



Building Division
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Historic / Existing Homes New HVAC With Ductwork Checklist

2017 Florida Building Code, Energy Conservation, R101.4.2 Exempt buildings. Buildings exempt from the provisions of the Florida Building Code, Energy Conservation, include existing buildings except those considered renovated buildings, changes of occupancy type or previously unconditioned buildings to which comfort conditioning is added. Exempt buildings include those specified in Sections R101.4.2.1 through R101.4.2.4. R101.4.2.3 Historic buildings. Any building meeting the criteria for historic buildings as defined in Chapter 2 of this Code. R101.5.1.1 Residential 3 stories. R101.5.1.1.1 Building thermal envelope alternative. An accurately completed Residential Building Form R402 shall be submitted to the code official to demonstrate code compliance by this method. Alternatively, a Florida REScheck computer printout may be submitted to demonstrate compliance by Sections R402, R403 and R404. R101.5.1.1.2 Simulated performance alternative. An accurately completed Residential Building Form R405 (generated by Commission approved software) demonstrating that code compliance has been achieved shall be submitted to the building official for compliance by Section R405.

For existing single-family residential homes 3 stories or less, the mechanical contractor shall provide the following for installing a new HVAC system with ductwork in digital PDF file format:

- Provide the manual energy form which is attached for example, meeting climate zone 2, or a computer-generated form in the current adopted code format meeting climate zone 2, and a passed result.
- On the energy forms fill in the information lines, Permitting Office: Ocala Building Division, Jurisdiction Number: 521400, and all minimum Residential Building Thermal Envelope information on the form.
- HVAC cooling and heating load calculations, duct calculation and sizing with a complete duct layout plan.
- AHRI form matching all equipment numbers labeled on exterior and interior HVAC units.
- Supply ducts installed in attics require R-8 insulation minimum, open attic requires R-38 minimum or other approved method per energy thermal envelope method. The R-values of the exterior walls can be calculated based on a combination of air gap and existing building materials within the walls if wall insulation cannot be installed due to maintaining components and features of the structure. Calculated R-values shall meet the minimum required per Residential Building Thermal Envelope Form. Any exterior walls with interior exposed block and interior exposed framing studs shall be insulated no exceptions per minimum Residential Building Thermal Envelope requirements located on the energy forms.
- Air leakage with duct testing form shall be submitted prior to final mechanical inspection in PDF format to: Building@Ocalafl.org

FLORIDA BUILDING CODE, ENERGY CONSERVATION**Residential Building Thermal Envelope Approach****FORM R402-2017****Climate Zone ☐**

Scope: Compliance with Section R401.2(1) of the *Florida Building Code, Energy Conservation*, shall be demonstrated by the use of Form R402 for single- and multiple-family residences of three stories or less in height, additions to existing residential buildings, alterations, renovations and building systems in existing buildings, as applicable. To comply, a building must meet or exceed all of the energy efficiency requirements on Table R402A and all applicable mandatory requirements summarized in Table R402B of this form. If a building does not comply with this method, or by the UA Alternative method, it may still comply under Section R405 of the *Florida Building Code, Energy Conservation*.

**PROJECT NAME
AND ADDRESS:****BUILDER:****OWNER:****PERMITTING OFFICE:****JURISDICTION NUMBER:****PERMIT NUMBER:****General Instructions:**

1. Fill in all the applicable spaces of the "To Be Installed" column on Table R402A with the information requested. All "To Be Installed" values must be equal to or more efficient than the required levels.
2. Complete page 1 based on the "To Be Installed" column information.
3. Read the requirements of Table R402B and check each box to indicate your intent to comply with all applicable items.
4. Read, sign and date the "Prepared By" certification statement at the bottom of page 1. The owner or owner's agent must also sign and date the form.

