



Oregon

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Oregon Solar Energy Code Committee
September 24, 2009
Meeting Summary

****NOTE:** *The following is a summary of the committee's discussion.*

To review the meeting in its entirety, the archived video of the meeting is available on the committee's Web site at the following link: <http://www.bcd.oregon.gov/committees/10sec.html>

Members Present: Doug Aljets, Electrical and Elevator Board **and** Solar Installer for NW Current Energy, LLC
Brian Crise, International Brotherhood of Electrical Workers (IBEW), Local 48
Jerry Henderson, Independent Contractor for Department Of Energy (DOE) **and** Energy Trust of Oregon (ETO)
Robert Lane, Three Phase Electric
Dave Mumford, Lear Electric
Robin Rabirot, Oregon Solar Energy Industries Association (OSEIA) **and** EC Company
Len Ralston, Solar Installer for Dynalectric
Robert Rice, Oregon Building Officials Association (OBOA) **and** Josephine County Building, Official
Marcus Reed, State Fire Marshal
Jaimes Valdez, City of Portland – BPS/BDS

Members Absent: Nathan Philips, National Electrical Contractors Association (NECA)

Guests Present: Greg Creal, Central Electrical Training Center
Pat Adamosky, Veris Industries
Johnathan Balkema, Oregon Homebuilders Association (OHBA)
Dan Petrin, Frahler Electric
David McClelland, Energy Trust of Oregon
Kendal Hansen, Energy Trust of Oregon
Rob DelMar, Oregon Department of Energy (ODOE)

Staff Present: Chris Huntington, Policy and Technical Services Manager
Dennis Clements, Electrical Program Chief
Aeron Teverbaugh, Policy Analyst
Jim Denno, Policy Analyst
John Powell, Facilitator
Shauna Parker, Rules Coordinator
Dana Fischer, Building Code Para-Technical

John Powell called the meeting to order at 1:35 p.m.

Mr. Powell began discussion by re-addressing items tabled at the September 10, 2009 meeting.

Section 690.4 Installation

Mr. Powell stated questions came up regarding disconnection of current carrying conductors. He explained the only change from what is currently in the National Electrical Code (NEC), is the addition of the word “certified”.

Motion to approve as amended Section 690.4, deleting the words “*solar photovoltaic*” through out the code, replacing them with the abbreviation “PV” and adding a definition for “PV”.

Section 690.13 All Conductors

Mr. Powell reminded committee members that the fire community was asked to provide input, via Marcus Reed. He asked Mr. Reed if he was able to gather enough information to share with the committee today. Mr. Reed replied that he is working on some proposed language, but would like a little more time before presenting the language to the committee.

***Tabled:** Mr. Powell suggested tabling this section until proposed language can be provided for discussion. The committee agreed.*

Section 690.14 Additional Provisions

***Tabled:** Mr. Powell suggested this section remain tabled, since it relates to Section 690.13. The committee agreed.*

V Grounding

Section 609.41 System Grounding

Mr. Powell reviewed this section with the committee, explaining there are no changes from how it is written in the NEC, except for the reference to the Oregon Electrical Specialty Code (OESC), where the word “listed” has been changed to “certified” and added reference to the Oregon Solar Energy Code (OSEC). *The committee had no comment and agreed to the proposed language.*

Section 690.42 Point of System Grounding Connection

Mr. Powell reviewed this section, explaining there are no changes from how it is written in the NEC, except for the reference to the OSEC in the “exception”.

Mr. Creal suggested a fine print note (FPN) be added to the end of the section suggesting the use of “surge suppression” at the panel and “lightning protection” at the combiner boxes. Mr. Powell replied that FPN’s are usually added as information only and are not considered enforceable code. The committee continued with general discussion on how to re-word the FPN.

***Tabled:** The committee concluded that language needs to be added in reference to “surge suppression”, but agreed to table the discussion until a decision can be made of what section the reference should be added to.*

Section 690.43 Equipment Grounding

Mr. Powell reviewed this section, explaining there are no changes from how it is written in the NEC, except reference to the OESC. He also noted that the word “*certified*” has been added in two places.

