Florida Building Code, 8th Edition (2023) - Energy Conservation

EnergyGauge Summit® Fla/Com-2023, Effective Date: Dec 31, 2023

C407: 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:

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

PROJECT SUMMARY

Short Desc:	61680124C	**Description:**	Kyle McLeod Offices
Owner:	Kyle McLeod Offices		
Address1:	NW Real Terrace	**City:**	Lake City
Address2:	Lake City, FL 32055	**State:**	FL
		Zip:	32055
Type:	Office	**Class:**	New Finished building
Jurisdiction:	LAKE CITY, COLUMBIA COUNTY, FL (221200)		
Conditioned Area:	1522 SF	**Conditioned & UnConditioned Area:**	1522 SF
No of Stories:	1	**Area entered from Plans**	1522 SF
Permit No:	0	**Max Tonnage**	5
		If different, write in:	_____

Compliance Summary

Component	Design	Criteria	Result
Gross Energy Cost (in $)	995.00	1337.00	**PASSED**
LIGHTING CONTROLS			**PASSES**
EXTERNAL LIGHTING			**No Entry**
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: Roy Abood #1361 Building Official: _____

Date: 11-JAN-2024 @ 14:57:32 PM 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: _____ Reg No: _____ Signature_____

Electrical Designer: _____ Reg No: _____ Signature_____

Lighting Designer: _____ Reg No: _____ Signature_____

Mechanical Designer: _____ Reg No: _____ Signature_____

Plumbing Designer: _____ Reg No: _____ Signature_____

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

Project: 61680124C
Title: Kyle McLeod Offices
Type: Office
(WEA File: FL_JACKSONVILLE_INTL_ARPT.tm3)

Building End Uses

	1) Proposed	2) Baseline
Total	*63.20*	*99.80*
	$995	*$1,572*
ELECTRICITY(MBtu/kWh/$)	63.20	99.80
	18561	29227
	$995	*$1,572*
AREA LIGHTS	9.10	10.20
	2680	2983
	$144	*$160*
MISC EQUIPMT	22.80	22.80
	6690	6690
	$359	*$360*
PUMPS & MISC	0.10	0.10
	21	39
	$1	*$2*
SPACE COOL	24.00	18.70
	7043	5469
	$378	*$294*
SPACE HEAT	1.30	3.60
	395	1045
	$21	*$56*
VENT FANS	5.90	44.40
	1732	13001
	$93	*$699*

Credits Applied: None
Passing Criteria = 1337
Design (including any credits) = 995
Passing requires Proposed Building cost to be at most 85% of Baseline cost. This Proposed Building is at 63.3%

PASSES

External Lighting Compliance

Description	Category	Tradable?	Allowance (W/Unit)	Area or Length or No. of Units (Sqft or ft)	ELPA (W)	CLP (W)

None

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Lighting Controls Compliance

Acronym	ID	Description	Area (sq.ft)	Compliance
AHU #1	**17**	**Office - Enclosed**	**1,522**	Lighing Controls PASSES

PASSES

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System Report Compliance

5 TON **AHU #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 45000 - 65000 Btu/h Cooling Capacity	60000	14.50	13.80	14.50		**PASSES**
Heating System	Electric Furnace	34121	1.00	1.00			**PASSES**
Air Handling System -Supply	Air Handler (Supply) - Constant Volume	1800	0.10	0.82			**PASSES**
Air Handling System - Return	Air Handler (Return) - Constant Volume	1800	0.10	0.82			**PASSES**
Air Distribution System (Sup)	ADS System (Sup)		6.00				**PASSES**
Air Distribution System (Ret)	ADS System (Ret)		6.00				**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 Storage water heater	<= 12 [kW]	91.00	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]	Compliance
Heating System (Steam, Steam Condensate, & Hot Water)	0.75	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						
6037 Post Construction	C401.3	Envelope	A thermal envelope certificate will be supplied and completed by an approved third party.	X		
6031 Fenestration	C402.4.1	Envelope	The vertical fenestration area <= 30 percent of the gross above-grade wall area.	X		
6033 Fenestration	C402.4.1	Envelope	The skylight area <= 3 percent of the gross roof area.		X	
6036 Fenestration	C402.4.1.1	Envelope	Vertical Fenestration Area Allowance: A maximum of 40 percent of gross above-grade wall area is permitted to be vertical fenestration area provided in buildings not greater than two stories above grade, >= 50 percent of the conditioned floor area is within a daylight zone, in buildings three or more stories above grade, not less than 25 percent of the net floor area is within a daylight zone, daylight responsive controls are installed, and glazing assemblies within the scope of NFRC 200 have visible transmittance >= 1.1 times SHGC.		X	
6038 Fenestration	C402.4.1.2	Envelope	A maximum of 6 percent of roof area is permitted to be skylight area provided daylight responsive controls are installed in daylight zones under skylights.		X	

6039 Fenestration	C402.4.2	Envelope	In enclosed spaces > 2,500 ft2 directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage, gymnasium/exercise center, convention center, automotive service, manufacturing, non-refrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, the following requirements apply: (a) the daylight zone under skylights is <= half the floor area; (b) the skylight area to daylight zone is >= 3 percent with a skylight VT >= 0.40; or a minimum skylight effective aperture >= 1 percent. []- Exception 1:C402.4.2: Buildings in climate zones 6 through 8. []- Exception 2:C402.4.2: Spaces where the proposed general lighting power densities < 0.5 W/ft2. []- Exception 3:C402.4.2: Areas with obstructions that block direct beam sunlight on >= 1/2 of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 am and 4 pm. []- Exception 4:C402.4.2: Spaces where the daylight zone under rooftop monitors is > 50 percent of the enclosed space floor area. []- Exception 5:C402.4.2: Spaces where the total area net of daylight zones adjacent to vertical fenestration < 2,500 s.f. and where the lighting is controlled. []- Exception 6:C402.4.2: Requirement does not apply.	☐	☒	☐
6032 Fenestration	C402.4.3	Envelope	Vertical fenestration Maximum U-factor and SHGC value.	☒	☐	☐
6034 Fenestration	C402.4.3	Envelope	Skylight SHGC value.	☐	☒	☐
6040 Fenestration	C402.4.5	Envelope	U-factor of opaque swinging and nonswinging doors associated with the building thermal envelope meets requirements.	☒	☐	☐
6046 Post Construction	C402.5.11	Envelope	Operable openings > 40 ft2 will be interlocked with heating and cooling systems to setback setpoint temperatures within 10 minutes of opening. []- Exception 1:C402.5.11: Separately zoned areas. []- Exception 2:C402.5.11: Warehouses with overhead doors for occupancy. []- Exception 3:C402.5.11: Entrance doors located in exterior wall as part of a vestibule.	☒	☐	☐
6056 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 []- Exception 1:C403.2.1: Mechanical systems are designed by a registered engineer	☒	☐	☐

6096 HVAC	C403.2.12.1	Mechanical	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp. []- Exception 1:C403.2.12.1: Hospital and laboratory systems that utilize flow control devices on exhaust and/or return. []- Exception 2:C403.2.12.1: Individual exhaust fans with motor nameplate horsepower less than or equal 1 hp. []- Exception 3:C403.2.12.1: Requirement does not apply.	X	☐	☐
6055 HVAC	C403.2.12.2	Mechanical	HVAC fan motors not oversized beyond allowable limits. []- Exception 1:C403.2.12.2: Fans equipped with electronic speed control devices []- Exception 2:C403.2.12.2: Fans with fan nameplate electrical input power < 0.89 kW []- Exception 3:C403.2.12.2: Fan system complying with Section C403.2.12.1 motor nameplate hp (Option 1). []- Exception 4:C403.2.12.2: Fans with motor nameplate horsepower < 1 hp (746 W). []- Exception 5:C403.2.12.2: Requirement does not apply.	X	☐	☐
6141 SYSTEM_SPECIF	C403.2.12.3	Mechanical	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95 at the design point of operation. []- Exception 1:C403.2.12.3: Single not embedded fans with motor nameplate horsepower of less than 1 hp (0.89 kW). []- Exception 2:C403.2.12.3: Embedded fans with motor nameplate horsepower exceeding 5 hp (4.1 kW). []- Exception 3:C403.2.12.3: Multiple fans in series or parallel have a combined motor nameplate horsepower of less or equal 5 hp and are operated functionally as a single fan. []- Exception 4:C403.2.12.3: Fans integral to equipment listed under Section C403.2.3. []- Exception 5:C403.2.12.3: Fans included in equipment having certified seal for air or energy performance of the equipment package. []- Exception 6:C403.2.12.3: Ceiling fans. []- Exception 7:C403.2.12.3: Fans for gases at temperatures above 425F. []- Exception 8:C403.2.12.3: Fans for operation in explosive atmospheres. []- Exception 9:C403.2.12.3: Reversible fans for tunnel ventilation. []- Exception 10:C403.2.12.3: Fans not covered by AMCA 208. []- Exception 11:C403.2.12.3: Fans intended to operate only during emergency conditions.	X	☐	☐

6057 HVAC	C403.2.2	Mechanical	HVAC systems and equipment capacity does not exceed calculated loads. []- Exception 1:C403.2.2: Required standby equipment with proper controls per code. []- Exception 2:C403.2.2: Multiple units of the same type of equipment with sequencing controls. []- Exception 3:C403.2.2: Living spaces in commercial buildings shall be sized in accordance with Section R403.7.1.1 and its exceptions	X		
6087 HVAC	C403.2.7	Mechanical	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2). []- Exception 1:C403.2.7: Where energy recovery systems are prohibited by the Florida Building Code, Mechanical []- Exception 2:C403.2.7: Laboratory fume hood systems []- Exception 3:C403.2.7: Systems serving spaces that are heated to less than 60°F (15.5°C) and are not cooled []- Exception 4:C403.2.7: Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy []- Exception 5:C403.2.7: Heating energy recovery in Climate Zones 1 and 2 []- Exception 6:C403.2.7: Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8 []- Exception 7:C403.2.7: Systems requiring dehumidification that employ energy recovery in series with the cooling coil []- Exception 8:C403.2.7: Where the largest source of air exhausted at a single location at the building exterior is less than 75 percent of the design outdoor air flow rate. []- Exception 9:C403.2.7: Systems expected to operate less than 20 hours per week at the outdoor air percentage covered by Table C403.2.7(1). []- Exception 10:C403.2.7: Systems exhausting toxic, flammable, paint or corrosive fumes or dust. []- Exception 11:C403.2.7: Commercial kitchen hoods used for collecting and removing grease vapors and smoke	X		
6047 HVAC	C403.3.2	Mechanical	Economizer operation will not increase heating energy use during normal operation. []- Exception 1:C403.3.2: Economizers on VAV systems.		X	

