Residential System Sizing Calculation

Summary

Mattox

Lake City, FL 32025

Project Title:
Norris Const - Mattox

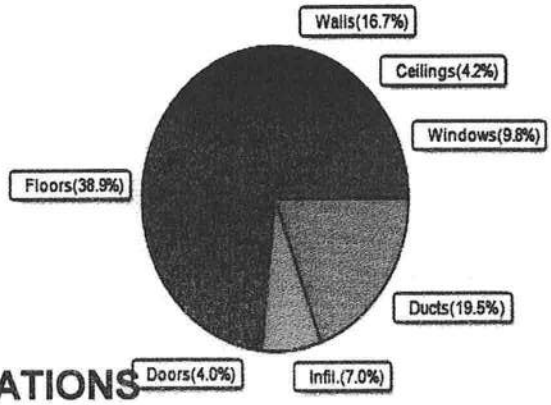
2/4/2022

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(M) Humidity data: Interior RH (50%) Outdoor wet bulb (76F) Humidity difference(47gr.)					
Winter design temperature(MJ8 99%)	33	F	Summer design temperature(MJ8 99%)	92	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	17	F
Total heating load calculation	**17073**	**Btuh**	**Total cooling load calculation**	**12997**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	210.9	36000	Sensible (SHR = 0.75)	279.6	27000
Heat Pump + Auxiliary(0.0kW)	210.9	36000	Latent	269.4	9000
			Total (Electric Heat Pump)	277.0	36000

WINTER CALCULATIONS

Winter Heating Load (for 1414 sqft)

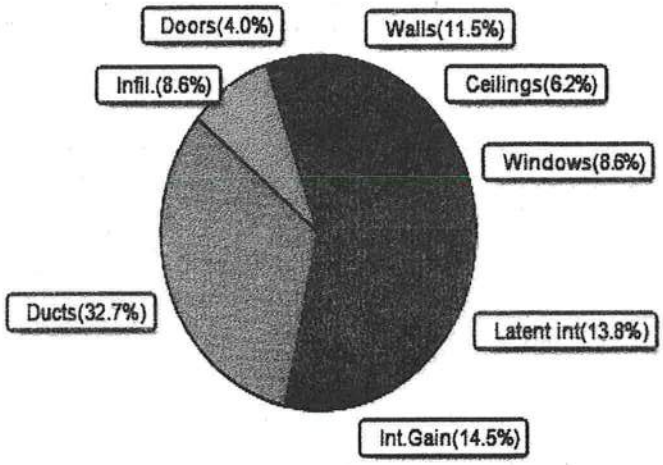
Load component			Load	
Window total	137	sqft	1673	Btuh
Wall total	1039	sqft	2845	Btuh
Door total	40	sqft	681	Btuh
Ceiling total	1414	sqft	711	Btuh
Floor total	1414	sqft	6636	Btuh
Infiltration	30	cfm	1197	Btuh
Duct loss			3330	Btuh
Subtotal			**17073**	**Btuh**
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			**17073**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1414 sqft)

Load component			Load	
Window total	137	sqft	1119	Btuh
Wall total	1039	sqft	1492	Btuh
Door total	40	sqft	515	Btuh
Ceiling total	1414	sqft	807	Btuh
Floor total			0	Btuh
Infiltration	22	cfm	413	Btuh
Internal gain			1890	Btuh
Duct gain			3421	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**9657**	**Btuh**
Latent gain(ducts)			835	Btuh
Latent gain(infiltration)			705	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1800	Btuh
Total latent gain			**3340**	**Btuh**
TOTAL HEAT GAIN			**12997**	**Btuh**



