

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that UNIVERSITY OF MAINE

Located At 23 BEDFORD

Job ID: 2011-05-1217-HVAC

CBL: 114 - A - G - 009 - 001 - - - -

has permission to INSTALL VRF HEAT PUMP

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD**

[Handwritten signature]
6/9/11

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-05-1217-HVAC

Located At: 23 BEDFORD

CBL: 114 - A - G - 009 - 001 - - - -

Conditions of Approval:

Fire

Installation shall comply with City Code Chapter 10.

Installation shall comply with NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*; NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2011-05-1217-HVAC	Date Applied: 5/27/2011	CBL: 114 - A - G - 009 - 001 - - - - -	
Location of Construction: 23 BEDFORD ST	Owner Name: UNIVERSITY OF MAINE	Owner Address: 107 MAINE AVE BANGOR, ME - MAINE 04401	Phone:
Business Name:	Contractor Name: Ranor, Inc.	Contractor Address: PO Box 5036, North Jay, ME 04262	Phone: 645-5109
Lessee/Buyer's Name:	Phone:	Permit Type:	Zone: USM Overlay
Past Use: USM - Masterton Hall	Proposed Use: Same: USM - Masterton Hall to install VRF Heat Pump	Cost of Work: \$111,000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/ conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: Type: HVAC
		Signature: <i>[Signature]</i> (58)	Signature: <i>[Signature]</i>
Proposed Project Description: Trane VRF Heatpump in the basement		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Lannie		Zoning Approval	

<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	<p>Special Zone or Reviews</p> <p><input type="checkbox"/> Shoreland</p> <p><input type="checkbox"/> Wetlands</p> <p><input type="checkbox"/> Flood Zone</p> <p><input type="checkbox"/> Subdivision</p> <p><input type="checkbox"/> Site Plan</p> <p><input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM</p> <p>Date: <i>[Signature]</i> 4/2/11</p>	<p>Zoning Appeal</p> <p><input type="checkbox"/> Variance</p> <p><input type="checkbox"/> Miscellaneous</p> <p><input type="checkbox"/> Conditional Use</p> <p><input type="checkbox"/> Interpretation</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Denied</p> <p>Date:</p>	<p>Historic Preservation</p> <p><input checked="" type="checkbox"/> Not in Dist or Landmark</p> <p><input type="checkbox"/> Does not Require Review</p> <p><input type="checkbox"/> Requires Review</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Approved w/Conditions</p> <p><input type="checkbox"/> Denied</p> <p>Date: <i>[Signature]</i></p>
	CERTIFICATION		

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHON



FILL IN AND SIGN WITH INK

5/31/11

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



114 A 6009 B-E USM overlay

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL USM Masterton Hall - Simulation Lab
Bedford St., Portland, ME Use of Building USM Sim Lab Date 5/18/11
Name and address of owner of appliance Univ. of Maine System

Installer's name and address Ranor, Inc.
PO Box 5036, North Jay, ME 04262 Telephone 645-5109

Location of appliance:

- Basement
- Floor
- Attic
- Roof

Type of Fuel:

- Gas
- Oil
- Solid

Appliance Name: Trane VRF Heat Pump

U.L. Approved Yes No

Will appliance be installed in accordance with the manufacture's installation instructions? Yes No

IF NO Explain: _____

The Type of License of Installer:

- Master Plumber # _____
- Solid Fuel # _____
- Oil # _____
- Gas # _____
- Other Refrigeration Tech

Type of Chimney:

- Masonry Lined
Factory built _____
- Metal
Factory Built U.L. Listing # _____
- Direct Vent
Type _____ UL# _____

Type of Fuel Tank

- Oil
- Gas

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$ 111,000.00

Permit Fee: \$ 1,130.00

RECEIVED
MAY 27 2011
By Mail
Dept. of Building Inspections
City of Portland Maine

Approved

Approved with Conditions

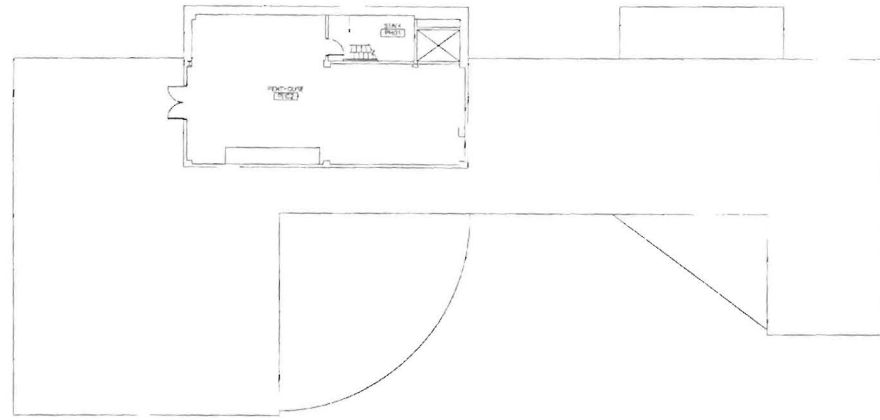
Fire: _____
Ele.: _____
Bldg.: _____

- See attached letter or requirement

Inspector's Signature

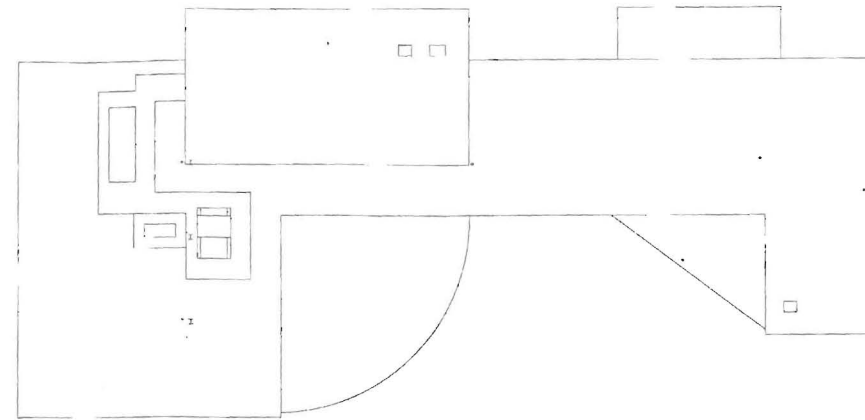
Date Approved

Signature of Installer _____



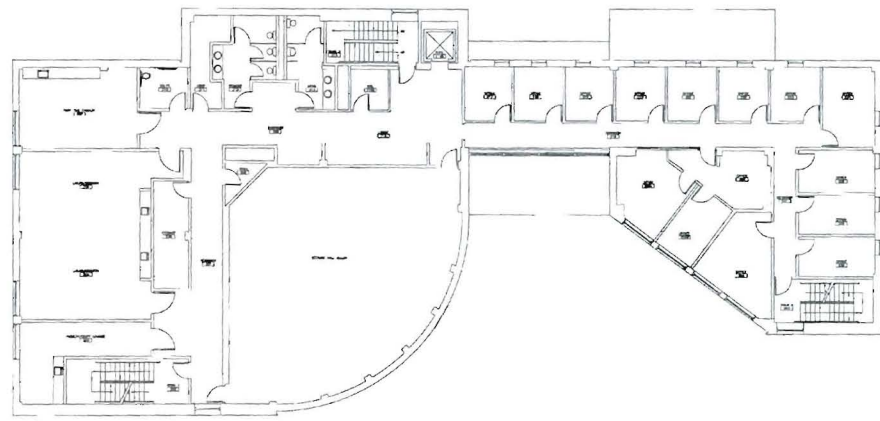
J1 PENTHOUSE PLAN

1/16" = 1'-0"



