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## CODE CORNER

### ABOUT CODE CORNER

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## CHAPTER 8

# INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS

### SECTION 806

#### DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

**806.1 Natural cut trees.** Natural cut trees, where allowed by this section, shall have the trunk bottoms cut off at least 0.5 inch (12.7 mm) above the original cut and shall be placed in a support device complying with Section 806.1.2.

∞ This section focuses on the fire hazards posed by vegetation within a building. The majority of this section deals specifically with fresh Christmas trees. Natural cut trees, such as Christmas trees, within buildings pose a significant fire threat to occupants if they are not properly cared for. Because of the symmetric way in which these trees are normally groomed, the large surface area of the foliage and the amount of airspace throughout the branches, fires have the potential to burn very efficiently and vigorously if the tree is dry. According to the U. S. CPSC, approximately 400 fires annually are attributed to Christmas trees. These fires account for 10-15 deaths,

some 80 injuries and more than \$15 million in property damage. In tests performed at the National Institute of Standards and Technology

(NIST) in 1999 to better understand the severity of Christmas tree fires, eight Scotch pine Christmas trees were placed in a room at 73°F (23°C) at approximately 50-percent relative humidity for approximately three weeks. Seven of the eight trees were given no additional moisture; the eighth tree was watered according to local rules for trees within business occupancies. This required the tree to be cut in a certain manner and placed in a stand with at least a 2-gallon (7.6 L) capacity. The seven dry trees were ignited and burned intensely; however, the tree that had been watered continuously throughout the three weeks could not be ignited. This section requires at least a 1/2 inch (12.7 mm) of tree trunk to be removed above the original cut to make sure the tree has the optimum ability to absorb water to maintain a minimum level of moisture. This section also requires a support device (tree stand or equivalent) that meets the criteria of this section. This device is intended to ensure the correct amount of moisture is in contact with the tree. The specifics of this section cannot realistically

*be monitored in all buildings within a jurisdiction. The focus must be on occupancies such as assembly or mercantile. All occupancies benefit, however, because there is now a method that a fire department could use to educate the general public on the treatment of Christmas trees. This tool can be helpful in fire prevention within a jurisdiction.*

**806.1.1 Restricted occupancies.** Natural cut trees shall be prohibited in Group A, E, I-1, I-2, I-3, I-4, M, R-1, R-2 and R-4 occupancies.

Exceptions:

1. Trees located in areas protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be prohibited in Groups A, E, M, R-1 and R-2.
2. Trees shall be allowed within dwelling units in Group R-2 occupancies.

*Although trees that have been properly watered and handled are less hazardous; there is still a concern that they should not be located in certain occupancies. The occupancies listed in this section are those where the occupant load is high, occupants are vulnerable or the potential hazards that exist if the tree is not properly handled are too great. These occupancies include Groups A, E, I-1, I-2, I-3, I-4, M, R-1 and R-2. There are exceptions for Group A, E, M, R-1 and R-2 occupancies when the trees are located in areas that are sprinklered in accordance with NFPA13 or 13R, as applicable, and for trees within individual dwelling units in Group R-2. Essentially, the only occupancies that would be completely prohibited from having cut trees are institutional occupancies because of the vulnerability of the occupants and, in some cases, concerns for incendiary tendencies of some occupants.*

**806.1.2 Support devices.** The support device that holds the tree in an upright position shall be of a type that is stable and that meets all of the following criteria:

1. The device shall hold the tree securely and be of adequate size to avoid tipping over of the tree.
2. The device shall be capable of containing a minimum two-day supply of water.
3. The water level, when full, shall cover the tree stem

at least 2 inches (51 mm). The water level shall be maintained above the fresh cut and checked at least once daily.

