



ECONEERING

ECOLOGICAL • ECONOMICAL • SOLUTIONS

January 26, 2012

**Mr. Contractor
Air Conditioning Company
1234 1th Ave. North St.
Lake Worth, FL 33461**

Re: Energy Code Calculation Services

Dear Mr. Contractor,

Per your request, Econeering LLC performed a site inspection and gathered necessary data to do an energy code calculation and system sizing calculation. Data was gathered by a Class 1 Energy Rater. Simulations for energy code compliance were completed in Energy Gauge software while system sizing was done according to ACCA Manual J in Elite software package. Final calculations and layout were completed by a licensed professional, and duct layout design was in accordance with ACCA Manual D. Please find attached the following documents for use on the project titled "Residence your address, your Town Florida."

- One Florida Energy Code Calculation
- One ACCA Manual J System Sizing
- One ACCA Manual D Duct Layout

Econeering LLC appreciates the opportunity to provide services that help you complete your construction project and looks forward to working with you in the future. Please feel free to contact me with any questions. You may reach me at my office, (561) 247-2117.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Cowan".

Econeering LLC
David Cowan LEED AP
Conservation Specialist
Class 1 Energy Rater

Appendix A

Florida Energy Code Calculation

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Community Affairs Residential Performance Method A

Project Name: Residence Street: 1234 Lane City, State, Zip: Your Town, FL, Owner: Contractor Design Location: FL, West Palm Beach	Builder Name: Permit Office: Jupiter Permit Number:
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<table style="width:100%;"> <tr> <td>1. New construction or existing</td> <td>Addition</td> </tr> <tr> <td>2. Single family or multiple family</td> <td>Multi-family</td> </tr> <tr> <td>3. Number of units, if multiple family</td> <td>1</td> </tr> <tr> <td>4. Number of Bedrooms(Bedrms In Addition)</td> <td>4(1)</td> </tr> <tr> <td>5. Is this a worst case?</td> <td>No</td> </tr> <tr> <td>6. Conditioned floor area (ft²)</td> <td>4250</td> </tr> <tr> <td>7. Windows(796.0 sqft.)</td> <td>Description Area</td> </tr> <tr> <td>a. U-Factor:</td> <td>Sgl, U=1.05 700.00 ft²</td> </tr> <tr> <td></td> <td>SHGC: SHGC=0.53</td> </tr> <tr> <td>b. U-Factor:</td> <td>Sgl, U=1.10 80.00 ft²</td> </tr> <tr> <td></td> <td>SHGC: SHGC=0.54</td> </tr> <tr> <td>c. U-Factor:</td> <td>Sgl, U=1.80 16.00 ft²</td> </tr> <tr> <td></td> <td>SHGC: SHGC=0.47</td> </tr> <tr> <td>d. U-Factor:</td> <td>N/A ft²</td> </tr> <tr> <td></td> <td>SHGC:</td> </tr> <tr> <td>e. U-Factor:</td> <td>N/A ft²</td> </tr> <tr> <td></td> <td>SHGC:</td> </tr> <tr> <td>8. Floor Types (4250.0 sqft.)</td> <td>Insulation Area</td> </tr> <tr> <td>a. Slab-On-Grade Edge Insulation</td> <td>R=0.0 4250.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R= ft²</td> </tr> <tr> <td>c. N/A</td> <td>R= ft²</td> </tr> </table>	1. New construction or existing	Addition	2. Single family or multiple family	Multi-family	3. Number of units, if multiple family	1	4. Number of Bedrooms(Bedrms In Addition)	4(1)	5. Is this a worst case?	No	6. Conditioned floor area (ft ²)	4250	7. Windows(796.0 sqft.)	Description Area	a. U-Factor:	Sgl, U=1.05 700.00 ft ²		SHGC: SHGC=0.53	b. U-Factor:	Sgl, U=1.10 80.00 ft ²		SHGC: SHGC=0.54	c. U-Factor:	Sgl, U=1.80 16.00 ft ²		SHGC: SHGC=0.47	d. U-Factor:	N/A ft ²		SHGC:	e. U-Factor:	N/A ft ²		SHGC:	8. Floor Types (4250.0 sqft.)	Insulation Area	a. Slab-On-Grade Edge Insulation	R=0.0 4250.00 ft ²	b. N/A	R= ft ²	c. N/A	R= ft ²	<table style="width:100%;"> <tr> <td>9. Wall Types(3478.3 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Concrete Block - Int Insul, Exterior</td> <td>R=4.1</td> <td>2217.30 ft²</td> </tr> <tr> <td>b. Concrete Block - Int Insul, Common</td> <td>R=4.1</td> <td>680.00 ft²</td> </tr> <tr> <td>c. Frame - Wood, Adjacent</td> <td>R=11.0</td> <td>581.00 ft²</td> </tr> <tr> <td>d. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>10. Ceiling Types (4250.0 sqft.)</td> <td>Insulation</td> <td>Area</td> </tr> <tr> <td>a. Under Attic (Vented)</td> <td>R=30.0</td> <td>4250.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>11. Ducts -</td> <td></td> <td></td> </tr> <tr> <td>a. Sup: Attic Ret: Attic AH: Attic Sup. R= 6,</td> <td></td> <td>1040 ft²</td> </tr> <tr> <td>12. Cooling systems -</td> <td></td> <td></td> </tr> <tr> <td>a. Central Unit</td> <td>Cap: 71.3 kBtu/hr</td> <td>SEER: 16</td> </tr> <tr> <td>13. Heating systems -</td> <td></td> <td></td> </tr> <tr> <td>a. Electric Heat Pump</td> <td>Cap: 64.2 kBtu/hr</td> <td>HSPF: 9.26</td> </tr> <tr> <td>14. Hot water systems -</td> <td></td> <td></td> </tr> <tr> <td>a. Electric</td> <td>Cap: 65 gallons</td> <td>EF: 0.92</td> </tr> <tr> <td>b. Conservation features</td> <td></td> <td>None</td> </tr> </table>	9. Wall Types(3478.3 sqft.)	Insulation	Area	a. Concrete Block - Int Insul, Exterior	R=4.1	2217.30 ft ²	b. Concrete Block - Int Insul, Common	R=4.1	680.00 ft ²	c. Frame - Wood, Adjacent	R=11.0	581.00 ft ²	d. N/A	R=	ft ²	10. Ceiling Types (4250.0 sqft.)	Insulation	Area	a. Under Attic (Vented)	R=30.0	4250.00 ft ²	b. N/A	R=	ft ²	c. N/A	R=	ft ²	11. Ducts -			a. Sup: Attic Ret: Attic AH: Attic Sup. R= 6,		1040 ft ²	12. Cooling systems -			a. Central Unit	Cap: 71.3 kBtu/hr	SEER: 16	13. Heating systems -			a. Electric Heat Pump	Cap: 64.2 kBtu/hr	HSPF: 9.26	14. Hot water systems -			a. Electric	Cap: 65 gallons	EF: 0.92	b. Conservation features		None
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Glass/Floor Area: 0.187	Total As-Built Modified Loads: 69.22	PASS
	Total Baseline Loads: 82.54	

