

Residential System Sizing Calculation

Summary

Eric & Janette Hagler

Project Title:
BB-Hagler

Lake City, FL 32055

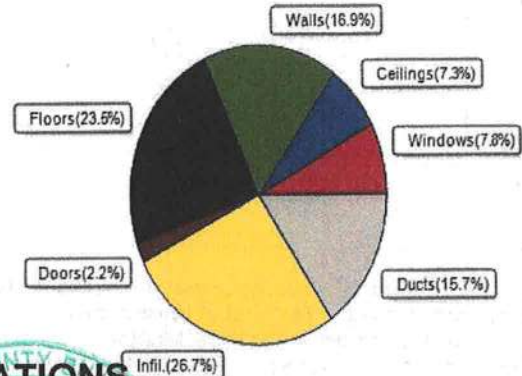
5/2/2018

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(51gr.)			
Winter design temperature(TMY3 99%)	30 F	Summer design temperature(TMY3 99%)	94 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	40 F	Summer temperature difference	19 F
Total heating load calculation	34151 Btuh	Total cooling load calculation	30635 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	158.1 54000	Sensible (SHR = 0.75)	195.4 40500
Heat Pump + Auxiliary(0.0kW)	158.1 54000	Latent	136.2 13500
		Total (Electric Heat Pump)	176.3 54000

WINTER CALCULATIONS

Winter Heating Load (for 2460 sqft)

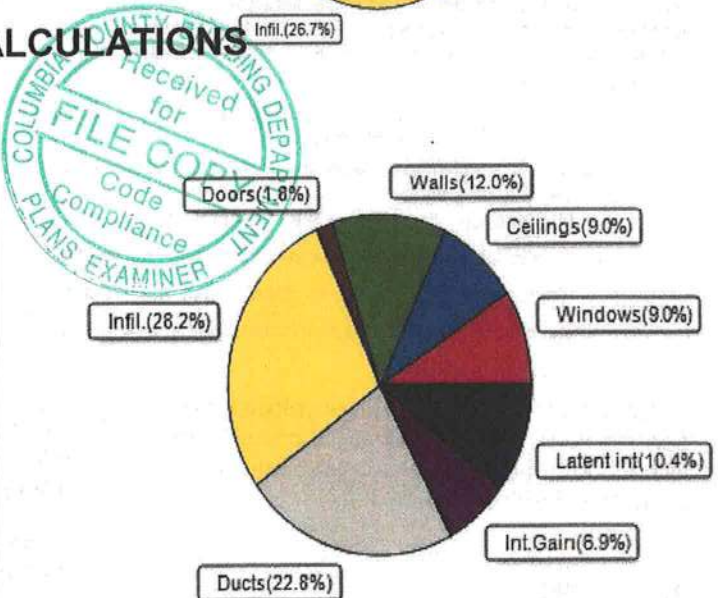
Load component		Load
Window total	222 sqft	2664 Btuh
Wall total	1700 sqft	5770 Btuh
Door total	40 sqft	736 Btuh
Ceiling total	2460 sqft	2497 Btuh
Floor total	See detail report	8024 Btuh
Infiltration	208 cfm	9103 Btuh
Duct loss		5357 Btuh
Subtotal		34151 Btuh
Ventilation	0 cfm	0 Btuh
TOTAL HEAT LOSS		34151 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2460 sqft)

Load component		Load
Window total	222 sqft	2743 Btuh
Wall total	1700 sqft	3678 Btuh
Door total	40 sqft	552 Btuh
Ceiling total	2460 sqft	2747 Btuh
Floor total		0 Btuh
Infiltration	156 cfm	3243 Btuh
Internal gain		2120 Btuh
Duct gain		5638 Btuh
Sens. Ventilation	0 cfm	0 Btuh
Blower Load		0 Btuh
Total sensible gain		20722 Btuh
Latent gain(ducts)		1332 Btuh
Latent gain(infiltration)		5381 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		3200 Btuh
Total latent gain		9913 Btuh
TOTAL HEAT GAIN		30635 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: *[Signature]*

DATE: 5-2-18

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Envelope Leakage Test Report Performance Method

Project Name: BB-Hagler
 Street:
 City, State, Zip: Lake City, FL, 32055
 Design Location: FL, Gainesville
 Cond. Floor Area: 2460 sq.ft.

Builder Name: B&B Homes - Max Bass
 Permit Office:
 Permit Number:
 Jurisdiction:
 Cond. Volume: 21326 cu ft.

Envelope Leakage Test Results

Regression Data:

C: _____ n: _____ R: _____

Single or Multi Point Test Data

	HOUSE PRESSURE	FLOW:
1	Pa	cfm
2	Pa	cfm
3	Pa	cfm
4	Pa	cfm
5	Pa	cfm
6	Pa	cfm

Leakage Characteristics

Required ACH(50) from
 FORM R405-2017 : _____

Tested ACH(50) * : _____

*Tested leakage must be less than or equal to the required ACH(50) shown on Form R405-2017 for this building. If the tested ACH(50) is less than 3 the building must have a mechanical ventilation system.

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour in Climate Zones 1 and 2 ... Testing shall be conducted with a blower door at a pressure of 0.2 inches 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.

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; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

I hereby certify that the above envelope leakage performance results demonstrate compliance with Florida Energy Code requirements in accordance with Section R402.4.1.2.

SIGNATURE: _____

PRINTED NAME: _____

DATE: _____

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 third party conducting the test and provided to the code official.



BUILDING OFFICIAL: _____

DATE: _____

2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name:	BB-Hagler	Builder Name:	B&B Homes - Max Bass
Street:		Permit Office:	
City, State, Zip:	Lake City , FL , 32055	Permit Number:	
Owner:	Eric & Janette Hagler	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 drywall.	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 register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.	
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.

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.

SECTION R404

ELECTRICAL POWER AND LIGHTING SYSTEMS

R404.1 Lighting equipment (Mandatory). Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Exception: Low-voltage lighting.

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

MANDATORY REQUIREMENTS - (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 403.7, 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 IECC—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).

R403.10 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.

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.

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 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.

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 whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.

R403.6.2 Ventilation air. When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.

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 (Mandatory).

R403.7.1 Equipment sizing. 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 ^a (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
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

MANDATORY REQUIREMENTS - (Continued)

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.

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 having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

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.

