

State of Virginia's Adoption

- Uniform Statewide Building Code
 - Adopts model codes by reference
 - Family of I Codes 2006 edition
 - NEC 2005 edition
 - Statewide adoption of Codes
 - Administrative Provisions
 - Amendments to technical provisions
- Expected Adoption date: March 15, 2008 (April 15th maybe)
- Mandatory enforcement after one year
- 2006 IRC Code Book will be available from ICC WITH USBC changes included: www.iccsafe.org

What Codes are adopted?

- Building Code (IBC 2006)
- Mechanical Code (IMC 2006)
- Plumbing Code (IPC 2006)
- Fuel Gas Code (IFGC 2006)
- Electric Code (NEC2005)
- Dwelling Code (IRC 2006)
- Energy Code (IECC 2006)
- Virginia Rehabilitation Code (IEBC 2006)
- Virginia Maintenance Code (IPMC 2006)

Significant Changes in IRC 2006

This report is not all inclusive, it merely highlights significant changes in the IRC.

- R301.2.1.1 Design criteria. Construction in regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 (Changed back to 110) miles per hour (45 m/s) in hurricane-prone regions, or 110 miles per hour (49 m/s) elsewhere, shall be designed in accordance with one of the following:
 - 1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM); or
 - 2. Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction (SSTD 10); or
 - 3. Minimum Design Loads for Buildings and Other Structures (ASCE-7); or
 - 4. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings.
 - 5. Concrete construction shall be designed in accordance with the provisions of this code.
- Table R302.1 is new and delineates required setbacks from property line for walls, projects, openings and penetrations.
- Section R303.6 Light activation
 - Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The illumination of exterior stairways shall be controlled from inside the dwelling unit.
 - Exception: Lights that are continuously illuminated or automatically controlled.

- **R310.1 Egress windows.**
 - Basements and every sleeping room shall have at least one operable emergency and rescue opening. Such opening shall open directly into a public street, public alley, yard or court.
- **R311.4.3 Landings at doors.**
 - There shall be a floor or landing on each side of each exterior door. The floor or landing at the exterior door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold. The landing shall be permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent). Exceptions:
 - 1. Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door provided the door, other than an exterior storm or screen door does not swing over the stairway.
 - 2. The exterior landing at an exterior doorway shall not be more than 7¾ inches (196 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door does not swing over the landing.
 - 3. The height of floors at exterior doors other than the exit door required by Section R311.4.1 shall not be more than 7¾ inches (186 mm) lower than the top of the threshold.
 - The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.
- **R311.6.1 Ramps: Maximum slope.**
 - Ramps shall have a maximum slope of one unit vertical in twelve units horizontal (8.3-percent slope).
- **New Table R404.1(1), (2), and (3) for foundation walls**
 - Criteria include top reactions, plate-anchor bolt spacing and aspect ratios
- **New Table R404.1.1(5) for concrete foundation walls**
- **R408.3 Unvented crawl space. Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where:**
 - 1. Exposed earth is covered with a continuous vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall; and
 - 2. One of the following is provided for the under-floor space:
 - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cfm (0.47 L/s) for each 50 ft² (4.7 m²) of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.8;
 - 2.2. Conditioned air supply sized to deliver at a rate equal to 1 cfm (0.47 L/s) for each 50 ft² (4.7 m²) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.8;
 - 2.3. Plenum complying with Section M1601.4, if under-floor space is used as a plenum.
- **R502.2.1 Framing at braced wall lines. A load path for lateral forces shall be provided between floor framing and braced wall panels located above or below a floor, as specified in Section R602.10.8.**
- **R602.10.8. Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced wall panels. Where joists are perpendicular to braced**

wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1).

