



ENERGY CALCULATIONS

PREPARED FOR:
EMERGENCY OPERATIONS CENTER OF COLUMBIA COUNTY

PREPARED BY:
FREEMAN DESIGN GROUP, INC.
128 SW NASSAU STREET
LAKE CITY, FL 32025
CERT. OF AUTHORIZATION # 00008701

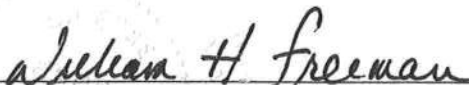
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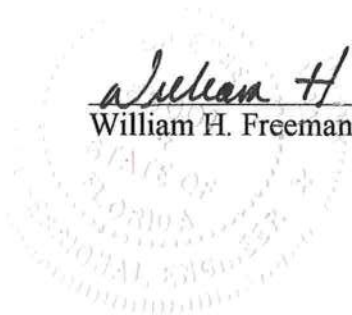
SHEETS

1-8
9-16

DESCRIPTION

Input Data Report
Florida Energy Efficiency Code


William H. Freeman PE # 560001



Florida Energy Efficiency Code For Building Construction
Florida Department of Community Affairs
FLA/COM 2004 v2.5, Effective Dec 8, 2006 -- Form 400A-2004R
Method A: Whole Building Performance Method for Commercial Buildings

PROJECT SUMMARY

Short Desc: New Prj

Owner: Columbia County B.O.C.C.

Address1: 263 NW Lake City Ave.

Address2:

Type: Office

Jurisdiction: LAKE CITY, COLUMBIA COUNTY, FL (221200)

Conditioned Area: 3107 SF

No of Stories: 1

Permit No: 0

Description: Columbia County E.O.C. ren

City: Lake City

State: FL

Zip: 0

Class: Addition to existing Building

Conditioned & UnConditioned Area: 3107 SF

Area entered from Plans 3321 SF

Max Tonnage 5

If different, write in: _____

Compliance Summary

Component	Design	Criteria	Result
Gross Energy Cost	3,022.4	3,538.5	PASSES
LIGHTING CONTROLS			PASSES
EXTERNAL LIGHTING			PASSES
HVAC SYSTEM			PASSES
PLANT			None Entered
WATER HEATING SYSTEMS			PASSES
PIPING SYSTEMS			None Entered
Met all required compliance from Check List?			Yes/No/NA

CERTIFICATIONS

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

Prepared By: William H. Freeman

Building Official: _____

Date: 11/24/09

Date: _____

I certify that this building is in compliance with the FLorida Energy Efficiency Code

Owner Agent: Columbia County

Date: _____

If Required by Florida law, I hereby certify (*) that the system design is in compliance with the FLorida Energy Efficiency Code

Architect: _____

Reg No: _____

Electrical Designer: Bryan Shaffer

Reg No: PE#58168

Lighting Designer: Bryan Shaffer

Reg No: _____

Mechanical Designer: Mike Gregory

Reg No: PE #46607

Plumbing Designer: Mike Gregory

Reg No: PE #46607

(*) Signature is required where Florida Law requires design to be performed by registered design professionals. Typed names and registration numbers may be used where all relevant information is contained on signed/sealed plans.

Project: New Prj
 Title: Columbia County E.O.C. renovation
 Type: Office
 (WEA File: JACKSONVILLE.TMY)

Building End Uses

	Design	Reference
Total	<i>188.10</i>	<i>221.30</i>
	<i>\$3,022</i>	<i>\$3,539</i>
ELECTRICITY(MBtu/kWh/\$)	188.10	221.30
	55052	64808
	<i>\$3,022</i>	<i>\$3,539</i>
AREA LIGHTS	15.10	38.20
	4395	11193
	<i>\$241</i>	<i>\$611</i>
MISC EQUIPMT	2.10	2.10
	606	606
	<i>\$33</i>	<i>\$33</i>
PUMPS & MISC	0.20	0.20
	58	57
	<i>\$3</i>	<i>\$3</i>
SPACE COOL	48.80	56.50
	14306	16568
	<i>\$785</i>	<i>\$905</i>
SPACE HEAT	28.20	18.90
	8262	5533
	<i>\$454</i>	<i>\$302</i>
VENT FANS	93.70	105.40
	27425	30851
	<i>\$1,506</i>	<i>\$1,684</i>
Credits & Penalties (if any): Modified Points: = 187.9		PASSES