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code. PREPARED BY: _____ DATE: _____ 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: _____
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- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with N1110.A.3.

PROJECT

Title:					
Street Address	Residence	Bedrooms:	4	Address Type:	
Owner:		Conditioned Area:	4250	Lot #	
# of Units:	1	Total Stories:	1	Block/SubDivision:	
Builder Name:		Worst Case:	No	PlatBook:	
Permit Office:	Jupiter	Rotate Angle:	0	Street:	
Jurisdiction:	531000			County:	Martin
				City, State, Zip:	Jupiter , FL ,
Family Type:	Multi-family				
New/Existing:	Addition				

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, West Palm Beach	FL_WEST_PALM_BEAC	2	44	90	75	70	316	60	Medium

FLOORS

✓	#	Floor Type	Perimeter	R-Value	Area	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	334 ft	0	4250 ft²	1	0	0

ROOF

✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Solar Absor.	Tested	Deck Insul.	Pitch
_____	1	Hip	Flat tile/slate	4604 ft²	0 ft²	White	0.96	No	0	22.6 deg

ATTIC

✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Vented	300	4250 ft²	N	N

CEILING

✓	#	Ceiling Type	R-Value	Area	Framing Frac	Truss Type
_____	1	Under Attic (Vented)	30	4250 ft²	0.11	Wood

WALLS

✓	#	Ornt	Adjacent To	Wall Type	Cavity R-Value	Area	Sheathing R-Value	Framing Fraction	Solar Absor.
_____	1	NE	Exterior	Concrete Block - Int Insul	4.1	150 ft²	0	0	0.4
_____	2	NW	Neighbor	Concrete Block - Int Insul	4.1	680 ft²	0	0	0.01
_____	3	SW	Exterior	Concrete Block - Int Insul	4.1	95 ft²	0	0	0.4
_____	4	S	Exterior	Concrete Block - Int Insul	4.1	30 ft²	0	0	0.4
_____	5	SE	Exterior	Concrete Block - Int Insul	4.1	160 ft²	0	0	0.4
_____	6	SW	Exterior	Concrete Block - Int Insul	4.1	144 ft²	0	0	0.4
_____	7	SW	Exterior	Concrete Block - Int Insul	4.1	50 ft²	0	0	0.4
_____	8	NW	Exterior	Concrete Block - Int Insul	4.1	60 ft²	0	0	0.4
_____	9	SW	Garage	Frame - Wood	11	150 ft²	0	0	0.01

