



## ADDENDUM NO. 5

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**Date:** October 11, 2016

**Project:** SMCC Culinary Arts Building Renovation  
South Portland, Maine

This Addendum forms a part of the Contract Documents and modifies the original Bid Documents and Specifications dated August 3, 2016. Portions of the bid and contract documents not altered by this Addendum remain in full force.

Each bidder shall be responsible for issuing information contained herein to sub-contractors and suppliers to ensure that his/her proposal covers all work required by the contract documents including this addendum.

Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of the following:

### GENERAL

1. The Bid opening date has been revised to **2:00 PM on Friday, October 14, 2016.**

### SPECIFICATIONS

#### Specification Section 00 52 13 "STATE OF MAINE Maine Community College System CONSTRUCTION CONTRACT"

1. ARTICLE 2 COMPLETION DATE: **CHANGE** the work completion date from "January 31, 2017" to "August 1, 2017".

#### Specification Section 00 11 13 "Notice To Contractors"

2. **CHANGE** the work commencement date to "October 17, 2016".
3. **CHANGE** bid opening date to "2:00 p.m., on Friday, October 14, 2016."

#### Specification Section 01 10 00 "SUMMARY"

1. Paragraph 1.2. WORK COVERED BY CONTRACT DOCUMENTS, item C.: **CHANGE** dates in last sentence to "commence on October 17, 2016 and be completed on or before August 1, 2017."
2. Paragraph 1.4 WORK PHASES, item A.: REPLACE the words "a single phase" with "two phases".  
**ADD** the following phases:
  1. Phase One shall include all work associated with providing new air conditioning unit to BANQUET ROOM 121. Work for this phase is to be completed during

the SMCC winter break and shall commence on December 18, 2016 and be completed on or before January 16, 2017.

2. Phase Two shall include all remaining work and is to be completed during the SMCC summer break and shall commence after May 13, 2017 and shall be completed on or before August 1, 2017.

## **DRAWINGS**

### **AD120 "REMOVALS ROOF PLAN"**

1. Details marker 3/AD301: **CHANGE** detail marker number to "4/AE301".
2. Details marker 2/AD301: **CHANGE** detail marker number to "1/AD301".

### **AD220 "REMOVALS BUILDING SECTIONS"**

1. Details 1/AD220 and 2/AD220: **CHANGE** "FINISH FLOOR ELEV=58'0"+/-" to "FINISH FLOOR ELEV=50'0"+/\_"

### **AE220 "PARTIAL BUILDING SECTIONS"**

1. Details 1/AE220 and 2/AE220: **CHANGE** "FINISH FLOOR ELEV=58'0"+/-" to "FINISH FLOOR ELEV=50'0"+/\_"

### **AE120 "ROOF PLAN"**

1. KEYNOTES – Keynote 1 – **DELETE** the words "ARCHITECTURAL SERIES" from the product description.

### **AE301 "ENLARGED SECTIONS"**

1. Detail 1/AE301: **ADD** note leader pointing to duct penetration through existing wall with the following note, "PROVIDE COMPRESSIBLE GASKET AND SEALANT AT ALL SIDES OF DUCT PENETRATION FOR WATERTIGHT INSTALLATION".
2. Detail 4/AE301: **DELETE** steel angles shown on bottom side of masonry duct opening.

### **M-001 MECHANICAL NOTES, LEGENDS, ABBREVIATIONS AND SPECIFICATIONS**

1. **REPLACE** Drawing M-001 in its entirety with the attached drawing.

### **MD101 FIRST FLOOR MECHANICAL REMOVALS PLAN**

1. **REPLACE** Drawing MD101 in its entirety with the attached drawing.

### **MH102 ROOF MECHANICAL PLAN**

1. **REPLACE** Drawing MH102 in its entirety with the attached drawing.

### **MP101 FIRST FLOOR MECHANICAL PIPING PLAN**

1. **REPLACE** Drawing MP101 in its entirety with the attached drawing.

### **M-501 MECHANICAL SCHEDULES AND DETAILS**

1. ROOF MAKE-UP AIR UNIT SCHEDULE: **ADD** the following statement to the end of Note 7:  
“COORDINATE CONTROLS WITH CONTROLS CONTRACTOR TO INSURE PROPER INTEGRATION WITH THE BAS.”
2. **ADD** the Following general note:  
GENERAL NOTE  
NOTE ON BASIS OF DESIGN  
PRODUCTS OF OTHER MANUFACTURERS ARE ACCEPTABLE IF THEY MEET THE OPERATIONAL REQUIREMENTS INDICATED. ANY ADJUSTMENTS TO DUCTING, PIPING, WIRING OR CONFIGURATION DUE TO THE SELECTION OF A MANUFACTURER OTHER THAN THAT LISTED AS THE BASIS OF DESIGN WILL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

### **EP501 PANELBOARD SCHEDULE, DETAILS AND SPECIFICATIONS**

1. Detail 1/EP501 FIRE ALARM RISER DIAGRAM: **ADD** the word “SPARE” to ZONE 3.

### **CLARIFICATIONS**

Question: *Please identify the roofing manufacturer so roof bond information can be obtained.*

Response: *The existing membrane roofing manufacturer is Carlisle.*

Question: *Detail 4/AE301 Duct Penetration @ Masonry Wall shows lintel angles at the top of duct and also at the bottom of the duct. Are the steel angles really required at the underside of the duct? If yes, are they also required at the sides?*

Response: *Lintel angles are only required at the top of duct opening. Refer to addendum item for drawing AE301.*

Question: *Please confirm that there are no charges from Maine Gas that the contractor is required to pay for.*

Response: *Charges for Maine Gas Service directly related to the upgrades of the natural gas supply entrances at the Culinary Arts Building will be covered by SMCC. Required piping and piping specialties (i.e.; 2 psi to 0.5 psi regulators) downstream of the Maine Gas Service regulator and meter are the responsibility of the contractor.*

Question: *On drawing MP101, details 3 and 5 have keynote 2 which requires a contractor provided gas pressure regulator. I will need to know the connected load to price the regulators. These two regulators serve existing gas lines and equipment.*

Response: *Refer to addendum item for drawing MP101.*

Question: *We have noticed in the requisition that the college is stating that the rail system must meet OSHA requirements, the railing quoted does meet OSHA requirements, however we have not been able to see the full scope of the project (meaning other areas of the roof). In order to meet OSHA requirements all areas of the roof must be protected from a fall, not just one area where there are workers. We do not know if the college is just protecting one area and leaving other areas of the roof open to falls. If they are leaving areas open to fall BlueWater will not state that the system meets OSHA requirements.*

Response: *OSHA compliant fall protection is required only for the new equipment installations being provided under this project and does not extend to roof areas outside the scope of this project.*

