

Residential System Sizing Calculation

Summary

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title:
220807 Kremser Res

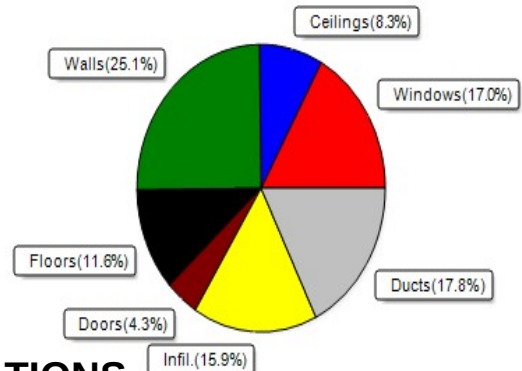
2022-09-22

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	21312 Btuh	Total cooling load calculation	24383 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	126.7 27000	Sensible (SHR = 0.75)	98.1 20250
Heat Pump + Auxiliary(0.0kW)	126.7 27000	Latent	180.3 6750
		Total (Electric Heat Pump)	110.7 27000

WINTER CALCULATIONS

Winter Heating Load (for 1608 sqft)

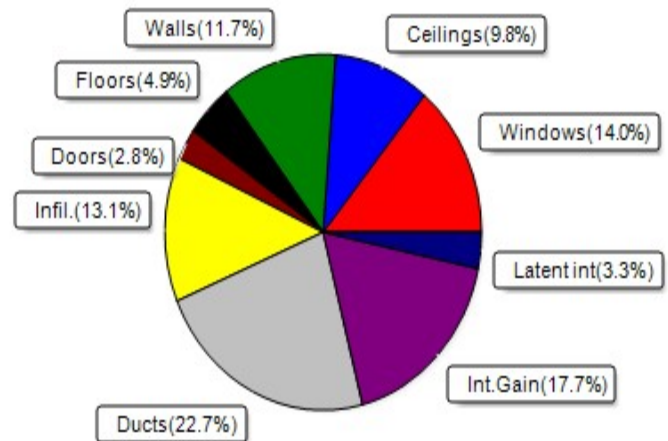
Load component		Load	
Window total	259 sqft	3626	Btuh
Wall total	1731 sqft	5349	Btuh
Door total	58 sqft	924	Btuh
Ceiling total	1712 sqft	1765	Btuh
Floor total	1608 sqft	2474	Btuh
Infiltration	77 cfm	3383	Btuh
Duct loss		3790	Btuh
Subtotal		21312	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		21312	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1608 sqft)

Load component		Load	
Window total	259 sqft	3408	Btuh
Wall total	1731 sqft	2862	Btuh
Door total	58 sqft	693	Btuh
Ceiling total	1712 sqft	2383	Btuh
Floor total		1183	Btuh
Infiltration	58 cfm	1205	Btuh
Internal gain		4320	Btuh
Duct gain		4586	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		20640	Btuh
Latent gain(ducts)		943	Btuh
Latent gain(infiltration)		2000	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		800	Btuh
Total latent gain		3743	Btuh
TOTAL HEAT GAIN		24383	Btuh



8th Edition

EnergyGauge® System Sizing
PREPARED BY: Evan Beamsley
DATE: 2022-09-22

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title:
220807 Kremser Res
Building Type: User

2022-09-22

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	Metal	0.35	N	53.3		14.0	747 Btuh
2	2, NFRC 0.25	Metal	0.35	N	12.0		14.0	168 Btuh
3	2, NFRC 0.25	Metal	0.35	NW	12.0		14.0	168 Btuh
4	2, NFRC 0.25	Metal	0.35	NW	2.0		14.0	28 Btuh
5	2, NFRC 0.25	Metal	0.35	N	24.0		14.0	336 Btuh
6	2, NFRC 0.25	Metal	0.35	N	4.0		14.0	56 Btuh
7	2, NFRC 0.25	Metal	0.35	NE	12.0		14.0	168 Btuh
8	2, NFRC 0.25	Metal	0.35	NE	2.0		14.0	28 Btuh
9	2, NFRC 0.25	Metal	0.35	N	13.3		14.0	187 Btuh
10	2, NFRC 0.25	Metal	0.35	N	3.0		14.0	42 Btuh
11	2, NFRC 0.25	Metal	0.35	S	18.0		14.0	252 Btuh
12	2, NFRC 0.25	Metal	0.35	S	3.0		14.0	42 Btuh
13	2, NFRC 0.25	Metal	0.35	S	18.0		14.0	252 Btuh
14	2, NFRC 0.25	Metal	0.35	S	3.0		14.0	42 Btuh
15	2, NFRC 0.25	Metal	0.35	S	36.0		14.0	504 Btuh
16	2, NFRC 0.25	Metal	0.35	S	9.0		14.0	126 Btuh
17	2, NFRC 0.25	Metal	0.35	S	13.3		14.0	187 Btuh
18	2, NFRC 0.25	Metal	0.35	S	18.0		14.0	252 Btuh
19	2, NFRC 0.25	Metal	0.35	S	3.0		14.0	42 Btuh
Window Total					259.0(sqft)			3626 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	142		3.09	440 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	24		3.09	74 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	76		3.09	235 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	20		3.09	62 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	68		3.09	210 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	20		3.09	62 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	25		3.09	77 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	24		3.09	74 Btuh
9	Frame - Wood	- Ext	(0.077)	19.0/0.0	68		3.09	210 Btuh
10	Frame - Wood	- Ext	(0.077)	19.0/0.0	103		3.09	319 Btuh
11	Frame - Wood	- Ext	(0.077)	19.0/0.0	210		3.09	649 Btuh
12	Frame - Wood	- Ext	(0.077)	19.0/0.0	59		3.09	182 Btuh
13	Frame - Wood	- Ext	(0.077)	19.0/0.0	84		3.09	260 Btuh
14	Frame - Wood	- Ext	(0.077)	19.0/0.0	56		3.09	174 Btuh
15	Frame - Wood	- Ext	(0.077)	19.0/0.0	398		3.09	1229 Btuh
16	Frame - Wood	- Ext	(0.077)	19.0/0.0	84		3.09	260 Btuh
17	Frame - Wood	- Ext	(0.077)	19.0/0.0	59		3.09	182 Btuh
18	Frame - Wood	- Ext	(0.077)	19.0/0.0	210		3.09	649 Btuh
Wall Total					1731(sqft)			5349 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title:
220807 Kremser Res
Building Type: User

