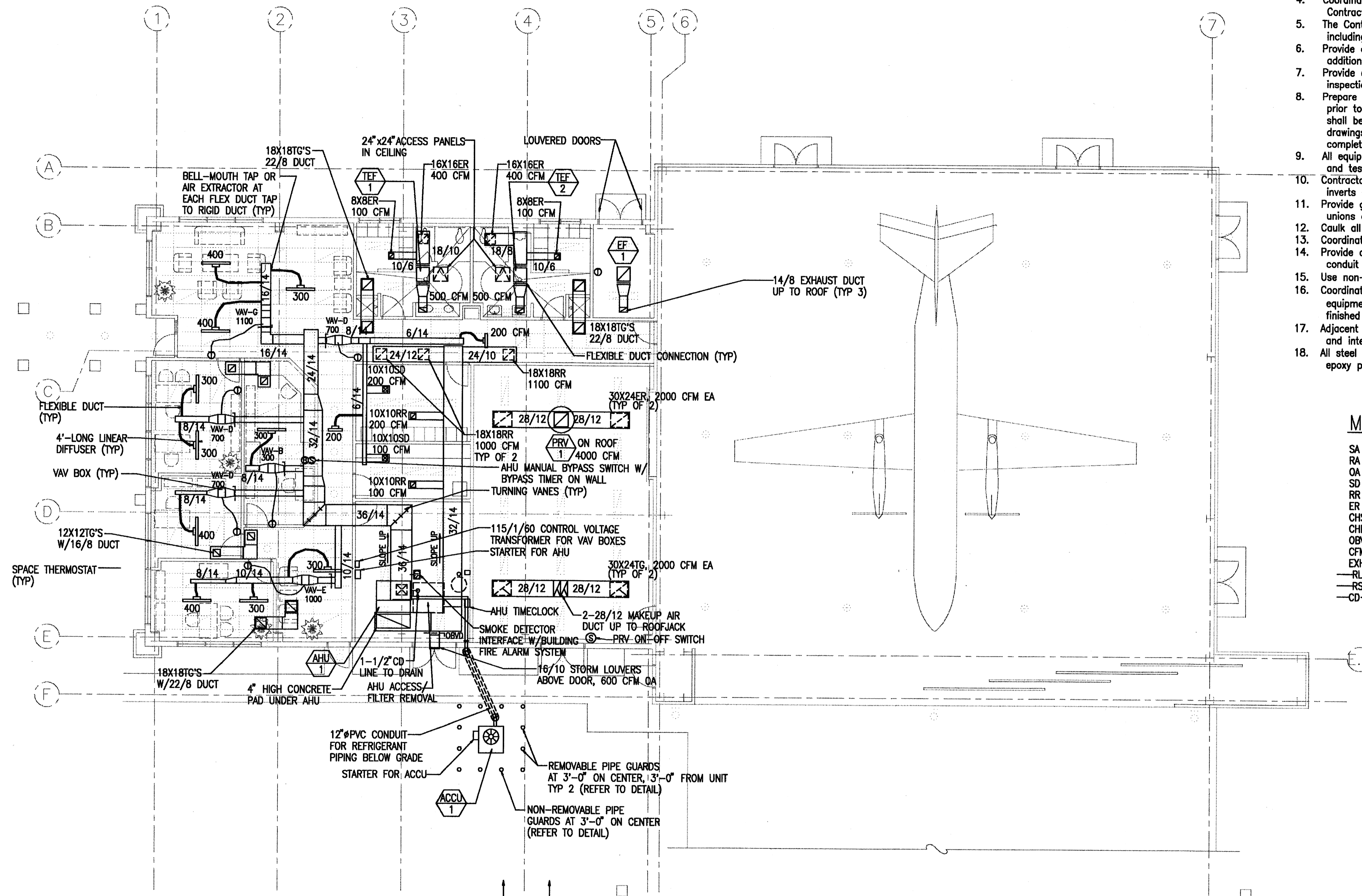


General Conditions:

1. Conform to all requirements of the Building, Plumbing, and Electrical Codes of the County of Honolulu, State of Hawaii Health Regulations, Fire Department Regulations, and other applicable regulations. All items shall be installed in accordance with manufacturers recommendations.
2. Installation shall be guaranteed to be free from defects for one year from final date of acceptance of the project as a whole.
3. Contractor shall verify all field conditions prior to bid and construction.
4. Coordinate all work with other trades to avoid interferences and delays.
5. Contractor shall coordinate with other trades to avoid conflicts and delays. The Contractor shall be responsible for all permits and applications including payment.
6. Provide additional materials and labor for a complete operable system at no additional cost to the Owner.
7. Provide access panels for all items under this section requiring servicing, inspection, maintenance, and adjustment.
8. Prepare three (3) sets of shop drawings, submitted to the engineer for approval prior to the start of work. No reproductions of any kind of the contract documents shall be acceptable as shop drawings. Provide one set of reproducible as-built drawings showing the actual installed conditions and submit to the Owners upon completion of work.
9. All equipment called out to be re-used or reinstalled shall be cleaned, refurbished and tested before reinstallation.
10. Contractor to verify all existing line sizes, conditions, locations and inverts of connection points prior to any work done.
11. Provide galvanized steel support as required for mechanical equipment. Provide dielectric unions at all dissimilar metal contact. All steel surfaces shall be galvanized.
12. Caulk all wall and roof penetrations to the outside watertight.
13. Coordinate work schedule with all authorities prior to construction.
14. Provide controls, control wiring and conduit. No EMT allowed outdoors. Thick walled galv. pipe conduit shall be used in lieu of EMT.
15. Use non-lead, non-corrosive solder/flux.
16. Coordinate location of thermostat/switch locations with Users/Inspectors to avoid interferences with equipment, display items, signs, lighting, switches, etc. All switches shall be 44" max above finished floor. Comply with ADA requirements.
17. Adjacent spaces are occupied. Coordinate/schedule work with building management to avoid conflicts and interruptions.
18. All steel outside of building shall be hot dipped galvanized with two extra coats epoxy paint.



MECHANICAL LEGEND

SA	SUPPLY AIR	HW	HOT WATER
RA	RETURN AIR	CW	COLD WATER
OA	OUTSIDE AIR	HWR	HOT WATER RETURN
SD	SUPPLY DIFFUSER	VB	VACUUM BREAKER
RR	RETURN REGISTER	HB	HOSEBIBB
ER	EXHAUST REGISTER	LAV	LAVATORY
CHS	CHILLED WATER SUPPLY	PLAV	ACCESSIBLE LAVATORY
CHR	CHILLED WATER RETURN	WC	WATER CLOSET
OBVD	OPPOSED BLADE VOLUME DAMPER	PWC	ACCESSIBLE WATER CLOSET
CFM	CUBIC FEET PER MINUTE	EWC	ELECTRIC WATER COOLER
EXH	EXHAUST	PEWC	ACCESSIBLE ELECTRIC WATER COOLER
—RL—	REFRIGERANT LIQUID LINE	—H—	HOT WATER LINE
—RS—	REFRIGERANT SUCTION LINE	—C—	COLD WATER LINE
—CD—	CONDENSATE DRAIN LINE	—HWR—	HOT WATER RETURN LINE
		—WHA—	WATER HAMMER ARRESTOR

VAV BOX SIZES: (BASED ON CARRIER 350)			FLEX DUCT SIZING:	
TYPE	SIZE	MAX. CFM	CFM RANGE	FLEX DUCT DIAMETER (IN)
A	06	200	100-150	6"
B	07	350	151-200	8"
C	08	500	201-350	10"
D	09	650	351-400	12"
E	10	800		
F	12	1050		
G	14	1300		
H	16	1900		

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APPROVED:

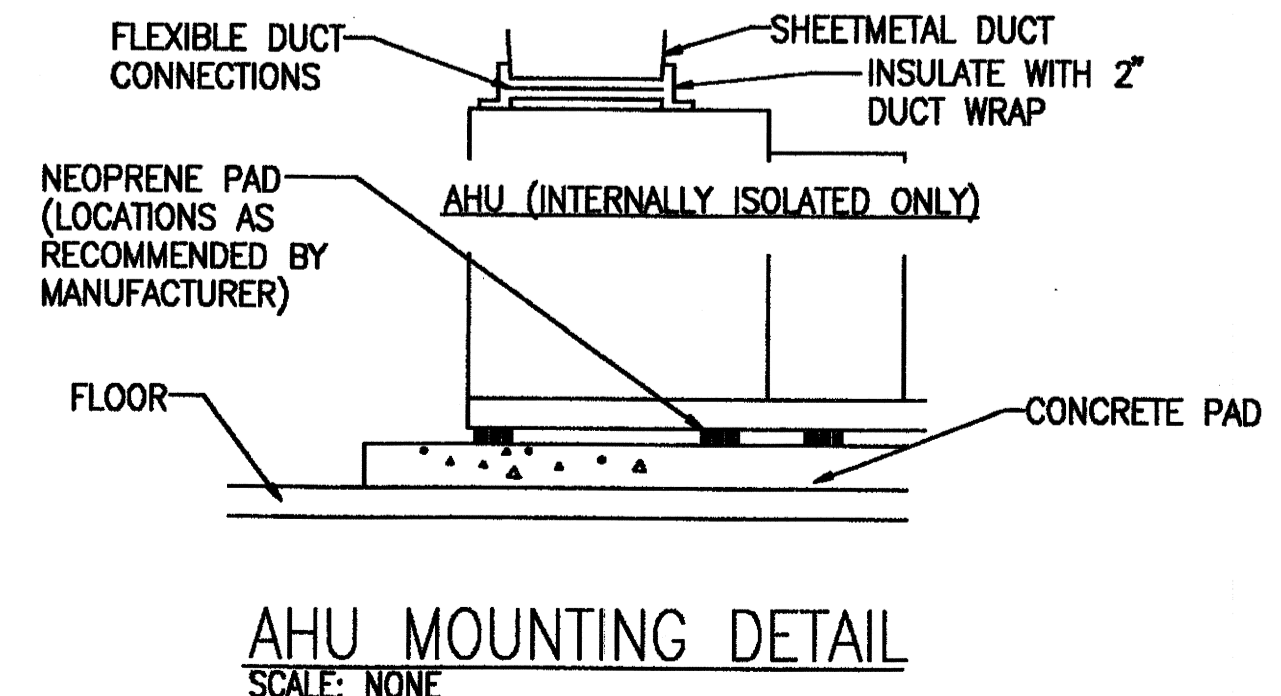
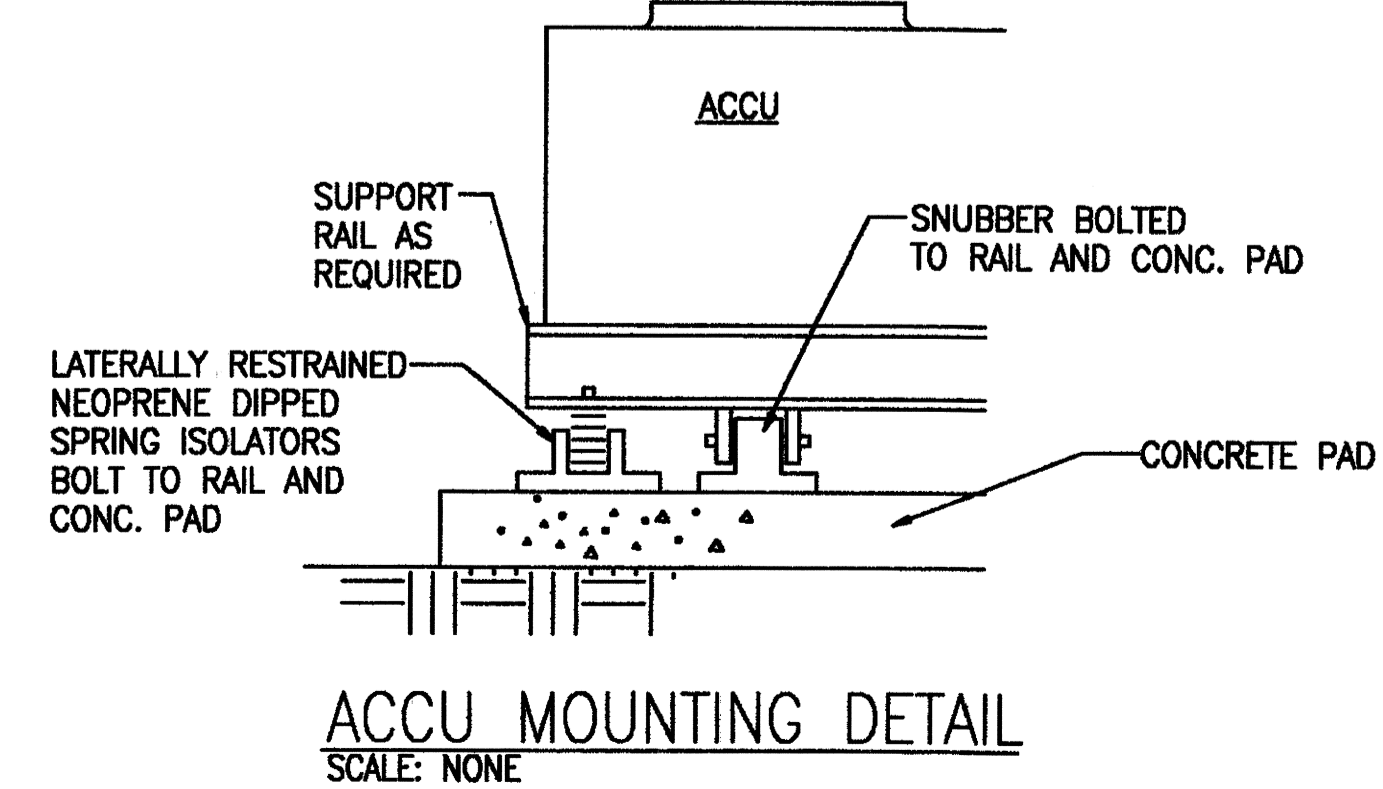
MG, HIANG, ADJUTANT GENERAL		BG, HIANG, COMMANDER		
REVISION NO.	DESCRIPTION	DATE	BY	CHK'D
DEPARTMENTS OF THE ARMY AND AIR FORCE NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FORT RUGER, HAWAII				
DESIGNED: LIS	HAWAII ARMY NATIONAL GUARD WHEELER AAF C-26 AIRCRAFT HANGAR WHEELER ARMY AIRFIELD, HAWAII			
DRAWN: LIS				
SAFETY:				
ENGINEER: RHM				
APPROVED: LIT. HIANG, FAC MGMT OFFICER	APPROVED: COL. NGB, USPO FOR HAWAII	DATE: MAY 27, 1998		
APPROVED:	SCALE:		DRAWING NO.	
CONTRACTING & ENGINEERING OFFICER	SHEET: 36 of 45		M-1	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION

RANDOLPH H. MURAKAWA
LICENSED PROFESSIONAL ENGINEER
No. 3404-M
HAWAII, U.S.A.

SIGNATURE

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



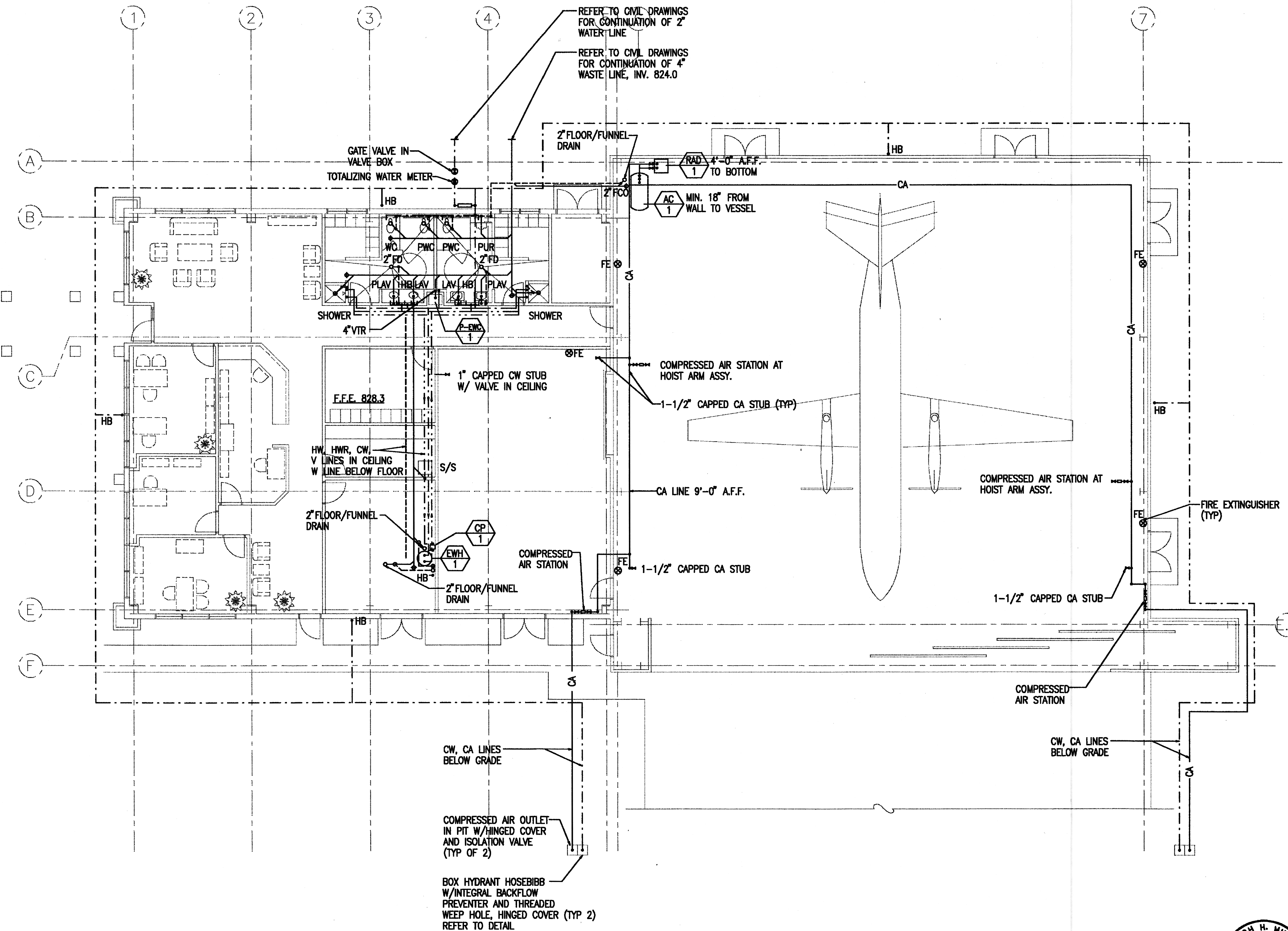
FIXTURE UNIT INFORMATION (NEW FIXTURES)

