



Manual S Compliance Report

Entire House

Comfort Temp Company

Job:
Date: Dec 26, 2019
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: Coleman
249 Pleasant Hill Glenn, Ft. White, FL 32038

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0 °F	Sensible gain:	24158	Btuh	Entering coil DB:	75.0 °F
Outdoor design WB:	76.0 °F	Latent gain:	7744	Btuh	Entering coil WB:	62.5 °F
Indoor design DB:	75.0 °F	Total gain:	31902	Btuh		
Indoor RH:	50 %	Estimated airflow:	1220	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Trane	Model:	4TWR4036G1+TEM4A0C36S41++TDR	
Actual airflow:	1220	cfm		
Sensible capacity:	25620	Btuh	106% of load	
Latent capacity:	10980	Btuh	142% of load	
Total capacity:	36600	Btuh	115% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.0 °F	Heat loss:	24612	Btuh	Entering coil DB:	68.0 °F
Indoor design DB:	68.0 °F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Trane	Model:	4TWR4036G1+TEM4A0C36S41++TDR	
Actual airflow:	1220	cfm		
Output capacity:	34200	Btuh	139% of load	Capacity balance: 24 °F
Supplemental heat required:	0	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1220	cfm		
Output capacity:	4.6	kW	64% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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Project Information

For: Slone
 249 Pleasant Hill Glenn, Ft. White, FL 32038

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 45 gr/lb

Heating Summary

Structure 18814 Btuh
 Ducts 5798 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 24612 Btuh

Sensible Cooling Equipment Load Sizing

Structure 18263 Btuh
 Ducts 5895 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 23433 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 6633 Btuh
 Ducts 1112 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Equipment latent load 7744 Btuh

	Heating	Cooling
Area (ft²)	1934	1934
Volume (ft³)	16269	16269
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	87	43

Equipment Total Load (Sen+Lat) 31177 Btuh
 Req. total capacity at 0.70 SHR 2.8 ton

Heating Equipment Summary

Make Trane
 Trade TRANE
 Model 4TWR4036G1
 AHRI ref 9968428

Efficiency 8.5 HSPF
 Heating input 34200 Btuh @ 47°F
 Heating output 26 °F
 Temperature rise 1220 cfm
 Actual air flow 0.050 cfm/Btuh
 Air flow factor 0.55 in H2O
 Static pressure
 Space thermostat
 Capacity balance point = 24 °F

Backup:
 Input = 5 kW, Output = 15738 Btuh, 100 AFUE

Cooling Equipment Summary

Make Trane
 Trade TRANE
 Cond 4TWR4036G1
 Coil TEM4A0C36S41++TDR
 AHRI ref 9968428

Efficiency 11.5 EER, 14 SEER
 Sensible cooling 25620 Btuh
 Latent cooling 10980 Btuh
 Total cooling 36600 Btuh
 Actual air flow 1220 cfm
 Air flow factor 0.051 cfm/Btuh
 Static pressure 0.55 in H2O
 Load sensible heat ratio 0.76

