



## **Standards for Jackson EMC's Right Choice Program**

Revised: June 2011

All homes in the program must meet the requirements of the Georgia Energy Code, which is the International Energy Conservation Code (IECC) 2009 Edition with Georgia Supplements and Amendments. A copy of the supplements and amendments may be downloaded from [www.dca.state.ga.us](http://www.dca.state.ga.us).

Program prerequisites are-

- Homes must be served by Jackson EMC
- Homes must have heat pumps and electric tank water heaters. (No electric or gas tank-less water heaters are allowed.)
- No unvented gas fireplaces allowed—direct vent gas fireplaces are allowed

### **CERTIFICATION PROCESS**

#### **Plan Analysis**

Builder must submit house plans to Right Choice for each plan to be built. HESM&A, a state certified mechanical engineer with Errors and Omissions insurance, will calculate the heating and cooling load based on ASHRAE Fundamentals within 10 business days and also prepare the ResCheck, Georgia Energy Code Compliance Certificate for each plan. This service is an added benefit from Jackson EMC.

#### **Enrollment Meeting**

After a builder has chosen to build Right Choice homes, the Enrollment Meeting starts your success. All stakeholders in the certification process are required to attend an Enrollment Meeting. The purpose of the meeting is to communicate the process and the value of Right Choice to the builder, HVAC and air sealer/insulation contractors, review the Certification and Warranty Management Processes, and openly discuss questions about the program standards and HVAC load calculations.

#### **Model Walk-Through**

When the first home for each floor plan reaches the dry-in phase and before the rough-in phase, Right Choice will meet on-site with the builder, HVAC and air sealer/insulation contractors, and conduct a walk-through to discuss how each trade intends to install their product. The discussion will include proposed duct design and layout, HVAC unit sizing, air sealing requirements, and suggestions for a successful Pre-Insulation Inspection.

**Pre-Insulation Inspection--a requirement of IECC 2009 Code**

This inspection must occur before wall insulation is installed. At the Pre-Insulation Inspection, the HVAC contractor should have duct system fully assembled and sealed with mastic. The air sealer contractor must have completed all blocking and air sealing. A Right Choice technician will visually inspect for proper air sealing, duct installation, and will pressure test the duct system for tightness with the Duct Blaster.

**Final Inspection--a requirement of IECC 2009 Code**

This inspection must occur after house has permanent power meter and after HVAC system start-up, preferably before closing. A Right Choice technician will perform a blower door test to check the home's air tightness, perform an e-Scan test to check for proper air distribution from the HVAC system, check the thermostat for proper function, and will visually verify appropriate air sealing, insulation, equipment size, and moisture control.

**Warranty**

The Right Choice warranty is designed to apply to a newly constructed residential home under the Right Choice program that is completed within one year of the initial pre-insulation inspection and also is sold within one year of final approval by Home Diagnostic Solutions. Builder understands that warranty begins at the initial home closing. The program is not designed to cover homes left in various stages of construction for extended periods of time.

The Right Choice energy warranty states that the annual energy used to heat and to cool the house will be below a certain kWh amount, and is valid for 3 years. The Right Choice comfort warranty states that the temperature in the middle of every room must stay within 3 degrees of the temperature setting at the thermostat location for that zone, and is valid for 1 year. The comfort performance is based on average annual weather data. Warranties and Jackson EMC's Energy Advantage Rate are transferable.

## **RIGHT CHOICE STANDARDS**

### **1. AIR SEALING—a requirement of IECC 2009 code**

Air sealing is required by IECC 2009 sections 402.4.1 and 402.4.2. Numbers in parentheses for A-X below refer to the “Air Barrier and Insulation Inspection Component Guide,” and the air sealing diagrams on pages 17-30 (Appendix A) of the Georgia State Supplements and Amendments to the IECC 2009, unless otherwise noted.

