

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

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

Applications for compliance with the 2023 Florida Building Code, Energy Conservation via the Residential Simulated Performance Alternative shall include:

- ☒ This checklist
- ☒ Form R405-2023 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 2023 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

N/A If Form R405 duct leakage type indicates anything other than "default leakage", then a completed 2023 Duct Leakage Test Report - Performance Method (usually one page)



Project Name:	1101 SW High Field Terr	Builder Name:	
Street:	1101 SW High Field Terr	Permit Office:	Lake City
City, State, Zip:	Lake City, FL, 32024	Permit Number:	
Owner:	Tim Harvey	Jurisdiction:	221200
Design Location:	FL, Gainesville	County:	Columbia(Florida Climate Zone 2)

1. New construction or existing	New (From Plans)		10. Wall Types(1323.0 sqft.)	Insulation	Area
2. Single family or multiple family	Detached		a. Frame - Wood, Exterior	R=25.0	1107.00 ft ²
3. Number of units, if multiple family	1		b. Frame - Wood, Exterior	R=13.0	216.00 ft ²
4. Number of Bedrooms	2		c. N/A		
5. Is this a worst case?	No		d. N/A		
6. Conditioned floor area above grade (ft ²)	1341		11. Ceiling Types(1341.0 sqft.)	Insulation	Area
Conditioned floor area below grade (ft ²)	0		a. Roof Deck (Unvented)	R=35.0	1341.00 ft ²
7. Windows(207.9 sqft.)	Description	Area	b. N/A		
a. U-Factor:	Dbl, U=0.35	207.92 ft ²	c. N/A		
SHGC:	SHGC=0.27		12. Roof(Metal, Unvent)	Deck R=35.0	1453 ft ²
b. U-Factor:	N/A	ft ²	13. Ducts, location & insulation level	R	ft ²
SHGC:			a.		
c. U-Factor:	N/A	ft ²	b.		
SHGC:			c.		
Area Weighted Average Overhang Depth:	4.810 ft		14. Cooling Systems	kBtu/hr	Efficiency
Area Weighted Average SHGC:	0.270		a. Central Unit	23.6	SEER2:16.00
8. Skylights	Description	Area	15. Heating Systems	kBtu/hr	Efficiency
U-Factor:(AVG)	N/A	N/A ft ²	a. Electric Heat Pump	24.6	HSPF2:8.60
SHGC(AVG):	N/A		16. Hot Water Systems		
9. Floor Types	Insulation	Area	a. ElectricTankless	Cap: 1 gallons	
a. Slab-On-Grade Edge Insulation	R= 0.0	1341.00 ft ²		EF: 0.990	
b. N/A	R=	ft ²	b. Conservation features		
c. N/A	R=	ft ²	17. Credits		None
					CF

PASS

NOTE: Proposed residence must have annual total normalized Modified Loads that are less than or equal to 95 percent of the annual total loads of the standard reference design in order to comply.

The Seal of the State of Florida is a circular emblem. It features a central figure of a person standing on a small island, holding a bow and arrow, with a palm tree behind them. The sun is rising over the horizon in the background. The words "GREAT SEAL OF THE STATE OF FLORIDA" are inscribed around the top inner edge, and "IN GOD WE TRUST" is inscribed around the bottom inner edge.

- 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.
- Homes without ducts do not require duct testing.
- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires a PERFORMANCE envelope leakage test report with envelope leakage no greater than 5.33 ACH50 (R402.4.1.2).

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INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	1101 SW High Field Terr	Bedrooms:	2	Address type:	Street Address
Building Type:	User	Conditioned Area:	1341	Lot #:	---
Owner:	Tim Harvey	Total Stories:	1	Block/SubDivision:	---
Builder Home ID:		Worst Case:	No	PlatBook:	---
Builder Name:		Rotate Angle:	0	Street:	1101 SW High Field Terr
Permit Office:	Lake City	Cross Ventilation:		County:	Columbia
Jurisdiction:	221200	Whole House Fan:		City, State, Zip:	Lake City, FL, 32024
Family Type:	Detached	Terrain:	Suburban		
New/Existing:	New (From Plans)	Shielding:	Suburban		
Year Construct:					
Comment:					

CLIMATE

✓ Design Location	Tmy Site	Design Temp 97.5%	2.5%	Int Design Temp Winter	Summer	Heating Degree Days	Design Moisture	Daily temp Range
___ FL, Gainesville	FL_GAINESVILLE_REGIONA	32	92	70	75	1305.5	51	Medium

