

MECHANICAL ABBREVIATIONS & SYMBOLS <small>ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.</small>			MECHANICAL NOTES <small>ALL NOTES MAY NOT APPLY.</small>	
PIPING DESIGNATIONS	EQUIPMENT DESIGNATIONS	ABBREVIATIONS	GENERAL NOTES:	DEMOLITION NOTES:
<p>— CHS — CHILLED WATER SUPPLY</p> <p>— CHR — CHILLED WATER RETURN</p> <p>— CWS — CONDENSER WATER SUPPLY</p> <p>— CWR — CONDENSER WATER RETURN</p> <p>— HWS — HEATING WATER SUPPLY</p> <p>— HWR — HEATING WATER RETURN</p> <p>— HPWS — HEAT PUMP WATER SUPPLY</p> <p>— HPWR — HEAT PUMP WATER RETURN</p> <p>— E — EXPANSION LINE</p> <p>— CD — CONDENSATE DRAIN</p>	<p>AC AIR COMPRESSOR</p> <p>AF AIR FILTER</p> <p>AH/AHU AIR HANDLING UNIT</p> <p>AS AIR SEPARATOR</p> <p>BF BOOSTER FAN</p> <p>CP CIRCULATING PUMP</p> <p>CRAC COMPUTER ROOM AIR CONDITIONER</p> <p>CT COOLING TOWER</p> <p>CU CONDENSING UNIT, AIR COOLED</p> <p>CVT CONSTANT VOLUME FAN TERMINAL COOL/HEAT</p> <p>EDH ELECTRIC DUCT HEATER</p> <p>EF EXHAUST FAN</p> <p>EUH ELECTRIC UNIT HEATER</p> <p>FCU FAN COIL UNIT</p> <p>FD FIRE DAMPER</p> <p>FPB FAN POWERED BOX</p> <p>FSD FIRE/SMOKE COMBINATION DAMPER</p> <p>GRV GRAVITY ROOF VENTILATOR</p> <p>GUH GAS-FIRED UNIT HEATER</p> <p>HC HEATING COIL</p> <p>HP HEAT PUMP, AIR SOURCE</p> <p>HUM HUMIDIFIER</p> <p>HX HEAT EXCHANGER</p> <p>IRH INFRARED HEATER</p> <p>KEF KITCHEN EXHAUST FAN</p> <p>KSF KITCHEN SUPPLY FAN</p> <p>MAU MAKE-UP AIR UNIT</p> <p>MD MOTORIZED DAMPER</p> <p>RTU ROOF TOP UNIT</p> <p>SA SOUND ATTENUATOR</p> <p>SD SMOKE DAMPER</p> <p>SF SUPPLY FAN</p> <p>VAV VARIABLE VOLUME TERMINAL — COOL ONLY</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>VRF VARIABLE REFRIGERANT FLOW</p> <p>VSD VARIABLE SPEED DRIVE</p> <p>VT VARIABLE VOLUME & TEMPERATURE</p> <p>WH WALL HEATER</p> <p>WSPH HEAT PUMP, WATER SOURCE</p>	<p>AFB ABOVE FINISH FLOOR</p> <p>AFG ABOVE FINISHED GRADE</p> <p>A/C ABOVE CEILING</p> <p>BAS BUILDING AUTOMATION SYSTEM SEE EMCS</p> <p>B/F BELOW FLOOR</p> <p>BFF BELOW FINISHED FLOOR</p> <p>B/G BELOW GRADE</p> <p>BRF BELOW RAISED FLOOR</p> <p>CLG CEILING</p> <p>CO CLEANOUT</p> <p>DCO DOUBLE CLEANOUT</p> <p>DS DOWNSPOUT</p> <p>EMCS ENERGY MANAGEMENT & CONTROL SYSTEM</p> <p>FCO FLOOR CLEANOUT</p> <p>FLR FLOOR</p> <p>GOO GRADE CLEANOUT</p> <p>GW GREASE WASTE</p> <p>HW HOT WATER</p> <p>HWR HOT WATER RETURN</p> <p>MTD MOUNTED</p> <p>OD OVERFLOW DRAIN</p> <p>ODN OVERFLOW DOWNSPOUT NOZZLE</p> <p>PRV PRESSURE REDUCING VALVE</p> <p>RD ROOF DRAIN</p> <p>RV RELIEF VALVE</p> <p>SD STORM DRAIN</p> <p>SS SANITARY SEWER</p> <p>SV SANITARY VENT</p> <p>UNO UNLESS NOTED OTHERWISE</p> <p>VTR VENT THRU ROOF</p> <p>WCO WALL CLEANOUT</p>	<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> IT IS THE INTENT AND MEANING OF THE CONSTRUCTION DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE A MECHANICAL INSTALLATION THAT IS COMPLETE AND ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED EVEN THOUGH EACH AND EVERY ITEM IS NOT SPECIFICALLY CALLED OUT OR SHOWN. THE CONTRACTOR SHALL MAKE A CAREFUL EXAMINATION OF THE SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH THE REQUIREMENTS OF THE CONTRACT. UPON COMMENCEMENT OF CONSTRUCTION FOR THE WORK INCLUDED IN THIS CONTRACT, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH A STUDY OR EXAMINATION AND THAT HE IS FAMILIAR WITH AND ACCEPTS ALL CONDITIONS OF THE PREMISES. PROVIDE EQUIPMENT, MATERIALS, LABOR, SUPERVISION AND SERVICES NECESSARY FOR OR INCIDENTAL TO THE INSTALLATION OF A COMPLETE AND OPERATING HVAC OR PLUMBING SYSTEM AS SHOWN OR INDICATED ON THE DRAWINGS AND/OR AS SPECIFIED. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ALL EXISTING OPERATIONS AND PROPERTY ADJACENT WITH WHICH WORK COMES IN CONTACT OR OVER WHICH HE MAY TRANSPORT, HOIST OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC. AND SHALL REPAIR SATISFACTORILY ALL DAMAGES CAUSED BY HIM DURING CONSTRUCTION. THE CONTRACTOR SHALL REPLACE WITH NEW MATERIALS AND/OR EQUIPMENT FAILING TO ONE SATISFACTORY SERVICE DURING THE WARRANTY PERIOD. THE CONTRACTOR SHALL COORDINATE AND NOTIFY THE BUILDING OWNER AND OPERATOR FOR APPROVAL AND SCHEDULING OF ANY BUILDING OR EXISTING TENANT SYSTEM INTERRUPTION. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH CONTRACT DOCUMENTS, APPLICABLE CODES AND STANDARDS, AND, IN THE CASE OF DIFFERENCES BETWEEN APPLICABLE CODES AND STANDARDS AND THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER IN WRITING OF SUCH DIFFERENCES. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH REQUIREMENTS OF APPLICABLE CODES AND STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING SUCH DEFECTS. APPLICABLE CODES AND STANDARDS SHALL INCLUDE ALL ORDINANCES, UTILITY COMPANY REGULATIONS AND APPLICABLE REQUIREMENTS OF NATIONALLY ACCEPTED CODES AND STANDARDS. THE DRAWINGS WERE PREPARED FROM THE BEST INFORMATION AVAILABLE, BUT DO NOT ATTEMPT TO INDICATE THE LOCATION OF ALL EXISTING EQUIPMENT. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE CONDITIONS SURROUNDING THE INSTALLATION OF HIS WORK PRIOR TO PROCEEDING WITH THE INSTALLATION. CHANGES REQUIRED TO THE DESIGN SHOWN ON THESE DRAWINGS DUE TO EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER/OWNER FOR REVIEW BY WAY OF SHOP DRAWINGS OR SKETCHES DETAILING THE EXISTING CONDITIONS AND THE PROPOSED CHANGE. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. EXPERIENCED CRAFTSMEN SHALL MAKE THE INSTALLATION OF ALL EQUIPMENT IN A NEAT WORKMANSHIP LIKE MANNER. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, TOOLS, COST AND SERVICE NECESSARY TO COMPLETELY INSTALL ALL MECHANICAL WORK. ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE AS SCHEDULED OR APPROVED EQUAL. COORDINATE THERMOSTAT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. DO NOT INSTALL THERMOSTAT ABOVE DIMMER SWITCH. PROPERLY SUPPORT ALL EQUIPMENT AND PIPING WITHIN THE BUILDING AND PROVIDE ADEQUATE PROVISIONS FOR SLOPE AND ANCHORAGE. CONTRACTOR SHALL USE HANGERS, RODS AND INSERTS APPROVED BY UNDERWRITERS LABORATORIES FOR THE SERVICE INTENDED, SECURELY SUPPORTED BY STRUCTURAL MEMBERS WHICH IN TURN ARE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE. PROVIDE VIBRATION ISOLATION FOR MOTOR DRIVEN MECHANICAL EQUIPMENT. ALL FANS SHALL CARRY THE CERTIFIED RATING SEAL AUTHORIZED BY AMCA. PROVIDE FLEXIBLE DUCTWORK CONNECTIONS AT EQUIPMENT. DUCTWORK SHALL BE CONSTRUCTED ACCORDING TO SMACNA STANDARDS. DUCT AND FIRE DAMPER SIZES SHOWN ARE AIRSTREAM DIMENSIONS. ALL LONGITUDINAL AND TRANSVERSE SEAMS AND DUCT CONNECTIONS SHALL BE SECURELY FASTENED AND SEALED WITH TAPES OR MASTICS MEETING UL 181A OR UL181B, WELDS, OR GASKETS. INSULATE NEW SUPPLY AND RETURN DUCTWORK AND PLENUMS WITH EITHER EXTERNAL INSULATION TYPE IV DUCT WRAP OR INTERNAL DUCT LINER, 1.5 PCF MINIMUM DENSITY. (SIZES SHOWN ARE AIRSTREAM DIMENSIONS.) DUCTWORK AND PLENUMS WITHIN UNCONDITIONED SPACES SHALL HAVE MINIMUM R-6 INSULATION. EXTERIOR DUCTWORK SHALL HAVE MINIMUM R-8 INSULATION. DIFFUSERS, REGISTERS AND GRILLES SHALL BE BUILDING STANDARD UNLESS NOTED OTHERWISE AND SHALL BE PROVIDED WITH FRAMES COMPATIBLE WITH CEILING TYPE. DO NOT SPAN AIR DEVICES OVER PARTITIONS. PROVIDE AN AIR BALANCING DEVICE FOR EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE. PROVIDE YOUNG REGULATORS WITH BOWDEN CABLE CONTROL FOR ALL DAMPERS ABOVE INACCESSIBLE CEILING. COORDINATE EXACT LOCATION OF ESCUTCHEONS IN CEILING WITH ARCHITECT PRIOR TO INSTALLATION. CONTRACTOR TO VERIFY RETURN AIR PATH AND INCORPORATE RETURN AIR TRANSFER THROUGH WALLS AS NECESSARY. OPENING SIZED FOR A MAXIMUM OF 500 CFM UNLESS NOTED OTHERWISE. COORDINATE ALL WALLS TO DECK WITH EXISTING DUCTWORK AND EXISTING TERMINAL UNITS. BALANCING OF WATER AND AIR SYSTEMS SHALL BE PROVIDED UNDER THIS CONTRACT FOR ALL SYSTEMS WITHIN TENANT BORDERS AND ADJACENT AREAS THAT MAY BE AFFECTED BY BALANCING FOR THIS TENANT. BALANCING CONTRACTOR TO REVIEW DRAWINGS AND NOTIFY THE CONTRACTOR OF APPURTENANCES NEEDED FOR A PROPERLY BALANCED SYSTEM. PROVIDE NEBB CERTIFIED AIR BALANCE REPORT. COLD AND HOT WATER PIPING SHALL BE TYPE L HARD DRAWN COPPER WITH WROUGHT COPPER FITTINGS. PROVIDE SOFT COPPER PIPING UNDER SLAB TO AVOID UNDERGROUND FITTINGS. WHERE ALLOWED BY LOCAL CODES AND AUTHORITY HAVING JURISDICTION, PIPE MAY BE GROSSSLIKED POLYETHYLENE (PEX) MANUFACTURED BY PEX-A METHOD AND ASTM F1960 FITTINGS. INSULATE DOMESTIC HOT WATER AND RECIRCULATION LINES (1" THICK) AND DOMESTIC COLD WATER LINES (1/2" THICK) WITH OWENS CORNING FIBERGLASS 25 ASJ, JOHNS-MANVILLE AP OR APPROVED EQUAL. SEALED TO PREVENT SWEATING AND CONTINUOUS THROUGH WALLS, FLOORS, CEILINGS. ALL HOT WATER PIPING SHALL BE INSULATED PER THE ENERGY CODE. COLD WATER PIPING SHALL BE INSULATED IN EXTERIOR WALLS, CEILINGS OR IN SPACES EXPOSED TO OUTDOOR TEMPERATURES WITH 1" THICK FIBERGLASS INSULATION. SOIL, WASTE AND DRAIN PIPING, 2" AND LARGER, SHALL BE SERVICE WEIGHT CAST IRON. WASTE PIPING BELOW THE SLAB SHALL HAVE BELL AND SPIGOT CAST IRON MANUFACTURED TO ASTM A 74 WITH TY-SEAL GASKETS MANUFACTURED TO ASTM C 564. CAST IRON PIPING ABOVE THE SLAB SHALL BE "NO-HUB" PIPE AND FITTINGS MANUFACTURED TO CISPI 301. VENT PIPING MAY BE SCHEDULE 40 GALVANIZED STEEL, DWV COPPER OR SERVICE WEIGHT CAST IRON. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND BE LISTED WITH NSF INTERNATIONAL. IF APPROVED BY LOCAL CODES, SOIL, WASTE, AND DRAIN PIPING, 2" AND LARGER, SHALL BE POLYVINYL CHLORIDE (PVC) SCHEDULE 40 PIPING, ASTM AND NSF STAMPED AND APPROVED. FITTINGS SHALL BE PVC SCHEDULE 40 ASTM STAMPED AND APPROVED. HOT WATER CIRCULATING SYSTEMS OR HOT WATER HEAT TRACE SHALL HAVE TIMECLOCK CAPABLE CONTROL. PLUMBING FIXTURES AND EQUIPMENT SHALL BE FURNISHED AND INSTALLED COMPLETE WITH TRIM AND ALL OTHER APPURTENANCES REQUIRED TO CONNECT TO ROUGH-IN PIPING AT FLOORS AND WALLS UNLESS OTHERWISE SPECIFIED. WATER HEATING EQUIPMENT WITHOUT INTEGRAL HEAT TRAPS WILL HAVE HEAT TRAPS INSTALLED ON THE SUPPLY AND DISCHARGE PIPING. PVC PIPING LOCATED IN PLENUM RETURN MUST MEET ASTM E84 AND HAVE A FIRE SPREAD OF 25/50. ALL PIPING SHALL MEET ALL LOCAL CODE AND AMENDMENT REQUIREMENTS. EXISTING EQUIPMENT NOTES: A. CONTRACTOR SHALL INSPECT EXISTING PLUMBING AND HVAC EQUIPMENT PRIOR TO SUBMITTING HIS BID. B. CONTRACTOR SHALL INCLUDE IN HIS BID A THOROUGH START-UP SERVICING AND CLEANING OF ALL EXISTING EQUIPMENT. PLACE ALL EXISTING SYSTEMS/EQUIPMENT IN PROPER OPERATING ORDER. C. IF REPAIRS ARE NECESSARY TO PLACE EXISTING EQUIPMENT IN WORKING ORDER, PROVIDE OWNER WITH A DETAILED WRITTEN REPORT OF NECESSARY REPAIRS AND A COST PROPOSAL TO PERFORM THE WORK. ALL SUCH SERVICE REPORTS SHALL BE DELIVERED TO THE OWNER WITHIN TWO DAYS OF NOTICE TO PROCEED. OWNER RESERVES THE RIGHT TO HAVE ANY REQUIRED REPAIRS DONE BY OTHERS AND TO SEEK OTHER