#### Blocking and Sheathing

- A. Chases must be capped. (8)
- B. Solid sheet must be installed behind tubs and showers on insulated walls. (13)
- C. Attic knee walls must be sheathed. (1 & 8)
- D. Stud cavities must be blocked from attic. Blocking or top plate will be needed at change in ceiling height and attic knee walls. (1 & 8)
- E. Joist cavities under attic knee walls must be blocked. (1)

#### Pre-Insulation Air Sealing

- F. Top and bottom plate penetrations must be sealed. (1 & 3)
- G. Bottom plate must be sealed to poured wall, slab, or subfloor. (3)
- H. Penetrations in exterior wall sheathing must be sealed. (8 & 12)
- I. Window and door rough openings must be sealed (not chinked with insulation). (4)
- J. Gaps greater than 1/8” between pieces of exterior sheathing must be sealed. (1)
- K. Exhaust fan penetrations must be sealed at band joist. (8 & 25)
- L. Exterior walls of fireplace chase must be sealed (including at combustion air inlet. (8 & 21)
- M. Penetrations through insulated subfloor must be sealed. (402.4.1 2009 IECC 29 & 30)
- N. Shower and tub drains must be sealed (rock wool/fiberglass not acceptable) (12)
- O. HVAC register boots that penetrate building envelope must be sealed to subfloor or drywall. (402.4.2) (16)
- P. Soffits must be sealed at cantilevered floors. (402.4.1 2009 IECC 29 & 30)
- Q. Gaps in chase caps and blocking must be sealed. (2)
- R. Recessed can lights in insulated ceilings must be air-tight. (11)

#### Post-Drywall Air Sealing

- S. Ceiling mounted electrical fixtures, including lights, ceiling fans, and speakers in insulated ceilings must be sealed to drywall. (2 & 11)
- T. HVAC register boots that penetrate building envelope must be sealed to subfloor or drywall. (402.4.2) (16)
- U. Attic knee wall doors must seal tight – this requires weather stripping and a latch. (2)

- V. Attic scuttle holes must seal tight – this requires weather stripping. (2)
- W. Attic pull-down stairs located in conditioned space must seal tight and must be insulated to a minimum R5.
  - W1. A sealed cover box with weather stripping is recommended. The preferred location is in an unheated space such as a garage. (2)
- X. Exterior doors must have weather stripping and thresholds with a minimum R5. This includes all doors that penetrate the building envelope, which may include the door between the house and the basement. (GA 402.2.3 2099 IECC 28)

**TESTING** - a requirement of Georgia State Supplements and Amendments to the IECC 2009

- Y. All homes must pass a blower door test with a result of less than 7 ACH50. (402.4.2.1)
  - Y1. If house is deemed too tight per BPI standards, ventilation will be required. (BPI.org)
- Z. Building envelope testing must be conducted by Right Choice HDS certified DET technician. (402.4.2.1.1)

## 2. INSULATION & WINDOWS

(Parentheses indicate IECC 2009 Edition with Georgia Supplements and Amendments)

Climate Zones in Jackson EMC service area:

Climate Zone 3: Gwinnett, Jackson, Barrow, Madison, Clark, Oglethorpe

Climate Zone 4: Hall, Banks, Franklin, Lumpkin

- A. Home must meet the overall U-value requirement and SHGC requirement of the Georgia Energy Code based on specifications provided by the builder. Right Choice will determine if the provided values meet energy code as part of the plan analysis. (402.1.1 and 402.1.4)

CLIMATE ZONE	FENESTRATION U-FACTOR <sup>b</sup>	SKYLIGHT U-FACTOR <sup>b</sup>	GLAZED FENESTRATION SHGC <sup>b</sup>	CEILING <sup>c</sup>	WOOD FRAME WALL <sup>d</sup>	ATTIC KNEEWALL <sup>e</sup>
2	0.50 <sup>h</sup>	0.75	0.30	R-30 or U-0.030	R-13 or U-0.082	R-18 or U-0.065
3	0.50 <sup>h</sup>	0.65	0.30	R-30 or U-0.030	R-13 or U-0.082	R-18 or U-0.065
4	0.35	0.60	0.30 <sup>s</sup>	R-38 or U-0.025	R-13 or U-0.082	R-18 or U-0.065

*\* This requirement will take effect on July 1, 2011.*

For SI: 1 foot = 304.8 mm.

