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SCALE: N/A	

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SCALE: N/A	

2	GENERAL NOTES
SCALE: N/A	

1	MECHANICAL KEYNOTES
SCALE: N/A	

NOTE:
EXISTING CONDITIONS WERE TAKEN FROM SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CONTRACTOR SHALL CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS.

ALL HVAC EQUIPMENT AND CONTROLS MUST BE LOCATED FOR PROPER ACCESS FOR MAINTENANCE AND REPAIR, WHETHER INSTALLATION IS EXISTING OR NEW. EXISTING EQUIPMENT AND CONTROLS SHALL BE RELOCATED BY THIS CONTRACTOR IF REQUIRED.

NOTE: MECHANICAL SCOPE INCLUDES INTERIOR ALTERATION OF EXISTING TENANT SPACE BY INSTALLATION OF NEW DUCTWORK AND DIFFUSERS AS SHOWN ON PLANS.

KEYNOTE SYMBOLS: (1), (2), (X)

- REUSE EXISTING 10 TON ROOFTOP UNIT. FIELD VERIFY EXACT LOCATION OF DUCT DROPS INTO THE SPACE AND COORDINATE AS NECESSARY. BALANCE SUPPLY AIR TO 4000 CFM AND MINIMUM OUTDOOR AIR TO 1175 CFM. CLEAN AND REFRUBISH UNIT TO LIKE NEW CONDITION. UPDATE EXISTING IDENTIFICATION PLACARDS PER CRR STANDARDS.
- REPLACE EXISTING ROOFTOP UNIT WITH NEW PER RTU SCHEDULE. FIELD VERIFY EXACT LOCATION OF DUCT DROPS INTO THE SPACE AND COORDINATE AS NECESSARY.
- CONNECT NEW DUCT TO EXISTING. CLEAN AND REFRUBISH EXISTING TO LIKE NEW CONDITION.
- REPLACE EXISTING EXHAUST FAN WITH NEW PER SCHEDULE. ROUTE EXHAUST DUCT THRU ROOF AND PENETRATE WITH ROOF VENT CAP.
- RELOCATE EXISTING THERMOSTAT TO LOCATION SHOWN. INSTALL AT ADA MOUNTING HEIGHT.
- PROVIDE TEMPERATURE SENSOR MOUNTED ON COLUMN AS HIGH AS POSSIBLE FOR EXISTING ROOFTOP UNIT AND CONNECTED TO RELOCATED THERMOSTAT IN MANAGER'S OFFICE.
- PROVIDE TEMPERATURE SENSOR MOUNTED NEAR TRANSFER GRILLE FOR RTU-1 AND CONNECTED TO THERMOSTAT IN MANAGER'S OFFICE.
- PROVIDE NEW PROGRAMMABLE THERMOSTAT FOR RTU-1 IN LOCATION SHOWN.
- MOUNT TRANSFER GRILLE ON WALL AS HIGH AS POSSIBLE. INSTALL GRILLES WITH LOUVERS IN OPPOSED DIRECTIONS TO SHIELD FROM LIGHT TRANSFER.
- DUCTWORK TO BE INSTALLED TIGHT TO DECK/STRUCTURE ABOVE. WHERE POSSIBLE, DUCTWORK SHALL BE ROUTED THROUGH JOIST WEBS. CONTRACTOR TO VERIFY DUCT SIZING AND ROUTING PRIOR TO FABRICATION.

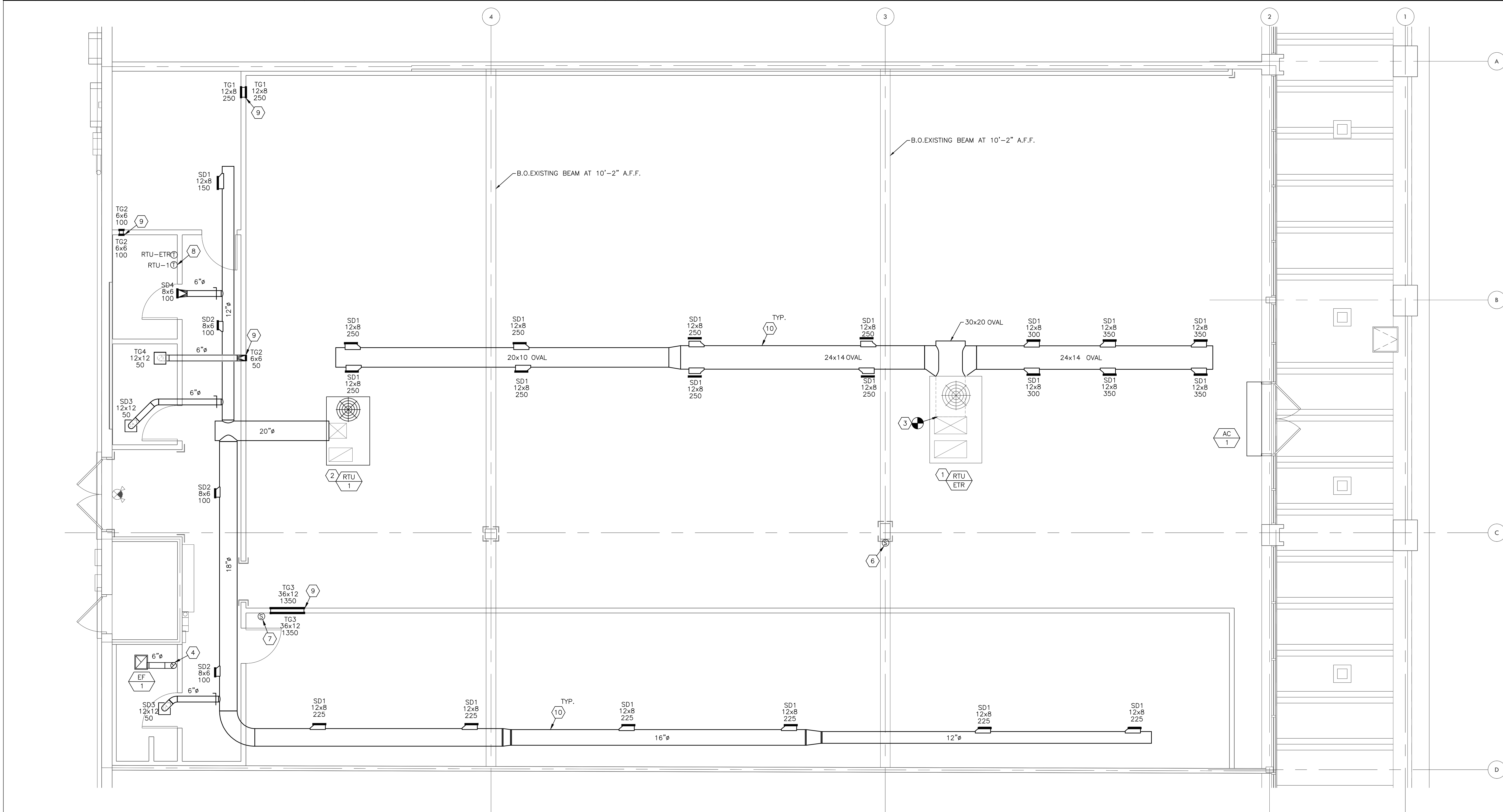
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2	GENERAL NOTES
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1	MECHANICAL KEYNOTES
SCALE: N/A	