OPINIONS OR REQUIRED REPAIRS. PROVIDE INSTALLATION, OPERATION AND MAINTENANCE MANUALS TO THE OWNER. STANDARD NO-HUB COUPLINGS SHALL CONFORM TO CISPI 310 (MOST CURRENT EDITION) AND SHALL BE LISTED BY NSF INTERNATIONAL. HEAVY DUTY COUPLINGS SHALL CONFORM TO THE REQUIREMENTS OF ASTM 1540 AND FM 1680 CLASS I. COMPRESSION GASKETS FOR HUB & SPIGOT SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD C 564 AND ASTM C 1563 (MOST CURRENT EDITION) JOINTS FOR PIPE AND FITTINGS SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND LOCAL CODE REQUIREMENTS. ALL MECHANICAL SYSTEMS AND EQUIPMENT SHALL MEET THE CURRENT ASHRAE/IES 90.1 STANDARDS FOR MINIMUM ENERGY EFFICIENCY LEVELS. DUCTWORK INSULATION SHALL HAVE A MINIMUM VALUE OF R-8. PROGRAMMABLE THERMOSTATS (IF USED) SHALL HAVE NIGHT SET BACK. WATER HEATING SYSTEMS SHALL HAVE HEAT TRAPS. PROVIDE OPERATION AND MAINTENANCE MANUALS. DRAIN PANS SHALL BE STAINLESS STEEL, DOUBLE SLOPED AND CLEANABLE. REFER TO ASHRAE 62 FOR MINIMUM STANDARDS. 	<p>DEMOLITION NOTES:</p> <ol style="list-style-type: none"> PROTECT THE EXISTING EQUIPMENT AND SYSTEMS TO REMAIN OPERATIONAL. IF DAMAGED OR DISTURBED IN THE COURSE OF THE DEMOLITION WORK, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE WITH NEW PRODUCT OF EQUAL CAPACITY, QUALITY AND FUNCTIONALITY. CONTRACTOR SHALL COORDINATE WITH THE OWNER TO ARRANGE THE SHUT OFF OF UTILITIES. CONTRACTOR SHALL BOX AND/OR PALLETIZE ALL DEMOLISHED EQUIPMENT AND PROTECT IT ON SITE. REMOVE THESE ITEMS FROM THE SITE AT THE DIRECTION OF THE OWNER. CONTRACTOR SHALL NOT CONSIDER DEMOLITION AND ALTERATION NOTES TO BE ALL-INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREA TO FULFILL THE INTENT OF THE COMPLETE DESIGN. REFER TO ARCHITECTURAL DOCUMENTS FOR DEFINITION OF SCOPE FOR DEMOLITION AREAS AND ADDITIONAL REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE TO CONFIRM THE EXTENT OF DEMOLITION AND RESOLVE ANY DISCREPANCIES WITH OWNER'S/LANDLORD'S CONSTRUCTION MANAGER. FOR DEMOLITION AREAS, THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE SUPPRESSION DEMOLITION DRAWINGS AND REMOVE WELDING, RACKINGS, AND ELECTRICAL EQUIPMENT ASSOCIATED WITH THE MECHANICAL, PLUMBING AND FIRE SUPPRESSION DEMOLITION. ENSURE THAT ALL LIFE SAFETY SYSTEMS REMAIN OPERATIONAL AND MEET LIFE SAFETY CODE REQUIREMENTS FOR ALL OCCUPIED AREAS THAT REMAIN OPERATIONAL DURING/AFTER DEMOLITION. THIS INCLUDES, BUT IS NOT LIMITED TO, EGRESS PATHWAYS, FIRE ALARM SYSTEMS, EGRESS LIGHTING AND OTHER LIFE SAFETY SYSTEMS. PROTECT EXISTING EQUIPMENT AND SYSTEMS INTENDED TO REMAIN OPERATIONAL. IF DAMAGED OR DISTURBED IN THE COURSE OF THE DEMOLITION WORK, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE WITH NEW PRODUCT OF EQUAL CAPACITY, QUALITY AND FUNCTIONALITY. RE-ROUTE AND RE-CONNECT ANY CIRCUIT(S) THAT ARE TO REMAIN IN USE BUT INTERFERES WITH THE NEW CONSTRUCTION. WORK REQUIRING INTERRUPTION OF ELECTRICAL POWER, WHICH WOULD ADVERSELY AFFECT THE NORMAL OPERATION OF THE OWNER/LANDLORD'S PROPERTY OR OTHER BUILDING TENANTS, SHALL BE DONE AT A TIME OTHER THAN NORMAL WORKING HOURS. SCHEDULE ALL OUTAGES WITH OWNER/LANDLORD PRIOR TO SHUTDOWN. OWNER/LANDLORD RESERVES THE RIGHTS TO ALL DEMOLISHED MATERIALS. COORDINATE AND VERIFY EQUIPMENT INTENDED TO BE SALVAGED PRIOR TO DEMOLITION. MATERIALS THAT OWNER/LANDLORD REQUESTS TO BE RE-USED OR SALVAGED, THE MATERIALS SHALL BE REMOVED IN A NEAT WORKMAN LIKE METHOD TO ALLOW THEIR RE-USE. PROTECT THE SALVAGE MATERIALS FOR REUSE BY PROPERLY PACKAGING THE MATERIALS TO PROTECT SALVAGED MATERIALS FROM DAMAGE; SECURELY PACKAGE ALL SALVAGE MATERIALS' INSTALLATION HARDWARE AND PARTS TO SALVAGED MATERIALS. REMOVE UNUSED BRANCH CIRCUITS BACK TO BRANCH PANELBOARD OF ORIGIN. MARK BREAKER AS "SPARE" AND MAKE ELECTRICALLY SAFE. REMOVE ALL ABANDONED CONDUITS ABOVE LAY-IN CEILING, EXPOSED CONDUITS, FLEXIBLE CONDUITS, SURFACE RACKING, SURFACE MOUNTED OUTLET/JUNCTION BOXES, AND EQUIPMENT UNLESS NOTED OTHERWISE. REMOVE DEMOLISHED MATERIAL FROM PROJECT SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS AND REGULATIONS. FOLLOW ALL STATE AND LOCAL REGULATIONS AND CODES FOR PROPER DISPOSAL.
<p>MECHANICAL SYMBOLS</p> <p>NEW FAN POWERED BOX</p> <p>EXISTING FAN POWERED BOX</p> <p>DEMOLISHED FAN POWERED BOX</p> <p>RELOCATED FAN POWERED BOX</p> <p>NEW VAV</p> <p>EXISTING VAV</p> <p>DEMOLISHED VAV</p> <p>RELOCATED VAV</p> <p>NEW DUCTWORK</p> <p>EXISTING DUCTWORK</p> <p>DEMOLISHED DUCTWORK</p> <p>SUPPLY OR OUTSIDE AIR DUCT</p> <p>RETURN OR EXHAUST AIR DUCT</p> <p>DUCT TURNING UP</p> <p>DUCT TURNING DOWN</p> <p>CLEAR INSIDE DUCT DIMENSION, FIRST VALUE IS DUCT WIDTH</p> <p>DUCT TRANSITION</p> <p>DUCT TAP WITH MANUAL VOLUME DAMPER</p> <p>NEW SUPPLY AIR GRILLE</p> <p>NEW RETURN AIR GRILLE</p> <p>NEW EXHAUST AIR GRILLE</p> <p>EXISTING SUPPLY AIR GRILLE</p> <p>EXISTING RETURN AIR GRILLE</p> <p>EXISTING EXHAUST AIR GRILLE</p> <p>DEMOLISHED SUPPLY AIR GRILLE</p> <p>DEMOLISHED RETURN AIR GRILLE</p> <p>DEMOLISHED EXHAUST AIR GRILLE</p> <p>SIDEWALL OUTLET</p> <p>SIDEWALL INLET</p> <p>THERMOSTAT/SENSOR</p> <p>HUMIDISTAT</p> <p>DUCT SMOKE DETECTOR</p>			<p>MECHANICAL SYMBOLS</p> <p>MANUAL VOLUME DAMPER (VD)</p> <p>FIRE DAMPER (FD)</p> <p>SMOKE DAMPER (SD)</p> <p>FIRE/SMOKE COMBINATION DAMPER (FSD)</p> <p>AUTOMATIC DAMPER, OPPOSED BLADE</p> <p>AUTOMATIC DAMPER, PARALLEL BLADE</p> <p>BACK DRAFT DAMPER</p>	

