

EMS Heat Loss/Heat Gain Calculation

Company: Green Engineering Solutions, Inc.
Preparer: Misty Miller CER #1493
Phone: 904-400-0624

Customer: Area 36 Residence 1st FL
Address: 7387 SW Tustenuggee Ave Lake City, FL 32024
Phone:
Date: 1/22/2021

This HVAC load calculation has been performed using sound engineering principles as prescribed by Manual J seventh and eighth abridged editions and ASHRAE Fundamentals. Duct sizing has been performed as prescribed by Manual D.

1. Design Conditions

| | | | |
|--|---------------|----------------|--------------------|
| Total conditioned area (sq.ft.) | 2122 | | |
| | Indoor | Outdoor | Temp. Diff. |
| Winter | 70 | 34 | 36 |
| Summer | 73 | 95 | 22 |

Front of home is facing:
West

2. How would you describe the summer humidity in your area? Very Humid 60 Grains difference

3. How tight is the house? Average-over 1500 Sq. Ft.
Winter air change / hr: 0.7 Summer air change / hr: 0.35

4. Fireplace evaluation : Number: 1 Tightness: Average 20

5. Number of occupants:

6. Overhang characteristics (optional)

| | | | |
|--|-------------|-------------|----------------|
| | East | West | S/SE/SW |
| Distance of overhang from top of window (Ft.) | | | |
| Length of overhang | | | |

15 48416

7. Solar gain through glass

| Use Manufacturer's Specs to determine HTM | | | | | | | |
|---|---------------------|---------------|-----|------------|----------|--------|-------|
| Latitude: | 30 | U-value | .35 | SHGC | .27 | | |
| Facing | Total area - Sq.Ft. | Type of glass | HTM | Linear ft. | Unshaded | Shaded | BTUH |
| N/Shaded | | -- Select -- | 13 | Below OH | | 0 | |
| NE/NW | | -- Select -- | 26 | | 0 | | 0 |
| South | 132 | Trpl or low-E | 15 | | 132 | 0 | 1980 |
| SE/SW | | -- Select -- | 27 | | 0 | 0 | 0 |
| East | 242 | Trpl or low-E | 33 | | 242 | 0 | 7986 |
| West | 284 | Trpl or low-E | 33 | | 284 | 0 | 9372 |
| Skylight | | -- Select -- | | | | | 0 |
| Total North and Shaded | | | | | | 0 | 0 |
| Total Solar Gain | | | | | | | 19338 |
| Adjust for tinted or reflective window coating? | | | | No | 1 | | 19338 |

8. Ducts/Pipes

| Location: | Trunk and branches in attic | | | | |
|-------------|-----------------------------|------------|---------|---|------|
| Attic Temp. | Insulation | | Leakage | | Area |
| 95 | R-6 | 1 | sealed | 1 | 2122 |
| Duct gain: | 0.167 | Duct loss: | 0.187 | | |

9. Load Calculation

| Elements of Load | Insulation / R-value | Area/lin.ft. | U-value | Heat Loss | Heat Gain |
|---|----------------------|--------------|------------------|-----------|-----------|
| Gross Wall | | 2663.7 | Glass solar gain | | 19338 |
| Glass 1 | Trpl or low-E | 658 | 0.42 | 8291 | |
| Glass 2 | -- Select -- | | | 0 | |
| Skylight | -- Select -- | 0 | | 0 | |
| Doors | Insulated or Storm | 24 | 0.4 | 346 | 211 |
| Net walls | R-19 | 1982 | 0.06 | 4280 | 2616 |
| Ceilings | -- Select -- | | | 0 | 0 |
| Floors | -- Select -- | | | 0 | 0 |
| Open floors | -- Select -- | | | 0 | 0 |
| Slab floors | No Insulation | 264.16 | 0.8 | 7608 | 0 |
| Volume of your building or zone (cu. Ft.) | | 21389.8 | | 10674 | 3020 |
| | People | | | | 0 |
| | Appliances | | | | 3100 |
| | Sub Total | | | 31199 | 28285 |
| | Duct Loss/Gain | | | 5830 | 4733 |
| | Sensible Load | | | 37029 | 33017 |
| | Latent Load | | | | 5091 |
| | TOTAL BTUH | | | 37029 | 38108 |

| Summary | | |
|--------------------|-------|------|
| | BTUH | Tons |
| Total heating load | 37029 | |
| Total cooling load | 38108 | 3.2 |

Room by Room

| | | | |
|-----------------|-------|----------------------|------|
| Total Heat Loss | 37027 | System CFM (cooling) | 1600 |
| Total Heat Gain | 33016 | System CFM (heating) | 1600 |

| Room name | Entry | Stairwell 1 | Bathroom 1 | Gym | Theater | Hall | Great Room | Kitchen | Stairwell 2 | Powder |
|--------------------|-------|-------------|------------|--------|---------|--------|------------|---------|-------------|--------|
| Gross wall | 87.39 | 162.99 | 53.73 | 283.95 | 487.17 | 240.21 | 391.41 | 154.53 | 194.04 | 126.81 |
| North windows | | | | | | | | | | |
| NE/NW windows | | | | | | | | | | |
| South windows | | | | 36 | | | 96 | | | |
| SE/SW windows | | | | | | | | | | |
| East windows | | | | | | 110 | 96 | 24 | 12 | |
| West windows | 60 | 24 | | 80 | | | | | | |
| Skylight | | | | | | | | | | |
| Doors | | | | | | 24 | | | | |
| Net walls | 27 | 139 | 54 | 168 | 487 | 106 | 199 | 131 | 182 | 127 |
| Ceiling | | | | | | | | | | |
| Floor-crawl | | | | | | | | | | |
| Floor-open | | | | | | | | | | |
| Floor-slab | 8.67 | 16.17 | 5.33 | 28.17 | 48.33 | 23.83 | 38.83 | 15.33 | 19.25 | 12.58 |
| Infiltration | 60 | 24 | 0 | 116 | 0 | 134 | 192 | 24 | 12 | 0 |
| People | | | | | | | | | | |
| Appliances | 0 | | | 500 | 500 | | 1200 | 900 | | |
| Heat loss | 2378 | 1714 | 320 | 5283 | 2901 | 5631 | 8276 | 1663 | 1527 | 755 |
| Sensible Heat Gain | 2664 | 1263 | 83 | 5154 | 1334 | 5340 | 8079 | 2300 | 805 | 195 |
| Cooling CFM | 129 | 61 | 4 | 250 | 65 | 259 | 392 | 111 | 39 | 9 |
| Heating CFM | 103 | 74 | 14 | 228 | 125 | 243 | 358 | 72 | 66 | 33 |

| Room name | Pantry | Wine Cellar | Dining Room |
|---------------|--------|-------------|-------------|
| Gross wall | 157.95 | 85.68 | 236.88 |
| North windows | | | |
| NE/NW windows | | | |
| South windows | | | |
| SE/SW windows | | | |
| East windows | | | |
| West windows | 48 | 12 | 60 |
| Skylight | | | |
| Doors | | | |
| Net walls | 110 | 74 | 177 |

| | | | |
|---------------------------|-------|-----|------|
| Ceiling | | | |
| Floor-crawl | | | |
| Floor-open | | | |
| Floor-slab | 15.67 | 8.5 | 23.5 |
| Infiltration | 48 | 12 | 60 |
| People | | | |
| Appliances | | | |
| Heat loss | 2427 | 882 | 3269 |
| Sensible Heat Gain | 2267 | 638 | 2894 |
| Cooling CFM | 110 | 31 | 140 |
| Heating CFM | 105 | 38 | 141 |

Air Ducts Sizing

Total measured length of ducts 65
 Total equivalent length of fittings 32
 Available static pressure for duct .34
 Friction rate .05

Use cooling CFM
 Flex ducts used

| | CFM | No. outlets | Outlet CFM | Duct diam. | Air vel. |
|------------------------------|------|-------------|------------|------------|----------|
| Supply trunk / branch | | | | | |
| First section off AHU | 1600 | | | 21 | 667 |
| 1st reduction / branch | 1200 | | | 18.8 | 622 |
| 2nd reduction / branch | 800 | | | 16.1 | 564 |
| 3rd reduction / branch | 400 | | | 12.4 | 476 |
| 4th reduction / branch | 200 | | | 9.5 | 402 |
| 5th reduction / branch | 100 | | | 7.3 | 340 |
| Return trunk / branch | | | | | |
| First section off AHU | 1600 | | | 21 | 667 |
| 1st reduction / branch | 1200 | | | 18.8 | 622 |
| 2nd reduction / branch | 800 | | | 16.1 | 564 |
| 3rd reduction / branch | 400 | | | 12.4 | 476 |
| 4th reduction / branch | 200 | | | 9.5 | 402 |
| 5th reduction / branch | 100 | | | 7.3 | 340 |
| Room runs | | | | | |
| Entry | 129 | 1 | 129 | 8.1 | 361.7 |
| Stairwell 1 | 61 | 1 | 61 | 6.1 | 301.5 |
| Bathroom 1 | 4 | 1 | 4 | 2.2 | 155.5 |
| Gym | 250 | 2 | 125 | 8 | 359 |
| Theater | 65 | 1 | 65 | 6.2 | 306.2 |
| Hall | 259 | 2 | 129.5 | 8.1 | 362.1 |
| Great Room | 392 | 4 | 98 | 7.3 | 338.3 |
| Kitchen | 111 | 1 | 111 | 7.6 | 348.7 |
| Stairwell 2 | 39 | 1 | 39 | 5.1 | 270.5 |
| Powder | 9 | 1 | 9 | 3 | 189.4 |
| Pantry | 110 | 1 | 110 | 7.6 | 348 |
| Wine Cellar | 31 | 1 | 31 | 4.7 | 255.8 |
| Dining Room | 140 | 1 | 140 | 8.3 | 369 |

Equipment selection as per Manual S

| | BTUH | Nom.Tons |
|----------------------|-------|----------|
| Total heat loss | 37029 | |
| Total heat gain | 40108 | 3.3 |
| Sensible heat gain | 33017 | |
| Latent heat gain | 7091 | |
| Sensible/total ratio | 0.82 | |
| Target cooling TD | 19 | |

| Design temp. | Outdoor | Indoor |
|--------------|-------------|--------|
| Winter | 34 | 70 |
| Summer | 95 | 73 |
| ID design RH | 50%, 63F WB | |
| Altitude | | |

Predominantly Cool climate

Manufacturer's Equipment Specification

| Equipment | Manufacturer | Model No. | BTUH output | | | |
|---|--------------|-----------|-------------|---------------------------------|--------------------------------|--------|
| Furnace | | | | Clg. capacity @ OD design temp. | | |
| Boiler | | | | Total | Sensible | Latent |
| Heat pump / AC | Amana | ASZ14048 | | 45000 | 35550 | 9450 |
| Evaporator | | | | | | |
| Air handler | Amana | ARUF61D14 | | | | |
| TOTAL CAPACITY with altitude correction | | | 0 | 45000 | 35550 | 9450 |
| Selected equipment size | | | OK | OK | OK | OK |
| | | | Heating CFM | Cooling CFM (rec.) | Ext. static pressure of blower | |
| | | | 1600 | 1701 | .5 | |

Available static pressure for duct

| | |
|---------------------------|------|
| Blower ext. static press. | .5 |
| coil pressure drop | |
| filter pressure drop | .1 |
| register pressure drop | .03 |
| grille pressure drop | .03 |
| other | |
| Available SP for duct | 0.34 |

Supplemental heat needed for heat pump

| | |
|------------------------|-------|
| HP capacity @ 47F | 44500 |
| HP capacity @ 17F | 28000 |
| HP capacity @ ODDT | 37350 |
| BTUH supplemental heat | -321 |
| KW supplemental heat | -0 |

EMS Heat Loss/Heat Gain Calculation

Company: Green Engineering Solutions, Inc.
Preparer: Misty Miller CER #1493
Phone: 904-400-0624

Customer: Area 36 Residence 2nd FL
Address: 7387 SW Tustenuggee Ave Lake City, FL 32024
Phone:
Date: 1/22/2021

This HVAC load calculation has been performed using sound engineering principles as prescribed by Manual J seventh and eighth abridged editions and ASHRAE Fundamentals. Duct sizing has been performed as prescribed by Manual D.

1. Design Conditions

| | | | | |
|--|---------------|----------------|--------------------|---------------------------------|
| Total conditioned area (sq.ft.) | 2574 | | | |
| | Indoor | Outdoor | Temp. Diff. | Front of home is facing: |
| Winter | 70 | 34 | 36 | West |
| Summer | 73 | 95 | 22 | |

2. How would you describe the summer humidity in your area? Very Humid 60 Grains difference

3. How tight is the house? Average-over 1500 Sq. Ft.
 Winter air change / hr: 0.7 Summer air change / hr: 0.35

4. Fireplace evaluation : Number: 1 Tightness: Average 20

5. Number of occupants: 5

6. Overhang characteristics (optional)

| | | | |
|--|-------------|-------------|----------------|
| | East | West | S/SE/SW |
| Distance of overhang from top of window (Ft.) | | | |
| Length of overhang | | | |

7. Solar gain through glass

| Use Manufacturer's Specs to determine HTM | | | | | | | |
|---|---------------------|---------------|-----|------------|----------|--------|-------|
| Latitude: | 30 | U-value: | .35 | SHGC: | .27 | | |
| Facing | Total area - Sq.Ft. | Type of glass | HTM | Linear ft. | Unshaded | Shaded | BTUH |
| N/Shaded | 34 | Trpl or low-E | 13 | Below OH | | 34 | |
| NE/NW | | -- Select -- | 26 | | 0 | | 0 |
| South | 126 | Trpl or low-E | 15 | | 126 | 0 | 1890 |
| SE/SW | | -- Select -- | 27 | | 0 | 0 | 0 |
| East | 260 | Trpl or low-E | 33 | | 260 | 0 | 8580 |
| West | 275 | Trpl or low-E | 33 | | 275 | 0 | 9075 |
| Skylight | | -- Select -- | | | | | 0 |
| Total North and Shaded | | | | | | 34 | 442 |
| Total Solar Gain | | | | | | | 19987 |
| Adjust for tinted or reflective window coating? | | | | No | 1 | | 19987 |

8. Ducts/Pipes

| Location: | Radial or spider in attic | | | | |
|-------------|---------------------------|------------|---------|---|------|
| Attic Temp. | Insulation | | Leakage | | Area |
| 95 | R-6 | 1 | sealed | 1 | 2574 |
| Duct gain: | 0.117 | Duct loss: | 0.123 | | |

9. Load Calculation

| Elements of Load | Insulation / R-value | Area/lin.ft. | U-value | Heat Loss | Heat Gain |
|---|----------------------|----------------|------------------|-----------|-----------|
| Gross Wall | | 3019.92 | Glass solar gain | | 19987 |
| Glass 1 | Trpl or low-E | 695 | 0.42 | 8757 | |
| Glass 2 | -- Select -- | | | 0 | |
| Skylight | -- Select -- | 0 | | 0 | |
| Doors | -- Select -- | | | 0 | 0 |
| Net walls | R-19 | 2325 | 0.06 | 5022 | 3069 |
| Ceilings | R-19 | 2574 | 0.055 | 5097 | 6371 |
| Floors | -- Select -- | | | 0 | 0 |
| Open floors | R-19 | 835 | 0.055 | 1653 | 1010 |
| Slab floors | -- Select -- | | | 0 | 0 |
| Volume of your building or zone (cu. Ft.) | | 23371.92 | | 11590 | 3299 |
| | | People | | | 1500 |
| | | Appliances | | | 3700 |
| | | Sub Total | | 32118 | 38936 |
| | | Duct Loss/Gain | | 3950 | 4542 |
| | | Sensible Load | | 36068 | 43479 |
| | | Latent Load | | | 6713 |
| | | TOTAL BTUH | | 36068 | 50191 |

| Summary | | |
|--------------------|-------|------|
| | BTUH | Tons |
| Total heating load | 36068 | |
| Total cooling load | 50191 | 4.2 |

Room by Room

| | | | |
|-----------------|-------|----------------------|------|
| Total Heat Loss | 36068 | System CFM (cooling) | 2000 |
| Total Heat Gain | 43479 | System CFM (heating) | 2000 |

| Room name | Walkway | Bedroom 2 | Bathroom 2 | Bedroom 3 | Bathroom 3 | Stairwell 3 | Bedroom 4 | Bathroom 4 | Sitting Area | Master Bedroom |
|--------------------|---------|-----------|------------|-----------|------------|-------------|-----------|------------|--------------|----------------|
| Gross wall | 562.96 | 261.05 | 177.79 | 255.78 | 48.40 | 133.20 | 187.68 | 75.64 | 167.25 | 378.36 |
| North windows | | | | | | | | | | 12 |
| NE/NW windows | | | | | | | | | | |
| South windows | 72 | | | 36 | | | | | | |
| SE/SW windows | | | | | | | | | | |
| East windows | 156 | 48 | | | | | | | | |
| West windows | 27 | | | 48 | | 18 | 48 | 10 | 58 | 66 |
| Skylight | | | | | | | | | | |
| Doors | | | | | | | | | | |
| Net walls | 308 | 213 | 178 | 172 | 48 | 115 | 140 | 66 | 109 | 300 |
| Ceiling | 551 | 154 | 65 | 202 | 41 | 90 | 180 | 70 | 142 | 320 |
| Floor-crawl | | | | | | | | | | |
| Floor-open | | | | | | | | | | 320 |
| Floor-slab | | | | | | | | | | |
| Infiltration | 255 | 48 | 0 | 84 | 0 | 18 | 48 | 10 | 58 | 78 |
| People | | 1 | | 1 | | | 1 | | | 2 |
| Appliances | 1200 | 500 | | 500 | | | 500 | | | 500 |
| Heat loss | 10356 | 2437 | 576 | 3627 | 209 | 1071 | 2317 | 644 | 2488 | 4716 |
| Sensible Heat Gain | 12618 | 3656 | 442 | 4522 | 185 | 1177 | 3620 | 712 | 2998 | 6008 |
| Cooling CFM | 580 | 168 | 20 | 208 | 8 | 54 | 167 | 33 | 138 | 276 |
| Heating CFM | 574 | 135 | 32 | 201 | 12 | 59 | 128 | 36 | 138 | 262 |

| Room name | Master Bath | Master Closet | Stairwell 4 | Laundry |
|---------------|-------------|---------------|-------------|---------|
| Gross wall | 127.12 | 460.08 | 45.4 | 139.20 |
| North windows | 16 | 6 | | |
| NE/NW windows | | | | |
| South windows | | 18 | | |
| SE/SW windows | | | | |
| East windows | | 20 | 12 | 24 |
| West windows | | | | |

| | | | | |
|---------------------------|------|------|-----|------|
| Skylight | | | | |
| Doors | | | | |
| Net walls | 111 | 416 | 33 | 115 |
| Ceiling | 250 | 265 | 84 | 160 |
| Floor-crawl | | | | |
| Floor-open | 250 | 265 | | |
| Floor-slab | | | | |
| Infiltration | 16 | 44 | 12 | 24 |
| People | | | | |
| Appliances | | | | 500 |
| Heat loss | 1907 | 3634 | 662 | 1424 |
| Sensible Heat Gain | 1510 | 3063 | 787 | 2182 |
| Cooling CFM | 69 | 141 | 36 | 100 |
| Heating CFM | 106 | 202 | 37 | 79 |

Air Ducts Sizing

Total measured length of ducts 65
 Total equivalent length of fittings 32
 Available static pressure for duct .34
 Friction rate .05

Use cooling CFM
 Flex ducts used

| | CFM | No. outlets | Outlet CFM | Duct diam. | Air vel. |
|------------------------------|------|-------------|------------|------------|----------|
| Supply trunk / branch | | | | | |
| First section off AHU | 2000 | | | 22.8 | 704 |
| 1st reduction / branch | 1600 | | | 21 | 667 |
| 2nd reduction / branch | 1200 | | | 18.8 | 622 |
| 3rd reduction / branch | 800 | | | 16.1 | 564 |
| 4th reduction / branch | 400 | | | 12.4 | 476 |
| 5th reduction / branch | 200 | | | 9.5 | 402 |
| Return trunk / branch | | | | | |
| First section off AHU | 2000 | | | 22.8 | 704 |
| 1st reduction / branch | 1600 | | | 21 | 667 |
| 2nd reduction / branch | 1200 | | | 18.8 | 622 |
| 3rd reduction / branch | 800 | | | 16.1 | 564 |
| 4th reduction / branch | 400 | | | 12.4 | 476 |
| 5th reduction / branch | 200 | | | 9.5 | 402 |
| Room runs | | | | | |
| Walkway | 580 | 4 | 145 | 8.5 | 372.1 |
| Bedroom 2 | 168 | 1 | 168 | 8.9 | 385.7 |
| Bathroom 2 | 20 | 1 | 20 | 4 | 229.9 |
| Bedroom 3 | 208 | 1 | 208 | 9.7 | 406.2 |
| Bathroom 3 | 8 | 1 | 8 | 2.8 | 184 |
| Stairwell 3 | 54 | 1 | 54 | 5.8 | 292.7 |
| Bedroom 4 | 167 | 1 | 167 | 8.9 | 385.1 |
| Bathroom 4 | 33 | 1 | 33 | 4.8 | 259.7 |
| Sitting Area | 138 | 1 | 138 | 8.3 | 367.7 |
| Master Bedroom | 276 | 2 | 138 | 8.3 | 367.7 |
| Master Bath | 69 | 1 | 69 | 6.4 | 310.7 |
| Master Closet | 141 | 1 | 141 | 8.4 | 369.6 |
| Stairwell 4 | 36 | 1 | 36 | 5 | 265.3 |
| Laundry | 100 | 1 | 100 | 7.3 | 340 |

Equipment selection as per Manual S

| | BTUH | Nom.Tons |
|----------------------|-------|----------|
| Total heat loss | 36068 | |
| Total heat gain | 50191 | 4.2 |
| Sensible heat gain | 43479 | |
| Latent heat gain | 6713 | |
| Sensible/total ratio | 0.87 | |
| Target cooling TD | 17 | |

| Design temp. | Outdoor | Indoor |
|--------------|-------------|--------|
| Winter | 34 | 70 |
| Summer | 95 | 73 |
| ID design RH | 50%, 63F WB | |
| Altitude | | |

Predominantly Cool climate

Manufacturer's Equipment Specification

| Equipment | Manufacturer | Model No. | BTUH output | | | |
|---|--------------|-----------|-------------|---------------------------------|--------------------------------|--------|
| Furnace | | | | Clg. capacity @ OD design temp. | | |
| Boiler | | | | Total | Sensible | Latent |
| Heat pump / AC | Amana | ASZ14060 | | 56500 | 42375 | 14125 |
| Evaporator | | | | | | |
| Air handler | Amana | ASPT61D14 | | | | |
| TOTAL CAPACITY with altitude correction | | | 0 | 56500 | 42375 | 14125 |
| Selected equipment size | | | OK | OK | OK | OK |
| | | | Heating CFM | Cooling CFM (rec.) | Ext. static pressure of blower | |
| | | | 2000 | 2266 | .5 | |

Available static pressure for duct

| | |
|---------------------------|------|
| Blower ext. static press. | .5 |
| coil pressure drop | |
| filter pressure drop | .1 |
| register pressure drop | .03 |
| grille pressure drop | .03 |
| other | |
| Available SP for duct | 0.34 |

Supplemental heat needed for heat pump

| | |
|------------------------|--------|
| HP capacity @ 47F | 59000 |
| HP capacity @ 17F | 36000 |
| HP capacity @ ODDT | 49033 |
| BTUH supplemental heat | -12965 |
| KW supplemental heat | -4 |

2020 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA^a

| Project Name: Area 36 Residence Street: 7387 SW Tustenuggee Ave City, State, Zip: Lake City, FL, 32024 Owner: Area 36 Residence Design Location: FL, Jacksonville | | | Builder Name: Evanston Contracting Permit Office: Permit Number: Jurisdiction: | CHECK |
|---|--|---|---|-------|
| COMPONENT | AIR BARRIER CRITERIA | INSULATION INSTALLATION CRITERIA | | |
| General requirements | A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed. | Air-permeable insulation shall not be used as a sealing material. | | |
| Ceiling/attic | The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed. | The insulation in any dropped ceiling/soffit shall be aligned with the air barrier. | | |
| Walls | The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed. | Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. | | |
| Windows, skylights and doors | The space between window/door jambs and framing, and skylights and framing shall be sealed. | | | |
| Rim joists | Rim joists shall include the air barrier. | Rim joists shall be insulated. | | |
| Floors (including above-garage and cantilevered floors) | The air barrier shall be installed at any exposed edge of insulation. | Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members. | | |
| Crawl space walls | Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped. | Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace walls. | | |
| Shafts, penetrations | Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed. | | | |
| Narrow cavities | | Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces. | | |
| Garage separation | Air sealing shall be provided between the garage and conditioned spaces. | | | |
| Recessed lighting | Recessed light fixtures installed in the building thermal envelope shall be sealed to the finished surface. | Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated. | | |
| Plumbing and wiring | | Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring. | | |
| Shower/tub on exterior wall | The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs. | Exterior walls adjacent to showers and tubs shall be insulated. | | |
| Electrical/phone box or exterior walls | The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed. | | | |
| HVAC register boots | HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or | | | |
| Concealed sprinklers | When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings. | | | |

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

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: Evanston Contracting | Community: Lot: NA |
| Address: 7387 SW Tustenuggee Ave | |
| City: Lake City | State: FL Zip: 32024 |
| Air Leakage Test Results <i>Passing results must meet either the Performance, Prescriptive, or ERI Method</i> | |
| <input type="radio"/> 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. | |
| <input type="radio"/> 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): 5.247 | |
| <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 60%;"> $\frac{\text{CFM}(50)}{\text{Building Volume}} = \text{ACH}(50)$ <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; margin-right: 10px;"></div> <div style="font-size: 24px; font-weight: bold;">PASS</div> </div> <div style="margin-top: 10px;"> <input type="checkbox"/> When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department. </div> </div> <div style="width: 35%;"> <p>Method for calculating building volume:</p> <input type="radio"/> Retrieved from architectural plans <input checked="" type="radio"/> Code software calculated <input type="radio"/> Field measured and calculated </div> </div> | |
| <p>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), <i>Florida Statutes</i>, 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 <i>building thermal envelope</i>.</p> <p>During testing:</p> <ol style="list-style-type: none"> 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 | |
| <p>Company Name: _____ Phone: _____</p> <p>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.</p> <p>Signature of Tester: _____ Date of Test: _____</p> <p>Printed Name of Tester: _____</p> <p>License/Certification #: _____ Issuing Authority: _____</p> | |

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 98

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

7387 SW Tustenuggee Ave, Lake City, FL, 32024

| | | | | | |
|--|------------------|-------------------------|--|----------------|-------------------------|
| 1. New construction or existing | New (From Plans) | | 10. Wall Type and Insulation | Insulation | Area |
| 2. Single family or multiple family | Detached | | a. Frame - Wood, Exterior | R=19.0 | 5346.20 ft ² |
| 3. Number of units, if multiple family | 1 | | b. Frame - Wood, Adjacent | R=19.0 | 374.76 ft ² |
| 4. Number of Bedrooms | 4 | | c. N/A | R= | ft ² |
| 5. Is this a worst case? | No | | d. N/A | R= | ft ² |
| 6. Conditioned floor area (ft ²) | 4696 | | 11. Ceiling Type and insulation level | Insulation | Area |
| 7. Windows** | Description | Area | a. Roof Deck (Unvented) | R=20.0 | 2574.00 ft ² |
| a. U-Factor: | Dbl, U=0.35 | 1353.00 ft ² | b. N/A | R= | ft ² |
| SHGC: | SHGC=0.27 | | c. N/A | R= | ft ² |
| b. U-Factor: | N/A | ft ² | 12. Ducts, location & insulation level | R | ft ² |
| SHGC: | | | a. Sup: Attic, Ret: Attic, AH: Garage | 6 | 469.6 |
| c. U-Factor: | N/A | ft ² | b. Sup: Attic, Ret: Attic, AH: Walkway | 6 | 469.6 |
| SHGC: | | | 13. Cooling systems | kBtu/hr | Efficiency |
| d. U-Factor: | N/A | ft ² | a. Central Unit | 45.0 | SEER:14.00 |
| SHGC: | | | b. Central Unit | 56.5 | SEER:14.00 |
| Area Weighted Average Overhang Depth: | 0.717 ft. | | 14. Heating systems | kBtu/hr | Efficiency |
| Area Weighted Average SHGC: | 0.270 | | a. Electric Heat Pump | 44.5 | HSPF:8.20 |
| 8. Skylights | Description | Area | b. Electric Heat Pump | 59.0 | HSPF:8.20 |
| a. U-Factor(AVG): | N/A | ft ² | 15. Hot water systems | Cap: 1 gallons | |
| SHGC(AVG): | N/A | | a. Propane | EF: 0.82 | |
| 9. Floor Types | Insulation | Area | b. Conservation features | | |
| a. Slab-On-Grade Edge Insulation | R=0.0 | 2122.00 ft ² | None | | |
| b. Floor Over Other Space | R=0.0 | 1739.00 ft ² | Credits (Performance method) | | CF |
| c. other (see details) | R= | 835.00 ft ² | | | |

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.