Florida Building Code, Seventh Edition (2020) - Energy Conservation

EnergyGauge Summit® Fla/Com-2020, Effective Date: Dec 31, 2020

C401.2.3: FBC Total Building Performance Compliance Option

Compliance applying the requirements of Sections C402.5, C403.2, C404,C405.2, C405.4, C405.5, C407 and C408. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.

Check List

Applications for compliance with the Florida Building Code, Energy Conservation shall include:

- ☑ This Checklist
- ☑ The full compliance report generated by the software that contains the project summary, compliance summary, certifications and detailed component compliance reports.
- ☑ The compliance report must include the full input report generated by the software as contigous part of the compliance report.
- ☑ Boxes appropriately checked in the Mandatory Section of the complaince report.

WARNING: INPUT REPORT NOT GENERATED.
To include input report in final submission, go to the Project Form, Settings Tab and check the box - "Append Input Report to Compliance Output Report"
Then rerun your calculation

PROJECT SUMMARY

Short Desc:	Frost RV Repair	**Description:**	Frost RV Repair
Owner:	Frost RV Repair		
Address1:	SW Windswept Glen	**City:**	Lake City
Address2:		**State:**	FL
		Zip:	32024
Type:	Automotive Facility	**Class:**	New Finished building
Jurisdiction:	LAKE CITY, COLUMBIA COUNTY, FL (221200)		
Conditioned Area:	3000 SF	**Conditioned & UnConditioned Area:**	3000 SF
No of Stories:	1	**Area entered from Plans**	3000 SF
Permit No:	0	**Max Tonnage**	0.8
		If different, write in:	_____

Compliance Summary

Component	Design	Criteria	Result
Gross Energy Cost (in $)	2,247.0	2,673.0	**PASSED**
LIGHTING CONTROLS			**PASSES**
EXTERNAL LIGHTING			**PASSES**
HVAC SYSTEM			**PASSES**
PLANT			**No Entry**
WATER HEATING SYSTEMS			**PASSES**
PIPING SYSTEMS			**PASSES**
Met all required compliance from Check List?			**Yes/No/NA**

IMPORTANT MESSAGE
Info 5009 -- -- -- An input report of this design building must be submitted along with this Compliance Report

CERTIFICATIONS

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

Prepared By: Ron Miller

Building Official: _____

Date: 4/6/2022

Date: _____

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

Owner Agent: _____ Date: _____

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

Architect: Kyle McDonough Reg No: 8361 Signature_____

Electrical Designer: Kyle McDonough Reg No: 8361 Signature_____

Lighting Designer: Kyle McDonough Reg No: 8361 Signature_____

Mechanical Designer: Kyle McDonough Reg No: 8361 Signature_____

Plumbing Designer: Kyle McDonough Reg No: _____ Signature_____

(*) Signature is required where Florida Law requires design to be performed by registered design professionals per C103.1.1.1.2

Certified Energy Rater #1494

Project: Frost RV Repair
Title: Frost RV Repair
Type: Automotive Facility
(WEA File: FL_JACKSONVILLE_INTL_ARPT.tm3)

Building End Uses

	1) Proposed	2) Baseline
Total	*138.40*	*193.40*
	$2,247	*$3,145*
ELECTRICITY(MBtu/kWh/$)	138.40	193.40
	40551	56662
	$2,247	*$3,145*
AREA LIGHTS	2.50	5.70
	735	1673
	$41	*$93*
MISC EQUIPMT	16.60	16.60
	4865	4865
	$270	*$270*
PUMPS & MISC	0.10	0.10
	33	36
	$2	*$2*
SPACE COOL	54.60	79.90
	15985	23421
	$886	*$1,300*
SPACE HEAT	38.30	39.70
	11229	11620
	$622	*$645*
VENT FANS	26.30	51.40
	7704	15047
	$427	*$835*

Credits Applied: None
Passing Criteria = 2673
Design (including any credits) = 2247
Passing requires Proposed Building cost to be at most 85% of Baseline cost. This Proposed Building is at 71.4%

PASSES

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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	Walk way less than 10 feet wide	Yes	0.60	220.0	132	160

Tradable Surfaces: 160 (W) Allowance for Tradable: 632 (W) **PASSES**
All External Lighting: 160 (W)
Complicance check includes a excess/Base allowance of 500.00(W)

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Lighting Controls Compliance

Acronym	Ashrae ID	Description	Area (sq.ft)	Design CP	Min CP	Compliance
Office	17	Office - Enclosed	96	1	1	**PASSES**
Restroom	17	Office - Enclosed	64	1	1	**PASSES**
Garage	19,001	Parking Area - Pedestrian	2,840	2	2	**PASSES**

PASSES

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System Report Compliance

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

Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Comp-liance
Cooling System	Air Conditioners Air Cooled Split System < 65000 Btu/h Cooling Capacity	9000	15.00	13.00	8.00		**PASSES**
Heating System	Heat Pumps Air Cooled (Heating Mode) Split System < 65000 Btu/h Cooling Capacity	9	8.20	8.20			**PASSES**
Air Handling System -Supply	Air Handler (Supply) - Constant Volume	403	0.42	0.82			**PASSES**