WALLS

✓	#	Ornt	Adjacent To	Wall Type	Cavity R-Value	Area	Sheathing R-Value	Framing Fraction	Solar Absor.
_____	10	SW	Garage	Frame - Wood	11	70 ft²	0	0	0.01
_____	11	SE	Garage	Frame - Wood	11	130 ft²	0	0	0.01
_____	12	NE	Exterior	Concrete Block - Int Insul	4.1	190 ft²	0	0	0.4
_____	13	NW	Exterior	Concrete Block - Int Insul	4.1	30 ft²	0	0	0.4
_____	14	NE	Exterior	Concrete Block - Int Insul	4.1	130 ft²	0	0	0.4
_____	15	NE	Exterior	Concrete Block - Int Insul	4.1	186 ft²	0	0	0.4
_____	16	SE	Exterior	Concrete Block - Int Insul	4.1	336 ft²	0	0	0.4
_____	17	NW	Exterior	Concrete Block - Int Insul	4.1	24 ft²	0	0	0.4
_____	18	SE	Exterior	Concrete Block - Int Insul	4.1	324 ft²	0	0	0.4
_____	19	NE	Exterior	Concrete Block - Int Insul	4.1	75 ft²	0	0	0.4
_____	20	SW	Exterior	Concrete Block - Int Insul	4.1	213.3 ft²	0	0	0.4
_____	21	NW	Garage	Frame - Wood	11	106 ft²	0	0	0.01
_____	22	NE	Exterior	Concrete Block - Int Insul	4.1	20 ft²	0	0	0.4
_____	23	SW	Garage	Frame - Wood	11	125 ft²	0	0	0.01

DOORS

✓	#	Ornt	Door Type	Storms	U-Value	Area
_____	1	SW	Insulated	None	0.4	24 ft²

WINDOWS

Orientation shown is the entered, asBuilt orientation.

✓	#	Ornt	Frame	Panes	NFRC	U-Factor	SHGC	Storms	Area	Overhang		Int Shade	Screening
										Depth	Separation		
_____	1	NE	Metal	Single (Tinted)	Yes	1.1	0.54	N	80 ft²	2 ft 0 in	1.3 ft 0 in	HERS 2006	None
_____	2	H	Metal	Single (Clear)	Yes	1.8	0.47	N	16 ft²	1 ft 3 in	1 ft 4 in	HERS 2006	None
_____	3	SW	Metal	Single (Tinted)	Yes	1.05	0.53	N	30 ft²	2 ft 0 in	1 ft 0 in	HERS 2006	None
_____	4	SW	Metal	Single (Tinted)	Yes	1.05	0.53	N	48 ft²	6 ft 0 in	7 ft 0 in	HERS 2006	None
_____	5	SW	Metal	Single (Tinted)	Yes	1.05	0.53	N	30 ft²	6 ft 0 in	0.5 ft 0 in	HERS 2006	None
_____	6	SW	Metal	Single (Tinted)	Yes	1.05	0.53	N	6 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None
_____	7	NW	Metal	Single (Tinted)	Yes	1.05	0.53	N	18 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None
_____	8	NE	Metal	Single (Tinted)	Yes	1.05	0.53	N	64 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None
_____	9	NE	Metal	Single (Tinted)	Yes	1.05	0.53	N	28 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None
_____	10	NE	Metal	Single (Tinted)	Yes	1.05	0.53	N	64 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None
_____	11	NE	Metal	Single (Tinted)	Yes	1.05	0.53	N	108 ft²	2 ft 0 in	4 ft 0 in	HERS 2006	None
_____	12	SE	Metal	Single (Tinted)	Yes	1.05	0.53	N	144 ft²	15.5 ft 0 i	2 ft 0 in	HERS 2006	None
_____	13	SE	Metal	Single (Tinted)	Yes	1.05	0.53	N	24 ft²	2 ft 0 in	2 ft 0 in	HERS 2006	None
_____	14	SE	Metal	Single (Tinted)	Yes	1.05	0.53	N	52 ft²	2 ft 0 in	2 ft 0 in	HERS 2006	None
_____	15	NE	Metal	Single (Tinted)	Yes	1.05	0.53	N	48 ft²	2 ft 0 in	2 ft 0 in	HERS 2006	None
_____	16	SE	Metal	Single (Tinted)	Yes	1.05	0.53	N	24 ft²	2 ft 0 in	2 ft 0 in	HERS 2006	None
_____	17	SW	Metal	Single (Tinted)	Yes	1.05	0.53	N	12 ft²	2 ft 0 in	1.33 ft 0 i	HERS 2006	None

INFILTRATION & VENTING

✓	Method	SLA	CFM 50	ACH 50	ELA	EqLA	---- Forced Ventilation ----		Run Time Fraction	Fan Watts
							Supply CFM	Exhaust CFM		
_____	Default	0.00036	4013	5.67	220.3	414.3	0 cfm	0 cfm	0	0

GARAGE

✓	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
_____	1	759 ft²	759 ft²	85 ft	10 ft	1

COOLING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Ducts
_____	1	Central Unit	Split	SEER: 16	23.2 kBtu/hr	696 cfm	0.75	sys#0
_____	2	Central Unit	Split	SEER: 16	56.5 kBtu/hr	1695 cfm	0.75	sys#0
_____	3	Central Unit	Split	SEER: 16	23.2 kBtu/hr	696 cfm	0.75	sys#0

HEATING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Ducts
_____	1	Electric Heat Pump	None	HSPF: 9	26.6 kBtu/hr	sys#0
_____	2	Electric Heat Pump	None	HSPF: 9.5	59 kBtu/hr	sys#0
_____	3	Electric Heat Pump	None	HSPF: 9	26.6 kBtu/hr	sys#0