QTY	REGULAR F.U.	FIXTURE TYPE	QTY	LOW FLOW F.U.	TOTAL F.U.
-	1	LAVATORY	4	0.6	2.4
-	3	TOILET (TANK)	-	1.7	-
-	6	TOILET (FLUSH)	3	3.4	10.2
-	5	URINAL	1	2.8	2.8
-	2	SHOWERHEAD	2	1.6	3.2
1	1	DRINKING FOUNTAIN	-	-	1.0
10	3	HOSEBIBB	-	-	30.0
-	-	TOTAL	-	-	49.6

50 GPM

MECHANICAL EQUIPMENT SCHEDULE:

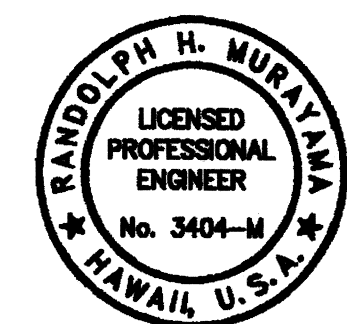
- AHU-1: AIR HANDLING UNIT - 1
CARRIER 39T-09 OR EQUIVALENT. FORWARD CURVED DRAW-THRU VERTICAL CONFIGURATION. 4000 CFM AT 3.5" T.S.P. 1210 RPM, 208V/3PH/60HZ, 5 HP. 124,000 BTUH TOTAL COOLING, 81,000 BTUH SENSIBLE, 80/67 DB/WB ENT. AIR 6 ROW, 8 FIN/IN COIL. VARIABLE SPEED DRIVE W/ISOLATION TRANSFORMER.
- ACCU-1: AIR COOLED CONDENSING UNIT - 1
CARRIER 38AKS-013 OR EQUIVALENT, 10 TONS NOMINAL COOLING AT 95F AMBIENT 208V/3PH/60HZ, COMPRESSOR: 43.6 RLA, 170 LRA, FAN#1: 4.3 FLA, FAN#2: 3.7 FLA. 40F SAT. SUCTION TEMP. PROVIDE POLYSILOXANE COATING ON INSIDE AND OUTSIDE OF UNIT, PROVIDE HERESITE COATING ON COIL INCLUDING TUBES AND FINS. PROVIDE OVER/UNDER VOLTAGE, PHASE FAILURE/REVERSAL PROTECTION WITH AUTOMATIC RESET. MIN. 100%, 66%, 33% CAPACITY UNLOADING NOTE: PROVIDE TRAINING CLASSES FOR COMPLETE OPERATION AND MAINTENANCE OF AHU/ACCU EQUIPMENT AND CONTROLS.
- EW-1: ELECTRIC WATER HEATER - 1
BRADFORD WHITE M-II-80 OR EQUIVALENT, 53 GPH AT 70F TEMPERATURE RISE 208V/3PH/60HZ, 9 KW INPUT
- CP-1: CIRCULATING PUMP - 1
15 GPM AT 10' TDH, GRUNDFOS UPS32-40 OR EQUIVALENT 208V/3PH/60HZ, 1/3 HP. INTERLOCK WITH HEATER TIMECLOCK.
- AC-1: AIR COMPRESSOR - 1
INGERSOLL RAND T-30 OR EQUIVALENT, TWO STAGE, 120 GALLON TANK. 208V/3PH/60HZ, 15 HP. PROVIDE AIR COOLED AFTERCOOLER, INLET FILTER.
- RAD-1: REFRIGERATED AIR DRYER - 1
ZEKS 75NCA OR EQUIVALENT 115V/1PH/60HZ, 1/2 HP.
- TEF-1: TOILET EXHAUST FAN - 1
IN-LINE BELT DRIVEN CABINET FAN WITH SINGLE WIDTH WHEEL. 500 CFM AT 0.5" E.S.P. 1700 RPM. 115V/1PH/60HZ, 1/4 HP. INTERLOCK W/OCCUPANCY SENSOR SWITCH
- TEF-2: TOILET EXHAUST FAN - 2
SAME AS TEF-1
- EF-1: EXHAUST FAN - 1
SELF CONTAINED DIRECT DRIVE CENTRIFUGAL FAN WITH INTEGRAL GRILLE 500 CFM AT 0.25" E.S.P. 1080 RPM, GREENHECK SP-255 OR EQUIVALENT. 115V/1PH/60HZ, 285 WATTS, 7.0 SONES MAX
- PRV-1: POWER ROOF VENTILATOR - 1
BELT DRIVEN CENTRIFUGAL, 4000 CFM AT 0.375" E.S.P. GREENHECK GB-200 OR EQUIVALENT. 208V/3PH/60HZ, 1 HP.
- P-EWC: ACCESSIBLE ELECTRIC WATER COOLER - 1
LEAD FREE SELF CONTAINED AIR COOLED WITH FRONT ACCESS 5 LB PUSH HANDLE, 115V/1PH/60HZ RECEPTACLE, 250 WATTS



