

Residential System Sizing Calculation

Summary

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence

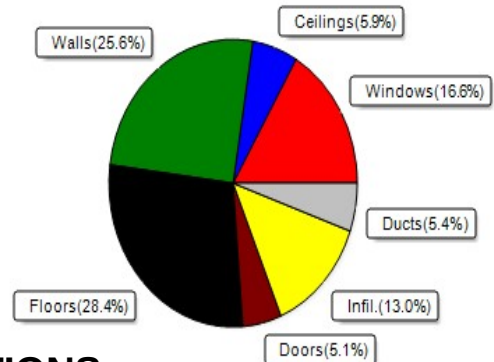
12/19/2021

Location for weather data: Jacksonville, FL - Defaults: Latitude(30.5) Altitude(30 ft.) Temp Range(M)			
Humidity data: Interior RH (50%) Outdoor wet bulb (77F) Humidity difference(49gr.)			
Winter design temperature(TMY3 99%)	29 F	Summer design temperature(TMY3 99%)	95 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	41 F	Summer temperature difference	20 F
Total heating load calculation	41604 Btuh	Total cooling load calculation	52459 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	144.2 60000	Sensible (SHR = 0.75)	106.4 44970
Heat Pump + Auxiliary(0.0kW)	144.2 60000	Latent	147.3 15030
		Total (Electric Heat Pump)	114.4 60000

WINTER CALCULATIONS

Winter Heating Load (for 2665 sqft)

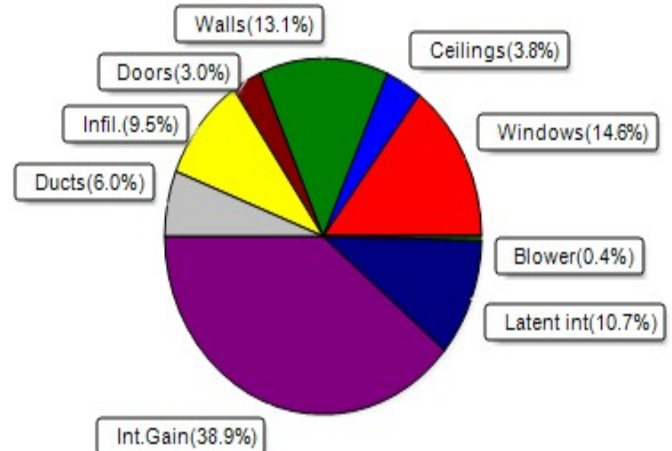
Load component		Load	
Window total	561 sqft	6901	Btuh
Wall total	2922 sqft	10635	Btuh
Door total	112 sqft	2112	Btuh
Ceiling total	2051 sqft	2471	Btuh
Floor total	See detail report	11805	Btuh
Infiltration	120 cfm	5427	Btuh
Duct loss		2253	Btuh
Subtotal		41604	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		41604	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 2665 sqft)

Load component		Load	
Window total	561 sqft	7673	Btuh
Wall total	2922 sqft	6874	Btuh
Door total	112 sqft	1597	Btuh
Ceiling total	2051 sqft	1977	Btuh
Floor total		0	Btuh
Infiltration	90 cfm	1985	Btuh
Internal gain		20420	Btuh
Duct gain		1528	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		200	Btuh
Total sensible gain		42254	Btuh
Latent gain(ducts)		1598	Btuh
Latent gain(infiltration)		3007	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		5600	Btuh
Total latent gain		10205	Btuh
TOTAL HEAT GAIN		52459	Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY: _____

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15:57:42-06'00'

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence

12/19/2021

Reference City: Jacksonville, FL

Temperature Difference: 20.0F(TMY3 99%)

Humidity difference: 49gr.

