Residential System Sizing Calculation

Summary

Project Title:
Bonnie Philpot

, FL

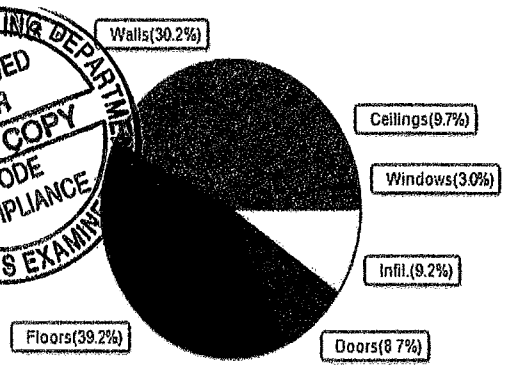
6/13/2025

Location for weather data: Gainesville, FL - Defaults. Latitude(29.7) Altitude(100 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	**16850**	**Btuh**	**Total cooling load calculation**	**10882**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	249.3	42000	Sensible (SHR = 0.75)	329.4	31500
Heat Pump + Auxiliary(0 0kW)	249.3	42000	Latent	795 3	10500
			Total (Electric Heat Pump)	386 0	42000

WINTER CALCULATIONS

Winter Heating Load (for 1200 sqft)

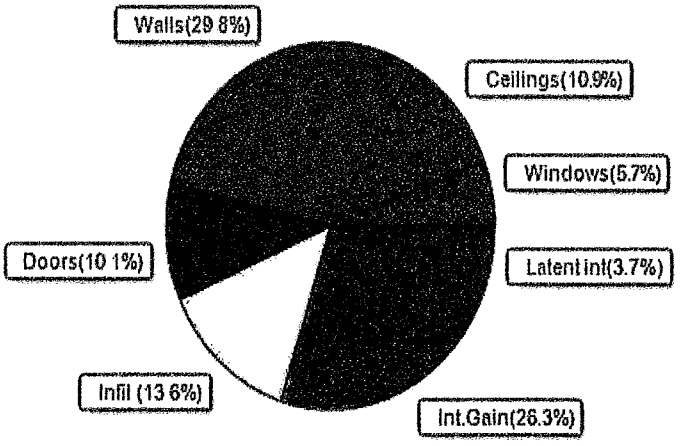
Load component			Load	
Window total	48	sqft	499	Btuh
Wall total	1132	sqft	5082	Btuh
Door total	80	sqft	1472	Btuh
Ceiling total	1200	sqft	1632	Btuh
Floor total	1200	sqft	6608	Btuh
Infiltration	35	cfm	1557	Btuh
Duct loss			0	Btuh
Subtotal			**16850**	**Btuh**
Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
TOTAL HEAT LOSS			**16850**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1200 sqft)

Load component			Load	
Window total	48	sqft	620	Btuh
Wall total	1132	sqft	3240	Btuh
Door total	80	sqft	1104	Btuh
Ceiling total	1200	sqft	1183	Btuh
Floor total			0	Btuh
Infiltration	27	cfm	555	Btuh
Internal gain			2860	Btuh
Duct gain			0	Btuh
Sens Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**9562**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			920	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			400	Btuh
Total latent gain			**1320**	**Btuh**
TOTAL HEAT GAIN			**10882**	**Btuh**



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EnergyGauge® System Sizing
PREPARED BY
DATE 6-13-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Bonnie Philpot

