

2021 Virginia Construction Code

CHAPTER 33 SAFEGUARDS DURING CONSTRUCTION

SECTION 3301 GENERAL

3301.1 Scope.

The provisions of this chapter shall govern safety during construction and the protection of adjacent public and private properties.

3301.2 Storage and placement.

Construction equipment and materials shall be stored and placed so as not to endanger the public, the workers or adjoining property for the duration of the construction project.

Relocated

3301.2.1 Structural and construction loads.

(Section deleted.)

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SECTION 3302 CONSTRUCTION SAFEGUARDS

3302.1 Alterations, repairs and additions.

(Section deleted.)

3302.2 Manner of removal.

Waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties and public rights-of-way.

3302.3 Fire safety during construction.

Fire safety during construction shall comply with the applicable requirements of this code and the applicable provisions of [Chapter 33](#) of the *International Fire Code*.

3302.4 Separations between construction areas.

Separations used in Type I and Type II construction to separate construction areas from occupied portions of the *building* shall be constructed of materials that comply with one of the following:

1. Noncombustible materials.
2. Materials that exhibit a flame spread index not exceeding 25 when tested in accordance with [ASTM E84](#) or [UL 723](#).
3. Materials exhibiting a peak heat release rate not exceeding 300 kW/m² when tested in accordance with [ASTM E1354](#) at an incident heat flux of 50 kW/m² in the horizontal orientation on specimens at the thickness intended for use.

3302.5 Fire safety requirements for buildings of Types IV-A, IV-B and IV-C construction.

Buildings of Types IV-A, IV-B and IV-C construction designed to be greater than six stories above grade plane shall comply with the following requirements during *construction* unless otherwise approved by the *building code official*:

1. Standpipes shall be provided in accordance with Section 3311.
2. A water supply for fire department operations, as approved by the fire code official and the fire chief.
3. Where *building construction* exceeds six stories above grade plane and noncombustible protection is required by Section 602.4 at least one layer of noncombustible protection shall be installed on all *building* elements on floor levels, including mezzanines, more than four levels below active mass timber *construction* before additional floor levels can be erected.

Exception: Shafts and vertical exit enclosures shall not be considered part of the active mass timber *construction*.

4. Where *building construction* exceeds six stories above grade plane, required exterior wall coverings shall be installed on floor levels, including mezzanines, more than four levels below active mass timber *construction* before additional floor levels can be erected.

Exception: Shafts and vertical exit enclosures shall not be considered part of the active mass timber *construction*.

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SECTION 3303 DEMOLITION DELETED

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SECTION 3304 SITE WORK

3304.1 Excavation and fill.

Excavation and fill for buildings and structures shall be constructed or protected so as not to endanger life or property. Stumps and roots shall be removed from the soil to a depth of not less than 12 inches (305 mm) below the surface of the ground in the area to be occupied by the building. Wood forms that have been used in placing concrete, if within the ground or between foundation sills and the ground, shall be removed before a building is occupied or used for any purpose. Before completion, loose or casual wood shall be removed from direct contact with the ground under the building.

3304.1.1 Slope limits.

Slopes for permanent fill shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Cut slopes for permanent excavations shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Deviation from the foregoing limitations for cut slopes shall be permitted only upon the presentation of a soil investigation report acceptable to the *building official*.

3304.1.2 Surcharge.

Fill or other surcharge *loads* shall not be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional *loads* caused by the fill or surcharge. Existing footings or foundations that can be affected by any excavation shall be underpinned adequately or otherwise protected against settlement and shall be protected against lateral movement.

3304.1.3 Footings on adjacent slopes.

For footings on adjacent slopes, see [Chapter 18](#).

3304.1.4 Fill supporting foundations.

Fill to be used to support the foundations of any building or structure shall comply with [Section 1804.6](#). *Special inspections* of compacted fill shall be in accordance with [Section 1705.6](#).

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SECTION 3305 SANITARY DELETED

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SECTION 3306 PROTECTION OF PEDESTRIANS

[BS] 3306.1 Protection required.

Pedestrians shall be protected during construction, remodeling and demolition activities as required by this chapter and [Table 3306.1](#). Signs shall be provided to direct pedestrian traffic.

