

ARTICLE 220

BRANCH-CIRCUIT, FEEDER, AND SERVICE LOAD CALCULATIONS

Introduction to Article 220—Branch-Circuit, Feeder, and Service Load Calculations

This article focuses on the requirements for calculating demand loads (including demand factors) to size branch circuits [210.19(A)], feeders [215.2(A)(1)], and service conductors [230.42(A)].

Part I describes the layout of Article 220 and provides a table showing where other types of load calculations can be found in the *NEC*. Part II provides requirements for branch-circuit calculations and for specific types of branch circuits. Part III covers the requirements for feeder and service calculations using what is commonly called the “Standard Method of Calculation.” Part IV provides optional calculations that can be used in place of the standard calculations [Parts II and III]. “Farm Load Calculations” are discussed in Part V of this article.

In some cases, the *Code* provides an optional method [Part IV] for feeder and service calculations in addition to the standard method [Part III], however they do not yield identical results. In fact, the optional method of calculation will often result in a smaller feeder or service. The neutral conductor must be calculated using the standard method [220.61]. As you work through Article 220, be sure to study the illustrations to help you fully understand this article’s requirements. Also, be sure to review the examples in Annex D of the *NEC* to gain more practice with these calculations. The *Code* recognizes that not all demand for power will occur at the same time and it is because of this load diversity that certain demand factors are able to be applied.

220.70 Energy Management Systems (EMSs)

A new section was added for energy management systems that can control the maximum load of a service.

Analysis

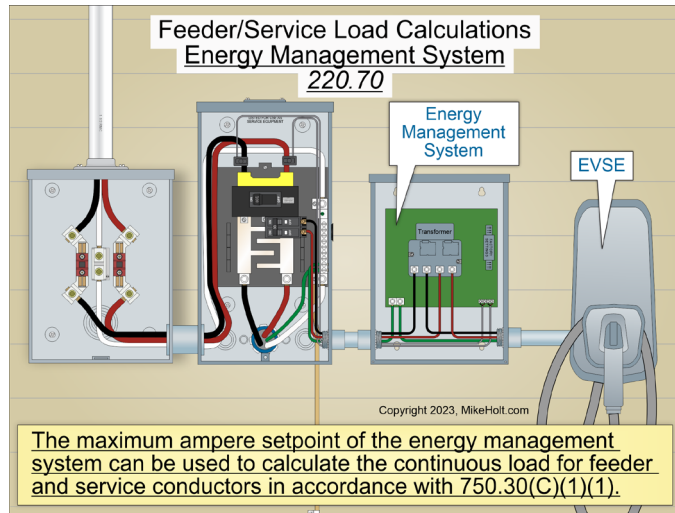


NEW

Technology has become a big part of our electrical systems. This new section allows an energy management system to limit the maximum current used by the electrical system. I am sure there will be growing pains with this rule, but this is a major step forward in integrating technology with power systems on a large scale.

220.70 Energy Management Systems

If an energy management system is used to limit the current to a feeder or service in accordance with 750.30(C)(1)(1), the maximum ampere setpoint of the energy management system can be used in load calculations. The setpoint value of the energy management system is considered a continuous load. ▶Figure 220-11



▶Figure 220-11