Electrical Shortz

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2008 NEC® Elimination of the 42 Circuit Rule for Panelboards

What has changed?

The distinction between lighting and appliance panelboards and power panelboards has been removed in the 2008 edition of the National Electrical Code® (NEC®). Prior editions of the NEC required panelboards to have no more than 42 overcurrent protective devices (Class CTL) when used for lighting and appliance branch circuits as defined in the NEC. The significant changes to Article 408 are summarized below.

2008 NEC Panelboard Changes

1. The distinction between lighting and appliance panelboards and power panelboards has been eliminated, along with definitions of the terms.
2. All panelboards are to be sized not smaller than the feeder. This is simply a clarification of previous 2005 NEC requirement.
3. NEC 408.36 requires all panelboards to be protected at not greater than their rating by a single overcurrent device within or ahead of the panelboard. There are three specific exceptions that waive the single overcurrent device requirements in the following situations:

   Exception No. 1: Individual protection shall not be required for a panelboard used as service equipment with multiple disconnecting means in accordance with 230.71. In panelboards protected by three or more main circuit breakers or sets of fuses, the circuit breakers or sets of fuses shall not supply a second bus structure within the same panelboard assembly.

   Exception No. 2: Individual protection shall not be required for a panelboard protected on its supply side by two main circuit breakers or two sets of fuses having a combined rating not greater than that of the panelboard. A panelboard constructed or wired under this construction shall not contain more than 42 overcurrent devices. For the purposes of determining the maximum of 42 overcurrent devices, a 2-pole or a 3-pole circuit breaker shall be considered as two or three overcurrent devices, respectively.

   Exception No. 3: For existing panelboards, individual protection shall not be required for a panelboard used as service equipment for an individual residential occupancy.
4. NEC 408.54 requires panelboards to be provided with physical means to prevent the installation of more overcurrent devices than the number for which the panelboard was designed, rated, and listed.

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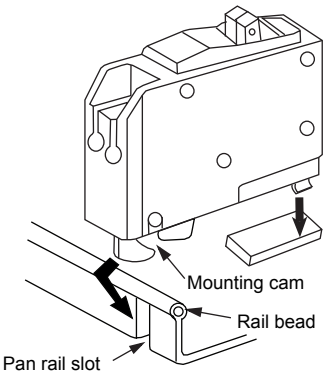
How do I verify compliance with the 2008 NEC 408.54?

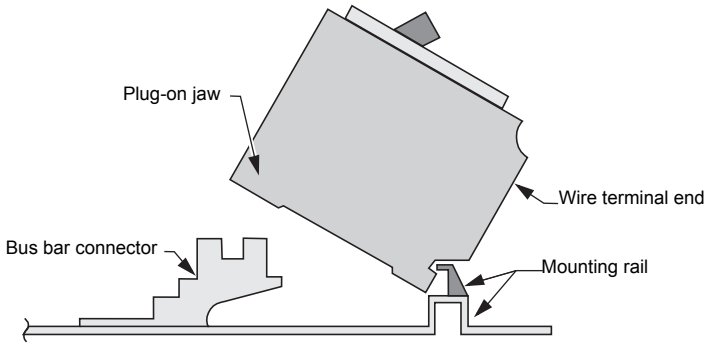
Compliance with the new requirements in 408.54 will depend upon the panelboard markings and instructions in addition to the product listing. The product standard for panelboards, UL 67, was revised to allow panelboard construction with greater than 42 circuits. Panelboards will be evaluated based on the number of devices intended to be installed based on the physical construction and markings. The manufacturer's instructions and markings must be followed to ensure compliance. For example, a panelboard may be marked as allowing 54 or 60 circuits based on the use of tandem circuit breakers located in specific positions in the panelboard. (See the figures below.) Since the product design, evaluation, testing, and listing are based upon this criteria the specific tandem device with the appropriate physical rejection feature will be specified by the manufacturer and must be used.

Figure 1: QOT Tandem



Current limiting QOT tandem circuit breakers have a mounting cam as shown. Installation into a QO® load center can only be made in those positions having a mounting pan rail slot.

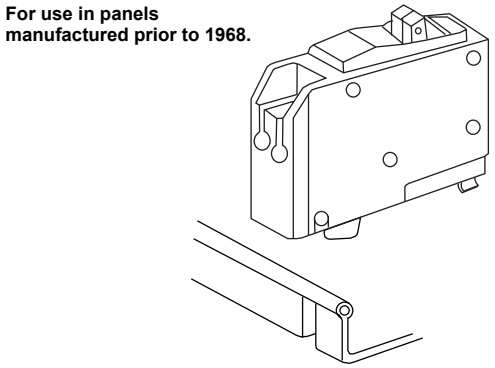
Figure 2: Homeline Tandem Circuit Breaker



Where can I use replacement tandem circuit breakers?

Prior to 1968, there was no requirement for panelboards to ensure the physical rejection means of circuit breakers not intended for use in a specific location within the panel. Circuit Limiting (CTL) markings used for lighting and appliance branch circuit panelboards provided a means to identify which breakers were permitted in post 1968 panelboards, but did not play a role in the physical rejection aspects of the requirement. Tandem circuit breakers marked “Replacement Use Only” are to only be used in panelboards manufactured prior to 1968 and will be rejected at inspection if the panel in which they are installed is identified as being manufactured or installed after 1968. (See Figure 3 on page 3.)

Figure 3: "Replacement Use Only" Tandem Circuit Breaker



What happened to CTL?

Circuit Limiting (CTL) markings are no longer required for installations under the 2008 NEC or later editions. The product standard retained the allowance to mark panelboards intended for use as lighting and appliance branch circuit panelboards where installed under the 2005 and earlier NEC requirements to include the CTL mark.

Will some panelboards still have the CTL mark?

Schneider Electric will continue to mark panelboards with 42 circuits and less with the CTL mark so that use in and compliance with installations under earlier editions of the NEC will be compliant.

Is there an impact to using panelboards in six disconnect service applications?

Panelboards are marked:

> "Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance branch circuit panelboard."

The 2008 NEC and later editions no longer include the lighting and appliance branch circuit panelboard restrictions, however the language remains on the panelboards due to the code adoption transition across the country. Therefore the second sentence addressing lighting and appliance branch circuit panelboards is no longer a restriction for those areas that have adopted the 2008 NEC or later editions, which permits panelboards that are appropriately marked to be applied in a service application with up to six disconnects.

Want more information?

Schneider Electric has published a white paper providing more details on this and other panelboard changes in the 2008 NEC. See publication **1600DB0701**.

Visit the Schneider Electric Codes and Standards internet site at www.schneider-electric.us/go/codes for additional code related information.

For More Information

100% Rated Circuit Breakers, Schneider Electric Data Bulletin 0600DB0101.

UL 489, 10th Edition, Sections 7.1.4.3, 9.1.4.4 and 9.1.4.5.

All above references to the NEC are to the 2008 and later editions.

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