

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Poirrier Res
Lake City, FL

Project Title:
221133 Poirrier
Building Type: User

2022-09-23

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)
This calculation is for Worst Case. The house has been rotated 45 degrees.

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Metal	0.35	NE	32.0		14.0	448 Btuh
2	2, NFRC 0.25	Metal	0.35	NE	72.0		14.0	1008 Btuh
3	2, NFRC 0.25	Metal	0.35	NW	48.0		14.0	672 Btuh
4	2, NFRC 0.25	Metal	0.35	NE	36.0		14.0	504 Btuh
5	2, NFRC 0.25	Metal	0.35	NE	30.0		14.0	420 Btuh
6	2, NFRC 0.25	Metal	0.35	SE	4.0		14.0	56 Btuh
7	2, NFRC 0.25	Metal	0.35	SE	30.0		14.0	420 Btuh
8	2, NFRC 0.25	Metal	0.35	SW	36.0		14.0	504 Btuh
9	2, NFRC 0.25	Metal	0.35	SW	13.0		14.0	182 Btuh
10	2, NFRC 0.25	Metal	0.35	NW	30.0		14.0	420 Btuh
11	2, NFRC 0.25	Metal	0.35	SW	30.0		14.0	420 Btuh
12	2, NFRC 0.25	Metal	0.35	SW	32.0		14.0	448 Btuh
13	2, NFRC 0.25	Metal	0.35	SW	9.0		14.0	126 Btuh
14	2, NFRC 0.25	Metal	0.35	SW	13.0		14.0	182 Btuh
15	2, NFRC 0.25	Metal	0.35	SW	13.0		14.0	182 Btuh
16	2, NFRC 0.25	Metal	0.35	NW	20.0		14.0	280 Btuh
17	2, NFRC 0.25	Metal	0.35	NW	8.0		14.0	112 Btuh
Window Total					456.0(sqft)			6384 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	90		3.55	320 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	47		3.55	168 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	49		3.55	175 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	106		3.55	375 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	89		3.55	314 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	656		3.55	2330 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	93		3.55	330 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	12		3.55	43 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	38		3.55	135 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	147		3.55	522 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	36		3.55	128 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	62		3.55	219 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	35		3.55	124 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	78		3.55	277 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	49		3.55	172 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	18		3.55	64 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	71		3.55	252 Btuh
20	Frame - Wood	- Ext	(0.089)	13.0/0.0	359		3.55	1275 Btuh
Wall Total					2166(sqft)			7691 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Poirrier Res
Lake City, FL

Project Title:
221133 Poirrier
Building Type: User

2022-09-23

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
2	Insulated - Exterior, n	(0.400)		24	16.0	384 Btuh
3	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
4	Insulated - Exterior, n	(0.400)		18	16.0	284 Btuh
5	Insulated - Exterior, n	(0.400)		16	16.0	256 Btuh
	Door Total			90(sqft)		1436Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Unvent Attic/D/Shing	(0.241)	0.0/22.0	3388	1.2	4083 Btuh
	Ceiling Total			3388(sqft)		4083Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	292.0 ft(perim.)	47.2	13782 Btuh
	Floor Total			3118 sqft		13782 Btuh
	Envelope Subtotal:					33376 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=
	Natural		0.24	29621	1.00	116.1
						5082 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.122)					4709 Btuh
All Zones	Sensible Subtotal All Zones					43168 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	43168 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	43168 Btuh

EQUIPMENT

1. Electric Heat Pump	#	47000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Poirrier Res
Lake City, FL

Project Title:
221133 Poirrier
Building Type: User

2022-09-23

Key: Window types - NFRC (Requires U-Factor and Shading coefficient(SHGC) of glass as numerical values)
or - Glass as 'Clear' or 'Tint' (Uses U-Factor and SHGC defaults)
U - (Window U-Factor)
HTM - (ManualJ Heat Transfer Multiplier)



Version 8

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Poirrier Res

Project Title:
221133 Poirrier

Lake City, FL

2022-09-23

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%)

Humidity difference: 51gr.

This calculation is for Worst Case. The house has been rotated 45 degrees.

