

MECHANICAL SYMBOL LIST

NOTE: THIS IS A MASTER SCHEDULE. NOT ALL SYMBOLS CONTAINED HEREIN MAY APPEAR ON THE DRAWINGS.

	ITEM TO BE REMOVED		CHR	CHILLED WATER RETURN PIPING
	POINT OF CONNECTION/DISCONNECTION		CHS	CHILLED WATER SUPPLY PIPING
	SHEET NOTE		CR	CONDENSER WATER RETURN PIPING
	REVISION NUMBER		CS	CONDENSER WATER SUPPLY PIPING
	EQUIPMENT MARK		HWR	HEATING WATER RETURN PIPING
	DIFFUSER TAG		HWS	HEATING WATER SUPPLY PIPING
	ACCESS PANEL		RL	REFRIGERANT LIQUID PIPING
	SUPPLY AIR DUCT UP/DOWN		RS	REFRIGERANT SUCTION PIPING
	RETURN AIR DUCT UP/DOWN		CD	CONDENSATE DRAIN PIPING
	EXHAUST AIR DUCT UP/DOWN		PC	PUMPED CONDENSATE DRAIN PIPING
	RETURN GRILLE			CIRCUIT SETTER
	EXHAUST GRILLE			2-WAY ELECTRONIC CONTROL VALVE
	4-WAY BLOW SUPPLY DIFFUSER			3-WAY ELECTRONIC CONTROL VALVE
	3-WAY BLOW SUPPLY DIFFUSER			2-WAY PNEUMATIC CONTROL VALVE
	2-WAY BLOW SUPPLY DIFFUSER			3-WAY PNEUMATIC CONTROL VALVE
	1-WAY BLOW SUPPLY DIFFUSER			SOLENOID VALVE
	AIRFLOW DIRECTION			BUTTERFLY VALVE
	ROUND DUCTWORK (INCHES)			PLUG VALVE
	RECTANGULAR DUCTWORK (INCHES)			BALL VALVE
	ROUND FLEXIBLE DUCT			CHECK VALVE
	SQUARE TO ROUND TRANSITION			GATE VALVE
	SINGLE LINE RIGID DUCT			HOSE END DRAIN VALVE
	SINGLE LINE RIGID DUCT (ACOUSTICALLY LINED)			PRESSURE REDUCING VALVE
	DOUBLE LINE RIGID DUCT			RELIEF VALVE
	DOUBLE LINE RIGID DUCT (ACOUSTICALLY LINED)			TEMPERATURE PRESSURE RELIEF VALVE
	EXISTING DUCTWORK			THERMOMETER
	FIRE DAMPER			PRESSURE GAUGE WITH GAUGE COCK
	SMOKE DAMPER			MANUAL AIR VENT
	FIRE/SMOKE DAMPER			PRESSURE TEMPERATURE PORT
	MOTORIZED DAMPER (OPPOSED BLADE TYPE)			Y-STRAINER WITH BLOWDOWN
	MOTORIZED DAMPER (PARALLEL BLADE TYPE)			PIPE GUIDE
	BACKDRAFT DAMPER			UNION
	MANUAL VOLUME DAMPER			PIPE ANCHOR
	REMOTE VOLUME DAMPER			FLEXIBLE CONNECTOR
	SMOKE DETECTOR			PIPE CAP/STUB-OUT
	THERMOSTAT			DIRECTION OF FLOW
	HUMIDISTAT			PIPE DOWN
	SENSOR			PIPE UP
	CARBON DIOXIDE SENSOR			PIPE TEE UP
	CARBON MONOXIDE SENSOR			PIPE TEE DOWN
	DOOR UNDERCUT			
	FLOW SWITCH			

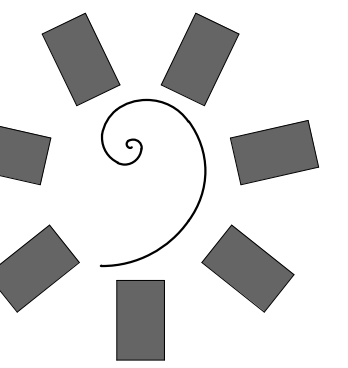
MECHANICAL ABBREVIATIONS

NOTE: THIS IS A MASTER SCHEDULE. NOT ALL ABBREVIATIONS CONTAINED HEREIN MAY APPEAR ON THE DRAWINGS.

AABC	AMERICAN AIR BALANCE COUNCIL	GCO	GRADE CLEANOUT	PD	PRESSURE DROP
ACD	AUTOMATIC CONTROL DAMPER	GI	GREASE INTERCEPTOR	PRV	PRESSURE REDUCING VALVE
AFF	ABOVE FINISHED FLOOR	GPF	GALLONS PER FLUSH	PSI	POUNDS PER SQUARE INCH
AP	ACCESS PANEL	GPM	GALLONS PER MINUTE	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	GR	GLYCOL RETURN	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS	GS	GLYCOL SUPPLY	PSIG	POUNDS PER SQUARE INCH GAUGE
AV	ACID VENT	GW	GREASE WASTE	(R)	EXISTING TO BE RELOCATED
AW	ACID WASTE	HD	HEAD	RA	RETURN AIR
BFD	BACKFLOW PREVENTION DEVICE	HP	HORSEPOWER	RH	RELATIVE HUMIDITY
BHP	BRAKE HORSEPOWER	HR	HOUR	RL/S	REFRIGERANT LIQUID/SUCTION
BTUH	BRITISH THERMAL UNIT PER HOUR	HSPF	HEATING SEASONAL PERFORMANCE FACTOR	RPM	REVOLUTIONS PER MINUTE
CD	CONDENSATE DRAIN	HW	HOT WATER	RPPA	REDUCED PRESSURE PRINCIPAL ASSEMBLY
CFM	CUBIC FEET PER MINUTE	HWR	HEATING HOT WATER RETURN	RVD	REMOTE VOLUME DAMPER
CHAR	CHARACTERISTICS	HWS	HEATING HOT WATER SUPPLY	SA	SUPPLY AIR
CHR	CHILLED WATER RETURN	IBC	INTERNATIONAL BUILDING CODE	SD	SMOKE DAMPER
CHS	CHILLED WATER SUPPLY	IE	INVERT ELEVATION	SEER	SEASONAL ENERGY EFFICIENCY RATIO
CO	CLEANOUT	IMC	INTERNATIONAL MECHANICAL CODE	SOI	SAND OIL INTERCEPTOR
CR	CONDENSER WATER RETURN	IPC	INTERNATIONAL PLUMBING CODE	*SP	STATIC PRESSURE (INCHES OF W.C.)
CS	CONDENSER WATER SUPPLY	KW	KILOWATT	SQ	SQUARE
CW	COLD WATER	LAT	LEAVING AIR TEMPERATURE	SQFT	SQUARE FEET
D	DRAIN	LBS	POUNDS	SS	STAINLESS STEEL
DB	DRY BULB TEMPERATURE	LWT	LEAVING WATER TEMPERATURE	T	TEMPERATURE
DDC	DIRECT DIGITAL CONTROL	MBH	ONE THOUSAND BTUH	TAB	TEST AND BALANCE REPORT
DIA	DIAMETER	MCA	MINIMUM CIRCUIT AMPS	TSP	TOTAL STATIC PRESSURE
DN	DOWN	MIN	MINIMUM	TW	TEMPERED WATER
DX	DIRECT EXPANSION	MOCPP	MAXIMUM OVERCURRENT PROTECTION	TYP	TYPICAL
(E)	EXISTING TO REMAIN	MPC	MEDIUM PRESSURE GAS	UBC	UNIFORM BUILDING CODE
EA	EXHAUST AIR	MVD	MANUAL VOLUME DAMPER	UMC	UNIFORM MECHANICAL CODE
EAT	ENTERING AIR TEMPERATURE	N/A	NOT APPLICABLE	UON	UNLESS OTHERWISE NOTED
EC	ELECTRICAL CONTRACTOR	NC	NORMALLY CLOSED	UPC	UNIFORM PLUMBING CODE
EER	ENERGY EFFICIENCY RATIO	NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU	V	VENT
EFF	EFFICIENCY	NEC	NATIONAL ELECTRIC CODE	VIP/Hz	VOLTAGE/PHASE/HERTZ
ELEC	ELECTRICAL	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	VFD	VARIABLE FREQUENCY DRIVE
ESP	EXTERNAL STATIC PRESSURE	NIC	NOT IN CONTRACT	VTR	VENT THROUGH ROOF
EWT	ENTERING WATER TEMPERATURE	NO	NORMALLY OPEN	WB	WET BULB TEMPERATURE
"F"	FAHRENHEIT	NTS	NOT TO SCALE	WCO	WALL CLEANOUT
FDO	FLOOR CLEANOUT	OA	OUTSIDE AIR	WG	WATER GAUGE
FD	FIRE DAMPER	OAT	OUTSIDE AIR TEMPERATURE	WMS	WIRE MESH SCREEN
FPM	FEET PER MINUTE	OBD	OPPOSED BLADE DAMPER	(X)	EXISTING TO BE REMOVED
FSD	FIRE / SMOKE DAMPER	OED	OPEN END DUCT		
G	GAS	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED		
GA	GAGE OR GAUGE				
GAL	GALLONS				

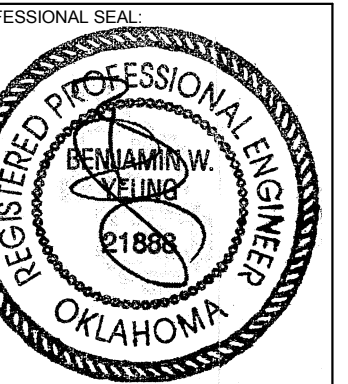
MECHANICAL - DRAWING INDEX

SHEET NUMBER	SHEET NAME	05/03/18 - BID PACKAGE 05	05/22/18 - ADDENDUM 10	MM.DD.YYYY	MM.DD.YYYY	MM.DD.YYYY
M0.1	MECHANICAL ABBREVIATIONS AND SYMBOLS LIST	X	X			
M0.2	MECHANICAL SPECIFICATIONS	X	X			
M0.3	MECHANICAL SCHEDULES	X	X			
M0.4	MECHANICAL SCHEDULES	X	X			
M0.5	MECHANICAL SCHEDULES	X	X			
M0.6	MECHANICAL SCHEDULES	X	X			
M0.7	MECHANICAL SCHEDULES	X	X			
M0.8	MECHANICAL DIAGRAMS	X	X			
M0.9	MECHANICAL DIAGRAMS	X	X			
M0.10	MECHANICAL CONTROLS DIAGRAMS	X	X			
M0.11	MECHANICAL CONTROLS SEQUENCES	X	X			
M0.12	MECHANICAL CONTROLS POINTS	X	X			
M0.13	MECHANICAL PIPING DIAGRAMS	X	X			
M1.0	MECHANICAL OVERALL FLOOR PLAN	X	X			
M1.1	MECHANICAL ENLARGED FLOOR PLAN - GAMING	X	X			
M1.2	MECHANICAL ENLARGED FLOOR PLAN - SOUTH	X	X			
M1.3	MECHANICAL ENLARGED FLOOR PLAN - BOH	X	X			
M1.4	MECHANICAL ENLARGED FLOOR PLAN - BANQUET BOH	X	X			
M1.5	MECHANICAL ENLARGED FLOOR PLAN - NORTH	X	X			
M4.1	MECHANICAL PIPING ENLARGED FLOOR PLAN - GAMING	X	X			
M4.2	MECHANICAL PIPING ENLARGED PLAN - SOUTH	X	X			
M4.3	MECHANICAL PIPING ENLARGED PLAN - BOH	X	X			
M4.4	MECHANICAL PIPING ENLARGED PLAN - BANQUET BOH	X	X			
M4.5	MECHANICAL PIPING ENLARGED PLAN - NORTH	X	X			
M6.1	MECHANICAL ROOF PLAN	X	X			
TOTAL: 25						



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CONSULTANT LOGO:



CLIENT:



CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE:

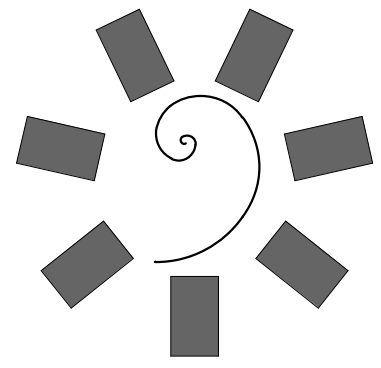
BID PACKAGE 05

#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06

SHEET NUMBER:
M0.1

MECHANICAL
ABBREVIATIONS
AND SYMBOLS LIST



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BID PACKAGE 05

Table with 2 columns: #, DATE, REVISIONS, DESCRIPTION

DATE: 05/03/18 JOB NUMBER: 17-06

SHEET NUMBER:

MO.2

MECHANICAL SPECIFICATIONS

GENERAL NOTES

PART ONE - GENERAL
1. THE OWNER HAS CONTRACT LANGUAGE THAT NEEDS TO BE READ PRIOR TO BID SUBMISSION AS THERE ARE ITEMS THAT MAY SUPPLEMENT OR SUPERSEDE ITEMS NOTED HEREIN.

COORDINATION DRAWINGS
1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CREATING "ALL TRADES" COORDINATION DRAWINGS. THIS WORK APPLIES TO ABOVE CEILINGS, IN SHEDS AND ON THE ROOF.

12.1. KITCHEN TYPE I SHUTDOWN SEQUENCES (UNLESS OTHERWISE DIRECTED BY A FIRE PROTECTION REPORT, A MANUFACTURER'S LISTING OR THE LOCAL AHJ).
12.1.1. ACTIVATION OF THE KITCHEN HOOD SUPPRESSION SYSTEM:
12.1.1.1. TO CAUSE AUTOMATIC FUEL SHUT-OFF UNDER THE HOOD AND REMOVAL OF ELECTRIC POWER UNDER THE HOOD, INCLUDING HOOD LIGHTS.

6. PIPE INSULATION: GLASS FIBER INSULATION WITH A MAXIMUM K VALUE NOTED BELOW AT 75 DEGREES F. OUTDOOR INSULATION THICKNESS SHALL BE DOUBLE INDOOR THICKNESS WITH A MAXIMUM THICKNESS OF 3".
15. CONDENSATE DRAIN PIPING: TYPE "M" COPPER (ASTM B-88), WROUGHT FITTINGS (ASME B16.22), JOINTS: ANSII/ASTM B32, SOLDER: 95% TIN/ANTIMONY, 0.2% MAX LEAD.

3. GAUGES: TEMPERATURE: INTERIOR - WEISS VARI-ANGLE DIGITAL WITH 316 SS THERMOWELL, EXTERIOR WITH DCV-4 OUTDOOR WATERPROOF COVER. PRESSURE: WEISS DIGITAL DUGY3-xxx-2L (PG - RFI FOR RANGE PER APPLICATION)
4. GAS REGULATORS SUPPLIED SHALL BE OF THE "LOCK UP" TYPE AND SHALL HAVE A STRAINER INSTALLED BEFORE THE REGULATOR.

11. ALL WORK REQUIRED FOR IDENTICAL/SIMILAR ITEMS SHOWN ON THE DRAWINGS SHALL BE PROVIDED, ALTHOUGH EACH SPECIFIC IDENTICAL/SIMILAR ITEM MAY NOT BE SHOWN IN DETAIL.

11. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CREATING "ALL TRADES" COORDINATION DRAWINGS. THIS WORK APPLIES TO ABOVE CEILINGS, IN SHEDS AND ON THE ROOF.

12.1.2.2. MAKE-UP AIR TO THE HOODS TO BE STOPPED. (UNLESS DIRECTED OTHERWISE BY THE AHJ, KITCHEN HVAC SYSTEMS CAN REMAIN OPERATIONAL.)

16. GAS PIPING: ABOVE GRADE SCHEDULE 40 BLACK IRON (ASME A-53), THREADED MALLEABLE FITTINGS INSIDE AND GALVANIZED FITTINGS AND PIPE WHERE EXPOSED. JOINT COMPOUND. PROVIDE ISOLATION VALVES AT ALL EQUIPMENT.

17. PIPE INSULATION: WHERE THE CLIMATE DICTATES, CONDENSATE DRAIN PIPING TO BE INSULATED. PRE-INSULATED PIPE WITH AIR AND RIGID INSULATION AT HANGERS WHERE SYSTEM WEIGHT COMPRESSES INSULATION.

MODULAR CENTRAL PLANT SCHEDULE

MARK	MANUFACTURER	COMPONENTS					ELECTRICAL			INITIAL WEIGHT (LBS)	FUTURE WEIGHT (LBS)	REMARKS
		FLUID COOLERS	CW PUMPS	BOILER	HW PUMPS	EXPANSION TANK	V/PH/Hz	MCA	MOCP			
MCP 1	DAIKIN	REFER TO SCHEDULE	REFER TO SCHEDULE	REFER TO SCHEDULE	REFER TO SCHEDULE	REFER TO SCHEDULE	REFER TO MANUFACTURER'S MODULE DESIGN					1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
<p>1. PROVIDE SINGLE POINT CONNECTION AT 480V, 3 PHASE. 2. PROVIDE A BAS GUI INTERFACE INSIDE THE PLANT (32" 4K MONITOR). 3. PROVIDE ALL RIGGING, INTERNAL PIPING, AND INTERNAL WIRING TO BE PERFORMED BY THE MANUFACTURERS OF THE PLANT. 4. PROVIDE BAC NET INTERFACE TO CONNECT TO OWNER BAS. 5. PROVIDE FREEZE-LESS HOSE BIB. 6. SINGLE POINT 480V-3-PHASE POWER CONNECTION WITH ALL REQUIRED TRANSFORMERS, WIRING, CONDUIT ETC TO SERVE ALL PACKAGED PLANT COMPONENTS - EACH MODULE. 7. FLUID COOLER AND SUPPORT STRUCTURE TO BE DESIGNED, PROVIDED, AND INSTALLED BY THE MCP MANUFACTURER'S FIELD PERSONNEL.</p> <p>8. SEE SPECIFICATIONS FOR BAS CONTROLS AND INTERFACE. 9. MINIMUM QTY (10) GFI OUTLETS SPACED THROUGHOUT THE PACKAGED PLANT. 10. REFRIGERANT LEAK DETECTION SYSTEM WITH VENTILATION FAN AND DAMPER, AUDIBLE ALARMS AND STROBES. 11. EXTERIOR EMERGENCY SHUTDOWN SWITCHES FOR BOILER SYSTEMS. 12. EMERGENCY EYEWASH/SHOWER STATION AND CHEMICAL WATER TREATMENT AREA. 13. PROVIDE FIRST YEAR CHEMICAL WATER TREATMENT EQUIPMENT, CHEMICALS AND SERVICE FOR OPEN LOOP COOLING TOWERS. 14. EMERGENCY LIGHTS AND EXIT SIGNS AT EACH MAIN ENTRY DOOR. 15. ALL ACCESS DOORS TO BE PROVIDED WITH KEYPED LOCKING HARDWARE.</p> <p>16. PROVIDE EMERGENCY PANIC HARDWARE AT ALL DOORS TO ALLOW FOR EXIT WHEN DOOR IS LOCKED FROM OUTSIDE. 17. LABEL ALL ELECTRICAL, CONTROLS AND EQUIPMENT COMPONENTS WITH PERMANENT BLUE MECHANICALLY FASTENED PHENOLIC COATED NAMEPLATES. 18. PROVIDE ALL STAINLESS STEEL BOILER VENT MATERIAL REQUIRED TO COMPLETE INSTALLATION - MOUNTED BY FACTORY. 19. FACTORY TEST ALL ELECTRICAL, CONTROLS AND PIPING SYSTEMS PRIOR TO SHIPMENT. 20. PROVIDE INTERNAL LED LIGHTING FIXTURES. 21. PROVIDE FACTORY INSTALLED HEATING AND COOLING SYSTEMS TO CONDITION THE PACKAGED PLANT AND ELECTRICAL ROOMS.</p> <p>22. PROVIDE MINIMUM 18"x18" STAINLESS STEEL FLOOR SINKS AND DRAINS WITH WALK-ON SAFETY GRATING AT ALL PUMPS, BOILERS, EMERGENCY EYEWASH LOCATIONS AND IN ANY OTHER AREA WHERE SPILLS MAY OCCUR. 23. ROUTE ALL AIR VENT AND PRESSURE RELIEF VALVE BLEED CONNECTIONS TO FLOOR DRAINS. 24. PROVIDE ALL PIPING SECTIONS WITH HIGH POINT TAPS WITH MANUAL VENTING BALL VALVES WITH HOSE END CAP. 25. PROVIDE WATER TREATMENT SYSTEMS. 26. PROVIDE MAKEUP WATER METERS FOR CS AND FLUID COOLER SYSTEMS. 27. PROVIDE CORROSION COUPON RACKS FOR EACH SYSTEM. 28. PROVIDE CHEMICAL FILTER FEEDER - POT FEEDERS ON EACH CLOSED LOOP.</p> <p>29. PROVIDE MAKEUP WATER BACKFLOW PREVENTERS, PRV'S STRAINERS AND BYPASS QUICK FILL LINES FOR EACH SYSTEM. 30. ALL COMPONENT WIRING MUST BE ROUTED IN CONDUIT AND RACEWAYS. 31. PROVIDE MINIMUM 4" WALLS, FLOOR AND CEILING CONSTRUCTION. 32. PROVIDE 12 GA GALVANIZED TREADPLATE INTERNAL FLOORS. 33. ALL THE MODULE RIGGING, ASSEMBLY AND FLASHING OF MODULES, AND ALL INTERNAL PIPING, WIRING, AND INSULATING WILL BE DONE BY THE FACTORY ON SITE. 34. PROVIDE 2-YEAR PARTS AND LABOR WARRANTY FROM STARTUP FOR ENTIRE CENTRAL PLANT. 35. PROVIDE 2-YEAR MAINTENANCE AGREEMENT BY THE FACTORY FOR ENTIRE CENTRAL PLANT.</p>												

AIR SEPARATOR SCHEDULE

MARK	MANUFACTURER MODEL	TYPE	SERVICE	GPM	CONNECTION SIZE (IN)	MAX PD (FT)	SIZE (IN)		WEIGHT (LBS)	REMARKS
							DIA	HEIGHT		
AS 1	SPIROTHERM VHR1600FA	AIR ELIMINATOR	CONDENSER WATER	5500	16	10	32	106	1740	1, 2
<p>1. PROVIDE ISOLATION VALVES. 2. PROVIDE SUPPORTS.</p>										

FLUID COOLER SCHEDULE

MARK	MANUFACTURER MODEL	TYPE	GPM	EAT (WB)	EWT (°F)	LWT (°F)	FANS		FAN ELECTRICAL		PUMP ELECTRICAL		OPERATING WEIGHT (LBS)	MAX DIM (LXWXH) (FT)	REMARKS
							NO.	CFM (TOTAL)	HP	V/PH/Hz	HP	V/PH/Hz			
FC 1	EVAPCO ECO-ATWB 24-5036-Z	CLOSED CIRCUIT	2200	80	95	85	4	521,580	200	460/3/60	30	460/3/60	171,320	24'-1 1/8" x 36'-2 1/2" x 17'-10 7/8"	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
FC 2	EVAPCO ECO-ATWB 24-5036-Z	CLOSED CIRCUIT	2200	80	95	85	4	521,580	200	460/3/60	30	460/3/60	171,320	24'-1 1/8" x 36'-2 1/2" x 17'-10 7/8"	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
<p>1. PROVIDE 5 PROBE ELECTRIC WATER LEVEL CONTROL. 2. PROVIDE LOW SOUND FAN AND WATER SILENCERS. 3. PROVIDE ACCESS LADDER WITH SAFETY CAGE, PLATFORM, AND HANDRAIL. 4. PROVIDE VIBRATION CUT-OUT SWITCH. 5. PROVIDE HIGH EFFICIENCY INVERTER DUTY MOTOR AND VFD.</p> <p>6. SINGLE INLET CONNECTION. 7. PROVIDE 2-18KW HEATERS PER CELL WITH UNIT MOUNTED DISCONNECT AND TRANSFORMER. 8. PROVIDE STAINLESS STEEL WATER TOUCH CONSTRUCTION. 9. PROVIDE EACH CELL WITH ITS OWN MOTOR DAVIT (LESS WINCH). 10. PROVIDE PREMIUM EFFICIENT MOTOR.</p>															

BOILER SCHEDULE

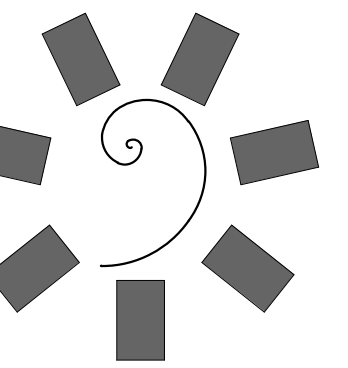
MARK	MANUFACTURER MODEL	SYSTEM	INPUT (MBH)	OUTPUT (MBH)	GPM	EWT (°F)	LWT (°F)	EFF (%)	WATER CONNECTION SIZE	GAS CONNECTION SIZE	TURN DOWN	AIR INLET SIZE	AIR OUTLET SIZE	ELECTRICAL			OPERATING WEIGHT (LBS)	REMARKS
														FLA	MOCP	V/PH/Hz		
B 1	CAMUS DR(H)2000	HEATING	2000	1896	133	100	140	95	3"	1-1/4"	5/1	12"	8"	-	-	480/3/60	1200	1, 2, 3, 4, 5
B 2	CAMUS DR(H)2000	HEATING	2000	1896	133	100	140	95	3"	1-1/4"	5/1	12"	8"	-	-	480/3/60	1200	1, 2, 3, 4, 5
B 3	CAMUS DR(H)2000	HEATING	2000	1896	133	140	140	95	3"	1-1/4"	5/1	12"	8"	-	-	480/3/60	1200	1, 2, 3, 4, 5
<p>1. MOUNT BOILERS ON A 4" HOUSEKEEPING PAD TO ACCOMMODATE THE CONDENSATE NEUTRALIZATION KIT. 2. PROVIDE ELECTRONIC LOW WATER CUT OFF WITH MANUAL RESET.</p> <p>3. PROVIDE COMMUNICATION INTERFACE TO EMS. 4. NEUTRALIZATION KIT FOR CONDENSATE. 5. ROUTE DRAINS TO CONDENSATE NEUTRALIZATION KIT.</p>																		

EXPANSION TANK SCHEDULE

MARK	MANUFACTURER MODEL	TYPE	SERVICE	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	SIZE (IN)		ASME RATED PRESSURE (PSI)	SYSTEM TEMP (°F)		SYSTEM PRESSURE @ TANK MIN (PSI)	OPERATING WEIGHT (LBS)	REMARKS
						DIA	HT		MIN	MAX			
ET 1	WESSELS NLP-950	BLADDER	CONDENSER WATER	250	-	36	66	150	80	100	65	2800	1, 2
<p>1. FINAL SYSTEM PRESSURE TO BE DETERMINED IN THE FIELD BY THE AIR/WATER BALANCE CONTRACTOR. ADJUST TO PROVIDE 10 PSI AT THE TOP OF THE SYSTEM UNDER STATIC CONDITIONS. 2. INSULATE TANK TO MIN. R-15 VALUE.</p>													

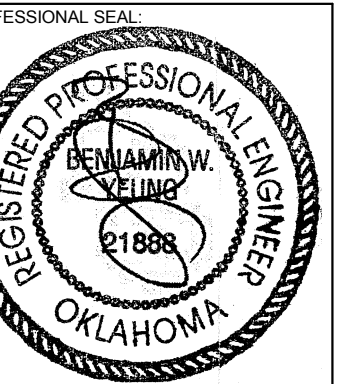
HYDRONIC PUMP SCHEDULE

MARK	GENERAL DATA				GPM	HEAD (FT)	EFF (%)	NPSHR (FT)	IMPELLER SIZE (IN)	MOTOR				OPERATING WEIGHT (LBS)	REMARKS
	MANUFACTURER MODEL	LOCATION	TYPE	SERVICE						BHP	HP	RPM	V/PH/Hz		
CWP 1	ARMSTRONG SERIES 4300	MCP	VERTICAL INLINE	CONDENSER WATER	2200	100	78	17.6	11.7	-	100	-	460/3/60	2300	1, 2, 3, 4, 5, 6
CWP 2	ARMSTRONG SERIES 4300	MCP	VERTICAL INLINE	CONDENSER WATER	2200	100	78	17.6	11.7	-	100	-	460/3/60	2300	1, 2, 3, 4, 5, 6
BP 1	ARMSTRONG SERIES 4380	MCP	INLINE	BOILER	133	25	74	8.0	5.9	-	2	-	460/3/60	200	1, 2, 3, 4, 5, 6
BP 2	ARMSTRONG SERIES 4380	MCP	INLINE	BOILER	133	25	74	8.0	5.9	-	2	-	460/3/60	200	1, 2, 3, 4, 5, 6
BP 3	ARMSTRONG SERIES 4380	MCP	INLINE	BOILER	133	25	74	8.0	5.9	-	2	-	460/3/60	200	1, 2, 3, 4, 5, 6
HWP 1	ARMSTRONG SERIES 4300	MCP	VERTICAL INLINE	HOT WATER	200	80	67	11.8	5.3	-	10	-	460/3/60	300	1, 2, 3, 4, 5, 6
HWP 2	ARMSTRONG SERIES 4300	MCP	VERTICAL INLINE	HOT WATER	200	80	67	11.8	5.3	-	10	-	460/3/60	300	1, 2, 3, 4, 5, 6
<p>1. PROVIDE VFD. 2. MOTOR SHALL BE NON-OVERLOADING.</p> <p>3. PROVIDE SUCTION INLET GUIDE. 4. PROVIDE OUTSIDE BALANCED SEALS.</p> <p>5. PUMP RATED FOR 150 PSI DUTY. 6. PROVIDE PREMIUM EFFICIENT MOTOR.</p>															



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CONSULTANT LOGO:



CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
 TAHLEQUAH, OKLAHOMA

PROJECT PHASE:

BID PACKAGE 05

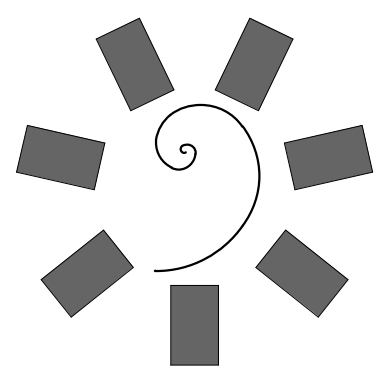
REVISIONS		
#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18 JOB NUMBER: 17-06

SHEET NUMBER:

M0.3

MECHANICAL SCHEDULES



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CONSULTANT LOGO:



CLIENT:
CHEROKEE NATION Entertainment



CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE:
BID PACKAGE 05

#	DATE	REVISIONS DESCRIPTION
1	06/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06
SHEET NUMBER:

MO.4
MECHANICAL SCHEDULES

MARK	GENERAL DATA			AIRFLOW CONDITIONS				SUPPLY FAN					RETURN FAN					MIXED AIR DATA													
	MANUFACTURER MODEL	LOCATION	SERVICE	SUPPLY AIR (CFM)	MIN. OUTSIDE AIR (CFM)	OA (%)	RETURN AIR (CFM)	MOTOR				ESP (IN)	TSP (W/ DIRTY FILTERS) (IN)	OUTLET VELOCITY (FPM)	MOTOR				ENERGY RECOVERY WHEEL	ENTERING AIR TEMP	RETURN AIR			OUTSIDE AIR FROM WHEEL			MIXING POINT				
								QTY	TYPE	RPM	HP				QTY	TYPE	RPM	HP			CFM	DB (°F)	WB (°F)	CFM	DB (°F)	WB (°F)	CFM	DB (°F)	WB (°F)		
AHU 1	ANNEXAIR AHU-E-12-D-HR-WZ46	ROOF	BANQUET KITCHEN	13,000	2,000	15%	13,000	2	PLUG	1800	7.5	2.0	3.98	500	2	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	11,000	75/70	63/53	2,000	101/0	78/0	13,000	79.0/59.3	65.8/-
AHU 2	ANNEXAIR AHU-E-25-D-HR-WZ96	ROOF	BALLROOM	24,000	8,000	33%	24,000	4	PLUG	1800	7.5	2.0	3.98	500	4	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	16,000	75/70	63/53	8,000	101/0	78/0	24,000	83.7/46.7	68.7/-
AHU 3	ANNEXAIR AHU-E-25-D-HR-WZ96	ROOF	BALLROOM	24,000	8,000	33%	24,000	4	PLUG	1800	7.5	2.0	3.98	500	4	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	16,000	75/70	63/53	8,000	101/0	78/0	24,000	83.7/46.7	68.7/-
AHU 4	ANNEXAIR AHU-E-16-D-HR-WZ60	ROOF	DINING/ KITCHEN (VAV)	15,000	5,000	33%	15,000	4	PLUG	1800	7.5	2.0	3.98	500	4	PLUG	1200	5	1.0	1.66	-	SUMMER WINTER	10,000	75/70	63/53	5,000	101/0	78/0	15,000	83.7/46.7	68.7/-
AHU 5	ANNEXAIR AHU-E-16-D-HR-WZ60	ROOF	BALLROOM PREFUNCTION (VAV)	16,000	4,000	25%	16,000	2	PLUG	1800	7.5	2.0	3.98	500	2	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	12,000	75/70	63/53	4,000	101/0	78/0	16,000	81.5/52.5	67.3/-
AHU 6	ANNEXAIR ERP-E-25-EW-D-HR-2XWZ52	ROOF	CASINO	25,000	25,000	100%	25,000	1	PLUG	1800	7.5	2.0	4.81	500	1	PLUG	1800	5	1.0	2.49	ERW 1-6	-	-	-	-	-	-	-	-	-	-
AHU 7	ANNEXAIR ERP-E-25-EW-D-HR-2XWZ52	ROOF	CASINO	25,000	25,000	100%	25,000	1	PLUG	1800	7.5	2.0	4.81	500	1	PLUG	1800	5	1.0	2.49	ERW 1-7	-	-	-	-	-	-	-	-	-	
AHU 8	ANNEXAIR AHU-E-16-D-HR-WZ60	ROOF	LOUNGE	16,000	4,000	25%	16,000	2	PLUG	1800	7.5	2.0	3.98	500	2	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	12,000	75/70	63/53	4,000	101/0	78/0	16,000	81.5/52.5	67.3/-
AHU 9	ANNEXAIR AHU-E-05-D-HR-WZ24	ROOF	BOH (VAV)	6,000	1,500	25%	6,000	2	PLUG	1200	10	2.0	3.98	500	2	PLUG	1200	7.5	1.0	1.66	-	SUMMER WINTER	4,500	75/70	63/53	1,500	101/0	78/0	6,000	81.5/52.5	67.3/-
AHU 10	ANNEXAIR AHU-E-09-D-HR-WZ46	ROOF	BOH (VAV)	8,000	2,000	25%	8,000	2	PLUG	1800	7.5	2.0	3.98	500	2	PLUG	1800	5	1.0	1.66	-	SUMMER WINTER	6,000	75/70	63/53	2,000	101/0	78/0	8,000	81.5/52.5	67.3/-
MAU 1	ANNEXAIR MAU-E-16-D-HR-WZ96	ROOF	DINING KITCHEN	15,500	15,500	100%	0	2	PLUG	1200	10	2.0	3.98	500	NO RETURN FANS					-	-	-	-	-	-	-	-	-	-	-	
MAU 2	ANNEXAIR MAU-E-07-D-HR-WZ52	ROOF	BANQUET KITCHEN	8,000	8,000	100%	0	2	PLUG	1800	5	1.5	3.48	500	NO RETURN FANS					-	-	-	-	-	-	-	-	-	-	-	

