

EXHAUST FANS													
MECHANICAL										ELECTRICAL			
DESIG	SERVICE	LOCATION	TYPE	CONTROL	CFM	ESP (IN W.G.)	DRIVE	ACCESSORIES (SEE BELOW)	WEIGHT (LBS)	EQUAL TO BASIS OF DESIGN MFR & MODEL #	WATTS	RPM	VOLT/PH
EF1-1	IT/STOR 119	CEILING	CABINET	T-STAT	800	0.25	DIRECT	A, C, F	34	GREENHECK GEMINI SPA780	346	1600	120/1
EF1-2	IT/STOR 133	CEILING	CABINET	T-STAT	800	0.25	DIRECT	A, C, F	34	GREENHECK GEMINI SPA780	346	1600	120/1

ACCESSORIES:
 (A) - BACKDRAFT DAMPER (D) - ROOFCURB (G) - INTERLOCK WITH APPLICABLE AHU SUPPLY FAN
 (B) - BIRDSCREEN (E) - SPEED CONTROL (H) - VFD CONTROLLED
 (C) - PRE-WIRED NON-FUSED SERVICE DISCONNECT (F) - SPRING ISOLATION

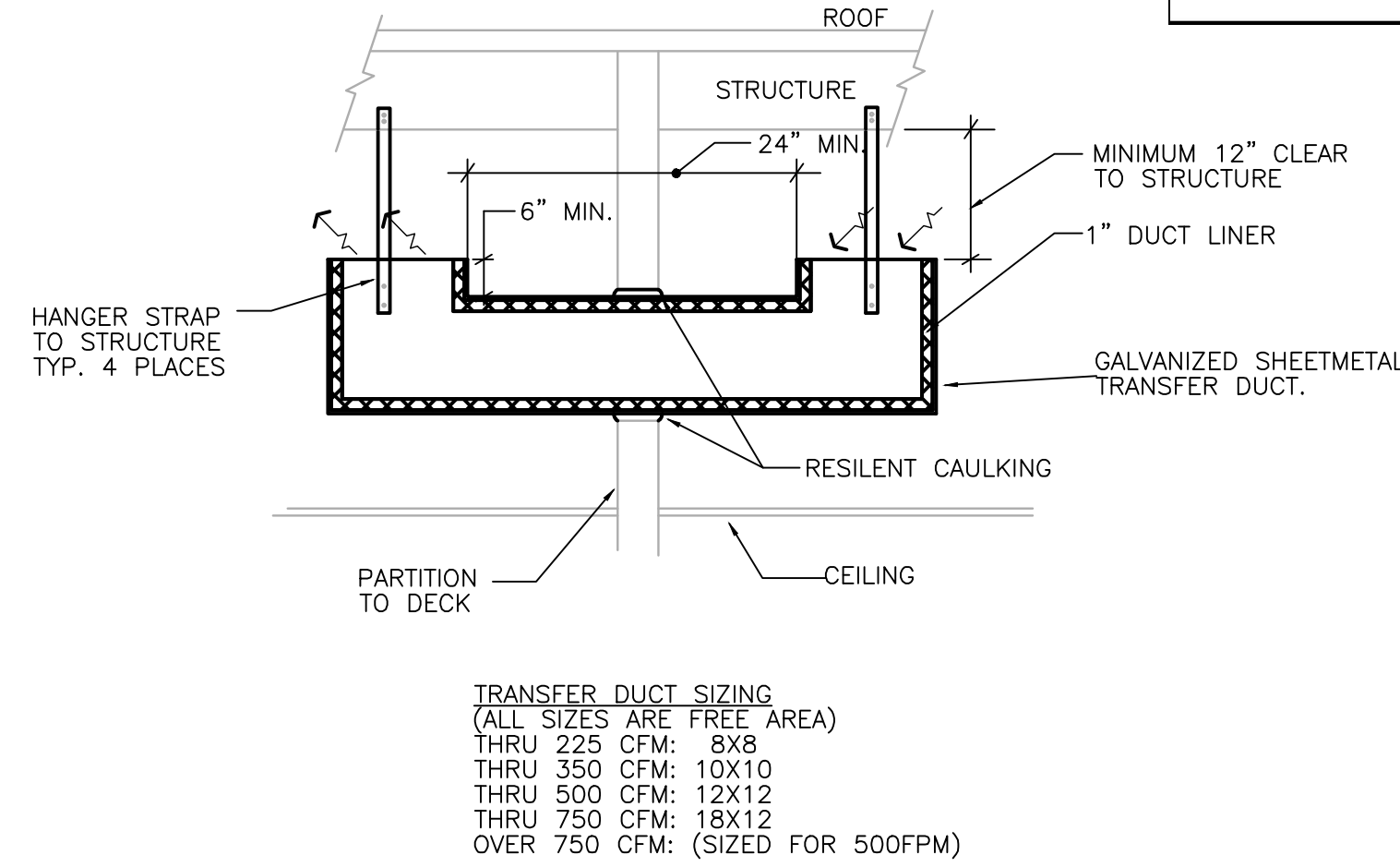
NOTES:
 1) REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 2) CONTROL DESCRIPTION (WHERE PROVIDED, REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION)
 T-STAT - LINE VOLTAGE THERMOSTAT PROVIDED BY DIV 23. CONT. - CONTINUOUS OPERATION
 3) APPROVED MANUFACTURERS - GREENHECK, COOK
 4) ALL SUBSTITUTIONS SHALL BE APPROVED, IN WRITING, PRIOR TO BID.

GRILLES - REGISTERS - DIFFUSERS											
DESIG	DUTY	TYPE	MOUNTING LOCATION	MATERIAL	VOLUME CONTROL	FINISH	AIR PATTERN CONTROL	METHOD OF SUPPORT	EQUAL TO MANUFACTURER AND MODEL NO.	REMARKS	
A	RETURN	PERFORATED	LAY-IN CLG	STEEL	NO	OFF WHITE	NO	T-BAR	TITUS PAR 24X24 FACE	SEE NOTE 2	
A1	RETURN	PERFORATED	LAY-IN CLG	STEEL	NO	OFF WHITE	NO	T-BAR	TITUS PAR 24X12 FACE	SEE NOTE 2	
B	SUPPLY	SLOT	LAY-IN CLG	STEEL	NO	BLACK	YES	T-BAR	TITUS TB080 (1)1-1/2" SLOT	SEE NOTE 1,2,3,4	
C	SUPPLY	LINEAR SLOT	GYP BD CLG	ALUMINUM	NO	OFF WHITE	YES	SURFACE	TITUS FL-15-HT	SEE NOTE 5	
D	RETURN	LINEAR SLOT	GYP BD CLG	ALUMINUM	NO	OFF WHITE	YES	SURFACE	TITUS FL-15-HT	SEE NOTE 6	

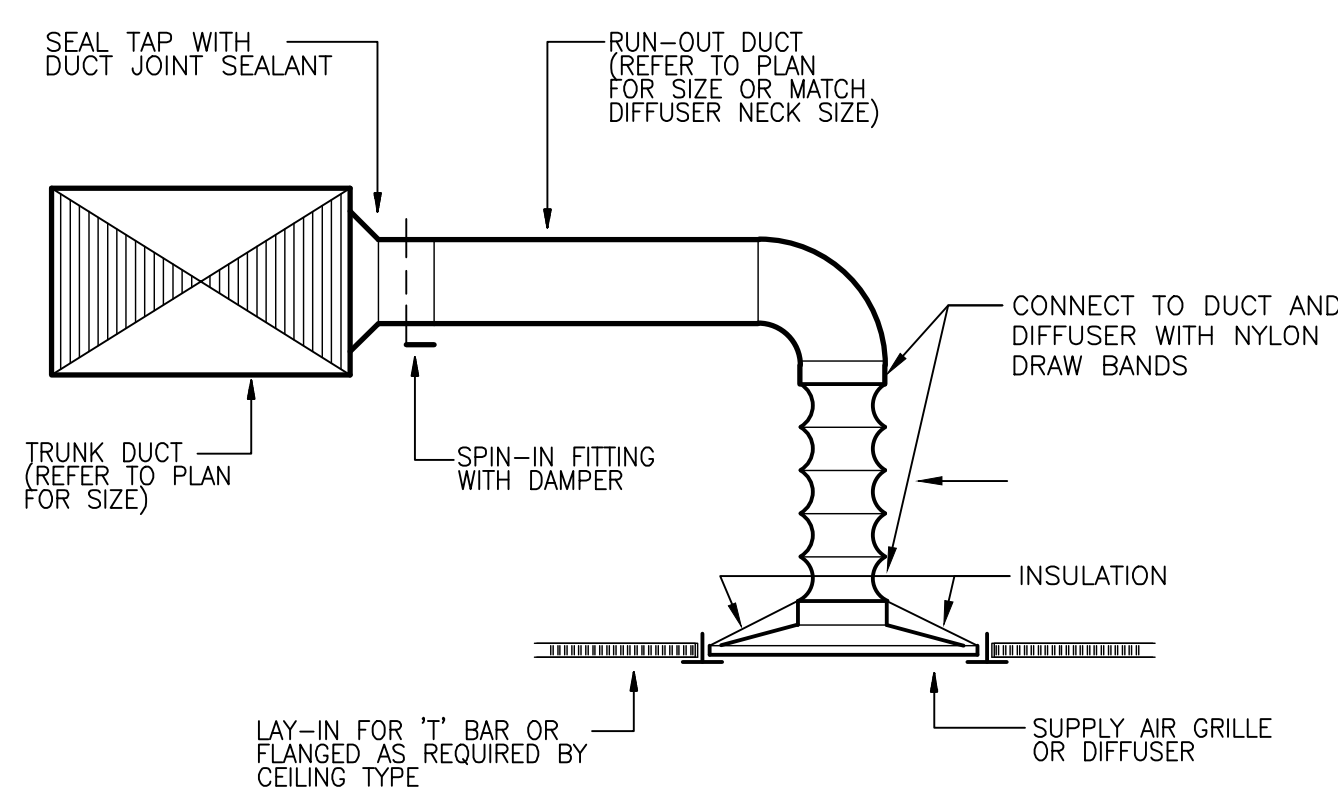
NOTES:
 1) NECK SIZES AS FOLLOWS:

DESIGNATION "C"	NECK SIZE	LENGTH
CFM RANGE		
000-130	8"RD	2'-0"
135-280	10"RD	4'-0"