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

Project Information

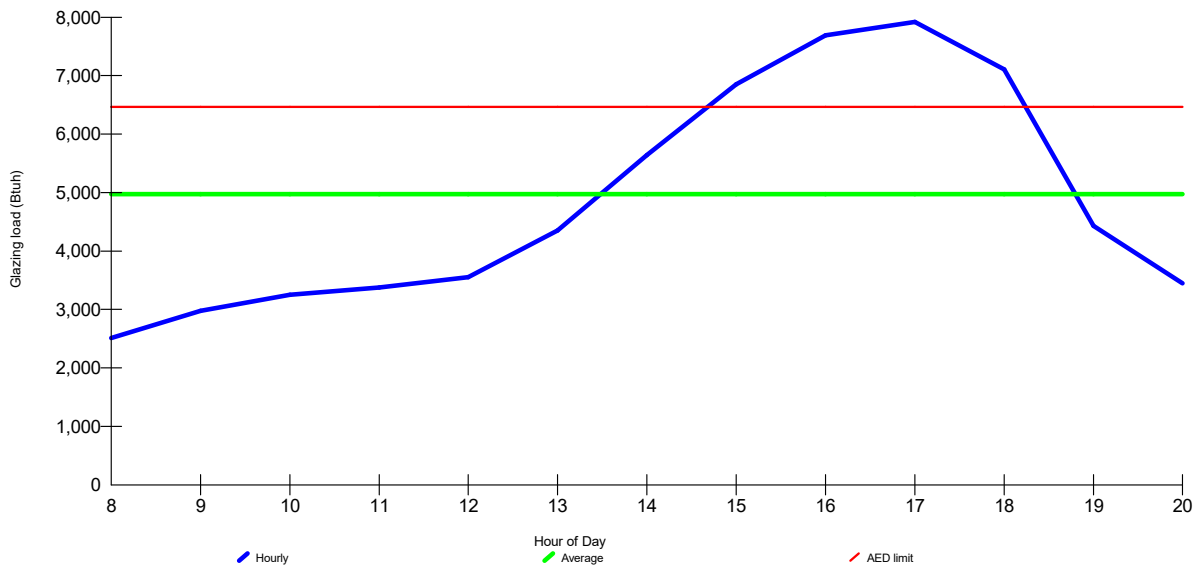
For: Slone
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Design Conditions

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)		29.0	45.4
Outdoor:		Heating	Cooling	Infiltration:	
Dry bulb (°F)	33	92			
Daily range (°F)	-	20 (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 59.3%.

House does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 1458 Btuh (PFG - 1.3*AFG)

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	Room name Exposed wall Room height Room dimensions Room area						Breakfast 8.0 ft 15.0 x 12.0 ft heat/cool 180.0 ft²				Kitchen 5.2 ft 1.0 x 202.2 ft heat/cool 202.2 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12C-0sw	0.091	n	3.18	2.14	0	0	0	0	0	0	0	0
.	W	12C-0sw	0.091	e	3.18	2.14	0	0	0	0	40	40	127	86
.	-G	4A5-2ov	0.470	e	16.45	21.85	0	0	0	0	0	0	0	0
.	-G	4A5-2ow	0.470	e	16.45	21.85	0	0	0	0	0	0	0	0
11	W	12C-0sw	0.091	s	3.18	2.14	0	0	0	0	1	1	4	3
	W	12C-0sw	0.091	w	3.18	2.14	120	80	256	172	0	0	0	0
	-G	4A5-2ov	0.470	w	16.45	32.31	0	0	0	0	0	0	0	0
	-G	4A5-2ow	0.470	w	16.45	32.31	0	0	0	0	0	0	0	0
	-G	4A5-2owd	0.470	w	16.45	37.73	40	0	651	1494	0	0	0	0
	C	16B-38ad	0.026	-	0.91	1.35	180	180	164	243	202	202	184	273
	F	22A-tpl	0.989	-	34.62	0.00	180	15	519	0	202	5	179	0
6	c) AED excursion									589				-43
	Envelope loss/gain								1591	2499			494	319
12	a) Infiltration b) Room ventilation								269 0	65 0			93 0	23 0
13	Internal gains:	Occupants @ Appliances/other	230				3			690 0	0			0 1000
	Subtotal (lines 6 to 13)								1860	3254			587	1341
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1860	3254			587	1341
15	Duct loads						31%	32%	573	1050	31%	32%	181	433
	Total room load								2433	4305			768	1774
	Air required (cfm)								121	217			38	90