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

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). Heated water circulation systems 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.

Florida Building Code, Energy Conservation, 6th Edition (2017)
Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS:

Lake City, FL, 32055

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.

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/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.

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 100

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

, Lake City, FL, 32055

1. New construction or existing	New (From Plans)		9. Wall Types	Insulation	Area
2. Single family or multiple family	Single-family		a. Frame - Wood, Exterior	R=13.0	1962.00 ft ²
3. Number of units, if multiple family	1		b. N/A	R=	ft ²
4. Number of Bedrooms	3		c. N/A	R=	ft ²
5. Is this a worst case?	No		d. N/A	R=	ft ²
6. Conditioned floor area (ft ²)	2460		10. Ceiling Types	Insulation	Area
7. Windows**	Description	Area	a. Under Attic (Vented)	R=38.0	1646.00 ft ²
a. U-Factor:	Dbl, U=0.30	222.00 ft ²	b. Knee Wall (Vented)	R=38.0	814.00 ft ²
SHGC:	SHGC=0.25		c. N/A	R=	ft ²
b. U-Factor:	N/A	ft ²	11. Ducts		R ft ²
SHGC:			a. Sup: Attic, Ret: Attic, AH: First Floor	6	246
c. U-Factor:	N/A	ft ²	b. Sup: Attic, Ret: Attic, AH: First Floor	6	200
SHGC:			12. Cooling systems	kBtu/hr	Efficiency
d. U-Factor:	N/A	ft ²	a. Central Unit	36.0	SEER:14.00
SHGC:			b. Central Unit	18.0	SEER:14.00
Area Weighted Average Overhang Depth:	5.243 ft.		13. Heating systems	kBtu/hr	Efficiency
Area Weighted Average SHGC:	0.250		a. Electric Heat Pump	36.0	HSPF:8.20
8. Floor Types	Insulation	Area	b. Electric Heat Pump	18.0	HSPF:8.20
a. Slab-On-Grade Edge Insulation	R=0.0	1646.00 ft ²	14. Hot water systems		Cap: 1 gallons
b. Floor Over Other Space	R=0.0	814.00 ft ²	a. Propane		EF: 0.6
c. N/A	R=	ft ²	b. Conservation features		
			None		
			15. Credits		CF

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 EnergyGauge Rating. Email EnergyGauge tech support at techsupport@energygauge.com or see the EnergyGauge web site at energygauge.com for information and a list of certified Raters. 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.

HEATING SYSTEM

☒	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
☐	1	Electric Heat Pump/	Split	HSPF:8.2	36 kBtu/hr	1	sys#1
☐	2	Electric Heat Pump/	Split	HSPF:8.2	18 kBtu/hr	2	sys#2

COOLING SYSTEM

☒	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
☐	1	Central Unit/	Split	SEER: 14	36 kBtu/hr	1080 cfm	0.75	1	sys#1
☐	2	Central Unit/	Split	SEER: 14	18 kBtu/hr	540 cfm	0.75	2	sys#2

HOT WATER SYSTEM

☒	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
☐	1	Propane	Tankless	Exterior	0.6	1 gal	60 gal	120 deg	None

SOLAR HOT WATER SYSTEM

☒	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
☐	None	None			ft ²		

DUCTS

☒	#	--- Supply --- Location	R-Value	Area	--- Return --- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat Cool
☐	1	Attic	6	246 ft ²	Attic	61.5 ft ²	Default Leakage	First Floor	(Default)	(Default)			1 1
☐	2	Attic	6	200 ft ²	Attic	61.5 ft ²	Default Leakage	First Floor	(Default)	(Default)			2 2

TEMPERATURES

Programable Thermostat: N

Ceiling Fans:

Cooling	☐ Jan	☐ Feb	☐ Mar	☐ Apr	☐ May	☒ Jun	☒ Jul	☒ Aug	☒ Sep	☐ Oct	☐ Nov	☐ Dec
Heating	☒ Jan	☒ Feb	☒ Mar	☒ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☒ Oct	☒ Nov	☒ Dec
Venting	☐ Jan	☐ Feb	☐ Mar	☐ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☐ Oct	☐ Nov	☐ Dec

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

CEILING

✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
✓	1	Under Attic (Vented)	First Floor	38	Blown	1646 ft²	0.11	Wood
✓	2	Knee Wall (Vented)	Second Floor	38	Blown	814 ft²	0.11	Wood

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	First Floor	13	47		9		423.0 ft²	1	0.23	0.75	0
✓	2	E	Exterior	Frame - Wood	First Floor	13	23		9		207.0 ft²	1	0.23	0.75	0
✓	3	S	Exterior	Frame - Wood	First Floor	13	47		9		423.0 ft²	1	0.23	0.75	0
✓	4	W	Exterior	Frame - Wood	First Floor	13	38		9		342.0 ft²	1	0.23	0.75	0
✓	5	E	Exterior	Frame - Wood	First Floor	13	15	0	9	0	135.0 ft²	1	0.23	0.75	0
✓	6	E	Exterior	Frame - Wood	Second Floor	13	15		9		135.0 ft²	1	0.23	0.75	0
✓	7	S	Exterior	Frame - Wood	Second Floor	13	18		9		162.0 ft²	1	0.23	0.75	0
✓	8	W	Exterior	Frame - Wood	Second Floor	13	15		9		135.0 ft²	1	0.23	0.75	0

DOORS

✓	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
✓	1	N	Insulated	First Floor	None	.46	3		6	8	20 ft²
✓	2	S	Insulated	First Floor	None	.46	3		6	8	20 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	Metal	Double (Tinted)	Yes	0.3	0.25	N	30.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	2	E	5	Metal	Double (Tinted)	Yes	0.3	0.25	N	6.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	3	E	2	Metal	Double (Tinted)	Yes	0.3	0.25	N	30.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	4	S	3	Metal	Double (Tinted)	Yes	0.3	0.25	N	60.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	5	W	4	Metal	Double (Tinted)	Yes	0.3	0.25	N	9.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	6	W	4	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	7	E	6	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	8	S	7	Metal	Double (Tinted)	Yes	0.3	0.25	N	42.0 ft²	2 ft 0 in	1 ft 0 in	Drapes/blinds	None
✓	9	W	8	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000386	2488	136.59	256.88	.3655	7

