it says – The current (at the time of installation) requirements of the ADA.

Unlike many codes the ADA is a civil right law and failure to follow it can be a criminal offence.

However the text has been revised for clarity:

“When crossing sidewalks, paths and other walkways with public access, the cable crossing shall meet the requirements of the ADA at the time of system installation.”

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 163 The proposed comment resolution is what was asked for. The commenter was correct, current is the wrong word to use. Change the reject to Accept in Principle.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. Gorrell insisted that one must comply with the ADA. It is not a standard that has to be adopted. It is a civil rights law.

164 6.1.4.5 Vehicular traffic

Existing text:

6.1.4.5 Vehicular traffic

Unprotected cables shall not cross vehicular traffic. Where cables need to cross areas of vehicular traffic, they shall be listed extra hard usage cable, and protected by an approved method. It shall be permissible to elevate cable above traffic. When elevated, the lowest point of the sag of the cable shall be 8 feet higher than the maximum height of vehicles allowed on the route. Signs shall be posted informing traffic of the maximum safe height

New text:

6.1.4.5 Vehicular traffic

Unprotected cables shall not cross vehicular traffic. Where cables need to cross areas of vehicular traffic, they shall be listed extra hard usage cable, and protected by an approved method. It shall be permissible to elevate cable above traffic. When elevated, 6.1.4.9 shall apply. ~~the lowest point of the sag of the cable shall be 8 feet higher than the maximum height of vehicles allowed on the route. Signs shall be posted informing traffic of the maximum safe height~~

Comment: Cables may be elevated for other reasons besides crossing vehicular traffic. There is no other place in this standard with this information.

Move the last sentence to its own paragraph. Add a reference to this new paragraph (6.1.4.9 Elevated cable).

Eddie Kramer
1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	Given the standard maximum legal height for trucks is 13'6", the requirement of 8' above traffic as stated now in 6.1.4.9 would require a minimum height after sag of 21'6." This seems excessive: why not require either a total height of 15' or 2' above standard truck height.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J.	Yes	

Cannavale		
William Krokaugger	Yes	

The resolution was discussed. It was not changed.

165 6.1.4.8

6.1.4.8 The word "frigid" is too vague. Use more specific language such as, "In conditions where the ambient temperature is below X° Fahrenheit, cable listed for cold weather shall be used."

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Because of the possible variations of lower temperature limits for various cables any specific value for temperature would be arbitrary. It is up to the designer/installer to be aware of the specific environmental conditions and select cable listed for usage in those conditions. This section is to make the user aware of the issue.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	No with reasons	A specific number or something more explanatory than frigid needs to be used. All Listed type SC, SCE, SCT cables are rated for -40C (see UL subject 1680) or lower. Other cable types such as W or PPE are rated for -20C or lower (see UL subject 1650, UL std 62). Suggested text: "Feeder cable shall have a low temperature rating equal or exceeding the environment it will be used in." Suggested FPN: "SC, SCE and SCT cables carry a -40C or lower rating. Listed W and PPE cables carry a -20C or lower rating."
Vincent J. Cannavale	Yes	

William Krokaugger	Yes	
--------------------	-----	--

The resolution was discussed. No change was made. The NEC does not give a temperature range. Adding the fine print note will be considered in a rewrite.

166 6.1.4.6 Where possible subject to damage:

Is there a “heavy” designated cable different from extra hard usage cable?

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Accept.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes with comments	# 166 It appears “heavy” is a typo and “extra hard usage cable” was meant. Remove “heavy” from 6.1.4.6.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

It was noted that Kramer's comment was addressed in the rewrite, which does not have "heavy" in 6.1.4.6.

167
Accepted

168 6.1.4.8 Cold:

“Frigid” and “cold weather” need to be defined, perhaps when temperatures are below freezing (32°F)

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: See resolution to comments #165.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Abstain with reasons	See my response to comment resolution 165.
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Discussed. No change.

169 6.1.4.8 Cold:

Cables used in Canada shall be rated -40°C

Based on data from manufacturers that states working temp is actually + 15 (F?) warmer than rating

EESCO Committee Public review comments
 Submitted by R. Dean – Secretary

Comment Resolution: Reject. Because of the possible variations of lower temperature limits for various cables any specific value for temperature would be arbitrary. It is up to the designer/installer to be aware of the specific environmental conditions and select cable listed for usage in those conditions. This section is to make the user aware of the issue.

This document is based on NFPA 70 The National Electrical Code®. A separate document based on Canadian code to be developed.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 169 The comment resolution of “reject” in the first paragraph is correct. In the second paragraph “This document is based on NFPA 70 The National Electrical Code®.” is also correct. However, announcing that, “A separate document based on Canadian code to be developed” commits the EPWG to coming up with one. I believe it is indeed a good idea and should be done, but committing to it is inappropriate for many reasons. Make the last sentence less definitive by changing it to “A separate document based on Canadian code is anticipated.”
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Discussed. No change.