1. New construction, addition, or existing building	1. _____	_____
2. Single-family detached or multiple-family attached	2. _____	_____
3. If multiple-family, number of units covered by this submission	3. _____	_____
4. Is this a worst case? (yes/no)	4. _____	_____
5. Conditioned floor area (sq. ft.)	5. _____	_____
6. Windows, type and area		
a) U-factor:	6a. _____	_____
b) Solar Heat Gain Coefficient (SHGC)	6b. _____	_____
c) Area	6c. _____	_____
7. Skylights		
a) U-factor:	7a. _____	_____
b) Solar Heat Gain Coefficient (SHGC)	7b. _____	_____
8. Floor type, area or perimeter, and insulation:		
a) Slab-on-grade (R-value)	8a. _____	_____
b) Wood, raised (R-value)	8b. _____	_____
c) Wood, common (R-value)	8c. _____	_____
d) Concrete, raised (R-value)	8d. _____	_____
e) Concrete, common (R-value)	8e. _____	_____
9. Wall type and insulation:		
a) Exterior: 1. Wood frame (Insulation R-value)	9a1. _____	_____
2. Masonry (Insulation R-value)	9a2. _____	_____
b) Adjacent: 1. Wood frame (Insulation R-value)	9b1. _____	_____
2. Masonry (Insulation R-value)	9b2. _____	_____
10. Ceiling type and insulation		
a) Attic (Insulation R-value)	10a. _____	_____
b) Single assembly (Insulation R-value)	10b. _____	_____
11. Air distribution system:		
a) Duct location, insulation	11a. _____	_____
b) AHU location	11b. _____	_____
c) Total duct leakage. Test report attached.	11c. _____ cfm/100 s.f. Yes <input type="checkbox"/> No <input type="checkbox"/>	
12. Cooling system:		
a) type	12a. _____	_____
b) efficiency	12b. _____	_____
13. Heating system:		
a) type	13a. _____	_____
b) efficiency	13b. _____	_____
14. HVAC sizing calculation: attached	14. _____ Yes <input type="checkbox"/> No <input type="checkbox"/>	
15. Water heating system:		
a) type	15a. _____	_____
b) efficiency	15b. _____	_____

I hereby certify that the plans and specifications covered by this form are in compliance with the *Florida Building Code, Energy Conservation*.

PREPARED BY: _____ Date: _____

I hereby certify that this building is in compliance with the *Florida Building Code, Energy Conservation*.

OWNER/AGENT: _____ Date: _____

Review of plans and specifications covered by this form indicate compliance with the *Florida Building Code, Energy Conservation*. Before construction is complete, this building will be inspected for compliance in accordance with Section 553.908, F.S.

CODE OFFICIAL: _____

Date: _____

TABLE R402A

BUILDING COMPONENT	PRESCRIPTIVE REQUIREMENTS ¹		INSTALLED VALUES
	Climate Zone 1	Climate Zone 2	
Windows	U -Factor = NR SHGC = 0.25	U -Factor = 0.40 ² SHGC = 0.25	U -Factor = SHGC =
Skylights	U -factor = 0.75 SHGC = 0.30	U -factor = 0.65 SHGC = 0.30	U -factor = SHGC =
Doors: Exterior door	U -factor = NR	U -factor = 0.40 ³	U -factor =
Floors: Slab-on-Grade Over unconditioned spaces ⁴	NR R-13	NR R-13	R-Value =
Walls ⁴ : Ext. and Adj. Frame	R-13	R-13	R-Value =
Mass			
Insulation on wall interior	R-4	R-6	R-Value =
Insulation on wall exterior	R-3	R-4	R-Value =
Ceilings ⁵	R=30	R=38	R-Value =
Air infiltration	Blower door test is required on the building envelope to verify leakage ≤ 7 ACH; test report provided to code official.		Total leakage = ACH Test report attached? Yes <input type="checkbox"/> No <input type="checkbox"/>
Air distribution system ⁵ : Air handling unit Duct R-value Air leakage ⁵ : Duct test Ducts in conditioned space	Not allowed in attic R-value \geq R-8 (supply in attics) or \geq R-6 (all other duct locations) Postconstruction test Total leakage ≤ 4 cfm/100 s.f. Rough-in test Total leakage ≤ 4 cfm/100 s.f. (air handler installed) Total leakage ≤ 3 cfm/100 s.f. (air handler not installed) Test not required if all ducts and AHU are in conditioned space		Location: R-Value = Total leakage = _____ cfm/100s.f. Test report Attached? Yes <input type="checkbox"/> No <input type="checkbox"/> Location:
Air conditioning system: Central system $\leq 65,000$ Btu/h Room unit or PTAC Other:	Minimum federal standard required by NAECA ⁶ : SEER 14.0 EER [from Table C403.2.3(3)] See Tables C403.2.3(1)-(11)		SEER = EER =
Heating system: Heat pump $\leq 65,000$ Btu/h Gas furnace, non-weatherized Oil furnace, non-weatherized Other:	Minimum federal standard required by NAECA ⁶ : HSPF 8.2 AFUE 80% AFUE 83%		HSPF = AFUE = AFUE =
Water heating system (storage type): Electric ⁷ Gas fired ⁸ Other (describe):	Minimum federal standard required by NAECA ⁶ : 40 gal: EF = 0.92 50 gal: EF = 0.90 40 gal: EF = 0.59 50 gal: EF = 0.58		Gallons = EF = Gallons = EF =

