

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HII-01-99	2000	22	40

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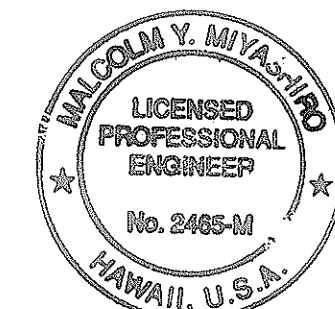
1. VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. COORDINATE WORK WITH ALL TRADES. VERIFY FIELD CONDITIONS AFFECTING OR AFFECTED BY THIS INSTALLATION. SHOULD CONFLICTS OCCUR, NOTIFY THE ENGINEER IMMEDIATELY.
3. PERFORM DEMOLITION, DRILLING, OR PENETRATION OF PAINTED SURFACES ACCORDING TO SPECIFICATION SECTION 212.
4. DUCTWORK INSTALLED ON THE SECOND FLOOR SHALL BE INSTALLED CONCEALED WITHIN THE CEILING AND SOFFIT SPACE. CHECK FIELD CONDITIONS FOR OPTIMUM ROUTING OF DUCTWORK. WORK SHALL INCLUDE RE-ROUTING OR MODIFICATIONS TO EXISTING HANGERS, CONDUITS, PIPING, ETC. TO ALLOW NEW DUCTWORK TO BE INSTALLED GENERALLY AS INDICATED.
5. ALL EXPOSED DUCTWORK AND PIPING SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
6. DESIGN HAS BEEN BASED ON EXISTING CONDITIONS THAT ARE EASILY AND READILY OBSERVABLE FOR FIELD VERIFICATION. HOWEVER, ASSUMPTIONS OF EXISTING CONDITIONS HAVE BEEN MADE FOR THOSE CONDITIONS THAT ARE NOT ACCESSIBLE FOR FIELD VERIFICATION, E.G., WITHIN WALLS, SHAFTS, CEILINGS, ETC. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SUCH HIDDEN CONDITIONS DURING CONSTRUCTION WORK IN ORDER TO ACCOMPLISH WORK SHOWN ON THESE DRAWINGS.
7. ALL SURFACES/MATERIALS DISTURBED AS A RESULT OF DEMOLITION OR INSTALLATION OF NEW WORK SHALL BE REPAIRED/FINISHED TO MATCH EXISTING ADJACENT SURFACES/MATERIALS.
8. ALL HORIZONTAL CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH A 1/4 INCH SLOPE AND WITHOUT DIPS OR SAGS.
9. FOR ALL CORINGS AND PENETRATIONS THROUGH SLABS, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING LOCATION FOR REVIEW. EXISTING REINFORCING BARS SHALL NOT BE CUT. IF A REINFORCING BAR IS ENCOUNTERED, THE CORE SHALL BE RELOCATED TO AVOID REINFORCING BAR. EXISTING BEAMS SHALL NOT BE CHIPPED OR CORED.
10. EXISTING CEILING DAMAGED DURING INSTALLATION OF AIR DEVICES SHALL BE REPLACED WITH NEW; MATCH EXISTING.
11. DUCTWORK SIZES INDICATED ON THE DRAWINGS ARE NET SIZES AND DO NOT INCLUDE A ONE INCH THICK DUCT LINER.
12. ALL CONDENSATE DRAIN PIPING SHALL BE INSULATED.
13. PROVIDE STYLE B TYPE FIRE DAMPERS BEHIND HINGED OUTSIDE AIR GRILLE FOR BOTH AIR HANDLING ENCLOSURES.
14. INSTALL FILTERS PRIOR TO INITIAL START UP OF THE AIR HANDLING UNITS.
15. THE EXISTING BUILDING IS CONSIDERED TO BE A HISTORICAL BUILDING. THEREFORE ALL WORK SHALL BE DONE TO MAINTAIN THE BUILDING'S ARCHITECTURAL INTEGRITY AND APPEARANCE. NOTIFY THE ENGINEER IN THE EVENT CONSTRUCTION MAY RESULT IN VIOLATION OF THIS REQUIREMENT.
16. PROVIDE FIRE STOPPING FOR PIPE AND DUCT PENETRATIONS THROUGH FLOORS AND INTERIOR WALLS.

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
No. _____	CHECKED BY _____

REVISED ORDINANCES 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 8.3, 9.3,  
10.3, 11.3, 12.3, OR 13.3.

*Malcolm Y. Miyashiro*  
SIGNATURE  
MALCOLM Y. MIYASHIRO  
NAME (PRINT)  
PRINCIPAL MECH. ENGINEER  
TITLE  
2485-M  
PE OR ARCH. LICENSE NO.  
*Malcolm Y. Miyashiro*  
HAWAII, U.S.A.  
MALCOLM Y. MIYASHIRO  
LICENSED  
PROFESSIONAL ENGINEER  
No. 2485-M