6093 HVAC	C403.3.3, C403.3.3.1, C403.3.3.2, C403.3.3.3, C403.3.3.4, C403.3.3.5	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. []- Exception 1:C403.3_C403.3.2: Buildings located in Climate Zones 1A and 1B. []- Exception 2:C403.3_C403.3.2: Individual DX fan cooling units have a capacity is < 54 KBtu/h (15.8 kW) or total chilled water system capacity < minimum specified in Table C403.3(1). []- Exception 3:C403.3_C403.3.2: Where more than 25 % of the air supplied to spaces that are designed to be humidified above 35°F (1.7°C) dewpoint temperature to satisfy process needs []- Exception 4:C403.3_C403.3.2: Systems that serve residential spaces where the system capacity is < 270 kBtu/h []- Exception 5:C403.3_C403.3.2: Systems expected to operate less than 20 hours per week []- Exception 6:C403.3_C403.3.2: System serves supermarket areas with open refrigerated casework. []- Exception 7:C403.3_C403.3.2: Where the minimum code required cooling efficiency of the HVAC unit rated with an IPLV, IEER or SEER is increased by at least 17 %. []- Exception 8:C403.3_C403.3.2: Chilled-water cooling systems that are passive (without a fan) capacity is < the minimum specified in Table C403.3(1). []- Exception 9:C403.3_C403.3.2: Systems that include a heat recovery system in accordance with Section C403.4.5 []- Exception 10:C403.3_C403.3.2: Economizers on VAV systems cause zone-level heating to increase due to a reduction in supply air temperature.	☐	☒	☐
6042 HVAC	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. []- Exception 1:C403.2.12.5_C403.2.12.5.1_C403.2.12.5.2: Modulating fan control not required for chilled water and evaporative cooling units with fan motors of < 1 hp where the units are not used to provide ventilation air and the indoor fan cycles with the load. []- Exception 2:C403.2.12.5_C403.2.12.5.1_C403.2.12.5.2: Requirement does not apply.	☐	☒	☐
6053 HVAC	C403.4.2.3.1	Mechanical	Hydronic heat pump systems connected to a common water loop meet heat rejection and heat addition requirements. []- Exception 1:C403.4.2.3.1: A deadband of less than 20°F is allowed where a temperature optimization controller is used.	☐	☒	☐

6144 Mandatory Additior	C406.6	Project	Dedicate outdoor air system efficiency energy credit - Building equipped with 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 at least 25 percent of delta design supply-air / room-air temp.	☐	☒	☐
2. To be checked by Plan Reviewer						
6004 Plan Review	C103.2	Mechanical	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide.	☐	☐	☐
6011 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. The information provided should include lighting controls per sections C405.2 and C405.3.	☐	☐	☐
6023 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. The information provided should include Exterior lighting power requirements (Mandatory) per section C405.4.	☐	☐	☐
6001 Plan Review	C103.2, C103.2.1	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.	☐	☐	☐
6081 HVAC	C402.2.6	Mechanical	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5. []- Exception 1:C402.2.6: Heated slabs on grade insulated in accordance with Section C402.2.5 []- Exception 2:C402.2.6: Requirement does not apply.	☐	☐	☐
6100 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. []- Exception 1:C403.12.1: Requirement does not apply.	☐	☐	☐
6068 HVAC	C403.2.4.1.3	Mechanical	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure. []- Exception 1:C403.4.1.3: Requirement does not apply.	☐	☐	☐

6107 HVAC	C403.2.4.2	Mechanical	Each zone equipped with setback controls using automatic time clock or programmable control system. []- Exception 1:C403.2.4.2: Zones operated continuously. []- Exception 2:C403.2.4.2: Zones have a full HVAC load demand not exceeding 6,800 Btu/h (2 kW) and having a readily accessible manual shutoff switch. []- Exception 3:C403.2.4.2: Requirement does not apply.	☐	☐	☐
6123 HVAC	C403.2.4.4	Mechanical	Zone isolation devices and controls installed where applicable. []- Exception 1:C403.2.4.4: Exhaust and outdoor air connections having fan systems 5000 cfm or smaller. []- Exception 2:C403.2.4.4: Exhaust airflow less than 10% of design. []- Exception 3:C403.2.4.4: Zones and systems intended to operate continuously or are inoperative when all other zones are inoperative. []- Exception 4:C403.2.4.4: Requirement does not apply.	☐	☐	☐
6124 HVAC	C403.2.4.7	Mechanical	Fault detection and diagnostics installed with air-cooled unitary DX units or VRF units having economizers. []- Exception 1:C403.2.4.7: Requirement does not apply.	☐	☐	☐
6125 HVAC	C403.2.5	Mechanical	Hot water boilers supplying heat via one- or two-pipe systems include outdoor setback control. []- Exception 1:C403.2.5: Requirement does not apply.	☐	☐	☐
6089 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. []- Exception 1:C403.2.2: Requirement does not apply.	☐	☐	☐
6090 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. []- Exception 1:C403.2.6.1: Systems with energy recovery complying with Section C403.2.7. []- Exception 2:C403.2.6.1: Multiple-zone systems without DDC. []- Exception 3:C403.2.6.1: Multiple-zone systems with design outdoor air of less than 1200 cfm. []- Exception 4:C403.2.6.1: Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is < 1,200 cfm []- Exception 5:C403.2.6.1: Ventilation provided for process loads only []- Exception 6:C403.2.6.1: Requirement does not apply.	☐	☐	☐

6098 HVAC	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 kBtu/h have multistaged or modulating burner. []- Exception 1:C403.4.2: Requirement does not apply.	☐ ☐ ☐
6142 HVAC	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. []- Exception 1:C403.4.2.3.2: Heat pump system must reject heat throughout the year. []- Exception 2:C403.4.2.3.2: Requirement does not apply.	☐ ☐ ☐
6116 HVAC	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 shall comply with the turndown ratio specified in Table C403.4.2.5.	☐ ☐ ☐
6071 HVAC	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.	☐ ☐ ☐
6099 HVAC	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. []- Exception 1:C403.4.3.1: Fans serve multiple refrigerant or fluid cooling circuits. []- Exception 2:C403.4.3.1: Condenser fans serve flooded condensers. []- Exception 3:C403.4.3.1: Requirement does not apply.	☐ ☐ ☐
6120 HVAC	C403.4.3.4	Mechanical	Open-circuit cooling towers having water cooled chiller systems and multiple or variable speed condenser pumps, are designed so that tower cells can run in parallel with larger of flow criteria. []- Exception 1:C403.4.3.4: Requirement does not apply.	☐ ☐ ☐

6103 HVAC	C403.6.1	Mechanical	Hydronic and multizone HVAC system controls are VAV fans driven by mechanical or electrical variable speed drive per Table C403.4.1.1. []- Exception 1:C403.4.4: Zones or supply air systems where >= 75 % of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered or site-solar energy source []- Exception 2:C403.4.4: Zones where special humidity levels are required to satisfy process needs []- Exception 3:C403.4.4: Zones with a peak supply air of <= 300 cfm (142 L/s) and where the flow rate is < 10 % of the total fan system supply airflow rate. []- Exception 4:C403.4.4: Zones where the volume of air to be reheated, recooled or mixed is <= the minimum ventilation requirements of Chapter 4 of the Florida Building Code, Mechanical []- Exception 5:C403.4.4: Zones or supply air systems with thermostatic and humidistatic controls capable of preventing reheating, recooling, mixing or simultaneous supply of air that has been previously cooled []- Exception 6:C403.4.4: Requirement does not apply.	☐ ☐ ☐
6122 HVAC	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 <= 92 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 []- Exception 1:C404.2.1: 25 percent or more of the annual service water heating requirement is provided by on-site renewable energy or site-recovered energy. []- Exception 2:C404.2.1: Water heaters installed in individual dwelling units shall not be required to be included in the total input rating of service waterheating equipment []- Exception 3:C404.2.1: Water heaters with an input rating of <= 100,000 Btu/h (29.3 kW) not required to be included in the total input rating of service water-heating equipment []- Exception 4:C404.2.1: Requirement does not apply.	☐ ☐ ☐
6114 HVAC	C404.4	Mechanical	All piping insulated in accordance with section details and Table C403.12.3. []- Exception 1:C404.4: Requirement does not apply.	☐ ☐ ☐
6019 HVAC	C404.5, C404.5.1, C404.5.2	Mechanical	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details. []- Exception 1:C404.5_C404.5.1_C404.5.2: Requirement does not apply.	☐ ☐ ☐

6022 HVAC	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. []- Exception 1:C404.6.3: Requirement does not apply.	☐ ☐ ☐
6026 HVAC	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. []- Exception 1:C404.7: Requirement does not apply.	☐ ☐ ☐
6048 Plan Review	C405.5.2	Project	Group R-2 dwelling units have separate electrical meters. []- Exception 1:C405.5.2: Requirement does not apply.	☐ ☐ ☐
6030 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.	☐ ☐ ☐
6084 HVAC	C408.2.2.2	Mechanical	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections. []- Exception 1:C408.2.2.2: Pumps with pump motors of 5 hp (3.7 kW) or less. []- Exception 2:C408.2.2.2: Where throttling results in no greater than 5 percent of the nameplate horsepower draw above that required if the impeller were trimmed.	☐ ☐ ☐

3. To be checked by Inspector

6016 Insulation	C104	Envelope	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans.	☐ ☐ ☐
6006 Insulation	C104, C303.1.1	Envelope	Installed roof insulation type and R-value consistent with insulation specifications reported in plans. For some ceiling systems, verification may need to occur during Framing Inspection.	☐ ☐ ☐
6008 Insulation	C104.2.1	Envelope	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans.	☐ ☐ ☐
6007 Insulation	C303.1, C303.1.1	Envelope	Roof insulation installed per manufacturer's instructions and is labeled with R-value or insulation certificate providing R-value and other relevant data. Blown or poured loose-fill insulation is installed only where the roof slope is > 3 in 12.	☐ ☐ ☐
6035 Fenestration	C303.1.3	Envelope	Fenestration products rated in accordance with NFRC certified and as to performance labels or certificates provided. []- Exception 1:C303.1.3: Default values are used.	☐ ☐ ☐
6020 Insulation	C303.2	Envelope	Above-grade wall insulation installed per manufacturer's instructions.	☐ ☐ ☐
6005 Insulation	C303.2, C303.2.1	Envelope	Below-grade wall insulation installed per manufacturer's instructions.	☐ ☐ ☐

6013 Insulation	C303.2, C303.2.1	Envelope	Slab edge insulation installed per manufacturer's instructions and the Florida Building Code, Building.	☐	☐	☐
6027 Insulation	C303.2, C402.2.4	Envelope	Floor insulation installed per manufacturer's instructions. Cavity or structural slab insulation installed in permanent contact with underside of decking or structural slabs. []- Exception 1:C303.2_C402.2.4: All perimeter framing fully insulated at metal or wood framed prescriptive levels. []- Exception 2:C303.2_C402.2.4: Concrete floor slab insulation turns up and contacts underside of floor under wall assembly. []- Exception 3:C303.2_C402.2.4: Requirement does not apply.	☐	☐	☐
6015 Insulation	C303.2.1	Envelope	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	☐	☐	☐
6002 Insulation	C402.1.3	Envelope	Installed below-grade wall insulation type and R-value consistent with insulation specifications reported in plans.	☐	☐	☐
6061 Insulation	C402.1.3	Envelope	Non-swinging opaque doors have R-4.75 insulation. []- Exception 1:C402.1.3: Requirement does not apply.	☐	☐	☐
6012 Insulation	C402.2.2	Envelope	Skylight curbs are insulated to the level of roofs with insulation above deck or R-5, whichever is less. []- Exception 1:C402.2.1.5: Unit skylight curbs included as a component of a skylight listed and labeled per NFRC 100. []- Exception 2:C402.2.1.5: Requirement does not apply.	☐	☐	☐
6064 Insulation	C402.2.2	Envelope	Roof assembly meets minimal thermal resistance installed between roof framing or in a continuous fashion on the roof assembly as stipulated in Table C402.1.3. Requirements for above deck insulation, minimum thickness, suspended ceilings, staggered joints and skylight curbs will be met. []- Exception 1:C402.2.1: Requirement does not apply.	☐	☐	☐
6024 Insulation	C402.2.3	Envelope	Installed floor insulation type and R-value consistent with insulation specifications reported in plans.	☐	☐	☐
6021 Insulation	C402.2.5, C402.2.5.1	Envelope	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or >= 10 inches of soil. []- Exception 1:C402.2.5_C402.2.5.1: Requirement does not apply.	☐	☐	☐
6051 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. []- Exception 1:C402.2.6: Heated slab-on-grade. []- Exception 2:C402.2.6: Requirement does not apply.	☐	☐	☐