, FL

6/13/2025

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* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0 20, 0 26		No	No	N	1 5ft.	1 3ft.	12 0	0 0	12 0	9	9	110 Btuh
2	2 NFRC	0 20, 0 26		No	No	E	1.5ft.	1 3ft.	6 0	0 0	6 0	9	24	145 Btuh
3	2 NFRC	0 20, 0 26		No	No	S	1 5ft.	1 3ft.	24.0	24 0	0 0	9	11	220 Btuh
4	2 NFRC	0 20, 0.26		No	No	W	1.5ft.	1 3ft.	6 0	0 0	6 0	9	24	145 Btuh
	Window Total										48 (sqft)			620 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Steel - Ext	0 11	13 0/0 0	288 0	2 9	824 Btuh
2	Frame - Steel - Ext	0 11	13 0/0 0	264 0	2 9	756 Btuh
3	Frame - Steel - Ext	0.11	13 0/0 0	316 0	2 9	904 Btuh
4	Frame - Steel - Ext	0 11	13 0/0 0	264 0	2 9	756 Btuh
	Wall Total			1132 (sqft)		3240 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20 0	13 8	276 Btuh
2	Insulated - Exterior	20 0	13 8	276 Btuh
3	Insulated - Exterior	40 0	13 8	552 Btuh
	Door Total	80 (sqft)		1104 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	SnglAsmb no airsp/DarkMetal	0 034	30 0/0 0	1200 0	0 99	1183 Btuh
	Ceiling Total			1200 (sqft)		1183 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0 0	1200 (ft-perimeter)	0 0	0 Btuh
	Floor Total		1200.0 (sqft)		0 Btuh
			Envelope Subtotal:		6147 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0 15	10800	1	26.6	555 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		2	X 230	+	2400	2860 Btuh
				Sensible Envelope Load:		9562 Btuh
Duct load	Average sealed, Supply(R6 0-Condi), Return(R6 0-Condi)			(DGM of 0.000)		0 Btuh
				Sensible Load All Zones		**9562 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Bonnie Philpot

, FL

6/13/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**9562 Btuh**
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	**9562 Btuh**
	Sensible ventilation (Ex.0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**9562 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	920 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**1320 Btuh**
	TOTAL GAIN	**10882 Btuh**

EQUIPMENT

1 Central Unit	#	42000 Btuh

*Key: Window types (Panes - 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:
Bonnie Philpot
, FL Building Type User

6/13/2025

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 0.20	Vinyl	0.26	N	12.0	10.4	125 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	6.0	10.4	62 Btuh
3	2, NFRC 0.20	Vinyl	0 26	S	24.0	10.4	250 Btuh
4	2, NFRC 0.20	Vinyl	0.26	W	6.0	10 4	62 Btuh
	Window Total				48.0(sqft)		499 Btuh
Walls	Type	Ornt	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Steel	- Ext	(0 112)	13.0/0.0	288	4.49	1293 Btuh
2	Frame - Steel	- Ext	(0.112)	13.0/0.0	264	4.49	1185 Btuh
3	Frame - Steel	- Ext	(0 112)	13.0/0.0	316	4.49	1419 Btuh
4	Frame - Steel	- Ext	(0.112)	13.0/0.0	264	4.49	1185 Btuh
	Wall Total				1132(sqft)		5082 Btuh
Doors	Type	Storm	Ueff		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20	18 4	368 Btuh
2	Insulated - Exterior,	n	(0.460)		20	18.4	368 Btuh
3	Insulated - Exterior,	n	(0.460)		40	18.4	736 Btuh
	Door Total				80(sqft)		1472Btuh
Ceilings	Type/Color/Surface		Ueff	R-Value	Area X	HTM=	Load
1	Single as/D/Metal		(0.034)	30 0/0.0	1200	1 4	1632 Btuh
	Ceiling Total				1200(sqft)		1632Btuh
Floors	Type		Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1 180)	0.0	140.0 ft(perim)	47 2	6608 Btuh
	Floor Total				1200 sqft		6608 Btuh
					Envelope Subtotal:		15293 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0 20	10800	1 00	35 5	1557 Btuh
Duct load	Average sealed, R6.0, Supply(Con), Return(Con)					(DLM of 0 000)	0 Btuh
All Zones				**Sensible Subtotal All Zones**			**16850 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Bonnie Philpot
Building Type: User

, FL

6/13/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sens. Heat Loss (Ex.0 cfm, Sup:0 cfm) Total Heat Loss	16850 Btuh 0 Btuh 16850 Btuh

EQUIPMENT

1. Electric Heat Pump	#	42000 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)

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Version 8

Residential System Sizing Calculation

Summary

Project Title:
Bonnie Philpot

, FL

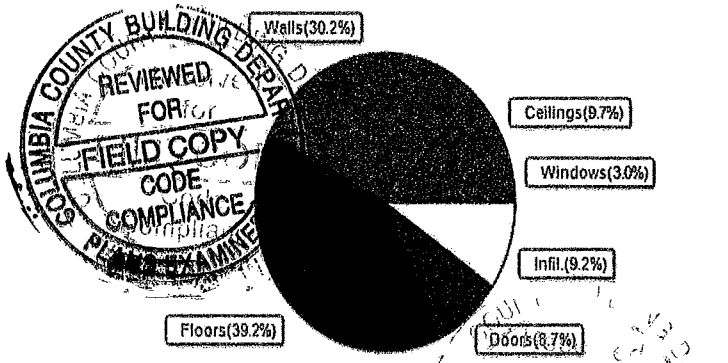
6/13/2025

Location for weather data. Gainesville, FL - Defaults: Latitude(29.7) Altitude(100 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	**16850**	**Btuh**	**Total cooling load calculation**	**10882**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	249 3	42000	Sensible (SHR = 0 75)	329.4	31500
Heat Pump + Auxiliary(0 0kW)	249.3	42000	Latent	795.3	10500
			Total (Electric Heat Pump)	386 0	42000