169.5
 Accepted

170
Accepted

171
Accepted

172
Accepted

173
Accepted

174 (6.1.4.9 Elevated cable) New

Comment:
See Comment: on 6.1.4.5 Vehicular traffic.

Cables may be elevated for other reasons besides crossing vehicular traffic. There is no other place in this standard with this information.

Add a new paragraph

New text:
6.1.4.9 Elevated cable

When elevated, the lowest point of the sag of the cable shall be 8 feet higher than the maximum height of traffic allowed under it. Signs shall be posted informing traffic of the maximum safe height.

All elevated cable shall be listed extra hard usage cable.

Eddie Kramer
1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and	No with	See comment at #164.

Ian Foulds	reasons	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. It was not changed.

175 Section 6.1.5

6.1.5 Reword the first sentence. Running feeder cable in parallel does not increase the ampacity of the cable, it provides a means for amperages that are too great for a single cable to carry to be divided equally between two cables. Consider changing to, "It shall be permissible to parallel single-conductor feeder cable to either minimize voltage drop, or to provide a means for more amperage to be carried per phase."

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Section has been deleted as it appeared in an earlier section.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 175 While a section on parallel did appear earlier in this document, it was in part 5— "Laying out the system" (or design) and was about the design requirements while part 5 is Installation which has different content and belongs in part 5.

		Accept the comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	Where is the parallel section?
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The resolution was discussed. The resolution stands.

176 6.1.5 Paralleling

Existing text:

6.1.5 Paralleling

It shall be permissible to parallel single-conductor feeder cable to either increase the ampacity of the cable or to minimize voltage drop. When cables are paralleled, the paralleled conductors shall be of the same length, type, and size. They shall also follow the same route. If there are non-linear loads present each set shall be laid out in order and not grouped by phase to reduce inductive coupling. When paralleled cables are bundled, a phase conductor from each phase shall be in each bundle. A neutral (grounded) conductor, if used, shall be part of the bundle. Each bundle shall also contain a grounding conductor, which shall be the same size as the largest phase conductor. Bundled cables shall be derated in ampacity as per section 3.4.3.

Comment:

1) Paralleling is also covered in 5.1 Parallel conductors.

Add at the end "Paralleling shall also meet the requirements of 5.1 Parallel conductors."

2) Inductive coupling will occur where there is current flow whether or not non-linear loads are present.

Remove "If there are non-linear loads present".

3) In Current Distribution in Parallel Single-Core Cables on Metal Tray¹ "It is suggested adopting the cable arrangement of (c)[ABCCBAABCN] in parallel single-core cable installations as this arrangement has the least impact on uneven current distribution as well as generates the least magnetic field in the surrounding area."

Rewrite “..laid out in order” to “laid out G...GABCCBA...ABCCBAN..N and not grouped by phase”

4) In Single-Conductor Cables in Parallel it is suggested to “space single-conductor cables one cable diameter apart so that the ampacity of the single-conductor cable can be fully utilized.”

Add “spaced a minimum of one cable diameter apart ” before “and not grouped by phase”

1 Current Distribution in Parallel Single-Core Cables on Metal Tray, Du, Y.; Yuan, Y.Z.; Wang, X.H., Industry Applications, IEEE Transactions on, Volume: 44 Issue: 6 Nov.-dec. 2008, Page(s): 1886-1891

2 Wu, Alex Y., "Single-Conductor Cables in Parallel" Industry Applications, IEEE Transactions on , vol.IA -20, no.2, pp.377-395, March 1984

New Text

6.1.5 Paralleling

It shall be permissible to parallel single-conductor feeder cable to either increase the ampacity of the cable or to minimize voltage drop. When cables are paralleled, the paralleled conductors shall be of the same length, type, and size. They shall also follow the same route. ~~If there are non-linear loads present e~~Each set shall be ~~laid out in order~~ laid out G...GABCCBA...ABCCBAN..N, spaced a minimum of one cable diameter apart, and not grouped by phase to reduce inductive coupling. When paralleled cables are bundled, a phase conductor from each phase shall be in each bundle. A neutral (grounded) conductor, if used, shall be part of the bundle. Each bundle shall also contain a grounding conductor, which shall be the same size as the largest phase conductor. Bundled cables shall be derated in ampacity as per section 3.4.3. Paralleling shall also meet the requirements of 5.1 Parallel conductors.

Eddie Kramer
1501

Comment Resolution: Section has been removed since it repeats earlier material. Last part of text added to section 5.2.1 Paralleling conductors.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes with comments	Paralleling shall also "meet" ...
Edwin S. Kramer	No with reasons	# 176 While a section on parallel did appear earlier in this document, it was in part 5— “Laying out the system” (or design) and was about the design requirements while part 5 is Installation which has different content and belongs in part 5. Accept the comment.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	

Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. The resolution stands.