6014 Insulation	C402.3	Envelope	High-albedo roofs satisfy one of the following: 3-year-aged solar reflectance >= 0.55 (0.63 for Climate Zone 1A) and thermal emittance >= 0.75 or 3-year-aged solar reflectance index >= 64.0 (75 for Climate Zone 1A). []- Exception 1:C402.3: Roof Over Conditioned Space With No Cooling. []- Exception 2:C402.3: Ballasted Roof. []- Exception 3:C402.3: Vegetated Roof (75% coverage). []- Exception 4:C402.3: Shaded or Covered Roof (75% coverage). []- Exception 5:C402.3: Asphaltic Membrane Roof. []- Exception 6:C402.3: Steep Sloped Roof.	☐ ☐ ☐
6028 Fenestration	C402.4.3	Envelope	Installed skylight U-factor and SHGC consistent with label specifications and as reported in plans.	☐ ☐ ☐
6025 Fenestration	C402.4.3, C402.4.3.4	Envelope	Installed vertical fenestration U-factor and SHGC consistent with label specifications and as reported in plans.	☐ ☐ ☐
6043 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 of the building thermal envelope area at a pressure differential of 0.3 inch water gauge (75 Pa).	☐ ☐ ☐
6044 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. []- Exception 1:C402.5.1: Requirement does not apply.	☐ ☐ ☐
6003 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.	☐ ☐ ☐
6062 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. []- Exception 1:C402.5.1.2.1: Requirement does not apply.	☐ ☐ ☐
6065 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. []- Exception 1:C402.5.1.2.2: Requirement does not apply.	☐ ☐ ☐

6052 Air Leakage	C402.5.4	Envelope	Factory-built fenestration and doors are labeled as meeting air leakage requirements. []- Exception 1:C402.5.4: Field fabricated fenestration assemblies. []- Exception 2:C402.5.4: Fenestration in buildings that comply with air leakage requirements with a whole building air leakage test. []- Exception 3:C402.5.4: Doors that comply with special International Building Code requirements.	☐	☐	☐
6009 Air Leakage	C402.5.5, C402.5.11, 403.6	Envelope	Stair and elevator shaft vents have motorized dampers that automatically close. Reference section C403.6 for operational details.	☐	☐	☐
6049 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. []- Exception 1:C402.5.6: Requirement does not apply.	☐	☐	☐
6050 Air Leakage	C402.5.7	Envelope	Vestibules are installed on all building entrances. Doors have self-closing devices. []- Exception 1:C402.5.7: Building entrances with revolving doors. []- Exception 2:C402.5.7: Doors not intended to be used as a building entrance. []- Exception 3:C402.5.7: Doors opening directly from a sleeping unit or dwelling unit. []- Exception 4:C402.5.7: Doors that open directly from a space <=3000 ft2. []- Exception 5:C402.5.7: Doors with air curtain. []- Exception 6:C402.5.7: Existing door is being replaced and existing vestibules not removed. []- Exception 7:C402.5.7: Requirement does not apply.	☐	☐	☐
6045 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. []- Exception 1:C402.5.10: Requirement does not apply.	☐	☐	☐
6086 HVAC	C403.2	Mechanical	HVAC equipment efficiency verified.	☐	☐	☐

6092 HVAC	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. []- Exception 1:C403.2.10: Factory-installed piping within HVAC equipment []- Exception 2:C403.2.10: Factory-installed piping within room fan-coils and unit ventilators tested under AHRI 440. []- Exception 3:C403.2.10: Piping that conveys fluids that have a design operating temperature range between 60 and 105°F. []- Exception 4:C403.2.10: Fluid not heated or cooled. []- Exception 5:C403.2.10: Strainers and valves associated with 1 inch or smaller piping. []- Exception 6:C403.2.10: Underground piping with fluids no hotter than 60ºF. []- Exception 7:C403.2.10: Piping design for radiant heating systems []- Exception 8:C403.2.10: Requirement does not apply.	☐ ☐ ☐
6171 HVAC	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 for either balancing or remote control. []- Exception 1:C403.2.12.4: Motors in the airstream within fan coils and terminal units only provide heating to the space served. []- Exception 2:C403.2.12.4: Motors in space-conditioning equipment that comply with Section C403.2.3 or C403.2.12. []- Exception 3:C403.2.12.4: Motors that comply with Section C405.7. []- Exception 4:C403.2.12.4: Requirement does not apply.	☐ ☐ ☐
6173 HVAC	C403.2.12.5.1	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. []- Exception 1:C403.2.12.5.1: Modulating fan control is not required for chilled water and evaporative cooling units with fan motors of less than 1 hp where the units are not used to provide ventilation air and the indoor fan cycles with the load. []- Exception 2:C403.2.12.5.1: Where the volume of outdoor air required to comply with the ventilation requirements of the IMC at low speed exceeds the air that would be delivered per Section C403.2.12.5 []- Exception 3:C403.2.12.5.1: Requirement does not apply.	☐ ☐ ☐

6097 HVAC	C403.2.12.5.2	Mechanical	VAV fans have static pressure sensors located so controller setpoint <=1.2 w.c.. []- Exception 1:C403.2.12.5.2: Requirement does not apply.	☐ ☐ ☐
6168 HVAC	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. []- Exception 1:C403.2.12.5.2: Requirement does not apply.	☐ ☐ ☐
6167 HVAC	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. []- Exception 1:C403.2.12.5.3: Requirement does not apply.	☐ ☐ ☐
6178 HVAC	C403.2.12.6	Mechanical	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230. []- Exception 1:C403.2.12.6: Requirement does not apply.	☐ ☐ ☐
6155 HVAC	C403.2.14, C403.2.14.1, C403.2.14.2	Mechanical	Refrigeration equipment performance shall be determined in accordance with sections C403.2.14.1 and C403.2.14.2 for commercial refrigerators, freezers, refrigerator-freezers, walk-in coolers, walk-in freezers and refrigeration equipment. []- Exception 1:C403.5: Systems have working fluid in the refrigeration cycle that goes through both subcritical and supercritical states (transcritical). []- Exception 2:C403.5: Systems use ammonia refrigerant. []- Exception 3:C403.5: Requirement does not apply.	☐ ☐ ☐
6102 HVAC	C403.2.3	Mechanical	PTAC and PTHP with sleeves 16 in. by 42 in. labeled for replacement only as per Footnote b to Tables C403.2.3(1) and C403.2.3(2). []- Exception 1:C403.3: Requirement does not apply.	☐ ☐ ☐
6058 HVAC	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. []- Exception 1:C403.2.4.1: TRUE	☐ ☐ ☐
6059 HVAC	C403.2.4.1.1	Mechanical	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed. []- Exception 1:C403.2.4.1.1: Requirement does not apply.	☐ ☐ ☐
6060 HVAC	C403.2.4.1.2	Mechanical	Thermostatic controls have a 5 °F deadband. []- Exception 1:C403.2.4.1.2: Manual changeover thermostats. []- Exception 2:C403.2.4.1.2: Precision indoor temperature control required.	☐ ☐ ☐

6085 HVAC	C403.2.4.1.3	Mechanical	Temperature controls have setpoint overlap restrictions. []- Exception 1:C403.2.4.1.3: Requirement does not apply.	☐	☐	☐
6108 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 []- Exception 1:C403.2.4.2.1_C403.2.4.2.2: Requirement does not apply.	☐	☐	☐
6110 HVAC	C403.2.4.2.3	Mechanical	Systems include optimum start controls. []- Exception 1:C403.2.4.2.3: Requirement does not apply.	☐	☐	☐
6088 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. []- Exception 1:C403.2.4.3: Gravity dampers acceptable in buildings less than 3 stories. []- Exception 2:C403.2.4.3: Gravity dampers acceptable for exhaust and relief dampers in climate zones 0, 1, 2, or 3. []- Exception 3:C403.2.4.3: Gravity dampers acceptable in systems with outside or exhaust air flow rates less than or equal to 300 cfm. []- Exception 4:C403.2.4.3: Dampers no larger than 24 inches in any dimension are to have a leakage rate of 40 cfm/ft2 at 1.0 inch water gauge when tested with AMCA 500D. []- Exception 5:C403.2.4.3: Requirement does not apply.	☐	☐	☐
6029 HVAC	C403.2.4.5	Mechanical	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature above 50°F and outdoor temperature above 40°F. []- Exception 1:C403.12.2_C403.12.3: Requirement does not apply.	☐	☐	☐
6170 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). []- Exception 1:C403.2.4.8: Requirement does not apply.	☐	☐	☐
6128 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. []- Exception 1:C403.2.6.2: Garages with no mechanical cooling or heating that have exhaust capacity < 8,000 cfm. []- Exception 2:C403.2.6.2: Garages with no mechanical cooling or heating that have a ratio of garage area ventilation to ventilation system motor nameplate hp exceed 1125 cfm/hp. []- Exception 3:C403.2.6.2: Requirement does not apply.	☐	☐	☐

6169 HVAC	C403.2.7	Mechanical	Units that provide ventilation air to multiple zones and operate in combination with zone heating and cooling systems do not use heating or heat recovery to warm supply air to a temperature greater than 60°F when representative building loads or outdoor air temperatures indicate that the majority of zones require cooling. []- Exception 1:C403.7.3: Requirement does not apply.	☐	☐	☐
6129 HVAC	C403.2.8	Mechanical	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria. []- Exception 1:C403.2.8: Requirement does not apply.	☐	☐	☐
6091 HVAC	C403.2.9	Mechanical	HVAC ducts and plenums insulated in accordance with C403.2.9.1 and constructed in accordance with C403.2.9.2, Sealed in accordance with C403.2.9.3. verification may need to occur during Foundation Inspection. []- Exception 1:C403.2.9_C403.2.9.1: Factory-installed as part of HVAC equipment. []- Exception 2:C403.2.9_C403.2.9.1: Where the design temperature difference between the inside and outside of the duct or plenum is less than 15ºF. []- Exception 3:C403.2.9_C403.2.9.1: Runouts less than 10 feet (3048 mm) in length to air terminals or air outlets, the rated R-value of insulation need not exceed R-5. []- Exception 4:C403.2.9_C403.2.9.1: Backs of air outlets and outlet plenums exposed to unconditioned spaces need not exceed R-2. []- Exception 5:C403.2.9_C403.2.9.1: Return air ducts meeting all the requirements for building cavities that will be used as return air plenums []- Exception 6:C403.2.9_C403.2.9.1: Requirement does not apply.	☐	☐	☐
6174 SYSTEM_SPECIF	C403.3.2	Mechanical	Equipment minimum efficiency:	☐	☐	☐
6175 SYSTEM_SPECIF	C403.3.2	Mechanical	Equipment minimum efficiency:	☐	☐	☐
6157 HVAC	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. []- Exception 1:C403.3.3.3: Requirement does not apply.	☐	☐	☐
6158 HVAC	C403.3.3.4	Mechanical	System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building. []- Exception 1:C403.3.3.4: Requirement does not apply.	☐	☐	☐

