

Residential System Sizing Calculation

Summary

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title:
Lot 9 Emerald Cove

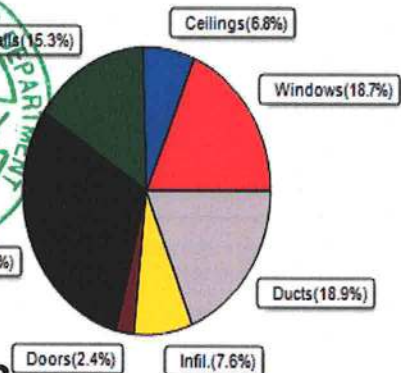
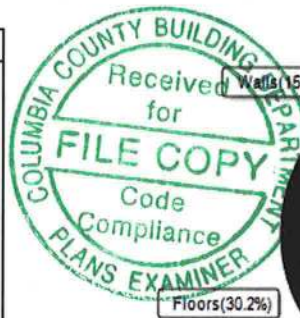
3/25/2020

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	30142 Btuh	Total cooling load calculation	25853 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 30142	Sensible (SHR = 0.70)	79.0 17310
Heat Pump + Auxiliary(0.0kW)	100.0 30142	Latent	188.0 7419
		Total (Electric Heat Pump)	95.7 24729

WINTER CALCULATIONS

Winter Heating Load (for 1933 sqft)

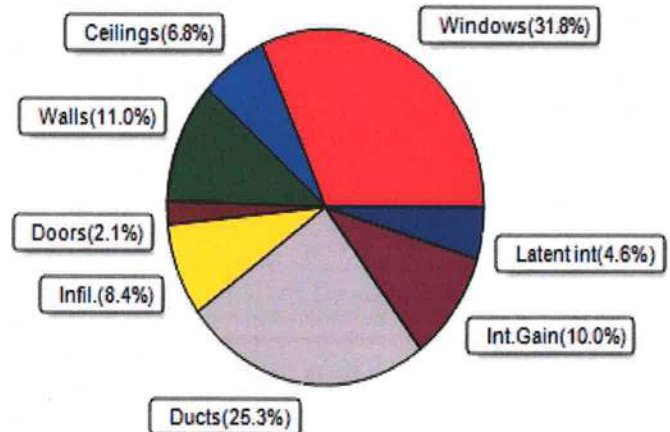
Load component		Load	
Window total	392 sqft	5650	Btuh
Wall total	1302 sqft	4621	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	2029 sqft	2060	Btuh
Floor total	1933 sqft	9094	Btuh
Infiltration	52 cfm	2291	Btuh
Duct loss		5691	Btuh
Subtotal		30142	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		30142	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1933 sqft)

Load component		Load	
Window total	392 sqft	8212	Btuh
Wall total	1302 sqft	2838	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	2029 sqft	1751	Btuh
Floor total		0	Btuh
Infiltration	39 cfm	816	Btuh
Internal gain		2580	Btuh
Duct gain		5157	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		21906	Btuh
Latent gain(ducts)		1392	Btuh
Latent gain(infiltration)		1354	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1200	Btuh
Total latent gain		3947	Btuh
TOTAL HEAT GAIN		25853	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

DA
3/25/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title:
Lot 9 Emerald Cove
Building Type: User

3/25/2020

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

Component Loads for Whole House								
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	13.3		14.4	192 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	36.0		14.4	518 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	30.0		14.4	432 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	20.0		14.4	288 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
7	2, NFRC 0.25	Vinyl	0.36	W	16.0		14.4	230 Btuh
8	2, NFRC 0.25	Vinyl	0.36	W	6.0		14.4	86 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	36.0		14.4	518 Btuh
10	2, NFRC 0.25	Vinyl	0.36	S	36.0		14.4	518 Btuh
11	2, NFRC 0.25	Vinyl	0.36	W	54.0		14.4	778 Btuh
12	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
13	2, NFRC 0.25	Vinyl	0.36	S	60.0		14.4	864 Btuh
14	2, NFRC 0.25	TIM	0.36	E	5.0		14.4	72 Btuh
Window Total					392.3(sqft)			5650 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	72		3.55	256 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	54		3.55	192 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	25		3.55	88 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	63		3.55	224 Btuh
6	Frame - Wood	- Adj	(0.089)	13.0/0.0	187		3.55	664 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	334		3.55	1186 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	221		3.55	785 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	60		3.55	213 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	91		3.55	323 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
Wall Total					1302(sqft)			4621 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
2	Insulated - Garage, n		(0.460)		20		18.4	368 Btuh
Door Total					40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	2029		1.0	2060 Btuh
Ceiling Total					2029(sqft)			2060Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	192.7 ft(perim.)		47.2	9094 Btuh
Floor Total					1933 sqft			9094 Btuh
Envelope Subtotal:								22161 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title:
Lot 9 Emerald Cove
Building Type: User

