

not over 2.5 m (8 ft) from them to facilitate the raising of ladders when necessary for fire fighting.

225.20 Protection Against Physical Damage. Conductors installed on buildings, structures, or poles shall be protected against physical damage as provided for services in 230.50.

225.21 Multiconductor Cables on Exterior Surfaces of Buildings (or Other Structures). Supports for multiconductor cables on exterior surfaces of buildings (or other structures) shall be as provided in 230.51.

225.22 Raceways on Exterior Surfaces of Buildings or Other Structures. Raceways on exteriors of buildings or other structures shall be arranged to drain and shall be listed or approved for use in wet locations.

If raceways are exposed to weather or temperature changes, condensation is likely to occur, causing moisture to accumulate within raceways at low points of the installation and in junction boxes. Therefore, raceways are required to be installed so as to allow moisture to drain from the raceway through drain holes or other means provided at appropriate locations.

225.24 Outdoor Lampholders. Where outdoor lampholders are attached as pendants, the connections to the circuit wires shall be staggered. Where such lampholders have terminals of a type that puncture the insulation and make contact with the conductors, they shall be attached only to conductors of the stranded type.

225.25 Location of Outdoor Lamps. Locations of lamps for outdoor lighting shall be below all energized conductors, transformers, or other electric utilization equipment, unless either of the following apply:

- (1) Clearances or other safeguards are provided for relamping operations.
- (2) Equipment is controlled by a disconnecting means that is lockable open in accordance with 110.25.

The objective is to protect personnel during relamping of outdoor luminaires. Section 225.18 requires a minimum clearance of 10 feet above grade or platforms for open conductors. In some cases, it may be difficult to keep all electrical equipment above the lamps. Section 225.25(1) allows other clearances or safeguards to permit safe relamping, while the reference to 110.25 provides another alternative for safe relamping through the use of a disconnecting means that can be locked in the open or off position.

225.26 Vegetation as Support. Vegetation such as trees shall not be used for support of overhead conductor spans.

Overhead conductor spans attached to a tree are subject to damage over the course of time because normal tree growth around the attachment device causes the mounting insulators to break. Normal growth can also cause tree bark to grow around

the insulation. This requirement reduces the likelihood of chafing or degradation of the conductor insulation, which can create a shock hazard for tree trimmers and tree climbers.

Outdoor luminaires and associated equipment are permitted by 410.36(G) to be supported by trees. To prevent the chafing damage, conductors are run up the tree from an underground wiring method.

See also

300.5(D)(1) for requirements on the protection of direct-buried conductors emerging from below grade

225.27 Raceway Seal. Where a raceway enters a building or structure from outside, it shall be sealed in accordance with 300.5(G) and 300.7(A). Spare or unused raceways shall also be sealed. Sealants shall be identified for use with cable insulation, conductor insulation, bare conductor, shield, or other components.

Part II. Buildings or Other Structures Supplied by a Feeder(s) or Branch Circuit(s)

Part II covers outside branch circuits and feeders as the source of electrical supply for buildings and structures. Understanding the definitions of *service point*, *service*, *service equipment*, *feeder*, and *branch circuit* is important. Determining what constitutes a set of feeder or branch-circuit conductors versus a set of service conductors requires a clear understanding of where the service point is located and where the service and service equipment for a premises are located. In some cases, particularly with medium- and high-voltage distribution, the service location of a campus or multibuilding facility is a switchyard or substation. With the location of the service point and service equipment established, the requirements for outside branch circuits and feeders from Part II (and Article 235 if over 1000 volts) can be properly applied.

The feeders and branch circuits covered in Part II might originate in one building or structure and supply another building or structure, or they might originate in outdoor equipment such as freestanding switchboards, switchgear, transformers, or generators and supply equipment located in buildings or structures.

See also

Article 230, which contains similar requirements for services

225.30 Number of Supplies. A building or other structure that is served by a branch circuit or feeder on the load side of a service disconnecting means shall be supplied by only one feeder or branch circuit unless permitted in 225.30(A) through (F). For the purpose of this section, a multiwire branch circuit shall be considered a single circuit.

Where a branch circuit or feeder originates in these additional buildings or other structures, only one feeder or branch circuit shall be permitted to supply power back to the original building or structure, unless permitted in 225.30(A) through (F).