

Residential System Sizing Calculation

Summary

Project Title:
Gomez / Cartlet

, FL

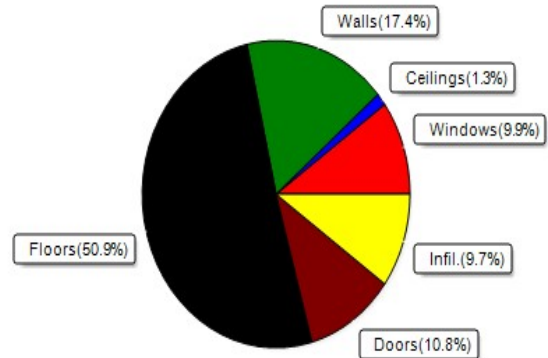
7/6/2021

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	34378	Btuh	Total cooling load calculation	22024	Btuh
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	104.7	36000	Sensible (SHR = 0.85)	165.8	30600
Heat Pump + Auxiliary(0.0kW)	104.7	36000	Latent	151.5	5400
			Total (Electric Heat Pump)	163.5	36000

WINTER CALCULATIONS

Winter Heating Load (for 2815 sqft)

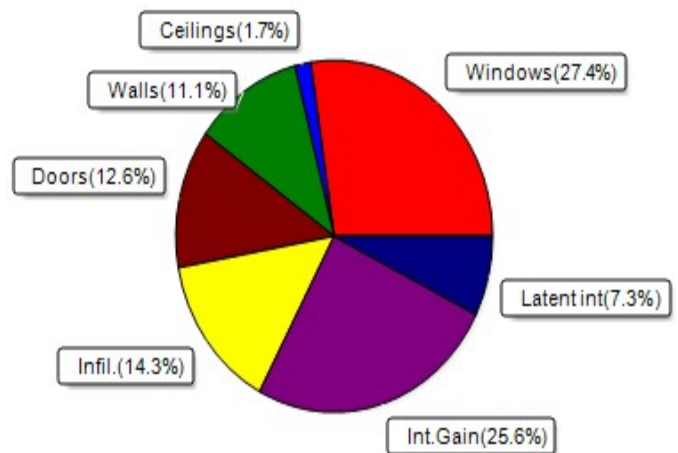
Load component	Load
Window total 327 sqft	3401 Btuh
Wall total 2331 sqft	5977 Btuh
Door total 232 sqft	3712 Btuh
Ceiling total 2815 sqft	456 Btuh
Floor total 2815 sqft	17511 Btuh
Infiltration 76 cfm	3322 Btuh
Duct loss	0 Btuh
Subtotal	34378 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	34378 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2815 sqft)

Load component	Load
Window total 327 sqft	6034 Btuh
Wall total 2331 sqft	2455 Btuh
Door total 232 sqft	2784 Btuh
Ceiling total 2815 sqft	364 Btuh
Floor total	0 Btuh
Infiltration 57 cfm	1183 Btuh
Internal gain	5640 Btuh
Duct gain	0 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	18461 Btuh
Latent gain(ducts)	0 Btuh
Latent gain(infiltration)	1964 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	1600 Btuh
Total latent gain	3564 Btuh
TOTAL HEAT GAIN	22024 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

DATE: _____

7-6-21

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Gomez / Cartlet

, FL

7/6/2021

Reference City: Gainesville, FL

Temperature Difference: 19.0F(TMY3 99%) Humidity difference: 51gr.