PROJECT

Title:	BB-Hagler	Bedrooms:	3	Address Type:	Street Address
Building Type:	User	Conditioned Area:	2460	Lot #	
Owner Name:	Eric & Janette Hagler	Total Stories:	2	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:	B&B Homes - Max Bass	Rotate Angle:	0	Street:	
Permit Office:		Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	Lake City , FL , 32055
Family Type:	Single-family				
New/Existing:	New (From Plans)				
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_REGI	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	1646	14814
2	Block2	814	6512

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	First Floor	1646	14814	Yes	4	1	1	Yes	Yes	Yes
2	Second Floor	814	6512	No	0	2	1	Yes	Yes	Yes

FLOORS

✓	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	First Floor	170 ft	0	1646 ft²	----	0.25	0.5	0.25
_____	2	Floor Over Other Space	Second Floor	----	----	814 ft²	0	0.25	0.5	0.25

ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Composition shingles	1151 ft²	408 ft²	Medium	0.96	No	0.9	No	0	45

ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	814 ft²	N	N

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: BB-Hagler Street: City, State, Zip: Lake City, FL, 32055 Owner: Eric & Janette Hagler Design Location: FL, Gainesville	Builder Name: B&B Homes - Max Bass Permit Office: Permit Number: Jurisdiction: County: Columbia (Florida Climate Zone 2)
---	---

<table style="width:100%;"> <tr> <td style="width:30%;">1. New construction or existing</td> <td style="width:30%;">New (From Plans)</td> <td style="width:40%;"></td> </tr> <tr> <td>2. Single family or multiple family</td> <td>Single-family</td> <td></td> </tr> <tr> <td>3. Number of units, if multiple family</td> <td>1</td> <td></td> </tr> <tr> <td>4. Number of Bedrooms</td> <td>3</td> <td></td> </tr> <tr> <td>5. Is this a worst case?</td> <td>No</td> <td></td> </tr> <tr> <td>6. Conditioned floor area above grade (ft²)</td> <td>2460</td> <td></td> </tr> <tr> <td>Conditioned floor area below grade (ft²)</td> <td>0</td> <td></td> </tr> <tr> <td>7. Windows(222.0 sqft.)</td> <td>Description</td> <td>Area</td> </tr> <tr> <td>a. U-Factor:</td> <td>Dbl, U=0.30</td> <td>222.00 ft²</td> </tr> <tr> <td>SHGC:</td> <td>SHGC=0.25</td> <td></td> </tr> <tr> <td>b. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>c. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>d. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td colspan="2">Area Weighted Average Overhang Depth:</td> <td>5.243 ft.</td> </tr> <tr> <td colspan="2">Area Weighted Average SHGC:</td> <td>0.250</td> </tr> <tr> <td>8. Floor Types (2460.0 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Slab-On-Grade Edge Insulation</td> <td>R=0.0</td> <td>1646.00 ft²</td> </tr> <tr> <td>b. Floor Over Other Space</td> <td>R=0.0</td> <td>814.00 ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> </table>	1. New construction or existing	New (From Plans)		2. Single family or multiple family	Single-family		3. Number of units, if multiple family	1		4. Number of Bedrooms	3		5. Is this a worst case?	No		6. Conditioned floor area above grade (ft²)	2460		Conditioned floor area below grade (ft²)	0		7. Windows(222.0 sqft.)	Description	Area	a. U-Factor:	Dbl, U=0.30	222.00 ft²	SHGC:	SHGC=0.25		b. U-Factor:	N/A	ft²	SHGC:			c. U-Factor:	N/A	ft²	SHGC:			d. U-Factor:	N/A	ft²	SHGC:			Area Weighted Average Overhang Depth:		5.243 ft.	Area Weighted Average SHGC:		0.250	8. Floor Types (2460.0 sqft.)	Insulation	Area	a. Slab-On-Grade Edge Insulation	R=0.0	1646.00 ft²	b. Floor Over Other Space	R=0.0	814.00 ft²	c. N/A	R=	ft²	<table style="width:100%;"> <tr> <td style="width:30%;">9. Wall Types(1962.0 sqft.)</td> <td style="width:30%;">Insulation</td> <td style="width:40%;">Area</td> </tr> <tr> <td>a. Frame - Wood, Exterior</td> <td>R=13.0</td> <td>1962.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>d. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>10. Ceiling Types (2460.0 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Under Attic (Vented)</td> <td>R=38.0</td> <td>1646.00 ft²</td> </tr> <tr> <td>b. Knee Wall (Vented)</td> <td>R=38.0</td> <td>814.00 ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>11. Ducts</td> <td></td> <td>R ft²</td> </tr> <tr> <td>a. Sup: Attic, Ret: Attic, AH: First Floor</td> <td></td> <td>6 246</td> </tr> <tr> <td>b. Sup: Attic, Ret: Attic, AH: First Floor</td> <td></td> <td>6 200</td> </tr> <tr> <td>12. Cooling systems</td> <td>kBtu/hr</td> <td>Efficiency</td> </tr> <tr> <td>a. Central Unit</td> <td>36.0</td> <td>SEER:14.00</td> </tr> <tr> <td>b. Central Unit</td> <td>18.0</td> <td>SEER:14.00</td> </tr> <tr> <td>13. Heating systems</td> <td>kBtu/hr</td> <td>Efficiency</td> </tr> <tr> <td>a. Electric Heat Pump</td> <td>36.0</td> <td>HSPF:8.20</td> </tr> <tr> <td>b. Electric Heat Pump</td> <td>18.0</td> <td>HSPF:8.20</td> </tr> <tr> <td>14. Hot water systems</td> <td></td> <td></td> </tr> <tr> <td>a. Propane Tankless</td> <td></td> <td>Cap: 1 gallons</td> </tr> <tr> <td></td> <td></td> <td>EF: 0.600</td> </tr> <tr> <td>b. Conservation features</td> <td></td> <td></td> </tr> <tr> <td>None</td> <td></td> <td></td> </tr> <tr> <td>15. Credits</td> <td></td> <td>CF</td> </tr> </table>	9. Wall Types(1962.0 sqft.)	Insulation	Area	a. Frame - Wood, Exterior	R=13.0	1962.00 ft²	b. N/A	R=	ft²	c. N/A	R=	ft²	d. N/A	R=	ft²	10. Ceiling Types (2460.0 sqft.)	Insulation	Area	a. Under Attic (Vented)	R=38.0	1646.00 ft²	b. Knee Wall (Vented)	R=38.0	814.00 ft²	c. N/A	R=	ft²	11. Ducts		R ft²	a. Sup: Attic, Ret: Attic, AH: First Floor		6 246	b. Sup: Attic, Ret: Attic, AH: First Floor		6 200	12. Cooling systems	kBtu/hr	Efficiency	a. Central Unit	36.0	SEER:14.00	b. Central Unit	18.0	SEER:14.00	13. Heating systems	kBtu/hr	Efficiency	a. Electric Heat Pump	36.0	HSPF:8.20	b. Electric Heat Pump	18.0	HSPF:8.20	14. Hot water systems			a. Propane Tankless		Cap: 1 gallons			EF: 0.600	b. Conservation features			None			15. Credits		CF
1. New construction or existing	New (From Plans)																																																																																																																																										
2. Single family or multiple family	Single-family																																																																																																																																										
3. Number of units, if multiple family	1																																																																																																																																										
4. Number of Bedrooms	3																																																																																																																																										
5. Is this a worst case?	No																																																																																																																																										
6. Conditioned floor area above grade (ft²)	2460																																																																																																																																										
Conditioned floor area below grade (ft²)	0																																																																																																																																										
7. Windows(222.0 sqft.)	Description	Area																																																																																																																																									
a. U-Factor:	Dbl, U=0.30	222.00 ft²																																																																																																																																									
SHGC:	SHGC=0.25																																																																																																																																										
b. U-Factor:	N/A	ft²																																																																																																																																									
SHGC:																																																																																																																																											
c. U-Factor:	N/A	ft²																																																																																																																																									
SHGC:																																																																																																																																											
d. U-Factor:	N/A	ft²																																																																																																																																									
SHGC:																																																																																																																																											
Area Weighted Average Overhang Depth:		5.243 ft.																																																																																																																																									
Area Weighted Average SHGC:		0.250																																																																																																																																									
8. Floor Types (2460.0 sqft.)	Insulation	Area																																																																																																																																									
a. Slab-On-Grade Edge Insulation	R=0.0	1646.00 ft²																																																																																																																																									
b. Floor Over Other Space	R=0.0	814.00 ft²																																																																																																																																									
c. N/A	R=	ft²																																																																																																																																									
9. Wall Types(1962.0 sqft.)	Insulation	Area																																																																																																																																									
a. Frame - Wood, Exterior	R=13.0	1962.00 ft²																																																																																																																																									
b. N/A	R=	ft²																																																																																																																																									
c. N/A	R=	ft²																																																																																																																																									
d. N/A	R=	ft²																																																																																																																																									
10. Ceiling Types (2460.0 sqft.)	Insulation	Area																																																																																																																																									
a. Under Attic (Vented)	R=38.0	1646.00 ft²																																																																																																																																									
b. Knee Wall (Vented)	R=38.0	814.00 ft²																																																																																																																																									
c. N/A	R=	ft²																																																																																																																																									
11. Ducts		R ft²																																																																																																																																									
a. Sup: Attic, Ret: Attic, AH: First Floor		6 246																																																																																																																																									
b. Sup: Attic, Ret: Attic, AH: First Floor		6 200																																																																																																																																									
12. Cooling systems	kBtu/hr	Efficiency																																																																																																																																									
a. Central Unit	36.0	SEER:14.00																																																																																																																																									
b. Central Unit	18.0	SEER:14.00																																																																																																																																									
13. Heating systems	kBtu/hr	Efficiency																																																																																																																																									
a. Electric Heat Pump	36.0	HSPF:8.20																																																																																																																																									
b. Electric Heat Pump	18.0	HSPF:8.20																																																																																																																																									
14. Hot water systems																																																																																																																																											
a. Propane Tankless		Cap: 1 gallons																																																																																																																																									
		EF: 0.600																																																																																																																																									
b. Conservation features																																																																																																																																											
None																																																																																																																																											
15. Credits		CF																																																																																																																																									