20 **MECHANICAL PLAN**
SCALE: 1/4" = 1'-0"



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PROFESSIONAL SEAL

DESCRIPTION	DATE
ORIGINAL ISSUANCE	11/10/23 AM/GO/RE CT/AR

PROJECT NUMBER
23128

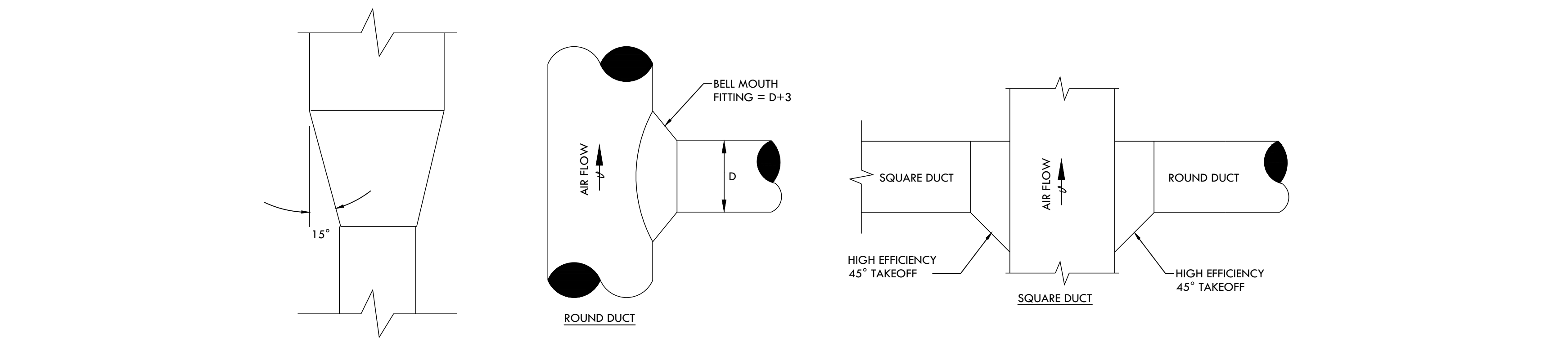
MECHANICAL PLAN

M1.0

MECHANICAL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIFFUSER		EQUIPMENT (SEE SCHEDULE)
	RETURN AIR GRILLE		EQUIPMENT NUMBER
	RETURN OR EXHAUST DUCT UP		INDICATES DETAIL, PLAN, SECTION, AND/OR DIAGRAM (APPLIES ONLY WHERE INDICATED ON DRAWINGS)
	SUPPLY DUCT UP		INDICATES DRAWING ON WHICH DETAIL APPEARS
	SUPPLY DUCT DOWN		INDICATES TYPICAL DETAIL (APPLIES TO ALL CONTRACT DRAWINGS)
	RETURN OR EXHAUST DUCT DOWN		INDICATES DRAWING ON WHICH DETAIL APPEARS
	ROUND DUCT DOWN		INDICATES SECTION NUMBER
	ROUND DUCT UP		INDICATES ON WHICH DRAWING SECTION APPEARS
	VANED ELBOW		INDICATES REVISION & NUMBER
	45° TAKEOFF FITTING		CONNECT NEW TO EXISTING
	MOTORIZED DAMPER		SHEET NOTE NUMBER
	MANUAL VOLUME DAMPER		DIFUSER TYPE SIZE CFM
	DOOR UNDERCUT		THERMOSTAT
			TEMPERATURE SENSOR
			DUCT SMOKE DETECTOR
			ABBREVIATIONS
		AFF	ABOVE FINISHED FLOOR
		BTU	BRITISH THERMAL UNIT
		CFM	CUBIC FEET PER MINUTE
		COMP	COMPRESSOR
		DB	DRY BULB
		DN	DOWN
		DX	DIRECT EXPANSION
		EA	EACH
		EAT	ENTERING AIR TEMPERATURE
		EFF	EFFICIENCY
		ESP	EXTERNAL STATIC PRESSURE
		ETC	AND SO FORTH
		EX	EXHAUST
		°F	DEGREES FAHRENHEIT
		FLA	FULL LOAD AMPS
		FPM	FEET PER MINUTE
		FT	FEET
		GPM	GALLONS PER MINUTE
		GRS/LB	GRAINS PER POUND
		HP	HORSEPOWER
		HZ	HERTZ
		IN	INCHES
		KW	KILOWATT
		MBH	THOUSANDS OF BTU PER HOUR
		MIN	MINIMUM
		NEG	NEGATIVE
		NTS	NOT TO SCALE
		OA	OUTSIDE AIR
		OBD	OPPOSED BLADE DAMPER
		OC	ON CENTER
		PH	PHASE
		PSI	POUNDS PER SQUARE INCH
		PSIG	POUNDS PER SQUARE INCH GAUGE
		RH	RELATIVE HUMIDITY
		SA	SUPPLY AIR
		SH	SENSIBLE HEAT
		SP	STATIC PRESSURE
		TEMP	TEMPERATURE
		TYP	TYPICAL
		UC	UNDERCUT
		VOLT	VOLTAGE
		W/O	WITHOUT
		WB	WET BULB
		WC	WATER COLUMN