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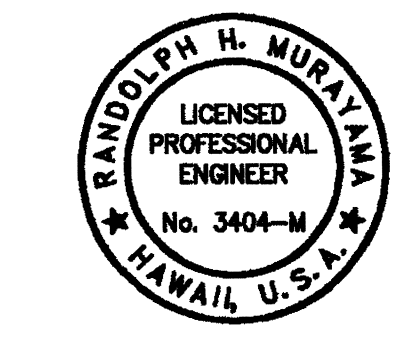
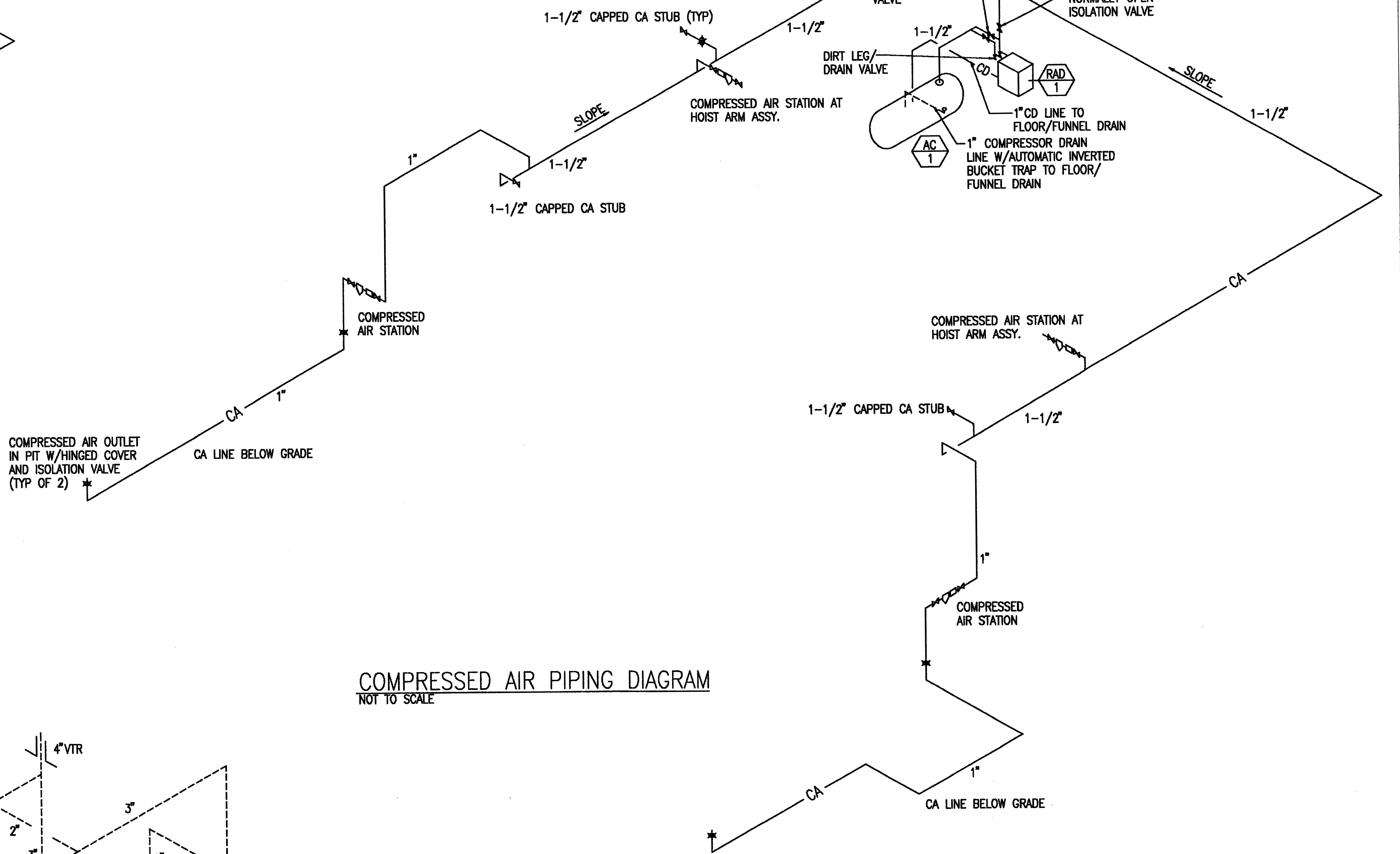
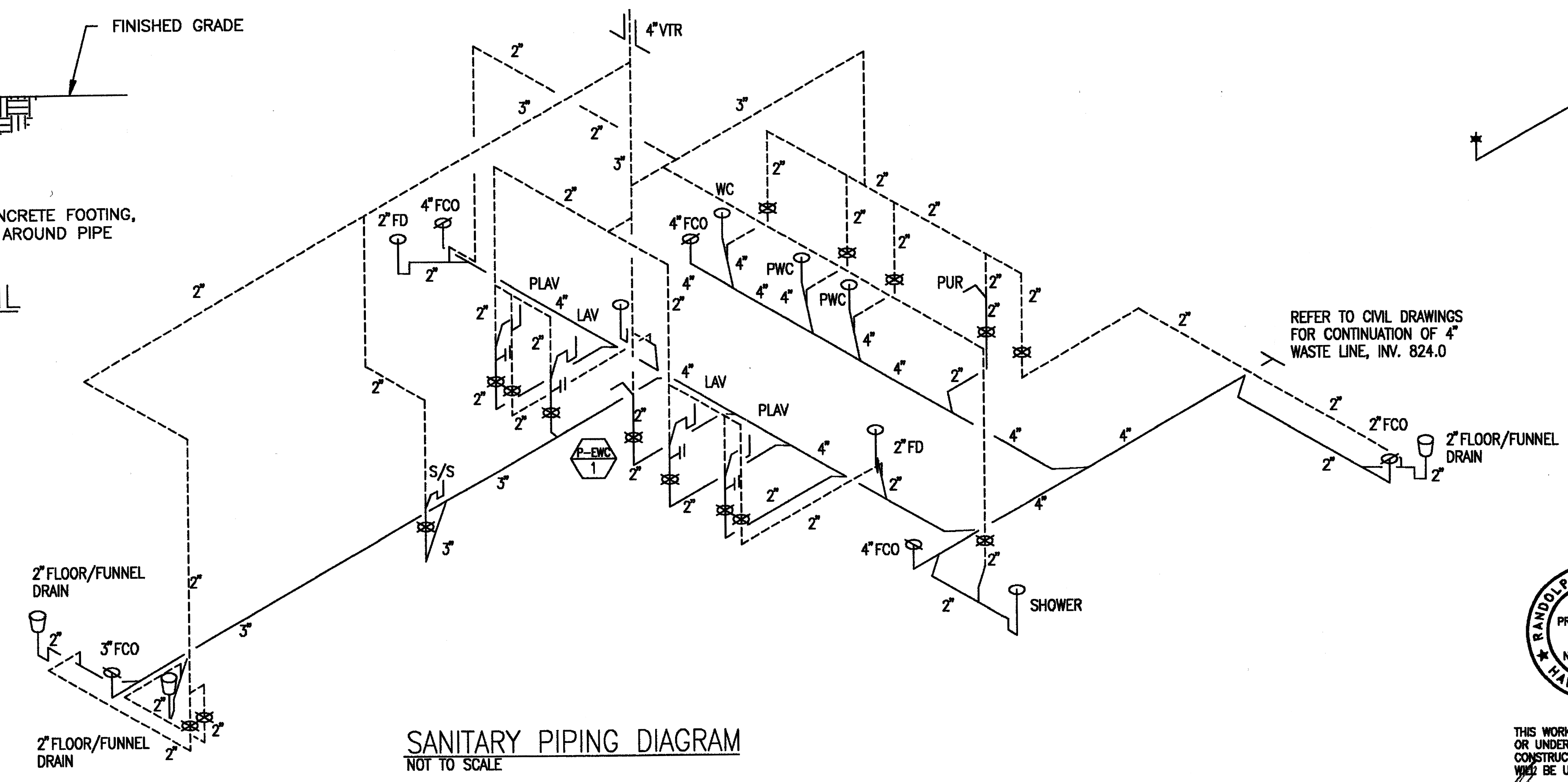