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	0.25, 0.26	No	No	S		8.5ft.	2.3ft.	36.0	36.0	0.0	10	12	367	Btuh
2	2 NFRC	0.25, 0.26	No	No	W		12.5ft.	2.3ft.	18.0	18.0	0.0	10	29	184	Btuh
3	2 NFRC	0.25, 0.26	No	No	S		16.5ft.	2.3ft.	16.0	16.0	0.0	10	12	163	Btuh
4	2 NFRC	0.25, 0.26	No	No	S		1.5ft.	2.3ft.	36.0	36.0	0.0	10	12	367	Btuh
5	2 NFRC	0.25, 0.26	No	No	W		1.5ft.	2.3ft.	54.0	0.0	54.0	10	29	1568	Btuh
6	2 NFRC	0.25, 0.26	No	No	W		1.5ft.	2.3ft.	6.0	0.0	6.0	10	29	174	Btuh
7	2 NFRC	0.25, 0.26	No	No	W		1.5ft.	2.3ft.	12.0	0.0	12.0	10	29	349	Btuh
8	2 NFRC	0.25, 0.26	No	No	N		1.5ft.	2.3ft.	42.0	0.0	42.0	10	10	428	Btuh
9	2 NFRC	0.25, 0.26	No	No	N		1.5ft.	2.3ft.	42.0	0.0	42.0	10	10	428	Btuh
10	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	8.0	0.0	8.0	10	29	232	Btuh
11	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	15.0	0.0	15.0	10	29	436	Btuh
12	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	6.0	0.0	6.0	10	29	174	Btuh
13	2 NFRC	0.25, 0.26	No	No	E		1.5ft.	2.3ft.	36.0	0.0	36.0	10	29	1046	Btuh
	Excursion													118	Btuh
	Window Total								327 (sqft)					6034 Btuh	
Walls	Type						U-Value	R-Value	Area(sqft)			HTM		Load	
								Cav/Sheath							
1	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	170.7			1.0		175 Btuh	
2	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	65.3			1.0		67 Btuh	
3	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	272.0			1.0		279 Btuh	
4	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	175.0			1.0		179 Btuh	
5	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	145.7			1.0		149 Btuh	
6	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	446.3			1.0		458 Btuh	
7	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	102.0			1.0		105 Btuh	
8	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	36.0			1.0		37 Btuh	
9	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	48.0			1.0		49 Btuh	
10	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	36.0			1.0		37 Btuh	
11	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	102.0			1.0		105 Btuh	
12	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	33.3			1.0		34 Btuh	
13	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	214.3			1.0		220 Btuh	
14	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	33.3			1.0		34 Btuh	
15	ConcreteBlk,Hollow - Ext						0.06	13.0/0.0	117.3			1.0		120 Btuh	
16	ConcreteBlk,Hollow - Adj						0.06	13.0/0.0	333.7			1.2		406 Btuh	
	Wall Total								2331 (sqft)					2455 Btuh	
Doors	Type						Area (sqft)			HTM		Load			
1	Insulated - Exterior						96.0			12.0		1152 Btuh			
2	Insulated - Exterior						40.0			12.0		480 Btuh			
3	Insulated - Exterior						48.0			12.0		576 Btuh			
4	Insulated - Garage						24.0			12.0		288 Btuh			
5	Insulated - Garage						24.0			12.0		288 Btuh			
	Door Total								232 (sqft)					2784 Btuh	
Ceilings	Type/Color/Surface						U-Value	R-Value	Area(sqft)			HTM		Load	
1	Unvented Attic/Light/Metal						0.032	30.0/44.0	2815.0			0.13		364 Btuh	
	Ceiling Total								2815 (sqft)					364 Btuh	
Floors	Type						R-Value		Size			HTM		Load	
1	Slab On Grade						0.0		2815 (ft-perimeter)			0.0		0 Btuh	
	Floor Total								2815.0 (sqft)					0 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Gomez / Cartlet

, FL

7/6/2021

	Envelope Subtotal:					11637 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.12	28150	1	56.9	1183 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		8	X 230	+	3800	5640 Btuh
	Sensible Envelope Load:					18461 Btuh
Duct load	Extremelysealed, Supply(R6.0-Cond), Return(R6.0-Condi) (DGM of 0.000)					0 Btuh
	Sensible Load All Zones					18461 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Gomez / Cartlet