Project: New Prj
Title: Columbia County E.O.C. renovation
Type: Office
(WEA File: JACKSONVILLE.TMY)

External Lighting Compliance

Description	Category	Tradable?	Allowance (W/Unit)	Area or Length or No. of Units (Sqft or ft)	ELPA (W)	CLP (W)
Ext Light 1	Main entries	Yes	30.00	144.0	4,320	100
Ext Light 2	Other (doors) than main entries	Yes	20.00	6.0	120	200

Tradable Surfaces: 300 (W) Allowance for Tradable: 4662 (W)

PASSES

All External Lighting: 300 (W)

Compliance check includes a 5% excess allowance of 222.00(W)

Project: New Prj
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Lighting Controls Compliance

Acronym	Ashrae ID	Description	Area (sq.ft)	Design CP	Min CP	Compli- ance
Pr0Zo1Sp1	6	Toilet and Washroom	171	2	2	PASSES
Pr0Zo1Sp2	6	Toilet and Washroom	49	1	1	PASSES
Pr0Zo1Sp3	6	Toilet and Washroom	180	1	1	PASSES
Pr0Zo1Sp4	6	Toilet and Washroom	48	1	1	PASSES
Pr0Zo1Sp5	1	Electrical Mechanical Equipment Room - General	105	1	1	PASSES
Pr0Zo1Sp6	5	Corridor	132	1	1	PASSES
Pr0Zo1Sp7	9	Food Service - Bar/Lounge	792	1	1	PASSES
Pr0Zo1Sp8	1	Electrical Mechanical Equipment Room - General	135	1	1	PASSES
Pr0Zo1Sp9	15	Conference/meeting (Multiple Functions)	1,325	1	1	PASSES

PASSES

Project: New Prj
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 Type: Office
 (WEA File: JACKSONVILLE.TMY)

System Report Compliance

Pr0Sy1 System 1 Constant Volume Air Cooled No. of Units
 Split System < 65000 Btu/hr 2

Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Compliance
Cooling System	Air Conditioners Air Cooled Split System < 65000 Btu/h		13.00	12.23	8.00		PASSES
Heating System	Electric Furnace		1.00	1.00			PASSES
Air Handling System - Supply	Air Handler (Supply) - Constant Volume		0.80	0.90			PASSES
Air Handling System - Return	Air Handler (Return) - Constant Volume		0.80	0.90			PASSES
Air Distribution System	ADS System						PASSES

PASSES

Plant Compliance

Description	Installed No	Size	Design Eff	Min Eff	Design IPLV	Min IPLV	Category	Compliance
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None

Project: New Prj
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Water Heater Compliance

Description	Type	Category	Design Eff	Min Eff	Design Loss	Max Loss	Compliance
Water Heater 1	Electric water heater	<= 12 [kW]	0.92	0.86			PASSES

PASSES

Piping System Compliance							
Category	Pipe Dia [inches]	Is Runout?	Operating Temp [F]	Ins Cond [Btu-in/hr .SF.F]	Ins Thick [in]	Req Ins Thick [in]	Compliance
							None

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Type: Office
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Other Required Compliance