6159 HVAC	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. []- Exception 1:C403.3.3.5: Requirement does not apply.	☐ ☐ ☐
6094 HVAC	C403.4.1.4	Mechanical	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures < 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint <= 80F. []- Exception 1:C402.5.7: Buildings in Climate Zones 1 and 2. []- Exception 2:C402.5.7: Requirement does not apply.	☐ ☐ ☐
6082 HVAC	C403.4.2.1	Mechanical	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐ ☐ ☐
6095 HVAC	C403.4.2.2	Mechanical	Two-pipe hydronic systems using a common distribution system have controls to allow a deadband >=15 °F, 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 °F.	☐ ☐ ☐
6072 HVAC	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.	☐ ☐ ☐
6172 HVAC	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. []- Exception 1:C403.4.3.2: Requirement does not apply.	☐ ☐ ☐
6118 SYSTEM_SPECIFI	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. []- Exception 1:C403.4.3.3: Centrifugal open-circuit cooling towers with external sound attenuation or that have ducted inlet or discharge. []- Exception 2:C403.4.3.3: Requirement does not apply.	☐ ☐ ☐
6160 HVAC	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. []- Exception 1:C403.6.1: Zones or systems with at least 75% of energy used for heating or warming air Systems that prevent reconditioning, mixing or simultaneous supply of air that has previously been mechanically cooled (including via economizers) or heated. []- Exception 2:C403.6.1: Requirement does not apply.	☐ ☐ ☐

6161 HVAC	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. []- Exception 1:C403.4.4.1: Requirement does not apply.	☐	☐	☐
6162 HVAC	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. []- Exception 1:C403.4.4.1: Requirement does not apply.	☐	☐	☐
6163 HVAC	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. []- Exception 1:C403.4.4.1: Requirement does not apply.	☐	☐	☐
6164 HVAC	C403.4.4.5	Mechanical	Multiple zone HVAC systems have supply air temperature reset controls based on building loads or outside temperatures. []- Exception 1:C403.4.4.5: Systems that prevent re-heating, re-cooling, or mixing of heated and cooled supply air. []- Exception 2:C403.4.4.5: Systems in which at least 75% of the energy for reheating is from site recovered or site solar energy resources. []- Exception 3:C403.4.4.5: Zones in climate zones 1A and 3A with less than 300 cfm design outside air. []- Exception 4:C403.4.4.5: Zones in climate zone 2A with with less than 10,000 cfm of design outside air. []- Exception 5:C403.4.4.5: Zones in climate zones 1A, 2A, and 3A with >= 80% outside air and employing exhaust air energy recovery. []- Exception 6:C403.4.4.5: Requirement does not apply.	☐	☐	☐
6165 HVAC	C403.4.4.6	Mechanical	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls. []- Exception 1:C403.4.4.6: VAV systems that recirculate air from other zones without directly mixing it with outdoor air or dual-duct dual-fan VAV systems, or VAV systems with fan-powered terminal units. []- Exception 2:C403.4.4.6: Systems where the design exhaust airflow is more than 70% of design outdoor air intake flow. []- Exception 3:C403.4.4.6: Requirement does not apply.	☐	☐	☐

6166 HVAC	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. []- Exception 1:C403.4.4.7: Requirement does not apply.	☐	☐	☐
6076 HVAC	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. []- Exception 1:C403.4.5: Facility operates < 24/7. []- Exception 2:C403.4.5: Total installed heat capacity of water cooled systems <= 6 MMBtu/h of heat rejection. []- Exception 3:C403.4.5: Design SWH load <= 1 MMBtu/h. []- Exception 4:C403.4.5: Facilities using condenser heat recovery for space heating with heat recovery exceeding 30% of the peak water-cooled condenser load. []- Exception 5:C403.4.5: Facilities providing 60% of their service water heating from site-solar, site-recovered, or other energy sources.	☐	☐	☐
6080 HVAC	C403.4.6	Mechanical	Hot gas bypass limited to: <=240 kBtu/h – 50%; <240 kBtu/h – 25%	☐	☐	☐
6101 HVAC	C404.2	Mechanical	Service water heating equipment meets efficiency requirements.	☐	☐	☐
6113 HVAC	C404.3	Mechanical	Heat traps installed on supply and discharge piping of non-circulating systems. []- Exception 1:C404.3: Tank inlets/outlets associated with solar water heating systems. []- Exception 2:C404.3: Requirement does not apply.	☐	☐	☐
6115 HVAC	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. []- Exception 1:C404.6.1: Requirement does not apply.	☐	☐	☐
6010 HVAC	C404.6.1, C404.6.2	Mechanical	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	☐	☐	☐
6126 HVAC	C404.9.1	Mechanical	Pool heaters are equipped with on/off switch and no continuously burning pilot light.	☐	☐	☐

6127 HVAC	C404.9.2	Mechanical	Time switches are installed on all pool heaters and pumps. []- Exception 1:C404.9.2: Where 24-hr pump operation required for public health. []- Exception 2:C404.9.2: Solar and waste heat recovery pool heating pumps. []- Exception 3:C404.9.2: Requirement does not apply.	☐	☐	☐
6130 HVAC	C404.9.3	Mechanical	Vapor retardant pool covers are provided for heated pools and permanently installed spas. []- Exception 1:C404.9.3: Pools deriving > 75% of the energy for heating (of not fewer than 3 months) from heat pump or site-recovered energy. []- Exception 2:C404.9.3: Requirement does not apply.	☐	☐	☐
6054 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, corridors, 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. []- Exception 1:C405.2.1_C405.2.1.1: Automatic-on controls are allowed in corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on controls could impact safety or security. []- Exception 2:C405.2.1_C405.2.1.1: Areas such as security or emergency areas that need continuous lighting. []- Exception 3:C405.2.1_C405.2.1.1: Emergency egress lighting. []- Exception 4:C405.2.1_C405.2.1.1: Lighting that is related to means of egress in stairways, ramps, corridors. []- Exception 5:C405.2.1_C405.2.1.1: Requirement does not apply.	☐	☐	☐
6063 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 within 20 minutes of 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. Lights not turned off by occupant sensors is done so by time-switch. []- Exception 1:C402.5.1.2: Requirement does not apply.	☐	☐	☐

6066 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) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) 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. []- Exception 1:C405.2.1.3: Requirement does not apply.	☐ ☐ ☐
6067 Controls	C405.2.2, C405.2.2.1	Interior Lighting	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1. []- Exception 1:C405.2.2_C405.2.2.1: Luminaires requiring specific controls in accordance with C405.2.4. []- Exception 2:C405.2.2_C405.2.2.1: Spaces with patient care. []- Exception 3:C405.2.2_C405.2.2.1: Areas such as security or emergency areas that need continuous lighting. []- Exception 4:C405.2.2_C405.2.2.1: Lighting that is related to means of egress in stairways, ramps, corridors, or emergency routes. []- Exception 5:C405.2.2_C405.2.2.1: Shop and laboratory classrooms.	☐ ☐ ☐
6069 Controls	C405.2.3.1	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 using one of the following or another approved method: (1) Continuous dimming of all luminaires from full output to less than 20 percent of full power, (2) Switching all luminaires to a reduced output of not less than 30 percent and not more than 70 percent of full power, or (3) Switching alternate luminaires or alternate rows of luminaires to achieve a reduced output of not less than 30 percent and not more than 70 percent of full power. []- Exception 1:C405.2: Areas designated as security or emergency areas that are required to be continuously lighted. []- Exception 2:C405.2: Interior exit stairways, interior exit ramps, and exit passageways. []- Exception 3:C405.2: Emergency egress lighting that is normally off.	☐ ☐ ☐

6070 Controls	C405.2.4, C405.2.4.1, C405.2.4.2	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. []- Exception 1:C405.2.4: Spaces where health patient care is directly provided. []- Exception 2:C405.2.4: Lighting required to have specific application controls. []- Exception 3:C405.2.4: Sidelit zones on first floor in Group A-2 and M occupancies. []- Exception 4:C405.2.4: New buildings having total connected lighting power <= the adjusted interior lighting powered allowance (LPA adj, refer to section details and formula). []- Exception 5:C405.2.4: Requirement does not apply.	☐	☐	☐
6074 Wattage	C405.2.5	Interior Lighting	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting. []- Exception 1:C405.7: Air-over electric motors. []- Exception 2:C405.7: Component sets of an electric motor. []- Exception 3:C405.7: Liquid-cooled electric motors. []- Exception 4:C405.7: Submersible electric motors. []- Exception 5:C405.7: Inverter-only electric motors. []- Exception 6:C405.7: Requirement does not apply.	☐	☐	☐
6077 Controls	C405.2.7	Exterior Lighting	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 50%. []- Exception 1:C405.2.7: Lighting for covered vehicle entrances and exits from buildings and parking structures where required for eye adaptation []- Exception 2:C405.2.7: Lighting controlled from within dwelling units []- Exception 3:C405.2.7: Requirement does not apply.	☐	☐	☐
6131 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.	☐	☐	☐
6132 Mandatory Additior	C406.10	Project	Energy Monitoring - the building is equipped with an energy management system to monitor, record, and report energy consumption for electrical energy, by end-use category, contain meters, a data acquisition system and employ graphical reports.	☐	☐	☐