, FL

7/6/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	18461 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	18461 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	18461 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	1964 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	3564 Btuh
	TOTAL GAIN	22024 Btuh

EQUIPMENT

1. Central Unit	#	36000 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:
Gomez / Cartlet
Building Type: User

, FL

7/6/2021

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	0.26	S	36.0		10.4	374 Btuh
2	2, NFRC 0.25	Vinyl	0.26	W	18.0		10.4	187 Btuh
3	2, NFRC 0.25	Vinyl	0.26	S	16.0		10.4	166 Btuh
4	2, NFRC 0.25	Vinyl	0.26	S	36.0		10.4	374 Btuh
5	2, NFRC 0.25	Vinyl	0.26	W	54.0		10.4	562 Btuh
6	2, NFRC 0.25	Vinyl	0.26	W	6.0		10.4	62 Btuh
7	2, NFRC 0.25	Vinyl	0.26	W	12.0		10.4	125 Btuh
8	2, NFRC 0.25	Vinyl	0.26	N	42.0		10.4	437 Btuh
9	2, NFRC 0.25	Vinyl	0.26	N	42.0		10.4	437 Btuh
10	2, NFRC 0.25	Vinyl	0.26	E	8.0		10.4	83 Btuh
11	2, NFRC 0.25	Vinyl	0.26	E	15.0		10.4	156 Btuh
12	2, NFRC 0.25	Vinyl	0.26	E	6.0		10.4	62 Btuh
13	2, NFRC 0.25	Vinyl	0.26	E	36.0		10.4	374 Btuh
Window Total					327.0(sqft)			3401 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	171		2.56	438 Btuh
2	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	65		2.56	168 Btuh
3	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	272		2.56	697 Btuh
4	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	175		2.56	449 Btuh
5	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	146		2.56	373 Btuh
6	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	446		2.56	1144 Btuh
7	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	102		2.56	262 Btuh
8	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	36		2.56	92 Btuh
9	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	48		2.56	123 Btuh
10	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	36		2.56	92 Btuh
11	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	102		2.56	262 Btuh
12	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	33		2.56	85 Btuh
13	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	214		2.56	550 Btuh
14	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	33		2.56	85 Btuh
15	Conc Blk,Hollow - Ext		(0.064)	13.0/0.0	117		2.56	301 Btuh
16	Conc Blk,Hollow - Adj		(0.064)	13.0/0.0	334		2.56	856 Btuh
Wall Total					2331(sqft)			5977 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.400)		96		16.0	1536 Btuh
2	Insulated - Exterior, n		(0.400)		40		16.0	640 Btuh
3	Insulated - Exterior, n		(0.400)		48		16.0	768 Btuh
4	Insulated - Garage, n		(0.400)		24		16.0	384 Btuh
5	Insulated - Garage, n		(0.400)		24		16.0	384 Btuh
Door Total					232(sqft)			3712Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

, FL

Project Title:
Gomez / Cartlet
Building Type: User

7/6/2021

Ceilings 1	Type/Color/Surface Unvent Attic/L/Metal Ceiling Total	Ueff. (0.032)	R-Value 30.0/44.0	Area X 2815 2815(sqft)	HTM= 0.2	Load 456 Btuh 456Btuh
Floors 1	Type Slab On Grade Floor Total	Ueff. (1.180)	R-Value 0.0	Size X 371.0 ft(perim.) 2815 sqft	HTM= 47.2	Load 17511 Btuh 17511 Btuh
Envelope Subtotal:						31056 Btuh
Infiltration	Type Natural	Wholehouse ACH 0.16	Volume(cuft) 28150	Wall Ratio 1.00	CFM= 75.9	3322 Btuh
Duct load	Extremely sealed, R6.0, Supply(Con), Return(Con) (DLM of 0.000)					0 Btuh
All Zones	Sensible Subtotal All Zones					34378 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	34378 Btuh 0 Btuh 34378 Btuh
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EQUIPMENT

1. Electric Heat Pump	#	36000 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