

KEYNOTE SYMBOLS: (1, 2, X)

- ALL EXISTING PROVISIONS IN THIS AREA TO REMAIN. CLEAN AND REFURBISH EQUIPMENT AND DIFFUSERS FOR FULL AND COMPLETE OPERATION.
- RELOCATE EXISTING THERMOSTAT TO LOCATION SHOWN.
- EXISTING SUPPLY DIFFUSER TO REMAIN. CLEAN AND REFURBISH TO LIKE NEW CONDITION. BALANCE SUPPLY DIFFUSER TO 200 CFM.
- RELOCATE EXISTING RETURN GRILLE TO LOCATION SHOWN. CLEAN AND REFURBISH TO LIKE NEW CONDITION. BALANCE RETURN GRILLE TO 200 CFM.
- LOCATE BOTTOM OF RETURN GRILLE AT LEAST 12'-6" AFF.
- FURNISH AND INSTALL APPROPRIATE DUCT TRANSITION TO VAV TERMINAL.

3 MECHANICAL KEYNOTES
SCALE: N/A

- ALL PIPING AND HEADS SHALL BE INSTALLED PER LATEST EDITION OF NFPA 13. HEAD SPACING SHALL BE BASED UPON THE ORDINARY HAZARD SCHEDULE. ALL SPRINKLER PIPING SHALL BE SCHEDULE 40 BLACK IRON. SCHEDULE 10 PIPING IS PERMISSIBLE IF ACCEPTABLE TO THE LANDLORD. HYDRAULICALLY CALCULATE SYSTEM AND SUBMIT COPIES OF THE CALCULATIONS TO THE AUTHORITY HAVING JURISDICTION AND THE LANDLORD.
- PREPARE SHOP DRAWINGS FOR SUBMITTAL TO THE AUTHORITY HAVING JURISDICTION AND THE LANDLORD BEFORE FABRICATION.
- TWO COPIES OF THE APPROVED SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER AND THE LANDLORD PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- PROVIDE FOR INSPECTION TESTING AND APPROVAL BY THE AUTHORITY HAVING JURISDICTION AND THE STATE INSPECTION BUREAU AS REQUIRED.
- PROVIDE SIGNED CERTIFICATE OF COMPLETION COPIES TO BE GIVEN TO OWNER'S REPRESENTATIVE, INSURANCE REPRESENTATIVE, AND PROJECT OFFICE.
- HOLD ALL SPRINKLER LINES AS HIGH AS POSSIBLE TO MAINTAIN 18" CLEARANCE ABOVE STOCK SHELVING.
- SPRINKLER HEADS IN SALES AREA SHALL BE CONCEALED TYPE WITH WHITE COVER PLATES. UPRIGHT PENDANT HEADS SHALL BE USED IN ALL AREAS WITHOUT A CEILING. PENDANT HEADS WITH ESCUTCHEON PLATES SHALL BE USED IN ALL STOCKROOM AREAS/RESTROOMS WITH LAY-IN OR GYPSUM BOARD CEILINGS. SPRINKLER HEAD TEMPERATURE RATINGS SHALL BE 165°F IN SALES AND STOCK AREAS AND 212°F IN DISPLAY WINDOWS AND LIGHTING FIXTURE CANOPIES OR AS REQUIRED BY LANDLORD'S INSURANCE AGENCY AND LOCAL AUTHORITIES. SPRINKLER HEADS SHALL BE QUICK RESPONSE TYPE. ALL SEMI-RECESSED AND CONCEALED HEADS SHALL BE WHITE.
- VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS WHICH WILL AFFECT THE WORK. PROVIDE ALL REQUIRED PIPING AND OR REVISIONS IN ADVANCE WITH THE LANDLORD'S FIELD REPRESENTATIVE. THE SPRINKLER SYSTEM SHALL BE FULLY CHARGED AND OPERATIONAL (REQUIRED).
- SPRINKLER SHOP DRAWINGS UNDER SEPARATE COVER. SUPPLY SPRINKLER SHOP DRAWINGS AND APPLY TO BUILDING DEPARTMENT (REQUIRED).
- LANDLORD DESIGNATED CONTRACTOR TO PERFORM ALL SPRINKLER MODIFICATIONS. SYSTEM MODIFICATIONS SHALL BE SCHEDULED IN ADVANCE WITH THE LANDLORD'S FIELD REPRESENTATIVE. THE SPRINKLER SYSTEM SHALL BE FULLY CHARGED AND OPERATIONAL
- ALL FIRE PROTECTION AND SPRINKLER SYSTEM WORK SHALL BE IN ACCORDANCE WITH MALL'S INSURANCE AGENCY REQUIREMENTS, NFPA, STATE, COUNTY AND LOCAL FIRE MARSHALL.

2 FIRE PROTECTION SPECIFICATIONS
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.

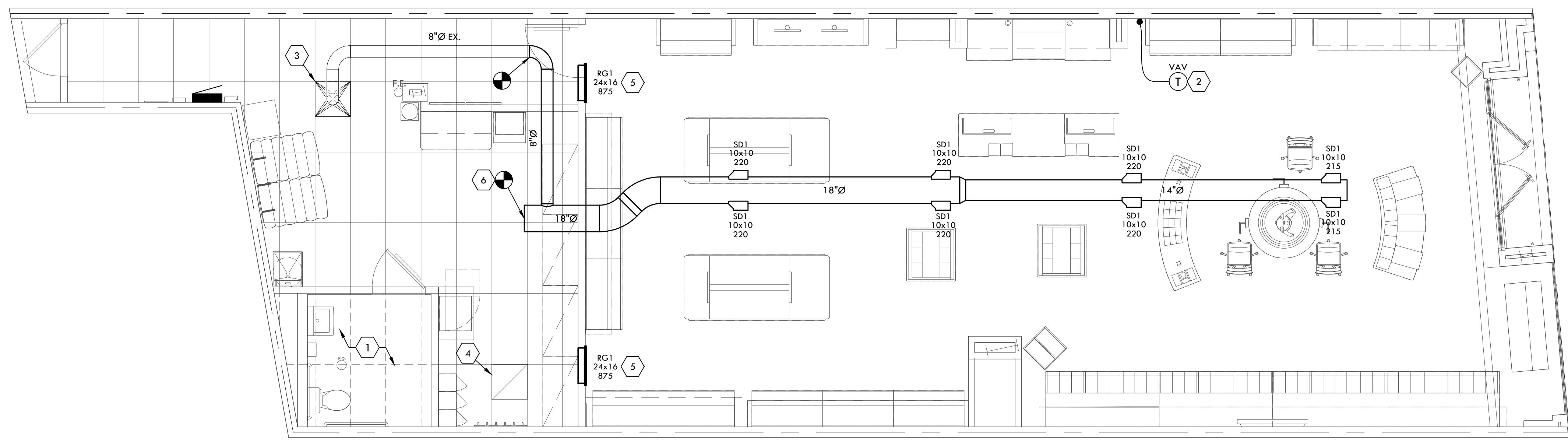
ALL HVAC EQUIPMENT AND CONTROLS MUST BE LOCATED FOR PROPER ACCESS FOR MAINTENANCE AND REPAIR, WHETHER INSTALLATION IS EXISTING OR NEW. EXISTING EQUIPMENT AND CONTROLS SHALL BE RELOCATED BY THIS CONTRACTOR IF REQUIRED.

