Residential System Sizing Calculation

Summary

Roberts, Peace

Project Title:
201261 Roberts Peace Res

Lake City, FL

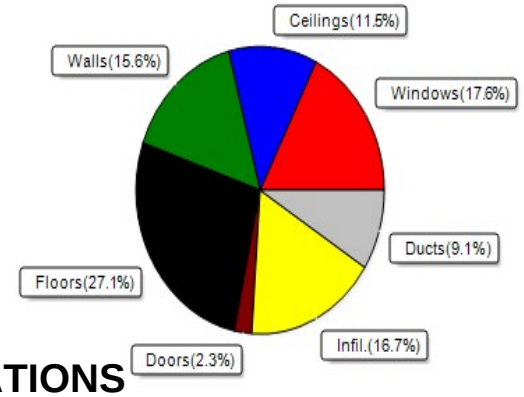
2020-11-19

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M) Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(51gr.)					
Winter design temperature(TMY3 99%)	30	F	Summer design temperature(TMY3 99%)	94	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	40	F	Summer temperature difference	19	F
Total heating load calculation	**45360**	**Btuh**	**Total cooling load calculation**	**36236**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	108.0	49000	Sensible (SHR = 0.75)	130.2	36750
Heat Pump + Auxiliary(0.0kW)	108.0	49000	Latent	153.1	12250
			Total (Electric Heat Pump)	135.2	49000

WINTER CALCULATIONS

Winter Heating Load (for 2615 sqft)

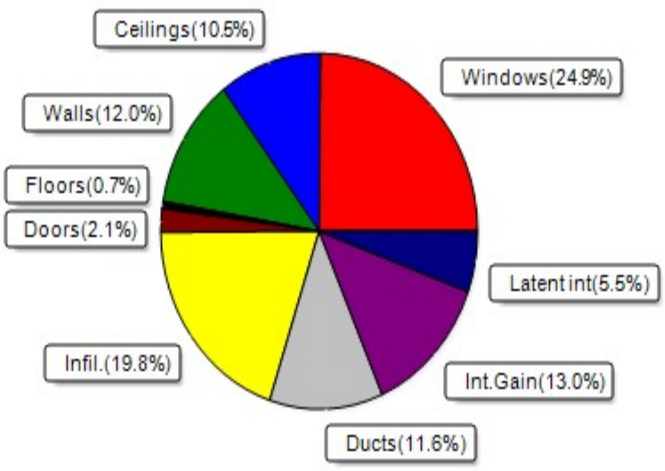
Load component			Load	
Window total	625	sqft	8001	Btuh
Wall total	2017	sqft	7098	Btuh
Door total	64	sqft	1031	Btuh
Ceiling total	3146	sqft	5235	Btuh
Floor total	See detail report		12297	Btuh
Infiltration	173	cfm	7588	Btuh
Duct loss			4109	Btuh
Subtotal			**45360**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**45360**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2615 sqft)

Load component			Load	
Window total	625	sqft	9018	Btuh
Wall total	2017	sqft	4337	Btuh
Door total	64	sqft	773	Btuh
Ceiling total	3146	sqft	3789	Btuh
Floor total			240	Btuh
Infiltration	130	cfm	2703	Btuh
Internal gain			4700	Btuh
Duct gain			2675	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**28236**	**Btuh**
Latent gain(ducts)			1515	Btuh
Latent gain(infiltration)			4485	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			2000	Btuh
Total latent gain			**8000**	**Btuh**
TOTAL HEAT GAIN			**36236**	**Btuh**