**TABLE 3306.1
PROTECTION OF PEDESTRIANS**

HEIGHT OF CONSTRUCTION	DISTANCE FROM CONSTRUCTION TO LOT LINE	TYPE OF PROTECTION REQUIRED
8 feet or less	Less than 5 feet	Construction railings
	5 feet or more	None
More than 8 feet	Less than 5 feet	Barrier and covered walkway
	5 feet or more, but not more than one-fourth the height of construction	Barrier and covered walkway
	5 feet or more, but between one-fourth and one-half the height of construction	Barrier
	5 feet or more, but exceeding one-half the height of construction	None

For SI: 1 foot = 304.8 mm.

[BS] 3306.2 Walkways.

A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. A walkway shall be provided for pedestrian travel that leads from a *building* entrance or exit of an occupied structure to a public way. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but shall be not less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be *accessible* in accordance with [Chapter 11](#) and shall be designed to support all imposed loads, and the design *live load* shall be not less than 150 pounds per square foot (psf) (7.2 kN/m²).

[BS] 3306.3 Directional barricades.

Pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.

[BS] 3306.4 Construction railings.

Construction railings shall be not less than 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.

[BS] 3306.5 Barriers.

Barriers shall be not less than 8 feet (2438 mm) in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors that are normally kept closed.

[BS] 3306.6 Barrier design.

Barriers shall be designed to resist *loads* required in [Chapter 16](#) unless constructed as follows:

1. Barriers shall be provided with 2-inch by 4-inch (51 mm by 102 mm) top and bottom plates.
2. The barrier material shall be boards not less than ³/₄-inch (19.1 mm) thick or *wood structural panels* not less than ¹/₄-inch (6.4 mm) thick.
3. Wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.
4. Wood structural use panels ¹/₄ inch (6.4 mm) or ⁵/₁₆ inch (23.8 mm) in thickness shall have studs spaced not more than 2 feet (610 mm) on center.
5. Wood structural use panels ³/₈ inch (9.5 mm) or ¹/₂ inch (12.7 mm) in thickness shall have studs spaced not more than 4 feet (1219 mm) on center provided that a 2-inch by 4-inch (51 mm by 102 mm) stiffener is placed horizontally at mid-height where the stud spacing is greater than 2 feet (610 mm) on center.
6. Wood structural use panels ⁵/₈ inch (15.9 mm) or thicker shall not span over 8 feet (2438 mm).

[BS] 3306.7 Covered walkways.

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Covered walkways shall have a clear height of not less than 8 feet (2438 mm) as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided at all times. Covered walkways shall be designed to support all imposed *loads*. The design *live load* shall be not less than 150 psf (7.2 kN/m²) for the entire structure.

Exception: Roofs and supporting structures of covered walkways for new, *light-frame construction* not exceeding two *stories* above grade plane are permitted to be designed for a *live load* of 75 psf (3.6kN/m²) or the *loads* imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:

1. Footings shall be continuous 2-inch by 6-inch (51 mm by 152 mm) members.
2. Posts not less than 4 inches by 6 inches (102 mm by 152 mm) shall be provided on both sides of the roof and spaced not more than 12 feet (3658 mm) on center.
3. Stringers not less than 4 inches by 12 inches (102 mm by 305 mm) shall be placed on edge upon the posts.
4. Joists resting on the stringers shall be not less than 2 inches by 8 inches (51 mm by 203 mm) and shall be spaced not more than 2 feet (610 mm) on center.
5. The deck shall be planks not less than 2 inches (51 mm) thick or *wood structural panels* with an exterior exposure durability classification not less than 2³/₃₂ inch (18.3 mm) thick nailed to the joists.
6. Each post shall be knee braced to joists and stringers by members not less than 2 inches by 4 inches (51 mm by 102 mm); 4 feet (1219 mm) in length.
7. A curb that is not less than 2 inches by 4 inches (51 mm by 102 mm) shall be set on edge along the outside edge of the deck.

[BS] 3306.8 Repair, maintenance and removal.

Pedestrian protection required by this chapter shall be maintained in place and kept in good order for the entire length of time pedestrians are subject to being endangered. The *owner* or the *owner's* authorized agent, on completion of the construction activity, shall immediately remove walkways, debris and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

[BS] 3306.9 Adjacent to excavations.

