

Project Summary

Entire House

Lane Heating & Air

Job:
Date: Feb 10, 2024
By: Matthew D Stewart

Project Information

For: NSFR Suwannee Valley
1405 NW Suwannee Valley Rd, Lake City, FL 32055

Notes:

Design Information

Weather: Gainesville, 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	43 gr/lb

Heating Summary

Structure	9476 Btuh
Ducts	2555 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	12030 Btuh

Sensible Cooling Equipment Load Sizing

Structure	13985 Btuh
Ducts	3566 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	17095 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	3071 Btuh
Ducts	564 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	3635 Btuh

	Heating	Cooling
Area (ft ²)	965	965
Volume (ft ³)	7723	7723
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	58	30

Equipment Total Load (Sen+Lat)	20730 Btuh
Req. total capacity at 0.70 SHR	2.0 ton

Heating Equipment Summary

Make	Generic
Trade	
Model	SEER2 14.3, HSPF2 7.5
AHRI ref	
Efficiency	7.5 HSPF2
Heating input	
Heating output	33800 Btuh @ 47°F
Temperature rise	42 °F
Actual air flow	735 cfm
Air flow factor	0.061 cfm/Btuh
Static pressure	0.70 in H2O
Space thermostat	
Capacity balance point = 8 °F	
Backup:	
Input = 7 kW, Output = 25270 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Generic
Trade	
Cond	SEER2 14.3, HSPF2 7.5
Coil	
AHRI ref	
Efficiency	12.0 EER2, 14.3 SEER2
Sensible cooling	24150 Btuh
Latent cooling	10350 Btuh
Total cooling	34500 Btuh
Actual air flow	735 cfm
Air flow factor	0.042 cfm/Btuh
Static pressure	0.70 in H2O
Load sensible heat ratio	0.83

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

Project Information

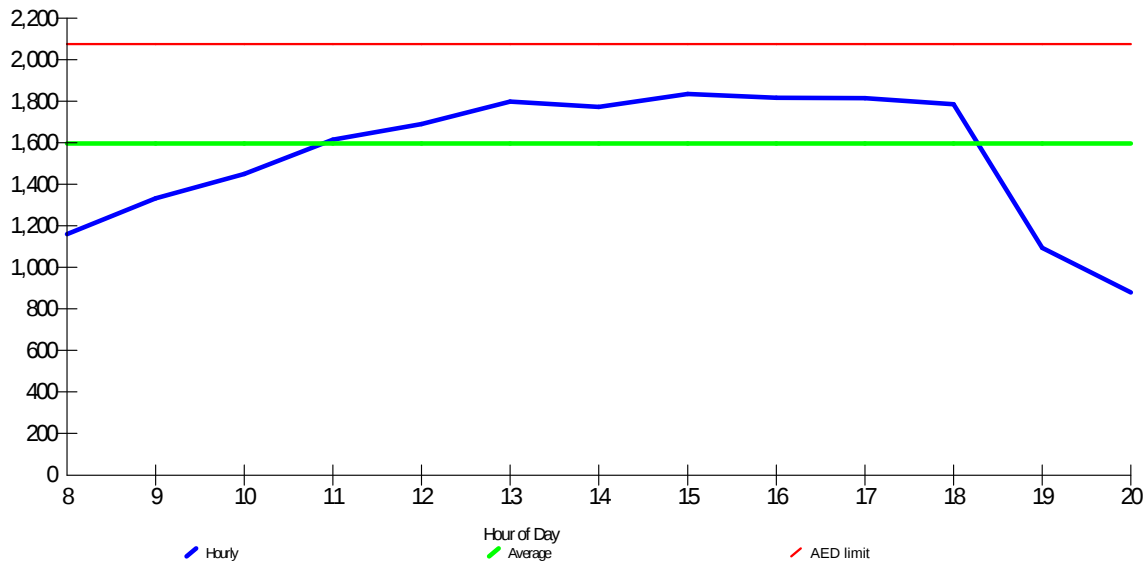
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Design Conditions

Location:		Indoor:		Heating	Cooling
Gainesville, FL, US		Indoor temperature (°F)		68	75
Elevation: 123 ft		Design TD (°F)		35	17
Latitude: 30°N		Relative humidity (%)		50	50
Outdoor:		Infiltration:		28.7	43.5
Heating	Cooling				
Dry bulb (°F)	33				
Daily range (°F)	-				
Wet bulb (°F)	-				
Wind speed (mph)	15.0				

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 14.9%.

