ABBREVIATIONS

NOTE: THIS IS A STANDARD ABBREVIATION LIST. SOME ABBREVIATIONS MAY NOT APPEAR ON THE ACCOMPANYING DRAWINGS.

AFF	ABOVE FINISHED FLOOR	EX	EXISTING	LAT	LEAVING AIR TEMPERATURE	SA	SUPPLY AIR
AHU	AIR HANDLING UNIT	• F	DEGREE(S) FAHRENHEIT	LBS	POUNDS	SAN	SANITARY, SOIL, WASTE
BHP	BRAKE HORSEPOWER	FD	FIRE DAMPER, FOUNDATION DRAIN	LBS/HR	POUNDS PER HOUR	SF	SQUARE FOOT
BTU	BRITISH THERMAL UNIT	FF	FINISHED FLOOR	LPS	LOW PRESSURE SUPPLY	SP	STATIC PRESSURE
BTUH	BRITISH THERMAL UNIT PER HOUR	FFE	FINISHED FLOOR ELEVATION	LPR	LOW PRESSURE RETURN	SQ FT	SQUARE FOOT
•c	DEGREE(S) CELSIUS	FIN/FT	FINS PER FEET	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR	ΔT	TEMPERATURE DIFFERENCE
CD	CONDENSATE DRAIN	FIN/INCH	FINS PER INCH	MOD	MOTOR OPERATED DAMPER	TSP	TOTAL STATIC PRESSURE
CFM	CUBIC FEET PER MINUTE	FPM	FEET PER MINUTE	NC	NOISE CRITERIA, NORMALLY CLOSED	TYP	TYPICAL
CHR	CHILLED WATER RETURN	FPS	FEET PER SECOND	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	UL	UNDERWRITERS LABORATORIES
CHS	CHILLED WATER SUPPLY	FT	FOOT, FEET	OA	OUTSIDE AIR	V	VACUUM, VOLTS
CO	CLEANOUT	GPH	GALLONS PER HOUR	PIV	POST INDICATING VALVE	VD	VOLUME DAMPER
CONT	CONTINUOUS	GPM	GALLONS PER MINUTE	PPH	POUNDS PER HOUR	VFD	VARIABLE FREQUENCY DRIVE
CO2	CARBON DIOXIDE	HB	HOSE BIBB	PRV	PRESSURE REDUCING/REGULATING VALVE	VPD	VACUUM PUMP DISCHARGE
CW	COLD WATER, CITY WATER	HP	HORSEPOWER, HIGH POINT	PSI	POUNDS PER SQUARE INCH	VSD	VARIABLE SPEED DRIVE
DDC	DIRECT DIGITAL CONTROL	HT	HEIGHT	PSIG	POUNDS PER SQUARE INCH GAUGE	VTR	VENT THROUGH ROOF
DL	DOOR LOUVER	HW	HOT WATER	RA	RETURN AIR, RELIEF AIR	W	WATTS, WIDE
DN	DOWN	IN	INCH, INCHES	RH	RELATIVE HUMIDITY	WB	WET BULB
EA	EXHAUST AIR	INV EL	INVERT ELEVATION	RL	REFRIGERANT LIQUID	WC	WATER COLUMN
EAT	ENTERING AIR TEMPERATURE	KW	KILOWATTS	RPM	REVOLUTIONS PER MINUTE	WG	WATER GAUGE
ESP	EXTERNAL STATIC PRESSURE	L	LONG, LENGTH				

