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FORM 405-10

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	1303001	Builder Name:	Blake Construction
Street:		Permit Office:	
City, State, Zip:	, FL ,	Permit Number:	
Owner:	Spec	Jurisdiction:	
Design Location:	FL, Gainesville		

1. New construction or existing	New (From Plans)			
2. Single family or multiple family	Single-family			
3. Number of units, if multiple family	1			
4. Number of Bedrooms	3			
5. Is this a worst case?	Yes			
6. Conditioned floor area above grade (ft²)	2284			
Conditioned floor area below grade (ft²)	0			
7. Windows(420.3 sqft.)	Description		Area	
a. U-Factor: SHGC:	Dbl, U=0.35 SHGC=0.35		420.33 ft²	
b. U-Factor: SHGC:	N/A		ft²	
c. U-Factor: SHGC:	N/A		ft²	
d. U-Factor: SHGC:	N/A		ft²	
Area Weighted Average Overhang Depth:			1.500 ft.	
Area Weighted Average SHGC:			0.350	
8. Floor Types (2284.0 sqft.)		Insulation	Area	
a. Slab-On-Grade Edge Insulation		R=0.0	1955.00 ft²	
b. Floor over Garage		R=0.0	329.00 ft²	
c. N/A		R=	ft²	

9. Wall Types (2215.0 sqft.)	Insulation	Area	
a. Frame - Wood, Exterior	R=13.0	1965.00 ft²	
b. Frame - Wood, Adjacent	R=13.0	250.00 ft²	
c. N/A	R=	ft²	
d. N/A	R=	ft²	
10. Ceiling Types (2974.0 sqft.)	Insulation	Area	
a. Under Attic (Vented)	R=30.0	2974.00 ft²	
b. N/A	R=	ft²	
c. N/A	R=	ft²	
11. Ducts		R	ft²
a. Sup: Attic, Ret: Attic, AH: Main		6	456.8
12. Cooling systems	kBtu/hr	Efficiency	
a. Central Unit	60.0	SEER:15.00	
13. Heating systems	kBtu/hr	Efficiency	
a. Electric Heat Pump	60.0	HSPF:8.00	
14. Hot water systems			
a. Electric		Cap: 40 gallons EF: 0.920	
b. Conservation features None			
15. Credits		Pstat	

Glass/Floor Area: 0.184

Total Proposed Modified Loads: 39.52

Total Standard Reference Loads: 51.57

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: EVAN BERNSTEIN

DATE: 2013/3/21

I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.

OWNER/AGENT: _____

DATE: _____

Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.

BUILDING OFFICIAL: _____

DATE: _____

GREAT SEAL OF THE STATE OF FLORIDA * IN GOD WE TRUST *

COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

- Compliance requires completion of a Florida Air Barrier and Insulation Inspection Checklist

PROJECT

Title:	1303001	Bedrooms:	3	Address Type:	Lot Information
Building Type:	User	Conditioned Area:	2284	Lot #	
Owner:	Spec	Total Stories:	1	Block/SubDivision:	Country Lake
# of Units:	1	Worst Case:	Yes	PlatBook:	
Builder Name:	Blake Construction	Rotate Angle:	270	Street:	
Permit Office:		Cross Ventilation:		County:	Columbia
Jurisdiction:		Whole House Fan:		City, State, Zip:	, FL ,
Family Type:	Single-family				
New/Existing:	New (From Plans)				
Comment:					

CLIMATE

√	Design Location	TMY Site	IECC Zone	Design Temp 97.5 %	Design Temp 2.5 %	Int Design Temp Winter	Int Design Temp Summer	Heating Degree Days	Design Moisture	Daily Temp Range
_____	FL, Gainesville	FL_GAINESVILLE_REGI	2	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Block1	2284	22840

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	Main	2284	22840	Yes	6	3	1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	Main	182.5 ft	0	1955 ft²	----	0.3	0.3	0.4
_____	2	Floor over Garage	Main	----	----	329 ft²	0	0	0	1

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Hip	Composition shingles	2973 ft²	0 ft²	Dark	0.96	No	0.9	No	0	39.8

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	2284 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	Main	30	2974 ft²	0.11	Wood

WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
____	1	N=>W	Exterior	Frame - Wood	Main	13	56		10		560 ft²		0.23	0.75	0
____	2	E=>N	Exterior	Frame - Wood	Main	13	43	10	10		438.3333		0.23	0.75	0
____	3	S=>E	Exterior	Frame - Wood	Main	13	48	4	10		483.3333		0.23	0.75	0
____	4	W=>S	Exterior	Frame - Wood	Main	13	48	4	10		483.3333		0.23	0.75	0
____	5	S=>E	Garage	Frame - Wood	Main	13	25		10		250 ft²		0.23	0.75	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
_____	1	N=>W	Insulated	Main	None	0.400000	1		6	8	6.666666
_____	2	N=>W	Insulated	Main	None	0.400000	1		6	8	13.33333
_____	3	W=>S	Insulated	Main	None	0.400000	1		6	8	6.666666
_____	4	S=>E	Insulated	Main	None	0.400000	1		6	8	17.77777
_____	5	S=>E	Insulated	Main	None	0.400000	1		6	8	20 ft²

WINDOWS

Orientation shown is the entered orientation (=>) changed to Worst Case.

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
_____	1	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	20 ft²	1 ft 6 in	2 ft 0 in	None	None
_____	2	W=>S	4	Metal	Low-E Double	Yes	0.35	0.35	24.66666	1 ft 6 in	2 ft 0 in	None	None
_____	3	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	49.33333	1 ft 6 in	2 ft 0 in	None	None
_____	4	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	20 ft²	1 ft 6 in	2 ft 0 in	None	None
_____	5	W=>S	4	Metal	Low-E Double	Yes	0.35	0.35	20 ft²	1 ft 6 in	2 ft 0 in	None	None
_____	6	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	45.22222	1 ft 6 in	2 ft 0 in	None	None
_____	7	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	53.44444	1 ft 6 in	2 ft 0 in	None	None
_____	8	N=>W	1	Metal	Low-E Double	Yes	0.35	0.35	8 ft²	1 ft 6 in	1 ft 0 in	None	None
_____	9	E=>N	2	Metal	Low-E Double	Yes	0.35	0.35	32.88888	1 ft 6 in	2 ft 0 in	None	None
_____	10	E=>N	2	Metal	Low-E Double	Yes	0.35	0.35	8.333333	1 ft 6 in	2 ft 0 in	None	None
_____	11	E=>N	2	Metal	Low-E Double	Yes	0.35	0.35	19.44444	1 ft 6 in	1 ft 0 in	None	None
_____	12	S=>E	3	Metal	Low-E Double	Yes	0.35	0.35	49.33333	1 ft 6 in	1 ft 0 in	None	None
_____	13	S=>E	3	Metal	Low-E Double	Yes	0.35	0.35	13.33333	1 ft 6 in	2 ft 0 in	None	None
_____	14	S=>E	3	Metal	Low-E Double	Yes	0.35	0.35	28.77777	1 ft 6 in	3 ft 0 in	None	None
_____	15	W=>S	4	Metal	Low-E Double	Yes	0.35	0.35	27.55555	1 ft 6 in	2 ft 0 in	None	None

GARAGE

√	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
_____	1	473.000108 ft²	144 ft²	62 ft	10 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Best Guess	0.000699	4193.6	230.22	432.97	0.5389	11.016

HEATING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
_____	1	Electric Heat Pump	None	HSPF: 8	60 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
_____	1	Central Unit	None	SEER: 15	60 kBtu/hr	1800 cfm	0.75	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	None	Main	0.92	40 gal	60 gal	120 deg	None

SOLAR HOT WATER SYSTEM

√	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
_____	None	None			ft²		

DUCTS

√	#	---- Supply ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25	Percent Leakage	QN	RLF	HVAC # Heat	Cool
_____	1	Attic	6	456.8 ft	Attic	114.2 ft	Default Leakage	Main	(Default)	(Default) %			1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cooling	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[X]	[X]	[ ]	[ ]	[ ]
Heating	[X]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]
Venting	[ ]	[ ]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[ ]

Thermostat Schedule: HERS 2006 Reference		Hours											
Schedule Type		1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	80	80	80	80
	PM	80	80	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66
Heating (WEH)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66

FORM 405-10

Florida Code Compliance Checklist

Florida Department of Business and Professional Regulations
Residential Whole Building Performance Method

ADDRESS:	PERMIT #:
, FL,	

MANDATORY REQUIREMENTS SUMMARY - See individual code sections for full details.

