20

FORM R405-2020

# FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

## Florida Department of Business and Professional Regulation - Residential Performance Method

| | | | |
|---|---|---|---|
| Project Name: | Lot 24 Emerald Cove ph II | Builder Name: | Lipscomb & Eagle |
| Street: | | Permit Office: | Columbia County |
| City, State, Zip: | Lake City , FL , | Permit Number: | |
| Owner: | | Jurisdiction: | |
| Design Location: | FL, Gainesville | County: | Columbia (Florida Climate Zone 2 ) |

| | |
|---|---|
| 1. New construction or existing | New (From Plans) |
| 2. Single family or multiple family | Detached |
| 3. Number of units, if multiple family | 1 |
| 4. Number of Bedrooms | 3 |
| 5. Is this a worst case? | No |
| 6. Conditioned floor area above grade (ft²) | 1703 |
| Conditioned floor area below grade (ft²) | 0 |

| 7. Windows (209.0 sqft.) | Description | Area |
|---|---|---|
| a. U-Factor: | Dbl, U=0.36 | 209.00 ft² |
| SHGC: | SHGC=0.25 | |
| b. U-Factor: | N/A | ft² |
| SHGC: | | |
| c. U-Factor: | N/A | ft² |
| SHGC: | | |
| Area Weighted Average Overhang Depth: | | 4.763 ft. |
| Area Weighted Average SHGC: | | 0.250 |

| 8. Skylights | | Area |
|---|---|---|
| c. U-Factor:(AVG) | N/A | ft² |
| SHGC(AVG): | N/A | |

| 9. Floor Types (1703.0 sqft.) | Insulation | Area |
|---|---|---|
| a. Slab-On-Grade Edge Insulation | R=0.0 | 1703.00 ft² |
| b. N/A | R= | ft² |
| c. N/A | R= | ft² |

| 10. Wall Types (2007.0 sqft.) | Insulation | Area |
|---|---|---|
| a. Frame - Wood, Exterior | R=13.0 | 1728.00 ft² |
| b. Frame - Wood, Adjacent | R=13.0 | 279.00 ft² |
| c. N/A | R= | ft² |
| d. N/A | R= | ft² |

| 11. Ceiling Types (1788.0 sqft.) | Insulation | Area |
|---|---|---|
| a. Under Attic (Vented) | R=38.0 | 1788.00 ft² |
| b. N/A | R= | ft² |
| c. N/A | R= | ft² |

| 12. Ducts | R | ft² |
|---|---|---|
| a. Sup: Attic, Ret: Attic, AH: Garage | 6 | 425.75 |

| 13. Cooling systems | kBtu/hr | Efficiency |
|---|---|---|
| a. Central Unit | 20.4 | SEER:14.00 |

| 14. Heating systems | kBtu/hr | Efficiency |
|---|---|---|
| a. Electric Heat Pump | 20.4 | HSPF:8.20 |

15. Hot water systems
a. Electric — Cap: 50 gallons, EF: 0.920
b. Conservation features
None

16. Credits: CV, Pstat

COLUMBIA COUNTY BUILDING DEPARTMENT — Received for FILE COPY — Code Compliance — PLANS EXAMINER

Glass/Floor Area: 0.123

Total Proposed Modified Loads: 43.11
Total Baseline Loads: 44.73

**PASS**

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: _____
DATE: 3/11/2021

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 5.00 ACH50 (R402.4.1.2).**

FORM R405-2020

# INPUT SUMMARY CHECKLIST REPORT

## PROJECT

| | | | | | |
|---|---|---|---|---|---|
| Title: | Lot 24 Emerald Cove ph II | Bedrooms: | 3 | Address Type: | Lot Information |
| Building Type: | User | Conditioned Area: | 1703 | Lot # | 24 |
| Owner Name: | | Total Stories: | 1 | Block/Subdivision: | Emerald Cove II |
| # of Units: | 1 | Worst Case: | No | PlatBook: | |
| Builder Name: | Lipscomb & Eagle | Rotate Angle: | 0 | Street: | |
| Permit Office: | Columbia County | Cross Ventilation: | Yes | County: | Columbia |
| Jurisdiction: | | Whole House Fan: | No | City, State, Zip: | Lake City , FL , |
| Family Type: | Detached | | | | |
| New/Existing: | New (From Plans) | | | | |
| Comment: | | | | | |

