

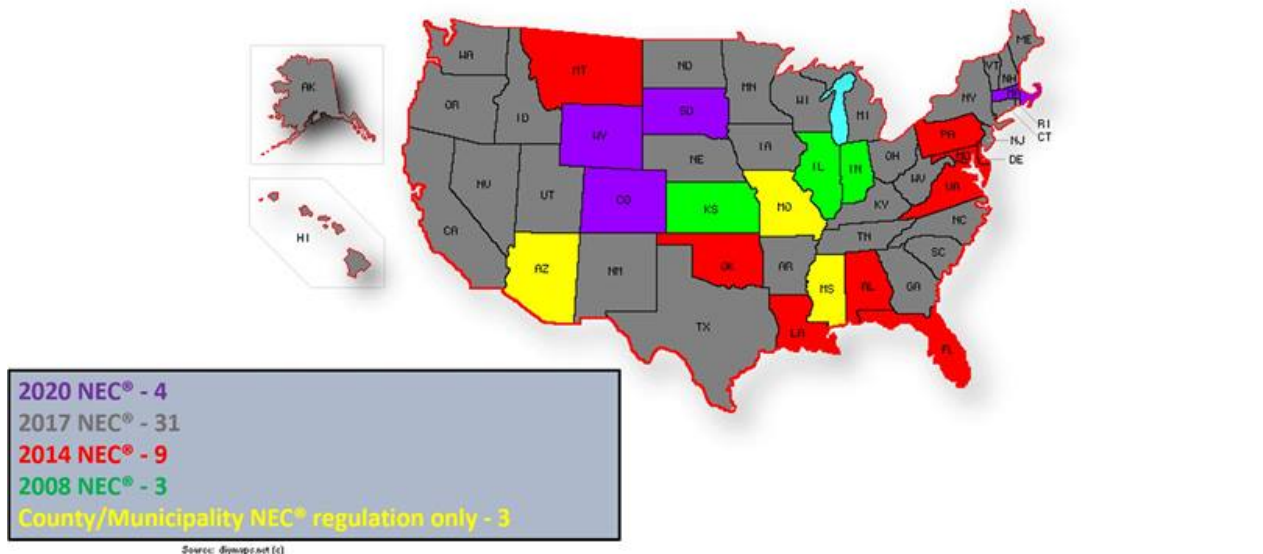


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2020 National Electric Code (NEC) Changes and Milbank Products

The 2020 NEC code brought about many changes that affect the design of service equipment used in the electrical industry. The purpose of this document is to give a concise overview of each of these changes, what Milbank product is affected and what Milbank is doing to align our products with the 2020 code changes.

NEC® in Effect 7/1/2020



Map Source: [NFPA](#)

At Milbank, we are working diligently to bring our product offerings into compliance. Some of our products may only require labeling changes, such as those described by Section 230.85 for Emergency Disconnects. Other product changes will be more extensive and require considerable redesign, specifically, the requirements of Sections 230.62 (Service Equipment – Enclosed or Guarded) and 230.71 (Maximum Number of Disconnects).

Examples of such changes may include, but are not limited to, addition of plastic insulators and barriers, internal sheet metal modifications and product size modifications. Some of these changes will be significant enough to require approval/verification by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratories, Inc. Please consult serving utility for their requirements prior



to ordering or installing, as specifications and approvals vary by utility, and may require local electrical inspector approval.

Relevant Code Change No. 1

Emergency Disconnect - NEC 230.85

“For one- and two-family dwelling units, all service conductors shall terminate in disconnecting means having a short-circuit current rating equal to or greater than the available fault current, installed in a readily accessible outdoor location. If more than one disconnect is provided, they shall be grouped. Each disconnect shall be one of the following:

(1)

Service disconnects marked as follows:

*EMERGENCY DISCONNECT,
SERVICE DISCONNECT*

(2)

Meter disconnects installed per 230.82(3) and marked as follows:

*EMERGENCY DISCONNECT,
METER DISCONNECT,
NOT SERVICE EQUIPMENT*

(3)

Other listed disconnect switches or circuit breakers on the supply side of each service disconnect that are suitable for use as service equipment and marked as follows:

*“EMERGENCY DISCONNECT,
NOT SERVICE EQUIPMENT”*

The reasoning for this code change is summarized by the following explanation from NFPA:

“This is a problem that has plagued firefighters for many years. As they attempt to put out a fire and rescue occupants, electrical systems pose significant line-of-duty hazards. In many instances, when a house is fully engulfed and the fire does not present a rescue situation, fire departments will rely on the electric utility to arrive and shut off the power supply to the building, a delay that often results in a total loss. Firefighters have argued that they could work safer and be more effective if they could simply turn off a building’s electric supply themselves.”