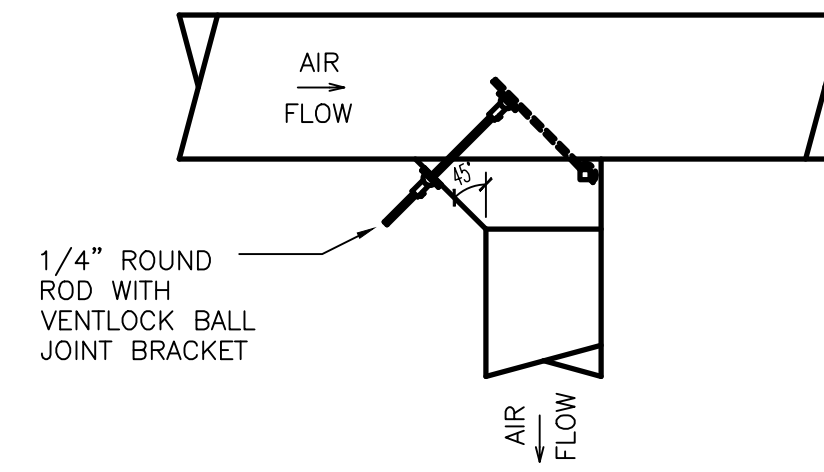
2) NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN NEW MODEL NUMBER AND EXISTING NUMBER PRIOR TO PURCHASE.
 3) COORDINATE NEW INACTIVE SECTIONS NEXT TO SLOT DIFFUSER WITH ARCHITECT PRIOR TO BIDDING.
 4) INACTIVE SECTIONS OF SLOT DIFFUSERS SHALL HAVE SHEET METAL LIGHTPROOF SIGHT GUARDS AND SHALL BE USED FOR RETURN AIR.
 5) PROVIDE NUMBER OF SUPPLY AIR PLENUMS AS SHOWN WITH AN 8"RD NECK FOR EACH PLENUM. COORDINATE EXACT LENGTH OF SLOT WITH ARCHITECT. SUPPLY AIR PLENUMS TO BE FABRICATED BY TITUS. CONFIRM BORDER TYPE 22 WITH ARCHITECT.
 6) LEAVE OPEN FOR RETURN AIR AND PROVIDE A LIGHT SHIELD. COORDINATE EXACT LENGTH OF SLOT WITH ARCHITECT. COORDINATE BORDER TYPE WITH ARCHITECT.
 7) APPROVED MANUFACTURERS: PRICE, TITUS, NAILOR, GREENHECK, & KRUEGER.



1 RA TRANSFER BOOT DETAIL
 SCALE: NOT TO SCALE



2 DIFFUSER CONNECTION DETAIL
 SCALE: NOT TO SCALE

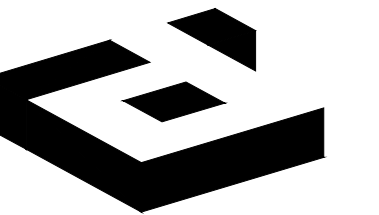


3 EXPANDED TAP DETAIL
 SCALE: NOT TO SCALE

GENERAL NOTES:

- ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES, RULES, REGULATIONS AND REQUIREMENTS.
- ALL WORK SHALL COMPLY WITH THE BUILDING TENANT CONSTRUCTION GUIDE. COORDINATE WITH BUILDING MANAGEMENT/OWNER FOR ACCESS TO ANY TENANT LEASE SPACES THAT MIGHT BE REQUIRED FOR THE INSTALLATION. UNLESS DIRECTED BY LANDLORD ALL EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED FOR 1 YEAR.
- EXISTING CONDITIONS ARE BASED ON INFORMATION PROVIDED BY SITE SURVEY AND PREVIOUS RECORD DRAWINGS. HOWEVER, IT IS NOT INTENDED TO BE A TRUE REPRESENTATION OF ACTUAL CONDITIONS. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BIDDING TO ASCERTAIN EXISTING CONDITIONS AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO BID.
- CONTRACTOR SHALL ENGAGE AN INDEPENDENT AIR BALANCING COMPANY TO OBTAIN AIR QUANTITIES SHOWN ON DRAWING. AT COMPLETION OF AIR BALANCE, BALANCING DAMPER SHALL BE TIGHTENED AND PROPERLY SEALED WITH FOIL TAPE.
- ALL MEDIUM AND LOW PRESSURE DUCTWORK SHALL BE GALVANIZED SHEET METAL, FABRICATED, INSTALL AND SEAL MEDIUM PRESSURE DUCTWORK FOR 3\"/>

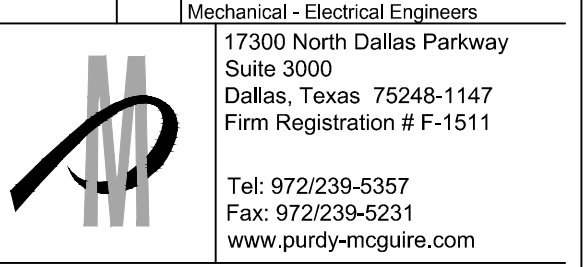
HVAC SYMBOLS	
SYMBOL	DESCRIPTION
	ARROW INDICATES EXISTING TO BE RELOCATED AS INDICATED ON PLAN
	REDISTRIBUTE AIR TO EXISTING DIFFUSER AS INDICATED ON PLAN
	NEW CEILING SUPPLY DIFFUSER
	NEW RETURN AIR/EXHAUST GRILLE
	EXISTING RETURN AIR/EXHAUST GRILLE
	NEW SLOT DIFFUSER
	EXISTING SLOT DIFFUSER
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	EXISTING TO REMAIN
	REMOVE EXISTING AS INDICATED
	CAP EXISTING DUCT
	MANUAL VOLUME CONTROL DAMPER
	DUCT TRANSITION
	NEW OR RELOCATED THERMOSTAT
	EXISTING THERMOSTAT
	FLEXIBLE DUCT CONNECTION
	INDICATES A WALL TO DECK (FOR COORDINATION PURPOSE ONLY--REFER TO ARCHITECTS PLANS FOR REQUIREMENTS)



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ARCHITECT/ENGINEER

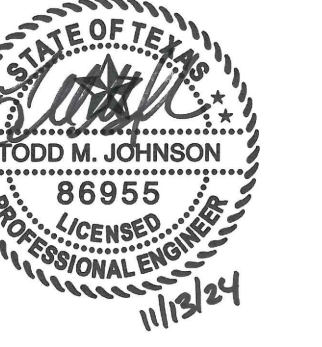
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SEAL



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 DRAWN BY: BH
 CHECKED BY: KS
 R.S.F.: 13,538

BILLINGSLEY COMPANY

INTERNATIONAL BUSINESS PARK

ARGANO

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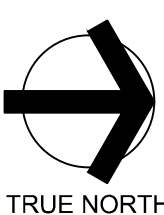
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CLIENT/LANDLORD ISSUE DATE: 11/13/2024
 BID ISSUE DATE: 11/13/2024
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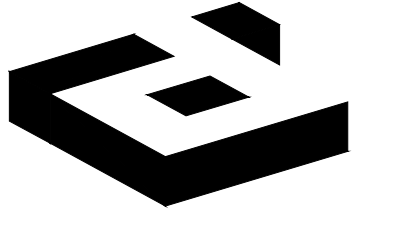
DRAWING TITLE:
 MECHANICAL NOTES & SYMBOLS

DRAWING NUMBER:

M0.01



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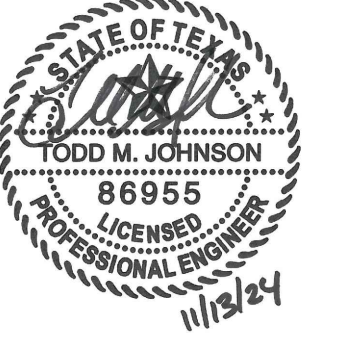
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PROJECT NUMBER: 521-015
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R.S.F.: 13.58

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ARGANO

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NO.	REVISIONS:	DATE:
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CLIENT/LANDLORD ISSUE DATE: 11/13/2024
BID ISSUE DATE: 11/13/2024
PERMIT ISSUE DATE: 11/13/2024

DRAWING TITLE:
MECHANICAL SPECIFICATIONS

DRAWING NUMBER:
M1.01

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

SECTION 230500 - COMMON WORK RESULTS

PART 1 - GENERAL

- 1.1 GENERAL NOTES AND SCOPE OF WORK
A. REFER TO SECTION 220500 ON PLUMBING SHEET P1.01 FOR INFORMATION RELATED TO HVAC GENERAL CONDITIONS, MISCELLANEOUS EQUIPMENT AND MATERIALS, AND CONSTRUCTION REQUIREMENTS.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 230548 - VIBRATION CONTROLS

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. REFER TO SECTION 230500.
PART 2 - PRODUCTS
2.1 EQUIPMENT PADS
A. PADS SHALL BE 3/4 INCH WATER RESISTANT NEOPRENE WITH WAFFLE PATTERN, MASON TYPE WSW, OR EQUAL.
2.2 ELASTOMERIC HANGERS
A. HANGER SHALL CONSIST OF RODS WITH STEEL BOX HOUSING NEOPRENE ISOLATION ELEMENT AND SPRING, MASON SERIES 30N, OR EQUAL.
2.3 RESTRAINED SPRING ISOLATORS
A. ISOLATORS SHALL UTILIZE A STEEL BASE WITH WAFFLED NEOPRENE PAD, WELDED STEEL ENCLOSURE WITH SPRING AND RESTRAINING BOLTS, MASON TYPE SLR, OR EQUAL.
2.4 ROOF CURB ISOLATORS
A. AS PART OF THE ROOF CURB, PROVIDE SPRING ISOLATORS WITH WATER-TIGHT DESIGN, RESTRAINED SPRINGS AND NEOPRENE PADS, MASON TYPE RSC, OR EQUAL.
2.5 INERTIA BASES
A. PROVIDE STEEL POURING FORM FOR REINFORCED CONCRETE BLOCKS WITH FLOOR MOUNTED SPRINGS, MASON KSL, OR EQUAL.