Every excavation on a site located 5 feet (1524 mm) or less from the street *lot line* shall be enclosed with a barrier not less than 6 feet (1829 mm) in height. Where located more than 5 feet (1524 mm) from the street *lot line*, a barrier shall be erected where required by the *building official*. Barriers shall be of adequate strength to resist wind pressure as specified in [Chapter 16](#).

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SECTION 3307 PROTECTION OF ADJOINING PROPERTY

[BS] 3307.1 Protection required.

Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection shall be provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the *owners* of adjoining buildings advising them that the excavation is to be made and that the adjoining buildings should be protected. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.

[BS] 3307.2 Excavation retention systems.

Where a retention system is used to provide support of an excavation for protection of adjacent *structures*, the system shall conform to the requirements in Sections 3307.2.1 through 3307.2.3.

[BS] 3307.2.1 Excavation retention system design.

Excavation retention systems shall be designed by a *registered design professional* to provide vertical and lateral support.

[BS] 3307.2.2 Excavation retention system monitoring.

The retention system design shall include requirements for monitoring of the system and adjacent structures for horizontal and vertical movement.

[BS] 3307.2.3 Retention system removal.

Elements of the system shall only be removed or decommissioned where adequate replacement support is provided by backfill or by the new structure. Removal or decommissioning shall be performed in such a manner that protects the adjacent property.

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SECTION 3309 FIRE EXTINGUISHERS

[F] 3309.1 Where required.

Structures under construction, *alteration* or demolition shall be provided with not fewer than one *approved* portable fire extinguisher in accordance with [Section 906](#) and sized for not less than ordinary hazard as follows:

1. At each *stairway* on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist, such as the storage and use of flammable and combustible liquids.

[F] 3309.2 Fire hazards.

The provisions of this code and the [International Fire Code](#) shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

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SECTION 3310 MEANS OF EGRESS

3310.1 Stairways required.

Where building construction exceeds 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access, a temporary or permanent *stairway* shall be provided. As construction progresses, such *stairway* shall be extended to within one floor of the highest point of construction having secured decking or flooring.

3310.2 Maintenance of means of egress.

Means of egress and required accessible means of egress shall be maintained at all times during *construction*.

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SECTION 3311 STANDPIPES

[F] 3311.1 Where required.

In buildings required to have standpipes by [Section 905.3.1](#), not fewer than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to *stairways* complying with [Section 3310.1](#). As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring.

[F] 3311.2 Buildings being demolished.

Where a building is being demolished and a standpipe exists within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

[F] 3311.3 Detailed requirements.

Standpipes shall be installed in accordance with the provisions of [Chapter 9](#).

Exception: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes conform to the requirements of [Section 905](#) as to capacity, outlets and materials.

SECTION 3312 AUTOMATIC SPRINKLER SYSTEM

3312.1 Completion before occupancy.

In buildings where an automatic sprinkler system is required by this code, it shall be unlawful to occupy any portion of a building or structure until the automatic sprinkler system installation has been tested and approved, except as provided in [Section 116.1.1](#).

[F] 3312.2 Operation of valves.

Operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

SECTION 3313 WATER SUPPLY FOR FIRE PROTECTION

3313.1 Where required.

*An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible building materials arrive on the site, on commencement of vertical combustible construction, and on installation of a standpipe system in buildings under construction, in accordance with the *Virginia Statewide Fire Prevention Code*.*

3313.2 Combustible building materials.

(Section deleted.)

3313.3 Vertical construction of Types III, IV and V construction.

(Section deleted.)

3313.3.1 Fire separation up to 30 feet.

(Section deleted.)

3313.3.2 Fire separation of 30 feet up to 60 feet.

(Section deleted.)

3313.3.3 Fire separation of 60 feet or greater.

(Section deleted.)

3313.4 Vertical construction, Types I and II construction.

(Section deleted.)

3313.5 Standpipe supply.

(Section deleted.)

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SECTION 3314 FIRE WATCH DURING CONSTRUCTION

[F] 3314.1 Fire watch during combustible construction.

A fire watch shall be provided during nonworking hours for construction that exceeds 40 feet (12 192 mm) in height above the lowest adjacent [grade at any point along the building perimeter, for new multistory construction with an aggregate area exceeding 50,000 square feet \(4645 m²\) per story or as required by the fire code official](#)

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