



Evanston Public Library Boiler Upgrade

Bid # 23-07

ADDENDUM No. 2

April 18, 2023

Any and all changes to the Contract Document are valid only if they are included by written addendum to all potential respondents, which will be mailed, emailed and/or faxed prior to the proposal due date to all who are known to have received a complete bid document. Each respondent must acknowledge receipt of any addenda by indicating on the Bid Form. Each respondent, by acknowledging receipt of any addenda, is responsible for the contents of the addenda and any changes to the bid proposal therein. Failure to acknowledge receipt of any addenda may cause the proposal to be rejected. If any language or figures contained in this addendum are in conflict with the original document, this addendum shall prevail.

This addendum consists of the following:

1. Addendum Number two (2) is attached and consists of a total of Three (3) pages, any changes to the drawings or specifications noted within Addendum Number One (1) will be reflected in subsequent drawing issues.
2. Drawings – 14 pages

Please feel free to call (847-866-2910) or email (lithomas@cityofevanston.org) with any questions or comments.

Sincerely,

Linda Thomas
Purchasing Specialist

Evanston Public Library Ventilation Fan Upgrade

Bid # 23-07

ADDENDUM No. 2

April 18, 2023

This addendum forms a part of the Specifications and Bid Documents for Bid #23-07 and modifies these documents. This addendum consists of the following:

Questions:

1. Could you please let me know the schedule for the project or the contract length? Bids are due on April 25, 2023 by 2:00 pm. This contract can be awarded by July 3, 2023, Contract end date is November 3, 2023.
The contract end date will be November 03, 2023. Any schedule changes will be formalized through a change order.
2. It was mentioned that the library sometimes uses boilers during September. Are we required to provide temporary heating to the building?
There is no expectation of a need for supplementary heat.
3. If we are required to provide temporary heating, we will require more information regarding the equipment's requirements.
There is no expectation of a need for supplementary heat.
4. Are we allowed to use the elevators to carry the equipment and material?
The freight elevator is available during off hours for moving ancillary items that meet the unit's weight rating. The expectation of removing the old units and installing the new units is that they will be craned in. Please see the project specifications.
5. Does the existing hydronic system contain any glycol?
No glycol, just a simple inhibitor. Building snowmelt systems utilize glycol. The fluids do not mix.
6. Please confirm if As-builts are available from the previous installation contractors.
Attached.
7. During the pre-bid walkthrough it was noted that the rigging and crane work could be done Monday – Friday during normal business hours. Please confirm.
Yes

8. Has the existing pipe and or duct insulation been tested for hazardous materials?
Yes, in the past. EPL was constructed in 1993 and is known not to contain any hazardous building materials.
9. General note 5 on the CS of the drawings mention modification of the existing sprinkler system, ductwork, lighting, fire alarm, piping, wire etc. to accommodate for the installation of new ductwork. Could an allowance be established to bill against, so these are accounted for equally in all bidders' proposals?
The job contains a 10% allowance for unforeseen field conditions only. Bid 23-07 is a lump sum bid.
10. Please confirm the existing roofers and is the roof under warranty?
**The roof is not under warranty.
EPL normally utilized Riddiford Roofing for all roofing needs.**
11. Please confirm the existing building has an automatic fire suppression system.
Yes, EPL has a full Simplex fire system under contract with JCI.
12. Please confirm the Temperature Controls Contractor.
EPL utilizes a Siemens Brand control system which is up to date.
13. During the pre-bid walkthrough it was mentioned that the existing louver could be damaged when being removed to allow for removal of existing and delivery of the new boilers. This existing louver is also called to be modified for the new AHU-1 as well as the added combustion air duct per note 7 on M100. Would it be preferable to provide a new louver as part of the project? If so, can you please provide a specification?
The louver will most likely need to be replaced. We have no available specifications on the existing louvers.

Attachment:

Drawings – 14 pages

Note: Acknowledgment of this Addendum is required in the Bid.

HVAC SYMBOLS	
SYMBOL	DESCRIPTION
	TRIPLE DUTY CHECK VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BALL VALVE
	PRESSURE REDUCING VALVE
	MOTORIZED 2-WAY OR 3-WAY VALVE
	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	BALANCE AND SHUT-OFF VALVE
	GAS COCK
	STEAM TRAP ASSEMBLY
	FLEXIBLE PIPING CONNECTION
	UNION
	STRAINER
	REDUCER OR INCREASER (CONCENTRIC OR ECCENTRIC)
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	MANUAL AIR VENT
	PRESSURE GAUGE COCK
	EXPANSION COMPENSATOR
	PIPE ANCHOR
	PIPE GUIDE
	CAP
	SUPPLY AIR DUCT
	EXHAUST AND RETURN DUCT
	OUTSIDE AIR INTAKE
	FLEXIBLE DUCT CONNECTION
	FIRE DAMPER
	MANUAL DAMPER
	AUTOMATIC DAMPER
	SPLITTER DAMPER
	INSULATION
	TURNING VANES IN ELBOW
	THERMOSTAT
	HUMIDISTAT
	SMOKE DETECTOR
	FLOW CONTROL VALVE

FIRE WALL LEGEND	
	ONE HOUR RATING
	TWO HOUR RATING

HVAC ABBREVIATIONS	
SYMBOL	DESCRIPTION
AD	AUTOMATIC DAMPER
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
BI	BLACK IRON
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CR	CONDENSATE RETURN
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DG	DOOR GRILLE
DIFF	DIFFUSER
EXH	EXHAUST
FD	FIRE DAMPER
FBO	FURNISHED BY OTHERS
G	GAS
GA	GAUGE
GBD	GRAVITY BACKDRAFT DAMPER
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
GR	GRILLE
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
MAV	MANUAL AIR VENT
MD	MANUAL DAMPER
NIC	NOT IN CONTRACT
NK	NECK
OAI	OUTSIDE AIR INTAKE
PCR	PUMP CONDENSATE RETURN
RA	RETURN AIR
RAD	RADIATION
REG	REGISTER
SA	SUPPLY AIR
SD	SMOKE DETECTOR
STM	STEAM
TC	TEMPERATURE CONTROL
UC	UNDERCUT DOOR
A.D	AUTOMATIC DAMPER

EQUIPMENT SCHEDULE (CONTINUED)	
P-1	CHILLED WATER PUMPS
P-2	"BELL & GOSSETT" (OR APPROVED EQUAL) SERIES 1510, BASE MOUNTED PUMPS, SIZE 58C 760 GPM AT 50 FT. HEAD, 15 HP HIGH EFFICIENCY MOTOR, 480V, 3 PH, 60 HZ, 1750 RPM.
P-3	HOT WATER PUMPS
P-4	"BELL & GOSSETT" (OR APPROVED EQUAL) SERIES 1510, BASE MOUNTED PUMPS, SIZE 4D, 555 GPM AT 120 FT. HEAD, 30 HP HIGH EFFICIENCY MOTOR, 480, 3 PH, 60 HZ, 1750 RPM.
P-5	BOILER CIRCULATING PUMPS
P-6	"BELL & GOSSETT" (OR APPROVED EQUAL) INLINE SERIES 60 1-1/2" AA PUMP, 30 GPM AT 20 FT. HEAD, 1/2 HP, 480V, 3 PH, 60 HZ.
P-7	CIRCULATING PUMP (NORTH SNOW MELTING SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) SERIES 60-2A INLINE PUMP, 71 GPM AT 35 FT. HEAD, 1 1/2 HP MOTOR, 1750 RPM, 480V, 3 PH, 60 HZ.
P-8	CIRCULATING PUMP (SOUTH SNOW MELTING SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) SERIES 60-1 1/2A INLINE PUMP, 38 GPM AT 45 FT. HEAD, 1 1/2 HP MOTOR, 1750 RPM, 480V, 3 PH, 60 HZ.
ET-1	EXPANSION TANK (CHILLED WATER SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) HORIZONTAL TANK 120 GALLONS CAPACITY, 24" DIAMETER WITH AIRTROL TANK FITTING, GAUGE GLASS, 125 PSI MAXIMUM WORKING PRESSURE, ASME STAMPED.
ET-2	EXPANSION TANK (HOT WATER SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) HORIZONTAL TANK 220 GALLONS CAPACITY, 30" DIAMETER WITH AIRTROL TANK FITTING, GAUGE GLASS, 125 PSI MAXIMUM WORKING PRESSURE, ASME STAMPED.
ET-3	EXPANSION TANK (SNOW MELTING SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) MODEL D-80 DIAPHRAGM TANK, AIRTROL TANK FITTING, GAUGE GLASS, 125 PSI MAX WORKING PRESSURE ASME STAMPED.
AS-1	AIR SEPARATOR (CHILLED WATER SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) ROLARITROL AIR SEPARATOR WITH BLOW DOWN CONNECTION, MODEL R-3, 125 PSI MAXIMUM WORKING PRESSURE, ASME STAMPED.
AS-2	AIR SEPARATOR (HOT WATER SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) ROLARITROL AIR SEPARATOR WITH BLOW DOWN CONNECTION, MODEL R-6, 125 PSI MAXIMUM WORKING PRESSURE, ASME STAMPED.
AS-3	AIR SEPARATOR (SNOW MELTING SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) ROLARITROL AIR SEPARATOR WITH BLOW DOWN CONNECTION, MODEL R-2-1/2, 125 PSI MAXIMUM WORKING PRESSURE, ASME STAMPED.
FF-1	FORCE FLOW HEATER
	"FRANE" (OR APPROVED EQUAL) MODEL E 46 HORIZONTAL RECESSED CABINET HEATER SIZE 03, 26200 BTU/HR HEATING CAPACITY, 2 GPM FLOW, 0.97 FT. WPD, 180F EWT, 1/20 HP, 120V, 1PH, 60HZ 3 SPEED MOTOR, UNIT TO BE COMPLETE WITH FILTER, WALL MOUNTED THERMOSTAT.
FF-2	FORCE FLOW HEATER
	"FRANE" (OR APPROVED EQUAL) MODEL H 46 VERTICAL RECESSED HEATER SIZE 03, 26200 BTU/HR HEATING CAPACITY, 2 GPM FLOW, 0.97 FT. WPD, 180F EWT, 1/20 HP, 120V, 1PH, 60 HZ 3 SPEED MOTOR, UNIT TO BE COMPLETE WITH FILTER, UNIT MOUNTED THERMOSTAT.
FF-3	FORCE FLOW HEATER (MAIN ENTRY)
	"INTERNATIONAL" (OR APPROVED EQUAL) MODEL MPY SIZE 06 CONCEALED VERTICAL UNIT, 600 NOMINAL CFM, HEATING ONLY APPLICATION, 2 ROW HEATING COIL, 37.5 MBH CAPACITY, 2.0 GPM WATER FLOW, 180F EAT, 1/15 HP MOTOR, 120V, 1 PH, 60 HZ, 4.0 FT. WPD UNIT MOUNTED THERMOSTAT.
FF-4	FORCE FLOW HEATER
	"FRANE" (OR APPROVED EQUAL) MODEL E 46 HORIZONTAL RECESSED CEILING MOUNTED HEATER SIZE 04, 35200 BTU/HR HEATING CAPACITY, 3 GPM FLOW, 2.63 FT. WPD, 180F AWT, 1/8 HP, 120V, 1PH, 60HZ 3 SPEED MOTOR, UNIT TO BE COMPLETED WITH FILTER, WALL MOUNTED THERMOSTAT.
RAD-1	HOT WATER RADIATION
	"RUNTAL" (OR APPROVED EQUAL) MODEL TYPE RF-4 PANEL RADIATOR, 860 BTU/FT RATING AT 170F AVERAGE WATER TEMPERATURE, 65F EAT, 3/4" OPPOSITE END PIPING CONNECTIONS MEDIUM WORKING PRESSURE, FINISH AS SELECTED BY ARCHITECT, LENGTHS AS SHOWN ON PLANS.
RAD-1A	HOT WATER RADIATION
	SAME AS RAD-1 EXCEPT SAME END (SERIES) PIPING CONNECTIONS.
RAD-2	HOT WATER RADIATION
	"RUNTAL" (OR APPROVED EQUAL) MODEL TYPE R2F-4 PANEL RADIATORS 1520 BTU/FT RATING AT 170F AWT, 65F EAT, 3/4" OPPOSITE END PIPING CONNECTION, MEDIUM WORKING PRESSURE, FINISH AS SELECTED BY ARCHITECT, LENGTHS AS SHOWN ON PLANS.
RAD-2A	HOT WATER RADIATION
	SAME AS RAD-2 EXCEPT SAME END (SERIES) PIPING CONNECTIONS.
RAD-3	HOT WATER RADIATION
	"RUNTAL" (OR APPROVED EQUAL) MODEL TYPE R-4 PANEL RADIATOR, 510 BTU/FT RATING AT 170F AWT, 65F EAT, 3/4" OPPOSITE END PIPING CONNECTIONS, MEDIUM WORKING PRESSURE, FINISH AS SELECTED BY ARCHITECT LENGTHS AS SHOWN ON PLANS.
RAD-3A	HOT WATER RADIATION
	SAME AS RAD-3 EXCEPT SAME END PIPING SERIES CONNECTIONS.
RAD-4	HOT WATER RADIATION
	"RUNTAL" (OR APPROVED EQUAL) MODEL TYPE R3F-4 PANEL RADIATOR 1945 BTU/FT RATING AT 170F AWT, 65F EAT, 3/4" OPPOSITE END CONNECTION, MEDIUM WORKING PRESSURE, FINISH AS SELECTED BY ARCHITECT, LENGTHS AS SHOWN ON PLANS.
RAD-4A	HOT WATER RADIATION
	SAME AS RAD-4 EXCEPT SAME END (SERIES) PIPING CONNECTIONS.

