

TOWN OF SIMSBURY

**REQUEST FOR PROPOSALS FOR
HVAC ENGINEERING DESIGN SERVICES
ENO HALL HVAC SYSTEM UPGRADES**

Submissions will be received at the Town of Simsbury, 933 Hopmeadow Street, Simsbury, Connecticut 06070 until September 14th at 2:00 pm, EST.

The Request for Proposals (RFP) is available online <https://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>

Three (3) hard copies and one (1) flash drive of the submitted qualifications are to be placed in an envelope, fees proposal should be placed in a separate sealed envelope, and addressed to Amy Meriwether, Director of Finance, Town of Simsbury, 933 Hopmeadow Street, Simsbury, CT 06070. No proposals will be accepted after the date and time specified. No fax or email submissions will be accepted.

The Town of Simsbury reserves the right to accept or reject, without prejudice, any or all proposals or to waive any irregularities therein, or to accept the proposal deemed to be in the best interest of Town of Simsbury.

Questions regarding this RFP should be directed to Matt Hopkins, Facilities Supervisor via email at mhopkins@simsbury-ct.gov. In order to receive consideration, all questions must be submitted by the close of business, five days before the due date. Responses to all salient questions will be provided by addendum and posted on the Town's web site under the Finance page, RFP's & RFP's prior to the close of business three days prior to the due date.

RFP NO. DPW 2023-03

TOWN OF SIMSBURY

REQUEST FOR PROPOSALS FOR HAVAC ENGINEERING DESIGN SERVICES ENO HALL HVAC SYSTEM UPGRADES

1.0 INTRODUCTION

The Town of Simsbury (Town) requests interested mechanical engineering and HVAC professionals to submit qualifications and a separate sealed price proposal for consideration and selection, for the design, and preparation of contract documents for the replacement of the chillers, boilers, terminal units/heat pumps, steam and water distribution systems within our historic Eno Memorial Hall, located at 754 Hopmeadow Street. The Town anticipates conducting the design portion of the work during the winter of 2023/2024 to allow for construction beginning in late summer/fall of 2024.

2.0 PROJECT DESCRIPTION

2.1 Project Background

Eno Memorial Hall is a 27,012 sf, building built in 1932 and is registered to the National Register of Historic Places in 1993. The building houses our senior center and is used for a number of community events.

In 2019 the Town conducted a Facility Master Plan that identified the HVAC systems in Eno Memorial Hall as needing to be replaced and upgraded. The Town has funding in place to support the design for these improvements, including the preparation of contract drawings and a bid package or multiple bid packages for the required work.

2.2 Scope of Services

The Town is seeking design professionals that can determine the best replacement systems for the existing chiller, boilers and terminal units. In this work, the Town anticipates a throughout review of all systems, with an emphasis on systems that will have long term energy savings and/or lower carbon footprints. Town staff will work closely with the selected firm in determining the final products, based on cost, energy efficiency, long term maintenance and best overall value.

Our expectation is the design professional will design the final systems and prepare a single or multiple bid package for the procurement and installation of all equipment. The Town will provide our standard front-end specifications. The selected Firm will be expected to conduct

pre-bid conference(s), bid review(s) and recommendation of award(s). During Construction the selected firm may be engaged to provide construction support services, including change order review/negotiation, shop drawing review.

Tasks for this project include:

- a) Initial Investigation – building layout, needs, existing system review.
- b) Preliminary Design – Review of possible systems, presentation and discussion with Town staff, to determine final system type.
- c) Design Development – preparation of contract documents, with a 30% and 90% submission and review by Town staff.
- d) Cost Estimate - A detailed cost estimate is to be provided with the 90% submission.
- e) Bid Support and Analysis – support bid advertisement, conduct pre-bid meeting, prepare addenda and provide analysis of bid results.
- f) Construction Support Services – Shop Drawing/Submittal review, respond to RFI's, review of change orders.

2.3 Building Equipment and As-Built Drawings

- a) The most recent equipment list for Eno Hall is provided for reference as Appendix A, minor alterations may have occurred since this list was last compiled.
- b) Documents the Town has deemed relevant for this project are included in Appendix B. As-built drawings are not guaranteed accurate by the Town.

3.0 QUALIFICATIONS REQUIREMENTS/FORMAT

The TOWN OF SIMSBURY will not be liable for any costs incurred by Proposers in preparing proposals or interview process or associated costs. The Proposers shall furnish the TOWN OF SIMSBURY such additional information as it may reasonably require to evaluate the proposals.

The TOWN OF SIMSBURY will consider only those Proposers who are able to meet and document all qualifications requirements described below. Whenever it is deemed to be in the best interest of the Town, the Town shall waive informalities in any and all proposals. The right is reserved to reject any proposal or any part of any proposal when such action is deemed to be in the best interest of the Town of Simsbury.

Proposers must submit one (3) hard copy and (1) flash drive of their response in the following format:

1. Qualifications - Cover letter addressing the following:

- Statement of Interest
 - Identification of the point of contact for the RFP
2. Firm Profile including:
 - Size and expertise
 - Resumes of key individuals proposed for the project and their experience working on similar projects (maximum 1 page per individual).
 - List Name(s) of proposed sub-consultants clearly identifying the work they will perform.
 3. Proposed organization and team structure.
 4. Relevant Project experience with reference(s), contact information, and budget. Limit to five projects, municipal projects are preferred.
 5. A completed Form SF 330 (or equal) identifying company profile, key staff and their responsibilities.
 6. Similar information on any consultants that are proposed (can be several under consideration by your firm).
 7. Detailed proposal with tasks broken out as described in RFP Section 2.2
 8. Fee Proposal in a separate envelope. Provide a fee for each task, A-E. Payment will be based on Lump Sum for tasks A-E. Hourly rates to be provide for task F. Payment for task F will be based on actual hours accrued.
 9. Completed Code of ethics
 10. Other: Submit additional information your firm believes is pertinent to this RFP.

A determination that a Proposer meets these requirements is no assurance that the Proposer will be selected for performance of the services solicited in this document.

4.0 SELECTION PROCESS

The materials submitted by the Proposers will be reviewed and ranked by the Public Works Department and will be based upon a Qualifications Based Selection (QBS) format. Interviews may occur prior to final selection.

The QBS process will incorporate without limitation the following criteria:

- Relevant project experience.
- Experience with government agencies with similar Work.
- Ability to comply with Work requirements.
- Experience, skill-set and demonstrated leadership of proposed Project team.
- Quality of proposal.

Following the qualifications review, the town will narrow the respondents to the most qualified firm(s). If relatively equal firms are selected, then the fee proposals will be opened and used to determine the firm that will be recommended for this project.

4.1 Instructions to Proposers:

All qualifications must be received by the time designated; any submission received late will not be accepted. RFP documents may be obtained at the Town of Simsbury website

<https://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>

All qualifications shall be submitted to the following individual in a sealed envelope entitled "HVAC Design Services - Eno Memorial Hall".

Amy Meriwether, Director of Finance / Treasurer
Town of Simsbury
933 Hopmeadow Street
Simsbury, Connecticut 06070

4.2 RFP Schedule

Advertise	August 24, 2023
Non-Mandatory Pre-Bid Meeting and Site Visit Eno Memorial Hall 754 Hopmeadow Street 10:00 a.m.	September 1, 2023
RFP Responses Due	September 14, 2023 by 2 PM

4.3 RFP Selection Schedule (tentative)

• Preliminary Selection (or about)	September 28, 2023
• Interviews, if any (or about)	October 5, 2023
• Contract Execution on (or about)	October 19 2023

4.4 Inquiries and Questions

Inquiries and Questions regarding this RFP should be directed to Matt Hopkins, Facilities Supervisor via email at mhopkins@simsbury-ct.gov. In order to receive consideration, all questions must be submitted by the close of business five days prior to the due date. Only emailed responses to questions will be binding.

Responses to all salient questions will be provided by addendum and posted on the Town's web site under Public Bids and RFP's prior to the close of business on September 8, 2023.

4.5 Non-Mandatory Pre-bid Meeting and Walkthrough

On September 1 2023 at 10:00 am, the Town will hold a pre-bid meeting and walkthrough at Eno Memorial Hall, 754 Hopmeadow Street. All are strongly encouraged to attend but it is

not mandatory. Questions posed during pre-bid or walkthrough will be posted as an addendum after the meeting.

5.0 GENERAL TERMS AND CONDITIONS/ADDITIONAL INFORMATION

Amendments to, or withdrawal of, packages received later than the time and date set for the opening will not be considered.

The Town of Simsbury may require further information and references on any individual or company prior to making an award.

The Town of Simsbury reserves the right to amend and/or cancel the RFP prior to the time and date of the opening.

If it becomes necessary to revise any part of this request or if additional data is necessary to enable interpretation of provisions of this document, revisions or addenda will be provided to all known prospective Proposers and such revisions or addenda will additionally be posted on the following websites:

<https://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>
<https://portal.ct.gov/DAS/CTSource/ContractBoard>

A contract shall not be awarded to any corporation, firm or individual who has an unpaid and/or overdue debt to the Town of Simsbury by nonpayment of taxes, by debt or contract, or who is in default as surety or otherwise by any obligation to the TOWN OF SIMSBURY.

All proposers shall comply in every respect with all applicable laws of the Federal Government and/or the State of Connecticut.

The individual signing this Proposal hereby declares that no person or persons other than members of his/her own organization are interested in this project or in the contract proposed to be let; that it is made without any connection with any other person or persons making a proposal for the same work and is in all respects fair and without collusion or fraud; that no persons acting for or employed by TOWN OF SIMSBURY is directly or indirectly interested therein, or in the supplies or works to which it relates or will receive any part of the profit or any commission therefrom in any manner which is unethical or contrary to the best interest of TOWN OF SIMSBURY.

Equal Opportunity-Affirmative Action. The successful Proposer shall comply in all aspects with the applicable Equal Employment Opportunity laws and regulations.

The TOWN OF SIMSBURY is exempt from the payment of the Excise Taxes imposed by the Federal Government, and the Sales and Use Tax of the State of Connecticut. Such taxes should not be included in a fee proposal. Exemption certificates will be furnished upon request.

6.0 Insurance Requirements

The Contractor must carry the following types of insurance under which the Town is named as an additional insured on a primary and non-contributory basis, as follows:

Such insurance must be by insurance companies licensed to write such insurance in Connecticut against the following risks with the following minimum amounts and minimum durations.

- A. Workman's Compensation, as required by Connecticut State Statute.
Employer's Liability: at least \$100,000 per employee/ \$100,000 per incident, and \$500,000 per policy.

Public Liability, Bodily Injury Liability and Property Damage Liability as follows:

Injury or death of one person:	\$2,000,000
Injury to more than one person in a single accident:	\$1,000,000
Property damage in one accident:	\$1,000,000
Property damage in all accidents:	\$1,000,000

- B. Automobile (including owned, hired, non-owned) and Truck (Vehicular)
Public Liability, Bodily Injury Liability, and Property Damage Liability as follows:

Injury or death of one person:	\$1,000,000
Injury to more than one person in a single accident:	\$1,000,000
Property damage in one accident:	\$1,000,000
Property damage in all accidents:	\$1,000,000

- C. Builders Risk including Fire and Extended coverage:
In an amount equal to the value of construction completed plus materials delivered to the site.

- D. Errors and Omissions Liability or Professional Services Liability Policy
a. Provide Errors and Omissions Liability or Professional Services Liability Policy for a minimum Limit of Liability \$1,000,000 each occurrence or per claim
b. The A/E Firm agrees to maintain continuous professional liability coverage for the entire duration of this Project and for seven (7) years beyond substantial completion of the Project

Insurance under B, and C above must provide for a 30-day notice to the Town of cancellation/or restrictive amendment.

Insurance under B and C above must be for the whole duration of the contract and for at least twenty-four (24) months after acceptance of the project by the Town.

A waiver of subrogation is required in favor of the Town of Simsbury on all insurance policies, including workers' compensation.

Subcontractors must carry A, B and C in at least the same amounts as above for the duration of the project and until acceptance by the Town.

Certificates of insurance must be submitted to the Director of Public Works prior to the signing of the contract and within ten days of notification of award of contract. Should any insurance expire or be terminated during the period in which the same is required by this contract, the Director of Public Works shall be notified and such expired or terminated insurance must be replaced with new insurance and a new certificate furnished to the Director of Public Works.

Failure to provide the required insurance and certificates may, at the option of the Town, be held to be a willful and substantial breach of this contract.

NOTE: Coverage under "B" shall include XCU coverage as necessary, Collapse and Underground shall be provided for ALL Contracts. Explosion will be provided if specified, or prior to any blasting being performed under the Contract.

Indemnification: To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless the Town of Simsbury from and against all claims, bodily injury and property damage, judgments and expenses, including attorney fees that arise from and are alleged to arise from the performance of this Agreement. This provision shall survive termination of this Agreement.

The Engineer's consultants shall carry the same types and amounts of insurance unless otherwise agreed to by TOWN OF SIMSBURY.

NOTE: By submitting a proposal the vendor agrees that any or all past clients may be contacted by the TOWN OF SIMSBURY. The vendors submitting also agree to release and discharge by submitting for the vendor him/herself, his/her heirs executors administrators and assigns, release acquit and forever discharge the TOWN OF SIMSBURY, and all employees and any or all other persons, firms and corporations of and from any and all actions, causes

of actions, claims or demands for damages, costs, loss of services, expenses, compensation, consequential damage or any other thing whatsoever, on account of, or in any way growing out of any former client contacted by the TOWN OF SIMSBURY to obtain an opinion regarding any work performed by your company. The above release shall also include and apply to any former client contacted.

Town of Simsbury

SUPPLEMENTAL CONTRACT SECTION

CODE OF ETHICS

Chapter 13 of the Code of Ordinances, the Simsbury Code of Ethics, is hereby incorporated by reference as if fully set forth, and is made a part of the Contract Documents. All Contractors shall sign the Acknowledgement Form.

TOWN OF SIMSBURY
Acknowledgement Form
and
Charter Section 1103 Code of the Town of Simsbury

ACKNOWLEDGEMENT FORM

I have read Section 1103 of the Charter of the Town of Simsbury, the Code of Ethics Ordinance, and the Guidelines issued thereunder. I understand my responsibilities as a Contractor retained by the Town of Simsbury, and I am in compliance with the Charter and the Code of Ethics. I have indicated in the space below any areas of conflict should they arise in matters before our board, commission, agency or department, and I agree to report any future conflicts under the provisions of Section 1103 of the Charter.

Areas of Exception

CONFLICTS OF INTEREST
SECTION 1103

CONFLICTS OF INTEREST. It is hereby declared to be the policy of the Town that any elected or appointed officer, any member of any board or commission or any employee of the Town who has a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the Town or any board or commission, shall disclose that interest to the Board of Selectmen, which shall record such disclosure upon the official record of its meetings. Such disclosure of a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the town or of any board or commission shall disqualify such elected or appointed official or such member of a board of commission or such town employee from participation in the awarding, assignment or discussion of said contract, transaction or decision. Violation by any such official, board or commission member or employee of the provisions of this section shall be grounds for his/her removal.

Signature

Name (Please Print)

Date

END OF REQUEST FOR PROPOSALS

END OF REQUEST FOR QUALIFICATIONS

APPENDIX A

ENO MEMORIAL HALL CURRENT EQUIPMENT LIST

754 Hopmeadow Street Simsbury	Eno Memorial Hall	Boiler - Burner	Power Flame	CR1-G0-12	119887228	1998
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Boiler	Burnham, Power Flame Burner	V906A, CR1-G0-12	64057272, 119887229	1998
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Boiler - Burner	Power Flame	CR1-G0-12	119887229	1998
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Condensate Receiver				1998
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Feed Water Pump	U.S. Electrical Motors	R337	422701-002	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Chiller	Trane	CGAFC404AHA1000D00H00N00000W00	C04K08836	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Chilled Water Pump	Bell & Gossett	1510 BF 7.750	CT2618-01 L40	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Chilled Water Pump - Motor	US Motors	R337	D5P2B	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Chilled Water Pump	Bell & Gossett	80 Series		2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Chilled Water Pump - Motor				2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Air Handling Unit	Trane	MCCB012UA0AUA	X04K36432A	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Blower Coil Unit	Trane	BCHC012A1A0A4G01H	T04L65932	2004
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Exhaust Fans				
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Split Ductless Unit	Fujitsu	Halcyon		2018 est.
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Split Ductless Condenser	Fujitsu	Halcyon		2018 est.
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Split Ductless Unit	LG	Neo Plasma, ASU18RLF	KSA073215	2012 est.
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Split Ductless Unit	LG	Neo Plasma, ASU18RLF	KSA073216	2012 est.
754 Hopmeadow Street Simsbury	Eno Memorial Hall	Air Compressor	POWEREX	AD1051E2	(H) 2/16/2001 - 142532	2001

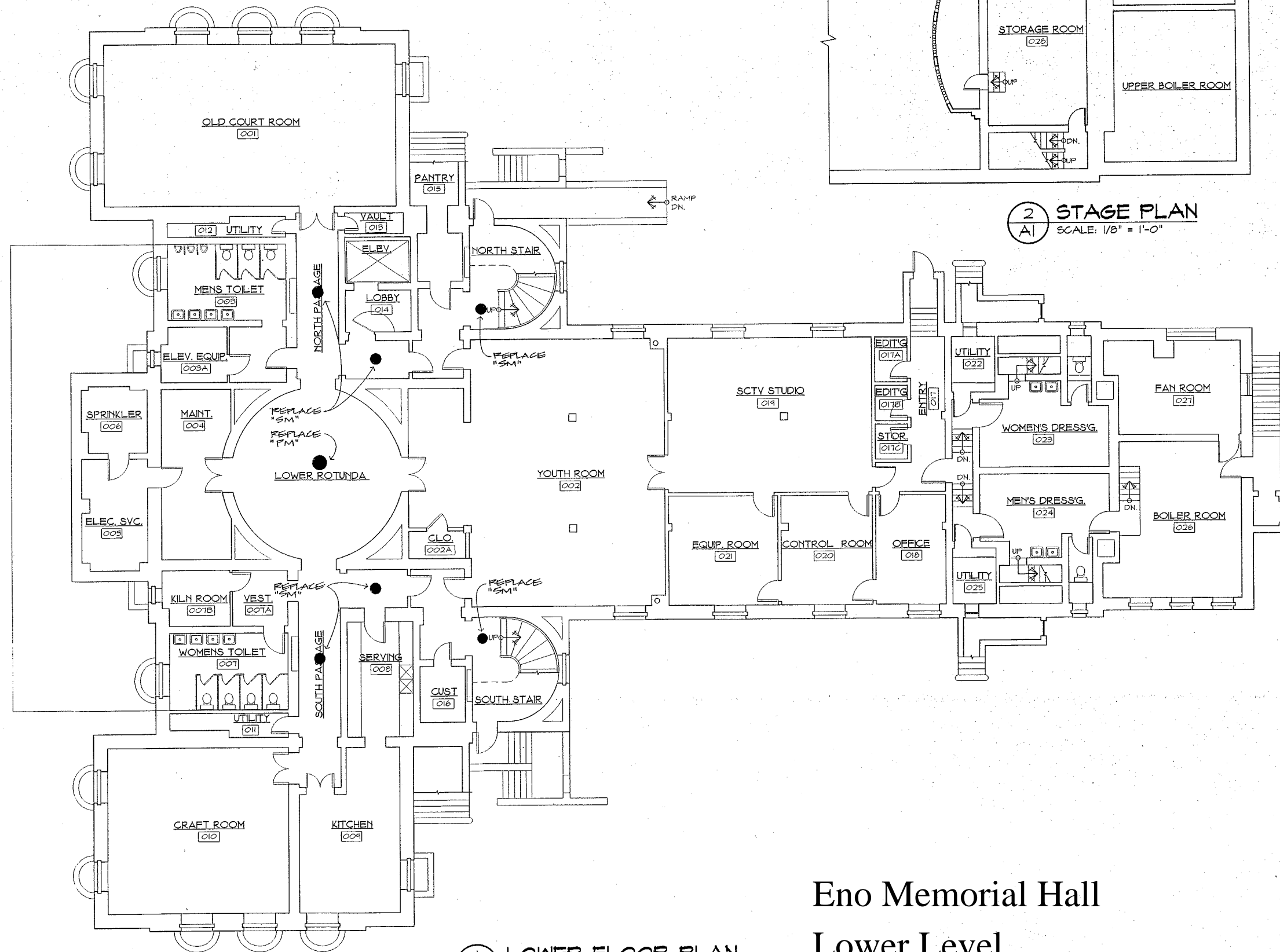
APPENDIX B

Additional Documents:
Floor Plans
2004 HVAC Plans
2022 HVAC Upgrade Study

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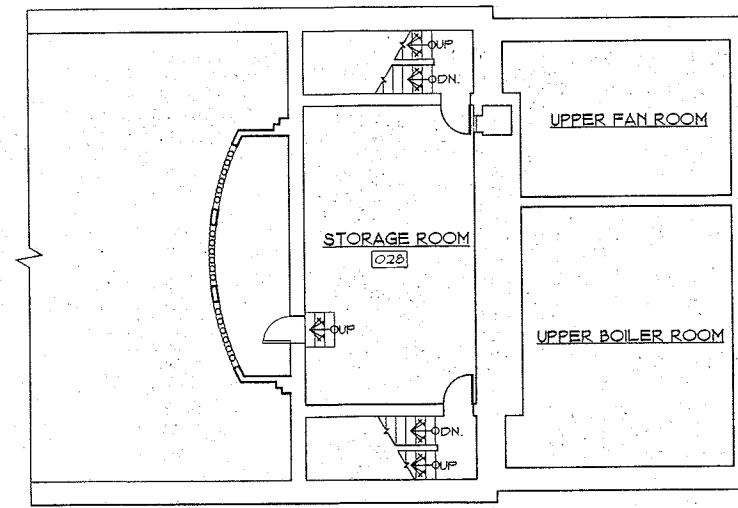
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Station Street



1 LOWER FLOOR PLAN
SCALE: 1/8" = 1'-0"

Eno Memorial Hall Lower Level



2 STAGE PLAN
SCALE: 1/8" = 1'-0"

INTERIOR HISTORIC RESTORATION :

ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT

REVISIONS:

SCALE: 1/8" = 1'-0"
DATE: 15 JUNE 2011

**KENYON
& CUTLER**
ARCHITECTS

ONE DARLING DRIVE
AVON, CONNECTICUT 06001
(860) 677-7598
(860) 674-8824 FAX

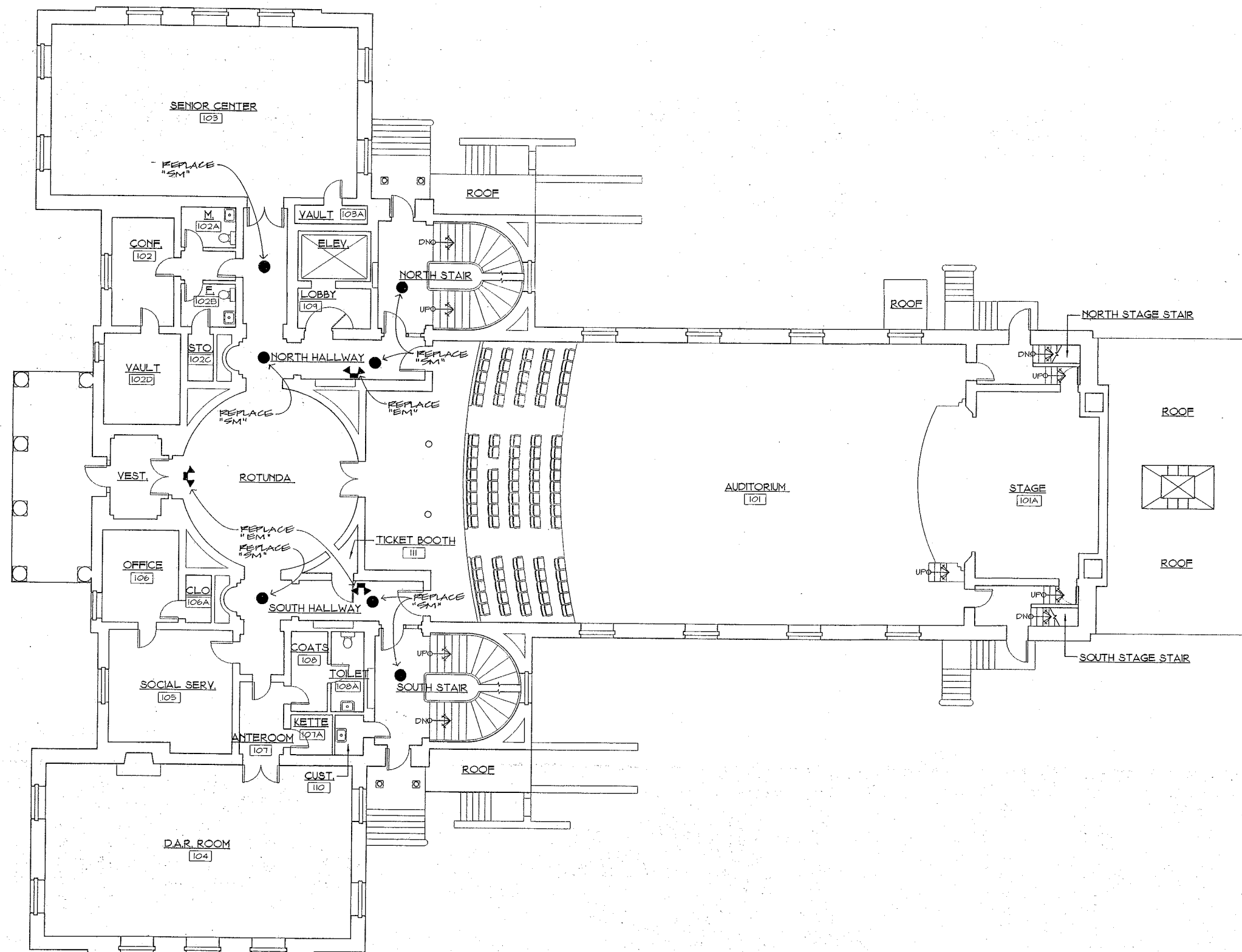
LOWER FLOOR PLAN

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Station Street



1 MAIN FLOOR PLAN
E2 SCALE: 1/8" = 1'-0"

Eno Memorial Hall Main Floor

INTERIOR HISTORIC RESTORATION :

ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT

REVISIONS:

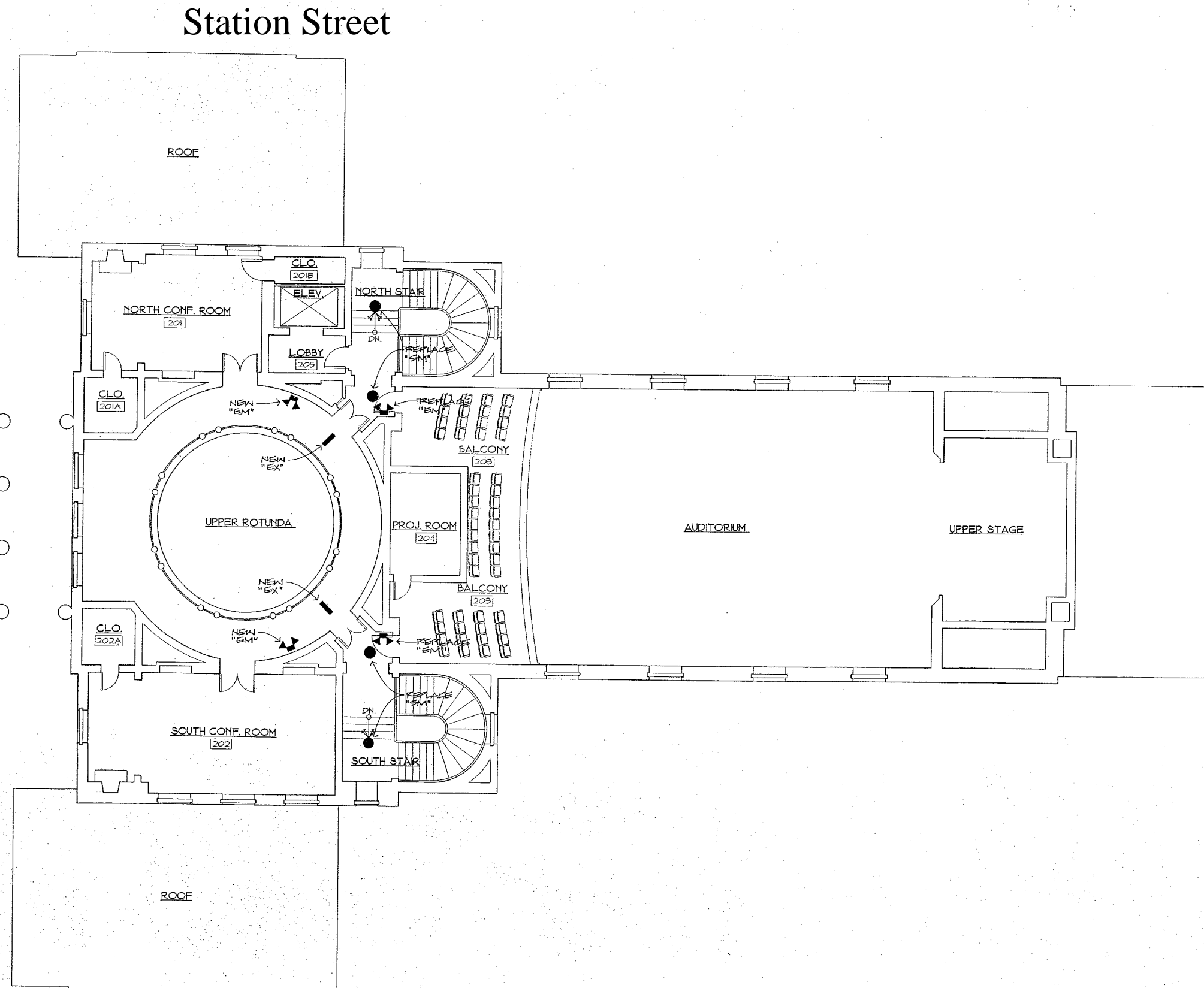
SCALE: 1/8" = 1'-0"
DATE: 15 JUNE 2011

KENYON
& CUTLER
ARCHITECTS

ONE DARLING DRIVE
AVON, CONNECTICUT 06001
(860) 677-7538
(860) 674-8824 FAX

MAIN FLOOR PLAN

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1 UPPER FLOOR PLAN
E3 SCALE: 1/8" = 1'-0"

Eno Memorial Hall

Upper Level

INTERIOR HISTORIC RESTORATION :

ENO MEMORIAL HALL

754 HOPMEADOW STREET SIMSBURY, CONNECTICUT

REVISIONS:

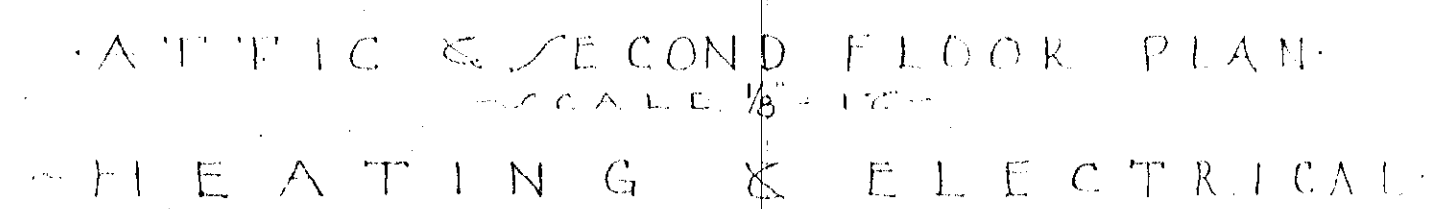
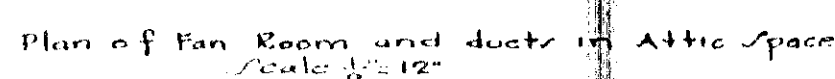
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DATE: 15 JUNE 2011

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ONE DARLING DRIVE
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(860) 677-7598
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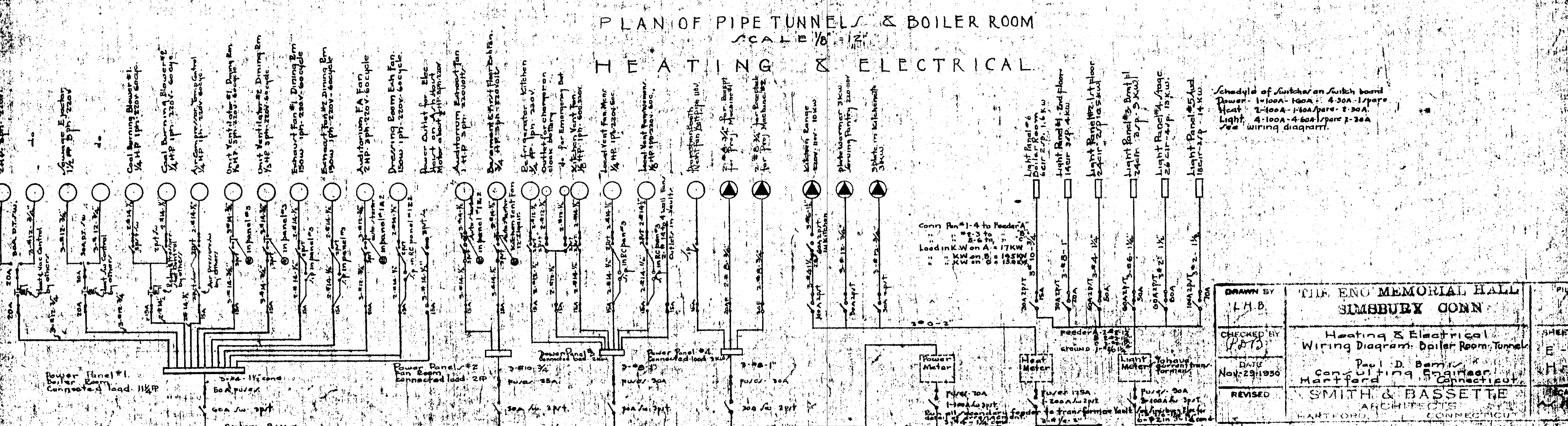
UPPER FLOOR PLAN

E3

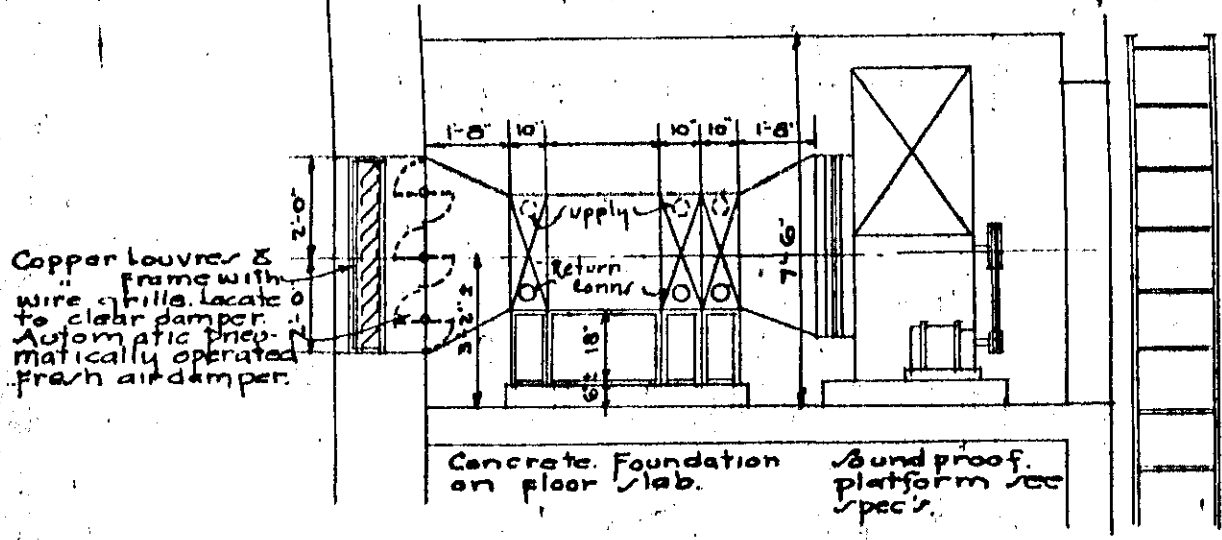


Heating Notes:
All radiators on this plan shall be furnished with grilles as specified. Architect's details for exact size, size shown are approx only.
All rooms marked A.C. shall be furnished with full automatic temperature control.
Thermostats are shown throughout the plan. D4

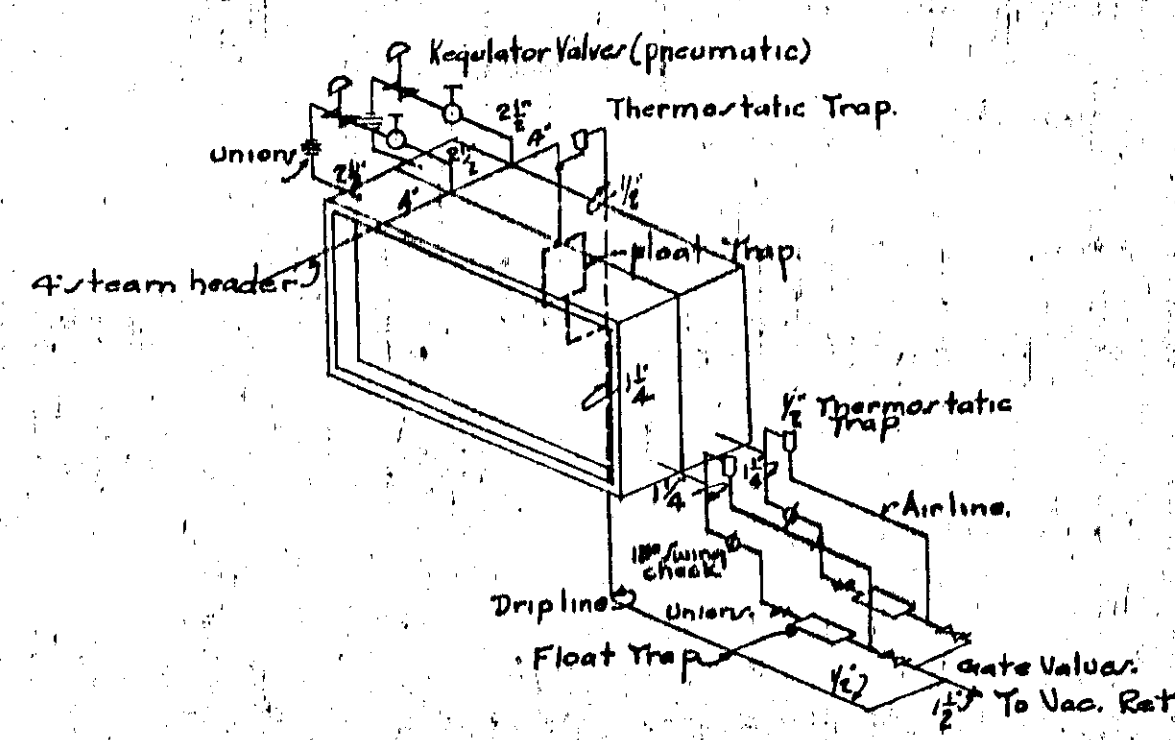
Heating & Electrical
Attic & Second Floor Plan,
Paul D. Baumgardner
Consulting Engineer
Hartford, Connecticut



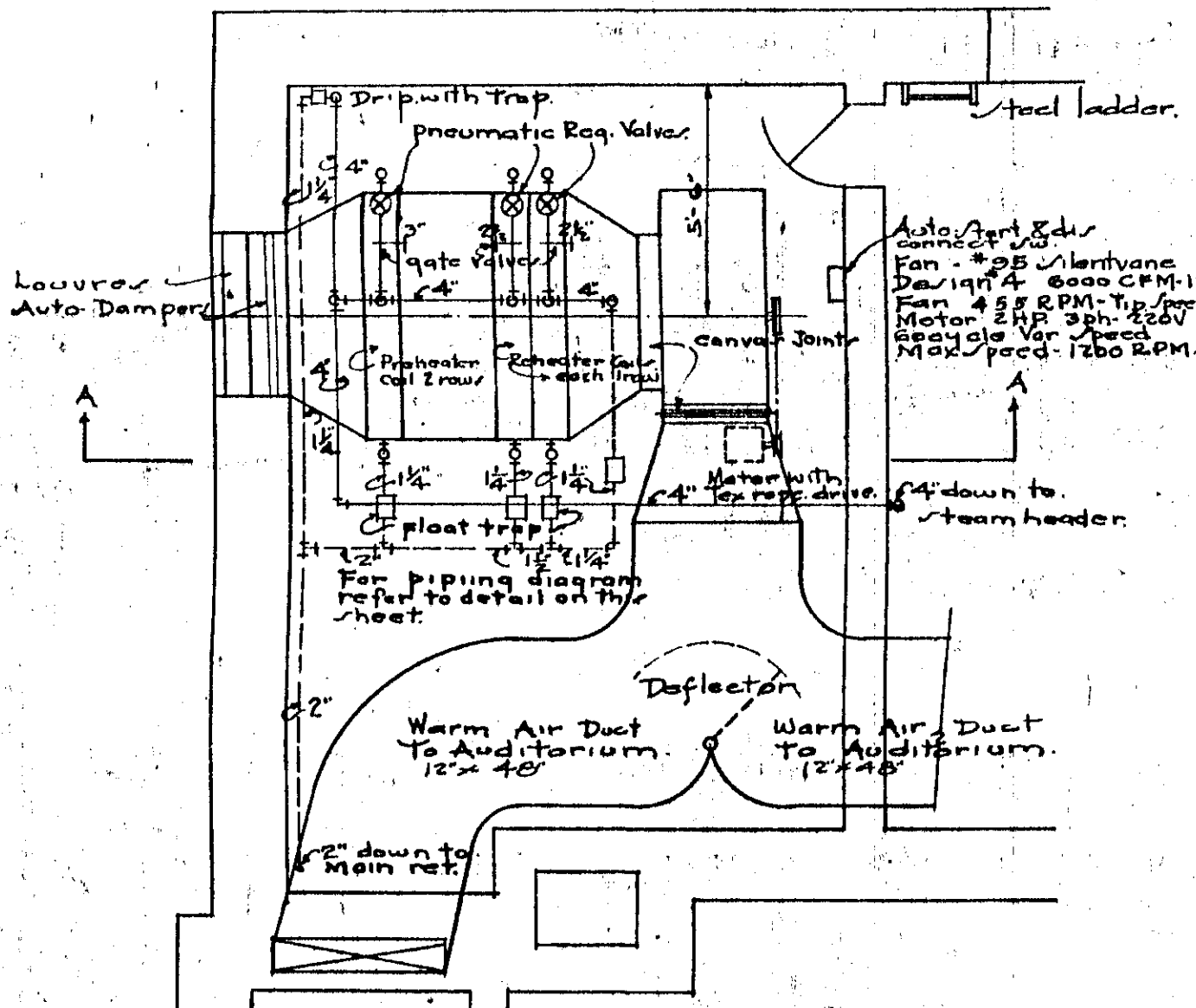
Copper Louvers & frame with wire grille. Locate to clear damper. Automatic thermostatically operated fresh air damper.



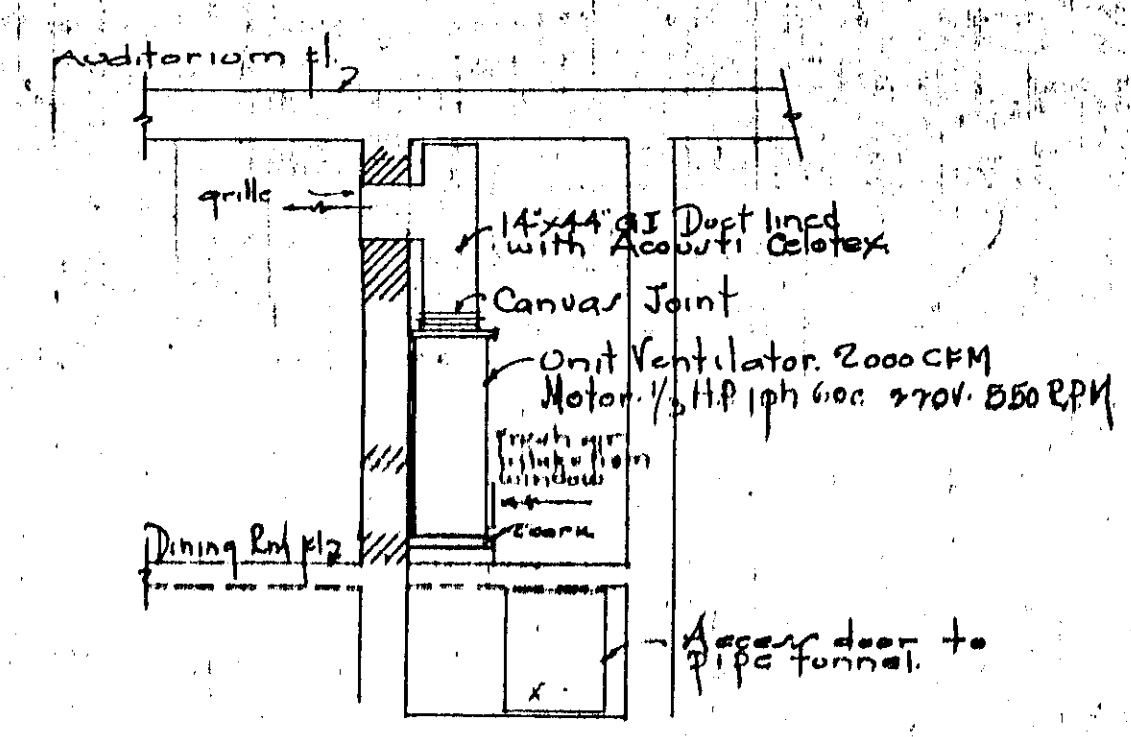
Section A-A



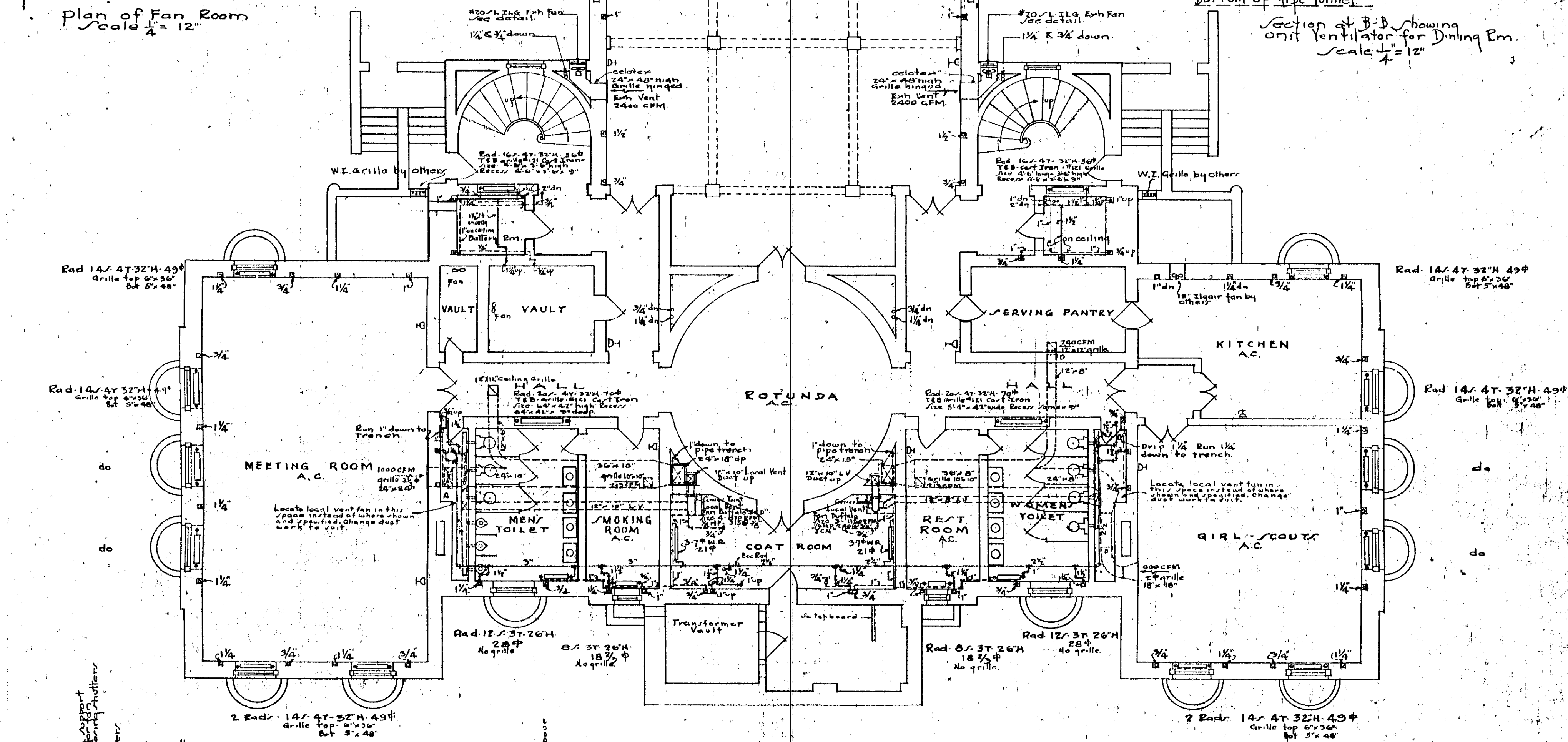
Typical Piping Diagram for Radiator, Calorifier, Heater Coil, Similar. No Scale.



Plan of Fan Room Scale 1/4" = 12"

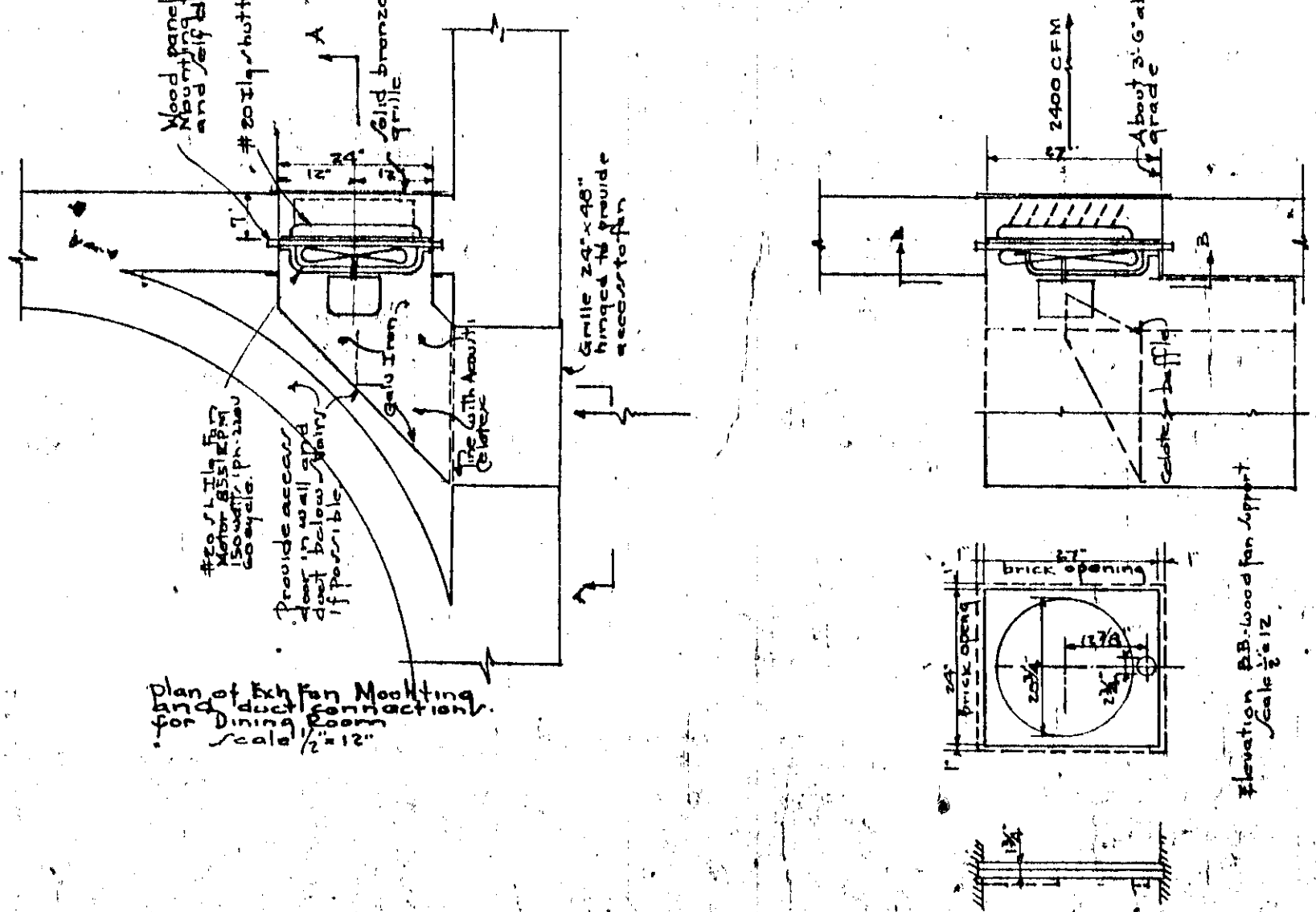


Section at B-B showing unit ventilator for Dining Rm. Scale 1/4" = 12"



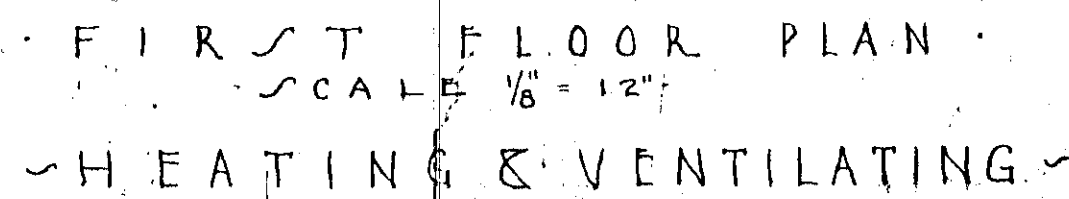
- BASEMENT FLOOR PLAN -
SCALE 1/8" = 12"
- HEATING & VENTILATING -

Heating Notes
plan on all radiators shown on this plan on all other radiators marked shall be furnished with grilles as specified for each room. See Architect's Details. All rooms marked A.C. shall be furnished with full temperature control. See specifications. Radiators are indicated thus on the plan. All radiator recesses shall be arranged so that bottom of radiators and grilles will be at top of base. This does not apply to radiators below windows. The sizes of all radiator and ventilating grilles are approximate only for exact sizes see Architect's Details.



Plan of Exhaust Fan Mounting for Dining Room Section. Scale 1/4" = 12"

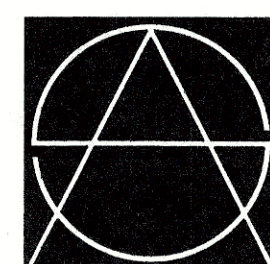
<p>L.H.B. P.D.V. Nov. 1930</p>	<p>THE HNO MEMORIAL HALL SIMPSONY CONN Heating & Ventilating Basement Floor Plan Paul D. Bonin Consulting Engineer Hartford, Connecticut SMITH & BASSETT ARCHT.</p>
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DRAWN BY I. H. D. CHECKED BY R. O. B. DATE Nov. 29, 1930 REVISED	THE ENO MEMORIAL HALL SIMSBURY CONN Heating & Ventilating First Floor Plan Paul D. Demiss Consulting Engineer Hartford, Conn. SMITH & BASSETT ARCHITECTS HARTFORD, CONNECTICUT	FILE SHEET H - 3 SCALE 1/4" = 1'-0"
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AIR CONDITIONING SYSTEM :
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CT 06070

THOMAS VINCENT, FIRST SELECTMAN
RICHARD E. OSTOP, CHAIRMAN, PUBLIC BUILDING COMMITTEE



SCHOENHARDT
ARCHITECTS INC.

ONE MASSACO PLACE
SIMSBURY, CONNECTICUT 06070-2118

TELEPHONE 860.658.4496
FAX 860.658.5280

M0.1 - MECHANICAL GENERAL INFORMATION
M1.1.0 - MECHANICAL LOWER BASEMENT BASE BID PLAN
M1.1.1 - MECHANICAL BASEMENT BASE BID PLAN
M1.1.2 - MECHANICAL FIRST LEVEL BASE BID PLAN
M1.1.3 - MECHANICAL SECOND LEVEL BASE BID PLAN
M1.1.4 - MECHANICAL ATTIC BASE BID PLAN
M1.2.0 - MECHANICAL LOWER BASEMENT PLAN ALTERNATE #1
M1.2.1 - MECHANICAL BASEMENT PLAN ALTERNATE #1
M1.2.2 - MECHANICAL FIRST FLOOR PLAN ALTERNATE #1
M1.2.3 - MECHANICAL SECOND FLOOR PLAN ALTERNATE #1
M1.2.4 - MECHANICAL ATTIC ALTERNATE #1 PLAN
M4.1 - MECHANICAL DETAILS
M4.2 - MECHANICAL CONTROLS
M4.3 - MECHANICAL CONTROLS

Drawing List

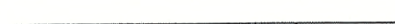

M4.4 - MECHANICAL CONTROLS
M4.5 - MECHANICAL SCHEMATIC
M5.1 - MECHANICAL SCHEDULES
M5.2 - MECHANICAL SCHEDULES
E0.1.0 - ELECTRICAL SITE PLAN AND DETAILS
E1.1.0 - ELECTRICAL PLAN LOWER BASEMENT
E1.1.1 - ELECTRICAL PLAN BASEMENT
E1.1.2 - ELECTRICAL PLAN FIRST FLOOR
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





















































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LINETYPE LEGEND	
	EXISTING TO REMAIN
	NEW WORK






MECHANICAL ABBREVIATIONS	
AE	AIR ELIMINATOR
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
BD	BACKDRAFT DAMPER
CPU	CENTRAL PROCESSING UNIT
CFM	CUBIC FEET PER MINUTE
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
EF	EXHAUST FAN
EXPT	EXPANSION TANK
FLR	FLOOR
GPM	GALLON PER MINUTE
GV	GRAVITY VENT
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
LCD	LIQUID CRYSTAL DISPLAY
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PSI	POUNDS PER SQUARE INCH
R.R.	RETURN REGISTER
RTU	ROOF TOP UNIT
SF	SUPPLY FAN
SFT	SHOT FEEDER TANK
TCU	TEMPERATURE CONTROL UNIT
TDV	TRIPLE DUTY VALVE
TYP	TYPICAL
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
AD	ACCESS DOOR
FD	FIRE DAMPER
VD	VOLUME DAMPER
VIF	VERIFY IN FIELD
ETR	EXISTING TO REMAIN

MECHANICAL SYMBOL LEGEND	
	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	BALANCE VALVE
	CHECK VALVE
	VALVE
	HOSE BIB WITH VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	FLOW SWITCH
	PRESSURE SWITCH
	STRAINER
	AIR VENT
	PIPE EXPANSION JOINT
	FLEXIBLE PIPING CONNECTION
	PIPE GUIDE
	PIPE ANCHOR
	PIPE UP
	PIPE DOWN
	TEE DOWN
	TEE
	PIPE FLANGE
	UNION
	THERMOSTATIC TRAP
	F&T TRAP
	ONE WAY CEILING DIFFUSER
	TWO WAY CEILING DIFFUSER
	TWO WAY CEILING DIFFUSER (CORNER)
	THREE WAY CEILING DIFFUSER
	FOUR WAY CEILING DIFFUSER
	CEILING RETURN GRILLE (TYPICAL)
	CEILING LINEAR SLOT DIFFUSER
	22" DUCT ELBOW
	45° DUCT ELBOW
	90° ROUND DUCT ELBOW
	90° MITERED DUCT ELBOW
	45° BRANCH DUCT TAKEOFF
	F.O. FLAT OVAL DUCTWORK
	B.D. BACKDRAFT DAMPER
	F.D. FIRE DAMPER
	V.D. VOLUME DAMPER
	M.D. MOTORIZED DAMPER
	AP ACCESS PANEL
	PG PRESSURE GAUGE WITH VALVE
	THERMOMETER
	AS AIR TEMPERATURE SENSOR
	RH RELATIVE HUMIDITY SENSOR
	RA RETURN AIRFLOW ARROW
	SA SUPPLY AIRFLOW ARROW
	SIL SILENCER
	DD DUCT DROP
	DDC DDC PANEL
	NWC NEW WORK CONNECTION TO EXISTING

MECHANICAL GENERAL NOTES	
1. PROVIDE FIRESTOPPING IN ACCORDANCE WITH SPECIFICATION.	
2. ALL DUCTWORK SHALL BE CONSTRUCTED FOR A 2" PRESSURE CLASS.	
3. PIPING AND DUCTWORK SHOWN IS DIAGRAMMATIC. EXACT ROUTE AND LAYOUT SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR AND SHALL BE COORDINATED WITH ALL TRADES.	
4. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINTS FOR PIPING AND EQUIPMENT IN ACCORDANCE WITH SPECIFICATION.	
5. PROVIDE STEEL ANGLE OR SUPPORT STRUT WITH THREADED ROD FOR SUPPORT OF DUCTWORK, PIPING AND EQUIPMENT TO EXISTING STRUCTURAL STEEL MEMBERS.	

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING FOR DUCT, CONDUIT OR PIPE PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.

MECHANICAL LINETYPE LEGEND	
	CHWS GLYCOL CHILLED WATER SUPPLY PIPE
	CHWR GLYCOL CHILLED WATER RETURN PIPE
	STM LOW PRESSURE STEAM SUPPLY PIPE
	STM COND LOW PRESSURE STEAM CONDENSATE PIPE
	COND CONDENSATE DRAIN PIPING

ROOFING NOTES	
1. ALL ROOFING WORK SHALL BE DONE BY A CERTIFIED ROOFING CONTRACTOR AND SHALL MAINTAIN THE WARRANTY OF EXISTING ROOF.	
2. WORK OF THIS SECTION SHALL CONFORM TO NRCA ROOFING AND WATERPROOFING MANUAL AND MANUFACTURERS INSTRUCTIONS.	
3. CONFORM TO ALL STATE CODES FOR ROOF PENETRATIONS, FLASHINGS, AND SEALANTS.	
4. CONTRACTOR TO COVER ALL DAMAGES TO THE BUILDING RESULTING FROM FAILURE TO PREVENT PENETRATION OF WATER INTO THE BUILDING DURING CONSTRUCTION.	
5. CONFORM TO SMACNA AND NRCA FOR SHEETMETAL FLASHING AND SEALANT REQUIREMENTS.	
6. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE START OF WORK.	

GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT PROPER ASBESTOS ABATEMENT CONTROL PROCEDURES. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.



APPLIED THERMODYNAMICS ASSOCIATES, INC.

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Consulting Engineers

ATA FILE NUMBER: 0335

PROJECT: AIR CONDITIONING SYSTEM

LOCATION: ENO MEMORIAL HALL
744 HORNMEADOW STREET
SIMSURY, CONNECTICUT 06070

DRAWING TITLE:

MECHANICAL GENERAL INFORMATION

NO.	REVISION	DATE	APPR.

