



Development Services

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Botetourt County 2018 Code Changes (effective July 1, 2022)

Major Changes

- HVAC contractors must submit Manual J paperwork for new homes – the Manual J is a heating/cooling load calculation to determine size of HVAC system **R301.2(1)**
- Blower door tests are now required for new houses and must show less than 5 air changes per hour. Paperwork will need to be submitted prior to Final inspection. **N1102.4.1.3**
- Required ceiling insulation has been changed to a minimum R-49 and U-factors for fenestrations have been lowered to 0.26 **N1102.1.2**
- **Arc fault protection** is now required on all 15- and 20-amp branch circuits unless they are a circuit required to have ground fault protection. **E3902.16**

Other Changes

Building

- Two Family Dwellings (Ex. Duplexes) and homes with Accessory Dwelling Units (Ex. “Mother-in-Law Suites or homes with attached garage apartments) **New Definitions, R302.3 E3, R314.7, & R315.5, M1602.2**
 - If both dwellings are located on the **same lot** with **no fire separation** between them, a fire alarm system must be installed and **interconnected** throughout both dwellings
 - Combination smoke and carbon monoxide detectors must be **interconnected between dwellings** if utilized in the fire alarm system.
 - HVAC system return air may discharge into either dwelling if following above criteria
- Townhouses **R302.2.2 and 302.2.6**
 - Units are no longer required to be structurally independent if protected with a sprinkler system
 - Filled sprinkler piping may also penetrate the common (fire) wall between units
- Listed **wireless** smoke alarms and carbon monoxide alarms may be installed in dwellings provided that the activation of one device sets off all the remaining devices (new installations must still be hardwired for power) **R314.4, R315.5**
- Unvented crawl spaces now have a 4th option for handling air movement and moisture besides mechanical ventilation, conditioned air, or usage as a plenum. A dehumidifier capable of removing 70 pints of water per day for every 1000 sq ft of floor space is also allowed **R408.3**
- The Deck section of the Code has been reorganized with several new charts added for footings and single member girders *See attached pages or **R507***
- Plastic composite deck boards, stair treads, guardrails and handrails must comply with ASTM D 7032 standards and be labeled as such. This standard tests the performance of the product,

determines maximum allowable spans, and should be installed per the manufacturer's instructions **R507.2.2**

- Chart added for lateral support of headers. Header spans of 10 ft or more will require 2 king studs **R602.7.5**
- Garage doors are required to be permanently labeled from the manufacturer with all design criteria and drawing reference number to facilitate like for like replacements **R609.4.1**
- Housewrap is now required on all accessory structures and must be installed per the manufacturer's instructions. **R703.2**
- Keep in mind that the usage of button caps is recommended in the housewrap installation instructions to prevent tears and rips in the wrap. With the tightening of air barrier code requirements, button caps are pretty much a necessity as all holes and tears must be sealed.

Mechanical

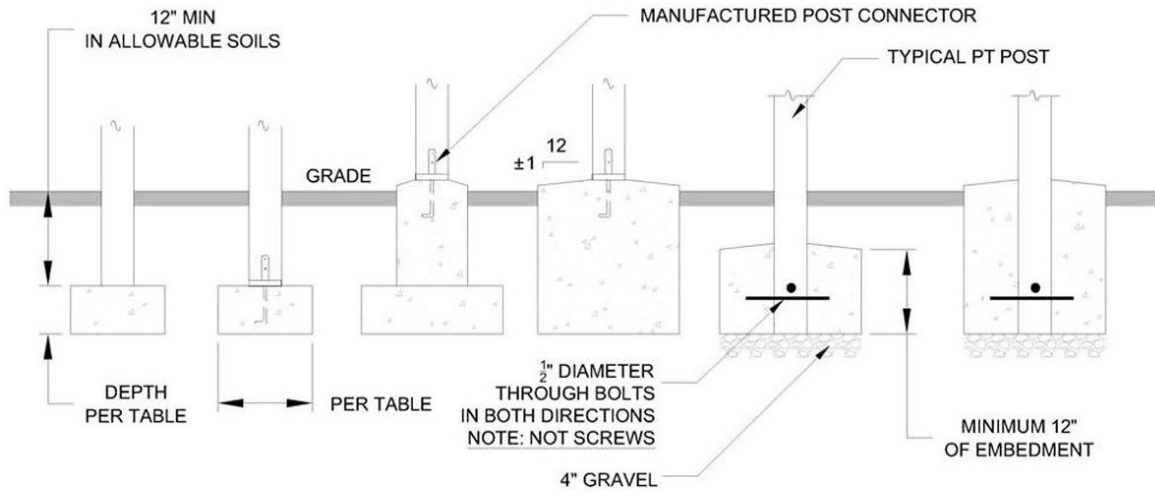
- Factory-built chimneys are now required to be at least 26 ga metal and have an insulation shield that terminates 2" above insulation. **R1005.8**
- Dryer duct must be minimum 4" diameter pipe and may not be deformed in any way throughout its length. This means the duct can no longer be installed in a 2x4 wall. Vent terminations must maintain the 4" diameter (12.5 sq in) flow rate. Research has shown that roof gooseneck vents create too much backpressure and cannot be used in most cases. **M1502.4.2**
- Commercial cooking appliances are now allowed in residential dwellings when installed per the manufacturer's instructions **and** accompanied by a design by a licensed Virginia Engineer. **G2447.2**
- Duct tightness tests will still be required when air handlers / ductwork are located outside of the building thermal envelope / air barrier.
- Where ductwork is buried in insulation, there must be a minimum R-19 both above and below the ductwork. **N1103.3.6**

Plumbing

- The Code now allows the direct connection of PVC to ABS with solvent cement that meets ASTM D3138 standards at one joint (where the building drain meets the building sewer). **P3003.2**

Electrical

- Crawlspace lights are now required to have GFCI protection. **E3902.4**
- Kitchen counter peninsulas are no longer required to have a receptacle on the end or side of the peninsula. A receptacle on the wall where the peninsula connects to the main countertop space can be utilized instead. **(E3901.4.3)**
- Each vehicle bay in a garage must have a receptacle, and the circuit(s) cannot serve any other outlet except readily accessible receptacles outdoors. Vehicle bay receptacles cannot be above 5.5 ft high. **(E210.52(G)(1))**
- Roof mounted solar arrays must have 36" wide pathways to allow for emergency responder access to the house and roof system. Specific requirements are located in **R324.6**



NOTE:
POSTS MUST BE CENTERED ON OR IN FOOTING

For SI: 1 inch = 25.4 mm.

FIGURE R507.3 DECK POSTS TO DECK FOOTING CONNECTION

R507.3.1 Minimum size.

The minimum size of concrete footings shall be in accordance with Table R507.3.1, based on the tributary area and allowable soil-bearing pressure in accordance with Table R401.4.1.

TABLE R507.3.1 MINIMUM FOOTING SIZE FOR DECKS

LIVE OR GROUND SNOW LOAD ^b (psf)	TRIBUTARY AREA (sq. ft.)	LOAD BEARING VALUE OF SOILS ^{a, c, d} (psf)											
		1500 ^e			2000 ^e			2500 ^e			≥ 3000 ^e		
		Side of a square footing (Inches)	Diameter of a round footing (Inches)	Thickness (Inches)	Side of a square footing (Inches)	Diameter of a round footing (Inches)	Thickness (Inches)	Side of a square footing (Inches)	Diameter of a round footing (Inches)	Thickness (Inches)	Side of a square footing (Inches)	Diameter of a round footing (Inches)	Thickness (Inches)
40	20	12	14	6	12	14	6	12	14	6	12	14	6
	40	14	16	6	12	14	6	12	14	6	12	14	6
	60	17	19	6	15	17	6	13	15	6	12	14	6
	80	20	22	7	17	19	6	15	17	6	14	16	6
	100	22	25	8	19	21	6	17	19	6	15	17	6
	120	24	27	9	21	23	7	19	21	6	17	19	6
	140	26	29	10	22	25	8	20	23	7	18	21	6
160	28	31	11	24	27	9	21	24	8	20	22	7	

TABLE R507.5 DECK BEAM SPAN LENGTHS^{a, b, g} (feet - inches)

SPECIES ^c	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)							
		6	8	10	12	14	16	18	
Southern pine	1 - 2 × 6	4-11	4-0	3-7	3-3	3-0	2-10	2-8	
	1 - 2 × 8	5-11	5-1	4-7	4-2	2-10	3-7	3-5	
	1 - 2 × 10	7-0	6-0	5-5	4-11	4-7	4-3	4-0	
	1 - 2 × 12	8-3	7-1	6-4	5-10	5-5	5-0	4-9	
	2 - 2 × 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0	
	2 - 2 × 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0	
	2 - 2 × 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0	
	2 - 2 × 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0	
	3 - 2 × 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0	
	3 - 2 × 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4	
	3 - 2 × 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6	
3 - 2 × 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10		