

Residential System Sizing Calculation

Summary

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE

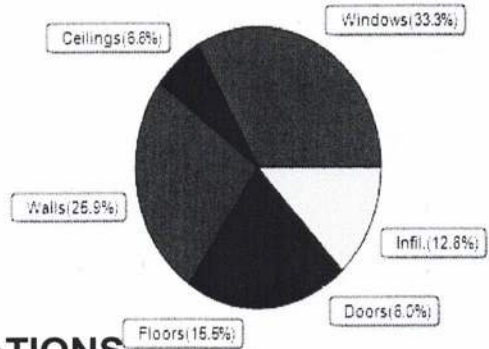
3/11/2021

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	11389 Btuh	Total cooling load calculation	15733 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Strip Heat)	184.4 21000	Sensible (SHR = 0.75)	94.6 13500
		Latent	307.6 4500
		Total	114.4 18000

WINTER CALCULATIONS

Winter Heating Load (for 586 sqft)

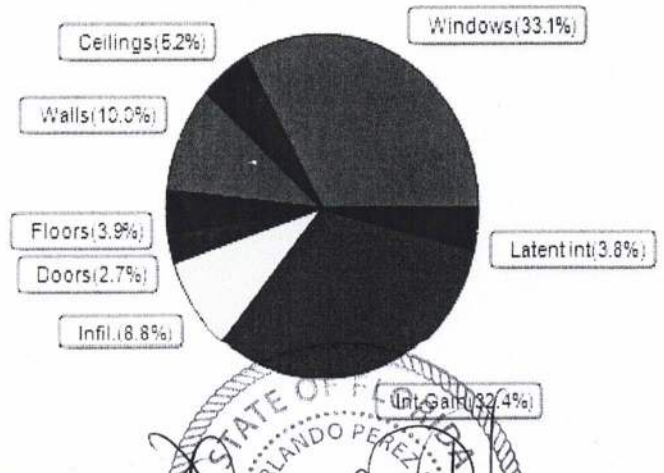
Load component		Load	
Window total	135 sqft	3789	Btuh
Wall total	954 sqft	2949	Btuh
Door total	20 sqft	680	Btuh
Ceiling total	586 sqft	746	Btuh
Floor total	586 sqft	1765	Btuh
Infiltration	33 cfm	1460	Btuh
Duct loss		0	Btuh
Subtotal		11389	Btuh
Ventilation	0 cfm	0	Btuh
TOTAL HEAT LOSS		11389	Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 586 sqft)

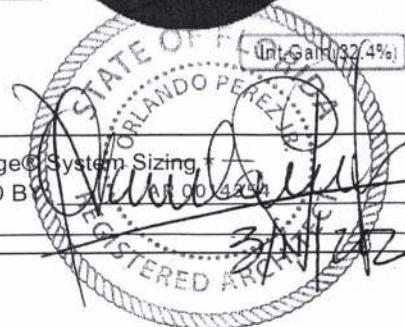
Load component		Load	
Window total	135 sqft	5212	Btuh
Wall total	954 sqft	1578	Btuh
Door total	20 sqft	432	Btuh
Ceiling total	586 sqft	821	Btuh
Floor total		618	Btuh
Infiltration	25 cfm	520	Btuh
Internal gain		5090	Btuh
Duct gain		0	Btuh
Sens. Ventilation	0 cfm	0	Btuh
Blower Load		0	Btuh
Total sensible gain		14270	Btuh
Latent gain(ducts)		0	Btuh
Latent gain(infiltration)		863	Btuh
Latent gain(ventilation)		0	Btuh
Latent gain(internal/occupants/other)		600	Btuh
Total latent gain		1463	Btuh
TOTAL HEAT GAIN		15733	Btuh



