



# Land Development Services Technical Bulletin

**Subject:** Summary of Code Changes in the 2021  
Virginia Uniform Statewide Building Code (USBC)

**Date:**  
02/16/2024

**No.:** 24-02

**Summary:** A summary of code changes in the 2021 USBC. This list does not include all code changes, it includes major substantive changes that impact residential and commercial projects.

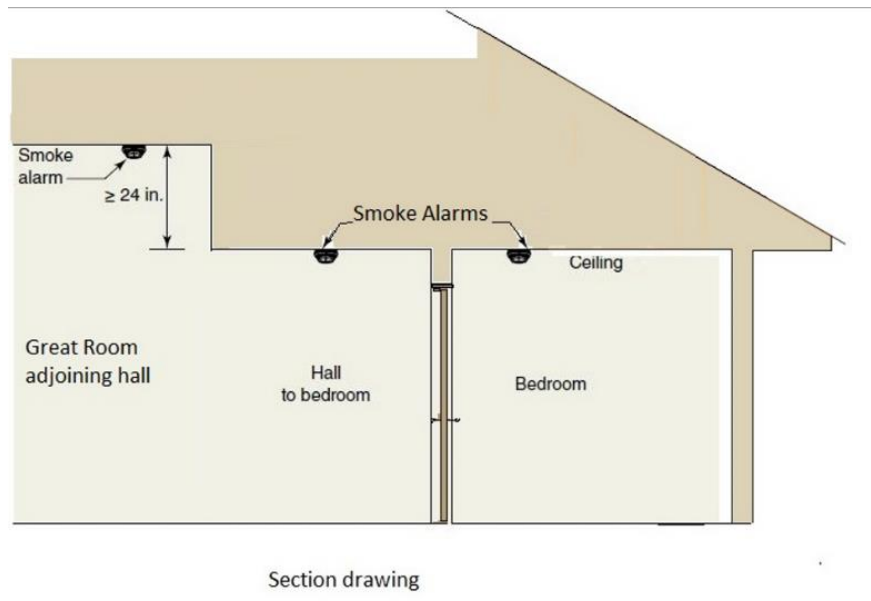
**Effective Date:** Administrative provisions of the 2021 USBC became effective on January 18, 2024. Permit applicants may choose to use the technical provisions of either the 2018 or 2021 USBC. Mixing technical provisions between the two editions of the code is prohibited.

**Background:** The 2021 USBC version will supersede the 2018 USBC.

**Policy:** On January 18, 2024, Virginia adopted the 2021 Uniform Statewide Building Code (USBC). Below is a summary of several residential and commercial code changes:

## Residential Code Changes

- **Section R314.3 - Building Planning - Smoke Alarms:** A new location requirement addresses smoke alarms where high ceilings are adjacent to hallways serving bedrooms.
  - Smoke alarms shall be installed in the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.

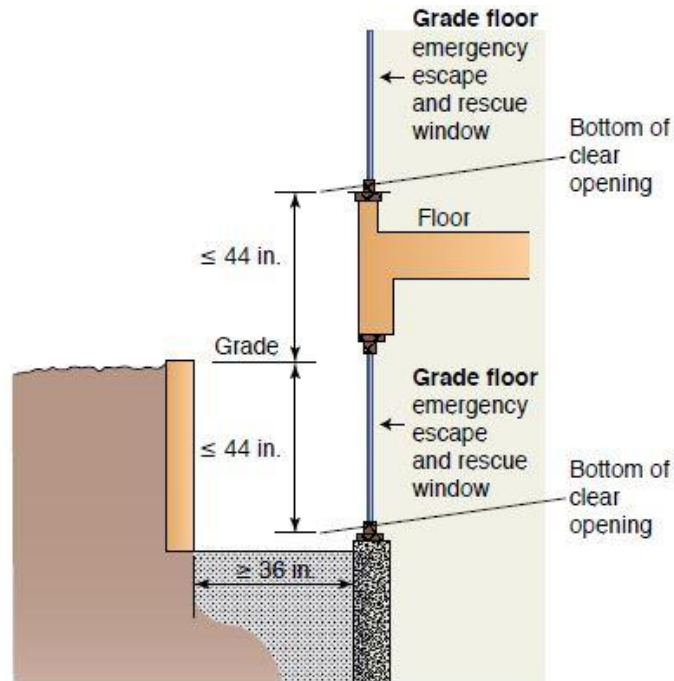


- **Section R324.6.2 - Building Planning - Solar Energy Systems:** This Virginia amendment simplifies solar setback requirements at horizontal ridges by requiring no less than an 18-inch clear setback on both sides of a horizontal ridge.

