

Date	Description
2021.06.04	BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION

RCRBD
Record Set
TC
08/02/2021

Seal / Signature



Project Name

Steamboat Base Village
Redevelopment

Project Number

003.7835.000

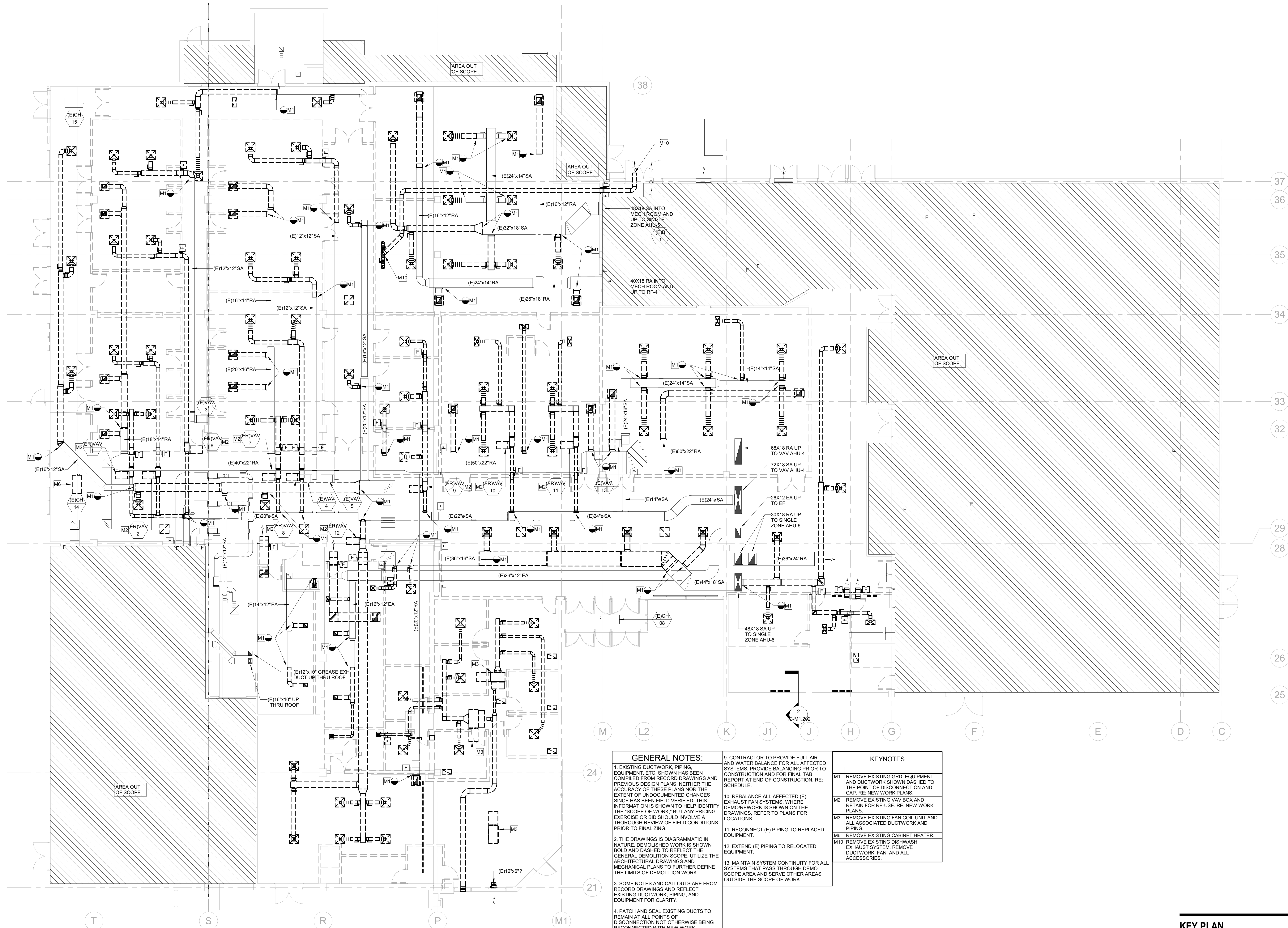
Description

MECHANICAL DEMOLITION PLAN -
LEVEL 01

Scale

1/8" = 1'-0"

1C-DM1.101



GENERAL NOTES:

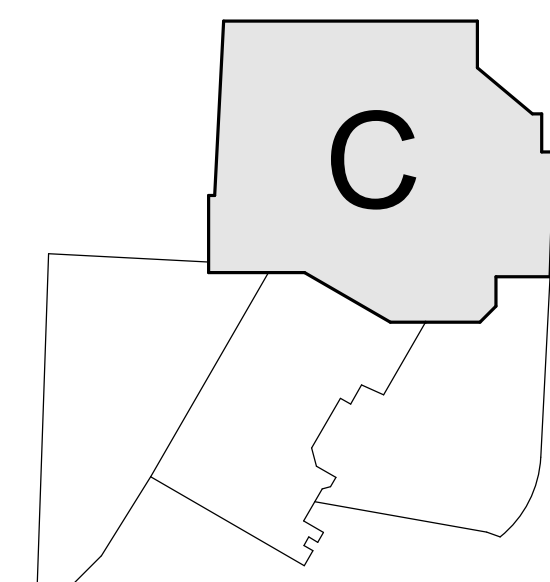
- EXISTING DUCTWORK, PIPING, EQUIPMENT, ETC. SHOWN HAS BEEN COMPILED FROM RECORD DRAWINGS AND PREVIOUS DESIGN PLANS. NEITHER THE ACCURACY OF THESE PLANS NOR THE EXTENT OF UNDOCUMENTED CHANGES SINCE HAS BEEN FIELD VERIFIED. THIS INFORMATION IS SHOWN TO HELP IDENTIFY THE "SCOPE OF WORK" BUT ANY PRICING EXERCISE OR BID SHOULD INVOLVE A THOROUGH REVIEW OF FIELD CONDITIONS PRIOR TO FINALIZING.
- THE DRAWINGS IS DIAGRAMMATIC IN NATURE. DEMOLISHED WORK IS SHOWN BOLD AND DASHED TO REFLECT THE GENERAL DEMOLITION SCOPE. UTILIZE THE ARCHITECTURAL DRAWINGS AND MECHANICAL PLANS TO FURTHER DEFINE THE LIMITS OF DEMOLITION WORK.
- SOME NOTES AND CALLOUTS ARE FROM RECORD DRAWINGS AND REFLECT EXISTING DUCTWORK, PIPING, AND EQUIPMENT FOR CLARITY.
- PATCH AND SEAL EXISTING DUCTS TO REMAIN AT ALL POINTS OF DISCONNECTION NOT OTHERWISE BEING RECONNECTED WITH NEW WORK.
- CAP ALL EXISTING PIPING TO REMAIN AT ALL POINTS OF DISCONNECTION NOT OTHERWISE BEING RECONNECTED WITH NEW WORK.
- CAP OR COVER DUCT OPENINGS DURING DEMOLITION AND CONSTRUCTION (TYPICAL).
- CONTRACTOR TO COORDINATE ALL NEW WORK WITH EXISTING SYSTEMS, RELOCATING AS NECESSARY.
- DEMO GRDs IN ALL LOCATIONS WHERE CEILINGS ARE TO BE DEMOLISHED, RE: ARCHITECTURAL DEMO PLANS.

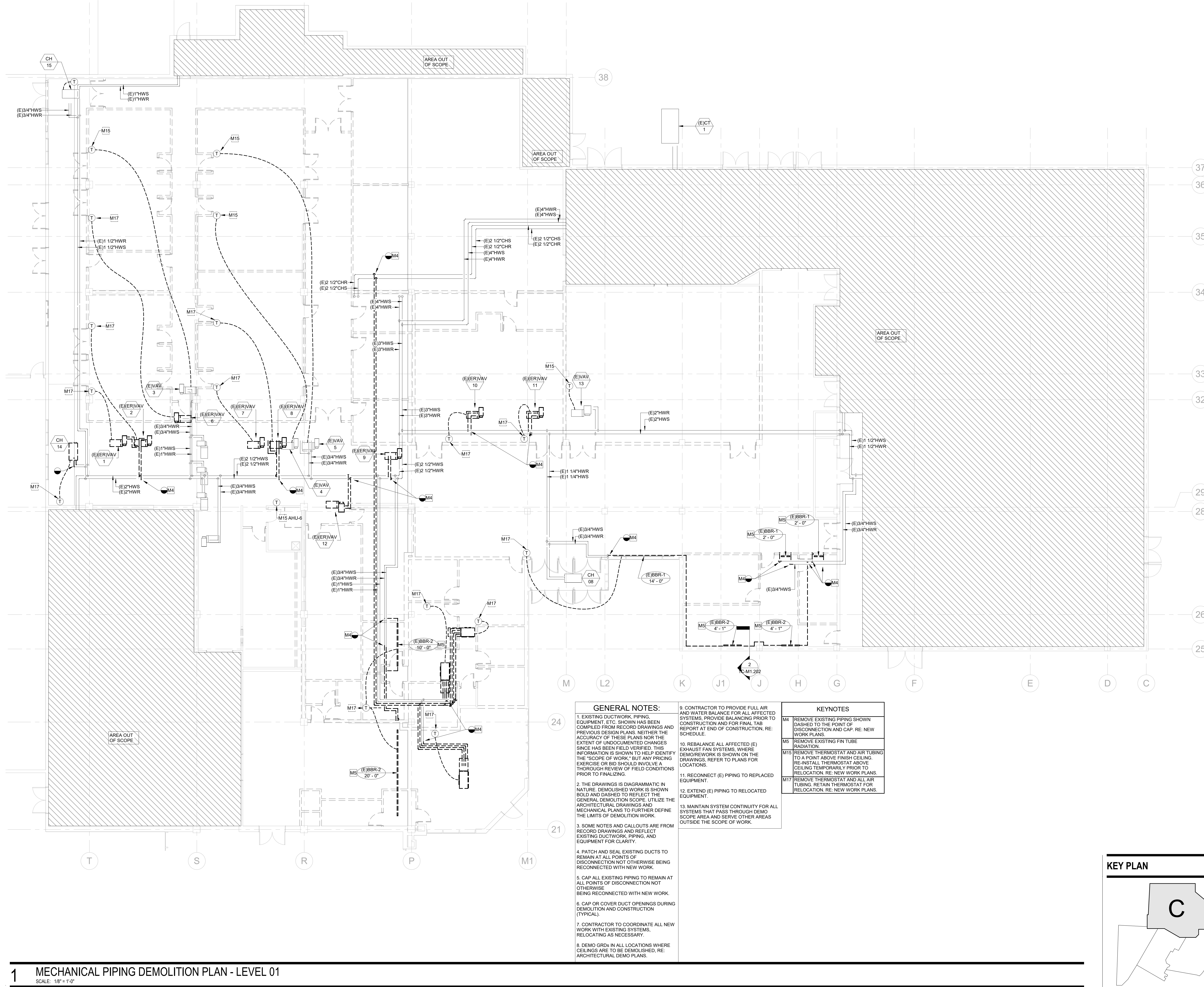
- CONTRACTOR TO PROVIDE FULL AIR AND WATER BALANCE FOR ALL AFFECTED SYSTEMS, PROVIDE BALANCING PRIOR TO CONSTRUCTION AND FOR FINAL TAB REPORT AT END OF CONSTRUCTION, RE: SCHEDULE.
- REBALANCE ALL AFFECTED (E) EXHAUST FAN SYSTEMS, WHERE DEMO/REWORK IS SHOWN ON THE DRAWINGS, REFER TO PLANS FOR LOCATIONS.
- RECONNECT (E) PIPING TO REPLACED EQUIPMENT.
- EXTEND (E) PIPING TO RELOCATED EQUIPMENT.
- MAINTAIN SYSTEM CONTINUITY FOR ALL SYSTEMS THAT PASS THROUGH DEMO SCOPE AREA AND SERVE OTHER AREAS OUTSIDE THE SCOPE OF WORK.

KEYNOTES

M1	REMOVE EXISTING GRD, EQUIPMENT, AND DUCTWORK SHOWN DASHED TO THE POINT OF DISCONNECTION AND CAP. RE: NEW WORK PLANS.
M2	REMOVE EXISTING VAV BOX AND RETAIN FOR RE-USE. RE: NEW WORK PLANS.
M3	REMOVE EXISTING FAN COIL UNIT AND ALL ASSOCIATED DUCTWORK AND PIPING.
M8	REMOVE EXISTING CABINET HEATER.
M10	REMOVE EXISTING DISHWASH EXHAUST SYSTEM, REMOVE DUCTWORK, FAN, AND ALL ACCESSORIES.

KEY PLAN





SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION		DOUBLE LINE PIPING (2" AND ABOVE)		SINGLE LINE PIPING (UP TO 2")		PIPE TYPE	
		SECTION NO. SECTION VIEW SHEET NO.				SUPPLY DIFFUSER-4-WAY THROW						CHS CHILLED WATER SUPPLY	
		DETAIL DESIGNATION				SUPPLY DIFFUSER-3-WAY THROW						CHR CHILLED WATER RETURN	
		POWERED EQUIPMENT DESIGNATION				SUPPLY DIFFUSER-2-WAY THROW						HWS HEATING WATER SUPPLY	
		NON POWERED EQUIPMENT DESIGNATION				SUPPLY DIFFUSER-1-WAY THROW						HWR HEATING WATER RETURN	
		BASEBOARD EQUIPMENT DESIGNATION				CEILING ACCESS PANEL						CWS CONDENSER WATER SUPPLY	
		SHEET KEY NOTES				RETURN DIFFUSER						CWR CONDENSER WATER RETURN	
		POINT OF DISCONNECTION				EXHAUST DIFFUSER						D CONDENSATE DRAIN	
		ARROW INDICATES DIRECTION OF FLOW				HUMIDIFIER						HPS HIGH PRESSURE STEAM SUPPLY	
		EXTERIOR WALL LOUVER (UNDER ARCH. SECTION)				FLEXIBLE DUCT CONNECTION						MPS MEDIUM PRESSURE STEAM SUPPLY	
		UNDERCUT DOOR (UNDER ARCH. SECTION)				SUPPLY AIR FLOW SYMBOL						LPS LOW PRESSURE STEAM SUPPLY	
		DOOR LOUVER (UNDER ARCH. SECTION)				RETURN/EXHAUST AIR FLOW SYMBOL						HPR HIGH PRESSURE CONDENSATE RETURN	
		LOUVER DOOR FULL HEIGHT (UNDER ARCH. SECTION)				HEAT TRACE						MPR MEDIUM PRESSURE CONDENSATE RETURN	
		RS				RL						RHG REFRIGERANT HOT GAS	
		BD				BF						BO BOILER BLOW DOWN	
		CF				PCSIR						HTWSIR HIGH TEMP. HOT WATER SUPPLY/RETURN	
		PHWSIR				PCHSIR						PR PUMPED CONDENSATE RETURN	
		(E)				(E)						(E) EXISTING PIPING	
		(E)				(E)						(E) EXISTING PIPING TO BE REMOVED	

SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION		DOUBLE LINE PIPING (2" AND ABOVE)		SINGLE LINE PIPING (UP TO 2")		PIPE TYPE	
		P&T PRESSURE/TEMPERATUR E PORT TAPS				CR CONCENTRIC REDUCER						ER ECCENTRIC REDUCER	
		EJ EXPANSION JOINT				U UNION						T THERMOMETER W/ THERMOWELL	
		AV AIR VENT				FC FLEXIBLE PIPE CONNECTOR						PS PRESSURE SWITCH	
		PG PRESSURE GAUGE W/ GAUGE COCK				Elbow Up						Elbow Down	
		TEE UP				TEE DOWN						PIPE CAP OR PLUG	
		IV ISOLATION VALVE, RE: SPECS				OS&Y OUTSIDE STEM AND YOSKE						DV DRAIN VALVE W/ HOSE END CONNECTION	
		Ball Valve w/ Hose Connection				CV CHECK VALVE WITH INDICATION OF FLOW DIRECTION						PRV PRESSURE REDUCING VALVE	
		SV SOLENOID VALVE				FCV AUTO FLOW CONTROL VALVE W/ TEST PORTS						CSBV CIRCUIT SETTER OR BALANCING VALVE	
		GLV GLOBE VALVE (STRAIGHT PATTERN)				GLV GLOBE VALVE (ANGLE PATTERN)						BFV BUTTERFLY VALVE	
		BV BALL VALVE				TCV AUTOMATIC TEMPERATURE CONTROL VALVE 2-WAY						TCV AUTOMATIC TEMPERATURE CONTROL VALVE 3-WAY	
		BV BALANCING VALVE				TMP TEMPERATURE/PRESSURE RELIEF VALVE						STR STRAINER W/ BLOW-OFF & CAPPED HOSE END CONNECTION	
		ST STEAM TRAP											

SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION		DOUBLE LINE PIPING (2" AND ABOVE)		SINGLE LINE PIPING (UP TO 2")		PIPE TYPE	
		ABV ABOVE				AC AIR CONDITIONING						ACCH AIR COMPRESSOR	
		ACCU AIR COOLED CHILLER				AD ACCESS DOOR						ADJ AREA DUCTION	
		AF ABOVE FINISHED CEILING				AFC ABOVE FINISHED FLOOR						AFF ABOVE FINISHED GRADE	
		AHU AIR HANDLING UNIT				ALB ALUMINUM						AMP ACCESS PANEL	
		APD AIR PRESSURE DROP				ARCH ARCHITECT						ASHRAE AMERICAN SOCIETY OF HEATING AND REFRIGERATION ENGINEERS	
		ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS				ASTM AMERICAN SOCIETY OF TESTING AND MATERIALS						AVG AVERAGE	
		AWS AMERICAN WELDING SOCIETY				AUX AUXILIARY						B BOILER	
		BC BELOW COUNTER				B/C BACK OF CURB						BH BUTTERFLY VALVE	
		BHP BRAKE HORSEPOWER				BIOG BENCHMARK						BOD BOTTOM OF DUCT (AFF)	
		BOS BOTTOM OF STRUCTURE				BT BATH TUB						BTU BRITISH THERMAL UNIT	
		BWV BALL VALVE				C CABINET						CAB CONSTANT AIR VOLUME	
		CAV CATCH BASIN				CB COOLING COIL						CBH CONDENSATE DRAIN LINE	
		CFH CUBIC FEET PER HOUR				CFM CUBIC FEET PER MINUTE						CFM CUBIC FEET PER MINUTE	
		CFC CUBIC FEET PER SECOND				CI CAST IRON						CIRC CIRCULATED POLYVINYL CHLORIDE	
		CLG CORRUGATED METAL PIPE				CMU CONCRETE MASONRY UNIT						CPI CAST IRON PIPE INSTITUTE	
		CPVC CHLORINATED POLYVINYL CHLORIDE				COL COLUMN						COMB COMBINATION	
		CONC CONCRETE				COND CONDENSATE						CONN CONTINUOUS	
		CONTR CONTROLLER				COP COEFFICIENT OF PERFORMANCE						CRAC COMPUTER ROOM A/C UNIT	
		CRT CATHODE RAY TUBE				CRU CONDENSATE RETURN UNIT						CTR CENTER	
		CW COLD WATER				CWP CONDENSER WATER PUMP						CWS CONDENSER WATER SUPPLY	
		CV CONSTANT VOLUME				DB DECIBEL						DDC DIRECT DIGITAL CONTROL	
		DESIG DESIGNATION				DEFL DEFLECTION						DTL DETAIL	
		DF DRINKING FOUNTAIN				DIM DIMENSION						DISC DISCONNECT	
		DN DOWN				DOWNSPOUT DOUBLE SUCTION						DV DOUBLE SUCTION	
		DW DRAWING				DWH DOMESTIC WATER HEATER						DWP DOMESTIC WATER PUMP	
		DX DIRECT EXPANSION				EA ENTERING AIR TEMPERATURE						EAT ENTERING AIR TEMPERATURE	
		EC ECCENTRIC				EDB ENTERING DRY BULB						EDF ELECTRIC DRINKING FOUNTAIN	
		EDH ELECTRIC DUCT HEATER				EFF EFFICIENCY						EJ EXPANSION JOINT	
		EL ELEVATION				EMRG EMERGENCY						ENCLOSURE	
		ENR ENGINEER				ENT ENTERING						ESP EMERGENCY SHOWER	
		ET EXPANSION TANK				ETR EXISTING TO REMAIN						EUB EXISTING TO REMAIN	
		EWB ENTERING WET BULB				EWT EXTERIOR WET BULB						EXT EXTERIOR	
		EXTG EXTERIOR				F DEGREE FAHRENHEIT						FBO FLOOR CLEAN OUT	
		FCS FLOOR COIL UNIT				FCU FLOOR COIL UNIT						FD FLOOR DRAIN	
		FDS FIRE DEPARTMENT SIAMSE				FG FIBERGLASS						FF FINAL FILTER	
		FH FIRE HYDRANT				FHC FIRE HOSE CABINET						FHR FIRE HOSE RACK	
		FLA FULL LOAD AMPS				FLEX FLEXIBLE						FLR FLOOR	
		FMB FIRE POWERED MIXING BOX				FPI FINS PER INCH						FPM FEET PER MINUTE	
		FRIC FRICTION				FRZR FREEZER						FS FEET	
		FSK FLOOR SINK				FT FEET						FTC FEET, WATER COLUMN FUTURE	
		FUT FUTURE				G GAS						GA GAUGE	
		GAL GALLON				GALV GALVANIZED						GC GENERAL CONTRACTOR	
		GLV GLOBE VALVE				GND GROUND						GPD GALLONS PER DAY	
		GPM GALLONS PER MINUTE				GSH GRAND SENSIBLE HEAT						GV GATE VALVE	
		H HOSE BIBB				HB HEATING COIL						HD HEAD	
		HF HUB DRAIN				HORIZ HORIZONTAL						HPU HEAT PUMP UNIT	
		HSC HOUSING PAD CASE				HSTAT HUMIDISTAT						HTG HEATING	
		HTR HUMIDIFIER				HU HUMIDIFIER SECTION						HWC HOT WATER	
		HWP HOT WATER PUMP				HWR HOT WATER RETURN						HWS HOT WATER SUPPLY	
		HX HEAT EXCHANGER				HZ HERTZ						I INSULATION	
		ID INSIDE DIAMETER				IE INVERT ELEVATION						IH INCH	
		INW INCH, WATER COLUMN				INSUL INSULATION						INT INTERIOR	
		IW INDIRECT WASTE				J JUNCTION BOX						JB JUNCTION BOX	
		JP JOCKEY PUMP				K KITCHEN EQUIPMENT						KEC KITCHEN EQUIPMENT	
		KO KNOCKOUT				KVA KILOVOLT AMPS						KW KILOWATT	
		L LENGTH				LAT LEAVING AIR TEMPERATURE						LAV LAVATORY	
		LBS POUNDS				LBSHR POUNDS PER HOUR						LF LINEAR FEET	
		LP LOW PRESSURE				LRA LEAVING ROTOR AMPS						LVA LEAVING	
		LVL LEVEL				LWB LEAVING WET BULB						LWCO LOW WATER CUT OFF	
		LWT LEAVING WATER TEMPERATURE				M MAKE-UP AIR UNIT						MVA MANUAL VOLUME DAMPER	
		MA MAKE-UP AIR TEMPERATURE				MAT MIXED AIR TEMPERATURE						MAX MAXIMUM	
		MBH THOUSAND BTUH				MC MECHANICAL CONTRACTOR						MCA MINIMUM CIRCUIT AMPACITY	
		MCC MECHANICAL CENTER				MECH MECHANICAL						MFR MANUFACTURER	
		MNH MANHOLE				MI MINIMUM						MIN MINIMUM	
		MOCPP MAXIMUM OVER CURRENT PROTECTION				MP MEDIUM PRESSURE						MNS MOUNTED	
		MTL METAL				MU MAKE-UP AIR UNIT						MVA MANUAL VOLUME DAMPER	
		N NEW				NC NORMALLY CLOSED						NFPA NATIONAL FIRE PROTECTION ASSOCIATION	
		NIC NOT IN CONTRACT				NIP NORMALLY OPEN						NTS NOT TO SCALE	
		O OUTSIDE AIR FAN				OA OUTSIDE AIR FAN						OAHU OUTSIDE AIR HANDLING UNIT	
		OBD OPPOSED BLADE DAMPER				OD OUTSIDE DIAMETER						OCPU OVERFLOW DRAIN	
		OF OPENING				OGS OPEN STEM AND YOLK						U URINAL	
		UF UNDERFLOOR				UG UNDERSLAB						UGD UNDERGROUND	
		UH UNDERWATERS				UNO UNLESS NOTED OTHERWISE UP THROUGH ROOF						V VOLT, VENT	
		V VOLT, VENT				VA VOLT-AMPERE						VAC VACUUM	
		VAV VARIABLE AIR VOLUME				VBB VARIABLE BOX						VCP VACUUM BREAKER	
		VCC VITRIFIED CLAY PIPE				VDF VOLUME DAMPER						VEL VELOCITY	
		VFD VARIABLE FREQUENCY DRIVE				VFB VALVE IN BOX						VOV VALVE ON VERTICAL	
		VP VOLUME PUMP				VSI VARIABLE AIR VOLUME						VSR REHEAT	
		VSD VARIABLE SPEED DRIVE				W WATT, WASTE, WIDTH						W WATT, WASTE, WIDTH	
		W WATT, WASTE, WIDTH				W WATT, WASTE, WIDTH						W WATT, WASTE, WIDTH	
		W WATT, WASTE, WIDTH				W WATT, WASTE, WIDTH						W WATT, WASTE, WIDTH	
		W WATT, WASTE, WIDTH				W WATT, WASTE, WIDTH						W WATT, WASTE, WIDTH	
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		W WATT, WASTE, WIDTH				W WATT, WASTE, WIDTH							