6133 Mandatory Additior	C406.11	Project	Fault Detection and Diagnostics - a fault detection and diagnostics system installed to monitor the HVAC operation and performance. Includes monitoring sensors and devices, sampling every 15 minutes, automatically report faults and provide recommendations for repair, and transmit recommendations to local authorized personnel.	☐	☐	☐
6134 Mandatory Additior	C406.12	Project	Efficient Kitchen Equipment - the commercial kitchen has at least one fryer with all fryers, dishwashers, steam cookers and ovens complying with performance requirements of Tables C406.12(1) through C406.12(4).	☐	☐	☐
6185 Mandatory Additior	C406.2	Project	Equipment shall exceed the minimum efficiency requirements listed in Tables C403.2.3(1) through C403.2.3(7) by 10 %, in addition to the requirements of Section C403	☐	☐	☐
6135 Mandatory Additior	C406.2.1	Project	5% heating efficiency improvement - all HVAC and Plant heating equipment is 5% more efficient than required by 2021 IECC.	☐	☐	☐
6136 Mandatory Additior	C406.2.2	Project	5% cooling efficiency improvement - all HVAC and Plant cooling equipment is 5% more efficient than required by 2021 IECC.	☐	☐	☐
6137 Mandatory Additior	C406.2.3	Project	10% heating efficiency improvement - all HVAC and Plant heating equipment is 10% more efficient than required by 2021 IECC.	☐	☐	☐
6138 Mandatory Additior	C406.2.4	Project	10% cooling efficiency improvement - all HVAC and Plant cooling equipment is 10% more efficient than required by 2021 IECC.	☐	☐	☐
6139 Mandatory Additior	C406.3	Project	Reduced lighting power - this credit specifies that the connected lighting power is <= 10% more efficient than 2021 IECC requirements.	☐	☐	☐
6140 Mandatory Additior	C406.4	Project	Enhanced Digital Lighting Controls - Interior lighting has the following enhanced lighting controls in accordance with Sections C405.2.1 through C405.2.3, Luminaires capable of continuous dimming and being addressed individually, at least 8 luminaires controlled in combination in a daylight zone, digital control system for fixtures with load shedding or occupancy sensors, Sequence of Operations documentation, and functional testing per Section C408.	☐	☐	☐
6143 Mandatory Additior	C406.5	Project	On-site renewable energy credits - on-site renewable energy system supplies at least 1.71 Btuh or 0.5 watts per square foot of conditioned floor area OR provides at least 2 percent of the energy used within the building for mechanical and service water heating equipment and lighting regulated in Chapter 4.	☐	☐	☐
6145 Mandatory Additior	C406.7.1	Project	Reduced energy use in service water heating - the hot water system contains waste heat recovery from service hot water, heat-recovery chillers, building equipment or process equipment or on-site renewable energy for water heating.	☐	☐	☐
6146 Mandatory Additior	C406.7.3	Project	Reduced energy use in service water heating - the hot water heating system shall have a capacity weighted average fossil fuel water heating efficiency at least 95 thermal efficiency or 0.95 EF.	☐	☐	☐

6147 Mandatory Additior	C406.7.4	Project	Reduced energy use in service water heating - the hot water system is served by heat pump water heaters with a minimum Energy Factor of 3.0. The heat pump does not draw conditioned air from within the building.	☐	☐	☐
6148 Mandatory Additior	C406.8	Project	Enhanced envelope performance - the building thermal envelope UA value is >= 15% better than the total UA of the envelope specified by Section C402.1.5.	☐	☐	☐
6149 Mandatory Additior	C406.9	Project	Reduced air infiltration energy - the measured air-leakage rate of the building envelope is lower than 0.25 cfm/ft2. Comprehensive report documentation will be submitted to the code official and the building owner. []- Exception 1:C406.9: Building is greater than 250,000 square feet.	☐	☐	☐
6083 HVAC	C408.2.2.1	Mechanical	Air outlets and zone terminal devices have means for air balancing. []- Exception 1:C408.2.2.1: Fans with fan motors of 1 hp (0.74 kW) or less. []- Exception 2:C408.2.2.1: Where throttling results in no greater than 1/3 hp fan horsepower draw above that required if the fan speed were adjusted []- Exception 3:C408.2.2.1: Requirement does not apply.	☐	☐	☐
6153 Testing	C408.2.3.2	Mechanical	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐	☐	☐
6104 SYSTEM_SPECIF	Table_C403.2.3b	Mechanical	Heat Rejection Equipment - Propeller or Axial Fan Open-Circuit Cooling Tower: Minimum Efficiency Requirement >=40.2 gpm/hp .	☐	☐	☐
6105 SYSTEM_SPECIF	Table_C403.2.3b	Mechanical	Heat Rejection Equipment - Centrifugal Fan Open-Circuit Cooling Tower: Minimum Efficiency Requirement >=20.0 gpm/hp.	☐	☐	☐
6106 SYSTEM_SPECIF	Table_C403.2.3c	Mechanical	Heat Rejection Equipment - Propeller or Axial Fan Closed-Circuit Cooling Tower: Minimum Efficiency Requirement >=16.1 gpm/hp.	☐	☐	☐
6109 SYSTEM_SPECIF	Table_C403.2.3c	Mechanical	Heat Rejection Equipment - Centrifugal Fan Closed-Circuit Cooling Tower: Minimum Efficiency Requirement >=7.0 gpm/hp	☐	☐	☐
6186 SYSTEM_SPECIF	Table_C403.2.3d	Mechanical	Heat Rejection Equipment - Propeller or Axial Fan Dry Coolers (air-cooled fluid coolers): Minimum Efficiency Requirement >= 4.5 gpm/hp	☐	☐	☐
6111 SYSTEM_SPECIFI	Table_C403.2.3h	Mechanical	Heat Rejection Equipment - Propeller or Axial Evaporative Condenser: Minimum Efficiency Requirement >=134 kBtu/h-hp w/ Ammonia test fluid.	☐	☐	☐
6112 SYSTEM_SPECIFI	Table_C403.2.3h	Mechanical	Heat Rejection Equipment - Centrifugal Evaporative Condenser: Minimum Efficiency Requirement >=110 kBtu/h-hp w/ Ammonia test fluid.	☐	☐	☐
6117 SYSTEM_SPECIFI	Table_C403.2.3h	Mechanical	Heat Rejection Equipment - Propeller or Axial Evaporative Condenser: Minimum Efficiency Requirement >=160 kBtu/h-hp w/ R-448A test fluid.	☐	☐	☐

6119 SYSTEM_SPECIFI	Table_C403.2.3h	Mechanical	Heat Rejection Equipment - Centrifugal Evaporative Condenser: Minimum Efficiency Requirement >=137 kBtu/h-hp w/ R-448A test fluid.	☐ ☐ ☐
6121 SYSTEM_SPECIF	Table_C403.2.3h	Mechanical	Heat Rejection Equipment - Air-Cooled Condensers: Minimum Efficiency Requirement >=176 kBtu/h-hp	☐ ☐ ☐

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

6041 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 tested per ASTM D1003 unless designed to exclude direct sunlight. []- Exception 1:C402.4.2.2: Skylights designed to exclude direct sunlight entering the occupied space by the use of fixed or automated baffles, geometry of skylight and well, or optical diffusers. []- Exception 2:C402.4.2.2: Requirement does not apply.	☐ ☐ ☐
6179 Post Construction	C405.1	Project	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy <= 65 lm/W or luminaires with efficacy <= 45 lm/W or comply with C405.2.4 or C405.3. []- Exception 1:C405.1: Requirement does not apply.	☐ ☐ ☐
6180 Post Construction	C405.11, C405.11.1	Project	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and < 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1. []- Exception 1:C405.11_C405.11.1: Requirement does not apply.	☐ ☐ ☐
6181 Post Construction	C405.12	Project	Buildings with gross conditioned floor area >= 25,000 ft2 will be equipped with a energy monitoring system in compliance with C405.12.1 through C405.12.5. []- Exception 1:C405.12: Requirement does not apply.	☐ ☐ ☐
6079 Post Construction	C405.5.3	Project	Total voltage drop across the combination of feeders and branch circuits <= 5%. []- Exception 1:C405.5.3: Requirement does not apply.	☐ ☐ ☐

6073 Post Construction	C405.6	Project	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6. []- Exception 1:C405.6: Transformers meet the Energy Policy Act of 2005 special purposes exclusions. []- Exception 2:C405.6: Transformers meet the Energy Policy Act of 2005 non-general purpose exclusions. []- Exception 3:C405.6: Transformers meet the Energy Policy Act of 2005 exclusions with multiple voltage taps where the highest tap is >= 20% more than the lowest tap. []- Exception 4:C405.6: Drive transformers. []- Exception 5:C405.6: Rectifier transformers. []- Exception 6:C405.6: Auto-transformers. []- Exception 7:C405.6: Uninterruptible power system transformers. []- Exception 8:C405.6: Impedance transformers. []- Exception 9:C405.6: Regulating transformers. []- Exception 10:C405.6: Sealed and nonventilating transformers. []- Exception 11:C405.6: Machine tool transformers. []- Exception 12:C405.6: Welding transformers. []- Exception 13:C405.6: Grounding transformers. []- Exception 14:C405.6: Testing transformers. []- Exception 15:C405.6: Requirement does not apply.	☐	☐	☐
6075 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).	☐	☐	☐
6078 Post Construction	C405.8.1, C405.8.2	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. []- Exception 1:C405.8.1_C405.8.2: A variable voltage drive system that reduces operating voltage in response to light loading is installed. []- Exception 2:C405.9.1_C405.9.2: Requirement does not apply.	☐	☐	☐
6150 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.	☐	☐	☐

6151 Post Construction	C408.2.1	Mechanical	Commissioning plan developed by registered design professional or approved agency.	☐	☐	☐
6152 Post Construction	C408.2.3.1	Mechanical	HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation. []- Exception 1:C408.2.3.1: Unitary or packaged HVAC equipment without supply air economizers.	☐	☐	☐
6154 Post Construction	C408.2.3.3	Mechanical	Economizers have been tested to ensure proper operation.	☐	☐	☐
6156 Post Construction	C408.2.4	Mechanical	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐	☐	☐
6176 Post Construction	C408.2.5	Mechanical	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐	☐	☐
6018 Post Construction	C408.2.5.2	Mechanical	Furnished Operation and Maintenance manuals for HVAC systems within 90 days of system acceptance.	☐	☐	☐
6182 Post Construction	C408.2.5.3	Mechanical	An air and/or hydronic system balancing report is provided for HVAC systems.	☐	☐	☐
6183 Post Construction	C408.2.5.4	Mechanical	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐	☐	☐
6184 Post Construction	C408.3	Interior Lighting	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐	☐	☐
6177 Post Construction	C408.3.2	Interior Lighting	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐	☐	☐
6017 Post Construction	C408.3.2.2	Interior Lighting	Furnished operation and maintenance manual for lighting equipment and lighting controls provided to the building owner or designated representative.	☐	☐	☐

Input Data Report

Project Information

Project Name: 61680124C **Project Title:** Kyle McLeod Offices

Address: NW Real Terrace **State:** FL **Zip:** 32055

Owner: Kyle McLeod Offices

Building Type: Office **Building Classification:** New Finished building

No.of Stories: 1 **GrossArea (SF):** 1,522

Bldg. Rotation: None

Zones

No	Acronym	Description	Type	Area [sf]	Multi	Total Area [sf]	
1	AHU #1	Office Space	CONDITIONED	1522.0	1	1522.0	☐

Spaces

No	Acronym	Description	Type	Depth [ft]	Width [ft]	Height [ft]	Mult	Total Area [sf]	Total Vol[cf]	
In Zone:	**AHU #1**									
1	AHU #1	Office Space	Office - Enclosed	1.00	1522.00	10.00	1	1522.0	15220.0	☐

Lighting

No	Type	Category	No. of Luminaires	Watts per Luminaire	Power [W]	Control Type	
In Zone: AHU #1							
In Space: AHU #1							
1	LED	General Lighting	35	25	875	Manual Occupant Sensor Light Reduction (50%) Occupant Sensor Auto Full OFF	☐

