MECHANICAL LEGEND

SYMBOLS	ABBR.	DESCRIPTION
AIR DISTRIBUTION		
A/B		RECTANGULAR DUCTWORK A DENOTES SIDE VIEWED B DENOTES SIDE NOT VIEWED
AØ		CIRCULAR SPIRAL DUCTWORK A DENOTES DIAMETER
		FLEXIBLE DUCTWORK
		FLEXIBLE CONNECTION
		CASSETTE FAN COIL UNIT
ABBR	VD BDD OBVD	VOLUME DAMPER BACKDRAFT DAMPER OPPOSED BLADE VOLUME DAMPER
		BLANK OFF DUCT OPENING
		REMOVE OR DEMOLISH
		SUPPLY AIR DEVICE
		AIR FLOW DIRECTION
A, B NK (C-D)		AIR DEVICE TAG A DENOTES DEVICE TYPE (SEE SCHEDULE) B DENOTES NECK SIZE C AIR VOLUME (CFM) D AIR FLOW TYPE (OA - OUTSIDE AIR)
CONTROL		
T		THERMOSTAT / ROOM TEMPERATURE SENSOR
WATER DISTRIBUTION		
ABBR.	CD RL RG	CONDENSATE DRAIN REFRIGERANT LIQUID REFRIGERANT GAS
EQUIPMENT		
EQUIPMENT TYPE * # EQUIPMENT NUMBER	ACCU FCU	AIR COOLED CONDENSING UNIT FAN COIL UNIT
RISERS		
	CD OA	CONDENSATE DRAIN OUTSIDE AIR
MISCELLANEOUS		
	CFM DWG	CUBIC FEET PER MINUTE DRAWING

MECHANICAL NOTES

PART 1 - GENERAL

A. CONFORM TO APPLICABLE LAWS AND REGULATIONS OF THE STATE OF HAWAII AND (CITY & COUNTY, COUNTY) OF HONOLULU.
   1. INTERNATIONAL BUILDING CODE (2018) AND LOCAL AMENDMENTS.
   2. UNIFORM PLUMBING CODE (2021) AND LOCAL AMENDMENTS.
   3. NFPA STANDARD 1: UNIFORM FIRE CODE 2021 AND LOCAL AMENDMENTS.
   4. NFPA STANDARD 10 (2016), AND 90A (2018).
   5. TITLE 11, ADMINISTRATIVE RULES, DOH, CHAP 39, A/C AND VENTILATION.
   6. INTERNATIONAL ENERGY CONSERVATION CODE (2018) AND LOCAL AMENDMENTS.

B. GENERAL NOTES:
   1. ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE-RATED WALLS AND HORIZONTAL ASSEMBLIES SHALL BE PROTECTED BY AN APPROVED THROUGH-PENETRATION FIRESTOP SYSTEM IN ACCORDANCE WITH 2018 IBC AND WITH RATINGS AS DETERMINED BY ASTM E 814 OR UL 1479.

C. SPECIAL CONDITIONS:
   1. ALL MATERIALS AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH BUILDING STANDARDS. CURRENT BUILDING STANDARDS ARE AVAILABLE FROM THE BUILDING ENGINEER. ANY DEVIATION FROM BUILDING STANDARD IS TO BE APPROVED BY THE BUILDING ENGINEER BEFORE PROCEEDING WITH WORK. GC'S ARE RESPONSIBLE FOR BEING COGNIZANT OF BUILDING REGULATIONS. GC'S WILL BE EXPECTED TO INCLUDE ALL REQUIREMENTS IN THEIR BIDS TO COMPLY WITH BUILDING REGULATIONS.
   2. THE CONTRACTOR SHALL TAKE INTO ACCOUNT ALL RESPONSIBILITIES ASSOCIATED WITH WORKING IN AN OCCUPIED SPACE. CONTRACTOR SHALL TAKE PREVENTATIVE MEASURES NOT TO DISTURB TENANTS. COORDINATE ALL WORK AND NECESSARY SHUT DOWN WITH THE BUILDING MANAGEMENT. ANY WORK WITHIN OTHER OCCUPIED SPACES OR DISRUPTIONS TO THE BUILDING UTILITIES SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND THE WORK WILL BE PERFORMED DURING OFF HOURS.
   3. ALL THE EXISTING ELBOWS, TEES AND FITTINGS DISTURBED BY THE CONTRACTOR DUE TO RENOVATION WORK, SHALL BE REPLACED WITH NEW FITTINGS AND THE PIPING THREADS SHALL BE SEALED WITH PIPE THREAD SEALANT.
   4. PROVIDE SEISMIC RESTRAINTS ON NEW EQUIPMENT, DUCTWORK AND PIPING IN ACCORDANCE WITH IBC SEISMIC REQUIREMENTS AS REQUIRED.
   5. CONTRACTOR SHALL REPAIR ANY DAMAGES INCURRED TO BACK OF HOUSE AREAS TO ORIGINAL CONDITION BEFORE CONSTRUCTION.

D. VISIT THE JOB SITE AND BECOME AWARE OF EXISTING CONDITIONS.

E. OBTAIN AND PAY FOR APPLICABLE PERMITS, LICENSES, FEES AND OTHER CHARGES FOR WORK NOTED. SUBCONTRACTORS SHALL BE LICENSED FOR WORK THEY PERFORM.

F. SUBMIT PDF'S OF MATERIAL & EQUIPMENT DATA AND DIMENSIONED SHOP DRAWINGS FOR REVIEW BY THE BUILDING ENGINEER AND WSP USA PRIOR TO COMMENCING ANY WORK. ALL WORK DONE PRIOR TO APPROVAL SHALL BE SUBJECT TO REPAIR OR REPLACEMENT AT NO COST TO OWNER. SHOP DRAWINGS SHALL BE COORDINATED WITH OTHER TRADES.

G. CONTRACTOR SHALL MAINTAIN A SET OF CONTRACT DRAWINGS AT THE JOB SITE, MARKING THEM TO SHOW VARIATIONS BETWEEN THE CONSTRUCTION DOCUMENTS AND THE ACTUAL INSTALLATION. THE VARIATIONS SHALL BE SUBMITTED TO THE BUILDING ENGINEER AS THE RECORD SET PRIOR TO PROJECT COMPLETION.

H. EXISTING CONDITIONS ARE SHOWN IN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AS PART OF THE WORK, PRIOR TO THE SUBMITTING OF HIS BID, AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER BEFORE PROCEEDING. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL CONDITIONS. REASONABLE MODIFICATIONS TO INDICATE LOCATION AND ARRANGEMENT TO SUIT JOB CONDITIONS SHALL NOT CONSTITUTE BASIS FOR REQUESTING OF ADDITIONAL FUNDS FROM THE OWNER.

I. DRAWINGS ARE DIAGRAMMATIC AND CLOSE COORDINATION WITH OTHER TRADES IS NECESSARY.

J. PRIOR TO ORDERING MATERIALS AND PROCURING EQUIPMENT, THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING CONDITIONS, EQUIPMENT, MATERIALS, SIZES AND DIMENSIONS THAT AFFECT HIS WORK. SHOW ALL DISCREPANCIES ON SHOP DRAWINGS AND NOTIFY THE ENGINEER IN WRITING OF SUCH DISCREPANCIES PRIOR TO PROCUREMENT.