GENERAL MECHANICAL CONTRACT REQUIREMENTS: <u>GENERAL:</u> 1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E. OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN. 2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS OF THE JOB. 3. THE DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 21,22 AND 23 WORK AND ITS INTERFACE WITH OTHER WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT. A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS. B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, "CONSTRUCTION DRAWINGS", OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT. SUCH DRAWINGS MAY BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR RECORD AND COMMENT. ANY WORK INSTALLED WITHOUT APPROVED COORDINATION DRAWINGS IS DONE AT THE CONTRACTOR'S RISK. 4. THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS. 5. DEFINITIONS AND TERMINOLOGY A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 21,22 AND 23 CONTRACT DOCUMENTS. B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC., PREPARED BY ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE DIVISION 21,22 AND 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS. C. "CONSTRUCTION DOCUMENTS", "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 21,22 AND 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS. D. "IN" INDICATES "NEW" EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT. E. "EX" INDICATES "EXISTING" EQUIPMENT ON SITE WHICH MAY OR MAY NOT NEED TO BE RELOCATED AS A PART OF THIS WORK. F. "RE" INDICATES EXISTING EQUIPMENT TO BE RELOCATED AS PART OF THIS WORK. G. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT. H. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER". I. "PROVIDE" MEANS TO "FURNISH AND INSTALL". J. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS." SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER. K. "WORK BY OTHER(S) DIVISIONS"; "RE: XX DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION OR SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACTOR BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID. L. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB-CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS. M. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS). <u>EXISTING BUILDING:</u> 1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC., AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID. 2. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION. 3. ALL CAPACITIES ARE SCHEDULED AT JOBSITE ALTITUDE OF 5300 FT. ABOVE SEA LEVEL. 4. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB PRIOR TO COMMENCING WORK. UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.	<u>ELECTRICAL COORDINATION:</u> 1. VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY MECHANICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS. 2. PROVIDE PREMIUM EFFICIENCY MOTORS WITH 1.15 SERVICE FACTOR ON ALL EQUIPMENT. MOTORS SHALL BE CAPABLE OF OPERATING CONTINUOUSLY AT 105°F UNDER JOBSITE CONDITIONS AND ALTITUDE. 3. UNLESS NOTED OTHERWISE, ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH HOA SWITCH AND STARTER COMPATIBLE WITH EQUIPMENT AND CONTROL SYSTEM. STARTERS SHALL BE PROVIDED BY DIVISION 21,22 AND 23 UNLESS IN A MOTOR CONTROL CENTER. ALL DISCONNECTS SHALL BE FURNISHED BY DIVISION 26. 4. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER DIVISION 21,22 AND 23 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND MUST BE PROVIDED BY THE ARCHITECT, COORDINATED BY THE DIVISION 21,22 AND 23 TRADE REQUIRING SUCH POWER. SUFFICIENT POWER FOR THIS PURPOSE SHALL BE FURNISHED AS "SPARE", DEDICATED CIRCUIT CAPACITY IN DIVISION 26'S PANELBOARDS. ALL WIRING, CONDUIT AND ELECTRICAL DEVICES DOWNSTREAM OF THE PANELBOARDS IS THE RESPONSIBILITY OF THE DIVISION 21,22 AND 23 TRADE REQUIRING THE POWER UNLESS OTHERWISE SHOWN ON THE ELECTRICAL DRAWINGS. SUCH EQUIPMENT IS HEREBY DEFINED AS: A. ELECTRICAL HEAT TRACE, REQUIRED HEAT TRACE LOCATIONS, CAPACITIES AND SPECIFICATION ARE SHOWN OR INDICATED ON THE DRAWINGS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. B. FIRE PROTECTION AIR COMPRESSORS, DRY-PIPE CONTROL PANELS AND VALVES. REQUIRED CONNECTIONS ARE INCLUDED IN THE DIVISION 21 WORK, AND WILL BE SHOWN BY THAT CONTRACTOR'S ENGINEERED SYSTEM DESIGN DRAWINGS. (1) PRE-ACTION SYSTEM INITIATION SIGNALS (SUCH AS SMOKE DETECTORS, OR GENERAL ALARM CONDITIONS IN A PRE-ACTION ZONE) SHALL BE PROVIDED UNDER DIVISION 28 FIRE-ALARM WORK. (2) DIVISION 21 SHALL PROVIDE PRE-ACTION CONTROL PANEL AND INTERCONNECTION BETWEEN NEAREST SUITABLE FIRE ALARM PANEL AND LOCATION OF PRE-ACTION VALVE(S). (3) DIVISION 28 SHALL PROVIDE INTERCONNECTION BETWEEN FIRE COMMAND CENTER ALARM PANEL (PROVIDED UNDER DIVISION 28) AND REMOTE COMMUNICATION FIRE ALARM PANEL (PROVIDED UNDER DIVISION 28). C. TEMPERATURE CONTROL PANELS, CONTROL AIR COMPRESSORS AND LINE VOLTAGE POWER FOR 24V CONTROL TRANSFORMERS. REQUIRED CONNECTIONS ARE INCLUDED IN DIVISION 23/200V AND WILL BE SHOWN BY THAT CONTRACTOR'S CONTROL SUBMITTAL DRAWINGS. D. IT IS NOT PERMISSIBLE TO UTILIZE "SPARE" POWER FROM ADJACENT POWER CIRCUITS TO SERVE ANY OF THE ABOVE LOADS. ALL POWER MUST COME FROM DEDICATED CIRCUITS. 5. SMOKE DETECTORS: FOR AIR HANDLING UNITS AND AIR SYSTEMS WITH A CAPACITY EXCEEDING 2000 CFM, PROVIDE UL LISTED SMOKE DETECTORS IN RETURN AIR SYSTEMS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND ELSEWHERE AS SHOWN ON THE DRAWINGS. SMOKE DETECTORS WILL BE FURNISHED AND SET IN PLACE UNDER THIS DIVISION. DETECTORS WILL BE WIRED UNDER DIVISION 28. SMOKE DETECTORS MUST BE OF THE SAME MANUFACTURER, AND COMPATIBLE WITH THE FIRE FLARM SYSTEM PROVIDED UNDER DIVISION 28 (IF APPLICABLE). CONNECT RELAY(S) TO FAN CONTROL CIRCUIT TO STOP FAN WHEN SMOKE IS DETECTED. <u>INSTALLATION:</u> 1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE. DUCTWORK SHALL BE HELD TIGHT TO STRUCTURE EXCEPT WHERE OTHERWISE SHOWN. 2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE. 3. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE AROUND ALL EQUIPMENT REQUIRING SAME. 4. PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL AND DISPOSITION OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS TO REMAIN UNDISTURBED. 5. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT, VALVES, CLEANOUTS, ACTUATORS AND CONTROLS WHICH REQUIRE ACCESS FOR ADJUSTMENT OR SERVICING AND WHICH ARE LOCATED IN OTHERWISE INACCESSIBLE LOCATIONS. A. FOR EQUIPMENT LOCATED IN "ACCESSIBLE LOCATIONS" SUCH AS LAY-IN CEILINGS: LOCATE EQUIPMENT TO PROVIDE ADEQUATE SERVICE CLEARANCE FOR NORMAL MAINTENANCE WITHOUT REMOVING ARCHITECTURAL, ELECTRICAL OR STRUCTURAL ELEMENTS SUCH AS THE CEILING SUPPORT SYSTEM, ELECTRICAL FIXTURES, ETC. "NORMAL MAINTENANCE" INCLUDES, BUT IS NOT LIMITED TO, FILTER CHANGING; GREASING OF BEARINGS; USING PT PORTS FOR PRESSURE OR TEMPERATURE MEASUREMENTS; SERVICING CONTROL VALVES AND SERVICING CONTROL PANELS. 6. ISOLATE ALL PRESSURIZED PIPE (WATER, ETC.) AT EACH RISER, BRANCH, PIECE OF EQUIPMENT, AND AREA SERVED. 7. PROVIDE TRAP GAUGES OR PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS SHOWN ON DRAWINGS. PRIMERS MAY BE CONNECTED TO FLUSH FIXTURES OR BE STAND ALONE. SEE SPECIFICATIONS. 8. NO DOMESTIC WATER, CHILLED WATER, OR HEATING WATER LINES SHALL BE LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS. 9. NO GAS LINES SHALL BE LOCATED BELOW BUILDING SLAB. 10. ALL CURBS, ROOF JACKS, ROOF THIMBLES, SANITARY VENTS, ROOF DRAINS, ETC. SHALL BE COMPATIBLE WITH ROOFING SYSTEM TO BE PROVIDED. REFERENCE ARCHITECTURAL DIVISION FOR REQUIRED FLASHING DETAILS. 11. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONCRETE EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELECTION, TO THE STRUCTURAL AND GENERAL CONTRACTOR FOR INCLUSION IN THOSE CONTRACTOR'S WORK AS DESCRIBED BY THE GENERAL CONTRACTOR. 12. WARRANTY: AT A MINIMUM, THE ENTIRE MECHANICAL SYSTEM SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE OWNER. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRANTY REQUIREMENTS.	<u>DUCTWORK INSTALLATION:</u> 1. SEAL ALL SEAMS (LONGITUDINAL AND TRANSVERSE) AIR TIGHT WITH SEALANT PER SPECIFICATIONS. 2. DUCT DIMENSIONS ARE INSIDE CLEAR. 3. DIFFUSER NECK SIZE IS SAME AS FLEXIBLE DUCT SIZE. 4. UNLESS OTHERWISE NOTED, ALL CHANGES IN DIRECTION SHALL BE MADE WITH RADIUS ELBOWS WITH RADIUS TO CENTERLINE EQUAL TO 1.5 DUCT WIDTH. 5. WHERE REQUIRED FOR SPACE CONSTRAINTS, PROVIDE MITERED ELBOWS WITH TURNING VANES AS FOLLOWS: A. FOR DUCT WIDTHS OF 36" OR LESS, PROVIDE MANUFACTURED SINGLE WIDTH TURNING VANES, WITH NO TRAILING EDGES AND SPACING IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR "STANDARD SPACING". B. USE DOUBLE THICKNESS (AIRFOIL) BLADES WITHOUT TRAILING EDGES FOR DUCT WIDTHS GREATER THAN 36". 6. ALL FLEXIBLE DUCTS SHALL NOT BE LESS THAN 4" OR MORE THAN 10" IN LENGTH. INSTALL FLEXIBLE DUCTWORK SUCH THAT: A. MINIMUM OVERALL LENGTH OF 3D, STRAIGHT INTO NECK OF DIFFUSER. B. MAXIMUM OF 135° OF TOTAL TURNING IN ENTIRE LENGTH OF FLEXIBLE DUCT. C. MINIMUM TURNING RADIUS OF R = 1.5D. D. WHERE: "D" = FLEXIBLE DUCT DIAMETER "R" = RADIUS OF TURN AS MEASURED TO CENTERLINE OF DUCT. 7. RETURN AIR PLENUM: THE HVAC SYSTEM WILL USE THE SPACE ABOVE THE CEILING AS A RETURN AIR PLENUM. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF NFPA AND LOCAL CODE REQUIREMENTS FOR ALL MATERIAL INSTALLED IN THE RETURN AIR PLENUM. A. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A COMPLETE RETURN AIR PATH BETWEEN ALL RETURN AIR DEVICES (GRILLES ETC.) AND THEIR RESPECTIVE HVAC UNIT. MAXIMUM VELOCITY OF RETURN AIR IN PLENUM SHALL GENERALLY NOT EXCEED 500 FEET PER MINUTE, NOR EXCEED 750 FEET PER MINUTE AT ANY CROSS-SECTION OF THE RETURN AIR PATH. 8. BRANCH LINES: A. MAKE ALL TAPS TO ROUND DUCTWORK WITH CONICAL TEES. B. MAKE ALL TAPS TO RECTANGLE DUCTWORK WITH 45° ENTRY OR CONICAL SPIN IN TO ROUND. C. INCLUDE DAMPERS AT ALL BRANCH LINES. 9. GREASE DUCTS: A. INSTALL AND SLOPE PER BUILDING CODE REQUIREMENTS. IF PERMITTED BY CODE, PROVIDE COLLECTION RESERVOIRS AS REQUIRED FOR LONG HORIZONTAL RUNS. B. WRAP IN TWO HOUR RATED FIRE WRAP. COORDINATE WITH ARCHITECTURAL PLANS. C. WRAP MUST BE RATED FOR 1,900° F AND HAVE A MINIMUM R VALUE OF 10. D. WRAP MUST BE LISTED FOR ZERO CLEARANCE TO COMBUSTIBLES. 10. DUCT SIZES NOT CALLED OUT SHALL BE DETERMINED BASED ON 0.08" S.P. LOSS OR LESS PER 100 FT. OF LENGTH. 11. ASSUME ROUND OR OVAL DUCTS IN EXPOSED AREAS. 12. INCLUDE DAMPERS AT ALL BRANCH LINES, WHERE SHOWN ON THE DRAWINGS, AND WHERE OTHERWISE REQUIRED FOR BALANCING. <u>PIPE INSTALLATION:</u> 1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY MEANS OF HANGERS AND SUPPORTS. PIPING IS NOT TO BE SUPPORTED BY EQUIPMENT. 2. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR MATERIALS. 3. PROVIDE MANUAL AIR VENTS AND CAPPED HOSE-END DRAINS WITH ISOLATION VALVES AT PIPING HIGH AND LOW POINTS. 4. WELD PIPE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS. WELDERS SHALL BE CERTIFIED FOR TYPE OF WORK BEING PERFORMED. 5. FLUSH OUT PIPING AND REMOVE CONTROL DEVICES BEFORE PERFORMING PRESSURE TEST. DO NOT USE PIPING SYSTEM VALVES TO ISOLATE SECTIONS WHERE TEST PRESSURE EXCEEDS VALVE PRESSURE RATING. PRESSURIZE PIPING AT 100 PSIG. IF LEAKAGE IS OBSERVED OR IF TEMPERATURE COMPENSATED PRESSURE DROP EXCEEDS 1% OF TEST PRESSURE, REPAIR LEAKS AND RETEST. DO NOT USE AIR PRESSURE TO TEST PLASTIC PIPE. 6. PROVIDE SUPPORT UNDER ELBOWS ON PUMP SUCTION AND DISCHARGE LINES. 7. ALL STRAINERS SHALL BE FURNISHED WITH A "ROUGHING" SCREEN AND TWO (2) SCREENS FOR NORMAL OPERATION. INSTALL STRAINER WITH ROUGHING SCREEN AND OPERATE SYSTEM FOR 24 HOURS MINIMUM (RUN DOMESTIC WATER SYSTEMS AT MAX FLOW FOR A MINIMUM OF ONE HALF (1/2) HOUR. REMOVE ROUGHING SCREEN AND INSTALL NORMAL SCREEN. AFTER TWO WEEKS OF NORMAL OPERATION INSTALL NEW NORMAL SCREEN. 8. PIPING SIZES SHALL BE BASED ON 2" OR LESS HEAD LOSS PER 100 FEET OF LENGTH. VELOCITIES SHALL NOT EXCEED 10 FEET PER SECOND. 9. INSTALL ALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHIN THE PIPING SYSTEM. ENSURE ALL REQUIRED PIPE EXPANSION WILL OCCUR IN THE PROPER DIRECTION AND SEGMENT OF PIPE. PROPERLY ANCHOR (RE: SPECIFICATIONS) ALL PIPING REQUIRING EXPANSION/CONTRACTION ISOLATION. COORDINATE PIPE EXPANSION/CONTRACTION TO PREVENT DAMAGE TO ANY AND ALL BUILDING COMPONENTS. 10. PROVIDE ISOLATION VALVES AT EVERY HYDRONIC BRANCH LINE. <u>CONDENSATE DRAINAGE:</u> 1. PROVIDE CONDENSATE DRAINAGE FOR ALL COOLING COILS AND OVERFLOW PANS. 2. ROUTE CONDENSATE PIPING, FULL SIZE OF DRIP PAN CONNECTION, TO NEAREST CODE APPROVED RECEPTACLE. INSULATE WHERE LOCATED ABOVE FINISHED CEILINGS. 3. HEAT TRACE CONDENSATE LINES FROM FOOD SERVICE EQUIPMENT. <u>LOUVERS:</u> 1. ALL LOUVERS LOCATED ON EXTERIOR WALLS SHALL BE PROVIDED BY ARCHITECTURAL DIVISION. ALL OTHER LOUVERS SHALL BE PROVIDED BY DIVISION 23. REQUIRED LOUVER FREE AREAS ARE INDICATED ON DIVISION 23 AND 23 DRAWINGS. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO CONFIRM THAT THE REQUIRED FREE AREA HAS BEEN PROVIDED, PRIOR TO CONNECTION TO THAT LOUVER. DIVISION 23 SHALL PROVIDE ALL LOUVER PLENUMS.	<u>CUTTING, PATCHING AND DEMOLITION:</u> 1. KEEP DEMOLITION & CUTTING TO MINIMUM. REQUIRED FOR PROPER EXECUTION OF WORK. 2. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF THE WORK. 3. NO CUTTING (NOT SHOWN ON THE CONTRACT DOCUMENTS) SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT AS TO LOCATIONS, METHOD AND EXTENT OF THE CUTTING. 4. REPAIR ALL ACCIDENTAL OR INTENTIONAL DAMAGE TO MATCH EXISTING CONSTRUCTION WITH NO NOTICEABLE DIFFERENCE IN CONTINUITY, APPEARANCE OR FUNCTION. 5. ALL "CAPPED" SANITARY AND VENT LINES SHALL BE RECONNECTED OR RE-ROUTED AS NECESSARY TO PREVENT "DEAD-ENDS" IN THE PIPING. ALL PIPING SHALL DRAIN TO ACTIVE SANITARY WASTE LINES AND ALL BRANCHES WITH TRAPS SHALL BE ADEQUATELY VENTED. <u>GENERAL PLUMBING CONTRACT REQUIREMENTS:</u> 1. THE GENERAL MECHANICAL REQUIREMENTS PERTAIN TO THE WORK OF THIS DIVISION. 2. PREPARE SHOP DRAWINGS OF ALL NEW WORK (INCLUDING SLEEVE LOCATIONS) TO VERIFY LOCATIONS AND COORDINATION OF WORK BETWEEN TRADES PRIOR TO INSTALLATION. 3. ALL DRAIN GRATES, CLEANOUT COVERS, AND OTHER FINISHED, EXPOSED COMPONENTS SHALL BE PROTECTED FROM DAMAGE. DAMAGED COMPONENTS SHALL BE REPLACED BY CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. 4. COORDINATE ROUTING OF ALL PLUMBING PIPING BELOW SLAB WITH STRUCTURAL GRADE BEAMS, TIE BEAMS, ETC. ALLOW FOR REROUTING OF PIPING AS REQUIRED. 5. ALL REQUIRED OPENINGS IN CONCRETE BEAMS AND STRUCTURAL WALLS ARE TO BE ACCOMPLISHED USING SLEEVES PROPERLY SIZED FOR THE PIPE THEY SERVE. CORE DRILLING IN BEAMS IS NOT ALLOWED. CORE DRILLING IN PANS IS ALLOWED UPON PRIOR APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER. 6. HORIZONTAL STORM AND SANITARY PIPING SHALL RUN AT A SLOPE OF 1/4" PER FOOT MINIMUM FOR 3" AND SMALLER PIPING. 4" AND LARGER PIPING SHALL RUN AT 1/8" PER FOOT MINIMUM. 7. NO DOMESTIC WATER LINES SHALL BE LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS. 8. WHERE SHOWN, MINIMIZE THE NUMBER OF JOINTS ON ANY PRESSURIZED PIPING BELOW CONCRETE SLABS. ALL BELOW GRADE PIPING TO BE PRESSURE TESTED AND WITNESSED BY ARCHITECT BEFORE BACKFILLING. 9. ALL CLEANOUTS FOR HORIZONTAL STORM DRAINAGE SYSTEM SHALL BE PIPE SIZE OR MAXIMUM 6" FOR LARGER PIPE. 10. IN ADDITION TO THE CLEANOUT LOCATIONS SHOWN ON DRAWINGS, PROVIDE ADDITIONAL CLEANOUTS AT: A. ALL UPPER TERMINALS. B. EACH RUN OF PIPING WHICH IS MORE THAN 100 FEET IN LENGTH OR FRACTION THEREOF. C. HORIZONTAL LINES 5 FEET OR MORE. D. HORIZONTAL LINES FOR EACH AGGREGATE CHANGE OF DIRECTION EXCEEDING 135 DEGREES. E. AT THE BASE OF ALL WASTE AND VENT RISERS. ALL VERTICAL CLEANOUTS SHALL BE SIZED TO ACCOMMODATE THE LARGEST PIPE ON THAT BRANCH LINE, BUT NEVER LARGER THAN 4". 11. NO GAS LINES SHALL BE LOCATED BELOW BUILDING SLAB. ALL GAS PIPING IN AIR PLENUMS TO BE WELDED. 12. PROVIDE ISOLATION VALVES ON ALL PIPING SERVING HOSE BIBBS. 13. ANY ELECTRICAL SPACE NOT CONSTRUCTED WITH A SUB-ROOF WHICH MAY HAVE PLUMBING PIPING AT THE CEILING OF THESE SPACES SHALL HAVE A DRIP PAN INSTALLED BELOW THE PIPING. DRIP PANS SHALL BE 1.5 TIMES THE WIDTH OF THE PIPING SERVED WITH A MINIMUM OF 2" HIGH SIDES. DRIP PANS SHALL BE SUSPENDED FROM THE PIPING SERVED AND SHALL SLOPE AT A MINIMUM 1/8"FT. DRIP PANS SHALL DISCHARGE WITH MIN. 1-1/2" OR TO FLOOR DRAINS. A. DO NOT LOCATE PIPING DIRECTLY ABOVE ANY ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS. 14. MAINTAIN DESIGNATED PLUMBING FIXTURE HEADER SIZE FOR FULL BANK OF FIXTURES. 15. PROVIDE GAS VENTS EXTENDING CONTINUOUSLY FROM ALL INTERIOR GAS REGULATORS TO THE EXTERIOR OF THE BUILDING. TERMINATE AT AN APPROVED LOCATION. SIZE VENTS SUCH THAT MINIMUM VENT SIZE (FOR VENT WHICH IS 10 FEET OR LESS IN LENGTH) EQUALS RELIEF OUTLET PIPE SIZE. INCREASE VENT PIPE SIZE ONE PIPE SIZE FOR EVERY ADDITIONAL TEN FEET OF VENT PIPE LENGTH. A. PROVIDE AN ISOLATION VALVE DOWNSTREAM OF EVERY INTERIOR GAS REGULATOR. <u>STRUCTURE:</u> 1. DO NOT PENETRATE STRUCTURAL MEMBERS. ALL EQUIPMENT SUPPORTS SHALL BE ATTACHED TO THE LOAD BEARING MEMBERS OF STRUCTURAL ELEMENTS. DO NOT OVER-STRESS ANY STRUCTURAL MEMBERS. CONTACT STRUCTURAL ENGINEER FOR ALLOWABLE LOADS FOR SPECIFIC MEMBERS. 2. DO NOT UTILIZE POWER DRIVEN ANCHORS FOR ANY LOCATIONS WHICH REQUIRE THE LOAD TO BE HELD IN TENSION. SEE STRUCTURAL DIVISION FOR ADDITIONAL RESTRICTIONS. 3. SEE ALSO STRUCTURAL DIVISION FOR ACCEPTABLE ANCHORING AND SUPPORT MEANS, METHODS, AND LOCATIONS. 4. PROVIDE FLEXIBLE CONNECTORS, EXPANSION LOOPS, EXPANSION JOINTS, ADDITIONAL FITTINGS OR EQUIVALENT TO ACCOMMODATE THE THERMAL EXPANSION OF THE BUILDING THROUGH STRUCTURAL EXPANSION JOINTS. PROVIDE SUCH FITTING AT EVERY PIPE, DUCT, CONDUIT, ETC. CROSSING OF A STRUCTURAL EXPANSION JOINT.	<u>CONSTRUCTION VENTILATION:</u> 1. WHERE EXISTING OR NEW MECHANICAL SYSTEMS ARE USED FOR TEMPORARY VENTILATION OR CLIMATE CONTROL, MECHANICAL EQUIPMENT INSTALLER SHALL PROVIDE CONSTRUCTION FILTERS, MAINTAIN EQUIPMENT, AND CLEAN, ADJUST AND PUT IN NEW CONDITION BEFORE BUILDING OCCUPANCY. PARTS AND LABOR WARRANTY SHALL NOT BE CONSIDERED TO START UNTIL ACCEPTANCE OF SYSTEM BY OWNER. 2. PROVIDE CONSTRUCTION FILTERS INSTALLED AT ALL AIR MOVING DEVICES THROUGHOUT THE CONSTRUCTION. REMOVE FILTERS ONLY FOR BALANCING AND FINAL TURNOVER. INSPECT ALL NON-CONSTRUCTION FILTERS AND REPLACE ALL FILTERS DEEMED NECESSARY BY THE ENGINEER PRIOR TO ACCEPTANCE OF THE SYSTEM BY THE OWNER. <u>GAS FIRED VENTING REQUIREMENTS:</u> 1. ALL FLUES SERVING GAS FIRED EQUIPMENT SHALL BE DOUBLE WALL TYPE "B" BY METALBESTOS CO. OR EQUAL. TERMINATE FLUES A MINIMUM HEIGHT ABOVE ROOF (AS DETERMINED BY CODE) WITH WEATHER CAP. SLOPE HORIZONTAL RUNS TOWARD POINT OF ORIGINATION AT MINIMUM 1/4" PER 1'. <u>ELECTRIC HEAT FREEZE PROTECTION:</u> 1. PIPE HEAT TRACE CABLE: A. HEAT TRACE CABLE SHALL BE INSTALLED BY A LICENSED ELECTRICIAN. B. APPLY THE HEAT TRACE CABLE ON THE PIPE AFTER PRESSURE TESTING. (1) DO NOT SPIRAL WRAP ON PIPE. (2) MAKE ONE WRAP AT VALVES. (3) SECURE TO PIPE WITH METHODS APPROVED BY MANUFACTURER. C. APPLY "ELECTRICALLY TRACED" SIGNS ON OUTSIDE OF INSULATION. D. TEST PER MANUFACTURER'S RECOMMENDATIONS. E. APPLY HEAT TRACE TO THE FOLLOWING PIPING SYSTEMS. (1) DOMESTIC WATER (COLD, HOT, RECIRC.) EXPOSED TO FREEZING CONDITIONS. (2) SANITARY TRAPS AND THE DOWNSTREAM HORIZONTAL PIPE WHERE EXPOSED TO FREEZING CONDITIONS. (3) STORM PIPING SUBJECT TO FREEZING CONDITIONS. F. ALL HEAT TRACE PIPE SHALL BE INSULATED PER SPECIFICATIONS. G. COORDINATE ALL HEAT TRACINGS AND REQUIRED CIRCUITS WITH ELECTRICAL CONTRACTOR. <u>FIRE PROTECTION NOTES:</u> 1. FIRE PROTECTION NOTES A. SUBMIT SHOP DRAWINGS SHOWING PROPOSED LAYOUT OF FIRE PROTECTION SYSTEM. DRAWINGS SHALL SHOW ACTUAL EQUIPMENT TO BE USED, DIMENSIONS AND HYDRAULIC CALCULATIONS. SHOP DRAWINGS SHALL BE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO SUBMITTAL TO ENGINEER OR ARCHITECT. B. SHOW THE CONNECTING MAIN AND BRANCH PIPE SIZES FOR ALL RELOCATED EXISTING SPRINKLER HEADS. C. CONFORM TO HAZARD OCCUPANCY REQUIREMENTS OF NFPA 13. 2. THE ENTIRE BUILDING SHALL BE SERVED BY A WET PIPE TYPE FIRE SPRINKLER SYSTEM. COORDINATE ELECTRICAL, FIRE PROTECTION AND MECHANICAL SPACE REQUIREMENTS CAREFULLY BEFORE PROCEEDING WITH INSTALLATION. 3. EXTEND THE EXISTING SPRINKLER SYSTEM, RELOCATE EXISTING AND ADD NEW SPRINKLER HEADS IN ACCORDANCE WITH NFPA 13, ALL APPLICABLE CODES AND ORDINANCES AND PROJECT REQUIREMENTS TO COMPLETELY PROTECT THE NEW WORK. 4. SYSTEM SHALL BE INSTALLED COMPLETE AND OPERATIONAL, INCLUDING WATER FLOW INDICATOR, CONNECTIONS TO EXISTING ALARM, DRAIN PIPING, IDENTIFICATION SIGNS, ETC. 5. WORK SHALL BE PERFORMED BY A QUALIFIED FIRE SPRINKLER INSTALLER WITH A MINIMUM OF (5) FIVE YEARS EXPERIENCE IN SIMILAR INSTALLATIONS. 6. COORDINATE ALL WORK WITH ALL OTHER TRADES. 7. SUPPLY OWNER AN EXTRA STOCK OF SIX SPRINKLER HEADS (6), THREE (3) OF EACH TYPE, AND A SPRINKLER WRENCH. <u>FIRE STOPPING:</u> 1. FIRE STOPPING REQUIREMENT: PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASSES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM-E-814. ACCEPTANCE MATERIALS INCLUDE: DOW CORNING RTV FIRE STOP FOAM FOR BARE PIPE, METAL CONDUIT, AND ELECTRICAL CABLE. 3M FIRE DAM 21,22 AND 230 CAULK FOR BARE PIPE, METAL CONDUIT, AND BUILDING CONSTRUCTION. GAPS 3M FS-195 INTUMESCENT STRIPS FOR INSULATED PIPES, PLASTIC PIPE OR CONDUIT, AND ELECTRICAL CABLE.
Date Description - 2021.06.04 BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION RCRBD Record Set TC 08/02/2021				
Seal / Signature 56806 06/04/2021				
Project Name Steamboat Base Village Redevelopment Project Number 003.7835.000 Description MECHANICAL GENERAL NOTES				
Scale 1/8" = 1'-0" 1C-M0.001				



