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# e-Connection

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**TO:** All Santa Rosa County Contractors  
**FROM:** Rhonda Royals, Building Official  
**SUBJECT:** Significant Changes to the Florida Building Code Residential  
**DATE:** June 26, 2015

The 5<sup>th</sup> Edition (2014) of the Florida Building Code (FBC) and 2011 National Electrical Code (NEC) are set to go into effect June 30, 2015. All permit applications received on or after June 30th will be reviewed for compliance with the new codes.

As expected, the new codes bring about significant changes to the construction industry. One major change is in the Energy Code, which mandates required testing of the thermal envelope of a dwelling or dwelling unit in order to verify an air leakage rate of 5 air changes or less per hour (ACPH) in Climate Zones 1 and 2 (Santa Rosa, Escambia and Okaloosa are all located in Climate Zone 2). Testing must be conducted with a blower door at a pressure of 0.2 inches w.g. (50 pascals). The blower door is a large fan that is mounted into the outside frame of an exterior door to measure the airtightness of buildings. When turned on, the fan pulls air out of the house thus lowering the air pressure inside. When the air pressure inside is lowered the higher outside air pressure then flows in through all unsealed cracks and openings. When tested and the air leakage rate is less than 5 air changes per hour then a whole house ventilation system must be installed.

A written report of the test results shall be signed by the party conducting the test and must be provided to the local code official. The code states, "Where required by the code official, testing shall be conducted by an approved third party." A third party will not be required to perform the test in Santa Rosa County at this time. Additionally, the code is silent as to who is qualified to perform the blower door testing. Therefore, test reports will be accepted if performed by someone who holds one of the following certifications or license or those who can show proof that they have had training and received certification in blower door testing:

- RESNET Certification
- Building Performance Institute (BPI) Certification
- A locally licensed or state certified Mechanical or AC Contractor.
- A locally licensed or state certified General, Building or Residential Contractor.
- Other Blower Door Certification and/or training as approved by the Building Official.

Submittal of documentation including the certification from a recognized organization showing completion of educational training and instruction in the use and operation of a blower door test will be required.

Additional residential code changes include, but are not limited to, the following:

## **Building**

**Uninhabitable Attics** – A minimum loading requirement of 20 psf for limited storage is required.

**Exterior Walls** (Fire –Resistant Construction)– The minimum fire separation distance of exterior walls to a property line has increased from 3 ft. to 5 ft. for unrated walls unless the dwelling is protect with a fire-sprinkler system.

**Townhouse Units** - When a parapet is not installed (i.e., such as between townhouse dwelling units) openings and penetrations (i.e., plumbing or vents) of the roof are no longer permitted within 4 feet of the separating wall between townhouse units.

**Attached Garages** - Doors between the garage and dwelling unit are now required to be self-closing. Automatic closers, spring-loaded hinges or other approved devices may be used.

**Glazing** - Glazing adjacent to the bottom stair landing will be considered to be in a hazardous location where the glazing is less than 36-inches above the landing and within 60-inches horizontally of the bottom tread.

**Emergency Escape and Rescue Openings** - The maximum sill height for an emergency escape and rescue opening is now measured from the finished floor to the bottom of the clear opening.

**Floor and Landings at Exterior Doors** – A landing is now required on each side of exterior doors with a minimum dimension of 36-inches measured in the direction of travel. The landing is still permitted to be omitted for exterior doors other than the required egress door where a stairway of two or fewer risers is located on the exterior side of the door. The **exterior door** can now swing over the landing or over a stairway with two or few risers. The landing or finished floor at the required egress door **shall not be more than 1-1/2 inches lower than the top of the door threshold**; however, a door or landing on the exterior side of an egress door shall not be more than 7-3/4 inches below the top of the door threshold on the exterior side.

**Landings for Stairways** – Language has been added to the code allowing for angular and curved stair landing with certain dimension less than 36-inches if the required depth is provided the depth at the walk line and the total area is not less than that of a quarter circle with a radius equal to the required landing width.