K. THE CONTRACT REQUIRES THE FIRE PROTECTION, CONTROLS, AND MECHANICAL CONTRACTORS TO CAREFULLY COORDINATE THEIR WORK WITH EACH OTHER, THE GENERAL CONTRACTOR, AND OTHER TRADES. PRIORITY SHALL BE GIVEN IN THE FOLLOWING ORDER:
   1. GRAVITY SLOPED PLUMBING PIPING.
   2. EQUIPMENT AND DUCTWORK.
   3. FORCED AND PRESSURE PIPING SUCH AS WATER AND FIRE SPRINKLER PIPING.

L. GUARANTEE - THE INSTALLED WORK SHALL BE GUARANTEED FOR ONE YEAR COMMENCING FROM BENEFICIAL USE OF OWNER.

M. WSP USA SHALL RETAIN TITLE AND OWNERSHIP OF THE MECHANICAL CONSTRUCTION DOCUMENTS AS INSTRUMENTS OF SERVICE. ACCORDINGLY, CONTRACTOR SHALL NOT USE WSP USA'S CONSTRUCTION DOCUMENTS TO SATISFY THEIR OBLIGATION TO PREPARE AND SUBMIT SHOP DRAWINGS AS REQUIRED.

N. ALL EXTERIOR DUCTWORK AND PIPING SHALL BE PAINTED PER A COLOR SELECTED BY THE OWNER. PAINT SHALL BE CORROSION RESISTANT. EXPOSED INTERIOR DUCTWORK AND PIPING SHALL BE PAINTED, COLOR SHALL BE SELECTED BY OWNER.

O. ALL NON-STAINLESS STEEL METAL SUPPORTS EXPOSED TO ELEMENTS SHALL BE HOT-DIPPED GALVANIZED STEEL AFTER FABRICATION AND AFTER HOLES DRILLED FOR STRUCTURAL SUPPORT AND PAINTED WITH TWO COATS OF CORROSION RESISTANT PAINT.

P. ALL FASTENERS AND JOINING MATERIALS EXPOSED TO ELEMENTS SHALL BE 316 STAINLESS STEEL.

Q. DURING CONSTRUCTION CONTRACTOR TO NOT OPERATE AIR CONDITIONING EQUIPMENT UNLESS WALLS ARE COMPLETE CLOSED UP AND THE CURTAIN WALL IS TIGHT. IN ADDITION, DO NOT PROP OPEN DOORS OR WINDOWS WHICH WILL ALLOW EXCESS MOISTURE TO ENTER THE BUILDING.

R. PROVIDE PERMANENT LABELS ON ALL EQUIPMENT. FOR THERMOSTATS, ETC. LABEL WHAT PIECE OF EQUIPMENT THEY SERVE.

S. PROVIDE EXPANSION FITTING ON ALL PIPING THAT CROSSES BUILDING EXPANSION JOINT.

T. ENSURE NO DUCTWORK OR PIPING IS INSTALLED ABOVE ELECTRICAL OR TELECOM EQUIPMENT.

U. ENSURE ALL COMPONENTS WITHIN PLENUMS ARE RATED FOR PLENUM INSTALLATION.

V. DUCTS AND PLENUMS DESIGN TO OPERATE AT STATIC PRESSURES EQUAL TO OR GREATER THAN 3 IN. W.G. OR LOCATED OUTDOORS IN PROJECTS FOLLOWING ASHRAE 90.1 SHALL BE LEAK TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. (ONLY PROJECTS USING ASHRAE 90.1 SHALL HAVE LEAKAGE TESTING FOR DUCTWORK LOCATED OUTSIDE)

W. ALL EQUIPMENT SPECIFIED SHALL BE SOURCED AND PURCHASED BY THE CONTRACTOR DIRECTLY FROM THE LOCAL AUTHORIZED FACTORY REPRESENTATIVE. PROVIDE LOCAL REPRESENTATIVE IN SUBMITTAL.

X. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND ACCESS PANELS ON WALLS AND CEILINGS.

PART 2 - PRODUCTS

A. MATERIALS: ALL MATERIALS EXCEPT OWNER-FURNISHED ITEMS SHALL BE NEW AND FREE FROM DEFECTS.

B. AIR CONDITIONING AND VENTILATION:
   1. COMPLY WITH HAWAII STATE DEPARTMENT OF HEALTH REGULATIONS.
   2. DUCTWORK:
      a. GALVANIZED STEEL DUCTWORK CONFORMING TO SMACNA DUCT CONSTRUCTION STANDARDS. 1" PRESSURE CLASS, SEAL "A". ALL SUPPLY AIR DUCTWORK SHALL BE EXTERNALLY WRAPPED WITH FIBERGLASS DUCT WRAP, MANVILLE MICROLITE 1.5" THICK. IF THE DUCTWORK IS IN AN UNCONDITIONED SPACE THE INSULATION SHALL BE 2" THICK WITH A MINIMUM OF R-6 WHEN INSIDE THE BUILDING AND R-8 WHEN OUTSIDE. INSULATION SHALL COMPLY WITH NFPA 90A. SIZES OF DUCTS SHOWN ON PLANS ARE NET INSIDE DUCT DIMENSION.
      b. FLEXIBLE DUCTWORK:
         ACOUSTICAL FLEXIBLE AIR DUCT SHALL BE EQUAL TO THERMAFLEX M-KE AND SHALL CONFORM TO SMACNA DUCT CONSTRUCTION STANDARDS. BRANCH DUCT TAKE-OFF CONNECTION SHALL BE SPIN-IN COLLAR TYPE WITH INTEGRAL VOLUME DAMPER. USE OF FLEXIBLE DUCTWORK IS RESTRICTED TO 5'-0" MAXIMUM LENGTH FROM AIR TERMINAL TO BRANCH DUCT AND MINIMUM BEND RADIUS SHALL BE TWICE THE DUCT DIAMETER. INSTALL PER UNIFORM MECHANICAL CODE REQUIREMENTS.
   3. CONDENSATE DRAIN PIPING: HARD DRAWN COPPER, TYPE L. INSULATE WITH 3/4" THICK FLEXIBLE ELASTOMERIC INSULATION. PROVIDE SEAL TRAP AT CONNECTION TO UNIT.
   4. REFRIGERANT PIPING: TYPE ACR COPPER. INSTALL PER MANUFACTURER'S REQUIREMENTS. ANNEALED TEMPER/SOFT ROLL ACR COPPER NO MORE THAN 5/8". PIPING GREATER THAN 5/8" SHALL BE DRAWN TEMPER/HARD/RIGID.
   5. REFRIGERANT PIPING INSULATION: 1" THICK CLOSED CELL FLEXIBLE ELECTROMETRIC INSULATION FOR PIPING. INSULATION FOR PIPING LOCATED OUTSIDE SHALL BE 1-1/2" THICK. PROVIDE WATER TIGHT ALUMINUM JACKET IF LOCATED OUTSIDE.
   6. CONTRACTOR TO PROVIDE FIELD QUALITY TEST REPORTS CONFIRMING THE FOLLOWING FOR VRF REFRIGERANT PIPING:
      a. PIPING SYSTEM HELD CONSTANT 550 PSIG PRESSURE FOR A MINIMUM OF 24 HOURS WITH ALL ISOLATION VALVES OPEN.
      b. A TRIPLE SYSTEM EVACUATION HAS BEEN PERFORMED. MICRON GAUGE READING HELD AT A MINIMUM OF 500 FOR 24 HOURS WITH ALL ISOLATION VALVES OPEN AND WITHOUT THE VACUUM PUMP CONNECTED.