- Section R602.10.6. Changes in the alternative braced wall panel
 - Length increases to 3’6”
 - Height increases to 12’
 - Conditions added
- R602.8 Fireblocking now required
 - At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion.
- R606.4.1 Bearing on masonry support. Each masonry wythe shall be supported by at least two-thirds of the wythe thickness.
- R613.2 Window sills. In dwelling units, where the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 18 inches (457 mm) above the finished floor of the room in which the window is located. Glazing between the floor and 18 inches (457 mm) shall be fixed or have openings through which a 4-inch-diameter (102 mm) sphere cannot pass.
 - Exceptions:
 - 1. Windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.
 - 2. Openings that are provided with window guards that comply with ASTM F 2006 or F 2090.
- Garage doors must be tested and listed
 - R613.5 Vehicular access doors. Vehicular access doors shall be tested in accordance with either ASTM E 330 or ANSI/ DASMA 108, and shall meet the acceptance criteria of ANSI/DASMA 108.
- 802.3.1 Ceiling joist and rafter connections.
 - Collar ties or ridge straps to resist wind uplift shall be connected in the upper third of the attic space in accordance with Table R602.3(1). Collar ties shall be a minimum of 1-inch by 4-inch (25 mm by 102 mm) (nominal), spaced not more than 4 feet (1219 mm) on center.
- R806.4 Conditioned attic assemblies. Unvented conditioned attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) are permitted under the following conditions:
 - 1. No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.
 - 2. An air-impermeable insulation is applied in direct contact to the underside/interior of the structural roof deck. “Air-impermeable” shall be defined by ASTM E 283.
 - Exception: In Zones 2B and 3B, insulation is not required to be air impermeable.
 - 3. In the warm humid locations as defined in Section N1101.2.1:
 - 3.1. For asphalt roofing shingles: A 1-perm ($5.7 \sim 10\text{-}11 \text{ kg/s} \times \text{m}^2 \times \text{Pa}$) or less vapor retarder (determined using Procedure B of ASTM E 96) is placed to the exterior of the structural roof deck; that is, just above the roof structural sheathing.
 - 3.2. For wood shingles and shakes: a minimum continuous ¼-inch (6 mm) vented air space separates the shingles/shakes and the roofing felt placed over the structural sheathing.
 - 4. In Zones 3 through 8 as defined in Section N1101.2, sufficient insulation is installed to maintain the monthly average temperature of the condensing surface above 45°F (7°C). The condensing surface is defined as either the structural roof deck or the interior surface of an air-impermeable insulation applied in direct contact with the underside/interior of the structural roof deck. “Air-impermeable” is quantitatively defined by ASTM E 283. For

calculation purposes, an interior temperature of 68°F (20°C) is assumed. The exterior temperature is assumed to be the monthly average outside temperature.

- **R905.2.4.1 Wind resistance of asphalt shingles.** Asphalt shingles shall be installed in accordance with Section R905.2.6. Shingles classified using ASTM D 3161 are acceptable for use in wind zones less than 110 mph (49 m/s). Shingles classified using ASTM D 3161, Class F, are acceptable for use in all cases where special fastening is required.
- **Chapter 11 (Energy) has been completely re-written. Main changes include:**
 - Climate basis has been changed from HDD to geographical zones
 - Prescriptive envelope requirements are not a function of window area.
 - Requires disclosure of each house's R values, U values, and HVAC efficiencies
 - Contains provisions for unvented crawl spaces, vapor retarder requirements, sealing of air handlers in garages and limits worst-case glazing u factors where moisture condensation is a problem
 - Ceiling Insulation changed from R-30 to R-38 – Table N1102.2
 - Slab insulation increased from R-5 to R-10 – Table N1101.2
 - Window μ value increased from .50 to .40
 - Per N1101.8 Builders **MUST** post a certificate of compliance for energy code showing envelope compliance for everything including HVAC efficiencies by the electric panel. This will be a condition of approval for all new homes.
 - Per N1102.2.10 and N1102.2.3.5 - Sunrooms must be thermally isolated from conditioned space.

Significant Changes in USBC 2006

- **ADMINISTRATIVE CODE CHANGES 103.5 Reconstruction, alteration or repair – Exception #2 added** “Reconstructed decks, balconies, porches and similar structures located 30 inches or more above grade shall meet the current code provisions for structural loading capacity, connections and structural attachment. This requirement excludes handrails and guardrails.”
- **Continuing Education Requirements – New language added** Building Officials, Code Officials and Technical Assistances “shall attend 16 hours every two years of continuing education and periodic training courses approved or required by DHCD. Additional continuing education hours shall not be required if more than one certificate is held.”
- **107.2 Code academy fee levy – New sentenced inserted** “The foregoing levy shall remain effective until July 1, 2009, after which time the fee levy shall be increased to 2%.”
- **108.1 Applications are required & 108.2 Exemptions from application for permit** The sections were extensively rewritten to clarify requirements
- **108.2 Exemptions from application for permit – Historic Building Exception** An exception to the exemptions was added, “Application for a permit may be required by the building official for the installation of replacement siding, roofing and windows in buildings within a historic district designated by a locality...”
- **110.6 Suspension of a permit** The section was renamed to “Abandonment of Work” and section 110.7 Single Family Dwelling Permits was added. Changes add significant new language. Essentially no more “Information or courtesy” inspections intended to artificially extend a permit validity. Every six months you must have a ‘meaningful inspection’.

