



# Manual S Compliance Report

## Entire House

Job:  
Date: Apr 08, 2020  
By:

### Project Information

For: Burk Res, R&M  
846 SW Woodland Ave, FortWhite, FL

### Cooling Equipment

#### Design Conditions

|                    |        |                    |            |                   |        |
|--------------------|--------|--------------------|------------|-------------------|--------|
| Outdoor design DB: | 92.0°F | Sensible gain:     | 33092 Btuh | Entering coil DB: | 77.5°F |
| Outdoor design WB: | 76.3°F | Latent gain:       | 4634 Btuh  | Entering coil WB: | 63.7°F |
| Indoor design DB:  | 75.0°F | Total gain:        | 37727 Btuh |                   |        |
| Indoor RH:         | 50%    | Estimated airflow: | 1533 cfm   |                   |        |

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

|                    |            |              |                            |
|--------------------|------------|--------------|----------------------------|
| Equipment type:    | Split ASHP |              |                            |
| Manufacturer:      | Carrier    | Model:       | CH14NB04800G0A0+FB4CNP048L |
| Actual airflow:    | 1533 cfm   |              |                            |
| Sensible capacity: | 32200 Btuh | 97% of load  |                            |
| Latent capacity:   | 13800 Btuh | 298% of load |                            |
| Total capacity:    | 46000 Btuh | 122% of load | SHR: 70%                   |

### Heating Equipment

#### Design Conditions

|                    |        |            |            |                   |        |
|--------------------|--------|------------|------------|-------------------|--------|
| Outdoor design DB: | 33.4°F | Heat loss: | 40996 Btuh | Entering coil DB: | 68.8°F |
| Indoor design DB:  | 70.0°F |            |            |                   |        |

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

|                             |            |                   |                            |
|-----------------------------|------------|-------------------|----------------------------|
| Equipment type:             | Split ASHP |                   |                            |
| Manufacturer:               | Carrier    | Model:            | CH14NB04800G0A0+FB4CNP048L |
| Actual airflow:             | 1533 cfm   |                   |                            |
| Output capacity:            | 45500 Btuh | 111% of load      |                            |
| Supplemental heat required: | 0 Btuh     |                   |                            |
|                             |            | Capacity balance: | 32 °F                      |
|                             |            | Economic balance: | -99 °F                     |

|                        |            |             |                   |
|------------------------|------------|-------------|-------------------|
| Backup equipment type: | Elec strip |             |                   |
| Manufacturer:          | Carrier    | Model:      |                   |
| Actual airflow:        | 1533 cfm   |             |                   |
| Output capacity:       | 10.0 kW    | 83% of load | Temp. rise: 20 °F |

Meets all requirements of ACCA Manual S.



# Load Short Form

## Entire House

Job:  
Date: Apr 08, 2020  
By:

### Project Information

For: Burk Res, R&M  
846 SW Woodland Ave, FortWhite, FL

### Design Information

|                             | Htg | Clg | Infiltration         |                |
|-----------------------------|-----|-----|----------------------|----------------|
| Outside db (°F)             | 33  | 92  | Method               | Simplified     |
| Inside db (°F)              | 70  | 75  | Construction quality | Semi-tight     |
| Design TD (°F)              | 37  | 17  | Fireplaces           | 1 (Semi-tight) |
| Daily range                 | -   | M   |                      |                |
| Inside humidity (%)         | 30  | 50  |                      |                |
| Moisture difference (gr/lb) | 10  | 47  |                      |                |

#### HEATING EQUIPMENT

Make Carrier  
Trade CARRIER  
Model CH14NB04800G0A0  
AHRI ref 9162789

Efficiency 8.2 HSPF  
Heating input  
Heating output 45500 Btuh @ 47°F  
Temperature rise 27 °F  
Actual air flow 1533 cfm  
Air flow factor 0.037 cfm/Btuh  
Static pressure 0.50 in H2O  
Space thermostat  
Capacity balance point = 32 °F

Backup: Carrier  
Input = 10 kW, Output = 34121 Btuh, 100 AFUE

#### COOLING EQUIPMENT

Make Carrier  
Trade CARRIER  
Cond CH14NB04800G0A0  
Coil FB4CNP048L  
AHRI ref 9162789