Glass/Floor Area: 0.090	Total Proposed Modified Loads: 59.02	PASS
	Total Baseline Loads: 58.87	

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code. PREPARED BY: <u>Janette Hagler</u> DATE: <u>5-2-18</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: _____
--	---



- 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 7.00 ACH50 (R402.4.1.2).

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

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

Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:

- ☐ This checklist
- ☐ A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an 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 for the Performance Method:

- ☐ Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- ☐ A completed Envelope Leakage Test Report (usually one page)
- ☐ If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Eric & Janette Hagler

Project Title:

BB-Hagler

Lake City, FL 32055

Building Type: User

5/2/2018

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Metal	0.30	N	30.0		12.0	360 Btuh
2	2, NFRC 0.25	Metal	0.30	E	6.0		12.0	72 Btuh
3	2, NFRC 0.25	Metal	0.30	E	30.0		12.0	360 Btuh
4	2, NFRC 0.25	Metal	0.30	S	60.0		12.0	720 Btuh
5	2, NFRC 0.25	Metal	0.30	W	9.0		12.0	108 Btuh
6	2, NFRC 0.25	Metal	0.30	W	15.0		12.0	180 Btuh
7	2, NFRC 0.25	Metal	0.30	E	15.0		12.0	180 Btuh
8	2, NFRC 0.25	Metal	0.30	S	42.0		12.0	504 Btuh
9	2, NFRC 0.25	Metal	0.30	W	15.0		12.0	180 Btuh
Window Total					222.0(sqft)			2664 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.085)	13.0/1.0	373		3.39	1266 Btuh
2	Frame - Wood	- Ext	(0.085)	13.0/1.0	177		3.39	601 Btuh
3	Frame - Wood	- Ext	(0.085)	13.0/1.0	343		3.39	1164 Btuh
4	Frame - Wood	- Ext	(0.085)	13.0/1.0	318		3.39	1079 Btuh
5	Frame - Wood	- Ext	(0.085)	13.0/1.0	129		3.39	438 Btuh
6	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
7	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
8	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
Wall Total					1700(sqft)			5770 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1646		1.0	1671 Btuh
2	Knee Wall/L/Shing		(0.025)	38.0/0.0	814		1.0	826 Btuh
Ceiling Total					2460(sqft)			2497Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	170.0 ft(perim.)		47.2	8024 Btuh
2	Interior		(1.180)	0.0	814.0 sqft		0.0	0 Btuh
Floor Total					2460 sqft			8024 Btuh
Envelope Subtotal:								19691 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.58	21326	1.00	207.9		9103 Btuh
(DLM of Mixed ducts)								5357 Btuh
Duct load								