BLOCKS

✓ Number	Name	Area	Volume
___ 1	Block1	1341	12069 cu ft

SPACES

✓ Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Finished	Cooled	Heated
___ 1	Great Room	564	5076	Yes	0	0	Yes	Yes	Yes
___ 2	Bedroom	225	2025	No	1	1	Yes	Yes	Yes
___ 3	Master Bedroom	261	2349	No	2	1	Yes	Yes	Yes
___ 4	Master Bathroom and Closet	219	1971	No	0	0	Yes	Yes	Yes
___ 5	Bathroom	72	648	No	0	0	Yes	Yes	Yes

FLOORS

(Total Exposed Area = 1341 sq.ft.)

✓ #	Floor Type	Space	Exposed Perim(ft)	Area	R-Value Perim.	U-Factor Joist	Slab Insul. Vert/Horiz	Tile	Wood	Carpet
___ 1	Slab-On-Grade Edge Ins	Great Room	49	564 sqft	0.0	---	0.304	2 (ft)/0 (ft)	0.00	1.00
___ 2	Slab-On-Grade Edge Ins	Bedroom	24	225 sqft	0.0	---	0.304	2 (ft)/0 (ft)	0.00	1.00
___ 3	Slab-On-Grade Edge Ins	Master Bedroom	26.42	261 sqft	0.0	---	0.304	2 (ft)/0 (ft)	0.00	1.00
___ 4	Slab-On-Grade Edge Ins	Master Bathroom and	23.58	219 sqft	0.0	---	0.710	2 (ft)/0 (ft)	1.00	0.00
___ 5	Slab-On-Grade Edge Ins	Bathroom	24	72 sqft	0.0	---	0.710	2 (ft)/0 (ft)	1.00	0.00

ROOF

✓ #	Type	Materials	Roof Area	Gable Area	Framing. Fract.	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
___ 1	Hip	Metal	1453 ft²	0 ft²	0.11	Medium	N	0.96	No	0.9	No	35	22.62

INPUT SUMMARY CHECKLIST REPORT

ATTIC													
✓ #	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC							
1	Full attic	Unvented	0	1341 ft²	N	N							

CEILING (Total Exposed Area = 1341 sq.ft.)													
✓ #	Ceiling Type	Space	R-Value	Ins. Type	Area	U-Factor	Framing Frac.	Truss Type					
1	Flat ceiling under attic(Unvented)	Great Room	0.0	Blown	564.0ft²	0.027	0.11	Wood					
2	Flat ceiling under attic(Unvented)	Bedroom	0.0	Blown	225.0ft²	0.027	0.11	Wood					
3	Flat ceiling under attic(Unvented)	Master Bedroom	0.0	Blown	261.0ft²	0.027	0.11	Wood					
4	Flat ceiling under attic(Unvented)	Master Bathroom and	0.0	Blown	219.0ft²	0.027	0.11	Wood					
5	Flat ceiling under attic(Unvented)	Bathroom	0.0	Blown	72.0ft²	0.027	0.11	Wood					

WALLS (Total Exposed Area = 1323 sq.ft.)													
✓ #	Omt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft In	Height Ft In	Area sq.ft.	U-Factor	Sheath R-Value	Frm. Frac.	Solar Absor.	Below Grade
1	W	Exterior	Frame - Wood	Great Room	25.0	30.0 0	9.0 0	270.0	0.053		0.23	0.75	0 %
2	S	Exterior	Frame - Wood	Great Room	25.0	5.0 0	9.0 0	45.0	0.053		0.23	0.75	0 %
3	E	Exterior	Frame - Wood	Great Room	25.0	14.0 0	9.0 0	126.0	0.053		0.23	0.75	0 %
4	W	Exterior	Frame - Wood	Bedroom	25.0	15.0 0	9.0 0	135.0	0.053		0.23	0.75	0 %
5	N	Exterior	Frame - Wood	Bedroom	25.0	9.0 0	9.0 0	81.0	0.053		0.23	0.75	0 %
6	S	Exterior	Frame - Wood	Master Bedroom	25.0	9.0 0	9.0 0	81.0	0.053		0.23	0.75	0 %
7	E	Exterior	Frame - Wood	Master Bedroom	25.0	17.0 5	9.0 0	156.8	0.053		0.23	0.75	0 %
8	E	Exterior	Frame - Wood	Master Bathroom an	25.0	14.0 7	9.0 0	131.3	0.053		0.23	0.75	0 %
9	N	Exterior	Frame - Wood	Master Bathroom an	25.0	9.0 0	9.0 0	81.0	0.053		0.23	0.75	0 %
10	E	Exterior	Frame - Wood	Bathroom	13.0	6.0 0	9.0 0	54.0	0.084		0.23	0.75	0 %
11	N	Exterior	Frame - Wood	Bathroom	13.0	12.0 0	9.0 0	108.0	0.084		0.23	0.75	0 %
12	W	Exterior	Frame - Wood	Bathroom	13.0	6.0 0	9.0 0	54.0	0.084		0.23	0.75	0 %

