Residential System Sizing Calculation

Summary

Project Title:
Lot 31 Turkey Creek - Model 1665

Lake City, FL 32055

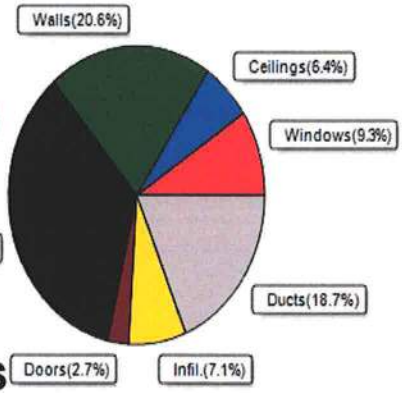
7/31/2020

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	**27749**	**Btuh**	**Total cooling load calculation**	**20360**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	100.0	27749	Sensible (SHR = 0.70)	86.9	14252
Heat Pump + Auxiliary(0.0kW)	100.0	27749	Latent	154.3	6108
			Total (Electric Heat Pump)	100.0	20360

WINTER CALCULATIONS

Winter Heating Load (for 1665 sqft)

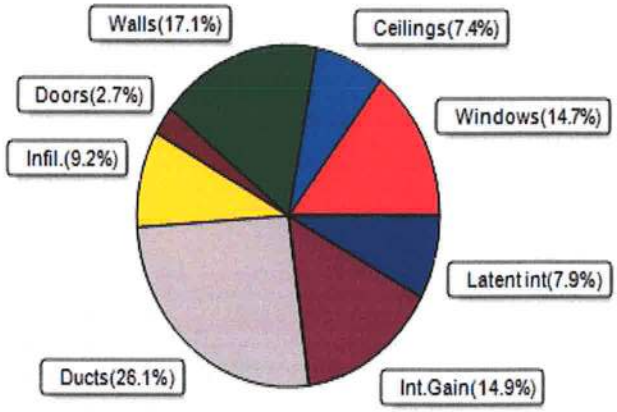
Load component			Load	
Window total	180	sqft	2592	Btuh
Wall total	1607	sqft	5705	Btuh
Door total	40	sqft	736	Btuh
Ceiling total	1748	sqft	1775	Btuh
Floor total	1665	sqft	9770	Btuh
Infiltration	45	cfm	1973	Btuh
Duct loss			5197	Btuh
Subtotal			**27749**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**27749**	**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	34	cfm	703	Btuh
Internal gain			3040	Btuh
Duct gain			4122	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**16401**	**Btuh**
Latent gain(ducts)			1193	Btuh
Latent gain(infiltration)			1166	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1600	Btuh
Total latent gain			**3959**	**Btuh**
TOTAL HEAT GAIN			**20360**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY: _____
DATE: 7/31/2020

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Project Title:
Lot 31 Turkey Creek - Model 1665
Lake City, FL 32055 Building Type: User

7/31/2020

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	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)		736Btuh

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)		1775Btuh

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=	
	Natural	0.18	14985	1.00	45.1	1973 Btuh

Duct load			
	Average sealed, R6.0, Supply(Att), Return(Att)	(DLM of 0.230)	5197 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Lot 31 Turkey Creek - Model 1665
Lake City, FL 32055 Building Type: User

7/31/2020

All Zones	**Sensible Subtotal All Zones**	**27749 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	27749 Btuh 0 Btuh 27749 Btuh

EQUIPMENT

1. Electric Heat Pump	#	27749 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 - Winter

Residential Load - Room by Room Component Details

Project Title:
Lot 31 Turkey Creek - Model 1665
Lake City, FL 32055 Building Type: User

7/31/2020

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 0.25	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
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Manual J Winter Calculations

Residential Load - Component Details (continued)

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7/31/2020

Room #1	**Sensible Room Subtotal**	**27749 Btuh**

WHOLE HOUSE TOTALS

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