



SPARKS CITY HALL CAMPUS BUILDING 100, 200, 300, AND 400 HVAC UPGRADE



SPARKS CITY HALL
431 PRATER WAY
SPARKS, NEVADA
89431

BUILDING 400
(BASEMENT)
AREA OF WORK

BUILDING 100
AREA OF WORK

BUILDING 300
AREA OF WORK

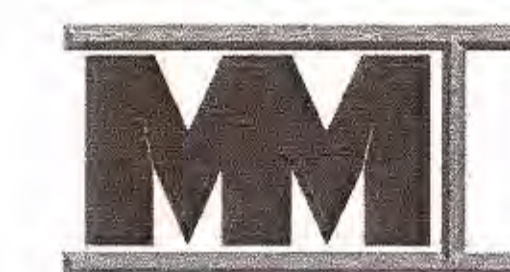


BUILDING 200
AREA OF WORK

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DESIGN CONSULTANTS

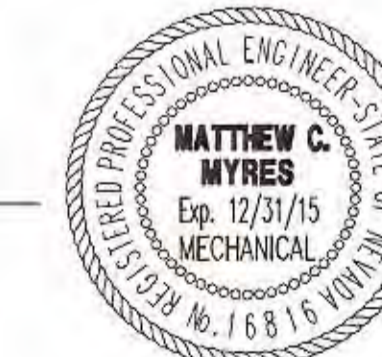


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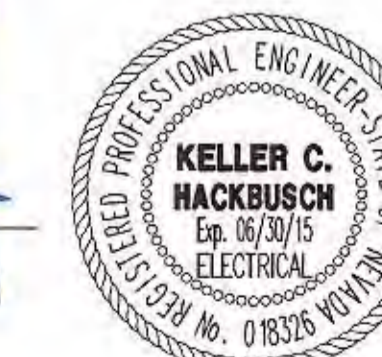
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SPARKS CITY HALL
CAMPUS HVAC UPGRADE
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SHEET TITLE
TITLE SHEET

REVISIONS

DATE: JUNE 4, 2015
SHEET NUMBER:

T1.0

MECHANICAL SCOPE OF WORK

BUILDING 100 & 400 WORK INCLUDES BUT IS NOT LIMITED TO:

THE HEATING SYSTEM: REMOVAL OF OLD BOILER INCLUDING PUMPS AND INSTALLATION OF TWO NEW BOILERS B-1 AND B-2 WITH ASSOCIATED PIPING INCLUDING PRIMARY AND SECONDARY LOOPS WITH PUMPS B-1,B-2,BP-1,BP-2, BP-3,BP-4.

THE COOLING SYSTEM: REMOVAL OF EXISTING CHILLER AND INSTALLATION OF NEW CHILLER CH-1 AND ASSOCIATIVE PIPING INCLUDING PRIMARY AND SECONDARY LOOPS AND PUMPS CHWP-1,CHWP-2,CHWP-3,CHWP-4,CWP-1,CWP-2. EXISTING COOLING TOWER TO BE CLEANED, HAVE NEW MEDIA INSTALLED, AND BE REUSED. ADDITIONALLY INSTALLATION OF NEW HEAT EXCHANGER HX-1 IN MECHANICAL ROOM.

CHILLER ROOM EXHAUST FANS: PROVIDE INSTALLATION OF NEW GENERAL AND EMERGENCY REFRIGERANT EXHAUST FANS TO BE INSTALLED INTO THE CHILLER ROOM. THESE FANS SHALL BE CONNECTED TO SENSORS AND ALARMS AS REQUIRED FOR CHILLER ROOM VENTILATION AS REQUIRED BY CODE.

AIR HANDLER: WORK INCLUDES MAIN AIR HANDLER COILS REMOVAL AND INSTALLATION OF NEW COILS HC-1,CC-1. THE REMOVAL OF EXISTING AIR HANDLER SUPPLY AND RETURN FAN MOTORS AND INSTALLATION OF NEW MOTORS. VAV BOX REMOVAL AND REPLACEMENT THROUGHOUT THIS AREA OF BUILDING INCLUDING ALL DUCT TRANSITIONS AND PIPING EXTENSIONS TO CONNECT EACH REHEAT COIL IN ALL VAVS. BUILDING 100 REQUIRES NEW INSTALLATION OF VAV BOXES AND ASSOCIATED PIPING WITH DUCT TRANSITIONS. NOTE: THE EXISTING SUPPLY AIR GRILLS IN THE ADMIN AREA WILL BE CONNECTED INTO RETURN AIR GRILLS WITH SUPPLY FROM THE ATTIC AREA. A NEW CHASE WILL BE CUT IN THE ADMIN AREA TO MAKE ROOM FOR DUCT WORK.

CONTROLS: DIRECT DIGITAL CONTROL (DDC) TO BE INSTALLED ON ALL ASSOCIATED COMPONENTS LISTED ABOVE INCLUDING VARIABLE FREQUENCY DRIVES ON ALL PUMPS.

BUILDING 200 WORK INCLUDES BUT IS NOT LIMITED TO:

AIR HANDLER: REMOVAL AND REPLACEMENT OF ROOFTOP AIR HANDLERS INCLUDING HEATING AND COOLING COILS ALONG WITH MODIFYING EXISTING ROOF CURB TO FIT NEW AIR HANDLER WITH ASSOCIATED COMPONENTS. INCLUDING REMOVAL AND REPLACEMENT OF VAV BOXES AND ASSOCIATED COMPONENTS INCLUDING DUCT TRANSITIONS, PIPING EXTENSIONS AND EACH REHEAT COIL IN ALL VAVS.

CONTROLS: DIRECT DIGITAL CONTROL (DDC) TO BE INSTALLED ON EVERY COMPONENT LISTED ABOVE.

BUILDING 300 WORK INCLUDES BUT NOT LIMITED TO:

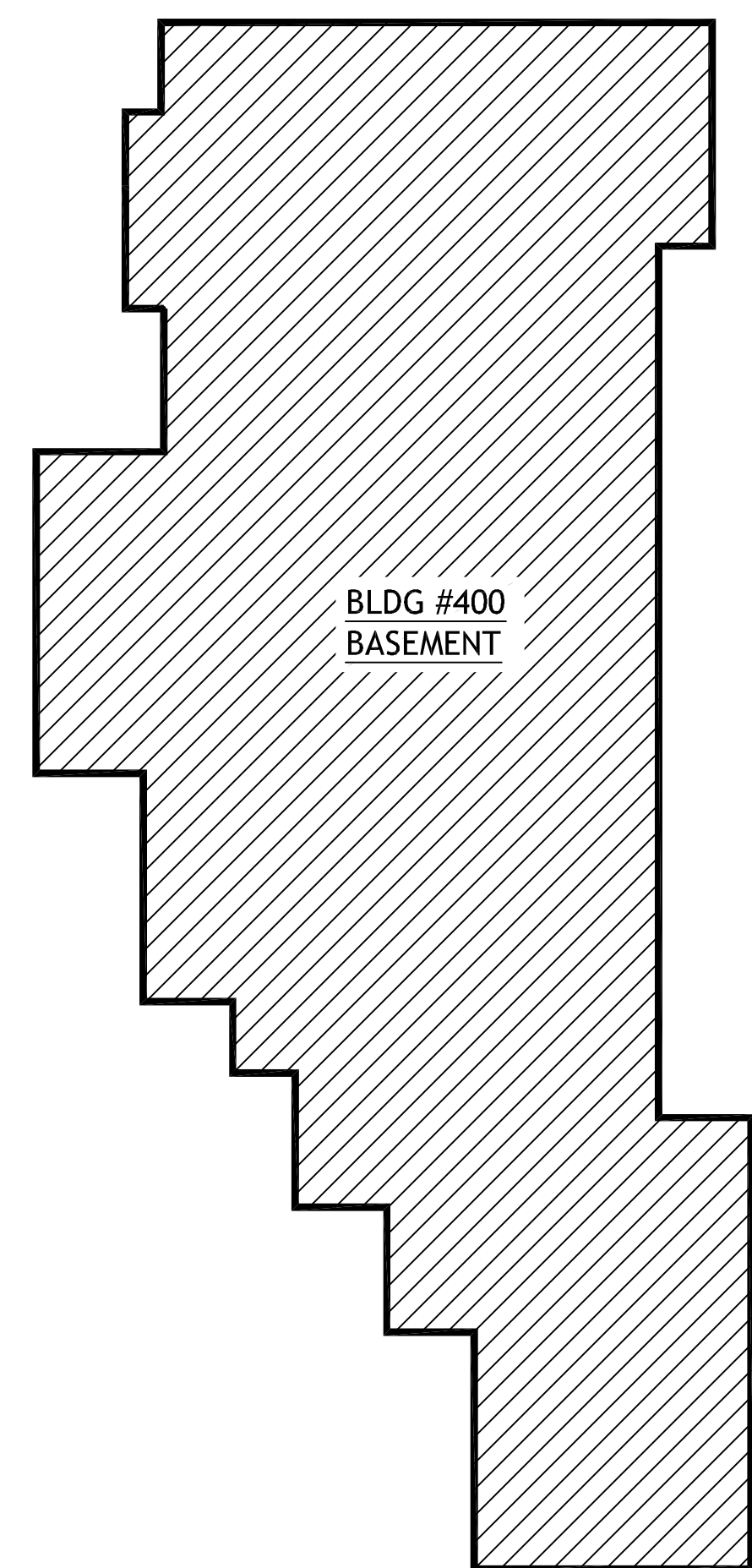
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CONTROLS: DIRECT DIGITAL CONTROL (DDC) TO BE INSTALLED ON EVERY COMPONENT LISTED ABOVE.

DATA ROOM SPLIT SYSTEM: ALSO INCLUDES IT ROOM WORK WHICH INCLUDES NEW LIEBERT FAN COIL AC-2,CU-2 AND CONDENSER INSTALLATION TO ASSIST EXISTING LIEBERT FAN COIL. A VARIABLE FREQUENCY DRIVE WILL BE INSTALLED WITH NEW LIEBERT SYSTEM.

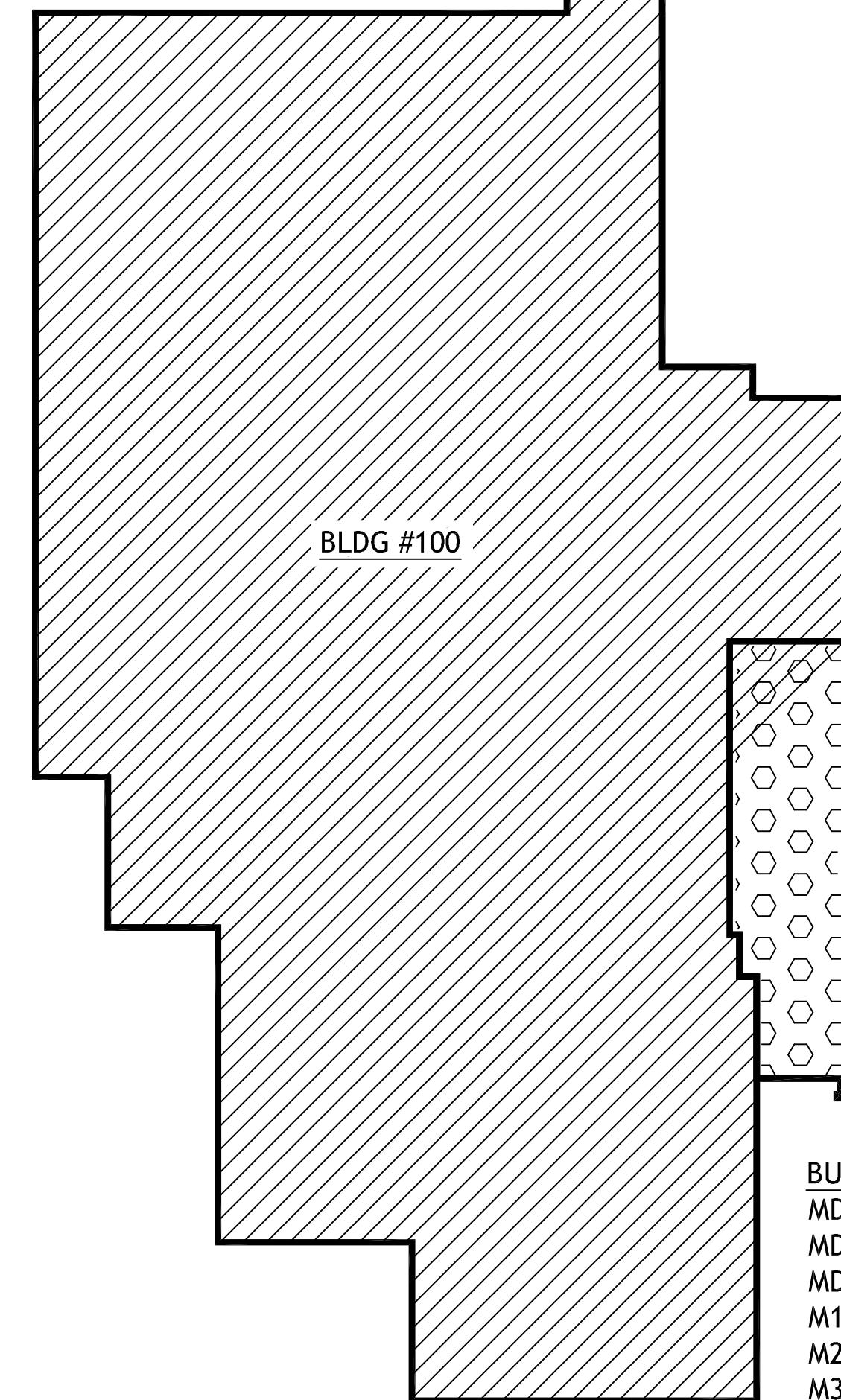
BUILDING #400 SHEETS

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- MD1.7 BUILDING #400 (NORTH) MECHANICAL DEMOLITION PLAN-SYSTEMS SERVING 1ST FLOOR
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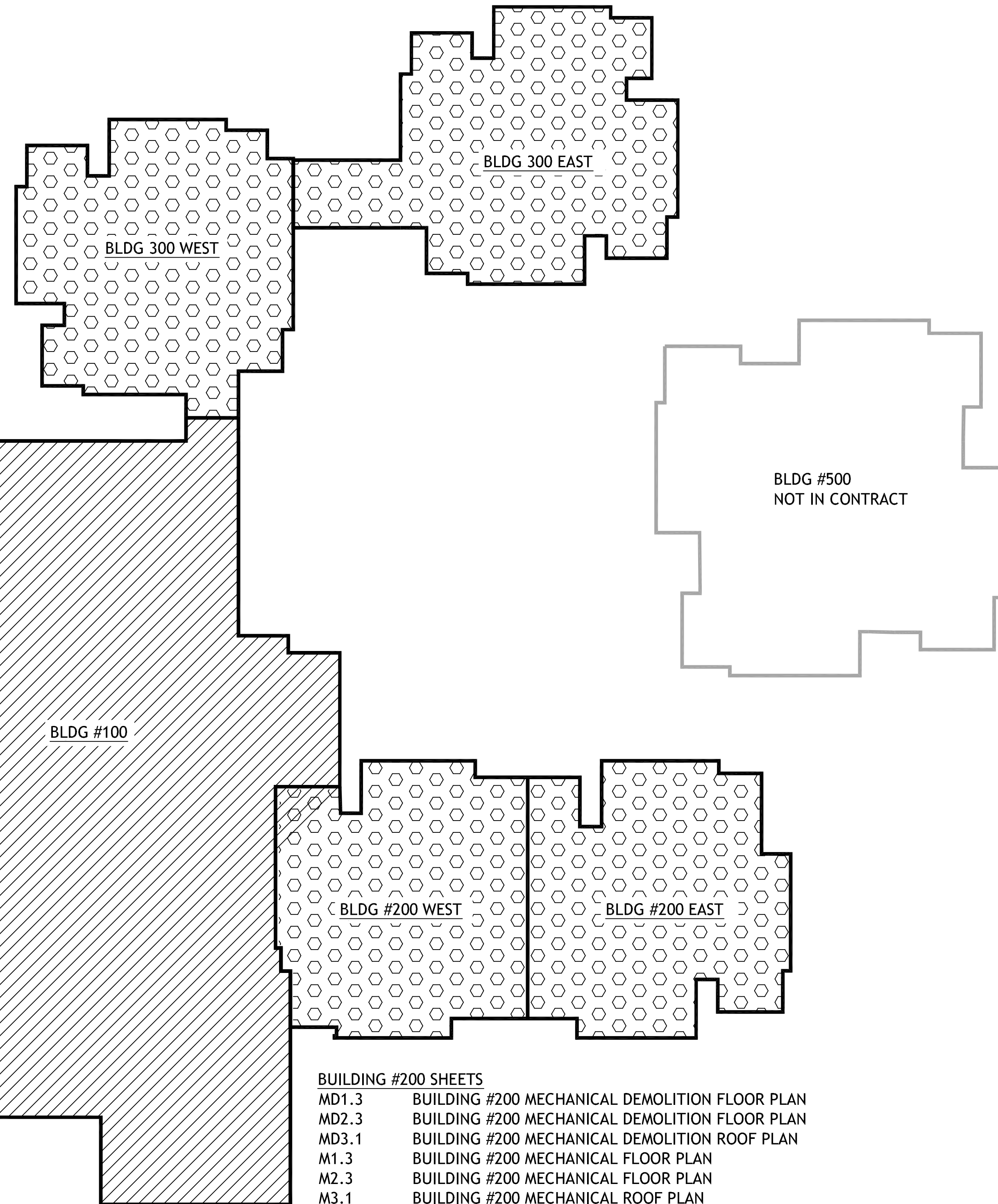
BUILDING #100 SHEETS

- MD1.1 BUILDING #100 MECHANICAL DEMOLITION FLOOR PLAN
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- M1.2 BUILDING #100 MECHANICAL FLOOR PLAN
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- M2.2 BUILDING #100 MECHANICAL FLOOR PLAN



BUILDING #300 SHEETS

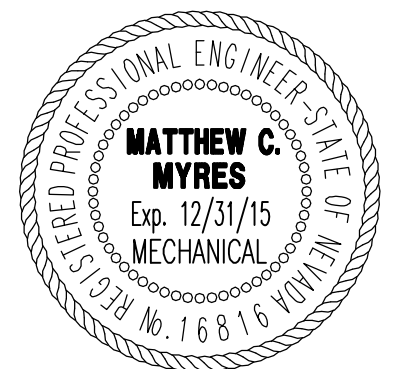
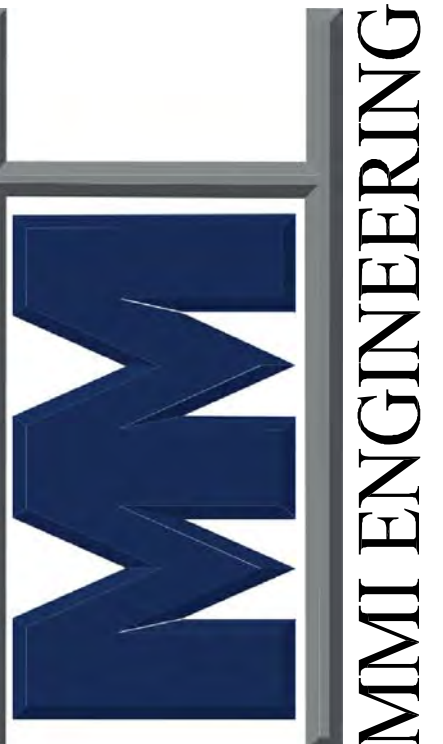
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- MD2.4 BUILDING #300 MECHANICAL DEMOLITION FLOOR PLAN
- MD3.2 BUILDING #300 MECHANICAL DEMOLITION ROOF PLAN
- M1.4 BUILDING #300 MECHANICAL FLOOR PLAN
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BUILDING #200 SHEETS

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- MD3.1 BUILDING #200 MECHANICAL DEMOLITION ROOF PLAN
- M1.3 BUILDING #200 MECHANICAL FLOOR PLAN
- M2.3 BUILDING #200 MECHANICAL FLOOR PLAN
- M3.1 BUILDING #200 MECHANICAL ROOF PLAN

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SHEET TITLE
SCOPE SUMMARY

REVISIONS

DATE :
JUNE 4, 2015
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T2.0

WATER COOLED SCROLL CHILLER SCHEDULE

SYM	TYPE	MANUFACTURER AND MODEL	NOMINAL CAPACITY (TONS / MBH)	EVAPORATOR SIDE				CONDENSER SIDE			ELECTRICAL			STANDARD ACCESSORIES AND OPTIONS	
				REFRIGERANT	MIN. FLOWRATE (GPM)	FLOWRATE / MAX. FD. (GPM / FT HD)	TEMP IN / OUT °F	FOULING FACTOR	FLOWRATE / MAX. FD. (GPM / FT HD)	TEMP IN/OUT (°F)	FULL LOAD EFF. / IPLV	VOLTAGE	MCA (AMPS)		MAX OPERATING WT LBS
CH 1	WATER COOLED CHILLER	CARRIER AGUA FORCE MODEL * HXC30-106	104.3 / 125.6	R-134A	125	250 / 15.4	45/51*	.0001	313 / 13.3	85/95*	15.6 / 0.520	480/34/60	218	23000	INTERFACE MODULE FOR ALERTON CONTROLS, FACTORY MOUNTED GAUGES (HIGH, LOW, OIL PRESSURE), WATER FLOW SWITCH, SPRING VIBRATION ISOLATION, SINGLE POINT FLWR CONN., SYSTEM SHALL BE OPERATED WITH 30% PROPYLENE GLOCOL
HX 1	PLATE & FRAME HEAT EXCHANGER	SONDEX MODEL * A41-1G10-146-TMTL68	104.4 / 125.3	N/A	N/A	250 / 7.3	51/45*	.0001	313 / 11.6	45/52.88*	N/A	N/A	N/A	1580 DRY	

BOILER SCHEDULE

SYM	MANUFACTURER	MODEL #	GAS INPUT CAPACITY (BTUH)	MAX. OUTPUT CAPACITY (BTUH)	MINIMUM THERMAL EFFICIENCY %	FLOW RATE (GPM)	ENTERING WATER TEMPERATURE	LEAVING WATER TEMPERATURE	TYPE OF FUEL	ELECTRICAL				REMARKS
										AMPS	VOLTAGE	PHASE	HERTZ	
B 1 & 2	LOCHINVAR	POWER-FIN MODEL * FB07B3-M3	150,000	652,500	81%	43.5	150*	180*	NATURAL GAS	15.5	120	1φ	60	SYSTEM SHALL BE OPERATED WITH 30% PROPYLENE GLOCOL

PUMP SCHEDULE

SYM	SERVICE	MANUFACTURER	MODEL #	MINIMUM CAPACITY GPM	TOTAL DYNAMIC HEAD (FT HD)	MOTOR TYPE	PUMP RPM	MINIMUM PUMP EFFICIENCY %	ELECTRICAL				DESCRIPTION / FEATURES / REMARKS
									MINIMUM HP	VOLTAGE	PHASE	HERTZ	
BP 1 & 2	VERTICAL IN-LINE PRIMARY LOOP BOILER PUMP	TACO SYSTEMS	MODEL * 1635	75	20	CLOSED COUPLE	1750	69%	0.75	208	3	60	STAINLESS STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, HIGH TEMP 2 PIECE SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE
BP 3 & 4	VERTICAL IN-LINE SECONDARY LOOP BOILER PUMP	TACO SYSTEMS	MODEL * K5 2006	120	120	CLOSED COUPLE	3500	67%	1.5	460	3	60	VFD CONTROLLED, STAINLESS STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, HIGH TEMP 2 PIECE SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE
CLP 1 & 2	VERTICAL IN-LINE PRIMARY LOOP CHILLED WATER PUMP	TACO SYSTEMS	MODEL * K5 3007	250	35	CLOSED COUPLE	1750	75%	3.0	460	3	60	STAINLESS STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, HIGH TEMP 2 PIECE SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE
CLP 3 & 4	VERTICAL IN-LINE SECONDARY LOOP CHILLED WATER PUMP	TACO SYSTEMS	MODEL * K5 2006	151	90	CLOSED COUPLE	3500	75%	3.0	460	3	60	VFD CONTROLLED, STAINLESS STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, HIGH TEMP 2 PIECE SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE
CLP 1 & 2	VERTICAL IN-LINE CONDENSER WATER PUMP	TACO SYSTEMS	MODEL * K5 3007	313	45	CLOSED COUPLE	1750	76%	5.0	460	3	60	STAINLESS STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, HIGH TEMP 2 PIECE SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE

COIL SCHEDULE

SYM	MANUFACTURER AND MODEL #	CFM	CAPACITY TOTAL (BTUH)	FLUID PRESSURE DROP (FT. H2O)	FLOW RATE (GPM)	EAT °F		LAT °F		MIN FREE AREA (SQ. FT.)	COIL DIMENSIONS	ROWS / FINS PER INCH	MAX AIR PRESS DROP IN WC	REMARKS
						DRY BULB (°F)	DRY BULB (°F)	DRY BULB (°F)	DRY BULB (°F)					
HC 1	USA AIR HEATING COIL MODEL * H458AG1020880010R	14,960	541,000	9.5	37.6	180	150	48.0	84.0	41.4	58.5" x 102"	1 - 7	0.10	0.020 TUBE WALL THICKNESS, ALUMINUM FINS, GALVANIZED CASING
CC 1	USA AIR COOLING COIL MODEL * C458HP1020880039R	14,960	464,000	8	71	45	51	80	54	41.4	58.5" x 102"	8 - 14	.91	0.020 TUBE WALL THICKNESS, ALUMINUM FINS, GALVANIZED CASING

SPLIT SYSTEM HEATER SCHEDULE

SYM	DESCRIPTION	MANUFACTURER MODEL NO.	COOLING	HEATING	WATTS	HP	WGT	REMARKS
AC 2	INDOOR HIGH EFFICIENCY SINGLE ZONE FAN-COIL UNIT, NON-DUCTED, SPECIFICALLY FOR DATA CENTER ISLE INSTALLATION	LIEBERT MODEL NO. CRO20RA18TA616	COOLING: 60.4 MBH T.C. AT 80/62.8°F EAT, 15.3 EER, 2,454 CFM SUPPLY ON HIGH SPEED SETTING	HEATING: 15.3 MBH T.C. AT 55/51°F EAT	71 WATTS	460/3φ / 60 HZ	51 LBS	UNIT SERVES IT SERVER ROOM
CU 2	HIGH EFFICIENCY SINGLE ZONE CONDENSING UNIT	LIEBERT MODEL NO. TCSV60K-A	COOLING: 60.4 MBH T.C. AT 95/75°F AMBIENT OSA	HEATING: 15.3 MBH T.C. AT 55/51°F EAT	1.8 AMPS	460/3φ / 60 HZ	204 LBS	UNIT SERVES AC-2

EXHAUST FAN SCHEDULE

SYM	DESCRIPTION	MAKE & MODEL NO.	CAPACITY*	ACCESSORIES	HP / KW	ELEC.	WT.	REMARKS
EF 1	ROOF MOUNTED/DIRECT DRIVE EXHAUST FAN	COOK FAN MODEL NO. 101CB	700 CFM AT 0.35" S.P. AT 4500 FT. ELEVATION, 9 SONES	ALL ALUMINUM HOUSING, WELDED CURB CAP CORNERS, BIRDSCREEN, PERMANENTLY LUBRICATED BALL BEARING MOTOR	1/8 HP	115V 1φ	30 LBS	LOCATED ON ROOF. SEE PLANS FOR EXACT LOCATION

AIR HANDLER EQUIPMENT SCHEDULE

SYM	DESCRIPTION	MAKE & MODEL NO.	CAPACITY*	ACCESSORIES	HP	ELEC.	WT.	REMARKS
AHA 2, 3, 4, 5	HORIZONTAL AIR HANDLER, HORIZONTAL DISCHARGE, INDOOR CONFIGURATION, STEAM COIL, CHILLED WATER COIL, ECONOMIZER	YORK MODEL NO. XT0-36X72	SUPPLY FAN: 5,500 CFM SUPPLY AT 15" W.C. E.S.P., FORWARD CURVED EXHAUST FAN: 5,500 CFM EXHAUST AT 0.8" W.C. E.S.P., FORWARD CURVED	2" THICK PLEATED DISPOSABLE AIR FILTERS MIN. MERV 8 RATING, SMOKE DETECTOR IN SUPPLY AIR DUCTWORK FACTORY MOUNTED 120 VOLT CONVENIENCE OUTLET	SUPPLY FAN 1.5 HP RETURN FAN 5.0 HP	460V/1φ / 60 HZ	3,392 LBS	SET OUTSIDE AIR @ 300 CFM
			COOLING COIL: 4 ROWS, 12 FINS PER FOOT, 11.5 SQ. FT. FREE AREA, 478 FPM FACE VELOCITY, 131.4 MBH TOTAL CAPACITY AND 128.5 MBH SENSIBLE CAPACITY @ 22.8 GPM, EAT 45°, LAT 51°, EAT 80°, LAT 55, 8.2 FL W/PD.					
			HEATING COIL: 1 ROWS, 10 FINS PER INCH, 11.5 SQ. FT. FREE AREA, 478 FPM FACE VELOCITY, 160.4 MBH TOTAL CAPACITY @ 11 GPM, EAT 180°, LAT 150°, EAT 55°, LAT 85°, 4.1 FL W/PD.					

CHILLER ROOM EXHAUST FAN SCHEDULE

SYM	DESCRIPTION	MAKE & MODEL NO.	CAPACITY*	ACCESSORIES	HP / KW	ELEC.	WT.	REMARKS
REF 1	REFRIGERATION EXHAUST FAN	COOK FAN MODEL NO. DB-8	1,400 CFM AT 0.30" S.P. AT 4500 FT. ELEVATION, 16.5 SONES	GRAVITY DAMPER	0.5 HP	115V 1φ	84 LBS	SERVES CHILLER ROOM
REF 2	REFRIGERATION EXHAUST FAN	COOK FAN MODEL NO. 120CB	1,540 CFM AT 0.20" S.P. AT 4500 FT. ELEVATION, 12.4 SONES	BD-14 DAMPER EXT BASE-10 GALV 4" STAINLESS BIRDSCREEN STAINLESS HARDWARE	25 HP	115V 1φ	90	EMERGENCY REFRIGERATION EXHAUST FAN SERVING CHILLER ROOM

DIFFUSER and REGISTER SCHEDULE

SYM	DESCRIPTION	MANUFACTURER and MODEL NUMBER	NECK SIZE	OBD	FINISH and MATERIAL	REMARKS
ES	EXISTING CEILING MOUNTED SUPPLY DIFFUSER	N/A	VARIES	N/A	VARIES	-
ER	EXISTING CEILING / WALL MOUNTED RETURN GRILLE	N/A	VARIES	N/A	VARIES	-
EE	EXISTING CEILING EXHAUST GRILLE	N/A	VARIES	N/A	VARIES	-
1	CEILING MOUNTED DIFFUSER, ROUND NECK, HIGH PERFORMANCE, 2 WAY THROW	KRUEGER SHV-02 SERIES	SEE PLANS	NO	WHITE ALUMINUM	24"x24" MODULE, COORDINATE FRAME TYPE WITH THE EXISTING CEILING CONDITIONS
2	CEILING MOUNTED DIFFUSER, ROUND NECK, HIGH PERFORMANCE, 3 WAY THROW	KRUEGER SHV-03 SERIES	SEE PLANS	NO	WHITE ALUMINUM	24"x24" MODULE, COORDINATE FRAME TYPE WITH THE EXISTING CEILING CONDITIONS
3	CEILING MOUNTED DIFFUSER, ROUND NECK, ADJUSTABLE, HIGH PERFORMANCE, 4 WAY THROW	KRUEGER 51450 SERIES	SEE PLANS	NO	WHITE ALUMINUM	24"x24" MODULE, COORDINATE FRAME TYPE WITH THE EXISTING CEILING CONDITIONS

WATER HEATER SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	TRIM	CONNECTIONS			REMARKS
				H.P./AMPS	ELEC.	WGT.	
WH 1	76% EFFICIENCY POWER DIRECT VENT, GLASS LINED WATER HEATER, GAS FIRED, TANK TYPE, 40 GALLON TANK, 40 MBH INPUT NATURAL GAS	LOCHINVAR MODEL NO. FRN040-40	41 GPH RECOVERY AT 30" TEMPERATURE RISE AT ALTITUDE, 125 PSIG ASME PTR VALVE, ACID NEUTRALIZER KIT	3A BKR	120V 1φ	600 LBS. WET	SET WATER TEMP. TO 120°F WATER HEATER TO BE STRAPPED FOR SEISMIC AS REQUIRED BY CODE

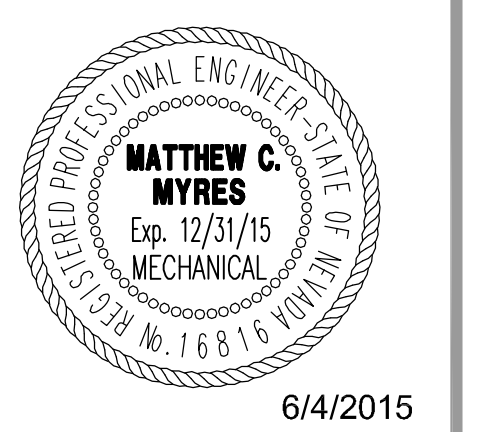
EXPANSION TANK SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CAPACITY & TRIM	CONNECTION SIZE	LBS.	REMARKS
ET 1	DIAPHRAM TYPE EXPANSION TANK, ASME TANK	HATTS MODEL NO. PLT-5-M1	21 GALLON TANK VOLUME, SUITABLE FOR POTABLE WATER	3/4" MALE	5.5 LBS	FOR USE W/ HH-1 SEE DETAIL 9 (16.1)
ET 2	BLADDER TYPE EXPANSION TANK, ASME TANK	TACO MODEL NO. CBX30-125	8 GALLON TOTAL TANK VOLUME, 5 GALLON ACCEPTANCE VOLUME FOR USE WITH CHILLED WATER, NOT FOR USE WITH POTABLE WATER, VERTICAL INSTALLATION ONLY	3/4" MALE	90 LBS	
ET 3	BLADDER TYPE EXPANSION TANK, ASME TANK	TACO MODEL NO. CBX10-125	45 GALLON TOTAL TANK VOLUME, 24 GALLON ACCEPTANCE VOLUME FOR USE WITH HOT WATER, NOT FOR USE WITH POTABLE WATER, VERTICAL INSTALLATION ONLY	3/4" MALE	240 LBS	

AIR SEPERATOR SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CAPACITY	CONNECTION SIZE	REMARKS
AS 1	ROLAINTROL TYPE IN LINE AIR SEPARATOR, NO STRAINER REQUIRED	BELL AND GOSSETT R-5 FLANGED	DESIGN FLOW RATE 500 GPM, MAX PRESSURE DROP=1.8 FT. HD. Cv=215	5 INCH FLANGED	FOR USE W/ CHILLED WATER SYSTEM

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SHEET TITLE
MECHANICAL SCHEDULES (1)

REVISIONS

DATE: JUNE 4, 2015
SHEET NUMBER:

M0.2

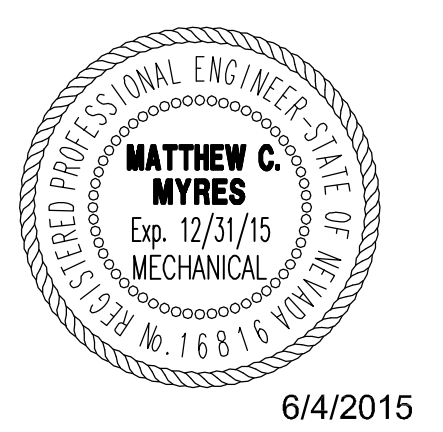
BUILDING #100 VAV BOX SCHEDULE

UNIT DESIGNATION	MAKE AND MODEL NUMBER	STANDARD FEATURES AND OPTIONAL ACCESSORIES	UNIT SIZE	MIN AIR FLOW (CFM) @ 0.03" W.G.	MAX AIR FLOW (CFM) @ 1.0" W.G.	HEATING MODE								CONTROLS
						EAT (°F)	LAT (°F)	WFD (ft. wg)	COIL APD (IN W.G.)	GPM	EJLT (°F)	LUAT (°F)	PIPING BRANCH SETTING (GPM)	
VAV-1-1	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	140	460	65	91.8	.03	.09	.43	180	161.4	.5	DIGITAL ELECTRONIC
VAV-1-2	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	115	380	65	95	.06	.01	.22	180	141.8	.5	DIGITAL ELECTRONIC
VAV-1-3	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	150	490	65	95	.10	.10	.28	180	151.86	.5	DIGITAL ELECTRONIC
VAV-1-4	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	4	100	175	65	100	.06	.02	.22	180	149.1	.5	DIGITAL ELECTRONIC
VAV-1-5	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	4	100	200	65	100	.06	.02	.22	180	149.1	.5	DIGITAL ELECTRONIC
VAV-1-6	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	4	100	200	65	100	.06	.02	.22	180	149.1	.5	DIGITAL ELECTRONIC
VAV-1-7	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	130	425	65	95	.08	.08	.24	180	149.4	.5	DIGITAL ELECTRONIC
VAV-1-8	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	150	500	65	95	.03	.10	.42	180	160.1	.5	DIGITAL ELECTRONIC
VAV-1-9	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	4	100	175	65	100	.06	.02	.22	180	149.1	.5	DIGITAL ELECTRONIC
VAV-1-10	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	475	1575	65	85	.12	.28	.75	180	155	.75	DIGITAL ELECTRONIC
VAV-1-11	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	320	65	95	.01	.05	.20	180	149.9	.5	DIGITAL ELECTRONIC
VAV-1-12	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	80	260	65	95	.01	.04	.15	180	145.5	.5	DIGITAL ELECTRONIC
VAV-1-13	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	130	425	65	90	.05	.08	.20	180	144.4	.5	DIGITAL ELECTRONIC
VAV-1-14	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	180	600	65	95	.15	.10	.34	180	151.9	.5	DIGITAL ELECTRONIC
VAV-1-15	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	140	450	65	95	.09	.09	.26	180	150.1	.5	DIGITAL ELECTRONIC
VAV-1-16	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	150	500	65	90	.02	.10	.30	180	154.1	.5	DIGITAL ELECTRONIC
VAV-1-17	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	115	380	65	95	.12	.01	.30	180	155.8	.5	DIGITAL ELECTRONIC

BUILDING #100 VAV BOX SCHEDULE

UNIT DESIGNATION	MAKE AND MODEL NUMBER	STANDARD FEATURES AND OPTIONAL ACCESSORIES	UNIT SIZE	MIN AIR FLOW (CFM) @ 0.03" W.G.	MAX AIR FLOW (CFM) @ 1.0" W.G.	HEATING MODE								CONTROLS
						EAT (°F)	LAT (°F)	WFD (ft. wg)	COIL APD (IN W.G.)	GPM	EJLT (°F)	LUAT (°F)	PIPING BRANCH SETTING (GPM)	
VAV-1-18	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	170	550	65	91.7	.14	.09	.33	180	151.3	.5	DIGITAL ELECTRONIC
VAV-1-19	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	180	600	65	90	.02	.10	.30	180	151	.5	DIGITAL ELECTRONIC
VAV-1-20	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	75	250	65	100	.04	.03	.16	180	141	.5	DIGITAL ELECTRONIC
VAV-1-21	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	170	550	65	91.7	.14	.09	.33	180	151.3	.5	DIGITAL ELECTRONIC
VAV-1-22	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	105	350	65	95	.01	.06	.19	180	148.2	.5	DIGITAL ELECTRONIC
VAV-1-23	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	90	300	65	95	.01	.04	.20	180	150.1	.5	DIGITAL ELECTRONIC
VAV-1-24	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	230	755	65	91.7	.14	.15	.33	180	151.3	.5	DIGITAL ELECTRONIC
VAV-1-25	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	170	550	65	91.7	.14	.09	.33	180	151.3	.5	DIGITAL ELECTRONIC
VAV-1-26	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	120	400	65	95.3	.06	.01	.22	180	141.4	.5	DIGITAL ELECTRONIC
VAV-1-27	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	95.3	.06	.04	.22	180	141.4	.5	DIGITAL ELECTRONIC
VAV-1-28	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	225	750	65	85	.03	.15	.40	180	155.1	.75	DIGITAL ELECTRONIC
VAV-1-29	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	225	750	65	85	.03	.15	.40	180	155.1	.5	DIGITAL ELECTRONIC
VAV-1-30	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	225	750	65	85	.03	.15	.40	180	155	.5	DIGITAL ELECTRONIC
VAV-1-31	NOT USED		-	-	-	-	-	-	-	-	-	-	-	-
VAV-1-32	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	90	300	65	101.7	.01	.04	.23	180	152.1	.5	DIGITAL ELECTRONIC
VAV-1-33	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	325	1050	65	95	.53	.14	.61	180	141.8	.75	DIGITAL ELECTRONIC
VAV-1-34	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	165	550	65	95	.13	.09	.31	180	151	.5	DIGITAL ELECTRONIC
VAV-1-35	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	120	400	65	95	.01	.01	.23	180	148.4	.5	DIGITAL ELECTRONIC

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SHEET TITLE
MECHANICAL
SCHEDULES (2)

REVISIONS

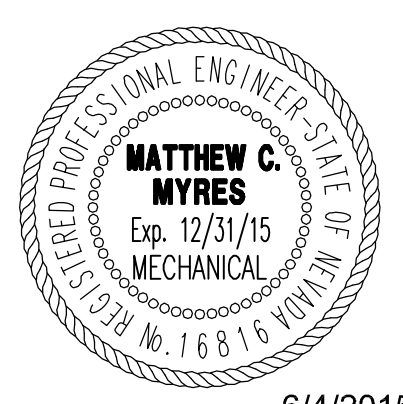
DATE :
JUNE 4, 2015
SHEET NUMBER :

M0.3

BUILDING #200 VAV BOX SCHEDULE

UNIT DESIGNATION	MAKE AND MODEL NUMBER	STANDARD FEATURES AND OPTIONAL ACCESSORIES	UNIT SIZE	MIN AIR FLOW (CFM) @ 0.03" W.G.	MAX AIR FLOW (CFM) @ 1.0" W.G.	HEATING MODE								CONTROLS
						EAT (°F)	LAT (°F)	WPD (ft. w.g.)	Coil (ft. w.g.)	APD (ft. w.g.)	GPM	EWT (°F)	LWT (°F)	
VAV 2-1	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	270	900	65	94.5	.10	.22	.14	180	148.3	.75	DIGITAL ELECTRONIC
VAV 2-2	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	410	1350	65	94.5	.10	.22	.14	180	148.3	.75	DIGITAL ELECTRONIC
VAV 2-3	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	140	450	65	93.2	.08	.09	.25	180	149.1	.5	DIGITAL ELECTRONIC
VAV 2-4	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	260	850	65	91.3	.26	.19	.41	180	151.8	.75	DIGITAL ELECTRONIC
VAV 2-5	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	130	425	65	90	.06	.08	.20	180	145.1	.5	DIGITAL ELECTRONIC
VAV 2-6	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	60	200	65	105	.03	.02	.15	180	146.8	.5	DIGITAL ELECTRONIC
VAV 2-7	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	410	1350	65	94.5	.10	.22	.14	180	148.3	.75	DIGITAL ELECTRONIC
VAV 2-8	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	225	750	65	91.5	.21	.15	.41	180	151.6	.5	DIGITAL ELECTRONIC
VAV 2-9	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	210	700	65	90	.14	.14	.33	180	150.2	.5	DIGITAL ELECTRONIC
VAV 2-10	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	300	1000	65	90.1	.33	.25	.54	180	152.2	.75	DIGITAL ELECTRONIC
VAV 2-11	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	375	1240	65	95	.62	.19	.68	180	147.8	.75	DIGITAL ELECTRONIC
VAV 2-12	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	135	450	65	95	.08	.09	.25	180	150.1	.5	DIGITAL ELECTRONIC
VAV 2-13	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	330	1100	65	95.6	.51	.15	.60	180	147.2	.75	DIGITAL ELECTRONIC
VAV 2-14	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	110	350	65	96.4	.05	.06	.20	180	146.3	.5	DIGITAL ELECTRONIC

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SHEET TITLE
MECHANICAL
SCHEDULES (3)

REVISIONS

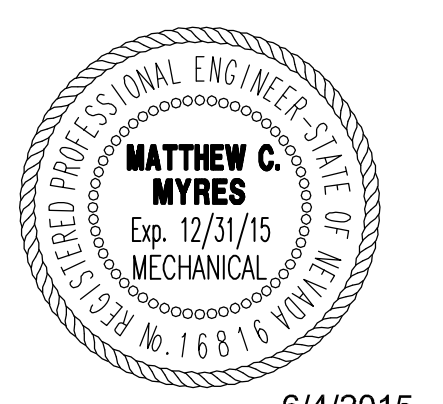
DATE :
JUNE 4, 2015
SHEET NUMBER :
M0.4

BUILDING #300 VAV BOX SCHEDULE

UNIT DESIGNATION	MAKE AND MODEL NUMBER	STANDARD FEATURES AND OPTIONAL ACCESSORIES	UNIT SIZE	MIN AIR FLOW (CFM) @ 0.03" W.G.	MAX AIR FLOW (CFM) @ 1.0" W.G.	HEATING MODE							CONTROLS	
						EAT (°F)	LAT (°F)	HPD (ft. wg)	Coil APD (ft. wg)	GPM	EWT (°F)	LWT (°F)		PIPING BRANCH SETTING (GPM)
VAV 3-1	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	110	350	65	96.4	.05	.06	.20	180	146.3	.5	DIGITAL ELECTRONIC
VAV 3-2	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	360	1200	65	95.2	.58	.18	.65	180	141.6	.75	DIGITAL ELECTRONIC
VAV 3-3	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	315	1050	65	95.6	.41	.14	.51	180	146.9	.75	DIGITAL ELECTRONIC
VAV 3-4	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	390	1300	65	94.8	.65	.20	.71	180	148	.75	DIGITAL ELECTRONIC
VAV 3-5	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	110	350	65	96.4	.05	.06	.20	180	146.3	.5	DIGITAL ELECTRONIC
VAV 3-6	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC
VAV 3-7	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC
VAV 3-8	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC
VAV 3-9	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC
VAV 3-10	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	450	1490	65	94	.79	.26	.82	180	148.9	1	DIGITAL ELECTRONIC
VAV 3-11	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	150	485	65	95	.10	.10	.28	180	151.9	.5	DIGITAL ELECTRONIC
VAV 3-12	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	325	65	100	.06	.05	.22	180	149.7	.5	DIGITAL ELECTRONIC
VAV 3-13	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	08	225	750	65	91.5	.21	.15	.41	180	151.6	.5	DIGITAL ELECTRONIC
VAV 3-14	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	290	65	100	.06	.04	.22	180	149.7	.5	DIGITAL ELECTRONIC
VAV 3-15	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC
VAV 3-16	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	320	1060	65	95.7	.48	.14	.58	180	147	.75	DIGITAL ELECTRONIC
VAV 3-17	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	150	500	65	95	.10	.10	.28	180	151.9	.5	DIGITAL ELECTRONIC
VAV 3-18	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	300	65	99.8	.01	.04	.24	180	151.8	.5	DIGITAL ELECTRONIC

BUILDING #400 VAV BOX SCHEDULE

UNIT DESIGNATION	MAKE AND MODEL NUMBER	STANDARD FEATURES AND OPTIONAL ACCESSORIES	UNIT SIZE	MIN AIR FLOW (CFM) @ 0.03" W.G.	MAX AIR FLOW (CFM) @ 1.0" W.G.	HEATING MODE							CONTROLS	
						EAT (°F)	LAT (°F)	HPD (ft. wg)	Coil APD (ft. wg)	GPM	EWT (°F)	LWT (°F)		PIPING BRANCH SETTING (GPM)
VAV 4-1	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	10	325	1070	65	100	.66	.15	.71	180	150.4	.75	DIGITAL ELECTRONIC
VAV 4-2	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	170	560	65	95	.40	.09	.61	180	153.1	.5	DIGITAL ELECTRONIC
VAV 4-3	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	6	180	600	65	91.7	.14	.10	.33	180	151.3	.5	DIGITAL ELECTRONIC
VAV 4-4	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	12	625	2080	65	100	1.91	.26	1.37	180	151.3	2	DIGITAL ELECTRONIC
VAV 4-5	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	8	170	550	65	92.5	.13	.09	.31	180	150.5	.5	DIGITAL ELECTRONIC
VAV 4-6	ENVIRO-TEC SDR	MULTI-POINT AVERAGING VELOCITY SENSOR, DUAL DENSITY INSULATION, 22 GAUGE UNIT CASING, NEMA 1 CONTROL BOX, UL TRANSFORMER, HOT WATER REHEAT COIL, 2-WAY CONTROL VALVE	5	100	310	65	100	.09	.05	.26	180	152.2	.5	DIGITAL ELECTRONIC



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SPARKS CITY HALL
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SPARKS, NEVADA

SHEET TITLE
MECHANICAL SCHEDULES (4)