PART 3 - EXECUTION

A. GENERAL:
   1. COORDINATE ROUTING OF NEW PIPING, DUCTWORK AND ELECTRICAL WORK. AVOID INTERFERENCES BY DETERMINING THE EXACT ROUTE OF EACH PIPE AND DUCT. PROVIDE OFFSETS AND ROUTING ADJUSTMENTS AS REQUIRED TO MAINTAIN PROPER CLEARANCES AND PIPE SLOPES. FURNISH ANCHOR BOLTS, SLEEVES, INSERTS AND SUPPORTS REQUIRED FOR THIS WORK.
   2. EQUIPMENT AND PIPING SUPPORTS SHALL BE PROVIDED IN STRICT CONFORMANCE WITH APPLICABLE CODES AND/OR MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE SEISMIC RESTRAINTS FOR EQUIPMENT OVER 400 LBS OR AS REQUIRED BY SMACNA SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS, INCLUDING APPENDIX E.
   3. INSTALL ALL EQUIPMENT IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   4. COVER OR SECURELY CLOSE OPEN ENDS OF PIPE AND DUCTS TO PREVENT THE ENTRANCE OF DUST AND DEBRIS.
   5. PROVIDE DIELECTRIC CONNECTIONS WHEREVER JOINING DISSIMILAR METALS.
   6. AIR CONDITIONING SYSTEMS MARKED AS DEMOLISHED SHALL BE DE-COMMISSIONED IN ACCORDANCE WITH LATEST STANDARDS. MECHANICAL CONTRACTOR MUST RECOVER AND DISPOSE OF REFRIGERANT PROPERLY IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION AND/OR EPA REGULATIONS. RELEASE OF REFRIGERANT TO ATMOSPHERE IS NOT ACCEPTABLE. REFRIGERANT SHALL BE REMOVED FROM THE SITE FOR RECYCLING/DISPOSAL.

B. AIR CONDITIONING AND VENTILATION:
   1. INSTALL AND SEAL DUCTS IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
   2. REPLACE AIR FILTERS ON ALL AIR HANDLING EQUIPMENT AFTER CONSTRUCTION.
   3. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, COMBINATION SMOKE/FIRE DAMPERS AND ELSEWHERE AS INDICATED.
   4. PROVIDE DUCT TEST HOLES WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES. ADJUST AND AIR BALANCE SYSTEM TO QUANTITIES SHOWN. ACCORDING TO TABB, NEBB OR AABC STANDARDS SUBMIT REPORT OF READINGS OF TEMPERATURES AND PRESSURE DROPS FOR ALL EQUIPMENT BALANCED. PROVIDE ONE (1) COPY OF TEST AND BALANCE REPORT TO BUILDING MANAGEMENT, THREE (3) COPIES TO THE OWNER UNLESS ELECTRONIC COPY IS ACCEPTABLE TO OWNER.
   5. PROVIDE TURNING VANES ON ALL MITERED ELBOWS.
   6. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, GRILLES OR REGISTER ASSEMBLY.
   7. PAINT DUCTWORK VISIBLE BEHIND OUTLET OR INLET MATTE BLACK.
   8. BEFORE INSTALLATION OF T-STATS, COORDINATE LOCATION WITH OWNER FOR FINAL APPROVAL. AVOID LOCATING BEHIND FURNITURE OR CASEWORK. INSTALL AT 48" AFF UNLESS OTHERWISE NOTED ON PLANS.
   9. CLEAN INTERIOR SURFACE OF ALL EXISTING AIR DUCTS IN ACCORDANCE WITH THE CURRENT PUBLISHED NADCA STANDARD ACR.
   10. INSULATE ALL REFRIGERANT PIPING.
   11. PROVIDE SMOOTH DUCT TRANSITIONS UNDER BEAMS WHERE REQUIRED.
   12. PROVIDE 3/4" CONDENSATE PIPE UNLESS OTHERWISE SHOWN ON PLANS.

C. CLEANUP:
   1. CLEANUP ALL AREAS OF DEBRIS AT THE END OF EACH DAY AND AT THE END OF THE WORK.

CITY AND COUNTY OF HONOLULU
REVISED ORDINANCES OF HONOLULU 2021
CHAPTER 16B

To the best of my knowledge, this project's design substantially conforms to the Building Energy Conservation Code for:

_____ Building Component Systems
_____ Electrical Component Systems
__X__ Mechanical Component Systems

JOSHUA M. MCDONOUGH — LICENSED PROFESSIONAL ENGINEER — No. 19476-M — HAWAII, U.S.A.

Signature: _____ Date: 8/22/2025
Name: JOSHUA M. MCDONOUGH
Title: MECHANICAL ENGINEER
License No: 19476-M

JOSHUA M. MCDONOUGH — LICENSED PROFESSIONAL ENGINEER — No. 19476-M — HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")

signature 4/30/2026 expiration date of the license

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROJECT TITLE :

DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:

MECHANICAL GENERAL NOTES AND LEGEND

DATE : 08/22/2025

DWG. NO. M001

SHEET No. 1 OF 13 SHEETS

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

VARIABLE REFRIGERANT FLOW AIR CONDITIONING SYSTEM SCHEDULE

INDOOR FAN COIL UNITS

UNIT NO.	LOCATION	ASSOCIATED ACCU	UNIT TYPE	AIR SIDE				EVAPORATOR COIL			ELECTRICAL					DIMENSIONS (L" x W" x H")	FILTER (MERV)	WEIGHT (LBS.)	BASIS OF DESIGN MANUF. & MODEL NO.
				SUPPLY CFM	RETURN CFM	OUTSIDE AIR CFM	ESP (inH2O)	TOTAL CAPACITY (KBH)	SENSIBLE CAPACITY (KBH)	ENTERING AIR (DB/WB)	FAN WATTS	SUPPLY (V/PH)	MCA	MOP	STAND-BY POWER (Y/N)				
FCU-1	SHOP-1	ACCU-1	3'x3' CASSETTE	220	220	0	-	9.2	5.2	75/65	65	208/1	0.39	15	N	36"x36"x15"	8	50	MITSUBISHI TPLFYP012EM142A (OR EQUAL)
FCU-2	SHOP-2	ACCU-1	3'x3' CASSETTE	545	545	0	-	20.6	12.4	75/65	90	208/1	0.54	15	N	36"x36"x15"	8	60	MITSUBISHI TPLFYP024EM142A (OR EQUAL)
FCU-3	MEZZ / BREAK ROOM	ACCU-1	3'x3' CASSETTE	335	335	0	-	14.8	8.1	75/65	65	208/1	0.39	15	N	36"x36"x15"	8	100	MITSUBISHI TPLFYP015EM142A (OR EQUAL)
FCU-4	MEETING AREA	ACCU-1	3'x3' CASSETTE	525	525	0	-	20.1	12.1	75/65	90	208/1	0.54	15	N	36"x36"x15"	8	100	MITSUBISHI TPLFYP018EM142A (OR EQUAL)
FCU-5	OFFICE-1	ACCU-2	2'x2' CASSETTE	105	105	0	-	4.6	2.5	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L05NFMU-A (OR EQUAL)
FCU-6	OFFICE-2	ACCU-2	2'x2' CASSETTE	85	85	0	-	3.7	2.1	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L05NFMU-A (OR EQUAL)
FCU-7	OFFICE-3	ACCU-2	2'x2' CASSETTE	110	110	0	-	4.7	2.7	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L05NFMU-A (OR EQUAL)
FCU-8	CORRIDOR	ACCU-2	2'x2' CASSETTE	75	75	0	-	3.1	1.8	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L05NFMU-A (OR EQUAL)
FCU-9	OFFICE-4	ACCU-2	2'x2' CASSETTE	110	110	0	-	4.7	2.6	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L05NFMU-A (OR EQUAL)
FCU-10	CONFERENCE	ACCU-2	2'x2' CASSETTE	165	165	0	-	7.0	3.9	75/65	50	208/1	0.36	15	N	23"x23"x9"	8	35	MITSUBISHI PLFY-L08NFMU-A (OR EQUAL)
FCU-11	CONFERENCE	ACCU-2	DUCTED	400	0	400	0.35	32.6	12.8	85/77	300	208/1	3.13	15	N	55"x29"x10"	8	90	MITSUBISHI PEFY-L36NMAU-A (OR EQUAL)