3/25/2020

Infiltration	Type Natural	Wholehouse ACH 0.18	Volume(cuft) 17397	Wall Ratio 1.00	CFM= 52.3	2291 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.233)	5691 Btuh
All Zones	Sensible Subtotal All Zones					30142 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	30142 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	30142 Btuh

EQUIPMENT

1. Electric Heat Pump	#	30142 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

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title:
Lot 9 Emerald Cove

3/25/2020

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

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, 0.36	No	No	E		5.0ft.	0.5ft.	30.0	18.3	11.8	12	31	584 Btuh
2	2 NFRC	0.25, 0.36	No	No	E		9.0ft.	1.0ft.	13.3	12.9	0.4	12	31	169 Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	0.5ft.	36.0	4.5	31.5	12	31	1030 Btuh
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	30.0	0.0	30.0	12	12	363 Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	20.0	0.0	20.0	12	12	242 Btuh
6	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901 Btuh
7	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	16.0	1.0	15.0	12	31	477 Btuh
8	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	1.0ft.	6.0	0.5	5.5	12	31	176 Btuh
9	2 NFRC	0.25, 0.36	No	No	W		1.5ft.	0.5ft.	36.0	4.5	31.5	12	31	1030 Btuh
10	2 NFRC	0.25, 0.36	No	No	S		5.0ft.	0.5ft.	36.0	36.0	0.0	12	14	436 Btuh
11	2 NFRC	0.25, 0.36	No	No	W		12.0f	0.5ft.	54.0	54.0	0.0	12	31	653 Btuh
12	2 NFRC	0.25, 0.36	No	No	W		12.0f	1.0ft.	20.0	20.0	0.0	12	31	242 Btuh
13	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	0.5ft.	60.0	60.0	0.0	12	14	726 Btuh
14	2 NFRC	0.25, 0.36	No	No	E		9.0ft.	0.5ft.	5.0	5.0	0.0	12	31	60 Btuh
	Excursion													1124 Btuh
	Window Total								392 (sqft)					8212 Btuh
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load
								Cav/Sheath						
	1	Frame - Wood - Ext					0.09	13.0/0.0	72.0			2.3		163 Btuh
	2	Frame - Wood - Ext					0.09	13.0/0.0	54.0			2.3		122 Btuh
	3	Frame - Wood - Ext					0.09	13.0/0.0	24.7			2.3		56 Btuh
	4	Frame - Wood - Ext					0.09	13.0/0.0	63.0			2.3		143 Btuh
	5	Frame - Wood - Ext					0.09	13.0/0.0	63.0			2.3		143 Btuh
	6	Frame - Wood - Adj					0.09	13.0/0.0	187.0			1.7		315 Btuh
	7	Frame - Wood - Ext					0.09	13.0/0.0	334.0			2.3		756 Btuh
	8	Frame - Wood - Ext					0.09	13.0/0.0	221.0			2.3		500 Btuh
	9	Frame - Wood - Ext					0.09	13.0/0.0	60.0			2.3		136 Btuh
	10	Frame - Wood - Ext					0.09	13.0/0.0	91.0			2.3		206 Btuh
	11	Frame - Wood - Ext					0.09	13.0/0.0	132.0			2.3		299 Btuh
		Wall Total								1302 (sqft)				
Doors	Type								Area (sqft)			HTM		Load
	1	Insulated - Exterior							20.0			13.8		276 Btuh
	2	Insulated - Garage							20.0			13.8		276 Btuh
		Door Total								40 (sqft)				
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load
	1	Vented Attic/Light/Shingle/RB					0.025	38.0/0.0	2029.0			0.86		1751 Btuh
		Ceiling Total								2029 (sqft)				
Floors	Type							R-Value	Size			HTM		Load
	1	Slab On Grade						0.0	1933 (ft-perimeter)			0.0		0 Btuh
		Floor Total								1933.0 (sqft)				
	Envelope Subtotal:													13353 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 9 Emerald Cove

3/25/2020

Infiltration	Type Natural	Average ACH 0.14	Volume(cuft) 17397	Wall Ratio 1	CFM= 39.2	Load 816 Btuh
Internal gain		Occupants 6	Btuh/occupant X 230	Appliance +	1200	Load 2580 Btuh
					Sensible Envelope Load:	16750 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.308)					5157 Btuh
					Sensible Load All Zones	21906 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

N/A
445 SW Heathridge Dr
Lake City, FL 32024

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Lot 9 Emerald Cove

3/25/2020

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16750 Btuh
	Sensible Duct Load	5157 Btuh
	Total Sensible Zone Loads	21906 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	21906 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1354 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1392 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3947 Btuh
	TOTAL GAIN	25853 Btuh

