

Residential System Sizing Calculation

Summary

Project Title:

Lot 21 Turkey Creek - Model 1665

Lake City, FL 32055

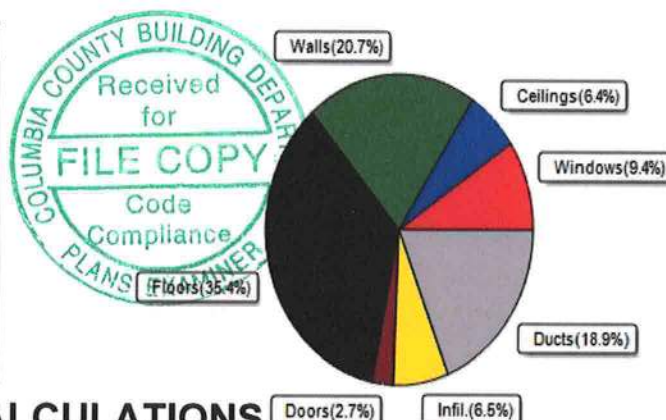
4/1/2021

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	27586 Btuh	Total cooling load calculation	20266 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	100.6 27749	Sensible (SHR = 0.70)	87.1 14252
Heat Pump + Auxiliary(0.0kW)	100.6 27749	Latent	156.3 6108
		Total (Electric Heat Pump)	100.5 20360

WINTER CALCULATIONS

Winter Heating Load (for 1665 sqft)

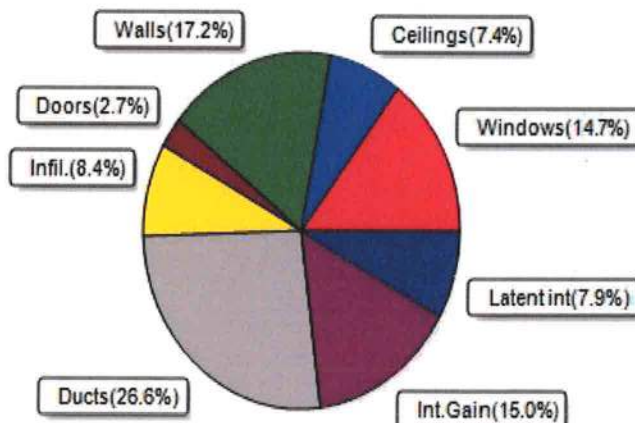
Load component		Load	
Window total	180 sqft	2592	Btuh
Wall total	1607 sqft	5705	Btuh
Door total	40 sqft	736	Btuh
Ceiling total	1748 sqft	1775	Btuh
Floor total	1665 sqft	9770	Btuh
Infiltration	41 cfm	1797	Btuh
Duct loss		5211	Btuh
Subtotal		27586	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		27586	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1665 sqft)

Load component		Load	
Window total	180 sqft	2984	Btuh
Wall total	1607 sqft	3491	Btuh
Door total	40 sqft	552	Btuh
Ceiling total	1748 sqft	1508	Btuh
Floor total		0	Btuh
Infiltration	31 cfm	640	Btuh
Internal gain		3040	Btuh
Duct gain		4142	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		16358	Btuh
Latent gain(ducts)		1245	Btuh
Latent gain(infiltration)		1062	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		1600	Btuh
Total latent gain		3907	Btuh
TOTAL HEAT GAIN		20266	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

4/5/2021

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Lake City, FL 32055

Project Title:
Lot 21 Turkey Creek - Model 1665
Building Type: User

4/1/2021

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	S	30.0		14.4	432 Btuh
2	2, NFRC 0.25	Vinyl	0.36	S	30.0		14.4	432 Btuh
3	2, NFRC 0.25	Vinyl	0.36	E	30.0		14.4	432 Btuh
4	2, NFRC 0.25	Vinyl	0.36	N	6.0		14.4	86 Btuh
5	2, NFRC 0.25	Vinyl	0.36	N	5.0		14.4	72 Btuh
6	2, NFRC 0.25	Vinyl	0.36	N	9.0		14.4	130 Btuh
7	2, NFRC 0.25	Metal	0.36	N	40.0		14.4	576 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	15.0		14.4	216 Btuh
Window Total					180.0(sqft)			2592 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	108		3.55	383 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	52		3.55	185 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
4	Frame - Wood	- Adj	(0.089)	13.0/0.0	72		3.55	256 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	181		3.55	643 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	222		3.55	788 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	121		3.55	430 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	96		3.55	341 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	185		3.55	657 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	318		3.55	1129 Btuh
Wall Total					1607(sqft)			5705 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)			736 Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Shing		(0.025)	38.0/0.0	1748		1.0	1775 Btuh
Ceiling Total					1748(sqft)			1775 Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	207.0 ft(perim.)		47.2	9770 Btuh
Floor Total					1665 sqft			9770 Btuh
Envelope Subtotal:								20578 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.16	14985	1.00	41.0		1797 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.233)							5211 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Lake City, FL 32055

