ARTICLE **230** SERVICES

Introduction to Article 230–Services

This article covers the installation requirements for service conductors and the first means of disconnect. The requirements for service conductors differ from those for other conductors. For one thing, service conductors for one building cannot pass through the interior of another [230.3], and different rules are applied depending on whether a service conductor is inside or outside a building. When are they "outside" as opposed to "inside"? The answer may seem obvious, but 230.6 will help you determine when (and if) service conductors are considered to be outside.

Article 230 consists of seven parts:

- Part I. General
- Part II. Overhead Service Conductors
- Part III. Underground Service Conductors
- Part IV. Service-Entrance Conductors
- Part V. Service Disconnect
- Part VI. Disconnecting Means
- Part VII. Overcurrent Protection

230.71 Number of Service Disconnects

A service is permitted to have only one disconnecting means; however, the number of service disconnects can vary based on the number of disconnects, the grouping, and special circumstances which permit more than one service disconnect.

Analysis

EXPANDED This is a major change. The new parent language says that each service must have only one disconnecting means unless the requirements of 230.71(B) are met. All the language in (A) that related to the permission to have up to six service disconnects was

deleted. It now just lists the four equipment disconnecting means that are part of listed service equipment but not considered to be service disconnects; this part of the rule is unchanged.

Subsection (B) specifies the conditions under which you are permitted to have more than one service disconnect. The use of two or three single-pole devices with identified handle ties to serve as service disconnects was previously permitted. Each set of single-pole devices that could be operated with a single operation of the hand was considered a single service discontent. All that language was removed. There are no longer any provisions permitting single-pole devices with handle ties to be used as service disconnects.

The new text of (B) allows the use of two to six service disconnects for each service permitted by 230.2, or for each set of service-entrance conductors as permitted by 230.40 Ex 1, 3, 4, or 5.

230.71 Number of Service Disconnects



Scan this QR code for a video of Mike explaining this topic; it's a sample from the videos that accompany this textbook.

Each service must have only one disconnecting means except as permitted in 230.71(B).

(A) General. For the purpose of this section, a disconnecting means installed as part of listed equipment and used solely for the following is not considered a service disconnecting means:

- (1) Power monitoring equipment.
- (2) Surge-protective device(s).
- (3) Control circuit of the ground-fault protection system.
- (4) Power-operable service disconnect.

(B) <u>Two to Six Service Disconnecting Means.</u> Up to six service disconnects are permitted for each service allowed by 230.2, or for each set of service-entrance conductors permitted by 230.40 Ex 1, 3, 4, or 5.

The two to six service disconnecting means may consist of a combination of any of the following:

- (1) <u>Separate enclosures with a main service disconnecting means</u> in each enclosure
- (2) <u>Panelboards with a main service disconnecting means in each</u> panelboard
- (3) Switchboard(s) where there is only one service disconnect in each separate vertical section where there are barriers separating each vertical section
- (4) <u>Service disconnects in switchgear or metering centers where</u> each disconnect is located in a separate compartment

Note 2: Examples of separate enclosures with 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.

Author's Comment:

The rule is six disconnects for each service, not for each building. If the building has two services, then there can be a total of 12 service disconnects (six disconnects per service).
Figure 230–9



Figure 230–9

Author's Comment:

- This revision retains the previous permission to have 2 to 6 service disconnects for each service or each set of service-entrance conductors but provides the increase in safety that a single service disconnect provides. The previous six main disconnect rule for a single enclosure made it impossible to work in service equipment when applying electrical safe work practices in accordance with NFPA 70E, unless the line side of the multi-disconnect enclosure was disconnected by the utility.
- This revision also reflects the electrical hazards inherent while working on service equipment where there is more than one service disconnect in a single enclosure. This, combined with the rule in 230.62(C) that requires line side barriers, is a significant safety improvement towards reducing the risk to electricians by limiting their exposure to energized parts.