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MOUNTAIN COMPANY

[SET PROJECT ADDRESS PARAMETER & ENERGY SETTINGS IF APPLICABLE]

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Record Set
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08/02/2021

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56806

06/04/2021

Project Name

Steamboat Base Village Redevelopment

Project Number

003.7835.000

Description

MECHANICAL GENERAL NOTES

Scale

1/8" = 1'-0"

1C-M0.001

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Date	Description
2021.06.04	BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION

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08/02/2021

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Project Name

Steamboat Base Village
Redevelopment

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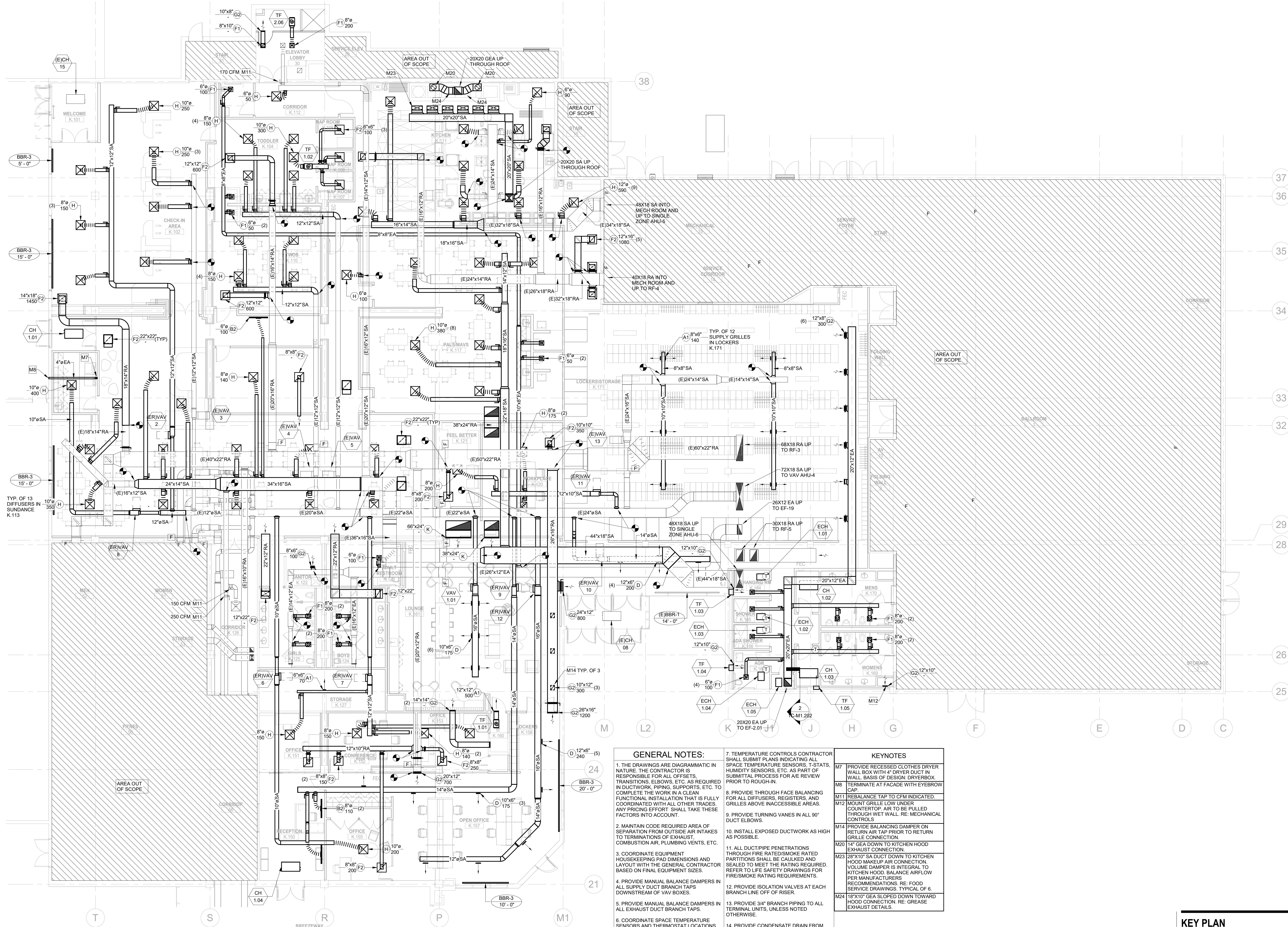
Description

MECHANICAL PLAN - LEVEL 01

Scale

1/8" = 1'-0"

1C-M1.201



GENERAL NOTES:

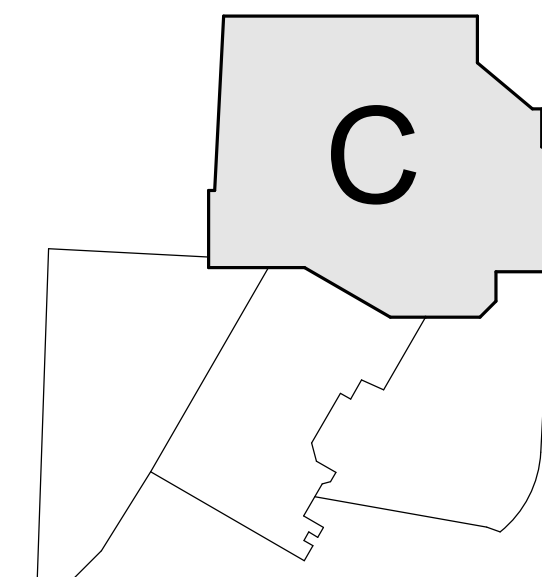
1. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED IN DUCTWORK, PIPING, SUPPORTS, ETC. TO COMPLETE THE WORK IN A CLEAN, FUNCTIONAL INSTALLATION THAT IS FULLY COORDINATED WITH ALL OTHER TRADES. ANY PRICING EFFORT SHALL TAKE THESE FACTORS INTO ACCOUNT.
2. MAINTAIN CODE REQUIRED AREA OF SEPARATION FROM OUTSIDE AIR INTAKES TO TERMINATIONS OF EXHAUST, COMBUSTION AIR, PLUMBING VENTS, ETC.
3. COORDINATE EQUIPMENT HOUSEKEEPING PAD DIMENSIONS AND LAYOUT WITH THE GENERAL CONTRACTOR BASED ON FINAL EQUIPMENT SIZES.
4. PROVIDE MANUAL BALANCE DAMPERS IN ALL SUPPLY DUCT BRANCH TAPS DOWNSTREAM OF VAV BOXES.
5. PROVIDE MANUAL BALANCE DAMPERS IN ALL EXHAUST DUCT BRANCH TAPS.
6. COORDINATE SPACE TEMPERATURE SENSORS AND THERMOSTAT LOCATIONS TO ALIGN VERTICALLY WITH LIGHT SWITCHES.

7. TEMPERATURE CONTROLS CONTRACTOR SHALL SUBMIT PLANS INDICATING ALL SPACE TEMPERATURE SENSORS, T-STATS, HUMIDITY SENSORS, ETC. AS PART OF SUBMITTAL PROCESS FOR A/E REVIEW PRIOR TO ROUGH-IN.
8. PROVIDE THROUGH FACE BALANCING FOR ALL DIFFUSERS, REGISTERS, AND GRILLES ABOVE INACCESSIBLE AREAS.
9. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
10. INSTALL EXPOSED DUCTWORK AS HIGH AS POSSIBLE.
11. ALL DUCTPIPE PENETRATIONS THROUGH FIRE RATED/SMOKE RATED PARTITIONS SHALL BE CALKED AND SEALED TO MEET THE RATING REQUIRED. REFER TO LIFE SAFETY DRAWINGS FOR FIRE/SMOKE RATING REQUIREMENTS.
12. PROVIDE ISOLATION VALVES AT EACH BRANCH LINE OFF OF RISER.
13. PROVIDE 3/4" BRANCH PIPING TO ALL TERMINAL UNITS, UNLESS NOTED OTHERWISE.
14. PROVIDE CONDENSATE DRAIN FROM ALL CHILLED WATER COILS AND DX EVAPORATOR COILS TO NEAREST MOP SINK OR MECHANICAL ROOM FLOOR DRAIN. PROVIDE CONDENSATE PUMP FOR WALL MOUNTED UNITS AND CONCEALED UNITS THAT CANNOT BE GRAVITY DRAINED TO TERMINATION LOCATION.

KEYNOTES

- | | |
|-----|--|
| M7 | PROVIDE RECESSED CLOTHES DRYER WALL BOX WITH 4" DRYER DUCT IN WALL. BASIS OF DESIGN: DRYER BOX. |
| M8 | TERMINATE AT FACADE WITH EYEBROW CAP. |
| M11 | REBALANCE TAP TO CFM INDICATED. |
| M12 | MOUNT GRILLE LOW UNDER COUNTERTOP. AIR TO BE PULLED THROUGH WET WALL. RE: MECHANICAL CONTROLS. |
| M14 | PROVIDE BALANCING DAMPER ON RETURN AIR TAP PRIOR TO RETURN GRILLE CONNECTION. |
| M20 | 14" GEA DOWN TO KITCHEN HOOD EXHAUST CONNECTION. |
| M23 | 28"x10" SA DUCT DOWN TO KITCHEN HOOD MAKEUP AIR CONNECTION. VOLUME DAMPER IS INTEGRAL TO KITCHEN HOOD. BALANCE AIRFLOW PER MANUFACTURERS RECOMMENDATIONS. RE: FOOD SERVICE DRAWINGS. TYPICAL OF 6. |
| M24 | 18"x10" GEA SLOPED DOWN TOWARD HOOD CONNECTION. RE: GREASE EXHAUST DETAILS. |

KEY PLAN



△	Date	Description
-	2021.06.04	BP4C - KVC INTERIORS - ISSUE FOR PERMIT AND CONSTRUCTION

RCRBD
Record Set
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08/02/2021

Seal / Signature



Project Name

Steamboat Base Village
Redevelopment

Project Number

003.7835.000

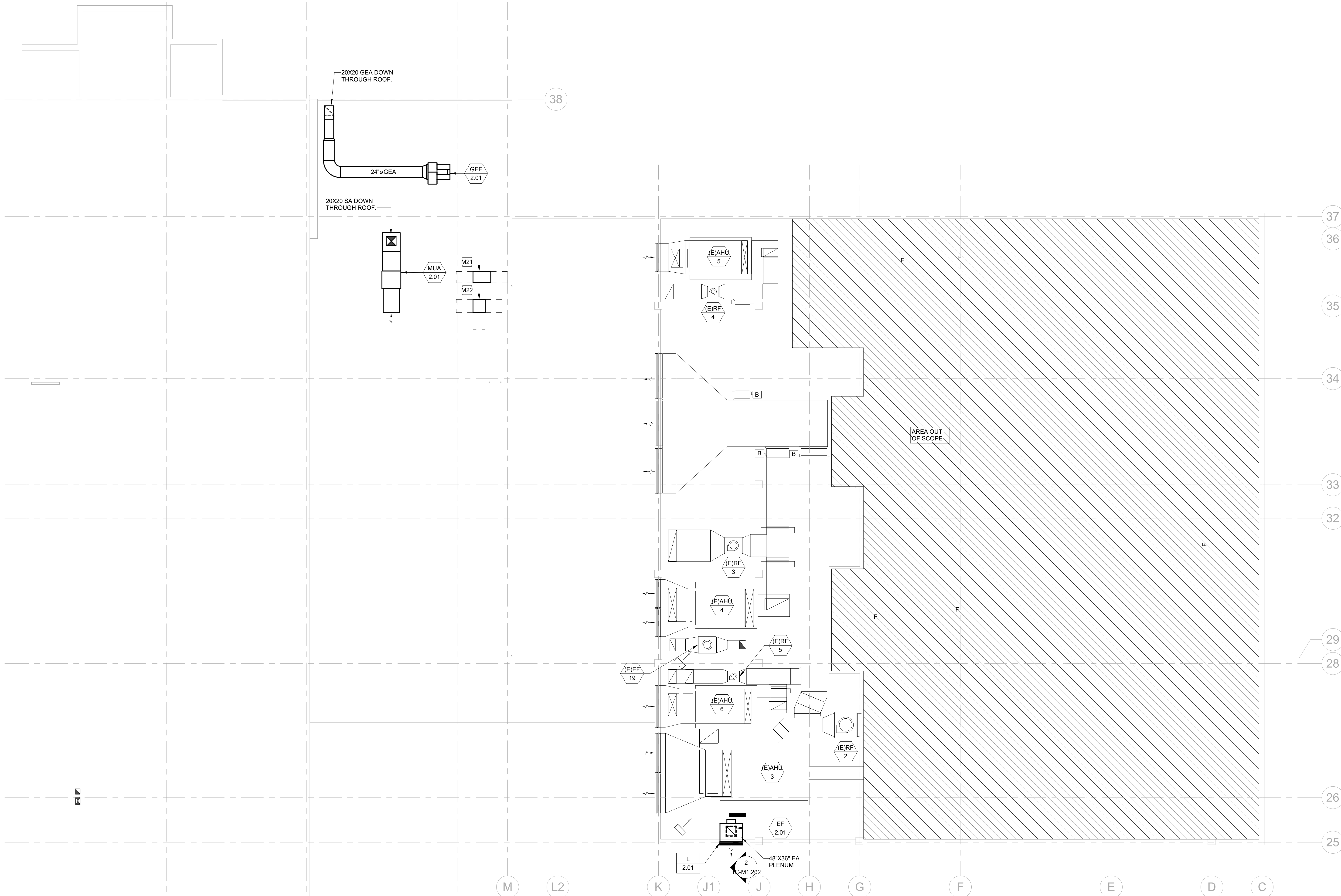
Description

MECHANICAL PLAN - LEVEL 02

Scale

As indicated

1C-M1.202



GENERAL NOTES:

1. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED IN DUCTWORK, PIPING, SUPPORTS, ETC. TO COMPLETE THE WORK IN A CLEAN, FUNCTIONAL INSTALLATION THAT IS FULLY COORDINATED WITH ALL OTHER TRADES. ANY PRICING EFFORT SHALL TAKE THESE FACTORS INTO ACCOUNT.
2. MAINTAIN CODE REQUIRED AREA OF SEPARATION FROM OUTSIDE AIR INTAKES TO TERMINATIONS OF EXHAUST, COMBUSTION AIR, PLUMBING VENTS, ETC.
3. COORDINATE EQUIPMENT HOUSEKEEPING PAD DIMENSIONS AND LAYOUT WITH THE GENERAL CONTRACTOR BASED ON FINAL EQUIPMENT SIZES.
4. PROVIDE MANUAL BALANCE DAMPERS IN ALL SUPPLY DUCT BRANCH TAPS DOWNSTREAM OF VAV BOXES.
5. PROVIDE MANUAL BALANCE DAMPERS IN ALL EXHAUST DUCT BRANCH TAPS.
6. COORDINATE SPACE TEMPERATURE SENSORS AND THERMOSTAT LOCATIONS TO ALIGN VERTICALLY WITH LIGHT SWITCHES.