MARK DATE DESCRIPTION

CONTRACTOR SHALL COORDINATE
MEP DRAWINGS WITH ALL OTHER
DISCIPLINES



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COVER SHEET -
MECHANICAL

LEVEL 02

DATE: 04/28/2022 ISSUE DATE: 04/28/2022

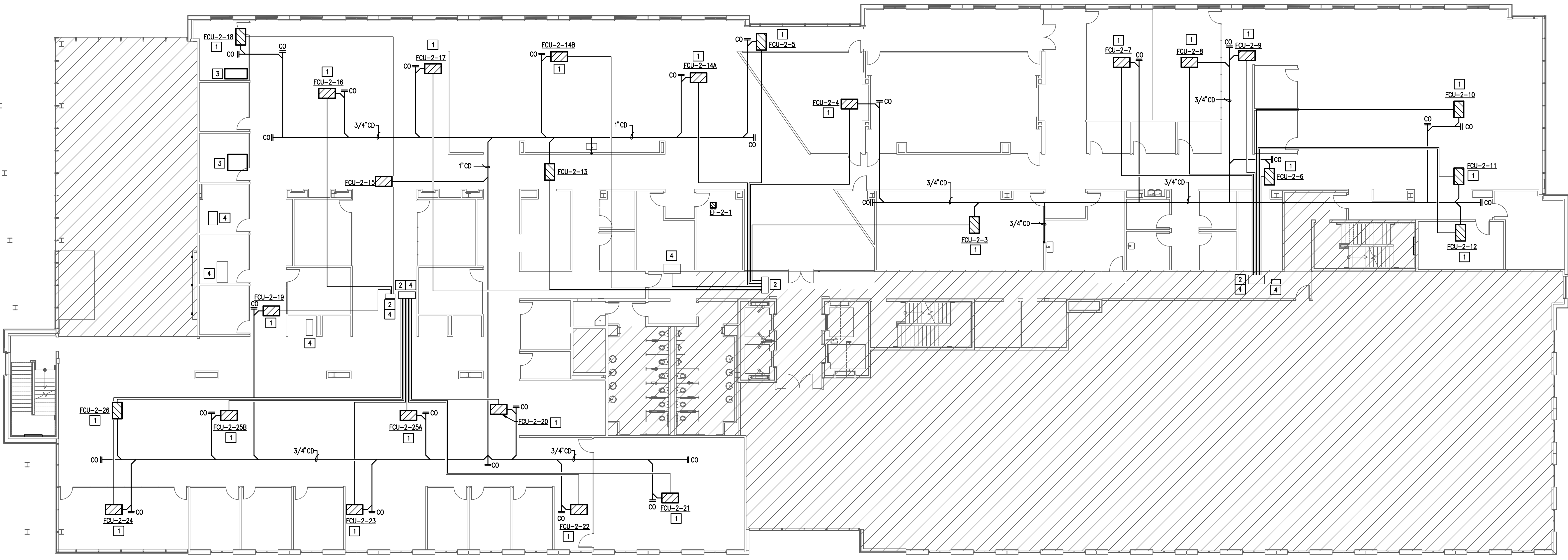
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SHEET #

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MARK DATE DESCRIPTION



NORTH
 **1** PIPING FLOOR PLAN - MECHANICAL
 SCALE: 3/8" = 1'-0"

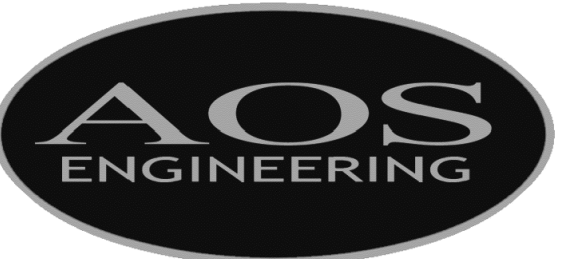
GENERAL NOTES:

- A. VERIFY ALL NEW MECHANICAL EQUIPMENT DOES NOT AFFECT STRUCTURAL INTEGRITY OF EXISTING BUILDING WITH STRUCTURAL ENGINEER BEFORE CONSTRUCTION. ALL EQUIPMENT SHALL BE PLACED A MINIMUM OF 10'-0" AWAY FROM THE EDGE OF THE BUILDING.
- B. COORDINATE EXACT PLACEMENT OF NEW MECHANICAL EQUIPMENT WITH STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION. VERIFY THAT ALL CODE REQUIRED CLEARANCES ARE MAINTAINED BETWEEN NEW UNITS, EXHAUST TERMINATIONS AND AIR INTAKES, AND THE EDGE OF THE ROOF. REPORT ANY DEFICIENCIES TO AOS ENGINEERING.
- C. FIELD VERIFY EXISTING CONDITIONS BEFORE BID OR CONSTRUCTION. NO ALLOWANCES WILL BE MADE FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
- D. ALL HVAC EQUIPMENT AND ASSOCIATED ELECTRICAL SHALL BE RELOCATED IF NECESSARY TO MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE FROM ALL DEMISING WALLS, WALLS TO DECK, GYPSUM CEILINGS, AND/OR ANY BUILD OUT MATERIALS THAT MAY OBSTRUCT THE SERVICING OF THE EQUIPMENT.
- E. TEST AND SERVICE ALL MECHANICAL EQUIPMENT.
- F. EXISTING HVAC TO REMAIN UNLESS NOTED OTHERWISE.
- G. ALL MATERIALS ABOVE CEILING SHALL BE RATED FOR PLENUM USE.

KEY NOTES:

- 1 PROVIDE 3/4" DIA. CONDENSATE PIPING FROM FAN COIL UNIT. ROUTE CONDENSATE IN CEILING SPACE WITH SLOPE OF 1/8" PER FOOT OF HORIZONTAL PIPING. ROUTE TO NEAREST TAILPIECE OF SINK. REFER TO PLUMBING FOR EXACT LOCATION OF SINK. PROVIDE CONDENSATE PUMP AS REQUIRED.
- 2 CONTRACTOR TO CONNECT NEW FAN COIL UNITS TO EXISTING VRF SYSTEM. FIELD COORDINATE EXACT LOCATION OF EXISTING VRF BRANCH AND SUB-BRANCH CONTROLLERS. PROVIDE ALL MANUFACTURER REQUIRED CLEARANCES FOR MAINTENANCE AND ACCESS. INSTALL PER MANUFACTURER INSTRUCTIONS. FIELD VERIFY THAT DISTANCE BETWEEN FAN COIL UNITS AND VRF BRANCH CONTROLLERS DO NOT EXCEED THE MAXIMUM REFRIGERANT LINESET LENGTH AS DETERMINED BY THE MANUFACTURER. REPORT ANY DEFICIENCIES TO AOS ENGINEERING.
- 3 RELOCATED FAN COIL UNIT. EXTEND AND MODIFY EXISTING REFRIGERANT LINESET AND CONDENSATE AS REQUIRED.
- 4 EXISTING MECHANICAL UNIT TO REMAIN.

