

GENERAL CONDITIONS

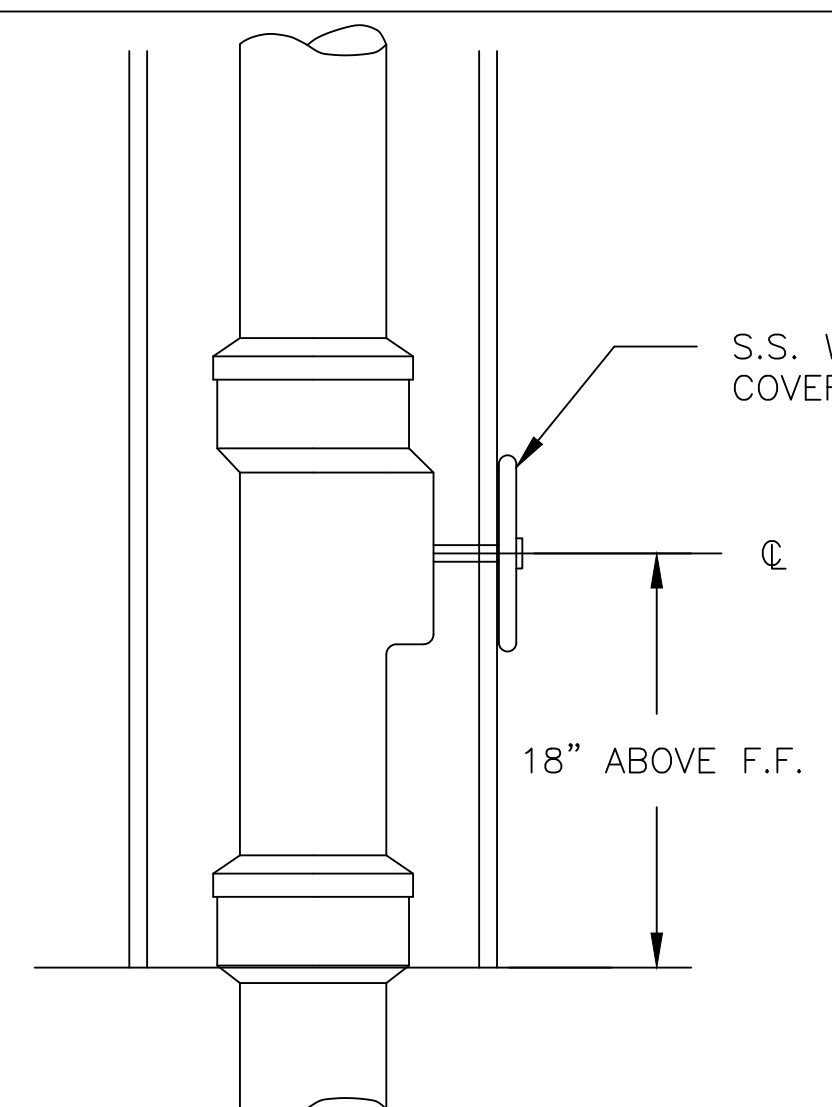
- 1) CONFORM TO ALL REQUIREMENTS OF THE BUILDING, PLUMBING, AND ELECTRICAL CODES OF THE CITY AND COUNTY OF HONOLULU, STATE OF HAWAII HEALTH REGULATIONS, FIRE DEPARTMENT'S REGULATIONS AND OTHER APPLICABLE REGULATIONS.
- 2) ALL ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 3) INSTALLATION SHALL BE GUARANTEED TO BE FREE FROM DEFECTS FOR ONE YEAR FROM FINAL DATE OF ACCEPTANCE OF THE PROJECT AS A WHOLE.
- 4) CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO BID AND CONSTRUCTION.
- 5) PAY FOR ALL PERMIT FEES AND APPLICATIONS.
- 6) PROVIDE ADDITIONAL MATERIALS AND LABOR FOR A COMPLETE OPERABLE SYSTEM AT NO ADDITIONAL COST TO THE GOVERNMENT.
- 7) COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCES AND DELAYS.
- 8) COORDINATE ALL SWITCH LOCATIONS WITH USER/ARCHITECT TO AVOID INTERFERENCES WITH FURNITURE/EQUIPMENT, PICTURES, ETC.
- 9) ALL ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 10) ALL EXPOSED STEEL SHALL BE HOT DIPPED GALVANIZED. EXPOSED TO WEATHER STEEL SHALL HAVE TWO EXTRA COATS EPOXY PAINT.
- 11) PROVIDE DIELECTRIC UNIONS OR SEPARATIONS AT ALL DISSIMILAR METALS.
- 12) CAULK ALL ROOF AND WALL PENETRATIONS TO THE OUTSIDE WATERTIGHT WITH NON-SHRINK, FIRE RATED CAULK.
- 13) PROVIDE REBALANCING WITHIN ONE YEAR GUARANTEE PERIOD TO SATISFY OWNER'S REQUIREMENTS, REBALANCING SHALL INCLUDE CHANGING OF PULLEY AND SHEAVES.
- 14) ALL DUCT DIMENSIONS ARE NET DIMENSIONS.
- 15) PROVIDE ACCESS PANELS FOR ALL ITEMS UNDER THIS SECTION REQUIRING SERVICING, INSPECTION AND MAINTENANCE AND ADJUSTMENT.
- 16) PROVIDE TURNING VANES FOR ALL DUCT TURNS.
- 17) PROVIDE SPLITTER DAMPERS WITH LOCKING QUADRANT, AIR EXTRACTORS OR BELL MOUTH TAP AT ALL TAPS TO MAIN DUCT.
- 18) ALL ROUND BRANCH TAPS SHALL BE DONE WITH BELL-MOUTH FITTINGS.
- 19) PROVIDE PORTABLE FIRE EXTINGUISHERS, 10 LB DRY CHEMICAL, UL 4A:60B:C WITH WALL MOUNTING BRACKET.
- 20) PROVIDE 12" AIR CHAMBER ON ALL COLD WATER SUPPLY LINES TO PLUMBING FIXTURES/EQUIPMENT.
- 21) PROVIDE COMBINATION FIRE/SMOKE DAMPERS AT ALL CORRIDOR/HALL DUCT PENETRATIONS AS SHOWN. PROVIDE AUXILIARY CONTACT FOR CONNECTION TO FIRE ALARM SYSTEM.
- 22) PROVIDE SWAY BRACING FOR ALL EQUIPMENT, PIPING AND DUCTWORK FOR ZONE 2 RATING.
- 23) ALL CONTROL WIRING SHALL COMPLY WITH ELECTRICAL CODE. ALL WIRING IN CONDUIT. ALL EXPOSED CONDUIT SHALL BE GALVANIZED PIPE.

FIRE SPRINKLER NOTES:

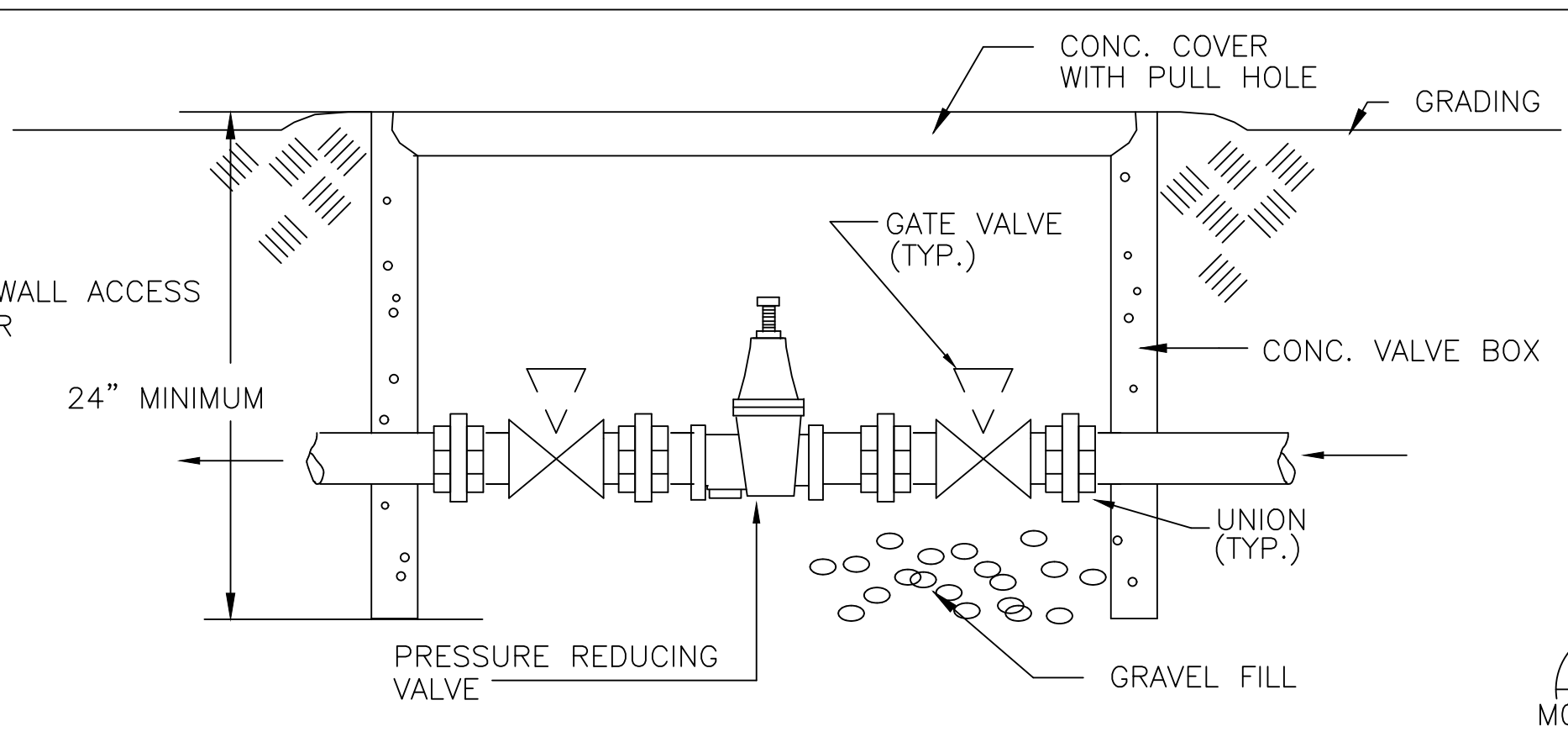
- 1) CLASSIFICATION OF OCCUPANCY: LIGHT HAZARD.
- 2) PERFORM FLOW TESTS FOR EXACT WATER PRESSURES AND FLOWS. SUBMIT RESULTS TO THE ENGINEER AND THE FIRE DEPARTMENT FOR APPROVAL.
- 3) THESE FIRE SPRINKLER PLANS ARE SUBMITTED FOR CONDITIONAL APPROVAL OF THE FIRE AND BUILDING DEPARTMENTS AND THE HAWAII INSURANCE RATING BUREAU. THREE (3) SETS OF COMPLETED WORKING PLANS AND HYDRAULIC CALCULATIONS, WHEN APPLICABLE, SHALL BE SUBMITTED TO THE FIRE AND BUILDING DEPARTMENTS AND THE HAWAII INSURANCE RATING BUREAU FOR APPROVAL BEFORE INSTALLATION.
- 4) UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH NFPA 24. ENTIRE SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 13.
- 5) PROVIDE SUPERVISORY GATE VALVE WITH TAMPER SWITCH AND FLOW ALARM VALVE FOR EACH LEVEL SERVED BY THE FIRE SPRINKLER SYSTEM. PROVIDE CONTACTS FROM TAMPER SWITCH AND FLOW CONNECTION TO ANNUNCIATOR PANEL.
- 6) ELECTRICAL/TRANSFORMER ROOMS AND AREAS ABOVE CEILING SHALL BE PROVIDED WITH ORDINARY GROUP II COVERAGE.
- 7) PROPER TYPES OF SPARE SPRINKLER HEADS, STOPPERS AND WRENCHES SHALL BE PROVIDED AND STORED IN A CABINET PER 1988 UFC SEC. 10.306 (a) AMMENDED.
- 8) AUTOMATIC SPRINKLER SYSTEM SHALL BE SUPERVISED PER 1988 UFC SEC. 10.307.
- 9) MOUNT FIRE SPRINKLER HEADS IN CENTER OF CEILING TILE.

MECHANICAL LEGEND

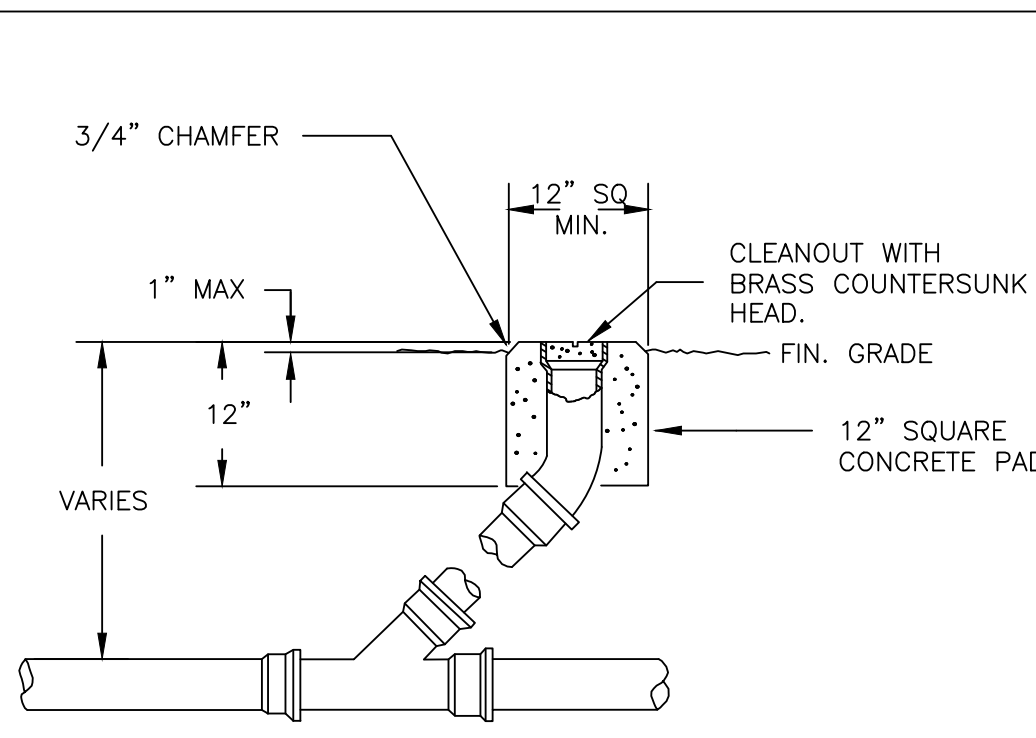
-----	WASTE LINE	SR	SUPPLY REGISTER
- - - - -	VENT LINE	RR	RETURN REGISTER
-----	COLD WATER LINE	SA	SUPPLY AIR
FE	FIRE EXTINGUISHER	TG	TRANSFER GRILLE
VTR	VENT THRU ROOF	ER	EXHAUST REGISTER
FD	FLOOR DRAIN	SD	SUPPLY DIFFUSER
FS	FLOOR SINK	OA	OUTSIDE AIR
FCO	FLOOR CLEANOUT	U/D	UNDERCUT DOOR
WCO	WALL CLEANOUT	CD	CONDENSATE DRAIN
WHA	WATER HAMMER ARRESTOR	RL	REF. LIQUID
COTG	CLEANOUT TO GRADE	RS	REF. SUCTION
HB	HOSE BIBB	VAV	VARIABLE AIR VOLUME
GPM	GALLONS PER MINUTE	⊕	SPACE THERMOSTAT
MIN	MINIMUM	⊔	OPPOSED BLADE VOLUME DAMPER
MAX	MAXIMUM	FD	FIRE DAMPER OR COMBINATION SMOKE/FIRE DAMPER
TYP	TYPICAL	L/D	FIRE DAMPER OR COMBINATION SMOKE/FIRE DAMPER
CFM	CUBIC FEET PER MINUTE	AHU	LOUVERED DOOR
SS	STAINLESS STEEL	FCU	AIR HANDLING UNIT
		EF	FAN COIL UNIT
		ACCU	EXHAUST FAN
		V/φ/HZ	AIR COOLED CONDENSING UNIT
		Ⓢ	VOLTS/PHASE/HERTZ
			FAN SWITCH



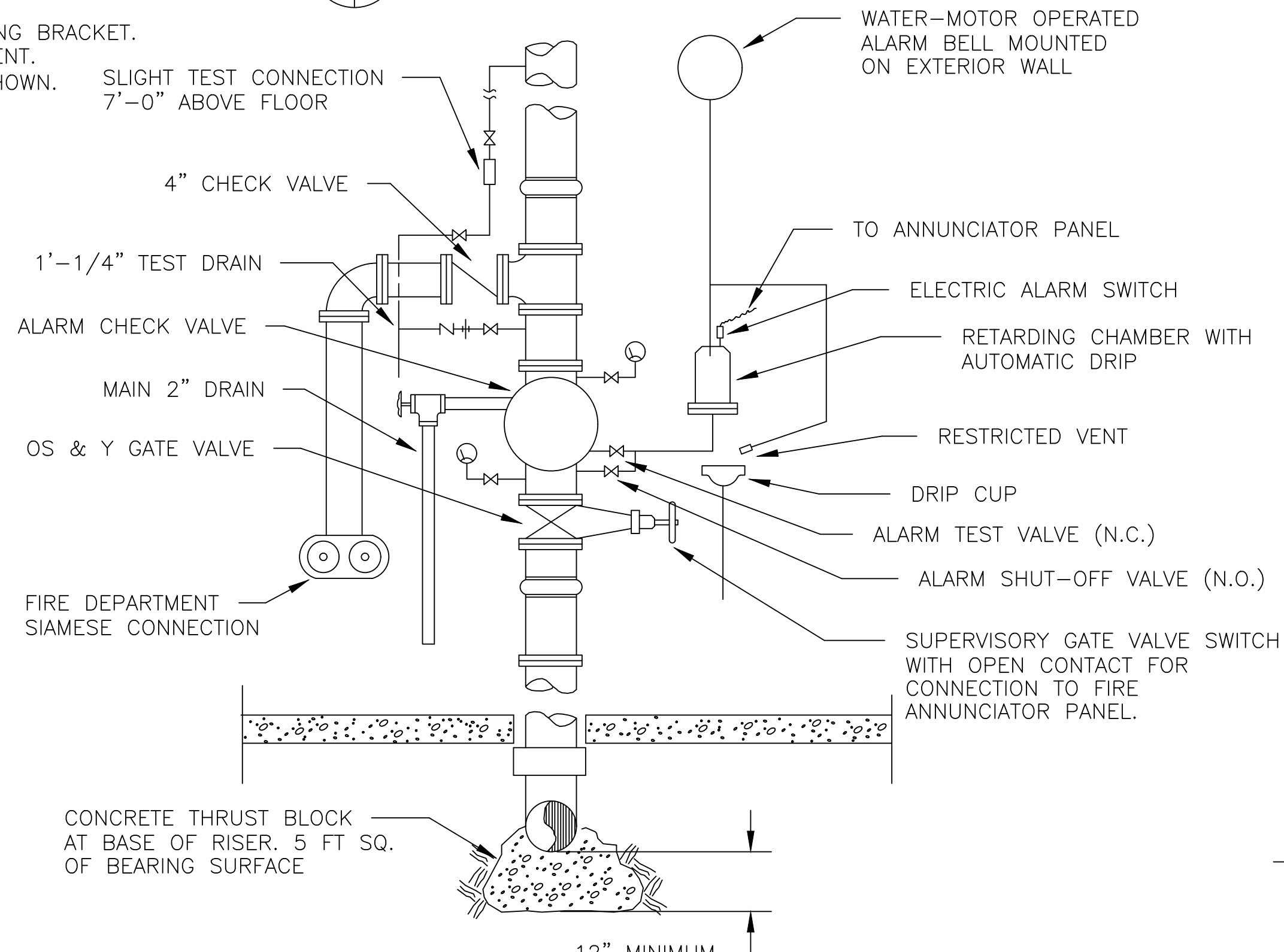
A WALL CLEANOUT DETAIL
MO.1 MO.1 NOT TO SCALE



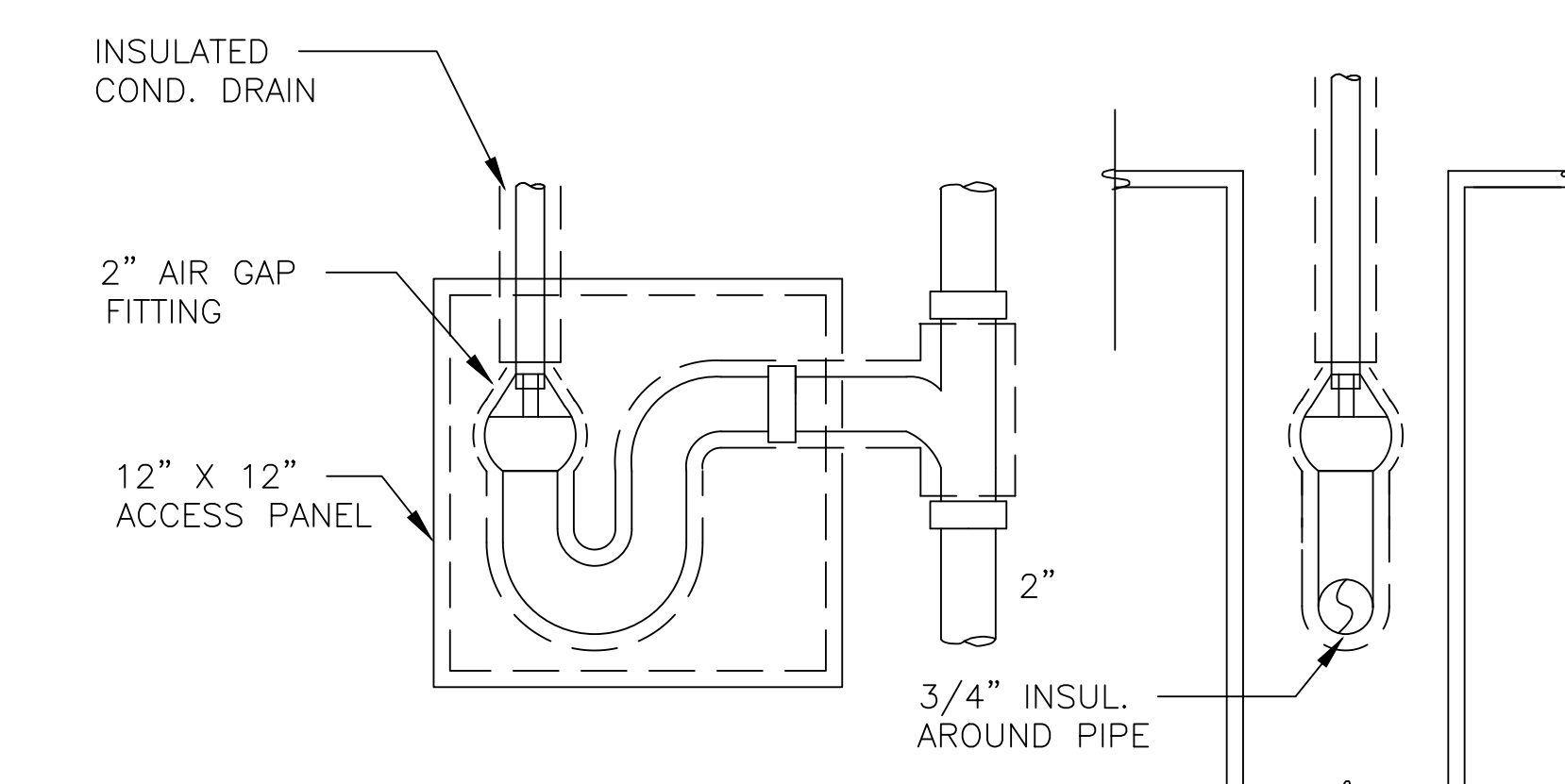
B VALVE BOX DETAIL
MO.1 MO.1 NOT TO SCALE



