

# Residential System Sizing Calculation

## Summary

Project Title:  
Lot 20 Turkey Creek

Lake City, FL 32055

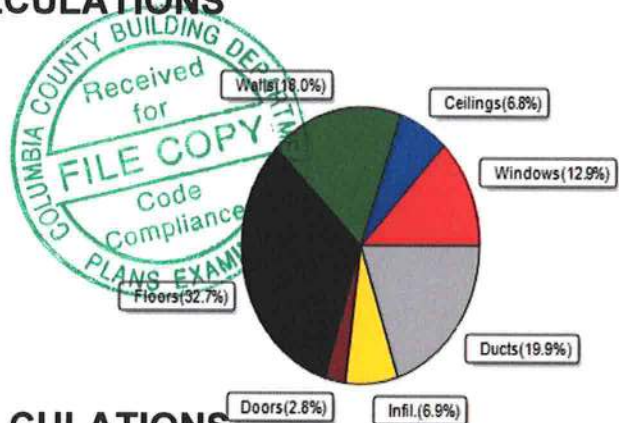
2/24/2021

|                                                                                                       |                   |                                       |                   |
|-------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------|-------------------|
| 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              |
| <b>Total heating load calculation</b>                                                                 | <b>26140 Btuh</b> | <b>Total cooling load calculation</b> | <b>20750 Btuh</b> |
| Submitted heating capacity                                                                            | % of calc Btuh    | Submitted cooling capacity            | % of calc Btuh    |
| Total (Electric Heat Pump)                                                                            | 100.0 26140       | Sensible (SHR = 0.70)                 | 84.3 14525        |
| Heat Pump + Auxiliary(0.0kW)                                                                          | 100.0 26140       | Latent                                | 176.5 6225        |
|                                                                                                       |                   | Total (Electric Heat Pump)            | 100.0 20750       |

## WINTER CALCULATIONS

Winter Heating Load (for 1678 sqft)

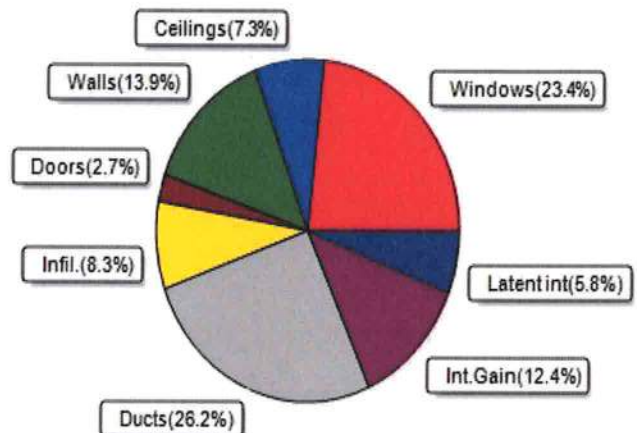
| Load component         |           | Load         |             |
|------------------------|-----------|--------------|-------------|
| Window total           | 240 sqft  | 3360         | Btuh        |
| Wall total             | 1322 sqft | 4694         | Btuh        |
| Door total             | 40 sqft   | 736          | Btuh        |
| Ceiling total          | 1762 sqft | 1789         | Btuh        |
| Floor total            | 1678 sqft | 8543         | Btuh        |
| Infiltration           | 41 cfm    | 1811         | Btuh        |
| Duct loss              |           | 5208         | Btuh        |
| <b>Subtotal</b>        |           | <b>26140</b> | <b>Btuh</b> |
| Ventilation            | 0 cfm     | 0            | Btuh        |
| <b>TOTAL HEAT LOSS</b> |           | <b>26140</b> | <b>Btuh</b> |



## SUMMER CALCULATIONS

Summer Cooling Load (for 1678 sqft)

| Load component                        |           | Load         |             |
|---------------------------------------|-----------|--------------|-------------|
| Window total                          | 240 sqft  | 4865         | Btuh        |
| Wall total                            | 1322 sqft | 2880         | Btuh        |
| Door total                            | 40 sqft   | 552          | Btuh        |
| Ceiling total                         | 1762 sqft | 1521         | Btuh        |
| Floor total                           |           | 0            | Btuh        |
| Infiltration                          | 31 cfm    | 645          | Btuh        |
| Internal gain                         |           | 2580         | Btuh        |
| Duct gain                             |           | 4181         | Btuh        |
| Sens. Ventilation                     | 0 cfm     | 0            | Btuh        |
| Blower Load                           |           | 0            | Btuh        |
| <b>Total sensible gain</b>            |           | <b>17223</b> | <b>Btuh</b> |
| Latent gain(ducts)                    |           | 1256         | Btuh        |
| Latent gain(infiltration)             |           | 1071         | Btuh        |
| Latent gain(ventilation)              |           | 0            | Btuh        |
| Latent gain(internal/occupants/other) |           | 1200         | Btuh        |
| <b>Total latent gain</b>              |           | <b>3527</b>  | <b>Btuh</b> |
| <b>TOTAL HEAT GAIN</b>                |           | <b>20750</b> | <b>Btuh</b> |



8th Edition

EnergyGauge® System Sizing

PREPARED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

*[Signature]*  
2/25/2021

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Lake City, FL 32055

Project Title:  
Lot 20 Turkey Creek  
Building Type: User

2/24/2021

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 0.26                                                  | Vinyl      | 0.35    | S                   | 30.0             |      | 14.0 | 420 Btuh   |
| 2                  | 2, NFRC 0.26                                                  | Vinyl      | 0.35    | E                   | 30.0             |      | 14.0 | 420 Btuh   |
| 3                  | 2, NFRC 0.26                                                  | Vinyl      | 0.35    | N                   | 45.0             |      | 14.0 | 630 Btuh   |
| 4                  | 2, NFRC 0.26                                                  | Vinyl      | 0.35    | N                   | 60.0             |      | 14.0 | 840 Btuh   |
| 5                  | 2, NFRC 0.26                                                  | Vinyl      | 0.35    | W                   | 75.0             |      | 14.0 | 1050 Btuh  |
| Window Total       |                                                               |            |         |                     | 240.0(sqft)      |      |      | 3360 Btuh  |
| Walls              | Type                                                          | Ornt.      | Ueff.   | R-Value<br>(Cav/Sh) | Area             | X    | HTM= | Load       |
| 1                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 103              |      | 3.55 | 366 Btuh   |
| 2                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 81               |      | 3.55 | 288 Btuh   |
| 3                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 4                |      | 3.55 | 14 Btuh    |
| 4                  | Frame - Wood                                                  | - Adj      | (0.089) | 13.0/0.0            | 195              |      | 3.55 | 692 Btuh   |
| 5                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 375              |      | 3.55 | 1331 Btuh  |
| 6                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 174              |      | 3.55 | 618 Btuh   |
| 7                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 72               |      | 3.55 | 256 Btuh   |
| 8                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 93               |      | 3.55 | 330 Btuh   |
| 9                  | Frame - Wood                                                  | - Ext      | (0.089) | 13.0/0.0            | 225              |      | 3.55 | 799 Btuh   |
| Wall Total         |                                                               |            |         |                     | 1322(sqft)       |      |      | 4694 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            | 1762             |      | 1.0  | 1789 Btuh  |
| Ceiling Total      |                                                               |            |         |                     | 1762(sqft)       |      |      | 1789Btuh   |
| Floors             | Type                                                          |            | Ueff.   | R-Value             | Size             | X    | HTM= | Load       |
| 1                  | Slab On Grade                                                 |            | (1.180) | 0.0                 | 181.0 ft(perim.) |      | 47.2 | 8543 Btuh  |
| Floor Total        |                                                               |            |         |                     | 1678 sqft        |      |      | 8543 Btuh  |
| Envelope Subtotal: |                                                               |            |         |                     |                  |      |      | 19122 Btuh |
| Infiltration       | Type                                                          | Wholehouse | ACH     | Volume(cuft)        | Wall Ratio       | CFM= |      | Load       |
|                    | Natural                                                       |            | 0.16    | 15102               | 1.00             | 41.4 |      | 1811 Btuh  |
| Duct load          | Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.249) |            |         |                     |                  |      |      | 5208 Btuh  |
| All Zones          | Sensible Subtotal All Zones                                   |            |         |                     |                  |      |      | 26140 Btuh |

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:  
Lot 20 Turkey Creek  
Building Type: User

2/24/2021

### WHOLE HOUSE TOTALS

|                           |                                |            |
|---------------------------|--------------------------------|------------|
| <b>Totals for Heating</b> | Subtotal Sensible Heat Loss    | 26140 Btuh |
|                           | Ventilation Sensible Heat Loss | 0 Btuh     |
|                           | Total Heat Loss                | 26140 Btuh |

### EQUIPMENT

|                       |   |            |
|-----------------------|---|------------|
| 1. Electric Heat Pump | # | 26140 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 - Winter

## Residential Load - Room by Room Component Details

Lake City, FL 32055

Project Title:  
Lot 20 Turkey Creek  
Building Type: User

2/24/2021

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

### Component Loads for Room #1: Main

| Window                  | Panes/Type                                            | Frame      | U       | Orientation         | Area(sqft)       | X    | HTM=           | Load       |
|-------------------------|-------------------------------------------------------|------------|---------|---------------------|------------------|------|----------------|------------|
| 1                       | 2, NFRC 0.26                                          | Vinyl      | 0.35    | S                   | 30.0             |      | 14.0           | 420 Btuh   |
| 2                       | 2, NFRC 0.26                                          | Vinyl      | 0.35    | E                   | 30.0             |      | 14.0           | 420 Btuh   |
| 3                       | 2, NFRC 0.26                                          | Vinyl      | 0.35    | N                   | 45.0             |      | 14.0           | 630 Btuh   |
| 4                       | 2, NFRC 0.26                                          | Vinyl      | 0.35    | N                   | 60.0             |      | 14.0           | 840 Btuh   |
| 5                       | 2, NFRC 0.26                                          | Vinyl      | 0.35    | W                   | 75.0             |      | 14.0           | 1050 Btuh  |
| Window Total            |                                                       |            |         |                     | 240.0(sqft)      |      |                | 3360 Btuh  |
| Walls                   | Type                                                  | Ornt.      | Ueff.   | R-Value<br>(Cav/Sh) | Area             | X    | HTM=           | Load       |
| 1                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 103              |      | 3.55           | 366 Btuh   |
| 2                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 81               |      | 3.55           | 288 Btuh   |
| 3                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 4                |      | 3.55           | 14 Btuh    |
| 4                       | Frame - Wood                                          | - Adj      | (0.089) | 13.0/0.0            | 195              |      | 3.55           | 692 Btuh   |
| 5                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 375              |      | 3.55           | 1331 Btuh  |
| 6                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 174              |      | 3.55           | 618 Btuh   |
| 7                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 72               |      | 3.55           | 256 Btuh   |
| 8                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 93               |      | 3.55           | 330 Btuh   |
| 9                       | Frame - Wood                                          | - Ext      | (0.089) | 13.0/0.0            | 225              |      | 3.55           | 799 Btuh   |
| Wall Total              |                                                       |            |         |                     | 1322(sqft)       |      |                | 4694 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            | 1762             |      | 1.0            | 1789 Btuh  |
| Ceiling Total           |                                                       |            |         |                     | 1762(sqft)       |      |                | 1789Btuh   |
| Floors                  | Type                                                  |            | Ueff.   | R-Value             | Size             | X    | HTM=           | Load       |
| 1                       | Slab On Grade                                         |            | (1.180) | 0.0                 | 181.0 ft(perim.) |      | 47.2           | 8543 Btuh  |
| Floor Total             |                                                       |            |         |                     | 1678 sqft        |      |                | 8543 Btuh  |
| Room Envelope Subtotal: |                                                       |            |         |                     |                  |      |                | 19122 Btuh |
| Infiltration            | Type                                                  | Wholehouse | ACH     | Room Volume         | Wall Ratio       | CFM= |                |            |
|                         | Natural                                               |            | 0.16    | 15102               | 1.00             | 41.4 |                | 1811 Btuh  |
| Duct load               | Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) |            |         |                     |                  |      | (DLM of 0.249) | 5208 Btuh  |
| Room #1                 | Sensible Room Subtotal                                |            |         |                     |                  |      |                | 26140 Btuh |



# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:  
Lot 20 Turkey Creek  
Building Type: User

2/24/2021

### WHOLE HOUSE TOTALS

|                    |                                |            |
|--------------------|--------------------------------|------------|
| Totals for Heating | Subtotal Sensible Heat Loss    | 26140 Btuh |
|                    | Ventilation Sensible Heat Loss | 0 Btuh     |
|                    | Total Heat Loss                | 26140 Btuh |

### EQUIPMENT

|                       |   |            |
|-----------------------|---|------------|
| 1. Electric Heat Pump | # | 26140 Btuh |
|-----------------------|---|------------|

Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)  
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Version 8