HOT WATER SYSTEM

✓	#	System Type	EF	Cap	Use	SetPnt	Conservation
_____	1	Electric	0.92	65 gal	70 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 ----			---- Return ----		Leakage Type	Air Handler	CFM 25	Percent Leakage	QN	RLF
		Location	R-Value	Area	Location	Area						
_____	1	Attic	6	340 ft²	Attic	100 ft²	Default Leakage	Attic	(Default)	(Default) %		
_____	2	Attic	6	400 ft²	Attic	100 ft²	Default Leakage	Garage	(Default)	(Default) %		
_____	3	Attic	6	300 ft²	Attic	120 ft²	Default Leakage	Attic	(Default)	(Default) %		

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

Cooling	<input checked="" type="checkbox"/>	Jan	<input checked="" type="checkbox"/>	Feb	<input checked="" type="checkbox"/>	Mar	<input checked="" type="checkbox"/>	Apr	<input checked="" type="checkbox"/>	May	<input checked="" type="checkbox"/>	Jun	<input checked="" type="checkbox"/>	Jul	<input checked="" type="checkbox"/>	Aug	<input checked="" type="checkbox"/>	Sep	<input checked="" type="checkbox"/>	Oct	<input checked="" type="checkbox"/>	Nov	<input checked="" type="checkbox"/>	Dec	<input checked="" type="checkbox"/>
Heating	<input checked="" type="checkbox"/>	Jan	<input checked="" type="checkbox"/>	Feb	<input checked="" type="checkbox"/>	Mar	<input checked="" type="checkbox"/>	Apr	<input checked="" type="checkbox"/>	May	<input checked="" type="checkbox"/>	Jun	<input checked="" type="checkbox"/>	Jul	<input checked="" type="checkbox"/>	Aug	<input checked="" type="checkbox"/>	Sep	<input checked="" type="checkbox"/>	Oct	<input checked="" type="checkbox"/>	Nov	<input checked="" type="checkbox"/>	Dec	<input checked="" type="checkbox"/>
Venting	<input checked="" type="checkbox"/>	Jan	<input checked="" type="checkbox"/>	Feb	<input checked="" type="checkbox"/>	Mar	<input checked="" type="checkbox"/>	Apr	<input checked="" type="checkbox"/>	May	<input checked="" type="checkbox"/>	Jun	<input checked="" type="checkbox"/>	Jul	<input checked="" type="checkbox"/>	Aug	<input checked="" type="checkbox"/>	Sep	<input checked="" type="checkbox"/>	Oct	<input checked="" type="checkbox"/>	Nov	<input checked="" type="checkbox"/>	Dec	<input checked="" type="checkbox"/>

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

Code Compliance Checklist

Residential Whole Building Performance Method A - Details

ADDRESS: Jupiter, FL	PERMIT #:
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INFILTRATION REDUCTION COMPLIANCE CHECKLIST

COMPONENTS	SECTION	REQUIREMENTS FOR EACH PRACTICE	CHECK
Exterior Windows & Doors	N1106.AB.1.1	Maximum: .3 cfm/sq.ft. window area; .5 cfm/sq.ft. door area.	
Exterior & Adjacent Walls	N1106.AB.1.2	Caulk, gasket, weatherstrip or seal between: windows/doors & frames, surrounding wall; foundation & wall sole or sill plate; joints between exterior wall panels at corners; utility penetrations; between wall panels & top/bottom plates; between walls and floor. EXCEPTION: Frame walls where a continuous infiltration barrier is installed that extends from, and is sealed to, the foundation to the top plate.	
Floors	N1106.AB.1.2	Penetrations/openings > 1/8" sealed unless backed by truss or joint members. EXCEPTION: Frame floors where a continuous infiltration barrier is installed that is sealed to the perimeter, penetrations and seams.	
Ceilings	N1106.AB.1.2	Between walls & ceilings; penetrations of ceiling plane to top floor; around shafts, chases, soffits, chimneys, cabinets sealed to continuous air barrier; gaps in gyp board & top plate; attic access. EXCEPTION: Frame ceilings where a continuous infiltration barrier is installed that is sealed at the perimeter, at penetrations and seams.	
Recessed Lighting Fixtures	N1106.AB.1.2	Type IC rated with no penetrations, sealed; or Type IC or non-IC rated, installed inside a sealed box with 1/2" clearance & 3" from insulation; or Type IC with < 2.0 cfm from conditioned space, tested.	
Multi-story Houses	N1106.AB.1.2	Air barrier on perimeter of floor cavity between floors.	
Additional Infiltration reqts	N1106.AB.1.3	Exhaust fans vented to outdoors, dampers; combustion space heaters comply with NFPA, have combustion air.	

OTHER PRESCRIPTIVE MEASURES (must be met or exceeded by all residences.)