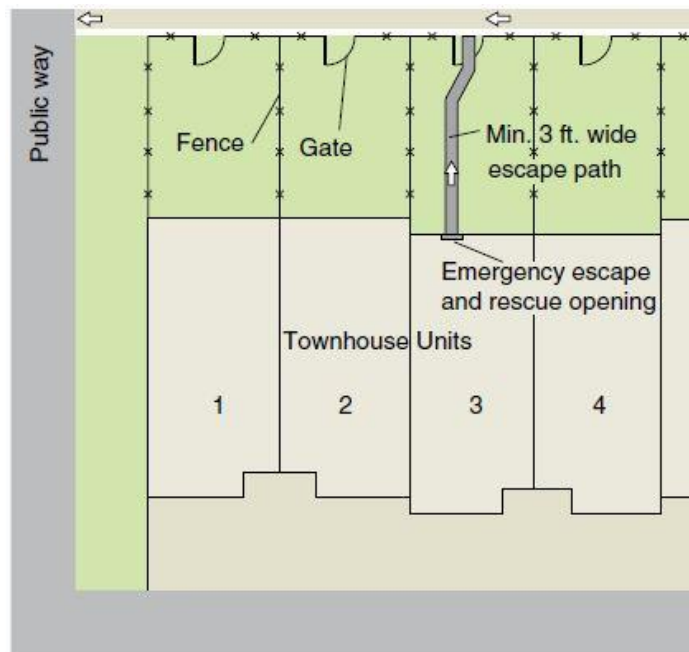
- **Table N1102.1.3 (R402.1.3) - Energy Efficiency – Building Thermal Envelope:** The attic/ceiling minimum R-value has increased from R-49 to R-60.
- **Section N1103.6 - Energy Efficiency - Mechanical Ventilation Systems:** Mechanical ventilation systems are now required to be tested. The testing experience gained through the verification of the EnergyStar program has shown that ventilation fans are installed but are not always performing as required by the code.
- **Section N1104.2 (R404.2) - Energy Efficiency - Electrical Power and Lighting Systems:** This code change requires all permanently installed interior lighting fixtures to be controlled with a dimmer, an occupant sensor control or another control that is installed or built into the fixture. This section does allow an exception for bathrooms, hallways, and lighting designed for safety or security.
- **Section P2503.5.1 - Plumbing Administration - Inspections and Tests:** Vacuum testing is now allowed on plastic piping for drain, waste, and vent systems. The portion under test shall be evacuated of air by a vacuum-type pump to achieve uniform gauge pressure of -5 pounds per square inch or a negative 10 inches of mercury column (-34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes.
- **Section P2905.3 - Water Supply and Distribution – Heated Water Distribution Systems:** The developed length of hot water piping shall not exceed 100 feet. Previously, there was no requirement for hot water supply to fixtures in the residential code, so the developed length to the fixture could essentially be unlimited. Now, if a distance exceeds 100 feet, a recirculation pump will likely need to be installed.
- **Section E3601.8 - Services – General Services – Emergency Disconnects:** An emergency service disconnect is required in a readily accessible outdoor location.
- **Section E3606.5 - Services – Service Equipment – Surge Protection:** A surge-protective device is required at the service panel. This requirement also applies to replacement service equipment.
- **Section 3901.4 - Power and Lighting Distribution – Receptacle Outlets:** Island and peninsular receptacle spacing is now based on the square footage of the countertop surface.
- **Section E3902 - Power and Lighting Distribution – Ground-Fault and Arc-Fault Circuit-Interrupter Protection:** This code change removes the 20-amp limitation. The ground-fault circuit-interrupter (GFCI) protection is required for up to 250-volt receptables in the identified locations where occupants are most susceptible to shock hazards.
- **Section E3902.5 - Power and Lighting Distribution – Ground-Fault and Arc-Fault Circuit-Interrupter Protection:** This code change requires ground-fault circuit-interrupter (GFCI) protection in both unfinished and finished basement areas.

- **Section R310 - Building Planning - Requirements for Emergency Escapes and Rescue Openings:**