DRAWN BY: EFK

APPROVED BY:

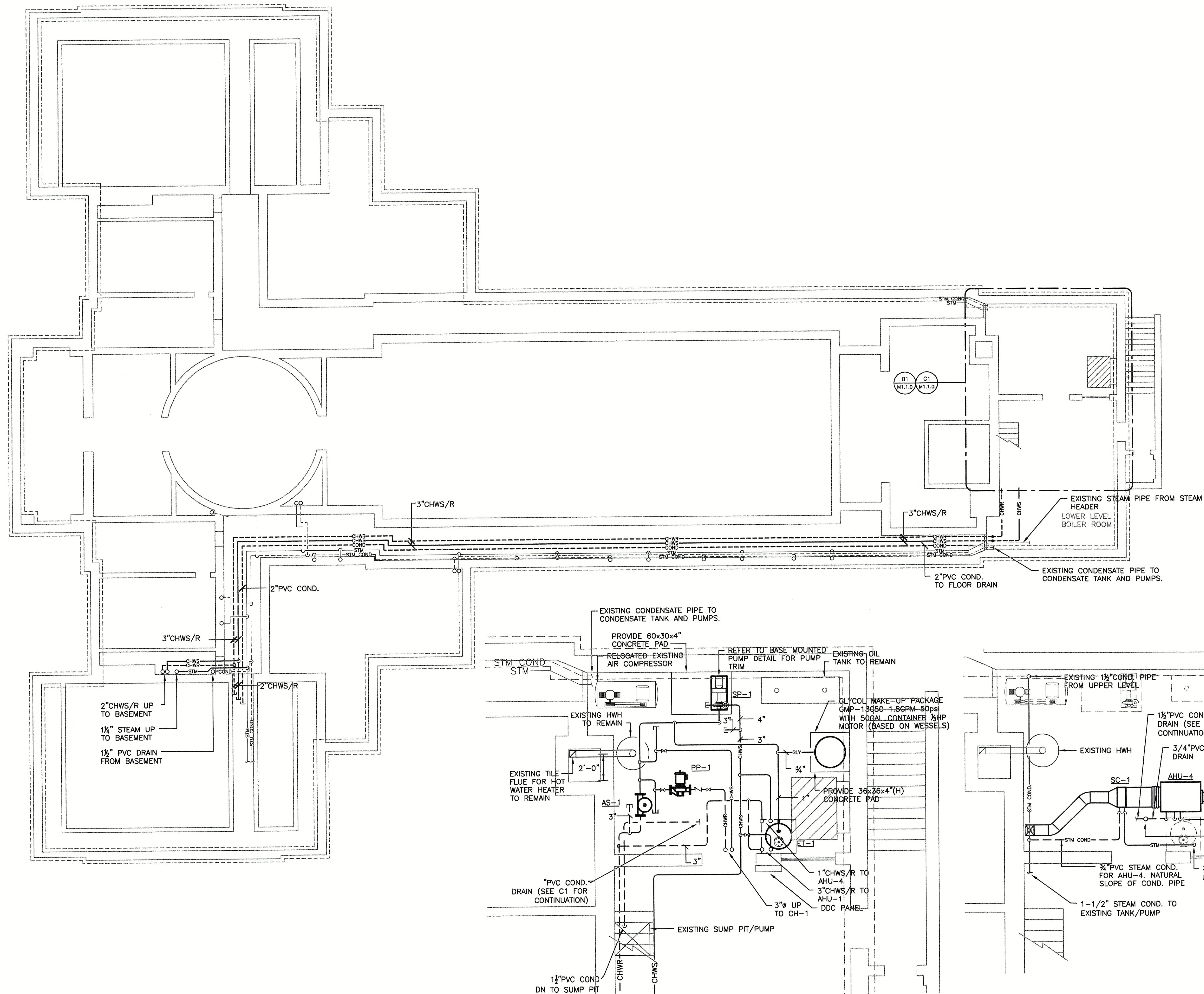
ISSUE DATE: 03/24/04

SCALE: NONE

DRAWING NUMBER

M0.1

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A1 MECHANICAL LOWER BASEMENT/TUNNEL NEW WORK PLAN
SCALE: 1/8"=1'-0"

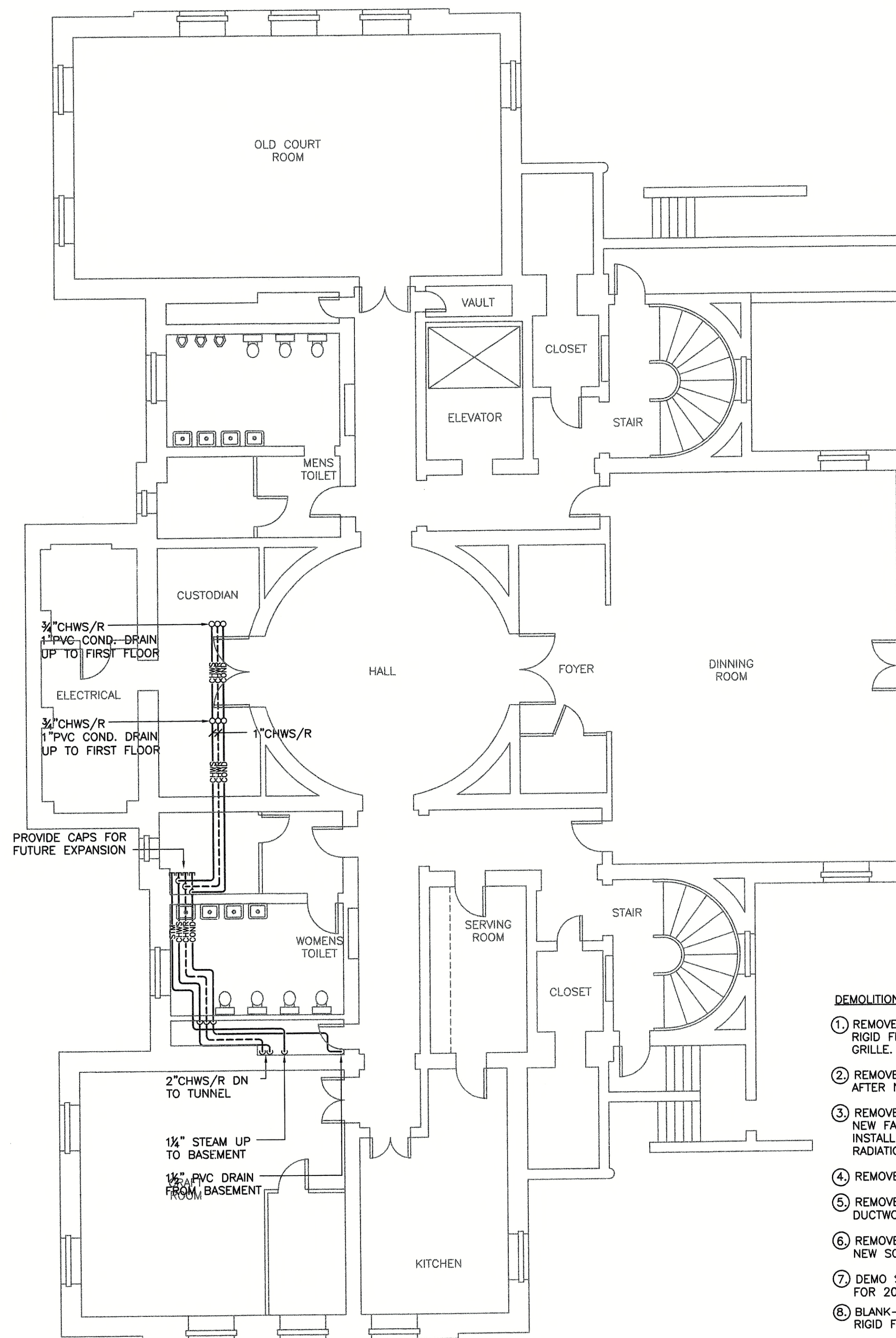
B1 ENLARGED PLAN
SCALE: 1/4"=1'-0"

C1 ENLARGED PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTE:
ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:
ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING. ANY FLOOR PENETRATIONS, RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.





DEMOLITION KEY NOTES:

- ① REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
- ② REMOVE EXISTING 24x48 EXHAUST GRILLE AND REPLACE AFTER NEW EXHAUST FAN INSTALLATION.
- ③ REMOVE EXISTING STEAM RADIATION AND CAP PIPING IF NEW FAN COIL UNIT IS NOT READY FOR INSTALLATION. INSTALL SCHEDULED FAN COIL UNIT IN PLACE OF RADIATION.
- ④ REMOVE EXISTING 24x24 INTAKE MOTORIZED DAMPER.
- ⑤ REMOVE EXISTING AHU AND ALL ASSOCIATED HARDWARE DUCTWORK, PIPING, VALVES AND CONTROLS.
- ⑥ REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW SCHEDULED EXHAUST FAN.
- ⑦ DEMO STEAM PIPING AND REPLACE AS NECESSARY FOR 20x36 DUCT MOUNT.
- ⑧ BLANK-OFF EXISTING INTERIOR GRILLE WITH BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND GRILLE.
- ⑨ REMOVE EXISTING STEAM RADIATION AND CAP STEAM PIPING
- ⑩ REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAOUT.

NEW WORK NOTES:

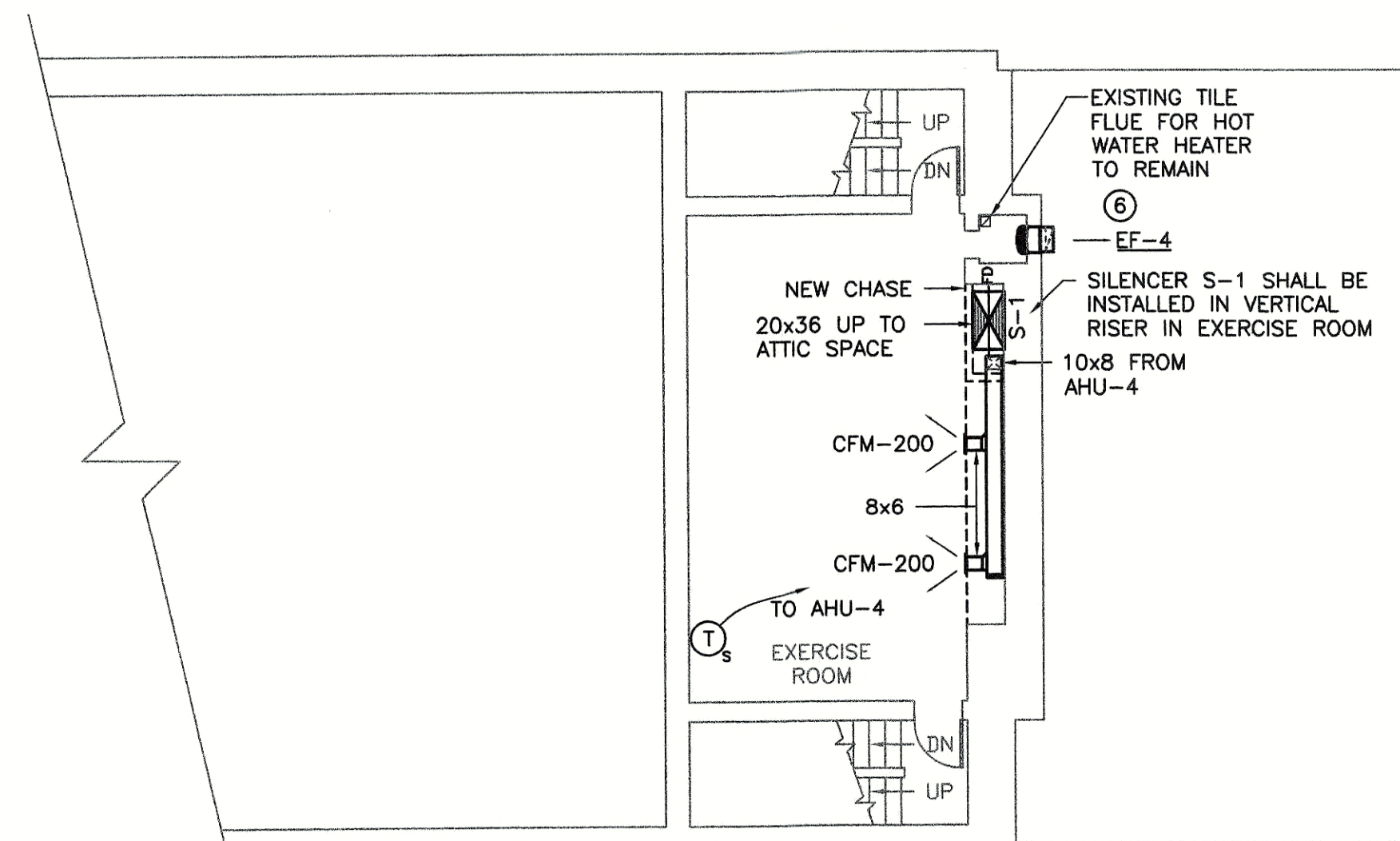
- ① REPLACE EXISTING EXHAUST GRILLE WITH DIFFUSER.
- ② CONNECT FAN-COIL UNITS TO EXISTING STEAM AND COND. PIPING AND NEW CHILLED WATER SUPPLY AND RETURN PIPING.
- ③ VERIFY IN THE FIELD EXACT INTAKE OPENING LOCATION AND PROVIDE APPROPRIATE TRANSITION TO STEAM COIL.
- ④ EQUIPMENT STEEL FRAME SHALL BE BOLTED TO CONCRETE ROOF SLAB. REFER TO TYPE 7 VIBRATION ISOLATION AND SEISMIC RESTRAINT SPEC SECTION 15240.
- ⑤ FOR WORK IN THIS AREA, REFER TO BASE-BID DRAWINGS.

GENERAL NOTE:

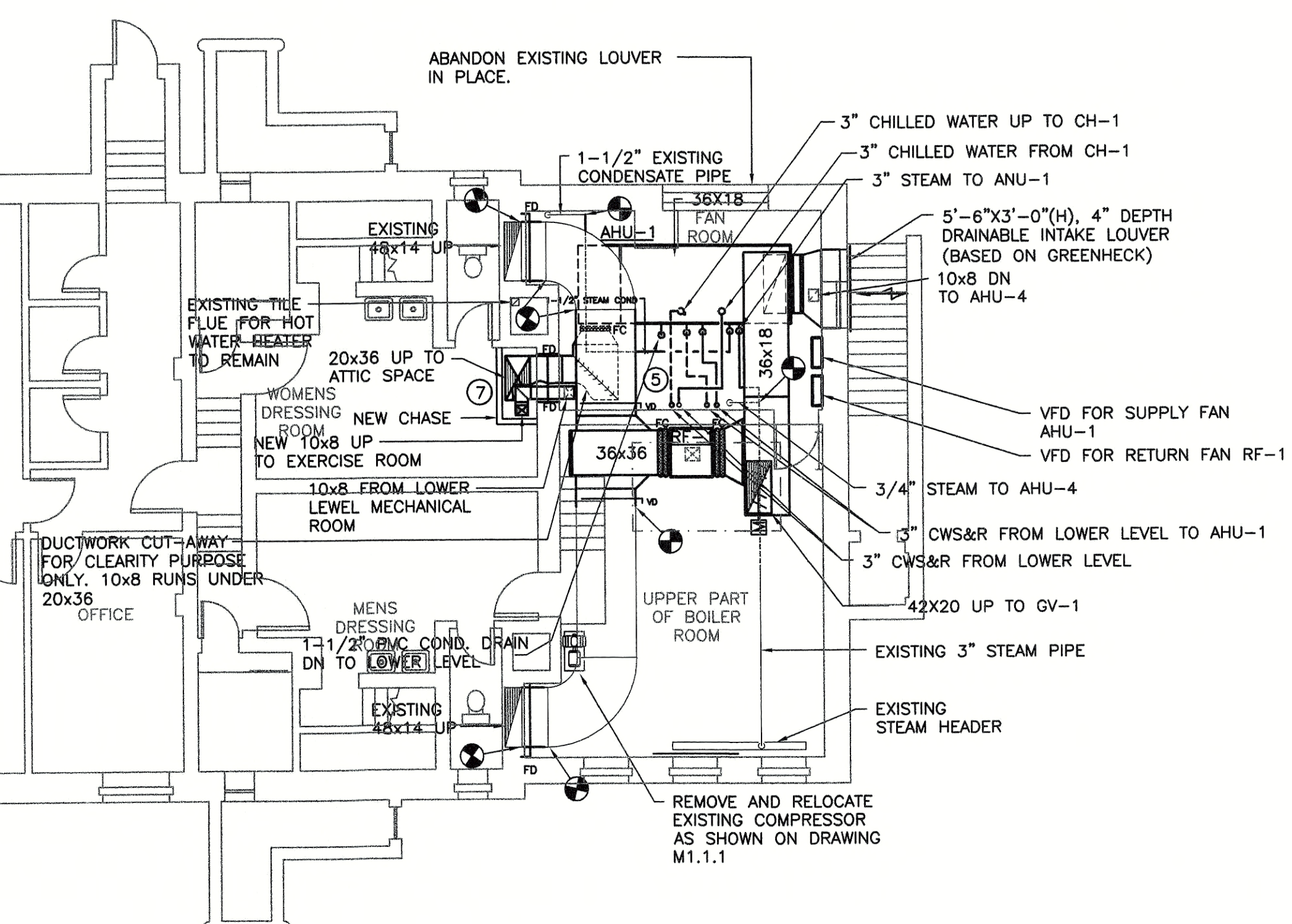
ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING. ANY FLOOR PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.



2 MECHANICAL EXERCISE ROOM NEW WORK PLAN
SCALE: 1/8"=1'-0"

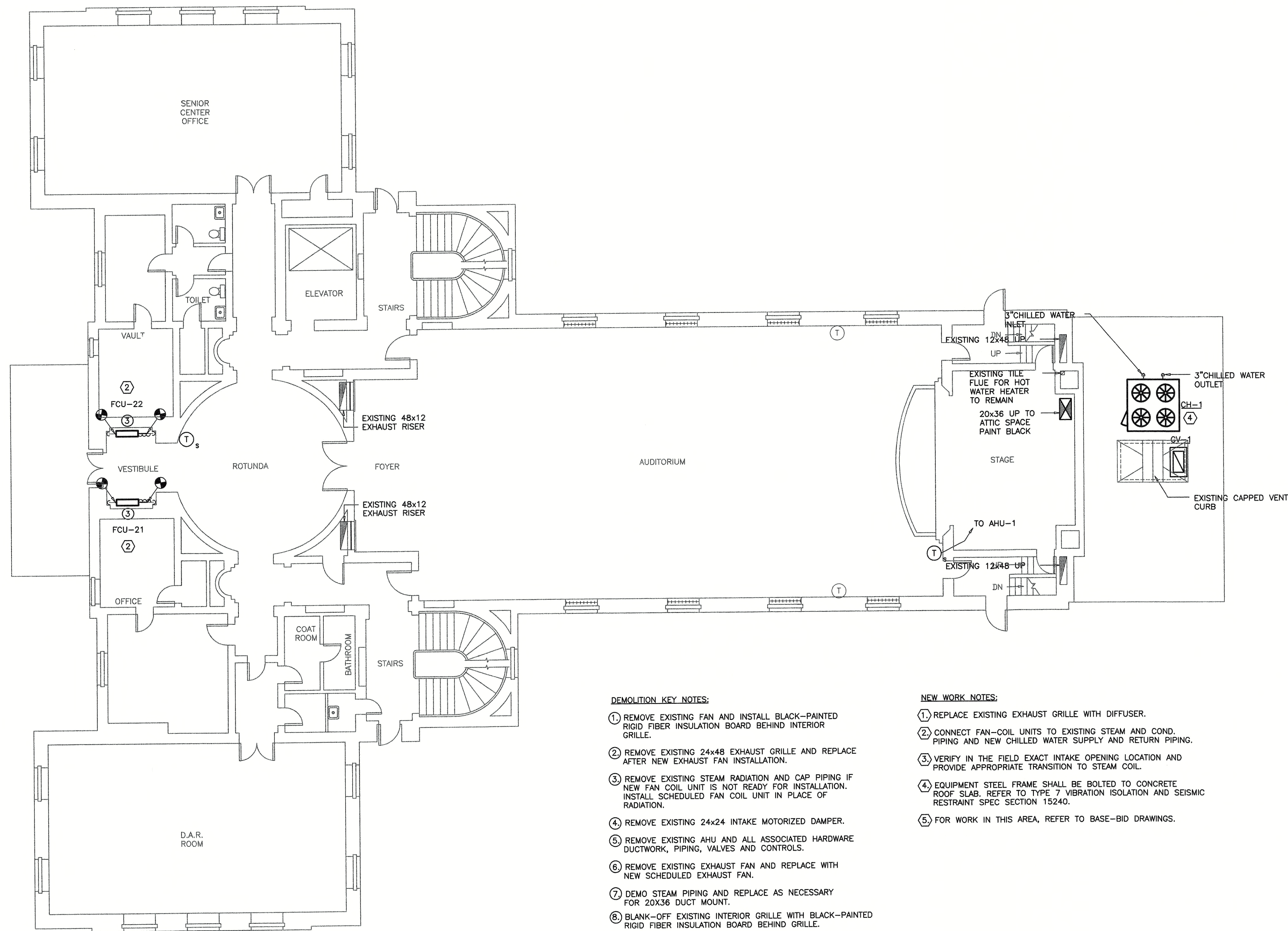


1 MECHANICAL BASEMENT NEW WORK PLAN
SCALE: 1/8"=1'-0"

NO.	REVISION	DATE	APPR.

DRAWN BY:	REJ
APPROVED BY:	
ISSUE DATE:	03/24/04
SCALE:	AS NOTED
DRAWING NUMBER	M1.1.1

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DEMOLITION KEY NOTES:

- ① REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
- ② REMOVE EXISTING 24x48 EXHAUST GRILLE AND REPLACE AFTER NEW EXHAUST FAN INSTALLATION.
- ③ REMOVE EXISTING STEAM RADIATION AND CAP PIPING IF NEW FAN COIL UNIT IS NOT READY FOR INSTALLATION. INSTALL SCHEDULED FAN COIL UNIT IN PLACE OF RADIATION.
- ④ REMOVE EXISTING 24x24 INTAKE MOTORIZED DAMPER.
- ⑤ REMOVE EXISTING AHU AND ALL ASSOCIATED HARDWARE DUCTWORK, PIPING, VALVES AND CONTROLS.
- ⑥ REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW SCHEDULED EXHAUST FAN.
- ⑦ DEMO STEAM PIPING AND REPLACE AS NECESSARY FOR 20x36 DUCT MOUNT.
- ⑧ BLANK-OFF EXISTING INTERIOR GRILLE WITH BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND GRILLE.
- ⑨ REMOVE EXISTING STEAM RADIATION AND CAP STEAM PIPING
- ⑩ REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAYOUT.

NEW WORK NOTES:

- ① REPLACE EXISTING EXHAUST GRILLE WITH DIFFUSER.
- ② CONNECT FAN-COIL UNITS TO EXISTING STEAM AND COND. PIPING AND NEW CHILLED WATER SUPPLY AND RETURN PIPING.
- ③ VERIFY IN THE FIELD EXACT INTAKE OPENING LOCATION AND PROVIDE APPROPRIATE TRANSITION TO STEAM COIL.
- ④ EQUIPMENT STEEL FRAME SHALL BE BOLTED TO CONCRETE ROOF SLAB. REFER TO TYPE 7 VIBRATION ISOLATION AND SEISMIC RESTRAINT SPEC SECTION 15240.
- ⑤ FOR WORK IN THIS AREA, REFER TO BASE-BID DRAWINGS.

GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING. ANY FLOOR PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.



A1 MECHANICAL FIRST FLOOR NEW WORK PLAN

SCALE: 1/8"=1'-0"

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ata Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM

LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
MECHANICAL FIRST LEVEL
BASE BID PLAN

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ

APPROVED BY:

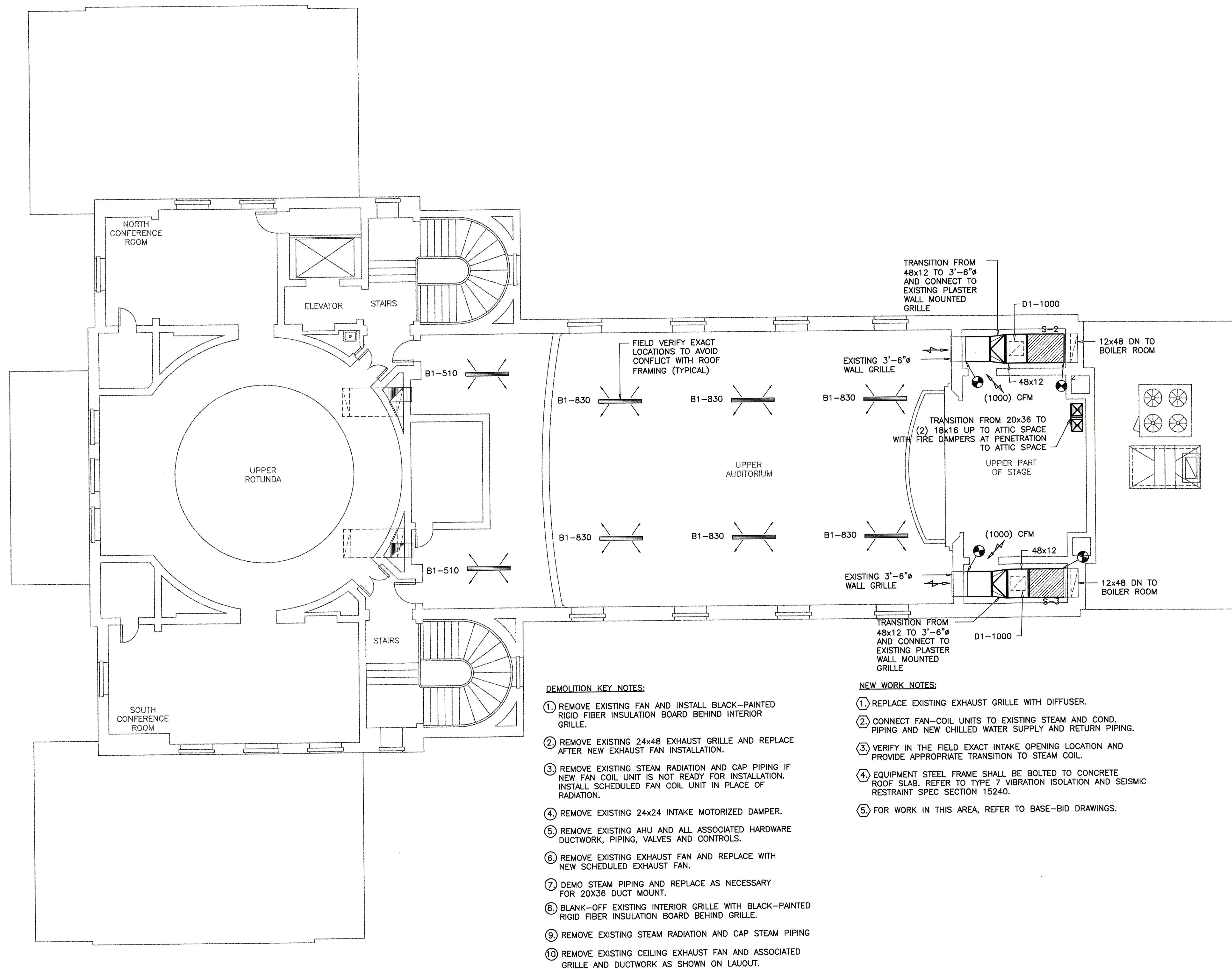
ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

M1.1.2

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GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING ANY FLOOR PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.



A1 MECHANICAL SECOND FLOOR NEW WORK PLAN
SCALE: 1/8"=1'-0"

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ata Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
MECHANICAL
SECOND LEVEL
BASE BID PLAN

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ

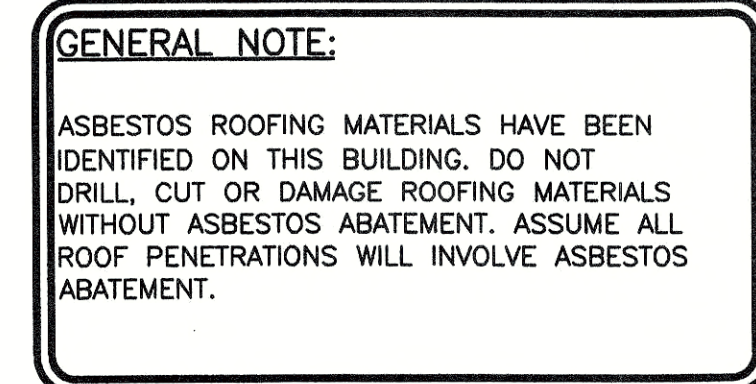
APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

M1.1.3



GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING
REFER TO HAZARDOUS MATERIAL DRAWINGS FOR
KNOWN LOCATIONS OF ASBESTOS FLOORING
PRIOR TO DRILLING
ANY FLOOR PENETRATIONS. RUN CONDUITS AND
PIPING BETWEEN FLOORS IN DESIGNATED PIPE
CHASES.

[illegible]

DRAWN BY:
REJ

APPROVED BY:

ISSUE DATE:
03/24/04

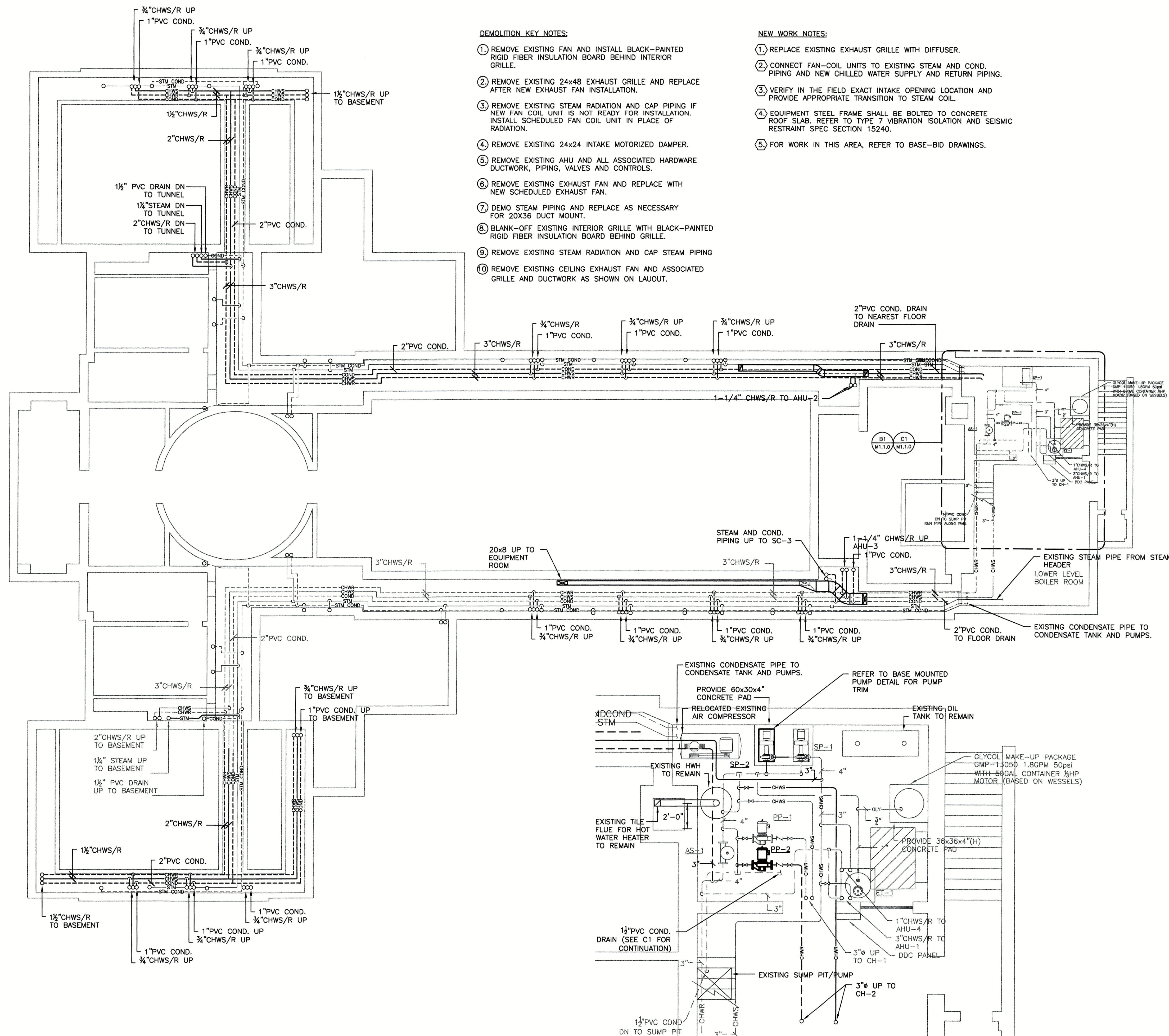
SCALE:
1/8"=1'-0"

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M1.1.4



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DEMOLITION KEY NOTES:

1. REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
2. REMOVE EXISTING 24x48 EXHAUST GRILLE AND REPLACE AFTER NEW EXHAUST FAN INSTALLATION.
3. REMOVE EXISTING STEAM RADIATION AND CAP PIPING IF NEW FAN COIL UNIT IS NOT READY FOR INSTALLATION. INSTALL SCHEDULED FAN COIL UNIT IN PLACE OF RADIATION.
4. REMOVE EXISTING 24x24 INTAKE MOTORIZED DAMPER.
5. REMOVE EXISTING AHU AND ALL ASSOCIATED HARDWARE DUCTWORK, PIPING, VALVES AND CONTROLS.
6. REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW SCHEDULED EXHAUST FAN.
7. DEMO STEAM PIPING AND REPLACE AS NECESSARY FOR 20x36 DUCT MOUNT.
8. BLANK-OFF EXISTING INTERIOR GRILLE WITH BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND GRILLE.
9. REMOVE EXISTING STEAM RADIATION AND CAP STEAM PIPING
10. REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAOUT.

NEW WORK NOTES:

1. REPLACE EXISTING EXHAUST GRILLE WITH DIFFUSER.
2. CONNECT FAN-COIL UNITS TO EXISTING STEAM AND COND. PIPING AND NEW CHILLED WATER SUPPLY AND RETURN PIPING.
3. VERIFY IN THE FIELD EXACT INTAKE OPENING LOCATION AND PROVIDE APPROPRIATE TRANSITION TO STEAM COIL.
4. EQUIPMENT STEEL FRAME SHALL BE BOLTED TO CONCRETE ROOF SLAB. REFER TO TYPE 7 VIBRATION ISOLATION AND SEISMIC RESTRAINT SPEC SECTION 15240.
5. FOR WORK IN THIS AREA, REFER TO BASE-BID DRAWINGS.

GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

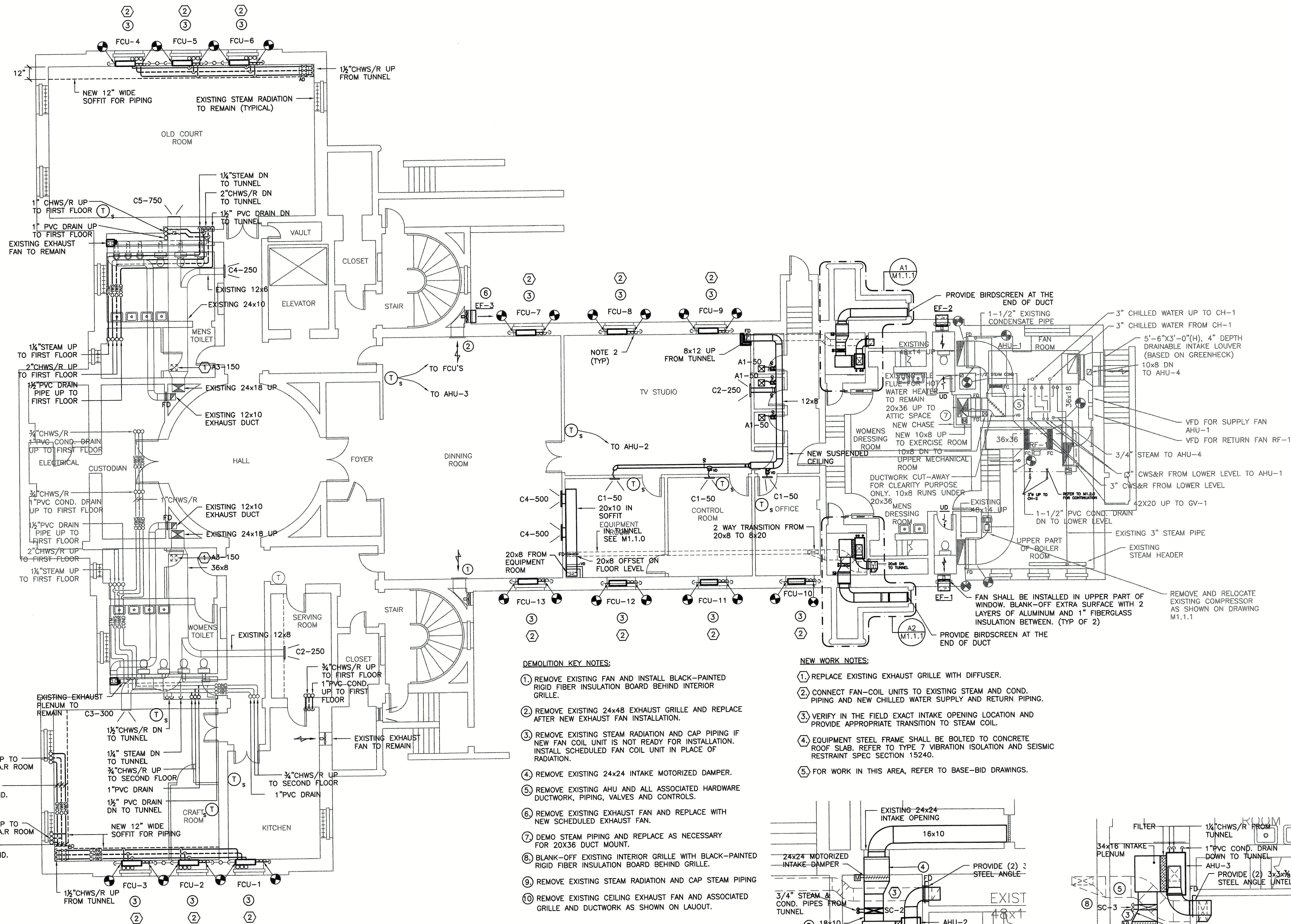
ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING. ANY FLOOR PENETRATIONS, RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.



A1 MECHANICAL LOWER BASEMENT/TUNNEL NEW WORK PLAN
SCALE: 1/8"=1'-0"

B1 ENLARGED PLAN
SCALE: 1/4"=1'-0"

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DEMOLITION KEY NOTES:

1. REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
2. REMOVE EXISTING 24x48 EXHAUST GRILLE AND REPLACE AFTER NEW EXHAUST FAN INSTALLATION.
3. REMOVE EXISTING STEAM RADIATION AND CAP PIPING IF NEW FAN COIL UNIT IS NOT READY FOR INSTALLATION. INSTALL SCHEDULED FAN COIL UNIT IN PLACE OF RADIATION.
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10. REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAYOUT.

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2. CONNECT FAN-COIL UNITS TO EXISTING STEAM AND COND. PIPING AND NEW CHILLED WATER SUPPLY AND RETURN PIPING.
3. VERIFY IN THE FIELD EXACT INTAKE OPENING LOCATION AND PROVIDE APPROPRIATE TRANSITION TO STEAM COIL.
4. EQUIPMENT STEEL FRAME SHALL BE BOLTED TO CONCRETE ROOF SLAB. REFER TO TYPE 7 VIBRATION ISOLATION AND SEISMIC RESTRAINT SPEC SECTION 15240.
5. FOR WORK IN THIS AREA, REFER TO BASE-BID DRAWINGS.

GENERAL NOTE:

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GENERAL NOTE:

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1 MECHANICAL BASEMENT NEW WORK PLAN
SCALE: 1/8"=1'-0"

A1 ENLARGED AHU-2 NEW WORK PLAN
SCALE: 1/4"=1'-0"

A2 ENLARGED AHU-3 NEW WORK PLAN
SCALE: 1/4"=1'-0"



DRAWING TITLE:

APPR:

DATE:

REVISION:

NO.

DRAWN BY:

APPROVED BY:

ISSUE DATE:

SCALE:

DRAWING NUMBER

M1.2.1

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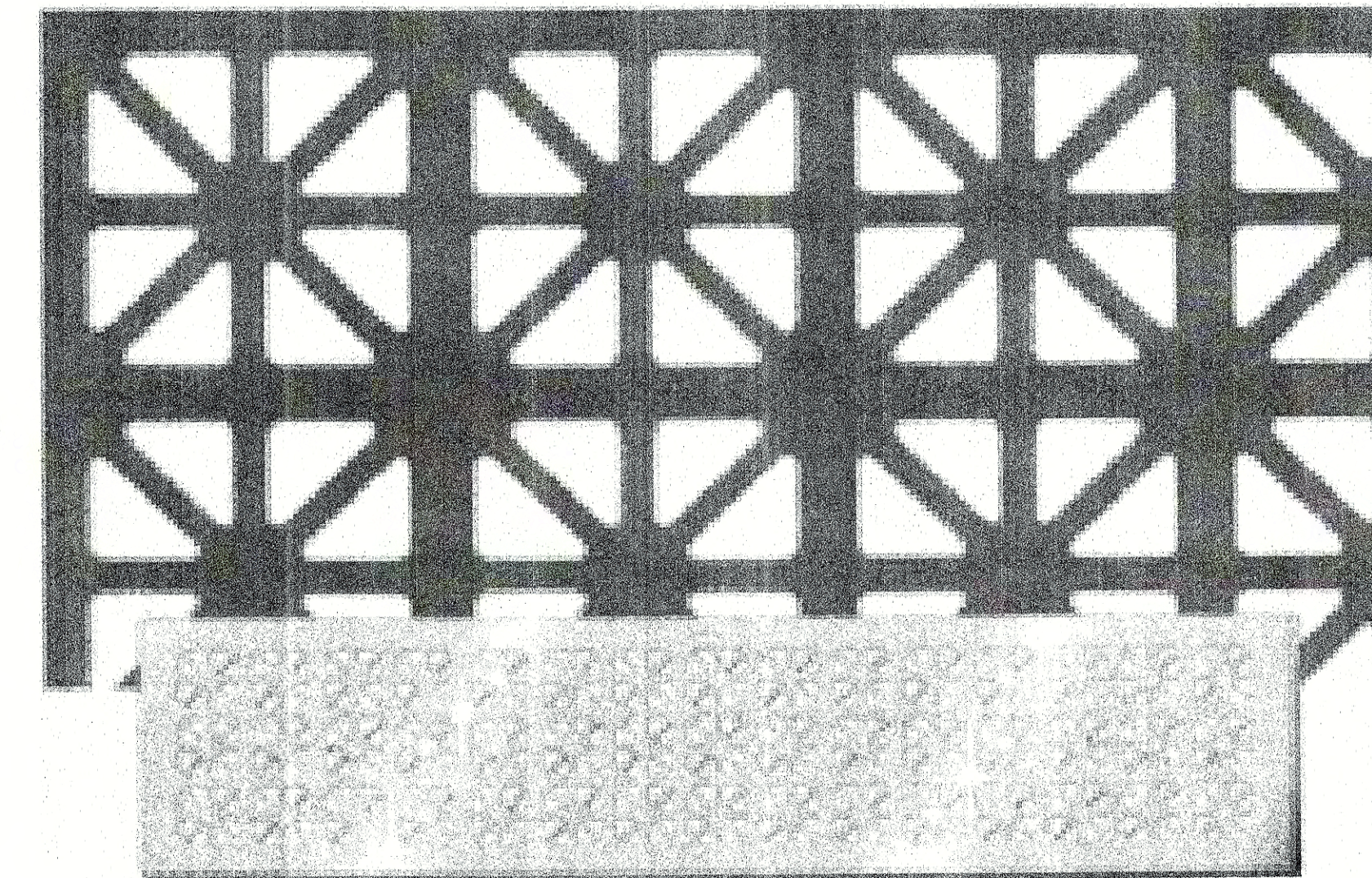
Architectural Grille
Division of Glumonta Corporation
77-14th Street, Brooklyn, New York 11215
718-832-1200 / FAX: 718-832-1390
Outside NY Only Call 1-800-387-6267
info@archgrille.com

GRECIAN: #202
1 1/4" - 39% Open

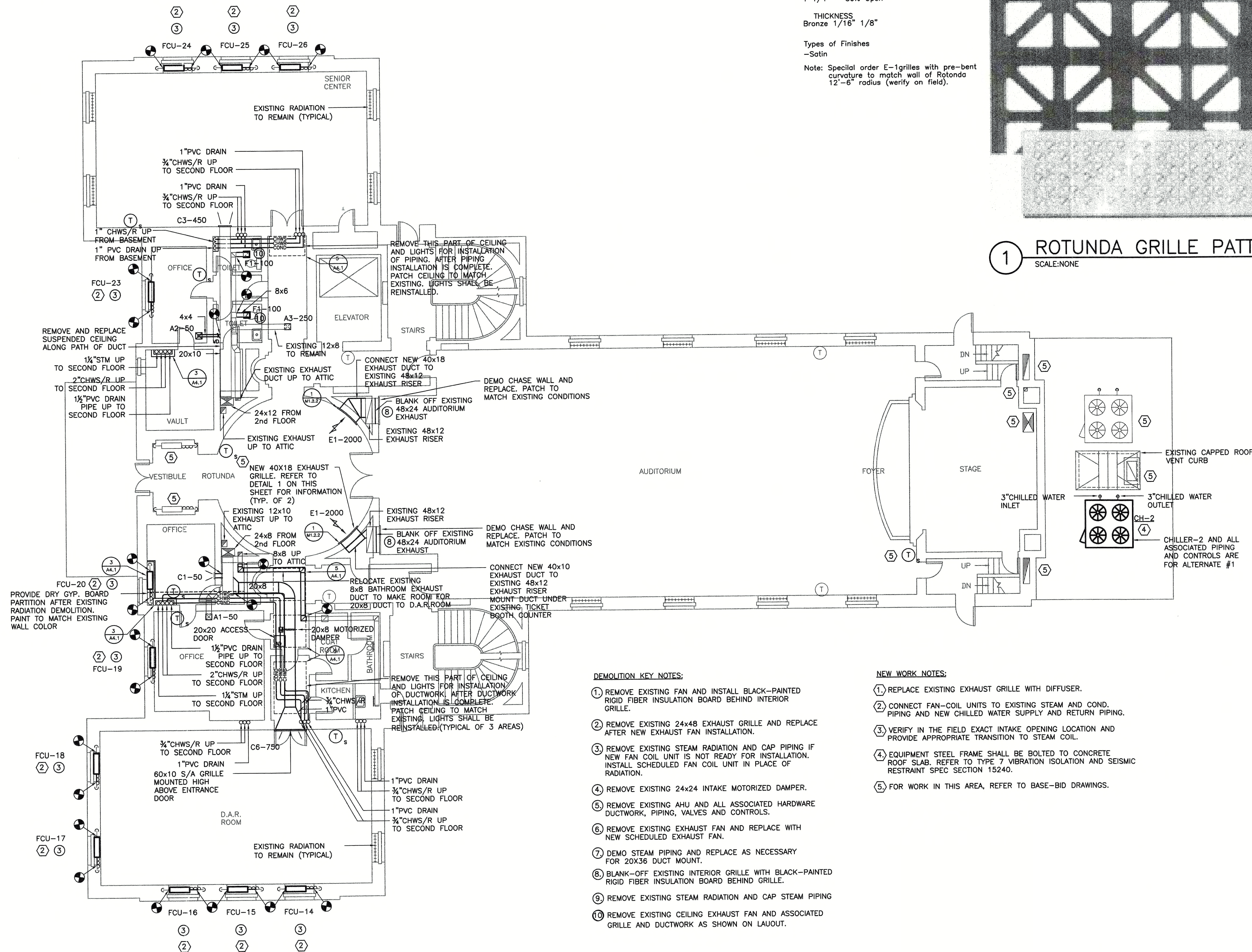
THICKNESS
Bronze 1/16" 1/8"

Types of Finishes
-Satin

Note: Special order E-1grilles with pre-bent
curvature to match wall of Rotunda
12'-6" radius (verify on field).



1 ROTUNDA GRILLE PATTERN
SCALE: NONE



A1 MECHANICAL FIRST FLOOR NEW WORK PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTE:

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GENERAL NOTE:

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APPLIED
THERMODYNAMICS
ASSOCIATES, INC.

ata
Consulting
Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
MECHANICAL
FIRST FLOOR PLAN
ALTERNATE #1

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ

APPROVED BY:

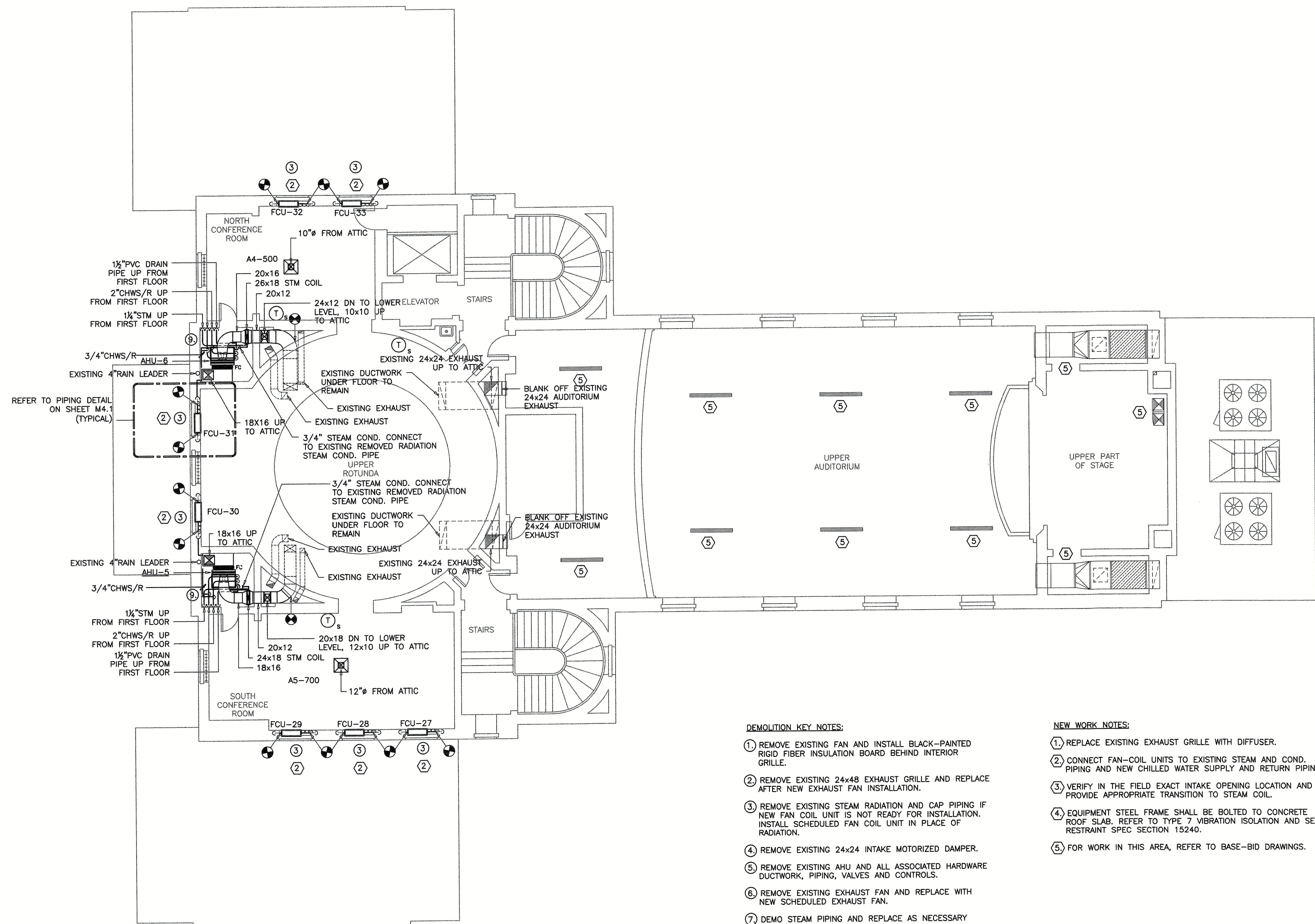
ISSUE DATE:
03/24/04

SCALE:
1/8" = 1'-0"

DRAWING NUMBER

M1.2.2

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DEMOLITION KEY NOTES:

1. REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
2. REMOVE EXISTING 24x48 EXHAUST GRILLE AND REPLACE AFTER NEW EXHAUST FAN INSTALLATION.
3. REMOVE EXISTING STEAM RADIATION AND CAP PIPING IF NEW FAN COIL UNIT IS NOT READY FOR INSTALLATION. INSTALL SCHEDULED FAN COIL UNIT IN PLACE OF RADIATION.
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5. REMOVE EXISTING AHU AND ALL ASSOCIATED HARDWARE DUCTWORK, PIPING, VALVES AND CONTROLS.
6. REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW SCHEDULED EXHAUST FAN.
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10. REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAUOUT.

NEW WORK NOTES:

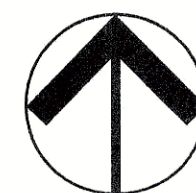
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4. EQUIPMENT STEEL FRAME SHALL BE BOLTED TO CONCRETE ROOF SLAB. REFER TO TYPE 7 VIBRATION ISOLATION AND SEISMIC RESTRAINT SPEC SECTION 15240.
5. FOR WORK IN THIS AREA, REFER TO BASE-BID DRAWINGS.

GENERAL NOTE:

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GENERAL NOTE:

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A1 MECHANICAL SECOND FLOOR NEW WORK PLAN
SCALE: 1/8"=1'-0"

APPLIED THERMODYNAMICS ASSOCIATES, INC.
1129 Main Street
Coventry, CT 06238
T 860-742-5377
F 860-742-0362
www.dtaengr.com

ata
Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM

DRAWING TITLE:
MECHANICAL SECOND FLOOR PLAN
ALTERNATE #1

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ

APPROVED BY:

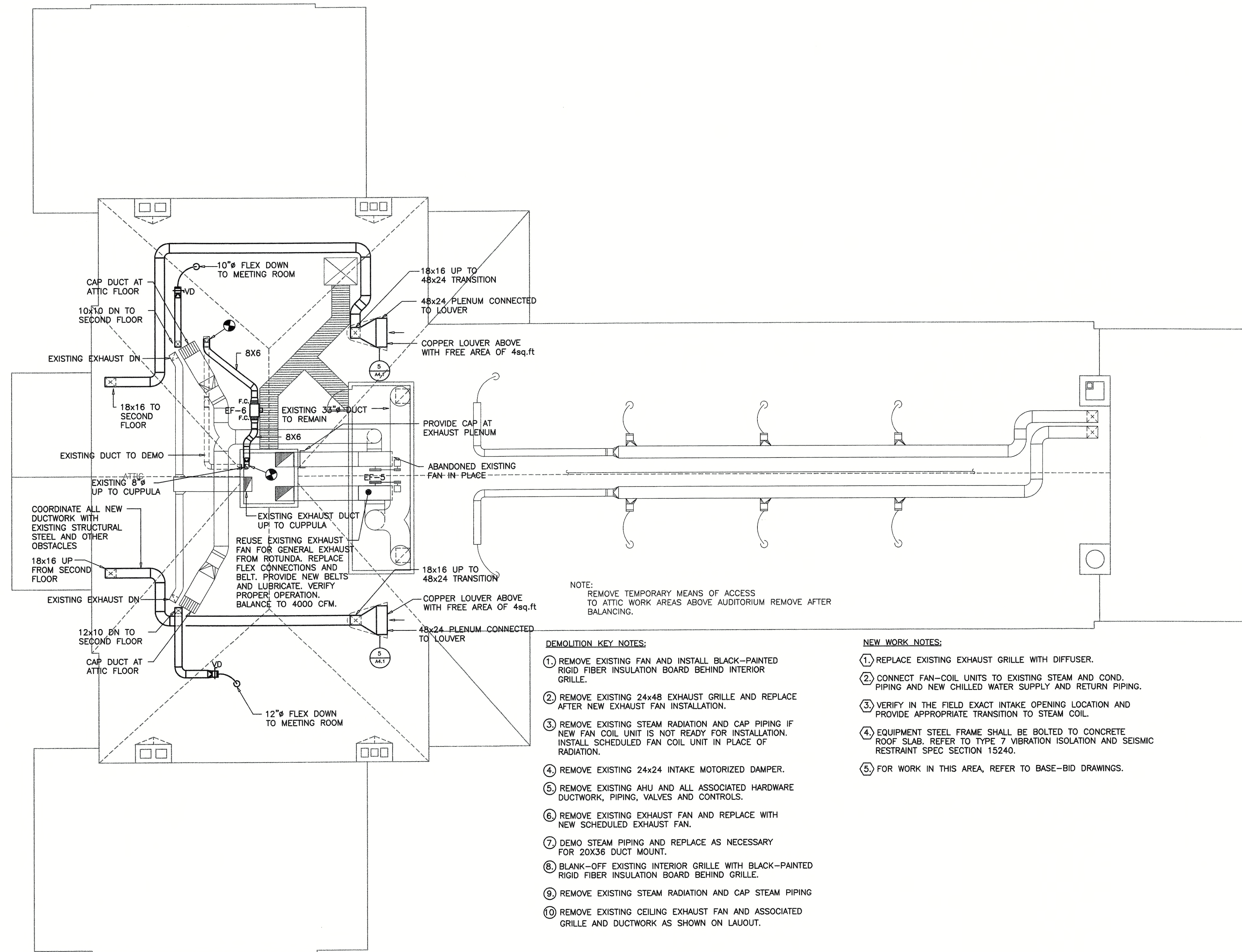
ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

M1.2.3

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DEMOLITION KEY NOTES:

1. REMOVE EXISTING FAN AND INSTALL BLACK-PAINTED RIGID FIBER INSULATION BOARD BEHIND INTERIOR GRILLE.
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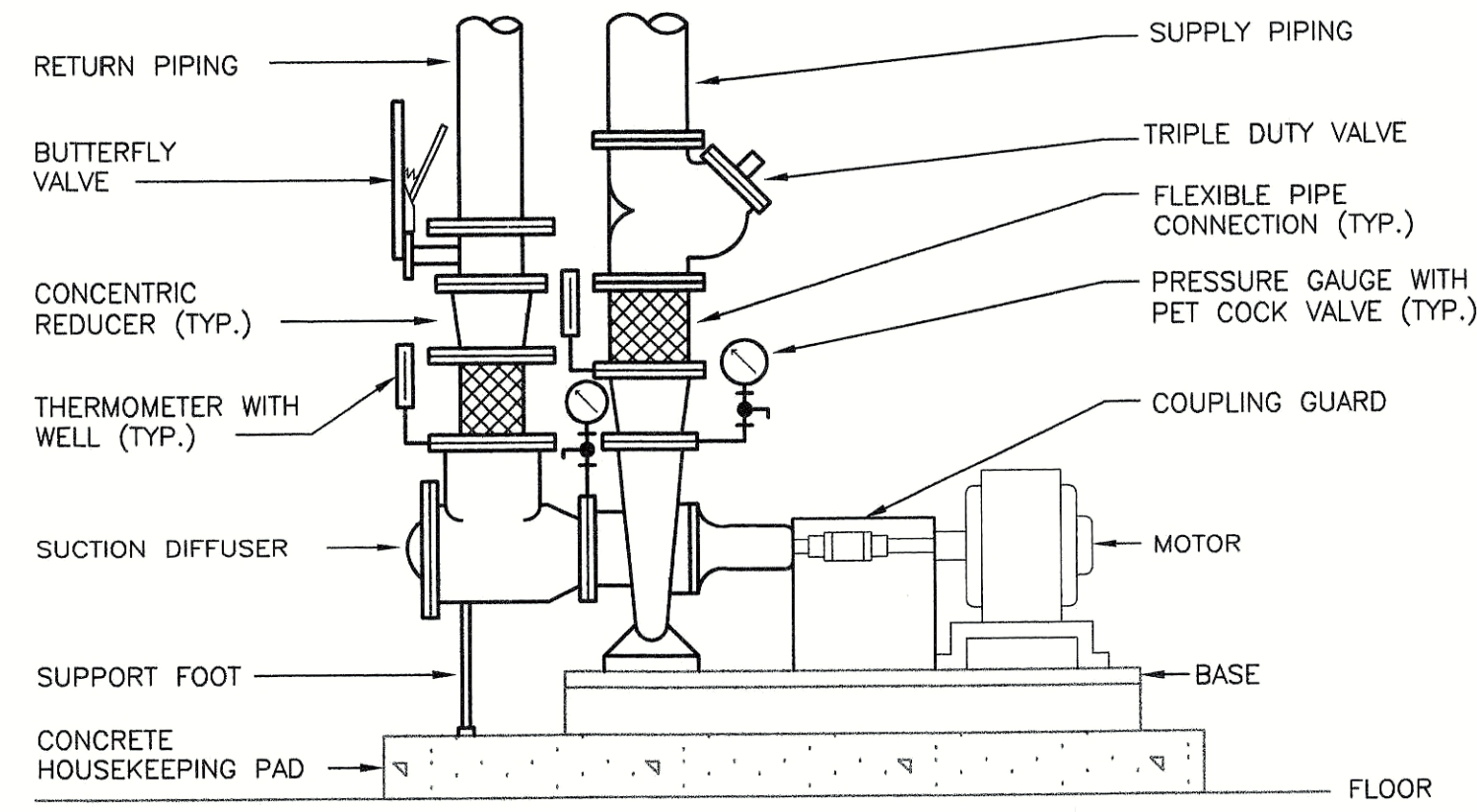
GENERAL NOTE:

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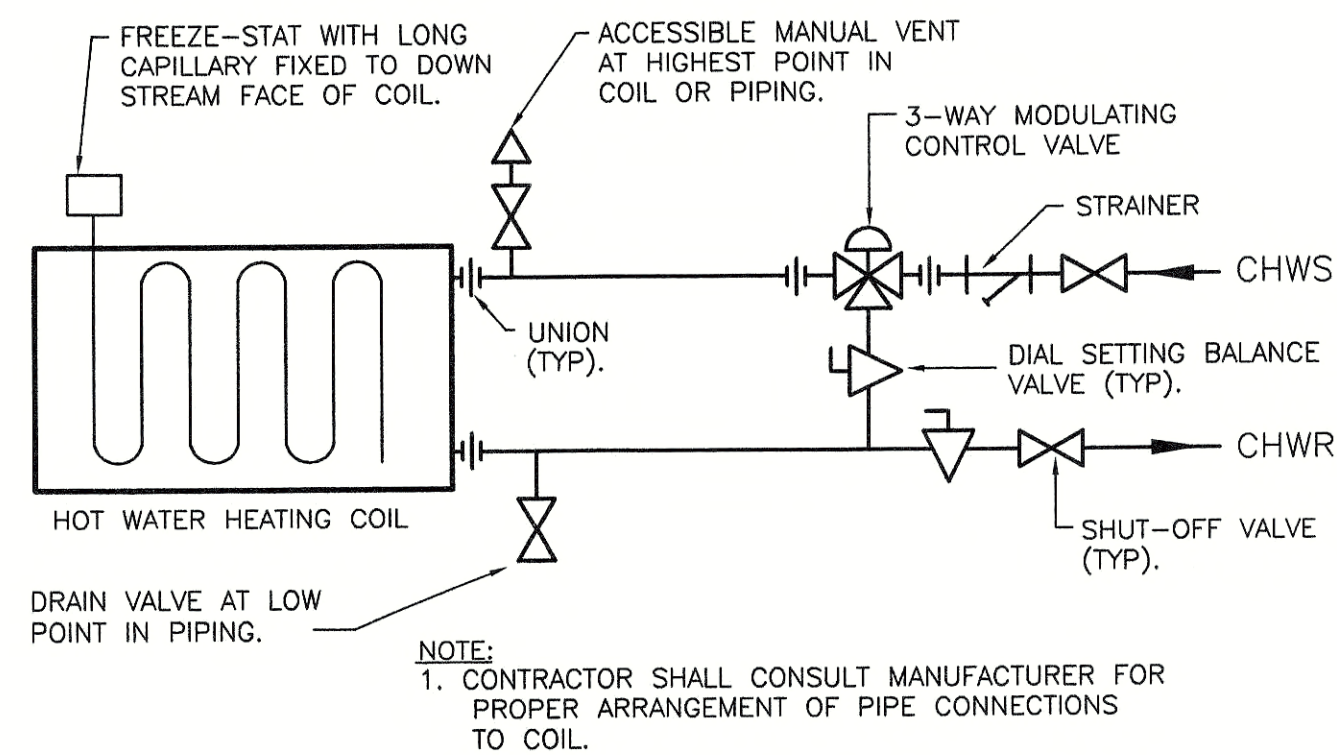
A1 MECHANICAL ATTIC FLOOR NEW WORK PLAN
SCALE: 1/8"=1'-0"



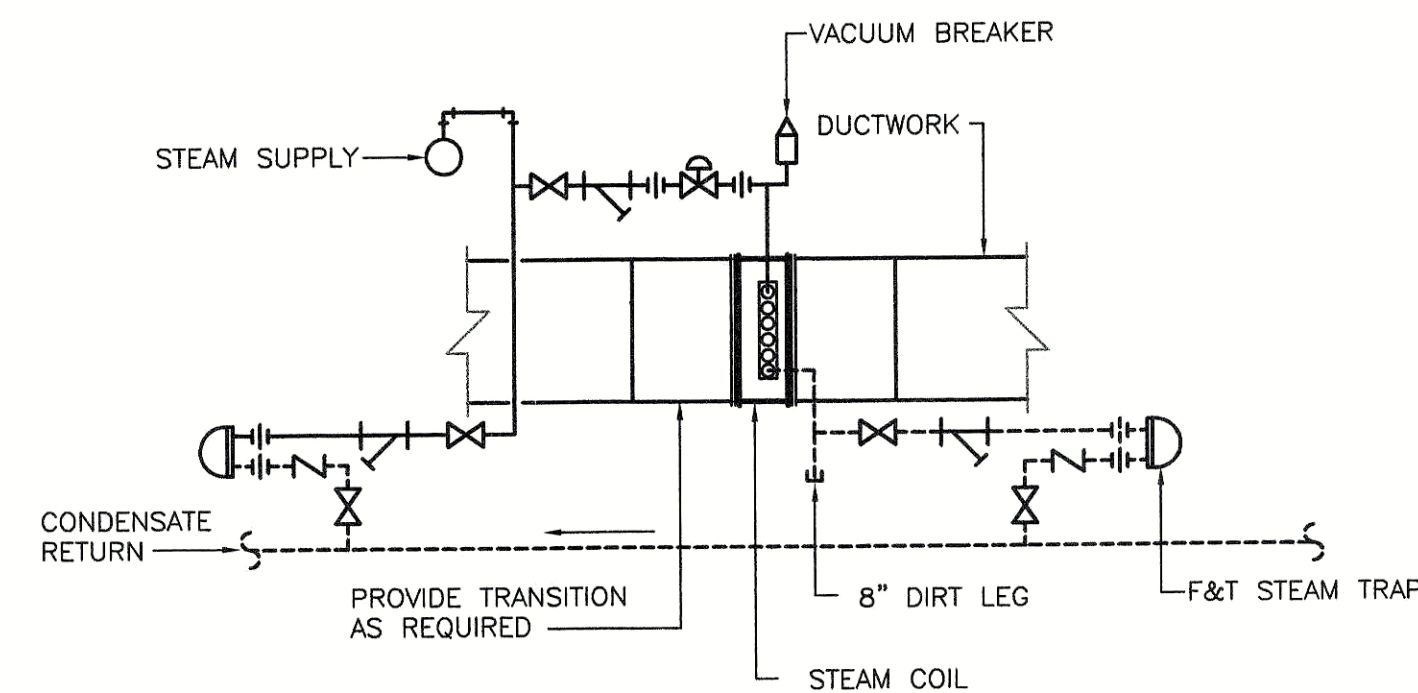
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A3 END SUCTION PUMP DETAIL
NTS

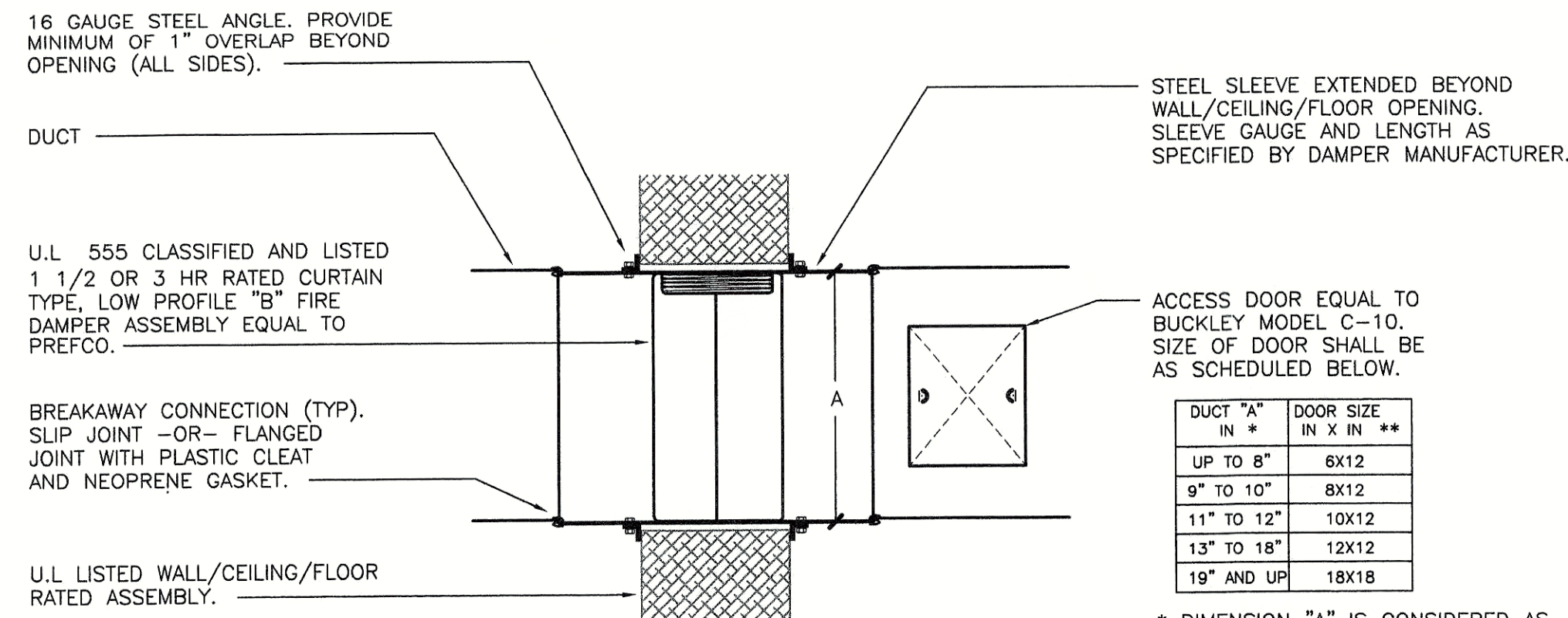


A2 COOLING COIL PIPING DETAIL
NTS

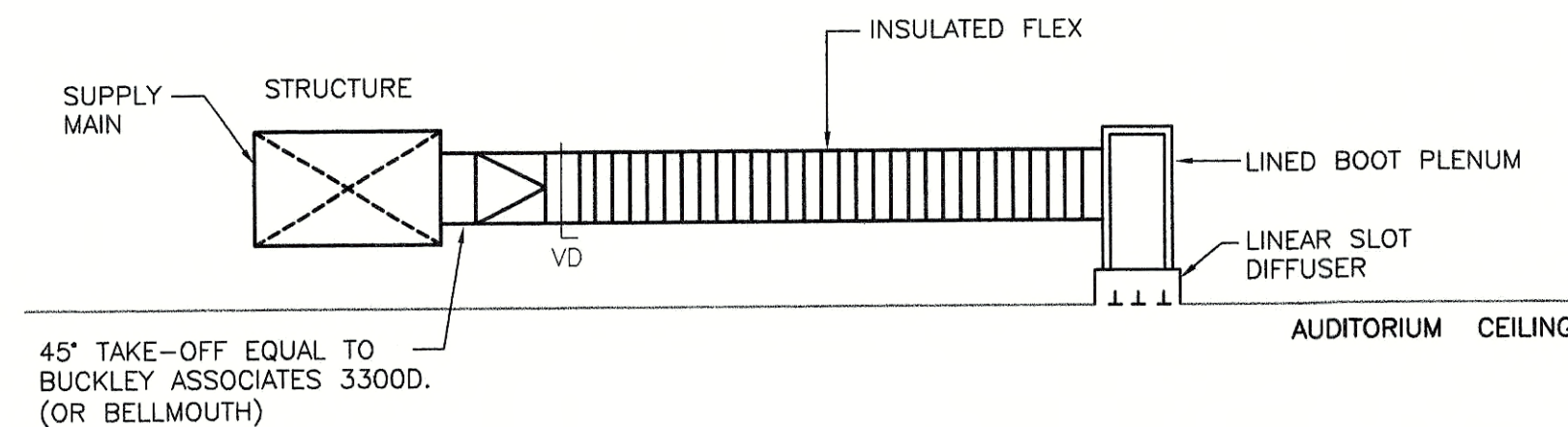


A1 STEAM HEATING COIL PIPING DETAIL
NTS

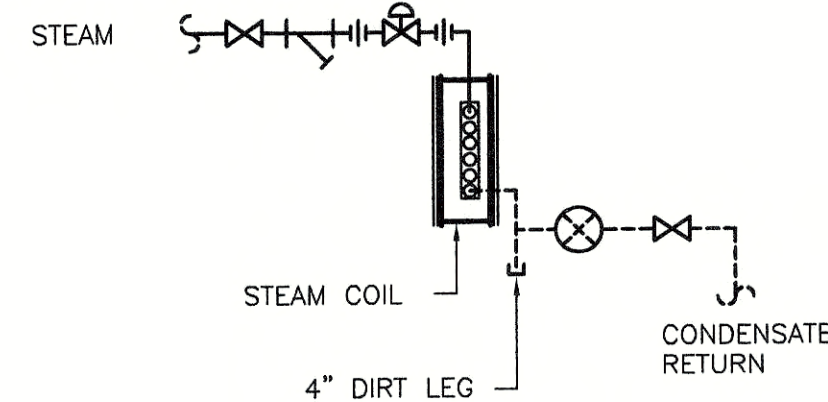
- NOTES:**
1. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE FOLLOWED. DETAIL SHOWN IS CONSIDERED A MINIMUM STANDARD ONLY.
 2. INSTALL DAMPER IN ACCORDANCE WITH NFPA 90.
 3. REFER TO SPECIFICATION SECTION 15890 FOR ADDITIONAL INFORMATION AND SUBMITTAL REQUIREMENTS.
 4. ALL DUCT ACCESS DOORS SHALL BE INSTALLED WHERE THE MOST CLEARANCE IS PROVIDED TO ACCESS THE DOOR.
 5. COORDINATE SIZE AND LOCATION OF WALL ACCESS PANELS WITH THE G.C. FIRE RATING OF ALL WALL SHALL BE MAINTAINED.



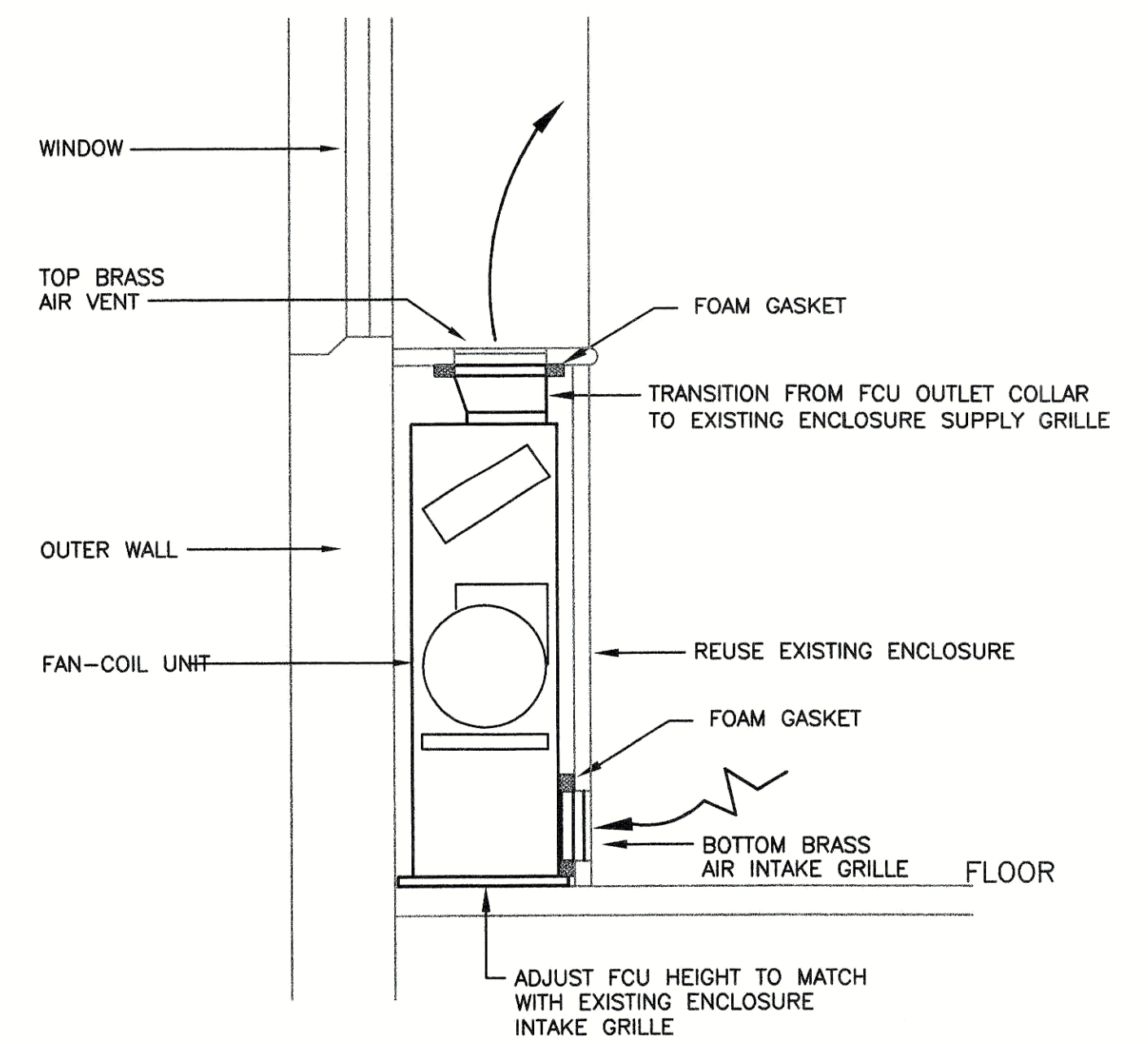
B3 FIRE DAMPER DETAIL
NTS



B2 LINEAR SLOT SUPPLY DIFFUSER DETAIL
NTS

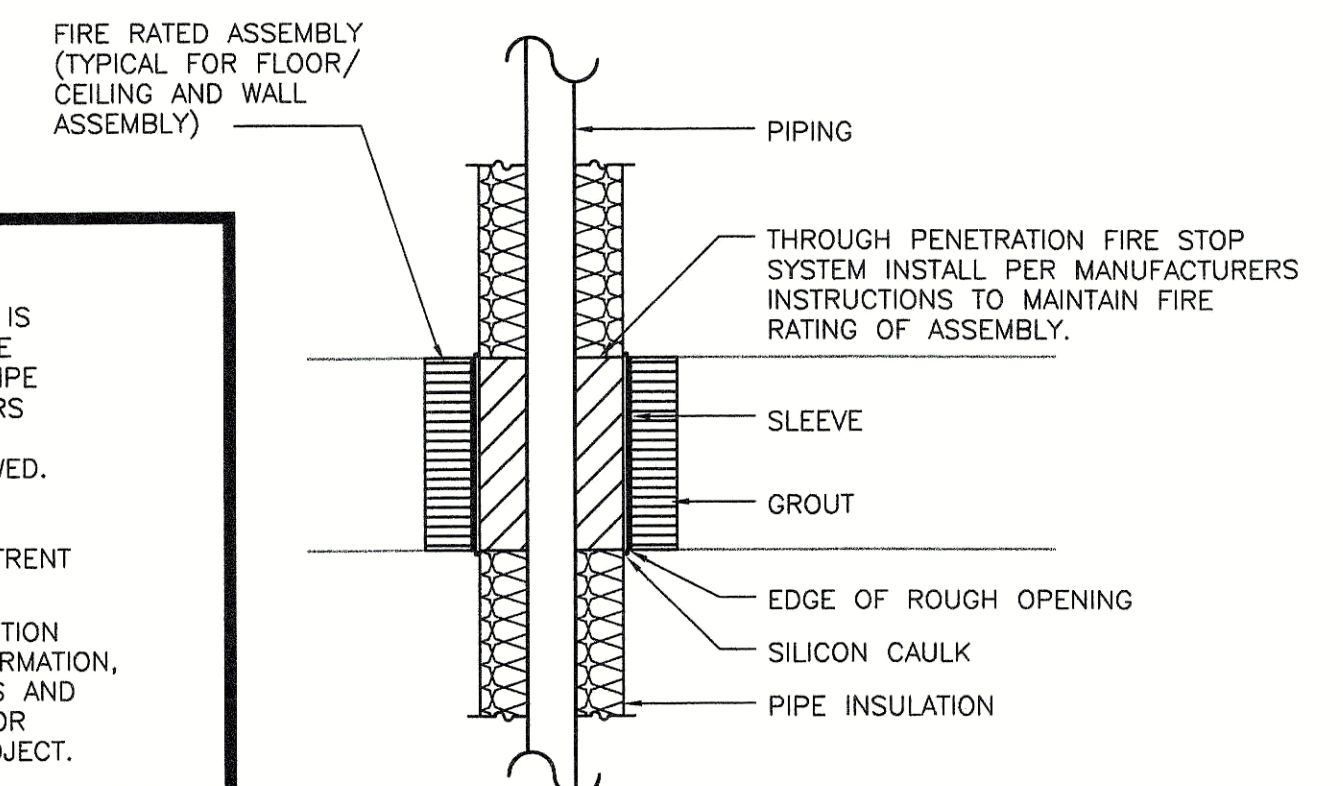


B1 FAN-COIL UNIT STEAM COIL PIPING DETAIL
NTS



C2 FAN-COIL UNIT INSTALLATION DETAIL
NTS

- NOTES:**
1. FIRESTOPPING DETAIL SHOWN IS A TYPICAL EXAMPLE FOR ONE UNIQUE ASSEMBLY WITH A PIPE PENETRATION. MANUFACTURERS DETAIL FOR EACH UNIQUE ASSEMBLY SHALL BE FOLLOWED.
 2. FIRESTOPPING DETAILS FOR A SIMILAR ASSEMBLY ARE DIFFERENT FROM EACH MANUFACTURER.
 3. REFER TO SPECIFICATION SECTION 15075 FOR ADDITIONAL INFORMATION, ACCEPTABLE MANUFACTURERS AND SUBMITTAL REQUIREMENTS FOR FIRESTOPPING FOR THIS PROJECT.



C1 PIPING FIRESTOPPING DETAIL
NTS

NO.	REVISION	DATE	APPR.

DRAWN BY:
EFK

APPROVED BY:






















ISSUE DATE:
03/24/04

SCALE:
NTS

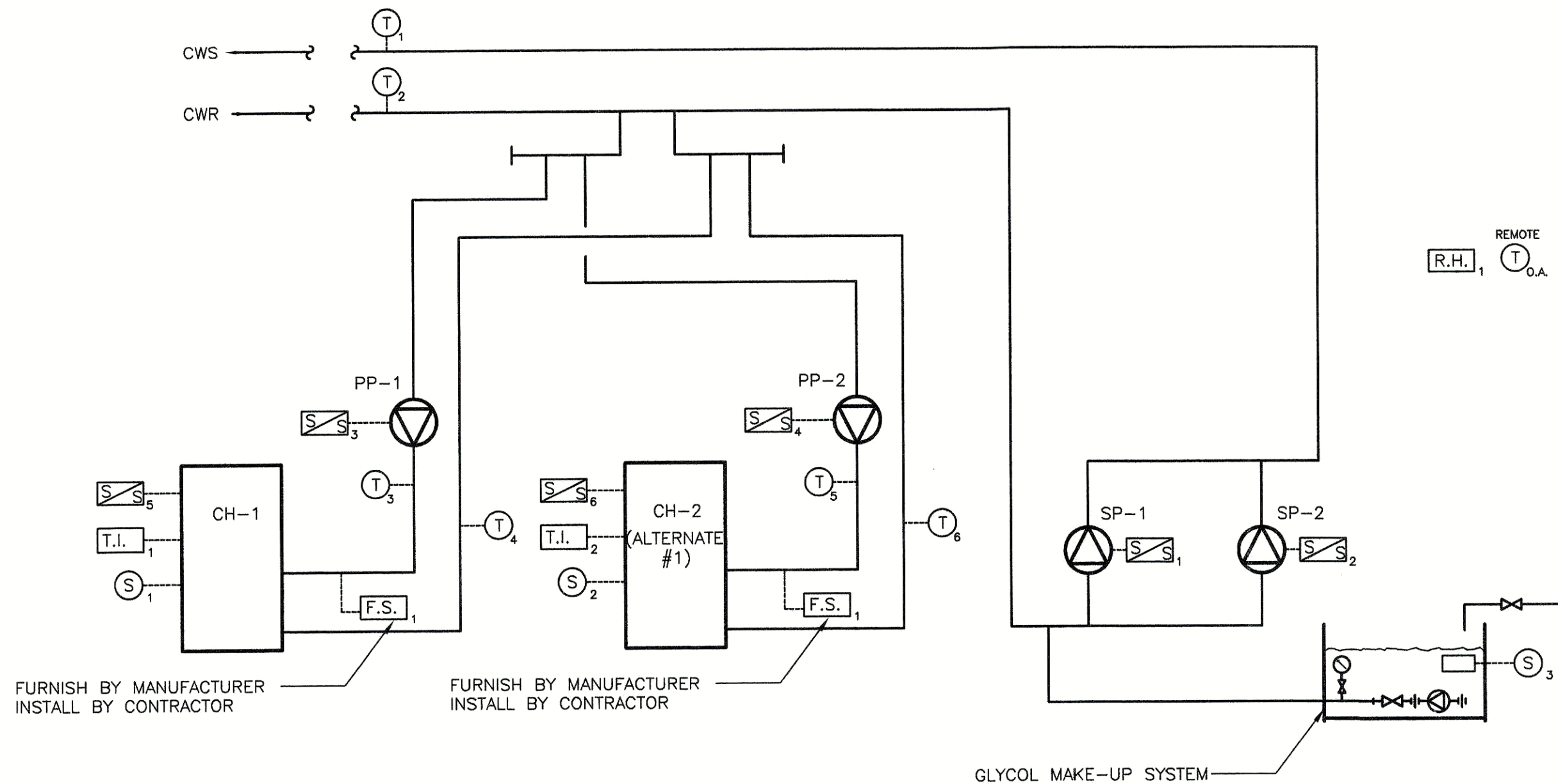
DRAWING NUMBER

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MECHANICAL ROOM POINTS LIST

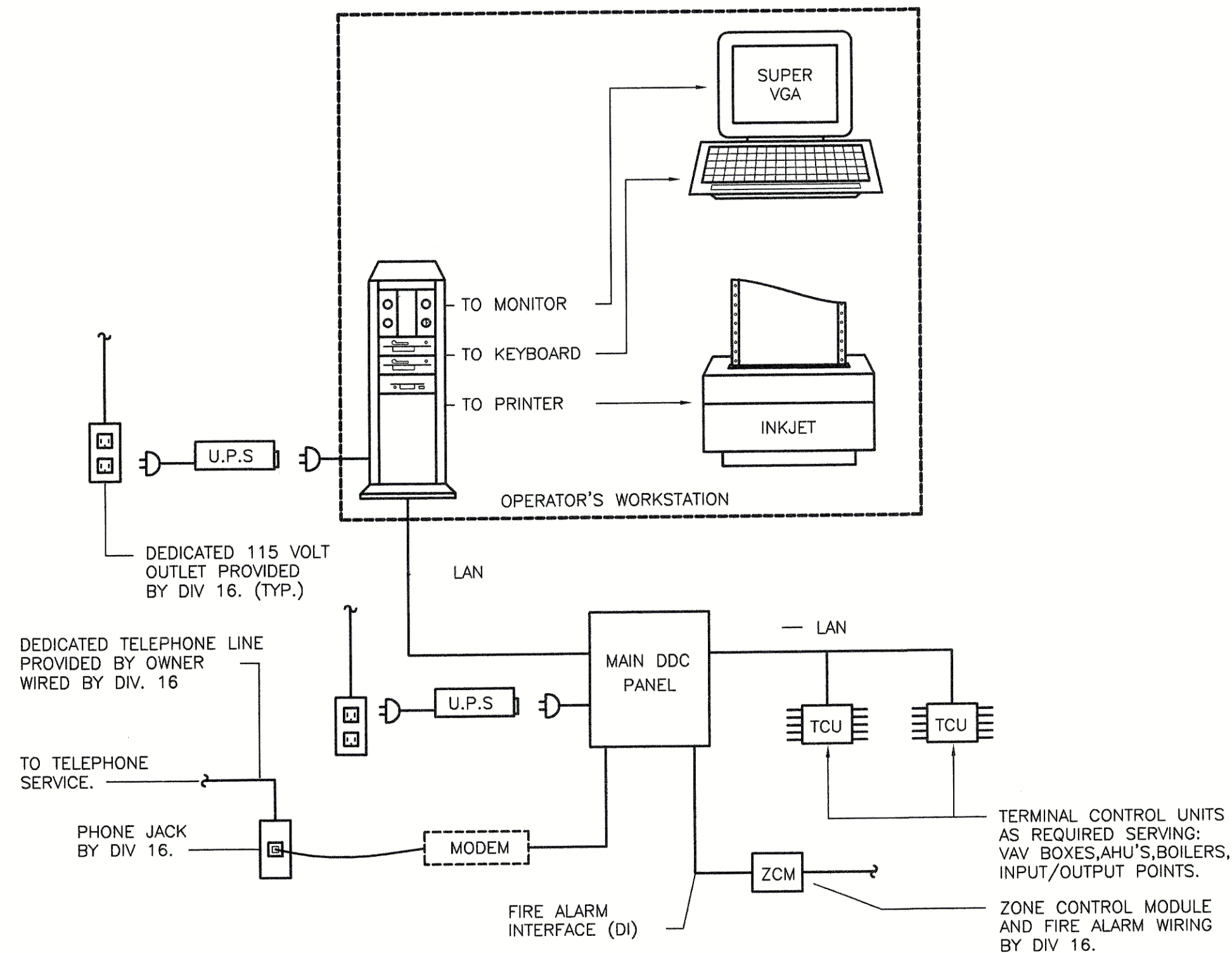
SYMBOL	DESCRIPTION	TYPE *	REMARKS
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 T ₂	CHILLED WATER RETURN TEMPERATURE SENSOR	AI	
 T ₃	EVAPORATOR WATER INLET TEMPERATURE SENSOR	AI	
 T ₄	EVAPORATOR WATER OUTLET TEMPERATURE SENSOR	AI	
 T _{OA}	OUTDOOR AIR TEMPERATURE (REMOTE*)	AI	LOCATE ON N. WALL IN SHADED LOCATION
 T ₅	EVAPORATOR WATER INLET TEMPERATURE SENSOR	AI	AS ALTERNATE #1
 T ₆	EVAPORATOR WATER OUTLET TEMPERATURE SENSOR	AI	AS ALTERNATE #1
 R.H. ₁	OUTDOOR RELATIVE HUMIDITY SENSOR	AI	LOCATE ON N. WALL IN SHADED LOCATION
 S ₁	CHILLED WATER SECONDARY PUMP START/STOP (SP-1)	DO	
 S ₂	CHILLED WATER SECONDARY PUMP START/STOP (SP-2)	DO	AS ALTERNATE #1
 S ₃	CHILLER PRIMARY PUMP START/STOP (PP-1)	DO	HARD WIRE TO CHILLER CONTROL PANEL
 S ₄	CHILLER PRIMARY PUMP START/STOP (PP-2)	DO	AS ALTERNATE #1 HARD WIRE TO CHILLER CONTROL PANEL
 S ₅	CHILLER #1 START/STOP	DO	
 S ₆	CHILLER #2 START/STOP	DO	AS ALTERNATE #1
 S ₁	CHILLER "ALARMS"	DI	
 S ₂	CHILLER "ALARMS"	DI	AS ALTERNATE #1
 S ₃	GLYCOL PKG. ALARM	DI	
 F.S. ₁	CHILLER WATER FLOW SWITCH DPDT	DI	HARD WIRE TO CHILLER CONTROL PANEL
 F.S. ₂	CHILLER WATER FLOW SWITCH DPDT	DI	HARD WIRE TO CHILLER CONTROL PANEL AS ALTERNATE #1
 T.L. ₁	CHILLER WATER TEMPERATURE SET POINT	AI	
 T.L. ₂	CHILLER WATER TEMPERATURE SET POINT	AI	AS ALTERNATE #1

* DI = DIGITAL INPUT
DO = DIGITAL OUTPUT
AI = ANALOG INPUT
AO = ANALOG OUTPUT



A2 CHILLERS CONTROL DIAGRAM

SCALE: NTS



CONTROL SYSTEM NOTES

1. INSTALL ALL WIRING IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS.
2. ALL LOW VOLTAGE AND LAN WIRING WITHIN MECHANICAL ROOMS OR CRAWL SPACES SHALL BE RUN WITHIN CONDUIT OR OTHER APPROVED RACEWAY.
3. ALL WIRING SHALL BE RUN CONCEALED, WHERE IT IS IMPOSSIBLE TO CONCEAL WIRING SURFACE RACEWAY SHALL BE USED.
4. ALL LINE VOLTAGE WIRING SHALL BE RUN WITHIN RACEWAY. PROVIDE CONDUIT WITHIN UN-FINISHED SPACES AND CONCEAL.
5. PROVIDE OCCUPIED/UNOCCUPIED OVERRIDE SWITCH FOR EACH OFFICE SPACE INTEGRAL TO SPACE TEMPERATURE SENSOR.
6. PROVIDE AN ADDITIONAL SOFTWARE AND GRAPHICS SETUP AT TOWN HALL ON EXISTING COMPUTER. THE EXISTING COMPUTER AT TOWN HALL CURRENTLY HAS JOHNSON M3 SOFTWARE, M-GRAPHICS PACKAGE AND A PHONE MODEM WHICH MAY BE USED.
7. PROVIDE ONE 4 HOUR TRAINING SESSION AT THE JOB SITE. PROVIDE AN ADDITIONAL 4 HOUR TRAINING SESSION AT BUILDING #1 FOR USE OF REMOTE STATION.
8. PROVIDE ONE 4 HOUR TRAINING SESSION TO OCCUR BETWEEN 2-4 WEEKS AFTER THE INITIAL TRAINING SESSION.

A1 DDC SYSTEM DETAIL

SCALE: NTS

APPLIED
THERMODYNAMICS
ASSOCIATES, INC.

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T 860-742-5377
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ata
Consulting
Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM

LOCATION: ENO MEMORIAL HALL
734 NORWICH STREET
SINDBURY, CONNECTICUT 06070

DRAWING TITLE:
MECHANICAL
CONTROLS

NO.	REVISION	DATE	APPR.

DRAWN BY:
EFK

APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
NTS

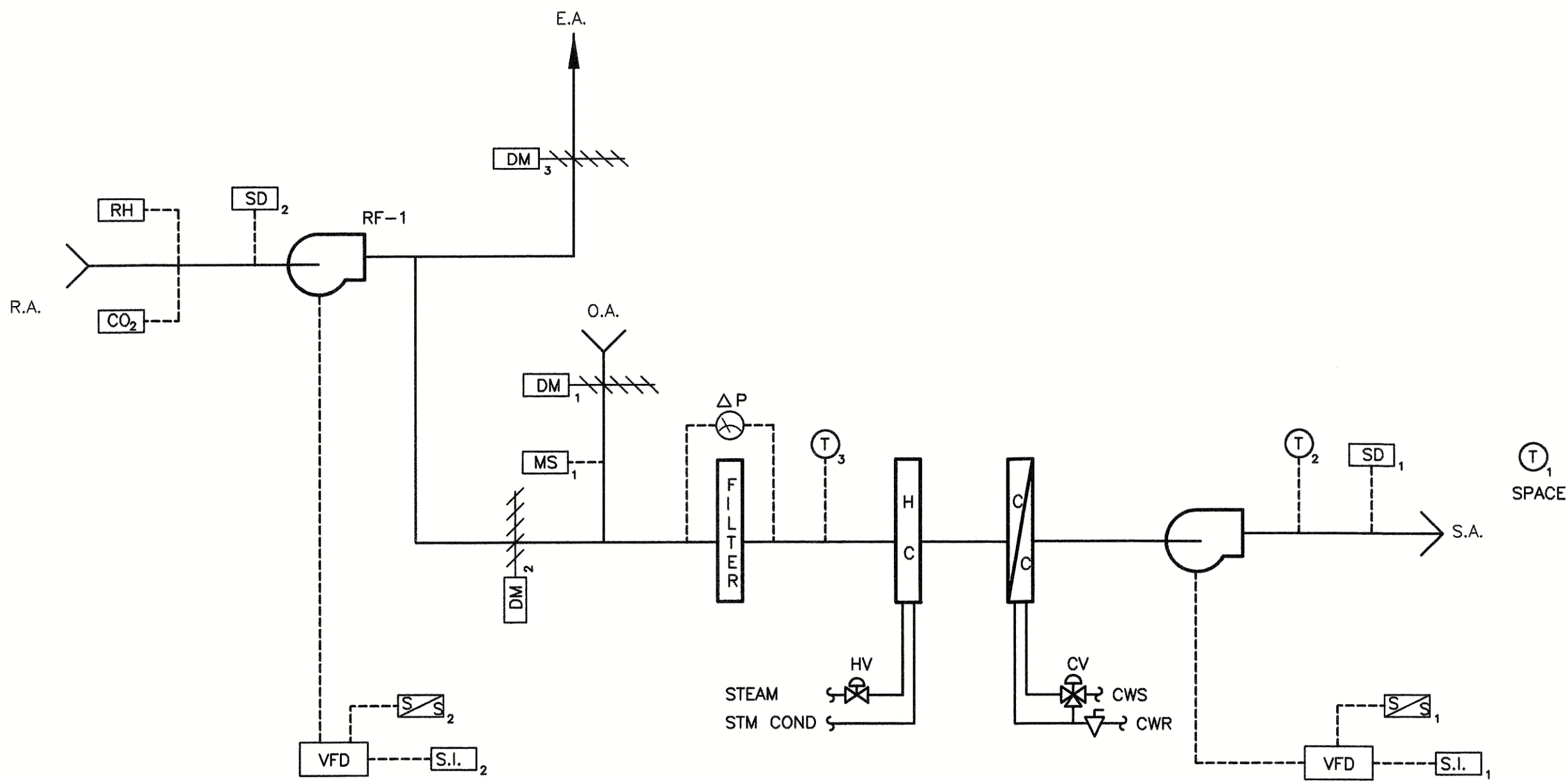
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M4.2

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AHU-1 DDC POINTS LIST			
SYMBOL	DESCRIPTION	TYPE *	REMARKS
	SPACE TEMPERATURE SENSOR	AI	
	SUPPLY AIR TEMPERATURE SENSOR	AI	
	MIXED AIR TEMPERATURE SENSOR	AI	
HV	HEATING COIL CONTROL VALVE	AO	
CV	COOLING COIL CONTROL VALVE	AO	
	OUTSIDE AIR DAMPER ACTUATOR	AO	
	RETURN AIR DAMPER ACTUATOR	AO	
	EXHAUST AIR DAMPER ACTUATOR	AO	
	SUPPLY FAN START/STOP	DO	
	RETURN FAN START/STOP	DO	
	SUPPLY FAN VFD SPEED SETTING, 4-20mA	AO	DDC GENERATES SPEED
	EXHAUST FAN VFD SPEED SETTING, 4-20mA	AO	DDC GENERATES SPEED
	OUTSIDE AIR MESURING STATION	AI	
	RETURN AIR CO2 CONCENTRATION, 4-20mA	AI	
	SMOKE DETECTOR SPDT-SUPPLY AIR		FIRE ALARM INTERFACE, HARDWIRE THRU FAN CIRCUIT, DDC ALARM
	SMOKE DETECTOR SPDT- RETURN AIR		FIRE ALARM INTERFACE, HARDWIRE THRU FAN CIRCUIT, DDC ALARM
	ANALOG GAUGE WITH CONTACTS - CLOSE ON RISE	DI	DDC TROUBLE
	RETURN AIR RELATIVE HUMIDITY SENSOR	AI	

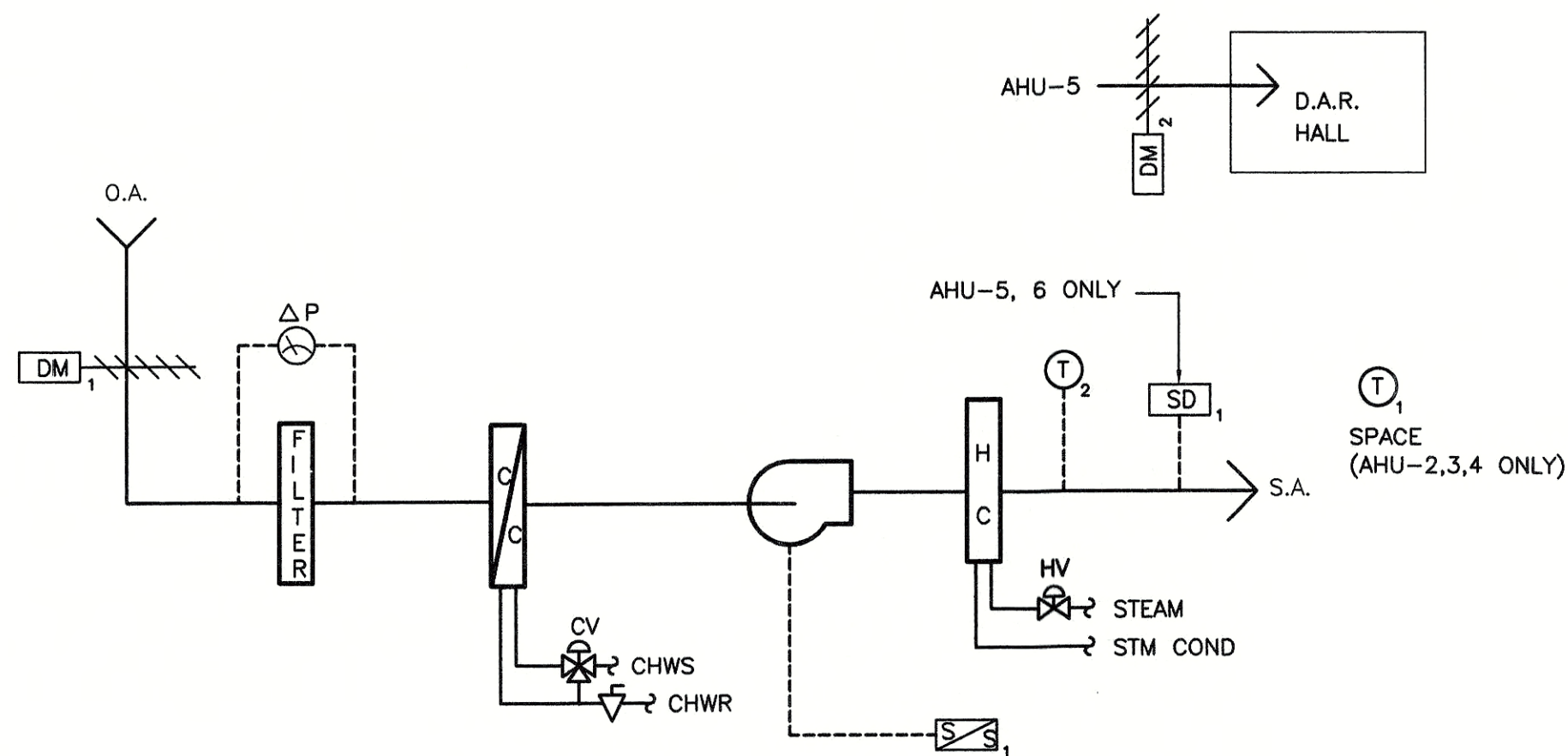
* DI = DIGITAL INPUT
DO = DIGITAL OUTPUT
AI = ANALOG INPUT
AO = ANALOG OUTPUT



A2 AHU-1 CONTROL SCHEMATIC
SCALE: NTS

AHU-2,3,4,5,6 DDC POINTS LIST (EACH UNIT)			
SYMBOL	DESCRIPTION	TYPE *	REMARKS
	SPACE TEMPERATURE SENSOR	AI	AHU-2,3,4 ONLY
	SUPPLY AIR TEMPERATURE SENSOR	AI	
HV	HEATING COIL CONTROL VALVE	AO	
CV	COOLING COIL CONTROL VALVE	AO	
	OUTSIDE AIR DAMPER ACTUATOR	AO	
	ZONE AIR DAMPER ACTUATOR	DI	AHU-5 ONLY
	SUPPLY FAN START/STOP	DO	
	SMOKE DETECTOR SPDT-SUPPLY AIR		FIRE ALARM INTERFACE, HARDWIRE THRU FAN CIRCUIT, DDC ALARM
	ANALOG GAUGE WITH CONTACTS - CLOSE ON RISE	DI	DDC TROUBLE

* DI = DIGITAL INPUT
DO = DIGITAL OUTPUT
AI = ANALOG INPUT
AO = ANALOG OUTPUT



A1 AHU-2,3,4,5,6 CONTROL SCHEMATIC
SCALE: NTS

NO.	REVISION	DATE	APPR.

DRAWN BY:
EFK

APPROVED BY:

ISSUE DATE:
03/24/04

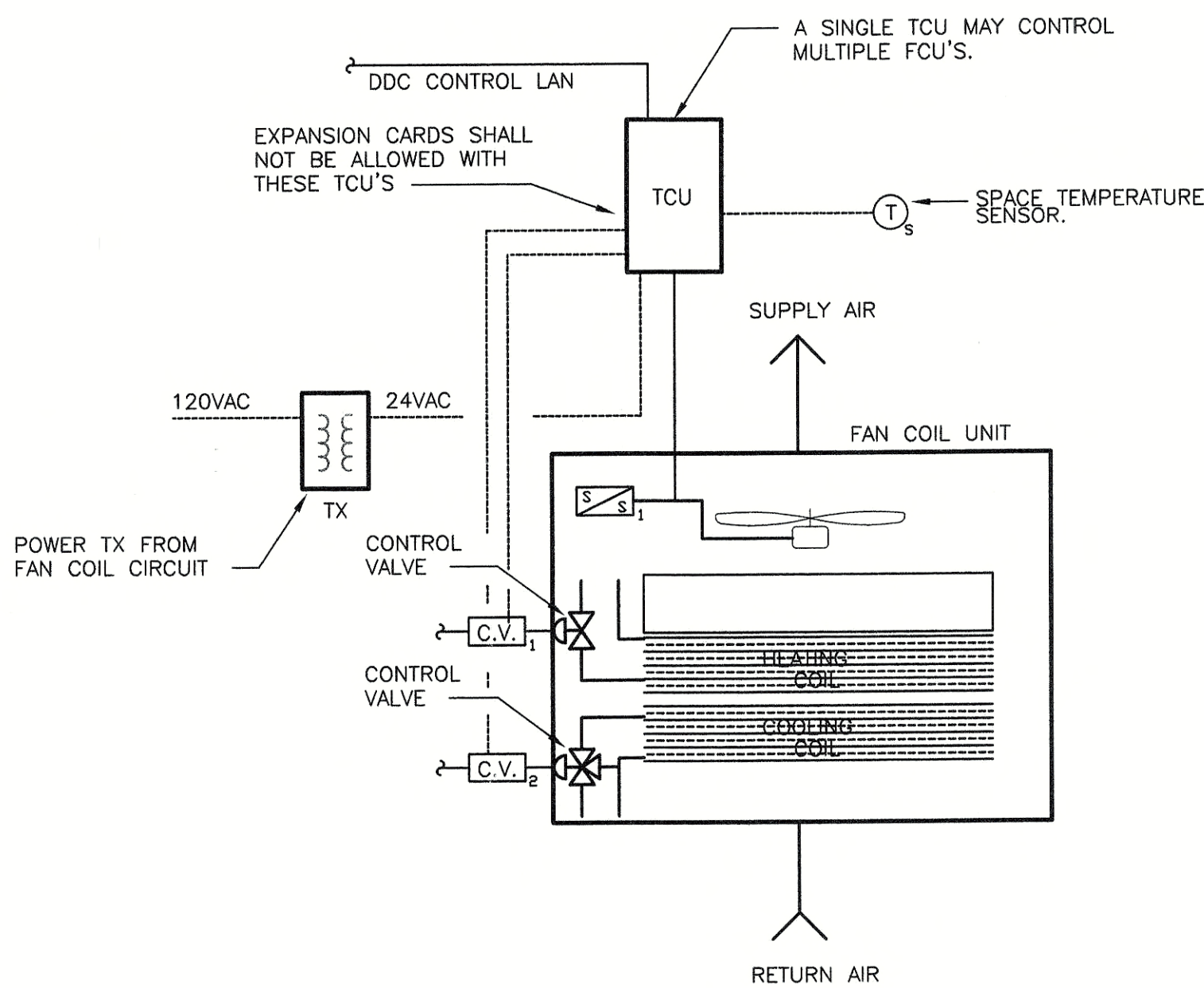
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TYPICAL FANCOIL DDC POINTS LIST			
SYMBOL	DESCRIPTION	TYPE*	REMARKS
\textcircled{T}_s	SPACE TEMPERATURE	AI	AS SHOWN ON FLOOR PLANS.
\textcircled{S}_1	START / STOP FAN COIL UNIT (FAN)	DO	ONE PER FAN COIL UNIT.
$\textcircled{C.V.}_1$	MODULATE FAN COIL UNIT HEATING CONTROL VALVE	AO	ONE CV PER FAN COIL UNIT.
$\textcircled{C.V.}_2$	MODULATE FAN COIL UNIT COOLING CONTROL VALVE	AO	ONE CV PER FAN COIL UNIT.
FCU-1 + FCU-20, FCU-23 + FCU-33 AS ALTERNATE #1		* DO = DIGITAL OUTPUT AI = ANALOG INPUT AO = ANALOG OUTPUT	



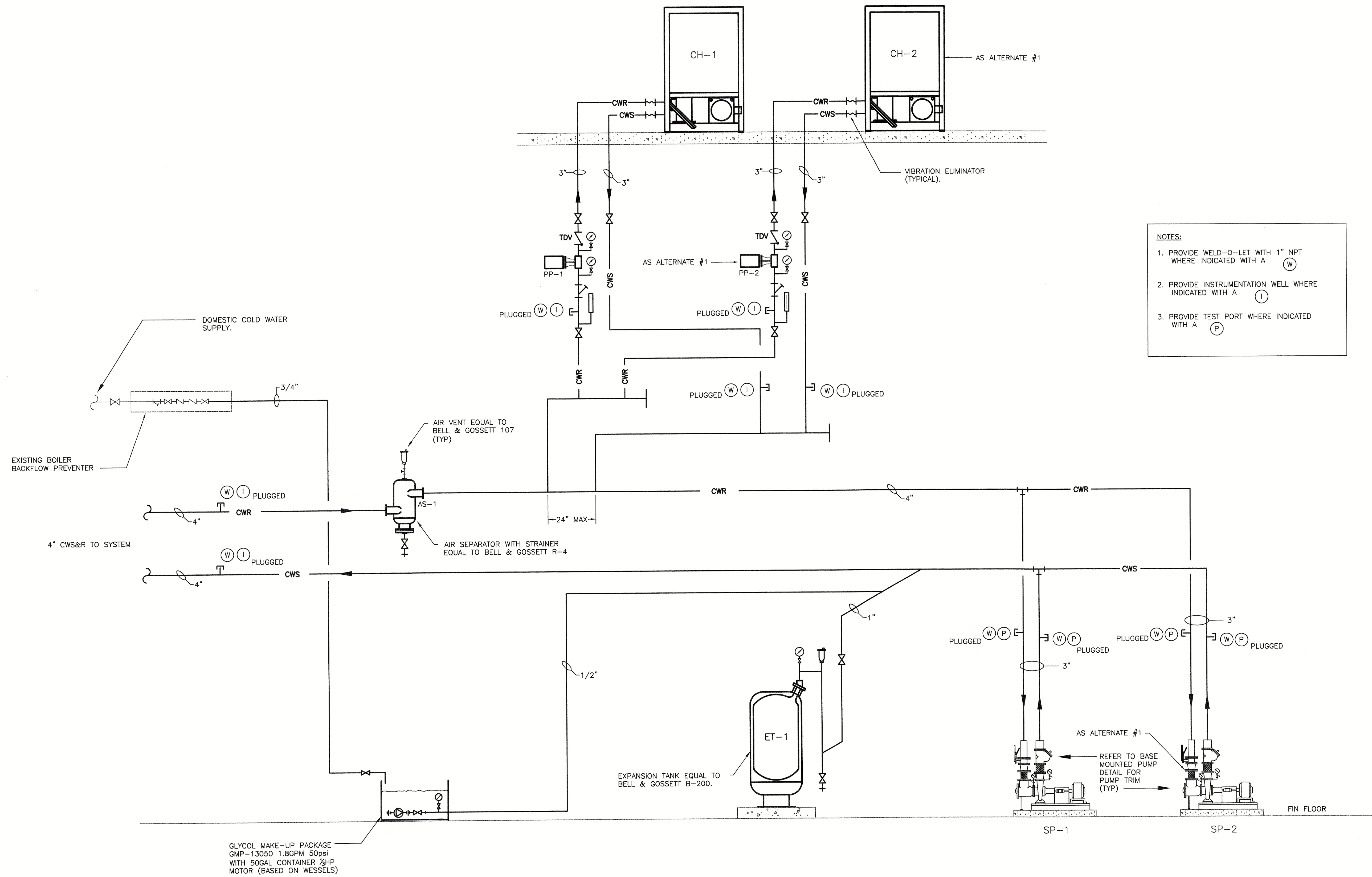
A1 FAN COIL UNIT CONTROL DIAGRAM
SCALE: NTS

MISCELLANEOUS DDC POINTS LIST (BASE BID)			
SYMBOL	DESCRIPTION	TYPE	REMARKS
P_{sv}	15/20 PSI PNEUMATIC TIMING	DO	
* DO = DIGITAL OUTPUT			

EXHAUST FAN CONTROLS SCHEDULE				
SYMBOL	SPACE SERVED	DESCRIPTION	DDC POINT TYPE	NOTES
			DO	
EF-1*	TOILET	START /STOP	X	2
EF-2*	TOILET	START /STOP	X	2
EF-3*	DINING ROOM	START /STOP	X	1
EF-4	EXERCISE ROOM	START /STOP	X	1
EF-5*	HALL	START /STOP	X	1
EF-6*	OFFICE TOILETS	START /STOP	X	1
* AS ALTERNATE #1				
NOTES:				
1. ON/OFF CONTROL SHALL BE BY DDC SYSTEM OPTIMAL START/STOP PROGRAM (OCCUPIED, UNOCCUPIED).				
2. RUN FROM LIGHT SWITCH (DIV 16)				

A2 EXHAUST FAN CONTROLS
SCALE: NTS

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A1 HYDRONIC COOLING SYSTEM SCHEMATIC
SCALE: NTS

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AIR HANDLING UNIT SCHEDULE																											
(BASED ON TRANE)																											
SYMBOL	SERIES	MODEL	TOTAL CFM	O.A. CFM MAX	SUPPLY FAN	COOLING COIL *										DISTRIBUTING TUBES STEAM COIL							SUPPLY FAN ELECTRICAL DATA				
					TSP/ESP	EDB °F	EWB °F	EWT °F	LWT °F	LDB °F	TOTAL MBH	SENS. MBH	ROWS	APD IN. W.C.	GPM	WPD FT H2O	EAT °F	LAT °F	STEAM PRESSURE	TOTAL MBH	ROWS	APD IN. W.C.	CONDENSATE LB/HR	SIZE/ TYPE	RPM	HP	V/ø
AHU-1	M-SERIES	MCCB-12	6200	4950	3.48/1.3	86	71.5	40	50	52	386.8	233.5	6	0.94	88.3	20.0	15.0	88.0	5.00	490.9	1	0.2	509.8	12B-15"FC	1263	7.5	460/3
* 35% PROPYLENE GLYCOL																											
NOTES																											
1. ALL FAN MOTORS RATED GREATER THAN OR EQUAL TO 1 HP SHALL BE PREMIUM EFFICIENCY MOTORS.																											
2. ALL UNITS SHALL BE SET ON 4" THICK CONCRETE HOUSEKEEPING PAD SIZED IN ACCORDANCE WITH SECTION 15240.																											
3. SEE SPECIFICATION SECTION SECTION 15855 FOR ADDITIONAL INFORMATION.																											
4. POWER WIRING, DISCONNECT AND MOTOR STARTER BY DIVISION 16.																											
5. AHU-1 SHALL HAVE DOUBLE WALL CONSTRUCTION AND THE FOLLOWING SECTIONS ASSEMBLED IN ORDER FROM BACK TO FRONT:																											
- AIR MIXING MODULE																											
- ACCESS MODULE																											
- STEAM HEATING MODULE																											
- ACCESS MODULE																											
- COOLING COIL MODULE																											
- FAN MODULE																											
- DISCHARGE PLENUM																											

AIR COOLED CHILLER SCHEDULE																
(BASED ON TRANE)																
SYMBOL	MODEL	NOMINAL CAPACITY TONS	PART LOAD PERFORMANCE				EVAPORATOR		COMPRESSORS			FANS		ELECTRICAL		
			% LOAD	TONS	KW	EER	GPM	PD FT H2O	NO.—SIZE	RLA EACH	LRA EACH	NO.	FLA EACH	VOLTS/ø	MCA	MAX FUSE
C-1	CGAF-C40	40	100	32.41	42.0	9.8	82.0	7	4-10	17.2	117	4	1.8	460/3	82	90
			75	27.39	27.00											
			50	20.55	16.14											
			25	9.30	7.12											
C-2 *	CGAF-C40	40	100	35.1	42.9	9.8	82.0	7	4-10	17.2	117	4	1.8	460/3	82	90
			75	27.39	27.00											
			50	20.55	16.14											
			25	9.30	7.12											
CHILLER RATING BASED UPON LWT=45°F, EWT=55°F, 95°F OAT AND 0.0001FOULING FACTOR. RATED IN ACCORDANCE WITH ARI 550/590-98, EER BASED ON POWER INPUTS FROM COMPRESSORS, CONDENSER FANS AND CONTROLS. ALL CHILLER RATINGS ARE BASED ON WATER CHILLERS WILL BE OPERATED WITH 35% GLYCOL.																
* ALTERNATE #1																
NOTES:																
1. PROVIDE THE FOLLOWING FACTORY INSTALLED OPTIONS:																
A) HOT GAS BYPASS.																
B) UNIT MOUNTED DISCONNECT SWITCH.																
C) SOUND ATTENUATION PACKAGE.																
D) 0 TO 10V GBAS MODULE.																
E) ALARM RELAY.																
2. POWER WIRING BY DIVISION 16.																
3. PROVIDE DISCONNECT AS OPTION.																
4. PROVIDE FLOW SWITCH AS OPTION.																

BLOWER COIL AIR HANDLING UNIT SCHEDULE																		
(BASED ON TRANE)																		
SYMBOL	SERIES	MODEL	TOTAL CFM	O.A. CFM MAX	SUPPLY FAN	COOLING COIL**										SUPPLY FAN ELECTRICAL DATA		
					TSP/ESP	EDB °F	EWB °F	EWT °F	LWT °F	LDB °F	TOTAL MBH	SENS. MBH	ROWS	GPM	WPD FT H2O	RPM	HP	V/ø
AHU-2	BCXC	BCVC024A	550	550	1.08/0.60	88	73	45	52	56.0	34.8	19.6	6	9.85	7.8	1240	1/3	120/1
AHU-3	BCXC	BCVC036A	1000	1000	1.44/0.90	88	73	45	55	56.5	56.8	30.4	4	11.4	8.4	1430	3/4	120/1
AHU-4	BCXC	BCHC012A	400	400	1.54/0.70	88	73	40	47.3	56.0	23.1	14.2	6	6.85	8.9	1480	1/3	120/1
AHU-5	BCXC	BCVC054E2	2250	2250	2.51/1.2	88	73	45	50.8	58	117.3	74.8	6	44.2	14.0	1285	2	208/3
AHU-6	BCXC	BCVC072E	2400	2400	2.65/1.2	88	73	45	50.6	58	125.3	79.8	6	48.35	16.5	1322	2	208/3
* ALTERNATE #1																		
** 35% PROPYLENE GLYCOL																		
NOTES																		
1. ALL FAN MOTORS RATED GREATER THAN OR EQUAL TO 1 HP SHALL BE PREMIUM EFFICIENCY MOTORS.																		
2. AHU-2,3,5,6 SHALL BE SET ON 2" THICK CONCRETE HOUSEKEEPING PAD SIZED IN ACCORDANCE WITH SECTION 15240.																		
3. SEE SPECIFICATION SECTION SECTION 15855 FOR ADDITIONAL INFORMATION.																		
4. POWER WIRING, DISCONNECT AND MOTOR STARTER BY DIVISION 16.																		

FAN COIL UNIT SCHEDULE (BASED ON TRANE)																					
TAG	CABINET STYLE	SIZE	NOMINAL CFM	COOLING CAPACITY**					HEATING CAPACITY					FAN MOTOR					DISCHARGE/ RETURN ARRANGEMENT		
				EDB/EWB °F	TOTAL MBH	SENS. MBH	WPD FT H2O	ROWS	GPM	MBH	ROWS	EAT DRY-°F	LBS\HR	PSI	RPM			VOLTS/PH		WT	
															H	M	L				
FCU-2— 6, FCU-10,11,12, FCU-27— FCU-33	VERTICAL * CONCEALED	FC-04	320	75/65	10.6	7.4	8.1	3	2.18	8.3	1	70	7.2	5.0	1080	800	600	120/1	100	FREE	
FCU-7,8,9,13,14,15,16,17,18,24,25,26	VERTICAL * CONCEALED	FC-06	510	75/65	14.9	11.1	4.1	3	3.07	12.9	1	70	11.2	5.0	1080	800	600	120/1	125	FREE	
FCU-19,23	VERTICAL * CONCEALED	FC-02	188	75/65	6.5	4.5	14.3	3	1.34	4.9	1	70	4.2	5.0	980	840	665	120/1	60	FREE	
FCU-20	VERTICAL * CABINET	FC-02	188	75/65	6.5	4.5	14.3	3	1.34	4.9	1	70	4.2	5.0	980	840	665	120/1	60	FREE	
FCU-21,22	VERTICAL RECESSED	FC-06	510	75/65	14.9	11.1	4.1	3	3.07	12.9	1	70	11.2	5.0	1080	800	600	120/1	125	FREE	
FCU-1	VERTICAL * RECESSED	FC-04	510	75/65	14.9	11.1	4.1	3	3.07	12.9	1	70	11.2	5.0	1080	800	600	120/1	125	FREE	
RATINGS BASED ON: CHILLED WATER ENTERING TEMP EWT=45°F, LWT=55°F. ** 35% PROPYLENE GLYCOL				PROVIDE THE FOLLOWING: 1. UNIT MOUNTED NON-FUSED DISCONNECT SWITCH. 2. ONE INCH PLEATED THROWAWAY FILTERS.																	
																					* ALTERNATE #1

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EXHAUST AND SUPPLY FAN SCHEDULE

(BASED ON GREENHECK)

SYMBOL	MODEL	LOCATION	CFM @ S.P.	SONES	FRPM	HP	V/ø
EF-1 *	SE1-8-440-G-1	BASEMENT	150 @ 0.2	3.3	1350	1/50	120/1
EF-2 *	SE1-8-440-G-1	BASEMENT	150 @ 0.2	3.3	1350	1/50	120/1
EF-3 *	SE1-12-432-DB	DINING ROOM	1000 @ 0.2	7.1	1550	1/8	120/1
EF-4	SE1-14-440-C8	EXERCISE ROOM	400 @ 0.2	5.8	860	1/8	120/1
EF-5 *	EXISTING	ATTIC	4000 CFM				
EF-6 *	BSQ-80-4	ATTIC	200 @ 0.6	8.7	1300	1/4	120/1
RF-1	BSQ-240-20	BOILER ROOM	2840 @ 0.6	16.4	774	2.0	460/3

NOTES:

- ALL FANS SHALL BE U.L LISTED AND SHALL BEAR THE AMCA SEAL FOR SOUND AND AIR.
- ALL 120 VOLT MOTORS SHALL HAVE INTERNAL THERMAL OVERLOAD PROTECTION AND DISCONNECT.
- PROVIDE MOTOR SIDE GUARD AND GRAVITY OPERATED BACKDRAFT DAMPER FOR EF-1,2,3,4.
- PROVIDE WALL COLLAR AND WEATHER HOOD FOR EF-1,2,3,4.
- PROVIDE VIBRATION ISOLATION KIT FOR INLINE FAN RF-1.
- RF-1 MOTOR SHALL BE PREMIUM EFFICIENCY.

* ALTERNATE #1

PUMP SCHEDULE

(BASED ON BELL & GOSSETT)

SYMBOL	SERIES	MODEL	GPM	HEAD FT.	HP	RPM	VOLTS/ø
PP-1	80	3X3X7B	96	20.0	1.0	1150	460/3
PP-2 *	80	3X3X7B	96	20.0	1.0	1150	460/3
SP-1	1510	2BC	96	60.0	5.0	1750	460/3
SP-2 *	1510	2BC	96	60.0	5.0	1750	460/3

* ALTERNATE #1

NOTES:

- PROVIDE PREMIUM EFFICIENCY MOTORS FOR ALL PUMPS.
- POWER WIRING AND DISCONNECT FOR ALL PUMPS BY DIVISION 16.

GRAVITY VENTILATOR SCHEDULE

(BASED ON GREENHECK "ABRAHOD")

SYMBOL	TYPE	THROAT AREA (SQ. FT.)	THROAT SIZE	CURB CAP	HOOD SIZE	CFM @ S.P.
GV-1	RELIEF	5.83	20X42	28X50	42X60	6200 @ 0.145

NOTES:

- PROVIDE 12" HIGH MODEL GPFP WELDED ALUMINUM FLAT ROOF CURB FOR VENTILATOR.
- UNIT SHALL HAS ALUMINUM CONSTRUCTION AND OPTIONAL 7.5" BASE VENTILATOR.

SOUND ATTENUATOR SCHEDULE

(BASED ON VIBRO-ACOUSTICS)

TAG	FAN SYSTEM	MODEL	SIZE WxHxL	CFM	S.P. IN. W.G.	FACE VEL. FPM	DYNAMIC INSERTION LOSS								NOTES
							63	125	250	500	1000	2000	4000	8000	
S-1	AHU-1	RD-HV-F9	36X20X84	6200	0.20	+1240	6	8	19	39	55	49	32	20	
S-2	RF-1	RD-MV-F9	48X12X60	3100	0.12	-775	4	10	20	37	50	40	24	14	
S-3	RF-1	RD-MV-F9	48X12X60	3100	0.12	-775	4	10	20	37	50	40	24	14	

SYMBOL (+) DESIGNATES FORWARD AIR FLOW AND SYMBOL (-) DESIGNATES REVERSE AIR FLOW.

GRILLE AND DIFFUSER SCHEDULE

(BASED ON METALAIR)

SYMBOL	DESCRIPTION	MODEL	NECK SIZE	STYLE	DAMPER	CONSTRUCTION
A1	CEILING MOUNTED SUPPLY DIFFUSER	5000-6	6x6	1,2,3,4-WAY	-----	EXTRUDED ALUMINUM
A2	CEILING MOUNTED SUPPLY DIFFUSER	5000-1	6X6	1,2,3,4-WAY	OPPOSED BLADE	EXTRUDED ALUMINUM
A3	CEILING MOUNTED SUPPLY DIFFUSER	5000-1	9X9	1,2,3,4-WAY	OPPOSED BLADE	EXTRUDED ALUMINUM
A4	CEILING MOUNTED SUPPLY DIFFUSER	5000-1	15x15	1,2,3,4-WAY	-----	EXTRUDED ALUMINUM
A5	CEILING MOUNTED SUPPLY DIFFUSER	5000-1	18x18	1,2,3,4-WAY	-----	EXTRUDED ALUMINUM
B1	CEILING MOUNTED * SLOT DIFFUSER	6000 SERIES	BOOT PLENUM	12-SM 1"-6 SLOTS	-----	ALUMINUM
C1	SIDEWALL SUPPLY REGISTER	V4004D	10X4	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
C2	SIDEWALL SUPPLY REGISTER	V4004D	12X8	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
C3	SIDEWALL SUPPLY REGISTER	V4004D	14X8	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
C4	SIDEWALL SUPPLY REGISTER	V4004D	20x8	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
C5	SIDEWALL SUPPLY REGISTER	V4004D	24X10	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
C6	SIDEWALL SUPPLY REGISTER	V4004D	30x10	45 ° DEFLECTION	OPPOSED BLADE	ALUMINUM
D1	SIDEWALL RETURN GRILLE	V4002R	24X20	0 ° DEFLECTION	-----	ALUMINUM
E1 **	SIDEWALL RETURN GRILLE		40X18		-----	BRONZE
F1	CEILING MOUNTED EXHAUST GRILLE	CC5 TB	9X9	1/2" CUBE CORE	-----	ALUMINUM

* 6' LENGTH SURFACE MOUNTED SLOT DIFFUSER. PROVIDE BR BOOT PLENUM W/O DAMPER.

GRILLE AND DIFFUSER NOMENCLATURE:

** BASED ON "ARCHITECTURAL GRILLE" (REFER TO DWG M-1.1.2 FOR PATTERN)

A1-250 TAG AS SPECIFIED ON PLANS
SYMBOL FLOW RATE (CFM)

NOTES:

- PROVIDE AIR FLOW (CFM) AND FLOW PATTERN AS SHOWN ON THE DRAWINGS.
- ALL GRILLES, REGISTERS AND DIFFUSERS SHALL HAVE WHITE FINISH.

STEAM COIL SCHEDULE

(BASED ON USA COIL & AIR INC.)

SYMBOL	MODEL	CFM	ROWS	FINNED LENGTH	COIL HEIGHT	EAT °F	LAT °F	TOTAL MBH **	COND. FLOW RATE LB/HR	APD IN WG	NOTE
SC-1	SD58-BK-01206-F	400	2	12"	6"	0	81.0	35.4	36.6	0.35	1,2,3
SC-2 *	SD58-BG-01809-F	550	2	18"	9"	0	81.0	47.7	49.6	0.11	1,2,3
SC-3 *	SD58-BF-02215-F	1000	2	22"	15"	0	85.0	82.8	85.1	0.08	1,2,3
SC-4 *	SD58-BK-01206-F	2250	2	24"	18"	0	83.0	203.1	211.4	0.31	1,2,3
SC-5 *	SD58-BK-01206-F	2400	2	26"	18"	0	84.0	218.0	227.0	0.30	1,2,3

NOTES:

- FIN TYPE AND MATERIAL- ALUMINUM.
- DISTRIBUTING TUBES - 5/8"x 0.025 WALL COPPER.
- COIL TO BE PITCHED IN CASING 1/8" PER 1' FOR HORIZONTAL AIRFLOW.

* ALTERNATE #1
** BASED ON 5.0 PSIG STEAM PRESSURE.

CHILLED WATER SYSTEM EQUIPMENT COMPONENT SCHEDULE

TAG	DESCRIPTION	MODEL
CHILLERS CH-1, CH-2	SEE SCHEDULE	----
AS-1	AIR SEPARATOR - 4" ROLAIRTROL LESS STRAINER	BELL & GOSSETT ROLAIRTROL BL-4
ET-1	EXPANSION TANK MODEL B-200	BELL & GOSSETT B-200
PP-1,2 AND SP-1,2	IN-LINE AND BASE MOUNTED PUMPS- SEE SCHEDULE	----

EQUIPMENT SEISMIC RESTRAINT / VIBRATION ISOLATOR SCHEDULE

(BASED ON MASON INDUSTRIES)

EQUIPMENT SYMBOL	EQUIPMENT DESCRIPTION	MOUNTING CONFIGURATION	HOUSEKEEPING PAD - Y/N	SEISMIC RESTRAINT TYPES	VIBRATION ISOLATOR TYPES	STATIC DEFLECTION	NOTES
CH-1, CH-2	AIR-COOLED CHILLER	ROOF MOUNTED	N	19	7	1"	
AHU-4	AIR HANDLER	SUSPENDED FROM STRUCTURE	N	12	10	1"	
AHU-1,2,3,5,6	AIR HANDLER	PAD MOUNTED	Y	19	7	1"	
AS-1	AIR SEPARATOR	SUSPENDED FROM STRUCTURE	N	12			
RF-1	RETURN FAN	SUSPENDED FROM STRUCTURE	N	12	10	1"	
EXPT-1,2	EXPANSION TANK	PAD MOUNTED	Y	19			STEEL ANGLE CLIPS SECURED TO TANK AND PAD.
FCU-(ALL)	FAN COIL UNIT	FLOOR MOUNTED	N	19			
PP-1,2	BASE MOUNTED PUMP	PAD MOUNTED	Y	19			
SP-1,2	IN-LINE PUMP	SUSPENDED FROM STRUCTURE	N	12	10	1"	

NOTES:

- SEE SPECIFICATION SECTION 15240 FOR DESCRIPTION OF RESTRAINT/ISOLATOR TYPE AND FOR OTHER SEISMIC RESTRAINT AND VIBRATION ISOLATOR REQUIREMENTS.

A1 MECHANICAL SCHEDULES

SCALE:1/8"=1'-0"

APPLIED THERMODYNAMICS ASSOCIATES, INC.



1129 Main Street
Coventry, CT 06238
T 860-742-5377
F 860-742-0362
www.ataengs.com

ATA FILE NUMBER: 0335
PROJECT:
AIR CONDITIONING SYSTEM

LOCATION:
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSURY, CONNECTICUT 06070

DRAWING TITLE:
MECHANICAL SCHEDULES

NO.	REVISION	DATE	APPR.

DRAWN BY:
EFK

APPROVED BY:

ISSUE DATE:
03/24/04

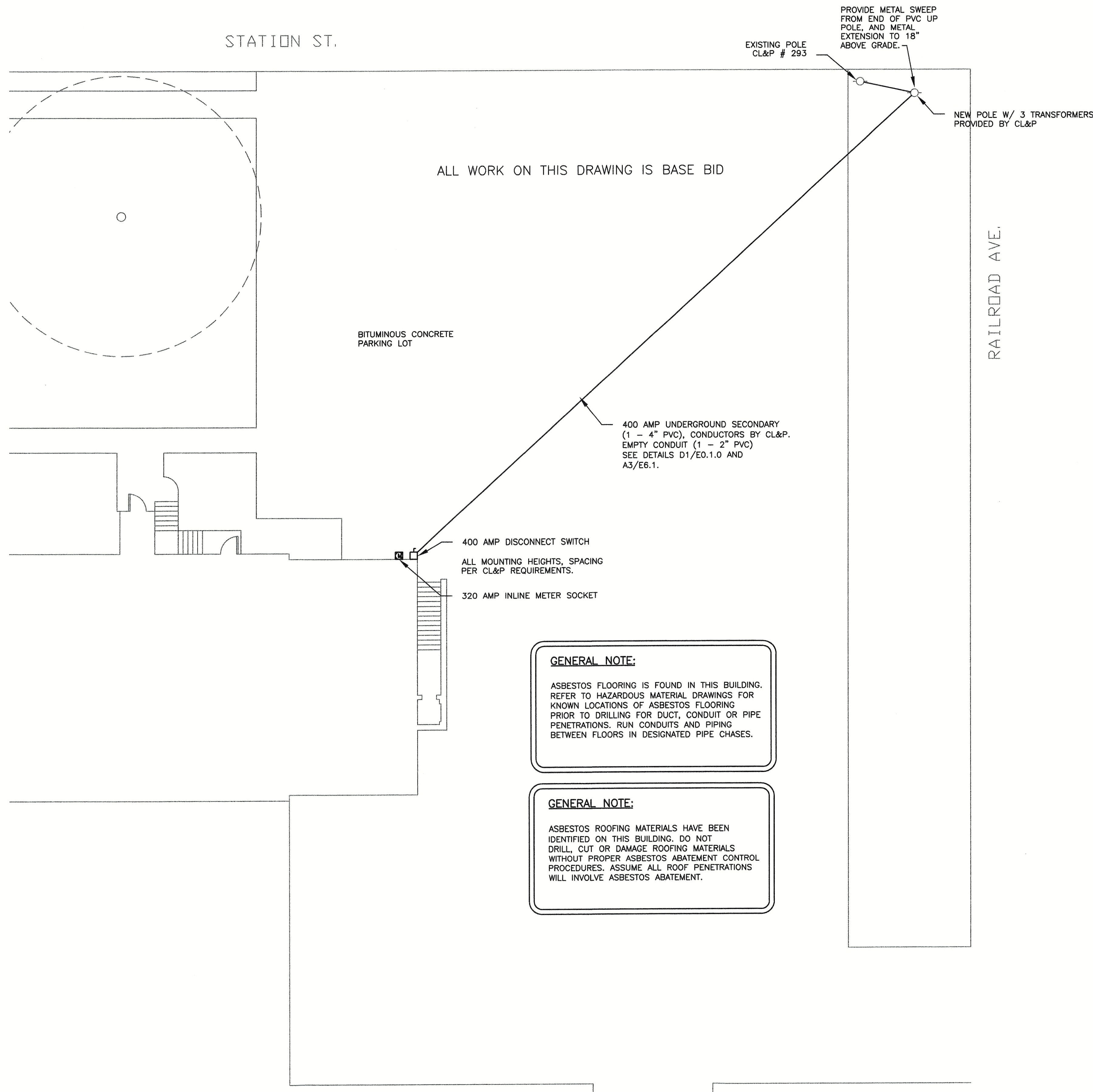
SCALE:
NTS

DRAWING NUMBER

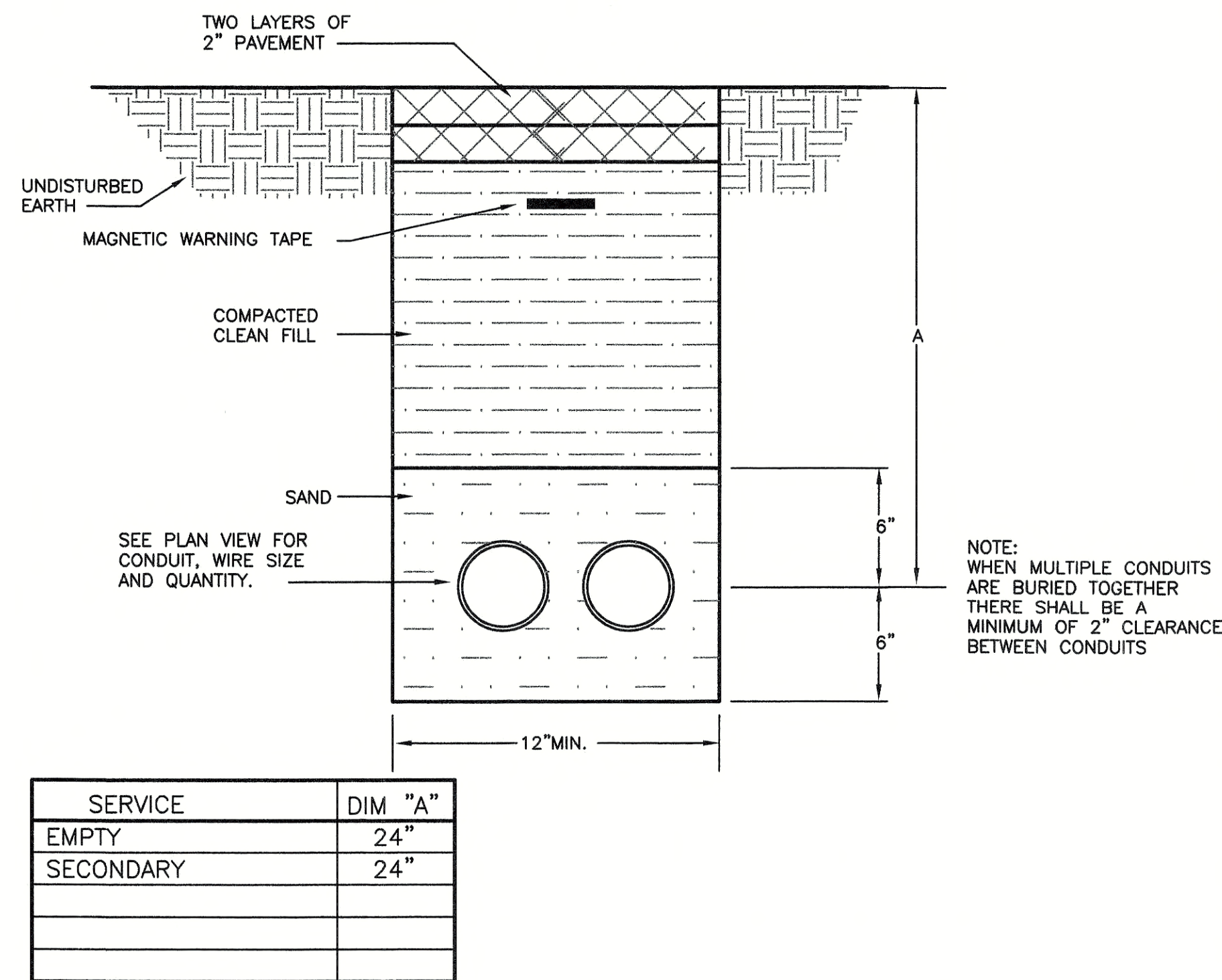
M5.2

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A1 PARTIAL SITE PLAN
SCALE: 1"=10'-0"



D1 BURIED CONDUIT DETAIL
SCALE: NTS



LINETYPE LEGEND	
	EXISTING TO REMAIN
	DEMOLITION
	NEW WORK

E4 LINETYPE LEGEND
NTS

NOTICE

FORTY-EIGHT (48) HOURS PRIOR TO ANY SITE WORK THE CONTRACTOR SHALL CALL "CALL-BEFORE-YOU-DIG" 1-800-922-4455 AND REQUEST THAT ALL UNDERGROUND UTILITIES BE TRACKED. SITE WORK SHALL NOT PROCEED UNLESS ALL UTILITIES ARE CLEARLY MARKED. IF MARKINGS ARE DISTURBED BEFORE SITE WORK IS PERFORMED CONTRACTOR SHALL TAKE EVERY MEASURE NECESSARY TO MAINTAIN INFORMATION CONCERNING LOCATION OF EXISTING UTILITIES TO ENSURE THAT THE UTILITIES ARE NOT DAMAGED.

E3 CALL BEFORE YOU DIG
NTS

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Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
ELECTRICAL SITE PLAN
AND DETAILS

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
AS NOTED

DRAWING NUMBER

E0.1.0

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A1

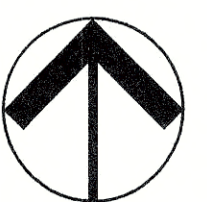
BASEMENT ELECTRICAL NEW WORK

SCALE: 1/8"=1'-0"

D1

EXERCISE ROOM BELOW STAGE

SCALE: 1/8" = 1'-0"



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ATA FILE NUMBER: 0335
PROJECT:
AIR CONDITIONING SYSTEM

LOCATION:
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
ELECTRICAL
PLAN BASEMENT

NO.	REVISION	DATE	APPR.

DRAWN BY:
AED

APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

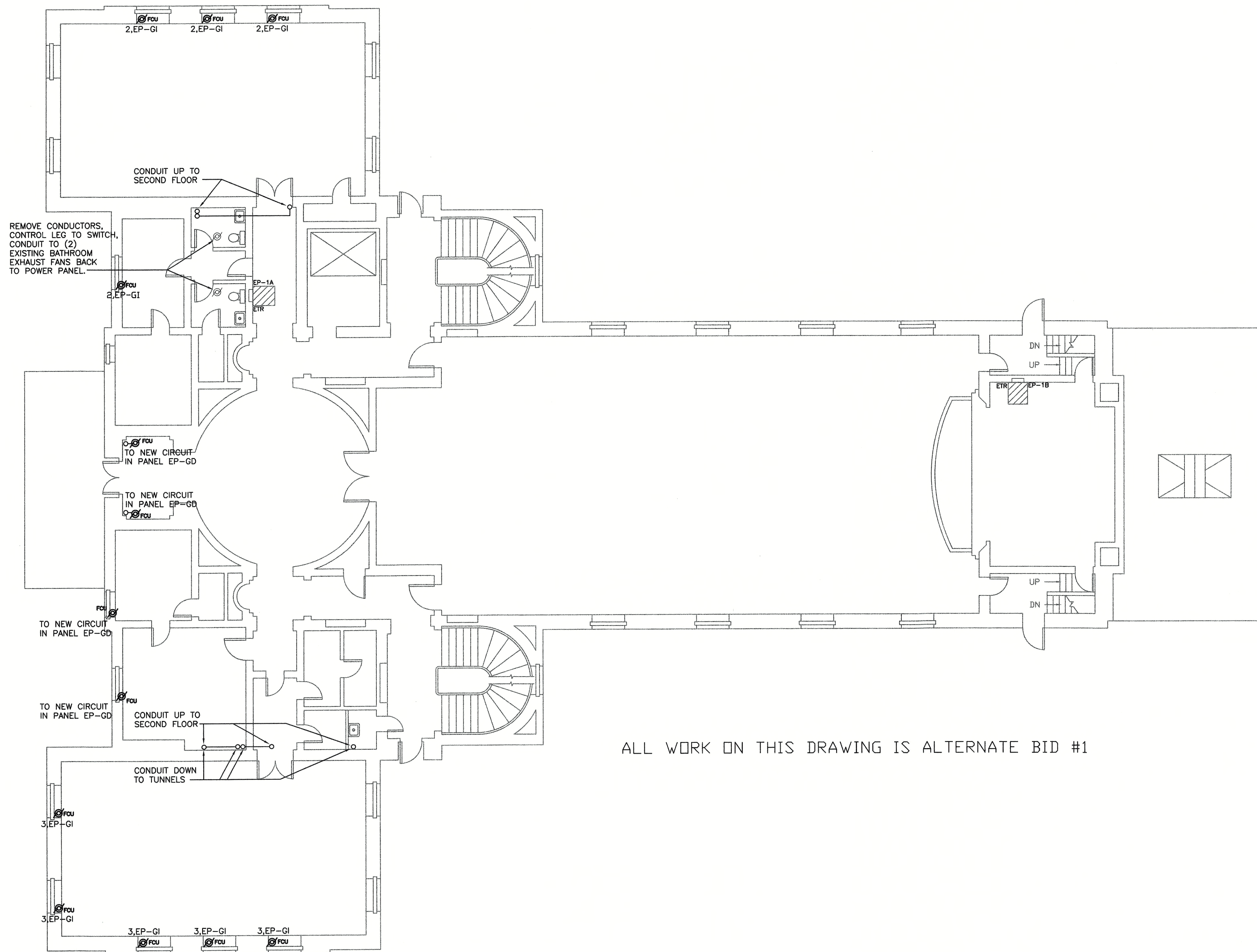
E1.1.1

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A1

FIRST FLOOR ELECTRICAL NEW WORK

SCALE: 1/8"=1'-0"



ALL WORK ON THIS DRAWING IS ALTERNATE BID #1



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ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 JONEMAN STREET
SINSEBURY, CONNECTICUT 06070

DRAWING TITLE:
ELECTRICAL PLAN
FIRST FLOOR

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

APPROVED BY:

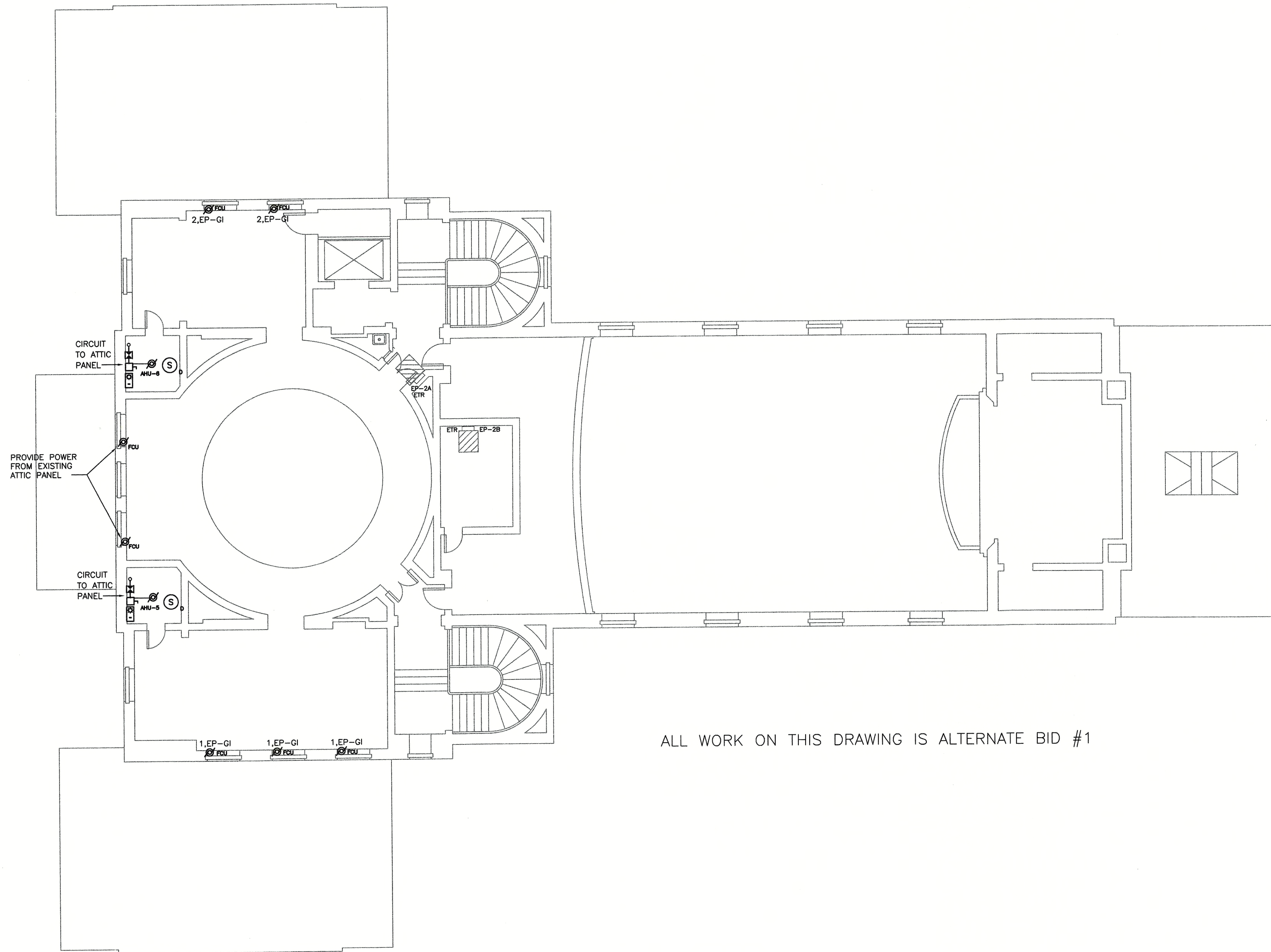
ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

E1.1.2

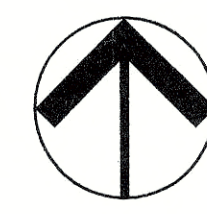
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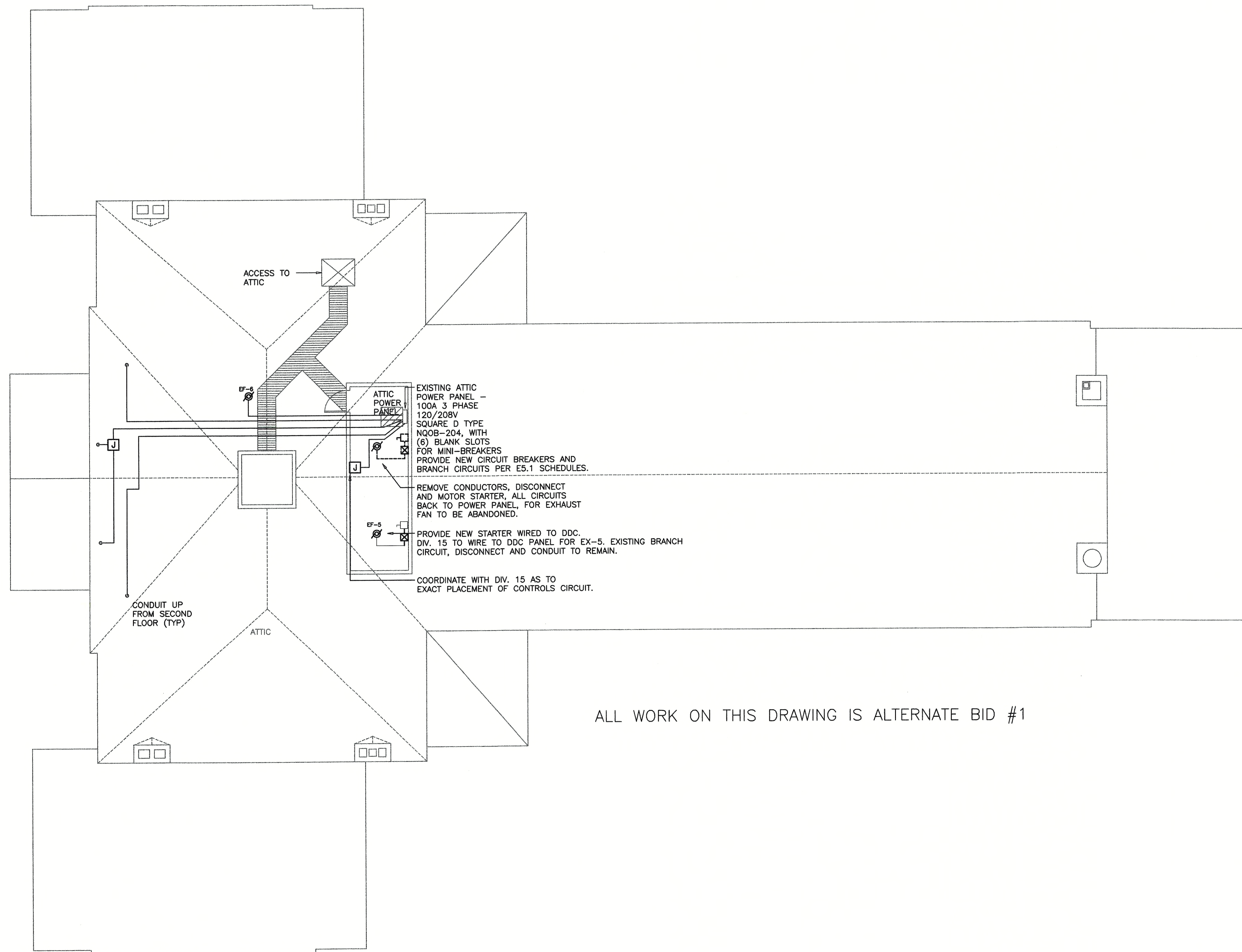
A1

SECOND FLOOR ELECTRICAL NEW WORK
SCALE: 1/8"=1'-0"



ATA Consulting Engineers 1129 Main Street Coventry, CT 06238 T 860-742-5377 F 860-742-0362 www.ataengrs.com		APPLIED THERMODYNAMICS ASSOCIATES, INC. 1129 Main Street Coventry, CT 06238 T 860-742-5377 F 860-742-0362 www.ataengrs.com	
ATA FILE NUMBER: 0335		PROJECT: AIR CONDITIONING SYSTEM	
DRAWING TITLE: ELECTRICAL PLAN SECOND FLOOR		LOCATION: ENO MEMORIAL HALL 754 HOPMEADOW STREET SINSBURY, CONNECTICUT 06070	
NO.	REVISION	DATE	APPR.
DRAWN BY: RTS			
APPROVED BY:			
ISSUE DATE: 03/24/04			
SCALE: 1/8" = 1'-0"			
DRAWING NUMBER E1.1.3			

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ALL WORK ON THIS DRAWING IS ALTERNATE BID #1

A1 ELECTRICAL ATTIC NEW WORK PLAN
SCALE: 1/8"=1'-0"



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ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
ELECTRICAL PLAN
ATTIC

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

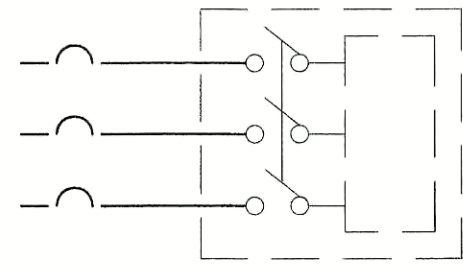
APPROVED BY:

ISSUE DATE:
03/24/04

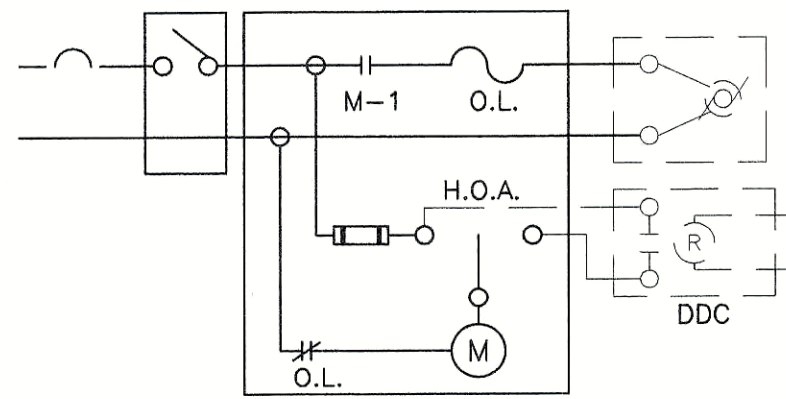
SCALE:
1/8"=1'-0"

DRAWING NUMBER

E1.1.4



A4 CH-1,2
WIRING DIAGRAM
NTS



B4 AHU-2,3,4
WIRING DIAGRAM
NTS

POWER EQUIPMENT SCHEDULE												
EQUIPMENT	LOCATION	RATINGS				FEEDER SIZE		TVSS TYPE	BASED ON SIEMENS			Vibration Isolation and/or Seismic Restraint Isolation/Restraint Type (per Specification 16193.2.02)
		VOLTAGE	MAIN BUS	MAIN BREAKER	Shunt Trip	AIC RATING	CONDUCTORS WITH GROUNDS	CONDUIT	PRODUCT	MOUNTING	DIMENSIONS	
METER SOCKET	NE CORNER BUILDING	480	400	AMPS	--	65,000	BY CL&P	4" PVC				
SERVICE DISCONNECT	NE CORNER BUILDING	480	400	AMPS	--	65,000	8 - 3/0 AWG CU	4" PVC	NFR355	WALL		4.18.19
MDP	LOWER FAN ROOM	480	400	AMPS	400	AMPS	1 - 1/0 AWG CU	4" EMT	SERIES S2	WALL	24"Wx60"Hx8"D	4.18.19
ENCLOSED CIRCUIT BREAKER	MAIN ELECTRICAL ROOM	208	225	AMPS	225	AMPS	4 - 4/0 AWG CU	2 1/2" EMT	SERIES QJ2	WALL	5"Wx27"Hx8"D	4.18.19
TX-1	MAIN ELECTRICAL ROOM	480/208	150	KVA	--	35,000	1 - #2 AWG CU	2 1/2" EMT	3F3Y150	PAD		4.18.19
EP-GI	MEN'S DRESSING ROOM	208/120	100	AMPS	100	AMPS	4 - #1 AWG CU*	1 1/2" EMT	SERIES S1	WALL	20"Wx32"Hx6"D	4.18.19

C4 ELECTRICAL EQUIPMENT SCHEDULE
NTS

SCHEDULE FOR NEW PANEL EP-GI LOCATED IN MEN'S DRESSING ROOM												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
1	FAN COILS CENTER	696	120	1	#12 AWG	3/4" EMT	20	1				
2	FAN COILS NW ALL FLOORS	696	120	1	#12 AWG	3/4" EMT	20	1				
3	FAN COILS SW ALL FLOORS	696	120	1	#12 AWG	3/4" EMT	20	1				
4	AHU-2	696	120	1	#12 AWG	3/4" EMT	15	1				
5	AHU-3	1,656	120	1	#8 AWG	3/4" EMT	35	1				
6	EF-1	80	120	1	#12 AWG	3/4" EMT	20	1				
7	EF-2	80	120	1	#12 AWG	3/4" EMT	20	1				
8	EF-3	696	120	1	#12 AWG	3/4" EMT	20	1				
9	DIV. 15 CONTROLS	120	1	#12 AWG	3/4" EMT	20	1	1	BOILER & FAN ROOMS			
10	EF-4	480	120	1	#12 AWG	3/4" EMT	20	1				
11	SPARE		120	1								
12	SPARE		120	1								
13	SPARE		120	1								
14	SPARE		120	1								
15-18	BLANK		120	1								

SCHEDULE FOR ETR BOILER ROOM POWER PANEL - ADDITIONAL CIRCUITS IN EXISTING PANEL												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
	GLYCOL PUMP	864	120	1	#12 AWG	3/4" EMT	20	1				
	AHU-4	696	120	1	#12 AWG	3/4" EMT	15	1				

SCHEDULE FOR ETR MDP (EP-GA) - ADDITIONAL CIRCUITS IN EXISTING PANEL												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
	EP-GI	208	3	#1 AWG	1 1/2" EMT	100	3					

MULTIPLE NEW BRANCH CIRCUITS MAY BE GROUPED INTO SINGLE CONDUITS, SIZED PER NEC.

C3 PANELBOARD SCHEDULES
NTS

SCHEDULE FOR NEW PANEL MDP LOCATED IN EAST LOWER FAN ROOM												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
1	CH-1	54,537	480	3	#4 AWG	1 1/4" EMT	90	3	PROVIDE WATERTIGHT FITTINGS			
2	RF-1	2,827	480	3	#12 AWG	3/4" EMT	20	3				
3	CH-2	54,537	480	3	#4 AWG	1 1/4" EMT	90	3	PROVIDE WATERTIGHT FITTINGS			
4	AHU-1	9,145	480	3	#10 AWG	3/4" EMT	30	3				
5	PP-1	1,746	480	3	#12 AWG	3/4" EMT	20	3				
6	PP-2	1,746	480	3	#12 AWG	3/4" EMT	20	3	Alternate #1			
7	SP-1	6,319	480	3	#12 AWG	3/4" EMT	20	3				
8	SP-2	6,319	480	3	#12 AWG	3/4" EMT	20	3	Alternate #1			
9	FEED TO TX-1	150,000	480	3	*4/0 AWG	2 1/2" EMT	225	3				

* WIRE SIZE INCREASED DUE TO VOLTAGE DROP

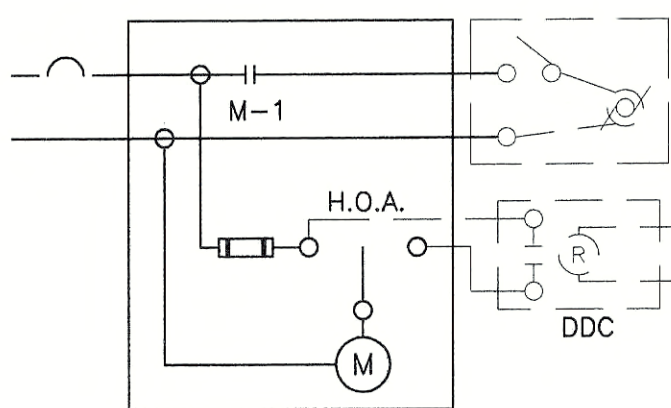
SCHEDULE FOR ETR ATTIC POWER PANEL - ADDITIONAL CIRCUITS IN EXISTING PANEL												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
1	AH-5	2,234	208	3	#12 AWG	3/4" EMT	15	3				
2	AH-6	2,234	208	3	#12 AWG	3/4" EMT	15	3				
3	FAN COILS WEST THIRD FL.		120	1	#12 AWG	3/4" EMT	20	1				
4	DIV. 15 CONTROLS		120	1	#12 AWG	3/4" EMT	20	1	Alternate #1			
5	EF-6		120	1	#12 AWG	3/4" EMT	20	1	Alternate #1			

SCHEDULE FOR ETR POWER PANEL EP-GD - ADDITIONAL CIRCUITS IN EXISTING PANEL												
CKT	DESCRIPTION	VA	VOLTS	PH	WIRE	CONDUIT	AMPS	POLES	REMARKS			
10	WEST SIDE FAN COIL UNITS**		120	1	#12 AWG	3/4" EMT	20	1				
12	DIV. 15 CONTROLS		120	1	#12 AWG	3/4" EMT	20	1	Alternate #1			

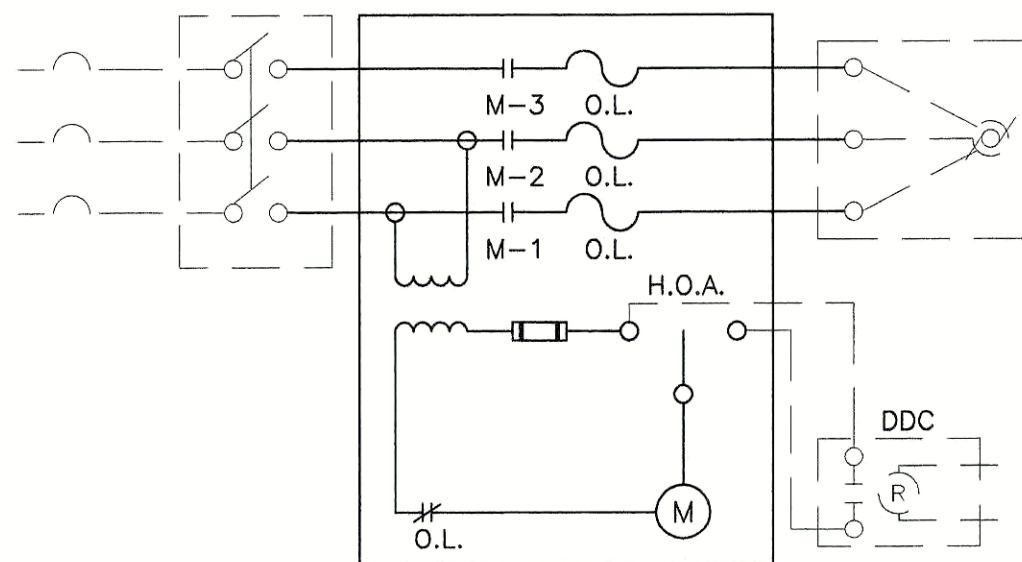
** BASE BID - CONNECT TO (2) MAIN ENTRY UNITS ONLY.

ELECTRICAL EQUIPMENT SCHEDULE																							
Equipment Designation	Room Description	H.P.	Load (VA/W)	EQUIPMENT RATING				# REQUIRED	VOLTAGE	# OF POLES	DISCONNECT RATING (AMPS)	ENCLOSURE (NEMA)	O.C.	# REQUIRED	TYPE (SEE NOTES)	MOTOR CONTROLLER		RATING (AMPS)	ENCLOSURE (NEMA)	O.L. (Y/N)	WIRING DETAILS	REMARKS	BID TYPE
				Voltage	Phase	FLA	MCA									MOCR	VOLTAGE						
AHU-1	NE Fan Room basement	7.5	9,145	480	3	11.00	13.75	27.5	1	480	3	30	1	DIV. 15	VFD						A2	PROVIDE (2) DUCT SMOKE DETECTORS	BASE BID
AHU-2	Women's dressing Room	0.333	696	120	1	5.8	7.25	14.5	1	120	1	30	1	1	ATL	120	1	30	1		B4	ALTERNATE #1	
AHU-3	Men's Dressing Room	75	1,656	120	1	13.8	17.3	34.5	1	120	1	30	1	1	ATL	120	1	30	1		B4	ALTERNATE #1	
AHU-4	Basement Lower Fan Room	0.333	696	120	1	5.8	7.25	14.5	1	120	1	30	1	1	ATL	120	1	30	1		B4	BASE BID	
AHU-5	SW Meeting Room	2	1,730	208	3	6.2	7.75	15.5	1	208	3	30	1	1	ATL	208	3	30	1		A2	PROVIDE (1) DUCT SMOKE DETECTOR	ALTERNATE #1
AHU-6	NW Meeting Room	2	1,730	208	3	6.2	7.75	15.5	1	208	3	30	1	1	ATL	208	3	30	1		A2	PROVIDE (1) DUCT SMOKE DETECTOR	ALTERNATE #1
CH-1	Roof east of stage		41,500	480	3		82	90	DIV. 15					DIV. 15							A4	BASE BID	
CH-2	Roof east of stage		41,500	480	3		82	90	DIV. 15					DIV. 15							A4	ALTERNATE #1	
RF-1	Boiler Room	2	2,827	480	3	3.40	4.25	8.5	1	480	3	30	1	DIV. 15	VFD						A3	BASE BID	
PP-1	Basement Fan Room	1	1,746	480	3	2.10	2.625	5.25	1	480	3	30	1	1	ATL	480	3	30	1		A3	BASE BID	
PP-2	Basement Fan Room	1	1,746	480	3	2.10	2.625	5.25	1	480	3	30	1	1	ATL	480	3	30	1		A3	ALTERNATE #1	
SP-1	Basement Fan Room	5	6,319	480	3	7.60	9.5	19	1	480	3	30	1	1	ATL	480	3	30	1		A3	BASE BID	
SP-2	Basement Fan Room	5	6,319	480	3	7.60	9.5	19	1	480	3	30	1	1	ATL	480	3	30	1		A3	ALTERNATE #1	
EF-1,2	Women's & Men's DR	0.02	80	120	1	<1	1		DIV. 15					ETR	LIGHT SW.						D1	BASE BID	
EF-3	Dining Room	0.125	480	120	1	4.00	5	10	DIV. 15					1	CONT	120	1	15	1		B1	MOUNT CONTACTOR NEXT TO EP-GI	ALTERNATE #1
EF-4	Exercise Room under Stage	0.125	480	120	1	4.00	5	10	DIV. 15					1	CONT	120	1	15	1		B1	BASE BID	
EF-5	Attic	ETR												1	ATL	208	3	30	1		C1	ETR	
EF-6	Attic	0.25	696	120	1	5.80	7.25	14.5	DIV. 15					1	CONT	120	1	15	1		B1	ALTERNATE #1	
FCU 1 - 20, 23 - 33									DIV. 15					DIV. 15							B3	ALTERNATE #1	
FCU 21,22									DIV. 15					DIV. 15							B3	BASE BID	
Glycol Make-up	Basement Fan Room	0.333	864	120	1	7.20	9	18	1	120	1	30	1	DIV. 15							A1	ALTERNATE #1	

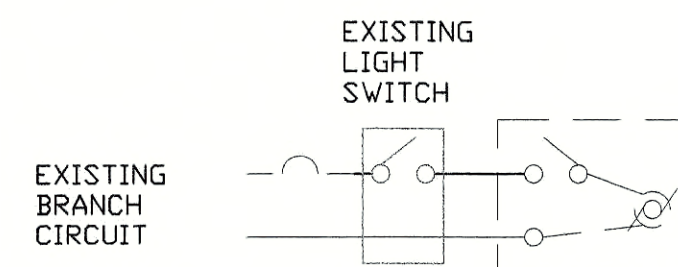
ETR - EXISTING TO REMAIN
VFD - VARIABLE FREQUENCY DRIVE
ATL - ACROSS THE LINE
CONT - CONTACTOR
FRAC - FRACTIONAL
LIGHT SW - LIGHT SWITCH



B1 EF-3,4,6
WIRING DIAGRAM
NTS

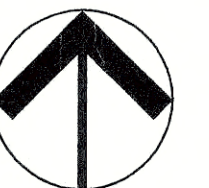


C1 EF-5
WIRING DIAGRAM
NTS

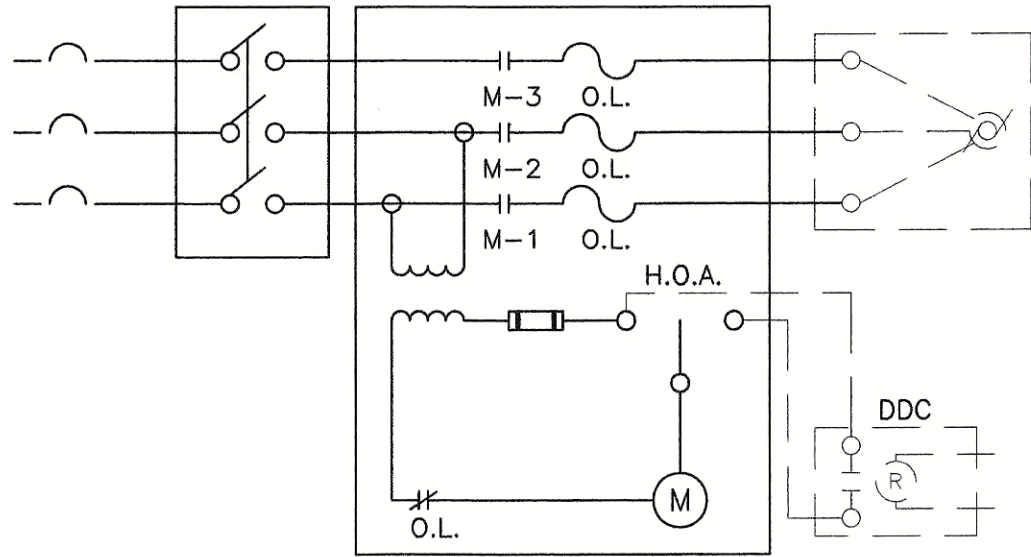


D1 EF-1,2
WIRING DIAGRAM
NTS

WIRING DIAGRAM LINETYPE LEGEND	
---	PROVIDED BY DIV 15/OTHERS
---	PROVIDED BY DIV 16
---	EXISTING TO REMAIN

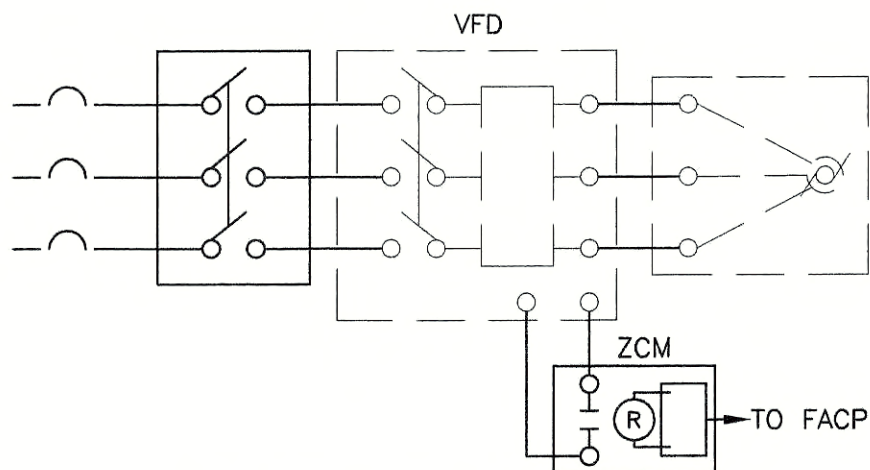


NOTE: RF-1 USES A VFD, NOT A MOTOR STARTER

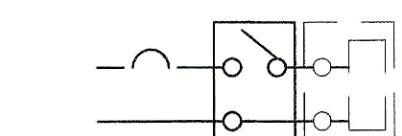


A3 RF-1, PP-1,2,
SP-1,2
WIRING DIAGRAM
NTS

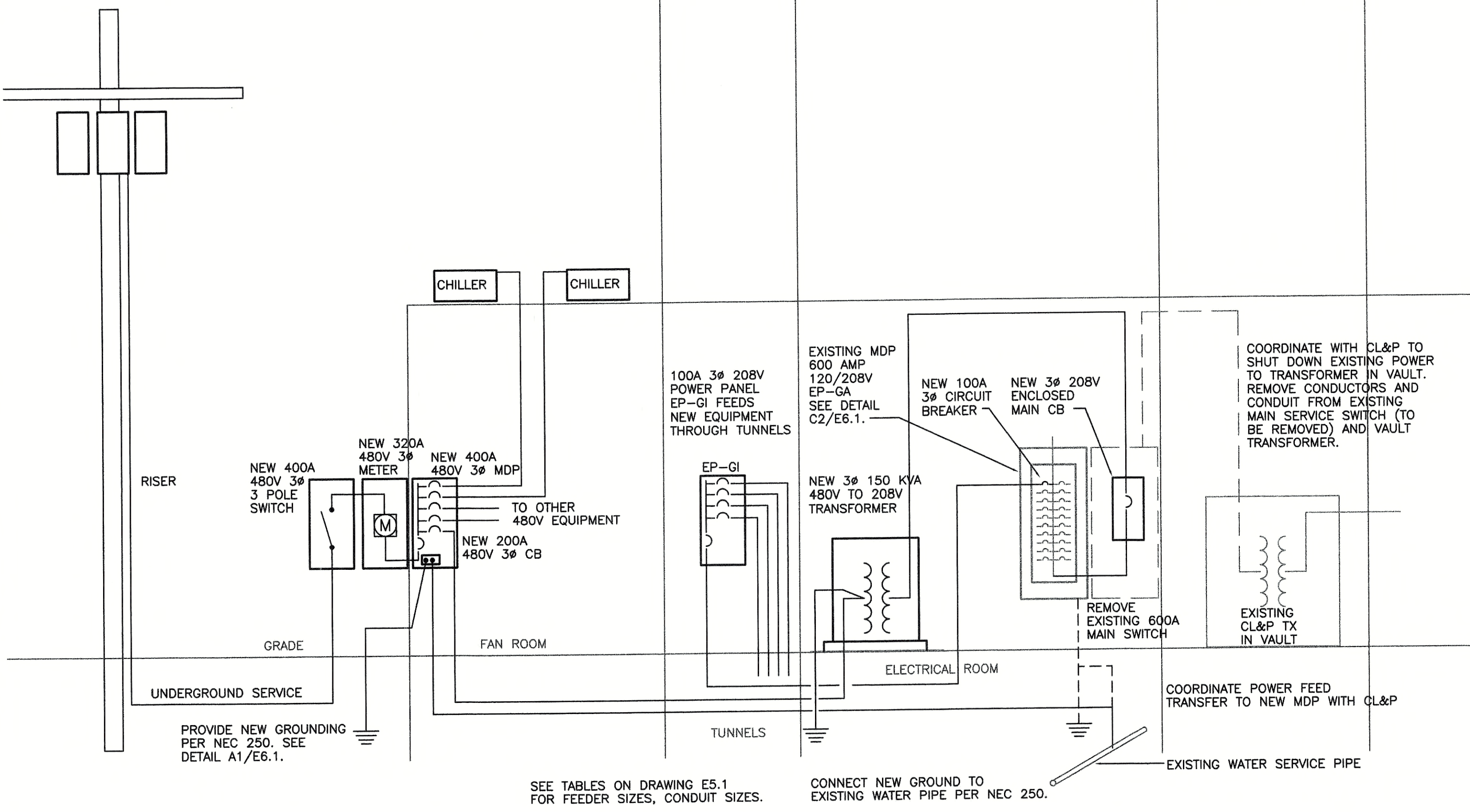
VFD FOR AHU-1 ONLY.
AHU-5 AND AHU-6 USE
MOTOR STARTERS.



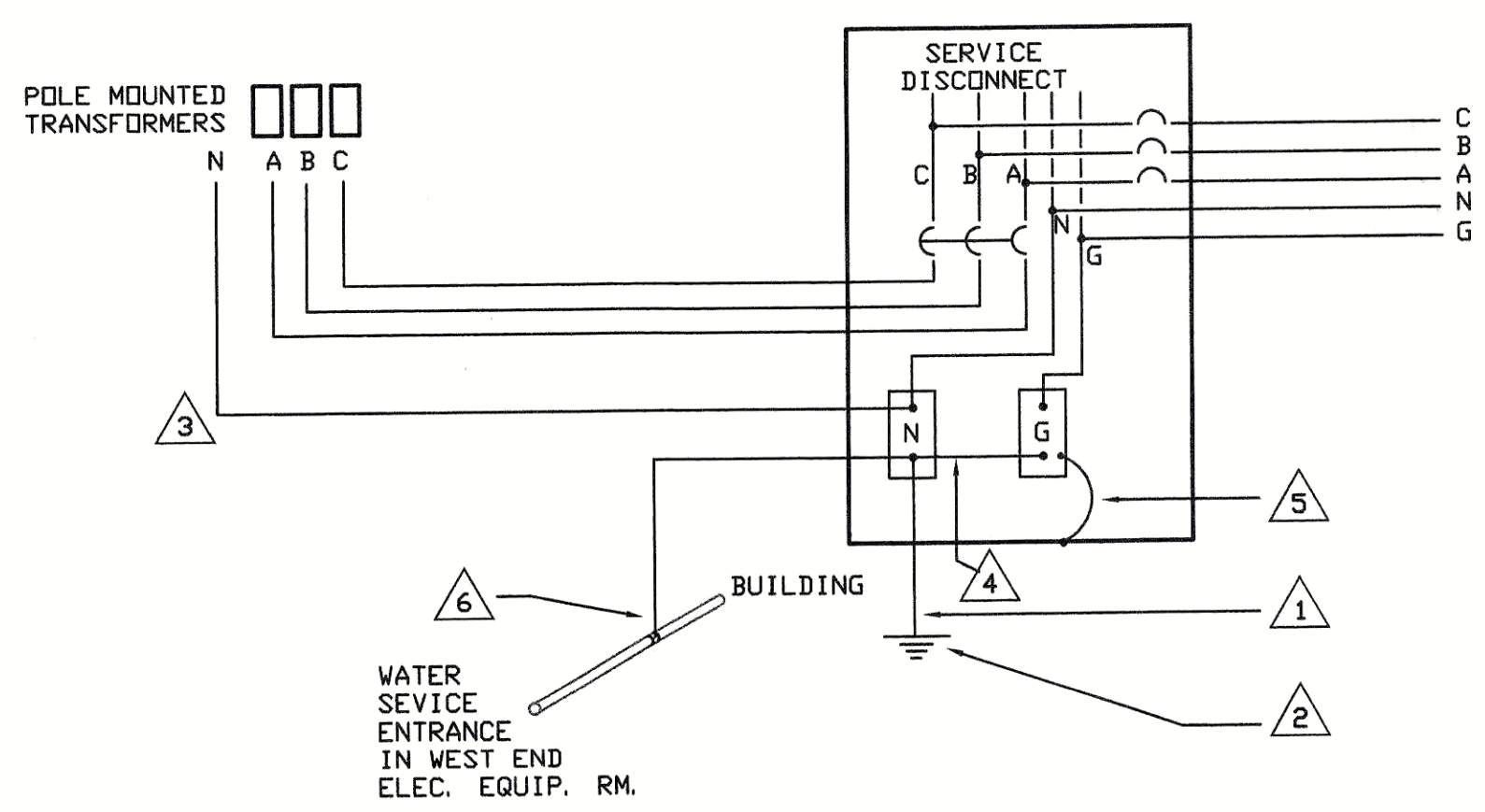
A2 AHU 1,5,6
WIRING DIAGRAM
NTS



A1 GLYCOL PUMP
WIRING DIAGRAM
NTS



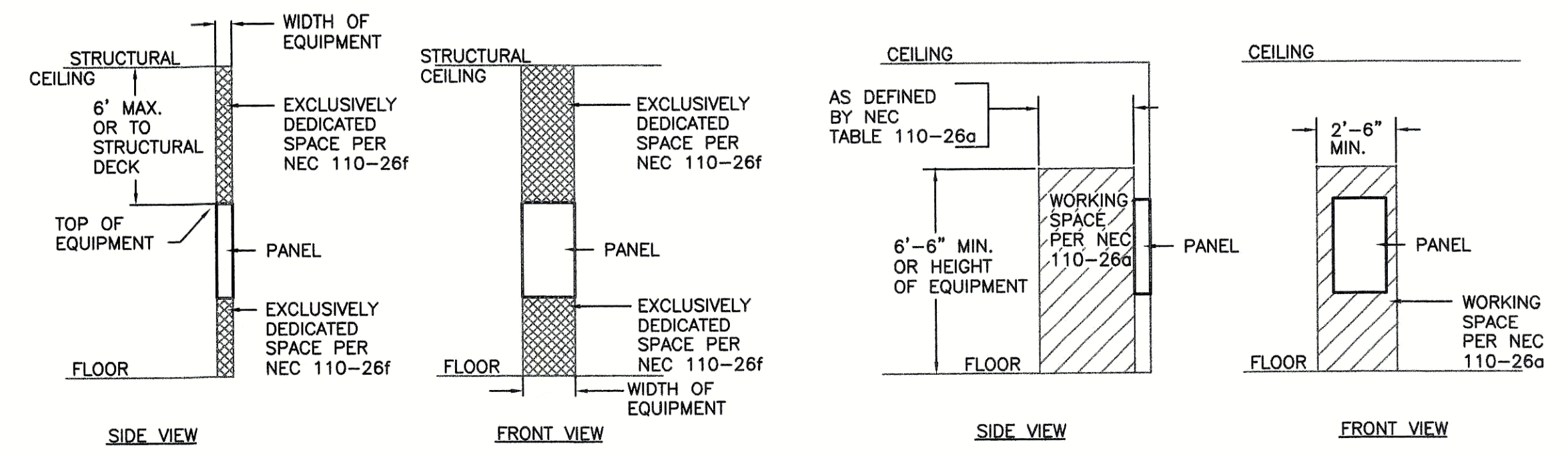
A3 ELECTRICAL RISER
NTS



- NOTES:
- 1) NO GROUNDING CONNECTIONS ALLOWED TO GROUNDED SERVICE CONDUCTORS (i.e. NEUTRAL) ON LOAD SIDE OF THE SERVICE DISCONNECT.
 - 2) SIZE OF GROUNDING CONDUCTORS SHALL BE PER NEC 250, PART J.
- 1 GROUNDING CONNECTION PER NEC 250-23a AND UTILITY COMPANY REQUIREMENTS.
- 2 GROUNDING ELECTRODE PER NEC 250 PART H.
- 3 GROUNDED SERVICE CONDUCTOR (i.e. NEUTRAL) PER NEC 250-23a AND 250-25(5).
- 4 MAIN BONDING JUMPER PER NEC 250-53.
- 5 EQUIPMENT GROUNDING CONDUCTOR PER NEC 250 PART F.
- 6 GROUNDING CONNECTION PER NEC 250-23a.

SYSTEM GROUNDING PER NEC 250

A1 SERVICE ENTRANCE ELECTRICAL GROUNDING
NTS



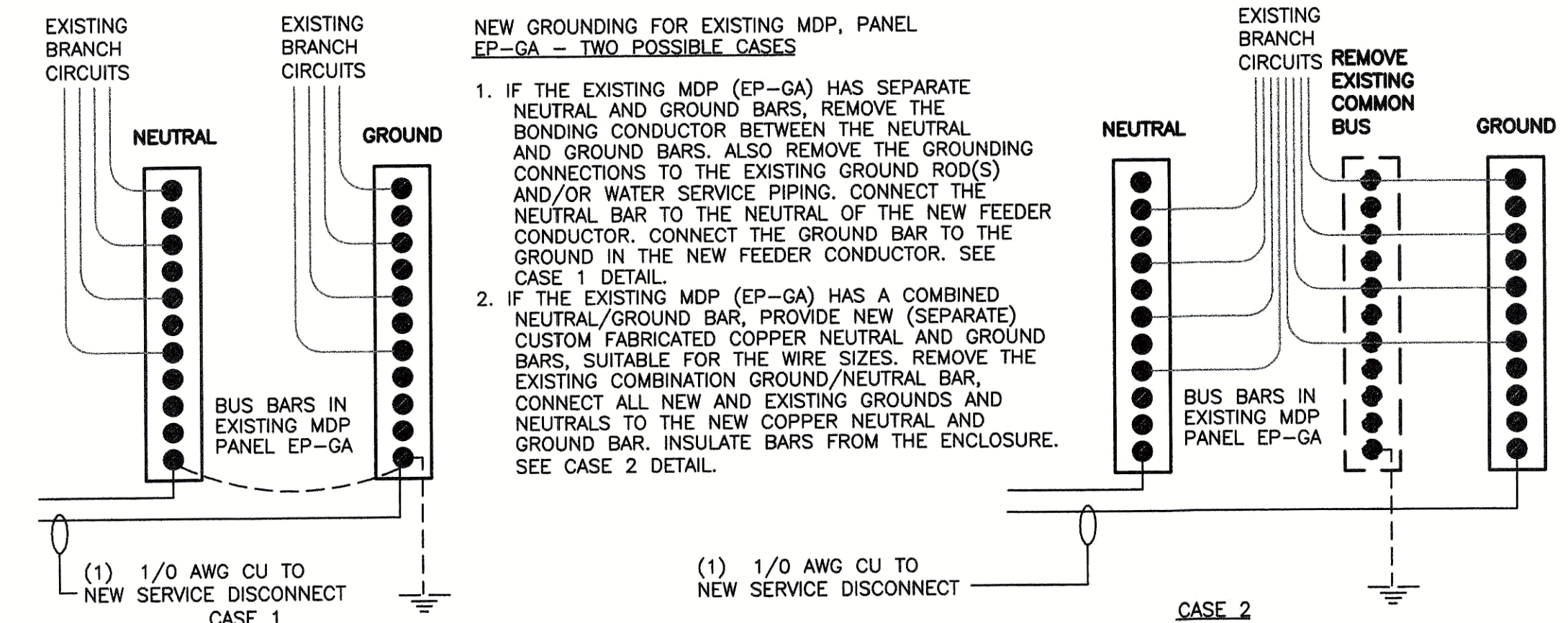
D4 POWER PANELS CLEARANCES PER NEC
NTS

- GENERAL NOTES
- 1. PROVIDE CIRCUIT BREAKER TO FIT EXISTING POWER PANEL, CONDUCTORS AND CONDUIT AS NOTED IN PANEL BOARD SCHEDULES, FOR ALL BRANCH CIRCUITS TO EXISTING POWER PANELS.
 - 2. BRANCH CIRCUITS TO FAN COIL UNITS AND OTHER NEW 120V DEVICES SHALL RUN DOWN TO TUNNELS AND TO NEW POWER PANEL EP-GI. RUN ALL CONDUIT IN TUNNELS AFTER NEW DUCTWORK IS INSTALLED. NOTE - THE TUNNELS IN THIS BUILDING ARE CONSIDERED CONFINED SPACES. PROVIDE SAFETY PROCEDURES PER OSHA CONFINED SPACE REQUIREMENTS.
 - 3. ALL CONDUIT RISERS SHALL BE IN SAME CHASE OR SOFFIT AS NEW FAN COIL PIPING. COORDINATE WITH HVAC CONTRACTOR.
 - 4. RE-LOCATE LIGHTS, CONDUIT IN TUNNELS TO ACCOMMODATE NEW DUCTWORK PER DRAWING M1.1.0. SEE DRAWING E1.1.0.
 - 5. FLOORS ARE 19" THICK. WALLS ARE TERRA COTTA AND MORTAR, APPROXIMATELY 12" THICK. PLAN WALL AND FLOOR CONDUIT PENETRATIONS CAREFULLY. SEE ALSO DETAIL E2/E6.1.
 - 6. PROVIDE PITCH PANS, WATERTIGHT FITTINGS FOR ALL ROOFTOP CONDUIT PENETRATIONS. SEE ARCHITECTURAL DRAWINGS.
 - 7. FOR ALL CIRCUITS TO EQUIPMENT THAT WILL BE DEMOLISHED, RE-LABEL CIRCUIT BREAKER IN POWER PANEL AS A SPARE.
 - 8. BASE BID WORK INCLUDES ALL NEW POWER EQUIPMENT AND CONNECTIONS TO DIV. 15 BASE BID EQUIPMENT, AS LISTED IN THE EQUIPMENT SCHEDULED ON DRAWING E5.1.