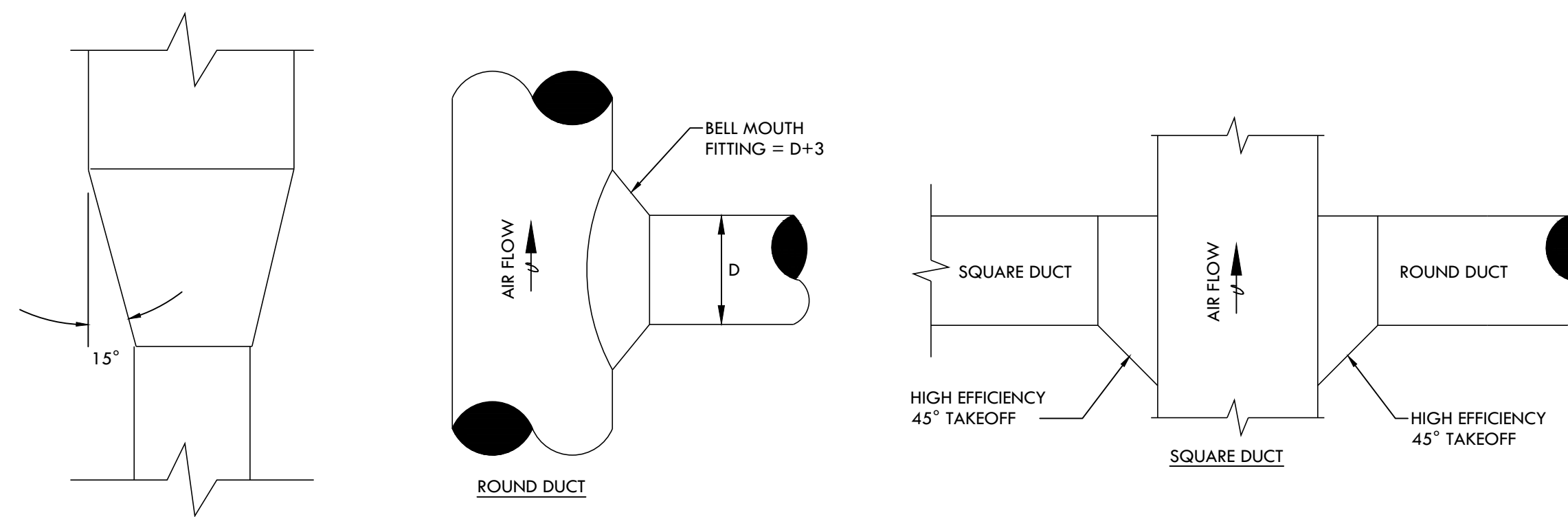
3 DUCTWORK SUPPORT DETAILS

SCALE: NOT TO SCALE



8 BRANCH TAKEOFFS & TRANSITIONS

SCALE: NOT TO SCALE



10 MECHANICAL LEGEND

SCALE: N/A

ROOFTOP AIR CONDITIONING UNIT SCHEDULE - GAS HEAT

MARK	MANUFACTURER	MODEL	SUPPLY AIR (CFM)	MIN OA (CFM)	SUPPLY FAN		COOLING COIL				HEATING DATA			UNIT ELECTRICAL DATA				WIEGHT (LBS)	NOTES
					ESP	HP	TOTAL (MBH)	SENS. (MBH)	EAT (DB/WB)	SEER	INPUT (MBH)	OUTPUT (MBH)	STAGES	V/PH/HZ	MCA	MOCP			
RTU - 1	TRANE	YSC060	2000	250	0.8	1	56.8	48.4	77.2/64.3	14	80	64.8	2	208/3/60	29	40	650	A-J	