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION

My. Meyer

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

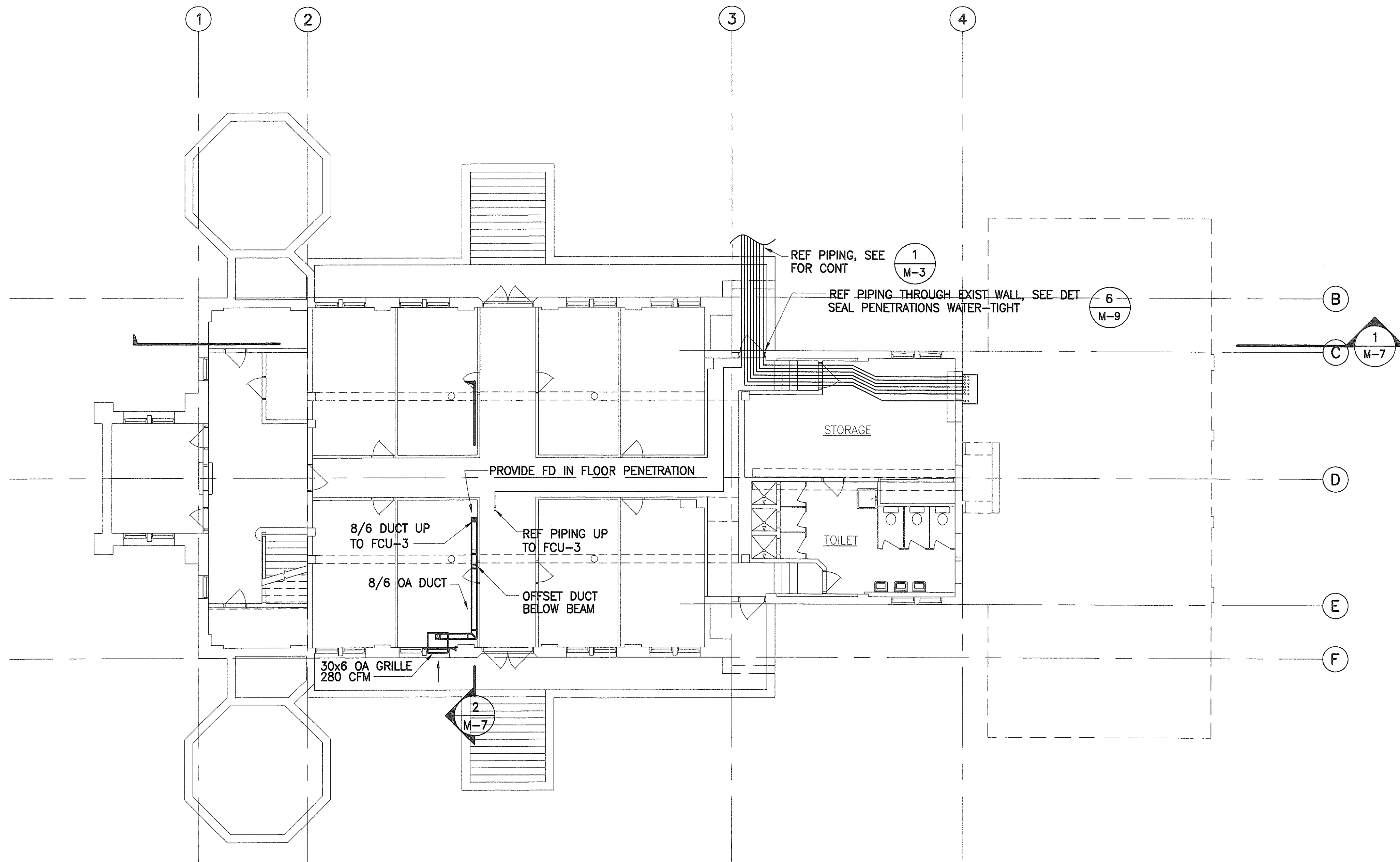
LEGEND, ABBREVIATIONS,  
AND NOTES

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H1I-01-99

Scale: **AS NOTED** Date: **12/01/99**

**SHEET No. M-1 OF 10 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	23	40



**1 BASEMENT AIR CONDITIONING PLAN**  
M-2 SCALE: 1/8"=1'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

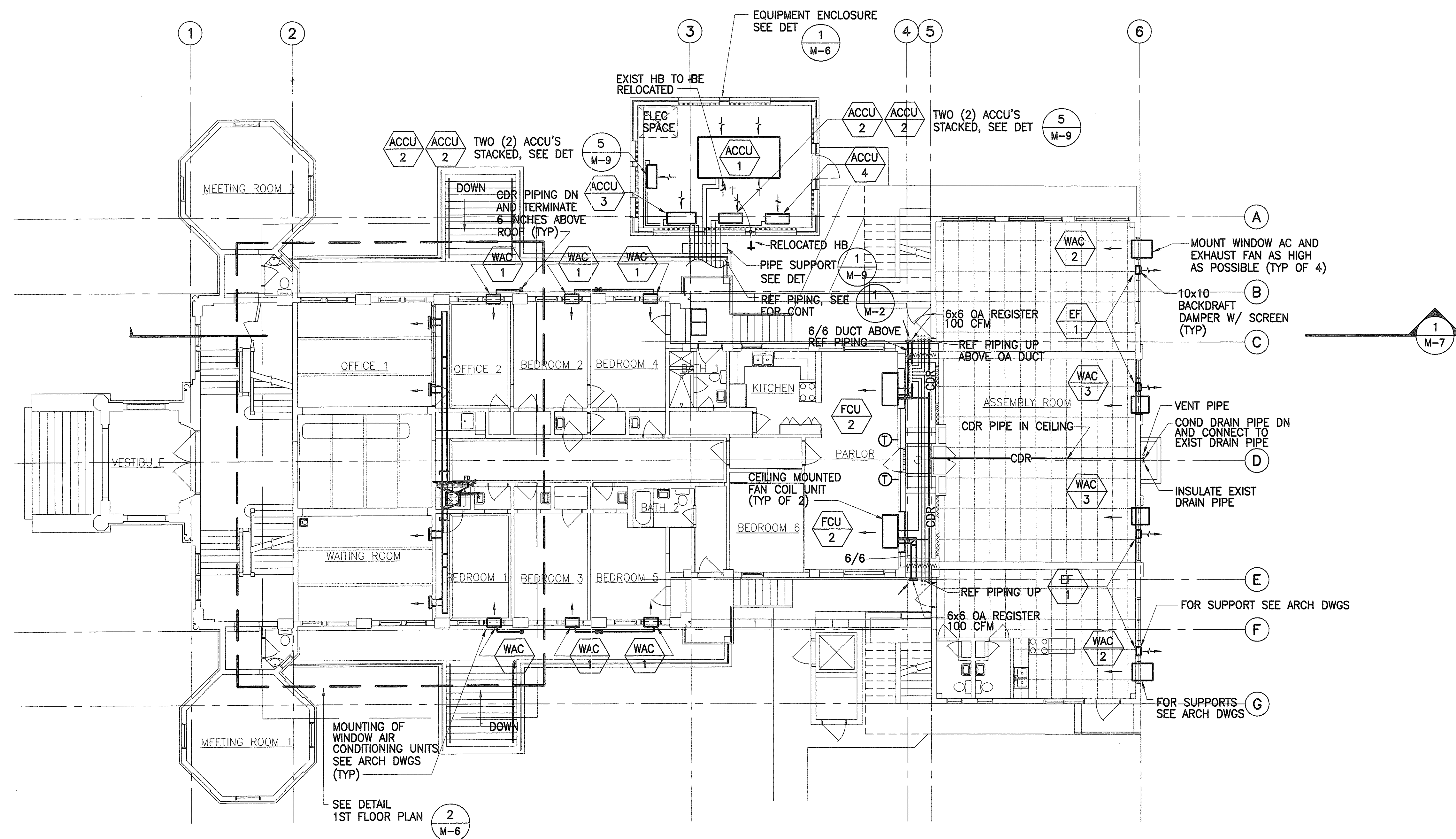


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*M. Y. Miyake*

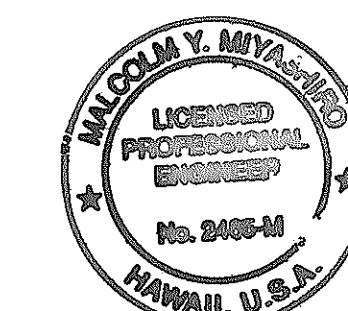
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**BASEMENT**  
**AIR CONDITIONING PLAN**  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99  
Scale: AS NOTED Date: 12/01/99  
SHEET No. M-2 OF 10 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	24	40



1 FIRST FLOOR AIR CONDITIONING PLAN  
M-3 SCALE: 1/8"=1'-0"



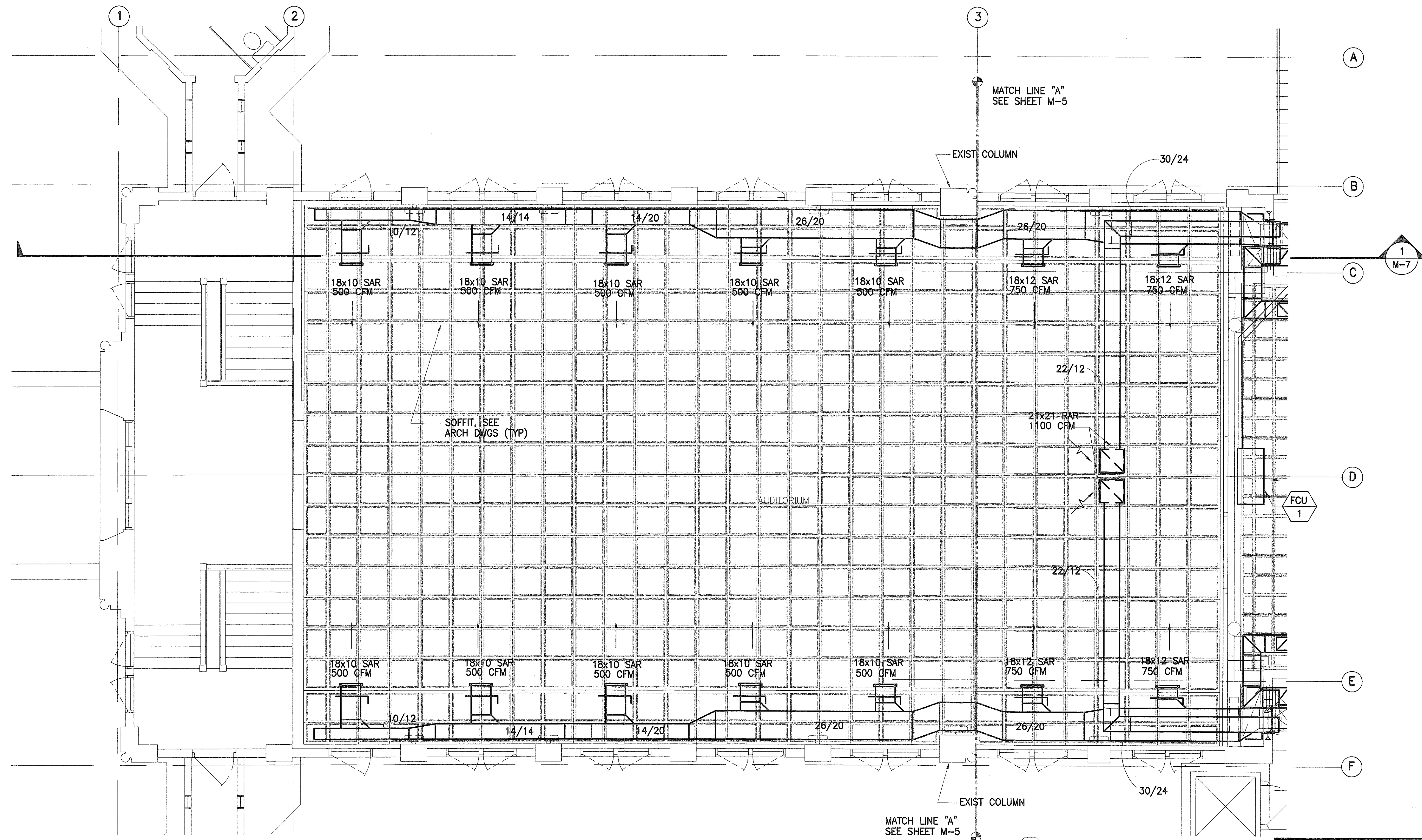
THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION  
*M. Y. Miyake*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**FIRST FLOOR**  
**AIR CONDITIONING PLAN**  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99  
Scale: AS NOTED Date: 12/01/99  
SHEET No. M-3 OF 10 SHEETS

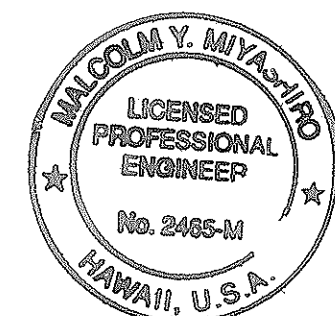
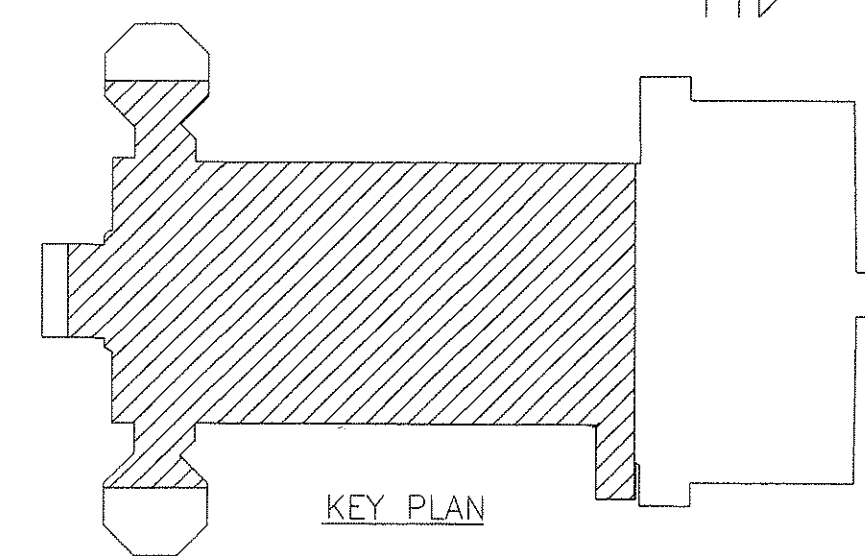
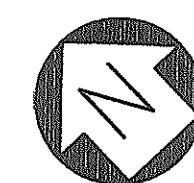
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	25	40



**1 SECOND FLOOR AIR CONDITIONING PLAN**  
M-4 SCALE: 1/4"=1'-0"



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*M. Y. Miyashiro*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SECOND FLOOR  
AIR CONDITIONING PLAN**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99