Category	Section	Requirement (write N/A in box if not applicable)	Check
Report	13-101	Input Report Print-Out from EnergyGauge FlaCom attached	☐
Operations Manual	13-102.1, 13-410, 13-413	Operations manual provided to owner	☐
Windows & Doors	13-406.AB.1.1	Glazed swinging entrance & revolving doors: max. 1.0 cfm/ft ² ; all other products: 0.4 cfm/ft ²	☐
Joints/Cracks	13-406.AB.1.2	To be caulked, gasketed, weather-stripped or otherwise sealed	☐
Dropped Ceiling Cavity	13-406.AB.3	Vented: seal & insulated ceiling. Unvented seal & insulate roof & side walls	☐
System	13-407	HVAC Load sizing has been performed	☐
Reheat	13-407.B	Electric resistance reheat prohibited	☐
HVAC Efficiency	13-407, 13-408	Minimum efficiencies: Cooling Tables 13-407.AB.3.2.1A-D; Heating Tables 13-407.AB.3.2.1B, 13-407.AB.3.2.1D, 13-408.AB.3.2.1E, 13-408.AB.3.2F	☐
HVAC Controls	13-407.AB.2	Zone controls prevent reheat (exceptions); simultaneous heating and cooling in each zone; combined HAC deadband of at least 5°F (exceptions)	☐
Ventilation Controls	13-409.AB.3	Motorized dampers reqd, except gravity dampers OK in: 1) exhaust systems and 2) systems with design outside air intake or exhaust capacity ≤300 cfm	☐
ADS	13-410	Duct sizing and Design have been performed	☐
HVAC Ducts	13-410.AB	Air ducts, fittings, mechanical equipment & plenum chambers shall be mechanically attached, sealed, insulated & installed per Sec. 13-410 Air Distribution Systems	☐
Balancing	13-410.AB.4	HVAC distribution system(s) tested & balanced. Report in construction documents	☐
Piping Insulation	13-411.AB	In accordance with Table 13-411.AB.2	☐
Water Heaters	13-412.AB	Performance requirements in accordance with Table 13-412.AB.3. Heat trap required	☐
Swimming Pools	13-412.AB.2.6	Cover on heated swimming pools: Time switch (exceptions); Readily accessible on/off switch	☐
Hot Water Pipe Insulation	13-411.AB.3	Table 13-411.AB.2 for circulating systems, first 8 feet of outlet pipe from storage tank and between inlet pipe and heat trap	☐
Water Fixtures	13-412.AB.2.5	Shower hot water flow restricted to 2.5 gpm at 80 psi. Public lavatory fixture hot water flow 0.5 gpm max; if self-closing valve 0.25 gallon recirculating, 0.5 gallon non recirculating	☐
Motors	13-414	Motor efficiency criteria have been met	☐
Lighting Controls	13-415.AB	Automatic control required for interior lighting in buildings >5,000 s.f.; Space control; Exterior photo sensor; Tandom wiring with 1 or 3 linear fluourescent lamps>30W	☐

EnergyGauge Summit® v3.22
INPUT DATA REPORT

Project Information

Project Name: New Pri Orientation: North
Project Title: Columbia County E.O.C. renovation Building Type: Office
Address: 263 NW Lake City Ave. Building Classification: Addition to existing Building
State: FL No. of Stories: 1
Zip: 0 Gross Area: 3107 SF
Owner: Columbia County B.O.C.C.

Zones

No	Acronym	Description	Type	Area [sf]	Multiplier	Total Area [sf]
1	Pr0Zo1	Zone 1	CONDITIONED	3107.0	1	3107.0

Spaces

No	Acronym	Description	Type	Depth [ft]	Width [ft]	Height [ft]	Multi plier	Total Area [sf]	Total Volume [cf]
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In Zone: Pr0Zo1										
1	Pr0Zo1Sp1	Men's restroom	Toilet and Washroom	11.00	15.50	9.00	2	341.0	3069.0	☐
2	Pr0Zo1Sp2	handicap restroom	Toilet and Washroom	7.00	7.00	9.00	1	49.0	441.0	☐
3	Pr0Zo1Sp3	Women's restroom	Toilet and Washroom	12.00	15.00	9.00	1	180.0	1620.0	☐
4	Pr0Zo1Sp4	Shower Room	Toilet and Washroom	6.00	8.00	9.00	1	48.0	432.0	☐
5	Pr0Zo1Sp5	Electrical Room	Electrical Mechanical Equipment Room - General Corridor	7.00	15.00	9.00	1	105.0	945.0	☐
6	Pr0Zo1Sp6	Corridor		24.00	5.50	9.00	1	132.0	1188.0	☐
7	Pr0Zo1Sp7	Break Room	Food Service - Bar/Lounge	22.00	36.00	9.00	1	792.0	7128.0	☐
8	Pr0Zo1Sp8	Mechanical Room	Electrical Mechanical Equipment Room - General Conference/meeting (Multiple Functions)	9.00	15.00	9.00	1	135.0	1215.0	☐
9	Pr0Zo1Sp9	E.O.C. Room		25.00	53.00	9.00	1	1325.0	11925.0	☐