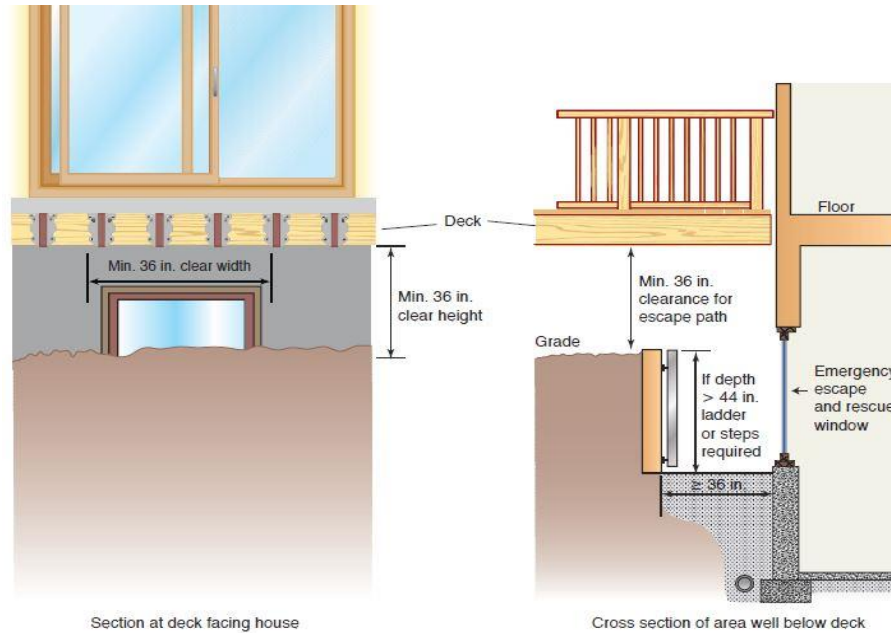
- An emergency escape and rescue opening must be located such that the bottom of the clear opening is not more than 44 inches above or below the finished ground level adjacent to the opening.



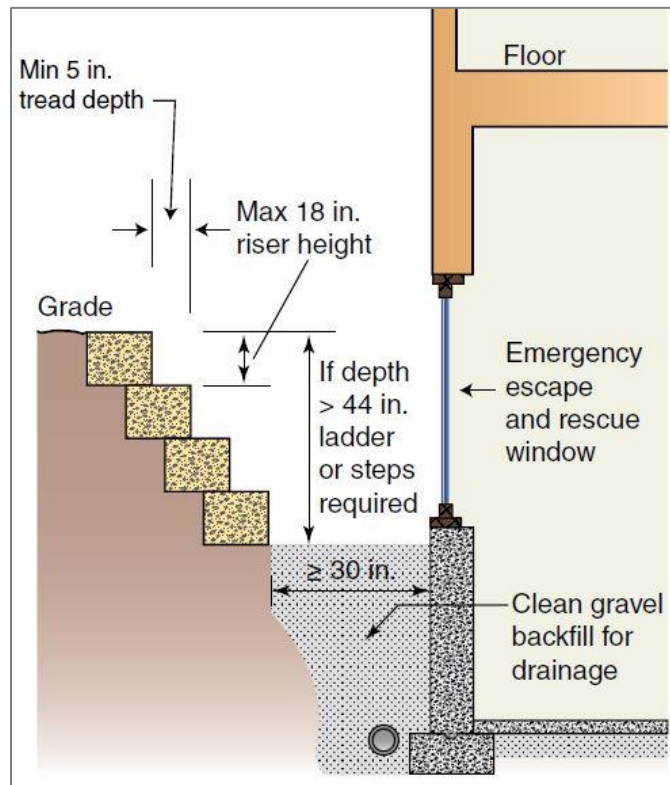
- Emergency escape and rescue openings require an unobstructed 36-inch-wide path to a public way. (Operation requirements have been clarified in R310.1.)



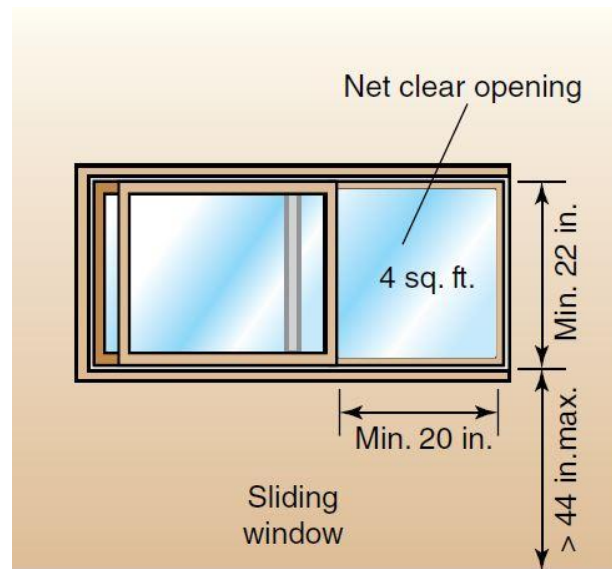
- Emergency escape openings under decks, porches and cantilevers require a path not less than 36 inches in height and 36 inches in width.



- Window wells and area wells are merged into area wells. Dimensions are given for steps to include a 5-inch tread depth, 18-inch rise and 12-inch width.