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**SECOND LEVEL
FLOOR PLAN -
MECHANICAL PIPING**

LEVEL 02

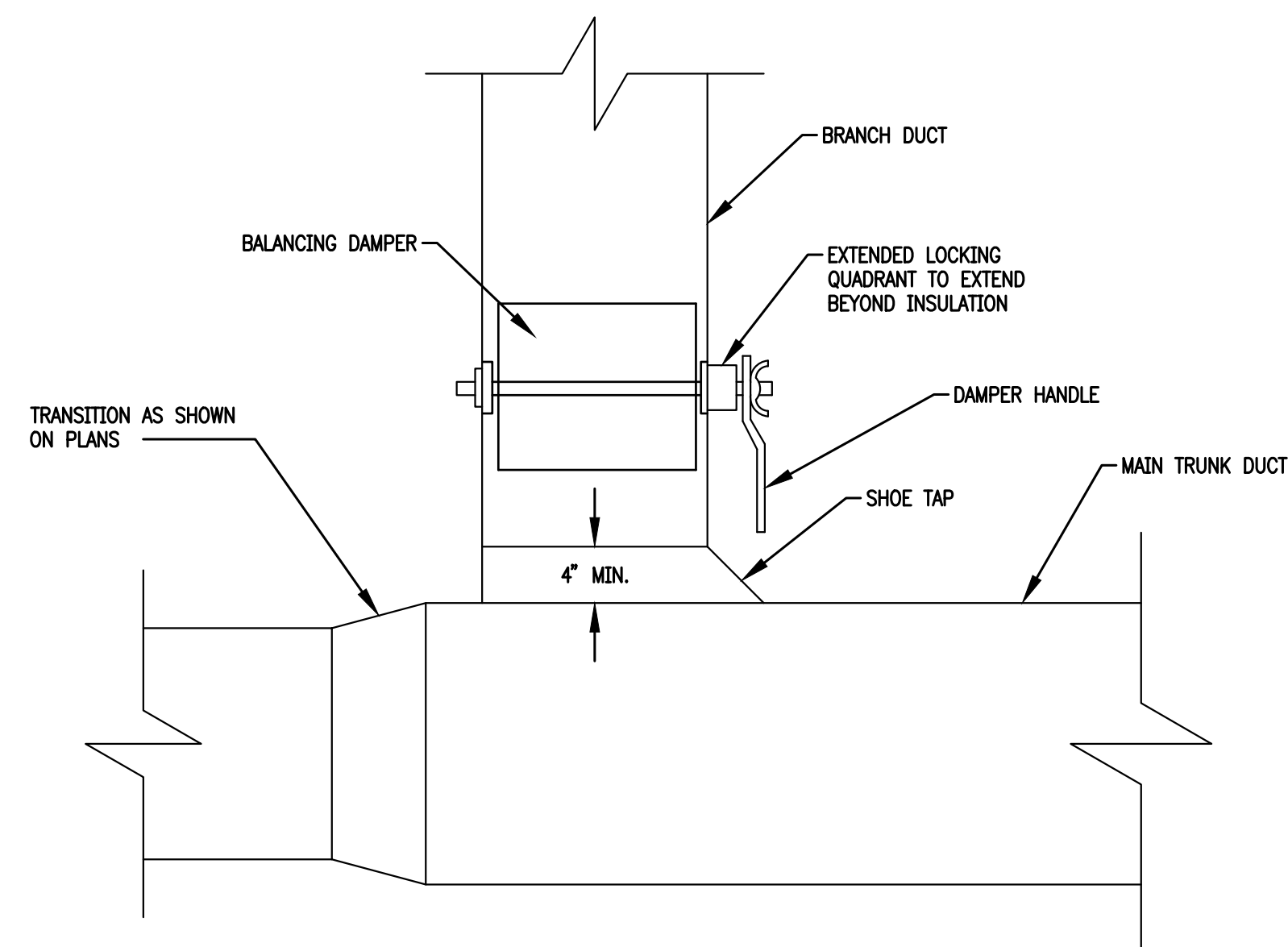
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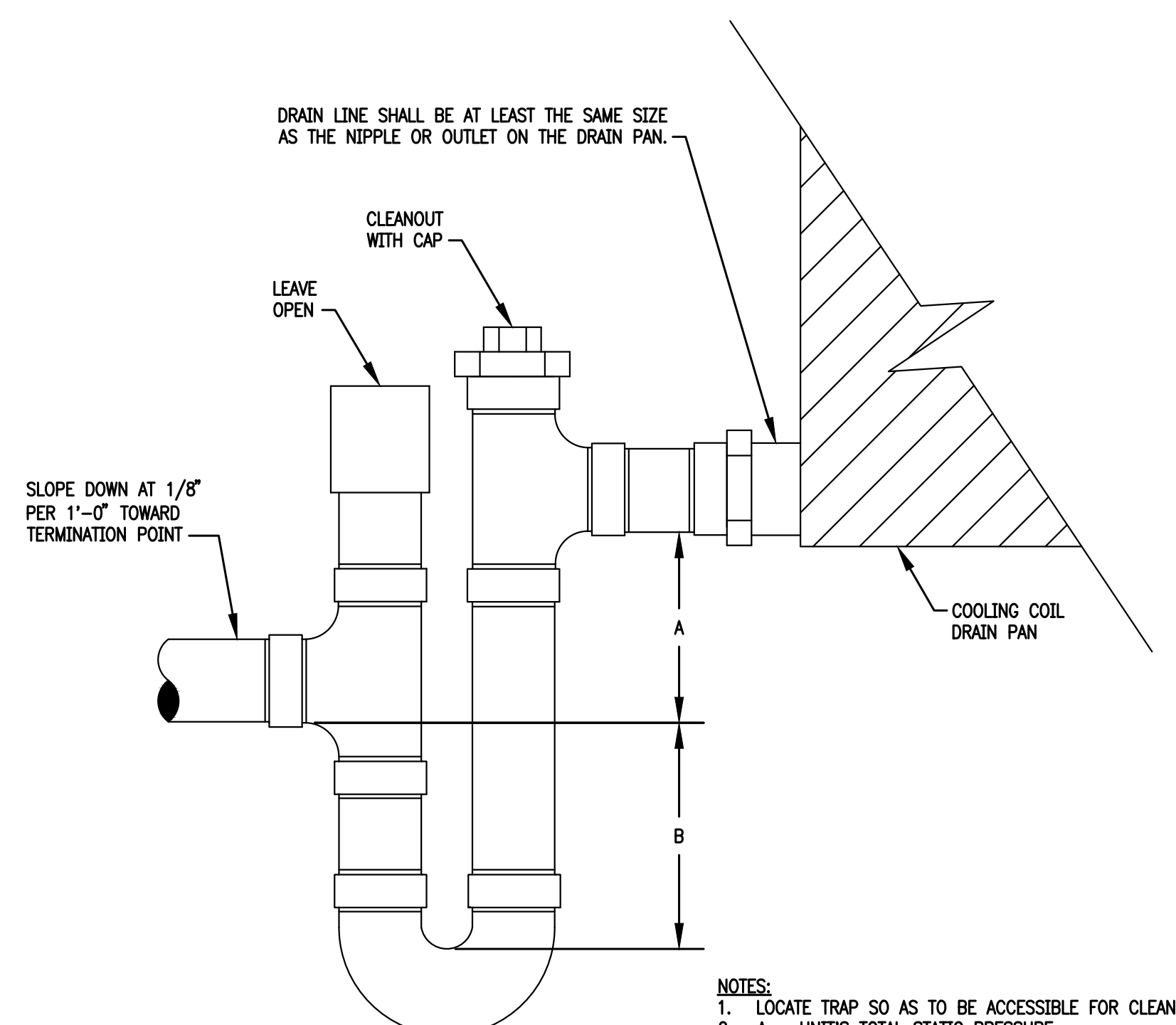
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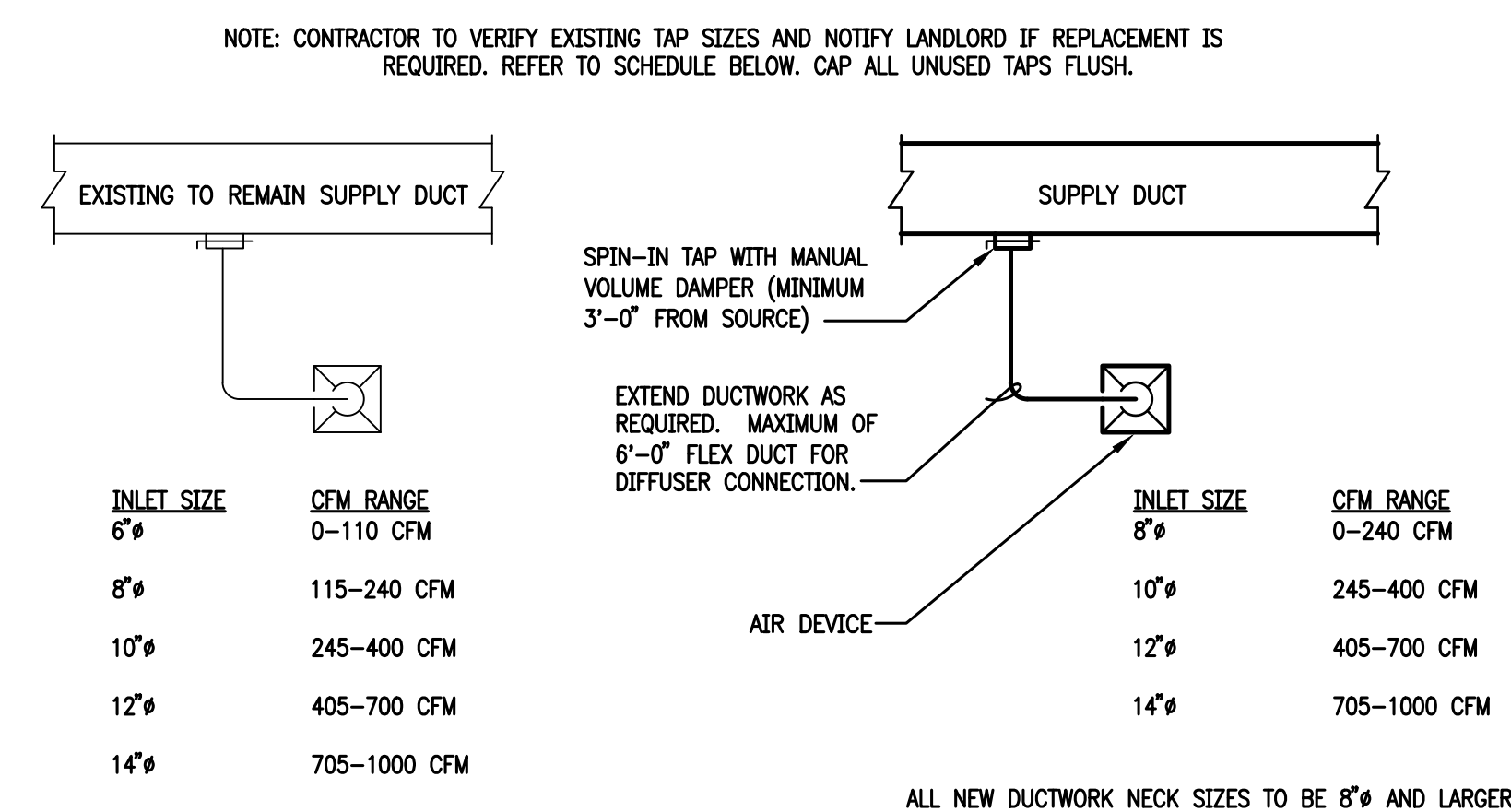