OUTDOOR AIR COOLED CONDENSING UNITS

UNIT NO.	LOCATION	CAPACITY (KBH)	ELECTRICAL				REFRIGERANT			DIMENSIONS (L" x W" x H")	WEIGHT (LBS.)	BASIS OF DESIGN MANUF. & MODEL NO.
			SUPPLY (V/PH)	MCA	MOP	STAND-BY POWER (Y/N)	TYPE	UNIT CHARGE (LBS.)	EXTERNAL CHARGE (LBS.)			
ACCU-1	NORTH WALL	64.7	208/3	44/40	70/60	N	R-410A	21.6	10.55	49"x30"x72"	650	MITSUBISHI TUHYE0963AN41AN (OR EQUAL)
ACCU-2	NORTH WALL	60.4	208/1	45	80	N	R-454B	10.6	13.6	42"x12"x53"	300	MITSUBISHI MXZ-SM60NL (OR EQUAL)

FCU NOTES:

1. FCU SHALL HAVE STAND ALONE WALL-MOUNTED PROGRAMMABLE CONTROLLER WITH W/ LCD DIGITAL DISPLAY.
2. FCU SHALL HAVE INTERNAL PRE-FILTER, REPLACE PRE-FILTER AFTER CONSTRUCTION.
3. MECHANICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH.
4. CONTRACTOR SHALL CONFIRM REFRIGERANT PIPE DISTANCES BETWEEN FCU AND ACCU ARE ACCEPTABLE WITH MANUFACTURER.
5. INSTALL UNITS WITH MANUFACTURER REQUIRED CLEARANCES.
6. FCU CONTROLLER SHALL HAVE MANUAL OVERRIDE, INTEGRAL THERMOSTAT AND HUMIDISTAT AND BE ABLE TO ADJUST WHAT IS DISPLAYED ON SCREEN.
7. PROVIDE SHUT-VALVE RATED FOR PRESSURE RATING OF SYSTEM AT EACH BRANCH LINE TO EACH FCU.
8. PROVIDE CORROSION PROTECTION EQUIVALENT TO PSX-700 5500 HOUR SALT SPRAY TEST ON UNIT CABINET INTERIOR OF FCU-11.
9. PROVIDE 5500 HOUR SALT SPRAY TEST COATING ON EVAPORATOR COIL FOR FCU-11.
10. PROVIDE CONDENSATE PUMP WITH UNIT. PUMP SHALL BE POWERED BY UNIT.

ACCU NOTES:

1. EACH ACCU MODULE SHALL BE PROVIDED WITH DISCONNECT SWITCH.
2. ACCU SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER REQUIRED SERVICE CLEARANCES.
3. CONTRACTOR SHALL CONFIRM REFRIGERANT PIPE DISTANCES BETWEEN FCU AND ACCU ARE ACCEPTABLE WITH MANUFACTURER.
4. PROVIDE CORROSION PROTECTION EQUIVALENT TO PSX-700 5500 HOUR SALT SPRAY TEST ON UNIT CABINET INTERIOR AND EXTERIOR.
5. PROVIDE 6000 HOUR SALT SPRAY TEST COATING ON CONDENSER COIL.
6. SIZE REFRIGERANT PIPING BETWEEN ACCU'S AND FCU'S BASED ON ACTUAL INSTALLED LENGTHS IN FIELD.
7. AMBIENT OUTSIDE AIR TEMPERATURES SHALL BE 95F.
8. PROVIDE DUCTED HOOD ON ACCU-1 SNOW/HAIL GUARD KIT.

DIFFUSER SCHEDULE

TAG	TYPE	SERVICE	FACE SIZE (IN.)	NECK SIZE (IN.)	DESIGN BASIS MANUF.	DESIGN BASIS MODEL NO.	REMARKS
1	DIFFUSER (SURFACE MOUNTED)	SUPPLY	24"x24"	SEE PLANS	TITUS (OR EQUAL)	OMNI (OR EQUAL)	SEE NOTES

NOTES:
1. ALL DEVICES SHALL BE ALUMINUM CONSTRUCTION. PROVIDE WHITE DIFFUSERS.
2. PROVIDE INTEGRAL OBVD FOR ALL AIR DIFFUSERS.

FLEX DUCT SCHEDULE

FLEX DUCT SIZE	AIRFLOW RANGE (CFM)
6" Ø	0-75
8" Ø	76-175

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

JOSHUA M. MCDONOUGH
LICENSED PROFESSIONAL ENGINEER
No. 19476-M
HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")

