

FLORIDA STATE FAIR

HILLSBOROUGH COUNTY FLORIDA

CONTRACT DOCUMENTS & SPECIFICATIONS

FOR

EXPOSITION HALL EXPANSION

EDA PROJECT NO. 04-51-20493

FOR

FLORIDA STATE FAIR AUTHORITY

ARCHITECTS **ROBBINS & ASSOCIATES**
ARCHITECTS, INC.

TAMPA, FLORIDA

ENGINEERS **CARASTRO, AGUIRRE &**
ASSOCIATES, INC.

TAMPA, FLORIDA

ENGINEERS **GREINER ENGINEERING**
SCIENCES, INC.

TAMPA, FLORIDA

INDEX OF DRAWINGS

MECHANICAL

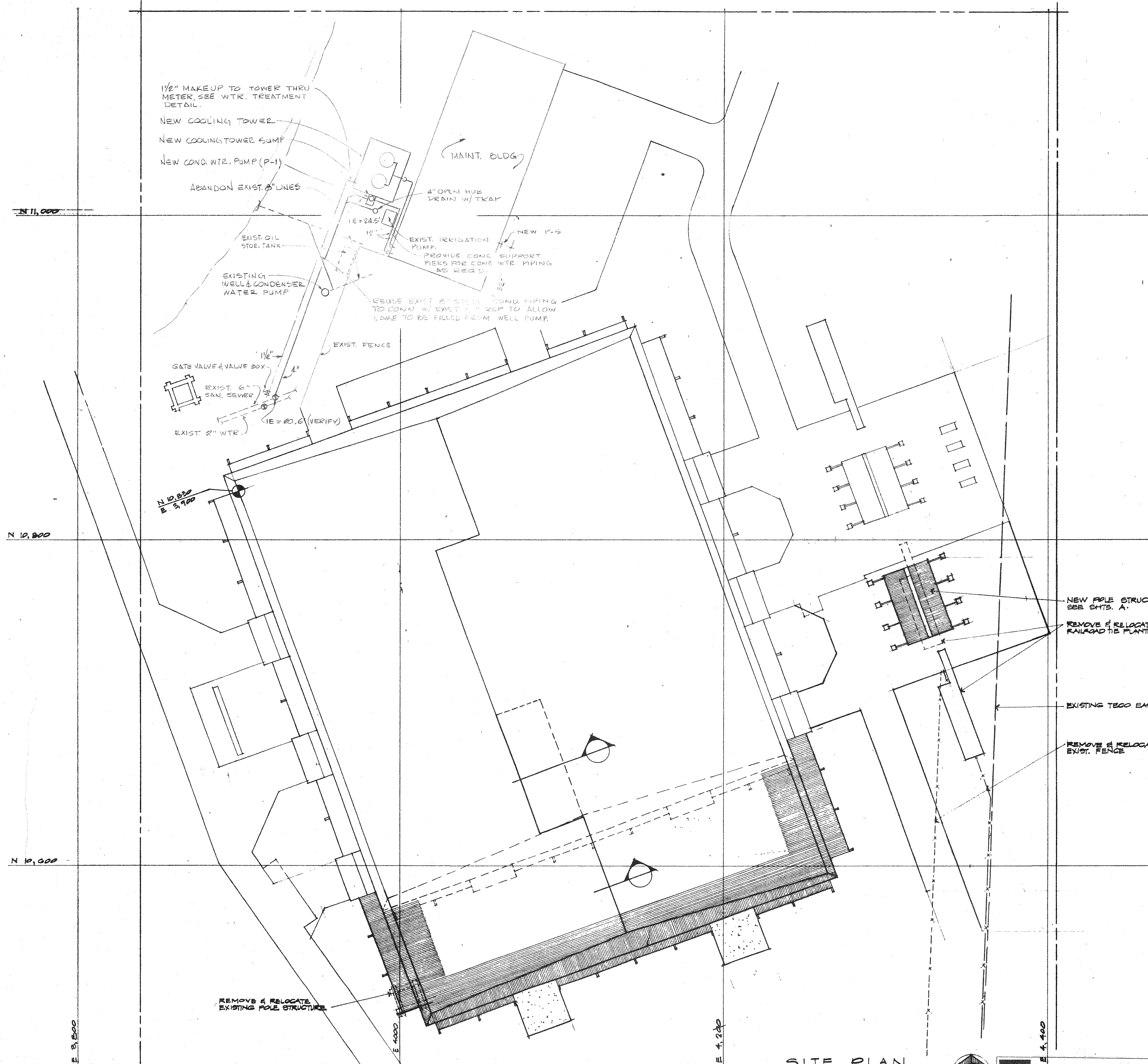
M-1	UTILITY SITE PLAN
M-2	FLOOR PLAN - MECHANICAL
M-3	ENLARGED FLOOR PLANS - MECHANICAL
M-4	ENLARGED FLOOR PLANS - MECHANICAL
M-5	ENLARGED FLOOR PLANS - MECHANICAL
M-6	AHU ELEVATIONS
M-7	ELEVATIONS & SCHEDULES
M-8	SCHEDULES
M-9	CHILLED WATER PIPING DETAILS
M-10	MAINTENANCE BUILDING PARTIAL PLAN & SECTION
M-11	PIPING SCHEMATIC & DETAILS

PLUMBING

P-1	FLOOR PLAN PLUMBING
P-2	ENLARGED FLOOR PLAN - PLUMBING
P-3	ENLARGED FLOOR PLAN - PLUMBING
P-4	ENLARGED FLOOR PLAN & SOIL ISOMETRICS
P-5	SOIL, WASTE & VENT ISOMETRICS
P-6	SOIL, WASTE & VENT ISOMETRICS
P-7	PLUMBING DETAILS

ELECTRICAL

E-1	SITE PLAN & LEGEND
E-2	DEMOLITION PLAN & DETAILS
E-3	FLOOR PLAN - LIGHTING
E-4	FLOOR PLAN - POWER
E-5	ENLARGED FLOOR PLAN
E-6	ENLARGED FLOOR PLAN
E-7	ENLARGED FLOOR PLAN
E-8	DETAILS
E-9	POLE STRUCTURE & EQUIPMENT ROOM DETAILS
E-10	LIGHTNING PROTECTION
E-11	ONE-LINE DIAGRAMS & DETAILS
E-12	SCHEDULES & DIAGRAMS

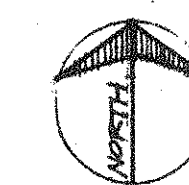


MECHANICAL LEGEND

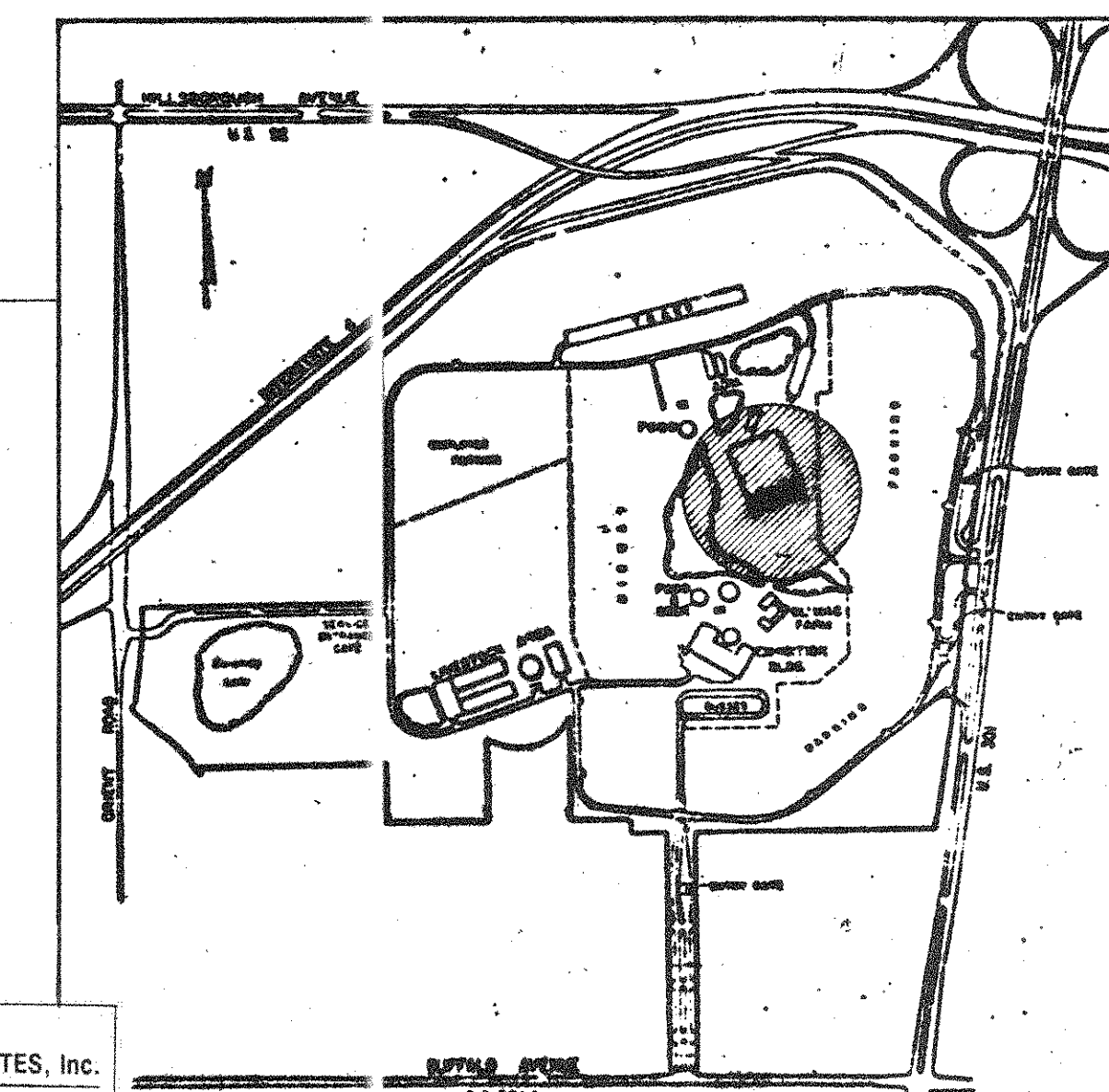
AHU	AIR HANDLING UNIT
FC	FAN COIL UNIT
CU	CONDENSER UNIT
EF	EXHAUST FAN
EH	ELECTRIC STRIP HEATER
CHW3	CHILLED WATER SUPPLY
CHW2	CHILLED WATER RETURN
CE	CONDENSER SUPPLY
CR	CONDENSER RETURN
-X-	EXIST. PIPING
-#-	NEW PIPING
⊖	THERMOSTAT
-	FLEXIBLE PIPE CONNECTION
⊖	BUTTERFLY VALVE
⊖	MOTORIZED BUTTERFLY VALVE
-	GATE VALVE
-	UNION
⊖	PRESSURE GAUGE
⊖	THERMOMETER
⊖	PRESSURE REDUCING VALVE
⊖	TIE INTO EXISTING PIPING

SECTION
SHEET ON WHICH SECTION APPEARS

SITE PLAN
1" = 30' - 0"



CARASTRO, AGUIRRE & ASSOCIATES, Inc.
CONSULTING ENGINEERS
3536 SOUTH WESTSHORE BOULEVARD
TAMPA, FLORIDA 33609



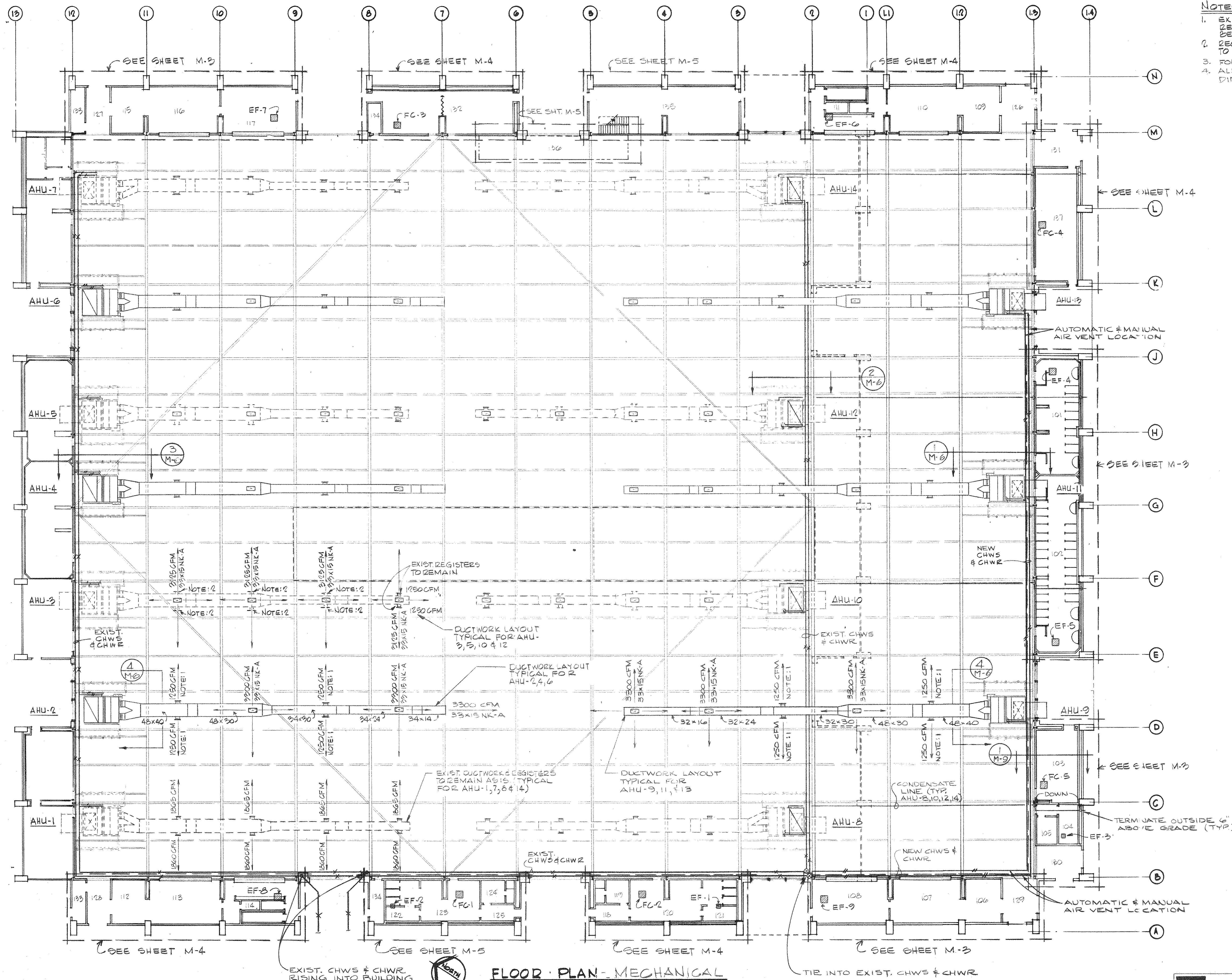
REVISION	DESCRIPTION	DATE
DATE OF ISSUE: OCT. 15, 1977		
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-91-20493 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		
COMMISSION NO.	47377	
UTILITY SITE PLAN	M	I
	OF	11

NOTES:

- EXISTING REGISTER & AIR EXTRACTOR REMOVED FROM EXISTING DUCTWORK TO BE INSTALLED @ THIS LOCATION.
- REGISTER TO BE REMOVED & DUCTWORK TO BE PATCHED AIR TIGHT.
- FOR CHWS & CHWR SIZES SEE SHEET M-11
- ALL DUCT SIZE? SHOW ARE INSIDE DIMENSIONS OF FREE AREA.

LEGEND

- EXIST. CHWS & CHWR
- NEW CHWS & CHWR
- EXIST. EQUIPMENT

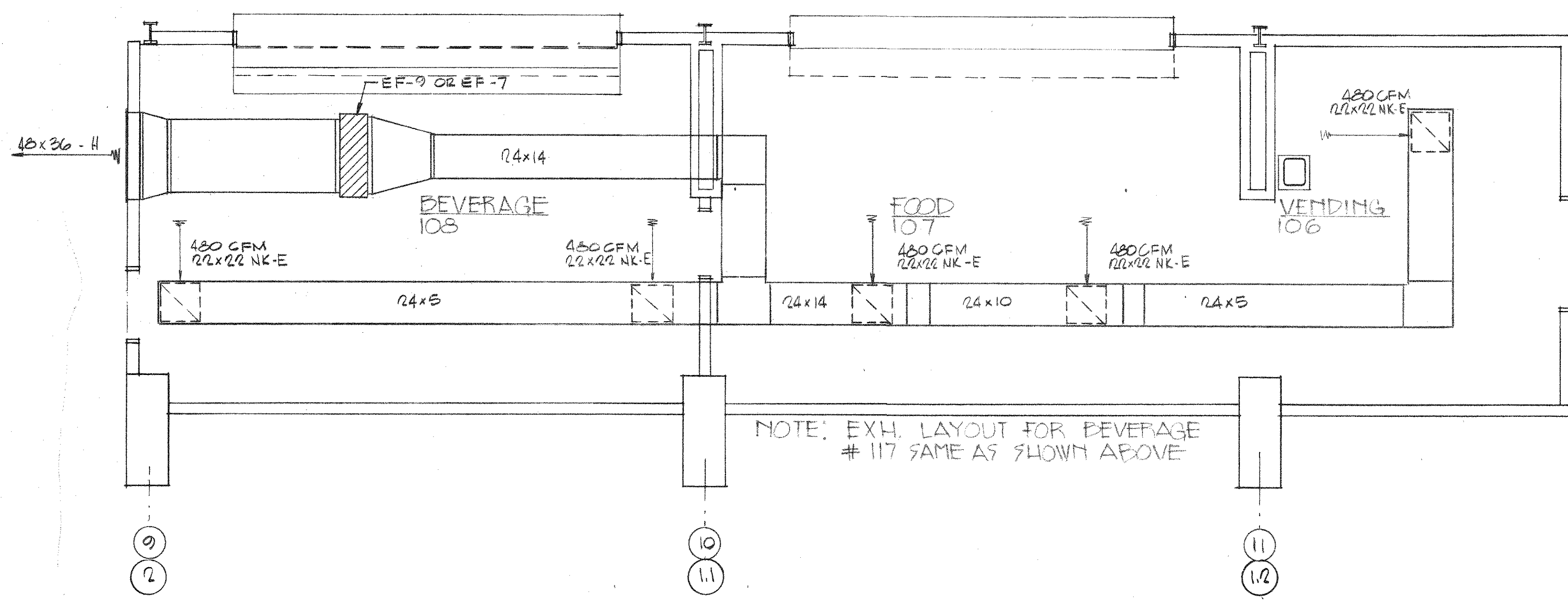


FLOOR PLAN - MECHANICAL
SCALE: 1/8"=1'-0"

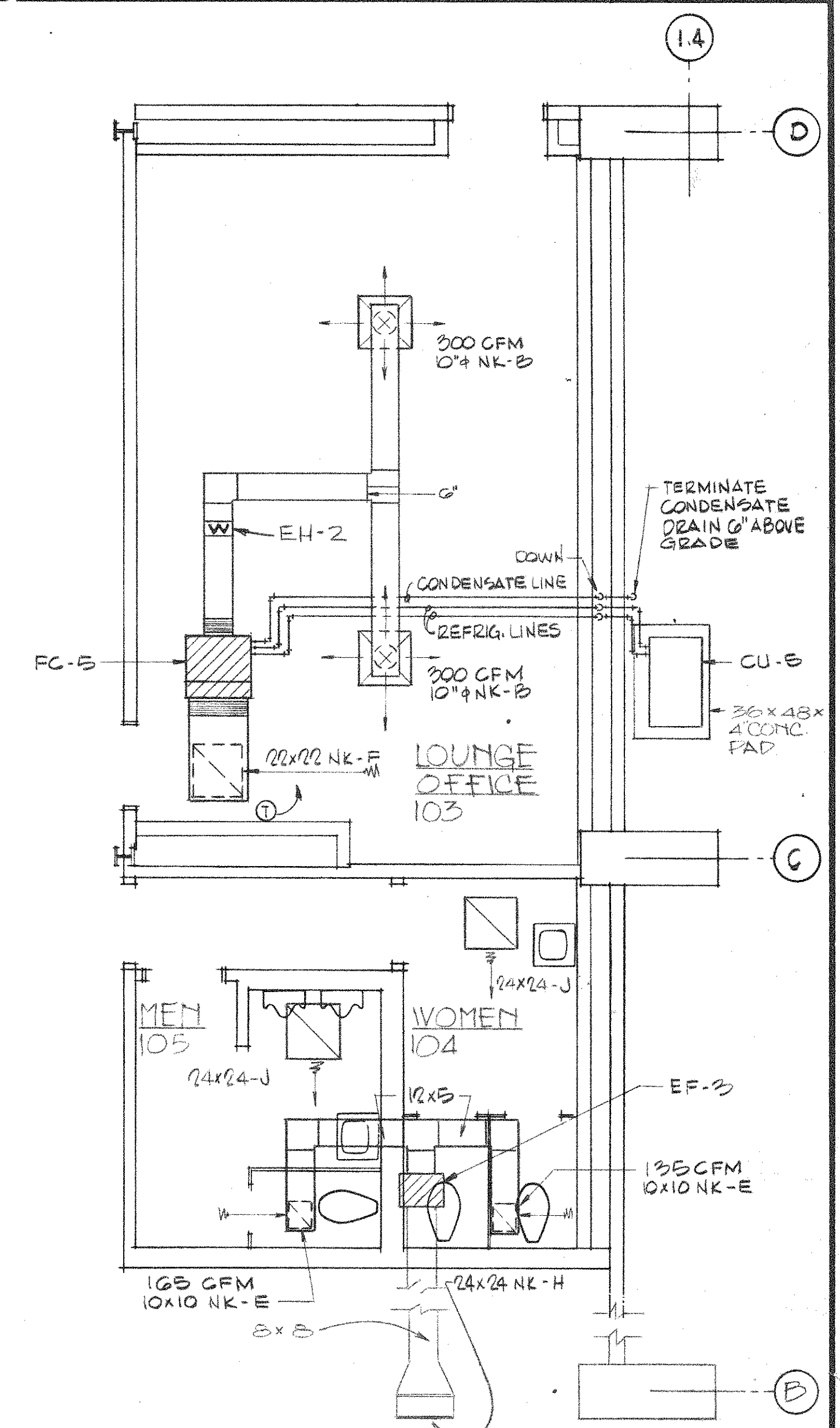
REVISION	DESCRIPTION	DATE
DATE OF ISSUE:	OCT. 15, 1977	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 1000 EXCHANGE NATIONAL BANK BUILDING 610 FLORIDA AVE., TAMPA, FLORIDA 33602 TELEPHONE (813) 223-2771		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-51-2049 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		

COMMISSION NO.	47377
FLOOR PLAN - MECHANICAL	M 2
	OF 11

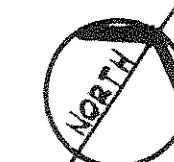
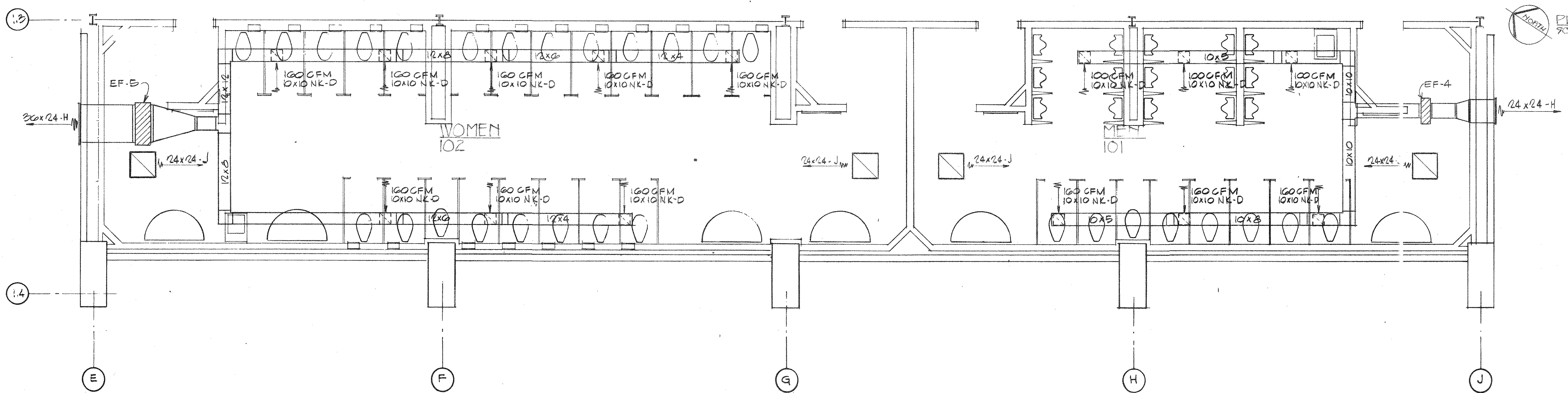
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CONSULTING ENGINEERS
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TAMPA, FLORIDA 33609



PLAN CONCESSIONS/STORAGE - MECHANICAL
SCALE: 1/4" = 1'-0"



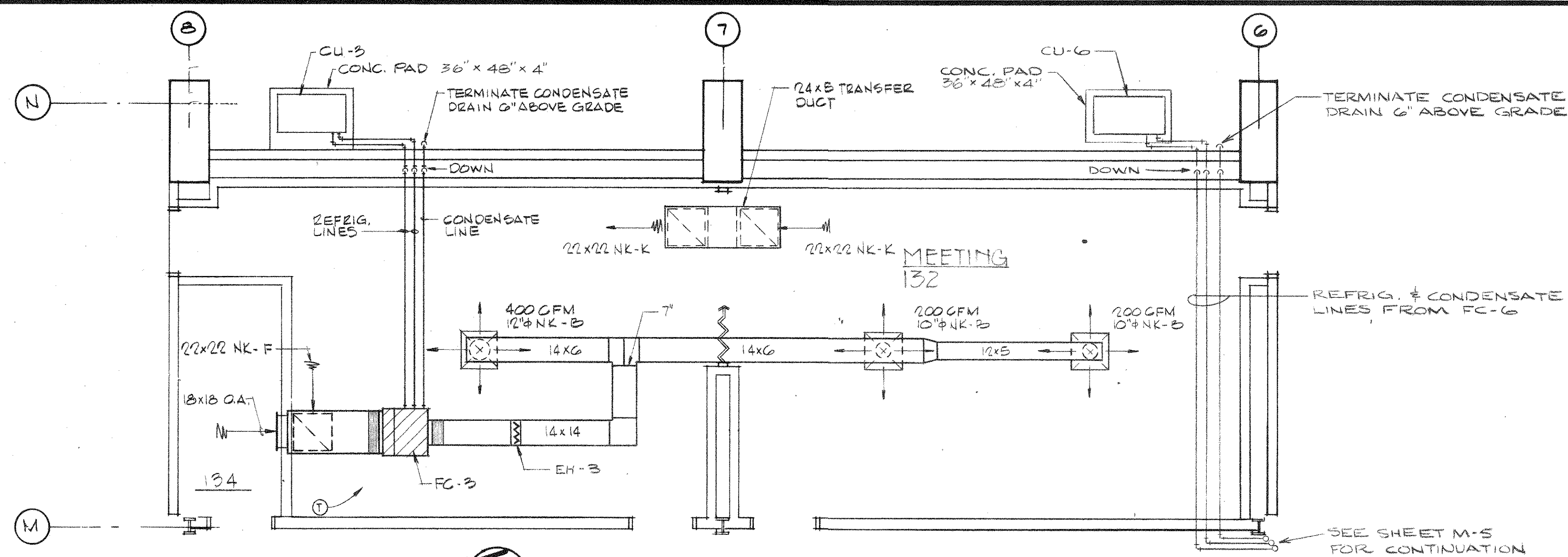
PLAN LOUNGE/TOILETS - MECH.
SCALE: 1/4" = 1'-0"



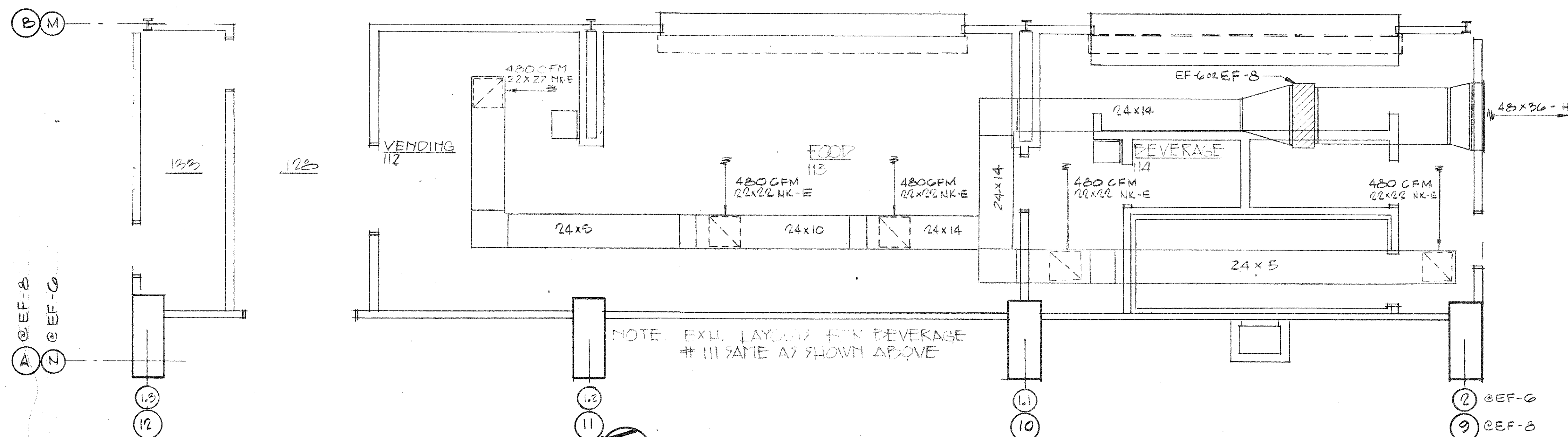
PLAN MEN/WOMEN TOILETS - MECHANICAL
SCALE: 1/4" = 1'-0"

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ROBBINS & ASSOCIATES ARCHITECTS, INC.		
1600 EXCHANGE NATIONAL BANK BUILDING		
610 FLORIDA AVE. TAMPA, FLORIDA 33602		
TELEPHONE: (813) 223-2771		
FLORIDA STATE FAIR		
HILLSBOROUGH COUNTY, FLORIDA		
EDA PROJECT # 04-51-20499		
EXPOSITION HALL EXPANSION		
FOR		
FLORIDA STATE FAIR AUTHORITY		
COMMISSION NO.	47377	
ENLARGED FLOOR PLANS MECHANICAL		
		M 3
		OF 11

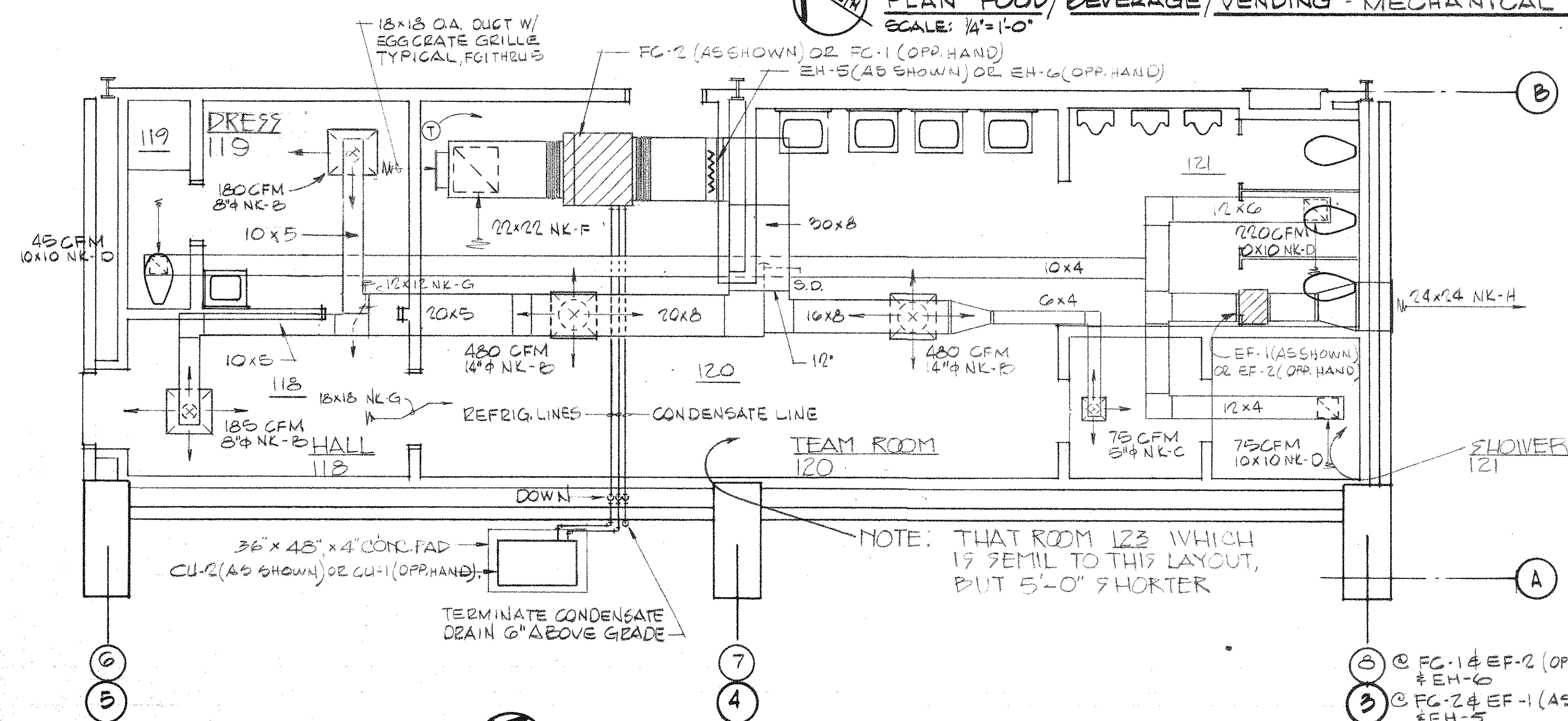
CARASTRO, AGUIRRE & ASSOCIATES, Inc.
CONSULTING ENGINEERS
3838 SOUTH WESTSHORE BOULEVARD
TAMPA, FLORIDA 33609



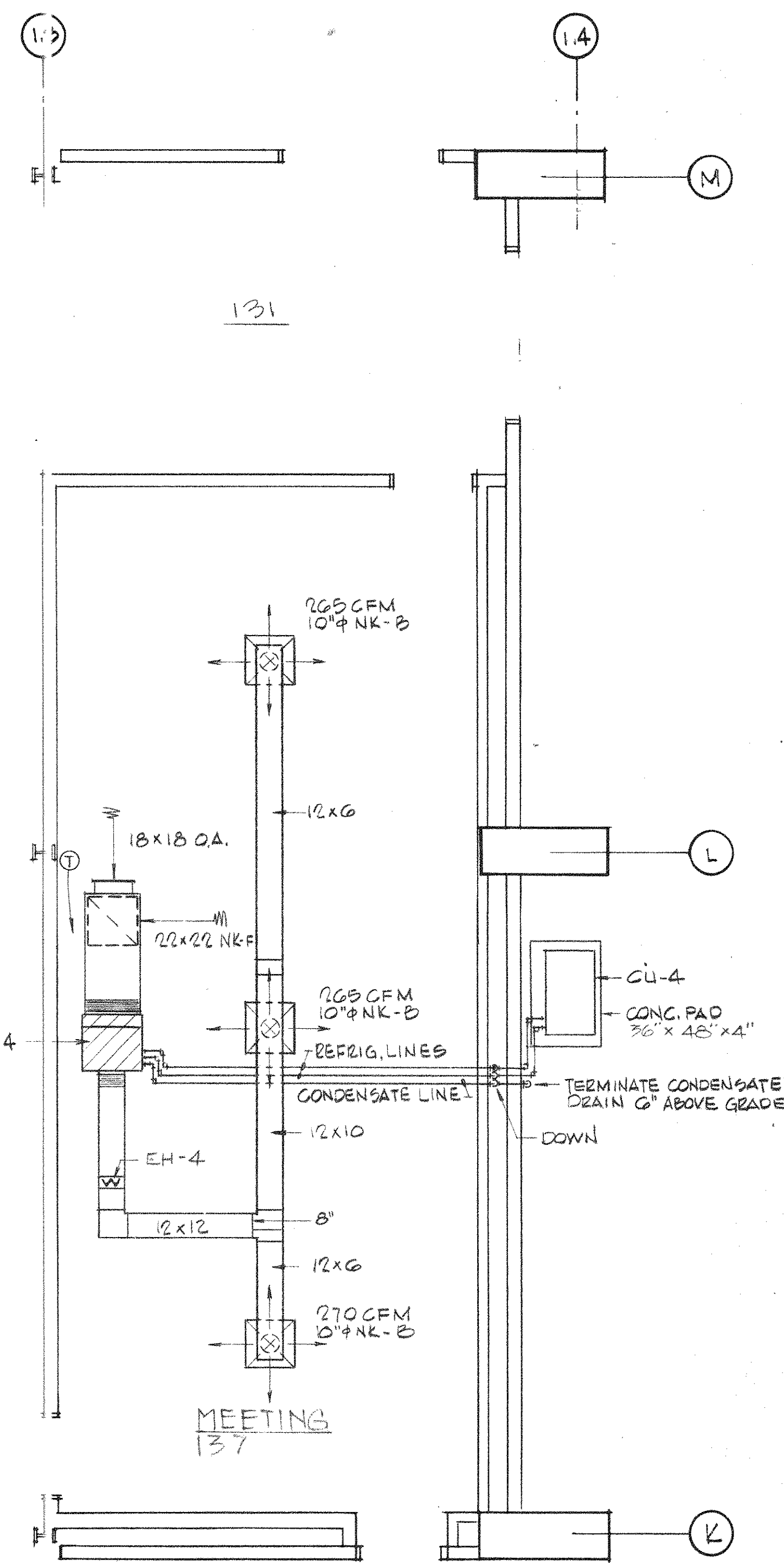
PLAN MEETING ROOM - MECHANICAL
SCALE: 1/4\"/>