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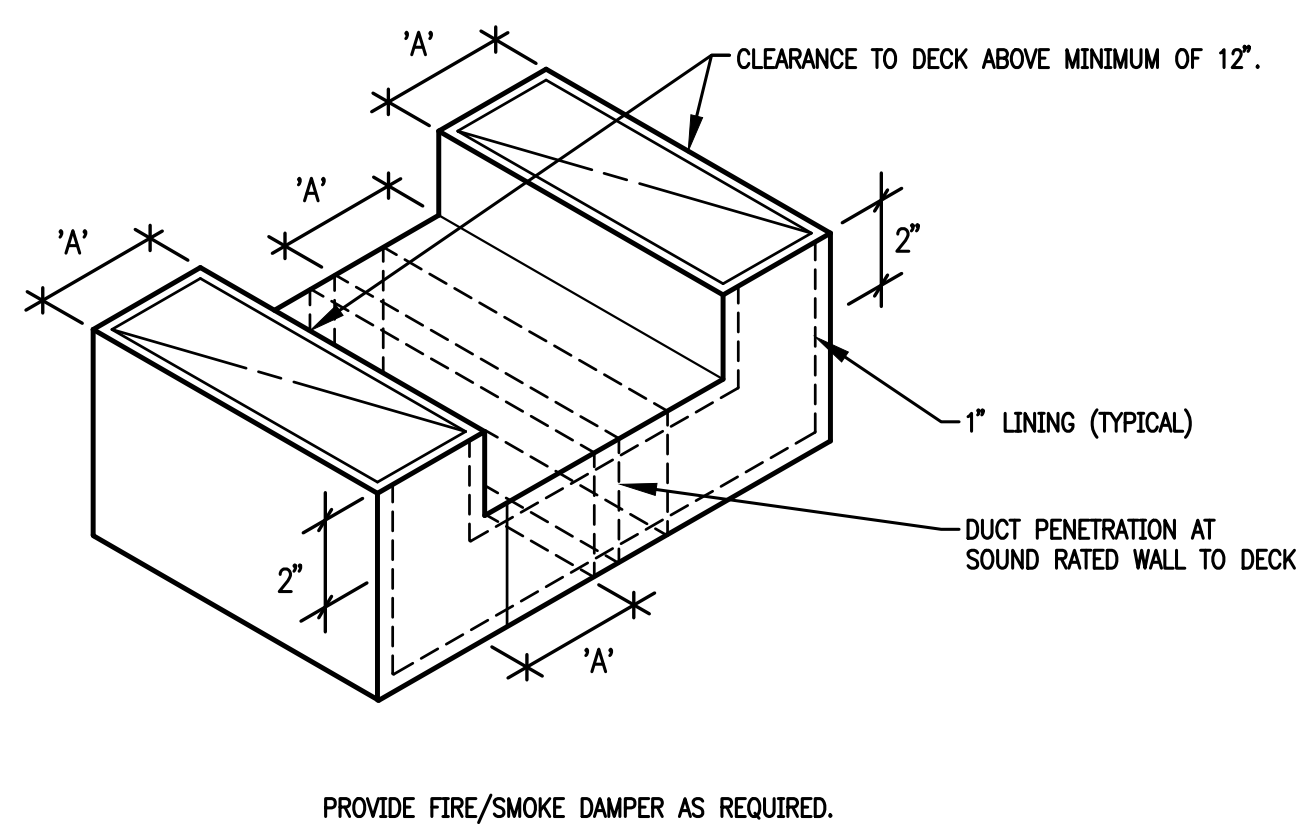
3 BRANCH TAKE-OFF DETAIL
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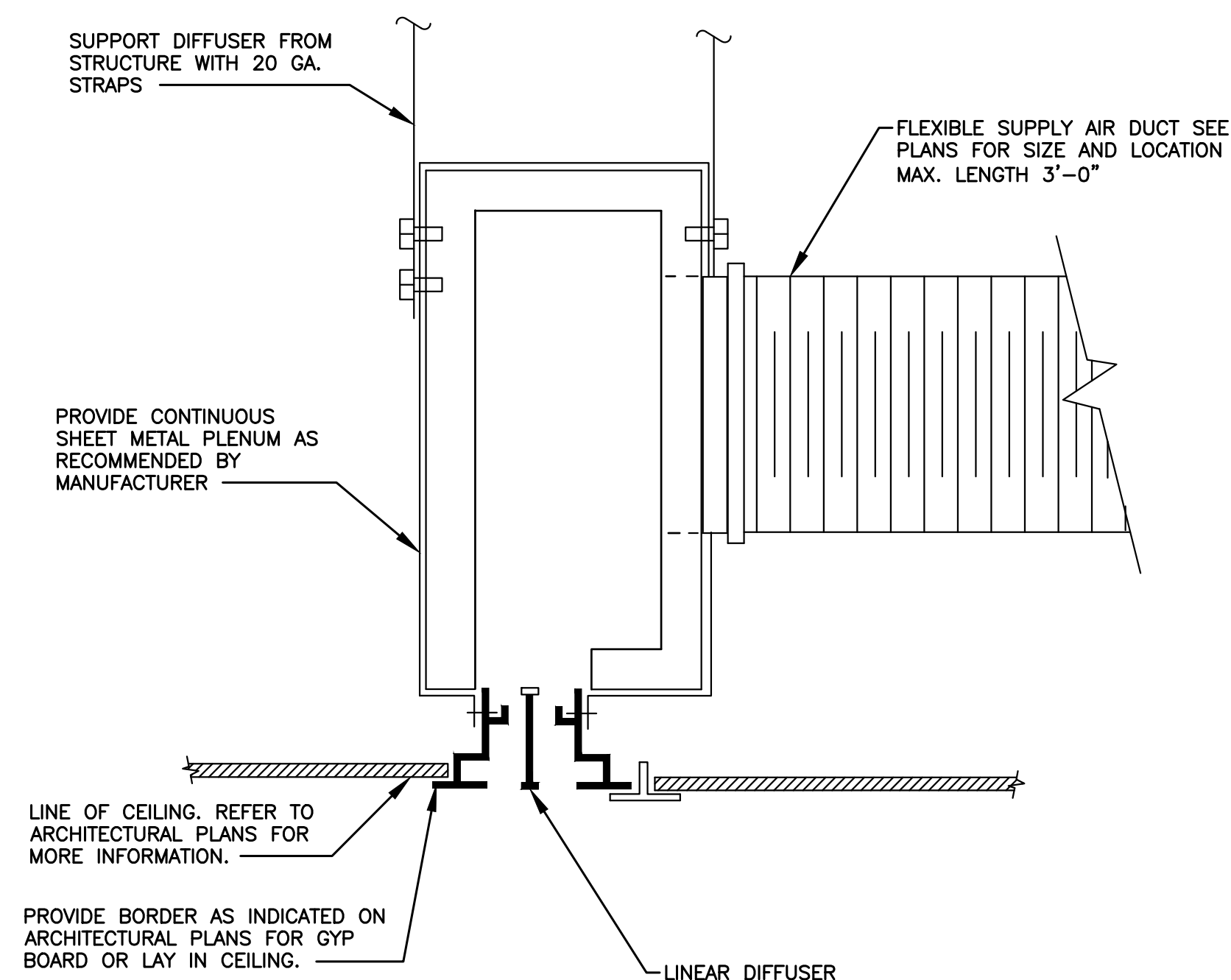
2 CONDENSATE P-TRAP DETAIL
SCALE: NOT TO SCALE