END OF ADDENDUM No. 5

**GENERAL MECHANICAL NOTES**

- ALL WORK INCLUDED IN THIS CONTRACT SHALL CONFORM TO ALL STATE, NATIONAL AND OTHER CODES AND ORDINANCES WHICH APPLY TO THIS PROJECT.
- FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS, AND REPORT ANY DISCREPANCIES TO THE OWNER. PROCEED WITH THE WORK ONLY AFTER THE DISCREPANCIES HAVE BEEN RESOLVED.
- CARE SHALL BE TAKEN TO PROTECT EXISTING SYSTEMS AND SURFACES TO REMAIN. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AS APPROVED BY OWNER AT NO ADDITIONAL COST TO THE OWNER.
- AT THE END OF EACH WORKING DAY, THE CONSTRUCTION SITE SHALL BE LEFT IN A SAFE, SECURE NEAT AND CLEAN MANNER.
- OBTAIN ALL PERMITS THAT ARE REQUIRED FOR THE SATISFACTORY COMPLETION OF THE WORK. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH OBTAINING PERMITS.
- PROVIDE BARRICADES AT ALL WORK AREAS TO PREVENT PERSONNEL FROM ENTERING AREAS OF WORK.
- THE CONTRACTOR SHALL COORDINATE AND REROUTE UNIVERSITY PERSONNEL AND GENERAL PUBLIC AROUND WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING BUILDING EGRESS ROUTES WITHIN THE WORK AREA.
- THE CONTRACTOR SHALL COORDINATE THE TIMING AND SEQUENCE OF WORK WITH THE GENERAL CONTRACTOR AND UNIVERSITY EMPLOYEES.
- PROTECT EXISTING AREAS NOT IN CONTRACT FROM DAMAGE DURING CONSTRUCTION ACTIVITIES INCLUDING DUST FROM PENETRATIONS.
- LEGALLY DISPOSE OF CONSTRUCTION DEBRIS. DO NOT USE OWNER'S DUMPSTERS.
- COORDINATE AND OBTAIN INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.
- MAINTAIN VENTILATION, HEATING AND COOLING TO AREAS SERVED BY EXISTING AHUS DURING REMOVALS AND CONSTRUCTION, TO PROVIDE TENABLE CONDITIONS IN SPACES.
- WORK IS EXPECTED TO BE PERFORMED DURING THE HEATING SEASON. HEATING SYSTEM DOWN TIME FOR HYDRONIC HEATING EQUIPMENT REMOVAL AND INSTALLATION SHALL BE MINIMIZED TO MAINTAIN HEAT TO THE BUILDING. COORDINATE HYDRONIC SYSTEM SHUTDOWN WITH OWNER'S REPRESENTATIVE. BOILER ROOM LOCATION IS BELOW BANQUET ROOM 121 AND IS ACCESSED OUTSIDE THE BUILDING VIA AN EAST FACING DOOR TO THE ROOM. PROVIDE WRITTEN NOTIFICATION AT LEAST SEVEN (7) DAYS PRIOR TO SYSTEM SHUTDOWN.

**MECHANICAL ABBREVIATIONS**

AABC	ASSOCIATED AIR BALANCE COUNCIL	IOM	INSTALLATION OPERATION AND MAINTENANCE MANUAL
AFF	ABOVE FINISHED FLOOR	LAT	LEAVING AIR TEMPERATURE
AHU	AIR HANDLING UNIT	LBS	POUNDS
ALUM	ALUMINUM	LPG	LIQUIFIED PROPANE GAS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	LWT	LEAVING WATER TEMPERATURE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MAU	MAKE-UP AIR UNIT
BAS	BUILDING AUTOMATION SYSTEM	MAX	MAXIMUM
BLOG	BUILDING	MBH	1000 BTU PER HOUR
BHP	BRAKE HORSE POWER	MERV	MINIMUM EFFICIENCY REPORTING VALUE
BRD	BAROMETRIC RELIEF DAMPER	MFR'S	MANUFACTURER'S
BTU	BRITISH THERMAL UNIT	MIN	MINIMUM
BTUH	BTU PER HOUR	MSS	-
CFM	CUBIC FEET/MINUTE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CLG	CEILING	NG	NATURAL GAS
CUH	CABINET UNIT HEATER	NO	NUMBER
Ø DIA	DIAMETER	NPT	NATIONAL PIPE THREAD
DB	DRY BULB	OA	OUTSIDE AIR
DN	DOWN	OED	OPEN ENDED DUCT
DX	DIRECT EXPANSION	PSI	POUNDS PER SQUARE INCH
E,EXIST	EXISTING	PSIG	POUNDS PER SQUARE INCH GAGE
EAT	ENTERING AIR TEMPERATURE	PVC	POLY VINYL CHLORIDE
EF	EXHAUST FAN	R	RETURN
ERD	EXISTING ROOF DRAIN	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RPM	ROTATIONS PER MINUTE
EVTR	EXISTING VENT THRU ROOF	RTU	ROOFTOP UNIT
EWT	ENTERING WATER TEMPERATURE	S	SUPPLY
°F	DEGREES FAHRENHEIT	SA	SUPPLY AIR
FC	FLEX CONNECTION, FAN COIL	SAT	SUSPENDED ACOUSTICAL TILE
FD	FLOOR DRAIN	SS	STAINLESS STEEL
FLA	FULL LOAD AMPS	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
FR	FINTUBE RADIATION	T	THERMOSTAT
FT	FOOT/FEET	TO	MAKEUP AIR UNIT ROOM TEMPERATURE OVERRIDE CONTROL
G	GAS	TYP	TYPICAL
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
H	HEIGHT	VIF	VERIFY IN FIELD
HC	HEATING COIL	W	WIDTH
HP	HORSEPOWER	WB	WET BULB
HWR	HOT WATER RETURN	WC	WATER COLUMN
HWS	HOT WATER SUPPLY	WOG	WATER/OIL/GAS
IN	INCHES	WPD	WATER PRESSURE DROP

**MECHANICAL SYMBOLS LEGEND**

	SYMBOL PER ABBREVIATION LIST		ELBOW DOWN
	EQUIPMENT SEQUENCE NUMBER		PIPE TEE UP OR UP AND DOWN
	AIR INLET OR OUTLET WITH CFM		ELBOW UP OR UP AND DOWN
	CONNECT TO EXISTING		PIPE TEE DOWN
	GPM SETTING FOR BALANCING VALVE		STRAINER
	KEYNOTE		GATE VALVE
	RETURN GRILLE/REGISTER		BALL VALVE
	SUPPLY DIFFUSER/REGISTER/GRILLE		PRESSURE GAGE
	EXHAUST GRILLE/REGISTER		CHECK VALVE
	LINEAR SLOT DIFFUSER/RETURN		CALIBRATED BALANCING VALVE WITH POSITIVE SHUTOFF
	ACCESS DOOR ON BOTTOM OF DUCT		PIPE PITCH DOWN
	DUCT		UNION
	FLEXIBLE CONNECTION		PIPE REDUCER/INCEASER
	RETURN DUCT UP		THERMOMETER
	EXHAUST DUCT UP		AIR VENT, AUTOMATIC
	SUPPLY DUCT UP		AIR VENT, MANUAL
	SQUARE ELBOW WITH TURNING VANES		CONCENTRIC REDUCER
	FLEXIBLE DUCT		FLEXIBLE CONNECTOR
	DIRECTION OF AIR FLOW		P-TRAP
	MANUAL BALANCING DAMPER		HOSE BIBB OR HYDRANT
	MOTORIZED DAMPER, PARALLEL BLADE		CAP
	MOTORIZED DAMPER, OPPOSED BLADE		BALL VALVE IN VERTICAL
	CENTRIFUGAL FAN		TEMPERATURE SENSOR
	DIRECT EXPANSION COOLING COIL		FREEZESTAT
	HOT WATER HEATING COIL		START/STOP CONTROLLER
	MAKEUP AIR UNIT ROOM TEMPERATURE OVERRIDE CONTROL		THERMOSTAT
			DUCT MOUNTED SMOKE DETECTOR
			SWITCH
			CURRENT SENSOR
			ENTHALPY SENSOR

**MECHANICAL LINE TYPE LEGEND**

	EXIST ITEMS TO REMAIN
	PROVIDE ITEMS
	NATURAL GAS
	CONTROL WIRING

**MECHANICAL SPECIFICATIONS**

MECHANICAL WORK SHALL COMPLY WITH NFPA 90A, NFPA 54, MAINE UNIFORM BUILDING AND ENERGY CODE (CURRENT EDITION), MUBEC CURRENT VERSION, LOCAL AND STATE CODES.

**BALL VALVES**

TWO-PIECE COPPER-ALLOY BALL VALVES. BRONZE BODY WITH WITH FULL-PORT, CHROME-PLATED BRONZE BALL.

**BALANCING VALVES**

BRONZE, BALL-TYPE WITH CALIBRATED ORIFICE. PRESSURE GAUGE CONNECTIONS SHALL HAVE INTEGRAL SEALS FOR PORTABLE DIFFERENTIAL PRESSURE METER. PROVIDE LEVER HANDLE WITH MEMORY STOPS TO RETAIN SET POSITION. GAS PIPING LOCATED OUTSIDE THE BUILDING SHALL BE PAINTED WITH A GREY EPOXY ENAMEL (2 COATS) TO MATCH EXISTING EXTERIOR GAS PIPING COLOR.

**CONDENSATE DRAIN PIPING**

DRAIN PIPING SHALL BE SCHEDULE 40 PVC TUBING.

**DUCTWORK**

CONSTRUCTION, METAL GAGE, HANGERS AND SUPPORTS AND REINFORCEMENTS SHALL CONFORM WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCTWORK SHALL BE AIRTIGHT AND SHALL NOT VIBRATE OR PULSATE WHEN SYSTEM IS IN OPERATION. AIR LEAKAGE SHALL BE LESS THEN 5 PERCENT OF THE SYSTEM CAPACITY. CONSTRUCT DUCTWORK OF GALVANIZED STEEL. SEAL TRANSVERSE JOINTS WITH MASTIC OR SEALANT. PROVIDE METAL LOCKING VOLUME DAMPER FOR EACH DIFFUSER BRANCH FOR BALANCING.

**NATURAL GAS PIPING**

ASTM A53/A53M, SCHEDULE 40 BLACK STEEL, SEAMLESS, GRADE B, WITH ASME B16.3, CLASS 150 STANDARD PATTERN MALLEABLE-IRON THREADED FITTINGS. PROVIDE BRONZE PLUG VALVES CONFORMING TO MSS SP-78 WITH THREADED ENDS, SQUARE HEAD, 125 PSI RATING, AND SUITABLE FOR NATURAL GAS SERVICE WITH "WOG" INDICATED ON VALVE BODY. PROVIDE FLEXIBLE APPLIANCE CONNECTOR MADE OF CORRUGATED STAINLESS-STEEL TUBING WITH POLYMER COATING AT EQUIPMENT FOR AN OPERATING PRESSURE OF 0.5 PSIG AND WITH A MAXIMUM LENGTH OF 72". GAS PIPING LOCATED OUTSIDE THE BUILDING SHALL BE PAINTED WITH A GREY EPOXY ENAMEL (2 COATS) TO MATCH EXISTING EXTERIOR GAS PIPING COLOR.

**PIPE HANGERS AND SUPPORTS**

PIPE HANGERS AND SUPPORTS SHALL CONFORM TO MSS SP-58 AND MSS SP-69.

**INSULATION**

DUCT INSULATION FOR CONCEALED DUCTWORK ONLY SHALL BE 1-1/2" THICK MINERAL-FIBER BLANKET TYPE. INSULATION SHALL COMPLY WITH ASTM C 553, TYPE II.

DUCTWORK LOCATED OUTSIDE SHALL BE 2 INCH THICK RIGID MINERAL FIBER BOARD INSULATION WITH FACTORY APPLIED FSK JACKET. PROVIDE FIELD APPLIED SELF-ADHESIVE OUTDOOR JACKET, 60-MIL-THICK LAMINATED VAPOR BARRIER AND WATER PROOFING MEMBRANE CONSISTING OF A RUBBERIZED BITUMINOUS RESIN ON A CROSS LAMINATED POLYETHYLENE FILM COVERED WITH WHITE ALUMINUM FOIL FACING. BASIS OF DESIGN: POLYGUARD PRODUCTS INC: ALUMAGUARD 60.

**CONTROL VALVES**

FOR DUCT MOUNT COIL: GLOBE TYPE, BRONZE BODY, EQUAL PERCENTAGE ACTUATION.  
FOR FINTUBE RADIATOR: BALL TYPE, BRONZE BODY.

**CONTROLS**

BAS (BUILDING AUTOMATION SYSTEM) SHALL CONSIST OF SENSORS, INDICATORS, ACTUATORS, FINAL CONTROL ELEMENTS, INTERFACE EQUIPMENT, OTHER APPARATUS, AND ACCESSORIES TO CONTROL MECHANICAL SYSTEMS. BAS SHALL BE AN EXTENSION OF THE EXISTING CAMPUS DDC SYSTEM, WHICH IS A SCHNEIDER ELECTRIC I/A SYSTEM BY MAINE CONTROLS.

ACCEPTABLE VENDORS:  
MAINE CONTROLS, 400 PRESUMPCOT ST.  
PORTLAND, MAINE, 04103  
NO SUBSTITUTIONS

**MECHANICAL SPECIFICATIONS**

**MAKEUP AIR UNITS**

PROVIDE BASIS OF DESIGN PACKAGED, DIRECT FIRED, OUTDOOR, HEATING ONLY MAKEUP AIR UNITS AS SCHEDULED ON DRAWINGS OR AN APPROVED EQUAL FROM GREENHECK, REZTOR OR TRANE. PROVIDE 2-YEAR PART, LABOR AND EQUIPMENT WARRANTY FROM DATE OF SUBSTANTIAL COMPLETION.

**PACKAGED ROOFTOP HVAC UNIT**

PROVIDE BASIS OF DESIGN PACKAGED ROOFTOP AIR CONDITIONING UNIT AS SCHEDULED ON DRAWINGS OR AN APPROVED EQUAL FROM CARRIER, DAIKIN OR TRANE. PROVIDE 2-YEAR PARTS, LABOR AND EQUIPMENT WARRANTY FROM DATE OF SUBSTANTIAL COMPLETION.

**HYDRONIC HEATING DUCT MOUNTED AIR COIL**

CONSTRUCTION: TUBES COPPER (MIN 0.035 INCH THICK); FINS ALUMINUM, MECHANICALLY BONDED; HEADERS SEAMLESS COPPER TUBE WITH BRAZED JOINTS, PRIME COATED, DRAINABLE; FRAME GALVANIZED STEEL, FLANGED MOUNTING; PERFORMANCE AS SCHEDULED ON DRAWINGS.

**DIFFUSERS, GRILLES AND REGISTERS**

PROVIDE BASIS OF DESIGN DIFFUSERS, GRILLES AND REGISTERS AS SCHEDULED ON DRAWINGS OR AN APPROVED EQUAL FROM METALAIR OR PRICE.

