

FORM FOR COMMENT FOR 2014 NATIONAL ELECTRICAL CODE®

INSTRUCTIONS — PLEASE READ CAREFULLY

Type or print **legibly**. Use a separate copy for each comment. Limit each comment to a **SINGLE** section. All comments **must be received by NFPA by 5 p.m., EDST, Wednesday, October 17, 2012**, to be considered for the 2014 National Electrical Code. Comments received after 5:00 p.m., EDST, Wednesday, October 17, 2012, will be returned to the submitter.

For technical assistance, please call NFPA at 1-800-344-3555.

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Log #: _____

Date Rec'd: _____

Please indicate in which format you wish to receive your ROP/ROC ☒ electronic ☐ paper ☐ download
(Note: If choosing the download option, you must view the ROP/ROC from our website; no copy will be sent to you.)

Date 10/17/12 Name William F. Brooks Tel. No. 707-332-0761
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Please indicate organization represented (if any) _____

1. Section/Paragraph 705.12(D)(2)

2. Comment on Proposal No. (from ROP): 4-375a

3. Comment recommends (check one): ☐ new text ☐ revised text ☐ deleted text

4. Comment (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise wording of 705.12(D)(2) as follows:

(2) Bus or Conductor Ampere Rating. ~~For all bus and feeder ampacity calculations,~~ 125% of the inverter output circuit current shall be used in ampacity calculations for the following.

(1) Feeders. Where the inverter output connection is made to a feeder at a location other than the opposite end of the feeder from the primary source overcurrent device, that portion of the feeder on the load side of the inverter output connection shall be protected by one of the following:

a. feeder ampacity shall not be less than the sum of the primary source overcurrent device and 125% of the inverter output circuit current, or

b. an overcurrent device rated not greater than the ampacity of the feeder.

(2) Taps. In systems where inverter output connections are made at feeders, any ~~load~~ taps must be sized based on the sum of 125% of the inverter(s) output circuit current and the rating of the overcurrent device protecting the feeder conductors as calculated in 240.21(B).

(3) Busbars. One of the methods in (a)-(d) shall be used to determine the ratings of busbars in panelboards:

(no change in the remainder of 705.12(D)(2))

5. Statement of Problem and Substantiation for Comment: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Comment, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

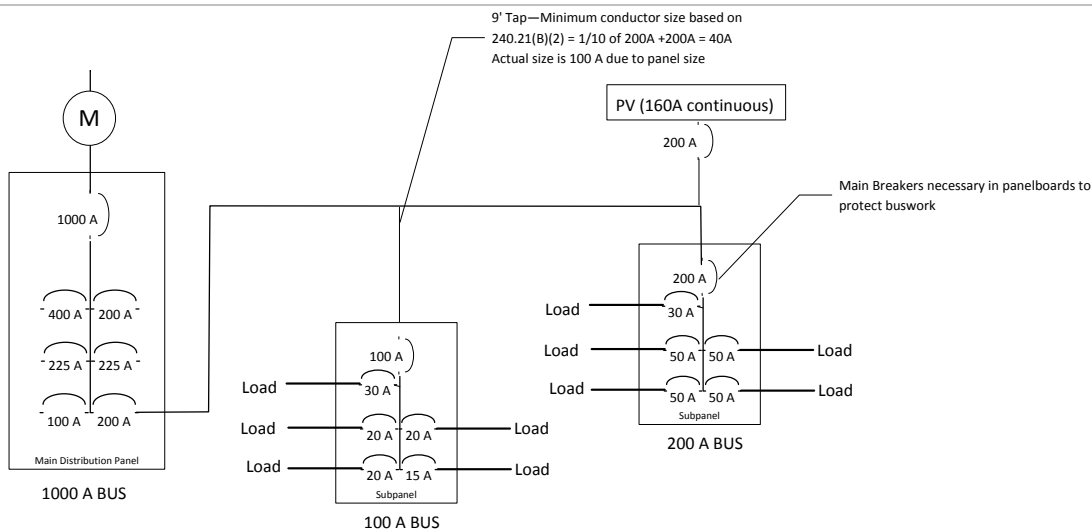
The panel proposal 4-375a, and the proposals on which it was based, neglected to provide direction on the proper methods to prevent overcurrent on feeders that have inverter output circuits connected to them. The panel proposal 4-375a did cover load taps and busbars. In order to clarify the enforcement of this section for AHJs and contractors, the three main areas were enumerated for clarity. The key concern is that the addition of a utility-interactive inverter supply presents a potential overload condition for the feeder and main lug only (MLO) panelboards on the load side of the inverter interconnection point. By making sure that the ampacity of the feeder is sufficient for both sources, or by installing an overcurrent device on the feeder on the load side of the inverter interconnection point, the feeder is protected. The busbar of the MLO panelboard can be protected by the overcurrent device installed at the interconnection point or by installing a main overcurrent device on the panelboard to prevent busbar overcurrent. The requirement to protect busbar overcurrent is already found in 705.12(D)(2)(3)(a).