DOORS (Total Exposed Area = 40 sq.ft.)													
✓ #	Omt	Adjacent To	Door Type	Space	Storms	U-Value	Width Ft In	Height Ft In	Area				
1	W	Exterior	Insulated	Great Room	None	0.46	3.00 0	6.00 8	20.0ft²				
2	N	Exterior	Insulated	Bedroom	None	0.46	3.00 0	6.00 8	20.0ft²				

WINDOWS (Total Exposed Area = 208 sq.ft.)																
✓ #	Omt	Wall ID	Frame	Panels	NFRC U-Factor	SHGC	Imp	Storm	Total Area (ft²)	Same Units	Width (ft)	Height (ft)	Overhang-Depth (ft)	Sep. (ft)	Interior Shade	Screen
1	W	1	Vinyl	Low-E Double	Y 0.35	0.27	N	N	10.7	2	1.33	4.00	0.0	0.0	Drapes/blinds	None
2	W	1	Vinyl	Low-E Double	Y 0.35	0.27	N	N	45.0	4	2.50	4.50	0.0	0.0	Drapes/blinds	None
3	E	3	Vinyl	Low-E Double	Y 0.35	0.27	N	N	40.0	1	6.00	6.67	9.0	1.0	Drapes/blinds	None
4	W	4	Vinyl	Low-E Double	Y 0.35	0.27	N	N	22.5	2	2.50	4.50	0.0	0.0	Drapes/blinds	None
5	S	6	Vinyl	Low-E Double	Y 0.35	0.27	N	N	40.0	1	6.00	6.67	14.0	1.0	Drapes/blinds	None
6	E	7	Vinyl	Low-E Double	Y 0.35	0.27	N	N	22.5	2	2.50	4.50	0.0	0.0	Drapes/blinds	None
7	E	8	Vinyl	Low-E Double	Y 0.35	0.27	N	N	11.3	1	2.50	4.50	0.0	0.0	Drapes/blinds	None
8	N	11	Vinyl	Low-E Double	Y 0.35	0.27	N	N	8.0	1	2.00	4.00	10.0	1.0	Drapes/blinds	None
9	W	12	Vinyl	Low-E Double	Y 0.35	0.27	N	N	8.0	1	2.00	4.00	0.0	0.0	Drapes/blinds	None

INPUT SUMMARY CHECKLIST REPORT

INFILTRATION										
✓ #	Scope	Method	SLA	CFM50	ELA	EqLA	ACH	ACH50	Space(s)	Infiltration Test Volume
___ 1	Wholehouse	Proposed ACH(50)	0.00030	1072	58.80	110.39	0.1094	5.3	All	12069 cu ft

MASS					
✓ #	Mass Type	Area	Thickness	Furniture Fraction	Space
___ 1	Default(8 lbs/sq.ft.)	0 ft ²	0 ft	0.30	Great Room
___ 2	Default(8 lbs/sq.ft.)	0 ft ²	0 ft	0.30	Bedroom
___ 3	Default(8 lbs/sq.ft.)	0 ft ²	0 ft	0.30	Master Bedroom
___ 4	Default(8 lbs/sq.ft.)	0 ft ²	0 ft	0.30	Master Bathroom and Closet
___ 5	Default(8 lbs/sq.ft.)	0 ft ²	0 ft	0.30	Bathroom

HEATING SYSTEM										
✓ #	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	Geothermal Entry	HeatPump Power	Ducts Volt	Block Current	Block
___ 1	Electric Heat Pump	Split/Single	209836182	HSPF2: 8.60	24.6		0.00	0.00	0.00	sys#0 1

COOLING SYSTEM									
✓ #	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	Air Flow cfm	SHR	Duct	Block
___ 1	Central Unit	Split/Single	209836182	SEER2:16.0	23.6	800	0.75	Ductless	1