- ALL OF THE MECHANICAL WORK IS NOT NECESSARILY SHOWN OR NOTED ON THESE DRAWINGS. THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL EXISTING CONDITIONS RELATED TO THEIR WORK BEFORE BIDDING. NOTIFY THE OWNER OF ANY DISCREPANCIES. THOSE ITEMS NOT SHOWN OR NOTED BUT WHICH ARE DEEMED NECESSARY FOR REMOVAL OR RELOCATION BY OWNER'S REPRESENTATIVE SHALL BE PART OF THIS CONTRACT.
- THE SUBMISSION OF PROPOSALS SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTORS HAVE VISITED THE SITE. NO EXTRA PAYMENTS WILL BE ALLOWED THESE CONTRACTORS CLAIMS FOR EXTRA WORK MADE NECESSARY BY THEIR FAILURE TO VISIT THE SITE.
- GUARANTEE ALL EQUIPMENT AND MATERIAL INSTALLED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE AND REPAIR OR REPLACE WITHOUT COST TO THE OWNER ANY EQUIPMENT WHICH IS DEFECTIVE, OR IMPROPERLY INSTALLED. IN ADDITION, ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO THE BUILDING AND ITS CONTENTS OR OTHER EQUIPMENT CAUSED BY DEFECTS OR IMPROPER INSTALLATION OF EQUIPMENT OR MATERIALS INSTALLED UNDER THIS PORTION OF THE WORK.
- ALL WORK SHALL BE COMPLETED AND INSTALLED ACCORDING TO STATE AND OR LOCAL CODES, AND ALL LANDLORD CRITERIA.
- PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS AND PROVIDE A CERTIFICATE OF INSPECTION.
- REVIEW ALL LANDLORD REQUIREMENTS AND INSTALL ALL MATERIALS AND EQUIPMENT AS DIRECTED BY THE LANDLORD'S REPRESENTATIVE AND AS REQUIRED BY THE LEASE DOCUMENTS. VERIFY THE REQUIREMENTS BEFORE SUBMITTING A BID.
- VERIFY THE SIZE, LOCATION AND CONDITION OF THE EXISTING DUCTWORK, EQUIPMENT AND CONTROLS THAT ARE TO REMAIN. NOTIFY THE OWNER OF ANY DISCREPANCIES. REPLACE EXISTING COMPONENTS IF INADEQUATE FOR THE NEW REQUIREMENTS OR INOPERABLE. COORDINATE REPLACEMENT COMPONENT SPECIFICATIONS WITH THE LANDLORD'S FIELD REPRESENTATIVE.
- FIVE (5) COPIES OF ALL SHOP OR EQUIPMENT DRAWINGS SHALL BE SUBMITTED TO THE OWNER. THESE DRAWINGS SHALL BE CLEARLY MARKED INDICATING WHICH ITEMS ARE TO BE SUPPLIED AND SHALL STATE CAPACITIES, SIZES, REQUIRED INSPECTION LABELS AND GENERAL DESCRIPTION OF ALL EQUIPMENT AND FIXTURES.
- ALL AIR INTAKES AND EXHAUSTS NEED TO BE SEPARATED BY A MINIMUM OF 10'-0".
- NO COMPONENTS MAY BE ABANDONED IN PLACE WITHOUT PERMISSION FROM THE OWNER. ALL COMPONENTS THAT ARE NOT REUSED MUST BE REMOVED.
- VERIFY ALL CLEARANCES AROUND NEW AND EXISTING EQUIPMENT.
- CAP ALL UNUSED PLUMBING LINES ASSOCIATED WITH LEASED SPACE AS REQUIRED BY LANDLORD AND LOCAL AUTHORITY HAVING JURISDICTION.
- FURNISH AND INSTALL BACKFLOW PREVENTER IF REQUIRED BY AUTHORITY HAVING JURISDICTION OR LANDLORD.
- FURNISH AND INSTALL ALL MECHANICAL EQUIPMENT AND OR AIR DEVICES AS SCHEDULED ON THE DRAWINGS. BIDS SHALL BE BASED ON THE EQUIPMENT SPECIFIED AND NO SUBSTITUTIONS WILL BE ACCEPTED.
- FURNISH AND INSTALL ALL SYSTEMS OF HVAC CONTROL (TO INCLUDE CONTROL WIRING) TO PROVIDE A COMPLETE SYSTEM.
- FLEX DUCTWORK SHALL NOT EXCEED 3'-0" IN LENGTH.
- A CERTIFIED AIR BALANCE REPORT IS TO BE PROVIDED TO THE LANDLORD PRIOR TO STORE OPENING.
- REMOVE ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PLUMBING FIXTURES, PIPING, SYSTEMS, ETC., NOT BEING REUSED. DO NOT ABANDON.
- THE G.C. SHALL HAVE EXISTING SANITARY WASTE LINE INSPECTED BY CAMERA, TO LEASE LINE, PRIOR TO COMMENCING NEW WORK. RECORDING OF INSPECTION SHALL BE FURNISHED TO OWNER ALONG WITH ANY FINDINGS ADVISING REPAIR OR CLEARANCE OF ANY OBSERVED OBSTRUCTIONS OF THE EXISTING PIPE PRIOR TO ROUGH-IN INSPECTION.
- ALL HVAC SYSTEMS AND EQUIPMENT CAPACITIES HAVE BEEN DESIGNED TO NOT EXCEED CALCULATION LOADS.
- ALL DUCTS AND PLENUMS SHALL BE SEALED BASED ON STATIC PRESSURE AND LOCATION.
- HVAC CONTROL SYSTEMS SHALL BE TESTED TO ENSURE PROPER OPERATION, CALIBRATION, AND ADJUSTMENT OF CONTROLS.
- PROVIDE R-6 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-4.2 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED SPIRAL DUCTWORK. PROVIDE R-6 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED RECTANGULAR DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS; SHEET METAL SIZES SHALL INCREASE ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

