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unit

# 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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		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	Front of Building is Facing	East	▼
WINTER	68	30	38			
SUMMER	73	95	22	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

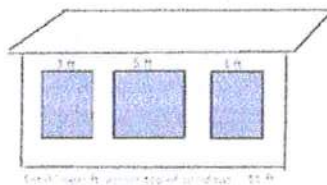
## 4. Fireplace Evaluation

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" = .4      10" = .8  
 5" = .5      11" = .9  
 6" = .6

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 I ▼	20.00	0	20	404
NE/NW	0	▼	0.00	0	0	0
South	7.5	Tripl or I ▼	33.00	8	0	248
SE/SW	0	▼	0.00	0	0	0
East	54	Tripl or I ▼	65.00	53	1	3,428
West	32.8	Tripl or I ▼	65.00	31	1	2,038

Does glass have reflective coating?	No	▼	1	6,118
Skylight	0	▼	0	0
				<b>Total Solar Gain</b>
				<b>6,118</b>

## DUCTS OR PIPES

Location(Heating)	Trunk and branch	▼	Duct Loss	0.11
Location(Cooling)	Trunk and branch	▼	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	
<b>Floor</b>							
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		<input type="checkbox"/>	400		
				Enter Value			
		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
 	laundry	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	▼
<b>Determine Friction Rate</b> (see instructions)			
Total measured length of duct	0		
Total equivalent length of fittings	0		
Available static pressure for duct	0		
Enter Friction Rate:	.2		
<input type="checkbox"/> Calculate Friction Rate			
<b>Supply Trunk or branch</b>	<b>cfm</b>	<b>duct dia</b>	<b>air vel</b>
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
<b>Return Trunk or branch</b>	<b>cfm</b>	<b>duct dia</b>	<b>air vel</b>
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	∞	∞	
laundry	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	