PASSES

Plant Compliance

Description	Installed No	Size	Design Eff	Min Eff	Design IPLV	Min IPLV	Category	Comp liance

None

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Water Heater Compliance

Description	Type	Category	Design Eff	Min Eff	Design Loss	Max Loss	Compliance
Water Heater 1	Electric Instantaneous Water Heater	< 2 gal	0.99	0.91			**PASSES**

PASSES

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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]	Compl-iance
Domestic and Service Hot Water Systems	0.50	False	105.00	0.28	1.00	0.50	**PASSES**

PASSES

Mandatory Requirements (as applicable)

Requirements compiled by US Department of Energy and Pacific Northwest National Laboratory. Adopted for FBC with permission. Not all may be applicable

Topic	Section	Component	Description	Yes	N/A	Exempt
1. To be checked by Designer or Engineer						
Insulation	C303.2	Envelope	Below-grade wall insulation installed per manufacturer's instructions.	☐	☑	☐
Insulation	C303.2	Envelope	Slab edge insulation installed per manufacturer's instructions.	☐	☑	☐
Insulation	C303.2	Envelope	Above-grade wall insulation installed per manufacturer's instructions.	☑	☐	☐
Insulation	C402.3	Envelope	High-albedo roofs satisfy one of the following: 3-year-aged solar reflectance >= 0.55 and thermal emittance >= 0.75 or 3-year-aged solar reflectance index >= 64.0.	☐	☑	☐
Fenestration	C402.4.4	Envelope	U-factor of opaque doors associated with the building thermal envelope meets requirements.	☑	☐	☐
HVAC	C403.2.7	Mechanical	Exhaust air energy recovery on systems meeting Table C403.2.7(1) and C403.2.7(2).	☐	☑	☐
HVAC	C403.2.4.8	Mechanical	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.2.4.8.1 and C403.2.4.8.2).	☐	☑	☐
SYSTEM_SPECIFIC	C403.3, C403.3.1, C403.3.2	Mechanical	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐	☑	☐
SYSTEM_SPECIFIC	C403.3.2	Mechanical	Economizer operation will not increase heating energy use during normal operation.	☐	☑	☐
SYSTEM_SPECIFIC	C403.3.3.3	Mechanical	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.3.3.3 for applicable device types and climate zones.	☐	☑	☐
SYSTEM_SPECIFIC	C403.3.3.4	Mechanical	System capable of relieving excess outdoor air during air economizer operation to prevent overpressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐	☑	☐
SYSTEM_SPECIFIC	C403.3.3.5	Mechanical	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.2.4.3 for details.	☐	☑	☐
SYSTEM_SPECIFIC	C403.3.4, C403.3.4.1, C403.3.4.2, C403.3.1	Mechanical	Water economizers provided where required, meet the requirements for design capacity, maximum pressure drop and integrated economizer control.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.2.1	Mechanical	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.2.3.1	Mechanical	Hydronic heat pump systems connected to a common water loop meet heat rejection and heat addition requirements.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.3.2	Mechanical	Multiple-cell heat rejection equipment with variable speed fan drives are controlled to operate the maximum number of fans allowed and so that all fans operate at the same fan speed required for the instantaneous cooling duty. The minimum fan speed will be the minimum allowable speed of the fan drive system in accordance with the manufacturer's recommendations.	☐	☑	☐

SYSTEM_SPECIFIC	C403.4.3.4	Mechanical	Open-circuit cooling towers having water cooled chiller systems and multiple or vairable speed condenser pumps, are designed so that tower cells can run in parallel with larger of flow crtieria.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.4	Mechanical	Supply air systems serving multiple zones have VAV systems with controls configured to reduce the volume of air that is reheated, recooled or mixed in each zone. See section for details.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.4.1	Mechanical	Single-duct VAV systems use terminal devices configured to reduce the supply of primary supply air before reheating or recooling takes place.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.4.2	Mechanical	Systems that have 1 warm air duct and 1 cool air duct use terminal devices configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.	☐	☑	☐
SYSTEM_SPECIFIC	C403.4.4.3	Mechanical	Individual dual-duct or mixing heating and cooling systems with a single fan and with total capacities > 90,000 Btu/h not equipped with air economizers.	☐	☑	☐
SYSTEM_SPECIFIC	C404.2	Mechanical	Service water heating equipment meets efficiency requirements.	☑	☐	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)a	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=40.2 gpm/hp .	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)b	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=20.0 gpm/hp.	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)c	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=16.1 gpm/hp.	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)d	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=7.0 gpm/hp	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)e	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=134 kBtu/h-hp w/ Ammonia test fluid.	☐	☐	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)f	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=110 kBtu/h-hp w/ Ammonia test fluid.	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)g	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=157 kBtu/h-hp w/ R-507A test fluid.	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)h	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=135 kBtu/h-hp w/ R-507A test fluid.	☐	☑	☐
SYSTEM_SPECIFIC	Table_C403.3.2(8)i	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=176 kBtu/h-hp.	☐	☑	☐
SYSTEM_SPECIFIC	C403.2.12.1	Mechanical	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	☑	☐	☐
SYSTEM_SPECIFIC	C403.2.12.2	Mechanical	HVAC fan motors not oversized beyond allowable limits.	☑	☐	☐
SYSTEM_SPECIFIC	C403.2.12.3	Mechanical	Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.	☑	☐	☐
SYSTEM_SPECIFIC	C403.2.12.4	Mechanical	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☑	☐	☐
SYSTEM_SPECIFIC	C403.2.12.5	Mechanical	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐	☑	☐