Lighting

No	Type	Category	No. of Luminaires	Watts per Luminaire	Power [W]	Control Type	No. of Ctrl pts
In Zone: Pr0Zo1							
In Space: Pr0Zo1Sp1							
1	Recessed Fluorescent - No vent	General Lighting	2	60	120	Manual On/Off	1 ☐
In Space: Pr0Zo1Sp2							
1	Recessed Fluorescent - No vent	General Lighting	1	40	40	Manual On/Off	1 ☐
In Space: Pr0Zo1Sp3							
1	Recessed Fluorescent - No vent	General Lighting	2	40	80	Manual On/Off	1 ☐
In Space: Pr0Zo1Sp4							
1	Recessed Fluorescent - No vent	General Lighting	1	25	25	Manual On/Off	1 ☐
In Space: Pr0Zo1Sp5							
1	Recessed Fluorescent - No vent	General Lighting	1	25	25	Manual On/Off	1 ☐
In Space: Pr0Zo1Sp6							

1	Recessed Fluorescent - No vent	General Lighting	2	40	80	Manual On/Off	1	☐
In Space: Pr0Zo1Sp7								
1	Recessed Fluorescent - No vent	General Lighting	8	40	320	Manual On/Off	1	☐
In Space: Pr0Zo1Sp8								
1	Recessed Fluorescent - No vent	General Lighting	1	25	25	Manual On/Off	1	☐
In Space: Pr0Zo1Sp9								
1	Compact Fluorescent	General Lighting	15	40	600	Manual On/Off	1	☐

Walls

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Direction	Conductance [Btu/hr. sf. F]	Heat Capacity [Btu/sf.F]	Dens. [lb/cf]	R-Value [h.s.f.F/Btu]
In Zone: Pr0Zo1											
1	North Wall	Metal siding/2x4@24"+R1 1Batt/5/8"Gyp	38.00	9.00	1	342.0	North	0.0920	1.072	19.38	10.9
2	East Wall	Metal siding/2x4@24"+R1 1Batt/5/8"Gyp	74.00	9.00	1	666.0	East	0.0920	1.072	19.38	10.9
3	South Wall	Metal siding/2x4@24"+R1 1Batt/5/8"Gyp	50.00	9.00	1	450.0	South	0.0920	1.072	19.38	10.9
4	existing west wall	Partition wall, 0.75 in. gyp, airspace, 0.75 in. gyp	65.00	9.00	1	585.0	West	0.8350	2.500	100.00	1.2

Windows

No	Description	Type	Shaded	U [Btu/hr sf F]	SHGC	Vis.Tra	W [ft]	H (Effec) [ft]	Multi plier	Total Area [sf]
In Zone: In Wall:										
										☐

Doors

No	Description	Type	Shaded?	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/hr. sf. F]	Dens. [lb/cf]	Heat Cap. [Btu/sf. F]	R-Value [h.s.f.F/Btu]
In Zone: Pr0Zo1											
In Wall: Pr0Zo1Wa1											
1	Pr0Zo1Wa1Dr1	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85
In Wall: Pr0Zo1Wa3											
1	Pr0Zo1Wa3Dr1	Solid core flush (2.25)	No	3.00	7.00	1	21.0	0.3504	0.00	0.00	2.85

Roofs

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Tilt [deg]	Cond. [Btu/hr. Sf. F]	Heat Cap [lb/cf]	Dens. [Btu/sf. F]	R-Value [h.s.f.F/Btu]
In Zone: Pr0Zo1											
1	Pr0Zo1Rf1	Shngl/1/2"WD Deck/WD Truss/9" Batt/Gyp Brd	38.00	76.00	1	2888.0	0.00	0.0320	1.50	8.22	31.2

Skylights

No	Description	Type	U [Btu/hr sf F]	SHGC	Vis.Trans	W [ft]	H (Effec) [ft]	Multiplier	Area [Sf]	Total Area [Sf]
In Zone:										
In Roof:										

Floors

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/hr. sf. F]	Heat Cap. Dens. [lb/cf]	R-Value [h.s.f.F/Btu]
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2	Ext Light 2	Other (doors) than main entries	2	100	6.00	Photo Sensor control	200.00	☐
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Piping							
No	Type	Operating Temperature [F]	Insulation Conductivity [Btu-in/h.sf.F]	Nomonal pipe Diameter [in]	Insulation Thickness [in]	Is Runout?	
							☐