8th Edition

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DATE: 3/11/21



Residential Window Diversity

MidSummer

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

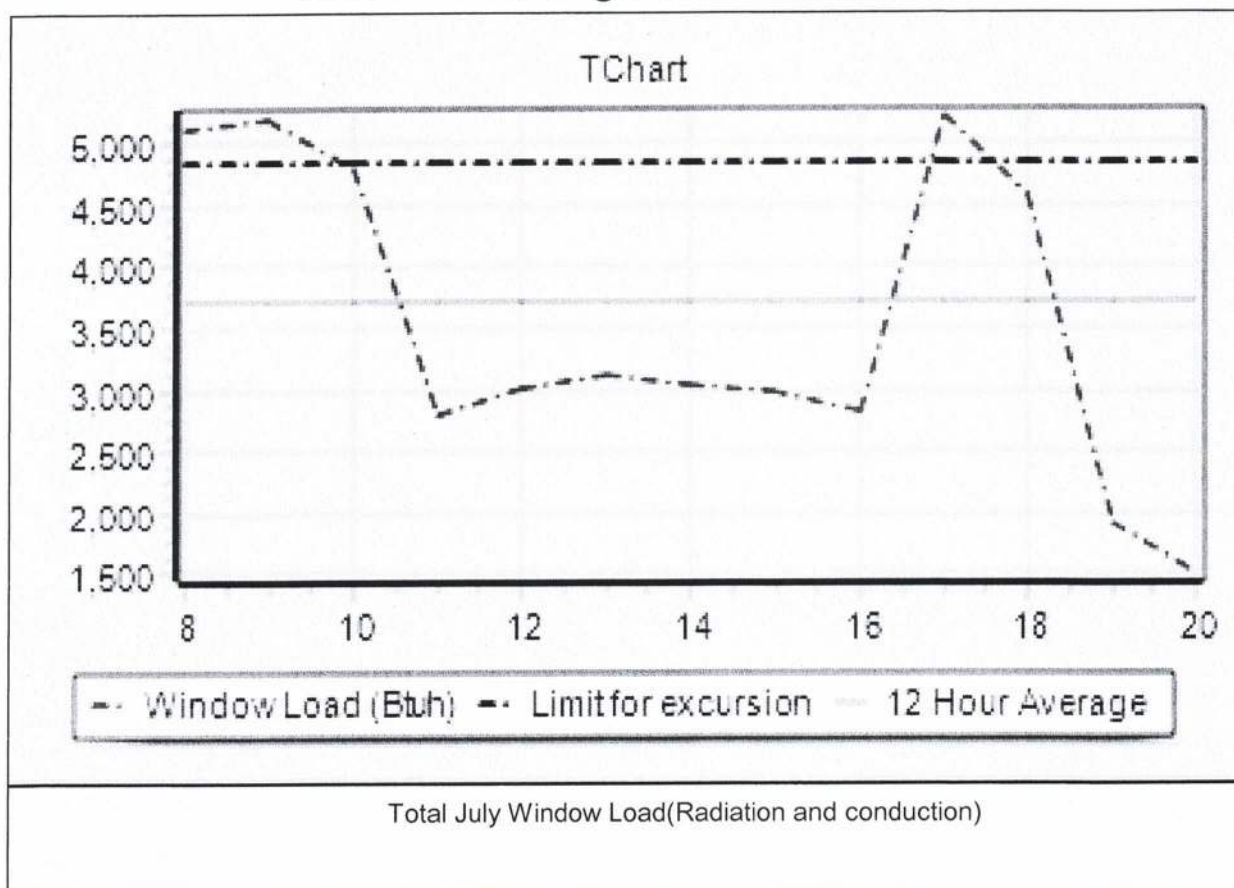
Project Title:
CHRIS MENDEZ -- COTTAGE

3/11/2021

Weather data for: Gainesville - Defaults

Summer design temperature	94 F	Average window load for July	3716 Btuh
Cooling setpoint	75 F	Peak window load for July	5215 Btuh
Summer temperature difference	19 F	Excursion limit(130% of Ave.)	4830 Btuh
Latitude	29.7 North	Window excursion (July)	384 Btuh

WINDOW Average and Peak Loads



Warning: This application has glass areas that produce relatively large heat gains for part of the day. Variable air volume devices may be required to overcome spikes in solar gain for one or more rooms. A zoned system may be required or some rooms may require zone control.