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	0.17, 0.30	No	No	N		8.2ft.	2.0ft.	48.2	44.5	3.7	10	22	508	Btuh
2	2 NFRC	0.17, 0.30	No	No	N		8.2ft.	2.0ft.	8.4	8.4	0.0	10	22	81	Btuh
3	2 NFRC	0.17, 0.30	No	No	N		1.2ft.	2.0ft.	12.1	0.0	12.1	10	22	269	Btuh
4	2 NFRC	0.17, 0.30	No	No	S		8.0ft.	2.0ft.	24.1	21.6	2.5	10	22	262	Btuh
5	2 NFRC	0.17, 0.30	No	No	S		8.0ft.	2.0ft.	41.3	37.1	4.3	10	22	450	Btuh
6	2 NFRC	0.17, 0.30	No	No	S		8.0ft.	2.0ft.	10.3	9.3	1.1	10	22	112	Btuh
7	2 NFRC	0.17, 0.30	No	No	W		1.2ft.	2.0ft.	25.8	0.0	25.8	10	10	247	Btuh
8	2 NFRC	0.17, 0.30	No	No	W		1.2ft.	2.0ft.	31.7	0.0	31.7	10	10	303	Btuh
9	2 NFRC	0.17, 0.30	No	No	E		8.0ft.	2.0ft.	51.7	51.7	0.0	10	11	494	Btuh
10	2 NFRC	0.17, 0.30	No	No	E		1.2ft.	2.0ft.	8.0	8.0	0.0	10	11	76	Btuh
11	2 NFRC	0.17, 0.30	No	No	E		1.2ft.	2.0ft.	18.7	18.7	0.0	10	11	178	Btuh
12	2 NFRC	0.17, 0.30	No	No	N		1.2ft.	2.0ft.	72.3	0.0	72.3	10	22	1617	Btuh
13	2 NFRC	0.17, 0.30	No	No	N		1.2ft.	2.0ft.	27.6	0.0	27.6	10	22	616	Btuh
14	2 NFRC	0.17, 0.30	No	No	S		1.2ft.	2.0ft.	55.1	0.0	55.1	10	22	1232	Btuh
15	2 NFRC	0.17, 0.30	No	No	W		1.2ft.	2.0ft.	51.7	0.0	51.7	10	10	494	Btuh
16	2 NFRC	0.17, 0.30	No	No	E		1.2ft.	2.0ft.	51.7	40.8	10.8	10	11	510	Btuh
17	2 NFRC	0.17, 0.30	No	No	E		1.2ft.	2.0ft.	10.3	8.2	2.2	10	11	102	Btuh
18	2 NFRC	0.17, 0.30	No	No	E		1.2ft.	2.0ft.	12.1	9.5	2.5	10	11	119	Btuh
	Excursion													4	Btuh
	Window Total								561 (sqft)					7673 Btuh	
Walls	Type	U-Value				R-Value		Area(sqft)			HTM		Load		
						Cav/Sheath									
1	Frame - Wood - Ext				0.09		13.0/0.0		227.3			2.4		535 Btuh	
2	Frame - Wood - Ext				0.09		13.0/0.0		115.1			2.4		271 Btuh	
3	Frame - Wood - Ext				0.09		13.0/0.0		352.9			2.4		830 Btuh	
4	Frame - Wood - Ext				0.09		13.0/0.0		389.1			2.4		915 Btuh	
5	Frame - Wood - Ext				0.09		13.0/0.0		368.3			2.4		866 Btuh	
6	Frame - Wood - Ext				0.09		13.0/0.0		243.8			2.4		573 Btuh	
7	Frame - Wood - Ext				0.09		13.0/0.0		288.5			2.4		679 Btuh	
8	Frame - Wood - Ext				0.09		13.0/0.0		285.9			2.4		673 Btuh	
9	Frame - Wood - Ext				0.09		13.0/0.0		275.6			2.4		648 Btuh	
10	Frame - Wood - Ext				0.09		13.0/0.0		97.3			2.4		229 Btuh	
11	Frame - Wood - Ext				0.09		13.0/0.0		145.3			2.4		342 Btuh	
12	Frame - Wood - Ext				0.09		13.0/0.0		72.7			2.4		171 Btuh	
13	Frame - Wood - Ext				0.09		13.0/0.0		60.6			2.4		143 Btuh	
	Wall Total								2922 (sqft)					6874 Btuh	
Doors	Type	U-Value				R-Value		Area (sqft)			HTM		Load		
1	Insulated - Exterior								40.0			14.3		570 Btuh	
2	Insulated - Exterior								24.0			14.3		342 Btuh	
3	Insulated - Exterior								24.0			14.3		342 Btuh	
4	Insulated - Exterior								24.0			14.3		342 Btuh	
	Door Total								112 (sqft)					1597 Btuh	
Ceilings	Type/Color/Surface	U-Value				R-Value		Area(sqft)			HTM		Load		
1	Unvented Attic/Light/Shingle				0.241		0.0/20.0		614.0			0.96		592 Btuh	
2	Unvented Attic/Light/Shingle				0.241		0.0/20.0		1309.0			0.96		1262 Btuh	
3	Unvented Attic/Light/Shingle				0.241		0.0/20.0		128.0			0.96		123 Btuh	
	Ceiling Total								2051 (sqft)					1977 Btuh	

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence

Climate:FL_JACKSONVILLE_INTL_ARPT

12/19/2021

Floors	Type	R-Value	Size	HTM	Load	
1	Interior	0.0	614 (sqft)	0.0	0 Btuh	
2	Slab On Grade	0.0	1923 (ft-perimeter)	0.0	0 Btuh	
3	Slab On Grade	0.0	128 (ft-perimeter)	0.0	0 Btuh	
	Floor Total		2665.0 (sqft)		0 Btuh	
	Envelope Subtotal:				18121 Btuh	
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.23	23857	1	90.3	1985 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance		Load
		4	X 230	+	19500	20420 Btuh
	Sensible Envelope Load:					40526 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)			(DGM of 0.054)		1528 Btuh
	Sensible Load All Zones					42054 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence

Climate: FL_JACKSONVILLE_INTL_ARPT

12/19/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	40526 Btuh
	Sensible Duct Load	1528 Btuh
	Total Sensible Zone Loads	42054 Btuh
	Sensible ventilation	0 Btuh
	Blower	200 Btuh
	Total sensible gain	42254 Btuh
	Latent infiltration gain (for 49 gr. humidity difference)	3007 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1598 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	4800 Btuh
	Latent total gain	10205 Btuh
	TOTAL GAIN	52459 Btuh

