

2021 Virginia Construction Code

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

SECTION 504 BUILDING HEIGHT AND NUMBER OF STORIES

504.1 General.

The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an *automatic sprinkler system* installed throughout the *building*.

Exception: The *building height* of one-story aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited where the building is provided with an *automatic sprinkler system* or *automatic fire-extinguishing system* in accordance with [Chapter 9](#) and is entirely surrounded by *public ways* or *yards* not less in width than one and one-half times the *building height*.

504.1.1 Unlimited area buildings.

The height of unlimited area buildings shall be designed in accordance with [Section 507](#).

504.1.2 Special provisions.

The special provisions of [Section 510](#) permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable heights of buildings based on the occupancy classification and type of *construction*, provided the special condition complies with the provisions specified in [Section 510](#).

504.2 Mixed occupancy.

In a building containing mixed occupancies in accordance with [Section 508](#), no individual occupancy shall exceed the height and number of *story* limits specified in this section for the applicable occupancies.

504.3 Height in feet.

The maximum height, in feet, of a building shall not exceed the limits specified in [Table 504.3](#).

Exception: Towers, spires, steeples and other *rooftop structures* shall be constructed of materials consistent with the required type of construction of the *building* except where other *construction* is permitted by [Section 1511.2.4](#). Such structures shall not be used for habitation or storage. The structures shall be unlimited in height where of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable building *height* where of combustible materials (see [Chapter 15](#) for additional requirements).

**TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE^a**

| OCCUPANCY CLASSIFICATION | TYPE OF CONSTRUCTION | | | | | | | | | | | | |
|-----------------------------|-----------------------|--------|-----|---------|----|----------|----|---------|-----|----|----|--------|----|
| | See Footnotes | Type I | | Type II | | Type III | | Type IV | | | | Type V | |
| | | A | B | A | B | A | B | A | B | C | HT | A | B |
| A, B, E, F, M, S, U | NS ^b | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 270 | 180 | 85 | 85 | 70 | 60 |
| H-1, H-2, H-3, H-5 | NS ^{c, d} | UL | 160 | 65 | 55 | 65 | 55 | 120 | 90 | 65 | 65 | 50 | 40 |
| | S | | | | | | | | | | | | |
| H-4 | NS ^{c, d} | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 140 | 100 | 85 | 85 | 70 | 60 |
| I-1 Condition 1, I-3 | NS ^{d, e} | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 180 | 120 | 85 | 85 | 70 | 60 |
| I-1 Condition 2, I-2 | NS ^{d, e, f} | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | | | | | | | | | |
| I-4 | NS ^{d, g} | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 180 | 120 | 85 | 85 | 70 | 60 |
| R ^h | NS ^d | UL | 160 | 65 | 55 | 65 | 55 | 65 | 65 | 65 | 65 | 50 | 40 |
| | S13D | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 50 | 40 |
| | S13R | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 270 | 180 | 85 | 85 | 70 | 60 |

For SI: 1 foot = 304.8 mm.

UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler

Copyright © 2024 International Code Council, Inc., or its licensors (ALL RIGHTS RESERVED).

Accessed by Venkatesh Shanmugam on 11/13/2024 pursuant to License Agreement with ICC. No further reproduction or distribution authorized. Any Unauthorized reproduction or distribution is a violation of the federal copyright, and subject to civil and criminal penalties thereunder.

system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#); S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.2](#); S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.3](#).

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See [Section 903.2](#) for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.5](#).
- d. The NS value is only for use in evaluation of existing building height in accordance with the [International Existing Building Code](#).
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.6](#). For new Group I-1 occupancies Condition 1, see Exception 1 of [Section 903.2.6](#).
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.6](#) and [Section 1103.5](#) of the *International Fire Code*.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of [Section 903.2.6](#).
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.8](#).

504.4 Number of stories.

The maximum number of stories [above grade plane](#) of a building shall not exceed the limits specified in [Table 504.4](#).

TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE^{a, b}

| OCCUPANCY CLASSIFICATION | TYPE OF CONSTRUCTION | | | | | | | | | | | | |
|--------------------------|----------------------|--------|----|---------|----|----------|----|---------|----|----|----|--------|----|
| | See Footnotes | Type I | | Type II | | Type III | | Type IV | | | | Type V | |
| | | A | B | A | B | A | B | A | B | C | HT | A | B |
| A-1 | NS | UL | 5 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 1 |
| | S | UL | 6 | 4 | 3 | 4 | 3 | 9 | 6 | 4 | 4 | 3 | 2 |
| A-2 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 1 |
| | S | UL | 12 | 4 | 3 | 4 | 3 | 18 | 12 | 6 | 4 | 3 | 2 |
| A-3 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 1 |
| | S | UL | 12 | 4 | 3 | 4 | 3 | 18 | 12 | 6 | 4 | 3 | 2 |
| A-4 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 1 |
| | S | UL | 12 | 4 | 3 | 4 | 3 | 18 | 12 | 6 | 4 | 3 | 2 |
| A-5 | NS | UL | UL | UL | UL | UL | UL | 1 | 1 | 1 | UL | UL | UL |
| | S | UL | UL | UL | UL | UL | UL | UL | UL | UL | UL | UL | UL |
| B | NS | UL | 11 | 5 | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 3 | 2 |
| | S | UL | 12 | 6 | 4 | 6 | 4 | 18 | 12 | 9 | 6 | 4 | 3 |
| E | NS | UL | 5 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 1 | 1 |
| | S | UL | 6 | 4 | 3 | 4 | 3 | 9 | 6 | 4 | 4 | 2 | 2 |
| F-1 | NS | UL | 11 | 4 | 2 | 3 | 2 | 3 | 3 | 3 | 4 | 2 | 1 |
| | S | UL | 12 | 5 | 3 | 4 | 3 | 10 | 7 | 5 | 5 | 3 | 2 |
| F-2 | NS | UL | 11 | 5 | 3 | 4 | 3 | 5 | 5 | 5 | 5 | 3 | 2 |
| | S | UL | 12 | 6 | 4 | 5 | 4 | 12 | 8 | 6 | 6 | 4 | 3 |

Copyright © 2024 International Code Council, Inc., or its licensors (ALL RIGHTS RESERVED).

Accessed by Venkatesh Shanmugam on 11/13/2024 pursuant to License Agreement with ICC. No further reproduction or distribution authorized. Any Unauthorized reproduction or distribution is a violation of the federal copyright, and subject to civil and criminal penalties thereunder.