MARK	DX COIL (WSHP - COOLING MODE)							HOT GAS REHEAT COIL			DX COIL (WSHP - HEATING MODE)			WATER SOURCE HEAT PUMP DATA						UNIT ELECTRICAL						OPERATING WEIGHT (LBS)	REMARKS		
	CFM	TONS	TOTAL MBH	SENSIBLE MBH	EAT (DB)	EAT (WB)	LAT (DB)	LAT (WB)	CAPACITY (MBH)	EAT (DB)	LAT (WB)	CAPACITY (MBH)	EAT (DB)	LAT (WB)	MODEL	QTY	TONS / UNIT	EWT / LWT (°F) COOLING MODE	EWT / LWT (°F) HEATING MODE	GPM	NO. OF COMPRESSORS (VAR. SPEED)	GFI	LIGHTS	V/PH/Hz	FLA			MCA	MOCP
AHU 1	13,000	42.7	512	373	78.5	65.3	52	52	253	52	70	507	57.9	94	WZ-46	1	7-46	85/100	60/50	80	2	1	6	460/3/60	104	112	125	9,000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21
AHU 2	24,000	102.7	1232	822	83.7	68.7	52	52	467	52	70	1260	44.4	93	WZ-96	1	9-96	85/100	60/50	200	6	1	6	460/3/60	208	213	225	14,000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21
AHU 3	24,000	102.7	1232	822	83.7	68.7	52	52	467	52	70	1260	44.4	93	WZ-96	1	9-96	85/100	60/50	200	6	1	6	460/3/60	208	213	225	14,000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21
AHU 4	15,000	64.2	770	514	83.7	68.7	52	52	292	52	70	503	44.0	75	WZ-60	1	9-64	85/100	60/50	125	4	1	6	460/3/60	165	171	175	10,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19
AHU 5	16,000	61.8	741	510	81.5	67.3	52	52	312	52	70	837	39.6	88	WZ-60	1	9-64	85/100	60/50	125	4	1	6	460/3/60	129	135	150	10,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19
AHU 6	25,000	107.9	1294	810	82.0	68.8	52	52	486	52	70	1221	47.8	93	WZ-52	2	9-52	85/100	60/50	180	4	1	6	460/3/60	186	192	200	19,300	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21
AHU 7	25,000	107.9	1294	810	82.0	68.8	52	52	486	52	70	1221	47.8	93	WZ-52	2	9-52	85/100	60/50	180	4	1	6	460/3/60	186	192	200	19,300	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21
AHU 8	16,000	61.8	741	510	81.5	67.3	52	52	312	52	70	837	39.6	88	WZ-60	1	9-64	85/100	60/50	125	4	1	6	460/3/60	129	135	150	10,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21
AHU 9	6,000	23.2	278	192	81.5	67.3	52	52	117	52	70	159	50.6	75	WZ-24	1	3-24	85/100	60/50	50	2	1	6	460/3/60	91	95	110	5,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19
AHU 10	8,000	31.0	371	256	81.6	67.3	52	52	156	52	70	178	54.4	75	WZ-30	1	5-32	85/100	60/50	60	2	1	6	460/3/60	83	89	110	10,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19
MAU 1	15,500	65.4	784	603	101	78	65	65	84	65	70	1256	0	75	WZ-96	1	9-96	85/100	60/50	200	6	1	6	460/3/60	171	177	200	12,000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21
MAU 2	8,000	33.8	405	312	101	78	65	65	44	65	70	648	0	75	WZ-52	1	9-52	85/100	60/50	100	4	1	6	460/3/60	99	105	125	7,500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21

- PROVIDE 2" DEEP, MERV 8 (CAMFIL FARR 30/30).
- PROVIDE 18" CURB.
- PROVIDE A VFD ON EACH SUPPLY FAN AND EXHAUST FAN TO BE INSTALLED IN A CONDITIONED SPACE WITHIN THE AHU, CONTROL KEYPAD TO BE IN EXTERNAL CONTROL ENCLOSURE MOUNTED AT FACTORY.
- PROVIDE 2" DOUBLE WALL INSULATED CONSTRUCTION THERMALLY BROKEN, FACTORY EXTERIOR PAINT.
- PROVIDE AIR FOIL BI DIRECT DRIVE FANS.
- PROVIDE SMOKE DETECTORS IN SUPPLY AND RETURN (BY FIRE ALARM CONTRACTOR).
- PROVIDE INSULATED PIPING VESTIBULE MADE OF SAME CABINET CONSTRUCTION AS MAIN AIR HANDLER. PIPING VESTIBULE SHALL HAVE HINGED ACCESS DOORS FOR EACH COIL SECTION - MINIMUM DEPTH 30".
- PROVIDE 2 YEAR WARRANTY.
- PROVIDE LIGHTS AND CONVENIENCE OUTLETS, WIRED SEPARATE FROM MAIN UNIT POWER, ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER CONNECTION.
- PROVIDE INSULATED STAINLESS STEEL DRAIN PAN.

- ELECT CONNECTIONS - SINGLE POINT: 480/3, SINGLE POINT: 120/1.
- ALL FREEZE STATS SHALL BE LOCATED ON THE INSIDE OF ALL AIR HANDLERS UNITS. MIN 20' ELEMENT. MANUAL RESET-CONTROLLER LOCATED INSIDE UNIT. PROVIDED AND INSTALLED BY BAS CONTRACTOR.
- EXTERNALLY MOUNTED DISCONNECT (BY CONTRACTOR).
- PROVIDE OUTSIDE AIR AIR-FLOW MEASURING STATION WITH CONTROL INTERFACE. BAS CONTRACTOR TO PROVIDE AND FIELD INSTALL.
- PROVIDE SUPPLY AND EXHAUST FAN INLET AIR-FLOW MEASURING STATIONS. BAS CONTRACTOR TO PROVIDE AND INSTALL.
- PROVIDE A 16" ACCESS SECTION FOR CONDENSATE COIL.
- PROVIDE ENTIRE CONTROLS SYSTEM UNDER ONE WARRANTY.
- NOT USED.
- COIL SHALL BE ACCESSIBLE AND REMOVABLE FROM THE TOP OF THE UNIT.
- PROVIDE WITH ENTHALPY WHEEL. REFER TO ENERGY RECOVERY WHEEL SCHEDULE.
- PROVIDE WITH HOT GAS REHEAT.

MARK	SIZE	HP	SERVICE	OUTSIDE AIR			SUPPLY AIR			EXHAUST AIR			RETURN AIR			FROST CONTROL	REMARKS
				CFM	EAT °F	EAT °F	CFM	SUMMER DB/WB	LAT °F	CFM	LAT °F	LAT °F	CFM	EAT °F	EAT °F		
ERW 1-6	25	1.0	AHU 6	26,316	101/78	0/0	25,000	82.1/68.8	47.8/39.6	26,316	93.9/73.3	22.2/22.2	25,000	75/73	70/53	VFD	1, 2, 3, 4, 5
ERW 1-7	25	1.0	AHU 7	26,316	101/78	0/0	25,000	82.1/68.8	47.8/39.6	26,316	93.9/73.3	22.2/22.2	25,000	75/73	70/53	VFD	1, 2, 3, 4, 5

- ALUMINUM WHEEL.
- 3 ANGSTROM DESSICANT SYSTEM.
- WHEEL RETURN AIR LEADING EDGE SHALL BE TEFLON COATED.
- DATA SHOWN IS FOR A SINGLE (1) WHEEL, PROVIDE TWO (2) WHEELS PER AIR HANDLER.
- PROVIDE WHEEL MOTOR WITH VFD.

WATER SOURCE HEAT PUMP UNIT SCHEDULE

MARK	MANUFACTURER MODEL	SERVICE	SUPPLY AIR CFM	OUTDOOR AIR CFM	ESP (IN WG)	HP	COOLING COIL										HEATING COIL					ELECTRICAL			OPERATING WEIGHT (LBS)	REMARKS		
							TOTAL MBH	SENSIBLE MBH	EAT (DB)	EAT (WB)	LAT (DB)	LAT (WB)	EWT (°F)	GPM	MAX WATER PD (FT)	EER	TOTAL MBH	EAT (DB)	LAT (DB)	EWT (°F)	GPM	MAX WATER PD (FT)	COP	V/PH/Hz			MCA	MOCP
WSHP 1	CLIMATE MASTER TE-064	VESTIBULE	1600	0	0.5	-	64.0	44.0	80	67	54.3	48.7	85	12.8	10	16.3	69	70	107.7	85	12.8	10	4.5	480/3/60	15.0	20.0	500	1, 2, 3, 4, 5, 6
WSHP 2	CLIMATE MASTER TE-049	PLAYERS CLUB	1250	200	0.5	-	48.0	31.0	80	67	57.2	51.9	85	10.5	10	16.5	50	70	104.9	85	10.5	10	4.2	480/3/60	14.0	20.0	500	1, 2, 3, 4, 5, 6
WSHP 3	CLIMATE MASTER TE-064	VESTIBULE	1600	0	0.5	-	64.0	44.0	80	67	54.3	48.7	85	12.8	10	16.3	69	70	107.7	85	12.8	10	4.5	480/3/60	15.0	20.0	500	1, 2, 3, 4, 5, 6
WSHP 4	CLIMATE MASTER TE-064	RESTROOMS	2000	300	0.5	-	65.0	50.0	80	67	56.9	51.5	85	12.8	10	15.7	70	70	100.6	85	12.8	10	4.9	480/3/60	15.0	20.2	500	1, 2, 3, 4, 5, 6
WSHP 5	CLIMATE MASTER TE-072	FIRE RISER 34	1800	0	0.5	-	71.0	48.0	80	67	55.4	49.9	85	14.2	10	14.9	75	70	106.6	85	14.2	10	4.2	480/3/60	16.6	25.0	500	1, 2, 3, 4, 5, 6
WSHP 6	CLIMATE MASTER TE-038	EMERGENCY ELECTRICAL 35	800	0	0.5	-	37.0	22.0	80	67	55.5	50.0	85	7.9	10	17.7	39	70	112.0	85	7.9	10	4.5	480/3/60	10.3	15.0	400	1, 2, 3, 4, 5, 6
WSHP 7	CLIMATE MASTER TE-064	ELECTRICAL 36	1600	0	0.5	-	64.0	44.0	80	67	54.3	48.7	85	12.8	10	16.3	69	70	107.7	85	12.8	10	4.5	480/3/60	15.0	20.0	500	1, 2, 3, 4, 5, 6
WSHP 8	CLIMATE MASTER TE-038	ELEC 97C	800	0	0.5	-	37.0	22.0	80	67	55.5	50.0	85	7.9	10	17.7	39	70	112.0	85	7.9	10	4.5	480/3/60	10.3	15.0	400	1, 2, 3, 4, 5, 6
WSHP 9	CLIMATE MASTER TE-038	ELEC 97A	800	0	0.5	-	37.0	22.0	80	67	55.5	50.0	85	7.9	10	17.7	39	70	112.0	85	7.9	10	4.5	480/3/60	10.3	15.0	400	1, 2, 3, 4, 5, 6
WSHP 10	CLIMATE MASTER TE-038	IDF 70	800	0	0.5	-	37.0	22.0	80	67	55.5	50.0	85	7.9	10	17.7	39	70	112.0	85	7.9	10	4.5	480/3/60	10.3	15.0	400	1, 2, 3, 4, 5, 6
WSHP 11	CLIMATE MASTER TEV-026	UNDER STAGE	800	0	0.5	-	37.0	22.0	80	67	55.5	50.0	85	7.9	10	17.7	39	70	112.0	85	7.9	10	4.5	480/3/60	10.3	15.0	400	1, 2, 3, 4, 5, 6

1. 2" FILTER RACKS. 2. EXTENDED RANGE. 3. NON-CFC / NON-HCFC REFRIGERANT. 4. SMOKE DETECTOR IN SUPPLY AIR DUCT. 5. PROVIDE TEMPERATURE SENSOR. 6. Y-BALL FLOW CONTROL VALVE, HAYS MESURFLO AUTOMATIC (2-80 PSID RANGE) WITH PT PORTS, HOSE KIT WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING HEAT PUMP.

COMPUTER ROOM AIR CONDITIONING UNIT

MARK	GENERAL DATA			FANS			ECONOCOIL COIL					CONDENSER WATER COOLING					DX COOLING				HUMIDIFICATION		ELECTRICAL				OPERATING WEIGHT (LBS)	REMARKS		
	MANUFACTURER MODEL	LOCATION	CFM	ESP (IN)	QUANTITY	MOTOR RPM	BHP	HP	TOTAL MBH	SENS MBH	EAT (DB)	EAT (%RH)	GPM	TOTAL MBH	SENS MBH	EAT (DB)	EAT (%RH)	GPM	TOTAL MBH	SENS MBH	EAT (DB)	EAT (%RH)	CAPACITY (L/HR)	WATER CONN (IN)	V/PH/Hz	FLA			MCA	MOCP
CRAC 1A	LIEBERT DS03HDA1E1	MDF	8000	0.8	2	-	3.4	-	170.4	157.1	75	45%	36.4	206.5	178.9	75	45%	43.0	-	-	-	-	22	-	460/3/60	57.1	69.4	75	2500	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
CRAC 1B	LIEBERT DS03DDA1E1	MDF	8000	0.8	2	-	3.4	-	170.4	157.1	75	45%	36.4	-	-	-	-	197.4	177.6	75	45%	22	-	460/3/60	57.1	69.4	75	2100	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	
CRAC 2A	LIEBERT MMD06KNAHEH1	CASINO IDF	3750	0.5	1	-	-	2	82.2	76.8	75	45%	17.6	102.0	89.4	75	45%	22.7	-	-	-	8	-	460/3/60	21.0	26.3	30	705	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	
CRAC 2B	LIEBERT MMD06KNAHEH3	CASINO IDF	3750	0.5	1	-	-	2	82.2	76.8	75	45%	17.6	-	-	-	-	92.7	84.9	75	45%	8	-	460/3/60	21.0	26.3	30	705	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	
CRAC 3A	LIEBERT MMD06KNAHEH1	BALLROOM IDF	2500	0.5	1	-	-	1 1/2	55.6	51.5	75	45%	12.0	70.8	59.6	75	45%	16.4	-	-	-	8	-	460/3/60	19.8	24.8	25	470	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	
CRAC 3B	LIEBERT MMD06KNAHEH3	BALLROOM IDF	2500	0.5	1	-	-	1 1/2	55.6	51.5	75	45%	12.0	-	-	-	-	62.7	55.8	75	45%	8	-	460/3/60	19.8	24.8	25	650	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	

1. PROVIDE REFRIGERANT LINES SIZED PER MANUFACTURER'S RECOMMENDATIONS. 2. PROVIDE CLEARANCE AROUND UNIT PER MANUFACTURER'S RECOMMENDATIONS. 3. PROVIDE P-TRAPS AND ARRANGE SLOPE OF REFRIGERANT PIPING FOR OIL RETURN. 4. PROVIDE SAFETY CONTROLS. 5. PROVIDE BACNET IP CONTROL INTERFACE. VERIFY WHICH TO PROVIDE WITH CONTROLS CONTRACTOR PRIOR TO PRODUCTION. 6. PROVIDE SPACE TEMPERATURE SENSOR. 7. PROVIDE TRAPS IN REFRIGERANT/SUCTION LINES AS REQUIRED TO MEET MANUFACTURER'S OVERALL LENGTH REQUIREMENTS. 8. PROVIDE PREMIUM EFFICIENT MOTOR. 9. PROVIDE CONDENSATE PUMP. 10. PROVIDE HUMIDIFIER. 11. FIA CONTRACTOR TO PROVIDE SMOKE DETECTOR. 12. PROVIDE BAS INTERFACE, BACNET PROTOCOL.

AIR DISTRIBUTION SCHEDULE

MARK	MANUFACTURER MODEL	AIRFLOW RANGE	SERVICE TYPE	MAX NC	NECK SIZE	PANEL SIZE	REMARKS
D-1 CFM	TITUS MCD	0-100	SUPPLY CEILING	30	6"X6"	24"X24"	1, 2, 3
D-2 CFM	TITUS MCD	101-200	SUPPLY CEILING	30	8"X8"	24"X24"	1, 2, 3
D-3 CFM	TITUS MCD	201-350	SUPPLY CEILING	30	10"X10"	24"X24"	1, 2, 3
D-4 CFM	TITUS MCD	351-500	SUPPLY CEILING	30	12"X12"	24"X24"	1, 2, 3
D-5 CFM	TITUS FL-25	400-600	SUPPLY LINEAR	30	12"Ø	4' LENGTH (2) 2 1/2" SLOTS	1, 2, 3
D-6 CFM	TROX FBA-3V-KF-SM/200	80-95	FLOOR SUPPLY	30	-	24"X24"	1, 2, 3
D-7 CFM	TITUS TMR	1000	CEILING SUPPLY	30	8"	22"	-
D-8 CFM	TITUS FL-25	0-300	SUPPLY LINEAR	30	10"Ø	4' LENGTH (2) 2 1/2" SLOTS	1, 2, 3
D-9 CFM	TITUS MCD	0-100	SUPPLY CEILING	30	6"X6"	12"X12"	1, 2, 3
D-10 CFM	TITUS MCD	101-200	SUPPLY CEILING	30	8"X8"	14"X14"	1, 2, 3
D-11 CFM	TITUS MCD	201-350	SUPPLY CEILING	30	10"X10"	16"X16"	1, 2, 3
D-12 CFM	TITUS MCD	800	SUPPLY CEILING	30	16"X16"	24"X24"	1, 2, 3
D-13 CFM	TITUS MCD	1750	SUPPLY CEILING	30	18"X18"	24"X24"	1, 2, 3

AIR DISTRIBUTION SCHEDULE (CONT.)

MARK	MANUFACTURER MODEL	AIRFLOW RANGE	SERVICE TYPE	MAX NC	NECK SIZE	PANEL SIZE	REMARKS
D-14 CFM	TITUS PAR	750	SUPPLY CEILING	30	15"X15"	24"X24"	1, 2, 3
D-15 CFM	TITUS PAR	400	SUPPLY CEILING	30	12"X12"	24"X24"	1, 2, 3
R-1 CFM	TITUS 50F	0-2000	RETURN CEILING	30	22"X22"	24"X24"	1
R-2 CFM	TITUS FL-25	400-600	RETURN LINEAR	30	12"Ø	4' LENGTH (2) 2 1/2" SLOTS	1, 4
R-4 CFM	TITUS 350FL	350-900	RETURN SIDEWALL	30	14"X14"	16"X16"	1, 3
R-5 CFM	TITUS 50F	0-150	RETURN CEILING	30	6"X6"	12"X12"	1
R-6 CFM	TITUS 350R	350-600	RETURN CEILING	30	18"X10"	20"X12"	1
R-7 CFM	TITUS PAR	750	RETURN CEILING	30	15"X15"	24"X24"	1
R-8 CFM	TITUS FL-2T	0-300	RETURN CEILING	30	10"Ø	4' LENGTH (2) 2 1/2" SLOTS	1
R-9 CFM	TITUS 272RL	0-2100	RETURN SIDEWALL	30	36"X18"	38"X20"	1
EX-1 CFM	TITUS 50F	0-100	EXHAUST CEILING	30	6"X6"	24"X24"	1
EX-2 CFM	TITUS 50F	101-200	EXHAUST CEILING	30	8"X8"	24"X24"	1
EX-3 CFM	TITUS 50F	201-375	EXHAUST CEILING	30	10"X10"	24"X24"	1
EX-4 CFM	TITUS 50F	376-600	EXHAUST CEILING	30	12"X12"	24"X24"	1

1. COORDINATE BORDER, COLOR, FINISH AND EXACT LOCATION WITH ARCHITECT. 2. WHERE A BALANCING DAMPER IS SHOWN IN THE DUCTWORK TAKEOFF - NO OBD REQUIRED. 3. PROVIDE SQUARE TO ROUND TRANSITION FROM FACTORY. 4. 3.0" SLOT, 1 - SLOT 12" INLET.

COMPUTER ROOM AIR COOLED CONDENSER UNIT SCHEDULE

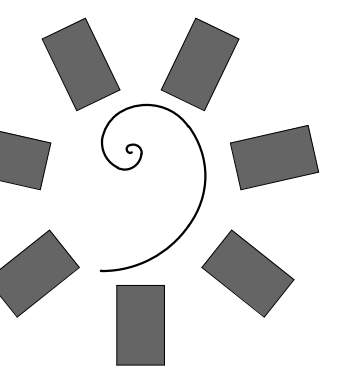
MARK	MANUFACTURER MODEL	INDOOR UNIT	LOCATION	NOMINAL CAPACITY (TONS)	CONDENSER FANS			OA AMBIENT °F		ELECTRICAL			OPERATING WEIGHT (LBS)	REMARKS
					NO.	FLA	RPM	MIN	MAX	V/PH/Hz	MCA	MOCP		
CCU 1	LIEBERT MCL110E8AD	CRAC 1B	ROOF	15	2	5.6	-	-10	105	460/3/60	6.3	15	1200	1, 2, 3, 4, 5, 6
CCU 2A	LIEBERT MCD09W3AHN	CRAC 2A	INDOOR	8	1	20.9	-	-10	105	460/3/60	23.4	30	600	1, 2, 3, 4, 5, 6
CCU 2BA	LIEBERT PPH067A-AHN	CRAC 2B	ROOF	5	1	11.7	-	-10	105	460/3/60	14.2	20	550	1, 2, 3, 4, 5, 6
CCU 2BB	LIEBERT PPH037A-AHN	CRAC 2B	ROOF	3	1	8.1	-	-10	105	460/3/60	9.7	15	500	1, 2, 3, 4, 5, 6
CCU 3A	LIEBERT MCD09W3AHN	CRAC 3A	INDOOR	5	1	10.0	-	-10	105	460/3/60	12.5	20	350	1, 2, 3, 4, 5, 6
CCU 3B	LIEBERT PPH067A-AHN	CRAC 3B	ROOF	5	1	11.7	-	-10	105	460/3/60	14.2	20	550	1, 2, 3, 4, 5, 6

1. PROVIDE REFRIGERANT LINES SIZED PER MANUFACTURER'S RECOMMENDATIONS. 2. PROVIDE CLEARANCE AROUND UNIT PER MANUFACTURER'S RECOMMENDATIONS. 3. PROVIDE P-TRAPS AND ARRANGE SLOPE OF REFRIGERANT PIPING FOR OIL RETURN. 4. PROVIDE SAFETY CONTROLS. 5. PROVIDE LOW AMBIENT KIT FOR UNIT OPERATION DOWN TO -20°F. 6. PROVIDE HOT GAS BY-PASS.

HEATING WATER UNIT HEATER SCHEDULE

MARK	MANUFACTURER MODEL	LOCATION	TYPE	CAPACITY MBH	CFM	AIR EAT (DB)	LAT (DB)	HP (W)	ELECTRICAL			HEATING WATER			OPERATING WEIGHT (LBS)	REMARKS
									RPM	V/PH/Hz	GPM	EWT (°F)	LWT (°F)	PD (FT)		
HUH 1	REZNOR WS	LOADING DOCK	VERTICAL	50.0	1250	40.0	84.4	0.15	1600	120/1/60	3.0	140	100	0.12	70.0	1, 2
HUH 2	REZNOR WS	LOADING DOCK	VERTICAL	50.0	1250	40.0	84.4	0.15	1600	120/1/60	3.0	140	100	0.12	70.0	1, 2
HUH 3	REZNOR WS	LOADING DOCK	VERTICAL	50.0	1250	40.0	84.4	0.15	1600	120/1/60	3.0	140	100	0.12	70.0	1, 2
HUH 4	REZNOR WS	LOADING DOCK	VERTICAL	50.0	1250	40.0	84.4	0.15	1600	120/1/60	3.0	140	100	0.12	70.0	1, 2

1. PROVIDE CEILING MOUNTED BRACKET. 2. PROVIDE SENSOR AND WIRING UP TO UNIT HEATER. 3. Y-BALL FLOWFLOW CONTROL VALVE, HAYS MESURFLO AUTOMATIC (2-80 PSID RANGE) WITH PT PORTS, HOSE KIT WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING HEAT PUMP. 4. PIPE SIZE TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.5"



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CLIENT: **CHEROKEE NATION Entertainment**

AHU-4 TERMINAL BOX SCHEDULE

MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)							OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	PD (FT)			ROWS
VAV 4-1	TITUS DESV	1000	600	600	10	0.3	20	22	19.2	2.6	65	95	140	100	0.5	2	25	1, 3
VAV 4-2	TITUS DESV	1000	600	600	10	0.3	20	22	19.2	2.6	65	95	140	100	0.5	2	25	1, 3
VAV 4-3	TITUS DESV	1000	600	600	10	0.3	20	22	19.2	2.6	65	95	140	100	0.5	2	25	1, 3
VAV 4-4	TITUS DESV	1000	600	600	10	0.3	20	22	19.2	2.6	65	95	140	100	0.5	2	25	1, 3
VAV 4-5	TITUS DESV	2000	1200	1200	14	0.3	17	22	38.4	4.2	65	95	140	100	0.8	2	25	1, 3
VAV 4-6	TITUS DESV	1200	720	720	10	0.4	22	24	23.0	4.3	65	95	140	100	1.2	2	25	1, 3
VAV 4-7	TITUS DESV	800	480	480	10	0.2	18	22	15.4	1.7	65	95	140	100	0.3	2	25	1, 3
VAV 4-8	TITUS DESV	1500	900	900	12	0.4	21	23	28.8	3.8	65	95	140	100	1.1	2	25	1, 3
VAV 4-9	TITUS DESV	1500	900	900	12	0.4	21	23	28.8	3.8	65	95	140	100	1.1	2	25	1, 3
VAV 4-10	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 4-11	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 4-12	TITUS DESV	500	300	300	06	0.3	21	24	9.6	1.4	65	95	140	100	0.3	2	25	1, 3

1. WITH HANGER BRACKETS.
 2. NOT USED.
 3. CONTROLS AND ACTUATOR BY BAS CONTRACTOR.

INSTALLATION NOTES:
 4. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT RIGID DUCT ON INLET.

5. DUCT TO INLET - MIN ONE (EVEN) DUCT SIZE LARGER THAN LISTED INLET. IF OVER 15 FOOT RUN OR MORE THAN TWO 90° ELBOWS-MIN. TWO DUCT SIZES LARGER.
 6. UNITS WITH HEATING WATER COIL, HAYS MESURFLO AUTOMATIC Y-BALL FLOW CONTROL VALVE (2-80 PSID RANGE) WITH PT PORTS, HOSE KIET WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING VAV BOX.

7. PIPE SIZES TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.25", LESS THAN 18.1 GPM=1.5".
 8. MINIMUM INLET SP: 1"
 9. MINIMUM DOWNSTREAM SP: 0.25".

AHU-1 TERMINAL BOX SCHEDULE

MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)							OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	PD (FT)			ROWS
VAV 1-1	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 1-2	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 1-3	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 1-4	TITUS DESV	2200	1400	1400	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3
VAV 1-5	TITUS DESV	100	50	50	04	0.1	25	27	5.8	0.5	65	95	140	100	0.2	2	25	1, 3
VAV 1-6	TITUS DESV	2000	1200	1200	14	0.3	17	22	38.4	4.2	65	95	140	100	0.8	2	25	1, 3
VAV 1-7	TITUS DESV	2100	1350	1350	14	0.4	17	22	44.8	6.3	65	95	140	100	1.7	2	25	1, 3

1. WITH HANGER BRACKETS.
 2. NOT USED.
 3. CONTROLS AND ACTUATOR BY BAS CONTRACTOR.

INSTALLATION NOTES:
 4. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT RIGID DUCT ON INLET.

5. DUCT TO INLET - MIN ONE (EVEN) DUCT SIZE LARGER THAN LISTED INLET. IF OVER 15 FOOT RUN OR MORE THAN TWO 90° ELBOWS-MIN. TWO DUCT SIZES LARGER.
 6. UNITS WITH HEATING WATER COIL, HAYS MESURFLO AUTOMATIC Y-BALL FLOW CONTROL VALVE (2-80 PSID RANGE) WITH PT PORTS, HOSE KIET WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING VAV BOX.

7. PIPE SIZES TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.25", LESS THAN 18.1 GPM=1.5".
 8. MINIMUM INLET SP: 1"
 9. MINIMUM DOWNSTREAM SP: 0.25".

AHU-9 TERMINAL BOX SCHEDULE

MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)							OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	PD (FT)			ROWS
VAV 9-1	TITUS DESV	375	250	250	06	0.2	18	20	8.0	1.1	65	95	140	100	0.2	2	25	1, 3
VAV 9-2	TITUS DESV	450	300	300	06	0.3	20	23	9.6	1.4	65	95	140	100	0.3	2	25	1, 3
VAV 9-3	TITUS DESV	825	500	500	08	0.4	21	24	16.0	3.1	65	95	140	100	1.3	2	25	1, 3
VAV 9-4	TITUS DESV	450	300	300	06	0.3	20	23	9.6	1.4	65	95	140	100	0.3	2	25	1, 3
VAV 9-5	TITUS DESV	725	450	450	08	0.3	20	23	14.4	2.2	65	95	140	100	0.7	2	25	1, 3
VAV 9-6	TITUS DESV	800	500	500	08	0.4	21	24	16.0	3.1	65	95	140	100	1.3	2	25	1, 3
VAV 9-7	TITUS DESV	225	150	150	04	0.1	27	29	5.8	0.8	65	95	140	100	0.2	2	25	1, 3
VAV 9-8	TITUS DESV	800	500	500	08	0.4	21	24	16.0	3.1	65	95	140	100	1.3	2	25	1, 3
VAV 9-9	TITUS DESV	1000	600	600	10	0.3	20	22	19.2	2.6	65	95	140	100	0.5	2	25	1, 3
VAV 9-10	TITUS DESV	500	300	300	06	0.3	21	24	9.6	1.4	65	95	140	100	0.3	2	25	1, 3
VAV 9-11	TITUS DESV	200	150	150	04	0.1	25	27	5.8	0.8	65	95	140	100	0.2	2	25	1, 3
VAV 9-12	TITUS DESV	400	250	250	06	0.2	18	22	8.0	1.1	65	95	140	100	0.2	2	25	1, 3
VAV 9-13	TITUS DESV	750	500	500	08	0.4	21	23	16.0	2.2	65	95	140	100	1.3	2	25	1, 3

1. WITH HANGER BRACKETS.
 2. NOT USED.
 3. CONTROLS AND ACTUATOR BY BAS CONTRACTOR.

INSTALLATION NOTES:
 4. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT RIGID DUCT ON INLET.

5. DUCT TO INLET - MIN ONE (EVEN) DUCT SIZE LARGER THAN LISTED INLET. IF OVER 15 FOOT RUN OR MORE THAN TWO 90° ELBOWS-MIN. TWO DUCT SIZES LARGER.
 6. UNITS WITH HEATING WATER COIL, HAYS MESURFLO AUTOMATIC Y-BALL FLOW CONTROL VALVE (2-80 PSID RANGE) WITH PT PORTS, HOSE KIET WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING VAV BOX.

7. PIPE SIZES TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.25", LESS THAN 18.1 GPM=1.5".
 8. MINIMUM INLET SP: 1"
 9. MINIMUM DOWNSTREAM SP: 0.25".

AHU-10 TERMINAL BOX SCHEDULE

MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)							OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	PD (FT)			ROWS
VAV 10-1	TITUS DESV	725	450	450	08	0.3	20	23	14.4	2.2	65	95	140	100	0.7	2	25	1, 3
VAV 10-2	TITUS DESV	600	400	400	08	0.3	19	20	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 10-3	TITUS DESV	400	250	250	06	0.2	18	22	8.0	1.1	65	95	140	100	0.2	2	25	1, 3
VAV 10-4	TITUS DESV	600	400	400	08	0.3	19	20	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 10-5	TITUS DESV	900	550	550	08	0.5	22	25	17.6	4.5	65	95	140	100	2.7	2	25	1, 3
VAV 10-6	TITUS DESV	1075	650	650	10	0.3	20	23	20.8	3.2	65	95	140	100	0.7	2	25	1, 3
VAV 10-7	TITUS DESV	600	400	400	08	0.3	19	20	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 10-8	TITUS DESV	2000	1200	1200	14	0.3	17	22	38.4	4.2	65	95	140	100	0.8	2	25	1, 3
VAV 10-9	TITUS DESV	2000	1200	1200	14	0.3	17	22	38.4	4.2	65	95	140	100	0.8	2	25	1, 3

1. WITH HANGER BRACKETS.
 2. NOT USED.
 3. CONTROLS AND ACTUATOR BY BAS CONTRACTOR.

INSTALLATION NOTES:
 4. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT RIGID DUCT ON INLET.

5. DUCT TO INLET - MIN ONE (EVEN) DUCT SIZE LARGER THAN LISTED INLET. IF OVER 15 FOOT RUN OR MORE THAN TWO 90° ELBOWS-MIN. TWO DUCT SIZES LARGER.
 6. UNITS WITH HEATING WATER COIL, HAYS MESURFLO AUTOMATIC Y-BALL FLOW CONTROL VALVE (2-80 PSID RANGE) WITH PT PORTS, HOSE KIET WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING VAV BOX.

7. PIPE SIZES TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.25", LESS THAN 18.1 GPM=1.5".
 8. MINIMUM INLET SP: 1"
 9. MINIMUM DOWNSTREAM SP: 0.25".