EQUIPMENT

1. Central Unit	Carrier #25HPB642A**30	42000 Btuh
2. Central Unit	Fujitsu #AOU18RLX /(2) AUU7RLF	18000 Btuh

*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

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence
Building Type: User

12/19/2021

Reference City: Jacksonville, FL (Defaults) Winter Temperature Difference: 41.0 F (TMY3 99%)

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	HTM=	Load
1	2, NFRC 0.17	Vinyl	0.30	N	48.2		12.3	593 Btuh
2	2, NFRC 0.17	Vinyl	0.30	N	8.4		12.3	104 Btuh
3	2, NFRC 0.17	Vinyl	0.30	N	12.1		12.3	148 Btuh
4	2, NFRC 0.17	Vinyl	0.30	S	24.1		12.3	297 Btuh
5	2, NFRC 0.17	Vinyl	0.30	S	41.3		12.3	508 Btuh
6	2, NFRC 0.17	Vinyl	0.30	S	10.3		12.3	127 Btuh
7	2, NFRC 0.17	Vinyl	0.30	W	25.8		12.3	318 Btuh
8	2, NFRC 0.17	Vinyl	0.30	W	31.7		12.3	390 Btuh
9	2, NFRC 0.17	Vinyl	0.30	E	51.7		12.3	636 Btuh
10	2, NFRC 0.17	Vinyl	0.30	E	8.0		12.3	98 Btuh
11	2, NFRC 0.17	Vinyl	0.30	E	18.7		12.3	230 Btuh
12	2, NFRC 0.17	Vinyl	0.30	N	72.3		12.3	890 Btuh
13	2, NFRC 0.17	Vinyl	0.30	N	27.6		12.3	339 Btuh
14	2, NFRC 0.17	Vinyl	0.30	S	55.1		12.3	678 Btuh
15	2, NFRC 0.17	Vinyl	0.30	W	51.7		12.3	636 Btuh
16	2, NFRC 0.17	Vinyl	0.30	E	51.7		12.3	636 Btuh
17	2, NFRC 0.17	Vinyl	0.30	E	10.3		12.3	127 Btuh
18	2, NFRC 0.17	Vinyl	0.30	E	12.1		12.3	148 Btuh
Window Total					561.1(sqft)			6901 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	227		3.64	827 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	115		3.64	419 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	353		3.64	1284 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	389		3.64	1416 Btuh
5	Frame - Wood	- Ext	(0.089)	13.0/0.0	368		3.64	1340 Btuh
6	Frame - Wood	- Ext	(0.089)	13.0/0.0	244		3.64	887 Btuh
7	Frame - Wood	- Ext	(0.089)	13.0/0.0	289		3.64	1050 Btuh
8	Frame - Wood	- Ext	(0.089)	13.0/0.0	286		3.64	1041 Btuh
9	Frame - Wood	- Ext	(0.089)	13.0/0.0	276		3.64	1003 Btuh
10	Frame - Wood	- Ext	(0.089)	13.0/0.0	97		3.64	354 Btuh
11	Frame - Wood	- Ext	(0.089)	13.0/0.0	145		3.64	529 Btuh
12	Frame - Wood	- Ext	(0.089)	13.0/0.0	73		3.64	264 Btuh
13	Frame - Wood	- Ext	(0.089)	13.0/0.0	61		3.64	221 Btuh
Wall Total					2922(sqft)			10635 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, n		(0.460)		40		18.9	754 Btuh
2	Insulated - Exterior, n		(0.460)		24		18.9	453 Btuh
3	Insulated - Exterior, n		(0.460)		24		18.9	453 Btuh
4	Insulated - Exterior, n		(0.460)		24		18.9	453 Btuh
Door Total					112(sqft)			2112Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Jeffrey Coker
4562 SE County Rd 245
Lake City, FL

Project Title:
Coker Residence
Building Type: User

12/19/2021

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Unvent Attic/L/Shing	(0.241)	0.0/20.0	614	1.2	740 Btuh
2	Unvent Attic/L/Shing	(0.241)	0.0/20.0	1309	1.2	1577 Btuh
3	Unvent Attic/L/Shing	(0.241)	0.0/20.0	128	1.2	154 Btuh
	Ceiling Total			2051(sqft)		2471Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Interior	(0.000)	0.0	614.0 sqft	0.0	0 Btuh
2	Slab On Grade	(1.180)	0.0	196.0 ft(perim.)	48.4	9482 Btuh
3	Slab On Grade	(1.180)	0.0	48.0 ft(perim.)	48.4	2322 Btuh
	Floor Total			2665 sqft		11805 Btuh
Envelope Subtotal:						33925 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=
	Natural		0.30	23857	1.00	120.4
						5427 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.067)					2253 Btuh
All Zones	Sensible Subtotal All Zones					41604 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	41604 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	41604 Btuh

EQUIPMENT

1. Electric Heat Pump	Carrier #25HPB642A**30	42000 Btuh
2. Electric Heat Pump	Fujitsu #AOU18RLX /(2) AUU7RLF	18000 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