HOT WATER SYSTEM											
✓ #	System Type	Subtype	Location	EF(UEF)	Cap	Use	SetPnt	Fixt. Flow	Trap	Pipe Ins.	Pipe length
___ 1	Electric	Tankless	Great Room	0.99 (0.99)	1.0 gal	40 gal	120 deg	Standard	Yes	None	99

HOT WATER SYSTEM										
	Recirculation System	Recirc Control Type	Loop length	Branch length	Pump power	DWHR	Facilities Connected	Equal Flow	DWHR Eff	Other Credits
___ 1	No		NA	NA	NA	No	NA	NA	NA	None

DUCTS												
✓ Duct #	Location	Supply R-Value	Area	Location	Return R-Value	Area	Leakage Type	AHU Location	CFM 25 TOT OUT	QN OUT	AHU SEALED	HVAC # RLF Heat Cool

TEMPERATURES												
Programable Thermostat: N						Ceiling Fans: N						
Cooling	[] Jan	[] Feb	[] Mar	[] Apr	[] May	[X] Jun	[X] Jul	[X] Aug	[X] Sep	[] Oct	[] Nov	[] Dec
Heating	[X] Jan	[X] Feb	[X] Mar	[] Apr	[] May	[] Jun	[] Jul	[] Aug	[] Sep	[] Oct	[X] Nov	[X] Dec
Venting	[] Jan	[] Feb	[X] Mar	[X] Apr	[] May	[] Jun	[] Jul	[] Aug	[] Sep	[X] Oct	[X] Nov	[] Dec

INPUT SUMMARY CHECKLIST REPORT

TEMPERATURES(Continued)													
Thermostat Schedule: HERS 2006 Reference		Hours											
Schedule Type		1	2	3	4	5	6	7	8	9	10	11	12
___ Cooling (WD)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
___ Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
___ Heating (WD)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68
___ Heating (WEH)	AM	68	68	68	68	68	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	68	68

Florida Building Code, Energy Conservation, 8th Edition (2023)

Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: 1101 SW High Field Terr
Lake City, FL 32024

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

- ☒ **R402.2.10.1 Slab-on-grade floor insulation installation (Mandatory).** Where installed, the insulation shall extend downward from the top of the slab on the outside or inside of the foundation wall. Insulation located below grade shall be extended the distance provided in Table R402.1.2, or the distance of the proposed design as applicable, by any combination of vertical insulation, insulation extending under the slab or insulation extending out from the building. Insulation extending away from the building shall be protected by pavement or by not less than 10 inches (254 mm) of soil. The top edge of the insulation installed between the exterior wall and the edge of the interior slab shall be permitted to be cut at a 45-degree (0.79 rad) angle away from the exterior wall.
- ☒ **R402.2.11.1 Crawl space walls insulation installation (Mandatory).** Where crawl space wall insulation is installed, it shall be permanently fastened to the wall and extend downward from the floor to the finished grade level and then vertically and/or horizontally for at least an additional 24 inches (610 mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder in accordance with the Florida Building Code, Building, or Florida Building Code, Residential, as applicable. All joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (153 mm) up the stem wall and shall be attached to the stem wall.
- ☒ **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. Dwelling units with an air leakage rate less than three air changes per hour shall be provided with whole-house mechanical ventilation in accordance with Section R403.6.1 of this code and Section M1507.3 of the Florida Building Code, Residential. 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.
 7. If an attic is both air sealed and insulated at the roof deck, interior access doors and hatches between the conditioned space volume and the attic shall be opened during the test and the volume of the attic shall be added to the conditioned space volume for purposes of reporting an infiltration volume and calculating the air leakage of the home.

Florida Building Code, Energy Conservation, Mandatory Requirements (2023 Continued)

- ☐ **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/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), 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.
- ☐ **R402.4.4 Rooms containing fuel - burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

Exceptions:
 1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
 2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.
- ☐ **R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.
- ☐ **R402.4.6 Air-sealed electrical and communication boxes.** Air-sealed electrical and communication boxes that penetrate the air barrier of the building thermal envelope shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. Air-sealed boxes shall be buried in or surrounded by insulation. Air-sealed boxes shall be marked in accordance with NEMA OS 4. Air-sealed boxes shall be installed in accordance with the manufacturer's instructions.

