

Project Information

For: Hill & Smith Inc
2118 NW County Rd 25A, Lake City, FL 32055

Notes:

Design Information

Weather: Gainesville, FL, US

Winter Design Conditions

Outside db 33 °F
Inside db 70 °F
Design TD 37 °F

Ventilation Method MJ8

Heating Summary

Structure 7676 Btuh
Ducts (R-6.0) 2416 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 10092 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	632	632
Volume (ft ³)	5688	5688
Air changes/hour	0.61	0.32
Equiv. AVF (cfm)	58	30

Heating Equipment Summary

Make Comfortmaker
Trade PERFORMANCE 16 SEER2 HP
Model N5H5S24*K*AAA*
AHRI ref 214101775

Efficiency 7.5 HSPF2
Heating input
Heating output 22800 Btuh @ 47°F
Temperature rise 31 °F
Actual air flow 665 cfm
Air flow factor 0.066 cfm/Btuh
Static pressure 0 in H2O
Space thermostat
Capacity balance point = 12 °F

Backup:
Input = 3 kW, Output = 11100 Btuh, 100 AFUE

Summer Design Conditions

Outside db 92 °F
Inside db 72 °F
Design TD 20 °F
Daily range M
Relative humidity 50 %
Moisture difference 50 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 13273 Btuh
Ducts (R-6.0) 3101 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 15949 Btuh

Latent Cooling Equipment Load Sizing

Structure 3425 Btuh
Ducts 562 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 3987 Btuh

Equipment Total Load (Sen+Lat) 19936 Btuh
Req. total capacity at 0.70 SHR 1.9 ton

Cooling Equipment Summary

Make Comfortmaker
Trade PERFORMANCE 16 SEER2 HP
Cond N5H5S24*K*AAA*
Coil FHMA5*24L*B*
AHRI ref 214101775
Efficiency 12.0 EER2, 15.2 SEER2
Sensible cooling 15680 Btuh
Latent cooling 6720 Btuh
Total cooling 22400 Btuh
Actual air flow 665 cfm
Air flow factor 0.041 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.80

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

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Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	16374	Btuh	Entering coil DB:	73.6°F
Outdoor design WB:	75.8°F	Latent gain:	3987	Btuh	Entering coil WB:	60.8°F
Indoor design DB:	72.0°F	Total gain:	20361	Btuh		
Indoor RH:	50%	Estimated airflow:	665	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Comfortmaker	Model:	N5H5S24*K*AAA*+FHMA5*24L*B*	
Actual airflow:	665	cfm		
Sensible capacity:	16733	Btuh	102%	of load
Latent capacity:	4040	Btuh	101%	of load
Total capacity:	20774	Btuh	102%	of load SHR: 81%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	10092	Btuh	Entering coil DB:	69.2°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Comfortmaker	Model:	N5H5S24*K*AAA*+FHMA5*24L*B*	
Actual airflow:	665	cfm		
Output capacity:	13079	Btuh	130%	of load
Supplemental heat required:	0	Btuh		
			Capacity balance:	12 °F
			Economic balance:	-99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	665	cfm		
Output capacity:	3.3	kW	110%	of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.

Project Information

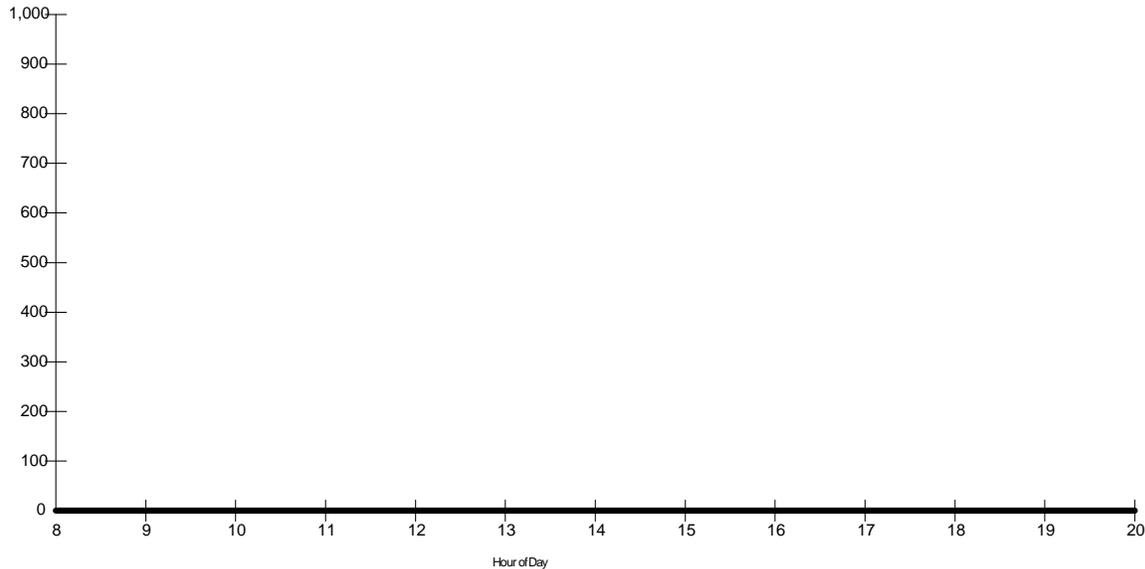
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Design Conditions

