

Residential System Sizing Calculation

Summary

Project Title:
Dent - Inlaw Suite

, FL

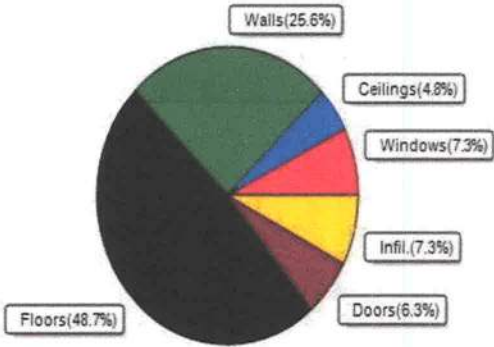
4/12/2024

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			11636	Btuh	
Total cooling load calculation			7080	Btuh	
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	206.3	24000	Sensible (SHR = 0.75)	291.4	18000
Heat Pump + Auxiliary(0.0kW)	206.3	24000	Latent	664.5	6000
			Total (Electric Heat Pump)	339.0	24000

WINTER CALCULATIONS

Winter Heating Load (for 787 sqft)

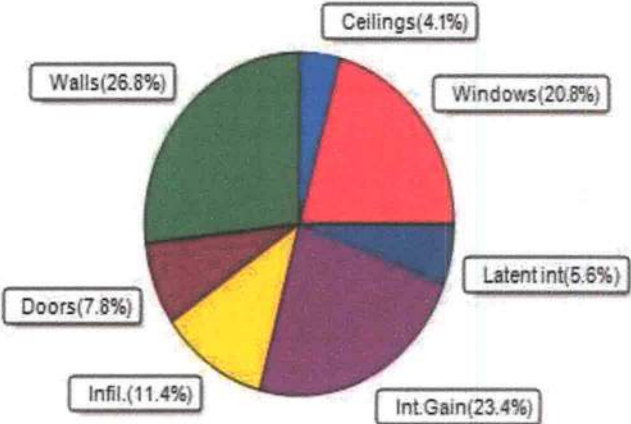
Load component			Load	
Window total	82	sqft	853	Btuh
Wall total	838	sqft	2975	Btuh
Door total	40	sqft	736	Btuh
Ceiling total	787	sqft	557	Btuh
Floor total	787	sqft	5664	Btuh
Infiltration	19	cfm	851	Btuh
Duct loss			0	Btuh
Subtotal			11636	Btuh
Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
TOTAL HEAT LOSS			11636	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 787 sqft)

Load component			Load	
Window total	82	sqft	1474	Btuh
Wall total	838	sqft	1897	Btuh
Door total	40	sqft	552	Btuh
Ceiling total	787	sqft	292	Btuh
Floor total			0	Btuh
Infiltration	15	cfm	303	Btuh
Internal gain			1660	Btuh
Duct gain			0	Btuh
Sens.Ventilation	Ex:0 cfm; Sup:0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			6177	Btuh
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			503	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			400	Btuh
Total latent gain			903	Btuh
TOTAL HEAT GAIN			7080	Btuh



8th Edition

EnergyGauge® System Sizing	
PREPARED BY:	
DATE: 4-12-24	

EnergyGauge® / USRCZB v8.0.00



System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Dent - Inlaw Suite

, FL

4/12/2024

Reference City: Gainesville, FL (Defaults) Temperature Difference: 19.0F(TMY3 99%)
Humidity difference: 51gr. 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	1.3ft	4.0	0.0	4.0	9	9	37	Btuh			
2	2 NFRC	0.20, 0.26	No	No	E		1.5ft	1.3ft	30.0	0.0	30.0	9	24	727	Btuh			
3	2 NFRC	0.20, 0.26	No	No	S		1.5ft	1.3ft	30.0	30.0	0.0	9	11	274	Btuh			
4	2 NFRC	0.20, 0.26	No	No	W		1.5ft	1.3ft	18.0	0.0	18.0	9	24	436	Btuh			
Window Total									82 (sqft)					1474 Btuh				
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load			
									Cav/Sheath									
1	Frame - Wood - Ext						0.09		13.0/0.0		236.0		2.3		534 Btuh			
2	Frame - Wood - Ext						0.09		13.0/0.0		210.0		2.3		475 Btuh			
3	Frame - Wood - Ext						0.09		13.0/0.0		170.0		2.3		385 Btuh			
4	Frame - Wood - Ext						0.09		13.0/0.0		222.0		2.3		502 Btuh			
Wall Total									838 (sqft)					1897 Btuh				
Doors	Type										Area (sqft)		HTM		Load			
1	Insulated - Exterior										40.0		13.8		552 Btuh			
Door Total									40 (sqft)					552 Btuh				
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load			
1	SnglAsmb no airsp/Light/Metal						0.018		30.0/30.0		787.0		0.37		292 Btuh			
Ceiling Total									787 (sqft)					292 Btuh				
Floors	Type								R-Value		Size		HTM		Load			
1	Slab On Grade								0.0		787 (ft-perimeter)		0.0		0 Btuh			
Floor Total									787.0 (sqft)					0 Btuh				
Envelope Subtotal:														4214 Btuh				
Infiltration	Type						Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load			
	Natural																	
							0.14		6296		1		14.5		303 Btuh			
Internal gain							Occupants		Btuh/occupant		Appliance		Load					
									X		230 +		1200		1660 Btuh			
Sensible Envelope Load:														6177 Btuh				
Duct load	Extremely sealed, Supply(R6.0-Cond), Return(R6.0-Cond)														(DGM of 0.000)		0 Btuh	
	Sensible Load All Zones														6177 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Dent - Inlaw Suite

, FL

4/12/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	6177 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	6177 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	6177 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	503 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	903 Btuh
	TOTAL GAIN	7080 Btuh

EQUIPMENT

1. Central Unit	#	24000 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)



System Sizing Calculations - Winter

Residential Load - Whole House Component Details

, FL

Project Title:
Dent - Inlaw Suite
Building Type: User

4/12/2024

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	4.0		10.4	42 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	30.0		10.4	312 Btuh
3	2, NFRC 0.20	Vinyl	0.26	S	30.0		10.4	312 Btuh
4	2, NFRC 0.20	Vinyl	0.26	W	18.0		10.4	187 Btuh
	Window Total				82.0(sqft)			853 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	236		3.55	838 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	210		3.55	746 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	170		3.55	604 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	222		3.55	788 Btuh
	Wall Total				838(sqft)			2975 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		40		18.4	736 Btuh
	Door Total				40(sqft)			736Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/L/Metal		(0.018)	30.0/30.0	787		0.71	557 Btuh
	Ceiling Total				787(sqft)			557Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	120.0 ft(perim.)		47.2	5664 Btuh
	Floor Total				787 sqft			5664 Btuh
	Envelope Subtotal:							10785 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.18	6296	1.00	19.4		851 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con)						(DLM of 0.000)	0 Btuh
All Zones	Sensible Subtotal All Zones							11636 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Dent - Inlaw Suite
Building Type: User

4/12/2024

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	11636 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	11636 Btuh

EQUIPMENT

1. Electric Heat Pump	#	24000 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