



Manual S Compliance Report

Entire House

Air Ducks Heating & Air Conditioning

Job:
Date: Jul 27, 2025
By:

2601 NW 74th Place, Gainesville, Fla 32653 Phone: 352-215-4624 Email: airducksac@gmail.com Web: www.airducksac.com License: CAC1817288

Project Information

For: DWC Construction
288 SW Caboose Drive, Fort White, FLA 32038

Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	20024	Btuh	Entering coil DB:	76.8°F
Outdoor design WB:	75.8°F	Latent gain:	3543	Btuh	Entering coil WB:	63.4°F
Indoor design DB:	75.0°F	Total gain:	23567	Btuh		
Indoor RH:	50%	Estimated airflow:	907	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	5TWR4036A1000+5TEM4D04AC31S
Actual airflow:	907	cfm	
Sensible capacity:	21470	Btuh	107% of load
Latent capacity:	4652	Btuh	131% of load
Total capacity:	26122	Btuh	111% of load SHR: 82%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	24385	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:	5TWR4036A1000+5TEM4D04AC31S
Actual airflow:	907	cfm	
Output capacity:	26400	Btuh	108% of load
Supplemental heat required:	0	Btuh	
			Capacity balance: 31 °F
			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	907	cfm	
Output capacity:	6.5	kW	92% of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form

RPER 2.0

Header Information

Contractor Air Ducks Heating & Air Conditioning Applicable Attachments ☐ Yes ☐ No
Mechanical license# CAC1817288 Manual J1 Form and Worksheet A: ☐ Yes ☐ No
Building plan # _____ OEM performance data (heating, cooling, blower): ☐ Yes ☐ No
Duct distribution sketch: ☐ Yes ☐ No
IRC Table R301.2 (climate & geographic design criteria) ☐ Yes ☐ No
Home address (Street or Lot#, Block, Subdivision) 288 SW Caboose Drive, Entire House

HVAC LOAD CALCULATION

(IRC M1401.3)

Manual J Design Criteria and Loads

Location

Elevation 123 ft
Altitude Correction Factor 1.00
Latitude 30 °N

Summer Design Conditions

Outdoor Cooling Temp 92 °F
Indoor Cooling Temp 75 °F
Cooling Temp Diff 17 °F
Indoor Summer Design RH 50 %
Coincident Wet Bulb Temp 76 °F

Manual J Loads

Total Heat Loss 24385 Btuh
Sensible Heat Gain 20024 Btuh
Latent Heat Gain 3543 Btuh
Total Heat Gain 23567 Btuh

Winter Design Conditions

Outdoor Winter Temp 33 °F
Indoor Winter Temp 68 °F
Heating Temp Diff 35 °F

The heat loss/gain was calculated in accordance with ACCA Manual J? Y ☒ N ☐

HVAC EQUIPMENT SELECTION

(IRC M1401.3)

Heating Equipment

☐ Furnace ☐ Boiler ☒ Electric Heat
☐ Single Speed ☐ Multi Stage ☐ Modulating

Model

Output 26400 Btuh Sizing Value 24385 Btuh
Supplemental 0 Btuh Sizing Limit 175.0 %
Heat Load: Capacity 91.6 %

Size Factor is within Manual S Size Limit? Y ☐ N ☒

Cooling Equipment

☐ Air Conditioner ☒ Heat Pump
☒ Air-to-Air ☐ Geothermal Open Loop ☐ Geothermal Closed Loop
☒ Single Speed ☐ Multi Stage ☐ Variable Speed

Model

Sensible 21470 Btuh Sizing Value 23567 Btuh
Latent 4652 Btuh Sizing Limit 115.0 %
Total 26122 Btuh Load: Capacity 110.8 %

Size Factor is within Manual S Size Limit? Y ☒ N ☐

HVAC DUCT DISTRIBUTION DESIGN

(IRC M1601.1)

Design airflow 907 cfm Longest Supply Duct 296 ft Duct Materials Used
External Static Pressure (ESP) 0.50 in H2O Longest Return Duct 120 ft Trunk Duct: ☒ Duct Board ☐ Sheet Metal
Component Pressure Loss (CPL) 0 in H2O Total Effective Length (TEL) 416 ft ☒ Flex ☐ Lined Sheet Metal ☐ Other
Available static pressure (ASP) 0.50 in H2O Friction Rate 0.12 in/100ft Branch Duct: ☐ Duct Board ☐ Sheet Metal
ESP - CPL = ASP (ASP x 100) / TEL = Friction Rate ☒ Flex ☐ Lined Sheet Metal ☐ Other

Ducts are sized per Manual D? Y ☒ N ☐

I declare the load calculation, equipment selection, and duct system design were rigorously performed based on the building plan listed above and understand the claims made on these forms may be subject to review and verification.