The language for taps and busbars was retained unchanged except for one minor change related to taps. The word "load" was deleted to make it clear that any tap conductor, whether for loads or for an inverter output circuit, would be required to follow the tap rule when the tap rule sizing requirement exceeds the load of the tap or the supply of the inverter output circuit.

Explanatory diagrams follow to illustrate the concepts:

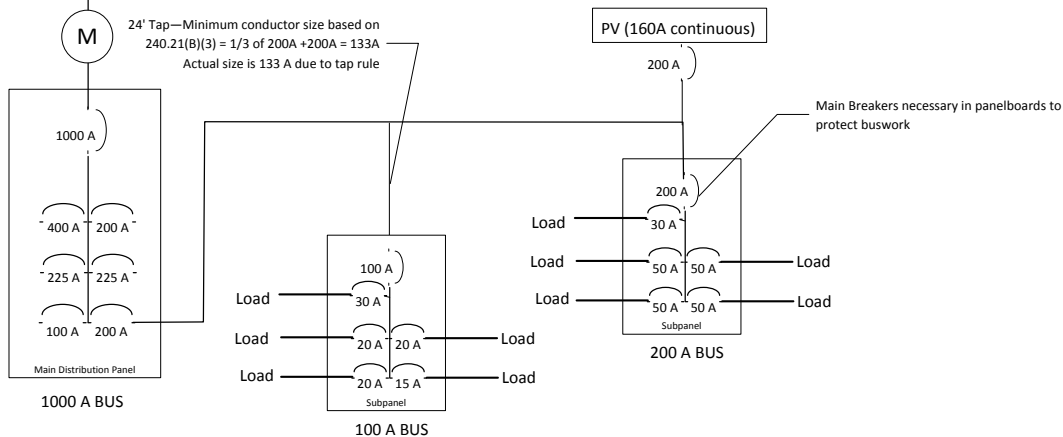
Scenario 1:

1. Largest allowable PV system on load side at the opposite end of the primary supply OCPD
2. 200-amp feeder
3. 9', 100-amp tap to 100-amp subpanel
4. Large PV at opposite end of feeder—requires 200-amp connection—size governed by inverter output
5. OKAY—Overcurrent protection covers all cases of overcurrent (tap prohibition not required)



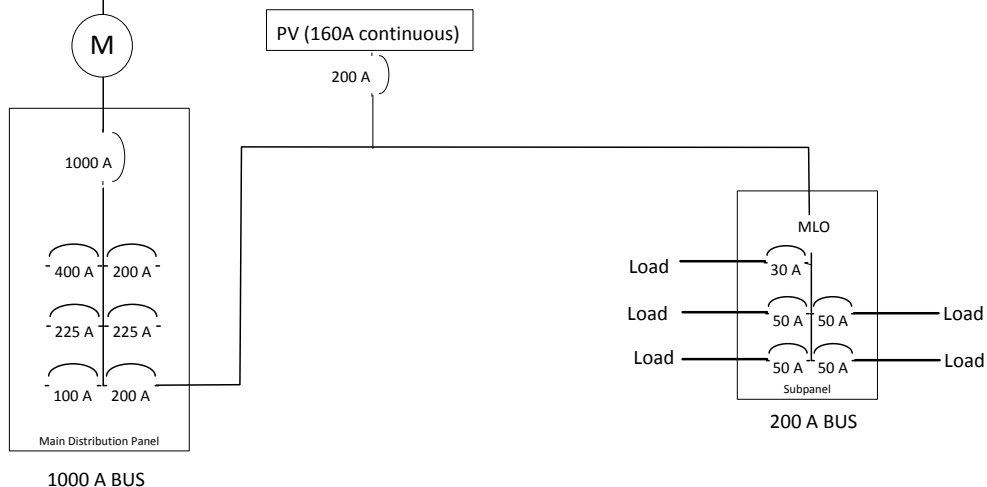
Scenario 2:

1. Largest allowable PV system on load side at the opposite end of the primary supply OCPD
2. 200-amp feeder
3. 24', 100-amp tap to 100-amp subpanel must be sized for 133A to meet tap rule.
4. Large PV at opposite end of feeder—requires 200-amp connection—size governed by inverter output
5. OKAY—Overcurrent protection covers all cases of overcurrent (tap prohibition not required)



