

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Caleb Bundy

, FL

2/27/2024

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	0.26, 0.33	No	No	N		11.5f	2.3ft	18.0	0.0	18.0	12	12	211	Btuh
2	2 NFRC	0.26, 0.33	No	No	E		1.5ft	2.3ft	30.0	0.0	30.0	12	31	940	Btuh
3	2 NFRC	0.26, 0.33	No	No	E		1.5ft	2.3ft	6.0	0.0	6.0	12	31	188	Btuh
4	2 NFRC	0.26, 0.33	No	No	S		1.5ft	2.3ft	15.0	15.0	0.0	12	14	176	Btuh
5	2 NFRC	0.26, 0.33	No	No	S		9.5ft	2.3ft	45.0	45.0	0.0	12	14	528	Btuh
6	2 NFRC	0.26, 0.33	No	No	S		1.5ft	2.3ft	30.0	30.0	0.0	12	14	352	Btuh
7	2 NFRC	0.26, 0.33	No	No	W		1.5ft	2.3ft	30.0	0.0	30.0	12	31	940	Btuh
8	2 NFRC	0.26, 0.33	No	No	W		1.5ft	2.3ft	25.0	0.0	25.0	12	31	783	Btuh
9	2 NFRC	0.26, 0.33	No	No	W		1.5ft	2.3ft	4.0	0.0	4.0	12	31	125	Btuh
	Excursion													45	Btuh
	Window Total								203 (sqft)					4290 Btuh	
Walls	Type		U-Value		R-Value		Area(sqft)		HTM		Load				
					Cav/Sheath										
1	Frame - Wood - Ext		0.08		19.0/0.0		485.0		1.7		802 Btuh				
2	Frame - Wood - Ext		0.08		19.0/0.0		325.5		1.7		538 Btuh				
3	Frame - Wood - Ext		0.08		19.0/0.0		111.0		1.7		184 Btuh				
4	Frame - Wood - Ext		0.08		19.0/0.0		206.0		1.7		341 Btuh				
5	Frame - Wood - Ext		0.08		19.0/0.0		96.0		1.7		159 Btuh				
6	Frame - Wood - Ext		0.08		19.0/0.0		282.5		1.7		467 Btuh				
	Wall Total						1506 (sqft)				2490 Btuh				
Doors	Type		Area (sqft)		HTM		Load								
1	Insulated - Exterior		40.0		13.8		552 Btuh								
2	Insulated - Exterior		40.0		13.8		552 Btuh								
3	Insulated - Exterior		20.0		13.8		276 Btuh								
	Door Total		100 (sqft)				1380 Btuh								
Ceilings	Type/Color/Surface		U-Value		R-Value		Area(sqft)		HTM		Load				
1	SnglAsmb w airsp/Light/Metal		0.015		30.0/40.0		2423.0		0.32		764 Btuh				
	Ceiling Total						2423 (sqft)				764 Btuh				
Floors	Type		R-Value		Size		HTM		Load						
1	Slab On Grade		0.0		2423 (ft-perimeter)		0.0		0 Btuh						
	Floor Total				2423.0 (sqft)				0 Btuh						
	Envelope Subtotal:											8924 Btuh			
Infiltration	Type		Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load				
	Natural		0.13		21807		1		46.9		978 Btuh				
Internal gain			Occupants		Btuh/occupant		Appliance		Load						
			8		X 230		+		3400		5240 Btuh				
	Sensible Envelope Load:											15142 Btuh			
Duct load	Extremely sealed, Supply(R6.0-Condi), Return(R6.0-Condi) (DGM of 0.000)											0 Btuh			
	Sensible Load All Zones											15142 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title:
Caleb Bundy

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

2/27/2024

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	15142 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	15142 Btuh
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	15142 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1623 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (8.0 people @ 200 Btuh per person)	1600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3223 Btuh
	TOTAL GAIN	18365 Btuh

EQUIPMENT

1. Central Unit	#	48000 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

Project Title:
Caleb Bundy
Building Type: User

, FL

2/27/2024

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 0.26	Vinyl	0.33	N	18.0		13.2	238 Btuh
2	2, NFRC 0.26	Vinyl	0.33	E	30.0		13.2	396 Btuh
3	2, NFRC 0.26	Vinyl	0.33	E	6.0		13.2	79 Btuh
4	2, NFRC 0.26	Vinyl	0.33	S	15.0		13.2	198 Btuh
5	2, NFRC 0.26	Vinyl	0.33	S	45.0		13.2	594 Btuh
6	2, NFRC 0.26	Vinyl	0.33	S	30.0		13.2	396 Btuh
7	2, NFRC 0.26	Vinyl	0.33	W	30.0		13.2	396 Btuh
8	2, NFRC 0.26	Vinyl	0.33	W	25.0		13.2	330 Btuh
9	2, NFRC 0.26	Vinyl	0.33	W	4.0		13.2	53 Btuh
	Window Total				203.0(sqft)			2680 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	485		3.09	1499 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	326		3.09	1006 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	111		3.09	343 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	206		3.09	637 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	96		3.09	297 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	283		3.09	873 Btuh
	Wall Total				1506(sqft)			4655 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
2	Insulated - Exterior, n		(0.460)		40		18.4	736 Btuh
3	Insulated - Exterior, n		(0.460)		20		18.4	368 Btuh
	Door Total				100(sqft)			1840Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Single as/L/Metal		(0.015)	30.0/40.0	2423		0.60	1457 Btuh
	Ceiling Total				2423(sqft)			1457Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Slab On Grade		(1.180)	0.0	201.0 ft(perim.)		47.2	9487 Btuh
	Floor Total				2423 sqft			9487 Btuh
	Envelope Subtotal:							20119 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		
	Natural		0.17	21807	1.00	62.6		2746 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)							0 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Caleb Bundy
Building Type: User

2/27/2024

All Zones	Sensible Subtotal All Zones	22865 Btuh
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WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	22865 Btuh
	Ventilation Sens. Heat Loss (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Total Heat Loss	22865 Btuh

EQUIPMENT

1. Electric Heat Pump	#	48000 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