| | | | | | | | | | | | | | |
|------------------|--------------------|----|----|---|---|---|---|----|----|----|---|---|----|
| H-1 | NS ^{c, d} | 1 | 1 | 1 | 1 | 1 | 1 | NP | NP | NP | 1 | 1 | NP |
| | S | | | | | | | 1 | 1 | 1 | | | |
| H-2 | NS ^{c, d} | UL | 3 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| | S | | | | | | | 2 | 2 | 2 | | | |
| H-3 | NS ^{c, d} | UL | 6 | 4 | 2 | 4 | 2 | 3 | 3 | 3 | 4 | 2 | 1 |
| | S | | | | | | | 4 | 4 | 4 | | | |
| H-4 | NS ^{c, d} | UL | 7 | 5 | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 3 | 2 |
| | S | UL | 8 | 6 | 4 | 6 | 4 | 8 | 7 | 6 | 6 | 4 | 3 |
| H-5 | NS ^{c, d} | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 |
| | S | | | | | | | 3 | 3 | 3 | | | |
| I-1 Condition 1 | NS ^{d, e} | UL | 9 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 3 | 2 |
| | S | UL | 10 | 5 | 4 | 5 | 4 | 10 | 7 | 5 | 5 | 4 | 3 |
| I-1 Condition 2 | NS ^{d, e} | UL | 9 | 4 | | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 2 |
| | S | UL | 10 | 5 | | | | 10 | 6 | 4 | | | |
| I-2 | NS ^{d, f} | UL | 4 | 2 | | 1 | 1 | NP | NP | NP | 1 | 1 | NP |
| | S | UL | 5 | 3 | | | | 7 | 5 | 1 | | | |
| I-3 | NS ^{d, e} | UL | 4 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| | S | UL | 5 | 3 | 2 | 3 | 2 | 7 | 5 | 3 | 3 | 3 | 2 |
| I-4 | NS ^{d, g} | UL | 5 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 1 | 1 |
| | S | UL | 6 | 4 | 3 | 4 | 3 | 9 | 6 | 4 | 4 | 2 | 2 |
| M | NS | UL | 11 | 4 | 2 | 4 | 2 | 4 | 4 | 4 | 4 | 3 | 1 |
| | S | UL | 12 | 5 | 3 | 5 | 3 | 12 | 8 | 6 | 5 | 4 | 2 |
| R-1 ^h | NS ^d | UL | 11 | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| | S13R | 4 | 4 | | | | | 4 | 4 | 4 | 4 | 4 | 3 |
| | S | UL | 12 | 5 | 5 | 5 | 5 | 18 | 12 | 8 | 5 | 4 | 3 |
| R-2 ^h | NS ^d | UL | 11 | 4 | | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| | S13R | 4 | 4 | 4 | | | | 4 | 4 | 4 | 4 | 4 | 3 |
| | S | UL | 12 | 5 | 5 | 5 | 5 | 18 | 12 | 8 | 5 | 4 | 3 |
| R-3 ^h | NS ^d | UL | 11 | | | | | | | | | 3 | 3 |
| | S13D | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 |
| | S13R | 4 | 4 | | | | | | | | | 4 | 4 |
| | S | UL | 12 | 5 | 5 | 5 | 5 | 18 | 12 | 5 | 5 | 4 | 4 |
| R-4 ^h | NS ^d | UL | 11 | | | | | | | | | 3 | 2 |
| | S13D | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 |
| | S13R | 4 | 4 | | | | | | | | | 4 | 3 |
| | S | UL | 12 | 5 | 5 | 5 | 5 | 18 | 12 | 5 | 5 | 4 | 3 |
| S-1 | NS | UL | 11 | 4 | 2 | 3 | 2 | 4 | 4 | 4 | 4 | 3 | 1 |
| | S | UL | 12 | 5 | 4 | 4 | 4 | 10 | 7 | 5 | 5 | 4 | 2 |
| S-2 | NS | UL | 11 | 5 | 3 | 4 | 3 | 4 | 4 | 4 | 5 | 4 | 2 |
| | S | UL | 12 | 6 | 4 | 5 | 4 | 12 | 8 | 5 | 6 | 5 | 3 |
| U | NS | UL | 5 | 4 | 2 | 3 | 2 | 4 | 4 | 4 | 4 | 2 | 1 |
| | S | UL | 6 | 5 | 3 | 4 | 3 | 9 | 6 | 5 | 5 | 3 | 2 |

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#); S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.2](#); S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.3](#).

- See [Chapters 4](#) and [5](#) for specific exceptions to the allowable height in this chapter.
- See [Section 903.2](#) for the minimum thresholds for protection by an automatic

Copyright © 2024 International Code Council, Inc., or its licensors (ALL RIGHTS RESERVED).

Accessed by Venkatesh Shanmugam on 11/13/2024 pursuant to License Agreement with ICC. No further reproduction or distribution authorized. Any Unauthorized reproduction or distribution is a violation of the federal copyright, and subject to civil and criminal penalties thereunder.

sprinkler system for specific occupancies.

- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.5](#).
- d. The NS value is only for use in evaluation of existing *building height* in accordance with the [International Existing Building Code](#).
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.6](#). For new Group I-1 occupancies, Condition 1, see Exception 1 of [Section 903.2.6](#).
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.6](#) and [1103.5](#) of the *International Fire Code*.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of [Section 903.2.6](#).
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with [Section 903.2.8](#).