MECHANICAL LEGEND AND GENERAL SYMBOLS

	DUCTWORK SYMBOLS	£	PIPING SYMBOLS	TEXT SYMBOLS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
•	THERMOSTAT	 ə	PIPE DROP	& @	AND AT	
4 -	AIR FLOW	─ ○ ─ ⊘	PIPE RISE	° F	DEGREE(S) FAHRENHEIT	
N.7	CURRIY AIR RIFFLICER	 3	PIPE CAP	*C	DEGREE(S) CELSIUS DIAMETER, PHASE	
⊠ —	SUPPLY AIR DIFFUSER		BRANCH TAKE OFF	7	DIVIDE BY, PER	
	RETURN AIR GRILLE		PIPE DROP TEE	\$ =	DOLLAR EQUALS, EQUAL TO	
Z	EXHAUST AIR GRILLE		PIPE RISE TEE	x '	FEET, FOOT	
<u></u> —	FIRE DAMPER	M	SHUTOFF VALVE	> >	GREATER THAN GREATER THAN OR EQUAL TO	
FSD	COMBINATION FIRE/SMOKE DAMPER	————	(REFER TO SPECIFICATIONS FOR TYPE)	x"	INCH(ES)	
1 17	·			< ≤	LESS THAN LESS THAN OR EQUAL TO	
VD VD	VOLUME DAMPER			-	MINUS	
招	ELBOW WITH DOUBLE THICKNESS TURNING VANES		LINETYPE SYMBOLS	* #	MULTIPLY BY, BY NUMBER, POUND	
<u> </u>	RECTANGULAR BRANCH TAKE-OFF	<u>DESIGNATION</u>	DESCRIPTION	 %	PERCENT	
—————————————————————————————————————		************	DEMOLITION WORK	+ ±	PLUS PLUS OR MINUS	
	BELL MOUTH BRANCH TAKE-OFF		(SHOWN ON DEMOLITION PLANS)			
	ROUND BRANCH TAKE-OFF		EXISTING WORK NEW WORK	FOLLIP	MENT DESIGNATIONS	
	ROUND DUCT DROP OFF BOTTOM		FUTURE WORK	SYMBOL	<u>DESCRIPTION</u>	
			REFERENCE SYMBOLS	AHU—X	AIR HANDLING UNIT DESIGNATION	
	DUCT TRANSITION	DECIONATION	DECODIDATION	EBH-X	ELECTRIC BASEBOARD HEATER DESIGNATION	
	SQUARE TO ROUND TRANSITION	<u>DESIGNATION</u>	DESCRIPTION	<u>FTR-X</u>	FIN TUBE RADIATOR DESIGNATION	
UP/DN	DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)	NORTH	NORTH ARROW			
	SUPPLY/OUTSIDE AIR DUCT RISER	•	POINT OF CONNECTION TO EXISTING			
	RETURN AIR DUCT RISER	•	POINT OF DISCONNECTION			
	EXHAUST/RELIEF AIR DUCT RISER	X AIR DEVICE TYPE	AIR DEVICE IDENTIFIER			
0	ROUND DUCT RISER (SMALLER THAN 12")	XX CFM	AIR DEVICE IDENTIFIER			

ELECTRIC BASEBOARD HEATER SCHEDULE								
DESIGNATION	SERVICE	REQUIRED MBH	CONNECTED	ELECTRICAL V/ø/HZ	BASIS OF DESIGN	REMARKS		
EBH-01	OFFICES	5.1	1.5	208/1/60	CADET MODEL 6F1500-8	ALTERNATE #2		
EBH-02	OFFICES	6.8	2.0	208/1/60	CADET MODEL 8F2000-8	ALTERNATE #2		
EBH-03	OFFICES	8.5	2.5	208/1/60	CADET MODEL 8F2500-8	ALTERNATE #2		

 ELECTRIC	BASEBO	ARD	HEATER	WORK
PROVIDED	UNDER	ALT	ERNATE	#2

	AIR DEVICE SCHEDULE										
No.	DUTY	TYPE	CFM	RANGE HIGH	FACE/MODULE SIZE (IN)	NOMINAL DUCT SIZE (IN)	BLOW	MAX TOTAL AIR PD (IN H ₂ 0)	MAX NOISE CRITERIA	BASIS OF DESIGN	REMARKS
A1	SUPPLY	Α	0	150	24×24	6ø	4-WAY	0.15	25	TITUS/TDCA-AA	123
A2	SUPPLY	Α	151	250	24×24	8ø	4-WAY	0.15	25	TITUS/TDCA-AA	(1)(2)(3)
A3	SUPPLY	Α	251	350	24×24	10ø	4-WAY	0.15	25	TITUS/TDCA-AA	123
B1	RETURN	В	0	250	24×24	8x8	O' DEFL	0.10	20	TITUS/TDCA-AA	23
B2	RETURN	В	251	400	24×24	10×10	0° DEFL	0.10	20	TITUS/TDCA-AA	23
В3	RETURN	В	401	600	24×24	12x12	0° DEFL	0.10	20	TITUS/TDCA-AA	(2)(3) (2)(3)

1)18"x18" BACKPAN SIZE

ENTERING WATER TEMPERATURE

- 2 SCHEDULED MODULE SIZE IS NOMINAL, AND WHERE REQUIRED SHALL BE WITHIN 24"x48" OR 24"x24" ARCHITECTURAL CEILING GRID.
- 3 MAX NC VALUE SHALL BE BASED ON OCTAVE BAND 2-7 SOUND POWER LEVELS MINUS ROOM ABSORPTION OF 10dB.

GENERAL NOTES

- 1. NOTIFY THE OWNER, IN WRITING, AT LEAST SEVEN (7) DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS OF WATER, FIRE, SEWER, GAS, ELECTRICAL SERVICE, OR OTHER UTILITIES. UPON WRITTEN RECEIPT OF APPROVAL FROM OWNER, SHUTDOWN SHALL BE PERFORMED BETWEEN THE HOURS OF SIX (6) P.M. AND SIX (6) A.M. OR AS DIRECTED OTHERWISE BY THE OWNER AND SHALL BE ACCOMPLISHED AT NO ADDITIONAL CONTRACT COST. AT THE END OF EACH SHUTDOWN ALL SERVICES SHALL BE RESTORED SO THAT NORMAL USE OF THE UTILITIES CAN CONTINUE.
- 2. WHEN WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING STRUCTURE AND MECHANICAL AND ELECTRICAL SERVICES WHICH WILL REMAIN. REPAIR, REPLACE, OR RESTORE TO THE SATISFACTION OF THE ENGINEER/OWNER ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF DEMOLITION AND/OR NEW WORK.
- 3. ALL EXISTING PIPING, EQUIPMENT, DUCTWORK, AND MATERIALS NOT REQUIRED FOR RE-USE OR RE-INSTALLATION (SHOWN OR OTHERWISE) SHALL BE REMOVED. ALL EXISTING MATERIALS AND EQUIPMENT WHICH ARE REMOVED AND ARE DESIRED BY THE OWNER, OR ARE INDICATED TO REMAIN THE PROPERTY OF THE OWNER, SHALL BE DELIVERED TO HIM ON THE PREMISES BY THE CONTRACTOR WHERE DIRECTED BY THE ENGINEER. ALL OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES.
- 4. EXISTING CONDITIONS, I.E., PRESENCE AND LOCATION OF DUCTWORK, PIPING, EQUIPMENT AND MATERIALS, INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL DUCTWORK, PIPING, EQUIPMENT AND MATERIALS IN THE FIELD PRIOR TO STARTING ALL WORK.
- 5. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF THEY EFFECT HIS WORK.
- 6. EXISTING PIPING NO LONGER REQUIRED TO REMAIN IN SERVICE (SHOWN OR OTHERWISE) SHALL BE DISCONNECTED AND REMOVED BACK TO SERVICE MAINS UNLESS OTHERWISE INDICATED OR NOTED ON THE PLANS. REMOVÉ EXISTING PIPE HANGERS, SUPPORTS, VALVES, ETC.. EXISTING PIPING INDICATED OR REQUIRED TO REMAIN IN SERVICE OR IN PLACE SHALL BE CAPPED, PLUGGED, OR OTHERWISE SEALED. NO EXISTING PIPING SHALL BE LEFT OPEN END.
- 7. EXISTING DUCTWORK INDICATED TO BE DISCONNECTED AND REMOVED SHALL INCLUDE ALL RELATED AIR DEVICES, HANGERS, SUPPORTS, ETC.. UNLESS OTHERWISE INDICATED OR NOTED ON THE PLANS. EXISTING DUCTWORK WHERE INDICATED TO BE CAPPED OR REQUIRED TO REMAIN IN SERVICE SHALL BE CAPPED WITH 18 GAUGE SHEET METAL. SECURE CAP WITH SHEET METAL SCREWS AND SEAL PERIMETER OF OPENING AIR TIGHT WITH DUCT SEALER. NO EXISTING DUCTWORK SHALL BE LEFT OPEN FOR ANY EXTENDED PERIOD OF TIME. CAP EXISTING DUCTWORK IMMEDIATELY AS REQUIRED OR DIRECTED BY THE ARCHITECT. CONTRACTOR SHALL RETURN ALL AIR DEVICES TO
- 8. EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, PIPING, DUCTWORK, AND MATERIALS AFFECTED BY DEMOLITION OR NEW WORK INSTALLATION AND REQUIRED TO REMAIN IN SERVICE SHALL BE RE-INSTALLED OR SUPPORTED AS REQUIRED IN ACCORDANCE WITH NEW WORK SPECIFICATION. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE ARCHITECT AND AT NO ADDITIONAL CONTRACT COST.
