

# System Sizing Calculations - Winter

## Residential Load - Whole House Component Details

Murphy, William & Dasashia  
6148 NW Lake Jeffery  
Lake City, FL

Project Title:  
230538 Murphy Res  
Building Type: User

2023-05-03

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 99%)  
Winter Setpoint: 70 °F (Required Manual J default)

| Component Loads for Whole House |                                                     |       |         |                     |                  |   |      |            |
|---------------------------------|-----------------------------------------------------|-------|---------|---------------------|------------------|---|------|------------|
| Window                          | Panes/Type                                          | Frame | U       | Orientation         | Area(sqft)       | X | HTM= | Load       |
| 1                               | 2, NFRC 0.25                                        | Metal | 0.35    | N                   | 12.0             |   | 14.0 | 168 Btuh   |
| 2                               | 2, NFRC 0.25                                        | Metal | 0.35    | N                   | 30.0             |   | 14.0 | 420 Btuh   |
| 3                               | 2, NFRC 0.25                                        | Metal | 0.35    | N                   | 32.0             |   | 14.0 | 448 Btuh   |
| 4                               | 2, NFRC 0.25                                        | Metal | 0.35    | N                   | 25.0             |   | 14.0 | 350 Btuh   |
| 5                               | 2, NFRC 0.25                                        | Metal | 0.35    | E                   | 6.0              |   | 14.0 | 84 Btuh    |
| 6                               | 2, NFRC 0.25                                        | Metal | 0.35    | S                   | 30.0             |   | 14.0 | 420 Btuh   |
| 7                               | 2, NFRC 0.25                                        | Metal | 0.35    | S                   | 30.0             |   | 14.0 | 420 Btuh   |
| 8                               | 2, NFRC 0.25                                        | Metal | 0.35    | S                   | 24.0             |   | 14.0 | 336 Btuh   |
| 9                               | 2, NFRC 0.25                                        | Metal | 0.35    | S                   | 30.0             |   | 14.0 | 420 Btuh   |
| 10                              | 2, NFRC 0.25                                        | Metal | 0.35    | W                   | 9.0              |   | 14.0 | 126 Btuh   |
| 11                              | 2, NFRC 0.25                                        | Metal | 0.35    | W                   | 4.0              |   | 14.0 | 56 Btuh    |
|                                 | Window Total                                        |       |         |                     | 232.0(sqft)      |   |      | 3248 Btuh  |
| Walls                           | Type                                                | Ornt. | Ueff.   | R-Value<br>(Cav/Sh) | Area             | X | HTM= | Load       |
| 1                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 129              |   | 3.55 | 458 Btuh   |
| 2                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 85               |   | 3.55 | 301 Btuh   |
| 3                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 34               |   | 3.55 | 120 Btuh   |
| 4                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 14               |   | 3.55 | 49 Btuh    |
| 5                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 6                |   | 3.55 | 21 Btuh    |
| 6                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 87               |   | 3.55 | 309 Btuh   |
| 7                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 63               |   | 3.55 | 224 Btuh   |
| 8                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 124              |   | 3.55 | 440 Btuh   |
| 9                               | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 164              |   | 3.55 | 582 Btuh   |
| 10                              | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 282              |   | 3.55 | 1001 Btuh  |
| 11                              | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 123              |   | 3.55 | 437 Btuh   |
| 12                              | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 156              |   | 3.55 | 554 Btuh   |
| 13                              | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 168              |   | 3.55 | 596 Btuh   |
| 14                              | Frame - Wood                                        | - Ext | (0.089) | 13.0/0.0            | 275              |   | 3.55 | 976 Btuh   |
|                                 | Wall Total                                          |       |         |                     | 1709(sqft)       |   |      | 6068 Btuh  |
| Doors                           | Type                                                | Storm | Ueff.   |                     | Area             | X | HTM= | Load       |
| 1                               | Insulated - Exterior,                               | n     | (0.400) |                     | 16               |   | 16.0 | 256 Btuh   |
| 2                               | Insulated - Exterior,                               | n     | (0.400) |                     | 18               |   | 16.0 | 284 Btuh   |
| 3                               | Insulated - Exterior,                               | n     | (0.400) |                     | 20               |   | 16.0 | 320 Btuh   |
| 4                               | Insulated - Exterior,                               | n     | (0.400) |                     | 24               |   | 16.0 | 384 Btuh   |
|                                 | Door Total                                          |       |         |                     | 78(sqft)         |   |      | 1244Btuh   |
| Ceilings                        | Type/Color/Surface                                  |       | Ueff.   | R-Value             | Area             | X | HTM= | Load       |
| 1                               | Flat ceil/D/Shing                                   |       | (0.025) | 38.0/0.0            | 2210             |   | 1.0  | 2244 Btuh  |
|                                 | Ceiling Total                                       |       |         |                     | 2210(sqft)       |   |      | 2244Btuh   |
| Floors                          | Type                                                |       | Ueff.   | R-Value             | Size             | X | HTM= | Load       |
| 1                               | Slab On Grade                                       |       | (1.180) | 0.0                 | 226.0 ft(perim.) |   | 47.2 | 10667 Btuh |
|                                 | Floor Total                                         |       |         |                     | 2210 sqft        |   |      | 10667 Btuh |
|                                 | Envelope Subtotal:<br>EnergyGauge® / USRCZB v7.5.00 |       |         |                     |                  |   |      | 23472 Btuh |