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DATE: 3/11/2021

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Residential Window Diversity

October

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

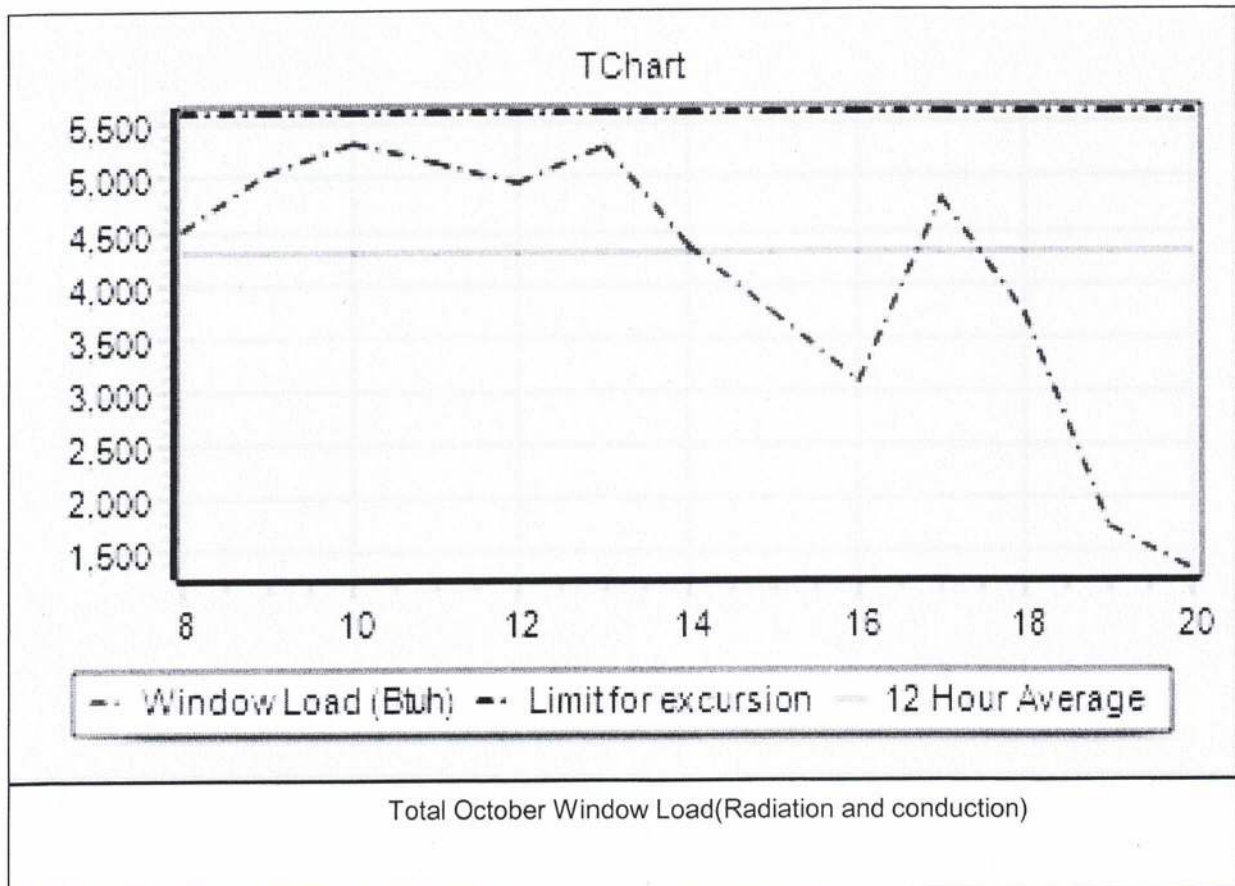
Project Title:
CHRIS MENDEZ -- COTTAGE

3/11/2021

Weather data for: Gainesville - Defaults

Summer design temperature	94 F	Average window load for October	4309 Btuh
Cooling setpoint	75 F	Peak window load for October	5310 Btuh
Summer temperature difference	19 F	Excursion limit(130% of Ave.)	5602 Btuh
Latitude	29.7 North	Window excursion (October)	None

WINDOW Average and Peak Loads



The October window load for this house does not exceed the window load excursion limit.
This house has adequate October window diversity.