signature 4/30/2026 expiration date of the license

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

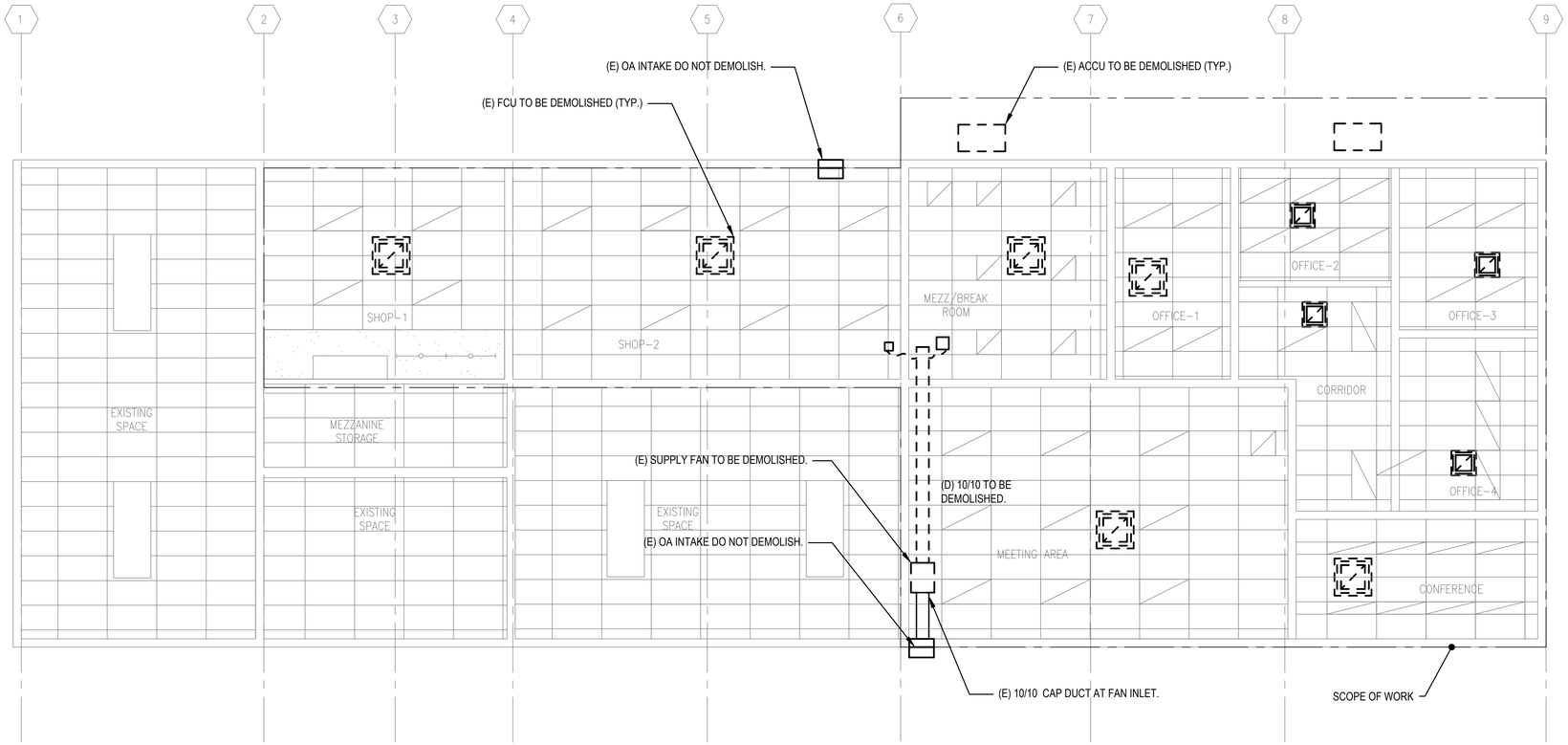
PROJECT TITLE :
DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:
MECHANICAL SCHEDULES

DATE : 08/22/2025
DWG. NO. M002

MECHANICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VISIT THE PROJECT SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND THE EXTENT OF REMOVAL, RELOCATION AND RECONNECTION.
2. COORDINATE DEMOLITION WORK WITH NEW WORK. COORDINATE DEMOLITION WORK WITH NEW WORK. ANY DEVIATIONS FROM THE PLANS WHICH ARE NECESSITATED BY FIELD CONDITIONS OR ANY FIELD CONDITIONS DIFFERENT FROM THOSE INDICATED ON PLANS SHALL BE TAKEN OFF IN A PROFESSIONAL WAY AT NO COST TO THE OWNER OR THEIR REPRESENTATIVES. ALL WORK SHALL BE COORDINATED SO THAT COOPERATION BETWEEN TRADES ARE ACCOMPLISHED.
3. EXISTING PLUMING, CONDUITS AND UTILITIES SHALL BE PROPERLY SUPPORTED OR MOVED AS REQUIRED DURING DEMOLITION OF THE EXISTING MECHANICAL SYSTEM AND TO ACCOMMODATE MECHANICAL SYSTEM.
4. DRAWINGS DO NOT ATTEMPT TO SHOW EXACT DETAILS OF PIPING CONTRACTOR TO PROVIDE OFFSETS AS NECESSARY TO AVOID OBSTRUCTIONS BETWEEN TRADES.
5. MAINTAIN EXISTING CONDENSATE PIPING AND ROUTING. PROVIDE LINE ITEM COST FOR REPLACEMENT OF INSULATION.
6. DEMO ALL REFRIGERANT PIPING WITHIN SCOPE.
7. CONTRACTOR SHALL REMOVE AND STORE CEILING TILE, GRIDS, AND LIGHTS IN A SECURE CONTAINER.
8. CONTRACTOR SHALL REMOVE ALL THERMOSTATS SERVING EXISTING EQUIPMENT.



1 **MECHANICAL DEMOLITION PLAN**
3/16" = 1'-0"

GRAPHIC SCALE
0 6' 12'
3/16" = 1'-0"

NORTH

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

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

JOSHUA M. MCDONOUGH
LICENSED PROFESSIONAL ENGINEER
No. 19476-M
HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")

signature — 4/30/2026 expiration date of the license

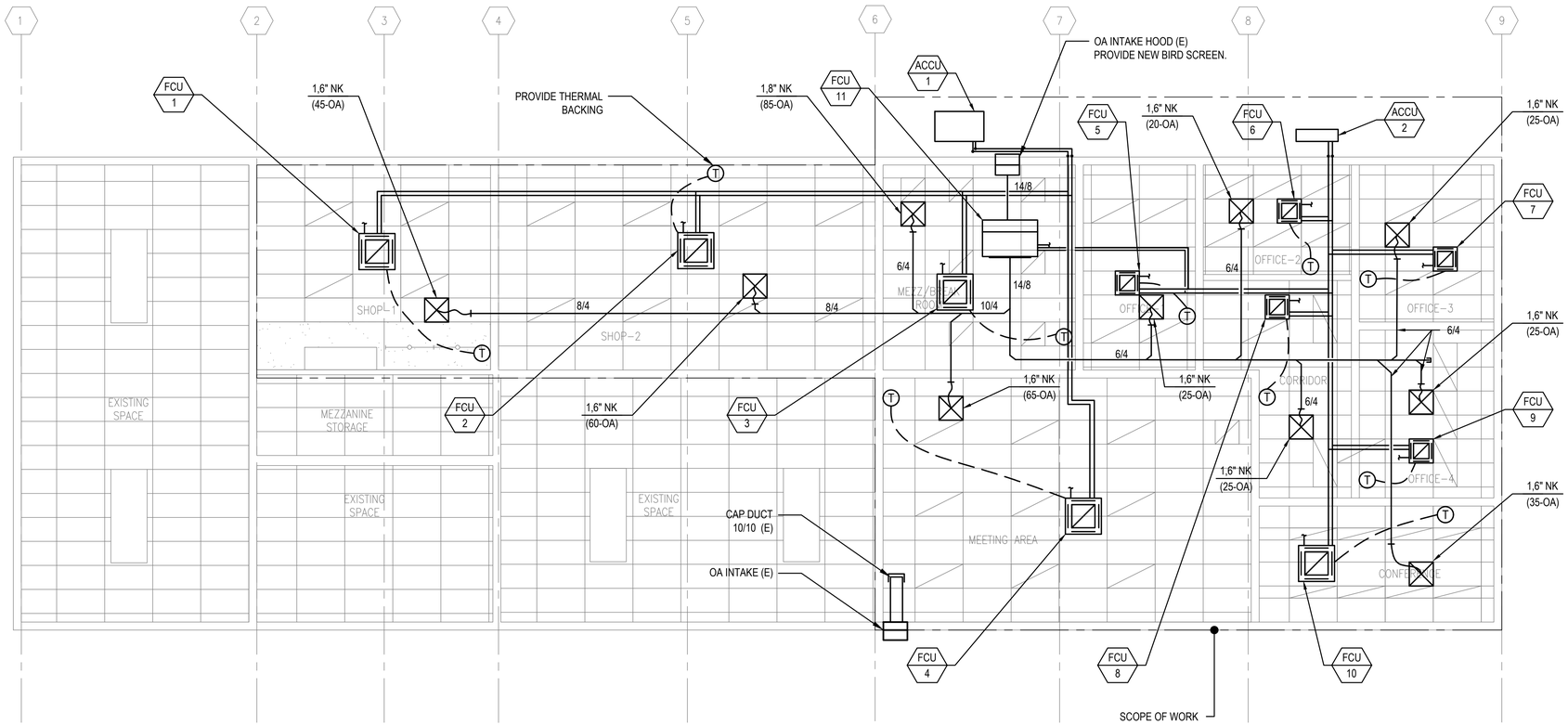
PROJECT TITLE :
DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:
MECHANICAL DEMOLITION PLAN