177 Section 6.1.6

6.1.6 State what to do if damage is found during inspection, such as, "If damage is found during inspection, an assessment shall be made by a qualified person to determine if the feeder cable should be removed from service. If the damage to the feeder cable is determined to be repairable, it shall be appropriately tested after repairs have been completed, and prior to it being returned to service".

John Ringelman
Stage Rigging, Inc.

Comment Resolution: Accept in principle and in part.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 177 Comment A resolutions consisting completely of: "Accept in principal and in part" is less than useless. The P & P states: "each objector shall be advised in writing (including electronic communications) of the disposition of the objection and the reasons for this disposition." How is the objector to know the reasons for the disposition of the comment?
George Long	Yes	
Jerry Gorrell	Yes	

Keith S. Woods	Yes	
Ken Vannice	Yes with comments	What principle and what part?
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution should have the text that was adopted. That text is in a different clause number, but it addresses the commenter's concern:

6.1.5 Inspection

"Single-conductor feeder cable shall be inspected upon installation and removal by a qualified person to look for abrasions, cuts, insulation damage, signs of over heating, chemical damage, splicing and other defects that would affect the safe use of the cable.

"Defective cable shall be removed from service and tagged listing the defect(s) and shall not be used until repaired."

178 Section 6.1.6

6.1.6 The phrase, "Shall be inspected" is too vague. Provide guidance for inspection such as, "Shall be inspected for cuts, deformation, heat or chemical damage to insulation..." etc.

Comment Resolution: Text added.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Abstain with reasons	# 178 The phrase, "Text added" is too vague. Was it the suggested text? Please state what was added. I cannot vote for unknown text.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	

Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Abstain with reasons	What test is added??
William Krokaugger	Yes	

Cannavale changed his vote to Yes. The text had been provided in a revised document, so Kramer's objection was without a basis. .

179

Accepted

180 6.1.7 Guarding

Existing text:

6.1.7 Single-conductor feeder cable shall be protected from damage by the use of appropriate guards. In addition, it shall be protected from contact with the general public

New text:

6.1.7 Guarding

Single-conductor feeder cable shall be protected from damage by the use of appropriate guards. In addition, it shall be protected from contact with the ~~general~~-public

Comment:

Who is the non-general public, and why is it OK for them to come in contact with Single-conductor feeder cable?

Remove "general".

Eddie Kramer

1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	The term "general public" is accepted phraseology as used in other sections of this document such as comment #225 and is usually taken to include all members of the public and in this instance would include non-qualified members of the crew.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes with comments	Non-general public are those other than employees have some sort of organized, continual familiarity with the conditions around them
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. It was not changed. Vannice explained the difference between "public" and "general public."

181

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 181 No comment resolution was given. Make it reject. Also make the last sentence less definitive by changing it to "A separate document based on Canadian code is anticipated."
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Removal of Canadiana from the document.
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	

Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	No with reasons	What is the resolution?
William Krokaugger	Yes	

Cannavale changed his vote to Yes.

182

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

It was discussed, but not changed.

183

Accepted

184

Accepted

185 6.1.9 Grounding:

Presumably this statement refers to bonding, but clarity is required here again for careful delineation of bond and ground.

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Title changed to read:

6.1.9 Bonding (Grounding)

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	No with reasons	# 185 Keep calling this part “grounding”. It is the common term used in the Entertainment Industry and fits with the NEC definition. Adding “Bonding” in parentheses is OK and will meet the intent of the proposal.
George Long	Yes	
Jerry Gorrell	No with reasons	Conductors can be bonded but not grounded.
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	No with reasons	Resolution is no longer applicable to an NEC-based document. Grounding is the right word, not bonding.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Gorrell moved that we reject the comment. The clause is about grounding. Grounding conductor does bond things to ground, but not all bonding conductors do. The motion was seconded and approved by all on the conference call.

186 Part 6.1.10.1 Identifying label

Existing text:

6.1.10.1 Identifying label

All disconnects shall be labeled with an identifying label and their source disconnect shall be noted on the label.

Remove “disconnect”

New text:

6.1.10.1 Identifying label

All disconnects shall be labeled with an identifying label and their source ~~disconnect~~ shall be noted on the label.

Comment:

The source is what needs to be known.

Eddie Kramer
1501

Comment Resolution: Accept.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes	
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	No with reasons	I agree the location of the source is important but for the disconnect function the location of the disconnect is the prime issue
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	

William Krokaugger	Yes	
--------------------	-----	--

Vannice changed his vote to Yes.

187 6.1.10.2 Main disconnect

Existing Text:

6.1.10.2 Main disconnect

The main disconnect shall have a drawing indicating the layout and disconnect points of the primary supply system with their individual identifying label.