Powered by ACCA MANUAL J 8th Edition

EnergyGauge® System Sizing
PREPARED BY: [signature]
DATE: _____

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Mattox

Lake City, FL 32025

Project Title:
Norris Const - Mattox
Building Type: User

2/4/2022

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 °F (MJ8 99%)
Winter Setpoint: 70 °F (Required Manual J default)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0.21	Metal	0.33	N	40.0	12.2	488 Btuh
2	2, NFRC 0.21	Metal	0.33	N	9.0	12.2	110 Btuh
3	2, NFRC 0.21	Metal	0.33	E	3.0	12.2	37 Btuh
4	2, NFRC 0.21	Metal	0.33	E	5.0	12.2	61 Btuh
5	2, NFRC 0.21	Metal	0.33	S	80.0	12.2	977 Btuh
	Window Total				137.0(sqft)		1673 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.074)	19.0/1.0	140	2.74	383 Btuh
2	Frame - Wood	- Ext	(0.074)	19.0/1.0	240	2.74	657 Btuh
3	Frame - Wood	- Ext	(0.074)	19.0/1.0	260	2.74	712 Btuh
4	Frame - Wood	- Ext	(0.074)	19.0/1.0	248	2.74	679 Btuh
5	Frame - Wood	- Ext	(0.074)	19.0/1.0	151	2.74	413 Btuh
	Wall Total				1039(sqft)		2845 Btuh
Doors	Type	Storm	Ueff.		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20	17.0	340 Btuh
2	Insulated - Exterior,	n	(0.460)		20	17.0	340 Btuh
	Door Total				40(sqft)		681Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/L/Shing		(0.014)	38.0/38.0	1414	0.5	711 Btuh
	Ceiling Total				1414(sqft)		711Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	152.0 ft(perim.)	43.7	6636 Btuh
	Floor Total				1414 sqft		6636 Btuh
					Envelope Subtotal:		12546 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0.16	11312	1.00	29.6	1197 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)					(DLM of 0.242)	3330 Btuh
All Zones					**Sensible Subtotal All Zones**		**17073 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Mattox

Lake City, FL 32025

Project Title:
Norris Const - Mattox
Building Type: User

2/4/2022

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm) Total Heat Loss	17073 Btuh 0 Btuh 17073 Btuh

EQUIPMENT

1. Electric Heat Pump	#	36000 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 - Summer

Residential Load - Whole House Component Details

Mattox

Project Title:
Norris Const - Mattox

Lake City, FL 32025

2/4/2022

Reference City: Gainesville, FL (Defaults)
Humidity difference: 47gr.

Temperature Difference: 17.0F(MJ8 99%)
Summer Setpoint: 75 °F (Required Manual J default)

Component Loads for Whole House

Window	Type* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0.21, 0.33	B-L	No	N		1.5ft	1.0ft	40.0	0.0	40.0	8	8	307 Btuh
2	2 NFRC	0.21, 0.33	B-L	No	N		12.0f	1.0ft	9.0	0.0	9.0	8	8	69 Btuh
3	2 NFRC	0.21, 0.33	B-L	No	E		1.5ft	1.0ft	3.0	0.7	2.3	8	19	48 Btuh
4	2 NFRC	0.21, 0.33	B-L	No	E		1.5ft	1.0ft	5.0	1.2	3.8	8	19	80 Btuh
5	2 NFRC	0.21, 0.33	B-L	No	S		8.0ft	1.0ft	80.0	80.0	0.0	8	9	614 Btuh
	Window Total								137 (sqft)					1119 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.07	19.0/1.0	140.0	1.4	201 Btuh
2	Frame - Wood - Ext	0.07	19.0/1.0	240.0	1.4	345 Btuh
3	Frame - Wood - Ext	0.07	19.0/1.0	260.0	1.4	373 Btuh
4	Frame - Wood - Ext	0.07	19.0/1.0	248.0	1.4	356 Btuh
5	Frame - Wood - Ext	0.07	19.0/1.0	151.0	1.4	217 Btuh
	Wall Total			1039 (sqft)		1492 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20.0	12.9	258 Btuh
2	Insulated - Exterior	20.0	12.9	258 Btuh
	Door Total	40 (sqft)		515 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/Light/Shingle	0.014	38.0/38.0	1414.0	0.57	807 Btuh
	Ceiling Total			1414 (sqft)		807 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1414 (ft-perimeter)	0.0	0 Btuh
	Floor Total		1414.0 (sqft)		0 Btuh

	Envelope Subtotal:	3933 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	11312	1	22.2	413 Btuh

Internal gain	Occupants	Btuh/occupant	Appliance	Load
	3	X 230 +	1200	1890 Btuh

	Sensible Envelope Load:	6236 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic) (DGM of 0.549)	3421 Btuh
	Sensible Load All Zones	**9657 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Mattox

Project Title: Norris Const - Mattox

Climate:FL_GAINESVILLE_REGIONAL_A

Lake City, FL 32025

2/4/2022

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**6236 Btuh**
	Sensible Duct Load	3421 Btuh
	Total Sensible Zone Loads	**9657 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**9657 Btuh**
	Latent infiltration gain (for 47 gr. humidity difference)	705 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	835 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	1200 Btuh
	Latent total gain	**3340 Btuh**
	TOTAL GAIN	**12997 Btuh**

EQUIPMENT

1. Central Unit	#	36000 Btuh

*Key: Window types (Panes - 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)

Powered by ACCA MANUAL J

Version 8