

PERMITS – This Contractor shall be responsible for providing and filing all Plans, Specifications and other documents, pay all requisite fees and secure all permits, inspections and approvals necessary for the legal installation and operation of the systems and/or equipment furnished under this Section of the Specifications. Permits shall be displayed as required by local requirements.

CODES AND ORDINANCES – All work performed shall be done in accordance with applicable National, State and local Codes, Laws and Ordinances.

ELECTRONIC PLANS – Plans and specifications may be made available in electronic format on request. Plans may be provided in either Adobe (.pdf) or CAD (.dwg or .dxf) formats and will be compressed using WinZip (.zip format). Recipient is responsible to obtain the necessary software to open the files. Note: CAD (.dwg and .dxf) files will be made available to successful bidders only after a contract is awarded. CAD drawings are produced with AutoCAD and will be provided in the 2010 file format. Upon request for CAD files a release form will be provided which must be signed and returned to the Engineer prior to transmission of electronic files. Physical mailing address, telephone numbers and e-mail address for this office are indicated on each drawing. A signed release will not be required for Adobe based files. E-mail requests may be made at rob@mechanicalsystemseng.com

SHOP DRAWINGS – Submittals shall be reviewed for performance only. Contractor is obligated to ensure equipment will fit within the space(s) provided prior to submission. Submit all shop drawings electronically in .pdf format. Paper copies will not be accepted. Submittals shall be not less than 300 dpi resolution and not more than 600 dpi. Submittals shall have no security in order to permit mark-ups. Submittals shall include a cover letter indicating project name, date, product submitted, name of contractor, name of vendor and contact phone numbers. Submittals shall be reviewed by the Engineer and returned through the Architect. Any additional cost(s) resulting from the substitution of equipment, regardless of acceptance by the Architect or Engineer, shall be the responsibility of this contractor. Additional costs may include, but not be limited to, electrical and/or structural alterations from the contract documents.

PIPING – Type "L" copper tube with soldered fittings. Use dielectric fittings for connecting copper to existing steel. Copper band type hangers, Carpenter & Patterson Figure 1A CT

PEX – Type "A" PEX tubing, ASTM F876 & ASTM F877. Hangers, supports and connectors to copper pipe to be supplied by the tubing manufacturer. Do not use metallic hangers and supports. Tubing to be run joint-free from pipe mains to terminal devices.

VALVES – Full port ball valves with soldered ends, Watts B-6081

COMBINATION BALL VALVE & STRAINER (To new radiation in Public Computing 102) – Line size, Flow Design Model YCM

AUTOMATIC BALANCING VALVE – Combination preset balancing valve and ball valve. Line size, flow rate as shown on drawings, Flow Design Model ACM

AUTOMATIC AIR VENT – Taco 409 with field installed drain tube to floor.

BOILER LOW WATER CUT-OFF – Provide and install a secondary low water cut-off with manual reset in the main hot water supply pipe not lower than 6 inches below the top of the boiler. Device to be wired into main power supply to boiler to shut off power on low water condition. Taco LFM.

CIRCULATING PUMP P5 – Unit shall have ECM motor and not less than two speed, capacity as scheduled. Wilo TOP S.

FINNED RADIATION – Low profile, residential style, high output. Design Line Synergy (www.designlineonline.com)

EXHAUST FAN #3 – Ceiling type, capacity as scheduled. Cook Model GC-146 with white plastic grille and 100 series damper.

PADDLE FAN – Leading Edge Model 36201 with extended downrod to allow fan blades to clear sloped ceiling and solid state speed controller (with reversing switch) Model 12003.

CABINET UNIT HEATER – Trane Model FFBB02 vertical cabinet with top bar grille outlet, bottom (front) toe space inlet and internal 3 speed fan switch. Capacities as scheduled.

BOILER – Viessmann 200-W B2HA-80 natural gas unit with control and sensing devices, Model 120/80 low loss header, condensate neutralization unit, parallel pipe adapter to permit separate vent and combustion air piping. Electrical contractor to provide a service switch and duplex receptacle in the vicinity of the new boiler. Mechanical contractor shall continue from switch to power boiler and new injection pump. Wire system power through external low water cut-off device. Boiler installer shall provide and install interlock wiring between boiler and injection pump, temperature sensor in low loss header and outdoor air temperature sensor (to be located in a shaded area). Program boiler to provide reset water based on baseboard as the primary heat.

BOILER VENTING – All venting materials shall be AL29-4C stainless steel (do not use plastic or composite materials). Use rigid pipe where exposed in basement and above the chimney. Provide flexible pipe inside existing masonry chimney. Provide and install a weather cap above the chimney and a cap covering the entire top of the chimney to keep out weather, insects and rodents. Mechanically secure and seal cap to top of chimney.