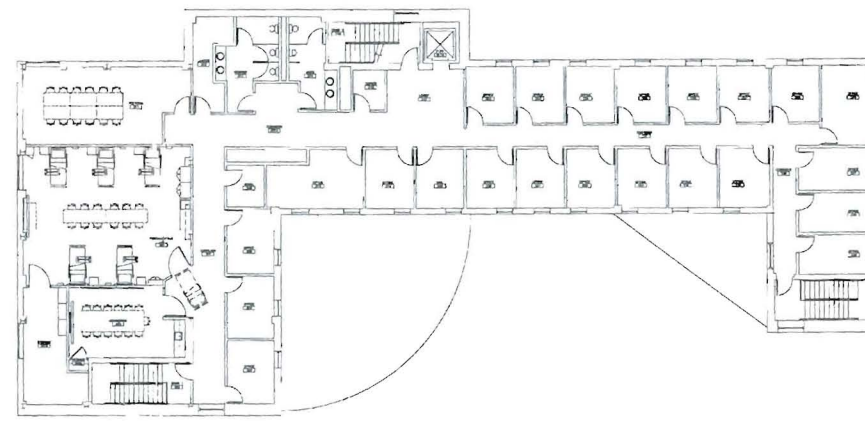
J8 ROOF PLAN

1/16" = 1'-0"



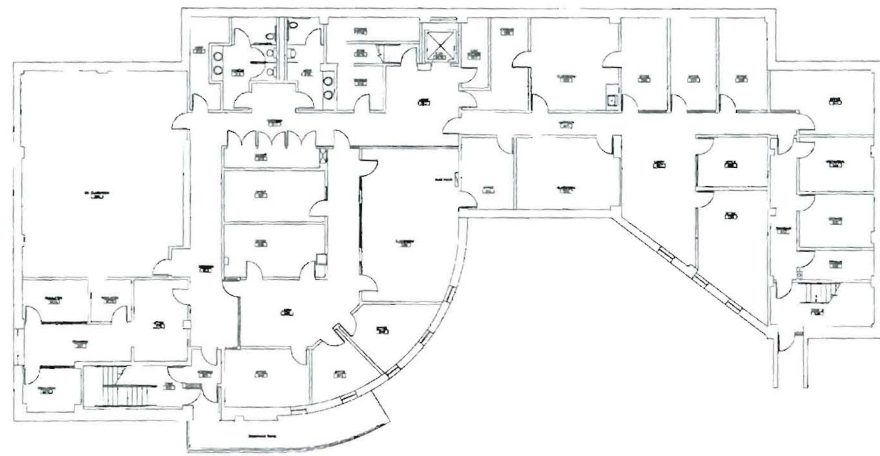
E1 SECOND FLOOR PLAN

1/16" = 1'-0"



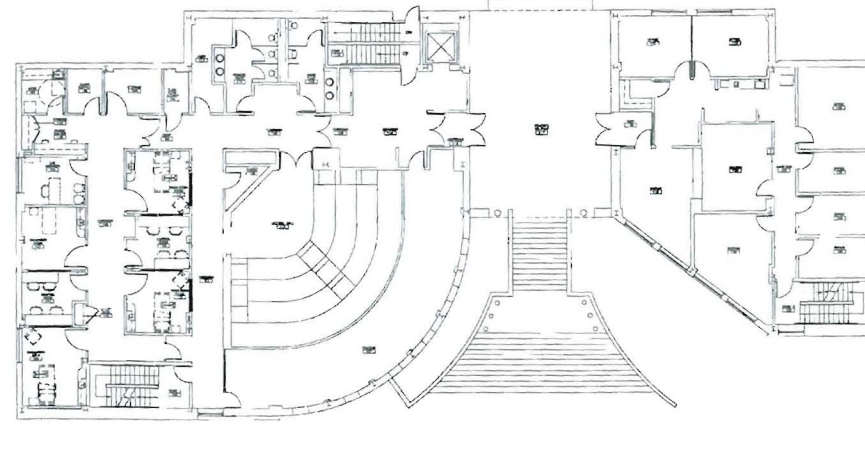
E8 THIRD FLOOR PLAN

1/16" = 1'-0"



A1 GROUND FLOOR PLAN

1/16" = 1'-0"



A8 FIRST FLOOR PLAN

1/16" = 1'-0"

NOTE:

