

Residential System Sizing Calculation

Summary

Project Title:
Fisher - Gym

, FL

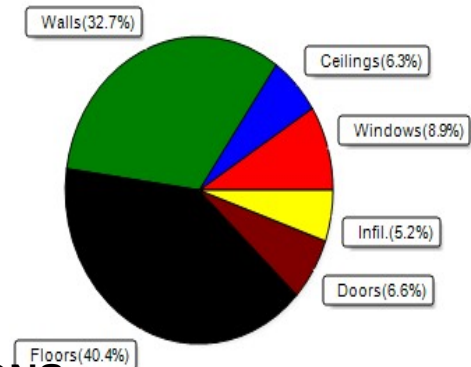
11/27/2023

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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		5845 Btuh	Total cooling load calculation		3517 Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	307.9	18000	Sensible (SHR = 0.85)	520.9	15300
Heat Pump + Auxiliary(0.0kW)	307.9	18000	Latent	465.5	2700
			Total (Electric Heat Pump)	511.8	18000

WINTER CALCULATIONS

Winter Heating Load (for 288 sqft)

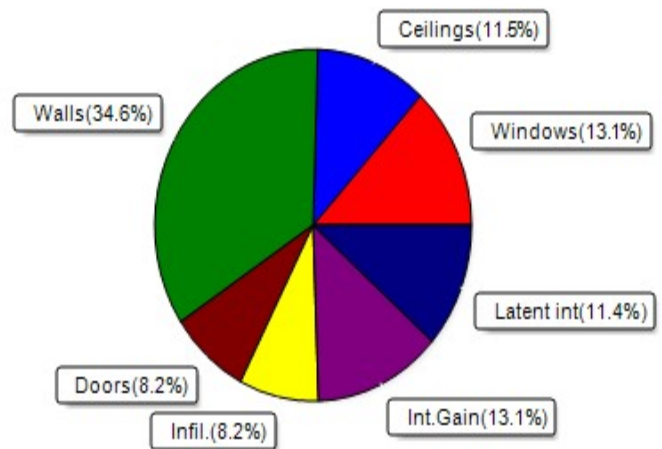
Load component	Load	
Window total	50 sqft	520 Btuh
Wall total	538 sqft	1910 Btuh
Door total	24 sqft	384 Btuh
Ceiling total	288 sqft	367 Btuh
Floor total	288 sqft	2360 Btuh
Infiltration	7 cfm	305 Btuh
Duct loss		0 Btuh
Subtotal		5845 Btuh
Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh
TOTAL HEAT LOSS		5845 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 288 sqft)

Load component	Load	
Window total	50 sqft	459 Btuh
Wall total	538 sqft	1218 Btuh
Door total	24 sqft	288 Btuh
Ceiling total	288 sqft	404 Btuh
Floor total		0 Btuh
Infiltration	5 cfm	108 Btuh
Internal gain		460 Btuh
Duct gain		0 Btuh
Sens.Ventilation Ex:0 cfm; Sup:0 cfm		0 Btuh
Blower Load		0 Btuh
Total sensible gain		2937 Btuh
Latent gain(ducts)		0 Btuh
Latent gain(infiltration)		180 Btuh
Latent gain(ventilation)		0 Btuh
Latent gain(internal/occupants/other)		400 Btuh
Total latent gain		580 Btuh
TOTAL HEAT GAIN		3517 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

11-27-23

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Fisher - Gym

, FL

11/27/2023

Reference City: Gainesville, FL (Defaults)
Humidity difference: 51gr.

Temperature Difference: 19.0F(TMY3 99%)
Summer Setpoint: 75 °F (Required Manual J default)

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	0.20, 0.26	No	No	N	1.5ft	2.3ft	20.0	0.0	20.0	9	9	183	Btuh		
2	2 NFRC	0.20, 0.26	No	No	S	1.5ft	2.3ft	30.0	30.0	0.0	9	11	274	Btuh		
	Excursion												2	Btuh		
	Window Total							50 (sqft)						459	Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)		HTM		Load			
								Cav/Sheath								
1	Frame - Wood - Ext						0.09	13.0/0.0	142.0		2.3		321	Btuh		
2	Frame - Wood - Ext						0.09	13.0/0.0	120.0		2.3		272	Btuh		
3	Frame - Wood - Ext						0.09	13.0/0.0	132.0		2.3		299	Btuh		
4	Frame - Wood - Ext						0.09	13.0/0.0	144.0		2.3		326	Btuh		
	Wall Total							538 (sqft)						1218	Btuh	
Doors	Type								Area (sqft)		HTM		Load			
1	Insulated - Exterior								24.0		12.0		288	Btuh		
	Door Total							24 (sqft)						288	Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)		HTM		Load			
1	Vented Attic/Med/Shingle						0.032	30.0/0.0	288.0		1.40		404	Btuh		
	Ceiling Total							288 (sqft)						404	Btuh	
Floors	Type								R-Value		Size		HTM		Load	
1	Slab On Grade								0.0		288 (ft-perimeter)		0.0		0	Btuh
	Floor Total									288.0 (sqft)				0	Btuh	
	Envelope Subtotal:												2369 Btuh			
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load	
	Natural						0.12		2592		1		5.2		108	Btuh
Internal gain						Occupants		Btuh/occupant		Appliance				Load		
						2		X	230	+	0			460	Btuh	
	Sensible Envelope Load:												2937 Btuh			
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)										(DGM of 0.000)		0 Btuh			
	Sensible Load All Zones												2937 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
Fisher - Gym

Climate: FL_GAINESVILLE_REGIONAL_A

, FL

11/27/2023

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	2937 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	2937 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	2937 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	180 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	580 Btuh
	TOTAL GAIN	3517 Btuh

EQUIPMENT

1. Central Unit	#	18000 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

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

, FL

Project Title:
Fisher - Gym
Building Type: User

11/27/2023

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 °F (TMY3 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 0.20	Vinyl	0.26	N	20.0		10.4	208 Btuh
2	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
	Window Total				50.0(sqft)			520 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	142		3.55	504 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	120		3.55	426 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	132		3.55	469 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	144		3.55	511 Btuh
	Wall Total				538(sqft)			1910 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		24		16.0	384 Btuh
	Door Total				24(sqft)			384Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Flat ceil/M/Shing		(0.032)	30.0/0.0	288		1.3	367 Btuh
	Ceiling Total				288(sqft)			367Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	50.0 ft(perim.)		47.2	2360 Btuh
	Floor Total				288 sqft			2360 Btuh
	Envelope Subtotal:							5541 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.16	2592	1.00	6.9		305 Btuh
Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)							0 Btuh
All Zones	Sensible Subtotal All Zones							5845 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss Total Heat Loss	(Ex:0 cfm; Sup:0 cfm)	5845 Btuh 0 Btuh 5845 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Fisher - Gym
Building Type: User

11/27/2023

EQUIPMENT

1. Electric Heat Pump	#	18000 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