SECTION R403 SYSTEMS

- ☒ **R403.1 Controls**
 - ☒ **R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system
 - ☒ **R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps with supplementary electric-resistance heaters shall have controls that limit supplemental heat operation to only those times when one of the following applies:
 1. The vapor compression cycle cannot provide the necessary heating energy to satisfy the thermostat setting.
 2. The heat pump is operating in defrost mode.
 3. The vapor compression cycle malfunctions.
 4. The thermostat malfunctions
- ☐ **R403.3.2 Sealing (Mandatory).** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 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, to be "substantially leak free" in accordance with Section R403.3.3.
- ☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.
- ☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:
 1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
 2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exceptions:
 1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
 2. Duct testing is not mandatory for buildings complying by Section 405 of this code. Duct leakage testing is required for Section R405 compliance where credit is taken for leakage, and a duct air leakage Q_n to the outside of less than 0.080 (where Q_n = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is indicated in the compliance report for the proposed design.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official

Florida Building Code, Energy Conservation, Mandatory Requirements (2023 Continued)

- ☒ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums
- ☒ **R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.
- ☐ **R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.
- ☒ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory).** If heated water circulation systems are installed, they shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.
- ☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.
- ☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.
- ☒ **R403.5.2 Demand recirculation water systems (Mandatory).** Where installed, demand recirculation water systems shall have controls that comply with both of the following:
1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.
 2. The control shall limit the temperature of the water entering the cold water piping to 104°F (40°C).
- ☒ **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 ½ 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.

Florida Building Code, Energy Conservation, Mandatory Requirements (2023 Continued)



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.

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

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY ^a (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	3.8 cfm/watt	Any
Bathroom, utility room	10	2.8 cfm/watt	<90
Bathroom, utility room	90	3.5 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916



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.

Florida Building Code, Energy Conservation, Mandatory Requirements (2023 Continued)

- ☐ **R403.7.1.1 Cooling equipment capacity.** Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section R403.7, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.
- The published value for AHRI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment. This selection shall be based on the outdoor design dry-bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet-bulb temperature and the design value for entering dry-bulb temperature.

Design values for entering wet-bulb and dry-bulb temperatures shall be for the indoor dry bulb and relative humidity used for the load calculation and shall be adjusted for return side gains if the return duct(s) is installed in an unconditioned space.

Exceptions:

1. Attached single- and multiple-family residential equipment sizing may be selected so that its cooling capacity is less than the calculated total sensible load but not less than 80 percent of that load.
2. When signed and sealed by a Florida-registered engineer, in attached single- and multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

R403.7.1.2 Heating equipment capacity.

- ☐ **R403.7.1.2.1 Heat pumps.** Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.
- ☐ **R403.7.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.
- ☐ **R403.7.1.2.3 Fossil fuel heating equipment.** The capacity of fossil fuel heating equipment with natural draft atmospheric burners shall not be less than the design load calculated in accordance with Section R403.7.1.
- ☐ **R403.7.1.3 Extra capacity required for special occasions.** Residences requiring excess cooling or heating equipment capacity on an intermittent basis, such as anticipated additional loads caused by major entertainment events, shall have equipment sized or controlled to prevent continuous space cooling or heating within that space by one or more of the following options:
1. A separate cooling or heating system is utilized to provide cooling or heating to the major entertainment areas.
 2. A variable capacity system sized for optimum performance during base load periods is utilized.
- ☐ **R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the Florida Building Code, Energy Conservation—Commercial Provisions in lieu of Section R403.
- ☐ **R403.9 Snow melt and ice system controls (Mandatory).** Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).
- ☐ **403.10 Pools and permanent spa energy consumption (Mandatory).** The energy consumption of pools and permanent spas shall be in accordance with Sections R403.10.1 through R403.10.5.
- ☐ **R403.10.1 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater.
- Gas-fired heaters shall not be equipped with continuously burning ignition pilots.
- ☐ **R403.10.2 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems
3. Where pumps are powered exclusively from on-site renewable generation.

Florida Building Code, Energy Conservation, Mandatory Requirements (2023 Continued)

- ☐ **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).** All permanently installed luminaires, excluding those in kitchen appliances, 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.