PART 3 - EXECUTION

- A. EQUIPMENT PADS - SMALL FLOOR MOUNTED EQUIPMENT OR PACKAGED EQUIPMENT WITH INTERNAL ISOLATION.
B. ELASTOMERIC HANGERS - SUSPENDED AIR HANDLING UNITS, EXHAUST FANS, TERMINAL UNITS, HEAT PUMPS, PUMPS, ETC.
C. RESTRAINED SPRING ISOLATORS - FLOOR MOUNTED FANS GREATER THAN 1/2 HP.
D. ROOF CURB ISOLATORS - FACTORY FABRICATED ROOFTOP UNITS.
E. INERTIA BASES - FLOOR MOUNTED PUMPS GREATER THAN 1/2 HP.

END OF SECTION

SECTION 230553 - IDENTIFICATION

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. REFER TO SECTION 230500.
B. LABEL ALL NEW EQUIPMENT AND PIPING SYSTEMS.

PART 2 - PRODUCTS

- 2.1 PIPE LABELS
A. PRETENSION PIPE LABELS OF SEMI-RIGID PLASTIC FORMED TO COVER THE FULL CIRCUMFERENCE OF PIPE.
B. IDENTIFY THE SERVICE AND DIRECTION OF FLOW. LABELS SHALL CONTAIN AT LEAST 1/2 INCH HIGH LETTERING AND BE PLACED SO THEY ARE EASY TO READ.
2.2 VALVE TAGS
A. MULTILAYER, MULTICOLOR PLASTIC LABELS WITH MECHANICAL ENGRAVING AND CHAIN FOR ATTACHMENT TO VALVE.
2.3 EQUIPMENT LABELS
A. MULTILAYER, MULTICOLOR PLASTIC LABELS WITH MECHANICAL ENGRAVING AND HOLES FOR ATTACHMENT TO EQUIPMENT.

PART 3 - EXECUTION

- 3.1 PIPE LABELS
A. INSTALL PIPE LABELS WHERE PIPING IS EXPOSED OR ABOVE AN ACCESSIBLE CEILING AT MAXIMUM 20 FT. CENTERS.
3.2 VALVE TAGS
A. ATTACH TAGS TO VALVES USING CHAIN. PROVIDE A VALVE SCHEDULE FOR MOUNTING IN THE MECHANICAL ROOM.
3.3 EQUIPMENT LABELS
A. PERMANENTLY ATTACH LABELS TO EQUIPMENT. LOCATE WHERE LABEL CAN BE EASILY SEEN AND READ.

END OF SECTION

SECTION 230593 - TESTING ADJUSTING AND BALANCING

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. THE WORK INCLUDED IN THIS SECTION CONSISTS OF FURNISHING ALL LABOR, MATERIALS, INSTRUMENTS, TOOLS, AND SERVICES REQUIRED IN CONNECTION WITH THE TESTING, ADJUSTING AND BALANCING (TAB) OF THE HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS AS DESCRIBED IN THE MECHANICAL SPECIFICATIONS AND/OR SHOWN ON THE MECHANICAL PLANS, OR REASONABLY IMPLIED THERE FROM.
B. THE TAB FIRM SHALL HAVE A LICENSED PROFESSIONAL ENGINEER SUPERVISING ALL WORK AND THE FIRM SHALL HOLD A CURRENT AABC OR NEHB CERTIFICATION.
C. REFER TO SECTION 230500.
1.2 START-UP, TEST AND ADJUST
A. PROVIDE ALL TESTS OF EQUIPMENT AND SYSTEMS REQUIRED TO PROVE COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. OWNER SHALL BE MADE COMPLETELY FAMILIAR WITH THE COMPLETE WORKING OF ALL THE MECHANICAL SYSTEMS.
B. THE TESTS SHALL DEMONSTRATE THE SPECIFIED CAPACITIES AND OPERATION OF ALL EQUIPMENT AND MATERIALS COMPRISING THE SYSTEMS. ALL DATA REQUIRED BY THESE SPECIFICATIONS SHALL BE PREPARED ON TYPED FORMS AND SUBMITTED TO THE ENGINEER FOR APPROVAL. COMPLETE APPROVAL WILL BE NECESSARY BEFORE FINAL PAYMENT CAN BE MADE. THE CONTRACTOR SHALL THEN MAKE AVAILABLE SUCH INSTRUMENTS NECESSARY FOR SPOT CHECKS ON THE SYSTEM.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 HVAC SYSTEM
A. THE HVAC CONTRACTOR SHALL WORK IN CONJUNCTION WITH THE TAB CONTRACTOR TO START-UP AND OPERATE ALL EQUIPMENT NECESSARY TO PROVIDE A COMPLETE AIR AND WATER TEST AND BALANCE REPORT.
B. TAB CONTRACTOR SHALL MEASURE CFM AT ALL DIFFUSERS, REGISTERS AND GRILLES, AND HVAC UNITS, AS WELL AS WATER FLOWS AT COILS AND PUMPS, TO ASSURE THAT THEY MATCH THE QUANTITIES SHOWN ON THE PLANS (PLUS OR MINUS 5 PERCENT), CONFIRM ALL SEQUENCES OF OPERATION ARE PERFORMING CORRECTLY.
C. TAB CONTRACTOR SHALL CALIBRATE ALL EQUIPMENT AND SENSORS TO WORK PROPERLY AND GIVE CORRECT INFORMATION TO THE BMS SYSTEM.

END OF SECTION

SECTION 230900 - CONTROLS

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. REFER TO SECTION 230500.

PART 2 - PRODUCTS

- 2.1 CONTROLS SYSTEM
A. PROVIDE NEW, MODIFY OR EXTEND AUTOMATIC TEMPERATURE CONTROLS TO ALL NEW EQUIPMENT SHOWN ON THE DRAWINGS.
B. REFER TO THE DRAWINGS FOR ANY SPECIAL SEQUENCES OF CONTROL AND LOCATION OF EQUIPMENT.
C. REMODEL PROJECTS SHALL UTILIZE EQUIPMENT BY THE SAME MANUFACTURER AS CURRENTLY EXISTS.

PART - EXECUTION

- 3.1 DESIGN AND LAYOUT
A. THE CONTROL SYSTEM DESIGN AND LAYOUT SHALL BE PERFORMED BY A FACTORY AUTHORIZED AGENT OF THE MANUFACTURER USED.
3.2 SYSTEM OPERATION
A. AT THE CONCLUSION OF WORK, ALL EQUIPMENT AND SYSTEMS SHALL BE PROVEN TO THE ENGINEER TO OPERATE IN ACCORDANCE WITH THE NEW OR EXISTING MAIN CONTROL PANEL AND NEW/EXISTING SEQUENCES OF OPERATION ON THE DRAWINGS.
B. PROVIDE ALL WIRING REQUIRED TO CONNECT INPUT/OUTPUT DEVICES TO CONTROL PANELS.
C. TEST AND ADJUST ALL DEVICES AND DOCUMENT CALIBRATION.
D. PROVIDE NECESSARY INSTRUCTION TO THE OWNER'S PERSONNEL.

END OF SECTION

SECTION 233113 - DUCTWORK

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. REFER TO SECTION 230500.
PART 2 - PRODUCTS
2.1 GENERAL
A. CONCEALED DUCTWORK SHALL BE CONSTRUCTED OF NEW, PRIME GRADE, CONTINUOUS HOT-DIP MILL GALVANIZED, LOCK-FORMING, QUALITY STEEL. REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
B. WHERE DUCTS EXPOSED TO VIEW PASS THROUGH WALLS, FLOORS OR CEILINGS, PROVIDE SHEET METAL COLLARS TO COVER VOIDS AROUND THE DUCTS.
C. SQUARE AND ROUND ELBOWS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SMACNA STANDARDS. ELBOWS NOT CONSTRUCTED WITH A CENTERLINE RADIUS OF AT LEAST 50 PERCENT OF THE DUCT WIDTH OR DIAMETER SHALL BE PROVIDED WITH TURNING VANES IN ACCORDANCE WITH SMACNA STANDARDS.
D. "FIBERBOARD" DUCTWORK WILL NOT BE ACCEPTED ON THIS PROJECT.

- 2.2 MEDIUM PRESSURE DUCT CONSTRUCTION
A. UNLESS NOTED OTHERWISE, MEDIUM PRESSURE DUCTS SHALL BE CONSTRUCTED TO A PRESSURIZATION CLASSIFICATION OF THREE (3) INCHES WG POSITIVE.
B. ALL ROUND MEDIUM PRESSURE DUCTS SHALL BE SPIRAL TYPE.
2.3 LOW PRESSURE DUCT CONSTRUCTION
A. LOW PRESSURE DUCTS CONNECTING SMALL AIR HANDLING EQUIPMENT, SHALL BE CONSTRUCTED TO A PRESSURIZATION CLASSIFICATION OF TWO (2) INCHES WG, POSITIVE OR NEGATIVE AS APPROPRIATE. THESE LOW PRESSURE ROUND DUCTS SHALL BE SPIRAL TYPE.
B. DUCTWORK DOWN STREAM OF AIR TERMINAL UNITS SHALL BE CONSTRUCTED TO A PRESSURE CLASSIFICATION OF ONE (1) INCHES WG POSITIVE. THESE LOW PRESSURE ROUND DUCTS MAY BE SPIRAL OR SNAP-LOCK TYPE.
C. SHOP FABRICATED DUCTS SHALL BE CONSTRUCTED, BRACED AND REINFORCED IN ACCORDANCE WITH SMACNA STANDARDS.
2.4 DUCT SEALING
A. SEAL ALL DUCTWORK ON THE PROJECT TO SMACNA CLASSIFICATION A.

- 2.5 FLEXIBLE DUCTS
A. FLEXIBLE DUCTS SHALL BE SIMILAR AND EQUAL TO THERMOFLEX TYPE M-KE AND SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF UL-181, NFPA 90-A AND OTHER GOVERNING AUTHORITIES.
B. FLEXIBLE DUCTS SHALL BE FACTORY INSULATED WITH A NOMINAL 1 INCH THICKNESS OF FIBERGLASS INSULATION, PRODUCING A THERMAL CONDUCTANCE (C") OF 0.23. DUCTS SHALL HAVE A POSITIVE INTERIOR AIR SEAL PERMANENTLY BONDED TO A COATED HIGH CARBON SPRING STEEL HELIX, ALL SHEATHED IN AN OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED FILM LAMINATE.
C. FLEXIBLE DUCTS SHALL BE RATED FOR OPERATING PRESSURE OF PLUS 6 INCHES WG THROUGH 10 INCH DIAMETER, PLUS 4 INCHES WG THROUGH 16 INCH DIAMETER AND - 2 INCHES WG FOR ALL SIZES.
2.6 FLEXIBLE DUCT FABRIC
A. PROVIDE VENT FABRICS "VENTGLAS", OR EQUAL, 30 OZ PER SQ YD, BETWEEN SHEET METAL DUCTS AND AIR HANDLING EQUIPMENT, INCLUDING ALL FANS, AND POWER TYPE VENTILATORS.
2.7 DAMPERS
A. DAMPER AND SPLITTER HARDWARE FOR LOW PRESSURE DUCTS SHALL BE:
END BEARINGS - VENTLOK #607
REGULATOR FINISHED AREAS - VENTLOK #666, PLAIN COVER
REGULATOR UNFINISHED AREAS - VENTLOK #666, 3/8 INCH
B. VOLUME DAMPERS SHALL BE LOCATED AT BRANCH TAKE-OFFS AT MAIN TRUNK DUCT. NO DAMPERS (SPLITTER DAMPERS) SHALL BE LOCATED IN THE CENTER OF DUCTS.