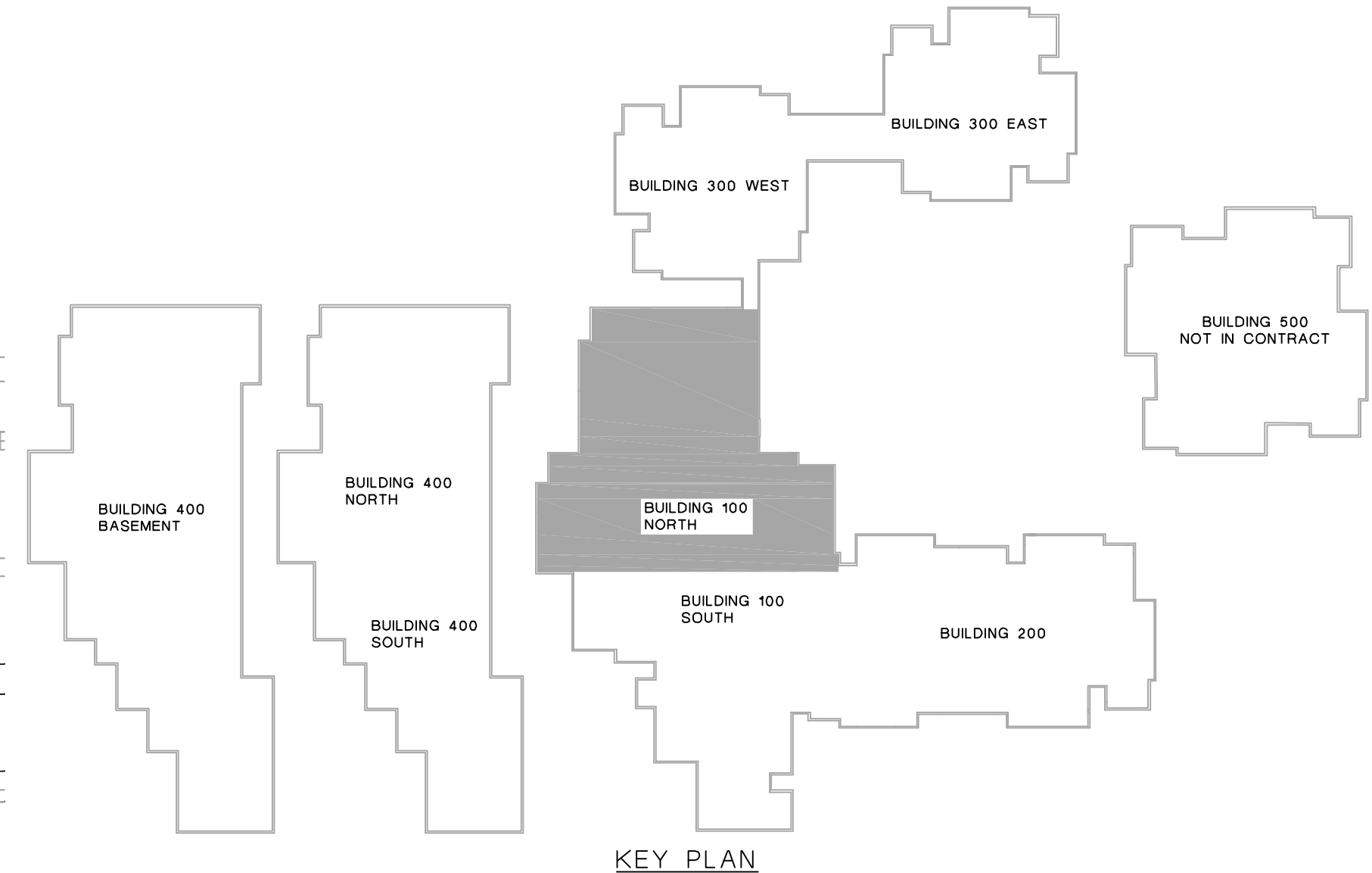
REVISIONS

DATE :
JUNE 4, 2015
SHEET NUMBER :
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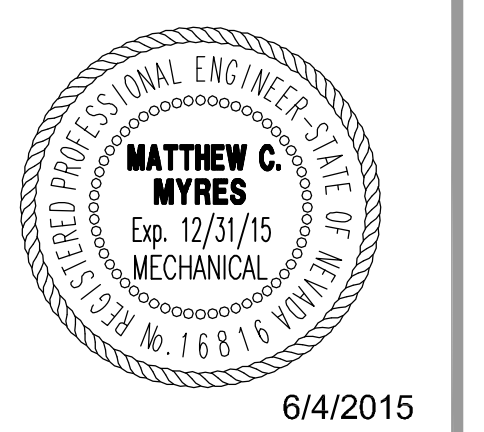
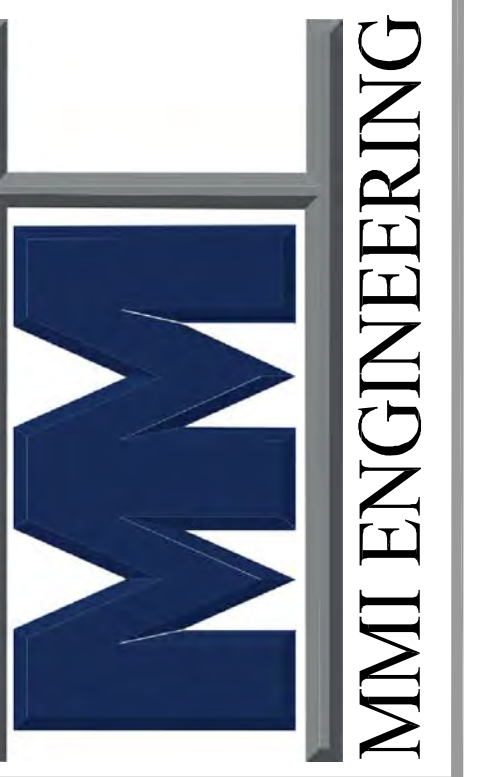
GENERAL NOTES

1. THE DASHED OUTLINE OF THE (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES ARE SHOWN FOR REFERENCE ONLY. THE (E) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE MD1 SERIES AND MD2 SERIES SHEETS.
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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS TO BE DEMOLITIONED ARE SHOWN ON THE M1 SERIES, MD2 SERIES AND MD5 SERIES SHEETS.



BUILDING #100 (NORTH HALF)
MECHANICAL DEMOLITION FLOOR PLAN
 SCALE: 1/4"=1'-0"

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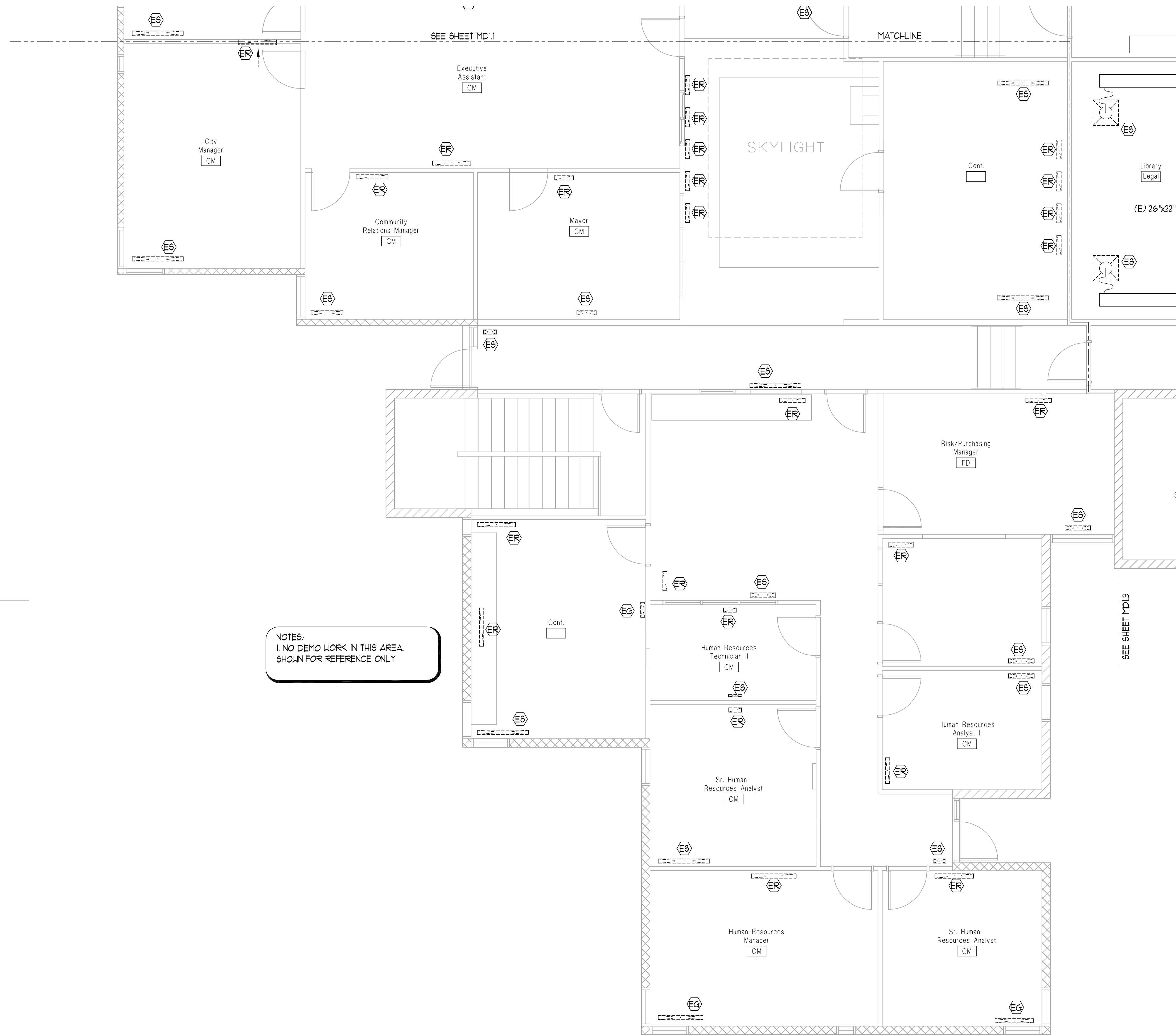


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SHEET TITLE
 BUILDING #100
 MECHANICAL DEMOLITION
 FLOOR PLAN

REVISIONS

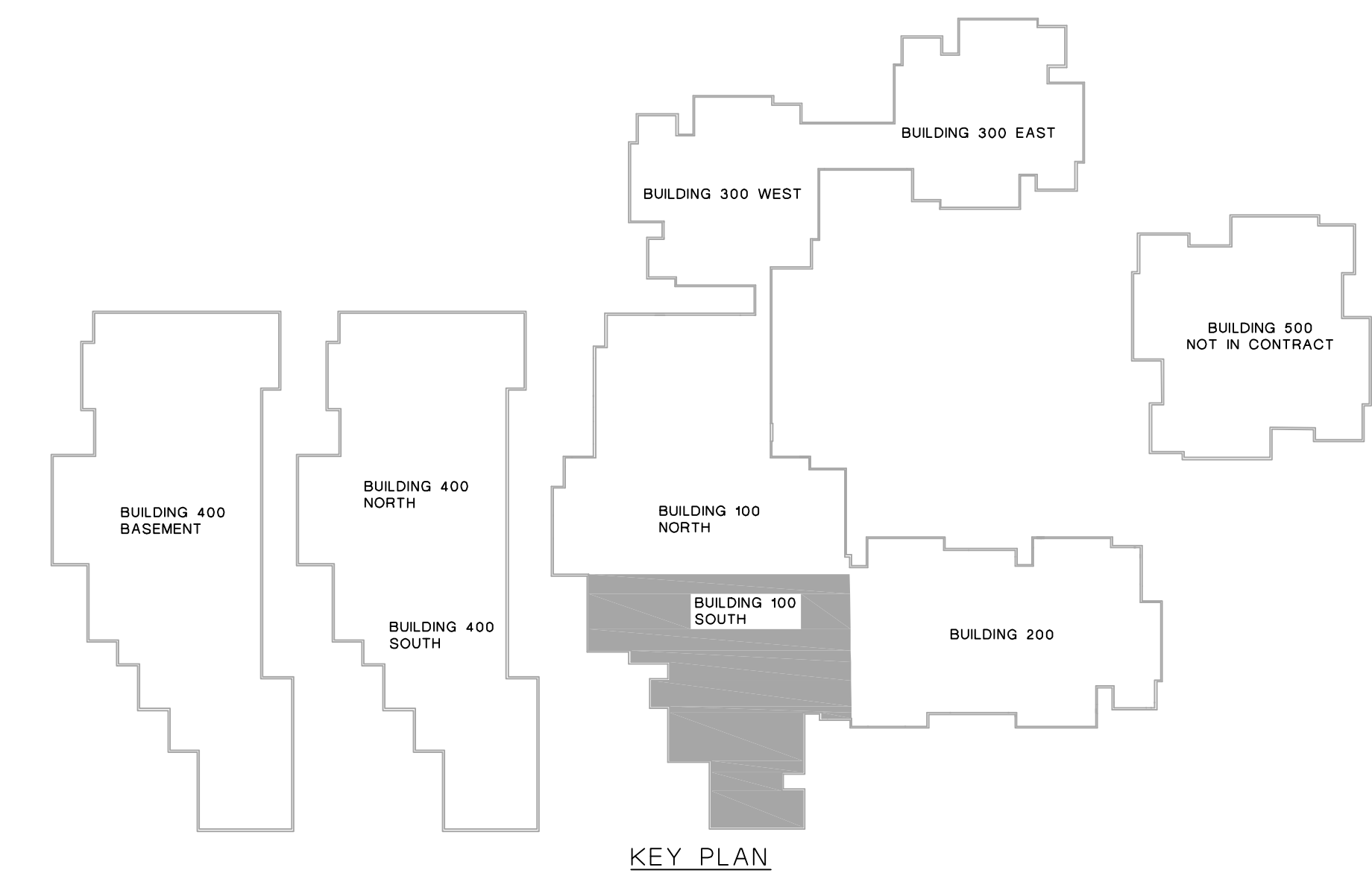
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 SHEET NUMBER :
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GENERAL NOTES

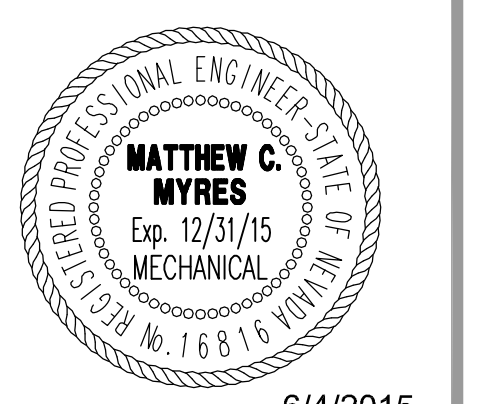
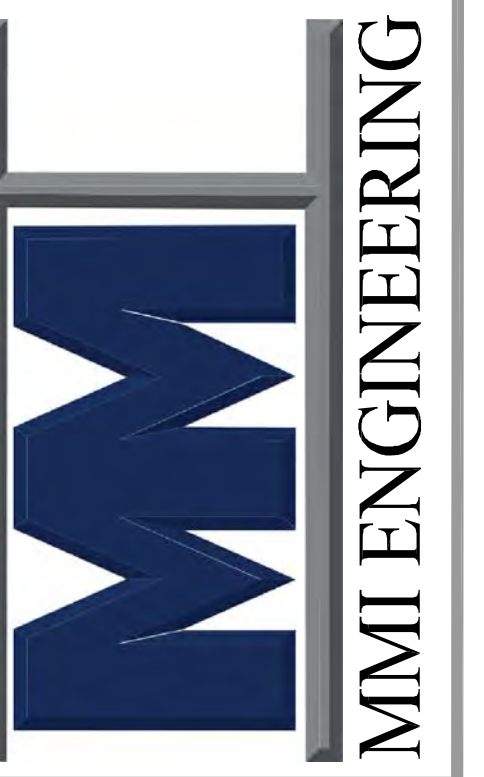
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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS TO BE DEMOLISHED ARE SHOWN ON THE M1 SERIES, MD2 SERIES AND MD5 SERIES SHEETS.

NOTES:
1. NO DEMO WORK IN THIS AREA.
SHOWN FOR REFERENCE ONLY



**BUILDING #100 (SOUTH HALF)
MECHANICAL DEMOLITION FLOOR PLAN**
SCALE: 1/4"=1'-0"

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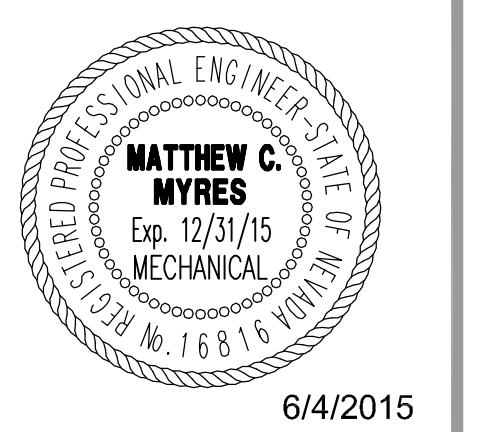
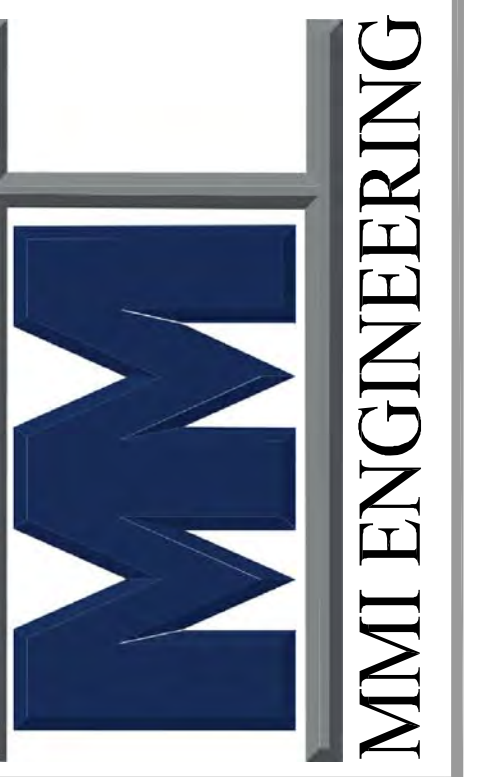
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SHEET TITLE
**BUILDING #100
MECHANICAL DEMOLITION
FLOOR PLAN**

REVISIONS

DATE : JUNE 4, 2015
SHEET NUMBER :

MD1.2



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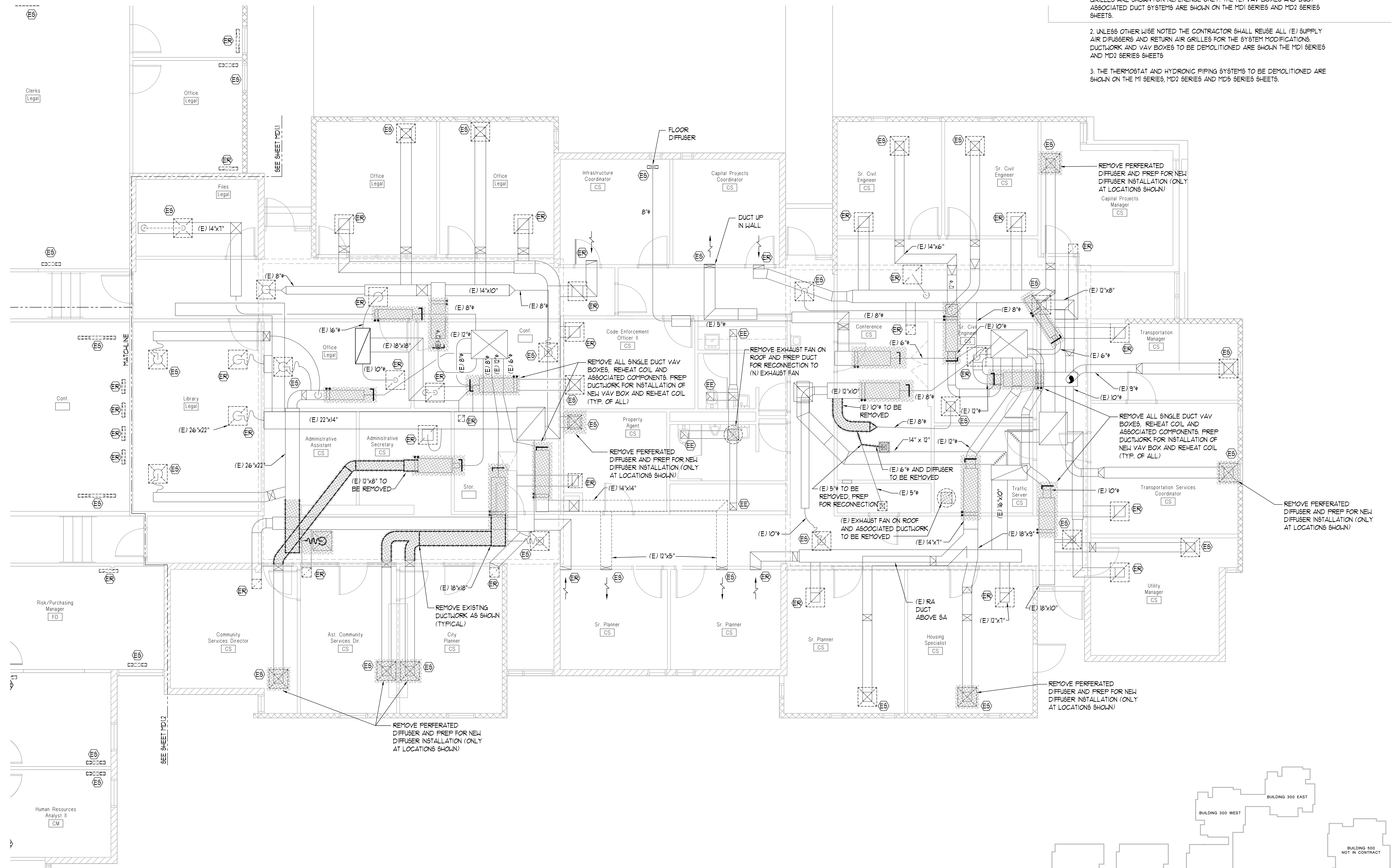
SHEET TITLE
**BUILDING #200
 MECHANICAL DEMOLITION
 FLOOR PLAN**