NR = No requirement.

- (1) Each component present in the As Proposed home must meet or exceed each of the applicable performance criteria in order to comply with this code using this method.
- (2) For impact rated fenestration complying with Section R301.2.1.2 of the *Florida Building Code, Residential* or Section 1609.1.2 of the *Florida Building Code, Building*, the maximum U -factor shall be 0.65 in Climate Zone 2. An area-weighted average of U -factor and SHGC shall be accepted to meet the requirements, or up to 15 square feet of glazed fenestration area are exempted from the U -factor and SHGC requirement based on Sections R402.3.1, R402.3.2 and R402.3.3.
- (3) One side-hinged opaque door assembly up to 24 square feet is exempted from this U -factor requirement.
- (4) R-values are for insulation material only as applied in accordance with manufacturer's installation instructions. For mass walls, the "interior of wall" requirement must be met except if at least 50 percent of the insulation required for the "exterior of wall" is installed exterior of, or integral to, the wall.
- (5) Ducts & AHU installed "substantially leak free" per Section R403.3.2. Test required by either individuals as defined in Section 553.993(5) or (7), *Florida Statutes*, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), *Florida Statutes*. The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope.
- (6) Minimum efficiencies are those set by the *National Appliance Energy Conservation Act* of 1987 for typical residential equipment and are subject to NAECA rules and regulations. For other types of equipment, see Tables C403.2.3(1-11) of the Commercial Provisions of the *Florida Building Code, Energy Conservation*.
- (7) For other electric storage volumes, minimum EF = $0.97 - (0.00132 \times \text{volume})$.
- (8) For other natural gas storage volumes, minimum EF = $0.67 - (0.0019 \times \text{volume})$.

TABLE R402B MANDATORY REQUIREMENTS			
Component	Section	Summary of Requirement(s)	Check
Air leakage	R402.4	To be caulked, gasketed, weatherstripped or otherwise sealed per Table R402.4.1.1. Recessed lighting: IC-rated as having ≤ 2.0 cfm tested to ASTM E 283. Windows and doors: 0.3 cfm/sq. ft. (swinging doors: 0.5 cfm/sf) when tested to NFRC 400 or AAMA/WDMA/CSA 101/I.S. 2/A440. Fireplaces: Tight-fitting flue dampers & outdoor combustion air.	
Programmable thermostat	R403.1.2	A programmable thermostat is required for the primary heating or cooling system.	
Air distribution system	R403.3.2 R403.3.4	Ducts shall be tested as per Section R403.3.2 by either individuals as defined in Section 553.993(5) or (7), <i>Florida Statutes</i> , or individuals licensed as set forth in Section 489.105(3) (f), (g) or (i), <i>Florida Statutes</i> . Air handling units are not allowed in attics.	
Water heaters	R403.5	Comply with efficiencies in Table C404.2. Hot water pipes insulated to $\geq R-3$ to kitchen outlets, other cases. Circulating systems to have an automatic or accessible manual OFF switch. Heat trap required for vertical pipe risers.	
Swimming pools & spas	R403.10	Spas and heated pools must have vapor-retardant covers or a liquid cover or other means proven to reduce heat loss except if 70% of heat from site-recovered energy. Off/timer switch required. Gas heaters minimum thermal efficiency is 82%. Heat pump pool heaters minimum COP is 4.0.	
Cooling/heating equipment	R403.7	Sizing calculation performed & attached. Special occasion cooling or heating capacity requires separate system or variable capacity system.	
Lighting equipment	R404.1	At least 75% of permanently installed lighting fixtures shall be high-efficacy lamps.	