Efficiency 11.5 EER, 14 SEER  
Sensible cooling 32200 Btuh  
Latent cooling 13800 Btuh  
Total cooling 46000 Btuh  
Actual air flow 1533 cfm  
Air flow factor 0.046 cfm/Btuh  
Static pressure 0.50 in H2O  
Load sensible heat ratio 0.88

| ROOM NAME   | Area (ft²) | Htg load (Btuh) | Clg load (Btuh) | Htg AVF (cfm) | Clg AVF (cfm) |
|-------------|------------|-----------------|-----------------|---------------|---------------|
| Master bed  | 306        | 4403            | 3652            | 165           | 169           |
| Laundry     | 73         | 2168            | 2094            | 81            | 97            |
| Pantry      | 51         | 1607            | 1250            | 60            | 58            |
| Powder      | 61         | 164             | 129             | 6             | 6             |
| Storage     | 87         | 235             | 185             | 9             | 9             |
| Master WIC  | 139        | 3196            | 2125            | 120           | 98            |
| Master bath | 192        | 4195            | 3519            | 157           | 163           |
| Kitchen     | 317        | 2611            | 2959            | 98            | 137           |
| Foyer       | 103        | 2591            | 1961            | 97            | 91            |
| Great room  | 430        | 7355            | 6903            | 275           | 320           |
| Bed 2       | 243        | 5118            | 3387            | 191           | 157           |
| Bed 3       | 226        | 5229            | 4007            | 196           | 186           |
| Bath 3      | 83         | 1027            | 457             | 38            | 21            |
| Hall 2      | 39         | 0               | 0               | 0             | 0             |

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

|                   |   |      |       |       |      |      |
|-------------------|---|------|-------|-------|------|------|
| HVAC              |   | 12   | 0     | 0     | 0    | 0    |
| Hall 1            |   | 91   | 1095  | 465   | 41   | 22   |
| Entire House      | d | 2452 | 40996 | 33092 | 1533 | 1533 |
| Other equip loads |   |      | 0     | 0     |      |      |
| Equip. @ 0.97 RSM |   |      |       | 32100 |      |      |
| Latent cooling    |   |      |       | 4634  |      |      |
| TOTALS            |   | 2452 | 40996 | 36734 | 1533 | 1533 |

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# Project Summary

## Entire House

Job:  
Date: Apr 08, 2020  
By:

### Project Information

For: Burk Res, R&M  
846 SW Woodland Ave, FortWhite, FL

Notes:

### Design Information

Weather: Gainesville Regional AP, FL, US

#### Winter Design Conditions

|            |       |
|------------|-------|
| Outside db | 33 °F |
| Inside db  | 70 °F |
| Design TD  | 37 °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            | 31333 Btuh |
| Ducts                | 9662 Btuh  |
| Central vent (0 cfm) | 0 Btuh     |
| (none)               |            |
| Humidification       | 0 Btuh     |
| Piping               | 0 Btuh     |
| Equipment load       | 40996 Btuh |

#### Sensible Cooling Equipment Load Sizing

|                         |            |
|-------------------------|------------|
| Structure               | 20997 Btuh |
| Ducts                   | 12095 Btuh |
| Central vent (0 cfm)    | 0 Btuh     |
| (none)                  |            |
| Blower                  | 0 Btuh     |
| Use manufacturer's data | n          |
| Rate/swing multiplier   | 0.97       |
| Equipment sensible load | 32100 Btuh |

#### Infiltration

|                      |                |
|----------------------|----------------|
| Method               | Simplified     |
| Construction quality | Semi-tight     |
| Fireplaces           | 1 (Semi-tight) |

#### Latent Cooling Equipment Load Sizing

|                       |           |
|-----------------------|-----------|
| Structure             | 1953 Btuh |
| Ducts                 | 2681 Btuh |
| Central vent (0 cfm)  | 0 Btuh    |
| (none)                |           |
| Equipment latent load | 4634 Btuh |

|                           | Heating | Cooling |
|---------------------------|---------|---------|
| Area (ft <sup>2</sup> )   | 2452    | 2452    |
| Volume (ft <sup>3</sup> ) | 19620   | 19620   |
| Air changes/hour          | 0.26    | 0.11    |
| Equiv. AVF (cfm)          | 85      | 36      |

|                                       |            |
|---------------------------------------|------------|
| <b>Equipment Total Load (Sen+Lat)</b> | 36734 Btuh |
| Req. total capacity at 0.70 SHR       | 3.8 ton    |

#### Heating Equipment Summary

|                                              |                   |
|----------------------------------------------|-------------------|
| Make                                         | Carrier           |
| Trade                                        | CARRIER           |
| Model                                        | CH14NB04800G0A0   |
| AHRI ref                                     | 9162789           |
| Efficiency                                   | 8.2 HSPF          |
| Heating input                                |                   |
| Heating output                               | 45500 Btuh @ 47°F |
| Temperature rise                             | 27 °F             |
| Actual air flow                              | 1533 cfm          |
| Air flow factor                              | 0.037 cfm/Btuh    |
| Static pressure                              | 0.50 in H2O       |
| Space thermostat                             |                   |
| Capacity balance point = 32 °F               |                   |
| Backup: Carrier                              |                   |
| Input = 10 kW, Output = 34121 Btuh, 100 AFUE |                   |