Brian Crise discussed the code proposal that was submitted at the national level, number 4-232, which goes into detail about devices that turn “frames” into “equipment grounding conductors”.

Mr. Powell suggested language in this section remain the same until the NEC is published. Then, if there are significant changes, a mid-cycle code amendment could be considered. The committee discussed situations they have come across while on the job in regards to “equipment” and “grounding”. *They concluded that the language did not need to be written.*

Section 690.45 Size of Equipment Grounding Conductors

Mr. Powell reviewed this section, noting the additional reference to the OSEC and that a table found in the NEC which lists “equipment grounding conductor sizes”, has been inserted.

Robert Lane commented that he does not believe the table should be in the code since it has been renumbered and does not match the NEC section number and that published articles or documents would not have the current code section listed. Mr. Powell replied that the original table number could remain with a reference to the current adopted code. Committee members agreed with Mr. Lane in that the code should remain as close to the NEC as possible.

The committee agreed to delete the table from the proposed language.

Mr. Powell commented that since the committee wishes to delete the table, then the proposed language will need to be changed to reflect the NEC which removes the table reference and adds a reference to 250.122 of the adopted Oregon Electrical Specialty Code.

Section 690.46 Array Equipment Grounding Conductors

Mr. Powell explained the only change to the section is added clarification for “grounding conductors” and that added language says “...smaller than 6 AWG *shall be provided with physical protection*”.

Break

The committee reopened discussion on Section 690.45 to address additional concerns with deleting the table.

The committee discussed at length different aspects of the proposed code. Several committee members voiced a concern about reproducing language already found in the NEC. Mr. Powell reminded the committee that there is a lot of opportunity to bring in new language and address issues currently not in the NEC and OESC. Once the code is adopted, there will be a chance during each code amendment cycle to bring new information into the code.

The committee continued to discuss this section and how the deleted table 690.45 relates to it, what the potential problems could be, how they could be resolved, and if the code should be a stand alone code. Mr. Powell asked for a vote on who would like table 690.45 to be kept as proposed language. The majority of committee members did not want to keep the table, but upon further discussion elected to

keep the table with the understanding that they will have a chance to provide further comment before it is reviewed by the board.

Section 690.47 Grounding Electrode System

Mr. Powell noted the reference in subsection A to the OESC and that the language in subsection B is new.

Mr. Creal suggested deleting the language “*if installing an ac system*” in subsection A, and deleting the language “*if installing a dc system*” in subsection B. *The committee had no comment and agreed to the language modification.*

Committee members continued to discuss subsection B, and agreed in item 2, the reference to “250.166A” should be deleted and replaced with “OSEC 690.47(b)(1)”.

Mr. Aljets proposed deleting the first line in table 690.47 and changing the second line to read “1/0 or smaller” for the copper size and “3/0 or smaller” for Aluminum or Copper-Clad Aluminum size. *The committee agreed.*

Tabled: 690.47(D) - *Mr. Valdez suggested tabling subsection D Additional Electrodes for Array Grounding. Mr. Powell asked that if it is tabled, would the committee bring back proposed language to help clarify the intent of the language. The committee agreed.*

Section 690.48 Continuity of Equipment Grounding System

Mr. Powell reviewed the language with the committee, stating it is the same as found in the NEC.

Section 690.49 Continuity of Photovoltaic Source and Output Circuit Grounded Conductors

Mr. Powell reviewed the language with the committee, stating it is the same as found in the NEC.

Section 690.50 Equipment Bonding Jumpers

Mr. Powell reviewed the language with the committee, stating it is the same as found in the NEC, except for the added language “*smaller than #6 AWG*”.

Motion to approve as modified Chapter 4: Electrical Requirements, V Grounding, The motion includes items tabled for discussion: Sections 690.13 All Conductors, 690.14 Additional Provisions, 690.42 Point of System Grounding Connection and 690.47(D) Additional Electrodes for Array Grounding.

Motion carried unanimously.

Mr. Powell summarized the meeting, stating committee members are welcome to bring language forward which helps with the review process.

Adjourn

The meeting adjourned at 3:55 p.m.