- NOTES:
- ALL COOLING CAPACITIES SHOWN ARE BASED ON AN AMBIENT OUTDOOR TEMPERATURE OF 95°F, 92.4°F DB & 75.0°F WB SUMMER DESIGN TEMPERATURE AND A WINTER DESIGN TEMPERATURE OF 7.1°F.
 - CONTRACTOR SHALL INSTALL ALL NEW FILTERS PRIOR TO TEST AND BALANCE WORK.
 - PROVIDE UNIT WITH BURGLAR BARS.
 - PROVIDE UNIT WITH UNPOWERED GFCI CONVENIENCE OUTLET.
 - PROVIDE WITH DIFFERENTIAL ENTHALPY TYPE ECONOMIZER WITH BAROMETRIC RELIEF.
 - PROVIDE UNIT WITH ROOF CURB ADAPTER.
 - PROVIDE UNIT WITH FACTORY INSTALLED HINGED ACCESS PANELS.
 - DIVISION 16 TO PROVIDE DISCONNECT.
 - PROVIDE WITH FACTORY INSTALLED SUPPLY AND RETURN SMOKE DETECTORS.
 - PROVIDE UNIT WITH HAIL GUARD ON CONDENSING COIL.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	NOTE
SD1	TITUS	300FL	LOUVERED	DUCT	12"x8"	1,2,3,4,5,6
SD2	TITUS	300FL	LOUVERED	DUCT	8"x6"	1,2,3,4,5,6
SD3	TITUS	250-AA	LOUVERED	CEILING	12"x12"	1,2,3,4,6
SD4	TITUS	300FL	LOUVERED	WALL	8"x6"	1,2,3,4,5,6
TG-1	TITUS	350RL	LOUVERED	WALL	12"x8"	1,2,3,4
TG-2	TITUS	350RL	LOUVERED	WALL	6"x6"	1,2,3,4
TG-3	TITUS	350RL	LOUVERED	WALL	36"x12"	1,2,3,4
TG-4	TITUS	350RL	LOUVERED	CEILING	12"x12"	1,2,3,4

- NOTES:
- NECK SIZE SHOWN ON DRAWINGS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR COLOR.
 - PROVIDE NECK FOR DUCT CONNECTION.
 - BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 - PROVIDE WITH VOLUME DAMPER OPERABLE FROM FACE OF DIFFUSER, UNLESS NOTED OTHERWISE.
 - ALUMINUM CONSTRUCTION.

FAN SCHEDULE

MARK	MANUFACTURER	MODEL	MOUNTING	CFM	ESP (IN)	DRIVE (BELT/DIRECT)	POWER HP	FAN RPM	ELECTRICAL VOLTS/PH	WEIGHT (LBS)	NOTE
EF-1	COOK	GC-148	CEILING	100	0.5	DIRECT	1/25	1075	120/1	60	A-C

- NOTES:
- INTERLOCK FAN WITH LIGHT SWITCH.
 - INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 - PROVIDE WITH BACK DRAFT DAMPER AND FACTORY INSTALLED DISCONNECT.

AIR CURTAIN SCHEDULE

MARK	MANUFACTURER	MODEL NUMBERS	AIR VOLUME CFM	MAX VEL (FPM @ NOZZLE)	MOTORS HP	VOLTAGE	TOTAL AMPS	MOCP	WEIGHT IN LBS.	NOTES
AC-1	MARS	STD272-2UG	2758	5960	2 @ 1/2	208/3	3.6	15	120	A,B,C

- NOTES:
- SUPPORT FROM STRUCTURE WITH ALL-THREAD HANGING RODS, PROVIDE WITH SPRING VIBRATION ISOLATORS.
 - PROVIDE WITH MANUFACTURER'S MAGNETIC DOOR LIMIT SWITCH AND CONTROLLER.
 - COORDINATE ALL CONTROLS WITH DIVISION 16.
 - COORDINATE AIR CURTAIN COLOR WITH ARCHITECT AND OWNER.

