



Δ **INFORMATIONAL NOTE FIGURE 220.1** Branch-Circuit, Feeder, and Service Load Calculation Methods.

calculation methods for marinas, boatyards, floating buildings, and commercial and noncommercial docking facilities.

Informational Note No. 1: See Informative Annex D for examples.

Informational Note No. 2: See Informational Note Figure 220.1 for information on the organization of this article.

Although this article does not contain the requirements for determining the minimum number of branch circuits, the loads calculated in accordance with Article 220 are used in conjunction with the rules of 210.11 to determine how many branch circuits are needed at a premises.

See also

210.11(A) for the general requirement on determining the minimum number of branch circuits for all occupancy types

220.3 Other Articles for Specific-Purpose Calculations. Table 220.3 shall provide references for specific-purpose calculation requirements not located in Chapters 5, 6, or 7 that amend or supplement the requirements of this article.

220.5 Calculations.

(A) Voltages. Unless other voltages are specified, for purposes of calculating branch-circuit and feeder loads, nominal system voltages of 120, 120/240, 208Y/120, 240, 347, 480Y/277, 480, 600Y/347, and 600 volts shall be used.

Δ **TABLE 220.3** Specific-Purpose Calculation References

Calculation	Article	Section (or Part)
Air-conditioning and refrigerating equipment, branch-circuit conductor sizing	440	Part IV
Capacitors	460	460.8
Fixed electric heating equipment for pipelines and vessels, branch-circuit sizing	427	427.4
Fixed electric space-heating equipment, branch-circuit sizing	424	424.3
Fixed outdoor electric deicing and snow-melting equipment, branch-circuit sizing	426	426.4
Fixed resistance and electrode industrial process heating equipment	425	425.4
Motors, feeder demand factor	430	430.26
Motors, multimotor and combination-load equipment	430	430.25
Motors, several motors or a motor(s) and other load(s)	430	430.24
Over 1000-volt ac and 1500-volt dc branch-circuit calculations	235	235.19
Over 1000-volt feeder calculations	215	215.2(B)
Phase converters, conductors	455	455.6
Storage-type water heaters	422	422.11

(B) Fractions of an Ampere. Calculations shall be permitted to be rounded to the nearest whole ampere, with decimal fractions smaller than 0.5 dropped.

For uniform calculation of load, nominal voltages, as listed in 220.5(A), are required to be used in computing the ampere load on the conductors.

Loads are calculated on the basis of volt-amperes (VA) or kilovolt-amperes (kVA), rather than watts or kilowatts (kW), to calculate the true ampere values. However, the rating of equipment is given in watts or kilowatts for resistive loads. Such ratings are considered to be the equivalent of the same rating in volt-amperes or kilovolt-amperes. This concept recognizes that load calculations determine conductor and circuit sizes, that the power factor of the load is often unknown, and that the conductor “sees” the circuit volt-amperes only, not the circuit power (watts).

See also

310.15 to select conductor sizes using the ampacity tables
Informative Annex D for examples of load calculations

(C) Floor Area. The floor area for each floor shall be calculated from the outside dimensions of the building, dwelling unit, or other area involved. For dwelling units, the calculated floor area shall not include open porches or unfinished areas not adaptable for future use as a habitable room or occupiable space.

Part II. Branch-Circuit Load Calculations

Δ **220.10 General.** Branch-circuit loads shall be calculated in accordance with the following sections: