

45214

FORM R405-2020

**FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION**

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: Blackwell Street: City, State, Zip: , FL , Owner: Blackwell Design Location: FL, Gainesville	Builder Name: Permit Office: Permit Number: Jurisdiction: County: Columbia (Florida Climate Zone 2)
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1. New construction or existing      New (From Plans) 2. Single family or multiple family      Detached 3. Number of units, if multiple family      1 4. Number of Bedrooms      2 5. Is this a worst case?      No 6. Conditioned floor area above grade (ft²)      1408 Conditioned floor area below grade (ft²)      0 7. Windows(296.4 sqft.)      Description      Area a. U-Factor:      Dbl, U=0.40      296.42 ft² SHGC:      SHGC=0.30 b. U-Factor:      N/A      ft² SHGC: c. U-Factor:      N/A      ft² SHGC: Area Weighted Average Overhang Depth:      1.500 ft. Area Weighted Average SHGC:      0.300 8. Skylights      Area c. U-Factor:(AVG)      N/A      ft² SHGC(AVG):      N/A 9. Floor Types (1408.0 sqft.)      Insulation      Area a. Raised Floor      R=19.0      1408.00 ft² b. N/A      R=      ft² c. N/A      R=      ft²	10. Wall Types(2133.3 sqft.)      Insulation      Area a. Frame - Wood, Exterior      R=19.0      2133.30 ft² b. N/A      R=      ft² c. N/A      R=      ft² d. N/A      R=      ft² 11. Ceiling Types (1408.0 sqft.)      Insulation      Area a. Under Attic (Vented)      R=38.0      1408.00 ft² b. N/A      R=      ft² c. N/A      R=      ft² 12. Ducts      R      ft² a. Sup: Attic, Ret: Attic, AH: Main      6      281.6 13. Cooling systems      kBtu/hr      Efficiency a. Central Unit      40.5      SEER:14.00 14. Heating systems      kBtu/hr      Efficiency a. Electric Heat Pump      39.5      HSPF:8.20 15. Hot water systems      Cap: 40 gallons a. Electric      EF: 0.920 b. Conservation features      None 16. Credits      CF, Pstat
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Glass/Floor Area: 0.211	Total Proposed Modified Loads: 52.94	PASS
	Total Baseline Loads: 58.44	

  

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.  PREPARED BY: _____ DATE: _____  I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.  OWNER/AGENT: _____ DATE: _____	Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.  BUILDING OFFICIAL: _____ DATE: _____
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- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.3.2.1.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 5.00 ACH50 (R402.4.1.2).



## INPUT SUMMARY CHECKLIST REPORT

## WALLS

✓ #	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	In	Height Ft	In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
1	N	Exterior	Frame - Wood	Main	19	49	4	15		740.0 ft²		0.111	0.150000	0
2	E	Exterior	Frame - Wood	Main	19	30		15		450.0 ft²		0.111	0.150000	0
3	S	Exterior	Frame - Wood	Main	19	49	4	10		493.3 ft²		0.111	0.150000	0
4	W	Exterior	Frame - Wood	Main	19	30		15		450.0 ft²		0.111	0.150000	0

## DOORS

✓ #	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
1	N	Insulated	Main	None	.46	3		8		24 ft²
2	S	Insulated	Main	None	.46	1		6	8	6.7 ft²
3	S	Insulated	Main	None	.46	1		6	8	6.7 ft²

## WINDOWS

Orientation shown is the entered, Proposed orientation.

✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening
1	N	1	Vinyl	Low-E Double	Yes	0.4	0.3	N	27.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
2	N	1	Vinyl	Low-E Double	Yes	0.4	0.3	N	72.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
3	N	1	Vinyl	Low-E Double	Yes	0.4	0.3	N	16.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
4	E	2	Vinyl	Low-E Double	Yes	0.4	0.3	N	18.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
5	E	2	Vinyl	Low-E Double	Yes	0.4	0.3	N	12.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
6	S	3	Vinyl	Low-E Double	Yes	0.4	0.3	N	24.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
7	S	3	Vinyl	Low-E Double	Yes	0.4	0.3	N	66.7 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
8	S	3	Vinyl	Low-E Double	Yes	0.4	0.3	N	3.8 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
9	W	4	Vinyl	Low-E Double	Yes	0.4	0.3	N	36.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
10	W	4	Vinyl	Low-E Double	Yes	0.4	0.3	N	9.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None
11	W	4	Vinyl	Low-E Double	Yes	0.4	0.3	N	12.0 ft²	1 ft 6 in	1 ft 6 in	Drapes/blinds	None

## INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000476	1760	96.56	181.28	.126	5

## HEATING SYSTEM

✓ #	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts
1	Electric Heat Pump/	None	Singl	HSPF:8.2	39.5 kBtu/hr	1	sys#1

4/8

## RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

### Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method

**Applications for compliance with the 2020 Florida Building Code, Energy Conservation via the Residential Simulated Performance Alternative shall include:**

- ☒ This checklist
- ☒ Form R405-2020 report
- ☒ Input summary checklist that can be used for field verification (usually four pages/may be greater)
- ☒ Energy Performance Level (EPL) Display Card (one page)
- ☒ HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7
- ☒ Mandatory Requirements (five pages)

#### **Required prior to CO:**

- ☒ Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- ☐ A completed 2020 Envelope Leakage Test Report (usually one page); exception in R402.4 allows dwelling units of R-2 Occupancies and multiple attached single family dwellings to comply with Section C402.5
- ☐ If Form R405 duct leakage type indicates anything other than "default leakage", then a completed 2020 Duct Leakage Test Report - Performance Method (usually one page)



# ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX\* = 91

The lower the EnergyPerformance Index, the more efficient the home.

, , FL,

1. New construction or existing	New (From Plans)	10. Wall Type and Insulation	Insulation	Area
2. Single family or multiple family	Detached	a. Frame - Wood, Exterior	R=19.0	2133.30 ft <sup>2</sup>
3. Number of units, if multiple family	1	b. N/A	R=	ft <sup>2</sup>
4. Number of Bedrooms	2	c. N/A	R=	ft <sup>2</sup>
5. Is this a worst case?	No	d. N/A	R=	ft <sup>2</sup>
6. Conditioned floor area (ft <sup>2</sup> )	1408	11. Ceiling Type and insulation level	Insulation	Area
7. Windows**	Description	a. Under Attic (Vented)	R=38.0	1408.00 ft <sup>2</sup>
a. U-Factor:	DBI, U=0.40	b. N/A	R=	ft <sup>2</sup>
SHGC:	SHGC=0.30	c. N/A	R=	ft <sup>2</sup>
b. U-Factor:	N/A	12. Ducts, location & insulation level	R	ft <sup>2</sup>
SHGC:		a. Sup: Attic, Ret: Attic, AH: Main	6	281.6
c. U-Factor:	N/A	13. Cooling systems	kBtu/hr	Efficiency
SHGC:		a. Central Unit	40.5	SEER:14.00
d. U-Factor:	N/A	14. Heating systems	kBtu/hr	Efficiency
SHGC:		a. Electric Heat Pump	39.5	HSPF:8.20
Area Weighted Average Overhang Depth:	1.500 ft.	15. Hot water systems	Cap: 40 gallons	
Area Weighted Average SHGC:	0.300	a. Electric	EF: 0.92	
8. Skylights	Description	b. Conservation features		
a. U-Factor(AVG):	N/A	None		
SHGC(AVG):	N/A	Credits (Performance method)		CF, Pstat
9. Floor Types	Insulation	Area		
a. Raised Floor	R=19.0	1408.00 ft <sup>2</sup>		
b. N/A	R=	ft <sup>2</sup>		
c. N/A	R=	ft <sup>2</sup>		

I certify that this home has complied with the Florida Energy Efficiency Code for Building Construction through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL Display Card will be completed based on installed Code compliant features.