SECTION R405
SIMULATED PERFORMANCE ALTERNATIVE
(PERFORMANCE)

- ☒ **R405.2 Mandatory requirements.** Compliance with this section requires that the mandatory provisions identified in Section R401.2 be met. All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6, except site-wrapped supply ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-8.
- ☐ **R405.2.1 Ceiling insulation.** Ceilings shall have an insulation level of at least R-19, space permitting. For the purposes of this code, types of ceiling construction that are considered to have inadequate space to install R-19 include single assembly ceilings of the exposed deck and beam type and concrete deck roofs. Such ceiling assemblies shall be insulated to at least a level of R-10.
- ☐ **R405.2.2 Building air leakage testing.** Building or dwelling air leakage testing shall be in accordance with Sections R402.4 through R402.4.1.2. If an air leakage rate below seven air changes per hour at a pressure of 0.2 inch w.g. (50 pascals) is specified for the proposed design, testing shall verify the air leakage rate does not exceed the air leakage rate of the proposed design instead of seven air changes per hour.
- ☐ **R405.2.3 Duct air leakage testing.** In cases where duct air leakage lower than the default Q_n to outside of 0.080 (where Q_n = duct leakage to the outside in cfm per 100 square feet of conditioned floor area tested at 25 Pascals) is specified for the proposed design, testing in accordance with Section R403.3.2 shall verify a duct air leakage rate not exceeding the leakage rate of the proposed design. Otherwise, in accordance with Section R403.3.3, duct testing is not mandatory for buildings complying by Section R405.

SECTION R406
ENERGY RATING INDEX
COMPLIANCE ALTERNATIVE

- ☒ **R406.2 Mandatory requirements.** Compliance with this section requires that the provisions identified in Sections R401 through R404 labeled as "mandatory" and Section R403.5.3 of the 2015 International Energy Conservation Code be met. For buildings that do not utilize on-site renewable power production for compliance with this section, the building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code. For buildings that utilize on-site renewable power production for compliance with this section, the building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table R402.1.2 or Table R402.1.4 of the 2015 International Energy Conservation Code.

Exception: Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.

- ☐ **R406.2.1 Site-wrapped supply ducts.** Site-wrapped supply ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-8.

EMS Heat Loss/Heat Gain Calculation

Company: Green Engineering Solutions, Inc.
Preparer: Misty Miller CER #1493
Phone: 904-400-0624

Customer: Tim Harvey Addition
Address: 1101 SW High Field Terr Lake City, FL 32024
Phone:
Date: 11/18/2024

This HVAC load calculation has been performed using sound engineering principles as prescribed by Manual J seventh and eighth abridged editions and ASHRAE Fundamentals. Duct sizing has been performed as prescribed by Manual D.

1. Design Conditions

Total conditioned area (sq.ft.)	1341			Front of home is facing:
	Indoor	Outdoor	Temp. Diff.	
Winter	70	34	36	West
Summer	73	95	22	

2. How would you describe the summer humidity in your area? Very Humid 60 Grains difference

3. How tight is the house? Very tight-under 1500 Sq. Ft.
 Winter air change / hr: 0.4 Summer air change / hr: 0.2

4. Fireplace evaluation : Number: None Tightness: No fireplace 0

5. Number of occupants: 3

6. Overhang characteristics (optional)

	East	West	S/SE/SW
Distance of overhang from top of window (Ft.)			
Length of overhang			



7. Solar gain through glass

Facing	Total area - Sq.Ft.	Type of glass	HTM	Linear ft.	Unshaded	Shaded	BTUH
N/Shaded	11.25	Trpl or low-E	20	Below OH		11	
NE/NW		— Select —			0		0
South	40	Trpl or low-E	33		40	0	1320
SE/SW		— Select —			0	0	0
East	70.5	Trpl or low-E	65.0		70	0	4582
West	79.5	Trpl or low-E	65.0		80	0	5168
Skylight		— Select —					0
Total North and Shaded						11	225
Total Solar Gain							11295
Adjust for tinted or reflective window coating?				No	1		11295

8. Ducts/Pipes

Location:	— Select —				
Attic Temp.	Insulation		Leakage		Area
— Select —	— Select —		— Select —		
Duct gain:	0	Duct loss:	0		

9. Load Calculation

Elements of Load	Insulation / R-value	Area/lin.ft.	U-value	Heat Loss	Heat Gain
Gross Wall		1323	Glass solar gain		11295
Glass 1	Trpl or low-E	201	0.42	3043	
Glass 2	— Select —			0	
Skylight	— Select —	0		0	
Doors	Insulated or Storm	40	0.4	576	352
Net walls	R-25	1082	0.042	1636	1000
Ceilings	R-30	1341	0.033	1593	1991
Floors	— Select —			0	0
Open floors	— Select —			0	0
Slab floors	No Insulation	147	0.8	4234	0
Volume of your building or zone (cu. Ft.)		12069		3186	974
People					900
Appliances					2800
Sub Total				14267	19311
Duct Loss/Gain				0	0
Sensible Load				14267	19311
Latent Load					2331
TOTAL BTUH				14267	21643