2. To be checked by Plan Reviewer

Plan Review	C103.2	Envelope	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	☐	☐	☐

Plan Review	C103.2	Mechanical	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐	☐	☐
Plan Review	C103.2	Mechanical	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	☐	☐	☐
Plan Review	C103.2	Interior Lighting	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐	☐	☐
Plan Review	C103.2	Exterior Lighting	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐	☐	☐
Insulation	C402.2.5	Envelope	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or >= 10 inches of soil.	☐	☐	☐
Insulation	C402.2.4	Envelope	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐	☐	☐
Insulation	C402.2.6	Project	Radiant heating systems panels insulated to >=R-3.5 on face opposite space being heated.	☐	☐	☐
HVAC	C402.2.6	Mechanical	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐	☐	☐
Insulation	C402.2.6	Envelope	Radiant panels and associated components, designed for heat transfer from the panel surfaces to the occupants or indoor space are insulated with a minimum of R-3.5.	☐	☐	☐
Air Leakage	C402.5.7	Envelope	Vestibules are installed on all building entrances. Doors have self-closing devices.	☐	☐	☐
HVAC	C403.2.13	Mechanical	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐	☐	☐
HVAC	C403.2.4.2	Mechanical	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐	☐	☐
HVAC	C403.2.4.2	Mechanical	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐	☐	☐
HVAC	C403.2.4.2	Mechanical	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.4	Mechanical	Zone isolation devices and controls installed where applicable.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.4	Mechanical	Zone isolation devices and controls installed where applicable.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.7	Mechanical	Fault detection and diagnostics installed with air-cooled unitary DX units having economizers.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.5	Mechanical	Hot water boilers supplying heat via one- or two-pipe systems include outdoor setback control.	☐	☐	☐
HVAC	C403.2.6	Mechanical	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐	☐	☐

HVAC	C403.2.6.1	Mechanical	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.12.5.1	Mechanical	Hydronic and multizone HVAC system controls are VAV fans driven by mechanical or electrical variable speed drive per Table C403.2.12.5.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.12.5.3	Mechanical	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2	Mechanical	The heating of fluids in hydronic systems that have been previously mechanically cooled, and the cooling of fluids that have been previously mechanically heated are limited in accordance with Sections C403.4.2.1-C403.4.2.3. Single boiler systems >500,000 Btu/h have multistaged or modulating burner.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.3.2	Mechanical	Closed-circuit cooling tower within heat pump loop have either automatic bypass valve or lower leakage positive closure dampers. Open-circuit tower within heat pump loop have automatic valve to bypass all heat pump water flow around the tower. Open- or closed-circuit cooling towers used in conjunction with a separate heat exchanger have heat loss by shutting down the circulation pump on the cooling tower loop. Open- or closed circuit cooling towers have a separate heat exchanger to isolate the cooling tower from the heat pump loop, and heat loss is controlled by shutting down the circulation pump on the cooling tower loop.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.4	Mechanical	Hydronic systems greater than 500,000 Btu/h designed for variable fluid flow. See section language for full details.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.5	Mechanical	System turndown requirement met through multiple single-input boilers, one or more modulating boilers, or a combination of single-input and modulating boilers. Boiler input between 1.0 MBtu/h and 5 MBtu/h has 3:1 turndown ratio, boiler input between 5.0 MBtu/h and 10 MBtu/h has 4:1 turndown ratio, boiler input > 10.0 MBtu/h has 5:1 turndown ratio.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.6	Mechanical	Chilled water plants with multiple chillers have capability to reduce flow automatically through the chiller plant when a chiller is shut down. Boiler plants with multiple boilers have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.3.1	Mechanical	Fan systems with total system motor capacity >=5 hp associated with heat rejection equipment configured to automatically modulate the fan speed to control the leaving fluid temperature or condensing temp/pressure of heat rejection device.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.3.3	Mechanical	Centrifugal fan open-circuit cooling towers having combined rated capacity >= 1100 gpm meets minimum efficiency requirement: >=40.2 gpm/hp.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.4.5	Mechanical	Multiple zone HVAC systems have supply air temperature reset controls.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.4.6	Mechanical	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	☐	☐	☐