7. TEMPERATURE CONTROLS CONTRACTOR SHALL SUBMIT PLANS INDICATING ALL SPACE TEMPERATURE SENSORS, T-STATS, HUMIDITY SENSORS, ETC. AS PART OF SUBMITTAL PROCESS FOR A/E REVIEW PRIOR TO ROUGH-IN.
8. PROVIDE THROUGH FACE BALANCING FOR ALL DIFFUSERS, REGISTERS, AND GRILLES ABOVE INACCESSIBLE AREAS.
9. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
10. INSTALL EXPOSED DUCTWORK AS HIGH AS POSSIBLE.
11. ALL DUCT/PIPE PENETRATIONS THROUGH FIRE RATED SMOKE RATED PARTITIONS SHALL BE CALKED AND SEALED TO MEET THE RATING REQUIRED. REFER TO LIFE SAFETY DRAWINGS FOR FIRE/SMOKE RATING REQUIREMENTS.
12. PROVIDE ISOLATION VALVES AT EACH BRANCH LINE OFF OF RISER.
13. PROVIDE 3/4" BRANCH PIPING TO ALL TERMINAL UNITS, UNLESS NOTED OTHERWISE.
14. PROVIDE CONDENSATE DRAIN FROM ALL CHILLED WATER COILS AND DX EVAPORATOR COILS TO NEAREST MOP SINK OR MECHANICAL ROOM FLOOR DRAIN. PROVIDE CONDENSATE PUMP FOR WALL MOUNTED UNITS AND CONCEALED UNITS THAT CANNOT BE GRAVITY DRAINED TO TERMINATION LOCATION.

KEYNOTES

- M21 WALK-IN FREEZER CONDENSING UNIT BY OTHERS.
M22 WALK-IN COOLER CONDENSING UNIT BY OTHERS.

1 MECHANICAL PLAN - LEVEL 02

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

2 Section 15

SCALE: 1/4" = 1'-0"

Date	Description
2021.06.04	BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION

RCRBD
Record Set
TC
08/02/2021

Seal / Signature



Project Name

Steamboat Base Village
Redevelopment

Project Number

003.7835.000

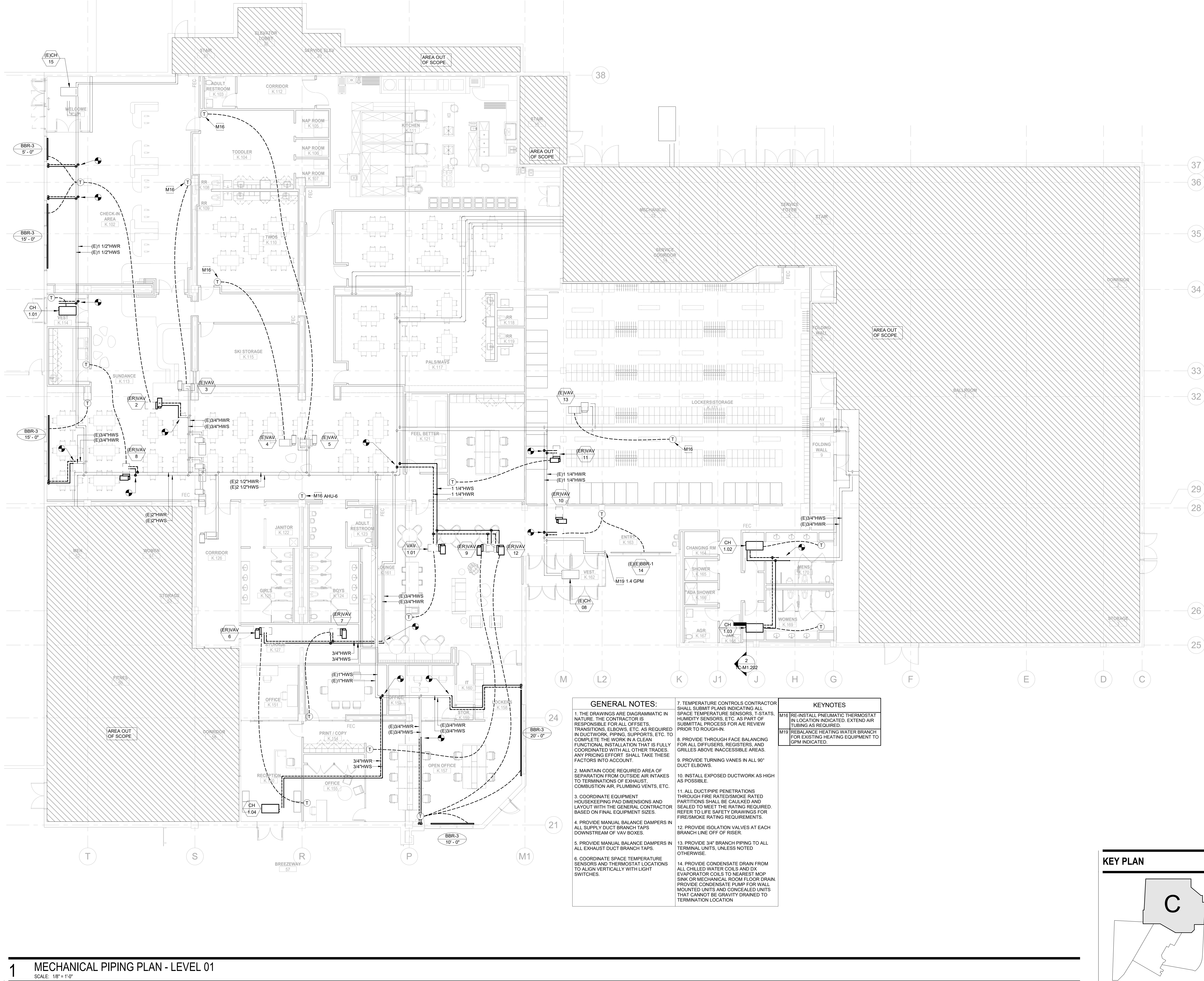
Description

MECHANICAL PIPING PLAN - LEVEL
01

Scale

1/8" = 1'-0"

1C-M1.301



GENERAL NOTES:

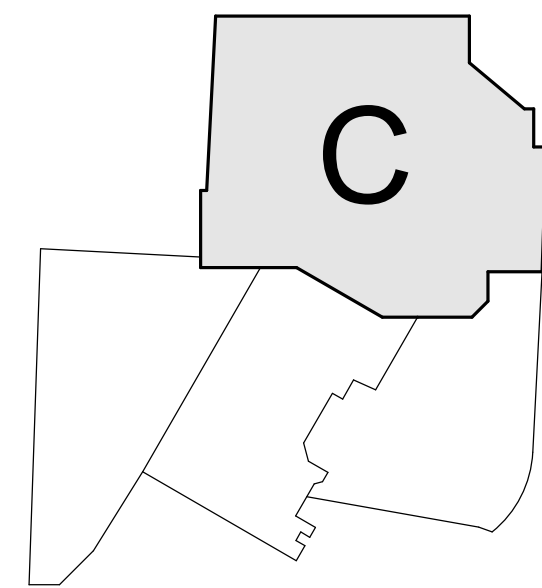
1. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED TO COMPLETE THE WORK IN A CLEAN, FUNCTIONAL INSTALLATION THAT IS FULLY COORDINATED WITH ALL OTHER TRADES. ANY PRICING EFFORT SHALL TAKE THESE FACTORS INTO ACCOUNT.
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9. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
10. INSTALL EXPOSED DUCTWORK AS HIGH AS POSSIBLE.
11. ALL DUCT/PIPE PENETRATIONS THROUGH FIRE RATED/SMOKE RATED PARTITIONS SHALL BE CALLED AND SEALED TO MEET THE RATING REQUIRED. REFER TO LIFE SAFETY DRAWINGS FOR FIRE/SMOKE RATING REQUIREMENTS.
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14. PROVIDE CONDENSATE DRAIN FROM ALL CHILLED WATER COILS AND DX EVAPORATOR COILS TO NEAREST MOP SINK OR MECHANICAL ROOM FLOOR DRAIN. PROVIDE CONDENSATE PUMP FOR WALL MOUNTED UNITS AND CONCEALED UNITS THAT CANNOT BE GRAVITY DRAINED TO TERMINATION LOCATION.

KEYNOTES

- M16 RE-INSTALL PNEUMATIC THERMOSTAT IN LOCATION INDICATED. EXTEND AIR TUBING AS REQUIRED.
- M19 REBALANCE HEATING WATER BRANCH FOR EXISTING HEATING EQUIPMENT TO GPM INDICATED.

KEY PLAN



Gensler

1225 17th Street
Suite 150
Denver, CO 80202
United States

Tel 303.595.8585
Fax 303.825.6823

me
engineers

14143 Denver West Pkwy
Suite 300
Golden, CO
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Tel 303.421.6655

MARTIN/MARTIN
ARCHITECTURE ENGINEERS

12499 West Cofax Ave.
Lakewood, CO 80215
United States
Tel 303.431.6100

CONTROL LEGEND

ABBR DESCRIPTION	ABBR DESCRIPTION	ABBR DESCRIPTION
AI ANALOG INPUT	FR FREEZESTAT	PHC PREHEAT COIL
AO ANALOG OUTPUT	FRN FURNACE	PT PRESSURE TRANSMITTER
BDD BACKDRAFT DAMPER	FS FLOW SWITCH	PZ PIEZOMETER RING
BTU BTU METER	FSCP FIREFIGHTER SMOKE	RA RETURN AIR
C CONTROLLER	FSPD FAN SPEED	RF RETURN FAN
CC COOLING COIL	FT FLOW TRANSMITTER	S SPACE TEMPERATURE SENSOR
CD CONTROL DAMPER	H HUMIDITY OR HIGH	S/S START/STOP
CFM AIRFLOW MEASURING SENSOR	HC HEATING COIL	SA SUPPLY AIR
CHR CHILLED WATER RETURN	H/L HIGH/LOW	SC SPEED CONTROL
OHS CHILLED WATER SUPPLY	HH HIGH LIMIT HUMIDITY SWITCH	SD SMOKE DETECTOR
CO2 CARBON DIOXIDE	HS HUMIDITY SENSOR	SF SUPPLY FAN
COND CONDENSATE OVERFLOW	HT HUMIDITY TRANSMITTER	SPT STATIC PRESSURE TRANSMITTER
COV CHANGE OF VALUE	HWR HOT WATER RETURN	SR SWITCHING RELAY
CSEN CURRENT SENSOR	HWS HOT WATER SUPPLY	T THERMOSTAT
DI DIGITAL INPUT	IR INTERLOCK RELAY	TM THERMAL MASS METER
DO DIGITAL OUTPUT	L LEVEL OR LOW	TO TIMED OVERRIDE SWITCH
DP DIFFERENTIAL PRESSURE	LAN LOCAL AREA NETWORK	TS TEMPERATURE SENSOR
EA EXHAUST AIR	CONNECTION	TT TEMPERATURE TRANSMITTER
ES END SWITCH	M MOTORIZED CONTROL	TTAB TEMPERATURE TRANSMITTER
F FILTER ASSEMBLY OR FAIL	MIN MINIMUM	W/AVERAGING BULB
FACP FIRE ALARM CONTROL PANEL	ND NITROGEN DIOXIDE	V VALVE
FAS FIRE ALARM SYSTEM	OA OUTSIDE AIR	VFD VARIABLE FREQUENCY DRIVE
FC FAIL CLOSED	OS OCCUPANCY SENSOR	VP VIRTUAL POINT
FCU FAN COIL UNIT	P SPACE STATIC PRESSURE	VS VELOCITY SENSOR
FM FLOW METER	P-E PNEUMATIC ELECTRIC SWITCH	WBT WET BULB TEMPERATURE TRANSMITTER
FO FAIL OPEN		

CONTROL SYSTEM GENERAL NOTES:

DESIGN INTENT:

- THE CONTROL DRAWINGS AND SEQUENCES ARE PROVIDED TO COMMUNICATE A DESIGN INTENT FOR CONTROL OF INDICATED SYSTEMS. ALTERNATIVE CONTROL METHODS MAY BE USED WHERE PRACTICAL OR WHERE NECESSARY TO MEET REQUIRED SYSTEM PERFORMANCE. WHERE ALTERNATIVE CONTROL METHODS ARE USED TO MEET THE DESIGN INTENT, THESE METHODS SHALL BE INDICATED IN SUBMITTAL TO ENGINEER FOR EVALUATION. ENGINEER SHALL DETERMINE IF A SUBMITTED ALTERNATIVE CONTROL METHOD MEETS THE DESIGN INTENT.
- ALTHOUGH THE MECHANICAL DRAWINGS MAY INDICATE A PRODUCT AS BASIS OF DESIGN, THE CONTROL DRAWINGS AND SEQUENCES ARE PROVIDED TO INDICATE A DESIGN INTENT FOR THE COMPLETE SYSTEM THAT IS APPLICABLE TO MULTIPLE POTENTIAL PRODUCTS OR MANUFACTURERS. CONTROL METHODS SHALL BE DEVELOPED BY THE TEMPERATURE CONTROLS CONTRACTOR AND/OR EQUIPMENT PROVIDER IN ORDER TO ACHIEVE THE REQUIRED SYSTEM PERFORMANCE.

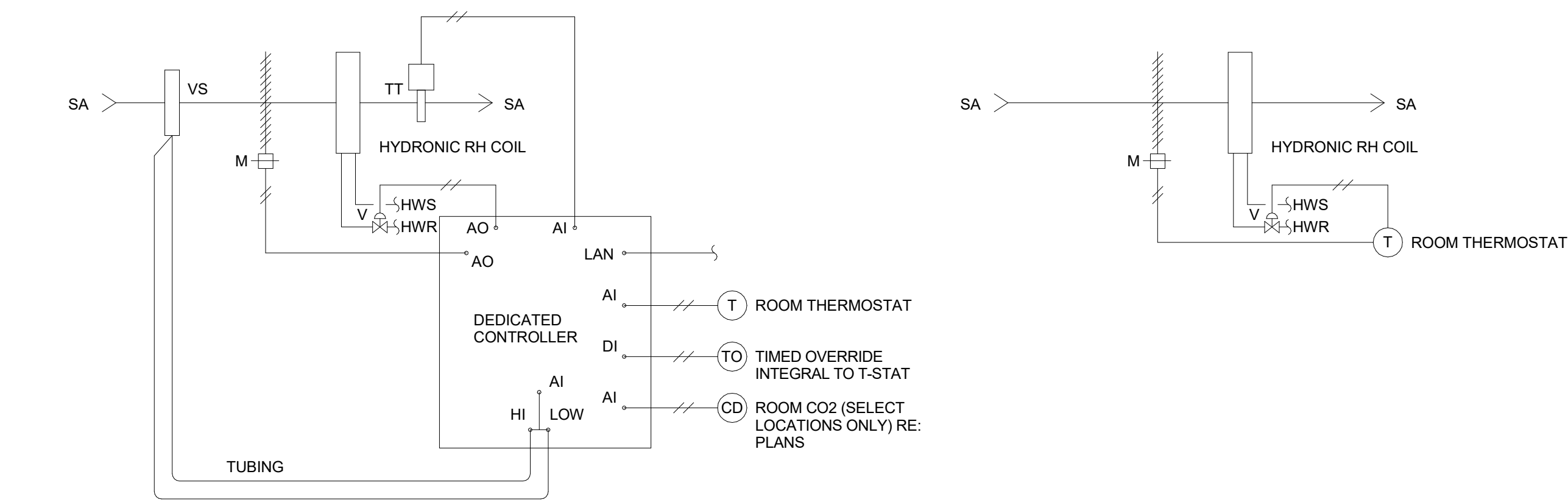
REQUIRED COORDINATION:

- THE DIVISION 23 CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN EQUIPMENT PROVIDERS AND TEMPERATURE CONTROLS CONTRACTOR IN ORDER TO FULLY SATISFY THE DESIGN INTENT. INTERFACE BETWEEN THE BMS AND CONTROLLED EQUIPMENT, INCLUDING ITEMS PROVIDED BY EACH ENTITY, COMMUNICATION PROTOCOL, SIGNAL TYPE, ETC., SHALL BE COORDINATED PRIOR TO RELEASE OF EQUIPMENT FOR PRODUCTION. NOTE: THE PROJECT SCOPE AREA IS NOT CURRENTLY PROVIDED WITH A BMS. HOWEVER A PLANNED UPGRADE TO DDC CONTROLS IS ANTICIPATED. COORDINATE COMMUNICATION PROTOCOL AND CONTROLLER REQUIREMENTS WITH BUILDING OWNER (SHERATON).
- THE TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE SUBMITTAL DRAWINGS AND PRODUCT DATA FOR THE ENTIRE CONTROL SYSTEM TO ENGINEER FOR REVIEW. THE TEMPERATURE CONTROLS SUBMITTAL SHALL DISTINGUISH WHERE SPECIFIC SEQUENCE ELEMENTS ARE PROVIDED WITHIN THE BUILDING MANAGEMENT SYSTEM OR WITHIN PACKAGED EQUIPMENT CONTROLLERS. RE: SPECIFICATIONS FOR REQUIREMENTS.
- REFER TO SPECIFICATION SECTION 23 05 01 MECHANICAL AND ELECTRICAL COORDINATION.

SEQUENCE OF OPERATION GENERAL NOTES:

INITIAL SPACE THERMOSTAT SETPOINTS

- INITIAL SPACE THERMOSTAT SETPOINTS SHALL BE AS FOLLOWS:
 - OCCUPIED OFFICE AND CONFERENCE ROOM SPACES:
COOLING: 76F
HEATING: 70F
 - MECHANICAL AND ELECTRICAL ROOMS:
COOLING: 80F
HEATING: 65F
 - BUILDING ENTRY VESTIBULES:
COOLING: 85F (WHERE COOLING IS PROVIDED)
HEATING: 60F
 - MISCELLANEOUS HEATING-ONLY AREAS:
HEATING: 65F
- ALL SPACE THERMOSTAT SETPOINTS CORRESPONDING TO EQUIPMENT CONTROLLED BY THE BMS SHALL BE ADJUSTABLE FROM THE BMS OPERATOR STATION.



SUPPLY VARIABLE AIR VOLUME (VAV) BOX WITH HOT WATER REHEAT AND DDC CONTROLLER

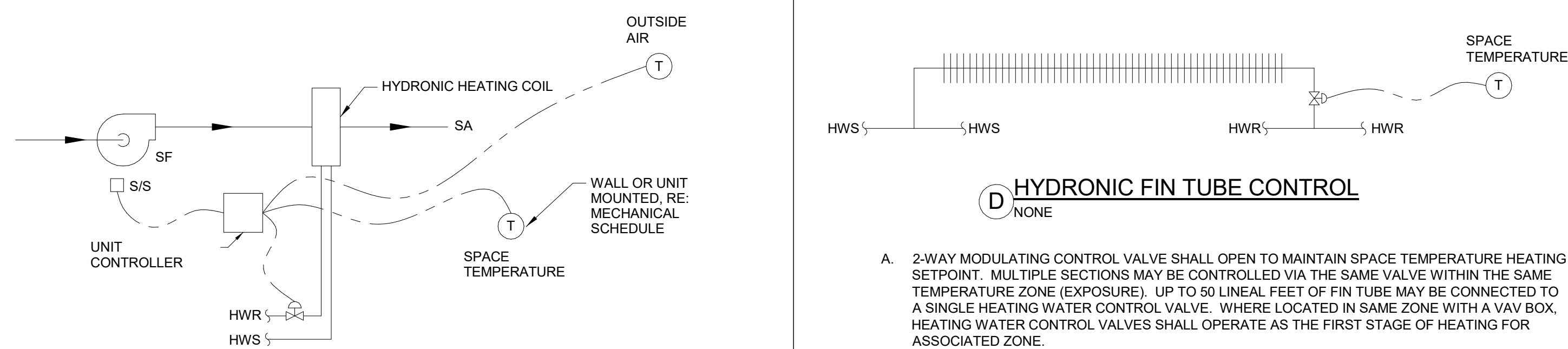
SEQUENCE OF OPERATION:

- OCCUPIED MODE:
 - ON A RISE IN SPACE TEMPERATURE ABOVE THE COOLING SETPOINT, THE UNIT SHALL MODULATE UP TO ITS MAXIMUM CFM TO MAINTAIN COOLING SETPOINT. AS SPACE TEMPERATURE DECREASES, THE UNIT SHALL MODULATE DOWN TO ITS MINIMUM COOLING CFM TO MAINTAIN COOLING SETPOINT. UPON A FURTHER DECREASE IN SPACE TEMPERATURE, THE HEATING WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN HEATING SETPOINT.
- UNOCCUPIED MODE:
 - SPACE TEMPERATURE SHALL BE SETBACK AND MAINTAINED BELOW A 5F (ADJ.) OFFSET TO OCCUPIED MODE COOLING SETPOINT AND ABOVE A 10F (ADJ.) OFFSET TO OCCUPIED MODE HEATING SETPOINT.
 - WHEN COOLING OR HEATING IS REQUIRED IN THE SPACE, THE AIR HANDLING SYSTEM SERVING THE UNIT SHALL CYCLE ON AND THE UNIT SHALL OPERATE PER OCCUPIED MODE SEQUENCE TO MAINTAIN SETBACK SPACE TEMPERATURE.
 - IF THE AIR HANDLING SYSTEM SERVING THE UNIT CYCLES ON AT ANY TIME DURING UNOCCUPIED MODE, THE UNIT CONTROL DAMPER SHALL BE OPEN AND UNIT SHALL MODULATE PER THE SETBACK MODE ABOVE.
- PRE-OCCUPANCY WARM-UP AND COOL-DOWN MODES:
 - WHEN THE AIR HANDLING SYSTEM SERVING THE UNIT ENTERS PRE-OCCUPANCY WARM-UP OR PRE-OCCUPANCY COOL-DOWN MODE, UNIT SHALL OPERATE PER OCCUPIED MODE SEQUENCE. UNIT SHALL CONTINUE TO OPERATE IN OCCUPIED MODE AS THE AIR HANDLING SYSTEM TRANSITIONS TO OCCUPIED MODE.
- FUTURE INTEGRATION:
 - THE AREA SERVED IS NOT CURRENTLY PROVIDED WITH A BMS. VAV CONTROLLER SHALL BE PROVIDED READY TO BE INTEGRATED WITH FUTURE BUILDING BMS. COORDINATE CONTROLLER REQUIREMENTS WITH BUILDING OWNER (SHERATON).

EXISTING/RELOCATED VARIABLE AIR VOLUME (VAV) BOX WITH HOT WATER REHEAT AND PNEUMATIC CONTROL

SEQUENCE OF OPERATION:

- ON A RISE IN SPACE TEMPERATURE ABOVE COOLING SETPOINT, THE UNIT SHALL MODULATE UP TO ITS MAXIMUM CFM TO MAINTAIN COOLING SETPOINT. AS SPACE TEMPERATURE DECREASES, THE UNIT SHALL MODULATE DOWN TO ITS MINIMUM COOLING CFM TO MAINTAIN COOLING SETPOINT. UPON A FURTHER DECREASE IN SPACE TEMPERATURE, THE HEATING WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN HEATING SETPOINT.

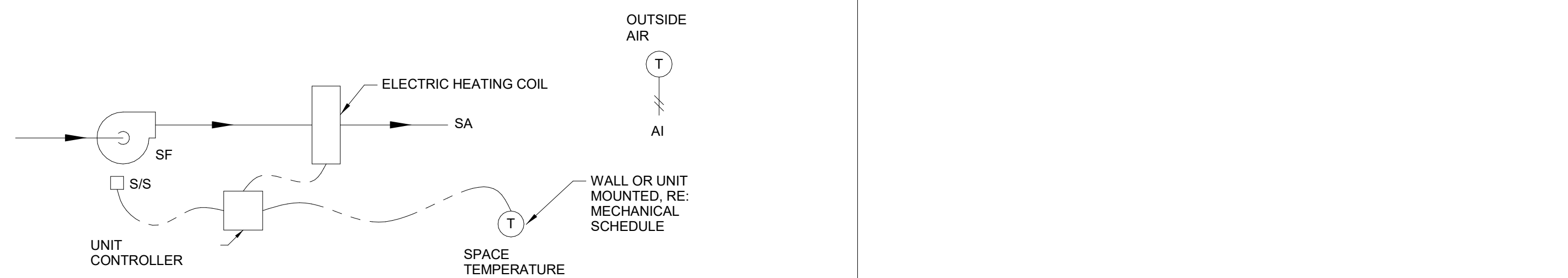


HYDRONIC FIN TUBE CONTROL

- 2-WAY MODULATING CONTROL VALVE SHALL OPEN TO MAINTAIN SPACE TEMPERATURE HEATING SETPOINT. MULTIPLE SECTIONS MAY BE CONTROLLED VIA THE SAME VALVE WITHIN THE SAME TEMPERATURE ZONE (EXPOSURE). UP TO 50 LINEAL FEET OF FIN TUBE MAY BE CONNECTED TO A SINGLE HEATING WATER CONTROL VALVE. WHERE LOCATED IN SAME ZONE WITH A VAV BOX, HEATING WATER CONTROL VALVES SHALL OPERATE AS THE FIRST STAGE OF HEATING FOR ASSOCIATED ZONE.

HYDRONIC CABINET UNIT HEATER/ HYDRONIC UNIT HEATER CONTROL

- THERMOSTAT SHALL CYCLE FAN & OPEN HEATING WATER VALVE TO MAINTAIN SPACE SETPOINT.
- WHERE REMOTE MOUNTED THERMOSTAT IS INDICATED, PROVIDE CONTROL TRANSFORMER AND LOW VOLTAGE THERMOSTAT BY TEMPERATURE CONTROLS CONTRACTOR.
- ALL HEATERS SERVING BUILDING ENTRY VESTIBULES SHALL BE PROVIDED WITH OUTSIDE AIR TEMPERATURE SENSOR AND RELAY TO INTERRUPT POWER AND PREVENT UNIT OPERATION WHEN OUTSIDE AIR IS ABOVE 45 DEGREES F. EACH VESTIBULE THERMOSTAT SHALL BE CONFIGURED TO HEAT THE VESTIBULE TO NO HIGHER THAN 60 DEGREES F.



ELECTRIC CABINET UNIT HEATER/ ELECTRIC UNIT HEATER CONTROL

- THERMOSTAT SHALL CYCLE FAN & ENERGIZE ELECTRIC HEAT TO MAINTAIN SPACE SETPOINT.
- WHERE REMOTE MOUNTED THERMOSTAT IS INDICATED, PROVIDE CONTROL TRANSFORMER AND LOW VOLTAGE THERMOSTAT BY TEMPERATURE CONTROLS CONTRACTOR.
- ALL HEATERS SERVING BUILDING ENTRY VESTIBULES SHALL BE PROVIDED WITH OUTSIDE AIR TEMPERATURE SENSOR AND RELAY TO INTERRUPT POWER AND PREVENT UNIT OPERATION WHEN OUTSIDE AIR IS ABOVE 45 DEGREES F. EACH VESTIBULE THERMOSTAT SHALL BE CONFIGURED TO HEAT THE VESTIBULE TO NO HIGHER THAN 60 DEGREES F.

Date	Description
2021.06.04	BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION

RCRBD
Record Set
TC
08/02/2021

Seal / Signature



06/04/2021

Project Name

Steamboat Base Village
Redevelopment

Project Number

003.7835.000

Description

MECHANICAL CONTROLS

Scale

1/8" = 1'-0"

1C-M7.000

Date	Description
2021.06.04	BP4C - KVC INTERIORS - ISSUED FOR PERMIT AND CONSTRUCTION

RCRBD
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06/04/2021

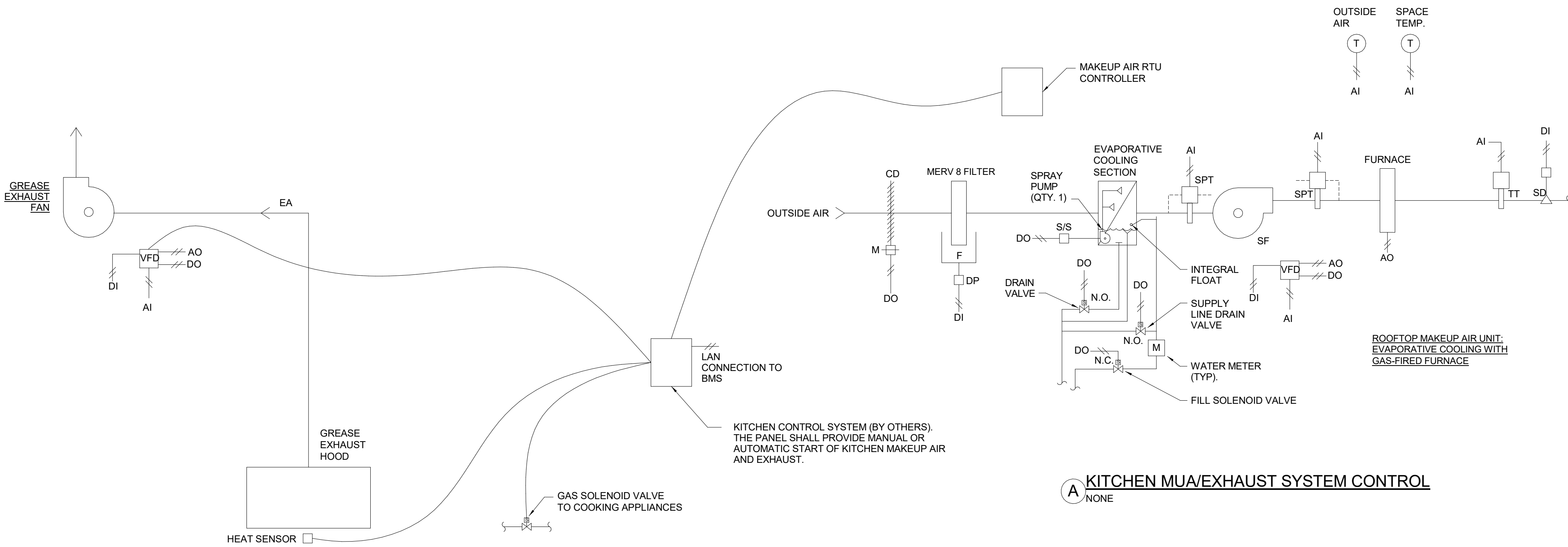
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Scale
NOT TO SCALE

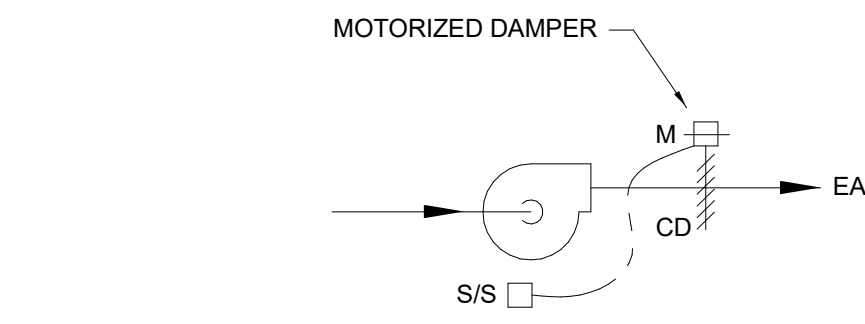
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KITCHEN MAKEUP AIR AND KITCHEN EXHAUST FAN SYSTEM:

- A. CONFIGURATION, RE: SCHEDULE
- B. GENERAL:
1. THE KITCHEN MAKEUP AIR UNIT AND GREASE EXHAUST FAN SHALL BE CONTROLLED BY THE KITCHEN CONTROL SYSTEM (BY OTHERS).
 2. THE FOLLOWING SEQUENCE SHALL BE EXECUTED BY THE KITCHEN CONTROL SYSTEM.
 3. REFER TO FOOD SERVICE PLANS AND SPECIFICATIONS.
- C. OCCUPIED MODE:
1. THE MUA UNIT AND GREASE EXHAUST FAN SHALL ENTER OCCUPIED MODE UPON REMOTE SIGNAL FROM KITCHEN CONTROL SYSTEM OR UPON HIGH TEMPERATURE AT ANY EXHAUST HOOD. THE MUA SUPPLY FAN SHALL OPERATE CONTINUOUSLY AND THE ON DAMPER SHALL BE OPEN 100%. COOLING AND HEATING SHALL MODULATE IN SEQUENCE TO MAINTAIN DISCHARGE AIR TEMPERATURE. MUA SUPPLY FAN SHALL MAINTAIN CONSTANT SUPPLY AIRFLOW IN ORDER TO MAINTAIN CONSTANT KITCHEN AIRFLOW OFFSET.
 2. WHEN KITCHEN IS IN OCCUPIED MODE, THE GREASE EXHAUST FAN SHALL MODULATE EXHAUST AIRFLOW BASED ON COOKING ACTIVITY UNDER THE HOOD. WHEN THE HEAT SENSOR MOUNTED WITHIN A HOOD INDICATES THAT COOKING ACTIVITY IS PRESENT, THE GREASE EXHAUST FAN SHALL RAMP TO 100% AIRFLOW. WHEN THE HEAT SENSOR MOUNTED WITHIN A HOOD INDICATES THAT COOKING ACTIVITY IS NOT PRESENT, THE GREASE EXHAUST FAN SHALL RAMP TO 50% AIRFLOW.
 3. KITCHEN OCCUPIED MODE SHALL RUN FOR A MINIMUM RUN-TIME OF 15 MINUTES (ADJ.) UNDER ALL OPERATING CONDITIONS. KITCHEN OCCUPIED MODE SHALL CONTINUE TO RUN FOR A MINIMUM RUN-TIME OF 30 MINUTES (ADJ.) AFTER BEING ACTIVATED BY TEMPERATURE RISE WITHIN THE HOOD.
- D. UNOCCUPIED MODE:
1. THE MUA UNIT AND GREASE EXHAUST FAN SHALL ENTER UNOCCUPIED MODE UPON REMOTE SIGNAL FROM KITCHEN CONTROL SYSTEM. IF ANY HEAT DETECTOR IN THE KITCHEN INDICATES THAT COOKING ACTIVITY IS PRESENT, THE SYSTEM SHALL NOT ENTER UNOCCUPIED MODE AND SHALL REMAIN IN OCCUPIED MODE.
 2. WHEN KITCHEN IS IN UNOCCUPIED MODE, THE MUA SUPPLY FAN SHALL BE OFF, THE MUA OUTSIDE AIR DAMPER SHALL BE CLOSED, COOLING SHALL BE DISABLED, AND HEATING SHALL BE DISABLED.
 3. WHEN KITCHEN IS IN UNOCCUPIED MODE, THE GREASE EXHAUST FAN SHALL BE DISABLED.
- E. FAN SAFETY CONTROLS:
1. DE-ENERGIZE THE MUA SUPPLY FAN AND CLOSE THE MUA OUTSIDE AIR DAMPER WHENEVER THE MUA SUPPLY DUCT SMOKE DETECTOR HAS TRIPPED. SMOKE DETECTOR SHALL REQUIRE A MANUAL RESET. GREASE EXHAUST FAN SHALL CONTINUE TO RUN IF OPERATING.
 2. DE-ENERGIZE THE MUA SUPPLY FAN AND CLOSE THE MUA OUTSIDE AIR DAMPER WHENEVER THE MUA SUPPLY FAN HAS FAILED (AFTER A TWO-MINUTE DELAY). FAN FAILURE SHALL REQUIRE A MANUAL RESET. GREASE EXHAUST FAN SHALL CONTINUE TO RUN IF OPERATING.
 3. PROVIDE SUCTION STATIC PRESSURE SWITCH AT INLET OF MUA SUPPLY FAN. SWITCH TO BE TIED TO SUPPLY FAN START CIRCUIT. DE-ENERGIZE THE MUA SUPPLY FAN AND CLOSE THE MUA OUTSIDE AIR DAMPER WHEN SUCTION STATIC PRESSURE HIGH-LIMIT REACHES 2.0 INCHES WC (ADJ.). GREASE EXHAUST FAN SHALL CONTINUE TO RUN IF OPERATING.
- F. KITCHEN SAFETY CONTROLS:
1. NORMALLY CLOSED GAS SOLENOID VALVE(S) SHALL BE INTERLOCKED WITH KITCHEN HOOD CONTROL SYSTEM, MUA SUPPLY FAN, AND GREASE EXHAUST FAN.
- G. VFD CONTROL:
1. WHEN THE MUA SUPPLY FAN IS ENABLED IN OCCUPIED MODE, THE VFD SHALL SLOWLY RAMP UP TO SETPOINT AND MODULATE TO MAINTAIN THE PROPER AIRFLOW OFFSET BETWEEN KITCHEN MAKEUP AIR AND EXHAUST. AIRFLOW OFFSET SHALL REMAIN CONSTANT DURING ALL OPERATING CONDITIONS.
 2. WHEN THE GREASE EXHAUST FAN IS ENABLED IN OCCUPIED MODE, THE VFD SHALL SLOWLY RAMP UP TO SETPOINT AND MODULATE TO MAINTAIN PROPER AIRFLOW BASED ON COOKING ACTIVITY UNDER THE CORRESPONDING HOOD.
- H. DISCHARGE AIR TEMPERATURE:
1. WHEN SYSTEM IS IN OCCUPIED MODE, COOLING AND HEATING SHALL BE ENABLED IN SEQUENCE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. DISCHARGE AIR TEMPERATURE COOLING SETPOINT SHALL BE 70F (ADJ.). DISCHARGE AIR TEMPERATURE HEATING SETPOINT SHALL BE 65F (ADJ.).
- I. HEATING CONTROL:
1. THE UNIT SHALL MODULATE HEATING THROUGH ITS INTERNAL CONTROLS TO MAINTAIN THE DAT. HEATING SHALL BE DISABLED IF THE SUPPLY FAN IS OFF OR IF THE SYSTEM IS IN COOLING MODE.
- J. COOLING CONTROL:
1. THE UNIT SHALL MODULATE COOLING THROUGH ITS INTERNAL CONTROLS TO MAINTAIN THE DAT. COOLING SHALL BE DISABLED IF THE SUPPLY FAN IS OFF, THE SYSTEM IS IN HEATING MODE, OR THE DISCHARGE AIR SENSOR HAS FAILED.
- K. HOOD FIRE PROTECTION SYSTEM:
1. IN THE EVENT OF A FIRE, THE HOOD FIRE PROTECTION SYSTEM, BY OTHER DIVISION, SHALL SEND A SIGNAL THROUGH THE FIRE PROTECTION SYSTEM TO SHUT DOWN THE MUA SUPPLY FAN. GREASE EXHAUST FAN TO BREAK STANDARD OPERATING INTERLOCK WITH MUA AND CONTINUE IN EXHAUST MODE.
 2. UPON ACTIVATION OF THE HOOD FIRE PROTECTION SYSTEM, POWER SHALL BE CUT OFF TO THE GAS SOLENOID VALVE AND THE VALVE SHALL CLOSE.
- L. EVAPORATIVE COOLING SYSTEM:
1. WHEN OUTSIDE AIR IS ABOVE 60F (ADJ.) AND THE SYSTEM IS IN OCCUPIED MODE, THE SUMP SHALL FILL AND COOLING SHALL BE ENABLED.
 2. WHEN OUTSIDE AIR IS BELOW 60F (ADJ.) AND THE SYSTEM IS IN OCCUPIED MODE, THE SUMP SHALL FULLY DRAIN AND THE SPRAY PUMP SHALL BE LOCKED OUT.
 3. WHEN UNIT ENTERS UNOCCUPIED MODE, THE SUMP SHALL FULLY DRAIN AND THE SPRAY PUMP SHALL BE LOCKED OUT.
 4. WHEN SIGNAL TO DRAIN SUMP IS INITIATED, SUMP FILL VALVE SHALL BE CLOSED, SUMP DRAIN VALVE SHALL OPEN, AND FILL LINE DRAIN VALVE SHALL OPEN. DRAIN SYSTEM SHALL FULLY DRAIN ALL SUPPLY LINES THAT ARE EXPOSED TO FREEZING CONDITIONS.
 5. WHEN SIGNAL TO FILL SUMP IS INITIATED, SUMP DRAIN VALVE SHALL CLOSE, FILL LINE DRAIN VALVE SHALL CLOSE, AND SUMP FILL VALVE SHALL OPEN UNTIL SUMP LEVEL SWITCH IS MADE. SUMP FILL VALVE SHALL OPEN AS REQUIRED TO MAINTAIN SUMP WATER LEVEL.

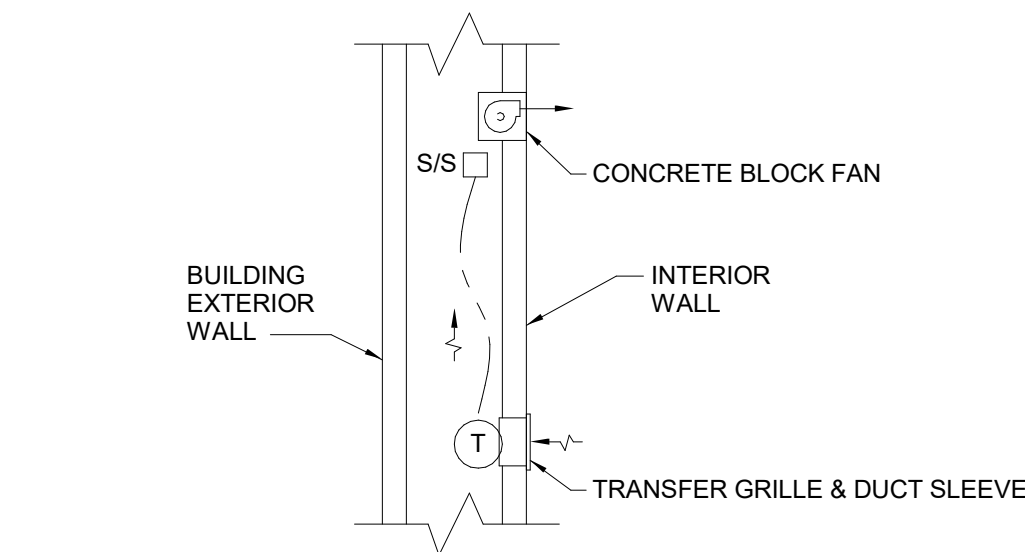


A KITCHEN MUA/EXHAUST SYSTEM CONTROL
NONE



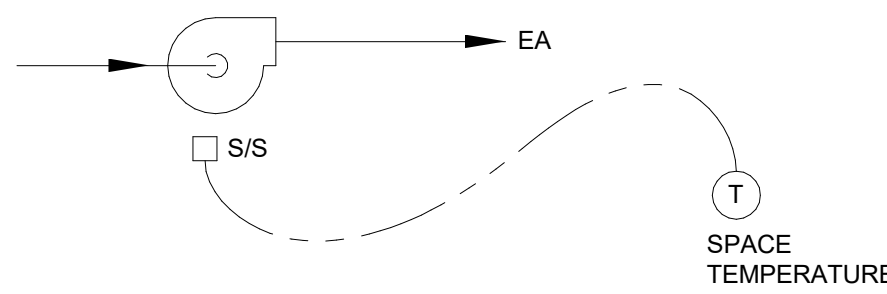
B ENVIRONMENTAL FAN CONTROL - TYPE I
NONE

- A. MOTORIZED DAMPER SHALL OPEN AND FAN SHALL BE ENERGIZED WHENEVER AIR HANDLING SYSTEM SERVING SAME AREA IS OPERATING. INTERLOCK FAN WITH CORRESPONDING SUPPLY



WET WALL FREEZE PROTECTION
C ENVIRONMENTAL FAN CONTROL - TYPE II
NONE

- A. CONCRETE BLOCK FANS SHALL BE ENABLED WHENEVER TEMPERATURE INSIDE THE WALL CAVITY IS AT OR BELOW 50F (ADJ.) AND SHALL DISABLE WHENEVER THE WALL CAVITY RISES ABOVE 50F.