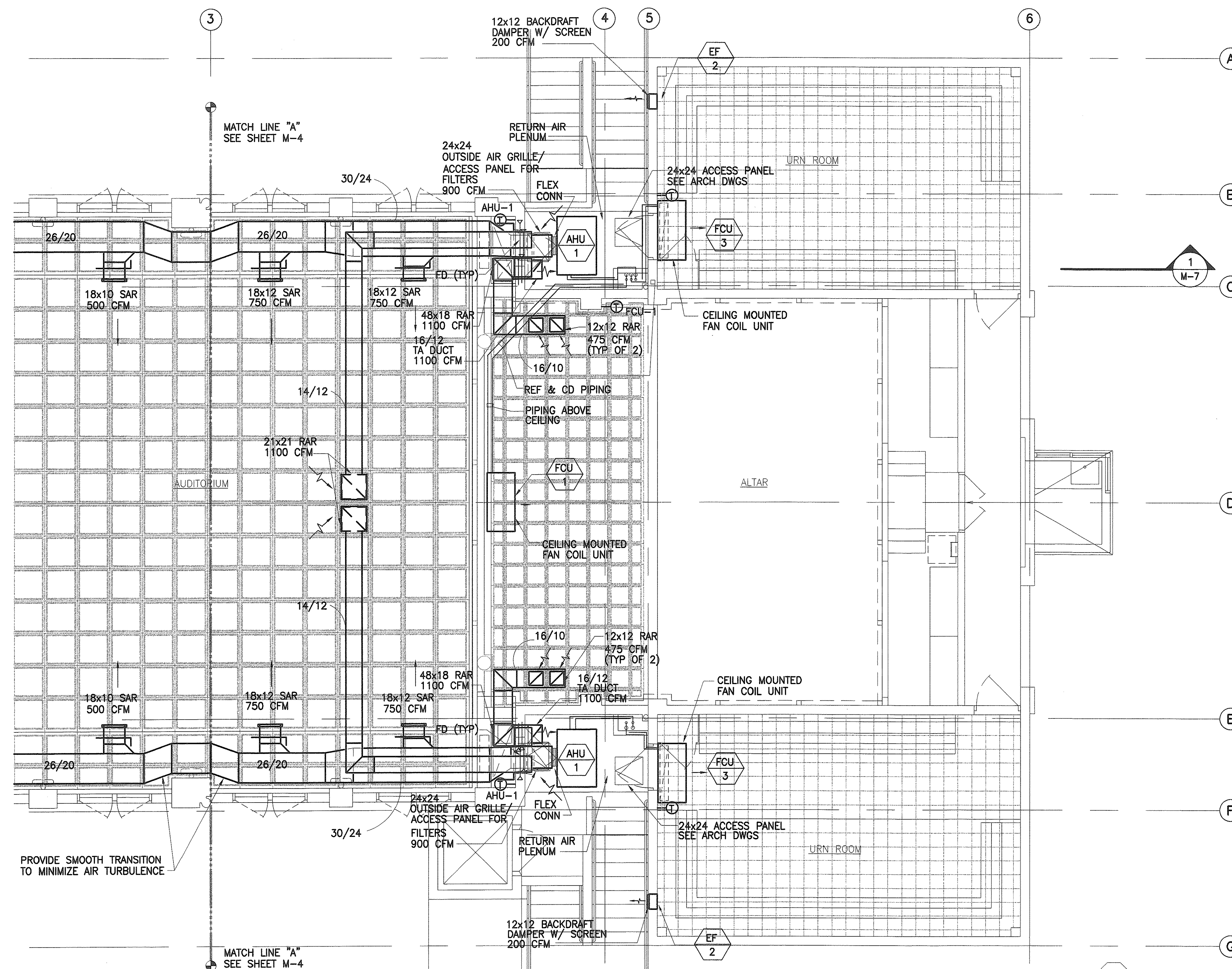
Scale: AS NOTED Date: 12/01/99

SHEET No. M-4 OF 10 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	26	40

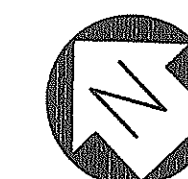


NOTES: 1. OUTSIDE AIR GRILLES FOR AHU SHALL BE  
HINGED TO PROVIDE ACCESS TO FILTERS FOR THE AHU

2. PROVIDE FILTERS ON THE OUTSIDE AIR GRILLES

## 1 SECOND FLOOR AIR CONDITIONING PLAN

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



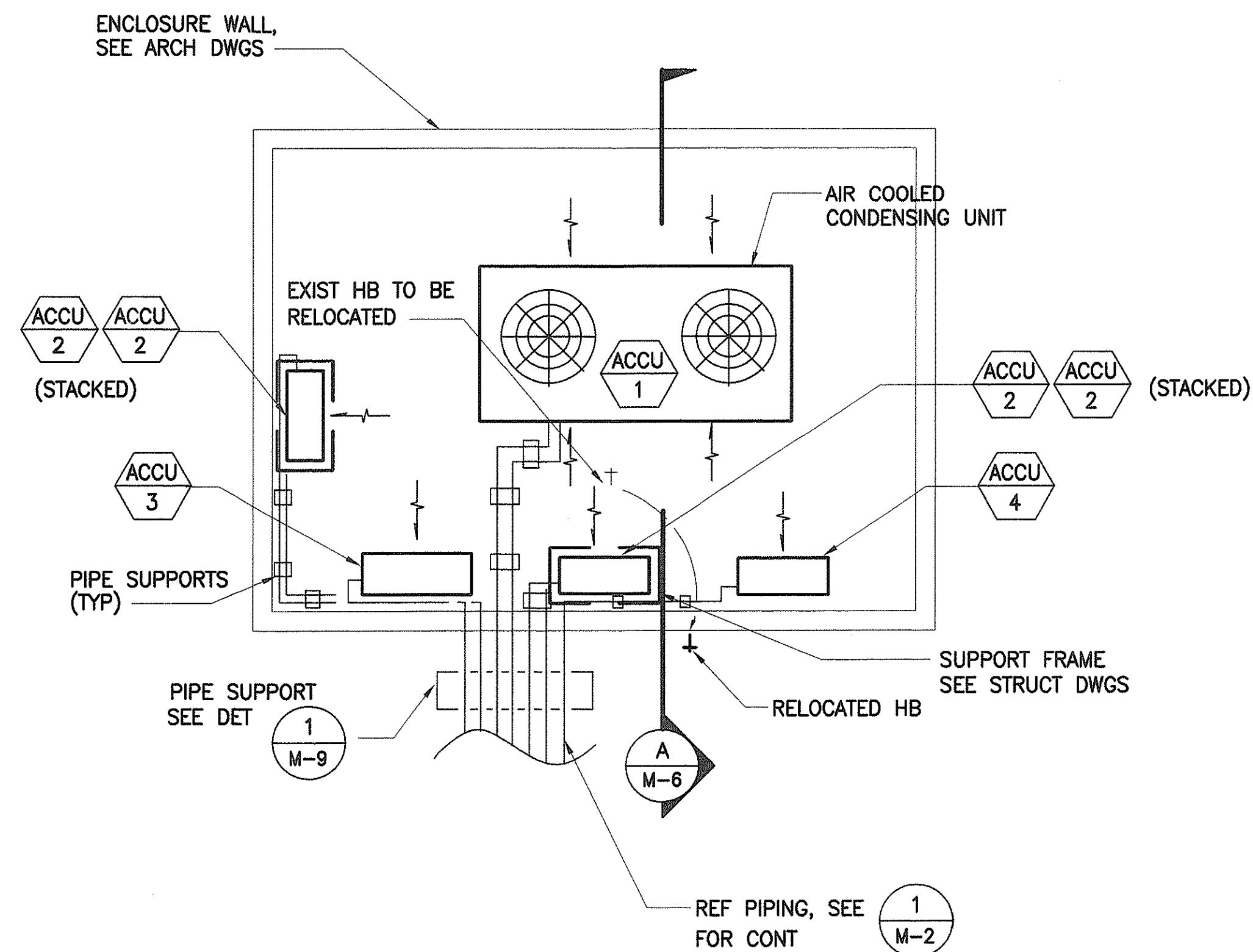
KEY PLAN  
SCALE: NONE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
SECOND FLOOR  
AIR CONDITIONING PLAN  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99

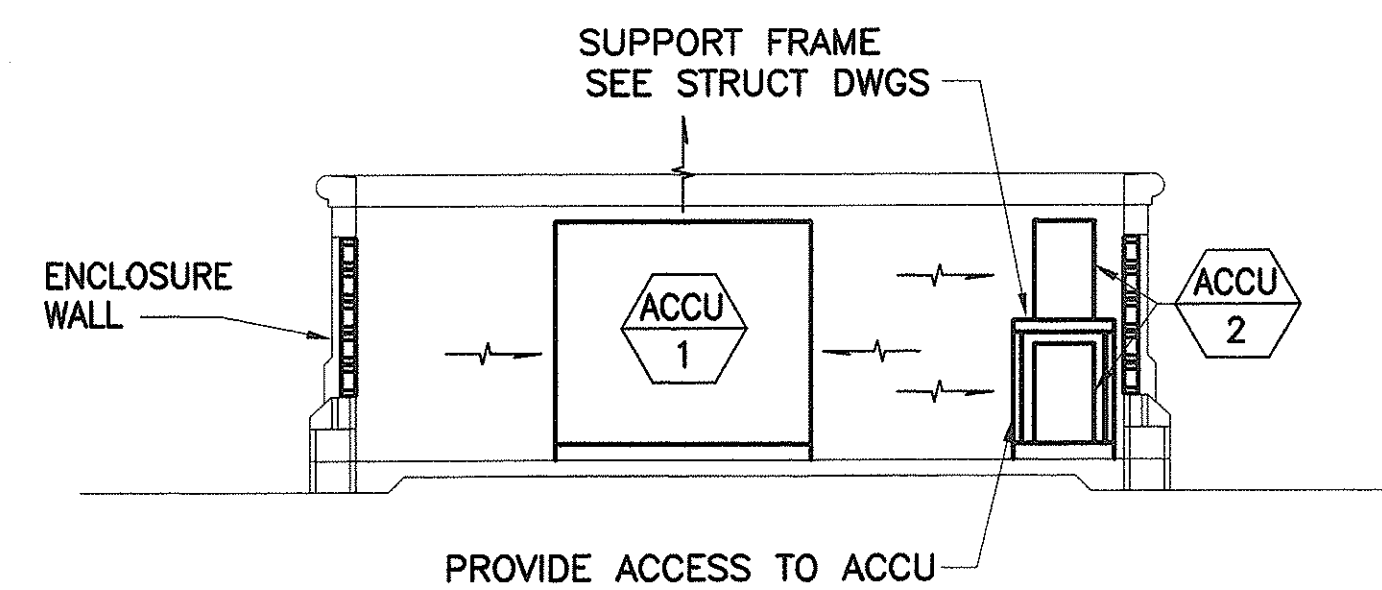
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SHEET No. M-5 OF 10 SHEETS

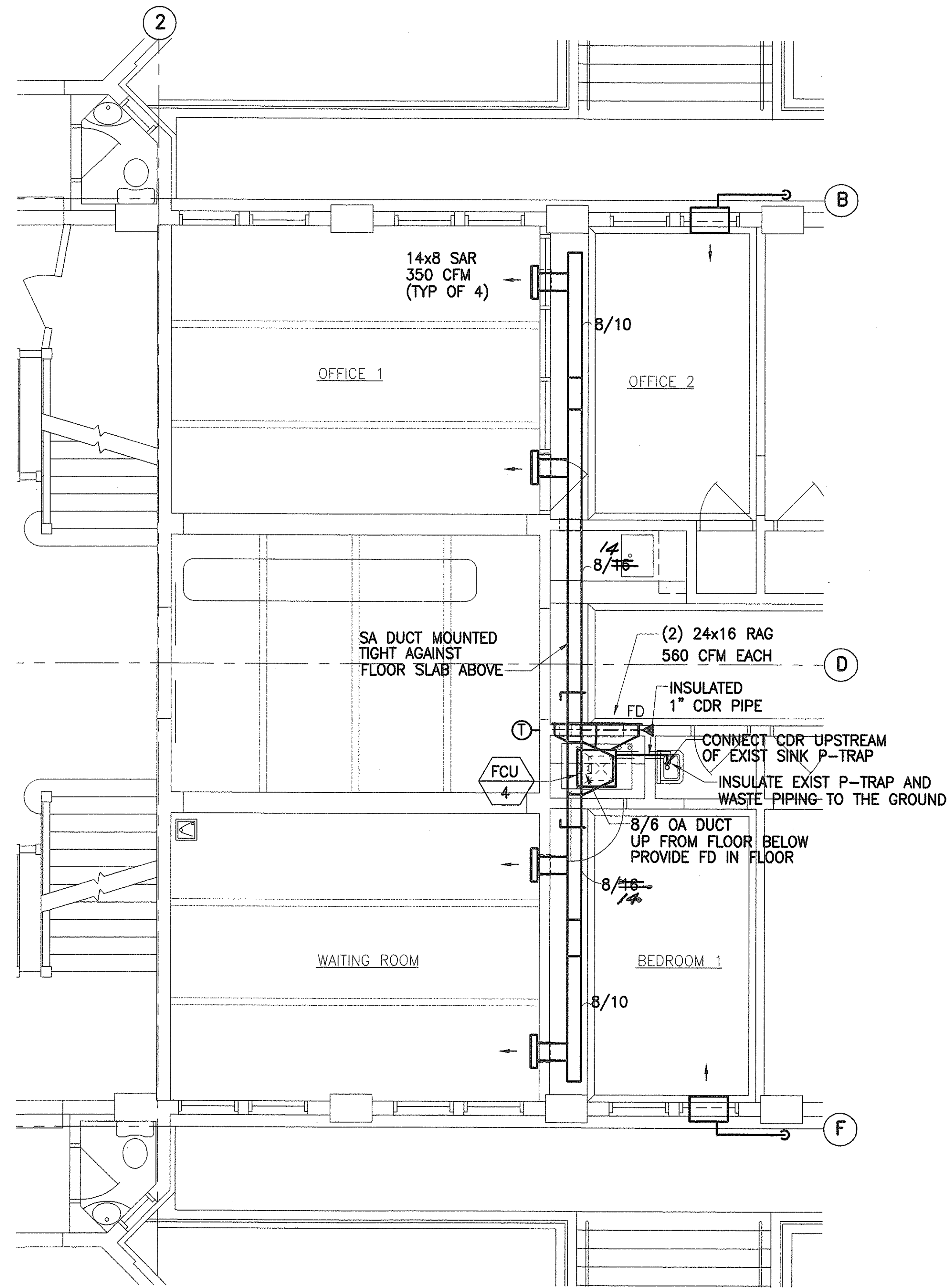
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	27	40