PLAN FOOD/BEVERAGE/VENDING - MECHANICAL
SCALE: 1/4\"/>



PLAN TEAM/ DRESSING ROOM - MECHANICAL
SCALE: 1/4\"/>

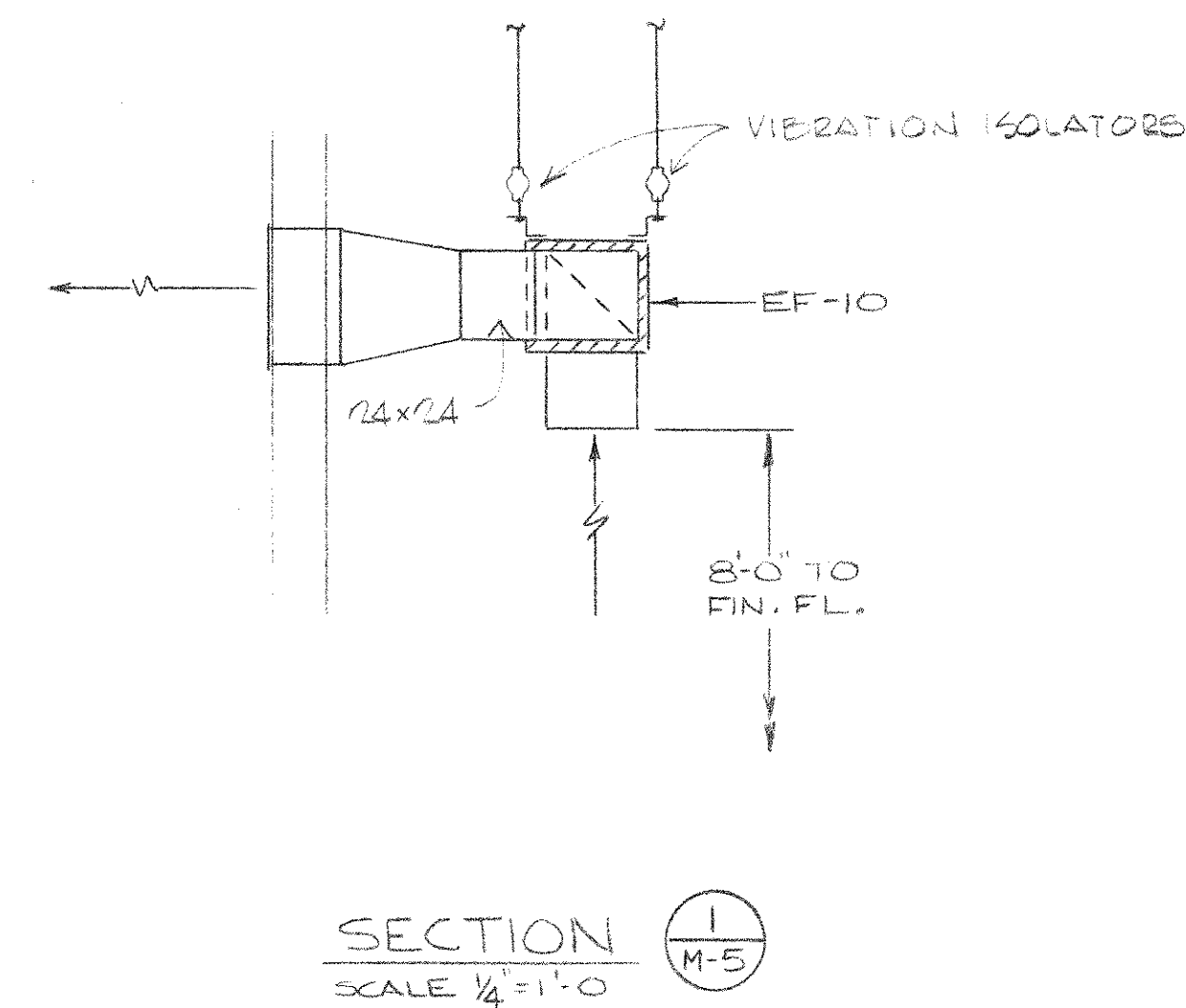
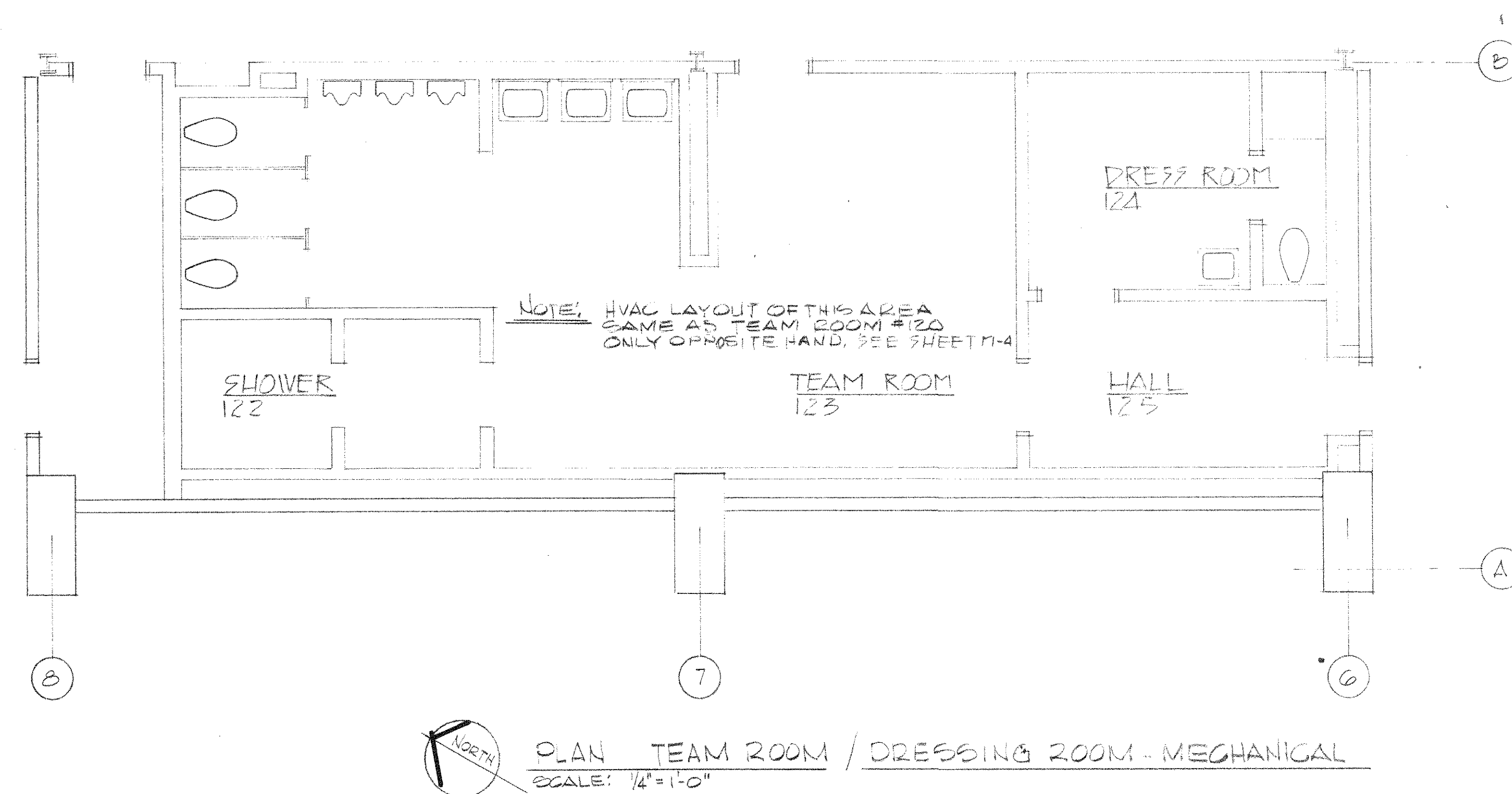
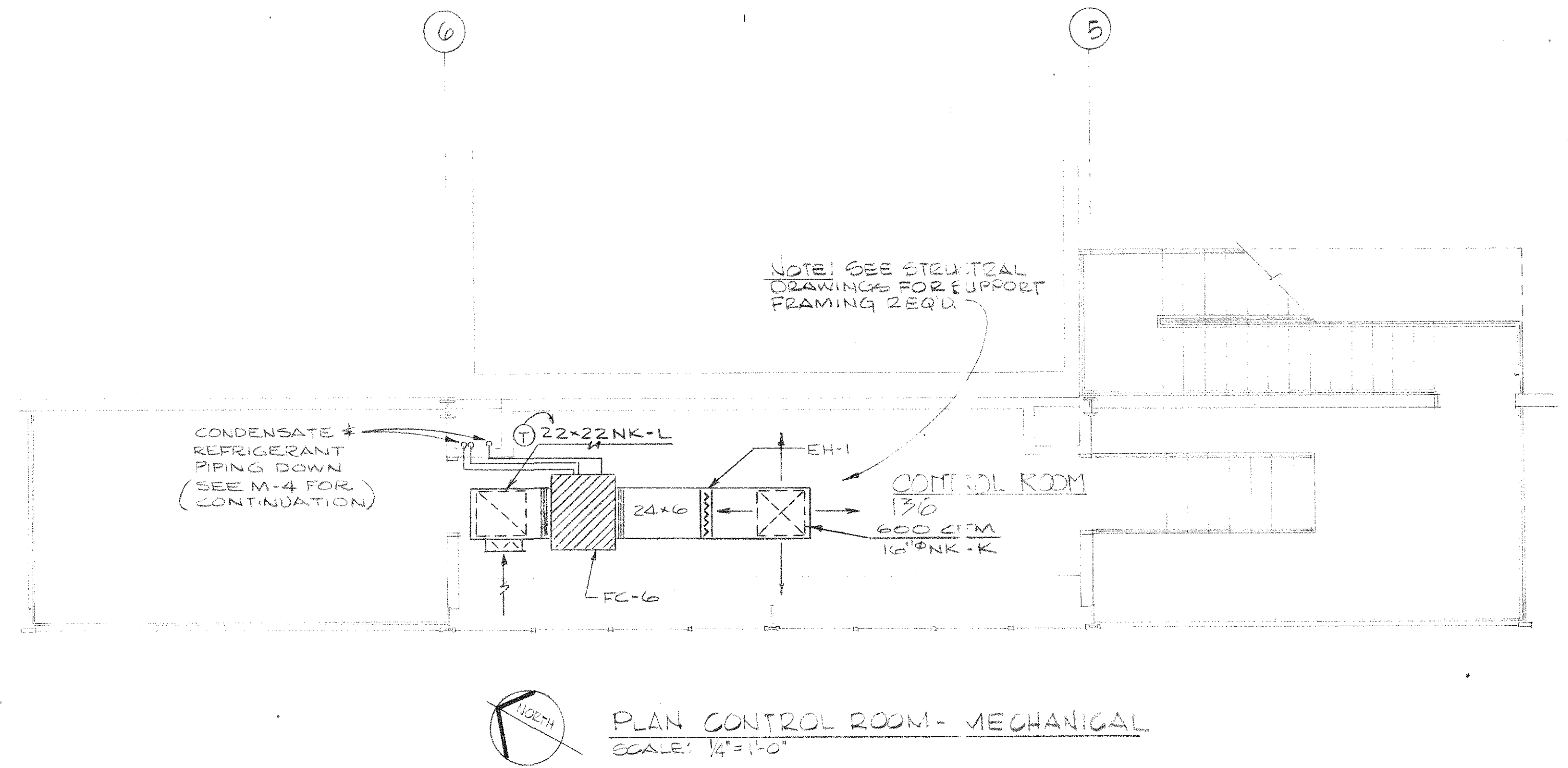
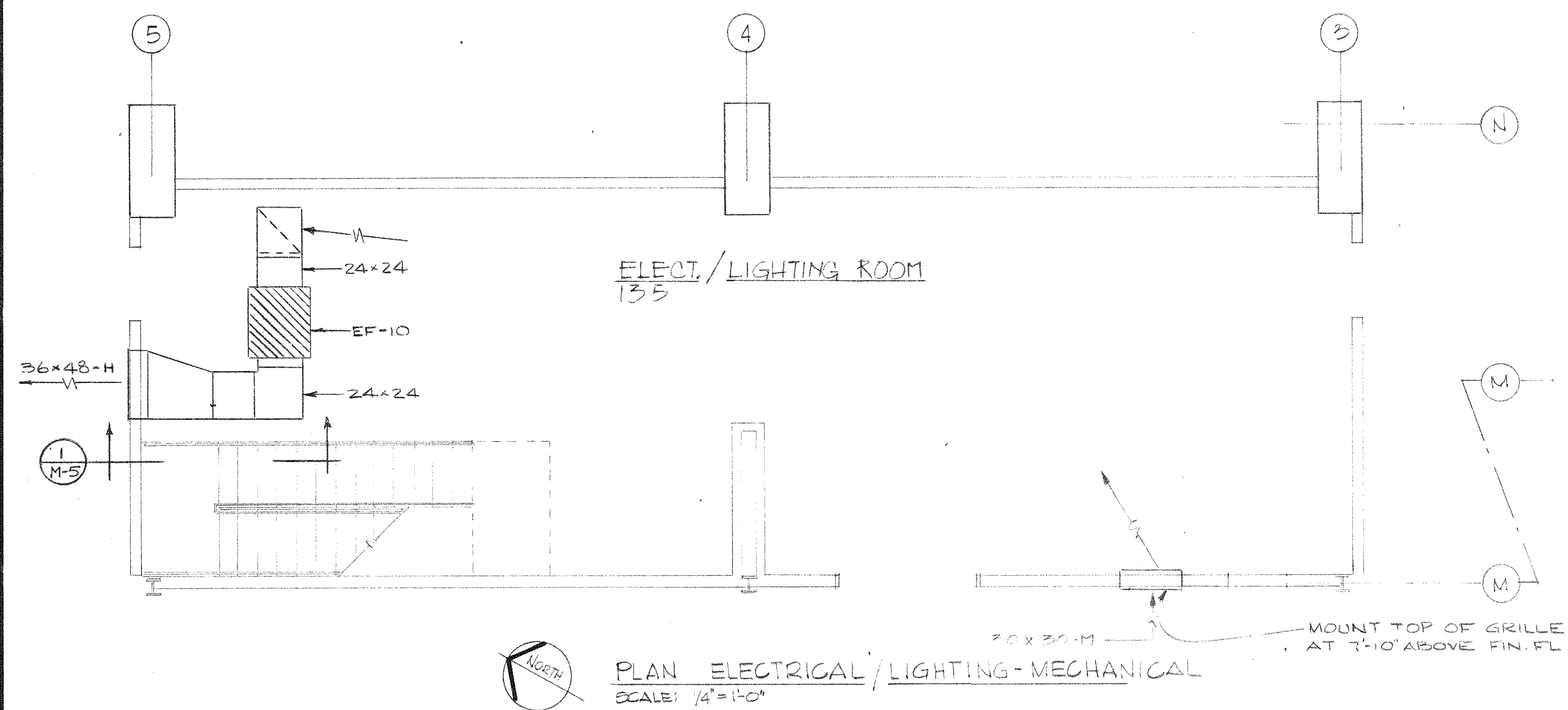


PLAN MEETING ROOM - MECHANICAL
SCALE: 1/4\"/>

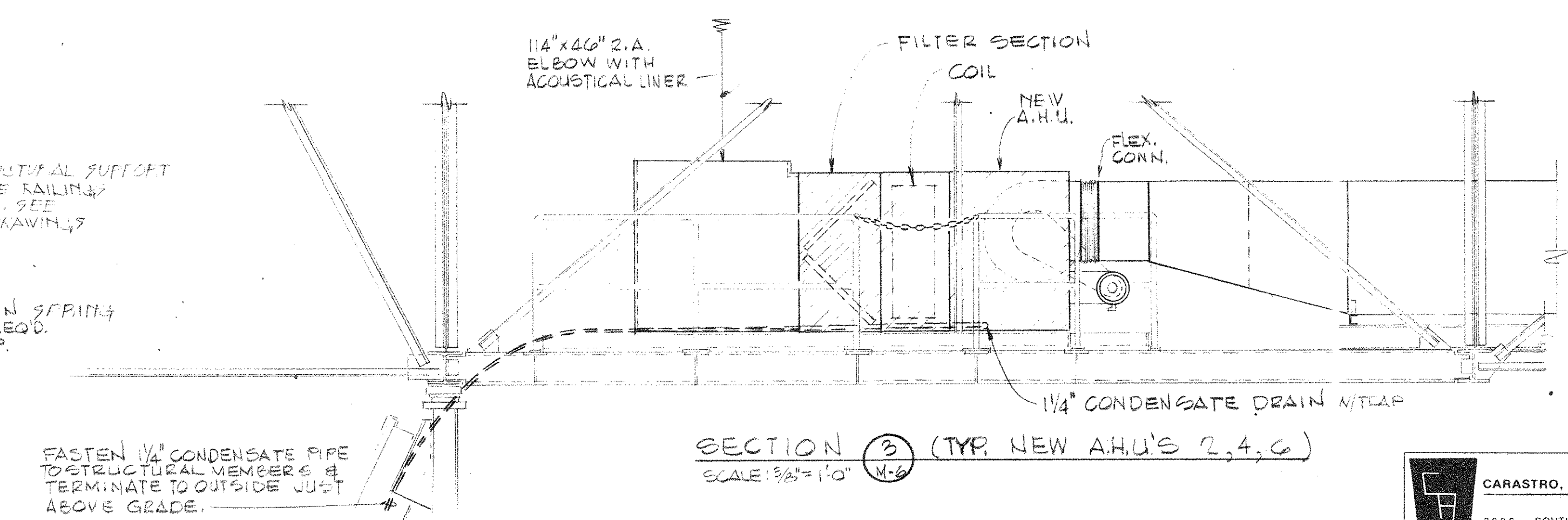
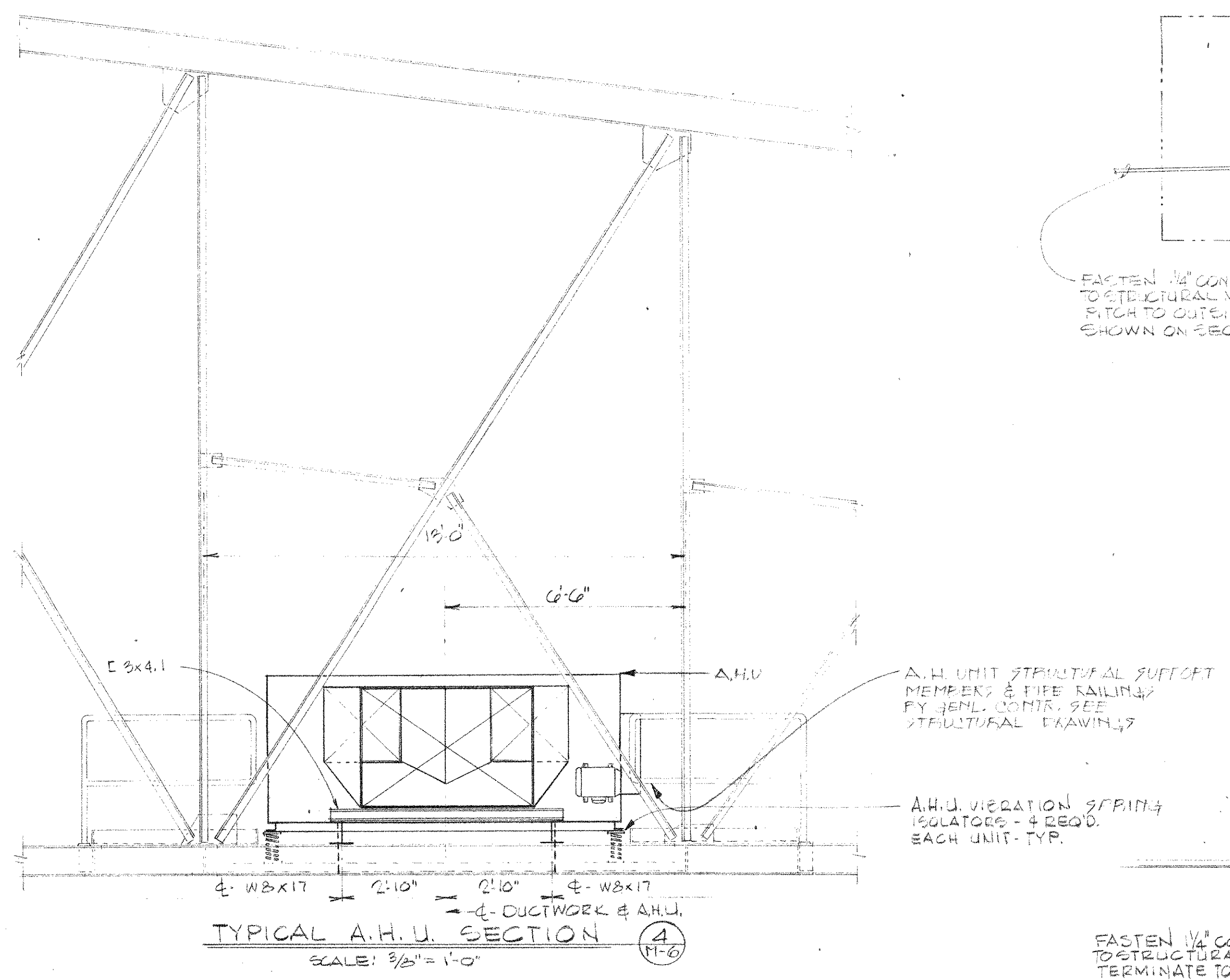
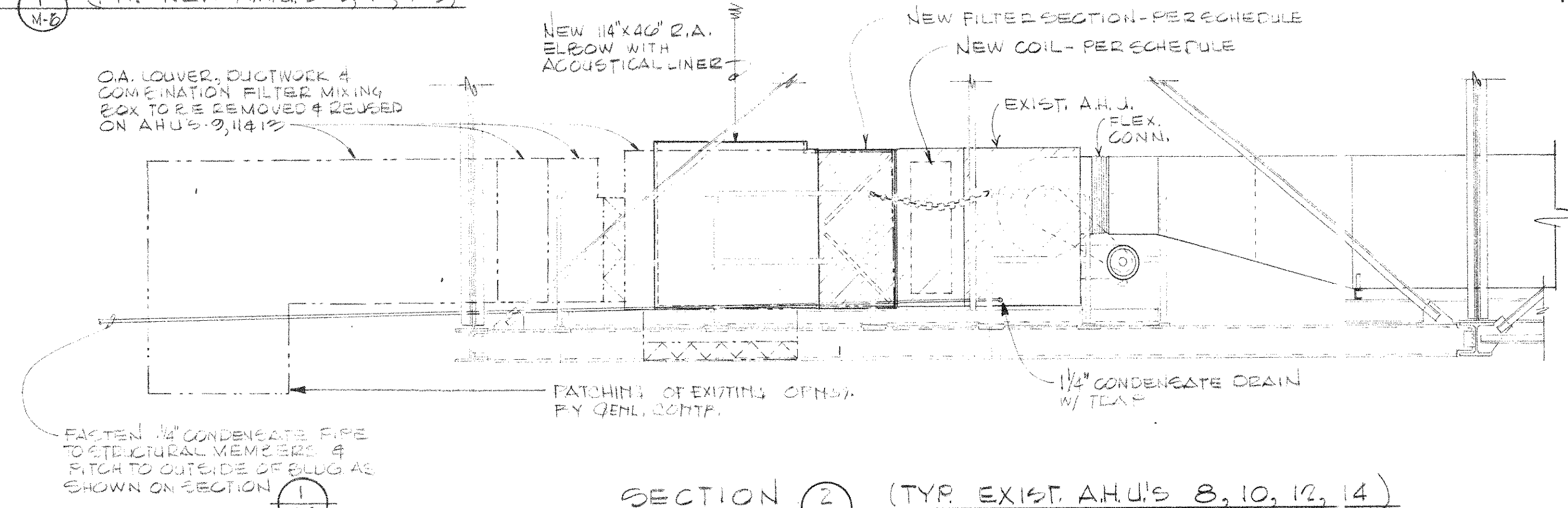
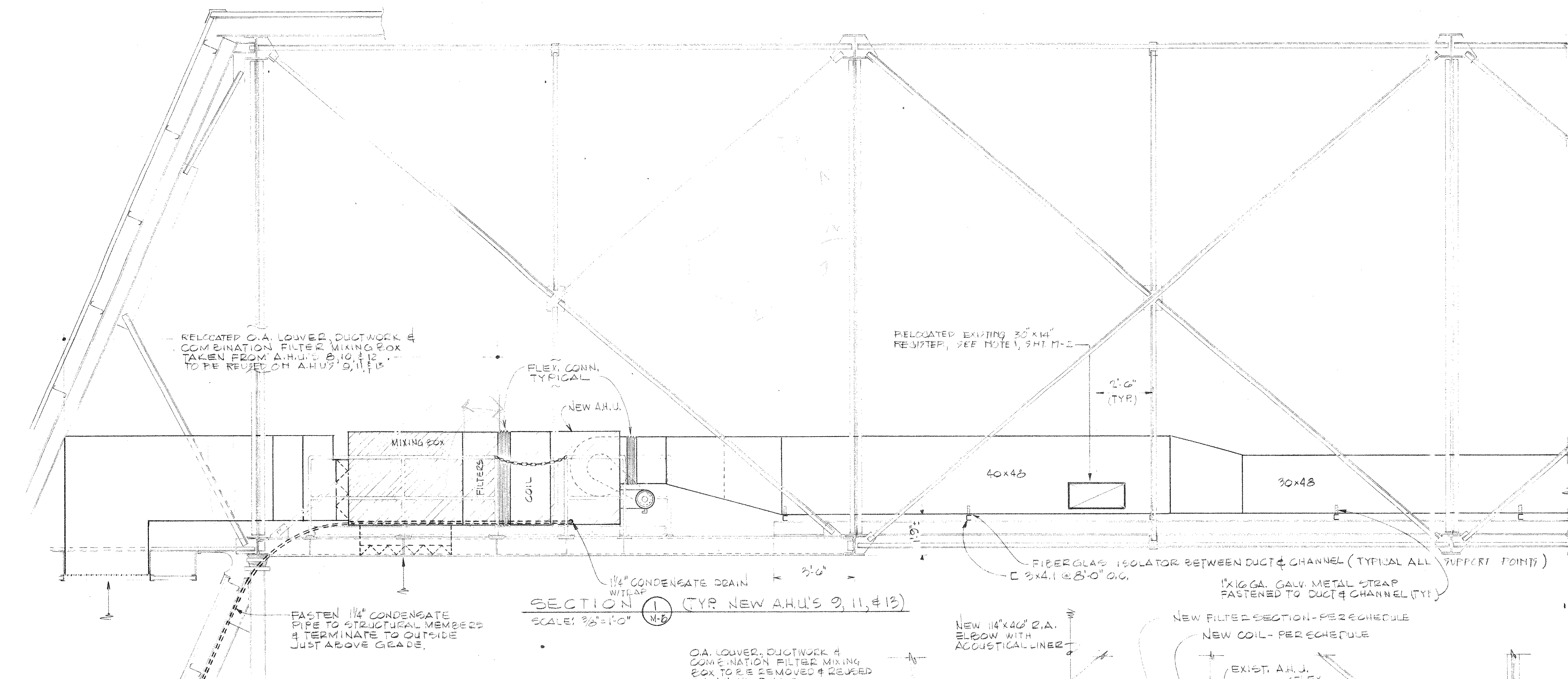
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FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-51-20493 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		

COMMISSION NO.	47377
ENLARGED FLOOR PLANS MECHANICAL	M 4
OF	11

CARASTRO, AGUIRRE & ASSOCIATES, Inc.
CONSULTING ENGINEERS
3536 SOUTH WESTSHORE BOULEVARD
TAMPA, FLORIDA 33609



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FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-51-20495 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		
COMMISSION NO.		47577
ENLARGED FLOOR PLANS MECHANICAL		M 5
		OF 11



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FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT 804-91-2049 EXPOSITION MALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		
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A.H.U. ELEVATIONS MECHANICAL	M 6	OF 11

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 CONSULTING ENGINEERS
 3636 SOUTH WESTSHORE BOULEVARD
 TAMPA, FLORIDA 33609

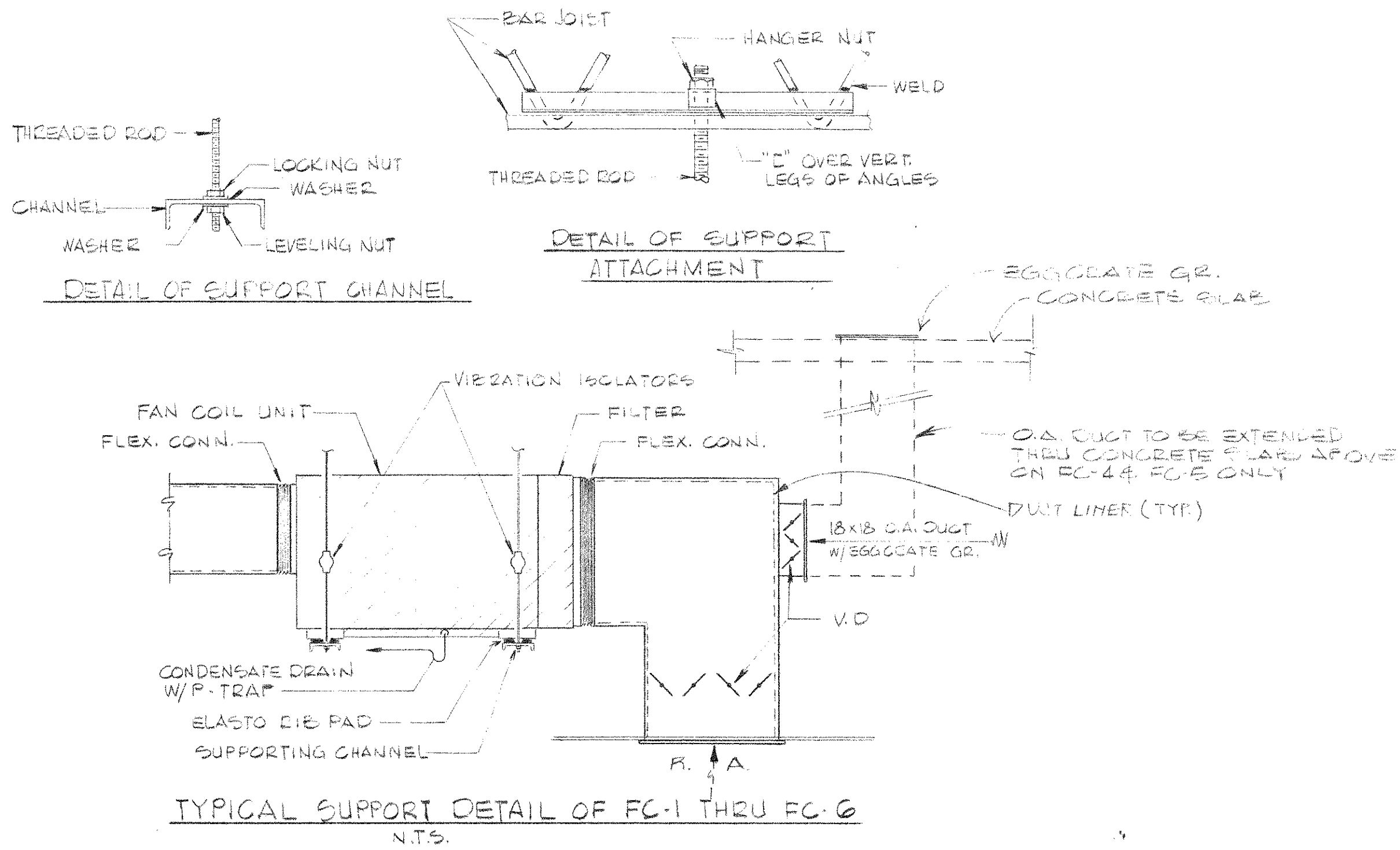
SPLIT SYSTEM AIR CONDITIONER SCHEDULE																								
FAN DATA							COOLING COIL DATA					CONDENSING UNIT												
MARK	CFM O.A.	EXT. STATIC PRESS.	DISCHARGE TYPE	MOTOR			CAT. No	TYPE	ENT. COND.		TOTAL COOLING	SENSIBLE COOLING	FILTER TYPE	MARK	TYPE	OUTDOOR TEMP. °F	No OF COMPRES.	COMPRESSOR MOTOR			CONDENSER FAN MOTOR			CAT. No
				H.P.	VOLTS	PH.			D.B. °F	W.B. °F								F.L.A.	VOLTS	PHASE	F.L.A.	VOLTS	PHASE	
FC-1 & 2	1400 330	.35	HORIZONTAL	1/2	115	1	TRANE 2AHB-409C	DIRECT EXPANSION	80	67	94,600	21,800	THROWAWAY	CU-142	AIR COOLED	91	1	12.12KV	208	3	258C30V	208	1	TRANE 2AUC-256
FC-3 & 4	800 80	.25	HORIZONTAL	1/4	115	1	TRANE 2AHB-259	DIRECT EXPANSION	80	67	21,000	15,500	THROWAWAY	CU-344	AIR COOLED	91	1	14.6KV	208	1	158C30V	208	1	TRANE 2AUC-100
FC-5 & 6	600 75	.25	HORIZONTAL	1/4	115	1	TRANE 2AHB-259C	DIRECT EXPANSION	80	67	18,000	12,600	THROWAWAY	CU-546	AIR COOLED	91	1	14.6KV	208	1	158C30V	208	1	TRANE 2AUC-100

AIR DEVICE SCHEDULE				
MARK	TYPE	ACCESSORIES & REMARKS	FINISH	MANUFACTURER
A	SUPPLY REGISTER	TITUS MODEL TV TURNING VANES	BAKED ALUMINUM ENAMEL	TITUS FR-2 IS
B	CEILING DIFFUSER	OPPOSED BLADE DAMPER; FRAME STYLE 3; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXE
C	CEILING DIFFUSER	OPPOSED BLADE DAMPER; FRAME STYLE 1; 12x12 MODULE SIZE	WHITE ENAMEL	TITUS TXS
D	EXHAUST AIR	OPPOSED BLADE DAMPER; FRAME STYLE 1; 12x12 MODULE SIZE	WHITE ENAMEL	TITUS TXR
E	EXHAUST AIR	OPPOSED BLADE DAMPER; FRAME STYLE 3; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXR
F	RETURN AIR	FRAME STYLE 3; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXR
G	DOOR GRILLE	NON SEE THRU WITH ADJUSTABLE FLANGED FRAME	BAKED ALUMINUM ENAMEL	TITUS T-700-2F
H	OUTSIDE LOUVER	BIRD SCREEN ON OUTSIDE OF LOUVER	CLEAR ANODIZE	TITUS OXL-FZ
J	RETURN AIR	PERFORATED ALUMINUM PANEL FOR T-BAR CEILING 3/8" HOLES; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXR
K	CEILING DIFFUSER	OPPOSED BLADE DAMPER; FRAME STYLE 1; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXS
L	RETURN AIR	FRAME STYLE 1; 24x24 MODULE SIZE	WHITE ENAMEL	TITUS TXR
M	EXHAUST AIR	1/2 x 1/2 x 1/2 ALUMINUM LOUVERS	BAKED ALUMINUM ENAMEL	TITUS 50-F

EXHAUST FAN SCHEDULE								
MARK	CFM	STAT. PRESS.	TYPE	DRIVE	H.P.	VOLTS	PHASE	REMARKS
EF-1	390	.10	IN-LINE	DIRECT	1/20 WATTS	115	1	PENN Z-10TD
EF-2	390	.10	IN-LINE	DIRECT	1/20 WATTS	115	1	PENN Z-10TD
EF-3	300	.10	IN-LINE	DIRECT	1/20 WATTS	115	1	PENN Z-10TD
EF-4	780	.1	IN-LINE	DIRECT	1/20 WATTS	115	1	PENN Z-10TD
EF-5	1920	.1	IN-LINE	DIRECT	1/2	115	1	PENN Z-14TD
EF-6 & 7 & 8 & 9	1400	.15	IN-LINE	DIRECT	1	208	1	PENN Z-18TD
EF-10	3500	.25	IN-LINE	BELT	3/4	115	1	GREENHECK SGB-18-7

NOTE:
EXHAUST FANS TO BE SUPPORTED SIMILAR TO FAN COIL UNITS, SEE DETAIL THIS SHEET.

ELECTRIC HEATING COIL SCHEDULE									
MARK	SERVE UNIT N°	TYPE	RATED BTU	AIR CFM	ELECT. CHARACTERISTIC			STEPS	
					W	VOLTS	PHASE		
EH-1	FC-6	STRIP HEATER	4800	600	2	208	1	1	
EH-2	FC-5	STRIP HEATER	4800	600	2	208	1	1	
EH-3	FC-3	STRIP HEATER	4800	800	2	208	1	1	
EH-4	FC-4	STRIP HEATER	4800	800	2	208	1	1	
EH-5	FC-2	STRIP HEATER	10,400	1400	6	208	3	1	
EH-6	FC-1	STRIP HEATER	10,400	1400	6	208	3	1	



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FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-51-20493 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		
COMMISSION NO.	47377	
ELEVATIONS & SCHEDULES MECHANICAL	M 7	OF 11

AIR HANDLING UNIT SCHEDULE

UNIT DATA										COOLING DATA								HEATING DATA					FILTER DATA		REMARKS
MARK	TYPE	CATALOG NO	CFM QA	MAX. COIL VEL.	FAN MOTOR			EXT. S. P.	MIN. COIL FACE AREA	COIL GPM	COIL CAPACITY MBH	ENT. AIR		LEAVING AIR		WATER ENT. TEMP. °F	WATER LEAVING TEMP. °F	COIL CAPACITY BTU / HR.	ENT. AIR °F	LEAVING AIR °F	WATER ENT. TEMP. °F	WATER LEAVING TEMP. °F	TYPE	MIN. FILTER VEL. (FPM)	
					H.P.	VOLTS	PHASE					DB - °F	WB - °F	DB - °F	WB - °F										
AHU-1,3,5, & 7	MED. PRESSURE HORIZONTAL (EXISTING)	TRANE #31	14,900 6800	500 FPM	15	480	3	.70	29.5 #	95.2	1006.4	84.0	73.9	59.7	53.6	44.0	65.1	215,000	55	82	120	115	EXISTING TO REMAIN	—	① ⑤ ⑥
AHU-2,4, & 6	MED. PRESSURE HORIZONTAL (NEW)	TRANE #31	14,900 O	500 FPM	10	480	3	.70	29.5 #	64.2	669.4	78.0	68.0	59.7	53.6	44.0	64.7	86,000	68	74	120	117	PERMANENT MED. CAPACITY	325	② ⑤
AHU-8,10,12, & 14	MED. PRESSURE HORIZONTAL (EXISTING)	TRANE #31	14,900 O	500 FPM	15	480	3	.70	29.5 #	64.2	669.4	78.0	68.0	59.7	53.6	44.0	64.7	86,000	68	74	120	117	PERMANENT MED. CAPACITY	325	③ ⑤ ⑥
AHU-9,11 & 13	MED. PRESSURE HORIZONTAL (NEW)	TRANE #31	14,900 6800	500 FPM	10	480	3	.70	29.5 #	95.2	1006.4	84.0	73.9	59.7	53.6	44.0	65.1	215,000	55	82	120	115	SEE NOTE ④	—	④ ⑤

CHILLER SCHEDULE

CHILLER NO.	CAPACITY TONS	KW	CHILLED WATER					CONDENSED WATER					COMPRESSOR MOTOR					SCALE FACTOR		STARTER TYPE	MATCHED IN	REMARKS
			# PASSES	GPM	MAX. P.D.	ENTERS	LEAVES	# PASSES	GPM	MAX. P.D.	ENTERS	LEAVES	VOLTS	PHASE	CYCLE	F.L.A.	L.R.A.	EVAP.	COND.			
1 (EXIST.)	373	322	1	1116	4.8	52	44	2	1074	14	85	95	480	3	60	432	2740	.0005	.0005	EXISTING	TRANE RV-3	EXISTING CHILLER TO BE MODIFIED TO LEASZ EVAPORATOR
2 (NEW)	610	450	2	1116	16	65	52	2	1756	17.8	85	95.1	480	3	60	620	3640	.0005	.0005	CLOVER TRANSISTOR DELTA	TRANE RV-3	

PUMP SCHEDULE

PUMP NO.	SERVICE	GPM.	HEAD PRESS.	MIN. EFF. %	RPM	HP	VOLTS	PHASE	CYCLE	REMARKS
P-1	CONDENSER WATER PUMP	2830	60 FT.	79	1750	60	480	3	60	ALLIS-CHALMERS H4VTLG
P-2	CHILLED WATER PUMP	1116	160 FT.	84	1750	60	480	3	60	ALLIS-CHALMERS SERIES 2000, 8"x6"x13L

COOLING TOWER SCHEDULE

UNIT NO.	GPM	ENT. AIR W.B.	EWT °F	LWT °F	CATALOG NO.	MOTOR DATA					REMARKS
						HP	RPM	V	Ø	C	
1	2830	80°	95	85	MARLEY 329-102	2) 40	1800	480	3	60	COND. BASIN & PUMP BY GEML. SEE STRUCT. DRAWING 103

REMARKS:

- EXISTING AHU'S WITH NEW COIL PER SCHEDULE AND OUTSIDE AIR INTAKE TO REMAIN.
- NEW AHU'S WITHOUT OUTSIDE AIR
- EXISTING AHU'S WITH NEW COIL PER SCHEDULE WITH OUTSIDE AIR INTAKE TO BE REMOVED. O.A. DUCTWORK, LOUVER AND COMBINATION FILTER MIXING BOX TO BE REUSED ON NEW AHU'S 3,11, & 13. NEW FILTER TO BE ADDED PER SCHEDULE.
- NEW AHU'S WITH OUTSIDE AIR. O.A. DUCTWORK, LOUVER, AND COMBINATION FILTER MIXING BOX TO BE REUSED FROM EXISTING AHU'S 8,10,12, & 14. DUCTWORK TO BE REWORKED IF NECESSARY, SEE 21503.
- COIL SELECTION DATA BASED ON TRANE "DD" COILS
- FAN H.P. SCHEDULED PER EXIST. MOTOR. FAN DRIVE TO BE ADJUSTED PER NEW CFM.

$7 \times 95 = 665$
 $7 \times 64 = 448$
1113 GPM

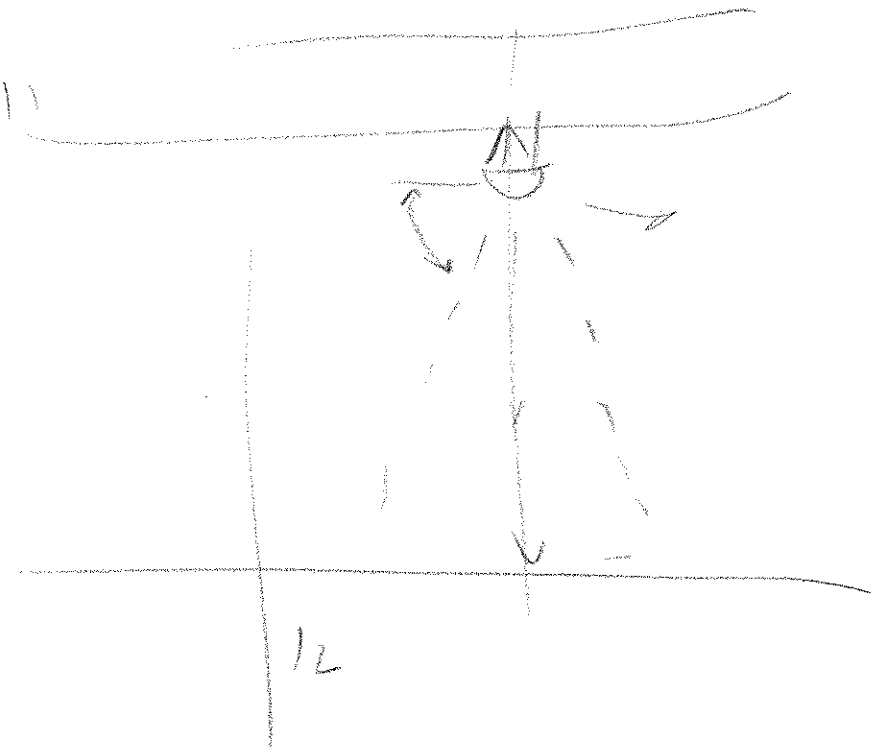
13600 CFM/OA

7042
4643

973.8 Tons

7914 = 659
479

8470 = 705



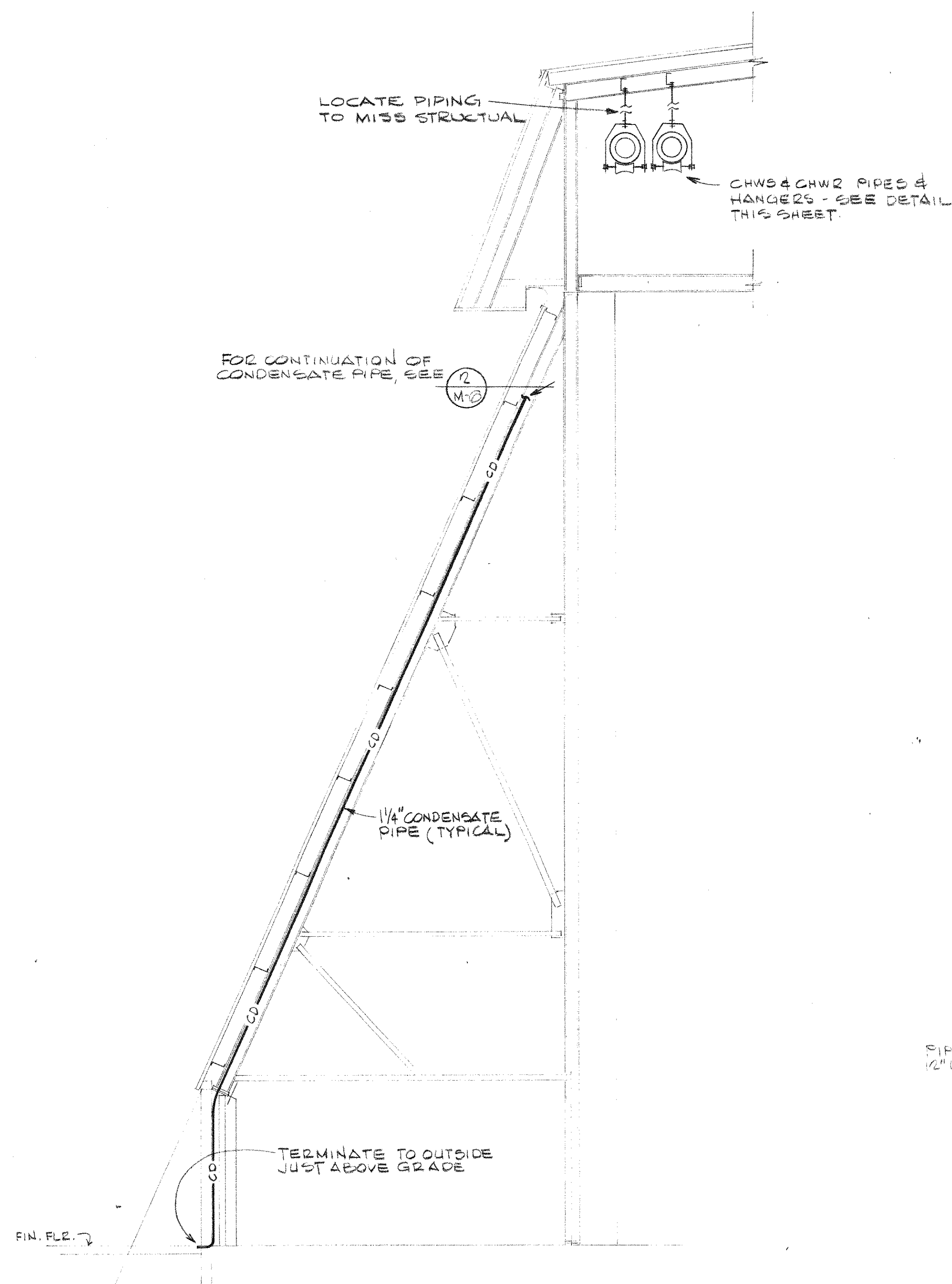
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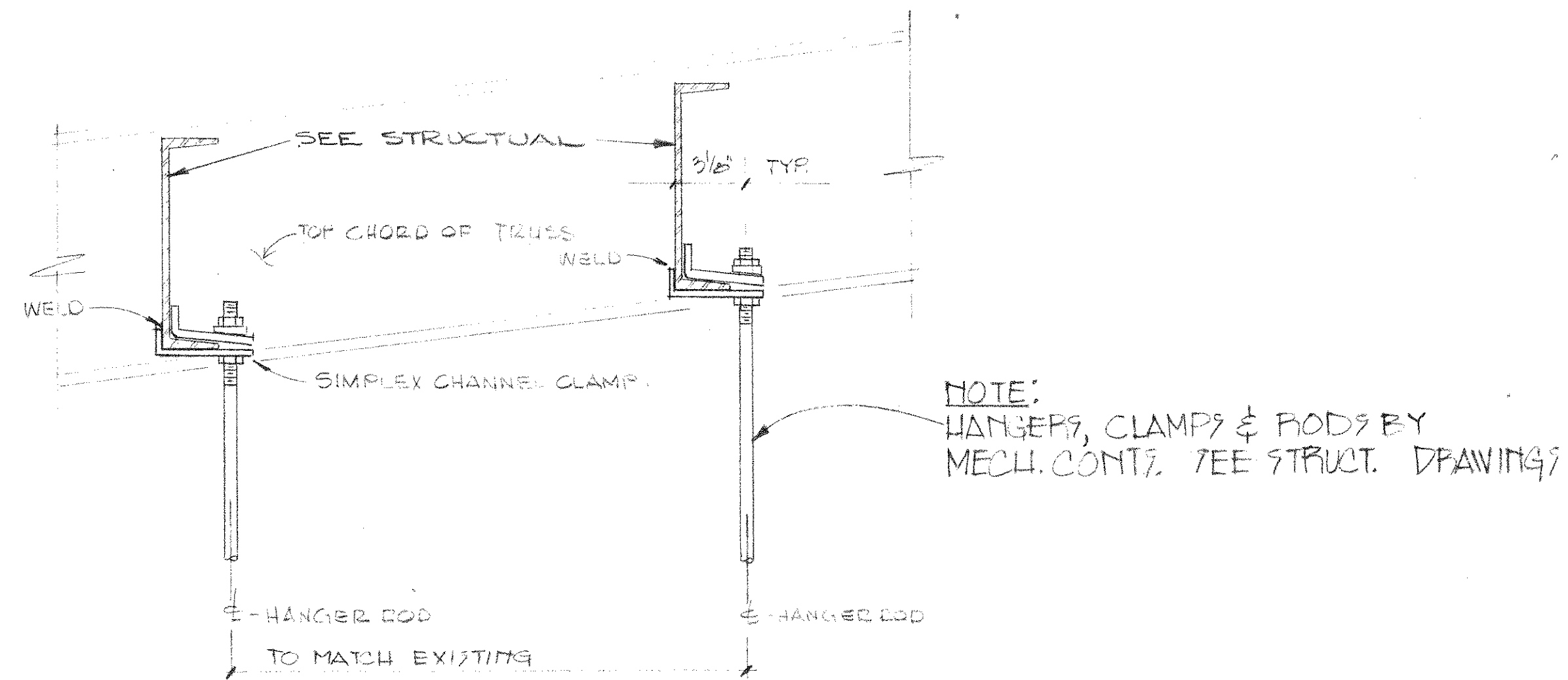
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TAMPA, FLORIDA 33609

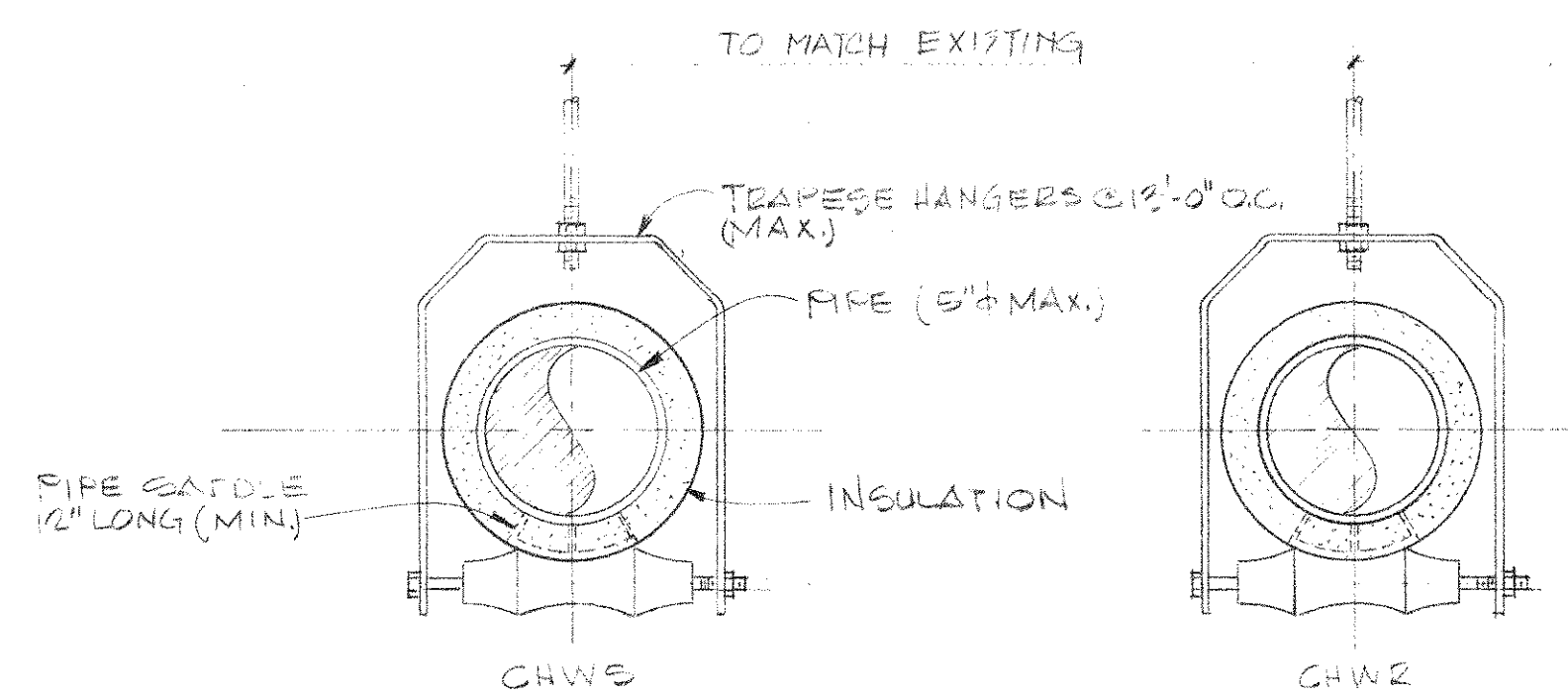
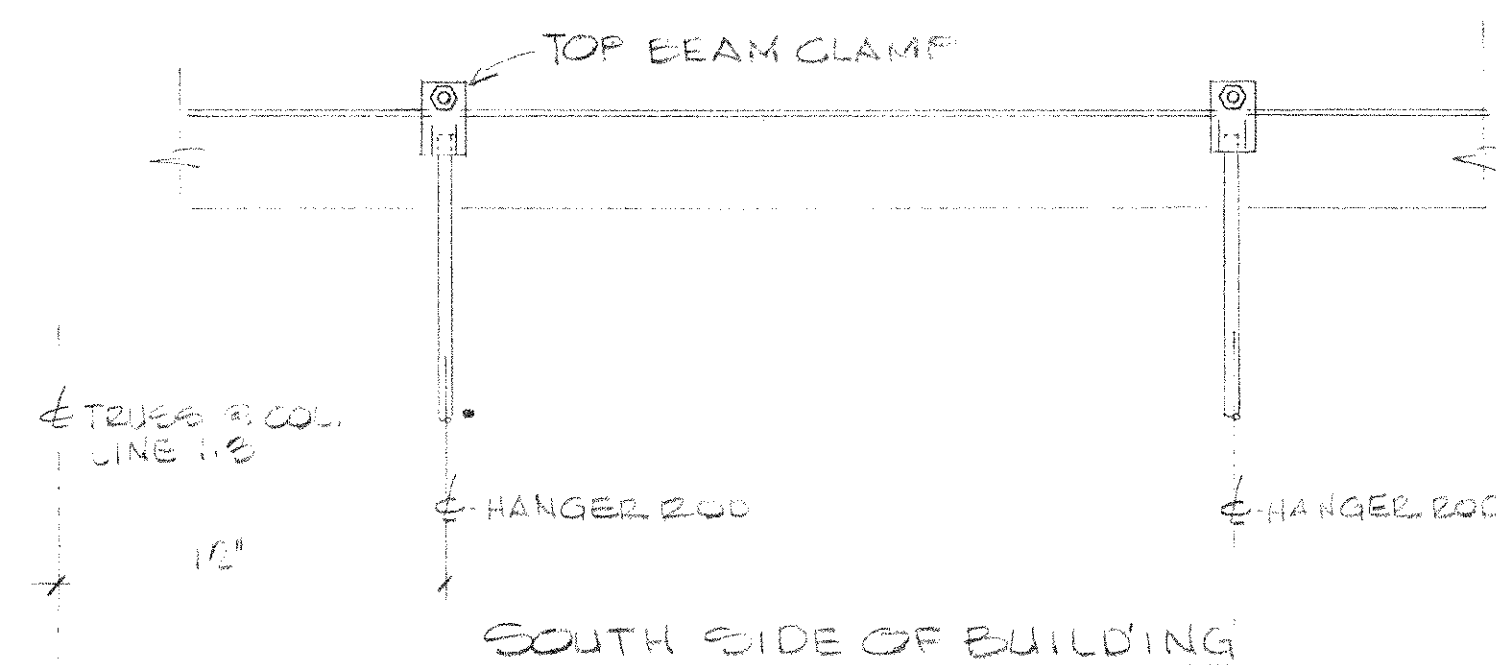
SCHEDULES MECHANICAL
M 8
OF 11



SECTION 1
SCALE: 1/4" = 1'-0" M-9



WEST SIDE OF BUILDING

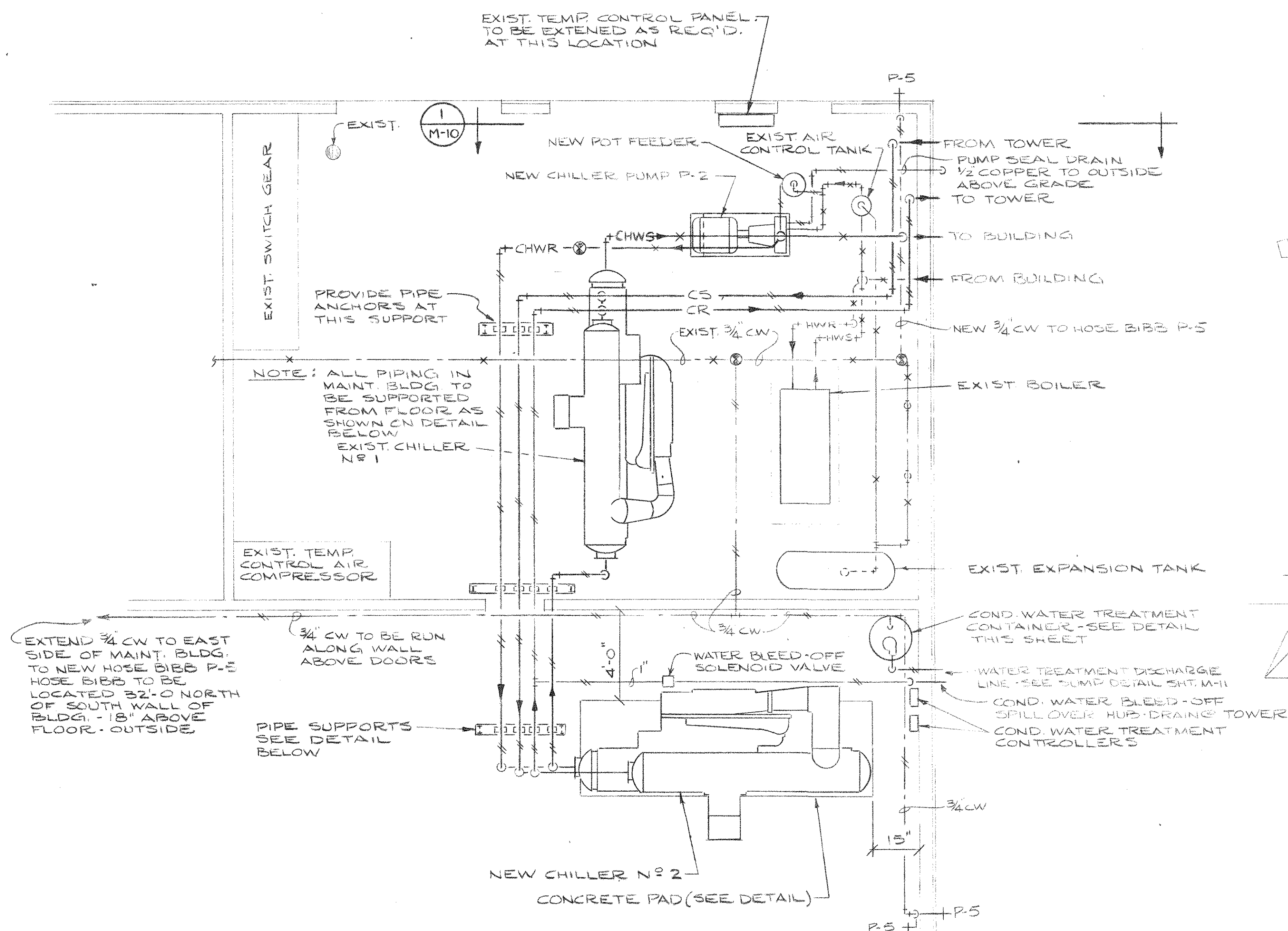


HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
1 1/2"	1/2" Ø
2"	3/8" Ø
3"	3/8" Ø
4"	3/8" Ø
6"	3/8" Ø

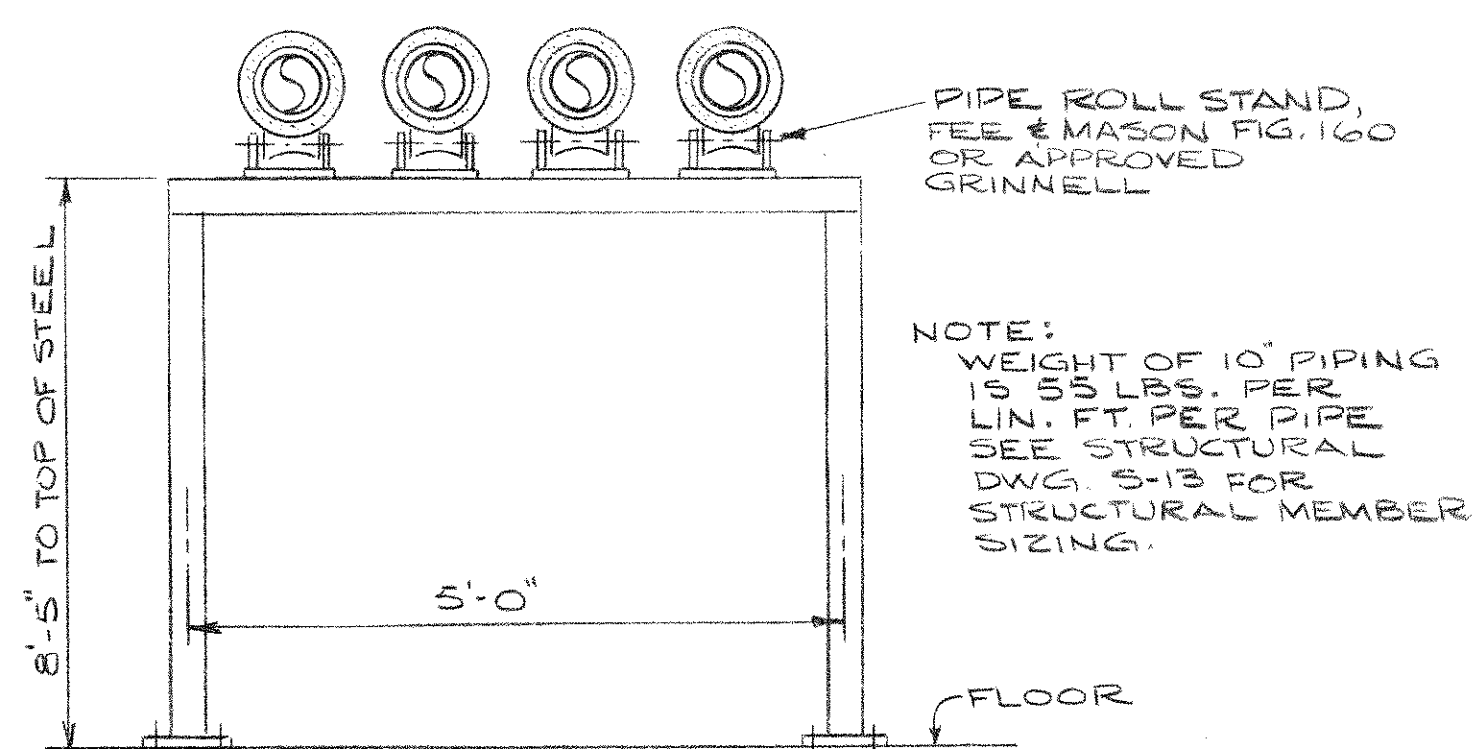
PIPE HANGER DETAILS
NOT TO SCALE

NOTE: THESE DETAILS APPLY ONLY TO EXPO HALL BLDG. NOT MAINT. BLDG.

REVISION	DESCRIPTION	DATE
DATE OF ISSUE: OCT. 15, 1977		
ROBBINS & ASSOCIATES ARCHITECTS, INC. 1600 EXCHANGE NATIONAL BANK BUILDING 610 FLORIDA AVE. TAMPA, FLORIDA 33602 TELEPHONE: (813) 223-2771		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA EDA PROJECT #04-51-20493 EXPOSITION HALL EXPANSION FOR FLORIDA STATE FAIR AUTHORITY		
COMMISSION NO.		47377
CHILLED WATER PIPING DETAILS M 9 OF 11		

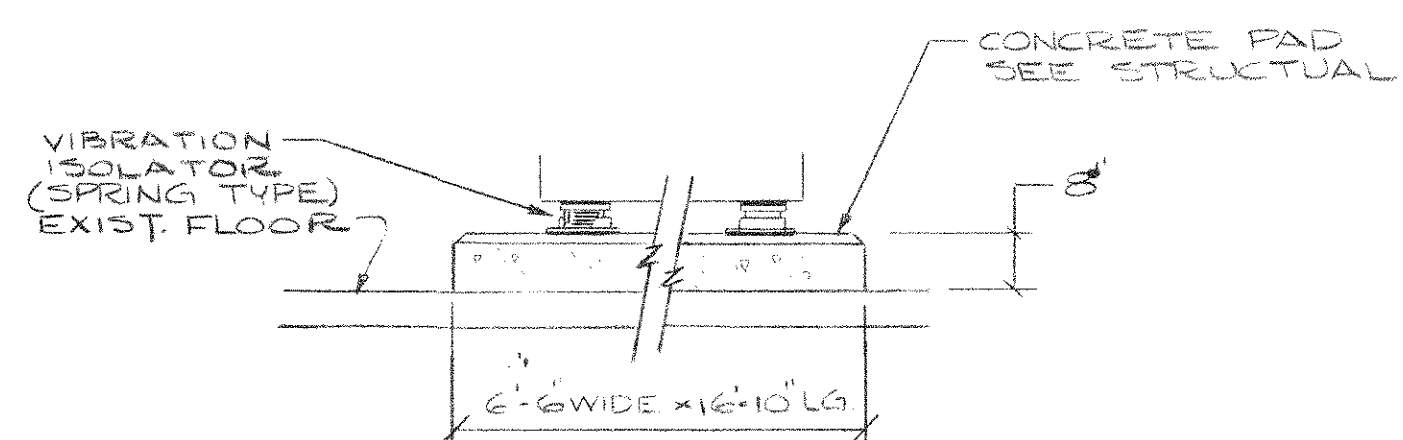


MECHANICAL ROOM PLAN
SCALE 1/4" = 1'-0"

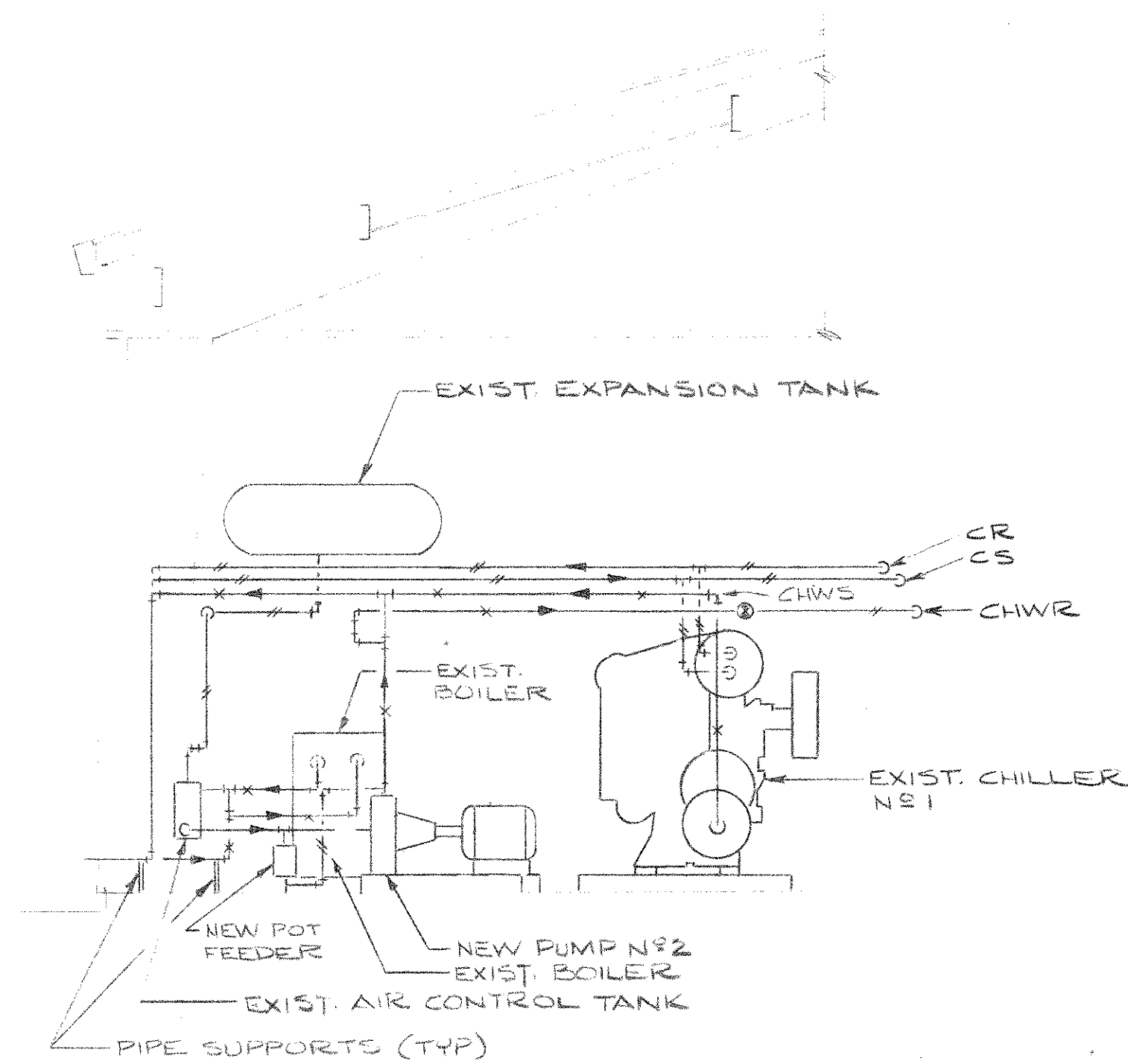


PIPE SUPPORT DETAIL
N.T.S.

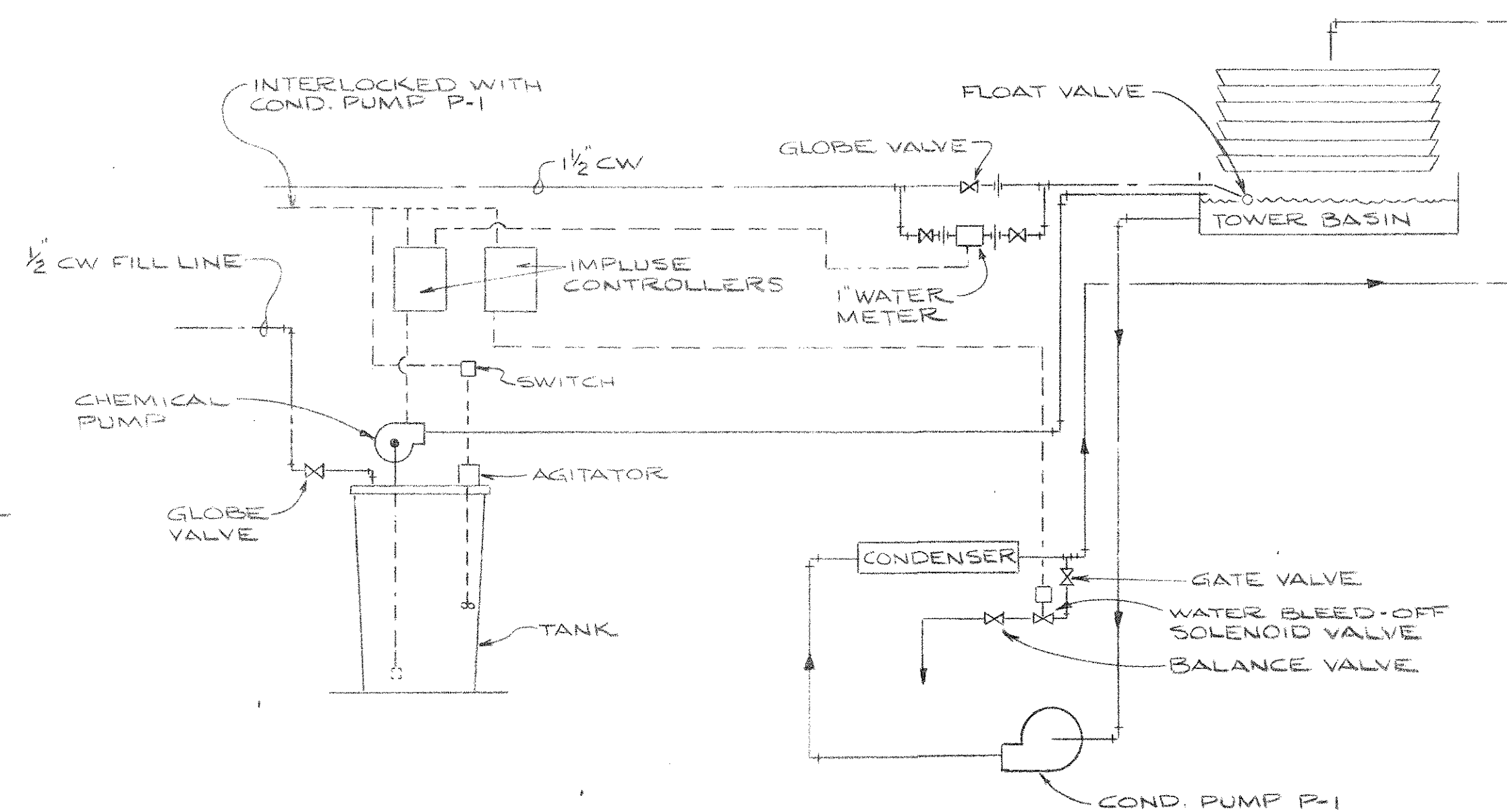
NOTE: SEE PIPING SCHEMATIC SHT. M-11 FOR VALVING, PIPE SIZES, AND OTHER DETAILS.



CHILLER CONCRETE PAD



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



COOLING TOWER TREATMENT SYSTEM
N.T.S.

REVISION	DESCRIPTION	DATE
DATE OF ISSUE: OCT. 15, 1977		
ROBBINS & ASSOCIATES ARCHITECTS, INC.		
1600 EXCHANGE NATIONAL BANK BUILDING		
610 FLORIDA AVE., TAMPA, FLORIDA 33602		
TELEPHONE: (813) 223-2771		
FLORIDA STATE FAIR		
HILLSBOROUGH COUNTY, FLORIDA		
EDA PROJECT #04-51-20493		
EXPOSITION HALL EXPANSION		
FOR		
FLORIDA STATE FAIR AUTHORITY		

COMMISSION NO.	47377
MAINTENANCE BUILDING PARTIAL PLAN & SECTION	M 10
	OF 11

SYMBOLS AND NOTES FOR MECHANICAL DRAWINGS

PIPING

HEATING:

DESCRIPTION OF ITEM	SYMBOL
HIGH PRESSURE STEAM	HP
MEDIUM PRESSURE STEAM	MP
LOW PRESSURE STEAM	LP
HIGH PRESSURE RETURN	HR
MEDIUM PRESSURE RETURN	MR
LOW PRESSURE RETURN	LR
BOILER BLOW OFF	
CONDENSATE OR VACUUM	
PUMP DISCHARGE	
FEEDWATER PUMP DISCHARGE	
MAKE-UP WATER	
AIR-RELIEF LINE	
FUEL OIL SUPPLY	FOS
FUEL OIL RETURN	FOR
FUEL OIL TANK VENT	FOTV
COMPRESSED AIR	CA
HOT WATER HEATING SUPPLY	HWS
HOT WATER HEATING RETURN	HWR

AIR CONDITIONING:

DESCRIPTION OF ITEM	SYMBOL
REFRIGERANT DISCHARGE	
REFRIGERANT SUCTION	
CIRCULATING WATER SUPPLY	
CIRCULATING WATER RETURN	
CONDENSER WATER SUPPLY	
CONDENSER WATER RETURN	
CHILLED WATER SUPPLY	CWS
CHILLED WATER RETURN	CWR
MAKE-UP WATER	
HUMIDIFICATION LINE	
CONDENSATE DRAIN	

FITTINGS:

DESCRIPTION OF ITEM	SYMBOL
BUSHING	
CROSS	
DRAIN	
ELBOW, 90°	
ELBOW, TURNED DOWN	
ELBOW, TURNED UP	
EXPANSION JOINT	
FLEXIBLE PIPE CONNECTION	
GAUGE COCK	
STRAINER	
TANK FITTING	
TEE	
TEE, OUTLET DOWN	
TEE, OUTLET UP	
TEE, SIDE OUTLET, OUTLET DOWN	
TEE, SIDE OUTLET, OUTLET UP	
UNION	

VALVES:

DESCRIPTION OF ITEM	SYMBOL
VALVE, AIR LINE	
AUTOMATIC AIR VENT	
BALANCING COCK	
BALL VALVE	
BUTTERFLY VALVE	
CHECK VALVE	
DIAPHRAGM CONTROL VALVE	
EXPANSION VALVE	
VALVE, FLOAT OPERATED	
GATE VALVE	
ANGLE GATE VALVE	
GATE VALVE, MOTOR OPERATED	
GLOBE VALVE	
ANGLE GLOBE VALVE	
GLOBE VALVE, MOTOR OPERATED	
VALVE LOCK AND SHIELD	
NON-RETURN VALVE (STRAIGHT OR ANGLE)	
PRESSURE REDUCING VALVE	
QUICK-OPENING VALVE	
RELIEF VALVE	
SAFETY VALVE	
3-WAY VALVE	

AIR CIRCULATION EQUIPMENT

DUCTWORK:

DESCRIPTION OF ITEM	SYMBOL
ACCESS COIL, 4" & LESS DIA. COIL	
DIRECTION OF FLOW	
DUCT WIDTH & DEPTH	
EXHAUST SECTION	
SUPPLY DUCT SECTION	
RETURN OR EXHAUST DUCT SECTION	
INCLINED RISE, IN RESPECT TO AIR FLOW	
INCLINED DROP, IN RESPECT TO AIR FLOW	
RETURN AIR FLOW	
SUPPLY AIR FLOW	
TURNING VANES	
VOLUME DAMPER	
STAIR DAMPER	
FIRE DAMPER, 90° HORIZONTAL SEPARATION	
FIRE DAMPER, 90° VERTICAL SEPARATION	
FIRE DAMPER, 90° CORNER TURN	

CONTROLS-SWITCHES-PUMPS-GAGES

DESCRIPTION OF ITEM	SYMBOL
CAPACITOR	
CIRCUIT BREAKER	
COIL FOR SOLENOID VALVE	
CONTACT, NORMALLY CLOSED	
CONTACT, NORMALLY OPEN	
DAMPER MOTOR	
ELECTRIC-PNEUMATIC RELAY	
FIRE SAFETY SWITCH	
FIRESTAT	
FLOAT SWITCH	
FLOW SWITCH	
FLOW SWITCH, NORMALLY CLOSED	
FLOW SWITCH, NORMALLY OPEN	
GAGE	
HAND-OFF-AUTO (HOA) SWITCH	
HUMIDISTAT	
OVERLOAD ACTUATOR	
PRESSURE SWITCH OR SENSOR	
PRESSURE SWITCH, NORMALLY CLOSED	
PRESSURE SWITCH, NORMALLY OPEN	
SMOKE DETECTOR	
THERMOSTAT	

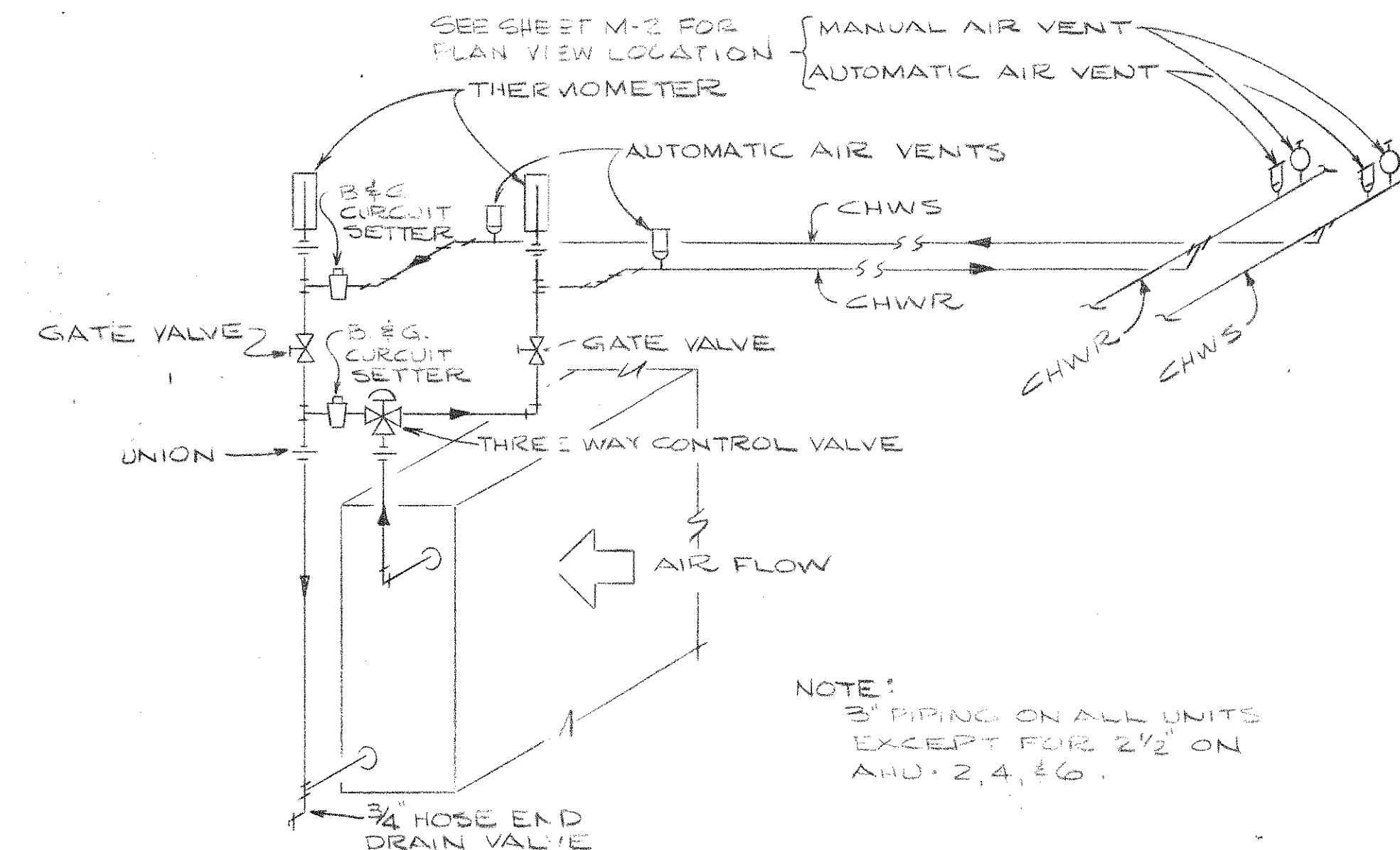
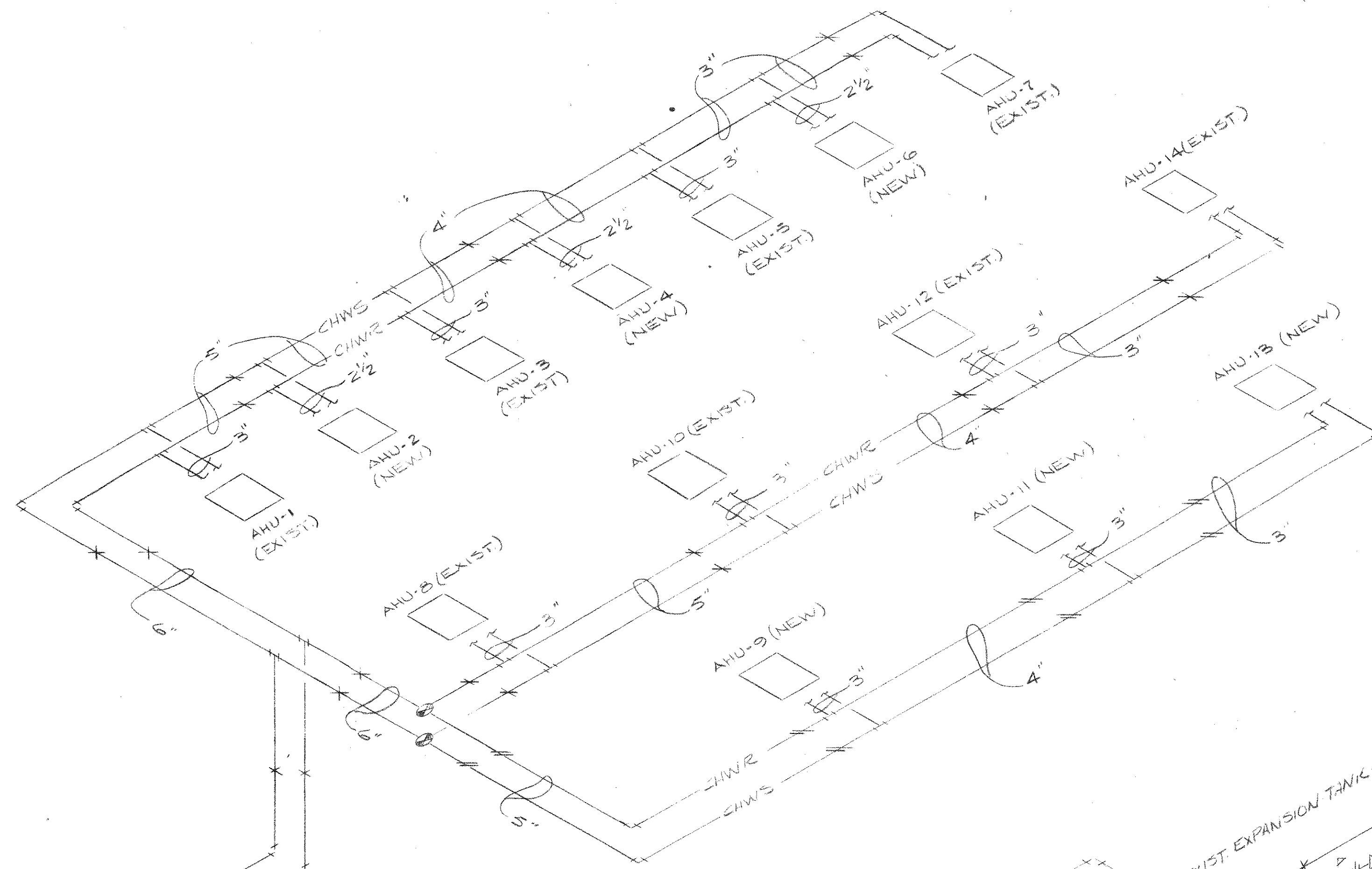
EQUIPMENT IDENTIFICATION LEGEND

DESCRIPTION OF ITEM	SYMBOL
EXHAUST SET-POINT CONTROL	
SUPPLY UNIT, SEE SCHEDULE	
SUPPLY FAN, SEE SCHEDULE	
EXHAUST FAN, SEE SCHEDULE	
COOLING TOWER, SEE SCHEDULE	
CHILLER, SEE SCHEDULE	
CONDENSER WATER PUMP, SEE SCHEDULE	
CHILLED WATER PUMP, SEE SCHEDULE	
DUCT HEATER, SEE SCHEDULE	
BASIN/BAKE HEATER, SEE SCHEDULE	
CAPITAL LETTER INDICATES VOLUME CONTROL, SIZE AS SCHEDULE	
LOWER CASE LETTER INDICATES ACCESSORY AS SCHEDULE	
FRESH AIR, WASH, DRYER OR ROOF MOUNTED VENTILATOR	
SUPPLY AIR REGISTER OR DIFFUSER, SEE SCHEDULE	
EXHAUST AIR LOUVER OR ROOF MOUNTED VENTILATOR	
RETURN AIR GRILLE, SEE SCHEDULE	
EXHAUST AIR GRILLE, SEE SCHEDULE	
DOOR GRILLE, SEE SCHEDULE	
EXHAUST FAN, SEE SCHEDULE	
VENTILATION FAN, SEE SCHEDULE	
POWER ROOF VENTILATOR, SEE SCHEDULE	
GRAVITY ROOF VENTILATOR, SEE SCHEDULE	
AIR CONDITIONING UNIT, SEE SCHEDULE	
TRANSFER GRILLE, SEE SCHEDULE	

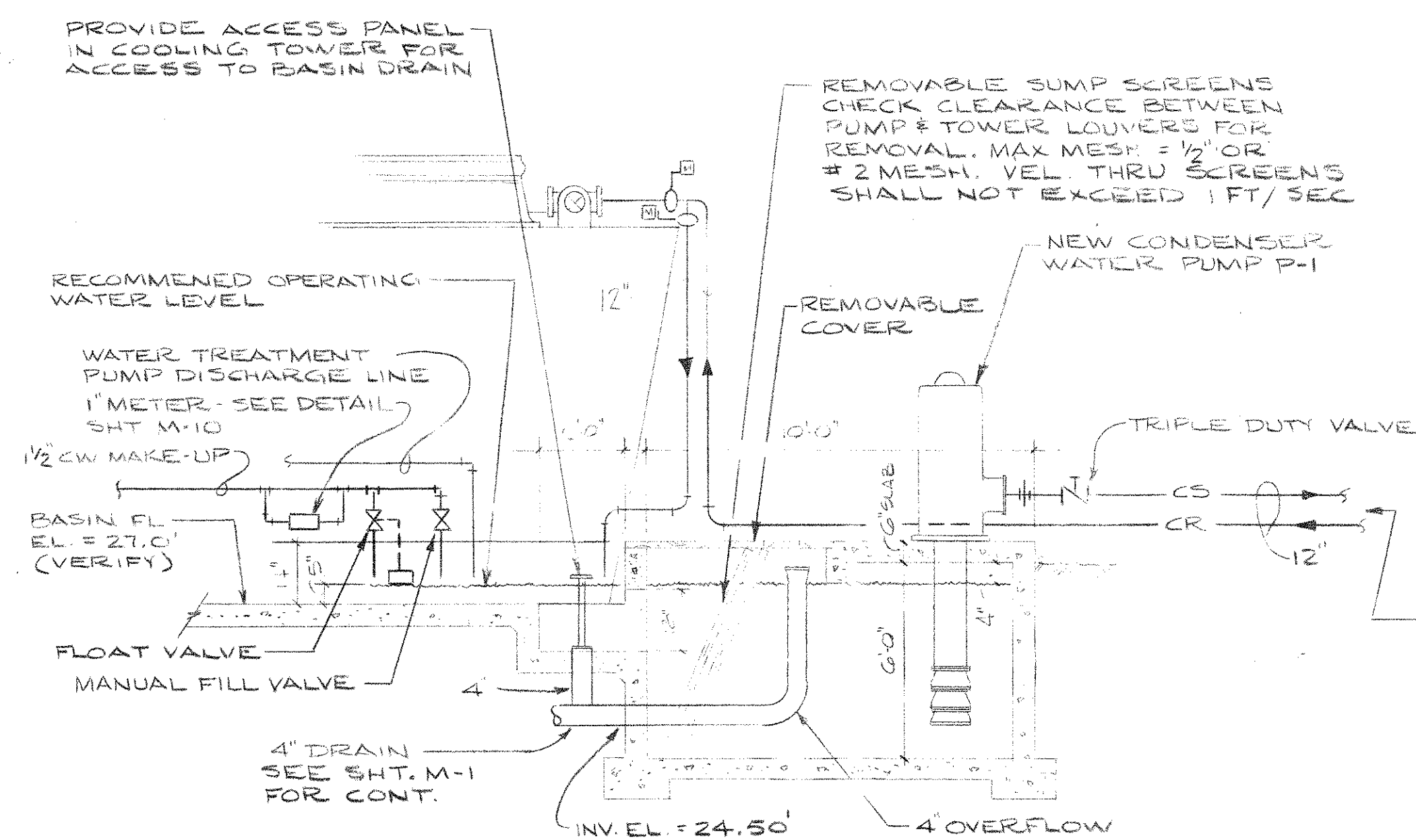
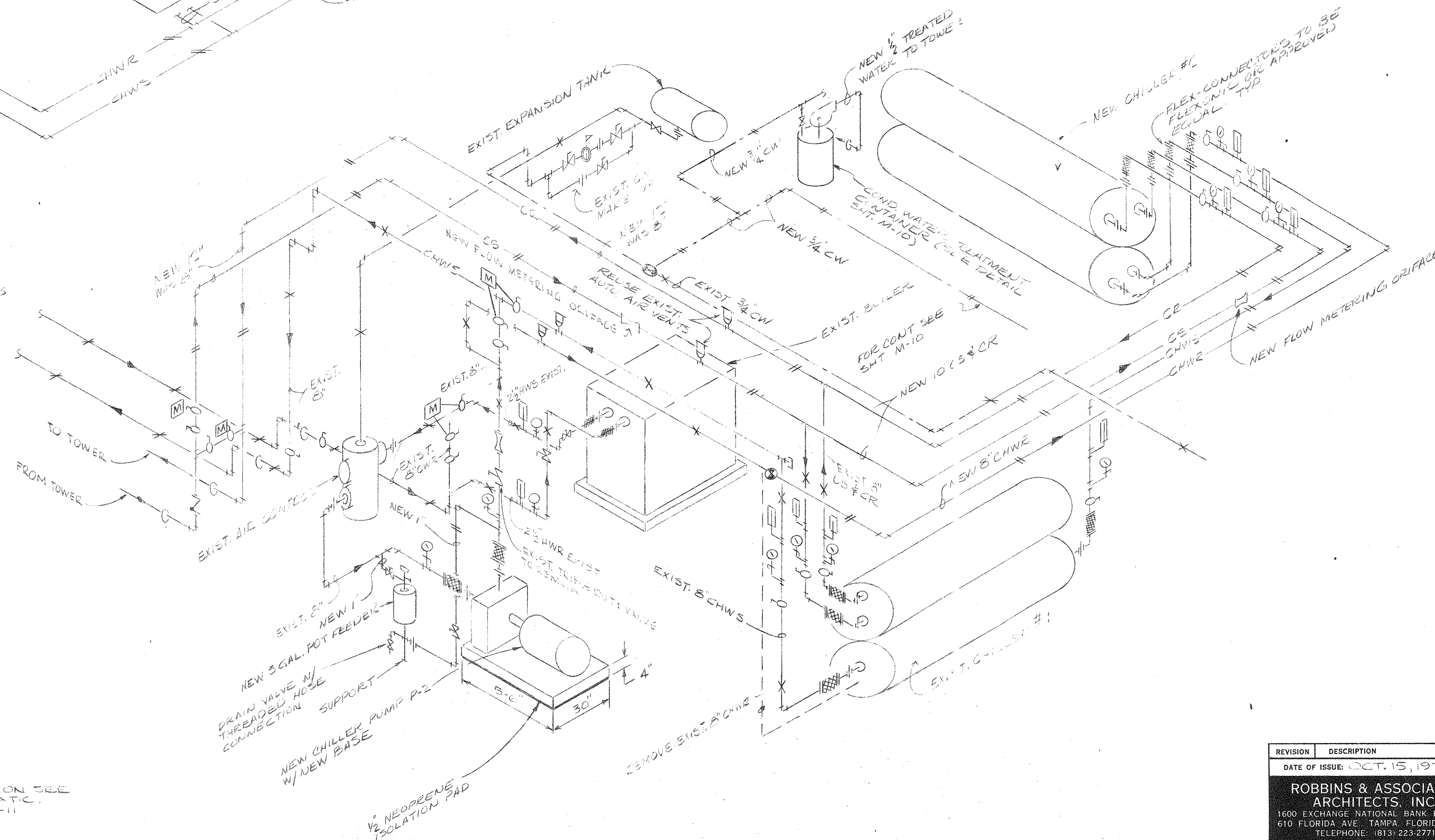
NOTES

- SECTION 1 SECTION NUMBER
SHEET NUMBER NOT REQUIRED IF SECTION IS CUT ON SAME SHEET AS DRAWN
- DETAIL 1 DETAIL NUMBER
SHEET NUMBER NOT REQUIRED IF DETAIL IS INDICATED ON SAME SHEET AS DRAWN

- SYMBOLS AS SHOWN ON THIS SHEET MAY NOT ALL APPEAR ON THE CONTRACT DRAWINGS, AND VICE VERSA
- PLANS AND DIAGRAMS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED - DUCTS, PIPING AND OPENINGS SHALL BE COORDINATED WITH OTHER UTILITIES
- IN CASE OF DISCREPANCIES BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD



TYPICAL COIL PIPING DETAIL
N.T.S.



SUMP DETAIL
N.T.S.

NOTE: TOWER BASIN & SUMP CONSTRUCTION BY GEN. CONTR. SEE STRUCTURAL DWGS.

PIPING SCHEMATIC
N.T.S.

REVISION	DESCRIPTION	DATE
DATE OF ISSUE	OCT. 15, 1977	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 1600 EXCHANGE NATIONAL BANK BUILDING 610 FLORIDA AVE., TAMPA, FLORIDA 33602 TELEPHONE: (813) 223-2771		

FLORIDA STATE FAIR
HILLSBOROUGH COUNTY, FLORIDA
EDA PROJECT #04-91-20493
EXPOSITION HALL EXPANSION
FOR
FLORIDA STATE FAIR AUTHORITY

COMMISSION NO. 47377

CARASTRO, AGUIRRE & ASSOCIATES, Inc.
CONSULTING ENGINEERS
3636 SOUTH
TAMPA, FLORIDA 33609

PIPING SCHEMATIC & DETAILS
MECHANICAL
M II
OF 11

SYMBOLS AND NOTES FOR PLUMBING DRAWINGS

PLUMBING

COLD WATER	---
HOT WATER	---
HOT WATER RETURN	---
180° HOT WATER	---
180° HOT WATER RETURN	---
SOIL OR WASTE	---
VENT	---
STORM DRAIN	---
RAIN LEADER	---
VENT THRU ROOF	---
FLOOR DRAINS	---
CLEAN OUTS	---
LAVATORY	---
WATER CLOSET	---
URINAL	---
SINK	---
SERVICE SINK	---
ELECTRIC WATER COOLER	---
ELECTRIC WATER HEATER	---
HYDRANT HOSE BIB	---
PRESSURE RELIEF VALVE	---
TEMPERATURE-PRESSURE RELIEF VALVE	---
GATE VALVE	---
INVERT ELEVATION	---

PIPING

PIPE	---
PIPE-RECESS	---
VALVE	---
WASH CLOSET	---
WATER CLOSET	---
URINAL	---
SINK	---
SERVICE SINK	---
ELECTRIC WATER COOLER	---
ELECTRIC WATER HEATER	---
HYDRANT HOSE BIB	---

SCHEDULE OF PLUMBING FIXTURES

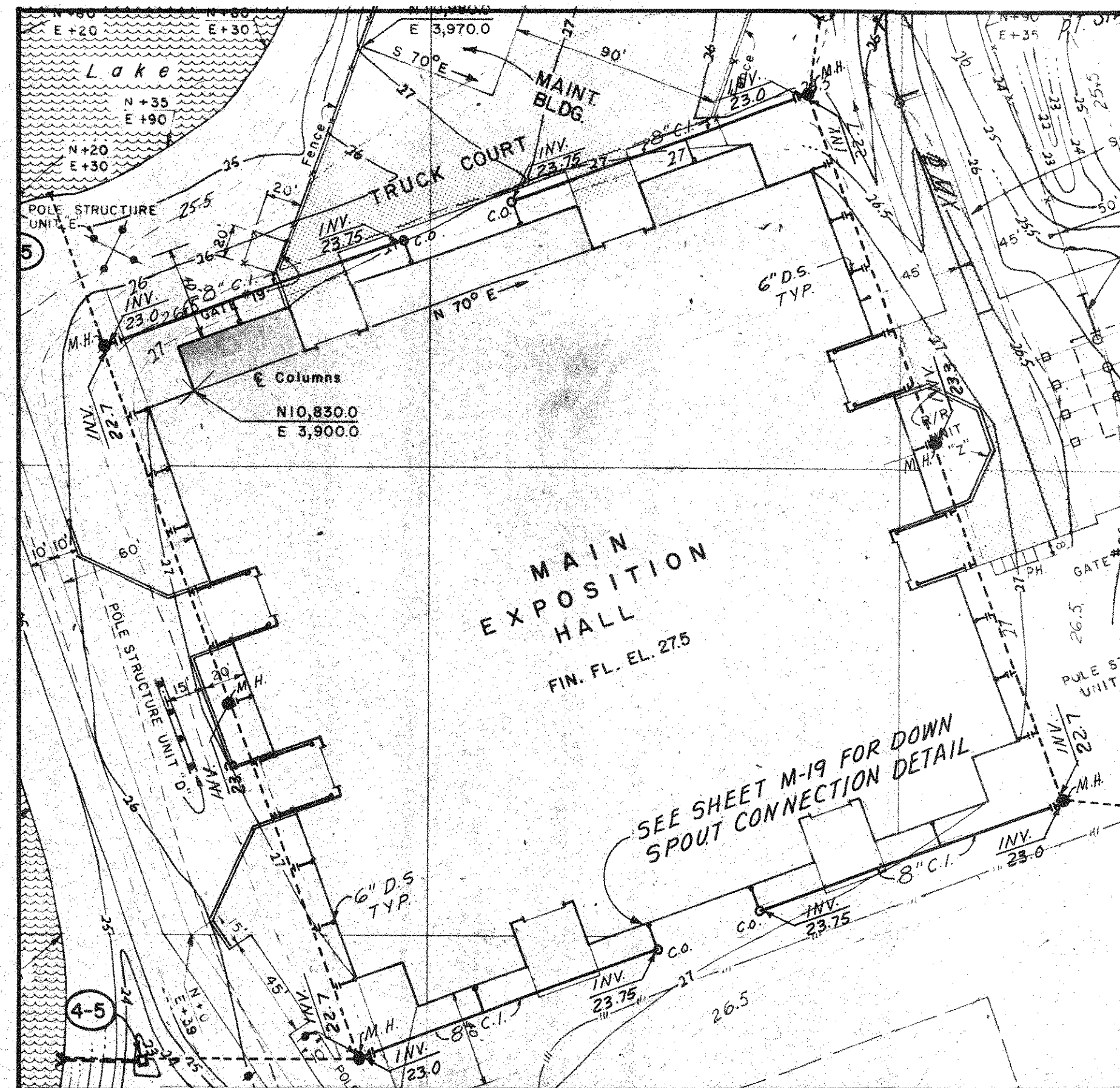
P-1a	LAVATORY, WALL HUNG, COLD WATER SUPPLY ONLY
P-1b	LAVATORY, WALL HUNG
P-1c	LAVATORY, WALL HUNG, WHEEL CHAIR TYPE
P-1d	LAVATORY, COUNTERTOP
P-1e	WASH FOUNTAIN, SEMICIRCULAR
P-2a	WATER CLOSET, FLOOR MOUNTED
P-2b	WATER CLOSET, WHEEL CHAIR
P-3	URINAL, MEN'S
P-4a	SINK, COUNTERTOP
P-4b	SINK, SERVICE, FLUSHING RIM
P-4c	SINK, SERVICE, SINGLE BASIN
P-4d	SINK, SERVICE, DOUBLE BASIN
P-5	SHOWER
P-6a	HYDRANT, BACK INLET, FLANGED
P-6b	HYDRANT, BOTTOM INLET
P-6c	HYDRANT, BACK INLET
P-7	PRESSURE REDUCING VALVE
P-8a&b	ELECTRIC WATER HEATER, 30 GALLON
P-8c	ELECTRIC WATER HEATER, 17 GALLON
P-9	ELECTRIC WATER COOLER
P-10a	WATER FOUNTAIN, HANDICAPPED
P-10b	WATER FOUNTAIN, PEDISTAL

FIRE PROTECTION

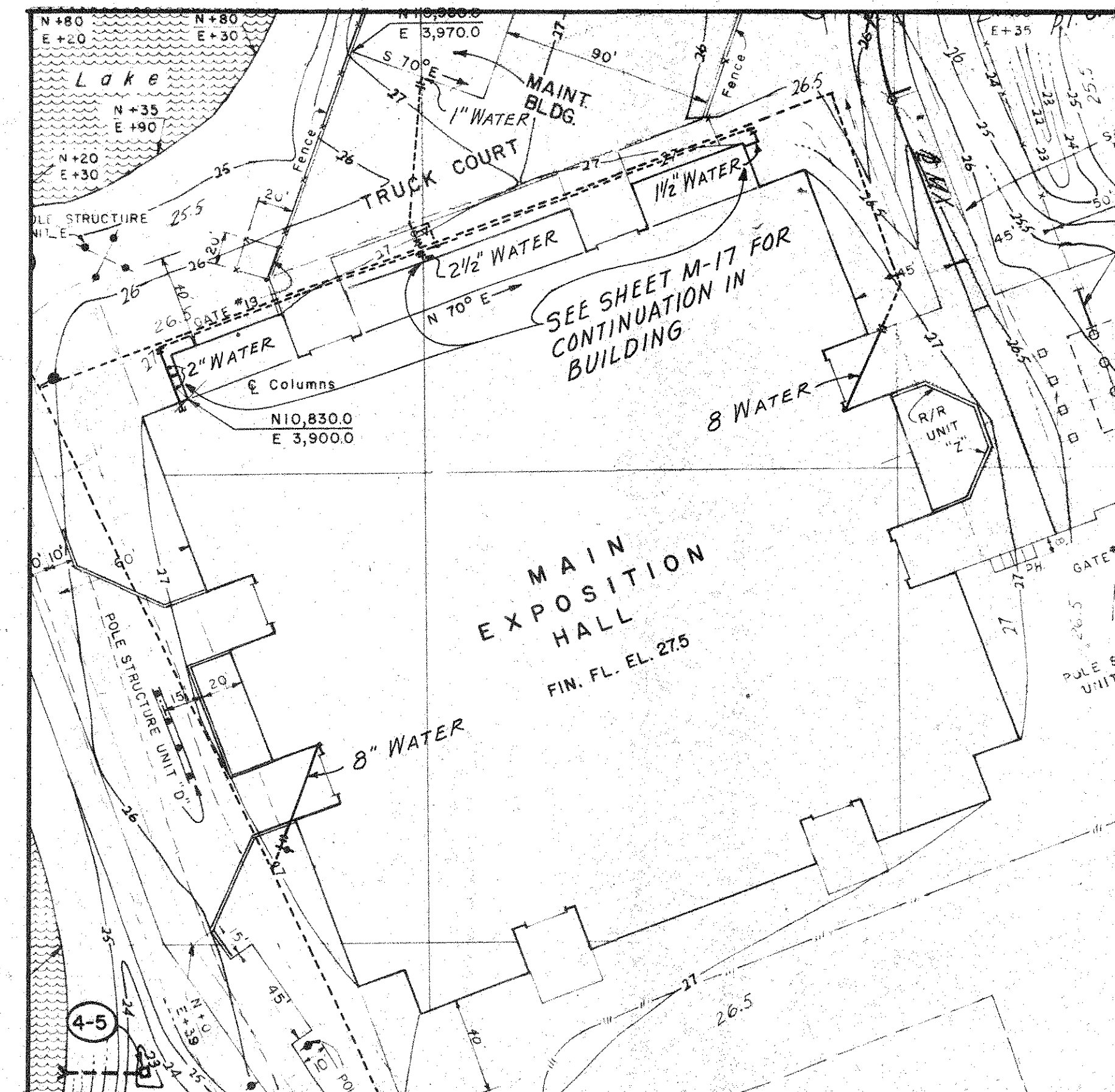
SUPPLY PIPING	---
RISER	---
BRANCH LINE W/ SPRINKLER HEAD	---
FIRE DEPT. CONNECTION	---
HYDRANT W/ PUMPER CONNECTION	---
POST INDICATOR VALVE	---
CHECK VALVE	---
OUTSIDE SCREW AND YOKE GATE VALVE	---

NOTES

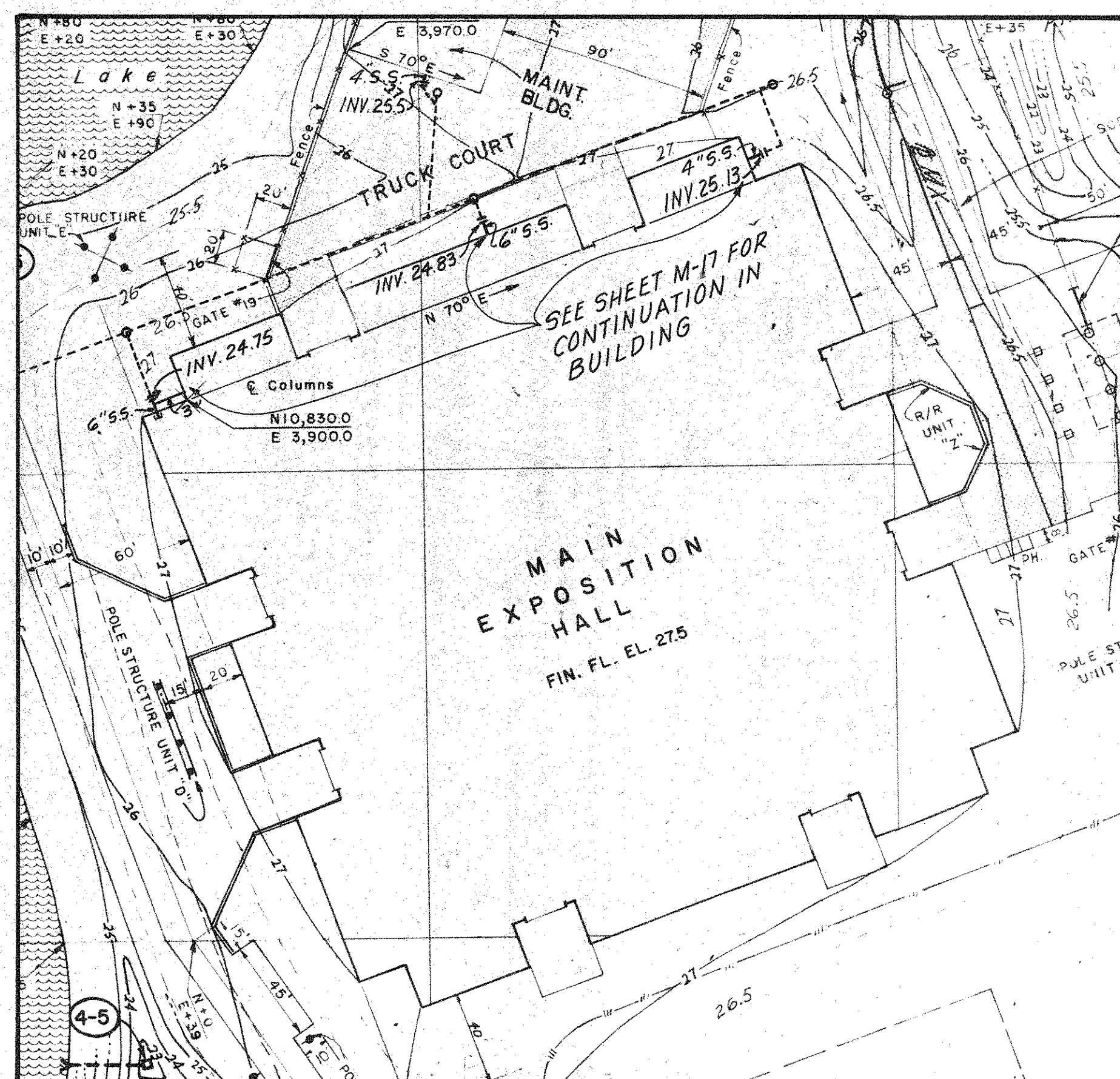
- SECTION 1 - SHEET NUMBER NOT REQUIRED IF SECTION IS CUT ON SAME SHEET AS DRAWN.
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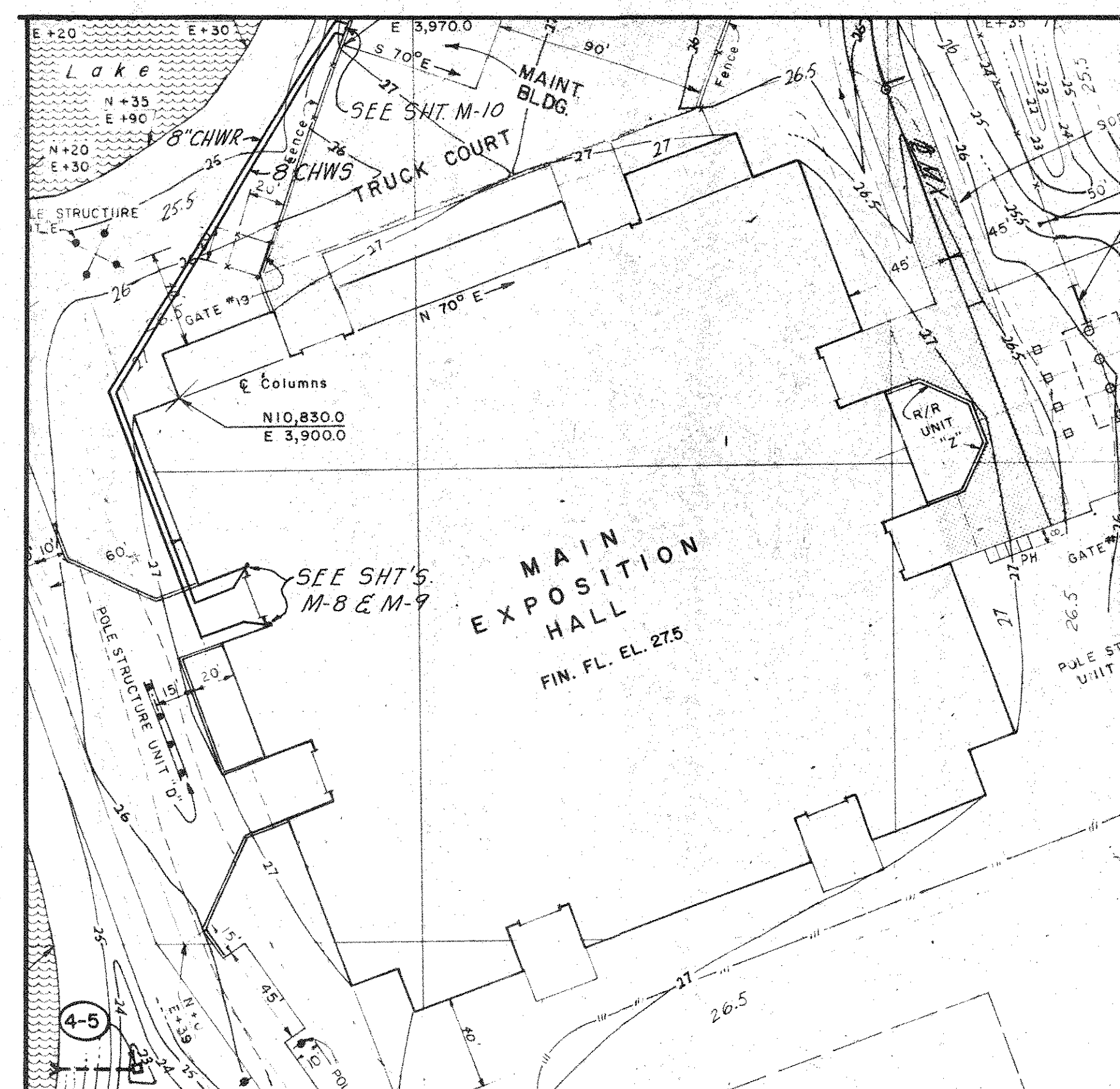
ROOF DRAINAGE — SITE PLAN
SCALE: 1" = 50'



WATER SUPPLY SITE PLAN
SCALE: 1" = 50'



SANITARY SEWER — SITE PLAN
SCALE: 1" = 50'



CHILLED WATER PIPING — SITE PLAN
SCALE: 1" = 50'

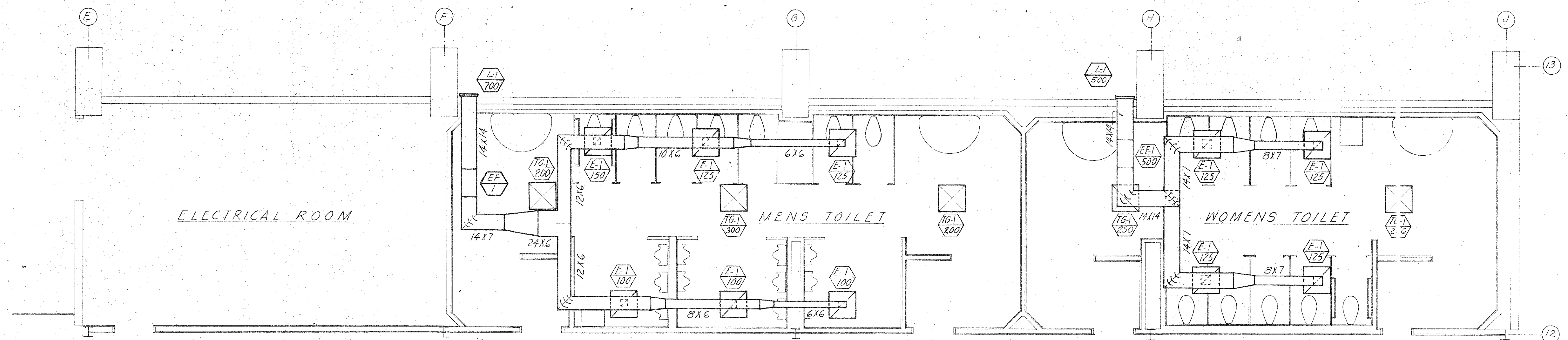
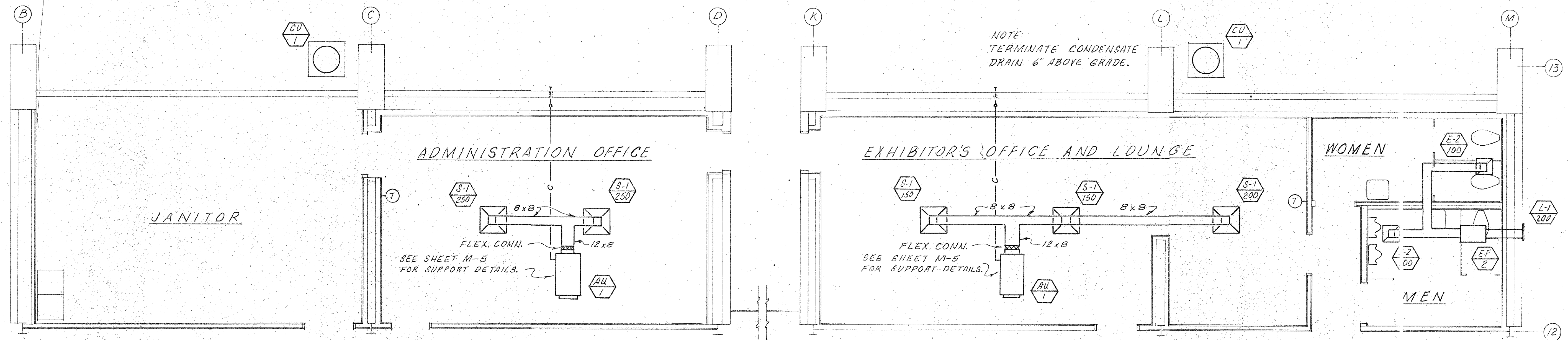
NOTE:
DASH LINES (---) INDICATE SITE UTILITIES,
CONTRACT NO. AG-6401-B. (WATER & SANITARY SEWER)
AND SITE PREPARATION & ROADWAYS, CONTRACT NO.
AG-6401-A (ROOF DRAINAGE)

SOLID LINE (—) INDICATES UTILITIES FOR EXPOSITION
HALL, CONTRACT NO. AG-6401-E

REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE	SEPTEMBER 12, 1975
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	

Griner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

UTILITY
INTERFACE
M 3
OF 62



REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE: SEPTEMBER 12, 1975	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

HVAC- SERVICE AREAS
M 4
OF 62

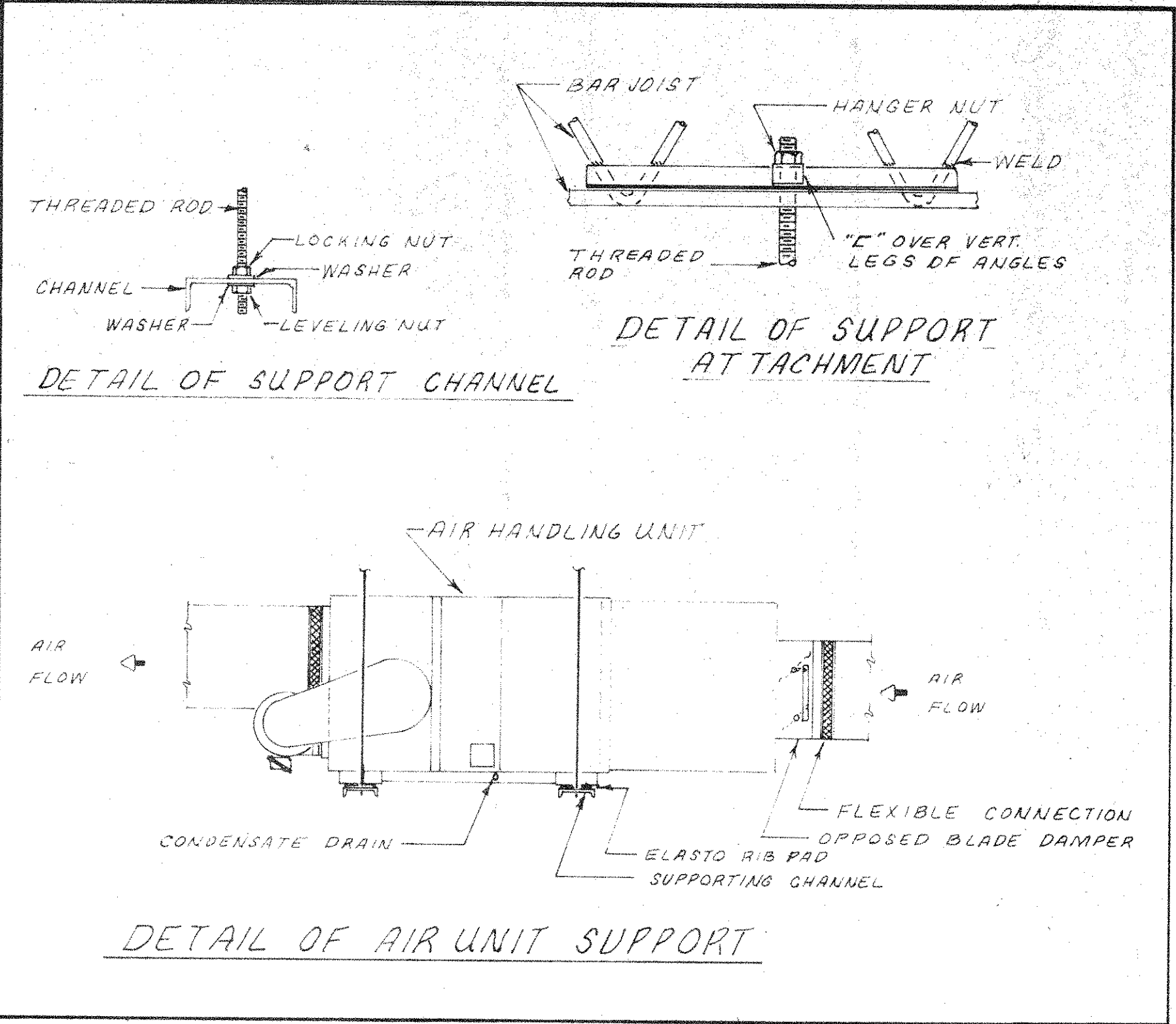
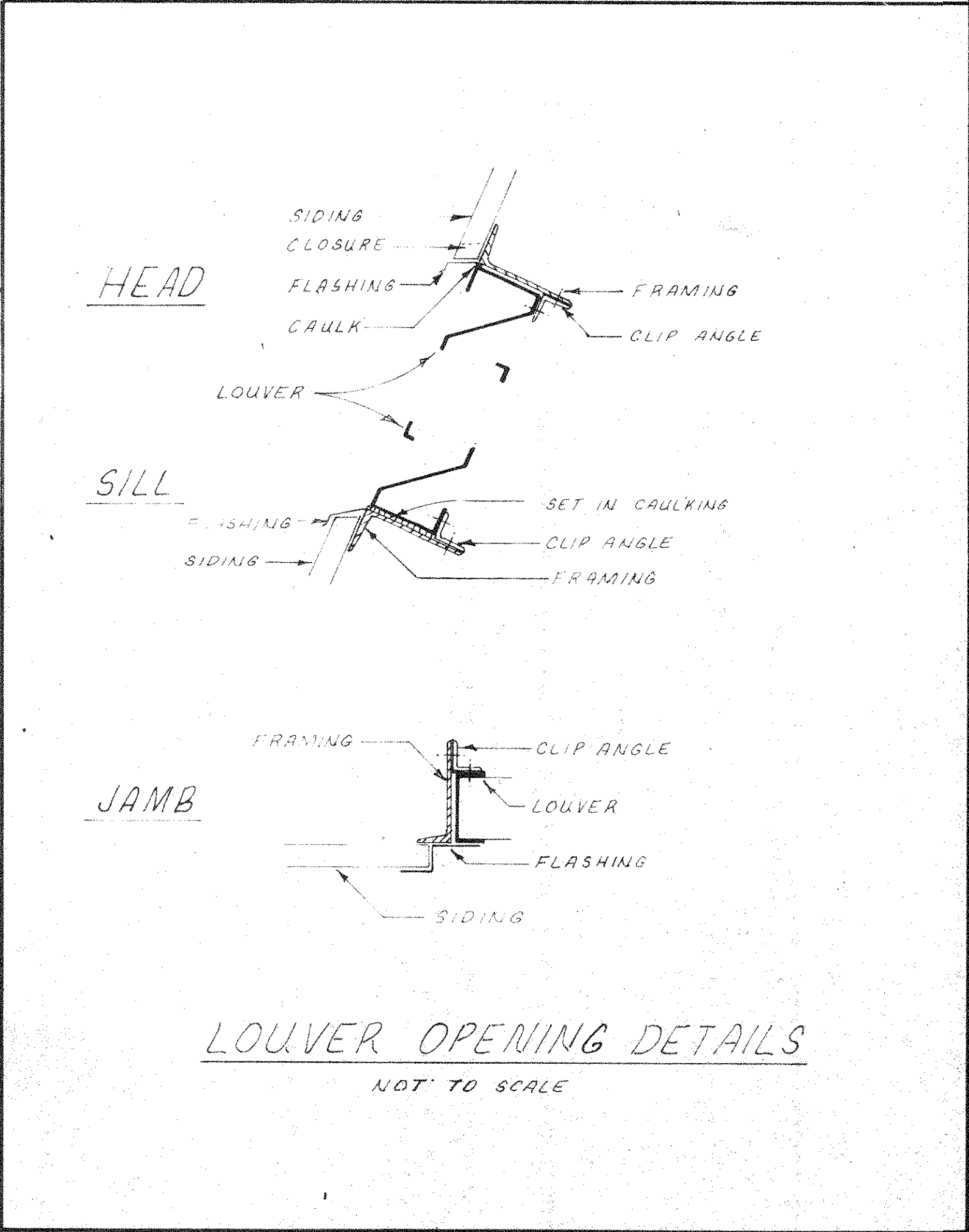
UNITARY AIR CONDITIONING UNITS			
MARK		TYPE	DRAW THUR
MANUFACTURER	CARRIER	SUPPLY C.F.M.	560
MODEL	38G5014 40G501B	SUPPLY AIR FROM EXPOSITION HALL	100%
TYPE	SPLIT SYSTEM	EVAP ENTERING °F w.b.	67
TOTAL COOLING MBTU/HR	16,000	EVAP ENTERING °F d.b.	80
SENSIBLE COOLING MBTU/HR	12,000	EXTERING STATIC PRESSURE IN W.G.	.10
TOTAL HEATING MBTU/HR	7,700	DISCHARGE TYPE	HORIZONTAL
CONDENSER TYPE	AIR COOLED	FAN FULL LOAD AMPS	3.95 *
ENTERING CONDITION °F	95°F	FAN VOLT/PH/HZ	208/1/60
COMPRESSOR TYPE	HERMETIC	HEATING TYPE	ELECTRIC
NO. OF COMPRESSORS	ONE	CONTROL	ELECTRIC ONE STAGE
COMPRESSOR/CONDENSER FLA	13.1	HEATER VOLT/PH/HZ	208/1/60
COMPRESSOR/CONDENSER VOLT/PH/HZ	208/1/60	FILTER TYPE	THROWAWAY
		FILTER RATING	90%
		FILTER LOCATION	IN UNIT

* NOT INCLUDING HEATER FLA. OF 148 AMPS

EXHAUST FAN SCHEDULE		
MARK	EF-1	EF-2
MFGR.	GREENHECK	LOREM COOK
MODEL	SQD-9A	12-15N
TYPE	INLINE CENTRIFUGAL	INLINE BLOWER
DRIVE	DIRECT	DIRECT
CFM	666	250
STATIC PRESSURE	.25	.125
DISCHARGE TYPE	HORIZONTAL	HORIZONTAL
UNIT FULL LOAD AMPS	4.4	2.1
UNIT VOLT/PH/HZ	115/1/60	115/1/60

AIR DEVICE SCHEDULE					
MARK	MANUFACTURER	SIZE	MODEL NUMBER	AIR PATTERN	ACCESSORIES REMARKS
E-1	TUTTLE & BAILEY	12X12	CTRE	—	GT-7 DAMPER
L-1	RUSKIN	14X14	L-5	—	*
G-1	TUTTLE & BAILEY	12X12	CTE	4WAY	GT-7 DAMPER
TG-1	TUTTLE & BAILEY	12X12	AN-CT7	—	REGISTER

* BIRD SCREEN ON OUTSIDE OF LOUVER



SEQUENCE OF OPERATION

ADMIN. FATION OFFICE FOR EXPOSITION HALL

THE UNIT WILL BE CONTROLLED BY A THERMOSTAT WITH ONE STAGE FOR HEATING AND COOLING.

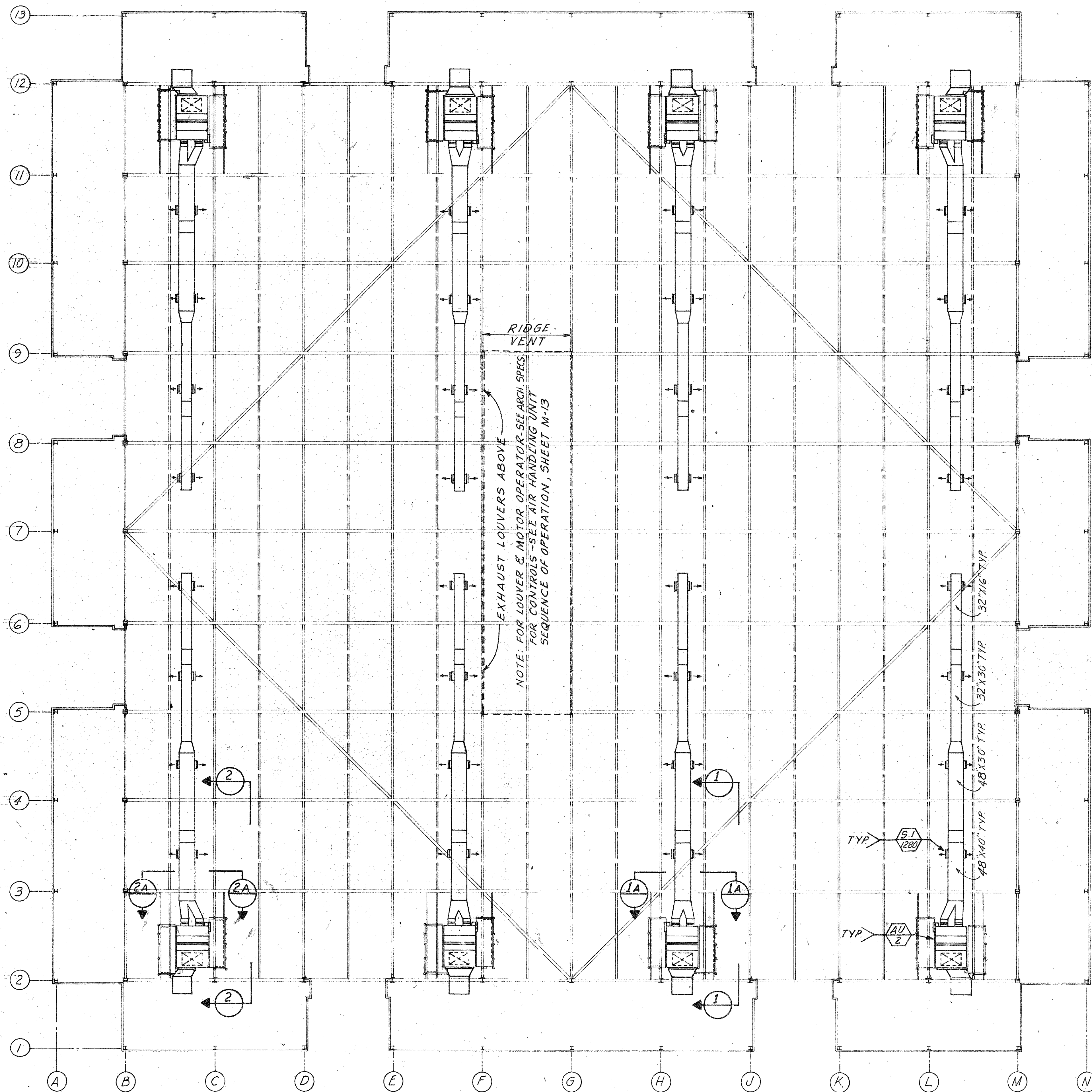
THE SENSING ELEMENT SHALL BE LOCATED AT THE FAN INLET. HEATING AND COOLING SHALL NOT OCCUR SIMULTANEOUSLY. BOTH HEATING AND COOLING SHALL BE LOCKED OUT AND ONLY THE FAN RUN. TURNING THE FAN OFF SHALL DE-ENERGIZE ALL HEATING AND COOLING EQUIPMENT. UNITS SHALL BE CONTROLLED BY A SEVEN DAY TIMER WITH SPRING WARD-OUST. PROVIDE REQUIRED CONTROLS REQUIRED BY NFPA-90A.

EXHIBIT 10 OFFICE AND LIVING

SAME AS ABOVE, EXCEPT INTERLOCK WITH P-2.

EXHIBIT 11

EXHAUST FANS ARE CONTROLLED FROM CIRCUIT BREAKER PANEL IN ELECTRICAL EQUIPMENT ROOM.



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

AIR HANDLING UNITS WITH COMBINATION COIL

UNIT DATA	MARK	AL 2	
	MFGR	TRANE	
	MODEL	31	
	C.F.M.	10225	
	MAX O.V.	500	
	FAN MOTOR HP	15	
	FAN MOTOR VOLT- PH- /HZ	480/3/60	
	EXT. S.P.	1.6	
	MIN. COIL FACE AREA	14	
	COIL GPM	112	
HEATING	COIL MAX. ΔP (FT.)	20	
	COIL CAPACITY BTU/HR	125,000	
	ENTERING AIR °F	62	
	LEAVING AIR °F	74	
	WATER ENTERING TEMP °F	113	
COOLING	WATER LEAVING TEMP °F	110	
	COIL CAPACITY MBH	550	
	ENTERING AIR °I= DB / °FWB	80.5/68.5	
	LEAVING AIR °I= DB / °FWB	51.0/50.9	
	WATER ENTERING TEMP °F	44	
	WATER LEAVING TEMP °F	54	

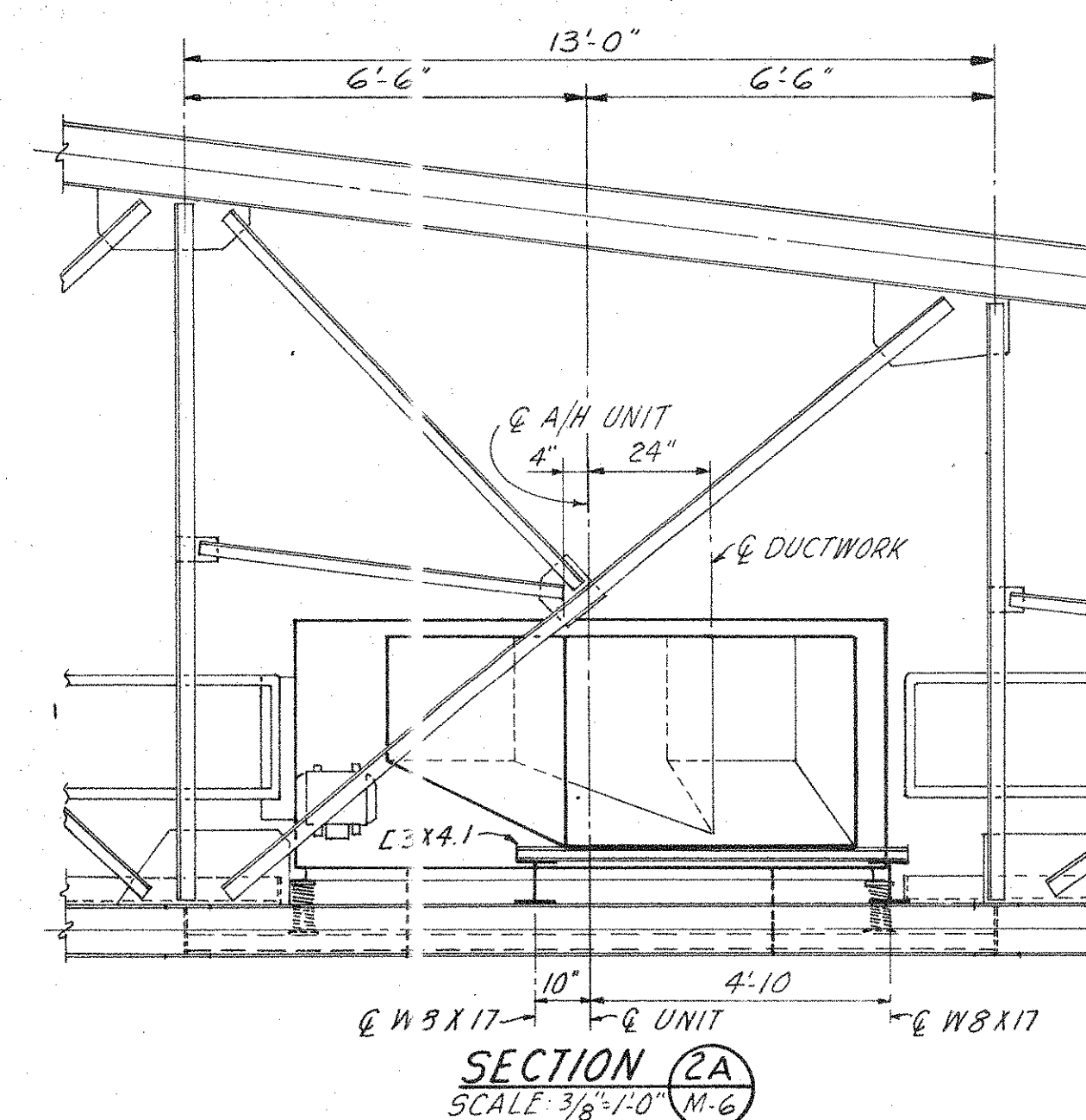
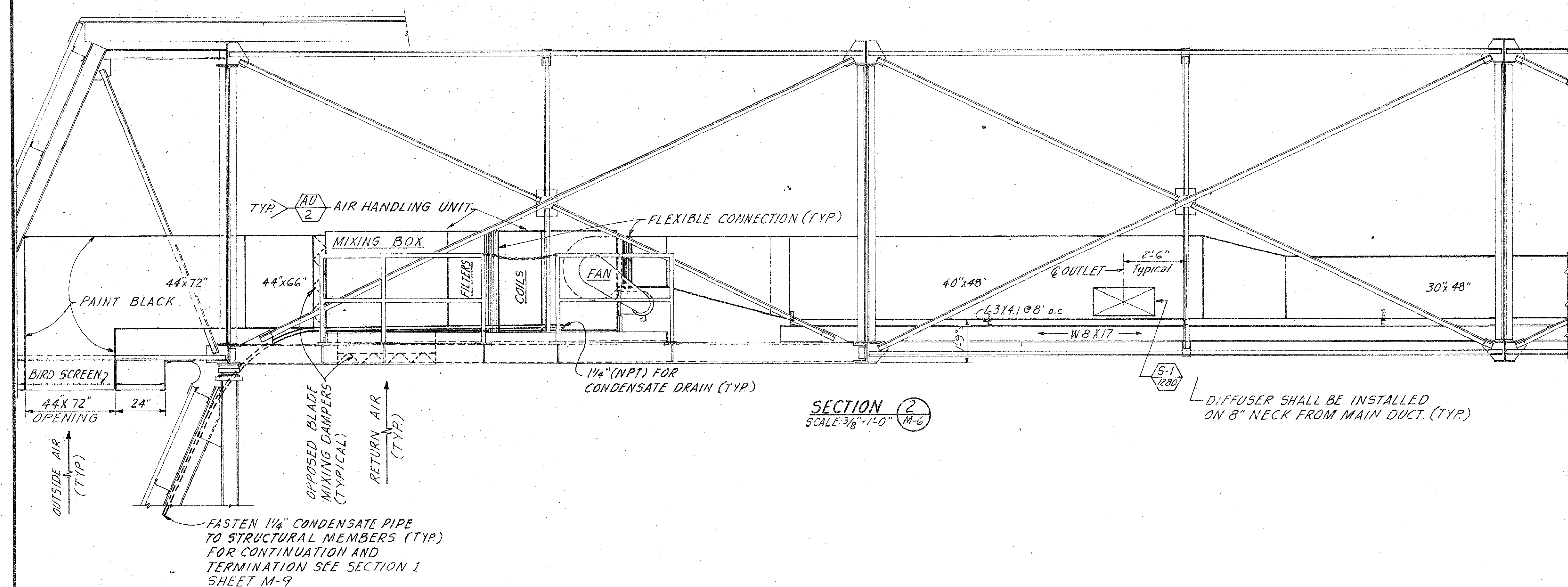
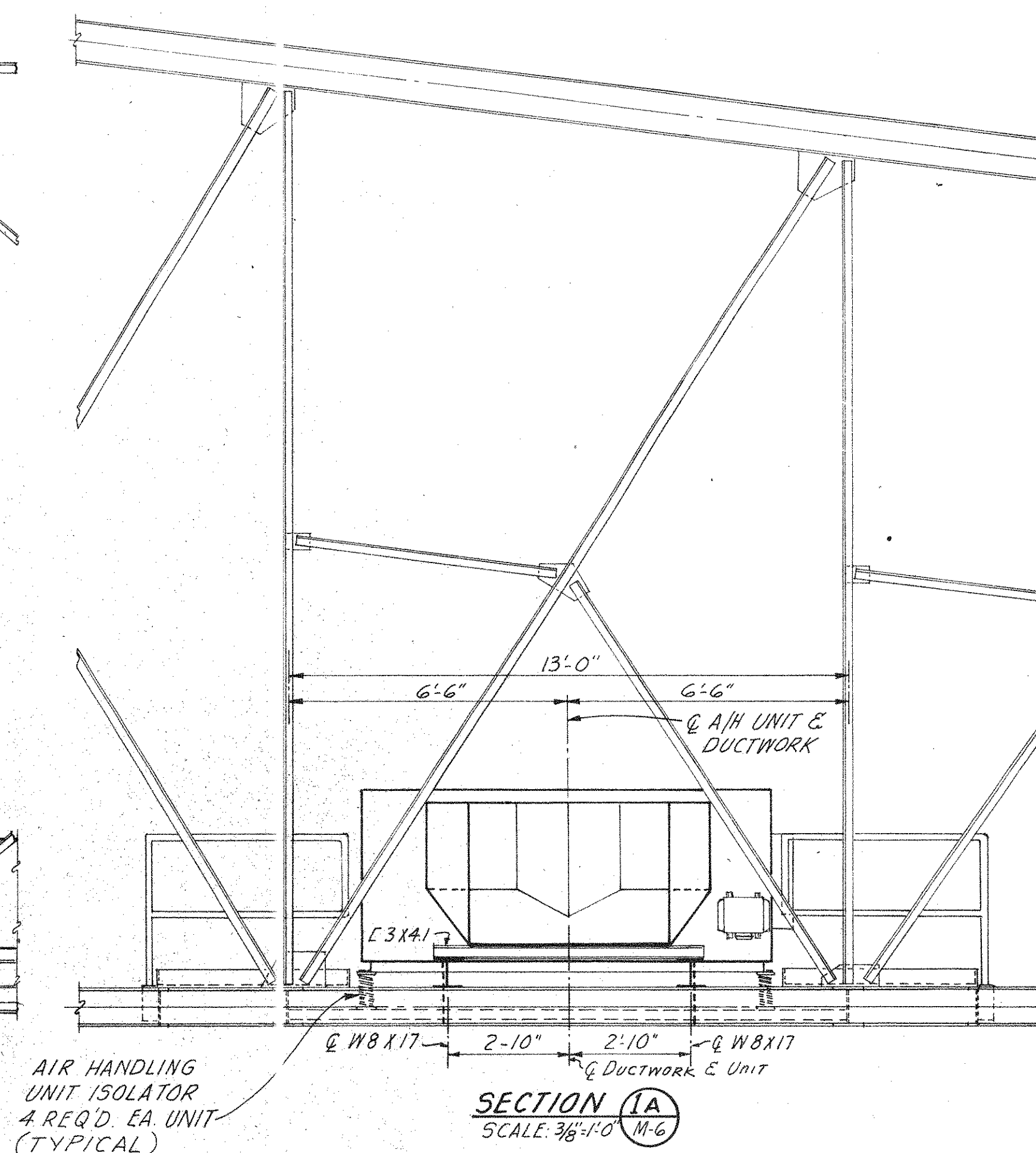
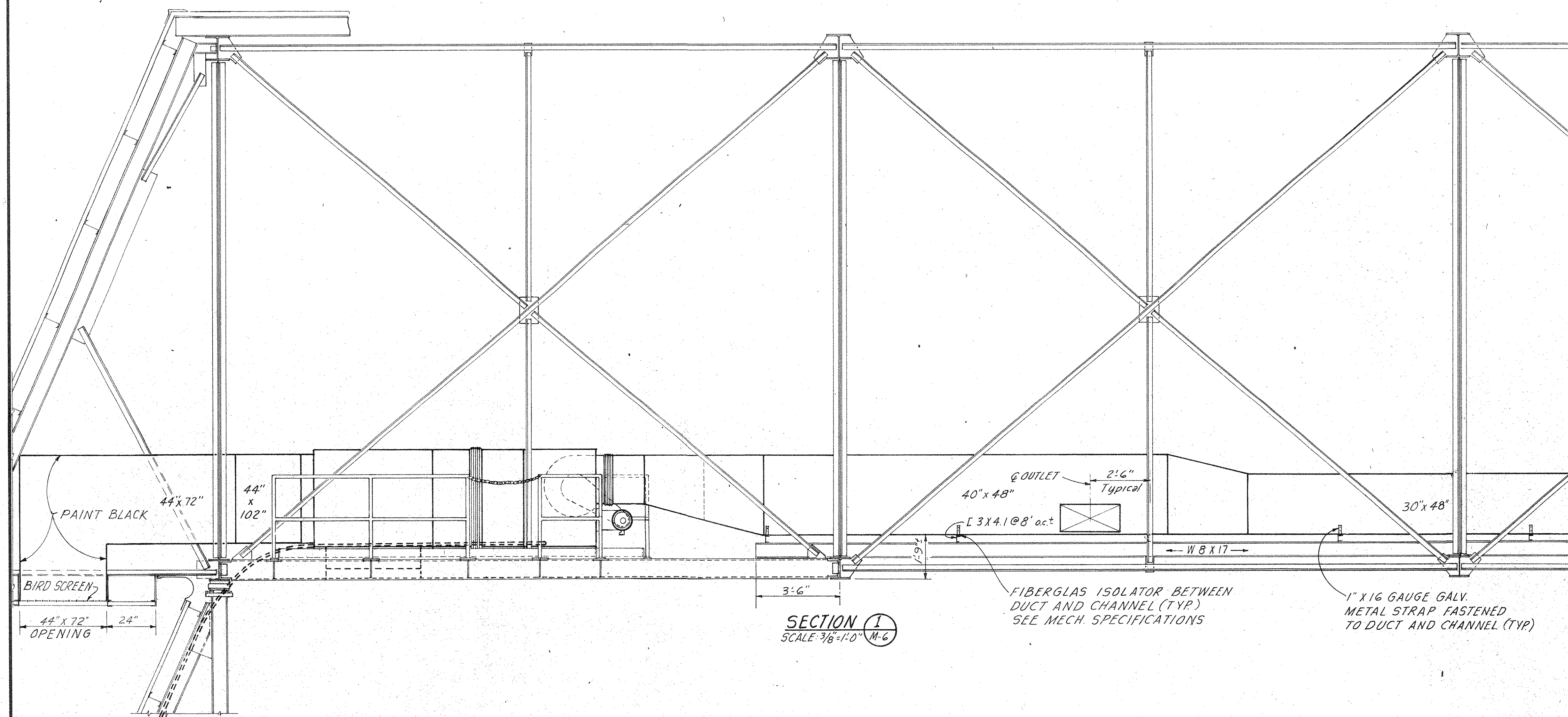
AIR DEVICE SCHEDULE

MARK	MANUFACTURER	SIZE	MODEL NUMBER	AIR PATTERN	ACCESSORIES & REMARKS
5-1 CFM	TUTTLE & BAILEY CO.	14X0	A-60	DBL DEF. WALL REGISTER	SEE NOTES BELOW

NOTES:
FURNISH WITH DOUBLE DEFLECTION BARS.
VERTICAL FACE BARS SHALL BE SET TO A 20 DEGREE SPREAD,
HORIZONTAL BARS SHALL BE SET TO A 20 DEGREE
DOWNWARD DEFLECTION.
FURNISH WITH TYPE VLK AIR TURNING DEVICE.

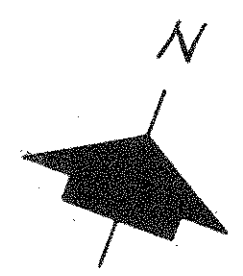
REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE: SEPTEMBER 12, 1967	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E, EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	
HVAC- HALL AIR DISTRIBUTION	M 6	OF 62

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA



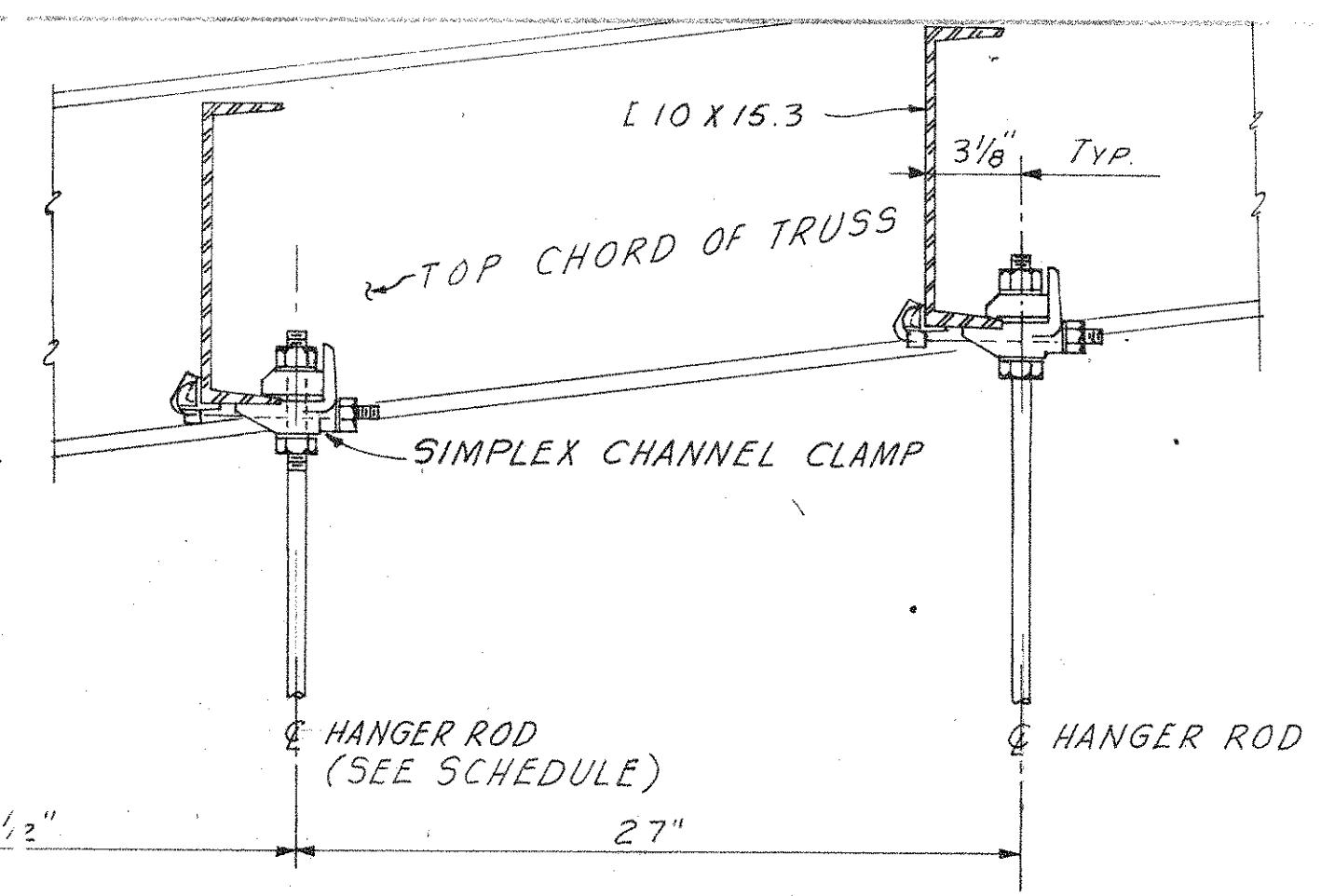
REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE	SEPTEMBER 12, 1974
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	
HVAC-HALL AIR DISTRIBUTION DETAILS	M 7	OF 62

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

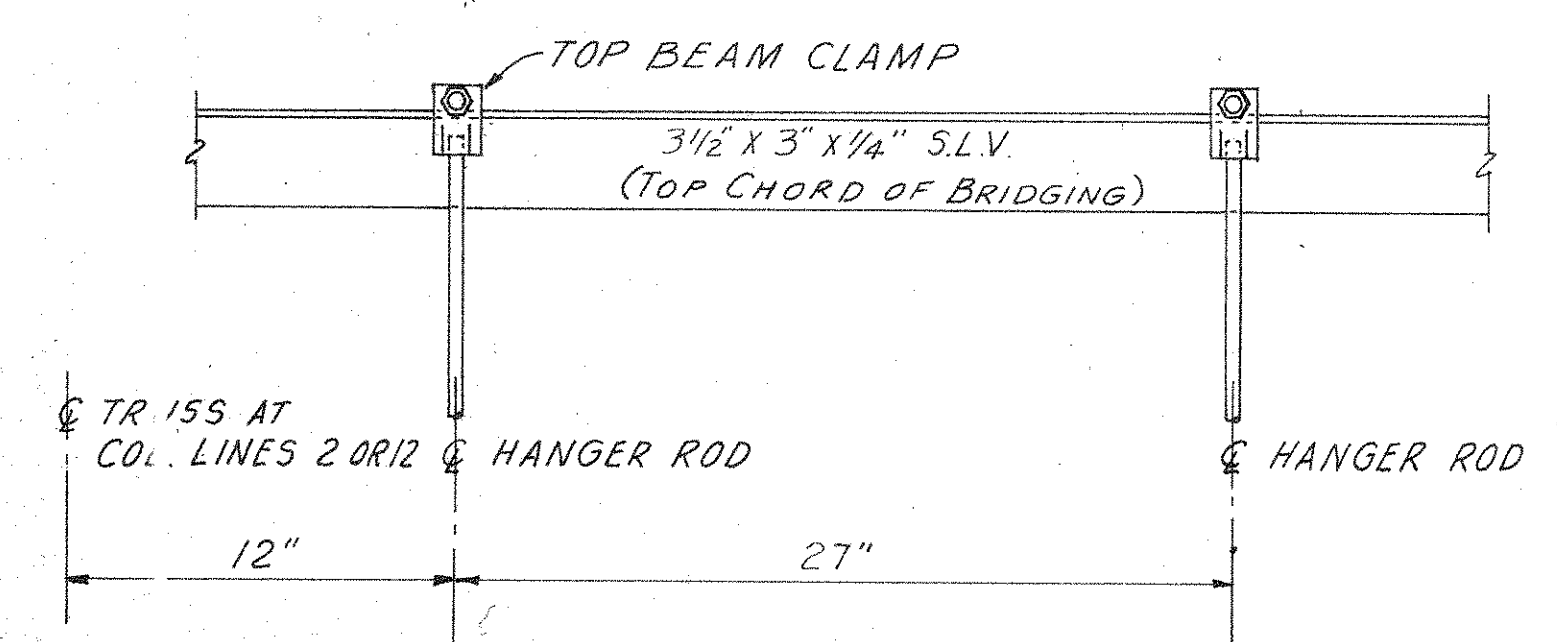


HANGER ROD SCHEDULE			
PIPE SIZE	ROD SIZE	PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.	4" THRU 5"	5/8" DIA.
2 1/2" THRU 3"	1/2" DIA.	6" THRU 12"	7/8" DIA.

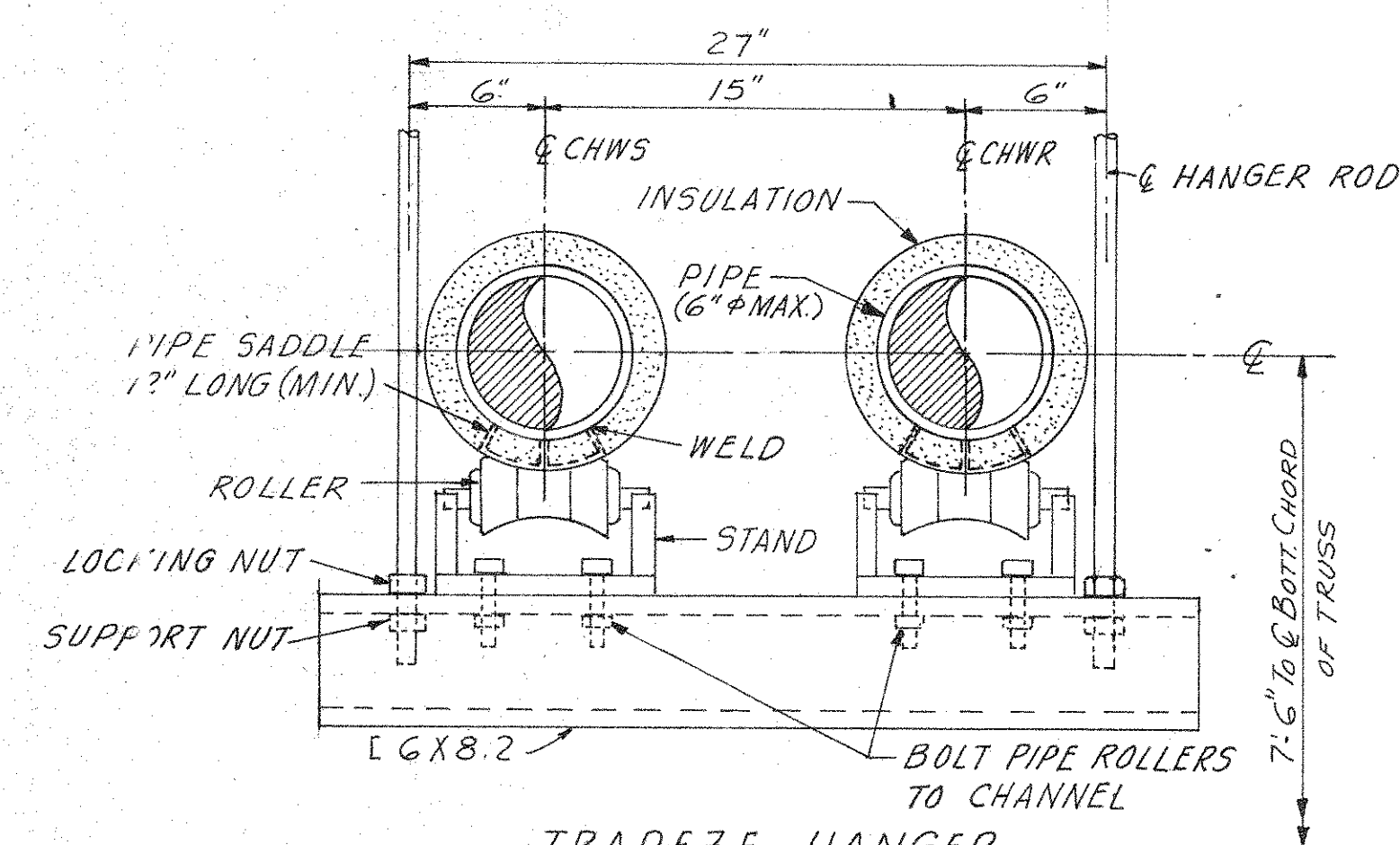
NOTE:
TRAPEZE HANGERS AT 13'-0" o.c. MAX.