AHU-5 TERMINAL BOX SCHEDULE

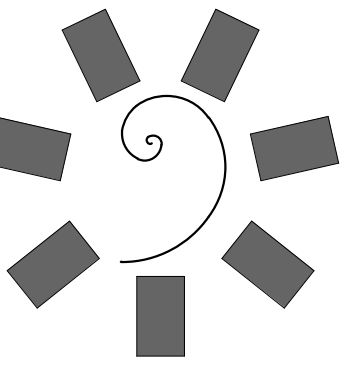
MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)							OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	PD (FT)			ROWS
VAV 5-1	TITUS DESV	1100	700	700	10	0.4	20	23	22.4	4.0	65	95	140	100	1.0	2	25	1, 3
VAV 5-2	TITUS DESV	2200	1350	1350	14	0.4	17	22	43.2	5.7	65	95	140	100	1.4	2	25	1, 3
VAV 5-3	TITUS DESV	650	400	400	08	0.3	19	22	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 5-4	TITUS DESV	650	400	400	08	0.3	19	22	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 5-5	TITUS DESV	650	400	400	08	0.3	19	22	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 5-6	TITUS DESV	600	400	400	08	0.3	19	20	12.8	1.6	65	95	140	100	0.4	2	25	1, 3
VAV 5-7	TITUS DESV	3000	1800	1800	24x16	0.3	24	34	57.1	5.1	65	95	140	100	1.7	2	25	1, 3
VAV 5-8	TITUS DESV	775	500	500	08	0.4	21	23	16.0	3.1	65	95	140	100	1.3	2	25	1, 3
VAV 5-9	TITUS DESV	3000	1800	1800	24x16	0.3	24	34	57.1	5.1	65	95	140	100	1.7	2	25	1, 3
VAV 5-10	TITUS DESV	3000	1800	1800	24x16	0.3	24	34	57.1	5.1	65	95	140	100	1.7	2	25	1, 3
VAV 5-11	TITUS DESV	775	500	500	08	0.4	21	23	16.0	3.1	65	95	140	100	1.3	2	25	1, 3
VAV 5-12	TITUS DESV	500	300	300	06	0.3	21	24	9.6	1.4	65	95	140	100	0.3	2	25	1, 3

1. WITH HANGER BRACKETS.
 2. NOT USED.
 3. CONTROLS AND ACTUATOR BY BAS CONTRACTOR.

INSTALLATION NOTES:
 4. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT RIGID DUCT ON INLET.

5. DUCT TO INLET - MIN ONE (EVEN) DUCT SIZE LARGER THAN LISTED INLET. IF OVER 15 FOOT RUN OR MORE THAN TWO 90° ELBOWS-MIN. TWO DUCT SIZES LARGER.
 6. UNITS WITH HEATING WATER COIL, HAYS MESURFLO AUTOMATIC Y-BALL FLOW CONTROL VALVE (2-80 PSID RANGE) WITH PT PORTS, HOSE KIET WITH MINIMUM 24" SS LINES, ISOLATION BALL VALVES (LEVER HANDLE), BANDED AND LABELED FOR CORRESPONDING VAV BOX.

7. PIPE SIZES TO COILS: LESS THAN 3.1 GPM=3/4", LESS THAN 6.1 GPM=1", LESS THAN 11.1 GPM=1.25", LESS THAN 18.1 GPM=1.5".
 8. MINIMUM INLET SP: 1"
 9. MINIMUM DOWNSTREAM SP: 0.25".



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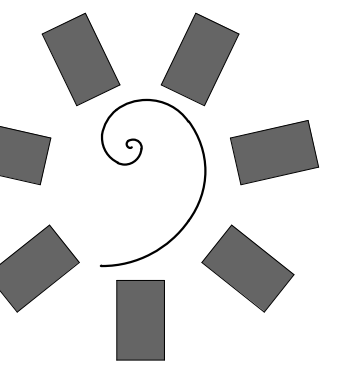
CONSULTANT LOGO:



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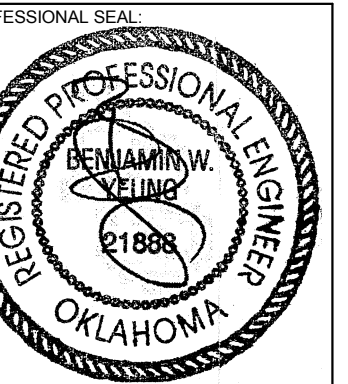


CHEROKEE NATION ENTERTAINMENT
 TAHLEQUAH CASINO
 TAHLEQUAH, OKLAH



James R. Childers Architect, Inc.

45 South 4th Street
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CONSULTANT LOGO:



CLIENT:
CHEROKEE NATION Entertainment



CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE:

BID PACKAGE 05

REVISIONS		
#	DATE	DESCRIPTION
1	06/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06

SHEET NUMBER: MO.7

MECHANICAL SCHEDULES

EXHAUST FAN SCHEDULE

MARK	GENERAL DATA			FAN				ELECTRICAL				OPERATING WEIGHT (LBS)	REMARKS
	MANUFACTURER MODEL	LOCATION	SERVICE	TYPE	CFM	ESP (IN WG)	RPM	BHP	HP (W)	FLA	V/PH/Hz		
EF 1	GREENHECK GB-161-15	ROOF	RESTROOMS MENS 11 WOMENS 13	CENTRI-FUGAL	2900	0.75	1349	1.02	1 1/2	3	480/3/60	200	1, 2, 3, 4
EF 2	GREENHECK GB-101-3	ROOF	RESTROOMS MENS 73 WOMENS 74	CENTRI-FUGAL	700	0.5	1316	0.15	1/3	7.2	115/1/60	100	1, 2, 3, 4
EF 3	GREENHECK GB-101-3	ROOF	RESTROOMS TOILET 87 TOILET 88	CENTRI-FUGAL	500	0.5	1192	0.11	1/3	7.2	115/1/60	100	1, 2, 3, 4
EF 4	GREENHECK GB-131-3	ROOF	RESTROOMS MENS 90	CENTRI-FUGAL	1100	0.5	1218	0.23	1/2	9.8	115/1/60	100	1, 2, 3, 4
EF 5	GREENHECK GB-131-5	ROOF	RESTROOMS WOMENS 92	CENTRI-FUGAL	1200	0.5	1269	0.26	1/2	9.8	115/1/60	100	1, 2, 3, 4
EF 6	GREENHECK GB-101-5	ROOF	RESTROOMS WOMENS 22 MENS 24	CENTRI-FUGAL	800	0.5	1397	0.18	1/2	9.8	115/1/60	100	1, 2, 3, 4
EF 7	GREENHECK SP-B200	CEILING	RESTROOMS TOILET 82	CEILING	150	0.5	950	-	(172)	-	115/1/60	25	2, 3, 4

1. PROVIDE ROOF CURB.
2. PROVIDE MOTOR WITH THERMAL OVERLOADS.
3. PROVIDE DISCONNECT SWITCH.
4. PROVIDE BACKDRAFT DAMPER.

AIR CURTAIN SCHEDULE

MARK	GENERAL DATA				ELECTRICAL				OPERATING WEIGHT (LBS)	REMARKS	
	MANUFACTURER MODEL	LOCATION	LENGTH	MAX CFM AT NOZZLE	MAX FPM AT NOZZLE	MOTOR RPM	HP	FLA			V/PH/Hz
ACU 1	MARS 48CHS	ENTRANCE	4'-0"	4000	4000	1750	1	2.0	460/3/60	85	1, 2

1. PROVIDE MICRO SWITCH AND CONTROL PANEL FOR AUTO ON/OFF OPERATION.
2. PROVIDE WALL MOUNTING BRACKETS.

AIR BALANCE SCHEDULE

UNIT	KITCHEN				BUILDING			
	SUPPLY	RETURN	OUTSIDE	EXHAUST	SUPPLY	RETURN	OUTSIDE	EXHAUST
AHU-1	13,000	11,000	2,000	-	-	-	-	-
AHU-2	-	-	-	-	24,000	16,000	8,000	-
AHU-3	-	-	-	-	24,000	16,000	8,000	-
AHU-4	7,900	5,267	2,633	-	7,100	4,733	2,367	-
AHU-5	-	-	-	-	16,000	12,000	4,000	-
AHU-6	-	-	-	-	25,000	0	25,000	25,000
AHU-7	-	-	-	-	25,000	0	25,000	25,000
AHU-8	-	-	-	-	16,000	12,000	4,000	-
AHU-9	-	-	-	-	6,000	4,500	1,500	-
AHU-10	-	-	-	-	8,000	6,000	2,000	-
MAU-1	15,500	0	15,500	-	-	-	-	-
MAU-2	8,000	0	8,000	-	-	-	-	-
WSHP-1	-	-	-	-	1,600	1,600	0	-
WSHP-2	-	-	-	-	1,250	1,050	200	-
WSHP-3	-	-	-	-	1,600	1,600	0	-
WSHP-4	-	-	-	-	2,000	1,700	300	-
WSHP-5	-	-	-	-	1,800	1,800	0	-
WSHP-6	-	-	-	-	800	800	0	-
WSHP-7	-	-	-	-	1,600	1,600	0	-
WSHP-8	800	800	0	-	-	-	-	-
WSHP-9	-	-	-	-	800	800	0	-
WSHP-10	-	-	-	-	800	800	0	-
CRAC-1A/B	-	-	-	-	8,000	8,000	0	-
CRAC-2A/B	-	-	-	-	3,750	3,750	0	-
CRAC-3A/B	-	-	-	-	2,500	2,500	0	-
HUH-1	-	-	-	-	1,250	1,250	0	-
HUH-2	-	-	-	-	1,250	1,250	0	-
HUH-3	-	-	-	-	1,250	1,250	0	-
HUH-4	-	-	-	-	1,250	1,250	0	-
AC-1	4,000	4,000	0	-	-	-	-	-
EF-1	-	-	-	-	-	-	-	2,900
EF-2	-	-	-	-	-	-	-	700
EF-3	-	-	-	-	-	-	-	500
EF-4	-	-	-	-	-	-	-	1,100
EF-5	-	-	-	-	-	-	-	1,200
EF-6	-	-	-	-	-	-	-	800
EF-7	-	-	-	-	-	-	-	150
KEF-1	-	-	-	-	5,150	-	-	-
KEF-2	-	-	-	-	4,900	-	-	-
KEF-3	-	-	-	-	6,450	-	-	-
KEF-4	-	-	-	-	2,900	-	-	-
KEF-5	-	-	-	-	5,000	-	-	-
KEF-6	-	-	-	-	4,375	-	-	-
KEF-7	-	-	-	-	600	-	-	-
KEF-8	-	-	-	-	1,100	-	-	-
KEF-9	-	-	-	-	600	-	-	-
KEF-10	-	-	-	-	600	-	-	-
KEF-11	-	-	-	-	2000	-	-	-
TOTAL	49,200	21,067	28,133	33,825	182,600	102,233	80,367	57,200

KITCHEN = SA - RA - EA = -5,692 CFM
BUILDING = SA - RA - EA = +23,167 CFM

MAU-1 TERMINAL BOX SCHEDULE

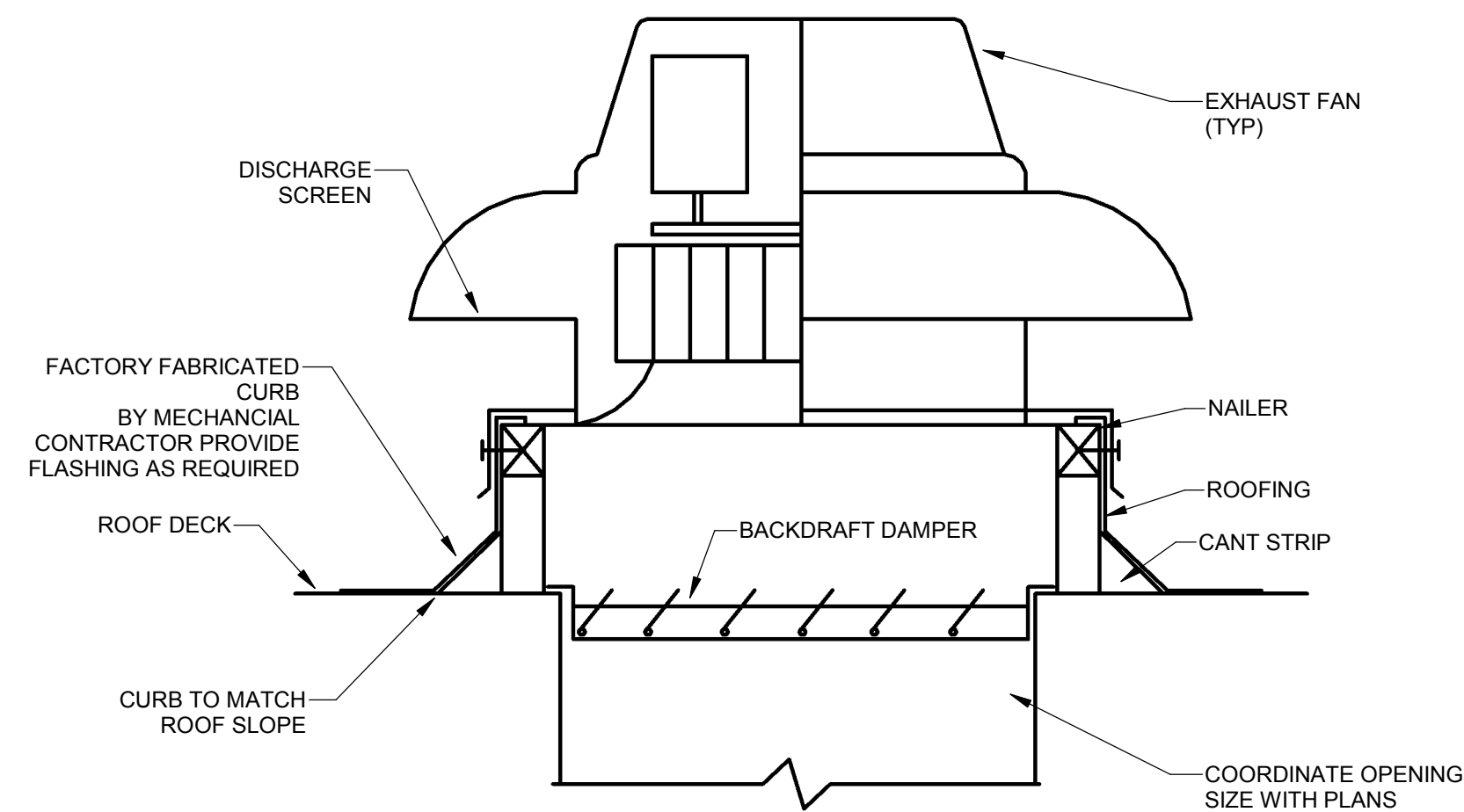
MARK	MANUFACTURER MODEL	AIR FLOW (CFM)			INLET DIA (IN)	VAV AIR PRESSURE DROP (IN WG)	NC RATING @ 1" SP		REHEAT COIL (HEATING WATER)					OPERATING WEIGHT (LBS)	REMARKS	
		MAX.	COOLING MIN.	HEATING MIN.			DISCHARGE	RADIATED	MBH	GPM	EAT (°F)	LAT (°F)	EWI (°F)			LWT (°F)
MCV 1-1	TITUS DESV	3360	385	-	16	-	-	-	-	-	-	-	-	-	-	1
MCV 1-2	TITUS DESV	1900	300	-	14	-	-	-	-	-	-	-	-	-	-	1
MCV 1-3	TITUS DESV	2430	300	-	14	-	-	-	-	-	-	-	-	-	-	1
MCV 1-4	TITUS DESV	1700	190	-	12	-	-	-	-	-	-	-	-	-	-	1
MCV 1-5	TITUS DESV	2400	300	-	14	-	-	-	-	-	-	-	-	-	-	1
MCV 1-6	TITUS DESV	1480	190	-	12	-	-	-	-	-	-	-	-	-	-	1
MCV 1-7	TITUS DESV	2230	300	-	14	-	-	-	-	-	-	-	-	-	-	1

1. INLET SIZE SHALL BE AS SCHEDULED UNLESS NOTED OTHERWISE.

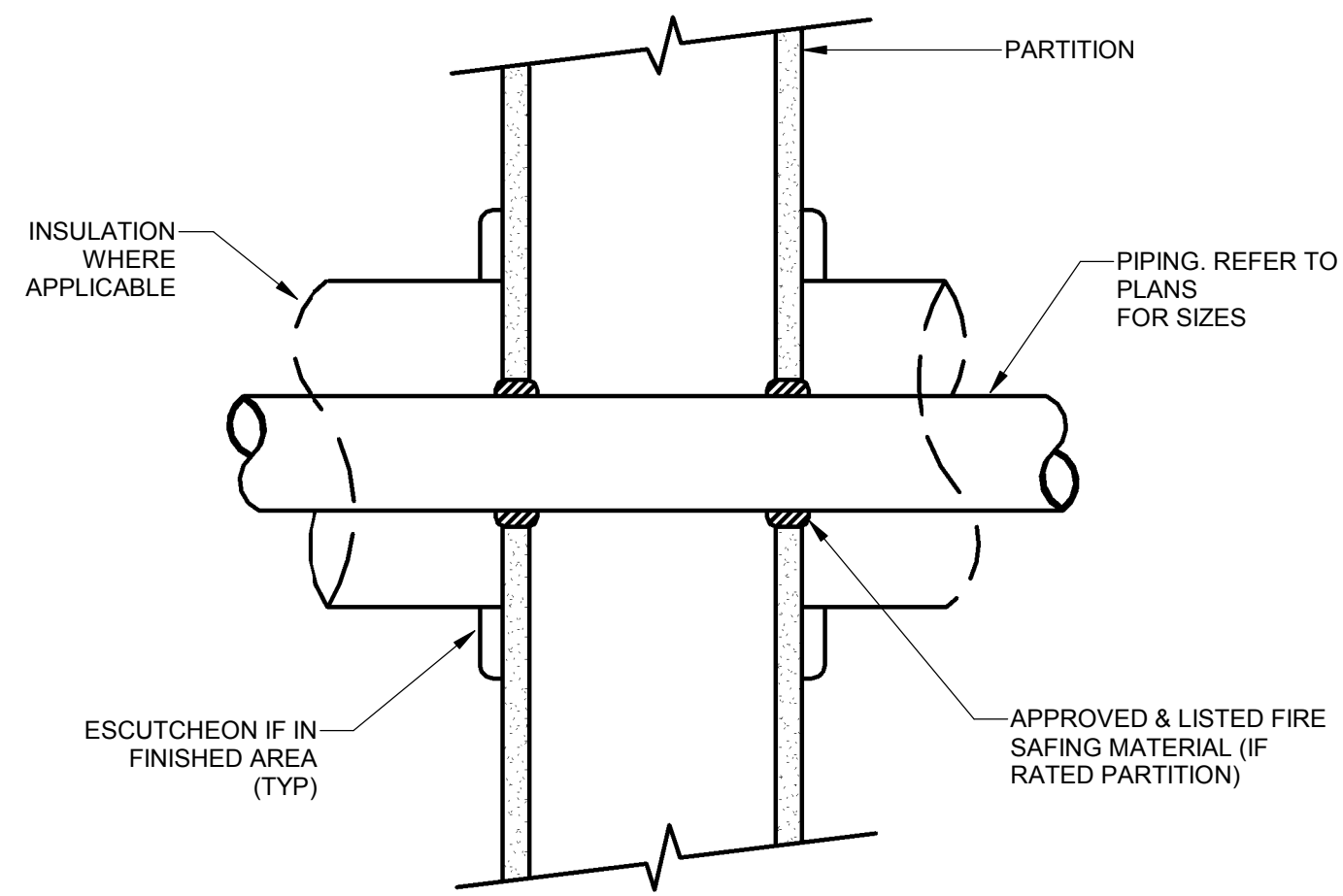
KITCHEN EXHAUST FAN SCHEDULE

MARK	GENERAL DATA			FAN				ELECTRICAL				OPERATING WEIGHT (LBS)	REMARKS
	MANUFACTURER MODEL	LOCATION	SERVICE	TYPE	CFM	ESP (IN WG)	RPM	BHP	HP (W)	FLA	V/PH/Hz		
KEF 1	GREENHECK CUBE-300XP-50	ROOF	BANQUET KITCHEN	UPBLAST CENTRIFUGAL	5150	1.75	1372	-	5	7.6	480/3/60	350	1, 2, 3, 4, 5
KEF 2	GREENHECK CUBE-240HP-50	ROOF	BANQUET KITCHEN	UPBLAST CENTRIFUGAL	4900	1.75	1113	-	5	7.6	480/3/60	350	1, 2, 3, 4, 5
KEF 3	GREENHECK CUBE-360XP-75	ROOF	FINE DINING KITCHEN	UPBLAST CENTRIFUGAL	6450	2.0	1146	-	7.5	11	480/3/60	500	1, 2, 3, 4, 5
KEF 4	GREENHECK CUBE-180HP-30	ROOF	FINE DINING KITCHEN	UPBLAST CENTRIFUGAL	2900	1.75	1490	-	3	4.8	480/3/60	250	1, 2, 3, 4, 5
KEF 5	GREENHECK CUBE-300XP-50	ROOF	GRAB-N-GO KITCHEN	UPBLAST CENTRIFUGAL	5000	2.0	1392	2.95	5	7.6	480/3/60	350	1, 2, 3, 4, 5
KEF 6	GREENHECK CUBE-240HP-30	ROOF	GRAB-N-GO KITCHEN	UPBLAST CENTRIFUGAL	4375	1.75	1066	2.09	3	4.8	480/3/60	300	1, 2, 3, 4, 5
KEF 7	GREENHECK CUBE-101HP-5	ROOF	GRAB-N-GO DISH	UPBLAST CENTRIFUGAL	600	1.0	2034	0.28	1/2	1.1	480/3/60	200	1, 2, 3, 4, 5
KEF 8	GREENHECK CUBE-141-7	ROOF	BANQUET DISH	UPBLAST CENTRIFUGAL	1100	1.0	1278	0.38	3/4	1.6	480/3/60	200	1, 2, 3, 4, 5
KEF 9	GREENHECK CUBE-101HP-5	ROOF	BANQUET DISH	UPBLAST CENTRIFUGAL	600	1.0	2034	0.28	1/2	1.1	480/3/60	200	1, 2, 3, 4, 5
KEF 10	GREENHECK CUBE-101HP-5	ROOF	FINE DINING DISH	UPBLAST CENTRIFUGAL	600	1.0	2034	0.28	1/2	1.1	480/3/60	200	1, 2, 3, 4, 5
KEF 11	REFER TO FOOD SERVICE DRAWINGS	ROOF	SMOKER	REFER TO FOOD SERVICE DRAWINGS	2000	-	-	-	-	-	-	-	REFER TO FOOD SERVICE DRAWINGS

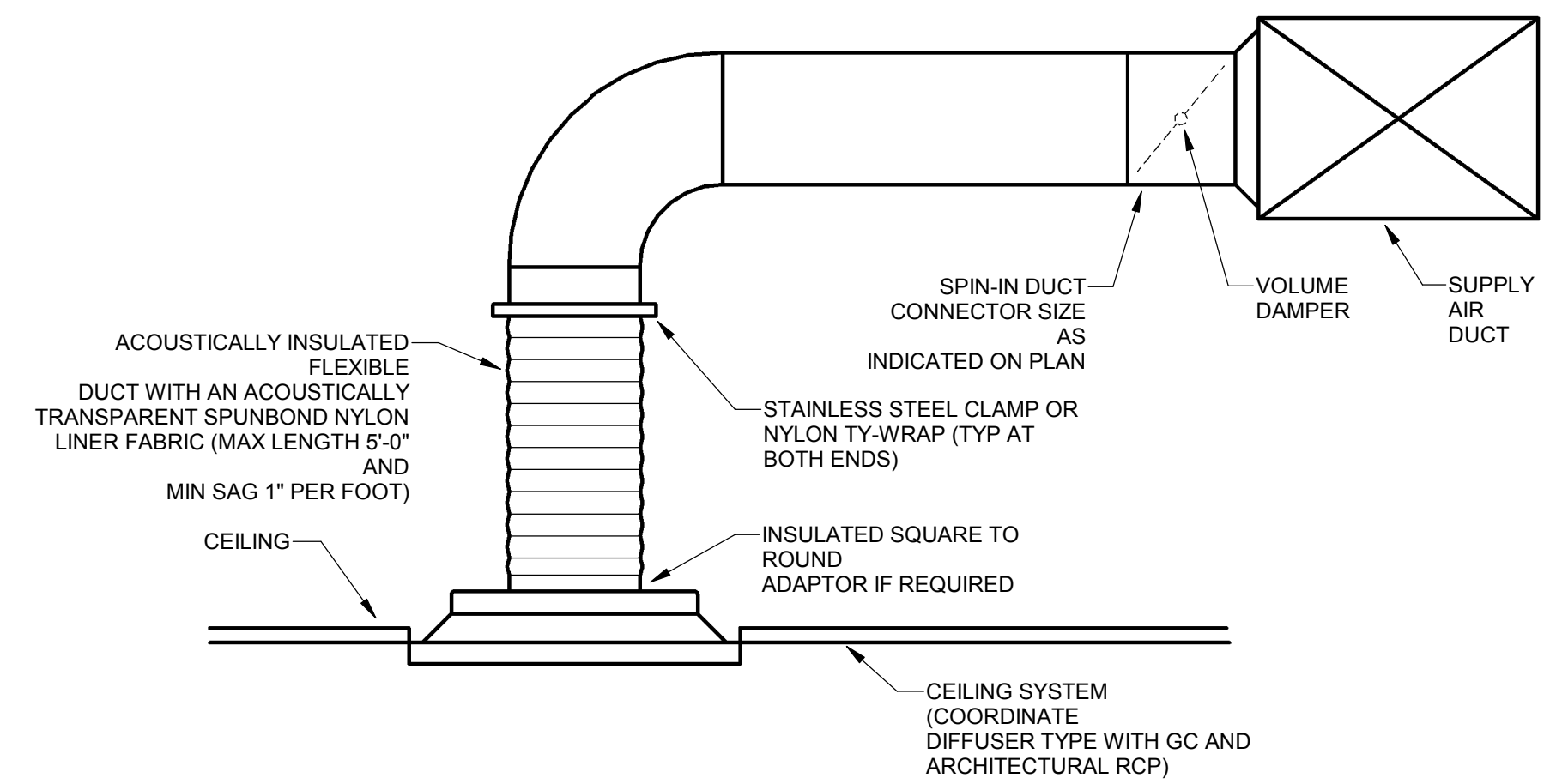
1. PROVIDE ROOF CURB.
2. PROVIDE MOTOR WITH THERMAL OVERLOADS.
3. PROVIDE DISCONNECT SWITCH.
4. UL 782 RATING.
5. PROVIDE GREASE TRAP WITH ABSORBENT MATERIAL.



A ROOF EXHAUST FAN
M0.8 NTS

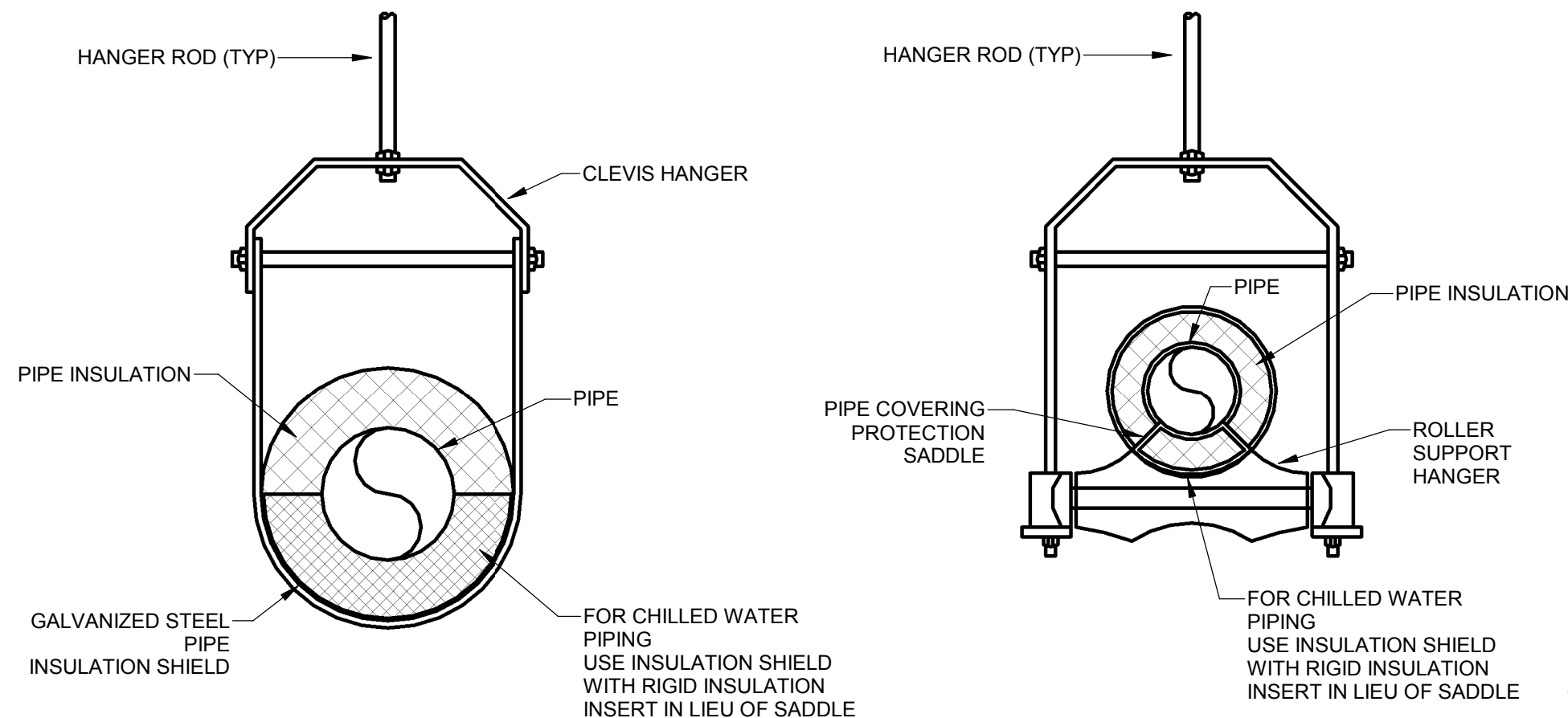


B PIPE THROUGH WALL
M0.8 NTS



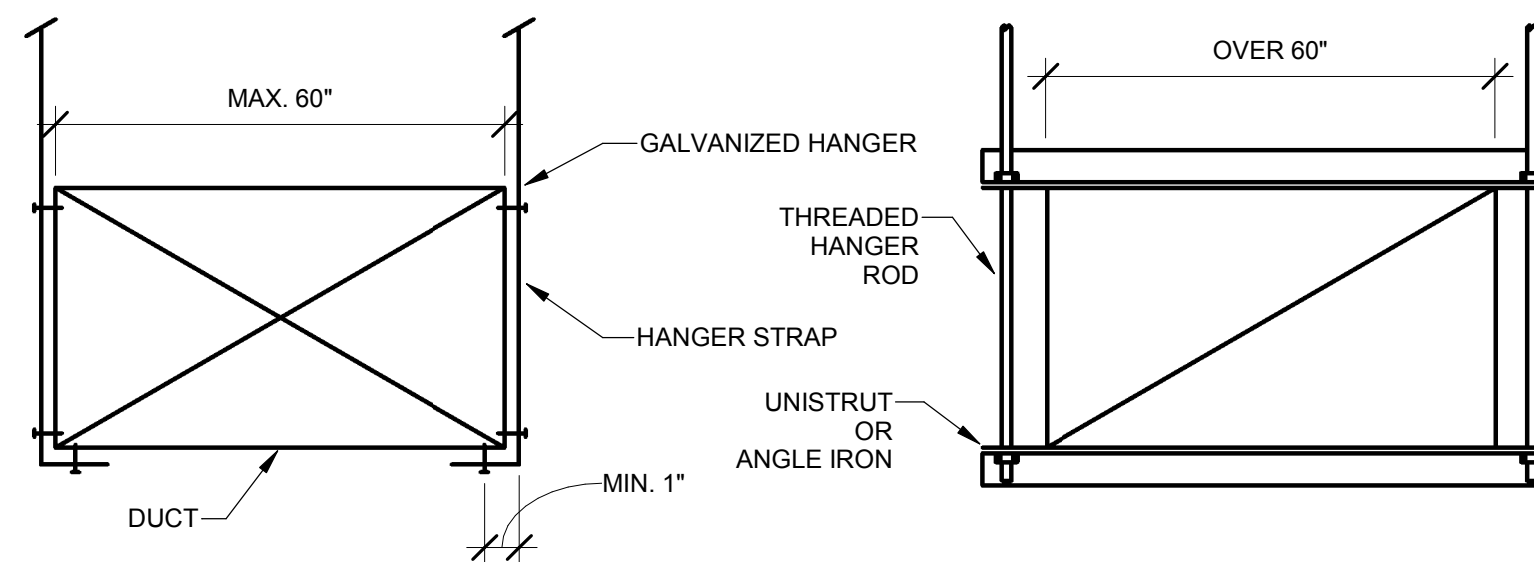
C CEILING DIFFUSER WITH FLEX DUCT
M0.8 NTS

DETAIL NOTES:
1. USE WORM DRIVE CLAMPS OR DRAW BANDS FOR CONNECTING FLEXIBLE AIR DUCT TO DIFFUSER AND BRANCH DUCT. SPLICES IN FLEXIBLE AIR DUCT SHALL NOT BE ALLOWED.