Manual J Winter Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:
BB-Hagler
Building Type: User

Lake City, FL 32055

5/2/2018

All Zones	Sensible Subtotal All Zones	34151 Btuh
------------------	------------------------------------	-------------------

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	34151 Btuh 0 Btuh 34151 Btuh
---------------------------	--	------------------------------------

EQUIPMENT

1. Electric Heat Pump	#	36000 Btuh
2. Electric Heat Pump	#	18000 Btuh

Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)
or - Glass as 'Clear' or 'Tint' (Uses U-Factor and SHGC defaults)

U - (Window U-Factor)

HTM - (ManualJ Heat Transfer Multiplier)



Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Eric & Janette Hagler

Project Title:

BB-Hagler

Lake City, FL 32055

5/2/2018

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

Component Loads for Whole House

Window	Type*						Overhang		Window Area(sqft)			HTM		Load
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
1	2 NFRC	0.25, 0.30	B-L	No	N		7.0ft	2.0ft	30.0	0.0	30.0	8	8	245 Btuh
2	2 NFRC	0.25, 0.30	B-L	No	E		2.0ft	2.0ft	6.0	0.0	6.0	8	21	129 Btuh
3	2 NFRC	0.25, 0.30	B-L	No	E		7.0ft	2.0ft	30.0	22.9	7.1	8	21	340 Btuh
4	2 NFRC	0.25, 0.30	B-L	No	S		7.0ft	2.0ft	60.0	60.0	0.0	8	10	490 Btuh
5	2 NFRC	0.25, 0.30	B-L	No	W		7.0ft	2.0ft	9.0	9.0	0.0	8	21	73 Btuh
6	2 NFRC	0.25, 0.30	B-L	No	W		7.0ft	2.0ft	15.0	11.4	3.6	8	21	170 Btuh
7	2 NFRC	0.25, 0.30	B-L	No	E		2.0ft	2.0ft	15.0	0.0	15.0	8	21	322 Btuh
8	2 NFRC	0.25, 0.30	B-L	No	S		2.0ft	1.0ft	42.0	42.0	0.0	8	10	343 Btuh
9	2 NFRC	0.25, 0.30	B-L	No	W		2.0ft	2.0ft	15.0	0.0	15.0	8	21	322 Btuh
Excursion														311 Btuh
Window Total									222 (sqft)					2743 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
1	Frame - Wood - Ext	0.08	13.0/1.0	373.0	2.2	807 Btuh								
2	Frame - Wood - Ext	0.08	13.0/1.0	177.0	2.2	383 Btuh								
3	Frame - Wood - Ext	0.08	13.0/1.0	343.0	2.2	742 Btuh								
4	Frame - Wood - Ext	0.08	13.0/1.0	318.0	2.2	688 Btuh								
5	Frame - Wood - Ext	0.08	13.0/1.0	129.0	2.2	279 Btuh								
6	Frame - Wood - Ext	0.08	13.0/1.0	120.0	2.2	260 Btuh								
7	Frame - Wood - Ext	0.08	13.0/1.0	120.0	2.2	260 Btuh								
8	Frame - Wood - Ext	0.08	13.0/1.0	120.0	2.2	260 Btuh								
Wall Total				1700 (sqft)		3678 Btuh								
Doors	Type	Area (sqft)		HTM		Load								
1	Insulated - Exterior	20.0	13.8	276 Btuh										
2	Insulated - Exterior	20.0	13.8	276 Btuh										
Door Total				40 (sqft)	552 Btuh									
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load								
1	Vented Attic/Light/Shingle	0.025	38.0/0.0	1646.0	1.12	1838 Btuh								
2	Knee Wall/Light/Shingle	0.025	38.0/0.0	814.0	1.12	909 Btuh								
Ceiling Total				2460 (sqft)	2747 Btuh									
Floors	Type	R-Value		Size		HTM	Load							
1	Slab On Grade	0.0	1646 (ft-perimeter)	0.0	0 Btuh									
2	Interior	0.0	814 (sqft)	0.0	0 Btuh									
Floor Total				2460.0 (sqft)	0 Btuh									
Envelope Subtotal:							9721 Btuh							

Manual J Summer Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:
BB-Hagler

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

5/2/2018

Infiltration	Type Natural	Average ACH 0.44	Volume(cuft) 21326	Wall Ratio 1	CFM= 155.9	Load 3243 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	1200	Load 2120 Btuh
					Sensible Envelope Load:	15084 Btuh
Duct load					(DGMS vary for Mixed ducts)	5638 Btuh
					Sensible Load All Zones	20722 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:
BB-Hagler

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

5/2/2018

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15084 Btuh
	Sensible Duct Load	5638 Btuh
	Total Sensible Zone Loads	20722 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20722 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	5381 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1332 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	2400 Btuh
	Latent total gain	9913 Btuh
	TOTAL GAIN	30635 Btuh

EQUIPMENT

1. Central Unit	#	36000 Btuh
2. Central Unit	#	18000 Btuh

*Key: Window types (Panels - Number and type of panes of glass)
 (SHGC - Shading coefficient of glass as SHGC numerical value)
 (U - Window U-Factor)
 (InSh - Interior shading device: none(No), Blinds(B), Draperies(D) or Roller Shades(R))
 - For Blinds: Assume medium color, half closed
 For Draperies: Assume medium weave, half closed
 For Roller shades: Assume translucent, half closed
 (IS - Insect screen: none(N), Full(F) or Half(½))
 (Ornt - compass orientation)



Version 8

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

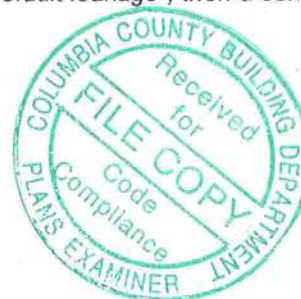
Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method

Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:

- ☐ This checklist
- ☐ A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an 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 for the Performance Method:

- ☐ Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)
- ☐ A completed Envelope Leakage Test Report (usually one page)
- ☐ If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)