COMPONENT	SECTION	SUMMARY OF REQUIREMENT(S)	CHECK
Air leakage	402.4	To be caulked, gasketed, weatherstripped or otherwise sealed. Recessed lighting IC-rated as meeting ASTM E 283. Windows and doors = 0.30 cfm/sq.ft. Testing or visual inspection required. Fireplaces: gasketed doors & outdoor combustion air. Must complete envelope leakage report or visually verify Table 402.4.2.	
Thermostat & controls	403.1	At least one thermostat shall be provided for each separate heating and cooling system. Where forced-air furnace is primary system, programmable thermostat is required. Heat pumps with supplemental electric heat must prevent supplemental heat when compressor can meet the load.	
Ducts	403.2.2 403.3.3	All ducts, air handlers, filter boxes and building cavities which form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section 503.2.7.2 of this code. Building framing cavities shall not be used as supply ducts.	
Water heaters	403.4	Heat trap required for vertical pipe risers. Comply with efficiencies in Table 403.4.3.2. Provide switch or clearly marked circuit breaker (electric) or shutoff (gas). Circulating system pipes insulated to = R-2 + accessible manual OFF switch.	
Mechanical ventilation	403.5	Homes designed to operate at positive pressure or with mechanical ventilation systems shall not exceed the minimum ASHRAE 62 level. No make-up air from attics, crawlspaces, garages or outdoors adjacent to pools or spas.	
Swimming Pools & Spas	403.9	Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. Spas and heated pools must have vapor-retardant covers or a liquid cover or other means proven to reduce heat loss except if 70% of heat from site-recovered energy. Off/timer switch required. Gas heaters minimum thermal efficiency=78% (82% after 4/16/13). Heat pump pool heaters minimum COP= 4.0.	
Cooling/heating equipment	403.6	Sizing calculation performed & attached. Minimum efficiencies per Tables 503.2.3. Equipment efficiency verification required. Special occasion cooling or heating capacity requires separate system or variable capacity system. Electric heat >10kW must be divided into two or more stages.	
Ceilings/knee walls	405.2.1	R-19 space permitting.	

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 77

The lower the EnergyPerformance Index, the more efficient the home.

, , FL,

1. New construction or existing		New (From Plans)
2. Single family or multiple family		Single-family
3. Number of units, if multiple family		1
4. Number of Bedrooms		3
5. Is this a worst case?		Yes
6. Conditioned floor area (ft²)		2284
7. Windows**	Description	Area
a. U-Factor: SHGC:	Dbl, U=0.35 SHGC=0.35	420.33 ft²
b. U-Factor: SHGC:	N/A	ft²
c. U-Factor: SHGC:	N/A	ft²
d. U-Factor: SHGC:	N/A	ft²
Area Weighted Average Overhang Depth:		1.500 ft.
Area Weighted Average SHGC:		0.350

8. Floor Types	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1955.00 ft²
b. Floor over Garage	R=0.0	329.00 ft²
c. N/A	R=	ft²

9. Wall Types	Insulation	Area
a. Frame - Wood, Exterior	R=13.0	1965.00 ft²
b. Frame - Wood, Adjacent	R=13.0	250.00 ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

10. Ceiling Types	Insulation	Area
a. Under Attic (Vented)	R=30.0	2974.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

11. Ducts	R	ft²
a. Sup: Attic, Ret: Attic, AH: Main	6	456.8

12. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	60.0	SEER:15.00

13. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	60.0	HSPF:8.00

14. Hot water systems	
a. Electric	Cap: 40 gallons EF: 0.92
b. Conservation features None	
15. Credits	Pstat

I certify that this home has complied with the Florida Energy Efficiency Code for Building Construction through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL Display Card will be completed based on installed Code compliant features.

Builder Signature: _____ Date: _____

Address of New Home: _____ City/FL Zip: _____

*Note: This is not a Building Energy Rating. If your Index is below 70, your home may qualify for energy efficient mortgage (EEM) incentives if you obtain a Florida EnergyGauge Rating. Contact the EnergyGauge Hotline at (321) 638-1492 or see the EnergyGauge web site at energygauge.com for information and a list of certified Raters. For information about the Florida Building Code, Energy Conservation, contact the Florida Building Commission's support staff.