## CLIMATE

| √ | Design Location | TMY Site | Design Temp 97.5 % | Design Temp 2.5 % | Int Design Temp Winter | Int Design Temp 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 | 1703 | 15327 |

## SPACES

| Number | Name | Area | Volume | Kitchen | Occupants | Bedrooms | Infil ID | Finished | Cooled | Heated |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Main | 1703 | 15327 | Yes | 6 | 3 | 1 | Yes | Yes | Yes |

## FLOORS

| √ | # | Floor Type | Space | Perimeter | R-Value | Area | | Tile | Wood | Carpet |
|---|---|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Slab-On-Grade Edge Insulation | Main | 223 ft | 0 | 1703 ft² | ---- | 0 | 0 | 1 |

## ROOF

| √ | # | Type | Materials | Roof Area | Gable Area | Roof Color | Rad Barr | Solar Absor. | SA Tested | Emitt | Emitt Tested | Deck Insul. | Pitch (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Gable or shed | Composition shingles | 2047 ft² | 568 ft² | Medium | Y | 0.96 | No | 0.9 | No | 0 | 33.7 |

## ATTIC

| √ | # | Type | Ventilation | Vent Ratio (1 in) | Area | RBS | IRCC |
|---|---|---|---|---|---|---|---|
| _____ | 1 | Partial cathedral ceili | Vented | 300 | 1703 ft² | Y | N |

## CEILING

| √ | # | Ceiling Type | Space | R-Value | Ins Type | Area | Framing Frac | Truss Type |
|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Under Attic (Vented) | Main | 38 | Double Batt | 1788 ft² | 0.11 | Wood |

FORM R405-2020

# INPUT SUMMARY CHECKLIST REPORT

## WALLS

| √ | # | Ornt | Adjacent To | Wall Type | Space | Cavity R-Value | Width Ft | Width In | Height Ft | Height In | Area | Sheathing R-Value | Framing Fraction | Solar Absor. | Below Grade% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ___ | 1 | W | Exterior | Frame - Wood | Main | 13 | 8 | | 9 | | 72.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 2 | W | Exterior | Frame - Wood | Main | 13 | 8 | | 9 | | 72.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 3 | S | Exterior | Frame - Wood | Main | 13 | 20 | | 9 | | 180.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 4 | E | Exterior | Frame - Wood | Main | 13 | 8 | | 9 | | 72.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 5 | S | Exterior | Frame - Wood | Main | 13 | 12 | 4 | 9 | | 111.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 6 | E | Exterior | Frame - Wood | Main | 13 | 33 | 4 | 9 | | 300.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 7 | N | Exterior | Frame - Wood | Main | 13 | 12 | 8 | 9 | | 114.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 8 | W | Exterior | Frame - Wood | Main | 13 | 10 | | 9 | | 90.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 9 | N | Exterior | Frame - Wood | Main | 13 | 21 | 8 | 9 | | 195.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 10 | W | Exterior | Frame - Wood | Main | 13 | 8 | | 9 | | 72.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 11 | N | Exterior | Frame - Wood | Main | 13 | 28 | | 9 | | 252.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 12 | W | Exterior | Frame - Wood | Main | 13 | 22 | | 9 | | 198.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 13 | S | Garage | Frame - Wood | Main | 13 | 22 | | 9 | | 198.0 ft² | | 0.23 | 0.75 | 0 |
| ___ | 14 | W | Garage | Frame - Wood | Main | 13 | 9 | | 9 | | 81.0 ft² | | 0.23 | 0.75 | 0 |