Contractor's printed name: _____

Contractor's signature: _____

Date: _____



Load Short Form
Entire House
Air Ducks Heating & Air Conditioning

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Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	33	92	Method	Average
Inside db (°F)	68	75	Construction quality	0
Design TD (°F)	35	17	Fireplaces	
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	43		

HEATING EQUIPMENT

Make Trane
Trade Seer 2
Model 5TWR4036A1000
AHRI ref 215610865

Efficiency 7.5 HSPF2
Heating input
Heating output 26400 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 907 cfm
Air flow factor 0.037 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 31 °F

Backup:
Input = 7 kW, Output = 22334 Btuh, 100 AFUE

COOLING EQUIPMENT

Make Trane
Trade Seer 2
Cond 5TWR4036A1000
Coil 5TEM4D04AC31S
AHRI ref 215610865

Efficiency 11.7 EER2, 14.3 SEER2
Sensible cooling 19040 Btuh
Latent cooling 8160 Btuh
Total cooling 27200 Btuh
Actual air flow 907 cfm
Air flow factor 0.045 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Master	225	3857	1956	143	89
Master Bath	90	2024	752	75	34
MWIC	60	559	234	21	11
Utility	91	919	1030	34	47
Kitchen	270	4061	5919	151	268
Living room	220	4132	5667	154	257
Bed 3	132	3293	1889	122	86
Bed 2	165	3912	1997	146	90
Bath	72	1629	580	61	26
Hall	36	0	0	0	0

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



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Entire House	1361	24385	20024	907	907
Other equip loads		0	0		
Equip. @ 0.97 RSM			19503		
Latent cooling			3543		
TOTALS	1361	24385	23046	907	907

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Project Summary

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Notes:

Design Information

Weather: Gainesville, FL, US

Winter Design Conditions

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

Ventilation Method MJ8

Heating Summary

Structure	19330 Btuh
Ducts (R-6.0)	5055 Btuh
Central vent (0 cfm)	0 Btuh

Humidification	0 Btuh
Piping	0 Btuh
Equipment load	24385 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft ²)	1300	1300
Volume (ft ³)	11925	11925
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	89	46

Heating Equipment Summary

Make	Trane
Trade	Seer 2
Model	5TWR4036A1000
AHRI ref	215610865

Efficiency	7.5 HSPF2
Heating input	
Heating output	26400 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	907 cfm
Air flow factor	0.037 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 31 °F	

Backup:
Input = 7 kW, Output = 22334 Btuh, 100 AFUE

Summer Design Conditions

Outside db	92 °F
Inside db	75 °F
Design TD	17 °F
Daily range	M
Relative humidity	50 %
Moisture difference	43 gr/lb

Sensible Cooling Equipment Load Sizing

Structure	13885 Btuh
Ducts (R-6.0)	6138 Btuh
Central vent (0 cfm)	0 Btuh

Blower 0 Btuh

Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	19503 Btuh

Latent Cooling Equipment Load Sizing

Structure	2345 Btuh
Ducts	1198 Btuh
Central vent (0 cfm)	0 Btuh

Equipment latent load 3543 Btuh

Equipment Total Load (Sen+Lat)	23046 Btuh
Req. total capacity at 0.70 SHR	2.3 ton

Cooling Equipment Summary

Make	Trane
Trade	Seer 2
Cond	5TWR4036A1000
Coil	5TEM4D04AC31S
AHRI ref	215610865

Efficiency	11.7 EER2,14.3 SEER2
Sensible cooling	19040 Btuh
Latent cooling	8160 Btuh
Total cooling	27200 Btuh
Actual air flow	907 cfm
Air flow factor	0.045 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.85