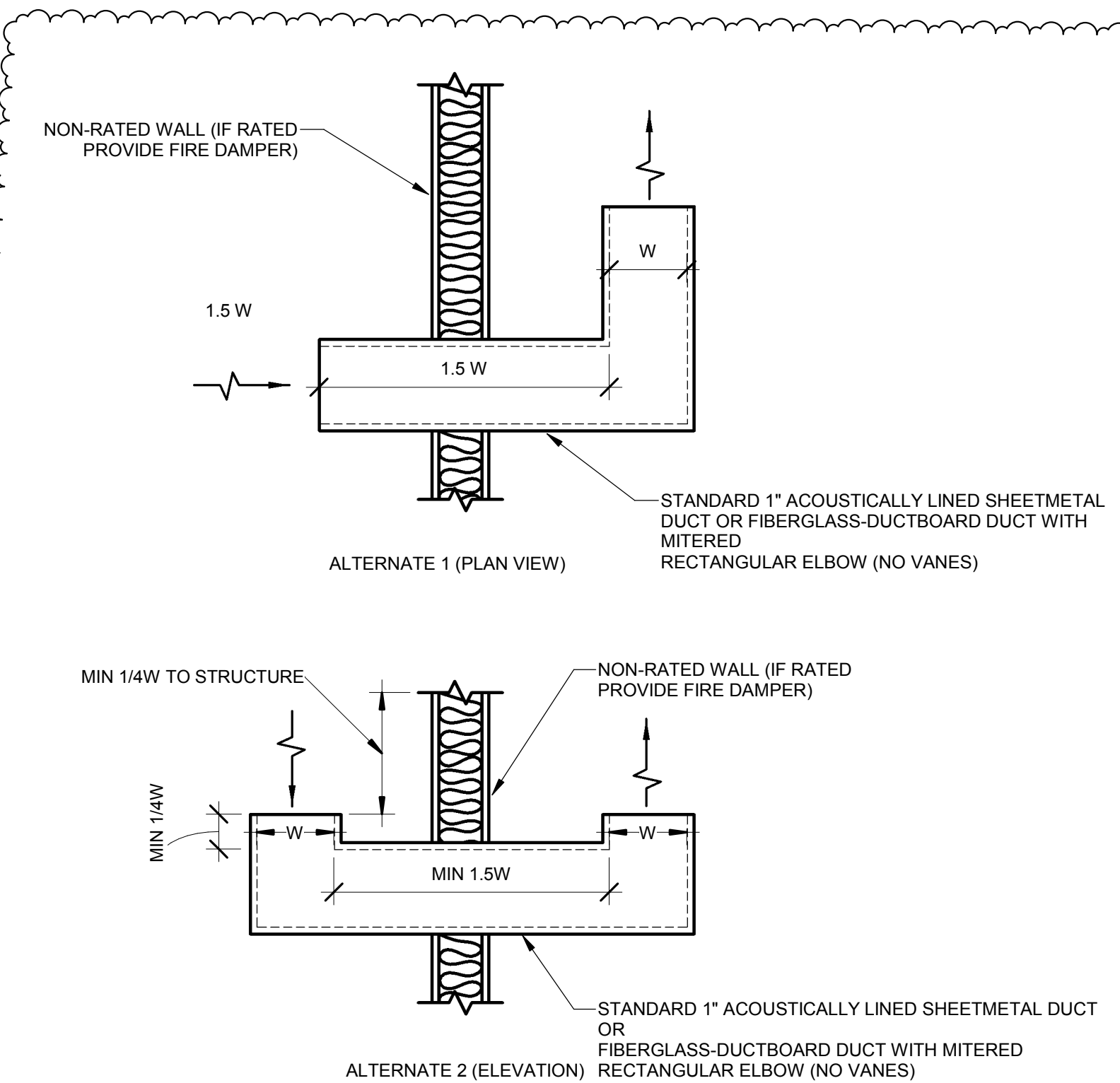
D PIPE HANGER FOR INSULATED PIPING
M0.8 NTS

DETAIL NOTES:
1. USE CLEVIS HANGER FOR 1/2" UP TO 4".
2. USE ROLL SUPPORT HANGER FOR 6" TO 8".
3. PIPE 10" AND LARGER SHALL HAVE ROLLER SUPPORT HANGER WITH DUAL RODS.



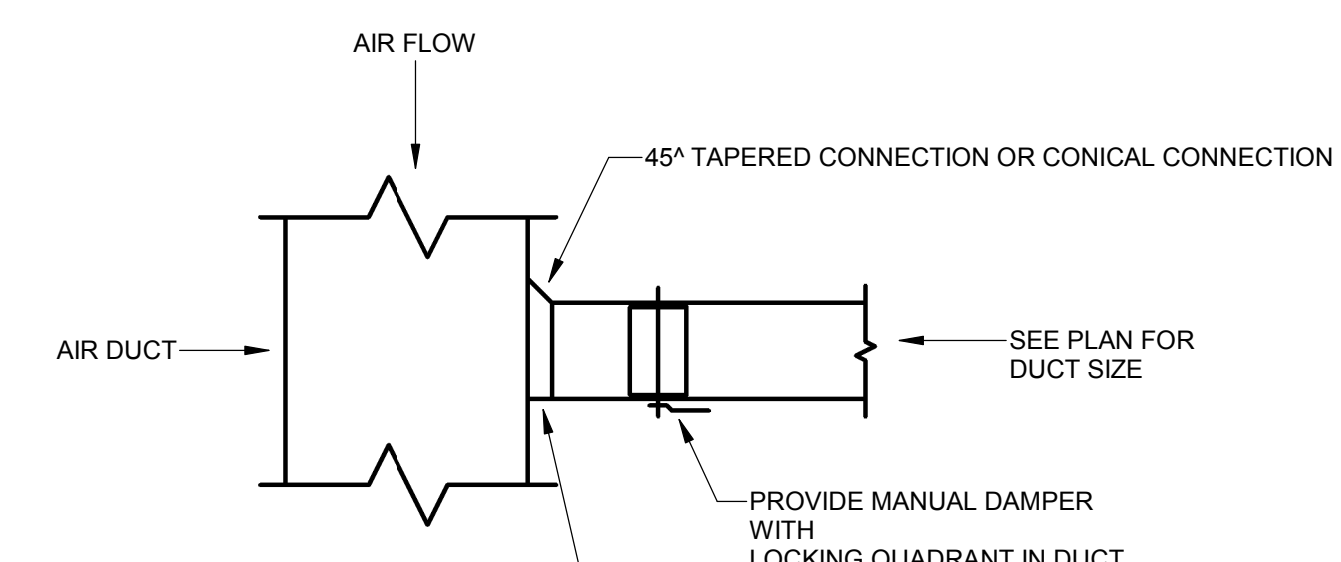
E DUCT HANGER SUPPORT
M0.8 NTS

DETAIL NOTES:
1. ON DUCTS OVER 48" WIDE, BOTTOM SHALL BE BRACE BY ANGLE. FOR CROSS SECTION AREA MORE THAN 8 SQUARE FEET, DUCT SHALL BE BRACED BY ANGLES ON ALL FOUR SIDES.
2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA STANDARDS.

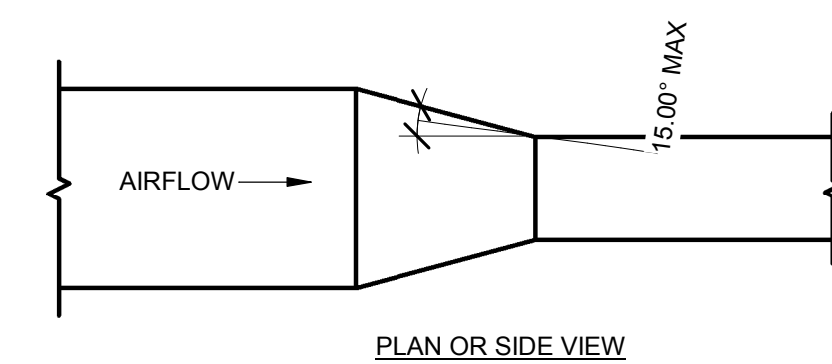
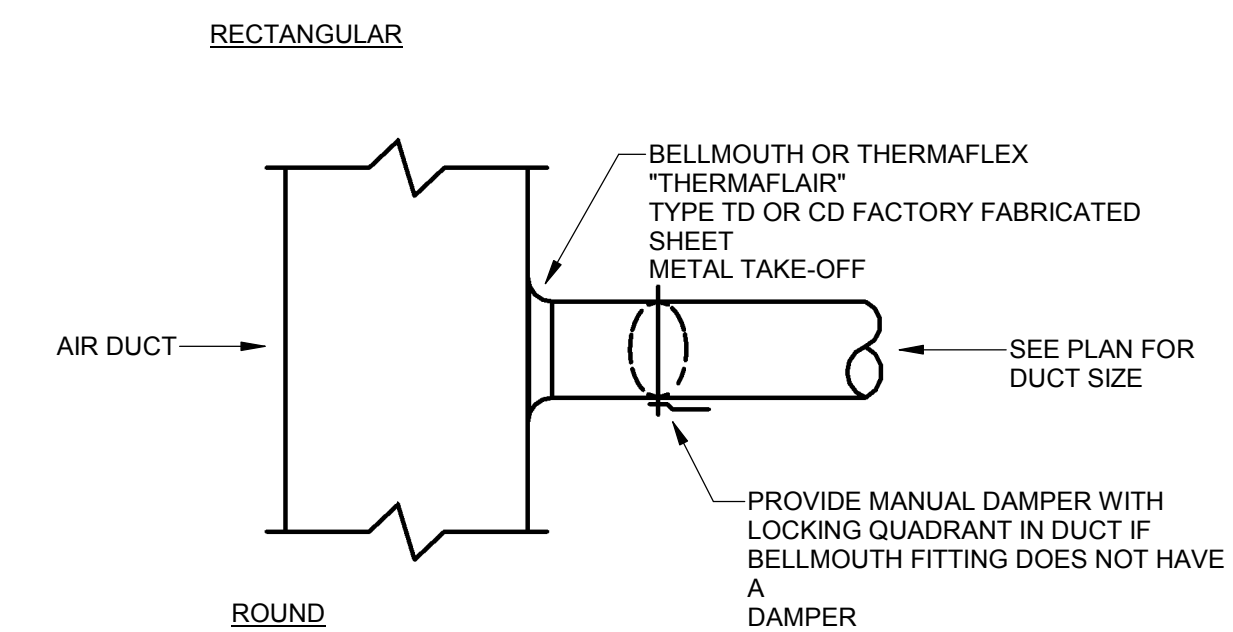


G TRANSFER DUCT
M0.8 NTS

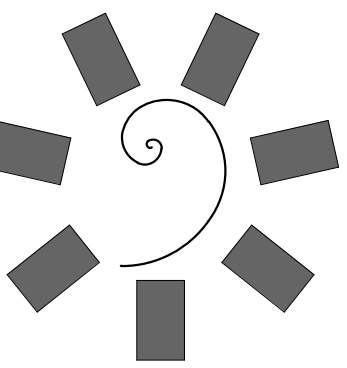
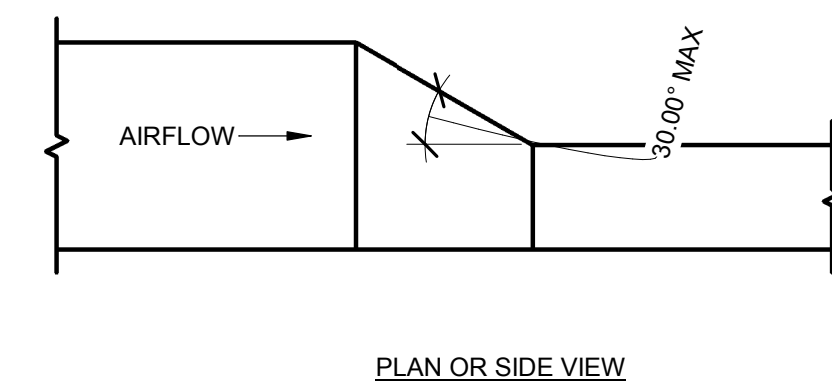
DETAIL NOTES:
1. SEE PLANS FOR SIZE AND LOCATION OF AIR TRANSFER DUCT.



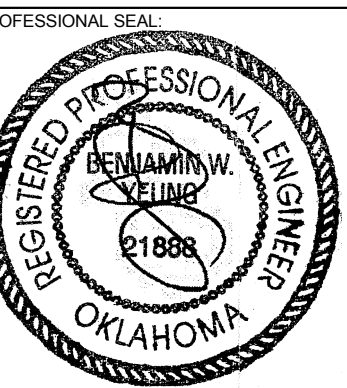
F TYPICAL BRANCH DUCT TAKE-OFF
M0.8 NTS



H DUCT TRANSITION
M0.8 NTS



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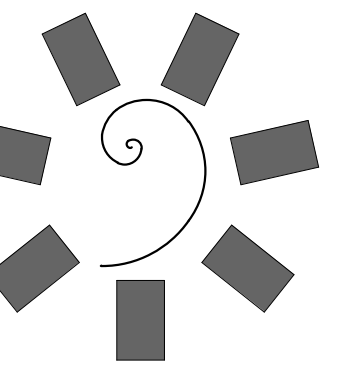
CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE
BID PACKAGE 05

#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

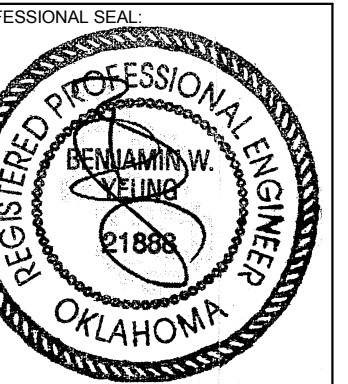
DATE: 05/03/18
JOB NUMBER: 17-06

SHEET NUMBER:
M0.8
MECHANICAL DIAGRAMS



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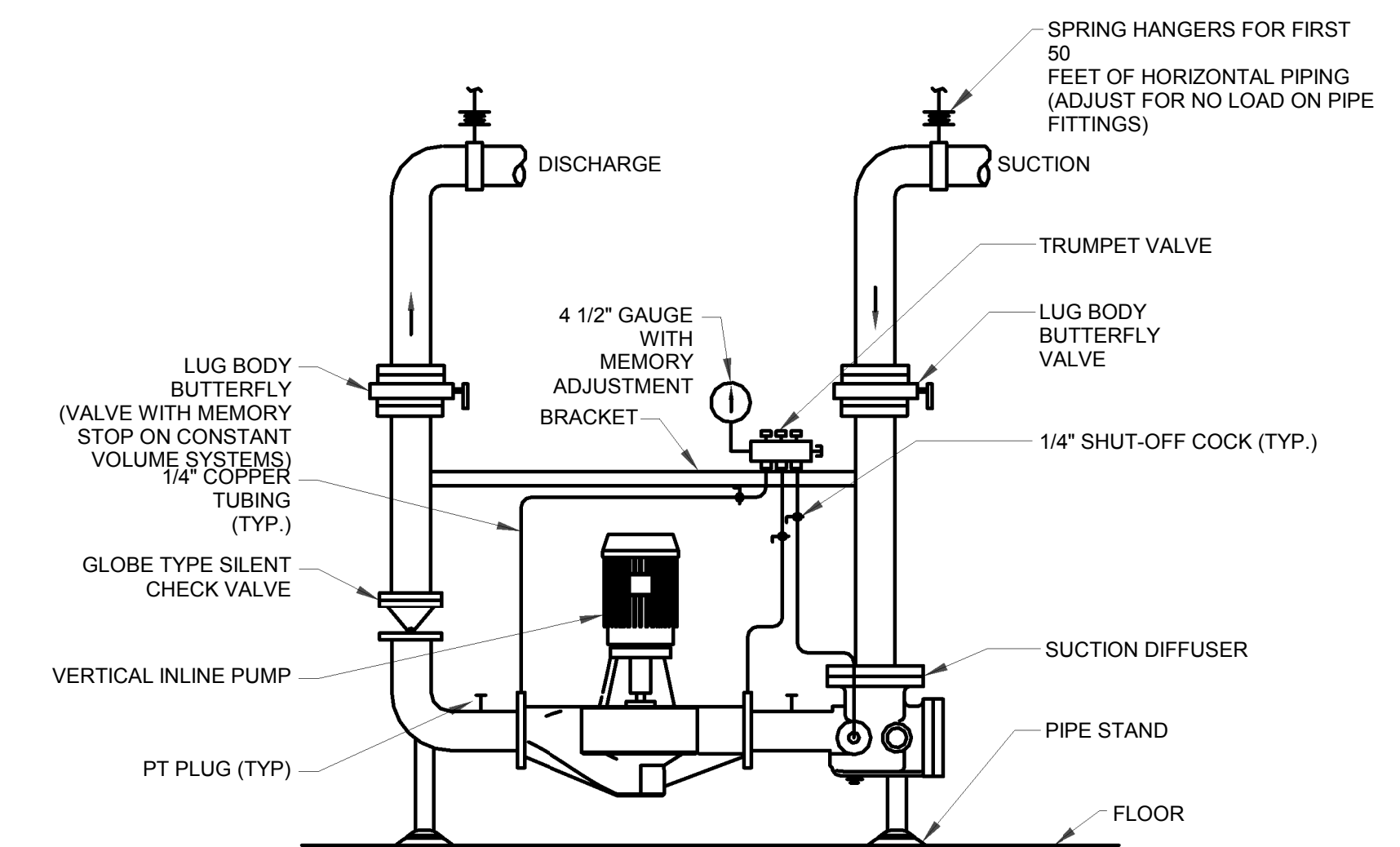
CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE
BID PACKAGE 05

REVISIONS		
#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

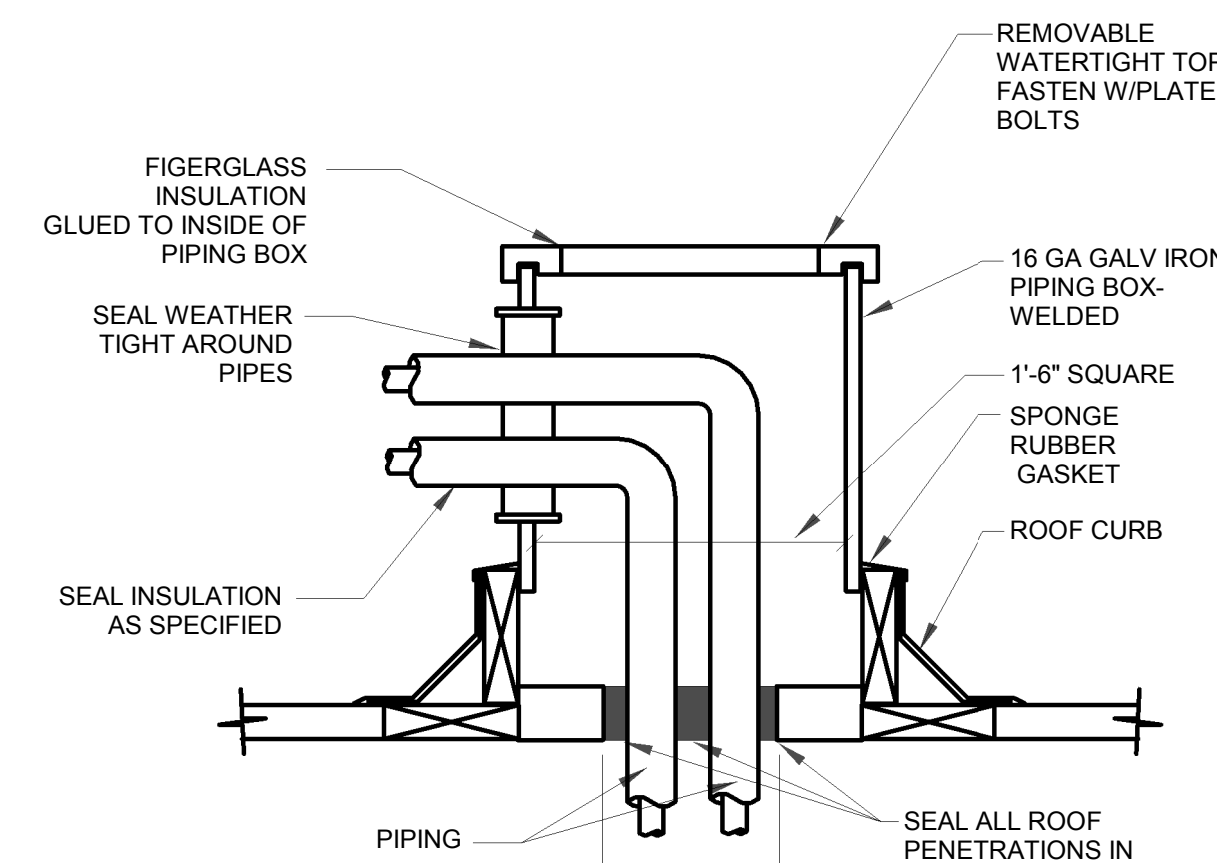
DATE: 05/03/18 JOB NUMBER: 17-06

SHEET NUMBER:
M0.9
MECHANICAL
DIAGRAMS



**VERTICAL INLINE PUMP
(2 1/2" PIPING AND OVER)**

A
M0.7
NTS

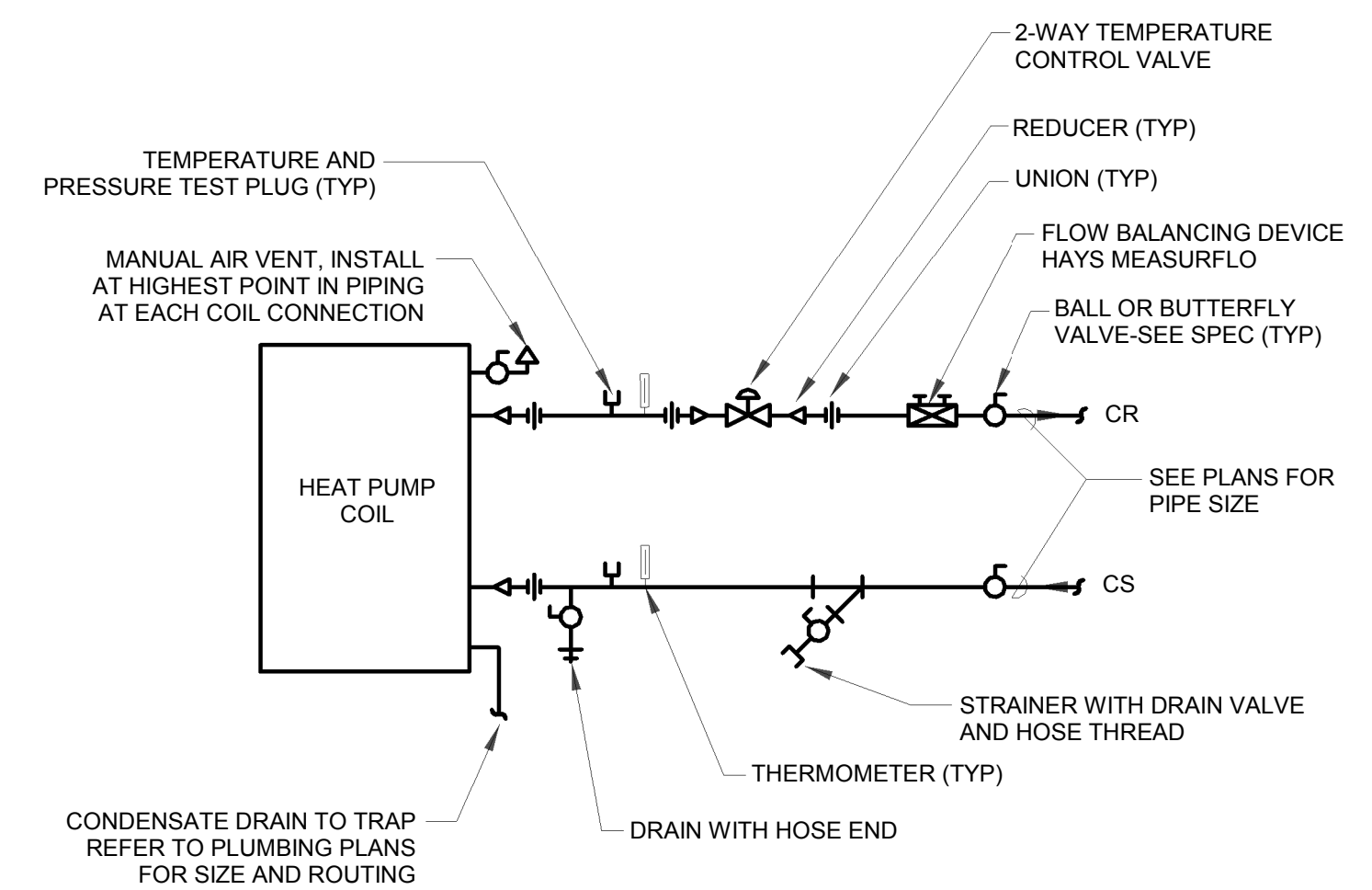


NOTE:

- BOX AND SUPPORT TO BE PAINTED WITH ONE COAT ZINC CHROMATE PRIMER AND TWO COATS BLACK OIL BASE EXT GRADE PAINT
- MOUNT CURB ON BLOCKING SO BOTTOM IS LEVEL W/ TOP OF ROOF INSULATION

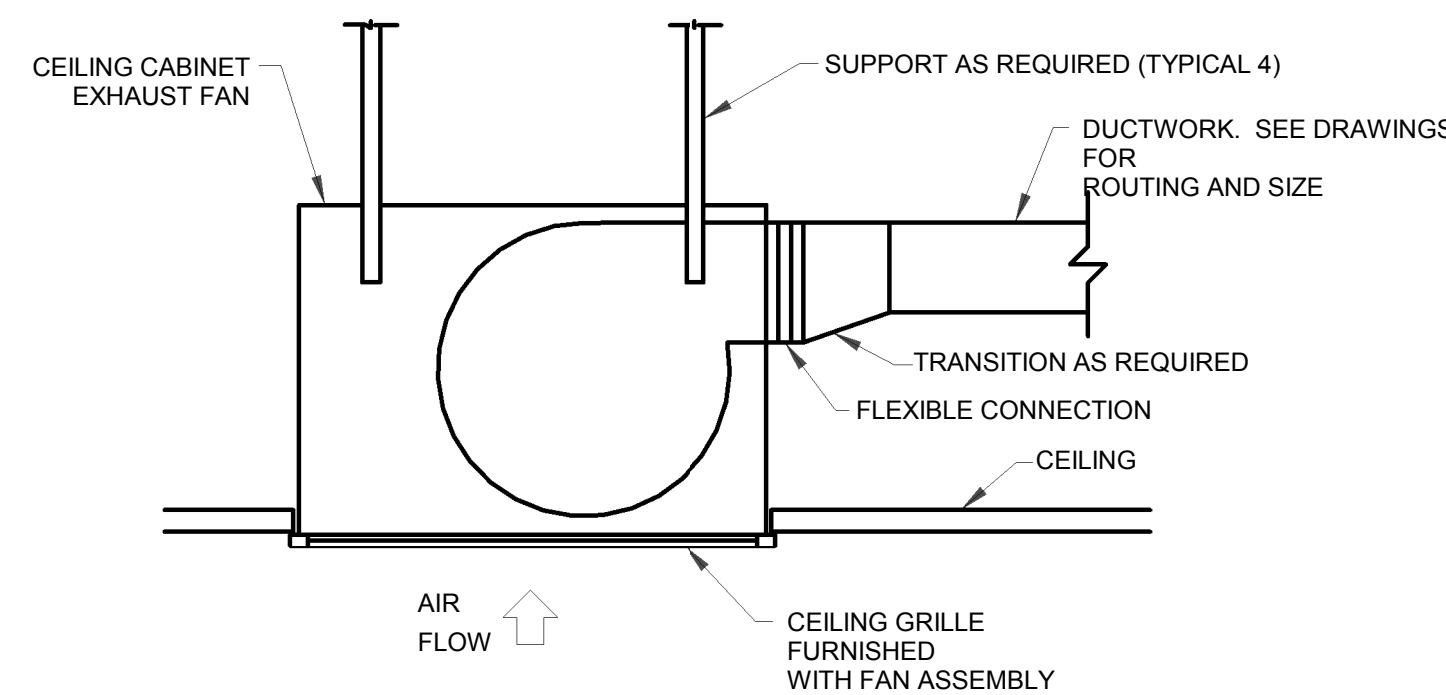
C PIPING DOG HOUSE

C
M0.7
NTS



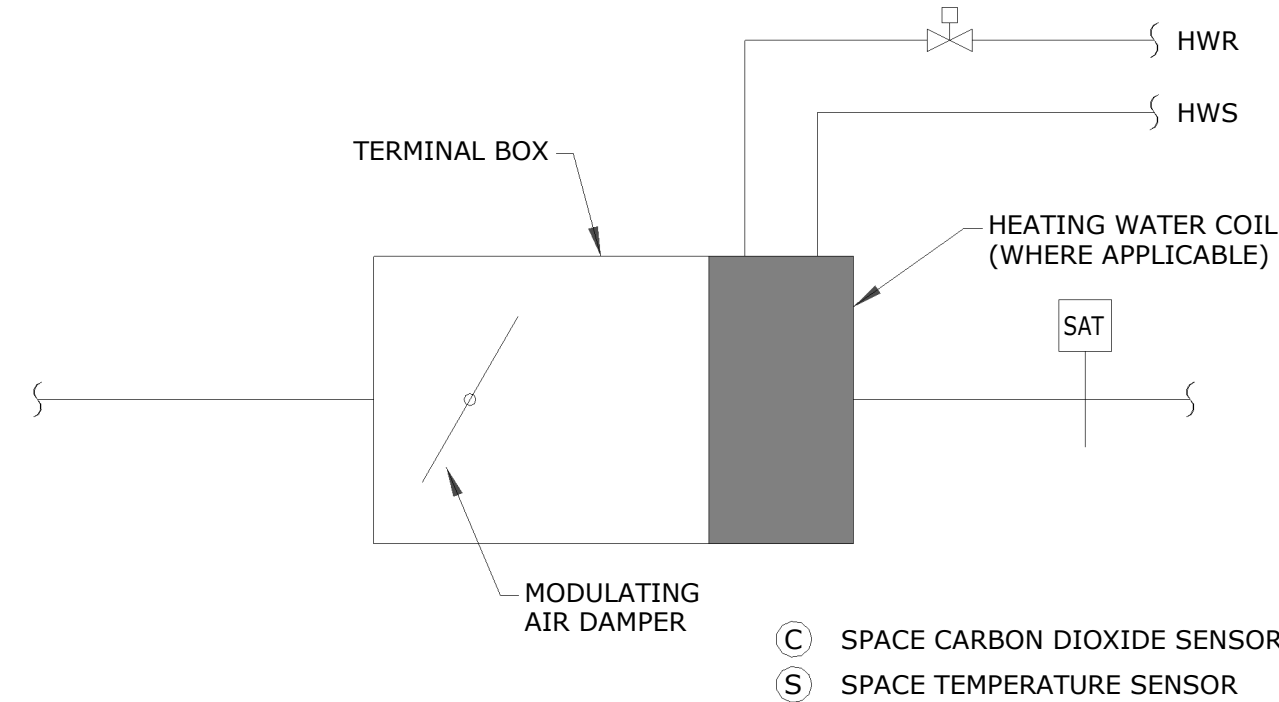
**2-WAY CONDENSER
COIL**

D
M0.7
NTS



B CEILING EXHAUST FAN

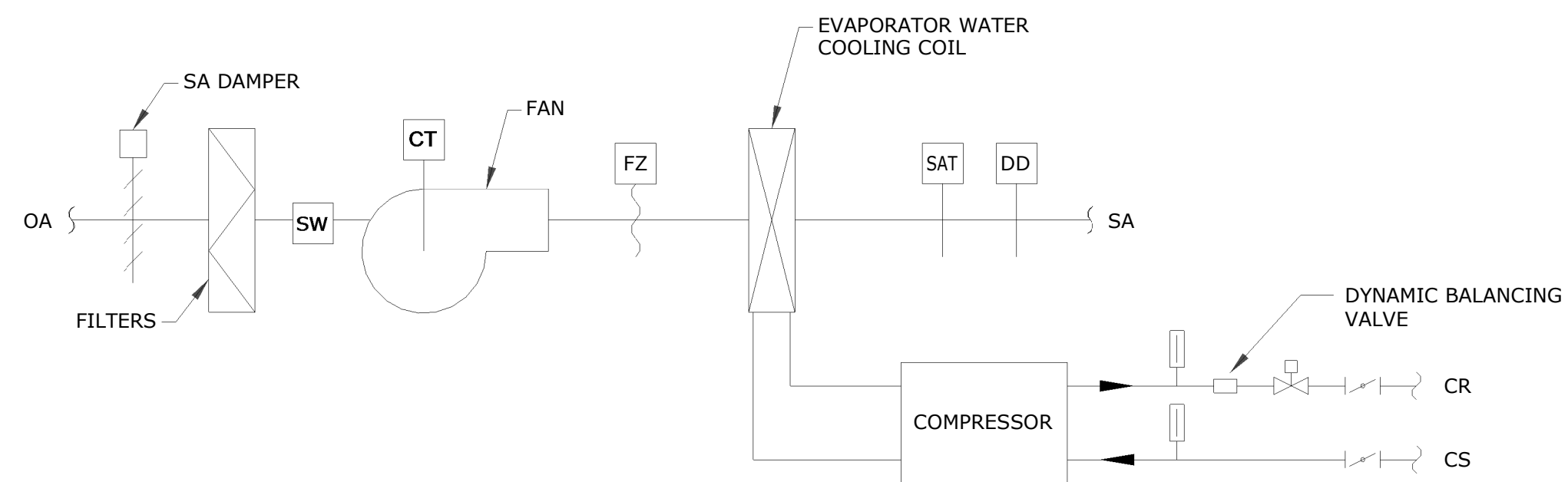
B
M0.7
NTS



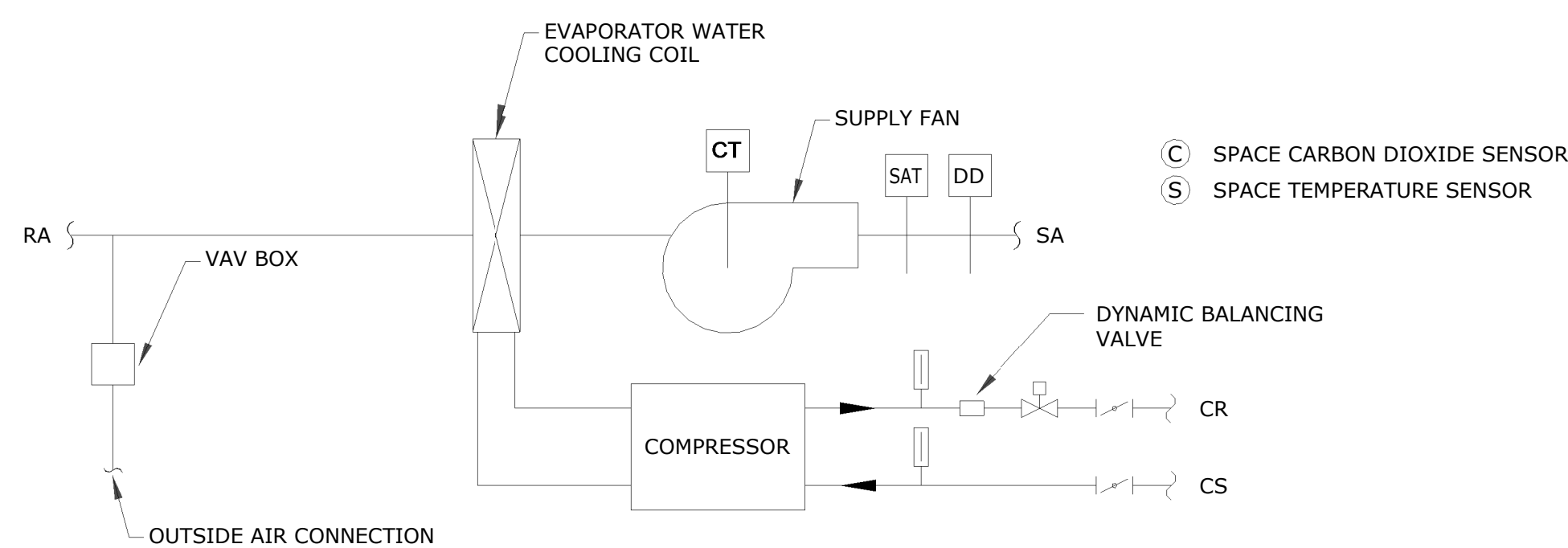
VARIABLE AIR VOLUME TERMINAL BOX CONTROL

NOTES:

- 1. ONLY VAV BOXES WITH A HEATING COIL HAVE A SUPPLY AIR TEMPERATURE SENSOR.



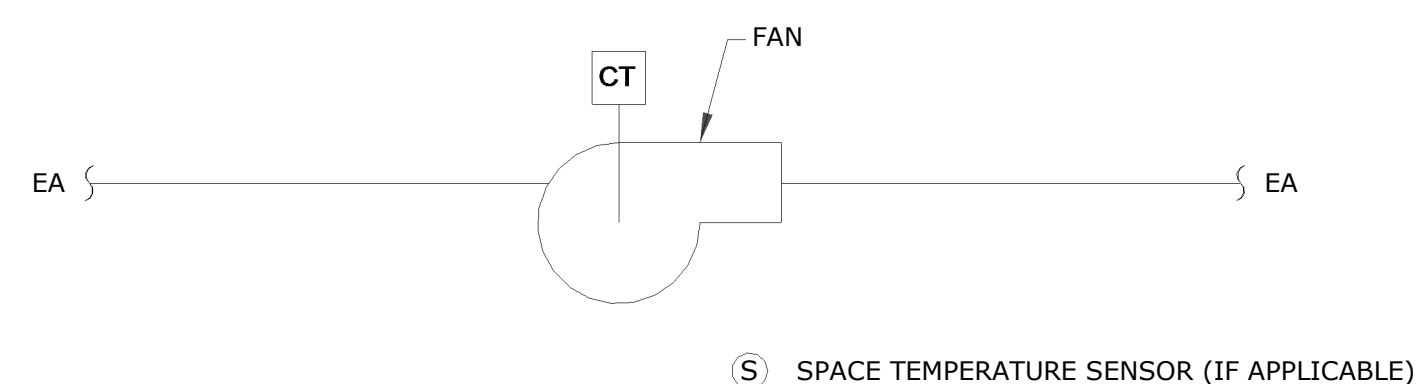
TEMPERED MAKE UP AIR UNIT CONTROL



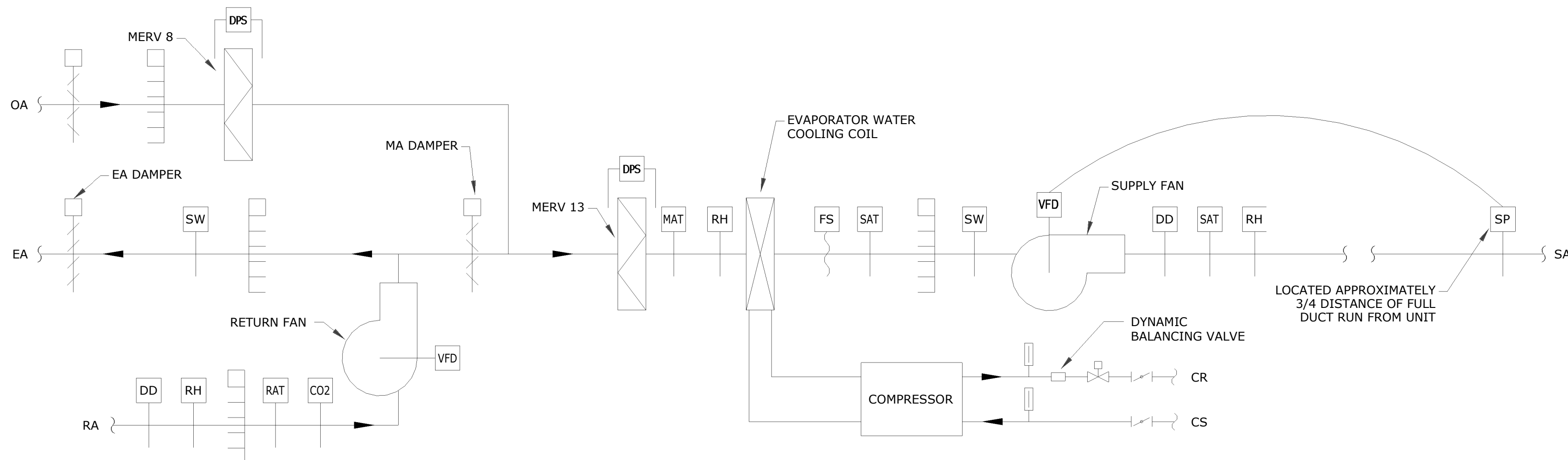
WATER SOURCE HEAT PUMP CONTROL

NOTES:

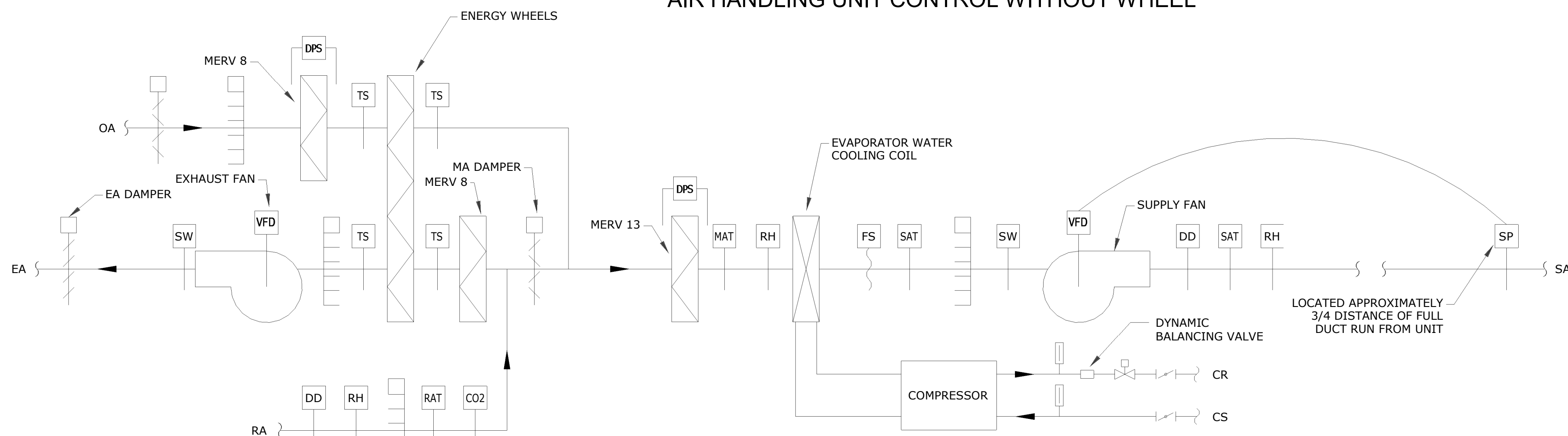
- 1. NOT ALL FCUS WILL HAVE AN OUTSIDE AIR CONNECTION.



TYPICAL EXHAUST FAN CONTROL



AIR HANDLING UNIT CONTROL WITHOUT WHEEL

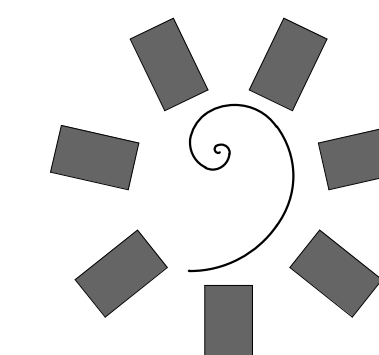


AIR HANDLING UNIT CONTROL WITH WHEEL

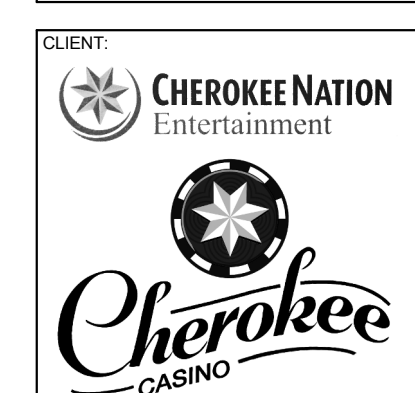
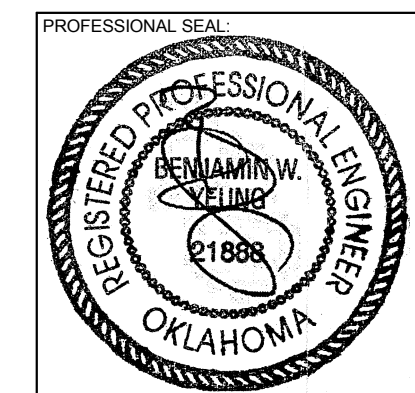
CONTROL SYMBOLS AND ABBREVIATIONS

NOTE: THIS IS A MASTER SCHEDULE. NOT ALL SYMBOLS CONTAINED HEREIN MAY APPEAR ON THE DRAWINGS.

CO2	DUCT MOUNTED CARBON DIOXIDE SENSOR
DD	DUCT TYPE SMOKE DETECTOR
EAT	EXHAUST AIR TEMPERATURE SENSOR
FZ	FREEZE STAT
HXT	HEAT EXCHANGER AIR TEMPERATURE SENSOR
LAT	LEAVING AIR TEMPERATURE SENSOR
MAT	MIXED AIR TEMPERATURE SENSOR
OAT	OUTDOOR AIR TEMPERATURE SENSOR
RH	DUCT MOUNTED RELATIVE HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
SP	DUCT MOUNTED STATIC PRESSURE SENSOR
SPH	DUCT MOUNTED STATIC PRESSURE HIGH LIMIT
SPL	DUCT MOUNTED STATIC PRESSURE LOW LIMIT
SAT	SUPPLY AIR TEMPERATURE SENSOR
[Symbol]	BACKDRAFT DAMPER
[Symbol]	AUTOMATIC TEMPERATURE CONTROL DAMPER (PARALLEL BLADE TYPE)
[Symbol]	AUTOMATIC TEMPERATURE CONTROL DAMPER (OPPOSED BLADE TYPE)
[Symbol]	AIRFLOW MEASURING STATION
(C)	SPACE MOUNTED CARBON DIOXIDE SENSOR
(H)	SPACE MOUNTED RELATIVE HUMIDITY SENSOR
(S)	SPACE MOUNTED TEMPERATURE SENSOR
(T)	SPACE MOUNTED THERMOSTAT
SP	SPACE MOUNTED STATIC PRESSURE SENSOR
SW	SWITCH
DPS	DIFFERENTIAL PRESSURE SENSOR
CT	CURRENT TRANSDUCER
VFD	VARIABLE FREQUENCY DRIVE
FS	FLOW SWITCH
[Symbol]	PUMP
[Symbol]	PRESSURE GAUGE
[Symbol]	THERMOMETER
[Symbol]	RELIEF VALVE
[Symbol]	3-WAY ELECTRIC CONTROL VALVE, NC BYPASS LEG
[Symbol]	2-WAY ELECTRIC CONTROL VALVE, NC BYPASS LEG
ACD	AUTOMATIC CONTROL DAMPER
EA	EXHAUST AIR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR



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CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
 TAHLEQUAH, OKLAHOMA

PROJECT PHASE:
BID PACKAGE 05

#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18
 JOB NUMBER: 17-06

SHEET NUMBER:
M0.10

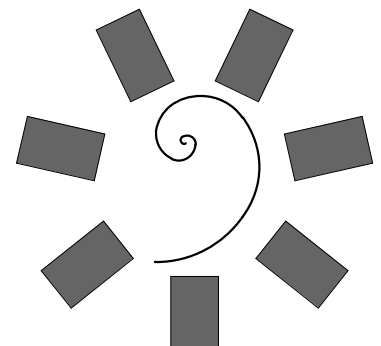
MECHANICAL
 CONTROLS
 DIAGRAMS

BUILDING AUTOMATION SYSTEM	
PROJECT: TAHLEQUAH CASINO	
DESCRIPTION: CONTROLS SEQUENCES	
BUILDING AUTOMATION SYSTEM - BAS	
1	00 THERE SHALL BE ONE BAS SYSTEM THAT CONTROLS THE CENTRAL PLANT AND THE BUILDING. THE CENTRAL PLANT BAS MUST BE COORDINATED WITH THE BAS MANUFACTURER. (E: IF THE BUILDING BAS IS JCI VERSION X, THE PLANT BAS SHALL BE JCI VERSION X)
01	THE CONTROL SYSTEM SHALL HAVE A BACNET ARCHITECTURE. THE BUILDING BAS CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUIT AND WIRING BETWEEN THE PLANT AND THE BUILDING BAS SYSTEM. THE BAS CONTRACTOR MUST CONTACT THE PLANT MANUFACTURING BIDDER FOR COMPLETE DETAILS AS IT RELATES TO SEQUENCES WITHIN THE PLANT OPERATIONS. THE PLANT SEQUENCES ARE PROVIDED BY THE PLANT MANUFACTURER AND COMMISSIONING OF THE PLANT SEQUENCES IS THE RESPONSIBILITY OF THE PLANT MANUFACTURER.
02	THE ABILITY TO OVERRIDE OR CONTROL PLANT SYSTEMS IS TO BE PROVIDED FROM THE BUILDING BAS FRONT END.
2	00 THE FOLLOWING DATA AND REQUIREMENTS RELATES TO THE BUILDING EQUIPMENT AUTOMATION SYSTEM, INCLUDING THE CENTRAL PLANT.
01	THE BAS SHALL CONTROL AUTOMATIC OPERATIONS ASSOCIATED WITH MOST INSTALLED EQUIPMENT, INCLUDING BUT NOT LIMITED TO BOILERS, FLUID COOLERS, PUMPS, AIR HANDLERS, CONTROL VALVES, VAV BOXES, WATER SOURCE HEAT PUMPS, MOTORIZED DAMPERS AND FANS. BAS COMPONENTS SHALL BE POWERED FROM THE SECONDARY POWER SOURCE (GENERATOR), TO LIMIT POWER OUTAGES ON TRANSFER FROM THE GRID TO GENERATOR THE BAS CONTRACTOR SHALL PROVIDE UPS DEVICES TO CARRY MAJOR CONTROLLERS THROUGH THE GENERATOR TRANSITION. THIS SHALL INCLUDE THE BAS COMPUTER. SEE THE ELECTRICAL DOCUMENTS FOR LOCATIONS OF POWER PROVIDED. POWER RUNS FROM THE LOCATIONS SHOWN ON THE ELECTRICAL DOCUMENTS TO THE BAS CONTROLLERS AND EQUIPMENT IS THE RESPONSIBILITY OF THE BAS CONTRACTOR - REGARDLESS OF VOLTAGE.
02	THE BAS SHALL BE A STAND ALONE FIBRE-NETWORK SYSTEM AND NOT RELY ON THE BUILDING IT INFRASTRUCTURE NETWORK FOR ANY FUNCTION.
3	00 DEFINITIONS: TERMS USED THROUGHOUT THIS SPECIFICATION
01	GUI: GRAPHICAL USER INTERFACE. THE MAIN OPERATOR WORK STATION WHERE BAS OPERATIONS CAN BE OBSERVED AND WHERE USER INPUTS CAN HAPPEN.
02	GUI ADJ: MEANS A POINT IS DISPLAYED ON THE GUI AND IS ADJUSTABLE FROM THAT SCREEN. WHEN THE POINT IS ADJUSTED, IF A PROGRAM DEFAULT VALUE EXISTS THAT POINT VALUE SHALL BE DISPLAYED AND THE NEW VALUE DISPLAYED ADJACENT AND IN A DIFFERENT COLOUR.
03	BAS: BUILDING AUTOMATION SYSTEM = FMS, FACILITIES MANAGEMENT SYSTEM = BMS, BUILDING MANAGEMENT SYSTEM = DDC, DIRECT DIGITAL CONTROL SYSTEM = EMS, ENERGY MANAGEMENT SYSTEM
04	FAI: EQUIPMENT DEFINITION.
041	FOR A HEAT PUMP MEANS STOP THE FAN, CLOSE COIL CONTROL VALVES AND IF APPLICABLE, CLOSE THE VENTILATION AIR CONNECTION VAV BOX AND ALARM.
042	FOR A VAV BOX MEANS CLOSE THE VAV BOX, CLOSE THE HEATING CONTROL VALVE (IF APPLICABLE) AND ALARM.
043	FOR AN EXHAUST FAN MEANS TURN OFF THE FAN, ISOLATE WHERE APPLICABLE AND ALARM.
044	FOR AN AIR HANDLING UNITS MEANS STOP FANS(S), CLOSE OUTSIDE AIR AND EXHAUST AIR DAMPERS, OPEN MIXED AIR DAMPER IF AVAILABLE. CLOSE THE CONDENSER COIL VALVE - IF A MIXED AIR TEMPERATURE TRANSMITTER EXISTS MODULATE THE HEATING COIL VALVE TO MAINTAIN 55°. FREEZE STAT REMAINS OPERATIONAL, IF AN ENERGY RECOVERY WHEEL EXISTS, STOP THE WHEEL, ALARM THE CONDITION.
045	FOR MAKE-UP AIR UNITS MEANS STOP FANS(S), CLOSE COIL CONTROL VALVES, CLOSE THE OUTSIDE AIR DAMPER, FREEZE STAT REMAINS OPERATIONAL AND ALARM.
4	00 GENERAL:
01	ALARMS: SHALL BE NOTED ON THE GUI AND REQUIRE USER INPUT THROUGH THE WORK STATION TO RESET FOR NORMAL OPERATION TO RESUME. WHEN RESET THE SYSTEM SHALL REVERT IN A CONTROLLED MANNER TO THE NORMAL OPERATING SEQUENCE.
02	ALERTS: SHALL BE NOTED ON THE GUI AND RECORD OF THE EVENT SHALL REMAIN UNTIL CLEARED BY THE OPERATOR. IF THE SYSTEM OR CONDITION CLEARS ITSELF THE EQUIPMENT IS ALLOWED TO RETURN TO NORMAL CONTROL SEQUENCE AND THE ALERT SHALL CHANGE COLOUR STATUS TO INDICATE NORMAL OPERATION HAS RESUMED. THE ALERT MUST BE CLEARED THROUGH THE GUI.
03	EACH PIECE OF EQUIPMENT CONTROLLED BY THE BAS SHALL HAVE AN AUTO/OFF/PAUSE/MAINTENANCE/ALARM/ALERT SWITCH ON THE GUI. ALARM/ALERT WILL PLACE THE EQUIPMENT UNDER BAS CONTROL. USER INPUTS AND COMMANDS ARE ALLOWED TO CHANGE/OVERRIDE BAS PROGRAMMED OPERATIONS. ANY USER INPUT SHALL BE IDENTIFIED BY COLOUR CHANGE OR TAG UNTIL RELEASED TO AUTO MODE. ANY USER INPUTS SHALL TIME OUT AND RETURN TO PROGRAMMED OPERATION AFTER 7 DAYS. THE COUNT DOWN TIMER SHALL DISPLAY ON THE GUI AND NOTE COMMAND TO BE RESET. (MAY BE MULTIPLE TIMERS, ACCEPTABLE TO GO TO A SECOND SCREEN). (SEE COMMAND WILL STOP THE UNIT, WHERE APPLICABLE CLOSES ASSOCIATED VALVES, DAMPERS AND DOES NOT ALLOW ANY MANUAL INPUTS FROM THE GUI - DISPLAY ALERT STATUS).
04	MAINTENANCE TURNS THE EQUIPMENT OFF. CLOSES ASSOCIATED VALVES, DAMPERS AND ALLOWS MANUAL OVERRIDES FROM THE GUI. WHEN USER INPUTS ARE INSERTED TO OVERRIDE A CONDITION, THE OVERRIDE SHALL CHANGE STATE ON THE GUI VIA COLOUR OR TAG TO NOTE OVERRIDE - DISPLAY ALERT STATUS. ALARM CONDITION NOTES A FAILURE THAT NEEDS USER INPUT TO CORRECT. EQUIPMENT WILL NOT TRY TO RESTART UNTIL THE ALARM IS ACKNOWLEDGED. IN THE CASE OF MULTIPLE PIECES OF EQUIPMENT SERVING A COMMON SOURCE - E: BOILERS, CONDENSER WATER PUMPS AND HEATING SYSTEM SECONDARY PUMPS, IF THE BAS ATTEMPTS TO START A PIECE OF EQUIPMENT IN ALARM THE BAS SHALL AUTOMATICALLY GO TO THE NEXT AVAILABLE PIECE OF EQUIPMENT. DISPLAY ALARM STATUS. ALERT CONDITION NOTES A NON-CRITICAL CONDITION EXISTED THAT CAUSED THE EQUIPMENT TO OPERATE OUTSIDE OF NORMAL OPERATING CONDITIONS FOR A GIVEN FRAME. DISPLAY ALERT STATUS.

BUILDING AUTOMATION SYSTEM	
PROJECT: TAHLEQUAH CASINO	
DESCRIPTION: CONTROLS SEQUENCES	
00	DURING COMMISSIONING THE CONTROLS CONTRACTOR SHALL ADJUST THE INITIAL SET POINTS TO ACHIEVE A STABLE OPERATING CONDITION. CASINO FRONT AND BACK OF HOUSE EQUIPMENT OPERATING SCHEDULE WILL BE PROVIDED BY FACILITIES OR OWNER OPERATIONS DURING COMMISSIONING. OPTIONS ARE 24/7 OR A TYPED RETRACK SCHEDULE. INITIAL TEMPERATURE SET BACK, UNLESS NOTE BY THE OWNER WILL BE 5°F OFF SET POINT. INITIAL TEMPERATURE SET POINTS: CASINO FLOOR - 72°F; RESTAURANTS - 75° COOLING, TO HEATING; OFFICES AND MOST BOY SPACES - 75° COOLING, 70° HEATING. THE CENTRAL PLANT IS A 24/7 OPERATION. SPACE SET POINTS WILL HAVE A STANDARD +/-2° DEADBAND (ADJ PER SPACE). ALERT ANY SPACE 5°F ABOVE OR BELOW SET POINT FOR MORE THAN 30 MINUTES.
00	DURING AND AFTER COMMISSIONING THE CONTROLS CONTRACTOR SHALL ALLOW FOR UP TO 80 HRS TOTAL OF PROGRAM CHANGES AS DIRECTED BY THE ENGINEER OR THEIR DESIGNATE.
5	00 GLOBAL COMMANDS TO BE AVAILABLE FROM THE GUI
01	ENABLE/DISABLE CENTRAL PLANT CONDENSER WATER / CONDENSER COMPONENTS
02	ENABLE/DISABLE CENTRAL PLANT HEATING WATER COMPONENTS
03	OPEN/CLOSE ALL VAV BOX CS/CR VALVES ASSOCIATED WITH EACH AHU
04	OPEN/CLOSE ALL VAV BOX HW VALVES ASSOCIATED WITH EACH AHU
05	OPEN/CLOSE ALL VAV BOX DAMPERS ASSOCIATED WITH EACH AHU
06	OPEN/CLOSE ALL VAV BOX HEATING COIL VALVES ASSOCIATED WITH EACH AHU
07	OPEN/CLOSE ALL FCU CS/CR WATER VALVES PER LEVEL
08	OPEN/CLOSE ALL FCU HW WATER VALVES PER LEVEL
09	OPEN/CLOSE ALL AHU CS/CR WATER VALVES
10	OPEN/CLOSE ALL AHU HW WATER VALVES
6	00 THE BAS SHALL BE WEB ACCESSIBLE. THE BAS CONTRACTOR TO PROVIDE THE LINE TO THE INTERNET AND PAY FOR SERVICE FOR THE FIRST YEAR FROM SYSTEM ACCEPTANCE. THE BAS WEB ACCESS SHALL BE MADE AVAILABLE TO THE ENGINEER FOR VIEWING.
01	THE CONTROL SYSTEM SHALL BE DESIGNED AND PROGRAMMED FOR THE ULTIMATE PLANT EQUIPMENT BUILD-OUT. EQUIPMENT NOT INSTALLED SHALL BE TAGGED AS OFF.
02	SPACE TEMPERATURE TRANSMITTERS SHALL HAVE A FIELD ADJUSTABLE SPACE TEMPERATURE AND BE CAPABLE TO DISPLAY THE SET POINT. ENABLE/DISABLE OF THE FIELD ADJUSTABLE TEMPERATURE CONTROL SHALL BE SET FROM THE GUI. THE RANGE OF ADJUSTABILITY SHALL BE SET FROM THE GUI. DEFAULT IS NO FIELD CONTROL. WHEN ENABLED, DEFAULT FIELD CONTROL IS DOWN TO 72°F, UP TO 82°F.
03	AHU TEMPERATURE SENSORS SHALL BE CAPILLARY TUBE TYPE AND THE CAPILLARY TUBE IS TO BE MINIMUM 1 FOOT LONG FOR EACH SQUARE FOOT OF COIL/DUCT OPENING.
7	00 BMS GUI DISPLAY ITEMS:
01	OUTSIDE AIR TEMPERATURE
02	OUTSIDE AIR HUMIDITY
03	SPACE TEMPERATURE SET POINT
04	SPACE TEMPERATURE
05	SPACE HUMIDITY SET POINT
06	SPACE HUMIDITY
07	SPACE CO2 SET POINT (WHERE APPLICABLE)
08	SPACE CO2
09	CONTROL VALVES SHALL NOTE "% OPEN"
10	DAMPERS SHALL NOTE "% OPEN"
11	FFDS SHALL NOTE "SPEED" OR "Hz"
12	VFD DEVICES SHALL DISPLAY CURRENT DRAW
13	DUCT DETECTOR STATUS FOR ASSOCIATED AIR HANDLER (AHU, MAU, FCU, FAN)
14	CASINO FLOOR BUILDING STATIC PRESSURE RELATIVE TO EXTERIOR
15	CASINO FLOOR PLUMBATIC PRESSURE RELATIVE TO ABOVE THE FLOOR
16	BUILDING POWER SOURCE - LOCAL, UTILITY OR GENERATOR
17	CENTRAL PLANT MAIN EQUIPMENT HOUR METERS OF OPERATION - BOILERS, PUMPS
8	00 CONTROL VALVES AND FLOW METERS
01	HEAT PUMPS ARE TO BE PROVIDED OPEN/CLOSE BALL OR BUTTERFLY VALVES (NIL PRESSURE DROP) THAT OPEN ON COMPRESSOR ACTIVATION AND CLOSE WHEN THE COMPRESSOR DEMAND IS OFF (PLUS A TIME DELAY).
02	FLOW METERS TO BE FLEXIM FLOXUS F704 WITH CLAMP ON TRANSDUCERS. METER IS ILLUSTRATED ON THE PLANT DIAGRAM, BUT A STRAIGHT LENGTH OF PIPE MUST BE LOCATED FOR THE INSTALL - 10 STRAIGHT PIPE DIAMETERS BEFORE THE SENSORS AND AFTER WITH NO TEES, VALVES, ETC IN THE RUN.
03	ULTRASONIC FLOW METERS: TURBINE TYPE INSERTION METERS ARE NOT ACCEPTABLE. THE PLANT MANUFACTURER IS TO PAY CLOSE ATTENTION TO THE REQUIRED STRAIGHT PIPE DISTANCES REQUIRED FOR METERS TO OPERATE CORRECTLY. WHERE MANUFACTURER RECOMMENDED STRAIGHT PIPE DISTANCES CANNOT BE MAINTAINED THE ULTRASONIC METER IS TO BE REPLACED BY A MAGNETIC FLOW METER BY CAD/LAC METER - CMAG, THAT DOES NOT REQUIRE ANY STRAIGHT PIPE LENGTH BEFORE OR AFTER THE METER.
9	00 GENERAL:
01	WHERE THERE IS INSUFFICIENT ROOM TO FIELD INSTALL A FREEZE STAT OR OTHER TEMPERATURE SENSOR DUE TO COLS BEING TIGHT TOGETHER, AIR HANDLERS MAY BE PROVIDED WITH FACTORY DEVICES - COORDINATE WITH THE EQUIPMENT SUPPLIER TO ENSURE COMMUNICATION WITH THE DEVICES.
02	DP TRANSMITTERS SHALL BE HARD WIRED BACK TO THE CONTROLLER UTILIZING THE DEVICE FOR INPUT SIGNAL. NETWORK CONNECTIONS ARE NOT ALLOWED.

BUILDING AUTOMATION SYSTEM	
PROJECT: TAHLEQUAH CASINO	
DESCRIPTION: CONTROLS SEQUENCES	
10	00 OPERATOR WORKSTATION - MINIMUM REQUIREMENTS
01	THE WORKSTATION SHALL BE HARD WIRE CONNECTED TO THE BAS NETWORK.
02	DELL XPS, TOWER 17, QUAD CORE - 6TH GEN PROCESSOR.
03	OS OPTIONS: WINDOWS 7 PROFESSIONAL, WITH XP MODE, 64-BIT, WINDOWS 10, WINDOWS SERVER 2012R.
04	PROVIDE A GRAPHICS CARD SOLUTION TO DRIVE FOUR WINDOWS ON ONE DISPLAY AND ONE WINDOW ON THE SECOND DISPLAY 3840 x 2160 RESOLUTION.
05	16 GB DDR3 NON-ECC SDRAM, 1600 MHZ (2 DIMM)
06	2 - 1 TB PCIe SOLID-STATE DRIVES, IN RAID 1 CONFIGURATION.
07	16X DVD +RW AND 16X DVD RW/WR CREATOR CYBERLINK WPDW/WR DVD
08	NETWORK INTERFACE CARD (10/100/1000 MBPS)
09	CHASSIS INTRUSION SWITCH
10	INTERNAL BUSINESS AUDIO SPEAKER
11	KEYBOARD AND OPTICAL MOUSE
12	DUAL, DELL P4317G MONITORS, SET UP ONE MONITOR TO HAVE FOUR SCREENS, THE OTHER TO HAVE ONE SCREEN. ALL SCREENS TO BE DIFFERENT VIEWS. (BOTH MONITORS MOUNTED TO THE WALL)
13	POWER SUPPLY SHALL NOT BE MORE THAN 60% LOADED.
14	POWER SUPPLY AND CPU COOLING FANS TO BE TEMPERATURE CONTROLLED AND VARIABLE SPEED.
15	1500 VA TRUE SIGN WAVE UPS
11	00 SCOPE OF WORK
01	BAS CONTRACTOR IS RESPONSIBLE FOR ALL WIRING AND POWER NEEDS FOR THEIR EQUIPMENT, REGARDLESS OF VOLTAGE. THE BAS SYSTEM POWER SHALL BE TAKEN FROM A GENERATOR BACKED UP SOURCE AT A POWER PANEL. IN SOME CASES THE ELECTRICAL DIVISION HAS PROVIDED POWER FOR CONTROL PURPOSES. THIS POWER SHALL BE USED IN LIEU OF THE CONTRACTOR EXTRACTING POWER FROM EQUIPMENT FEEDS. ELECTRICAL HAS PROVIDED POWER TO THE MAJORITY OF VAV BOXES AND VAN COILS. FOR COMMUNICATION BETWEEN THE BUILDING BAS AND THE PACKAGED PLANT, THE ELECTRICAL DIVISION HAS PROVIDED A 2" CONDUIT BETWEEN THE CASINO BUILDING AND THE PLANT. WIRING BY THE BAS CONTRACTOR. SEE ELECTRICAL DOCUMENTS FOR PANEL AND CONDUIT LOCATIONS. IF ADDITIONAL CONDUIT OR LARGER CONDUIT IS REQUIRED THE BAS CONTRACTOR IS RESPONSIBLE FOR THEIR NEEDS.
02	BAS CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE AND FUNCTIONAL DDC BUILDING AUTOMATION SYSTEM RESPONSIBLE FOR THE CONTROL OF ALL MECHANICAL SYSTEM COMPONENTS UNLESS STATED OTHERWISE. THE BAS CONTRACTOR SHALL PROVIDE A MINIMUM OF 20 HOURS TRAINING IN 5 FOUR HOUR SESSIONS. (THIS MAY EXCEED ROOM SPECIFICATION REQUIREMENTS)
03	THE CENTRAL PLANT IN A BOX SECTION OF THE BAS IS TO OPERATE THE BOILERS, FLUID COOLER, INSIDE THE BOX CONTROL VALVES, CHILLER CONTROL VALVES AND INSIDE THE BOX PUMPS, EVEN THOUGH THE PLANT IN THE BOX IS A SINGLE ITEM PROVIDED TO THE OWNER. THE BAS SHALL BE THE SAME SYSTEM AND CONTROLLED BY THE BUILDING BAS. THE BAS CONTRACTOR SHALL CONTACT THE "BOX" CONTRACTOR TO ARRANGE FOR FACTORY WIRING OF CONTROLS AND FINAL SEQUENCES. THE GUI MUST DISPLAY ALL CONTROL AND INFORMATION POINTS, SUCH AS:
04	a. BOILER STATUS, FIRING RATE
b.	PUMP STATUS, SPEED, AMPS
c.	BOILER ISOLATION VALVE STATUS
d.	CONDENSER WATER SUPPLY TEMP
e.	CONDENSER WATER RETURN TEMP
f.	HEATING WATER SUPPLY TEMP
g.	HEATING WATER RETURN TEMP
h.	BOILER RUN TIME
i.	PUMP RUN TIME
j.	CENTRAL PLANT ENABLE/DISABLE CONTROL
k.	ALARMS
l.	FLUID COOLER FAN SPEED STATUS
m.	FLUID COOLER ISOLATION VALVE STATUS
n.	MAKE - UP WATER CONTROL VALVE POSITION
o.	BASIN HEATER STATUS
p.	EQUIPMENT LEADLAG SCHEDULE
q.	BOILER WATER FLOW
r.	BOILER BYPASS VALVE COMMAND, HWBP-1
SEQUENCES	
AHU:	
GENERAL:	
12	00 AHUS ARE ANNEXAIR HEATPUMPS WITH FACTOR OPERATING CONTROLS WITH LIMITED BAS INPUT. THE AHUS ARE EQUIPPED WITH A BACNET INTERFACE FOR BAS CONNECTION AND MAPPING OF POINTS.
01	AHU 1 AND 9. THESE ARE CONSTANT VOLUME UNITS. THE BAS IS TO PROVIDE A SPACE TEMPERATURE TRANSMITTER AND SEND THAT INFORMATION TO THE AHU FOR AHU OPERATION.
02	AHU 2, 3, & 7. THESE UNITS ARE CONSTANT VOLUME UNITS. THE BAS IS TO PROVIDE A DUCT SUPPLY AIR TEMPERATURE TRANSMITTER, A MINIMUM OF 20 FEET FROM THE UNIT, AND IS TO SEND THAT INFORMATION TO THE AHU FOR OPERATION.