PART 3 - EXECUTION

- 3.1 FABRICATION
A. DUCTWORK SHOWN ON THE DRAWINGS, SPECIFIED, OR REQUIRED FOR HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS SHALL BE CONSTRUCTED AND ERECTED IN A FIRST CLASS MANNER.
B. DUCTS SHALL BE REINFORCED IN ACCORDANCE WITH THE APPROPRIATE SMACNA STANDARDS TO PREVENT BUCKLING, BREATHING, VIBRATION AND UNNECESSARY NOISE.
C. PROVIDE MANUALLY OPERATED VOLUME CONTROL DAMPERS IN DUCT BRANCHES, FOR PROPER BALANCING OF AIR DISTRIBUTION. DAMPERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROPRIATE SMACNA STANDARDS.
D. PROVIDE HINGED ACCESS DOORS IN DUCTWORK FOR ACCESS TO ALL SMOKE DETECTORS, SENSORS, AND OTHER CONTROL DEVICES, MANUAL DAMPERS, AND FOR CLEANING OPERATIONS. FACTORY FABRICATED DOORS SIMILAR AND EQUAL TO MLCOR AND MEETING THESE SPECIFICATIONS SHALL BE ACCEPTABLE.
E. WHERE DUCTS CONNECT TO FANS, INCLUDING ROOF EXHAUSTERS PROVIDE FLEXIBLE DUCT FABRIC CONNECTIONS. PROVIDE A MINIMUM OF 1/4 INCH SLACK IN THE CONNECTIONS, AND A MINIMUM OF 2-1/2 INCH DISTANCE BETWEEN THE EDGES OF THE DUCTS, PLUS AN ADDITIONAL MINIMUM IF 1 INCH OF SLACK FOR EACH INCH OF STATIC PRESSURE ON THE FAN SYSTEM.
F. PROVIDE SCREENS ON DUCTS, FANS AND OPENINGS WHICH LEAD TO, OR ARE OUTDOORS. SCREENS SHALL BE 10 GAUGE, 1/2 INCH MESH, IN REMOVABLE GALVANIZED STEEL FRAMES.
G. FURNISH TEST OPENINGS WITH COVERS IN EACH DUCT FOR TAKING READINGS OF AIR VELOCITIES AND PRESSURES IN DUCTS. REFER TO THE APPROPRIATE SMACNA STANDARD FOR COVER CONSTRUCTION.
3.2 DUCT SUPPORTS
A. HORIZONTAL AND VERTICAL SHEET METAL DUCTWORK SHALL BE SUPPORTED IN ACCORDANCE WITH THE APPROPRIATE SMACNA STANDARDS.
B. HANGER DESIGN AND METHODS OF HANGING AND SUPPORTING SHALL BE COMPATIBLE WITH THE STRUCTURE.

END OF SECTION

SECTION 233713 - DIFFUSERS, REGISTERS AND GRILLES

PART 1 - GENERAL

- 1.1 GENERAL NOTES
A. REFER TO SECTION 230500

PART 2 - PRODUCTS

- 2.1 AIR INLETS AND OUTLETS
A. GRILLES, REGISTERS, CEILING OUTLETS, AND CEILING INLETS SHALL BE AS INDICATED ON THE DRAWING, AND SHALL BE PROVIDED WITH HEAVY DUTY SPONGE, OR SOFT FELT GASKETS. THE THROW SHALL BE SUCH THAT THE VELOCITY AT THE END OF THE THROW IN THE FIVE (5) FOOT OCCUPANCY ZONE WILL NOT BE MORE THAN 50 FPM NOT LESS THAN 25 FPM. NOISE LEVELS (NC CURVE) SHALL NOT EXCEED 40.
B. IF PRODUCTS OF A MANUFACTURER OTHER THAN THE ONES INDICATED ON THE DRAWINGS ARE USED, THE SIZES SHOWN ON THE DRAWING SHALL BE CHECKED FOR PERFORMANCE, NOISE LEVEL, FACE VELOCITY, THROW AND PRESSURE DROP BEFORE THE SUBMITTAL IS MADE. SELECTIONS SHALL MEET THE MANUFACTURER'S OWN PUBLISHED DATA FOR THE ABOVE PERFORMANCE CRITERIA. SHOULD DEVICES OTHER THAN THOSE SCHEDULED BY NAME BE FURNISHED, THE MANUFACTURER SHALL DEMONSTRATE COMPLIANCE WITH NOISE CRITERIA, ON REQUEST, TO THE ARCHITECT'S SATISFACTION.
C. WHERE CALLED FOR IN SCHEDULES, THE GRILLES, REGISTERS, CEILING OUTLETS, AND CEILING INLETS SHALL BE PROVIDED WITH DEFLECTING DEVICES AND MANUAL DAMPERS. THESE SHALL BE STANDARD PRODUCTS OF THE MANUFACTURER, SUBJECT TO REVIEW BY THE ARCHITECT, AND SHALL BE SIMILAR AND EQUAL TO THOSE SCHEDULED.

PART 3 - EXECUTION

- 3.1 INSTALLATION
A. LOCATIONS OF OUTLETS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE THE EXACT LOCATION WITH REFLECTED CEILING PLAN AND OTHER TRADES.
B. VERIFY THE TYPE OF CEILING SYSTEM AND MATERIAL INTO EACH OF THE AIR INLETS AND OUTLETS IS TO BE INSTALLED, AND PROVIDE EQUIPMENT, WHICH PROPERLY "FITS" WHETHER SPECIFICALLY, SO INDICATED OR NOT ON THE DRAWINGS.

END OF SECTION

SECTION 232300 - REFRIGERANT PIPING

PART 1 - GENERAL

- 1.1 SCOPE OF WORK
A. REFER TO SECTION 230500.

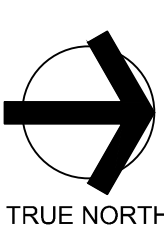
PART 2 - PRODUCTS

- 2.1 COPPER PIPE
A. PIPING SHALL BE COPPER TYPE ACR WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS.

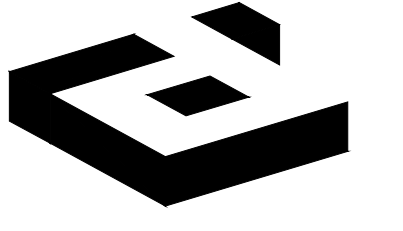
PART 3 - EXECUTION

- 3.1 INSTALLATION
A. REFER TO SECTION 230529 FOR METHODS OF SUPPORTING ALL PIPING.

END OF SECTION



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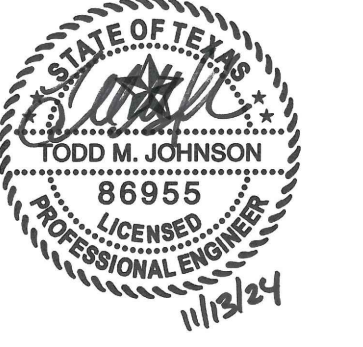
ARCHITECT/ENGINEER

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PMI JOB NO. 24079.002
PROJECT MGR. TODD JOHNSON

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SEAL



PROJECT NUMBER: 521-015
DRAWN BY: BH
CHECKED BY: KS
R.S.F.: 13,538

BILLINGSLEY
COMPANY

INTERNATIONAL BUSINESS PARK
ARGANO

6111 W. PLANO PARKWAY
SUITE # 1500
PLANO, TX 75063

NO.	REVISIONS:	DATE:

CLIENT/LANDLORD ISSUE DATE: 11/13/2024
BIO ISSUE DATE: 11/13/2024
PERMIT ISSUE DATE: 11/13/2024

DRAWING TITLE:
LEVEL 01 MECHANICAL PLAN

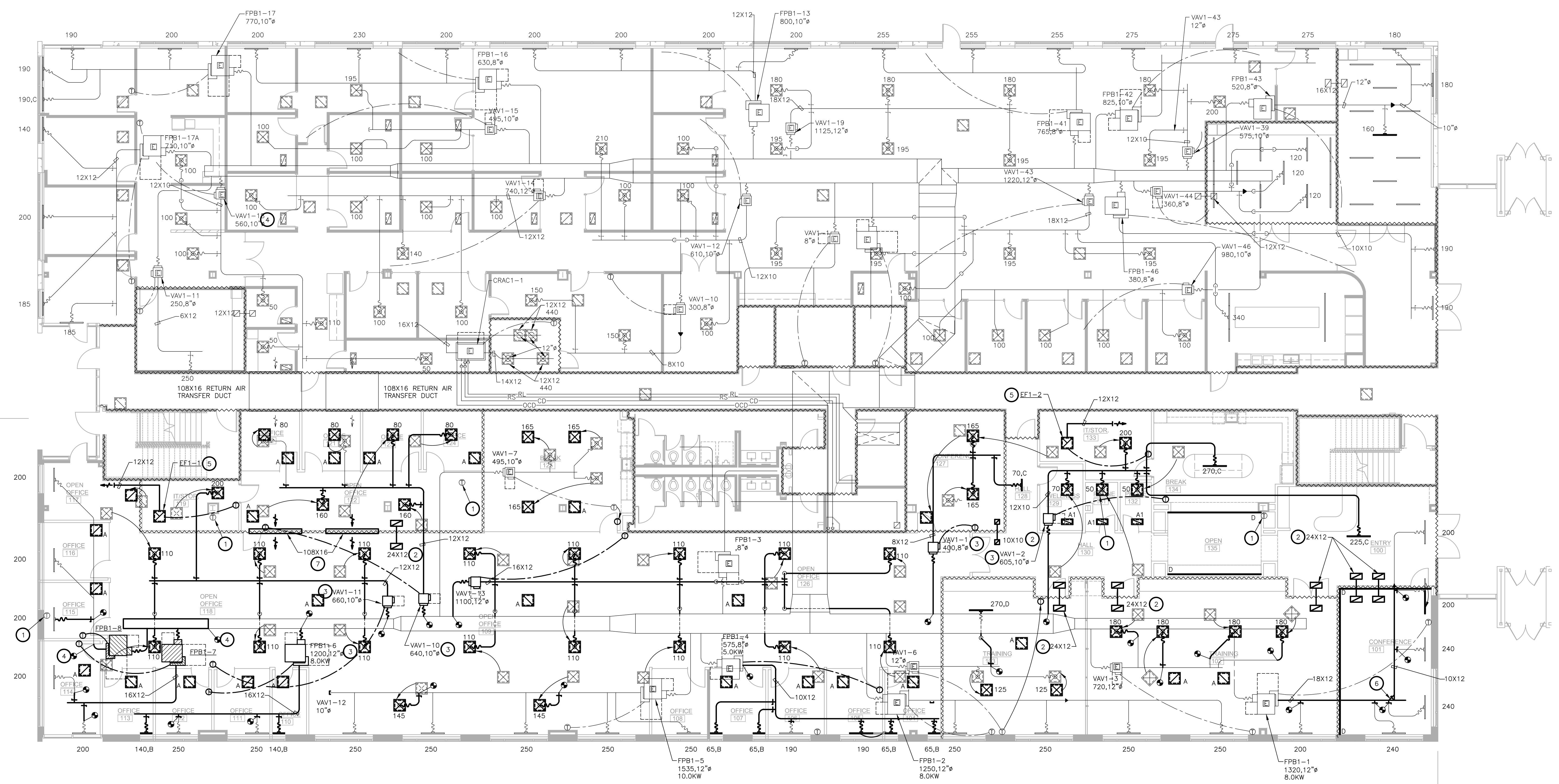
DRAWING NUMBER:
M2.01

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NOTES BY SYMBOL:

1. RELOCATE EXISTING THERMOSTAT TO NEW LOCATION AS SHOWN ON PLAN. CONFIRM THAT THE THERMOSTATS ARE ASSOCIATED WITH THE TERMINAL BOX AS SHOWN ON THE DRAWING BEFORE RELOCATING AND ARE IN WORKING ORDER.
2. PROVIDE ACOUSTICALLY LINED RETURN AIR BOOT THRU WALL TO DECK AS HIGH AS POSSIBLE ABOVE CEILING WITH INLET ELBOW AND OUTLET 90° ELBOW FACING UPWARD. SIZE PER PLANS. REFER TO DETAIL SHEET M0.01 FOR MORE INFORMATION.
3. NEW LOCATION OF TERMINAL BOX. MOUNT BOX FROM STRUCTURE ABOVE. ENSURE BOX CLEARANCES ARE MAINTAINED AT NEW LOCATION. EXTEND NEW MEDIUM AND LOW PRESSURE DUCT AS INDICATED ON DRAWINGS. COORDINATE RELOCATION WITH OTHER TRADES INVOLVED.
4. EXTEND NEW FULL SIZE DUCT SAME SIZE AND MATERIALS TO MATCH EXISTING DUCT. VERIFY SIZE AT JOB SITE PRIOR TO BIDDING.
5. EXHAUST FAN TO BE MOUNTED AT CEILING AND SUSPENDED FROM STRUCTURE WITH ISOLATION SPRINGS. EXTEND EXHAUST DUCT AS INDICATED ON DRAWINGS.
6. EXPANDED TAP. REFER TO DETAIL ON SHEET M0.01.
7. PROVIDE RETURN AIR OPENING HIGH AS POSSIBLE ABOVE SUSPENDED CEILING. ENSURE SIZE OF OPENING MATCHES EXISTING OPENINGS OF RETURN AIR TRANSFER DUCT FROM ADJACENT TENANT ACROSS THE CORRIDOR.

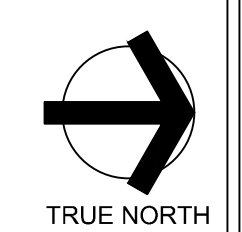
REFER TO SHEET M0.01 FOR GENERAL NOTES, SCHEDULES AND SYMBOLS.

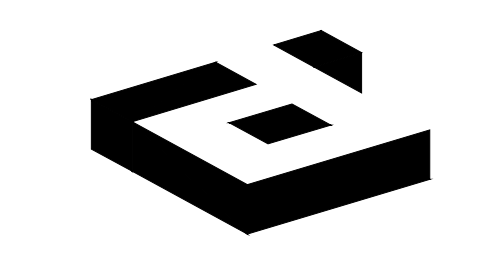


SUITE 1500
AVAILABLE

1 LEVEL 01 MECHANICAL PLAN

SCALE: 1/8"=1'-0"



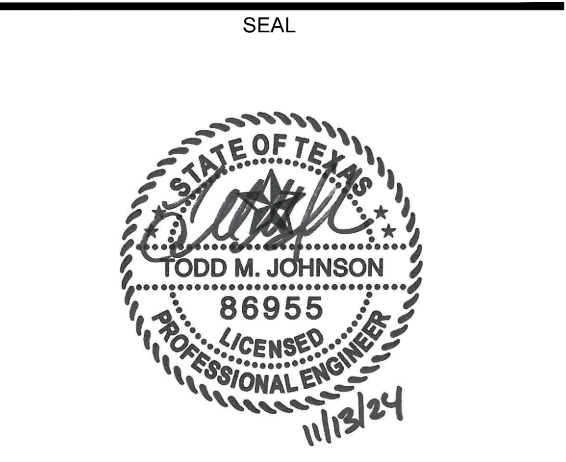


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CHECKED BY: KS
R.S.F.: 13.538

BILLINGSLEY COMPANY

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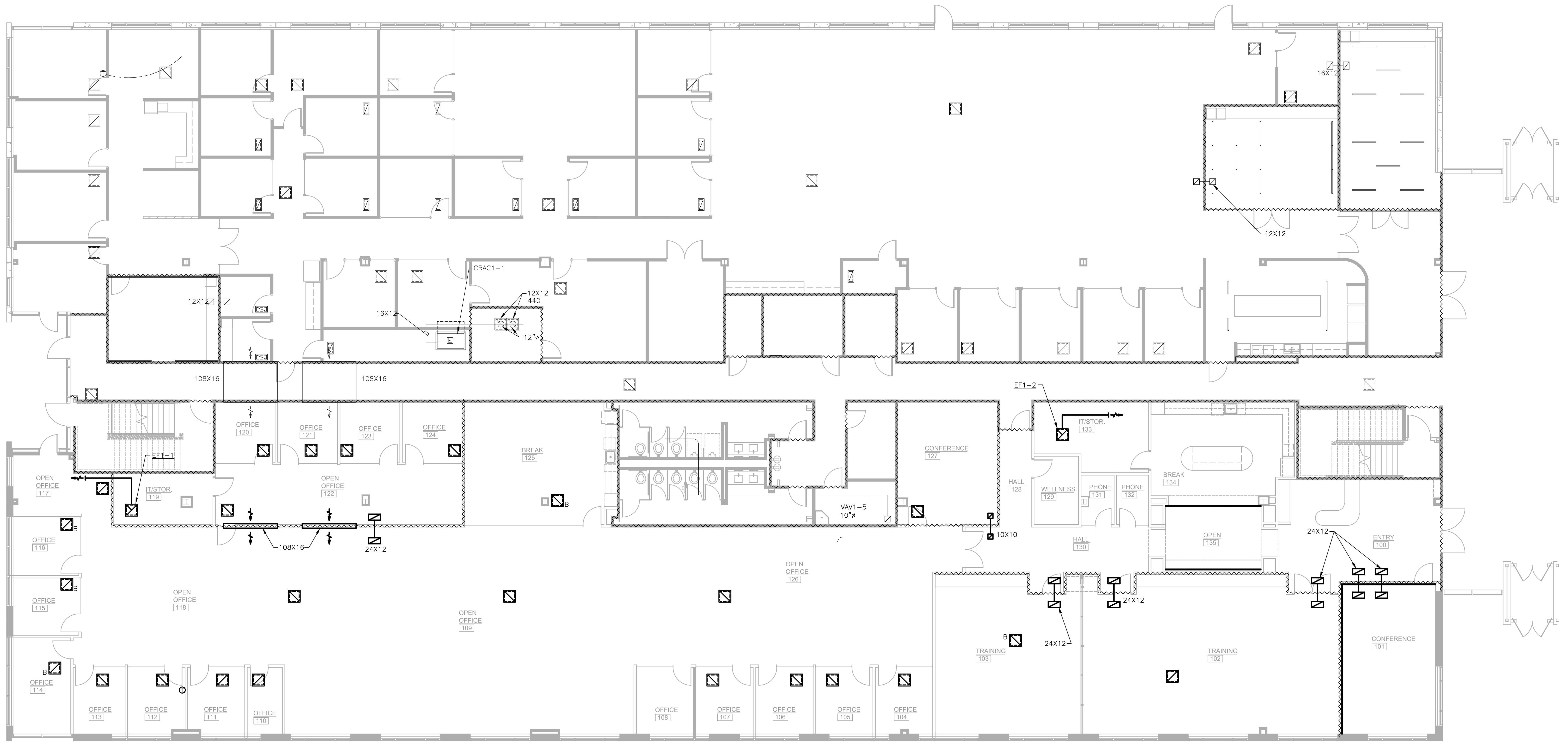
DRAWING TITLE:
LEVEL 01 MECHANICAL RETURN AIR PLAN

DRAWING NUMBER:
M2.11

RETURN AIR NOTES:

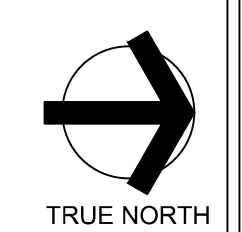
- A. EXISTING RETURN AIR CONDITIONS ARE BASED ON INFORMATION PROVIDED BY SITE SURVEY AND PREVIOUS RECORD DRAWINGS. HOWEVER, IT IS NOT INTENDED TO BE A TRUE REPRESENTATION OF ACTUAL RETURN AIR CONDITIONS. CONTRACTOR SHALL ENSURE A CLEAR UNOBSTRUCTED PATH BACK TO MAIN RETURN AIR IN MECHANICAL ROOM AND MAKE ALL REQUIRED MODIFICATIONS AS NEEDED TO ENSURE CLEAR RETURN AIR PATH.
- B. WALLS TO DECK INDICATED ON THESE DRAWINGS ARE BASED ON OUR UNDERSTANDING OF ARCHITECTURAL PLANS. COORDINATE ALL WALLS TO DECK WITH ARCHITECT AND INFORM THE ARCHITECT OF ANY DIFFERENCES WITH THIS PLAN PRIOR TO BIDDING. ANY ADDITIONAL BOOTS REQUIRED SHALL BE SIZED AT 500 FPM.
- C. ALL CUTTING AND CHANNELING OF EXISTING BUILDING SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER WITHOUT REMOVAL OF EXCESS MATERIALS. THIS CONTRACTOR SHALL PATCH AND REPLACE WITH MATERIAL SIMILAR TO ADJACENT CONSTRUCTION. ALL BOOTS SHALL BE SEALED AT THE WALL PENETRATION.
- D. ALL WORK MUST BE COORDINATED AND SCHEDULED WITH THE OWNER AND OCCUPANTS OF THIS BUILDING SO AS TO PROVIDE THE LEAST AMOUNT OF DISRUPTION OF THE NORMAL BUILDING ACTIVITIES AS POSSIBLE. MAINTAIN CONDITIONED SPACE FOR ALL OWNER OCCUPIED AREAS DURING CONSTRUCTION.
- E. RETURN AIR BOOTS SHOWN ON DRAWINGS SHALL BE 1" INSULATED SHEET METAL BOOTS. CONTRACTOR SHALL PROVIDE PRICING FOR DUCT BOARD IN LIEU OF SHEET METAL BOOTS.

REFER TO SHEET M0.01
FOR GENERAL NOTES,
SCHEDULES AND SYMBOLS.



SUITE 1500
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1 LEVEL 01 MECHANICAL RETURN AIR PLAN
SCALE: 1/8"=1'-0"



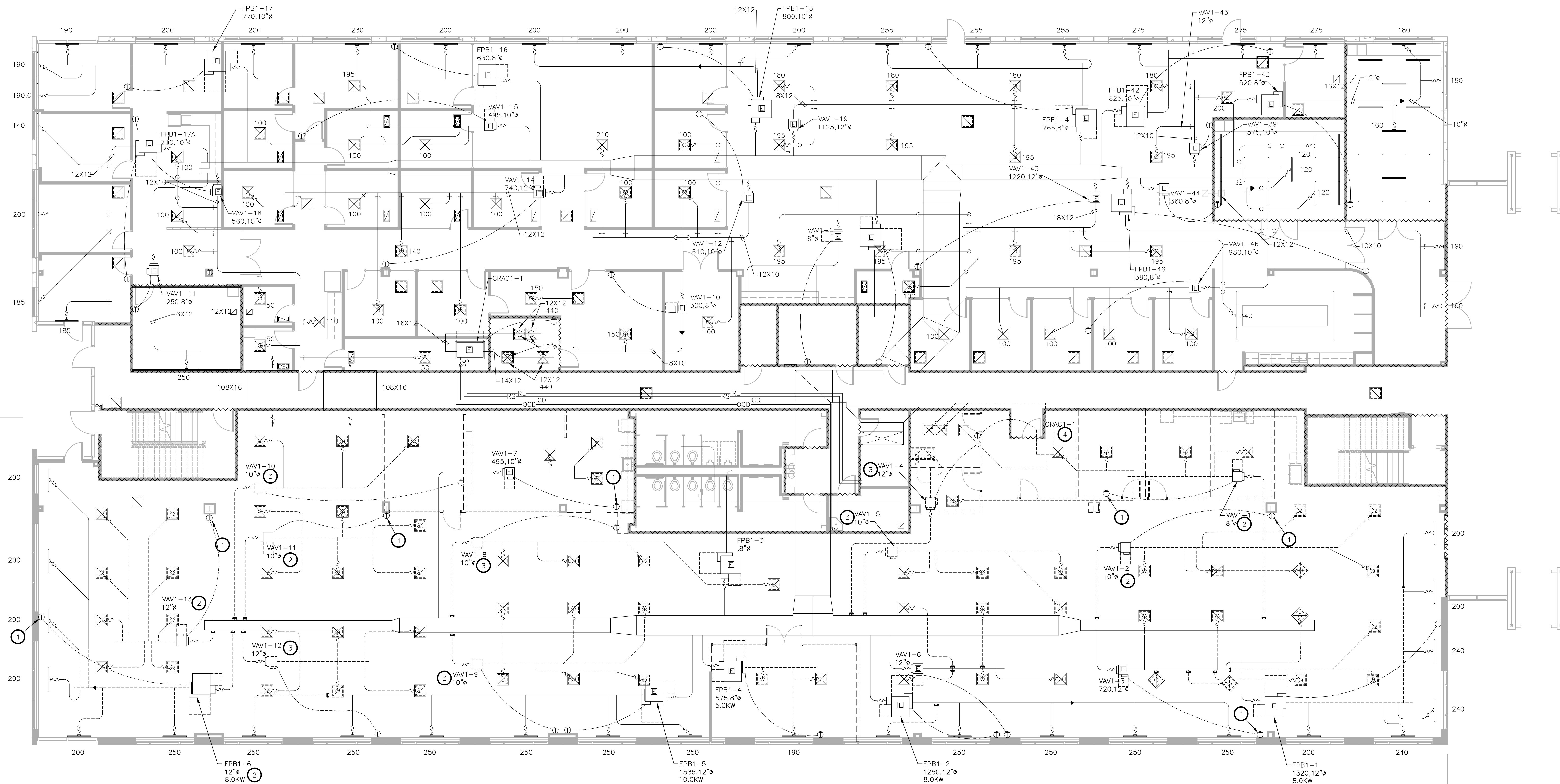
GENERAL DEMOLITION NOTES:

- A. ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES, RULES, REGULATIONS AND REQUIREMENTS.
- B. ALL WORK SHALL COMPLY WITH THE BUILDING TENANT CONSTRUCTION GUIDE. COORDINATE WITH BUILDING MANAGEMENT/OWNER FOR ACCESS TO ANY TENANT LEASE SPACES THAT MIGHT BE REQUIRED FOR THE INSTALLATION. UNLESS DIRECTED BY LANDLORD ALL EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED FOR 1 YEAR.
- C. EXISTING CONDITIONS ARE BASED ON INFORMATION PROVIDED BY SITE SURVEY AND PREVIOUS RECORD DRAWINGS. HOWEVER, IT IS NOT INTENDED TO BE A TRUE REPRESENTATION OF ACTUAL CONDITIONS. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BIDDING TO ASCERTAIN EXISTING CONDITIONS AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO BID.
- D. CONTRACTOR SHALL PROVIDE PROTECTIVE PLASTIC DROP CLOTHS TO PROTECT THE EXISTING OCCUPIED AREAS AND EQUIPMENT FROM DUST AND DEBRIS DURING THE CONSTRUCTION WORK, AND SHALL CLEAN THE AREAS OF ALL CONSTRUCTION DIRT DAILY, AND UPON COMPLETION OF THE WORK.
- E. COORDINATE WITH GENERAL CONTRACTOR THE REMOVAL AND REPLACEMENT OF ALL EXISTING CEILINGS, WALLS, ETC. AS REQUIRED FOR MECHANICAL DEMOLITION WORK.
- F. EXISTING PIPING AND EQUIPMENT ETC. NOT TO BE UTILIZED IN THE COMPLETED BUILDING SHALL BE DISCONTINUED OR REMOVED AS REQUIRED. ALL ENDS OF DISCONTINUED PIPING SHALL BE CAPPED IN THE NEAREST WALL, CEILING OR FLOOR SO THAT THEY ARE COMPLETELY CONCEALED. OPENINGS LEFT IN WALLS, CEILING, ETC. WHERE EQUIPMENT AND PIPE, ETC. ARE REMOVED AND NOT REPLACED, SHALL BE PATCHED NEATLY WITH SIMILAR MATERIAL TO ADJACENT CONSTRUCTION. REFER TO DRAWINGS DELINEATING NEW WORK FOR ADDITIONAL INFORMATION REGARDING SYSTEMS OR PORTIONS OF SYSTEMS WHERE USE IS TO BE DISCONTINUED.
- G. EXISTING PIPING, FIXTURES AND EQUIPMENT THAT ARE NOT TO BE REUSED SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE OWNER IF THEY WISH TO RETAIN OWNERSHIP OF SAME. IF NOT, EQUIPMENT SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AS SOON AS PRACTICAL AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.
- H. ALL CUTTING AND CHANNELING OF EXISTING BUILDING SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER WITHOUT REMOVAL OF EXCESS MATERIALS. THIS CONTRACTOR SHALL PATCH AND REPLACE WITH MATERIAL SIMILAR TO ADJACENT CONSTRUCTION.
- I. WHERE EXISTING PIPING AND EQUIPMENT, ETC., THAT ARE TO BE UTILIZED IN THE COMPLETED PROGRAM CONFLICT WITH NEW CONSTRUCTION AND THE REQUIRED DEMOLITION, THEY SHALL BE RELOCATED AND RECONNECTED TO MAINTAIN THE DESIRED SERVICE.
- J. PORTIONS OF EXISTING SYSTEMS MAY BE SHOWN FOR CLARITY EVEN THOUGH IT MAY NOT BE NECESSARY TO MODIFY OR REVISE THEM. ALL EXISTING SYSTEMS ARE SHOWN BASED ON ORIGINAL OR REMODEL BUILDING DRAWINGS. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS.
- K. ALL WORK MUST BE COORDINATED AND SCHEDULED WITH THE OWNER AND OCCUPANTS OF THIS BUILDING SO AS TO PROVIDE THE LEAST AMOUNT OF DISRUPTION OF THE NORMAL BUILDING ACTIVITIES AS POSSIBLE. MAINTAIN CONDITIONED SPACE FOR ALL OWNER OCCUPIED AREAS DURING CONSTRUCTION.
- L. ALL ACCESSIBLE ABANDONED PIPING AND DUCTWORK SHALL BE REMOVED AND PROPERLY DISPOSED OF.

NOTES BY SYMBOL:

- 1. RELOCATE EXISTING THERMOSTAT TO NEW LOCATION AS SHOWN ON SHEET M2.46. CONFIRM THAT THE THERMOSTATS ARE ASSOCIATED WITH THE TERMINAL BOX AS SHOWN ON THE DRAWING BEFORE RELOCATING AND ARE IN WORKING ORDER.
- 2. EXISTING LOCATION OF TERMINAL BOX TO BE RELOCATED. REMOVE EXISTING MEDIUM AND LOW PRESSURE DUCTWORK AS INDICATED ON DRAWINGS. REFER TO SHEET M2.46 FOR NEW BOX LOCATION.
- 3. EXISTING LOCATION OF TERMINAL BOX TO BE REMOVED. REMOVE EXISTING MEDIUM AND LOW PRESSURE DUCTWORK AS INDICATED ON DRAWINGS. CAP AT MAIN MEDIUM PRESSURE DUCT USING SAME METHODS AND MATERIALS TO MATCH EXISTING.
- 4. REMOVE EXISTING CRAC UNIT AND ASSOCIATED DUCTWORK AND DIFFUSER/GRILLE. CLEAN AND STORE AS DIRECTED BY ARCHITECT/ OWNER.

REFER TO SHEET M0.01 FOR GENERAL NOTES, SCHEDULES AND SYMBOLS.



SUITE 1500 AVAILABLE

1 LEVEL 01 MECHANICAL PLAN - DEMOLITION

SCALE: 1/8"=1'-0"



PROJECT COORDINATOR/DESIGN CONSULTANT

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SEAL

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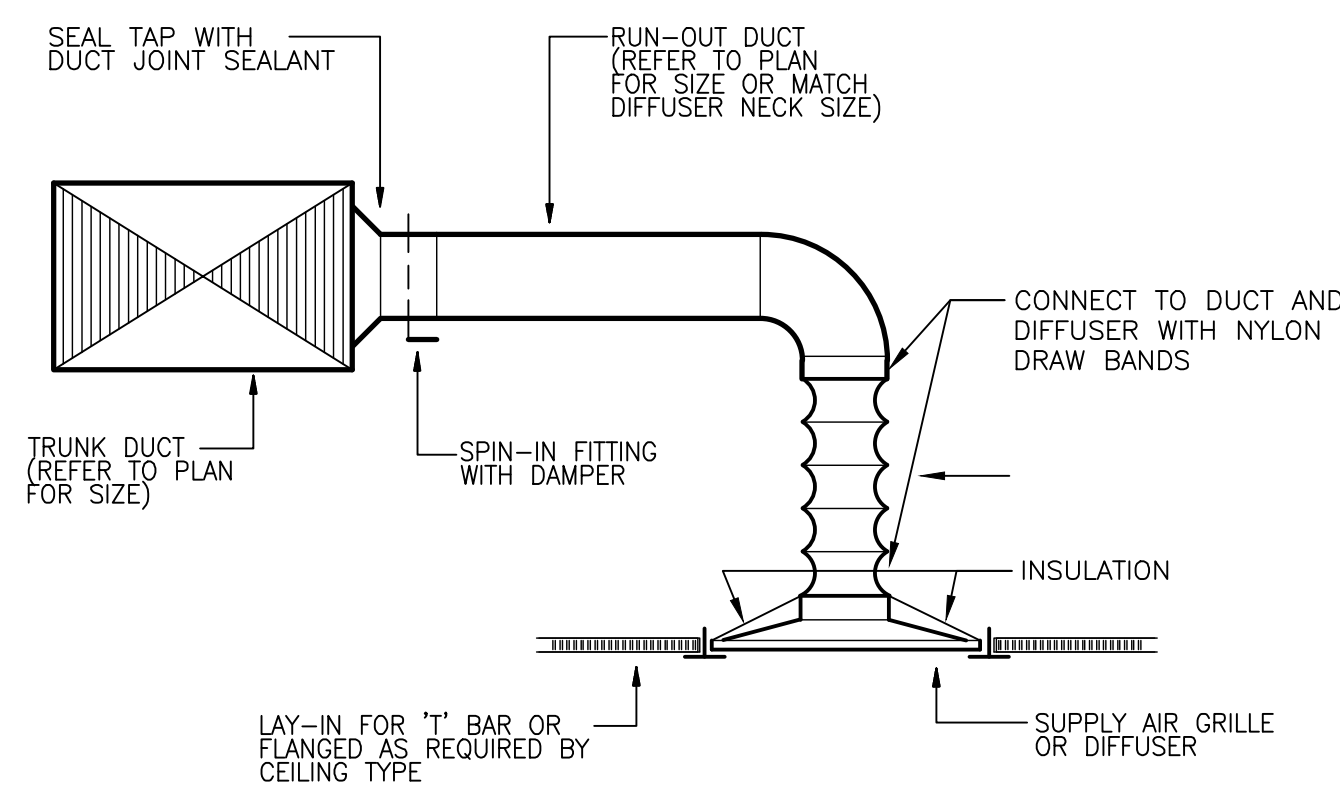
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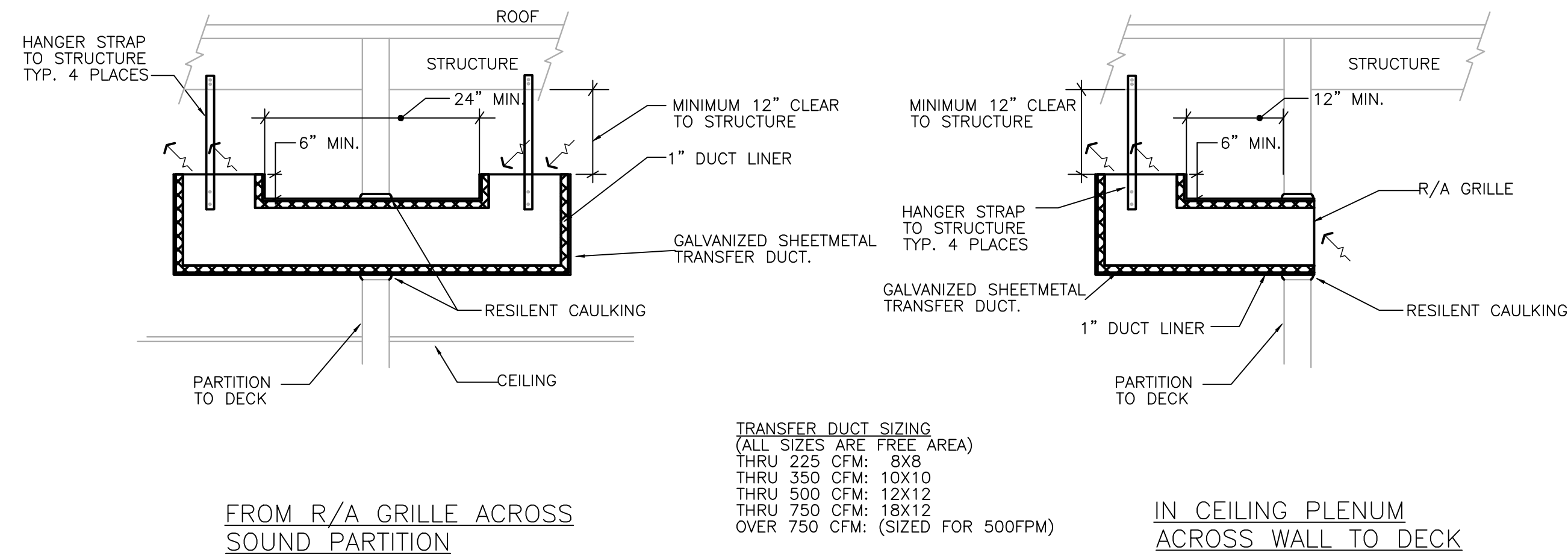
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LEVEL 01 MECHANICAL PLAN - DEMOLITION

DRAWING NUMBER:
M2.31

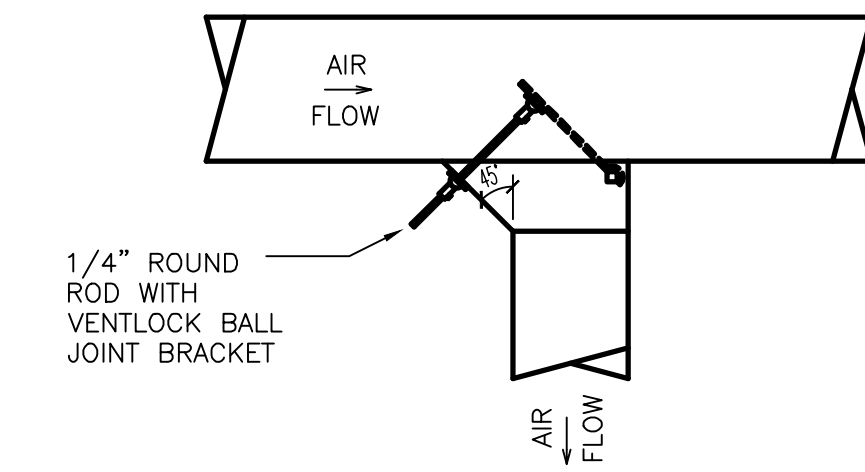
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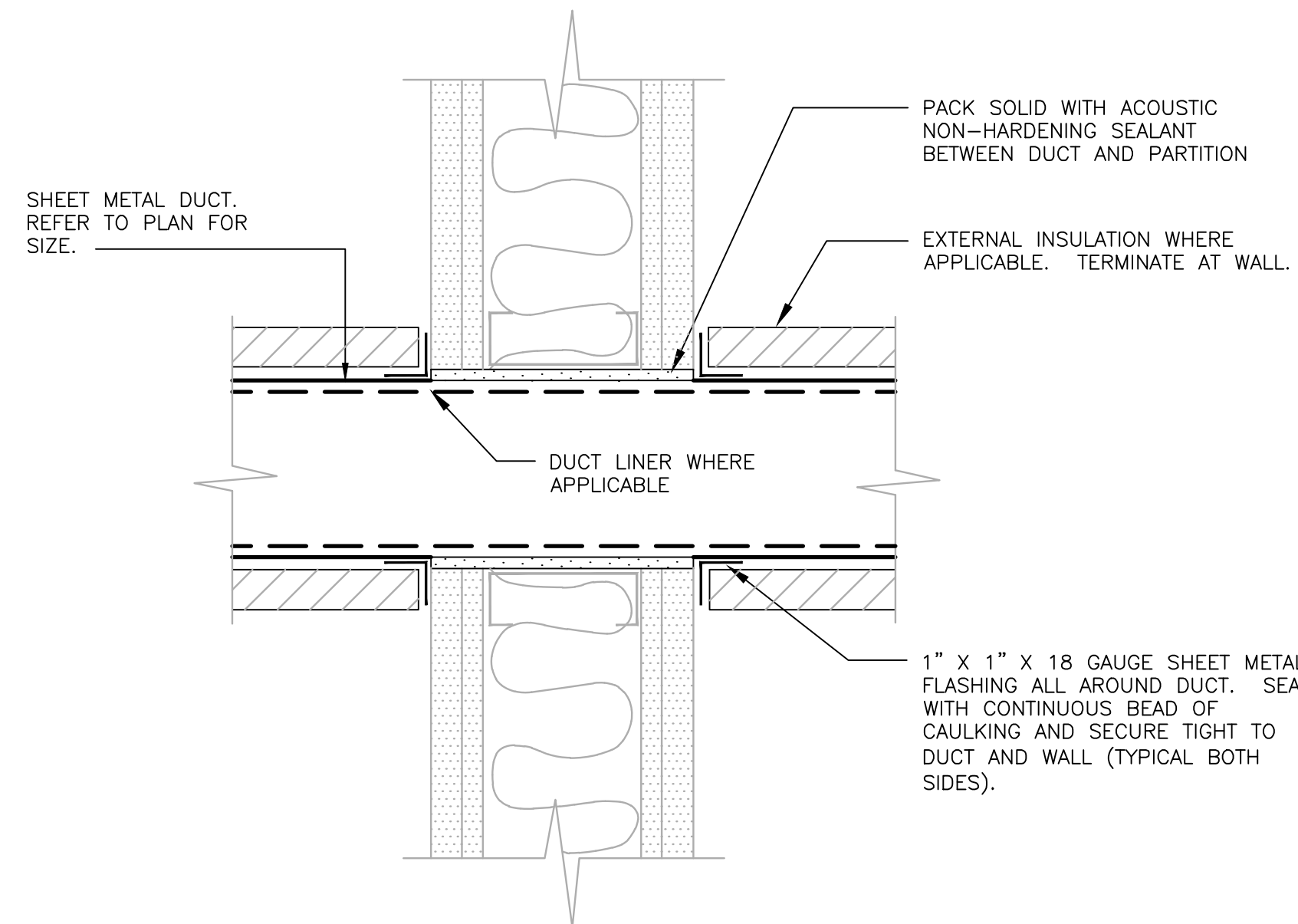
1 DIFFUSER CONNECTION DETAIL
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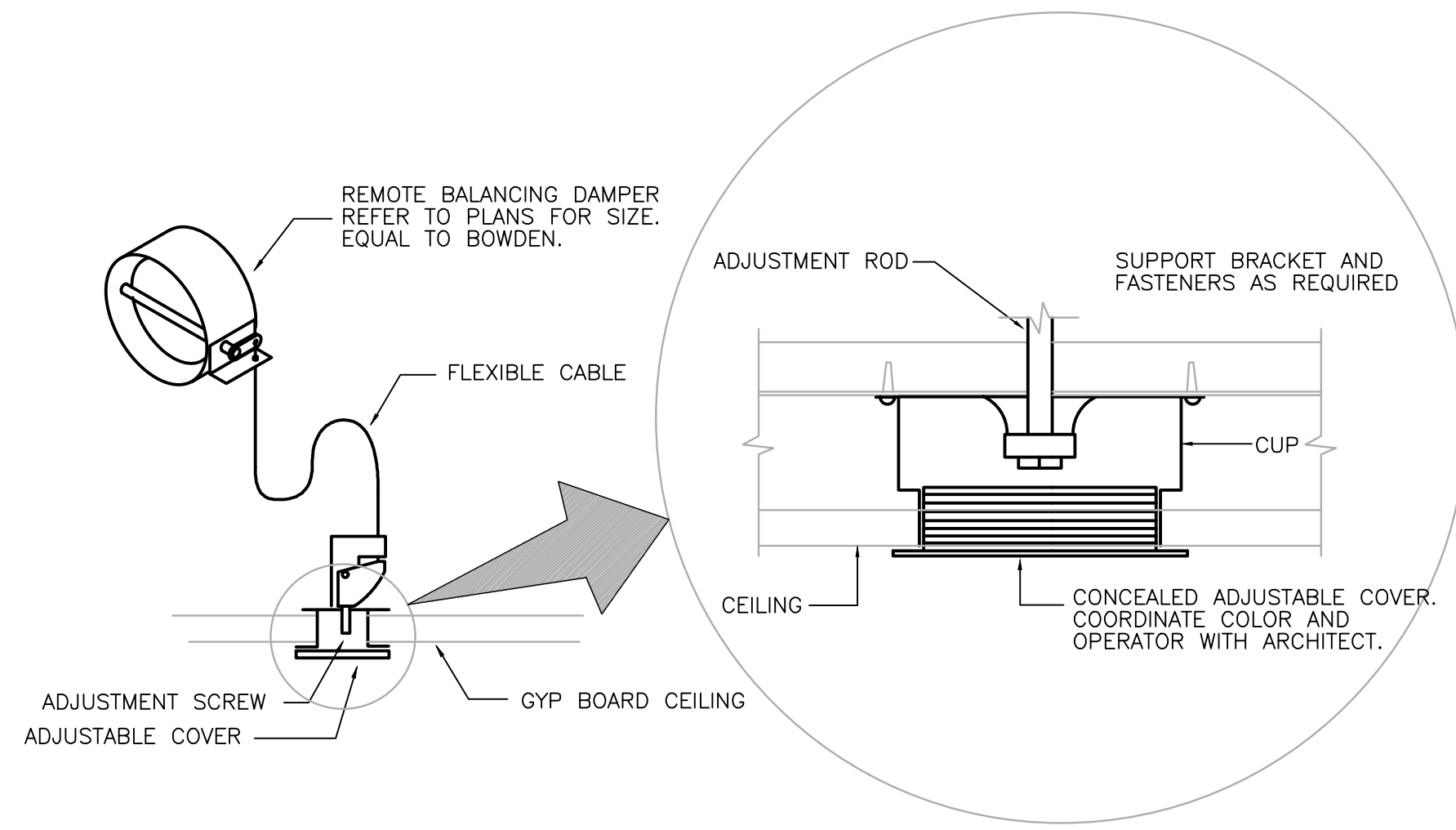
2 RA TRANSFER BOOT DETAIL
SCALE: NOT TO SCALE



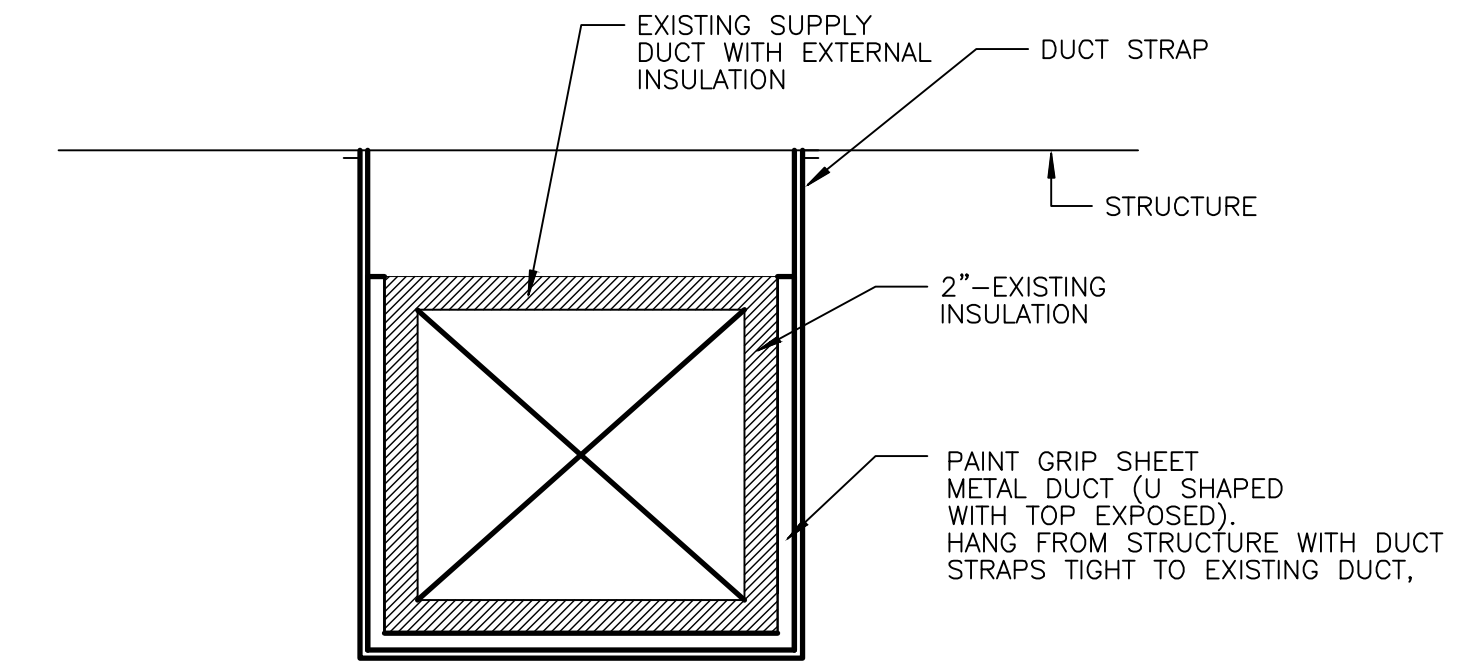
3 EXPANDED TAP DETAIL
SCALE: NOT TO SCALE



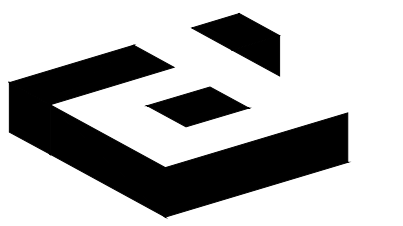
4 DUCT PENETRATION AT SOUND PARTITION
SCALE: NOT TO SCALE



5 CONCEALED DAMPER OPERATOR DETAIL
SCALE: NOT TO SCALE



6 EXISTING INSULATED DUCT WITH SHEET METAL WRAP
SCALE: NOT TO SCALE



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DRAWING TITLE:
MECHANICAL DETAILS

DRAWING NUMBER:
M3.00