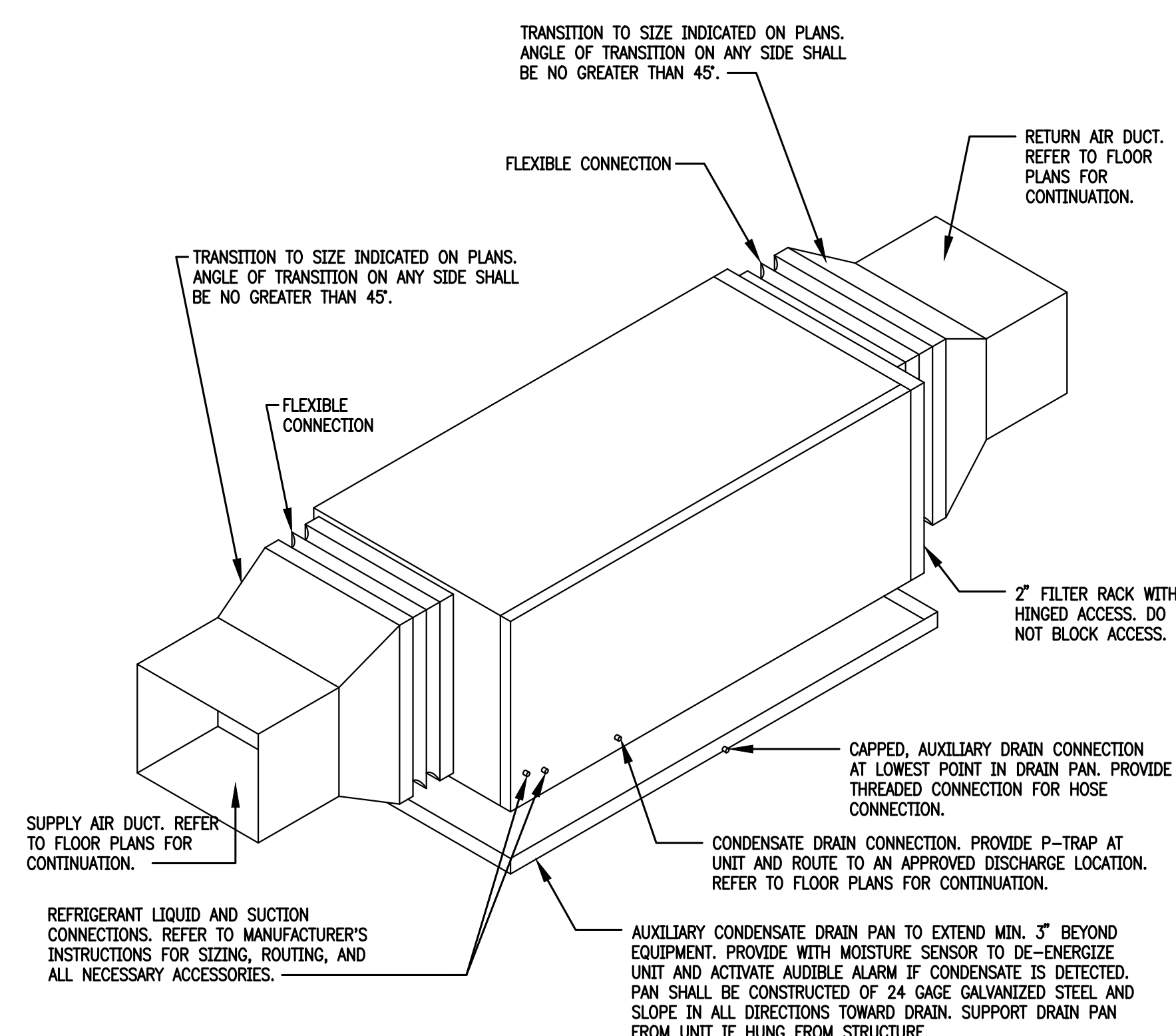
1 SUPPLY DIFFUSER CONNECTION DETAIL
SCALE: NOT TO SCALE



6 RETURN AIR TRANSFER
SCALE: NOT TO SCALE



5 LINEAR SLOT DIFFUSER
SCALE: NOT TO SCALE



4 HORIZONTAL AIR HANDLING UNIT DETAIL
SCALE: NOT TO SCALE

MARK DATE DESCRIPTION

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**DETAILS -
MECHANICAL**

LEVEL 02

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PROJECT #

DRWNCHKD Author / Checker

SHEET #

M5.1

2001 ROSS AVENUE
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VARIABLE REFRIGERANT FLOW INDOOR UNIT SCHEDULE												
DESG.	MFR.	MODEL #	MECHANICAL				ELECTRICAL		REMARKS			
			FAN		COOLING	HEATING	VOLTS/PH	MCA		MOP		
			CAPACITY (NOM. TONS)	CFM							ESP (IN. W.G.)	NOMINAL COOLING CAPACITY (MBH)
FCU-2-3	MITSUBISHI	TREFYP	1.50	600	190	0.25	18.0	20.0	208Y	2.8	15	1-15
FCU-2-4	MITSUBISHI	TREFYP	2.00	740	215	0.25	24.0	27.0	208Y	2.9	15	1-15
FCU-2-5	MITSUBISHI	TREFYP	4.50	1400	80	0.25	54.0	80.0	208Y	4.4	15	1-15
FCU-2-6	MITSUBISHI	TREFYP	2.25	880	190	0.25	27.0	30.0	208Y	2.8	15	1-15
FCU-2-7	MITSUBISHI	TREFYP	1.25	490	80	0.25	15.0	17.0	208Y	2.8	15	1-15
FCU-2-8	MITSUBISHI	TREFYP	1.50	600	80	0.25	18.0	20.0	208Y	2.9	15	1-15
FCU-2-9	MITSUBISHI	TREFYP	3.00	1070	90	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-10	MITSUBISHI	TREFYP	3.00	1070	190	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-11	MITSUBISHI	TREFYP	3.00	1270	135	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-12	MITSUBISHI	TREFYP	0.50	265	40	0.25	6.0	6.7	208Y	1.8	15	1-15
FCU-2-13	MITSUBISHI	TREFYP	1.25	490	100	0.25	15.0	17.0	208Y	2.9	15	1-15
FCU-2-14A	MITSUBISHI	TREFYP	2.00	880	200	0.25	24.0	27.0	208Y	2.8	15	1-15
FCU-2-14B	MITSUBISHI	TREFYP	3.00	1075	200	0.25	24.0	27.0	208Y	2.8	15	1-15
FCU-2-15	MITSUBISHI	TREFYP	3.00	1070	200	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-16	MITSUBISHI	TREFYP	3.00	1070	190	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-17	MITSUBISHI	TREFYP	3.00	1075	85	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-18	MITSUBISHI	TREFYP	0.50	300	40	0.25	6.0	6.7	208Y	1.8	15	1-15
FCU-2-19	MITSUBISHI	TREFYP	1.50	600	150	0.25	18.0	20.0	208Y	2.9	15	1-15
FCU-2-20	MITSUBISHI	TREFYP	0.50	300	70	0.25	6.0	6.7	208Y	1.8	15	1-15
FCU-2-21	MITSUBISHI	TREFYP	2.25	880	175	0.25	27.0	30.0	208Y	2.8	15	1-15
FCU-2-22	MITSUBISHI	TREFYP	2.25	880	100	0.25	27.0	30.0	208Y	2.8	15	1-15
FCU-2-23	MITSUBISHI	TREFYP	3.00	1070	90	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-24	MITSUBISHI	TREFYP	3.00	1070	95	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-25A	MITSUBISHI	TREFYP	3.00	1070	180	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-25B	MITSUBISHI	TREFYP	3.00	1070	180	0.25	36.0	40.0	208Y	4.3	15	1-15
FCU-2-26	MITSUBISHI	TREFYP	1.25	490	40	0.25	15.0	17.0	208Y	2.8	15	1-15

NOTES:
A. EQUIPMENT TO BE CLEARLY LABELED.
B. ACCEPTABLE MANUFACTURERS ARE: CARRIER, DAIKIN, TRANE, MITSUBISHI, LG.
C. COORDINATE EXACT LOCATION WITH LANDLORD AND STRUCTURAL ENGINEER.
D. INSTALL UNITS LEVEL FOR PROPER CONDENSATE DRAINAGE.

REMARKS:
1. 7 DAY PROGRAMMABLE THERMOSTAT.
2. THERMOSTAT TO HAVE CLEAR, LOCKABLE COVER.
3. UNITS TO BE SUPPORTED FROM STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS.