20 MECHANICAL SCHEDULES

SCALE: NO SCALE

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PROFESSIONAL SEAL

DATE	DRAWN	APP
11/10/23	AMJ/GG/RE	CF/AR

PROJECT NUMBER

23128

MECHANICAL
 DETAILS AND
 SCHEDULES

M2.0

<p>A. GENERAL CONDITIONS</p> <p>1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS (IF PROVIDED AS PART OF THE CONTRACT) ARE PART OF THIS CONTRACT.</p> <p>2. THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRED TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS" UNLESS OTHERWISE SPECIFIED.</p> <p>3. THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.</p> <p>4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ITS SUBCONTRACTORS WITH A FULL SET OF BID DOCUMENTS INCLUDING SPECIFICATIONS AND MUST COORDINATE ITS WORK AND INSPECTIONS AND THE WORK AND INSPECTION OF THEIR SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE TO CONFORM WITH THE GENERAL CONTRACTOR'S TIME SCHEDULE.</p> <p>5. BY SUBMITTING A QUOTATION OR PROPOSAL, THE MECHANICAL CONTRACTOR EXPRESSLY STATES AND WARRANTS THAT: ALL DRAWINGS AND SPECIFICATIONS HAVE BEEN THOROUGHLY REVIEWED, CONTRACTOR HAS BECOME FAMILIARIZED WITH JOB SITE CONDITIONS AND IS TOTALLY QUALIFIED TO PERFORM ALL OF THE WORK REQUIRED.</p> <p>6. BEFORE SUBMITTING A FINAL PROPOSAL THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK TO DETERMINE THE EXISTING CONDITIONS THAT MAY AFFECT THE PROPOSAL. IF DISCREPANCIES ARE NOTED BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS THE ARCHITECT SHALL BE NOTIFIED AND THE CONTRACTOR SHALL RECEIVE CLARIFICATION BEFORE SUBMITTING A BID. THE SUBMISSION OF A PROPOSAL SHALL INDICATE THAT ALL CHARGES AND COSTS MADE NECESSARY BY EXISTING CONDITIONS ARE INCLUDED AND THAT THE COMPLETE SYSTEM AS DESCRIBED HEREIN WILL BE FURNISHED AT THE PROPOSED COST.</p> <p>7. WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND INSTALLED BY CONTRACTOR" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TENANT" SHALL BE INTERPRETED AS MEANING "FURNISHED BY TENANT (INSTALLED BY CONTRACTOR)", EXCEPT WHERE NOTED OTHERWISE.</p> <p>B. GENERAL REQUIREMENTS</p> <p>1. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS (IF SUPPLIED) AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH LANDLORD AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING EQUIPMENT, PIPE AND DUCTS SERVING THE TENANT SPACE PRIOR TO SUBMISSION OF BID.</p> <p>2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED SPECIFICALLY BY THE OTHER. MATERIALS, EQUIPMENT, SERVICES, TOOLS OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS NECESSARY TO COMPLETE THE WORK OR WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF THE CONTRACT.</p> <p>3. WHERE THE DRAWINGS AND / OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE LANDLORD'S TENANT CRITERIA, THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING THE SYSTEM AS DESIGNED AND DESCRIBED ON THE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.</p> <p>4. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH DETAILED REQUIREMENTS OF LEASE EXTRACTS FROM THE LANDLORD AND TENANT.</p> <p>5. COORDINATE LOCATIONS OF ALL AIR OUTLETS WITH ALL WALLS, LIGHTS, SPRINKLER HEADS, CEILING TILES AND DECORATIVE CEILING FIXTURES PRIOR TO INSTALLATION.</p> <p>6. ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATION, SERVICE, MAINTENANCE AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.</p> <p>7. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK CONFORM TO THE REQUIREMENTS OF THE MECHANICAL CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GUARANTEE CUTTING AND PATCHING REQUIRED BY THE MECHANICAL CONTRACTOR. THE CONTRACTOR SHALL MATCH FINISH OF SURROUNDING AREA.</p> <p>C. CODES</p> <p>1. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION PRACTICES. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND LOCAL CODES AND ORDINANCES, THE LATEST EDITIONS OF ASHRAE STANDARDS, THE LIFE SAFETY CODE, THE APPLICABLE BUILDING CODE, UNDERWRITERS LABORATORIES, THE NATIONAL ELECTRICAL CODE, NFPA 70, 90A AND 96 AND ANY OTHER APPLICABLE CODES ENFORCED BY AUTHORITIES HAVING JURISDICTION. THE CHANGES REQUIRED BY ANY APPLICABLE CODES SHALL BE INCLUDED IN THE BID. AFTER THE CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REMBURSED BY THE TENANT TO THE CONTRACTOR.</p> <p>D. LICENSES, PERMITS, INSPECTIONS AND FEES</p> <p>1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK.</p> <p>2. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.</p> <p>E. DRAWINGS</p> <p>1. DRAWINGS (PLANS AND SPECIFICATIONS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVED CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.</p> <p>2. THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN THE BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK AND SHOWING ALL SUCH MODIFICATIONS AND CHANGES. THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.</p> <p>F. EXISTING LEASE SPACE CONDITIONS</p> <p>1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANICAL WORK IN THE SPACE NOT SHOWN TO BE REUSED IN THE NEW TENANT SPACE.</p> <p>2. THE CONTRACTOR SHALL INCLUDE AND WILL BE HELD RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, DUCTWORK, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK OR EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED UNLESS NOTED FOR REUSE OR RECONFIGURATION ON PLANS. ROOF PATCHING SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF (ABOVE THIS SPACE) NOT APPLICABLE TO THE NEW WORK OR PART OF THE LANDLORD'S OR ANOTHER TENANT'S ACTIVE SYSTEM, MUST BE REMOVED AND ROOF WALL/FLOOR PATCHED/REPAIRED TO MATCH THE EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT REUSED IN THIS PROJECT.