- 9. PATCH ALL DISTURBED SURFACES, INCLUDING WALLS, CEILINGS, ROOF, AND FLOOR. PATCHING SHALL MATCH EXISTING ADJACENT SURFACES AS TO THICKNESS, TEXTURE, MATERIALS, AND COLOR. ALL PATCHING SHALL BE PERFORMED TO THE SATISFACTION OF THE OWNER/ENGINEER AND AT NO ADDITIONAL CONTRACT COST.
- 10. IN GENERAL ALL PIPING, EQUIPMENT, DUCTWORK, AND MATERIALS SHOWN "LIGHT" IS EXISTING TO REMAIN. ALL PIPING, CONDUITS, EQUIPMENT, DUCTWORK, AND MATERIALS SHOWN "HEAVY AND DASHED" IS EXISTING AND SHALL BE DEMOLISHED.
- 11. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SOUTH CAROLINA BUILDING CODES, UNIVERSITY OF SOUTH CAROLINA, AND THE LOCAL FIRE MARSHALL'S REQUIREMENTS.
- 12. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL OTHER TRADES/ SUBCONTRACTORS INCLUDING BUT NOT LIMITED TO AUTOMATIC TEMPERATURE CONTROLS, ELECTRICAL, AND GENERAL TRADES.
- 13. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL STAIRWELLS AND EGRESS CORRIDORS DURING CONSTRUCTION.
- 14. CONCRETE CORING OR CUTTING MAY BE REQUIRED IN ORDER TO RUN ELECTRICAL, PLUMBING, CABLING OR OTHER SERVICES TO A SPECIFIC AREA. IT IS IMPERATIVE WHEN CONSIDERING EITHER CORING, CUTTING OR CHIPPING THAT REBAR, PLUMBING, ELECTRICAL SERVICES, ETC WITHIN THE CONCRETE SLAB, WALL OR FLOOR BE LOCATED PRIOR TO DISTURBING THE INTEGRITY OF THE EXISTING CONCRETE. OBTAIN STRUCTURAL DRAWINGS OF THE AREA IN QUESTION AND, USING THE BUILDING GRIDLINES, DETERMINE AND MARK THE EXACT LOCATIONS REQUIRED FOR NEW SERVICES. DETERMINE THE FINAL LOCATION OF THE CORE OR CUT BY LOCATING THE PRECISE POSITIONING OF ANY REBAR USING X-RAYS OR FERRO SCAN.
- 15. ALL PENETRATIONS MUST BE SEALED WITH FIRE STOP MATERIAL AFTER SERVICES ARE RUN THROUGH. ALL PENETRATIONS THROUGH EXTERIOR WALLS ABOVE AND BELOW GRADE OR SLAB ON GRADE MUST BE WATERPROOFED.
- 16. FINAL CEILING HEIGHTS TO BE DETERMINED WITH ENGINEER AND ARCHITECT IN FIELD AFTER DEMOLITION OF EXISTING CEILINGS. NO FABRICATION OF DUCTWORK, HVAC PIPING OR PLUMBING PIPING SHALL BEGIN UNTIL AFTER THE CONTRACTOR HAS COMPLETED
- 17. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CLOSING ANY CEILINGS FOR A COMPLETE CHECKOUT OF THE HVAC SYSTEM. THE SYSTEM MUST BE COMPLETE AND OPERATIONAL INCLUDING CONTROLS, REGISTERS, INSULATION, AND BALANCING WITH REPORT. THE SYSTEM SHALL BE RUN THROUGH ITS COMPLETE HEATING AND COOLING CYCLES. THE CONTRACTOR AND ALL APPROVED SUBCONTRACTORS SHALL BE PRESENT AT THE ENGINEER CHECKOUT. THE TESTING AND BALANCE AGENCY SHALL CERTIFY THAT THESE CONDITIONS ARE MET.
- 18. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO ASSURE THAT ALL WORK BY THE SUBCONTRACTORS IS INSTALLED AND COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND THAT ALL MEP WORK IS 100% COMPLETE AT THE TIME OF BENEFICIAL OCCUPANCY.
- 19. ANY CEILING STRUCTURE, INSULATION, PIPING, FURNITURE OR DUCTWORK DAMAGED DURING DEMOLITION OR NEW WORK CONSTRICTION MUST BE REPLACED WITH THE EXACT TYPE AS APPROVED BY THE OWNER AND ENGINEER.

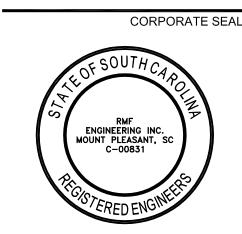


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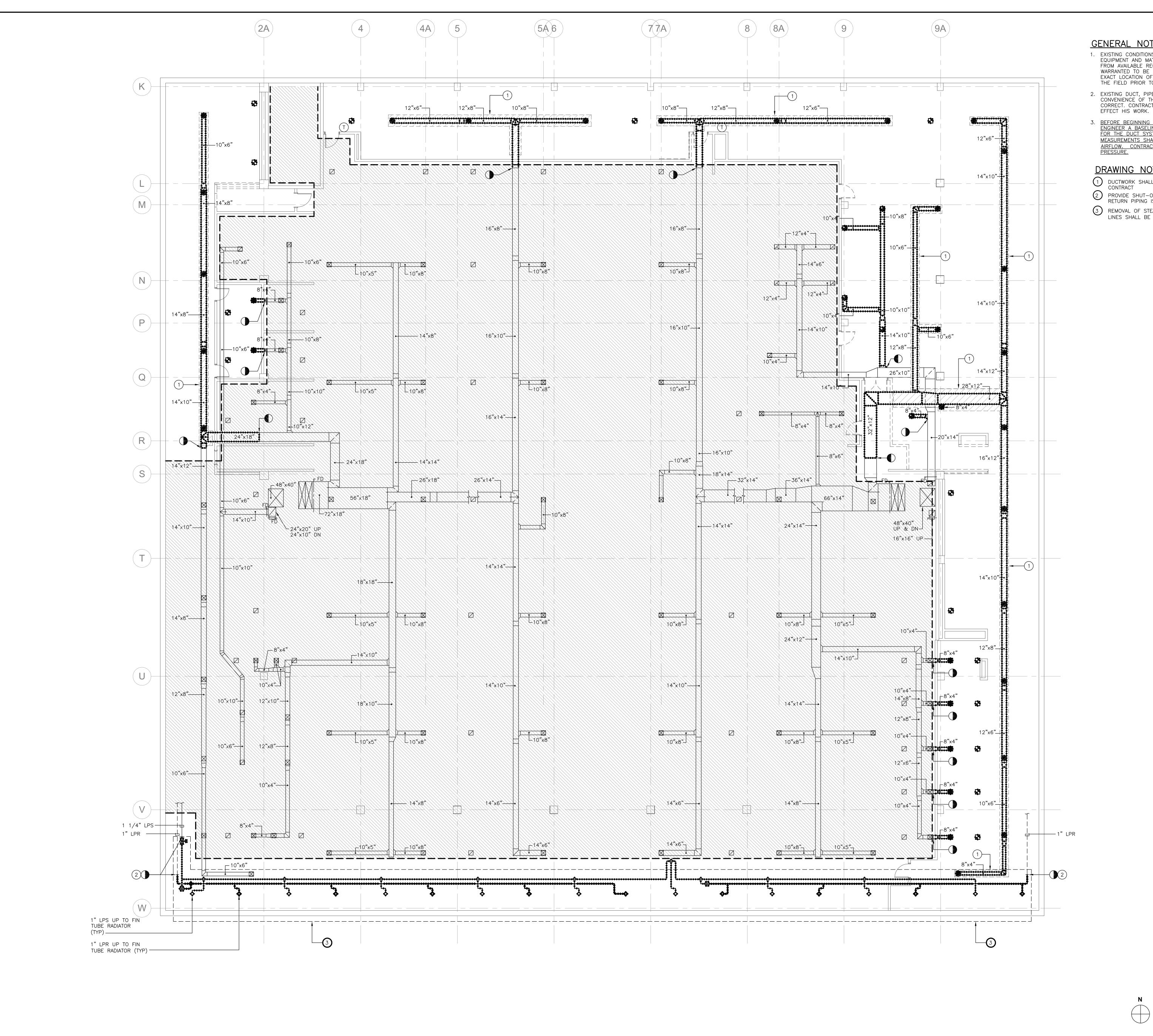
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MECHANICAL LEGEND AND **ABBREVIATIONS**

