Section 504 **Building Height**

Because automatic fire-sprinkler systems have exhibited an excellent record of in-place fire suppression over the years, the IBC allows height increases as well as area increases, where an automatic fire-sprinkler system is installed throughout the building. The code permits an increase of one story in the number of stories, and 20 feet (6,096 mm) in building height, where the building is provided with an automatic fire-sprinkler system throughout. These increases are directly applied to Table 503. See Figure 504-1. It should be emphasized that this increase applies both to an increase in the number of stories and also to an increase of the height limit in feet (mm).

There are basically four variations to the general requirements for height and story increases:

1. Such increases are not permitted for Group I-2 occupancies of Type IIB, III, IV, or V construction, or for Groups H-1, H-2, H-3, and H-5 occupancies of any construction type. These occupancies present unusual hazards that limit their heights even where a sprinkler system is present. The increases may also not be taken where the provisions of Table 601, Footnote d, for 1-hour fire-resistance rating substitution are utilized.

2. One-story aircraft manufacturing buildings and hangars may be of unlimited height when sprinklered and surrounded by adequate open space. Such uses require very large structures and through the safeguards provided, should be adequately protected.

3. For Group R buildings provided with an NFPA 13R sprinkler system, the increases in height and number of stories apply only up to a maximum of 60 feet.
and four stories, respectively. The limitation of four stories and 60 feet for buildings sprinklered with a 13R system cannot be exceeded under any circumstances. See Figure 504-2. In those residential buildings where an NFPA 13, rather than an NFPA 13R system, is installed, the limitations of 60 feet (18,288 mm) and four stories do not apply.

4. Roof structures such as towers and steeples may be of unlimited height when constructed of noncombustible materials, whereas combustible roof structures are limited in height to 20 feet (6,096 mm) above that permitted by Table 503. See Figure 504-3. In all cases, such roof structures are to be constructed of materials based on the building’s type of construction. These requirements are not based on the presence of the sprinkler system. Additional requirements for roof structures can be found in Section 1509.

As an important note, except for those buildings provided with an NFPA 13R system, the increases in building height and number of stories permitted by this section for a sprinklered building may be taken in addition to those floor-area increases permitted by Sections 506.2 and 506.3.