LINETYPE LEGEND

---	EXISTING TO REMAIN
- - -	DEMOLITION
---	NEW WORK

D3 GENERAL NOTES
NTS

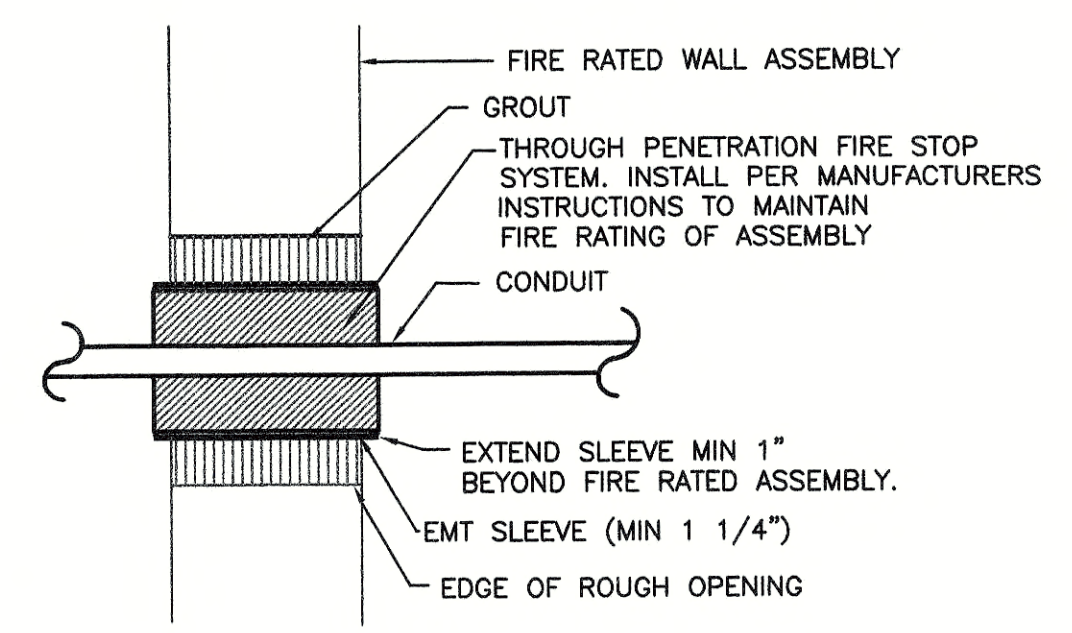


C2 ELECTRICAL CHANGES TO EXISTING MDP - EP-GA
NTS

POWER CONNECTIONS	
ETR	EXISTING TO REMAIN
○	CONDUIT UP
●	CONDUIT DOWN
□	DRY TRANSFORMER
FAACP	EXISTING SIMPLEX FIRE ALARM CONTROL PANEL
S	DUCT SMOKE DETECTOR - CONNECT TO EXISTING SIMPLEX FACP
M	DIV. 15 MOTORIZED EQUIPMENT. FAN COIL UNITS MARKED AS FCU.
□	MANUAL DISCONNECT SWITCH
RTM	REMOTE TEST MODULE FOR DUCT SMOKE DETECTOR
J	JUNCTION BOX
MS	MAGNETIC MOTOR STARTER
C	CONTACTOR
▨	PANELBOARD CLEARANCES PER NEC

C1 POWER LEGEND
NTS

E3 LINETYPE LEGEND
NTS



E2 TYPICAL FIRESTOP DETAIL
NTS

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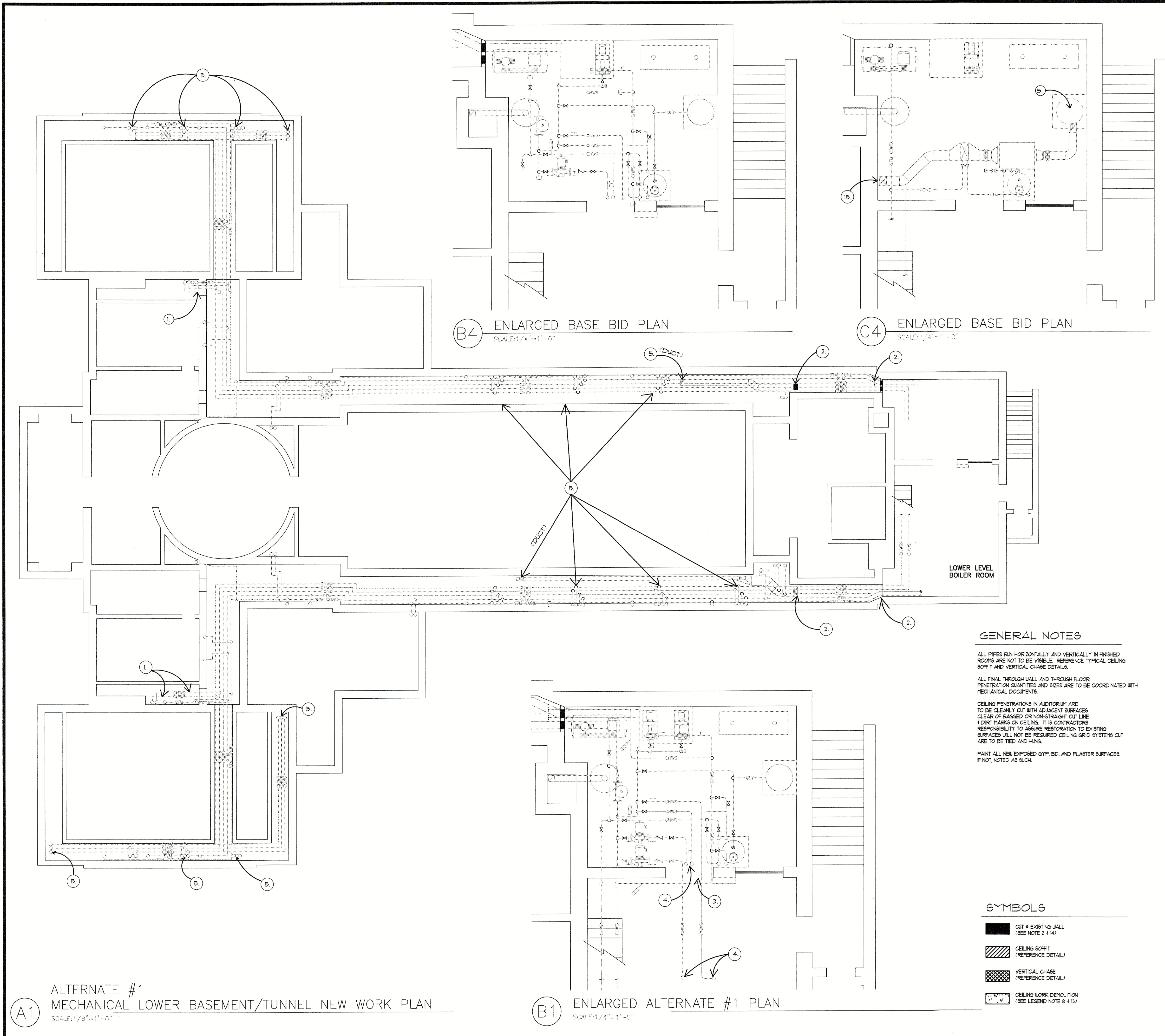


ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
ELECTRICAL RISER AND DETAILS

NO.	REVISION	DATE	APPR.

DRAWN BY: RTS
APPROVED BY:
ISSUE DATE: 03/24/04
SCALE: AS NOTED
DRAWING NUMBER: E6.1



LEGEND

1. ENLARGE OPENING THROUGH TUNNEL WALL INTO UNEXCAVATED SPACE BELOW PLUMBING CHASE. TRENCH THROUGH FLOOR OF PLUMBING CHASE ABOVE AS REQUIRED. PATCH THE FLOOR. PROVIDE CHECKER PLATE 3/8" STEEL PLATE OVER CUT OPENING AS NEW FLOOR. MECHANICALLY FASTEN IN PLACE.
2. CORE BORE OR SAW CUT AND SLEEVE HOLES THROUGH WALL FOR NEW PIPING OR DUCT. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
3. CORE BORE AND SLEEVE THROUGH CONCRETE WALL. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
4. RUN PIPE AND CONDUITS THROUGH MECHANICAL ROOM ROOF DECK TO CHILLER # 2 LOCATIONS AS PART OF BASE BID AND 2 LOCATIONS AS PART OF ALTERNATE #1. PROVIDE PITCH ROCKETTS & ROOF PENETRATIONS & PROPERLY FLASH INTO ROOF SYSTEM. (REFERENCE DETAIL 6A/ A-3.0)
5. CONCRETE FLOOR SLAB PENETRATION - DUCT OR PIPE. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
6. VERTICAL CHASE. (DETAIL 3/ A-3.0)
7. HORIZONTAL SOFFIT & CEILING. (DETAILS 12 & 4/ A-3.0)
8. PIPES RUNNING BETWEEN SUSPENDED ACOUSTICAL CLG AND SUSPENDED PLASTER AND LATH CEILING REQUIRE PLASTER CEILING TO BE PENETRATED WITH PIPES & PIPE HANGERS. CONTRACTOR SHALL BE PREPARED TO REMOVE MAJOR PORTIONS OF PLASTER CEILING FOR ACCESS INTO PLUMBING. DEMO WORK TO PLASTER PERFORMED IN A NEAT AND CLEAN MANNER CAN BE LEFT UNREPAIRED. A NEW 2'-0" x 4'-0" SUSPENDED ACOUSTICAL CEILING SHALL BE INSTALLED AT THESE LOCATIONS.
9. SHORT HORIZONTAL DUCT ON FLOOR TO CORNER. CUT AND MODIFY SHELVING.
10. DUCT PENETRATION THROUGH ROOF (CUT HOLE FLASH CURB) (DETAILS 6A/ A-3.1)
11. REMOVE AND REPLACE 2X MESH AND LOUVER FOR ACCESS.
12. DEMO ACCESS INTO EXISTING ROTUNDA CHASE AND TICKET BOOTH. REPAIR ALL VISIBLE WORK TO MATCH EXISTING ADJACENT SURFACES. PROVIDE IN ROTUNDA CUSTOM BENT BRONZE GRILL LOCATED BELOW TICKET BOOTH WINDOW AND STONE. FIELD COORDINATE LOCATION.
13. ALL REPAIRED PLASTER CEILINGS ARE TO BE REPLACED WITH A SUSPENDED GYPSUM ASSEMBLY WITH A FINAL PLASTER SKIM COAT. CEILING REVEAL PROFILES ARE TO MATCH THE EXISTING. (DETAIL 8/ A-3.0)
14. CUT GRILLE OPENING AND DUCT OPENING THROUGH FINISHED WALL. EXTREME CARE IS TO BE TAKEN WHEN CUTTING OPENING IN D.A.R. HALL. OPENING IS TO BE CLEANLY CUT WITH ADJACENT SURFACE KEPT CLEAN SO THAT INTERIOR RESTORATION WORK WILL NOT BE REQUIRED.
15. NEW CEILING DIFFUSER INTO FINISHED PLASTER CEILING.
16. VERTICAL TRENCH IN WALL (B'') (DETAILS 1/ A-3.1)
17. FLASH EQUIPMENT STRUCTURAL RAILS AND CURB. (DETAILS 5 & 6/ A-3.0)
18. SIMILAR TO (12), BUT NO GRILLE. MAY NOT NEED TO REPLACE
19. HORIZONTAL TRENCH IN WALL.
20. CUT THROUGH AUDITORIUM CEILING FOR SLOT DIFFUSERS. CUT ARE TO BE CLEAN WITH NO CEILING PATCHING REQUIRED. EXACT DIFFUSERS LOCATIONS ARE TO BE FIELD COORDINATED TO MINIMIZE DISTURBANCE TO CEILING SUSPENSION SYSTEM. CEILING IS TO BE RETIED AS REQUIRED BY FIELD CONDITIONS.
21. CUT AND FLASH IN SLATE ROOF FOR COPPER INTAKE. (DETAIL 10/ A-3.0)
22. REMOVE EXISTING WINDOW AND INCREASE MASONRY OPENING SIZE IN PREPARATION FOR NEW LOUVER. SAW CUT FOR NEW OPENING AND REUSE SALVAGED BRICK ON ALL EXPOSED AND VISIBLE SURFACES FROM OUTSIDE OF BUILDING. REMOVE EXISTING LOOSE LINTEL AND REPLACE WITH NEW. REFERENCE LINTEL SCHEDULE FOR REQUIREMENTS. CAULK AROUND LOUVER PERIMETER FOR A WEATHER TIGHT CONDITION. NEW LOUVER IS 4'-5"-6" WIDE X 3'-3" HIGH.
23. EXISTING ABANDONED WALL LOUVER IS TO REMAIN. BACK SIDE OF LOUVER IS TO BE FACED OFF WITH 2" OFF RIGID INSULATION SANDWICHED BETWEEN 2 SHEETS OF LEAD COATED COPPER. I.C. COPPER IS TO BE FULLY ADHERED TO BOTH SIDES OF INSULATION AND ENTIRE ASSEMBLY MECHANICALLY ATTACHED & OPENING. PANEL PERIMETER IS TO BE CAULKED FOR A WEATHER TIGHT CONDITION.
24. NEW CEILING MOUNTED ACCESS DOOR. REFERENCE MECHANICAL DRAWINGS FOR SIZE REQUIREMENTS. (DETAIL 1/ A-3.0)
25. PAINT CEILING AND ALL WALLS. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
26. PAINT WALLS SURFACE ARROWS POINT. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
27. ACCESS PANEL.
28. REFURBISH WINDOW SASH & OWNER'S STOCK WROUGHT IRON GRILLE. REMOVE RUB, PRIME, PAINT TO MATCH EXISTING. RESTORING TO LIKE NEW.

GENERAL NOTES

ALL PIPES RUN HORIZONTALLY AND VERTICALLY IN FINISHED ROOMS ARE NOT TO BE VISIBLE. REFERENCE TYPICAL CEILING SOFFIT AND VERTICAL CHASE DETAILS.

ALL FINAL THROUGH WALL AND THROUGH FLOOR PENETRATION QUANTITIES AND SIZES ARE TO BE COORDINATED WITH MECHANICAL DOCUMENTS.

CEILING PENETRATIONS IN AUDITORIUM ARE TO BE CLEANLY CUT WITH ADJACENT SURFACES CLEAR OF RAGGED OR NON-STRAIGHT CUT LINE (DIRT MARKS ON CEILING). IT IS CONTRACTORS RESPONSIBILITY TO ASSURE RESTORATION TO EXISTING SURFACES WILL NOT BE REQUIRED CEILING GRID SYSTEMS CUT ARE TO BE TIED AND HUNG.

PAINT ALL NEW EXPOSED GYP. BD. AND PLASTER SURFACES. F NOT, NOTED AS SUCH.

SYMBOLS

- CUT & EXISTING WALL (SEE NOTE 2 & 14)
- CEILING SOFFIT (REFERENCE DETAIL)
- VERTICAL CHASE (REFERENCE DETAIL)
- CEILING WORK DEMOLITION (SEE LEGEND NOTE 8 & 13)

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ata
Consulting Engineers

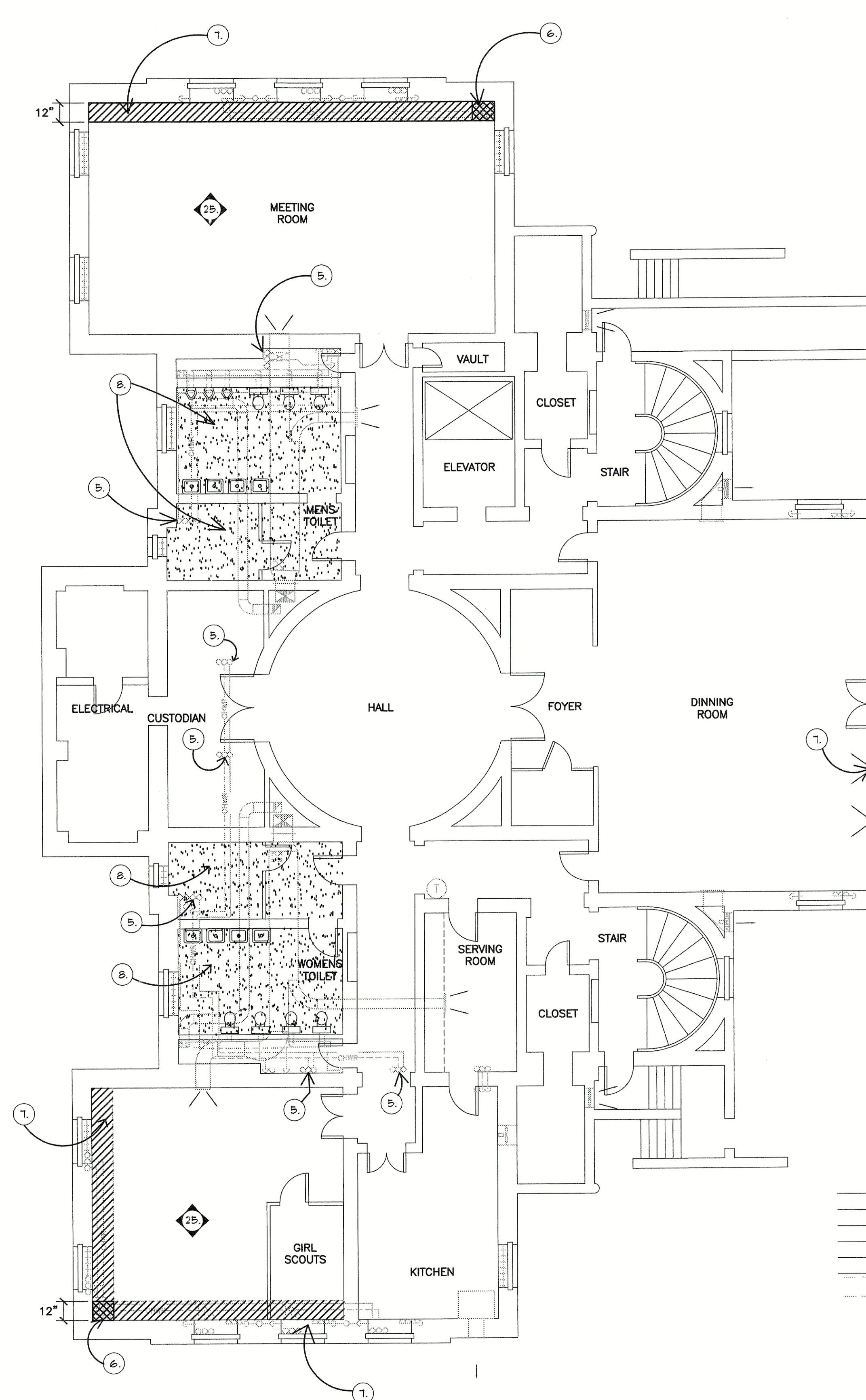
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Project: 03137.00
Initials:
Date: 3-24-04
Revisions:

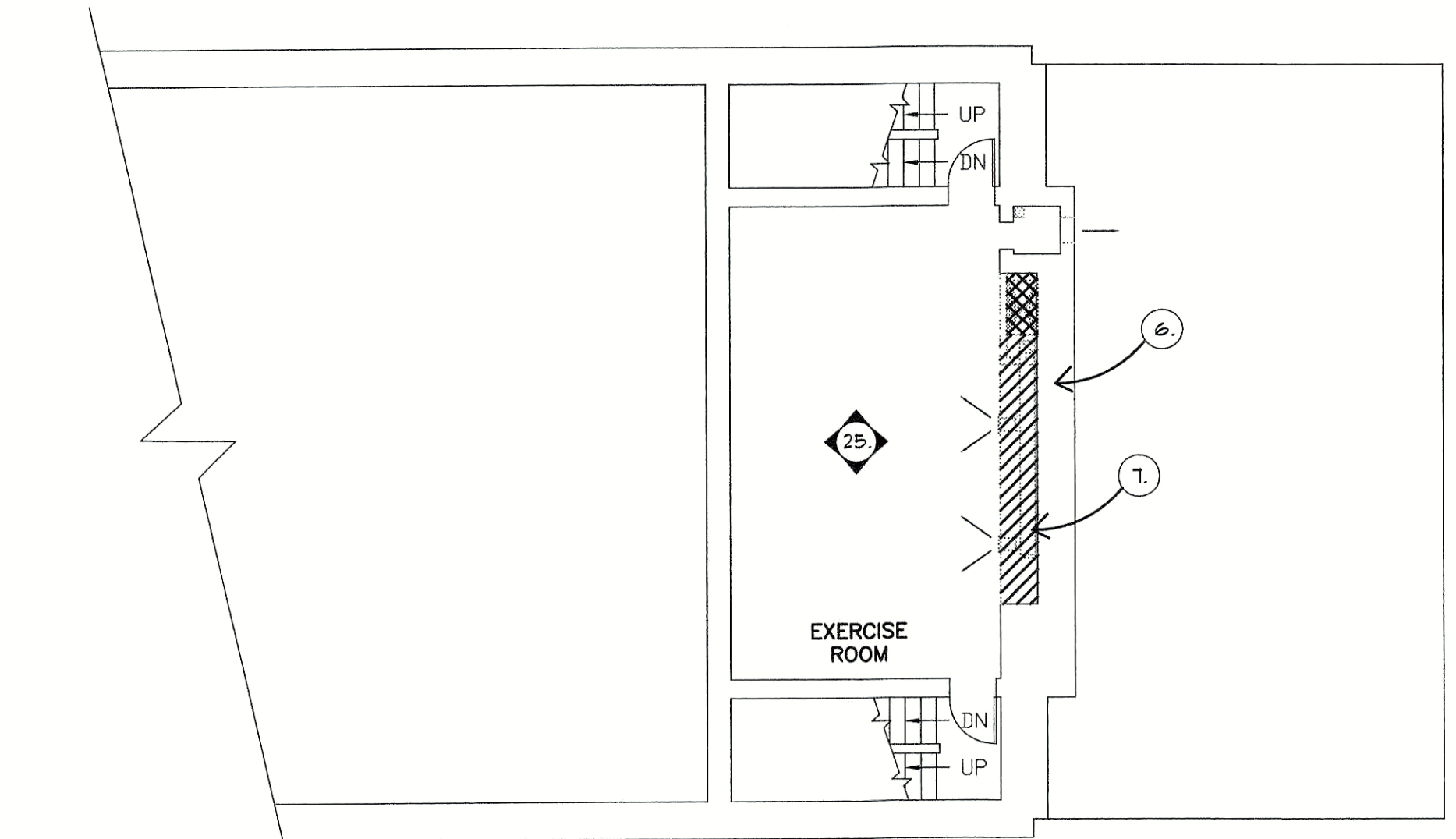
NO.	DESCRIPTION	DATE

ARCHITECTURAL
PLAN - LOWER
BASEMENT

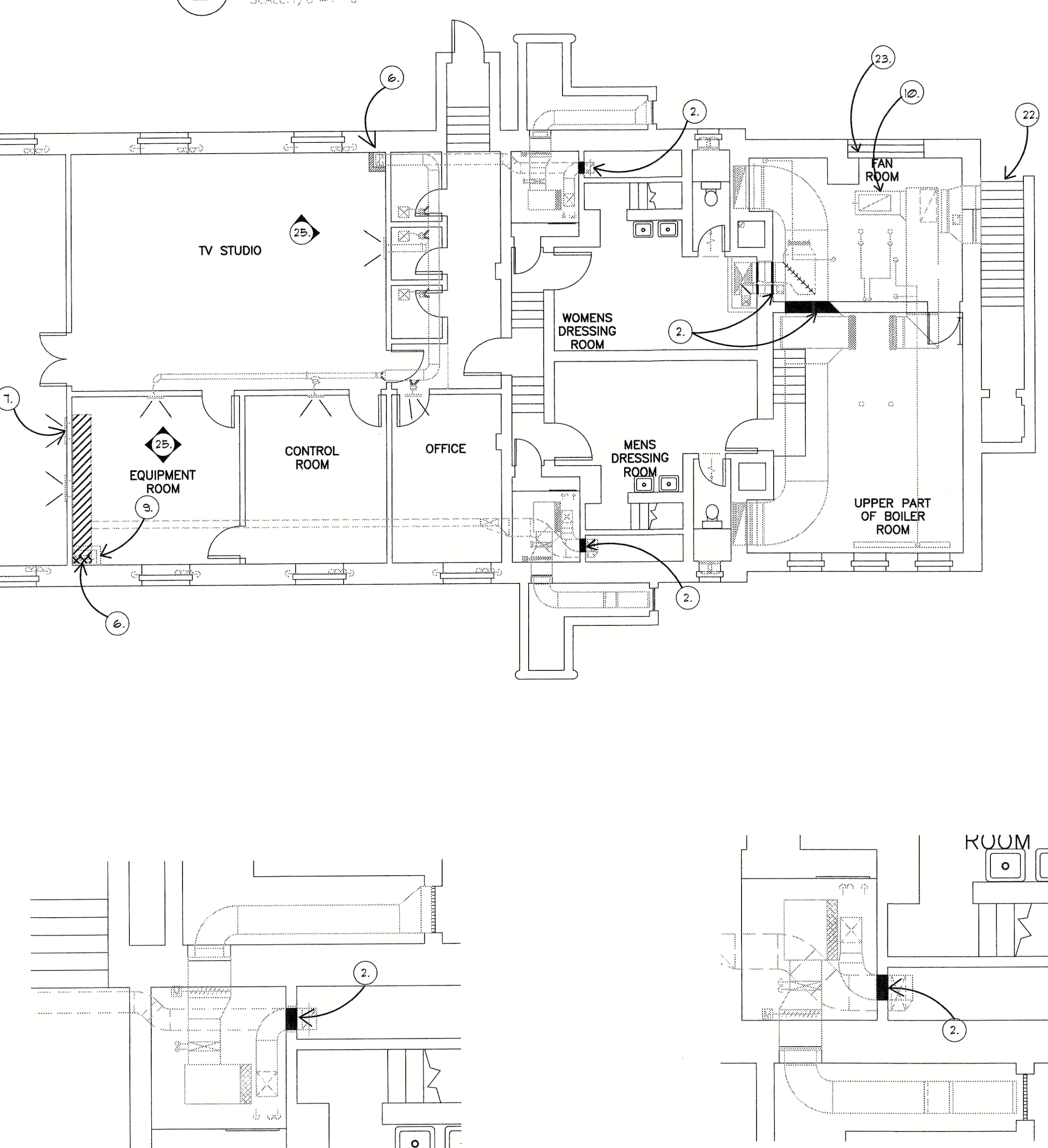
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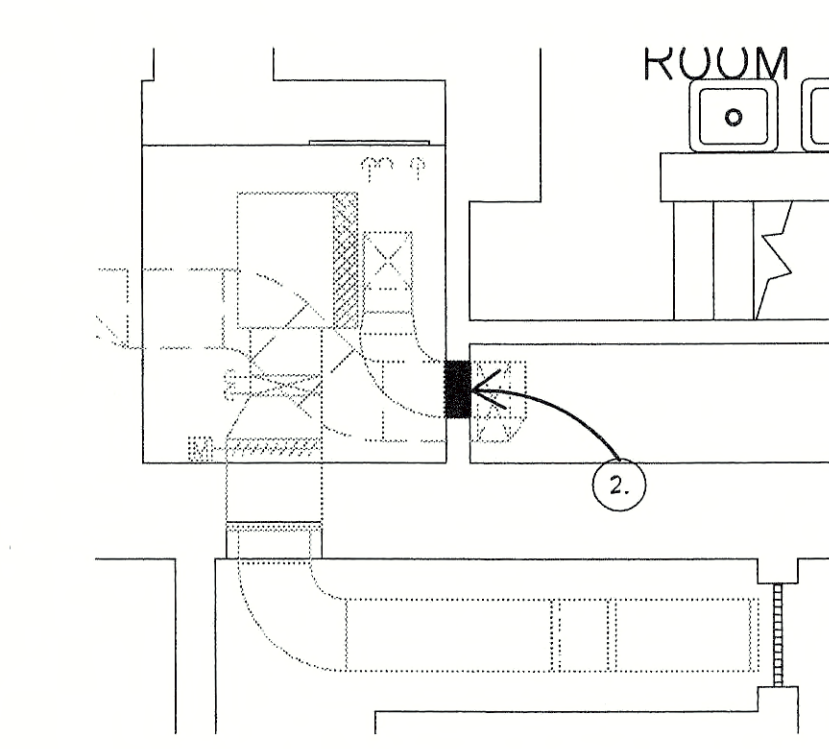
1 MECHANICAL BASEMENT NEW WORK PLAN
SCALE: 1/8" = 1'-0"



2 MECHANICAL EXERCISE ROOM NEW WORK PLAN
SCALE: 1/8" = 1'-0"



A1 ENLARGED AHU-2 NEW WORK PLAN
SCALE: 1/4" = 1'-0"



A2 ENLARGED AHU-3 NEW WORK PLAN
SCALE: 1/4" = 1'-0"

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- CEILING SOFFIT (REFERENCE DETAIL)
- VERTICAL CHASE (REFERENCE DETAIL)
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LEGEND

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- ALL REPAIRED PLASTER CEILING ARE TO BE REPLACED WITH A SUSPENDED GYPSUM ASSEMBLY WITH A FINAL PLASTER 80% COAT. CEILING REVEAL PROFILES ARE TO MATCH THE EXISTING. (DETAIL 8/ A-3.2)
- CUT GRILLE OPENING AND DUCT OPENING THROUGH FINISHES WALL. EXTREME CARE IS TO BE TAKEN WHEN CUTTING OPENING IN DARK HALL. OPENING IS TO BE CLEANLY CUT WITH ADJACENT SURFACE KEPT CLEAN SO THAT INTERIOR RESTORATION WORK WILL NOT BE REQUIRED.
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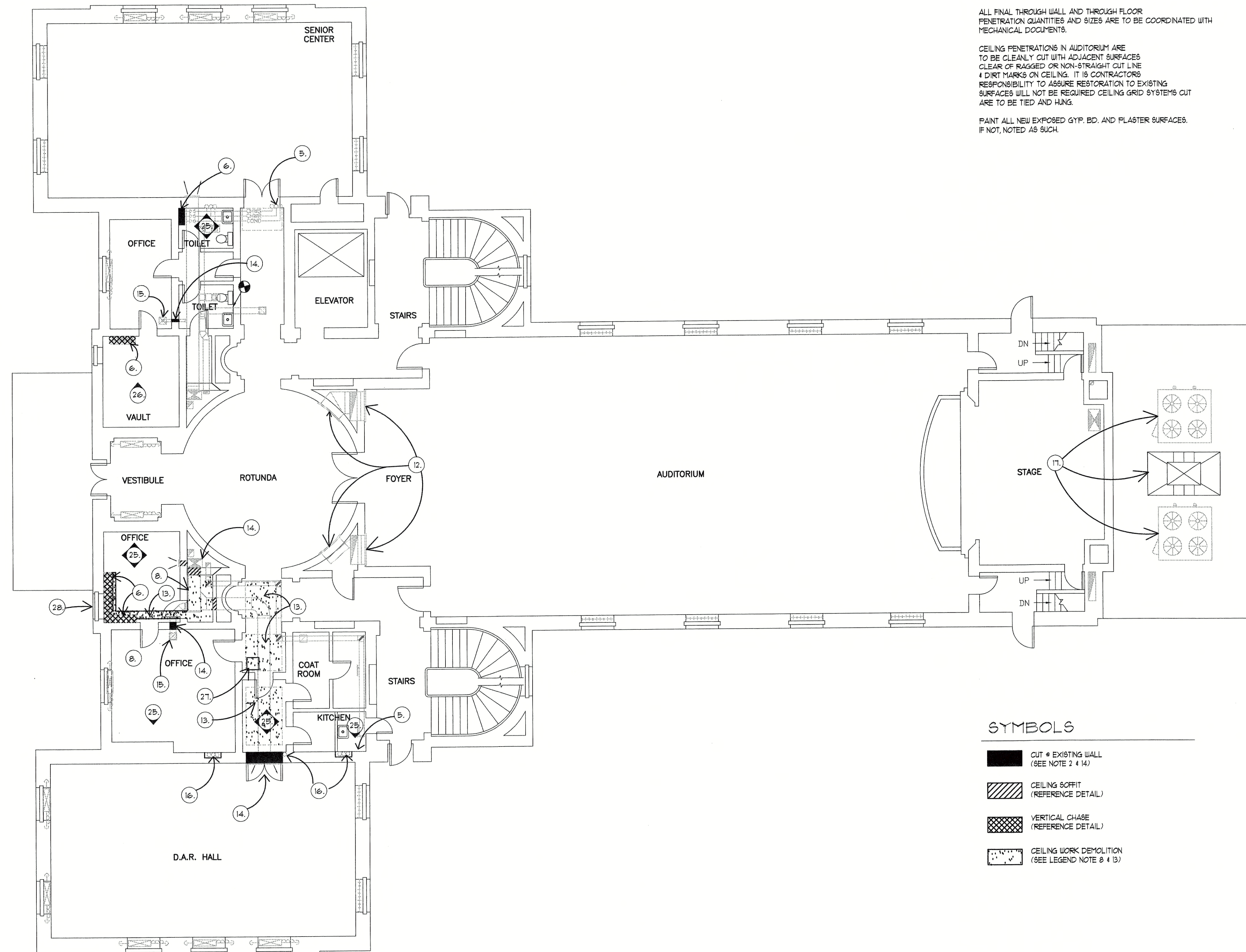
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Project: 03137.00
Initials:
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Revisions:

ARCHITECTURAL
PLAN - BASEMENT

A1.1.1



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SYMBOLS

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- VERTICAL CHASE (REFERENCE DETAIL)
- CEILING WORK DEMOLITION (SEE LEGEND NOTE 8 & 13)

LEGEND

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5. CONCRETE FLOOR SLAB PENETRATION - DUCT OR PIPE. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
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11. REMOVE AND REPLACE 2X MESH AND LOUVER FOR ACCESS.
12. DEMO ACCESS INTO EXISTING ROTUNDA CHASE AND TICKET BOOTH. REPAIR ALL VISIBLE WORK TO MATCH EXISTING ADJACENT SURFACES. PROVIDE IN ROTUNDA CUSTOM BENT BRONZE GRILL LOCATED BELOW TICKET BOOTH WINDOW AND STONE. FIELD COORDINATE LOCATION.
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15. NEW CEILING DIFFUSER INTO FINISHED PLASTER CEILING.
16. VERTICAL TRENCH IN WALL (5") (DETAILS 1/ A-3.1)
17. FLASH EQUIPMENT STRUCTURAL RAILS AND CURB. (DETAILS 5 & 6/ A-3.0)
18. SIMILAR TO (12), BUT NO GRILLE. MAY NOT NEED TO REPLACE
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24. NEW CEILING MOUNTED ACCESS DOOR. REFERENCE MECHANICAL DRAWINGS FOR SIZE REQUIREMENTS. (DETAIL 7/ A-3.0)
25. PAINT CEILING AND ALL WALLS. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
26. PAINT WALLS SURFACE ARROWS POINT. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
27. ACCESS PANEL
28. REFURBISH WINDOW SASH & OWNER'S STOCK WROUGHT IRON GRILLE. REMOVE RUST, PRIME, PAINT TO MATCH EXISTING. FIX WINDOWS OPERATIVE MECHANICS (AS REQUIRED) RESTORING TO LIKE NEW.

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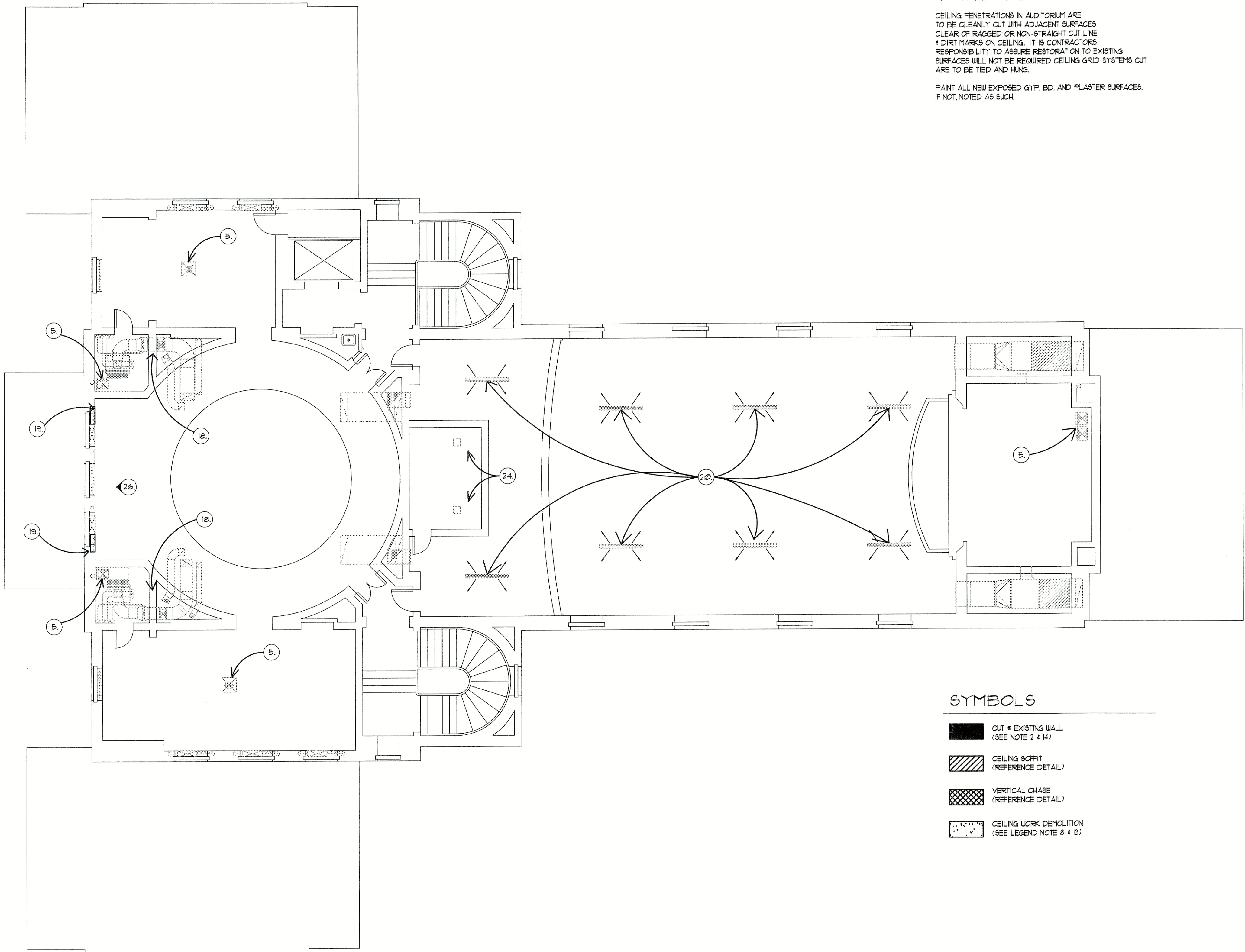
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5. CONCRETE FLOOR SLAB PENETRATION - DUCT OR PIPE. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
6. VERTICAL CHASE. (DETAIL 3/ A-3.0)
7. HORIZONTAL SOFFIT @ CEILING. (DETAILS 12 & 4/ A-3.0)
8. PIPES RUNNING BETWEEN SUSPENDED ACOUSTICAL CLG. AND SUSPENDED PLASTER AND LATH CEILING REQUIRE PLASTER CEILING TO BE PENETRATED WITH PIPES & PIPE HANGERS. CONTRACTOR SHALL BE PREPARED TO REMOVE MAJOR PORTIONS OF PLASTER CEILING FOR ACCESS INTO PLENUM. DEMO WORK TO PLASTER PERFORMED IN A NEAT AND CLEAN MANNER CAN BE LEFT UNREPAIRED. A NEW 2'-0" x 4'-0" SUSPENDED ACOUSTICAL CEILING SHALL BE INSTALLED AT THESE LOCATIONS.
9. SHORT HORIZONTAL DUCT ON FLOOR TO CORNER. CUT AND MODIFY SHELVEING.
10. DUCT PENETRATION THROUGH ROOF (CUT HOLE FLASH CURB) (DETAILS 6A/ A-3.1)
11. REMOVE AND REPLACE 2X MESH AND LOUVER FOR ACCESS.
12. DEMO ACCESS INTO EXISTING ROTUNDA CHASE AND TICKET BOOTH. REPAIR ALL VISIBLE WORK TO MATCH EXISTING ADJACENT SURFACES. PROVIDE IN ROTUNDA CUSTOM BENT BRONZE GRILL LOCATED BELOW TICKET BOOTH WINDOW AND STONE. FIELD COORDINATE LOCATION.
13. ALL REPAIRED PLASTER CEILINGS ARE TO BE REPLACED WITH A SUSPENDED GYPSUM ASSEMBLY WITH A FINAL PLASTER SKIM COAT. CEILING REVEAL PROFILES ARE TO MATCH THE EXISTING. (DETAIL 8/ A-3.0)
14. CUT GRILLE OPENING AND DUCT OPENING THROUGH FINISHES WALL. EXTREME CARE IS TO BE TAKEN WHEN CUTTING OPENING IN D.A.R. HALL. OPENING IS TO BE CLEANLY CUT WITH ADJACENT SURFACE KEPT CLEAN SO THAT INTERIOR RESTORATION WORK WILL NOT BE REQUIRED.
15. NEW CEILING DIFFUSER INTO FINISHED PLASTER CEILING.
16. VERTICAL TRENCH IN WALL (5") (DETAILS 1/ A-3.1)
17. FLASH EQUIPMENT STRUCTURAL RAILS AND CURB. (DETAILS 5 & 6/ A-3.0)
18. SIMILAR TO 12, BUT NO GRILLE. MAY NOT NEED TO REPLACE
19. HORIZONTAL TRENCH IN WALL.
20. CUT THROUGH AUDITORIUM CEILING FOR SLOT DIFFUSERS. CUT ARE TO BE CLEAN WITH NO CEILING PATCHING REQUIRED. EXACT DIFFUSERS LOCATIONS ARE TO BE FIELD COORDINATED TO MINIMIZE DISTRUCTION TO CEILING SUSPENSION SYSTEM. CEILING IS TO BE RETIED AS REQUIRED BY FIELD CONDITIONS.
21. CUT AND FLASH IN SLATE ROOF FOR COPPER INTAKE. (DETAIL 10/ A-3.0)
22. REMOVE EXISTING WINDOW AND INCREASE MASONRY OPENING SIZE IN PREPARATION FOR NEW LOUVER. SAW CUT FOR NEW OPENING AND REUSED SALVAGED BRICK ON ALL EXPOSED AND VISIBLE SURFACES FROM OUTSIDE OF BUILDING. REMOVE EXISTING LOOSE LINTEL AND REPLACE WITH NEW. REFERENCE LINTEL SCHEDULE FOR REQUIREMENTS. CAULK AROUND LOUVER PERIMETER FOR A WEATHER TIGHT CONDITION. NEW LOUVER IS +/- 5'-6" WIDE X 3'-3" HIGH.
23. EXISTING ABANDONED WALL LOUVER IS TO REMAIN. BACK SIDE OF LOUVER IS TO BE FACED OFF WITH 2" OFF RIGID INSULATION SANDWICHED BETWEEN 2 SHEETS OF LEAD COATED COPPER. I.C. COPPER IS TO BE FULLY ADHERED TO BOTH SIDES OF INSULATION AND ENTIRE ASSEMBLY MECHANICALLY ATTACHED @ OPENING. PANEL PERIMETER IS TO BE CAULKED FOR A WEATHER TIGHT CONDITION.
24. NEW CEILING MOUNTED ACCESS DOOR. REFERENCE MECHANICAL DRAWINGS FOR SIZE REQUIREMENTS. (DETAIL 1/ A-3.0)
25. PAINT CEILING AND ALL WALLS. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
26. PAINT WALLS SURFACE. ARROWS POINT. (ARROWS POINT TO WALL SURFACE REQUIRING FINISHES)
27. ACCESS PANEL.
28. REFURBISH WINDOW SASH & OWNER'S STOCK WROUGHT IRON GRILLE. REMOVE RUST, PRIME, PAINT TO MATCH EXISTING. FIX WINDOWS OPERATIVE MECHANICS (AS REQUIRED) RESTORING TO LIKE NEW.

SYMBOLS

- CUT @ EXISTING WALL (SEE NOTE 2 & 14)
- CEILING SOFFIT (REFERENCE DETAIL)
- VERTICAL CHASE (REFERENCE DETAIL)
- CEILING WORK DEMOLITION (SEE LEGEND NOTE 8 & 13)



GENERAL NOTES

ALL PIPES RUN HORIZONTALLY AND VERTICALLY IN FINISHED ROOMS ARE NOT TO BE VISIBLE. REFERENCE TYPICAL CEILING SOFFIT AND VERTICAL CHASE DETAILS.

ALL FINAL THROUGH WALL AND THROUGH FLOOR PENETRATION QUANTITIES AND SIZES ARE TO BE COORDINATED WITH MECHANICAL DOCUMENTS.

CEILING PENETRATIONS IN AUDITORIUM ARE TO BE CLEANLY CUT WITH ADJACENT SURFACES CLEAR OF RAGGED OR NON-STRAIGHT CUT LINE & DIRT MARKS ON CEILING. IT IS CONTRACTORS RESPONSIBILITY TO ASSURE RESTORATION TO EXISTING SURFACES WILL NOT BE REQUIRED CEILING GRID SYSTEMS CUT ARE TO BE TIED AND HUNG.

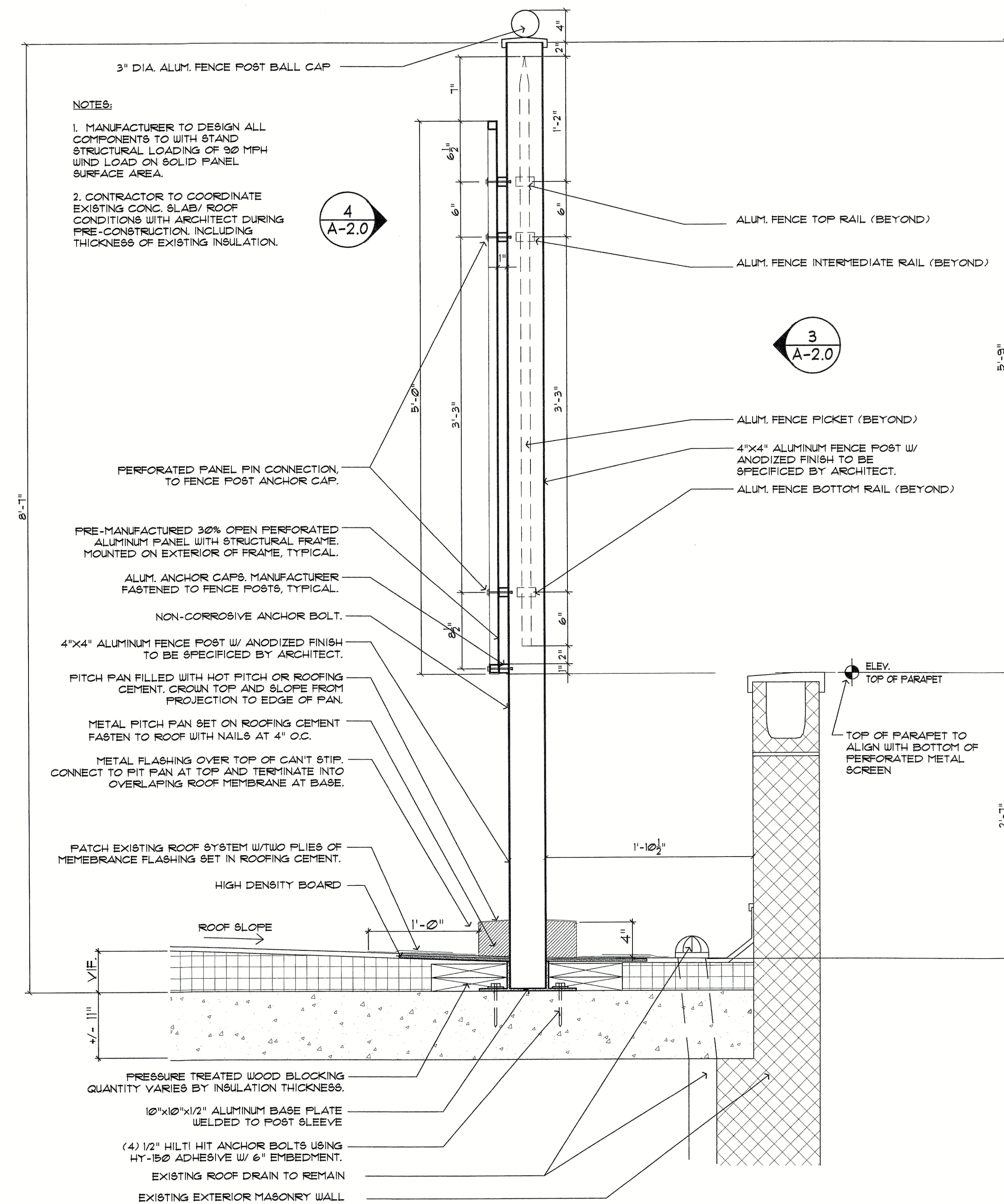
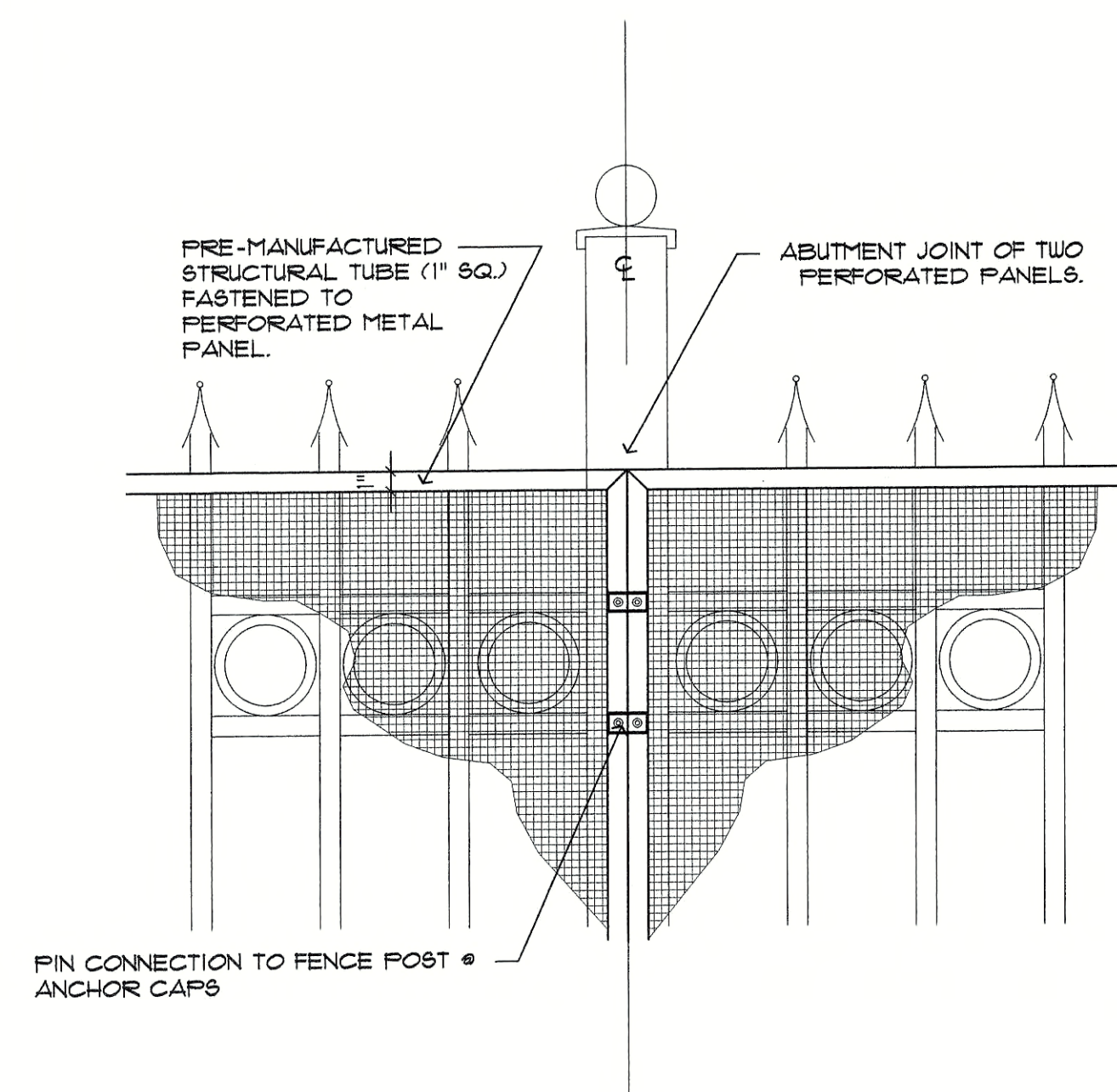
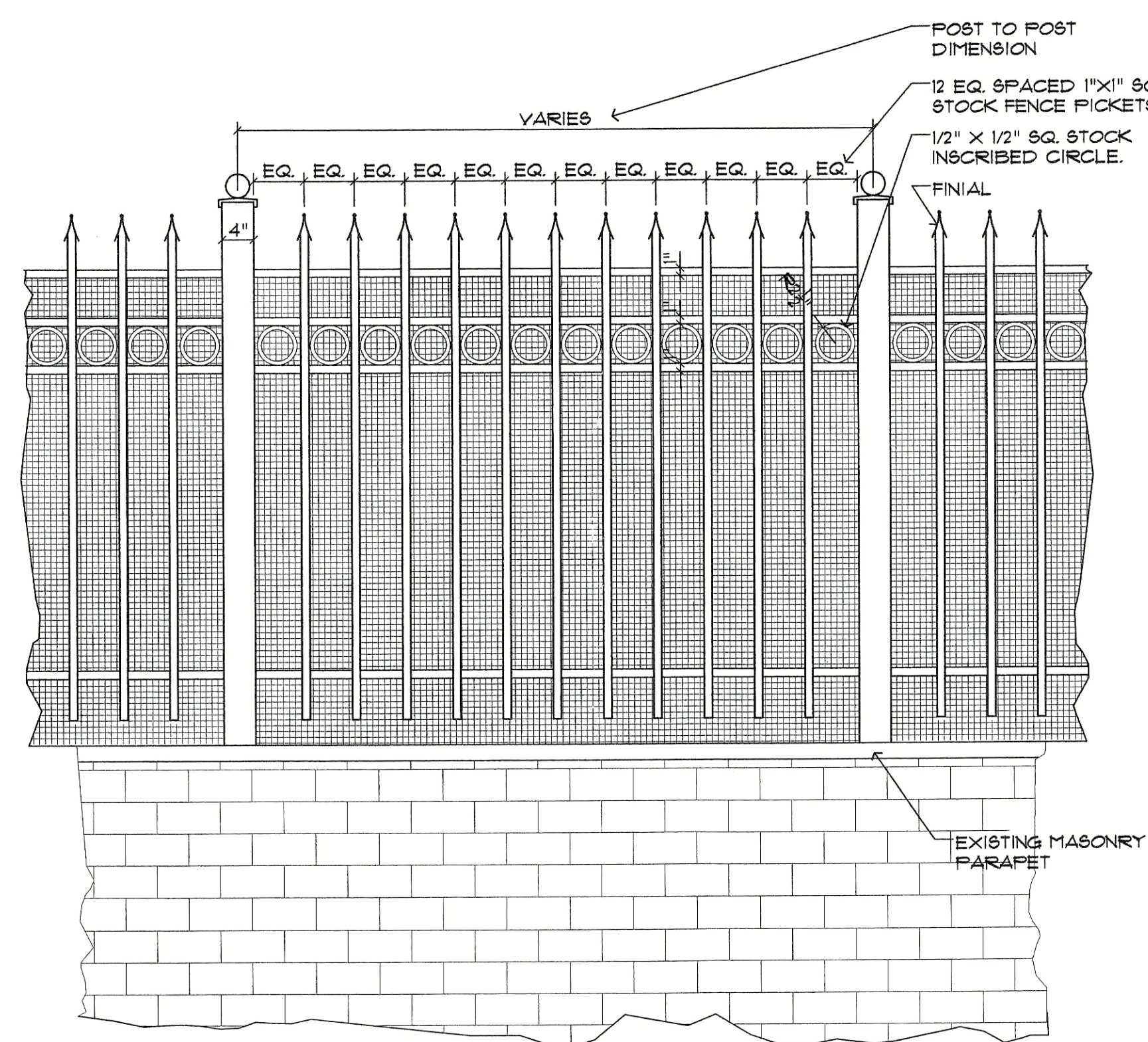
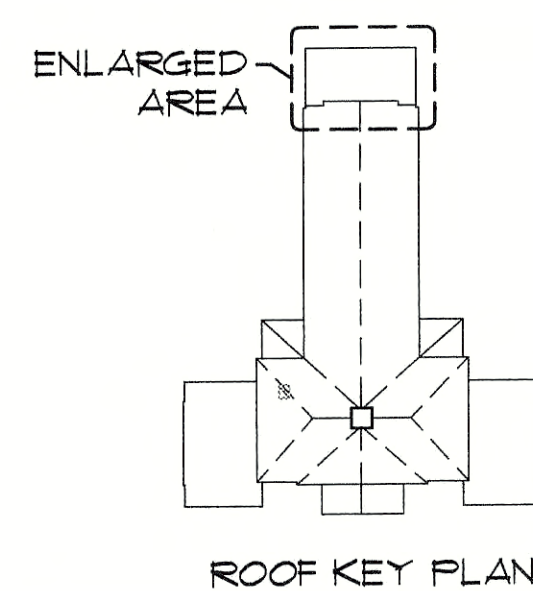
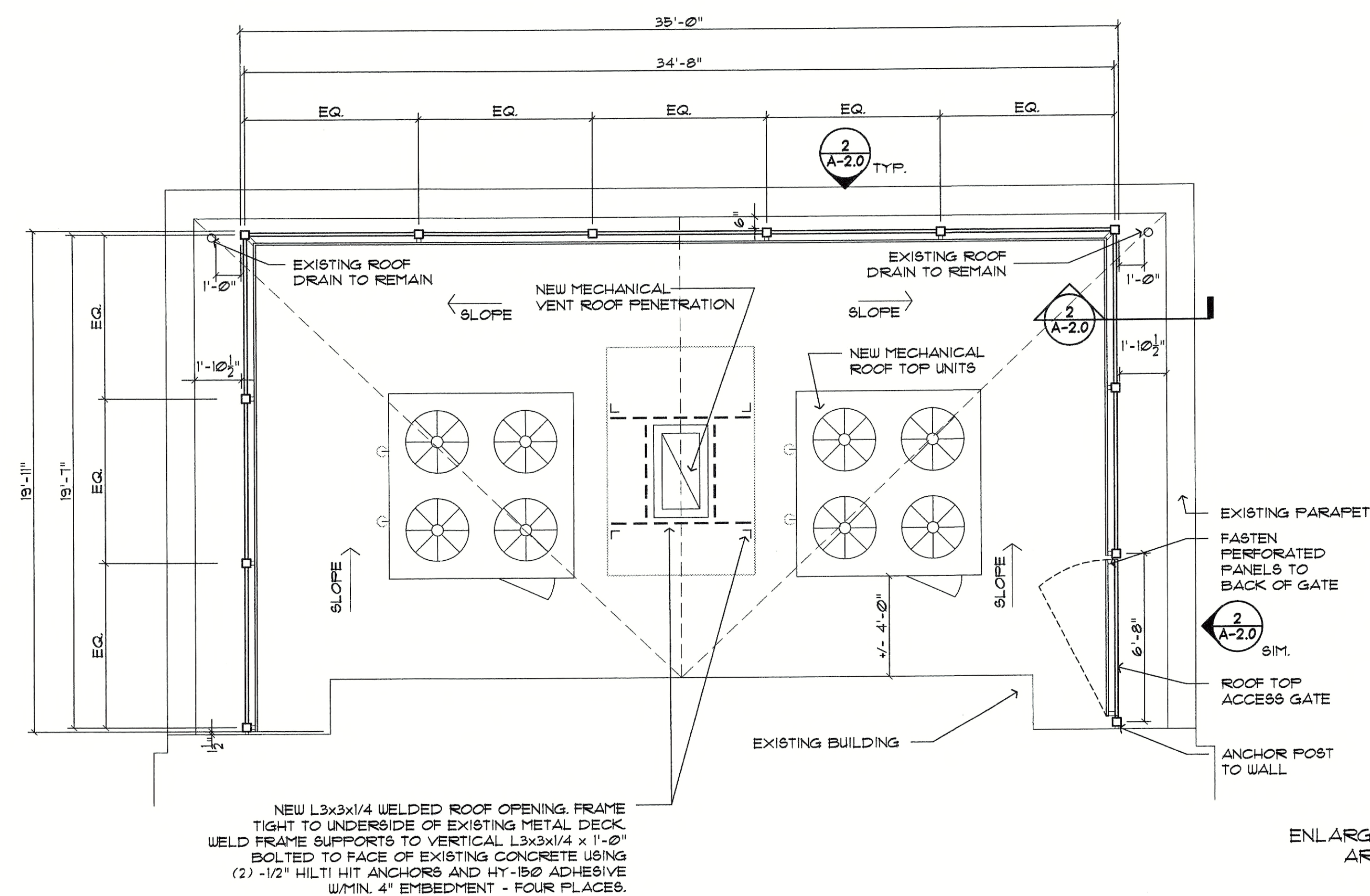
PAINT ALL NEW EXPOSED GYP. BD. AND PLASTER SURFACES. IF NOT, NOTED AS SUCH.

LEGEND

1. ENLARGE OPENING THROUGH TUNNEL WALL INTO UNEXCAVATED SPACE BELOW PLUMBING CHASE. TRENCH THROUGH FLOOR OF PLUMBING CHASE ABOVE AS REQUIRED. PATCH THE FLOOR. PROVIDE CHECKER PLATE 3/8" STEEL PLATE OVER CUT OPENING AS NEW FLOOR. MECHANICALLY FASTEN IN PLACE.
2. CORE BORE OR SAW CUT AND SLEEVE HOLES THROUGH WALL FOR NEW PIPING OR DUCT. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
3. CORE BORE AND SLEEVE THROUGH CONCRETE WALL. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
4. RUN PIPE AND CONDUITS THROUGH MECHANICAL ROOM ROOF DECK TO CHILLER # 2 LOCATIONS AS PART OF BASE BID AND 2 LOCATIONS AS PART OF ALTERNATE # 1. PROVIDE PITCH POCKETS # ROOF PENETRATIONS & PROPERLY FLASH INTO ROOF SYSTEM. (REFERENCE DETAIL 6A/ A-3.0)
5. CONCRETE FLOOR SLAB PENETRATION - DUCT OR PIPE. (COORDINATE WITH TYPICAL DETAILS ON SHEET A-3.1)
6. VERTICAL CHASE. (DETAIL 3/ A-3.0)
7. HORIZONTAL SOFFIT # CEILING. (DETAILS 12 & 4/ A-3.0)
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SYMBOLS

- CUT # EXISTING WALL (SEE NOTE 2 & 14)
- CEILING SOFFIT (REFERENCE DETAIL)
- VERTICAL CHASE (REFERENCE DETAIL)
- CEILING WORK DEMOLITION (SEE LEGEND NOTE 8 & 13)



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ata
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**APPLIED
THERMODYNAMICS
ASSOCIATES, INC.**

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AIR CONDITIONING SYSTEM

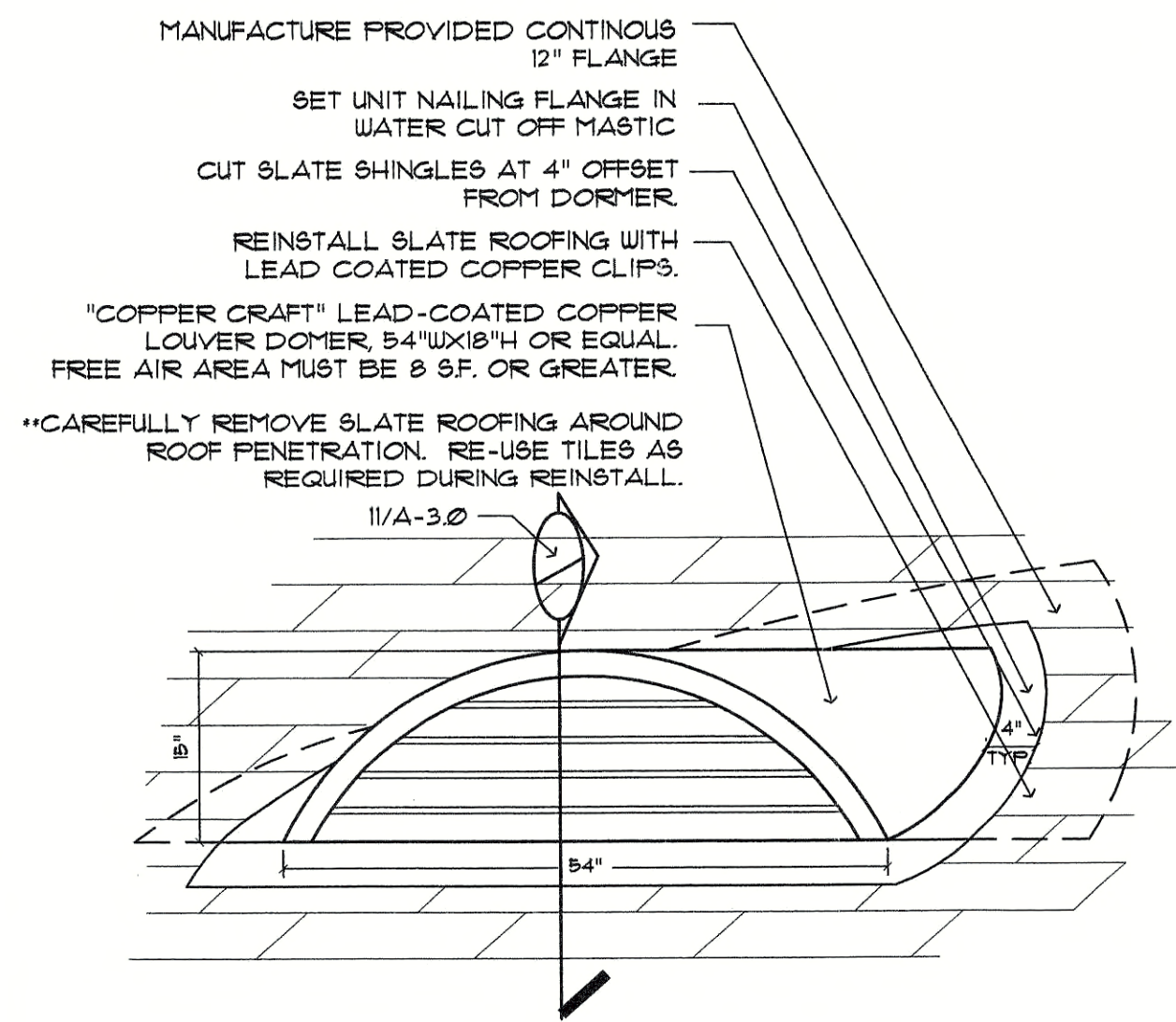
ENO MEMORIAL HALL

754 HOPMEADOW STREET

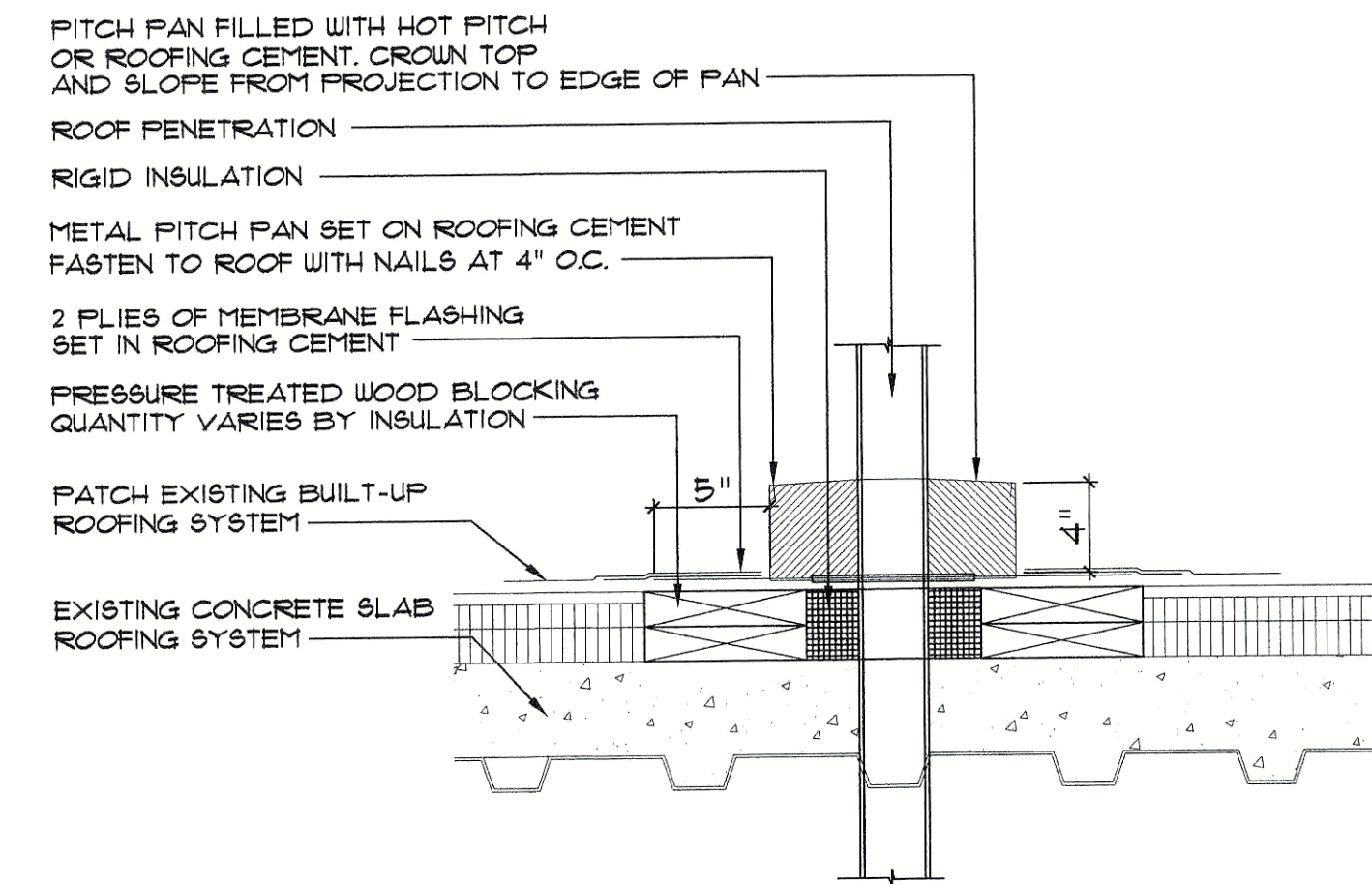
Project: 03137.00
Initials: EMF
Date: 3-24-04
Revisions:

RTU SCREEN

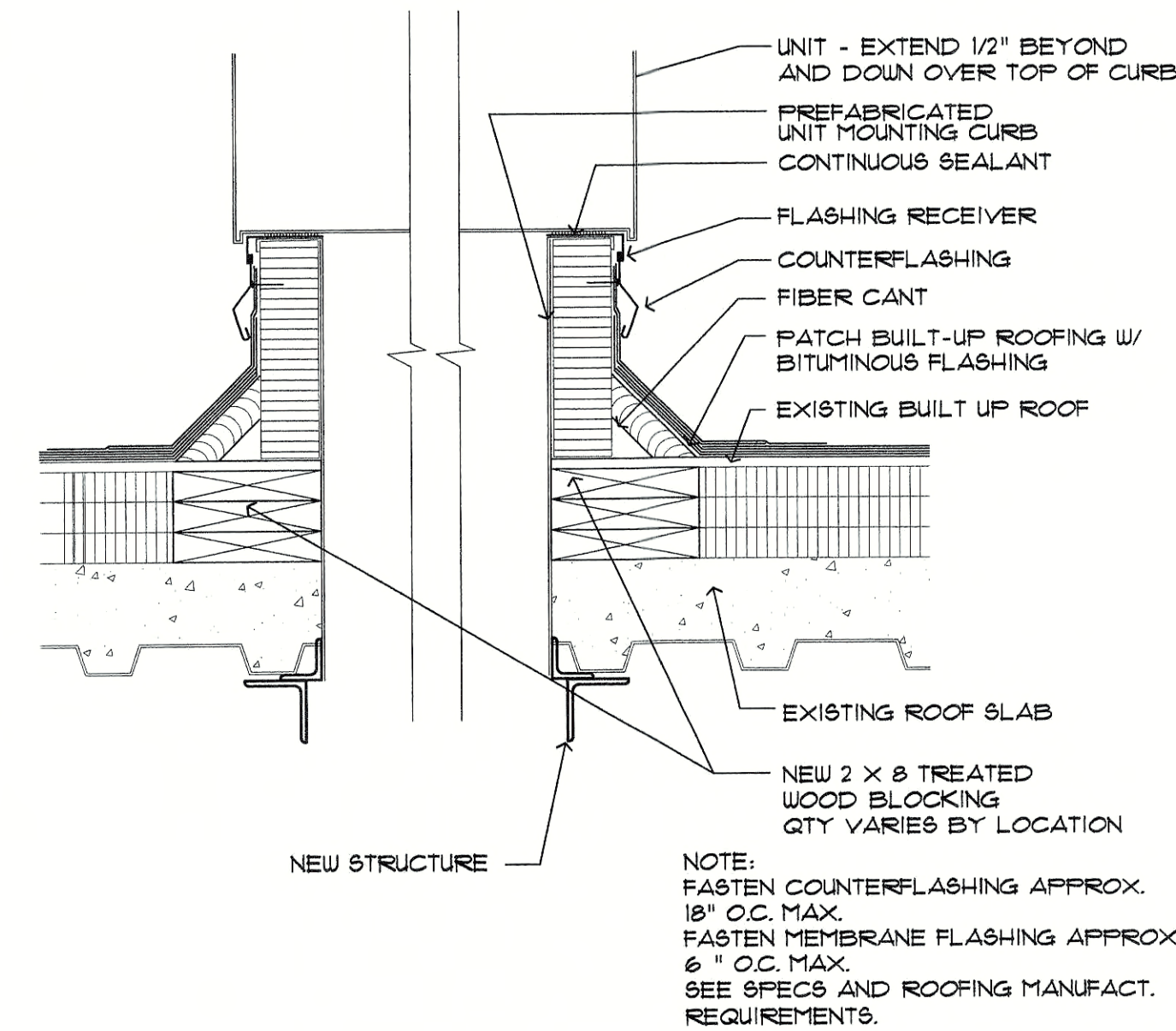
A-2.0



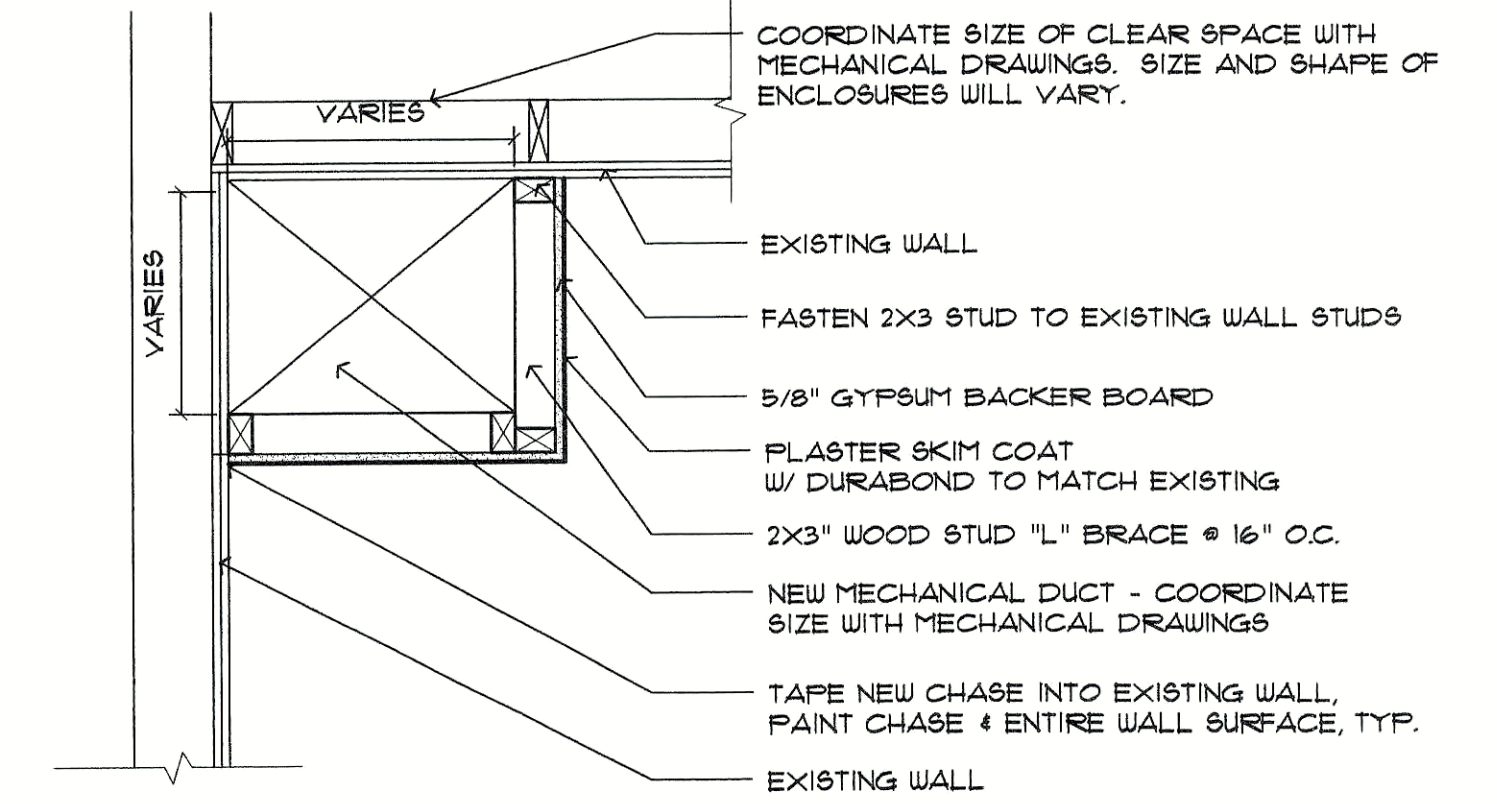
10 LOUVERED DORMER
3/4"=1'-0"



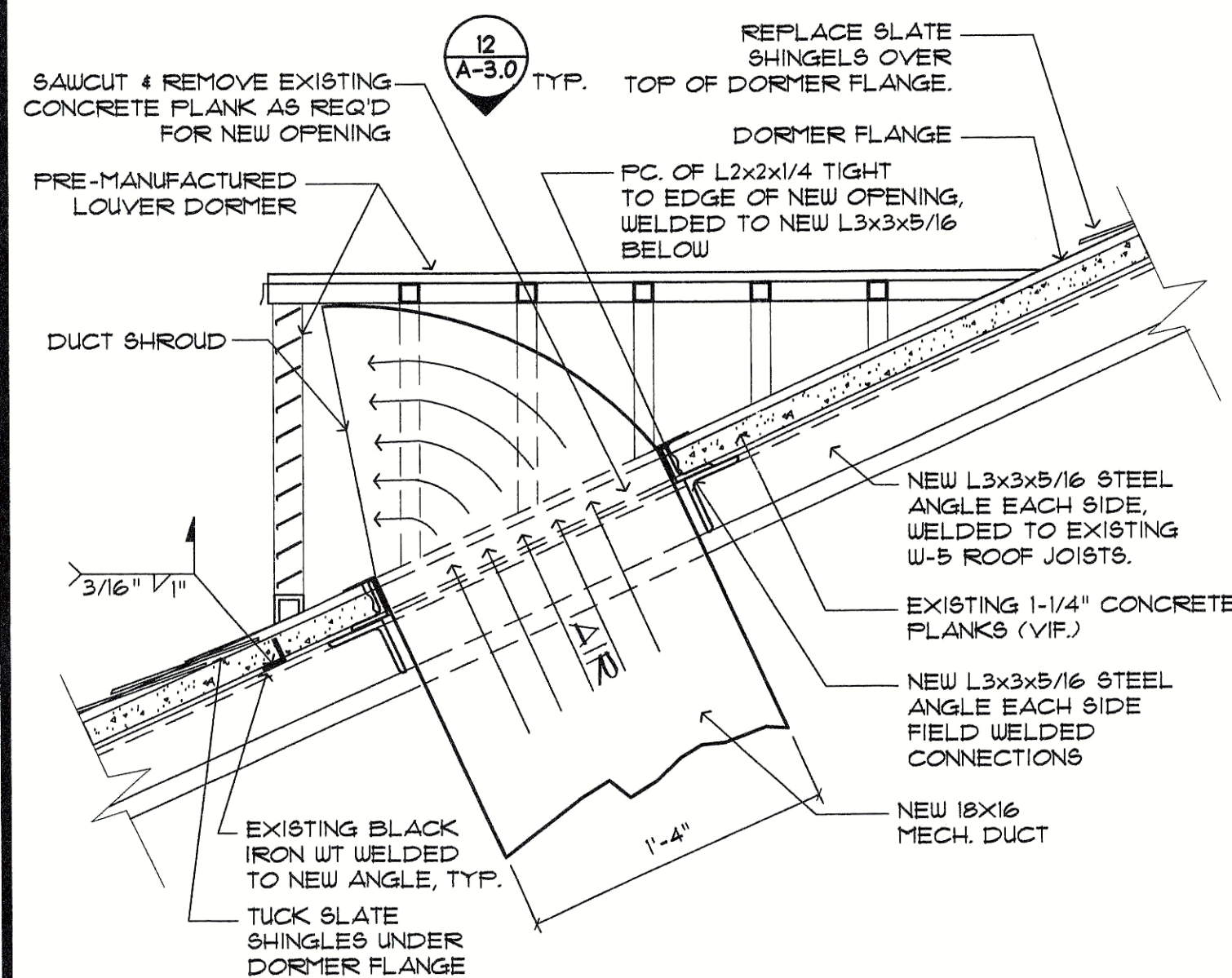
6A ROOF PITCH POCKET PENETRATION DETAIL
1-1/2"=1'-0"



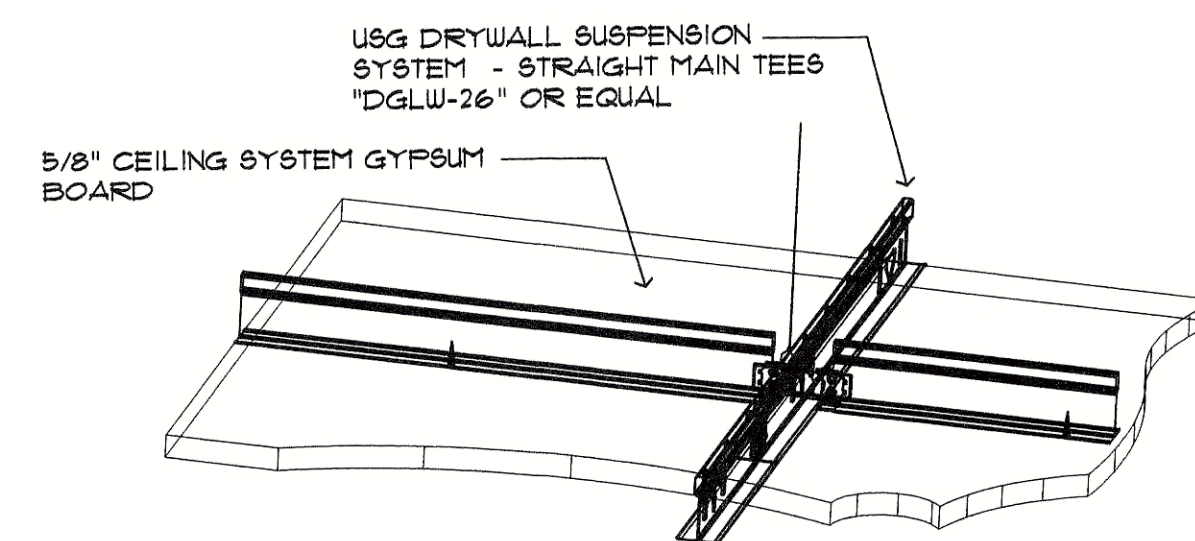
6 TYPICAL CURB FLASHING DETAIL
1-1/2"=1'-0"



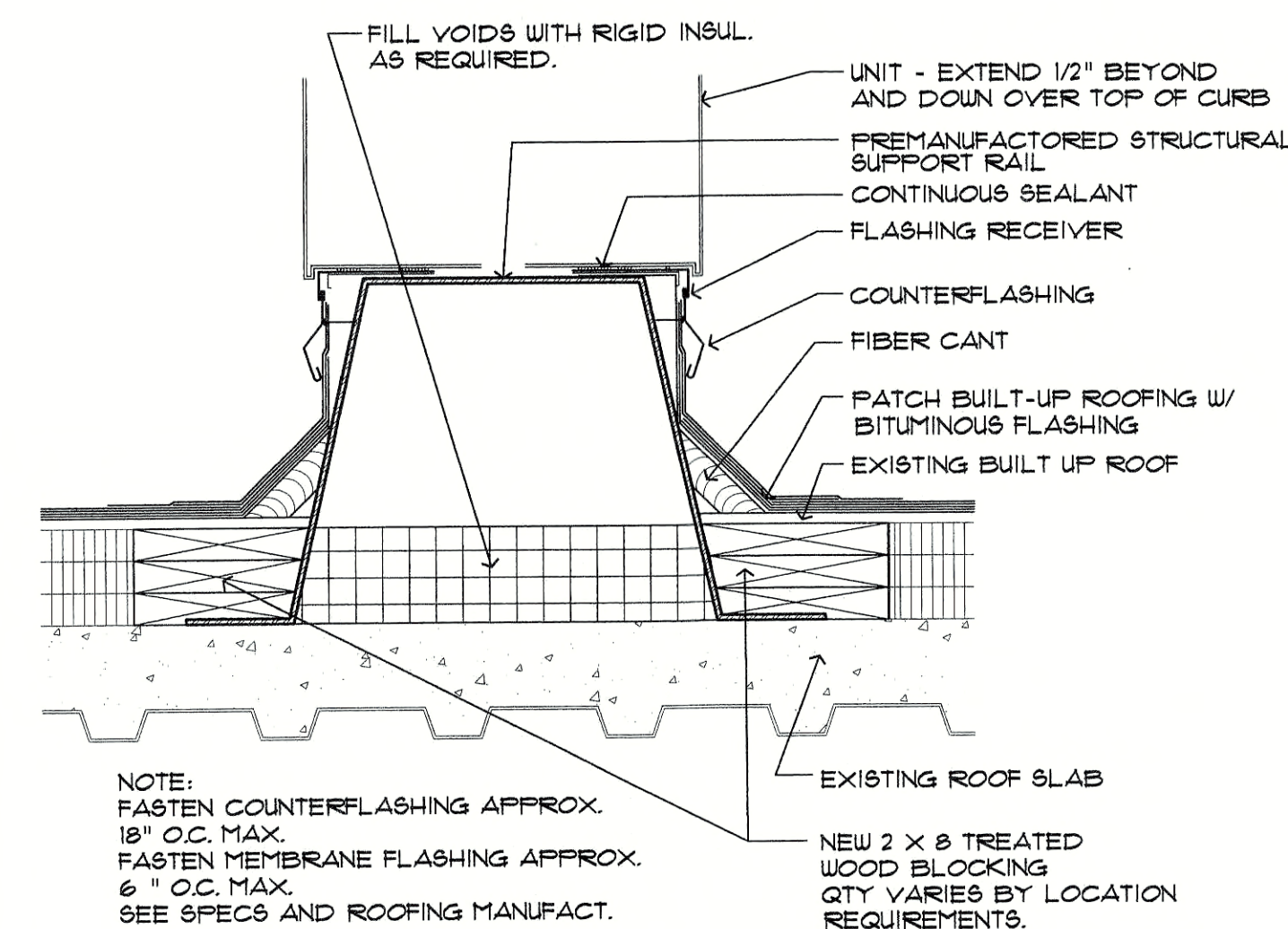
3 TYP. DUCT CHASE DETAIL
1"=1'-0"



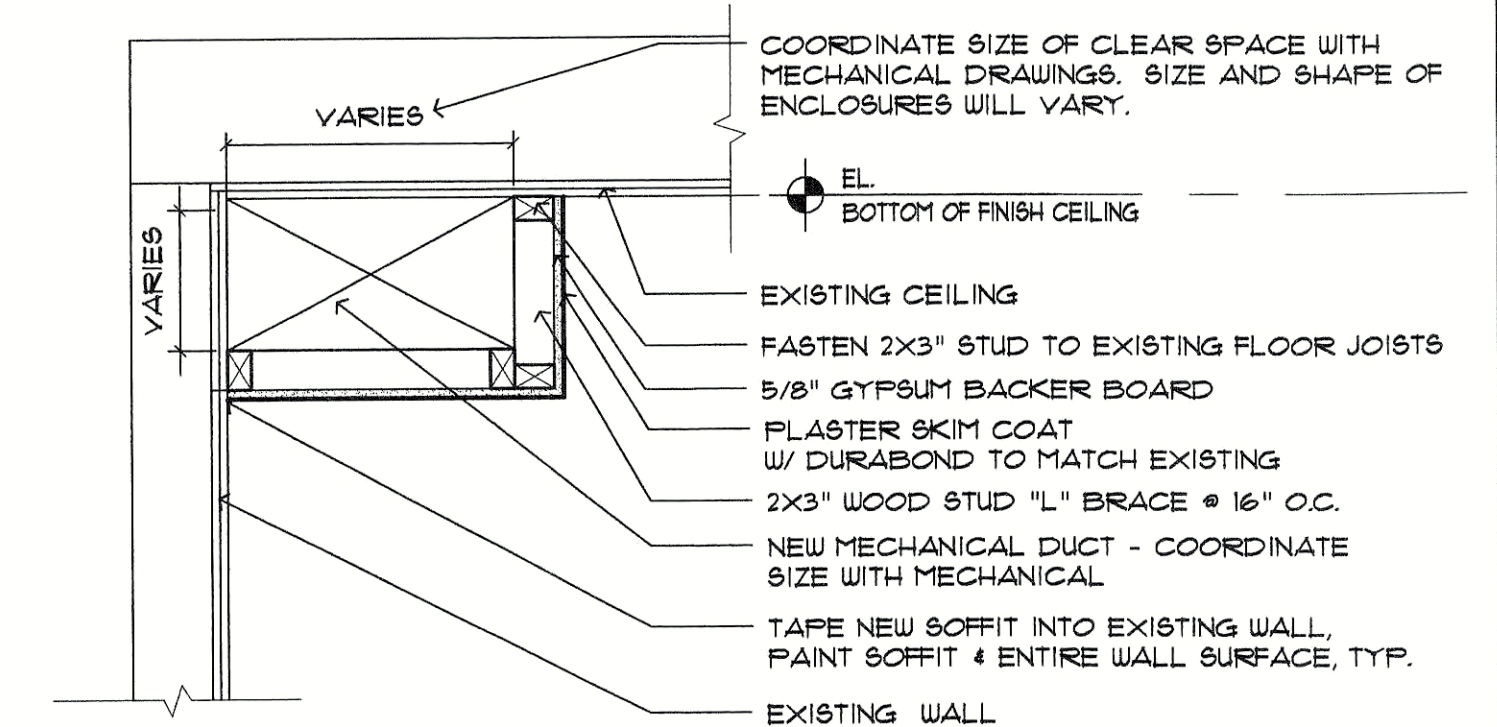
11 DORMER SECTION
1-1/2"=1'-0"



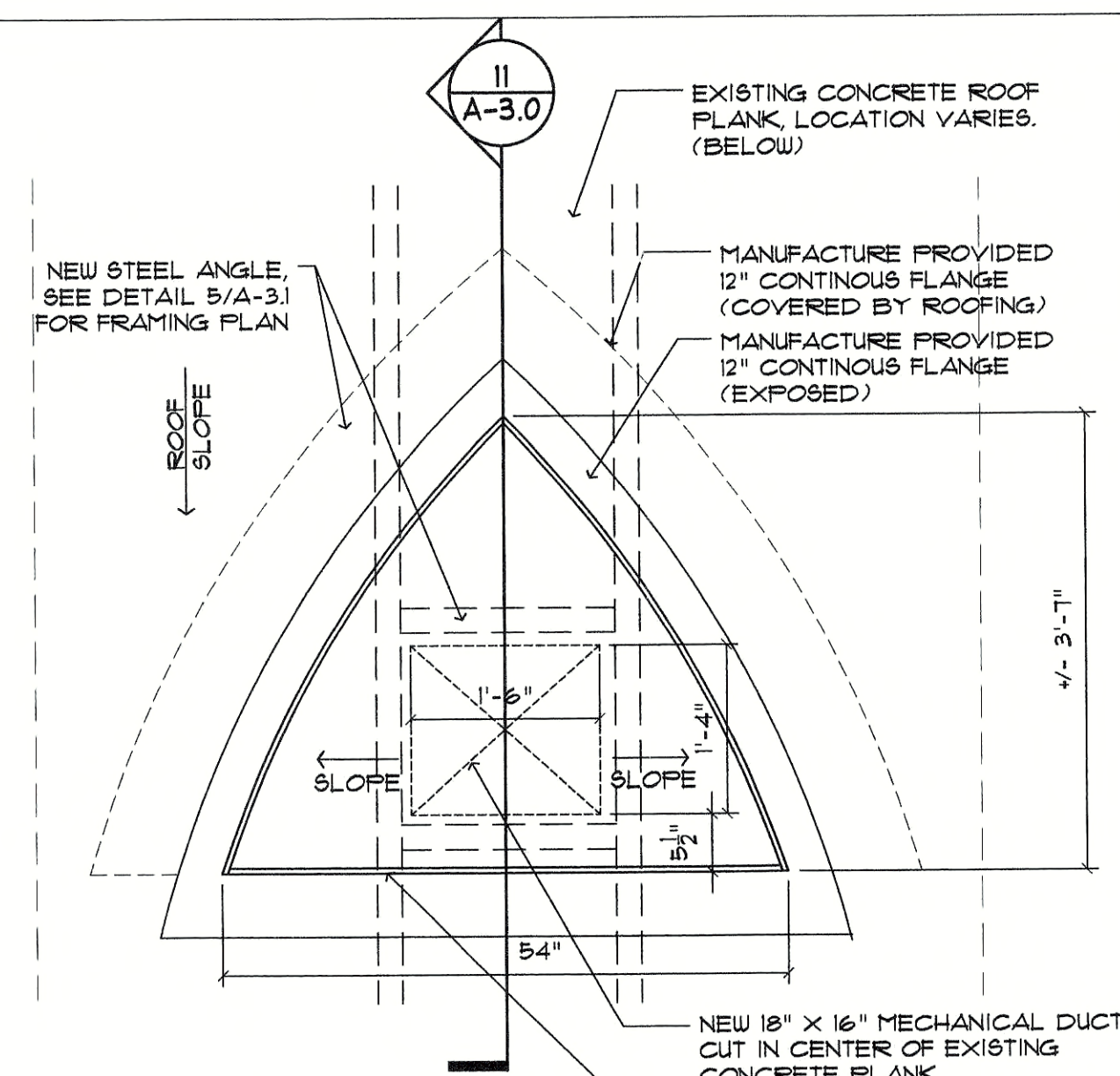
8 SUSPENDED CEILING SYSTEM
3"=1'-0"



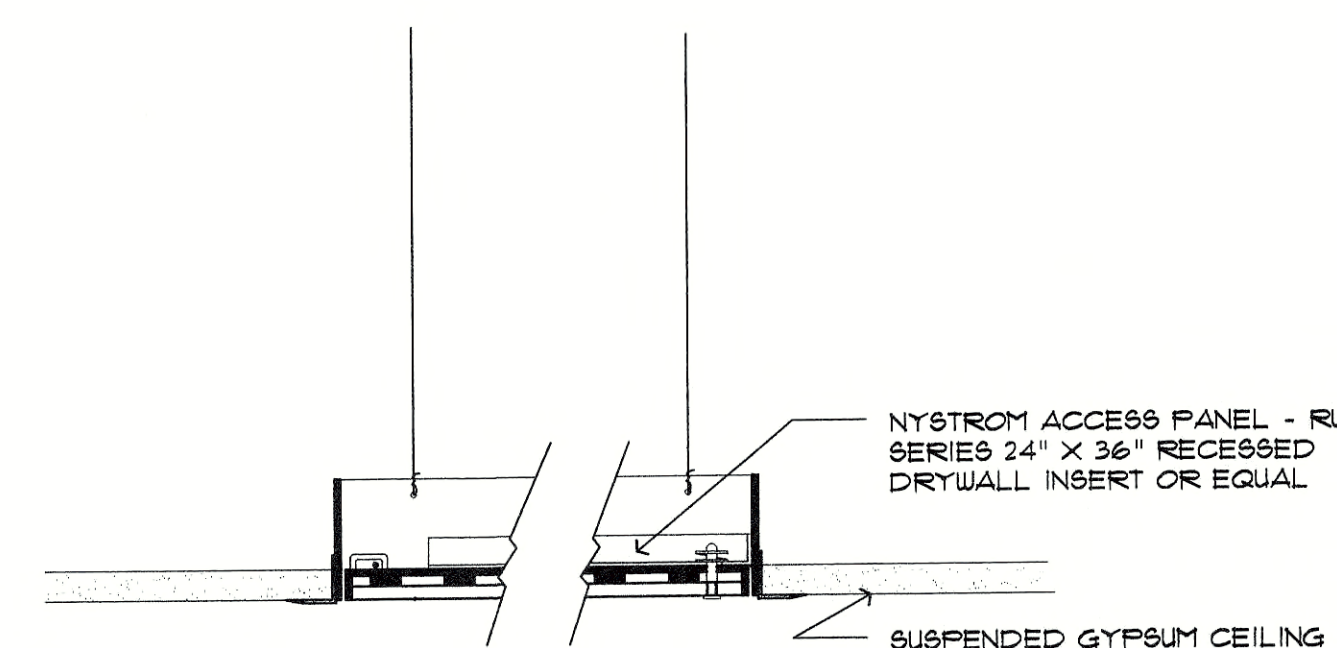
5 R.T.U. STRUCTURAL RAIL FLASHING DETAIL
1"=1'-0"



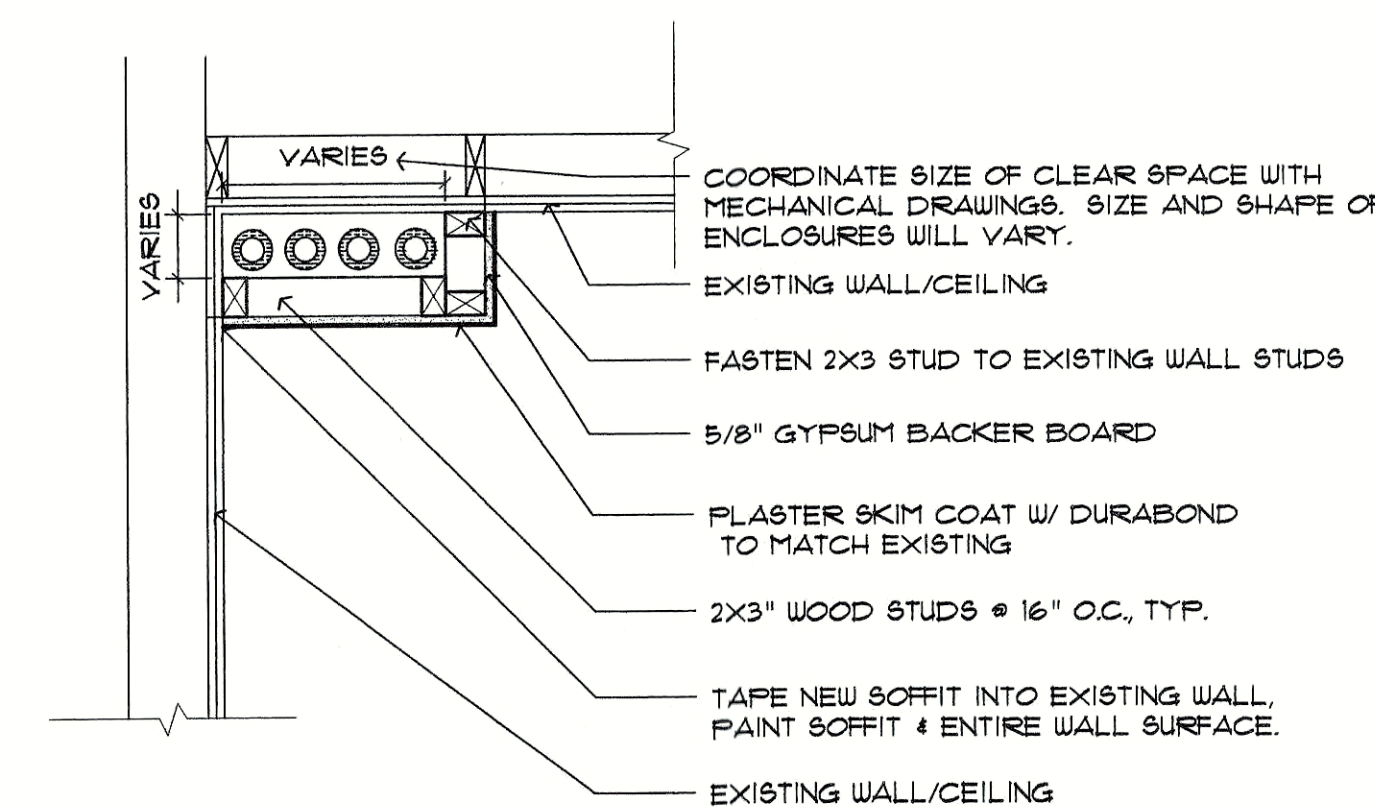
2 TYP. DUCT / SOFFIT DETAIL
1"=1'-0"



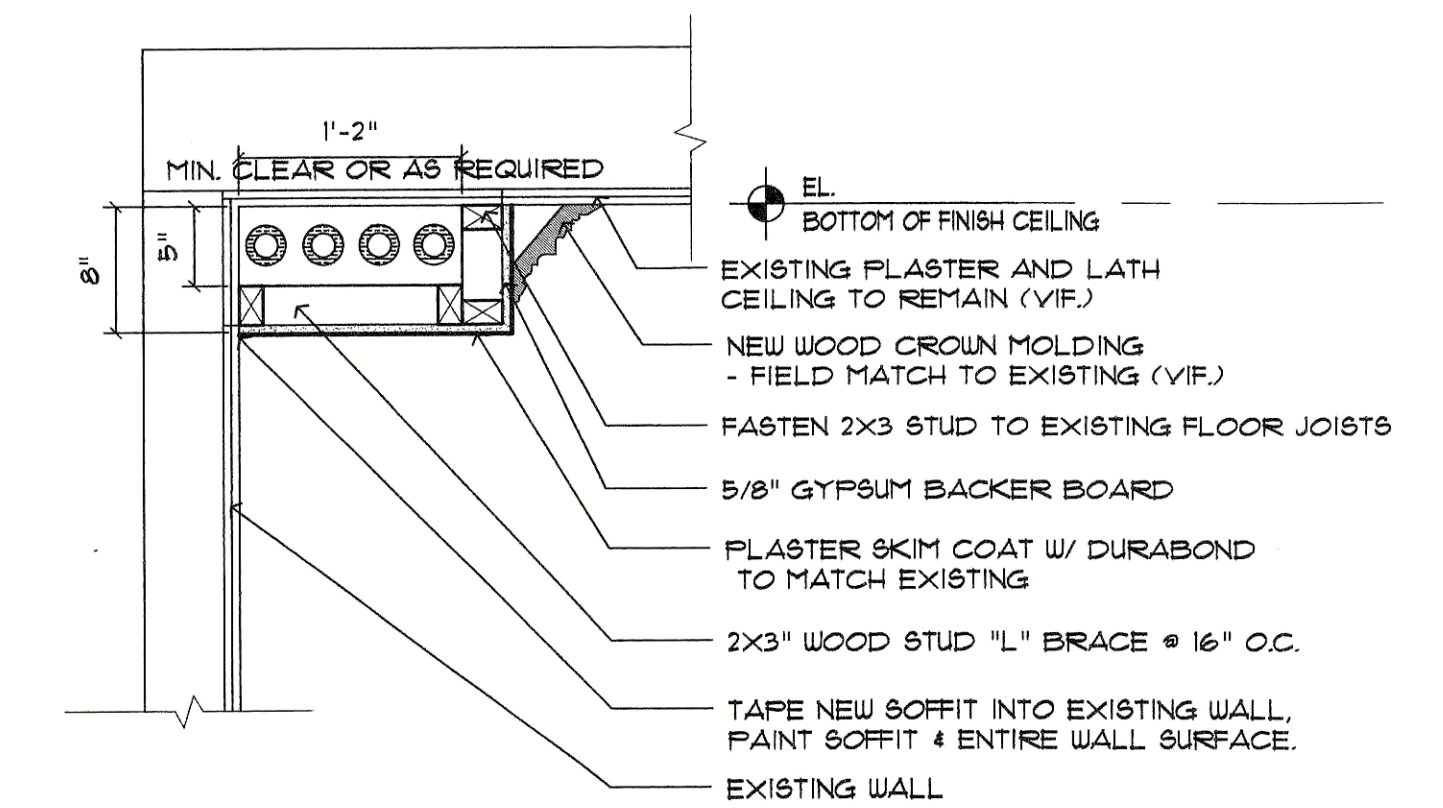
12 DORMER ROOF PLAN
3/4"=1'-0"



7 FLUSH ACCESS PANEL
3"=1'-0"



4 SOFFIT / CHASE DETAIL
1"=1'-0"



1 SOFFIT DETAIL WITH CORNICE
1"=1'-0"

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AIR CONDITIONING SYSTEM
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

Project: 03137.00
Initials: EMF
Date: 3-24-04
Revisions:

DETAILS

A-3.0

- *Beginning the U.I. Classification Mark

11

- *Bearing the UL Classification Marking

10

Notes:

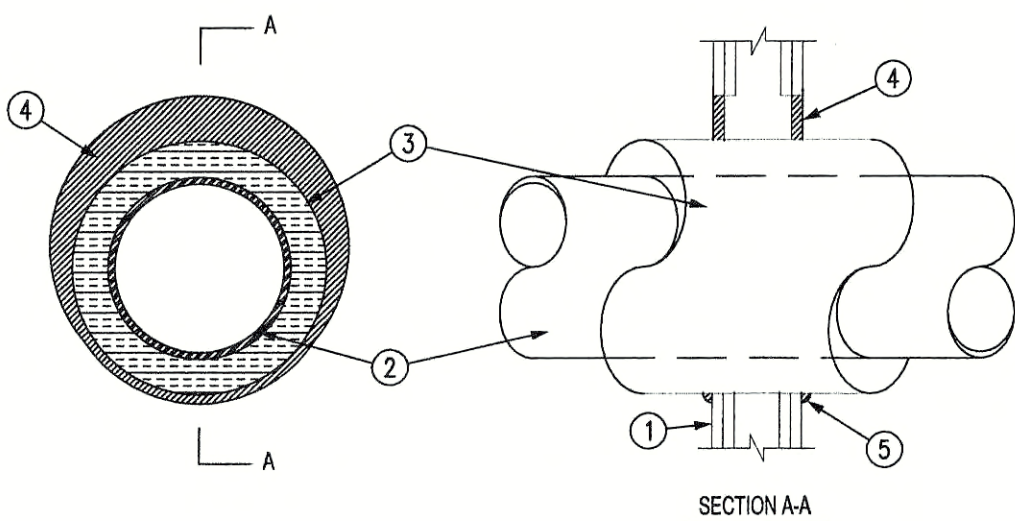
1. Length of lintel = opening + 1'-4" (8" each side)
2. All double angles back to back shall be bolted at 3'-0" o.c., or welded. Minimum 2 connections per lintel.
3. Provide stiffener seat connection to attach lintel to steel column where less than 8" of bearing is available adjacent to column.

11

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9

F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1/2, 3/4, 1 and 1-3/4 Hr (See Item 3)
L Rating At Ambient - 4 CFM/Sq Ft
L Rating At 400 F - Less Than 1 CFM/Sq Ft



1. **Wall Assembly** – The 1 or 2 fire-rated gypsum/wallboard/stud wall assembly shall be constructed of the following and in the manner specified in the individual U3000 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
- A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
 - B. **Wallboard/Gypsum** – 5/8 in. thick, 4 ft wide, with square or tapered edges. The gypsum/wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max dim of opening is 18-5/8 in.
- The hourly F Rating of the freestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants – One metallic pipe, conduit or tubing to be centered within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
- A. Steel Pipe – Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. Conduit – Nom 4 in. diam (or smaller) electrical metallic tubing or steel conduit.
 - C. Copper Tubing – Nom 6 in. diam (or smaller) Type 1 (or heavier) copper tubing.
 - D. Copper Pipe – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

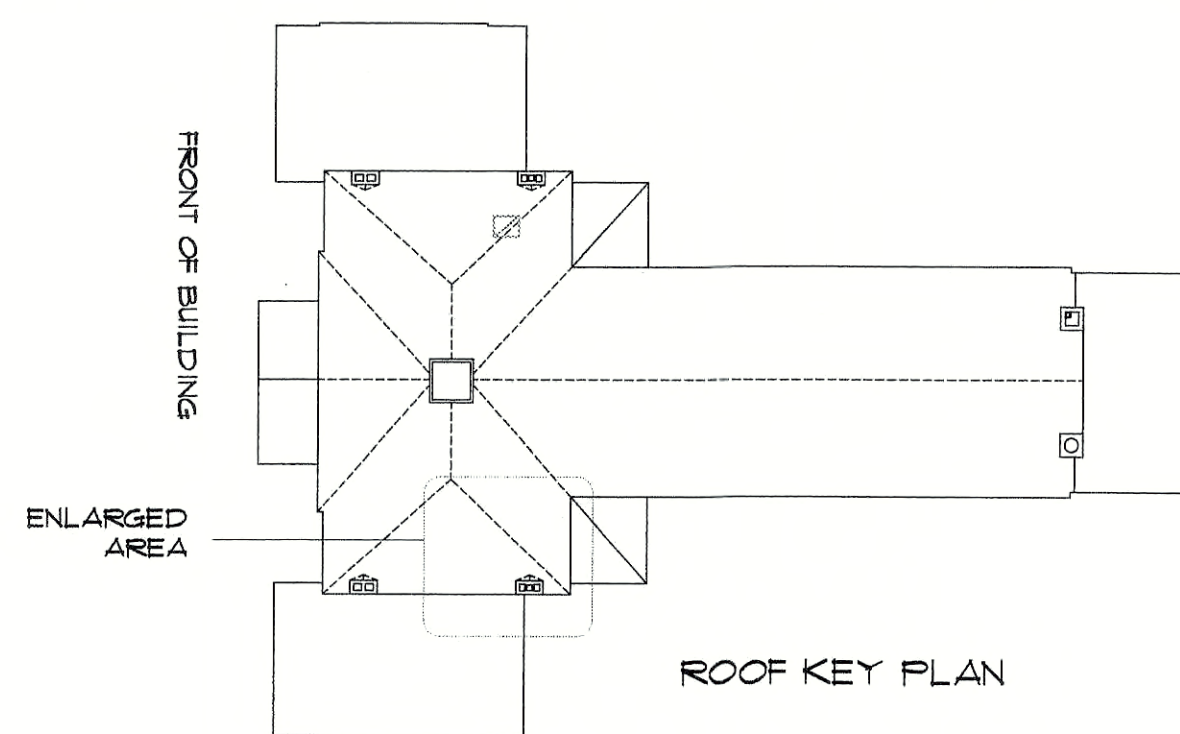
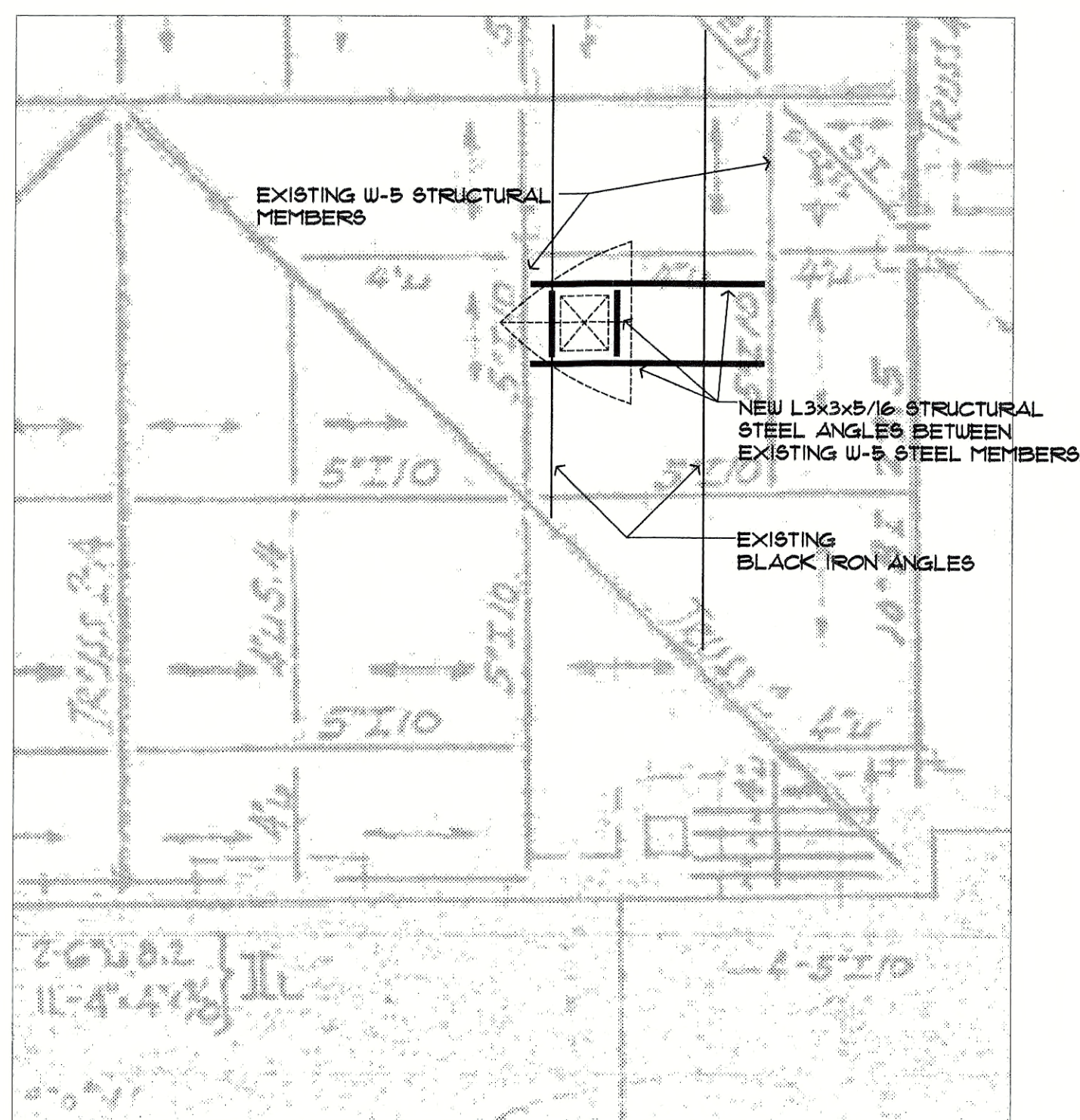
- Pipe Coverings – Nom. 1/2" or 2 in. thick hollow glycidyl ether density (min 3.5 pcf) glass fiber joints (pocketed on the outside with an all service joint). Longitudinal joints sealed with metal fasteners or factory-applied sealant. Transverse joints sealed with metal fasteners or by butt joints sanded with the product.
- See Pipe and Equipment Coverings – Materials (BR9) category in the Building Material Directory for the names of materials. Key pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a smoke developed index of 50 or less is as follows:
- The hour T Rating of the firestop system is dependent on the hourly fire rating of the wall assembly in which it is installed, the size and type of through penetrant and the pipe covering thickness, as shown in the table below:
- | Assembly | Through Penetrant | Pipe Covering | Annular Space | |
|----------|-------------------|-----------------------|---------------|---|
| 1 | 2 | 3 | 4 | |
| hr | Type | Thick-
ness
in. | in. | |
| 1 | A or B | 4 | 1 | 0 |
| 2 | A or B | 4 | 1 | 0 |
| 1 | A or B | 4 | 1-1/2 | 0 |
| 2 | A or B | 4 | 1-1/2 | 0 |
| 1 | C or D | 12 | 2 | 0 |
| 2 | A or B | 12 | 2 | 0 |
| 2 | C or D | 6 | 1 | 0 |
| 2 | C or D | 6 | 1 | 0 |
| 2 | A or B | 4 | 1-1/2 | 0 |
| 2 | C or D | 12 | 2 | 0 |
| 2 | A or B | 12 | 2 | 0 |

4. Fill Void or Cavity Material* – Sealant – Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall for 1 or 2 hr walls, respectively. At the point contact location between pipe covering and gypsum wallboard, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/gypsum wallboard interface on both surfaces of wall.
- HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI, Inc – FS–One Sealant
- *Bearing the UL Classification Marking

8

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7

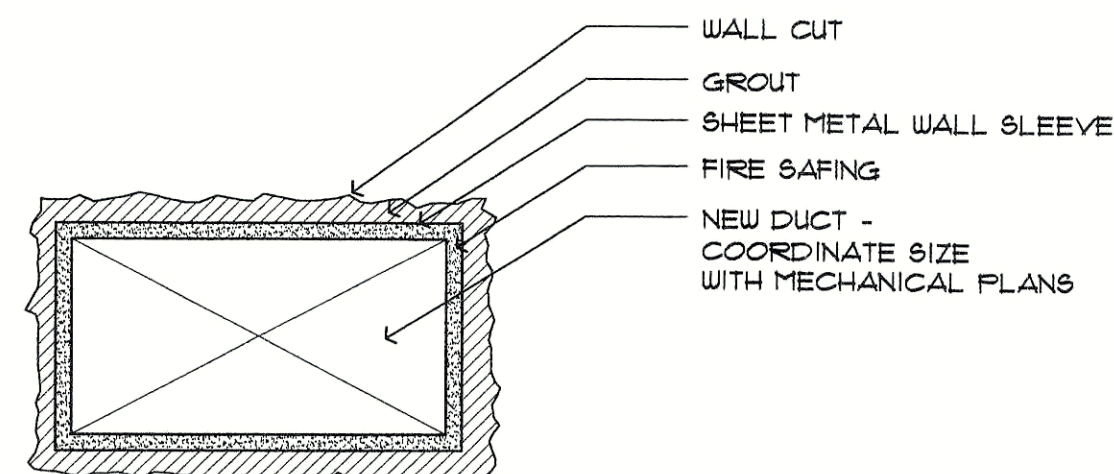


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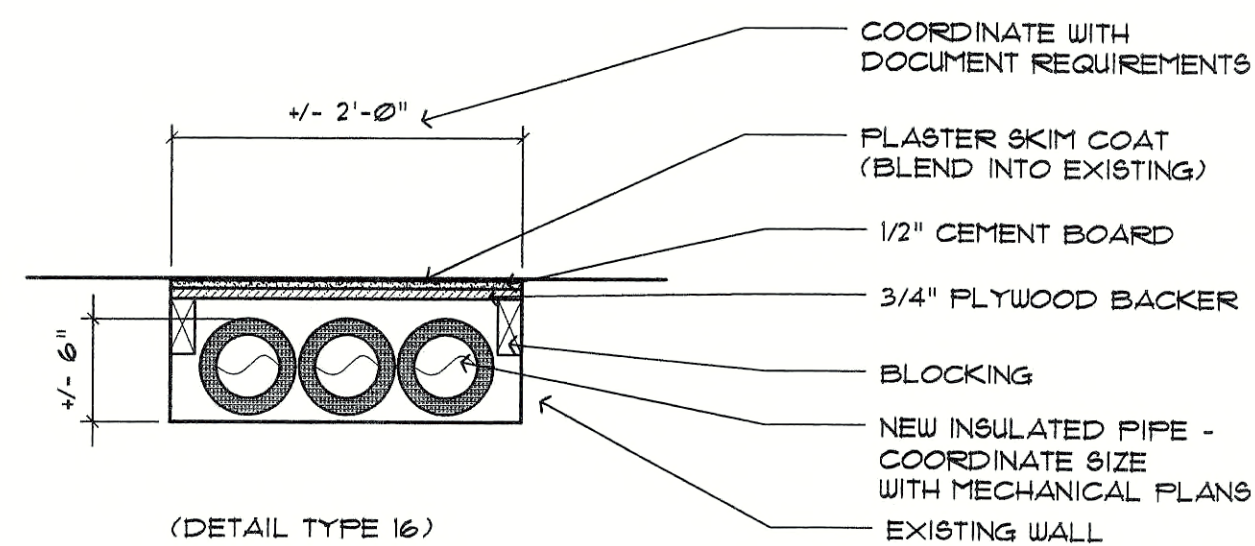
④

A schematic diagram of a cross-section of a composite material. It features a central circular core with a wavy internal boundary. This core is surrounded by a thick, textured layer. The entire assembly is enclosed within a jagged, irregular outer shell. Arrows point from the text labels to their respective parts in the diagram.