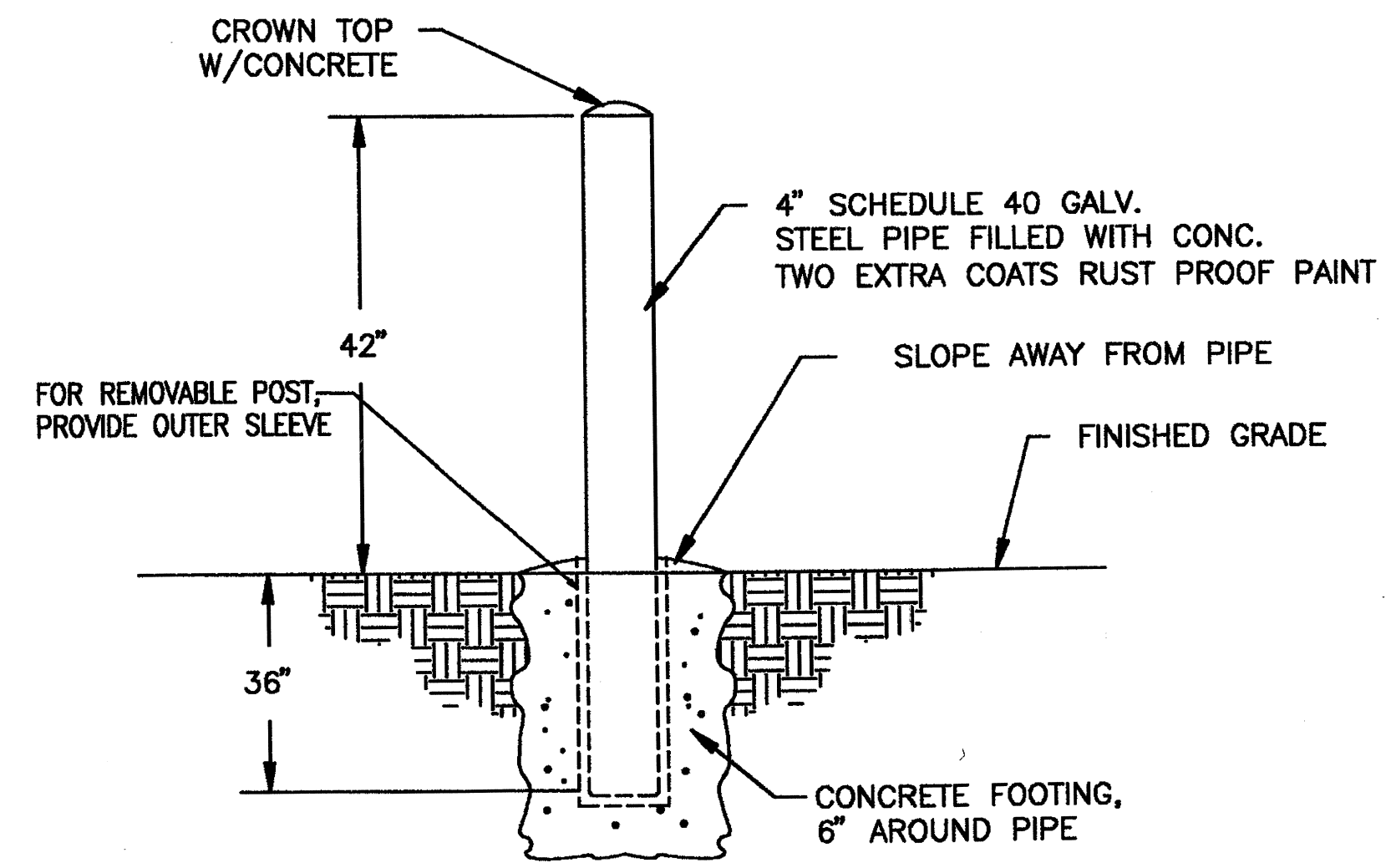
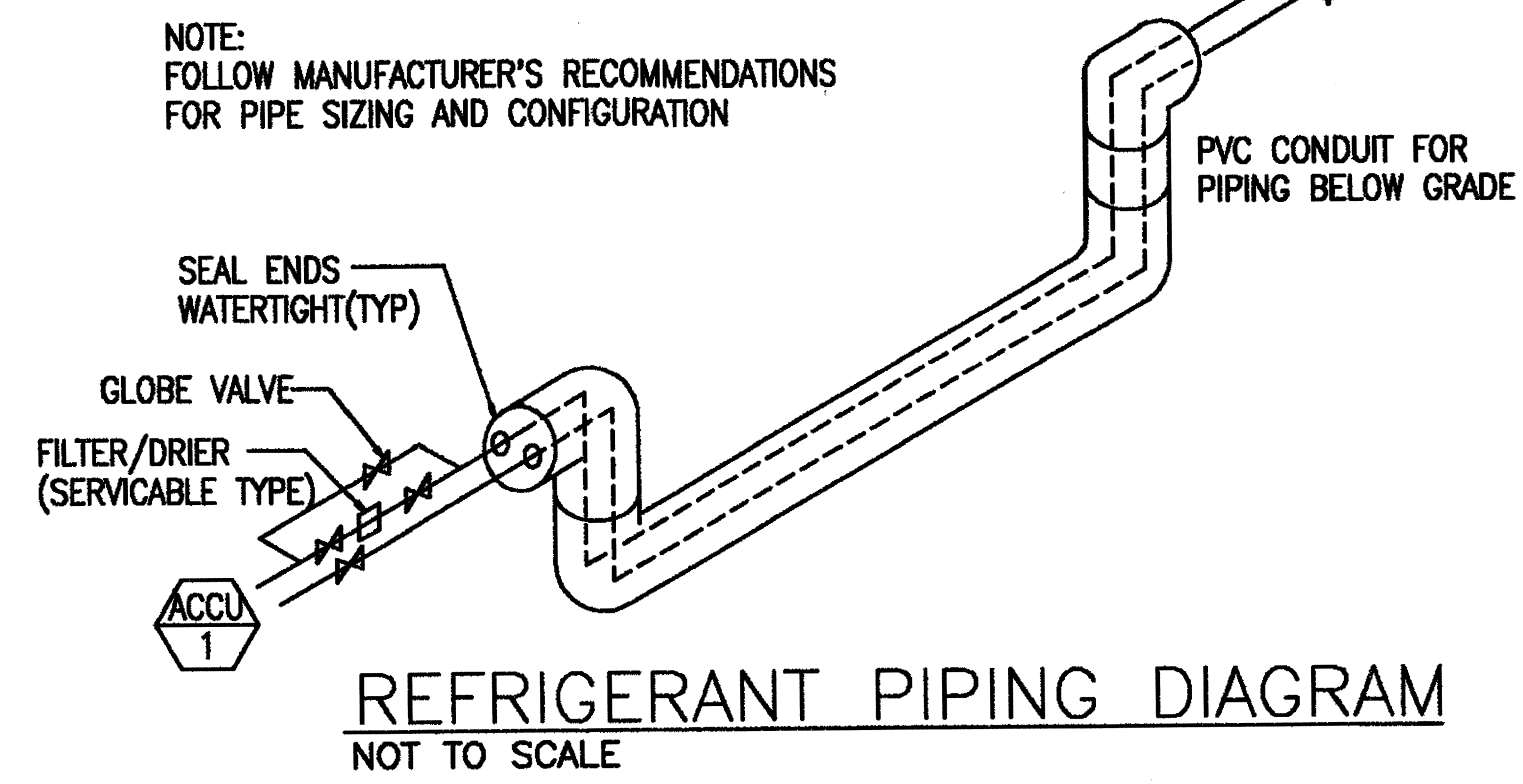
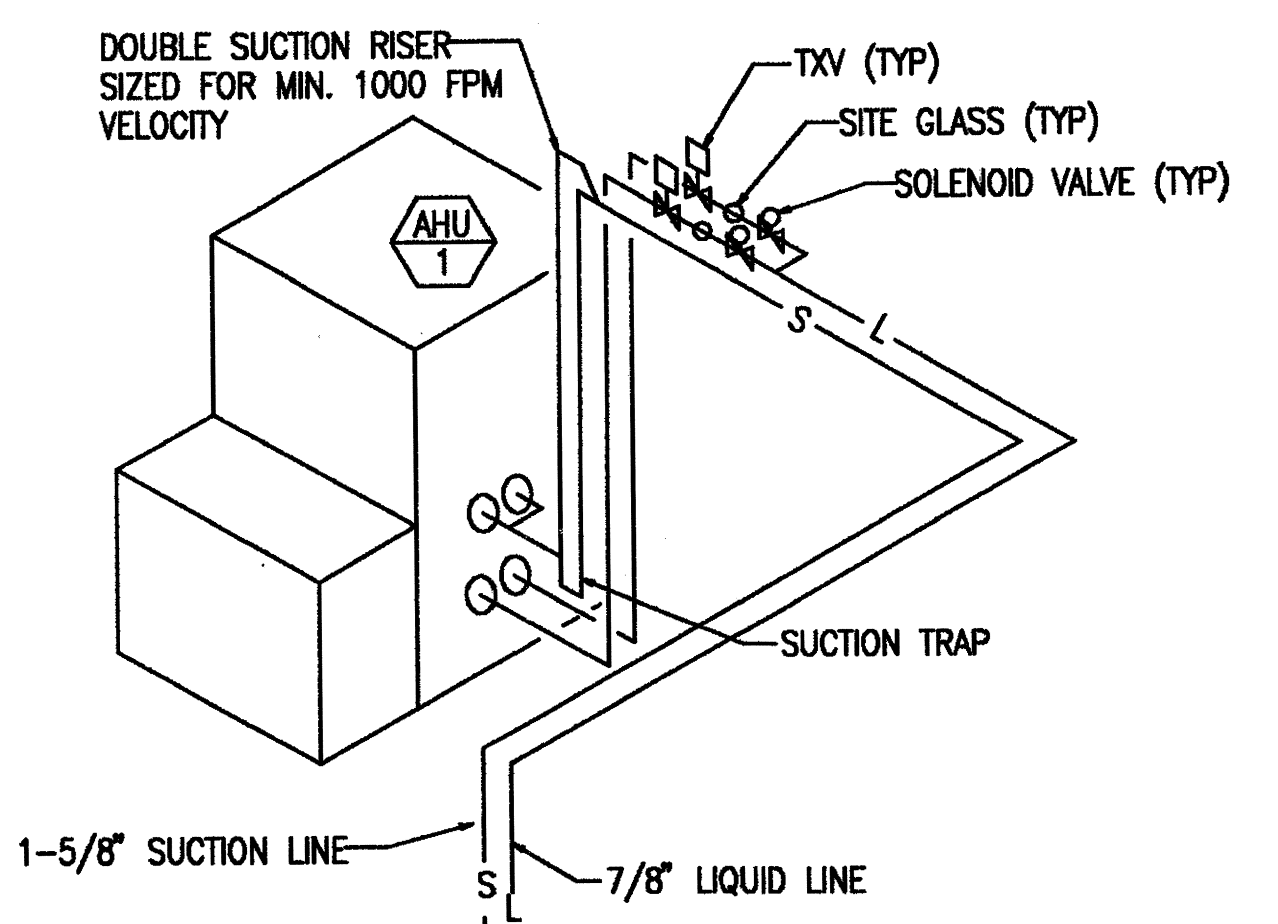
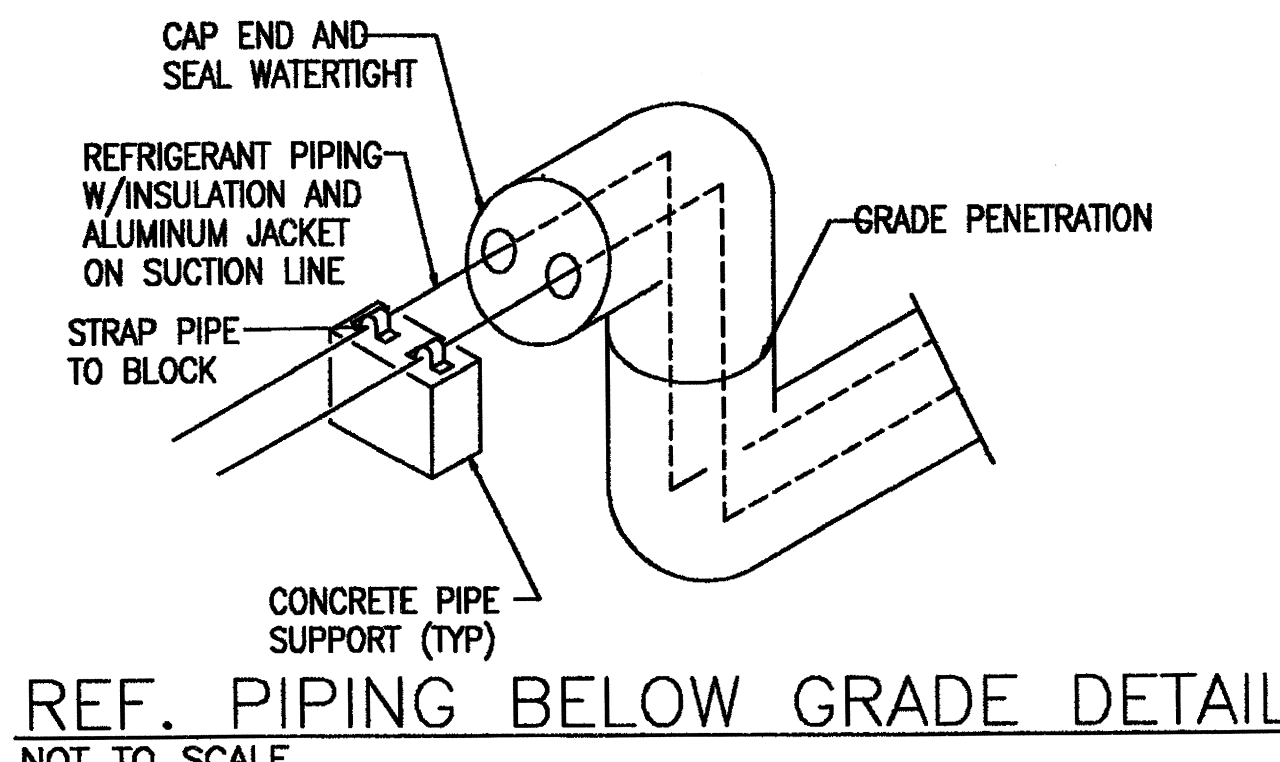
APPROVED:

MG, HIANG, ADJUTANT GENERAL		BG, HIANG, COMMANDER		
REVISION NO.	DESCRIPTION	DATE	BY	CHK'D
DEPARTMENTS OF THE ARMY AND AIR FORCE NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FORT RUGER, HAWAII				
DESIGNED: LIS	HAWAII ARMY NATIONAL GUARD WHEELER AAF C-26 AIRCRAFT HANGAR WHEELER ARMY AIRFIELD, HAWAII			
DRAWN: LIS				
SAFETY:				
ENGINEER: RHM				
APPROVED:	APPROVED:	DATE:	MAY 27, 1998	
LTC, HIANG, FAC MGMT OFFICER	COL, NGB, USPFO FOR HAWAII			
APPROVED:	SCALE:		DRAWING NO.	
CONTRACTING & ENGINEERING OFFICER		SHEET: 37 of 45		M-2



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



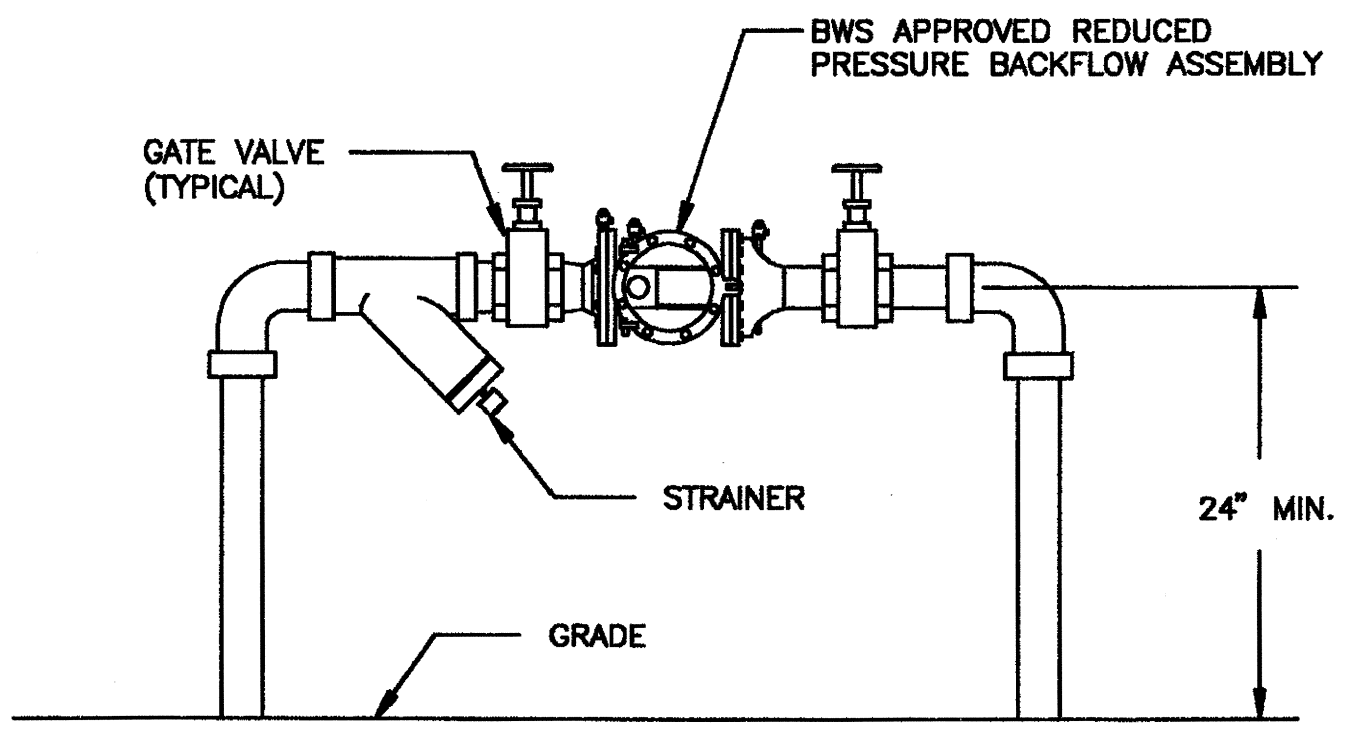
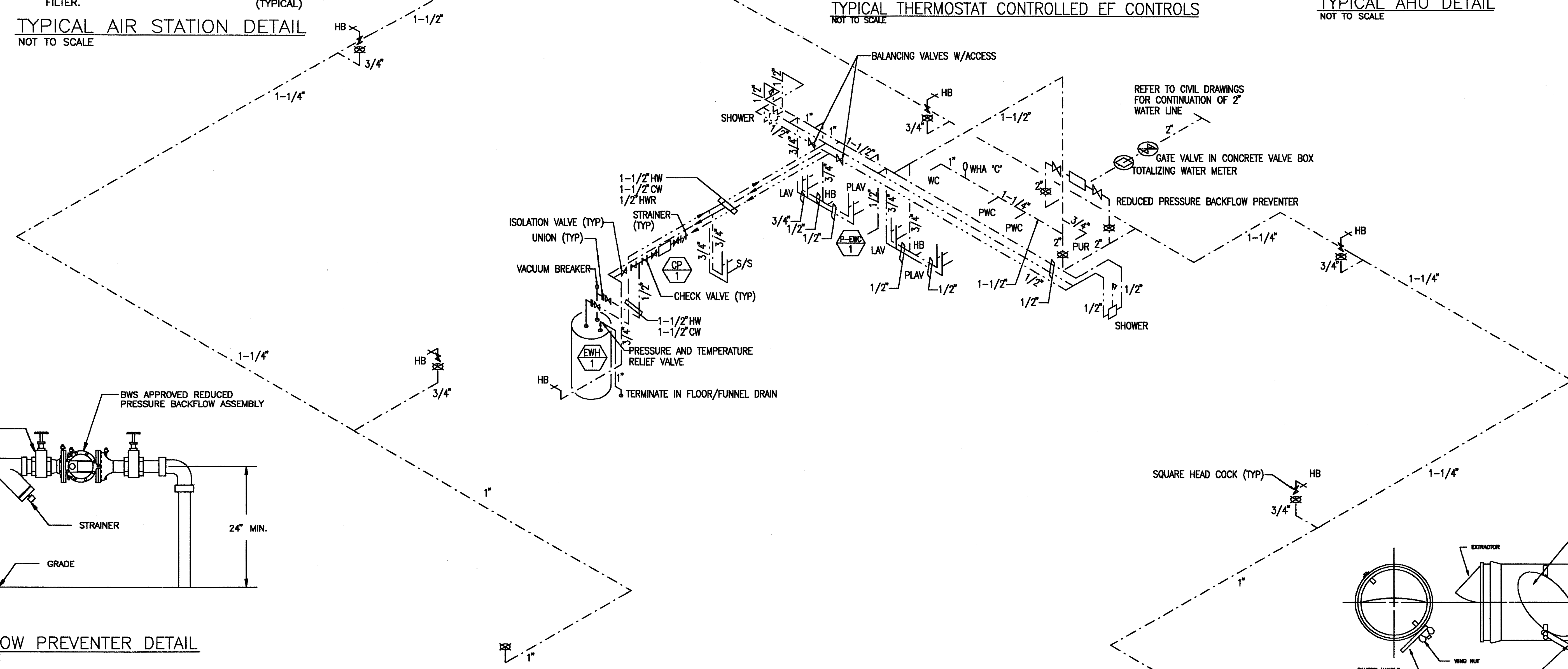
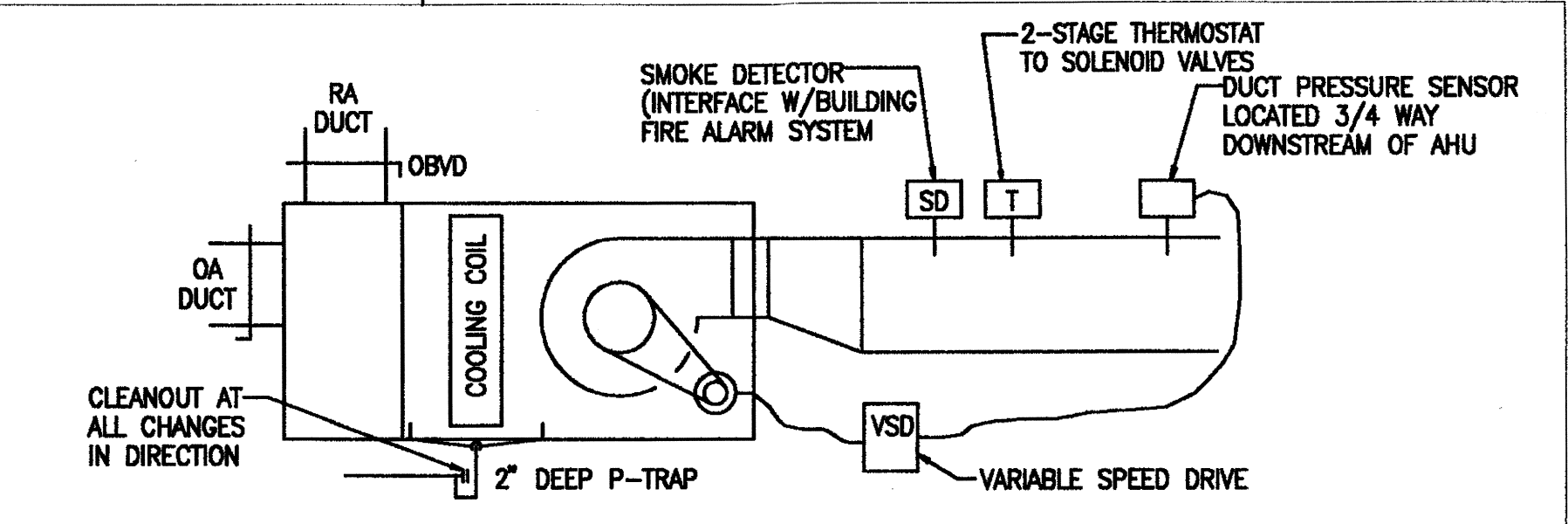
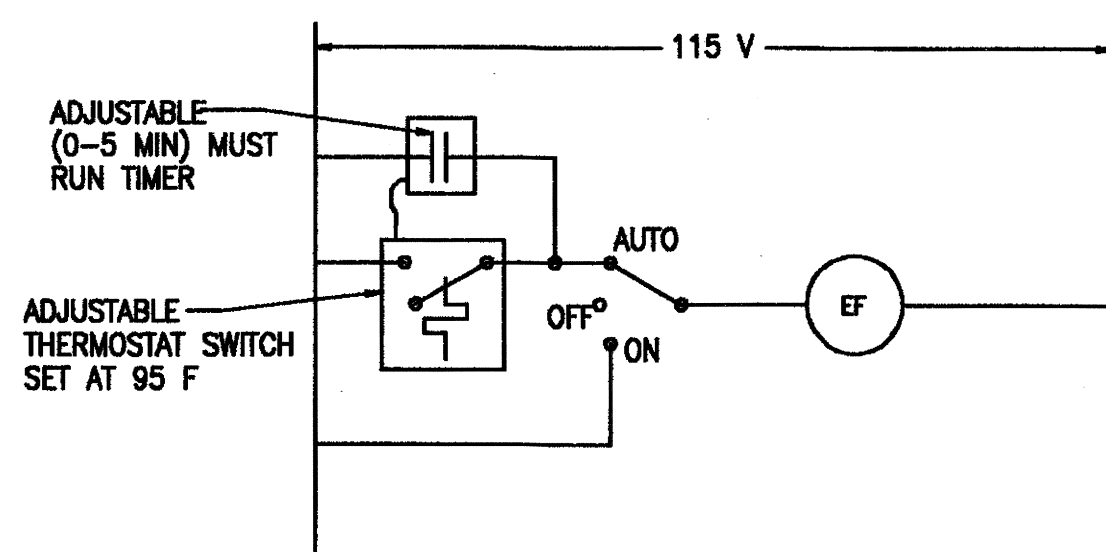
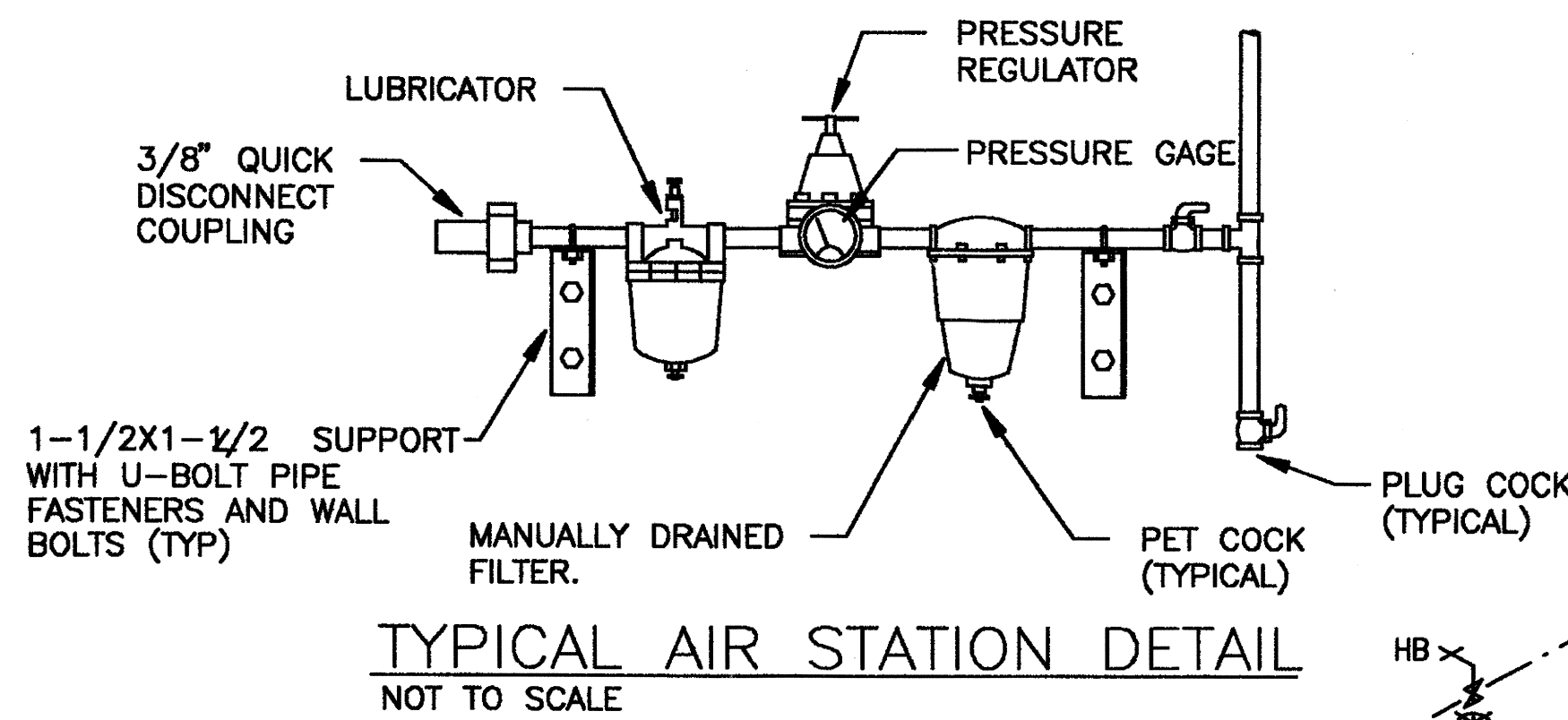
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SIGNATURE

