

**RESIDENTIAL R-5 PLAN REVIEW  
INFORMATION LIST**

**2009 IRC**

**INSTRUCTIONS:** This document must be completely filled out and attached to the building plans submitted for review and permitting.

**Climatic and Geographic Design Criteria**

Ground Snow Load	*Wind Speed (mph)	Seismic Design	Weathering Concrete	Frost Line Depth	Termite	Ice Barrier Underlayment	Air Freezing Index	Mean Annual Temp	Heating Degree Days
10 PSF	100 MPH	A	Moderate	12 inches	Moderate to heavy	None Required	250	55 – 66 Degrees	3,421 Days

Winter Design Temp	Summer Design Temp	 Flood Zone AE	Decay Wood	Rainfall Design	Radon Areas	Shrink Swell Soils 	Noise Zones	Manufactured Housing Code
22 Degrees	91 dry 78 wet	Yes 8.5 BFE Elizabeth River 5.0 BFE NW River 1 ft of freeboard required	Moderate to Severe	3.4 inches Per Hour	No	Limited Based on Soil Reports	Yes Fentress Airfield Area	Wind Zone: Zone II – 27 PSF Uplift Snow Load Ground: 10 PSF Climate: Zone 4 Non-marine Climate Zone 3 (built 94 to 2008)

 See the last page for instructions and requirements

## Design Criteria

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<b>Building Code Used:</b> <b>Select One</b>	<b>2009 IRC</b>	<b>2009 IBC</b>	
<b>Occupancy Use Group:</b>	R-5	R-3	
<b>Construction Type:</b>	5B	5B	
<b><u>Mean Roof Height and Wind Exposure PSF Percentage Factor</u></b>			
Height and wind exposure adjustments Coefficients from Table R301.2(3); <b>Select the Mean Roof Height and corresponding exposure;</b>	<b>Mean Roof Height</b>	<b>Exposure B</b>	<b>Exposure C</b>
	<b>15</b>	<b>1.00</b>	<b>1.21</b>
	<b>20</b>	<b>1.00</b>	<b>1.29</b>
	<b>25</b>	<b>1.00</b>	<b>1.35</b>
	<b>30</b>	<b>1.00</b>	<b>1.40</b>
	<b>35</b>	<b>1.05</b>	<b>1.45</b>
R408.1 & 2 Foundation Vents: At least one foundation vent must be within 3 feet of each corner.			
R408.5 Crawl Finish Grade: The crawl Space finish grade must be equal to the outside grade or higher.			

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**Table R301.5**

**Minimum Uniformly Distributed Live Loads  
(In pounds per square foot) **Select applicable Attic Live Load****

Use	Live Load	Use	Live Load
Attics without Storage	10	Guardrails and handrails	200
Attics with limited storage	20	Rooms other than sleeping rooms	40
Attics with fixed stairs	30	Sleeping rooms	30
Habitable Attics	30	Stairs	40
		Decks	40
		Exterior Balconies	40

**Table R301.6**

**MINIMUM ROOF LIVE LOADS IN POUNDS-FORCE PER SQUARE FEET OF HORIZONTAL PROJECTION**

<b>Select the live load applicable to the roof being constructed</b>	(Tributary loaded area in square feet for any structural member)			
	Roof Slope	<b>0 to 200</b>	<b>201 to 600</b>	<b>Over 600</b>
	Flat or rise less than 4 inches per foot 1:4	20	16	12
	Rise 4 inches per foot (:4) to less than 12 inches per foot	16	14	12
	Rise 12 inches per foot (1:1)	12	12	12

**Table N1102.1**  
**Insulation and Fenestration Requirements by Component Minimum**

Fenestration U-Factor	Skylight U-Factor	Ceiling R-Value	Exterior Wall R-Value	Floor R-Value	Slab R-Value Value & Depth	Crawl Space Wall R-Value
0-35	0.60	R38	R13	R19	R10/2LF	R10/R13

**Submit REScheck energy calculations:** 2009 IRC version or 2009 IECC version  
Code forms available through [www.energycodes.gov](http://www.energycodes.gov) with technical support.

### Additional Criteria

**R502.6 & 802.6 Minimum bearing:** Each joist, girder, rafter and ceiling joist must bear a minimum of 1-1/2 inches on wood or metal and 3 inches on masonry or concrete.

**R703.7.6 Brick or masonry weepholes:** Weepholes must be provided in the outside wythe of masonry above the flashing and a maximum spacing of 33 inches on center and a minimum of 3/16 diameter.

**R317.3.1 Pressure treated fasteners:** All fasteners that penetrate pressure treated wood, except 1/2 inch anchor bolts or larger, shall be hot dipped galvanized, stainless steel, copper or silicone bronze. In the absence of manufacture's recommendations, a minimum of ASTM A 653 type G185 zinc-coated galvanized steel, or equivalent, shall be used. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc coated steel with weights in accordance with ASTM B 695, Class 55 minimum.