BUILDING AUTOMATION SYSTEM	
PROJECT: TAHLEQUAH CASINO	
DESCRIPTION: CONTROLS SEQUENCES	
AHU 4, 5, 8, 10: THESE UNITS ARE VAV UNITS. THE BAS IS TO PROVIDE A DUCT SUPPLY AIR TEMPERATURE TRANSMITTER, A MINIMUM OF 20 FEET FROM THE UNIT, AND IS TO SEND THAT INFORMATION TO THE AHU FOR OPERATION. THE BAS IS TO PROVIDE A DP TRANSMITTER IN THE DUCTWORK, LOCATED APPROXIMATELY 2/3 OF THE DISTANCE DOWN THE LONGEST DUCT RUN FROM THE AHU. (UPON FAILURE OF THE SENSOR, FAULT TO THE LAST KNOWN FAN SPEED AND ALARM). THE TAG CONTRACTOR IS TO PROVIDE THE DP SETPOINT. THE DUCT TEMPERATURE SETPOINT IS TO BE SET INITIALLY AT 65°F. THE BAS IS TO PROVIDE A SUPPLY AIR TEMPERATURE RESET FUNCTION THAT WILL RESET THE SUPPLY AIR TEMPERATURE SETPOINT UPWARD UNTIL, AT LEAST ONE VAV BOX IS OPEN 95% IN COOLING MODE. RESET SHALL REVERSE AS VAV BOXES OPEN BEYOND 95%.	
AHU 1, 2: THESE ARE VAV UNITS. THE BAS IS TO PROVIDE A DUCT SUPPLY AIR TEMPERATURE TRANSMITTER, A MINIMUM OF 20 FEET FROM THE UNIT, AND IS TO SEND THAT INFORMATION TO THE AHU FOR OPERATION. THE BAS IS TO PROVIDE A DP TRANSMITTER IN THE DUCTWORK, LOCATED APPROXIMATELY 2/3 OF THE DISTANCE DOWN THE LONGEST DUCT RUN FROM THE AHU. (UPON FAILURE OF THE SENSOR, FAULT TO THE LAST KNOWN FAN SPEED AND ALARM). THE TAG CONTRACTOR IS TO PROVIDE THE DP SETPOINT. THE DUCT TEMPERATURE SETPOINT IS TO BE SET INITIALLY AT 65°F.	
AHU 6 ARE TO BE PROVIDED OPEN/CLOSE BALL OR BUTTERFLY VALVES (NIL PRESSURE DROP) THAT OPEN ON COMPRESSOR ACTIVATION AND CLOSE WHEN THE COMPRESSOR DEMAND IS OFF (PLUS A TIME DELAY) - THIS SIGNAL SHOULD COME FROM THE HEAT PUMP.	
VAV BOXES	
13	00 THE VARIABLE AIR VOLUME BOX SHALL MODULATE TO MAINTAIN TEMPERATURE SET-POINT WITHIN THE ZONE IT SERVES. THE BOX SHALL CONTROL BETWEEN ITS PRE-SET MAXIMUM AND MINIMUM VOLUMETRIC AIR FLOW SET-POINTS PROVIDED BY THE AIR BALANCER AND A NOTED ON THE VAV BOX SCHEDULE. THESE SET POINTS TO BE ADJUSTABLE FROM THE GUI.
01	IF THE VARIABLE AIR VOLUME BOX IS EQUIPPED WITH A RE-HEAT MECHANISM, AND THE SPACE TEMPERATURE IS BELOW ITS TEMPERATURE SET-POINT FOR MORE THAN 60 SECONDS, AND THE VARIABLE AIR VOLUME BOX IS AT ITS MINIMUM POSITION THEN MODULATE THE RE-HEAT CONTROL VALVE AND RESET THE VAV BOX DAMPER TO THE DESIGNATED HEATING CFM VALUE (ADJ).
02	IF A VAV BOX WITHOUT REHEAT CAPABILITY IS AT ITS MINIMUM POSITION AND THE SPACE TEMPERATURE IS BELOW ITS TEMPERATURE SET-POINT FOR MORE THAN 600 SECONDS THEN ALERT THE GUI.
03	NORMALLY UNOCCUPIED SPACES SUCH AS MEETING ROOMS, IF THE VAV BOX DOES NOT HAVE REHEAT AND THE BOX MINIMUM POSITION SHALL BE FULL CLOSED NOT THE BOX MINIMUM. THE BOX SHALL NOT TRY TO MODULATE BETWEEN THE NOTED MINIMUM AND FULL CLOSED.
HEAT PUMPS	
14	00 THESE ARE CONSTANT VOLUME UNITS. THE BAS IS TO PROVIDE A SPACE TEMPERATURE TRANSMITTER AND SEND THAT INFORMATION TO THE HEAT PUMP FOR HEAT PUMP OPERATION.
01	HEAT PUMPS ARE TO BE PROVIDED OPEN/CLOSE BALL OR BUTTERFLY VALVES (NIL PRESSURE DROP) THAT OPEN ON COMPRESSOR ACTIVATION AND CLOSE WHEN THE COMPRESSOR DEMAND IS OFF (PLUS A TIME DELAY) - THIS SIGNAL SHOULD COME FROM THE HEAT PUMP.
EXHAUST FANS	
15	00 THE BAS IS TO PROVIDE STOP/START FOR ALL EXHAUST FANS. PROVIDE A SCHEDULE AS REQUESTED BY THE OWNER. PROVIDE A TRIP IF NECESSARY FOR STOP/START CONTROL.
01	PROVIDE A CT FOR STATUS.
02	FOR KITCHEN GREASE EXHAUST FANS PROVIDE AN INTERLOCK FOR MAKE-UP AIR ASSOCIATED WITH KITCHEN GREASE EXHAUST FANS. START THE MAU AND MODULATE THE VAV BOX OR AIR IS TO MATCH DESIGNED CFM. (NOTE: MAKE UP AIR IS TO SHUT OFF DURING AN ANSUL TRIP - VAV BOX CLOSURES 100%, MAU DOES NOT STOP IF OTHER MODES ARE OPERATIONAL).
MANUFACTURED CENTRAL PLANT	
20	00 THE FINAL SEQUENCES FOR PLANT OPERATION ARE CREATED BY THE PACKAGED PLANT MANUFACTURER. SEQUENCES ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW. SEQUENCES SHALL BE WRITTEN TO MAXIMIZE ENERGY EFFICIENCY AND PROMOTE EQUIPMENT USAGE THAT LIMITS SHORT CYCLING OF THE EQUIPMENT. WHERE EQUIPMENT IS REHEATED, EQUIPMENT SEQUENCING SHALL NOT BE LIMITED TO DEDICATED EQUIPMENT. IE: BOILER #1 AND PUMP #1 SHALL NOT BE DEDICATED. ANY BOILER SHALL BE ABLE TO OPERATE WITH ANY PUMP OR FLUID COOLER. THIS APPLIES TO ALL SIMILAR SYSTEMS. SEQUENCES OF THE PLANT WILL BE COMMISSIONED AS PART OF THE BUILDING COMMISSIONING PROGRAM. ALLOW FOR FIELD PROGRAMMING TO CORRECT PROBLEMS NOTED DURING COMMISSIONING.
01	ALL PLANT EQUIPMENT SHALL BE ROTATED BASED UPON RUN TIME HOURS TO EQUALIZE EQUIPMENT RUN TIME. PROVIDE THE ABILITY TO RESET THE RUN TIMER. RUN TIMER SHALL BE VISIBLE ON BOTH GUI DISPLAYS.
END OF SECTION	



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CONSULTANT LOGO



CLIENT: **CHEROKEE NATION Entertainment**



CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
TAHLEQUAH, OKLAHOMA

PROJECT PHASE:
BID PACKAGE 05

REVISIONS		
#	DATE	DESCRIPTION
1	06/22/18	ADDENDUM 10

DATE: **05/03/18** JOB NUMBER: **17-06**

SHEET NUMBER: **M0.11**

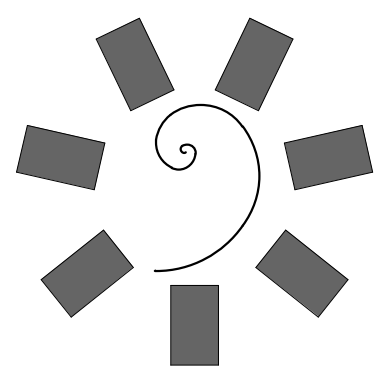
MECHANICAL CONTROLS SEQUENCES

Line	Description: Controls Points List - All points are not necessarily defined here.	I/O TYPE				REF.	REF.	REF.
		AI	AO	DI	DO			
1	CONSTANT OR VARIABLE AIR VOLUME AIR HANDLING UNIT WITH OR W/O ENERGY WHEEL AND DEHUMIDIFICATION							
2	Duct Static Pressure Set-Point		X					
3	Duct Static Pressure	X						
4	AHU-X Sfan S/S							X
5	AHU-X Sfan Status or VFD Run Status							X
6	AHU-X SVFD Command Fan Speed		X					
7	AHU-X SVFD Fan Speed	X						
8	AHU-X SVFD Alarm			X				
9	AHU-X EF OR Rfan S/S (Each Fan)							X
10	AHU-X EF OR Rfan Status or VFD Run Status (Each Fan)			X				
11	AHU-X EVFD OR RVFD Command Fan Speed (Each Fan)		X					
12	AHU-X EVFD OR Speed (Each Fan)	X						
13	AHU-X EVFD OR RVFD Alarm (Each Fan)			X				
14	AHU-X Supply Air Volume (Each Fan)	X						
15	AHU-X Return Air Volume Total	C						
16	AHU-X Return Air Volume (Each Fan)	X						
17	AHU-X Return Air Volume Total	C						
18	AHU-X Energy wheel S/S							X
19	AHU-X Energy Wheel Status or VFD Run Status							X
20	AHU-X Energy Wheel VFD Command speed	X						
21	AHU-X Energy Wheel VFD speed	X						
22	AHU-X Energy Wheel VFD Alarm			X				
23	AHU-X OSA Damper Command		X					
24	AHU-X OSA Damper Position	X						
25	AHU-X RA Damper Command		X					
26	AHU-X RA Damper Position	X						
27	AHU-X EA Damper Command		X					
28	AHU-X EA Damper Position	X						
29	AHU-X OAT before wheel	X						
30	AHU-X OAT after wheel	X						
31	AHU-X Mixed Air Temperature - before cooling coil	X						
32	AHU-X Supply Air Temperature after heating coil	X						
33	AHU-X Supply Air Temperature after cooling coil	X						
34	AHU-X Unit Discharge Air Temperature	X						
35	AHU-X Discharge Air Temperature Command		X					
36	AHU-X Return Air Temperature	X						
37	AHU-X Exhaust Air Temp after wheel	X						
38	AHU-X Space Humidity	X						
39	AHU-X Return Air Humidity	X						
40	AHU-X Supply Air Humidity - 20 ft from unit.	X						
41	AHU-X Return air CO2	X						
42	AHU-X CW Valve Command		X					
43	AHU-X Supply Air Duct Detector			X				
44	AHU-X Freeze Temp Detector			X				
45	AHU-X SA Fan Low static pressure alarm			X				
46	AHU-X Supply Air Filter #1 static pressure	X						
47	AHU-X Supply Air Filter #2 static pressure	X						
48	AHU-X Return Air Filter static pressure	X						
49	AHU-X Status vs Command Alert	C						
50								
51								
52								
53								
54	CONSTANT AIR VOLUME OR VAV AIR HANDLING							
55	AHU-X Sfan S/S							X
56	AHU-X Sfan or VFD Run Status							X
57	AHU-X EFan S/S (Each Fan)							X

Line	Description: Controls Points List - All points are not necessarily defined here.	I/O TYPE				REF.	REF.	REF.
		AI	AO	DI	DO			
1	CONSTANT AIR VOLUME MAKE-UP AIR UNIT							
50	AHU-X EFan VFD Run Status (Each Fan)				X			
60	AHU-X EFan VFD Command Fan Speed (Each Fan)		X					
61	AHU-X EFan VFD Fan Speed (Each Fan)	X						
62	AHU-X EFan VFD Alarm (Each Fan)		X					
63	AHU-X OSA Damper Command		X					
64	AHU-X OSA Damper Position	X						
65	AHU-X RA Damper Command		X					
66	AHU-X RA Damper Position	X						
67	AHU-X EA Damper Command		X					
68	AHU-X EA Damper Position	X						
69	AHU-X Mixed Air Temperature - before heating	X						
70	AHU-X Supply Air Temperature after heating coil	X						
71	AHU-X Supply Air Temperature after cooling coil	X						
72	AHU-X Unit Discharge Air Temperature	X						
73	AHU-X Discharge Air Temperature Command		X					
74	AHU-X Return Air Temperature	X						
75	AHU-X Space Humidity	X						
76	AHU-X Return Air Humidity	X						
77	AHU-X Space CO2	X						
78	AHU-X CW Valve Command		X					
79	AHU-X Supply Air Duct Detector			X				
80	AHU-X Freeze Temp Detector			X				
81	AHU-X SA Fan Low static pressure alarm			X				
82	AHU-X Supply Air Filter static pressure	X						
83	AHU-X Status vs Command Alert	C						
84								
85								
86								
87								
88	MAU-X Sfan S/S							X
89	MAU-X Sfan Status				X			
90	MAU-X EFan VFD Run Status (Each Fan)							X
91	MAU-X EFan VFD Command Fan Speed (Each Fan)		X					
92	MAU-X OSA Damper Command		X					
93	MAU-X OSA Damper Position	X						
94	MAU-X Supply Air Temperature after heating coil	X						
95	MAU-X Supply Air Temperature after cooling coil	X						
96	MAU-X Unit Discharge Air Temperature	X						
97	MAU-X Unit Discharge Air Temperature Command		X					
98	MAU-X Unit Supply Air Humidity	X						
99	MAU-X CW Valve Command		X					
100	MA-X Supply Air Duct Detector			X				
101	MAU-X Freeze Temp Detector			X				
102	MAU-X Low static pressure alarm			X				
103	MAU-X Supply Air Filter static pressure	X						
104	MAU-X Status vs Command Alert	C						
105								
106								
107	TERMINAL UNIT CONTROL - FANCOIL							
108								
109	Space Temperature	X						
110	CW Valve command		X					
111	Fan Motor CT			X				
112	Discharge Air Temperature	X						
113	Fan S/S				X			
114	Status vs Command Alarm	C						
115								

Line	Description: Controls Points List - All points are not necessarily defined here.	I/O TYPE				REF.	REF.	REF.
		AI	AO	DI	DO			
1	EXHAUST FAN							
116	EXHAUST FAN							
117	EFan S/S (Each Fan)							X
118	EFan Status (Each Fan) Motor CT			X				
119	Status vs Command Alarm	C						
120								
121								
122								
123	Misc							
124								
125								
126	Outside Air Temperature (Two Sensors)	X						
127	Outside Air Humidity (Two Sensors)	X						
128	Outside Air Enthalpy	C						
129	Outside Air Dewpoint	C						
130	Bldg Dif. Pres. Trans (Casino Lev)	X						
131	Bldg Dif. Pres. Trans (Casino Lev)	X						
132	Domestic Hot Water Circ Pump Status (Each Pump CT)			X				
133								
134								
135	MANUFACTURED PLANT							
136								
137	DP transmitter 1 - condenser water system	X						
138	DP transmitter 2 - condenser water system	X						
139	DP transmitter 3 - condenser water system	X						
140	DP transmitter 1 - heating water system	X						
141	DP transmitter 2 - heating water system	X						
142	DP transmitter 3 - heating water system	X						
143	Condenser Water Supply Set Point		X					
144	Heating Water Supply Set Point		X					
145	Condenser Water Supply GPM	X						
146	Fluid Cooler Fan Speed - Status (each)			X				
147	Fluid Cooler enable/disable (each)				X			
148	Boiler enable/disable (each)				X			
149	Boiler rotation sequence			X				
150	Condenser water pump rotation sequence			X				
151	Boiler HWP rotation sequence			X				
152	Boiler HWP water heater rotation sequence			X				
153	Cooling tower rotation sequence			X				
154	Condenser water pump enable/disable (each)				X			
155	Heating water pump enable/disable (each)				X			
156	Fluid Cooler run time (each)	X						
157	Boiler run time (each)	X						
158	Condenser water pump run time (each)	X						
159	Heating water pump run time (each)	X						
160	Boiler run time (each)	X						
161	Electrical Switchgear load - BACNET interface	X						
162	Lakos Separator Status				X			
163	Make-up Water Control - Status - makeup valve position (each)				X			
164	Fluid Cooler Basin Heaters - Status (Each)				X			
165	Fluid Cooler Isolation Valve Supply - Status (each)				X			
166	Fluid Cooler Isolation Valve Return - Status (each)				X			
167	Make-up Water - meter input from Fluid Cooler basin & Condenser water/boiler systems.	X						
168								
169	SEE CONTROLS DRAWINGS FOR ADDITIONAL REQUIRED POINTS							
170								

X denotes physical I/O, C denotes calculated I/O



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TAHLEQUAH, OKLAHOMA

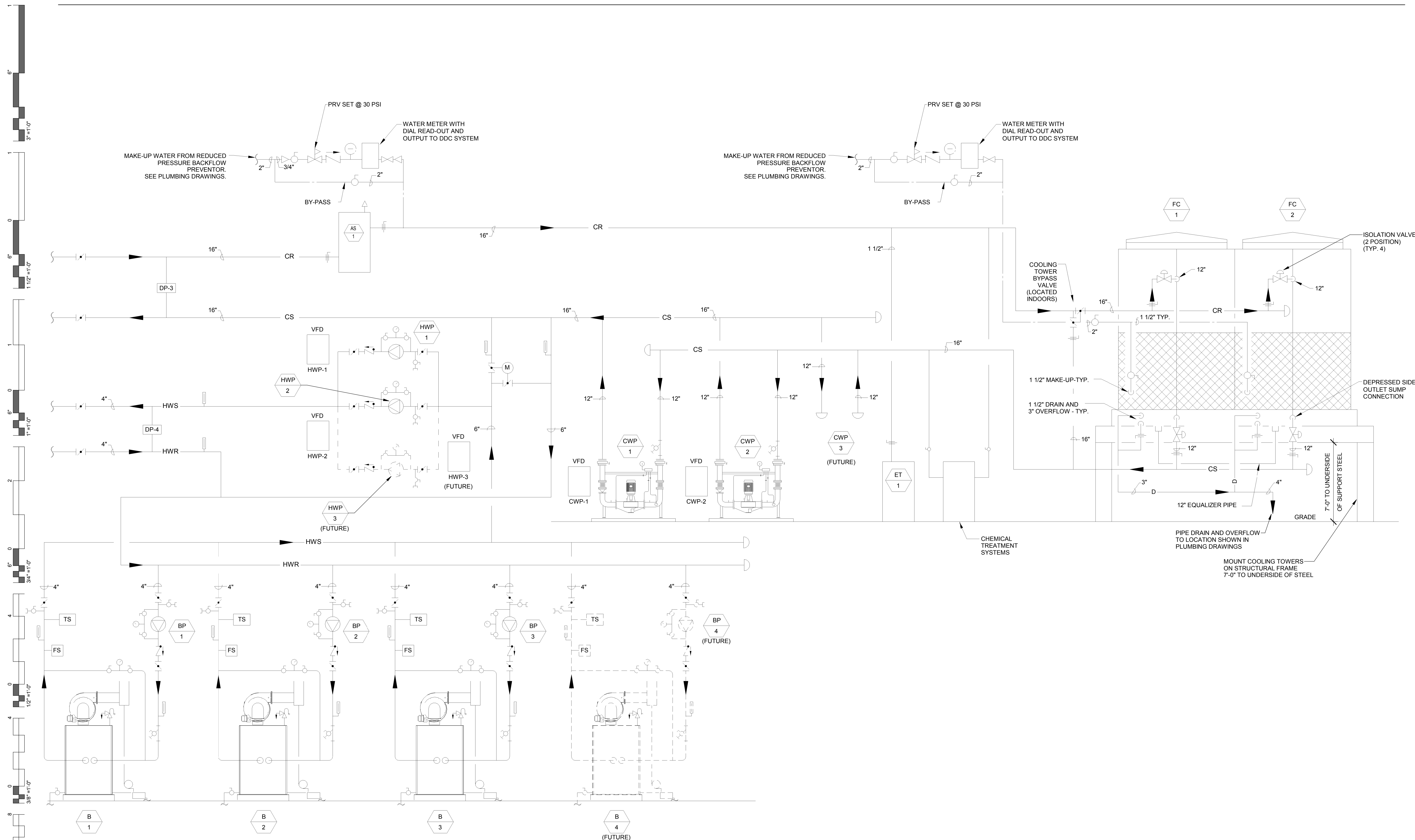
PROJECT PHASE
BID PACKAGE 05

#	DATE	DESCRIPTION
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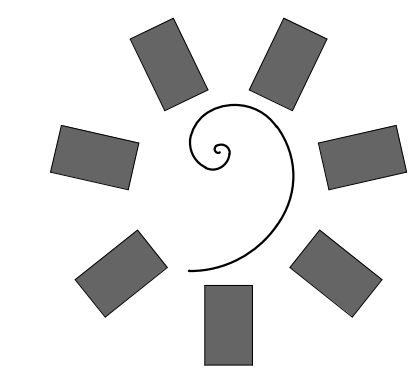
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JOB NUMBER: 17-06

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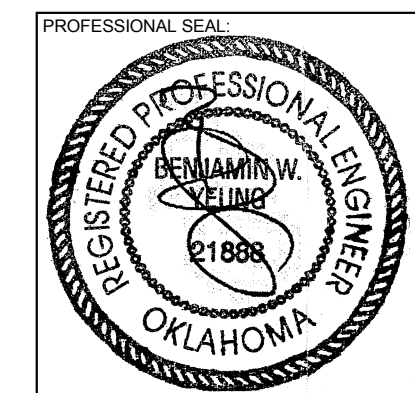
MECHANICAL
CONTROLS POINTS



A PIPING SCHEMATIC
M-0.12 NTS



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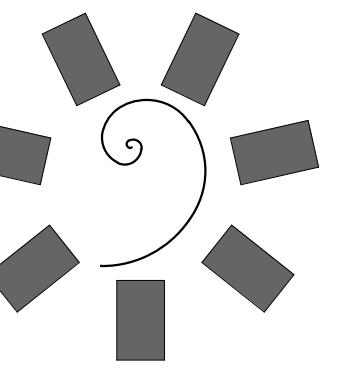
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BID PACKAGE 05

REVISIONS		
#	DATE	DESCRIPTION
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SHEET NUMBER:

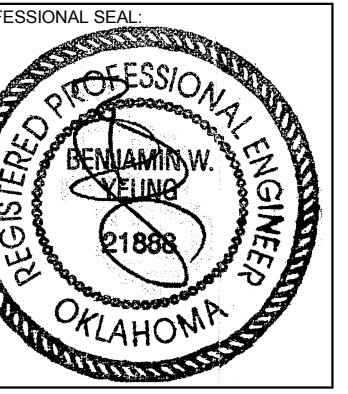
M0.13

MECHANICAL PIPING DIAGRAMS



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TAHLEQUAH, OKLAHOMA

PROJECT PHASE:

BID PACKAGE 05

#	DATE	DESCRIPTION
1	06/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06

SHEET NUMBER:
M1.0

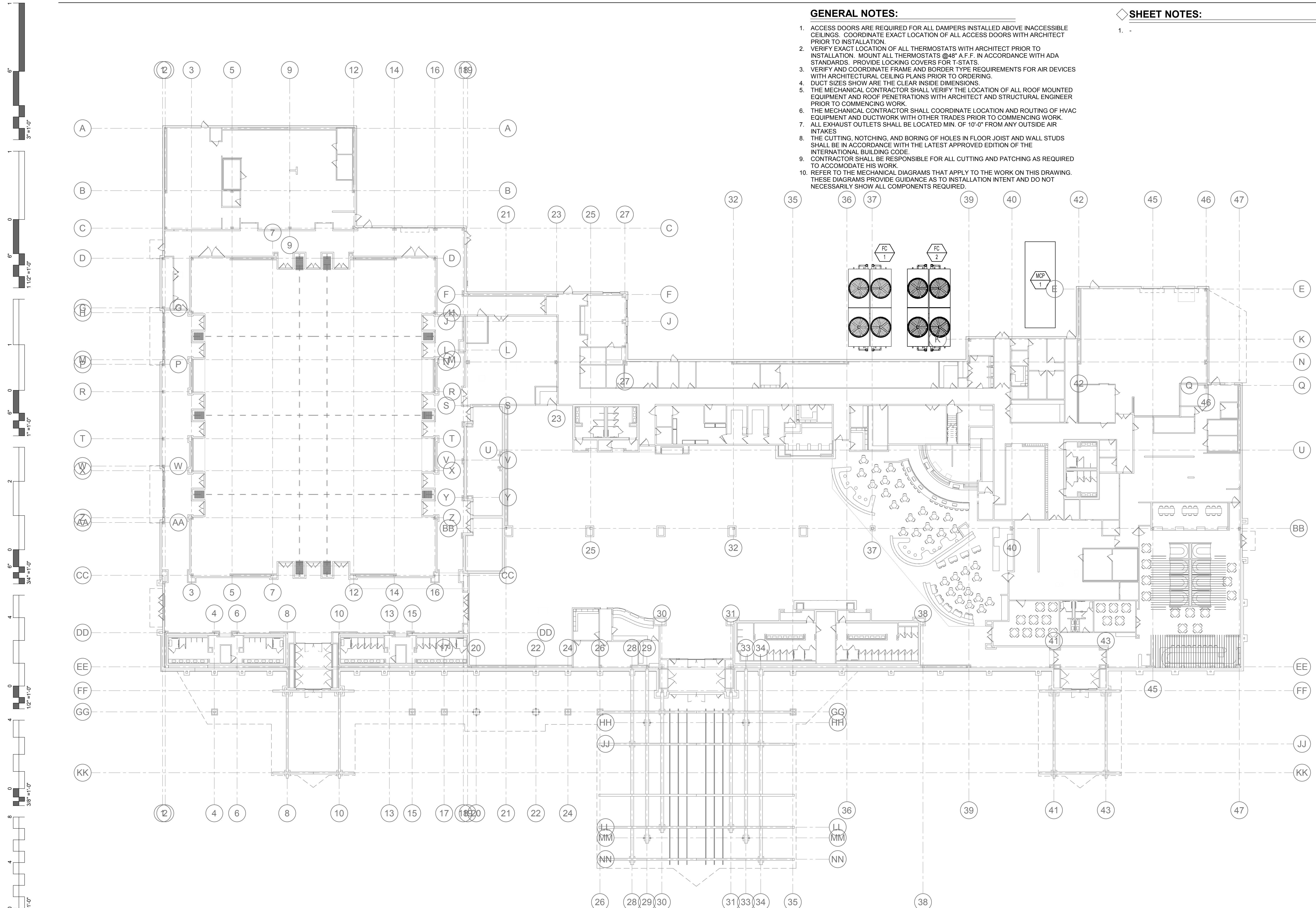
MECHANICAL
OVERALL FLOOR
PLAN

GENERAL NOTES:

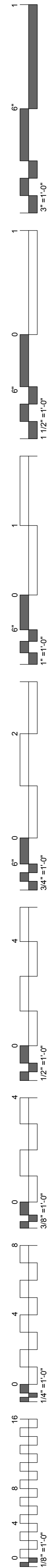
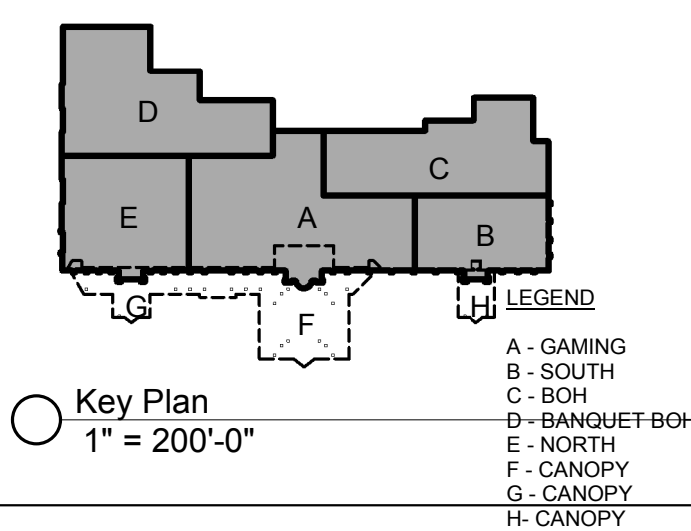
- ACCESS DOORS ARE REQUIRED FOR ALL DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS. COORDINATE EXACT LOCATION OF ALL ACCESS DOORS WITH ARCHITECT PRIOR TO INSTALLATION.
- VERIFY EXACT LOCATION OF ALL THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNT ALL THERMOSTATS @48" A.F.F. IN ACCORDANCE WITH ADA STANDARDS. PROVIDE LOCKING COVERS FOR T-STATS.
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- THE MECHANICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT AND ROOF PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.
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- ALL EXHAUST OUTLETS SHALL BE LOCATED MIN. OF 10'-0" FROM ANY OUTSIDE AIR INTAKES.
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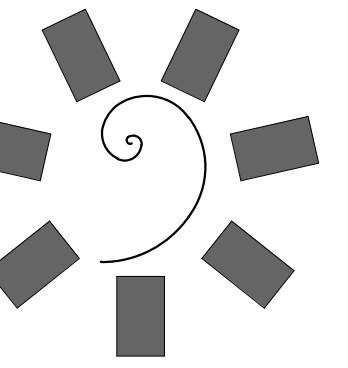
SHEET NOTES:

-



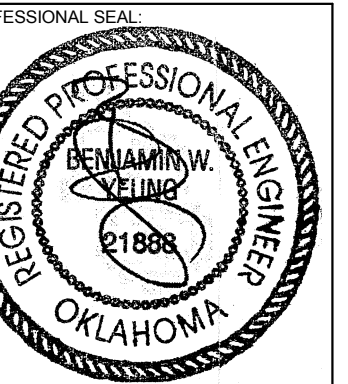
1 MECHANICAL OVERALL FLOOR PLAN
3/64" = 1'-0"





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TAHLEQUAH, OKLAHOMA

PROJECT PHASE:
BID PACKAGE 05

#	DATE	REVISIONS DESCRIPTION
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DATE: 05/03/18
JOB NUMBER: 17-06
SHEET NUMBER:

M1.1

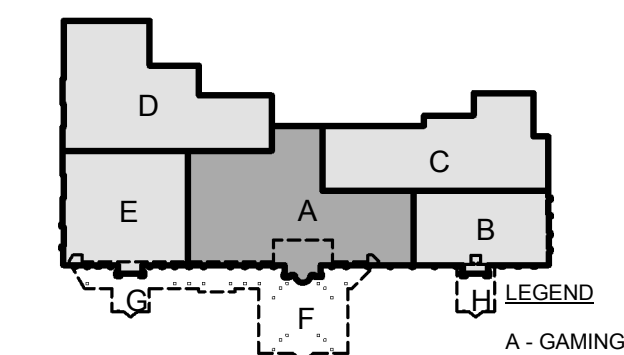
MECHANICAL ENLARGED FLOOR PLAN - GAMING

GENERAL NOTES:

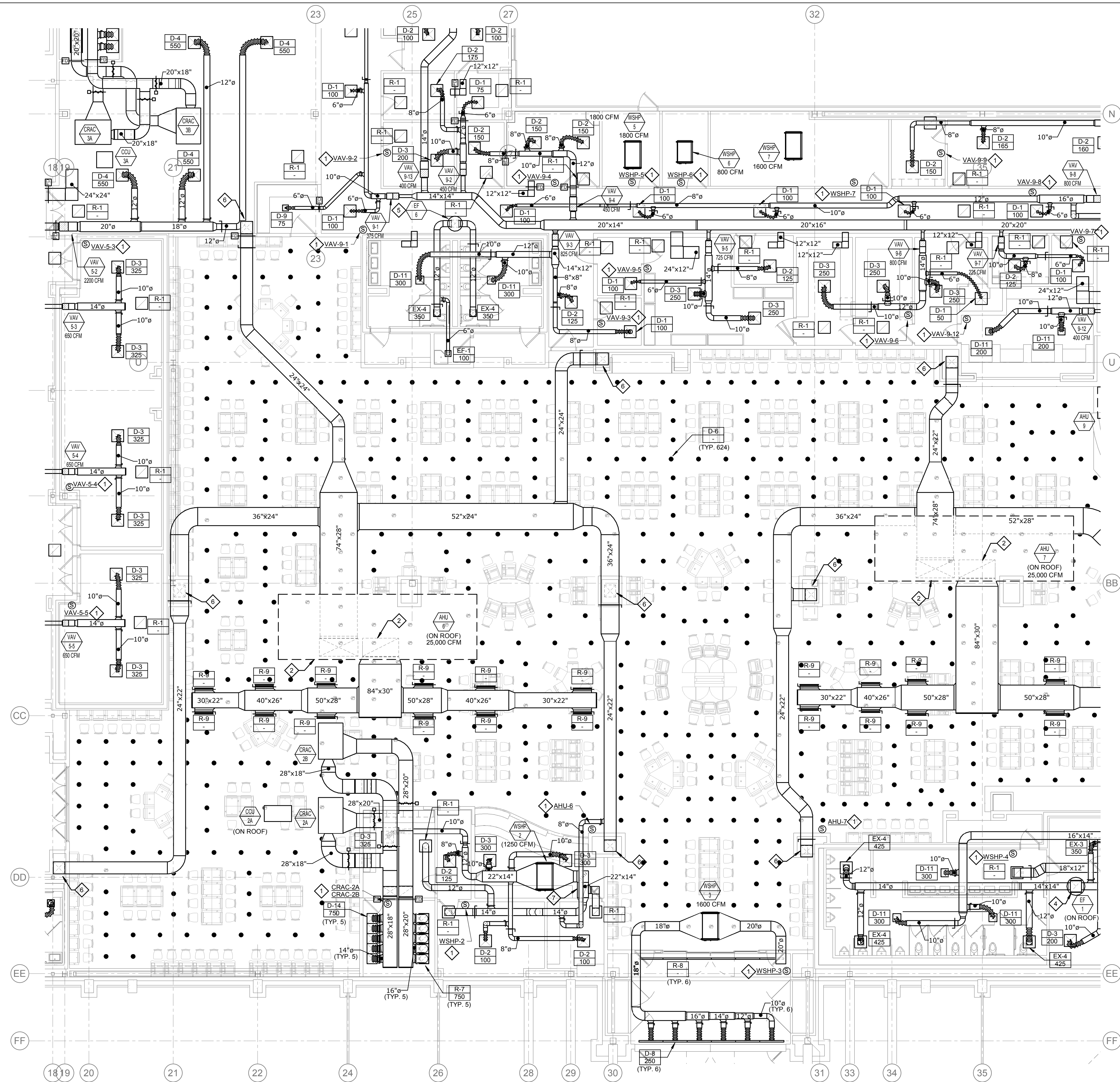
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SHEET NOTES:

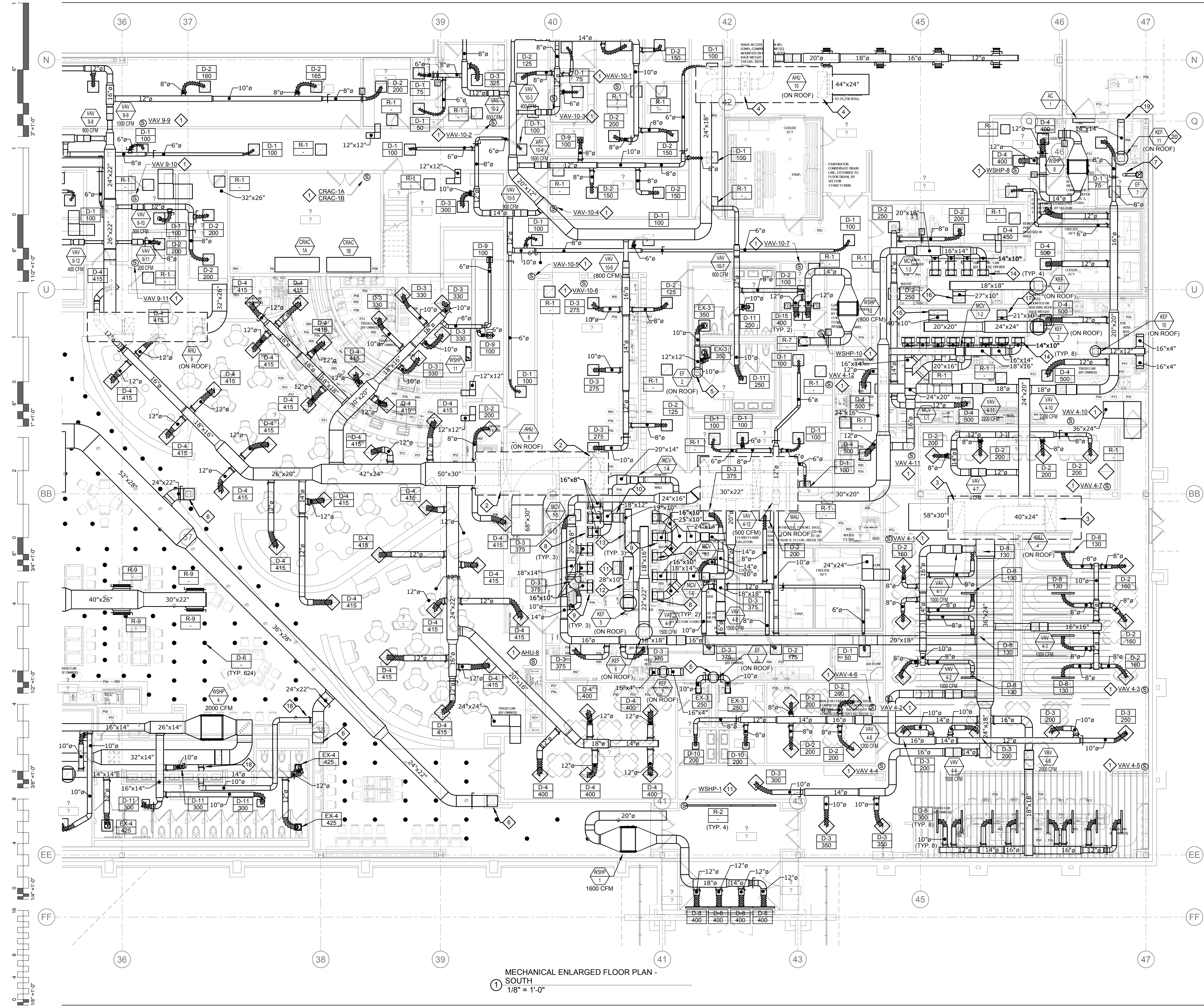
- PROVIDE SENSOR AND WIRING UP TO AIR HANDLING UNIT, WATER SOURCE HEAT PUMP UNIT, AND/OR VAV BOX AS INDICATED.
- 74"x28" SUPPLY AIR, 84"x30" RETURN AIR UP TO AHU-6 AND AHU-7.
- NOTE DELETED.
- 24"x22" EXHAUST AIR UP TO EF-1.
- 14"x14" EXHAUST AIR UP TO EF-6.
- 24"x22" SUPPLY AIR DUCT DOWN TO RAISED FLOOR. TERMINATE 12" ABOVE FINISHED FLOOR.
- 8"Ø OUTSIDE AIR DUCT (200 CFM).
- 10"Ø OUTSIDE AIR DUCT (300 CFM).