**Guards and Window Fall Protection** – In dwelling units where the opening of an operable window is located more than 72-inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24-inches above the finished floor of the room in which the window is located. Operable sections of the windows shall not permit openings that allow passage of a 4-inch diameter sphere where such opening are located within 24-inches of the finished floor.

**Smoke Alarms** –Wireless smoke alarms are now specifically approved for satisfying the interconnection requirements for both new and existing dwellings. Smoke Detection and Notification devices must be listed and approved with UL217 and NFPA72.

**Thermal Barrier** – Generally, a thermal barrier is required to separate foam plastic insulation from the interior of the building. The material most commonly used for this thermal barrier is 1/2-inches or thicker gypsum board. However, the code does not intend to limit the use of alternative materials and has always provide for the use of any approved material that performs equivalently to the 1/2-inch gypsum board.

**Fire Protection of Floor Assemblies** – New section added into the code which now requires floor assemblies to be provided with 1/2-inch gypsum wallboard membrane, 5/8-inch wood structure panel membrane, or an equivalent material on the underside of the floor. Exceptions to the requirement are:

1. Spaces protect by fire sprinklers
2. Floors over an unused crawl space
3. Spaces of less than 80 sq. ft. per story
4. Wood floors of 2-inch by 10-inch dimensional lumber.

**Decks** – A new section has been created which consolidates the provisions for deck construction and also adds prescriptive requirements for attaching decks to exterior walls. The addition of the placement

dimensions for bolts and lags connected the deck to the structure are consistent with the minimum edge distance requirements of the National Design Specification (NDS) for Wood Construction. A new table has been included which shows the placement locations for the fasteners in both the ledged and the band joists. Note: This will be a detail that will need to be added to your construction plans.

**Wood Wall Framing** – End-jointed lumber used in fire-rated assemblies must have the designation “Heat Resistant Adhesive” or “HRS” in the grade mark.

**Masonry Veneer** – Minimum and maximum heights of masonry veneer are established for masonry lintels spanning not greater than 18 ft. 3-inches. The prescriptive method for constructing an economical masonry lintel to support masonry veneer above garage doors and other large openings.

**Masonry Opening Tolerances** - Masonry opening tolerances for rough openings shall be (-) ¼ inch to (+) ½ inch from what is specified on the approved plans.

**Installation of Wall Ties** - Installation of wall ties now specifies a minimum of 5/8-inch mortar coverage for wall ties from the exposed face. Wall tie embedment length is also clarified.

**Masonry Veneer Anchorage** – A modification has been made to the fastener and air space requirements for anchored veneer. Masonry veneer is now required to be anchored to wall studs in accordance with a new tie attachment and air space table. Each tie shall support not more than 1.8 sq. feet of wall area and the spacing shall be spaced not more than 18 inches horizontally and vertically.

**Anchored Masonry Veneer** - Mortar is no longer permitted to fill the air space behind anchored masonry veneer. The code still recognizes filling the space behind the anchored masonry veneer with grout as an alternative to the air space requirement. A low-slump grout is effective in providing a uniform barrier to water intrusion. However the code no longer permits mortar for this purpose. When the air space is filled with grout, a water-resistive barrier is required over the studs or sheathing. When filling the air space, replacing the sheathing and water-resistive barrier with a wire mesh and approved water-resistive barrier or an approved water-resistive barrier-backed reinforcement attached directly to the studs is permitted.

**Exterior Doors and Windows** – All exterior fenestration products shall be sealed at the juncture with the building wall with a sealant complying with ASMA 800 or ASTM C920 Class 25 Grade NS or greater for proper joint expansion and contraction, ASTM C 1281, AAMA 812, or other approved standard as appropriate for the type of sealant.

**Impact Resistant Coverings** – All impact resistant coverings must have a permanent label affixed by the product approval holder.