(3)



(2)

 $(1$

Schoenhardt

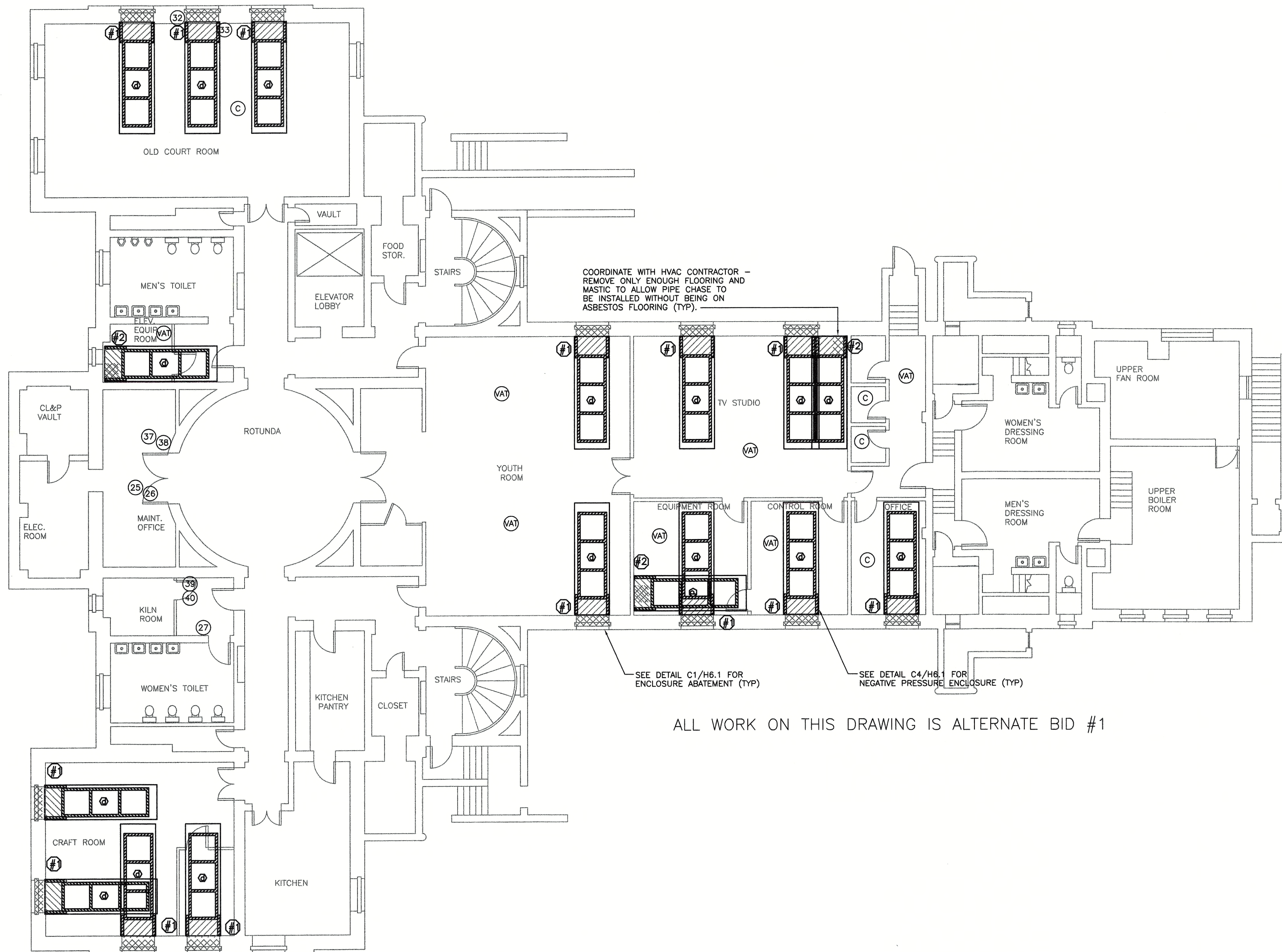
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AIR CONDITIONING SYSTEM

PENETRATIONS & FIRE STOPPING DETAILS

A-3.1

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A1

BASEMENT ASBESTOS ABATEMENT

SCALE: 1/8"=1'-0"



APPLIED THERMODYNAMICS ASSOCIATES, INC.
ata Consulting Engineers
1129 Main Street
Coventry, CT 06238
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www.ataengrs.com

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
734 N. MAIN STREET
SMYTHUR, CONNECTICUT 06070

DRAWING TITLE:
BASEMENT LEVEL
ASBESTOS ABATEMENT

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

APPROVED BY:

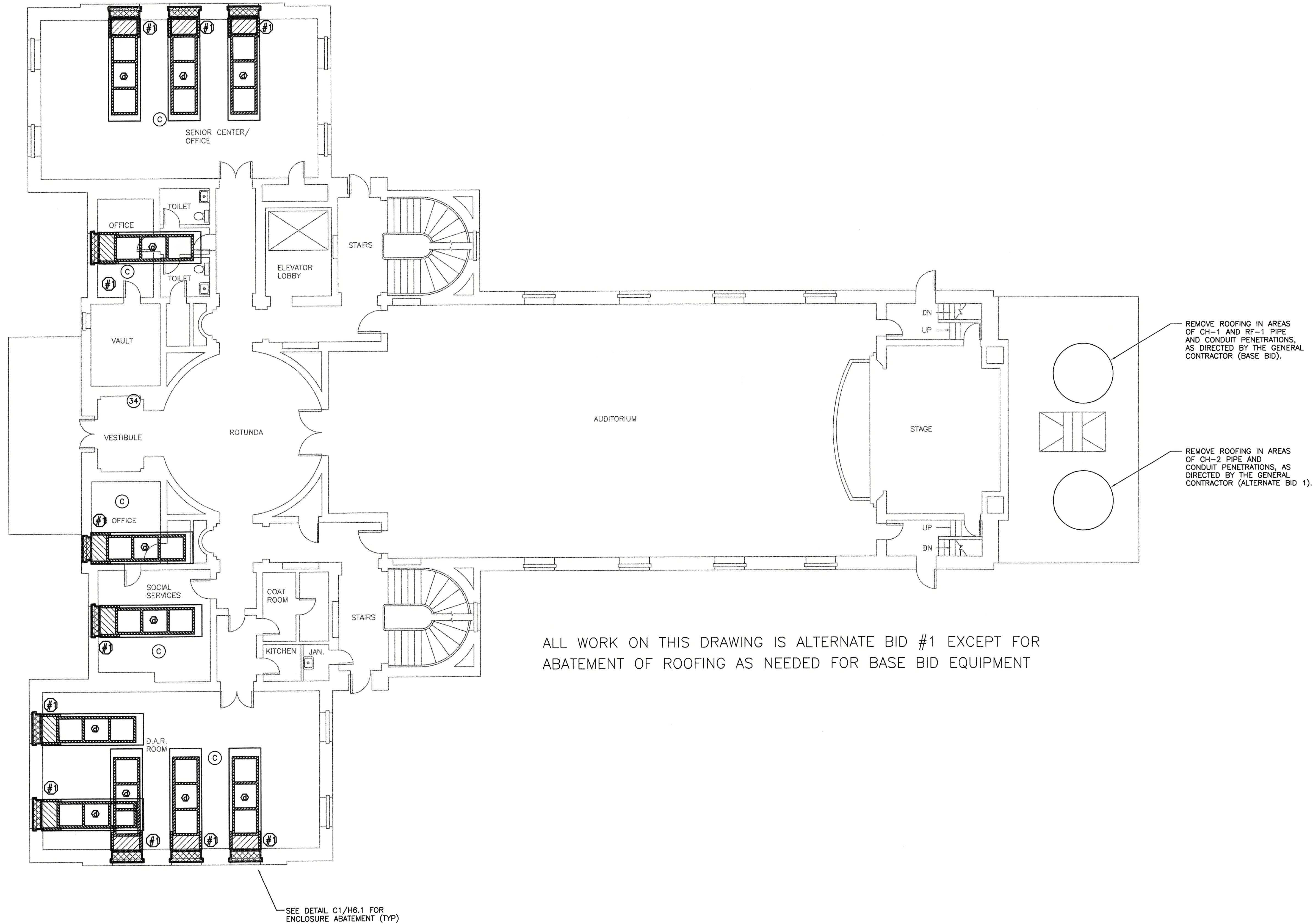
ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

H1.1.1

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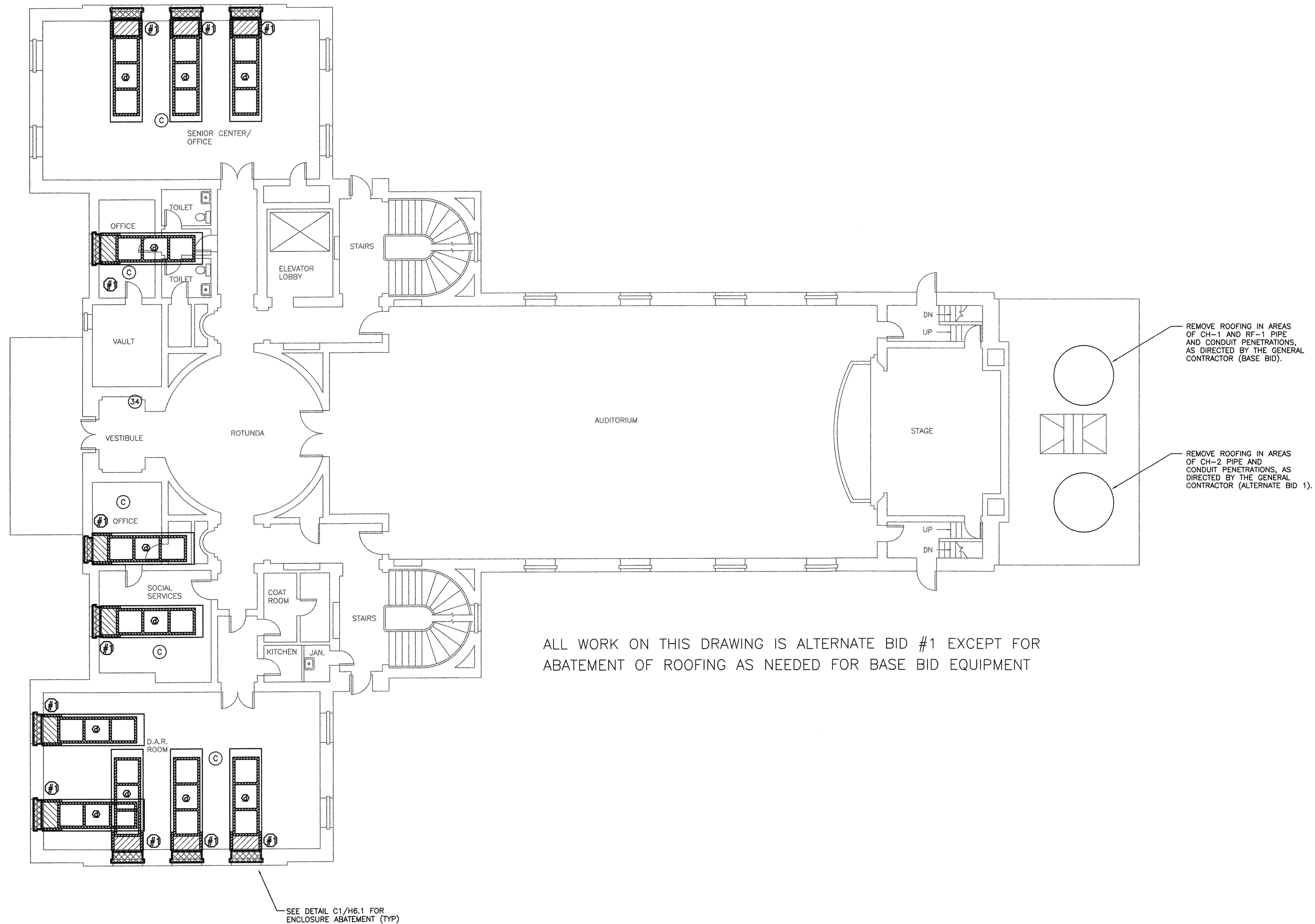
A1 FIRST FLOOR ASBESTOS ABATEMENT

SCALE: 1/8"=1'-0"



ATA Consulting Engineers		APPLIED THERMODYNAMICS ASSOCIATES, INC. 1129 Main Street Coventry, CT 06238 T 860-742-5377 F 860-742-0362 www.ataengrs.com	
ATA FILE NUMBER: 0335		PROJECT: AIR CONDITIONING SYSTEM	
DRAWING TITLE: FIRST FLOOR ASBESTOS ABATEMENT		LOCATION: ENO MEMORIAL HALL 754 WORMEADOW STREET SIMSBURY, CONNECTICUT 06070	
NO.	REVISION	DATE	APPR.
DRAWN BY: RTS			
APPROVED BY:			
ISSUE DATE: 03/24/04			
SCALE: 1/8"=1'-0"			
DRAWING NUMBER: H1.1.2			

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A1 FIRST FLOOR ASBESTOS ABATEMENT

SCALE: 1/8"=1'-0"



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ata Consulting Engineers
ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
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754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
**FIRST FLOOR
ASBESTOS ABATEMENT**

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

APPROVED BY:

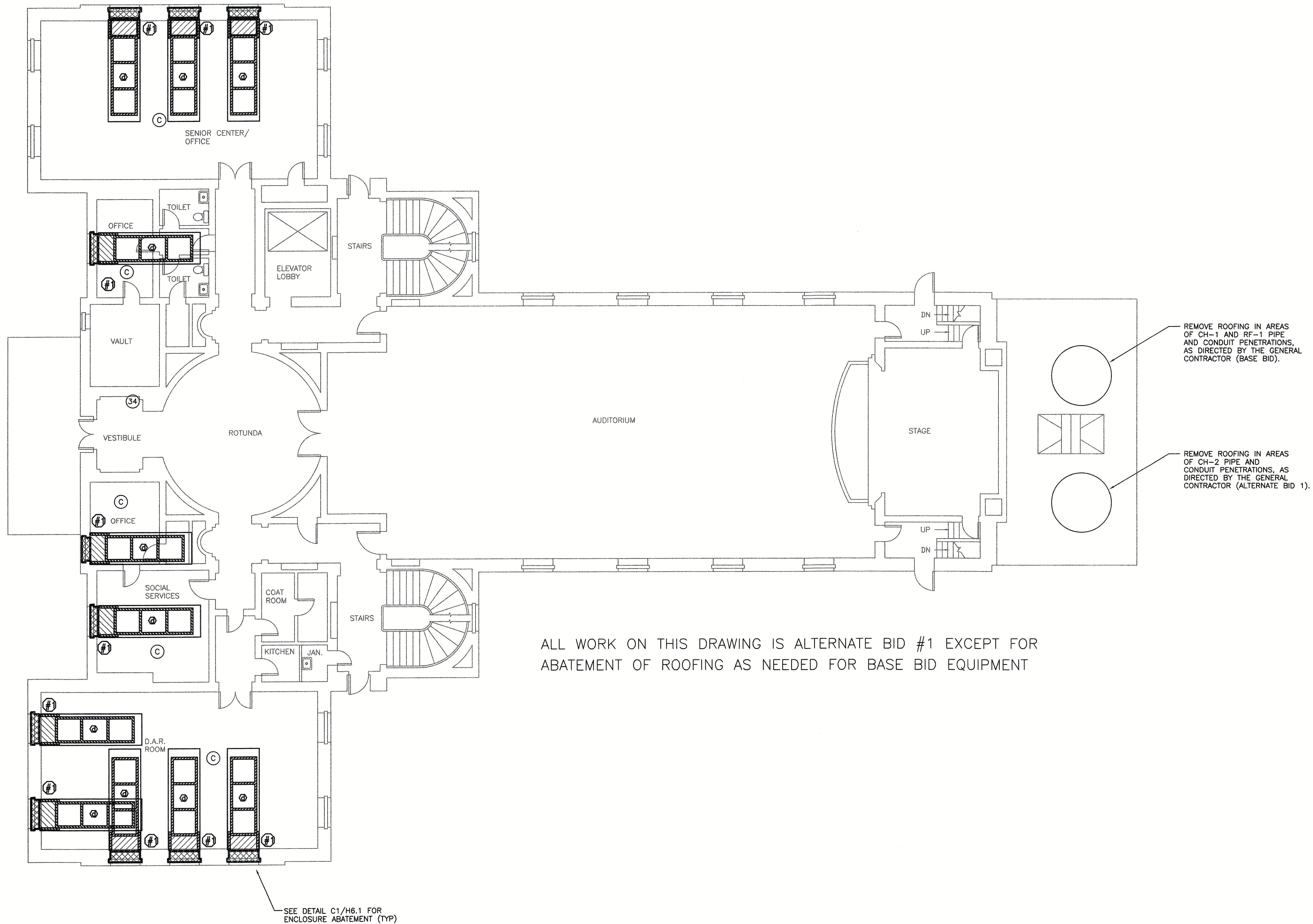
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A1 FIRST FLOOR ASBESTOS ABATEMENT

SCALE: 1/8"=1'-0"



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ata Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 NORWICH STREET
SANDSBURY, CONNECTICUT 06070

DRAWING TITLE:
FIRST FLOOR
ASBESTOS ABATEMENT

NO.	REVISION	DATE	APPR.

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RTS

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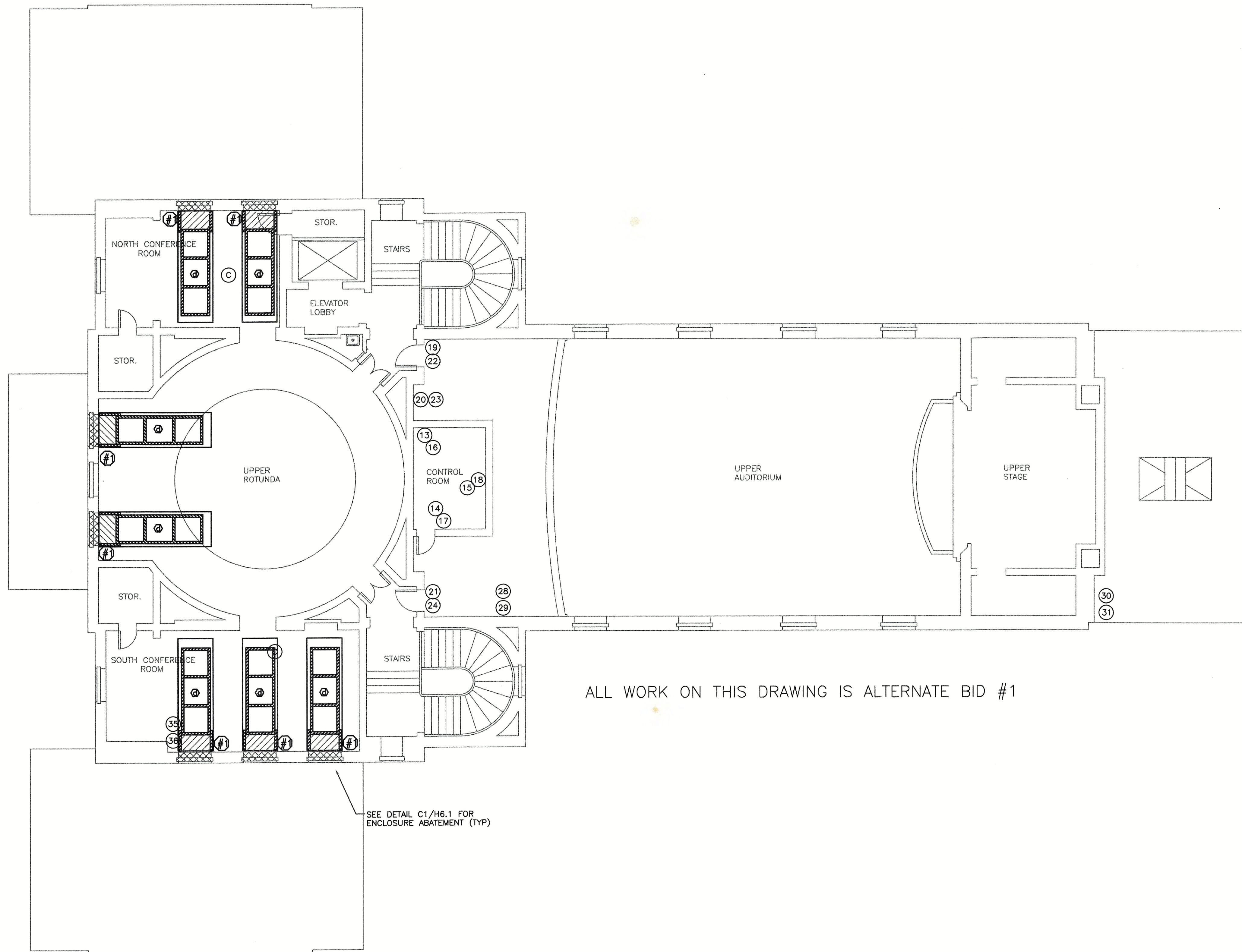
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03/24/04

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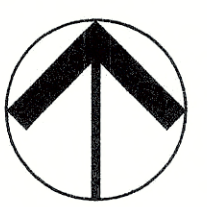
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ALL WORK ON THIS DRAWING IS ALTERNATE BID #1

A1 SECOND FLOOR ASBESTOS ABATEMENT

SCALE: 1/8"=1'-0"



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ATA FILE NUMBER: 0335
PROJECT: **AIR CONDITIONING SYSTEM**
LOCATION: **ENO MEMORIAL HALL**
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
**SECOND FLOOR
ASBESTOS ABATEMENT**

NO.	REVISION	DATE	APPR.

DRAWN BY:
RTS

APPROVED BY:

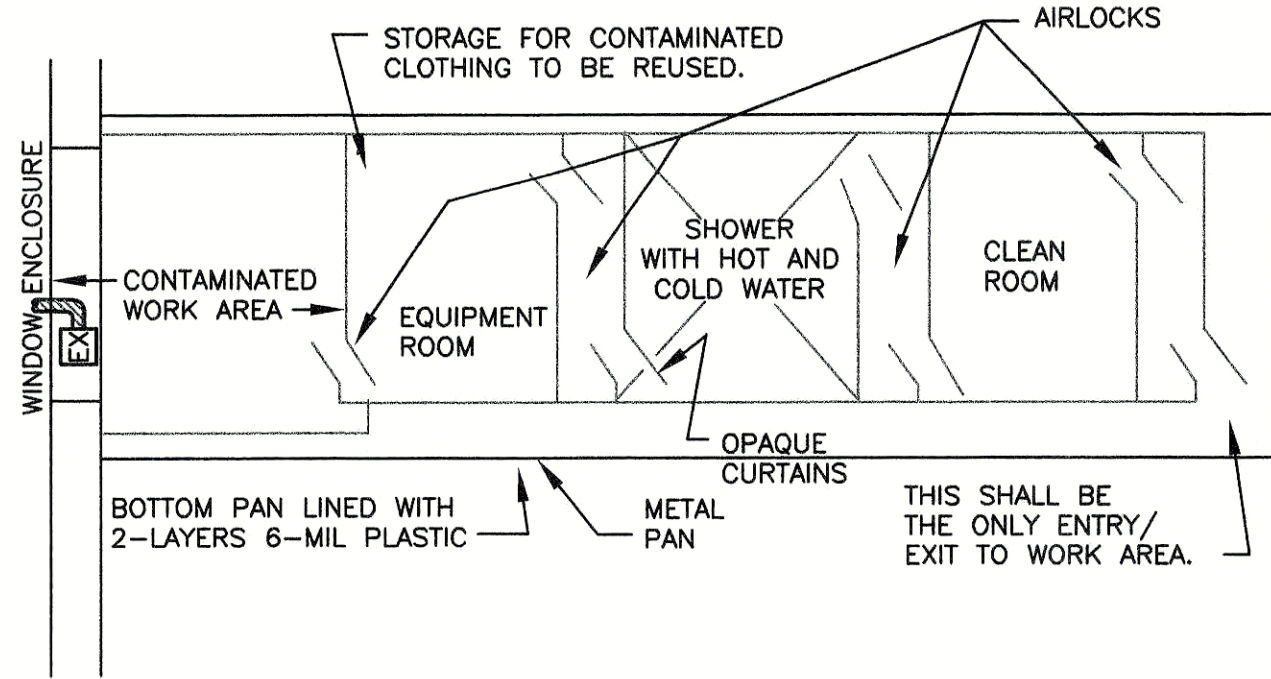
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C4 WORK AREA AND DECONTAMINATION CHAMBER

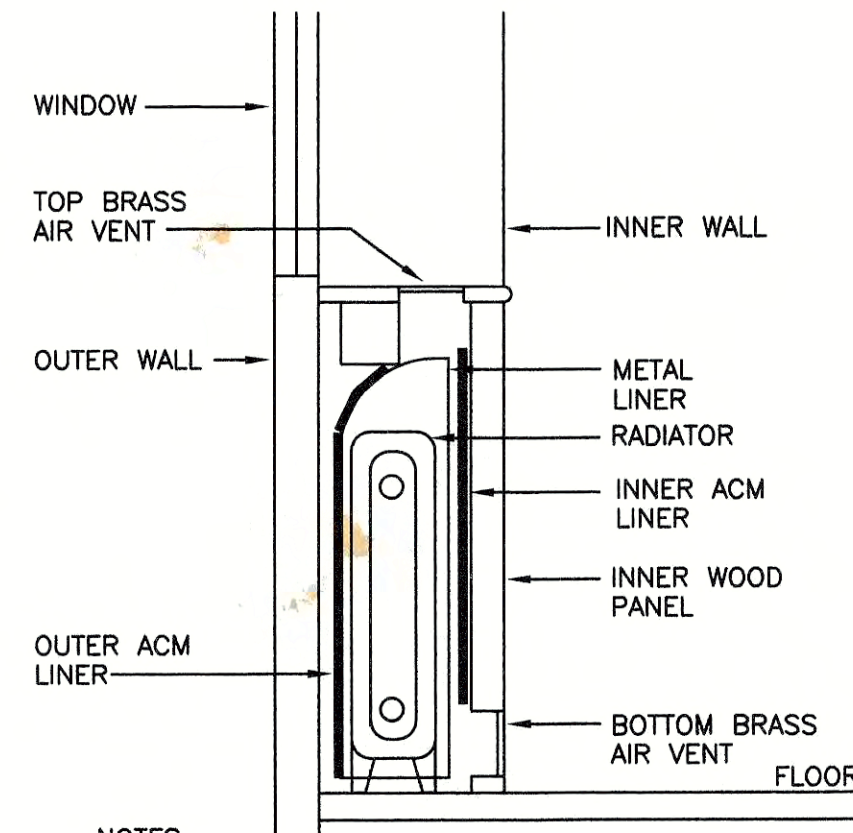
NTS

1. WORKERS SHALL PROCEED NAKED INTO SHOWER STALL STILL WEARING THEIR RESPIRATOR.
2. THIS DRAWING IS SCHEMATIC. THE CONTRACTOR SHALL SUBMIT DETAILED PLANS FOR THE WORK AND DECONTAMINATION CHAMBER TO THE ENGINEER PRIOR TO THE START OF WORK. THE ENCLOSURE SHALL BE ADJUSTABLE, AND SHALL BE CONFIGURED TO EACH SPECIFIC WORK AREA.
3. THE ENTIRE WORK AND DECONTAMINATION ENCLOSURE SHALL HAVE A METAL PAN UNDER IT. PAN SIDES SHALL BE NO LESS THAN 6" HIGH.
4. CRITICAL BARRIERS IN WINDOW LOCATIONS SHALL NOT TOUCH WALL, FLOOR OR CEILING SURFACES. ADHERE PLASTIC BARRIERS TO GLASS AND WOOD TRIM. NO STAPLES ALLOWED.
5. THE WORK AND DECONTAMINATION ENCLOSURE AS SHOWN IS ONE WAY TO ACCOMPLISH THE GOAL OF ABATEMENT WITHOUT TOUCHING HISTORICALLY VALUED WALL, CEILING AND FLOOR SURFACES. IF ALTERNATE MEANS OF CONSTRUCTION ARE DESIRED BY THE ASBESTOS CONTRACTOR, THEY SHOULD BE SUBMITTED TO THE ENGINEER. ALL SUBMITTALS SHALL BE APPROVED IN WRITING PRIOR TO ABATEMENT.

ASBESTOS ABATEMENT SYMBOL TABLE	
SYMBOL	DESCRIPTION
	FIXED BARRIER ATTACHED TO THE DECONTAMINATION CHAMBER TO ENCLOSE THE ABATEMENT WORK AREA.
	DECONTAMINATION UNIT AREA, INCLUDING AIRLOCKS AND SHOWER. (COMPLETE SPECIFICATIONS ARE INCLUDED IN THE PROJECT MANUAL)
	AREA OF ASBESTOS ABATEMENT
	AREA OF ASBESTOS CONTAINMENT
	AIR FILTRATION DEVICE (SEE PROJECT MANUAL FOR APPLICATION GUIDELINES.)
	ROOM WITH ASBESTOS 9" X 9" FLOORING
	WALL TO WALL CARPETING
	RECESSED WALL HEATER ENCLOSURE WORK AREA, EACH TO BE COMPLETED SEPARATELY WITH PORTABLE DECON
	VAT WORK AREA, EACH TO BE DONE SEPARATELY WITH PORTABLE DECON
	ASBESTOS SAMPLE LOCATION. SEE SAMPLE LIST, END OF SPEC 02100.

E3 SYMBOL LEGEND

NTS



NOTES

1. ASBESTOS SHEETS ARE NAILED TO THE FRONT INNER WOOD PANEL, AND TO ALL 3 SIDES OF THE METAL RADIATOR LINER. ASBESTOS MUD IS FOUND IN SEAMS OF THE METAL LINER AND WITHIN THE RECESSED WALL CAVITY WHERE THE RADIATOR IS LOCATED.
2. TO REMOVE THE FRONT PANEL, REMOVE ALL SCREWS FROM THE TOP BRASS AIR VENT. REMOVE THE TOP AIR VENT. TWO OR THREE SCREWS ARE NOW VISIBLE THAT HOLD THE FRONT INNER WOOD PANEL IN PLACE. REMOVE SCREWS, REMOVE FRONT WOOD PANEL.
3. LAY PLASTIC INTO THE ENCLOSURE, TO CATCH ANY WATER THAT WILL DRAIN OUT OF THE RADIATOR. VACUUM UP ALL WATER IMMEDIATELY.
4. COORDINATE WITH FACILITIES ENGINEER TO DRAIN RADIATORS. AFTER THE SYSTEM IS DRAINED, REMOVE THE RADIATOR. IMMEDIATELY MOP UP ALL WATER. DISPOSE OF THE RADIATOR.
5. CAREFULLY REMOVE THE METAL LINER FROM THE WALL ENCLOSURE. REMOVE ALL ASBESTOS FROM THE LINER AND FRONT PANEL. CLEAN THE WALL ENCLOSURE OF ALL ASBESTOS DEBRIS. CLEAN THE ENCLOSURE.
6. RETURN THE METAL LINER TO THE WALL ENCLOSURE. REINSTALL THE WOOD FRONT PANEL AND TOP BRASS AIR VENT.

C1 TYPICAL WINDOW RADIATION ENCLOSURE

NTS

ASBESTOS NOTES

IN GENERAL

1. THIS BUILDING HAS VALUABLE FIXTURES, WALL AND FLOOR COVERINGS. ALL WORKERS SHALL BE INSTRUCTED TO TAKE EXTREME CARE WHEN WORKING IN THE BUILDING.
2. WATER SOURCES ARE LOCATED IN BATHROOMS AND JANITOR CLOSETS THROUGHOUT THE BUILDING. THE CONTRACTOR SHALL PROVIDE ADAPTORS & HOSES AS NECESSARY. ALL HOSES SHALL BE FREE OF LEAKS. LAY PLASTIC UNDER ALL HOSE RUNS. ELECTRICAL POWER IS AVAILABLE FROM POWER PANELS THROUGHOUT THE BUILDING (SHOWN ON PLAN VIEWS). POWER FROM DUPLEX RECEPTACLES IN ROOMS IS AVAILABLE IF GFI PROTECTION IS ADDED.
3. PROVIDE CUSTOM ABATEMENT ENCLOSURES PER C4/H6.1. ABATEMENT ENCLOSURE SHALL NOT USE STAPLES, TAPE OR ADHESIVES TO SEAL ENCLOSURE TO THE BUILDING WALL. PROVIDE AN ENCLOSURE WITH PADDED ENDS AGAINST THE WALL AND PROVIDE A MEANS TO PUSH ENCLOSURE TO OUTER WALL WITHOUT ADHESIVES, STAPLES OR TAPE.
4. EXCEPT FOR DEMOLITION AS NOTED, THE CONTRACTOR SHALL REPAIR ALL DAMAGES TO FACILITY COMPONENTS TO CONDITIONS EQUAL OR BETTER THAN PRIOR TO THE ABATEMENT PROJECT. THE CONTRACTOR SHALL NOTE ANY PREEXISTING DAMAGES BEFORE ERECTING CONTAINMENTS. DAMAGE NOT DOCUMENTED TO BE PREEXISTING SHALL BE ASSUMED TO BE CAUSED BY THE CONTRACTOR AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

ROOFING

1. REMOVE AND DISPOSE OF ROOFING MATERIALS AS ASBESTOS WASTE. REMOVE MATERIAL IN AREAS AS INSTRUCTED BY GENERAL CONTRACTOR TO FACILITATE THE INSTALLATION OF (2) CHILLERS AND (1) GRAVITY VENT.

FLOORING

1. REMOVE VAT AND MASTIC IN AREAS AS MARKED, IN LOCATIONS OF CONDUIT, PIPE AND DUCT PENETRATIONS OF ASBESTOS FLOORING.

THERMAL INSULATION

1. THE ASBESTOS ABATEMENT SUBCONTRACTOR SHALL WORK WITH THE GENERAL CONTRACTOR TO ENSURE THAT THE HEATING SYSTEM IS SHUT DOWN AND COMPLETELY DRAINED PRIOR TO THE START OF ANY HEATER ENCLOSURE ABATEMENT ACTIVITY.
2. ALL ABATEMENTS OF RADIATION UNIT ENCLOSURES IN ALL ROOMS SHALL BE PERFORMED WITH CUSTOM DECONTAMINATION ENCLOSURES WITH METAL BOTTOM PANS, TO AVOID WATER DAMAGE TO ROOMS. FIRST, REMOVE THE FRONT COVER TO THE WALL HEATER ENCLOSURE. PLACE PLASTIC ON THE FLOOR SURFACE AROUND THE PIPING. SECURE PLASTIC COVERINGS SO THAT WATER WILL NOT GET ON FLOORING. SET UP DECONTAMINATION CHAMBERS. ESTABLISH NEGATIVE AIR.
3. REMOVE ALL RADIATION UNITS IN SCHEDULED ABATEMENT AREAS. DISPOSE OF SELECTED RADIATION UNITS & PIPING.
4. CAREFULLY REMOVE ENCLOSURES AT REAR & SIDES OF RADIATION ALCOVE. DO NOT DAMAGE METAL PARTS OF ENCLOSURE. REMOVE ALL ASBESTOS LININGS FROM WITHIN

D1 NOTES

NTS

ASBESTOS SAMPLES - ENO MEMORIAL			
Sample #	Date	Description	% ACM
13	7/23/03	ENO Memorial Auditorium, projection booth, surface plaster	0
14	7/23/03	ENO Memorial Auditorium, projection booth, surface plaster	0
15	7/23/03	ENO Memorial Auditorium, projection booth, surface plaster	0
16	7/23/03	ENO Memorial Auditorium, projection booth, base plaster	0
17	7/23/03	ENO Memorial Auditorium, projection booth, base plaster	0
18	7/23/03	ENO Memorial Auditorium, projection booth, base plaster	0
19	7/23/03	ENO Memorial Auditorium, auditorium, ceiling base plaster	0
20	7/23/03	ENO Memorial Auditorium, auditorium, ceiling base plaster	0
21	7/23/03	ENO Memorial Auditorium, auditorium, ceiling base plaster	0
22	7/23/03	ENO Memorial Auditorium, auditorium, ceiling surface plaster	0
23	7/23/03	ENO Memorial Auditorium, auditorium, ceiling surface plaster	0
24	7/23/03	ENO Memorial Auditorium, auditorium, ceiling surface plaster	0
25	12/29/03	Finish coat plaster ceiling, basement elec. room office	0
26	12/29/03	Base coat plaster ceiling, basement elec. room office	<1%
27	12/29/03	Finish coat plaster ceiling, basement women's lav. entry area	0
28	01/20/04	Wall plaster, finish coat, Auditorium	0
29	01/20/04	Wall plaster, base coat, Auditorium	<1%
30	01/20/04	Roof flashing sealant, soft gray, boiler room roof	0
31	01/20/04	Roof flashing sealant, hard black, boiler room roof	5%
32	01/20/04	Fibrous white cement, heater enclosure metal seams, basement	70%
33	01/20/04	Fibrous white insulation board, basement heater enclosure	65%
34	01/20/04	Plaster around heater enclosure, front entry	0
35	01/20/04	Confirming sample (Not Analyzed)	0
36	01/20/04	Confirming sample (Not Analyzed)	0
37	01/20/04	Base coat wall plaster, basement maintenance office	<1%
38	01/20/04	Finish coat wall plaster, basement maintenance office	<1%
39	01/20/04	Finish coat wall plaster, basement women's anteroom	<1%
40	01/20/04	Base coat wall plaster, basement women's anteroom	<1%

SAMPLES 31,32,AND 33 CONTAIN ASBESTOS

B1 ASBESTOS SAMPLE RESULTS

NTS

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ata
Consulting
Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:
ASBESTOS ABATEMENT
DETAILS

REVISION	DATE	APPR.
NO.		

DRAWN BY:
RTS

APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
AS NOTED

DRAWING NUMBER

H6.1

Eno Memorial Hall HVAC Renovation Report

Town of Simsbury
September 21, 2022



Prepared By
Consulting Engineering Services, Inc.
811 Middle Street, Middletown, CT 06457
CES Project No. 2022279.00

EXECUTIVE SUMMARY

Consulting Engineering Services Inc. (CES), has been directed to provide The Town of Simsbury engineering guidance to recommend what heating ventilation and air conditioning (HVAC) upgrades should be made to the existing Eno Memorial \Hall in Simsbury CT. In order for the town to move towards a sustainable community a low carbon solution is to be investigated and compared with a current high performing energy solution. With this in mind geothermal is to be investigated against a gas fired heating and air-cooled chiller option.

When sizing an adequate geothermal system it was found that the heating and cooling annual loads are not similar resulting in a requirement for a secondary source of heating to properly balance the geothermal well field.

For the purposes of this report two options have been investigated.

1. Option 1 - Geothermal providing 100% of the cooling load with high efficiency gas fired boilers providing supplemental heating. Two pipe fan coil units providing space heating and cooling throughout.
2. Option 2 - High efficiency air cooled chiller and high efficiency gas fired condensing boilers. Two pipe fan coil units providing space heating and cooling throughout.

The estimated construction costs for the options are approximately

Option 1: \$3,524,365

Option 2: \$2,719,831

The estimated 25 year net present cost for

Option 1: \$3,529,682

Option 2: \$2,719,831

The simple payback is 44 years.

Option 1 gives a first year annual operational cost saving of \$18,610 over option 2.

It should be noted that no government subsidy (in the form of rebated and grants) has been included in this report that maybe offered as part of option 1 - Geothermal.

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A. BACKGROUND AND INTRODUCTION:

The Eno Memorial Hall was constructed in 1932 and served as a town hall with a performance space. The building is approximately 27,000 sq.ft with a basement and two above grade floors. Adjacent to the property is a parking lot that is projected to be resurfaced in the coming years. The building is a heavy weight structure with concrete foundation of floors with masonry veneer wall with masonry back-up. The roof construction is steel with a wood framed cupola. The existing windows are single pane wood framed and are low thermal performance. Due to the age and construction of the building the building is drafty which results in a high level of unwanted infiltration.

When originally constructed the building was provided with a central heating system. Cooling was not provided. Over the years a patchwork of cooling systems have been provided to different areas of the building. The result is a building that offers varying levels of thermal comfort provided by aging equipment that are of low efficiencies.

The Town of Simsbury employed CES to provide a feasibility report to provide a new HVAC system for the building. The new HVAC systems aim to:

1. Improve thermal comfort during all times of the year.
2. Provide HVAC equipment that has high efficiencies to provide a lower operational cost for the building.
3. Lower the carbon emissions of the building and therefor the town of Simsbury.

With the above goals in mind this report shall investigate the feasibility to provide a geothermal system to provide a low carbon, high efficient sustainable solution.

B. EXISTING HVAC EQUIPMENT:

To better provide background to this project the following describes the condition of the existing mechanical electrical and systems that serve the Eno memorial hall. Plumbing and Fire protection are not included as this project doesn't pertain to these trades. Electrical has been included for information to aid the design and selection of the mechanical equipment.

MECHANICAL

Heating Systems:

There building is served by three (3) cast iron sectional steam boilers as manufactured by Burnham. These boilers are fitted with natural gas fired burned as manufactured by PowerFlame. Each boiler is rated for a net capacity of 703 MBH. The boilers were installed in 1998 and are in fair condition approaching the end of their useful life.

The building heating supply consists of low pressure steam LPS and condensate. The steam system also consists of a condensate receiver and feed water pumps. This equipment appears to have been installed in 1998 however there was no visible indication of when the equipment was installed.

Piping:

The steam and condensate piping within the building is steel. The exact age of the piping is not known but could be original to the building. A majority of the piping is run in pipe tunnels that surround the perimeter of the building making for easy access to the piping and steam traps. This piping is considered beyond its useful life and should be considered for replacement.

The chilled water piping within the building is steel. This piping was installed in 2004 with the installation of the chillers and is considered to be in fair condition.

Terminal Units:

The building is heated through the use of primarily steam radiators. AHU-1 does provide supplemental heat to the assembly hall. These units are original to their respective vintage of construction. The steam radiators are beyond their useful life and should be considered for replacement.

Ventilation Systems:

The majority of the building is ventilated by the use of operable windows and exhaust fans. The Auditorium is ventilated by the use of AHU-1 which ventilates the space through a series of ductwork. There is an abandoned exhaust fan in the attic that was originally responsible for ventilating portions of the building.

Cooling Systems:

Air conditioning is installed in various locations throughout the building. The Auditorium is provided with air conditioning through AHU-1 which is served by a dedicated chiller. The chiller is manufactured by Trane, rated for 40 tons, and was installed in 2004. The chiller appears to be in fair condition, however is approaching the end of its useful life. Life span of a chiller is generally considered about 20 years. AHU-1 was also installed in 2004 and is manufactured by Trane.

There are various split-ductless units installed throughout the building to provide localized air conditioning of offices and other spaces. These consist of wall mounted indoor units with condensing units located outside and refrigerant piping between. A majority of the units are manufactured by Fujitsu, while the remaining ones are manufactured by LG. The units are generally in good to fair condition with varying ages of units.

Ductwork:

There is some abandoned ductwork that is original to the building. The remaining ductwork was installed in 2004 as part of the Auditorium air conditioning project and is in good condition.

Controls:

The building is equipped with a Building Management System (BMS). This system was installed by ESC controls. This system controls only a few items within the facility. The majority of the facility is on standalone controls.

ELECTRICAL

Main Electric Service:

The main electric service originates from utility company pole #3646 located at the northeast corner of the property. The pole supports a pole mounted transformer array rated to supply 150 kVA. The secondary service runs underground from the riser pole to a fusible disconnect switch installed in cold sequence with a 320 class self contained utility meter mounted on the building exterior. The service then extends to distribution equipment located in the basement mechanical room of the building.

The electric service to the building is provided at 480Y/277 volts, 3 phase 4 wire and is rated for 400 amperes. This service equipment is in good condition and should provide approximately 30 years of service life.

Electrical Distribution:

Distribution equipment located in the basement mechanical room consists of a 400 ampere automatic transfer switch (ATS) installed to carry the full building load and a Square D Type HCP circuit breaker type distribution panel, 480Y/277 volt, 3 phase, 4 wire, 400 ampere.

The ATS and generator were installed by Tower Generator, Inc in 2019 at the town's request to provide standby power to the entire building. The standby generator is located on the roof of the mechanical/boiler room and is accessible only by portable ladder. The generator is a Cummins C100 N6 rated for 100 kW / 125 kVA 480Y/277 volt, 150 ampere output. The unit is fed with a dedicated natural gas supply, meter and regulator. The ATS is an Asco 300 series located in the mechanical/electrical room. The utility company is connected to Source #1; the standby generator provides the alternate Source #2. The transfer switch output feeds into the main distribution panel, Square D Type HCP.

The 480 volt electrical distribution consists of conduit and feeders from the main distribution panel to mechanical equipment and (2) step down transformers; (1) 45 kVA feeding a water heater and (1) 150 kVA feeding a 400 ampere 208Y/120 volt distribution panel. The 480 volt distribution and transformers were installed in 2006 and are in good serviceable condition with 30 years of service life. The 208Y/120 volt distribution equipment appears to date back to a 1980's vintage Square D Type HCN circuit breaker distribution panel feeding branch circuit panels located throughout the building that are Square D QO load centers. The load centers appear to be a 1960's vintage. The building received an electric service upgrade in 2006 with the upgrade backfeeding the former generation of service equipment installed as part of a 1980's installation. The equipment installed in 2006 and 2019 has many years of useful life, the 1980's equipment with proper maintenance will provide 15 years of useful life; the oldest vintage of load centers and matching feeder/branch circuit wiring should be considered past useful life.

C. PROPOSED HVAC SOLUTIONS:

Two HVAC solutions are to be investigated and compared.

Option 1 – Geothermal

Central Plant - Cooling:

The goal is to provide a geothermal solution that provides 100% of the building cooling and heating loads. However, such a system is only feasible when both the heating and cooling

loads have similar profiles. Due to the existing conditions of the building, it has been found that the heating load is much greater than the cooling load. As the building is a historical building it is assumed that no changes can be made to the external facade of the building.

Therefore, the geothermal system can only provide 100% of the cooling load but not 100% of the heating load.

Central Plant - Heating:

For the remainder of this report the geothermal system shall be sized for 90% of the heating load with supplemental heating provided by high efficiency gas fired condensing boilers. As the peak 10% of the load occurs during such a small time of the year it is assumed that a geothermal system sized at 90% will provide the most cost-effective solution. The gas fired condensing boilers shall be provided for 100% of the load to offer redundancy in the unlikely event that the geothermal system fails.

Option 2 – Gas Fire Boilers with Air Cooled Chiller

Option B consists of renovating the existing HVAC systems.

Central Plant - Cooling:

The existing air handling units, window and split air conditioning systems are to be removed and replaced by a central cooling system. A new air cooled chiller is to be provided with associated circulating pumps to provide chilled water distribution throughout the building.

Central Plant - Heating:

The existing gas fired boilers are to be replaced by high efficiency gas fired condensing boilers. New distribution pumps and distribution piping will provide heating hot water through the building.

Option 1 & 2 Terminal Units:

Both option A and option B will utilize the same terminal unit arrangement.

Heating and Cooling Terminal Unit:

A four pipe distribution system shall be provided throughout the building (two pipes heating two pipes cooling). Valving and controls shall be provided to each terminal unit to modulate the temperature at each unit and also to switch between heating and cooling modes. This system will allow simultaneous heating and cooling.

Existing cast iron column radiators are to be removed and the space utilized by two pipe terminal fan coil units.

These units will be able to provide both heating and cooling to each space in the building and will be zoned to provide individual room temperature control. Two pipe terminal units are preferred over four pipe to reuse existing piping routes. The majority of the piping shall be routed in the pipe tunnels around the perimeter of the building to minimize disruption and renovation work.

HVAC Narrative:

For further details of the proposed HVAC options please refer to Appendix A at the end of this report.

D. COST SUMMARY:

A cost estimation exercise has been carried out to provide an estimated construction cost for option 1 and option 1. For further details of the proposed HVAC options please refer to Appendix D at the end of this report. A summary of the costs can be found in table A below:

Table 1: Option 1 & 2 Cost Summary

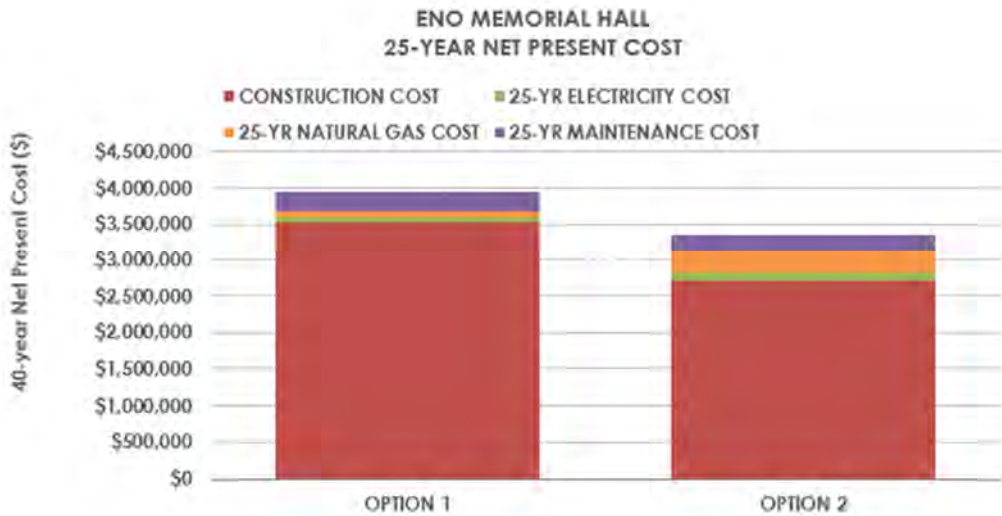
	Option 1	Option 2
Geothermal Well Field	\$ 516,312.22	\$ -
Mechanical	\$ 1,556,589.35	\$ 1,432,647.30
Electrical	\$ 199,643.66	\$ 186,143.66
Non Mech/Elec	\$ 1,257,137.49	\$ 1,101,040.65
Total	\$ 3,529,682.72	\$ 2,719,831.61

E. LIFE CYCLE COST ASSESSMENT:

The two options above have been compared and a life cycle cost analysis has been carried out.

	OPTION 1 GEOTHERMAL	OPTION 2 HYBRID
CONSTRUCTION COST	\$3,529,682	\$2,719,832
25-YR ELECTRICITY COST	\$57,888	\$98,409
25-YR NATURAL GAS COST	\$88,747	\$308,684
25-YR MAINTENANCE COST	\$258,331	\$229,951
25-YR NT PRESENT COST TOTAL	\$3,934,647	\$3,356,876
	-	\$577,772
CONSTRUCTION COST	\$3,529,682	\$2,719,832
25-YR NET ENERGY COST	\$0	\$260,459
25-YR NET MAINTENANCE COST	\$28,380	\$0
25-YR NET PRESENT COST	\$3,558,062	\$2,980,290
25-YR NET PRESENT COST DIFFERENCE	-	\$577,772
PERCENT DIFFERENCE FROM BASE	-	16.2%
YEAR 1 OPERATION COST SAVINGS	-	-\$18,601
PREMIUM CONSTRUCTION COST	-	-\$809,850
SIMPLE PAYBACK PERIOD	-	44 Years

Chart 1 below shows the comparison between 25 Net Present Cost.



F. CONCLUSIONS:

The conclusion of this report is as follows

1. Cost analysis
 - a. Option 1 – has as estimated construction cost of \$3,529,682
 - b. Option 2 – has as estimated construction cost of \$2,719,831
 - c. Option 1 is \$809,851 more expensive than option 2
 - d. The higher construction costs for option 1 is due to the cost of providing the bore hole installation.
2. Annual Operating Costs
 - a. Option 1 – has an first year annual operating cost of approximately \$29,320.
 - b. Option 2 – has an first year annual operating cost of approximately \$47,920.
 - c. Option 1 is \$18,601 cheaper for total 1 year annual cost.
3. The simple payback for geothermal over the HVAC renovation option is 44 years.
4. The data above shows that, as expected the geothermal option gives the lowest operating costs but at a higher installation cost.
5. It should be noted that the geothermal wells have a longer life span than the other HVAC equipment as will serve the building for 50+ years. Given the building is an historical building this system will be a good long term option that will not only save on the annual operational expenditure will also offer carbon saving over option 2.

APPENDIX A – HVAC NARRATIVE

Mechanical Systems
Conceptual Design Narrative

BOE Building & Grounds
Simsbury

Eno Memorial Hall
Renovation
Simsbury CT

September 12, 2022

Prepared by:
Consulting Engineering Services, Inc.
811 Middle Street, Middletown, Connecticut, 06457
CES PN 0000000.00

DIVISION 23 – MECHANICAL SYSTEMS

General

1. Please note that this mechanical system narrative is written to yield **two** separate system designs/prices. For each sub section where ____ is noted, the reader shall refer to the table at the end of the sub section for option specific details
 - a. Option 1 - Provide new geothermal system serving 90% of the heating demand with boilers trimming to 100%.
 - b. Option 2 - Renovation of existing systems.
2. Options specific table is shown below

	Option 1	Option 2
Vertical Ground Source Heat Exchange	90% of load	None
Heating Plant	WSHP with simultaneous heating and cooling with supplemental gas fired boilers	New Gas fired boilers
Cooling Plant		New air cooled chiller
HVAC	New AHU-1 & AHU-4	New AHU-1 & AHU-4
Terminal Units	Fan Coil Unit	Four Pipe Fan Coil Units

General Conditions

1. The mechanical systems are based on heating and cooling the building while meeting the objective for energy efficiency. Heating design shall be 70°F and cooling design shall be 75°F.
 - a. ASHRAE Fundamentals summer outdoor air design conditions (87.6DB, 71.6WB).
 - b. ASHRAE Fundamentals winter outdoor air design conditions (8.5DB).

Materials and Methods

1. Include the following basic materials and methods of construction:
 - a. All ductwork and accessories shall meet SMACNA standards. After installation of duct is complete third party shall clean all ductwork.
 - b. Provide all HVAC equipment with extra set of filters.
 - c. Seismic restraints shall be designed and installed as required per State of Massachusetts Building Code and Fire Safety Code which requires the seal of a licensed professional engineer.

Abovementioned professional engineer will be required to verify installation is correct and complete per seismic code. This includes piping, ductwork, equipment, and equipment bases.

- d. Design isolators for equipment installed outdoors to provide adequate restraint to withstand the force of a 100 mph wind applied to any exposed surface of the isolated equipment. Isolators for outdoor equipment shall have bolt holes for attachment to equipment and to supports. The vibration isolation Vendor shall submit verifying shear and over turning calculations, for their product and equipment installation arrangement, stamped by a licensed Professional Engineer. Provide glass fiber insulation for all hydronic piping and ductwork. Insulation shall be installed to meet the Energy Conservation Code.
- e. Provide glass fiber insulation for all hydronic piping and ductwork. Insulation shall be installed to meet the Energy Code. Jacketing shall be provided for piping exterior to the building.
- f. Provide elastomeric pipe insulation for all refrigerant piping. Insulation shall be installed to meet the Energy Code. Jacketing shall be provided for piping exterior to the building.
- g. Provide firestopping around mechanical penetrations in accordance with fire stopping requirements. System shall be capable of maintaining against flame and gases. System shall be UL listed and comply with ASTM E814.
- h. Provide mechanical identification for mechanical systems. Identification shall comply with ANSI A13.1.
- i. All pipe connections shall be installed to allow for freedom of movement of the piping during expansion and contraction without springing. Swing joints, expansion loops and expansion joints with proper anchors and guides shall be provided where shown.
- j. Provide vibration isolation for hydronic piping, ductwork, and equipment.
- k. Hydronic piping 2-1/2"Ø and under shall be Type L copper. Piping 3" and over shall be ASTM A 53; Schedule 10 black steel pipe with welded, flanged or grooved joints.
- l. Hydronic piping below grade shall be Schedule 40 steel with welded fittings and polyethylene jacketing.
- m. All equipment served by hydronic piping shall have isolation valves on the supply and return lines. Isolation valves shall also be provided at branch take-offs.
- n. Provide 30% propylene glycol solution in the chiller and hot water heating systems.
- o. All motors (fan and pump) 3 HP and larger shall be high efficiency and provided with VFD. VFDs shall be by ABB or approved equal.

Code Compliance

- c. All systems will be designed to code compliance for percentage of outside (fresh) air and will meet the requirements in ASHRAE 90.1, International Mechanical Code, International Energy Code as well as ASHRAE 62.1.
- d. All systems will be designed to code compliance and will meet or exceed requirements stated in:

- i. ASHRAE 90.1,
- ii. International Mechanical Code,
- iii. International Energy Code
- iv. ASHRAE 62.

HVAC Controls

1. A Building Management System (BMS) shall be installed to control the mechanical and selected electrical systems. BMS shall be by the Temperature Control vendor approved by the owner.
 - a. The system shall include a personal computer with graphics based display and capabilities for alarming off-site.
 - b. The BMS shall provide temperature control for all HVAC system.
 - c. The system shall be programmed for occupied/unoccupied cycles for the air handling equipment, with an override feature for spaces that would be utilized after-hours.
 - d. The system shall monitor occupancy sensing devices to control the amount of outside air being brought in to each classroom to assist in energy conservation.
 - e. The BMS shall be accessible from any Web browser and mobile device with proper authorization.
2. Option variances
 - a. The HVAC systems as described above are common for both options.

Geothermal System - Vertical Ground Source Heat

1. Building heating and cooling load provided by vertical ground source heat exchange system (geothermal) and will serve 100% of the building cooling load and 90% of the heating load. Process water is piped to a water sourced heat pump (WSHP) located in the basement mechanical room. From there heating and cooling water is routed primarily through accessible pipe tunnels that surround the perimeter of the building. Heating and chilled water shall serve two pipe floor mounted concealed vertical fan coil units (FCU) located in areas previously occupied by steam cast iron column radiator. Piping shall be routed along routes previous used by steam piping. The majority of the control valves shall be located in accessible locations in the perimeter tunnel. Where possible FCU's serving similar areas shall be grouped to a common control valve.
2. The proposed geothermal bore field is to be located below the existing parking lot at the rear of the building. Piping is to be installed in coordination with the resurfacing of said lot. __ vertical closed loop u-tube bores that are each 500ft deep, 6" diameter, bentonite filled, 1-1/4" HDPE supply and return tubing, including spacer clips, and the bores to be separated from each other by not less than 20ft; five (5) 3" horizontal header circuits to vault located outside the building. All buried HDPE piping will include tracer wire for easy future locating needs. 4" HDPE buried piping shall be installed from the single header vault located on site (location to be determined) and routed to the mechanical room.
3. A test bore will be installed and a thermal conductivity test performed to determine the thermal characteristics of the earth. Once these characteristics are determined, the quantity of bores required to support the building can be further refined.
4. The ground loop water pumping plants will consist of four (4) pumps separated by a __ gal buffer tank with two (2) __ GPM, __ HP geothermal ground loop water pumps on the field side and two (2) __ GPM, __ HP system pumps on the other. The pumps will be for the circulation of water through the bore field and back through the source side of the water cooled heat exchange equipment. Each pump will be sized for the full system load (N+1) to provide for complete redundancy. The pumps will be vertical inline type by Armstrong (or equal and approved) and shall be mounted on 4" thick concrete housekeeping pads located in the mechanical room. System side shall be piped to WSHP. Each pump shall be provided and controlled by a dedicated VFD
5. The system side shall be piped to the indoor WSHP heat exchange equipment serving vertical concealed fan coil units (FCU's) and air handling units (AHU's)
6. Option Variances – The following shows the variance for both options.

	Option 1	Option 2
# of Bores	20	N/A
Field & System Water Pumps	124 GPM 120 TDH 7.5 HP	N/A
Buffer tank capacity	250 Gallon	N/A

Combined Heating & Cooling Plant (WSHP)

1. The cooling and heating plant will be sized for ____% cooling load and consist of a water to water heat recovery modular chiller that provides simultaneous heating and cooling similar to Water Furnace TruClimate 500 __Ton or approved equal and approved. The heat recovery chiller source/sink side shall be piped to the ground loop pumping plant.
2. The heat recovery chiller shall be sized to provide ____% load. The heating hot water and chilled water will generally consist of one pair of pumps for each system with a total of four (4) pumps. Each of pump shall be sized for 100% capacity, for complete redundancy. The pumping will be a variable primary arrangement for the heat recovery chiller and will supply hot water at 120°F and chilled water at 44°F water to the building heating and chilled water loops for space heating systems and terminal heating units (vertical concealed fan coil units, air handling units) throughout the building. The space heating hot water and cooling chilled supply piping temperatures shall be reset inversely with outside air temperature, to minimize energy consumption. Each pump will be sized for the full system load (N+1) to provide for complete redundancy. The pumps will be vertical inline type controlled by VFD's and shall be mounted on 4" thick concrete housekeeping pads located in the mechanical room. The chilled water pumps shall be (2) 99 GPM, 5.0 HP and the heating pumps shall be (2) 74 GPM 5.0 HP as manufactured by Armstrong or equal and approved.
3. Option Variances – The following table shows the variance for both options.

	Option 1	Option 2
% Cooling Load	90%	N/A
WSHP Capacity	40 Ton	

Heating Plant

1. The heating plant will consist of ___ natural gas fired boilers, Lochinvar Crest or approved equal. Each boiler shall be rated for ___ BTU/hr input. The boilers will be mounted on 4" thick reinforced concrete housekeeping pads.
2. The heating hot water pumping plant will generally consist of one pair of pumps. Each pump will be sized for 100% capacity, for complete redundancy.

- a. Option 1

The pumping will be a side steam injection arrangement and will circulate 120°F hot water to main hot water pipes associated with the WSHP. This system is intended to provide supplemental heating capacity during peak periods of demand. Hot water pumps shall be vertical inline type, ___ HP by Armstrong or approved equal. Pumps will be mounted on 4" thick concrete housekeeping pads in the Mechanical Room.

- b. Option 2

The pumping will be a variable primary arrangement and will circulate 140°F hot water throughout the facility. Hot water pumps shall be vertical inline type, ___ HP by Armstrong or approved equal. Pumps will be mounted on 4" thick concrete housekeeping pads in the Mechanical Room.

4. Option Variances – The following table shows the variance for both options.

	Option 1	Option 2
# of Boilers	2	3
Boiler Rating (each)	485 MBH	485 MBH
Hot Water Primary Pumps	49 GPM 20 TDH 0.5 HP	49 GPM 20 TDH 0.5 HP

Chiller Plant

1. The chiller plant for will generally consist of (1) site mounted air-cooled chillers, Trane Ascend ACR or approve equal, 10 tons each. Each chilled shall be a rotary screw compressor style. The chiller will be mounted on an exterior concrete pad. Chiller shall have sound enclosure surrounding it on all sides, consult chiller manufacturer on exact size and thickness of enclosure to provide acceptable sound levels in residential neighborhood.
2. The chilled water pumping plant will generally consist of one pair of pumps. Each pump will be sized for 100% capacity, for complete redundancy.

- a. Option 1

The pumping will be a side steam injection arrangement and will circulate 44°F chilled water to main chilled water pipes associated with the WSHP. This system is intended to provide supplemental cooling capacity during peak periods of demand. Chilled water pumps shall be vertical inline type, ___ HP by Armstrong or approved equal. Pumps will be mounted on 4” thick concrete housekeeping pads in the Mechanical Room.

- b. Option 2

The pumping will be a variable primary arrangement and will circulate 42°F chilled water to the air handling units throughout the facility. Chilled water pumps shall be vertical inline type, ___ HP by Armstrong or approved equal. Pumps will be mounted on 4” thick concrete housekeeping pads in the Mechanical Room.

3. Option Variances – The following table shows the variance for both options.

	Option 1	Option 2
# of Chillers	1	1
Chiller Capacity	10 Ton	65 Ton
Primary Chilled Water Pumps	18 GPM 40 TDH 1.0 HP	106 GPM 40 TDH 5.0 HP
Secondary Chilled Water Pumps	N/A	99 GPM 60 TDH 5.0 HP

Terminal Units – Fan Coil Units (FCU)

1. All spaces will be provided with floor mounted vertical concealed fan coil units type FCVC as manufactured by Price or equal and approved.
2. In general, a fan coil unit will be provided in all locations where a radiator is currently installed to ensure cold drafts are minimized and areas of high heat gain are treated at source.
3. Fan coil units serving a single room shall be provided with a common mixing valve on the supply and return to blend the hot and chilled water to meet space demand. The auditorium shall be zoned with the fan coil units ganged on either side of the auditorium.
4. Each fan coil unit shall be manufactured with a 20 GA galvanized steel casing, with removable fan and motor. The fan shall be a DWDI type and be provided with 3-speed fan relay board, stainless steel drain pan with external insulation and drain pan safety overflow connection. Each fan coil unit shall be provided with condensate overflow shut off and alarmed to central BAS system.
5. Option Variances – The following table shows the variance both options.

	Option 1	Option 2
Terminal Unit Type	FCU x 63	FCU x 63

Heating, Ventilating and Air Conditioning (HVAC)

1. The following describes the anticipated new HVAC systems for specific areas.
 - a. AHU-1 Auditorium
 - i. The Auditorium shall be served by a chilled water cooling, hot water heating single zone variable air volume, indoor air handler with heating and cooling coil (125 MBH / 8 Tons) with economizer. This unit will have a 6,000 cfm supply fan. The Air handler shall be AAON RN Series or approved equal. The unit will also incorporate demand control ventilation which will modulate the amount of outside air to the space based on occupancy and CO₂.
 - b. AHU-4 – Exercise Room
 - i. The Exercise room shall be served by a chilled water cooling, hot water heating single zone variable air volume, indoor air handler with heating and cooling coil (47 MBH / 3 Tons) and economizer. This unit will have a 400 cfm supply fan. The Air handler shall be AAON RN Series or approved equal. The unit will also incorporate demand control ventilation which will modulate the amount of outside air to the space based on occupancy and CO₂.
 - c. AHU-2 & 3
 - i. These units have been removed and are therefore not part of the scope of this project.