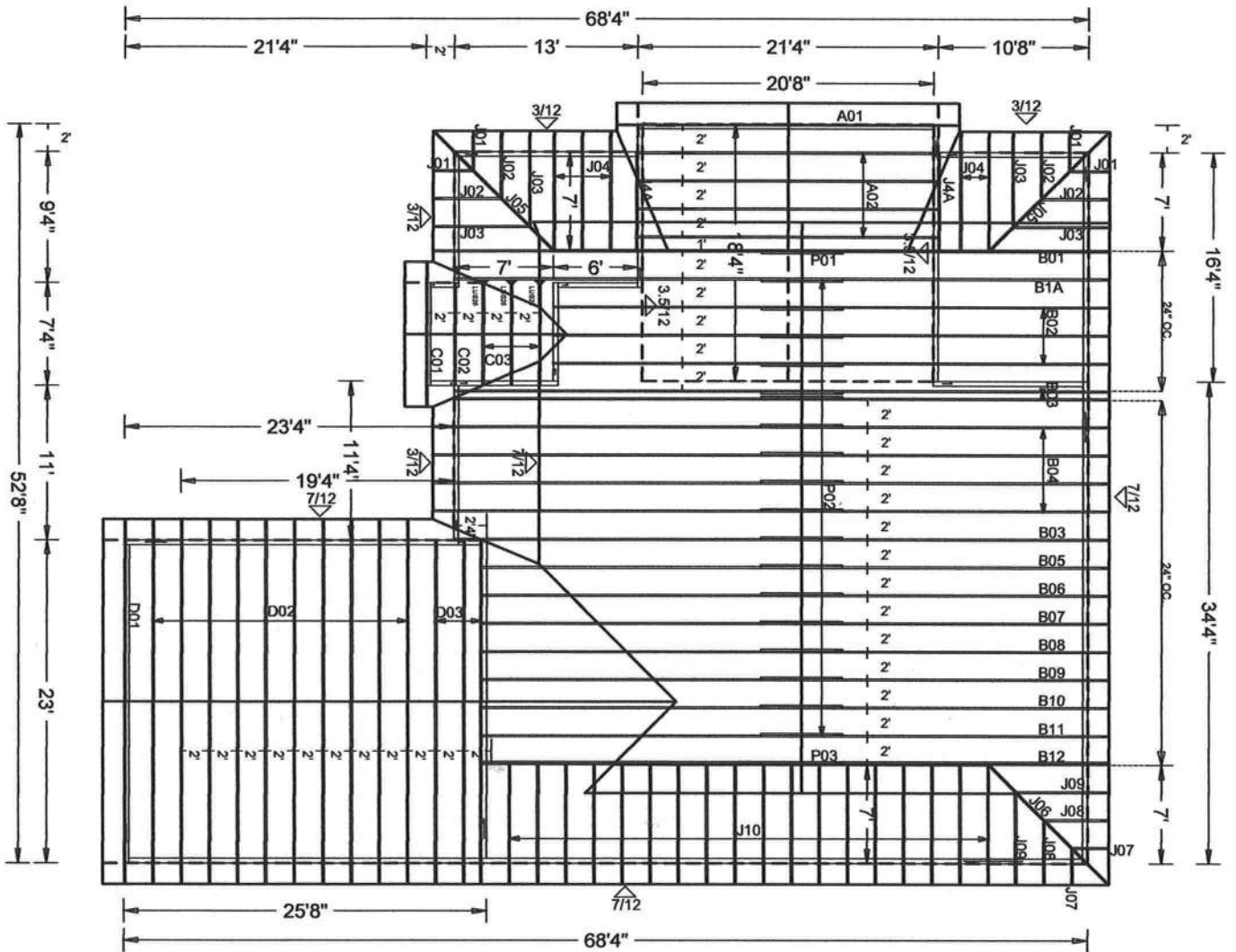
EQUIPMENT

1. Central Unit	#	24729 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



(3) TRUSS TO TRUSS
CONNECTIONS:
(3) HANGERS
(3) CDS TO 324-11528

ROOF PITCH: 3/12, 7/12
CLG PITCH: (1) 3.5/12
CATHEDRAL PEAK
3' 3/8" ABOVE PLATE HT.
OVERHANG: 18"
LOADING: 40 PSF
WIND LOAD: 130 MPH
EXPOSURE: C
EXT WALLS: 2 X 4 X 9
DATE: 9/12/2018
REVISED 2/18/2020

W.B. Howland Truss Co.
610 11th St. SW
Live Oak, FL 32064
(386) 362-1235
(386) 362-7124 (Fax)
howlandtruss@gmail.com

JOB NO:
20-4050
PAGE NO:
1 OF 1

Job Name: LOT 9 EMERALD COVE REVISE
Customer: Gibraltar Contr.
Designer: Lynn Bell
ADDRESS:
SALESMAN: DB
: <Not Found>

JOB #: 20-4050

