

NFPA 70®-2020 Edition
National Electrical Code®

TIA Log No.: 1573

Reference: 520.21

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www.nfpa.org/70

1. Revise Section 520.21 to read as follows:

520.21 General. Fixed stage switchboards shall comply with 520.21(1) through ~~(4)~~ (5):

(1) Fixed stage switchboards shall be listed.

(2) Fixed stage switchboards shall be readily accessible but shall not be required to be located on or adjacent to the stage. Multiple fixed stage switchboards shall be permitted at different locations.

(3) A fixed stage switchboard shall contain overcurrent protective devices for all branch circuits supplied by that switchboard.

(4) A fixed stage switchboard shall be permitted to supply both stage and non-stage equipment.

(5) Fixed stage switchboards shall comply with the marking and working space requirements in 408.18(C) but shall not be required to comply with the load terminal location requirements in 408.18(C)(1), (C)(2), and (C)(3).

Substantiation: 408.18(c) 1, 2, and 3 were added to the NEC in the 2020 edition. The purpose of these sections was to minimize the risk of shock and/or arc flash when making or modifying connections to an energized switchboard. Typical listed stage switchboards covered by 520.21 are high-density units containing dead-front dimmer or relay modules that plug onto busbars and load circuit connectors. They are not general-purpose switchboards, but special-purpose switchboards covered by the UL334 Outline of Investigation for Theater Lighting Distribution and Control Equipment. This document in turn requires certain, but not all, portions of the UL891 Standard for Switchboards to be applied to these devices.

1. The listing conditions of these devices prohibit work of any kind on connections while the switchboard is energized. This prohibition is part of the warnings and instructions for the switchboard.
2. From a practical point of view, the construction of these units does not physically allow for wiring changes while energized due to their high density of busbars and load connections.
3. Even if it were practically possible or allowed by the switchboard listing, which it is not, there is no plausible use case for a stage switchboard where work on connections would be required while the switchboard remained energized.
4. There is no practical way to modify the design of these products to comply with 408.18(C) 1, 2, and 3.
5. Similar constructions from multiple manufacturers have been in safe use for more than 40 years. None of these constructions could likely comply with 408.18(C) 1, 2, or 3. Those requirements are aimed at general-purpose switchboards and their use cases that require modification of connections while the switchboard is energized. Such use cases do not apply to stage switchboards.

Emergency Nature: The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action.

Driven by sections 408.18(C) 1, 2, and 3 in the 2020 edition, clause 8.8.2.3.14 of the UL891 Standard for Switchboards has been modified to create new construction requirements for switchboards to match those of 408.18(C) 1, 2, and 3. UL is now conducting an Industry File Review to verify compliance with this clause. Products that are unable to comply will have their listings withdrawn. This will mean that most, if not all, currently manufactured stage switchboards will no longer be able to be manufactured and will no longer be available to the market. This will have a large negative impact on occupancies covered by article 520.