SYSTEM_SPECIFIC	C404.2.1	Mechanical	Gas-fired water-heating equipment installed in new buildings: where a singular piece of water-heating equipment >= 1,000 kBtu/h serves the entire building, thermal efficiency >= 90 Et. Where multiple pieces of water-heating equipment serve the building with combined rating >= 1,000 kBtu/h, the combined input-capacity-weighted-average thermal efficiency >= 90 Et. Exclude input rating of equipment in individual dwelling units and equipment <= 100 kBtu/h.	☐	☐	☐
SYSTEM_SPECIFIC	C404.2.1	Mechanical	Gas-fired water-heating equipment installed in new buildings: where a singular piece of water-heating equipment >= 1,000 kBtu/h serves the entire building, thermal efficiency >= 90 Et. Where multiple pieces of water-heating equipment serve the building with combined rating >= 1,000 kBtu/h, the combined input-capacity-weighted-average thermal efficiency >= 90 Et. Exclude input rating of equipment in individual dwelling units and equipment <= 100 kBtu/h.	☐	☐	☐
SYSTEM_SPECIFIC	C404.4	Mechanical	All piping insulated in accordance with section details and Table C403.2.10.	☐	☐	☐
SYSTEM_SPECIFIC	C404.5, C404.5.1, C404.5.2	Mechanical	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐	☐	☐
SYSTEM_SPECIFIC	C404.6.3	Mechanical	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐	☐	☐
SYSTEM_SPECIFIC	C404.7	Mechanical	Demand recirculation water systems have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐	☐	☐
Wattage	C405.4.1	Exterior Lighting	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐	☐	☐
Plan Review	C405.5.2	Project	Group R-2 dwelling units have separate electrical meters.	☐	☐	☐
Plan Review	C406	Project	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐	☐	☐
SYSTEM_SPECIFIC	C408.2.2.2	Mechanical	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐	☐	☐

3. To be checked by Inspector

Insulation	C303.1	Envelope	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is <=3 in 12.	☐	☐	☐
Insulation	C303.1	Envelope	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	☐	☐	☐
Insulation	C402.2.2	Envelope	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for roor/ceiling assemblies. Continuous insulation board installed in 2 or more layers with edge joints offset between layers.	☐	☐	☐
Insulation	C402.2.2	Envelope	Skylight curbs are insulated to the level of roofs with insulation above deck or R-5.	☐	☐	☐
Fenestration	C303.1.3	Envelope	Fenestration products rated in accordance with NFRC.	☐	☐	☐
Insulation	C303.2, C402.2.5	Envelope	Floor insulation installed per manufacturer's instructions. Cavity or structural slab insulation installed in permanent contact with underside of decking or structural slabs.	☐	☐	☐

Insulation	C303.2.1	Envelope	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	☐	☐	☐
Insulation	C303.2.1	Envelope	Exterior insulation is protected from damage with a protective material. Verification for exposed foundation insulation may need to occur during Foundation Inspection.	☐	☐	☐
Insulation	C402.1.3	Envelope	Non-swinging opaque doors have R-4.75 insulation.	☐	☐	☐
Insulation	C104	Envelope	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐	☐	☐
Insulation	C104	Envelope	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐	☐	☐
Insulation	C104	Envelope	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during Framing Inspection.	☐	☐	☐
Air Leakage	C402.5	Envelope	Building envelope contains a continuous air barrier that has been tested and deemed to limit air leakage <= 0.40 cfm/ft2.	☐	☐	☐
Air Leakage	C402.5.1	Envelope	The building envelope contains a continuous air barrier that is sealed in an approved manner and either constructed or tested in an approved manner. Air barrier penetrations are sealed in an approved manner.	☐	☐	☐
Air Leakage	C402.5.1.1	Envelope	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	☐	☐	☐
Air Leakage	C402.5.1.2.1	Envelope	The building envelope contains a continuous air barrier that is sealed in an approved manner and material permeability <= 0.004 dfm/ft2. Air barrier penetrations are sealed in an approved manner.	☐	☐	☐
Air Leakage	C402.5.1.2.2	Envelope	The building envelope contains a continuous air barrier that is sealed in an approved manner and average assembly air leakage <= 0.04 cfm/ft2. Air barrier penetrations are sealed in an approved manner.	☐	☐	☐
Air Leakage	C402.5.2, C402.5.4	Envelope	Factory-built fenestration and doors are labeled as meeting air leakage requirements.	☐	☐	☐
Air Leakage	C402.5.5, C403.2.4.3	Envelope	Stair and elevator shaft vents have motorized dampers that automatically close. Refernece section C403.2.4.3 for operational details.	☐	☐	☐
Air Leakage	C402.5.6	Envelope	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	☐	☐	☐
Air Leakage	C402.5.6	Envelope	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	☐	☐	☐
Air Leakage	C402.5.8	Envelope	Recessed luminaires in thermal envelope to limit infiltration and be IC rated and labeled. Seal between interior finish and luminaire housing.	☐	☐	☐
HVAC	C403.2.1	Mechanical	HVAC systems and equipment design loads calculated in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.10	Mechanical	HVAC piping insulation insulated in accordance with Table C403.2.10. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	☐	☐	☐
HVAC	C403.2.3	Mechanical	HVAC equipment efficiency verified.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.3	Mechanical	PTAC and PTHP with sleeves 16 in. by 42 in. labeled for replacement only as per Footnote b to Table C403.2.3(3).	☐	☐	☐