COMPONENTS	SECTION	REQUIREMENTS	CHECK
Water Heaters	N1112.AB.3	Comply with efficiency requirements in Table N1112.ABC.3 Switch or clearly marked circuit breaker (electric) or cutoff (gas) must be provided. External or built-in heat trap required.	
Swimming Pools & Spas	N1112.AB.2.3	Spas & heated pools must have covers (except solar heated). Non-commercial pools must have a pump timer. Gas spa & pool heaters must have a minimum thermal efficiency of 78%. Heat pump pool heaters shall have a minimum COP of 4.0.	
Shower heads	N1112.AB.2.4	Water flow must be restricted to no more than 2.5 gallons per minute at 80 PSIG.	
Air Distribution Systems	N1110.AB	All ducts, fittings, mechanical equipment and plenum chambers shall be mechanically attached, sealed, insulated and installed in accordance with the criteria of Section N1110.AB. Ducts in unconditioned attics: R-6 min. insulation.	
HVAC Controls	N1107.AB.2	Separate readily accessible manual or automatic thermostat for each system.	
Insulation	N1104.AB.1 N1102.B.1.1	Ceilings-Min. R-19. Common walls-frame R-11 or CBS R-3 both sides. Common ceiling & floors R-11.	

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

ESTIMATED ENERGY PERFORMANCE INDEX* = 84

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

1234 Lane, Jupiter, Fl,

<p>1. New construction or existing 2. Single family or multiple family 3. Number of units, if multiple family 4. Number of Bedrooms 5. Is this a worst case? 6. Conditioned floor area (ft²)</p>	<p>Addition Multi-family 1 4 No 4250</p>	<p>7. Windows**</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"></td> <td style="width: 55%;">Description</td> <td style="width: 30%;">Area</td> </tr> <tr> <td>a. U-Factor:</td> <td>Sgl, U=1.05</td> <td>700.00 ft²</td> </tr> <tr> <td>SHGC:</td> <td>SHGC=0.53</td> <td></td> </tr> <tr> <td>b. U-Factor:</td> <td>Sgl, U=1.10</td> <td>80.00 ft²</td> </tr> <tr> <td>SHGC:</td> <td>SHGC=0.54</td> <td></td> </tr> <tr> <td>c. U-Factor:</td> <td>Sgl, U=1.80</td> <td>16.00 ft²</td> </tr> <tr> <td>SHGC:</td> <td>SHGC=0.47</td> <td></td> </tr> <tr> <td>d. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> <tr> <td>e. U-Factor:</td> <td>N/A</td> <td>ft²</td> </tr> <tr> <td>SHGC:</td> <td></td> <td></td> </tr> </table> <p>8. Floor Types</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"></td> <td style="width: 55%;">Insulation</td> <td style="width: 30%;">Area</td> </tr> <tr> <td>a. Slab-On-Grade Edge Insulation</td> <td>R=0.0</td> <td>4250.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> </table>		Description	Area	a. U-Factor:	Sgl, U=1.05	700.00 ft ²	SHGC:	SHGC=0.53		b. U-Factor:	Sgl, U=1.10	80.00 ft ²	SHGC:	SHGC=0.54		c. U-Factor:	Sgl, U=1.80	16.00 ft ²	SHGC:	SHGC=0.47		d. U-Factor:	N/A	ft ²	SHGC:			e. U-Factor:	N/A	ft ²	SHGC:				Insulation	Area	a. Slab-On-Grade Edge Insulation	R=0.0	4250.00 ft ²	b. N/A	R=	ft ²	c. N/A	R=	ft ²	<p>9. Wall Types</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 65%;"></td> <td style="width: 15%;">Insulation</td> <td style="width: 20%;">Area</td> </tr> <tr> <td>a. Concrete Block - Int Insul, Exterior</td> <td>R=4.1</td> <td>2217.30 ft²</td> </tr> <tr> <td>b. Concrete Block - Int Insul, Common</td> <td>R=4.1</td> <td>680.00 ft²</td> </tr> <tr> <td>c. Frame - Wood, Adjacent</td> <td>R=11.0</td> <td>581.00 ft²</td> </tr> <tr> <td>d. N/A</td> <td>R=</td> <td>ft²</td> </tr> </table> <p>10. Ceiling Types</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 65%;"></td> <td style="width: 15%;">Insulation</td> <td style="width: 20%;">Area</td> </tr> <tr> <td>a. Under Attic (Vented)</td> <td>R=30.0</td> <td>4250.00 ft²</td> </tr> <tr> <td>b. N/A</td> <td>R=</td> <td>ft²</td> </tr> <tr> <td>c. N/A</td> <td>R=</td> <td>ft²</td> </tr> </table> <p>11. Ducts -</p> <p>a. Sup: Attic Ret: Attic AH: Attic Sup. R= 6, 1040 ft²</p> <p>12. Cooling systems -</p> <p>a. Central Unit</p> <p style="text-align: right;">Cap: 71.3 kBtu/hr SEER: 16</p> <p>13. Heating systems -</p> <p>a. Electric Heat Pump</p> <p style="text-align: right;">Cap: 64.2 kBtu/hr HSPF: 9.26</p> <p>14. Hot water systems -</p> <p>a. Electric</p> <p style="text-align: right;">Cap: 65 gallons EF: 0.92</p> <p>b. Conservation features None</p> <p>15. Credits</p> <p style="text-align: right;">Pstat</p>		Insulation	Area	a. Concrete Block - Int Insul, Exterior	R=4.1	2217.30 ft ²	b. Concrete Block - Int Insul, Common	R=4.1	680.00 ft ²	c. Frame - Wood, Adjacent	R=11.0	581.00 ft ²	d. N/A	R=	ft ²		Insulation	Area	a. Under Attic (Vented)	R=30.0	4250.00 ft ²	b. N/A	R=	ft ²	c. N/A	R=	ft ²
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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: The home's estimated Energy Performance Index is only available through the EnergyGauge USA - FlaRes2008 computer program. This is not a Building Energy Rating. If your Index is below 100, your home may qualify for incentives if you obtain a Florida Energy Gauge Rating. Contact the Energy Gauge Hotline at (321) 638-1492 or see the Energy Gauge web site at energygauge.com for information and a list of certified Raters. For information about Florida's Energy Efficiency Code for Building Construction, contact the