Builder Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Address of New Home: \_\_\_\_\_ City/FL Zip: \_\_\_\_\_



\*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida Energy Rating. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

\*\*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

# Florida Building Code, Energy Conservation, 7th Edition (2020)

## Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS:

, FL ,

Permit Number:

**MANDATORY REQUIREMENTS** - See individual code sections for full details.

### SECTION R401 GENERAL

☐ **R401.3 Energy Performance Level (EPL) display card (Mandatory).** The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

### SECTION R402 BUILDING THERMAL ENVELOPE

☐ **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

**Exception:** Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.

☐ **R402.4.1 Building thermal envelope** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

☐ **R402.4.1.1 Installation.** The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

☐ **R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 pascals). Testing shall be conducted 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) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

**Exception:** Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

☐ **R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

☐ **R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m<sup>2</sup>), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

**Exception:** Site-built windows, skylights and doors.



## MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.5.5 Heat traps (Mandatory).** Storage water heaters not equipped with integral heat traps and having vertical pipe risers shall have heat traps installed on both the inlets and outlets. External heat traps shall consist of either a commercially available heat trap or a downward and upward bend of at least 3 1/2 inches (89 mm) in the hot water distribution line and cold water line located as close as possible to the storage tank.
- R403.5.6 Water heater efficiencies (Mandatory).**
- ☐ **R403.5.6.1.1 Automatic controls.** Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. The minimum temperature setting range shall be from 100°F to 140°F (38°C to 60°C).
- ☐ **R403.5.6.1.2 Shut down.** A separate switch or a clearly marked circuit breaker shall be provided to permit the power supplied to electric service systems to be turned off. A separate valve shall be provided to permit the energy supplied to the main burner(s) of combustion types of service water-heating systems to be turned off.
- ☐ **R403.5.6.2 Water-heating equipment.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2 in Chapter 4 of the Florida Building Code, Energy Conservation, Commercial Provisions, for the type of equipment installed. Equipment used to provide heating functions as part of a combination system shall satisfy all stated requirements for the appropriate water-heating category. Solar water heaters shall meet the criteria of Section R403.5.6.2.1.
- ☐ **R403.5.6.2.1 Solar water-heating systems.** Solar systems for domestic hot water production are rated by the annual solar energy factor of the system. The solar energy factor of a system shall be determined from the Florida Solar Energy Center Directory of Certified Solar Systems. Solar collectors shall be tested in accordance with ISO Standard 9806, Test Methods for Solar Collectors, and SRCC Standard TM-1, Solar Domestic Hot Water System and Component Test Protocol. Collectors in installed solar water-heating systems should meet the following criteria:
1. Be installed with a tilt angle between 10 degrees and 40 degrees of the horizontal; and
  2. Be installed at an orientation within 45 degrees of true south.
- ☐ **R403.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the Florida Building Code, Residential, or Florida Building Code, Mechanical, as applicable, or with other approved means of ventilation including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- ☐ **R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.
- Exception:** Where an air handler that is integral to tested and listed HVAC equipment is used to provide whole-house mechanical ventilation, the air handler shall be powered by an electronically commutated motor.
- ☐ **R403.6.2 Ventilation air.** Residential buildings designed to be operated at a positive indoor pressure or for mechanical ventilation shall meet the following criteria:
1. The design air change per hour minimums for residential buildings in ASHRAE 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.
  2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.
  3. If ventilation air is drawn from enclosed space(s), then the walls of the space(s) from which air is drawn shall be insulated to a minimum of R-11 and the ceiling shall be insulated to a minimum of R-19, space permitting, or R-10 otherwise.