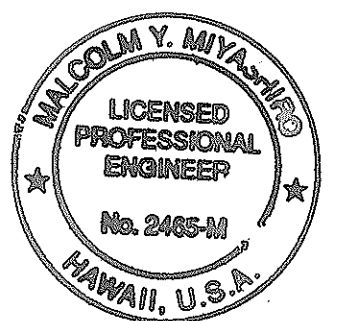
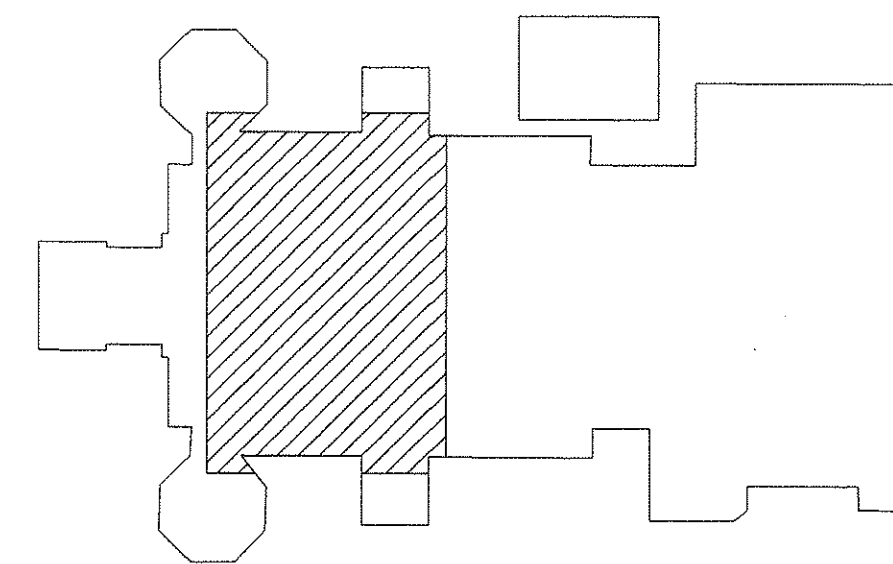
**1 EQUIPMENT ENCLOSURE DETAIL PLAN**  
M-6 SCALE: 1/4"=1'-0"



**A SECTION**  
M-6 SCALE: 1/4"=1'-0"



**2 DETAIL 1ST FLOOR PLAN**  
M-6 SCALE: 1/4"=1'-0"



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*M. Y. Miyashiro*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ENCLOSURE DETAIL PLAN, SECTION AND DETAIL 1ST FLOOR PLAN**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99

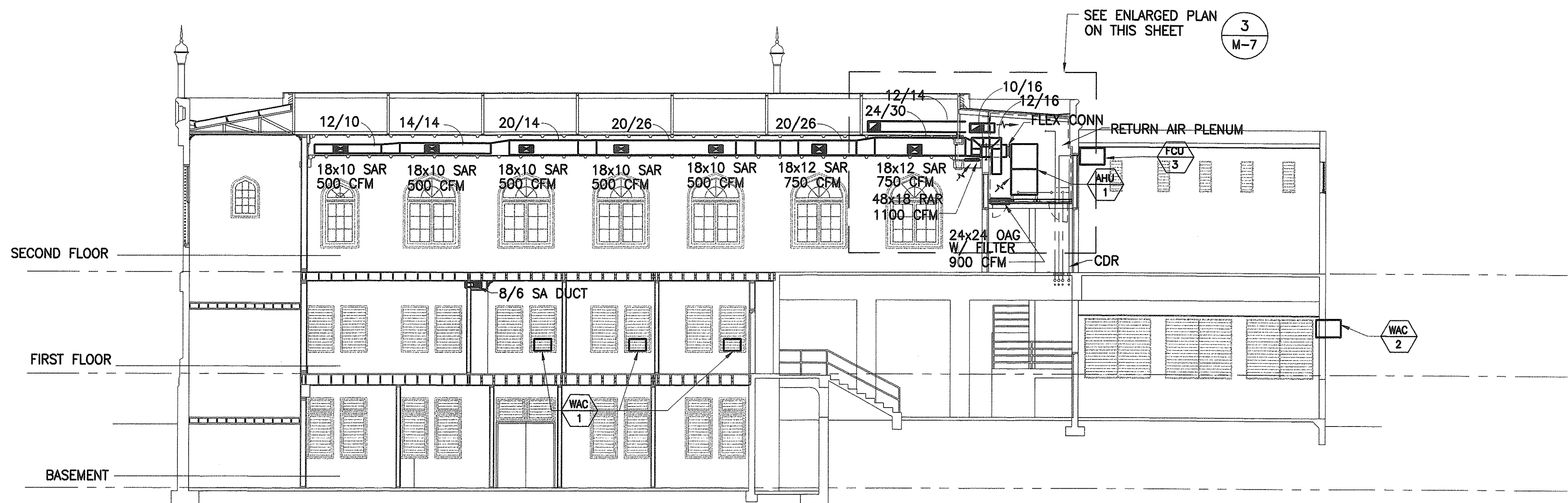
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SHEET No. M-6 OF 10 SHEETS

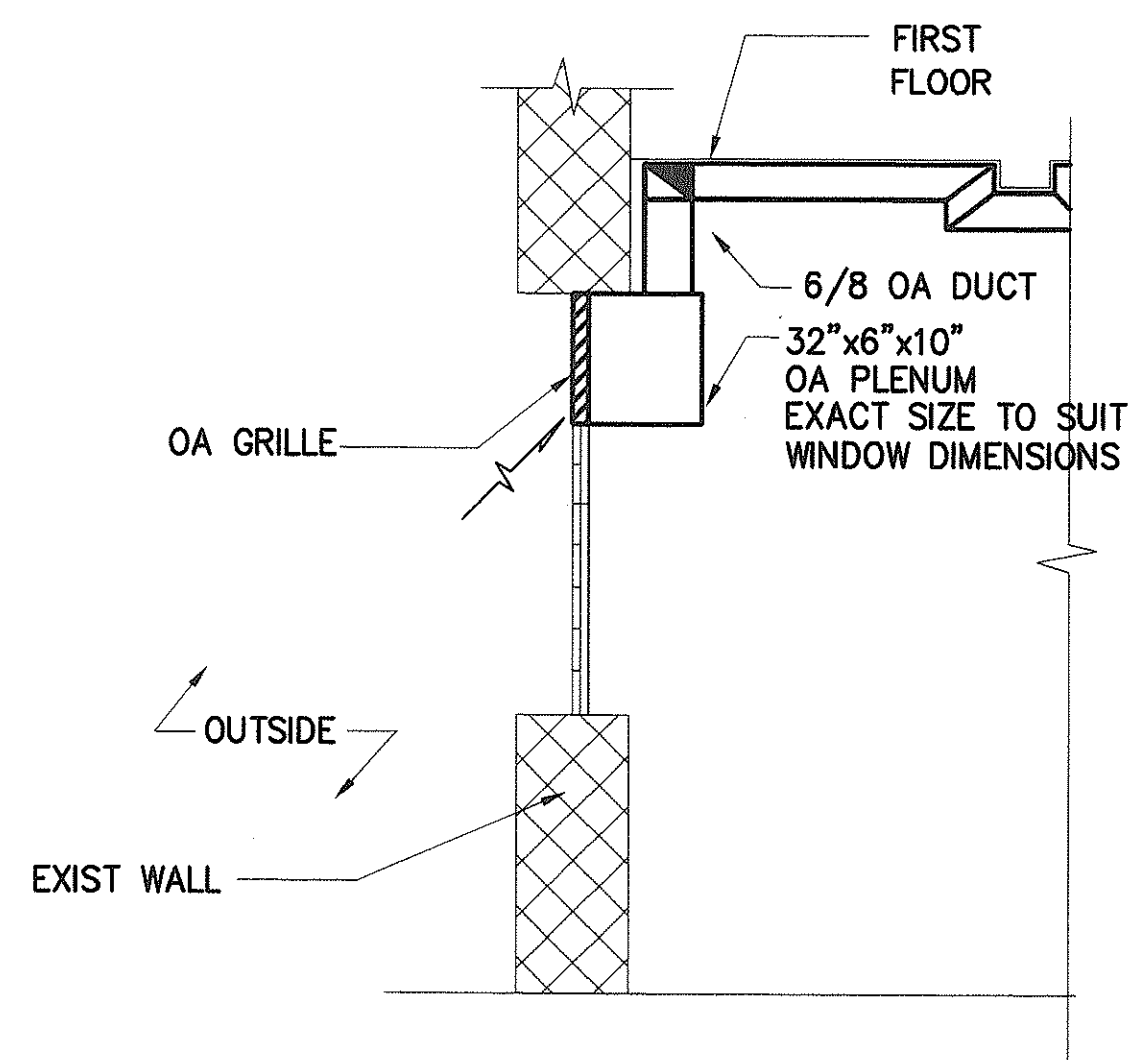
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