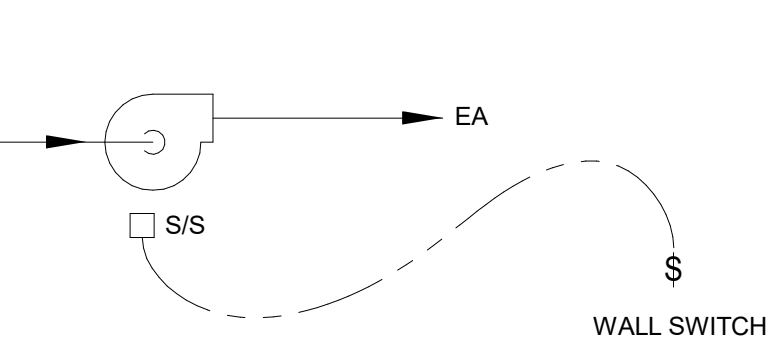


D1 ENVIRONMENTAL FAN CONTROL - TYPE III
NONE

- A. WHEN SPACE TEMPERATURE RISES ABOVE SETPOINT, ENERGIZE FAN AND OPERATE CONTINUOUSLY UNTIL SPACE TEMPERATURE FALLS BELOW SETPOINT. INITIAL SETPOINT SHALL BE 75F (ADJ.).
- B. PROVIDE CONTROL TRANSFORMER AND LOW VOLTAGE THERMOSTAT BY TEMPERATURE CONTROLS CONTRACTOR.

D2 ENVIRONMENTAL FAN CONTROL - TYPE VI
NONE

- A. WHEN SPACE TEMPERATURE RISES ABOVE OR FALLS BELOW SETPOINT, ENERGIZE FAN AND OPERATE CONTINUOUSLY UNTIL SPACE TEMPERATURE IS SATISFIED. INITIAL SETPOINT SHALL BE 80F HIGH TEMPERATURE, 60F LOW TEMPERATURE (ADJ.).
- B. PROVIDE CONTROL TRANSFORMER AND LOW VOLTAGE THERMOSTAT BY TEMPERATURE CONTROLS CONTRACTOR.



E ENVIRONMENTAL FAN CONTROL - TYPE IV
NONE

- A. WHEN WALL SWITCH IS TOGGLED TO ON POSITION, FAN SHALL ENERGIZE.

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06/04/2021

Project Name

Steamboat Base Village
Redevelopment

Project Number

003.7835.000

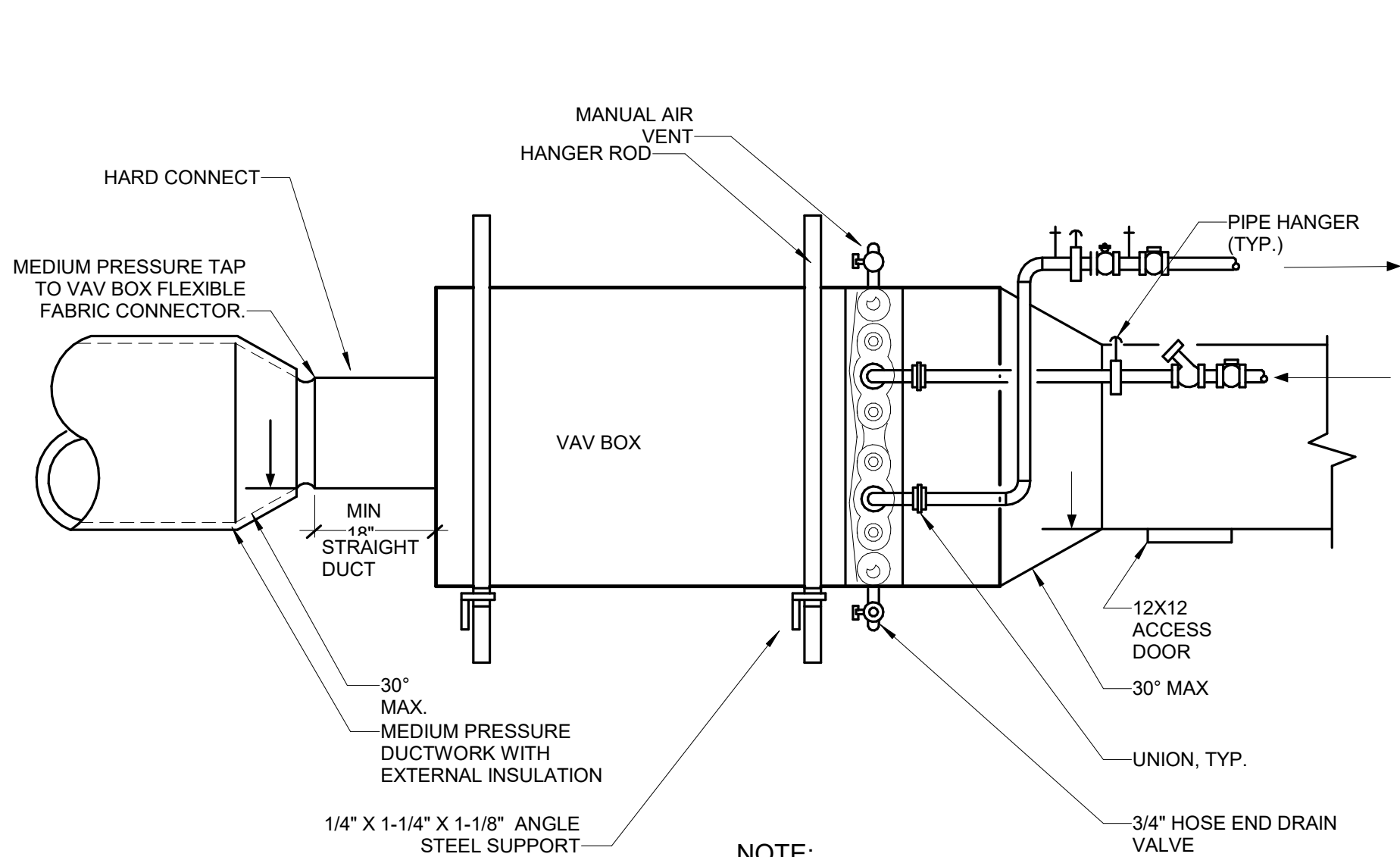
Description

MECHANICAL DETAILS

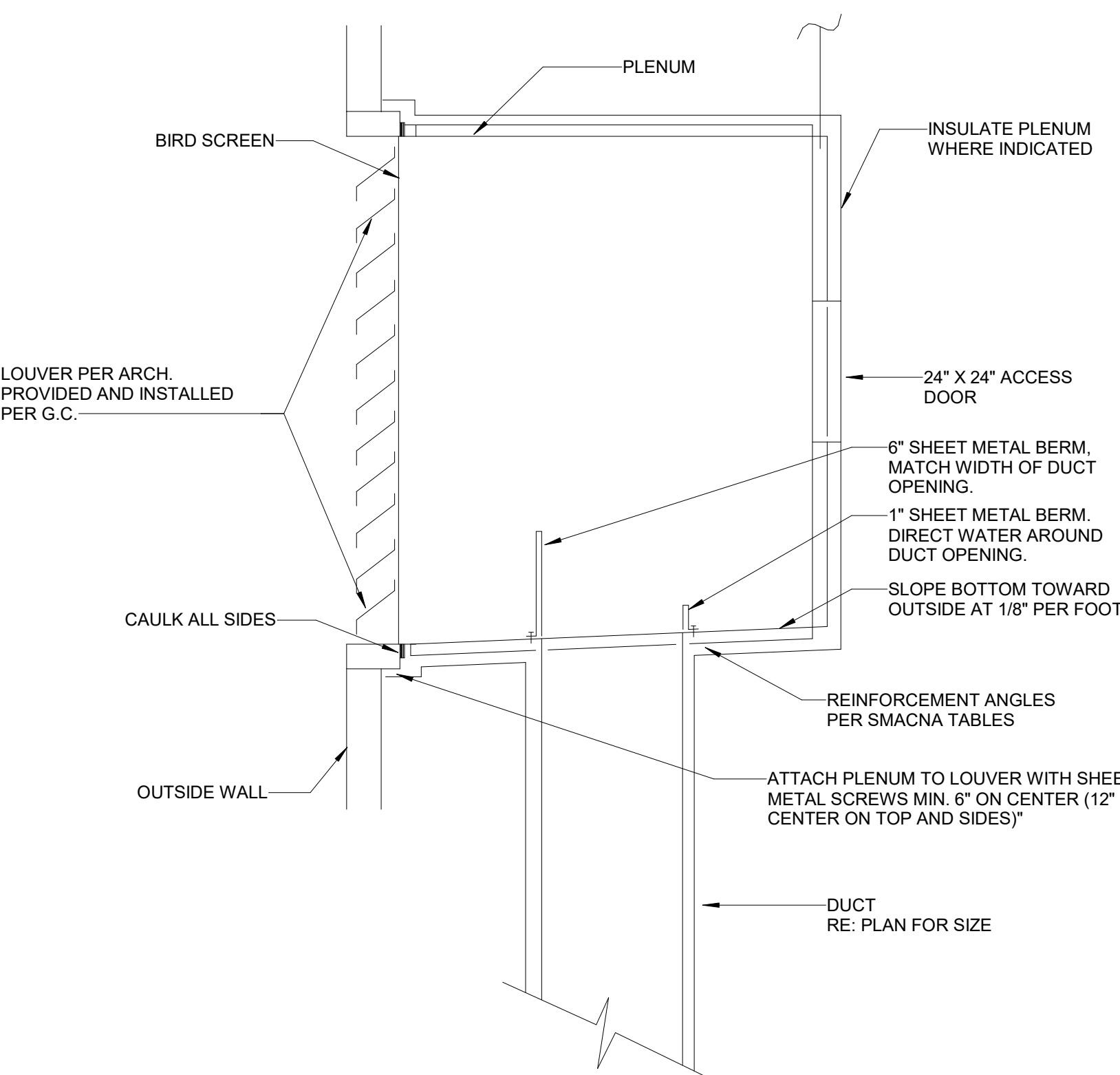
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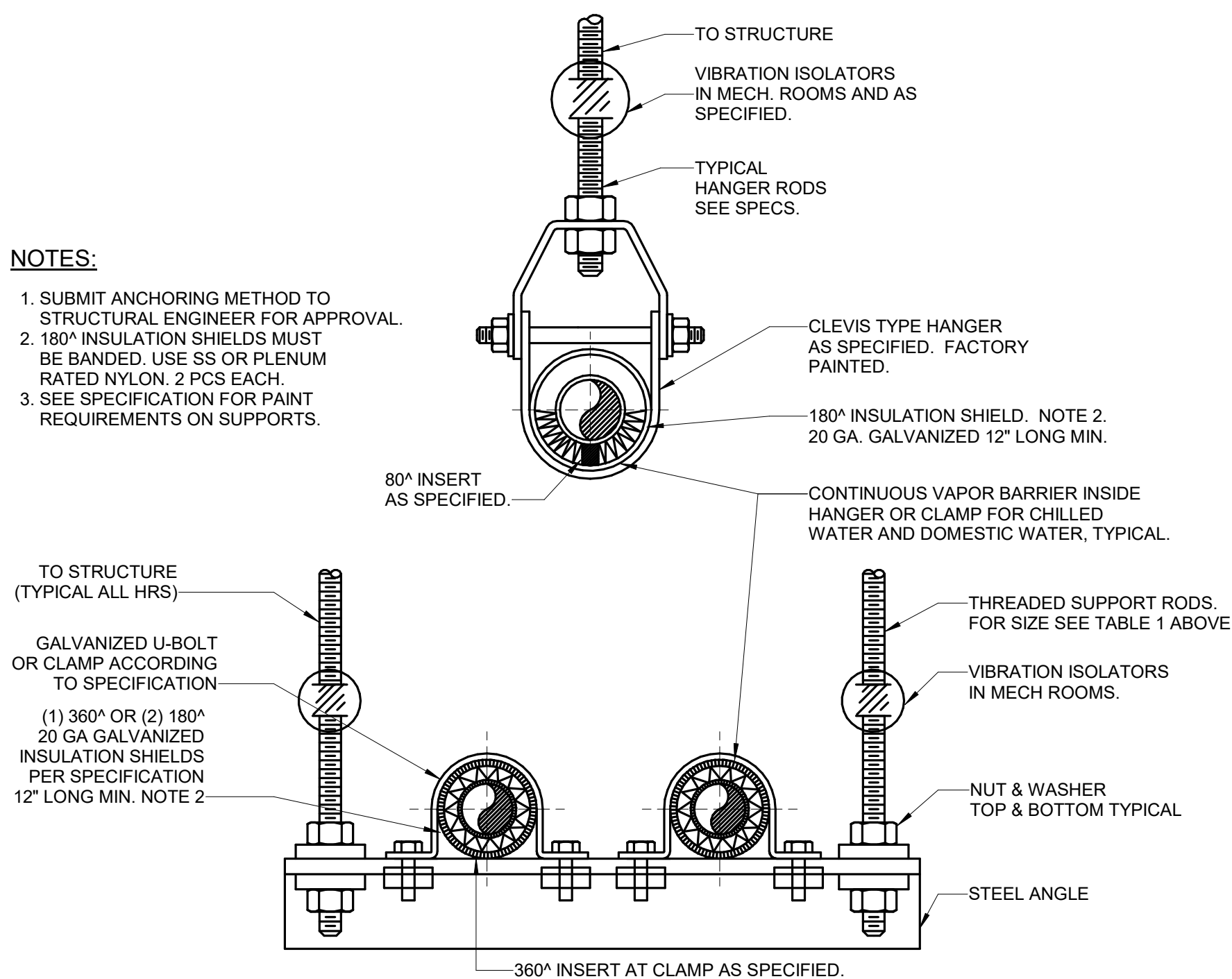
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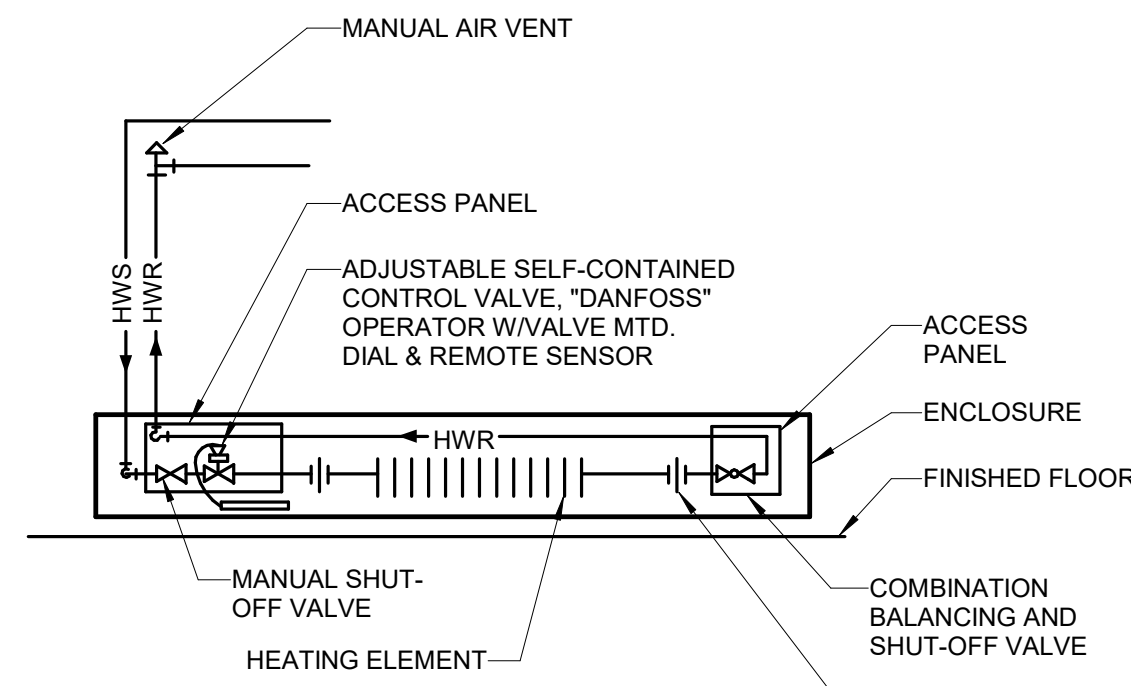
9 VAV BOX WITH COIL DETAIL
NO SCALE