**Label required by Section 303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

Residential System Sizing Calculation

Summary

Spec

, FL

Project Title:
1303001

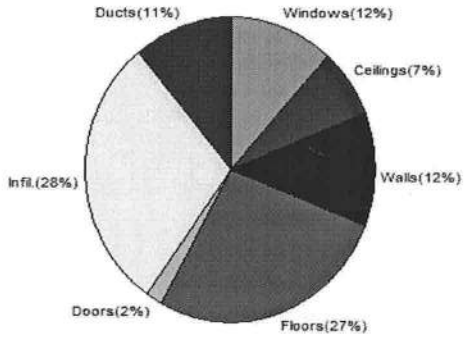
3/21/2013

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(54gr.)					
Winter design temperature(MJ8 99%)	33	F	Summer design temperature(MJ8 99%)	92	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	37	F	Summer temperature difference	17	F
Total heating load calculation	**46792**	**Btuh**	**Total cooling load calculation**	**53695**	**Btuh**
Submitted heating capacity	% of calc	Btuh	Submitted cooling capacity	% of calc	Btuh
Total (Electric Heat Pump)	128.2	60000	Sensible (SHR = 0.75)	107.1	45000
Heat Pump + Auxiliary(0.0kW)	128.2	60000	Latent	128.6	15000
			Total (Electric Heat Pump)	111.7	60000

WINTER CALCULATIONS

Winter Heating Load (for 2284 sqft)

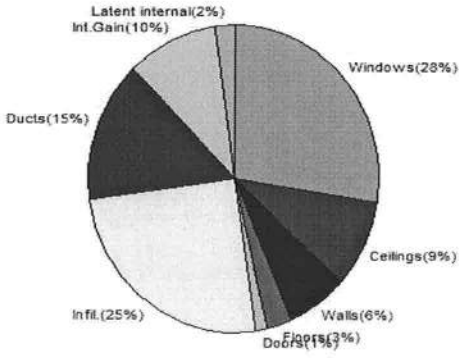
Load component			Load	
Window total	420	sqft	5443	Btuh
Wall total	1730	sqft	5682	Btuh
Door total	64	sqft	954	Btuh
Ceiling total	2974	sqft	3504	Btuh
Floor total	See detail report		12650	Btuh
Infiltration	328	cfm	13298	Btuh
Duct loss			5260	Btuh
Subtotal			**46792**	**Btuh**
Ventilation	0	cfm	0	Btuh
TOTAL HEAT LOSS			**46792**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2284 sqft)

Load component			Load	
Window total	420	sqft	14809	Btuh
Wall total	1730	sqft	3475	Btuh
Door total	64	sqft	722	Btuh
Ceiling total	2974	sqft	4925	Btuh
Floor total			1519	Btuh
Infiltration	246	cfm	4582	Btuh
Internal gain			5380	Btuh
Duct gain			6615	Btuh
Sens. Ventilation	0	cfm	0	Btuh
Blower Load			0	Btuh
Total sensible gain			**42027**	**Btuh**
Latent gain(ducts)			1470	Btuh
Latent gain(infiltration)			8998	Btuh
Latent gain(ventilation)			0	Btuh
Latent gain(internal/occupants/other)			1200	Btuh
Total latent gain			**11668**	**Btuh**
TOTAL HEAT GAIN			**53695**	**Btuh**



Powered by ACCA MANUAL J 8th Edition

EnergyGauge® System Sizing
PREPARED BY:
DATE: 2013/3/21

System Sizing Calculations - Winter

Residential Load - Whole House Component Details

Spec

Project Title:
1303001
Building Type: User

, FL

3/21/2013

Reference City: Gainesville, FL (Defaults) Winter Temperature Difference: 37.0 F (MJ8 99%)
This calculation is for Worst Case. The house has been rotated 270 degrees.

Component Loads for Whole House

Window	Panes/Type	Frame	U	Orientation	Area(sqft) X	HTM=	Load
1	2, NFRC 0.35	Metal	0.35	W	20.0	12.9	259 Btuh
2	2, NFRC 0.35	Metal	0.35	S	24.7	12.9	319 Btuh
3	2, NFRC 0.35	Metal	0.35	W	49.3	12.9	639 Btuh
4	2, NFRC 0.35	Metal	0.35	W	20.0	12.9	259 Btuh
5	2, NFRC 0.35	Metal	0.35	S	20.0	12.9	259 Btuh
6	2, NFRC 0.35	Metal	0.35	W	45.2	12.9	586 Btuh
7	2, NFRC 0.35	Metal	0.35	W	53.4	12.9	692 Btuh
8	2, NFRC 0.35	Metal	0.35	W	8.0	12.9	104 Btuh
9	2, NFRC 0.35	Metal	0.35	N	32.9	12.9	426 Btuh
10	2, NFRC 0.35	Metal	0.35	N	8.3	12.9	108 Btuh
11	2, NFRC 0.35	Metal	0.35	N	19.4	12.9	252 Btuh
12	2, NFRC 0.35	Metal	0.35	E	49.3	12.9	639 Btuh
13	2, NFRC 0.35	Metal	0.35	E	13.3	12.9	173 Btuh
14	2, NFRC 0.35	Metal	0.35	E	28.8	12.9	373 Btuh
15	2, NFRC 0.35	Metal	0.35	S	27.6	12.9	357 Btuh
	Window Total				420.3(sqft)		5443 Btuh