DATE : 08/22/2025
DWG. NO. M100

SHEET No. 3 OF 13 SHEETS

NOTES
1. REUSE EXTERIOR PENETRATIONS FOR REFRIGERANT PIPING AND OA INTAKE.
2. CONNECT CONDENSATE PIPE TO EXISTING CONDENSATE PIPING.
3. REUSE EXISTING PAD FOR ACCU-1.
4. PROVIDE NEW PAD FOR ACCU-2.
5. CONTRACTOR SHALL SEAL FORMER PENETRATIONS THAT ARE NO LONGER IN USE.



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

1 MECHANICAL PLAN
3/16" = 1'-0"

GRAPHIC SCALE
0 6' 12'
3/16" = 1'-0"

NORTH

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROJECT TITLE :
DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:
MECHANICAL PLAN

DATE : 08/22/2025
DWG. NO. M101

SHEET No. 4 OF 13 SHEETS

JOSHUA M. MCDONOUGH
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No. 19476-M
HAWAII, U.S.A.

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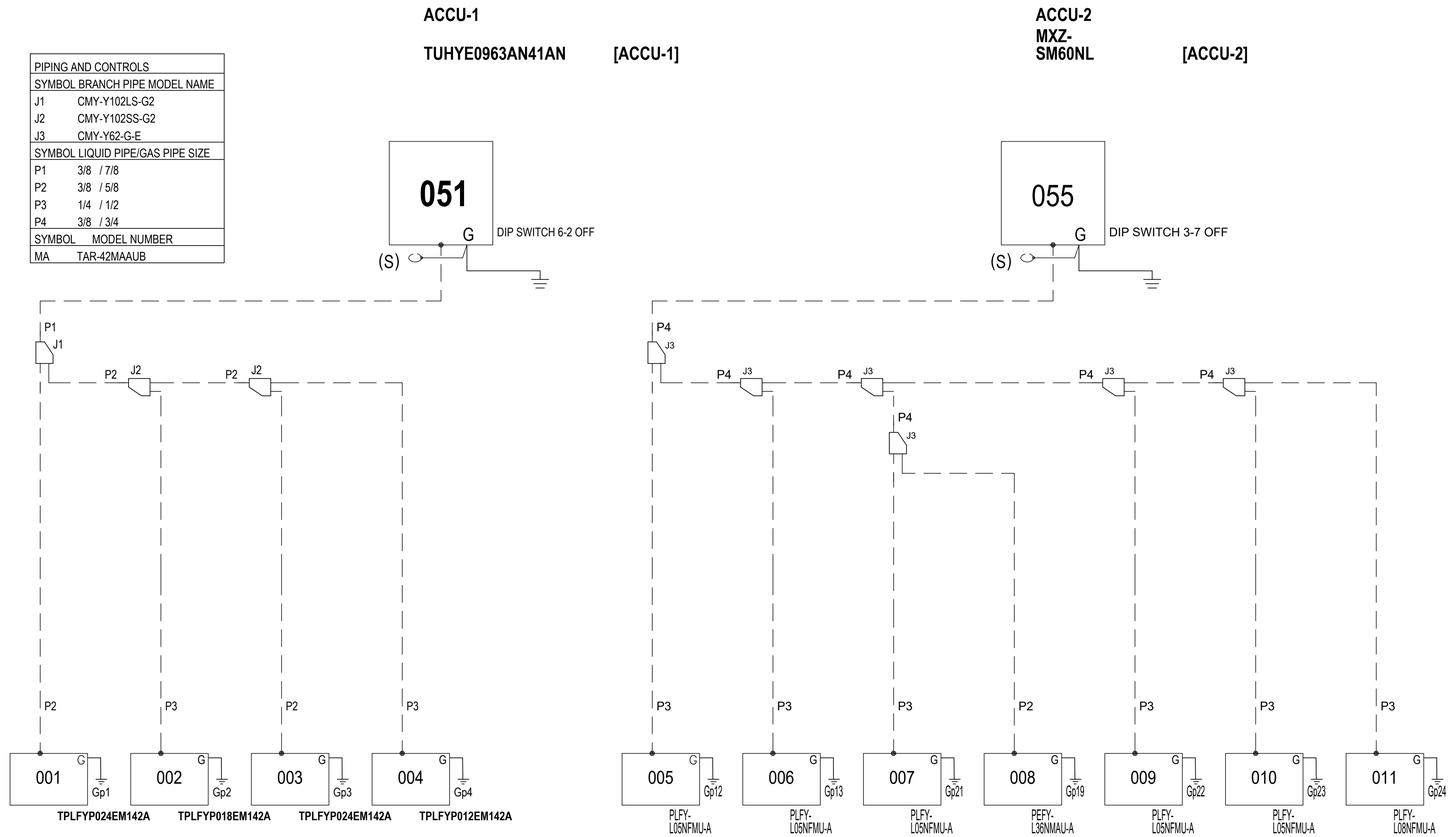
4/25/2026
Expiration date of the license

PIPING AND CONTROLS	
SYMBOL	BRANCH PIPE MODEL NAME
J1	CMY-Y102LS-G2
J2	CMY-Y102SS-G2
J3	CMY-Y62-G-E
SYMBOL	LIQUID PIPE/GAS PIPE SIZE
P1	3/8 / 7/8
P2	3/8 / 5/8
P3	1/4 / 1/2
P4	3/8 / 3/4
SYMBOL	MODEL NUMBER
MA	TAR-42MAAUB



FCU-4	FCU-3	FCU-2	FCU-1	FCU-6	FCU-7	FCU-5	FCU-8	FCU-9	FCU-10	FCU-11

1 MECHANICAL DIAGRAM
NOT TO SCALE

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROJECT TITLE :
DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:
MECHANICAL DIAGRAMS

DATE : 08/22/2025
DWG. NO. M301

SHEET No. 5 OF 13 SHEETS

JOSHUA M. MCDONOUGH
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signature 4/30/2026 expiration date of the license

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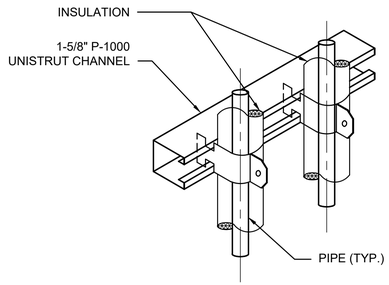
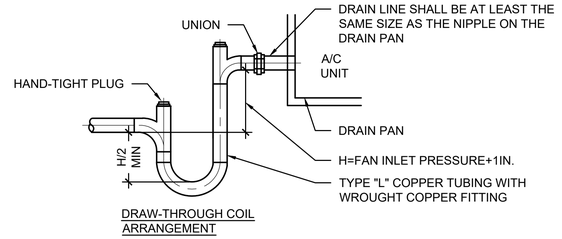
ORIGINAL PLAN
NOTE BOOK
No.



