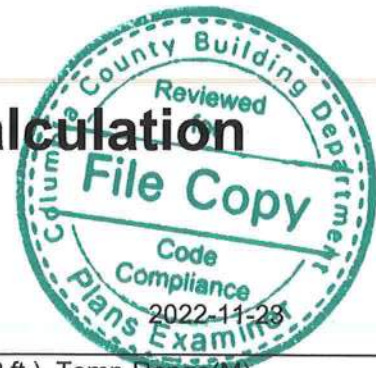


# Residential System Sizing Calculation

## Summary

Dave Blank  
Little Road  
Lake City, FL

Project Title:  
221108 Blank Room Addition

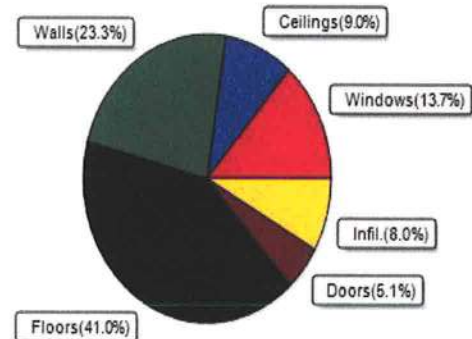


|                                                                                                       |              |             |                                       |              |              |
|-------------------------------------------------------------------------------------------------------|--------------|-------------|---------------------------------------|--------------|--------------|
| 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>12671</b> | <b>Btuh</b> | <b>Total cooling load calculation</b> | <b>8746</b>  | <b>Btuh</b>  |
| Submitted heating capacity                                                                            | % of calc    | Btuh        | Submitted cooling capacity            | % of calc    | Btuh         |
| Total (Window/Wall Heat Pump)                                                                         | 102.6        | 13000       | Sensible (SHR = 0.75)                 | 132.7        | 9750         |
| Heat Pump + Auxiliary(0.0kW)                                                                          | 102.6        | 13000       | Latent                                | 232.4        | 3250         |
|                                                                                                       |              |             | <b>Total (Window/Wall Heat Pump)</b>  | <b>148.6</b> | <b>13000</b> |

## WINTER CALCULATIONS

Winter Heating Load (for 738 sqft)

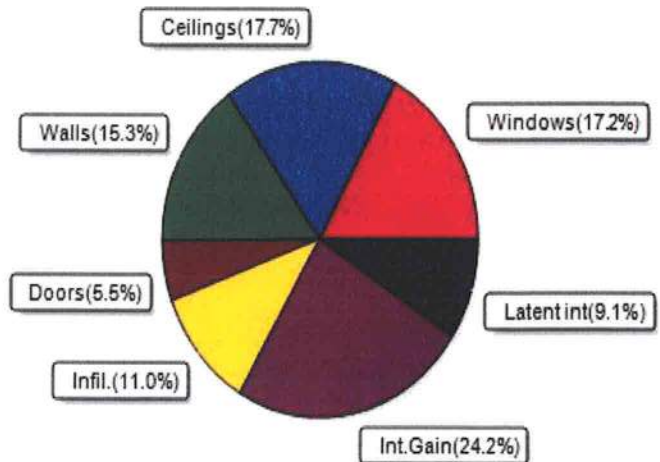
| Load component         |          | Load              |
|------------------------|----------|-------------------|
| Window total           | 124 sqft | 1736 Btuh         |
| Wall total             | 577 sqft | 2947 Btuh         |
| Door total             | 40 sqft  | 640 Btuh          |
| Ceiling total          | 842 sqft | 1144 Btuh         |
| Floor total            | 738 sqft | 5192 Btuh         |
| Infiltration           | 23 cfm   | 1013 Btuh         |
| Duct loss              |          | 0 Btuh            |
| <b>Subtotal</b>        |          | <b>12671 Btuh</b> |
| Ventilation            | 0 cfm    | 0 Btuh            |
| <b>TOTAL HEAT LOSS</b> |          | <b>12671 Btuh</b> |