7 GENERAL NOTES
SCALE: N/A

MECHANICAL SYMBOLS LEGEND	
(T/H)	THERMOSTAT / HUMIDISTAT
(V)	VOLUME DAMPER
(FD)	FIRE DAMPER
(X)	CEILING SUPPLY AIR DIFFUSER
(G)	CEILING RETURN AIR GRILLE
(S)	SIDEWALL AIR DIFFUSER OR GRILLE
(N)	NEW DUCTWORK
(E)	EXISTING DUCTWORK
(CD)	CONDENSATE DRAIN
(G)	GAS PIPING
(TD)	PIPE TURNING DOWN
(TU)	PIPE TURNING UP
(BV)	BALL VALVE
(C)	CONNECTION OF NEW TO EXISTING
(CV)	CHECK VALVE
(GC)	GAS COCK
(S)	STRAINER
(AFF)	ABOVE FINISHED FLOOR
(ETR)	EXISTING TO REMAIN
(AD)	AIR DEVICE #
(CFM)	CFM
(S)	S - SUPPLY
(R)	R - RETURN
(E)	E - EXHAUST
FIRE PROTECTION SYMBOLS LEGEND	
(E)	EXISTING SPRINKLER HEAD
(P)	CHROME PENDANT SPRINKLER HEAD
(U)	UPRIGHT SPRINKLER HEAD
(C)	CONCEALED SPRINKLER HEAD
(S)	SIDEWALL SPRINKLER HEAD
PLUMBING SYMBOLS LEGEND	
(C)	COLD WATER
(H)	HOT WATER
(SD)	SANITARY DRAIN
(SV)	SANITARY VENT
(VTR)	VENT THROUGH ROOF
(T)	PLUMBING TRAP
(CO)	CLEAN OUT

6 LEGEND
SCALE: N/A



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

Artifex design studio
architects

Artifex Design Studio, Inc.
278 Geranna Drive
St Louis, MO 63011
p. 314-390-1945

COPYRIGHT © 2022
Artifex Design Studio, Inc.

PROFESSIONAL SEAL:

CONSULTANTS:
Mech. Engineer of Record
Charles C. Freeman, P.E.
11880 COLLEGE BLVD, STE 475
OVERLAND PARK, KS 66210
P 913 322 5150
Proj# 232.0249

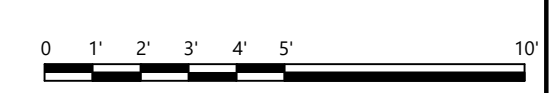
PROJECT TITLE:
BUILD-A-BEAR WORKSHOP
GALLERIA AT ROSEVILLE
1173 GALLERIA BLVD
SPACE: #173
ROSEVILLE, CA 95678

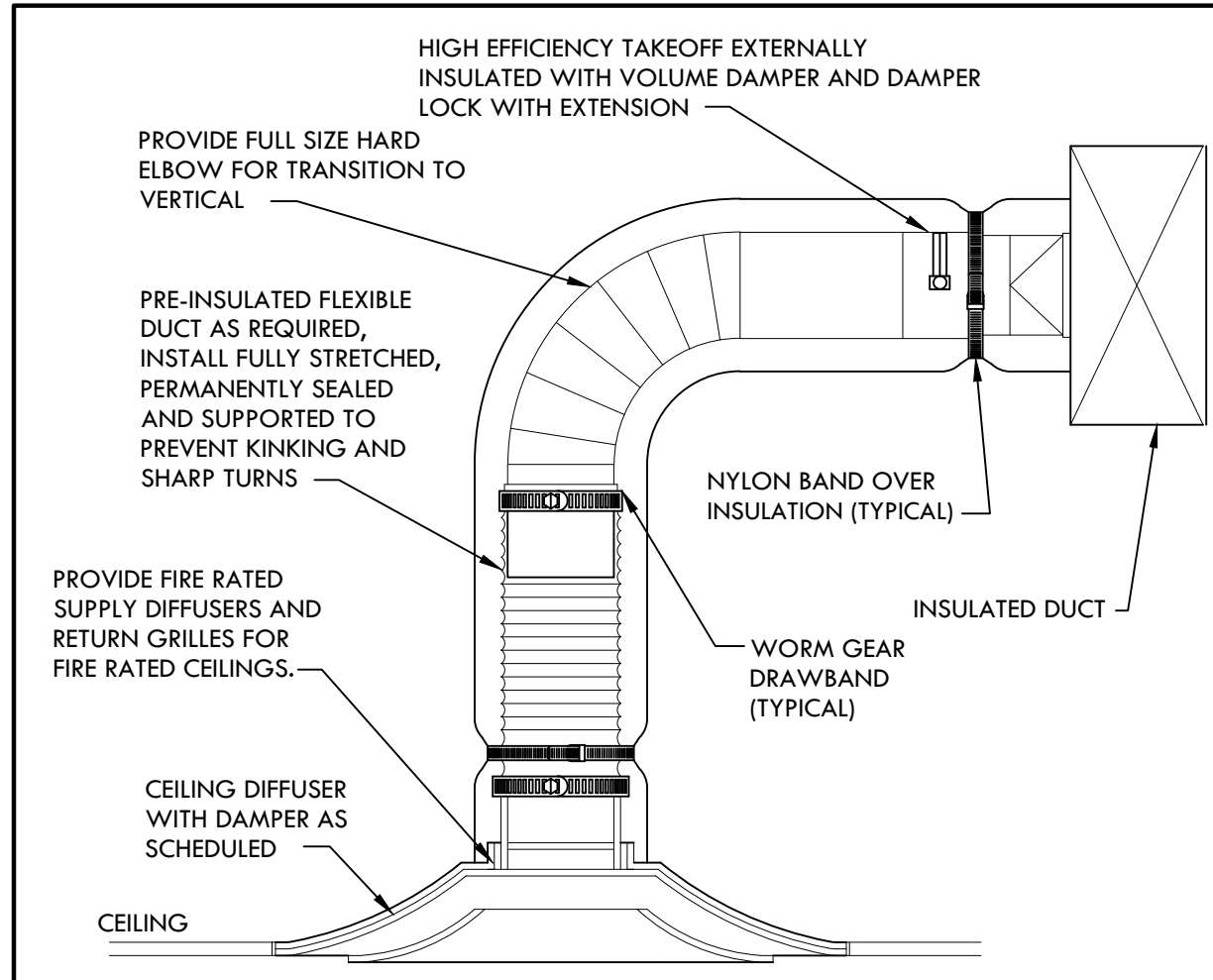


No.	Date	Revision Description
BY:	TJW/GG/TP	
DATE:	09/08/23	
PROJ. NO.	23010	
SHEET TITLE:	MECHANICAL FLOOR PLAN	
SHEET NO.:	M1.0	

