

Project Information

For: HYDRAENGINEERING & CONSTRUCTION

Notes: CHANCEY RES 417 SW LONCALA LOOP

Design Information

Weather: Gainesville Rgnl, 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	12058 Btuh
Ducts	3306 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	15364 Btuh

Sensible Cooling Equipment Load Sizing

Structure	11065 Btuh
Ducts	4160 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	14753 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2140 Btuh
Ducts	842 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	2981 Btuh

	Heating	Cooling
Area (ft²)	1056	1056
Volume (ft³)	8448	8448
Air changes/hour	0.58	0.30
Equiv. AVF (cfm)	82	42

Equipment Total Load (Sen+Lat)	17735 Btuh
Req. total capacity at 0.70 SHR	1.8 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR4024G1
AHRI ref	9151049
Efficiency	8.2 HSPF
Heating input	23400 Btuh @ 47°F
Heating output	27 °F
Temperature rise	800 cfm
Actual air flow	0.052 cfm/Btuh
Air flow factor	0 in H2O
Static pressure	
Space thermostat	
Capacity balance point = 22 °F	
Backup: n/a n/a	
Input = 0 kW, Output = 0 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR4024G1
Coil	TEM4A0B30S31++TDR
AHRI ref	9151049
Efficiency	12.0 EER, 14 SEER
Sensible cooling	16800 Btuh
Latent cooling	7200 Btuh
Total cooling	24000 Btuh
Actual air flow	800 cfm
Air flow factor	0.053 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0.84

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

Right-J® Worksheet

Entire House

HI-TECH ENERGY FORMS

Job:
Date: 5/10/2021
By:

1 Room name		2 Exposed wall		3 Room height		4 Room dimensions		5 Room area		Entire House 151.0 ft ²				1ST FLOOR 81.0 ft ²			
		8.0 ft		d		1056.0 ft ²		8.0 ft		1.0 x 788.0 ft		heat/cool		788.0 ft ²			
Ty	Construction number	U-value (Btu/h/ft ² -°F)	Or	HTM (Btu/h/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btu/h)		Area (ft ²) 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	352	322	1014	714	176	146	460	324			
	G	4A5-2ov	0.330	n	11.42	11.40	30	0	343	342	30	0	343	342			
	W	12C-0sw	0.091	e	3.15	2.22	392	314	989	696	288	240	756	532			
	G	4A5-2ov	0.330	e	11.42	32.45	6	0	69	195	6	0	69	195			
	G	4A5-2ov	0.330	e	11.42	32.45	12	0	137	389	12	0	137	389			
	G	4A5-2ov	0.330	e	11.42	32.45	60	0	685	1947	30	0	343	973			
	W	12C-0sw	0.091	s	3.15	2.22	352	300	944	664	176	124	390	274			
	G	4A5-2ov	0.330	s	11.42	11.63	14	12	162	165	14	12	162	165			
	G	4A5-2ov	0.330	s	11.42	11.90	17	12	194	202	17	12	194	202			
	D	11J0	0.600	s	20.76	17.61	21	21	436	370	21	21	436	370			
	W	12C-0sw	0.091	w	3.15	2.22	112	112	353	248	8	8	25	18			
	C	16B-30ad	0.032	-	1.11	1.69	788	788	872	1333	520	520	576	879			
	F	22A-cpl	0.989	-	34.22	0.00	788	81	2772	0	788	81	2772	0			
6	c) AED excursion									0			-84				
	Envelope loss/gain								8968	7264			6660	4580			
12	a) Infiltration								3090	781			1657	419			
	b) Room ventilation								0	0			0	0			
13	Internal gains:		Occupants @ Appliances/other		230		4			920	2100	2		460			
	Subtotal (lines 6 to 13)								12058	11065			8318	6658			
14	Less external load								0	0			0	0			
	Less transfer								0	0			0	0			
	Redistribution								0	0			0	0			
15	Subtotal								12058	11065			8318	6658			
	Duct loads						27%	38%	3306	4160	27%	38%	2281	2503			
	Total room load								15364	15225			10598	9162			
	Air required (cfm)								800	800			552	481			

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Right-J® Worksheet

Entire House

HI-TECH ENERGY FORMS

Job:
Date: 5/10/2021
By:

1 Room name 2 Exposed wall 3 Room height 4 Room dimensions 5 Room area					BONUS 70.0 ft 8.0 ft 1.0 x 268.0 ft heat/cool 268.0 ft²									
Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area or perimeter		Load		
				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	176	176	554	390					
	4A5-2ov	0.330	n	11.42	11.40	0	0	0	0					
11 W	12C-0sw	0.091	e	3.15	2.22	104	74	233	164					
	4A5-2ov	0.330	e	11.42	32.45	0	0	0	0					
	4A5-2ov	0.330	e	11.42	32.45	0	0	0	0					
	4A5-2ov	0.330	e	11.42	32.45	30	0	343	973					
W	12C-0sw	0.091	s	3.15	2.22	176	176	554	390					
	4A5-2ov	0.330	s	11.42	11.63	0	0	0	0					
	4A5-2ov	0.330	s	11.42	11.90	0	0	0	0					
	11JD	0.600	s	20.76	17.61	0	0	0	0					
W	12C-0sw	0.091	w	3.15	2.22	104	104	327	230					
C	16B-30ad	0.032	-	1.11	1.69	268	268	297	453					
F	22A-cpl	0.989	-	34.22	0.00	0	0	0	0					
6	c) AED excursion								84					
	Envelope loss/gain							2308	2685					
12	a) Infiltration							1432	362					
	b) Room ventilation							0	0					
13	Internal gains:		Occupants @ Appliances/other		230	2			460 900					
	Subtotal (lines 6 to 13)							3740	4406					
14	Less external load							0	0					
	Less transfer							0	0					
	Redistribution							0	0					
15	Subtotal							3740	4406					
	Duct loads					27%	38%	1026	1657					
	Total room load							4766	6063					
	Air required (cfm)							248	319					