CONDENSATE LIFT PUMP – Little Giant VCMA-15 Series. Capacity as noted on drawing M1.
DUCTWORK – Galvanized steel, galvanized steel in accordance with the latest SMACNA HVAC Duct Construction Standards for Metal and Flexible Duct Seal all joints and seams with VentureTape 1580, UL 181B-FX or equivalent. Flexible duct is not permitted.

AIR INTAKE WALL CAP – Aldes galvanized wall cap, Model 22 304 with insect screen (no flapper). Field paint exterior to match wall color.

AIR GRILLES – Titus 350FL without damper, 3/4 inch blade spacing, 35° front blade angle, front blades set horizontal.

FIRE DAMPERS – Fire dampers shall be installed where shown to comply with NFPA Code No. 90A and shall bear a U.L. label. Ruskin Model IBDT, Style G.

AIR CONDITIONING SYSTEMS – Provide separate pricing as ADD ALTERNATE #1. Furnish and install single zone air conditioning systems where shown. Capacities shall be as scheduled. Each system shall consist of an outdoor condensing unit, indoor wall mounted ductless evaporator unit, refrigerant piping and controls. Systems shall be Mitsubishi Electric Model MSY indoor units and Model MUJ outdoor units. Provide outdoor mounting pads with units mounted at grade. Controls shall consist of hand held remote controllers.

METALLIC HEATING PIPE INSULATION – Insulate all new metallic heating piping with heavy density fiberglass pipe insulation with 850°F. temperature rating and factory applied self sealing ASJ jacket. Maximum "k" factor of 0.23 at 75°F. mean temperature difference per ASTM C 518. Owens Corning SSL II, Johns Manville Micro-Lok HP or approved equal. Thickness shall be 1 1/2 inches.

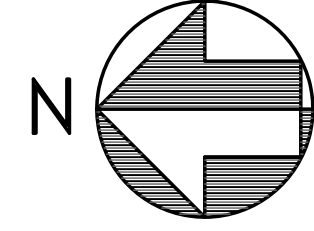
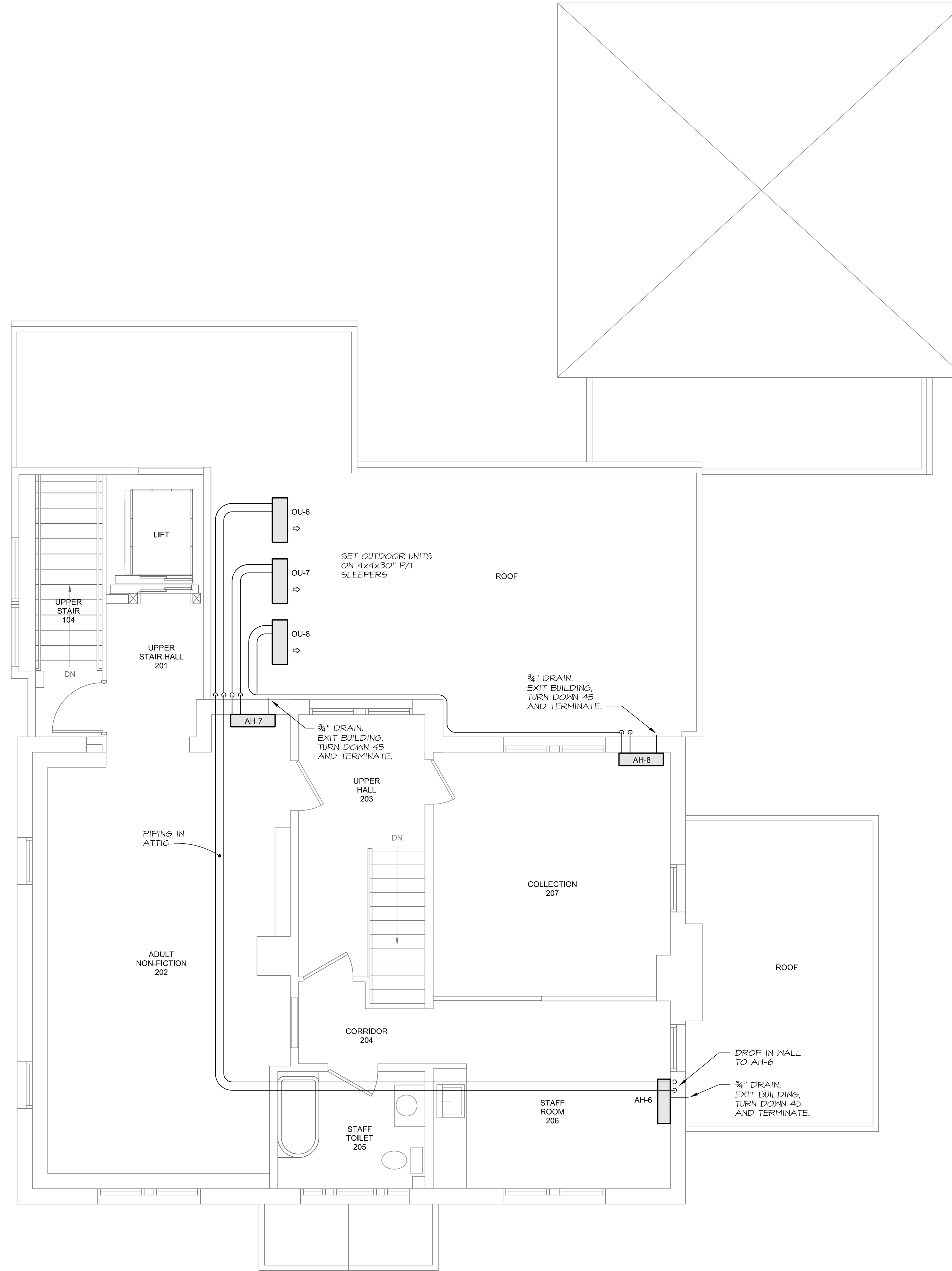
REFRIGERANT PIPE AND PEX TUBING INSULATION – Insulate all new PEX tubing and refrigerant suction (gas) piping with flexible, closed cell elastomeric thermal insulation. Material shall be 25/50 rated (flame spread rating of 25 or less and smoke developed rating of 50 or less) when tested in accordance with ASTM E84, latest revision. Materials shall have a maximum thermal conductivity of 0.27 Btu-in./h-ft²-°F at a 75°F mean temperature when tested in accordance with ASTM C177 or ASTM C 518, latest revisions. Thickness shall be 1 inch on refrigerant piping and 1/2 inch on PEX tubing. Piping and fittings exposed to the elements shall have the insulation covered with ultraviolet resistant vinyl outdoor PVC jacket, JohnsManville Zeston 300 or approved equal. Include pricing for refrigerant piping insulation under Add Alternate #1.