1. SEE G1001 FOR LEGEND AND GENERAL NOTES.

144 Pine Street/P.O. Box 618
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Tel: (207) 772-3846
Fax: (207) 772-1070
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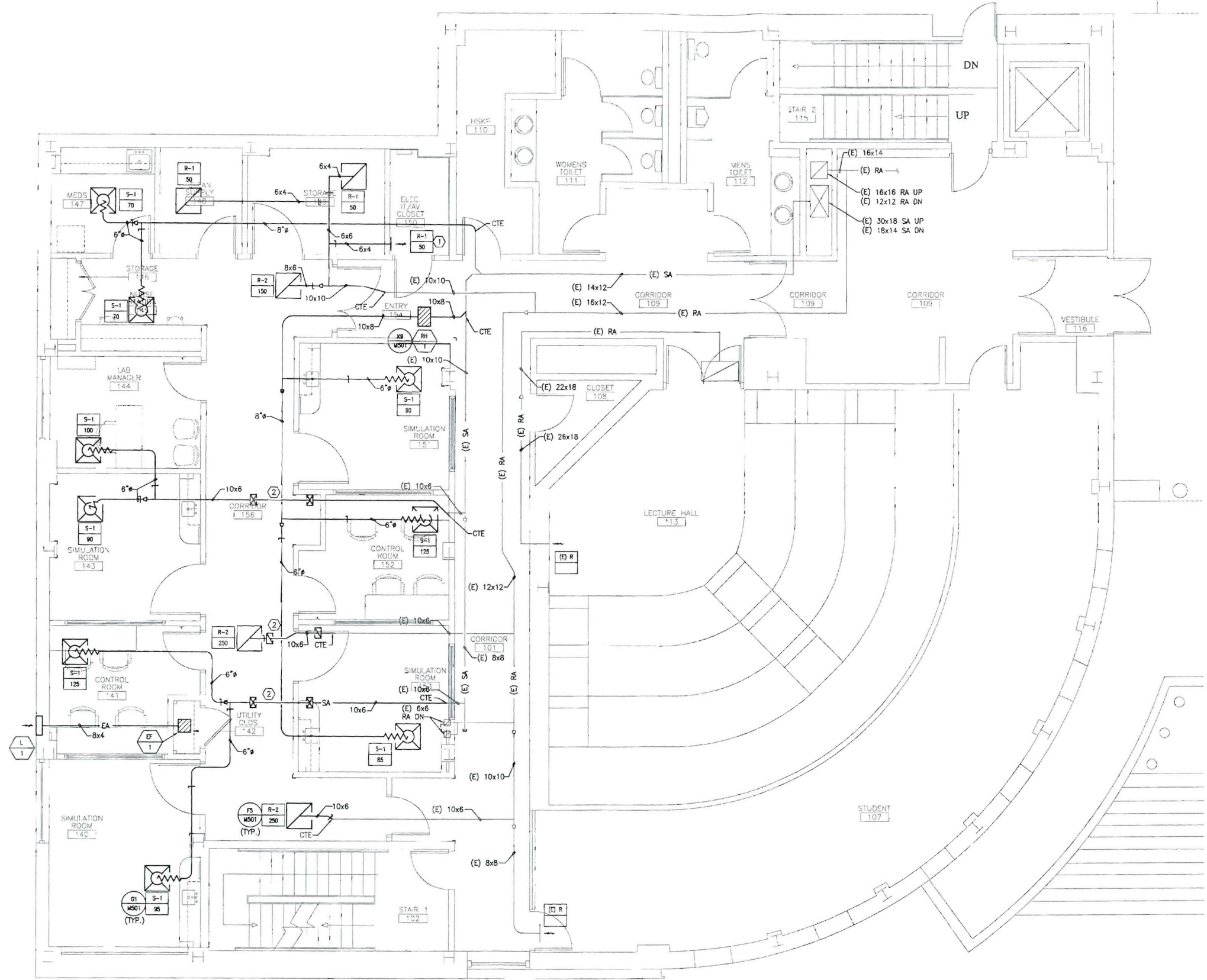
UNIVERSITY OF SOUTHERN MAINE
SIMULATION LABORATORY
PORTLAND, MAINE
ISSUED FOR BIDDING & CONSTRUCTION
4-15-11

REV	DESCRIPTION	DATE

GRAPHIC SCALE:
0' 1'

SCALE: AS NOTED
PROJECT MANAGER: SLB
JC/DRAWN BY: CAH
A/E OF RECORD: SLB
CAD FILE: A-002-10150
PROJECT NO: 10150-00
DATE: 4-15-11
SHEET TITLE:

FACILITY PLAN
SHEET No. A-002
© COPYRIGHT 2011 SMRT INC



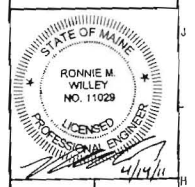
NOTE:
 1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS.

KEYED NOTES:
 ① PROVIDE BORDER FOR SURFACE MOUNTING.
 ROUTE DUCTWORK UP TO JOIST.

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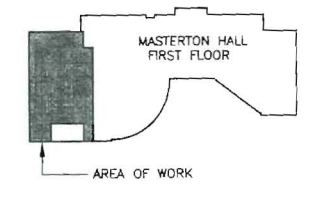
CURRENT ISSUE STATUS:

REV	DESCRIPTION	DATE
0	ISSUED FOR BIDDING, PERMITS & CONSTRUCTION	4-15-11

GRAPHIC SCALE:
 0" 1"

SCALE: 1/4"=1'-0"

PROJECT MANAGER: SLB
 JC/DRAWN BY: BAL
 A/E OF RECORD: RWN
 CAD FILE: MH101-10150
 PROJECT NO: 10150-00
 DATE: 4-15-11
 SHEET TITLE:

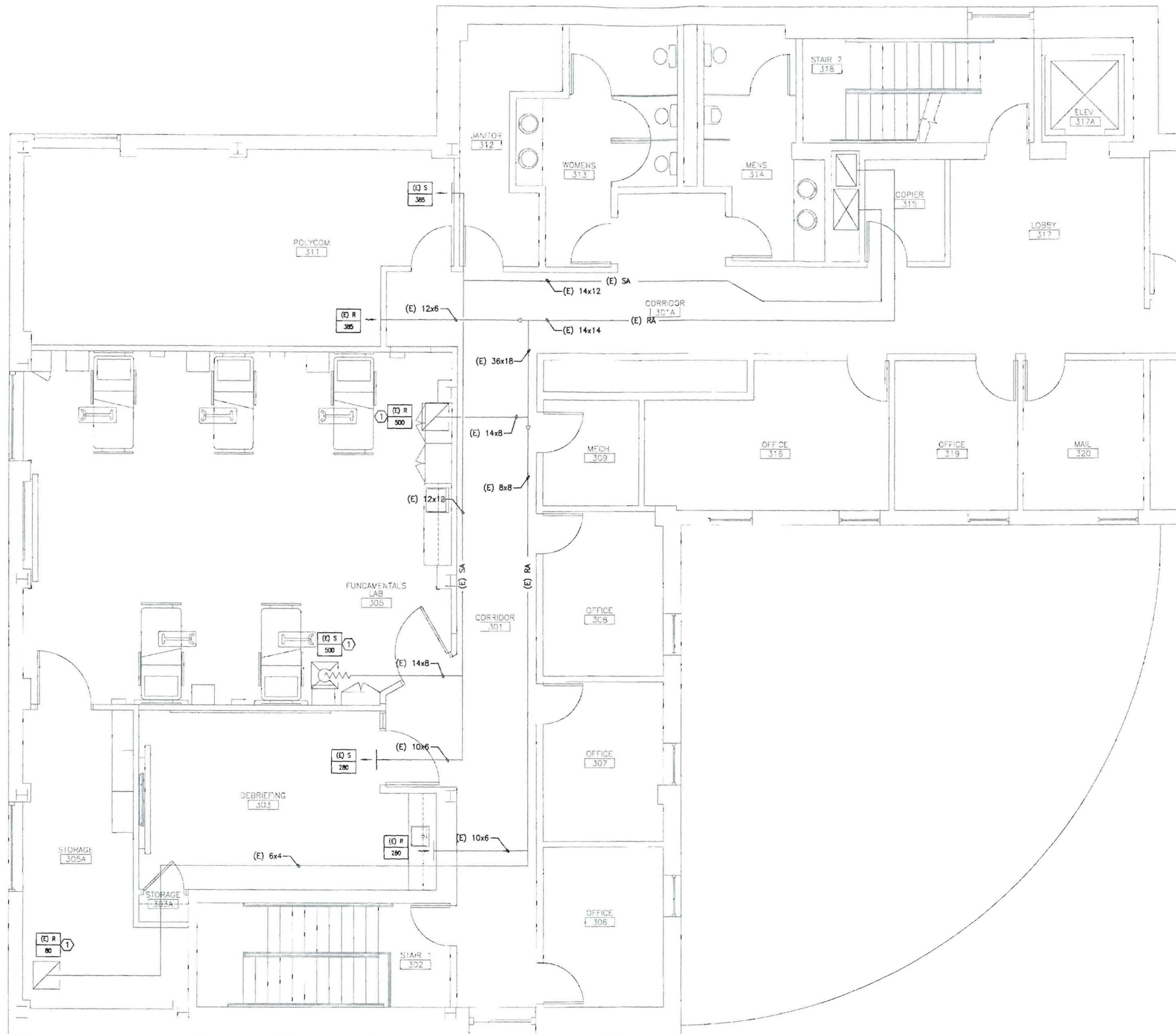


FIRST FLOOR HVAC
 DUCTWORK PLAN

SHEET No.
MH101

A1 FIRST FLOOR HVAC DUCTWORK PLAN
 1/4" = 1'-0"

A14 KEY PLAN
 NTS



NOTE:
 1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS.