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GENERAL NOTES:

- 1. EXISTING CONDITIONS, I.E., PRESENCE AND LOCATION OF DUCTWORK, PIPING, EQUIPMENT AND MATERIALS, INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL DUCTWORK, PIPING, EQUIPMENT AND MATERIALS IN THE FIELD PRIOR TO STARTING ALL WORK.
- 2. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF THEY
- 3. <u>BEFORE BEGINNING DEMOLITION WORK, CONTRACTOR SHALL PROVIDE THE ENGINEER A BASELINE AIRFLOW MEASUREMENT ON ALL SUPPLY DIFFUSERS FOR THE DUCT SYSTEMS CONNECTED TO AHU-04 AND AHU-08. AIRFLOW</u> MEASUREMENTS SHALL BE TAKEN WITH ALL AHU'S OPERATING AT 100% AIRFLOW. CONTRACTOR SHALL ALSO PROVIDE THE AHU'S EXTERNAL STATIC PRESSURE.

DRAWING NOTES:

- DUCTWORK SHALL BE REMOVED BY THE OWNER UNDER A SEPARATE
- 2 PROVIDE SHUT-OFF VALVE AND CAP WHERE STEAM AND CONDENSATE RETURN PIPING IS BEING DEMOLISHED.
- 3 REMOVAL OF STEAM AND CONDENSATE PIPING AND CAPPING OF LINES SHALL BE WORK PROVIDED UNDER ALTERNATE #1.