REVISIONS

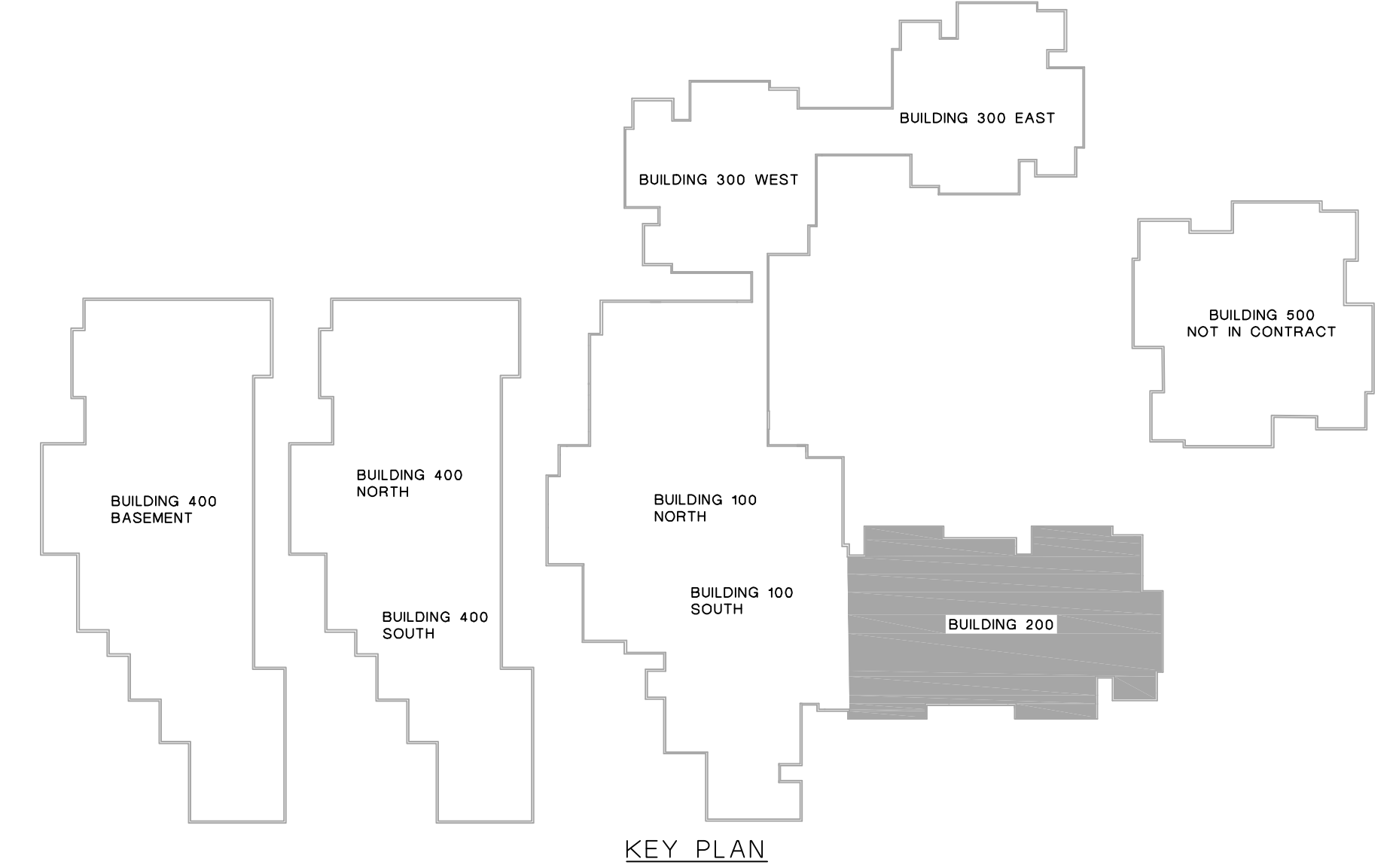
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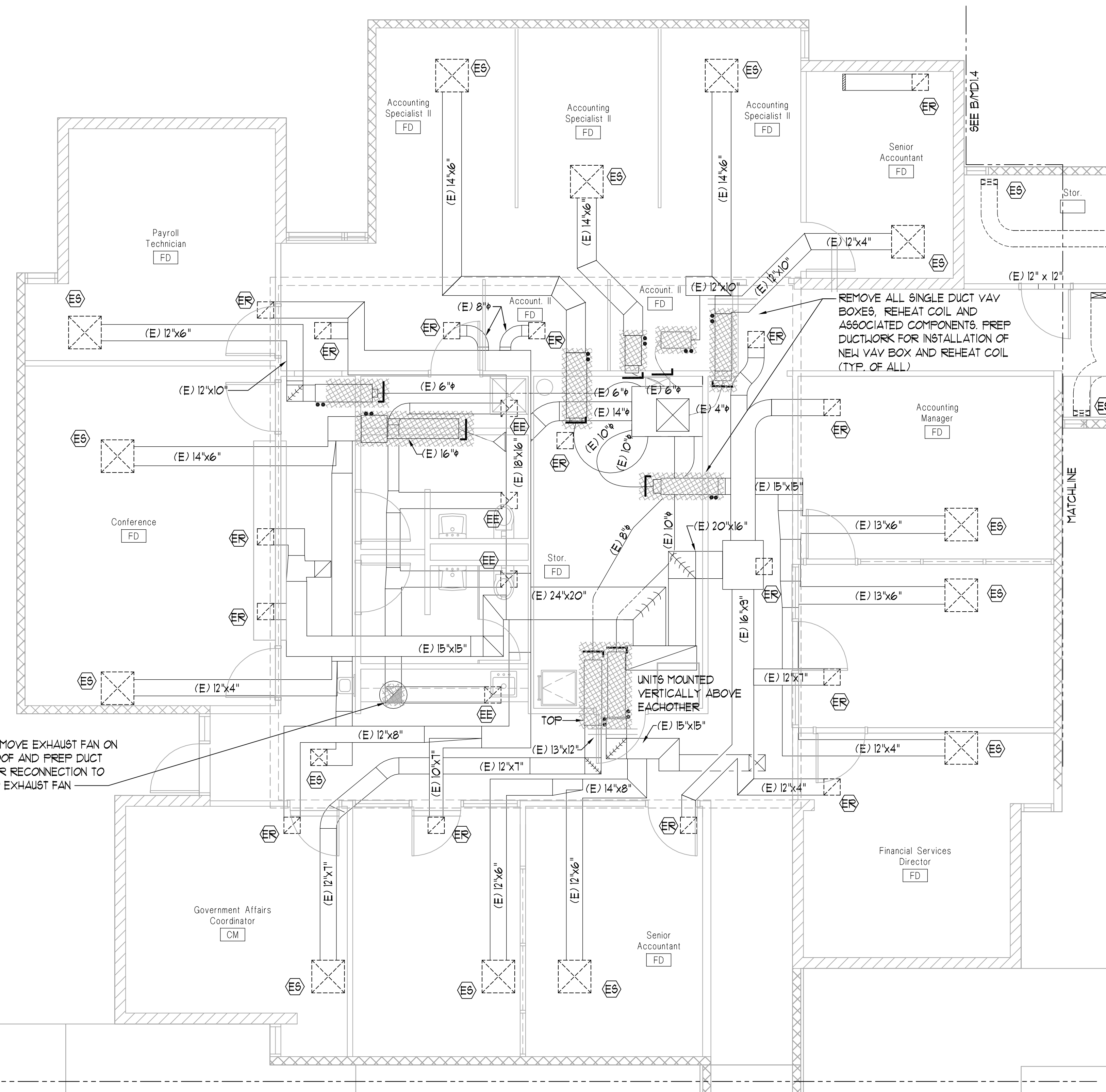
GENERAL NOTES

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2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REUSE ALL (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES FOR THE SYSTEM MODIFICATIONS. DUCTWORK AND VAV BOXES TO BE DEMOLISHED ARE SHOWN ON THE MD1 SERIES AND MD2 SERIES SHEETS.
3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS TO BE DEMOLISHED ARE SHOWN ON THE M1 SERIES, MD2 SERIES AND MD3 SERIES SHEETS.

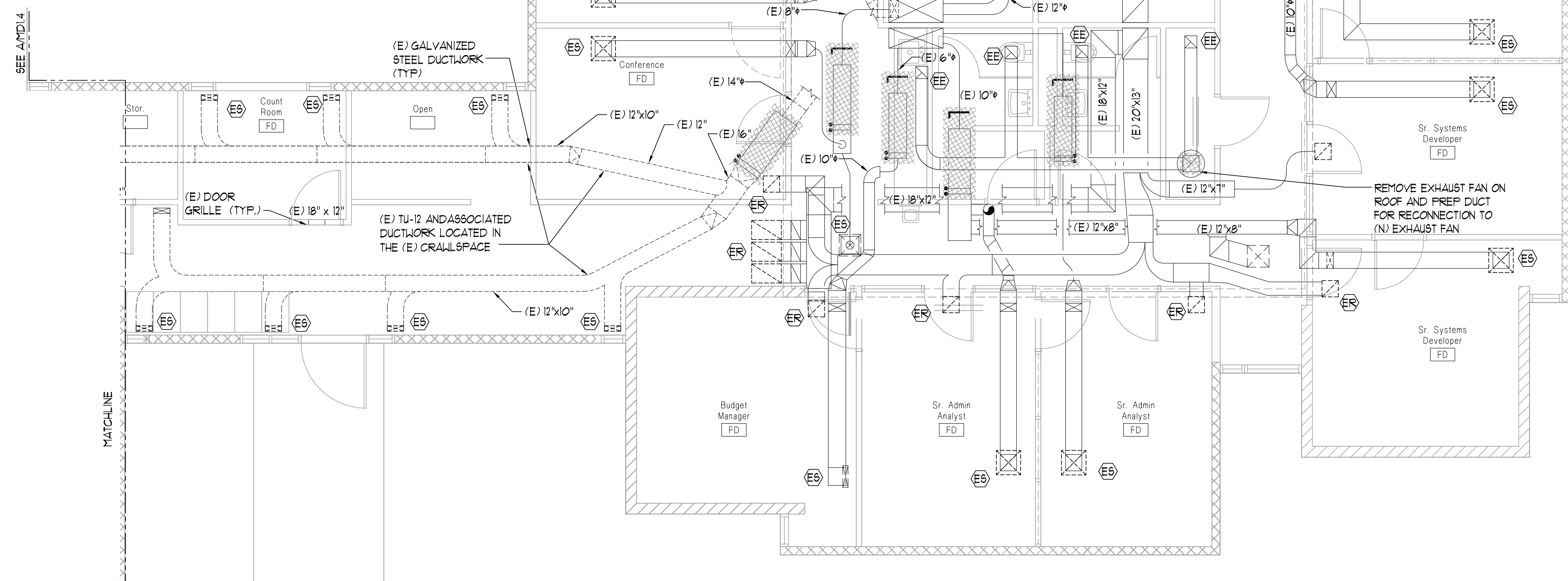


**BUILDING #200
 MECHANICAL DEMOLITION FLOOR PLAN**
 SCALE: 1/4"=1'-0"





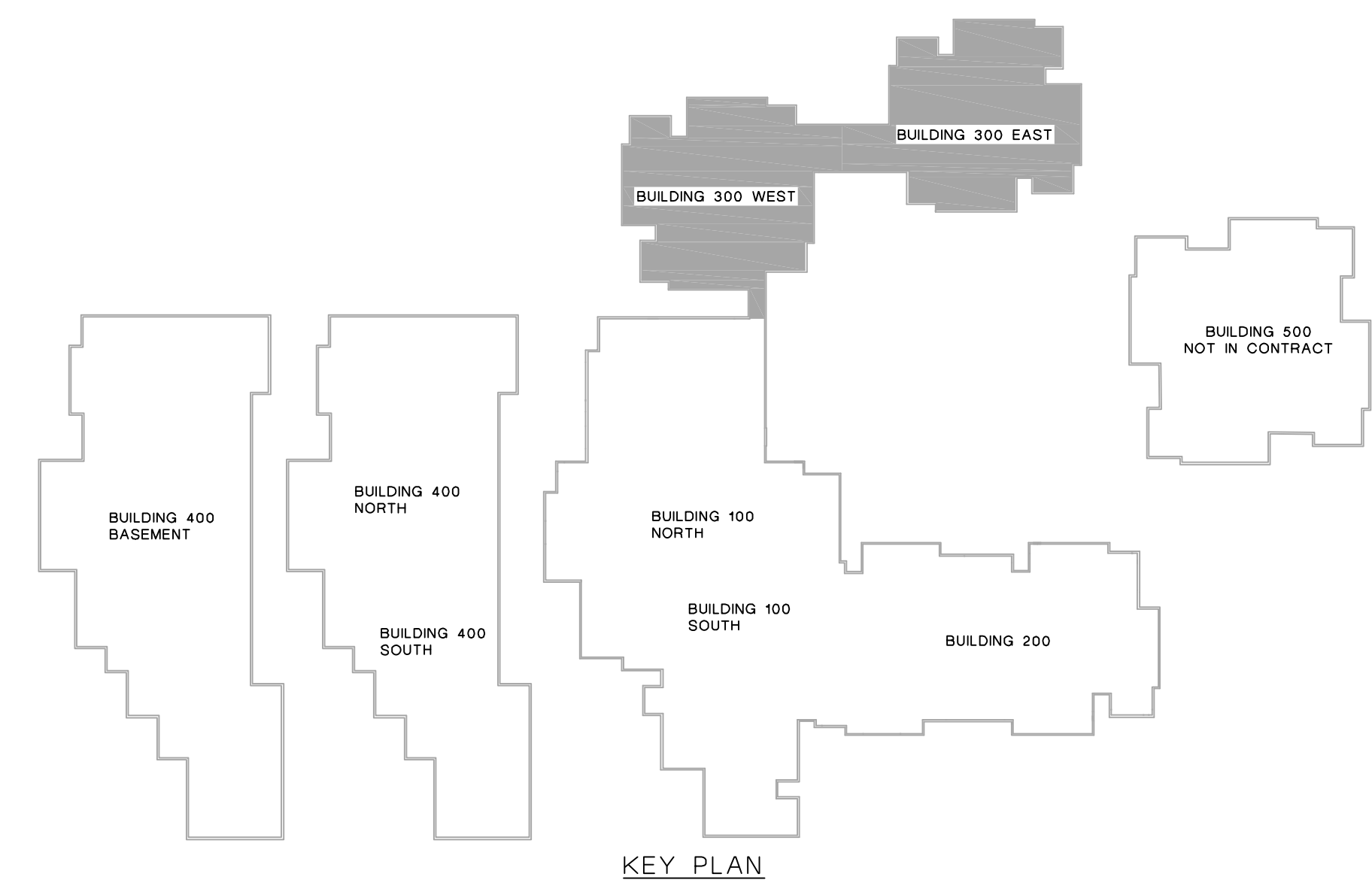
A BUILDING #300 (WEST HALF) FLOOR PLAN
 MD1.4 SCALE: 1/4"=1'-0"



B BUILDING #300 (EAST HALF) FLOOR PLAN
 MD1.4 SCALE: 1/4"=1'-0"

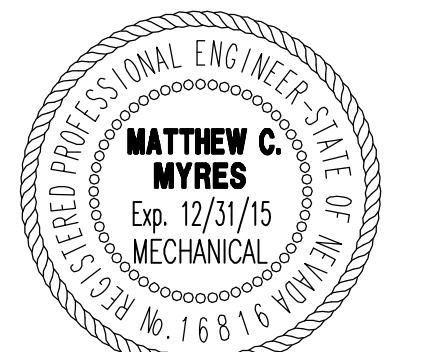
GENERAL NOTES

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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS TO BE DEMOLISHED ARE SHOWN ON THE M1 SERIES, MD2 SERIES AND MD3 SERIES SHEETS.



KEY PLAN

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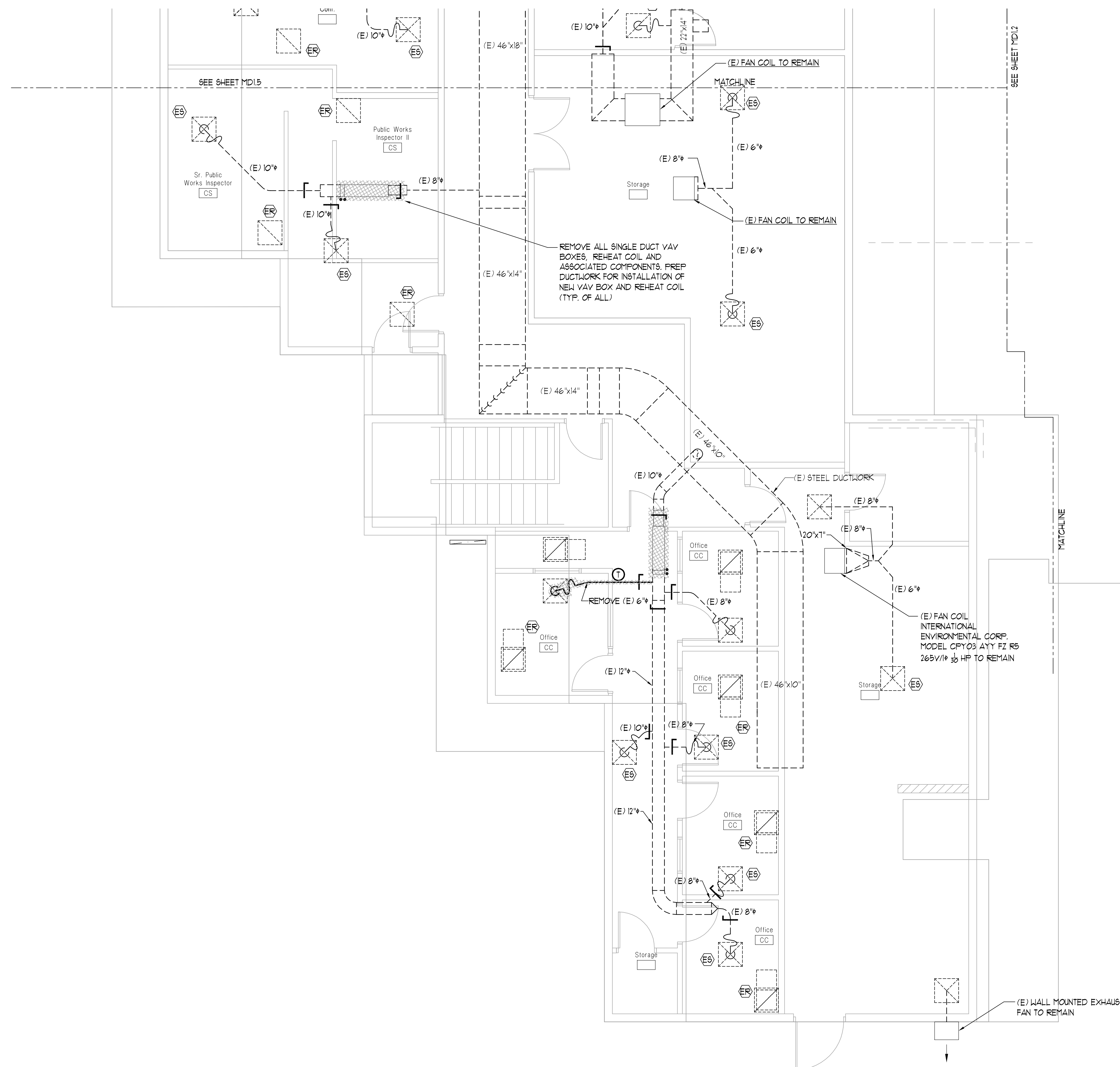
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SHEET TITLE
 BUILDING #300
 MECHANICAL DEMOLITION
 FLOOR PLAN

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

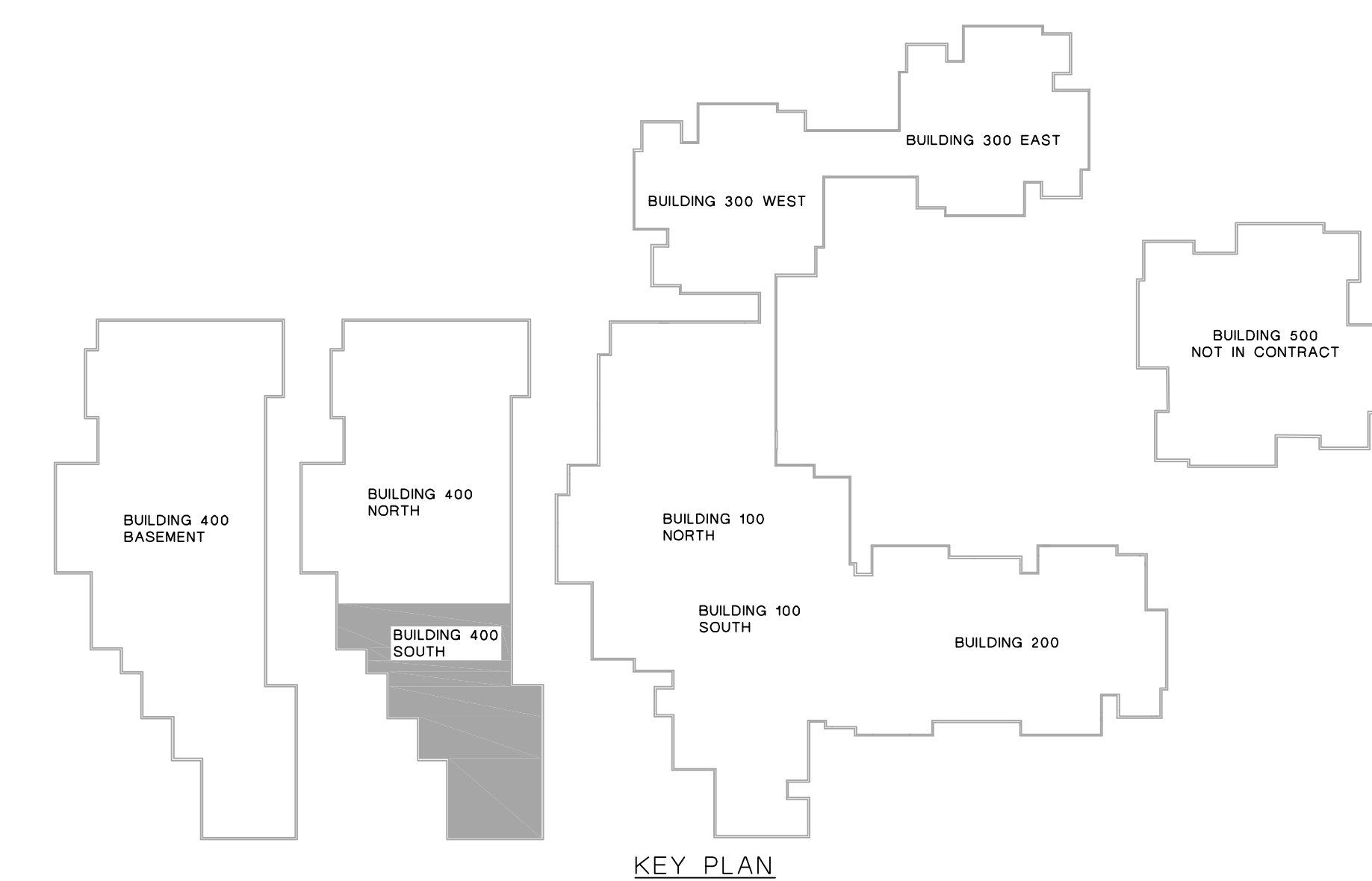
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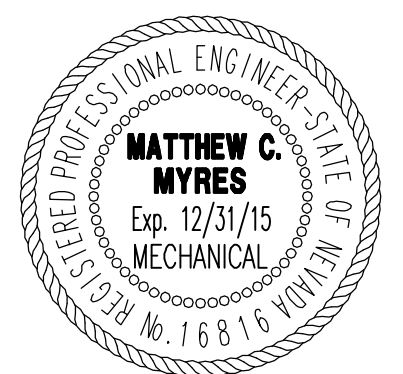
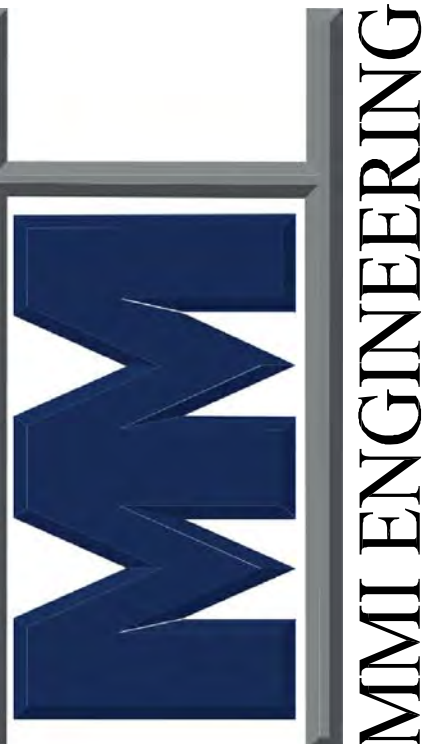
GENERAL NOTES

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BUILDING #400 - (SOUTH HALF)
MECHANICAL DEMOLITION PLAN - SYSTEM SERVING BASEMENT
 SCALE: 1/4"=1'-0"



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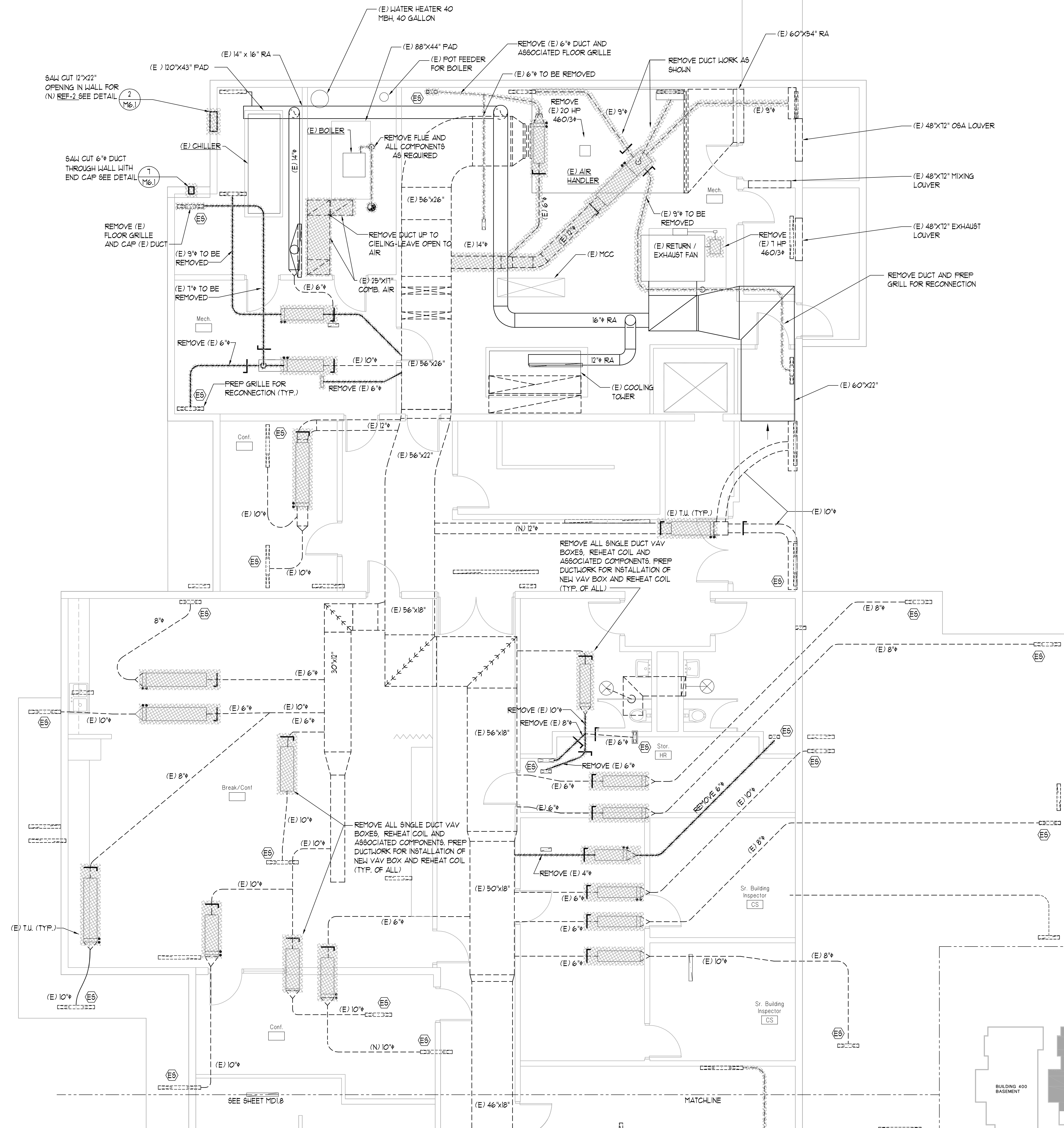
SPARKS CITY HALL
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 SPARKS, NEVADA

SHEET TITLE
BUILDING #400 (SOUTH)
MECHANICAL DEMOLITION
PLAN - SYSTEM SERVING
BASEMENT

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

MD1.6

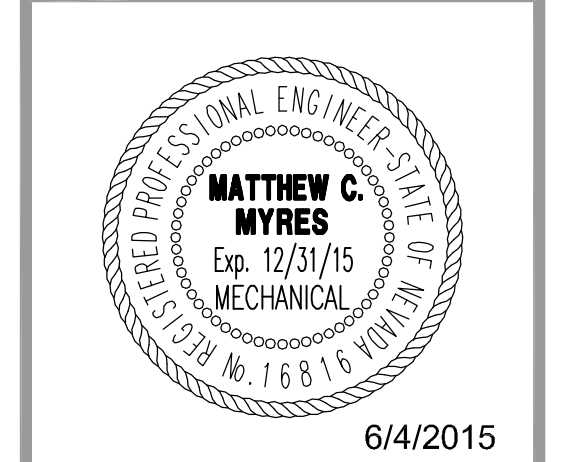
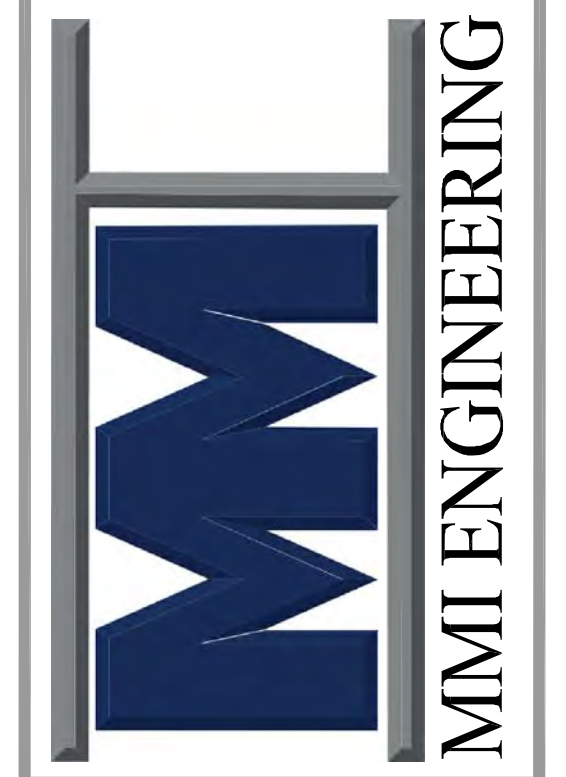


GENERAL NOTES

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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS TO BE DEMOLITIONED ARE SHOWN ON THE M1 SERIES, MD2 SERIES AND MD5 SERIES SHEETS.

