

EMS Heat Loss/Heat Gain Calculation

Company:	Green Engineering Solutions, Inc.
Preparer:	Misty Miller #1493
Phone:	904-305-2496

Customer:	Chandler Residence
Address:	154 NW Bison Court White Springs, FL 32096
Phone:	
Date:	5/15/2026

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

1. Design Conditions

Total conditioned area (sq.ft.)	800			
	Indoor	Outdoor	Temp. Diff.	Front of home is facing:
Winter	70	34	36	East
Summer	73	96	23	

2. How would you describe the summer humidity in your area? Very Humid 60 Grains difference

3. How tight is the house? Average-under 1500 Sq. Ft.
Winter air change / hr: 1 Summer air change / hr: 0.5

4. Fireplace evaluation : Number: None Tightness: No fireplace 0

5. Number of occupants: 2

6. Overhang characteristics (optional)

	East	West	S/SE/SW
Distance of overhang from top of window (Ft.)			
Length of overhang			

7. Solar gain through glass

Facing	Total area - Sq.Ft.	Type of glass	HTM	Linear ft.	Unshaded	Shaded	BTUH
N/Shaded	20	Trpl or low-E	20	Below OH		20	
NE/NW		-- Select --			0		0
South		-- Select --			0	0	0
SE/SW		-- Select --			0	0	0
East	112	Trpl or low-E	65.0		112	0	7280
West	16	Trpl or low-E	65.0		16	0	1040
Skylight		-- Select --					0
Total North and Shaded						20	400
Total Solar Gain							8720
Adjust for tinted or reflective window coating?				No	1		8720

8. Ducts/Pipes

Location:	-- Select --				
Attic Temp.	Insulation		Leakage		Area
-- Select --	-- Select --		-- Select --		

Duct gain:	0	Duct loss:	0
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9. Load Calculation

Elements of Load	Insulation / R-value	Area/lin.ft.	U-value	Heat Loss	Heat Gain
Gross Wall		960	Glass solar gain		8720
Glass 1	Trpl or low-E	148	0.42	2238	
Glass 2	-- Select --			0	
Skylight	-- Select --	0		0	
Doors	Single wood	40	0.56	806	515
Net walls	R-19	772	0.06	1668	1065
Ceilings	R-38	800	0.026	749	936
Floors	-- Select --			0	0
Open floors	-- Select --			0	0
Slab floors	No Insulation	120	0.8	3456	0
Volume of your building or zone (cu. Ft.)		6400		4224	1349
		People			600
		Appliances			3400
		Sub Total		13140	16586
		Duct Loss/Gain		0	0
		Sensible Load		13140	16586
		Latent Load			2636
		TOTAL BTUH		13140	19222

Summary		
	BTUH	Tons
Total heating load	13140	
Total cooling load	19222	1.6

Room by Room

Total Heat Loss	13140	System CFM (cooling)	800
Total Heat Gain	16586	System CFM (heating)	800

Room name	Living Room	Office	Bathroom 2	Laundry	Kitchen	Master Bath/Closet	Master Bedroom
Gross wall	106.64	182.64	123.36	54	107.36	175.36	210.64
North windows							20
NE/NW windows							
South windows							
SE/SW windows							
East windows	36	36					40
West windows			3		9	4	
Skylight							
Doors	20				20		
Net walls	51	147	120	54	78	171	151
Ceiling	163	129	56	65	105	110	172
Floor-crawl							
Floor-open							
Floor-slab	13.33	22.83	15.42	6.75	13.42	21.92	26.33
Infiltration	56	36	3	0	29	4	60
People							2
Appliances	1000	500		500	900		500
Heat loss	2852	2448	869	372	1845	1255	3500
Sensible Heat Gain	4260	3452	448	651	2182	654	4940
Cooling CFM	205	166	22	31	105	32	238
Heating CFM	174	149	53	23	112	76	213

Equipment selection as per Manual S

	BTUH	Nom.Tons
Total heat loss	13140	
Total heat gain	19222	1.6
Sensible heat gain	16586	
Latent heat gain	2636	
Sensible/total ratio	0.86	
Target cooling TD	17	

Design temp.	Outdoor	Indoor
Winter	34	70
Summer	96	73
ID design RH	50%, 63F WB	
Altitude		

Predominantly Cool climate

Manufacturer's Equipment Specification

Equipment	Manufacturer	Model No.	BTUH output	Clg. capacity @ OD design temp.		
Furnace						
Boiler				Total	Sensible	Latent
Heat pump / AC	Mitsubishi	MXZ-3D24NL		22000	17600	4400
Evaporator						
Air handler	Mitsubishi	(3)MSZ-GX09NL				
TOTAL CAPACITY with altitude correction			0	22000	17600	4400
Selected equipment size			OK	OK	OK	OK
			Heating CFM	Cooling CFM (rec.)	Ext. static pressure of blower	
			800	941		

AHRI # 216505924
SEER2: 20 / HSPF2: 10

Available static pressure for duct

Blower ext. static press.	
coil pressure drop	
filter pressure drop	
register pressure drop	
grille pressure drop	
other	
Available SP for duct	0

Supplemental heat needed for heat pump

HP capacity @ 47F	25000
HP capacity @ 17F	15500
HP capacity @ ODDT	20883
BTUH supplemental heat	-7743
KW supplemental heat	-2

Signed by:

Misty Miller

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