

Residential System Sizing Calculation

Summary

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title:
Hosford Residence

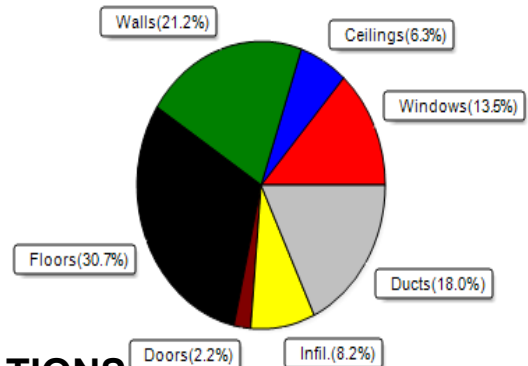
8/11/2022

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	43799 Btuh	Total cooling load calculation	33898 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.0 43799	Sensible (SHR = 0.70)	84.4 23513
Heat Pump + Auxiliary(0.0kW)	100.0 43799	Latent	167.2 10077
		Total (Electric Heat Pump)	99.1 33589

WINTER CALCULATIONS

Winter Heating Load (for 2597 sqft)

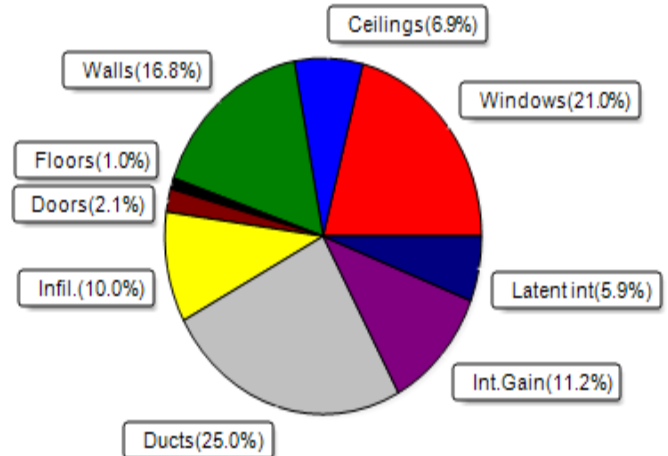
Load component		Load	
Window total	409 sqft	5894	Btuh
Wall total	2611 sqft	9271	Btuh
Door total	52 sqft	957	Btuh
Ceiling total	2727 sqft	2768	Btuh
Floor total	See detail report	13434	Btuh
Infiltration	82 cfm	3592	Btuh
Duct loss		7882	Btuh
Subtotal		43799	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		43799	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2597 sqft)

Load component		Load	
Window total	409 sqft	7108	Btuh
Wall total	2611 sqft	5689	Btuh
Door total	52 sqft	718	Btuh
Ceiling total	2727 sqft	2353	Btuh
Floor total		339	Btuh
Infiltration	62 cfm	1280	Btuh
Internal gain		3800	Btuh
Duct gain		6583	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		27870	Btuh
Latent gain(ducts)		1905	Btuh
Latent gain(infiltration)		2123	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		2000	Btuh
Total latent gain		6028	Btuh
TOTAL HEAT GAIN		33898	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: 8 / 11 / 2022

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title:
Hosford Residence
Building Type: User

