SPECIFICATIONS

1.01 GENERAL MECHANICAL

A. Furnish materials and labor necessary to deliver to the Owner a complete and operable system installed in accordance with the contract documents.

B. Submit shop drawings, manufacturers' data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section.

C. Provide information sufficiently in advance of this work, so that work by the other trades may be coordinated and installed without delays. Furnish and locate sleeves, supports, anchors and necessary access panels.

D. Obtain necessary permits and licenses, give notices and comply with laws, ordinances, rules, regulations or orders affecting the work, and pay fees and charges in connection therewith.

E. Work and materials shall conform to the latest rules and regulations and these rules and regulations hereby are made part of this specification.

F. Upon completion of the work and before applying for final payment, furnish a written guarantee, stating that the work complies with the provisions of codes and the local enforcing authorities, and that it will be free from defects of material and workmanship for not less than one (1) year. Guarantee shall further state that the Contractor will, at his own expense, repair or replace any of his material and work which may become defective during the time of guarantee, together with other work damaged as a consequence of such defects.

G. Equipment schedules shall serve as the basis of design for the products used, or equal.

1.02 DUCTWORK, PIPING AND ACCESSORIES

A. Ductwork shall be galvanized steel conforming to ASTM A527, weight of galvanized coating shall be not less than 1-1/4 ounces total for both sides of one sq.ft. of a sheet. Construction, metal gage, and reinforcements shall conform with SMACNA "Duct Construction Standards" and NFPA 90A for 2" W.G. pressure class. Fittings shall be constructed in accordance with SMACNA Standards and shall be of the types indicated (ONLY). Longitudinal joints shall be Pittsburgh lockseam (ONLY). Button punch snap locks are not acceptable. Joints shall be sealed to SMACNA seal class B with Hardcast Duct Seal 321 water based indoor/outdoor sealant. Exposed ductwork shall be double wall.

B. Motor operated dampers shall be Ruskin model CD60, ultra low leak or equal. Actuators shall be Duradrive or equal. Provide where noted on drawings and in ERV intake and exhaust ducts.

C. Louvers shall be Ruskin ELF6375DX or equal.

D. Backdraft dampers shall be Ruskin model CBD2 or equal, aluminum frame and blades, extruded vinyl edge seals, field set at 0.10inwg pressure differential for full open operation.

E. Volume dampers shall be Ruskin model MD-35 (rectangular) or model MDRS25 (round) with locking quadrant.

F. Acoustical duct liner shall be 1" Type AP Armaflex SA elastomeric unicellular, no fiberglass.

G. Refrigerant piping shall be ACR, Type K or Type L copper tubing and fittings, brazed or soldered joints. Coordinate requirements with Manufacturer.

1.03 PLUMBING PIPING

A. Sanitary, Vent and Condensate Piping shall be Schedule 40 PVC with solvent welded joints.

B. Domestic Water Piping shall be Type L copper tubing with wrought copper solder fittings.

C. Gas Piping shall be Schedule 40 carbon steel pipe conforming to ASTM 120 or A53 with threaded joints and malleable iron fittings.

1.04 PLUMBING FIXTURES

A. (P-1) Tank Type Water Closet: Toto Eco-Drake CST744EL or equal with commercial weight closed front seat with cover.

B. (P-1A) ADA Tank Type Water Closet: Toto Eco-Drake CST744EL or equal with commercial weight closed front seat with cover.

C. (P-1B) ADA Tank Type Water Closet: Toto Eco-Drake CST744EL or equal with commercial weight open front seat.

D. (P-2) Drop-in Lavatory:

E. (P-2A) ADA Drop-in Lavatory:

F. (P-2B) ADA Wall Hung Lavatory: Toto LT307.4 or equal, 20"x18" with Symmons S-20-2-FR faucet and perforated grid strainer.

G. (P-2C) Wall Hung Lavatory:

H. (P-3) 36x36 Stall Shower:

I. (P-3A) 30x60 Stall Shower:

J. (P-3B) Tub Shower:

K. (P-3C) ADA 36x36 Stall Shower:

L. (P-4) ADA Single Bowl SS Sink: Elkay LRAD2521 or equal, 25"x21"x6", stainless steel, 4 faucet holes with Symmons S-23-2-10 single handle faucet and side spray.

M. (P-4A) Double Bowl SS Sink:

N. (P-4B) ADA Double Bowl SS Sink:

O. (P-4C) ADA Double Bowl SS Sink:

P. (P-4D) Single Bowl SS Sink:

Q. (P-5) Washing Machine Hookup:

R. (P-6) Mop Sink:

S. (P-7) Ice Maker Box:

T. (FD) Floor Drain:

1.05 SEQUENCE OF OPERATIONS

A. Air Handling System (RTU):

1. Occupied/unoccupied schedule shall be determined by a 7-day programmable timeclock.
2. During the occupied mode, the outside air motorized dampers shall be open to minimum position (25%, 400cfm) and the supply fan shall run conitnuously. Heating or cooling mode shall be determined by the wall mounted thermostat. When there is no call for heating/cooling, the unit shall maintain a neutral discharge air temperature by modulating the gas furnace or cycling the dx cooling.
3. Economizer cooling shall be the first stage of cooling. The backdraft barometric dampers shall open as required to relieve building pressure (adj).
4. During the unoccupied mode, the outside air motorized dampers shall remain closed and the system shall cycle as required to maintain the setback schedule.
5. Smoke detection: Duct smoke detectors shall de-energize the unit upon detection of smoke.

B. Energy Recovery Ventilator (ERV):

1. Occupied/unoccupied schedule shall be determined by a 7-day programmable timeclock.
2. During the occupied mode, exhaust air and outside air motorized dampers shall open, supply and exhaust fans shall operate continuously.
3. Preheat Coil (PHC): Electric pre-heat coil shall energize as required to maintain minimum required entering air temperature at ERV-0 (10°F, verify w/ manufacturer).
4. Heating Coil (HC): Shall heat the air as required to maintain a 70F discharge air temperature.
5. Freeze Protection: A manual reset freezestat shall shutdown the fans and close the outside air and exhaust air dampers if the discharge air drops below 45F.
6. Motorized Dampers: Outside air and exhaust air motorized dampers shall close upon unit shutdown and open prior to energizing fans.

C. Exhaust Fans (EF):

1. EF-1 & EF-T2: Shall operate from the light switch.
2. EF-2: Shall operate from a programmable timeclock (occupied/unoccupied schedule).
3. EF-3: Shall operate based on a wall mounted cooling thermostat.
4. EF-4: Shall operate from a wall mounted motion sensor and speed controller.
5. EF-T1: Shall operate continuously on low speed and ramp up to high speed from integral motion sensor.
6. EF-G: Shall operate based on the Indoor Air Quality (IAQ) control panel (by Honeywell or equal).

C. Electric Heat (WH): Electric heat shall operate to maintain temperature based on the integral thermostat.

D. Hot Water Recirculation Pump (CP): Shall operate based on a pipe mounted aquastat, on at 110°F and off at 120°F.

E. Heat Pump Systems (HP, SCU): Shall operate from a wall mounted controller provided with the unit.

F. Gas Fired Unit Heater (GFUH): Shall operate to saitsfy wall mounted thermostat.

1.06 INSULATION

A. CW and Condensate Piping: 1/2" flexible unicellular.

B. HW and RHW Piping: 1" flexible unicellular.

B. Refrigerant Piping (interior): 3/4" flexible unicellular.

C. Refrigerant Piping (exterior): 3/4" flexible unicellular with jacketing.

D. Outside Air Ductwork: 3" fiberglass ductwrap with FSK.

E. Relief Air Ductwork (from damper to termination): 3" fiberglass ductwrap with FSK.

F. AHU Supply Air Ductwork: 1-1/2" fiberglass ductwrap with FSK.

FOR PERMIT 09-30-16

ALPHAarchitects
17 CHESTNUT STREET
PORTLAND, ME 04101
PHONE: 207.761.9500
FAX: 207.761.9595
design@alphaarchitects.com

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

Station 415
415 Cumberland Avenue
Portland, ME. 04101

JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	09-30-16

MECHANICAL SPECIFICATIONS

M4.6