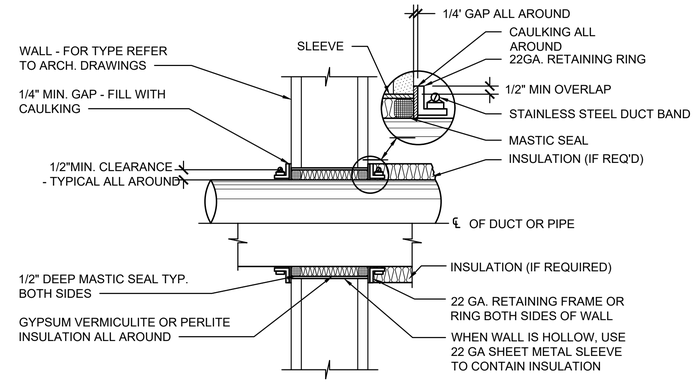
NOTES:
1. SECURE PIPING TO SUPPORT WITH "UNISTRUT" PIPE CLAMP OR EQUAL (TYP.).
2. SEE SPECIFICATIONS FOR INSULATION REQUIREMENTS.
3. PROVIDE TWO COATS OF CORROSION RESISTANT PAINT ON ALL EXPOSED METAL SUPPORTS.

5 REFRIGERANT PIPE SUPPORT DETAIL
NOT TO SCALE



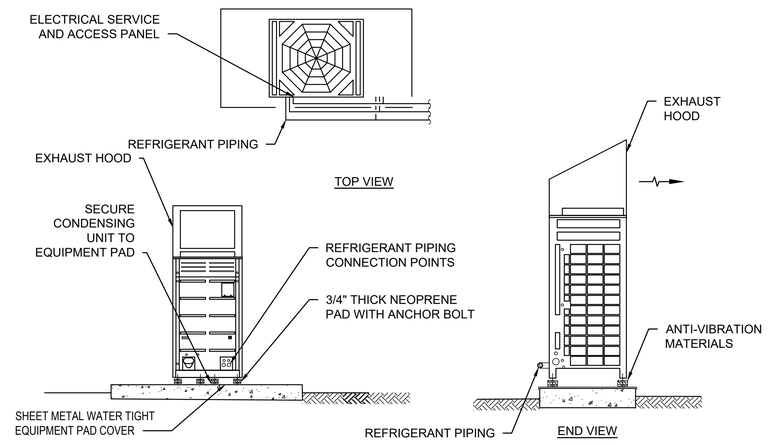
NOTES:
1. CONDENSATE DRAIN LINE TO BE INSULATED, REFER TO SPECS.

3 CONDENSATE DRAIN DETAILS
NOT TO SCALE



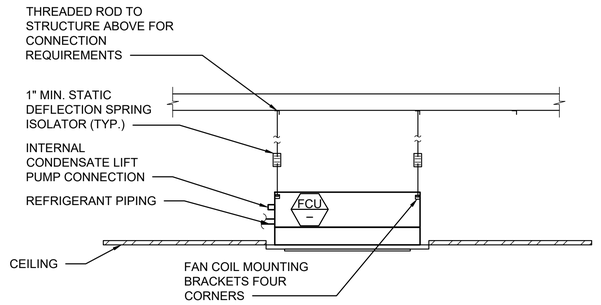
NOTES:
1. IF WALL IS FIRE RATED THE PACKING & SEALING MATERIALS AND SYSTEM INSTALLATION SHALL BE APPROVED BY THE FIRE MARSHALL.
2. PROVIDE FIRE STOPPING INSTALLED IN ACCORDANCE WITH THE LISTED MANUFACTURERS INSTALLATION INSTRUCTIONS FOR ALL PENETRATIONS OF FIRE RATED WALLS.
3. ON DUCTS OR PIPES THAT ARE INSULATED, EXTEND INSULATION UPWARDS TO ENSURE METAL FRAMING RING IS FULLY INSULATED.

1 DUCT OR PIPE WALL PENETRATION DETAIL
NOT TO SCALE



NOTES:
1. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
2. REFRIGERANT PIPING SHALL BE INSULATED AND PROTECTED WITH ALUMINUM SHIELDING WITH S.S. BANDS.
3. PROVIDE SHEET METAL WATER TIGHT DRAIN PAN UNDER CONDENSING UNITS IF LOCATED INDOORS OR WHEN REQUIRED. PROVIDE 3/4'" DRAIN LINE TO AN APPROVED RECEPTOR.
4. PROVIDE ALUMINUM JACKET INSULATION REFRIGERANT PIPING.
5. ALL BOLTS AND FASTENERS SHALL BE STAINLESS STEEL.

4 ACCU-1 MOUNTING DETAIL AT GRADE LEVEL - EQUIPMENT PAD
NOT TO SCALE



NOTES:
1. REFER TO CONDENSATE DRAIN DETAIL FOR PIPE CONNECTION INFORMATION.
2. PROVIDE CONDENSATE PUMP WITH UNIT AND POWERED OFF OF UNIT, ENSURE PUMP IS INTERLOCKED WITH UNIT TO SHUT OF UNIT IN THE EVENT OF PUMP FAILURE.
3. 2'X2' CASSETTE UNIT SHALL BE ABLE TO FIT IN 2'X2' CEILING GRID.
4. PROVIDE SHUT-OFF VALVE IN REFRIGERANT PIPING TO UNIT WHEN MORE THAN 4 UNITS IN SYSTEM. PROVIDE AT Y-BRANCH FROM MAIN.

2 FAN COIL UNIT DETAIL - CEILING CASSETTE MOUNTING
NOT TO SCALE

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PROJECT TITLE :

DOT-2023-077 Warehouse AC Repair
670 Auahi St, Honolulu, HI 96813
PROJECT NO.: 2025US444508

SHEET TITLE:

MECHANICAL DETAILS

JOSHUA M. MCDONOUGH
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No. 19476-M
HAWAII, U.S.A.