2022-09-22

Doors	Type	Storm Ueff.		Area X	HTM=	Load
1	Insulated - Exterior, n	(0.400)		18	16.0	284 Btuh
2	Insulated - Exterior, n	(0.400)		27	16.0	427 Btuh
3	Insulated - Exterior, n	(0.400)		7	16.0	107 Btuh
4	Insulated - Exterior, n	(0.400)		7	16.0	107 Btuh
	Door Total			58(sqft)		924Btuh
Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/D/Shing	(0.025)	38.0/0.0	1608	1.0	1632 Btuh
2	Knee Wall/D/Shing	(0.032)	30.0/0.0	104	1.3	132 Btuh
	Ceiling Total			1712(sqft)		1765Btuh
Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Stem/Crawlsp(Carpet)(v)	(0.049)	19.0/0.0	1608.0 sqft	1.5	2474 Btuh
	Floor Total			1608 sqft		2474 Btuh
	Envelope Subtotal:					14139 Btuh
Infiltration	Type	Wholehouse ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural	0.25	18331	1.00	77.3	3383 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att) (DLM of 0.216)					3790 Btuh
All Zones	Sensible Subtotal All Zones					21312 Btuh

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	21312 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	21312 Btuh

EQUIPMENT

1. Electric Heat Pump	#	27000 Btuh
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Manual J Winter Calculations

Residential Load - Component Details (continued)

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

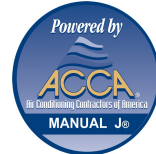
Project Title:
220807 Kremser Res
Building Type: User

2022-09-22

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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title:
220807 Kremser Res