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2020-11-19

System Sizing Calculations - Winter

Residential Load - Room by Room Component Details

Roberts, Peace

Project Title:
201261 Roberts Peace Res

Lake City, FL

Building Type: User

2020-11-19

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Room #1: Main

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0.22	Metal	0.32	N	32.9	12.8	421 Btuh
2	2, NFRC 0.22	Metal	0.32	N	32.9	12.8	421 Btuh
3	2, NFRC 0.22	Metal	0.32	N	11.1	12.8	142 Btuh
4	2, NFRC 0.22	Metal	0.32	E	20.0	12.8	256 Btuh
5	2, NFRC 0.22	Metal	0.32	E	4.0	12.8	51 Btuh
6	2, NFRC 0.22	Metal	0.32	N	15.6	12.8	199 Btuh
7	2, NFRC 0.22	Metal	0.32	N	2.7	12.8	34 Btuh
8	2, NFRC 0.22	Metal	0.32	N	31.1	12.8	398 Btuh
9	2, NFRC 0.22	Metal	0.32	N	5.3	12.8	68 Btuh
10	2, NFRC 0.22	Metal	0.32	N	11.1	12.8	142 Btuh
11	2, NFRC 0.22	Metal	0.32	N	2.7	12.8	34 Btuh
12	2, NFRC 0.22	Metal	0.32	NW	15.6	12.8	199 Btuh
13	2, NFRC 0.22	Metal	0.32	NW	2.7	12.8	34 Btuh
14	2, NFRC 0.22	Metal	0.32	N	31.1	12.8	398 Btuh
15	2, NFRC 0.22	Metal	0.32	N	5.3	12.8	68 Btuh
16	2, NFRC 0.22	Metal	0.32	NE	15.6	12.8	199 Btuh
17	2, NFRC 0.22	Metal	0.32	NE	2.7	12.8	34 Btuh
18	2, NFRC 0.22	Metal	0.32	N	13.3	12.8	171 Btuh
19	2, NFRC 0.22	Metal	0.32	N	6.7	12.8	85 Btuh
20	2, NFRC 0.22	Metal	0.32	N	4.0	12.8	51 Btuh
21	2, NFRC 0.22	Metal	0.32	E	10.2	12.8	131 Btuh
22	2, NFRC 0.22	Metal	0.32	S	8.4	12.8	108 Btuh
23	2, NFRC 0.22	Metal	0.32	NE	19.4	12.8	249 Btuh
24	2, NFRC 0.22	Metal	0.32	NE	3.3	12.8	43 Btuh
25	2, NFRC 0.22	Metal	0.32	E	19.4	12.8	249 Btuh
26	2, NFRC 0.22	Metal	0.32	E	3.3	12.8	43 Btuh
27	2, NFRC 0.22	Metal	0.32	SE	25.3	12.8	324 Btuh
28	2, NFRC 0.22	Metal	0.32	SE	4.3	12.8	55 Btuh
29	2, NFRC 0.22	Metal	0.32	S	19.4	12.8	249 Btuh
30	2, NFRC 0.22	Metal	0.32	S	3.3	12.8	43 Btuh
31	2, NFRC 0.22	Metal	0.32	SW	25.3	12.8	324 Btuh
32	2, NFRC 0.22	Metal	0.32	SW	4.3	12.8	55 Btuh
33	2, NFRC 0.22	Metal	0.32	S	17.2	12.8	220 Btuh
34	2, NFRC 0.22	Metal	0.32	S	6.3	12.8	81 Btuh
35	2, NFRC 0.22	Metal	0.32	S	30.3	12.8	388 Btuh
36	2, NFRC 0.22	Metal	0.32	S	21.7	12.8	277 Btuh
37	2, NFRC 0.22	Metal	0.32	S	32.9	12.8	421 Btuh
38	2, NFRC 0.22	Metal	0.32	W	31.1	12.8	398 Btuh
39	2, NFRC 0.22	Metal	0.32	W	22.4	12.8	287 Btuh
40	2, NFRC 0.22	Metal	0.32	N	21.4	12.8	274 Btuh
	Window Total				595.8(sqft)		7626 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Roberts, Peace

Project Title:
201261 Roberts Peace Res

Lake City, FL

Building Type: User

2020-11-19

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	73	3.55	260 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	47	3.55	166 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	87	3.55	308 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	26	3.55	91 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	18	3.55	63 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	24	3.55	84 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	18	3.55	63 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	26	3.55	91 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	68	3.55	243 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	140	3.55	496 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	71	3.55	252 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	33	3.55	117 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	21	3.55	74 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	25	3.55	90 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	26	3.55	92 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	25	3.55	90 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	23	3.55	81 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	15	3.55	53 Btuh
19	Frame - Wood	- Ext	(0.089)	13.0/0.0	43	3.55	154 Btuh
20	Face Br - Wood	- Ext	(0.080)	13.0/0.0	114	3.19	364 Btuh
21	Face Br - Wood	- Ext	(0.080)	13.0/0.0	59	3.19	188 Btuh
22	Frame - Wood	- Ext	(0.089)	13.0/0.0	32	3.55	112 Btuh
23	Frame - Wood	- Ext	(0.089)	13.0/0.0	84	3.55	299 Btuh
24	Frame - Wood	- Ext	(0.089)	13.0/0.0	132	3.55	469 Btuh
25	Frame - Wood	- Ext	(0.089)	13.0/0.0	24	3.55	85 Btuh
26	Frame - Wood	- Ext	(0.089)	13.0/0.0	170	3.55	604 Btuh
27	Frame - Wood	- Ext	(0.089)	13.0/0.0	24	3.55	85 Btuh
28	Frame - Wood	- Ext	(0.089)	13.0/0.0	138	3.55	490 Btuh
29	Frame - Wood	- Ext	(0.089)	13.0/0.0	107	3.55	379 Btuh
	Wall Total				1691(sqft)		5940 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		13	16.0	213 Btuh
2	Insulated - Exterior,	n	(0.400)		7	16.0	107 Btuh
3	Insulated - Exterior,	n	(0.400)		7	16.0	107 Btuh
4	Insulated - Exterior,	n	(0.400)		20	16.0	320 Btuh
	Door Total				47(sqft)		747Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Unvent Attic/D/Shing		(0.044)	0.0/22.0	2876	1.7	5024 Btuh
	Ceiling Total				2876(sqft)		5024Btuh
Floors	Type			Ueff. R-Value	Size X	HTM=	Load
1	Slab On Grade			(1.180) 0.0	246.0 ft(perim.)	47.2	11611 Btuh
	Floor Total				2273 sqft		11611 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Roberts, Peace
Lake City, FL

Project Title:
201261 Roberts Peace Res
Building Type: User

2020-11-19

	Room Envelope Subtotal:	30947 Btuh
Infiltration	Type Wholehouse ACH Room Volume Wall Ratio CFM= Natural 0.39 23867 0.84 145.2	6360 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DLM of 0.100)	3716 Btuh
Room #1	**Sensible Room Subtotal**	**41023 Btuh**

Component Loads for Room #2: bonus Room

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
41	2, NFRC 0.22	Metal	0.32	E	14.7	12.8	188 Btuh
42	2, NFRC 0.22	Metal	0.32	W	14.7	12.8	188 Btuh
	Window Total				29.3(sqft)		375 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
30	Frame - Wood	- Ext	(0.089)	13.0/0.0	105	3.55	374 Btuh
31	Frame - Wood	- Ext	(0.089)	13.0/0.0	104	3.55	369 Btuh
32	Frame - Wood	- Ext	(0.089)	13.0/0.0	18	3.55	65 Btuh
33	Frame - Wood	- Adj	(0.089)	13.0/0.0	99	3.55	351 Btuh
	Wall Total				326(sqft)		1159 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
5	Insulated - Exterior,	n	(0.400)		18	16.0	284 Btuh
	Door Total				18(sqft)		284Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
2	Knee Wall/D/Shing		(0.020)	30.0/22.0	270	0.8	211 Btuh
	Ceiling Total				270(sqft)		211Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
2	Raised Wood - Adj		(0.050)	19.0	342.0 sqft	2.0	686 Btuh
	Floor Total				342 sqft		686 Btuh
	Room Envelope Subtotal:						2716 Btuh
Infiltration	Type Wholehouse ACH Room Volume Wall Ratio CFM= Natural 0.39 2599 0.16 28.0						1228 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DLM of 0.100)						393 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Roberts, Peace

Project Title:
201261 Roberts Peace Res

Lake City, FL

Building Type: User

2020-11-19

Room #2	**Sensible Room Subtotal**	**4336 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	45360 Btuh 0 Btuh 45360 Btuh

EQUIPMENT

1. Electric Heat Pump	#	49000 Btuh

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 - Room by Room Component Details

Roberts, Peace

Project Title:
201261 Roberts Peace Res

Lake City, FL

2020-11-19

Reference City: Gainesville, FL Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

Component Loads for Room #1: Main

	Type*					Overhang		Window Area(sqft)			HTM		Load
Window	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
1	2 NFRC	0.22,	0.32	No	No	N	1.5ft	4.0ft	32.9	0.0	32.9	11	11	352 Btuh
2	2 NFRC	0.22,	0.32	No	No	N	1.5ft	9.0ft	32.9	0.0	32.9	11	11	352 Btuh
3	2 NFRC	0.22,	0.32	No	No	N	1.5ft	7.0ft	11.1	0.0	11.1	11	11	119 Btuh
4	2 NFRC	0.22,	0.32	No	No	E	99.0f	2.0ft	20.0	20.0	0.0	11	27	214 Btuh
5	2 NFRC	0.22,	0.32	No	No	E	99.0f	1.0ft	4.0	4.0	0.0	11	27	43 Btuh
6	2 NFRC	0.22,	0.32	No	No	N	10.8f	1.0ft	15.6	0.0	15.6	11	11	167 Btuh
7	2 NFRC	0.22,	0.32	No	No	N	10.8f	0.0ft	2.7	0.0	2.7	11	11	29 Btuh
8	2 NFRC	0.22,	0.32	No	No	N	10.8f	1.0ft	31.1	0.0	31.1	11	11	333 Btuh
9	2 NFRC	0.22,	0.32	No	No	N	10.8f	0.0ft	5.3	0.0	5.3	11	11	57 Btuh
10	2 NFRC	0.22,	0.32	No	No	N	10.8f	1.0ft	11.1	0.0	11.1	11	11	119 Btuh
11	2 NFRC	0.22,	0.32	No	No	N	10.8f	0.0ft	2.7	0.0	2.7	11	11	29 Btuh
12	2 NFRC	0.22,	0.32	No	No	NW	9.5ft	1.0ft	15.6	0.0	15.6	11	21	325 Btuh
13	2 NFRC	0.22,	0.32	No	No	NW	9.5ft	0.0ft	2.7	0.0	2.7	11	21	56 Btuh
14	2 NFRC	0.22,	0.32	No	No	N	5.2ft	1.0ft	31.1	0.0	31.1	11	11	333 Btuh
15	2 NFRC	0.22,	0.32	No	No	N	5.2ft	0.0ft	5.3	0.0	5.3	11	11	57 Btuh
16	2 NFRC	0.22,	0.32	No	No	NE	99.0f	1.0ft	15.6	0.0	15.6	11	21	325 Btuh
17	2 NFRC	0.22,	0.32	No	No	NE	99.0f	0.0ft	2.7	0.0	2.7	11	21	56 Btuh
18	2 NFRC	0.22,	0.32	No	No	N	99.0f	1.0ft	13.3	0.0	13.3	11	11	143 Btuh
19	2 NFRC	0.22,	0.32	No	No	N	99.0f	1.0ft	6.7	0.0	6.7	11	11	71 Btuh
20	2 NFRC	0.22,	0.32	No	No	N	99.0f	0.0ft	4.0	0.0	4.0	11	11	43 Btuh
21	2 NFRC	0.22,	0.32	No	No	E	1.5ft	10.0f	10.2	0.0	10.2	11	27	279 Btuh
22	2 NFRC	0.22,	0.32	No	No	S	22.2f	1.0ft	8.4	8.4	0.0	11	12	90 Btuh
23	2 NFRC	0.22,	0.32	No	No	NE	99.0f	1.0ft	19.4	0.0	19.4	11	21	406 Btuh
24	2 NFRC	0.22,	0.32	No	No	NE	99.0f	0.0ft	3.3	0.0	3.3	11	21	70 Btuh
25	2 NFRC	0.22,	0.32	No	No	E	6.5ft	1.0ft	19.4	14.6	4.8	11	27	288 Btuh
26	2 NFRC	0.22,	0.32	No	No	E	6.5ft	0.0ft	3.3	3.3	0.0	11	27	36 Btuh
27	2 NFRC	0.22,	0.32	No	No	SE	11.5f	1.0ft	25.3	25.3	0.0	11	22	271 Btuh
28	2 NFRC	0.22,	0.32	No	No	SE	11.5f	0.0ft	4.3	4.3	0.0	11	22	46 Btuh
29	2 NFRC	0.22,	0.32	No	No	S	6.5ft	1.0ft	19.4	19.4	0.0	11	12	208 Btuh
30	2 NFRC	0.22,	0.32	No	No	S	6.5ft	0.0ft	3.3	3.3	0.0	11	12	36 Btuh
31	2 NFRC	0.22,	0.32	No	No	SW	11.5f	1.0ft	25.3	25.3	0.0	11	22	271 Btuh
32	2 NFRC	0.22,	0.32	No	No	SW	11.5f	0.0ft	4.3	4.3	0.0	11	22	46 Btuh
33	2 NFRC	0.22,	0.32	No	No	S	9.5ft	1.0ft	17.2	17.2	0.0	11	12	184 Btuh
34	2 NFRC	0.22,	0.32	No	No	S	9.5ft	0.0ft	6.3	6.3	0.0	11	12	68 Btuh
35	2 NFRC	0.22,	0.32	No	No	S	1.5ft	8.0ft	30.3	2.4	27.9	11	12	373 Btuh
36	2 NFRC	0.22,	0.32	No	No	S	1.5ft	7.0ft	21.7	5.1	16.6	11	12	261 Btuh
37	2 NFRC	0.22,	0.32	No	No	S	1.5ft	5.0ft	32.9	18.8	14.1	11	12	376 Btuh
38	2 NFRC	0.22,	0.32	No	No	W	1.5ft	7.0ft	31.1	0.0	31.1	11	27	849 Btuh
39	2 NFRC	0.22,	0.32	No	No	W	1.5ft	4.0ft	22.4	0.0	22.4	11	27	611 Btuh
40	2 NFRC	0.22,	0.32	No	No	N	1.5ft	3.0ft	21.4	0.0	21.4	11	11	229 Btuh
	Window Total								596 (sqft)					8218 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Roberts, Peace | Project Title: 201261 Roberts Peace Res | Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2020-11-19

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load
			Cav/Sheath			
1	Frame - Wood - Ext	0.09	13.0/0.0	73.1	2.3	165 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	46.7	2.3	106 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	86.9	2.3	197 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	25.5	2.3	58 Btuh
5	Frame - Wood - Ext	0.09	13.0/0.0	17.8	2.3	40 Btuh
6	Frame - Wood - Ext	0.09	13.0/0.0	23.6	2.3	53 Btuh
7	Frame - Wood - Ext	0.09	13.0/0.0	17.8	2.3	40 Btuh
8	Frame - Wood - Ext	0.09	13.0/0.0	25.5	2.3	58 Btuh
9	Frame - Wood - Ext	0.09	13.0/0.0	68.3	2.3	155 Btuh
10	Frame - Wood - Ext	0.09	13.0/0.0	139.8	2.3	316 Btuh
11	Frame - Wood - Ext	0.09	13.0/0.0	71.1	2.3	161 Btuh
12	Frame - Wood - Ext	0.09	13.0/0.0	33.0	2.3	75 Btuh
13	Frame - Wood - Ext	0.09	13.0/0.0	20.7	2.3	47 Btuh
14	Frame - Wood - Ext	0.09	13.0/0.0	25.2	2.3	57 Btuh
15	Frame - Wood - Ext	0.09	13.0/0.0	25.9	2.3	59 Btuh
16	Frame - Wood - Ext	0.09	13.0/0.0	25.2	2.3	57 Btuh
17	Frame - Wood - Ext	0.09	13.0/0.0	22.9	2.3	52 Btuh
18	Frame - Wood - Ext	0.09	13.0/0.0	15.0	2.3	34 Btuh
19	Frame - Wood - Ext	0.09	13.0/0.0	43.4	2.3	98 Btuh
20	Face Brick - Wood - Ext	0.08	13.0/0.0	114.0	1.3	145 Btuh
21	Face Brick - Wood - Ext	0.08	13.0/0.0	59.0	1.3	75 Btuh
22	Frame - Wood - Ext	0.09	13.0/0.0	31.5	2.3	71 Btuh
23	Frame - Wood - Ext	0.09	13.0/0.0	84.1	2.3	190 Btuh
24	Frame - Wood - Ext	0.09	13.0/0.0	132.0	2.3	299 Btuh
25	Frame - Wood - Ext	0.09	13.0/0.0	24.0	2.3	54 Btuh
26	Frame - Wood - Ext	0.09	13.0/0.0	170.0	2.3	385 Btuh
27	Frame - Wood - Ext	0.09	13.0/0.0	24.0	2.3	54 Btuh
28	Frame - Wood - Ext	0.09	13.0/0.0	138.0	2.3	312 Btuh
29	Frame - Wood - Ext	0.09	13.0/0.0	106.6	2.3	241 Btuh
	Wall Total			1691 (sqft)		3655 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	13.3	12.0	160 Btuh
2	Insulated - Exterior	6.7	12.0	80 Btuh
3	Insulated - Exterior	6.7	12.0	80 Btuh
4	Insulated - Exterior	20.0	12.0	240 Btuh
	Door Total	47 (sqft)		560 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Unvented Attic/DarkShingle	0.044	0.0/22.0	2876.0	1.31	3768 Btuh
	Ceiling Total			2876 (sqft)		3768 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	2273 (ft-perimeter)	0.0	0 Btuh
	Floor Total		2273.0 (sqft)		0 Btuh