PROJECT

Title:	BB-Hagler	Bedrooms:	3	Address Type:	Street Address
Building Type:	User	Conditioned Area:	2460	Lot #	
Owner Name:	Eric & Janette Hagler	Total Stories:	2	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:	B&B Homes - Max Bass	Rotate Angle:	0	Street:	
Permit Office:		Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	Lake City , FL , 32055
Family Type:	Single-family				
New/Existing:	New (From Plans)				
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_REGI	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	1646	14814
2	Block2	814	6512

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	First Floor	1646	14814	Yes	4	1	1	Yes	Yes	Yes
2	Second Floor	814	6512	No	0	2	1	Yes	Yes	Yes

FLOORS

✓	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	First Floor	170 ft	0	1646 ft²	----	0.25	0.5	0.25
_____	2	Floor Over Other Space	Second Floor	----	----	814 ft²	0	0.25	0.5	0.25

ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or shed	Composition shingles	1151 ft²	408 ft²	Medium	0.96	No	0.9	No	0	45

ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	814 ft²	N	N

CEILING

✓	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
✓	1	Under Attic (Vented)	First Floor	38	Blown	1646 ft²	0.11	Wood
✓	2	Knee Wall (Vented)	Second Floor	38	Blown	814 ft²	0.11	Wood

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	First Floor	13	47		9		423.0 ft²	1	0.23	0.75	0
✓	2	E	Exterior	Frame - Wood	First Floor	13	23		9		207.0 ft²	1	0.23	0.75	0
✓	3	S	Exterior	Frame - Wood	First Floor	13	47		9		423.0 ft²	1	0.23	0.75	0
✓	4	W	Exterior	Frame - Wood	First Floor	13	38		9		342.0 ft²	1	0.23	0.75	0
✓	5	E	Exterior	Frame - Wood	First Floor	13	15	0	9	0	135.0 ft²	1	0.23	0.75	0
✓	6	E	Exterior	Frame - Wood	Second Floor	13	15		9		135.0 ft²	1	0.23	0.75	0
✓	7	S	Exterior	Frame - Wood	Second Floor	13	18		9		162.0 ft²	1	0.23	0.75	0
✓	8	W	Exterior	Frame - Wood	Second Floor	13	15		9		135.0 ft²	1	0.23	0.75	0

DOORS

✓	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
✓	1	N	Insulated	First Floor	None	.46	3		6	8	20 ft²
✓	2	S	Insulated	First Floor	None	.46	3		6	8	20 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	Metal	Double (Tinted)	Yes	0.3	0.25	N	30.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	2	E	5	Metal	Double (Tinted)	Yes	0.3	0.25	N	6.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	3	E	2	Metal	Double (Tinted)	Yes	0.3	0.25	N	30.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	4	S	3	Metal	Double (Tinted)	Yes	0.3	0.25	N	60.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	5	W	4	Metal	Double (Tinted)	Yes	0.3	0.25	N	9.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	6	W	4	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	7 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	7	E	6	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None
✓	8	S	7	Metal	Double (Tinted)	Yes	0.3	0.25	N	42.0 ft²	2 ft 0 in	1 ft 0 in	Drapes/blinds	None
✓	9	W	8	Metal	Double (Tinted)	Yes	0.3	0.25	N	15.0 ft²	2 ft 0 in	2 ft 0 in	Drapes/blinds	None

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000386	2488	136.59	256.88	.3655	7

HEATING SYSTEM

☒	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
☐	1	Electric Heat Pump/	Split	HSPF:8.2	36 kBtu/hr	1	sys#1
☐	2	Electric Heat Pump/	Split	HSPF:8.2	18 kBtu/hr	2	sys#2

COOLING SYSTEM

☒	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
☐	1	Central Unit/	Split	SEER: 14	36 kBtu/hr	1080 cfm	0.75	1	sys#1
☐	2	Central Unit/	Split	SEER: 14	18 kBtu/hr	540 cfm	0.75	2	sys#2

HOT WATER SYSTEM

☒	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
☐	1	Propane	Tankless	Exterior	0.6	1 gal	60 gal	120 deg	None

SOLAR HOT WATER SYSTEM

☒	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
☐	None	None			ft ²		

DUCTS

☒	#	Location	Supply R-Value	Area	Location	Return Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	Cool
☐	1	Attic	6	246 ft ²	Attic	61.5 ft ²	Default Leakage	First Floor	(Default)	(Default)			1	1
☐	2	Attic	6	200 ft ²	Attic	61.5 ft ²	Default Leakage	First Floor	(Default)	(Default)			2	2

TEMPERATURES

Programable Thermostat: N

Ceiling Fans:

Cooling	☐ Jan	☐ Feb	☐ Mar	☐ Apr	☐ May	☒ Jun	☒ Jul	☒ Aug	☒ Sep	☐ Oct	☐ Nov	☐ Dec
Heating	☒ Jan	☒ Feb	☒ Mar	☒ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☒ Oct	☒ Nov	☒ Dec
Venting	☐ Jan	☐ Feb	☒ Mar	☒ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☒ Oct	☒ Nov	☐ Dec

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

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 100

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

, Lake City, FL, 32055

1. New construction or existing	New (From Plans)		9. Wall Types	Insulation	Area
2. Single family or multiple family	Single-family		a. Frame - Wood, Exterior	R=13.0	1962.00 ft ²
3. Number of units, if multiple family	1		b. N/A	R=	ft ²
4. Number of Bedrooms	3		c. N/A	R=	ft ²
5. Is this a worst case?	No		d. N/A	R=	ft ²
6. Conditioned floor area (ft ²)	2460		10. Ceiling Types	Insulation	Area
7. Windows**	Description	Area	a. Under Attic (Vented)	R=38.0	1646.00 ft ²
a. U-Factor:	DbI, U=0.30	222.00 ft ²	b. Knee Wall (Vented)	R=38.0	814.00 ft ²
SHGC:	SHGC=0.25		c. N/A	R=	ft ²
b. U-Factor:	N/A	ft ²	11. Ducts		R ft ²
SHGC:			a. Sup: Attic, Ret: Attic, AH: First Floor		6 246
c. U-Factor:	N/A	ft ²	b. Sup: Attic, Ret: Attic, AH: First Floor		6 200
SHGC:			12. Cooling systems	kBtu/hr	Efficiency
d. U-Factor:	N/A	ft ²	a. Central Unit	36.0	SEER:14.00
SHGC:			b. Central Unit	18.0	SEER:14.00
Area Weighted Average Overhang Depth:	5.243 ft.		13. Heating systems	kBtu/hr	Efficiency
Area Weighted Average SHGC:	0.250		a. Electric Heat Pump	36.0	HSPF:8.20
8. Floor Types			b. Electric Heat Pump	18.0	HSPF:8.20
a. Slab-On-Grade Edge Insulation	Insulation	Area	14. Hot water systems		Cap: 1 gallons
b. Floor Over Other Space	R=0.0	1646.00 ft ²	a. Propane		EF: 0.6
c. N/A	R=0.0	814.00 ft ²	b. Conservation features		
	R=	ft ²	None		
			15. Credits		CF

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 EnergyGauge Rating. Email EnergyGauge tech support at techsupport@energygauge.com or see the EnergyGauge web site at energygauge.com for information and a list of certified Raters. 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, 6th Edition (2017)

Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS:

Lake City, FL, 32055

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.

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/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.

MANDATORY REQUIREMENTS - (Continued)

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.

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 having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

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.

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

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). Heated water circulation systems 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.

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 whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.

R403.6.2 Ventilation air. When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.

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 (Mandatory).

R403.7.1 Equipment sizing. 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 ^a (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
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

MANDATORY REQUIREMENTS - (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 403.7, 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 IECC—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).

R403.10 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.

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.

SECTION R404

ELECTRICAL POWER AND LIGHTING SYSTEMS

R404.1 Lighting equipment (Mandatory). Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Exception: Low-voltage lighting.

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

2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

**TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA**

Project Name: BB-Hagler Street: City, State, Zip: Lake City, FL, 32055 Owner: Eric & Janette Hagler Design Location: FL, Gainesville		Builder Name: B&B Homes - Max Bass Permit Office: Permit Number: Jurisdiction:
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 drywall.	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 on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.	
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.	
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.

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Envelope Leakage Test Report Performance Method

Project Name: BB-Hagler
 Street:
 City, State, Zip: Lake City, FL, 32055
 Design Location: FL, Gainesville
 Cond. Floor Area: 2460 sq.ft.

Builder Name: B&B Homes - Max Bass
 Permit Office:
 Permit Number:
 Jurisdiction:
 Cond. Volume: 21326 cu ft.

Envelope Leakage Test Results

Regression Data:

C: _____ n: _____ R: _____

Single or Multi Point Test Data

	HOUSE PRESSURE	FLOW:
1	Pa	cfm
2	Pa	cfm
3	Pa	cfm
4	Pa	cfm
5	Pa	cfm
6	Pa	cfm

Leakage Characteristics

Required ACH(50) from
 FORM R405-2017 : _____

Tested ACH(50) * : _____

*Tested leakage must be less than or equal to the required ACH(50) shown on Form R405-2017 for this building. If the tested ACH(50) is less than 3 the building must have a mechanical ventilation system.

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour in Climate Zones 1 and 2 ... Testing shall be conducted with a blower door at a pressure of 0.2 inches 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.

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; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

I hereby certify that the above envelope leakage performance results demonstrate compliance with Florida Energy Code requirements in accordance with Section R402.4.1.2.

SIGNATURE: _____

PRINTED NAME: _____

DATE: _____

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 third party conducting the test and provided to the code official.



BUILDING OFFICIAL: _____

DATE: _____

Residential System Sizing Calculation

Summary

Eric & Janette Hagler

Project Title:
BB-Hagler

Lake City, FL 32055

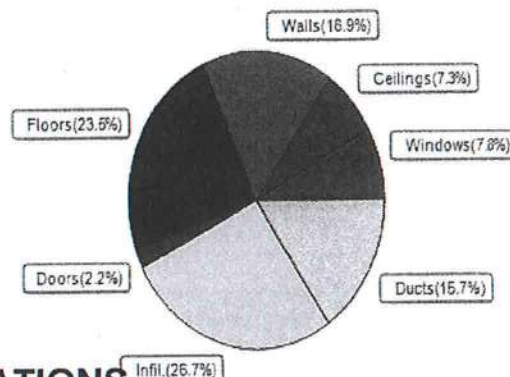
5/2/2018

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(51gr.)			
Winter design temperature(TMY3 99%)	30 F	Summer design temperature(TMY3 99%)	94 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	40 F	Summer temperature difference	19 F
Total heating load calculation	34151 Btuh	Total cooling load calculation	30635 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	158.1 54000	Sensible (SHR = 0.75)	195.4 40500
Heat Pump + Auxiliary(0.0kW)	158.1 54000	Latent	136.2 13500
		Total (Electric Heat Pump)	176.3 54000

WINTER CALCULATIONS

Winter Heating Load (for 2460 sqft)

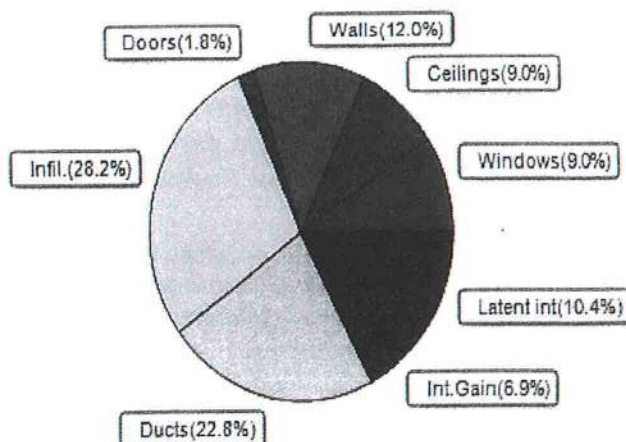
Load component	Load
Window total 222 sqft	2664 Btuh
Wall total 1700 sqft	5770 Btuh
Door total 40 sqft	736 Btuh
Ceiling total 2460 sqft	2497 Btuh
Floor total See detail report	8024 Btuh
Infiltration 208 cfm	9103 Btuh
Duct loss	5357 Btuh
Subtotal	34151 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	34151 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2460 sqft)

Load component	Load
Window total 222 sqft	2743 Btuh
Wall total 1700 sqft	3678 Btuh
Door total 40 sqft	552 Btuh
Ceiling total 2460 sqft	2747 Btuh
Floor total	0 Btuh
Infiltration 156 cfm	3243 Btuh
Internal gain	2120 Btuh
Duct gain	5638 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	20722 Btuh
Latent gain(ducts)	1332 Btuh
Latent gain(infiltration)	5381 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	3200 Btuh
Total latent gain	9913 Btuh
TOTAL HEAT GAIN	30635 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY

DATE: 5-2-18

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Eric & Janette Hagler

Project Title:

BB-Hagler

Lake City, FL 32055

Building Type: User

5/2/2018

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Metal	0.30	N	30.0		12.0	360 Btuh
2	2, NFRC 0.25	Metal	0.30	E	6.0		12.0	72 Btuh
3	2, NFRC 0.25	Metal	0.30	E	30.0		12.0	360 Btuh
4	2, NFRC 0.25	Metal	0.30	S	60.0		12.0	720 Btuh
5	2, NFRC 0.25	Metal	0.30	W	9.0		12.0	108 Btuh
6	2, NFRC 0.25	Metal	0.30	W	15.0		12.0	180 Btuh
7	2, NFRC 0.25	Metal	0.30	E	15.0		12.0	180 Btuh
8	2, NFRC 0.25	Metal	0.30	S	42.0		12.0	504 Btuh
9	2, NFRC 0.25	Metal	0.30	W	15.0		12.0	180 Btuh
Window Total					222.0(sqft)			2664 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.085)	13.0/1.0	373		3.39	1266 Btuh
2	Frame - Wood	- Ext	(0.085)	13.0/1.0	177		3.39	601 Btuh
3	Frame - Wood	- Ext	(0.085)	13.0/1.0	343		3.39	1164 Btuh
4	Frame - Wood	- Ext	(0.085)	13.0/1.0	318		3.39	1079 Btuh
5	Frame - Wood	- Ext	(0.085)	13.0/1.0	129		3.39	438 Btuh
6	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
7	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
8	Frame - Wood	- Ext	(0.085)	13.0/1.0	120		3.39	407 Btuh
Wall Total					1700(sqft)			5770 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1646		1.0	1671 Btuh
2	Knee Wall/L/Shing		(0.025)	38.0/0.0	814		1.0	826 Btuh
Ceiling Total					2460(sqft)			2497Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	170.0 ft(perim.)		47.2	8024 Btuh
2	Interior		(1.180)	0.0	814.0 sqft		0.0	0 Btuh
Floor Total					2460 sqft			8024 Btuh
Envelope Subtotal:								19691 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.58	21326	1.00	207.9		9103 Btuh
Duct load (DLM of Mixed ducts)								5357 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:

BB-Hagler

Lake City, FL 32055

Building Type: User

5/2/2018

All Zones	Sensible Subtotal All Zones	34151 Btuh
-----------	-----------------------------	------------

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	34151 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	34151 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36000 Btuh
2. Electric Heat Pump	#	18000 Btuh

Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)
or - Glass as 'Clear' or 'Tint' (Uses U-Factor and SHGC defaults)

U - (Window U-Factor)

HTM - (ManualJ Heat Transfer Multiplier)



Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Eric & Janette Hagler

Project Title:

BB-Hagler

Lake City, FL 32055

5/2/2018

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

Component Loads for Whole House

Window	Type*						Overhang		Window Area(sqft)			HTM		Load
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
1	2 NFRC	0.25, 0.30	B-L	No	N		7.0ft	2.0ft	30.0	0.0	30.0	8	8	245 Btuh
2	2 NFRC	0.25, 0.30	B-L	No	E		2.0ft	2.0ft	6.0	0.0	6.0	8	21	129 Btuh
3	2 NFRC	0.25, 0.30	B-L	No	E		7.0ft	2.0ft	30.0	22.9	7.1	8	21	340 Btuh
4	2 NFRC	0.25, 0.30	B-L	No	S		7.0ft	2.0ft	60.0	60.0	0.0	8	10	490 Btuh
5	2 NFRC	0.25, 0.30	B-L	No	W		7.0ft	2.0ft	9.0	9.0	0.0	8	21	73 Btuh
6	2 NFRC	0.25, 0.30	B-L	No	W		7.0ft	2.0ft	15.0	11.4	3.6	8	21	170 Btuh
7	2 NFRC	0.25, 0.30	B-L	No	E		2.0ft	2.0ft	15.0	0.0	15.0	8	21	322 Btuh
8	2 NFRC	0.25, 0.30	B-L	No	S		2.0ft	1.0ft	42.0	42.0	0.0	8	10	343 Btuh
9	2 NFRC	0.25, 0.30	B-L	No	W		2.0ft	2.0ft	15.0	0.0	15.0	8	21	322 Btuh
	Excursion													311 Btuh
	Window Total								222 (sqft)					2743 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load				
</														

Manual J Summer Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:
BB-Hagler

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

5/2/2018

Infiltration	Type Natural	Average ACH 0.44	Volume(cuft) 21326	Wall Ratio 1	CFM= 155.9	Load 3243 Btuh
Internal gain		Occupants 4	Btuh/occupant X 230	Appliance +	1200	Load 2120 Btuh
					Sensible Envelope Load:	15084 Btuh
Duct load					(DGMS vary for Mixed ducts)	5638 Btuh
					Sensible Load All Zones	20722 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Eric & Janette Hagler

Project Title:
BB-Hagler

Climate: FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32055

5/2/2018

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15084 Btuh
	Sensible Duct Load	5638 Btuh
	Total Sensible Zone Loads	20722 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20722 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	5381 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1332 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	2400 Btuh
	Latent total gain	9913 Btuh
	TOTAL GAIN	30635 Btuh

EQUIPMENT

1. Central Unit	#	36000 Btuh
2. Central Unit	#	18000 Btuh

*Key: Window types (Panels - Number and type of panes of glass)
 (SHGC - Shading coefficient of glass as SHGC numerical value)
 (U - Window U-Factor)
 (InSh - Interior shading device: none(No), Blinds(B), Draperies(D) or Roller Shades(R))
 - For Blinds: Assume medium color, half closed
 For Draperies: Assume medium weave, half closed
 For Roller shades: Assume translucent, half closed
 (IS - Insect screen: none(N), Full(F) or Half(½))
 (Ornt - compass orientation)



Version 8