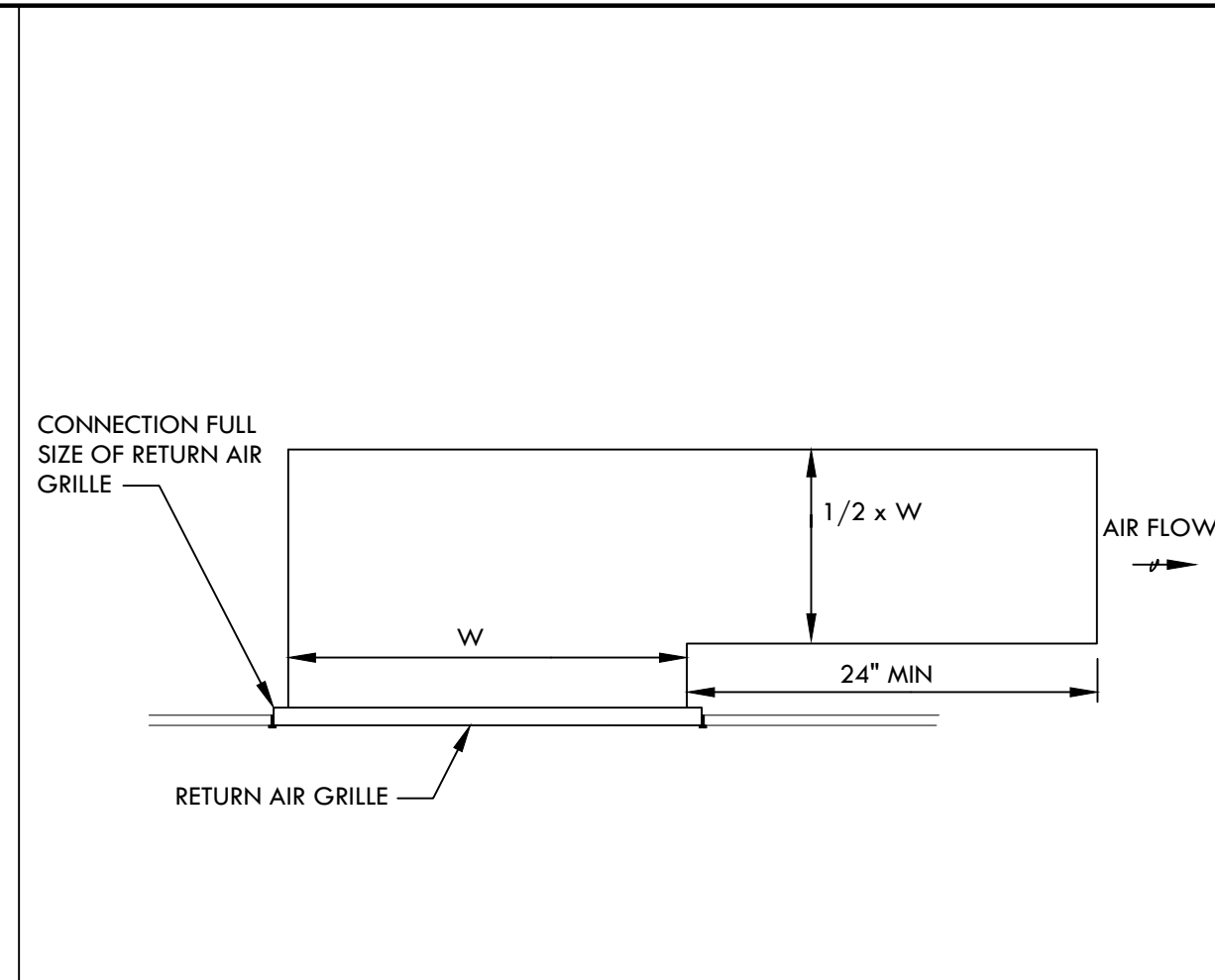
MECHANICAL FLOOR PLAN

SHEET NO. **M1.0**

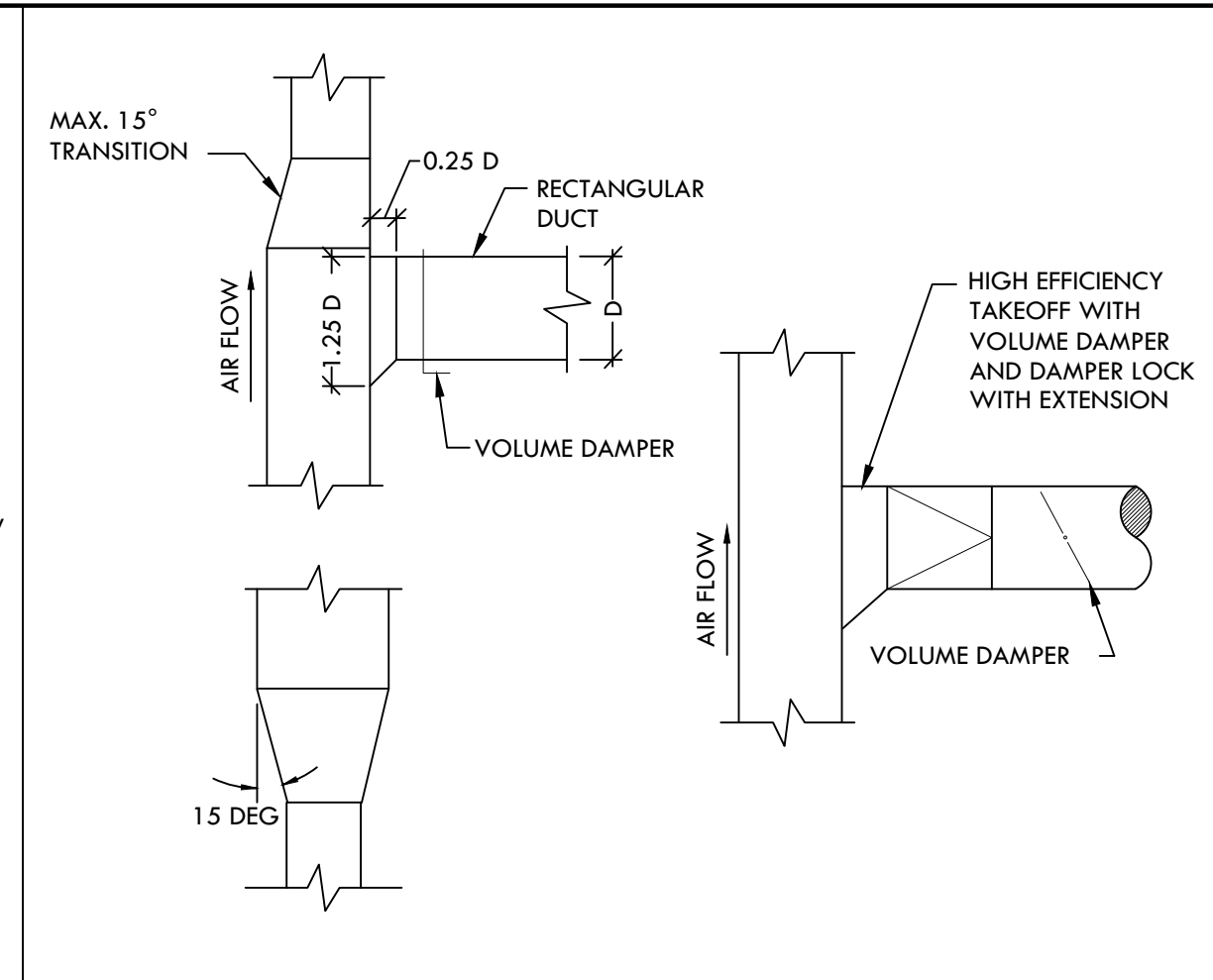




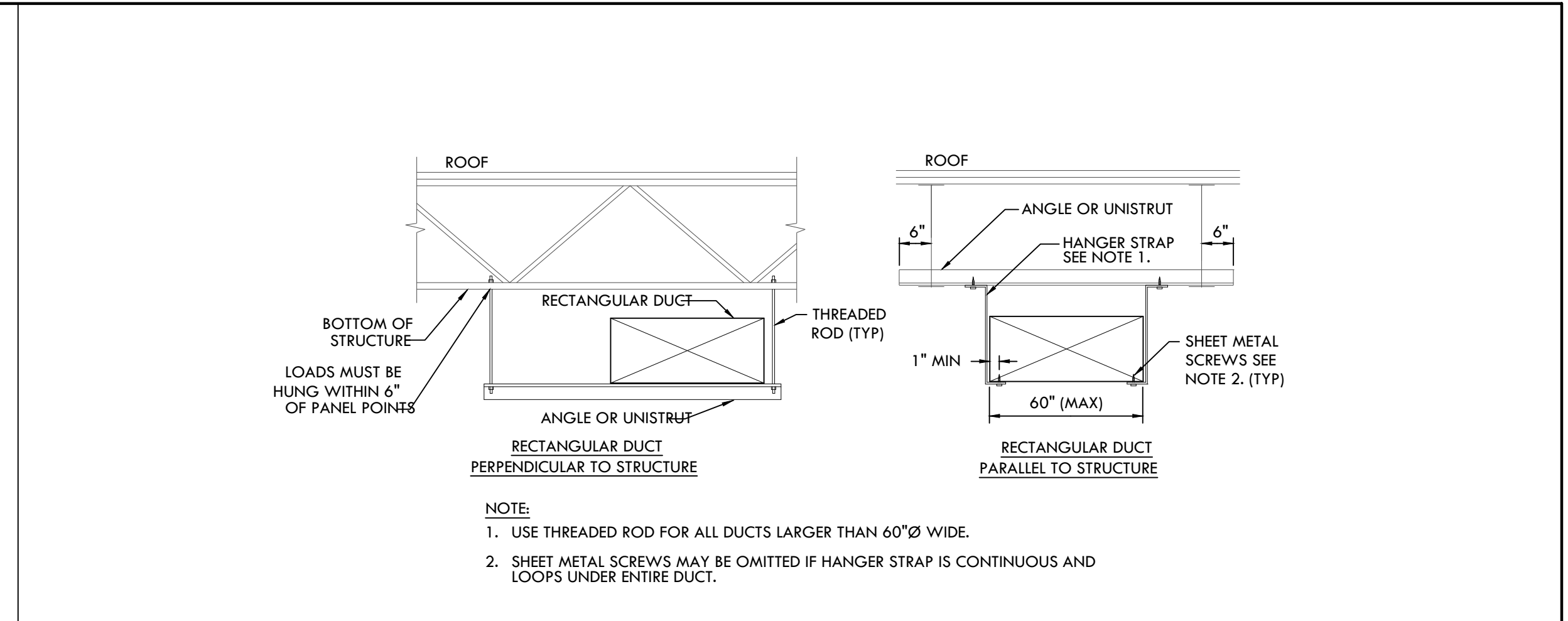
5 CEILING MOUNTED DIFFUSER DETAIL
SCALE: N/A



4 RETURN GRILLE BOOT DETAIL
SCALE: N/A



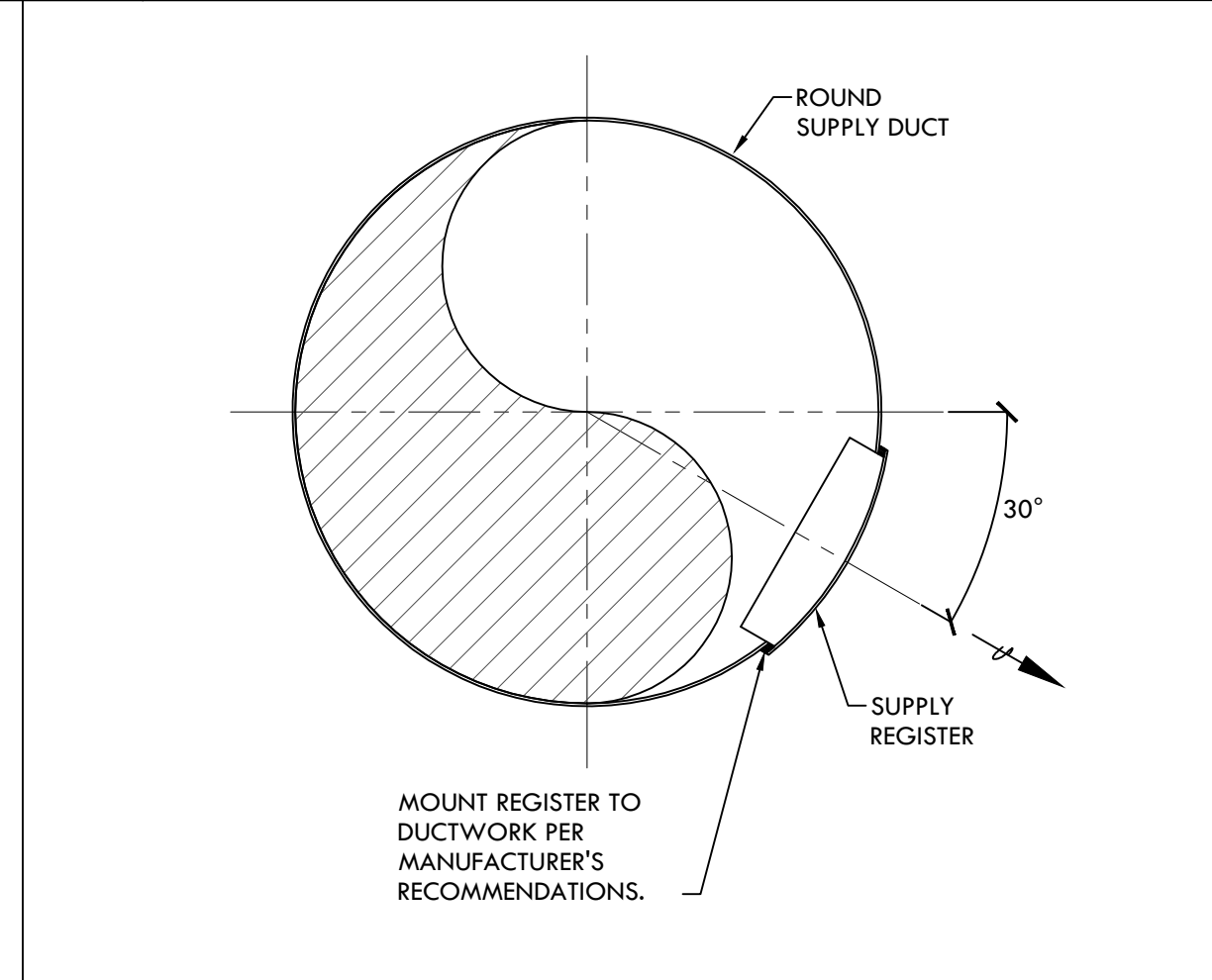
3 BRANCH DUCT TAKEOFFS & TRANSITIONS
SCALE: N/A



2 RECTANGULAR DUCT SUPPORT DETAIL
SCALE: N/A



8 ROUND DUCT MOUNTED SUPPLY
SCALE: N/A



7 ROUND DUCT HANGER ATTACHMENTS

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	NOTE
SD1	TITUS	S300FS	LOUVERED	DUCT	10"x10"	A,B,C,D,E,F,G
RG1	TITUS	300RL	LOUVERED	WALL	24"x16"	A,B,C,D,F

- NOTES:
- A. NECK SIZE SHOWN ON DRAWINGS.
 - B. FRAME TYPE TO MATCH CONSTRUCTION OF MOUNTING LOCATION, COORDINATED WITH ARCHITECTURAL PLANS.
 - C. BAKED ENAMEL FINISH, WHITE, PAINT PER ARCHITECTS RECOMMENDATIONS.
 - D. PROVIDE NECK FOR DUCT CONNECTION.
 - E. BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 - F. ALUMINUM CONSTRUCTION
 - G. PROVIDE WITH OPPOSED BLADE DAMPER OPERABLE FROM FACE OF DIFFUSER.



A. GENERAL CONDITIONS

- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS IF PROVIDED AS PART OF THE CONTRACT ARE A PART OF THIS CONTRACT.
- THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRING TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS" UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS 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.

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.

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.

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.

B. GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL FULFILL 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. THE CONTRACTOR SHALL OBTAIN APPROVAL OF THE ENTIRE INSTALLATION WITH LANDLORD AS REQUIRED FIELD VERIFY THE EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING EQUIPMENT, AND FIELD VERIFY THE NOTED SPACE PRIOR TO SUBMISSION OF BID.

2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY IDENTIFIED IN BOTH. ANY MATERIAL 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.

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.

4. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH DETAILED REGULATIONS OF LEAS CONTRACTS FROM THE LANDLORD AND TENANT.

5. COORDINATE LOCATIONS OF ALL AIR OUTLETS WITH ALL WALLS, LIGHTS, SPRINKLER HEADS, CEILING TILES AND DECORATIVE CEILING FIXTURES PRIOR TO INSTALLATION.

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.

7. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS CONTRACT. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD OR LANDLORD'S REPRESENTATIVE. PATCHING SHALL MATCH FINISH OF SURROUNDING AREA.

C. CODES

1. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION PRACTICES. ALL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE LANDLORD'S CRITERIA, PROVINCE, COUNTY 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 ALL 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 REBURSED BY THE TENANT TO THE CONTRACTOR.

D. LICENSES, PERMITS, INSPECTIONS AND FEES

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK.

2. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

E. DRAWINGS

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, IF IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED, THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVAL OF CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.

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 OR SPECIFICATION, 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 SHOWING ALL SUCH MODIFICATIONS AND CHANGES. THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.

F. EXISTING LEASE SPACE CONDITIONS

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.

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 AND 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 AREA TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT REUSED IN THIS PROJECT.

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.

3. ACTIVE LANDLORD OR OTHER TENANT SERVICES ENCOUNTERED IN WORK SHALL BE PROTECTED AND SUPPORTED. IF EXISTING SERVICES NOT ANTICIPATED REQUIR 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.

4. TIE-INS 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 CONTINUING EXIST WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING THEIR BID. THE CONTRACTOR SHALL INCLUDE IN THEIR BID, ALL PERMITS AND FEES REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.

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.

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.

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.

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.

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 WORKMAN OR BY ANY OF THEIR SUBCONTRACTORS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY THEIR OWN WORKMAN OR SUBCONTRACTORS AND THE OWNER AT THEIR DISCRETION, MAY WITHHOLD PAYMENTS EQUAL TO THE REASONABLE COST OF THE REPAIRS.

