



Mechanical Compliance Certificate

90.1 (2007) Standard

Section 1: Project Information

Project Type: **New Construction**

Project Title : Evolution Rock and Fitness

Construction Site:

65 Warren Avenue
Portland, ME 04103
Permit No. 2014-00728
Permit Date: 6/12/2014

Owner/Agent:

Hilary Harris
Evolution Portland Properties, LLC
10 Langdon Ave
Concord, NH 03301
603-715-9171
hilary@evorock.com

Designer/Contractor:

Mike Richard
WH Demmons, Inc
93 Warren Ave
Portland, ME 04103
207-321-5882
Mrichard@whdemmons.com

Section 2: General Information

Building Location (for weather data):

Portland, Maine

Climate Zone:

6a

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 HVAC System 1 (Single Zone) :
Heating: 1 each - Central Furnace, Gas, Capacity = 400 kBtu/h
Proposed Efficiency = 81.00% Ec, Required Efficiency = 80.00% Ec
Cooling: 1 each - Single Package DX Unit, Capacity = 295 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.60 EER, Required Efficiency = 9.80 EER
Fan System: RTU-1 | Climbing Gym -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 10000 CFM, 7.5 motor nameplate hp
- 1 HVAC System 2 (Single Zone) :
Heating: 1 each - Central Furnace, Gas, Capacity = 130 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency = 80.00% Et
Cooling: 1 each - Single Package DX Unit, Capacity = 61 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 15.00 SEER, Required Efficiency = 13.00 SEER
Fan System: RTU-2 | Entry, Front Office, Locker Rooms -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 2000 CFM, 1.0 motor nameplate hp
- 1 HVAC System 3 (Single Zone) :
Heating: 1 each - Central Furnace, Gas, Capacity = 120 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency = 80.00% Et
Cooling: 1 each - Single Package DX Unit, Capacity = 38 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 15.00 SEER, Required Efficiency = 13.00 SEER
Fan System: RTU-3 | Aerobics -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 1200 CFM, 1.0 motor nameplate hp
- 1 Water Heater 1:
Gas Storage Water Heater, Capacity: 60 gallons, Input Rating: 199 Btu/h
Proposed Efficiency: 92.00 % Et, Required Efficiency: 80.00 % Et

Section 5: 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 (2007) Standard requirements in COMcheck Version 3.9.3 and to comply with the mandatory requirements in the Requirements Checklist.

MIKE RICHARD P.E.
Name - Title VP ENGINEERING

Michael S. Richard
Signature

6-30-14
Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation and performance data for each equipment provided to the owner within 90 days after system acceptance.
- HVAC O&M documents for all mechanical equipment and system provided to the owner within 90 days after system acceptance.
- Written HVAC balancing report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



COMcheck Software Version 3.9.3

Inspection Checklist

Energy Code: 90.1 (2007) 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.

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

90.1 (2007) Standard	Plan Review	Complies?	Comments/Assumptions
4.2.2, 6.4.2 [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.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2, 7.4.1 [PR3] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> 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 ft ² .	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> 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)
------------------------	--------------------------	-----------------------

90.1 (2007) Standard	Footing / Foundation Inspection	Complies?	Comments/Assumptions
6.4.3.8 [FO9] ³	Freeze protection and snow/ice melting system sensors for future connection to controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> 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)
------------------------	--------------------------	-----------------------

90.1 (2007) Standard	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
7.4.3 [PL1] ²	Service hot-water piping systems insulated. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Water Heater 1.</i>
7.4.4.1 [PL2] ³	Temperature controls installed on service water heating systems (<=120°F to maximum temperature for intended use).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Water Heater 1.</i>
7.4.6 [PL4] ³	Heat traps installed on non-circulating storage water tanks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Water Heater 1.</i>

Additional Comments/Assumptions:

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

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: ____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> 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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.3.4.2, 6.4.3.4.3, 6.4.3.4.4 [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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Gravity dampers acceptable in systems with outside or exhaust air flow rates less than 300 cfm where dampers are interlocked with fan.
6.4.3.4.5 [ME5] ³	Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.9 [ME6] ¹	Demand control ventilation provided for spaces >500 ft ² and >40 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.2 [ME8] ²	HVAC ducts and plenums insulated.	R- ____	R- ____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Ducts/plenums located in heated, semi-heated, or cooled spaces.
6.4.4.1.3 [ME9] ²	HVAC piping insulation thickness.	____ in.	____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Piping within HVAC equipment.
6.4.4.2.1 [ME10] ²	Ducts and plenums sealed based on static pressure and location.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for HVAC System 1.
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for HVAC System 2.
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for HVAC System 3.

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

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.1, 6.5.1.1.1, 6.5.1.1.2, 6.5.1.1.3, 6.5.1.3 [ME12] ¹	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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for HVAC System 1.
6.5.2.3 [ME19] ³	Dehumidification controls provided to prevent reheating, recooling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.4.1 [ME25] ³	HVAC pumping systems >10 hp designed for variable fluid flow.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.6.1 [ME30] ¹	Exhaust air energy recovery on systems >=5,000 cfm and 70% of design supply air.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Systems serving spaces that are not cooled and heated to 60°F.
6.5.7.1 [ME32] ²	Kitchen hoods >5,000 cfm have make up air >=50% of exhaust air volume.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.7.2 [ME33] ¹	Fume hoods exhaust systems >=15,000 cfm have VAV hood exhaust and supply systems, direct make-up air or heat recovery.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.8.1 [ME34] ³	Unenclosed spaces that are heated use only radiant heat.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.9 [ME35] ¹	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for HVAC System 1.
6.5.9 [ME35] ¹	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for HVAC System 2.
6.5.9 [ME35] ¹	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for HVAC System 3.
7.4.2 [ME36] ²	Service water heating equipment meets efficiency requirements.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for Water Heater 1.

Additional Comments/Assumptions:

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

90.1 (2007) Standard	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
10.4.1 [EL9] ²	Electric motors meet requirements where applicable.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

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

90.1 (2007) Standard	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.1 [FI2] ²	Heating and cooling to each zone is controlled by a thermostat control.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.1.2, 6.4.3.2, 6.4.3.3, 6.4.3.3.1, 6.4.3.3.2 [FI3] ²	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.7 [FI6] ³	When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.1 [FI7] ³	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.2 [FI8] ³	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.3 [FI9] ¹	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft ² of conditioned area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.4 [FI10] ¹	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
7.4.4.3 [FI11] ³	Public lavatory faucet water temperature ≤110°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Water Heater 1.</i>
6.4.3.2 [FI20] ¹	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.1 [FI21] ¹	HVAC systems equipped with at least one automatic shutdown control.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.2 [FI22] ¹	Setback controls allow automatic restart and temporary operation as required for maintenance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

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