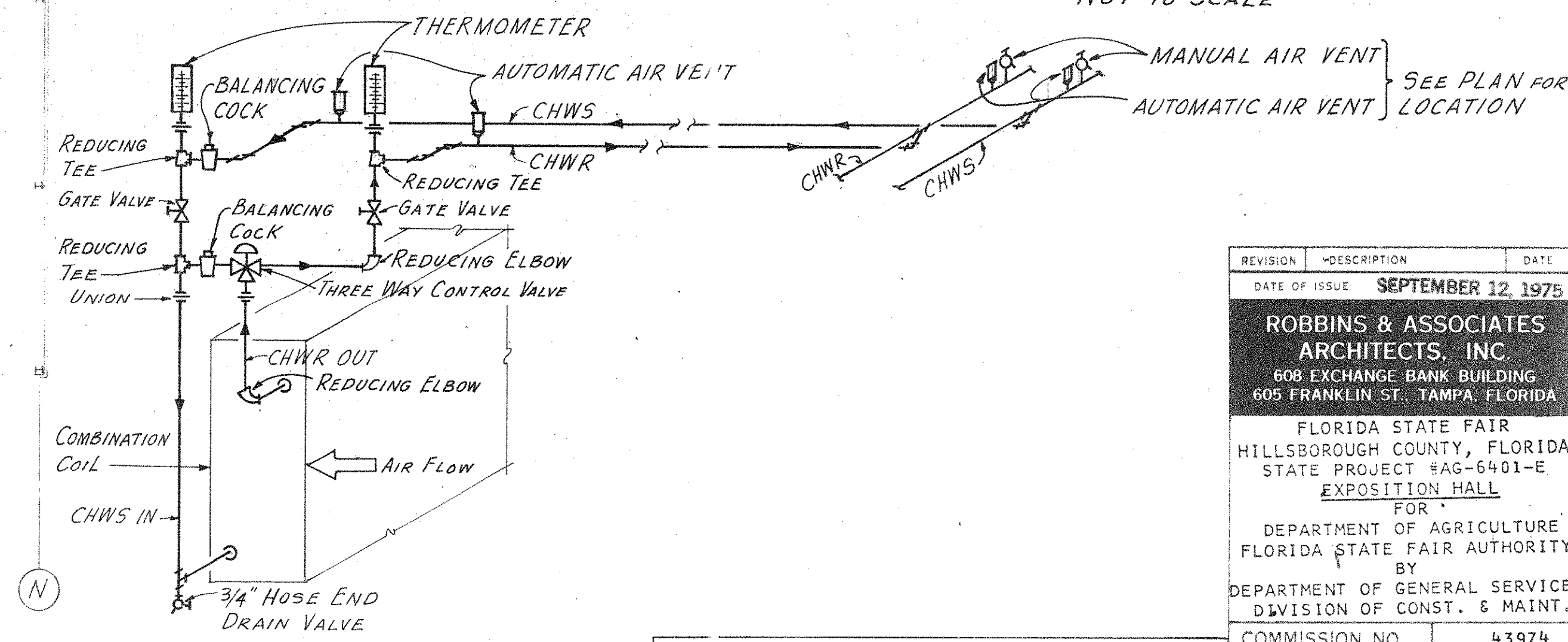
WEST SIDE OF BUILDING



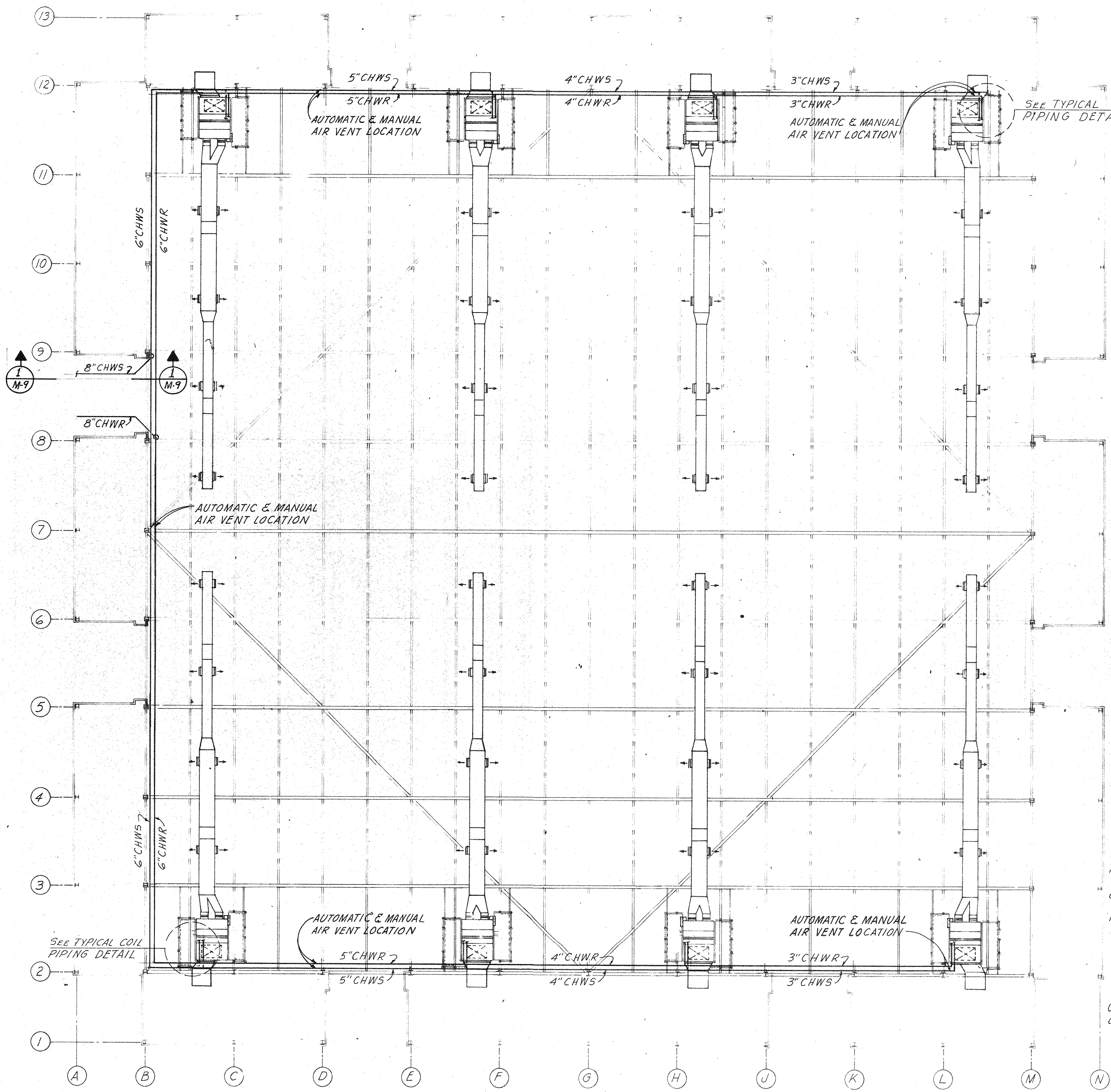
NORTH & SOUTH SIDE OF BUILDING



TRAPEZE HANGER
CHILLED WATER PIPING SUPPORT DETAILS
NOT TO SCALE

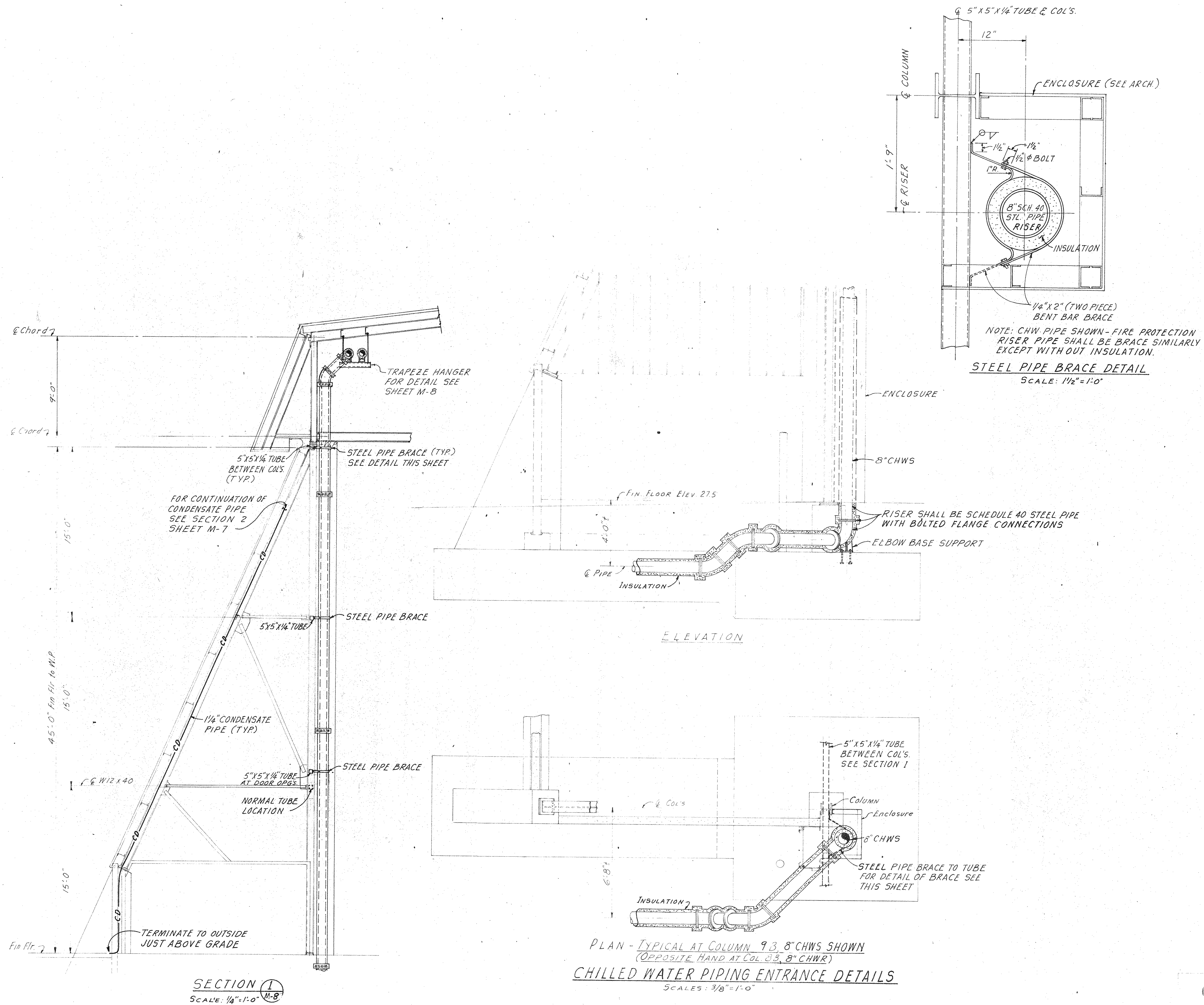


TYPICAL COIL PIPING DETAIL
NOT TO SCALE



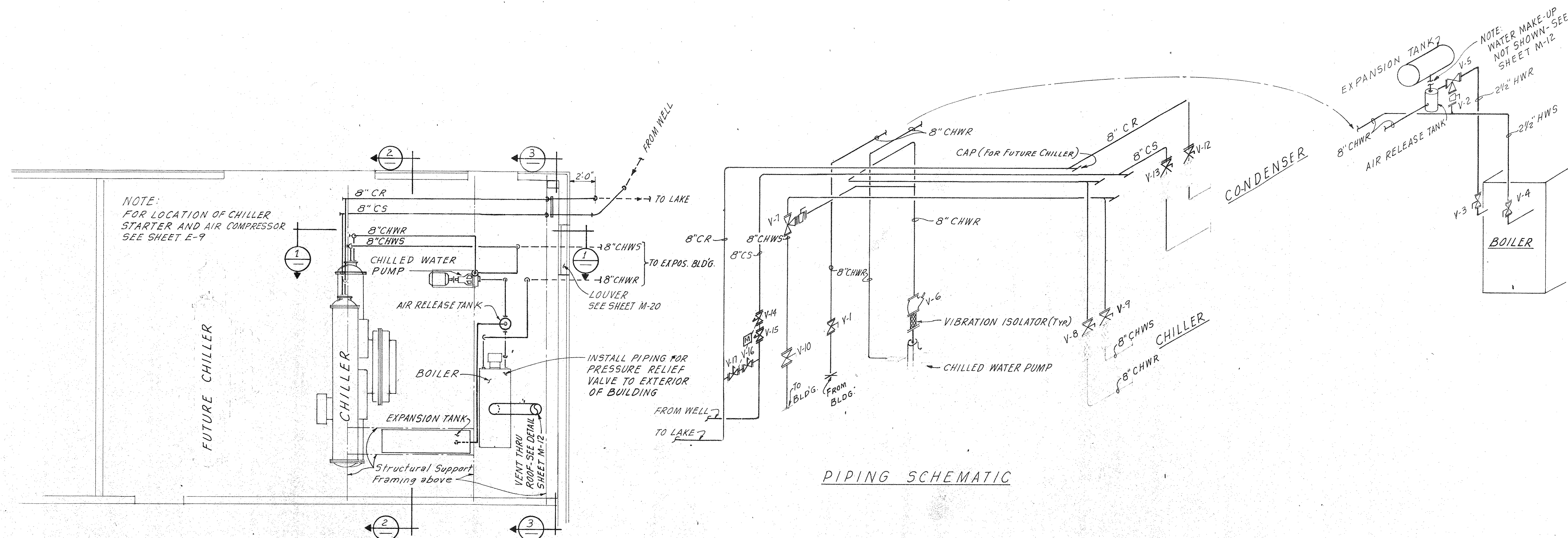
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REVISION	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	SEPTEMBER 12 1975
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	
HVAC-CHILLED WATER DISTRIBUTION & DETAILS	M	8
		OF 62



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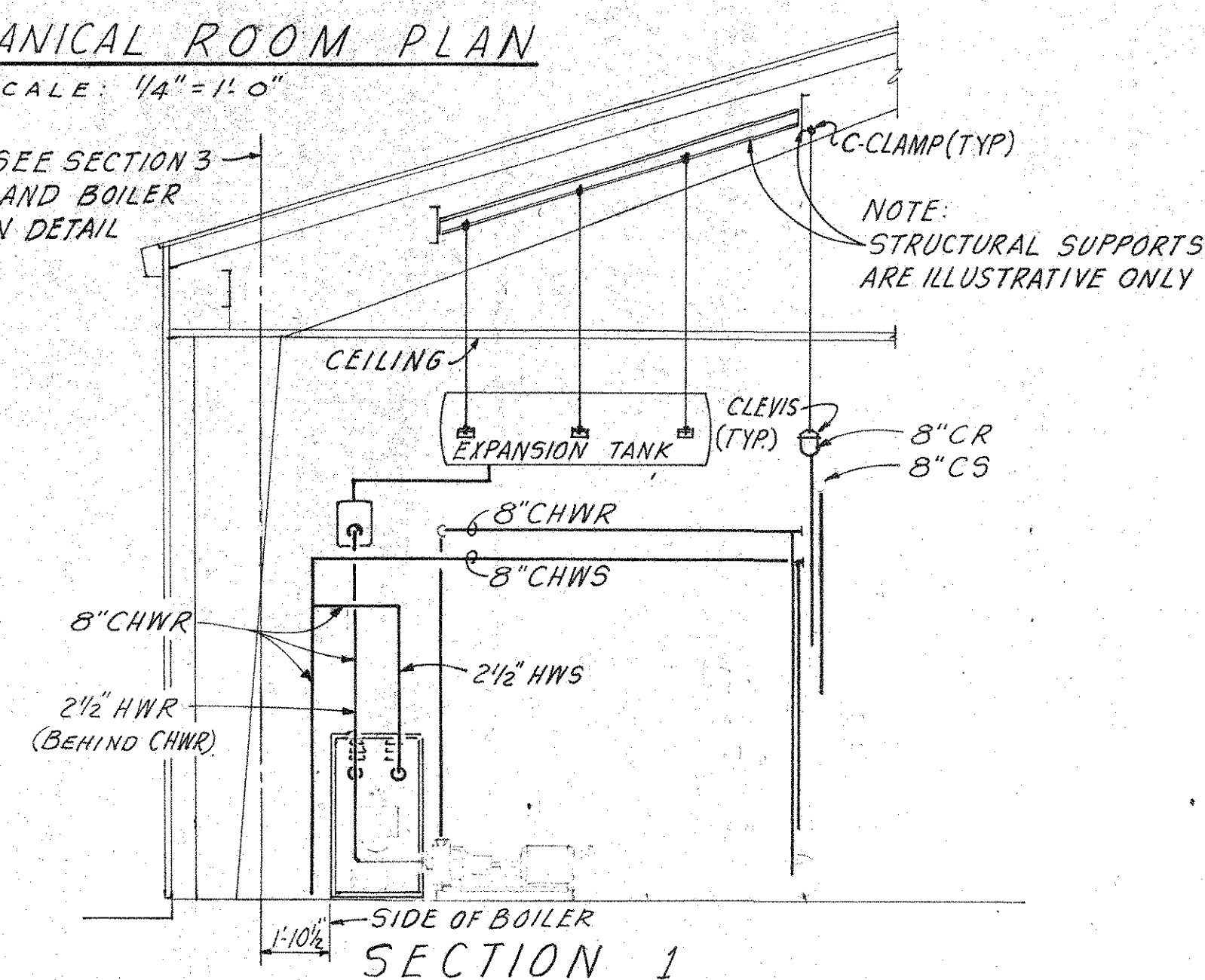
REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE: SEPTEMBER 12, 1975	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA		
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COMMISSION NO.	43974	
HVAC-CHILLED WATER RISER DETAILS	M 9	OF 62



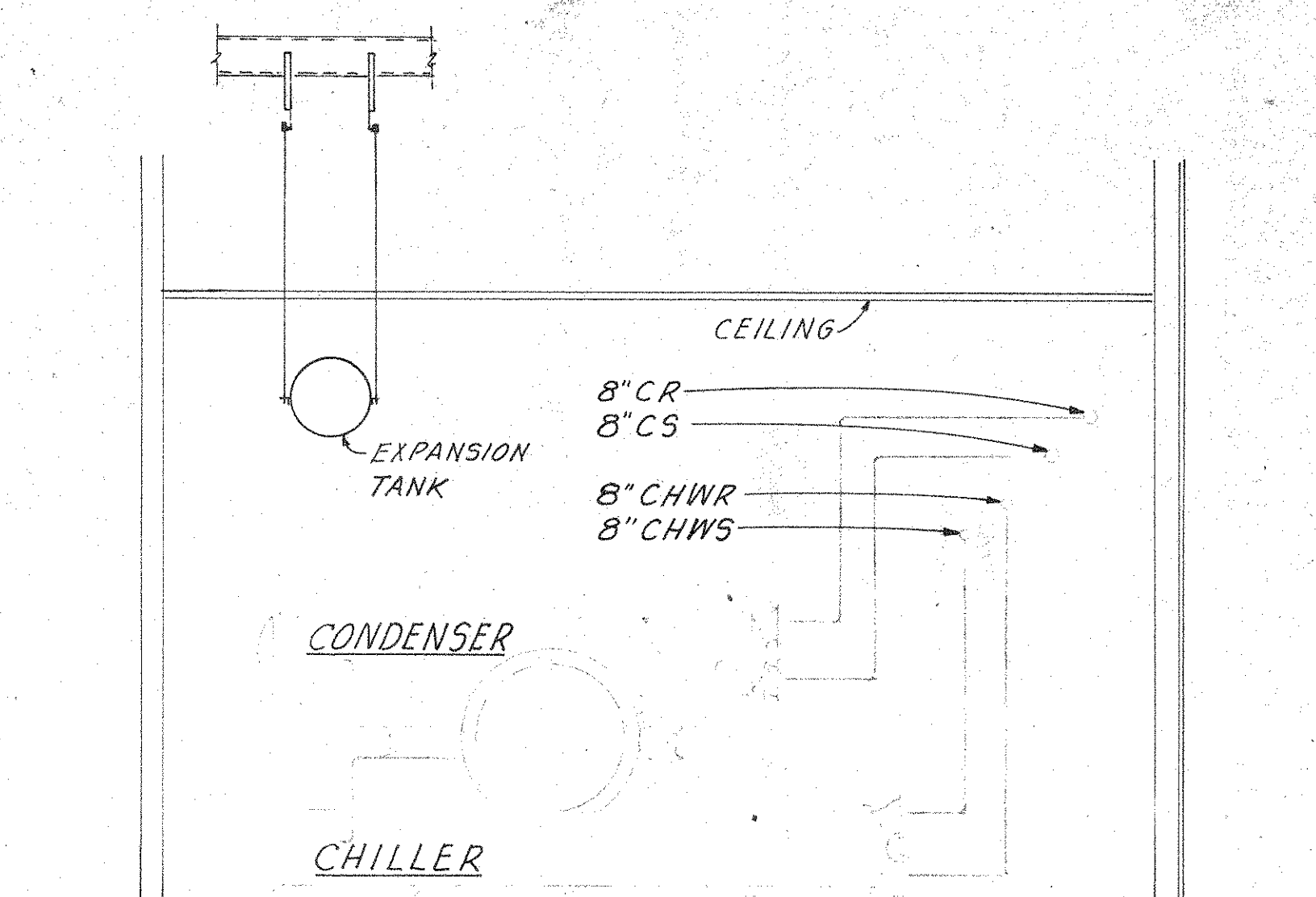
MECHANICAL ROOM PLAN

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

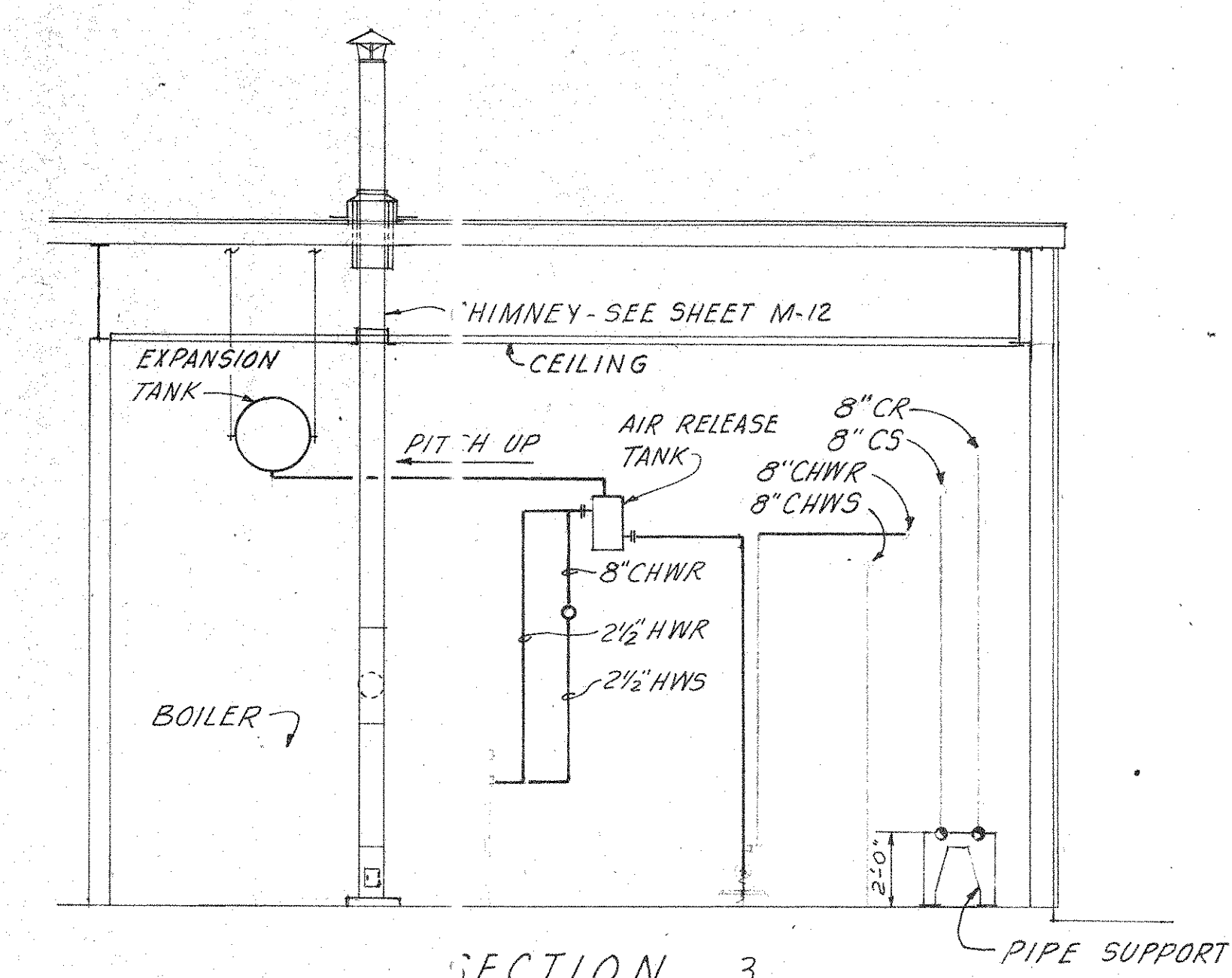
@ CHIMNEY-SEE SECTION 3
THIS SHEET AND BOILER
INSTALLATION DETAIL
SHEET M-12



SECTION 1



SECTION 2



SECTION 3

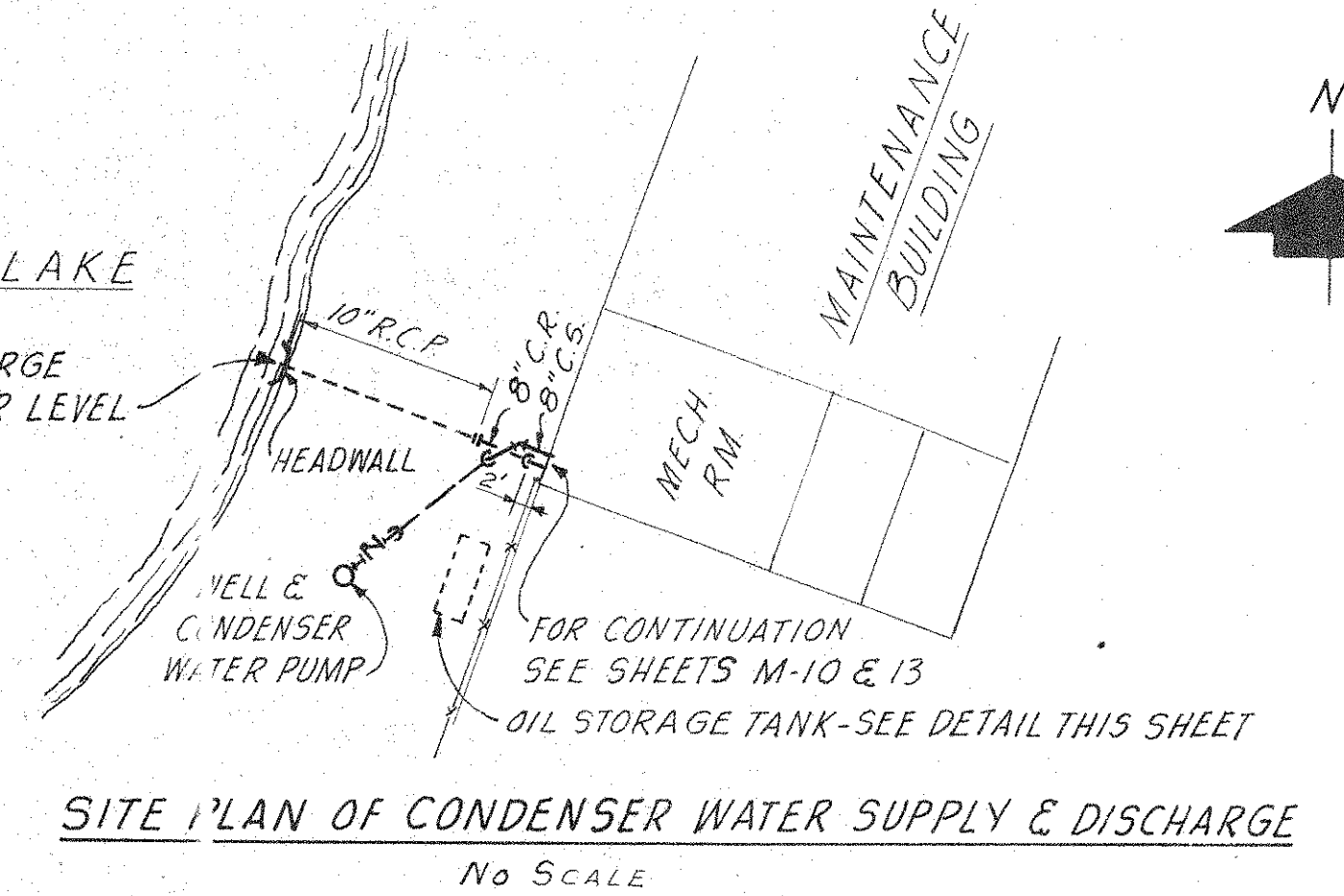
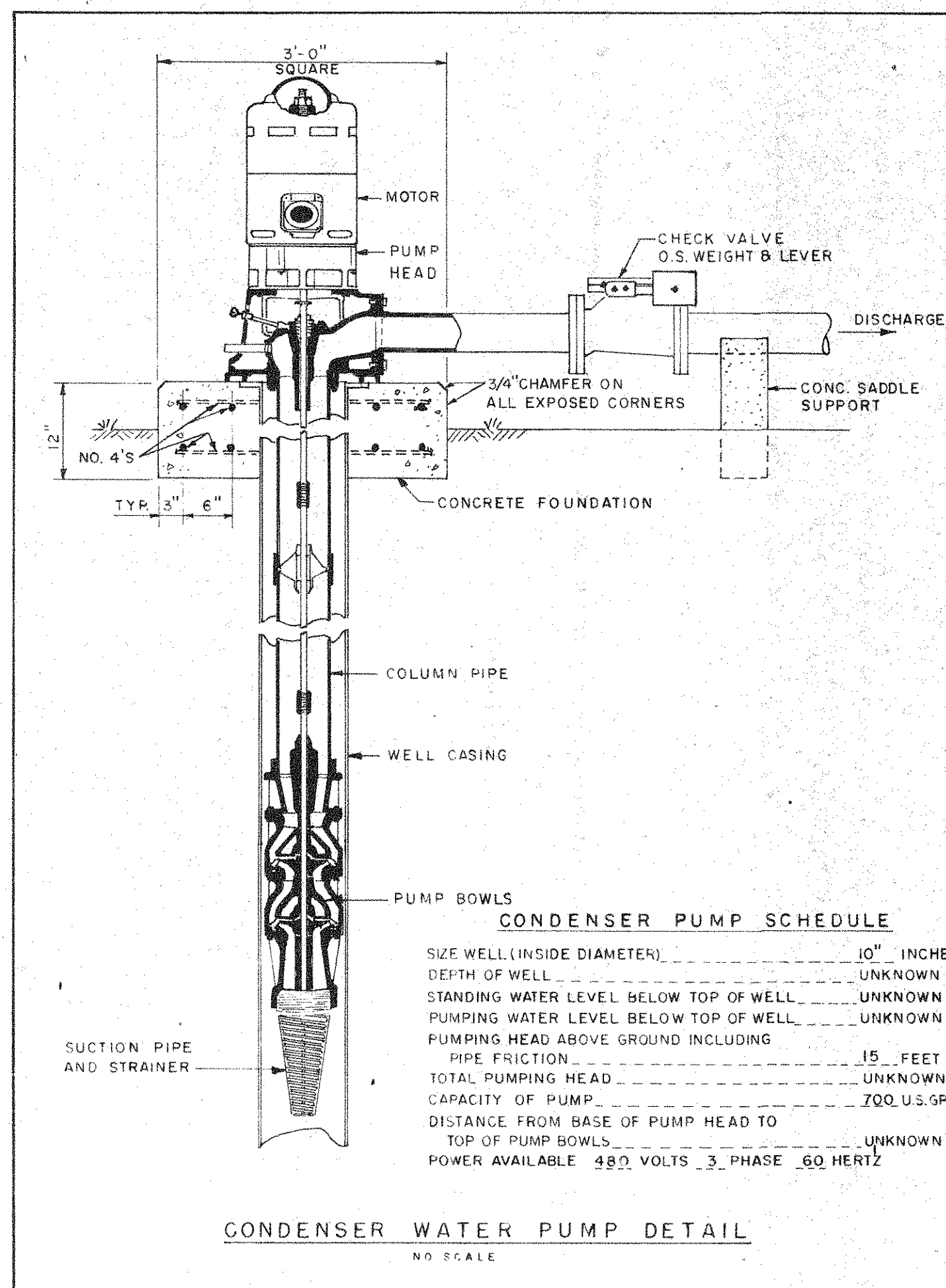
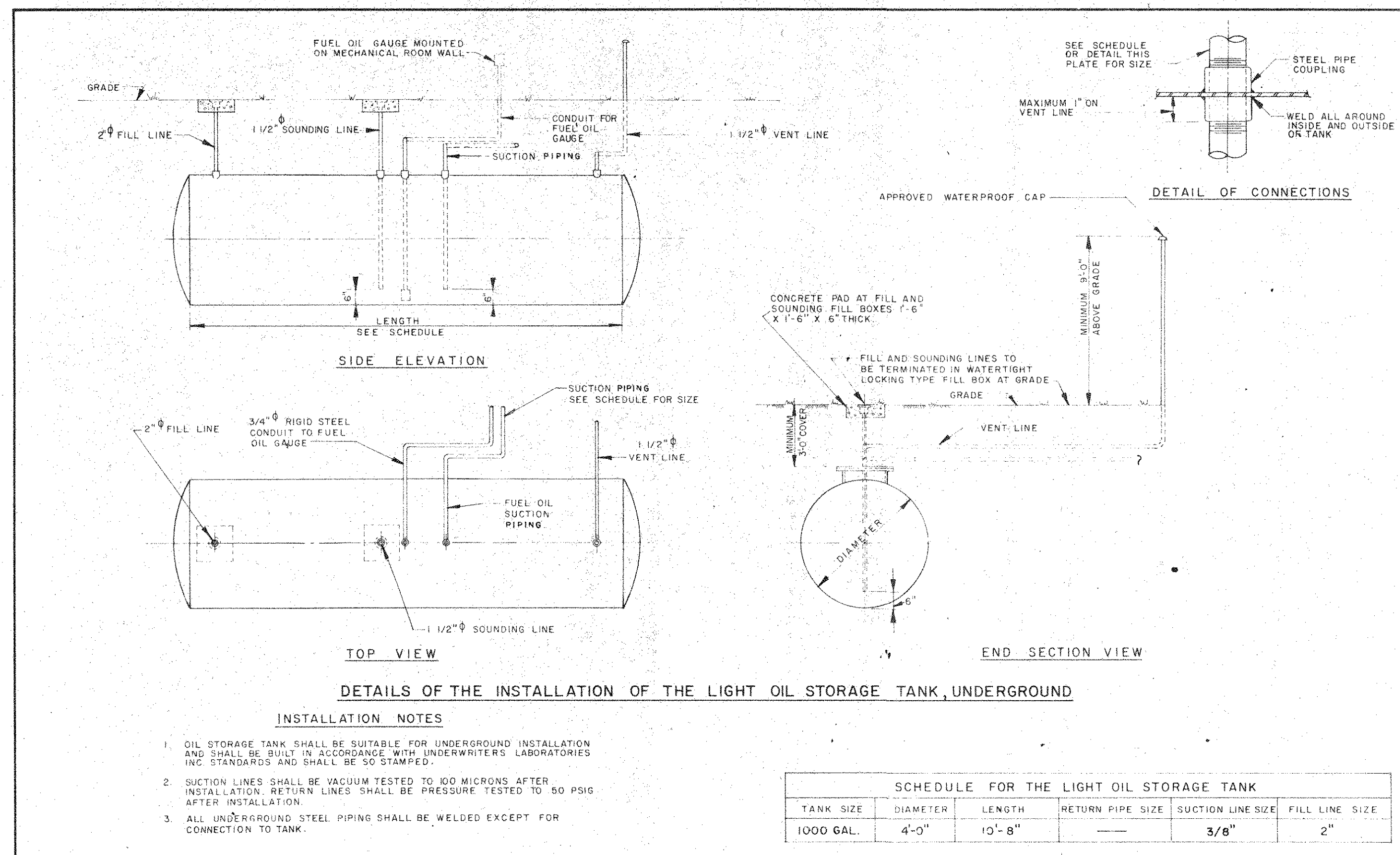
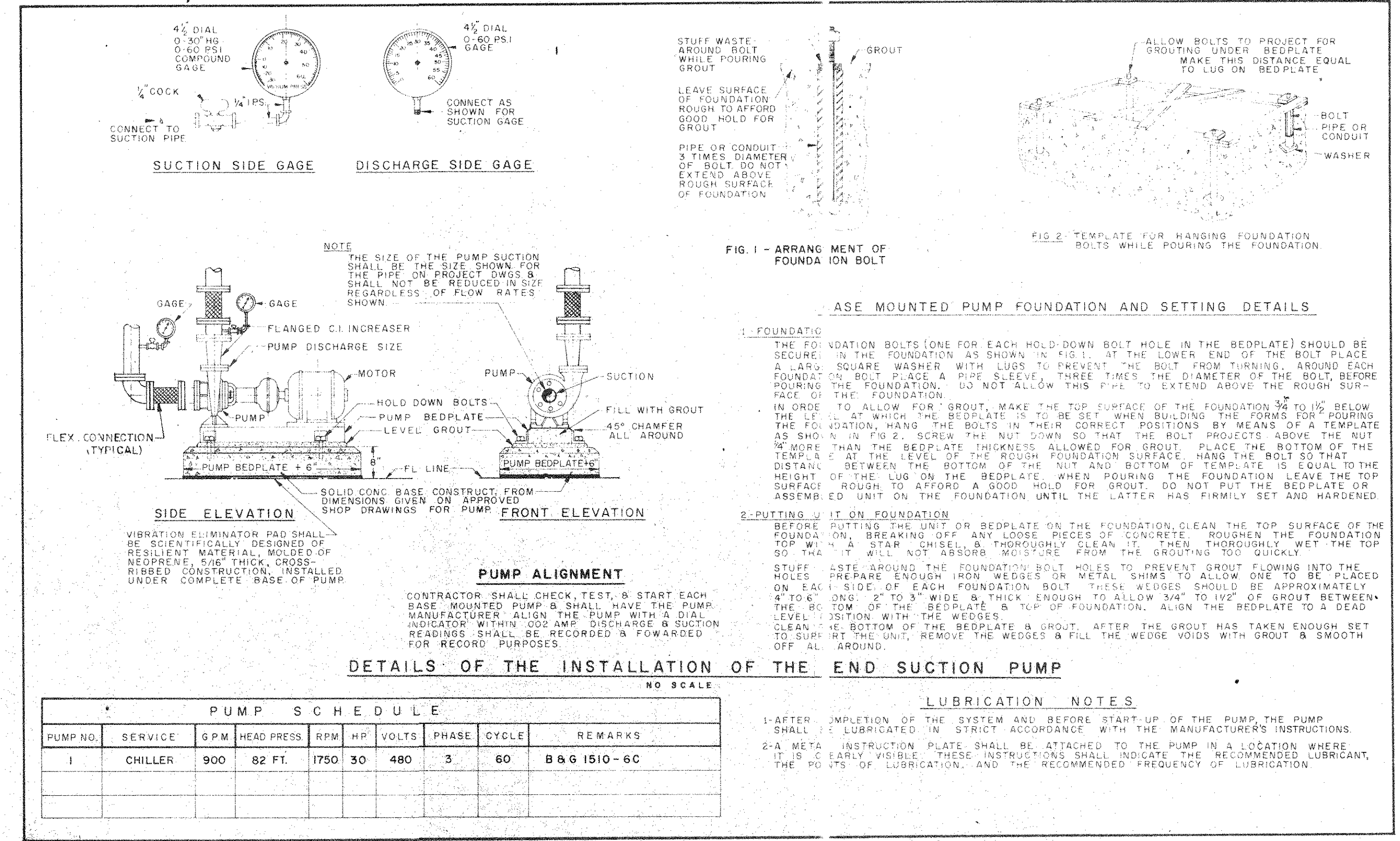
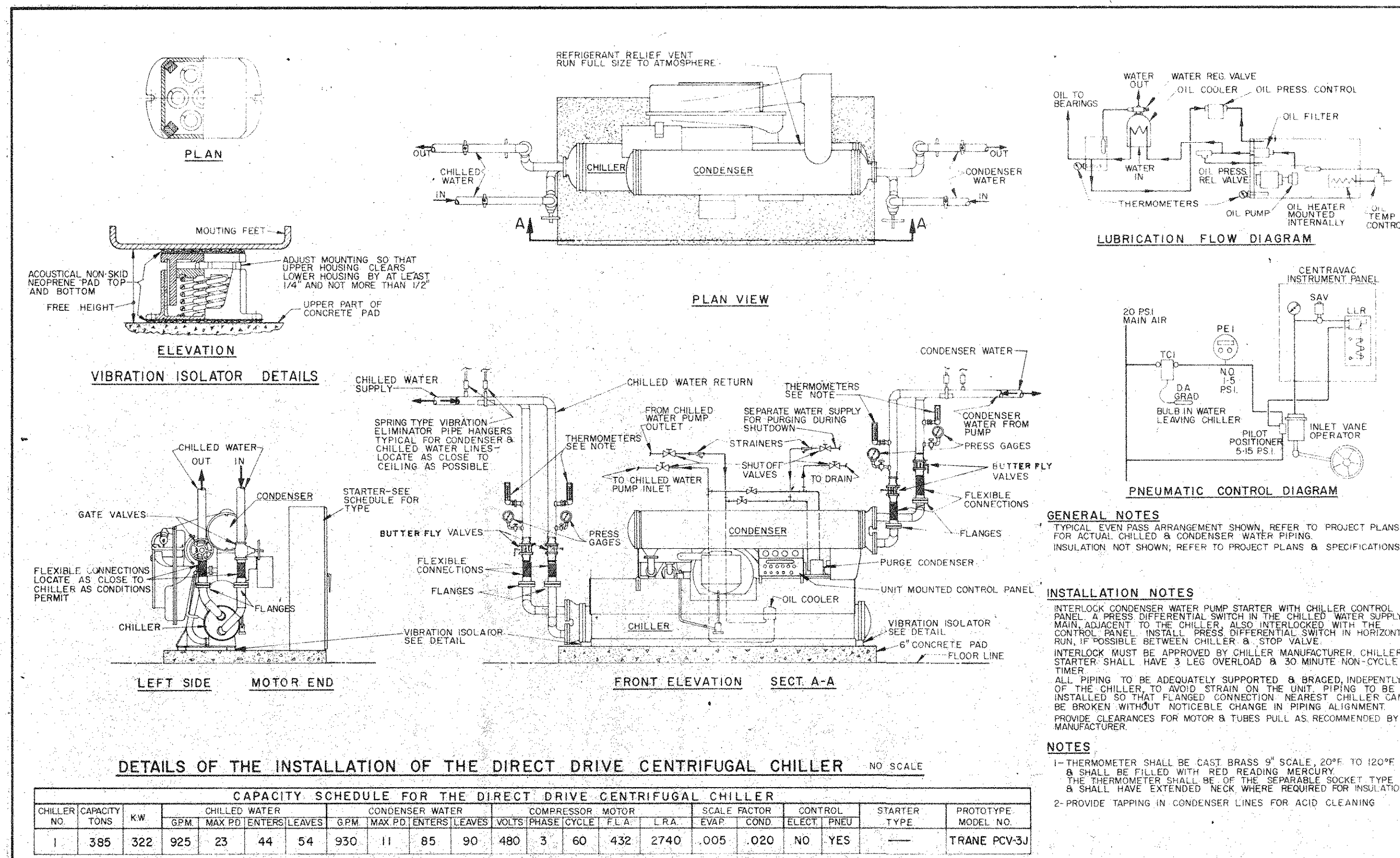
NOTE:

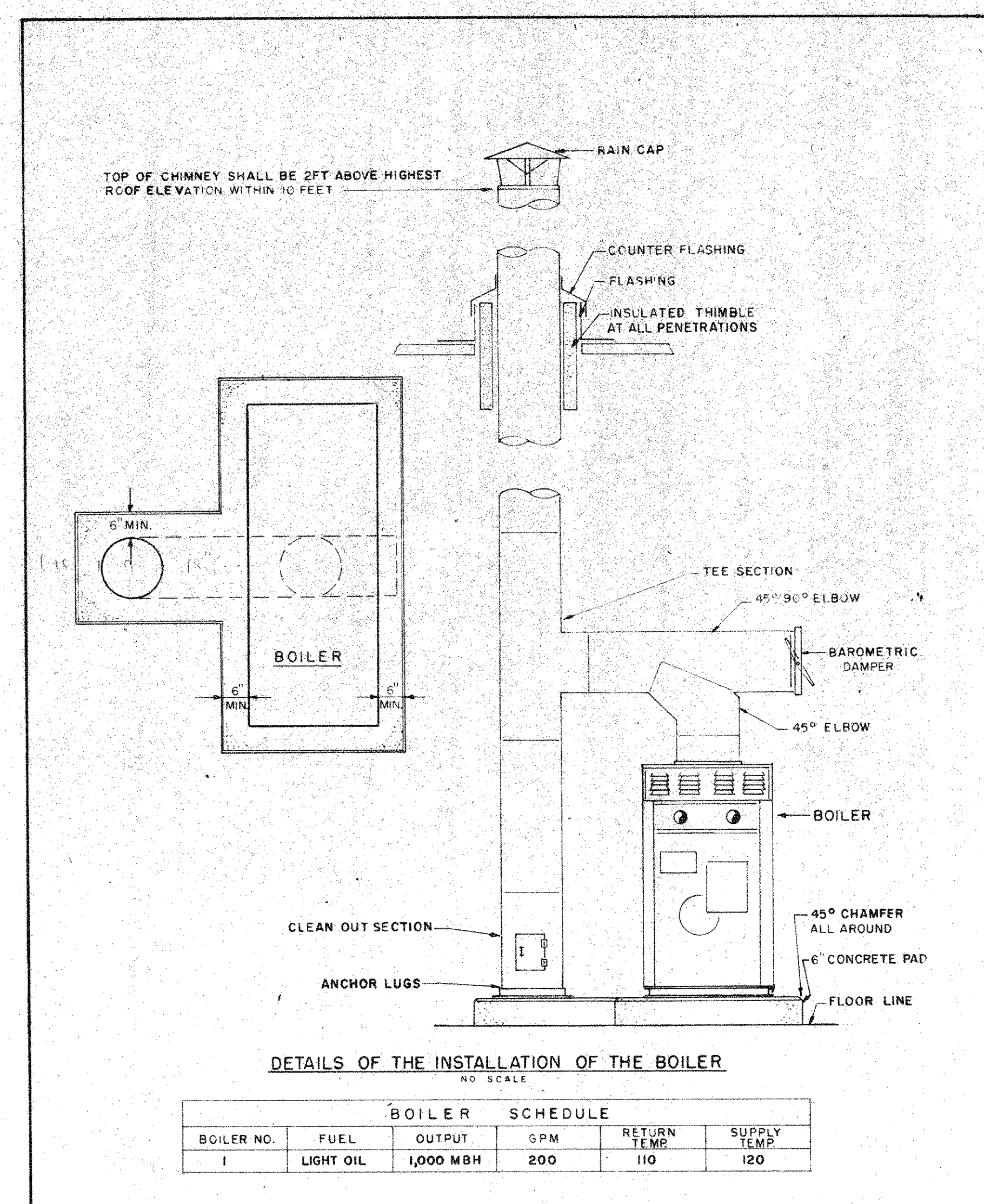
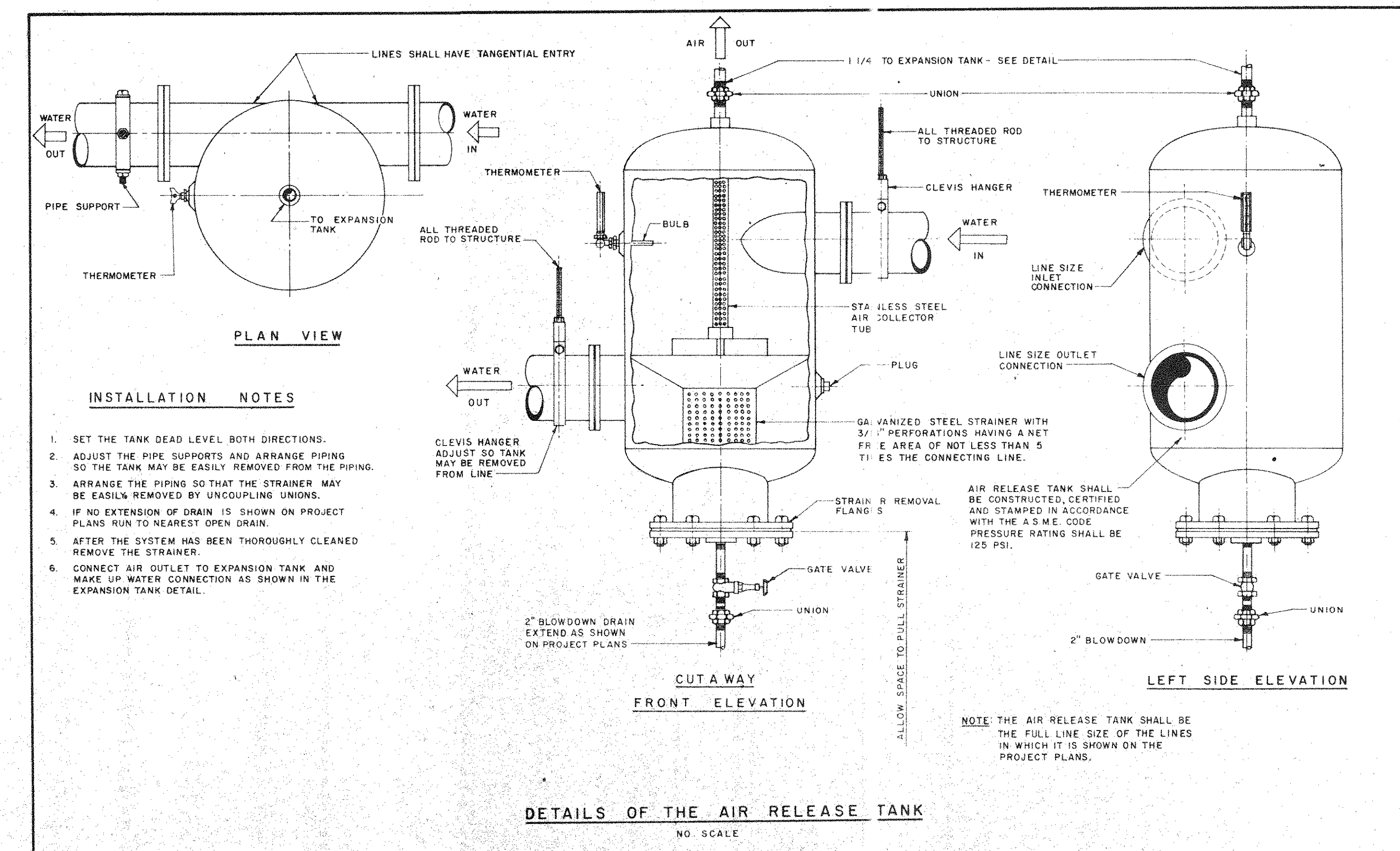
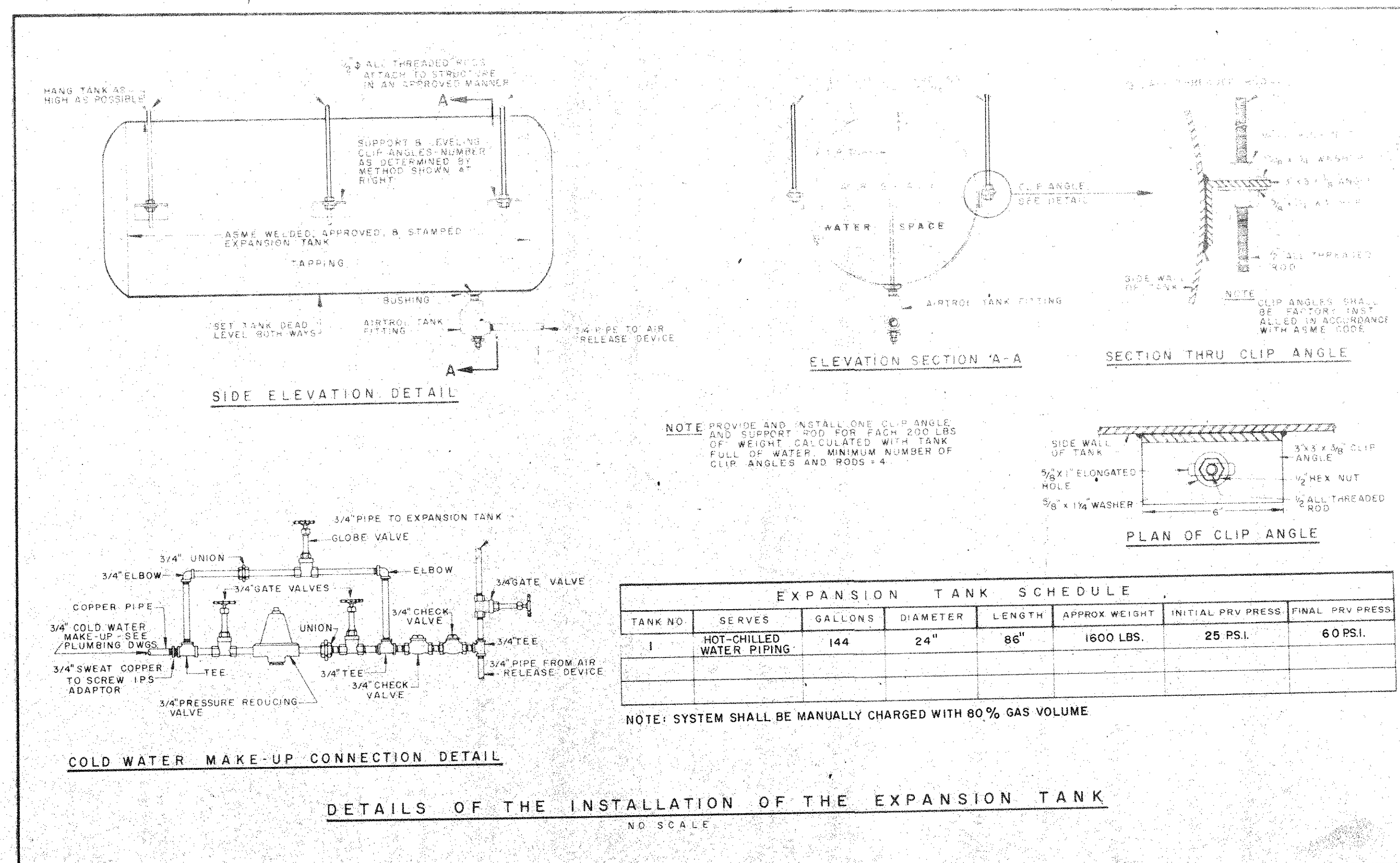
PLANS AND SECTIONS ON THIS SHEET ARE FOR
PIPING LOCATION ONLY. SEE PIPING SCHEMATIC
(ON THIS SHEET) AND EQUIPMENT INSTALLATION
DETAILS (SEE SHS M-11-13 FOR VALVING, ISOLATION,
MOUNTING AND OTHER DETAILS).

STRUCTURAL SUPPORTS SHALL BE CAPABLE OF SUPPORTING
LOADS IMPOSED FROM ELEMENTS BEING SUPPORTED.
WEIGHT OF EXPANSION TANK SHALL BE AS INDICATED
ON THE SCHEDULE, SHEET M-12.
WEIGHT OF 8\"/>

REVISION	DESCRIPTION	DATE
	DATE OF ISSUE: SEPTEMBER 12, 1975	
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COMMISSION NO.	43974	
HVAC-MECHANICAL EQUIPMENT PIPING	M 10	
	OF 62	

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA





SEQUENCE OF OPERATION

HEATING-COOLING SWITCH-OVER AND CONTROL

FOR THE HEATING-COOLING SWITCH-OVER AND CONTROL, SUPPLY AND INSTALL A TEMPERATURE SENSOR IN THE HEATING-COOLING RETURN WATER, A TEMPERATURE SENSOR IN THE HEATING-COOLING SUPPLY WATER, A TEMPERATURE SENSOR AT THE DISCHARGE OF THE THREE-WAY VALVE OFF OF THE HOT WATER BOILER, A TEMPERATURE SENSOR IN THE SUPPLY TO AND THE RETURN FROM THE HOT WATER BOILER, A TEMPERATURE SENSOR IN THE SUPPLY TO AND FROM THE CHILLER.

EACH TEMPERATURE SENSOR IS TO HAVE ITS TEMPERATURE INDICATION GAGE LOCATED ON THE LOCAL CONTROL PANEL.

FURTHER, SUPPLY AND INSTALL A THREE-WAY MODULATING/SWITCH-OVER VALVE AT THE HOT WATER BOILER AND A THREE-WAY SWITCH-OVER VALVE AT THE CHILLER.

SUPPLY AND INSTALL A TWO POSITION "HEATING-COOLING" SWITCH WHICH WILL POSITION THREE-WAY AIR VALVES LOCATED IN THE LOCAL PANEL SO AS TO POSITION THE HOT WATER BOILER SWITCH-OVER VALVE AND CHILLER SWITCH-OVER VALVE AS FOLLOWS:

WITH THE SWITCH IN THE "HEATING" POSITION, THE RETURN WATER WILL BE DIRECTED SO AS TO FLOW THROUGH THE BOILER OR BY PASS THE BOILER AS CONTROLLED BY THE BELOW DESCRIBED HOT WATER CONTROLLER. THE WATER WILL CONTINUE TO FLOW WHILE IN THE "HEATING" POSITION SO AS TO COMPLETELY BY-PASS THE CHILLER.

THE TEMPERATURE AT THE DISCHARGE OF THE HOT WATER BOILER THREE-WAY VALVE WILL BE MAINTAINED THROUGH A TEMPERATURE RECEIVER-CONTROLLER TO MAINTAIN THE TEMPERATURE AS SET THROUGH THE LOCAL PANEL ON THE RECEIVER CONTROLLER BY MODULATING THE HOT WATER BOILER'S THREE-WAY VALVE. THE DISCHARGE TEMPERATURE OF THE BOILER WILL BE AS SET ON THE SELF CONTAINED PACKAGE BOILER CONTROLS.

WITH THE "HEATING-COOLING" SWITCH TURNED TO THE "COOLING" POSITION THE SYSTEM WILL OPERATE AS FOLLOWS:

IMMEDIATELY UPON SWITCHING THE SYSTEM TO "COOLING" THE THREE-WAY VALVE LOCATED AT THE HOT WATER BOILER WILL BE POSITIONED TO THE BY-PASS POSITION AND THE WATER WILL BY-PASS THE BOILER. A SENSOR, WITH ITS SENSING ELEMENT, IN THE HEATING-COOLING WATER RETURN WILL SEND ITS SIGNAL TO A CONTROLLER WHICH WILL IN TURN ALLOW THE COOLING CHILLER BY-PASS VALVE TO POSITION IT'S SELF SO AS TO ALLOW THE WATER TO GO THROUGH THE CHILLER WHEN THE RETURN WATER IS BELOW AN ADJUSTABLE SET POINT. WITH THE RETURN WATER ABOVE 90° THE WATER WILL BE ALLOWED TO CIRCULATE THROUGHOUT THE SYSTEM UNTIL THE TEMPERATURE DROPS BELOW 79° AND THEN WILL ALLOW THE RETURN WATER TO GO THROUGH THE CHILLER.

WHEN THE TWO-POSITION SWITCH IS AGAIN TURNED TO THE "HEATING" POSITION THE OPPOSITE WILL OCCUR. THAT IS, THE WATER WILL BY PASS THE CHILLER THROUGH THE CHILLER'S THREE-WAY VALVE AND WILL BE ALLOWED TO

ENTER THE HOT WATER BOILER OR BY PASS THE BOILER AS DIRECTED BY THE HOT WATER BOILER THREE-WAY VALVE CONTROLLER.

OPERATION OF THE "HEATING-COOLING" PUMP, THE CONDENSER WATER PUMP, THE CHILLER, AND THE BOILER WILL BE MANUAL THROUGH THE STARTERS AND/OR PACKAGE CONTROLLERS WITH THE VARIOUS PIECES OF EQUIPMENT.

SEQUENCE OF OPERATION

AIR HANDLING UNIT CONTROL

FOR EACH AIR HANDLING UNIT, SUPPLY AND INSTALL A DISCHARGE AIR TEMPERATURE SENSOR WITH ITS TEMPERATURE INDICATION GAGE, A DISCHARGE AIR TEMPERATURE RECEIVER-CONTROLLER WITH INTEGRATED MOTOR CONTROLLER REMOTE SET POINT ADJUST AND SET POINT ADJUST INDICATION, RETURN AIR AND OUTDOOR AIR DAMPERS WITH EXHAUST DAMPERS LOCATED AS SHOWN THROUGHOUT THE BUILDING, HI-LIMIT FIRE THERMOSTATS FOR THE RETURN AIR AND THE DISCHARGE AIR, A THREE-WAY MODULATING WATER VALVE, AND A REPOSITION SWITCH FOR THE OUTDOOR, RETURN, AND EXHAUST DAMPERS MOUNTED ON THE INTEGRATED MOTOR CONTROL CENTER. FURTHER, SUPPLY AND INSTALL A RETURN AIR TEMPERATURE SENSOR WITH A TEMPERATURE INDICATOR MOUNTED AT THE INTEGRATED MOTOR CONTROL CENTER WITH A RETURN AIR RECEIVER-CONTROLLER.

THE SYSTEM WILL OPERATE SUCH THAT THE RETURN AIR RECEIVER-CONTROLLER WILL MODULATE THE THREE-WAY WATER VALVE SO AS TO MAINTAIN A CONSTANT RETURN AIR TEMPERATURE AS SET ON THE REMOTE REPOSITIONING DEVICE. THE DISCHARGE AIR RECEIVER-CONTROLLER WILL OPERATE SO AS TO MAINTAIN A LOW LIMIT ON THE DISCHARGE AIR AND OVERRIDE THE RETURN AIR CONTROLLER IF THE TEMPERATURE DROPS BELOW ITS LOW LIMIT (ADJUSTABLE). THE FIRE THERMOSTAT HI-LIMITS WILL BE WIRED SO AS TO STOP THE UNIT FANS IF THE DISCHARGE AIR OR RETURN AIR SHOULD RISE ABOVE THEIR SETTINGS. THE REMOTE POSITIONING SWITCH FOR THE OUTDOOR, RETURN AIR, AND EXHAUST DAMPERS SHALL OPERATE SO AS TO ALLOW MANUAL RESETTNG OF THE OUTDOOR, RETURN AND EXHAUST DAMPERS. A PILOT POSITIONER SHALL BE SUPPLIED ON THE OUTDOOR, RETURN AND EXHAUST DAMPERS SO AS TO ALLOW THE TEST AND BALANCE PERSONNEL TO SET THESE DAMPERS TO EITHER LEAD OR LAG SO AS TO PROVIDE A POSITIVE OR NEGATIVE PRESSURE IN THE BUILDING.

PROVIDE A DIFFERENTIAL STATIC PRESSURE SENSOR ACROSS THE FILTERS OF EACH OF THESE AIR HANDLING UNITS SO AS TO OPERATE A FILTER PILOT LIGHT LOCATED ON THE INTEGRATED MOTOR CONTROL CENTER TO PROVIDE A MAINTENANCE ALARM FOR A "DIRTY FILTER" CONDITION.

INDICATION AND SWITCHES SHALL BE AS INDICATED ON THE INTEGRATED MOTOR CONTROL CENTER SCHEDULE.

SEQUENCE OF OPERATION

EXHAUST FANS

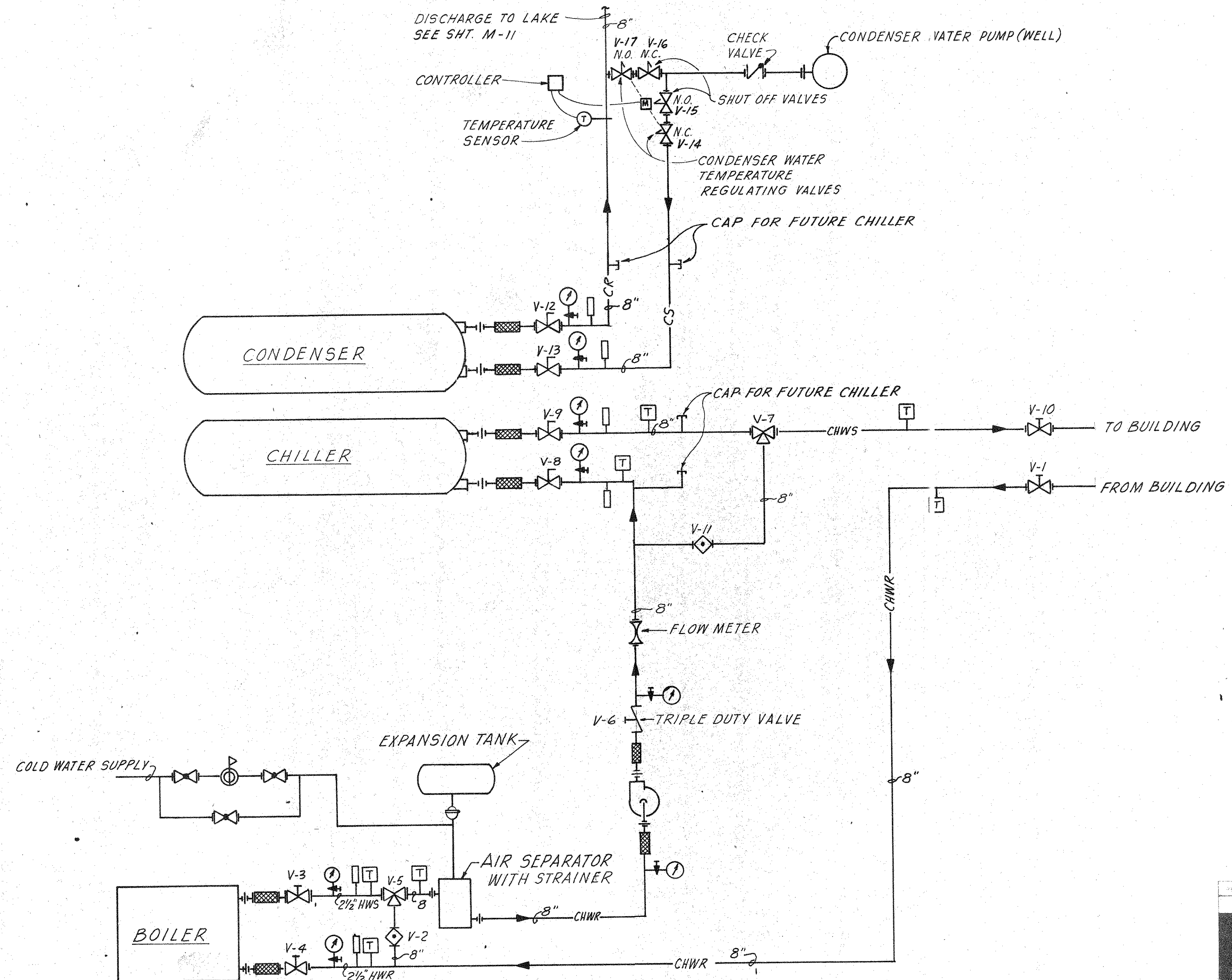
SUPPLY AND INSTALL FIRE HI-LIMIT THERMOSTATS FOR EACH EXHAUST FAN WIRED SUCH THAT THEY STOP THE EXHAUST FAN IF THE TEMPERATURE AT THE FIRE HI-LIMIT ARISES ABOVE ITS SETTING.

FAN CONTROL SHALL BE AS DESIGNATED ON DRAWINGS.

SEQUENCE OF OPERATION

CONDENSER WATER PUMP CONTROLS

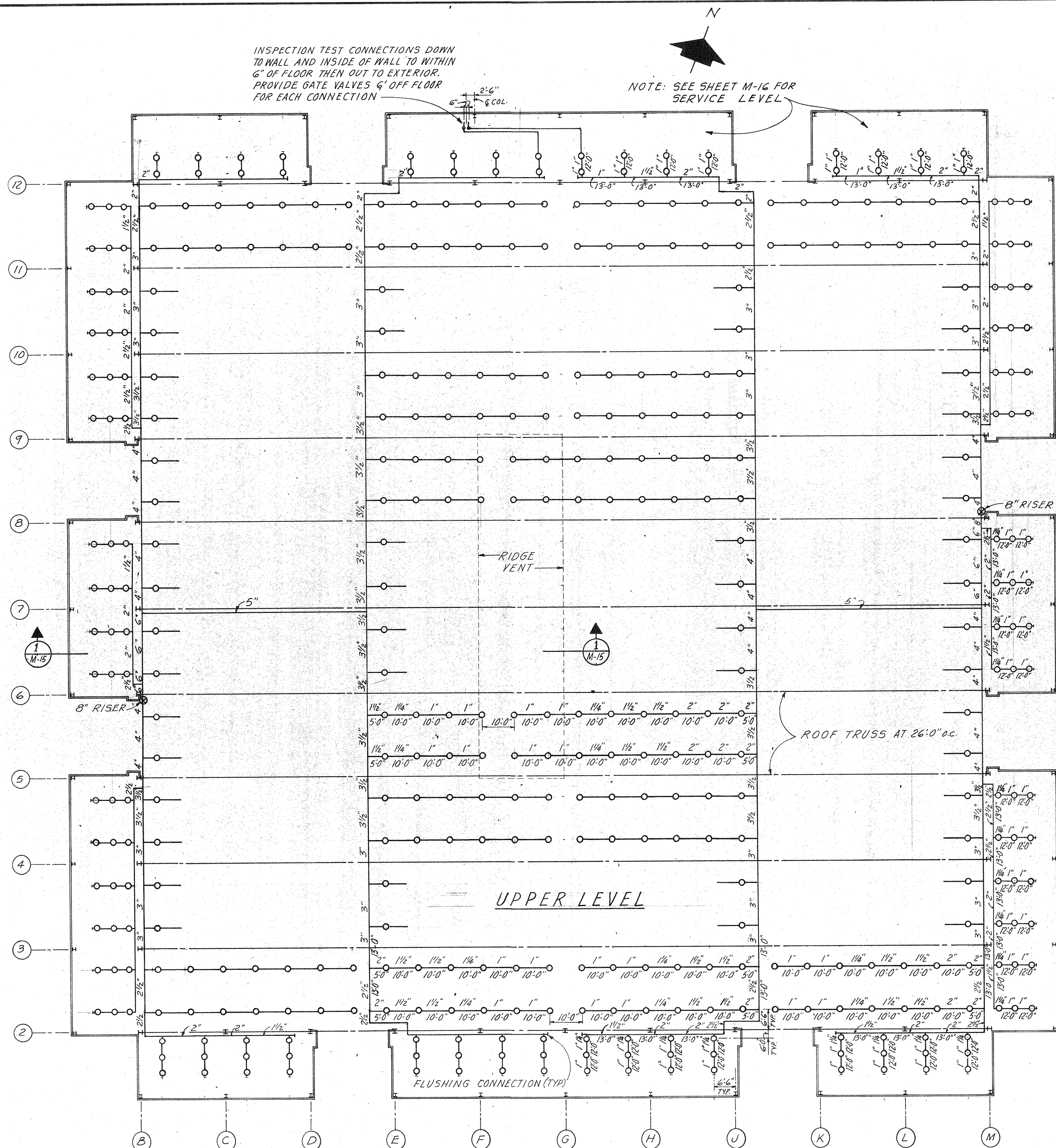
THE CONDENSER WATER PUMP SHALL BE INTERLOCKED WITH THE CHILLER CONTROLS. THE PUMP SHALL START WHEN CHILLER OPERATION IS REQUIRED AND STOP WHEN THE CHILLER SHUT DOWN. A SWITCH TO ALLOW "PUMP ONLY" OPERATION SHALL BE PROVIDED TO ALLOW MANUAL OPERATION OF THE PUMP WHEN CHILLER OPERATION IS NOT REQUIRED. THE CONDENSER WATER DISCHARGE TEMPERATURE SHALL BE MAINTAINED ABOVE A MINIMUM TEMPERATURE OF 83°F. WHEN THE CONDENSER WATER DISCHARGE TEMPERATURE DROPS BELOW 8°F THE CONDENSER WATER TEMPERATURE REGULATING VALVES WILL MODULATE THE AMOUNT OF WATER FLOWING THROUGH THE CONDENSER SO AS TO MAINTAIN THE OUTLET TEMPERATURE AT 83°F.



CHW SYSTEM SCHEMATIC

SEPTEMBER 12, 1975	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA	
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.	
COMMISSION NO.	43974
HVAC-CONTROLS	M 13
OF 62	

Greiner Engineering Sciences, Inc.
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INSPECTION TEST CONNECTIONS DOWN TO WALL AND INSIDE OF WALL TO WITHIN 6" OF FLOOR THEN OUT TO EXTERIOR. PROVIDE GATE VALVES 6' OFF FLOOR FOR EACH CONNECTION

NOTE: SEE SHEET M-16 FOR SERVICE LEVEL

UPPER LEVEL

PLAN
SCALE: 1/16" = 1'-0"

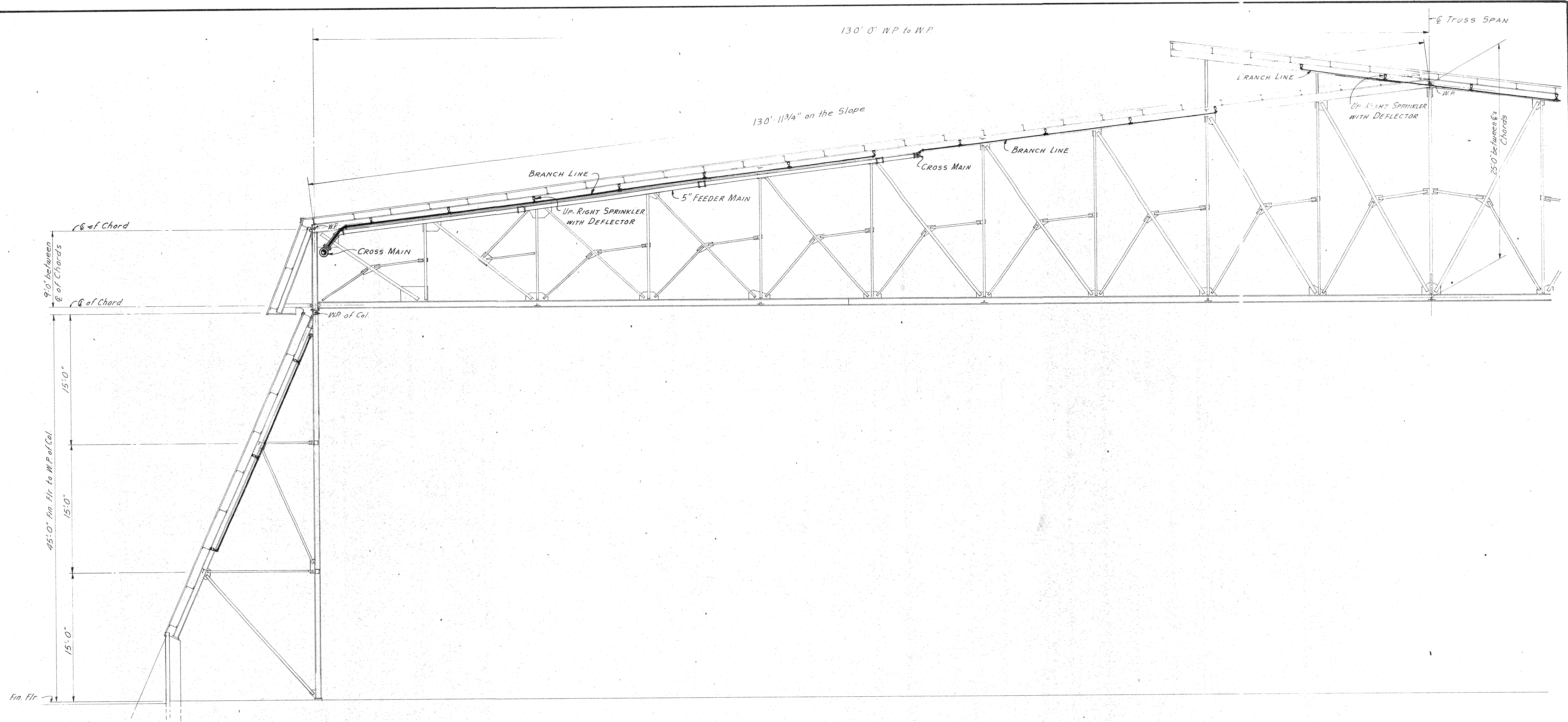
DESIGN CRITERIA

HYDRAULICALLY DESIGNED SYSTEM SHALL MEET THE FOLLOWING CRITERIA IN ADDITION TO OTHER CODE REQUIREMENTS:

THE CLASSIFICATION OF HAZARDS SHALL BE ORDINARY. THE SYSTEM SHALL BE A "WET" TYPE. AVAILABLE PRESSURES SHALL REFLECT THE INSTALLATION OF A FIRE PUMP ON SITE (SEE SITE UTILITY DWGS. AND SPEC'S). DENSITY OF FLOW RATE PER SPRINKLER HEAD SHALL BE .015 GALLONS PER MINUTE (MINIMUM). IN NO CASE SHALL COVERAGE EXCEED 130 SQUARE FEET PER SPRINKLER HEAD.

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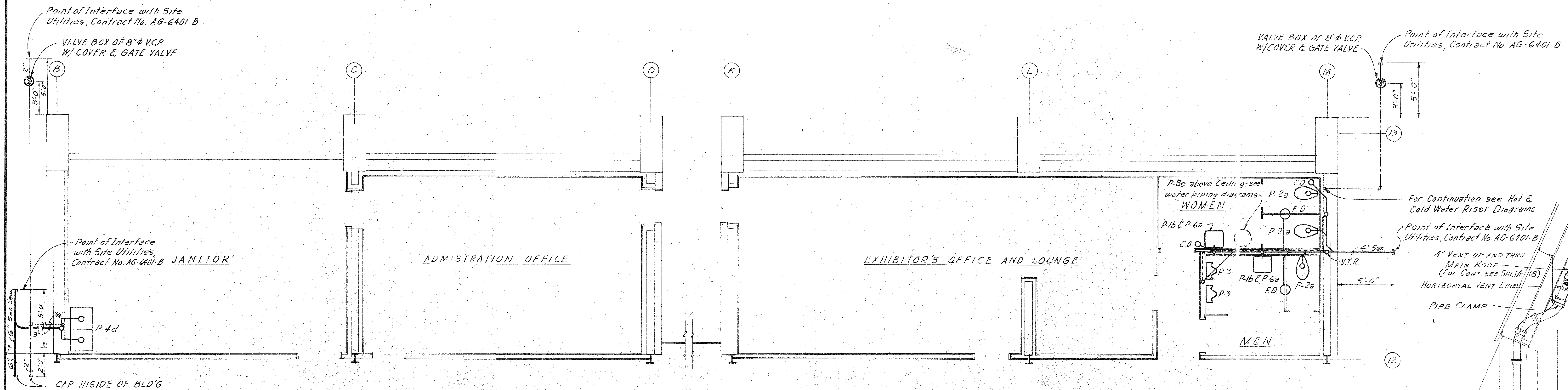
REVISION	DESCRIPTION	DATE
1	DATE OF ISSUE	SEPTEMBER 12, 1978
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-E EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	
FIRE PROTECTION	UPPER LEVEL	M 14
		OF 62



SECTION 1
SCALE: 3/16" = 1'-0" (N.A.)