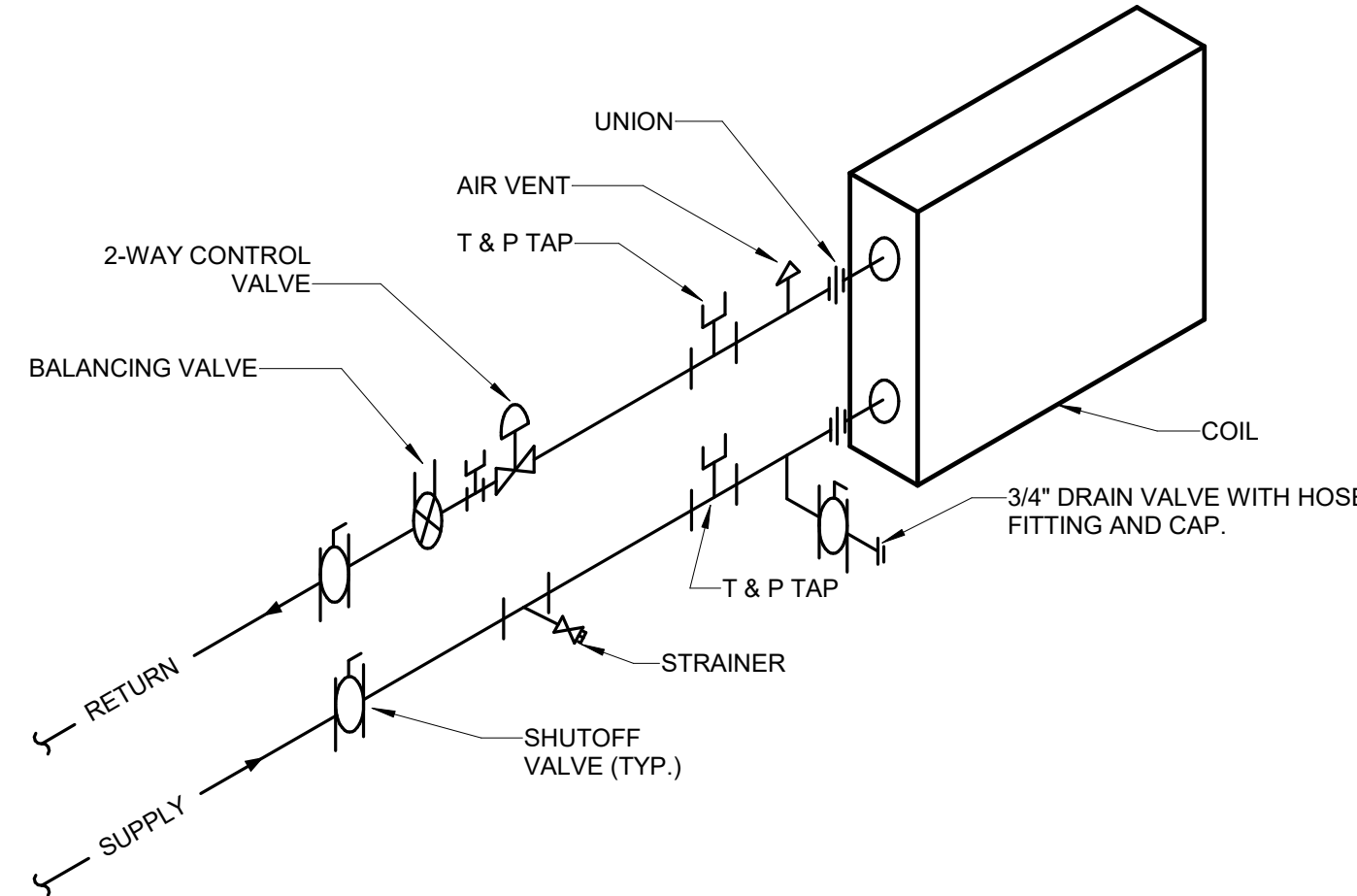
10 EXTERIOR LOUVER PLENUM BOX DETAIL
NO SCALE



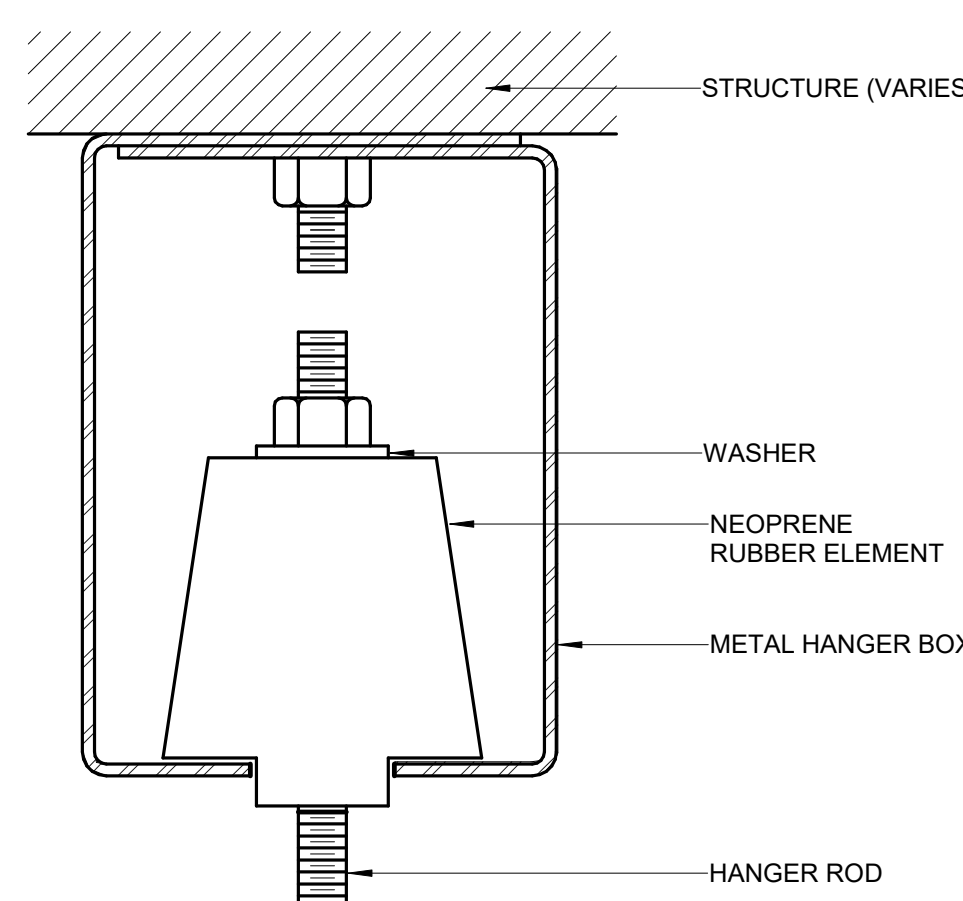
11 TYPICAL PIPE HANGER DETAIL
NO SCALE



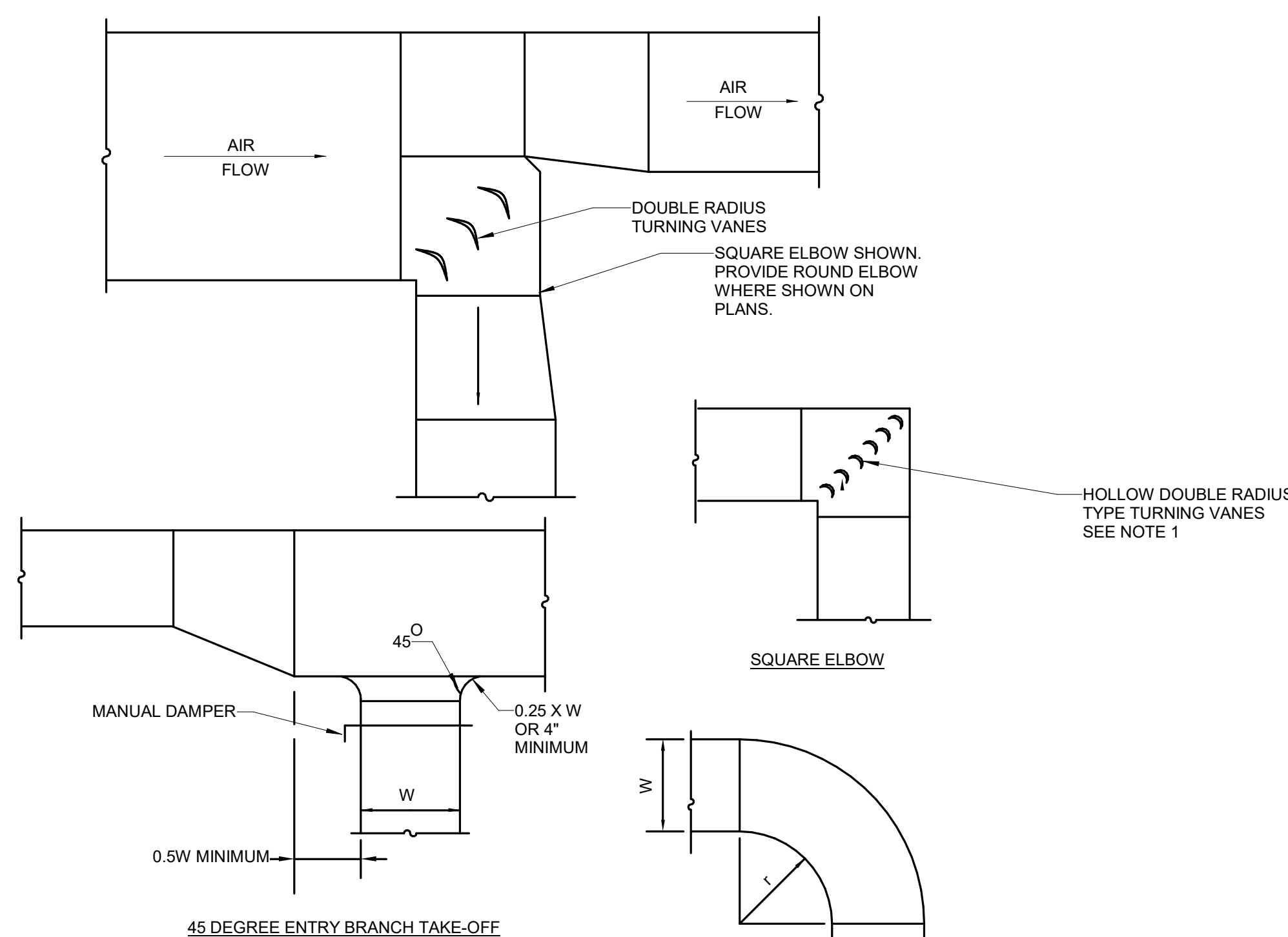
5 HOT WATER BASEBOARD DETAIL
NO SCALE



6 TYPICAL WATER COIL CONNECTION DETAIL (2 WAY CONTROL)
NO SCALE

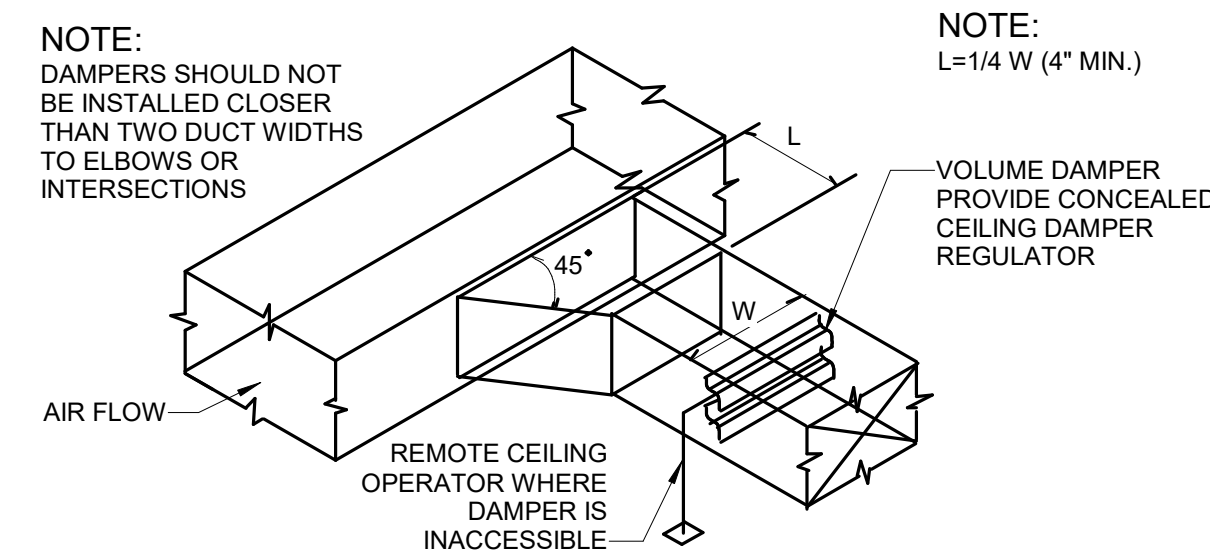


7 ISOLATOR TYPE HN-NEOPRENE HANGER
NO SCALE

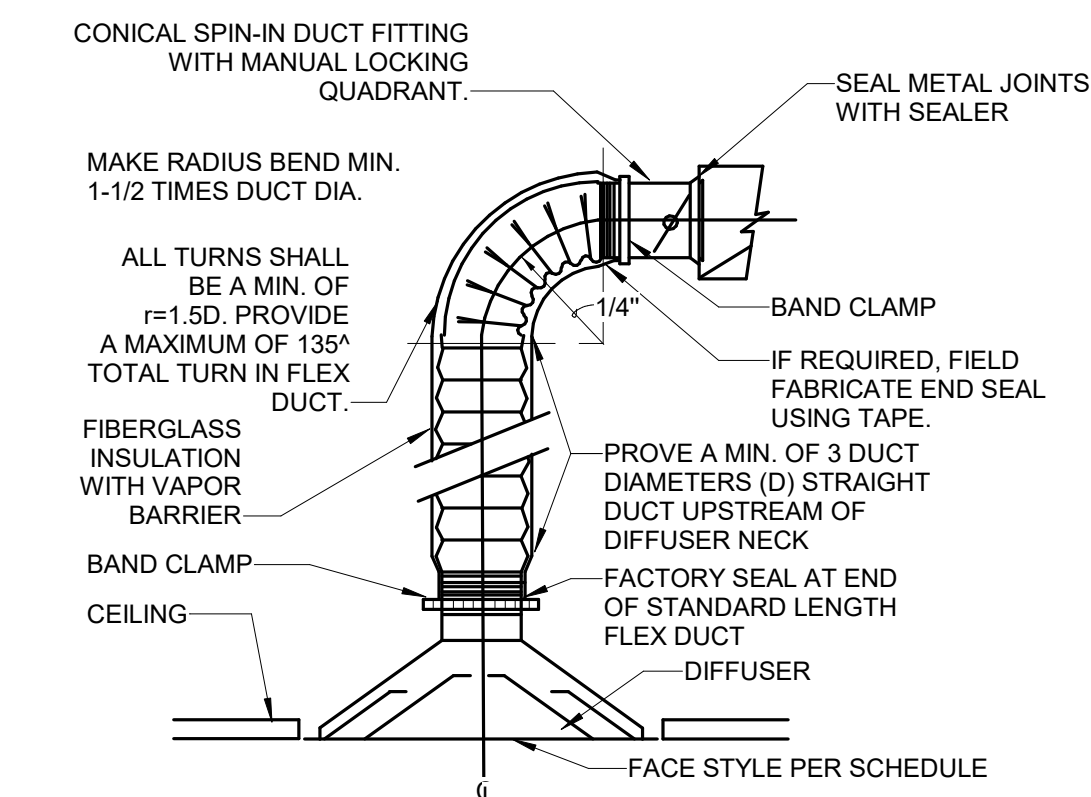


- NOTES:
- FOR DUCT WIDTH LESS THAN 18", USE MINIMUM 26 GA VANES AT 2-1/8" O.C. FOR DUCT 18" AND WIDER, USE MINIMUM 24 GA VANES AT 3-1/4" O.C.
 - FITTINGS TO BE 2 GAGES HEAVIER THAN CONNECTED DUCT.

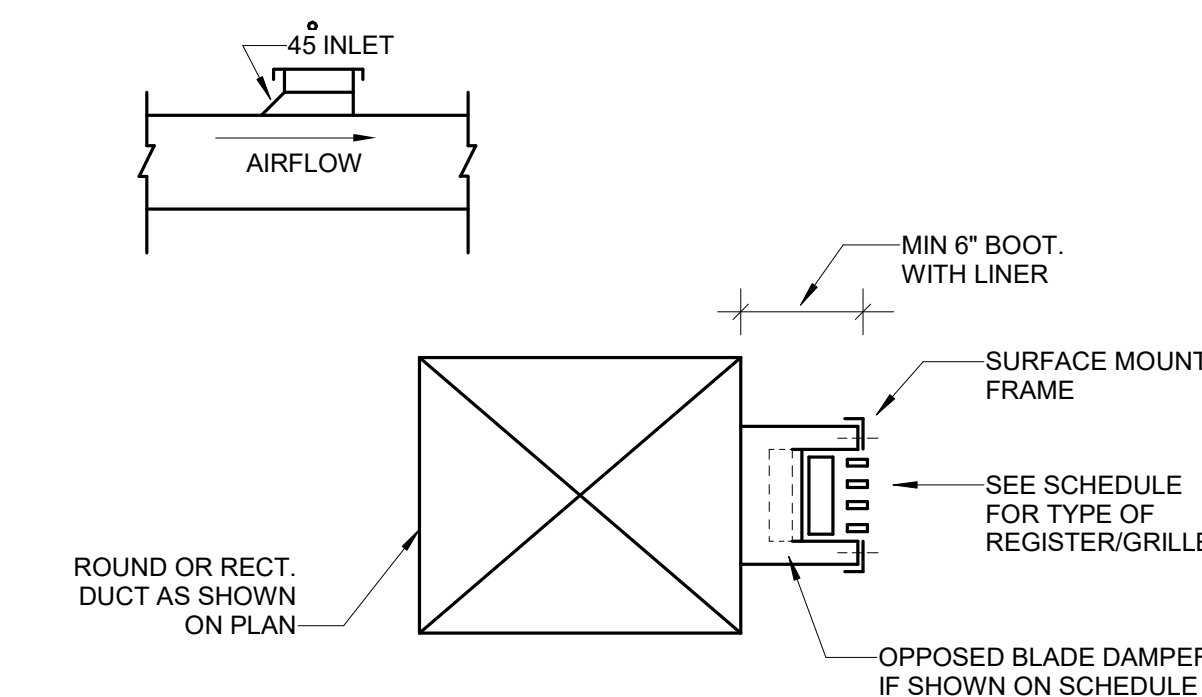
8 RECTANGULAR DUCT FITTINGS AND TAKE-OFF
NO SCALE



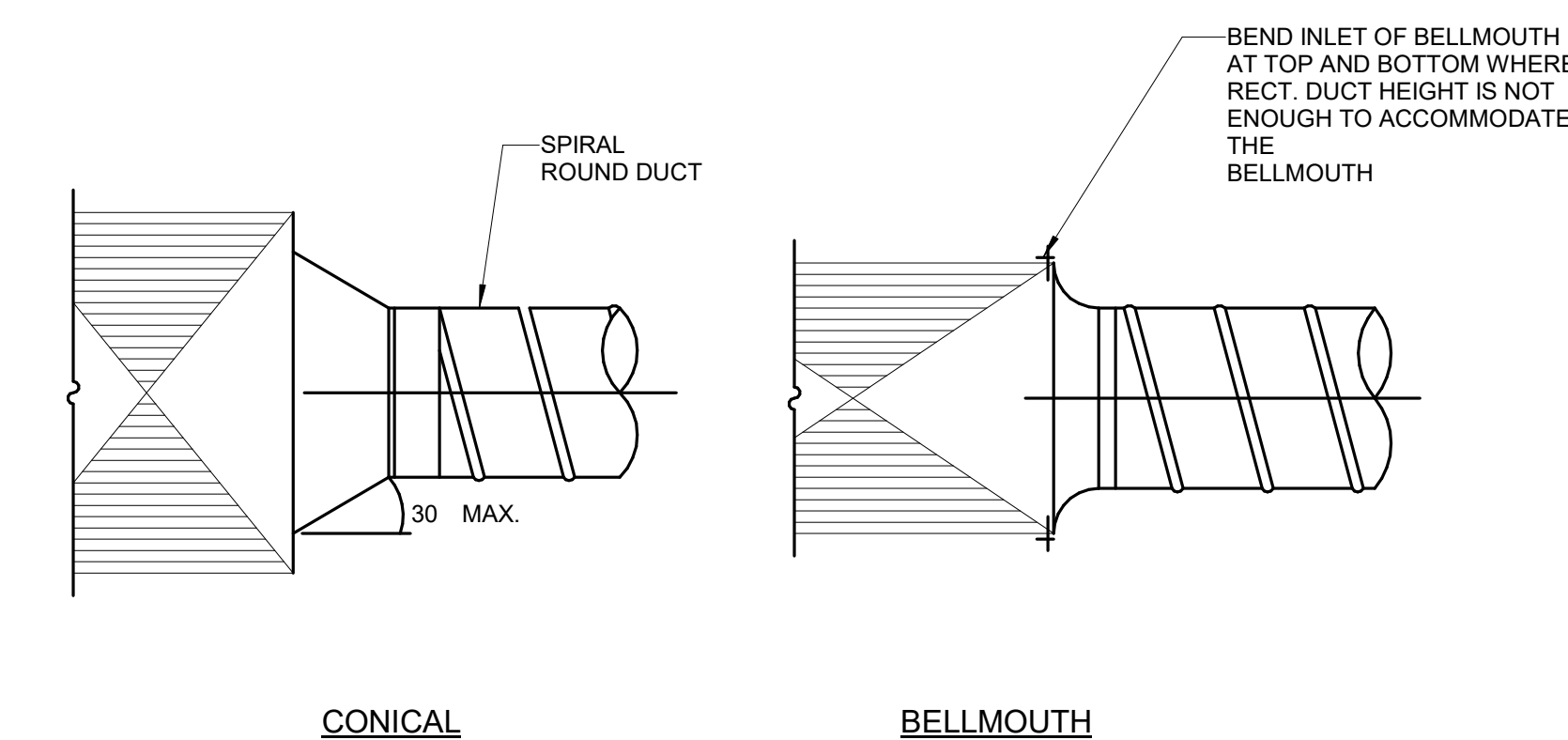
1 BRANCH DUCT TAKE-OFF DETAIL
NO SCALE



2 CEILING DIFFUSER DETAIL
NO SCALE



3 DUCT MOUNTED AIR DEVICE DETAIL
NO SCALE



NOTES:

- SECURE ALL CONNECTIONS TO COMPLY WITH THE REQUIREMENTS OF THE PRESSURE CLASS SPECIFIED.
- SUPPLY ROUND DUCT TAKE-OFF IS SHOWN. RETURN/EXHAUST SIMILAR.
- "SPIN-IN'S" PERMITTED ONLY W/DUCT CONSTRUCTION OF 2" W.C. OR LESS.

4 ROUND DUCT TAKE OFF CONNECTIONS TO RECTANGULAR DUCT
NO SCALE

Gensler

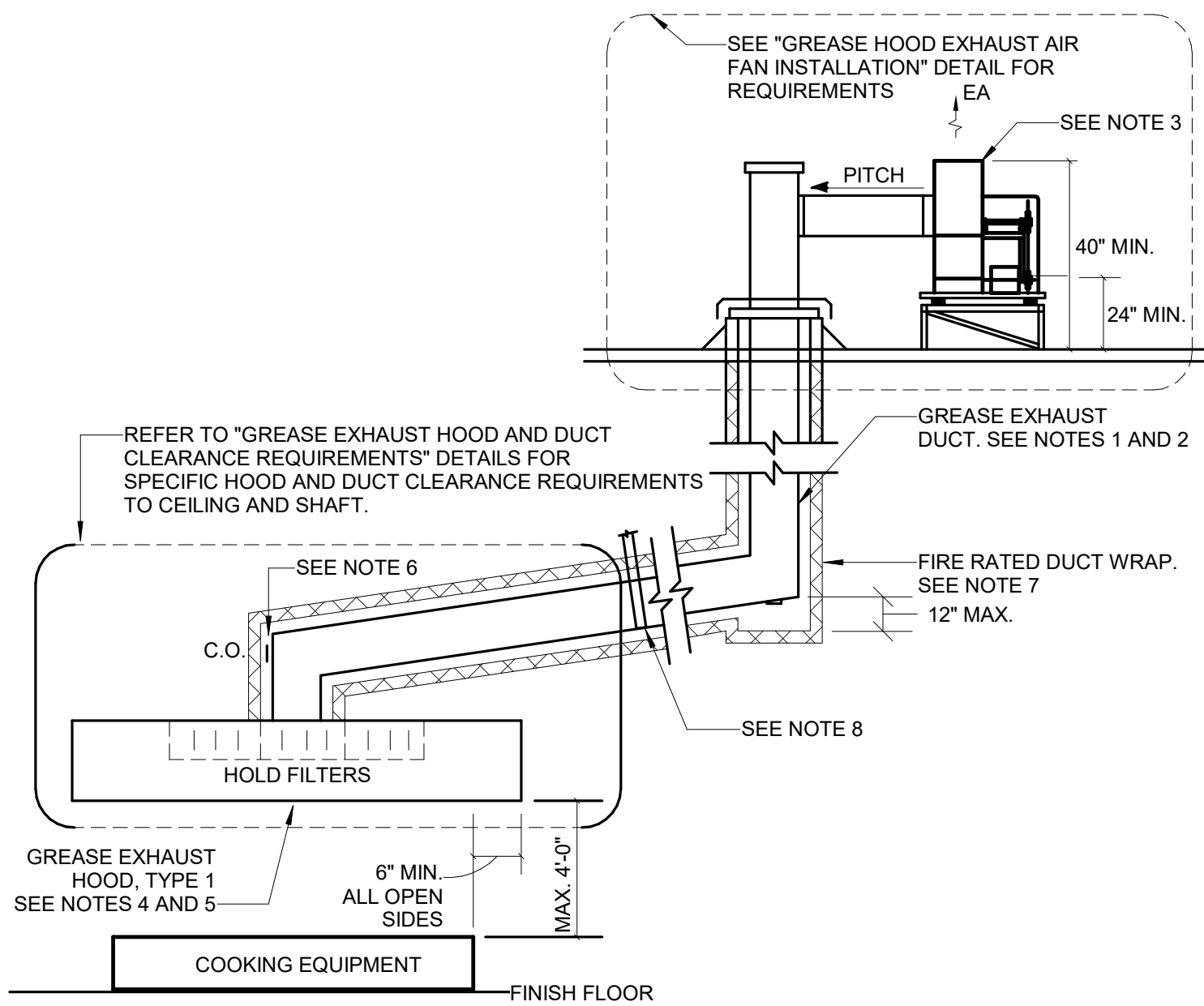
1225 17th Street
Suite 150
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Tel 303.595.8586
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14143 Denver West Pkwy
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Golden, CO
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M MARTIN/MARTIN
ARCHITECTURE ENGINEERS