8/11/2022

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	72.0		14.4	1037 Btuh
2	2, NFRC 0.25	Vinyl	0.36	E	36.0		14.4	518 Btuh
3	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
4	2, NFRC 0.25	Vinyl	0.36	W	90.0		14.4	1296 Btuh
5	2, NFRC 0.25	TIM	0.36	W	40.0		14.4	576 Btuh
6	2, NFRC 0.25	Vinyl	0.36	W	20.0		14.4	288 Btuh
7	2, NFRC 0.25	TIM	0.36	N	21.3		14.4	307 Btuh
8	2, NFRC 0.25	Vinyl	0.36	N	15.0		14.4	216 Btuh
9	2, NFRC 0.25	Vinyl	0.36	W	30.0		14.4	432 Btuh
10	2, NFRC 0.25	Vinyl	0.36	S	16.0		14.4	230 Btuh
11	2, NFRC 0.25	Vinyl	0.36	S	6.0		14.4	86 Btuh
12	2, NFRC 0.25	Vinyl	0.36	E	32.0		14.4	461 Btuh
13	2, NFRC 0.25	Vinyl	0.36	S	16.0		14.4	230 Btuh
Window Total					409.3(sqft)			5894 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	155		3.55	550 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	129		3.55	458 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	383 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	186		3.55	660 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	165		3.55	586 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	249		3.55	884 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	69		3.55	244 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	88		3.55	312 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	204		3.55	724 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	239		3.55	849 Btuh
11	Frame - Wood	- Adj	(0.089)	13.0/0.0	210		3.55	746 Btuh
12	Frame - Wood	- Adj	(0.089)	13.0/0.0	173		3.55	612 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	77		3.55	275 Btuh
14	Frame - Wood	- Ext	(0.089)	13.0/0.0	225		3.55	800 Btuh
15	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
16	Frame - Wood	- Ext	(0.089)	13.0/0.0	49		3.55	175 Btuh
17	Frame - Wood	- Ext	(0.089)	13.0/0.0	140		3.55	497 Btuh
18	Frame - Wood	- Ext	(0.089)	13.0/0.0	49		3.55	175 Btuh
Wall Total					2611(sqft)			9271 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		28		18.4	515 Btuh
2	Insulated - Garage, n		(0.460)		24		18.4	442 Btuh
Door Total					52(sqft)			957Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	2220		1.0	2254 Btuh
2	Vented Attic/L/Shing		(0.025)	38.0/0.0	507		1.0	515 Btuh
Ceiling Total					2727(sqft)			2768Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title:
Hosford Residence
Building Type: User

8/11/2022

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	264.1 ft(perim.)	47.2	12466 Btuh
2	Raised Wood - Adj	(0.050)	19.0	483.0 sqft	2.0	969 Btuh
	Floor Total			2597 sqft		13434 Btuh
	Envelope Subtotal:					32325 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.22	22890	1.00	82.0	3592 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.219)	7882 Btuh
All Zones	Sensible Subtotal All Zones					43799 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	43799 Btuh 0 Btuh 43799 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	43799 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