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DATE: *[Signature]*

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System Sizing Calculations - Winter

Residential Load - Whole House Component Details

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE
Building Type: User

3/11/2021

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 0.55	Vinyl	0.70	E	64.0		28.0	1792 Btuh
2	2, NFRC 0.55	Vinyl	0.70	E	12.0		28.0	336 Btuh
3	2, NFRC 0.55	Vinyl	0.70	S	17.3		28.0	485 Btuh
4	2, NFRC 0.55	Vinyl	0.70	S	10.0		28.0	280 Btuh
5	2, NFRC 0.55	Vinyl	0.70	W	32.0		28.0	896 Btuh
	Window Total					135.3(sqft)		3789 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	HTM=	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	213		3.09	659 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	213		3.09	657 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	104		3.09	320 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	43		3.09	132 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	61		3.09	189 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	43		3.09	132 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	21		3.09	66 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	257		3.09	793 Btuh
	Wall Total					954(sqft)		2949 Btuh
Doors	Type	Storm	Ueff.		Area	X	HTM=	Load
1	Insulated - Exterior, m		(0.850)		10		34.0	340 Btuh
2	Insulated - Exterior, m		(0.850)		10		34.0	340 Btuh
	Door Total					20(sqft)		680Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	HTM=	Load
1	Vented Attic/L/Metal		(0.032)	30.0/0.0	586		1.3	746 Btuh
	Ceiling Total					586(sqft)		746Btuh
Floors	Type		Ueff.	R-Value	Size	X	HTM=	Load
1	Raised - Open		(0.075)	11.0	586.0 sqft		3.0	1765 Btuh
	Floor Total					586 sqft		1765 Btuh
	Envelope Subtotal:							9929 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=		Load
	Natural		0.32	6247	1.00	33.3		1460 Btuh
Duct load	NA, R0.0, Supply(), Return() (DLM of 0.000)							0 Btuh
All Zones	Sensible Subtotal All Zones							11389 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE
Building Type: User

3/11/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	11389 Btuh 0 Btuh 11389 Btuh
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EQUIPMENT

1. Electric Strip Heat		21000 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

Residential Load - Whole House Component Details

Project Title:
CHRIS MENDEZ -- COTTAGE

Reference City: Gainesville, FL

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

Window	Type*						Overhang		Window Area(sqft)			HTM		Load	
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded		
1	2 NFRC	0.55, 0.70	B-M	No	E	2.0ft	4.0ft	64.0	0.0	64.0		19	49		3123 Btuh
2	2 NFRC	0.55, 0.70	B-M	No	E	2.0ft	4.0ft	12.0	0.0	12.0		19	49		586 Btuh
3	2 NFRC	0.55, 0.70	B-M	No	S	2.0ft	4.0ft	17.3	17.3	0.0		19	23		327 Btuh
4	2 NFRC	0.55, 0.70	B-M	No	S	2.0ft	4.0ft	10.0	10.0	0.0		19	23		189 Btuh
5	2 NFRC	0.55, 0.70	B-M	No	W	12.0f	4.0ft	32.0	32.0	0.0		19	49		603 Btuh
	Excursion														384 Btuh
	Window Total								135 (sqft)						5212 Btuh
Walls	Type	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Frame - Wood - Ext		0.08		19.0/0.0		213.3		1.7		353 Btuh				
2	Frame - Wood - Ext		0.08		19.0/0.0		212.7		1.7		352 Btuh				
3	Frame - Wood - Ext		0.08		19.0/0.0		103.6		1.7		171 Btuh				
4	Frame - Wood - Ext		0.08		19.0/0.0		42.7		1.7		71 Btuh				
5	Frame - Wood - Ext		0.08		19.0/0.0		61.1		1.7		101 Btuh				
6	Frame - Wood - Ext		0.08		19.0/0.0		42.7		1.7		71 Btuh				
7	Frame - Wood - Ext		0.08		19.0/0.0		21.3		1.7		35 Btuh				
8	Frame - Wood - Ext		0.08		19.0/0.0		256.7		1.7		424 Btuh				
	Wall Total							954 (sqft)				1578 Btuh			
Doors	Type	U-Value		R-Value		Area (sqft)		HTM		Load					
1	Insulated - Exterior						10.0		21.6		216 Btuh				
2	Insulated - Exterior						10.0		21.6		216 Btuh				
	Door Total							20 (sqft)				432 Btuh			
Ceilings	Type/Color/Surface	U-Value		R-Value		Area(sqft)		HTM		Load					
1	Vented Attic/Light/Metal		0.032		30.0/0.0		586.0		1.40		821 Btuh				
	Ceiling Total							586 (sqft)				821 Btuh			
Floors	Type	U-Value		R-Value		Size		HTM		Load					
1	Raised - Open				11.0		586 (sqft)		1.1		618 Btuh				
	Floor Total							586.0 (sqft)				618 Btuh			
	Envelope Subtotal:											8660 Btuh			
Infiltration	Type	Average ACH		Volume(cuft)		Wall Ratio		CFM=		Load					
	Natural		0.24		6247		1		25.0		520 Btuh				
Internal gain		Occupants		Btuh/occupant		Appliance				Load					
			3		X 230		+		4400		5090 Btuh				
	Sensible Envelope Load:											14270 Btuh			
Duct load	NA, Supply(R0.0-None), Return(R0.0-None)											0 Btuh			
	Sensible Load All Zones											14270 Btuh			

