

Residential System Sizing Calculation

Summary

Jason Oliver
1379 sw CR 240
Lake City, FL

Project Title:
201391 Oliver

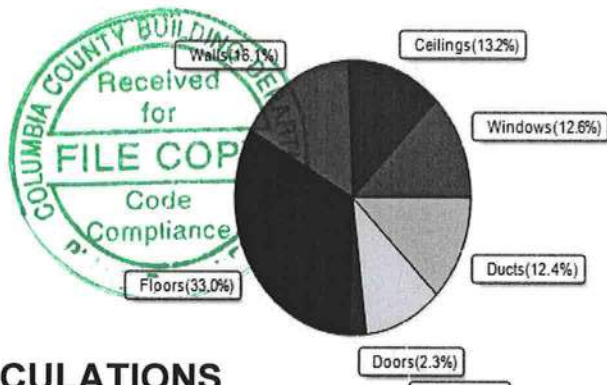
2020-12-23

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (78F) Humidity difference(47gr.)					
Winter design temperature(MJ8 99%)	32	F	Summer design temperature(MJ8 99%)	99	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	38	F	Summer temperature difference	24	F
Total heating load calculation		23677 Btuh	Total cooling load calculation		20699 Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	109.8	26000	Sensible (SHR = 0.75)	112.5	19500
Heat Pump + Auxiliary(0.0kW)	109.8	26000	Latent	193.1	6500
			Total (Electric Heat Pump)	125.6	26000

WINTER CALCULATIONS

Winter Heating Load (for 1758 sqft)

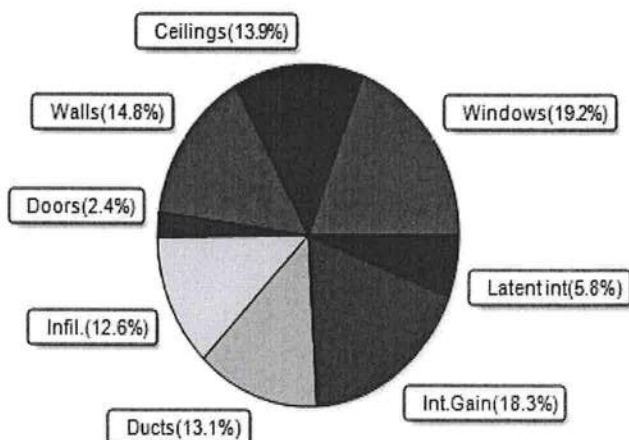
Load component			Load	
Window total	224	sqft	2976	Btuh
Wall total	1133	sqft	3821	Btuh
Door total	35	sqft	537	Btuh
Ceiling total	1879	sqft	3118	Btuh
Floor total	1758	sqft	7802	Btuh
Infiltration	60	cfm	2485	Btuh
Duct loss			2938	Btuh
Subtotal			23677	Btuh
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			23677	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1758 sqft)

Load component			Load	
Window total	224	sqft	3970	Btuh
Wall total	1133	sqft	3067	Btuh
Door total	35	sqft	495	Btuh
Ceiling total	1879	sqft	2872	Btuh
Floor total			0	Btuh
Infiltration	45	cfm	1177	Btuh
Internal gain			3780	Btuh
Duct gain			1973	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			17334	Btuh
Latent gain(ducts)			741	Btuh
Latent gain(infiltration)			1425	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			3366	Btuh
TOTAL HEAT GAIN			20699	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2020-12-23

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Jason Oliver
1379 sw CR 240
Lake City, FL

Project Title:
201391 Oliver
Building Type: User

2020-12-23

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 38.0 F (MJ8 99%)

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.30	Metal	0.35	N	9.0		13.3	120 Btuh
2	2, NFRC 0.30	Metal	0.35	N	9.0		13.3	120 Btuh
3	2, NFRC 0.30	Metal	0.35	N	22.2		13.3	296 Btuh
4	2, NFRC 0.30	Metal	0.35	N	12.0		13.3	160 Btuh
5	2, NFRC 0.30	Metal	0.35	E	30.0		13.3	399 Btuh
6	2, NFRC 0.30	Metal	0.35	S	72.0		13.3	958 Btuh
7	2, NFRC 0.30	Metal	0.35	S	15.6		13.3	207 Btuh
8	2, NFRC 0.30	Metal	0.35	S	9.0		13.3	120 Btuh
9	2, NFRC 0.30	Metal	0.35	S	45.0		13.3	598 Btuh
Window Total					223.8(sqft)			2976 Btuh
Walls	Type	Ormt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	104		3.37	351 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	175		3.37	592 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	92		3.37	310 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	218		3.37	735 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	295		3.37	996 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	248		3.37	836 Btuh
Wall Total					1133(sqft)			3821 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)		11		15.2	167 Btuh
2	Insulated - Exterior,	n	(0.400)		13		15.2	203 Btuh
3	Insulated - Exterior,	n	(0.400)		11		15.2	167 Btuh
Door Total					35(sqft)			537Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area	X	HTM=	Load	
1	Unvent Attic/D/Shing	(0.044)	0.0/22.0	1879		1.7	3118 Btuh	
Ceiling Total					1879(sqft)		3118Btuh	
Floors	Type	Ueff.	R-Value	Size	X	HTM=	Load	
1	Slab On Grade	(1.180)	0.0	174.0 ft(perim.)		44.8	7802 Btuh	
Floor Total					1758 sqft		7802 Btuh	
Envelope Subtotal:								18254 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	Load	
Natural			0.24	15119	1.00	59.7	2485 Btuh	
Duct load	Average sealed, R6.0, Supply(Att), Return(Con) (DLM of 0.142)						2938 Btuh	
All Zones	Sensible Subtotal All Zones							23677 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jason Oliver
1379 sw CR 240
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201391 Oliver
Building Type: User

2020-12-23

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	23677 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	23677 Btuh

EQUIPMENT

1. Electric Heat Pump	#	26000 Btuh
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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

Jason Oliver
1379 sw CR 240
Lake City, FL

Project Title:
201391 Oliver

2020-12-23

Reference City: Gainesville, FL

Temperature Difference: 24.0F(MJ8 99%)

Humidity difference: 47gr.

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	0.30, 0.35	No	No	N	9.5ft	0.5ft	9.0	0.0	9.0	15	15	132	Btuh
2	2 NFRC	0.30, 0.35	No	No	N	9.5ft	0.5ft	9.0	0.0	9.0	15	15	132	Btuh
3	2 NFRC	0.30, 0.35	No	No	N	9.5ft	0.5ft	22.2	0.0	22.2	15	15	327	Btuh
4	2 NFRC	0.30, 0.35	No	No	N	1.5ft	1.0ft	12.0	0.0	12.0	15	15	177	Btuh
5	2 NFRC	0.30, 0.35	No	No	E	1.5ft	7.0ft	30.0	0.0	30.0	15	37	1120	Btuh
6	2 NFRC	0.30, 0.35	No	No	S	9.5ft	0.5ft	72.0	72.0	0.0	15	17	1059	Btuh
7	2 NFRC	0.30, 0.35	No	No	S	9.5ft	0.5ft	15.6	15.6	0.0	15	17	229	Btuh
8	2 NFRC	0.30, 0.35	No	No	S	9.5ft	0.5ft	9.0	9.0	0.0	15	17	132	Btuh
9	2 NFRC	0.30, 0.35	No	No	S	9.5ft	7.0ft	45.0	45.0	0.0	15	17	662	Btuh
	Window Total							224 (sqft)					3970 Btuh	
Walls	Type	U-Value			R-Value		Area(sqft)			HTM		Load		
					Cav/Sheath									
1	Frame - Wood - Ext				0.09	13.0/0.0			104.0		2.7		282	Btuh
2	Frame - Wood - Ext				0.09	13.0/0.0			175.4		2.7		475	Btuh
3	Frame - Wood - Ext				0.09	13.0/0.0			92.0		2.7		249	Btuh
4	Frame - Wood - Ext				0.09	13.0/0.0			218.0		2.7		590	Btuh
5	Frame - Wood - Ext				0.09	13.0/0.0			295.4		2.7		800	Btuh
6	Frame - Wood - Ext				0.09	13.0/0.0			248.0		2.7		671	Btuh
	Wall Total							1133 (sqft)					3067 Btuh	
Doors	Type	U-Value			R-Value		Area (sqft)			HTM		Load		
1	Insulated - Exterior								11.0		14.0		154	Btuh
2	Insulated - Exterior								13.3		14.0		187	Btuh
3	Insulated - Exterior								11.0		14.0		154	Btuh
	Door Total							35 (sqft)					495 Btuh	
Ceilings	Type/Color/Surface	U-Value			R-Value		Area(sqft)			HTM		Load		
1	Unvented Attic/DarkShingle				0.044	0.0/22.0			1879.0		1.53		2872	Btuh
	Ceiling Total							1879 (sqft)					2872 Btuh	
Floors	Type	U-Value			R-Value		Size			HTM		Load		
1	Slab On Grade					0.0			1758 (ft-perimeter)		0.0		0	Btuh
	Floor Total							1758.0 (sqft)					0 Btuh	
	Envelope Subtotal:												10404 Btuh	
Infiltration	Type	Average ACH			Volume(cuft)		Wall Ratio		CFM=		Load			
	Natural				0.18	15119	1		44.8			1177	Btuh	
Internal gain		Occupants			Btuh/occupant		Appliance				Load			
					6	X 230	+	2400				3780	Btuh	
	Sensible Envelope Load:												15361 Btuh	
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Condi) (DGM of 0.128)												1973 Btuh	
	Sensible Load All Zones												17334 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jason Oliver
1379 sw CR 240
Lake City, FL

Project Title:
201391 Oliver

Climate:FL_GAINESVILLE_REGIONAL_A

2020-12-23

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15361 Btuh
	Sensible Duct Load	1973 Btuh
	Total Sensible Zone Loads	17334 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	17334 Btuh
	Latent infiltration gain (for 47 gr. humidity difference)	1425 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	741 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3366 Btuh
	TOTAL GAIN	20699 Btuh

EQUIPMENT

1. Central Unit	#	26000 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