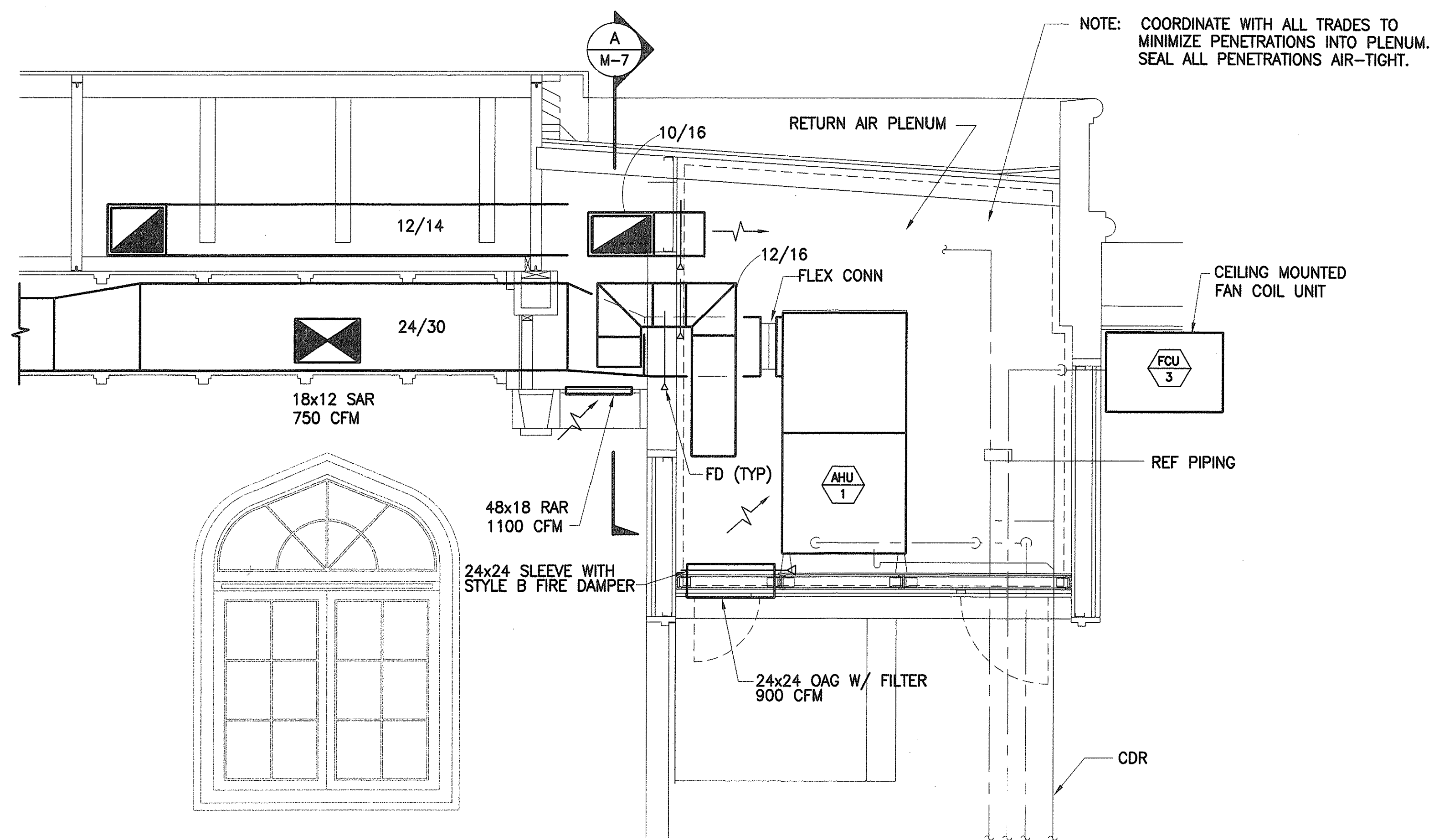
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	28	40



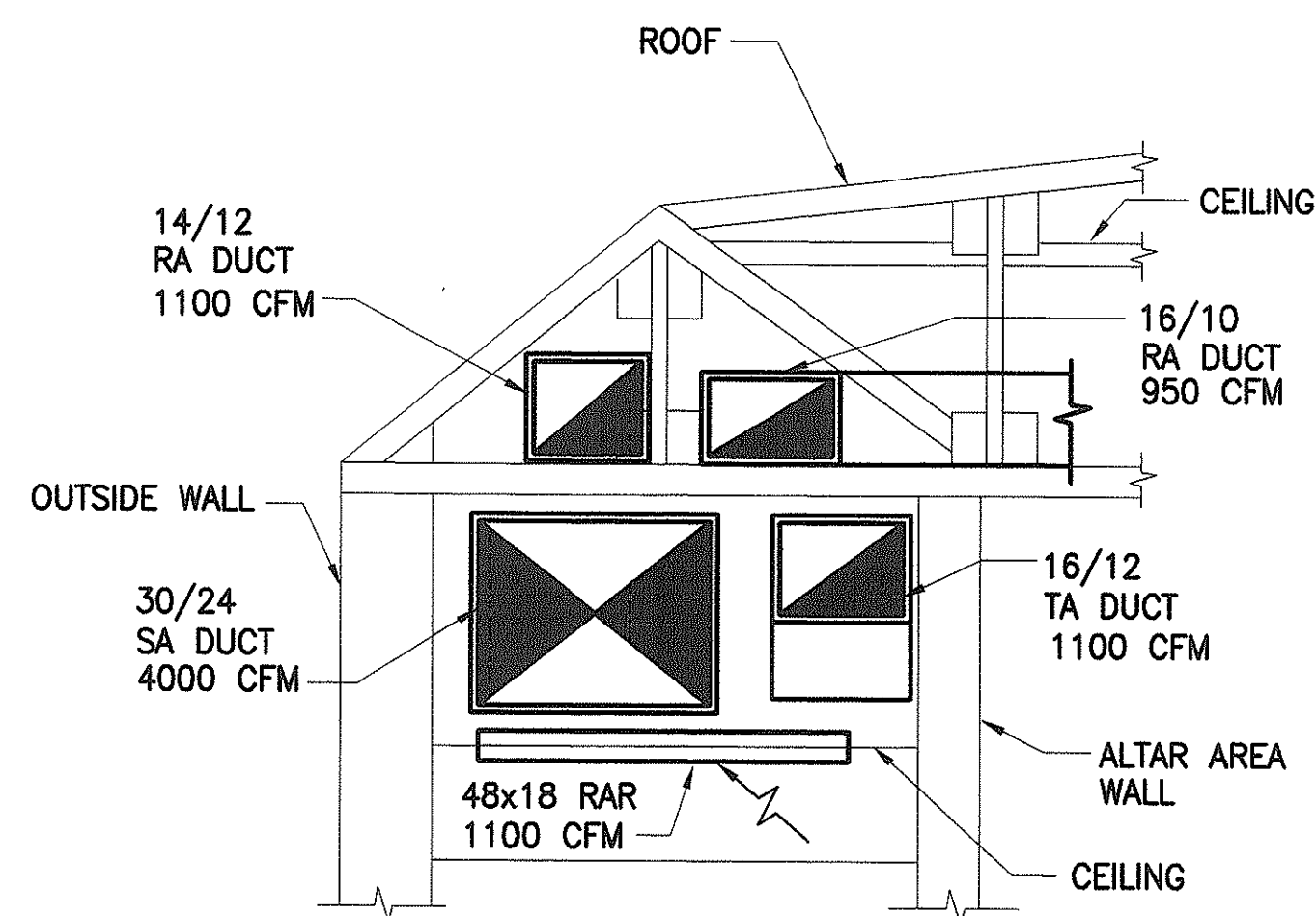
**1 SECTION**  
M-7 SCALE: 1/8"=1'-0"



**2 WALL SECTION (OUTSIDE AIR DETAIL)**  
M-7 SCALE: NONE

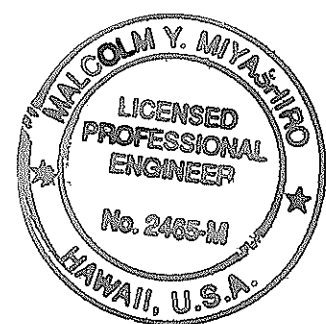


**3 ENLARGED SECTION**  
M-7 SCALE: 1/2"=1'-0"



**A SECTION**  
M-7 SCALE: 1/2"=1'-0"

DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____



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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

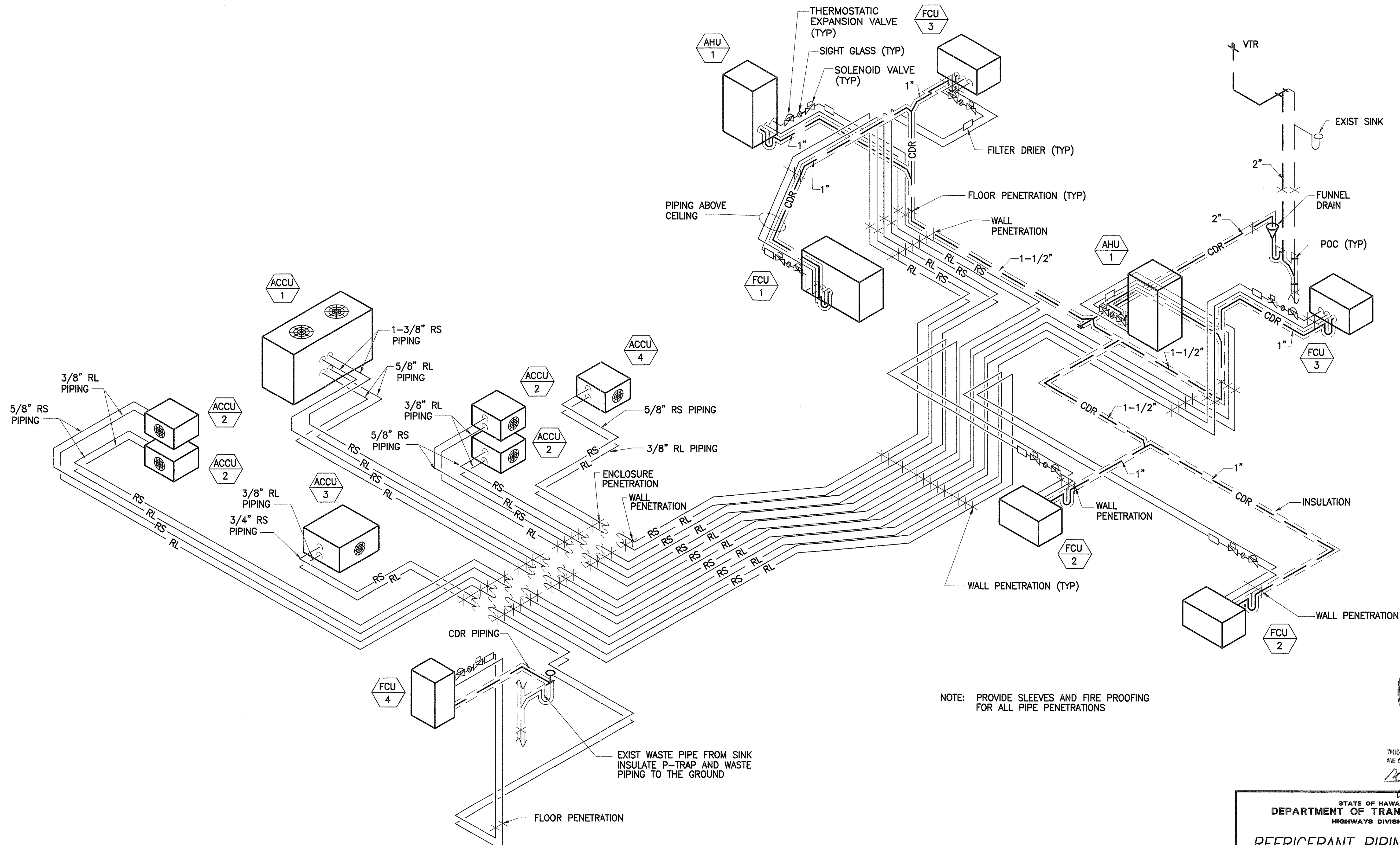
**SECTIONS**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99