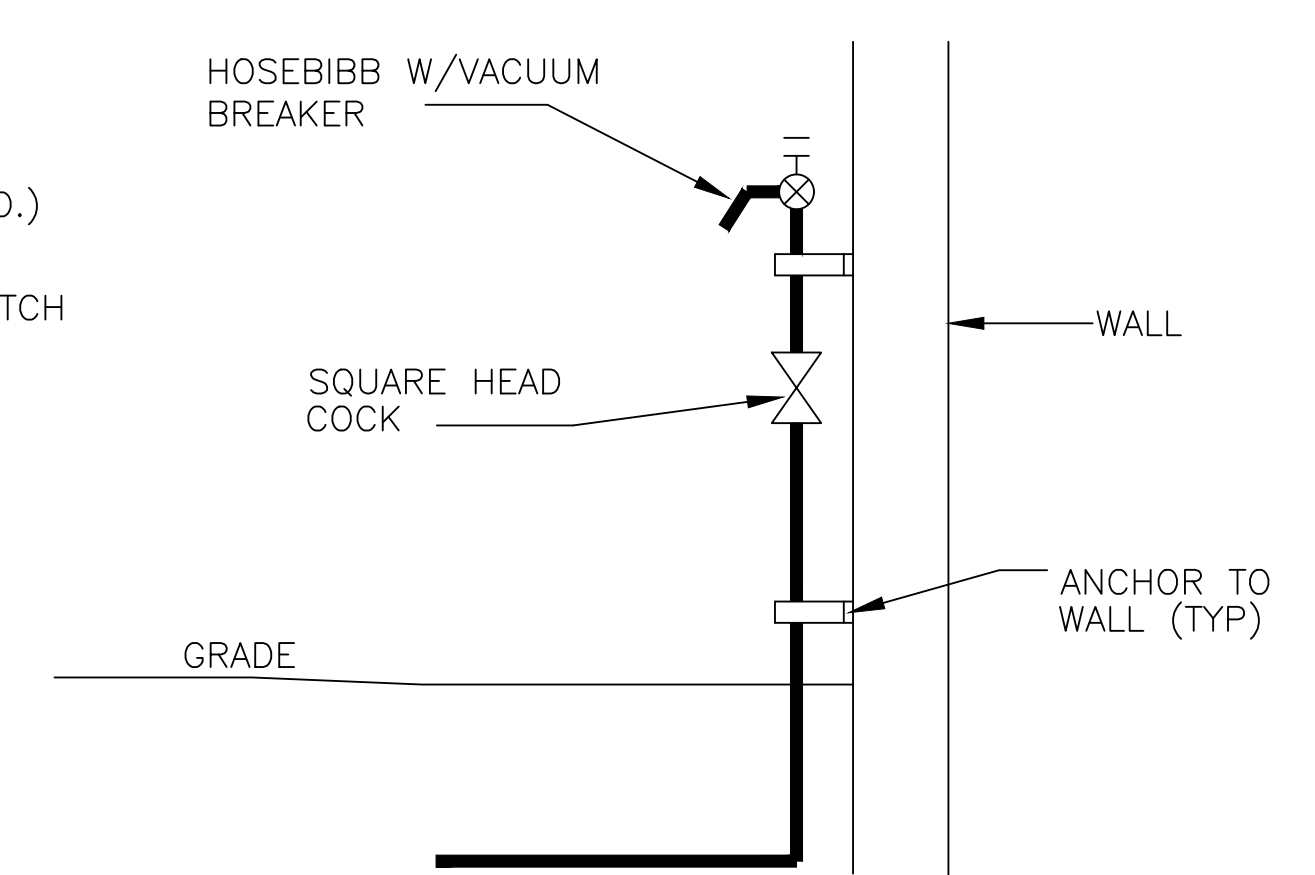
C CLEANOUT TO GRADE DETAIL
MO.1 MO.1 NOT TO SCALE



D FIRE SPRINKLER RISER ASSEMBLY DETAIL
MO.1 MO.1 NOT TO SCALE



E TYPICAL AIR GAP FITTING DETAIL
MO.1 MO.1 NOT TO SCALE



F TYPICAL HOSE BIBB DETAIL
MO.1 MO.1 NOT TO SCALE

REVISED ORDINANCE OF THE CITY AND COUNTY OF HONOLULU
CHAPTER 32
BUILDING ENERGY EFFICIENCY STANDARDS

THE BUILDING ENERGY EFFICIENCY STANDARDS HAVE BEEN REVIEWED AND TO THE BEST OF MY KNOWLEDGE THIS DESIGN SUBSTANTIALLY CONFORMS TO THE MECHANICAL REQUIREMENTS OF SECTIONS 9.3, 10.3, 11.3, 12.3 OR 13.3

Signature: Randolph H. Murayama
Name (Print): President
Title

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

THE AIR CONDITIONING AND VENTILATION SYSTEM SHALL COMPLY WITH TITLE 11, ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, CHAPTER 39, AIR CONDITIONING AND VENTILATING REQUIREMENTS

IF SHEET IS LESS THAN 22 x 34 IT IS A REDUCED PRINT-SCALE REDUCED ACCORDINGLY

The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

REVISION NO	DESCRIPTION	DATE	BY	CHK'D

Richard Matsunaga & Associates Architects, Inc.

DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

DESIGNED: ESN
DRAWN: ESN
SAFETY:
ENGINEER:

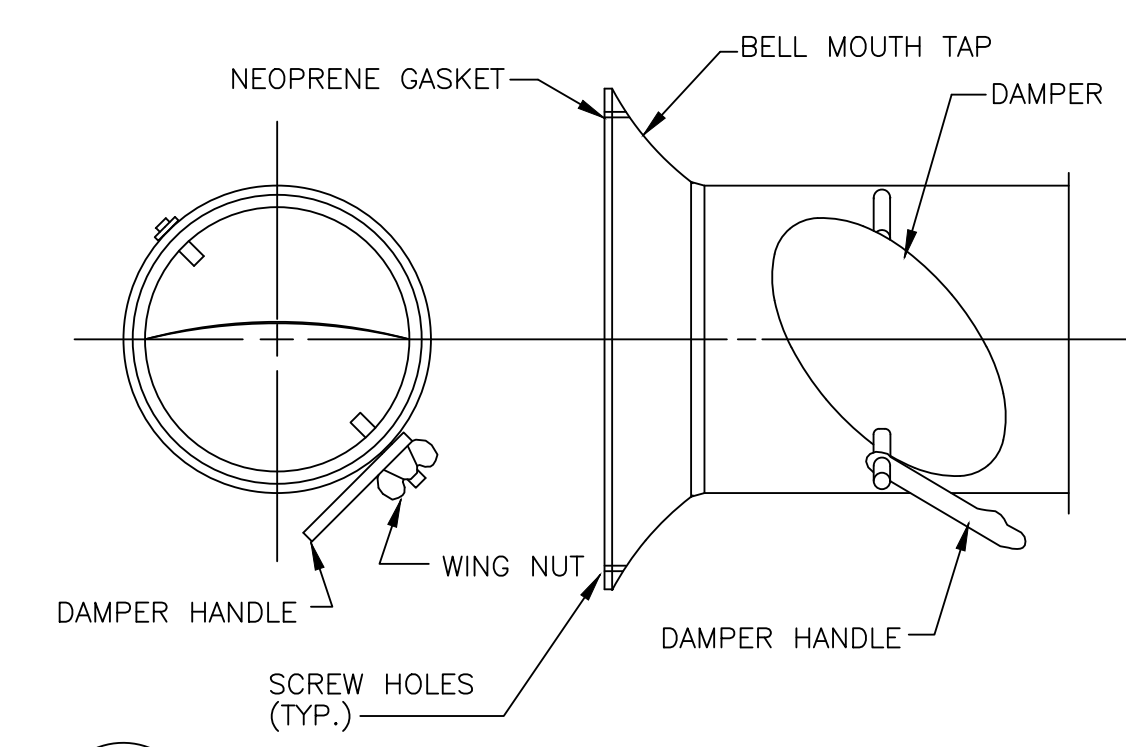
298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

NOTES, LEGEND, DETAILS

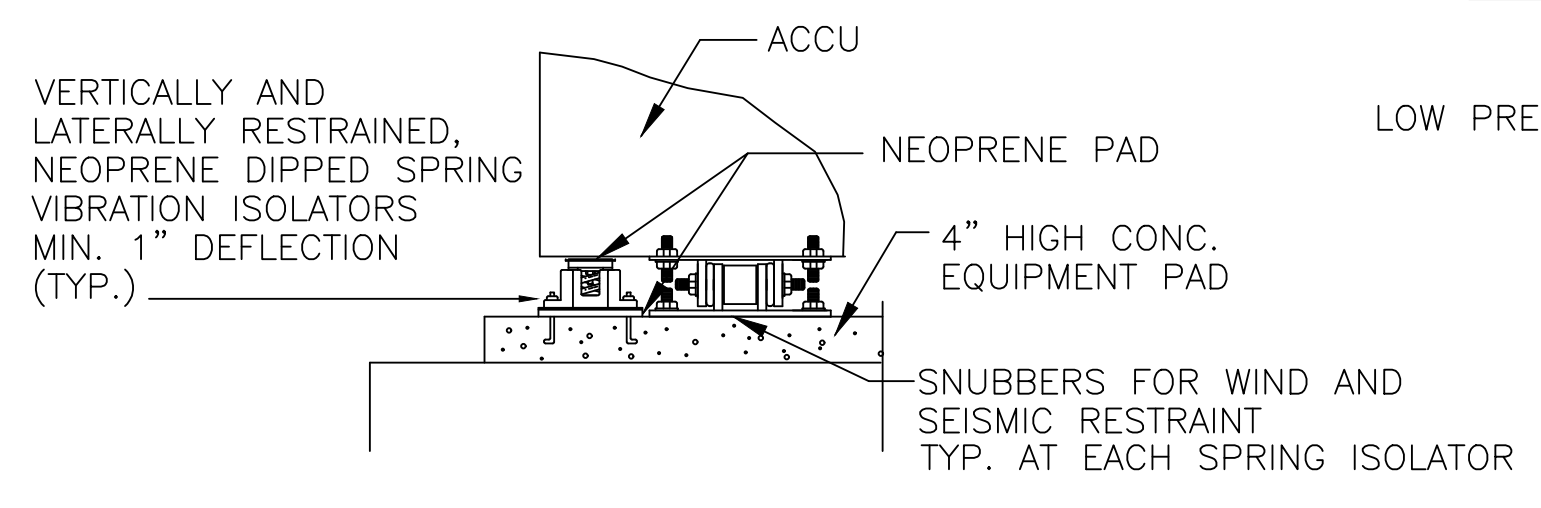
APPROVED: HIRING, FAC MGMT OFFICER
APPROVED: NGB, USPO FOR HAWAII
DATE: MARCH 28, 2000
SCALE: AS NOTED
DWC # MO.1
SHEET 9 OF 140

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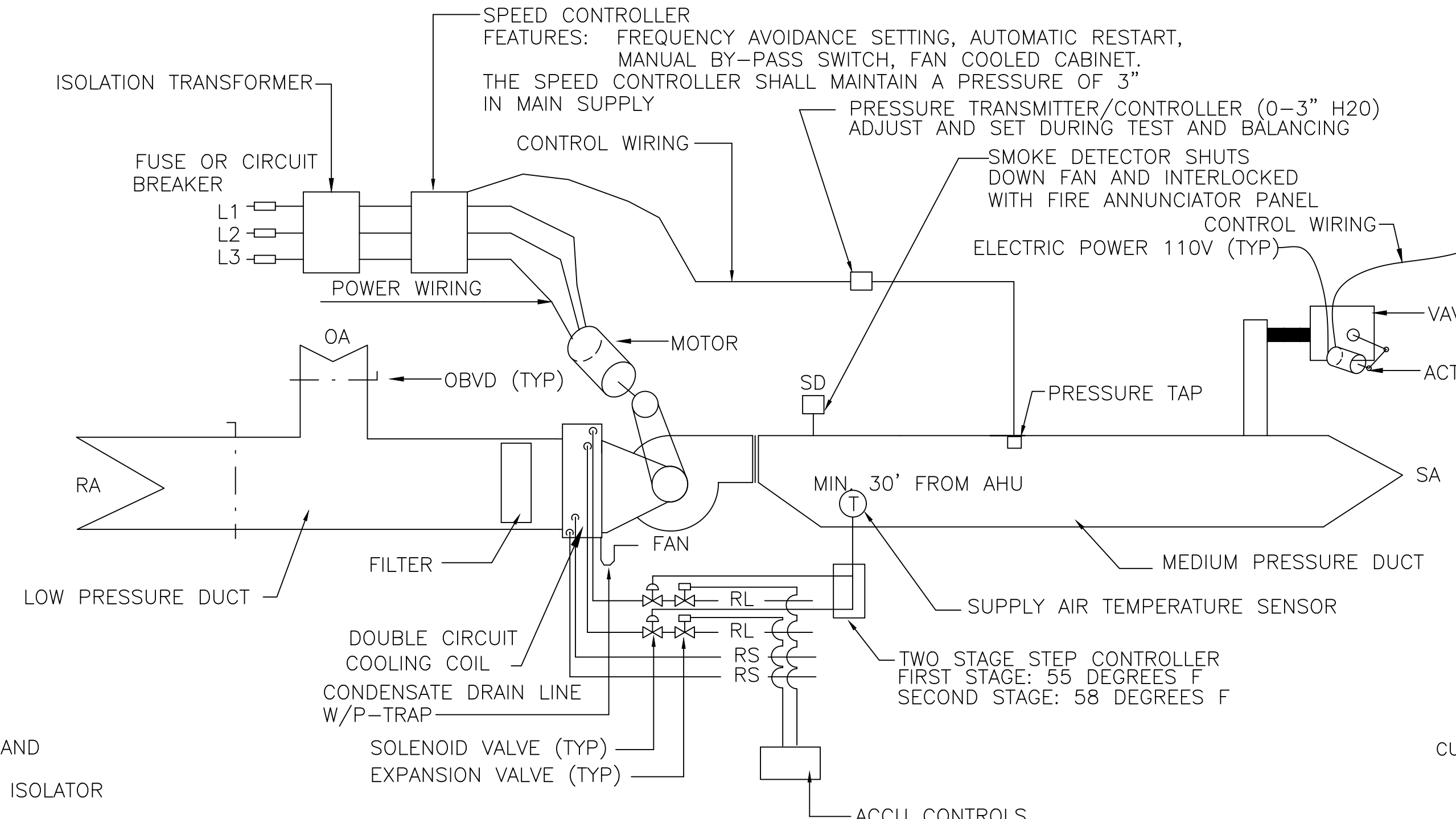
HING, CONTRACTING & ENGINEERING OFFICER



A BELL MOUTH TAP FITTING DETAIL
 MQ.2 MQ.2 NOT TO SCALE

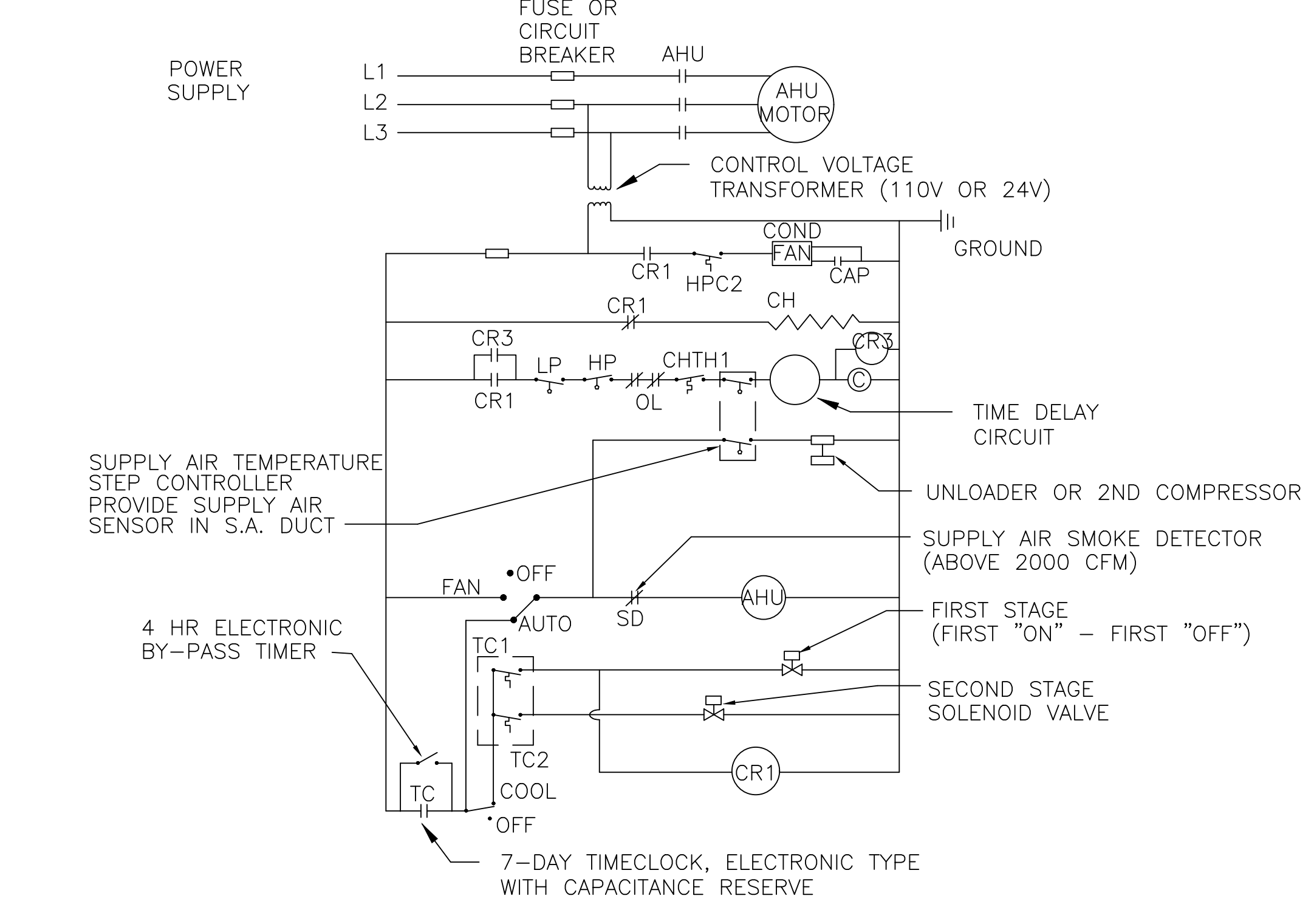


B ACCU MOUNTING DETAIL
 MQ.2 MQ.2 NOT TO SCALE
 (AIR HANDLING UNITS SIMILAR, LESS CONCRETE PAD)

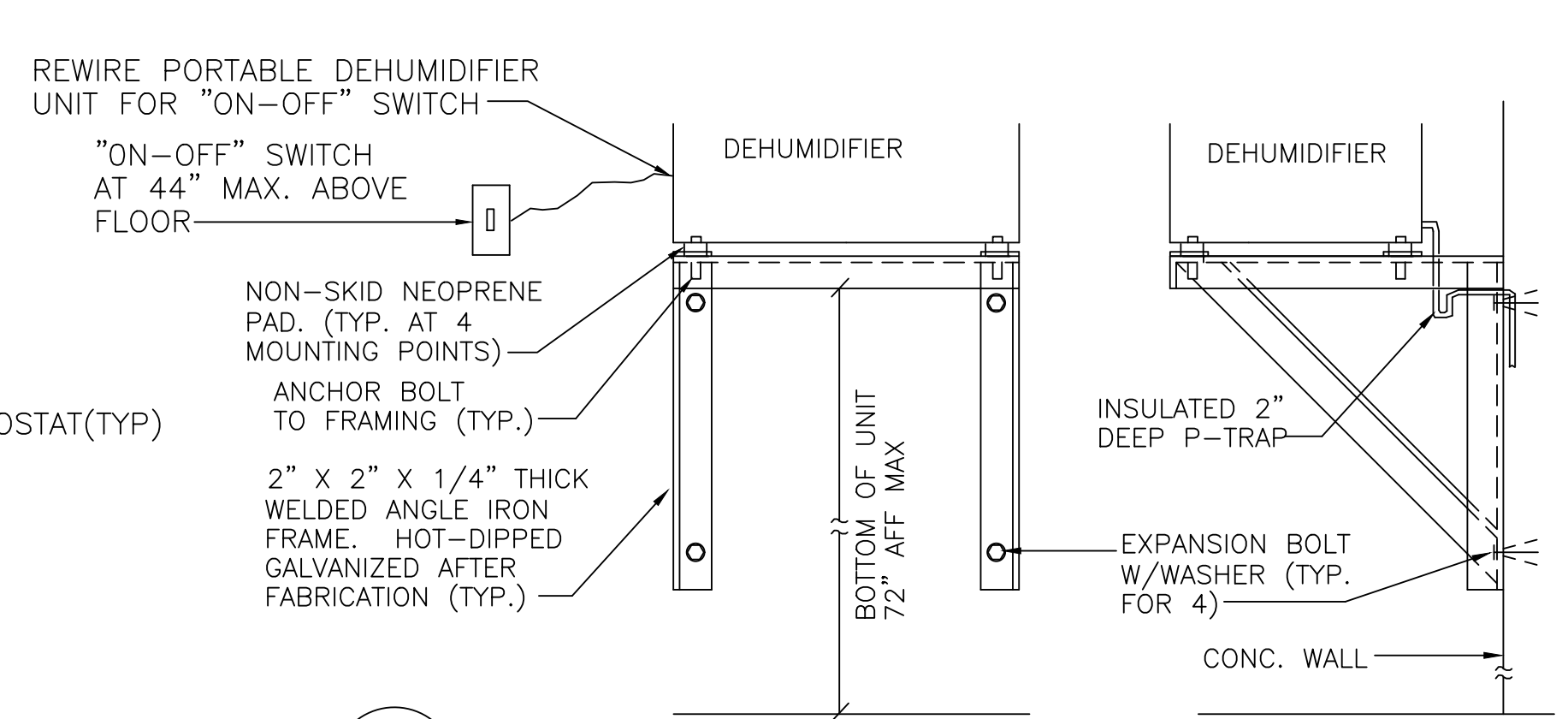


C TYPICAL AHU PIPING AND CONTROL SCHEMATIC
 MQ.2 MQ.2 NOT TO SCALE

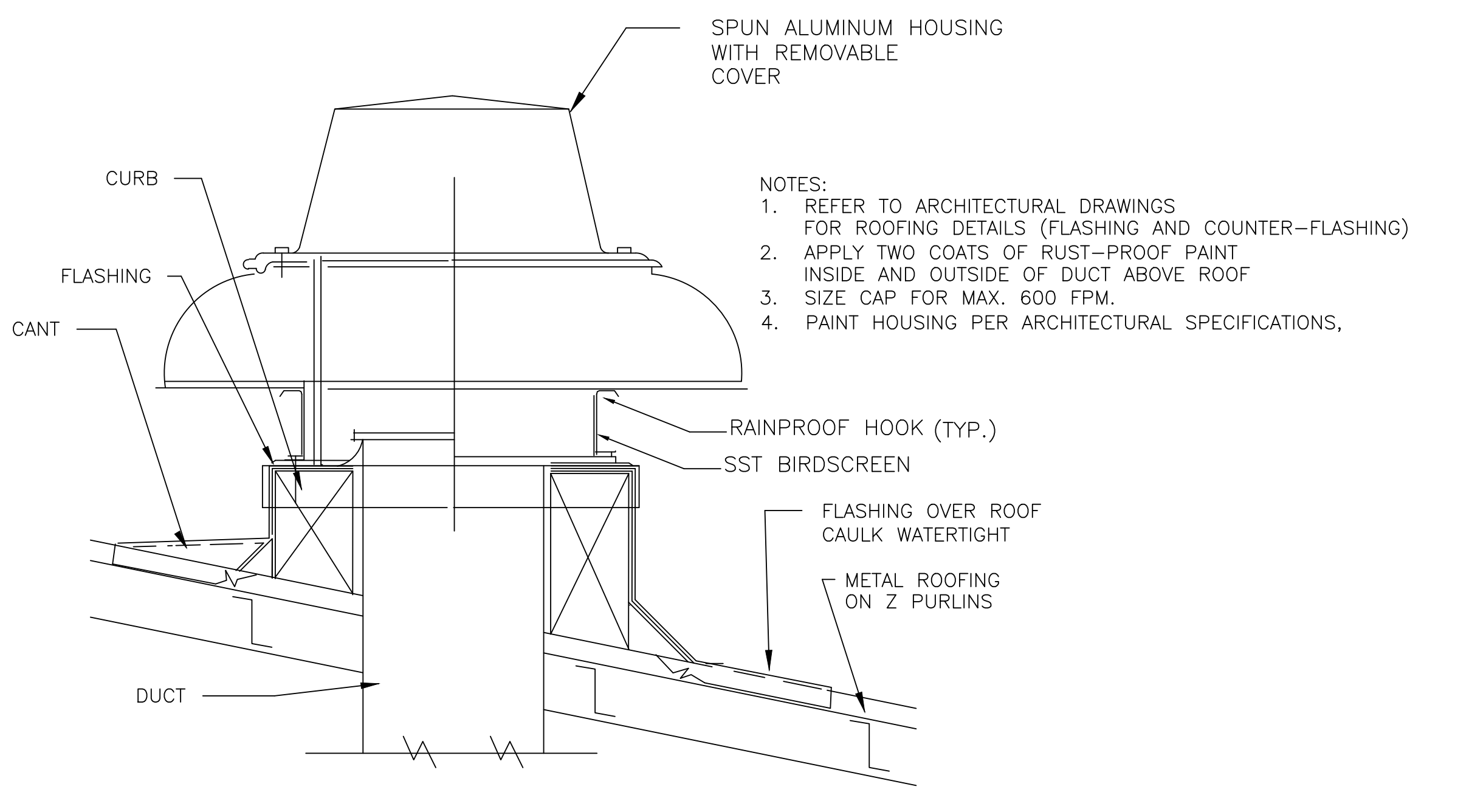
- LEGEND**
- L1 ELECTRIC POWER
 - AHU AIR HANDLING UNIT
 - CR CONTROL RELAY
 - HPC HIGH PRESSURE SWITCH
 - COND CONDENSER
 - HP HIGH PRESSURE SWITCH
 - CH CRANKCASE HEATER
 - LP LOW PRESSURE SWITCH
 - OL OVERLOAD (PER LEG)
 - CAP CAPACITOR
 - C COMPRESSOR RELAY
 - TC1 COOLING THERMOSTAT (FIRST STAGE)
 - SD SMOKE DETECTOR
 - TC TIMECLOCK CIRCUIT
 - CTH1 COMPRESSOR THERMOSTAT SWITCH