Summary		
	BTUH	Tons
Total heating load	14267	
Total cooling load	21643	1.8

Room by Room

Total Heat Loss	14446	System CFM (cooling)	800
Total Heat Gain	19912	System CFM (heating)	800

Room name	New Great Room	Bedroom	Master Bedroom	New Bathroom/Closet	Bathroom
Gross wall	441	216	237.78	212.22	216
North windows					8
NE/NW windows					
South windows			40		
SE/SW windows					
East windows	40		22.50	11.25	
West windows	55.67	22.50			8
Skylight					
Doors	20	20			
Net walls	325	174	175	201	200
Ceiling	564	225	261	219	72
Floor-crawl					
Floor-open					
Floor-slab	49	24	26.42	23.58	24
Infiltration	116	42	62	11	16
People		1	2		
Appliances	1800	500	500		
Heat loss	5835	2410	3106	1562	1532
Sensible Heat Gain	9799	3104	4684	1288	1036
Cooling CFM	394	125	188	52	42
Heating CFM	323	133	172	86	85

Air Ducts Sizing

Total measured length of ducts
 Total equivalent length of fittings
 Available static pressure for duct
 Friction rate

Use heating CFM
 Flex ducts used

	CFM	No. outlets	Outlet CFM	Duct diam.	Air vel.
Supply trunk / branch					
First section off AHU	800				
1st reduction / branch					
2nd reduction / branch					
3rd reduction / branch					
4th reduction / branch					
5th reduction / branch					
Return trunk / branch					
First section off AHU	800				
1st reduction / branch					
2nd reduction / branch					
3rd reduction / branch					
4th reduction / branch					
5th reduction / branch					
Room runs					
New Great Room	323				
Bedroom	133				
Master Bedroom	172				
New Bathroom/Closet	86				
Bathroom	85				

Equipment selection as per Manual S

	BTUH	Nom.Tons
Total heat loss	14267	
Total heat gain	21643	1.8
Sensible heat gain	19311	
Latent heat gain	2331	
Sensible/total ratio	0.89	
Target cooling TD	17	

Design temp.	Outdoor	Indoor
Winter	34	70
Summer	95	73
ID design RH	50%, 63F WB	
Altitude		

Predominantly Cool climate

Manufacturer's Equipment Specification

Equipment	Manufacturer	Model No.	BTUH output	Clg. capacity @ OD design temp.		
Furnace						
Boiler				Total	Sensible	Latent
Heat pump / AC	Mitsubishi	MXZ-3C24NA3		23600	18880	4720
Evaporator						
Air handler	Mitsubishi	MSZ-GL15NA-GL12NA-U1				
TOTAL CAPACITY with altitude correction			0	23600	18880	4720
Selected equipment size			OK	OK	OK	OK
			Heating CFM	Cooling CFM (rec.)	Ext. static pressure of blower	
			800	1010		

AHRI # 209836182
SEER2: 16 / HSPF2: 8.6

Available static pressure for duct

Blower ext. static press.	
coil pressure drop	
filter pressure drop	
register pressure drop	
grille pressure drop	
other	
Available SP for duct	0

Supplemental heat needed for heat pump

HP capacity @ 47F	24600
HP capacity @ 17F	14600
HP capacity @ ODDT	20267
BTUH supplemental heat	-5999
KW supplemental heat	-2

2023 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA-TABLE 402.4.1.1a

Project Name: 1101 SW High Field Terr		Builder Name:	
Street: 1101 SW High Field Terr		Permit Office: Lake City	
City, State, Zip: Lake City, FL, 32024		Permit Number:	
Owner: Tim Harvey		Jurisdiction: 221200	
Design Location: FL, Gainesville		County: Columbia(Florida Climate Zone 2)	
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA	IC
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.	IC
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, communication, and other equipment boxes, housings, and enclosures	Boxes, housings, and enclosures that penetrate the air barrier shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. All concealed openings into the box, housing, or enclosure shall be sealed. The continuity of the air barrier shall be maintained around boxes, housings, and enclosures that penetrate the air barrier. Alternatively, air-sealed boxes shall be installed in accordance with R402.4.6	Boxes, housings, and enclosures shall be buried in or surrounded by tightly fitted insulation.	
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or ceiling penetrated by the boot.		
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.