Scale: AS NOTED Date: 12/01/99

SHEET No. M-7 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	29	40



**1 REFRIGERANT PIPING DIAGRAM**  
M-8 SCALE: NONE



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*Malcolm Y. Miyasaka*

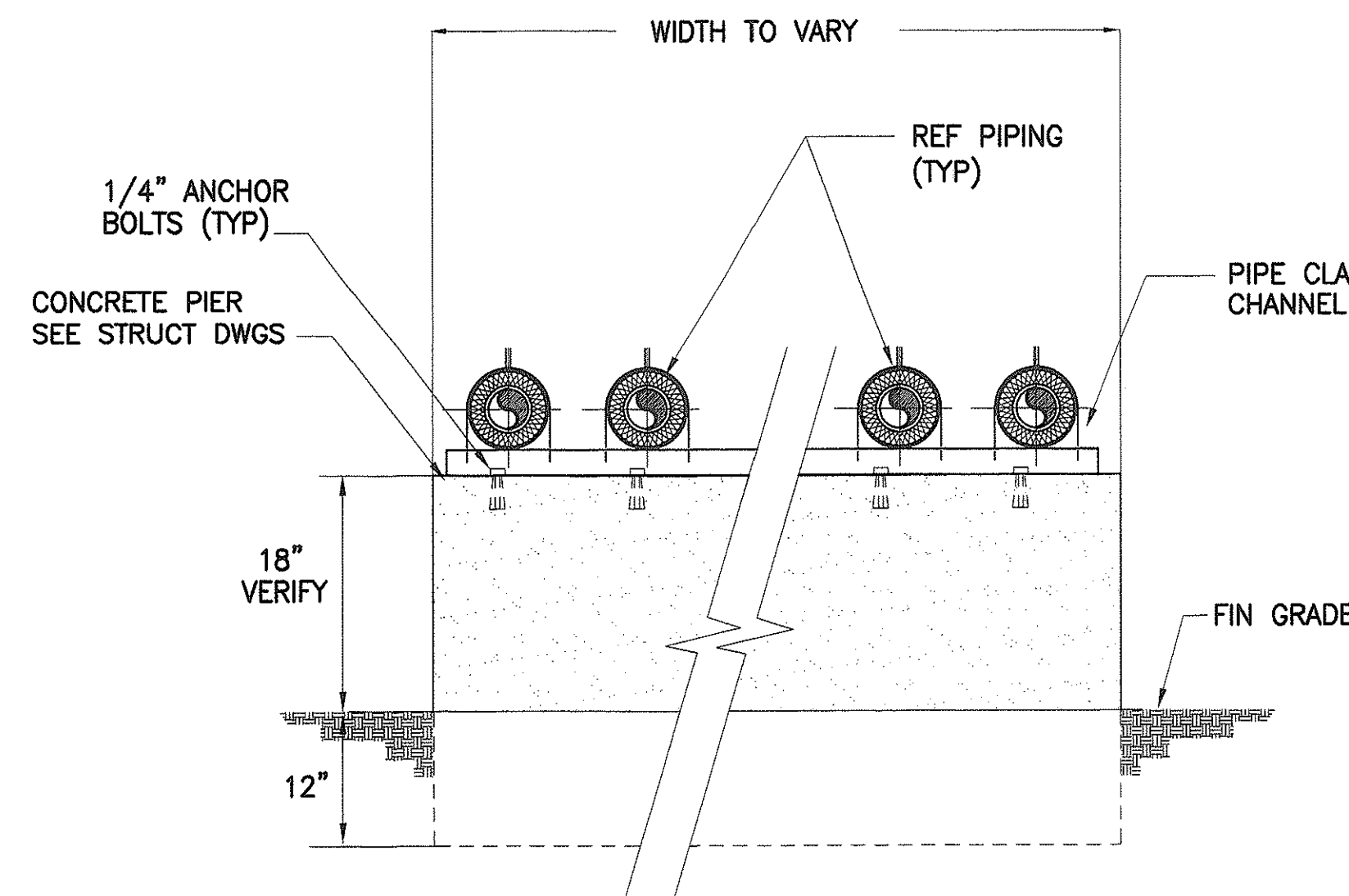
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

REFRIGERANT PIPING DIAGRAM  
  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99  
  
