EMS HVAC Load Calculator

www.hvacloadcalculator.com

Date: Thu Jan 13 2022 13:51pm **Loaded Document: paul spicer//luke** **Welcome - frank l**

Company Info		Client Information	
Company	southern air sales and servi	Name	paul spicer //luke
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Email	perkins318@cox.net	Address3	columbia co.
		Phone	(386) 590-1040
		Email	perkins318@cox.net
		Date	13-Jan-2022

This HVAC load calculation has been performed using sound engineering principles as prescribed by Manual J eighth edition and ASHRAE Handbook of Fundamentals. Duct sizing has been performed as prescribed by Manual D.

1. Design Conditions(Temp. F)

☐ Check If Using Celcius

	INDOOR	OUTDOOR	TEMP DIFF
WINTER	68	30	38
SUMMER	73	95	22

Front of Building is Facing: East

Total Conditioned Area: 1040 Sq.Ft

2. Summer Humidity

Very Humid | 60 | Grains Difference

3. How Tight is Structure

Average-under 1500 Sq. Ft.

	Winter	Summer
Air/Changes/Hr.	1	0.5

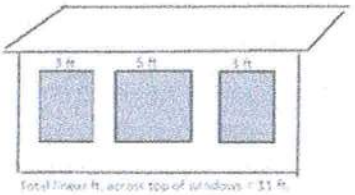
4. Fireplace Evaluation

Number	Evaluation	CFM
none	Tight	0

5. Number of Occupants

generally equals number of bedrooms + 1 | 3

Overhang Characteristics



Enter all measurements decimally

1" = .1	7" = .6
2" = .2	8" = .7
3" = .3	9" = .8
4" = .3	10" = .8
5" = .4	11" = .9
6" = .5	

Example- 2 ft. 8 in. = 2.7 ft.

	EAST	WEST	S/SE/SW	N/NE/NW
Distance of OH from top of window (A)	1.5	1.5	3.5	3.5
Length of overhang (B)	2	2	1	1
Total linear ft. across top of windows located below overhang	10.5	12	3	5.7

Solar GainThrough Glass

☐ **Check this box if using manufacturer specifications and enter the latitude, U-value and SHGC**

Latitude		U-Value		SHGC	

Facing	Area(sq ft)	Type Glass	HTM	Unshaded	Shaded	BTUH
North or Shaded	17.5	Tripl or l	20.00	0	20	404
NE/NW	0		0.00	0	0	0
South	7.5	Tripl or l	33.00	8	0	248
SE/SW	0		0.00	0	0	0
East	54	Tripl or l	65.00	53	1	3,428
West	32.8	Tripl or l	65.00	31	1	2,038

Does glass have reflective coating?		No	1			6,118
Skylight	0		0			0
					Total Solar Gain	6,118

DUCTS OR PIPES

Location(Heating)	Trunk and bran	Duct Loss	0.11
Location(Cooling)	Trunk and bran	Duct Gain	0.23
Duct/Pipe Insulation	R-6		
Duct Leakage	sealed		
Area of Attic or Floor Where Duct is Located	1040		
Attic Temperature(If ducts located in attic)	120		

Load Calculation

Elements of Load	Area or Lin. Ft	Insulation/R-value	U-Value	Heat Loss Btuh	Heat Gain Btuh	Latent Btuh
Solar Gain from Glass					6,118	

Gross Wall	1056					
Glass 1	112	Triple/L	0.42	1,784		
Skylight	0		0.00	0		
Doors	2	Insulate	0.40	30	18	
Net Wall	942	R-15	0.09	3,079	1,783	
Ceiling	1040	R-30	0.03	1,265	1,498	
Floor						
Over Crawl or Unheated Basement	1040	R-19	0.05	968	0	
Open-Beach House Above Carport	0		0.00	0	0	
Slab On Grade - enter-linear ft	0		0.00	0	0	
Infiltration-Enter cubic-ft of building	8372			5,832	1,688	
		People			690	600
		Appliances		☐ Enter Value	400	
		Sub Total		12,959	12,194	
		Duct Loss/Gain		1,475	2,770	571
		Total Sensible Load		14,434	14,964	

Latent Load	2,846
Total Latent Load	4,018

SUMMARY

Heating Load	Sensible Cooling	Latent Cooling	Total Cooling Load	*Nominal Tons
14,434	14,964	4,018	18,982	1.66

OUTDOOR AIR FLOW RATE 32.9

**** CAUTION - The cooling capacity of the air conditioner must meet both, sensible and latent loads. It is recommended a Manual S calculation be performed. Using manufacturer's specs. The nominal tons assume .75 S/T ratio at the chosen outdoor design temperature.***

Summary Including Basement

Heating Load	Sensible Cooling	Latent Cooling	Total Cooling Load	Nominal Tons
14,434	14,964	4,018	18,982	1.66

Whole House (Block Load) Completed

Scroll to top For Additional Options ➡

Solar Gain Through Glass

☐ Check if Using Manufacturer specs

Latitude	U-Value	SHGC

14,434	Sensible Heat Gain
	14,964

+Add-Room

Check-Calculations-When-Completed

	Room Name	HeatLoss	HeatGain	CFM_Heat	CFM_Cool
	great room	5,140	5,953	285	318
	office	1,448	1,890	80	101
	bath2	441	277	24	15
	bed 1	3,096	2,959	172	158
	bed 2	1,791	2,498	99	134
	laurndry	1,970	1,340	109	72
Totals:		**13,885**	**14,916**	**770**	**797**
Percent Of Original:		**96%**	**99%**		

Round to Rectangle Conversion Calculator(Optional)

Enter Round Diameter	Side A (Inches)	Side B (Inches)
0	0	

Duct Sizing

Use heating or cooling cfm	Type of duct material

Use Cooling CFM	Flex Duct

Determine Friction Rate (see instructions)

Total measured length of duct	0
Total equivalent length of fittings	0
Available static pressure for duct	0
Enter Friction Rate: ☐ Calculate Friction Rate	.2

Supply Trunk or branch	cfm	duct dia	air vel
First section off AH	800	12	980
1st reduction or branch	150	6	652
2nd reduction or branch	50	4	499
3rd reduction or branch	98	6	588
4th reduction or branch	200	7	699
5th reduction or branch	520	10	882

Return Trunk or branch	cfm	duct dia	air vel
First section off AH	800	12	980
1st reduction or branch	0	0	
2nd reduction or branch	0	0	
3rd reduction or branch	0	0	
4th reduction or branch	0	0	

5th reduction or branch	0		0
Basement supply and return trunk	0		

Room Runs	cfm	no of outlets	outlet cfm	duct dia	air vel
great room	318	0	∞	∞	
office	101	0	∞	∞	
bath2	15	0	∞	∞	
bed 1	158	0	∞	∞	
bed 2	134	0	∞	∞	
laurndry	72	0	∞	∞	

Duct Sizing Completed
Scroll to top For Additional Options ➡

Equipment selection as per Manual S

Instructions: enter load, weather and manufacture's data in white cells

☐ Auto Complete

	BTUH			
Total Heat Loss	14434	Design Conditions	Outdoor	Indoor
Total Heat Gain	18982		30	68
Sensible Heat Gain	14964		95	73
Latent Heat Gain	4,018	ID Design RH	50%, 63F WB	