KEYED NOTES:
 ① RELOCATE EXISTING REGISTERS, DIFFUSERS, AND GRILLS TO FIT NEW CEILING GRID.

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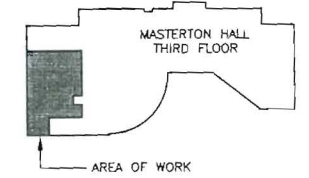
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REV	DESCRIPTION	DATE
0	ISSUED FOR BIDDING, PERMITS & CONSTRUCTION	4-15-11

GRAPHIC SCALE:
 0" 1"

SCALE: 1/4" = 1'-0"

PROJECT MANAGER: SLB
 JC/DRAWN BY: BAL
 A/E OF RECORD: RMW
 CAD FILE: MH102-10150
 PROJECT NO: 10150-00
 DATE: 4-15-11
 SHEET TITLE:



A1 THIRD FLOOR HVAC DUCTWORK PLAN

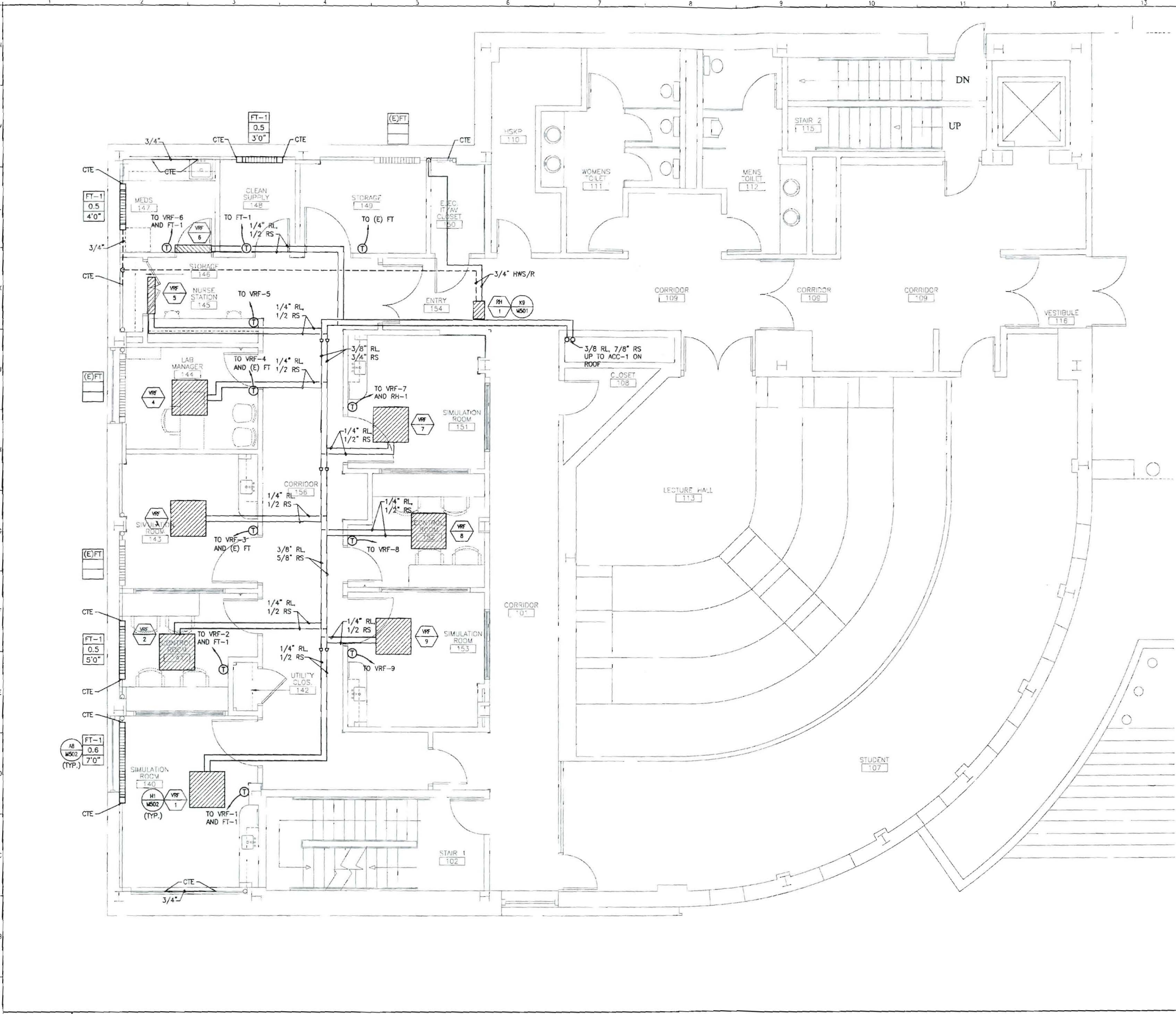
1/4" = 1'-0"

A14 KEY PLAN

NTS

THIRD FLOOR HVAC DUCTWORK PLAN

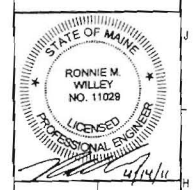
SHEET No.
MH102
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NOTE:
 1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS

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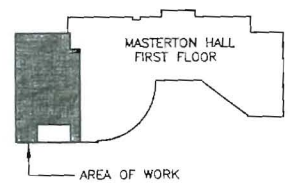
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 4-15-11

NO.	DATE	DESCRIPTION
0	4-15-11	ISSUED FOR BIDDING, PERMITS & CONSTRUCTION

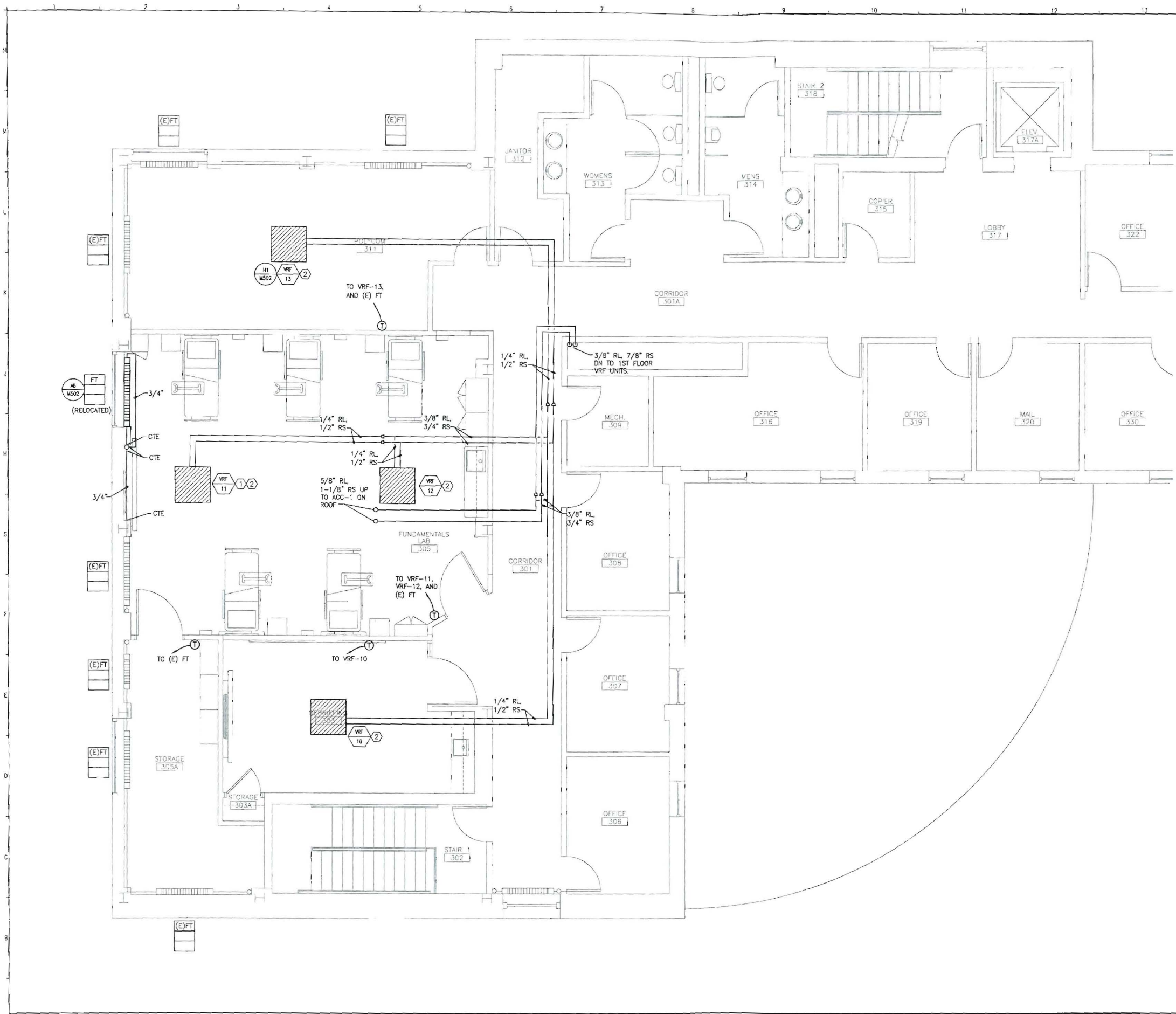
GRAPHIC SCALE:
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 SCALE: 1/4"=1'-0"
 PROJECT MANAGER: SLB
 JC/DRAWN BY: BAL
 A/E OF RECORD: RMW
 CAD FILE: MP101-10150
 PROJECT NO: 10150-00
 DATE: 4-15-11
 SHEET TITLE:



FIRST FLOOR HVAC
 PIPING PLAN
 SHEET No.
MP101
 © COPYRIGHT 2008 SMRT INC.

A1 FIRST FLOOR HVAC PIPING PLAN
 1/4" = 1'-0"

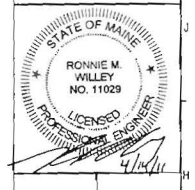
A14 KEY PLAN
 NTS



NOTE:
 1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS.
NOTE:
 ① VRF-11 TO BE 3-WAY THROW.
 ② ALTERNATE #1 INCLUDES VRF UNITS AND ASSOCIATED PIPING AND CONTROLS.

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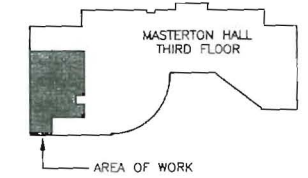
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 4-15-11

REV	DESCRIPTION	DATE
0	ISSUED FOR BIDDING, PERMITTING & CONSTRUCTION	4-15-11

GRAPHIC SCALE:
 0' 1'
 SCALE: 1/4"=1'-0"
 PROJECT MANAGER: SLB
 JC/DRAWN BY: BAL
 A/E OF RECORD: RMW
 CAD FILE: MP102-10150
 PROJECT NO: 10150-00
 DATE: 4-15-11
 SHEET TITLE:



A1	THIRD FLOOR HVAC PIPING PLAN	A14	KEY PLAN
1/4" = 1'-0"		NTS	

THIRD FLOOR HVAC PIPING PLAN
 SHEET No. **MP102**
 © COPPIN TOP INC.

$1/4'' = 1'-0''$

1

2

3

4

5

6

7

8

9

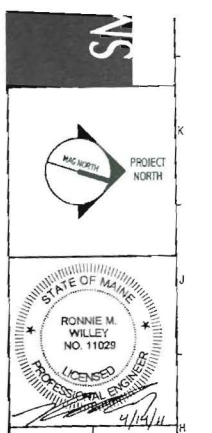
10

11

12

13

14



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SIMULATION LABORATORY
PORTLAND, MAINE

ISSUED FOR BIDDING & CONSTRUCTION
4-15-11

CURRENT ISSUE STATUS:

REV	DESCRIPTION	DATE
0	ISSUED FOR BIDDING, PERMITS & CONSTRUCTION	4-15-11

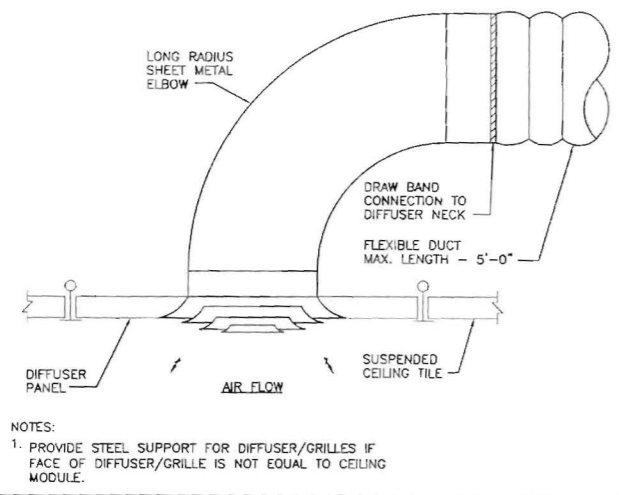
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0' 1'

SCALE: NOT TO SCALE

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JC/DRAWN BY: BAL
A/E OF RECORD: RMM
CAD FILE: M-501-10150
PROJECT NO: 10150-00
DATE: 4-15-11