4. SCHEDULED CAPACITIES HAVE BEEN CORRECTED FOR EXTERIOR AMBIENT TEMPERATURE, REFRIGERANT LINE LENGTHS AND CONNECTED CONDENSING UNIT CAPACITY. UNITS PROVIDED SHALL MEET THE CAPACITIES INDICATED AT CONDITIONS INDICATED. NOMINAL CAPACITIES ARE UNACCEPTABLE.
5. CONDENSING UNIT AND FAN COIL UNIT ARE TO BE MATCHED AND RATED BY THE MANUFACTURER.
6. REFRIGERANT PIPE SHALL BE SIZED BY THE MANUFACTURER.
7. FURNISH AND INSTALL REFRIGERANT LINE ISOLATION VALUES AT EACH FCU AND AHU.
8. IF UNABLE TO MAINTAIN POSITIVE SLOPE FROM UNIT TO POINT OF DISCHARGE, PROVIDE CONDENSATE PUMP.
9. SECONDARY CONTAINMENT PAN CONSTRUCTED OF GALVANIZED STEEL AND SLOPED IN ALL DIRECTIONS TOWARD DRAIN. PAN TO BE 1" DEEP AND EXTEND 3' MINIMUM BEYOND EQUIPMENT IN EACH DIRECTION.
10. SUPPORT DRAIN PAN FROM UNIT IF HUNG FROM STRUCTURE.
11. MOISTURE DETECTION ALARM IN CONTAINMENT PAN TO ACTIVATE ALARM OR DE-ENERGIZE THE UNIT UPON DETECTION OF WATER.
12. ROUTE PRIMARY CONDENSATE PIPE, TYPE K COPPER OR APPROVED EQUAL, TO NEAREST HUB DRAIN OR MOP SINK VIA APPROVED AIR GAP.
13. ROUTE SECONDARY CONDENSATE DRAIN TO CONSPICUOUS POINT OF DISPOSAL FOR OCCUPANT NOTIFICATION.
14. COMMUNICATION WIRES SHALL BE CONTINUOUS FROM POINT TO POINT.
15. INSTALLING CONTRACTOR SHALL BE CERTIFIED PER MANUFACTURER'S REQUIREMENTS.

EXHAUST FAN SCHEDULE													
DESG.	LOCATION	SERVES	GENERAL				FAN			MOTOR			REMARKS
			MFR.	MODEL #	TYPE	WEIGHT (LBS)	CFM	ESP (IN. W.G.)	RPM	DRIVE	VOLTS/PH	HP	
EF-01	CEILING	IT ROOM	GREENHECK	EF-A300	CABINET	25	270	0.25	1070	DIRECT	115V	1/35 W	1-6

NOTES:
A. EQUIPMENT TO BE CLEARLY LABELED.
B. ACCEPTABLE MANUFACTURERS ARE: ACME, TWIN CITY FANS, COOK, GREENHECK, PENNBARRY.
C. COORDINATE EXACT LOCATION WITH LANDLORD AND STRUCTURAL ENGINEER.
D. IF LOCATION IS WITHIN 50 MILES OF SALT WATER COASTAL ENVIRONMENTS, ALL EQUIPMENT THAT COME IN CONTACT WITH OUTSIDE AIR SHALL BE COATED FOR SALT WATER CORROSION RESISTANCE.

REMARKS:
1. PRE-WIRED DISCONNECT SWITCH.
2. PRE-WIRED SPEED CONTROLLER.
3. GRAVITY BACKDRAFT DAMPER.
4. ALUMINUM BRIDGESCREEN.
5. SPRING ISOLATION HANGERS.
6. REMOTE THERMOSTAT.

AIR DEVICE SCHEDULE							
DESG.	MFR.	MODEL #	TYPE	FACE TYPE/SIZE (IN.)	MATERIAL	FINISH	REMARKS
S1	REMARK 1	REMARK 1	LAY-IN SUPPLY	24x24	STEEL	PER ARCH	1
S2	REMARK 1	REMARK 1	SLOT SUPPLY	4" LONG, 1" SLOTS	STEEL	PER ARCH	1
S3	REMARK 1	REMARK 1	DUCT MOUNTED SUPPLY	REFER TO PLAN	STEEL	PER ARCH	1
R1	REMARK 1	REMARK 1	LAY-IN RETURN	24x24	STEEL	PER ARCH	1
R2	REMARK 1	REMARK 1	DUCT MOUNTED RETURN	REFER TO PLAN	STEEL	PER ARCH	1
R3	REMARK 1	REMARK 1	SLOT RETURN	4" LONG, 1" SLOTS	STEEL	PER ARCH	1

NOTES:
A. MAX NC LEVEL OF DIFFUSERS TO BE 30.
B. ACCEPTABLE MANUFACTURERS ARE: PRICE, TITUS, WALKER METALWARE.
C. FRAME AND BORDER TYPES TO MATCH CEILING AND/OR WALL.
D. REFERENCE ARCHITECTURAL REFLECTIVE CEILING PLAN.

REMARKS:
1. MATCH BUILDING STANDARD. VERIFY BUILDING STANDARD WITH BUILDING ENGINEER PRIOR TO BID.

MARK DATE DESCRIPTION

CONTRACTOR SHALL COORDINATE
MEP DRAWINGS WITH ALL OTHER
DISCIPLINES



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SCHEDULES -
MECHANICAL

LEVEL 02

DATE: 04/28/2022 ISSUE DATE: 04/28/2022

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DRWNCHKD Author / Checker

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M6.01