BUILDING #400 - (NORTH HALF)
MECHANICAL DEMOLITION PLAN - SYSTEM SERVING 1ST FLOOR
 SCALE: 1/4"=1'-0"

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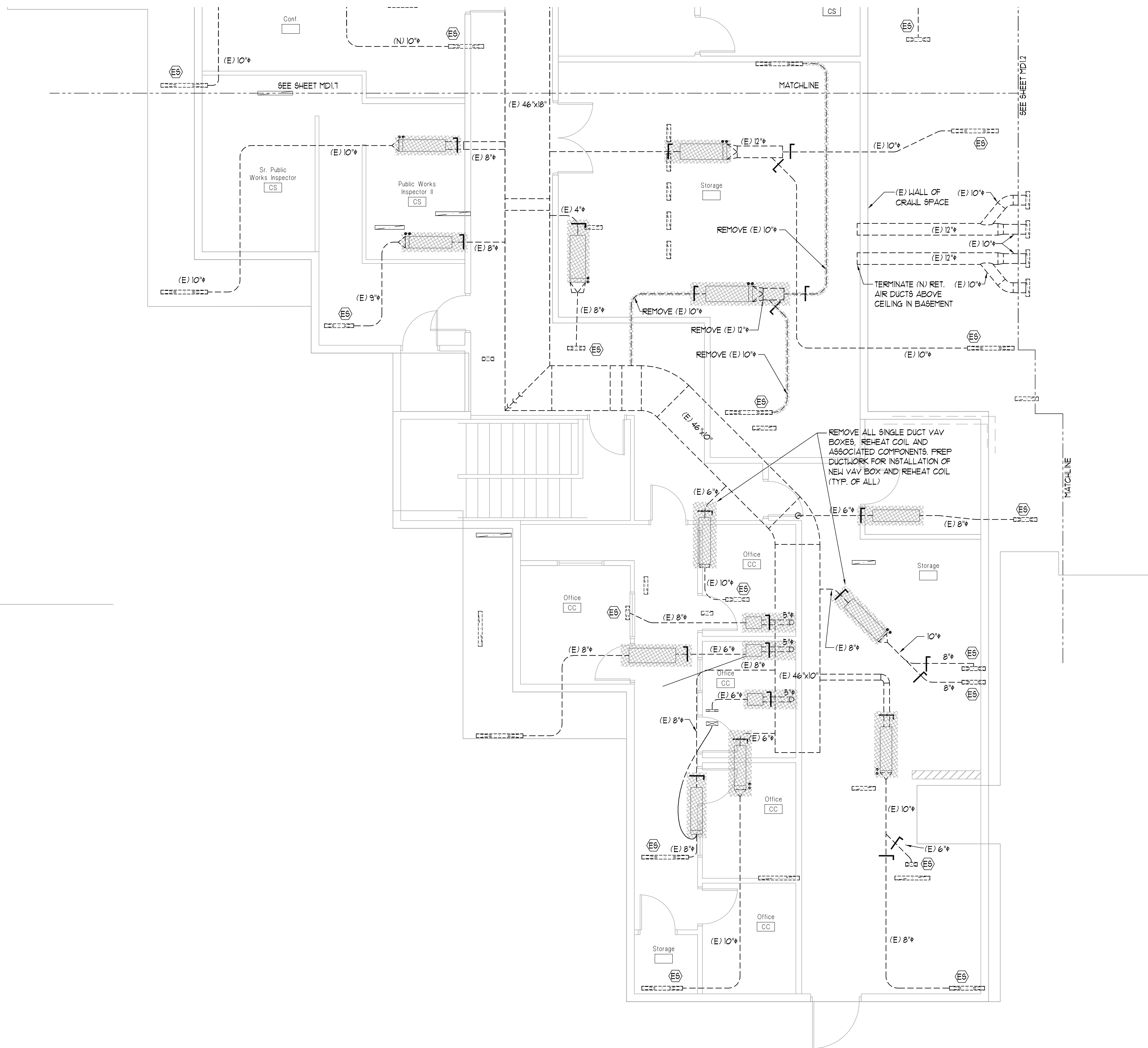
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SHEET TITLE
 BUILDING #400 (NORTH)
 MECHANICAL DEMOLITION
 PLAN - SYSTEMS SERVING
 1ST FLOOR

REVISIONS

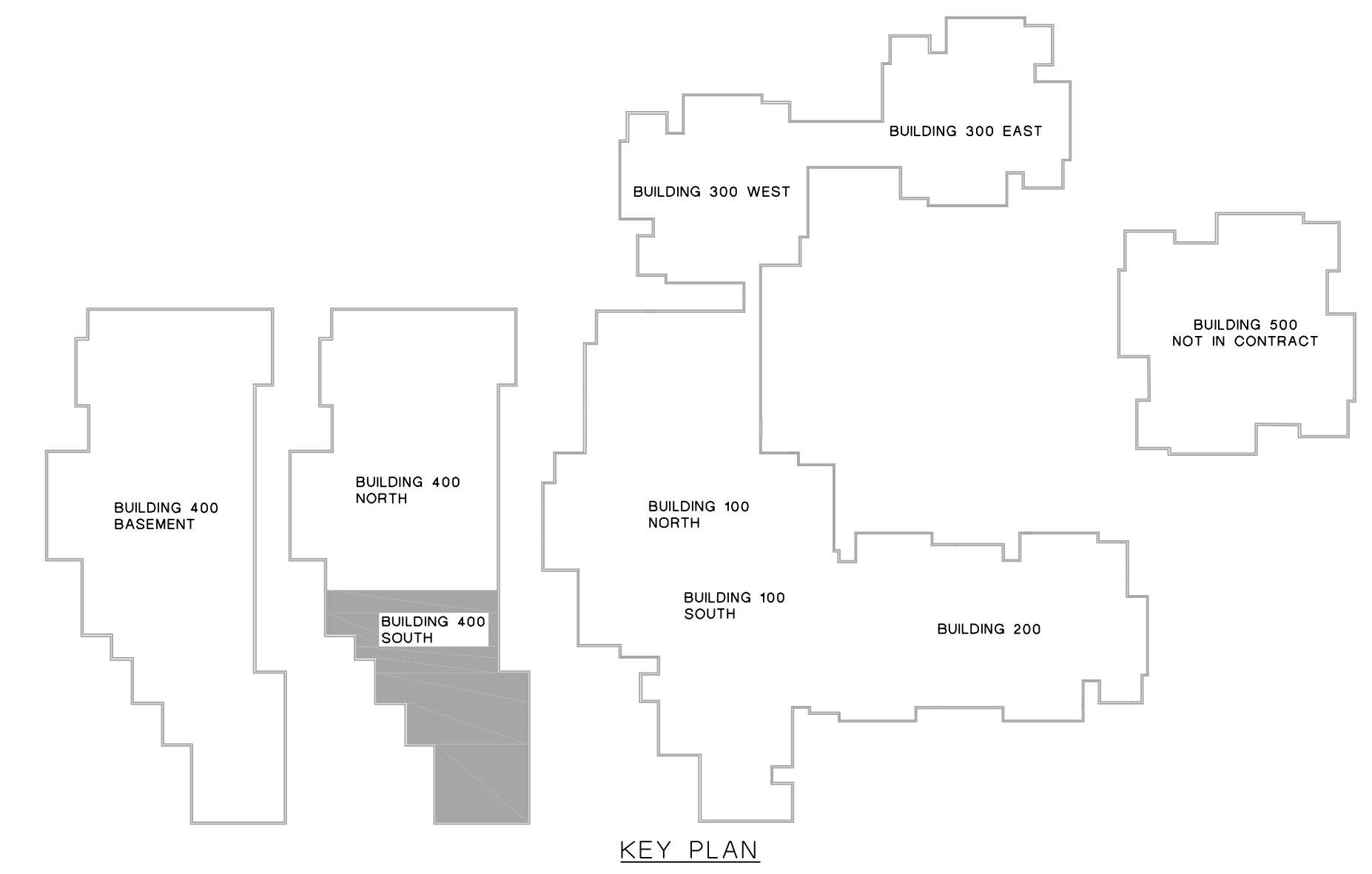
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 SHEET NUMBER :
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KEY PLAN



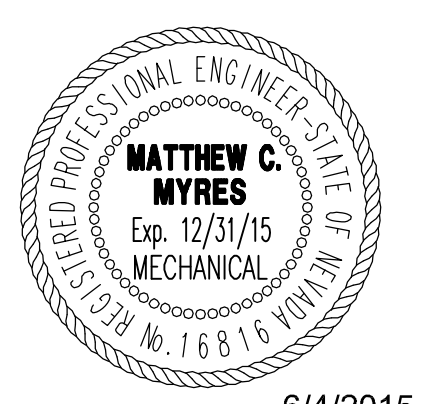
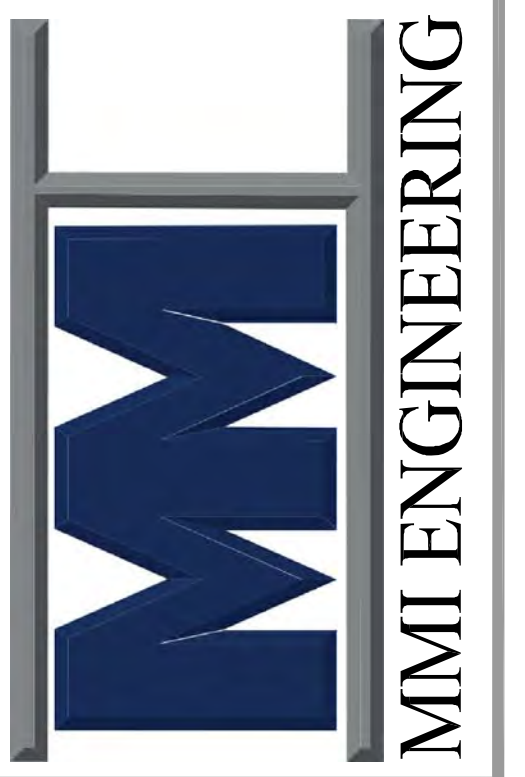
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BUILDING #400 - (SOUTH HALF)
MECHANICAL DEMOLITION PLAN - SYSTEM SERVING 1ST FLOOR
 SCALE: 1/4"=1'-0"

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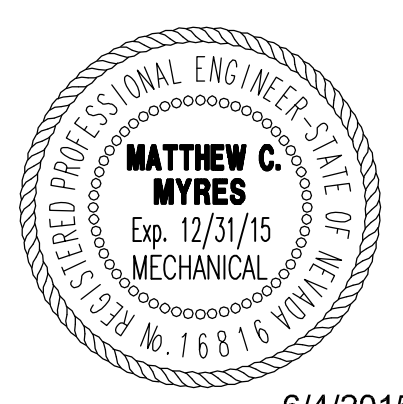
SPARKS CITY HALL
CAMPUS HVAC UPGRADE
 SPARKS, NEVADA

SHEET TITLE
BUILDING #400 (SOUTH)
MECHANICAL DEMOLITION
PLAN - SYSTEM SERVING
1ST FLOOR

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER :

MD1.8



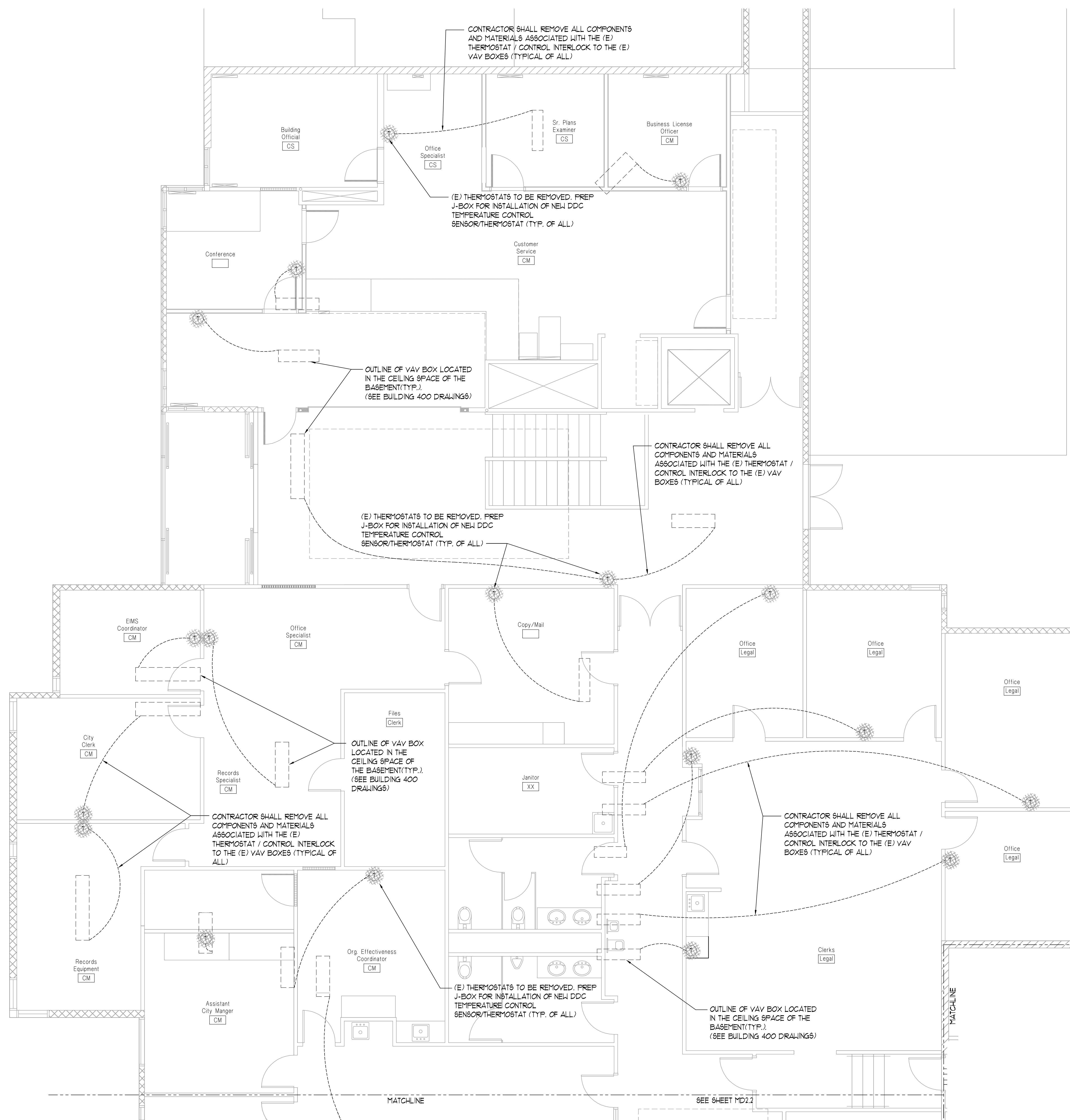
6/4/2015

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
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SHEET TITLE
 BUILDING #100
 MECHANICAL DEMOLITION
 FLOOR PLAN

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER :
MD2.1



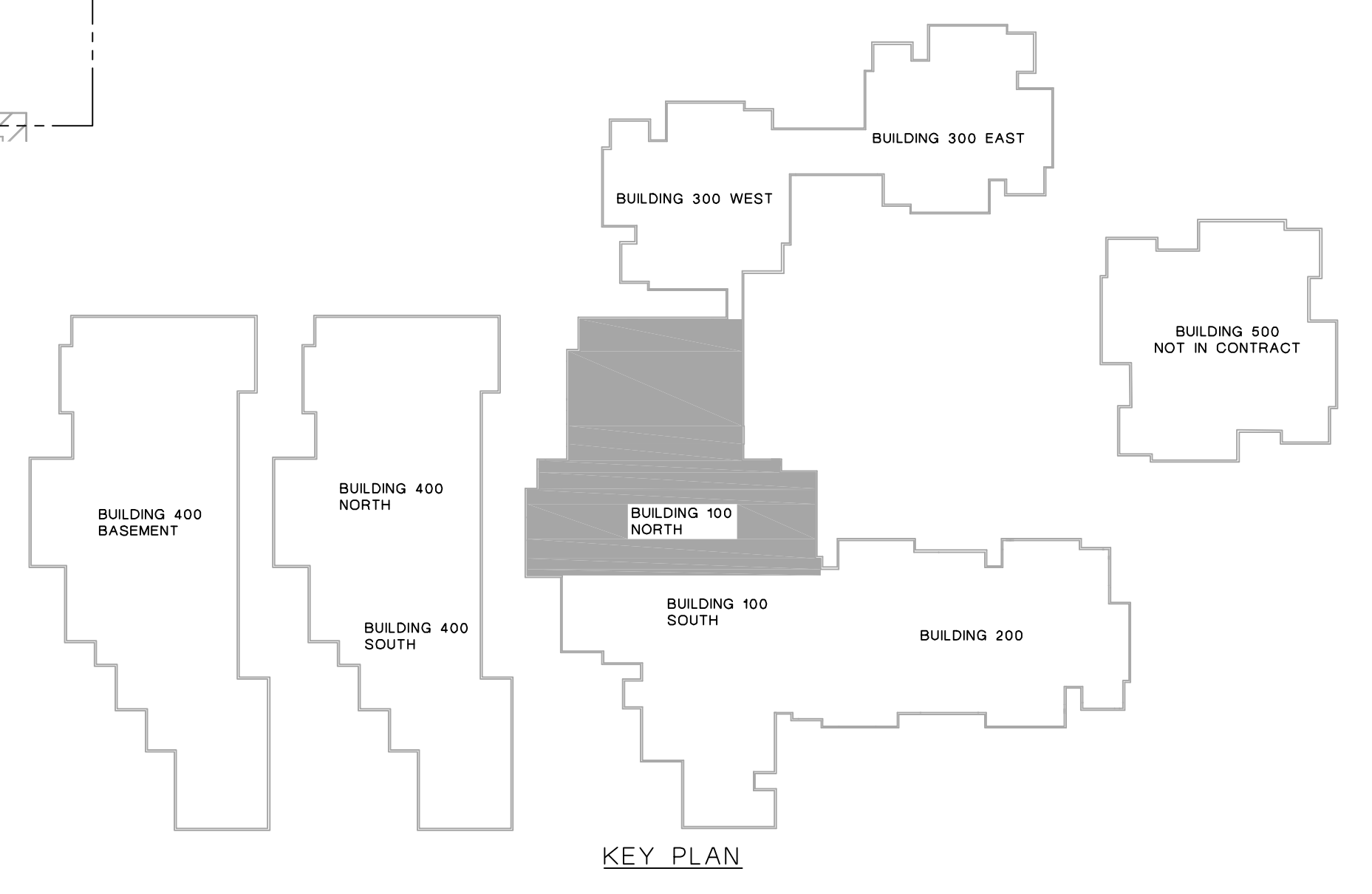
GENERAL NOTES

1. THE OUTLINE OF THE (E) VAV BOXES INTERLOCKED TO THE (E) THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (E) VAV BOXES ARE TO BE REMOVED AND REPLACED WITH NEW EQUIPMENT AS SHOWN ON THE MD1 SERIES AND M1 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REMOVE ALL (E) THERMOSTAT AND PREP THE (E) CONDUIT AND JUNCTION BOX TO BE REUSED FOR THE INSTALLATION OF THE NEW CONTROLS.