SYSTEM_SPECIFIC	C403.2.3	Mechanical	Centrifugal fan open-circuit cooling towers having combined rated capacity >= 1100 gpm meets minimum efficiency requirement: >=38.2 gpm/hp.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.1	Mechanical	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.1.1	Mechanical	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐	☐	☐
HVAC	C403.2.4.1.2	Mechanical	Thermostatic controls have a 5 °F deadband.	☐	☐	☐
HVAC	C403.2.4.1.2	Mechanical	Thermostatic controls have a 5 °F deadband.	☐	☐	☐
HVAC	C403.2.4.1.3	Mechanical	Temperature controls have setpoint overlap restrictions.	☐	☐	☐
HVAC	C403.2.4.2.1, C403.2.4.2.2	Mechanical	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.4.2.3	Mechanical	Systems include optimum start controls.	☐	☐	☐
HVAC	C403.2.4.5, C403.2.4.6	Mechanical	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature and outdoor temperature. future connection to controls.	☐	☐	☐
HVAC	C403.2.6.2	Mechanical	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐	☐	☐
Air Leakage	C403.2.4.3	Mechanical	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section language for operational details.	☐	☐	☐
HVAC	C403.2.9.1, C403.2.9.2	Mechanical	HVAC ducts and plenums insulated in accordance with C403.2.9.1 and constructed in accordance with C403.2.9.2, verification may need to occur during Foundation Inspection.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.12.5.2	Mechanical	VAV fans have static pressure sensors located so controller setpoint <=1.2 w.c..	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.2	Mechanical	Two-pipe hydronic systems using a common distribution system have controls to allow a deadband >=15 ºF, allow operation in one mode for at least 4 hrs before changeover, and have rest controls to limit heating and cooling supply temperature to <=30 ºF.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.2.3.3	Mechanical	Two-position automatic valve interlocked to shut off water flow when hydronic heat pump with pumping system >10 hp is off.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.4.7	Mechanical	Parallel-flow fan-powered VAV air terminals have automatic controls configured to 1) turn off the terminal fan except when space heating is required or where required for ventilation, 2) turn on the terminal fan as the first stage of heating before the heating coil is activated, and 3) during heating for warmup or setback temperature control, either operate the terminal fan and heating coil without primary air or, reverse the terminal damper logic and provide heating from the central air handler by primary air.	☐	☐	☐
SYSTEM_SPECIFIC	C403.2.12.5.3	Mechanical	Systems with DDC of individual zones reporting to the central control panel configured to reset the static pressure setpoint based on zone requiring the most pressure. The DDC is capable of monitoring zone damper positions or have an alternative method of indicating the need for static pressure. See section for details.	☐	☐	☐

SYSTEM_SPECIFIC	C403.2.12.5.2	Mechanical	Static pressure sensors used to control VAV fans located such that the controller setpoint is <= 1.2 inches w.c.. Where this results in one or more sensors being located downstream of major duct splits, not less than one sensor located on each major branch.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.5	Mechanical	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐	☐	☐
SYSTEM_SPECIFIC	C403.4.6	Mechanical	Hot gas bypass limited to: <=240 kBtu/h – 50% >240 kBtu/h – 25%	☐	☐	☐
SYSTEM_SPECIFIC	C404.3	Mechanical	Heat traps installed on supply and discharge piping of non-circulating systems.	☐	☐	☐
SYSTEM_SPECIFIC	C404.6.1	Mechanical	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	☐	☐	☐
SYSTEM_SPECIFIC	C404.6.1, C404.6.2	Mechanical	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	☐	☐	☐
SYSTEM_SPECIFIC	C404.9.1	Mechanical	Pool heaters are equipped with on/off switch and no continuously burning pilot light.	☐	☐	☐
SYSTEM_SPECIFIC	C404.9.2	Mechanical	Time switches are installed on all pool heaters and pumps.	☐	☐	☐
SYSTEM_SPECIFIC	C404.9.3	Mechanical	Vapor retardant pool covers are provided for heated pools and permanently installed spas.	☐	☐	☐
Controls	C405.2.1, C405.2.1.1	Interior Lighting	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐	☐	☐
Controls	C405.2.1.2	Interior Lighting	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐	☐	☐
Controls	C405.2.1.3	Interior Lighting	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐	☐	☐
Controls	C405.2.2, C405.2.2.1, C405.2.2.2	Interior Lighting	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐	☐	☐