		Zone Envelope Subtotal:	16201 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Roberts, Peace | Project Title: 201261 Roberts Peace Res | Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2020-11-19

Infiltration	Type	Wholehouse ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural	0.29		23867		0.84		108.9	2266 Btuh
Internal gain		Occupants		Btuh/occupant				Appliance	Load
		8	X	230	+			2400	4240 Btuh
							Sensible Envelope Load:		22707 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)						(DGM of 0.105)		2376 Btuh
							Sensible Zone Load		**25083 Btuh**

Component Loads for Room #2: bonus Room

	Type*					Overhang		Window Area(sqft)			HTM		Load
Window	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded	
41	2 NFRC	0.22, 0.32		No	No	E	1.5ft	5.0ft	14.7	0.0	14.7	11	27	400 Btuh
42	2 NFRC	0.22, 0.32		No	No	W	1.5ft	5.0ft	14.7	0.0	14.7	11	27	400 Btuh
	Window Total								29 (sqft)					801 Btuh

Walls	Type	U-Value	R-Value	Area(sqft)	HTM	Load
			Cav/Sheath			
30	Frame - Wood - Ext	0.09	13.0/0.0	105.3	2.3	238 Btuh
31	Frame - Wood - Ext	0.09	13.0/0.0	103.8	2.3	235 Btuh
32	Frame - Wood - Ext	0.09	13.0/0.0	18.2	2.3	41 Btuh
33	Frame - Wood - Adj	0.09	13.0/0.0	99.0	1.7	167 Btuh
	Wall Total			326 (sqft)		682 Btuh

Doors	Type	Area (sqft)	HTM	Load
5	Insulated - Exterior	17.8	12.0	213 Btuh
	Door Total	18 (sqft)		213 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
2	Knee Wall/DarkShingle	0.020	30.0/22.0	270.0	0.08	21 Btuh
	Ceiling Total			270 (sqft)		21 Btuh

Floors	Type	R-Value	Size	HTM	Load
2	Raised Wood - Adj	19.0	342 (sqft)	0.7	240 Btuh
	Floor Total		342.0 (sqft)		240 Btuh
				Zone Envelope Subtotal:	1957 Btuh

Infiltration	Type	Wholehouse ACH		Volume(cuft)		Wall Ratio		CFM=	Load
	Natural	0.29		2599		0.16		21.0	437 Btuh
Internal gain		Occupants		Btuh/occupant				Appliance	Load
		2	X	230	+			0	460 Btuh
							Sensible Envelope Load:		2854 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

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Lake City, FL

2020-11-19

Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)	(DGM of 0.105)	299 Btuh
		Sensible Zone Load	**3153 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Roberts, Peace | Project Title: 201261 Roberts Peace Res | Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL

2020-11-19

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**25561**	**Btuh**
	Sensible Duct Load	2675	Btuh
	Total Sensible Zone Loads	**28236**	**Btuh**
	Sensible ventilation	0	Btuh
	Blower	0	Btuh
	Total sensible gain	**28236**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	4485	Btuh
	Latent ventilation gain	0	Btuh
	Latent duct gain	1515	Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000	Btuh
	Latent other gain	0	Btuh
	Latent total gain	**8000**	**Btuh**
	TOTAL GAIN	**36236**	**Btuh**

EQUIPMENT

1. Central Unit	#	49000 Btuh

*Key: Window types (Panes - 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