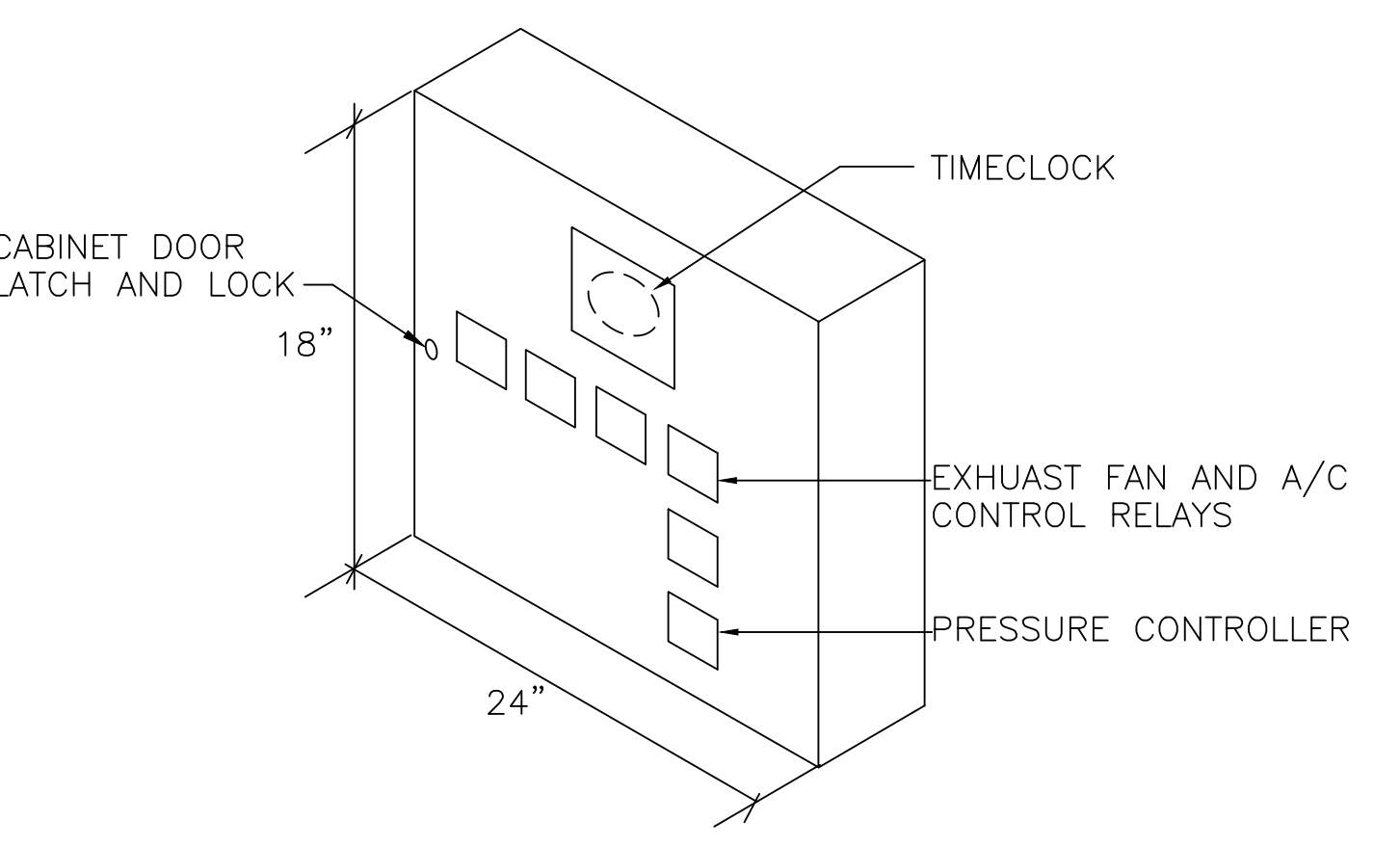
E TYPICAL AIR CONDITIONING CONTROLS—ABOVE 15 TONS
 MQ.2 MQ.2
 PUMP OUT SYSTEM, ABOVE 15 TONS, THERMOSTAT MUST BE CALLING FOR COOLING BEFORE CONDENSING UNIT IS ACTIVATED. SUCTION PRESSURE SWITCHES UNLOAD COMPRESSOR UNTIL CONDENSING UNIT SHUTS DOWN.



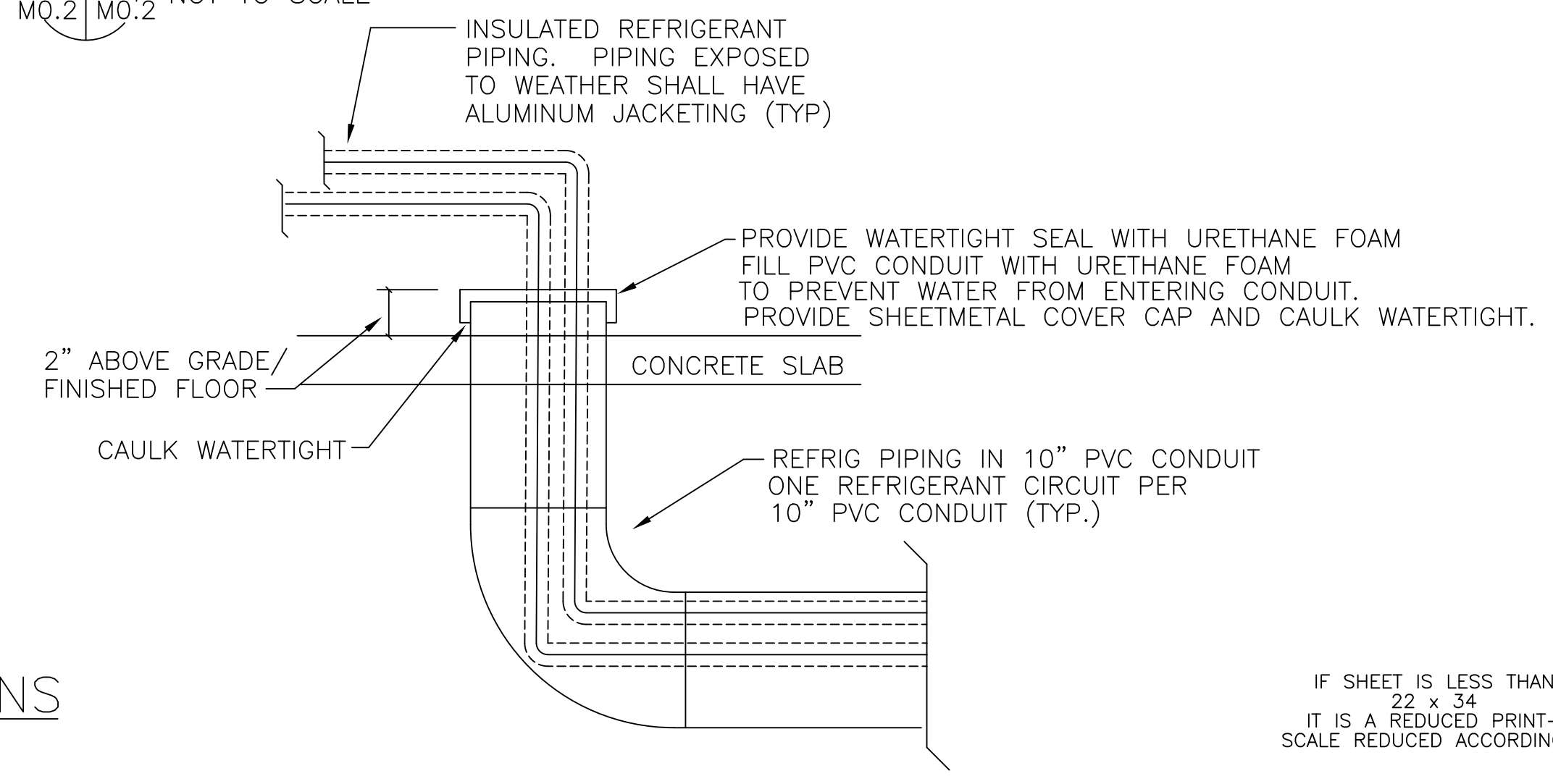
D ROOM DEHUMIDIFIER MOUNTING DETAIL
 MQ.2 MQ.2 NOT TO SCALE



G ROOF DISCHARGE/INTAKE CAP DETAIL
 MQ.2 MQ.2 NOT TO SCALE



F CONTROL CABINET DETAIL
 MQ.2 MQ.2 NOT TO SCALE



H UNDERGROUND REFRIGERANT PIPING DETAIL
 MQ.2 MQ.2 NOT TO SCALE

REVISION NO	DESCRIPTION	DATE	BY	CHK'D

DESIGNED: ESN DRAWN: ESN SAFETY: ENGINEER: APPROVED: HIRING, FAC MGMT OFFICER APPROVED: HING, CONTRACTING & ENGINEERING OFFICER		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII 298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOWS AIR FORCE STATION WAIMANALO, HAWAII NOTES, DETAILS, DIAGRAMS	
APPROVED: NGB, USFPO FOR HAWAII		DATE: MAR 28, 2000 SCALE: AS NOTED DWG # MQ.2 SHEET 10 of 140	

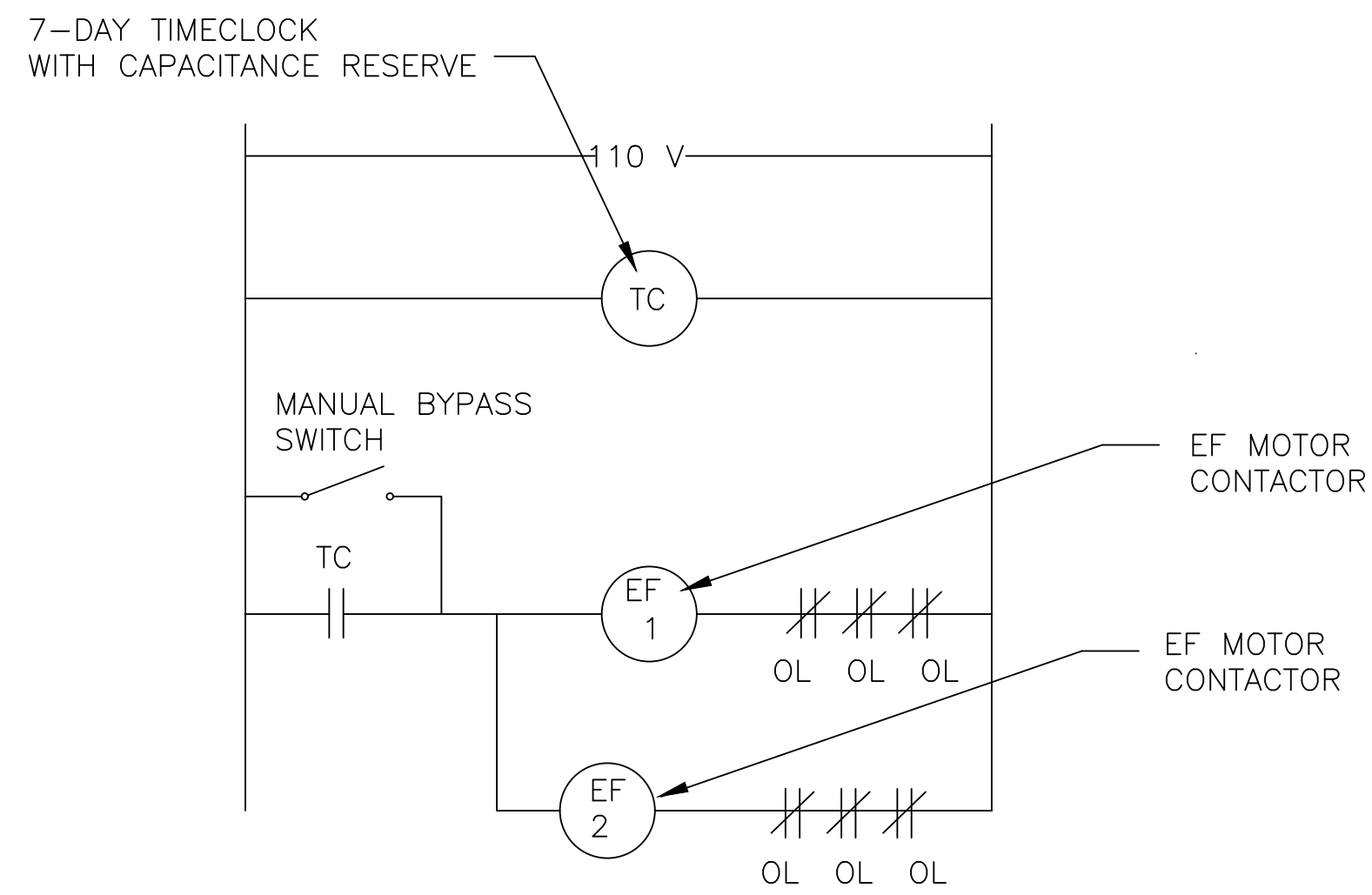
Richard Matsunaga & Associates
 Architects, Inc.

RANDOLPH H. MURATA
 LICENSED PROFESSIONAL ENGINEER
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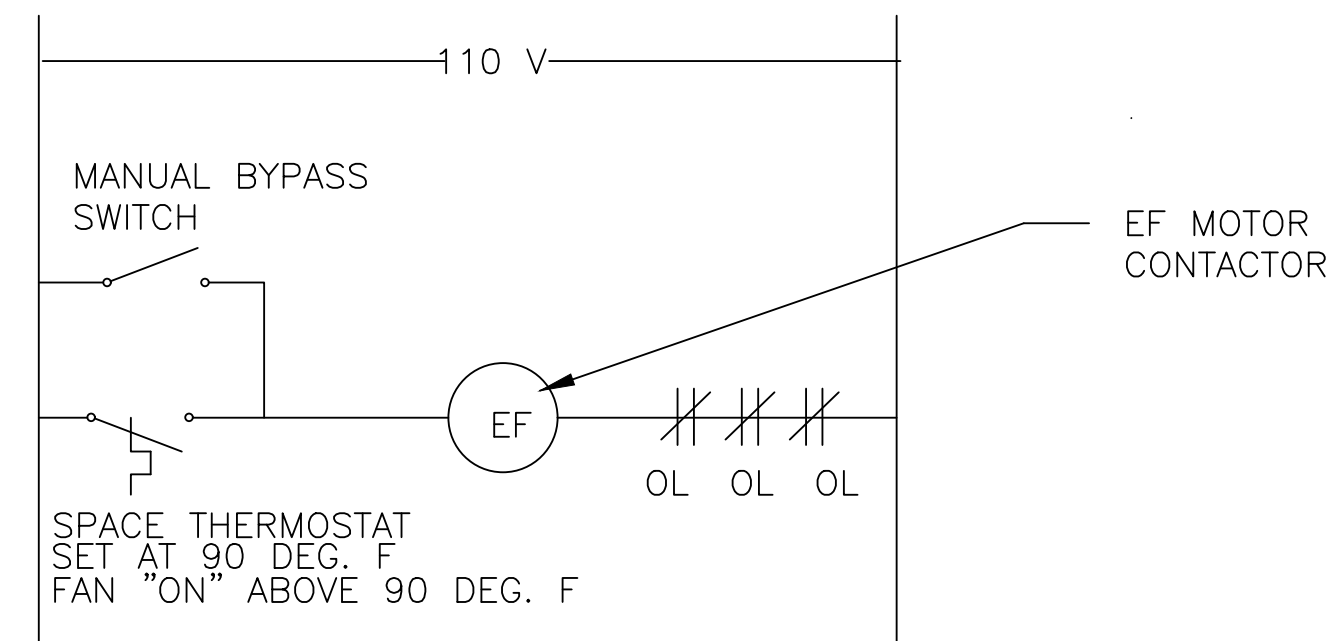
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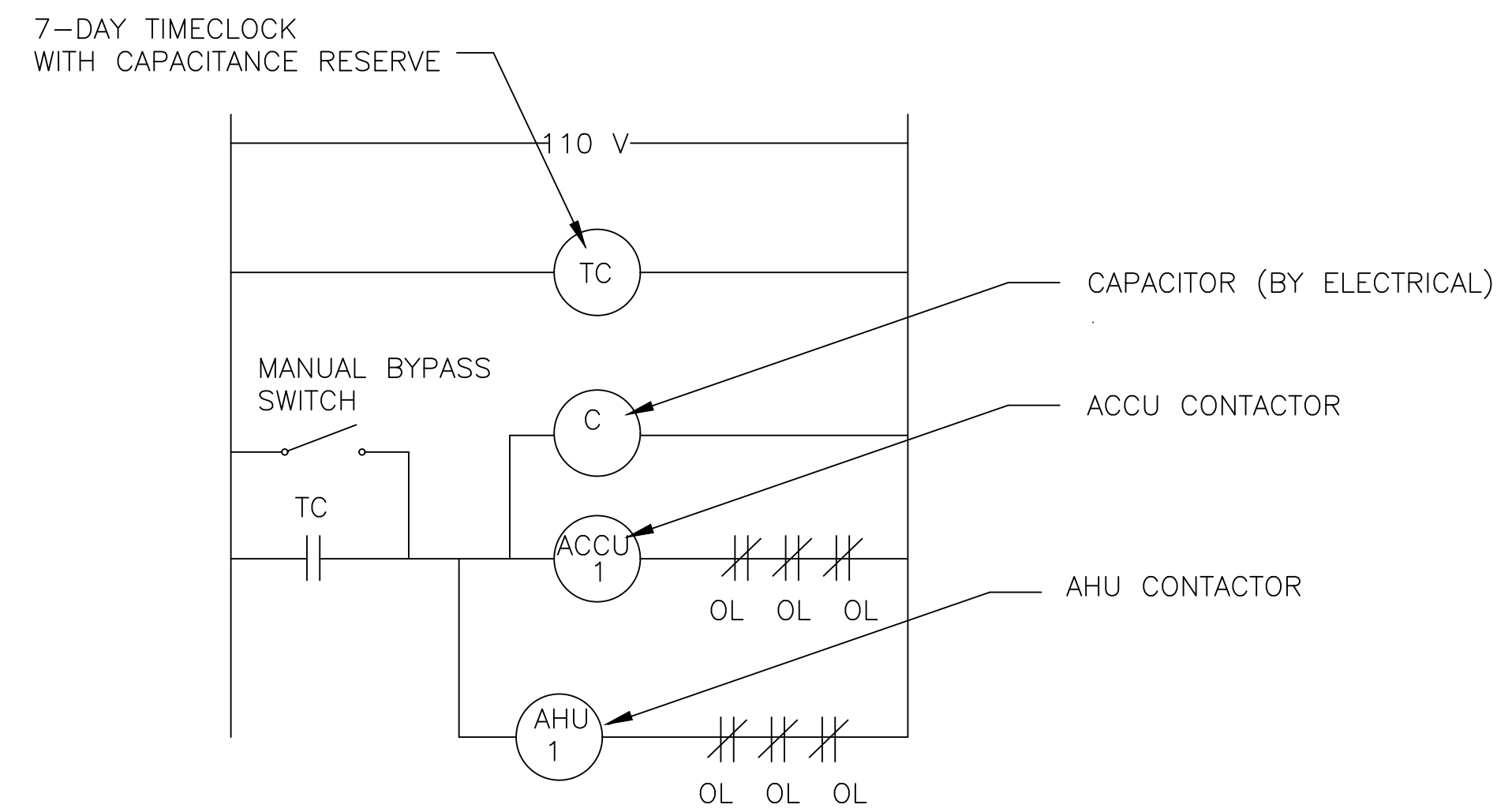
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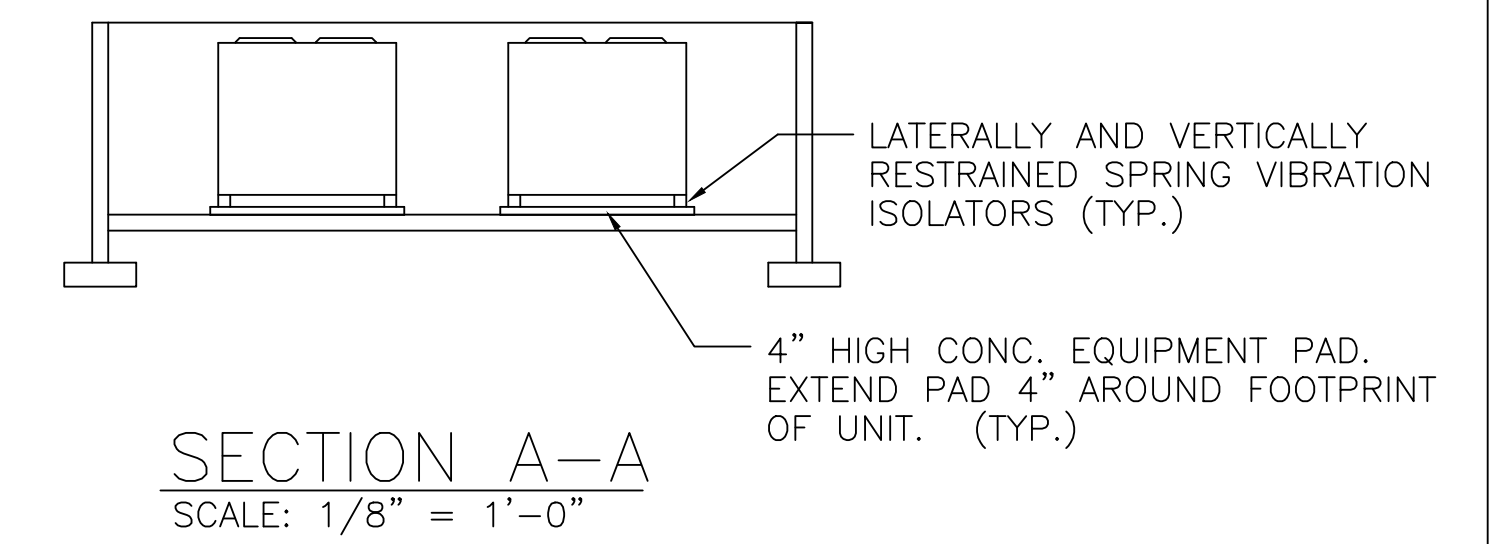
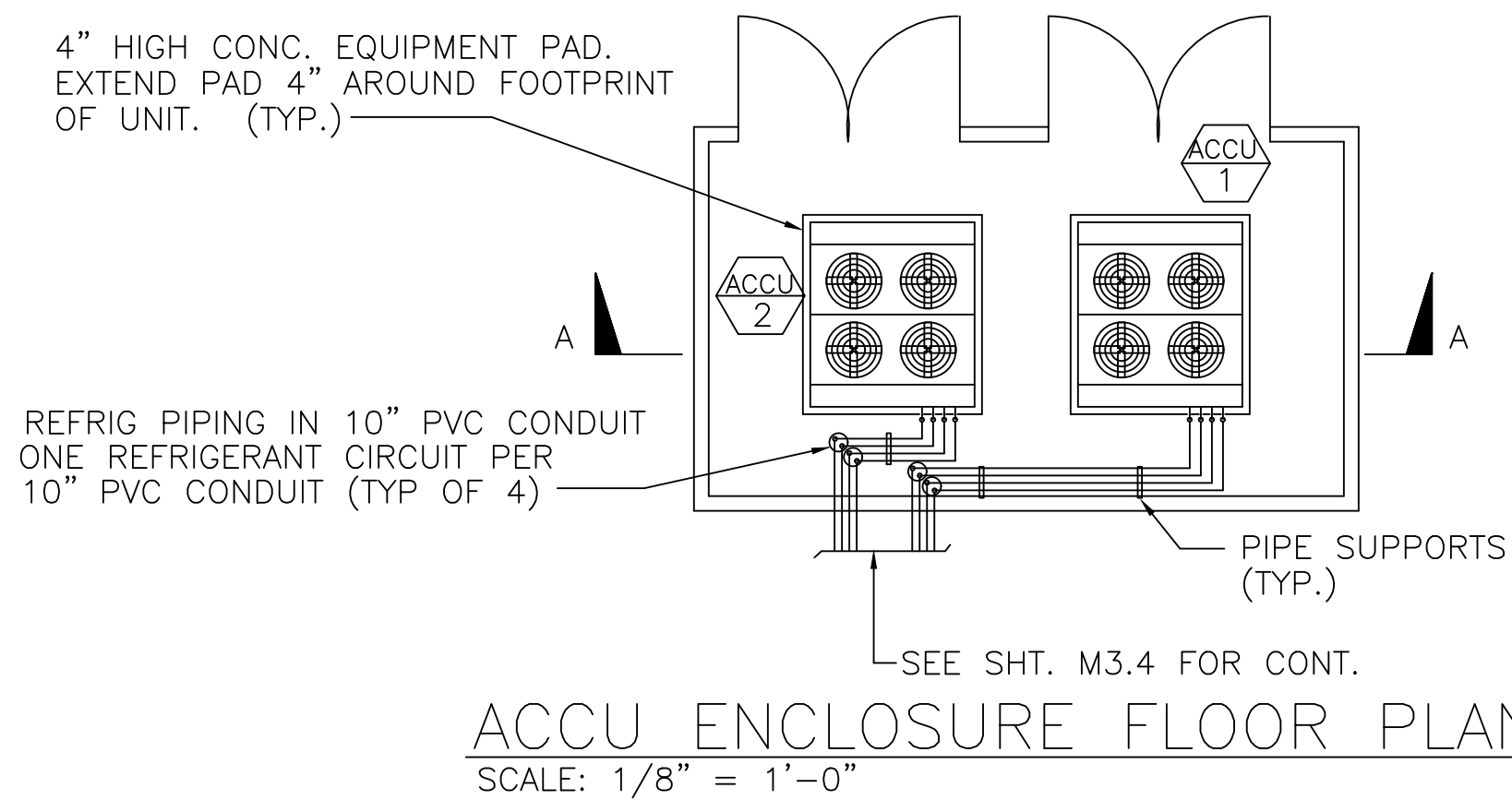
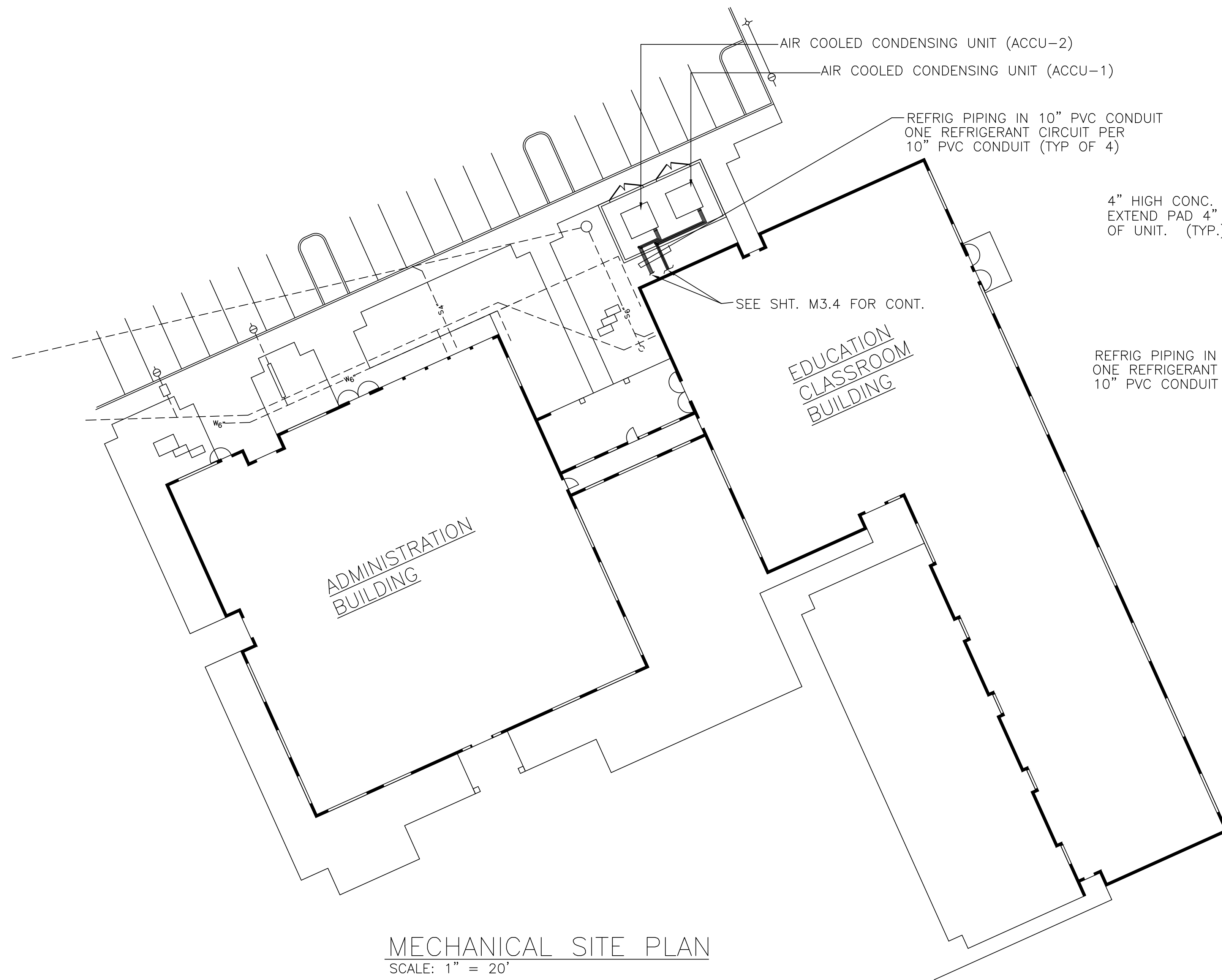
SUPPLY ROOM EF CONTROL DIAGRAM
NOT TO SCALE



ELECTRICAL ROOM EF CONTROL DIAGRAM
NOT TO SCALE



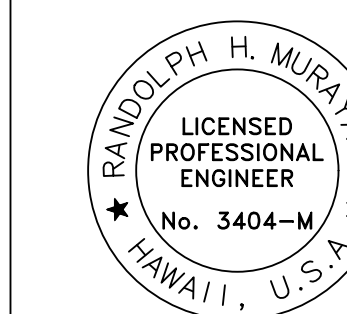
TYPICAL AIR CONDITIONING CONTROL DIAGRAM
NOT TO SCALE
(ADMINISTRATION BUILDING SHOWN, CLASSROOM BUILDING TYP.)
(PROVIDE TIMECLOCK CONTROL SIMILAR TO ABOVE FOR EACH DISTANCE LEARNING CLASSROOM)



IF SHEET IS LESS THAN
22 x 34
IT IS A REDUCED PRINT—
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available space.

Richard Matsunaga & Associates
Architects, Inc.



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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

DEPARTMENTS OF THE ARMY AND AIR
NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

DESIGNED: ESN
DRAWN: ESN
SAFETY:
ENGINEER:

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOWS AIR FORCE STATION
WAIMANALO, HAWAII

DETAILS, MECHANICAL SITE PLAN

APPROVED: HIRING, FAC MGMT OFFICER
APPROVED: NGB, USPFO FOR HAWAII
DATE: MARCH 28, 2000

APPROVED: HING, CONTRACTING & ENGINEERING OFFICER
SCALE: AS NOTED
DWG # MO.3

SHEET 11 of 140

MECHANICAL EQUIPMENT SCHEDULE

ALL MOTORS SHALL BE HIGH EFFICIENCY TYPE. AIR COOLED CONDENSING UNIT COILS AND FINS SHALL BE COATED WITH BAKED PHENOLIC COATING. UNIT CASING SHALL BE PROTECTED WITH SILOXANE COATING. PROVIDE BACKDRAFT DAMPER ON ALL EXHAUST FAN DISCHARGE DUCTS. ALL STARTERS EXPOSED TO WEATHER SHALL BE NEMA 4X (STAINLESS STEEL AND WATERTIGHT). MAGNETIC ACROSS-THE-LINE TYPE WITH CONTROL VOLTAGE TRANSFORMER. REFRIGERANT SHALL BE R-22. PROVIDE MINIMUM 3 FILTER REPLACEMENTS: ONCE PRIOR TO TEST AND BALANCING, ONCE AT ACCEPTANCE OF PROJECT AND ONCE ONE MONTH AFTER OCCUPANCY.

AIR HANDLING UNIT

UNIT NO.	TOTAL COOLING (BTUH)	SENSIBLE COOLING (BTUH)	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	COIL ROWS	COIL FINS/IN.	ENT. AIR TEMP DB/WB	LVG AIR TEMP DB/WB	E.S.P. T.S.P.	FAN RPM	BHP	HP	FLA	V/PH/HZ	OPERATING WEIGHT	REMARKS
AHU 1	415,000	290,000	14,000	2400	8	12	80 F/67 F	58 F/55 F	2.5 3.5	750	13	15	—	460/3/60	3200	DOUBLE CIRCUIT COIL, ROW SPLIT, INTERTWINED COIL. VARIABLE SPEED DRIVE WITH ISOLATION TRANSFORMER.
AHU 2	665,000	375,000	22,000	4000	8	12	80 F/67 F	58 F/55 F	2.5 3.5	600	20	35	—	460/3/60	3200	DOUBLE CIRCUIT COIL, ROW SPLIT, INTERTWINED COIL. VARIABLE SPEED DRIVE WITH ISOLATION TRANSFORMER.
FCU 3	18,000	14,000	550	120	3	12	80 F/67 F	58 F/55 F	—	1120	—	44 W	0.53	208/1/60	38.5	
FCU 4	18,000	14,000	550	120	3	12	80 F/67 F	58 F/55 F	—	1120	—	44 W	0.53	208/1/60	38.5	

FLEXIBLE DUCT SIZES

(PROVIDE REDUCING FITTINGS AS REQ'D)

DUCT DIA.	CFM RANGE
6"	0 - 100
8"	0 - 200
10"	0 - 300
12"	0 - 600

VAV TERMINAL UNITS: FACTORY FABRICATED, ELECTRICALLY CONTROLLED, COMPLETE WITH REMOTE THERMOSTAT, ACTUATOR AND VOLUME CONTROL DAMPER. SYSTEM POWERED NOT ALLOWED. SET MINIMUM FLOW TO 20% OF DESIGN AIR VOLUME. MAXIMUM PRESSURE DIFFERENTIAL OF 0.4". NC 30 BASED ON 10 DB CEILING INSERTION LOSS AND 8 DB ROOM EFFECT AT 1" S.P. AT BOX INLET.

UNIT NO.	CFM RANGE	INLET
VAV A	0 - 350	6"
VAV B	0 - 450	7"
VAV C	0 - 600	8"
VAV D	0 - 800	10"
VAV E	0 - 1050	12"
VAV F	0 - 1250	14"
VAV G	0 - 1800	16"
VAV H	0 - 2000	18"

AIR COOLED CONDENSING UNIT:

PROVIDE TOTALLY ENCLOSED FAN MOTORS AND AUXILIARY CONTACTS FOR POWER FACTOR CORRECTION, SOUND REDUCTION KIT FOR COMPRESSORS AND INTEGRAL SUCTION ACCUMULATOR ON EACH CIRCUIT.

UNIT NO.	NET REFRIG. EFFECT (BTUH)	ENTERING AIR TEMP	CONDENSER FAN			COMPRESSOR		V/PH/HZ	OPERATING WEIGHT	MIN. SEER	REMARKS
			NO.	FAN HP	FLA	NO. 1	NO. 2				
ACCU 1	415,000	95 F	4	1.0 EA.	2.8	34.6 RLA 173 LRA	34.6 RLA 173 LRA	460/3/60	3300	11.0	ACOUSTICALLY INSULATED COMPRESSOR CABINET, MIN. 4 STEP CAPACITY CONTROL (25%, 50%, 75%, 100%), PROVIDE UNDERVOLTAGE/OVERVOLTAGE, PHASE FAILURE/PHASE REVERSAL PROTECTION WITH AUTO RESET.
ACCU 2	665,000	95 F	4	1.0 EA.	2.8	46.8 RLA 253 LRA	43.6 RLA 223 LRA	460/3/60	3600	11.0	ACOUSTICALLY INSULATED COMPRESSOR CABINET, MIN. 4 STEP CAPACITY CONTROL (32%, 48%, 84%, 100%), PROVIDE UNDERVOLTAGE/OVERVOLTAGE, PHASE FAILURE/PHASE REVERSAL PROTECTION WITH AUTO RESET.
ACCU 3	SYSTEM NET COOLING 46,000	95 F	1	—	1.45	12.9 RLA 62.5 LRA	12.9 RLA 62.5 LRA	208/1/60	292	12.0	INSULATED COMPRESSOR CABINET
ACCU 4	SYSTEM NET COOLING 46,000	95 F	1	—	1.45	12.9 RLA 62.5 LRA	12.9 RLA 62.5 LRA	208/1/60	292	12.0	INSULATED COMPRESSOR CABINET

DUCT SILENCER DATA:

IAC QUIET DUCT SILENCER OR APPROVED EQUIVALENT, PRESSURE DROP MAX. 0.1".

MODEL NO.	SILENCER FACE VELOCITY, FPM	OCTAVE BANDS							
		1	2	3	4	5	6	7	8
3ML									
DYNAMIC INSERTION LOSS DECIBELS	+2000	2	5	10	17	17	13	10	8
SELF NOISE POWER LEVELS DECIBELS	+1000	39	35	30	27	26	28	28	<20

MODEL NO.	SILENCER FACE VELOCITY, FPM	OCTAVE BANDS							
		1	2	3	4	5	6	7	8
5ML									
DYNAMIC INSERTION LOSS DECIBELS	+2000	3	8	15	28	30	21	14	10
SELF NOISE POWER LEVELS DECIBELS	+1000	39	35	30	27	26	28	28	<20

MODEL NO.	SILENCER FACE VELOCITY, FPM	OCTAVE BANDS							
		1	2	3	4	5	6	7	8
10 ML									
DYNAMIC INSERTION LOSS DECIBELS	+2000	8	18	27	42	47	40	23	12
SELF NOISE POWER LEVELS DECIBELS	+1000	39	35	30	27	26	28	28	<20

SILENCER DESIGNATION	MODEL	CFM	SIZE
DS 1	10 ML	9000	30X36
DS 2	10 ML	4000	18X36
DS 3	5 ML	9000	30X36
DS 4	3 ML	14000	30X48

EXHAUST FANS/POWER ROOF VENTILATORS

UNIT NO.	LOCATION	CFM	S.P. (IN. WG)	RPM	WATTS	HP	V/PH/HZ	OPERATING WEIGHT (LBS)	SOUND DATA SONES	REMARKS
EF 1	ADMIN SUPPLY	3000	0.5	621	—	3/4	208/3/60	80	14	PROVIDE TIMECLOCK WITH BY-PASS TIMER
EF 2	ADMIN SUPPLY	3000	0.5	621	—	3/4	208/3/60	80	14	PROVIDE TIMECLOCK WITH BY-PASS TIMER
EF 3	ADMIN WOMEN	260	0.375	1550	130	—	115/1/60	50	5.1	INTERLOCK WITH LIGHT SWITCH
EF 4	ADMIN MEN	360	0.375	1550	130	—	115/1/60	50	5.1	INTERLOCK WITH LIGHT SWITCH
EF 5	ADMIN JANITOR	100	0.375	1550	108	—	115/1/60	40	3.1	INTERLOCK WITH LIGHT SWITCH
EF 6	CLASSROOM WOMEN	610	0.375	1050	269	—	115/1/60	70	5.0	INTERLOCK WITH LIGHT SWITCH
EF 7	CLASSROOM MEN	610	0.375	1050	269	—	115/1/60	70	5.0	INTERLOCK WITH LIGHT SWITCH
EF 8	CLASSROOM JANITOR	160	0.25	1550	108	—	115/1/60	45	3.0	INTERLOCK WITH LIGHT SWITCH
EF 9	ADMIN ELECTRICAL	700	0.375	1050	260	—	115/1/60	70	6.5	PROVIDE REMOTE THERMOSTAT
EF 10	CLASSROOM ELECTRICAL	1100	0.375	1550	812	—	115/1/60	80	11.9	PROVIDE REMOTE THERMOSTAT

DEHUMIDIFIER (ADMIN VAULT):

ROOM DEHUMIDIFIER, 1.0 PINT/HR MOISTURE REMOVAL BASED ON ANSI/AHAM STANDARD DH-1-1992. ADJUSTABLE HUMIDISTAT, OVERFLOW PROTECTION, THREADED HOSE CONNECTION, AUTO DEFROST. 4.1 FLA, 400 WATTS, 115V/1PH/60HZ. PROVIDE REMOTE "ON-OFF" SWITCH AND MOUNTING BRACKET AS SHOWN.

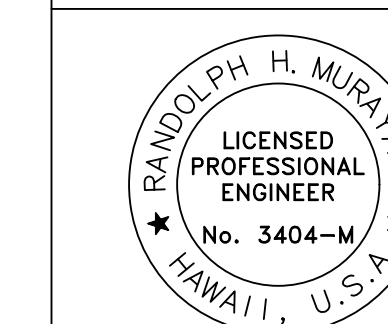
DUAL HEIGHT ELECTRIC WATER COOLER:

4.0 GPH OF 50° F DRINKING WATER AT 80° F INLET WATER AND 90° F ROOM TEMPERATURE. 1/6 HP COMPRESSOR, 3.0 FLA, 244 RATED WATTS. 120 V/1 PH/60 HZ.

IF SHEET IS LESS THAN 22 x 34 IT IS A REDUCED PRINT—SCALE REDUCED ACCORDINGLY

The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

Richard Matsunaga & Associates
Architects, Inc.



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REVISION NO.	DESCRIPTION	DATE	BY	CHK'D

DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII
OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

DESIGNED: ESN
DRAWN: ESN
SAFETY:
ENGINEER:

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

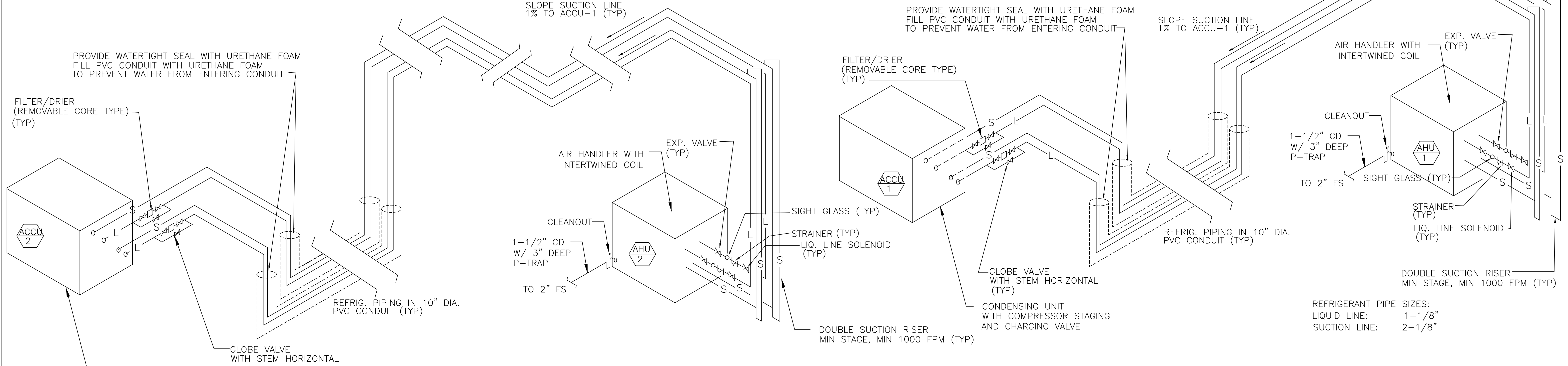
EQUIPMENT SCHEDULES

APPROVED: DATE MARCH 28, 2000
HARRIG, FAC MGMT OFFICER NGB, USFPO FOR HAWAII
APPROVED: SCALE: AS NOTED
APPROVED: DWG # MO.4
HING, CONTRACTING & ENGINEERING OFFICER SHEET 12 of 140

NOTES:

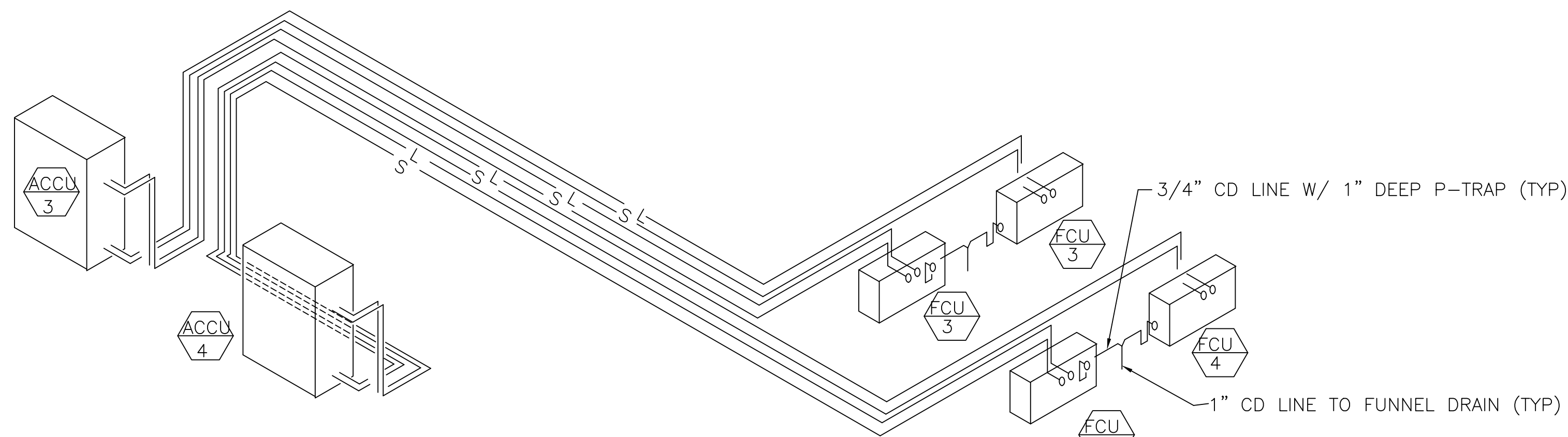
1. INSULATE ALL COLD PIPING IN ADDITION TO SUCTION LINES.
2. ALL PIPE SIZES AS RECOMMENDED BY EQUIPMENT MANUFACTURER.

REFRIGERANT PIPE SIZES:
LIQUID LINE: 1-3/8"
SUCTION LINE: 2-1/8"



CLASSROOM BUILDING REFRIGERANT AND CONDENSATE DRAIN PIPING DIAGRAM
NOT TO SCALE

ADMINISTRATION BUILDING REFRIGERANT AND CONDENSATE DRAIN PIPING DIAGRAM
NOT TO SCALE



NOTES:

1. INSULATE ALL COLD PIPING IN ADDITION TO SUCTION LINES.
2. PROVIDE VALVES, STRAINERS, SIGHTGLASSES AND FILTER/DRIERS AS SHOWN IN CLASSROOM BUILDING DIAGRAM ABOVE.
3. ALL PIPE SIZES AS RECOMMENDED BY EQUIPMENT MANUFACTURER.

REFRIGERANT PIPE SIZES:
LIQUID LINE: 3/8"
SUCTION LINE: 3/4"

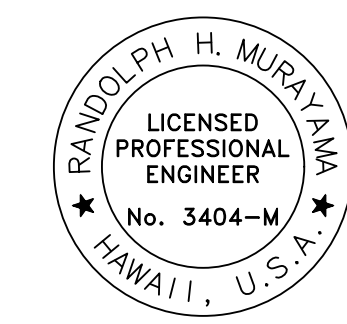
CLASSROOM BUILDING - DISTANCE LEARNING REFRIGERANT AND CONDENSATE DRAIN PIPING DIAGRAM
NOT TO SCALE

IF SHEET IS LESS THAN 22 x 34 IT IS A REDUCED PRINT-SCALE REDUCED ACCORDINGLY

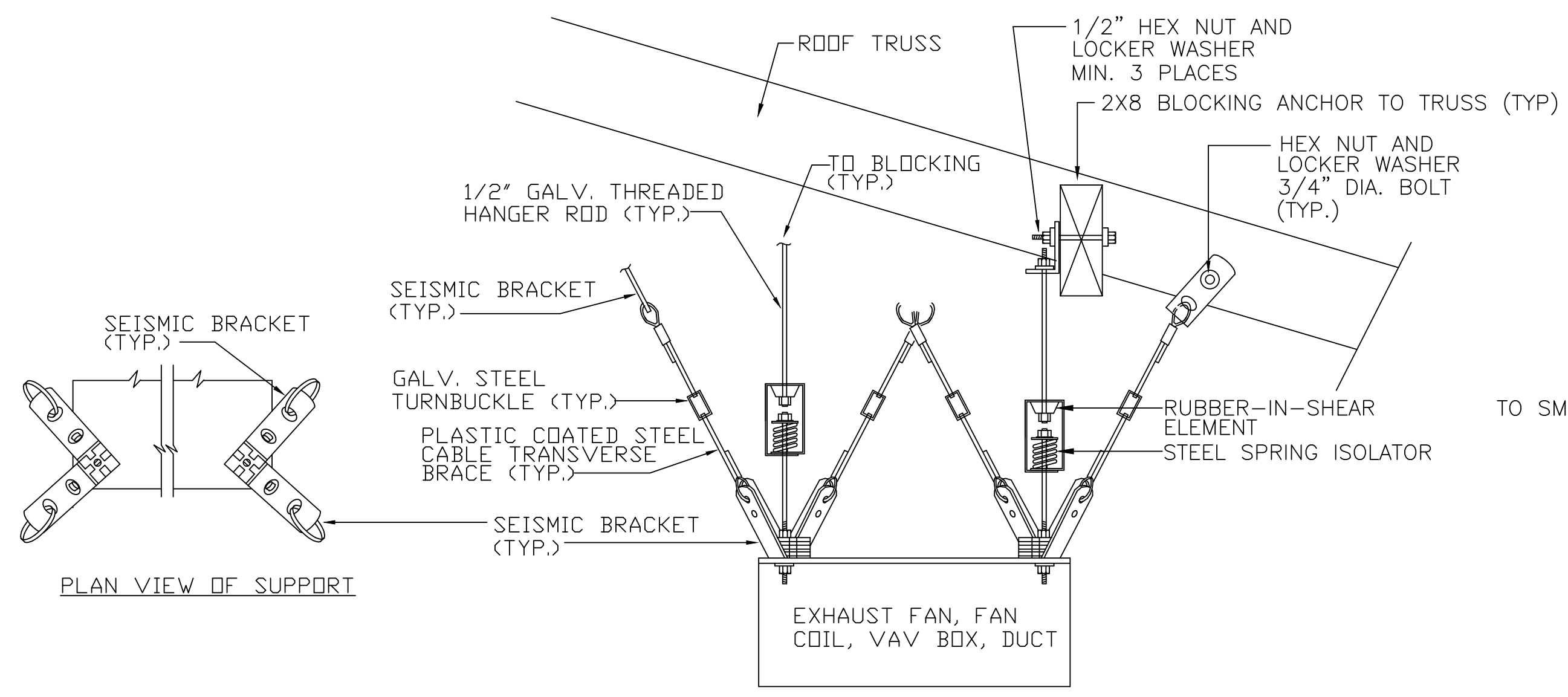
The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

REVISION NO	DESCRIPTION	DATE	BY	CHK'D

Richard Matsunaga & Associates Architects, Inc.		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII	
DESIGNED: ESN DRAWN: ESN SAFETY: ENGINEER:	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOWS AIR FORCE STATION WAIMANALO, HAWAII REFRIGERANT PIPING DIAGRAMS		
APPROVED: HIRING, FAC MGMT OFFICER	APPROVED: NGB, USPFO FOR HAWAII	DATE MARCH 28, 2000	SCALE: AS NOTED DWG # MO.5
APPROVED: HING, CONTRACTING & ENGINEERING OFFICER		SHEET 13 of 140	

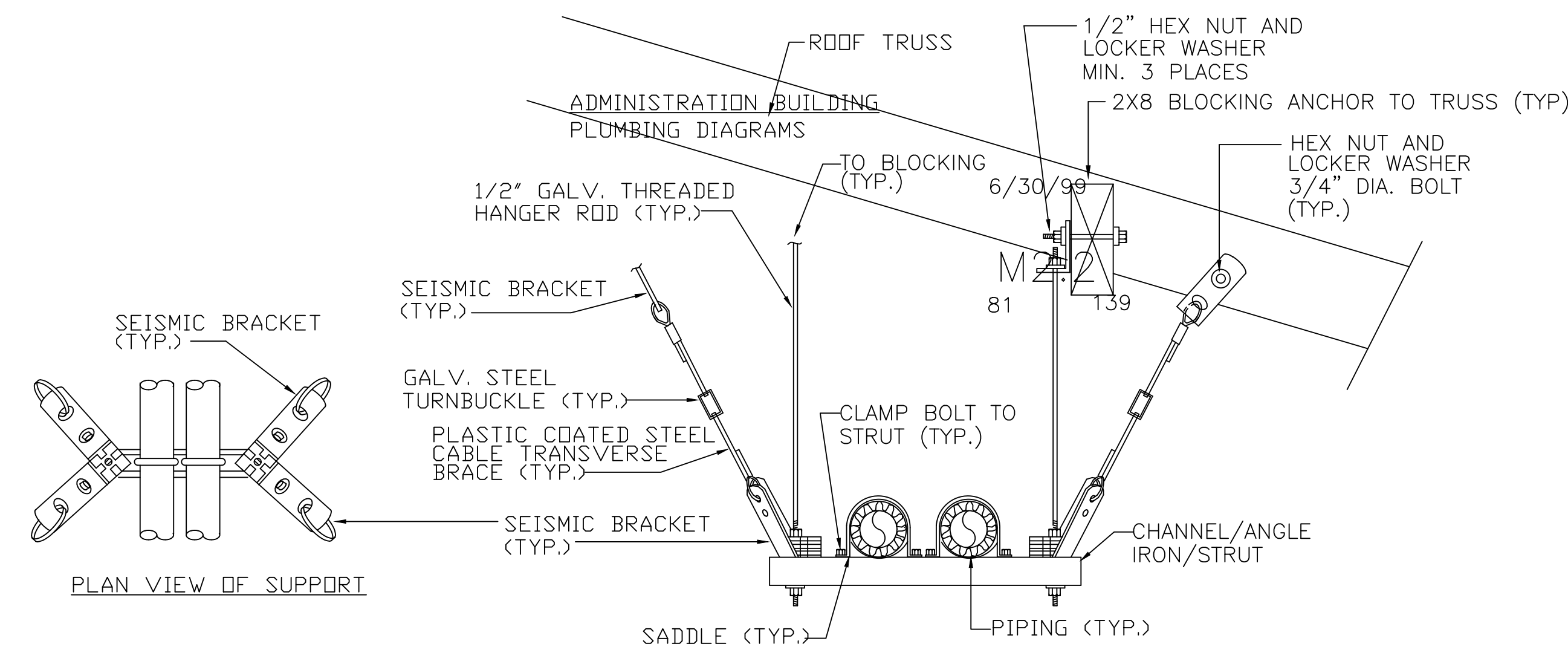


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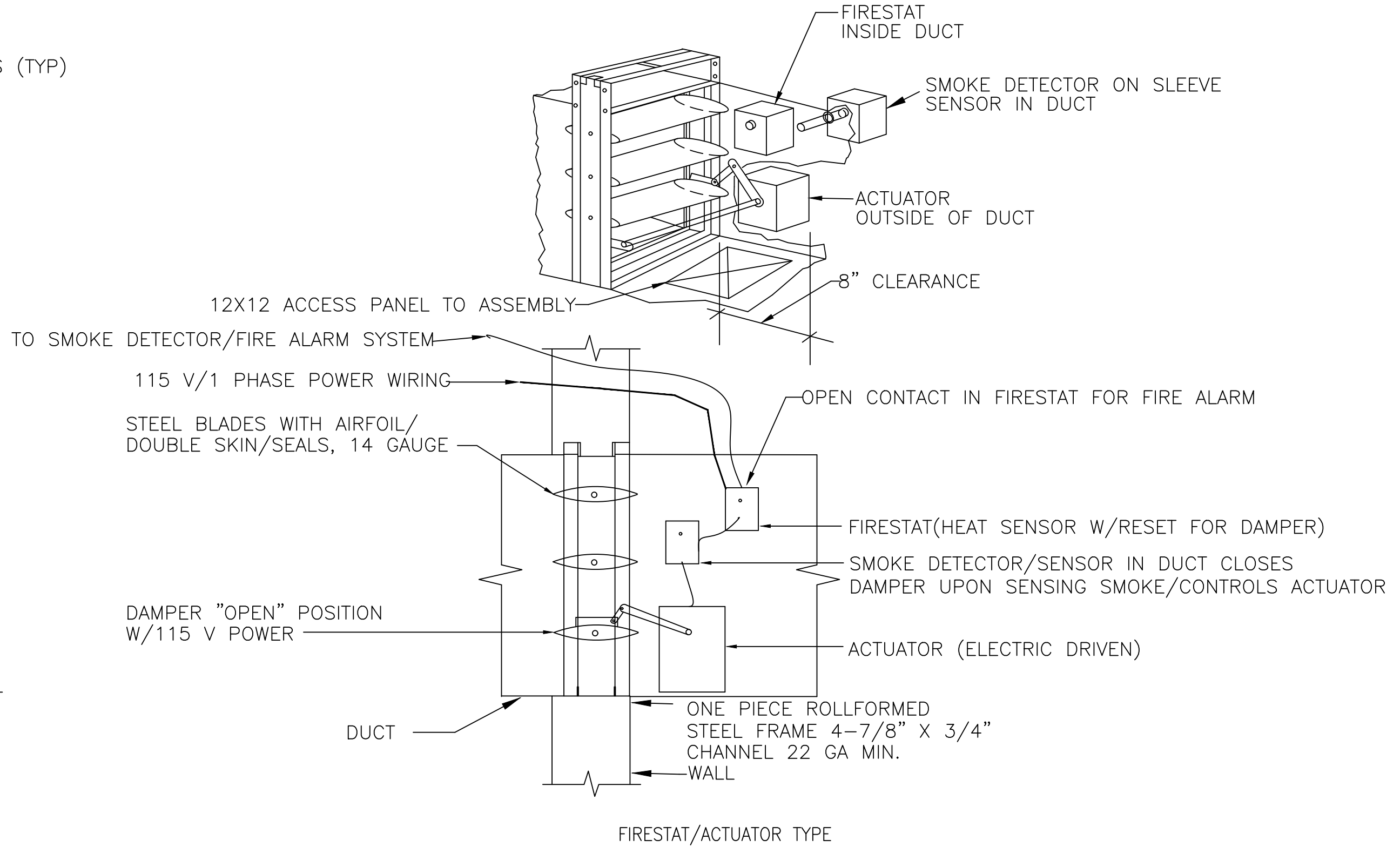
NOTE: SEISMIC RESTRAINT NOT REQUIRED FOR DUCTS LESS THAN 6 SQ. FT. CROSS SECTIONAL AREA.

A EXHAUST FAN, VAV BOX AND DUCT SUPPORT DETAIL
 M0.6 M0.6 NOT TO SCALE

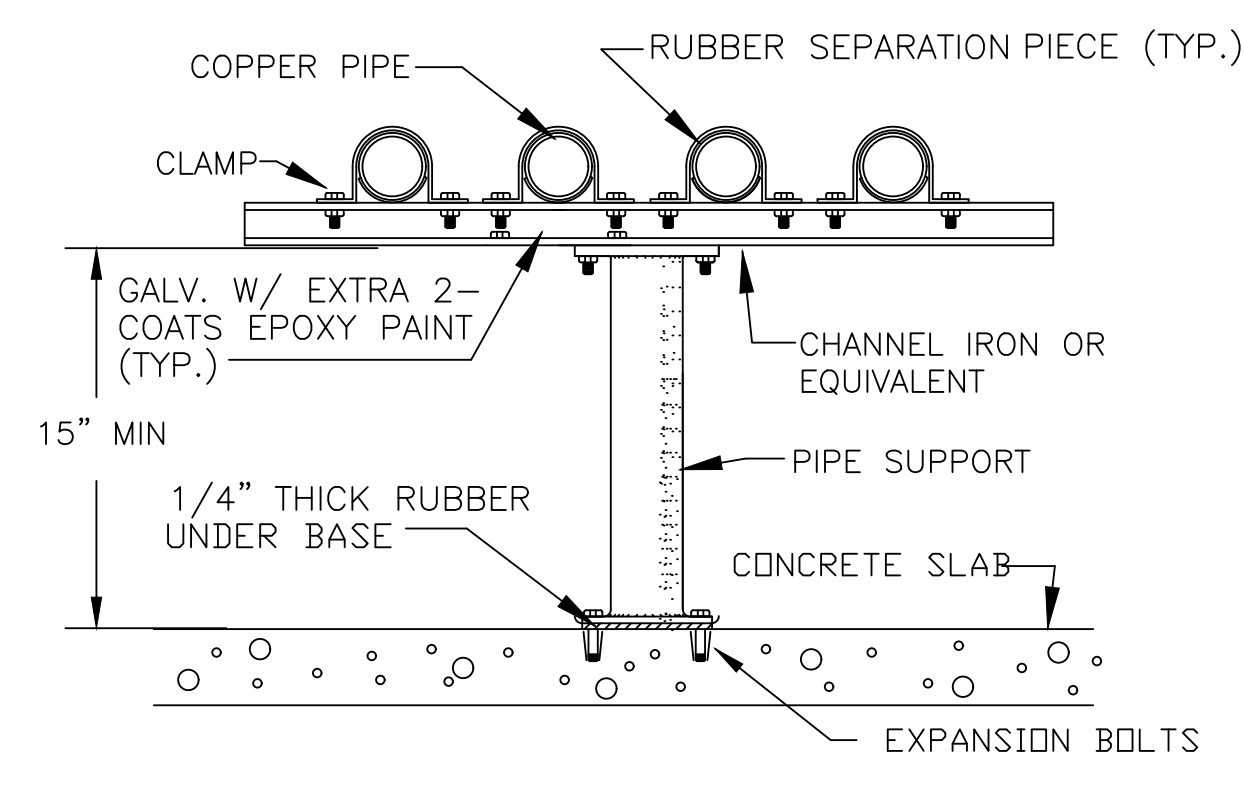


NOTE: SEISMIC RESTRAINT NOT REQUIRED FOR DUCTS LESS THAN 6 SQ. FT. CROSS SECTIONAL AREA.

B SWAY BRACING PIPE SUPPORT DETAIL
 M0.6 M0.6 NOT TO SCALE



C COMBINATION SMOKE/FIRE DAMPER DETAIL
 M0.6 M0.6 VERTICAL MOUNT SHOWN - PROVIDE FOR HORIZONTAL MOUNT, FIRESTAT, POWER WIRING TYPE NOT TO SCALE



D PIPE SUPPORT DETAIL
 M0.6 M0.6 NOT TO SCALE

SEISMIC RESTRAINT NOTES:
 PROVIDE SEISMIC RESTRAINTS FOR ENTIRE MECHANICAL SYSTEMS IN ACCORDANCE WITH SMACNA AND NUSIG.
 EARTHQUAKE ZONES: KAUAI ZONE 1, OAHU ZONE 2A, MAUI/LANAI ZONE 2B AND HAWAII ZONE 3.
 SEISMIC RESTRAINTS MAY BE OMITTED FROM THE FOLLOWING INSTALLATIONS:

- PIPING IN MECHANICAL EQUIPMENT ROOMS LESS THAN 1-1/4" DIAMETER.
- ALL OTHER PIPING LESS THAN 1-1/2" IN DIAMETER.
- ELECTRICAL CONDUITS LESS THAN 2-1/2" DIAMETER.
- RECTANGULAR DUCTS LESS THAN 4 SQ. FT. IN CROSS SECTIONAL AREA.
- ROUND DUCTS LESS THAN 18" IN DIAMETER.
- GAS PIPING LESS THAN 1" IN DIAMETER.
- PIPING SUSPENDED BY INDIVIDUAL HANGERS 12" OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUPPORTING STRUCTURAL MEMBER WHERE THE HANGER IS ATTACHED, EXCEPT AS NOTED BELOW.
- DUCTS SUSPENDED BY HANGERS 12" OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE BOTTOM OF THE SUPPORTING STRUCTURAL MEMBER, EXCEPT AS NOTED BELOW.

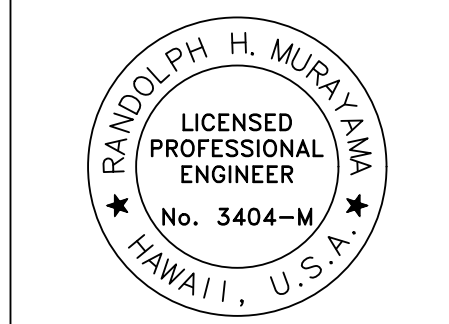
IN EXCEPTIONS G AND H: ALL HANGERS SHALL MEET THE LENGTH REQUIREMENTS. IF THE LENGTH REQUIREMENTS IS EXCEEDED BY ONE HANGER IN THE RUN, THE ENTIRE RUN SHALL BE BRACED.

IF SHEET IS LESS THAN 22 x 34 IT IS A REDUCED PRINT - SCALE REDUCED ACCORDINGLY

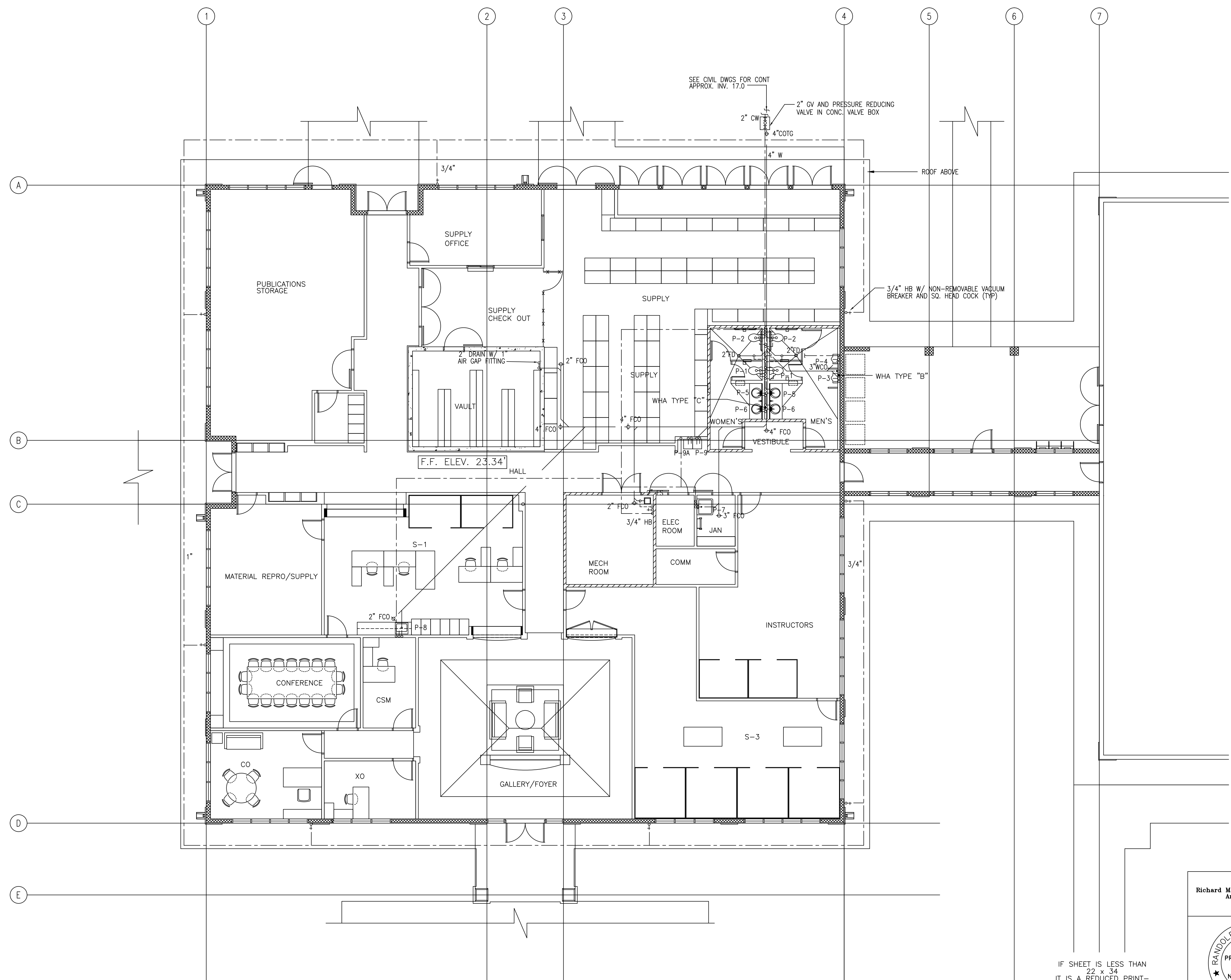
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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

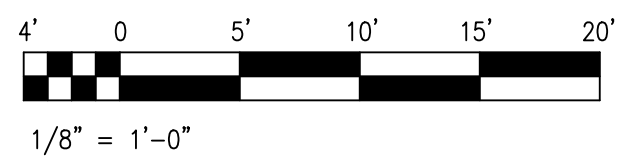
Richard Matsunaga & Associates Architects, Inc.		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII	
DESIGNED: ESN DRAWN: ESN SAFETY: ENGINEER:	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOWS AIR FORCE STATION WAIMANALO, HAWAII		
APPROVED: _____ HIRING, FAC MGMT OFFICER	APPROVED: _____ NGB, USPFO FOR HAWAII	DATE: MARCH 28, 2000	
APPROVED: _____ HING, CONTRACTING & ENGINEERING OFFICER		SCALE: AS NOTED DWG # M0.6 SHEET 14 of 140	



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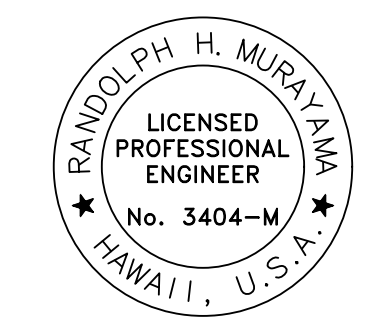
PLUMBING FLOOR PLANS
1/8" = 1'-0"



IF SHEET IS LESS THAN
22 x 34
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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