- R-values are minimums. U-factors and SHGC are maximums. R-19 shall be permitted to be compressed into a 2 × 6 cavity. Non-fenestration U-factors shall be obtained from measurement, calculation or an approved source.
- The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration, including doors 50 percent or more glazed. One door or window (or up to 15 square feet [1.4 m<sup>2</sup>] of glazed fenestration) may be exempt from meeting the U-factor and SHGC (Does not apply to attic access doors) See Section 402.2.3 'Fenestration access hatches and doors' of these Georgia State Supplements and Amendments.
- Ends and sides of ceiling joist cavity shall be blocked with an approved air barrier. Flat ceiling insulation shall be in substantial contact with the ceiling. Ceiling areas without attic space in Climate Zone 4 may be R-30 (maximum of 20 percent of ceiling area or 500 square feet, whichever is less). For HVAC platform and floored access path areas, refer to Section 402.2.1 'Ceilings with attic spaces' of these Georgia State Supplements and Amendments.
- All vertical air-permeable insulation shall be in substantial contact with an air barrier on all six (6) sides.  
**Exception:** Unfinished basements and fireplaces (insulation shall be restrained to stay in place).
- R-13 + R-5 insulated sheathing, R-15 + R-3 insulated sheathing, or R-19 compressed into a 2 × 6 cavity is deemed to meet R-18 minimum requirement. Attic side shall have a sealed air barrier.
- The second R-value applies when more than half the insulation is on the interior side of the mass wall.
- Floor insulation shall be installed to maintain continuous permanent contact with the underside of the subfloor decking, and insulation ends shall be blocked. Cantilevered floors shall be R-30 and band area above exterior wall shall be blocked.
- R-5 and R-10 are continuous and R-13 is cavity and band. For basements with no direct conditioning, either the floor or all of the basement walls shall be insulated. For basements with direct conditioning, all of the basement walls shall be insulated.
- Applies to unheated slabs. Heated slabs shall have exterior edge insulated to R-5 to a depth of 2 feet (610 mm). Insulation located below grade shall be in compliance with Section 402.2.7.
- R-5 and R-10 are continuous and R-13 is cavity and band. See Section 402.2.9 'Crawl Space Walls' of these Georgia State Supplements and Amendments.
- Consideration should be given for mold and moisture, and for termite inspection and treatment.
- Where impact rated fenestration is required under Section R301.2.1.2 of the *International Residential Code* or Section 1609.1.2 of the *International Building Code*, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

- B. Insulation must be installed against a solid air barrier (OSB, drywall, concrete or solid sheet good). As an example, floor insulation must be installed in contact with the subfloor. (402.2.6)
- C. Wall insulation must fill cavities completely. (402.1.1d)
- D. All areas of the attic must have vent openings. If there is a bonus room over the garage, the attic over the garage must be vented in addition to the main attic. (405.5.2(1)). Power attic ventilators shall not be connected to the electric grid. Power attic ventilators connected to a solar panel are allowed. (403.10)
- E. Blown attic insulation may not block soffit vents – baffles must be used to prevent blocking attic ventilation (402.2.1.1)
- F. A permanent certificate shall be completed by the builder or registered design professional which lists the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor) and ducts outside conditioned spaces; U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration. (401.3)
  - F1. Blown attic insulation must have rulers and an attic card in each accessible attic space. Insulation must have a depth throughout the attic that meets or surpasses the depth indicated on the card. (102.5.1.1)
- G. For attic HVAC platforms, R-19 shall be deemed to meet R-30/38 ceiling for a maximum 32 inch wide passage to HVAC system. If more subfloor is desired, it must be raised up to provide room for the full ceiling R-value. (402.2.1)
- H. Attic kneewalls must be insulated to a minimum of an R-18 value. R-13 + R-5 insulated sheathing; R-15 + R-3 sheathing; or R-19 compressed into a 2 X 6 cavity will meet R-18 requirement. Attic side shall have a sealed air barrier. (402.1.1e) Exception: When the roofline is insulated, the former kneewall is classified as an interior wall. (402.1.4 Note 3)
- I. When part of the building envelope, basement foundation walls must be insulated to a minimum of R-5 if continuous and R-13 if cavity. (402.1.1h) Consideration should be given for mold and moisture, and for termite inspection and treatment. (402.1.1k) Concrete foundation walls **may not** be insulated with kraft-paper faced fiberglass batts. Unfaced batts, blown in cellulose, or perforated vinyl encapsulated batts are permitted.
- J. For basements with no direct conditioning, either the floor or all of the basement walls shall be insulated. (402.1.1h)
- K. Crawl space walls. As an alternative to insulating floors over crawl spaces, crawl space walls shall be permitted to be insulated when the crawl space is not vented to the outside. Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder with 6 inches of overlap; then sealed or taped. (402.2.9)
- L. Access doors from conditioned spaces to unconditioned spaces shall be weather-stripped and insulated: Hinged vertical knee wall doors, R-5 minimum; Attic scuttle holes, R-19; Pull down stairs in conditioned space, R-5 minimum. (402.2.3)