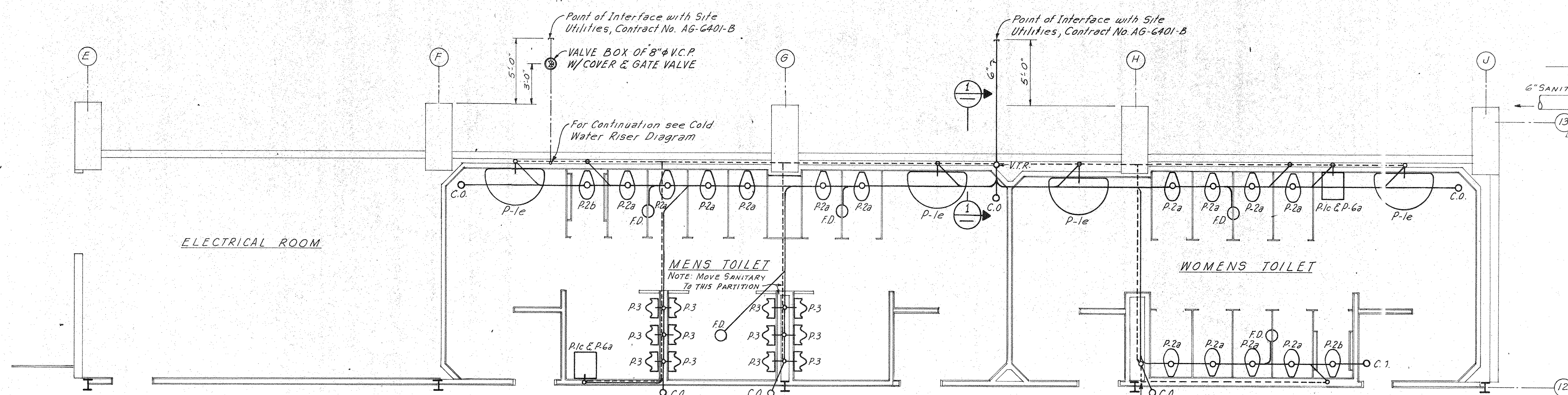
REVISION	DESCRIPTION	DATE
DATE OF ISSUE	SEPTEMBER 12, 1974	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST. TAMPA, FLORIDA		
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COMMISSION NO.	43974	
FIRE PROTECTION DETAILS- UPPER LEVEL	M 15	OF 62

G. E. Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

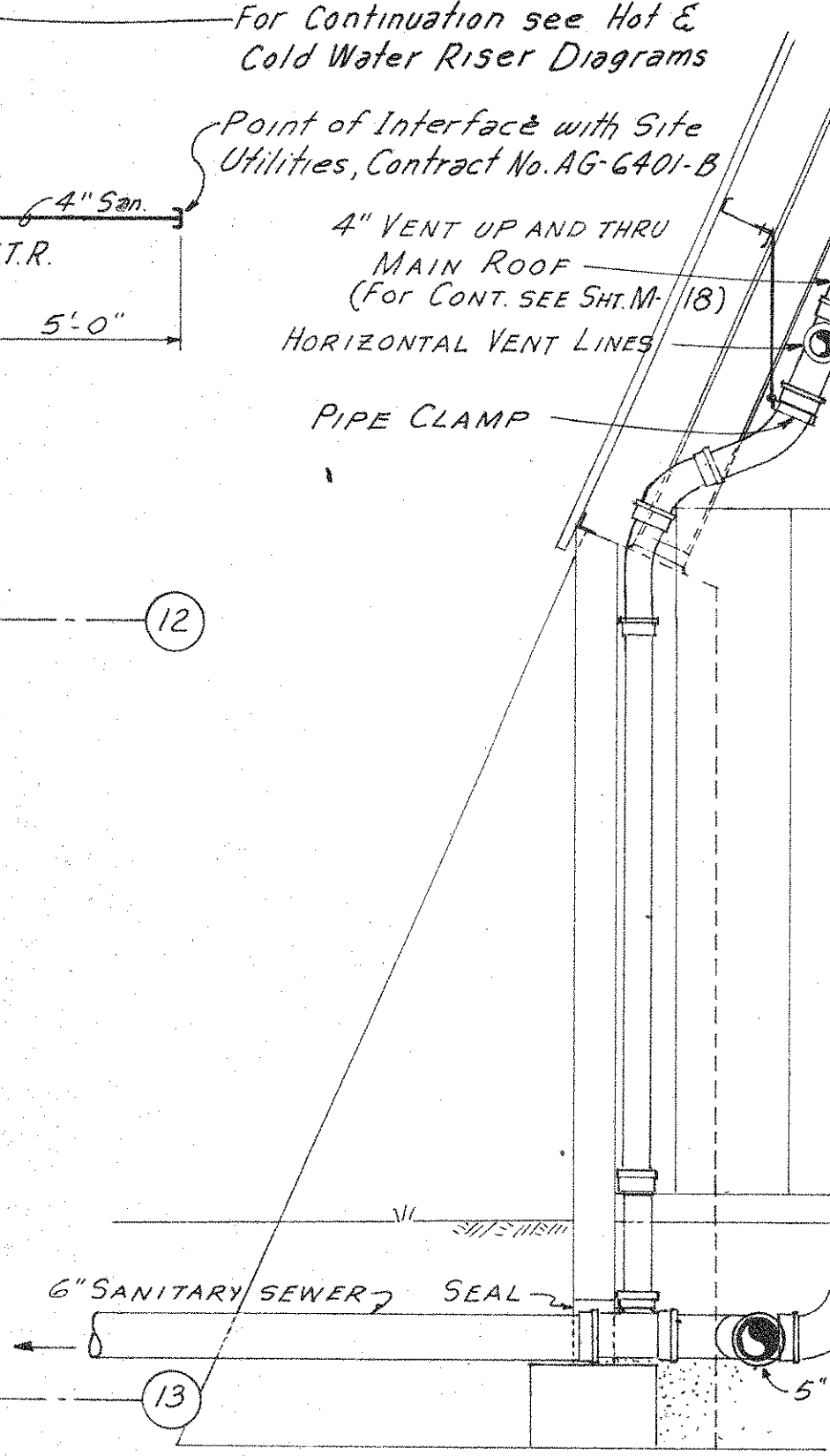


PLAN - JANITORIAL AREA
SCALE: 1/4" = 1'-0"

PLAN - EXHIBITOR'S TOILETS
SCALE: 1/4" = 1'-0"



PLAN - TOILET ROOMS
SCALE: 1/4" = 1'-0"

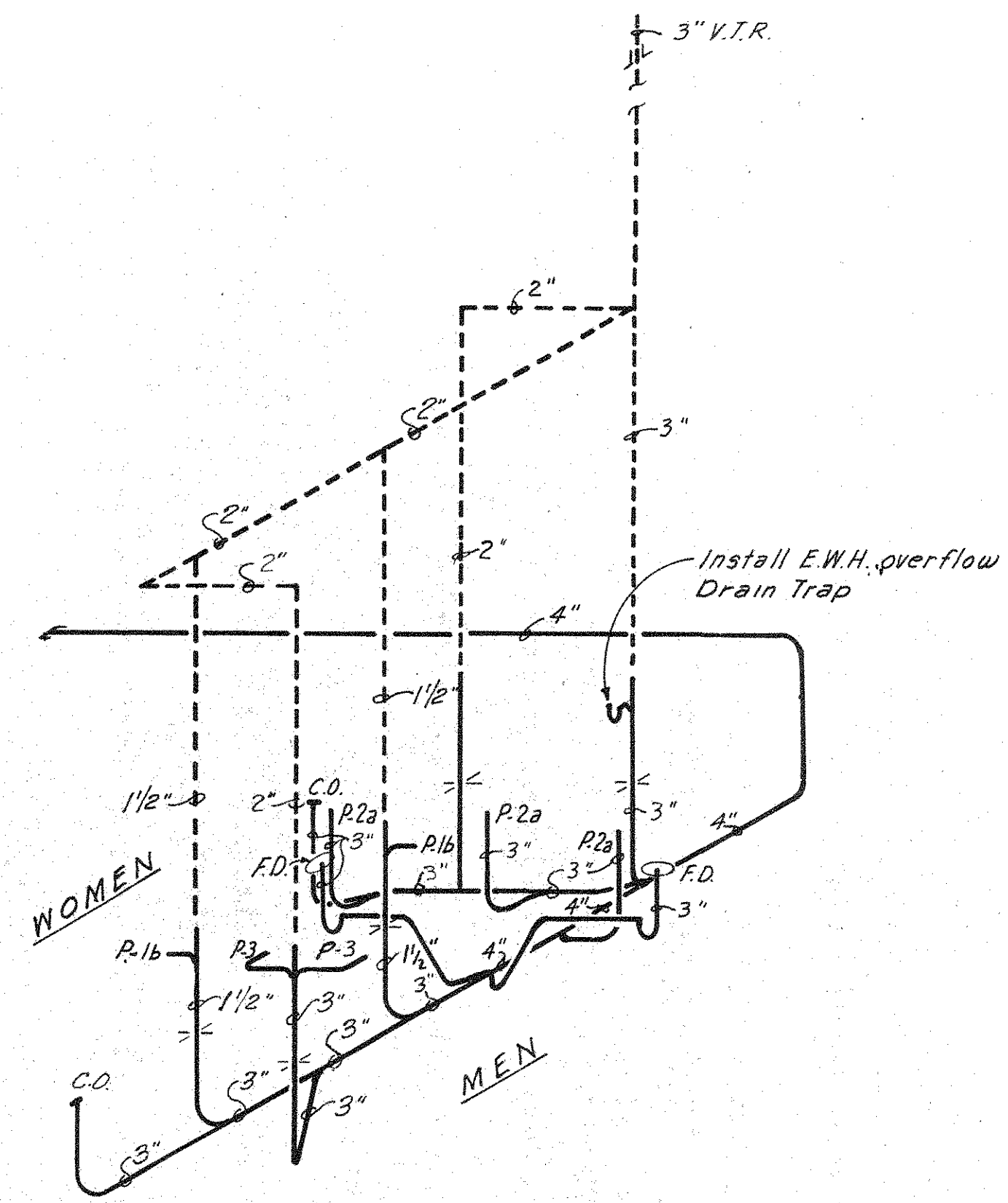


SECTION 1
SCALE: 1/2" = 1'-0"

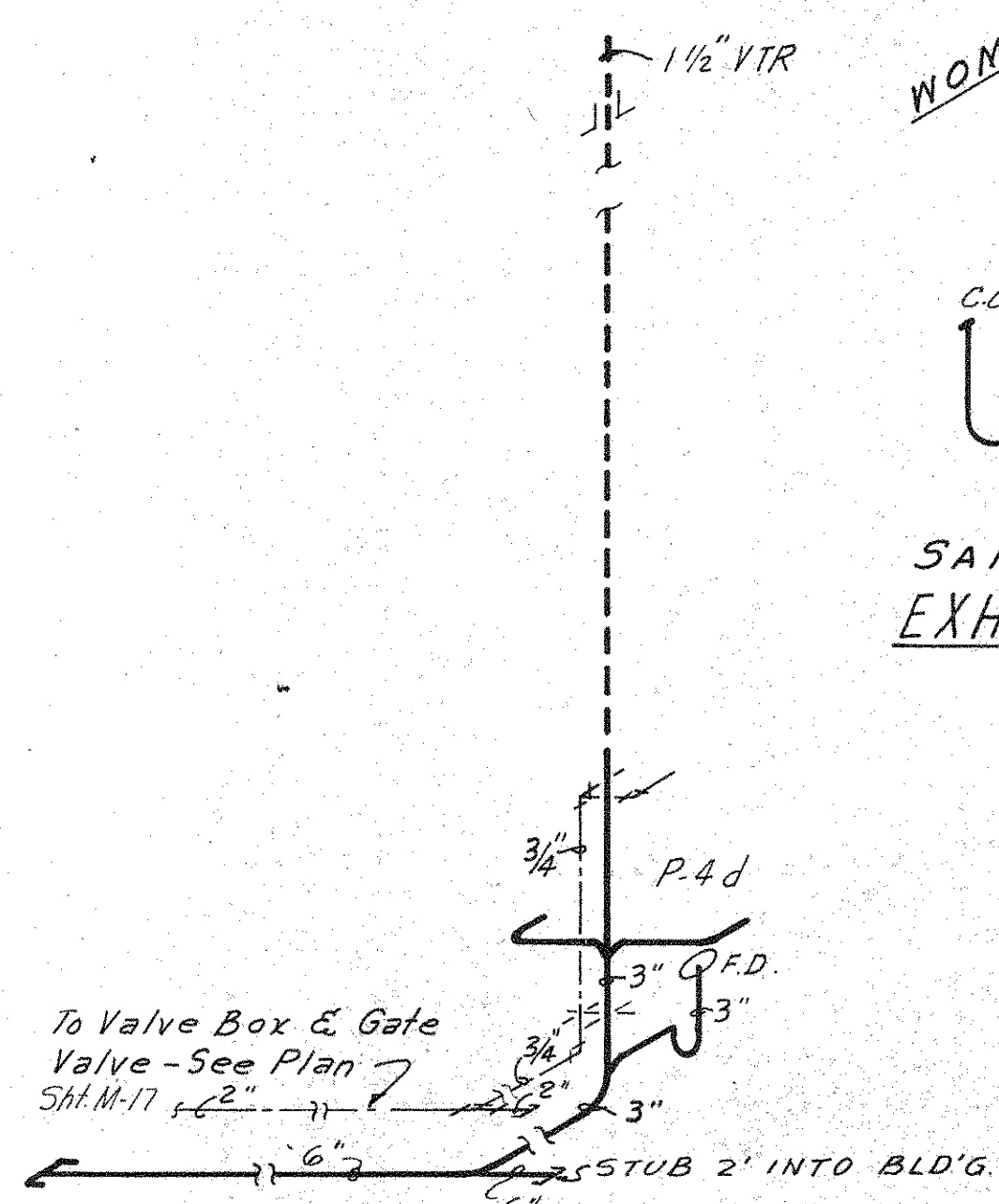
NOTE:
OFFSET PLUMBING IN CHASE
SO AS TO BE CLEAR OF STRUCTURAL
MEMBERS

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

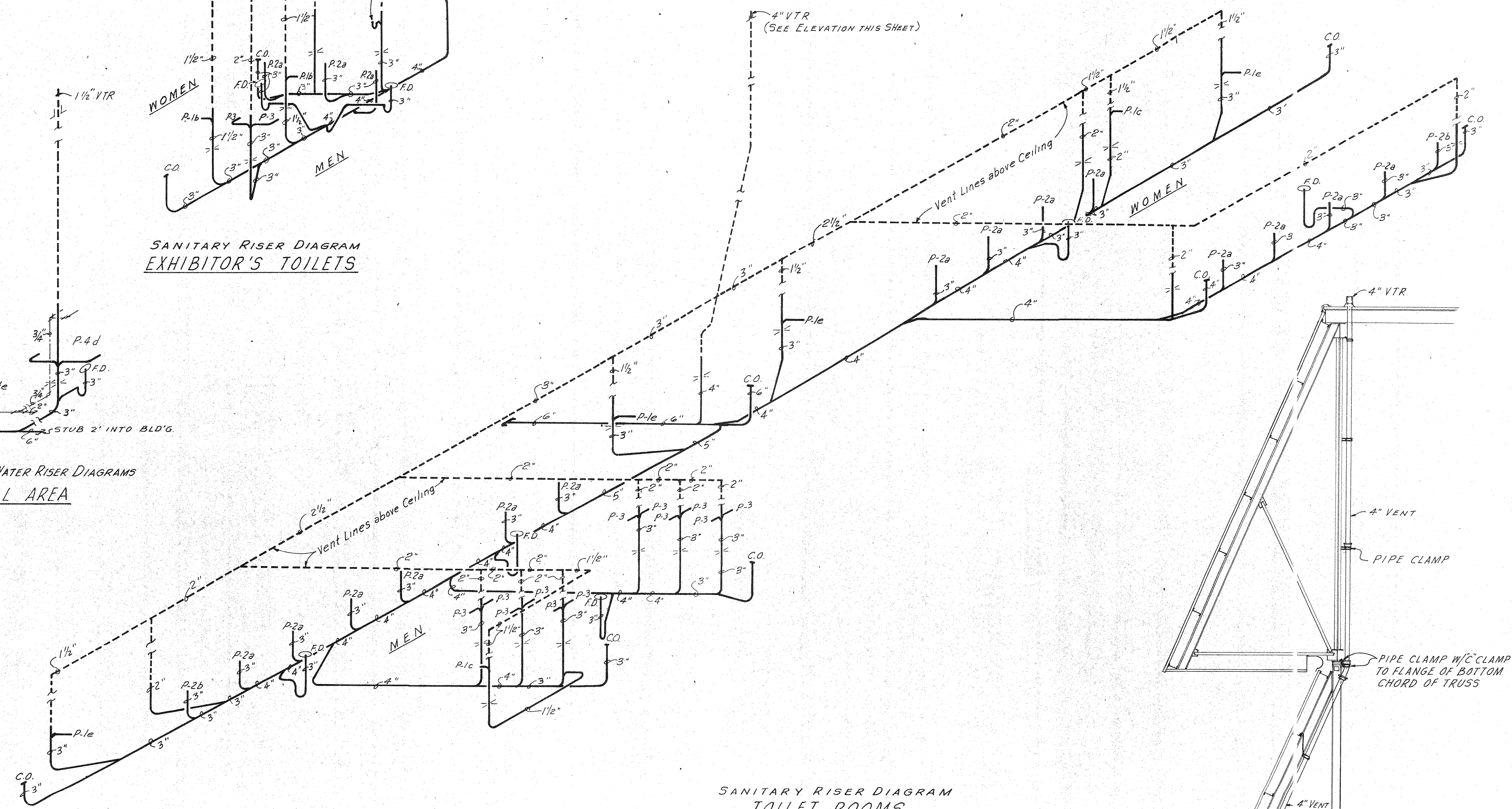
REVISION	DESCRIPTION	DATE
1	SEPTEMBER 12, 1977	
ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
FLORIDA STATE FAIR HILLSBOROUGH COUNTY, FLORIDA STATE PROJECT #AG-6401-B EXPOSITION HALL FOR DEPARTMENT OF AGRICULTURE FLORIDA STATE FAIR AUTHORITY BY DEPARTMENT OF GENERAL SERVICE DIVISION OF CONST. & MAINT.		
COMMISSION NO.	43974	
PLUMBING PLANS	M 17	OF 62



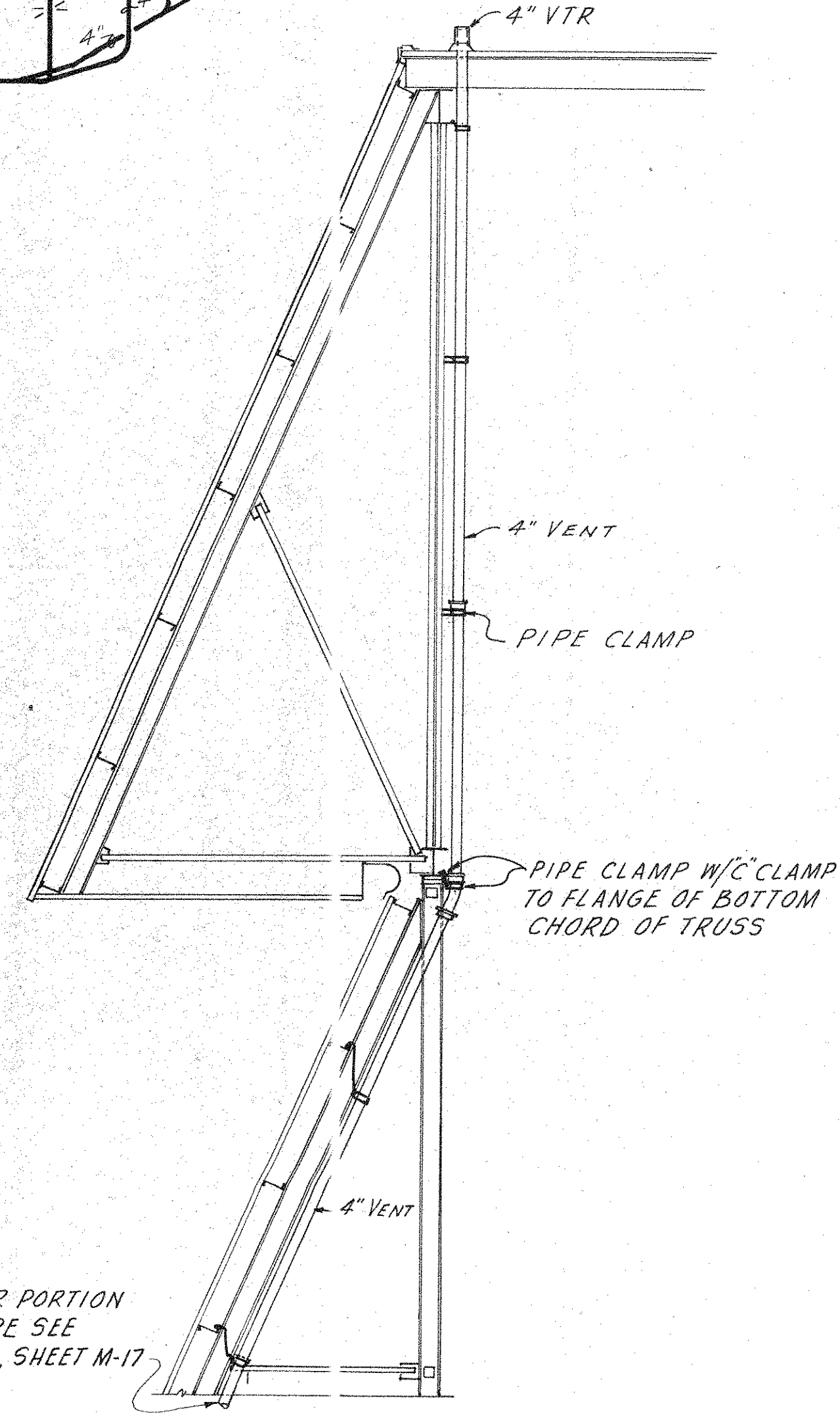
SANITARY RISER DIAGRAM
EXHIBITOR'S TOILETS



SANITARY & COLD WATER RISER DIAGRAMS
JANITORIAL AREA



SANITARY RISER DIAGRAM
TOILET ROOMS



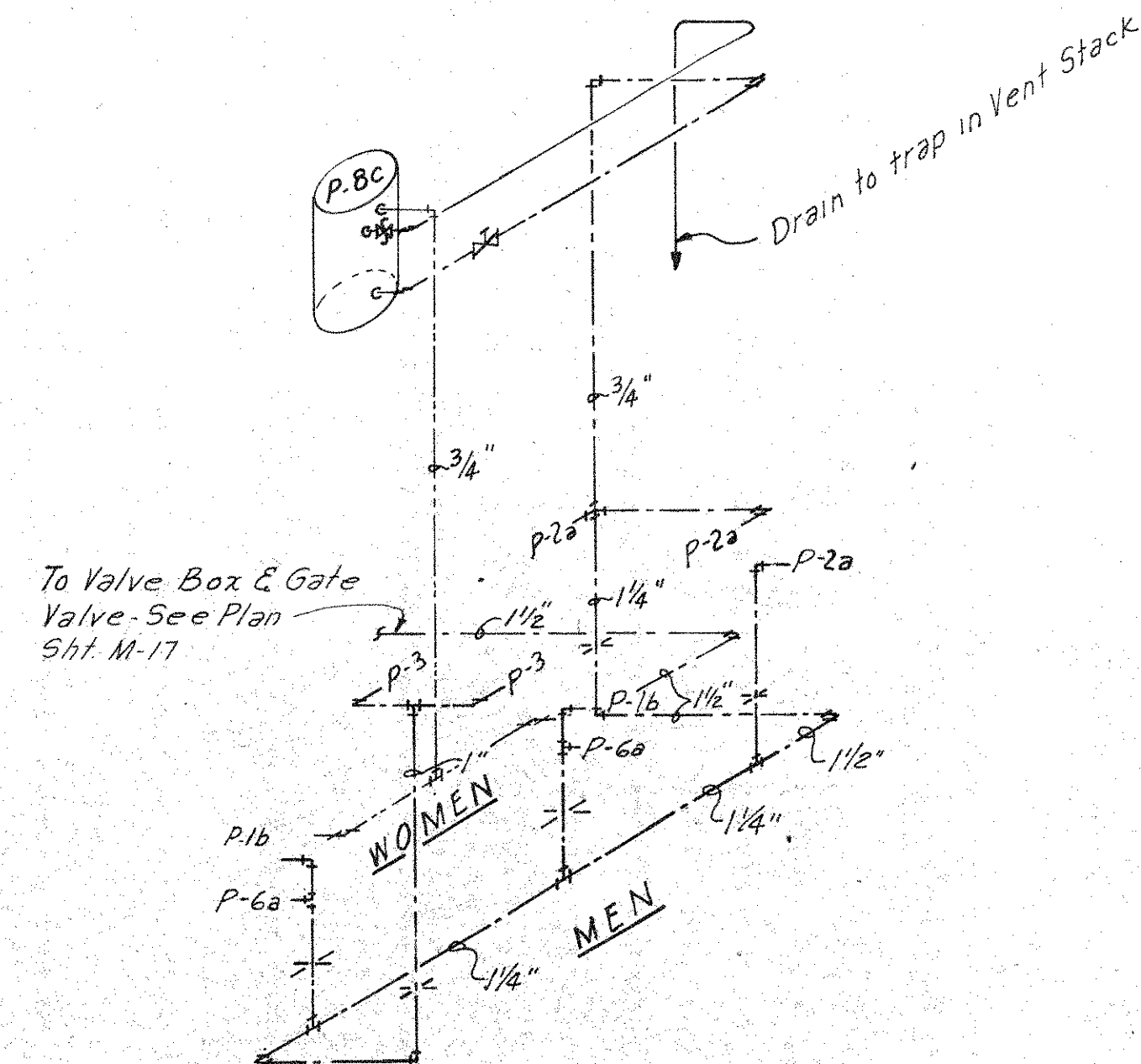
ELEVATION OF VENT PIPE AT ROOF
SCALE: 1/4" = 1'-0"

FOR LOWER PORTION
OF VENT PIPE SEE
SECTION 1, SHEET M-17

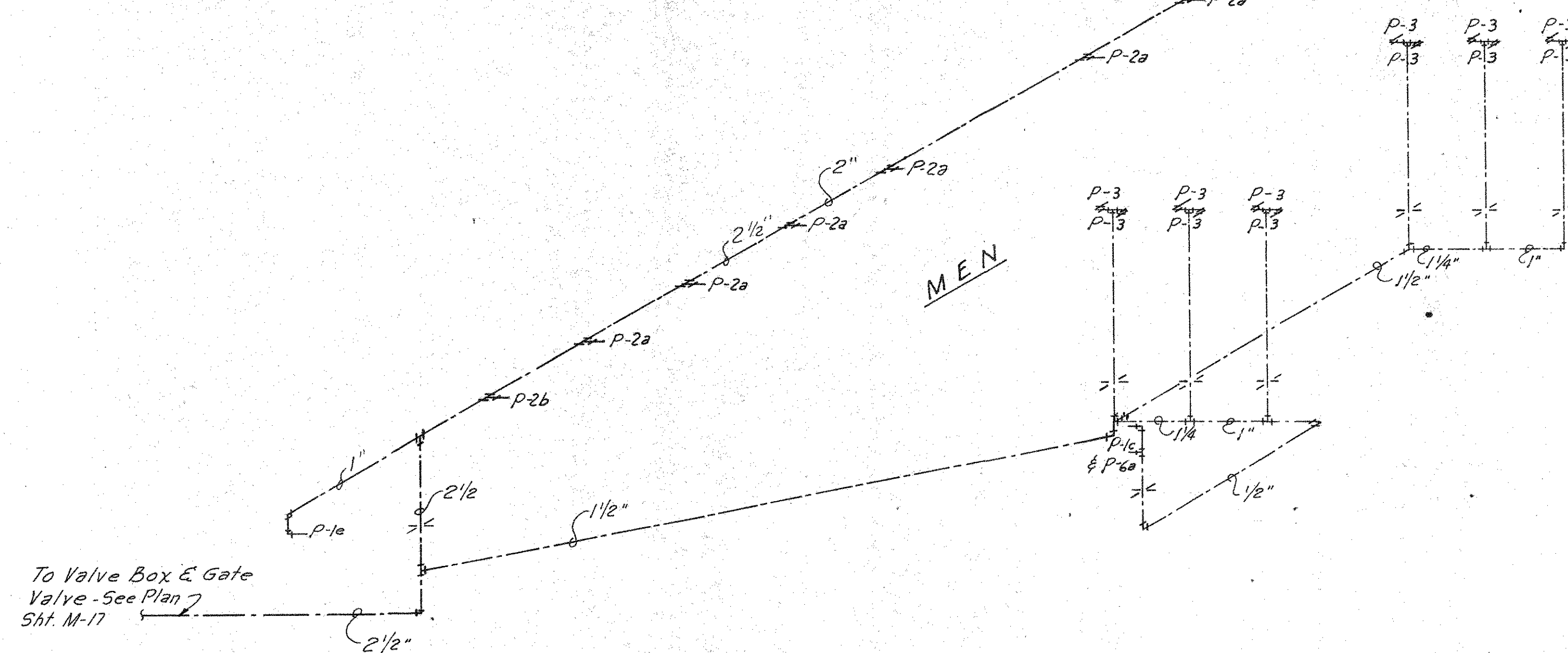
REVISION	DESCRIPTION	DATE
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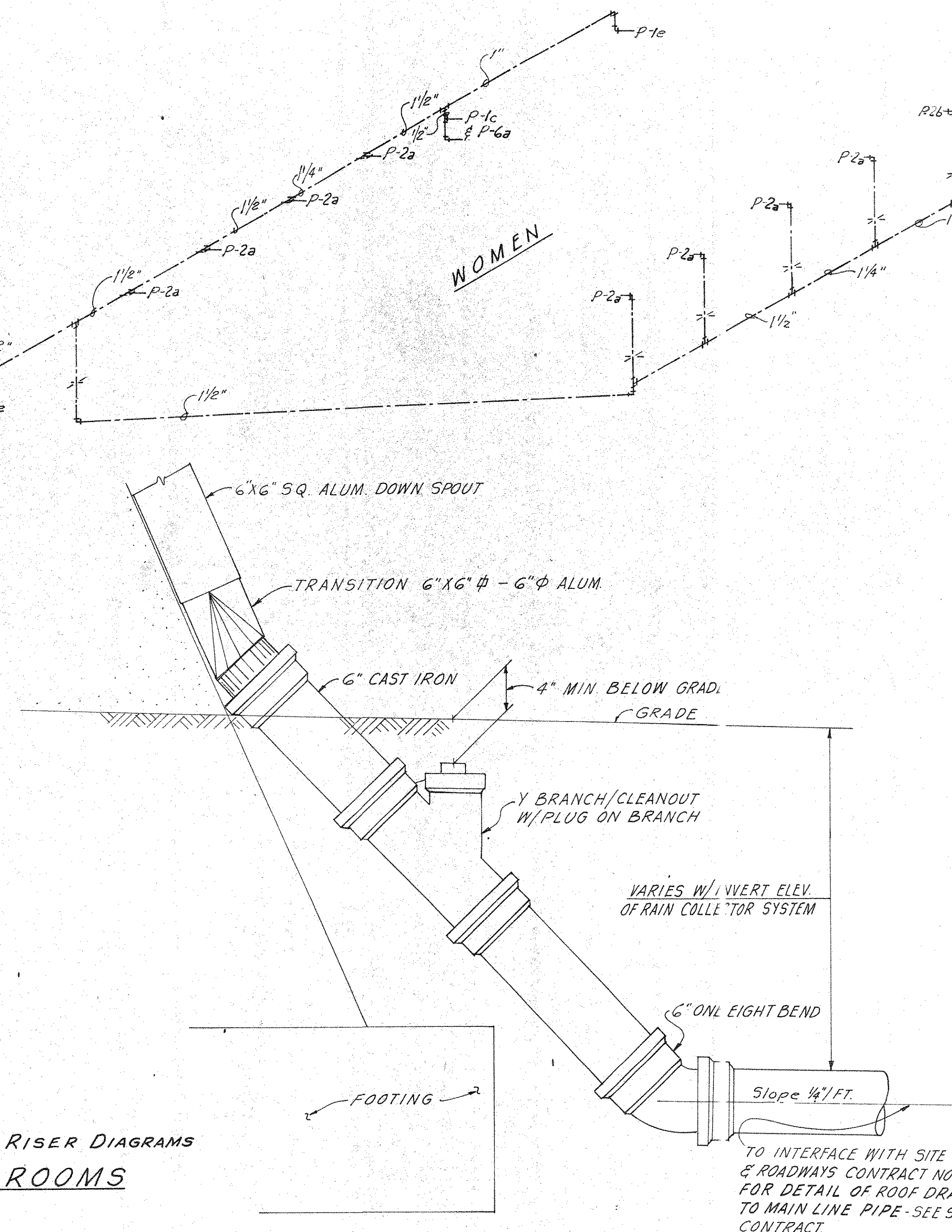
PLUMBING
DIAGRAMS
M 18
OF 62



HOT & COLD WATER RISER DIAGRAMS
EXHIBITOR'S TOILETS



COLD WATER RISER DIAGRAMS
TOILET ROOMS



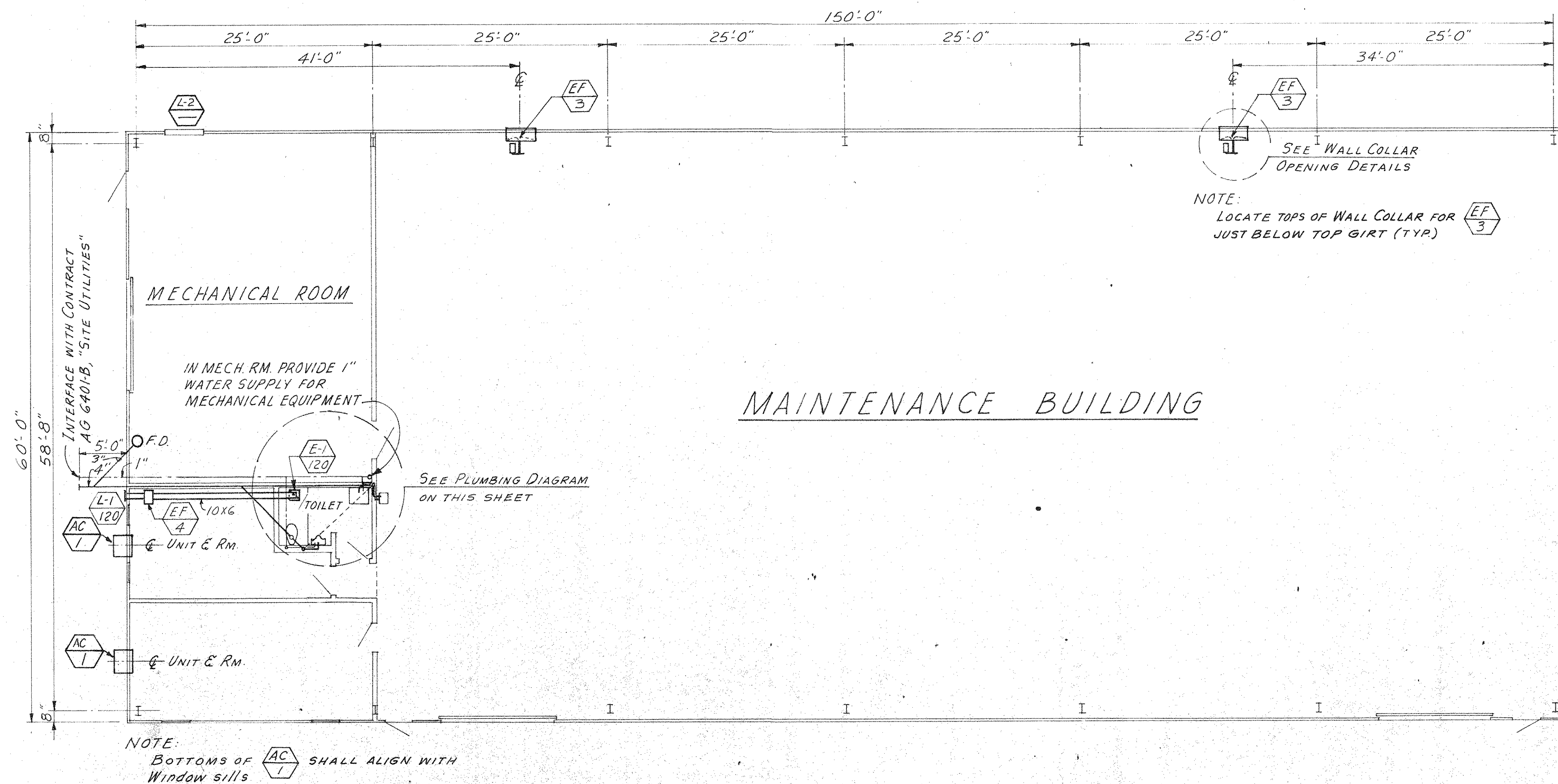
DETAIL OF DOWN SPOUT CONNECTION
SCALE: 1/2" = 1'-0"

REVISION	DESCRIPTION	DATE
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ROBBINS & ASSOCIATES ARCHITECTS, INC. 608 EXCHANGE BANK BUILDING 605 FRANKLIN ST., TAMPA, FLORIDA		
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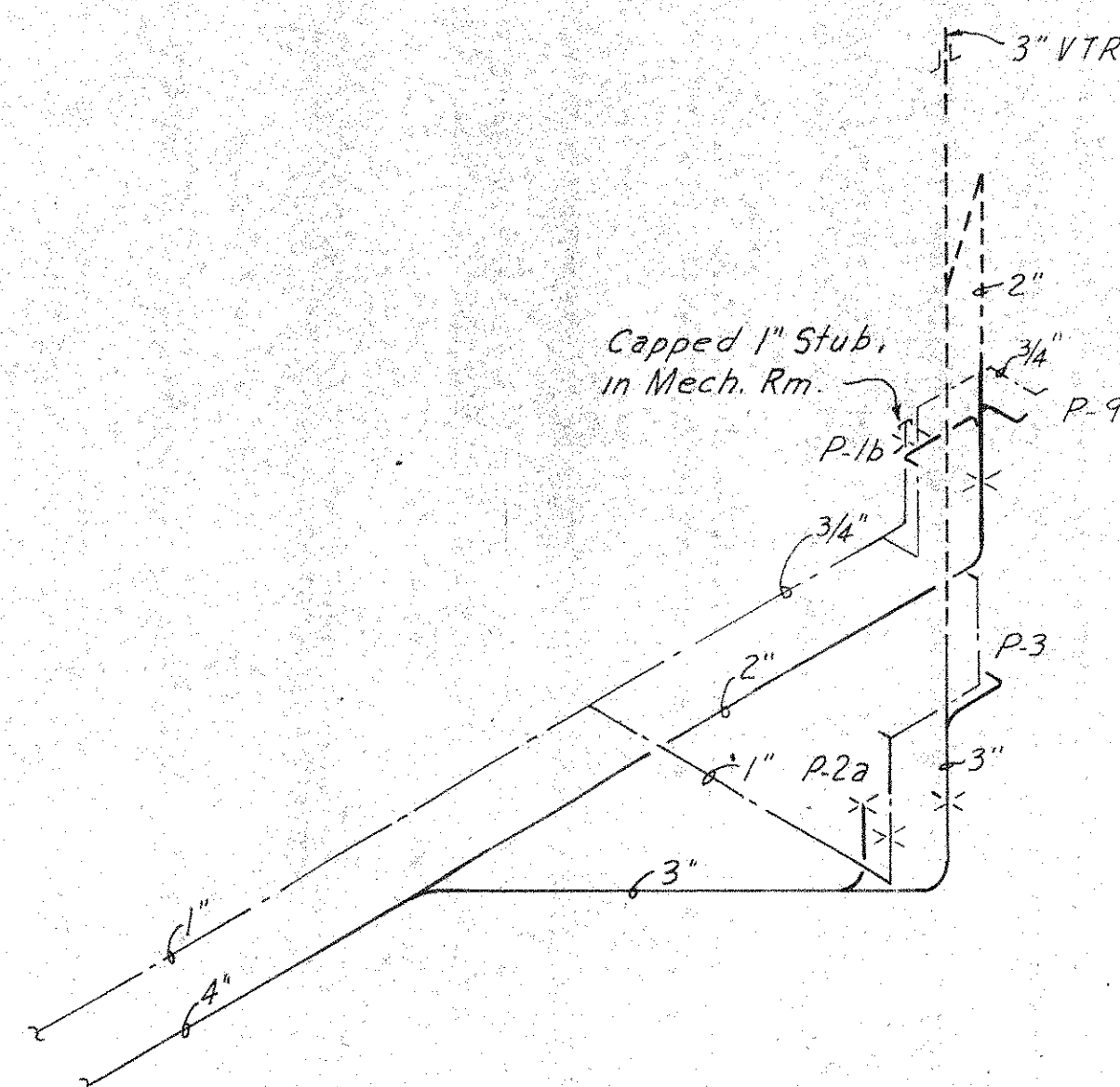
Greiner Engineering Sciences, Inc.
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PLUMBING
DIAGRAMS

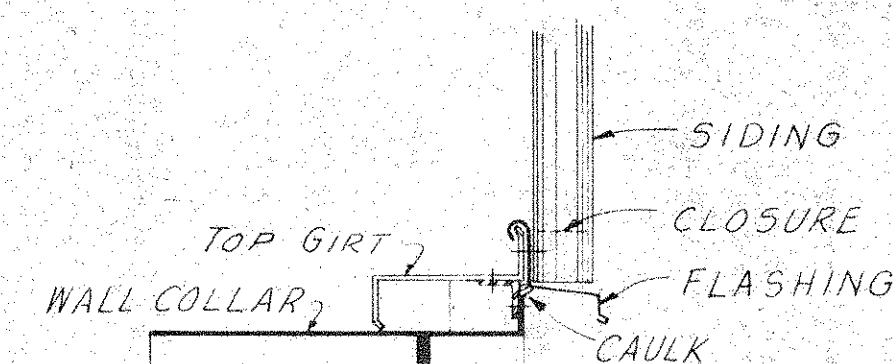
M 19
OF 62



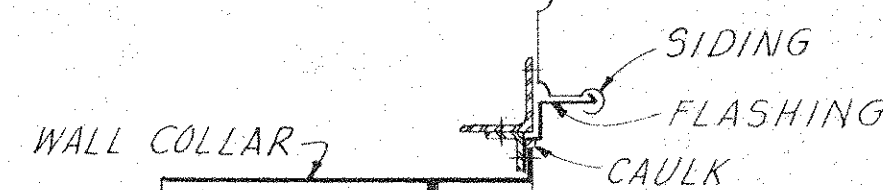
PLAN
SCALE: 1/8" = 1'-0"



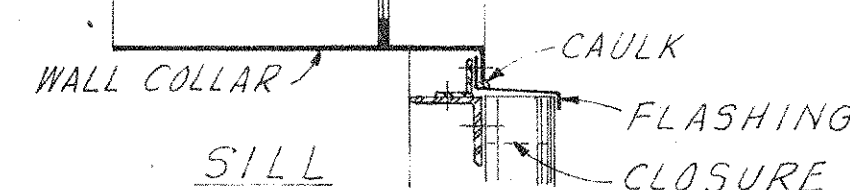
TOILET ROOM - PLUMBING DIAGRAM



HEAD



JAMBS



SILL

NOTE: OPENINGS FOR AC 1 & L-2 SHALL BE FRAMED SIMILARLY.

WALL COLLAR OPENING DETAILS

SCALE: 1/2" = 1'-0"

AIR CONDITIONING UNIT SCHEDULE

MARK	AC 1
MANUFACTURER	FEDDERS
MODEL NUMBER	AEB 14W5E
HEATING CAPACITY	12,700
COOLING CAPACITY	14,000
SUPPLY CFM	350
E.D.B. @ COND. °F	95
E.W.B. @ EVAP. °F	67
MOTOR H.P.	—
UNIT VOLT, PHASE, Hz	208/1/60
ACCESSORIES & REMARKS	ELECTRIC HEAT

EXHAUST FAN SCHEDULE

MARK	EF 3	EF 4
MANUFACTURER	ACME ENGR. & MFG. CO.	LOREN COOK
MODEL NUMBER	DC 30F	10-10N
TYPE OF FAN	PROPELLER WALL FAN	INLINE BLOWER
TYPE OF DRIVE	BELT DRIVE	DIRECT
CFM	7000	120
STATIC PRESSURE	.125 IN WG	.125
UNIT FULL LOAD AMPS	4.0 FLA	.71 FLA.
UNIT VOLT, PHASE, Hz	208/1/60	115/1/60
ACCESSORIES & REMARKS	WH3 434 SHUTTER W/DAMPER MOTOR AND WC30DC WALL COLLAR	SEE ELECT. DWGS. FOR CONTROL

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	SIZE	MODEL NUMBER
E-1 CFM	TUTTLE & BAILEY	10"x6"	A-70
L-1 CFM	LOREN COOK	—	WC-1
L-2 *	RUEKIN	24" WIDE 36" HIGH	TYPE K LOUVER

* W/D MOUNTABLE FRAME & BIRD SCREEN. FURNISH WITH ENAMEL PRIMER.

REVISIONS
DATE OF ISSUE
DESCRIPTION
DATE

ROBBINS & ASSOCIATES
ARCHITECTS, INC.
608 EXCHANGE BANK BUILDING
605 FRANKLIN ST., TAMPA, FLORIDA

FLORIDA STATE FAIR
HILLSBOROUGH COUNTY, FLORIDA
STATE PROJECT #AG-6401-E
EXPOSITION HALL
FOR
DEPARTMENT OF AGRICULTURE
FLORIDA STATE FAIR AUTHORITY
BY
DEPARTMENT OF GENERAL SERVICE
DIVISION OF CONST. & MAINT.

COMMISSION NO. 43974

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

MAINTENANCE BLDG - SERVICE AREAS

M 20

OF 62