REVISED ENTIRE SHEET



MECHANICAL ENLARGED FLOOR PLAN - GAMING
1/8" = 1'-0"



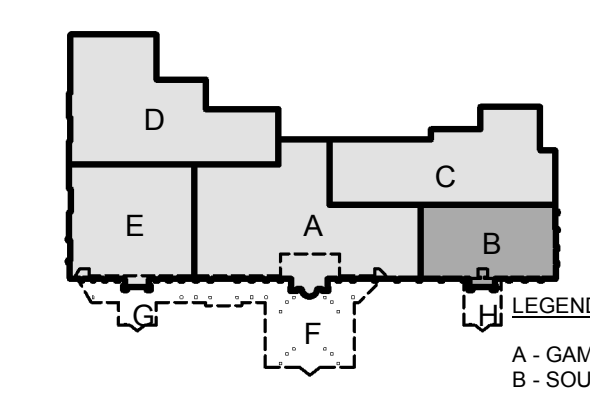
MECHANICAL ENLARGED FLOOR PLAN - SOUTH
 1/8" = 1'-0"

GENERAL NOTES:

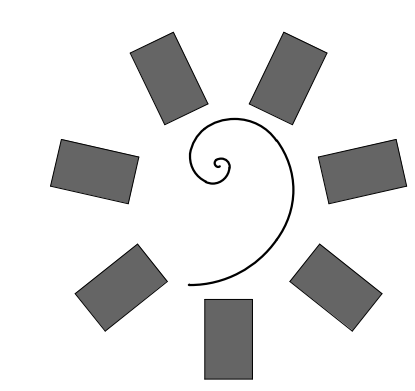
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SHEET NOTES:

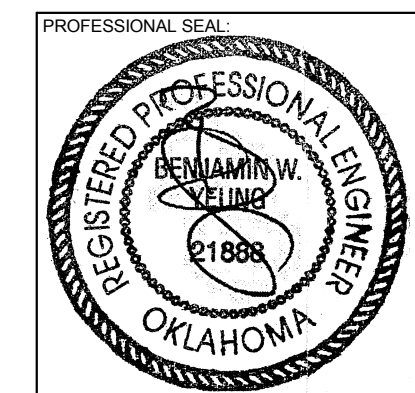
- PROVIDE SENSOR AND WIRING UP TO AIR HANDLING UNIT, WATER SOURCE HEAT PUMP UNIT, AND/OR VAV BOX AS INDICATED.
- 50"x30" SUPPLY AIR, 68"x30" RETURN AIR UP TO AHU-8.
- 40"x24" SUPPLY AIR, 50"x30" RETURN AIR UP TO AHU-4.
- 48"x20" SUPPLY AIR, 56"x21" RETURN AIR UP TO AHU-10.
- 12"x12" EXHAUST AIR UP TO EF-2 AND EF-3.
- 24"x22" SUPPLY AIR DUCT DOWN TO RAISED FLOOR. TERMINATE 12" ABOVE FINISHED FLOOR.
- 8"Ø EXHAUST UP THROUGH ROOF WITH APPROVED AIR CAP.
- 16"x8" MAKE-UP AIR DOWN TO HOOD.
- 16"x10" MAKE-UP AIR DOWN TO HOOD.
- 19"x10" GREASE EXHAUST DOWN TO HOOD.
- 28"x10" GREASE EXHAUST DOWN TO HOOD.
- 16"x10" GREASE EXHAUST DOWN TO HOOD.
- 25"x10" GREASE EXHAUST DOWN TO HOOD.
- 14"x10" MAKE-UP AIR DOWN TO HOOD.
- 40"x10" GREASE EXHAUST DUCT DOWN TO HOOD.
- 27"x10" GREASE EXHAUST DUCT DOWN TO HOOD.
- 21"x10" GREASE EXHAUST DUCT DOWN TO HOOD.
- 10"Ø OUTSIDE AIR DUCT.
- 14"x14" GREASE EXHAUST DUCT DOWN TO SMOKER (ITEM # 63FD). REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL INFORMATION.
- 14"x14" GREASE EXHAUST DUCT UP THROUGH ROOF TO FAN. REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL INFORMATION.



LEGEND
 A - GAMING
 B - SOUTH
 C - BOH
 D - BANQUET BOH
 E - NORTH
 F - CANOPY
 G - CANOPY
 H - CANOPY



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CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO
 TAHLEQUAH, OKLAHOMA

PROJECT PHASE
BID PACKAGE 05

#	DATE	REVISIONS DESCRIPTION

DATE: 05/03/18 JOB NUMBER: 17-06
 SHEET NUMBER:

M1.2

MECHANICAL ENLARGED FLOOR PLAN - SOUTH

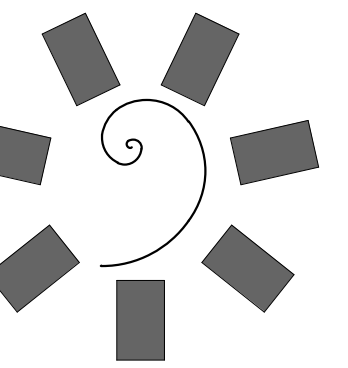
GENERAL NOTES:

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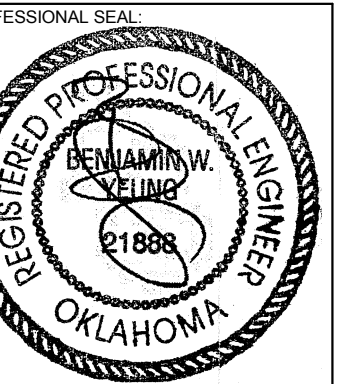
SHEET NOTES:

- PROVIDE SENSOR AND WIRING UP TO AIR HANDLING UNIT, WATER SOURCE HEAT PUMP UNIT, UNIT HEATERS AND/OR VAV BOX AS INDICATED.



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CONSULTANT LOGO:



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TAHLEQUAH CASINO
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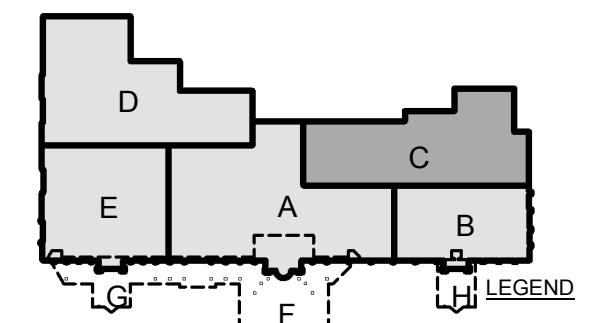
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#	DESCRIPTION
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DATE: 05/03/18
JOB NUMBER: 17-06
SHEET NUMBER:

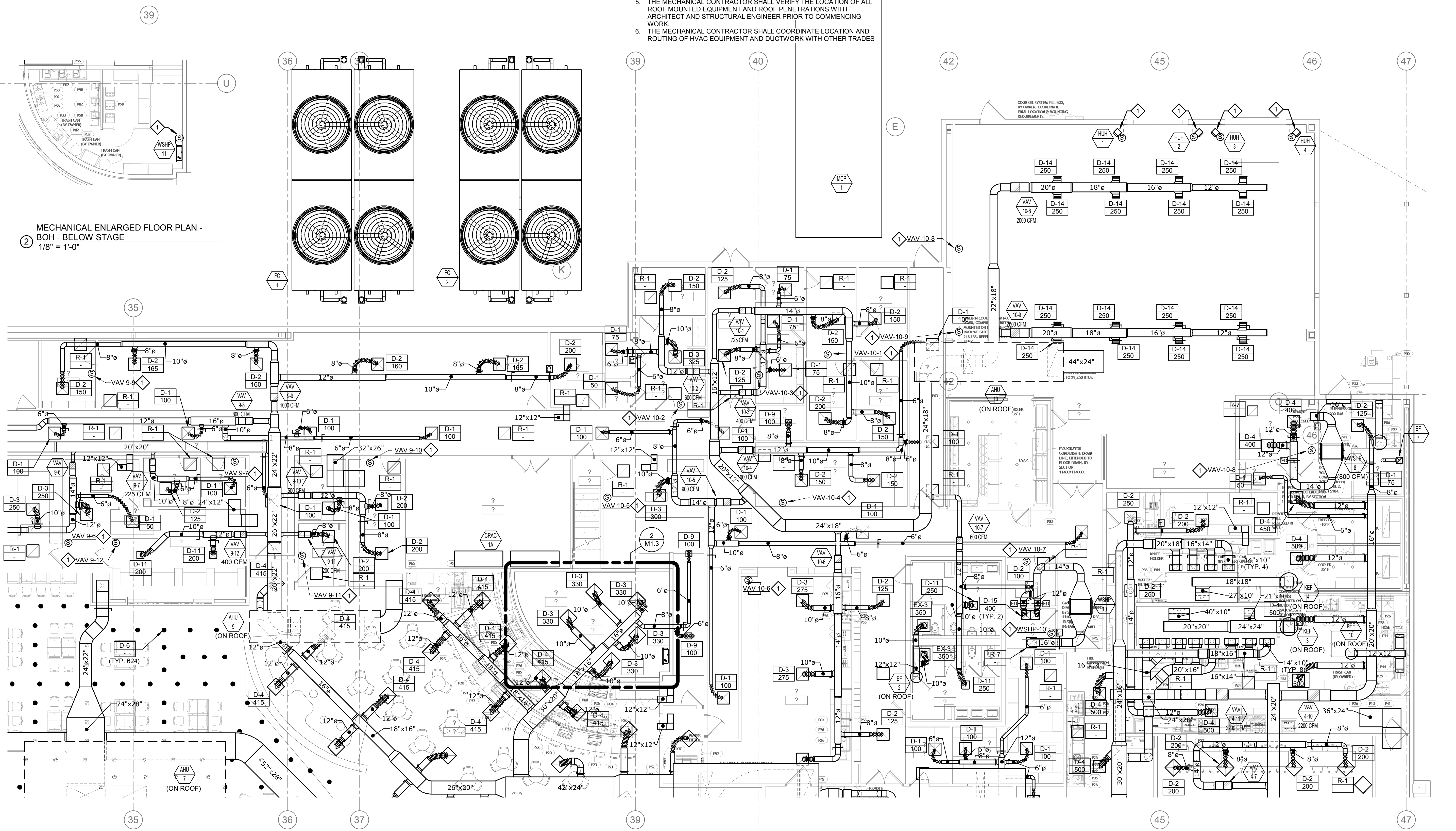
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MECHANICAL ENLARGED FLOOR PLAN - BOH



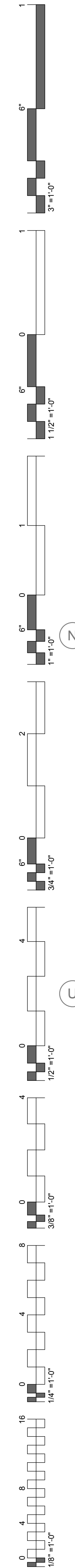
- A - GAMING
- B - SOUTH
- C - BOH
- D - BANQUET BOH
- E - NORTH
- F - CANOPY
- G - CANOPY
- H - CANOPY

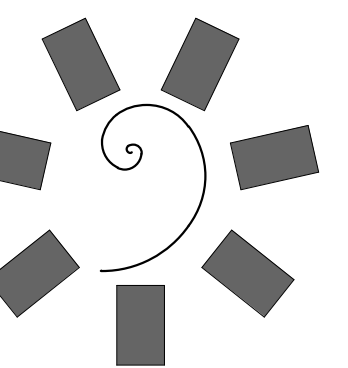
REVISED
ENTIRE SHEET



MECHANICAL ENLARGED FLOOR PLAN - BOH - BELOW STAGE
1/8" = 1'-0"

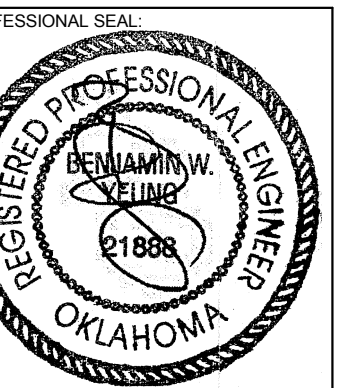
MECHANICAL ENLARGED FLOOR PLAN - BOH
1/8" = 1'-0"





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BID PACKAGE 05

#	DATE	REVISIONS DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06
SHEET NUMBER:

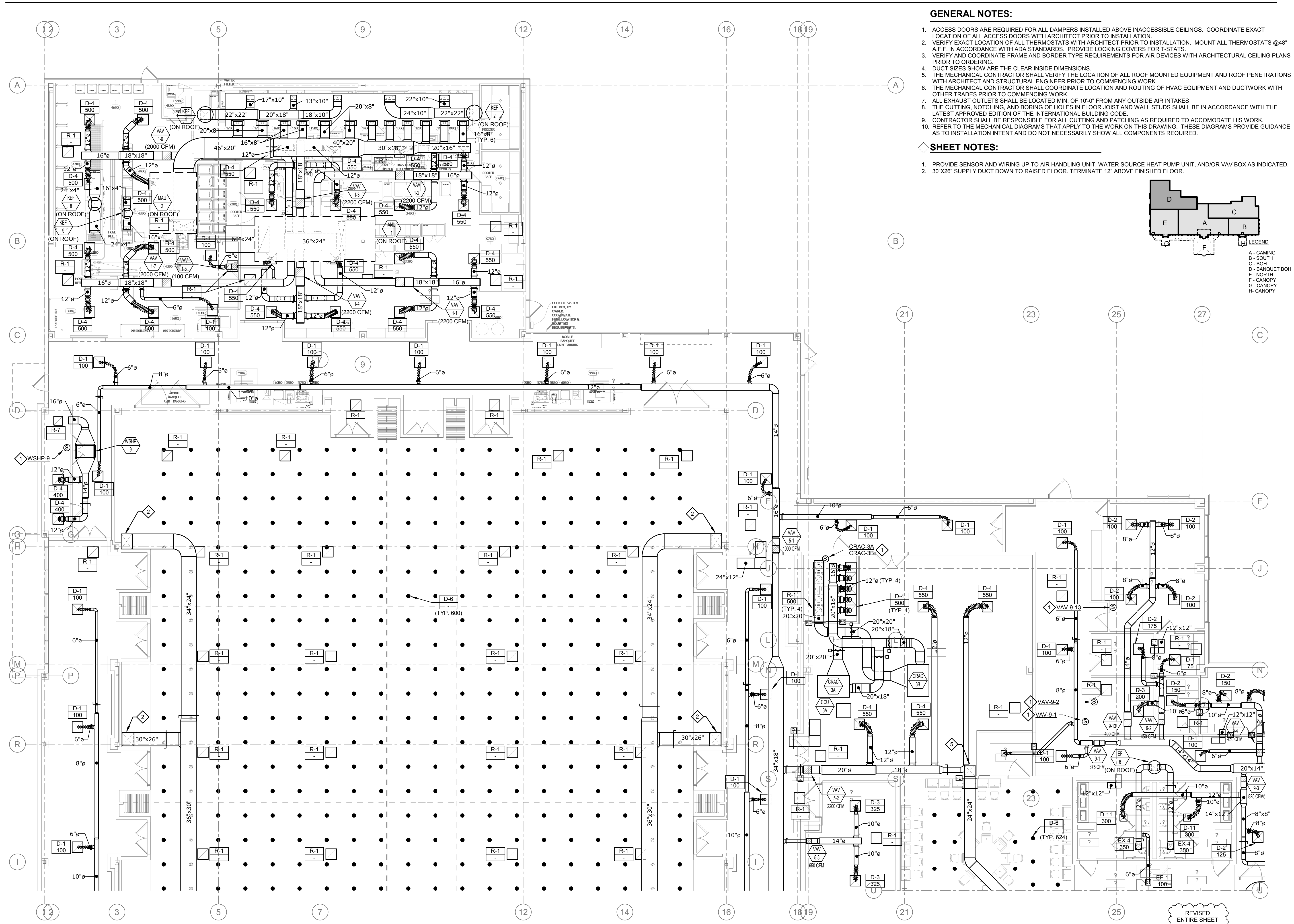
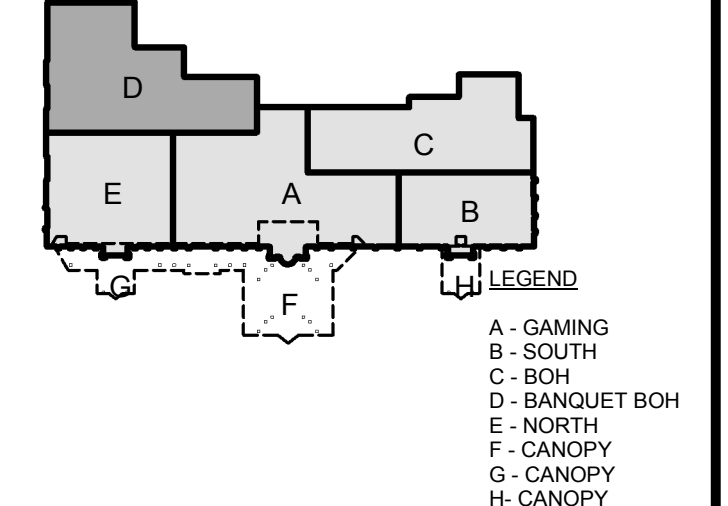
M1.4
MECHANICAL ENLARGED FLOOR PLAN - BANQUET BOH

GENERAL NOTES:

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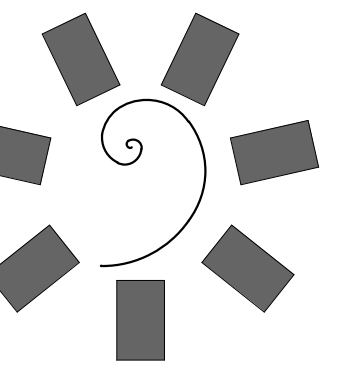
SHEET NOTES:

- PROVIDE SENSOR AND WIRING UP TO AIR HANDLING UNIT, WATER SOURCE HEAT PUMP UNIT, AND/OR VAV BOX AS INDICATED.
- 30"x26" SUPPLY DUCT DOWN TO RAISED FLOOR. TERMINATE 12" ABOVE FINISHED FLOOR.

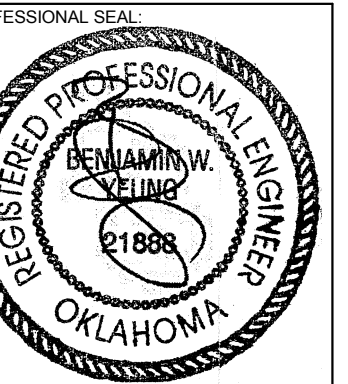


MECHANICAL ENLARGED FLOOR PLAN - BANQUET BOH
1/8" = 1'-0"

REVISED ENTIRE SHEET



**James R. Childers
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CONSULTANT LOGO:



CLIENT:
**CHEROKEE NATION
Entertainment**



**CHEROKEE NATION ENTERTAINMENT
TAHLEQUAH CASINO**
TAHLEQUAH, OKLAHOMA

PROJECT PHASE:

BID PACKAGE 05

#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18 JOB NUMBER: 17-06

SHEET NUMBER:

M1.5

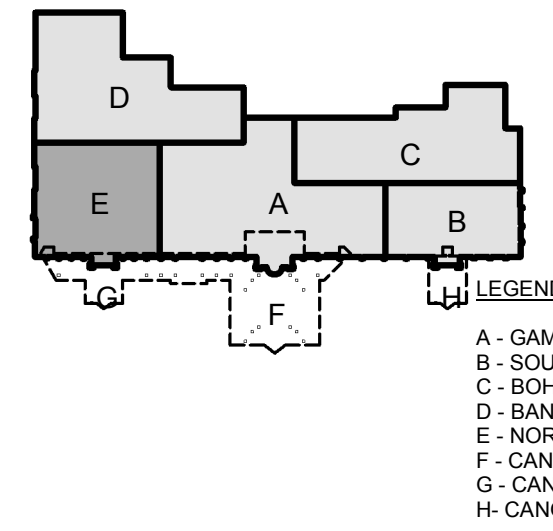
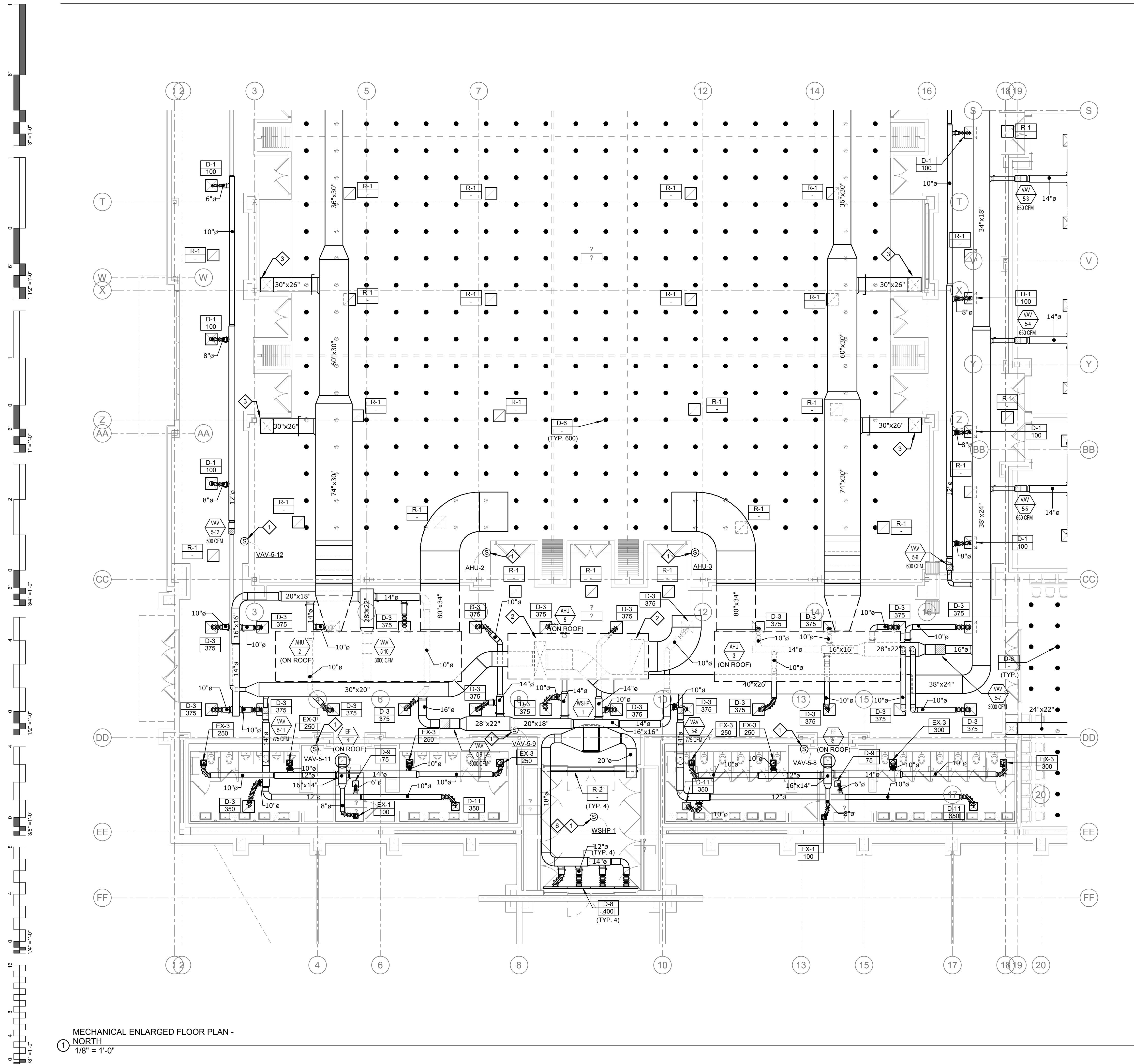
**MECHANICAL
ENLARGED FLOOR PLAN -
PLAN - NORTH**

GENERAL NOTES:

- ACCESS DOORS ARE REQUIRED FOR ALL DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS. COORDINATE EXACT LOCATION OF ALL ACCESS DOORS WITH ARCHITECT PRIOR TO INSTALLATION.
- VERIFY EXACT LOCATION OF ALL THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNT ALL THERMOSTATS @48" A.F.F. IN ACCORDANCE WITH ADA STANDARDS. PROVIDE LOCKING COVERS FOR T-STATS.
- VERIFY AND COORDINATE FRAME AND BORDER TYPE REQUIREMENTS FOR AIR DEVICES WITH ARCHITECTURAL CEILING PLANS PRIOR TO ORDERING.
- DUCT SIZES SHOW ARE THE CLEAR INSIDE DIMENSIONS.
- THE MECHANICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT AND ROOF PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION AND ROUTING OF HVAC EQUIPMENT AND DUCTWORK WITH OTHER TRADES PRIOR TO COMMENCING WORK.
- ALL EXHAUST OUTLETS SHALL BE LOCATED MIN. OF 10'-0" FROM ANY OUTSIDE AIR INTAKES
- THE CUTTING, NOTCHING, AND BORING OF HOLES IN FLOOR JOIST AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS REQUIRED TO ACCOMMODATE HIS WORK.
- REFER TO THE MECHANICAL DIAGRAMS THAT APPLY TO THE WORK ON THIS DRAWING. THESE DIAGRAMS PROVIDE GUIDANCE AS TO INSTALLATION INTENT AND DO NOT NECESSARILY SHOW ALL COMPONENTS REQUIRED.

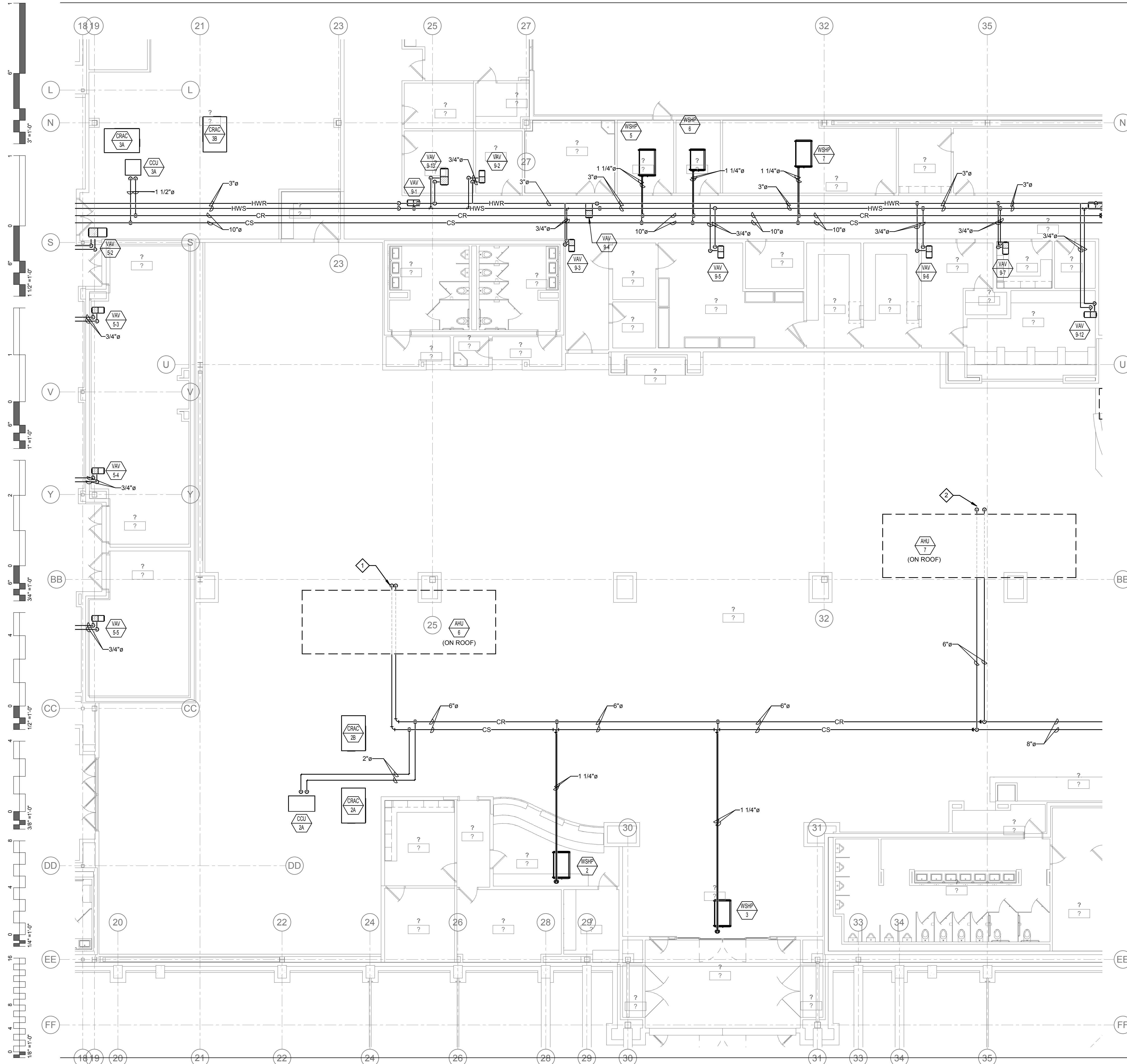
◆ SHEET NOTES:

- PROVIDE SENSOR AND WIRING UP TO AIR HANDLING UNIT, WATER SOURCE HEAT PUMP UNIT, AND/OR VAV BOX AS INDICATED.
- 52"x30" SUPPLY AIR DUCT, 60"x30" RETURN AIR DUCT UP TO AHU-3.
- 30"x26" SUPPLY AIR DUCT DOWN TO RAISED FLOOR. TERMINATE 12" ABOVE FINISHED FLOOR.
- ALL EXTERIOR DUCTWORK SHALL HAVE 2" INSULATION WITH JACKETING.
- 24"x24" SUPPLY AIR DUCT DOWN TO RAISED FLOOR. TERMINATE 12" ABOVE FINISHED FLOOR.
- CEILING MOUNTED SENSOR.



