

TABLE 220.45 Lighting Load Demand Factors

Type of Occupancy	Portion of Lighting Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
Dwelling units	First 3000 at	100
	From 3001 to 120,000 at	35
	Remainder over 120,000 at	25
Hotels and motels, including apartment houses without provision for cooking by tenants*	First 20,000 or less at	60
	From 20,001 to 100,000 at	50
	Remainder over 100,000 at	35
Warehouses (storage)	First 12,500 or less at	100
	Remainder over 12,500 at	50
All others	Total volt-amperes	100

*The demand factors of this table shall not apply to the calculated load of feeders or services supplying areas in hotels and motels where the entire lighting is likely to be used at one time, as in ballrooms or dining rooms.

220.46 Show-Window and Track Lighting.

(A) Show Windows. For show-window lighting, a load of not less than 660 volt-amperes/linear meter or 200 volt-amperes/linear foot shall be included for a show window, measured horizontally along its base.

Informational Note: See 220.14(G) for branch circuits supplying show windows.

(B) Track Lighting. For track lighting in other than dwelling units or guest rooms or guest suites of hotels or motels, an additional load of 150 volt-amperes shall be included for every 600 mm (2 ft) of lighting track or fraction thereof. Where multicircuit track is installed, the load shall be considered to be divided equally between the track circuits.

Calculation Example

A lighting plan shows 63 linear feet of single-circuit track lighting for a small clothing store. Because the actual track lighting fixtures are owner supplied, neither the quantity of track lighting fixtures nor the lamp size is specified. What is the minimum calculated load associated with the track lighting that must be added to the service or feeder supplying this store?

Solution

According to 220.46(B), the minimum calculated load to be added to the service or feeder supplying this track light installation is calculated as follows:

$$\frac{63 \text{ ft}}{2 \text{ ft}} = 31.50, \text{ rounded up to } 32$$

$$32 \times 150 \text{ VA} = 4800 \text{ VA}$$

It is important to note that the branch circuits supplying this installation are covered in 410.150(B). The maximum load on the track must not exceed the rating of the branch circuit supplying the track. Also, the track must be supplied by a branch circuit that has a rating not exceeding the rating of the track.

Section 220.46(B) is not intended to limit the number of feet of track on a single branch circuit, nor is it intended to limit the number of fixtures on an individual track. It is meant to be used solely for load calculations of feeders and services.

Exception: If the track lighting is supplied through a device that limits the current to the track, the load shall be permitted to be calculated based on the rating of the device used to limit the current.

The rating of the branch-circuit OCPD can be used for this calculation, or the device used to limit current can be a supplementary OCPD. This exception enables load calculations to be more in line with the limitations placed on building lighting loads by energy codes.

Calculation Example

A lighting plan shows 63 linear feet of single-circuit track lighting for a small clothing store. Because the actual track lighting fixtures are owner supplied, neither the quantity of track lighting fixtures nor the lamp size is specified in the plan. Because the amount of track is to facilitate easy relocation of the luminaires to accommodate changes in the display of merchandise rather than to accommodate a large number of luminaires, the entire length will be supplied by a single 20-A, 120-V branch circuit. What is the minimum calculated load associated with the track lighting that must be added to the service or feeder supplying this store?

Solution

According to the exception to 220.46(B), the minimum calculated load to be added to the service or feeder supplying this track light installation is calculated as follows:

$$20 \text{ A} \times 120 \text{ V} = 2400 \text{ VA}$$

This calculation could be further reduced where the track is supplied through a supplementary OCPD(s) having a current rating less than 20 A.

220.47 Receptacle Loads — Other Than Dwelling Units. Receptacle loads calculated in accordance with 220.14(H) and (I) shall be permitted to be made subject to the demand factors given in Table 220.45 or Table 220.47.

TABLE 220.47 Demand Factors for Non-Dwelling Receptacle Loads

Portion of Receptacle Load to Which Demand Factor Applies (Volt-Amperes)	Demand Factor (%)
First 10 kVA or less at	100
Remainder over 10 kVA at	50