Location:		Indoor:		Heating	Cooling
Gainesville, FL, US		Indoor temperature (°F)		70	72
Elevation: 123 ft		Design TD (°F)		37	20
Latitude: 30°N		Relative humidity (%)		30	50
Outdoor:	Heating	Cooling	Infiltration:		
Drybulb (°F)	33	92	Moisture difference (gr/lb)		
Daily range (°F)	-	18 (M)	10.3		
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 0.0%.

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

AED excursion: 0 Btuh

Right-J® Worksheet

Entire House

Lane Heating & Air

Job:
 Date: **Sep 30, 2025**
 By: **Matthew D Stewart**

1 Room name				Entire House				Conference Room						
2 Exposed wall				100.7 ft				89.0 ft						
3 Room height				9.0 ft				9.0 ft						
4 Room dimensions								1.0 x 606.0 ft						
5 Room area				632.0 ft²				606.0 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-0sm	0.115	n	4.22	3.21	237	237	1000	762	237	237	1000	762
.	W	12C-0sm	0.115	e	4.22	3.21	216	196	827	630	216	196	827	630
.	D	11D0	0.390	e	14.31	12.85	20	20	288	258	20	20	288	258
.	W	12C-0sm	0.115	s	4.22	3.21	237	216	912	694	159	138	582	444
11	D	11D0	0.390	s	14.31	12.85	21	21	301	270	21	21	301	270
	W	12C-0sm	0.115	w	4.22	3.21	216	216	912	694	189	189	798	607
	C	16B-38md	0.026	-	0.95	1.47	632	632	603	928	606	606	578	889
	F	21A-28t	0.022	-	0.81	0.00	632	632	510	0	606	606	489	0
6	c) AED excursion									0				0
	Envelope loss/gain								5352	4236			4863	3860
12	a) Infiltration								2324	678			2055	599
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			12			2760	12			2760
			Appliances/other							5600				5100
	Subtotal (lines 6 to 13)								7676	13273			6918	12319
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			758	954
14	Subtotal								7676	13273			7676	13273
15	Duct loads						31%	23%	2416	3101	31%	23%	2416	3101
	Total room load								10092	16374			10092	16374
	Air required (cfm)								665	665			665	665