Walls	Type	Ornt.	Ueff.	R-Value (Cav/Sh)	Area X	HTM=	Load
1	Frame - Wood	- Ext	(0.089)	13.0/0.0	344	3.28	1130 Btuh
2	Frame - Wood	- Ext	(0.089)	13.0/0.0	378	3.28	1240 Btuh
3	Frame - Wood	- Ext	(0.089)	13.0/0.0	372	3.28	1221 Btuh
4	Frame - Wood	- Ext	(0.089)	13.0/0.0	404	3.28	1328 Btuh
5	Frame - Wood	- Adj	(0.089)	13.0/0.0	232	3.28	763 Btuh
	Wall Total				1730(sqft)		5682 Btuh

Doors	Type	Storm	Ueff.	Area X	HTM=	Load
1	Insulated - Exterior,	n	(0.400)	7	14.8	99 Btuh
2	Insulated - Exterior,	n	(0.400)	13	14.8	197 Btuh
3	Insulated - Exterior,	n	(0.400)	7	14.8	99 Btuh
4	Insulated - Garage,	n	(0.400)	18	14.8	263 Btuh
5	Insulated - Exterior,	n	(0.400)	20	14.8	296 Btuh
	Door Total			64(sqft)		954Btuh

Ceilings	Type/Color/Surface	Ueff.	R-Value	Area X	HTM=	Load
1	Vented Attic/D/Shing	(0.032)	30.0/0.0	2974	1.2	3504 Btuh
	Ceiling Total			2974(sqft)		3504Btuh

Floors	Type	Ueff.	R-Value	Size X	HTM=	Load
1	Slab On Grade	(1.180)	0.0	182.5 ft(perim.)	43.7	7968 Btuh
2	Raised Wood - Adj	(0.385)	0.0	329.0 sqft	14.2	4682 Btuh
	Floor Total			2284 sqft		12650 Btuh

		Envelope Subtotal:	28234 Btuh

Manual J Winter Calculations

Residential Load - Component Details (continued)

Spec
, FL

Project Title:
1303001
Building Type: User

3/21/2013

Infiltration	Type Natural	Wholehouse	ACH 0.86	Volume(cuft) 22840	Wall Ratio 1.00	CFM= 328.3	13298 Btuh
Duct load	Average sealed, R6.0, Supply(Att), Return(Att)				(DLM of 0.127)		5260 Btuh
All Zones	**Sensible Subtotal All Zones**						**46792 Btuh**

WHOLE HOUSE TOTALS

Totals for Heating	Subtotal Sensible Heat Loss Ventilation Sensible Heat Loss Total Heat Loss	46792 Btuh 0 Btuh 46792 Btuh

EQUIPMENT

1. Electric Heat Pump	#	60000 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

System Sizing Calculations - Summer

Residential Load - Whole House Component Details

Spec

, FL

Project Title:
1303001

3/21/2013

Reference City: Gainesville, FL Temperature Difference: 17.0F(MJ8 99%) Humidity difference: 54gr.
This calculation is for Worst Case. The house has been rotated 270 degrees.

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	0.35, 0.35		No	No	W	1.5ft	2.0ft	20.0	0.0	20.0	13	40	794 Btuh
2	2 NFRC	0.35, 0.35		No	No	S	1.5ft	2.0ft	24.7	24.7	0.0	13	16	328 Btuh
3	2 NFRC	0.35, 0.35		No	No	W	1.5ft	2.0ft	49.3	0.0	49.3	13	40	1958 Btuh
4	2 NFRC	0.35, 0.35		No	No	W	1.5ft	2.0ft	20.0	0.0	20.0	13	40	794 Btuh
5	2 NFRC	0.35, 0.35		No	No	S	1.5ft	2.0ft	20.0	19.6	0.4	13	16	267 Btuh
6	2 NFRC	0.35, 0.35		No	No	W	1.5ft	2.0ft	45.2	0.0	45.2	13	40	1795 Btuh
7	2 NFRC	0.35, 0.35		No	No	W	1.5ft	2.0ft	53.4	0.0	53.4	13	40	2121 Btuh
8	2 NFRC	0.35, 0.35		No	No	W	1.5ft	1.0ft	8.0	1.0	7.0	13	40	292 Btuh
9	2 NFRC	0.35, 0.35		No	No	N	1.5ft	2.0ft	32.9	0.0	32.9	13	13	438 Btuh
10	2 NFRC	0.35, 0.35		No	No	N	1.5ft	2.0ft	8.3	0.0	8.3	13	13	111 Btuh
11	2 NFRC	0.35, 0.35		No	No	N	1.5ft	1.0ft	19.4	0.0	19.4	13	13	259 Btuh
12	2 NFRC	0.35, 0.35		No	No	E	1.5ft	1.0ft	49.3	2.0	47.4	13	40	1906 Btuh
13	2 NFRC	0.35, 0.35		No	No	E	1.5ft	2.0ft	13.3	0.0	13.3	13	40	529 Btuh
14	2 NFRC	0.35, 0.35		No	No	E	1.5ft	3.0ft	28.8	0.0	28.8	13	40	1142 Btuh
15	2 NFRC	0.35, 0.35		No	No	S	1.5ft	2.0ft	27.6	27.6	0.0	13	16	367 Btuh
	Excursion													1707 Btuh
	Window Total								420 (sqft)					14809 Btuh