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

No	Description	Type	Width [ft]	H (Effec) [ft]	Multiplier	Area [sf]	Orientation	Cond-uctance [Btu/h.sf.F]	Heat Capacity [Btu/sf.F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu]	
In Zone: AHU #1												
1	Exterior Frame Wall	0.5 Ply/35/8" Mtl std@24"oc/R19/0.5" Gyp	44.30	9.50	1	420.9	North	0.0502	0.935	8.95	19.9	☐
2	Exterior Frame Wall	0.5 Ply/35/8" Mtl std@24"oc/R19/0.5" Gyp	44.30	9.50	1	420.9	South	0.0502	0.935	8.95	19.9	☐
3	Exterior Frame Wall	0.5 Ply/35/8" Mtl std@24"oc/R19/0.5" Gyp	44.30	9.00	1	398.7	East	0.0502	0.935	8.95	19.9	☐
4	Exterior Frame Wall	0.5 Ply/35/8" Mtl std@24"oc/R19/0.5" Gyp	44.30	9.00	1	398.7	West	0.0502	0.935	8.95	19.9	☐

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: AHU #1											
In Wall: East Wall											
1	Storefront Glass	East	No	1.2500	0.82	0.76	2.00	5.00	6	60.0	
2	Storefront Glass Transom	East	No	1.2500	0.82	0.76	2.00	1.00	6	12.0	
In Wall: North Wall											
1	Storefront Glass	North	No	1.2500	0.82	0.76	2.00	5.00	6	60.0	
2	Storefront Glass Transom	North	No	1.2500	0.82	0.76	2.00	1.00	6	12.0	
3	Storefront Glass	North	No	1.2500	0.82	0.76	1.50	6.70	2	20.1	
4	Storefront Glass	North	No	1.2500	0.82	0.76	3.00	6.70	1	20.1	
5	Storefront Glass	North	No	1.2500	0.82	0.76	6.00	1.00	1	6.0	
In Wall: South Wall											
1	Storefront Glass	South	No	1.2500	0.82	0.76	2.00	5.00	6	60.0	
2	Storefront Glass Transom	South	No	1.2500	0.82	0.76	2.00	1.00	6	12.0	
3	Storefront Glass	South	No	1.2500	0.82	0.76	3.00	6.70	1	20.1	
4	Storefront Glass Transom	South	No	1.2500	0.82	0.76	3.00	1.00	1	3.0	
5	Storefront Glass	South	No	1.2500	0.82	0.76	4.00	3.00	1	12.0	
7	Storefront Glass Transom	South	No	1.2500	0.82	0.76	4.00	1.00	1	4.0	
8	Storefront Glass	South	No	1.2500	0.82	0.76	3.00	6.70	1	20.1	
9	Storefront Glass Transom	South	No	1.2500	0.82	0.76	3.00	1.00	1	3.0	
In Wall: West Wall											
1	Storefront Glass	West	No	1.2500	0.82	0.76	2.00	5.00	6	60.0	
2	Storefront Glass Transom	West	No	1.2500	0.82	0.76	2.00	1.00	6	12.0	

Doors

No	Description	Type	Shade?	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/h.sf.F]	Dens. [lb/cf]	Ht Cap. [Btu/sf. F]	R [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/h.Sf. F]	Heat Cap [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu	
In Zone:	**AHU #1**											
1	Sloped Metal Roof	Mtl/1/2"WD Deck/WD Truss/9" Batt/GypBrd	1522.00	1.00	1	1522.0	0.00	0.0332	1.71	11.19	30.1	☐

Skylights

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

Floors

No	Description	Type	Width [ft]	H (Effec) [ft]	Multi plier	Area [sf]	Cond. [Btu/h.sf.F	Heat Cap. [Btu/sf. F]	Dens. [lb/cf]	R-Value [h.sf.F/Btu	
In Zone:	**AHU #1**										
1	Slab on Grade	1 ft. soil, concrete floor, carpet and rubber pad	1522.00	1.00	1	1522.0	0.2681	34.00	113.33	3.73	☐

Systems

5 TON **AHU #1** **Constant Volume Air Cooled Split System < 65000 Btu/hr** **No. Of Units 1**

Component	Category	Capacity	Efficiency	IPLV	
1	Cooling System	60000.00	14.50	14.50	☐
2	Heating System	34121.00	1.00		☐
3	Air Handling System -Supply	1800.00	0.10		☐
4	Air Handling System - Return	1800.00	0.10		☐
5	Air Distribution System (Sup)		6.00		☐
6	Air Distribution System (Ret)		6.00		☐

Plant

Equipment	Category	Size	Inst.No	Eff.	IPLV

Water Heaters

W-Heater Description	Capacity	Cap.Unit	I/P Rt.	Efficiency	Loss	
1 Electric Storage water heater (1 units)	40	[Gal]	4 [kW]	91.0000 [Ef]	Btu/h	☐

Ext-Lighting

Description	Category	No. of Lumin-aires	Watts per Lumin-aire	Area/Len/No [sf/ft/No]	Control Type	Wattage [W]	
							☐

Piping

No	Type	Operating Temp [F]	Insulation Conductivity [Btu-in/h.sf.F]	Nomonal pipe Diameter [in]	Insulation Thickness [in]	Is Runout?	
1	Heating System (Steam, Steam Condensate, & Hot Water)	105.00	0.28	0.75	1.00	No	☐

Fenestration Used

Name	Glass Type	No. of Panes	Glass Conductance [Btu/h.sf.F]	SHGC	VLT
ASHULSglClrAll Frm	User Defined	1	1.2500	0.8200	0.7600

Materials Used

Mat No	Acronym	Description	Only R-Value Used	RValue [h.sf.F/Btu]	Thick [ft]	Cond-uctivity [Btu/h.ft.F	Density [lb/cf]	Sp. Heat [Btu/lb.F]	
264	Matl264	ALUMINUM, 1/16 IN	No	0.0002	0.0050	26.0000	480.00	0.1000	☐
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	☐
211	Matl211	POLYSTYRENE,EXP.,1/2IN ,	No	2.0850	0.0417	0.0200	1.80	0.2900	☐
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	☐
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 Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1017	0.5 Ply/35/8" Mtl std@24"oc/R19/0.5" Gyp	No	No	0.05	0.93	8.95	19.9	☐

Layer	Material No.	Material	Thickness [ft]	Framing Factor	
1	211	POLYSTYRENE,EXP.,1/2IN,	0.0417	0.000	☐
2	23	6 in. Insulation	0.4350	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 Cap [Btu/sf.F]	Density [lb/cf]	RValue [h.sf.F/Btu]	
1038	Mtl/1/2"WD Deck/WD Truss/9" Batt/GypBrd	No	No	0.03	1.71	11.19	30.1	☐

Layer	Material No.	Material	Thickness [ft]	Framing Factor	
1	264	ALUMINUM, 1/16 IN	0.0050	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	0.4760	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 Cap [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	☐

Right-Suite® Universal 2023 Short Form
Entire Project
Efficient Energy Services, Inc.

Job: 61680124C
Date: 11-JAN-2024
By: EES Inc.

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

		Htg	Clg			Htg	Clg
Outside db	(°F)	33	92	Inside db	(°F)	70	75
Outside RH	(%)	-	50	Inside RH	(%)	-	50
Outside wb	(°F)	-	77	Inside wb	(°F)	-	63
Daily range	(°F)	-	18	Design TD	(°F)	37	17
Moisture diff.	(gr/lb)	-	49				

Heating Equipment

Make	CARRIER [equal or better]	
Model	FV4CNB006L00	
Type	Elec strip	
Efficiency	100 EFF	
Heating Input	10.0	kW
Heating Output	34.1	MBtuh
Humidifier	8.5	gpd
Leaving Air Temp	87.3	°F
Actual Heating Fan	1800	cfm

Cooling Equipment

Make	CARRIER [equal or better]	
Model	GA5SAN46000W	
Type	Split AC	
COP / EER / SEER	14.5	
Sensible Cooling	42.9	MBtuh
Latent Cooling	15.1	MBtuh
Total Cooling	58.0	MBtuh
Leaving Air Temp	55.0	°F
Actual Cooling Fan	1800	cfm

Equipment Location	Entire Project	
System Type	PEAKCV	
Fan Motor Heat Type	PACKAGE	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
HC Bath #1	50	0	1116	206	0	49	Jul 1800 LDT
Office #1	200	0	5652	1587	0	245	Jul 1800 LDT
Office #2	200	0	5773	1587	0	250	Jul 1800 LDT
Office #3	200	0	6514	1512	0	276	Jul 1800 LDT
Office #4	200	0	6787	1587	0	283	Jul 1800 LDT
Receptionist	224	0	7049	3273	0	294	Jul 1800 LDT
Waiting_Lobby	380	0	8507	5172	0	339	Jul 1800 LDT
WIC Closet #1	34	0	703	68	0	29	Jul 1800 LDT
WIC Closet #2	34	0	812	68	0	35	Jul 1800 LDT
Entire Project	1522	0	42912	15062	1800	1800	Jul 1800 LDT

Efficient Energy Services, Inc.

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Entire Project

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1800 LDT			
	Inside: 75 °F	Outside: 92 °F		TD: 17 °F			
	OutRH: 50 %	MoistDiff: 49.4 gr/lb		Mult: 1.0	lns.wb	63 °F	
					Sensible	Latent	
2.	**SOLAR RADIATION THROUGH GLASS**				10250	-	
3.	**TRANSMISSION GAINS**	Sensible			8139	-	
	Walls:	1944			-	-	
	Glass:	3125			-	-	
	Doors:	0			-	-	
	Partitions:	0			-	-	
	Floors:	0			-	-	
	Ceilings:	3070			-	-	
4.	**INTERNAL HEAT GAIN**	Sensible		Latent	20936	8648	
	Occupants:	3745		3205	-	-	
	Lights:	2986		-	-	-	
	Motors:	0		-	-	-	
	Appliances:	14205		5443	-	-	
5.	**INFILTRATION:**	Outside air cfm:		33	619	1106	
6.	**SUBTOTAL:**	Space load	Sensible	Latent	39944	9754	
	Envelope	39944		9754	-	-	
	Less external	0		-	-	-	
	Redistribution	0		0	-	-	
7.	**SUPPLY DUCT**				0	-	
8.	**SUBTOTAL:**	Space load + supply duct			39944	-	
	Actual cfm:	1800	at supply TD:	20	-	-	
9.	**VENTILATION:**	Make-up air cfm:		158	2968	5307	
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0	-	
11.	**RETURN DUCT**				0	-	
12.	**TOTAL LOADS ON EQUIPMENT**				42912	15062	

HEATING LOAD

13.	**DESIGN CONDITIONS**		Mult: 0		
	Inside: 70 °F	Outside: 33 °F	TD: 37 °F		
14.	**TRANSMISSION LOSSES**			0	
	Walls:	0		-	
	Glass:	0		-	
	Doors:	0		-	
	Partitions:	0		-	
	Floors:	0		-	
	Ceilings:	0		-	
15.	**INFILTRATION:**	Outside air cfm:	0	0	
16.	**SUBTOTAL:**	Space load		0	
	Envelope	0		-	
	Less external	0		-	
	Less transfer	0		-	
	Redistribution	0		-	
17.	**SUPPLY DUCT:**			0	
18.	**VENTILATION:**	Make-up air cfm:	0	0	
19.	**HUMIDIFICATION**			0	
	Piping			0	
20.	**RETURN DUCT**			0	
21.	**TOTAL HEATING LOAD ON EQUIPMENT**			0	

Efficient Energy Services, Inc.

