



2021 VIRGINIA RESIDENTIAL CODE SIGNIFICANT CHANGES FREQUENTLY ASKED QUESTIONS

This document was prepared by the State Building Codes Office (SBCO) to provide clarification and answers to questions we have frequently received related to changes in the 2021 Virginia Residential Code (VRC). This document contains informal SBCO staff opinion(s); however, the authority to enforce the VRC falls under the purview of the local building departments. As such, the local building departments should be consulted regarding requirements for any project.

The minimum insulation R-Value for ceilings in Climate Zones 3 and 4 increased from 49 in the 2018 VRC, to 60 in the 2021 VRC. In the 2024 International Residential Code (IRC), the minimum insulation R-Value for ceilings in Climate Zones 3 and 4 decreased to 49. In light of the change in the 2024 IRC, is R-60 ceiling insulation still going to be required in Climate Zones 3 and 4 in Virginia under the 2021 VRC? [VRC Section N1102.1.3]

The installation of R-49 ceiling insulation for projects complying with the 2021 VRC may require the approval of a code modification (in accordance with Section 106.3 of the VCC). The local building departments should be consulted to obtain additional information regarding local application of the ceiling insulation requirements under the 2021 VRC. Note: The process to update the VRC by incorporating the 2024 I-Codes, including the 2024 IRC is anticipated to begin in the Spring of 2025 and the 2024 VRC will likely be effective in 2027.

The 2021 VRC requires exterior electrical and communication outlet boxes in the building thermal envelope be air-sealed. What boxes does this requirement apply to? [VRC Section N1102.4.6]

Table N1102.4.1.1 requires that the air barrier be installed behind electrical and communication boxes, or “air-sealed” boxes must be installed. Similar to the requirements for recessed lighting, the new Section 1102.4.6 sets specific air leakage requirements for electrical and communications outlet boxes.

Electrical and communication outlet boxes in the exterior wall and penetrating the air barrier, now must be tested and marked in compliance with the air-sealing standards and installed in accordance with the manufacturer’s instructions.

Where the air barrier is installed on the exterior side of the exterior wall, which is the most common practice, this requirement will only apply to boxes penetrating the exterior plane of the wall and will not apply to boxes that only penetrate the interior side of the wall. This new requirement will impact exterior recessed outlet boxes (which normally penetrate the air barrier) serving exterior locations like porches or decks, but not surface mounted outlet boxes.

The 2021 Virginia Residential Code requires testing of mechanical ventilation systems. Does this new testing requirement apply to all ventilation and exhaust system(s) in a home? [2021 VRC Section N1103.6.3]

The testing required by Section N1103.6.3 is specific to “mechanical ventilation systems” and the test is to verify that the minimum flow rate (required by Section N1103.6) is being achieved. The mechanical ventilation system in a home is intended to exchange the air inside the house with fresh air from the outdoors. This test only applies to mechanical ventilation systems installed to meet the ventilation requirements in Section N1103.6.. The test required by Section N1103.6.3 does not apply to exhaust or ventilation systems (kitchen hoods, bathroom fans, etc.) unless they are part of the required “mechanical ventilation system” and are being used to reach the minimum ventilation flow rates.

If a bathroom exhaust fan is part of a “Whole-House Mechanical Ventilation System”, it will be required to be tested to verify that it is providing the airflow rate determined in accordance with Section M1505.4.3. The new testing requirement does not apply to other exhaust systems that are not part of the required ventilation (fresh air) system, but are installed as required elsewhere in the code and are only intended to exhaust air/contaminants, etc.

The 2021 VRC prohibits the use of cooking appliances labeled for commercial use from being installed in dwelling units. Does this change prohibit all cooking appliances listed for commercial use from being installed in a house? [2021 VRC Section G2447.2]

No. A cooking appliance that is listed for domestic use can be installed. This includes appliances that are listed for both commercial and domestic use (dual-labeled). A cooking appliance that is only listed for commercial use is not designed or approved for domestic use and is not permitted to be installed in a dwelling.

The 2021 VRC requires Ground Fault Circuit Interrupter (GFCI) protection of 250v outlets in the areas where GFCI protection is required. What locations are likely to be impacted by this change? [2021 VRC Section E3902]

The amperage limitation of 15- and 20-amp receptacles has been removed from the GFCI provisions and the 125-volt designation has been expanded to include receptacles up to 250 volts. Typically, the new requirement will apply to 240-volt 30-amp dryer receptacles in laundry rooms, and 240-volt 50-amp kitchen range receptacles if they are within 6 feet of a sink. However, any receptacle for a 240-volt appliance in one of the GFCI designated areas will require GFCI protection.

The 2021 VRC requires Ground Fault Circuit Interrupter (GFCI) protection of all outlets in basements (finished or unfinished). Does this requirement eliminate the requirement to provide Arc-Fault Circuit Interrupter (AFCI) protection of bedroom outlets? [2021 VRC Section E3902.5]

GFCI protection is now required for all basement areas, whether finished or unfinished. Given the existing Virginia amendment in Section E3902.20, this new requirement could be viewed as allowing GFCI protection instead of AFCI protection for bedrooms located in basements. In our opinion, AFCI protection should still be provided for all bedrooms, including those in finished basements. All other areas of the basement are required to have GFCI protected outlets.

The 2021 VRC requires Ground Fault Circuit Interrupter (GFCI) protection of outlets in “damp” and “wet” locations. What locations will be impacted by this change? [2021 VRC Section E3902.10]

Previous editions of the VRC already required GFCI protection for receptacles in most wet and damp locations (outdoor locations, garages, basements, bathrooms and laundry rooms). The new language is intended to cover any other damp or wet locations that might create similar shock hazards. This new requirement is intended to capture outlets in a specialty room or area in a house where there is very high humidity like an indoor grow room, or an area where there is a water source like a dog wash area with a sprayer hose, that is not already covered by the other specific areas where GFCI protection was previously required.

Please contact the State Building Codes Office with any questions or for additional information at sbco@dhcd.virginia.gov or (804) 371-7150