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Right-J® Worksheet

Entire House

Lane Heating & Air

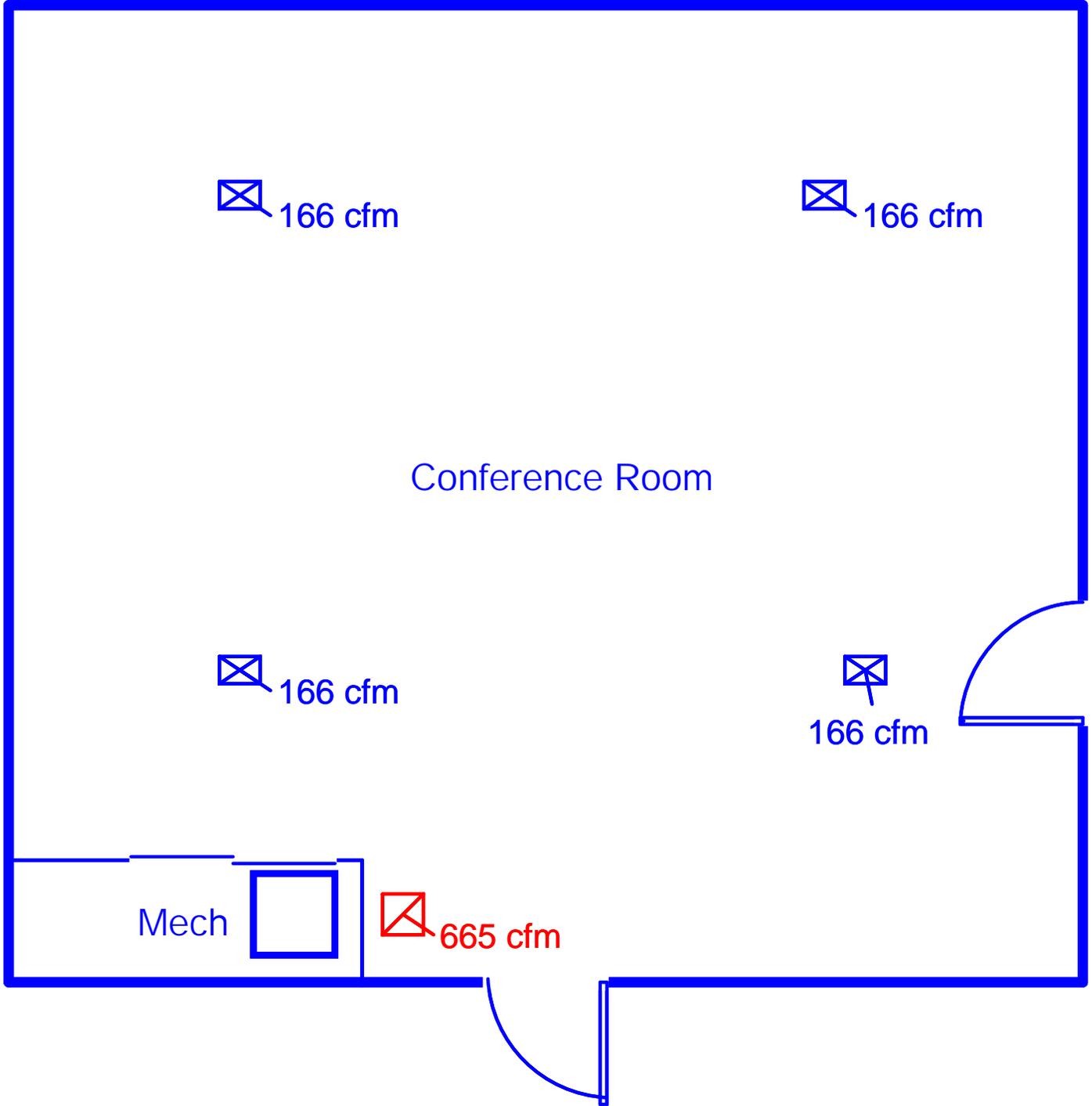
Job:
 Date: Sep 30, 2025
 By: Matthew D Stewart

					Mech									
					9.0 ft		11.7 ft		heat/cool					
					26.0 ft ²		8.7 x 3.0 ft							
	Ty	Construction number	U-value (Btuh/ft ² -°F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12C-0sm	0.115	n	4.22	3.21	0	0	0	0				
	W	12C-0sm	0.115	e	4.22	3.21	0	0	0	0				
	D	11D0	0.390	e	14.31	12.85	0	0	0	0				
	W	12C-0sm	0.115	s	4.22	3.21	78	78	329	251				
11	D	11D0	0.390	s	14.31	12.85	0	0	0	0				
	W	12C-0sm	0.115	w	4.22	3.21	27	27	114	87				
	C	16B-38md	0.026	-	0.95	1.47	26	26	25	38				
	F	21A-28t	0.022	-	0.81	0.00	26	26	21	0				
6	c) AED excursion									0				
	Envelope loss/gain								489	376				
12	a) Infiltration								269	79				
	b) Room ventilation								0	0				
13	Internal gains:		Occupants @	230			0			0				
			Appliances/other							500				
	Subtotal (lines 6 to 13)								758	954				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								-758	-954				
14	Subtotal								0	0				
15	Duct loads						31%	23%	0	0				
	Total room load								0	0				
	Air required (cfm)								0	0				

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Sheet 1



Job #:
Performed by Matthew D Stewart for:
Hill & Smith Inc
2118 NW County Rd 25A
Lake City, FL 32055

Lane Heating & Air

Scale: 1 : 44
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Duct System Summary

Entire House

Lane Heating & Air

Job:
Date: Sep 30, 2025
By: Matthew D Stewart

Project Information

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	Heating	Cooling
External static pressure	0 in H2O	0 in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	-0.2 in H2O	-0.2 in H2O
Supply / return available pressure	-0.080 / -0.080 in H2O	-0.080 / -0.080 in H2O
Lowest friction rate	0 in/100ft	0 in/100ft
Actual air flow	665 cfm	665 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
Conference Room	c 4094	166	166	0	0	0x0	VIFx	0	0	
Conference Room-A	c 4094	166	166	0	0	0x0	VIFx	0	0	
Conference Room-B	c 4094	166	166	0	0	0x0	VIFx	0	0	
Conference Room-C	c 4094	166	166	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	665	665	0	0	0	0	0x 0		VIFx	