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 ☐ No ☐**	
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 ☐ No ☐**	
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 Skylights	*U*-Factor = NR SHGC = 0.25 *U*-factor = 0.75 SHGC = 0.30	*U*-Factor = 0.40[2] SHGC = 0.25 *U*-factor = 0.65 SHGC = 0.30	*U*-Factor = SHGC = *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 Mass Insulation on wall interior Insulation on wall exterior	 R-13 R-4 R-3	 R-13 R-6 R-4	 *R*-Value = *R*-Value = *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 ☐ No ☐
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 ≥ R-8 (supply in attics) or ≥ 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 ☐ No ☐ Location:
Air conditioning system: Central system ≤ 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 ≤ 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 * volume).

(8) For other natural gas storage volumes, minimum EF = 0.67 - (0.0019 * volume).