Manual J Summer Calculations

Residential Load - Component Details (continued)

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
CHRIS MENDEZ -- COTTAGE

3/11/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14270 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	14270 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14270 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	863 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1463 Btuh
	TOTAL GAIN	15733 Btuh

EQUIPMENT

1. PTAC and Room Unit	#	18000 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 - Room by Room Component Details

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE
Building Type: User

3/11/2021

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 40.0 F (TMY3 99%)

Component Loads for Room #1: Main							
Window	Panes/Type	Frame	U	Orientation	Area(sqft)	X	Load
1	2, NFRC 0.55	Vinyl	0.70	E	64.0	28.0	1792 Btuh
2	2, NFRC 0.55	Vinyl	0.70	E	12.0	28.0	336 Btuh
3	2, NFRC 0.55	Vinyl	0.70	S	17.3	28.0	485 Btuh
4	2, NFRC 0.55	Vinyl	0.70	S	10.0	28.0	280 Btuh
5	2, NFRC 0.55	Vinyl	0.70	W	32.0	28.0	896 Btuh
Window Total					135.3(sqft)		3789 Btuh
Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area	X	Load
1	Frame - Wood	- Ext	(0.077)	19.0/0.0	213	3.09	659 Btuh
2	Frame - Wood	- Ext	(0.077)	19.0/0.0	213	3.09	657 Btuh
3	Frame - Wood	- Ext	(0.077)	19.0/0.0	104	3.09	320 Btuh
4	Frame - Wood	- Ext	(0.077)	19.0/0.0	43	3.09	132 Btuh
5	Frame - Wood	- Ext	(0.077)	19.0/0.0	61	3.09	189 Btuh
6	Frame - Wood	- Ext	(0.077)	19.0/0.0	43	3.09	132 Btuh
7	Frame - Wood	- Ext	(0.077)	19.0/0.0	21	3.09	66 Btuh
8	Frame - Wood	- Ext	(0.077)	19.0/0.0	257	3.09	793 Btuh
Wall Total					954(sqft)		2949 Btuh
Doors	Type	Storm	Ueff.		Area	X	Load
1	Insulated - Exterior, m		(0.850)		10	34.0	340 Btuh
2	Insulated - Exterior, m		(0.850)		10	34.0	340 Btuh
Door Total					20(sqft)		680Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area	X	Load
1	Vented Attic/L/Metal		(0.032)	30.0/0.0	586	1.3	746 Btuh
Ceiling Total					586(sqft)		746Btuh
Floors	Type		Ueff.	R-Value	Size	X	Load
1	Raised - Open		(0.075)	11.0	586.0	3.0	1765 Btuh
Floor Total					586 sqft		1765 Btuh
Room Envelope Subtotal:							9929 Btuh
Infiltration	Type	Wholehouse	ACH	Room Volume	Wall Ratio	CFM=	
	Natural		0.32	6247	1.00	33.3	1460 Btuh
Duct load	No ducts assigned to this zone. (DLM of 0.000)						0 Btuh
Room #1	Sensible Room Subtotal						11389 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE
Building Type: User

3/11/2021

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss	11389 Btuh
	Ventilation Sensible Heat Loss	0 Btuh
	Total Heat Loss	11389 Btuh

EQUIPMENT

1. Electric Strip Heat		21000 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

System Sizing Calculations - Summer

Residential Load - Room by Room Component Details

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title:
CHRIS MENDEZ -- COTTAGE