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

Project Information

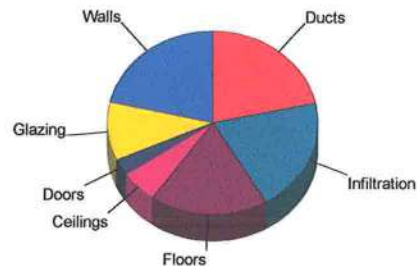
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Design Conditions

Location:		Indoor:		Heating	Cooling
Gainesville Rgnl, 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	46.9
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	33	92	Method	Simplified	
Daily range (°F)	-	18 (M)	Construction quality	Average	
Wet bulb (°F)	-	76	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

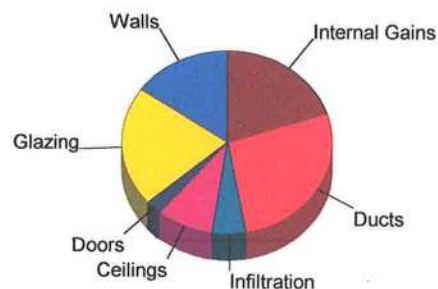
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.1	3299	21.5
Glazing	11.4	1589	10.3
Doors	20.8	436	2.8
Ceilings	1.1	872	5.7
Floors	3.5	2772	18.0
Infiltration	2.6	3090	20.1
Ducts		3306	21.5
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		15364	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	2322	15.3
Glazing	23.3	3240	21.3
Doors	17.6	370	2.4
Ceilings	1.7	1333	8.8
Floors	0	0	0
Infiltration	0.6	781	5.1
Ducts		4160	27.3
Ventilation		0	0
Internal gains		3020	19.8
Blower		0	0
Adjustments		0	0
Total		15225	100.0



Latent Cooling Load = 2981 Btuh
Overall U-value = 0.093 Btuh/ft²·°F

Data entries checked.

Project Information

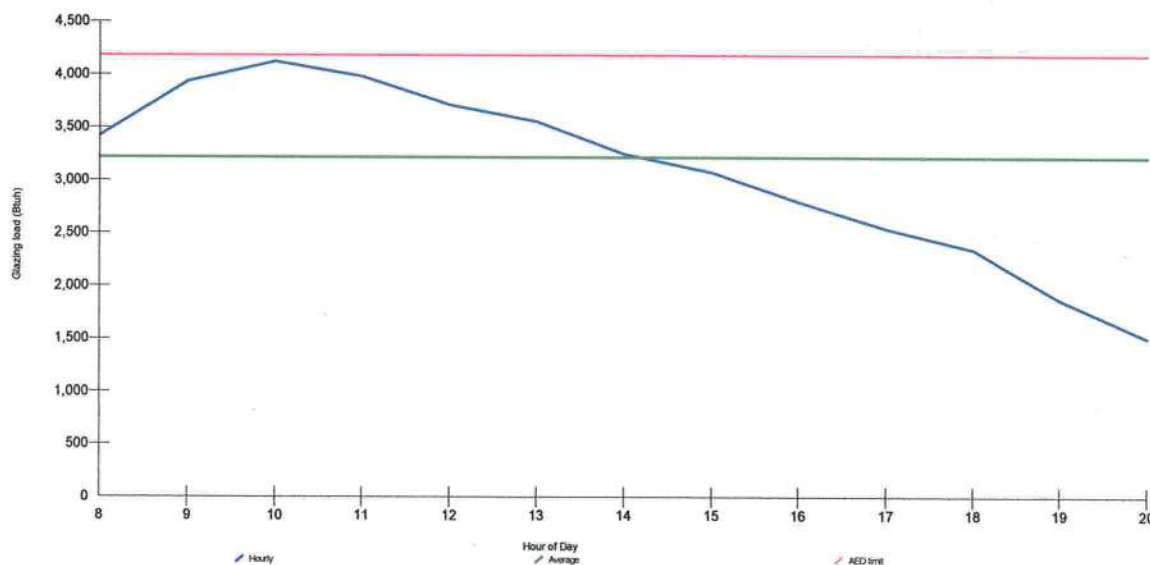
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Design Conditions

Location:		Indoor:		Heating	Cooling
Gainesville Rgnl, 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	46.9
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 28.1%.

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

AED excursion: 0 Btuh



Level 1

1ST FLOOR

EXISTING

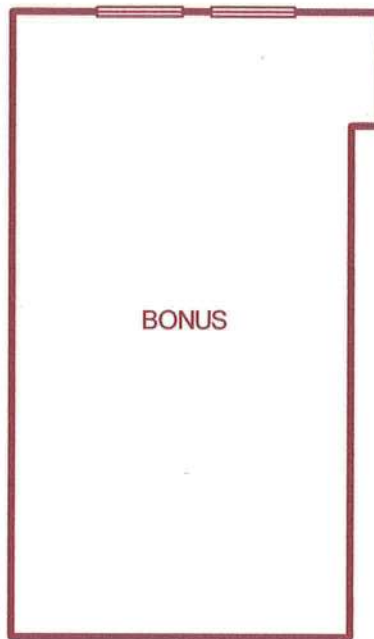
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HI-TECH ENERGY FORMS

Scale: 1 : 81
Page 1
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LEVEL 2



BONUS

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Scale: 1 : 81
Page 2
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