# Manual J Winter Calculations

## Residential Load - Component Details (continued)

Murphy, William & Dasashia  
6148 NW Lake Jeffery  
Lake City, FL

Project Title:  
230538 Murphy Res  
Building Type: User

2023-05-03

|                     |                                                               |                        |                       |                    |              |                   |
|---------------------|---------------------------------------------------------------|------------------------|-----------------------|--------------------|--------------|-------------------|
| <b>Infiltration</b> | Type<br>Natural                                               | Wholehouse ACH<br>0.20 | Volume(cuft)<br>19890 | Wall Ratio<br>1.00 | CFM=<br>65.4 | 2867 Btuh         |
| <b>Duct load</b>    | Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.200) |                        |                       |                    |              | 5268 Btuh         |
| <b>All Zones</b>    | <b>Sensible Subtotal All Zones</b>                            |                        |                       |                    |              | <b>31607 Btuh</b> |

### WHOLE HOUSE TOTALS

|                           |                                                                               |                       |                                    |
|---------------------------|-------------------------------------------------------------------------------|-----------------------|------------------------------------|
| <b>Totals for Heating</b> | Subtotal Sensible Heat Loss<br>Ventilation Sens. Heat Loss<br>Total Heat Loss | (Ex:0 cfm; Sup:0 cfm) | 31607 Btuh<br>0 Btuh<br>31607 Btuh |
|---------------------------|-------------------------------------------------------------------------------|-----------------------|------------------------------------|

### EQUIPMENT

|                       |   |            |
|-----------------------|---|------------|
| 1. Electric Heat Pump | # | 34000 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

Murphy, William & Dasashia  
6148 NW Lake Jeffery  
Lake City, FL

Project Title:  
230538 Murphy Res

2023-05-03

Reference City: Gainesville, FL (Defaults)  
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)  
Summer Setpoint: 75 °F (Required Manual J default)