DUCT INSULATION – Insulate boiler combustion air duct in basement with 3/4 pound density, all-service fiberglass duct wrap with factory applied foil faced FRK vapor barrier facing meeting the requirements of ASTM C 1136, Type II. Insulation material shall meet the requirements of NFPA 90A, NFPA 90B, ASTM C 1290 and ASTM C 553. Operating temperature range shall be from 40°F. to 250°F. Maximum "k" factor of 0.30 at 75°F. mean temperature difference. Owens Corning Type 75, Johns Manville Microlite XG or approved equal. Thickness shall be 1 1/2 inches.

CONTROLS – Controls for boiler and pump P5 shall be wired by the boiler installer.

Provide and install a 120 volt, reverse acting thermostat for EF-3 to start fan on temperature rise. Set at 80°.

Room thermostat for new radiation and CUH-1 shall be wall mounted, low voltage, digital, programmable with two occupied and two unoccupied settings per day. Thermostat shall open and close a two position zone valve on the hot water supply pipe to the finned radiation. Thermostat for CUH-1 shall start and stop the unit fan on call for heat. Provide and install an aquastat mounted to the hot water supply pipe inside CUH-1 to interrupt power to the fan if the supply water temperature is below 100°F. Thermostats shall also connect to existing controls for circulating pump P4.



LDD PROJECT NAME: N/A
 DRAWING NAME: N/A
 FIELD BOOK USED: N/A

Scott Simons Architects
 75 St. Stevens Avenue
 Portland, Maine 04101
 207.772.4656
www.scottsimonsarchitects.com

REFERENCES:

DESIGNED BY:	REVISION:
DRAWN BY:	DATE:
CHECKED BY:	SCALE:
K.F.M.	1" = 1'-0"
Magnuson 10257	DATE:
	FEB. 06, 2015



PORTLAND PUBLIC LIBRARY
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 377 Stevens Avenue
 Deering Center
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CITY OF PORTLAND, MAINE
 Addition + Renovation for
 The Burbank Branch Library
 Issued for permitting

SECOND FLOOR MECHANICAL PLAN

SHEET # **M3**
 PLAN NUMBER



MECHANICAL SYSTEMS ENGINEERS
 ROYAL RIVER CENTER, UNIT 108
 10 FOREST FALLS DRIVE, YARMOUTH, MAINE 04096
 (207) 846-1441
 FACEBOOK: MECHANICAL SYSTEMS ENGINEERS
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