Scale: AS NOTED      Date: 12/01/99  
  
SHEET No. M-8 OF 10 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

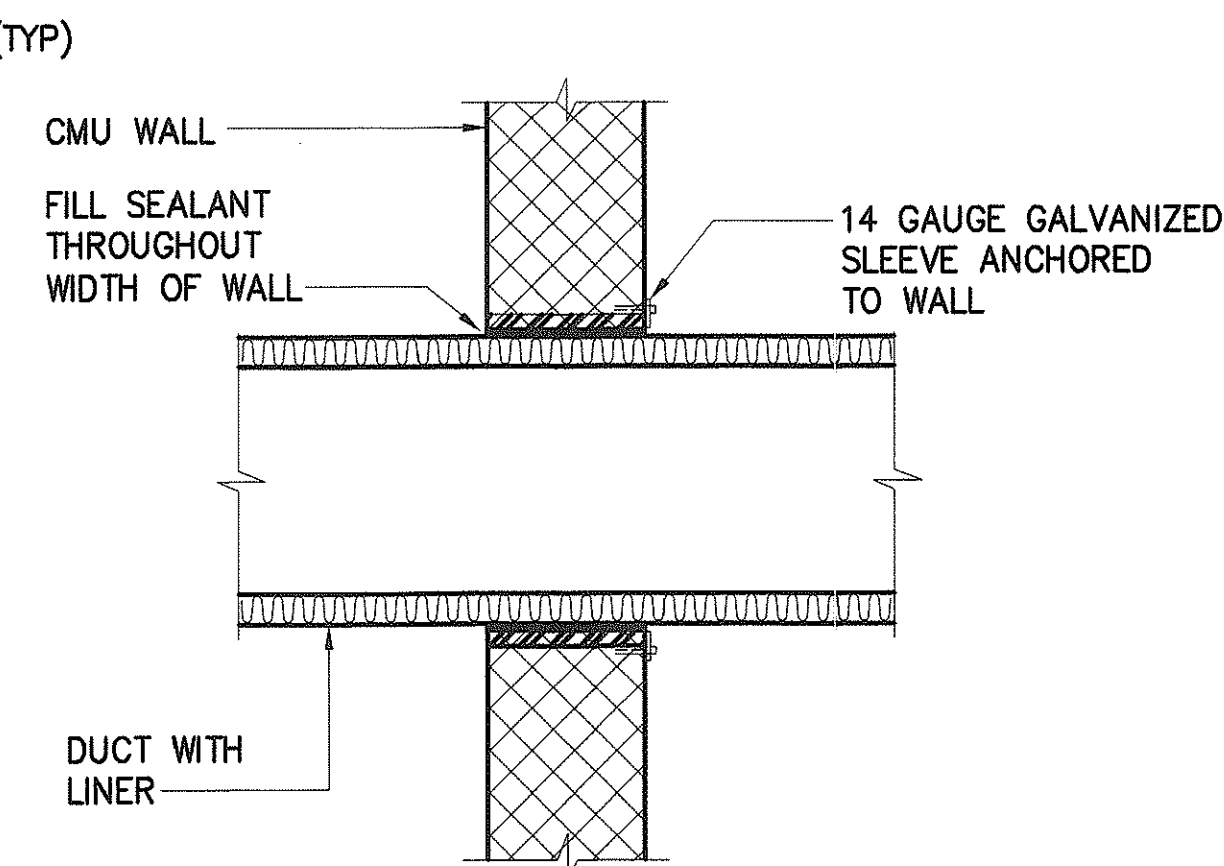


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	30	40

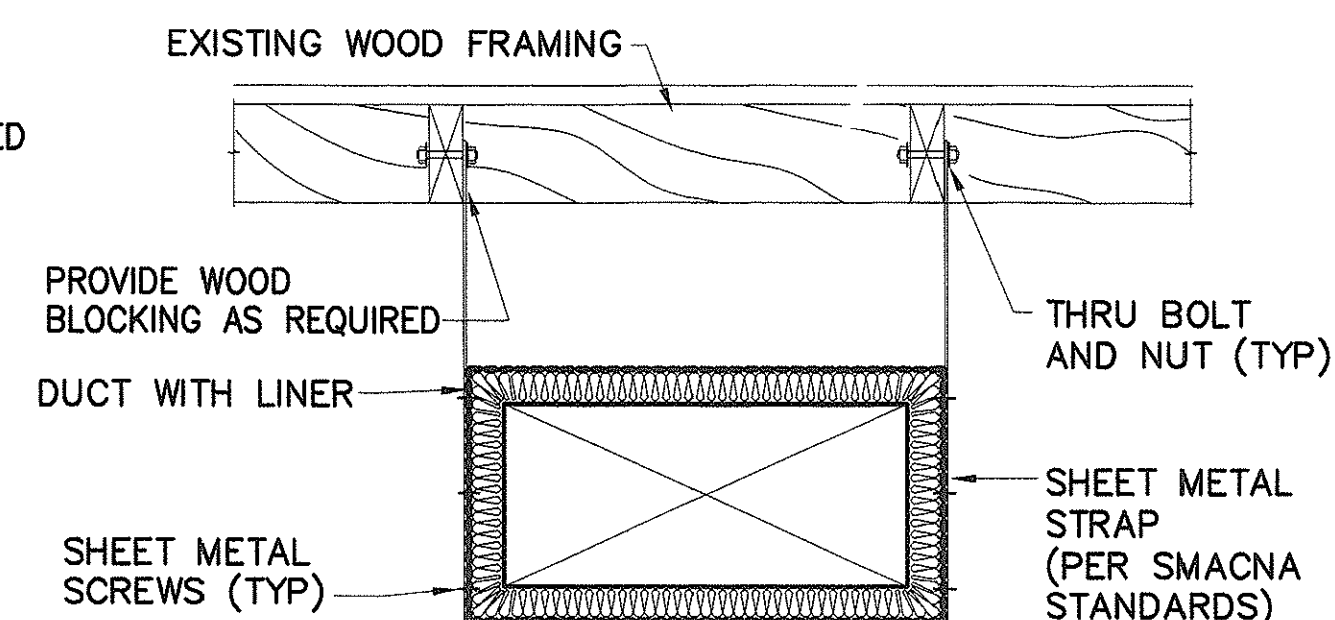


NOTE: ALL METAL SUPPORTS TO BE GALVANIZED

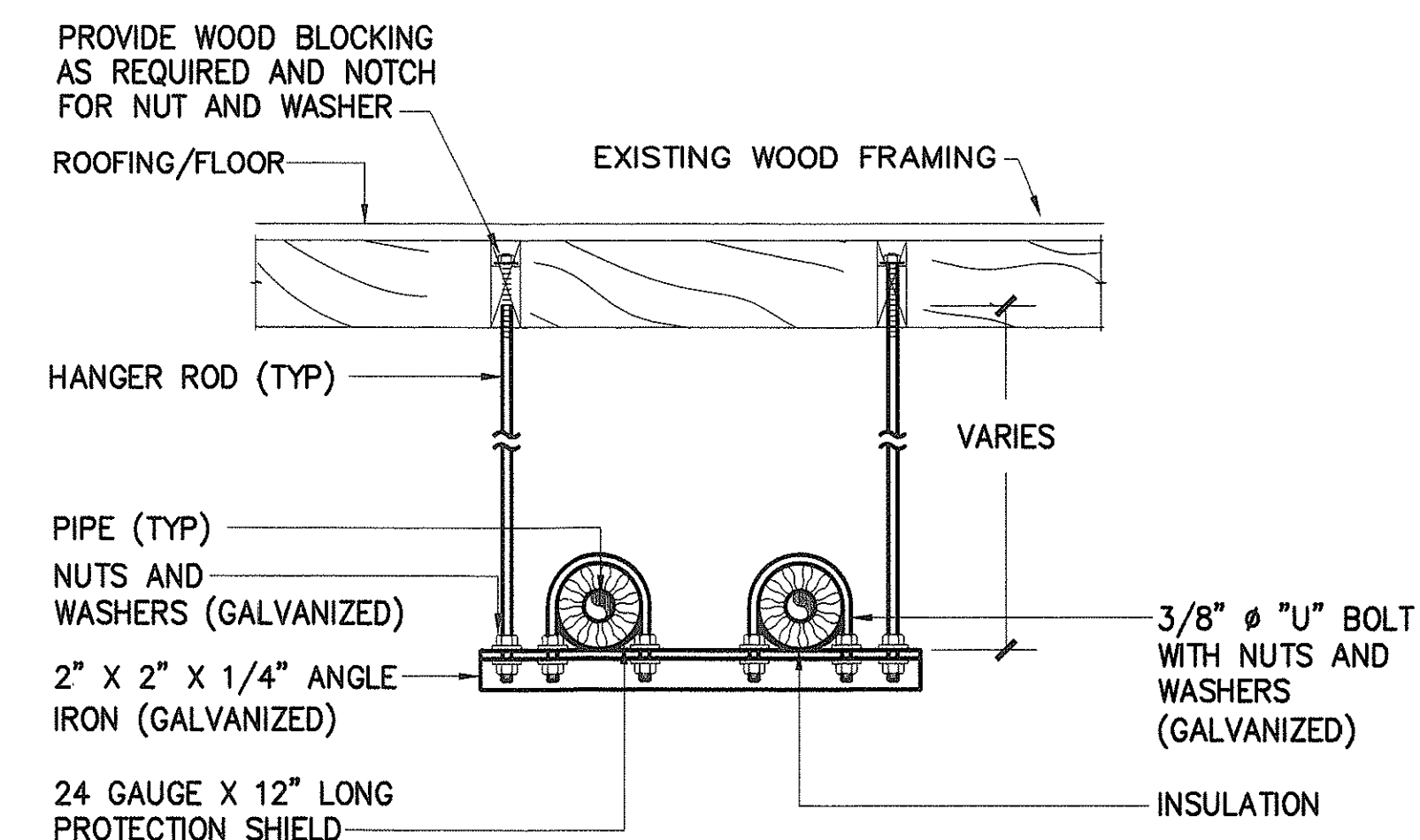
**1 PIPE SUPPORT DETAIL**  
M-9 SCALE: NONE



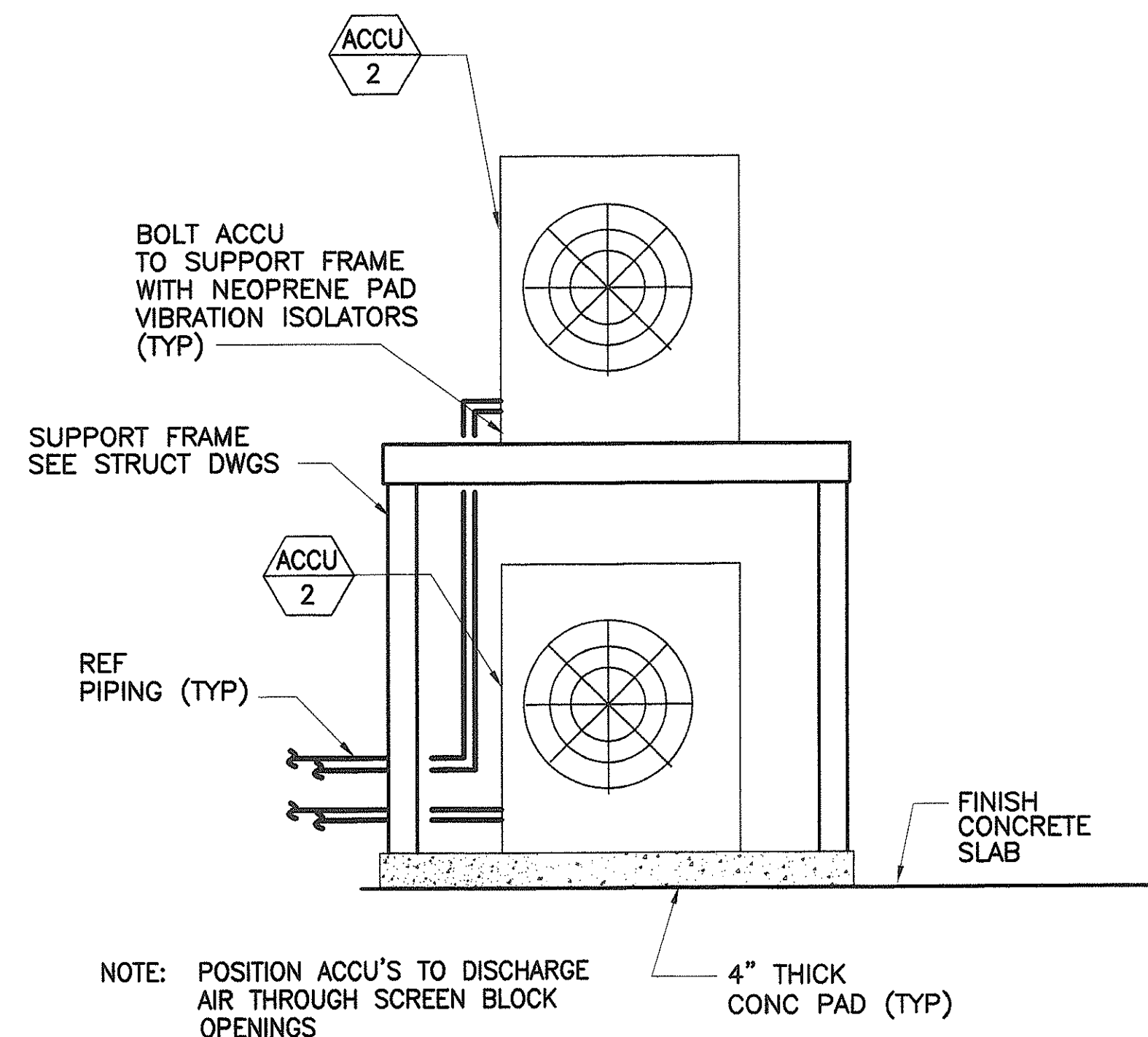
**2 DUCT WALL PENETRATION DETAIL**  
M-9 SCALE: NONE



