

SPECIFICATIONS AND NOTES:

GENERAL

- CONTRACTOR SHALL VISIT THE SITE TO DETERMINE PRE-EXISTING CONDITIONS AND ALL WORK NECESSARY, PRIOR TO BIDDING. VERIFY ALL MEASUREMENTS AND EXISTING CONDITIONS IN THE FIELD. GENERAL SCHEMATIC LAYOUT IS INDICATED; ALL OFFSETS, OBSTRUCTIONS, AND EXISTING CONFIGURATIONS AND CONSTRAINTS MUST BE FIELD VERIFIED.
- OBTAIN NECESSARY PERMITS AND PAY ASSOCIATED FEES.
- COORDINATE ANY SERVICE DISRUPTIONS WITH THE OWNER.
- INSTALL ALL COMPONENTS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, ALL LOCAL CODES AND STANDARDS, AND UNUM PROVIDENT REQUIREMENTS.
- DRAWINGS ARE DIAGRAMMATIC ONLY; FIELD-VERIFY ALL EXISTING CONDITIONS. COORDINATE INSTALLATIONS WITH OTHER TRADES. COORDINATE ELECTRICAL POWER REQUIREMENTS FOR ALL MOTORS.
- THE INTENTION OF THESE CONTRACT DOCUMENTS IS TO CALL FOR FINISHED WORK, FULLY TESTED AND READY FOR OPERATION. ANY COMPONENTS OR LABOR NOT MENTIONED IN THE CONTRACT DOCUMENTS BUT REQUIRED FOR FUNCTIONING SYSTEMS SHALL BE PROVIDED. SHOULD THERE APPEAR TO BE ANY DISCREPANCIES OR QUESTIONS OF INTENT, THE CONTRACTOR SHALL REFER THE MATTER TO THE ARCHITECT FOR DECISION BEFORE START OF ANY RELATED WORK.
- PERFORM WORK IN ACCORDANCE WITH LOCAL CODES.
- SEAL ALL DUCT AND PIPE PENETRATIONS WITH FIRE SEALANT.
- OBSERVE THE OWNER'S CLEANLINESS PROTOCOLS.

PIPING

- ALL PIPING SHALL BE PRESSURE TESTED.
- SUPPORT WITH ADJUSTABLE CLEVIS HANGERS AND FLOOR SUPPORTS, WITH INSULATION SHIELDS. PROVIDE UNITSTRUT BETWEEN STRUCTURAL MEMBERS FOR PROPER HANGER SPACING IN ACCORDANCE WITH MSS SP-69. DO NOT EXCEED PIPING MANUFACTURER'S RECOMMENDED HANGER SPACING.
- MAKE PROVISIONS TO ACCOMMODATE THERMAL EXPANSION. REFER TO MANUFACTURER'S RECOMMENDATIONS.
- HYDRONIC PIPING: ASTM B 88, TYPE L, HARD DRAWN COPPER.
- BALL VALVES SHALL BE APOLLO SERIES 70-200 OR APPROVED EQUAL.
- PROVIDE DIELECTRIC CONNECTIONS BETWEEN FERROUS AND NON-FERROUS MATERIALS.

PLUMBING

- INSTALL IN ACCORDANCE WITH THE STATE OF MAINE INTERNAL PLUMBING RULES.
- DOMESTIC HOT AND COLD WATER: ASTM B88-89 TYPE L HARD DRAWN COPPER; SOLDER GRADE 95TA.
- DWV PIPING AND CONDENSATE DRAIN PIPING: CAST IRON, CISPI 301, HUBLESS. TWO INCH AND SMALLER MAY BE COPPER TUBE, TYPE L, COPPER FITTINGS, SOLDERED JOINTS.

PIPING INSULATION & LABELLING

- PROVIDE FIBERGLASS INSULATION WITH ALL SERVICE JACKETS, 25 FLAME SPREAD, 50 SMOKE DEVELOPED. DOMESTIC HOT WATER, HWS, AND HWR: 1" THICKNESS. DOMESTIC COLD WATER: 0.5" THICKNESS.
- PIPE-MARKING LABELS: FURNISH AND INSTALL IN ACCORDANCE WITH ANSI/OSHA REQUIREMENTS.

METAL DUCTWORK

- GALVANIZED STEEL DUCTWORK: ASTM A653 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, AND G90 ZINC COATING. ALL DUCTWORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. CONSTRUCT DUCT SYSTEMS SO THAT LEAKAGE DOES NOT EXCEED ONE PERCENT OF THE TOTAL AIR QUANTITIES. SEAL ALL DUCT JOINTS WITH GASKETED CONNECTIONS, DUCTMATE, OR EQUAL.
- DUCTWORK PRESSURE/SEAL CLASS:
 - SUPPLY DUCTWORK UPSTREAM OF VAV TERMINAL UNITS: 6 INCH/CLASS A.
 - SUPPLY DUCTWORK DOWNSTREAM OF VAV TERMINAL UNITS: 2 INCH/CLASS C.
 - INSULATE DUCTWORK WITH 1 1/2" FIBERGLASS BLANKET WITH VAPOR BARRIER JACKET EQUAL TO SCHULLER MICOLITE TYPE 75, ASTM C533, WITH FSK FACING.
 - PROVIDE VOLUME DAMPERS AT ALL BRANCH DUCTWORK.

INSULATED FLEXIBLE DUCTS

- ALUMINUM LAMINATE AND POLYESTER FILM WITH LATEX ADHESIVE SUPPORTED BY HELICALLY WOUND SPRING STEEL WIRE, FIBERGLASS INSULATION, POLYETHYLENE VAPOR BARRIER FILM. R VALUE = 4.2, UL 181, CLASS 1. MAXIMUM LENGTH: 5 FEET.

FIRE DAMPERS

- FABRICATE IN ACCORDANCE WITH NFPA 90A AND UL 555, WITH UL DYNAMIC RATING; 1 1/2 HOUR FIRE RATING; BLADES OUTSIDE OF AIRSTREAM.

SINGLE DUCT VAV TERMINAL UNIT

- DESIGN IS BASED ON TITUS SINGLE DUCT AIR VOLUME TERMINAL. PROVIDE TERMINAL UNIT OF SIZE AND CAPACITY SHOWN ON DRAWINGS.
- THE TERMINAL CASING SHALL BE MINIMUM 22 GAUGE GALVANIZED STEEL INTERNALLY LINED WITH FIBRE-FREE ENGINEERED POLYMER FOAM INSULATION, UL 181 AND NFPA 90A, MECHANICALLY FASTENED TO THE UNIT CASING.
- CONTROLS PROVIDED UNDER AUTOMATIC TEMPERATURE CONTROL SECTION.

AIRHANDLING UNIT

- UNIT MANUFACTURED BY THE TRANE COMPANY, YORK INTERNATIONAL CORPORATION, OR MCQUAY INTERNATIONAL. DESIGN IS BASED ON TRANE PACKAGED CLIMATE CHANGER.
- UNIT SHALL BE CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL. ALL WET SECTIONS AND ACCESS PANELS SHALL BE CONSTRUCTED OF SOLID DOUBLE WALL INSULATED PANELS. REMAINING SECTIONS SHALL HAVE 1-1/2" FOIL FACED FIBERGLASS INSULATION. PROVIDE HINGED ACCESS DOORS TO ENSURE ACCESS AND CLEANABILITY TO ALL SECTIONS OF THE UNIT. PROVIDE SEALED DOUBLE-WALL DRAIN PANS SLOPED IN TWO PLANES WITH STAINLESS STEEL INTERIOR.
- FAN SECTION: INTERNALLY ISOLATE FAN AND MOTOR. PROVIDE HIGH EFFICIENCY MOTOR, INSTALLED ON ADJUSTABLE BASE TO PERMIT ADJUSTMENT OF BELT TENSION.
- COILS SHALL BE CERTIFIED IN ACCORDANCE WITH ARI STANDARD 410.
- WATER COILS CONSTRUCTED OF ALUMINUM FINS AND SEAMLESS COPPER TUBES, PROOF TESTED TO 300 PSIG, LEAK TESTED TO 200 PSIG. HEADERS CONSTRUCTED OF ROUND COPPER PIPE OR CAST IRON.
- ANGLED FILTER MODULE SHALL HAVE FILTER RACK WITH 30% EFFICIENT PLEATED MEDIA FILTER.
- MIXING SECTION SHALL HAVE TWO LOW LEAK PARALLEL BLADE DAMPERS, EQUAL TO RUSKIN CD60.

SERVERY EXHAUST FAN

- DUCT MOUNTED, BELT DRIVEN CENTRIFUGAL SQUARE INLINE, UL LISTED, AMCA CERTIFIED.
- HOUSEING SHALL BE MINIMUM 18 GAUGE, WITH BAKED-ON POWDER-COAT PAINTED FINISH. GASKETED, BOLTED ACCESS DOORS SHALL BE LOCATED ON THREE SIDES.
- WHEEL SHALL BE BACKWARD INCLINED, ALUMINUM CONSTRUCTION.
- MOTOR SHALL BE HEAVY DUTY TYPE WITH PERMANENTLY LUBRICATED SEALED BALL BEARINGS (L50 LIFE IN EXCESS OF 200,000 HOURS). PROVIDE BELT GUARD.