WINTER CALCULATIONS

Winter Heating Load (for 1200 sqft)

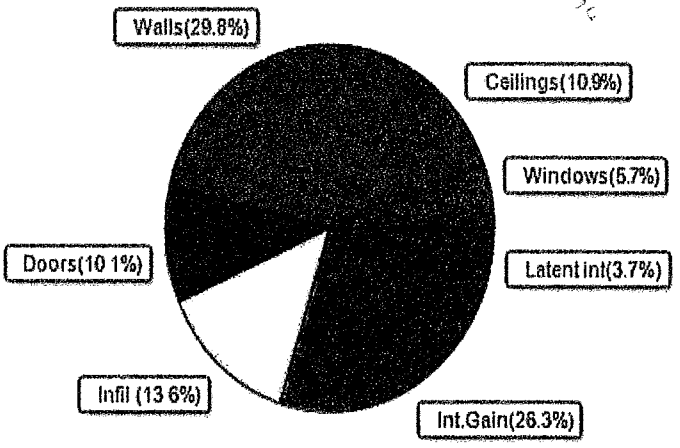
Load component			Load	
Window total	48	sqft	499	Btuh
Wall total	1132	sqft	5082	Btuh
Door total	80	sqft	1472	Btuh
Ceiling total	1200	sqft	1632	Btuh
Floor total	1200	sqft	6608	Btuh
Infiltration	35	cfm	1557	Btuh
Duct loss			0	Btuh
Subtotal			**16850**	**Btuh**
Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
TOTAL HEAT LOSS			**16850**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 1200 sqft)

Load component			Load	
Window total	48	sqft	620	Btuh
Wall total	1132	sqft	3240	Btuh
Door total	80	sqft	1104	Btuh
Ceiling total	1200	sqft	1183	Btuh
Floor total			0	Btuh
Infiltration	27	cfm	555	Btuh
Internal gain			2860	Btuh
Duct gain			0	Btuh
Sens Ventilation	Ex 0 cfm, Sup 0 cfm		0	Btuh
Blower Load			0	Btuh
Total sensible gain			**9562**	**Btuh**
Latent gain(ducts)			0	Btuh
Latent gain(infiltration)			920	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			400	Btuh
Total latent gain			**1320**	**Btuh**
TOTAL HEAT GAIN			**10882**	**Btuh**



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EnergyGauge® System Sizing
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DATE. 6-13-25

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Project Title:
Bonnie Philpot

, FL

6/13/2025

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* Panes	SHGC	U	InSh	IS	Ornt	Overhang Len	Hgt	Window Area(sqft) Gross	Shaded	Unshaded	HTM Shaded	Unshaded	Load
1	2 NFRC	0.20, 0 26		No	No	N	1 5ft	1 3ft.	12 0	0 0	12 0	9	9	110 Btuh
2	2 NFRC	0.20, 0 26		No	No	E	1 5ft	1 3ft.	6 0	0 0	6 0	9	24	145 Btuh
3	2 NFRC	0 20, 0 26		No	No	S	1 5ft	1 3ft.	24 0	24 0	0.0	9	11	220 Btuh
4	2 NFRC	0 20, 0.26		No	No	W	1 5ft	1 3ft.	6 0	0 0	6 0	9	24	145 Btuh
	Window Total										48 (sqft)			620 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Steel - Ext	0 11	13 0/0 0	288 0	2 9	824 Btuh
2	Frame - Steel - Ext	0 11	13 0/0 0	264 0	2 9	756 Btuh
3	Frame - Steel - Ext	0 11	13 0/0 0	316 0	2 9	904 Btuh
4	Frame - Steel - Ext	0 11	13 0/0 0	264 0	2 9	756 Btuh
	Wall Total			1132 (sqft)		3240 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	20 0	13 8	276 Btuh
2	Insulated - Exterior	20 0	13 8	276 Btuh
3	Insulated - Exterior	40 0	13 8	552 Btuh
	Door Total	80 (sqft)		1104 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	SnglAsmb no airsp/DarkMetal	0 034	30 0/0 0	1200 0	0 99	1183 Btuh
	Ceiling Total			1200 (sqft)		1183 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0 0	1200 (ft-perimeter)	0 0	0 Btuh
	Floor Total		1200.0 (sqft)		0 Btuh
			Envelope Subtotal:		6147 Btuh