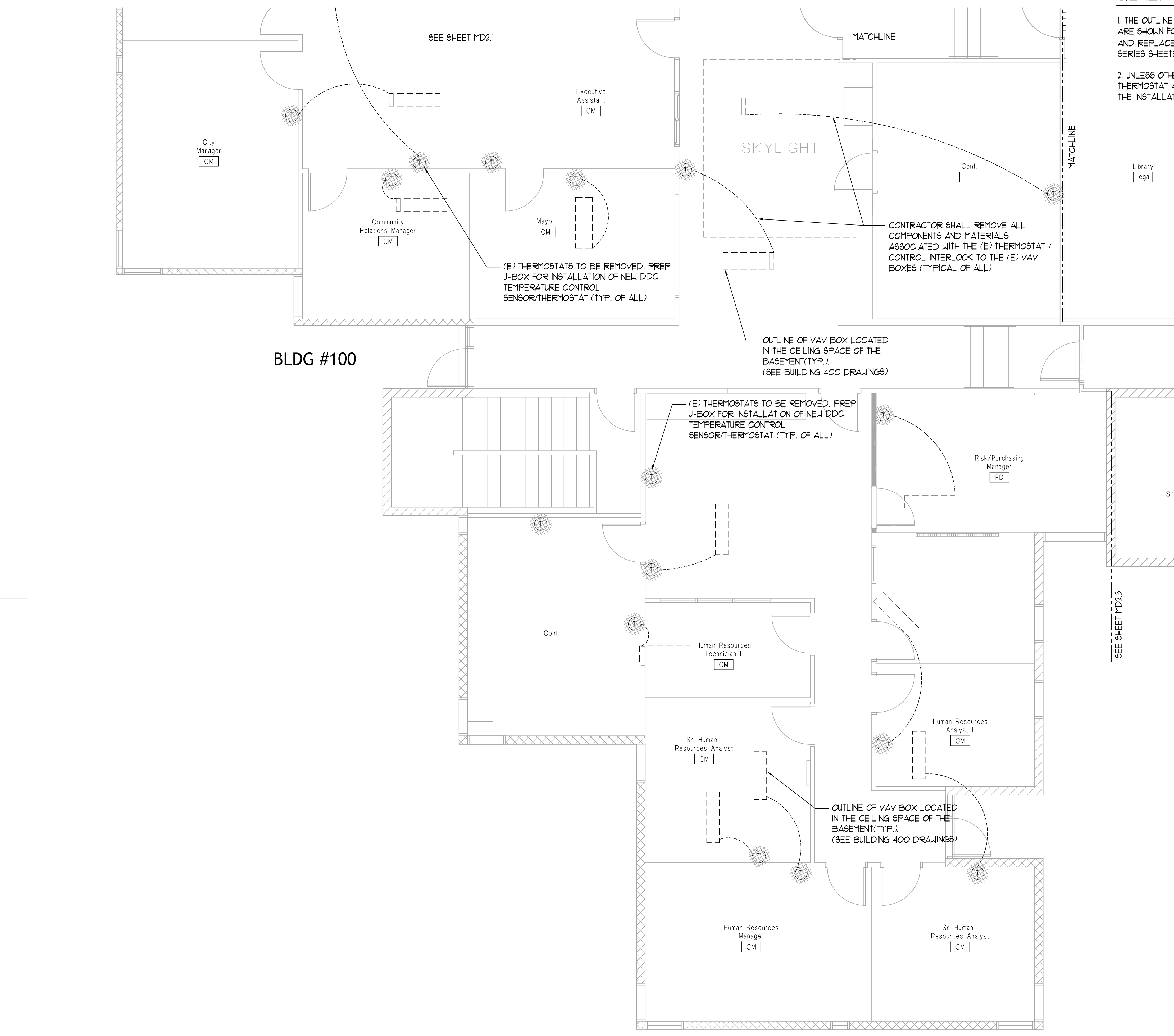
SEE SHEET MD2.3

SEE SHEET MD2.2

**BUILDING #100 (NORTH HALF)
 MECHANICAL DEMOLITION FLOOR PLAN**
 SCALE: 1/4"=1'-0"



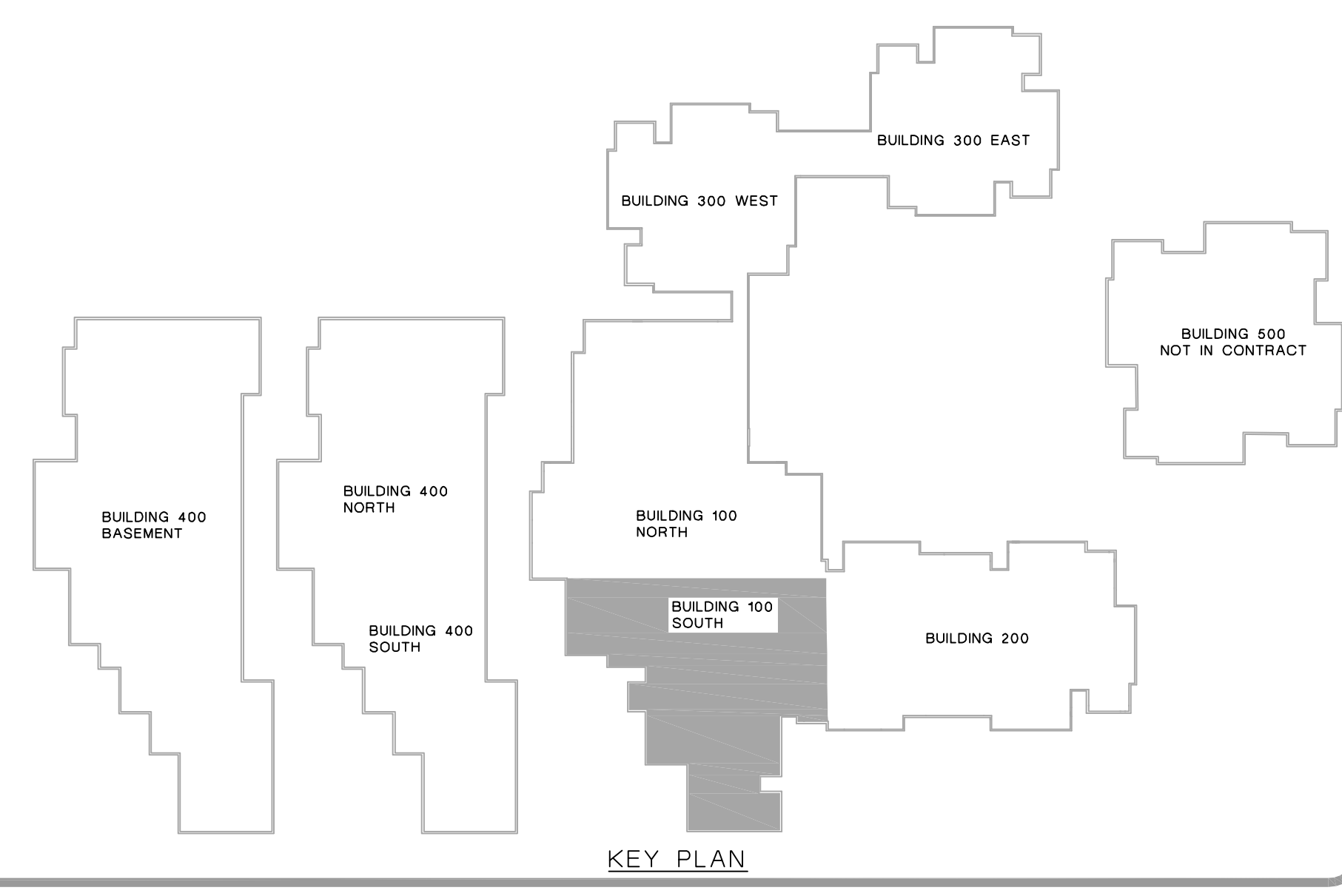
KEY PLAN



- GENERAL NOTES**
1. THE OUTLINE OF THE (E) VAV BOXES INTERLOCKED TO THE (E) THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (E) VAV BOXES ARE TO BE REMOVED AND REPLACED WITH NEW EQUIPMENT AS SHOWN ON THE MD1 SERIES AND M1 SERIES SHEETS.
 2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REMOVE ALL (E) THERMOSTAT AND PREP THE (E) CONDUIT AND JUNCTION BOX TO BE REUSED FOR THE INSTALLATION OF THE NEW CONTROLS.

BLDG #100

BUILDING #100 (SOUTH HALF)
MECHANICAL DEMOLITION FLOOR PLAN
 SCALE: 1/4"=1'-0"



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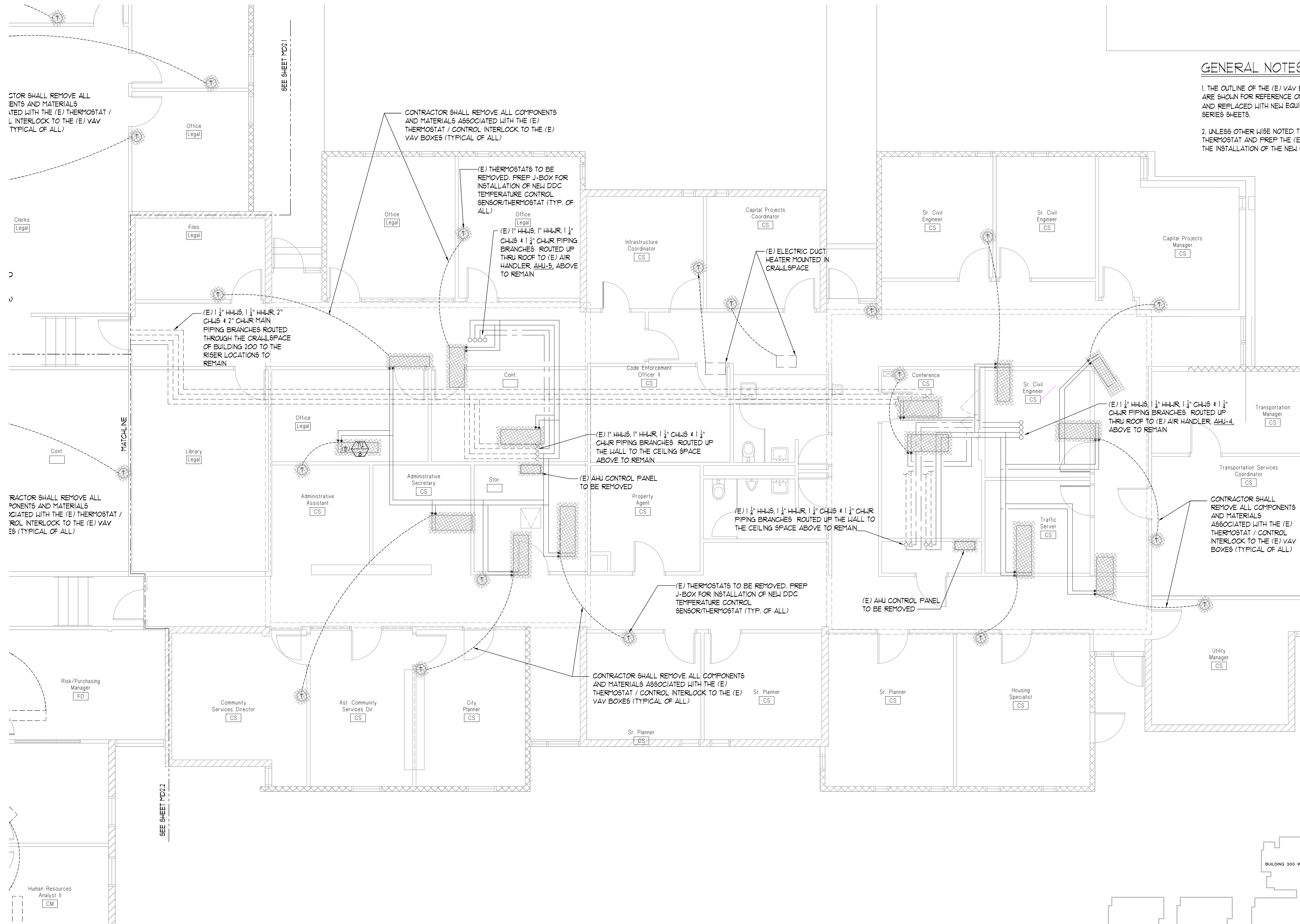
6/4/2015

SPARKS CITY HALL
CAMPUS HVAC UPGRADE
 SPARKS, NEVADA

SHEET TITLE
BUILDING #100
MECHANICAL DEMOLITION
FLOOR PLAN

REVISIONS

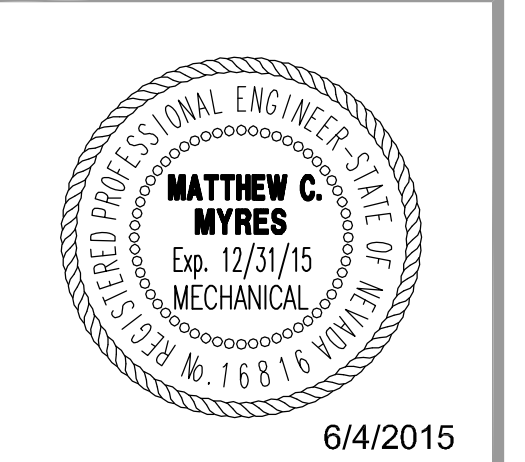
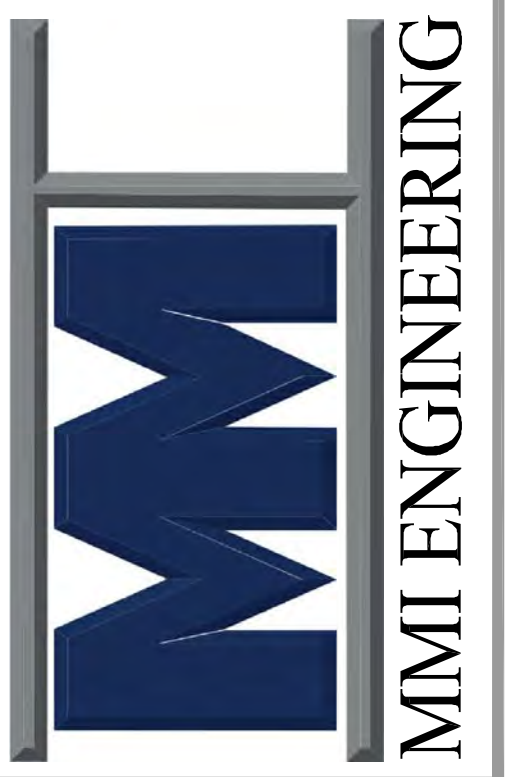
DATE : JUNE 4, 2015
 SHEET NUMBER :
MD2.2



GENERAL NOTES

1. THE OUTLINE OF THE (E) VAV BOXES INTERLOCKED TO THE (E) THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (E) VAV BOXES ARE TO BE REMOVED AND REPLACED WITH NEW EQUIPMENT AS SHOWN ON THE MD1 SERIES AND MD2 SERIES SHEETS.
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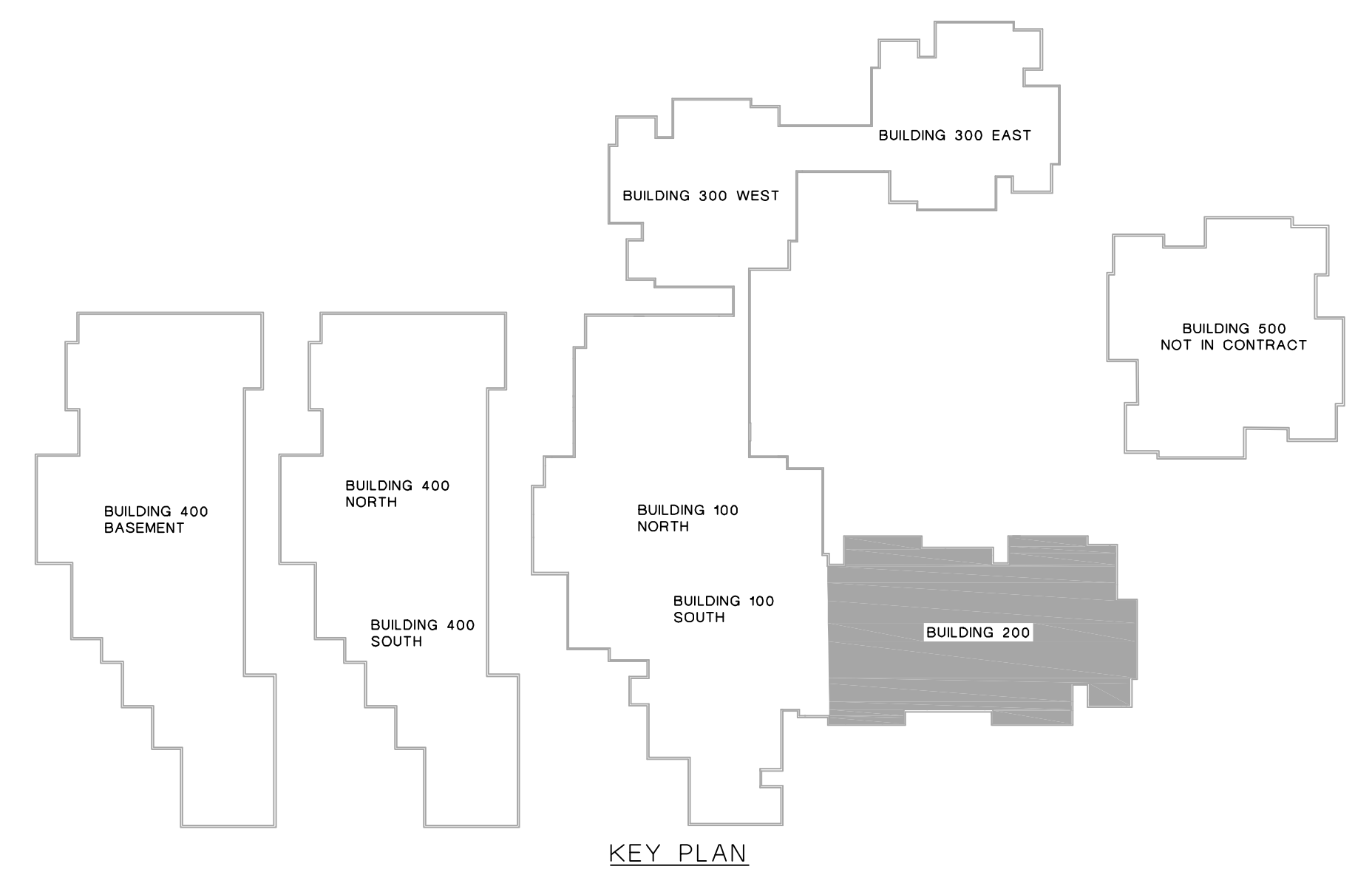
**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

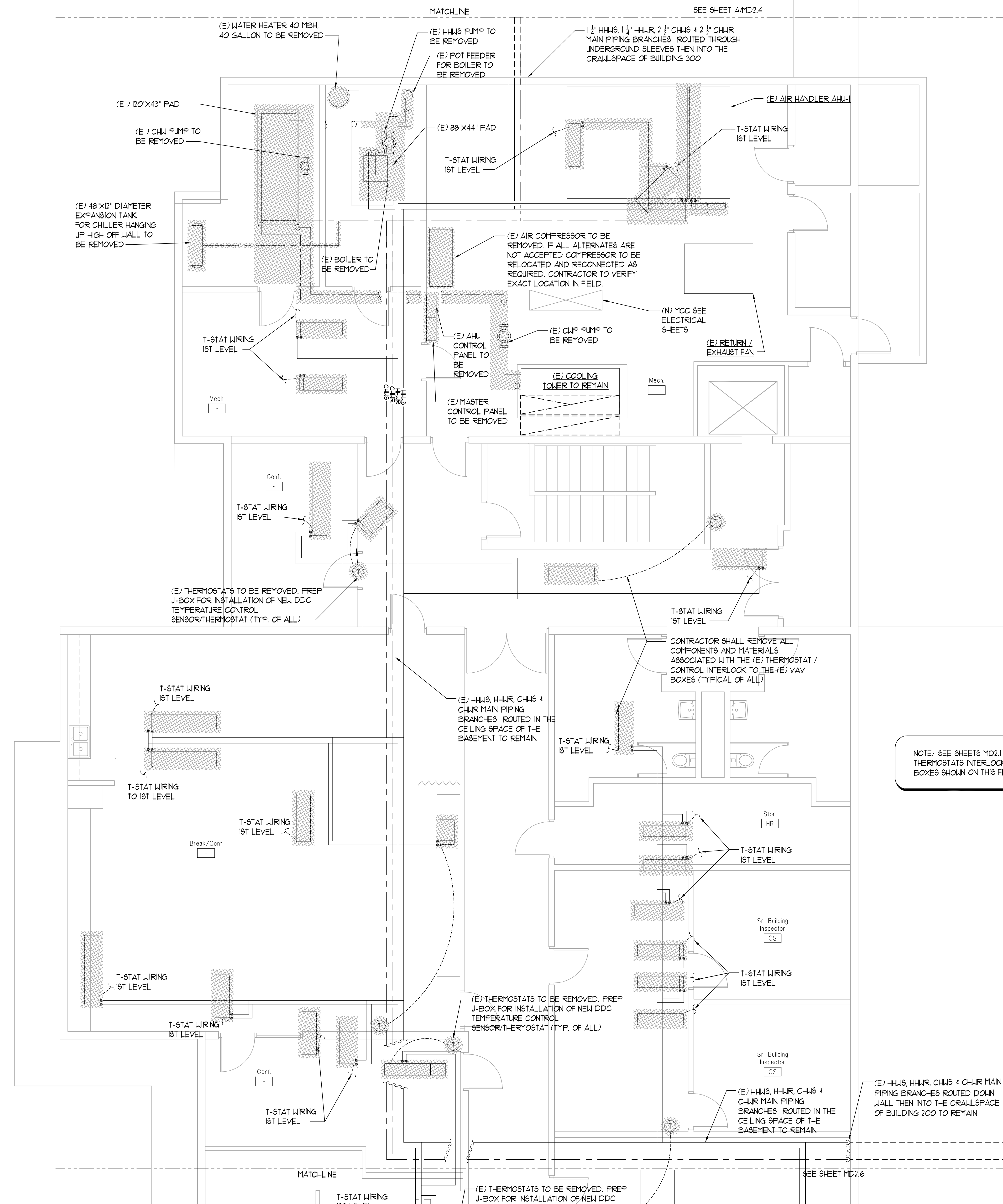
SHEET TITLE
**BUILDING #200
 MECHANICAL DEMOLITION
 FLOOR PLAN**

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER : **MD2.3**

**BUILDING #200
 MECHANICAL DEMOLITION FLOOR PLAN**
 SCALE: 1/4"=1'-0"

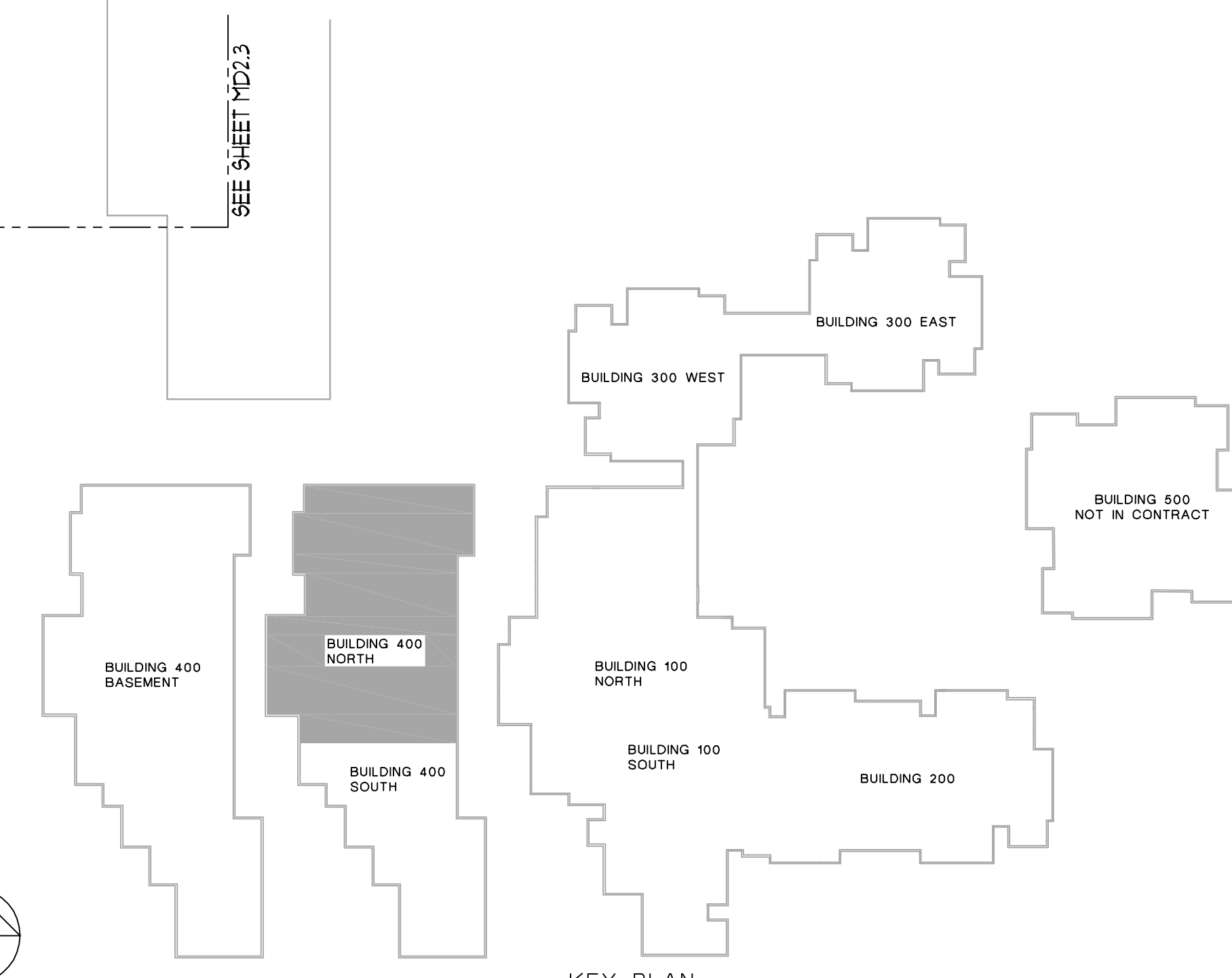




GENERAL NOTES

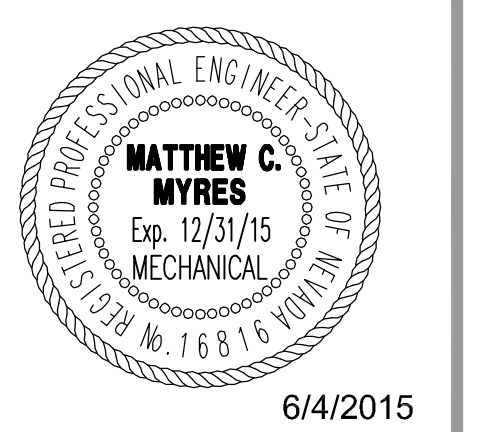
1. THE OUTLINE OF THE (E) VAV BOXES INTERLOCKED TO THE (E) THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (E) VAV BOXES ARE TO BE REMOVED AND REPLACED WITH NEW EQUIPMENT AS SHOWN ON THE MD1 SERIES AND MD2 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REMOVE ALL (E) THERMOSTAT AND PREP THE (E) CONDUIT AND JUNCTION BOX TO BE REUSED FOR THE INSTALLATION OF THE NEW CONTROLS.