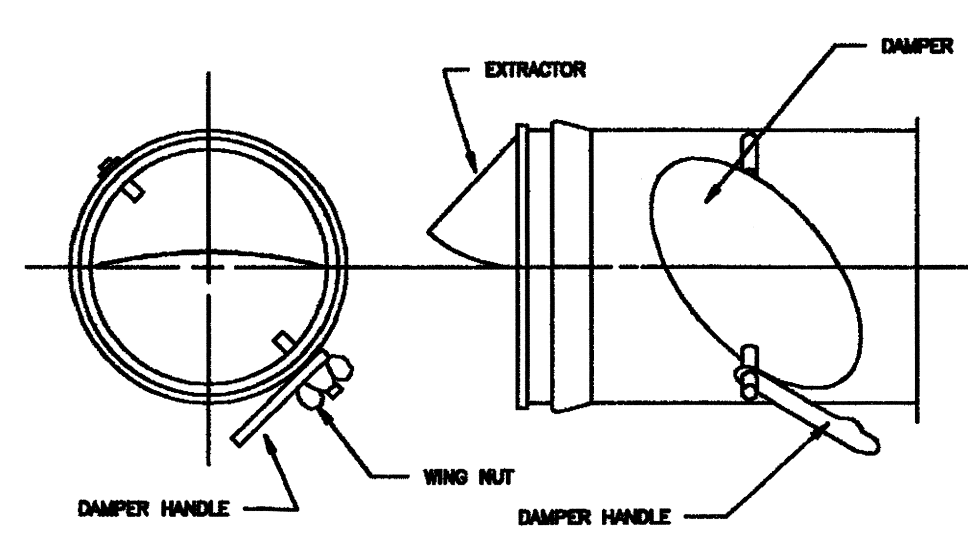
AS BUILT
KD Construction, Inc.