**Label required by Section 13-104.4.5 of the Florida Building Code, Building, or Section B2.1.1 of Appendix G of the Florida Building Code, Residential, if not DEFAULT.

Appendix B

ACCA Manual J System Sizing

*Residence
HVAC Load Calculations*

for

Jupiter, FL



RHVAC RESIDENTIAL
HVAC LOADS

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.



Project Report

General Project Information

Project Title: Residence
 Designed By: Energy Rater
 Project Date: 1/23/2012
 Client Name:
 Client Address:
 Client City: Jupiter, FL
 Company Name:
 Company Representative:
 Company Address:
 Company City:
 Company Phone:
 Company Fax:
 Company E-Mail Address:
 Company Comment: License No. CAC

Design Data

Reference City: West Palm Beach, Florida
 Building Orientation: Front door faces Southwest
 Daily Temperature Range: Medium
 Latitude: 26 Degrees
 Elevation: 15 ft.
 Altitude Factor: 0.999
 Elevation Sensible Adj. Factor: 1.000
 Elevation Total Adj. Factor: 1.000
 Elevation Heating Adj. Factor: 1.000
 Elevation Heating Adj. Factor: 1.000

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	45	42.23	80%	n/a	70	n/a
Summer:	91	78	56%	50%	75	59

Check Figures

Total Building Supply CFM:	3,127	CFM Per Square ft.:	0.736
Square ft. of Room Area:	4,250	Square ft. Per Ton:	593
Volume (ft ³) of Cond. Space:	44,800		

Building Loads

Total Heating Required Including Ventilation Air:	54,204 Btuh	54.204 MBH
Total Sensible Gain:	68,759 Btuh	80 %
Total Latent Gain:	17,251 Btuh	20 %
Total Cooling Required Including Ventilation Air:	86,010 Btuh	7.17 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
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 Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.



Load Preview Report

Scope	Has AED	Net Ton	ft ² /Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Min Htg CFM	Min Clg CFM	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building		7.17	593	4,250	68,759	17,251	86,010	54,204	1,080	3,127	1,080	3,127	3,127	
System 1	Yes	1.80	573	1,034	16,151	5,504	21,655	11,568	526	735	526	735	735	10x16
Duct Latent						728	728							
Zone 1				1,034	16,151	4,776	20,927	11,568	526	735	526	735	735	10x16
1-Master Bedroom #1				368	7,577	1,400	8,977	4,610	210	345	210	345	345	2-8
2-WIC #1				144	479	0	479	531	24	22	24	22	24	1-4
3-Master Bath #1				182	3,372	900	4,272	1,499	68	153	68	153	153	1-7
4-Bathrom #2				80	386	600	986	434	20	18	20	18	20	1-4
5-Bedroom #2				260	4,338	1,876	6,214	4,494	204	197	204	197	204	1-9
System 2	Yes	4.19	633	2,652	41,299	8,944	50,243	31,676	412	1,878	412	1,878	1,878	16x20
Duct Latent						1,894	1,894							
Zone 1				2,652	41,299	7,050	48,349	31,676	412	1,878	412	1,878	1,878	16x20
6-Foyer				76	3,863	572	4,435	3,571	46	176	46	176	176	1-8
7-Powder Room				52	522	199	721	805	10	24	10	24	24	1-4
8-Bedroom #3-Media Room				236	2,918	519	3,437	2,072	27	133	27	133	133	1-7
9-Living				389	451	0	451	336	4	21	4	21	21	1-4
10-Kitchen				380	2,551	600	3,151	328	4	116	4	116	116	1-6
11-Utility Room				104	820	200	1,020	1,152	15	37	15	37	37	1-4
12-Formal Living				567	7,412	875	8,287	5,439	71	337	71	337	337	2-8
13-Formal Dining				351	5,043	517	5,560	3,464	45	229	45	229	229	2-6
14-Family Room				462	16,031	3,290	19,321	13,033	169	729	169	729	729	2-12
15-Nook				35	1,687	278	1,965	1,476	19	77	19	77	77	1-5
System 3	Yes	1.18	480	564	11,309	2,803	14,112	10,960	142	514	142	514	514	10x10
Duct Latent						315	315							
Zone 1				564	11,309	2,488	13,797	10,960	142	514	142	514	514	10x10
16-Master Bedroom #4				341	8,253	1,351	9,604	6,352	83	375	83	375	375	2-8
17-Master Bathroom #2				127	2,330	1,090	3,420	3,340	43	106	43	106	106	1-6
18-WIC #2				88	324	47	371	277	4	15	4	15	15	1-4
19-Hallway				8	401	0	401	990	13	18	13	18	18	1-4
Sum of room airflows may be greater than system airflow because system room airflow option uses the greater of heating or cooling.														