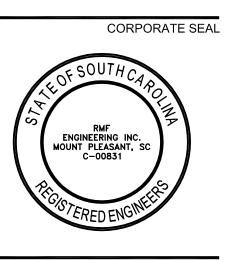
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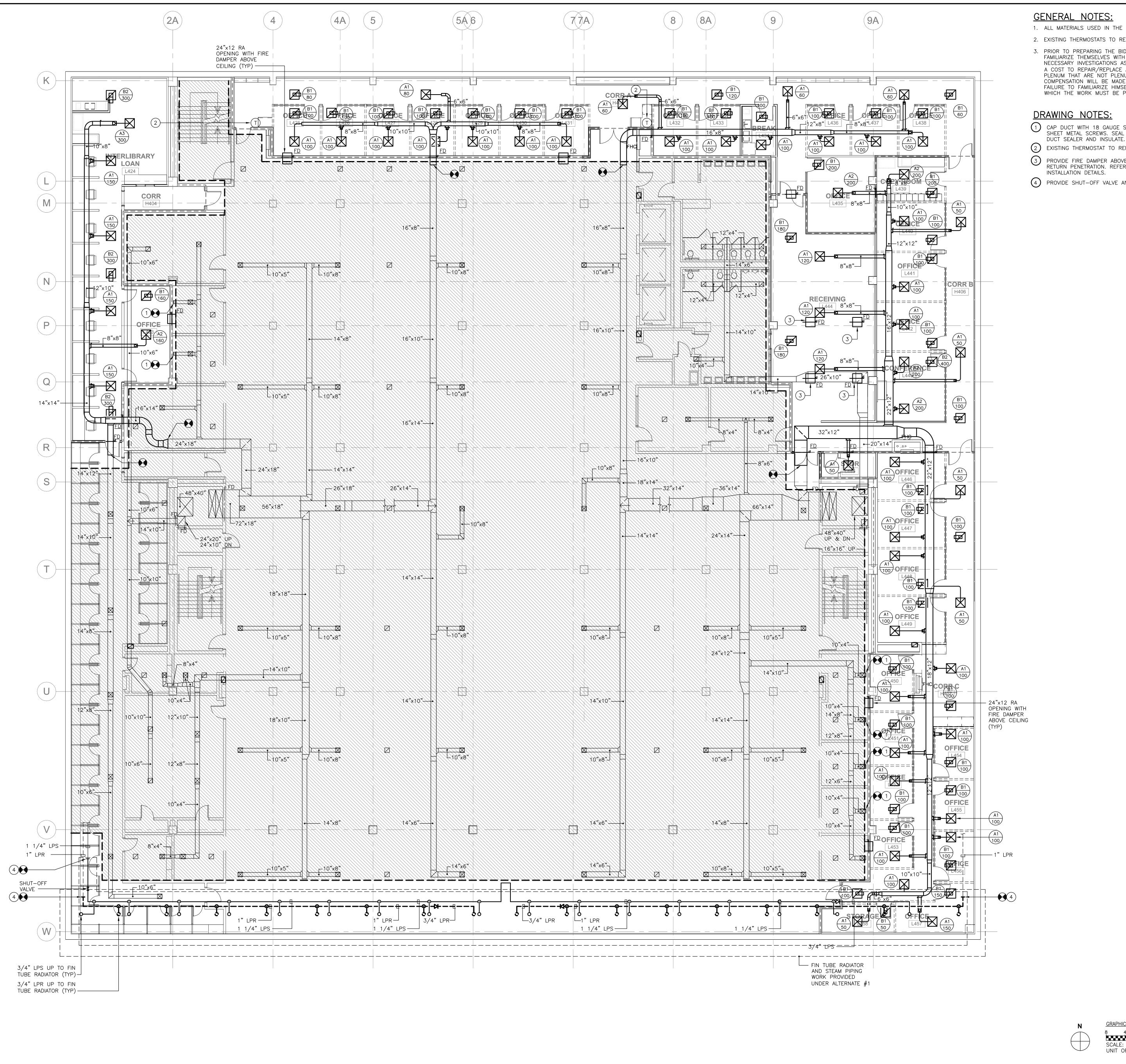
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LEVEL 4 -OVERALL -MECHANICAL



GENERAL NOTES:

- 1. ALL MATERIALS USED IN THE CEILING MUST BE PLENUM RATED.
- 2. EXISTING THERMOSTATS TO REMAIN IN PLACE.
- 3. PRIOR TO PREPARING THE BID THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE THEMSELVES WITH ALL THE EXISTING CONDITIONS AND MAKE ALL NECESSARY INVESTIGATIONS AS TO MATTERS THAT AFFECT THE WORK. PROVIDE A COST TO REPAIR/REPLACE ALL EXISTING SYSTEMS IN THE AREA OF WORK PLENUM THAT ARE NOT PLENUM RATED CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE MADE TO THE CONTRACTOR AS A RESULT OF HIS FAILURE TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS UNDER WHICH THE WORK MUST BE PERFORMED.

DRAWING NOTES:

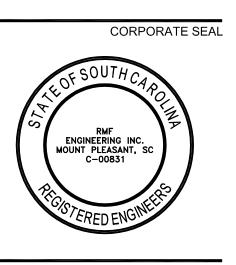
- 1) CAP DUCT WITH 18 GAUGE SHEET METAL AND SECURE CAP WITH SHEET METAL SCREWS. SEAL PERIMETER OF OPENING AIR TIGHT WITH
- (2) EXISTING THERMOSTAT TO REMAIN.
- (3) PROVIDE FIRE DAMPER ABOVE FLOOR SLAB AT EXISTING PLENUM RETURN PENETRATION. REFER TO ARCHITECTURAL DRAWINGS FOR
- (4) PROVIDE SHUT-OFF VALVE AND CAP UNDER BASE BID.