NOTE: SEE SHEETS MD2.1 AND MD2.2 FOR THERMOSTATS INTERLOCKED TO THE VAV BOXES SHOWN ON THIS FLOOR PLAN



BUILDING #400 - (NORTH HALF)
MECHANICAL DEMOLITION PLAN - SYSTEM SERVING 1ST FLOOR AND BASEMENT AREAS
 SCALE: 1/4"=1'-0"

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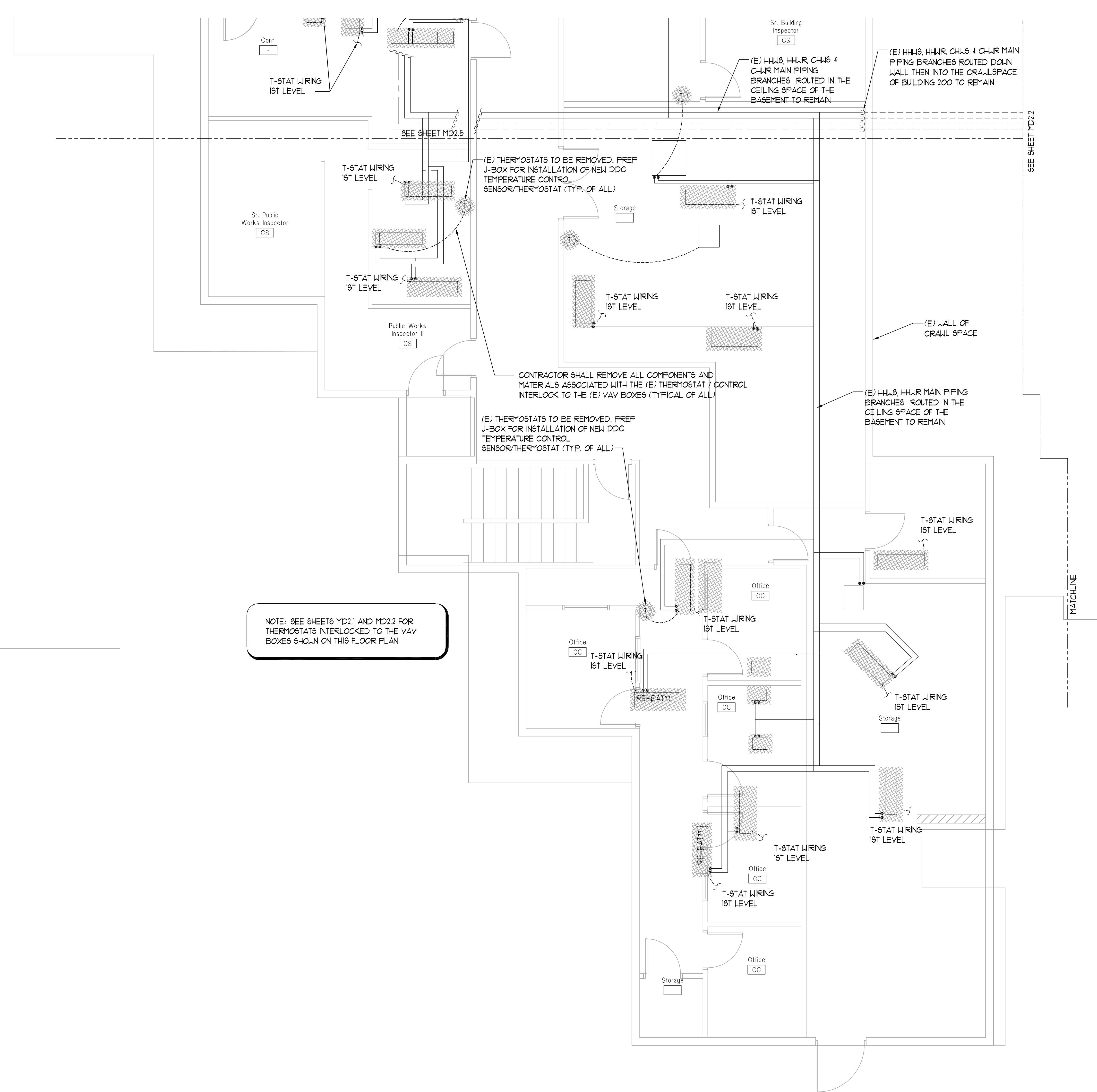


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SHEET TITLE
 BUILDING #400 (NORTH)
 MECHANICAL DEMOLITION
 PLAN - SYSTEMS SERVING
 1ST FLOOR

REVISIONS

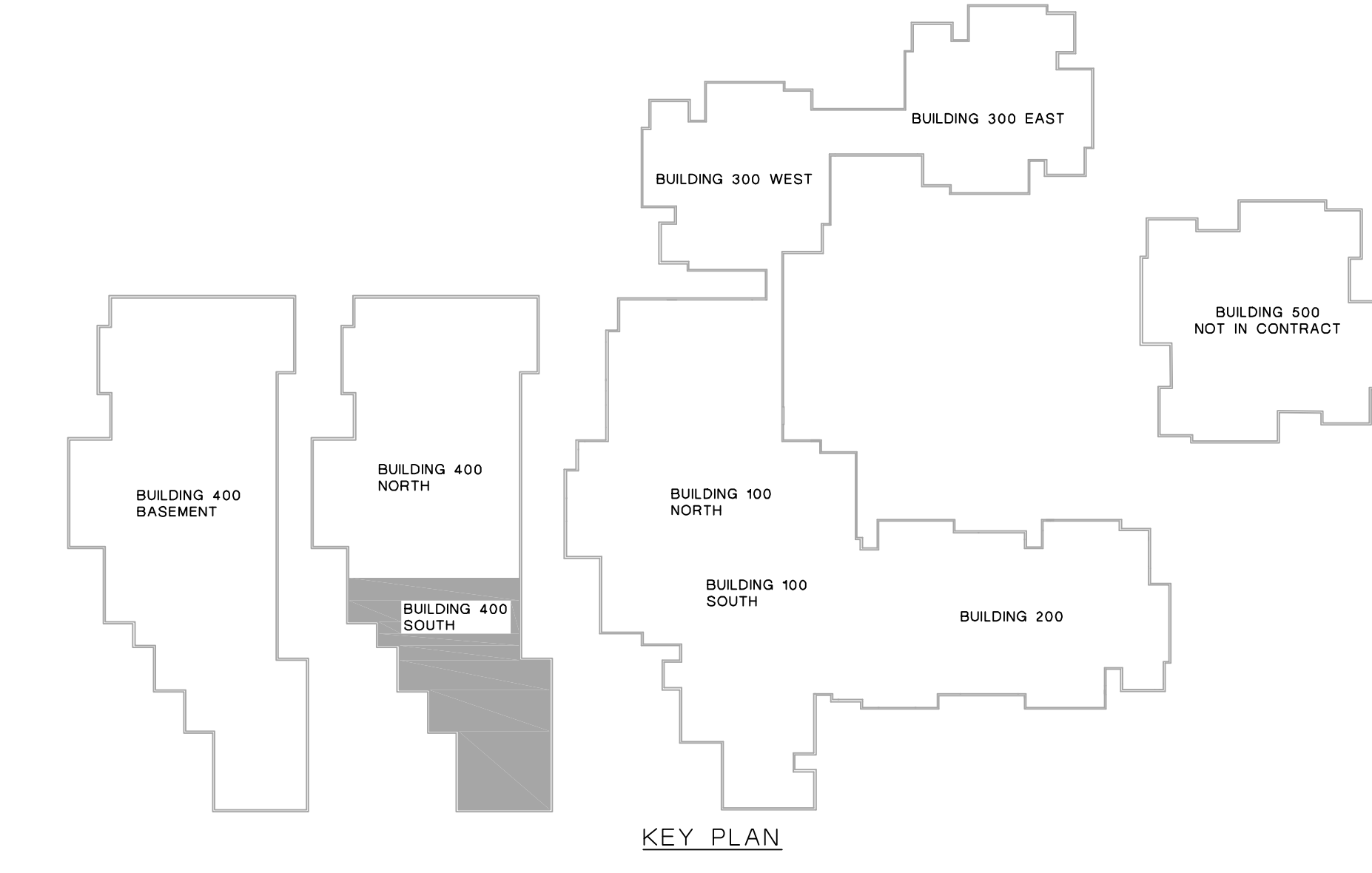
DATE: JUNE 4, 2015
 SHEET NUMBER: MD2.5



NOTE: SEE SHEETS MD2.1 AND MD2.2 FOR THERMOSTATS INTERLOCKED TO THE VAV BOXES SHOWN ON THIS FLOOR PLAN

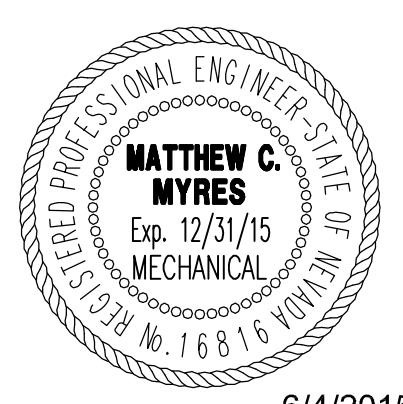
GENERAL NOTES

1. THE OUTLINE OF THE (E) VAV BOXES INTERLOCKED TO THE (E) THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (E) VAV BOXES ARE TO BE REMOVED AND REPLACED WITH NEW EQUIPMENT AS SHOWN ON THE MD1 SERIES AND M1 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REMOVE ALL (E) THERMOSTAT AND PREP THE (E) CONDUIT AND JUNCTION BOX TO BE REUSED FOR THE INSTALLATION OF THE NEW CONTROLS.



BUILDING #400 - (SOUTH HALF)
MECHANICAL DEMOLITION PLAN - SYSTEM SERVING 1ST FLOOR
 SCALE: 1/4"=1'-0"

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SHEET TITLE
 BUILDING #400 (SOUTH)
 MECHANICAL DEMOLITION
 PLAN - SYSTEM SERVING
 1ST FLOOR

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

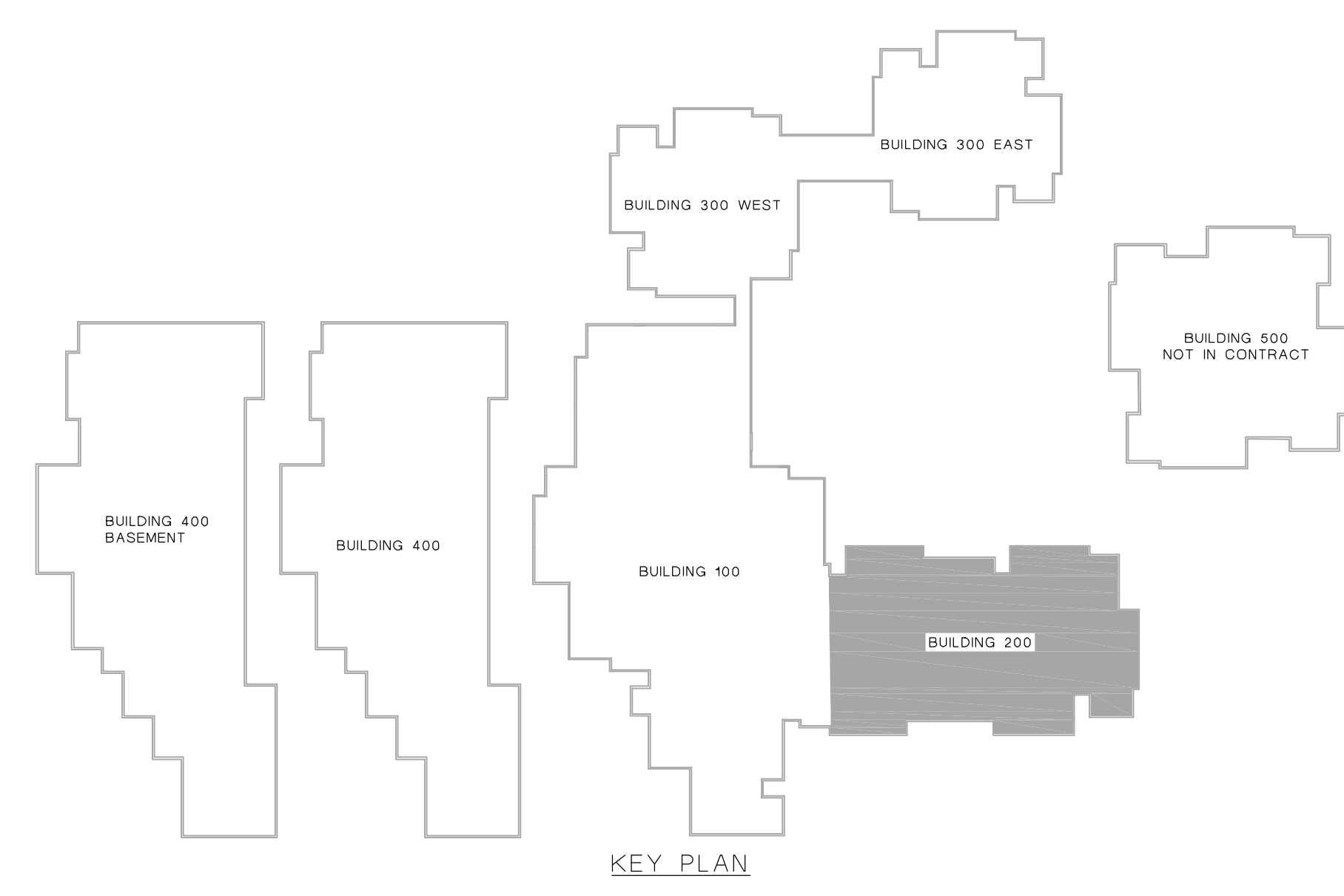
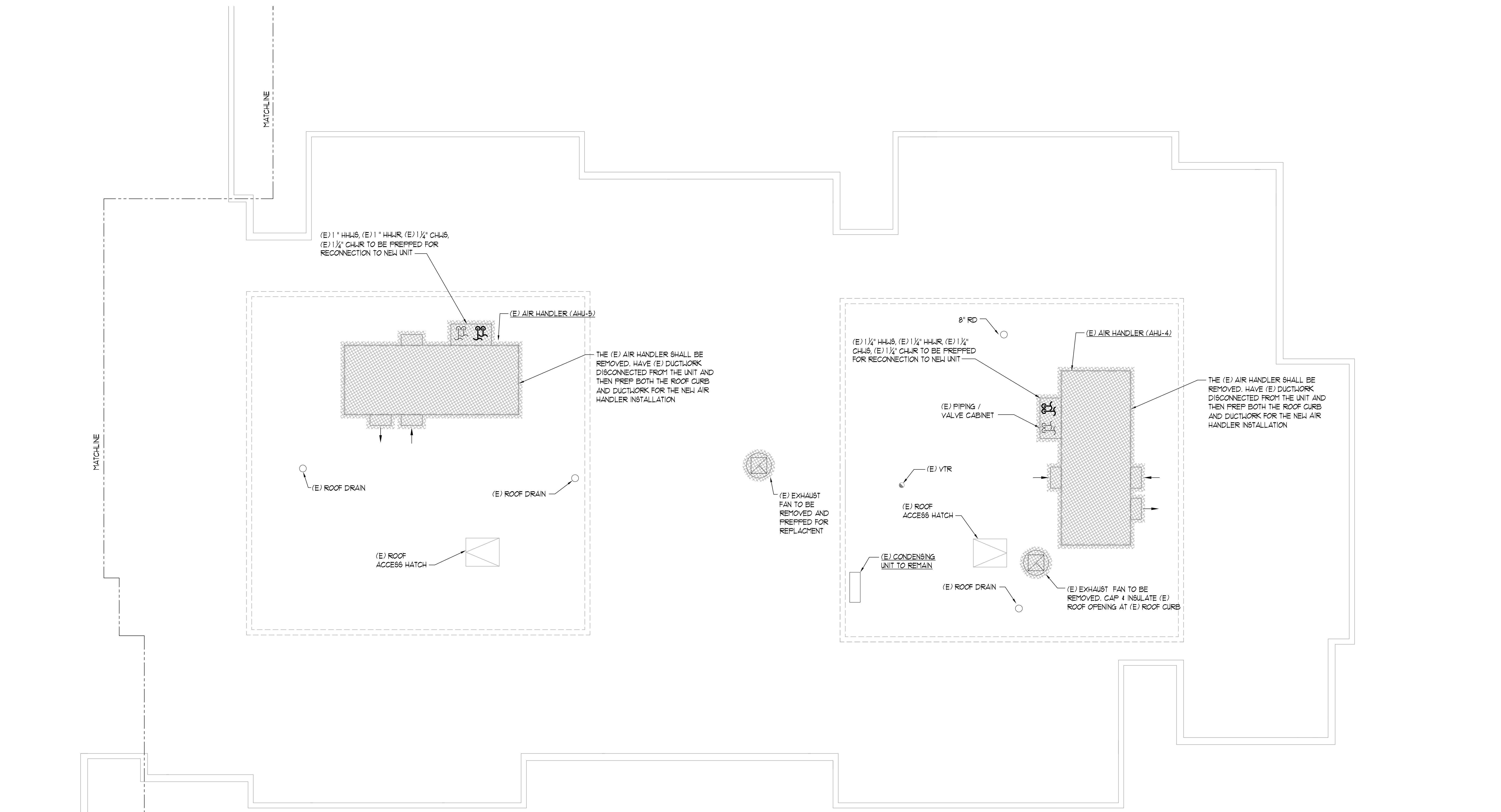
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**SPARKS CITY HALL
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 SPARKS, NEVADA**

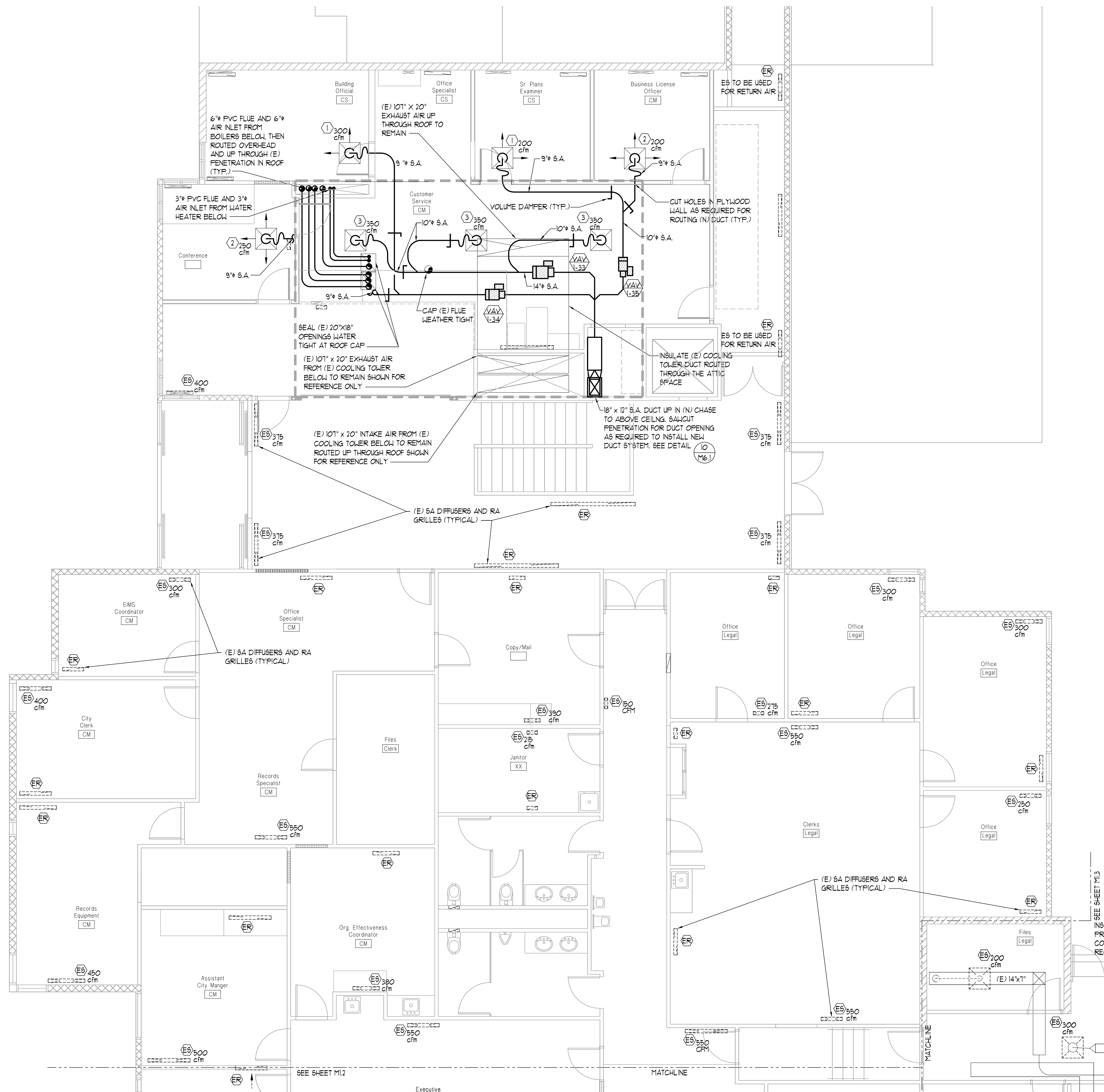
SHEET TITLE
**BUILDING #200
 MECHANICAL DEMOLITION
 ROOF PLAN**

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER :
MD3.1



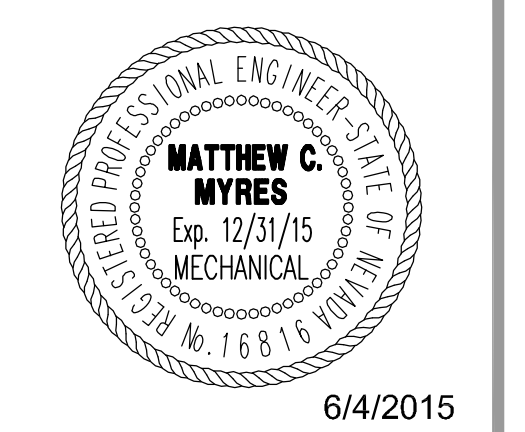
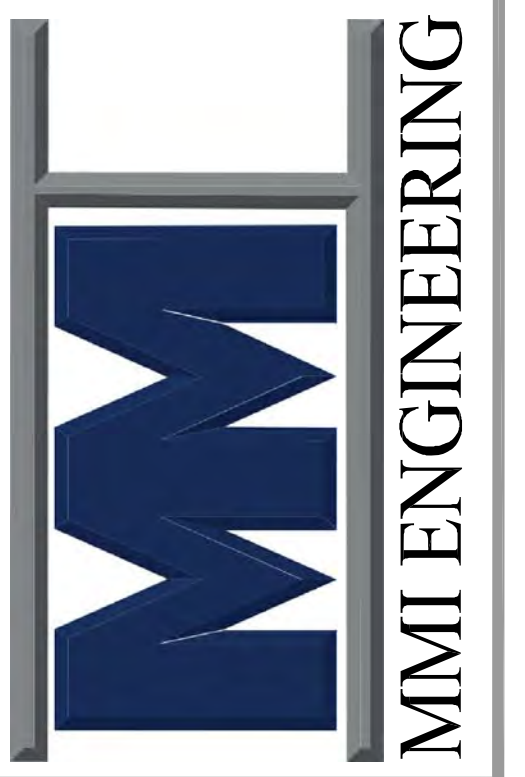
**BUILDING #200
 MECHANICAL DEMOLITION ROOF PLAN**
 SCALE: 1/4"=1'-0"



GENERAL NOTES

1. THE DASHED OUTLINE OF THE (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES ARE SHOWN FOR REFERENCE ONLY. THE (E) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE M1 SERIES AND M2 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REUSE ALL (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES FOR THE SYSTEM MODIFICATIONS. THE (N) VAV BOXES, CONNECTIONS AND AIRFLOWS ARE SHOWN ON THE M1 SERIES AND M2 SERIES SHEETS.
3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS ARE SHOWN ON THE M1 SERIES, M2 SERIES AND M3 SERIES SHEETS.
4. CONTRACTOR SHALL EXTEND ALL DUCT WORK FROM THE (E) VAV BOX AND COIL LOCATION TO THE POINT OF CONNECTION TO THE EXISTING DUCTWORK AS REQUIRED. THE CONTRACTOR SHALL PROVIDE DUCT TRANSITIONS AS REQUIRED TO ACCOMMODATE SIZE DIFFERENCES. FOR THE DUCT SECTIONS THAT NEED TO BE EXTENDED, THE CONTRACTOR SHALL MATCH THE SIZE OF THE (E) DUCTWORK UNLESS OTHERWISE NOTE OF THE PLANS.
5. THE CONTRACTOR SHALL REBALANCE THE AIR FLOWS ONCE THE UPGRADES HAVE BEEN COMPLETED FOR THE WHOLE SYSTEM.