2022-09-22

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, 0.35	No	No	N		10.0f	4.0ft	53.3	0.0	53.3	12	12	635	Btuh	
2	2 NFRC	0.25, 0.35	No	No	N		10.0f	3.0ft	12.0	0.0	12.0	12	12	143	Btuh	
3	2 NFRC	0.25, 0.35	No	No	NW		12.5f	4.0ft	12.0	0.0	12.0	12	23	281	Btuh	
4	2 NFRC	0.25, 0.35	No	No	NW		12.5f	3.0ft	2.0	0.0	2.0	12	23	47	Btuh	
5	2 NFRC	0.25, 0.35	No	No	N		8.0ft	4.0ft	24.0	0.0	24.0	12	12	286	Btuh	
6	2 NFRC	0.25, 0.35	No	No	N		8.0ft	3.0ft	4.0	0.0	4.0	12	12	48	Btuh	
7	2 NFRC	0.25, 0.35	No	No	NE		12.5f	4.0ft	12.0	0.0	12.0	12	23	281	Btuh	
8	2 NFRC	0.25, 0.35	No	No	NE		12.5f	1.0ft	2.0	0.0	2.0	12	23	47	Btuh	
9	2 NFRC	0.25, 0.35	No	No	N		10.0f	4.0ft	13.3	0.0	13.3	12	12	159	Btuh	
10	2 NFRC	0.25, 0.35	No	No	N		10.0f	3.0ft	3.0	0.0	3.0	12	12	36	Btuh	
11	2 NFRC	0.25, 0.35	No	No	S		1.5ft	2.0ft	18.0	18.0	0.0	12	14	214	Btuh	
12	2 NFRC	0.25, 0.35	No	No	S		1.5ft	1.0ft	3.0	3.0	0.0	12	14	36	Btuh	
13	2 NFRC	0.25, 0.35	No	No	S		8.0ft	3.0ft	18.0	18.0	0.0	12	14	214	Btuh	
14	2 NFRC	0.25, 0.35	No	No	S		8.0ft	3.0ft	3.0	3.0	0.0	12	14	36	Btuh	
15	2 NFRC	0.25, 0.35	No	No	S		10.0f	3.0ft	36.0	36.0	0.0	12	14	429	Btuh	
16	2 NFRC	0.25, 0.35	No	No	S		10.0f	3.0ft	9.0	9.0	0.0	12	14	107	Btuh	
17	2 NFRC	0.25, 0.35	No	No	S		10.0f	4.0ft	13.3	13.3	0.0	12	14	159	Btuh	
18	2 NFRC	0.25, 0.35	No	No	S		1.5ft	2.0ft	18.0	18.0	0.0	12	14	214	Btuh	
19	2 NFRC	0.25, 0.35	No	No	S		1.5ft	1.0ft	3.0	3.0	0.0	12	14	36	Btuh	
	Window Total								259 (sqft)					3408 Btuh		
Walls	Type					U-Value	R-Value		Area(sqft)			HTM		Load		
							Cav/Sheath									
1	Frame - Wood - Ext						0.08		19.0/0.0		142.2			1.7		235 Btuh
2	Frame - Wood - Ext						0.08		19.0/0.0		24.0			1.7		40 Btuh
3	Frame - Wood - Ext						0.08		19.0/0.0		76.0			1.7		126 Btuh
4	Frame - Wood - Ext						0.08		19.0/0.0		20.0			1.7		33 Btuh
5	Frame - Wood - Ext						0.08		19.0/0.0		68.0			1.7		112 Btuh
6	Frame - Wood - Ext						0.08		19.0/0.0		20.0			1.7		33 Btuh
7	Frame - Wood - Ext						0.08		19.0/0.0		25.0			1.7		41 Btuh
8	Frame - Wood - Ext						0.08		19.0/0.0		24.0			1.7		40 Btuh
9	Frame - Wood - Ext						0.08		19.0/0.0		68.0			1.7		112 Btuh
10	Frame - Wood - Ext						0.08		19.0/0.0		103.3			1.7		171 Btuh
11	Frame - Wood - Ext						0.08		19.0/0.0		210.0			1.7		347 Btuh
12	Frame - Wood - Ext						0.08		19.0/0.0		59.0			1.7		98 Btuh
13	Frame - Wood - Ext						0.08		19.0/0.0		84.0			1.7		139 Btuh
14	Frame - Wood - Ext						0.08		19.0/0.0		56.3			1.7		93 Btuh
15	Frame - Wood - Ext						0.08		19.0/0.0		397.7			1.7		658 Btuh
16	Frame - Wood - Ext						0.08		19.0/0.0		84.0			1.7		139 Btuh
17	Frame - Wood - Ext						0.08		19.0/0.0		59.0			1.7		98 Btuh
18	Frame - Wood - Ext						0.08		19.0/0.0		210.0			1.7		347 Btuh
	Wall Total								1731 (sqft)					2862 Btuh		
Doors	Type								Area (sqft)			HTM		Load		
1	Insulated - Exterior									17.8			12.0		213 Btuh	
2	Insulated - Exterior									26.7			12.0		320 Btuh	
3	Insulated - Exterior									6.7			12.0		80 Btuh	
4	Insulated - Exterior									6.7			12.0		80 Btuh	
	Door Total								58 (sqft)					693 Btuh		

Manual J Summer Calculations

Residential Load - Component Details (continued)

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
220807 Kremser Res

2022-09-22

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.025	38.0/0.0	1608.0	1.37	2204 Btuh
2	Knee Wall/DarkShingle	0.032	30.0/0.0	104.0	1.72	179 Btuh
	Ceiling Total			1712 (sqft)		2383 Btuh
Floors	Type		R-Value	Size	HTM	Load
1	Stem/Crawlsp(Carpet)(v)		19.0	1608 (sqft)	0.7	1183 Btuh
	Floor Total			1608.0 (sqft)		1183 Btuh
	Envelope Subtotal:					10528 Btuh
Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.19	18331	1	57.9	1205 Btuh
Internal gain		Occupants	Btuh/occupant	Appliance		Load
		4	X 230	+	3400	4320 Btuh
	Sensible Envelope Load:					16053 Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.286)	4586 Btuh
	Sensible Load All Zones					20640 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Kremser, Scott Res.
161 SW Winthrop Place
Fort White, FL

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
220807 Kremser Res

2022-09-22

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	16053 Btuh
	Sensible Duct Load	4586 Btuh
	Total Sensible Zone Loads	20640 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	20640 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	2000 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	943 Btuh
	Latent occupant gain (4.0 people @ 200 Btuh per person)	800 Btuh
	Latent other gain	0 Btuh
	Latent total gain	3743 Btuh
	TOTAL GAIN	24383 Btuh

EQUIPMENT

1. Central Unit	#	27000 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