## SUMMER CALCULATIONS

Summer Cooling Load (for 738 sqft)

| Load component                        |          | Load             |
|---------------------------------------|----------|------------------|
| Window total                          | 124 sqft | 1506 Btuh        |
| Wall total                            | 577 sqft | 1336 Btuh        |
| Door total                            | 40 sqft  | 480 Btuh         |
| Ceiling total                         | 842 sqft | 1544 Btuh        |
| Floor total                           |          | 0 Btuh           |
| Infiltration                          | 17 cfm   | 361 Btuh         |
| Internal gain                         |          | 2120 Btuh        |
| Duct gain                             |          | 0 Btuh           |
| Sens. Ventilation                     | 0 cfm    | 0 Btuh           |
| Blower Load                           |          | 0 Btuh           |
| <b>Total sensible gain</b>            |          | <b>7347 Btuh</b> |
| Latent gain(ducts)                    |          | 0 Btuh           |
| Latent gain(infiltration)             |          | 599 Btuh         |
| Latent gain(ventilation)              |          | 0 Btuh           |
| Latent gain(internal/occupants/other) |          | 800 Btuh         |
| <b>Total latent gain</b>              |          | <b>1399 Btuh</b> |
| <b>TOTAL HEAT GAIN</b>                |          | <b>8746 Btuh</b> |



8th Edition

EnergyGauge® System Sizing  
PREPARED BY: Evan Beamsley  
DATE: 2022-11-23

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Dave Blank  
Little Road  
Lake City, FL

Project Title:  
221108 Blank Room Addition  
Building Type: User

2022-11-23

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      | 0.35    | N                   | 10.0             |      | 14.0 | 140 Btuh   |
| 2                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | N                   | 40.0             |      | 14.0 | 560 Btuh   |
| 3                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | S                   | 10.0             |      | 14.0 | 140 Btuh   |
| 4                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | S                   | 40.0             |      | 14.0 | 560 Btuh   |
| 5                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | S                   | 12.0             |      | 14.0 | 168 Btuh   |
| 6                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | N                   | 3.0              |      | 14.0 | 42 Btuh    |
| 7                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | E                   | 3.0              |      | 14.0 | 42 Btuh    |
| 8                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | S                   | 3.0              |      | 14.0 | 42 Btuh    |
| 9                  | 2, NFRC 0.25                                   | Vinyl      | 0.35    | W                   | 3.0              |      | 14.0 | 42 Btuh    |
| Window Total       |                                                |            |         |                     | 124.0(sqft)      |      |      | 1736 Btuh  |
| Walls              | Type                                           | Ornt.      | Ueff.   | R-Value<br>(Cav/Sh) | Area             | X    | HTM= | Load       |
| 1                  | Face Br - Wood                                 | - Ext      | (0.080) | 13.0/0.0            | 189              |      | 3.19 | 602 Btuh   |
| 2                  | Frame - Wood                                   | - Adj      | (0.240) | 0.0/0.0             | 170              |      | 9.60 | 1632 Btuh  |
| 3                  | Face Br - Wood                                 | - Ext      | (0.080) | 13.0/0.0            | 177              |      | 3.19 | 564 Btuh   |
| 4                  | Frame - Wood                                   | - Ext      | (0.089) | 13.0/0.0            | 11               |      | 3.55 | 37 Btuh    |
| 5                  | Frame - Wood                                   | - Ext      | (0.089) | 13.0/0.0            | 11               |      | 3.55 | 37 Btuh    |
| 6                  | Frame - Wood                                   | - Ext      | (0.089) | 13.0/0.0            | 11               |      | 3.55 | 37 Btuh    |
| 7                  | Frame - Wood                                   | - Ext      | (0.089) | 13.0/0.0            | 11               |      | 3.55 | 37 Btuh    |
| Wall Total         |                                                |            |         |                     | 577(sqft)        |      |      | 2947 Btuh  |
| Doors              | Type                                           | Storm      | Ueff.   |                     | Area             | X    | HTM= | Load       |
| 1                  | Insulated - Exterior,                          | n          | (0.400) |                     | 10               |      | 16.0 | 160 Btuh   |
| 2                  | Insulated - Garage,                            | n          | (0.400) |                     | 20               |      | 16.0 | 320 Btuh   |
| 3                  | Insulated - Exterior,                          | n          | (0.400) |                     | 10               |      | 16.0 | 160 Btuh   |
| Door Total         |                                                |            |         |                     | 40(sqft)         |      |      | 640Btuh    |
| Ceilings           | Type/Color/Surface                             |            | Ueff.   | R-Value             | Area             | X    | HTM= | Load       |
| 1                  | Vented Attic/D/Shing                           |            | (0.032) | 30.0/0.0            | 722              |      | 1.3  | 920 Btuh   |
| 2                  | Knee Wall/D/Shing                              |            | (0.049) | 19.0/0.0            | 56               |      | 2.0  | 110 Btuh   |
| 3                  | Knee Wall/D/Shing                              |            | (0.049) | 19.0/0.0            | 48               |      | 2.0  | 94 Btuh    |
| 4                  | Vented Attic/D/Shing                           |            | (0.032) | 30.0/0.0            | 16               |      | 1.3  | 20 Btuh    |
| Ceiling Total      |                                                |            |         |                     | 842(sqft)        |      |      | 1144Btuh   |
| Floors             | Type                                           |            | Ueff.   | R-Value             | Size             | X    | HTM= | Load       |
| 1                  | Slab On Grade                                  |            | (1.180) | 0.0                 | 110.0 ft(perim.) |      | 47.2 | 5192 Btuh  |
| Floor Total        |                                                |            |         |                     | 738 sqft         |      |      | 5192 Btuh  |
| Envelope Subtotal: |                                                |            |         |                     |                  |      |      | 11659 Btuh |
| Infiltration       | Type                                           | Wholehouse | ACH     | Volume(cuft)        | Wall Ratio       | CFM= |      |            |
|                    | Natural                                        |            | 0.22    | 6199                | 1.00             | 23.1 |      | 1013 Btuh  |
| Duct load          | NA, R0.0, Supply(), Return()<br>(DLM of 0.000) |            |         |                     |                  |      |      | 0 Btuh     |

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Dave Blank  
Little Road  
Lake City, FL

Project Title:  
221108 Blank Room Addition  
Building Type: User

2022-11-23

|                  |                                    |                   |
|------------------|------------------------------------|-------------------|
| <b>All Zones</b> | <b>Sensible Subtotal All Zones</b> | <b>12671 Btuh</b> |
|------------------|------------------------------------|-------------------|

### WHOLE HOUSE TOTALS

|                           |                                                                                  |                                    |
|---------------------------|----------------------------------------------------------------------------------|------------------------------------|
| <b>Totals for Heating</b> | Subtotal Sensible Heat Loss<br>Ventilation Sensible Heat Loss<br>Total Heat Loss | 12671 Btuh<br>0 Btuh<br>12671 Btuh |
|---------------------------|----------------------------------------------------------------------------------|------------------------------------|

### EQUIPMENT

|                          |   |            |
|--------------------------|---|------------|
| 1. Window/Wall Heat Pump | # | 13000 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

Dave Blank  
Little Road  
Lake City, FL

Project Title:  
221108 Blank Room Addition

2022-11-23

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, 0.35 | No | No   | N  |             | 1.5ft      | 0.5ft        | 10.0               | 0.0    | 10.0     | 12       | 12        | 119       | Btuh |
| 2                  | 2 NFRC                   | 0.25, 0.35 | No | No   | N  |             | 1.5ft      | 0.5ft        | 40.0               | 0.0    | 40.0     | 12       | 12        | 476       | Btuh |
| 3                  | 2 NFRC                   | 0.25, 0.35 | No | No   | S  |             | 1.5ft      | 0.5ft        | 10.0               | 10.0   | 0.0      | 12       | 14        | 119       | Btuh |
| 4                  | 2 NFRC                   | 0.25, 0.35 | No | No   | S  |             | 1.5ft      | 0.5ft        | 40.0               | 40.0   | 0.0      | 12       | 14        | 476       | Btuh |
| 5                  | 2 NFRC                   | 0.25, 0.35 | No | No   | S  |             | 1.5ft      | 0.5ft        | 12.0               | 12.0   | 0.0      | 12       | 14        | 143       | Btuh |
| 6                  | 2 NFRC                   | 0.25, 0.35 | No | No   | N  |             | 1.5ft      | 0.5ft        | 3.0                | 0.0    | 3.0      | 12       | 12        | 36        | Btuh |
| 7                  | 2 NFRC                   | 0.25, 0.35 | No | No   | E  |             | 1.5ft      | 0.5ft        | 3.0                | 2.2    | 0.8      | 12       | 31        | 50        | Btuh |
| 8                  | 2 NFRC                   | 0.25, 0.35 | No | No   | S  |             | 1.5ft      | 0.5ft        | 3.0                | 3.0    | 0.0      | 12       | 14        | 36        | Btuh |
| 9                  | 2 NFRC                   | 0.25, 0.35 | No | No   | W  |             | 1.5ft      | 0.5ft        | 3.0                | 2.2    | 0.8      | 12       | 31        | 50        | Btuh |
| Window Total       |                          |            |    |      |    |             |            |              | 124 (sqft)         |        |          |          |           | 1506 Btuh |      |
| Walls              | Type                     |            |    |      |    | U-Value     | R-Value    | Area(sqft)   |                    |        | HTM      |          | Load      |           |      |
|                    |                          |            |    |      |    |             | Cav/Sheath |              |                    |        |          |          |           |           |      |
| 1                  | Face Brick - Wood - Ext  |            |    |      |    |             | 0.08       | 13.0/0.0     |                    |        | 1.3      |          | 241 Btuh  |           |      |
| 2                  | Frame - Wood - Adj       |            |    |      |    |             | 0.24       | 0.0/0.0      |                    |        | 4.6      |          | 775 Btuh  |           |      |
| 3                  | Face Brick - Wood - Ext  |            |    |      |    |             | 0.08       | 13.0/0.0     |                    |        | 1.3      |          | 225 Btuh  |           |      |
| 4                  | Frame - Wood - Ext       |            |    |      |    |             | 0.09       | 13.0/0.0     |                    |        | 2.3      |          | 24 Btuh   |           |      |
| 5                  | Frame - Wood - Ext       |            |    |      |    |             | 0.09       | 13.0/0.0     |                    |        | 2.3      |          | 24 Btuh   |           |      |
| 6                  | Frame - Wood - Ext       |            |    |      |    |             | 0.09       | 13.0/0.0     |                    |        | 2.3      |          | 24 Btuh   |           |      |
| 7                  | Frame - Wood - Ext       |            |    |      |    |             | 0.09       | 13.0/0.0     |                    |        | 2.3      |          | 24 Btuh   |           |      |
| Wall Total         |                          |            |    |      |    |             |            | 577 (sqft)   |                    |        |          |          | 1336 Btuh |           |      |
| Doors              | Type                     |            |    |      |    | Area (sqft) |            |              | HTM                |        | Load     |          |           |           |      |
|                    |                          |            |    |      |    |             |            |              |                    |        |          |          |           |           |      |
| 1                  | Insulated - Exterior     |            |    |      |    |             | 10.0       |              |                    | 12.0   |          | 120 Btuh |           |           |      |
| 2                  | Insulated - Garage       |            |    |      |    |             | 20.0       |              |                    | 12.0   |          | 240 Btuh |           |           |      |
| 3                  | Insulated - Exterior     |            |    |      |    |             | 10.0       |              |                    | 12.0   |          | 120 Btuh |           |           |      |
| Door Total         |                          |            |    |      |    |             |            | 40 (sqft)    |                    |        |          |          | 480 Btuh  |           |      |
| Ceilings           | Type/Color/Surface       |            |    |      |    | U-Value     | R-Value    | Area(sqft)   |                    |        | HTM      |          | Load      |           |      |
|                    |                          |            |    |      |    |             |            |              |                    |        |          |          |           |           |      |
| 1                  | Vented Attic/DarkShingle |            |    |      |    |             | 0.032      | 30.0/0.0     |                    |        | 1.72     |          | 1242 Btuh |           |      |
| 2                  | Knee Wall/DarkShingle    |            |    |      |    |             | 0.049      | 19.0/0.0     |                    |        | 2.65     |          | 148 Btuh  |           |      |
| 3                  | Knee Wall/DarkShingle    |            |    |      |    |             | 0.049      | 19.0/0.0     |                    |        | 2.65     |          | 127 Btuh  |           |      |
| 4                  | Vented Attic/DarkShingle |            |    |      |    |             | 0.032      | 30.0/0.0     |                    |        | 1.72     |          | 28 Btuh   |           |      |
| Ceiling Total      |                          |            |    |      |    |             |            | 842 (sqft)   |                    |        |          |          | 1544 Btuh |           |      |
| Floors             | Type                     |            |    |      |    | R-Value     |            | Size         |                    |        | HTM      |          | Load      |           |      |
|                    |                          |            |    |      |    |             |            |              |                    |        |          |          |           |           |      |
| 1                  | Slab On Grade            |            |    |      |    |             | 0.0        |              | 738 (ft-perimeter) |        |          | 0.0      |           | 0 Btuh    |      |
| Floor Total        |                          |            |    |      |    |             |            | 738.0 (sqft) |                    |        |          |          | 0 Btuh    |           |      |
| Envelope Subtotal: |                          |            |    |      |    |             |            |              |                    |        |          |          |           | 4866 Btuh |      |

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Dave Blank  
Little Road  
Lake City, FL

Project Title: Climate:FL\_GAINESVILLE\_REGIONAL\_A  
221108 Blank Room Addition

2022-11-23

|                      |                                          |                     |                        |                 |                                |                   |
|----------------------|------------------------------------------|---------------------|------------------------|-----------------|--------------------------------|-------------------|
| <b>Infiltration</b>  | Type<br>Natural                          | Average ACH<br>0.17 | Volume(cuft)<br>6199   | Wall Ratio<br>1 | CFM=<br>17.3                   | Load<br>361 Btuh  |
| <b>Internal gain</b> |                                          | Occupants<br>4      | Btuh/occupant<br>X 230 | Appliance<br>+  | 1200                           | Load<br>2120 Btuh |
|                      |                                          |                     |                        |                 | Sensible Envelope Load:        | 7347 Btuh         |
| <b>Duct load</b>     | NA, Supply(R0.0-None), Return(R0.0-None) |                     |                        |                 | (DGM of 0.000)                 | 0 Btuh            |
|                      |                                          |                     |                        |                 | <b>Sensible Load All Zones</b> | <b>7347 Btuh</b>  |

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Dave Blank  
Little Road  
Lake City, FL

Project Title: Climate:FL\_GAINESVILLE\_REGIONAL\_A  
221108 Blank Room Addition

2022-11-23

### WHOLE HOUSE TOTALS

|                                   |                                                           |                  |
|-----------------------------------|-----------------------------------------------------------|------------------|
| Whole House<br>Totals for Cooling | <b>Sensible Envelope Load All Zones</b>                   | <b>7347 Btuh</b> |
|                                   | Sensible Duct Load                                        | 0 Btuh           |
|                                   | <b>Total Sensible Zone Loads</b>                          | <b>7347 Btuh</b> |
|                                   | Sensible ventilation                                      | 0 Btuh           |
|                                   | Blower                                                    | 0 Btuh           |
|                                   | <b>Total sensible gain</b>                                | <b>7347 Btuh</b> |
|                                   | Latent infiltration gain (for 51 gr. humidity difference) | 599 Btuh         |
|                                   | Latent ventilation gain                                   | 0 Btuh           |
|                                   | Latent duct gain                                          | 0 Btuh           |
|                                   | Latent occupant gain (4.0 people @ 200 Btuh per person)   | 800 Btuh         |
|                                   | Latent other gain                                         | 0 Btuh           |
|                                   | <b>Latent total gain</b>                                  | <b>1399 Btuh</b> |
|                                   | <b>TOTAL GAIN</b>                                         | <b>8746 Btuh</b> |

### EQUIPMENT

|                       |   |            |
|-----------------------|---|------------|
| 1. PTAC and Room Unit | # | 13000 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