**Exterior Windows and Doors** – Must be tested and labeled in compliance with AAMA/WDMA/CSA101/IS2/A440.

**Garage Doors** – Must be tested to ANSI/DASMA 108; ASTM E330 Procedure A or TAS 202. Also, garage doors must be labeled with a permanent label provided by the garage door manufacturer. The label shall identify the garage door manufacturer, the model/series number, the positive and negative design pressure rating and indicate impact rating (if applicable).

**Window and Door Openings** – “Pan Flashing” is newly defined term in the code. Pan flashing is defined as a “corrosion-resistant flashing at the base of an opening that is integrated into the building exterior wall to direct water to the exterior and is pre-manufactured, fabricated, formed or applied at the job site.” When flashing details or written instructions are not provided by the window or door manufacturer, pan flashing shall be installed at the sill of exterior window and door openings.

**Vinyl Siding over Foam Plastic** – New limitations on the use of vinyl siding installed over foam plastic sheathing for specific wind speeds have been established.

**Roof Covering and Underlayment Application** –New provisions include but are not limited to the following:

- Underlayment for roof slopes less than 4:12, must comply with ASTM D226, Type I or II or ASTM 4869, Type II or IV or ASTM D 6757 and shall be two layers and fastened with 1-inch round plastic caps, metal cap nail or nails and tin tabs attached to a nailable deck with one row in the field of

the sheet with a maximum fastener spacing of 12-inches on center and one row at the overlaps fastened 6-inches on center. Synthetic underlayment shall be fastened in accordance with this section and the manufacturer's recommendation.

- Underlayment for roof slopes greater than 4:12, must comply with ASTM D 226, Type II or ASTM D 4869, Type IV or ASTM D 6757 and shall be one layer and fastened with 1-inch round plastic caps, metal cap nail or nails and tin tabs attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12-inches on center and one row at the overlaps fastened 6-inches on center. Synthetic underlayment shall be fastened in accordance with this section and the manufacturer's recommendations. End laps shall be offset by 6 feet.
- As an alternative, the entire roof deck shall be covered with an approved self-adhering polymer modified bitumen sheet meeting ASTM D 1970 or an approved self-adhering synthetic underlayment installed in accordance with the manufacturer's installation instructions.
- Metal Flashing is required to be installed at wall and roof intersection wherever there is a change in roof slope or direction and around roof openings. Where metal flashing is of metal, the metal shall be corrosion resistant with a thickness not less than specified in new table in code.
- A new exception clarifies that unit skylights may be installed without a cricket or saddle when installed in accordance with the code and installed and flashed in accordance with manufacturer's installation instructions.

## Energy

**Fenestration Product Rating** – U-factors of fenestrations products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory and labeled and certified by the manufactures. Products lacking such a labeled U-factor shall be assigned a default U-factor. And, visible transmittance (VT) of glazed fenestration products shall be determined in accordance with NFR 200 by an accredited, independent laboratory and labeled and carried by the manufacturer. Products lacking such a label shall be assigned a default SHGC or VT as listed in the code.

**Sunrooms** – All sunrooms enclosing conditioned space shall meet the insulation requirements of the code. However, an exception is given for sunrooms with thermal isolation and enclosing conditioned space, minimum of R-19 in ceiling and a minimum of R-13 in the walls. Additionally the walls separating a sunroom with a thermal isolation from conditioned space shall meet the building thermal envelope requirements.

**Lighting** – 75% of lamps are required to be high-efficacy.

## Mechanical

**Materials** - All pipe, tubing, and fittings used in mechanical systems now require a manufacturer's mark and third-party testing or certification.

**Locking Access Port Caps** - The code now recognizes any approved means to prevent unauthorized access to outdoor refrigerant ports. For residential buildings, beside locking ports on outside refrigerant ports, other satisfactory means for preventing unauthorized access to refrigerant ports can now be used.

**Duct Joints, Seams and Connections** – The residential code is now consistent with the provisions of the FBC Mechanical Code as it relates to sealing of ducts and references to the SMACNA HVAC Duct Constriction Standards. Additionally, round metallic ducts shall be mechanically fastened by means of at least three sheet metal screws or rivets spaced equally around the joint. UNLISTED duct tape is not permitted as a sealant on any duct construction for sealing of ducts.