System 1 AC-1 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Tinted Window: Glazing-	80	2,200	0	4,427	4,427
9At-smm: Glazing-Skylight, Dome single pane tinted plastic, transmittance = 0.52, small curb, metal sash no break, metal curb, no insulation, plywood shaft, no insulation, horizontal, u-value 1.8, SHGC 0.47	16	720	0	2,513	2,513
Paragon ImpactSH: Glazing-Paragon-Impact-SH, ground reflectance = 0.23, u-value 1.05, SHGC 0.53	30	787	0	1,281	1,281
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish	325	1,161	0	758	758
13A-4ocs: Part-Block, board insulation only, R-4 board insulation, open core, siding finish	680	1,459	0	972	972
16D-30: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Tile, Slate or Concrete, R-30 insulation	1018	814	0	1,010	1,010
22A-pl-c: Floor-Slab on grade, No edge insulation, no insulation below floor, carpet covering, passive, light dry soil	112	2,769	0	0	0
Subtotals for structure:		9,910	0	10,961	10,961
People:	3		840	690	1,530
Equipment:			1,500	800	2,300
Lighting:	80			273	273
Ductwork:		0	728	2,367	3,094
Infiltration: Winter CFM: 60, Summer CFM: 60		1,658	2,436	1,061	3,497
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 1 AC-1 Load Totals:		11,568	5,504	16,151	21,655

Check Figures

Supply CFM:	735	CFM Per Square ft.:	0.710
Square ft. of Room Area:	1,034	Square ft. Per Ton:	573
Volume (ft ³) of Cond. Space:	10,340		

System Loads

Total Heating Required Including Ventilation Air:	11,568 Btuh	11.568 MBH
Total Sensible Gain:	16,151 Btuh	75 %
Total Latent Gain:	5,504 Btuh	25 %
Total Cooling Required Including Ventilation Air:	21,655 Btuh	1.80 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program. Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D. All computed results are estimates as building use and weather may vary. Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.



System 2 AC-2 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Paragon ImpactSH: Glazing-Paragon-Impact-SH, ground reflectance = 0.23, u-value 1.05, SHGC 0.53	332	9,411	0	17,540	17,540
Paragon ImpactSH: Glazing-Paragon-Impact-SH, u-value 1.05, SHGC 0.53	202	5,726	0	6,380	6,380
11J: Door-Metal - Fiberglass Core	24	288	0	216	216
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish	686	2,649	0	1,600	1,600
12B-0bw: Part-Frame, R-11 insulation in 2 x 4 stud cavity, no board insulation, brick finish, wood studs	150	291	0	218	218
12E-0bw: Part-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs	176	240	0	180	180
16D-30: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Tile, Slate or Concrete, R-30 insulation	2651.2	2,291	0	2,628	2,628
22A-pl-c: Floor-Slab on grade, No edge insulation, no insulation below floor, carpet covering, passive, light dry soil	142	3,792	0	0	0
Subtotals for structure:		24,688	0	28,762	28,762
People:	5		1,400	1,150	2,550
Equipment:			800	3,200	4,000
Lighting:	0			0	0
Ductwork:		0	1,894	6,075	7,969
Infiltration: Winter CFM: 235, Summer CFM: 120		6,988	4,850	2,112	6,962
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 2 AC-2 Load Totals:		31,676	8,944	41,299	50,243

Check Figures

Supply CFM:	1,878	CFM Per Square ft.:	0.708
Square ft. of Room Area:	2,652	Square ft. Per Ton:	633
Volume (ft ³) of Cond. Space:	28,822		

System Loads

Total Heating Required Including Ventilation Air:	31,676 Btuh	31.676 MBH
Total Sensible Gain:	41,299 Btuh	82 %
Total Latent Gain:	8,944 Btuh	18 %
Total Cooling Required Including Ventilation Air:	50,243 Btuh	4.19 Tons (Based On Sensible + Latent)

