

Log from the NEC Code Panel, regarding the new clarifying language in the Code.
(Log #3287) 9- 113 - (384-21 (New)): Accept

SUBMITTER: James T. Pauley, Square D Co.

RECOMMENDATION: Add a new 384-21 to read as follows:

384-21. Grounded Conductor Terminations. Each grounded conductor shall terminate within the panelboard in an individual terminal that is not also used for another conductor. Exception: Grounded conductors of circuits with parallel conductors shall be permitted to terminate in a single terminal if the terminal is identified for connection of more than one conductor.

SUBSTANTIATION: *This revision is needed to coordinate the installation requirements with a long standing product standard requirement.* Clause 12.3.10 of UL 67 (Panelboards) states "An individual terminal shall be provided for the connection of each branch-circuit neutral conductor." The requirement has been enforced in the past by a close review of the manufacturers markings and by NEC 110-3(b). However, since it is a rule that specifically effects how the installer can make connections, it is important that it be in the NEC. *Even with the manufacturers markings, inspectors still indicate that they see a number of panelboards installed with two (or more) branch circuit neutrals under one terminal or they see an equipment grounding conductor and neutral under the same terminal.*

There is very good rationale for the requirement in the product standards. Doubling up on the neutrals creates a significant problem when the circuit needs to be isolated. In order to isolate the circuit, the branch breaker is turned off and the neutral is disconnected by removing it from the terminal. If the terminal is shared with another circuit, the connection on the other (still energized) circuit will be loosened as well. This can wreak havoc, particularly if the neutral is part of a 120/240V multi-wire branch circuit. Also, the neutral assemblies are not evaluated with doubled-up neutrals in the terminals. The connection of a neutral and equipment grounding conductor creates a similar issue. One of the objectives of the particular arrangement of bonding jumpers, neutrals and equipment grounds is to allow circuit isolation while keeping the equipment grounding conductor still connected to the grounding electrode (see UL 896A - Reference standard for Service Equipment). When the neutral is disconnected, the objective is to still have the equipment ground solidly connected to the grounding electrode. *If both the neutral and grounding conductor are under the same terminal, this cannot be accomplished.* This addition to the NEC does not change any product or permitted wiring arrangement from what it is today. It will however, it will help installers to avoid wiring the panel in violation of 110- 3(b) and then have to contend with a red-tag from the inspector. *The code language is proposed in a fashion to allow consistent enforcement of the provision by the AHJ.* Although the UL wording is adequate for the product standard, it is important that the NEC language is as clear and unambiguous as possible. This is the reason for specifically noting that the terminal cannot be used for another conductor. Furthermore, the code requirement has been worded to make sure that both branch circuit and feeder neutrals are covered since it is not uncommon to have feeder breakers as well as branch breakers in the panelboard (the issue for the neutral is the same regardless of branch or feeder). Also, the term "grounded conductor" is used to be consistent with the code terminology and to recognize that not all grounded conductors are neutrals. An exception has been proposed to avoid any confusion relative to parallel circuit arrangements. In these instances, multiple neutrals could be in a single terminal if the terminal has been identified as acceptable for multiple conductors.

PANEL ACTION: Accept.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 11

VOTE ON PANEL ACTION:

AFFIRMATIVE: 11