**Dryer Exhaust Duct** – The maximum support spacing for dryer exhaust ducts has increased from 4 feet

to 12 feet. Dryer exhaust ducts now specifically require mechanical fastening. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8-inch into the inside of the duct. Additionally, the maximum specified length of a dryer exhaust duct has increased from 25 ft. to 35 feet. The maximum length of the exhaust duct does not include the transition duct and reductions still need to be taken for 90 degree turns.

**Exhaust Ducts and Openings** - Air exhaust openings shall terminate not less than 3 feet from property lines; 3 feet from operable and on-operable openings into the building and 10 feet from mechanical air intakes, except where the opening is located 3 feet above the air intake.

**Mechanical Ventilation** - Prescriptive design criteria for a whole-house ventilation system has been added to the mechanical ventilation provision of the code. Mechanical ventilation of kitchens and bathrooms is now described as local exhaust. The code requires all dwelling units to be supplied with outdoor air through openings such as a window with a prescribed minimum opening area or through a mechanical ventilation system. Changes to the code now make it clear that a mechanical ventilation for satisfying the outdoor air requirements must be supplied through a whole-house ventilation system when either of two conditions occur:

1. The dwelling's windows and doors do not provide the minimum prescribed openable area (4% of the floor area being vented) to supply adequate natural ventilation; or
2. The dwelling has been tested with a blower door test under the prescribed criteria listed in the code and the test results show an air-infiltration rate of less than 5 air changes per hour.

**Ventilation** – A whole-house mechanical ventilation system shall provide outdoor air at a continuous rate not less than as allowed by code; however, the system is permitted to operate intermittently where the system has controls that enable operation for not less than 25 percentage of each 4-hour segment and the minimum prescribed ventilation rate is multiplied by a prescribed factor in accordance with the code.

**Ranges and Ovens** - Mandatory code language now clarifies that cooking appliances used in dwelling must be listed and labeled for household use and proper clearances met. Cooking appliances designed, tested, listed and labeled for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur.

**Photovoltaic solar energy** – New section has been added to provide for the design, construction, installation, alteration and repair of photovoltaic equipment and systems.

## Gas

**Gas Fired Applications** - Gypsum board is now specifically identified as a combustible material for purposed of determining required clearances around gas-fired applications.

**Gas Materials** - All pipe, tubing and fittings used in a fuel-gas system now require a manufacturer's mark and third-party testing or certification.

**Sediment Trap** - Where a sediment trap is not incorporated as part of a gas appliance, a sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. A new figure has been added to the code to illustrate the correct method of installing a tee fitting sediment trap.

**Return Air** - Certain rooms and locations are prohibited to be used as sources of return air for forced-air heating and cooling systems. This requirement is to prevent the circulation of odors or noxious or hazardous gases throughout the dwelling unit and to prevent negatively affecting the operation of fuel fired equipment.

## **Plumbing**

**Protection of Pipes** -Pipes passing through concrete or cinder walls and floors, cold-formed steel framing or other corrosive material shall be protect against external corrosion by a protective sheathing or wrapping or other means that will withstand any reaction from lime and acid of concrete, cinder or other corrosive material.

**Penetration** - Protective sleeves around piping penetrating concrete slab-on-grade floors shall not be of cellulose-contain materials. If soil treatment is used for subterranean termite protection, the sleeve shall have a maximum wall thickness of 0.010 inch and must be sealed within the slab using a noncorrosive clamping device to eliminate the annular space between the pipe and the sleeve. No termicides shall be applied inside the sleeve.

**Gray Water** - Waste water from lavatories, bathtubs, showers, clothes washers and laundry trays is now defined as gray water and is permitted to be discharged to an approved gray-water system.