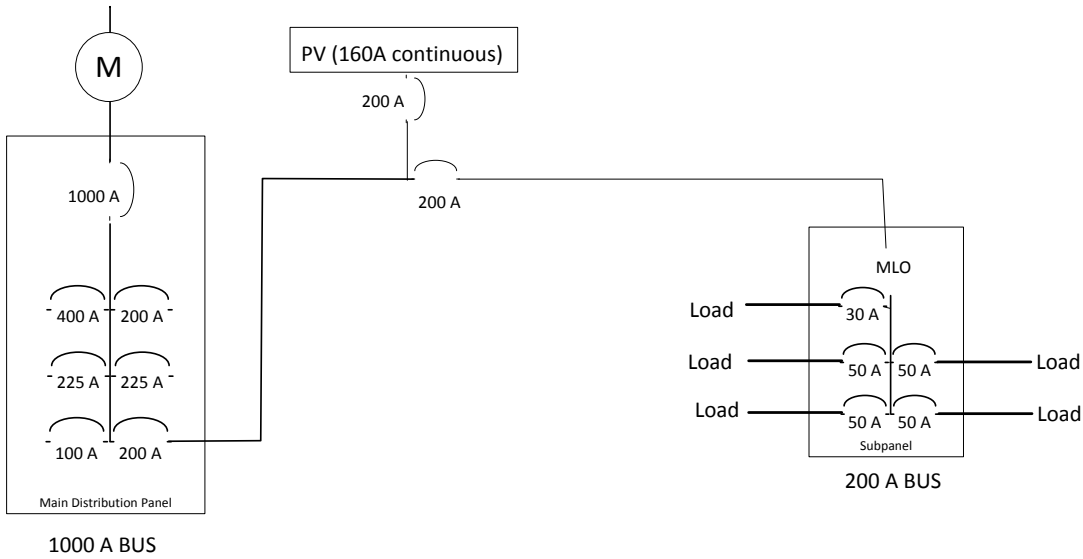
Scenario 3:

1. Largest allowable PV system on load side.
2. 200-amp feeder
3. Large PV requires 200-amp connection—size governed by inverter output
4. NOT OKAY since 200-amp feeder and panelboard bus could be overloaded



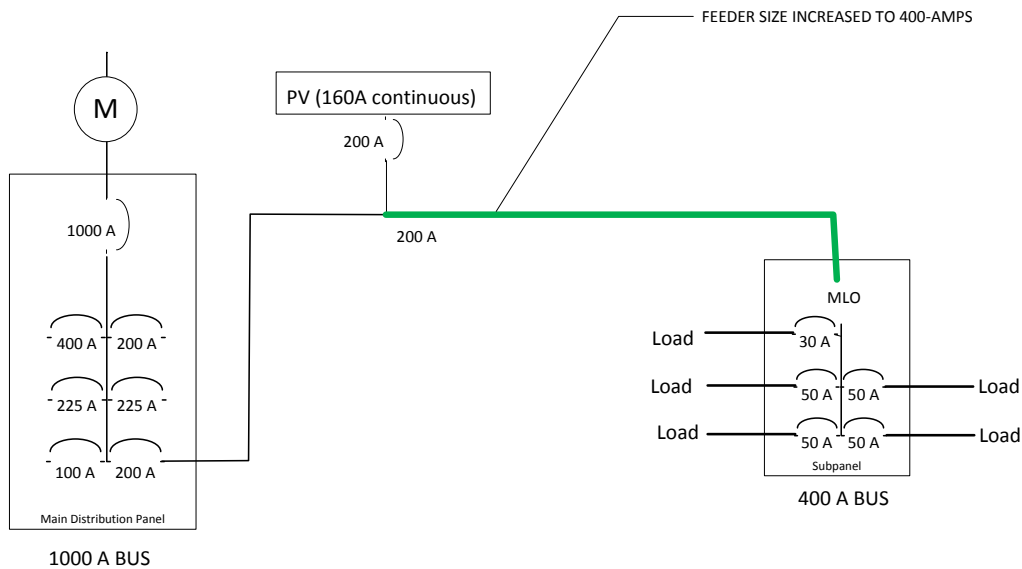
Scenario 4:

1. Largest allowable PV system on load side.
2. 200-amp feeder
3. Large PV requires 200-amp connection—size governed by inverter output
4. OKAY—Load-side section of feeder protected with OCPD



New Scenario 5:

1. Largest allowable PV system on load side.
2. 200-amp feeder on supply side of U-I inverter, and 400-amp feeder and panelboard on load side
3. Large PV requires 200-amp connection—size governed by inverter output
4. OKAY—Load-side section of feeder sufficient for both currents



6. Copyright Assignment

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Signature (Required)



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Fax to: (617) 770-3500 OR Email to: proposals_comments@nfpa.org

10/23/2012