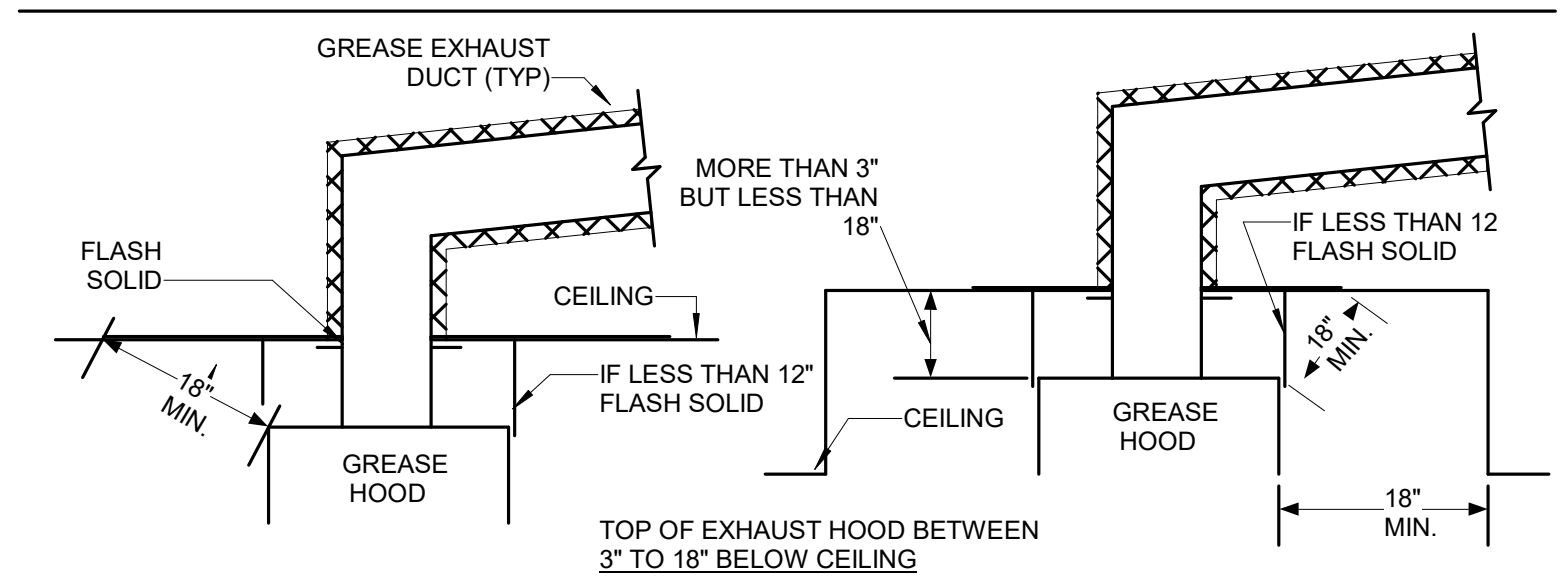
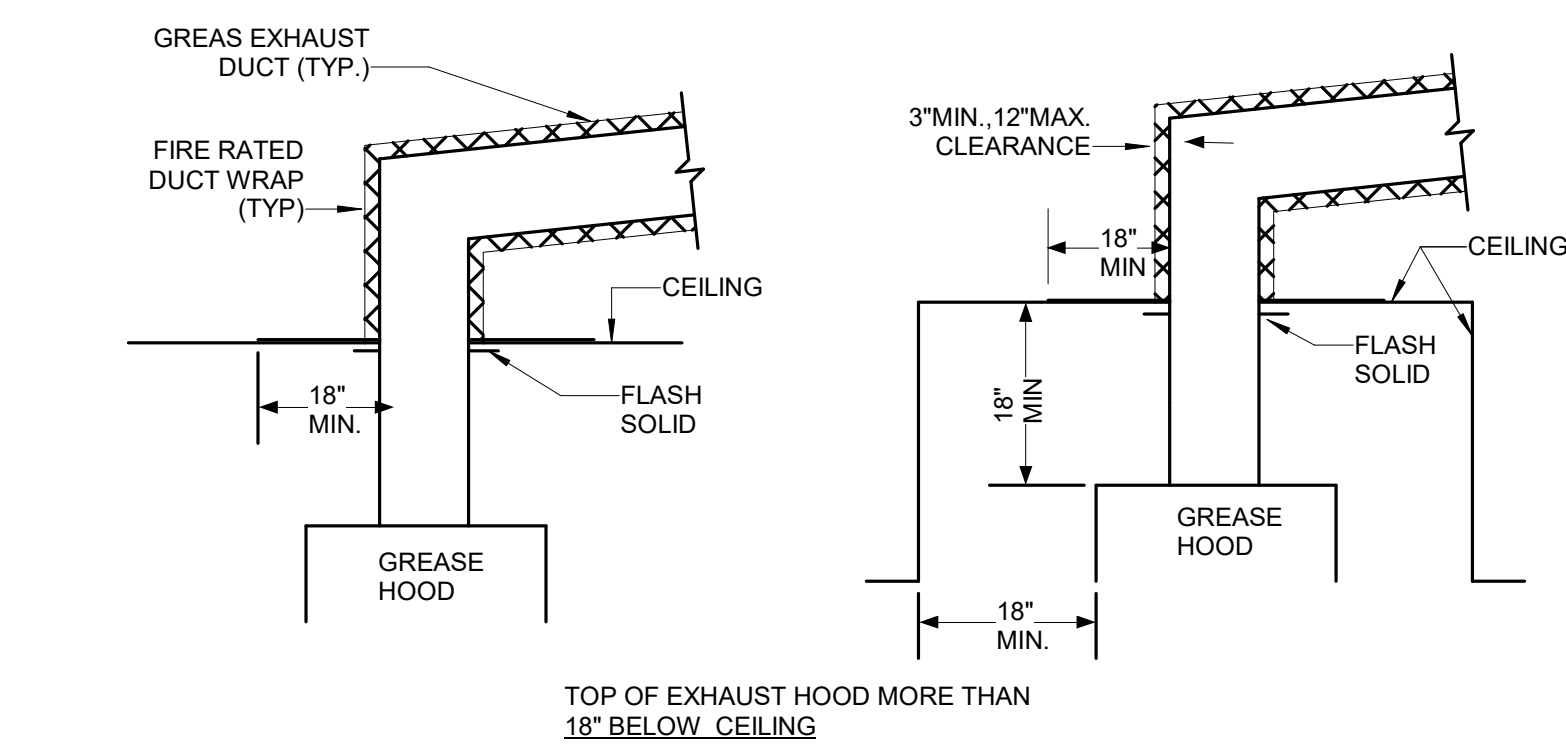
12499 West Cofax Ave.
Lakewood, CO 80215
United States
Tel 303.431.6100



NOTE:

1. PROVIDE GREASE RECEPTACLE AND DRAIN LINE PER NFPA 96.
2. PROVIDE DUCT EXTENSION AT FAN OUTLET TO DIRECT AIR AWAY FROM ADJACENT BALCONY AREAS.

1 GREASE HOOD EXHAUST AIR FAN INSTALLATION NO SCALE



NOTES:

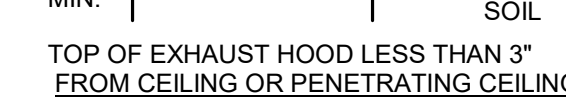
1. COORDINATE WITH ARCHITECTURAL DRAWING REGARDING CEILING FINISHES AND APPLY THE APPROXIMATE GREASE EXHAUST HOOD AND DUCT INSTALLATION METHOD AS REQUIRED.

LEGEND:

▨ FIRE RATED SHAFT/ ENCLOSURE PER BUILDING CODE REQUIREMENTS

□ 1 HOUR FIRE RESISTIVE CONSTRUCTION ON HOOD SIDE OF CEILING.

□ ONLY (NOT REQUIRED) IS CEILING IS OF NON-COMBUSTION MATERIAL.)



2 GREASE EXHAUST HOOD AND DUCT CLEARANCE REQUIREMENTS NO SCALE

NOTES:

1. GREASE DUCT SHALL HAVE VELOCITY NOT TO EXCEED 1500 FPM MINIMUM AND 2500 FPM MAXIMUM. DUCT SHALL BE CONSTRUCTED OF MINIMUM 16 GAUGE, 0.055 INCH THICK GALVANIZED, BLACK OR STAINLESS STEEL. ALL JOINTS AND SEAMS TO BE CONTINUOUS WELD.
2. DUCT SYSTEM SHALL HAVE A SLOPE NOT LESS THAN 1/4 INCH PER LINEAR FOOT TOWARD THE HOOD OR TOWARD AN APPROVED GREASE RESERVOIR. WHEN HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 1 INCH LINEAR FOOT.
3. DISCHARGE OUTLET SHALL BE 10' FROM ADJACENT BUILDING, PROPERTY LINE OR AIR INTAKE OPENING, AND 10' ABOVE THE ADJOINING GRADE LEVEL AND 10' FROM ANY VERTICAL BUILDING CONSTRUCTION
4. "ANSUL" EXTINGUISHING SYSTEM SHALL BE PROVIDED FOR EXHAUST HOOD.
5. THE FIRE EXTINGUISHING SYSTEM SHALL BE INTERCONNECTED TO THE FUEL OR CURRENT SUPPLY SO THAT THE FUEL OR CURRENT IS AUTOMATICALLY SHUT OFF TO ALL EQUIPMENT UNDER THE HOOD WHEN THE SYSTEM IS ACTUATED.
6. PROVIDE CLEANOUTS IN DUCTWORK AT EACH CHANGE OF DIRECTION AND NOT TO EXCEED 15 FEET APART. LOCATED IN THE SIDE OR TOP OF A HORIZONTAL DUCT, THE LOWER EDGE OF A SIDE OPENING SHALL BE NOT LESS THAN 1 1/2' FROM THE BOTTOM OF THE DUCT. THE ACCESS DOOR IN THE RATED ENCLOSURE SHALL HAVE A SUBSTANTIAL METHOD OF LATCHING WHICH WILL OPEN WITHOUT THE USE OF TOOLS AND SHALL HAVE A PROPOSED NONCOMBUSTIBLE GASKET MATERIAL.
7. DUCT SHALL BE FULLY WRAPPED WITH 2HR FIRE RATED DUCT WRAP WITH ZERO CLEARANCE TO COMBUSTIBLES.
8. GREASE DUCT SUPPORTS AND BRACING SHALL BE NONCOMBUSTIBLE MATERIAL. BOLTS, SCREWS, AND RIVETS SHALL NOT PENETRATE GREASE DUCT.

3 GREASE HOOD AND DUCT SYSTEM 1/8" = 1'-0"

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Description

MECHANICAL DETAILS

Scale

NOT TO SCALE

1C-M8.001

GRILLE REGISTER DIFFUSER SCHEDULE						
CODE	MANUFACTURER/ MODEL NO.	SERVICE	TYPE	ACCESSORIES	FACE SIZE	REMARKS
A1	PRICE / 520L	SUPPLY	LOUVERED		NECK +2"	B
A2	PRICE / 620L	SUPPLY	LOUVERED		NECK +2"	A
B1	PRICE / SDS	SUPPLY	LINEAR SLOT	48" FACTORY PLENUM	(1) 1" SLOT, 48" LENGTH	
B2	PRICE / SDS	SUPPLY	LINEAR SLOT	48" FACTORY PLENUM	(2) 1" SLOT, 48" LENGTH	
B3	PRICE / SDS	SUPPLY	LINEAR SLOT	48" FACTORY PLENUM	(3) 1" SLOT, 48" LENGTH	
C1	PRICE / SDS	SUPPLY	LINEAR SLOT	60" FACTORY PLENUM	(1) 1" SLOT, 60" LENGTH	
C2	PRICE / SDS	SUPPLY	LINEAR SLOT	60" FACTORY PLENUM	(2) 1" SLOT, 60" LENGTH	
C3	PRICE / SDS	SUPPLY	LINEAR SLOT	60" FACTORY PLENUM	(3) 1" SLOT, 60" LENGTH	
D	PRICE / SDGE	SUPPLY	SPIRAL MOUNT	AIR SCOOP		A
E	PRICE / SDGE	EXHAUST/RETURN	SPIRAL MOUNT	PERFORATED		A
F1	PRICE / PDDR	EXHAUST/RETURN	PERFORATED		12"x12"	
F2	PRICE / PDDR	EXHAUST/RETURN	PERFORATED		24"x24"	
G1	PRICE / 510L	EXHAUST/RETURN	LOUVERED		SEE PLANS	
G2	PRICE / 530L	EXHAUST/RETURN	LOUVERED		SEE PLANS	
H	PRICE / SPD	SUPPLY	SQUARE CEILING		24"x24"	
J1	PRICE / SDR	RETURN	LINEAR SLOT	48" FACTORY PLENUM	(1) 1" SLOT, 48" LENGTH	
J2	PRICE / SDR	RETURN	LINEAR SLOT	48" FACTORY PLENUM	(2) 1" SLOT, 48" LENGTH	
J3	PRICE / SDR	RETURN	LINEAR SLOT	48" FACTORY PLENUM	(3) 1" SLOT, 48" LENGTH	
K	PRICE / 80	RETURN	EGG CRATE		SEE PLANS	
GENERAL NOTES:						
1. NOT ALL GRD TYPES LISTED ON SCHEDULE MAY APPLY.						
2. SEE PLANS FOR CFM AND NECK SIZE.						
3. MAXIMUM NOISE CRITERIA (NC) SHALL BE 30 UNLESS OTHERWISE NOTED.						
4. COLOR TO BE COORDINATED WITH ARCHITECT.						
5. MATERIAL IS STEEL UNLESS OTHERWISE NOTED.						
6. PROVIDE A REMOTE, THROUGH FACE, CABLE OPERATED BALANCING DAMPER WHEN INSTALLED IN AN INACCESSIBLE CEILING.						
7. PROVIDE FRAME AND TRIM COMPATIBLE WITH CEILING SYSTEM. RE: ARCHITECTURAL RCP DRAWINGS.						
8. PROVIDE SQUARE TO ROUND ADAPTER FOR RECTANGULAR FACE GRILLES CONNECTED TO ROUND BRANCH DUCTS.						
REMARK NOTES:						
A. ALUMINUM CONSTRUCTION.						
B. PROVIDE INTEGRAL OPPOSED BLADE DAMPER.						

MECHANICAL LOUVER SCHEDULE										
CODE (L)	MANUFACTURER / MODEL	SERVICE	LOCATION	AIRFLOW	VELOCITY	MINIMUM FREE AREA (SF)	FACE SIZE		PLENUM BOX DEPTH	REMARKS
							WIDTH (IN)	HEIGHT (IN)		
2.01	RUSKIN / ELF6375DX	EF 2.01	LEVEL 2 MECH ROOM	3000	500	6.0	48	36	3'-0"	A,B
GENERAL NOTES										
1. LOUVERS SCHEDULED HERE ARE CONNECTED TO MECHANICAL SYSTEMS.										
REMARK NOTES										
A. PROVIDE INSULATED PLENUM. SLOPE BASE OF PLENUM TO DRAIN WATER OUT THROUGH LOUVER FACE. RE: MECHANICAL DETAILS.										
B. PROVIDE BIRD SCREEN.										

EXISTING AIR HANDLING UNIT SCHEDULE														
CODE (E)AHU)	AREA SERVED	LOCATION	SUPPLY FAN		RELIEF FAN		COOLING CAPACITY (CHILLED WATER)				HEATING CAPACITY (HEATING WATER)			REMARKS
			CFM	MIN. OSA (CFM)	CODE (E)R/F)	CFM	EAT (°F) DB	WB	LAT (°F) DB	CAP MBH	EAT (°F)	LAT (°F)	CAP MBH	
4	SEE PLANS	LEVEL 2 MEZ	14500	2300	3	13500	80	61	55	TBD	46.7	46.7	--	A,D
5	KITCHEN	LEVEL 2 MEZ	5400	600	4	5400	80	61	55	TBD	61.1	86.6	116.4	A,C,D
6	SUNDANCE, PALS/MAVS	LEVEL 2 MEZ	8400	2200	5	8000	80	61	63	TBD	49.0	70.7	153.2	A,B,D
GENERAL NOTES:														
1. ALL UNITS LISTED ARE EXISTING TO REMAIN.														
2. SCHEDULE IS PROVIDED TO INDICATE SUPPLY AIRFLOW, RELIEF AIRFLOW, AND REQUIRED OA FLOW. REBALANCE OA DAMPER TO MIN OSA INDICATED.														
3. UNIT CAPACITIES ARE APPROXIMATE AND ARE CALCULATED FROM FIELD MEASUREMENTS. REFER TO BALANCING REPORT.														
4. HEATING COIL EAT IS CALCULATED FROM THE MIXED AIR TEMPERATURE AT DESIGN WINTER OA CONDITIONS.														
5. DESIGN CONDITIONS:														
WINTER DB: -10F														
SUMMER DB: 88F														
SUMMER WB: 56.2F														
6. ALL UNITS ARE ANTICIPATED TO INCLUDE AIR-SIDE ECONOMIZER FUNCTIONALITY. CONFIRM ECONOMIZER IS OPERATIONAL AT EACH UNIT PRIOR TO TURNOVER.														
7. AT TIME OF THE PERMIT SET, CHILLED WATER WAS NOT AVAILABLE AT THE UNITS INDICATED. PROVIDE BALANCING OF EACH CHILLED WATER COIL AND INDICATE PERFORMANCE CHARACTERISTICS IN BALANCING REPORT. NOTIFY ENGINEER IN WRITING IF LEAVING AIR TEMPERATURES INDICATED ABOVE CANNOT BE ACHIEVED.														
REMARK NOTES:														
A. RELIEF FAN IS EXTERNAL TO UNIT.														
B. RE-BALANCE HEATING COIL WATER FLOWS TO INCREASE LAT TO MINIMUM 75F AT WINTER DESIGN CONDITIONS WITH REQUIRED MINIMUM OUTSIDE AIRFLOW. PROVIDE TEST REPORT INDICATING UNIT LAT WITH MEASUREMENTS TAKEN WHEN OUTSIDE AIR IS AT OR BELOW 10 DEGREES F. INDICATE CURRENT OUTSIDE AIR TEMPERATURE, MIXED AIR TEMPERATURE, AND UNIT LEAVING AIR TEMPERATURE IN BALANCING REPORT. UNIT SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. REFER TO PLANS FOR THERMOSTAT LOCATION.														
C. RE-BALANCE HEATING COIL WATER FLOWS TO INCREASE LAT TO MINIMUM 85F AT WINTER DESIGN CONDITIONS WITH REQUIRED MINIMUM OUTSIDE AIRFLOW. PROVIDE TEST REPORT INDICATING UNIT LAT WITH MEASUREMENTS TAKEN WHEN OUTSIDE AIR IS AT OR BELOW 10 DEGREES F. INDICATE CURRENT OUTSIDE AIR TEMPERATURE, MIXED AIR TEMPERATURE, AND UNIT LEAVING AIR TEMPERATURE IN BALANCING REPORT. UNIT SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. REFER TO PLANS FOR THERMOSTAT LOCATION.														
D. RE-BALANCE COOLING COIL WATER FLOWS TO DELIVER 55F SUPPLY AIR AT SUMMER DESIGN CONDITIONS WITH REQUIRED MINIMUM OUTSIDE AIRFLOW. PROVIDE TEST REPORT INDICATING UNIT LAT WITH MEASUREMENTS TAKEN WHEN OUTSIDE AIR IS AT OR ABOVE 85 DEGREES F. INDICATE CURRENT OUTSIDE AIR TEMPERATURE, MIXED AIR TEMPERATURE, AND UNIT LEAVING AIR TEMPERATURE IN BALANCING REPORT.														

CEILING HEATER SCHEDULE (ELECTRIC)												
CODE (ECH)	MANUFACTURER/ MODEL NO.	AREA SERVED	CONFIG	CFM	KW	ELECTRICAL						REMARKS
						FUSE	DISC	FEEDER				
1-01	INDEECO/CCI SERIES	CHANGING ROOM	CEILING SURFACE MOUNT	160	1.5	120	1	12.5	-	\$ T.O.	(2#12, #12G) 3/4"C	A
1-02	INDEECO/CCI SERIES	SHOWER ROOM	CEILING SURFACE MOUNT	160	1.5	120	1	12.5	-	\$ T.O.	(2#12, #12G) 3/4"C	A
1-03	INDEECO/CCI SERIES	SHOWER ROOM	CEILING SURFACE MOUNT	160	1.5	120	1	12.5	-	\$ T.O.	(2#12, #12G) 3/4"C	A
1-04	INDEECO/CCI SERIES	RESTROOM	CEILING SURFACE MOUNT	160	1.5	120	1	12.5	-	\$ T.O.	(2#12, #12G) 3/4"C	A
1-05	INDEECO/CCI SERIES	JANITOR CLOSET	CEILING SURFACE MOUNT	160	1.5	120	1	12.5	-	\$ T.O.	(2#12, #12G) 3/4"C	A
GENERAL NOTES:												
1. PROVIDE DISCONNECT BY UNIT MANUFACTURER.												
2. SUBMIT COLOR PALETTE FOR SELECTION BY ARCHITECT.												
REMARK NOTES:												
A. PROVIDE REMOTE WALL MOUNTED THERMOSTAT.												

BASEBOARD RADIATION SCHEDULE (HYDRONIC)						
CODE (BBR)	MANUFACTURER/ MODEL NO.	CAPACITY (BTU/H·F)	GPM/ FT	ROWS	ENCLOSURE... HEIGHT (IN)	REMARKS
BBR-3	ZEHNDER RITTLING / FTR	627.1	0.05	1	14	A,B
GENERAL NOTES:						
1. EWT= 180°F						
2. MINIMUM FLOW FOR CIRCUIT IS 1 GPM.						
3. PROVIDE WALL TO WALL ENCLOSURE UNLESS OTHERWISE NOTED.						
4. ENCLOSURE COLOR SELECTED BY ARCHITECT.						
5. TUBE MATERIAL IS COPPER, FIN MATERIAL ALUMINUM UNLESS OTHERWISE NOTED.						
REMARK NOTES:						
A. PROVIDE ZEHNDER RITTLING TYPE PIBG5 BAR GRILLE ENCLOSURE, 16GA CONSTRUCTION WITH BOTTOM OPEN... TOP OUTLET, SURFACE MOUNTED, AND ENCLOSED BACK.						
B. INTERLOCK CONTROL WITH HVAC ZONE SERVING SAME SPACE. BASEBOARD SHALL ACT AS FIRST STAGE HEATING.						

MAKE-UP AIR UNIT																														
CODE (MUA)	AREA SERVED	LOCATION	MANUFACTURER/ MODEL NO.	SUPPLY FAN					COOLING CAPACITY (EVAP)					HEATING CAPACITY (DIRECT GAS)					FILTERS					ELECTRICAL (FAN)					WEIGHT LBS	REMARKS
				CFM		ESP "W.C. (ALT.)	HP	EAT (°F)		LAT (°F)		WATER FLOW (GPM)	EAT (°F)		LAT (°F)		FUEL TYPE	EFF %	TYPE (PRE/FINAL)	APD (°W.C.)	VOLT	PH	MCA	FUSE	DISC	FEEDER SIZE				
				MIN	MAX			TYPE	DB	WB	DB		WB	DB	WB	DB											WB			
2.01	KITCHEN MUA	LEVEL 2	CAPTIVEAIRE	2000	3163	VFD	0.50	2	90	55	69	55	0.1	1	86	237.8	218.8	NG	92	2" ALUMINUM MESH	0	208	3	7.7	15A FRN-R	30A/3P	(#12, #12G) 3/4"	932	A,B,C,D,E,F	
GENERAL NOTES:																														
1. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER MENA STANDARD MG1-2003, TABLES 12-12 AND 12-13.																														
2. PROVIDE FACTORY MOUNTED COMBINATION STARTER/DISCONNECT WIRED TO MOTORS WITH AUXILIARY CONTACTS AND HOA SWITCH ON ALL THREE PHASE MOTORS.																														
3. INSTALL UNITS WITH ADEQUATE CLEARANCE FOR COIL PULL, FILTER REPLACEMENT AND TO FULLY OPEN ACCESS DOORS.																														
4. PROVIDE A MINIMUM OF 3 FEET CLEARANCE IN FRONT OF DISCONNECTS SWITCHES AND CONTROL PANELS. DO NOT COMPLY FULLY WITH NEC.																														
5. UNIT STATIC PRESSURE CAPABILITY SHALL INCLUDE SCHEDULED EXTERNAL STATIC PRESSURE PLUS ALL INTERNAL PRESSURE DROPS. INCLUDE VALVES FOR WETTED COILS AND DIRTY FILTERS.																														
6. SCHEDULED FAN VALUES (CFM, SP AND HP) ARE ACTUAL AT ALTITUDE. MOTOR HP HAS BEEN ADJUSTED FROM SEA LEVEL CONDITIONS FOR OPERATION AT JOBSITE ELEVATION. JOBSITE ELEVATION = 6700 FT.																														
7. PROVIDE DUCT SMOKE DETECTORS IN THE SUPPLY AIR OF ALL UNITS 2000 CFM OR GREATER. RE: MECHANICAL CONTROLS DIAGRAMS.																														
8. UNIT SHALL HAVE STAND-ALONE CONTROLS CAPABLE OF ACHIEVING ALL SPECIFIED SEQUENCES.																														
REMARK NOTES:																														
A. PROVIDE UNIT WITH DOUBLE WALL CONSTRUCTION, DIRECT EVAPORATIVE COOLING SECTION, AND DIRECT-FIRED NATURAL GAS HEATING SECTION.																														
B. REFER TO MECHANICAL CONTROLS DIAGRAMS FOR REQUIRED CONTROL FUNCTIONS.																														
C. PROVIDE INTERNAL VIBRATION ISOLATION.																														
D. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.																														
E. PROVIDE UNIT WITH BOTTOM DISCHARGE CONFIGURATION.																														
F. UNIT SHALL HAVE ACCESS AND PIPING CONNECTIONS ON THE LEFT-HAND SIDE WHEN LOOKING INTO THE UNIT OUTSIDE AIR INTAKE.																														