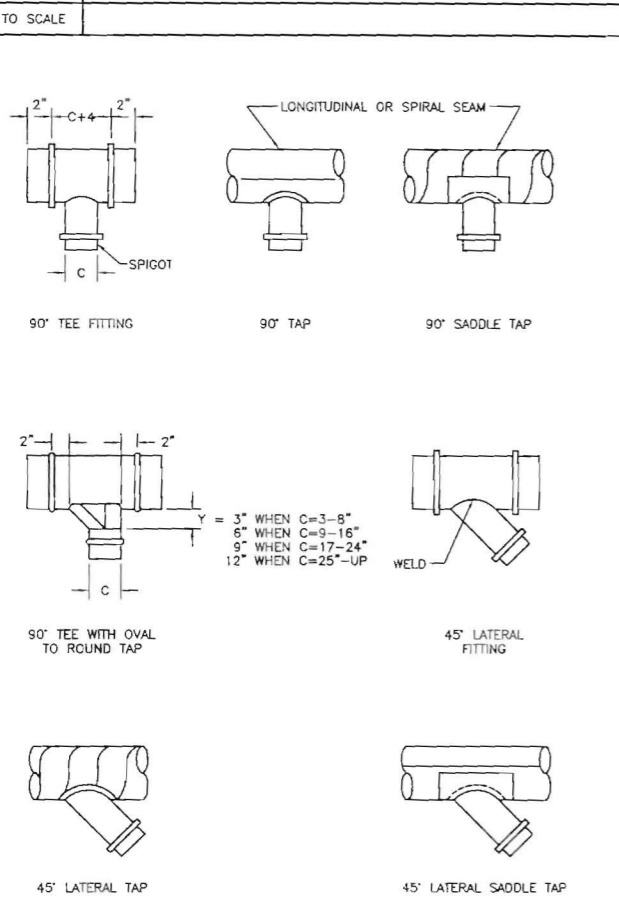
SHEET TITLE:
DETAILS

SHEET No.
M-501



G1 FLEXIBLE DUCT

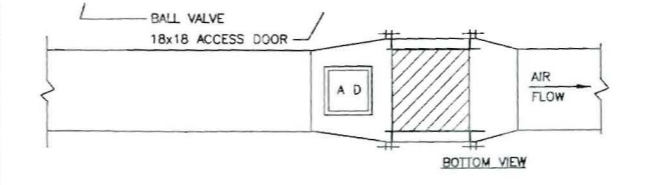
NOT TO SCALE



A1 TEES AND LATERALS

NOT TO SCALE

- MATERIAL MUST NOT TOUCH DUCT.
- 2. SUPPORT DUCT FROM HANGERS ON EITHER SIDE OF WALL. DO NOT LET DUCT "LOAD" ONTO WALL.
- 3. PENETRATION MUST BE SEALED 100% AIR TIGHT.
- 4. USE FIRE SEALANT AT FIRE WALLS.

