Florida Building Code, 8th Edition (2023) - Energy Conservation. Filing Version - Not for Compliance Submission

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

C401.2.1: ASHRAE Energy Cost Budget Option

Compliance applying ASHRAE Section 11

	Check List						
Applications for compliance with the Florida Building Code, Energy Conservation shall include:							
	The full compliance report generated by the software that contains the project summary, compliance summary, certifications and detailed component compliance reports.						
	The compliance report must include the full input report generated by the software as contigous part of the compliance report.						
	Boxes appropriately checked in the Mandatory Section of the complaince report.						

PROJECT SUMMARY

Short Desc: FBC2023 Description: FBC2023

Owner: Enter Owner's name here

Address1: Anywhere City: Anywhers

Address2: Enter Address here State: FL

Zip: 32952

Type: Office Class: New Finished building

Jurisdiction: MIAMI, MIAMI-DADE COUNTY, FL (232400)

Conditioned Area: 4887 SF Conditioned & UnConditioned Area: 4887 SF

No of Stories: 1 Area entered from Plans 0 SF
Permit No: 0 Max Tonnage 5.8

Max Tonnage 5.8

If different, write in:

Compliance Summary									
Component	Design	Criteria	Result						
Gross Energy Cost (in \$)	2740.00	3059.00	PASSED						
LIGHTING CONTROLS			FAILS						
EXTERNAL LIGHTING			PASSES						
HVAC SYSTEM			FAILS						
PLANT			PASSES						
WATER HEATING SYSTEMS			PASSES						
PIPING SYSTEMS			FAILS						
Met all required compliance from Check List?			Yes/No/NA						
IMPORTANT MESSAGE Info 5009 An input report of this design build Compliance Report	ding must be subr	nitted along w	ith this						

CERTIFICATIONS

lorida Energy Code	ecifications covered by this calculatior	are in compliance with the
Prepared By:	Building Official:	
Date:	Date:	
certify that this building is in complia	ance with the FLorida Energy Efficienc	cy Code
0 4 4	Data	
Owner Agent:	Date:	
	ertify (*) that the system design is in c	
Required by Florida law, I hereby o	pertify (*) that the system design is in c	
Required by Florida law, I hereby o iciency Code	certify (*) that the system design is in c	ompliance with the Florida Energ
Required by Florida law, I hereby officiency Code Architect: Electrical	certify (*) that the system design is in control Reg No: Reg No: Reg No:	ompliance with the Florida Energ
Required by Florida law, I hereby of ficiency Code Architect: Electrical Designer: Lighting	Reg No: Reg No: Reg No:	ompliance with the Florida Energ Signature Signature

Project: FBC2023 Title: FBC2023 Type: Office

(WEA File: FL_MIAMI_INTL_AP.tm3)

Building End Uses

	1) Proposed	2) Baseline
	175.80	195.80
	\$2,740	\$3,059
ELECTRICITY(MBtu/kWh/\$)	175.80	195.80
	51501	57394
	\$2,740	\$3,059
AREA LIGHTS	36.10	36.50
	10566	10706
	\$562	\$571
MISC EQUIPMT	45.60	45.60
	13365	13365
	\$711	\$712
PUMPS & MISC	0.00	0.00
	3	5
	\$0	\$0
SPACE COOL	60.00	63.93
	17576	18731
	\$935	\$998
SPACE HEAT	0.30	0.05
	92	19
	\$5	\$1
VENT FANS	33.80	49.73
	9899	14567
	\$527	\$776

PASSES

Credits Applied: None

Passing Criteria = 3059

Design (including any credits) = 2740

Passing requires Proposed Building cost to be at most 100% of

Baseline cost. This Proposed Building is at 89.6%

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Project: FBC2023 Title: FBC2023 Type: Office (WEA File: FL MIA	MI INTL AD 42)					
(WEA FIIE: FL_WIIA	External I	Lighting C	Complianc	e		
Description	Category	Tradable?	Allowance (W/Unit)	Area or Length or No. of Units (Sqft or ft)	ELPA (W)	CLP (W)
Ext Light 1	Uncovered Parking Areas Parking lots and Drives	Yes	0.04	500.0	20	300

No

0.35

30

100.0

35

Tradable Surfaces: 300 (W) Allowance for Tradable: 420 (W) PASSES

All External Lighting: 330 (W)

Ext Light 3

Complicance check includes a excess/Base allowance of 400.00(W)

Loading areas -- llaw

enforcement, fire, emergency

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Project: FBC2023
Title: FBC2023
Type: Office

(WEA File: FL_MIAMI_INTL_AP.tm3)

Lighting Controls Compliance

Acronym ID Description Area (sq.ft)

Space 1 12 Lobby (General) - Reception and 906

Lighing Controls PASSES Waiting

Space 2 12 Lobby (General) - Reception and 906

Lighing Controls FAILS Waiting

Control type 1 required for compliance not found

Control type 7 required for compliance not found Atleast one additional control type |8|9| required for compliance

Space 3 17 Office - Enclosed 945

Lighing Controls FAILS

Atleast one of the following additional control types |2|3| required for compliance

<u>Space 4</u> <u>17 Office - Enclosed</u> <u>1,393</u>

Lighing Controls FAILS

Control type 1 required for compliance not found

Control type 4 required for compliance not found

Control type 8 required for compliance not found

Atleast one of the following additional control types |2|3| required for compliance

Space 5 2 Storage & Warehouse - Inactive 736

Lighing Controls FAILS Storage

Control type 4 required for compliance not found

FAILS

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Project: FBC2023 Title: FBC2023 Type: Office (WEA File: FL_M

	Syst	em Repo	rt Comp	oliance			
Sys1	3.5 TONS		Co	oled ı/hr	No. of Units		
Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Comp- liance
Cooling System	Air Conditioners Air Cooled Split System < 45000 Btu/h Cooling Capacity	42000	16.00	14.30			PASSES
Heating System	Electric Furnace	27296	1.00	1.00			PASSES
Air Handling System -Supply	Air Handler (Supply) - Constant Volume	1400	0.50	0.82			PASSES
Air Distribution System (Sup)	ADS System (Sup)		5.00	6.00			FAILS
Air Distribution System (Ret)	ADS System (Ret)		5.00	8.00			FAILS
Sys2	5+ TONS			nstant Volu lit System <			No. of Units
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	16.00	14.30			PASSES
Heating System	Heat Pumps Air Cooled (Heating Mode) Split System < 65000 Btu/h Cooling Capacity	34120	8.00	7.50			PASSES
	Cooming Capacity	2000	0.50	0.82			PASSES
Air Handling System -Supply	Air Handler (Supply) - Constant Volume	2000	0.50				
System -Supply Air Distribution	Air Handler (Supply) - Constant Volume ADS System (Sup)	2000	0.50				PASSES
System -Supply	Constant Volume	2000	5.00	6.00			PASSES FAILS
System -Supply Air Distribution System (Sup) Air Distribution System (Ret)	Constant Volume ADS System (Sup)	2000	5.00 Co	6.00 onstant Volu stem902	me Packag	ged	

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Cooling System	Air Conditioners Air	70000	13.50	11.00	15.00	14.10	PASSES
	Cooled 65000 - 1355000						
	Btu/h Cooling Capacity						
Heating System	Heat Pumps Air Cooled	36000	5.00	3.40			PASSES
	(Heating Mode) 65000 to						
	135000 Btu/h Clg Cap						
Air Handling	Air Handler (Supply) -	1500	0.80	0.82			PASSES
System -Supply	Constant Volume						
Air Distribution	ADS System (Sup)		5.00	6.00			FAILS
System (Sup)							
Air Distribution	ADS System (Ret)			6.00			FAILS
System (Ret)							
Svs4 Svs	stem 11		Cor	stant Volui	ne Air Cool	ed	No. of Units

Sys4	System 11 Constant Volume Air Cooled Single Package System < 65000 Btu/br				No. of Units		
Component	Category	Capacity	Design Eff	Eff Criteria	Design IPLV	IPLV Criteria	Comp- liance
Cooling System	Air Conditioners Air Cooled Single Pkg < 65000 Btu/h Cooling Capacity	56000	15.00	13.40			PASSES
Heating System	Electric Furnace	30000	1.00	1.00			PASSES
Air Handling System -Supply	Air Handler (Supply) - Constant Volume	1500	0.80	0.82			PASSES
Air Distribution System (Sup)	ADS System (Sup)		6.00	6.00			PASSES
Air Distribution System (Ret)	ADS System (Ret)		5.00	6.00			FAILS

			Pla	nt Comp	oliance			
Description	Installed No	Size	Design Eff	Min Eff	Design IPLV	Min IPLV	Category	Comp liance
Domestic hot-water heater	1	10.00	85.000	82.000			Gas Fired >= 2,500,000 Btu/h	PASSES

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Water Heater Compliance									
Description	Туре	Category	Design Eff	Min Eff	Design Loss	Max Loss	Comp liance		
Water Heater 1	Electric Storage water heater	<= 12 [kW]	0.93	0.92			PASSES		
Water Heater 2	Gas Storage water heater	<= 75000 Btu/h; 55 - 100 Gal	0.83	0.78			PASSES		

PASSES

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Piping System Compliance								
Category	Pipe Dia [inches]	Is Runout?	Operating Temp [F]	Ins Cond [Btu-in/hr .SF.F]	Ins Thick [in]	Req Ins Thick [in]	Compl- iance	
Heating System (Steam, Steam Condensate, & Hot Water)	3.00	False	105.00	0.28	1.00	1.00	PASSES	
Cooling Systems (Chilled Water, Brine and Refrigerant)	4.00	False	45.00	0.33	2.00	1.20	PASSES	
Domestic and Service Hot Water Systems	2.00	False	130.00	0.30	0.80	1.10	FAILS	
]	FAILS		