*⚠ This section is intended to ensure that the tree will not tip over, potentially into an ignition source, and that the support device is designed and used to keep the water supply to the tree at a useful level. More specifically, Item 1 requires the device to prevent the tree from tipping; Item 2 states that the device must be capable of holding a two-day water supply and Item 3 requires a minimum coverage of water to 2 inches (51 mm) above the bottom of the stem. The water level must be checked at least once daily to ensure an adequate supply remains. The restrictions in Section 806.1.1 are in place because the provisions in Section 806.1.2 are generally difficult for a fire department to monitor. Having a sprinkler system or generally prohibiting natural cut trees in the higher risk occupancies provides a redundancy to deal with the potential hazards.*

**806.1.3 Dryness.** The tree shall be removed from the building whenever the needles or leaves fall off readily when a tree bent between the thumb and index finger. The tree shall be checked daily for dryness.

*⚠ Lack of moisture is the primary problem with natural cut trees within buildings. This section describes a daily test to assist in evaluating whether the tree is considered too dry to remain in the building.*

**806.2 Artificial vegetation.** Artificial decorative vegetation shall meet the flame propagation performance criteria of NFPA 701. Meeting the flame propagation performance criteria of NFPA 701 shall be documented and certified by the manufacturer in an approved manner.

*⚠ Much of the attention of Section 806 has been on natural vegetation, primarily Christmas trees. This particular section addresses artificial vegetation, which generally contains a high concentration of plastic material in the form of plastic artificial leaves, rather than natural ones. The goal, therefore, is to reduce the initial ignitability by treating artificial vegetation with flame retardants to improve fire performance or to use materials that have intrinsically better fire performance.*

**806.3 Obstruction of means of egress.** The required width of any portion of a means of egress shall not be obstructed by decorative vegetation.

⌘ *Decorative vegetation is often placed in a location that does not normally accommodate combustibles. This section restricts locations so that the vegetation does not block the egress width and increase the fire hazard in such areas. For example, this would likely prohibit trees in main lobby areas of a movie theater.*

**806.4 Open flame.** Candles and open flames shall not be used on or near decorative vegetation. Natural cut trees shall be kept a distance from heat vents and any open flame or heat-producing devices at least equal to the height of the tree.

⌘ *This section addresses the primary ignition hazards associated with decorative vegetation. More specifically, candles should never be placed on or near Christmas trees. Also, heat sources such as heat vents may pose an ignition hazard in addition to being a source of airflow that could dry out a tree, making it more susceptible to ignition.*

**806.5 Electrical fixtures and wiring.** The use of unlisted electrical wiring and lighting on natural cut trees and artificial decorative vegetation shall be prohibited. The use of electrical wiring and lighting on artificial trees constructed entirely of metal shall be prohibited.

⌘ *Decorations are quite often used year after year on Christmas trees. Some of this décor consists of lights that are not specifically listed and that can fail and become very hot, potentially posing an ignition source. Additionally, this wiring may arc and create an ignition source. In fact, it has been found that many Christmas tree fires have actually been started by the decorative lights on them. Therefore, this section simply prohibits the use of unlisted wiring or lighting (such lights and ornaments are listed in accordance with UL 588). Additionally, because of the shock and ignition potential resulting from a short or direct contact of part of the tree with one of the light sockets, electrical wiring and lighting is not allowed on metal trees.*

## SECTION 807

### DECORATIVE MATERIALS OTHER THAN DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

**807.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.

In Groups I-1 and I-2, combustible decorative materials shall meet the flame propagation criteria of NFPA 701 unless the decorative materials, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited. Fixed or movable walls and partitions, paneling, wall pads and crash pads, applied structurally or for decoration, acoustical correction, surface insulation or other purposes, shall be considered interior finish if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings. In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 807.2 and NFPA 701 or shall be noncombustible.

⌘ *The requirements in this section apply to decorative materials installed in Group A, E, I and R-1 occupancies and dormitories in Group R-2 occupancies. The list of groups is based on the number of persons and the condition or capabilities of the occupants to evacuate quickly in an emergency. Decorative materials must be noncombustible or meet the flame propagation performance criteria of Section 807.2 and NFPA 701. The requirements for Groups I-1 and I-2 become more stringent because of the nature of the occupants and activities in these types of facilities. Combustible materials in these facilities must meet the flame propagation performance criteria of NFPA 701, but a limited amount of decorative materials, such as photographs and paintings, need not be flame retardant. No combustible decorative materials are permitted in Group I-3 facilities. In any occupancy when a movable wall,*

partition, paneling, wall pads or crash pads cover larger areas they need to be dealt with as interior finishes. Larger areas would not fit within the scope of this section if the area covered is greater than 10 percent of the wall or ceiling area. This is clarified in the third paragraph of this section. This section also clarifies that in Group B and M occupancies fabric partitions suspended from the ceiling but not physically contacting the floor should be treated as decorative materials similar to curtains or draperies and comply with NFPA 701.

**807.1.1 Noncombustible materials.** The permissible amount of noncombustible decorative material shall not be limited.

∩ *Where decorative materials are classified as noncombustible, they are presumed to contribute little, if at all, to the growth and spread of fire; therefore, the quantity of noncombustible decorative materials is not limited.*

**807.1.2 Combustible decorative materials.** The permissible amount of decorative materials meeting the flame propagation performance criteria of NFPA 701 shall not exceed 10 percent of the aggregate area of walls and ceilings.

Exceptions:

1. In auditoriums in Group A, the permissible amount of decorative material meeting the flame propagation performance criteria of NFPA 701 shall not exceed 50 percent of the aggregate area of walls and ceiling where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, and where the material is installed in accordance with Section 803.4 of the International Building Code.
- 2.2. The amount of fabric partitions suspended from the ceiling and not supported by the floor in Group B and M occupancies shall not be limited.

∩ *Meeting the flame propagation performance criteria of NFPA 701 does not mean that the materials will not burn, only that they are going to spread flame relatively slowly. These materials are, therefore, limited to a maximum of 10-percent of the total wall and ceiling area of the space under consideration. Unlike incidental trim, decorative materials are not necessarily*

*distributed evenly throughout the room. Additionally, consideration of the long-term maintenance of the materials, including possible periodic retreatment, should be taken into account. There are two exceptions to the 10-percent limitation in Section 807.1.2. Exception 1 is for Group A auditoriums that would allow 50-percent coverage of the walls and ceilings (instead of the limit of 10 percent) if the space is sprinklered in accordance with NFPA13 and the material is applied in accordance with Section 803.3 of the IBC. Exception 2 correlates with the general requirements in Section 807.1 and further emphasizes that an unlimited amount of fabric ceiling partitions are allowed as long as they meet the flame propagation performance of NFPA 701.*

**807.2 Acceptance criteria and reports.** Where required to be flame resistant, decorative materials shall be tested by an approved agency and meet the flame propagation performance criteria of NFPA 701, or such materials shall be noncombustible. Reports of test results shall be prepared in accordance with NFPA 701 and furnished to the fire code official upon request.

∩ *The standard test method to be used to evaluate the ability of a material to propagate flame is NFPA 701 which contains two test methods. Test 1 is a smaller scale test than Test 2, and is intended for lighter weight materials and single-layer fabrics (the limit is a linear density of 700 g/m<sup>2</sup>, or 21 oz/yd<sup>2</sup>). Test 2 is a larger scale test and it is intended for the higher density materials, such as coated fabric black-out linings. NFPA 701 sets out the types of materials, including fabrics that should be tested using each method. Essentially, NFPA 701 provides a mechanism to distinguish between materials that allow flames to spread quickly and those that do not, using a moderate fire exposure. Materials tested only to NFPA701 are not permitted for use as interior finish materials, but instead are generally used as shades, swags, curtains and other similar materials. These tests are used to determine whether materials propagate flame beyond the area exposed to the ignition source. They are not intended to indicate whether the material tested will resist the propagation of flame under fire exposures more extreme than the test conditions.*