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title:
Hosford Residence

8/11/2022

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		8.5ft.	0.5ft.	72.0	72.0	0.0	12	31	871 Btuh	
2	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	3.0ft.	36.0	0.0	36.0	12	31	1114 Btuh	
3	2 NFRC	0.25, 0.36	No	No	N		1.0ft.	3.0ft.	15.0	0.0	15.0	12	12	181 Btuh	
4	2 NFRC	0.25, 0.36	No	No	W		11.5f	0.5ft.	90.0	90.0	0.0	12	31	1089 Btuh	
5	2 NFRC	0.25, 0.36	No	No	W		11.5f	0.5ft.	40.0	40.0	0.0	12	31	484 Btuh	
6	2 NFRC	0.25, 0.36	No	No	W		11.5f	0.5ft.	20.0	20.0	0.0	12	31	242 Btuh	
7	2 NFRC	0.25, 0.36	No	No	N		5.5ft.	0.5ft.	21.3	0.0	21.3	12	12	258 Btuh	
8	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	15.0	0.0	15.0	12	12	181 Btuh	
9	2 NFRC	0.25, 0.36	No	No	W		1.0ft.	3.0ft.	30.0	0.0	30.0	12	31	928 Btuh	
10	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	16.0	16.0	0.0	12	14	194 Btuh	
11	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	1.0ft.	6.0	6.0	0.0	12	14	73 Btuh	
12	2 NFRC	0.25, 0.36	No	No	E		1.0ft.	2.0ft.	32.0	0.0	32.0	12	31	990 Btuh	
13	2 NFRC	0.25, 0.36	No	No	S		1.5ft.	0.5ft.	16.0	16.0	0.0	12	14	194 Btuh	
	Excursion													309 Btuh	
	Window Total								409 (sqft)					7108 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
					Cav/Sheath										
1	Frame - Wood - Ext		0.09	13.0/0.0		155.0		2.3		351 Btuh					
2	Frame - Wood - Ext		0.09	13.0/0.0		129.0		2.3		292 Btuh					
3	Frame - Wood - Ext		0.09	13.0/0.0		108.0		2.3		244 Btuh					
4	Frame - Wood - Ext		0.09	13.0/0.0		186.0		2.3		421 Btuh					
5	Frame - Wood - Ext		0.09	13.0/0.0		165.0		2.3		373 Btuh					
6	Frame - Wood - Ext		0.09	13.0/0.0		249.0		2.3		564 Btuh					
7	Frame - Wood - Ext		0.09	13.0/0.0		68.7		2.3		155 Btuh					
8	Frame - Wood - Ext		0.09	13.0/0.0		87.8		2.3		199 Btuh					
9	Frame - Wood - Ext		0.09	13.0/0.0		204.0		2.3		462 Btuh					
10	Frame - Wood - Ext		0.09	13.0/0.0		239.0		2.3		541 Btuh					
11	Frame - Wood - Adj		0.09	13.0/0.0		210.0		1.7		354 Btuh					
12	Frame - Wood - Adj		0.09	13.0/0.0		172.5		1.7		291 Btuh					
13	Frame - Wood - Ext		0.09	13.0/0.0		77.3		2.3		175 Btuh					
14	Frame - Wood - Ext		0.09	13.0/0.0		225.3		2.3		510 Btuh					
15	Frame - Wood - Ext		0.09	13.0/0.0		96.0		2.3		217 Btuh					
16	Frame - Wood - Ext		0.09	13.0/0.0		49.3		2.3		112 Btuh					
17	Frame - Wood - Ext		0.09	13.0/0.0		140.0		2.3		317 Btuh					
18	Frame - Wood - Ext		0.09	13.0/0.0		49.3		2.3		112 Btuh					
	Wall Total								2611 (sqft)			5689 Btuh			
Doors	Type	Area (sqft)		HTM		Load									
1	Insulated - Exterior		28.0		13.8	386 Btuh									
2	Insulated - Garage		24.0		13.8	331 Btuh									
	Door Total								52 (sqft)			718 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/Light/Shingle/RB		0.025	38.0/0.0		2219.7		0.86		1915 Btuh					
2	Vented Attic/Light/Shingle/RB		0.025	38.0/0.0		507.1		0.86		438 Btuh					
	Ceiling Total								2727 (sqft)			2353 Btuh			
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade		0.0		2114 (ft-perimeter)		0.0		0 Btuh						
2	Raised Wood - Adj		19.0		483 (sqft)		0.7		339 Btuh						
	Floor Total								2597.0 (sqft)			339 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Hosford Residence

8/11/2022

	Envelope Subtotal:					16207 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.16	22890	1	61.5	1280 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		10	X 230	+	1500	3800 Btuh
	Sensible Envelope Load:					21287 Btuh
Duct load	Average sealed,Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.309)					6583 Btuh
	Sensible Load All Zones					27870 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Trey & Bridget Hosford
574 NW Lake Valley Terrace
Lake City, FL 32055

Project Title: Hosford Residence

Climate: FL_GAINESVILLE_REGIONAL_A

8/11/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	21287 Btuh
	Sensible Duct Load	6583 Btuh
	Total Sensible Zone Loads	27870 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	27870 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2123 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1905 Btuh
	Latent occupant gain (10.0 people @ 200 Btuh per person)	2000 Btuh
	Latent other gain	0 Btuh
	Latent total gain	6028 Btuh
	TOTAL GAIN	33898 Btuh

EQUIPMENT

1. Central Unit	#	33589 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