11/18/2024 2:38:41 PM

EnergyGauge® USA 8.0.00 - FlaRes2023 FBC 8th Edition (2023) Compliant Software

Page 1

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2023 Florida Building Code, Energy Conservation, 8th Edition

Jurisdiction: 221200	Permit #:
Job Information	
Builder:	Community: Lot: NA
Address: 1101 SW High Field Terr	
City: Lake City	State: FL Zip: 32024
Air Leakage Test Results <i>Passing results must meet either the Performance, Prescriptive, or ERI Method</i>	
☐ PRESCRIPTIVE METHOD -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.	
☒ PERFORMANCE or ERI METHOD -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 R405-2023 (Performance) or R406-2023 (ERI), section labeled as infiltration, sub-section ACH50. ACH(50) specified on Form R405-2023-Energy Calc (Performance) or R406-2023 (ERI): 5.328	
$\frac{\text{CFM}(50)}{\text{Building Volume}} \times 60 \div \frac{12069}{\text{ACH}(50)} =$ ☐ PASS ☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department. Method for calculating building volume: ☐ Retrieved from architectural plans ☒ Code software calculated ☐ Field measured and calculated	
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. Dwelling units with an air leakage rate less than three air changes per hour shall be provided with whole-house mechanical ventilation in accordance with Section R403.6.1 of this code and Section M1507.3 if the <i>Florida Building Code, Residential</i>. 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 <i>building thermal envelope</i>. During testing: - Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures. - Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures. - Interior doors, if installed at the time of the test, shall be open. - Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed. - Heating and cooling systems, if installed at the time of the test, shall be turned off. - Supply and return registers, if installed at the time of the test, shall be fully open. - If an attic is both sealed and insulated at the roof deck, interior access doors and hatches between the conditioned space volume and the attic shall be opened during the test and the volume of the attic shall be added to the conditioned space volume for purposes of reporting the infiltration volume and calculating the air leakage of the home.	
Testing Company	
Company Name: _____ Phone: _____	
I hereby verify that the above Air Leakage results are in accordance with the 2023 8th 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: _____

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 80

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

1101 SW High Field Terr,Lake City,FL,32024

1. New construction or existing	New (From Plans)	10. Wall Types(1323.0 sqft.)	Insulation	Area
2. Single family or multiple family	Detached	a. Frame - Wood, Exterior	R=25.0	1107.00 ft ²
3. Number of units, if multiple family	1	b. Frame - Wood, Exterior	R=13.0	216.00 ft ²
4. Number of Bedrooms	2	c. N/A		
5. Is this a worst case?	No	d. N/A		
6. Conditioned floor area above grade (ft ²)	1341	11. Ceiling Types(1341.0 sqft.)	Insulation	Area
Conditioned floor area below grade (ft ²)	0	a. Roof Deck (Unvented)	R=35.0	1341.00 ft ²
7. Windows**	Description	b. N/A		
a. U-Factor:	Dbl, U=0.35	c. N/A		
SHGC:	SHGC=0.27	12. Roof(Metal, Unvent)	Deck R=35.0	1453 ft ²
b. U-Factor:	N/A	13. Ducts, location & insulation level	R	ft ²
SHGC:		a.		
c. U-Factor:	N/A	b.		
SHGC:		c.		
Area Weighted Average Overhang Depth:	4.810 ft	14. Cooling Systems	kBtu/hr	Efficiency
Area Weighted Average SHGC:	0.270	a. Central Unit	23.6	SEER2:16.00
8. Skylights	Description	15. Heating Systems	kBtu/hr	Efficiency
U-Factor:(AVG)	N/A	a. Electric Heat Pump	24.6	HSPF2:8.60
SHGC(AVG):	N/A			
9. Floor Types	Insulation	16. Hot Water Systems	Cap: 1 gallons	
a. Slab-On-Grade Edge Insulation	R= 0.0	a. ElectricTankless	EF: 0.990	
b. N/A	R=	b. Conservation features		
c. N/A	R=			
	Area	17. Credits	None	CF
	1341.00 ft ²			
	ft ²			
	ft ²			

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: 1101 SW High Field Terr City/FL Zip: Lake City,FL,32024



*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.