NEW RESIDENTIAL BUILDING CODE CHANGES FOR 2009

- **Habitable Attic**: (New Definition) Finished or unfinished space. Not considered a story for purposes of determining a 3-story structure. Must comply with ALL of these: Occupiable floor area > 70 square feet. Ceiling height of 7’ for at least 35 square feet. Space is enclosed by a roof assembly, knee walls (if applicable) and floor/ceiling below.

- **Address Numbers**: Minimum 4” tall and 1/2” stroke. Contrasting background color. Visible from road—either mounted on the house or on a pole or monument. (R319.1)

- **Minimum Ceiling Height**: Bathrooms shall have 6’-8” clearance measured from the “center of the front clearance area for fixtures. 2’1” clearance area required. (R305.1)

- **Vertical Egress**: Every habitable level shall be accessed by a code compliant stairway (or ramp): Minimum 36” wide stairway; 8 1/4” maximum riser and 9” minimum tread; minimum 6’-8” headroom; Handrail on at least one side; Landing at the bottom and Light. (R311.4)

- **Guards**: How you measure the height above grade to determine if guards are required on decks. 36” out and 30” to grade. (R312.1)

- **Carbon Monoxide Alarms**: Are required when new house has fuel-fired appliances and if new house has an attached garage. When required they are required to be located outside each sleeping area and in the immediate vicinity of the bedrooms. (R315.1) Requirements include: single station alarms may be hard-wired, plug-in, or battery type; Comply with UL 2034; Per Manufacturer’s instructions. (R315)

- **Locations for Protection Against Decay**: Protection from decay is now required for wood siding, sheathing, and wall framing less than 2” above a concrete slab exposed to weather, examples: Concrete patio slabs or steps, porch slabs. (R317.1)

- **Fire Extinguishers (USBC)**: Dwellings NOT equipped with a sprinkler system require a fire extinguisher: 2-A: 10-B: C rated; Must be installed in the kitchen area. (R329)

- **Protection From Impact**: Appliances located in garages shall be protected from vehicle impact. (M1307.3.1)

- **Access for maintenance and repair**: Cannot remove any pipe, duct, venting or other appliance to maintain or replace appliances.

BUILDING PLANNING

- **Garage Openings and Penetrations**: Penetrations other than ducts shall be filled with approved materials to restrict passage of combustion products and the free passage of flame to other areas of the building through concealed spaces. (Materials to meet requirements for fire blocking. (R302.11)

- **Minimum Ceiling Height**: A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6’-8” above a minimum of 30”x30” at the showerhead. (R305.1)

- **Vertical Egress**: Every habitable level shall be accessed by a code compliant stairway (or ramp): Minimum 36” wide stairway; 8 1/4” maximum riser and 9” minimum tread; minimum 6’-8” headroom; Handrail on at least one side; Landing at the bottom and Light. (R311.4)
**FOUNDATIONS**

- **Foundation Anchorage:** For sill plates anchored to masonry foundation walls, the code now specifically requires the anchor bolt to be embedded in grout filling the hollow core of a CMU. This change reflects a consensus that anchor bolts installed into the mortar joints of brick or other solid masonry products do not have sufficient load-carrying capacity to resist shear loads from braced wall panels. (R403.1.6)

- **Concrete and Masonry Foundation Walls:** Concrete foundation stem walls supporting light frame walls above grade not laterally supported at the top:
  - Retaining 48” or less of unbalanced fill, shall be constructed as a concrete foundation wall.
  - Retaining more than 48” of unbalanced fill, shall be constructed as a retaining wall or a design is required. (R404.1)

  Steel reinforcement in concrete cast against the earth shall have a minimum cover of 3”.

  Minimum cover for reinforcement in concrete cast in removable forms that will be exposed to the earth or weather shall be 1 1/2” for #5 bars and smaller and 2” for #6 bars and larger.

  Minimum cover for reinforcement in concrete that will not be exposed to the earth or weather shall be 3/4”.

  A minimum 1 1/2” of coverage is required when cast in removable forms and will be exposed to the earth or weather, 2” required on #6 bars or larger.

- **Columns:** Steel columns shall not be less than 3” diameter Schedule 40 Pipe manufactured to ASTM A 53 Grade B or equivalent. (R407)

- **Termite Inspection:** When an unvented crawl space is installed per R408. A clear and unobstructed view of the vertical face of sill shall be provided. Minimum 1” to a maximum 2” gap throughout all parts of the foundation. Except fiberglass insulation or similar material that is easily removable. (R408.3.1)

**WALL CONSTRUCTION**

- **Fastener Schedule for Structural Members:** Notable change: All gypsum board (sheetrock) to be nailed or screwed at 7” o.c., regardless of exterior or interior, braced wall or not-braced-wall application. (R602.3(1))

- **Size, Height, and Spacing of Wood Studs:** Stud walls carrying two floors and a habitable attic above. EXAMPLE: a walkout basement with two floors and a habitable attic. With rafter assembly, the base-
  - ment wall remains the same—2x6 @ 16” o.c. stud wall. With room trusses, the basement wall remains the same—2x6 @ 16” o.c. stud wall. An intended consequence: whether a basement is a “story above grade” or a “story below grade” becomes a moot point. (R602.3(5))

- **Drilling and Notching of Top Plate:** The use of metal fastener nails is now spelled out in the 2009 codes. The change is that the strap must extend a minimum of 6” past the cut/opening/notch on both sides. See example D.

  - **Wall Bracing** - See handout.

**WALL COVERING**

- **Weather Resistant Exterior Covering:** A water –resistive barrier is required behind masonry veneer even when a 1” air gap has been provided. Anchored veneer now includes brick, concrete, masonry and stone that is an-
  - chored to the structure wit the code prescribed metal ties. Lath attachments for adhered veneer must com-
  - ply with Second R703.6.1 or the manufacturer’s requirements.

- **Anchorage:** Masonry veneer shall be anchored to the supporting wall with corrosion-resistant metal ties. A minimum 1 1/2” into mortar or grout. Not less than 5/8” mortar or grout cover on the outside. (R703.7.4)

- **Vinyl Sliding:** Soffit panels shall be individually fastened to a nailing strip, fascia, or sub-fascia component or as specified by the manufacturer’s instructions. (R703.11.1.1)

- **Masonry Veneer:** Cannot support any vertical load other than the dead load of veneer above. You cannot attach to or thru masonry veneer at deck, porch or roof loads.

**ENERGY EFFICIENCY**

- **Building Thermal Envelope:** The U-factor for fenestration has changed to .35 for windows and doors and .60 for skylights. Air leakage is .3 or lower.

- **Virginia Zone 4 and 4A:** R-13 walls. R-19 floor. R-38 ceiling.
FLOORS

- **Floors**: Attachment to the ledger to or through masonry veneer is prohibited by Note H of Table R502.2.13. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.

DECKS

- **Deck Ledger Connection to Band Joist**: Prescriptive methods for securely attaching a wood deck to the dwelling structure are now included in the IRC. New Table R502.2.2.1 provides an attachment schedule for fastening ledger board to band joist. (R502.2.2.1)
MISCELLANEOUS

- Fire Places: Fire places shall have a gasketed door and outdoor air for combustion. (IECC 402.4.2.3)
- Programmable Thermostats: Programmable thermostats shall be provided when a forced air furnace is used. (403.1.1 and N1103.1.1)
- Insulation: All ductwork shall be insulated to a minimum value of R-6, supply ducts in attics, R-8. UNLESS the ducts are located within the thermal envelope. (403.2.1 and N1103.2.1)
- Clothes Dryer Exhaust: Completely revised format. (504 IMC and Section M1502 IRC)
- USBC Amendment: Maintains the 35 feet maximum consistent between the IRC and IMC.
- Exhaust Penetrations: (wall or ceiling). Shall be protected by an approved fire caulking or wall receptacle. (504.2)
- Duct installation: Support required at 4 foot intervals. (504.6 and M15042.4.2)
- Joints seams: Added reference to manufacturer’s installation instructions; and three exceptions: Spray polyurethane foam is permitted in lieu of sealed joints. Where duct is partially concealed 3 screws shall be equally spaced on exposed surface to prevent hinge effect. Continuously welded and locking longitudinal joints with system operation pressures less than 2 inches water column shall not require additional sealing.
- Access port caps: Locking access port caps. All refrigeration ports must have locking caps. (1110.10 and M1411.6)
- Thermal barrier: Thermal barrier required for underground hydronic systems. (M2103.2 and 1209.5)
- Prohibited Locations: Gas piping shall not be installed in or through a ducted supply, return or exhaust, clothes chute, chimney, gas vent, dumbwaiter, or elevator shaft. Does not prohibit installation in a plenum provided the piping does not exceed the maximum permitted flame spread and smoke developed ratings. (IFGC 404.1 and IRC G2415.1)
- Underground Penetrations Prohibited: Gas piping shall not penetrate building foundation walls at any point below grade. Gas piping shall enter and exit buildings above grade and the annular space shall be sealed. (IFGC 404.4 and IRC G2415.4)
- Isolation: Metallic pipe or tubing conveying LP gas dielectric fitting required to electrically isolate underground piping from above ground piping dielectric fitting shall be installed above ground, outdoors. USBC amendment included in 2009 ICC Codes. (IFGC 404.8 & IRC G2415.8)
- Maximum Length of Connectors: Connectors shall not exceed 6’ in overall length. Measurement shall be made along centerline of connector. Only one connector shall be used for each appliance. ANSI listed appliance connectors are manufactured in lengths up to six feet. Appliance shutoff valve may be installed up to six feet from appliance. Change provides consistency between shutoff valve requirements and connector length limitations. (IFGC 411.1.3.1 & IRC G2422.1.2.1)
- Prohibited Locations and Penetrations: Connectors shall not be concealed within, or extended through, walls, floors partitions, ceilings or appliance housings. THREE NEW EXCEPTIONS: 1) Connectors constructed of piping materials and served by remote shutoff valves. 2) Rigid steel pipe connectors permitted to extend through appliance housings. 3) Semirigid tubing and listed appliance connectors permitted to extend through appliance housings if protected against damage. (IFGC 411.1.3.3 & G2422.1.2.3)
- Access Hatches & Doors: Change applies to One- and Two-Family Dwellings, Townhouses & Multi-Faming Residential: Shall be weatherstripped and insulated. Access to all equipment shall prevent damaging or compressing the insulation. Baffle or retainer required when loose fill insulation is installed. (IRC N1102.2.3 & IECC 402.2.3)
- Arc Fault Dwelling Units: USBC amendment deletes expansion for rooms other than bedrooms. (NEC 210(B) & IRC E3902.11)
- Outdoor Outlets: Balconies, Decks and Porches. Exception for less than 20 square feet. (NEC 210.52(E)(3) & IRC E3901.7)
- NM Uses Not Permitted: Wet or Damp Location. By Article 100 Location, Damp. Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture. Examples of such locations include partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture. (NEC 334.12(B)(4) & IRC E3802.7)
- Ampacity for Cables: Two or more cables without maintaining space. Adjustment factor per tables. (NEC 334.80 & IRC E3705.4.4)
- Tamper-Resistant Receptacles: Shall be installed in all dwelling units. (NEC 406.11 & IRC E4002.14)
- Hydromassage Bathtub Protection: Individual Branch Circuit and protected by readily accessible GFCI device. (NEC 680.71 & IRC E4209.1)
CLOTHES DRYERS:

- Duct Installation: Clothes dryer exhaust ducts shall be supported at four foot intervals, have joints installed in direction of airflow not have fasteners that protrude inside duct. (IFGC 614.6.2 & IRC G2439.5.2)
- Transition Ducts: Clothes dryer transition ducts shall only connect dryer to exhaust duct, be listed to UL 2158A, be a single length not to exceed eight feet, not to be concealed within construction.
- Specified Length: Maximum equivalent length increased to 35 feet. Maximum length of exhaust duct does not include transition duct. New Tables 614.6.5.1 & G2439.5.5.1 assign equivalent lengths to dryer exhaust duct fittings based on bend radius. USBC amendment included in 2009 ICC Codes. (IFGC 614.6.5.1 & IRC G2439.5.5.1)
- Manufacturer's Instructions: Maximum equivalent length of exhaust duct may be determined by dryer manufacturer’s instructions, however if duct is to be concealed, instructions shall be provided prior to concealment inspection if manufacturer does not specify equivalent length of fittings, The Tables Shall Be Used. (IFGC 614.6.5.2 & IRC G2439.5.5.2)
- Length Identification: Where an exhaust duct is concealed equivalent length shall be identified on a permanent label or tag. Label shall be within 6 feet of exhaust duct connection. (IFGC 614.6.6 & IRC G2439.5.6)
- Manufactured Clothes Dryer Exhaust Duct Placard (see example to right)
- Exhaust Duct Required: Where Space is Provided for a Dryer. An exhaust duct shall be installed where an exhaust duct is provided by dryer is not installed, the exhaust duct shall be capped. Exception: Where a listed condensing clothes dryer is installed prior to occupancy.

ROOF ASSEMBLIES

- Sidewall Flashing: New Step Flashing Requirements are 4”x4” minimum dimension. At the end of the vertical sidewall the step flashing shall be turned out in a manner that directs water away from the wall and onto the roof and/or gutter. (R905.2.8.3 & R905.2.7.1)
- Ice barrier: 2 layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet extended from the lower edges of all roof surfaces to a point at least 24” inside the exterior wall line of the house.

PLUMBING

- Shower Liner Test: IPC and IRC add liners of the floor and receptor area shall be filled with potable water not less than 2” measured at the threshold. Where a threshold does not exist, a temporary threshold shall be constructed for the test. (R312.9 & P2503.6)

PROCEDURAL CHANGE FOR INSPECTIONS

- Framing Inspections: Framing inspections (and all subsequent inspections) will not be approved until all applicable floor slab inspections are approved.

POOLS

- Energy Conserving Measures: Heated pools require a vapor retardant pool cover. Covers on pools heated to greater than 90 degrees F require a minimum insulation value of R-12. Pool heater shall have a readily accessible on-off switch. LP or natural gas heaters shall not have continuous burning pilot light. Pools with heaters and pumps are required to have timers that automatically turn them on-off.