## DOORS

| √ | # | Ornt | Door Type | Space | Storms | U-Value | Width Ft | Width In | Height Ft | Height In | Area |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ___ | 1 | S | Insulated | Main | None | .46 | 3 | | 6 | 8 | 20 ft² |
| ___ | 2 | S | Insulated | Main | 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 | Overhang Separation | Int Shade | Screening |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ___ | 1 | W | 1 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 15.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |
| ___ | 2 | S | 3 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 45.0 ft² | 6 ft 10 in | 1 ft 0 in | None | None |
| ___ | 3 | S | 5 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 15.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |
| ___ | 4 | E | 6 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 4.0 ft² | 1 ft 0 in | 5 ft 0 in | None | None |
| ___ | 5 | N | 7 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 15.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |
| ___ | 6 | N | 9 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 40.0 ft² | 9 ft 6 in | 1 ft 0 in | None | None |
| ___ | 7 | N | 9 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 8.0 ft² | 9 ft 6 in | 1 ft 0 in | None | None |
| ___ | 8 | W | 10 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 15.0 ft² | 5 ft 6 in | 1 ft 0 in | None | None |
| ___ | 9 | N | 11 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 20.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |
| ___ | 10 | N | 11 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 16.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |
| ___ | 11 | W | 12 | Vinyl | Low-E Double | Yes | 0.36 | 0.25 | N | 16.0 ft² | 1 ft 6 in | 1 ft 0 in | None | None |

FORM R405-2020

# INPUT SUMMARY CHECKLIST REPORT

## GARAGE

| √ | # | Floor Area | Ceiling Area | Exposed Wall Perimeter | Avg. Wall Height | Exposed Wall Insulation |
|---|---|---|---|---|---|---|
| _____ | 1 | 491.26 ft² | 491.26 ft² | 57.633 ft | 9 ft | 1 |

## INFILTRATION

| # | Scope | Method | SLA | CFM 50 | ELA | EqLA | ACH | ACH 50 |
|---|---|---|---|---|---|---|---|---|
| 1 | Wholehouse | Proposed ACH(50) | .000286 | 1277.3 | 70.07 | 131.56 | .1027 | 5 |

## HEATING SYSTEM

| √ | # | System Type | Subtype | Speed | Efficiency | Capacity | Block | Ducts |
|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Electric Heat Pump/ | None | Single | HSPF:8.2 | 29.38 kBtu/hr | 1 | sys#1 |

## COOLING SYSTEM

| √ | # | System Type | Subtype | Subtype | Efficiency | Capacity | Air Flow | SHR | Block | Ducts |
|---|---|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Central Unit/ | None | Single | SEER: 14 | 20.43 kBtu/hr | 600 cfm | 0.7 | 1 | sys#1 |

## HOT WATER SYSTEM

| √ | # | System Type | SubType | Location | EF | Cap | Use | SetPnt | Conservation |
|---|---|---|---|---|---|---|---|---|---|
| _____ | 1 | Electric | None | Garage | 0.92 | 50 gal | 40 gal | 120 deg | None |

## SOLAR HOT WATER SYSTEM

| √ | FSEC Cert # | Company Name | System Model # | Collector Model # | Collector Area | Storage Volume | FEF |
|---|---|---|---|---|---|---|---|
| _____ | None | None | | | ft² | | |

## 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 | 425.75 f | Attic | 85.15 ft² | Default Leakage | Garage | (Default) c | (Default) c | | | 1 | 1 |

FORM R405-2020

# INPUT SUMMARY CHECKLIST REPORT

## TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling | [ ] | [ ] | [ ] | [ ] | [ ] | [X] | [X] | [X] | [X] | [ ] | [ ] | [ ] |
| Heating | [X] | [X] | [X] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [X] | [X] |
| Venting | [ ] | [ ] | [X] | [X] | [ ] | [ ] | [ ] | [ ] | [ ] | [X] | [X] | [ ] |

Thermostat Schedule: HERS 2006 Reference

| Schedule Type | | Hours 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling (WD) | AM | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 80 | 80 | 80 | 80 |
| | PM | 80 | 80 | 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 | 66 | 66 | 66 | 66 | 66 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| | PM | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 66 | 66 |
| Heating (WEH) | AM | 66 | 66 | 66 | 66 | 66 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| | PM | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 66 | 66 |