Notes

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System 3 AC-3 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Paragon ImpactSH: Glazing-Paragon-Impact-SH, ground reflectance = 0.23, u-value 1.05, SHGC 0.53	76	1,995	0	3,723	3,723
Paragon ImpactSH: Glazing-Paragon-Impact-SH, u-value 1.05, SHGC 0.53	48	1,260	0	2,584	2,584
Paragon ImpactSH: Glazing-Paragon-Impact-SH, ground reflectance = 0.23, in partition wall, u-value 1.05, SHGC 0.53	12	252	0	189	189
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish	438.3	1,567	0	1,021	1,021
12B-0bw: Part-Frame, R-11 insulation in 2 x 4 stud cavity, no board insulation, brick finish, wood studs	219	425	0	318	318
16D-30: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Tile, Slate or Concrete, R-30 insulation	563.8	450	0	559	559
22A-pl-c: Floor-Slab on grade, No edge insulation, no insulation below floor, carpet covering, passive, light dry soil	80	1,977	0	0	0
Subtotals for structure:		7,926	0	8,394	8,394
People:	2		560	460	1,020
Equipment:			600	600	1,200
Lighting:	40			136	136
Ductwork:		2,130	315	1,139	1,454
Infiltration: Winter CFM: 33, Summer CFM: 33		904	1,328	579	1,907
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 3 AC-3 Load Totals:		10,960	2,803	11,309	14,112

Check Figures

Supply CFM:	514	CFM Per Square ft.:	0.912
Square ft. of Room Area:	564	Square ft. Per Ton:	480
Volume (ft ³) of Cond. Space:	5,638		

System Loads

Total Heating Required Including Ventilation Air:	10,960 Btuh	10.960 MBH
Total Sensible Gain:	11,309 Btuh	80 %
Total Latent Gain:	2,803 Btuh	20 %
Total Cooling Required Including Ventilation Air:	14,112 Btuh	1.18 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.

Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

All computed results are estimates as building use and weather may vary.

Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Appendix C

ACCA Manual D Duct Layout



DRAWING INFO

CONTRACTOR INFO:
2200 N. UNIVERSITY BLVD. #100
PHOENIX, AZ 85016
TEL: (602) 952-0000
FAX: (602) 952-0001

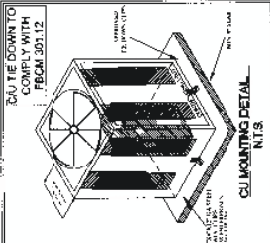
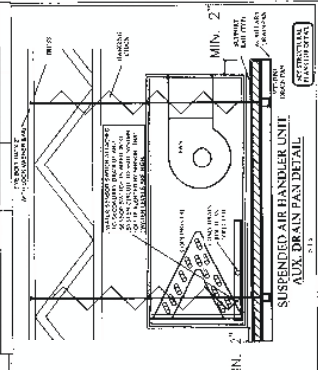
STATE OF ARIZONA LICENSE # 200000010

REGEL RESIDENCE

110 SPYGLASS LAKE
JUPITER, FL

DATE:	10/14/09
BY:	JLR
CHECKED:	WLB
DESIGNED:	JLR
ADMINISTRATOR:	JLR
PROJECT:	REGEL RESIDENCE
CLIENT:	OSCAR C.

MANUFACTURER	MODEL	WARRANTY	REMARKS
DAKOTA ELECTRIC	DAK-100	30	10000 BTU/H
DAKOTA ELECTRIC	DAK-150	30	15000 BTU/H
DAKOTA ELECTRIC	DAK-200	30	20000 BTU/H
DAKOTA ELECTRIC	DAK-250	30	25000 BTU/H
DAKOTA ELECTRIC	DAK-300	30	30000 BTU/H
DAKOTA ELECTRIC	DAK-350	30	35000 BTU/H
DAKOTA ELECTRIC	DAK-400	30	40000 BTU/H
DAKOTA ELECTRIC	DAK-450	30	45000 BTU/H
DAKOTA ELECTRIC	DAK-500	30	50000 BTU/H
DAKOTA ELECTRIC	DAK-550	30	55000 BTU/H
DAKOTA ELECTRIC	DAK-600	30	60000 BTU/H
DAKOTA ELECTRIC	DAK-650	30	65000 BTU/H
DAKOTA ELECTRIC	DAK-700	30	70000 BTU/H
DAKOTA ELECTRIC	DAK-750	30	75000 BTU/H
DAKOTA ELECTRIC	DAK-800	30	80000 BTU/H
DAKOTA ELECTRIC	DAK-850	30	85000 BTU/H
DAKOTA ELECTRIC	DAK-900	30	90000 BTU/H
DAKOTA ELECTRIC	DAK-950	30	95000 BTU/H
DAKOTA ELECTRIC	DAK-1000	30	100000 BTU/H



FLEX DUCT LOCATION SHOWN IN PLAN IS SCHEMATIC AND TO BE ADJUSTED AT JOB SITE TO ACCOMMODATE FIELD CONDITIONS.

DUCT WORK DESIGNED AS PER ACCA MANUAL D.

- NOTES:
- POWER AND CONTROL WIRING BY E.C.
 - EXHAUST FANS SUPPLIED AND INSTALLED BY E.A.
 - ROUTE CONDENSATE DRAIN LINE TO TERVICO'S AREA
 - ALL CONDENSATE LINES TO BE INSULATED
 - ALL CONDENSATE LINES TERMINATE MIN. 1" OFF WALL AND BELIEVE EACH OTHER. CONDENSATE DRAINS TO BE INSULATED WITH 1/2" THICK ARMA FLEX
 - ALL CONDENSING UNITS TO BE MIN 3 FEET FROM PROPERTY LINE
 - THESE DETAILS TO BE DIGITAL PROGRAMMABLE.

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