EQUIPMENT SCHEDULE	
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION	
S-1	SUPPLY FAN
S-2	"WOODS" (OR APPROVED EQUAL) VARFOIL VARIABLE-PITCH-VANEXIAL FAN, MODEL 125V56A-4-9, 50,000 CFM AT 6.5 IN. W.G. STATIC PRESSURE, PREVIEW INLET GUARD, INLET BELL, LONG DISCHARGE CONE WITH CENTER POD AND FLEXIBLE CONNECTOR, FAN TO OPERATE DOWN TO 0 CFM AND 0 IN. W.G. STATIC PRESSURE, 100 HP, 480V, 3 PH, 60 HZ.
CC-1	CHILLED WATER COIL
	"CARRIER" (OR APPROVED EQUAL) CHILLED WATER COIL MODEL BC 40" HEIGHT, 120" TUBE LENGTH, 16 COILS TOTAL FOR AN OVERALL SIZE OF 120" H X 240" W, 8 ROW, 14 FINS PER INCH, ALUMINUM FINN WITH COPPER TUBES, CIRCULATING TYPE DB: 100,000 CFM TOTAL, 500 FPM FACE VELOCITY, 4663.2 MBH TOTAL COOLING, 3394.2 MBH SENSIBLE COOLING, 81.50F DB, 66.3F WB ENTERING AIR CONDITIONS, 50.5F DB, 50.5F WB LEAVING AIR CONDITIONS, 1.5 IN. W.G. AIR PRESSURE DROP, 760 GPM TOTAL, 20% ETHYLENE GLYCOL, 8.6 FT. W.G. WATER PRESSURE DROP, 40 OF ENTERING WATER TEMPERATURE, USE MAXIMUM WATER TEMPERATURE RISE 460 LBS TOTAL R-22 REFRIGERANT.
CH-1	AIR COOLED CHILLER (TRANSYORK AIR COOLED SCREW AS ALTERNATE-SEE SPECIFICATIONS)
CH-2	"CARRIER" (OR APPROVED EQUAL) AIR COOLED RECIPROCATING LIQUID CHILLER MODEL 30G8200, CAPACITY 182.1 TONS, COMPRESSOR INPUT POWER 226.5 KW, UNIT INPUT POWER 245.1 KW, UNIT MINIMUM EER 8.9, R-22 REFRIGERANT, 20% ETHYLENE GLYCOL, 52 OF MAXIMUM, 40 OF LWT, 380 GPM, 9.6 FT. W.G. PRESSURE DROP, 29 OF SATURATED SUCTION TEMPERATURE, 95F DB EAT, 128 OF SATURATED DISCHARGE TEMPERATURE, 480V, 3 PH, 60 HZ, PROVIDE ONE SET OF DRI CONTACTS FOR ALARM TO BAS SYSTEM, PROVIDE OPTIONAL SOUND ATTENUATING PACKAGE.
SA-1	SOUND ATTENUATOR BANK (INTAKE)
	"INDUSTRIAL ACOUSTICS COMPANY" SILENCER, MODEL 5S, 192 X 84 OVERALL SIZE, 5 FT LONG 100,000 CFM TOTAL, 0.21 IN. W.G. PRESSURE DROP, PERFORMANCE AT -1000 FPM AS FOLLOWS:
	DBN 1 2 3 4 5 6 7 8 DIL 11 21 25 43 47 44 39 22
SA-2	SOUND ATTENUATOR BANK (DISCHARGE)
	"INDUSTRIAL ACOUSTICS COMPANY" SILENCER, MODEL 7 LFM, 192 X 84 OVERALL SIZE, 7 FT LONG 100,000 CFM TOTAL, 0.24 IN. W.G. PRESSURE DROP, PERFORMANCE AT +1000 FPM AS FOLLOWS:
	DBN 1 2 3 4 5 6 7 8 DIL 15 16 31 41 38 22 16 14
SA-3	SOUND ATTENUATOR BANK (RETURN)
	"INDUSTRIAL ACOUSTICS COMPANY" SILENCER, MODEL 5 LFM, 120 X 84 OVERALL SIZE, 5 FT LONG 90,000 CFM TOTAL, 0.38 IN. W.G. PRESSURE DROP, PERFORMANCE AT -1000 FPM AS FOLLOWS:
	DBN 1 2 3 4 5 6 7 8 DIL 12 15 27 31 30 17 14 13
F-1	FILTER ASSEMBLY
	"AMERICAN AIR FILTER" (OR APPROVED EQUAL) FILTER ASSEMBLY COMPLETE WITH PREFILTER, FINAL FILTER AND UNIVERSAL HOLDING FRAME, PREFILTER-AM-AIR, 500X, EXTENDED SURFACE PLEATED PANEL FILTER, (50) 24 X 24 X 2, 80% EFFICIENT, 850 SF GROSS MEDIA AREA, 0.5 IN. W.G. INITIAL AND 0.6 IN. W.G. FINAL PRESSURE DROP AT 500 FPM, 100,000 CFM TOTAL, FINAL FILTER-DRI-PAK, EXTENDED SURFACE FILTER, (50) 24 X 24 X 2, 80% EFFICIENT, 3850 SF GROSS MEDIA AREA, 0.45 IN. W.G. INITIAL AND 0.9 IN. W.G. FINAL PRESSURE DROP AT 500 FPM, 100,000 CFM TOTAL, PROVIDE DIFFERENTIAL PRESSURE GAUGE ACROSS PREFILTER AND FINAL FILTER TO BE MONITORED BY THE BUILDING AUTOMATION SYSTEM, TOTAL ASSEMBLY TO BE 240 X 120.
HX-1	HEAT EXCHANGER (SNOW MELTING SYSTEM)
	"BELL & GOSSETT" (OR APPROVED EQUAL) MODEL 0W106-42 4 PASS HEAT EXCHANGER 56 GPM HOT WATER FLOW (SHELL), 180F EWT, 145F LWT, 3.0 FT PRESSURE DROP, 0.0042 FLOW FACTOR 109 GPM, 119F ENTERING, 139F LEAVING, 50% GLYCOL SOLUTION (IN TUBES), 5.0 FT PRESSURE DROP.
B-1	BOILER
B-2	"BRYAN" (OR APPROVED EQUAL) FLEXIBLE-TUBE MODEL RV 450 FORCED DRAFT GAS FIRED HOT WATER BOILER, 4500 MBH INPUT, 8000 MBH OUTPUT, ASME APPROVED CONSTRUCTION FOR 125 PSI MAXIMUM WORKING PRESSURE, 5 HP BURNER MOTOR, 480V, 3 PH, 60 HZ, MODULATING FIRING RATE AND COMBUSTION, ELECTRONIC SAFETY CONTROL, HIGH LIMIT CONTROL, LOW WATER CUT-OFF, FACTORY MOUNTED AND WIRED CONTROL AND CONTROL PANEL WITH FUSED DISCONNECT, 2 PSI GAS PRESSURE.
AH-1	AIR HANDLING UNIT (BOILER ROOM)
	"CARRIER" (OR APPROVED EQUAL) MODEL 39 LG SIZE 03 AIR HANDLING UNIT, 1500 CFM SUPPLY AT 1.0" SP, HEATING COIL 2 ROW, 8 FINS, 662 FPM FACE VELOCITY, 140 MBH, CAPACITY, 8.5 GPM WATER FLOW AT 180F EWT, 1.24 FT. WPD, FACE AND BYPASS DAMPER, 1 HP FAN MOTOR, 480V, 3 PH, 60 HZ, COMPLETE WITH 2" THROW-AWAY FILTERS.
BOILER STACK	"METALBESTOS" (OR APPROVED EQUAL) MODEL PS FACTORY PREFABRICATED DOUBLE WALL SYSTEM STACK WITH TYPE 304 STAINLESS STEEL INNER AND ALUMINIZED STEEL OUTER CASING SEPARATED BY 1" AIR SPACE, SYSTEMS SHALL BE UL LISTED AND MEET NFPA 211 AND LOCAL CODES. STACK ASSEMBLY SHALL INCLUDE PIPE SECTION, ROOF PENETRATION AND ANCHORS, GUIDES, SUPPORTS ASSEMBLIES AND INSULATED EXIT CONE AS REQUIRED FOR A COMPLETE INSTALLATION EXTEND 3'-0" FT ABOVE ROOF, ALL PARTS INSTALLED WITH OUTDOOR EXPOSURE SHALL BE PROTECTED BY MINIMUM OF ONE BASE COAT AND TWO FINISH COATS OF PAINT SUCH AS SERIES 42C/4300 HEAT RESISTANT PAINT AS MANUFACTURED BY RUST-O-LEUM CORP. OR EQUIVALENT. PAINT TO BE SUPPLIED AND APPLIED BY INSTALLING CONTRACTOR.
SNOW MELTING SYSTEM	"HEATWAY" (OR APPROVED EQUAL) CLASS 11 SNOW MELTING SYSTEM, APPROXIMATELY 5500 SQUARE FEET AT 150 BTU/HP, MEAN TEMPERATURE DURING SNOW MELT (139F-119F) AND 112F MEAN TEMPERATURE DURING IDLE (122-102F), 820 MBH SNOW MELT LOAD, 666 MBH IDLE LOAD, 935 MBH BOILER LOAD, 3/4" ENTRAN 3 TUBING, 109 GPM WITH 50% GLYCOL SOLUTION, 12 FEET MAXIMUM PRESSURE DROP IN TUBES, 285 FEET TUBE CIRCUIT LENGTH, NORTH SYSTEM - 23 CIRCUITS AT 8" O.C.; SOUTH SYSTEM - 12 CIRCUITS AT 8" O.C. SEE SPECIFICATIONS FOR INFORMATION ON SNOW MELT CONTROL SYSTEMS. ALL WIRING BY MECH. CONTRACTOR.

GENERAL NOTES:
 1. NOISE LEVELS SHALL NOT EXCEED 55 DBA AT LOT LINE.
 2. INTAKE LOUVERS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ALL EXHAUST POINTS, VENTS, ETC.

WMA
 Consulting Engineers, Ltd.
 819 South Wabash Ave. - Chicago, IL 60605
 Phone: (312) 786 - 4310 - FAX: (312) 786 - 1123

6/2/93	PACKAGE #4 - 100% CD'S FOR PERMIT
4/15/93	PACKAGE #4 - 100% CD'S FOR BIDDING
3/15/93	PACKAGE #3 - 80% CONSTRUCTION DOCUMENTS

No. Date Submissions / Revisions
 Drawn By: **EK** Checked By: **WK** Project No. **9121**

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THE CITY OF EVANSTON
EVANSTON PUBLIC LIBRARY
 1703 Orrington Avenue Evanston, Illinois 60201

HVAC SYMBOLS, ABBREVIATIONS AND SCHEDULES

M001

N.T.S.