- Four (4) square feet clear opening for emergency escape and rescue openings is acceptable for a basement remodel, basement addition or change of occupancy.



### Commercial Code Changes

- **Section 306.2 – Use Group F-1 Occupancy:**
  - Two new items were added to the listing of Group F-1 occupancies:
    - Energy storage systems (ESS) in dedicated-use buildings.
    - Water/sewer treatment plants.
- **Table 504.4 – Allowable Height**
  - Height limits for S-1 occupancies in fully-sprinklered buildings of Type IIB and IIIB construction are increased to 4 stories from 3.
  - S-2 story limits for Type IV-HT buildings have been increased to 6 stories if sprinkled, and 5 stories if not.
- **Section 510.2 – Stairway Construction in Podium Buildings**
  - Stairway construction in Type IA (lower) portion of podium buildings now permitted to be of combustible materials where two conditions exist:
    - Upper building is of Type III, IV or V; and
    - Stairway in lower building enclosed by minimum 3-hour fire-resistance-rated construction (shaft enclosure) with protected openings.
- **Section 716.4 – Fire Protective Curtain Assemblies**
  - New definition for fire-protective curtain assembly:
    - An assembly consisting of a fabric curtain, bottom bar, guides, coil, and an operating and closing system.
    - New provisions establish guidance for testing, labeling, and installation.
- **Section 903.2.10.2 – (NEW) Mechanical-Access Parking Garages**

- New definition of mechanical-access enclosed parking garage added with following criteria:
  - Enclosed parking garage.
  - Uses parking machines, lifts, elevators and/or other mechanical means.
  - Moves vehicles from and to street level.
  - Public occupancy is prohibited except in vehicle access bay.
- **Section [F]911 – Fire Command Centers in Groups F-1 and S-1**
  - Fire command center now required in Group F-1 and S-1 occupancies with building footprint > 500,000 ft<sup>2</sup>.
  - Fire command center to be > 96 ft<sup>2</sup> with a minimum dimension of 8 ft.
- **Section 1102 – Accessible Design Compliance**
  - ICC A117.1 updated from the 2009 edition to the 2017 edition.
  - Many of the major revisions are addressed in the ICC publication Significant Changes to the ICC A117.1 Accessibility Standard, 2017 Edition, including:
    - Enhanced dimensions for clear floor spaces and turning spaces.
    - Modifications to exterior routes, curb cuts, blended transitions, detectable warnings, passenger drop-offs and parking facilities.
- **Section 1107.2 – Vehicle Charging Stations**
  - New scoping provisions now require electrical vehicle charging stations to meet limited accessibility criteria.
- **Section 1110.6 – (NEW) Bottle Filling Stations**
  - Water bottle-filling stations, where provided, are to be accessible.
    - Stations located over drinking fountains for standing persons are not required to be accessible, provided such stations are also located over the drinking fountains for persons using wheelchairs.
  - Technical requirements found in ANSI A117.1 Section 602.4.
- **Section 1207 – (NEW) Enhanced Classroom Acoustics**
  - In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms 20,000 cubic feet or less.
  - Such acoustics to be in compliance with Section 808 of ICC ANSI A117.1
- **Sections 1602.1, 1603.1.4, 1605.1, 1607.14, 1609.5, 1609.6, 2308.2.3 – Tornado Loads**
  - Virginia is now designated as a tornado prone region.
  - Provisions specific to tornado loads have been added.
  - Revised definitions for:
    - Essential facilities.
    - Nominal loads.
    - Risk category.
- **Section 1607.17 – (NEW) Fixed Ladder Live Load**
  - Live loads for fixed and ship's ladders have been added to the IBC.
    - Fixed ladders with rungs.
      - 300 lbs. concentrated.

- Side rail extension of fixed ladders above platform.
  - 100 lbs. concentrated.
- Ship's ladders.
  - Stair loads in Table 1607.1.
- **Section 1610.2 – (NEW) Soil-Caused Uplift**
  - Concrete slabs on ground must be designed for uplift.
    - Expansive soils.
    - Water pressure.
- **Section 1809.5.1 – (NEW) Frost Protection at Required Exits**
  - Frost protection for egress doors has been added to the foundation requirements.
    - Exterior landings.
      - All required exits.
      - Outward swinging doors.
    - Ensure unobstructed opening of required exit doors.

If you have any residential code change questions, please contact Kyle Kratzer in the Building Division by [email](#) or telephone, **703-324-1516, TTY 711**. If you have any commercial code change questions, please contact Maryia Lackansingh in the Building Division by [email](#) or telephone, **703-324-2655, TTY 711**.

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