Fenestration Used				
Name	Glass Type	No. of Panes	Glass Conductance [Btu/h.sf.F]	VLT
				☐

Materials Used								
Mat No	Acronym	Description	Only R-Value Used	RValue [h.s.f.F/Btu]	Thickness [ft]	Conductivity [Btu/h.ft.F]	Density [lb/cf]	SpecificHeat [Btu/lb.F]
187	Matl187	GYP OR PLAS BOARD, 1/2IN	No	0.4533	0.0417	0.0920	50.00	0.2000
178	Matl178	CARPET W/RUBBER PAD	Yes	1.2300				
265	Matl265	Soil, 1 ft	No	2.0000	1.0000	0.5000	100.00	0.2000
48	Matl48	6 in. Heavyweight concrete	No	0.5000	0.5000	1.0000	140.00	0.2000
57	Matl57	3/4 in. Plaster or gypsum	No	0.1488	0.0625	0.4200	100.00	0.2000
72	Matl72	AIR LAYER, 3/4IN OR LESS, VERT. WALLS	Yes	0.9000				
12	Matl12	3 in. Insulation	No	10.0000	0.2500	0.0250	2.00	0.2000
23	Matl23	6 in. Insulation	No	20.0000	0.5000	0.0250	5.70	0.2000
4	Matl4	Steel siding	No	0.0002	0.0050	26.0000	480.00	0.1000

271	Matl271	2x4@24" oc + R11 Batt	No	10.4179	0.2917	0.0280	7.11	0.2000	☐
81	Matl81	ASPHALT-ROOFING, ROLL	Yes	0.1500					☐
244	Matl244	PLYWOOD, 1/2IN	No	0.6318	0.0417	0.0660	34.00	0.2900	☐

Constructs Used

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]
1038	Shngl/1/2"WD Deck/WD Truss/9" Batt/Gyp Brd	No	No	0.03	1.50	8.22	31.2
Layer	Material No.	Material	Thickness [ft]	Framing Factor			
1	81	ASPHALT-ROOFING, ROLL		0.000			☐
2	244	PLYWOOD, 1/2IN	0.0417	0.000			☐
3	12	3 in. Insulation	0.2500	0.000			☐
4	23	6 in. Insulation	0.5000	0.000			☐
5	187	GYP OR PLAS BOARD, 1/2IN	0.0417	0.000			☐
No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.sf.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]
1055	Metal siding/2x4@24"+R11Batt/5/8"Gyp	No	No	0.09	1.07	19.38	10.9
Layer	Material No.	Material	Thickness [ft]	Framing Factor			
1	4	Steel siding	0.0050	0.000			☐
2	271	2x4@24" oc + R11 Batt	0.2917	0.000			☐
3	187	GYP OR PLAS BOARD, 1/2IN	0.0417	0.000			☐

No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.s.f.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.s.f.F/Btu]
1057	1 ft. soil, concrete floor, carpet and rubber pad	No	No	0.27	34.00	113.33	3.7
Layer	Material No.	Material	Thickness [ft]	Framing Factor			
1	265	Soil, 1 ft	1.0000	0.000			
2	48	6 in. Heavyweight concrete	0.5000	0.000			
3	178	CARPET W/RUBBER PAD		0.000			
No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.s.f.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.s.f.F/Btu]
1058	Solid core flush (2.25)	No	Yes	0.35			2.9
Layer	Material No.	Material	Thickness [ft]	Framing Factor			
1	279	Solid core flush (2.25")		0.000			
No	Name	Simple Construct	Massless Construct	Conductance [Btu/h.s.f.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.s.f.F/Btu]
1059	Partition wall, 0.75 in. gyp, airspace, 0.75 in. gyp	No	No	0.83	2.50	100.00	1.2
Layer	Material No.	Material	Thickness [ft]	Framing Factor			
1	57	3/4 in. Plaster or gypsum	0.0625	0.000			
2	72	AIR LAYER, 3/4IN OR LESS, VERT. WALLS		0.000			
3	57	3/4 in. Plaster or gypsum	0.0625	0.000			