UNIT HEATER SCHEDULE							
TAG	AREA SERVED	MODEL#	HEATING CAPACITY MBH	FLOW GPM	WPD FT	AIR FLOW CFM	ELECTRICAL DATA
UH-1 THRU UH-10	GARAGE	400-W2	282	28	12.9	6020	0.75HP,480V,3PH,60HZ
UH-11	STORAGE B07	20-W-2	9	1	0.02	315	1/20HP,120V,1PH,60HZ
UH-12	MECH.ROOM B10	20-W-2	9	1	0.02	315	1/20HP,120V,1PH,60HZ
UH-13	MECH.ROOM B01	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-14	NOT USED						
UH-15	STAIRS(WEST)	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-16	LOADING DOCK	126-W-2	81.1	8.4	4.44	1660	1/25HP,120V,1PH,60HZ
UH-17	STAIRS(EAST)	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-18	STAIRS(SOUTH) 2ND FLOOR	38-W-2	22.1	2.3	0.22	524	1/20HP,120V,1PH,60HZ
UH-19	PLENUM R.A (4TH FLOOR)	100-W-2	60.7	6.26	2.08	1430	1/8HP,120V,1PH,60HZ
UH-20	LOADING DOCK CEILING	38-W-2	33.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-21 THRU UH-24	4TH FLOOR CEILING	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-25	TOWER	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-26	AIR HANDLING RM.(4TH FLOOR)	230-W-2	127.8	8.0	1	3200	1/25HP,120V,1PH,60HZ
UH-27	THIRD FLOOR CEILING	20-W-2	9	2.3	0.22	315	1/20HP,120V,1PH,60HZ
UH-28	THIRD FLOOR CEILING	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ
UH-29	THIRD FLOOR CEILING	38-W-2	22.1	2.3	0.22	514	1/20HP,120V,1PH,60HZ

NOTE: UNIT HEATERS "TRANE" (OR APPROVED EQUAL)

FPB SCHEDULE							
TAG	CFM	SIZE	MOTOR HP	VOLTAGE PHASE	GPM	HEATING CAPACITY MBH	PRESSURE DROP (FT. W.G.)
101	1100	12B	1/2	277/1	--	----	----
102	1100	12B	1/2	277/1	--	----	----
103	1250	12B	1/2	277/1	--	----	----
201	1100	12B	1/2	277/1	2.0	31.3	3.1
202	1100	12B	1/2	277/1	--	----	----
203	1100	12B	1/2	277/1	--	----	----
204	1100	12B	1/2	277/1	--	----	----
205	1100	12B	1/2	277/1	--	----	----
206	1100	12B	1/2	277/1	--	----	----
207	1100	12B	1/2	277/1	2.0	31.3	3.1
208	1300	12B	1/2	277/1	--	----	----
209	1300	12B	1/2	277/1	--	----	----
210	1300	12B	1/2	277/1	--	----	----
301	1250	12B	1/2	277/1	2.0	31.3	3.1
302	1250	12B	1/2	277/1	2.0	31.3	3.1
303	1250	12B	1/2	277/1	--	----	----
304	NOT USED						
305	350	6	1/4	120/1	--	----	----
306	350	6	1/4	120/1	--	----	----
401	450	8	1/4	120/1	--	----	----

- FAN POWERED BOXES TO BE FURNISHED BY TEMPERATURE CONTROL CONTRACTOR AND INSTALLED BY MECH CONTRACTOR. (FOR MORE INFORMATION SEE TEMP CONTROL SPECIFICATION)
- FAN POWERED BOXES TO BE ETI (OR "TITUS") SERIES FLOW MODEL CVFO-II.
- BOXES TO BE FURNISHED WITH TOGGLE TYPE DISCONNECT SWITCH.
- INLET CONNECTION TO BOXES SHALL BE LINED DUCT WITH A MINIMUM LENGTH OF 30" FLEXIBLE DUCTWORK ON THE INLETS SHALL NOT BE ALLOWED.
- BOXES SHALL BE CONSTRUCTED OF ZINC COATED STEEL WITH GAUGES AS FOLLOWS: AIR VALVE CASING - 18 GA.; FAN CASING - 18 GA.; AIR VALVE - 16 GA.; VALVE SEAT - 20 GA.; FULL BOTTOM ACCESS - 18 GA.
- BOXES SHALL BE LINED WITH 1/2" 4 LBS/CF FIBERGLASS COMPLYING WITH NFPA 90-A AND UL 181. ALL EXPOSED EDGES TO BE SEALED.
- BOXES SHALL PRODUCE NOISE LEVELS IN THE SPACE NOT EXCEEDING NC 35 AT 1.5' W.G. INLET PRESSURE.
- SEE FPB SCHEDULE FOR SPECIFIC BOX CFM, HEATING CAPACITIES AND ELECTRICAL DATA.

EXHAUST FAN SCHEDULE							
TAG	SERVICE	FAN LOCATION	CFM	STATIC PRESSURE (IN.W.G.)	HP	VOLTAGE PHASE	MODEL ACCESSORIES
EF-1	SPILL EXHAUST	ROOF	30000	1	10	480/3	SPB-CA-54
EF-2	SPILL EXHAUST	ROOF	30000	1	10	480/3	SPB-CA-54
EF-3	SPILL EXHAUST	ROOF	30000	1	10	480/3	SPB-CA-54
EF-4	ELECTRICAL RM EXHAUST	ELECTR ROOM (1ST FLOOR)	750	0.5	0.75	480/3	CSP-162A BACKDRAFT DAMPER
EF-5	GARAGE EXHAUST	GARAGE	27500	0.5	7.5	480/3	SPB-CA-48
EF-6	GARAGE EXHAUST	GARAGE	7500	0.5	1 1/2	480/3	SPB-CA-30 (HIGH PRESSURE)
EF-7	GENERAL EXHAUST	ROOM 132	200	0.25	1AMP 75 WATTS	120/1	SP-125 BACKDRAFT DAMPER
EF-8	GENERAL EXHAUST	ROOM 411	200	0.25	1AMP 75 WATTS	120/1	SP-125 BACKDRAFT DAMPER
EF-9	EL ROOM EXHAUST	ELECTR ROOM (4TH FLOOR)	340	0.5	0.5	480/3	CSP-152A BACKDRAFT DAMPER
TE-1	TOILET EXHAUST	ROOF	2375	0.75	0.75	480/3	GB-160 PREFABRICATED INSULATED ROOF CURB
TE-2	TOILET EXHAUST	ROOF	875	0.75	0.25	120/1	GB-90 PREFABRICATED INSULATED ROOF CURB

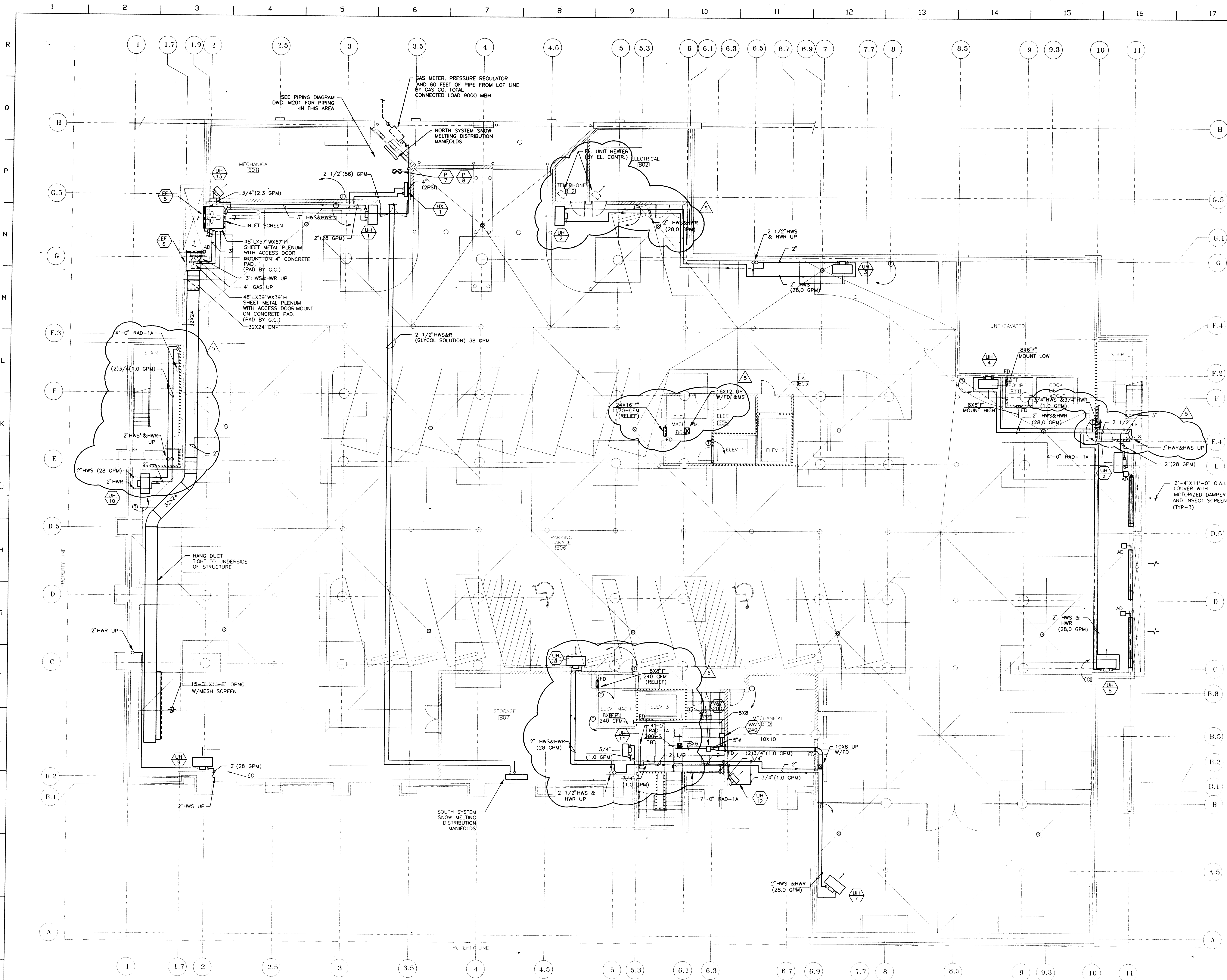
NOTE: EXHAUST FANS "GREENHECK" (OR APPROVED EQUAL)

EQUIPMENT SCHEDULE (CONTINUED)							
TYPE "A" CEILING SUPPLY DIFFUSER							
"TITUS" (OR APPROVED EQUAL) ARCHITECTURAL SQUARE PANEL CEILING DIFFUSER MODEL OMNI-12 FOR A NARROW TEE 24 X 24 LAY-IN CEILING. THE DIFFUSERS SHALL BE SIZED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:							
CFM RANGE	NECK SIZE						
300-360	8"						
361-540	10"						
541-700	12"						
701-940	14"						
TYPE "B" CEILING SUPPLY DIFFUSER							
"TITUS" (OR APPROVED EQUAL) ARCHITECTURAL SQUARE PANEL CEILING DIFFUSER MODEL OMNI-12 FOR A NARROW TEE 24 X 24 LAY-IN CEILING. THE DIFFUSERS SHALL BE SIZED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:							
CFM RANGE	NECK SIZE						
0-190	7"						
191-260	8"						
261-290							
TYPE "C" CEILING RETURN DIFFUSER							
SAME AS TYPE "A" EXCEPT FOR 15" NECK SIZE. (TYPE C1 - DRYWALL CEILING MOUNTING)							
TYPE "D" CEILING RETURN DIFFUSER							
SAME AS TYPE "B" (TYPE "B1") EXCEPT FOR 8" NECK SIZE ONLY. (TYPE D1 - DRYWALL CEILING MOUNTING)							
TYPE "E" SIDEWALL SUPPLY REGISTER							
"TITUS" (OR APPROVED EQUAL) MODEL 300 FL 3/4" SPACING, DOUBLE DEFLECTION REGISTER, OPPOSED BLADE DAMPER, SIZES AS SHOWN ON DRAWINGS, FINISH AS SELECTED BY ARCHITECT.							
TYPE "F" RETURN EXHAUST REGISTER							
"TITUS" (OR APPROVED EQUAL) MODEL 35SFL 1/2" SPACING, 35" FIXED DEFLECTION RETURN REGISTER SIZES AS SHOWN ON DRAWINGS, FINISH AS SELECTED BY ARCHITECT.							
TYPE "G" RETURN REGISTER							
SAME AS ABOVE EXCEPT ADD OPPOSED BLADE DAMPER.							
TYPE "H" SUPPLY REGISTER							
"TITUS" (OR APPROVED EQUAL) RECTANGULAR MODEL 250-AA DIFFUSER, 3 WAY DISCHARGE, SIZES AS SHOWN ON DRAWINGS, FINISH AS SELECTED BY ARCHITECT.							
RV-1	RELIEF VENTILATOR (ELEVATOR SHAFTS)						
RV-2	"GREENHECK" (OR APPROVED EQUAL) 18 X 24 THROAT SIZE, 5.0 SQ. FT. FREE AREA, PREFABRICATED INSULATED ROOF CURB, MOTORIZED DAMPER, NORMALLY OPEN.						
RV-3	GRAVITY RELIEF VENTILATOR						
"GREENHECK" (OR APPROVED EQUAL) GRAVITY RELIEF 24 X 24 THROAT SIZE, 4.0 SQ. FT. FREE AREA, PREFABRICATED INSULATED ROOF CURB, BACKDRAFT DAMPER.							
O.A.1	AND EXHAUST LOUVERS (PENTHOUSE AND ROOF)						
"IAC" (OR APPROVED EQUAL) ACOUSTICAL LOUVER MODEL R EXTRUDED ALUMINUM CONSTRUCTION WITH 215R1 ANODIZED ALUMINUM FINISH, 12" DEEP, SIZES AS SHOWN ON PLANS (SEE SPECIFICATIONS FOR MORE INFORMATION)							
EXHAUST LOUVER (ROOM 132 EXHAUST)							
"AMERICAN WARMING" (OR APPROVED EQUAL) EXTRUDED ALUMINUM CONSTRUCTION MODEL LE-57 2" DEEP LOUVER WITH 215 R1 ANODIZED ALUMINUM FINISH.							
O.A.1	AND EXHAUST LOUVERS (GARAGE)						
LOUVER MODEL LE-21 BY AMERICAN WARMING AND VENTILATING INC. (OR APPROVED EQUAL) 4" DEEP WEATHER LOUVER, SIZE AS SHOWN ON PLANS, EXTRUDED ALUMINUM FRAME AND BLADES WITH INTEGRAL DOWNSPOUTS AND REMOVABLE ALUMINUM WIRE MESH SCREEN. INSECT SCREEN WHERE INDICATED ON PLANS. KYNAR FINISH, COLOR AS SELECTED BY ARCHITECT.							

CFM RANGE		VAV BOX SIZE
100-175	4	
176-300	5	
301-400	6	
401-700	8	
701-1100	10	
1101-1400	12	
1401-1700	14	
1701-2100	16	
2101-2300	18	

- VAV BOXES TO BE FURNISHED BY TEMPERATURE CONTROL CONTRACTOR AND INSTALLED BY MECH CONTRACTOR. (FOR MORE INFORMATION SEE TEMP CONTROL SPECIFICATION)
- VAV BOXES TO BE ETI (OR "TITUS") MODEL SSD-II
- INLET CONNECTION TO VAV BOXES SHALL BE LINED DUCT WITH A MINIMUM LENGTH OF 30" FLEXIBLE DUCTWORK ON THE INLETS SHALL NOT BE ALLOWED.
- VAV BOXES SHALL BE CONSTRUCTED OF ZINC COATED STEEL WITH GAUGES AS FOLLOWS: CASING - 18 GA.; AIR VALVE - 16 GA.; VALVE SEAT - 20 GAUGE.
- VAV BOXES SHALL BE LINED WITH 1/2" 4 LBS/CF FIBERGLASS COMPLYING WITH NFPA 90-A AND UL 181. ALL EXPOSED EDGES TO BE SEALED.
- VAV BOXES SHALL PRODUCE NOISE LEVELS IN THE SPACE NOT EXCEEDING NC 35 AT 1.5' W.G. INLET PRESSURE.
- VAV BOXES SHALL BE 100% SHUT-OFF.

VENTILATION SCHEDULE									
ROOM NO.	ROOM NAME	CODE REQ.	ACTUAL		EQUIPMENT		EQUIPMENT LOCATION		
			SUPPLY	EXHAUST	SUPPLY	EXHAUST			
101	TOILET	N/R	150		S1, S2	TE-2	4TH FL. ROOF		
102	HALL	N/R	100	200					
103	TOILET	N/R	150		S1, S2	TE-2	4TH FL. ROOF		
104	CDP	50	50	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
105	CDRIBDR	N/R	300	300					
106	ELEC RM	N/R							
107	PHONE	N/R		75		TE-2	4TH FL. ROOF		
108	JANITOR	N/R	150	150	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
109	CDRIBDR	N/R	300	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
110	TOILET	N/R	75			TE-2	4TH FL. ROOF		
111	HALL	N/R							
112	OFFICE	20	20	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
113	LDING DK	N/R							
114	LDING DK	N/R							
115	CIRC	100	100	1500	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
116	OFFICE	35	35	650	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
117	MAIN DESK	140	140	350	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
118	TOILET	N/R	300	150	S1, S2	TE-1	4TH FL. ROOF		
120J	TOILET	N/R	300	150	S1, S2	TE-1	4TH FL. ROOF		
122	MING RM.	350	350	780	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
123	PRE-FUNCT	N/R	N/R	900	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
124	VESTIBULE	N/R	N/R						
125	STORAGE	N/R	N/R	100	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
126	HALL	N/R	N/R						
127	STAIRS	N/R	N/R	100	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
128	PROJ RM	5	5	500	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
129	JANITOR	N/R	75			TE-1	4TH FL. ROOF		
130	JANITOR	N/R	75			TE-1	4TH FL. ROOF		
131	STORAGE	N/R	N/R						
132	PANTRY	60	60	200	S1, S2	EF-7	1ST FLOOR		
133	MING	2500	2500	3750	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
134	VESTIBULE	N/R	N/R						
135	LOBBY	600	600	600	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
136	LOBBY	600	600	1200	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
137	BROWSING	840	840	2200	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
138	A/V	210	210	800	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
139	HALL	N/R	N/R						
140	WK RM	280	280	700	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
141	COLLEC	490	490	5950	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
142	ACT RM	700	700	900	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
143	READING	420	420	840	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
201	TOILET	N/R	150	100	S1, S2	TE-2	4TH FL. ROOF		
202	HALL	N/R		200	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
203	TOILET	N/R	150	100	S1, S2	TE-2	4TH FL. ROOF		
204	JANITOR	N/R	75			TE-2	4TH FL. ROOF		
205	TELE	N/R	N/R						
206	HALL	N/R	N/R	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
207	ELEC RM	N/R	N/R						
209	HALL	N/R	N/R						
211	OFFICE	35	35	250	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
212	OFFICE	35	35	750	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
213	OFFICE	35	35	290	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
214	CDLLEC	490	490	8900	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
215	SRVC DESK	280	280	800	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
216	CDLLEC	410	410	250	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
301	TOILET	N/R	150	100	S1, S2	TE-2	4TH FL. ROOF		
302	HALL	N/R		200	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
303	TOILET	N/R	150	100	S1, S2	TE-2	4TH FL. ROOF		
304	JANITOR	N/R	75			TE-2	4TH FL. ROOF		
305	TELE	N/R	N/R						
306	HALL	N/R	N/R	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
307	HALL	N/R	N/R						
308	ELEC RM	N/R	N/R						
309	HALL	N/R	N/R						
310	GRAPHIC	420	420	780	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
311	BLIND	250	250	700	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
312	COND	210	210	350	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
313	NOT USED								
314	COND RM	210	210	250	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
315	COLLECT	535	535	5650	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
316	STUDY	1050	1050	1480	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
317	REF DESK	140	140	780	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
318	EVANSTON	140	140	300	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
319	COLLECT	560	560	11600	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
320	SRVC DESK	140	140	220	S1, S2	EF-1,2,3	4TH FL. PENTHOUSE		
321	TYPE RM								



BASEMENT HVAC PLAN



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 312/ 263-6990 Fax No. 312/ 263-3168

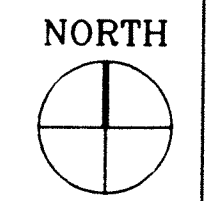
Joseph Powell Architect
 4100 Main Street Philadelphia, PA 19127
 215/ 487-2816 Fax No. 215/ 487-3068

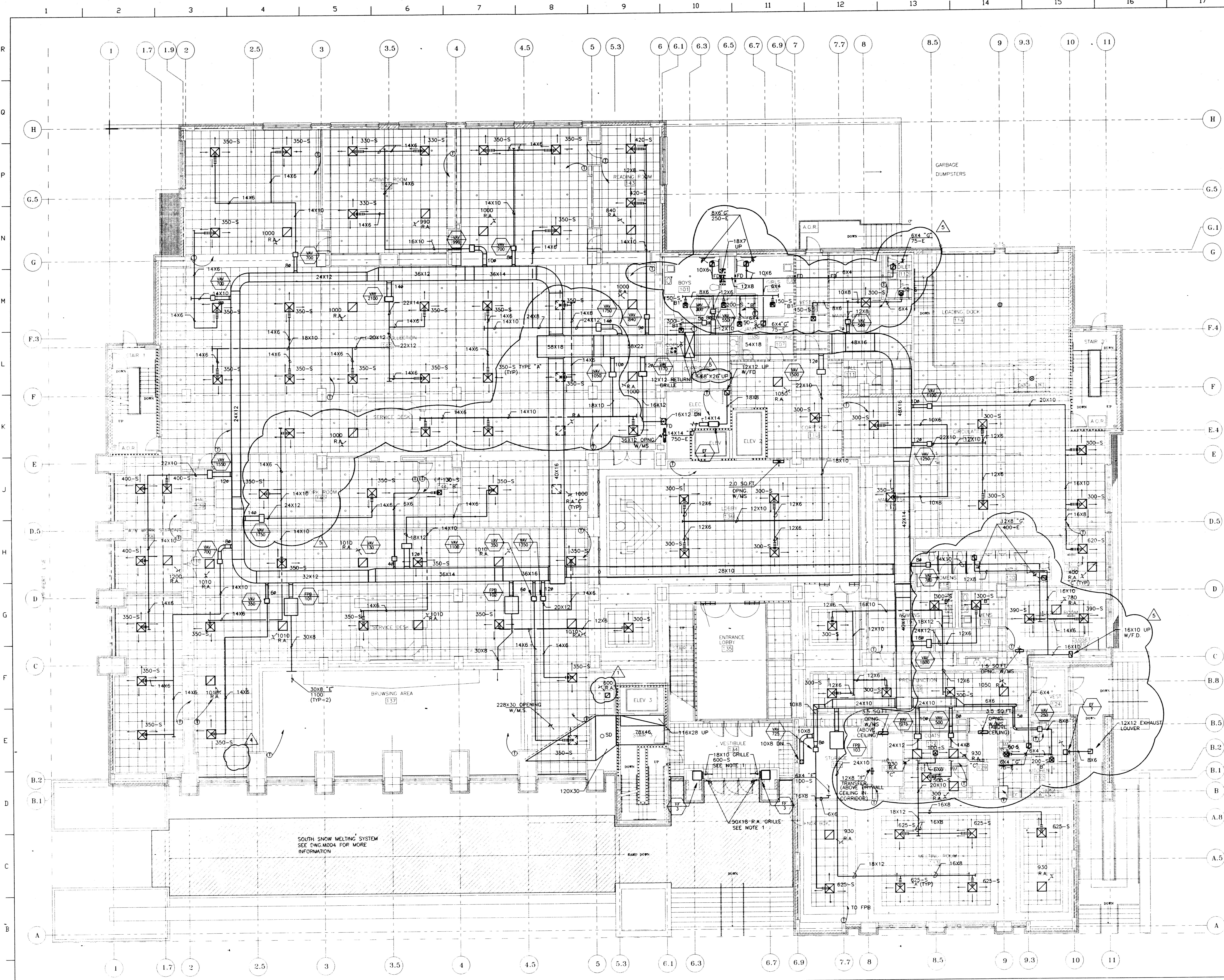
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BASEMENT FLOOR HVAC DUCTWORK AND PIPING

M101

SCALE 1/8"=1'-0"





NOTE 1:
FOR FORCE-FLOW CABINET HEATERS IN VESTIBULE 134 PROVIDE ARCHITECTURAL CUSTOM PERFORATED GRILLES LATTICE #208 PRIMED FOR PAINT. SEE ARCH.DWGS FOR MORE INFORMATION

NOTE 2:
ALL 12X12 DIFFUSERS TO BE MOUNTED IN CENTER OF TILE. (TYPICAL FOR ALL FLOORS)

NOTE 3:
SEE ARCHITECTURAL DWGS FOR EXACT LOCATION OF DIFFUSERS AND GRILLES. VERIFY LOCATIONS PRIOR TO INSTALLATION (TYPICAL FOR ALL FLOORS)

NOTE 4:
VERIFY THERMOSTAT TYPE, FINISH AND LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. ALL THERMOSTATS MOUNTED ON PERIMETER "PIERS" TO BE CONCEALED ELEMENT TYPE (TYPICAL FOR ALL FLOORS)

NOTE 5:
THERMOSTATS ON EXTERIOR WALLS TO BE MOUNTED ON THERMAL ISOLATION PADS. (TYPICAL FOR ALL FLOORS)



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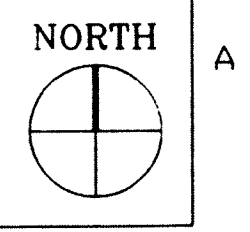
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FIRST FLOOR HVAC PLAN
DUCTWORK

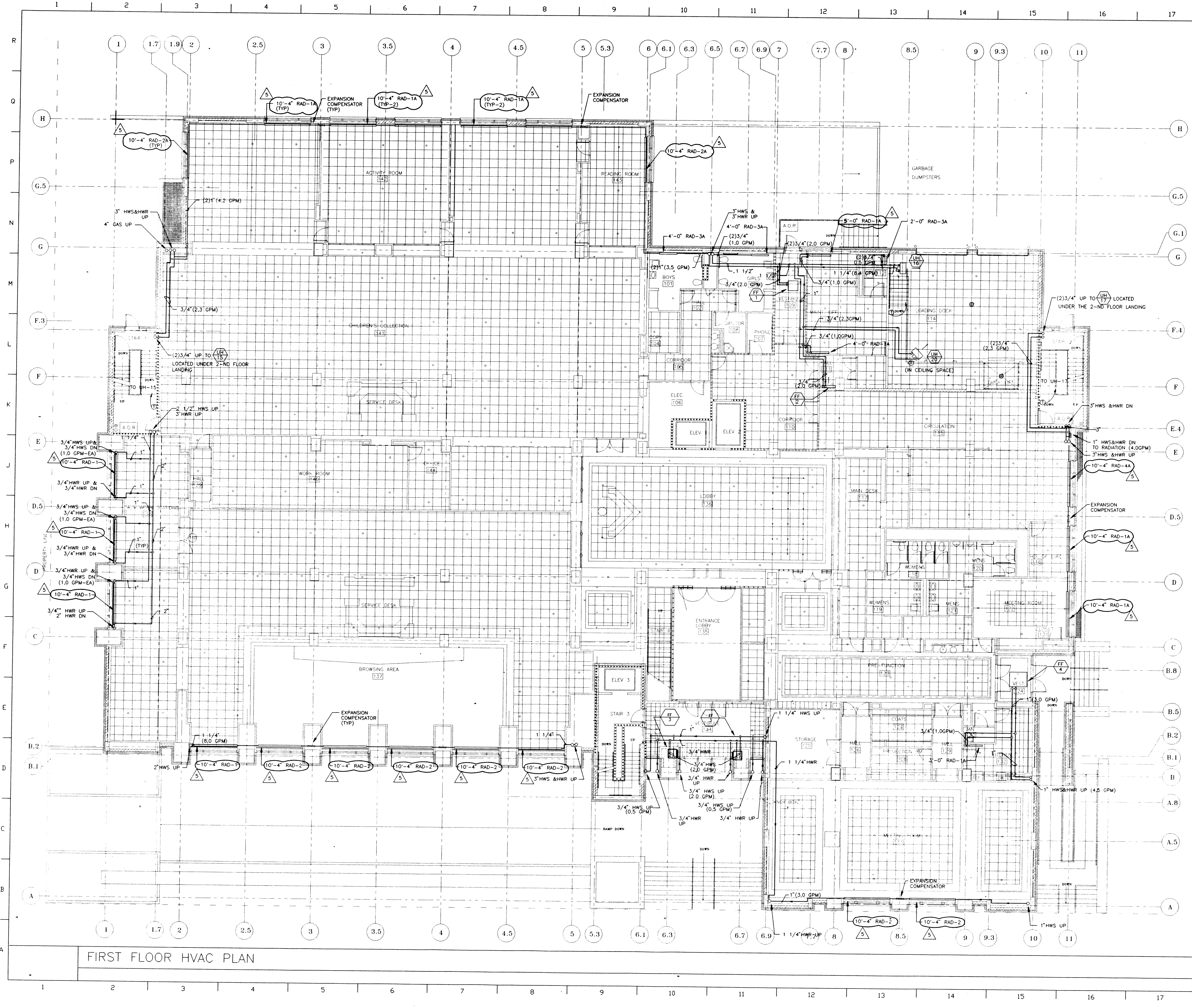
M102

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



FIRST FLOOR HVAC PLAN

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NOTE 1:
SEE ARCHITECTURAL DWGS FOR BASEBOARD HEATER DETAILS

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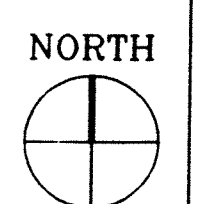
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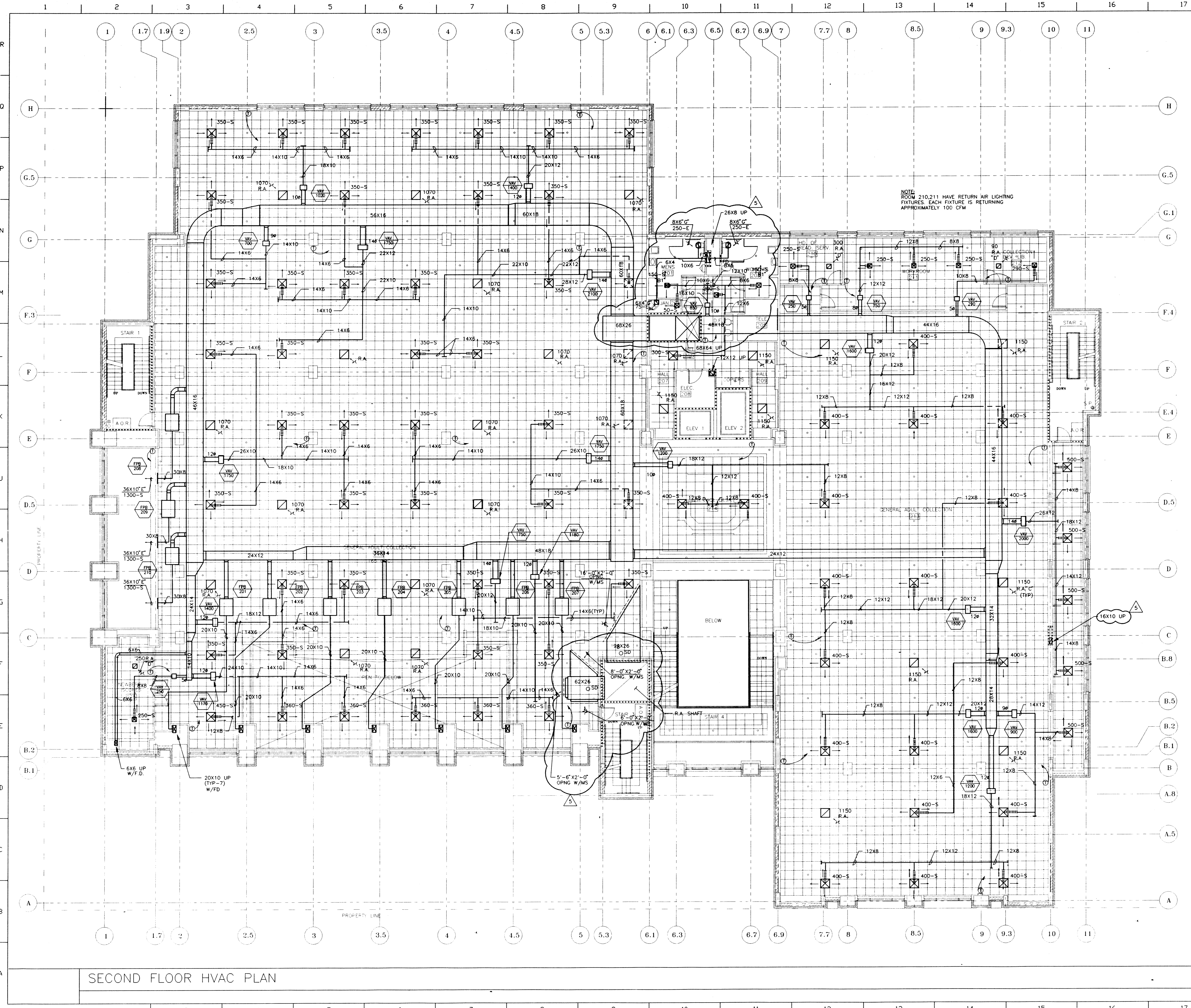
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FIRST FLOOR HVAC PLAN
PIPING

M103

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





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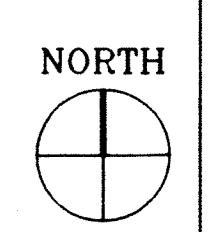
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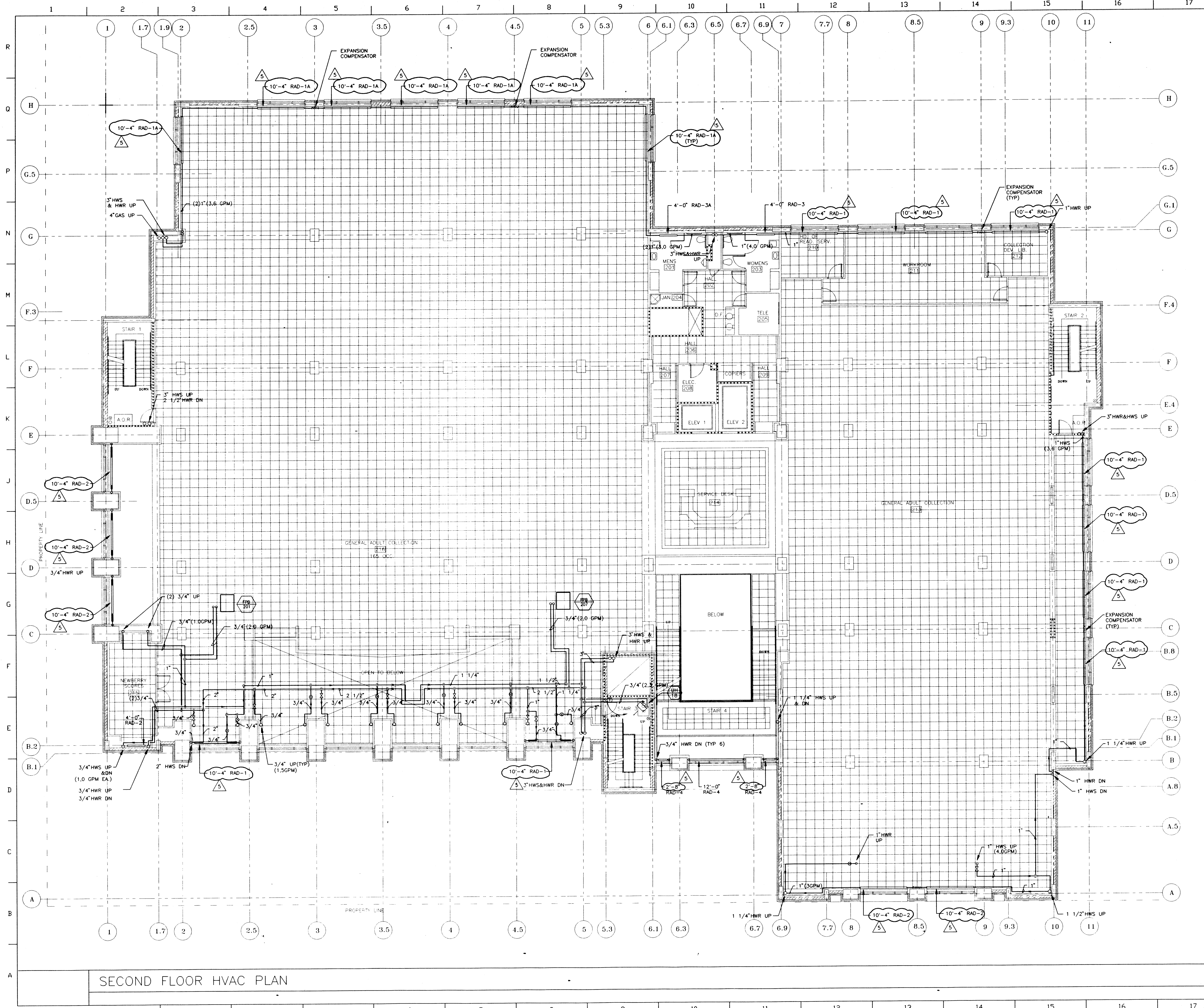
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SECOND FLOOR HVAC PLAN
DUCTWORK