**R317.3.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet damp locations.** Fasteners for fire-retardant treated wood used in exterior applications or wet or damp locations shall be of hot dipped zinc coated galvanized steel, silicon bronze or copper. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

**R302.12 Floors draft stopping:** In combustible construction where there is usable space both above and below the concealed space of a floor/ceiling assembly and that space exceeds 1000 sq. ft., draftstops must be installed so that the area of the concealed is divided into approximately equal areas.

**R703.2 Cladding vapor barrier:** An approved vapor barrier must be applied to the exterior sheathing behind all exterior cladding.

**Table R905.2.4.1(2) Wind resistance for asphalt shingles:** Asphalt shingles must be classified as compliant with ASTM D 3161 class D or F, (100 MPH) for use in Chesapeake.

## New “2009 IRC” Code Criteria and Inspection Procedures

### Mechanical Equipment

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**N1103.6** Heating and cooling *equipment* shall be sized as specified in Section M1401.3

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**(New for 2009 IRC) M1401.3** Heating and cooling *equipment* shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.

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**M1601.1** Duct Design: *Duct systems* serving heating, cooling and *ventilation equipment* shall be fabricated in accordance with the provisions of this section and ACCA Manual D or other *approved* methods.

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**Manual S, J and D calculations** must be submitted with permit applications or must be available on-site during the mechanical rough-in inspection (applicable to single family residences, townhouses, and residential additions).

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**N1102.4.3 New wood burning fireplaces:** All new wood burning and gas fireplaces must have gasketed doors and outside combustion air.

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**M1502.4.4.1 Specified Length:** Maximum length of a dryer duct shall be 35 feet. Where fittings are used the maximum length shall be reduced.

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**Sealing (USBC N1103.2.2).** All ducts, air handlers, and filter boxes used as ducts shall be sealed. Joints and seams must comply with Section M1601.4.1 IRC. Verification of compliance with this section for duct tightness shall be by either a duct pressure test or a visual rough-in check by the inspector.

**TESTING OPTIONS FOR DUCT TIGHTNESS:**

**Testing Option 1: (USBC N1103.2.2.1)** Post-construction test (after concealment)- A duct pressure test is conducted that includes the air handler end closure (requires all register boots to be taped or otherwise sealed during the test). Total leakage shall be less than or equal to 12 cfm per 100 sq. ft. of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system.

**Testing Option 2 -** Rough-in test (before concealment): A duct pressure test is conducted that includes the air handler enclosure (requires all registers boots to be taped or otherwise sealed during the test). Total leakage shall be less than 6 cfm per 100 sq. ft. of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the roughed-in system, including the air handler enclosure. If the air handler is not installed at the time of the test, the leakage rate must be less than or equal to 4 cfm per 100 sq. ft. of conditioned floor area. When the testing option is chosen, it must be performed by approved qualified individuals, testing companies or contractors. A visual rough-in check must be performed by the inspector is also required before concealment.

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**Field Verified Option (USBC N1103.2.2.2)** In place of the testing options a contractor may chose the field verified method as herein described. Field verified shall consist of visual inspections before concealment as follows: 1- Visual inspection of equipment, boots, plenums and duct work before, duct insulation is installed, run-outs, including flex ducts, insulation of the boots, plenums, diffusers, filter boxes and ducts.

**Exception-** The duct tightness test is not required if the air handler and all ducts are located within the conditioned space of the structure.

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## 2009 Plumbing Code Changes

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**R305.1 (Item 2) Minimum Height:** Ceiling must be a minimum of 6'-8" at the center of the front plumbing fixture clearance area. A shower or a tub with a showerhead must have a ceiling height of 6'-8" for area 30"x30" at the showerhead.

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## 2009 Electrical Code Changes

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**R315.1 Carbon monoxide detectors:** Carbon monoxide detectors are required to be installed in the immediate vicinity outside of sleeping rooms and habitable attics when fuel fired appliances are installed or the dwelling has an attached garage.

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**E3902.2 Garage and accessory building receptacles:** All 125 volt, single- phase, 15 and 20 ampere receptacles installed in garages and grade level portions of unfinished accessory buildings used for storage or work areas must have ground- fault circuit interrupter protection for personnel.

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**E3901.7 Outdoor outlets:** At least one accessible outdoor receptacle outlet is required to be installed within the perimeter of each balcony, deck, or porch that has 20 usable square feet or more and is accessible from the inside of the home. Maximum height 6'-6".

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**E4002.14 Tamper-resistant receptacles:** All receptacles specified in areas designated by E3901.1 125 – volt 15-20 amperes shall be listed tamper-resistant receptacles.

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**E4209.1 Ground-fault circuit-interrupters:** Hydromassage bathtubs and their associated electrical components must be protected by a readily accessible GFCI 125 volt, single-phase receptacle not exceeding 30 amperes and located within 6 feet of the tub shall be protected by a GFCI receptacle.

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**N1104.1 Lighting equipment:** A minimum of 50 percent of the lamps in permanently installed lighting fixtures must be High-efficiency lamps.

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**E3608.1.2 Concrete encased electrode:** When footings or foundations are structurally re-enforced with # 4 rebar at least 20 feet long, turn up a short Length out of the foundation and expose near the service panel for an electrical connection.