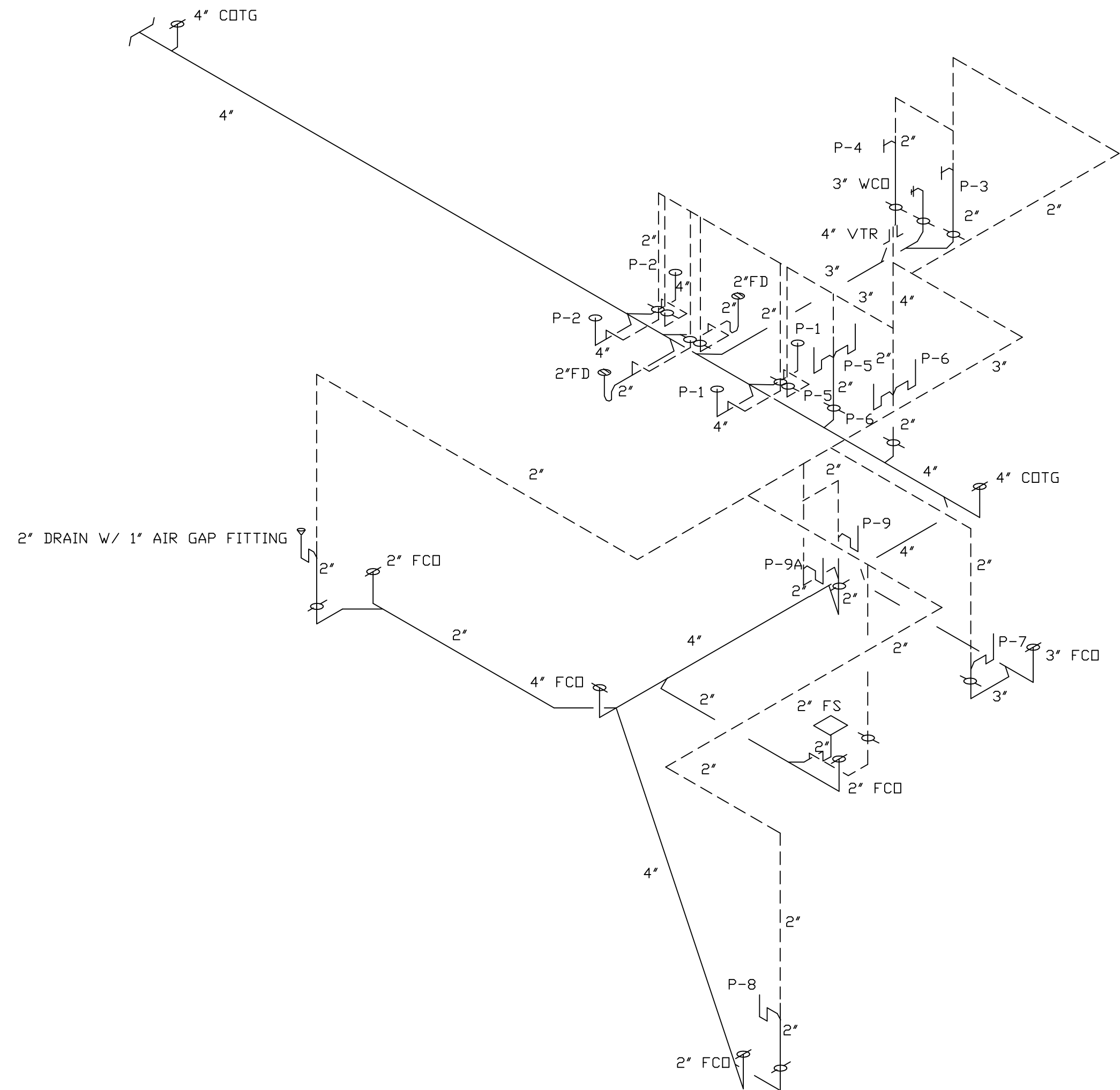
DESIGNED: ESN		DATE: MARCH 28, 2000	
DRAWN: ESN		SCALE: AS NOTED	
SAFETY: ESN		DWC # M2.1	
ENGINEER: ESN		SHEET 81 OF 140	
APPROVED: HIRING, FAC MGMT OFFICER	APPROVED: NGB, USPFO FOR HAWAII		
APPROVED: HING, CONTRACTING & ENGINEERING OFFICER			

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OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

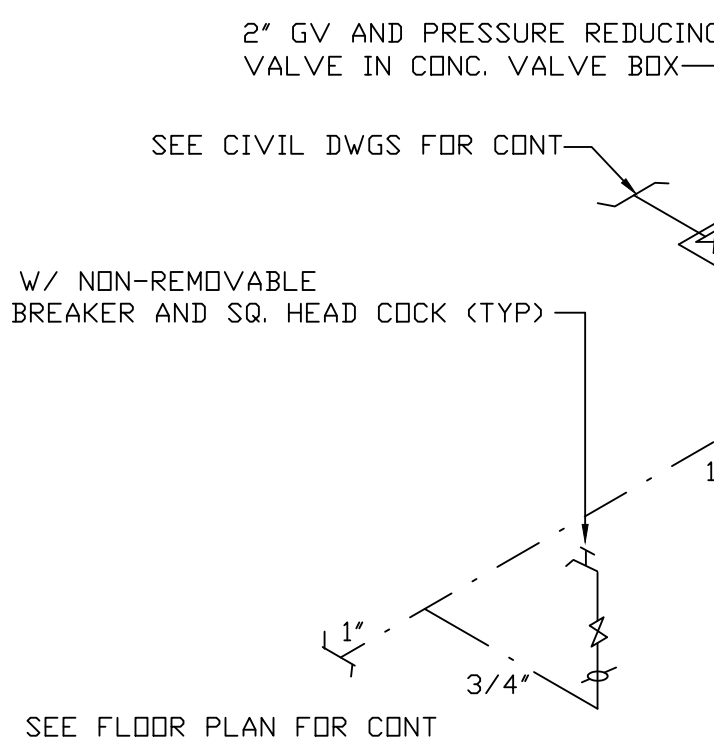
ADMINISTRATION BUILDING
PARTIAL PLUMBING PLAN

SEE CIVIL DWGS FOR CONT
APPROX. INV. 19.0

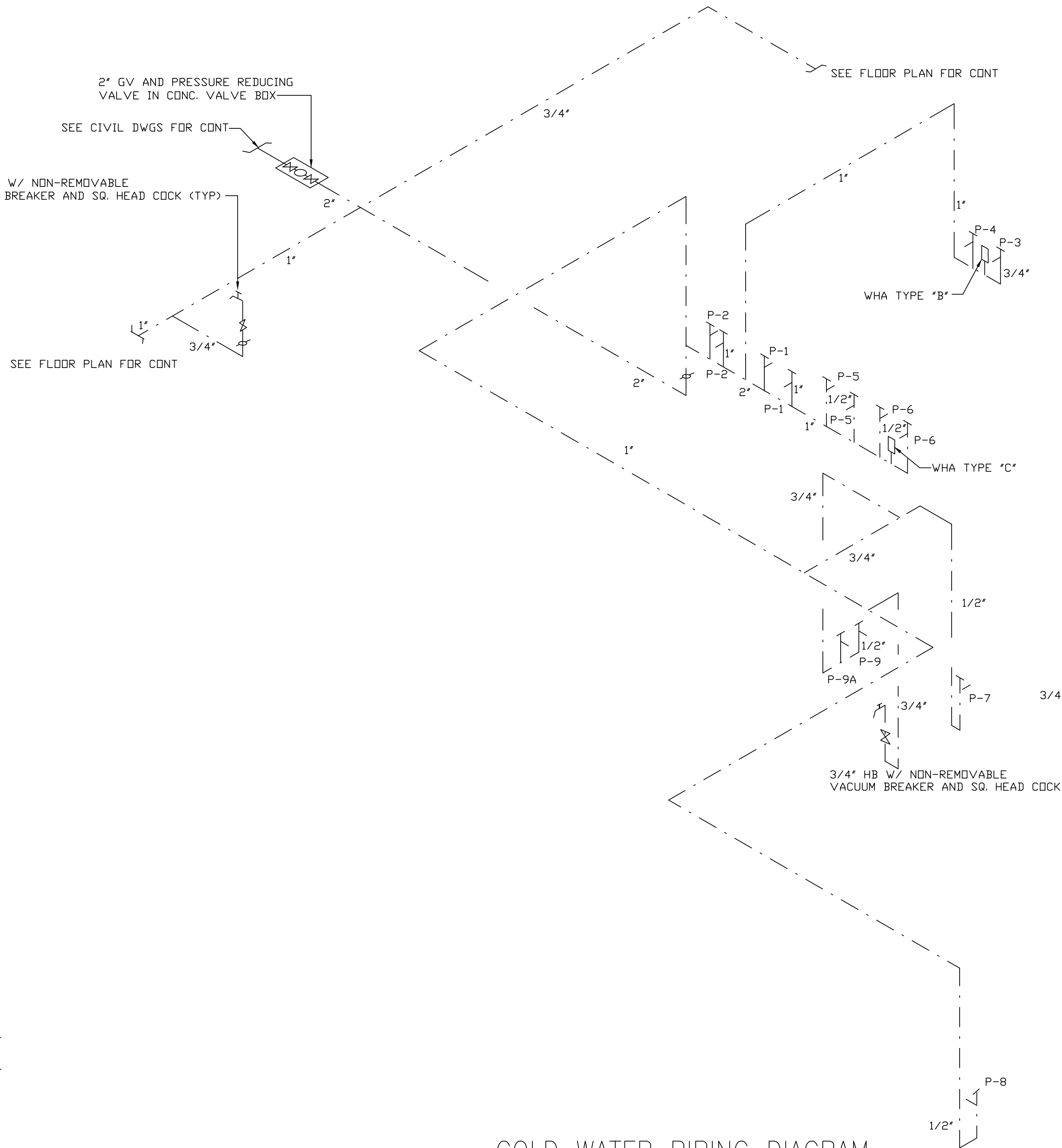


WASTE AND VENT PIPING DIAGRAM
ADMINISTRATION BUILDING
NTS

ITEM	FIXTURE DESCRIPTION
P-1	FLUSH VALVE WATER CLOSET
P-2	FLUSH VALVE WATER CLOSET (ACCESSIBLE)
P-3	FLUSH VALVE URINAL
P-4	FLUSH VALVE URINAL (ACCESSIBLE)
P-5	LAVATORY
P-6	LAVATORY (ACCESSIBLE)
P-7	SERVICE SINK
P-8	COUNTERTOP SINK
P-9	ELECTRIC WATER COOLER
P-9A	ELECTRIC WATER COOLER (ACCESSIBLE)



COLD WATER PIPING DIAGRAM
ADMINISTRATION BUILDING
NTS

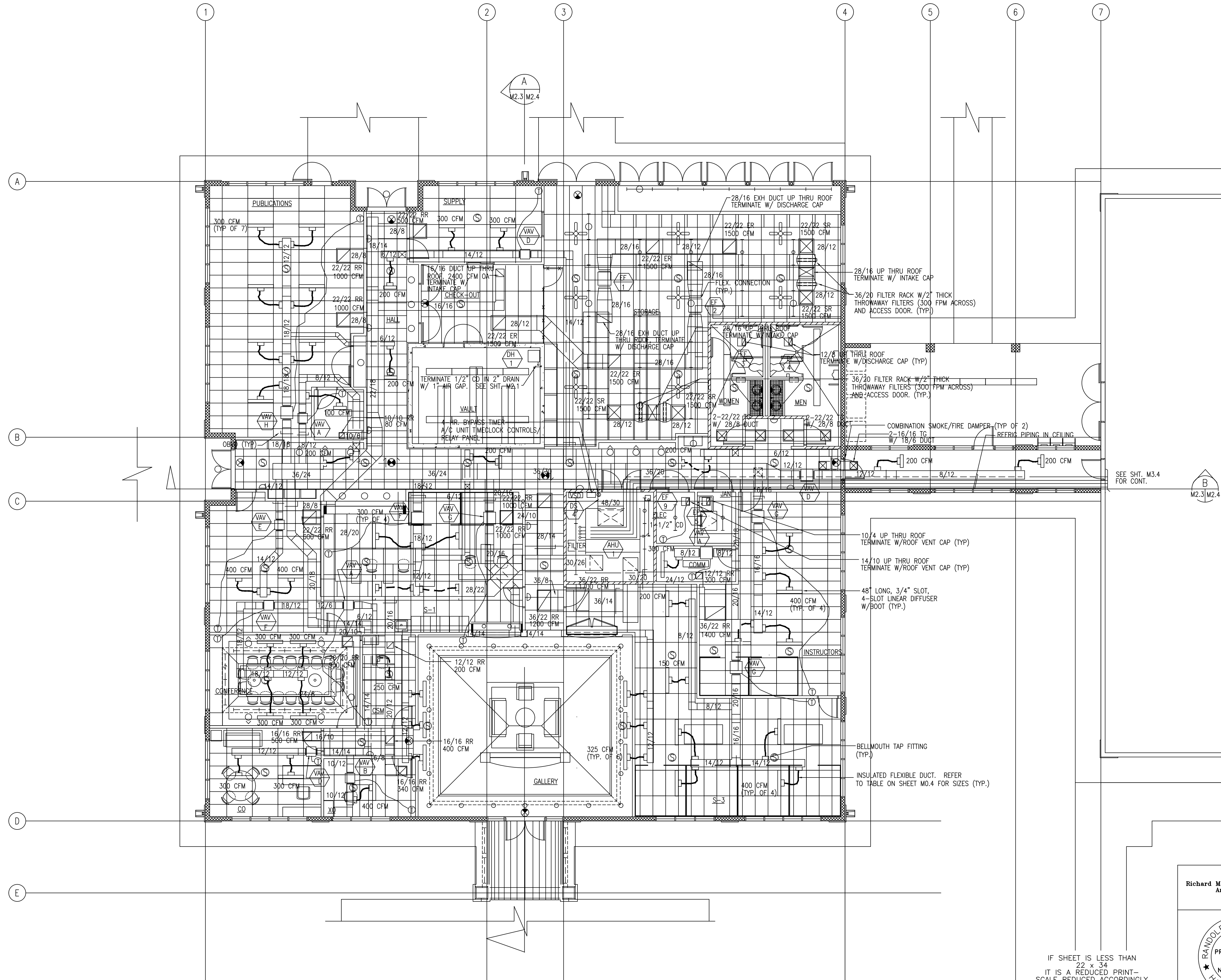


IF SHEET IS LESS THAN
22 x 34
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SCALE REDUCED ACCORDINGLY

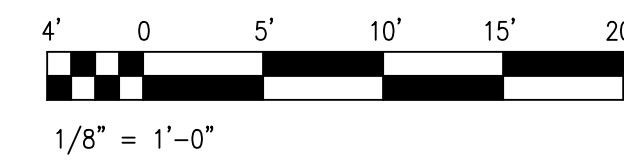
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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

Richard Matsunaga & Associates Architects, Inc.		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII	
DESIGNED: ESN DRAWN: ESN SAFETY: ENGINEER:	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLWIS AIR FORCE STATION WAIMANALO, HAWAII		
LICENSED PROFESSIONAL ENGINEER No. 3404-M HAWAII, U.S.A.		ADMINISTRATION BUILDING PLUMBING DIAGRAMS	
APPROVED: _____ HIRING, FAC MGMT OFFICER	APPROVED: _____ NGB, USPFO FOR HAWAII	DATE MARCH 28, 2000	SCALE: AS NOTED
APPROVED: _____ HING, CONTRACTING & ENGINEERING OFFICER		DWG # M2.2	SHEET 82 of 140



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

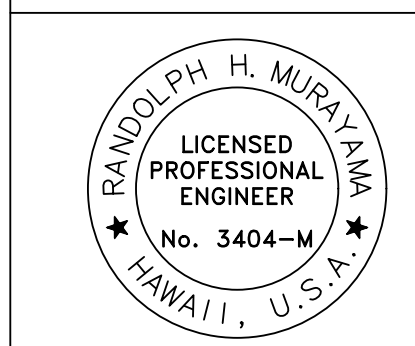


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SEE SHT. M3.4 FOR CONT.

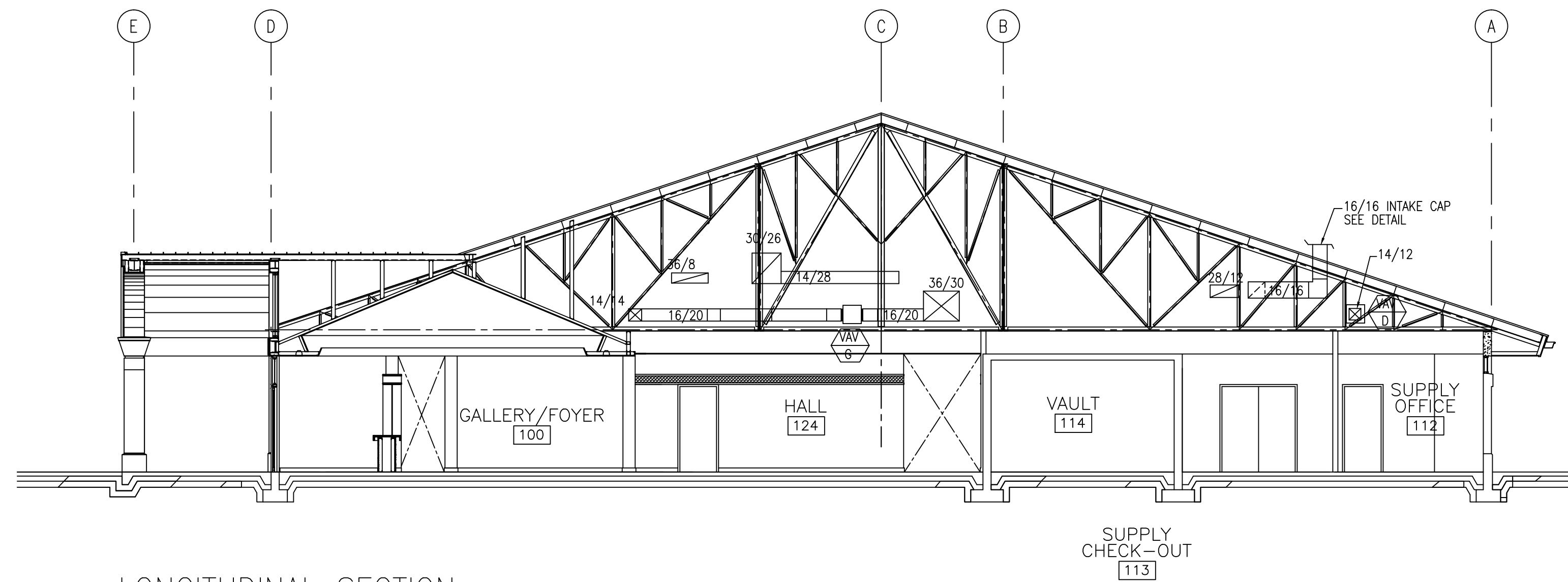
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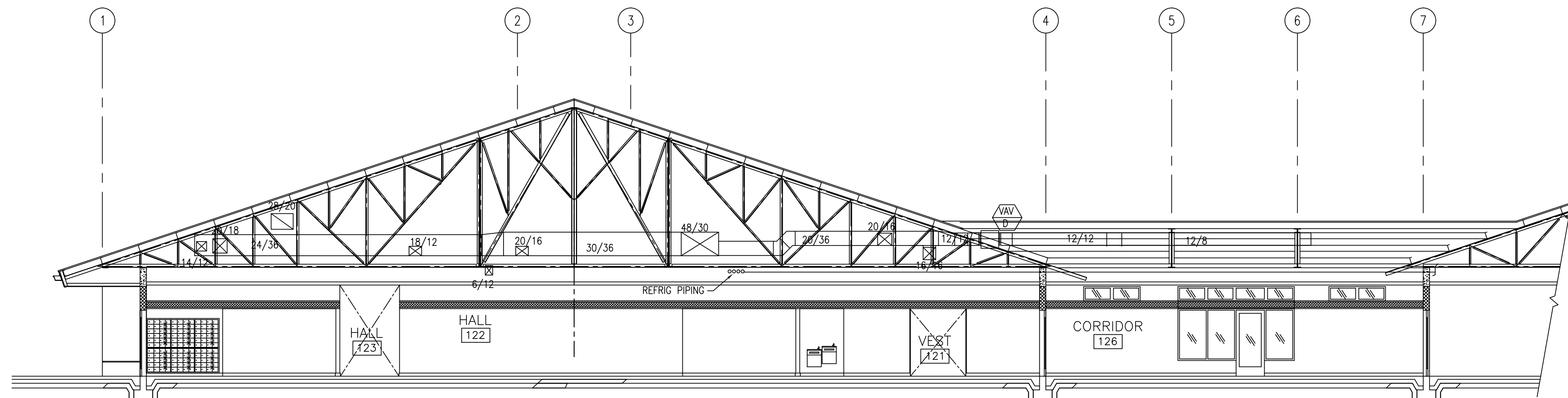
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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

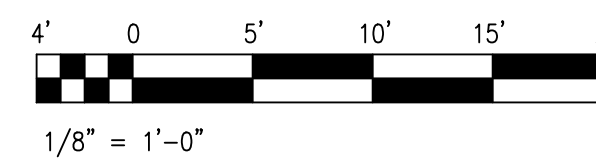
DESIGNED: ESN		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII		
DRAWN: ESN		298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLWIS AIR FORCE STATION WAIMANALO, HAWAII		
SAFETY:		ADMINISTRATION BUILDING MECHANICAL FLOOR PLAN		
ENGINEER:				
APPROVED:	APPROVED:	DATE: MARCH 28, 2000		
HIARNG, FAC MGMT OFFICER	NSB, USPFO FOR HAWAII	SCALE: AS NOTED		
APPROVED:		DWG # M2.3		
		SHEET 83 of 140		



A LONGITUDINAL SECTION
M2.3/M2.4 1/8" = 1'-0"



B CROSS SECTION
M2.3/M2.4 1/8" = 1'-0"



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OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

DESIGNED: ESN
DRAWN: ESN
SAFETY: ESN
ENGINEER: ESN

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

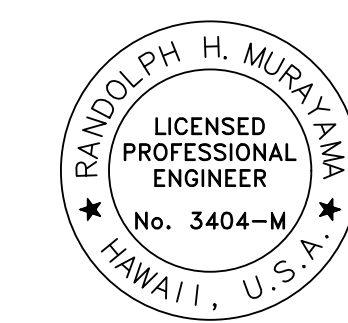
ADMINISTRATION BUILDING
SECTIONS

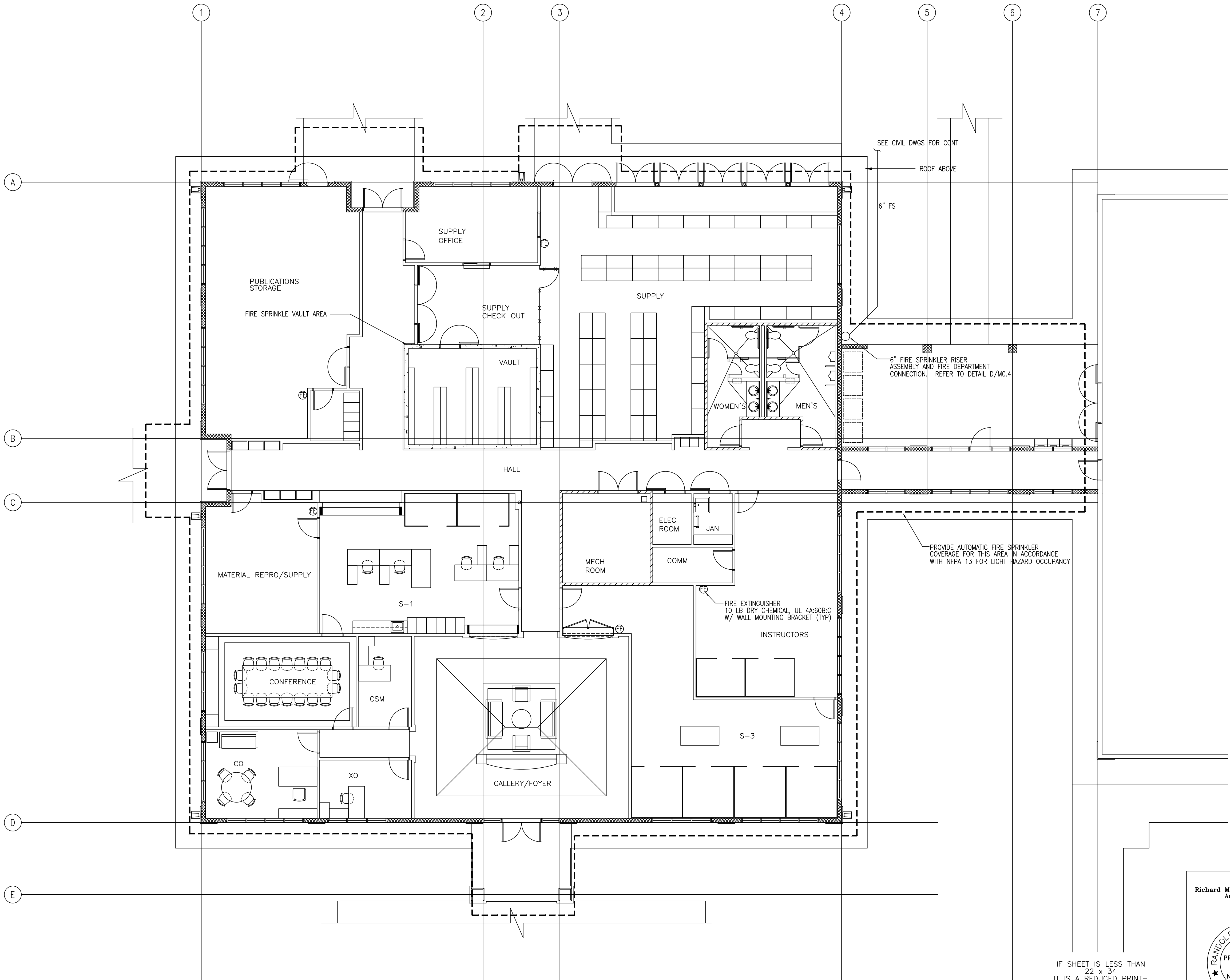
APPROVED: _____ DATE: MARCH 28, 2000
HARRING, FAC MGMT OFFICER NGB, USPFO FOR HAWAII