Controls	C405.2.2.2	Interior Lighting	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐	☐	☐
Controls	C405.2.3, C405.2.3.1, C405.2.3.2	Interior Lighting	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐	☐	☐
Controls	C405.2.4	Interior Lighting	Separate lighting control devices for specific uses installed per approved lighting plans.	☐	☐	☐
Wattage	C405.2.4	Interior Lighting	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐	☐	☐
Controls	C405.2.6	Exterior Lighting	Exterior lighting systems shall be provided with controls that comply with Sections C405.2.6.1 through C405.2.6.4. Decorative lighting systems shall comply with Sections C405.2.6.1, C405.2.6.2, and C405.2.6.4.	☐	☐	☐
Wattage	C405.3.1	Interior Lighting	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐	☐	☐
Mandatory Additional	C406.4	Project	Enhanced digital lighting controls efficiency package: Interior lighting has following enhanced lighting controls in accordance with Section C405.2.2: Luminaires capable of continuous dimming and being addressed individually, <= 8 luminaires controlled in combination in a daylight zone, digital control system for fixtures, "Sequence of Operations" documentation, and functional testing per Section C408.	☐	☐	☐
Mandatory Additional	C406.6	Project	Dedicate outdoor air system efficiency package: Buildings with hydronic and/or multiple-zone HVAC systems are equipped with an independent ventilation system designed to provide >= 100-percent outdoor air to each individual occupied space, as specified by the IMC. The ventilation system is capable of total energy recovery and includes HVAC system controls that manage temperature resets >= 25 percent of delta design supply-air / room-air temp. Reference section C406.6 for qualifying systems/equipment.	☐	☐	☐
Mandatory Additional	C406.7, C406.7.1	Project	Enhanced Service Water Heat System efficiency package. One of the following SWH system enhancements must satisfy 60 percent of buildings annual hot water requirements, or 100 percent if the building requirements otherwise complies with heat recovery per Section C403.9.5: Waste heat recovery (from SWH, process equipment, OR on-site renewable water-heating.	☐	☐	☐
HVAC	C408.2.2.1	Mechanical	Air outlets and zone terminal devices have means for air balancing.	☐	☐	☐
Testing	C408.2.3.2	Mechanical	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐	☐	☐

HVAC	C403.2.14, C403.2.14.1, C403.2.14.2	Mechanical	Commercial refrigerators, freezers, refrigerator-freezers and refrigeration equipment, defined in U.S. 10 CFR part 431.62, shall have an energy use in kWh/day not greater than the values of Table C403.2.14.1(1) when tested and rated in accordance with AHRI Standard 1200. Walk-in cooler and walk-in freezer refrigeration systems, except for walk-in process cooling refrigeration systems as defined in U.S. 10 CFR 431.302, shall meet the requirements of Tables C403.2.14.2(1), C403.2.14.2(2) and C403.2.14.2(3).	☐	☐	☐

4. To be checked by Inspector at Project Completion and Prior to Issuance of Certificate of Occupancy

Post Construction	C408.1.1, C408.2.5.2	Interior Lighting	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐	☐	☐
Post Construction	C408.1.1, C408.2.5.3	Mechanical	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐	☐	☐
Fenestration	C402.4.2.2	Envelope	Skylights in office, storage, automotive service, manufacturing, non-refrigerated warehouse, retail store, and distribution/sorting area have a measured haze value > 90 percent unless designed to exclude direct sunlight.	☐	☐	☐
Post Construction	C408.1.1	Project	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐	☐	☐
Post Construction	C408.2.1	Mechanical	Commissioning plan developed by registered design professional or approved agency.	☐	☐	☐
Post Construction	C408.2.3.1	Mechanical	HVAC equipment has been tested to ensure proper operation.	☐	☐	☐
Post Construction	C408.2.3.3	Mechanical	Economizers have been tested to ensure proper operation.	☐	☐	☐
Post Construction	C408.2.4	Mechanical	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐	☐	☐
Post Construction	C408.2.5.1	Mechanical	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐	☐	☐
Post Construction	C408.2.5.3	Mechanical	An air and/or hydronic system balancing report is provided for HVAC systems.	☐	☐	☐
Post Construction	C408.2.5.4	Mechanical	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐	☐	☐
Post Construction	C408.3	Interior Lighting	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐	☐	☐
Post Construction	C405.6	Project	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐	☐	☐
Post Construction	C405.7	Project	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐	☐	☐
Post Construction	C405.8.2, C405.8.2.1	Project	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐	☐	☐
Post Construction	C405.5.3	Project	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐	☐	☐

EnergyGauge Summit® v7.00

INPUT DATA REPORT

Project Information

Project Name: Frost RV Repair
Project Title: Frost RV Repair
Address: SW Windswept Glen

State: FL
Zip: 32024

Owner: Frost RV Repair

Orientation: 0 Deg Clockwise. Walls & Windows will be rotated accordingly
Building Type: Automotive Facility
Building Classification: New Finished building

No.of Stories: 1
GrossArea: 3000 SF

Zones

No	Acronym	Description	Type	Area [sf]	Multiplier	Total Area [sf]	
1	DS-1	Ductless Mini Split Heat Pump	CONDITIONED	3000.0	1	3000.0	☐

Spaces

No	Acronym	Description	Type	Depth [ft]	Width [ft]	Height [ft]	Multiplier	Total Area [sf]	Total Volume [cf]	
In Zone:	**DS-1**									
1	Office	Office	Office - Enclosed	12.00	8.00	10.00	1	96.0	960.0	☐
2	Restroom	Restroom	Office - Enclosed	1.00	64.00	10.00	1	64.0	640.0	☐
3	Garage	Garage	Parking Area - Pedestrian	1.00	2840.00	14.00	1	2840.0	39760.0	☐

Lighting

No	Type	Category	No. of Luminaires	Watts per Luminaire	Power [W]	Control Type	No.of Ctrl pts	
In Zone:	**DS-1**							
In Space:	**Office**							
1	LED	General Lighting	1	40	40	Manual On/Off	1	☐
2	LED	Exit Sign	1	0	0	Security (continuous)	0	☐
In Space:	**Restroom**							
1	LED	General Lighting	1	40	40	Occupancy sensor without Daylighting	1	☐
In Space:	**Garage**							
1	LED	General Lighting	4	40	160	Occupancy sensor without Daylighting	2	☐

Walls (Walls will be rotated clockwise by building rotation value)

No	Description	Type	Width [ft]	H (Effec) [ft]	Multiplier	Area [sf]	Orientation	Conductance [Btu/hr. sf. F]	Heat Capacity [Btu/sf.F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu]
In Zone:	**DS-1**										

1	Pr0Zo1Wa1	Metal siding/2x4@24"+R11Batt/5/8"Gyp	50.00	14.00	1	700.0	North	0.0920	1.072	19.38	10.9
2	Pr0Zo1Wa1	Metal siding/2x4@24"+R11Batt/5/8"Gyp	60.00	14.00	1	840.0	West	0.0920	1.072	19.38	10.9
3	Pr0Zo1Wa1	Metal siding/2x4@24"+R11Batt/5/8"Gyp	60.00	14.00	1	840.0	East	0.0920	1.072	19.38	10.9
4	Pr0Zo1Wa1	Metal siding/2x4@24"+R11Batt/5/8"Gyp	50.00	14.00	1	700.0	South	0.0920	1.072	19.38	10.9

Windows (Windows will be rotated clockwise by building rotation value)

No	Description	Orientation	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.sf.F/Btu]
In Zone:											
In Wall:											

Roofs

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Tilt [deg]	Cond. [Btu/hr. Sf. F]	Heat Cap [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu]
In Zone:	**DS-1**										
1	Pr0Zo1Rf1	Mtl Bldg Roof/R-19 Batt	50.00	60.00	1	3000.0	0.00	0.0492	1.34	9.49	20.3

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]	Multiplier	Area [sf]	Cond. [Btu/hr. sf. F]	Heat Cap. [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu]
In Zone:	**DS-1**									
1	Pr0Zo1Fl1	1 ft. soil, concrete floor, carpet and rubber pad	50.00	60.00	1	3000.0	0.2681	34.00	113.33	3.73

Systems

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

Component	Category	Capacity	Efficiency	IPLV
1	Cooling System	9000.00	15.00	8.00
2	Heating System	9.00	8.20	
3	Air Handling System -Supply	403.00	0.42	

Plant

Equipment	Category	Size	Inst.No	Eff.	IPLV

Water Heaters

	W-Heater Description	Capacity Cap.Unit	I/P Rt.	Efficiency	Loss	
1	Electric Instantaneous Water Heater (1 units)	1 [Gal]	3 [Kw]	0.9900 [Ef/Et]	Btu/h	☐

Ext-Lighting

	Description	Category	No. of Luminaires	Watts per Luminaire	Area/Len/No. of units [sf/ft/No]	Control Type	Wattage [W]	
1	Ext Light 1	Walk way less than 10 feet wide	4	40	220.00	Astronomical Timer Contr	160.00	☐

Piping

	No	Type	Operating Temperature [F]	Insulation Conductivity [Btu-in/h.sf.F]	Nomonal pipe Diameter [in]	Insulation Thickness [in]	Is Runout?	
1		Domestic and Service Hot Water Systems	105.00	0.28	0.50	1.00	No	☐

Fenestration Used

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

Materials Used

Mat No	Acronym	Description	Only R-Value Used	RValue [h.sf.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	☐
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	☐
94	Matl94	BUILT-UP ROOFING, 3/8IN	No	0.3366	0.0313	0.0930	70.00	0.3500	☐

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]	
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.sf.F]	Heat Capacity [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1056	Mtl Bldg Roof/R-19 Batt	No	No	0.05	1.34	9.49	20.3	☐

Layer	Material No.	Material	Thickness [ft]	Framing Factor	
1	94	BUILT-UP ROOFING, 3/8IN	0.0313	0.000	☐
2	23	6 in. Insulation	0.5000	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]	
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	☐

Frost RV Repair

Location	**SW Windswept Glen Lake City FL 32024**
Building owner	**Frost RV Repair**
Program user	**Ron Miller**
Company	**Go Green Engineering**
Comments	

By	**Go Green Engineering LLC**
Dataset name	**C:\Projects\Green Engineering Solutions\2022\Frost RV\Frost RV.TRC**

Calculation time	**06:12 AM on 04/06/2022**
TRACE® 700 version	**6.3.5**

Location	**Jacksonville, Florida**	
Latitude	**30.0**	**deg**
Longitude	**81.0**	**deg**
Time Zone	**5**	
Elevation	**24**	**ft**
Barometric pressure	**29.9**	**in. Hg**
Air density	**0.0760**	**lb/cu ft**
Air specific heat	**0.2444**	**Btu/lb·°F**
Density-specific heat product	**1.1144**	**Btu/h·cfm·°F**
Latent heat factor	**4,905.3**	**Btu·min/h·cu ft**
Enthalpy factor	**4.5588**	**lb·min/hr·cu ft**
Summer design dry bulb	**97.3**	**°F**
Summer design wet bulb	**76.5**	**°F**
Winter design dry bulb	**32.0**	**°F**
Summer clearness number	**0.95**	
Winter clearness number	**0.95**	
Summer ground reflectance	**0.20**	
Winter ground reflectance	**0.20**	
Carbon Dioxide Level	**400**	**ppm**

Design simulation period	**January - December**
Cooling load methodology	**TETD-TA1**
Heating load methodology	**UATD**

System Checksums

By Go Green Engineering LLC

DS-1 **Constant Volume**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 17
Outside Air: OADB/WB/HR: 93 / 78 / 119

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	316	316	8
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	904	203	1,107	28
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	904	519	1,422	36
Internal Loads				
Lights	524	131	655	17
People	500	0	500	13
Misc	655	0	655	17
Sub Total ==>	1,680	131	1,811	46
Ceiling Load	137	-137	0	0
Ventilation Load	0	0	670	17
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,720	513	3,902	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 19
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	959	38
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	959	38
Internal Loads		
Lights	524	21
People	250	10
Misc	655	26
Sub Total ==>	1,430	56
Ceiling Load	143	6
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	2,532	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 32

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-152	9.63
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-779	-961	60.88
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-779	-1,113	70.50
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-70	0	0.00
Ventilation Load	0	-466	29.50
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-849	-1,579	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	76.7
Ra Plenum	79.5	67.7
Return	79.5	67.7
Ret/OA	80.8	64.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	114	114
Terminal	114	114
Main Fan	114	114
Sec Fan	0	0
Nom Vent	11	11
AHU Vent	11	11
Infil	0	0
MinStop/Rh	0	0
Return	103	103
Exhaust	0	0
Rm Exh	11	11
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	9.7	9.7
cfm/ft²	1.18	1.18
cfm/ton	349.34	
ft²/ton	295.20	
Btu/hr·ft²	40.65	-16.45
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.3	3.9	3.2	114	80.8	64.7	65.7	55.0	53.2	57.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	96		
Part	0		
Int Door	1		
ExFlr	0		
Roof	96	0	0
Wall	400	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.6	114	64.2	76.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.6			

Room Checksums

By Go Green Engineering LLC

Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 17
Outside Air: OADB/WB/HR: 93 / 78 / 119

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	316	316	8
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	904	203	1,107	28
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	904	519	1,422	36
Internal Loads				
Lights	524	131	655	17
People	500	0	500	13
Misc	655	0	655	17
Sub Total ==>	1,680	131	1,811	46
Ceiling Load	137	-137	0	0
Ventilation Load	0	0	670	17
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,720	513	3,902	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 19
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	959	38
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	959	38
Internal Loads		
Lights	524	21
People	250	10
Misc	655	26
Sub Total ==>	1,430	56
Ceiling Load	143	6
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	2,532	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 32

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-152	9.63
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-779	-961	60.88
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-779	-1,113	70.50
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-70	0	0.00
Ventilation Load	0	-466	29.50
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-849	-1,579	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	76.7
Ra Plenum	79.5	67.7
Return	79.5	67.7
Ret/OA	80.8	64.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	114	114
Terminal	114	114
Main Fan	114	114
Sec Fan	0	0
Nom Vent	11	11
AHU Vent	11	11
Infil	0	0
MinStop/Rh	0	0
Return	103	103
Exhaust	0	0
Rm Exh	11	11
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	9.7	9.7
cfm/ft²	1.18	1.18
cfm/ton	349.34	
ft²/ton	295.20	
Btu/hr·ft²	40.65	-16.45
No. People	1.0	10.4/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.3	3.9	3.2	114	80.8	64.7	65.7	55.0	53.2	57.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	96		
Part	0		
Int Door	1		
ExFlr	0		
Roof	96	0	0
Wall	400	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.6	114	64.2	76.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.6			