**Reliving Arch or Pipe Sleeve** - A sleeve or relieving arch is not required for pipes passing UNDER footings. However, a pipe that passes THROUGH a foundation wall shall be provided with a relieving arch or a pipe sleeve built into the foundation wall.

**Rough Plumbing** – Water test on DWV systems. Each section shall be filled with water to a point not less than **10 feet** above the highest fitting connection or to the highest point in the completed system.

**Air Test** - The code no longer allows an air test of plastic piping in DWV systems.

**Materials** - The code now requires all pipe, fittings, and plumbing components to be listed by a third-party certification agency.

**Plumbing Fixture Definition** - The definition of “plumbing fixture” has been revised to include receptacles and devices that discharge to the drainage system but are not connected to a water supply, such as floor drains and standpipes. The requirement for strainers on plumbing fixture outlets has been clarified by specifically excluding hub drains and standpipes. Also, attics and crawlspaces are not listed as prohibited locations for waste receptors and standpipes and clothes-washer standpipes are permitted to be installed in bathrooms

**Showers** – The distance shower liners must extend above finished thresholds has been reduced from 3-inches to 2-inches.

- The code now recognizes a new liquid-applied shower liner material.

**Overflow Outlet** - Revised text now clarifies that bathtubs require an overflow outlet.

**Ejector Pumps** - A modification to the code now permits the discharge from ejector pumps to connect to soil stacks, waste stacks and horizontal branch drains in addition to building sewers and building drains.

**Vent Terminations** - The minimum clearance for vent terminations above openings within 10 feet has been increase from 2 feet to 3 feet.

### *Water Heaters*

- Water heaters installed in garages having an ignition source don't have to be elevated for appliances that are listed as being “Flammable Vapor Ignition Resistant”.
- Clarification has been added that safety pans are only required under water heaters with storage tanks. Tankless water heaters do not require safety pans.

**Private Swimming Pools** – Code has been amended to address the construction of swimming pools in flood zones.

\*Senate Bill 2502-A has been presented to the Governor as of June 19, 2015, and if he signs it or it becomes law by default will delay three code provisions until June 30, 2016, before taking effect:

1. Mandatory blower door testing for residential buildings or dwelling units as contained in Section R402.4.1.2 of the Florida Building Code, 5th Edition (2014) Energy Conservation Volume;
2. A second fire service access elevator as contained in Section 403.6.1 of the Florida Building Code, 5th Edition (2014) Building Volume; and
3. Mechanical ventilation for residential buildings or dwelling units as contained in Section R303.4 of the Florida Building Code, 5th Edition (2014) Residential Volume.

For an analysis of the changes between the 2010 and 5<sup>th</sup> Edition (2014) Florida Building Codes can be found at: [http://www.floridabuilding.org/fbc/Links\\_to\\_Code\\_Resources.html](http://www.floridabuilding.org/fbc/Links_to_Code_Resources.html)

Information regarding the 2011 National Electrical Code can be found at: [http://www.floridabuilding.org/fbc/Links\\_to\\_Code\\_Resources.html](http://www.floridabuilding.org/fbc/Links_to_Code_Resources.html)

Link to the "Building Technologies Program Air Leakage Guide: [http://www.energycodes.gov/sites/default/files/documents/BECP\\_Buidling%20Energy%20Code%20Resource%20Guide%20Air%20Leakage%20Guide\\_Sept2011\\_v00\\_lores.pdf](http://www.energycodes.gov/sites/default/files/documents/BECP_Buidling%20Energy%20Code%20Resource%20Guide%20Air%20Leakage%20Guide_Sept2011_v00_lores.pdf)

Link to International Code Council for purchase of code books: <http://www.iccsafe.org/>

Link to Florida Building Commission website: <https://floridabuilding.org/c/default.aspx>

Link to Florida Energy Systems Consortium, "Home Energy Analysis: Highlighting the Blower Door Test": [http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC\\_Home\\_Energy\\_Analysis\\_final\\_7-27-10.pdf](http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC_Home_Energy_Analysis_final_7-27-10.pdf)

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