APPROVED: _____
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SCALE: AS NOTED
DWG # M2.4
SHEET 84 OF 140





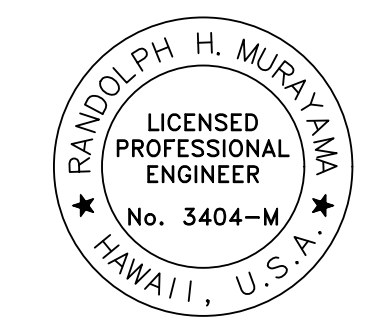
FIRE SPRINKLER FLOOR PLANS
1/8" = 1'-0"



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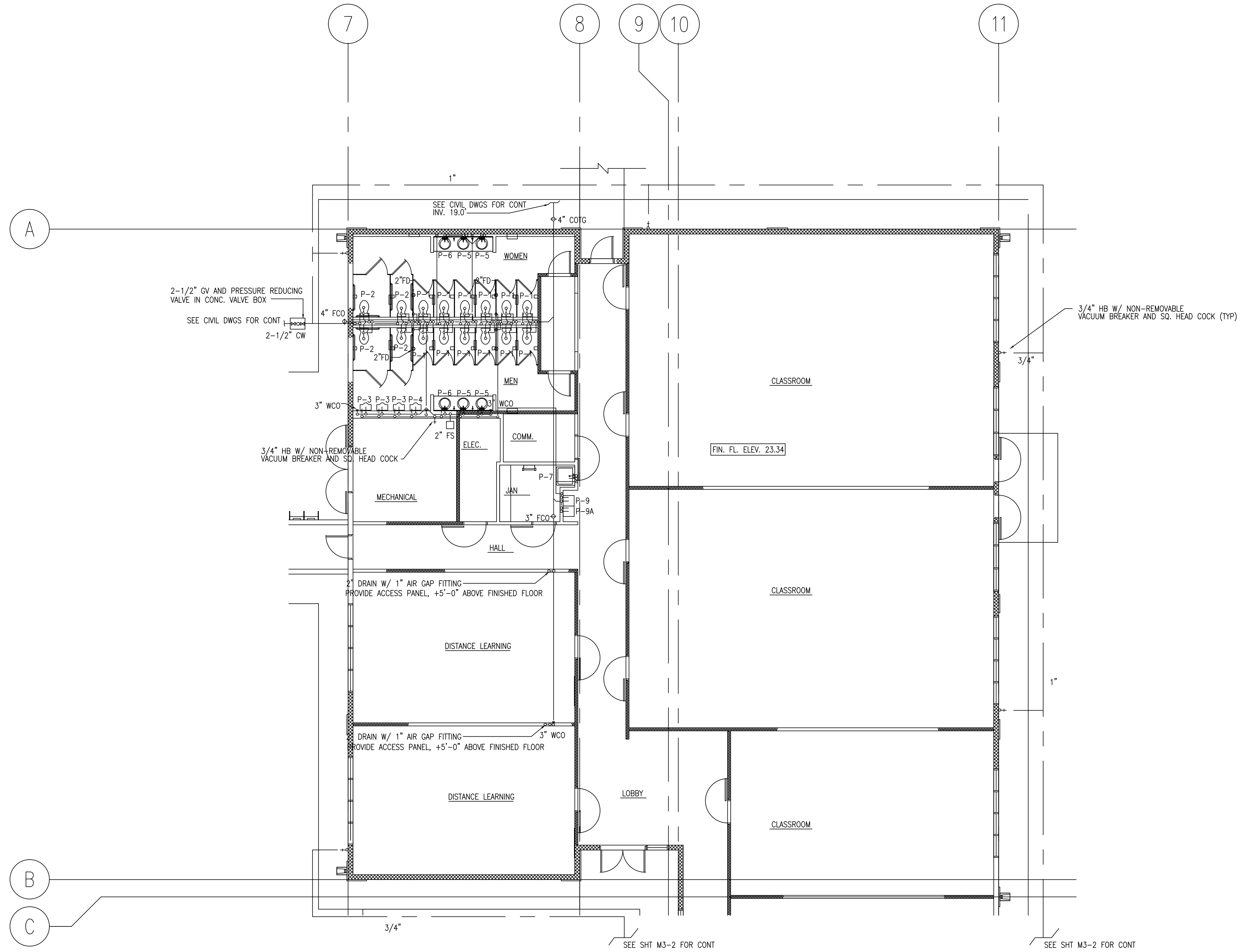
REVISION NO	DESCRIPTION	DATE	BY	CHK'D

DESIGNED: ESN		DATE: MARCH 28, 2000	
DRAWN: ESN		SCALE: AS NOTED	
SAFETY: ESN		DWC # M2.5	
ENGINEER: ESN		SHEET 85 of 140	
APPROVED: HIRING, FAC MGMT OFFICER	APPROVED: NGB, USPFO FOR HAWAII		
APPROVED: HING, CONTRACTING & ENGINEERING OFFICER			

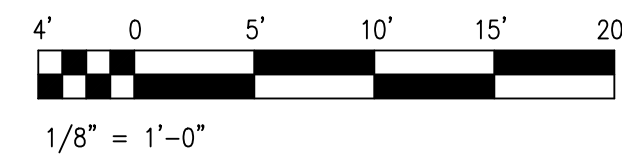
DEPARTMENTS OF THE ARMY AND AIR
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OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

ADMINISTRATION BUILDING
FIRE SPRINKLER FLOOR PLAN



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

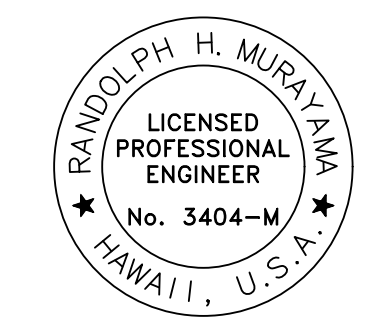


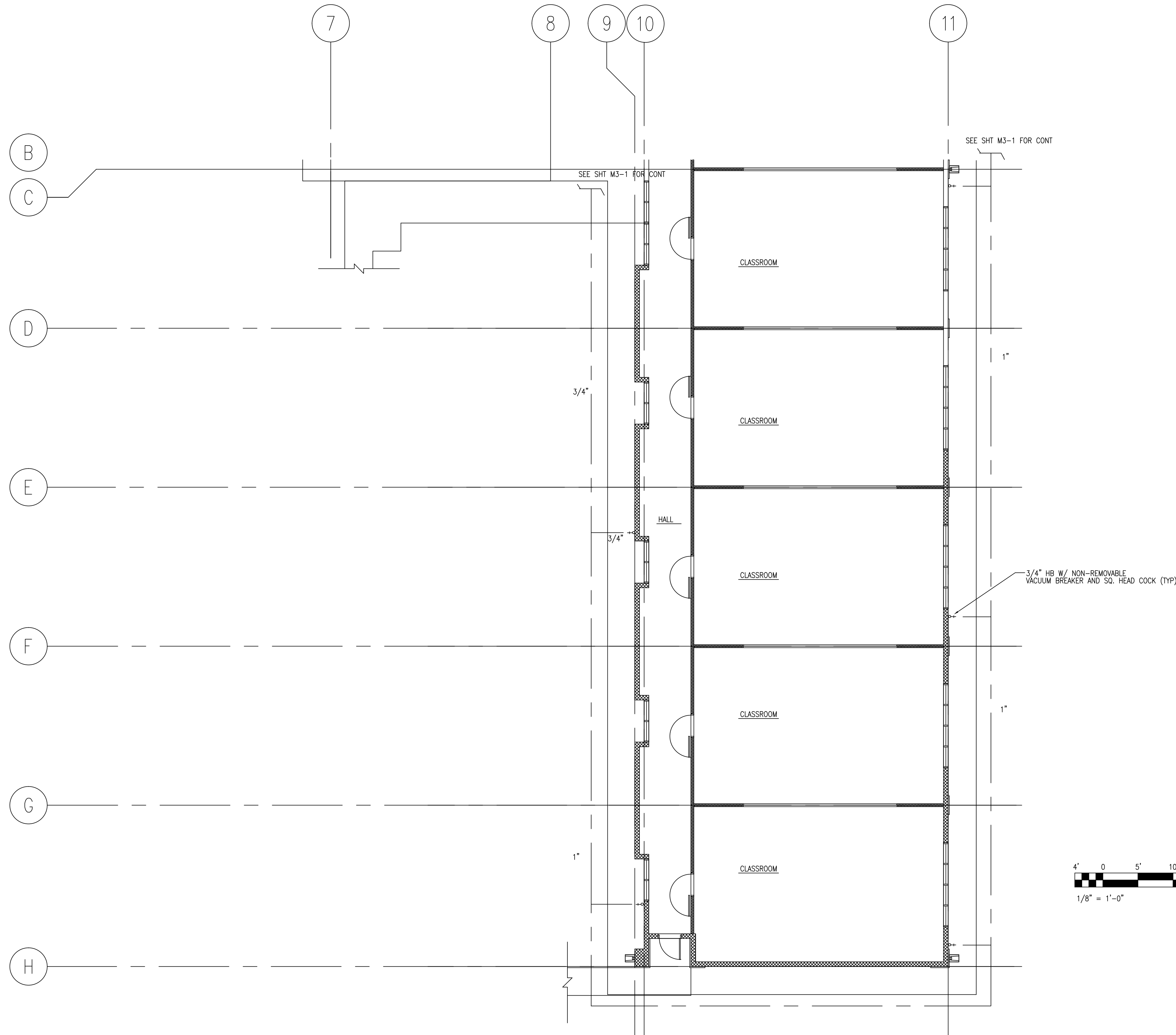
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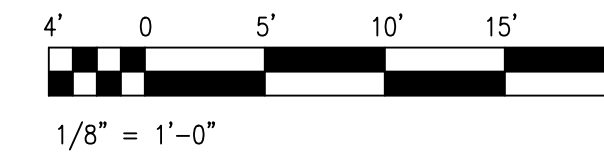
REVISION NO	DESCRIPTION	DATE	BY	CHK'D

Richard Matsunaga & Associates Architects, Inc.		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII	
DESIGNED: ESN	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOW'S AIR FORCE STATION WAIMANALO, HAWAII		
DRAWN: ESN	CLASSROOM BUILDING PARTIAL PLUMBING FLOOR PLAN		
SAFETY:			
ENGINEER:			
APPROVED:	APPROVED:	DATE	
HARRING, FAC MGMT OFFICER	NSB, USPFO FOR HAWAII	MARCH 28, 2000	
APPROVED:	APPROVED:		SCALE: AS NOTED
HING, CONTRACTING & ENGINEERING OFFICER	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION		DWG # M3.1
			SHEET 104 of 140





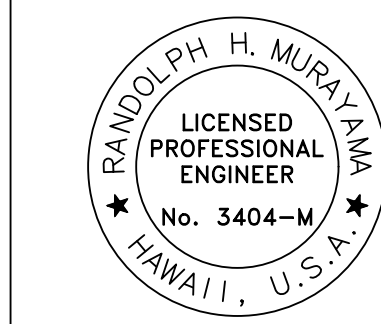
PARTIAL PLUMBING FLOOR PLAN
SCALE: 1/8" = 1'-0"



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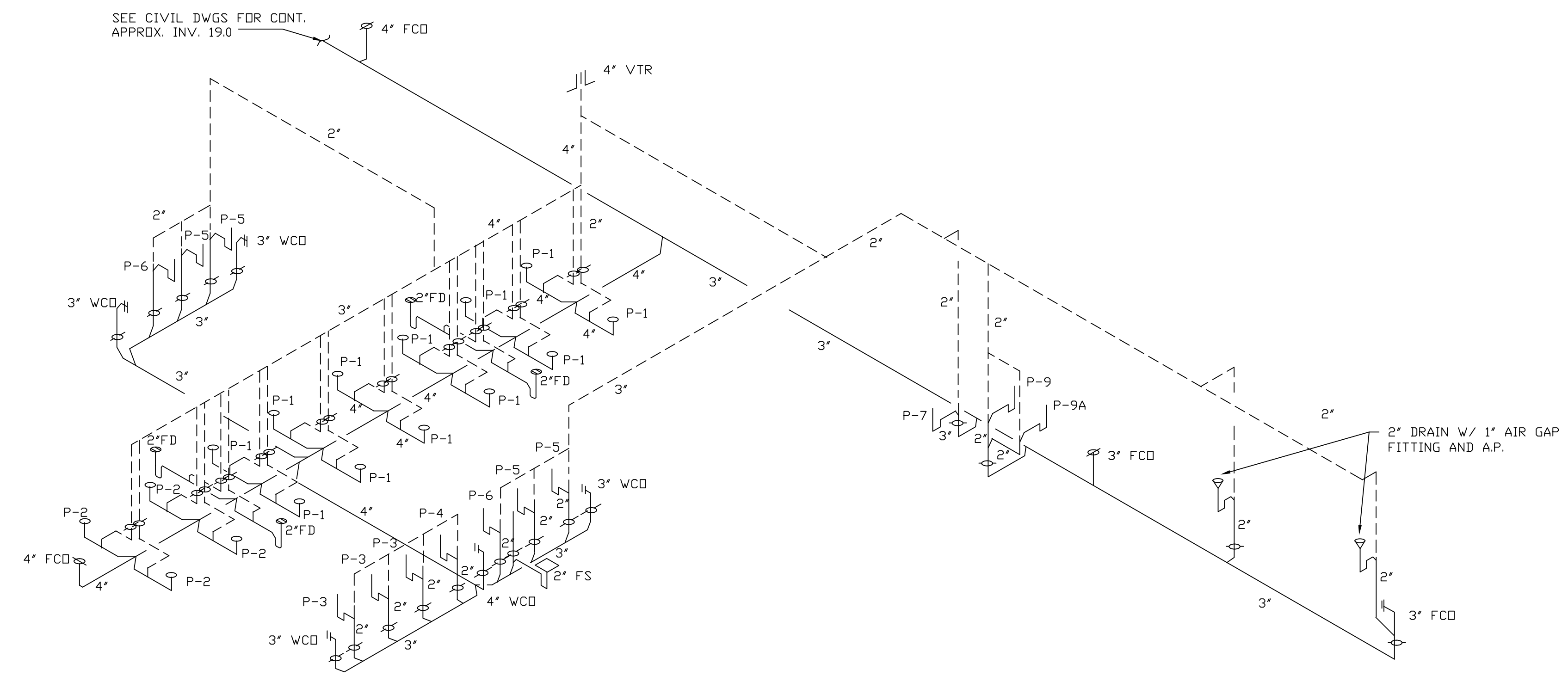
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Architects, Inc.



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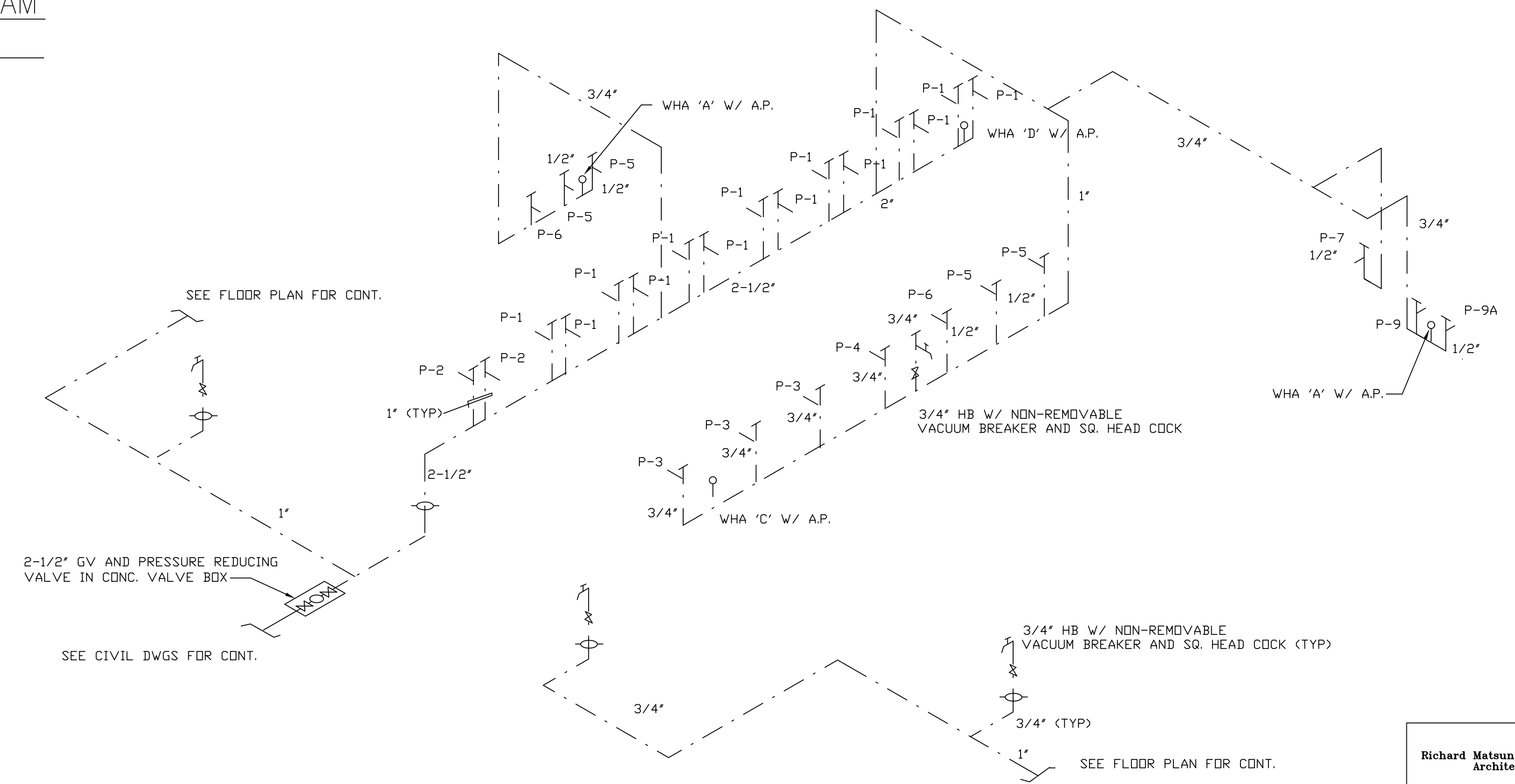
REVISION NO	DESCRIPTION	DATE	BY	CHK'D

DESIGNED: ESN		DEPARTMENTS OF THE ARMY AND AIR NATIONAL GUARD OF HAWAII OFFICE OF THE ENGINEER, FT. RUGER, HAWAII		
DRAWN: ESN		298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOW'S AIR FORCE STATION WAIMANALO, HAWAII		
SAFETY:		CLASSROOM BUILDING PARTIAL PLUMBING FLOOR PLAN		
ENGINEER:				
APPROVED:	APPROVED:	DATE: MARCH 28, 2000		
		SCALE: AS NOTED		
		DWG # M3.2		
		SHEET 105 of 140		



ITEM	FIXTURE DESCRIPTION
P-1	FLUSH VALVE WATER CLOSET
P-2	FLUSH VALVE WATER CLOSET (ACCESSIBLE)
P-3	FLUSH VALVE URINAL
P-4	FLUSH VALVE URINAL (ACCESSIBLE)
P-5	LAVATORY
P-6	LAVATORY (ACCESSIBLE)
P-7	SERVICE SINK
P-8	COUNTERTOP SINK
P-9	ELECTRIC WATER COOLER
P-9A	ELECTRIC WATER COOLER (ACCESSIBLE)

WASTE AND VENT PIPING DIAGRAM
CLASSROOM BUILDING
 NTS



COLD WATER PIPING DIAGRAM
CLASSROOM BUILDING
 NTS

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 OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

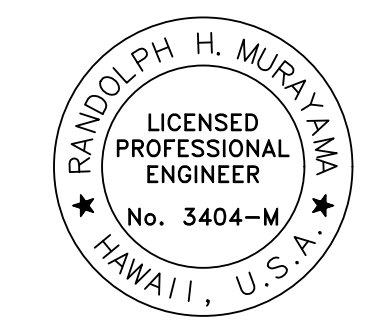
DESIGNED: ESN
 DRAWN: ESN
 SAFETY:
 ENGINEER:
 APPROVED: HIRING, FAC MGMT OFFICER
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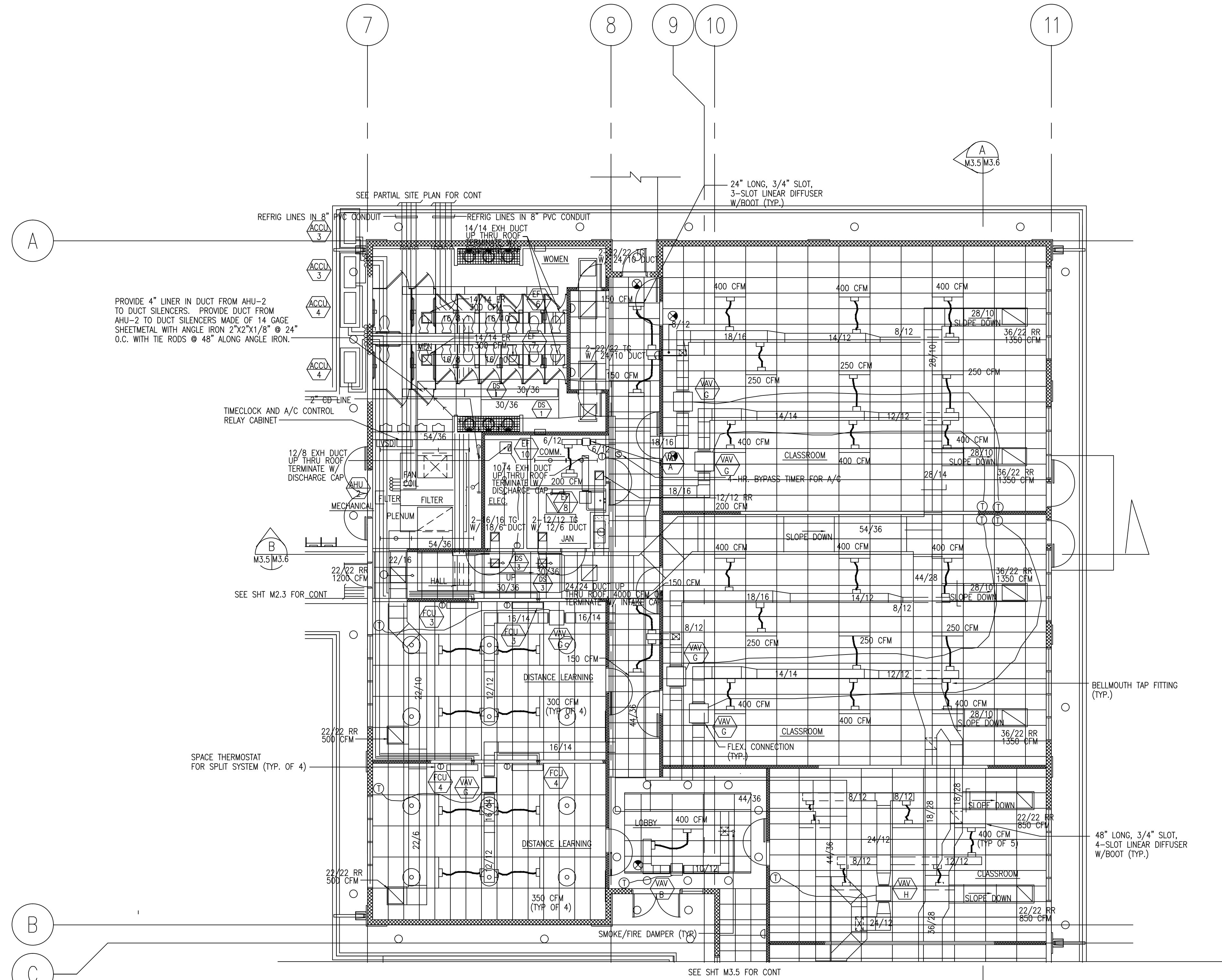
298TH REGIONAL TRAINING INSTITUTE, PHASE I
 BELLOWS AIR FORCE STATION
 WAIMANALO, HAWAII

CLASSROOM BUILDING
 PLUMBING DIAGRAMS

DATE: MARCH 28, 2000
 SCALE: AS NOTED
 DWG # M3.3
 SHEET 106 of 140

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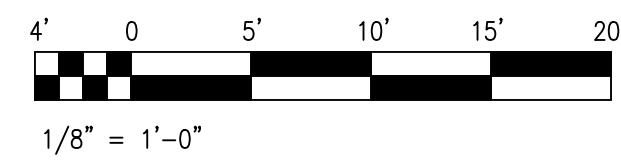


PROVIDE 4" LINER IN DUCT FROM AHU-2 TO DUCT SILENCERS. PROVIDE DUCT FROM AHU-2 TO DUCT SILENCERS MADE OF 14 GAGE SHEETMETAL WITH ANGLE IRON 2"x2"x1/8" @ 24" O.C. WITH TIE RODS @ 48" ALONG ANGLE IRON.