### R403.7 Heating and cooling equipment.

- ☐ **R403.7.1 Equipment sizing (Mandatory).** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the equipment loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, based on building loads for the directional orientation of the building. The manufacturer and model number of the outdoor and indoor units (if split system) shall be submitted along with the sensible and total cooling capacities at the design conditions described in Section R302.1. This Code does not allow designer safety factors, provisions for future expansion or other factors that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**TABLE R403.6.1  
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY <sup>a</sup> (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
HRV or ERV	Any	1.2 cfm/watt	Any
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

- ☐ **R403.10.3 Covers.** Outdoor heated swimming pools and outdoor permanent spas shall be equipped with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.
- Exception:** Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.
- ☐ **R403.10.4 Gas- and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013, when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.
- ☐ **R403.10.5 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with AHRI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance. Geothermal swimming pool heat pumps are not required to meet this standard.
- ☐ **R403.11 Portable spas (Mandatory).** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.
- ☐ **R403.13 Dehumidifiers (Mandatory)** If installed, a dehumidifier shall conform to the following requirements:
1. The minimum rated efficiency of the dehumidifier shall be greater than 1.7 liters/ kWh if the total dehumidifier capacity for the house is less than 75 pints/day and greater than 2.38 liters/kWh if the total dehumidifier capacity for the house is greater than or equal to 75 pints/day.
  2. The dehumidifier shall be controlled by a sensor that is installed in a location where it is exposed to mixed house air.
  3. Any dehumidifier unit located in unconditioned space that treats air from conditioned space shall be insulated to a minimum of R-2.
  4. Condensate disposal shall be in accordance with Section M1411.3.1 of the Florida Building Code, Residential.
- ☐ **R403.13.1 Ducted dehumidifiers.** Ducted dehumidifiers shall, in addition to conforming to the requirements of Section R403.13, conform to the following requirements:
1. If a ducted dehumidifier is configured with return and supply ducts both connected into the supply side of the cooling system, a backdraft damper shall be installed in the supply air duct between the dehumidifier inlet and outlet duct.
  2. If a ducted dehumidifier is configured with only its supply duct connected into the supply side of the central heating and cooling system, a backdraft damper shall be installed in the dehumidifier supply duct between the dehumidifier and central supply duct.
  3. A ducted dehumidifier shall not be ducted to or from a central ducted cooling system on the return duct side upstream from the central cooling evaporator coil.
  4. Ductwork associated with a dehumidifier located in unconditioned space shall be insulated to a minimum of R-6.

## SECTION R404

### ELECTRICAL POWER AND LIGHTING SYSTEMS

- ☐ **R404.1 Lighting equipment (Mandatory).** Not less than 90 percent of the lamps in permanently installed luminaires shall have an efficacy of at least 45 lumens-per-watt or shall utilize lamps with an efficacy of not less than 65 lumens-per-watt.

**R404.1.1 Lighting equipment (Mandatory).** Fuel gas lighting systems shall not have continuously burning pilot lights.



# 2020 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

**TABLE 402.4.1.1**  
**AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA <sup>a</sup>**

Project Name:	Blackwell	Builder Name:		CHECK
Street:		Permit Office:		
City, State, Zip:	, FL ,	Permit Number:		
Owner:	Blackwell	Jurisdiction:		
Design Location:	FL, Gainesville			
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA		
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.		
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.		
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.		
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.			
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.		
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.		
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace walls.		
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.			
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces.		
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.			
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the finished surface.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.		
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.		
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.		
Electrical/phone box or exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or			
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.			

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.