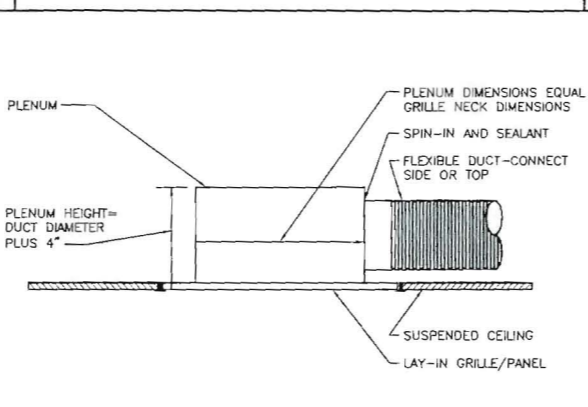


K5 METAL DUCT WALL PENETRATION

NOT TO SCALE

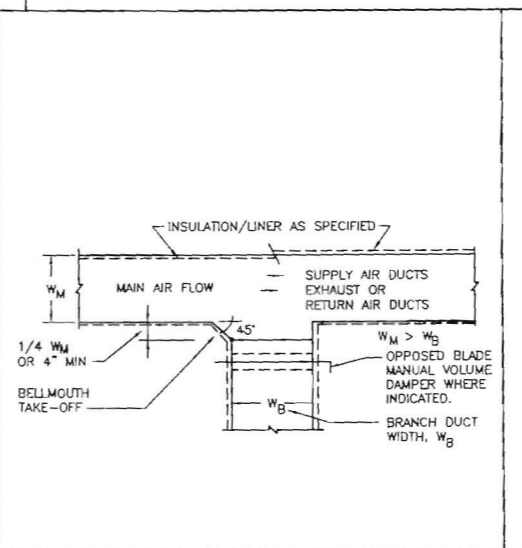
K9 DUCT HEATING COIL PIPING SCHEMATIC

NOT TO SCALE



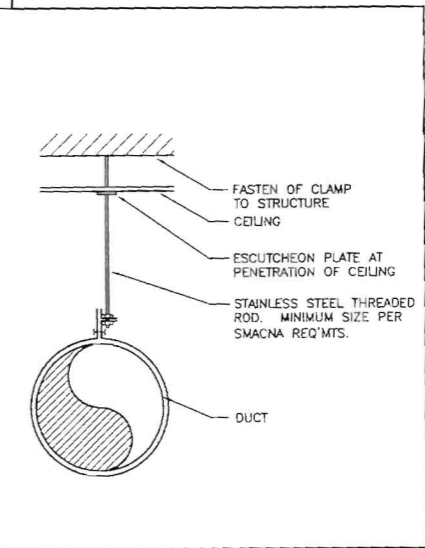
F5 TYP. RETURN & TRANSFER GRILLE PLENUM

NOT TO SCALE



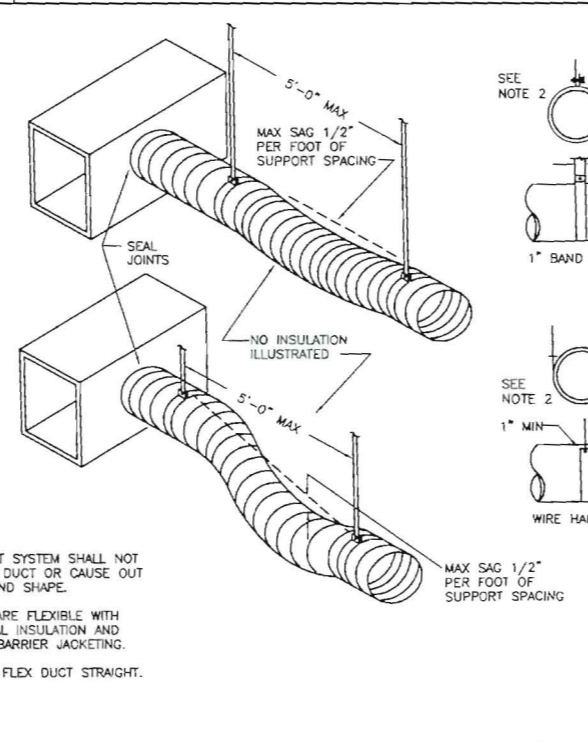
E9 RECTANGULAR DUCT MAIN AND BRANCH TAKE OFFS

NOT TO SCALE



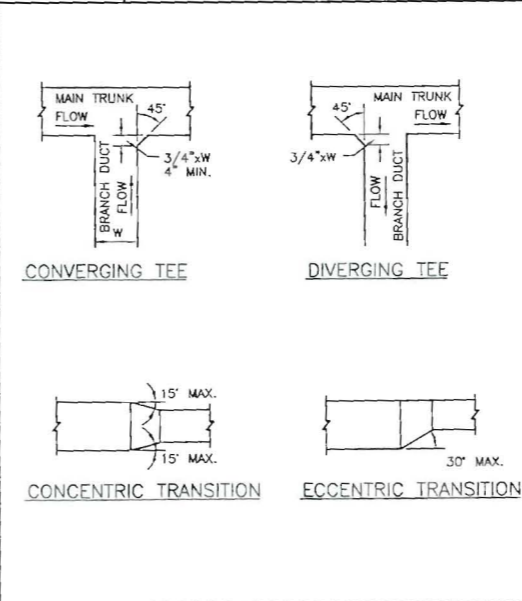
E12 DUCT HANGER

NOT TO SCALE



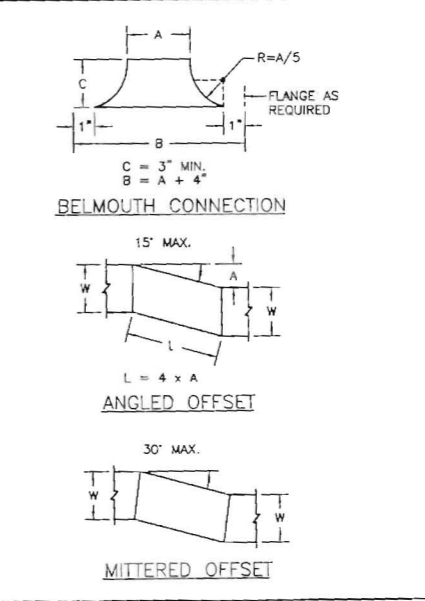
A5 STRAIGHT SECTION FLEXIBLE DUCT SUPPORT REQUIREMENTS

NOT TO SCALE



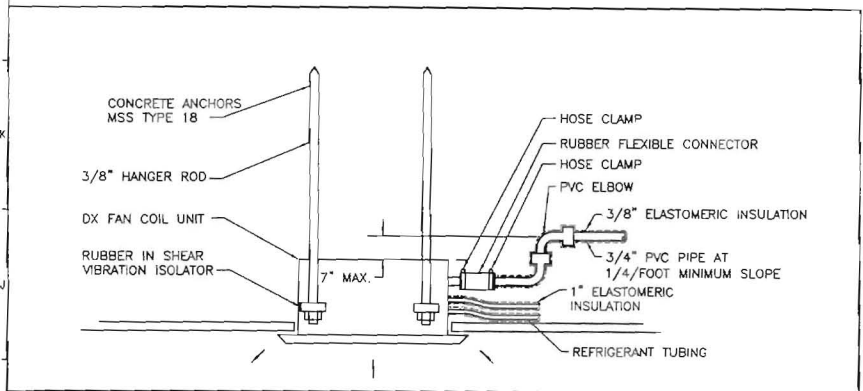
A9 DUCT TRANSITIONS

NOT TO SCALE

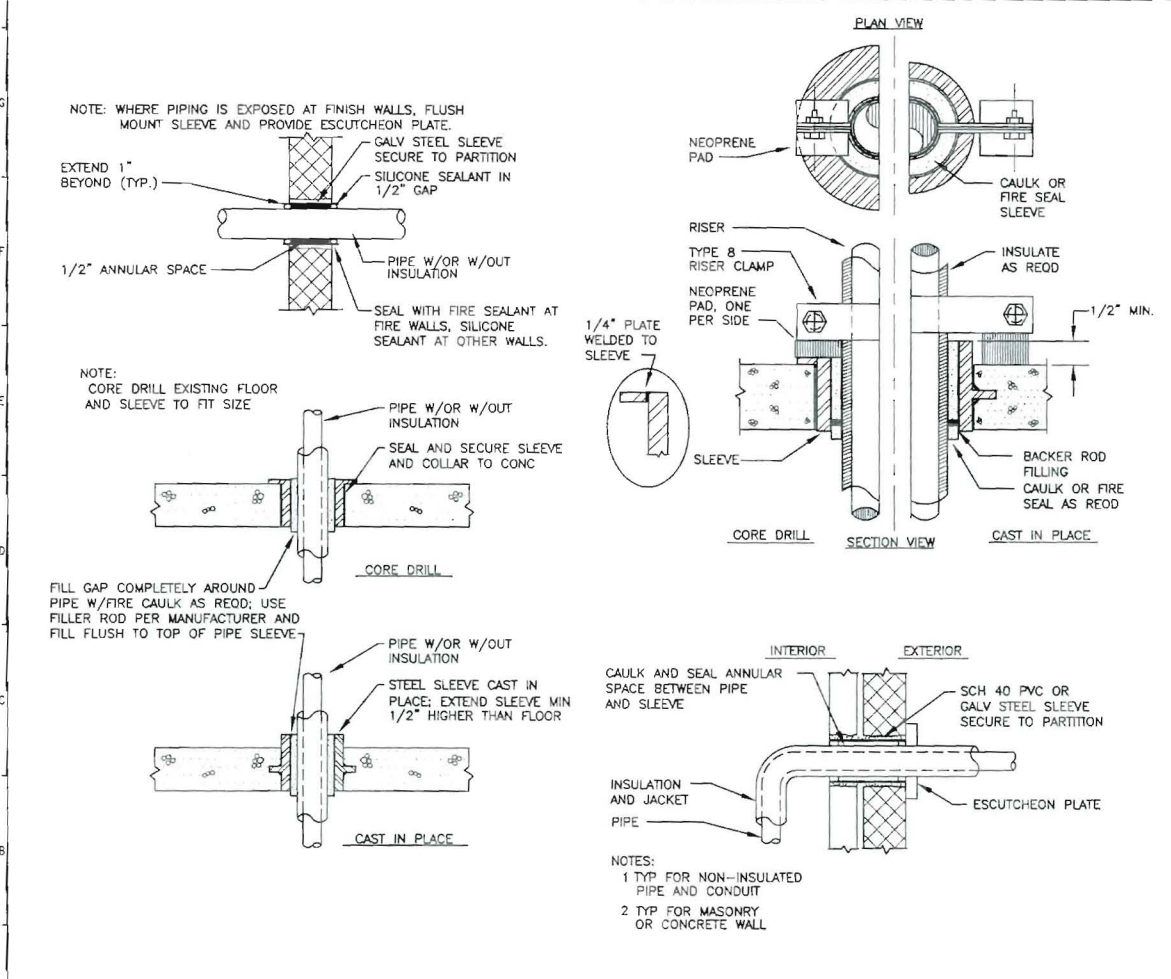


E12 DUCT HANGER (continued)