## MASS

| Mass Type | Area | Thickness | Furniture Fraction | Space |
|---|---|---|---|---|
| Default(8 lbs/sq.ft. | 0 ft² | 0 ft | 0.3 | Main |

FORM R405-2020

# ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

## ESTIMATED ENERGY PERFORMANCE INDEX* = 96

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

, Lake City, FL,

| | | | |
|---|---|---|---|
| 1. New construction or existing | | New (From Plans) | |
| 2. Single family or multiple family | | Detached | |
| 3. Number of units, if multiple family | | 1 | |
| 4. Number of Bedrooms | | 3 | |
| 5. Is this a worst case? | | No | |
| 6. Conditioned floor area (ft²) | | 1703 | |
| 7. Windows** | Description | | Area |
| a. U-Factor: | Dbl, U=0.36 | | 209.00 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: | | | 4.763 ft. |
| Area Weighted Average SHGC: | | | 0.250 |
| 8. Skylights | Description | | Area |
| a. U-Factor(AVG): | N/A | | ft² |
| SHGC(AVG): | N/A | | |
| 9. Floor Types | | Insulation | Area |
| a. Slab-On-Grade Edge Insulation | | R=0.0 | 1703.00 ft² |
| b. N/A | | R= | ft² |
| c. N/A | | R= | ft² |

| | | |
|---|---|---|
| 10. Wall Type and Insulation | Insulation | Area |
| a. Frame - Wood, Exterior | R=13.0 | 1728.00 ft² |
| b. Frame - Wood, Adjacent | R=13.0 | 279.00 ft² |
| c. N/A | R= | ft² |
| d. N/A | R= | ft² |
| 11. Ceiling Type and insulation level | Insulation | Area |
| a. Under Attic (Vented) | R=38.0 | 1788.00 ft² |
| b. N/A | R= | ft² |
| c. N/A | R= | ft² |
| 12. Ducts, location & insulation level | | R ft² |
| a. Sup: Attic, Ret: Attic, AH: Garage | | 6 425.75 |
| 13. Cooling systems | kBtu/hr | Efficiency |
| a. Central Unit | 20.4 | SEER:14.00 |
| 14. Heating systems | kBtu/hr | Efficiency |
| a. Electric Heat Pump | 29.4 | HSPF:8.20 |
| 15. Hot water systems | | |
| a. Electric | | Cap: 50 gallons |
| | | EF: 0.92 |
| b. Conservation features | | |
| None | | |
| Credits (Performance method) | | CV, Pstat |

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

Builder Signature: _____ Date: _____

Address of New Home: _____ City/FL Zip: _____

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

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

# Envelope Leakage Test Report (Blower Door Test)
## Residential Prescriptive, Performance or ERI Method Compliance
## 2020 Florida Building Code, Energy Conservation, 7th Edition

| Jurisdiction: | Permit #: |
|---|---|

**Job Information**

Builder: Lipscomb & Eagle Community: Lot: 24

Address:

City: Lake City State: FL Zip:

**Air Leakage Test Results** *Passing results must meet either the Performance, Prescriptive, or ERI Method*

○ **PRESCRIPTIVE METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

○ **PERFORMANCE or ERI METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2020 (Performance) or R406-2020 (ERI), section labeled as infiltration, sub-section ACH50.

*ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI):* 5.000

_____ x 60 ÷ 15327 = _____
CFM(50) Building Volume ACH(50)

☐ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

○ Retrieved from architectural plans

● Code software calculated

○ Field measured and calculated

**R402.4.1.2 Testing.** 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 Statues* 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, back draft 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.

