COMcheck Software Version 4.1.5.1 Mechanical Compliance Certificate

Project Information

Energy Code:	90.1 (2016) Standard
Project Title:	OSCI VISITING
Location:	Portland, Oregon

Climate Zone: 40

Project Type: New Construction

Construction Site: 3405 DEER PARK DR SALEM, OR 97310 Owner/Agent:

Designer/Contractor:
Mark Denyer
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2007 SE Ash St
Portland, OR 97214
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Mechanical Systems List

Quantity System Type & Description

1 RTU-1 (Multiple-Zone):

Single Package Heat Pump Heating Mode: Capacity = 146 kBtu/h,

Proposed Efficiency = 3.25 COP, Required Efficiency = 3.20 COP

Cooling Mode: Capacity = 244 kBtu/h, , Air Economizer

Proposed Efficiency = 10.80 EER, Required Efficiency: 9.50 EER + 10.6 IEER Fan System: VISITING | VISITING -- Compliance (Brake HP method): Passes

Fans

FAN 1 Supply, Multi-Zone VAV, 7200 CFM, 10.0 motor nameplate hp, 8.8 design brake hp (8.8 max. BHP), 90.0 fan efficiency grade

FAN 2 Exhaust, Multi-Zone VAV, 7200 CFM, 7.5 motor nameplate hp, 0.5 design brake hp (6.0 max. BHP), 90.0 fan efficiency grade

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2016) Standard requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Mark Denyer	in the stanger	7-8-21
Name - Title	Signature	Date

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COMcheck Software Version 4.1.5.1 Inspection Checklist

Energy Code: 90.1 (2016) Standard

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2, 6.4.4.2.1, 6.7.2 [PR2] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
4.2.2, 8.4.1.1, 8.4.1.2, 8.7 [PR6] ²	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 with approved plans and branch circuits sized for maximum drop of 3%.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
6.7.2.4 [PR5] ¹	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft2.	□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
6.4.3.7 [FO9] ³	Freeze protection and snow/ice melting system sensors for future connection to controls.	□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.1.4, 6.4.1.5 [ME1] ²	HVAC equipment efficiency verified. Non-NAECA HVAC equipment labeled as meeting 90.1.	Efficiency:	Efficiency:	□Complies □Does Not □Not Observable □Not Applicable	See the Mechanical Systems list for values.
6.4.3.4.1 [ME3] ³	Stair and elevator shaft vents have motorized dampers that automatically close.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Exception: Requirement does not apply.
6.4.3.4.2, 6.4.3.4.3 [ME4] ³	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.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CUT SHEET/SCHEDULE
6.4.3.4.5 [ME39] ³	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.			□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.
6.4.3.4.4 [ME5] ³	Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
6.4.3.8 [ME6] ¹	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.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: SEE PLANS AND DELTA CONTROLS & CUT SHEET
6.5.3.2.1 [ME40] ²	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 comply with operational requirements.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. See the Mechanical Systems list for values.
6.4.4.1.1 [ME7] ³	Insulation exposed to weather protected from damage. Insulation outside of the conditioned space and associated with cooling systems is vapor retardant.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: SEE SPECS
6.4.4.1.2 [ME8] ²	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 during Foundation Inspection.	R	R	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
6.4.4.1.3 [ME9] ²	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	in.	in.	□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.

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	1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.4.1.4 [ME41] ³	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.			□Complies □Does Not	Exception: Requirement does not apply.
				□Not Observable □Not Applicable	
6.4.4.2.1 [ME10] ²	Ducts and plenums having pressure class ratings are Seal Class A construction.			□Complies □Does Not	Requirement will be met.
	Class A Collstituction.			□Not Observable □Not Applicable	
6.5.2.1 [ME17] ¹	Zone controls can limit reheating, recooling, simultaneous heating			☐Complies ☐Does Not	Requirement will be met.
	and cooling and sequence heating and cooling to each zone.			□Not Observable □Not Applicable	Location on plans/spec: PLANS
6.5.2.3 [ME19] ³	Dehumidification controls provided to prevent reheating,			□Complies □Does Not	Requirement will be met.
	recooling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			□Not Observable □Not Applicable	
6.5.2.4.1 [ME68] ³	Humidifiers with airstream mounted preheating jackets have preheat auto-shutoff value set to			☐Complies ☐Does Not	Exception: Requirement does not apply.
	activate when humidification is not required.			□Not Observable □Not Applicable	
6.5.2.4.2 [ME69] ³	Humidification system dispersion tube hot surfaces in the airstreams of ducts or air-			□Complies □Does Not	Exception: Requirement does not apply.
	handling units insulated >= R- 0.5.			□Not Observable □Not Applicable	
6.5.2.5 [ME70] ³	Preheat coils controlled to stop heat output whenever			☐Complies ☐Does Not	Requirement will be met.
	mechanical cooling, including economizer operation, is active.			□Not Observable □Not Applicable	1 1 1 1 1
6.4.3.10 [ME75] ³	DDC system installed and capable of and configured to			□Complies □Does Not	Requirement will be met.
	provide control logic including monitoring zone and system demand for fan pressure, pump			□Not Observable □Not Applicable	Location on plans/spec: DELTA CONTROLS
	pressure, heating, and cooling; transferring zone and system demand information from zones				
	to air distribution system controllers and from air				
	distribution systems to heating and cooling plant controllers; automatically detecting and				
	alerting system operator when zones and systems excessively				
	drive the reset logic; allow operator removal of zone(s) from the reset algorithm; AND capable				
	of trending and graphically displaying input and output points.				

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.2.6 [ME106] ³	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 temperature indicate that most zones demand cooling.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CONTROLS
6.5.3.1.1 [ME52] ³	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
6.5.3.1.2 [ME21] ²	HVAC fan motors not larger than the first available motor size greater than the bhp.	bhp:	bhp:	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: PLANS
6.5.3.1.3 [ME74] ²	Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CUT SHEET
6.5.3.6 [ME72] ²	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 remote control.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CUT SHEET
6.5.3.4 [ME108] ²	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 is activated; and c) 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 through primary air.			□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.

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Section #	Mechanical Rough-In	Plans Verified	Field Verified	Complies?	Comments/Assumptions
& Req.ID	Inspection	Value	Value		
6.5.3.7 [ME109] ²	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 following: a) design minimum system outdoor air provided < 135% of the required minimum outdoor air rate, b) dampers, ductwork, and controls allow the system to supply <= the required minimum outdoor air rate with a single set-point adjustment., or c) system includes exhaust air energy recovery complying with Section 6.5.6.1.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CUT SHEET
6.5.3.2.2 [ME23] ²	VAV fans have static pressure sensors positioned so setpoint <=1.2 in. w.c. design pressure.			□Complies □Does Not □Not Observable □Not Applicable	Exception: Systems with DDC of individual boxes reporting to the central control panel and reset of static pressure setpoint based on the zone requiring the most pressure. Location on plans/spec: DELTA CONTROLS
6.5.3.2.3 [ME24] ²	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 override of zones excessively triggering reset logic.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: DELTA CONTROLS
6.5.3.2.4 [ME102] ²	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 damper position. Fans have variable speed control or other devices for managing total return/relief fan system demand per section threshold.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: DELTA CONTROLS
6.5.3.3 [ME42] ³	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: DELTA CONTROLS See the Mechanical Systems list for values.

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.5.3.5 [ME43] ³	Multiple zone HVAC systems have supply air temperature			□Complies □Does Not	Requirement will be met.
	reset controls.			□Not Observable □Not Applicable	Location on plans/spec: DELTA CONTROLS
					See the Mechanical Systems list for values.
5.5.4.2 ME25] ³	HVAC pumping systems with >= 3 control values designed for variable fluid flow (see section			□Complies □Does Not	Exception: Requirement does not apply.
	details).			□Not Observable □Not Applicable	
5.5.6.1 ME56] ¹	Exhaust air energy recovery on systems meeting Tables 6.5.6.1-			□Complies □Does Not	Exception: Requirement does not apply.
	1, and 6.5.6.1-2.			□Not Observable □Not Applicable	
5.5.7.1 ME100] ²	Conditioned supply air to space with mechanical exhaust <= the			□Complies □Does Not	Requirement will be met.
	greater of criteria of supply flow, required ventilation rate, exhaust flow minu the available transffer air (see section details).			□Not Observable □Not Applicable	Location on plans/spec: SEE PLANS FOR CONTROL SET POINTS
5.5.7.2.1 ME32] ²	Kitchen hoods >5,000 cfm have make up air >=50% of exhaust			☐Complies ☐Does Not	Exception: Requirement does not apply.
	air volume.			□Not Observable □Not Applicable	
5.5.7.2.2 ME47] ³	Kitchen hoods with a total exhaust airflow rate >5000 cfm			□Complies □Does Not	Exception: Requirement does not apply.
	meet replacement air, ventilation system, or energy recovery requirements shown in Table 6.5.7.1.3.			□Not Observable □Not Applicable	
5.5.7.2.3 ME48] ³	Kitchen hoods with a total exhaust airflow rate >5000 cfm meet replacement air, ventilation			☐Complies ☐Does Not ☐Not Observable	Exception: Requirement does not apply.
	system, or energy recovery requirements.			□Not Observable □Not Applicable	
5.5.7.2.4 ME49] ³	Approved field test used to evaluate design air flow rates			□Complies □Does Not	Exception: Requirement does not apply.
	and demonstrate proper capture and containment of kitchen exhaust systems.			□Not Observable □Not Applicable	
5.5.8.1 ME34] ²	Unenclosed spaces that are heated use only radiant heat.			☐Complies ☐Does Not	Exception: Requirement does not apply.
				□Not Observable □Not Applicable	
5.4.3.9 ME63] ²	Heating for vestibules and air curtains with integral heating			□Complies □Does Not	Exception: Requirement does not apply.
	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.			□Not Observable □Not Applicable	
5.5.10 ME73] ³	Doors separating conditioned space from the outdoors have controls that disable/reset heating and cooling system when			□Complies □Does Not □Not Observable	Requirement will be met.
	open.			□Not Applicable	

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3 Low Impact (Tier 3)



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Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10] ²	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
8.4.3 [EL11] ²	New buildings have electrical energy use measurement devices installed. Where tenant spaces exist, each tenant is monitored separately. In buildings with a digital control system the energy use is transmitted to to control system and displayed graphically.	□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.
10.4.1 [EL9] ²	Electric motors meet requirements where applicable.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: CUT SHEET

Additional Comments/Assumptions:

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.1 [FI2] ²	Heating and cooling to each zone is controlled by a thermostat control.	□Complies □Does Not □Not Observable	Requirement will be met. Location on plans/spec: SEE PLANS
		□Not Applicable	
6.4.3.1.2 [FI3] ³	Thermostatic controls have a 5 °F deadband.	\square Complies \square Does Not	Requirement will be met.
		□Not Observable □Not Applicable	
6.4.3.2 [FI20] ³	Temperature controls have setpoint overlap restrictions.	\square Complies \square Does Not	Requirement will be met.
		□Not Observable □Not Applicable	
6.4.3.3.1 [FI21] ³	HVAC systems equipped with at least one automatic shutdown control.	\square Complies \square Does Not	Requirement will be met.
		□Not Observable □Not Applicable	Location on plans/spec: DELTA CONTROLS
6.4.3.3.2 [FI22] ³	Setback controls allow automatic restart and temporary operation as	□Complies □Does Not	Requirement will be met.
	required for maintenance.	□Not Observable □Not Applicable	Location on plans/spec: CONTROLS
6.4.3.3.4 [FI23] ³	Zone isolation devices and controls.	□Complies □Does Not	Requirement will be met.
		□Not Observable □Not Applicable	Location on plans/spec: CUT SHEET
6.4.3.5 [FI5] ³	Heat pump controls prevent supplemental electric resistance heat	\square Complies \square Does Not	Requirement will be met.
	from coming on when not needed.	□Not Observable □Not Applicable	Location on plans/spec: DELTA CONTROLS
6.4.3.12 [FI200] ³	Air economizer has a fault detection and diagnostics (FDD) system (see	□Complies □Does Not	Requirement will be met.
	details for configuration and operational requirements).	□Not Observable □Not Applicable	Location on plans/spec: CUT SHEET
6.4.3.6 [FI6] ³	When humidification and dehumidification are provided to a	□Complies □Does Not	Requirement will be met.
	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 the coldest zone dehumidified.	□Not Observable □Not Applicable	
6.7.2.1 [FI7] ³	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	□Complies □Does Not	Requirement will be met.
	acceptance.	□Not Observable □Not Applicable	
6.7.2.2 [FI8] ³	Furnished O&M manuals for HVAC systems within 90 days of system	\square Complies \square Does Not	Requirement will be met.
	acceptance.	□Not Observable □Not Applicable	
6.7.2.3 [FI9] ¹	An air and/or hydronic system balancing report is provided for HVAC	□Complies □Does Not	Exception: Requirement does not apply.
	systems serving zones >5,000 ft2 of conditioned area.	□Not Observable □Not Applicable	

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
6.7.2.4 [FI10] ¹	calibration and adjustment of controls	\square Complies \square Does Not	Requirement will be met. Location on plans/spec: CX IN CONTRACT
		□Not Observable □Not Applicable	
10.4.3 [FI24] ²	proper lighting, ventilation power, and	□Complies □Does Not	Exception: Requirement does not apply.
		□Not Observable □Not Applicable	

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