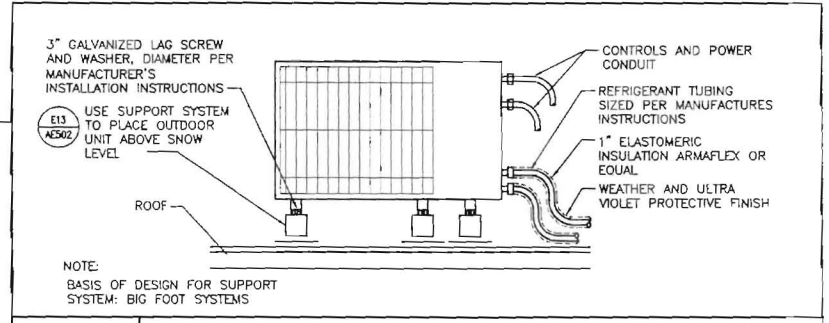
NOT TO SCALE



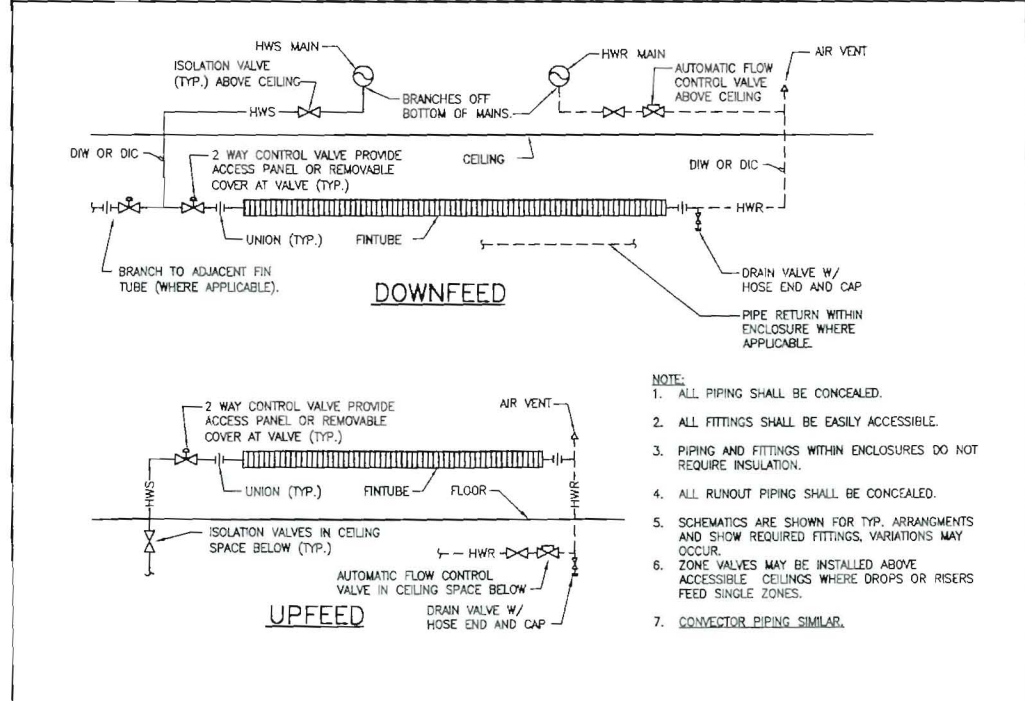
H1 AIR CONDITIONING DX UNIT
NOT TO SCALE



A1 PIPE PENETRATION DETAILS
NOT TO SCALE



F8 CONDENSING UNIT DETAIL
NOT TO SCALE



A8 FIN TUBE RADIATION PIPING DETAIL
NOT TO SCALE

VARIABLE REFRIGERANT FLOW:

- A. VRF UNITS SHALL BE EQUIPPED WITH FACTORY MOUNTED CONTROLS. CONTROLS SHALL BE PROVIDED WITH A GATEWAY TO COMMUNICATE WITH THE FACILITY BMS. ROOM TEMPERATURE AND ALL ALARMS SHALL BE MONITORED AND REPORTED TO THE BMS. ALARMS TO INCLUDE BUT SHALL NOT BE LIMITED TO COMPRESSOR FAILURE, EVAPORATOR OR CONDENSER FAN FAILURE, HIGH OR LOW REFRIGERANT PRESSURE.
- B. VRF MANUFACTURER SHALL PROVIDE ONE WALL MOUNTED ROOM TEMPERATURE SENSOR PER ZONE AS INDICATED FOR CONTROL OF BOTH VRF COOLING AND FINTUBE HEAT.
- C. OCCUPIED MODE:
 1. ON A CALL FOR COOLING THE CONDENSING UNIT AND ROOM EVAPORATOR SHALL BE ENABLED. AFTER ALL SAFETIES HAVE BEEN SATISFIED THE VRF SYSTEM SHALL MAINTAIN ROOM TEMPERATURE AT THE COOLING SET POINT. (75°F ADJ). ONCE THE ROOM TEMPERATURE HAS BEEN SATISFIED THE ROOM EVAPORATOR SHALL BE DISABLED.
 2. THE CONDENSING UNIT SHALL BE ENABLED IF ANY ONE EVAPORATOR HAS BEEN ENABLED.
 3. FINNED TUBE: UPON A CALL FOR HEATING THE CONTROL VALVE SHALL OPEN TO MAINTAIN ROOM TEMPERATURE SET POINT, (70°F ADJ). ONCE THE ROOM TEMPERATURE IS SATISFIED THE CONTROL VALVE SHALL CLOSE.
 4. REHEAT COIL: UPON A CALL FOR HEATING THE CONTROL VALVE SHALL OPEN TO MAINTAIN ROOM TEMPERATURE SET POINT, (70°F ADJ). ONCE THE ROOM TEMPERATURE IS SATISFIED THE CONTROL VALVE SHALL CLOSE.
- D. UNOCCUPIED MODE(NIGHT SETBACK):
 1. DURING THE COOLING SEASON THE ROOM TEMPERATURE SHALL BE SETBACK TO 80°F ADJ.
 2. DURING THE HEATING SEASON THE ROOM TEMPERATURE SHALL BE SETBACK TO 60°F ADJ.

J14 SEQUENCE OF OPERATIONS

NOT TO SCALE

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PROJECT NORTH

STATE OF MAINE
RONNIE M. WILLEY
NO. 11029
LICENSED PROFESSIONAL ENGINEER

UNIVERSITY OF SOUTHERN MAINE
SIMULATION LABORATORY
PORTLAND, MAINE

ISSUED FOR BIDDING & CONSTRUCTION
4-15-11

REV	DATE	DESCRIPTION
0	4-15-11	ISSUED FOR BIDDING, PRINTING & CONSTRUCTION

GRAPHIC SCALE: 1" = 1'

SCALE: NOT TO SCALE

PROJECT MANAGER: SLS
LC/DRAWN BY: BAL
A/E OF RECORD: BWA
CAD FILE: M-502-10150
PROJECT NO: 10150-00
DATE: 4-15-11
SHEET TITLE:

DETAILS AND SEQUENCE OF OPERATIONS

SHEET No. **M-502**