**Testing Company**

Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2020 7th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: _____ Date of Test: _____

Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____

# Residential System Sizing Calculation

## Summary

Project Title:
Lot 24 Emerald Cove ph II

Lake City, FL

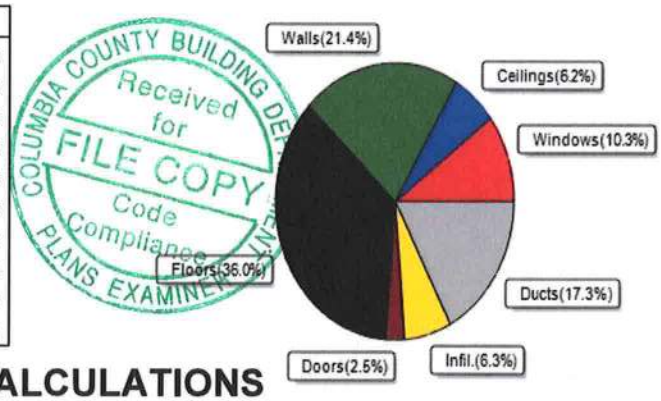
3/11/2021

| 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** | **29218** | **Btuh** | **Total cooling load calculation** | **20756** | **Btuh** |
| Submitted heating capacity | % of calc | Btuh | Submitted cooling capacity | % of calc | Btuh |
| Total (Electric Heat Pump) | 100.6 | 29383 | Sensible (SHR = 0.70) | 83.1 | 14304 |
| Heat Pump + Auxiliary(0.0kW) | 100.6 | 29383 | Latent | 172.9 | 6130 |
| | | | Total (Electric Heat Pump) | 98.5 | 20435 |

## WINTER CALCULATIONS

Winter Heating Load (for 1703 sqft)

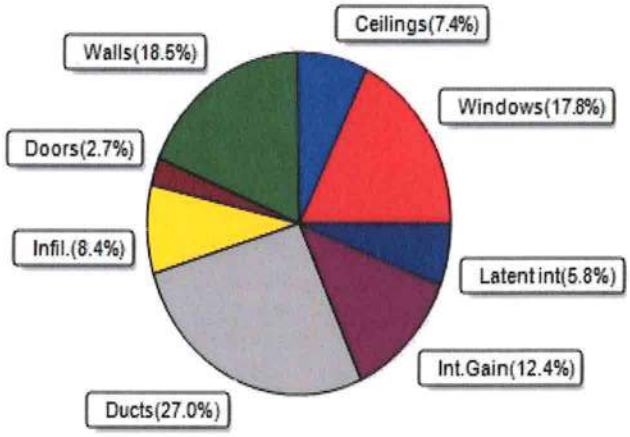
| Load component | | | Load | |
|---|---|---|---|---|
| Window total | 209 | sqft | 3010 | Btuh |
| Wall total | 1758 | sqft | 6241 | Btuh |
| Door total | 40 | sqft | 736 | Btuh |
| Ceiling total | 1788 | sqft | 1815 | Btuh |
| Floor total | 1703 | sqft | 10526 | Btuh |
| Infiltration | 42 | cfm | 1838 | Btuh |
| Duct loss | | | 5052 | Btuh |
| **Subtotal** | | | **29218** | **Btuh** |
| Ventilation | 0 | cfm | 0 | Btuh |
| **TOTAL HEAT LOSS** | | | **29218** | **Btuh** |




## SUMMER CALCULATIONS

Summer Cooling Load (for 1703 sqft)

| Load component | | | Load | |
|---|---|---|---|---|
| Window total | 209 | sqft | 3704 | Btuh |
| Wall total | 1758 | sqft | 3830 | Btuh |
| Door total | 40 | sqft | 552 | Btuh |
| Ceiling total | 1788 | sqft | 1543 | Btuh |
| Floor total | | | 0 | Btuh |
| Infiltration | 31 | cfm | 655 | Btuh |
| Internal gain | | | 2580 | Btuh |
| Duct gain | | | 4347 | Btuh |
| Sens. Ventilation | 0 | cfm | 0 | Btuh |
| Blower Load | | | 0 | Btuh |
| **Total sensible gain** | | | **17210** | **Btuh** |
| Latent gain(ducts) | | | 1260 | Btuh |
| Latent gain(infiltration) | | | 1087 | Btuh |
| Latent gain(ventilation) | | | 0 | Btuh |
| Latent gain(internal/occupants/other) | | | 1200 | Btuh |
| **Total latent gain** | | | **3546** | **Btuh** |
| **TOTAL HEAT GAIN** | | | **20756** | **Btuh** |