Infiltration	Type	Average ACH	Volume(cuft)	Wall Ratio	CFM=	Load
	Natural	0.15	10800	1	26.6	555 Btuh
Internal gain		Occupants	Btuh/occupant		Appliance	Load
		2	X 230	+	2400	2860 Btuh
				Sensible Envelope Load.		9562 Btuh
Duct load	Average sealed, Supply(R6 0-Condi), Return(R6 0-Condi)			(DGM of 0.000)		0 Btuh
				Sensible Load All Zones		**9562 Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Project Title: Climate:FL_GAINESVILLE_REGIONAL_A
Bonnie Philpot

, FL

6/13/2025

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**9562 Btuh**
	Sensible Duct Load	0 Btuh
	Total Sensible Zone Loads	**9562 Btuh**
	Sensible ventilation (Ex:0 cfm; Sup:0 cfm)	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**9562 Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	920 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	0 Btuh
	Latent occupant gain (2.0 people @ 200 Btuh per person)	400 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**1320 Btuh**
	TOTAL GAIN	**10882 Btuh**

EQUIPMENT

1 Central Unit	#	42000 Btuh

*Key Window types (Panes - 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
Bonnie Philpot
, FL Building Type: User

6/13/2025

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 0.20	Vinyl	0.26	N	12.0	10.4	125 Btuh
2	2, NFRC 0.20	Vinyl	0.26	E	6.0	10.4	62 Btuh
3	2, NFRC 0.20	Vinyl	0.26	S	24 0	10.4	250 Btuh
4	2, NFRC 0.20	Vinyl	0.26	W	6.0	10 4	62 Btuh
	Window Total				48.0(sqft)		499 Btuh
Walls	Type	Ornt	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Steel	- Ext	(0.112)	13.0/0.0	288	4 49	1293 Btuh
2	Frame - Steel	- Ext	(0.112)	13.0/0 0	264	4.49	1185 Btuh
3	Frame - Steel	- Ext	(0.112)	13.0/0 0	316	4.49	1419 Btuh
4	Frame - Steel	- Ext	(0 112)	13.0/0.0	264	4.49	1185 Btuh
	Wall Total				1132(sqft)		5082 Btuh
Doors	Type	Storm	Ueff		Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.460)		20	18 4	368 Btuh
2	Insulated - Exterior,	n	(0.460)		20	18 4	368 Btuh
3	Insulated - Exterior,	n	(0.460)		40	18.4	736 Btuh
	Door Total				80(sqft)		1472Btuh
Ceilings	Type/Color/Surface		Ueff.	R-Value	Area X	HTM=	Load
1	Single as/D/Metal		(0 034)	30.0/0.0	1200	1 4	1632 Btuh
	Ceiling Total				1200(sqft)		1632Btuh
Floors	Type		Ueff	R-Value	Size X	HTM=	Load
1	Slab On Grade		(1 180)	0.0	140.0 ft(perim.)	47 2	6608 Btuh
	Floor Total				1200 sqft		6608 Btuh
					Envelope Subtotal:		15293 Btuh
Infiltration	Type	Wholehouse	ACH	Volume(cuft)	Wall Ratio	CFM=	
	Natural		0 20	10800	1 00	35 5	1557 Btuh
Duct load	Average sealed, R6.0, Supply(Con), Return(Con)					(DLM of 0.000)	0 Btuh
All Zones				**Sensible Subtotal All Zones**			**16850 Btuh**

Manual J Winter Calculations

Residential Load - Component Details (continued)

Project Title:
Bonnie Philpot
, FL Building Type: User

6/13/2025

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss		16850 Btuh
	Ventilation Sens. Heat Loss	(Ex 0 cfm, Sup 0 cfm)	0 Btuh
	Total Heat Loss		16850 Btuh

EQUIPMENT

1. Electric Heat Pump	#	42000 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)

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Version 8