APPROVED:

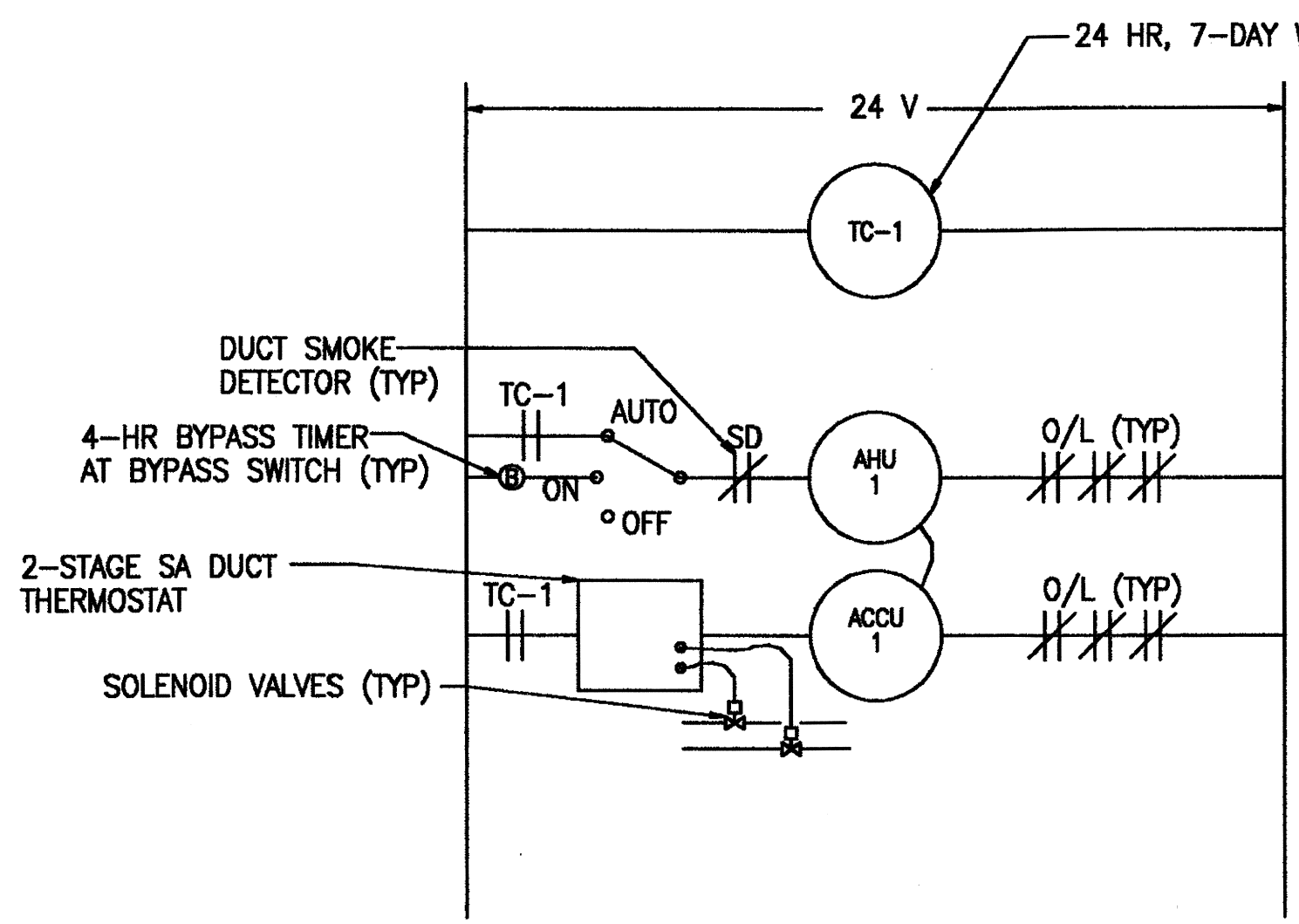
MG, HIANG, ADJUTANT GENERAL		BG, HIANG, COMMANDER		
REVISION NO.	DESCRIPTION	DATE	BY	CHK'D
DEPARTMENTS OF THE ARMY AND AIR FORCE NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FORT RUGER, HAWAII				
DESIGNED: LIS	HAWAII ARMY NATIONAL GUARD WHEELER AAF C-26 AIRCRAFT HANGAR WHEELER ARMY AIRFIELD, HAWAII			
DRAWN: LIS				
SAFETY:				
ENGINEER: RHM				
APPROVED:	APPROVED:	DATE: MAY 27, 1998		
LTC, HIANG, FAC MGMT OFFICER	COL, NGB, USPFO FOR HAWAII			
APPROVED:	SCALE:		DRAWING NO.	
CONTRACTING & ENGINEERING OFFICER	SHEET: 38 of 45		M-3	



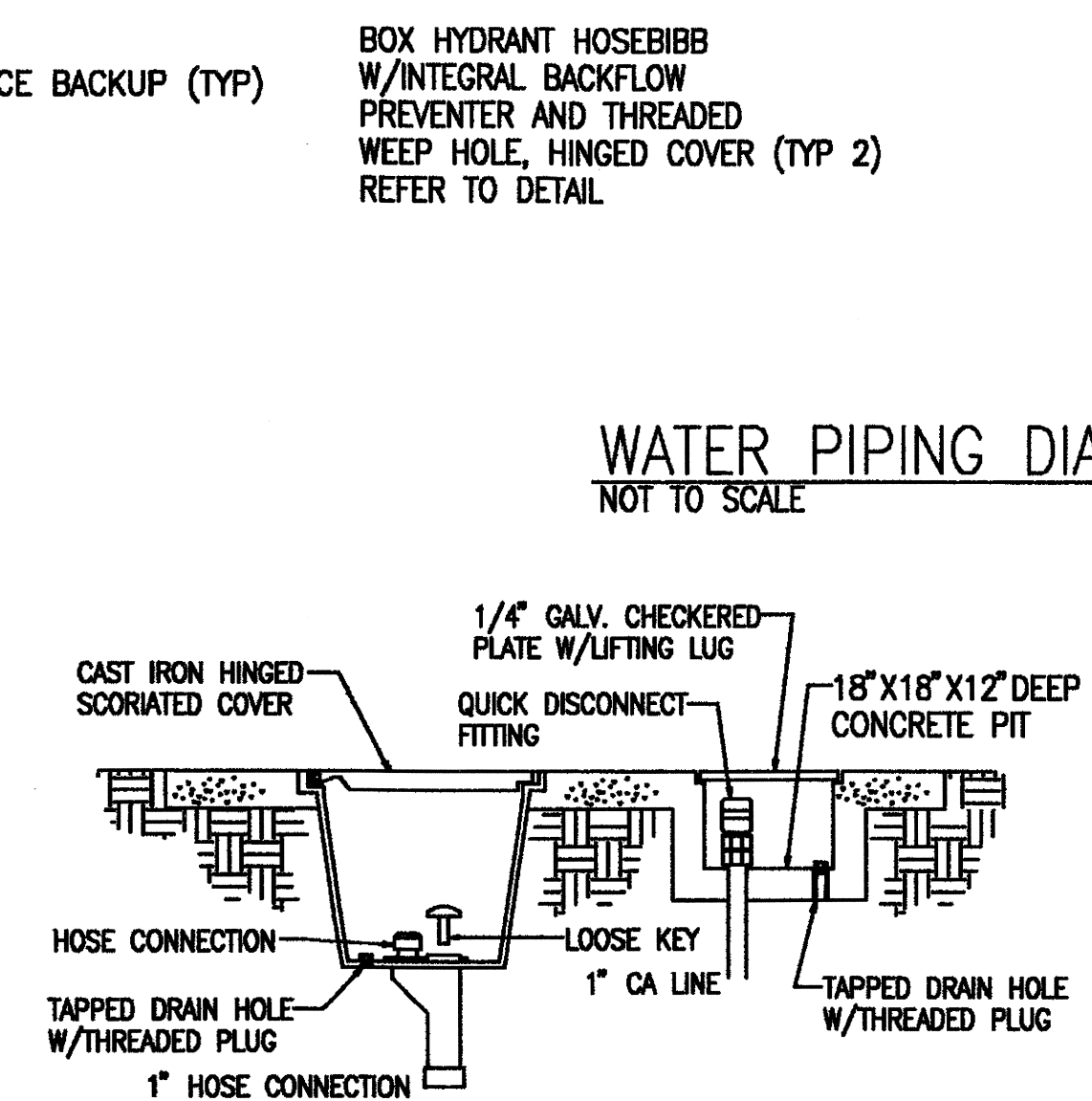
BACKFLOW PREVENTER DETAIL
NOT TO SCALE



SPIN TAP FITTING DETAIL
NOT TO SCALE

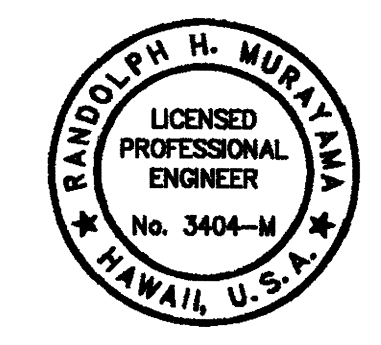


AHU CONTROL DIAGRAM
NOT TO SCALE



BOX HYDRANT HOSEBIBB DETAIL
NOT TO SCALE

WATER PIPING DIAGRAM
NOT TO SCALE



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AS BUILT
KD Construction, Inc.

APPROVED: _____

MG, HIANG, ADJUTANT GENERAL BG, HIANG, COMMANDER

REVISION NO.	DESCRIPTION	DATE	BY	CHK'D

DEPARTMENTS OF THE ARMY AND AIR FORCE
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FORT RUGER, HAWAII

DESIGNED: LIS HAWAII ARMY NATIONAL GUARD
DRAWN: LIS WHEELER AAF
SAFETY: C-26 AIRCRAFT HANGAR
ENGINEER: RHM WHEELER ARMY AIRFIELD, HAWAII

APPROVED: _____ APPROVED: _____ DATE: MAY 27, 1998
LTC, HIANG, FAC MGMT OFFICER COL, NGB, USPF FOR HAWAII

CONTRACTING & ENGINEERING OFFICER SCALE: _____
DRAWING NO. M-1
SHEET: 39 of 45