</p> <p>IF REQUIRED BY THE LANDLORD OR CODES, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN, CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.</p> <p>3. ACTIVE LANDLORD OR OTHER TENANT SERVICES ENCOUNTERED IN WORK SHALL BE PROTECTED AND SUPPORTED. IF EXISTING SERVICES NOT ANTICIPATED REQUIRE RELOCATION, CONTACT THE TENANT'S CONSTRUCTION MANAGER IMMEDIATELY. ALL COSTS FOR REPAIR OF DAMAGES TO ACTIVE LANDLORD OR OTHER TENANT SERVICES DURING CONSTRUCTION SHALL BE PAID FOR BY THE CONTRACTOR CAUSING THE DAMAGE.</p> <p>4. ITEMS AND MODIFICATIONS TO EXISTING LANDLORD SERVICES MUST BE DONE WITH MINIMUM INTERRUPTION OF LANDLORD OPERATION AND DURING HOURS SPECIFIED BY THE LANDLORD. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING THEIR BID. THE CONTRACTOR SHALL INCLUDE IN THEIR BID, ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.</p> <p>5. EQUIPMENT AND MATERIALS IN TRANSIT SHALL UTILIZE FREIGHT ELEVATOR OR STAIRS. SAID EQUIPMENT OR MATERIALS SHALL BE DISASSEMBLED AS REQUIRED TO MEET THE RESTRICTIONS IMPOSED BY THE BUILDING OR ITS COMPONENT CONSTRAINTS AND THEN REASSEMBLED IN THE NEW WORK AREA.</p> <p>6. ALL WORK SHALL BE DONE WITH A MINIMUM OF NOISE AND DISTURBANCE TO BUSINESS ROUTINE. ALL WORK SCHEDULES SHALL BE COORDINATED WITH AND APPROVED BY, THE TENANT'S CONSTRUCTION MANAGER.</p> <p>7. SINCE THESE ARE SECURE FLOORS, ALL DELIVERIES, WORKERS, WORK OPERATORS, ETC., REQUIRED BY THE CONTRACTOR FOR WORK PERFORMED IN ANY AREA OR SITE BUILDING SHALL BE IN STRICT CONFORMANCE TO THE RULES AND REGULATIONS OF THE OWNER.</p> <p>8. CONTRACTOR SHALL PROTECT THEIR WORK AND EQUIPMENT FROM DAMAGE, VANDALS, ETC. ANY ITEM THAT IS DAMAGED, VANDALIZED OR STOLEN PRIOR TO ACCEPTANCE OF BUILDING BY OWNER AND ARCHITECT SHALL BE REPLACED BY RESPECTIVE CONTRACTOR AT NO CHARGE TO TENANT.</p> <p>9. IT IS SPECIFICALLY THE INTENTION OF THIS SPECIFICATION TO HOLD THE CONTRACTOR RESPONSIBLE FOR ALL DAMAGE DONE TO ANY EXISTING FACILITIES, EQUIPMENT, PAINTING, OR ARCHITECTURAL AND STRUCTURAL FEATURES OF THE BUILDING, BY EITHER THEIR OWN WORKMEN OR BY ANY OF THEIR SUBCONTRACTORS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY THEIR OWN WORKMEN OR SUBCONTRACTORS AND THE OWNER AT THEIR DISCRETION, MAY WITHHOLD PAYMENTS EQUAL TO THE REASONABLE COST OF THE REPAIRS.</p> <p>10. THIS CONTRACTOR OR THEIR WORKMEN SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING BUILDING AS A SHOP WITHOUT THE APPROVAL OF THE OWNER.</p> <p>11. WHERE THE WORK MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, THEY SHALL BE MADE AT NIGHT OR AT SUCH TIMES AS WILL CAUSE THE LEAST INTERFERENCE WITH THE ESTABLISHED OPERATING ROUTINE.</p> <p>12. THIS CONTRACTOR SHALL ARRANGE THE WORK SO AS TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTION TO THE EXISTING WORK. THIS CONTRACTOR SHALL GIVE ADEQUATE NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUT DOWN.</p> <p>13. ALL MOTORS, FANS, CONTROLS, FIXTURES, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FOR USE IN THIS CONTRACT SHALL BE PROTECTED BY TARPULIN OR BY BOXING AS SOON AS DELIVERED TO THE SITE AND SHALL BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, FANS, DUCTWORK AND MOVING PARTS SHALL BE KEPT COVERED SO AS TO ELIMINATE DIRT, DUST AND OTHER MATERIALS ENTERING THE PARTS DURING ECTION AND CONSTRUCTION WORK ON THE BUILDING. SHOULD IT BE FOUND THAT ANY PARTS ARE DAMAGED DUE TO CARELESSNESS ON THE PART OF THE CONTRACTOR IN NOT PROVIDING PROPER PROTECTION, SUCH PART OR PARTS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUITS, ETC. SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.</p> <p>G. DISCREPANCIES IN DOCUMENTS</p>	<p>1. DRAWINGS (PLANS, SPECIFICATIONS AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVED CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.</p> <p>2. THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN THE BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK AND SHOWING ALL SUCH MODIFICATIONS AND CHANGES. THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.</p> <p>H. TRADE NAMES AND MANUFACTURERS</p> <p>1. WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE MAKE BID. MANUFACTURERS CONSIDERED AS AN EQUIVALENT OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO REVIEW IN WRITING BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO ACCEPTANCE. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.</p> <p>I. SHOP DRAWINGS</p> <p>1. SUBMIT THREE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW PRIOR TO ORDERING EQUIPMENT. SUBMISSIONS MUST BE EARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER EIGHT WORKING DAYS FOR REVIEW WITHOUT CAUSING DELAYS OR CONFLICTS TO THE JOB'S PROGRESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS USING THE MANUFACTURER'S LISTED ON THE DRAWINGS. SHOP DRAWINGS SHALL INCLUDE ALL DATA THAT PERTAINS TO THE REQUIREMENTS SET FORTH ON THE DRAWINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO CUTS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL SHOW MAJOR DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROPS, CODE COMPLIANCE, MOTOR AND DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBMITTALS SHALL BEAR THE CONTRACTOR'S SEAL AND SIGNATURE. SUBMITTALS SHALL BE IN ACCORDANCE WITH AND CONFIRMED THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS OR INDICATE WHERE EXCEPTIONS TAKE PLACE. LACK OF SUCH CONTRACTOR'S REVIEW WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY TENANT'S CONSTRUCTION MANAGER. ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.</p> <p>2. TENANT'S CONSTRUCTION MANAGER'S REVIEW OF SHOP DRAWINGS OR SCHEDULES SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEFICIENCIES OR DEVIATIONS IN THE SHOP DRAWINGS FROM THE CONSTRUCTION DOCUMENTS.</p> <p>3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND / OR THEIR SUBCONTRACTORS TO FURNISH SHOP DRAWINGS AND SUBMITTALS ON ANY AND ALL EQUIPMENT, DUCT, DAMPERS, CONTROLS ETC. TO THE TENANT'S CONSTRUCTION MANAGER FOR THEIR REVIEW PRIOR TO CONSTRUCTION.</p> <p>J. RECORD DRAWINGS</p> <p>1. THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS LOCATIONS OF CONCEALED PIPING, VALVES AND DUCTS, REVISIONS, ADDENDUMS AND CHANGE ORDERS, SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS AND CONTRACTOR'S COORDINATION WITH OTHER TRADES AND EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER FLOOR.</p> <p>2. AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, THE CONTRACTOR SHALL MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. THE DRAWINGS ARE TO BE TURNED OVER TO THE TENANT'S CONSTRUCTION MANAGER.</p> <p>K. GUARANTEE, WARRANTY</p> <p>1. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN THE PROPOSAL A ONE YEAR GUARANTEE, WARRANTY ON ALL EQUIPMENT AND MATERIAL INSTALLED OR REURISHED, ALL MATERIALS AND WORK UNDER THE CONTRACT AND SHALL MAKE GOOD, EITHER OR REPLACE AT HIS OWNERS RISK, ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF WRITTEN ACCEPTANCE OF THE INSTALLATION BY THE TENANT'S CONSTRUCTION MANAGER. IN CASE OF REPLACEMENT OR REPAIR OF EQUIPMENT DUE TO FAILURE WITHIN THE GUARANTEE PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE REPAIRS AND MATERIALS, PARTS, ETC. NECESSARY TO MAINTAIN THE REPAIR IN SATISFACTORY OPERATION FOR A PERIOD OF ONE YEAR STARTING FROM THE DATE OF ACCEPTANCE OF THE SYSTEM BY THE TENANT. IT SHALL ALSO INCLUDE ONE SUMMER TO WINTER CHANGEOVER AND ONE WINTER TO SUMMER CHANGEOVER. A NEW SET OF FILTERS AT THE TIME OF STARTUP AND TWELVE (12) MONTHLY FILTER CHANGES DURING THE FIRST YEAR. THE NORMAL PREVENTATIVE MAINTENANCE WORK SHALL BE PERFORMED AT THE TIME OF THE FILTER CHANGES. USE ONLY #40 PLEATED TYPE AIR FILTERS.</p> <p>L. OPERATIONS MANUALS</p> <p>1. ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON THE JOB SHALL BE PROVIDED TO THE TENANT BOUND TOGETHER IN A 3 INCH, THREE RING BINDER. THE BINDER SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS, PAMPHLETS OR BROCHURES, REVISED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MANUFACTURER OF PRINCIPAL ITEMS OF EQUIPMENT.</p> <p>M. SLEEVES</p> <p>1. THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2 INCHES ABOVE THE FLOOR.</p> <p>2. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH APPROVED SEALANTS REFER TO THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. CONFORM TO THE UL L ASSEMBLY RATING OF THE FLOOR OR WALL.</p> <p>3. SLEEVES IN BEARING AND MASONRY WALLS, FLOORS AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE 2 GAUGE GALVANIZED STEEL MINIMUM.</p> <p>4. DUCT SLEEVES SHALL BE MINIMUM 1/4" GAUGE STEEL.</p> <p>N. HANGERS</p> <p>1. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC. NECESSARY FOR THE INSTALLATION OF WORK.</p> <p>2. HANGERS SHALL BE FASTENED TO BUILDING STRUCTURE, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK. DUCTWORK SHALL NOT BE SUPPORTED FROM ROOF DECKING AND/OR BRIDGING, BUT SHALL BE SUSPENDED FROM THE TOP CHORD OF BAR JOISTS, STEEL OR OTHER STRUCTURE. DUCTWORK SHALL CLEAR ALL SPRINKLERS AND OTHER OBSTACLES AND SHALL BE HUNG AS HIGH AS POSSIBLE IN WORK AND STORAGE AREAS. WHERE INTERFERENCE OCCURS, IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPMENT SERVICE REQUIREMENTS AND/OR OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE SUBJECT TO LANDLORD CRITERIA.</p> <p>3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6 INCH LONG SPURT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.</p> <p>4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DIE-ELECTRICALLY SEPARATED FROM ONE ANOTHER.</p> <p>O. ELECTRIC MOTORS</p> <p>1. FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THIS EQUIPMENT, UNLESS THEY ARE FACTORY INSTALLED ON THE UNIT. ALL STARTERS AND ASSOCIATED WIRING AND SAFETY SWITCHES FOR SUCH MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL SPECIFICATIONS.</p> <p>2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA, ANSI, IEEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10 PERCENT, 40 DEGREES C AMBIENT TEMPERATURE AND HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.</p> <p>P. LOW VOLTAGE (24 VOLT) WIRING</p> <p>1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR THEIR EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.</p> <p>2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.</p> <p>3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.</p> <p>4. SMOKE DETECTORS AND REMOTE TEST STATION</p> <p>A. IONIZING TYPE ARE TO BE USED ON THE RETURN SIDE OF THE HVAC UNIT AND PHOTO-TYPE ARE TO BE USED ON THE SUPPLY SIDE. ON ALL OTHER TYPES OF SMOKE DETECTORS WHERE SMOKE DETECTORS ARE REQUIRED, USE FIELD INSTALLED IONIZING TYPE IN RETURN DUCTWORK AND PHOTO-TYPE ON THE SUPPLY LOCATED BEFORE THE FIRST TAKEOFF. ONCE ACTIVATED, THE SMOKE DETECTOR WILL SHUT DOWN HVAC UNIT.</p> <p>B. SMOKE DETECTORS SHALL HAVE THEIR OWN REMOTE KEY TEST STATION SYSTEM WITH AUDIBLE AND VISUAL ALARM, SIMPLEX MODEL 4098-9F42 OR APPROVED EQUIVALENT. ALARM TO HAVE CANDELA SETTING OF 75 AND A HIGH VOLUME HORN TONE SETTING.