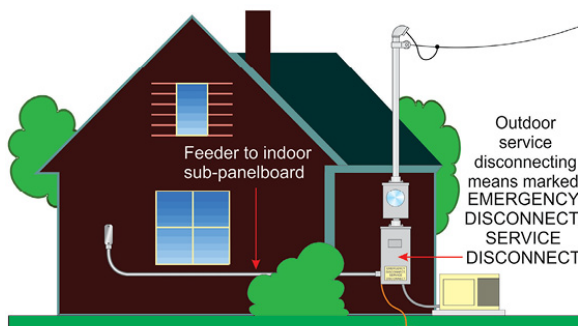
There are several approaches that manufacturers are employing to solve this. The first option is to install a disconnect switch separately from the meter socket. This approach will comply with Section 230.85, and single position meter sockets such as a Milbank U7040 will work for service equipment. This is not the preferred installation method because it requires multiple boxes on the exterior of the building and multiple connections.



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For situations where a separate disconnecting means is not preferred, the disconnecting means can be inside the meter enclosure. Milbank has many meter main products that meet this requirement. We have added the Section 230.85 code-required markings to all meter main products and Milbank meter mains are 100% compliant with Section 230.85.

230.85 Exterior Emergency Disconnect(s)



For dwellings, all service conductors to terminate in disconnecting means having a short-circuit current rating equal to or greater than the available fault current, installed in a **readily accessible outdoor location**

**EMERGENCY DISCONNECT,
SERVICE DISCONNECT**
**DESCONEXION DE EMERGENCIA,
DESCONEXION DE SERVICIO**



1216354 REV A

Left: Illustration from International Association of Electrical Inspectors (IAEI) for Section 230.85
Right: Milbank label used on relevant meter mains to be compliant with Section 230.85

Relevant Code Change No. 2

Service Equipment – Enclosed or Guarded – 230.62(A) and (B)

“Energized parts of service equipment shall be enclosed as specified in 230.62(A) or guarded as specified in 230.62(B).”

- (A) **Enclosed.** Energized parts shall be enclosed so that they will not be exposed to accidental contact or shall be guarded as in 230.62(B).
- (B) **Guarded.** Energized parts that are not enclosed shall be installed on a switchboard, panelboard, or control board and guarded in accordance with 110.18 and 110.27. Where energized parts are guarded as provided in 110.27(A)(1) and (A)(2), a means for locking or sealing doors providing access to energized parts shall be provided.
- (C) **Barriers.** Barriers shall be placed in service equipment such that no uninsulated, ungrounded service busbar or service terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations.”

For safety purposes, Section 230.62 was modified to reduce the risk of inadvertent contact to live parts while working inside of service equipment on the load (customer) terminals. In the past, guards were



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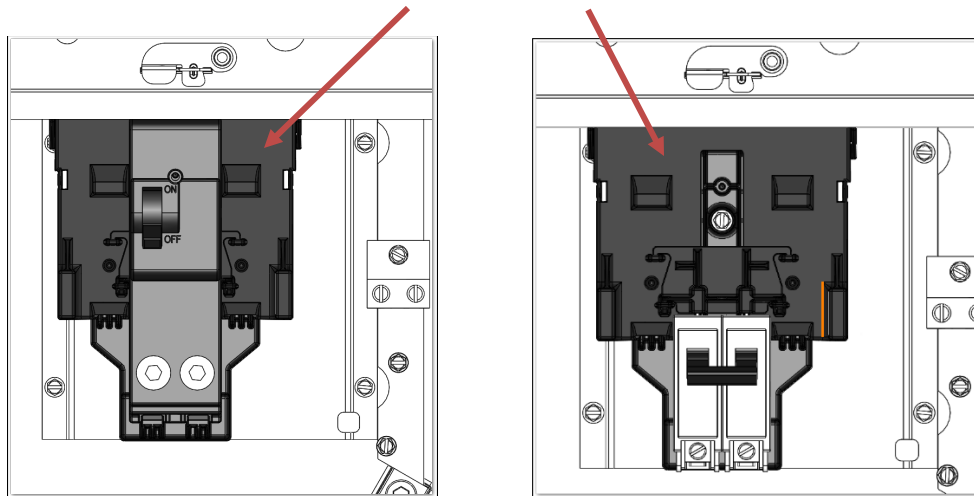
not always in place to prevent someone working on the load side from accidentally contacting a live part. New requirements in the 2020 NEC, Section 230.62 include barriers and/or guards on line side parts to prevent inadvertent contact.

Milbank meter mains will be the primary product line impacted by Section 230.62. Our meter mains have either bus or wires that connect the metering section of the unit to the breaker. The metering section is separated by a sealed front and a metal barrier. However, the barrier and, sometimes a raceway, can provide larger openings than those allowed by the “probe” inspection of UL’s panelboard standard, UL 67.