### 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      | 1.5ft    | 12.0        | 2.9               | 9.1                 | 12       | 25     | 258 Btuh   |           |
| 2        | 2 NFRC                   | 0.25, 0.35 | No | No   | N  | 1.5ft      | 1.5ft    | 30.0        | 5.8               | 24.2                | 12       | 25     | 663 Btuh   |           |
| 3        | 2 NFRC                   | 0.25, 0.35 | No | No   | N  | 17.5f      | 1.0ft    | 32.0        | 32.0              | 0.0                 | 12       | 25     | 381 Btuh   |           |
| 4        | 2 NFRC                   | 0.25, 0.35 | No | No   | N  | 1.5ft      | 1.5ft    | 25.0        | 4.8               | 20.2                | 12       | 25     | 553 Btuh   |           |
| 5        | 2 NFRC                   | 0.25, 0.35 | No | No   | E  | 1.5ft      | 1.5ft    | 6.0         | 0.0               | 6.0                 | 12       | 23     | 141 Btuh   |           |
| 6        | 2 NFRC                   | 0.25, 0.35 | No | No   | S  | 1.5ft      | 1.5ft    | 30.0        | 0.0               | 30.0                | 12       | 23     | 703 Btuh   |           |
| 7        | 2 NFRC                   | 0.25, 0.35 | No | No   | S  | 9.5ft      | 1.0ft    | 30.0        | 0.0               | 30.0                | 12       | 23     | 703 Btuh   |           |
| 8        | 2 NFRC                   | 0.25, 0.35 | No | No   | S  | 9.5ft      | 1.0ft    | 24.0        | 0.0               | 24.0                | 12       | 23     | 563 Btuh   |           |
| 9        | 2 NFRC                   | 0.25, 0.35 | No | No   | S  | 1.5ft      | 1.5ft    | 30.0        | 0.0               | 30.0                | 12       | 23     | 703 Btuh   |           |
| 10       | 2 NFRC                   | 0.25, 0.35 | No | No   | W  | 1.5ft      | 1.5ft    | 9.0         | 5.8               | 3.2                 | 12       | 25     | 148 Btuh   |           |
| 11       | 2 NFRC                   | 0.25, 0.35 | No | No   | W  | 1.5ft      | 1.5ft    | 4.0         | 3.9               | 0.1                 | 12       | 25     | 49 Btuh    |           |
|          | Excursion                |            |    |      |    |            |          |             |                   |                     |          |        |            | 401 Btuh  |
|          | Window Total             |            |    |      |    |            |          |             | 232 (sqft)        |                     |          |        |            | 5267 Btuh |
| Walls    | Type                     | U-Value    |    |      |    | R-Value    |          | Area(sqft)  |                   |                     | HTM      |        | Load       |           |
|          |                          |            |    |      |    | Cav/Sheath |          |             |                   |                     |          |        |            |           |
| 1        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 129.0               |          | 2.3    | 292 Btuh   |           |
| 2        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 84.8                |          | 2.3    | 192 Btuh   |           |
| 3        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 33.8                |          | 2.3    | 76 Btuh    |           |
| 4        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 13.7                |          | 2.3    | 31 Btuh    |           |
| 5        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 6.0                 |          | 2.3    | 14 Btuh    |           |
| 6        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 87.0                |          | 2.3    | 197 Btuh   |           |
| 7        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 63.0                |          | 2.3    | 143 Btuh   |           |
| 8        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 124.0               |          | 2.3    | 281 Btuh   |           |
| 9        | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 164.0               |          | 2.3    | 371 Btuh   |           |
| 10       | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 282.0               |          | 2.3    | 638 Btuh   |           |
| 11       | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 123.0               |          | 2.3    | 278 Btuh   |           |
| 12       | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 156.0               |          | 2.3    | 353 Btuh   |           |
| 13       | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 168.0               |          | 2.3    | 380 Btuh   |           |
| 14       | Frame - Wood - Ext       |            |    |      |    | 0.09       | 13.0/0.0 |             |                   | 275.0               |          | 2.3    | 622 Btuh   |           |
|          | Wall Total               |            |    |      |    |            |          |             | 1709 (sqft)       |                     |          |        |            | 3869 Btuh |
| Doors    | Type                     | U-Value    |    |      |    | R-Value    |          | Area (sqft) |                   |                     | HTM      |        | Load       |           |
|          |                          |            |    |      |    | Cav/Sheath |          |             |                   |                     |          |        |            |           |
| 1        | Insulated - Exterior     |            |    |      |    |            |          |             |                   | 16.0                |          | 12.0   | 192 Btuh   |           |
| 2        | Insulated - Exterior     |            |    |      |    |            |          |             |                   | 17.8                |          | 12.0   | 213 Btuh   |           |
| 3        | Insulated - Exterior     |            |    |      |    |            |          |             |                   | 20.0                |          | 12.0   | 240 Btuh   |           |
| 4        | Insulated - Exterior     |            |    |      |    |            |          |             |                   | 24.0                |          | 12.0   | 288 Btuh   |           |
|          | Door Total               |            |    |      |    |            |          |             | 78 (sqft)         |                     |          |        |            | 933 Btuh  |
| Ceilings | Type/Color/Surface       | U-Value    |    |      |    | R-Value    |          | Area(sqft)  |                   |                     | HTM      |        | Load       |           |
|          |                          |            |    |      |    | Cav/Sheath |          |             |                   |                     |          |        |            |           |
| 1        | Vented Attic/DarkShingle |            |    |      |    | 0.025      | 38.0/0.0 |             |                   | 2210.0              |          | 1.37   | 3029 Btuh  |           |
|          | Ceiling Total            |            |    |      |    |            |          |             | 2210 (sqft)       |                     |          |        |            | 3029 Btuh |
| Floors   | Type                     | U-Value    |    |      |    | R-Value    |          | Size        |                   |                     | HTM      |        | Load       |           |
|          |                          |            |    |      |    | Cav/Sheath |          |             |                   |                     |          |        |            |           |
| 1        | Slab On Grade            |            |    |      |    |            | 0.0      |             |                   | 2210 (ft-perimeter) |          | 0.0    | 0 Btuh     |           |
|          | Floor Total              |            |    |      |    |            |          |             | 2210.0 (sqft)     |                     |          |        |            | 0 Btuh    |
|          | Envelope Subtotal:       |            |    |      |    |            |          |             |                   |                     |          |        | 13098 Btuh |           |