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: HC Bath #1

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1900 LDT			
	Inside:	75 °F	Outside: 92 °F	TD:	17 °F		
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult:	1.0	lns.wb	63 °F
						Sensible	Latent
2.	**SOLAR RADIATION THROUGH GLASS**					0	-
3.	**TRANSMISSION GAINS**		Sensible			218	-
	Walls:		121			-	-
	Glass:		0			-	-
	Doors:		0			-	-
	Partitions:		0			-	-
	Floors:		0			-	-
	Ceilings:		97			-	-
4.	**INTERNAL HEAT GAIN**		Sensible	Latent		842	105
	Occupants:		245	105		-	-
	Lights:		85	-		-	-
	Motors:		0	-		-	-
	Appliances:		512	0		-	-
5.	**INFILTRATION:**	Outside air cfm:		3		56	101
6.	**SUBTOTAL:**	Space load	Sensible	Latent		1116	206
	Envelope		1116	206		-	-
	Less external		0	-		-	-
	Redistribution		0	0		-	-
7.	**SUPPLY DUCT**					0	-
8.	**SUBTOTAL:**	Space load + supply duct				1116	-
	Actual cfm:	49	at supply TD:	20		-	-
9.	**VENTILATION:**	Make-up air cfm:		0		0	0
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)				0	-
11.	**RETURN DUCT**					0	-
12.	**TOTAL LOADS ON EQUIPMENT**					1116	206

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult:	0
	Inside:	70 °F	Outside: 33 °F	TD:	37 °F
14.	**TRANSMISSION LOSSES**				0
	Walls:		0		-
	Glass:		0		-
	Doors:		0		-
	Partitions:		0		-
	Floors:		0		-
	Ceilings:		0		-
15.	**INFILTRATION:**	Outside air cfm:		5	0
16.	**SUBTOTAL:**	Space load			0
	Envelope		0		-
	Less external		0		-
	Less transfer		0		-
	Redistribution		0		-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		0	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Office #1

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1500 LDT			
	Inside:	75 °F	Outside: 92 °F	TD: 17 °F			
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult: 1.0	lns.wb	63 °F	
						Sensible	Latent
2.	**SOLAR RADIATION THROUGH GLASS**					1651	-
3.	**TRANSMISSION GAINS**		Sensible			1266	-
	Walls:		294			-	-
	Glass:		565			-	-
	Doors:		0			-	-
	Partitions:		0			-	-
	Floors:		0			-	-
	Ceilings:		406			-	-
4.	**INTERNAL HEAT GAIN**		Sensible	Latent		2323	850
	Occupants:		500	400		-	-
	Lights:		341	-		-	-
	Motors:		0	-		-	-
	Appliances:		1482	450		-	-
5.	**INFILTRATION:**	Outside air cfm:		0		0	0
6.	**SUBTOTAL:**	Space load	Sensible	Latent		5240	850
	Envelope		5240	850		-	-
	Less external		0	-		-	-
	Redistribution		0	0		-	-
7.	**SUPPLY DUCT**					0	-
8.	**SUBTOTAL:**	Space load + supply duct				5240	-
	Actual cfm:	245	at supply TD:	20		-	-
9.	**VENTILATION:**	Make-up air cfm:		22		412	737
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)				0	-
11.	**RETURN DUCT**					0	-
12.	**TOTAL LOADS ON EQUIPMENT**					5652	1587

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult: 0	
	Inside:	70 °F	Outside: 33 °F	TD: 37 °F	
14.	**TRANSMISSION LOSSES**				0
	Walls:		0		-
	Glass:		0		-
	Doors:		0		-
	Partitions:		0		-
	Floors:		0		-
	Ceilings:		0		-
15.	**INFILTRATION:**	Outside air cfm:		9	0
16.	**SUBTOTAL:**	Space load			0
	Envelope		0		-
	Less external		0		-
	Less transfer		0		-
	Redistribution		0		-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		22	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Office #2

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1500 LDT			
	Inside:	75 °F	Outside: 92 °F	TD: 17 °F			
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult: 1.0	lns.wb	63 °F	
						Sensible	Latent
2.	**SOLAR RADIATION THROUGH GLASS**					1698	-
3.	**TRANSMISSION GAINS**		Sensible			1339	-
	Walls:		358			-	-
	Glass:		575			-	-
	Doors:		0			-	-
	Partitions:		0			-	-
	Floors:		0			-	-
	Ceilings:		406			-	-
4.	**INTERNAL HEAT GAIN**		Sensible	Latent		2323	850
	Occupants:		500	400		-	-
	Lights:		341	-		-	-
	Motors:		0	-		-	-
	Appliances:		1482	450		-	-
5.	**INFILTRATION:**	Outside air cfm:		0		0	0
6.	**SUBTOTAL:**	Space load	Sensible	Latent		5360	850
	Envelope		5360	850		-	-
	Less external		0	-		-	-
	Redistribution		0	0		-	-
7.	**SUPPLY DUCT**					0	-
8.	**SUBTOTAL:**	Space load + supply duct				5360	-
	Actual cfm:	250	at supply TD:	20		-	-
9.	**VENTILATION:**	Make-up air cfm:		22		412	737
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)				0	-
11.	**RETURN DUCT**					0	-
12.	**TOTAL LOADS ON EQUIPMENT**					5773	1587

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult: 0	
	Inside:	70 °F	Outside: 33 °F	TD: 37 °F	
14.	**TRANSMISSION LOSSES**				0
	Walls:		0		-
	Glass:		0		-
	Doors:		0		-
	Partitions:		0		-
	Floors:		0		-
	Ceilings:		0		-
15.	**INFILTRATION:**	Outside air cfm:		9	0
16.	**SUBTOTAL:**	Space load			0
	Envelope		0		-
	Less external		0		-
	Less transfer		0		-
	Redistribution		0		-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		22	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Office #3

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1900 LDT			
	Inside:	75 °F	Outside: 92 °F	TD:	17 °F		
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult:	1.0	lns.wb	63 °F
					Sensible		Latent
2.	**SOLAR RADIATION THROUGH GLASS**				2659		-
3.	**TRANSMISSION GAINS**	Sensible			1290		-
	Walls:	319			-		-
	Glass:	565			-		-
	Doors:	0			-		-
	Partitions:	0			-		-
	Floors:	0			-		-
	Ceilings:	406			-		-
4.	**INTERNAL HEAT GAIN**	Sensible		Latent	2152		775
	Occupants:	500		400	-		-
	Lights:	341		-	-		-
	Motors:	0		-	-		-
	Appliances:	1311		375	-		-
5.	**INFILTRATION:**	Outside air cfm:		0	0		0
6.	**SUBTOTAL:**	Space load	Sensible	Latent	6101		775
	Envelope	6101		775	-		-
	Less external	0		-	-		-
	Redistribution	0		0	-		-
7.	**SUPPLY DUCT**				0		-
8.	**SUBTOTAL:**	Space load + supply duct			6101		-
	Actual cfm:	276	at supply TD:	20	-		-
9.	**VENTILATION:**	Make-up air cfm:		22	412		737
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0		-
11.	**RETURN DUCT**				0		-
12.	**TOTAL LOADS ON EQUIPMENT**				6514		1512

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult:	0
	Inside:	70 °F	Outside: 33 °F	TD:	37 °F
14.	**TRANSMISSION LOSSES**				0
	Walls:	0			-
	Glass:	0			-
	Doors:	0			-
	Partitions:	0			-
	Floors:	0			-
	Ceilings:	0			-
15.	**INFILTRATION:**	Outside air cfm:		9	0
16.	**SUBTOTAL:**	Space load			0
	Envelope	0			-
	Less external	0			-
	Less transfer	0			-
	Redistribution	0			-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		22	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Office #4

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1900 LDT			
	Inside:	75 °F	Outside: 92 °F	TD:	17 °F		
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult:	1.0	lns.wb	63 °F
					Sensible		Latent
2.	**SOLAR RADIATION THROUGH GLASS**				2693		-
3.	**TRANSMISSION GAINS**	Sensible			1359		-
	Walls:	384			-		-
	Glass:	568			-		-
	Doors:	0			-		-
	Partitions:	0			-		-
	Floors:	0			-		-
	Ceilings:	406			-		-
4.	**INTERNAL HEAT GAIN**	Sensible		Latent	2323		850
	Occupants:	500		400	-		-
	Lights:	341		-	-		-
	Motors:	0		-	-		-
	Appliances:	1482		450	-		-
5.	**INFILTRATION:**	Outside air cfm:		0	0		0
6.	**SUBTOTAL:**	Space load	Sensible	Latent	6374		850
	Envelope	6374		850	-		-
	Less external	0		-	-		-
	Redistribution	0		0	-		-
7.	**SUPPLY DUCT**				0		-
8.	**SUBTOTAL:**	Space load + supply duct			6374		-
	Actual cfm:	283	at supply TD:	20	-		-
9.	**VENTILATION:**	Make-up air cfm:		22	412		737
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0		-
11.	**RETURN DUCT**				0		-
12.	**TOTAL LOADS ON EQUIPMENT**				6787		1587

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult:	0
	Inside:	70 °F	Outside: 33 °F	TD:	37 °F
14.	**TRANSMISSION LOSSES**				0
	Walls:	0			-
	Glass:	0			-
	Doors:	0			-
	Partitions:	0			-
	Floors:	0			-
	Ceilings:	0			-
15.	**INFILTRATION:**	Outside air cfm:		9	0
16.	**SUBTOTAL:**	Space load			0
	Envelope	0			-
	Less external	0			-
	Less transfer	0			-
	Redistribution	0			-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		22	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Receptionist

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1700 LDT			
	Inside:	75 °F	Outside: 92 °F	TD:	17 °F		
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult:	1.0	lns.wb	63 °F
					Sensible		Latent
2.	**SOLAR RADIATION THROUGH GLASS**				910		-
3.	**TRANSMISSION GAINS**	Sensible			1144		-
	Walls:	207			-		-
	Glass:	488			-		-
	Doors:	0			-		-
	Partitions:	0			-		-
	Floors:	0			-		-
	Ceilings:	449			-		-
4.	**INTERNAL HEAT GAIN**	Sensible	Latent		4274		1984
	Occupants:	500	500		-		-
	Lights:	683	-		-		-
	Motors:	0	-		-		-
	Appliances:	3092	1484		-		-
5.	**INFILTRATION:**	Outside air cfm:	15		281		503
6.	**SUBTOTAL:**	Space load	Sensible	Latent	6609		2487
	Envelope	6609	2487		-		-
	Less external	0	-		-		-
	Redistribution	0	0		-		-
7.	**SUPPLY DUCT**				0		-
8.	**SUBTOTAL:**	Space load + supply duct			6609		-
	Actual cfm:	294	at supply TD:	20	-		-
9.	**VENTILATION:**	Make-up air cfm:		23	439		786
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0		-
11.	**RETURN DUCT**				0		-
12.	**TOTAL LOADS ON EQUIPMENT**				7049		3273