# Envelope Leakage Test Report (Blower Door Test)

## Residential Prescriptive, Performance or ERI Method Compliance

### 2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction:	Permit #:
<b>Job Information</b>	
Builder:	Community: Lot: NA
Address:	
City:	State: FL Zip:
<b>Air Leakage Test Results</b> <i>Passing results must meet either the Performance, Prescriptive, or ERI Method</i>	
<input type="radio"/> <b>PRESCRIPTIVE METHOD</b> -The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.	
<input type="radio"/> <b>PERFORMANCE or ERI METHOD</b> -The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2020 (Performance) or R406-2020 (ERI), section labeled as infiltration, sub-section ACH50. ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI): <span style="border: 1px solid black; padding: 2px 20px;">5.000</span>	
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 60%;"> <math display="block">\frac{\text{CFM}(50)}{\text{Building Volume}} \times 60 + \frac{4.288279E26}{\text{ACH}(50)} =</math> <div style="display: flex; align-items: center; margin-top: 10px;"> <input type="checkbox"/> <b>PASS</b> </div> <div style="margin-top: 10px;"> <input type="checkbox"/> When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.         </div> </div> <div style="width: 35%;"> <p><u>Method for calculating building volume:</u></p> <input type="radio"/> Retrieved from architectural plans  <input checked="" type="radio"/> Code software calculated  <input type="radio"/> Field measured and calculated         </div> </div>	
<p><b>R402.4.1.2 Testing.</b> Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted 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) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.</p> <p>During testing:</p> <ol style="list-style-type: none"> <li>Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.</li> <li>Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.</li> <li>Interior doors, if installed at the time of the test, shall be open.</li> <li>Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.</li> <li>Heating and cooling systems, if installed at the time of the test, shall be turned off.</li> <li>Supply and return registers, if installed at the time of the test, shall be fully open.</li> </ol>	
<b>Testing Company</b>	
Company Name: _____ Phone: _____ I hereby verify that the above Air Leakage results are in accordance with the 2020 7th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.	
Signature of Tester: _____ Date of Test: _____	
Printed Name of Tester: _____	
License/Certification #: _____ Issuing Authority: _____	

**FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION**

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: Blackwell Street: City, State, Zip: , FL , Owner: Blackwell Design Location: FL, Gainesville	Builder Name: Permit Office: Permit Number: Jurisdiction: County: Columbia (Florida Climate Zone 2)
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1. New construction or existing      New (From Plans) 2. Single family or multiple family      Detached 3. Number of units, if multiple family      1 4. Number of Bedrooms      2 5. Is this a worst case?      No 6. Conditioned floor area above grade (ft²)      1408 Conditioned floor area below grade (ft²)      0 7. Windows(296.4 sqft.)      Description      Area a. U-Factor:      DbI, U=0.40      296.42 ft² SHGC:      SHGC=0.30 b. U-Factor:      N/A      ft² SHGC: c. U-Factor:      N/A      ft² SHGC: Area Weighted Average Overhang Depth:      1.500 ft. Area Weighted Average SHGC:      0.300 8. Skylights      Area c. U-Factor:(AVG)      N/A      ft² SHGC(AVG):      N/A 9. Floor Types (1408.0 sqft.)      Insulation      Area a. Raised Floor      R=19.0      1408.00 ft² b. N/A      R=      ft² c. N/A      R=      ft²	10. Wall Type(2133.3 sqft.)      Insulation      Area a. Frame - Wood, Exterior      R=19.0      2133.30 ft² b. N/A      R=      ft² c. N/A      R=      ft² d. N/A      R=      ft² 11. Ceiling Types (1408.0 sqft.)      Insulation      Area a. Under Attic (Vented)      R=38.0      1408.00 ft² b. N/A      R=      ft² c. N/A      R=      ft² 12. Ducts      R      ft² a. Sup: Attic, Ret: Attic, AH: Main      6      281.6 13. Cooling systems      kBtu/hr      Efficiency a. Central Unit      40.5      SEER:14.00 14. Heating systems      kBtu/hr      Efficiency a. Electric Heat Pump      39.5      HSPF:8.20 15. Hot water systems      Cap: 40 gallons a. Electric      EF: 0.920 b. Conservation features      None 16. Credits      CF, Pstat
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Glass/Floor Area: 0.211	Total Proposed Modified Loads: 52.94	PASS
	Total Baseline Loads: 58.44	

  

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.  PREPARED BY: <u><i>J.B. Smith</i></u> <u><i>Tight Seal Inc</i></u> DATE: <u><i>6/29/22</i></u>  I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.  OWNER/AGENT: _____ DATE: _____	Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.  BUILDING OFFICIAL: _____ DATE: _____
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- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.3.2.1.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 5.00 ACH50 (R402.4.1.2).