Milbank has multiple solutions in place to comply with Section 230.62 and have already implemented many of them. For example, on products containing a Siemens QN breaker fed by wires, the breaker’s set screws were filled with a compliant plug, and factory processes were modified to control wire insulation stripping. This change protected all live parts on the line side of the circuit breaker from contact, ensuring full compliance.

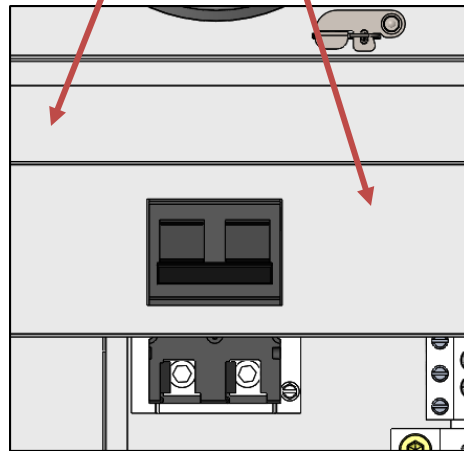
For meter mains that use our aluminum bus, we have designed molded plastic parts to snap into place on top of the bus and another separate part that snaps into the opening in the center barrier. This solution ensures that the bus and opening are completely isolated.

Aluminum bus with snap in barrier





3990 with sheet metal barrier



We have various meter mains that use the Milbank large frame breaker design that are either bussed or wired into the breaker from the meter section. Due to the wide variety of designs, and many unique requirements of our customers, Milbank has come up with several possible solutions that mainly involve using formed Formex™ insulators. These insulators cover live parts or an extended sheet metal barrier underneath the deadfront. The sheet metal barrier solution works well in situations where there is a raceway and the opening to the raceway needs to be covered to prevent inadvertent contact.

Relevant Code Change No. 3

Two to Six Service Disconnecting Means - 230.71(B)

“Two to six service disconnects shall be permitted for each service permitted by 230.2 or for each set of service-entrance conductors permitted by 230.40, Exception No. 1, 3, 4, or 5. The two to six service disconnecting means shall be permitted to consist of a combination of any of the following:

(1)

Separate enclosures with a main service disconnecting means in each enclosure

(2)

Panelboards with a main service disconnecting means in each panelboard enclosure

(3)

Switchboard(s) where there is only one service disconnect in each separate vertical section where there are barriers separating each vertical section

(4)

Service disconnects in switchgear or metering centers where each disconnect is located in a separate compartment

Informational Note No. 1: Metering centers are addressed in UL 67, Standard for Panelboards.

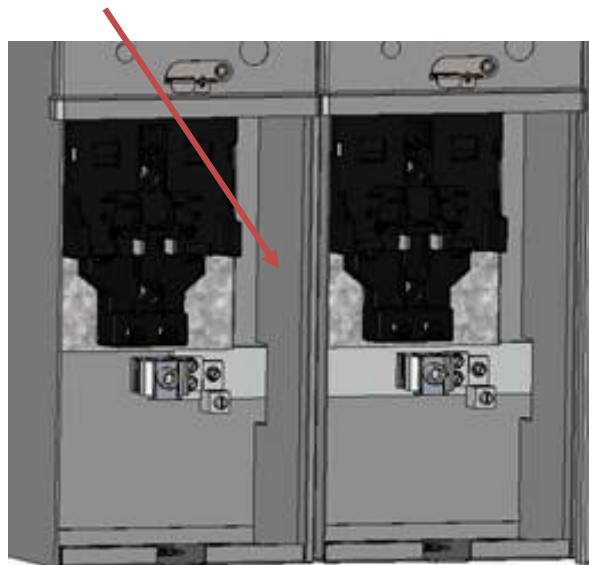


Informational Note No. 2: Examples of separate enclosures with a main service disconnecting means in each enclosure include but are not limited to motor control centers, fused disconnects, circuit breaker enclosures, and transfer switches that are suitable for use as service equipment.”

NEC 2020 Section 230.71(B) involves the implementation of separate compartments and barriers that isolate each disconnect from the others and provides protection from incidental contact of live parts when servicing an individual compartment.

Milbank horizontal meter mains will have sheet metal dividers installed that go the entire depth of the metering center, from front to back, to provide the “compartment” for each section that the code requires.

U6124 with separate compartments for each service disconnect



As a reminder, please consult your local electric service provider for their requirements prior to ordering or installing, as specifications and approvals vary by utility, and may require local electrical inspector approval.

For specific questions or product approvals in your area, contact your local Milbank sales representative.