Project Title:
Lot 21 Turkey Creek - Model 1665
Building Type: User

4/1/2021

All Zones	Sensible Subtotal All Zones	27586 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27586 Btuh 0 Btuh 27586 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	27749 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

Project Title:

Lot 21 Turkey Creek - Model 1665

Lake City, FL 32055

4/1/2021

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	S		1.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
2	2 NFRC	0.25, 0.36	No	No	S		7.5ft.	1.0ft.	30.0	30.0	0.0	12	14	363	Btuh
3	2 NFRC	0.25, 0.36	No	No	E		1.5ft.	1.0ft.	30.0	1.5	28.5	12	31	901	Btuh
4	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	6.0	0.0	6.0	12	12	73	Btuh
5	2 NFRC	0.25, 0.36	No	No	N		1.5ft.	1.0ft.	5.0	0.0	5.0	12	12	60	Btuh
6	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	9.0	0.0	9.0	12	12	109	Btuh
7	2 NFRC	0.25, 0.36	No	No	N		11.5f	1.0ft.	40.0	0.0	40.0	12	12	484	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		1.5ft.	1.0ft.	15.0	0.7	14.3	12	31	450	Btuh
	Window Total								180 (sqft)					2984 Btuh	
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
					Cav/Sheath										
1	Frame - Wood - Ext		0.09		13.0/0.0		108.0		2.3		244 Btuh				
2	Frame - Wood - Ext		0.09		13.0/0.0		52.0		2.3		118 Btuh				
3	Frame - Wood - Ext		0.09		13.0/0.0		132.0		2.3		299 Btuh				
4	Frame - Wood - Adj		0.09		13.0/0.0		72.0		1.7		121 Btuh				
5	Frame - Wood - Adj		0.09		13.0/0.0		181.0		1.7		305 Btuh				
6	Frame - Wood - Ext		0.09		13.0/0.0		222.0		2.3		502 Btuh				
7	Frame - Wood - Ext		0.09		13.0/0.0		121.0		2.3		274 Btuh				
8	Frame - Wood - Ext		0.09		13.0/0.0		96.0		2.3		217 Btuh				
9	Frame - Wood - Ext		0.09		13.0/0.0		185.0		2.3		419 Btuh				
10	Frame - Wood - Ext		0.09		13.0/0.0		120.0		2.3		272 Btuh				
11	Frame - Wood - Ext		0.09		13.0/0.0		318.0		2.3		720 Btuh				
	Wall Total							1607 (sqft)			3491 Btuh				
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					552 Btuh									
	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		1748.0		0.86		1508 Btuh					
	Ceiling Total					1748 (sqft)			1508 Btuh						
Floors	Type	R-Value		Size		HTM		Load							
1	Slab On Grade	0.0		1665 (ft-perimeter)		0.0		0 Btuh							
	Floor Total					1665.0 (sqft)			0 Btuh						
	Envelope Subtotal:										8536 Btuh				

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 21 Turkey Creek - Model 1665

Lake City, FL 32055

4/1/2021

Infiltration	Type Natural	Average ACH 0.12	Volume(cuft) 14985	Wall Ratio 1	CFM= 30.8	Load 640 Btuh
Internal gain		Occupants 8	Btuh/occupant X 230	Appliance +	1200	Load 3040 Btuh
					Sensible Envelope Load:	12216 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.339)					4142 Btuh
					Sensible Load All Zones	16358 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
 Lot 21 Turkey Creek - Model 1665

Lake City, FL 32055

4/1/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	12216 Btuh
	Sensible Duct Load	4142 Btuh
	Total Sensible Zone Loads	16358 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	16358 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1062 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1245 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3907 Btuh
	TOTAL GAIN	20266 Btuh

EQUIPMENT

1. Central Unit	#	20360 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