Component Loads for Whole House

Window	Type*					Overhang		Window Area(sqft)			HTM		Load		
	Panes	SHGC	U	InSh	IS Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded			
1	2 NFRC	0.25, 0.35	No	No	NE	11.3f	0.0ft	32.0	0.0	32.0	12	23	750	Btuh	
2	2 NFRC	0.25, 0.35	No	No	NE	11.3f	0.0ft	72.0	0.0	72.0	12	23	1688	Btuh	
3	2 NFRC	0.25, 0.35	No	No	NW	29.7f	0.0ft	48.0	0.0	48.0	12	23	1126	Btuh	
4	2 NFRC	0.25, 0.35	No	No	NE	1.5ft	1.5ft	36.0	0.0	36.0	12	23	844	Btuh	
5	2 NFRC	0.25, 0.35	No	No	NE	1.5ft	2.5ft	30.0	0.0	30.0	12	23	703	Btuh	
6	2 NFRC	0.25, 0.35	No	No	SE	1.5ft	1.0ft	4.0	4.0	0.0	12	25	48	Btuh	
7	2 NFRC	0.25, 0.35	No	No	SE	1.5ft	1.0ft	30.0	8.8	21.2	12	25	625	Btuh	
8	2 NFRC	0.25, 0.35	No	No	SW	1.5ft	1.0ft	36.0	8.8	27.2	12	25	773	Btuh	
9	2 NFRC	0.25, 0.35	No	No	SW	1.5ft	1.0ft	13.0	3.2	9.8	12	25	279	Btuh	
10	2 NFRC	0.25, 0.35	No	No	NW	1.5ft	1.0ft	30.0	0.0	30.0	12	23	703	Btuh	
11	2 NFRC	0.25, 0.35	No	No	SW	1.5ft	2.0ft	30.0	2.3	27.7	12	25	707	Btuh	
12	2 NFRC	0.25, 0.35	No	No	SW	10.7f	2.3ft	32.0	32.0	0.0	12	25	381	Btuh	
13	2 NFRC	0.25, 0.35	No	No	SW	10.7f	0.2ft	9.0	9.0	0.0	12	25	107	Btuh	
14	2 NFRC	0.25, 0.35	No	No	SW	1.5ft	1.0ft	13.0	3.2	9.8	12	25	279	Btuh	
15	2 NFRC	0.25, 0.35	No	No	SW	1.5ft	1.0ft	13.0	3.2	9.8	12	25	279	Btuh	
16	2 NFRC	0.25, 0.35	No	No	NW	1.5ft	1.0ft	20.0	0.0	20.0	12	23	469	Btuh	
17	2 NFRC	0.25, 0.35	No	No	NW	1.5ft	1.0ft	8.0	0.0	8.0	12	23	188	Btuh	
	Excursion												1196	Btuh	
	Window Total							456 (sqft)						11147	Btuh

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load	
			Cav/Sheath				
1	Frame - Wood - Ext	0.09	13.0/0.0	90.0	2.3	204	Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	47.3	2.3	107	Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	49.3	2.3	112	Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	105.7	2.3	239	Btuh
5	Frame - Wood - Ext	0.09	13.0/0.0	88.5	2.3	200	Btuh
6	Frame - Wood - Ext	0.09	13.0/0.0	656.2	2.3	1485	Btuh
7	Frame - Wood - Ext	0.09	13.0/0.0	93.0	2.3	210	Btuh
8	Frame - Wood - Ext	0.09	13.0/0.0	12.0	2.3	27	Btuh
9	Frame - Wood - Ext	0.09	13.0/0.0	38.0	2.3	86	Btuh
10	Frame - Wood - Ext	0.09	13.0/0.0	147.0	2.3	333	Btuh
11	Frame - Wood - Ext	0.09	13.0/0.0	36.0	2.3	81	Btuh
12	Frame - Wood - Ext	0.09	13.0/0.0	72.0	2.3	163	Btuh
13	Frame - Wood - Ext	0.09	13.0/0.0	61.7	2.3	140	Btuh
14	Frame - Wood - Ext	0.09	13.0/0.0	60.0	2.3	136	Btuh
15	Frame - Wood - Ext	0.09	13.0/0.0	35.0	2.3	79	Btuh
16	Frame - Wood - Ext	0.09	13.0/0.0	78.0	2.3	177	Btuh
17	Frame - Wood - Ext	0.09	13.0/0.0	48.5	2.3	110	Btuh
18	Frame - Wood - Ext	0.09	13.0/0.0	18.0	2.3	41	Btuh
19	Frame - Wood - Ext	0.09	13.0/0.0	71.0	2.3	161	Btuh
20	Frame - Wood - Ext	0.09	13.0/0.0	359.0	2.3	813	Btuh
	Wall Total			2166 (sqft)		4903 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Poirrier Res

Project Title:
221133 Poirrier

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2022-09-23

Doors	Type			Area (sqft)	HTM	Load
1	Insulated - Exterior			16.0	12.0	192 Btuh
2	Insulated - Exterior			24.0	12.0	288 Btuh
3	Insulated - Exterior			16.0	12.0	192 Btuh
4	Insulated - Exterior			17.8	12.0	213 Btuh
5	Insulated - Exterior			16.0	12.0	192 Btuh
	Door Total			90 (sqft)		1077 Btuh
Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Unvented Attic/DarkShingle	0.241	0.0/22.0	3388.0	0.96	3266 Btuh
	Ceiling Total			3388 (sqft)		3266 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Slab On Grade		0.0	3118 (ft-perimeter)	0.0	0 Btuh
	Floor Total			3118.0 (sqft)		0 Btuh
	Envelope Subtotal:					20393 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.18	29621	1	87.0	1810 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance		Load
		5	X 230	+	3400	4550 Btuh
	Sensible Envelope Load:					26753 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.125)					3341 Btuh
	Sensible Load All Zones					30094 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Poirrier Res
Lake City, FL

Project Title:
221133 Poirrier

Climate: FL_GAINESVILLE_REGIONAL_A

2022-09-23

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	26753 Btuh
	Sensible Duct Load	3341 Btuh
	Total Sensible Zone Loads	30094 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	30094 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	3004 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1854 Btuh
	Latent occupant gain (5.0 people @ 200 Btuh per person)	1000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	5858 Btuh
	TOTAL GAIN	35952 Btuh

EQUIPMENT

1. Central Unit	#	47000 Btuh
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*Key: Window types (Panels - Number and type of panes of glass)
 (SHGC - Shading coefficient of glass as SHGC numerical value)
 (U - Window U-Factor)
 (InSh - Interior shading device: none(No), Blinds(B), Draperies(D) or Roller Shades(R))
 - For Blinds: Assume medium color, half closed
 For Draperies: Assume medium weave, half closed
 For Roller shades: Assume translucent, half closed
 (IS - Insect screen: none(N), Full(F) or Half(½))
 (Ornt - compass orientation)



Version 8