M104

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





SECOND FLOOR HVAC PLAN



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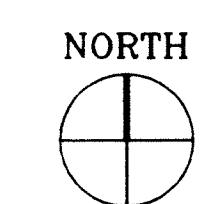
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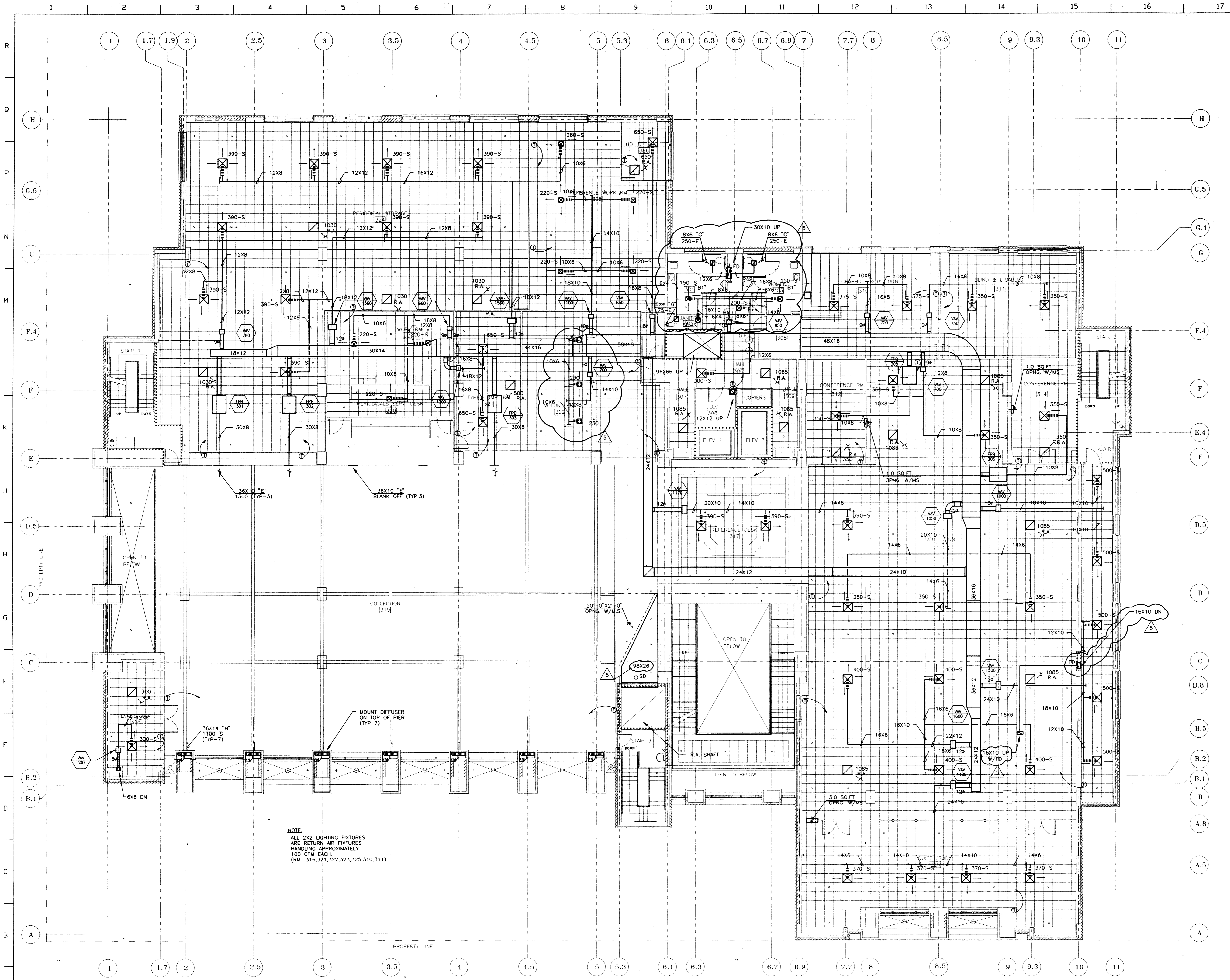
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SECOND FLOOR HVAC PLAN
 PIPING

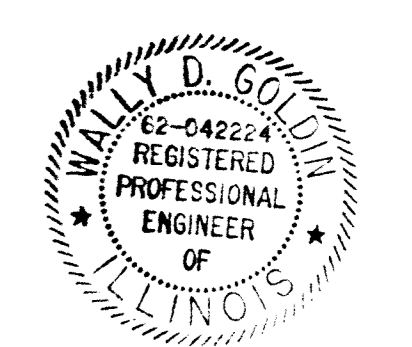
M105

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





NOTE:
 ALL 2X2 LIGHTING FIXTURES
 ARE RETURN AIR FIXTURES
 HANDLING APPROXIMATELY
 100 CFM EACH.
 (RM. 316,321,322,323,325,310,311)



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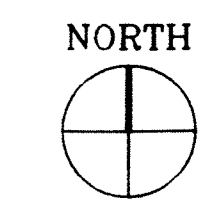
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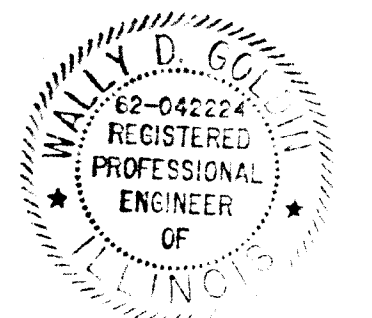
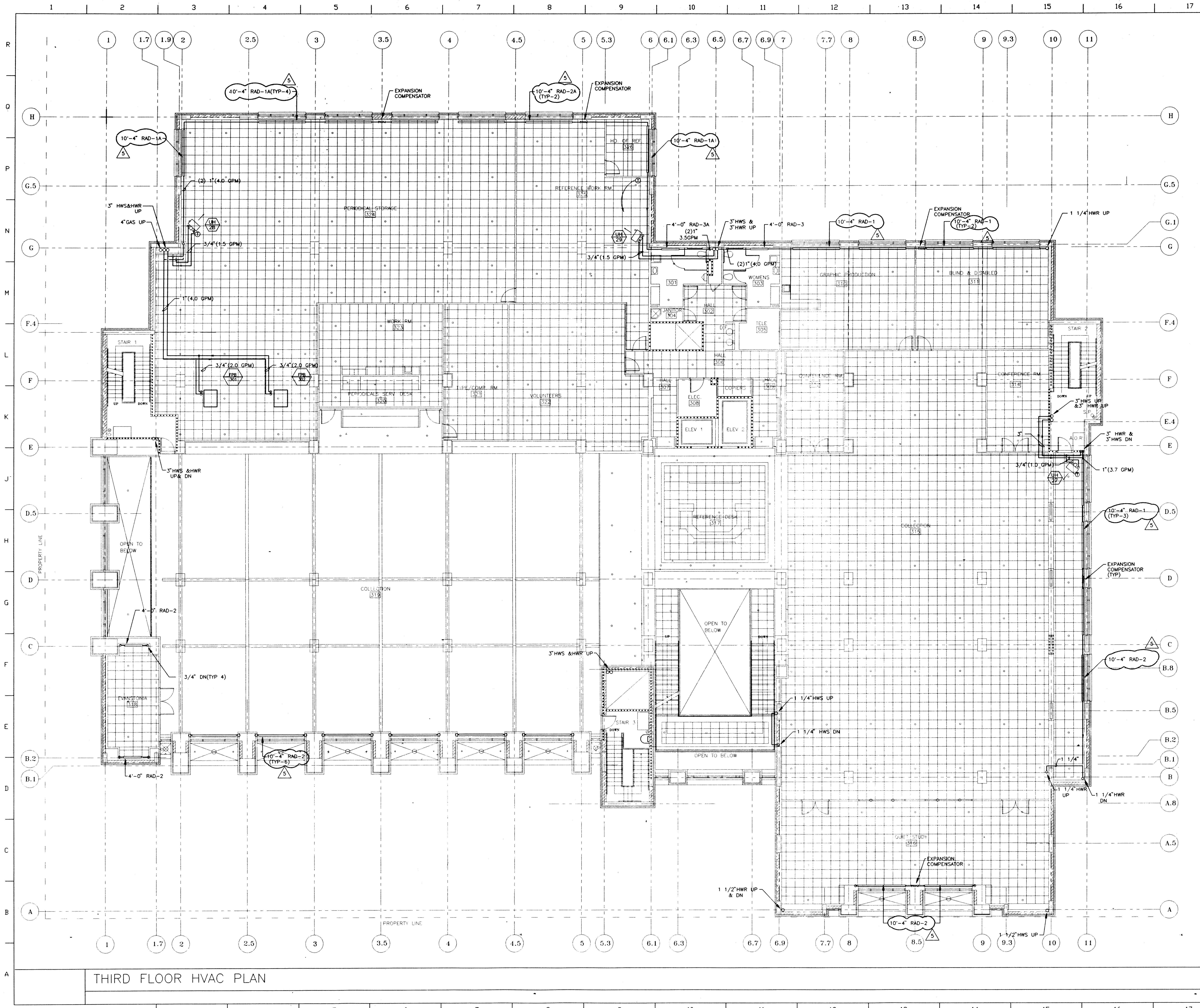
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THIRD FLOOR HVAC PLAN
 DUCTWORK

M106

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





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No.	Date	Submissions / Revisions	
Drawn By:	EK	Checked By: WK	Project No. 9121

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 312/ 263-6990 Fax No. 312/ 263-3168

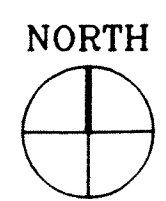
Joseph Powell Architect
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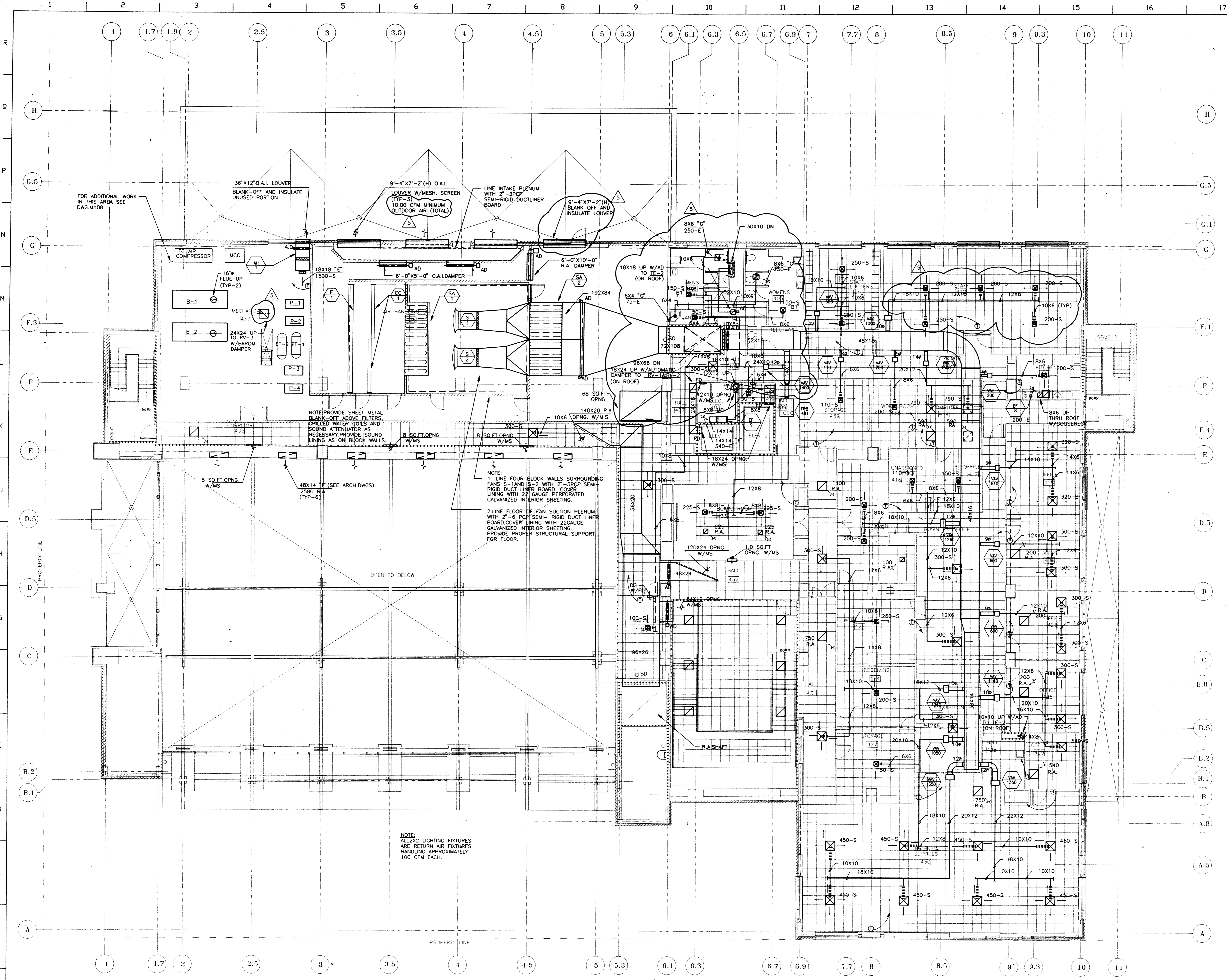
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THIRD FLOOR HVAC PLAN
 PIPING

M107

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





FOR ADDITIONAL WORK IN THIS AREA SEE DWG. M108

36" X 12" O.A.I. LOUVER
BLANK-OFF AND INSULATE UNUSED PORTION

9'-4" X 7'-2" (H) O.A.I.
LOUVER W/MESH SCREEN
(TYP-3)
10,000 CFM MINIMUM
OUTDOOR AIR (TOTAL)

LINE INTAKE PLENUM
WITH 2"-3PCF
SEMI-RIGID DUCTLINER
BOARD

9'-4" X 7'-2" (H)
BLANK-OFF AND
INSULATE LOUVER

NOTE: PROVIDE SHEET METAL
BLANK-OFF ABOVE FILTERS,
CHILLED-WATER COILS AND
SOUND ATTENUATOR (AS
NECESSARY) PROVIDE SOUND
LINING AS ON BLOCK WALLS

NOTE:
1. LINE FOUR BLOCK WALLS SURROUNDING
FANS S-1 AND S-2 WITH 2"-3PCF
SEMI-RIGID DUCT LINER BOARD
COVER LINED WITH 22 GAUGE
PERFORATED GALVANIZED
INTERIOR SHEETING.
2. LINE FLOOR OF FAN SUCTION PLENUM
WITH 2"-6 PCF SEMI-RIGID DUCT
LINER BOARD COVER LINED WITH
22 GAUGE GALVANIZED
INTERIOR SHEETING.
PROVIDE PROPER STRUCTURAL
SUPPORT FOR FLOOR.

NOTE:
ALL 2X2 LIGHTING FIXTURES
ARE RETURN AIR FIXTURES
HANDLING APPROXIMATELY
100 CFM EACH.



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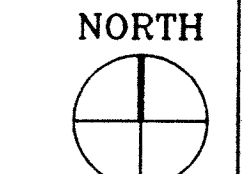
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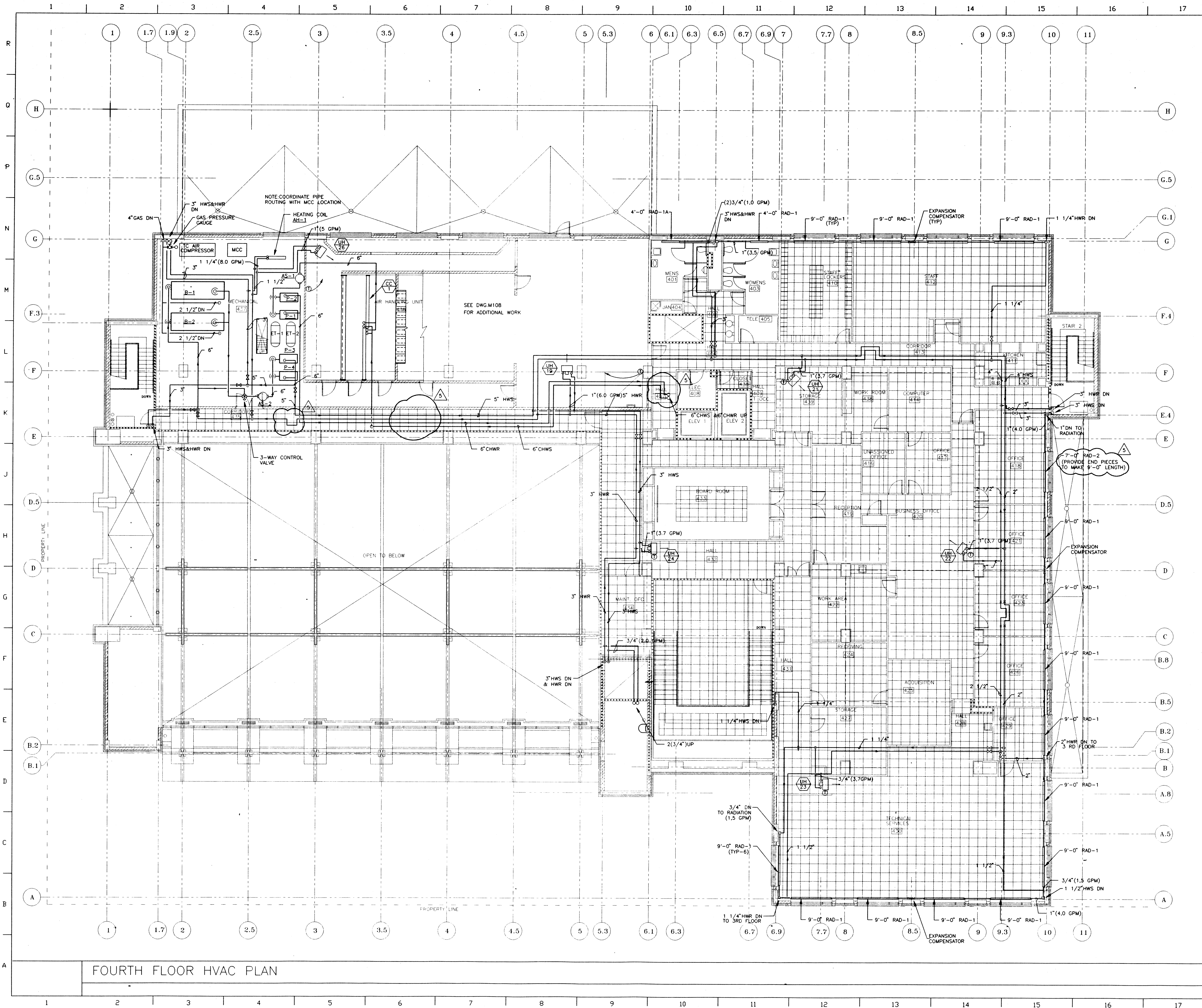
FOURTH FLOOR HVAC PLAN
DUCTWORK

M108

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



FOURTH FLOOR HVAC PLAN



FOURTH FLOOR HVAC PLAN



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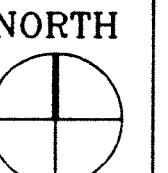
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FOURTH FLOOR HVAC PLAN
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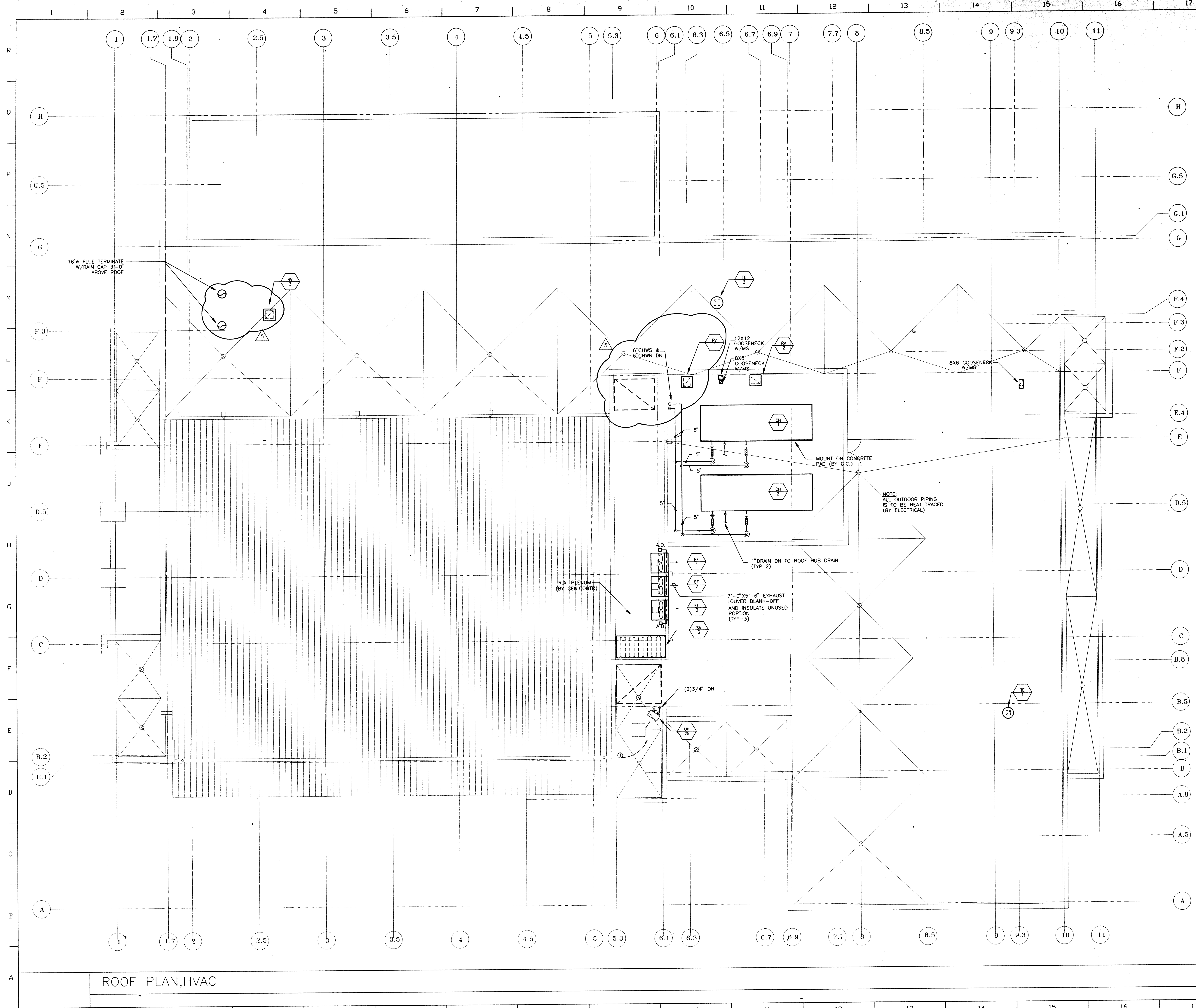
M109

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



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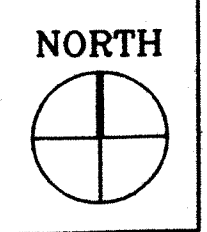
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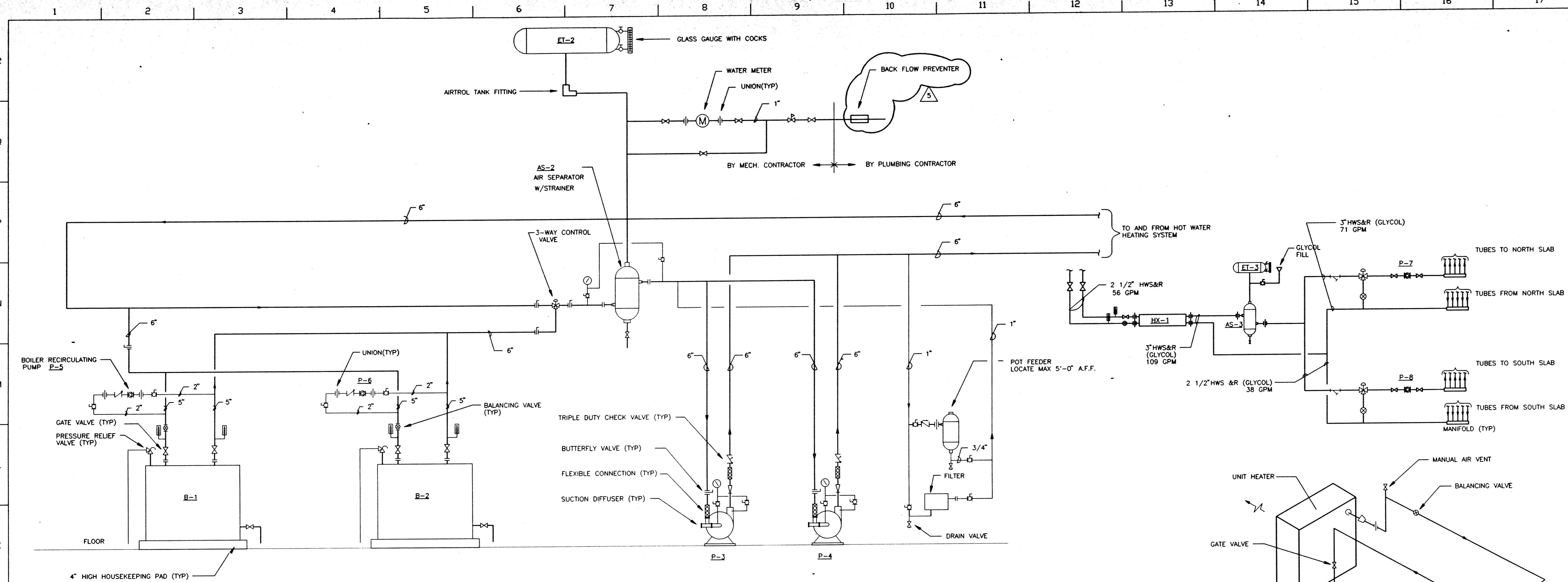
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ROOF PLAN
 HVAC