10. THIS CONTRACTOR OR THEIR WORKMAN SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING BUILDING AS A SHOP WITHOUT THE APPROVAL OF THE OWNER AND ARCHITECT.

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 WORKING ROUTINE.

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 AWRTE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUT DOWN.

13. ALL MOTORS, FANS, CONTROLS, FITTINGS, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FOR USE IN THIS CONTRACT SHALL BE PROTECTED BY TARPULINS COVERED BY BOARDS AS DESIGNED TO THE SITE AND SHALL BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, PANS, DUCTWORK AND MOVING PARTS SHALL BE KEPT COVERED SO AS TO ELIMINATE DIRT, DUST AND OTHER MATERIALS ENTERING THE PARTS DURING ERECTION 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 REPAIR OR PARTS SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUCITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.

G. DISCREPANCIES IN DOCUMENTS

1. DRAWINGS (PLANS, SPECIFICATIONS AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE GENERAL CONTRACTOR IN WRITING, PRIOR TO SUBMITTAL OF BID. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ADVISE THE TENANT'S CONSTRUCTION MANAGER, IN WRITING, OF VARIATIONS TO THE CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, TENANT'S CONSTRUCTION MANAGER'S INTERPRETATION OF CONTRACT DOCUMENTS SHALL BE FINAL, WITH NO ADDITIONAL COMPENSATION PERMITTED.

H. TRADE NAMES AND MANUFACTURERS

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 BASE 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.

I. SHOP DRAWINGS

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 HIGHT WORKING DAYS WITH 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 WILL BE RETURNED WITHIN A WEEK OF THE GENERAL AND SUBCONTRACTOR SHOWING THAT THE ASSEMBLER AND CONTRACTOR HAVE REVIEWED AND APPROVED THE CONTRACT DOCUMENTS AND SPECIFICATIONS. TIME 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.

2. TENANT'S CONSTRUCTION MANAGER OR ARCHITECT'S REVIEW OF SHOP DRAWINGS OR SCHEDULES SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEPENDENCIES OR DEVIATIONS IN THE SHOP DRAWINGS FROM THE CONSTRUCTION DOCUMENTS.

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 ARCHITECT FOR THEIR REVIEW PRIOR TO CONSTRUCTION.

J. RECORD DRAWINGS

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, ADDITIONS AND CHANGE ORDERS, SIGNIFICANT DEVIATIONS MAKE 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.

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.

K. GUARANTEE, WARRANTY

1. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN THE PROPOSAL A ONE YEAR GUARANTEE, WARRANTY ON ALL EQUIPMENT AND MATERIAL INSTALLED OR REBURISHED, ALL MATERIALS AND WORK UNDER THE CONTRACT AND SHALL MAKE GOOD, REPAIR, OR REPLACE AT THEIR OWN EXPENSE, ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT 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 GUARANTEE ON THAT PORTION OF WORK SHALL BE EXTENDED FOR A PERIOD OF 12 MONTHS FROM THE DATE OF SUCH REPLACEMENT OR REPAIR. THIS GUARANTEE, WARRANTY TO INCLUDE ALL LABOR, MATERIAL, PARTS, ETC. NECESSARY TO MAINTAIN THE SYSTEM 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) MONTHS FILTER CHANGE DURING THE FIRST YEAR. THE NORMAL PREVENTATIVE MAINTENANCE WORK SHALL BE PERFORMED AT THE TIME OF THE FILTER CHANGES, USE ONLY #14 CHANGED TYPE AIR FILTERS.

L. OPERATIONS MANUALS

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.

M. SLEEVES

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.

2. ALL SLEEVES AND OPENINGS THROUGH FIBER RATED WALLS AND / OR FLOORS SHALL BE FIRE SEALED WITH APPROVED SEALANTS BATED FOR THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. CONFORM TO THE ALL ASSEMBLY RATING OF THE FLOOR OR WALL.

3. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND / OR FLOORS SHALL BE FIRE SEALED WITH APPROVED SEALANTS BATED FOR THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. CONFORM TO THE ALL ASSEMBLY RATING OF THE FLOOR OR WALL.

4. DUCT SLEEVES SHALL BE MINIMUM 1/4 GAUGE STEEL.

N. HANGERS

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.

2. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK. DUCTWORK SHALL NOT BE SUPPORTED FROM ROOF DECKING AND / OR BRIDGING, BUT SHALL BE SUPPORTED 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 INTERFERENCES OCCUR, IN ORDER TO SUPPORT THE PIPING OR PIPING, THE CONTRACTOR MUST INSTALL TRAFFIC TIE 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.

3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL A 1/2 INCH LONG SPIG CIRCULAR GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE OR-ELECTRICALLY SEPARATED FROM ONE ANOTHER.

O. ELECTRICAL MOTORS

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.

2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NFPA, 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. LOW VOLTAGE (24 VOLTS) WIRING

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.

2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.

3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.

4. SMOKE DETECTORS AND REMOTE TEST STATION

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 HVAC UNITS WHERE SMOKE DETECT 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.

B. SMOKE DETECTORS SHALL HAVE THEIR OWN REMOTE KEY TEST STATION SYSTEM WITH AUDIBLE AND VISUAL ALARM, SIMPLEX MODEL 409B-RP42 OR APPROVED EQUIVALENT. ALARM TO HAVE CANDLE SETTING OF 75 AND A HIGH VOLUME HORN TONE SETTING.

MECHANICAL SPECIFICATIONS

A. HEATING, VENTILATION AND AIR CONDITIONING

1. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO DETERMINE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFLICTS.

B. HVAC EQUIPMENT (REFER TO PLAN FOR SCHEDULE OF EQUIPMENT)

1. PRIMARY HVAC UNITS ARE TO BE AS SCHEDULED. EQUIVALENTS MAY BE SUBSTITUTED WITH WRITTEN APPROVAL ONLY. ALL COMPRESSORS ARE TO INCLUDE A 5 YEAR EXTENDED WARRANTY.

2. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED.

3. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL AIR CONDITIONING EQUIPMENT MUST HAVE A CONDENSATE DRAIN AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURER'S DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.

4. SECONDARY DRAIN PANS ARE REQUIRED TO BE INSTALLED BENEATH ALL INDOOR AIR CONDITIONING EQUIPMENT WITH THE EXCEPTION OF AIR TERMINAL BOXES. SECONDARY PANS ARE TO PROTECT ENTIRE UNIT. PROVIDE CONDENSATE PANS AS EQUIPPED. CONDENSATE SALT BE DIRECTED TO MOP SINK, LAVATORY TRAP OR OTHER APPROVED DRAIN.