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

AED excursion: 0 Btuh



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1	Room name					C2				Hall				
2	Exposed wall					0 ft				13.7 ft				
3	Room height					8.0 ft				8.0 ft				
4	Room dimensions					5.3 x 3.3 ft				13.7 x 3.3 ft				
5	Room area					17.8 ft²				45.6 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	3.16	2.27	0	0	0	0	0	0	0	0
.	G	2 glazing, clr outr, 11D0	0.350	n	12.15	10.36	0	0	0	0	0	0	0	0
.	D		0.390	n	13.53	11.68	0	0	0	0	0	0	0	0
11	W	12C-0sw	0.091	e	3.16	2.27	0	0	0	0	0	0	0	0
	G	2 glazing, clr outr, 11D0	0.350	e	12.15	28.20	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.16	2.27	0	0	0	0	109	100	317	228
	G	2 glazing, clr outr, 11D0	0.350	s	12.15	10.36	0	0	0	0	9	9	109	93
	G	2 glazing, clr outr, 11D0	0.350	s	12.15	10.36	0	0	0	0	0	0	0	0
	D		0.390	s	13.53	11.68	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.16	2.27	0	0	0	0	0	0	0	0
	G	2 glazing, clr outr, 16B-38ad	0.350	w	12.15	28.20	0	0	0	0	0	0	0	0
	C		0.026	-	0.90	1.39	18	18	16	25	46	46	41	63
	F	20P-38w	0.030	-	1.04	0.40	18	18	19	7	46	46	47	18

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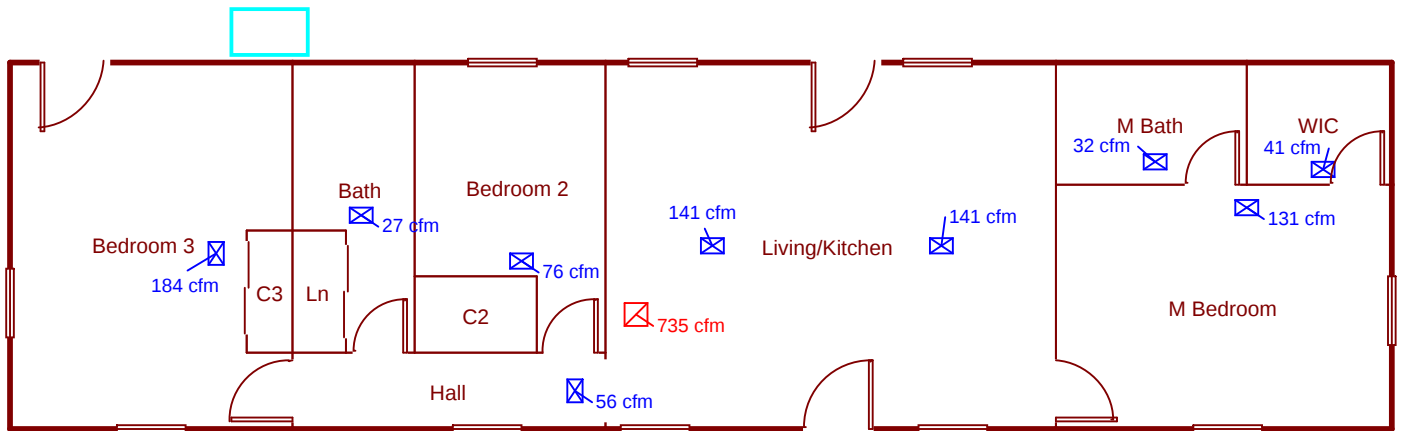
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Level 1



Job #:
Performed by Matthew D Stewart for:
NSFR Suwannee Valley
1405 NW Suwannee Valley Rd
Lake City, FL 32055

Lane Heating & Air

Scale: 1 : 101
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Duct System Summary

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	Heating	Cooling
External static pressure	0.70 in H ₂ O	0.70 in H ₂ O
Pressure losses	0.16 in H ₂ O	0.16 in H ₂ O
Available static pressure	0.54 in H ₂ O	0.54 in H ₂ O
Supply / return available pressure	0.270 / 0.270 in H ₂ O	0.270 / 0.270 in H ₂ O
Lowest friction rate	0 in/100ft	0 in/100ft
Actual air flow	735 cfm	735 cfm
Total effective length (TEL)		0 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 615	27	26	0	0	0x0	VIFx	0	0	
Bedroom 2	c 1823	46	76	0	0	0x0	VIFx	0	0	
Bedroom 3	h 3614	184	151	0	0	0x0	VIFx	0	0	
Hall	h 581	56	24	0	0	0x0	VIFx	0	0	
Living/Kitchen	c 3378	117	141	0	0	0x0	VIFx	0	0	
Living/Kitchen-A	c 3378	117	141	0	0	0x0	VIFx	0	0	
M Bath	h 644	32	27	0	0	0x0	VIFx	0	0	
M Bedroom	c 3127	114	131	0	0	0x0	VIFx	0	0	
WIC	h 392	41	16	0	0	0x0	VIFx	0	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	735	735	0	0	0	0	0x 0		VIFx	