**FIELD QUALITY CONTROL FOR MAKEUP AIR UNITS (MAU-1 - MAU-6) AND PACKAGED ROOFTOP HVAC UNIT (RTU-1)**

MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT FIELD ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, TO INCLUDE ELECTRICAL AND PIPING CONNECTIONS. REPORT RESULTS TO OWNER'S REPRESENTATIVE IN WRITING. INSPECTION MUST INCLUDE A COMPLETE STARTUP CHECKLIST TO INCLUDE (AS A MINIMUM) THE FOLLOWING: COMPLETED START-UP CHECKLISTS AS FOUND IN MANUFACTURER'S IOM.

**START-UP SERVICE FOR MAKEUP AIR UNITS (MAU-1 - MAU-6) AND PACKAGED ROOFTOP HVAC UNIT (RTU-1)**

ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM STARTUP SERVICE. CLEAN ENTIRE UNIT, COMB COIL FINS AS NECESSARY, AND INSTALL CLEAN FILTERS. VERIFY WATER SOURCE FOR COMPLIANCE WITH MANUFACTURER'S REQUIREMENTS FOR FLOW AND TEMPERATURE. MEASURE AND RECORD ELECTRICAL VALUES FOR VOLTAGE AND AMPERAGE.

**TESTING, ADJUSTING AND BALANCING**

PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM ACCORDING TO THE PROCEDURES CONTAINED IN AABC'S "NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS. PROVIDE WRITTEN REPORT FOR EACH SYSTEM.

FOR EXISTING KITCHEN EXHAUST HOOD FANS AND PROVIDED MAKEUP AIR UNITS TEST, ADJUST AND BALANCE TO THE FLOWS SCHEDULED FOR EXHAUST HOOD FANS WHILE THE CORRESPONDING MAKEUP AIR UNIT SIMULTANEOUSLY PROVIDES THE SCHEDULED MAKEUP AIR FLOW.

FOR PACKAGED ROOFTOP HVAC UNIT, TEST ADJUST AND BALANCE SUPPLY, RETURN AND OUTSIDE AIRFLOWS AS INDICATED ON DRAWINGS AND SCHEDULES.

FOR HYDRONIC HEATING DUCT AIR COIL, MEASURE AND RECORD WATER FLOW THROUGH COIL. MEASURE ENTERING AIR TEMPERATURE AND LEAVING AIR TEMPERATURE OF COIL.

**DEMONSTRATION AND TRAINING FOR MAKEUP AIR UNITS (MAU-1 - MAU-6) AND PACKAGED ROOFTOP HVAC UNIT (RTU-1)**

ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE AND MAINTAIN THE ENTIRE UNIT.

NO.	DATE	DESCRIPTION	BY
1	10/10/16	ADDENDUM 5 REVISIONS	RNC



DESIGNED BY: RNC  
DRAWN BY: RDA  
CHECKED BY: RNC  
PROJECT: 21501.08

SOUTHERN MAINE COMMUNITY COLLEGE  
2 Fort Road  
South Portland, Maine 04106

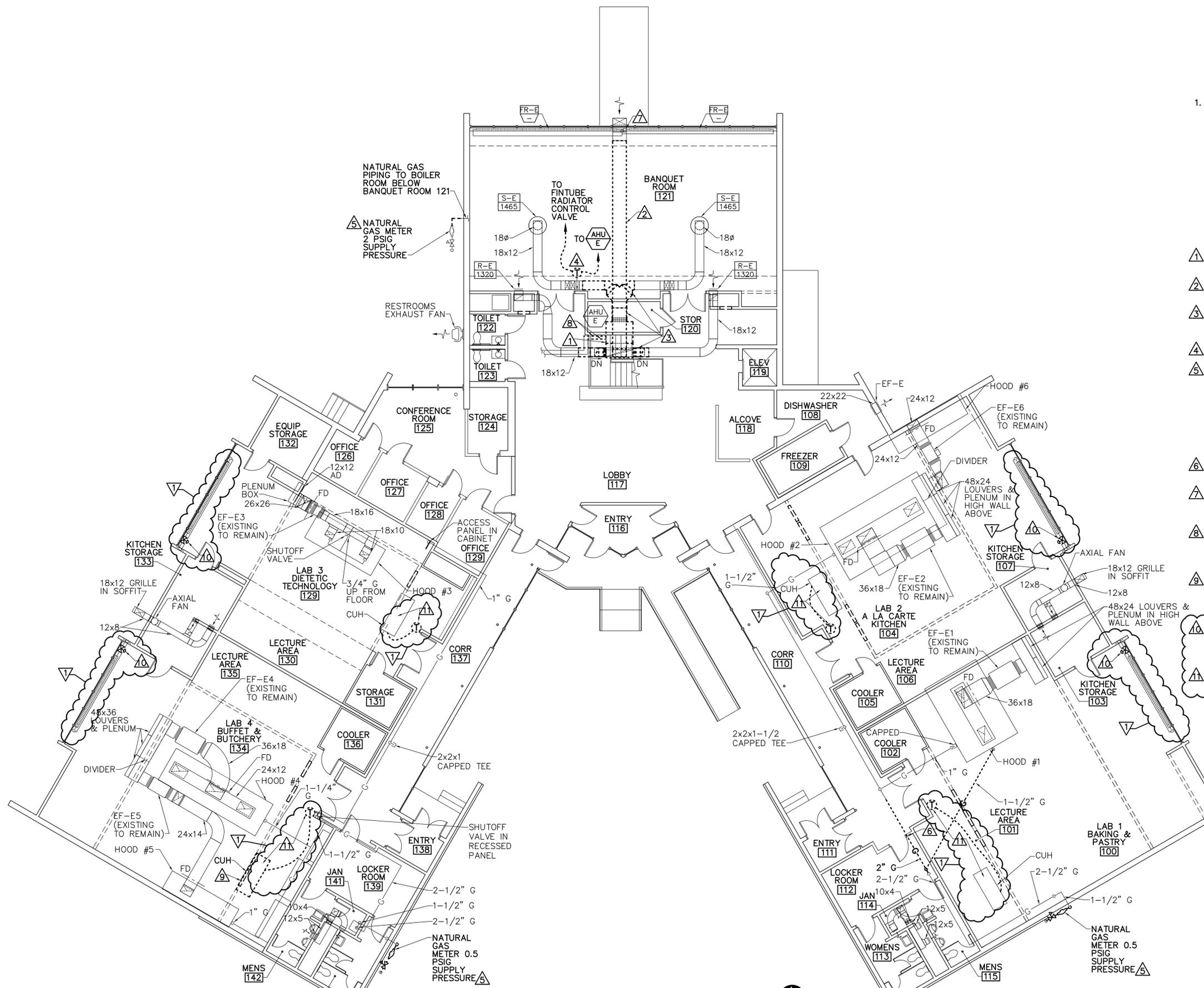
SOUTHERN MAINE COMMUNITY COLLEGE  
CULINARY ARTS RENOVATION PROJECT

**MECHANICAL NOTES, LEGENDS, ABBREVIATIONS AND SPECIFICATIONS**

SCALE: AS NOTED  
DATE: 08-03-16

DWG.: M-001

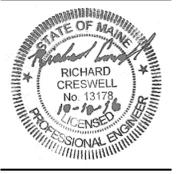
NO.	DATE	DESCRIPTION	BY
10/10/16		ADDENDUM 5 REVISIONS	RNC



**DRAWING NOTE**

1. WORK IS EXPECTED TO BE PERFORMED DURING THE HEATING SEASON. HEATING SYSTEM DOWN TIME FOR HYDRONIC HEATING EQUIPMENT REMOVAL AND INSTALLATION SHALL BE MINIMIZED TO MAINTAIN HEAT TO THE BUILDING. COORDINATE HYDRONIC SYSTEM SHUTDOWN WITH OWNER'S REPRESENTATIVE. BOILER ROOM LOCATION IS BELOW BANQUET ROOM 121 AND IS ACCESSED OUTSIDE THE BUILDING VIA AN EAST FACING DOOR TO THE ROOM. PROVIDE WRITTEN NOTIFICATION AT LEAST SEVEN (7) DAYS PRIOR TO SYSTEM SHUTDOWN.

- DRAWING KEYNOTES**
- 1 REMOVE SUSPENDED AIR HANDLER AND ASSOCIATED CONTROLS.
  - 2 REMOVE OUTSIDE AIR DUCT AS SHOWN. CAP OPENING AND INSULATE.
  - 3 REMOVE SUPPLY AND RETURN DUCT AS NEEDED IN PREPARATION FOR CONNECTION TO ROOFTOP UNIT.
  - 4 REMOVE T-STAT AND CONTROL WIRING.
  - 5 NATURAL GAS SERVICE EQUIPMENT TO BE REVISED BY GAS SUPPLY UTILITY COMPANY TO PROVIDE 2 PSIG BUILDING PRESSURE SERVICE THAT ACCOMMODATES NEW AND EXISTING GAS BURNING EQUIPMENT. COORDINATE EXTENT OF REMOVALS FOR SCHEDULE OF CHANGES TO NATURAL GAS SUPPLY WITH NATURAL GAS SUPPLIER - MAINE GAS OPERATIONS. (CONTACT: SCOTT CARPENTER 207-541-2543)
  - 6 REMOVE GAS PIPING IN PREPARATION FOR BRANCH RELOCATION.
  - 7 VERIFY IN FIELD THE LOCATION OF THE FIN TUBE RADIATOR CONTROL VALVE AND REMOVE IT IN PREPARATION FOR REPLACEMENT.
  - 8 REMOVE HWS/R PIPING FROM EXISTING AHU HEATING COIL IN PREPARATION FOR BRANCHES TO BE REUSED TO CONNECT HYDRONIC DUCT HEATING COIL.
  - 9 REMOVE, SALVAGE AND TEMPORARILY STORE CABINET UNIT HEATER FOR REUSE. PRESERVE AND PROTECT HWS/R PIPING AND CONTROL WIRING TO THE EXTENT POSSIBLE FOR REUSE.
  - 10 REMOVE PNEUMATIC CONTROL VALVE ASSEMBLY, SERVING FIN TUBE IN PREPARATION FOR REPLACEMENT. REMOVE ASSOCIATED THERMOSTAT.
  - 11 REMOVE PNEUMATIC THERMOSTAT CONTROL ASSEMBLY, AND ASSOCIATED THERMOSTAT.



DESIGNED BY: RNC  
 DRAWN BY: RML  
 CHECKED BY: RNC  
 PROJECT: 21501.08

SOUTHERN MAINE COMMUNITY COLLEGE  
 2 Fort Road  
 South Portland, Maine 04106

SOUTHERN MAINE COMMUNITY COLLEGE  
 CULINARY ARTS RENOVATION PROJECT

FIRST FLOOR MECHANICAL REMOVALS PLAN

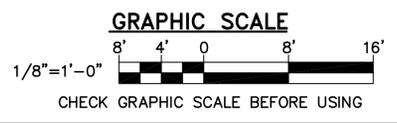
SCALE: AS NOTED

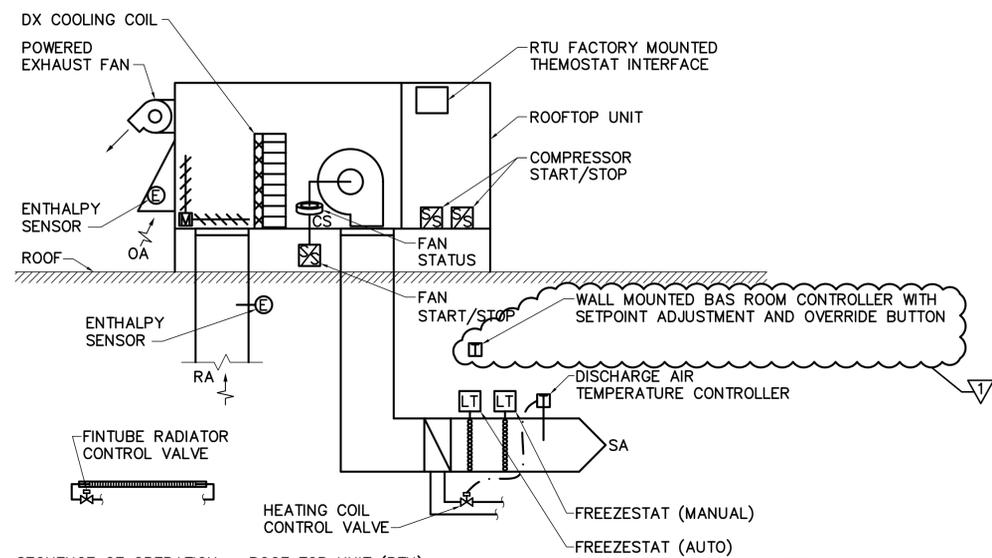
DATE: 08-03-16

DWG.: MD101

SHEET: 17 OF 26

**1 FIRST FLOOR MECHANICAL REMOVALS PLAN**  
 MD101 SCALE: 1/8"=1'-0"





**SEQUENCE OF OPERATION - ROOF TOP UNIT (RTU)**

**CONTROLLER:**  
THE RTU SHALL BE PROVIDED WITH A FACTORY MOUNTED THERMOSTATIC INTERFACE AND A FACTORY MOUNTED ENTHALPY CONTROLLER. THE BAS SHALL ENABLE AND DISABLE THE FAN; AND ENABLE COOLING STAGES 1 AND 2, ACCORDING TO THE SEQUENCE OF OPERATION DESCRIBED BELOW.

**OCCUPANCY:**  
THE RTU SHALL OPERATE IN THE OCCUPIED MODE WHENEVER THE ASSOCIATED USER ADJUSTABLE OCCUPANCY SCHEDULE IS IN THE OCCUPIED MODE; OTHERWISE THE RTU SHALL BE IN THE UN-OCCUPIED MODE. THE SCHEDULE SHALL BE ACCESSED THROUGH THE (CAMPUS BAS SYSTEM GRAPHICS PACKAGE). THE CONTRACTOR SHALL COORDINATE INITIAL SCHEDULE SETTINGS WITH BUILDING MAINTENANCE PERSONNEL.

**HEATING/COOLING MODE:**  
THE RTU SHALL ENTER HEATING MODE WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 60° F (ADJUSTABLE) AND THERE IS A CALL FOR HEATING FROM THE BAS ROOM CONTROLLER. THE RTU SHALL ENTER THE COOLING MODE WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 65° F (ADJUSTABLE) AND THERE IS A CALL FOR COOLING FROM THE SPACE. THE RTU SHALL REMAIN IN IT'S CURRENT MODE (HEATING OR COOLING) UNTIL CONDITIONS ARE SATISFIED TO CHANGE MODES.

**OCCUPIED MODE:**  
THE RTU SUPPLY FAN SHALL START AUTOMATICALLY AND RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER MINIMUM POSITION SHALL BE 30% OPEN (ADJUSTABLE).

**DURING COOLING MODE THE HEATING COIL VALVE SHALL REMAIN CLOSED AND COOLING STAGES 1 AND 2 SHALL CYCLE TO MAINTAIN THE ROOM AT THE COOLING SET POINT 76° F (ADJUSTABLE). COOLING STAGE 1 SHALL BE ENABLED WHEN THE WARMEST ROOM TEMPERATURE IS 1° F (ADJUSTABLE) ABOVE THE COOLING SET POINT AND DISABLED AT SET POINT. DURING STAGE 1 COOLING, THE RTU FACTORY MOUNTED INTEGRATED CONTROLLER SHALL DETERMINE WHEN ECONOMIZER COOLING IS AVAILABLE AND USED. COOLING STAGE 2 SHALL BE ENABLED 3° F (ADJUSTABLE) ABOVE THE COOLING SET POINT AND DISABLED AT SET POINT.**

**DURING THE HEATING MODE THE COOLING STAGES SHALL REMAIN OFF AND THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT THE HEATING SET POINT, 68° F (ADJUSTABLE). THE FIN TUBE RADIATORS SHALL CYCLE TO MAINTAIN THE ROOM TEMPERATURE SET POINT (ADJUSTABLE). IF THE FIN TUBE RADIATOR CONTROL VALVE IS OPEN FOR MORE THAN 20 MINUTES, OR IF THE ROOM TEMPERATURE IS MORE THAN 3°F BELOW THE SET POINT, THE DUCT COIL CONTROL VALVE SHALL OPEN TO 100% UNTIL THE SET POINT IS ACHIEVED. THE DUCT COIL CONTROL VALVE WILL THEN RESUME ITS NORMAL OPERATING MODE.**

**UNOCCUPIED MODE:**  
THE RTU FAN SHALL REMAIN OFF, THE OUTSIDE AIR DAMPER SHALL BE CLOSED AND THE 2 STAGES OF COOLING SHALL REMAIN OFF.

**WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 35° F THE HEATING COIL VALVE SHALL MODULATE TO MAINTAIN 50° F AS SENSED BY THE SUPPLY AIR TEMPERATURE SENSOR, OTHERWISE THE VALVE SHALL REMAIN CLOSED. THE FIN TUBE RADIATOR SHALL CYCLE TO MAINTAIN THE ROOM TEMPERATURE SET POINT, 65°F (ADJUSTABLE).**

**IF A NIGHT OVERRIDE BUTTON IS PRESSED ON THE BAS ROOM CONTROLLER THE RTU SHALL OPERATE IN OCCUPIED MODE FOR 1 HOUR.**

**SAFETY - SMOKE DETECTOR:**  
THE DUCT MOUNTED SMOKE DETECTOR SHALL BE HARD-WIRED TO SHUT DOWN THE RTU IF THE SMOKE DETECTOR INDICATES AN ALARM CONDITION. AN AUXILIARY CONTACT SHALL BE PROVIDED TO SEND A SIGNAL TO THE BAS SYSTEM TO SEQUENTIALLY SHUT THE UNIT DOWN AND GENERATE AN ALARM ON THE CAMPUS BAS SYSTEM.

**SAFETY- FREEZE PROTECTION:**  
PROVIDE TWO (2) LOW TEMPERATURE THERMOSTATS (FREEZE STAT) SERPENTINED ACROSS THE FACE OF THE HEATING COIL. ONE FREEZE STAT SHALL BE AUTOMATIC RESET TYPE SET TO TRIP AT OR BELOW 45° F (ADJUSTABLE). THE OTHER FREEZE STAT SHALL BE MANUAL RESET TYPE SET TO TRIP AT OR BELOW 38° F (ADJUSTMENT). DURING A FREEZING CONDITION THE FAN SHALL REMAIN OFF, THE OUTSIDE AND THE EXHAUST AIR DAMPERS SHALL REMAIN CLOSED, THE HEATING COIL CONTROL VALVE SHALL BE OPEN.

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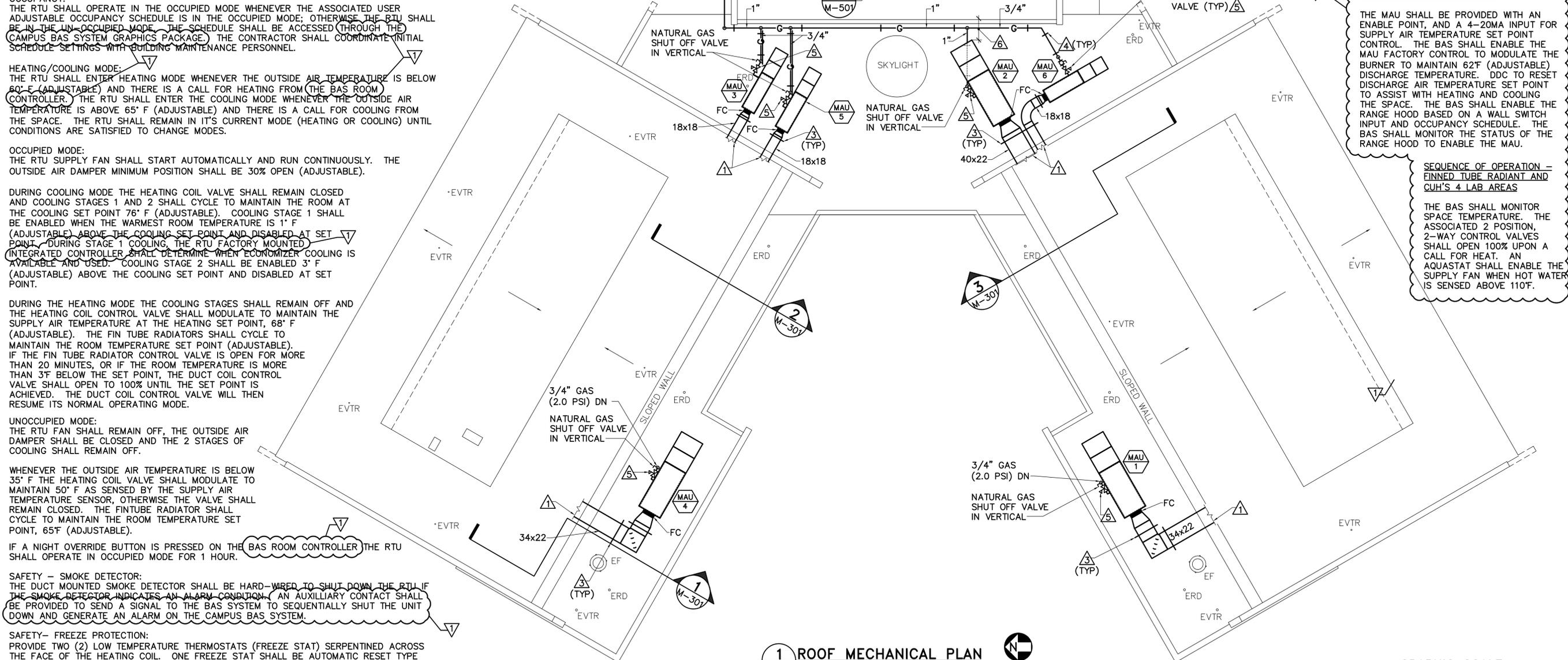
NO.	DATE	DESCRIPTION	BY
1	10/10/16	ADDENDUM 5 REVISIONS	RNC

**DRAWING NOTES**

1. PROVIDE PITCH ON TOP OF INSULATED DUCTWORK ON ROOF TO FACILITATE RUN-OFF OF RAIN AND MELTING SNOW.
2. OUTSIDE AIR INLETS OF MAKEUP AIR UNITS AND ROOF TOP UNIT SHALL BE A MINIMUM OF 10.0 FEET AWAY FROM EXHAUST FAN OUTLETS, SANITARY VENTS AND CHIMNEY.
3. REFER TO DETAIL 2/M-501 FOR GAS CONNECTIONS TO EQUIPMENT.

**DRAWING KEYNOTES**

- 1 REFER TO SHEET MH101 FOR CONTINUATION.
- 2 DUCT SIZE IS BASED ON BASIS OF DESIGN UNIT DUCT CONNECTION. MATCH DUCT SIZE TO INSTALLED UNIT DUCT CONNECTION DIMENSIONS.
- 3 PROVIDE DUCT SUPPORTS. REFER TO DETAIL 5/M-501 ON SHEET M-501.
- 4 PROVIDE GAS PIPING SUPPORTS, BASIS OF DESIGN; EATON, DURA-BLOK.
- 5 PROVIDE GAS REGULATOR TO REDUCE 2 PSI BUILDING GAS SUPPLY DOWN TO 0.5 PSI.
- 6 PROVIDE 42" MINIMUM CLEARANCE BETWEEN WALL AND CORNER OF MAU-2.
- 7 SECURE RTU-1 TO ELEVATED STRUCTURAL SUPPORTS. REFER TO SHEET SF101 FOR STRUCTURAL DETAILS.
- 8 RUN GAS PIPING EXPOSED, HIGH ON WALL, ABOVE RESTROOM EXHAUST FAN. SECURE PIPING TO EXISTING MASONRY WALL USING MASONRY SCREWS INTO MASONRY JOINTS.



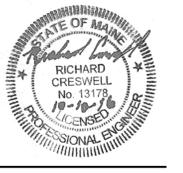
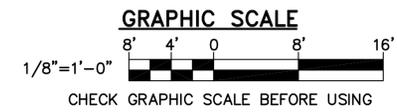
**SEQUENCE OF OPERATION - MAKEUP AIR UNIT MAU-1 THROUGH MAU-6**

THE MAU SHALL BE PROVIDED WITH AN ENABLE POINT, AND A 4-20MA INPUT FOR SUPPLY AIR TEMPERATURE SET POINT CONTROL. THE BAS SHALL ENABLE THE MAU FACTORY CONTROL TO MODULATE THE BURNER TO MAINTAIN 62°F (ADJUSTABLE) DISCHARGE TEMPERATURE. DDC TO RESET DISCHARGE AIR TEMPERATURE SET POINT TO ASSIST WITH HEATING AND COOLING THE SPACE. THE BAS SHALL ENABLE THE RANGE HOOD BASED ON A WALL SWITCH INPUT AND OCCUPANCY SCHEDULE. THE BAS SHALL MONITOR THE STATUS OF THE RANGE HOOD TO ENABLE THE MAU.

**SEQUENCE OF OPERATION - FINNED TUBE RADIANT AND CUH'S 4 LAB AREAS**

THE BAS SHALL MONITOR SPACE TEMPERATURE. THE ASSOCIATED 2 POSITION, 2-WAY CONTROL VALVES SHALL OPEN 100% UPON A CALL FOR HEAT. AN AQUASTAT SHALL ENABLE THE SUPPLY FAN WHEN HOT WATER IS SENSED ABOVE 110°F.

**1 ROOF MECHANICAL PLAN**  
MH102 SCALE: 1/8"=1'-0"



DESIGNED BY: RNC  
DRAWN BY: RDA  
CHECKED BY: RNC  
PROJECT: 21501.08

**SOUTHERN MAINE COMMUNITY COLLEGE**  
2 Fort Road  
South Portland, Maine 04106

**SOUTHERN MAINE COMMUNITY COLLEGE CULINARY ARTS RENOVATION PROJECT**

**ROOF MECHANICAL PLAN AND CONTROL DIAGRAM**

SCALE: AS NOTED  
DATE: 08-03-16  
DWG.: MH102  
SHEET: 19 OF 26

NO.	DATE	DESCRIPTION	BY
1	10/10/16	ADDENDUM 5 REVISIONS	RNC

**DRAWING NOTE**

- WORK IS EXPECTED TO BE PERFORMED DURING THE HEATING SEASON. HEATING SYSTEM DOWN TIME FOR HYDRONIC HEATING EQUIPMENT REMOVAL AND INSTALLATION SHALL BE MINIMIZED TO MAINTAIN HEAT TO THE BUILDING. COORDINATE HYDRONIC SYSTEM SHUTDOWN WITH OWNER'S REPRESENTATIVE. BOILER ROOM LOCATION IS BELOW BANQUET ROOM 121 AND IS ACCESSED OUTSIDE THE BUILDING VIA AN EAST FACING DOOR TO THE ROOM. PROVIDE WRITTEN NOTIFICATION AT LEAST SEVEN (7) DAYS PRIOR TO SYSTEM SHUTDOWN.

**DRAWING KEYNOTES**

- △ VERIFY IN FIELD THE LOCATION WHERE THE EXISTING CONTROL VALVE FOR THE FINRTUBE RADIATOR WAS REMOVED AND PROVIDE A REPLACEMENT ELECTRONICALLY ACTUATED CONTROL VALVE AND STRAINER UP STREAM OF CONTROL VALVE.
- △ PROVIDE NATURAL GAS PRESSURE REGULATOR TO REDUCE BUILDING GAS PRESSURE FROM 2.0 PSI TO 0.5 PSI. THE REGULATOR NATURAL GAS ENERGY SUPPLY CAPACITY SHALL BE NOT LESS THAN 800,000 BTU/HOUR.
- △ PROVIDE INSULATION ON EXIST BRANCH HWS/R PIPING BRANCHES TO SERVE DUCT COIL HC-1, UP TO 30 FEET TOTAL.
- △ MODIFICATIONS TO THE GAS UTILITY REGULATOR AND METER SHALL BE PROVIDED BY THE GAS UTILITY (MAINE GAS OPERATIONS) TO DELIVER 2.0 PSIG GAS PRESSURE TO BLDG. CONTRACTOR SHALL PROVIDE GAS PIPING ASSEMBLIES DOWN STREAM OF THE UTILITY SUPPLIED EQUIPMENT AND PIPING. COORDINATE INSTALLATION SCHEDULE WITH GAS UTILITY. (CONTACT: SCOTT CARPENTER 207-541-2543).
- △ RE-INSTALL TEMPORARILY STORED CABINET UNIT HEATER, MODIFYING SUPPORTS AND HWS/R PIPING AS NEEDED TO PERMIT INSTALLATION AROUND DUCTWORK. RECONNECT CONTROLS.
- △ FOR FINRTUBE VALVE PIPING DETAIL REFER TO DETAIL 6/MP101.
- △ CONTROL VALVE TO BE FURNISHED BY CONTROLS CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.
- △ PROVIDE MAKEUP AIR UNIT ROOM TEMPERATURE OVERRIDE CONTROL.