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Murphy, William & Dasashia  
6148 NW Lake Jeffery  
Lake City, FL

Project Title:  
230538 Murphy Res

Climate:FL\_GAINESVILLE\_REGIONAL\_A

2023-05-03

|                      |                                                                       |                     |                        |                 |              |                   |
|----------------------|-----------------------------------------------------------------------|---------------------|------------------------|-----------------|--------------|-------------------|
| <b>Infiltration</b>  | Type<br>Natural                                                       | Average ACH<br>0.15 | Volume(cuft)<br>19890  | Wall Ratio<br>1 | CFM=<br>49.0 | Load<br>1021 Btuh |
| <b>Internal gain</b> |                                                                       | Occupants<br>5      | Btuh/occupant<br>X 230 | Appliance<br>+  | 3400         | Load<br>4550 Btuh |
|                      | Sensible Envelope Load:                                               |                     |                        |                 |              | 18669 Btuh        |
| <b>Duct load</b>     | Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.339) |                     |                        |                 |              | 6334 Btuh         |
|                      | <b>Sensible Load All Zones</b>                                        |                     |                        |                 |              | <b>25003 Btuh</b> |

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

Murphy, William & Dasashia  
6148 NW Lake Jeffery  
Lake City, FL

Project Title:  
230538 Murphy Res

Climate:FL\_GAINESVILLE\_REGIONAL\_A

2023-05-03

### WHOLE HOUSE TOTALS

|                                           |                                                           |                   |
|-------------------------------------------|-----------------------------------------------------------|-------------------|
| <b>Whole House<br/>Totals for Cooling</b> | <b>Sensible Envelope Load All Zones</b>                   | <b>18669 Btuh</b> |
|                                           | Sensible Duct Load                                        | 6334 Btuh         |
|                                           | <b>Total Sensible Zone Loads</b>                          | <b>25003 Btuh</b> |
|                                           | Sensible ventilation (Ex:0 cfm; Sup:0 cfm)                | 0 Btuh            |
|                                           | Blower                                                    | 0 Btuh            |
|                                           | <b>Total sensible gain</b>                                | <b>25003 Btuh</b> |
|                                           | Latent infiltration gain (for 51 gr. humidity difference) | 1695 Btuh         |
|                                           | Latent ventilation gain                                   | 0 Btuh            |
|                                           | Latent duct gain                                          | 1322 Btuh         |
|                                           | Latent occupant gain (5.0 people @ 200 Btuh per person)   | 1000 Btuh         |
|                                           | Latent other gain                                         | 0 Btuh            |
|                                           | <b>Latent total gain</b>                                  | <b>4017 Btuh</b>  |
|                                           | <b>TOTAL GAIN</b>                                         | <b>29020 Btuh</b> |

### EQUIPMENT

|                 |   |            |
|-----------------|---|------------|
| 1. Central Unit | # | 34000 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