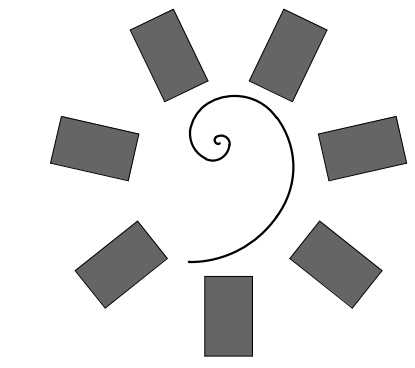
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**MECHANICAL ENLARGED FLOOR PLAN -
NORTH**
1/8" = 1'-0"

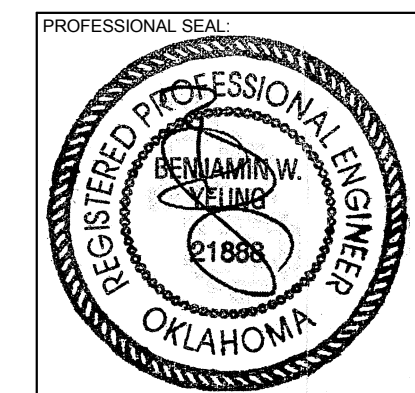


- GENERAL NOTES:**
- ACCESS DOORS ARE REQUIRED FOR ALL VALVES INSTALLED ABOVE INACCESSIBLE CEILING. COORDINATE EXACT LOCATION OF ALL ACCESS DOORS WITH ARCHITECT PRIOR TO INSTALLATION.
 - THE MECHANICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT AND ROOF PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.
 - THE CUTTING, NOTCHING AND BORING OF HOLES IN FLOOR, JOISTS AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS REQUIRED TO ACCOMMODATE WORK.
 - REFER TO THE MECHANICAL DIAGRAMS THAT APPLY TO THE WORK ON THIS DRAWING. THESE DIAGRAMS PROVIDE GUIDANCE AS TO THE INSTALLATION INTENT AND DO NOT NECESSARILY SHOW ALL COMPONENTS REQUIRED.

- SHEET NOTES:**
- 6" CS/CR PIPING UP TO AHU-6.
 - 6" CS/CR PIPING UP TO AHU-7.
 - 2 1/2" CS/CR PIPING UP TO AHU-9.



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TAHLEQUAH, OKLAHOMA

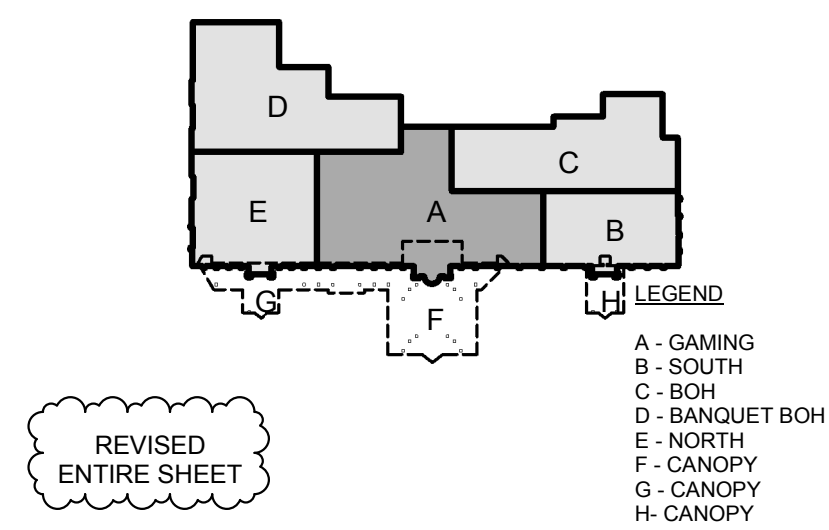
PROJECT PHASE:
BID PACKAGE 05

REVISIONS	
#	DESCRIPTION
1	05/22/18 ADDENDUM 10

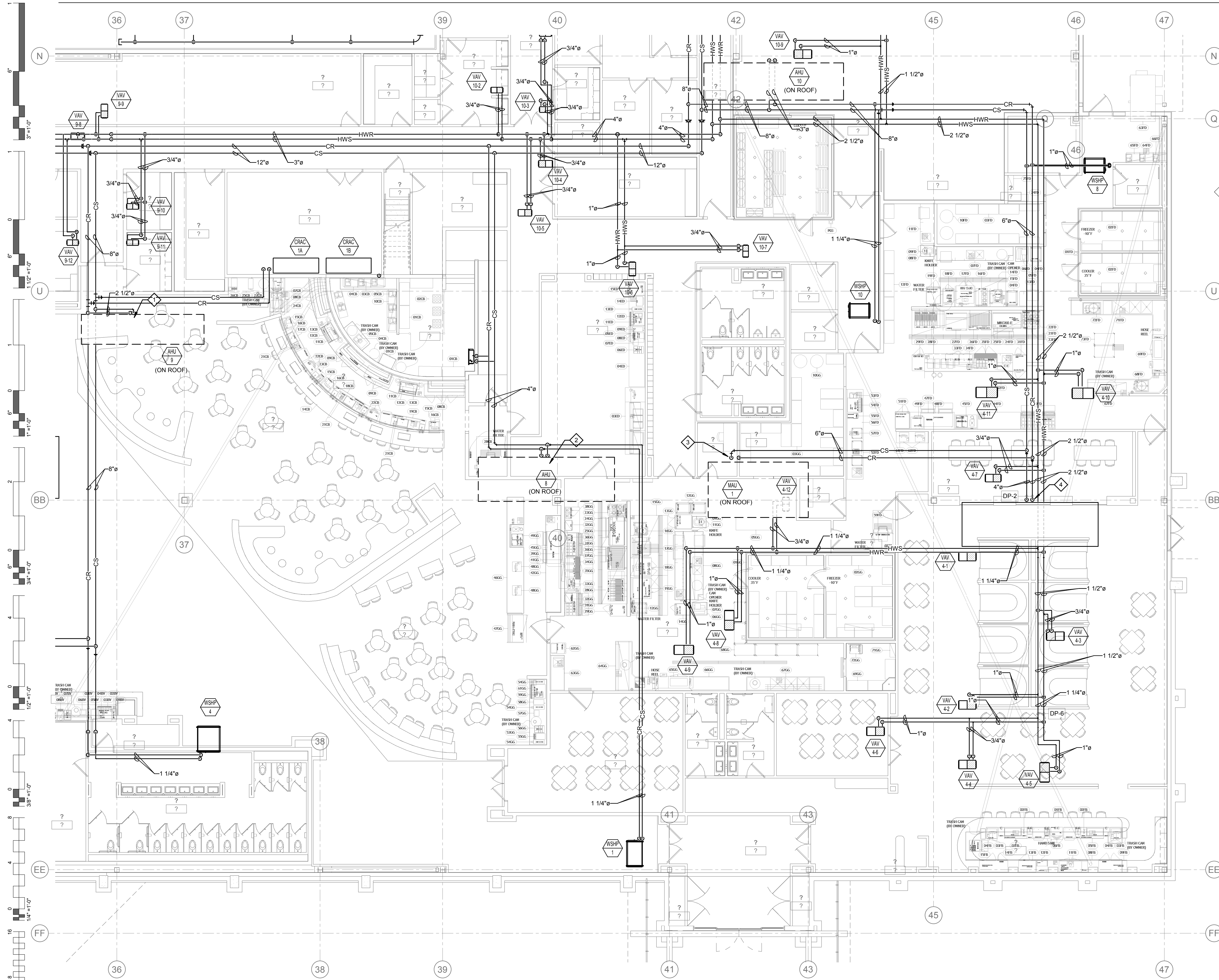
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JOB NUMBER: 17-06

SHEET NUMBER:
M4.1

MECHANICAL PIPING
ENLARGED FLOOR
PLAN - GAMING



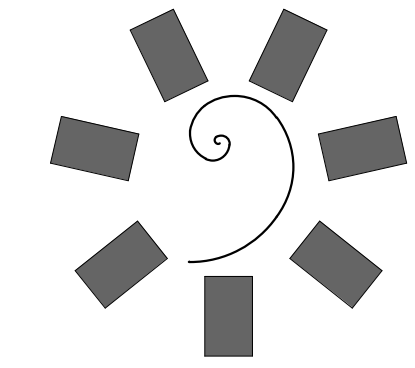
MECHANICAL ENLARGED FLOOR PLAN - GAMING



- GENERAL NOTES:**
- ACCESS DOORS ARE REQUIRED FOR ALL VALVES INSTALLED ABOVE INACCESSIBLE CEILINGS. COORDINATE EXACT LOCATION OF ALL ACCESS DOORS WITH ARCHITECT PRIOR TO INSTALLATION.
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 - THE CUTTING, NOTCHING AND BORING OF HOLES IN FLOOR, JOISTS AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.
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- SHEET NOTES:**
- 2 1/2" CS/CR PIPING UP TO AHU-9.
 - 4" CS/CR PIPING UP TO AHU-8.
 - 6" CS/CR PIPING UP TO AHU-1.
 - 4" CS/CR PIPING UP TO AHU-1.

MECHANICAL ENLARGED FLOOR PLAN - SOUTH
1/8" = 1'-0"



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TAHLEQUAH, OKLAHOMA

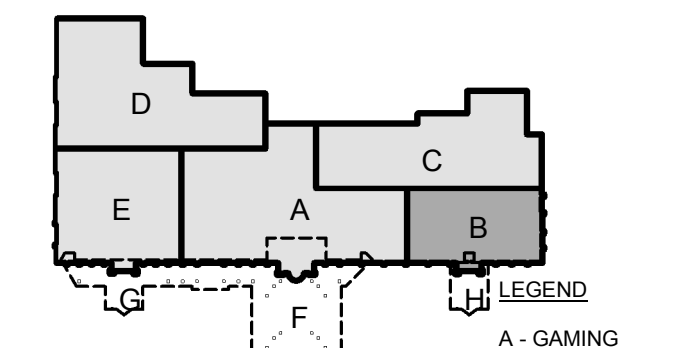
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BID PACKAGE 05

#	DATE	DESCRIPTION
1	05/22/18	ADDENDUM 10

DATE: 05/03/18
JOB NUMBER: 17-06

SHEET NUMBER:
M4.2

MECHANICAL PIPING
ENLARGED PLAN - SOUTH



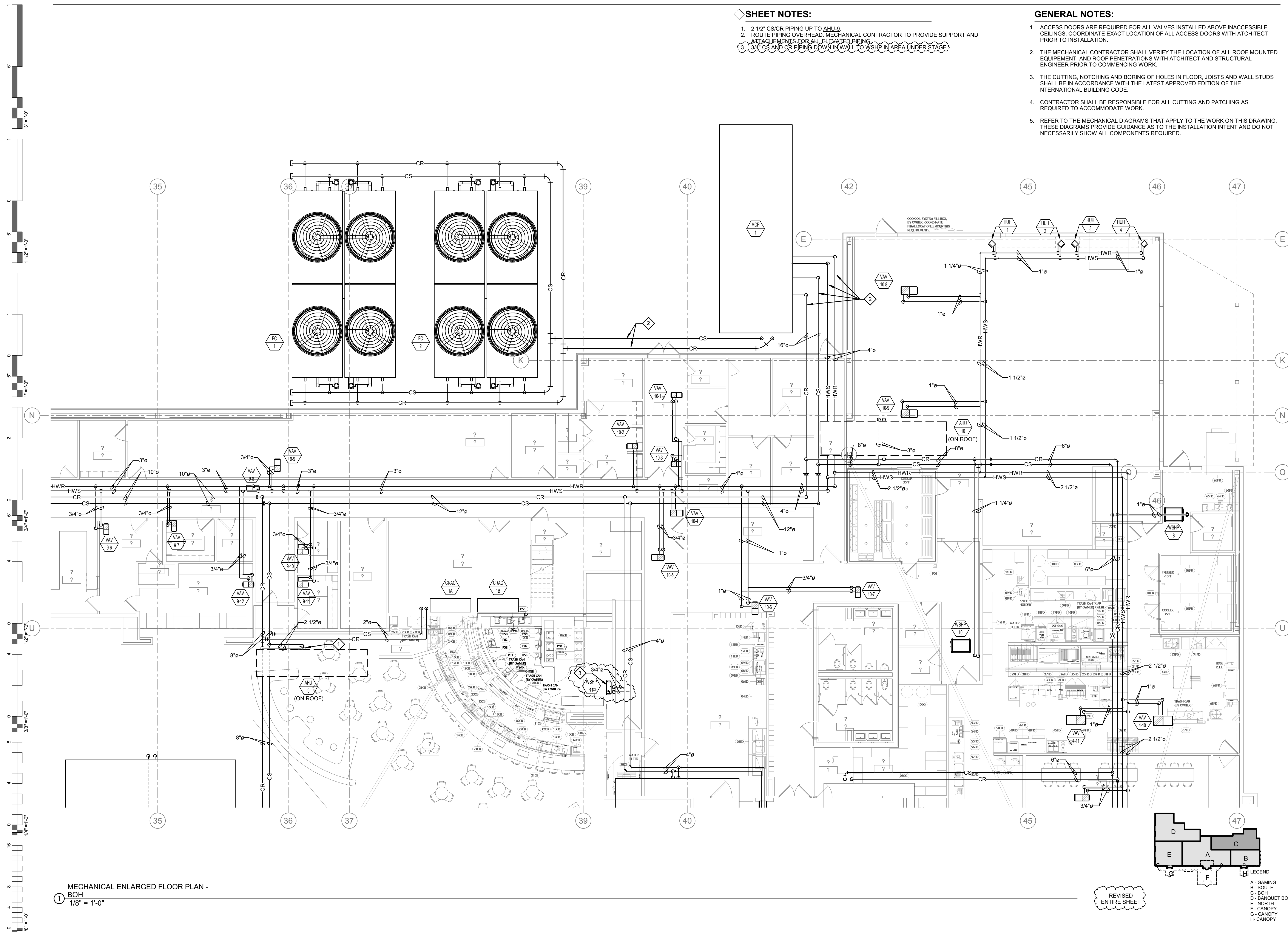
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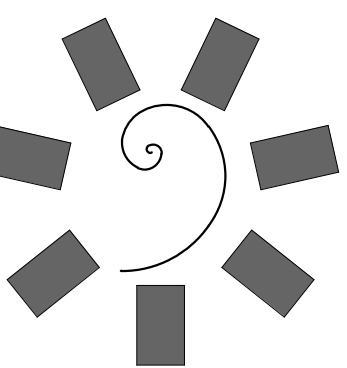
- 2 1/2" CS/CR PIPING UP TO AHU-9
- ROUTE PIPING OVERHEAD, MECHANICAL CONTRACTOR TO PROVIDE SUPPORT AND ATTACHMENTS FOR ALL ELEVATED PIPING
- 3/4" CS AND CR PIPING DOWN IN WALL TO WSHF IN AREA UNDER STAGE

GENERAL NOTES:

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MECHANICAL ENLARGED FLOOR PLAN - BOH
 1/8" = 1'-0"



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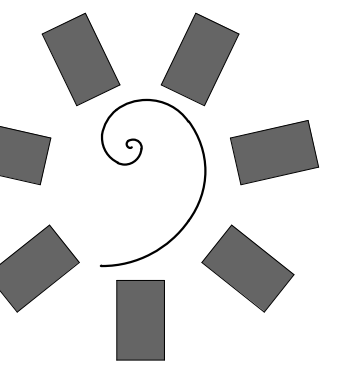
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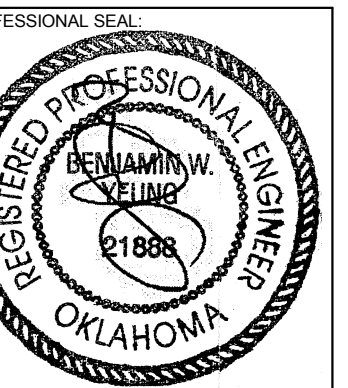
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MECHANICAL PIPING ENLARGED PLAN - BOH

- LEGEND
- A - GAMING
 - B - SOUTH
 - C - BOH
 - D - BANQUET BOH
 - E - NORTH
 - F - CANOPY
 - G - CANOPY
 - H - CANOPY



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TAHLEQUAH, OKLAHOMA

PROJECT PHASE
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JOB NUMBER: 17-06

SHEET NUMBER:
M4.4

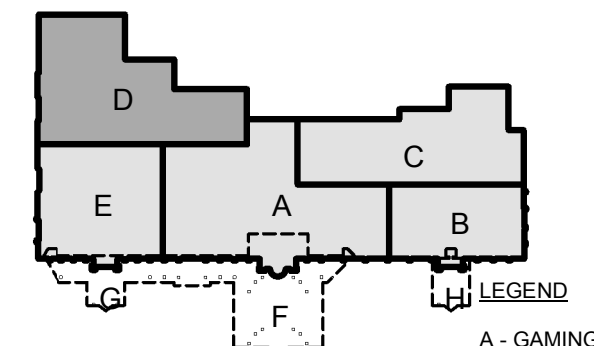
MECHANICAL PIPING
ENLARGED PLAN -
BANQUET BOH

GENERAL NOTES:

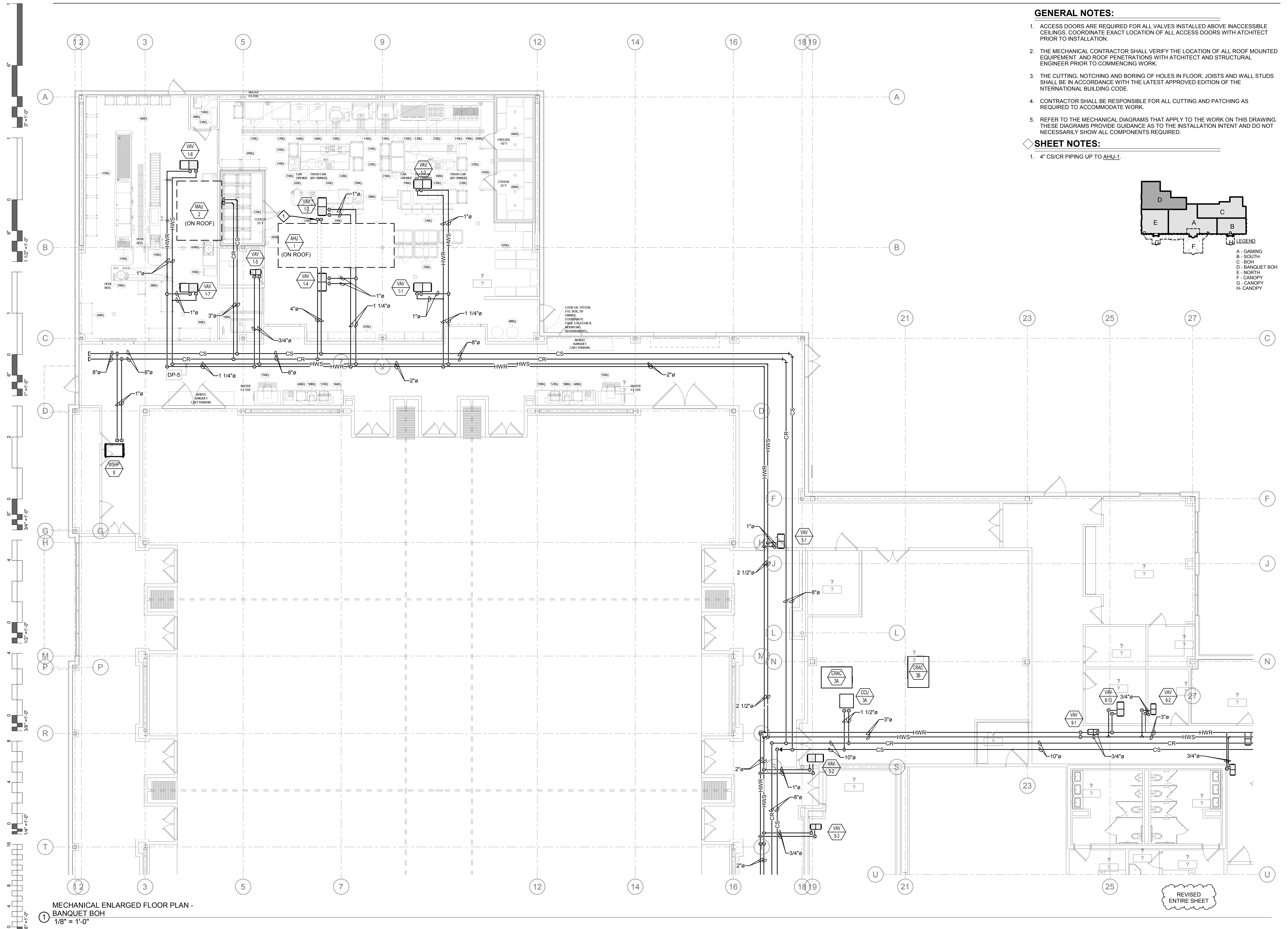
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SHEET NOTES:

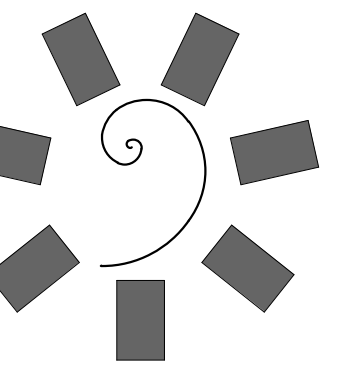
- 4" CS/CR PIPING UP TO AHU-1.



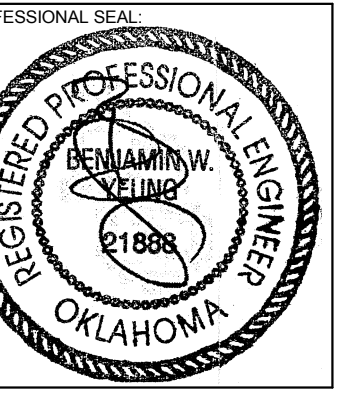
LEGEND
A - GAMING
B - SOUTH
C - BOH
D - BANQUET BOH
E - NORTH
F - CANOPY
G - CANOPY
H - CANOPY



**MECHANICAL ENLARGED FLOOR PLAN -
BANQUET BOH**
1/8" = 1'-0"



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CHEROKEE NATION ENTERTAINMENT
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TAHLEQUAH, OKLAHOMA

PROJECT PHASE:
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DATE: 05/03/18 JOB NUMBER: 17-06

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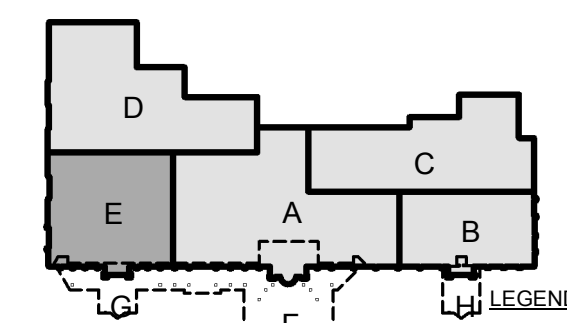
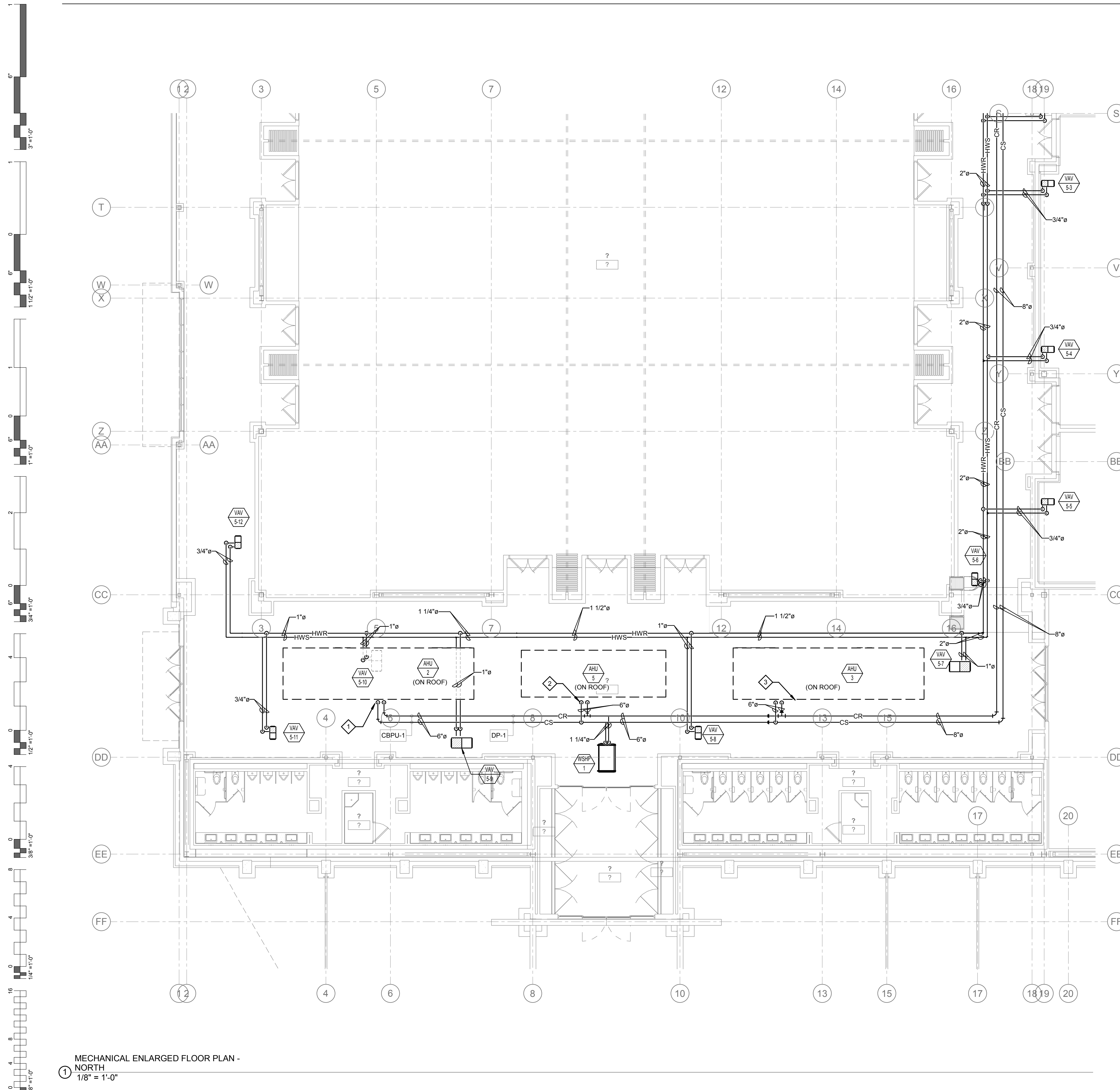
MECHANICAL PIPING
ENLARGED PLAN -
NORTH

GENERAL NOTES:

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SHEET NOTES:

- 6" CS/CR PIPING UP TO AHU-2.
- 4" CS/CR PIPING UP TO AHU-5.
- 6" CS/CR PIPING UP TO AHU-3.



LEGEND
A - GAMING
B - SOUTH
C - BOH
D - BANQUET BOH
E - NORTH
F - CANOPY
G - CANOPY
H - CANOPY

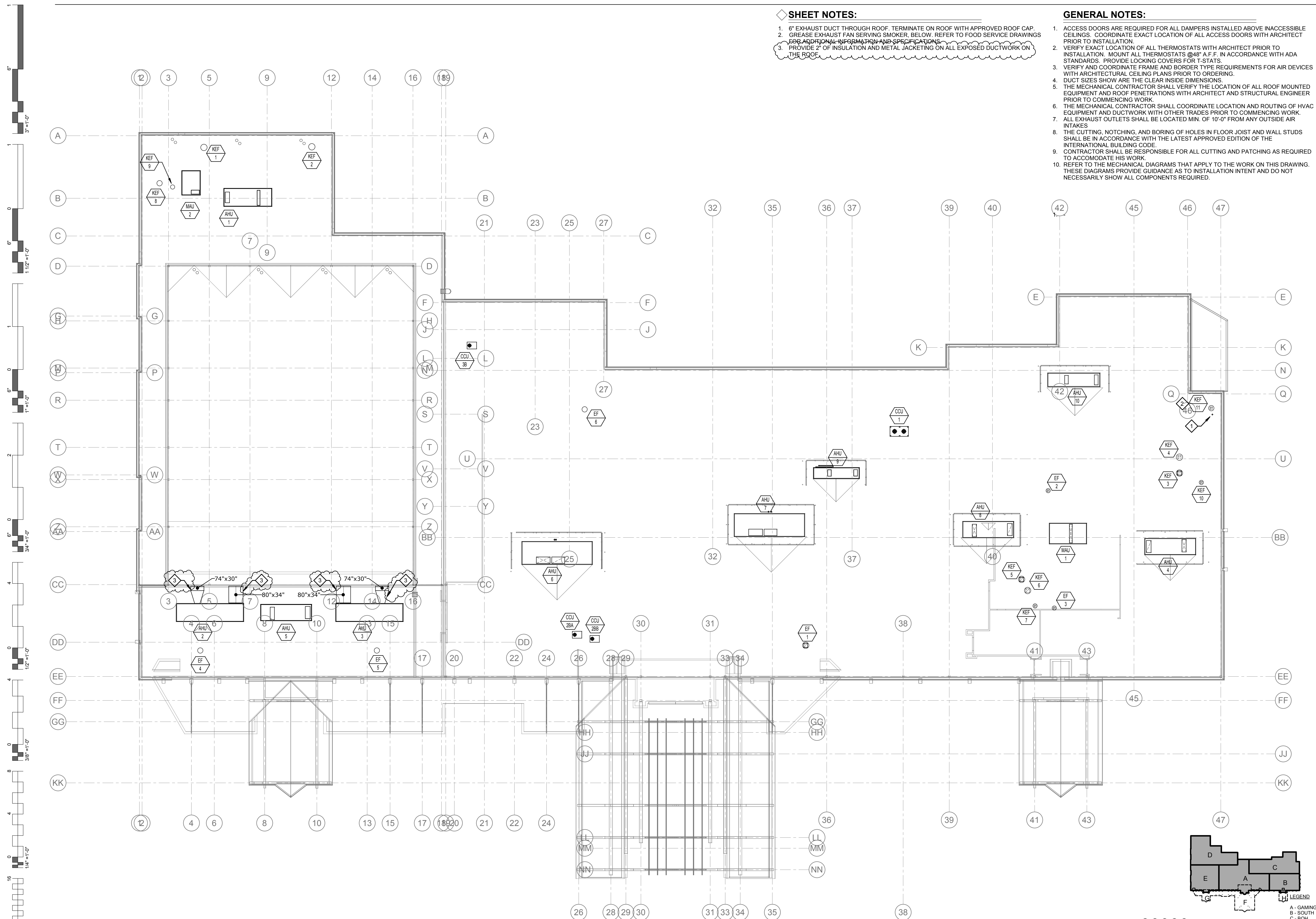
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◆ SHEET NOTES:

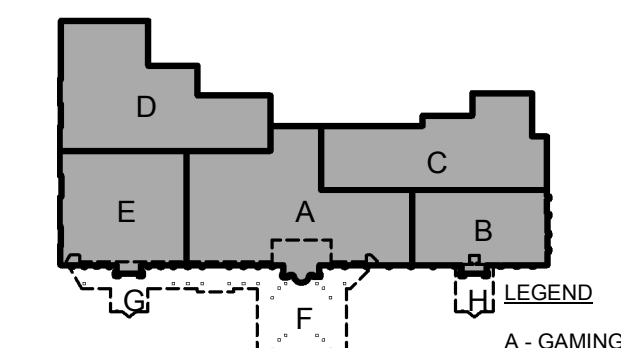
1. 6" EXHAUST DUCT THROUGH ROOF. TERMINATE ON ROOF WITH APPROVED ROOF CAP.
2. GREASE EXHAUST FAN SERVING SMOKER. BELOW. REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL INFORMATION AND SPECIFICATIONS.
3. PROVIDE 2" OF INSULATION AND METAL JACKETING ON ALL EXPOSED DUCTWORK ON THE ROOF.

GENERAL NOTES:

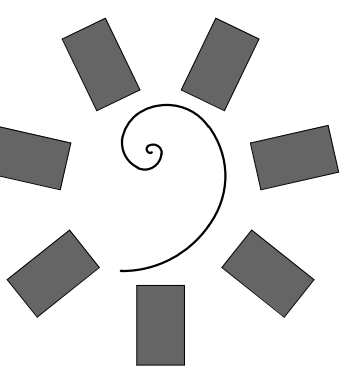
1. ACCESS DOORS ARE REQUIRED FOR ALL DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS. COORDINATE EXACT LOCATION OF ALL ACCESS DOORS WITH ARCHITECT PRIOR TO INSTALLATION.
2. VERIFY EXACT LOCATION OF ALL THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNT ALL THERMOSTATS @48" A.F.F. IN ACCORDANCE WITH ADA STANDARDS. PROVIDE LOCKING COVERS FOR T-STATS.
3. VERIFY AND COORDINATE FRAME AND BORDER TYPE REQUIREMENTS FOR AIR DEVICES WITH ARCHITECTURAL CEILING PLANS PRIOR TO ORDERING.
4. DUCT SIZES SHOW ARE THE CLEAR INSIDE DIMENSIONS.
5. THE MECHANICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT AND ROOF PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.
6. THE MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION AND ROUTING OF HVAC EQUIPMENT AND DUCTWORK WITH OTHER TRADES PRIOR TO COMMENCING WORK.
7. ALL EXHAUST OUTLETS SHALL BE LOCATED MIN. OF 10'-0" FROM ANY OUTSIDE AIR INTAKES.
8. THE CUTTING, NOTCHING, AND BORING OF HOLES IN FLOOR JOIST AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS REQUIRED TO ACCOMMODATE HIS WORK.
10. REFER TO THE MECHANICAL DIAGRAMS THAT APPLY TO THE WORK ON THIS DRAWING. THESE DIAGRAMS PROVIDE GUIDANCE AS TO INSTALLATION INTENT AND DO NOT NECESSARILY SHOW ALL COMPONENTS REQUIRED.



1 Roof - Mechanical Roof Plan
1" = 20'-0"



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SHEET NUMBER:
M6.1

MECHANICAL ROOF PLAN