C. TOILET EXHAUST FANS

1. WHERE SHOWN ON DRAWINGS PROVIDE A TOILET EXHAUST FAN COMPLETE WITH GRAVITY BACKDRAFT DAMPER. ALL DUCTWORK, ROOF OPENINGS AND CAPS NECESSARY TO PROVIDE A COMPLETE EXHAUST SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.

D. VIBRATION ISOLATION DEVICES

1. VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND STRUCTURE.

2. VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH FIBROUS SPRING MOUNT DEVICES.

3. EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.

4. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.

5. CONSULT MANUFACTURER FOR APPLICATION DATA.

G. CURBS AND STEEL FRAMING FOR SUPPORT

1. THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC EQUIPMENT. CURBS SHALL BE A MINIMUM OF 14 INCHES HIGH AND OF THE SAME MANUFACTURER AS THE EQUIPMENT SUPPORTED. INSULATE UNDER THE COMPRESSOR SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT THE TOP OF CURBS ARE "DEAD" LEVEL. ALL PENETRATIONS OF EXISTING STRUCTURE SHALL BE DONE IN ACCORDANCE WITH THE LANDLORD'S GUIDELINES. AT THIS CONTRACTOR'S EXPENSE, ALL CONNECTIONS TO ROOFTOP EQUIPMENT SHALL BE INSIDE THE CURB (CONDENSATE DRAIN, POWER WIRING, CONTROL WIRING, ETC.).

H. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED

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 NAMES ARE TO BE RECTANGULAR. ALL DUCT BRANCHES TO DIFFUSERS ARE TO BE ROUND RIGID STEEL.

2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SHAWMA LOW VELOCITY AND "HVAC DUCT CONSTRUCTION STANDARDS MANUAL", LATEST EDITION AND ASHRAE USING PRIME SHEETS OF GALVANIZED STEEL, CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WALLED VIEWS ON MAXIMUM 3" CENTERS. PROVIDE SPLIT CLASS "C" ON ALL TRAVELER JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE ROOF AND LEAK FREE ASSEMBLES.

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, OUTLIER DIFFUSER OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ENTERING THE SYSTEM.

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 DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 3 PERCENT LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SHAWMA STANDARDS.

5. AS A MINIMUM, CROSSBRACE ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8 INCH WIDE BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.

6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SHAWMA 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.

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 ANGLE SIZE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CALKED WITH SILICONE SEALANT OR REBROOFED AS REQUIRED BY THE ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.

8. ALL TRAVELER JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR TIGHT WITH DAP CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.

9. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE SPECIALLY NOTED OTHERWISE.

10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREE SLOPE EXCEPT AS SPECIALLY NOTED OTHERWISE.

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 MAY BE USED AS ACCESS LOCATIONS.

11. ALL BRANCHES AND TAKEOFFS SHALL BE EQUIPPED WITH MANUAL VOLUME CONTROLLING DEVICES HAVING AN INDICATING AND LOCKING DEVICE. SUCH REQUIREMENT OR REPAIR. THIS GUARANTEE, WARRANTY TO INCLUDE ALL LABOR, MATERIAL, PARTS, ETC. NECESSARY TO MAINTAIN THE SYSTEM 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) MONTHS FILTER CHANGE DURING THE FIRST YEAR. THE NORMAL PREVENTATIVE MAINTENANCE WORK SHALL BE PERFORMED AT THE TIME OF THE FILTER CHANGES, USE ONLY #14 CHANGED TYPE AIR FILTERS.

2. FIBRILE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FRAMED PROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.

3. FIBRILE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.

4. FINAL CONNECTIONS TO EXHAUST FANS) SHALL BE WITH A HEAVY AIRTIGHT ACE RESISTANT FIRE RETARDANT FIBERGLASS NEOPRENE CONNECTOR. A MINIMUM OF 36 INCHES IN LENGTH. THE CONNECTOR SHALL BE FASTENED TO EQUIPMENT AND DUCT WITH TWO FIBRILE REMOVABLE BRASS STRAPS OR ALTERNATE APPROVED METHOD.

L. THERMOSTATS

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.

B. THERMOSTATS SHALL BE PROVIDED WITH KEY OPERATED SECURITY COVERS AND DESCRIPTIVE NAMEPLATES.

K. FIRE DAMPERS, SMOKE DAMPERS

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.

2. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 145 DEGREE F FIBRILE LINK.

3. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS.

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.

5. WHERE REQUIRED BY LOCAL CODES, LANDLORD AND / OR INDICATED ON DRAWINGS, PROVIDE UL555 SMOKE DAMPER WITH FIRE/HEAT/SMOKE SENSOR, REVERSIBLE MOTOR AND INTERLOCK WITH FIRE ALARM SYSTEM.

L. FLEXIBLE AIR DUCT

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 CONTINUOUSLY VINYL COATED STEEL WIRE HEIN FUSED TO A CONTINUOUS LAYER OF FIBERGLASS IMPREGATED AND COATED VINYL. A 1/4" THICK LAYER OF INSULATING BLANKET OF FIBERGLASS WOOD. SHALL ENCASE THE INNER SLEEVE AND BE SHEATHED WITH AN OUTER MOISTURE BARRIER OF A REDIRECTIONAL REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LABELED 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 THERMAFLEX W-4C OR APPROVED EQUIVALENT. FLEXIBLE DUCT SHALL ROUTE FROM VERTICAL METAL DUCTWORK TO CEILING DIFFUSERS ONLY. THERE SHALL BE NO EXPOSED FIBRILE DUCT.

2. FLEXIBLE AIR DUCT MAY ONLY BE USED IN SHEET METAL APPLICATIONS WITH PRIOR APPROVAL FROM THE TENANT'S CONSTRUCTION MANAGER.

3. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION.

M. SUPPLY AND RETURN AIR TAKEOFF FITTINGS

A. RECTANGULAR DUCT

1. PROVIDE 45 DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.

B. SPIRAL DUCT

1. PROVIDE SADDLE OR DIRECT CONNECTION OF A BRANCH DUCT INTO A LARGER DUCT. THE DIAMETER OF THE BRANCH SHALL NOT EXCEED TWO THIRDS OF THE DIAMETER OF THE MAIN. PROTRUSIONS INTO THE MAIN ARE NOT ALLOWED.

C. MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO