



# Manual S Compliance Report

## Entire House

### Comfort Temp Company

Job:  
Date: Feb 07, 2020  
By:

4301 NW 6th ST, Gainesville, FL 32609 Phone: 352 275 4022 Fax: 352 376 0523 Email: jay@comforttemp.com Web: www.comforttemp.com

## Project Information

For: Jefferson, Red Door Homes of North Central Florida, LLC  
Parcel #23-4S-08713-000, Gainesville, FL 32618

## Cooling Equipment

### Design Conditions

|                    |        |                    |       |      |                   |        |
|--------------------|--------|--------------------|-------|------|-------------------|--------|
| Outdoor design DB: | 92.0°F | Sensible gain:     | 16728 | Btuh | Entering coil DB: | 76.8°F |
| Outdoor design WB: | 76.3°F | Latent gain:       | 4020  | Btuh | Entering coil WB: | 63.4°F |
| Indoor design DB:  | 75.0°F | Total gain:        | 20749 | Btuh |                   |        |
| Indoor RH:         | 50%    | Estimated airflow: | 793   | cfm  |                   |        |

### Manufacturer's Performance Data at Actual Design Conditions

|                    |            |        |                              |          |
|--------------------|------------|--------|------------------------------|----------|
| Equipment type:    | Split ASHP |        |                              |          |
| Manufacturer:      | Trane      | Model: | 4TWR4024G1+TEM4A0B24S21++TDR |          |
| Actual airflow:    | 793        | cfm    |                              |          |
| Sensible capacity: | 18485      | Btuh   | 111% of load                 |          |
| Latent capacity:   | 4153       | Btuh   | 103% of load                 |          |
| Total capacity:    | 22638      | Btuh   | 109% of load                 | SHR: 82% |

## Heating Equipment

### Design Conditions

|                    |        |            |       |      |                   |        |
|--------------------|--------|------------|-------|------|-------------------|--------|
| Outdoor design DB: | 33.4°F | Heat loss: | 16617 | Btuh | Entering coil DB: | 67.2°F |
| Indoor design DB:  | 68.0°F |            |       |      |                   |        |

### Manufacturer's Performance Data at Actual Design Conditions

|                             |            |        |                              |                          |
|-----------------------------|------------|--------|------------------------------|--------------------------|
| Equipment type:             | Split ASHP |        |                              |                          |
| Manufacturer:               | Trane      | Model: | 4TWR4024G1+TEM4A0B24S21++TDR |                          |
| Actual airflow:             | 793        | cfm    |                              |                          |
| Output capacity:            | 16912      | Btuh   | 102% of load                 | Capacity balance: 27 °F  |
| Supplemental heat required: | 0          | Btuh   |                              | Economic balance: -99 °F |

|                        |            |        |              |                   |
|------------------------|------------|--------|--------------|-------------------|
| Backup equipment type: | Elec strip |        |              |                   |
| Manufacturer:          |            | Model: |              |                   |
| Actual airflow:        | 793        | cfm    |              |                   |
| Output capacity:       | 6.0        | kW     | 122% of load | Temp. rise: 50 °F |

Meets all requirements of ACCA Manual S.



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Notes:

## Design Information

Weather: Gainesville Regional AP, FL, US

### Winter Design Conditions

Outside db 33 °F  
Inside db 68 °F  
Design TD 35 °F

### Summer Design Conditions

Outside db 92 °F  
Inside db 75 °F  
Design TD 17 °F  
Daily range M  
Relative humidity 50 %  
Moisture difference 47 gr/lb

### Heating Summary

Structure 13151 Btuh  
Ducts 3465 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Humidification 0 Btuh  
Piping 0 Btuh  
Equipment load 16617 Btuh

### Sensible Cooling Equipment Load Sizing

Structure 12361 Btuh  
Ducts 4367 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Blower 0 Btuh  
Use manufacturer's data n  
Rate/swing multiplier 0.97  
Equipment sensible load 16227 Btuh

### Infiltration

Method Simplified  
Construction quality Average  
Fireplaces 0

### Latent Cooling Equipment Load Sizing

Structure 3127 Btuh  
Ducts 894 Btuh  
Central vent (0 cfm)  
(none) 0 Btuh  
Equipment latent load 4020 Btuh

|                  | Heating | Cooling |
|------------------|---------|---------|
| Area (ft²)       | 1176    | 1176    |
| Volume (ft³)     | 10800   | 10800   |
| Air changes/hour | 0.45    | 0.23    |
| Equiv. AVF (cfm) | 81      | 41      |

**Equipment Total Load (Sen+Lat)** 20247 Btuh  
Req. total capacity at 0.70 SHR 1.9 ton

### Heating Equipment Summary

Make Trane  
Trade TRANE  
Model 4TWR4024G1  
AHRI ref 8908427  
Efficiency 8.5 HSPF  
Heating input 22400 Btuh @ 47°F  
Heating output 26 °F  
Temperature rise 793 cfm  
Actual air flow 0.048 cfm/Btuh  
Air flow factor 0.50 in H2O  
Static pressure  
Space thermostat  
Capacity balance point = 27 °F  
Backup:  
Input = 6 kW, Output = 20320 Btuh, 100 AFUE

### Cooling Equipment Summary

Make Trane  
Trade TRANE  
Cond 4TWR4024G1  
Coil TEM4A0B24S21++TDR  
AHRI ref 8908427  
Efficiency 11.5 EER, 14 SEER  
Sensible cooling 16660 Btuh  
Latent cooling 7140 Btuh  
Total cooling 23800 Btuh  
Actual air flow 793 cfm  
Air flow factor 0.047 cfm/Btuh  
Static pressure 0.50 in H2O  
Load sensible heat ratio 0.81

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

## Project Information

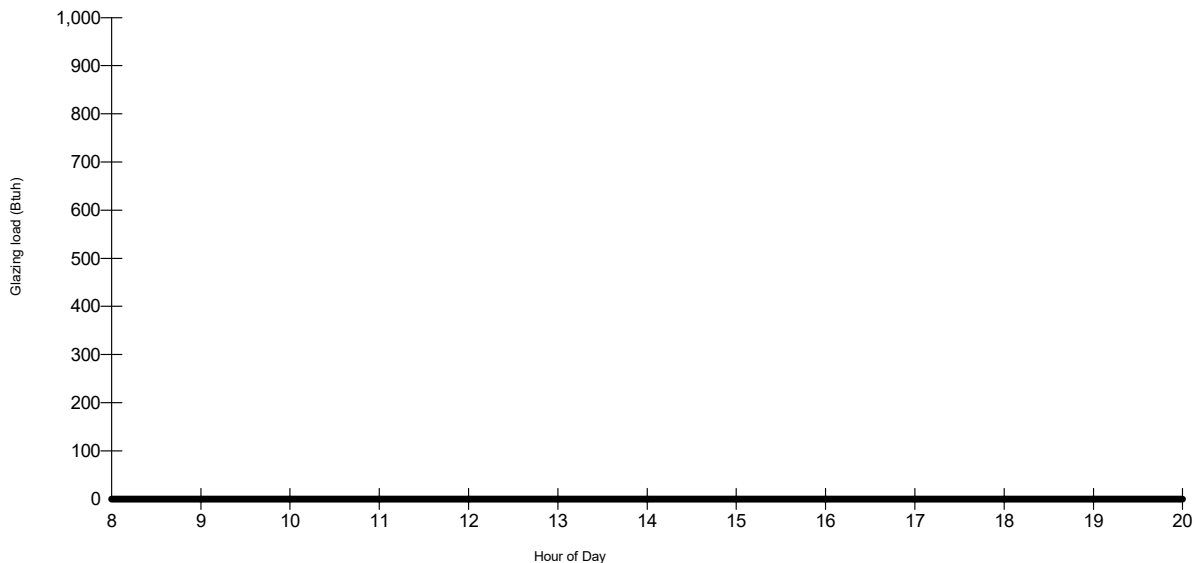
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Parcel #23-4S-08713-000, Gainesville, FL 32618

## Design Conditions

| Location:                       |        | Indoor:                     |          | Heating       | Cooling |
|---------------------------------|--------|-----------------------------|----------|---------------|---------|
| Gainesville Regional AP, FL, US |        | Indoor temperature (°F)     |          | 68            | 75      |
| Elevation:                      | 164 ft | Design TD (°F)              |          | 35            | 17      |
| Latitude:                       | 30°N   | Relative humidity (%)       |          | 50            | 50      |
|                                 |        | Moisture difference (gr/lb) |          | 28.7          | 47.4    |
| Outdoor:                        |        | Heating                     | Cooling  | Infiltration: |         |
| Dry bulb (°F)                   |        | 33                          | 92       |               |         |
| Daily range (°F)                |        | -                           | 18 ( M ) |               |         |
| Wet bulb (°F)                   |        | -                           | 76       |               |         |
| Wind speed (mph)                |        | 15.0                        | 7.5      |               |         |

## Test for Adequate Exposure Diversity

Hourly Glazing Load



**Maximum hourly glazing load exceeds average by 0.0%.**

**House has adequate exposure diversity (AED), based on AED limit of 30%.**

**AED excursion: 0 Btuh**

|    |                                                     |                     |                        |    |                 |      |                                          |       |              |              |                                        |       |              |             |
|----|-----------------------------------------------------|---------------------|------------------------|----|-----------------|------|------------------------------------------|-------|--------------|--------------|----------------------------------------|-------|--------------|-------------|
| 1  | Room name                                           |                     |                        |    |                 |      | Entire House<br>140.0 ft <sup>2</sup>    |       |              |              | Master Bedroom<br>25.0 ft <sup>2</sup> |       |              |             |
| 2  | Exposed wall                                        |                     |                        |    |                 |      | 9.0 ft x 16.0 ft = 144.0 ft <sup>2</sup> |       |              |              | heat/cool                              |       |              |             |
| 3  | Room height                                         |                     |                        |    |                 |      |                                          |       |              |              |                                        |       |              |             |
| 4  | Room dimensions                                     |                     |                        |    |                 |      |                                          |       |              |              |                                        |       |              |             |
| 5  | Room area                                           |                     |                        |    |                 |      | 1200.0 ft <sup>2</sup>                   |       |              |              | 162.0 ft <sup>2</sup>                  |       |              |             |
|    | Ty                                                  | Construction number | U-value (Btu/h/ft²·°F) | Or | HTM (Btu/h/ft²) |      | Area (ft²) or perimeter (ft)             |       | Load (Btu/h) |              | Area (ft²) or perimeter (ft)           |       | Load (Btu/h) |             |
|    |                                                     |                     |                        |    | Heat            | Cool | Gross                                    | N/P/S | Heat         | Cool         | Gross                                  | N/P/S | Heat         | Cool        |
| 6  | W                                                   | 12C-0sw             | 0.091                  | n  | 3.15            | 2.22 | 270                                      | 270   | 850          | 598          | 0                                      | 0     | 0            | 0           |
|    | W                                                   | 12C-0sw             | 0.091                  | e  | 3.15            | 2.22 | 360                                      | 360   | 1133         | 798          | 0                                      | 0     | 0            | 0           |
|    | W                                                   | 12C-0sw             | 0.091                  | s  | 3.15            | 2.22 | 270                                      | 270   | 850          | 598          | 117                                    | 117   | 368          | 259         |
|    | W                                                   | 12C-0sw             | 0.091                  | w  | 3.15            | 2.22 | 360                                      | 360   | 1133         | 798          | 108                                    | 108   | 340          | 239         |
|    | C                                                   | 16B-30ad            | 0.032                  | -  | 1.11            | 1.69 | 1200                                     | 1200  | 1329         | 2029         | 162                                    | 162   | 179          | 274         |
| 11 | F                                                   | 22A-tpl             | 0.989                  | -  | 34.22           | 0.00 | 1200                                     | 140   | 4791         | 0            | 162                                    | 25    | 855          | 0           |
| 6  | c) AED excursion                                    |                     |                        |    |                 |      |                                          |       |              | 0            |                                        |       |              | 0           |
|    | Envelope loss/gain                                  |                     |                        |    |                 |      |                                          |       | 10087        | 4821         |                                        |       | 1743         | 773         |
| 12 | a) Infiltration<br>b) Room ventilation              |                     |                        |    |                 |      |                                          |       | 3065<br>0    | 770<br>0     |                                        |       | 547<br>0     | 137<br>0    |
| 13 | Internal gains: Occupants @ 230<br>Appliances/other |                     |                        |    |                 |      | 9                                        |       |              | 2070<br>4700 | 2                                      |       |              | 460<br>900  |
|    | Subtotal (lines 6 to 13)                            |                     |                        |    |                 |      |                                          |       | 13151        | 12361        |                                        |       | 2291         | 2270        |
| 14 | Less external load                                  |                     |                        |    |                 |      |                                          |       | 0            | 0            |                                        |       | 0            | 0           |
|    | Less transfer                                       |                     |                        |    |                 |      |                                          |       | 0            | 0            |                                        |       | 0            | 0           |
|    | Redistribution                                      |                     |                        |    |                 |      |                                          |       | 0            | 0            |                                        |       | 0            | 0           |
| 15 | Subtotal                                            |                     |                        |    |                 |      |                                          |       | 13151        | 12361        |                                        |       | 2291         | 2270        |
|    | Duct loads                                          |                     |                        |    |                 |      | 26%                                      | 35%   | 3465         | 4367         | 26%                                    | 35%   | 604          | 802         |
|    | Total room load<br>Air required (cfm)               |                     |                        |    |                 |      |                                          |       | 16617<br>793 | 16728<br>793 |                                        |       | 2894<br>138  | 3072<br>146 |

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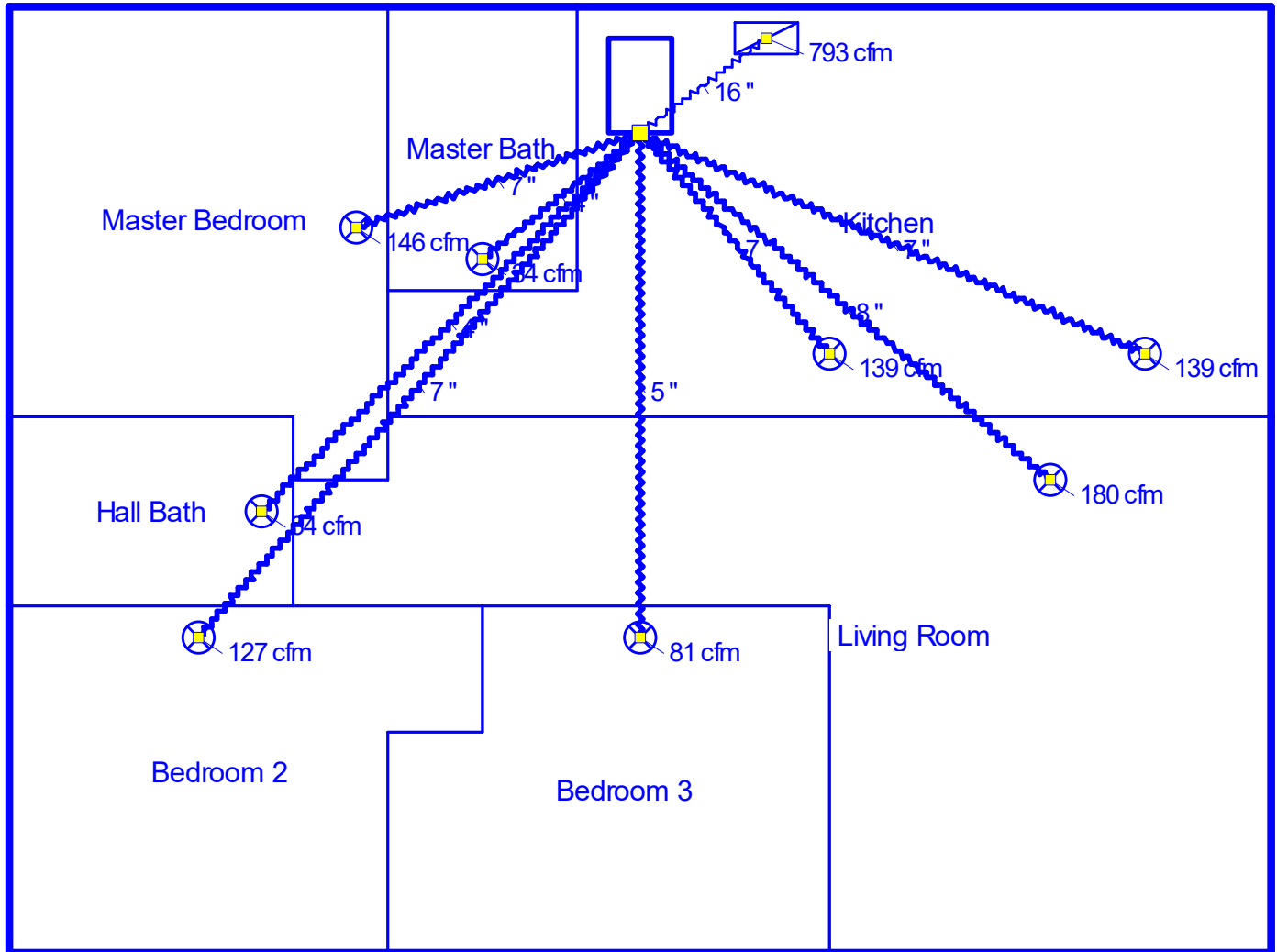
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## Level 2



**Job #:**  
**Performed for:**  
Jefferson  
Parcel #23-4S-08713-000  
Gainesville, FL 32618

**Comfort Temp Company**  
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## Level 1

**Job #:**  
**Performed for:**  
Jefferson  
Parcel #23-4S-08713-000  
Gainesville, FL 32618

**Comfort Temp Company**  
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# Duct System Summary

## Entire House

### Comfort Temp Company

Job:  
Date: Feb 07, 2020  
By:

4301 NW 6th ST, Gainesville, FL 32609 Phone: 352 275 4022 Fax: 352 376 0523 Email: jay@comforttemp.com Web: www.comforttemp.com

## Project Information

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|                                    | Heating                           | Cooling                           |
|------------------------------------|-----------------------------------|-----------------------------------|
| External static pressure           | 0.50 in H <sub>2</sub> O          | 0.50 in H <sub>2</sub> O          |
| Pressure losses                    | 0 in H <sub>2</sub> O             | 0 in H <sub>2</sub> O             |
| Available static pressure          | 0.50 in H <sub>2</sub> O          | 0.50 in H <sub>2</sub> O          |
| Supply / return available pressure | 0.361 / 0.139 in H <sub>2</sub> O | 0.361 / 0.139 in H <sub>2</sub> O |
| Lowest friction rate               | 0.396 in/100ft                    | 0.396 in/100ft                    |
| Actual air flow                    | 793 cfm                           | 793 cfm                           |
| Total effective length (TEL)       | 126 ft                            |                                   |

## Supply Branch Detail Table

| Name           | Design (Btuh) | Htg (cfm) | Clg (cfm) | Design FR | Diam (in) | H x W (in) | Duct Matl | Actual Ln (ft) | Ftg.Eqv Ln (ft) | Trunk |
|----------------|---------------|-----------|-----------|-----------|-----------|------------|-----------|----------------|-----------------|-------|
| Bedroom 2      | h 2656        | 127       | 126       | 0.396     | 7.0       | 0x0        | VIFx      | 21.3           | 70.0            |       |
| Bedroom 3      | h 1692        | 81        | 38        | 0.420     | 5.0       | 0x0        | VIFx      | 16.0           | 70.0            |       |
| Hall Bath      | h 716         | 34        | 16        | 0.416     | 4.0       | 0x0        | VIFx      | 17.0           | 70.0            |       |
| Kitchen        | c 2933        | 99        | 139       | 0.456     | 7.0       | 0x0        | VIFx      | 9.2            | 70.0            |       |
| Kitchen-A      | c 2933        | 99        | 139       | 0.413     | 7.0       | 0x0        | VIFx      | 17.5           | 70.0            |       |
| Living Room    | h 3775        | 180       | 174       | 0.415     | 8.0       | 0x0        | VIFx      | 17.0           | 70.0            |       |
| Master Bath    | h 716         | 34        | 16        | 0.473     | 4.0       | 0x0        | VIFx      | 6.4            | 70.0            |       |
| Master Bedroom | c 3072        | 138       | 146       | 0.455     | 7.0       | 0x0        | VIFx      | 9.5            | 70.0            |       |

## Return Branch Detail Table

| Name | Grille Size (in) | Htg (cfm) | Clg (cfm) | TEL (ft) | Design FR | Veloc (fpm) | Diam (in) | H x W (in) | Stud/Joist Opening (in) | Duct Matl | Trunk |
|------|------------------|-----------|-----------|----------|-----------|-------------|-----------|------------|-------------------------|-----------|-------|
| rb1  | 0x0              | 793       | 793       | 35.0     | 0.396     | 568         | 16.0      | 0x 0       |                         | VIFx      |       |