Walls	Type	U-Value	R-Value Cav/Sheath	Area(sqft)	HTM	Load
1	Frame - Wood - Ext	0.09	13.0/0.0	344.0	2.1	718 Btuh
2	Frame - Wood - Ext	0.09	13.0/0.0	377.7	2.1	788 Btuh
3	Frame - Wood - Ext	0.09	13.0/0.0	371.9	2.1	776 Btuh
4	Frame - Wood - Ext	0.09	13.0/0.0	404.4	2.1	844 Btuh
5	Frame - Wood - Adj	0.09	13.0/0.0	232.2	1.5	350 Btuh
	Wall Total			1730 (sqft)		3475 Btuh

Doors	Type	Area (sqft)	HTM	Load
1	Insulated - Exterior	6.7	11.2	75 Btuh
2	Insulated - Exterior	13.3	11.2	149 Btuh
3	Insulated - Exterior	6.7	11.2	75 Btuh
4	Insulated - Garage	17.8	11.2	199 Btuh
5	Insulated - Exterior	20.0	11.2	224 Btuh
	Door Total	64 (sqft)		722 Btuh

Ceilings	Type/Color/Surface	U-Value	R-Value	Area(sqft)	HTM	Load
1	Vented Attic/DarkShingle	0.032	30.0/0.0	2974.0	1.66	4925 Btuh
	Ceiling Total			2974 (sqft)		4925 Btuh

Floors	Type	R-Value	Size	HTM	Load
1	Slab On Grade	0.0	1955 (ft-perimeter)	0.0	0 Btuh
2	Raised Wood - Adj	0.0	329 (sqft)	4.6	1519 Btuh
	Floor Total		2284.0 (sqft)		1519 Btuh

	Envelope Subtotal:	25450 Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Spec

Project Title: 1303001

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

3/21/2013

Infiltration	Type Natural	Average ACH 0.65	Volume(cuft) 22840	Wall Ratio 1		CFM= 246.2	Load 4582	Btuh
Internal gain		Occupants 6	Btuh/occupant X 230		+	Appliance 4000	Load 5380	Btuh
					Sensible Envelope Load:		35412	Btuh
Duct load	Average sealed, Supply(R6.0-Attic), Return(R6.0-Attic)				(DGM of 0.187)		6615	Btuh
					Sensible Load All Zones		**42027**	**Btuh**

Manual J Summer Calculations

Residential Load - Component Details (continued)

Spec

Project Title: 1303001

Climate:FL_GAINESVILLE_REGIONAL_A

, FL

3/21/2013

WHOLE HOUSE TOTALS

Whole House Totals for Cooling	**Sensible Envelope Load All Zones**	**35412 Btuh**
	Sensible Duct Load	6615 Btuh
	Total Sensible Zone Loads	**42027 Btuh**
	Sensible ventilation	0 Btuh
	Blower	0 Btuh
	Total sensible gain	**42027 Btuh**
	Latent infiltration gain (for 54 gr. humidity difference)	8998 Btuh
	Latent ventilation gain	0 Btuh
	Latent duct gain	1470 Btuh
	Latent occupant gain (6.0 people @ 200 Btuh per person)	1200 Btuh
	Latent other gain	0 Btuh
	Latent total gain	**11668 Btuh**
	TOTAL GAIN	**53695 Btuh**

EQUIPMENT

1. Central Unit	#	60000 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