TIMECLOCK AND A/C CONTROL RELAY CABINET

SPACE THERMOSTAT FOR SPLIT SYSTEM (TYP. OF 4)

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

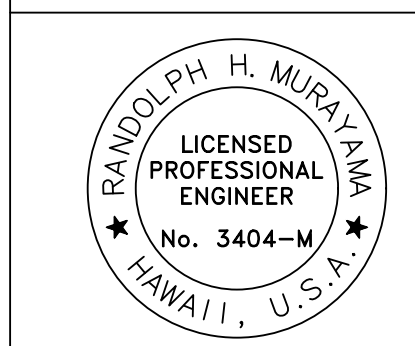


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The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

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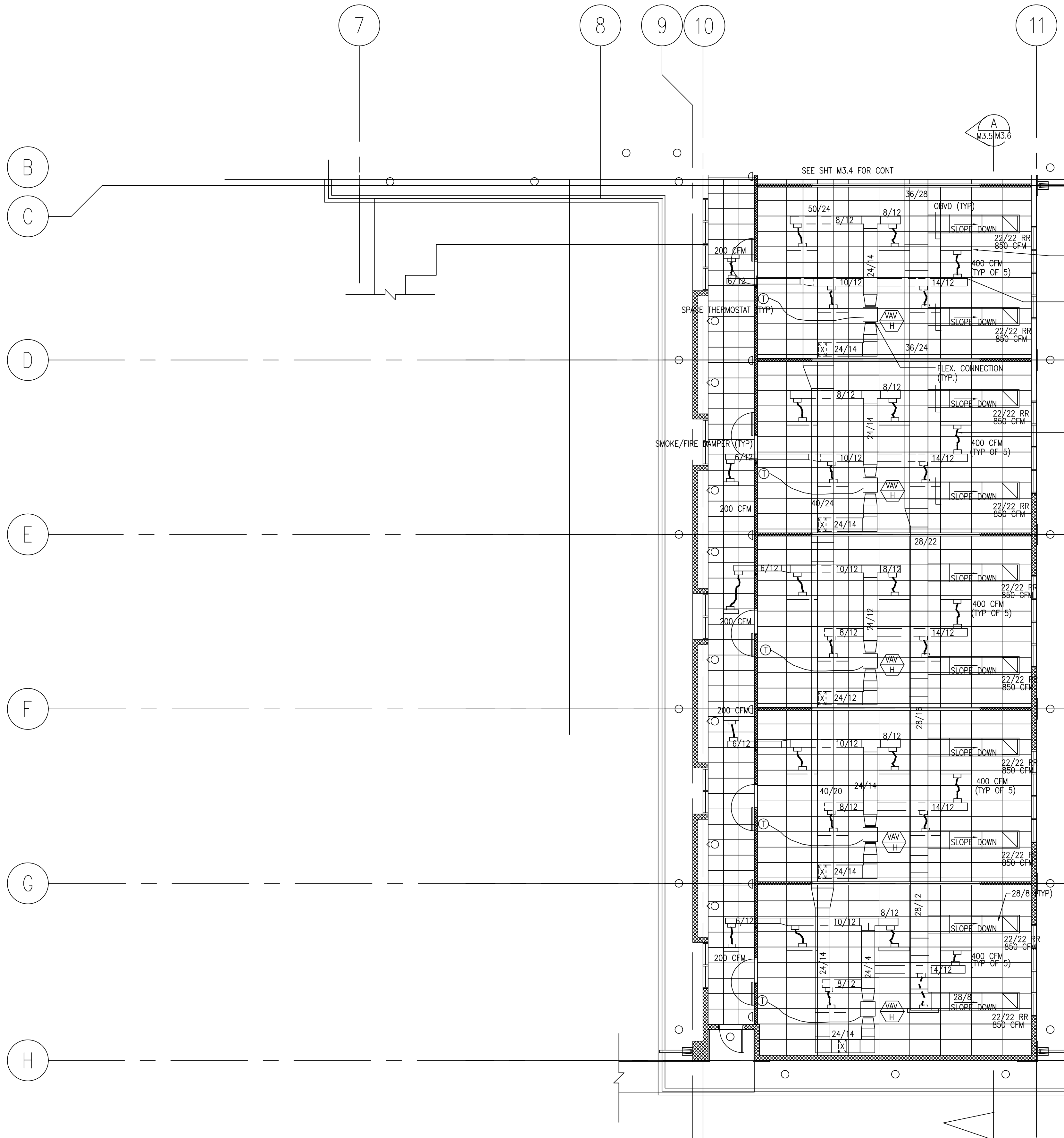
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OFFICE OF THE ENGINEER, FT. RUGER, HAWAII

298TH REGIONAL TRAINING INSTITUTE, PHASE I
BELLOW'S AIR FORCE STATION
WAIMANALO, HAWAII

CLASSROOM BUILDING
PARTIAL MECHANICAL FLOOR PLAN

DESIGNED: ESN
DRAWN: ESN
SAFETY:
ENGINEER:
APPROVED:
HARRG, FAC MGMT OFFICER
APPROVED:
HING, CONTRACTING & ENGINEERING OFFICER

DATE: MARCH 28, 2000
SCALE: AS NOTED
DWG # M3.4
SHEET 107 of 140



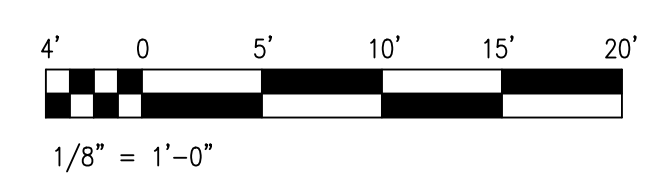
SEE SHT M3.4 FOR CONT

A
M3.5/M3.6

48" LONG, 3/4" SLOT,
4-SLOT LINEAR DIFFUSER
W/BOOT (TYP.)

BELLMOUTH TAP FITTING
(TYP.)

INSULATED FLEXIBLE DUCT. REFER
TO TABLE ON SHEET M0.4 FOR SIZES (TYP.)

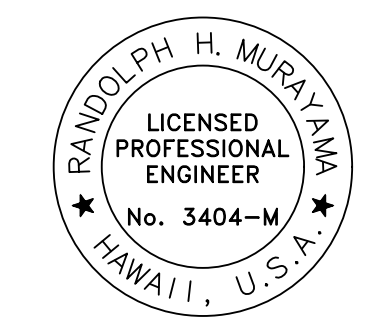


PARTIAL MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"

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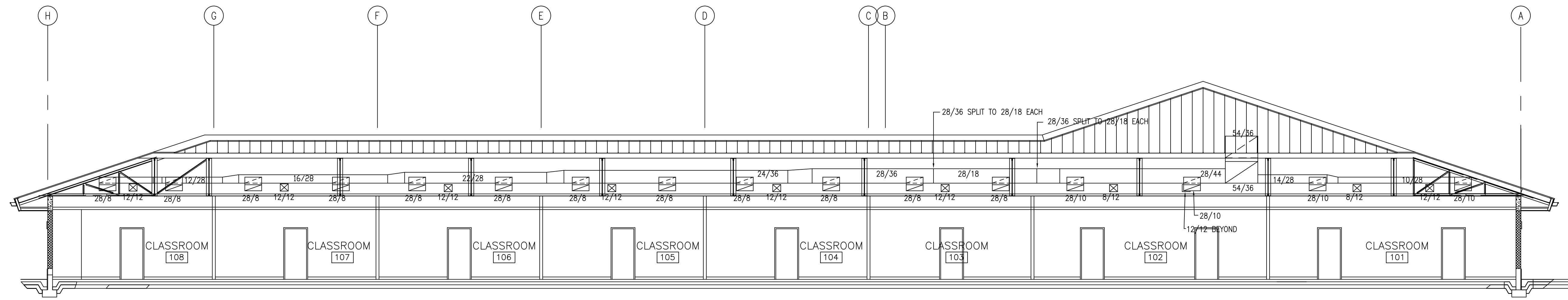
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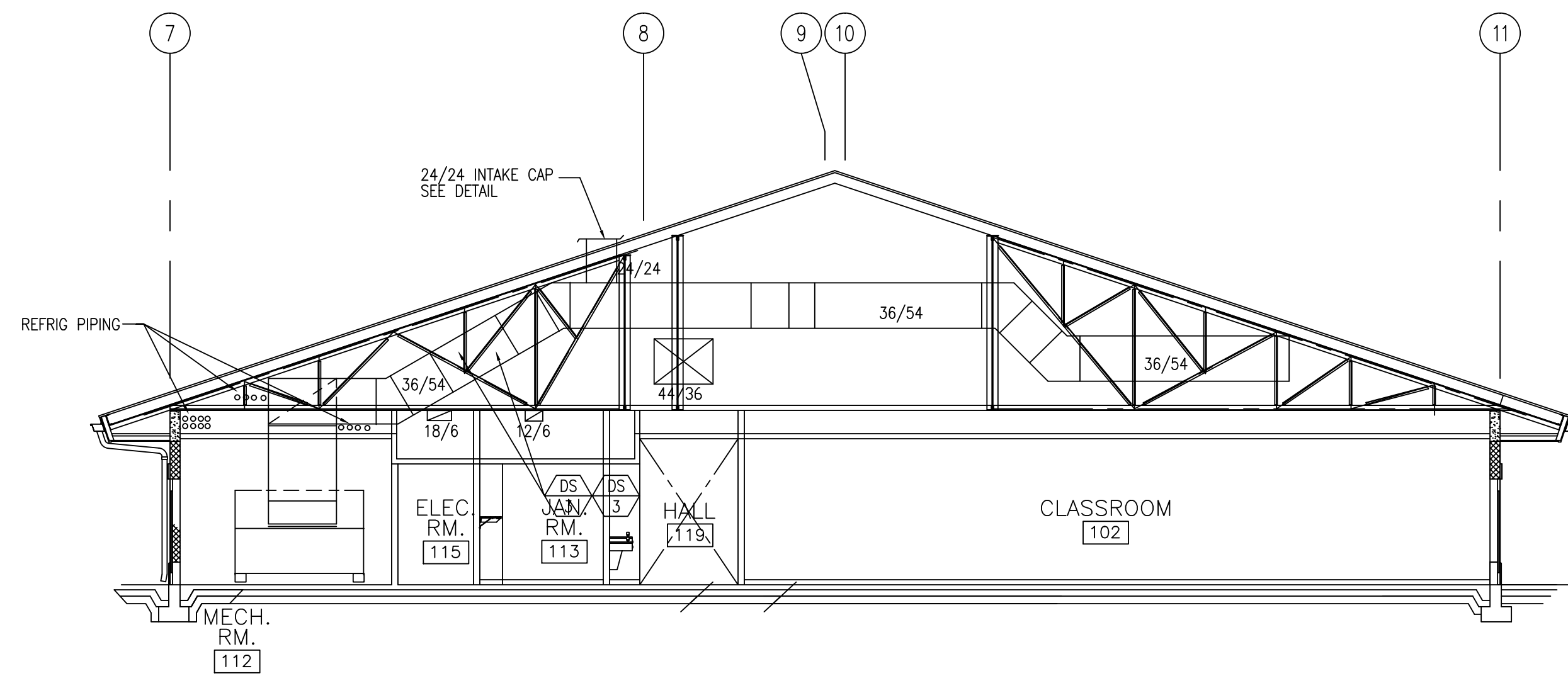
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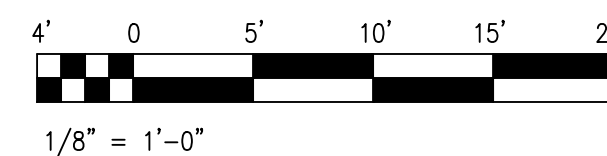
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DRAWN: ESN		298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOWS AIR FORCE STATION WAIMANALO, HAWAII		
SAFETY:		CLASSROOM BUILDING PARTIAL MECHANICAL FLOOR PLAN		
ENGINEER:				
APPROVED:	APPROVED:	DATE: MARCH 28, 2000		
HIARG, FAC MGMT OFFICER	NSB, USPFO FOR HAWAII	SCALE: AS NOTED		
APPROVED:		DWG # M3.5		
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A LONGITUDINAL SECTION
 M3.5/M3.6 1/8" = 1'-0"



B CROSS SECTION
 M3.5/M3.6 1/8" = 1'-0"

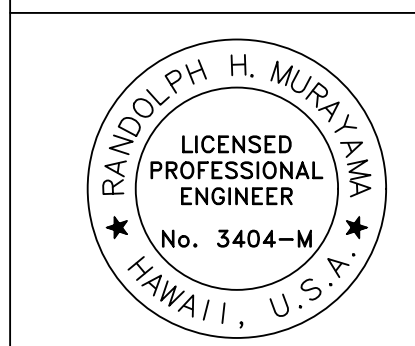


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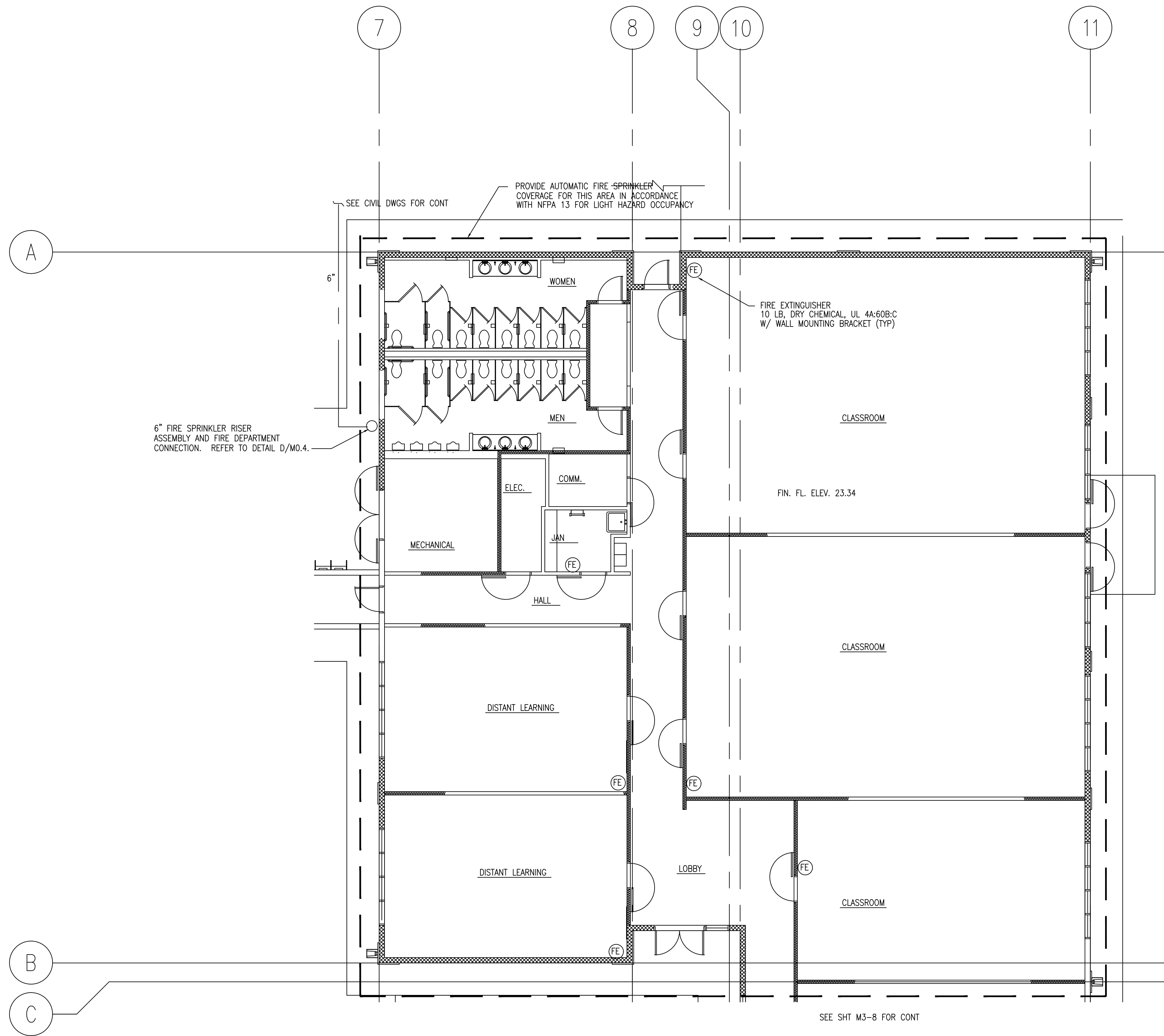
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REVISION NO	DESCRIPTION	DATE	BY	CHK'D

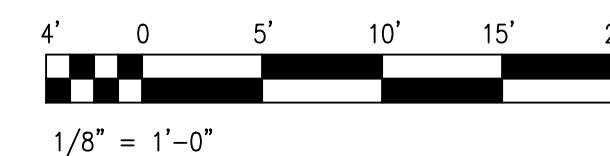
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DESIGNED: ESN DRAWN: ESN SAFETY: ENGINEER:	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOWS AIR FORCE STATION WAIMANALO, HAWAII CLASSROOM BUILDING SECTIONS		
APPROVED: HIRING, FAC MGMT OFFICER	APPROVED: NGB, USPFO FOR HAWAII	DATE MARCH 28, 2000	SCALE: AS NOTED DWG # M3.6
APPROVED: HING, CONTRACTING & ENGINEERING OFFICER		SHEET 109 of 140	



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PARTIAL FIRE SPRINKLER FLOOR PLAN
SCALE: 1/8" = 1'-0"

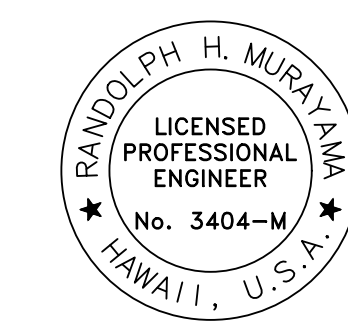


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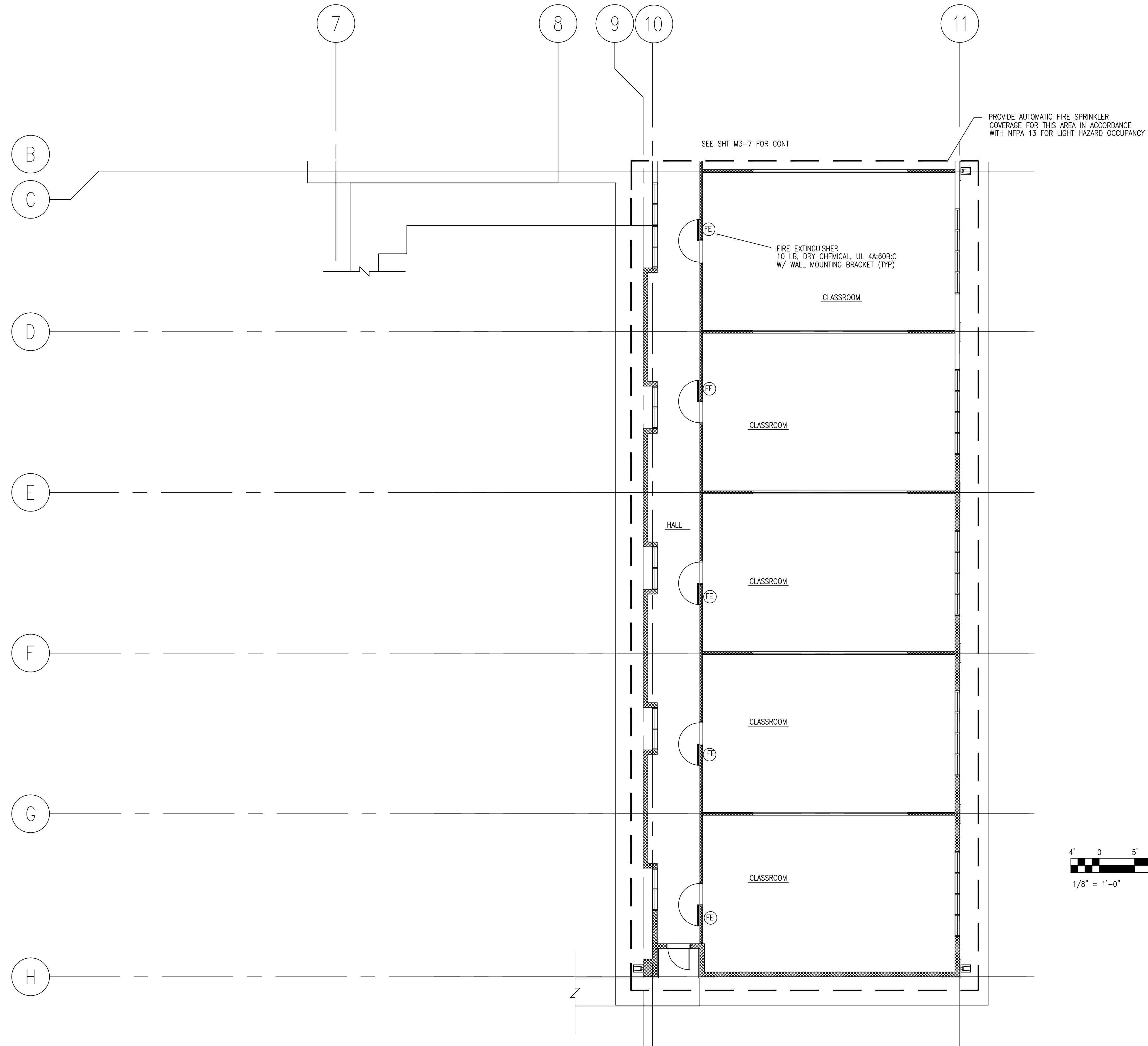
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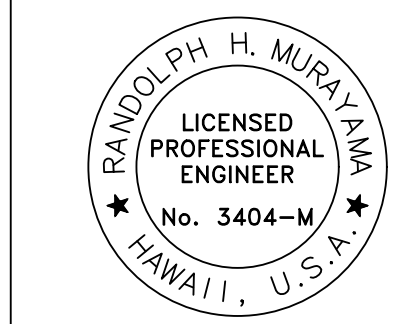


PARTIAL FIRE SPRINKLER FLOOR PLAN
SCALE: 1/8" = 1'-0"

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DESIGNED: ESN	298TH REGIONAL TRAINING INSTITUTE, PHASE I BELLOW'S AIR FORCE STATION WAIMANALO, HAWAII			
DRAWN: ESN	CLASSROOM BUILDING PARTIAL FIRE SPRINKLER FLOOR PLAN			
SAFETY:				
ENGINEER:				
APPROVED:	APPROVED:	DATE: MARCH 28, 2000		
		SCALE: AS NOTED		
		DWG # M3.8		
		SHEET 111 of 140		