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult:	0
	Inside:	70 °F	Outside: 33 °F	TD:	37 °F
14.	**TRANSMISSION LOSSES**				0
	Walls:	0			-
	Glass:	0			-
	Doors:	0			-
	Partitions:	0			-
	Floors:	0			-
	Ceilings:	0			-
15.	**INFILTRATION:**	Outside air cfm:		42	0
16.	**SUBTOTAL:**	Space load			0
	Envelope	0			-
	Less external	0			-
	Less transfer	0			-
	Redistribution	0			-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		23	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: Waiting_Lobby

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1700 LDT			
	Inside:	75 °F	Outside: 92 °F	TD:	17 °F		
	OutRH:	50 %	MoistDiff: 49.4 gr/lb	Mult:	1.0	lns.wb	63 °F
						Sensible	Latent
2.	**SOLAR RADIATION THROUGH GLASS**					640	-
3.	**TRANSMISSION GAINS**		Sensible			1279	-
	Walls:		154			-	-
	Glass:		363			-	-
	Doors:		0			-	-
	Partitions:		0			-	-
	Floors:		0			-	-
	Ceilings:		763			-	-
4.	**INTERNAL HEAT GAIN**		Sensible	Latent		5505	3234
	Occupants:		1000	1000		-	-
	Lights:		683	-		-	-
	Motors:		0	-		-	-
	Appliances:		3822	2234		-	-
5.	**INFILTRATION:**	Outside air cfm:		15		281	503
6.	**SUBTOTAL:**	Space load	Sensible	Latent		7705	3737
	Envelope		7705	3737		-	-
	Less external		0	-		-	-
	Redistribution		0	0		-	-
7.	**SUPPLY DUCT**					0	-
8.	**SUBTOTAL:**	Space load + supply duct				7705	-
	Actual cfm:	339	at supply TD:	20		-	-
9.	**VENTILATION:**	Make-up air cfm:		43		802	1435
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)				0	-
11.	**RETURN DUCT**					0	-
12.	**TOTAL LOADS ON EQUIPMENT**					8507	5172

HEATING LOAD

13.	**DESIGN CONDITIONS**			Mult:	0
	Inside:	70 °F	Outside: 33 °F	TD:	37 °F
14.	**TRANSMISSION LOSSES**				0
	Walls:		0		-
	Glass:		0		-
	Doors:		0		-
	Partitions:		0		-
	Floors:		0		-
	Ceilings:		0		-
15.	**INFILTRATION:**	Outside air cfm:		50	0
16.	**SUBTOTAL:**	Space load			0
	Envelope		0		-
	Less external		0		-
	Less transfer		0		-
	Redistribution		0		-
17.	**SUPPLY DUCT:**				0
18.	**VENTILATION:**	Make-up air cfm:		43	0
19.	**HUMIDIFICATION**				0
	Piping				0
20.	**RETURN DUCT**				0
21.	**TOTAL HEATING LOAD ON EQUIPMENT**				0

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: WIC Closet #1

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1600 LDT			
	Inside: 75 °F	Outside: 92 °F		TD: 17 °F			
	OutRH: 50 %	MoistDiff: 49.4 gr/lb		Mult: 1.0	lns.wb	63 °F	
					Sensible	Latent	
2.	**SOLAR RADIATION THROUGH GLASS**				0	-	
3.	**TRANSMISSION GAINS**	Sensible			68	-	
	Walls:	0			-	-	
	Glass:	0			-	-	
	Doors:	0			-	-	
	Partitions:	0			-	-	
	Floors:	0			-	-	
	Ceilings:	68			-	-	
4.	**INTERNAL HEAT GAIN**	Sensible	Latent		597	0	
	Occupants:	0	0		-	-	
	Lights:	85	-		-	-	
	Motors:	0	-		-	-	
	Appliances:	512	0		-	-	
5.	**INFILTRATION:**	Outside air cfm:	0		0	0	
6.	**SUBTOTAL:**	Space load	Sensible	Latent	665	0	
	Envelope	665	0		-	-	
	Less external	0	-		-	-	
	Redistribution	0	0		-	-	
7.	**SUPPLY DUCT**				0	-	
8.	**SUBTOTAL:**	Space load + supply duct			665	-	
	Actual cfm:	29	at supply TD:	20	-	-	
9.	**VENTILATION:**	Make-up air cfm:		2	38	68	
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0	-	
11.	**RETURN DUCT**				0	-	
12.	**TOTAL LOADS ON EQUIPMENT**				703	68	

HEATING LOAD

13.	**DESIGN CONDITIONS**		Mult: 0		
	Inside: 70 °F	Outside: 33 °F	TD: 37 °F		
14.	**TRANSMISSION LOSSES**			0	
	Walls:	0		-	
	Glass:	0		-	
	Doors:	0		-	
	Partitions:	0		-	
	Floors:	0		-	
	Ceilings:	0		-	
15.	**INFILTRATION:**	Outside air cfm:	2	0	
16.	**SUBTOTAL:**	Space load		0	
	Envelope	0		-	
	Less external	0		-	
	Less transfer	0		-	
	Redistribution	0		-	
17.	**SUPPLY DUCT:**			0	
18.	**VENTILATION:**	Make-up air cfm:	2	0	
19.	**HUMIDIFICATION**			0	
	Piping			0	
20.	**RETURN DUCT**			0	
21.	**TOTAL HEATING LOAD ON EQUIPMENT**			0	

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

Zone: WIC Closet #2

COOLING LOAD

1.	**DESIGN CONDITIONS**	at Jul 1800 LDT		Peak load at Jul 1500 LDT			
	Inside: 75 °F	Outside: 92 °F		TD: 17 °F			
	OutRH: 50 %	MoistDiff: 49.4 gr/lb		Mult: 1.0	lns.wb	63 °F	
					Sensible	Latent	
2.	**SOLAR RADIATION THROUGH GLASS**				0	-	
3.	**TRANSMISSION GAINS**	Sensible			176	-	
	Walls:	106			-	-	
	Glass:	0			-	-	
	Doors:	0			-	-	
	Partitions:	0			-	-	
	Floors:	0			-	-	
	Ceilings:	70			-	-	
4.	**INTERNAL HEAT GAIN**	Sensible	Latent		597	0	
	Occupants:	0	0		-	-	
	Lights:	85	-		-	-	
	Motors:	0	-		-	-	
	Appliances:	512	0		-	-	
5.	**INFILTRATION:**	Outside air cfm:	0		0	0	
6.	**SUBTOTAL:** Space load	Sensible	Latent		773	0	
	Envelope	773	0		-	-	
	Less external	0	-		-	-	
	Redistribution	0	0		-	-	
7.	**SUPPLY DUCT**				0	-	
8.	**SUBTOTAL:** Space load + supply duct				773	-	
	Actual cfm: 35	at supply TD:	20		-	-	
9.	**VENTILATION:**	Make-up air cfm:	2		38	68	
10.	**RETURN AIR LOAD:**	Lighting + plenum (net)			0	-	
11.	**RETURN DUCT**				0	-	
12.	**TOTAL LOADS ON EQUIPMENT**				812	68	

HEATING LOAD

13.	**DESIGN CONDITIONS**		Mult: 0		
	Inside: 70 °F	Outside: 33 °F	TD: 37 °F		
14.	**TRANSMISSION LOSSES**			0	
	Walls:	0		-	
	Glass:	0		-	
	Doors:	0		-	
	Partitions:	0		-	
	Floors:	0		-	
	Ceilings:	0		-	
15.	**INFILTRATION:**	Outside air cfm:	2	0	
16.	**SUBTOTAL:** Space load			0	
	Envelope	0		-	
	Less external	0		-	
	Less transfer	0		-	
	Redistribution	0		-	
17.	**SUPPLY DUCT:**			0	
18.	**VENTILATION:**	Make-up air cfm:	2	0	
19.	**HUMIDIFICATION**			0	
	Piping			0	
20.	**RETURN DUCT**			0	
21.	**TOTAL HEATING LOAD ON EQUIPMENT**			0	

Duct System Summary
Entire Project
Efficient Energy Services, Inc.

Job: 61680124C
Date: 11-JAN-2024
By: EES Inc.

P.O. Box 181, Altoona, FL 32702 Phone: 352-669-9090

Project Information

For: Kyle McLeod Offices
NW Real Terrace, Lake City, FL

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	0.44 in H2O	0.44 in H2O
Supply / return available pressure	0.279 / 0.161 in H2O	0.279 / 0.161 in H2O
Lowest friction rate	0.119 in/100ft	0.119 in/100ft
Actual air flow	1800 cfm	1800 cfm
Total effective length (TEL)	370 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Office #2-A	c 2851	0	120	0.119	7.0	0x 0	VlFx	60.0	175.0	st4
Office #2	c 2851	0	120	0.119	7.0	0x 0	VlFx	60.0	175.0	st4
WIC Closet #2	c 830	0	35	0.119	4.0	0x 0	VlFx	60.0	175.0	st4
WIC Closet #1	c 710	0	30	0.119	4.0	0x 0	VlFx	60.0	175.0	st4
Office #1-A	c 2851	0	120	0.119	7.0	0x 0	VlFx	60.0	175.0	st4
Office #1	c 2851	0	120	0.119	7.0	0x 0	VlFx	60.0	175.0	st4
Waiting_Lobby	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st2
Waiting_Lobby-A	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st2
Waiting_Lobby-B	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st3
Office #3-A	c 3215	0	135	0.119	8.0	0x 0	VlFx	60.0	175.0	st3
Office #3	c 3215	0	135	0.119	8.0	0x 0	VlFx	60.0	175.0	st3
HC Bath #1	c 1316	0	55	0.119	5.0	0x 0	VlFx	60.0	175.0	st3
Office #4-A	c 3215	0	135	0.119	8.0	0x 0	VlFx	60.0	175.0	st3
Office #4	c 3215	0	135	0.119	8.0	0x 0	VlFx	60.0	175.0	st3
Receptionist	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st2
Receptionist-B	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st2
Receptionist-A	c 2632	0	110	0.119	7.0	0x 0	VlFx	60.0	175.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	0	543	0.119	652	11.2	12 x 10	RectFbg	st1
st2	Peak AVF	0	1257	0.119	924	15.3	14 x 14	RectFbg	st1
st3	Peak AVF	0	705	0.119	705	12.3	12 x 12	RectFbg	st2
st1	Peak AVF	0	1800	0.119	900	17.5	18 x 16	RectFbg	P
P	Peak AVF	0	1800	0.119	900	17.5	18 x 16	RectFbg	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	14x 8	0	239	135.0	0.119	541	9.0	0x 0		VlFx	rt3
rb2	14x 8	0	239	135.0	0.119	541	9.0	0x 0		VlFx	rt3
rb0	0x 0	0	175	135.0	0.119	501	8.0	0x 0		VlFx	rt1
rb5	18x 16	0	607	135.0	0.119	568	14.0	0x 0		VlFx	rt2
rb3	14x 9	0	270	135.0	0.119	495	10.0	0x 0		VlFx	rt2
rb4	14x 9	0	270	135.0	0.119	495	10.0	0x 0		VlFx	rt2

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	0	1800	0.119	648	17.5	20 x 20	RectFbg	R
rt3	Peak AVF	0	478	0.119	689	10.6	10 x 10	RectFbg	rt1
rt2	Peak AVF	0	1147	0.119	645	14.7	16 x 16	RectFbg	rt1
R	Peak AVF	0	1800	0.119	648	17.5	20 x 20	RectFbg	