TECHNICAL CODE CHANGES

- **310.1 Residential group R – New exceptions added for bed and breakfast.** B & B classified as R-3 or R-5 if:
 - • Non-proprietor occupied, 3 stories, 10 occupants, smoke alarms
 - • Proprietor occupied, 3 stories, 5 guest rooms, smoke alarms
- **R404.1 Concrete and Masonry Foundation Walls** The prescriptive tables have been deleted and the section now states:
 - “Concrete and masonry foundation walls shall be selected and constructed in accordance with the provisions of Section R404 or in accordance with ACI 318, ACI 332, NCMA TR68-A or ACI 530/ASCE 5/TMS402 or other approved structural standards.
- **310.6 (R602.10) Wall Bracing** The ICC Ad Hoc Committee has worked diligently for several years to improve the Wall Bracing requirements. The Committee Members from Virginia have produced the Virginia EZ Read version, which incorporates the latest information in ICC’s 2007 Supplement and the 2009 Code Change Proposals from the ICC Ad Hoc Committee.
- **310.6 (R806.4) Unvented Attic Assemblies** This incorporates provisions from the 2007 Supplement into the VUSBC/2006. This change is linked to the installation of spray foam insulation products (i.e., icynene insulation) in unvented attics.
- **407.8 Emergency Power Systems in Facilities Licensed by Department of Health** Federal and State licensing requires any I-2 facility (i.e. hospital, nursing home, and hospice) to provide emergency power to medical life support equipment, operating, recovery, intensive care, emergency rooms, fire detection and alarm systems. This adds the requirement to the VUSBC.
- **903.2.1.2 Group A-2 Automatic Sprinkler Systems** Night Club definition added to be consistent with SFPC: “public assembly that provides exhibition, performance or other forms of entertainment; serves alcoholic beverages; and provides music and space for dancing. “2. The fire area has an occupant load of 100 or more in night clubs or 300 or more in other A-2 occupancies; or”
- **912.1 In-Building Emergency Communication** This new section provides the requirements for the installation of radiating cable systems to provide the dedicated infrastructure to support emergency communications
- **2701.1.3 Emergency Generators in Assisted Living Facilities** “Generators installed to comply with regulations for assisted living facilities licensed by the Virginia Department of Social Services shall be permitted to be optional standby systems.
- **2803.1 (M504.6.1) Clothes Dryer Exhaust Duct Length** The maximum length of a clothes dryer exhaust duct was changed from 25 feet to 35 feet.
- **2901.1.1 Nonmetallic Sanitary Sewer Piping – Locatable** Nonmetallic sanitary sewer discharging to public systems shall be locatable with installation of minimum 18 AWG copper tracer wire, or equivalent. The tracer wire will be installed within 12 inches of the sewer pipe within the same trench.

Common Inspection Failures

- Shear walls and wall bracing not being installed properly.
- Flood Vents not being installed; using foundation vents instead...
- Footings improperly dug; soil not solid.
- Foundation piers over 4X the height (32" for 8") not filled.
- Box connection to girder missing or improper.
- Exterior nailing improper (6" and 12")
- Excessive cutting/notching of structural members.
- Fireblocking missing or improperly installed.
- Flashing not being installed properly
- Pier and Curtain Wall Foundation design limited to two floors and a roof, not three floors and roof w/o design.
- Guards installed with improper height, intermediate picket spacing or strength.
- Handrails: Improper height, size of railing.
- Elevation certificate for BFE missing (As-built survey)
- Window labeling for energy code or safety glazing.
- Residential elevators
- Deck construction (Section R502.2.1)
- Permits for re-roofing (normally exempt for homes but required in high wind speeds)

What's next?

- 2006 IRC is available now.
- 2009 IRC will be complete after September, 2008 final action hearings in Minneapolis.
- Questions?