Powered by ACCA MANUAL J8 8th Edition

EnergyGauge® System Sizing
PREPARED BY:
DATE: 3/11/2021

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Project Title:
Lot 24 Emerald Cove ph II
Building Type: User

Lake City, FL

3/11/2021

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 | Vinyl | 0.36 | W | 15.0 | 14.4 | 216 Btuh |
| 2 | 2, NFRC 0.25 | Vinyl | 0.36 | S | 45.0 | 14.4 | 648 Btuh |
| 3 | 2, NFRC 0.25 | Vinyl | 0.36 | S | 15.0 | 14.4 | 216 Btuh |
| 4 | 2, NFRC 0.25 | Vinyl | 0.36 | E | 4.0 | 14.4 | 58 Btuh |
| 5 | 2, NFRC 0.25 | Vinyl | 0.36 | N | 15.0 | 14.4 | 216 Btuh |
| 6 | 2, NFRC 0.25 | Vinyl | 0.36 | N | 40.0 | 14.4 | 576 Btuh |
| 7 | 2, NFRC 0.25 | Vinyl | 0.36 | N | 8.0 | 14.4 | 115 Btuh |
| 8 | 2, NFRC 0.25 | Vinyl | 0.36 | W | 15.0 | 14.4 | 216 Btuh |
| 9 | 2, NFRC 0.25 | Vinyl | 0.36 | N | 20.0 | 14.4 | 288 Btuh |
| 10 | 2, NFRC 0.25 | Vinyl | 0.36 | N | 16.0 | 14.4 | 230 Btuh |
| 11 | 2, NFRC 0.25 | Vinyl | 0.36 | W | 16.0 | 14.4 | 230 Btuh |
| | Window Total | | | | 209.0(sqft) | | 3010 Btuh |

| Walls | Type | Ornt. | Ueff. | R-Value (Cav/Sh) | Area X | HTM= | Load |
|---|---|---|---|---|---|---|---|
| 1 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 57 | 3.55 | 202 Btuh |
| 2 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 72 | 3.55 | 256 Btuh |
| 3 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 115 | 3.55 | 408 Btuh |
| 4 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 72 | 3.55 | 256 Btuh |
| 5 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 96 | 3.55 | 341 Btuh |
| 6 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 296 | 3.55 | 1051 Btuh |
| 7 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 99 | 3.55 | 351 Btuh |
| 8 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 90 | 3.55 | 320 Btuh |
| 9 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 147 | 3.55 | 522 Btuh |
| 10 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 57 | 3.55 | 202 Btuh |
| 11 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 216 | 3.55 | 767 Btuh |
| 12 | Frame - Wood | - Ext | (0.089) | 13.0/0.0 | 182 | 3.55 | 646 Btuh |
| 13 | Frame - Wood | - Adj | (0.089) | 13.0/0.0 | 178 | 3.55 | 632 Btuh |
| 14 | Frame - Wood | - Adj | (0.089) | 13.0/0.0 | 81 | 3.55 | 288 Btuh |
| | Wall Total | | | | 1758(sqft) | | 6241 Btuh |

| Doors | Type | Storm | Ueff. | Area X | HTM= | Load |
|---|---|---|---|---|---|---|
| 1 | Insulated - Exterior, | n | (0.460) | 20 | 18.4 | 368 Btuh |
| 2 | Insulated - Garage, | 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 | 1788 | 1.0 | 1815 Btuh |
| | Ceiling Total | | | 1788(sqft) | | 1815Btuh |

| Floors | Type | Ueff. | R-Value | Size X | HTM= | Load |
|---|---|---|---|---|---|---|
| 1 | Slab On Grade | (1.180) | 0.0 | 223.0 ft(perim.) | 47.2 | 10526 Btuh |
| | Floor Total | | | 1703 sqft | | 10526 Btuh |

| | | |
|---|---|---|
| | Envelope Subtotal: | 22328 Btuh |

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Project Title:
Lot 24 Emerald Cove ph II
Building Type: User

Lake City, FL

3/11/2021

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Infiltration** | Type<br>Natural | Wholehouse | ACH<br>0.16 | Volume(cuft)<br>15327 | Wall Ratio<br>1.00 | CFM=<br>42.0 | 1838 Btuh |
| **Duct load** | Average sealed, R6.0, Supply(Att), Return(Att) | | | | (DLM of 0.209) | | 5052 Btuh |
| **All Zones** | **Sensible Subtotal All Zones** | | | | | | **29218 Btuh** |

### WHOLE HOUSE TOTALS

| | | |
|---|---|---|
| **Totals for Heating** | Subtotal Sensible Heat Loss<br>Ventilation Sensible Heat Loss<br>Total Heat Loss | 29218 Btuh<br>0 Btuh<br>29218 Btuh |

### EQUIPMENT

| | | |
|---|---|---|
| 1. Electric Heat Pump | # | 29383 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

Project Title:
Lot 24 Emerald Cove ph II

Lake City, FL

3/11/2021

Reference City: Gainesville, FL  Temperature Difference: 19.0F(TMY3 99%)  Humidity difference: 51gr.

### Component Loads for Whole House

| Window | Type* Panes | SHGC | U | InSh | IS | Ornt | Overhang Len | Hgt | Window Area(sqft) Gross | Shaded | Unshaded | HTM Shaded | Unshaded | Load |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 NFRC | 0.25, 0.36 | | No | No | W | 1.5ft. | 1.0ft. | 15.0 | 0.7 | 14.3 | 12 | 31 | 450 Btuh |
| 2 | 2 NFRC | 0.25, 0.36 | | No | No | S | 6.8ft. | 1.0ft. | 45.0 | 45.0 | 0.0 | 12 | 14 | 544 Btuh |
| 3 | 2 NFRC | 0.25, 0.36 | | No | No | S | 1.5ft. | 1.0ft. | 15.0 | 15.0 | 0.0 | 12 | 14 | 181 Btuh |
| 4 | 2 NFRC | 0.25, 0.36 | | No | No | E | 1.0ft. | 5.0ft. | 4.0 | 0.0 | 4.0 | 12 | 31 | 124 Btuh |
| 5 | 2 NFRC | 0.25, 0.36 | | No | No | N | 1.5ft. | 1.0ft. | 15.0 | 0.0 | 15.0 | 12 | 12 | 181 Btuh |
| 6 | 2 NFRC | 0.25, 0.36 | | No | No | N | 9.5ft. | 1.0ft. | 40.0 | 0.0 | 40.0 | 12 | 12 | 484 Btuh |
| 7 | 2 NFRC | 0.25, 0.36 | | No | No | N | 9.5ft. | 1.0ft. | 8.0 | 0.0 | 8.0 | 12 | 12 | 97 Btuh |
| 8 | 2 NFRC | 0.25, 0.36 | | No | No | W | 5.5ft. | 1.0ft. | 15.0 | 10.7 | 4.3 | 12 | 31 | 263 Btuh |
| 9 | 2 NFRC | 0.25, 0.36 | | No | No | N | 1.5ft. | 1.0ft. | 20.0 | 0.0 | 20.0 | 12 | 12 | 242 Btuh |
| 10 | 2 NFRC | 0.25, 0.36 | | No | No | N | 1.5ft. | 1.0ft. | 16.0 | 0.0 | 16.0 | 12 | 12 | 194 Btuh |
| 11 | 2 NFRC | 0.25, 0.36 | | No | No | W | 1.5ft. | 1.0ft. | 16.0 | 1.0 | 15.0 | 12 | 31 | 477 Btuh |
| | Excursion | | | | | | | | | | | | | 467 Btuh |
| | Window Total | | | | | | | | 209 (sqft) | | | | | 3704 Btuh |

| Walls | Type | U-Value | R-Value Cav/Sheath | Area(sqft) | HTM | Load |
|---|---|---|---|---|---|---|
| 1 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 57.0 | 2.3 | 129 Btuh |
| 2 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 72.0 | 2.3 | 163 Btuh |
| 3 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 115.0 | 2.3 | 260 Btuh |
| 4 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 72.0 | 2.3 | 163 Btuh |
| 5 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 96.0 | 2.3 | 217 Btuh |
| 6 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 296.0 | 2.3 | 670 Btuh |
| 7 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 99.0 | 2.3 | 224 Btuh |
| 8 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 90.0 | 2.3 | 204 Btuh |
| 9 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 147.0 | 2.3 | 333 Btuh |
| 10 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 57.0 | 2.3 | 129 Btuh |
| 11 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 216.0 | 2.3 | 489 Btuh |
| 12 | Frame - Wood - Ext | 0.09 | 13.0/0.0 | 182.0 | 2.3 | 412 Btuh |
| 13 | Frame - Wood - Adj | 0.09 | 13.0/0.0 | 178.0 | 1.7 | 300 Btuh |
| 14 | Frame - Wood - Adj | 0.09 | 13.0/0.0 | 81.0 | 1.7 | 137 Btuh |
| | Wall Total | | | 1758 (sqft) | | 3830 Btuh |

| Doors | Type | Area (sqft) | HTM | Load |
|---|---|---|---|---|
| 1 | Insulated - Exterior | 20.0 | 13.8 | 276 Btuh |
| 2 | Insulated - Garage | 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/RB | 0.025 | 38.0/0.0 | 1788.0 | 0.86 | 1543 Btuh |
| | Ceiling Total | | | 1788 (sqft) | | 1543 Btuh |

| Floors | Type | R-Value | Size | HTM | Load |
|---|---|---|---|---|---|
| 1 | Slab On Grade | 0.0 | 1703 (ft-perimeter) | 0.0 | 0 Btuh |
| | Floor Total | | 1703.0 (sqft) | | 0 Btuh |

| | | Envelope Subtotal: | 9628 Btuh |
|---|---|---|---|

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 24 Emerald Cove ph II

Lake City, FL

3/11/2021

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Infiltration** | Type | Average ACH | Volume(cuft) | | Wall Ratio | | CFM= | Load |
| | Natural | 0.12 | 15327 | | 1 | | 31.5 | 655 Btuh |
| **Internal gain** | | Occupants | Btuh/occupant | | | | Appliance | Load |
| | | 6 | X | 230 | + | | 1200 | 2580 Btuh |
| | | | | | | Sensible Envelope Load: | | 12863 Btuh |
| **Duct load** | Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) | | | | | (DGM of 0.338) | | 4347 Btuh |
| | | | | | | **Sensible Load All Zones** | | **17210 Btuh** |

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 24 Emerald Cove ph II

Lake City, FL

3/11/2021

### WHOLE HOUSE TOTALS

| | | |
|---|---|---|
| | **Sensible Envelope Load All Zones** | **12863 Btuh** |
| | Sensible Duct Load | 4347 Btuh |
| | **Total Sensible Zone Loads** | **17210 Btuh** |
| | Sensible ventilation | 0 Btuh |
| | Blower | 0 Btuh |
| **Whole House** | **Total sensible gain** | **17210 Btuh** |
| **Totals for Cooling** | Latent infiltration gain (for 51 gr. humidity difference) | 1087 Btuh |
| | Latent ventilation gain | 0 Btuh |
| | Latent duct gain | 1260 Btuh |
| | Latent occupant gain (6.0 people @ 200 Btuh per person) | 1200 Btuh |
| | Latent other gain | 0 Btuh |
| | **Latent total gain** | **3546 Btuh** |
| | **TOTAL GAIN** | **20756 Btuh** |

### EQUIPMENT

| | | |
|---|---|---|
| 1. Central Unit | # | 20435 Btuh |

*Key: Window types (Panes - 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