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**E3902.11 USBC, Arc-fault circuit-interrupter protection:** All branch circuits that supply 120-volts, single-phase, 15 & 20 ampere outlets installed in bedrooms must be protected by combination type arc-fault circuit interrupter to provide protection of the branch circuit.

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## 2009 Building Codes and Changes

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**N1102.4.1 Building thermal envelope:** The building thermal envelope must be durably sealed to limit infiltration. The following must be caulked, gasketed, weatherstripped or otherwise sealed with an **air barrier material**, suitable film or solid material. 1). All joints, seams and penetrations. 2). Site windows, doors and skylights. 3). Openings between windows and door assemblies and their respective jambs and framing. 4). Utility penetrations. 5). Dropped ceilings or chases adjacent to thermal envelope. 6). Knee walls. 7). Walls and ceilings separating garage from conditioned spaces. 8). Behind tubs and showers on exterior walls. 9). Common walls between dwelling units. 10). Attic openings. 11). Rim joist junction. 12). Other sources of infiltration. *Batts or blankets of mineral or glass insulation is not an approved material to seal the annular space between window and door framing.*

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**R302.11 Fireblocking.** In combustible construction fireblocking shall be provided to cut off all concealed draft openings (both horizontal and vertical) and form an effective fire barrier between stories, and between a top story and the roof space. All openings around vents, pipes, ducts, cables and wire at ceiling and floor levels require an approved material to resist the free passage of flame and products of combustions. *Batt or blankets of mineral or glass fiber is not an approved material to seal ceiling or floor penetrations.*

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**Table R302.6 Dwelling/Garage Separation:** Structural components supporting the floor/ceiling assemblies used for separation required by this section must be covered with a minimum of ½ inch gypsum or equivalent. Examples; wood or steel columns, beams, headers and bearing walls. **If a habitable room is above the garage, the ceiling must be at least 5/8 inch Type X gypsum board.**

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**N1102.2.3 Access hatches and doors:** Access doors, hatches and pull down stairs from conditioned space to unconditioned spaces, (attics and crawl spaces) must be weatherstripped and insulated to equal surrounding surfaces. Access must be provided to all equipment without damaging or compressing the insulation. Baffles or restrainers must be installed at the opening to keep insulation from spilling out.

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**R329.1 Kitchen areas:** In dwellings without an *approved* fire sprinkler system, a fire extinguisher having a rating of 2-A: 10-B:C shall be installed in the kitchen area.

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**R602.3 Exterior studs continuous:** Exterior walls of wood frame construction shall have studs that are continuous from a support at the bottom plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof diaphragm.

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**USBC 113.3 Minimum inspections:** Insulation must not be installed until after the framing (performed by a building inspector) and rough-in inspections (performed by electrical, mechanical, gas, and plumbing inspectors) have been approved. The structure may be insulated only after the approval of the required rough-in inspection by each discipline (building, plumbing, mechanical, gas and electrical). The building contractor must request a separate inspection for insulation prior to concealment. The building inspector may inspect the crawl space and blown attic insulation during the final building inspection, if the area is accessible.

\* **R301. 2.1 Wind Limitations:** Buildings, structures and portions thereof **including, exterior wall coverings, exterior windows, exterior doors, skylights, roof coverings, curtain walls and garage doors**, must be designed to withstand, without structural damage, the pressures exerted by 100 MPH 3 sec gust of wind for the City of Chesapeake. Buildings, structures and portions thereof must also withstand, without structural damage, the pressures exerted by an 85 MPH constant wind speed. The 100 MPH wind speed must be converted to positive and negative design pressures for the roof and exterior walls including exterior openings and component sizes. These pressures must then be adjusted for mean roof height and exposure to determine the design load performance requirements for all exterior components of the building or structure including but not limited to , all wall coverings, curtain walls, roof coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors, and exterior doors. **The permit holder is responsible for verifying, through the manufacturers' specs and/or nationally recognized product evaluation reports, that these products meet or exceed the design requirements.**

★ **Flood Zone AE:** In accordance with the Chesapeake Flood Ordinance, the lowest finished floor elevation of newly constructed dwelling units and additions, must be a minimum of one foot (1'-0") above the base flood elevation per the. All mechanical equipment and electrical devices must also be elevated a minimum of one foot (1'-0") above the base flood elevation. All mechanical ducts must be elevated only above the base food elevation. A FEMA flood certificate, prepared by a licensed surveyor, must be submitted and approved by this department before issuance of a certificate of occupancy.

★ **Fentress Airfield Noise Zone area:** Dwelling units constructed in the Fentress noise zone area, as determined by Chesapeake Zoning Ordinance, must submit a noise attenuation test, conducted by a registered design professional before a certificate of occupancy is issued. The test must indicate a noise level no greater than 45 Ldn over a 24 hour period of time.

**By signing this Informational List, I agree to comply with all above listed code items. I understand approval of all required construction stages is contingent upon codes compliance and field inspection.**

**Permit Holder: Print Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Effective Date- March 9, 2012**