New Text

6.1.10.2 Power source ~~Main disconnect~~

The ~~main disconnect~~ power source (the last permanently installed switch,) shall have a drawing indicating the layout of the part of the feeder cable system it supplies. ~~and disconnect points of the primary supply system with their individual identifying label.~~

Comment:

Replace it with “of the part of the feeder cable system it supplies.”

1) The main disconnect may be the service entrance. What is meant here is the “power source”.

Change the title to 6.1.10.2 Power source, and replace “main disconnect” in the body with

“power source (the last permanently installed switch).”

2) “and disconnect points of the primary supply system with their individual identifying label.” Is complex, and hard to understand.

Eddie Kramer

1501

Comment Resolution: Accept in principle and in part. Revised text to read:

6.1.10.2 Power source ~~Main disconnect~~

The main disconnect power source (the last first permanently installed switch,) shall have a drawing indicating the layout of the part of the feeder cable system it supplies. ~~and disconnect points of the primary supply system with their individual identifying label.~~

The originating source disconnect would be considered the first one in the system not the last. [strikeouts need to be put in.]

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	Is this a practical requirement, and is it reflective of current practice?

Edwin S. Kramer	Yes with comments	# 187 The permanently installed system is supplied from the utility to the service entrance. Power is fed to various panels and sub-panels, finally ending at the main disconnect (AKA company switch). This is the last permanently installed switch. Change the revised text to: The power source (the last permanently installed switch) shall have a drawing indicating the layout of the part of the feeder cable system it supplies.
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	No with reasons	It is the last switch before the portable feeder receives its power.
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

Gorrell moved that "first" shall be changed to "last" in the resolution. Seconded. Approved. This addresses Kramer's concern, but also addresses Vannice's concern.

188 6.2.1 General Text

Existing text:

6.2.1 General Text

Where un-insulated connectors are used; they shall be identified by taping a minimum of the first six inches of the cable insulation.

New Text:

Where un-insulated connectors are used; they shall be identified by taping a minimum of the ~~first~~ six inches of the cable insulation, closest to the connectors.

Comment:

... the first six inches of the cable insulation, what about the other end, the last six inches. Rewrite; Where un-insulated connectors are used; they shall be identified by taping a minimum of the ~~first~~ six inches of the cable insulation, closest to the connectors.

Eddie Kramer
1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes with comments	See comments #20.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Hefter	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution and comment 20 was discussed. The resolution stands.

189 6.2.2.1 Voltage

Existing text:

6.2.2.1 Voltage

Where two nominal voltage systems exist on one site using a portable power feeder system, the systems shall be identified by color-coding.

New Text

6.2.2.1 Voltage

Where two nominal voltage systems exist on one site using a portable power feeder system, the systems shall be identified by color-coding. it shall also be permissible to label the system.

Comment: If you can label 3 or more, why not 2?

Eddie Kramer
1501

Comment Resolution: Accept

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	Yes with comments	Why don't we phrase it "Where more than one voltage system or frequency exists..."
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes	
Ken Vannice	Yes with comments	Capitalize It
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes	
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed. In it, we made the change, but we didn't respond to the commenter's rhetorical question.

190 6.2.2.1 Voltage

Please consider adding the following statement:

Any power distribution system, utilizing single pole locking connectors, operating at a voltage above 150 volts to ground, shall:

a) have all inline connectors made inaccessible by wrapping or enclosing the joint or connector(s) in a secured, non-conductive box or material; and;

b) with prominent identification as to the supply voltage of the circuit, outside, and if practicable, inside the secured enclosure(s) or joint(s).

EESCO Committee Public review comments
Submitted by R. Dean – Secretary

Comment Resolution: Reject. While possibly a good idea the cost to implement both in time and material would be excessive and currently no code (unless the CEC does) requires this.

<i>Voter</i>	<i>Vote</i>	<i>Comments</i>
Art Wanuch and Ian Foulds	No with reasons	It is a requirement in Ontario and represents reasonable best practice for identification and separation/isolation of connectors on systems at above 150 volts to ground.
Edwin S. Kramer	Yes	
George Long	Yes	
Jerry Gorrell	Yes	
Keith S. Woods	Yes with comments	Not required by CEC, but has been an accepted practice at times in the film environment when shooting in urban and high activity environments. But of course...Canadiana...
Ken Vannice	Yes	
Lizz Pittsley	Yes	
Michael M. Lay	Yes	
Mitch Heffer	Yes	
Roger Lattin	No vote	
Steve Terry	Yes with comments	Even if the CEC does, that would no longer be germane to this NEC-based document.
Tyrone Mellon	Yes	
Vincent J. Cannavale	Yes	
William Krokaugger	Yes	

The resolution was discussed, but not changed. The resolution stands.