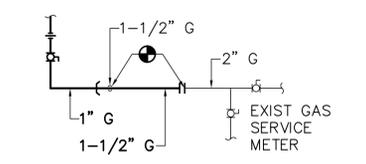
DESIGNED BY: RNC  
 DRAWN BY: RNC  
 CHECKED BY: RNC  
 PROJECT: 21501.08

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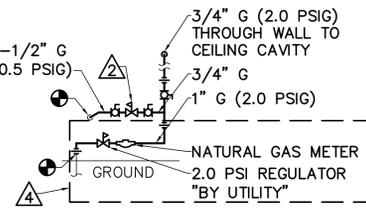
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 CULINARY ARTS  
 RENOVATION PROJECT

FIRST FLOOR  
 MECHANICAL  
 PIPING  
 PLAN

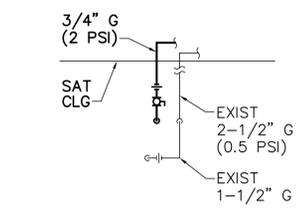
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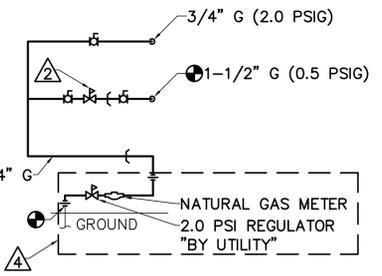
**2 GAS PIPING EXTERIOR ELEVATION 1**  
 MP101 NOT TO SCALE



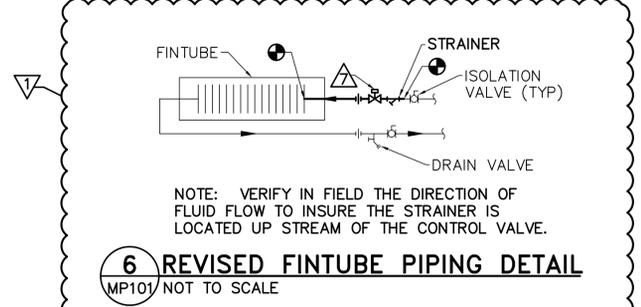
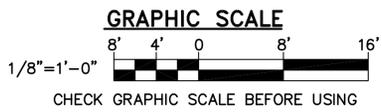
**3 GAS PIPING EXTERIOR ELEVATION 2**  
 MP101 NOT TO SCALE



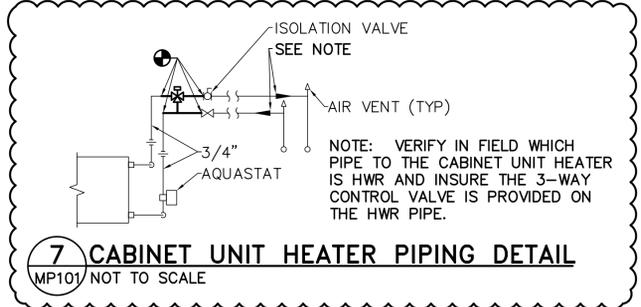
**4 GAS PIPING INTERIOR ELEVATION 3**  
 MP101 NOT TO SCALE



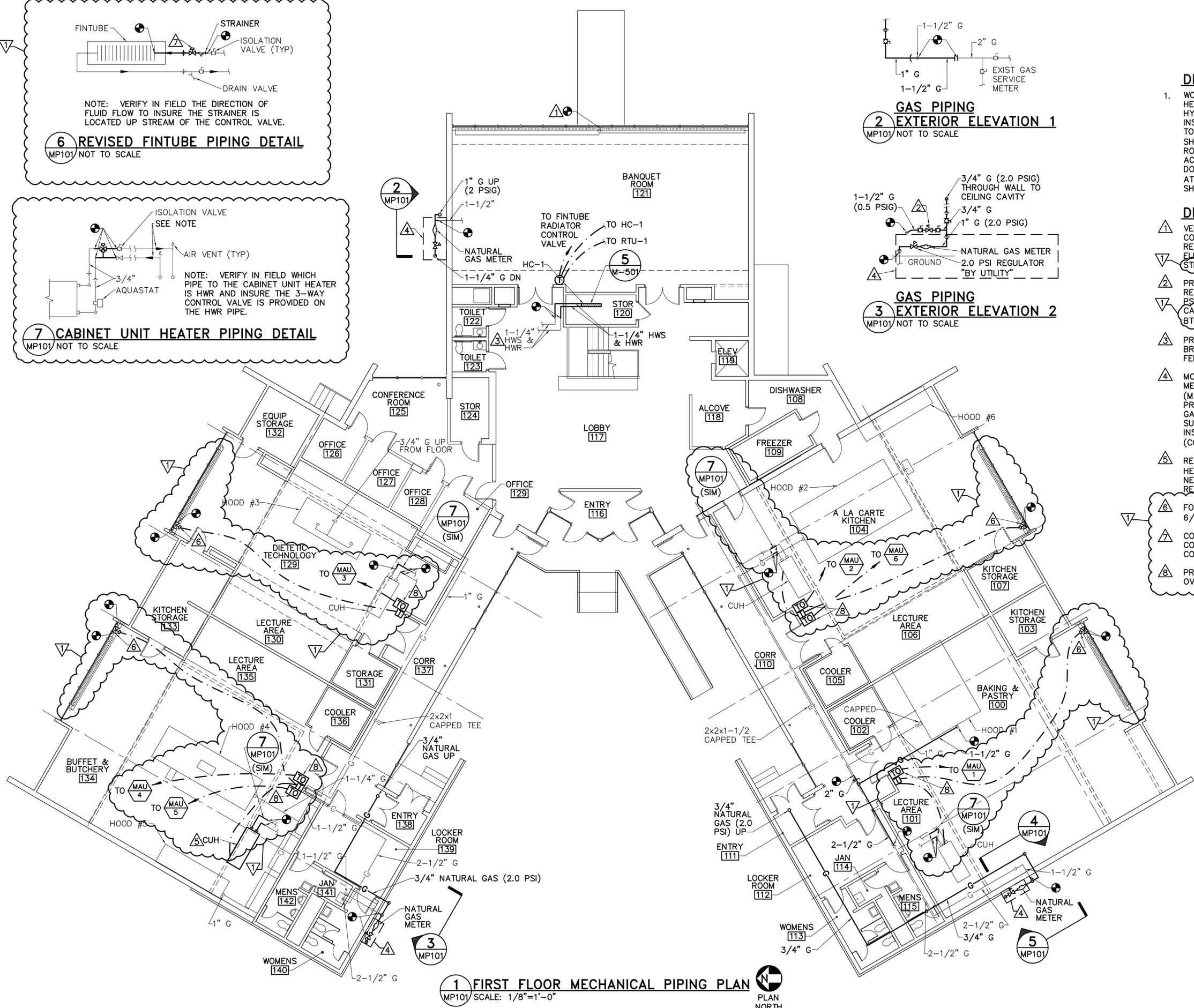
**5 GAS PIPING EXTERIOR ELEVATION 4**  
 MP101 NOT TO SCALE



**6 REVISED FINRTUBE PIPING DETAIL**  
 MP101 NOT TO SCALE



**7 CABINET UNIT HEATER PIPING DETAIL**  
 MP101 NOT TO SCALE



**1 FIRST FLOOR MECHANICAL PIPING PLAN**  
 MP101 SCALE: 1/8"=1'-0"