</p> <p>MECHANICAL SPECIFICATIONS</p> <p>A. HEATING, VENTILATION AND AIR CONDITIONING</p> <p>1. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFLICTS</p> <p>H. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED</p> <p>1. NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. DEVIATIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT MAINS ARE TO BE RECTANGULAR. ALL DUCT BRANCHES TO DIFFUSERS ARE TO BE ROUND SPIRAL DUCT.</p> <p>2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW VELOCITY AND "HVAC DUCT CONSTRUCTION STANDARDS MANUAL", LATEST EDITION AND ASHRAE USING PINE SHEETS OF GALVANIZED STEEL CONFORM TO THE REQUIREMENTS OF THE SMACNA STANDARD FOR METAL THICKNESS, REINFORCING TIES AND INTERVALS, THE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WALLED VANES ON MAXIMUM 3" CENTERS. PROVIDE SLANT CLASS "C" ON ALL TRAVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.</p> <p>3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY SEALED UP OF ANY OPENINGS, EITHER AT THE BEGINNING OR END OF A DUCT RUN OR AT A BRANCH, COLLAR, DIFFUSER OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ENTERING THE SYSTEM.</p> <p>4. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO 2 INCH WATER GAUGE PRESSURE CLASSIFICATION (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE). PRESSURE TEST</p>	<p>DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 5 PERCENT LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA STANDARDS.</p> <p>5. AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BREAD APPROXIMATELY 3/8 INCH WIDE BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.</p> <p>6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA STANDARDS. NO WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY PROVINCE AND LOCAL CODES OR BY LANDLORD.</p> <p>7. WHERE DUCTS PASS THROUGH ROOFS, FLOORS AND FIRE RATED PARTITIONS, PROVIDE AS MINIMUM 1-1/2 INCH BY 1-1/2 INCH BY 1/8 INCH STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNULAR SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CALKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY THE ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.</p> <p>8. ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR TIGHT WITH DAP CHC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.</p> <p>9. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.</p> <p>10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.</p> <p>11. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, FIRE / SMOKE DAMPERS, CONTROLS AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE OR INSPECTION. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA, IT MUST BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, GRILLES AND REGISTERS WITH PLASTER FRAMES WILL BE USED AS ACCESS LOCATIONS.</p> <p>12. ALL BRANCHES AND TAKEOFFS SHALL BE EQUIPPED WITH MANUAL VOLUME CONTROLLING DEVICES HAVING AN INDICATING AND LOCKING DEVICE.</p> <p>I. FLEXIBLE CONNECTIONS</p> <p>1. FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC) AND DUCTS OR CASINGS. ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.</p> <p>2. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.</p> <p>3. FLEXIBLE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.</p> <p>4. FINAL CONNECTIONS TO EXHAUST FANS SHALL BE WITH A HEAVY AIRTIGHT CORD RESISTANT FIRE RETARDANT FIBERGLASS NEOPRENE CONNECTOR, A MINIMUM OF SIX (6) INCHES IN LENGTH. THE CONNECTOR SHALL BE FASTENED TO EQUIPMENT AND DUCT WITH TWO FLEXIBLE REMOVABLE BRASS STRAPS OR ALTERNATE APPROVED METHOD.</p> <p>J. THERMOSTATS</p> <p>A. MOUNT THERMOSTATS 4'-0" (ADA COMPLYING), THERMOSTAT SENSORS 5'-0" ABOVE FINISHED FLOORS AND SET DATE, TIME, TEMPERATURE, ETC. TURN OVER OPERATING INSTRUCTIONS TO TENANT REPRESENTATIVE.</p> <p>B. THERMOSTATS SHALL BE PROVIDED WITH KEY OPERATED SECURITY COVERS AND DESCRIPTIVE NAMEPLATES.</p> <p>K. FIRE DAMPERS, SMOKE DAMPERS</p> <p>1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL FIRE DAMPERS AS REQUIRED BY LANDLORD AND / OR TENANT CRITERIA AND / OR CODES HAVING JURISDICTION. ALL FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF THE BOARD OF FIRE UNDERWRITERS, THE LOCAL FIRE MARSHAL AND SHALL BE LABELED AND APPROVED BY UNDERWRITERS LABORATORIES.</p> <p>2. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 165 DEGREE F FUSIBLE LINK.</p> <p>3. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS.</p> <p>4. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS. DOOR IS TO BE 20 GAUGE GALVANIZED DOOR WITH QUICK-OPENING LATCH AND PIANO HINGE.</p> <p>5. WHERE REQUIRED BY LOCAL CODES, LANDLORD AND IF INDICATED ON DRAWINGS, PROVIDE UL555S SMOKE DAMPER WITH FIRE/HEAT/SMOKE SENSOR, REVERSIBLE MOTOR AND INTERLOCK WITH FIRE ALARM SYSTEM.</p> <p>L. FLEXIBLE AIR DUCT</p> <p>1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY CONSISTING OF AN INNER SLEEVE, INSULATION AND AN OUTER MOISTURE BARRIER. THE INNER SLEEVE SHALL BE CONSTRUCTED OF A CONTINUOUS VINYL COATED SPRING STEEL WIRE HELIX FUSED TO A CONTINUOUS LAYER OF FIBERGLASS IMPREGNATED AND COATED VINYL 1 1/4" THICK LAYER OF INSULATING BLENKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. THE FLEXIBLE DUCT SHALL BE FIBERGLASS REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. THE FLEXIBLE DUCT SHALL BE FIBERGLASS REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. 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