#### Cooling Equipment Summary

|                          |                   |
|--------------------------|-------------------|
| Make                     | Carrier           |
| Trade                    | CARRIER           |
| Cond                     | CH14NB04800G0A0   |
| Coil                     | FB4CNP048L        |
| AHRI ref                 | 9162789           |
| Efficiency               | 11.5 EER, 14 SEER |
| Sensible cooling         | 32200 Btuh        |
| Latent cooling           | 13800 Btuh        |
| Total cooling            | 46000 Btuh        |
| Actual air flow          | 1533 cfm          |
| Air flow factor          | 0.046 cfm/Btuh    |
| Static pressure          | 0.50 in H2O       |
| Load sensible heat ratio | 0.88              |

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



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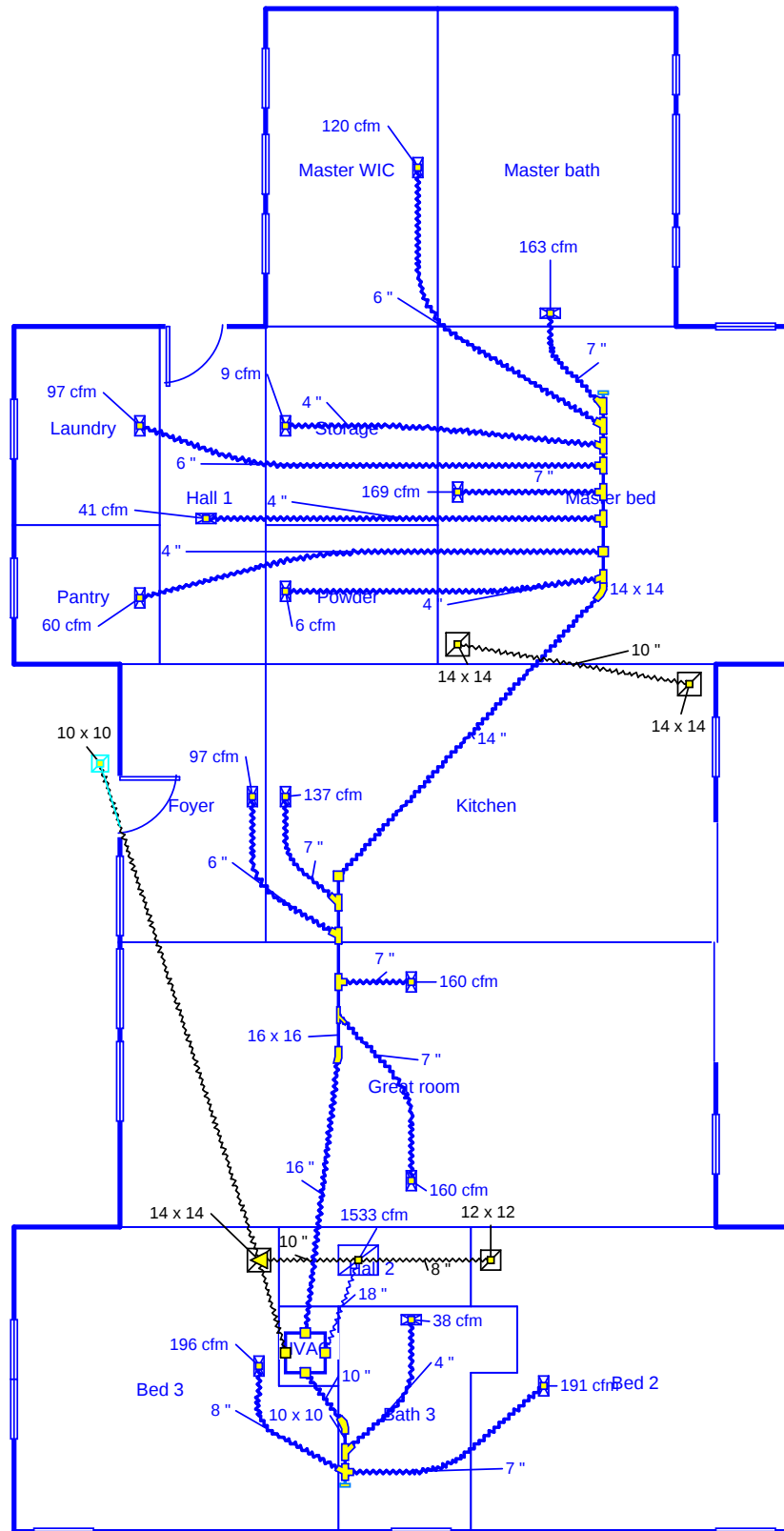
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## Level 1



**Job #:**  
**Performed for:**  
Burk Res  
846 SW Woodland Ave  
FortWhite, FL

**Scale: 1 : 111**  
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# Duct System Summary

## Entire House

Job:  
Date: Apr 08, 2020  
By:

### Project Information

For: Burk Res, R&M  
846 SW Woodland Ave, FortWhite, FL

|                                    | 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 | 0.430 / 0.070 in H <sub>2</sub> O | 0.430 / 0.070 in H <sub>2</sub> O |
| Lowest friction rate               | 0.155 in/100ft                    | 0.155 in/100ft                    |
| Actual air flow                    | 1533 cfm                          | 1533 cfm                          |
| Total effective length (TEL)       | 323 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 |
|--------------|---------------|-----------|-----------|-----------|-----------|------------|-----------|----------------|-----------------|-------|
| Bath 3       | h 1027        | 38        | 21        | 0.257     | 4.0       | 0x0        | VIFx      | 12.8           | 155.0           | st6   |
| Bed 2        | h 5118        | 191       | 157       | 0.265     | 7.0       | 0x0        | VIFx      | 17.3           | 145.0           | st6   |
| Bed 3-A      | h 5229        | 196       | 186       | 0.271     | 8.0       | 0x0        | VIFx      | 13.6           | 145.0           | st6   |
| Foyer        | h 2591        | 97        | 91        | 0.221     | 6.0       | 0x0        | VIFx      | 29.5           | 165.0           | st3   |
| Great room   | c 3451        | 138       | 160       | 0.225     | 7.0       | 0x0        | VIFx      | 21.4           | 170.0           | st3   |
| Great room-A | c 3451        | 138       | 160       | 0.209     | 7.0       | 0x0        | VIFx      | 25.9           | 180.0           | st3   |
| Hall 1       | h 1095        | 41        | 22        | 0.159     | 4.0       | 0x0        | VIFx      | 66.3           | 205.0           | st5   |
| Kitchen      | c 2959        | 98        | 137       | 0.235     | 7.0       | 0x0        | VIFx      | 28.3           | 155.0           | st3   |
| Laundry      | c 2094        | 81        | 97        | 0.161     | 6.0       | 0x0        | VIFx      | 72.7           | 195.0           | st5   |
| Master WIC   | h 3196        | 120       | 98        | 0.176     | 6.0       | 0x0        | VIFx      | 69.3           | 175.0           | st5   |
| Master bath  | c 3519        | 157       | 163       | 0.193     | 7.0       | 0x0        | VIFx      | 57.8           | 165.0           | st5   |
| Master bed   | c 3652        | 165       | 169       | 0.172     | 7.0       | 0x0        | VIFx      | 55.0           | 195.0           | st5   |
| Pantry       | h 1607        | 60        | 58        | 0.155     | 4.0       | 0x0        | VIFx      | 68.3           | 210.0           | st5   |
| Powder       | h 164         | 6         | 6         | 0.160     | 4.0       | 0x0        | VIFx      | 59.4           | 210.0           | st5   |
| Storage      | h 235         | 9         | 9         | 0.171     | 4.0       | 0x0        | VIFx      | 66.1           | 185.0           | st5   |

*Bold/italic values have been manually overridden*

## Supply Trunk Detail Table

| Name | Trunk Type | Htg (cfm) | Clg (cfm) | Design FR | Veloc (fpm) | Diam (in) | H x W (in) | Duct Material | Trunk |
|------|------------|-----------|-----------|-----------|-------------|-----------|------------|---------------|-------|
| st6  | Peak AVF   | 425       | 364       | 0.257     | 613         | 10.0      | 10 x 10    | RectFbg       | st2   |
| st5  | Peak AVF   | 638       | 622       | 0.155     | 469         | 14.0      | 14 x 14    | RectFbg       | st4   |
| st3  | Peak AVF   | 1108      | 1169      | 0.155     | 658         | 16.0      | 16 x 16    | RectFbg       | st1   |
| st1  | Peak AVF   | 1108      | 1169      | 0.155     | 837         | 16.0      | 0 x 0      | VinIFlx       |       |
| st2  | Peak AVF   | 425       | 364       | 0.257     | 780         | 10.0      | 0 x 0      | VinIFlx       |       |
| st4  | Peak AVF   | 638       | 622       | 0.155     | 597         | 14.0      | 0 x 0      | VinIFlx       | st3   |

## 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  | 0x 0             | 1533      | 1533      | 45.0     | 0.155     | 637         | 21.0      | 0x 0       |                         | VIFx      | rst10 |

## Return Trunk Detail Table

| Name  | Trunk Type | Htg (cfm) | Clg (cfm) | Design FR | Veloc (fpm) | Diam (in) | H x W (in) | Duct Material | Trunk |
|-------|------------|-----------|-----------|-----------|-------------|-----------|------------|---------------|-------|
| rst10 | Peak AVF   | 1533      | 1533      | 0.155     | 868         | 18.0      | 0 x 0      | VinIFlx       |       |

*Bold/italic values have been manually overridden*



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