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signature 7/31/2025 date of the license

DATE : 08/22/2025

DWG. NO. M401

SHEET No. 6 OF 13 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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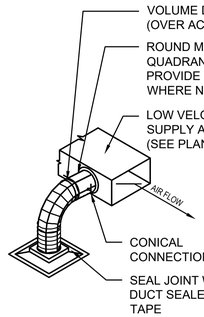
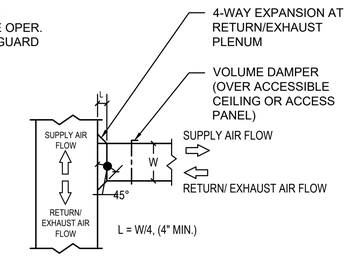
No.	CHECKED BY	



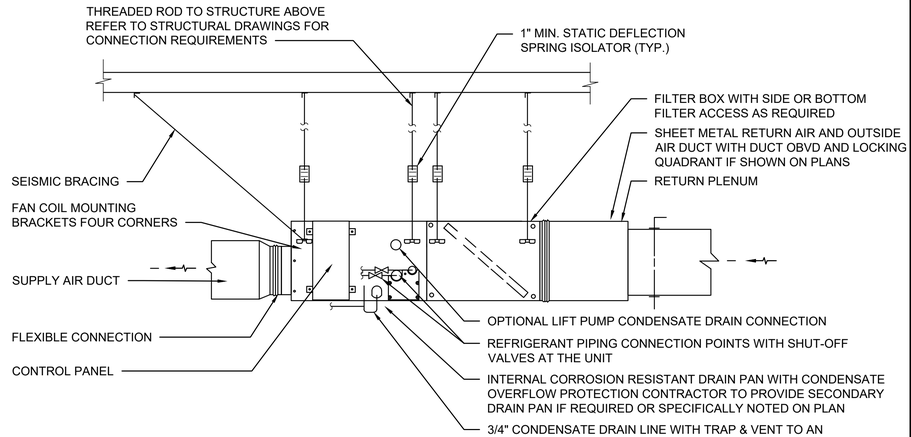
DIFFUSER (WITH VOLUME DAMPER IF INSTALLED IN INACCESSIBLE CEILING)
ROUND DIFFUSER TAKE-OFF



RECTANGULAR AIR OUTLET/INLET TAKE-OFF FOR
LOW PRESSURE SUPPLY/RETURN-EXHAUST DUCTS

NOTES:
1. PROVIDE STAND-OFF FOR DAMPER HANDLE IF DUCTWORK IS INSULATED.
2. PROVIDE A REMOTE REGULATOR OR ACCESS DOOR IF DAMPER IS ABOVE AN INACCESSIBLE CEILING.
3. ALL BRANCH FINAL DUCT RUNS TO DIFFUSERS, GRILLES AND REGISTERS SHALL HAVE THE VOLUME DAMPER.

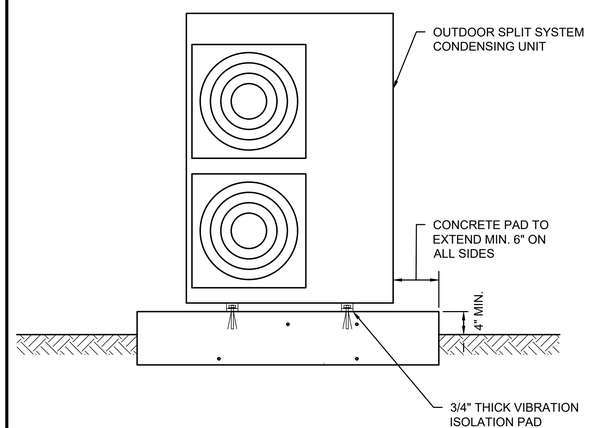
3 DUCT CONNECTION TO AIR OUTLET/TAKE OFF DETAIL
NOT TO SCALE



GENERAL GUIDELINE
CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC CLEARANCE GUIDELINES

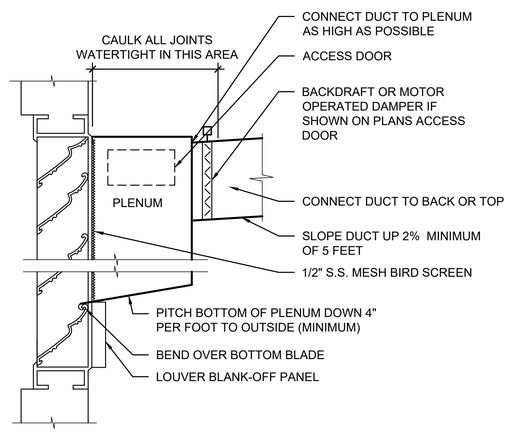
NOTES:
1. INSTALL FAN COIL UNIT AS HIGH AS POSSIBLE.
2. REFER TO CONDENSATE DRAIN DETAIL FOR PIPE CONNECTION INFORMATION.
3. IF FILTER SECTION DOESN'T COME WITH THE UNIT A DUCT MOUNTED FILTER BOX SHALL BE PROVIDED BY FCU MANUFACTURER. FILTER BOX SHALL BE PROVIDED WITH DOOR FOR EASY ACCESS BY TURNING A HANDLE.
4. IF FCU IS LOCATED ABOVE A HARD CEILING, PROVIDE ACCESS PANELS TO ENSURE ACCESS TO VALVES, CONDENSATE DRAIN, FILTER, CONTROLLER, ETC.
5. PROVIDE RUBBER GROMMET SEALING COIL CABINET AT COIL CONNECTION PENETRATION.
6. ENSURE UNIT IS INSTALLED WITH ACCESS TO ALL NECESSARY COMPONENTS. THIS INCLUDES THE CONTROL PANEL, FILTER, CONDENSATE TRAP, ACCESS DOORS, MOTOR, COIL, ETC. COORDINATE WITH ALL TRADES TO ENSURE ACCESS IS NOT COMPROMISED. ACCESS CLEARANCE IS SHOWN AS A HALFTONE DASHED LINE ON THE PLANS.
7. PROVIDE CONDENSATE PUMP WITH UNIT AND POWERED OFF OF UNIT, ENSURE PUMP IS INTERLOCKED WITH UNIT TO SHUT OFF UNIT IN THE EVENT OF PUMP FAILURE.
8. PROVIDE SHUT-OFF VALVE IN REFRIGERANT PIPING TO UNIT WHEN MORE THAN 2 UNITS IN SYSTEM. PROVIDE AT Y-BRANCH FROM MAIN.

1 FAN COIL UNIT DETAIL - HORIZONTAL DUCTED VRF
NOT TO SCALE



NOTES:
1. PROVIDE ALUMINUM JACKET INSULATION REFRIGERANT PIPING.
2. ALL BOLTS AND FASTENERS SHALL BE STAINLESS STEEL.

4 ACCU-2 MOUNTING DETAIL AT GRADE LEVEL
NOT TO SCALE



NOTES:
1. PLENUM SHALL BE A MINIMUM 2' DEEP. FOR LARGE PLENUMS PROVIDE 3' DEEP. REFER TO PLANS FOR GENERAL GUIDANCE.
2. DETAIL ALSO APPLIES TO DUCT CONNECTIONS TO EXTERIOR GRILLES AND WALL CAPS. SLOPE DUCT AT 2% TOWARDS EXTERIOR FOR A MINIMUM OF 5 FEET.

2 DUCT CONNECTION TO WATERPROOF LOUVER DETAIL
NOT TO SCALE

ORIGINAL PLAN	SURVEY PLOTTED BY
NOTE BOOK	DRAWN BY
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PROJECT NO.: 2025US444508

SHEET TITLE:
MECHANICAL DETAILS

DATE : 08/22/2025
DWG. NO. M402

SHEET No. 7 OF 13 SHEETS

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4/30/2026
signature, date of the license