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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	
5010 Insulation	5.8.1.2	Envelope	Below-grade wall insulation installed per manufacturer's instructions.	
5012 Insulation	5.8.1.2	Envelope	Slab edge insulation installed per manufacturer's instructions.	
5013 Insulation	5.5.3.5	Envelope	Slab edge insulation depth/length.	
5017 Insulation	6.4.4.1.5	Envelope	Bottom surface of floor structures incorporating radiant heating insulated to >=R-3.5.	
5077 SYSTEM_SPECIF	6.5.1, 6.5.1.1, 6.5.1.3, 6.5.1.4	Mechanical	Air economizers provided where required (and not exempted), 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 opera	
5086 SYSTEM_SPECIF	6.5.1, 6.5.1.2, 6.5.1.2.1, 6.5.1.3	Mechanical	Water economizers provided where required, meet the requirements for design capacity, maximum pressure drop and integrated economizer control. Capable if providing 100% of the expected system cooling load when outdoor air <= 50F.	
5087 SYSTEM_SPECIF	6.5.1.5	Mechanical	Economizer operation will not increase heating energy use during normal operation.	
5093 SYSTEM_SPECIF	6.5.2.2.1	Mechanical	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	
5097 SYSTEM_SPECIF	6.5.2.2.3	Mechanical	Hydronic heat pump systems connected to a common water loop meet heat rejection and heat addition requirements.	
5108 SYSTEM_SPECIF	6.5.1.6	Mechanical	Water economizer specified on hydronic cooling and humidification systems designed to maintain inside humidity at >35 °F dewpoint if an economizer is required.	
5109 SYSTEM_SPECIF	6.5.3.1.1	Mechanical	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	
5112 SYSTEM_SPECIFI	6.5.3.1.2	Mechanical	HVAC fan motors not larger than the first available motor size greater than the bhp.	
5153 HVAC	6.5.6.1	Mechanical	Exhaust air energy recovery on systems meeting Tables 6.5.6.1-1, and 6.5.6.1-2.	
5188 SYSTEM_SPECIF	7.4.2	Mechanical	Service water heating equipment meets efficiency requirements.	
5191 SYSTEM_SPECIF	7.5.2	Mechanical	Service water heating equipment used for space heating complies with the service water heating equipment requirements.	
5206 Insulation	5.8.1.2	Envelope	Above-grade wall insulation installed per manufacturer's instructions.	
5208 Insulation	5.8.1.2	Envelope	Floor insulation installed per manufacturer's instructions.	
5255 Controls	10.4.3	Mechanical	Elevators are designed with the proper lighting, ventilation power, and standby mode.	
5261 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7a	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=40.2 gpm/hp.	
5262 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7b	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=20.0 gpm/hp.	
5263 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7c	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=16.1 gpm/hp.	

5264 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7d	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=7.0 gpm/hp	
5265 SYSTEM_SPECIF	6.5.5.3	Mechanical	Centrifugal fan open-circuit cooling towers having combined rated capacity >= 1100 gpm meets	
5266 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7e	Mechanical	minimum efficiency requirement: >=38.2 gpm/hp. Heat Rejection Equipment: Minimum Efficiency Requirement >=176 kBtu/h-hp	
5267 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7f	Mechanical	Heat Rejection Equipment: Minimum Efficiency Requirement >=157 kBtu/h-hp w/ R-507A test	
5268 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7g	Mechanical	fluid. Heat Rejection Equipment: Minimum Efficiency Requirement >=134 kBtu/h-hp w/ Ammonia test	
5269 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7h	Mechanical	fluid Heat Rejection Equipment: Minimum Efficiency Requirement >=135 kBtu/h-hp w/ R-507A test	
5270 SYSTEM_SPECIF	6.4.1.1, 6.8.1-7i	Mechanical	fluid. Heat Rejection Equipment: Minimum Efficiency Requirement >=110 kBtu/h-hp w/ Ammonia test	
5271 SYSTEM_SPECIF	7.5.3	Mechanical	fluid. 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 must be >= 90 Et. Where multiple pieces of water-heating equipment serve the bui	
5285 SYSTEM_SPECIF	6.5.3.2.4	Mechanical	Return and relief fans used to meet Section 6.5.1.1.5 have relief air rate controlled to maintain building pressure through differential supply-return airflow tracking. Systems with supply fans allowed to control the relief system based on oudoor air damp	
5288 HVAC	6.5.2.6	Mechanical	Units that provide ventilation air to multiple zones and operate in conjunction with zone heating and cooling systems are prevented from using heating or heat recovery to warm supply air above 60°F when representative building loads or outdoor air	
5289 HVAC	6.5.4.7	Mechanical	tempera Chilled-water cooling coils provide a 15°F or higher temperature difference between leaving and entering water temperatures and a minimum of 57°F leaving water temperature at design	
5290 SYSTEM_SPECIF	6.5.3.4	Mechanical	conditions Parallel-flow fan-powered VAV air terminals have automatic controls to a) turn off the terminal fan except when space heating is required or if required for ventilation; b) turn on the terminal fan as the first stage of heating before the heating coil	
5291 SYSTEM_SPECIF	6.5.3.7	Mechanical	Required minimum outdoor air rate is the larger of minimum outdoor air rate or minimum exhaust air rate required by Standard 62.1, Standard 170, or applicable codes or accreditation standards. Outdoor air ventilation systems shall comply with one of the f	
5292 HVAC	6.8.1-15, 6.8.1-16	Mechanical	one of the f Electrically operated DX-DOAS units meet requirements per Tables 6.8.1-15 or 6.8.1-16.	
	2	To be ched	cked by Plan Reviewer	
5001 Plan Review	4.2.2, 5.4.3.1.1, 5.7	Envelope	Plans and/or specifications provide all information with which compliance can be determined for the	
5002 Plan Review	4.2.2, 6.4.4.2.1, 6.7.2	Mechanical	building envelope and document where exceptions to the standard are claimed. Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering st	