3/11/2021

Reference City: Gainesville, FL

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

Component Loads for Room #1: Main

Window	Type*						Overhang		Window Area(sqft)			HTM		Load									
	Panes	SHGC	U	InSh	IS	Ornt	Len	Hgt	Gross	Shaded	Unshaded	Shaded	Unshaded										
1	2 NFRC	0.55, 0.70	B-M	No	E		2.0ft	4.0ft	64.0	0.0	64.0	19	49	3123	Btuh								
2	2 NFRC	0.55, 0.70	B-M	No	E		2.0ft	4.0ft	12.0	0.0	12.0	19	49	586	Btuh								
3	2 NFRC	0.55, 0.70	B-M	No	S		2.0ft	4.0ft	17.3	17.3	0.0	19	23	327	Btuh								
4	2 NFRC	0.55, 0.70	B-M	No	S		2.0ft	4.0ft	10.0	10.0	0.0	19	23	189	Btuh								
5	2 NFRC	0.55, 0.70	B-M	No	W		12.0f	4.0ft	32.0	32.0	0.0	19	49	603	Btuh								
Window Total									135 (sqft)					4828 Btuh									
Walls	Type						U-Value		R-Value		Area(sqft)		HTM		Load								
									Cav/Sheath														
1	Frame - Wood - Ext						0.08		19.0/0.0		213.3		1.7		353 Btuh								
2	Frame - Wood - Ext						0.08		19.0/0.0		212.7		1.7		352 Btuh								
3	Frame - Wood - Ext						0.08		19.0/0.0		103.6		1.7		171 Btuh								
4	Frame - Wood - Ext						0.08		19.0/0.0		42.7		1.7		71 Btuh								
5	Frame - Wood - Ext						0.08		19.0/0.0		61.1		1.7		101 Btuh								
6	Frame - Wood - Ext						0.08		19.0/0.0		42.7		1.7		71 Btuh								
7	Frame - Wood - Ext						0.08		19.0/0.0		21.3		1.7		35 Btuh								
8	Frame - Wood - Ext						0.08		19.0/0.0		256.7		1.7		424 Btuh								
Wall Total									954 (sqft)					1578 Btuh									
Doors	Type								Area (sqft)		HTM		Load										
1	Insulated - Exterior								10.0		21.6		216 Btuh										
2	Insulated - Exterior								10.0		21.6		216 Btuh										
Door Total									20 (sqft)					432 Btuh									
Ceilings	Type/Color/Surface						U-Value		R-Value		Area(sqft)		HTM		Load								
1	Vented Attic/Light/Metal						0.032		30.0/0.0		586.0		1.40		821 Btuh								
Ceiling Total									586 (sqft)					821 Btuh									
Floors	Type								R-Value		Size		HTM		Load								
1	Raised - Open								11.0		586 (sqft)		1.1		618 Btuh								
Floor Total									586.0 (sqft)					618 Btuh									
Zone Envelope Subtotal:														8276 Btuh									
Infiltration	Type						Wholehouse ACH		Volume(cuft)		Wall Ratio		CFM=		Load								
Natural														0.24		6247		1.00		25.0		520 Btuh	
Internal gain							Occupants		Btuh/occupant		Appliance		Load										
									X		230		+		4400		5090 Btuh						
Sensible Envelope Load:														13886 Btuh									
Duct load	No duct systemNo ducts assigned to this zone.													(DGM of 0.000)		0 Btuh							
Sensible Zone Load														13886 Btuh									

Manual J Summer Calculations

Residential Load - Component Details (continued)

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
CHRIS MENDEZ -- COTTAGE

3/11/2021

The following window Excursion will be assigned to the system loads.

Windows	July excursion for System 1	Excursion Subtotal:	384 Btuh 384 Btuh
Duct load			0 Btuh
		Sensible Excursion Load	384 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

CHRIS MENDEZ
868 SW CUMBERLAND ST
HIGH SPRINGS, FL 33038

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
CHRIS MENDEZ -- COTTAGE

3/11/2021

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	Sensible Envelope Load All Zones	14270 Btuh
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	14270 Btuh
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	14270 Btuh
	Latent infiltration gain (for 51 gr. humidity difference)	863 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (3.0 people @ 200 Btuh per person)	600 Btuh
	Latent other gain	0 Btuh
	Latent total gain	1463 Btuh
	TOTAL GAIN	15733 Btuh

EQUIPMENT

1. PTAC and Room Unit	#	18000 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