

U.S. Fire Administration / National Fire Academy

# Coffee Break Training

## Topic: Spray Booth Aggregate Area in the International Fire Code®

**Learning objective:** The student shall be able to compute the maximum aggregate area of spray booths allowed in a building by the International Fire Code®.

Spray booths are a high-hazard space where atomized flammable or combustible liquids may be in suspension with air, creating a potentially explosive environment.

The International Fire Code® limits the aggregate area of multiple spray booths in an occupancy to “the lesser of 10 percent of the area of any floor of a building or the basic allowable area for a Group H-2 occupancy without area increases, as set forth in the International Building Code®.” The purpose is to allow a reasonable amount of space for spray booths without changing the building’s overall use characteristics to a Group H occupancy.

Imagine a one-story, 21,000 ft<sup>2</sup> (1950 m<sup>2</sup>) low-hazard factory building (Group F-2) that is Type II-B (noncombustible) construction. What is the aggregate area of multiple spray booths permitted in this example?

Ten percent of the actual floor area of this example is 2,100 ft<sup>2</sup> (195 m<sup>2</sup>). Now, refer to the IBC Table 503 for the basic allowable area for a Group H-2 occupancy of Type II-B construction without area increases. The table value is 7,000 ft<sup>2</sup> (650 m<sup>2</sup>). Ten percent of that is 700 ft<sup>2</sup> (65 m<sup>2</sup>.) Since 700 ft<sup>2</sup> (65 m<sup>2</sup>) is the lesser of the two values, 700 ft<sup>2</sup> (65 m<sup>2</sup>) is the maximum aggregate area of spray booths that can be allowed in this factory.

Furthermore, any single booth cannot exceed the lesser of the aggregate size limit or 1,500 ft<sup>2</sup> (139 m<sup>2</sup>). In our example, the allowable aggregate size limit of all booths is 700 ft<sup>2</sup> (65 m<sup>2</sup>).



The operator in this scenario could have several booths of various sizes as long as the aggregate area does not exceed 700 ft<sup>2</sup> (65 m<sup>2</sup>).

Note that these limits do not apply for nonflammable or noncombustible finishes and also that NFPA 1, *Uniform Fire Code*® and NFPA 33, *Standard for Spray Applications Using Flammable or Combustible Materials* do not regulate the size of spray booths.

For additional information on booth sizes refer to *International Fire Code*®, Chapter 15.