5003 Plan Review	4.2.2, 7.7.1, 10.4.2	Mechanical	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system	
5004 Plan Review	4.2.2, 8.4.1.1, 8.4.1.2, 8.7	Project	sized per manufact Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance	
5005 Plan Review	4.2.2, 9.4.3, 9.7	Interior Lighting	with approved plans and br 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.	
5006 Plan Review	9.7	Exterior Lighting	Information provided shoul 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.	
5015 Insulation	5.8.1.7.3	Envelope	Information provided shoul Insulation in contact with the ground has <=0.3% water absorption rate per ASTM C272.	
5023 Air Leakage	5.4.3.4	Envelope	Vestibules are installed where building entrances separate conditioned space from the exterior, and meet exterior envelope requirements. Doors have self-closing devices, and are >=7 ft apart (>= 16 ft apart for adjoinging floor area >= 40000 sq.ft.).	
5028 Plan Review	5.5.4.2.3	Envelope	Ves In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area,	
5029 Plan Review	5.5.4.2.3	Envelope	playing area, gym In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area,	
5030 Plan Review	5.5.4.2.3	Envelope	playing area, gym In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area,	
5031 Plan Review	5.5.4.2.3	Envelope	playing area, gym In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated	
5032 Plan Review	5.5.4.2.3	Envelope	warehouse), gymnasium, fitness/exercise area, playing area, gym In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area.	
5033 Plan Review	5.5.4.2.3	Envelope	warehouse), gymnasium, fitness/exercise area, playing area, gym In buildings > 2,500 ft2, any enclosed spaces directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area,	
5054 HVAC	6.4.3.4.4	Mechanical	playing area, gym Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.	

5055 HVAC	6.4.3.8	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	
5074 HVAC	6.4.4.1.4	Mechanical	control, or design airflow >3,000 cfm. Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	
5098 HVAC	6.5.2.3	Mechanical	Dehumidification controls provided to prevent reheating, recooling, mixing of hot and cold airstreams or concurrent heating and cooling of	
5115 SYSTEM_SPECIFI	6.5.3.1.3	Mechanical	the same airstream. Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of	
5122 SYSTEM_SPECIF	6.5.3.6	Mechanical	the fan. Motors for fans >= 1/12 hp and < 1 hp are electronically-commutated motors or have a minimum motor efficiency of 70%. These motors are also speed adjustable for either balancing or	
5127 SYSTEM_SPECIF	6.4.3.10	Mechanical	remote control. DDC system installed and capable of and configured to provide control logic including monitoring zone and system demand for fan pressure, pump pressure, heating, and cooling; transferring zone and system demand information	
5129 SYSTEM_SPECIF	6.5.3.2.3	Mechanical	from zones to air distribution s Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure. Controls provide: zone damper monitoring or indicator of static pressure need; autodetection, alarm, and operator o	
5130 SYSTEM_SPECIF	6.5.3.3	Mechanical	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	
5133 SYSTEM_SPECIF	6.5.3.5	Mechanical	Multiple zone HVAC systems have supply air temperature reset controls.	
5136 SYSTEM_SPECIF	6.5.4.1	Mechanical	System turndown requirement met through multiple single-input boilers, one or more modulating boilers, or a combination of single-input and modulating boilers. Boiler input between 1.0 MBtu/h and 5 MBtu/h	
5137 HVAC	6.5.4.2	Mechanical	has 3:1 turndown ratio, boiler input between 5.0 HVAC pumping systems with >= 3 control values designed for variable fluid flow (see section details).	
5145 SYSTEM_SPECIF	6.5.4.3, 6.5.4.3.1, 6.5.4.3.2	Mechanical	Fluid flow shutdown in pumping systems to multiple chillers or boilers when systems are shut down.	
5146 SYSTEM_SPECIF	6.5.4.4	Mechanical	Temperature reset by representative building loads in pumping systems >10 hp for chiller and	
5147 SYSTEM_SPECIF	6.5.4.5.1	Mechanical	boiler systems >300,000 Btu/h. Two-position automatic valve interlocked to shut off water flow when hydronic heat pump with	
5148 SYSTEM_SPECIF	6.5.4.5.2	Mechanical	pumping system >10 hp is off. Hydronic heat pumps and water-cooled unitary air conditioners with pump systems >5 hp have controls or devices to reduce pump motor	
5150 SYSTEM_SPECIF	6.5.5.2.1	Mechanical	demand. Fan systems with motors or array of motors (inlcuding the motor service factor) with connected power totaling >=5 hp associated with heat rejection equipment to have controls and/or devises that result in fanmotor demand of <= 30% of design wettage at 50%	
5152 SYSTEM_SPECIF	6.5.5.2.2	Mechanical	of design wattage at 50% Multicell heat rejection equipment with variable-speed fan drives installed that operate the maximum number of fans allowed that comply with manufacturers specs and control all fans to the same fan speed required for the instantaneous cooling duty.	