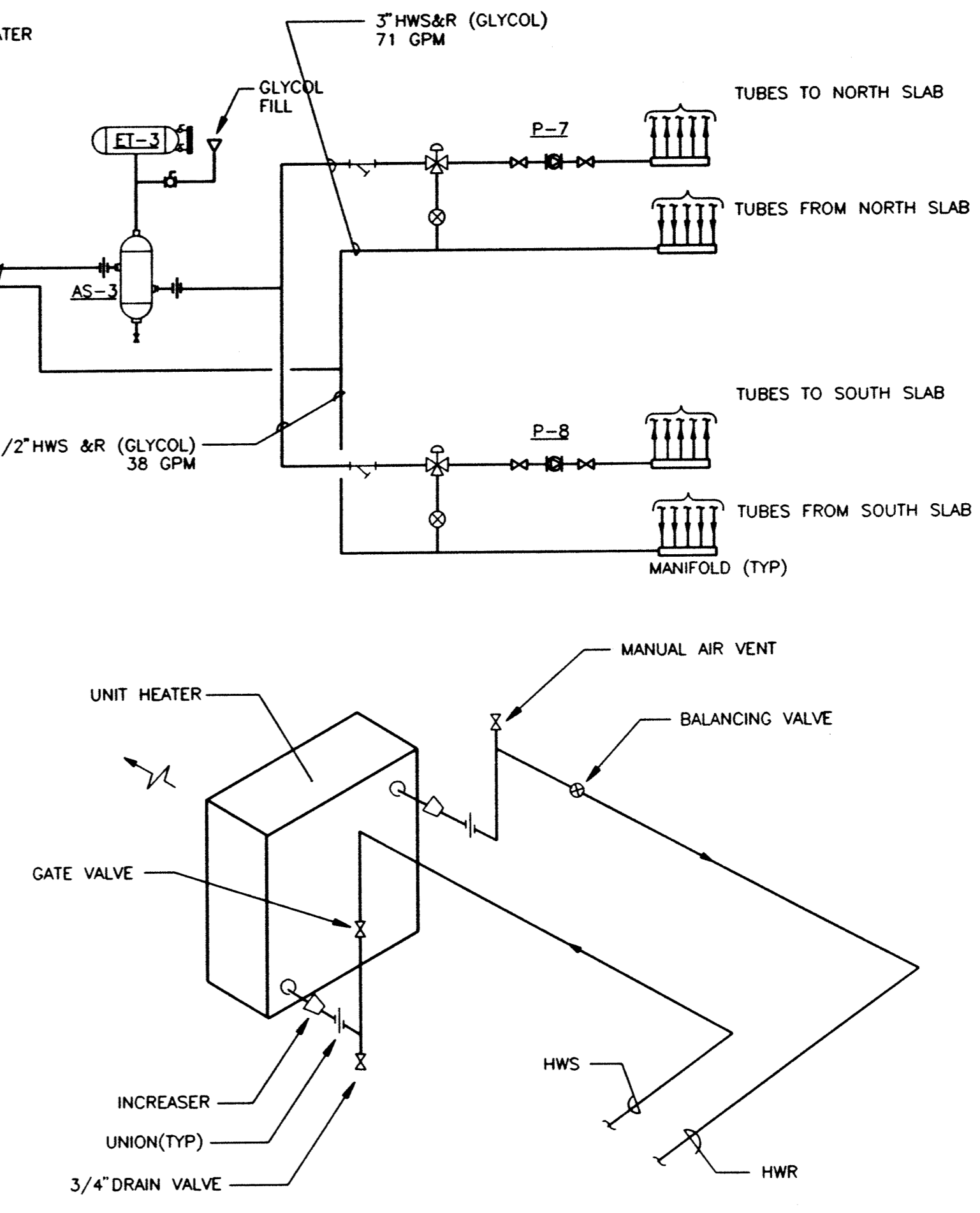
M110

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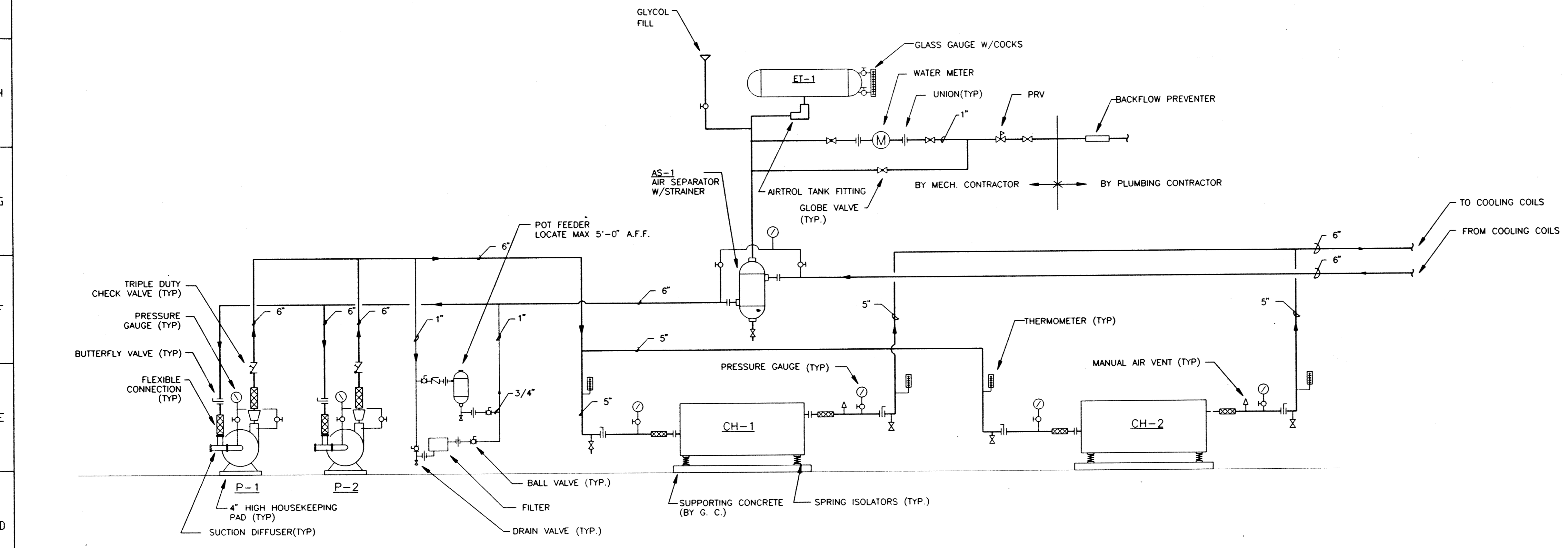




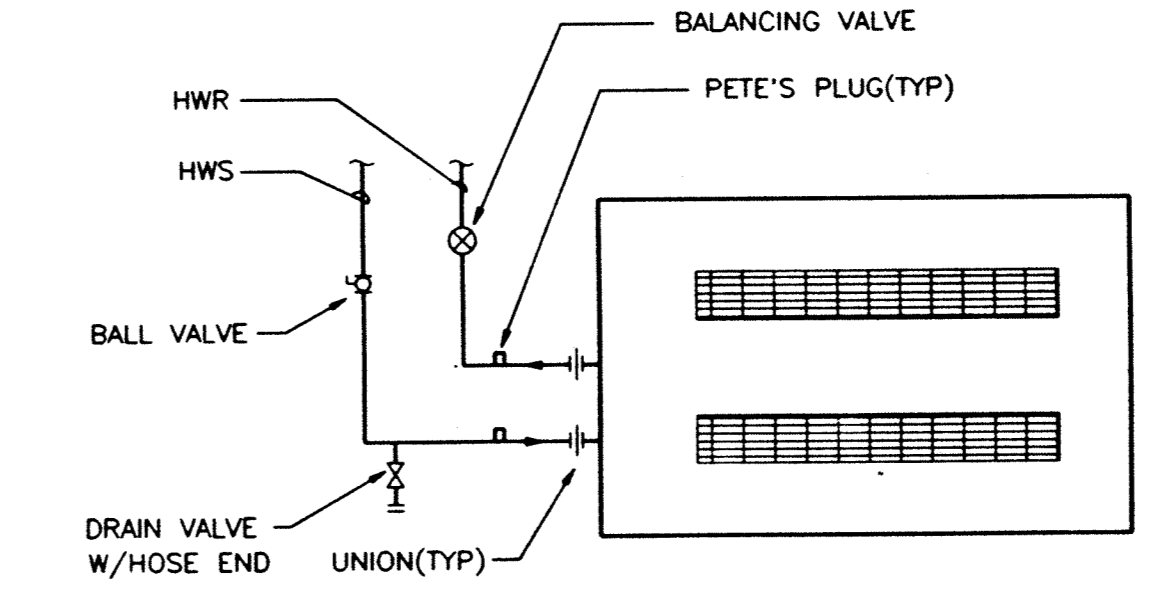
HOT WATER PIPING DIAGRAM
NO SCALE



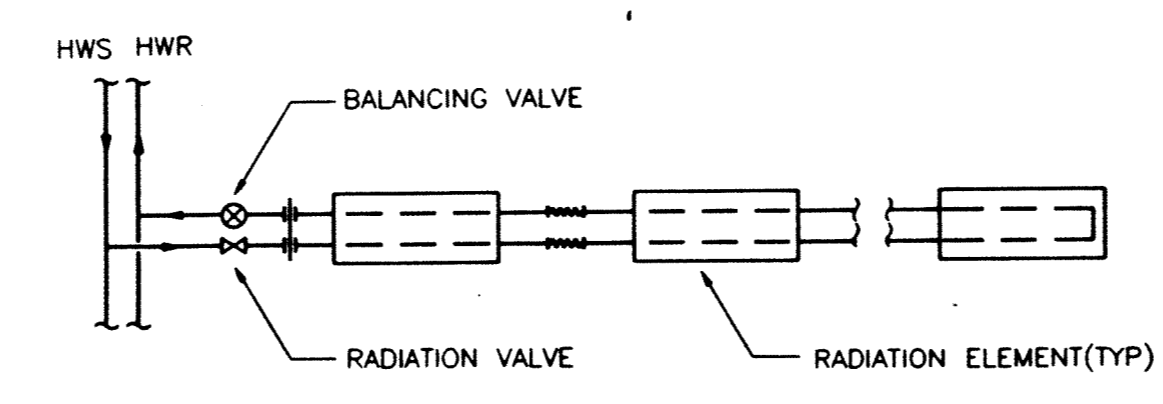
UNIT HEATER PIPING DIAGRAM



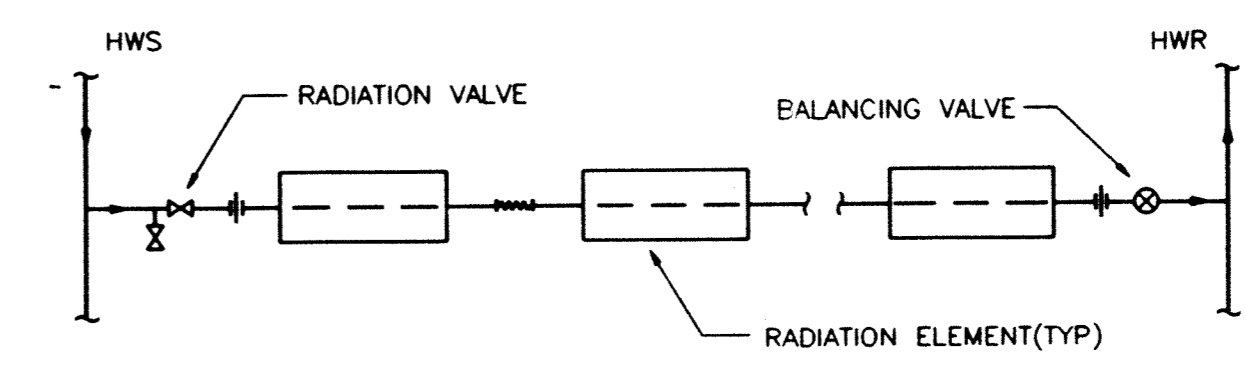
CHILLED WATER PIPING DIAGRAM
NO SCALE



FORCED FLOW HEATER PIPING DIAGRAM
NO SCALE



RAD-1A PIPING DETAIL
NO SCALE



RAD-1 PIPING DETAIL
NO SCALE

NOTE: PROVIDE DRAIN CONNECTION AT LOWER POINT AND AIR VENT AT HIGHEST POINT OF THE SYSTEM.

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PIPING DIAGRAMS AND DETAILS

M 2 0 1

N.T.S.