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



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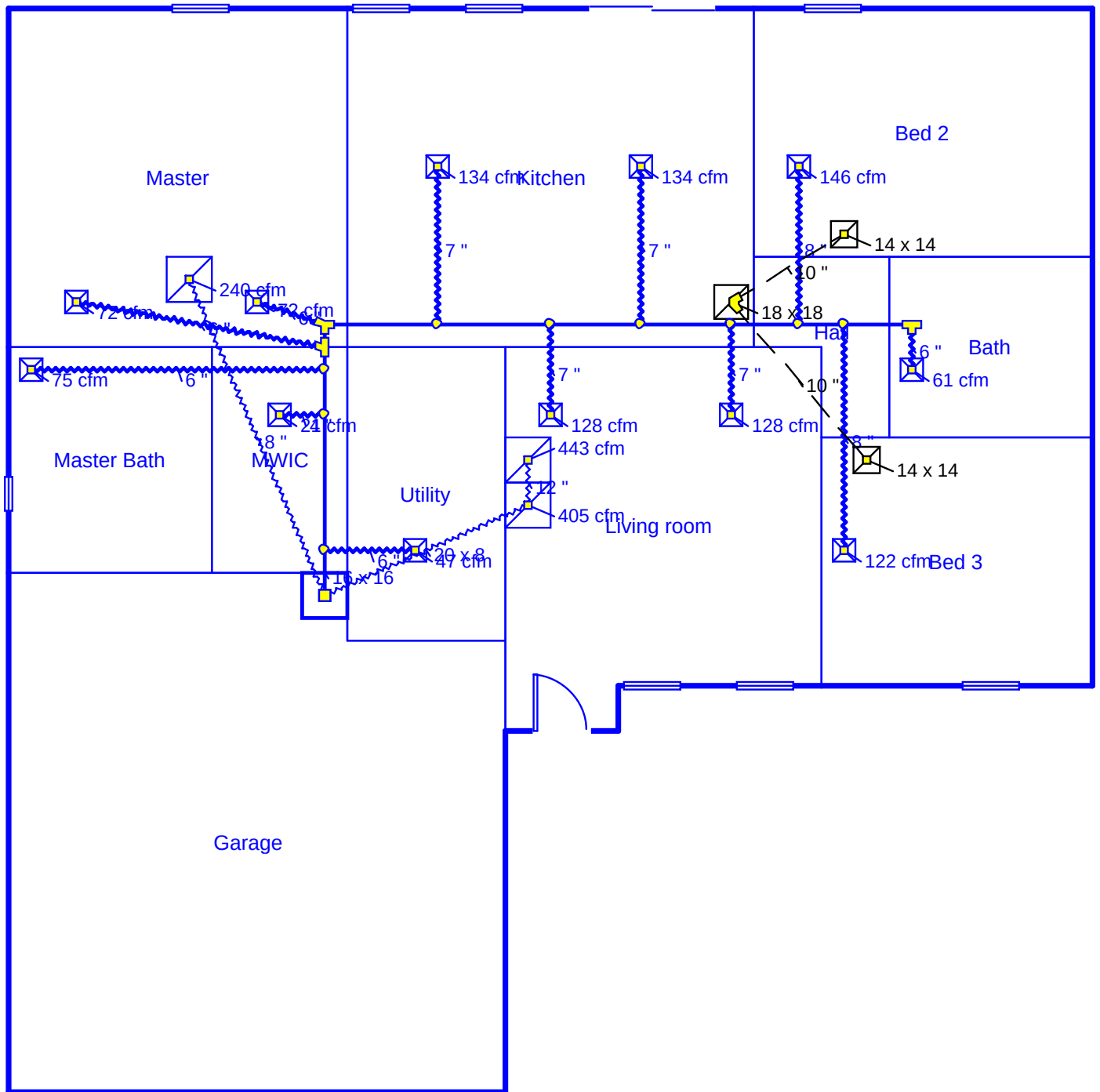
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Level 2



Job #:
Performed for:

DWC Construction
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Duct System Summary

Entire House

Air Ducks Heating & Air Conditioning

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Date: Jul 27, 2025
By:

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Project Information

For: DWC Construction
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	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Supply / return available pressure	0.356 / 0.144 in H ₂ O	0.356 / 0.144 in H ₂ O
Lowest friction rate	0.120 in/100ft	0.120 in/100ft
Actual air flow	907 cfm	907 cfm
Total effective length (TEL)	416 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	h 1629	61	26	0.174	6.0	0x0	VIFx	40.0	165.0	st1
Bed 2	h 3912	146	90	0.125	8.0	0x0	VIFx	40.0	245.0	st1
Bed 3	h 3293	122	86	0.127	8.0	0x0	VIFx	45.0	235.0	st1
Kitchen	c 2959	76	134	0.121	7.0	0x0	VIFx	24.0	270.0	st1
Kitchen-A	c 2959	76	134	0.121	7.0	0x0	VIFx	33.0	260.0	st1
Living room	c 2833	77	128	0.120	7.0	0x0	VIFx	26.0	270.0	st1
Living room-A	c 2833	77	128	0.123	7.0	0x0	VIFx	34.0	255.0	st1
MWIC	h 559	21	11	0.178	4.0	0x0	VIFx	10.0	190.0	st1
Master	h 1929	72	44	0.195	6.0	0x0	VIFx	22.2	160.0	st1
Master Bath	h 2024	75	34	0.175	6.0	0x0	VIFx	23.0	180.0	st1
Master-A	h 1929	72	44	0.148	6.0	0x0	VIFx	15.2	225.0	st1
Utility	c 1030	34	47	0.177	6.0	0x0	VIFx	6.0	195.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	907	907	0.120	510	13.5	16 x 16	RectFbg	



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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
rb5	0x 0	262	443	71.8	0.201	564	12.0	0x 0		VIFx	rt1
rb6	0x 0	240	133	75.2	0.192	686	8.0	0x 0		VIFx	
rb1	0x 0	405	331	119.8	0.120	516	12.0	0x 0		VIFx	rt1

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	667	774	0.120	696	14.0	8 x 20	VinIFlx	