### **3. HEATING AND COOLING SYSTEMS**

(Parentheses indicate Georgia State Supplements and Amendments to the IECC 2009, unless otherwise noted.)

#### Equipment

- A. Heat pump must be sized to Right Choice specifications as determined by ASHRAE Fundamentals. (403.6)
- B. Indoor and outdoor units must be matched and ARI rated.
- C. Electric strip heat may only engage when heat pump is unable to meet or maintain the thermostat setting. (403.1.2)
- D. Programmable thermostat—at least one thermostat per dwelling unit must be installed (403.1.1)

#### Ductwork

- E. Duct joints and seams must be sealed with mastic or mastic tape, including the plenum seams and the duct liner to duct collar connection. 2009 GA code now requires 2mm thickness of mastic (“Nickel Thick”) on all HVAC joints (GA Code 403.2.4)
  - E1. Flex duct joints must also have straps securing the flex joint in addition to the mastic sealant.
- F. Dampers are recommended to allow easy alteration of flow to each room on flex duct systems. For rigid duct systems, each room must have one damper that will control air to the supply ducts serving that room. It may be necessary to back up to the branch to install the damper to allow it to be accessible in the future.
- G. Ducts must be sized and designed according to the principles outlined in ACCA Manual D or to achieve proper room air flow.
- H. The return side of the duct system must be sized to carry at least as much air as the supply side of the duct system.
- I. Stud cavities, joist cavities, and cabinets may not be used as ducts. If air must run through these spaces, ducts designed to fit inside those spaces must be used. (403.2.3)
- J. No ducts may be run through roof-ceiling combos, exterior wall cavities, or wall cavities between the garage and house. (403.2.3)
- K. Duct insulation must be at least R-8 in attics and R-6 for all others. Exception: ducts inside the building envelope. (403.2.1)

#### **Zoned Systems**

Must be designed and installed according to HVAC equipment manufacturer specifications. Every brand is expected to have its own set of installation and design instructions.

#### TESTING:

- L. Total Supply and Return air flow must be 400 cfm/ton +/- 10%.
- M. Duct leakage must be less than 20 cfm per ton operating at 1/3 pressure utilizing the duct blaster.

#### **4. MOISTURE AND INDOOR AIR QUALITY**

(Parentheses indicate IECC 2009 Edition with Georgia Supplements and Amendments)

- A. New wood-burning fireplaces shall have gasketed doors and outdoor combustion air. (402.4.3)
  - A1. Direct vent fireplaces are allowed.
- B. Grade must slope away from house a minimum of 5% (6" over 10 feet). (R401.3)
- C. Exhaust fans must be vented to the outside and are required in every room with a shower stall or bathtub. Exhaust ducts vented through soffits must penetrate soffit and end with a termination cap.
- D. Gutters must be present on the house and downspouts must direct water away from the foundation.
- E. No polyethylene is allowed in above or below grade wall assemblies. Consideration should be given for mold and moisture, and for termite inspection and treatment. (402.1.1k)
- F. Crawl space walls: As an alternative to insulating floors over crawl spaces, crawl space walls shall be permitted to be insulated when the crawl space is not vented to the outside. Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder with 6 inches of overlap; then sealed or taped. (402.2.9)
  - F1. ALL crawl spaces need 100% vapor barrier coverage

**Black print: International Energy Conservation Code (IECC) 2009 Edition  
with Georgia Supplements and Amendments**

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