AUTOMATIC TEMPERATURE CONTROLS

- EXTEND THE EXISTING ANDOVER CONTROL SYSTEM TO SERVE THE RENOVATED AREA. ALL NEW CONTROLS SHALL BE ELECTRONIC/DDC.
- PROVIDE COMPLETE CONTROLS FOR NEW HVAC SYSTEM SERVING THE SERVERY.
- PROVIDE VAV TERMINAL UNIT CONTROLS (24 VOLT).

SEQUENCE OF OPERATION

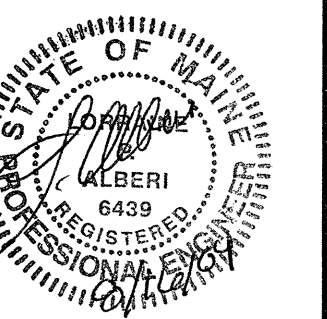
- SERVERY SYSTEM:
 - OCCUPIED MODE:
 - AHU-1 SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE REMOTE MOUNTED OUTSIDE AIR DAMPER SHALL OPEN FULLY. A DAMPER END-SWITCH SHALL SIGNAL ALARM IF THE DAMPER FAILS TO OPEN. THE HOT WATER VALVE, CHILLED WATER VALVE, AND ECONOMIZER DAMPERS SHALL MODULATE IN SEQUENCE TO MAINTAIN ROOM TEMPERATURE SETPOINT.
 - AHU-1 COOLING/ECONOMIZER: ON CALL FOR COOLING, THE OUTSIDE AIR DAMPER SHALL MODULATE BEYOND ITS MINIMUM POSITION IF THE ENTHALPY OF THE OUTSIDE AIR IS LOWER THAN THE RETURN AIR, AND THE CHILLED WATER VALVE SHALL BE SHUT. IF THE ENTHALPY OF THE OUTSIDE AIR EXCEEDS THE RETURN AIR, THE MIXED AIR DAMPERS SHALL REMAIN AT MINIMUM OUTSIDE AIR POSITIONS AND THE CHILLED WATER VALVE SHALL MODULATE TO ACHIEVE SETPOINT.
 - WHENEVER THE AIR HANDLER IS IN MECHANICAL COOLING MODE AND THE ROOM HUMIDITY RISES ABOVE SETPOINT, THE AIR HANDLER'S CHILLED WATER VALVE SHALL MODULATE OPEN TO PROVIDE DEHUMIDIFICATION AND THE HOT WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN ROOM TEMPERATURE SETPOINT.
 - EXHAUST FAN, EF-1: THE FAN SHALL OPERATE WHENEVER AHU-1 IS IN OCCUPIED MODE. THE DDC SHALL MODULATE THE FAN VFD, TRACKING THE OUTSIDE AIR DAMPER POSITION, EQUALIZING THE OUTSIDE AIR AND EXHAUST AIR QUANTITIES.
 - UNOCCUPIED MODE: AHU-1 SUPPLY FAN SHALL BE OFF, CHILLED WATER AND HOT WATER VALVES SHALL BE CLOSED, OUTDOOR DAMPER SHALL BE SHUT, EF-1 SHALL BE OFF.
- AHU-1 SAFETY DEVICES:
 - FREEZE PROTECTION: STOP FAN, CLOSED DAMPERS TO OUTSIDE AIR, AND OPEN HEATING VALVE IF TEMPERATURE DOWNSTREAM OF THE HEATING COIL IS BELOW 37 DEGREES F; SIGNAL ALARM.
 - SMOKE DETECTION: STOP FAN AND RETURN SYSTEM TO STOP MODE UPON A SIGNAL FROM THE FIRE ALARM SYSTEM.
- TRANSFORMER ROOM: THE VAV TERMINAL UNIT DAMPER SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE. IF ROOM TEMPERATURE EXCEEDS 95 DEGREES F, SIGNAL ALARM.

TESTING, ADJUSTING AND BALANCING (T-A-B)

- TEST, ADJUST, AND BALANCE EQUIPMENT AND DISTRIBUTION SYSTEMS IN ACCORDANCE WITH NEBB OR AABC PROCEDURAL STANDARDS. TESTS SHALL BE PERFORMED BY AN INDEPENDENT T-A-B AGENCY.
- T-A-B AHU-1 SUPPLY AIR, RETURN AIR, AND OUTSIDE AIR QUANTITIES.
- T-A-B EF-1.
- T-A-B NEW VAV TERMINAL UNIT MAXIMUM AND MINIMUM AIR QUANTITIES.
- T-A-B ALL NEW AND REVISED AIR INLETS AND OUTLETS. T-A-B ADJACENT AFFECTED AREAS IF REQUIRED.
- T-A-B HOT WATER AND CHILLED WATER SUPPLY TO AHU-1.



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**UNIMPROVIDENT CORPORATION
 HO-1 BEACON PHASE II**
 PORTLAND, MAINE

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SPECIFICATIONS

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