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



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1	Room name					Hall Bath					Bedroom 3				
2	Exposed wall					6.0 ft					31.0 ft				
3	Room height					8.0 ft					8.0 ft				
4	Room dimensions					11.0 x 6.0 ft					1.0 x 232.0 ft				
5	Room area					66.0 ft²					232.0 ft²				
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12C-0sw	0.091	n	3.18	2.14	0	0	0	0	0	0	0	0	
11	W	12C-0sw	0.091	e	3.18	2.14	0	0	0	0	120	90	287	192	
	G	4A5-2ov	0.470	e	16.45	21.85	0	0	0	0	30	16	494	656	
		4A5-2ow	0.470	e	16.45	21.85	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	s	3.18	2.14	48	48	153	103	128	128	408	274	
	W	12C-0sw	0.091	w	3.18	2.14	0	0	0	0	0	0	0	0	
	G	4A5-2ov	0.470	w	16.45	32.31	0	0	0	0	0	0	0	0	
		4A5-2ow	0.470	w	16.45	32.31	0	0	0	0	0	0	0	0	
		4A5-2owd	0.470	w	16.45	37.73	0	0	0	0	0	0	0	0	
	C	16B-38ad	0.026	-	0.91	1.35	66	66	60	89	232	232	211	314	
	F	22A-tpl	0.989	-	34.62	0.00	66	6	208	0	232	31	1073	0	
	6	c) AED excursion								-7				-49	
	Envelope loss/gain							421	185			2472	1386		
12	a) Infiltration							108	26			556	135		
	b) Room ventilation							0	0			0	0		
13	Internal gains: Occupants @ 230					0			0	0			0	0	
	Appliances/other								0				0	0	
	Subtotal (lines 6 to 13)							528	211			3028	1521		
14	Less external load							0	0			0	0		
	Less transfer							0	0			0	0		
	Redistribution							0	0			0	0		
	Subtotal							528	211			3028	1521		
15	Duct loads					31%	32%	163	68	31%	32%	933	491		
	Total room load							691	279			3961	2013		
	Air required (cfm)							34	14			196	102		

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Level 2

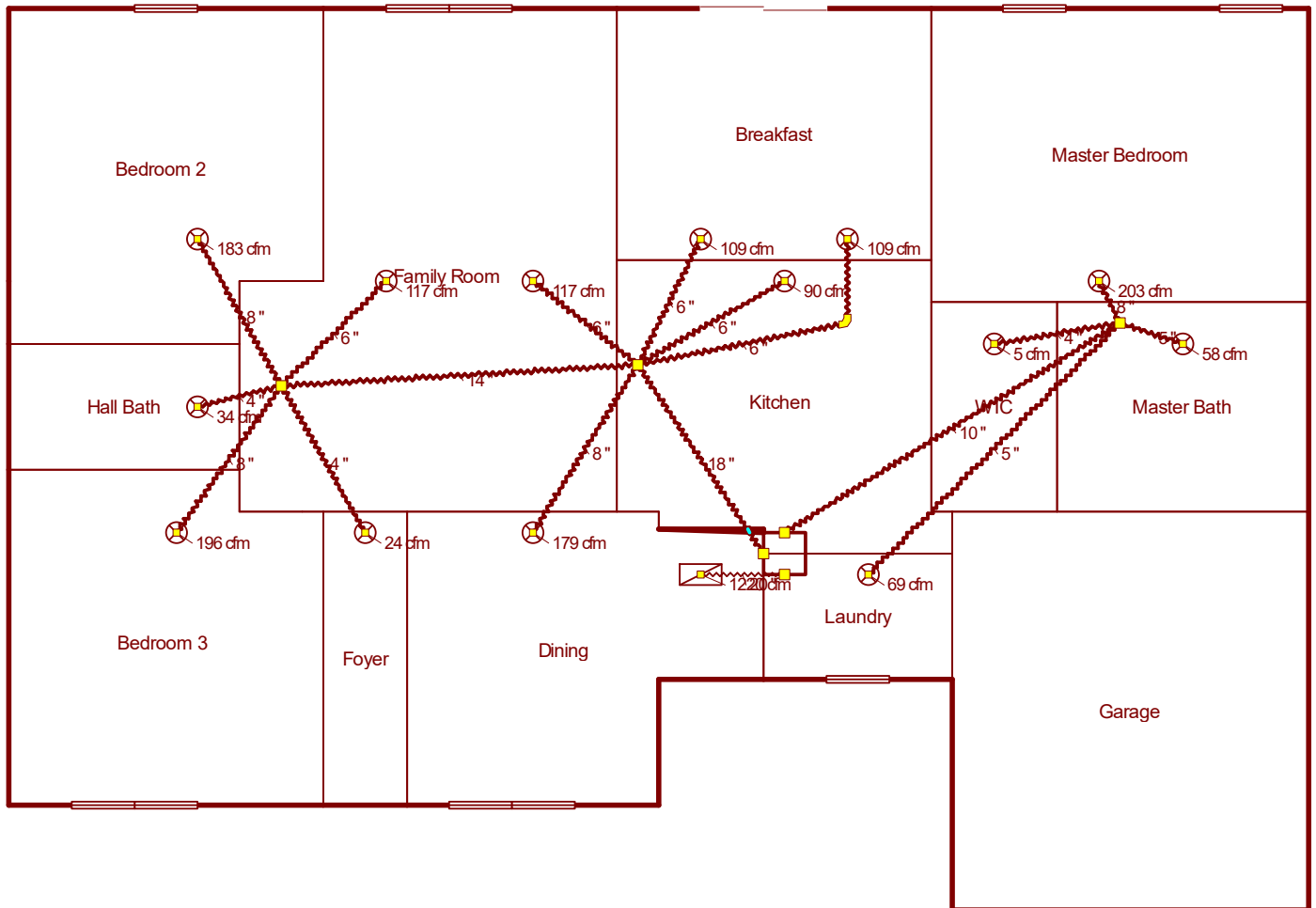
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Level 1



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Duct System Summary

Entire House

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	Heating	Cooling
External static pressure	0.55 in H ₂ O	0.55 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.55 in H ₂ O	0.55 in H ₂ O
Supply / return available pressure	0.446 / 0.104 in H ₂ O	0.446 / 0.104 in H ₂ O
Lowest friction rate	0.305 in/100ft	0.305 in/100ft
Actual air flow	1220 cfm	1220 cfm
Total effective length (TEL)	180 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 3696	183	110	0.306	8.0	0x0	VIFx	35.9	110.0	st3
Bedroom 3	h 3961	196	102	0.305	8.0	0x0	VIFx	36.4	110.0	st3
Breakfast	c 2152	60	109	0.415	6.0	0x0	VIFx	17.5	90.0	st2
Breakfast-A	c 2152	60	109	0.357	6.0	0x0	VIFx	25.0	100.0	st2
Dining	h 3621	179	155	0.405	8.0	0x0	VIFx	20.3	90.0	st2
Family Room	c 2320	60	117	0.308	6.0	0x0	VIFx	34.9	110.0	st3
Family Room-A	c 2320	60	117	0.416	6.0	0x0	VIFx	17.2	90.0	st2
Foyer	h 475	24	10	0.306	4.0	0x0	VIFx	35.9	110.0	st3
Hall Bath	h 691	34	14	0.314	4.0	0x0	VIFx	32.0	110.0	st3
Kitchen	c 1774	38	90	0.410	6.0	0x0	VIFx	18.9	90.0	st2
Laundry	c 1361	62	69	0.355	5.0	0x0	VIFx	35.8	90.0	st1
Master Bath	h 1164	58	24	0.398	5.0	0x0	VIFx	22.0	90.0	st1
Master Bedroom	h 4087	203	190	0.402	8.0	0x0	VIFx	21.1	90.0	st1
WIC	c 104	4	5	0.388	4.0	0x0	VIFx	25.0	90.0	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
st3	Peak AVF	497	353	0.305	465	14.0	0 x 0	VinIFlx	st2
st2	Peak AVF	895	932	0.305	527	18.0	0 x 0	VinIFlx	
st1	Peak AVF	325	288	0.355	597	10.0	0 x 0	VinIFlx	



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	1220	1220	34.0	0.305	559	20.0	0x 0		VIFx	