Section Sect					
	5167 SYSTEM_SPECIF	6.5.7.1	Mechanical	exhaust <= the greater of criteria of supply flow, required ventilation rate, exhaust flow minu the	
South September South September	5171 HVAC	6.5.7.2.1	Mechanical	Kitchen hoods >5,000 cfm have make up air	
1786 SYSTEM_SPECIF 6.5.7.23 Mechanical Richer hoods with a total exhaust airflow rate	5174 SYSTEM_SPECIF	6.5.7.2.2	Mechanical	>5000 cfm meet replacement air, ventilation	
Solution Fume hoode schaust systems >= 50.00 cfm have	5176 SYSTEM_SPECIF	6.5.7.2.3	Mechanical	in Table 6.5.7.1.3. Kitchen hoods with a total exhaust airflow rate	
Section Sect	5178 HVAC	6.5.7.2	Mechanical	Fume hoods exhaust systems >=5,000 cfm have VAV hood exhaust and supply systems, direct	
allowed unless standby loss less than calculated maximum. AH has approved for combined connected load < 150 kBtuh. Secondary	5179 HVAC	6.5.8.1	Mechanical	Unenclosed spaces that are heated use only	
5201 Other Equipment 10.4.1 Mechanical Electric motors meet requirements where applicable.	5190 SYSTEM_SPECIF	7.5.1	Mechanical	allowed unless standby loss less than calculated maximum. AHJ has approved or combined	
temporary operation as required for maintenance. System with setback controls and DDC include optimum start controls. Optimum start controls. Optimum start adjorntm considers mass radiants lab floor temperature. Social System Sypecific	5201 Other Equipment	10.4.1	Mechanical	Electric motors meet requirements where	
potimum start algorithm considers mass radiant slab floor temperature. Zone isolation devices and controls. Set Wattage 9.4.2 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. Set Wattage 9.4.1.4d Exterior Lighting Set Varior Lighting countrols to reduce wattage by 50% when area unroccupied over 15 minutes. Controlled power limited to <= 1500W. Parking garage lighting is equipped with automatic shotlof controls per Section 9.4.1.1(1). Exterior Lighting Parking garage lighting is equipped with automatic shotloff controls per Section 9.4.1.1(1). Exterior Lighting Parking garage luminarie power is automatically reduced by >= 30% when zone < 3600 ft2 has no occupancy after 20 minutes. Parking garage luminaries in or around covered entrances/exits between building and garage automatically reduced by >= 50% from sunset to surrise. Fixed Controls 9.4.1.2d Interior Lighting Parking garage: Power to luminaries <= 20 ft of any perimeter wall that has a net opening-to-wall ratio >=40% and no exterior obstructions within 20 ft, is automatically reduced in response to daylight >= 50%. Mechanical Vapor compression based indoor pool dehumidifiers (single package (indoor air/water cooled or w/out air-cooled condenser) or split system indoor air-cooled or have an influenced or parking system indoor air-cooled condenser) or split system indoor air-cooled or method or parking each room configured per Section 6.4.3.3.5 Set Controls 5.8.1.7 Envelope Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities. Freeze protection and show/ice melting system	5226 HVAC	6.4.3.3.2	Mechanical		
Section Sect	5229 SYSTEM_SPECIF	6.4.3.3.3	Mechanical	optimum start controls. Optimum start algorithm	
shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. 5275 Controls 9.4.1.4d Exterior Lighting Outdoor parking area luminaires >= 78W and <= 24 ft height controlled to reduce wattage by 50% when area unoccupied over 15 minutes. Controlled power limited to <= 15000W. 5278 Controls 9.4.1.2a Interior Lighting Parking garage lighting is equipped with automatic shutoff controls per Section 9.4.1.1(i). 5279 Controls 9.4.1.2b Interior Lighting Parking garage lighting is equipped with automatic shutoff controls per Section 9.4.1.1(i). 5280 Controls 9.4.1.2c Interior Lighting Parking garage liminiantes on a cocupancy after 20 minutes. 5281 Controls 9.4.1.2d Interior Lighting Parking garage luminaries in or around covered entrances/exits between building and garage automatically reduced by >= 50% when zone < 3600 ft2 has no occupancy after 20 minutes. 5281 Controls 9.4.1.2d Interior Lighting Parking garage: Power to luminaires <= 20 ft of any perimeter wall that has a net opening-to-wall ratio >= 40% and no exterior obstructions within 20 ft, is automatically reduced in response to daylight >= 50%. 5283 Other Equipment 6.8.1-14 Mechanical Mechanical Wapor compression based indoor pool dehumidifiers (single package (indoor air/water cooled or wfout air-cooled o) have a minimum 3.5 MRE efficiency rating. Hotels/motel w/> 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5 subsections 1-3. To be checked by Inspector 5014 Insulation 5.8.1.7 Envelope Exterior insulation protected against damage, sullight, moisture, wind, landscaping and equipment maintenance activities.	5231 SYSTEM_SPECIF	6.4.3.3.4	Mechanical	·	
S275 Controls 9.4.1.4d Exterior Lighting Outdoor parking area luminaires >= 78W and <= 24 ft height controlled to reduce watage by 50% when area unoccupied over 15 minutes. Controlled power limited to <= 1500W. Parking garage lighting is equipped with automatic shutoff controls per Section 9.4.1.1(i). □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	5254 Wattage	9.4.2	Exterior Lighting	shown on the approved lighting plans, demonstrating proposed watts are less than or	
Secontrols 9.4.1.2a Interior Lighting Parking garage lighting is equipped with automatic shutoff controls per Section 9.4.1.1(i).	5275 Controls	9.4.1.4d	Exterior Lighting	Outdoor parking area luminaires >= 78W and <= 24 ft height controlled to reduce wattage by 50% when area unoccupied over 15 minutes.	
reduced by >= 30% when zone < 3600 ft2 has no occupancy after 20 minutes. Parking garage luminaries in or around covered entrances/exits between building and garage automatically reduced by >= 50% from sunset to sunrise. 5281 Controls 9.4.1.2d Interior Lighting Parking garage: Power to luminaires <= 20 ft of any perimeter wall that has a net opening-to-wall ratio >= 40% and no exterior obstructions within 20 ft, is automatically reduced in response to daylight >= 50%. 5283 Other Equipment 6.8.1-14 Mechanical Mechanical Mechanical Mechanical Mechanical Hotels/motel w/ > 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5 3. To be checked by Inspector Sol4 Insulation 5.8.1.7 Envelope Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities. 5016 HVAC 6.4.3.7 Mechanical Freeze protection and snow/ice melting system	5278 Controls	9.4.1.2a	Interior Lighting	Parking garage lighting is equipped with	
Seed Controls 9.4.1.2c Interior Lighting Parking garage luminaries in or around covered entrances/exits between building and garage automatically reduced by >= 50% from sunset to sunrise.	5279 Controls	9.4.1.2b	Interior Lighting	reduced by >= 30% when zone < 3600 ft2 has no	
Second controls 9.4.1.2d Interior Lighting Parking garage: Power to luminaires <= 20 ft of any perimeter wall that has a net opening-to-wall ratio >=40% and no exterior obstructions within 20 ft, is automatically reduced in response to daylight >= 50%. Second content of the parking package (indoor air/water cooled or w/out air-cooled condenser) or split system indoor a	5280 Controls	9.4.1.2c	Interior Lighting	Parking garage luminaries in or around covered entrances/exits between building and garage automatically reduced by >= 50% from sunset to	
S283 Other Equipment 6.8.1-14 Mechanical Vapor compression based indoor pool dehumidifiers (single package (indoor air/water cooled or w/out air-cooled condenser) or split system indoor air-cooled) have a minimum 3.5 MRE efficiency rating. Hotels/motel w/ > 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5 3. To be checked by Inspector 5014 Insulation 5.8.1.7 Envelope Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities. 5016 HVAC 6.4.3.7 Mechanical Freeze protection and snow/ice melting system	5281 Controls	9.4.1.2d	Interior Lighting	Parking garage: Power to luminaires <= 20 ft of any perimeter wall that has a net opening-to-wall ratio >=40% and no exterior obstructions within 20 ft, is automatically reduced	
5284 Controls 6.4.3.3.5 Mechanical Hotels/motel w/ > 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5 subsections 1-3. 3. To be checked by Inspector 5014 Insulation 5.8.1.7 Envelope Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities. 5016 HVAC 6.4.3.7 Mechanical Hotels/motel w/ > 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5 Subsections 1-3.	5283 Other Equipment	6.8.1-14	Mechanical	Vapor compression based indoor pool dehumidifiers (single package (indoor air/water cooled or w/out air-cooled condenser) or split system indoor air-cooled) have a minimum 3.5	
5014 Insulation 5.8.1.7 Envelope Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities. 5016 HVAC 6.4.3.7 Mechanical Freeze protection and snow/ice melting system	5284 Controls	6.4.3.3.5	Mechanical	Hotels/motel w/ > 50 guest rooms have automatic controls for the HVAC equipment serving each room configured per Section 6.4.3.3.5	
sunlight, moisture, wind, landscaping and equipment maintenance activities. 5016 HVAC 6.4.3.7 Mechanical Freeze protection and snow/ice melting system			3. To be che	ecked by Inspector	
5016 HVAC 6.4.3.7 Mechanical Freeze protection and snow/ice melting system	5014 Insulation	5.8.1.7	Envelope	sunlight, moisture, wind, landscaping and	
	5016 HVAC	6.4.3.7	Mechanical	Freeze protection and snow/ice melting system	

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5018 Air Leakage	5.4.3.1	Envelope	Continuous air barrier is wrapped, sealed, caulked, gasketed, and/or taped in an approved	
			manner, except in semiheated spaces in climate zones 1-6.	
5020 Air Leakage	5.4.3.2	Envelope	Factory-built and site-assembled fenestration and doors are labeled or certified as meeting air	
5038 Fenestration	5.8.2.1, 5.8.2.3, 5.8.2.4, 5.8.2.5	Envelope	leakage requirements. Fenestration products rated (U-factor, SHGC, and VT) in accordance with NFRC or energy code	
5039 Fenestration	5.8.2.2	Envelope	defaults are used. Fenestration and door products are labeled, or a signed and dated certificate listing the U-factor, SHGC, VT, and air leakage rate has been	
5041 SYSTEM_SPECIF	7.4.4.1	Mechanical	provided by the manufacturer. Temperature controls installed on service water heating systems (<=120°F to maximum	
5042 SYSTEM_SPECIF	7.4.4.2	Mechanical	temperature for intended use). Automatic time switches installed to automatically switch off the recirculating hot-water system or	
5043 SYSTEM_SPECIF	7.4.6	Mechanical	heat trace. Heat traps installed on non-circulating storage water tanks.	
5044 HVAC	6.4.1.4, 6.4.1.5	Mechanical	HVAC equipment efficiency verified. Non-NAECA HVAC equipment labeled as meeting 90.1.	
5045 SYSTEM_SPECIF	6.4.1.5.2	Mechanical	PTAC and PTHP with sleeves 16 in. by 42 in. labeled for replacement only.	
5046 HVAC	6.4.3.4.1	Mechanical	Stair and elevator shaft vents have motorized dampers that automatically close.	
5047 HVAC	6.4.3.4.2, 6.4.3.4.3	Mechanical	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity	
5050 HVAC	6.4.3.4.5	Mechanical	dampers where allowed. Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design	
5060 HVAC	6.5.3.2.1	Mechanical	capacity. DX cooling systems >= 75 kBtu/h (>= 65 kBtu/h effective 1/2016) and chilled-water and evaporative cooling fan motor hp >= ½ designed to vary supply fan airflow as a function of load and	
5063 HVAC	6.4.4.1.1	Mechanical	comply with operational requirements. Insulation exposed to weather protected from damage. Insulation outside of the conditioned space and associated with cooling systems is	
5064 HVAC	6.4.4.1.2	Mechanical	vapor retardant. HVAC ducts and plenums insulated per Table 6.8.2. Where ducts or plenums are installed in or under a slab, verification may need to occur	
5068 HVAC	6.4.4.1.3	Mechanical	during Foundation Inspection. HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may	
5075 HVAC	6.4.4.2.1	Mechanical	need to occur during Foundation Inspection. Ducts and plenums having pressure class ratings are Seal Class A construction.	
5076 SYSTEM_SPECIF	6.4.4.2.2	Mechanical	Ductwork operating >3 in. water column requires air leakage testing.	
5088 SYSTEM_SPECIF	6.5.2.1	Mechanical	Zone controls can limit reheating, recooling, simultaneous heating and cooling and sequence	
5094 SYSTEM_SPECIF	6.4.3.11.1	Mechanical	heating and cooling to each zone. Electric motor driven chilled-water plants have measurement devices installed and measure the	
5095 SYSTEM_SPECIF	6.4.3.11.2	Mechanical	electricity use and efficiency Electricity use and efficiency are trended every 15 minutes and graphically displayed, including hourly, daily, monthly, and annual data. Data are preserved for 36 months or more.	

5096 SYSTEM_SPECIF	6.5.2.2.2	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	
5104 HVAC	6.5.2.4.1	Mechanical	temperature to <=30 °F. Humidifiers with airstream mounted preheating jackets have preheat auto-shutoff value set to	
5105 HVAC	6.5.2.4.2	Mechanical	activate when humidification is not required. Humidification system dispersion tube hot surfaces in the airstreams of ducts or air-handling	
5107 HVAC	6.5.2.5	Mechanical	units insulated >= R-0.5. Preheat coils controlled to stop heat output whenever mechanical cooling, including	
5128 SYSTEM_SPECIF	6.5.3.2.2	Mechanical	economizer operation, is active. VAV fans have static pressure sensors positioned so setpoint <=1.2 in. w.c. design pressure.	
5149 SYSTEM_SPECIF	6.5.4.6	Mechanical	Chilled-water and condenser water piping sized according to design flow rate and total annual	
5162 SYSTEM_SPECIF	6.5.6.2	Mechanical	hours of operation (Table 6.5.4.6). Condenser heat recovery system that can heat water to 85 °F or provide 60% of peak heat rejection is installed for preheating of service hot	
5177 HVAC	6.5.7.2.4	Mechanical	water. Approved field test used to evaluate design air flow rates and demonstrate proper capture and	
5181 SYSTEM_SPECIF	6.5.9	Mechanical	containment of kitchen exhaust systems. Hot gas bypass limited to: <=240 kBtu/h – 15%	
5182 HVAC	6.4.3.9	Mechanical	>240 kBtu/h – 10% 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 s	
5184 Controls	6.5.10	Mechanical	Doors separating conditioned space from the outdoors have controls that disable/reset heating and cooling system when open.	
5192 Controls	9.4.1.1 except(g)	Interior Lighting	Automatic control requirements prescribed in Table 9.6.1, for the appropriate space type, are installed. Mandatory lighting controls (labeled as 'REQ') and optional choice controls (labeled as	
5193 Controls	9.4.1.1 except(g)	Interior Lighting	'ADD1' and 'ADD2') are implemented. Independent lighting controls installed per approved lighting plans and all manual controls	
5194 Controls	9.4.1.1f	Interior Lighting	readily accessible and visible to occupants. Daylight areas under skylights and roof monitors that have more than 150 W combined input power for general lighting are controlled by	
5198 Controls	9.4.1.4	Exterior Lighting	photocontrols. Automatic lighting controls for exterior lighting installed.	
5199 Controls	9.4.1.3	Interior Lighting	Separate lighting control devices for specific uses installed per approved lighting plans.	
5200 Wattage	9.6.2	Interior Lighting	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated	
5202 Wattage	9.6.4	Interior Lighting	from general lighting. Where space LPD requirements are adjusted based on room cavity ratios, dimensions are	
5203 Insulation	4.2.4	Envelope	consistent with approved plans. Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during	
5204 Insulation	5.8.1.2, 5.8.1.3	Envelope	Framing Inspection. Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the ceiling slope is <= 3:12.	

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5209 Insulation	5.8.1.1	Envelope	Building envelope insulation is labeled with R-value or insulation certificate has been provided	
5210 Insulation	5.8.1.9	Envelope	listing R-value and other relevant data. Building envelope insulation extends over the full area of the component at the proposed rated R or	
5211 Insulation	5.8.1.4	Envelope	U value. Eaves are baffled to deflect air to above the insulation.	
5212 Insulation	5.8.1.5	Envelope	Insulation is installed in substantial contact with the inside surface separating conditioned space	
5213 Insulation	5.8.1.6	Envelope	from unconditional space. Recessed equipment installed in building envelope assemblies does not compress the	
5214 Insulation	5.8.1.7.1	Envelope	adjacent insulation. Attics and mechanical rooms have insulation protected where adjacent to attic or equipment	
5215 Insulation	5.8.1.7.2	Envelope	access. Foundation vents do not interfere with insulation.	
5216 Insulation	5.8.1.8	Envelope	Insulation intended to meet the roof insulation requirements cannot be installed on top of a suspended ceiling. Mark this requirement	
5218 SYSTEM_SPECIF	6.4.3.1.1	Mechanical	compliant if insulation is installed accordingly. Heating and cooling to each zone is controlled by a thermostat control.	
5219 HVAC	6.4.3.1.2	Mechanical	Thermostatic controls have a 5 °F deadband.	
5222 HVAC	6.4.3.2	Mechanical	Temperature controls have setpoint overlap restrictions.	
5223 HVAC	6.4.3.3.1	Mechanical	HVAC systems equipped with at least one automatic shutdown control.	
5235 SYSTEM_SPECIF	6.4.3.5	Mechanical	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	
5236 SYSTEM_SPECIF	6.4.3.12	Mechanical	Air economizer has a fault detection and diagnostics (FDD) system (see details for	
5237 HVAC	6.4.3.6	Mechanical	configuration and operational requirements). When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited. Humidity control prohibits the use of fossil fuel or electricity to produce RH > 30% in the warmest zone humidified and RH < 60% in	
5243 SYSTEM_SPECIF	7.4.4.3	Mechanical	the coldest zone deh Public lavatory faucet water temperature <=110°F.	
5244 SYSTEM_SPECIF	7.4.4.4	Mechanical	Controls are installed that limit the operation of a recirculation pump installed to maintain	
5245 SYSTEM_SPECIF	7.4.5.1	Mechanical	temperature of a storage tank. Pool heaters are equipped with on/off switch and no continuously burning pilot light.	
5246 SYSTEM_SPECIF	7.4.5.2	Mechanical	Pool covers are provided for heated pools and pools heated to >90°F have a cover >=R-12.	
5248 SYSTEM_SPECIF	7.4.5.3	Mechanical	Time switches are installed on all pool heaters and pumps.	
5253 Wattage	9.2.2.3	Interior Lighting	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	
5256 SYSTEM_SPECIF	7.4.3	Mechanical	All piping in recirculating system insulated	
5257 SYSTEM_SPECIF	7.4.3	Mechanical	First 8 ft of outlet piping in nonrecirculating storage system, or branch piping connected to recirculated, heat traced, or impredance heated piping is insulated.	
5258 SYSTEM_SPECIF	7.4.3	Mechanical	piping is insulated. All heat traced or externally heated piping insulated	
5273 Wattage	9.4.4	Interior Lighting	At least 75% of all permanently installed lighting fixtures in dwelling units have >= 55 lm/W efficacy or a >= 45 lm/W total luminaire efficacy.	

		Certificat	te of Occupancy	
5007 Plan Review	6.7.2.4	Mechanical	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft2.	
5008 Plan Review	6.7.2.4	Mechanical	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft2.	
5239 Post Construction	6.7.2.1	Mechanical	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	
5240 Post Construction	6.7.2.2	Mechanical	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	
5241 Post Construction	6.7.2.3	Mechanical	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft2 of conditioned area.	
5242 HVAC	6.7.2.4	Mechanical	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	
5251 Post Construction	8.7.1	Interior Lighting	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	
5252 Post Construction	8.7.2	Interior Lighting	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	

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