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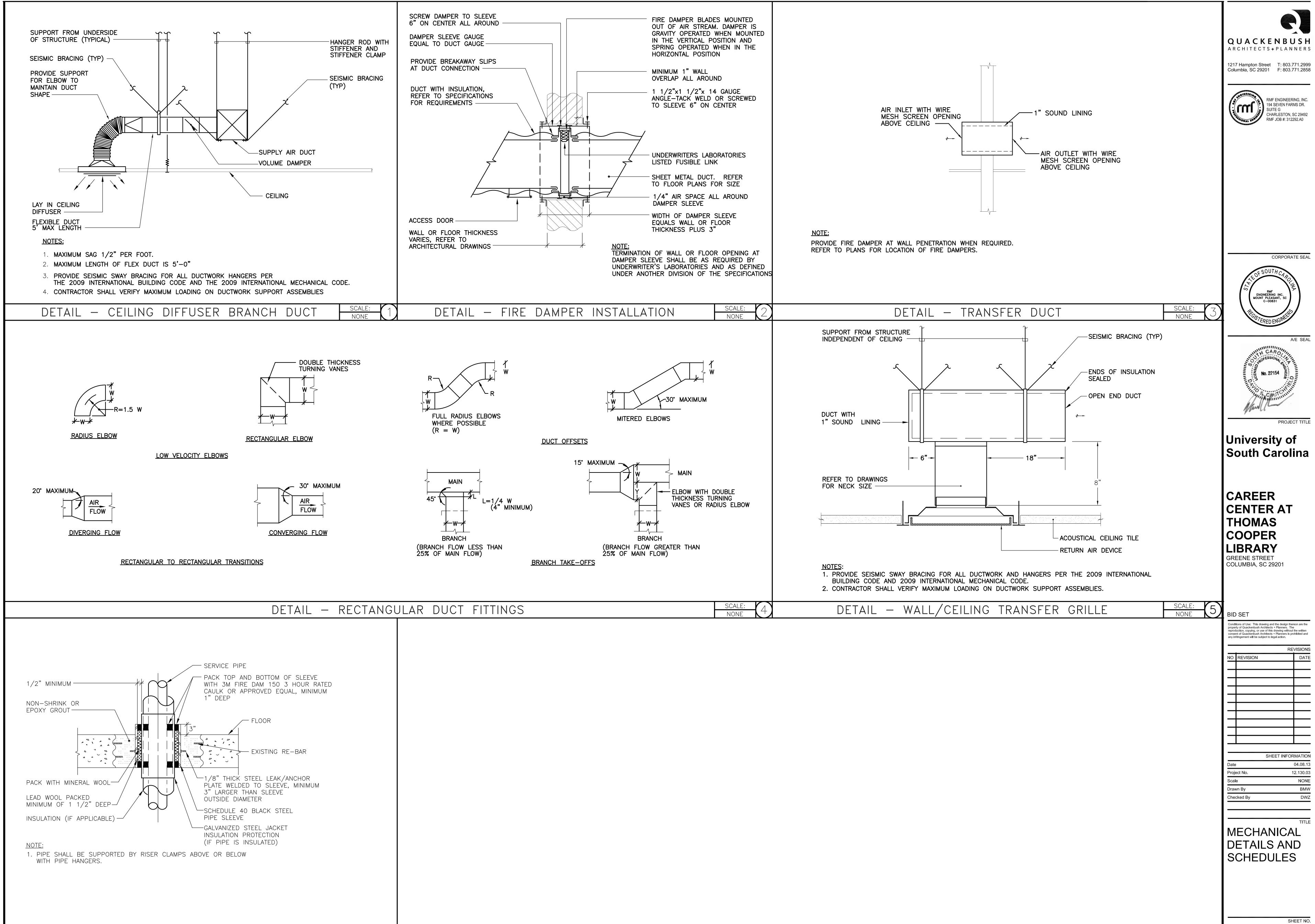
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LEVEL 4 -OVERALL -MECHANICAL **NEW WORK**

M2.4



DETAIL - PIPE PENETRATION AT FLOOR

M5.0