

COMBUSTIBLE MATERIALS

Combustible materials are natural or synthetic materials that can be ignited and support combustion. Combustible materials in the context of this chapter and IFC Chapter 3 are not combustible metals or flammable solids—these are hazardous materials that are regulated by other provisions in the fire code. Materials regulated by IFC Chapter 3 generally are organic materials such as sawn wood, dimensional lumber, waste paper or cardboard, and baled cotton or paper. Synthetic materials may include plastics, fabrics, or composite materials. Combustible materials are always solids and will have varying sizes and densities. The smaller the area of a combustible material and the lighter its density, the more easily it is ignited. The orientation of the combustible material, the strength of the ignition source, and a variety of other variables can influence the ignition of combustible materials.

The fire code recognizes that combustible materials are an important part of the businesses and industries. The combustible material requirements in IFC Chapter 3 address the orderly storage of these materials, locating the materials away from ignition sources, and, if the storage is indoor, separating the combustible materials from means of egress components and concealed spaces where they could accelerate the rate an unwanted fire grows and spreads. Orderly storage can slow the rate of fire spread, which benefits firefighters in the event the materials are ignited. (See Figure 3-1) [Ref. 315]

While it is not within the scope of this chapter, fire code officials should understand that storage of many combustible materials over 12 feet in height inside of buildings introduces the potential for a fire that will exhibit a much faster growth rate when compared to the same materials stored at or near the floor level. Such storage can be found in many warehouses and mercantile occupancies and is required to comply with the requirements in IFC Chapter 23. Chapter 14 introduces the reader to the hazards of high-piled combustible storage.

When combustible materials become “waste,” the IFC takes a more aggressive approach: the materials must be removed and disposed of in a controlled manner. For most combustible wastes, the IFC requires that it be placed in noncombustible waste containers or plastic containers formulated from chemicals that reduce the amount of heat it releases if ignited. When materials are placed in bulk trash receptacles (dumpsters), the fire code requires they be located at least 5 feet from combustible construction, wall openings, and combustible roof eaves. (See Figure 3-2) Because of land use limitations, it is very common to place dumpsters inside of buildings. In such instances, the room housing the dumpster is required to be protected by an automatic sprinkler system. Sprinkler protection is not required when the dumpster is located in a building constructed of noncombustible, fire-resistive materials. [Ref. 304.3]



FIGURE 3-1 Storage of combustible materials beneath the egress stairs is a violation of the IFC. The concern is if the materials are ignited, this means of egress component is no longer available for the safe evacuation of the occupants



FIGURE 3-2 The IFC requires separation of outdoor dumpsters from buildings to limit the likelihood of the dumpster igniting an exposure building