APPENDIX B – SINGLE LINE DIAGRAMS

BOE Buildings & Grounds

68 Town Forest Road,
West Simsbury, CT

REVISIONS		
NO.	DATE	DESCRIPTION

ENO MEMORIAL
HALL

754 Hopmeadow
Simsbury, CT 06070

MECHANICAL
DIAGRAM EXISTING

DATE:

AUGUST 26, 2022

PROJECT NO:

2022279.00

DRAWN:

Author

CHECKED:

Checker

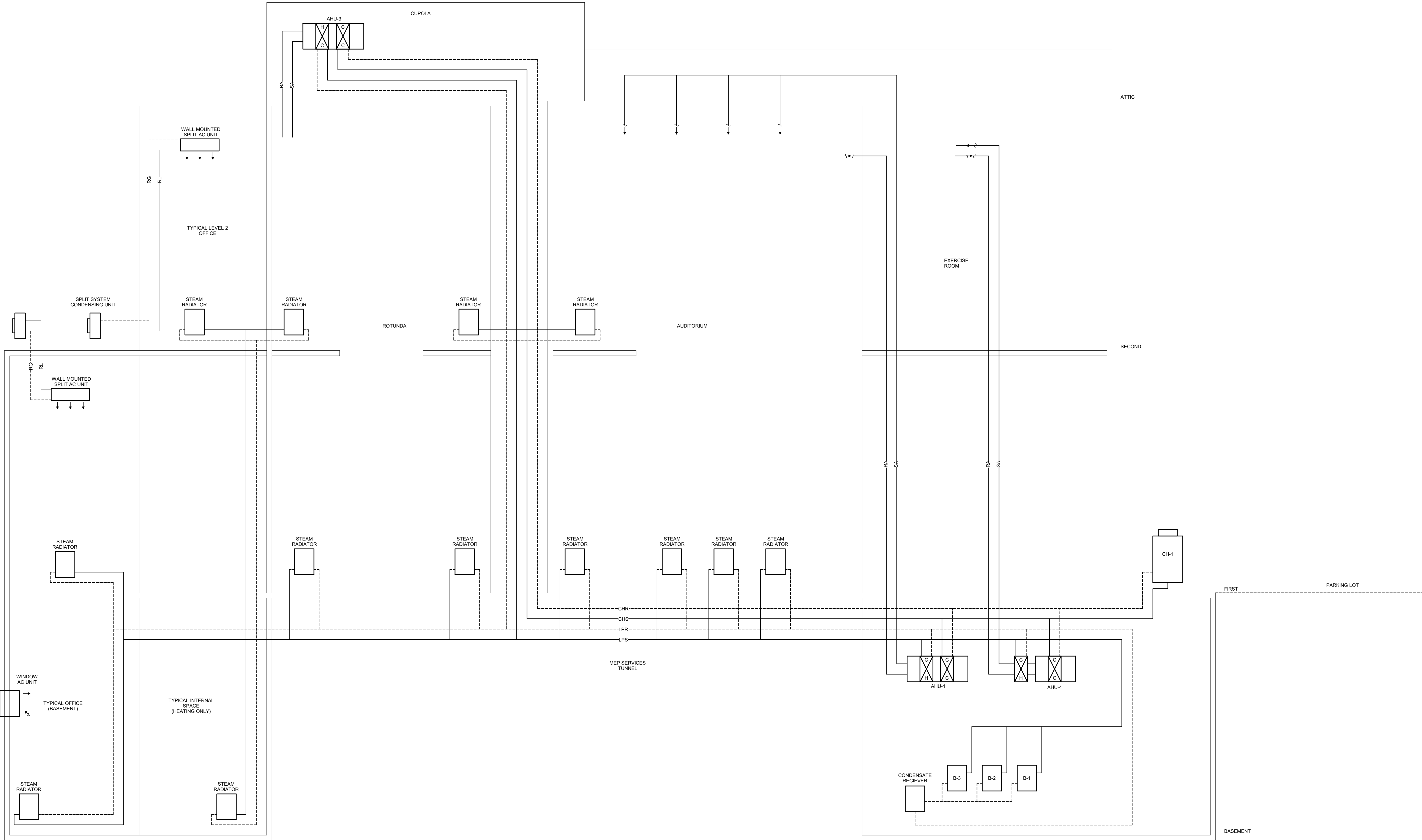
ISSUED FOR:

FEASIBILITY

REVISIONS:

SHEET NO.

M01



BOE Buildings & Grounds

68 Town Forest Road,
West Simsbury, CT

REVISIONS

NO.	DATE	DESCRIPTION
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ENO MEMORIAL
HALL

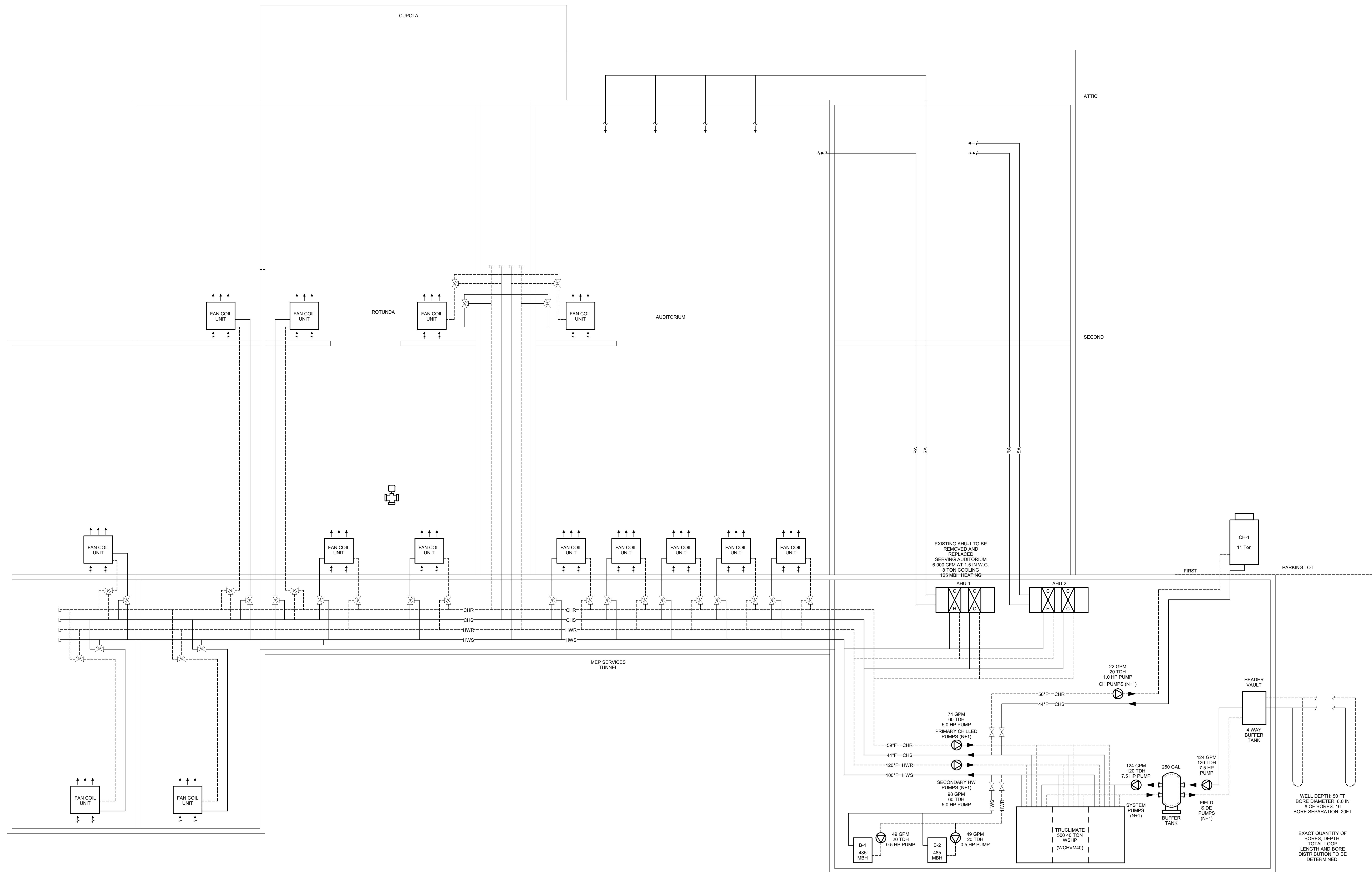
754 Hopmeadow
Simsbury, CT 06070

HVAC FLOW
DIAGRAM
(OPTION 1)
GEOTHERMAL

DATE:	AUGUST 26, 2022
PROJECT NO:	2022279.00
DRAWN:	Author
CHECKED:	Checker
ISSUED FOR:	FEASIBILITY
REVISIONS:	

SHEET NO.

M02



BOE Buildings & Grounds

68 Town Forest Road,
West Simsbury, CT

REVISIONS

NO.	DATE	DESCRIPTION
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ENO MEMORIAL
HALL

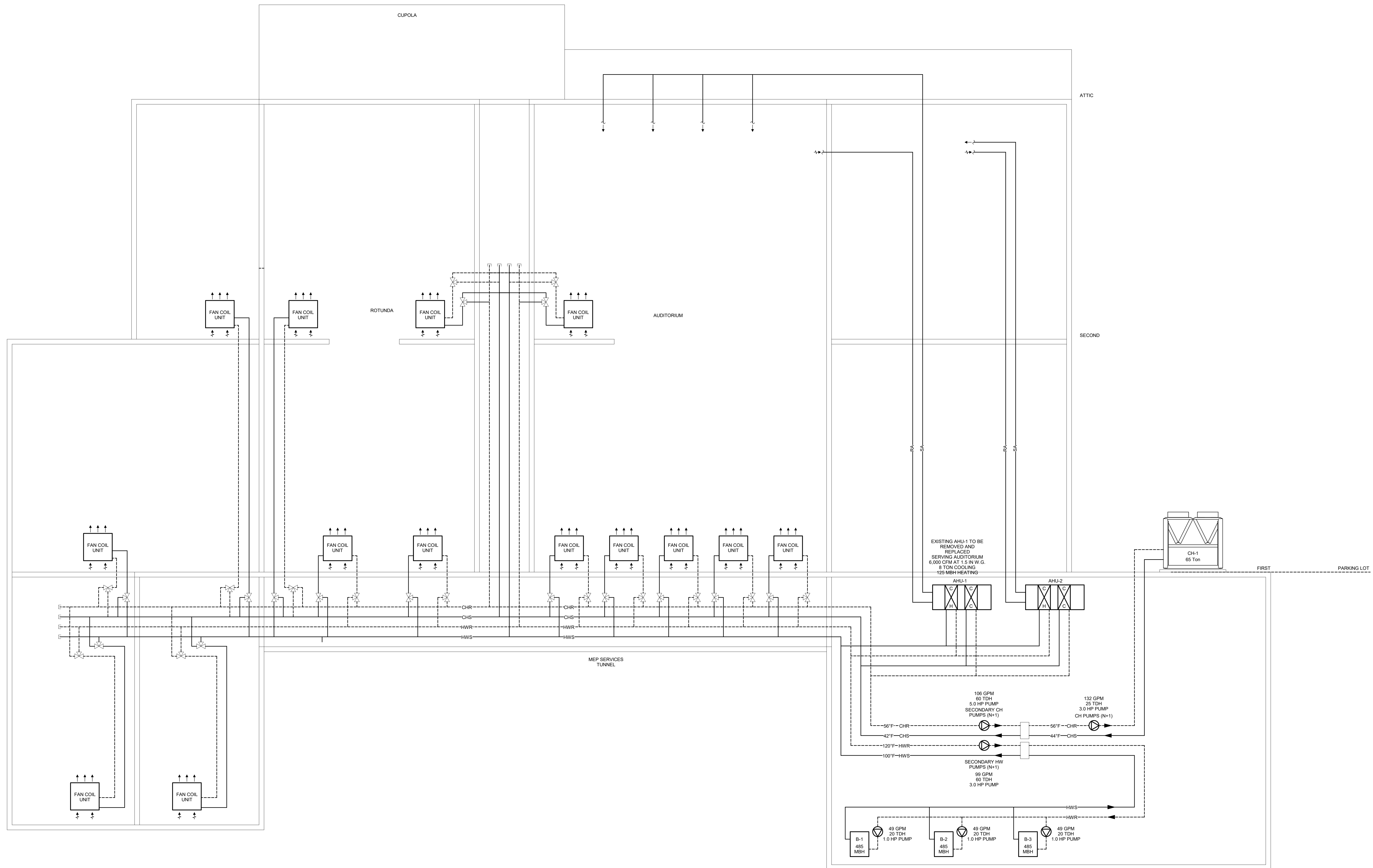
754 Hopmeadow
Simsbury, CT 06070

HVAC FLOW
DIAGRAM
(OPTION 2)
HYBRID

DATE:	AUGUST 26, 2022
PROJECT NO:	2022279.00
DRAWN:	Author
CHECKED:	Checker
ISSUED FOR:	FEASIBILITY
REVISIONS:	

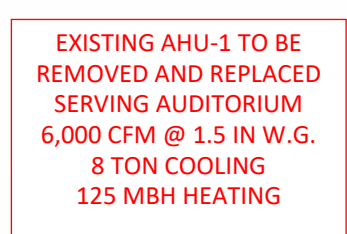
SHEET NO.

M03



APPENDIX C – LAYOUT DRAWINGS

WELL DEPTH: 50 FT
BORE DIAMETER: 6.0 IN
OF BORES: 16
BORE SEPARATION: 20FT



REMOVE BOILERS AND ALL STEAM HEATING PLANT.
REMOVE ALL COOLING EQUIPMENT.
PROVIDE NEW
TRUCIMATE 500 (40 TON) WSHF,
250 GAL BUFFER TANK,
(2) 485 MBH GAS FIRED BOILERS
(4) 124 GPM, 10 HP GEO PUMPS
(2) 74 GPM, 5 HP CW PUMPS
(2) 49 GPM, 0.5 HP HW PUMPS
(2) 98 GPM, 5 HP HW PUMPS

**NEW BORE FIELD BENEATH
EXITING (TO BE RE-PAVED)
PARKING LOT**

Schoenhardt
Architecture + Interior Design
One Massaco Place
Simsbury, CT 06070-2118
fax 860.658.5280
tel 860.658.4496
schoenhardt.com

**APPLIED
THERMODYNAMICS
ASSOCIATES, INC.**

1129 Main Street
Coventry, CT 06238
T 860-742-5377
F 860-742-0362
www.croengr.com

ata
**Consulting
Engineers**

AIR CONDITIONING SYSTEM

ENO MEMORIAL HALL

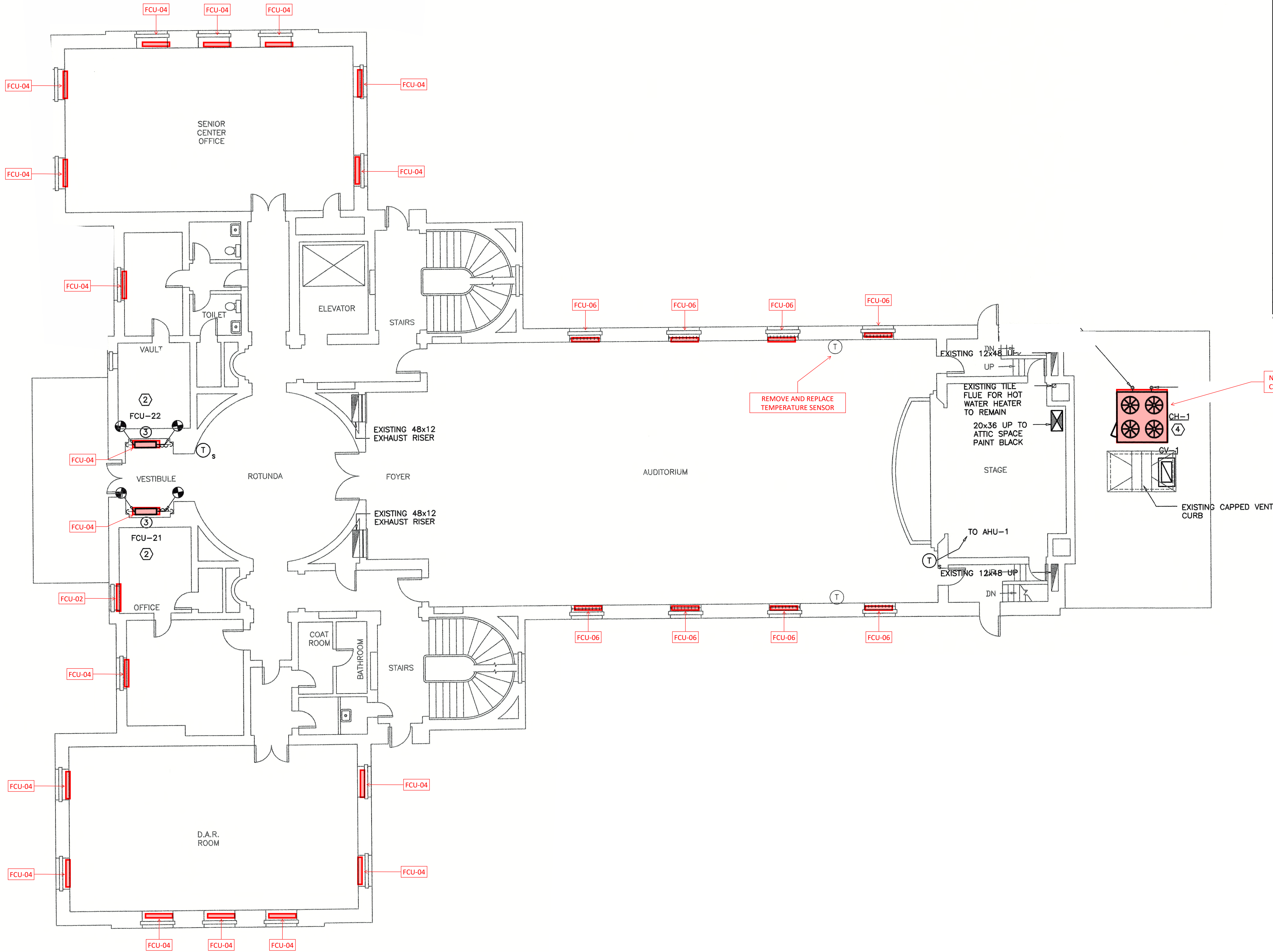
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

Project: 03137.00
Initials:
Date: 3-24-04
Revisions:

ARCHITECTURAL
PLAN - BASEMENT

A1.1.1

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PRICE

SIZE	NOMINAL	A	B	C	D	BLOWERS
	CFM	I/s	in. (mm)	in. (mm)	in. (mm)	
02	200	94	24.0 (610)	22.5 (572)	21.0 (534)	18.0 (457)
03	300	142	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)
04	400	189	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)
06	600	283	43.0 (1093)	41.5 (1055)	40.0 (1016)	37.0 (940)
08	800	378	48.0 (1220)	46.5 (1182)	45.0 (1143)	42.0 (1067)
10	1000	472	58.0 (1474)	56.5 (1436)	55.0 (1397)	52.0 (1321)
12	1200	566	68.0 (1728)	66.5 (1690)	65.0 (1651)	62.0 (1575)

Submittal Sheet

ATM CERTIFIED

Intertek

STANDARD CONSTRUCTION:

- 20ga. GALVANIZED STEEL CASING
- GALVANIZED HARDWARE
- PSC ELECTRIC MOTORS WITH 3 SPEEDS
- COILS - 1/2" O.D. COPPER TUBES, ALUMINUM SINE WAVE FINS, MANUAL AIR VENTS & 5/8" O.D. CONNECTIONS
- COOLING COIL EQUIPPED WITH GALVANIZED STEEL DRAIN PAN EXTERNALLY INSULATED WITH FOAM
- 3/4" NPT DRAIN CONNECTION
- 1" MERV 3 THROWAWAY FILTER WITH FIBERGLASS MESH MEDIA
- INTERNAL INSULATION - FIBERGLASS 1/2" THICK

WATER COIL CONNECTIONS & AIR VENTS

AUXILIARY DRAIN PAN w/ 3/4" NPT CONN.

CONTROL ENCLOSURE

THROWAWAY FILTER

OPTIONS:

- STAINLESS STEEL DRAIN PAN
- SECONDARY DRAIN
- DISCONNECT SWITCH
- MOTOR FUSE
- 1" MERV 8 PLEATED FILTER
- 1" MERV 13 PLEATED FILTER
- FF50 (FIBERFREE) LINER 1/2" THICK
- FB FOIL FACED FIBERGLASS LINER 5/8" THICK

2 PIPE SYSTEM

1 - ROW 2 - ROW 3 - ROW

4 - ROW

4 PIPE SYSTEM

W/ REHEAT (COOLING/HEATING)

21 - ROW 22 - ROW

31 - ROW 32 - ROW 41 - ROW

PRICE

ENGINEER:

CUSTOMER:

SUBMITTAL DATE:

FAN COIL

FCVC

CONCEALED UNIT

SIZE 02-12

258864

MAY 2015

REV E

A1 MECHANICAL FIRST FLOOR NEW WORK PLAN

SCALE: 1/8"=1'-0"

OPTION 1

APPLIED THERMODYNAMICS, INC.
1129 Main Street
Covington, CT 06238
T 860-742-3377
F 860-742-0362
www.dboengr.com

ATA CONSULTING ENGINEERS
ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
LOCATION: ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

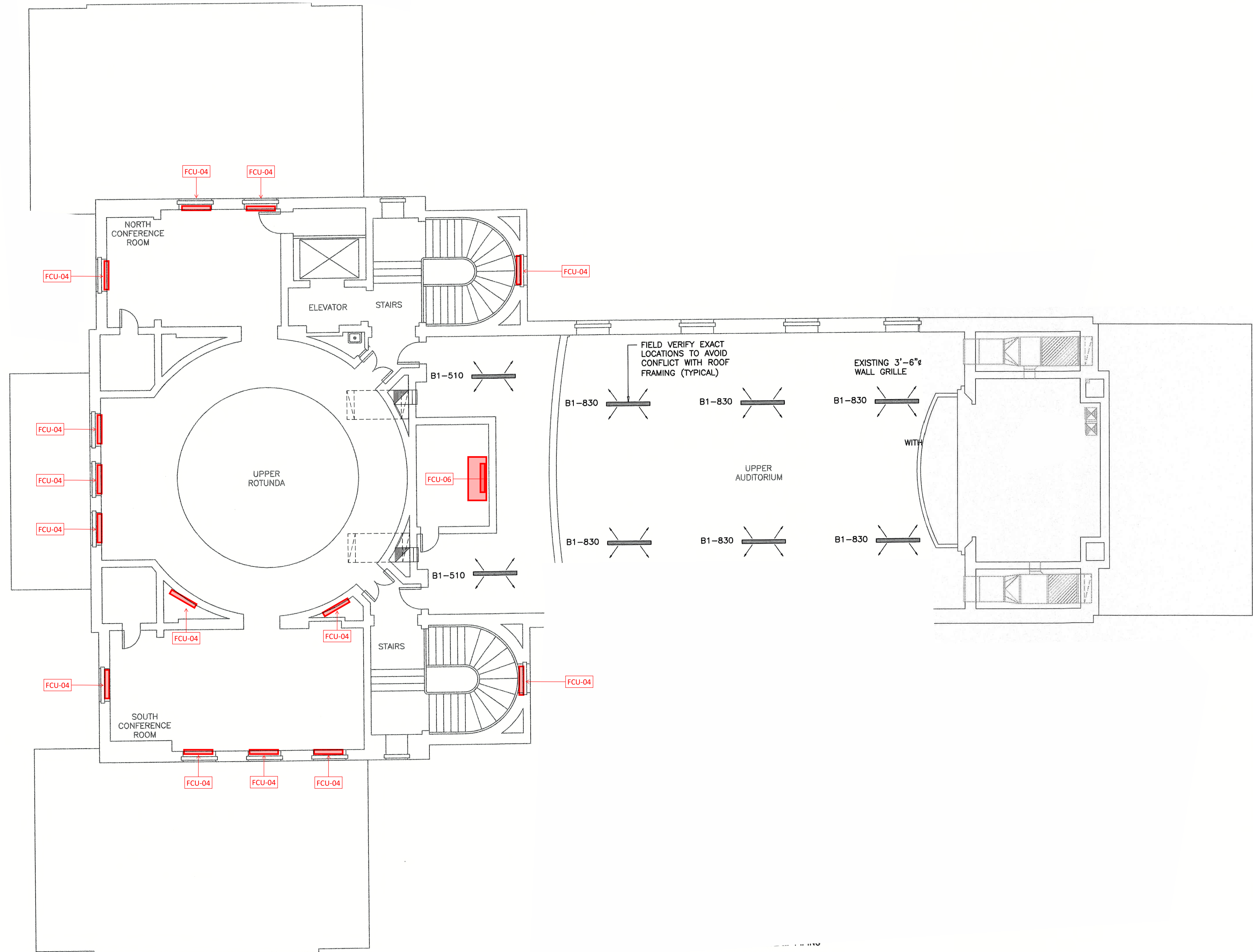
DRAWING TITLE:
MECHANICAL FIRST LEVEL
BASE BID PLAN

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ
APPROVED BY:
ISSUE DATE:
03/24/04
SCALE:
1/8"=1'-0"
DRAWING NUMBER

M1.1.2

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(1) REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED GRILLE AND DUCTWORK AS SHOWN ON LAUOUT.

A1 MECHANICAL SECOND FLOOR NEW WORK PLAN

SCALE: 1/8"=1'-0"

price

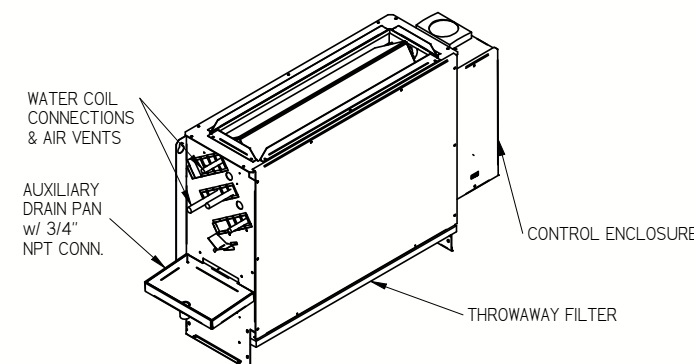
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SIZE	CFM	in.	in.	in.	in.	in.	
02	200	94	24.0 (610)	22.5 (572)	21.0 (534)	18.0 (457)	1
03	300	142	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)	1
04	400	189	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)	2
06	600	283	43.0 (1093)	41.5 (1055)	40.0 (1016)	37.0 (940)	2
08	800	378	48.0 (1220)	46.5 (1182)	45.0 (1143)	42.0 (1067)	2
10	1000	472	58.0 (1474)	56.5 (1436)	55.0 (1397)	52.0 (1321)	4
12	1200	566	68.0 (1728)	66.5 (1690)	65.0 (1651)	62.0 (1575)	4

Submittal Sheet



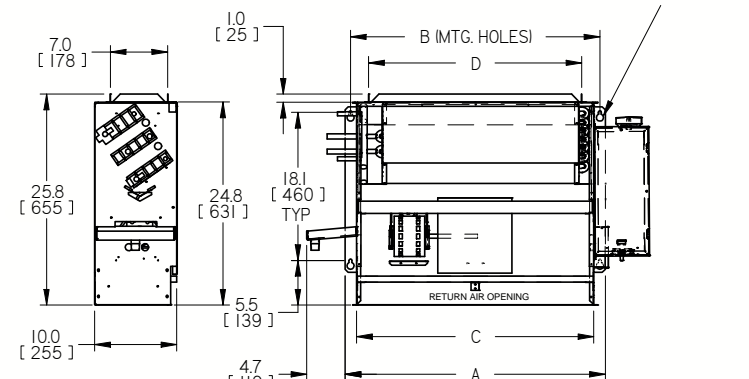
STANDARD CONSTRUCTION:

- 20ga. GALVANIZED STEEL CASING
- GALVANIZED HARDWARE
- PSC ELECTRIC MOTORS WITH 3 SPEEDS
- COILS - 1/2" O.D. COPPER TUBES, ALUMINUM SINE WAVE FINS, MANUAL AIR VENTS & 5/8" OD CONNECTIONS
- COOLING COIL EQUIPPED WITH GALVANIZED STEEL DRAIN PAN EXTERNALLY INSULATED WITH FOAM
- 3/4" NOT DRAIN CONNECTION
- 1" MERV 3 THROWAWAY FILTER WITH FIBERGLASS MESH MEDIA
- INTERNAL INSULATION - FIBERGLASS 1/2" THICK



OPTIONS:

- ☐ STAINLESS STEEL DRAIN PAN
- ☐ SECONDARY DRAIN
- ☐ DISCONNECT SWITCH
- ☐ MOTOR FUSE
- ☐ 1" MERV 8 PLEATED FILTER
- ☐ 1" MERV 13 PLEATED FILTER
- ☐ FF50 (FIBERFREE), LINER 1/2" THICK
- ☐ FB FOIL FACED FIBERGLASS LINER 5/8" THICK
- ☐ 2 PIPE SYSTEM
- ☐ 1 - ROW
- ☐ 2 - ROW
- ☐ 3 - ROW
- ☐ 4 - ROW
- ☐ 4 PIPE SYSTEM
- ☐ W/ REHEAT (COOLING/HEATING)
- ☐ 21 - ROW
- ☐ 22 - ROW
- ☐ 31 - ROW
- ☐ 32 - ROW
- ☐ 41 - ROW



LH CONFIGURATION SHOWN
HANDING DETERMINED BY LOOKING AT INLET

PROJECT:

ENGINEER:

CUSTOMER:

SUBMITTAL DATE:

SPEC. SYMBOL:

price

FAN COIL

FCVC

CONCEALED UNIT

SIZE 02-12

SHEET 1 OF 2 REV E

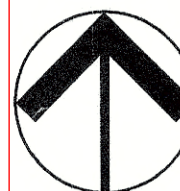
GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING ANY FLOOR PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.

OPTION 1



APPLIED THERMODYNAMICS ASSOCIATES, INC.

1129 Main Street
Coventry, CT 06238
T 860-742-3377
F 860-742-0362
www.atdengr.com

ata Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
MECHANICAL SECOND LEVEL
BASE BID PLAN

LOCATION:
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

DRAWING TITLE:

APPR:

DATE:

REVISION

NO.

DRAWN BY:

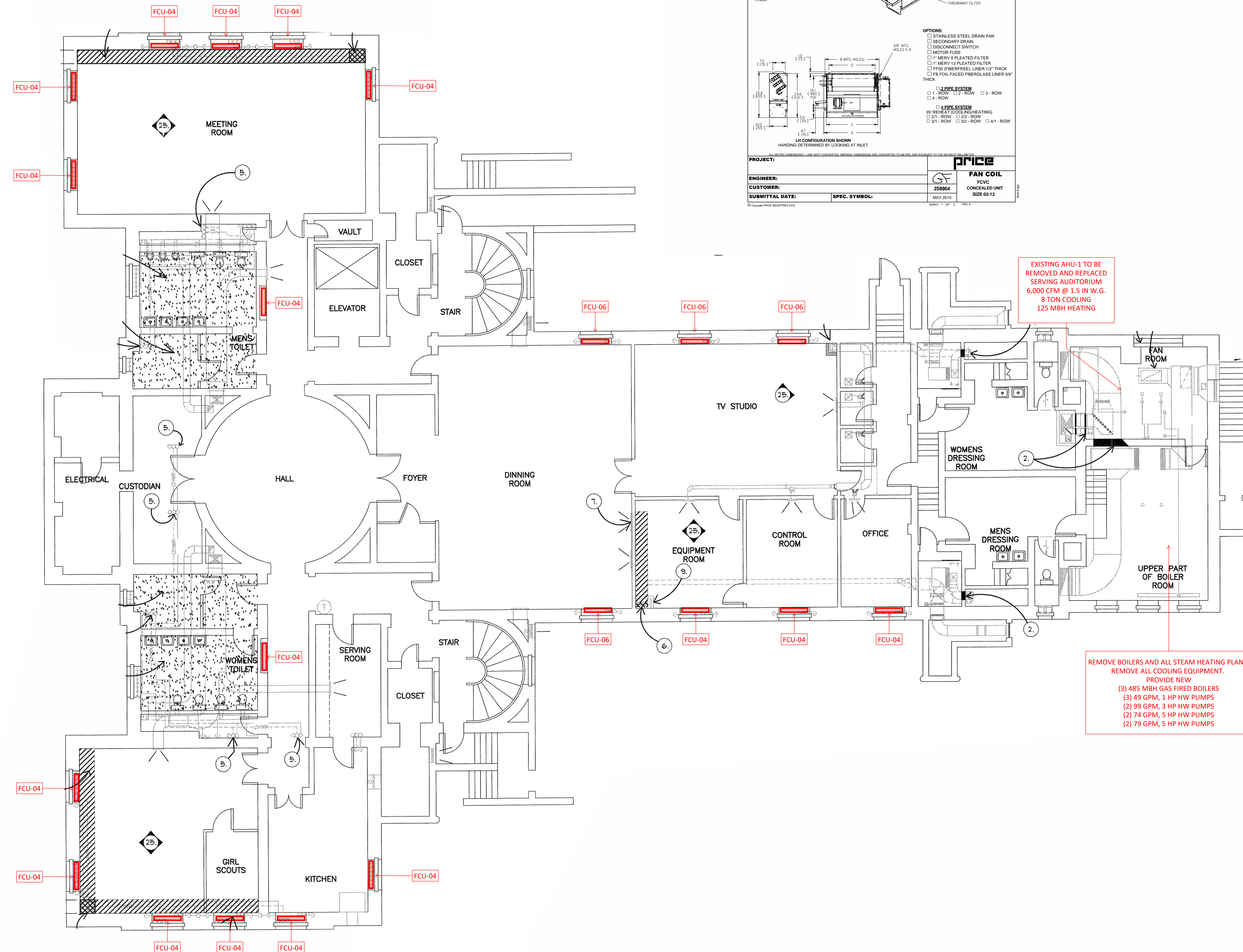
APPROVED BY:

ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

M1.1.3



price

SIZE	NOMINAL	A	B	C	D	BLOWERS
CFM	1/2	3/4	1	1 1/4	1 1/2	
02	200	14.0 (355)	22.5 (572)	21.0 (533)	18.0 (457)	1
03	300	14.2 (360)	30.5 (775)	28.0 (712)	26.0 (660)	1
04	400	18.0 (457)	30.5 (775)	28.0 (712)	26.0 (660)	2
05	500	28.3 (719)	41.5 (1053)	40.0 (1016)	37.0 (940)	2
06	600	37.8 (960)	48.0 (1220)	46.5 (1182)	42.0 (1067)	2
07	700	47.2 (1198)	58.0 (1476)	55.0 (1397)	52.0 (1321)	4
08	800	56.6 (1438)	66.5 (1689)	65.0 (1651)	62.0 (1575)	4

Submittal Sheet

STANDARD CONSTRUCTION:

- 20ga GALVANIZED STEEL CASING
- GALVANIZED HANDRAILS
- PGC ELECTRIC MOTOR WITH 3 SPEEDS
- COILS: 100 F.D. COPPER TUBES, ALUMINUM
- ONE INCH F.P. MANUAL, 1/2 INCH ALUMINUM
- COIL CONNECTIONS
- COILS AND COILS EQUIPPED WITH GALVANIZED STEEL DRAIN PAN EXTERNALLY INSULATED WITH FOAM
- 3/4" NPT DRAIN CONNECTION
- 1" MERV 10 HIGH EFFICIENCY FILTER WITH FIBERGLASS MEDIA
- INTERNAL INSULATION - FIBERGLASS 1 1/2" THICK

OPTIONS:

- STAINLESS STEEL DRAIN PAN
- SECONDARY DRAIN
- DISCONNECT SWITCH
- MOTOR FUSE
- 1" MERV 10 PLEATED FILTER
- 1" MERV 10 PLEATED FILTER
- FFGO (FIBERGLASS) LINER 1/2" THICK
- 18 POLY FIBERGLASS LINER 1/2" THICK

PRICE

FAN COIL

25984

FCVC

CONCEALED UNIT

SIZE 02-12

Schoenhardt
Architecture + Interior Design
One Massaco Place
Simsbury, CT 06070-2118
tel 860.658.4496
fax 860.658.5280
schoenhardt.com

APPLIED THERMODYNAMICS ASSOCIATES, INC.
1129 Main Street
Coventry, CT 06238
T 860-742-5377
F 860-742-0362
www.ataengr.com

AIR CONDITIONING SYSTEM
ENO MEMORIAL HALL
754 HOPMEADOW STREET
SIMSBURY, CONNECTICUT 06070

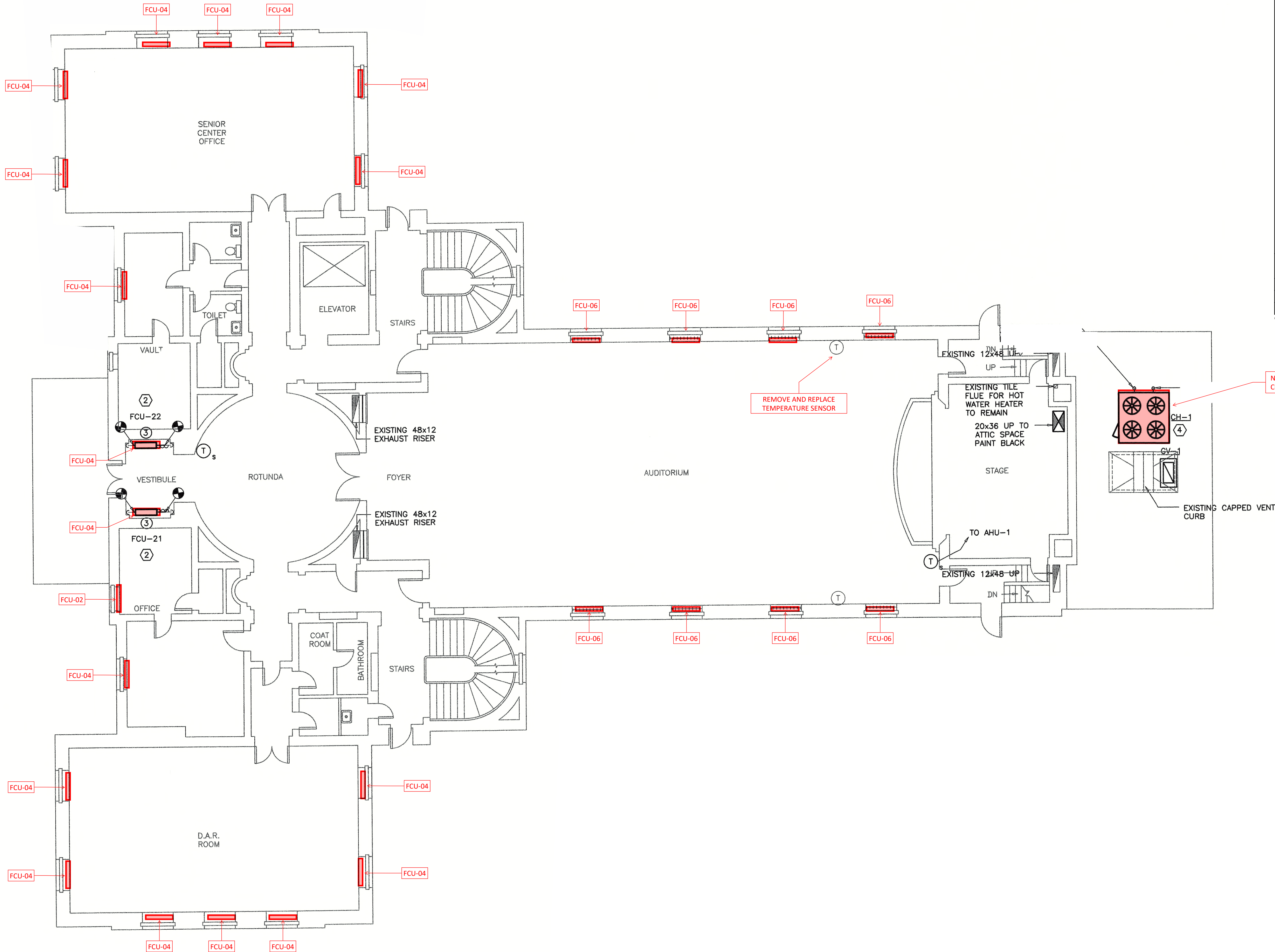
Project: 03137.00
Initials:
Date: 3-24-04
Revisions:

ARCHITECTURAL
PLAN - BASEMENT

A1.1.1

OPTION 2

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PRICE

SIZE	NOMINAL	A	B	C	D	BLOWERS
	CFM	I/s	in. (mm)	in. (mm)	in. (mm)	
02	200	94	24.0 (610)	22.5 (572)	21.0 (534)	18.0 (457)
03	300	142	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)
04	400	189	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)
06	600	283	43.0 (1093)	41.5 (1055)	40.0 (1016)	37.0 (940)
08	800	378	48.0 (1220)	46.5 (1182)	45.0 (1143)	42.0 (1067)
10	1000	472	58.0 (1474)	56.5 (1436)	55.0 (1397)	52.0 (1321)
12	1200	566	68.0 (1728)	66.5 (1690)	65.0 (1651)	62.0 (1575)

Submittal Sheet

AT&T CERTIFIED

Intertek

STANDARD CONSTRUCTION:

- 20ga. GALVANIZED STEEL CASING
- GALVANIZED HARDWARE
- PSC ELECTRIC MOTORS WITH 3 SPEEDS
- COILS - 1/2" O.D. COPPER TUBES, ALUMINUM SINE WAVE FINS, MANUAL AIR VENTS & 5/8" O.D. CONNECTIONS
- COOLING COIL EQUIPPED WITH GALVANIZED STEEL DRAIN PAN EXTERNALLY INSULATED WITH FOAM
- 3/4" NPT DRAIN CONNECTION
- 1" MERV 3 THROWAWAY FILTER WITH FIBERGLASS MESH MEDIA
- INTERNAL INSULATION - FIBERGLASS 1/2" THICK

WATER COIL CONNECTIONS & AIR VENTS

AUXILIARY DRAIN PAN w/ 3/4" NPT CONN.

CONTROL ENCLOSURE

THROWAWAY FILTER

OPTIONS:

- STAINLESS STEEL DRAIN PAN
- SECONDARY DRAIN
- DISCONNECT SWITCH
- MOTOR FUSE
- 1" MERV 8 PLEATED FILTER
- 1" MERV 13 PLEATED FILTER
- FF50 (FIBERFREE) LINER 1/2" THICK
- FB FOIL FACED FIBERGLASS LINER 5/8" THICK

2 PIPE SYSTEM

1 - ROW 2 - ROW 3 - ROW

4 - ROW

4 PIPE SYSTEM

W/ REHEAT (COOLING/HEATING)

21 - ROW 22 - ROW

31 - ROW 32 - ROW 41 - ROW

70 (178)

10 (25)

256 (655)

248 (631)

17 (193)

100 (255)

5.5 (139)

1.7 (43)

8 MTG HOLES

D

3/8" MTG HOLES X 4

C

A

LH CONFIGURATION SHOWN

HANDING DETERMINED BY LOOKING AT INLET

PROJECT:

ENGINEER:

CUSTOMER:

SUBMITTAL DATE:

SPEC. SYMBOL:

PRICE

FAN COIL

FCVC

CONCEALED UNIT

SIZE 02-12

258864

MAY 2015

SHEET 1 OF 2

REV E

A1 MECHANICAL FIRST FLOOR NEW WORK PLAN

SCALE: 1/8"=1'-0"

OPTION 2

APPLIED THERMODYNAMICS, INC.
1129 Main Street
Covington, CT 06238
T 860-742-3377
F 860-742-0362
www.dboengr.com

ATA
Consulting Engineers

DRAWING TITLE:
MECHANICAL FIRST LEVEL
BASE BID PLAN

NO.	REVISION	DATE	APPR.

DRAWN BY:
REJ

APPROVED BY:

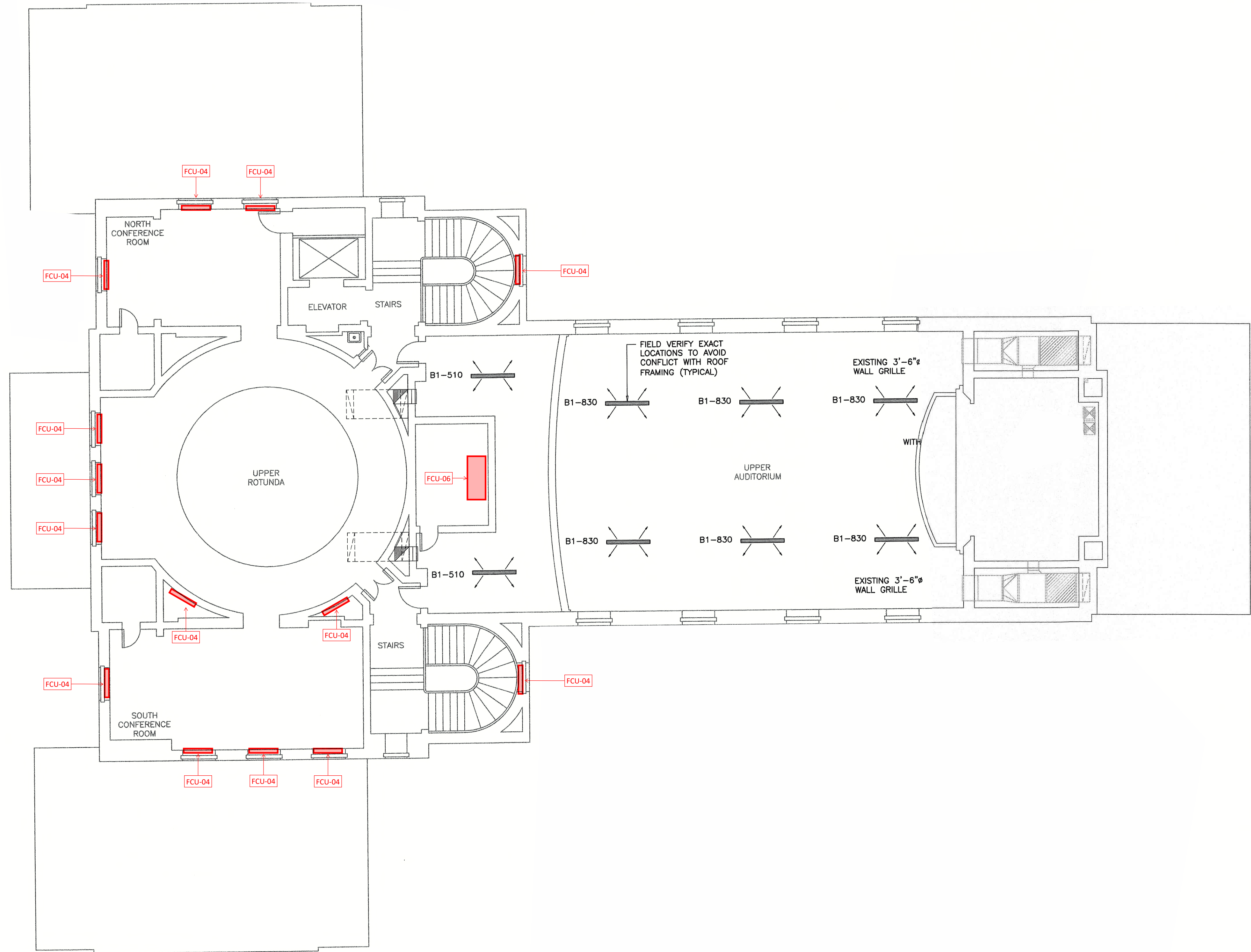
ISSUE DATE:
03/24/04

SCALE:
1/8"=1'-0"

DRAWING NUMBER

M1.1.2

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price

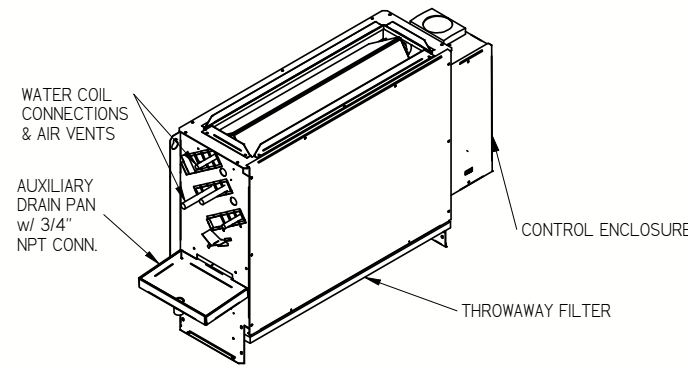
SIZE	NOMINAL		A		B		C		D		BLOWERS
	CFM	I/s	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)			
02	200	94	24.0 (610)	22.5 (572)	21.0 (534)	18.0 (457)					
03	300	142	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)				1	
04	400	189	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)				2	
06	600	283	43.0 (1093)	41.5 (1055)	40.0 (1016)	37.0 (940)				2	
08	800	378	48.0 (1220)	46.5 (1182)	45.0 (1143)	42.0 (1067)				2	
10	1000	472	58.0 (1474)	56.5 (1436)	55.0 (1397)	52.0 (1321)				4	
12	1200	566	68.0 (1728)	66.5 (1690)	65.0 (1651)	62.0 (1575)				4	

Submittal Sheet



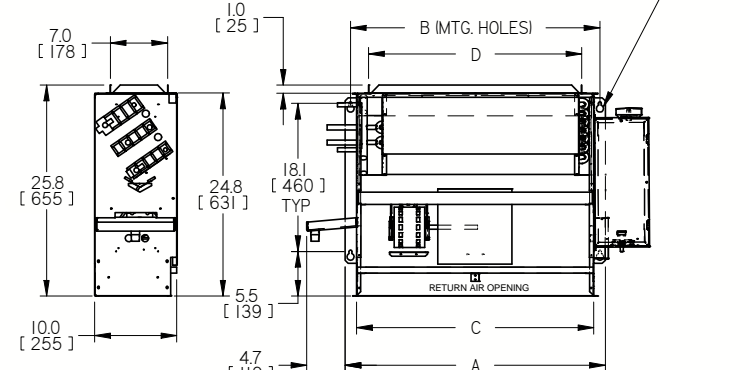
STANDARD CONSTRUCTION:

- 20ga. GALVANIZED STEEL CASING
- GALVANIZED HARDWARE
- PSC ELECTRIC MOTORS WITH 3 SPEEDS
- COILS - 1/2" O.D. COPPER TUBES, ALUMINUM SINE WAVE FINS, MANUAL AIR VENTS & 5/8" O.D. CONNECTIONS
- COOLING COIL EQUIPPED WITH GALVANIZED STEEL DRAIN PAN EXTERNALLY INSULATED WITH FOAM
- 3/4" NOT DRAIN CONNECTION
- 1" MERV 3 THROWAWAY FILTER WITH FIBERGLASS MESH MEDIA
- INTERNAL INSULATION - FIBERGLASS 1/2" THICK



OPTIONS:

- ☐ STAINLESS STEEL DRAIN PAN
- ☐ SECONDARY DRAIN
- ☐ DISCONNECT SWITCH
- ☐ MOTOR FUSE
- ☐ 1" MERV 8 PLEATED FILTER
- ☐ 1" MERV 13 PLEATED FILTER
- ☐ FF50 (FIBERFREE), LINER 1/2" THICK
- ☐ FB FOIL FACED FIBERGLASS LINER 5/8" THICK
- ☐ 2 PIPE SYSTEM
- ☐ 1 - ROW
- ☐ 2 - ROW
- ☐ 3 - ROW
- ☐ 4 - ROW
- ☐ 4 PIPE SYSTEM
- ☐ W/ REHEAT (COOLING/HEATING)
- ☐ 21 - ROW
- ☐ 22 - ROW
- ☐ 31 - ROW
- ☐ 32 - ROW
- ☐ 41 - ROW



LH CONFIGURATION SHOWN
HANDING DETERMINED BY LOOKING AT INLET

PROJECT:

ENGINEER:

CUSTOMER:

SUBMITTAL DATE:

SPEC. SYMBOL:

price

FAN COIL

FCVC

CONCEALED UNIT

SIZE 02-12

SHEET 1 OF 2 REV E

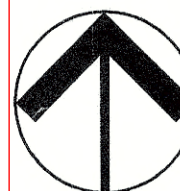
GENERAL NOTE:

ASBESTOS ROOFING MATERIALS HAVE BEEN IDENTIFIED ON THIS BUILDING. DO NOT DRILL, CUT OR DAMAGE ROOFING MATERIALS WITHOUT ASBESTOS ABATEMENT. ASSUME ALL ROOF PENETRATIONS WILL INVOLVE ASBESTOS ABATEMENT.

GENERAL NOTE:

ASBESTOS FLOORING IS FOUND IN THIS BUILDING. REFER TO HAZARDOUS MATERIAL DRAWINGS FOR KNOWN LOCATIONS OF ASBESTOS FLOORING PRIOR TO DRILLING ANY FLOOR PENETRATIONS. RUN CONDUITS AND PIPING BETWEEN FLOORS IN DESIGNATED PIPE CHASES.

OPTION 2



A1 MECHANICAL SECOND FLOOR NEW WORK PLAN

SCALE: 1/8"=1'-0"

APPLIED THERMODYNAMICS ASSOCIATES, INC.
1129 Main Street
Coventry, CT 06238
T 860-742-5377
F 860-742-0362
www.atdengr.com

ata Consulting Engineers

ATA FILE NUMBER: 0335
PROJECT: AIR CONDITIONING SYSTEM
MECHANICAL SECOND LEVEL
BASE BID PLAN

NO. REVISION DATE APPR. DRAWN BY: REJ
APPROVED BY:
ISSUE DATE: 03/24/04
SCALE: 1/8"=1'-0"
DRAWING NUMBER: M1.1.3

APPENDIX D – COST ESTIMATES

ENO MEMORIAL HALL - OPTION 1
 GEOTHERMAL THERMAL SYSTEM
 CONSTRUCTION COST ESTIMATE
 ROM/CONCEPTUAL
 9-Aug-22

Area Description	Sq. Ft.
Basement	9,625
1st Floor	9,145
2nd Floor	4,245
Total Gross Square Foot Summary	23,015

754 HOPMEADOW STREET
 SIMSBURY, CT 06070

Line Item No.	Description	Sub Total Cost	ROM/ Conceptual Estimate 8/9/2022	Percentage of the Total Construction Cost	Cost Per Total Bldg Sq.Ft.
1	01 00 00 GENERAL CONDITIONS				
2	General Conditions (staff)	\$ 210,438.00		5.96%	\$ 9.14
3	General Requirements (temporary project requirements)	\$ 61,063.45		1.73%	\$ 2.65
4					
5	01 00 00 TEMPORARY PROTECTION AND NEGATIVE AIR				
6	Temporary Protection 26,414	\$ 26,413.93		0.75%	\$ 1.15
7	TEMPORARY PROTECTION AND NEGATIVE AIR		\$ 297,915.38	8.44%	\$ 12.94
8					
9	01 21 00 ALLOWANCES				
10	Allowances - Temp Heat	\$ 50,000.00		1.42%	\$ 2.17
11	ALLOWANCES		\$ 50,000.00	1.42%	\$ 2.17
12					
13	02 00 00 EXISTING CONDITIONS AND DEMOLITION				
14	Selective Demolition	\$ 38,950.00		1.10%	\$ 1.69
15	Hazardous Waste Testing, Abatement, Removal & Disposal	\$ 25,000.00		0.71%	\$ 1.09
16	EXISTING CONDITIONS AND DEMOLITION		\$ 63,950.00	1.81%	\$ 2.78
17					
18	03 00 00 FOUNDATIONS AND CONCRETE				
19	Slabs on Grade	\$ 9,600.00		0.27%	\$ 0.42
20	FOUNDATIONS AND CONCRETE		\$ 9,600.00	0.27%	\$ 0.42
21					
22	04 00 00 MASONRY				
23	Interior Building Masonry	-			
24	Masonry Restoration	-			
25	MASONRY		\$ -	0.00%	\$ -
26					
27	05 00 00 METALS				
28	Structural Steel	-			
29	Miscellaneous Metals - Building	-			
30	STRUCTURAL STEEL/MISC. METALS		\$ -	0.00%	\$ -
31					
32	06 00 00 WOODS, PLASTICS AND COMPOSITES				
33	Rough Carpentry	-			
34	Millwork	-			
35	WOODS, PLASTICS AND COMPOSITES		\$ -	0.00%	\$ -
36					
37	07 00 00 THERMAL AND MOISTURE PROTECTION				
38	Membrane Roofing Systems	-			
39	Fireproofing	-			
40	Firesafing/Firestopping	-			
41	THERMAL AND MOISTURE PROTECTION		\$ -	0.00%	\$ -
42					
43	09 00 00 FINISHES				
44	Plaster	26,400.00		0.75%	\$ 1.15
45	Gypsum Drywall	54,010.00		1.53%	\$ 2.35
46	Acoustical Ceiling Systems	-			
47	Carpeting	-			
48	Painting and Wall Covering	11,880.00		0.34%	\$ 0.52
49	FINISHES		\$ 92,290.00	2.61%	\$ 4.01
50					
51	21 00 00 FIRE SUPPRESSION				
52	Fire Protection	-			
53	FIRE PROTECTION		\$ -		
54					
A	22 00 00 PLUMBING	37,303.38		1.06%	\$ 1.62
B	PLUMBING		\$ 37,303.38	1.06%	\$ 1.62
C					
55	22 36 00 GEOTHERMAL SYSTEMS				
56	Geothermal Systems (25 bores)	741,312.22		21.00%	\$ 32.21
56A	Adjustment to (16 bores)	-225,000.00			

57	GEOTHERMAL SYSTEMS			\$ 516,312.22	14.63%	\$ 22.43
58						
59	23 00 00 HEATING VENTILATION & AIR CONDITIONING					
60	HVAC System		1,556,589.35		44.10%	\$ 67.63
61	HEATING VENTILATION & AIR CONDITIONING			\$ 1,556,589.35	44.10%	\$ 67.63
62						
63	26 00 00 ELECTRICAL					
64	Electrical System		199,643.66		5.66%	\$ 8.67
65	ELECTRICAL			\$ 199,643.66	5.66%	\$ 8.67
66						
67	31 00 00 SITEWORK					
68	General Earthwork		10,865.48		0.31%	\$ 0.47
69	Soil Remediation	-				
70	Mass Excavation	-				
71	Site Utilities - Trenching for Geothermal Loop		14,875.47		0.42%	\$ 0.65
72	Paving, Curbs and Walks	-				
73	Site Improvements - Pavement Markings	-				
74	Landscaping and Seeding - Allowance	-				
75	SITEWORK			\$ 25,740.95	0.73%	\$ 1.12
76				\$ (0.01)	TO CORRECT FOR ROUNDING	
77	Crosscheck & Sub-Total @ Cost		2,849,345	\$ 2,849,344.93	80.73%	\$ 247.61
78	Subguard Insurance / Subcontractor P&P Bond					
79	Sub-Total			\$ 2,849,344.93		\$ 123.80
80	Site Logistics Factor	0.00%	-			
81	Sub-Total			\$ 2,849,344.93		\$ 123.80
82	Current Market Economic Conditions Factor	0.00%	-			
83	Sub-Total			\$ 2,849,344.93		\$ 123.80
84	Construction Cost Escalation - Construction to Start Spring 2024	5.14%		\$ 146,442.10		\$ 6.36
85	Sub-Total			\$ 2,995,787.03		\$ 130.17
86	Cost Estimate Contingency	10.00%		\$ 299,578.70		\$ 13.02
87	Sub-Total			\$ 3,295,365.74		\$ 143.18
88	Building Permit - exempt	\$0.00	per thousand			
89	Builder's Risk Insurance	0.00%	By Owner			
90	General & Professional Liability Insurance	1.00%		32,953.66		\$ 1.43
91	Sub-Total			3,328,319.39		\$ 144.62
92	Construction Management Fee	5.00%		166,415.97		\$ 7.23
93	Sub-Total			3,494,735.36		\$ 151.85
94	Connecticut State Tax on markups - exempt	0.00%		0.00		\$ -
95	Sub-Total			3,494,735.36		\$ 151.85
95	Payment and Performance Bond - not included	1.00%		34,947.35		\$ 1.52
95	ROM/Conceptual Estimate Total			\$ 3,529,682.72		\$ 153.36

MEADOW STREET
 Y, CT 06070

Description		Sub Total Cost	ROM/ Conceptual Estimate 8/9/2022	Percentage of the Total Construction Cost	Cost Per Total Bldg Sq.Ft.
01 00 00 GENERAL CONDITIONS					
General Conditions (staff)		\$ 210,438.00		7.74%	\$ 9.14
General Requirements (temporary project requirements)		\$ 61,063.45		2.25%	\$ 2.65
01 00 00 TEMPORARY PROTECTION AND NEGATIVE AIR					
Temporary Protection 26,414		\$ 26,413.93		0.97%	\$ 1.15
TEMPORARY PROTECTION AND NEGATIVE AIR			\$ 297,915.38	10.95%	\$ 12.94
01 21 00 ALLOWANCES					
Allowances - Temp Heat		\$ 50,000.00		1.84%	\$ 2.17
ALLOWANCES			\$ 50,000.00	1.84%	\$ 2.17
02 00 00 EXISTING CONDITIONS AND DEMOLITION					
Selective Demolition		\$ 38,950.00		1.43%	\$ 1.69
Hazardous Waste Testing, Abatement, Removal & Disposal		\$ 25,000.00		0.92%	\$ 1.09
EXISTING CONDITIONS AND DEMOLITION			\$ 63,950.00	2.35%	\$ 2.78
03 00 00 FOUNDATIONS AND CONCRETE					
Slabs on Grade		\$ 9,600.00		0.35%	\$ 0.42
FOUNDATIONS AND CONCRETE			\$ 9,600.00	0.35%	\$ 0.42
04 00 00 MASONRY					
Interior Building Masonry		-			
Masonry Restoration		-			
MASONRY			\$ -	0.00%	\$ -
05 00 00 METALS					
Structural Steel		-			
Miscellaneous Metals - Building		-			
STRUCTURAL STEEL/MISC. METALS			\$ -	0.00%	\$ -
06 00 00 WOODS, PLASTICS AND COMPOSITES					
Rough Carpentry		-			
Millwork		-			
WOODS, PLASTICS AND COMPOSITES			\$ -	0.00%	\$ -
07 00 00 THERMAL AND MOISTURE PROTECTION					
Membrane Roofing Systems		-			
Fireproofing		-			
Firesafing/Firestopping		-			
THERMAL AND MOISTURE PROTECTION			\$ -	0.00%	\$ -
09 00 00 FINISHES					
Plaster		26,400.00		0.97%	\$ 1.15
Gypsum Drywall		54,010.00		1.99%	\$ 2.35
Acoustical Ceiling Systems		-			
Carpeting		-			
Painting and Wall Covering		11,880.00		0.44%	\$ 0.52
FINISHES			\$ 92,290.00	3.39%	\$ 4.01
21 00 00 FIRE SUPPRESSION					
Fire Protection		-			
FIRE PROTECTION			\$ -		
22 00 00 PLUMBING		37,303.38		1.37%	\$ 1.62
PLUMBING			\$ 37,303.38	1.37%	\$ 1.62
22 36 00 GEOTHERMAL SYSTEMS					
Geothermal Systems (25 bores)	0.00	0.00		0.00%	\$ -
GEOTHERMAL SYSTEMS			\$ -	0.00%	\$ -
23 00 00 HEATING VENTILATION & AIR CONDITIONING					
HVAC System		1,432,647.30		52.67%	\$ 62.25
HEATING VENTILATION & AIR CONDITIONING			\$ 1,432,647.30	52.67%	\$ 62.25

26 00 00 ELECTRICAL					
Electrical System		186,143.66		6.84%	\$ 8.09
ELECTRICAL			\$ 186,143.66	6.84%	\$ 8.09
31 00 00 SITEWORK					
General Earthwork		10,865.48		0.40%	\$ 0.47
Soil Remediation		-			
Mass Excavation		-			
Site Utilities - Trenching for Geothermal Loop		14,875.47		0.55%	\$ 0.65
Paving, Curbs and Walks		-			
Site Improvements - Pavement Markings		-			
Landscaping and Seeding - Allowance		-			
SITEWORK			\$ 25,740.95	0.95%	\$ 1.12
			\$ (0.01)	TO CORRECT FOR ROUNDING	
Crosscheck & Sub-Total @ Cost		2,195,591	\$ 2,195,590.66	80.73%	\$ 190.80
Subguard Insurance / Subcontractor P&P Bond					
Sub-Total			\$ 2,195,590.66		\$ 95.40
Site Logistics Factor	0.00%		-		
Sub-Total			\$ 2,195,590.66		\$ 95.40
Current Market Economic Conditions Factor	0.00%		-		
Sub-Total			\$ 2,195,590.66		\$ 95.40
Construction Cost Escalation - Construction to Start Spring 2024	5.14%		\$ 112,842.40		\$ 4.90
Sub-Total			\$ 2,308,433.06		\$ 100.30
Cost Estimate Contingency	10.00%		\$ 230,843.31		\$ 10.03
Sub-Total			\$ 2,539,276.37		\$ 110.33
Building Permit - exempt	\$0.00	per thousand			
Builder's Risk Insurance	0.00%	By Owner			
General & Professional Liability Insurance	1.00%		25,392.76		\$ 1.10
Sub-Total			2,564,669.13		\$ 111.43
Construction Management Fee	5.00%		128,233.46		\$ 5.57
Sub-Total			2,692,902.59		\$ 117.01
Connecticut State Tax on markups - exempt	0.00%		0.00		\$ -
Sub-Total			2,692,902.59		\$ 117.01
Payment and Performance Bond - not included	1.00%		26,929.03		\$ 1.17
ROM/Conceptual Estimate Total			\$ 2,719,831.61		\$ 118.18