**3 DUCT SUPPORT DETAIL**  
M-9 SCALE: NONE

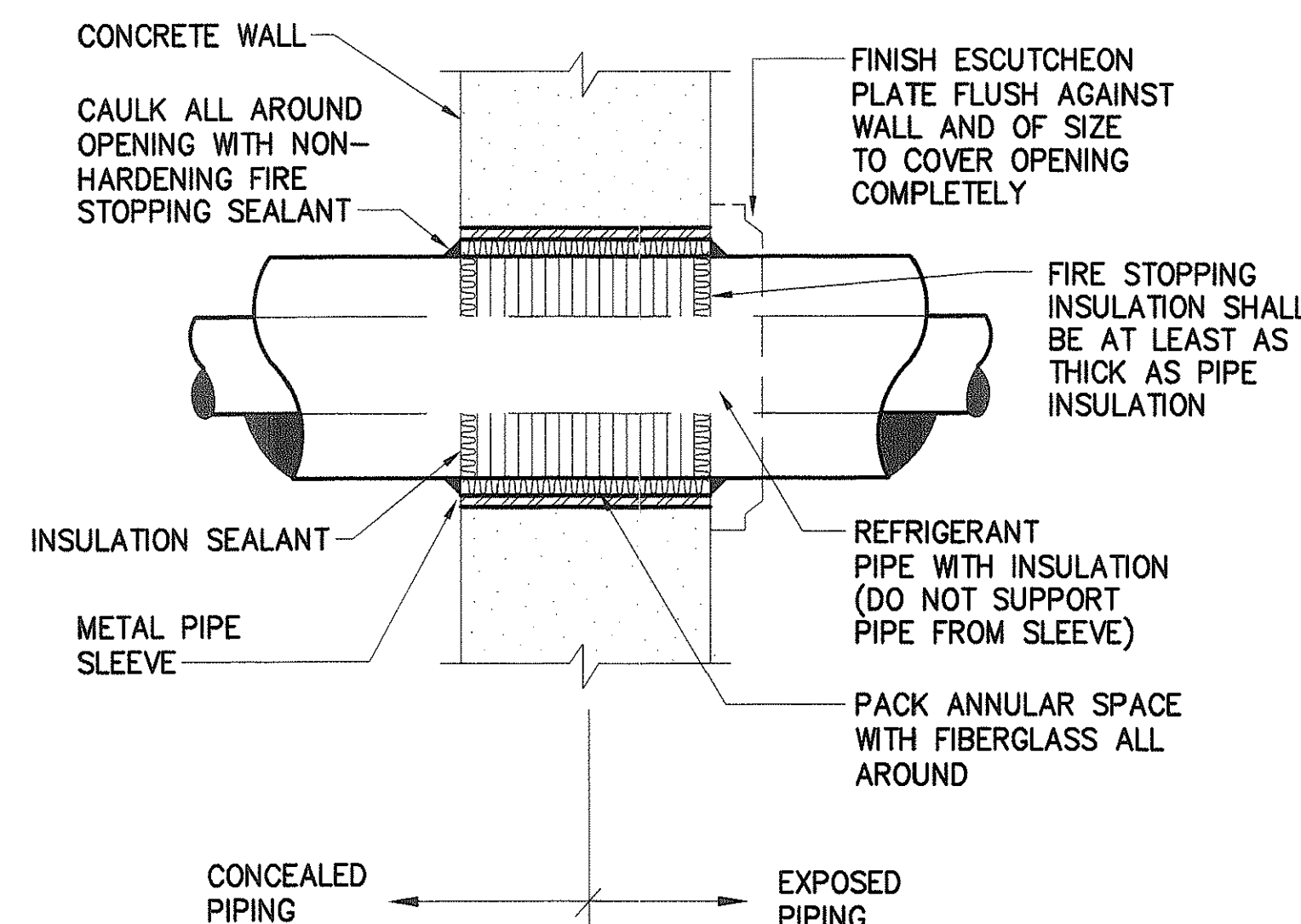


**4 PIPE HANGER DETAIL**  
M-9 SCALE: NONE

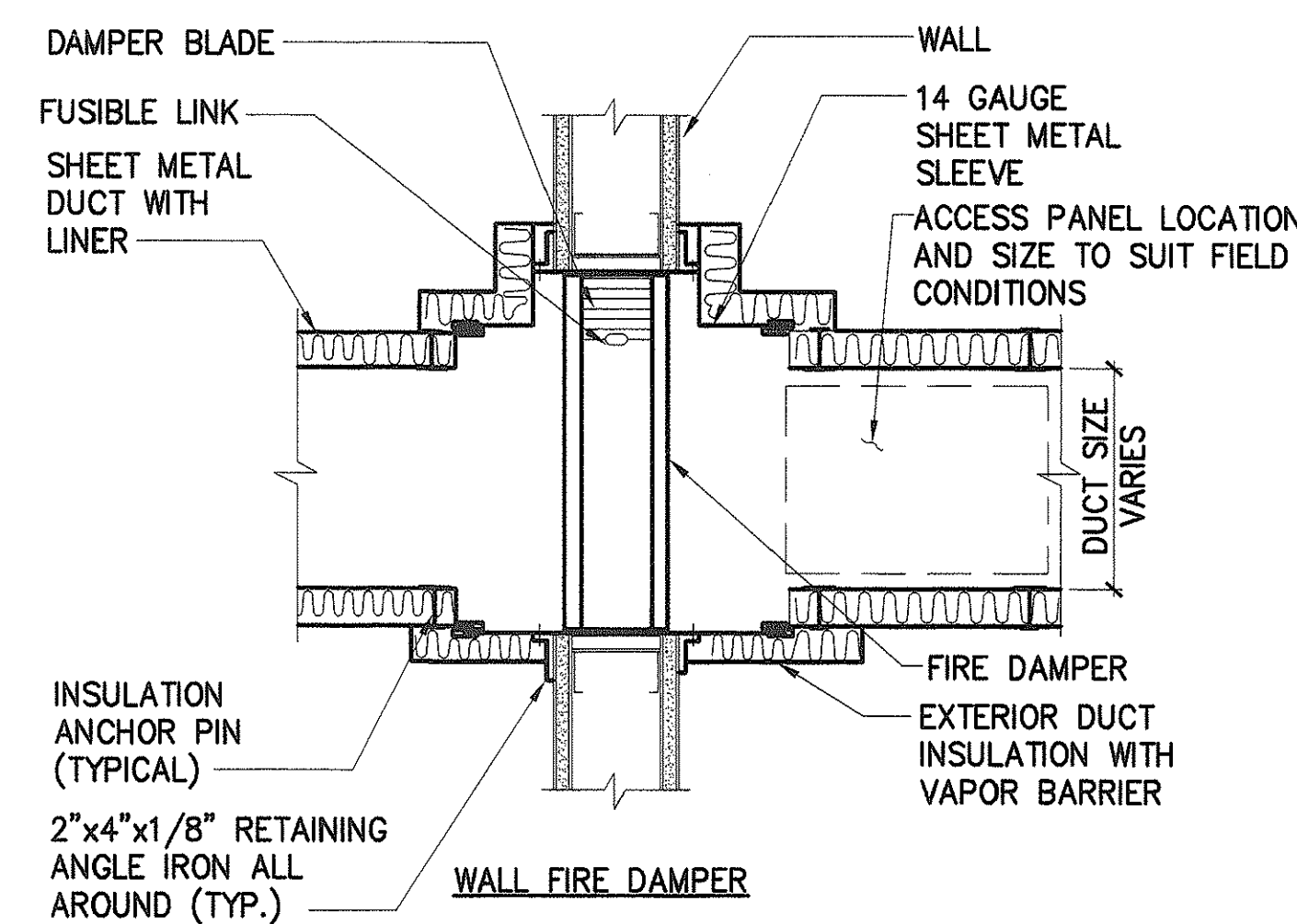


NOTE: POSITION ACCU'S TO DISCHARGE AIR THROUGH SCREEN BLOCK OPENINGS

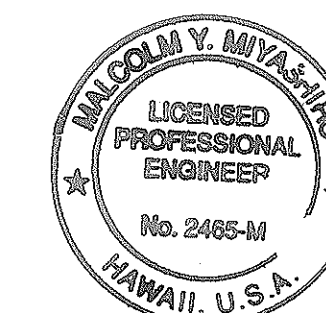
**5 STACKED ACCU DETAIL (ELEVATION)**  
M-9 SCALE: NONE



**6 PIPE WALL PENETRATION DETAIL**  
M-9 SCALE: NONE



**7 FIRE DAMPER DETAIL**  
M-9 SCALE: NONE



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*Malcolm Y. Miyasaka*

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>DETAILS</b>	
INTERSTATE ROUTE H-1 PUNAHOU ST. OFF-RAMP NOISE ABATEMENT PROJECT NO. H11-01-99	
Scale: AS NOTED	Date: 12/01/99
SHEET No. M-9 OF 10 SHEETS	

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

SURVEY PLOTTED BY  
DATE  
DRAWN BY  
REVISION  
NOTED BY  
QUANTITIES BY  
CHECKED BY

ORIGINAL  
PLAN  
BOOK  
No.

EQUIPMENT SCHEDULE

AIR-COOLED CONDENSING UNIT

MARK NO	LOCATION	SERVES	CAPACITY ( BTUH )	ENT AMB AIR TEMP (°F)	COMPRESSOR					FAN			MOTOR		UNIT WEIGHT ( LBS )	REMARKS
					NO	V/ø/HZ	FLA	LRA (RLA)	REF	NO	TYPE	AIR FLOW (CFM)	HP	V/ø/HZ		
<div>ACCU 1</div>	OUTSIDE ENCLOSURE	AHU-1	240,000	95	2	208-230/3/60	6.2	198	R-22	2	PROPELLER, DIRECT DRIVE	16,700	1.0	208-230/3/60	1800	CARRIER 38AH024 OR APPROVED EQUIVALENT
<div>ACCU 2</div>	OUTSIDE ENCLOSURE	FCU-2/3	18,000	95	1	208-230/1/60	49.0	(8.0)	R-22	1	PROPELLER, DIRECT DRIVE	1720	1/8	208-230/1/60	150	CARRIER 38HDC-018 OR APPROVED EQUIVALENT
<div>ACCU 3</div>	OUTSIDE ENCLOSURE	FCU-4	48,000	95	1	208-230/3/60	1.45	84.0	R-22	1	PROPELLER, DIRECT DRIVE	3900	1/2	208-230/3/60	250	CARRIER 38HD048-510 OR APPROVED EQUIVALENT
<div>ACCU 4</div>	OUTSIDE ENCLOSURE	FCU-1	24,000	95	1	208-230/1/60	62.5	(12.9)	R-22	1	PROPELLER, DIRECT DRIVE	1720	1/8	208-230/1/60	160	CARRIER 38HDC-024 OR APPROVED EQUIVALENT

AIR HANDLING UNIT

MARK NO	LOCATION	AREA SERVED	EQUIPMENT TYPE	FAN				COOLING COIL				MOTOR			UNIT WEIGHT (LBS)	REMARKS
				SA (CFM)	RA (CFM)	OA (CFM)	ESP (IN WG)	TOTAL CAPACITY ( BTUH )	SENSIBLE CAPACITY ( BTUH )	EAT ( °F )	MIN COIL AREA (SF)	NO ROWS	HP	V/ø/HZ		
<div>AHU 1</div>	2ND FLOOR STAIRWELL	AUDITORIUM	DX	2700	1800	900	0.3	120,000	84,000	85.0	69.2	8.9	3	1.5	208/1/60	MAGICAIRE 120-BMX-3 OR APPROVED EQUIVALENT

FAN COIL UNIT

MARK NO	LOCATION	AREA SERVED	EQUIPMENT TYPE	FAN				COOLING COIL				MOTOR			UNIT WEIGHT (LBS)	REMARKS
				SA (CFM)	RA (CFM)	OA (CFM)	ESP (IN WG)	TOTAL CAPACITY ( BTUH )	SENSIBLE CAPACITY ( BTUH )	EAT ( °F )	MIN COIL AREA (SF)	NO ROWS	HP	V/ø/HZ		
<div>FCU 1</div>	ALTAR	ALTAR	DX	520	520	-	-	24,000	19,200	91.2	69.6	2.2	4	1/16	208-230/1/60	CARRIER 40QAB024 OR APPROVED EQUIVALENT PROVIDE CONDENSATE PUMP
<div>FCU 2</div>	1ST FLOOR PARLOR (2)	1ST FLOOR PARLOR (2)	DX	400	340	60	-	18,000	15,000	83.7	67.9	2.2	4	1/16	208-230/1/60	CARRIER 40QAB024 OR APPROVED EQUIVALENT
<div>FCU 3</div>	2ND FLOOR URN ROOMS (2)	2ND FLOOR URN ROOMS (2)	DX	400	400	-	-	18,000	15,000	83.7	67.9	2.2	4	1/16	208-230/1/60	CARRIER 40QAB024 OR APPROVED EQUIVALENT
<div>FCU 4</div>	1ST FLOOR - OFFICE 1 / WAITING RM	1ST FLOOR - OFFICE 1 / WAITING RM	DX	1400	1120	280	0.18	42,000	28,800	84.5	68.0	3.5	3	1/2	208-230/1/60	CARRIER FA4A-042 OR APPROVED EQUIVALENT

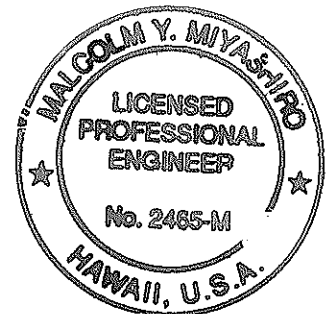
WINDOW AIR CONDITIONER

MARK NO	LOCATION	AREA SERVED	SA (CFM)	CAPACITY (BTUH)	WATTS	V/ø/HZ	EER	UNIT WEIGHT (LBS)	REMARKS
<div>WAC 1</div>	1ST FLOOR - OFFICE 2 AND BEDROOMS (6)	1ST FLOOR - OFFICE 2 AND BEDROOMS (6)	200	8000	870	120/1/60	9.2	70	CARRIER SIESTA II TCA081D OR APPROVED EQUIVALENT
<div>WAC 2</div>	1ST FLOOR ASSEMBLY ROOM (2)	1ST FLOOR ASSEMBLY ROOM (2)	625	32,200	3930	208/1/60	8.2	270	CARRIER HCA333D OR APPROVED EQUIVALENT / PROVIDE WITH NO OUTSIDE AIR
<div>WAC 3</div>	1ST FLOOR ASSEMBLY ROOM (2)	1ST FLOOR ASSEMBLY ROOM (2)	520	29,800	3190	208/1/60	8.2	170	CARRIER YCB273D OR APPROVED EQUIVALENT / PROVIDE WITH NO OUTSIDE AIR

EXHAUST FAN

MARK NO	LOCATION	TYPE	DRIVE	FAN			MOTOR		SONES	UNIT WEIGHT (LBS)	REMARKS
				CAPACITY (CFM)	STATIC PRESSURE (WG)	RPM	HP	V/ø/HZ			
<div>EF 1</div>	1ST FLOOR ASSEMBLY ROOM (4)	PROPELLER	DIRECT	255	0.125	1550	1/25	120/1/60	4.9	20	GREENHECK S1-8-440-D LOREN COOK OR APPROVED EQUIVALENT INTERLOCK WITH ADJACENT WINDOW AIR CONDITIONER
<div>EF 2</div>	2ND FLOOR URN ROOMS (2)	PROPELLER	DIRECT	200	0.125	1350	1/40	120/1/60	3.5	20	GREENHECK S1-8-440-G LOREN COOK OR APPROVED EQUIVALENT INTERLOCK WITH FCU IN ROOM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-99	2000	31	40



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*M. Y. Miyashiro*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

EQUIPMENT SCHEDULE

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP NOISE ABATEMENT  
PROJECT NO. H11-01-99

Scale: AS NOTED      Date: 12/01/99

SHEET No. M-10 OF 10 SHEETS