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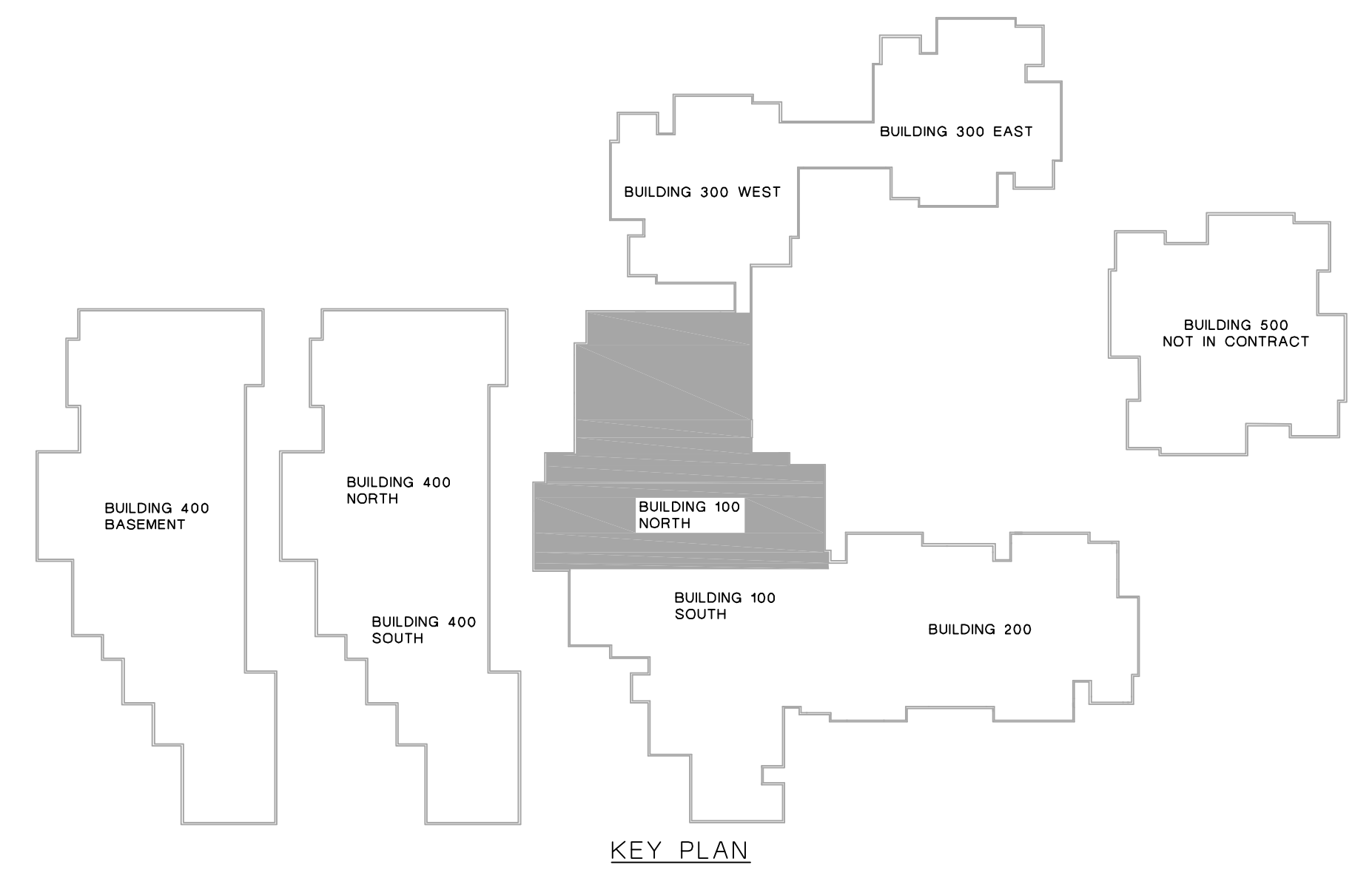


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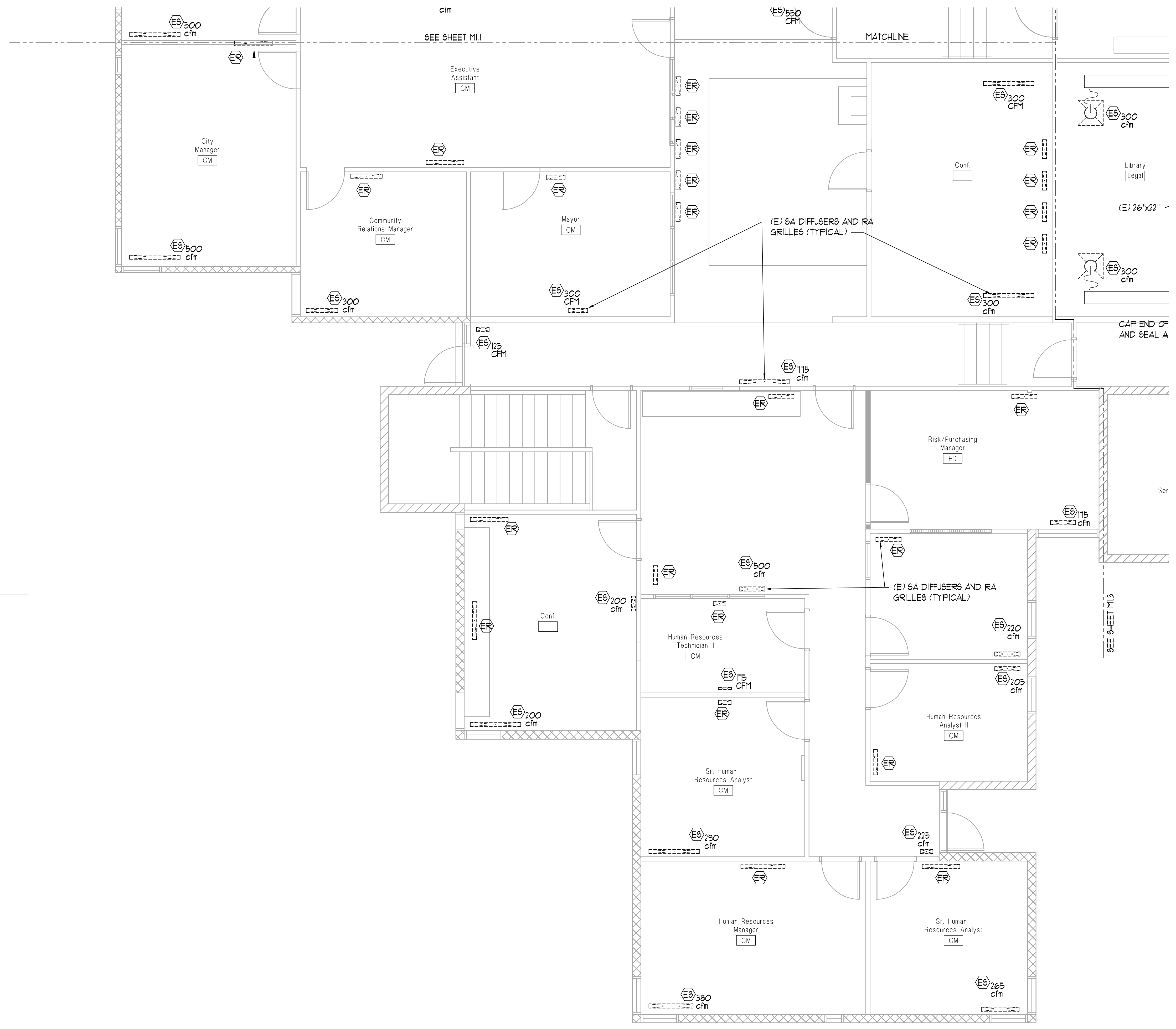
SHEET TITLE
**BUILDING #100
MECHANICAL
FLOOR PLAN**

REVISIONS

DATE :
JUNE 4, 2015
SHEET NUMBER :
M1.1

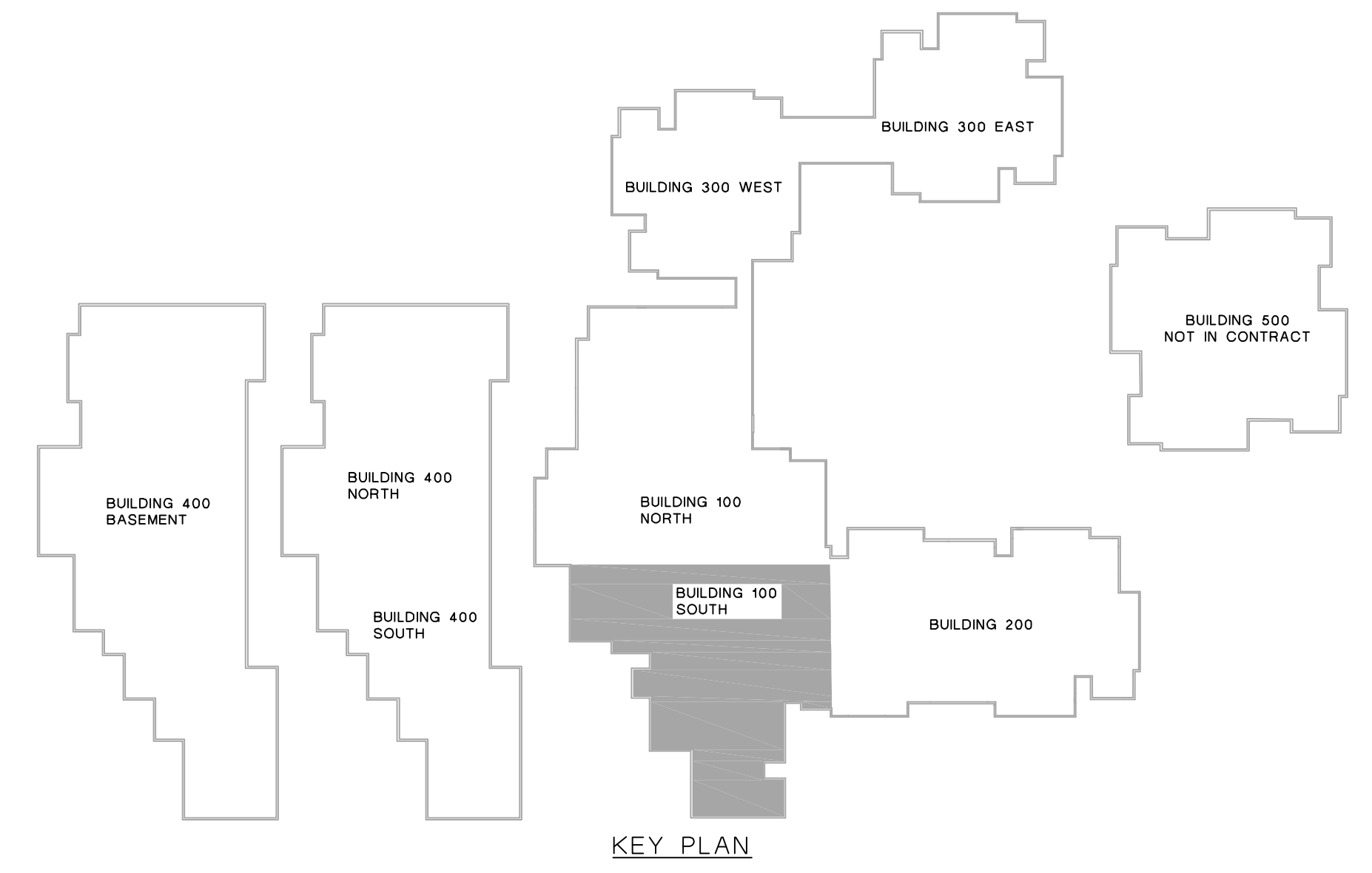


**BUILDING #100 (NORTH HALF)
MECHANICAL FLOOR PLAN**
SCALE: 1/4"=1'-0"



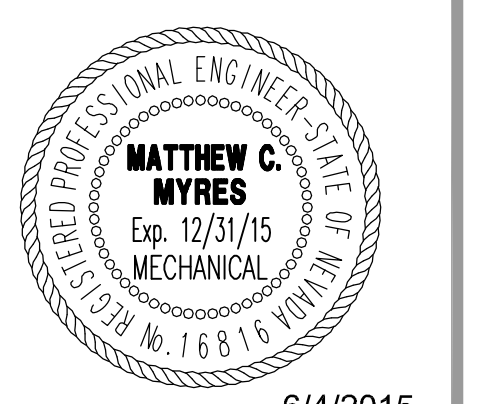
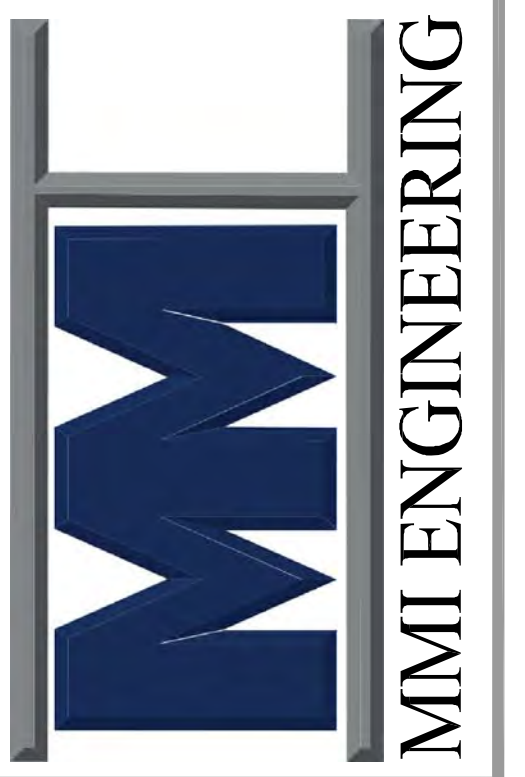
GENERAL NOTES

1. THE DASHED OUTLINE OF THE (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES ARE SHOWN FOR REFERENCE ONLY. THE (E) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE M1 SERIES AND M2 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REUSE ALL (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES FOR THE SYSTEM MODIFICATIONS. THE (N) VAV BOXES, CONNECTIONS AND AIR FLOWS ARE SHOWN THE M1 SERIES AND M2 SERIES SHEETS.
3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS ARE SHOWN ON THE M1 SERIES, M2 SERIES AND M5 SERIES SHEETS.
4. CONTRACTOR SHALL EXTEND ALL DUCT WORK FROM THE (E) VAV BOX AND COIL LOCATION TO THE POINT OF CONNECTION TO THE EXISTING DUCTWORK AS REQUIRED. THE CONTRACTOR SHALL PROVIDE DUCT TRANSITIONS AS REQUIRED TO ACCOMMODATE SIZE DIFFERENCES. FOR THE DUCT SECTIONS THAT NEED TO BE EXTENDED, THE CONTRACTOR SHALL MATCH THE SIZE OF THE (E) DUCTWORK UNLESS OTHERWISE NOTE OF THE PLANS.
5. THE CONTRACTOR SHALL REBALANCE THE AIR FLOWS ONCE THE UPGRADES HAVE BEEN COMPLETED FOR THE WHOLE SYSTEM.



**BUILDING #100 (SOUTH HALF)
MECHANICAL FLOOR PLAN**
SCALE: 1/4"=1'-0"

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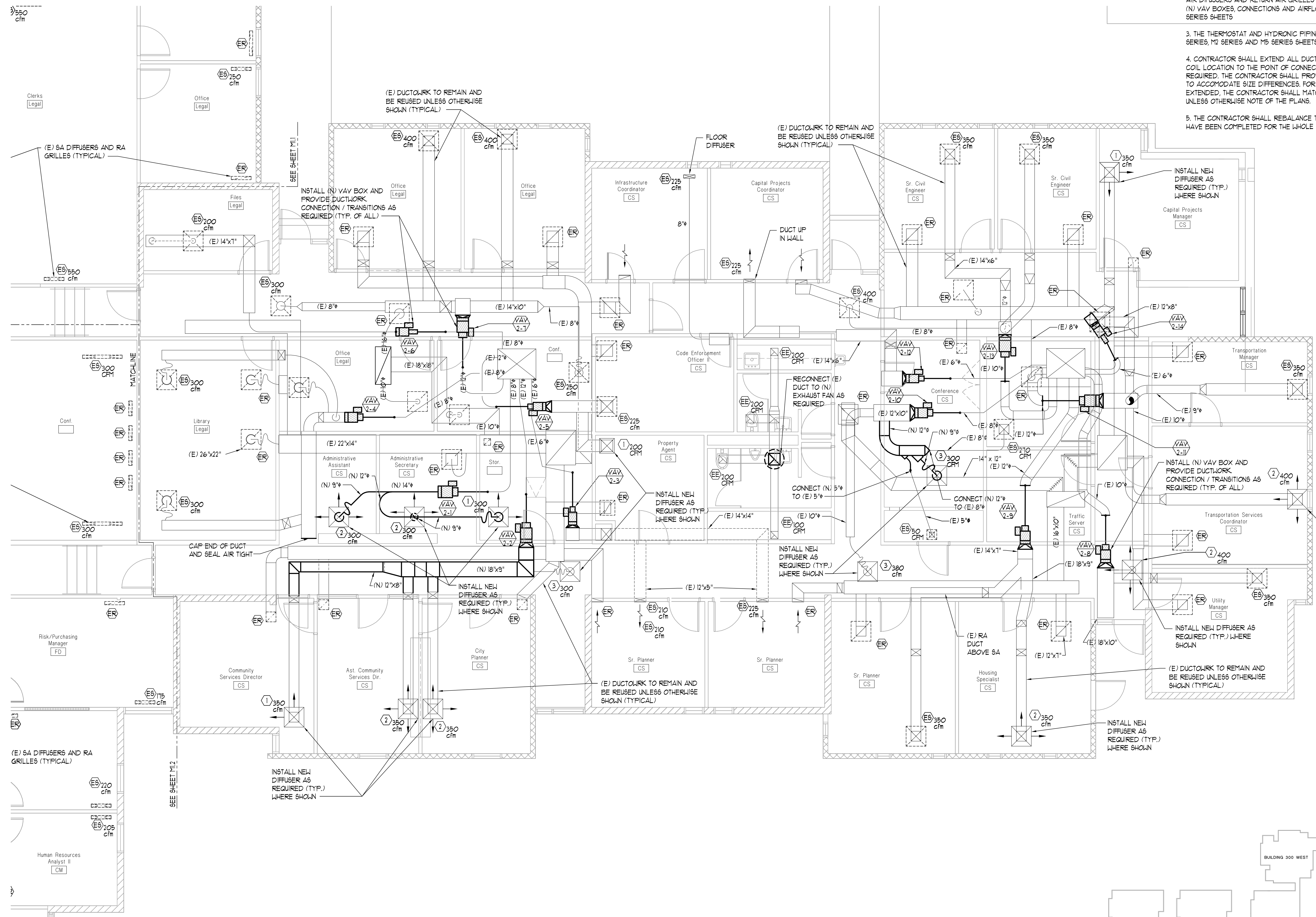
**SPARKS CITY HALL
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SPARKS, NEVADA**

SHEET TITLE
**BUILDING #100
MECHANICAL
FLOOR PLAN**

REVISIONS

DATE : JUNE 4, 2015
SHEET NUMBER :

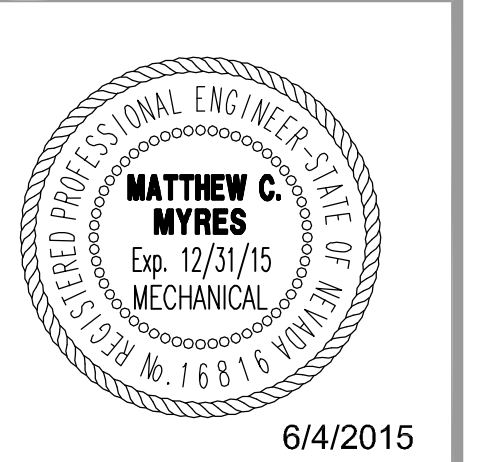
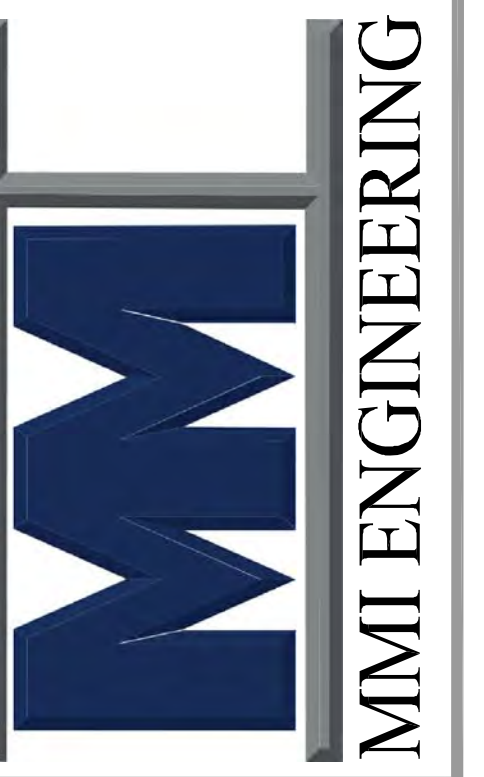
M1.2



GENERAL NOTES

1. THE DASHED OUTLINE OF THE (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES ARE SHOWN FOR REFERENCE ONLY. THE (E) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE M1 SERIES AND M2 SERIES SHEETS.
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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS ARE SHOWN ON THE M1 SERIES, M2 SERIES AND M5 SERIES SHEETS.
4. CONTRACTOR SHALL EXTEND ALL DUCT WORK FROM THE (E) VAV BOX AND COIL LOCATION TO THE POINT OF CONNECTION TO THE EXISTING DUCTWORK AS REQUIRED. THE CONTRACTOR SHALL PROVIDE DUCT TRANSITIONS AS REQUIRED TO ACCOMMODATE SIZE DIFFERENCES. FOR THE DUCT SECTIONS THAT NEED TO BE EXTENDED, THE CONTRACTOR SHALL MATCH THE SIZE OF THE (E) DUCTWORK UNLESS OTHERWISE NOTE OF THE PLANS.
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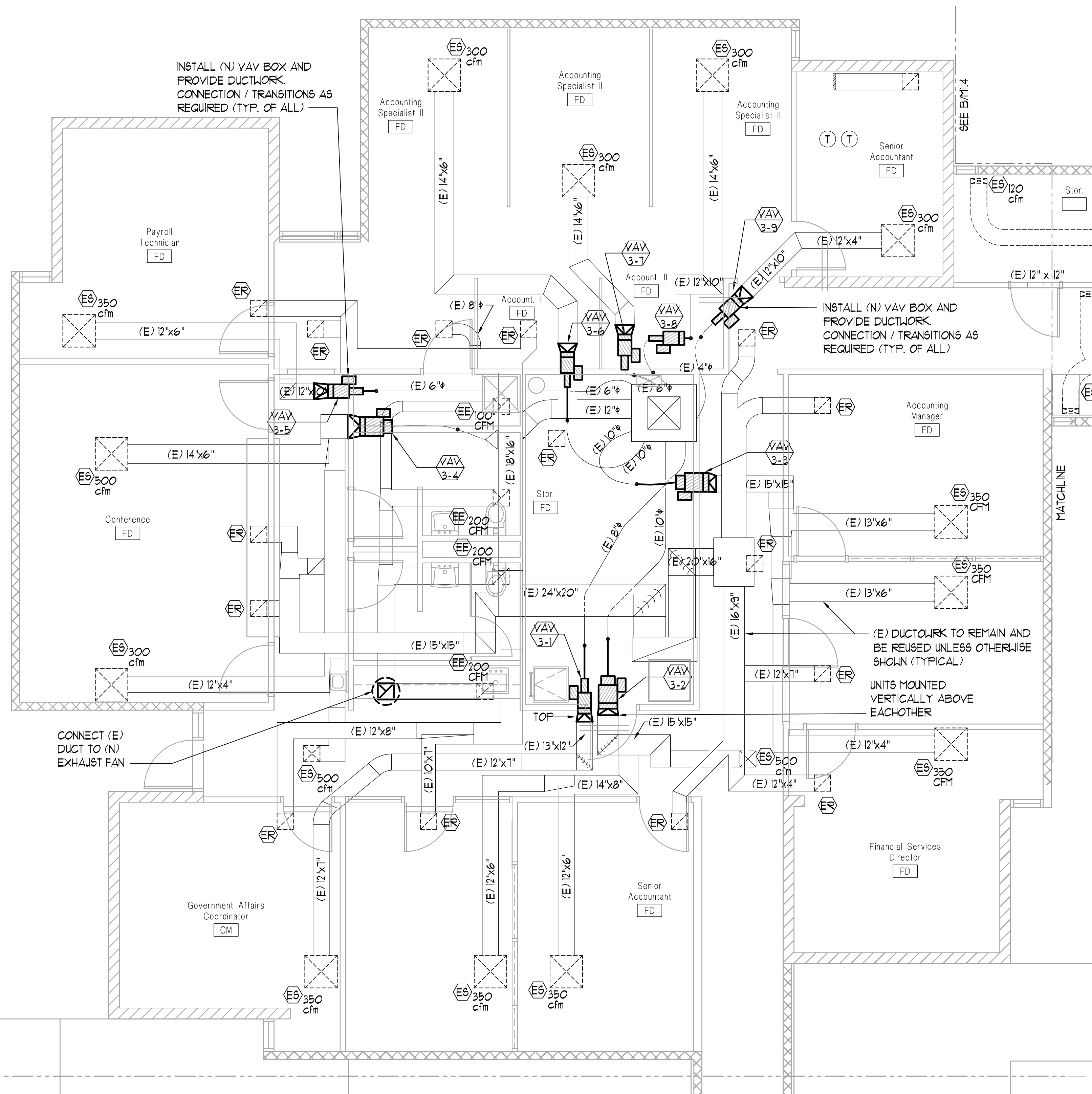
SHEET TITLE
 BUILDING #200
 MECHANICAL
 FLOOR PLAN

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :
M1.3

**BUILDING #200
 MECHANICAL FLOOR PLAN**
 SCALE: 1/4"=1'-0"

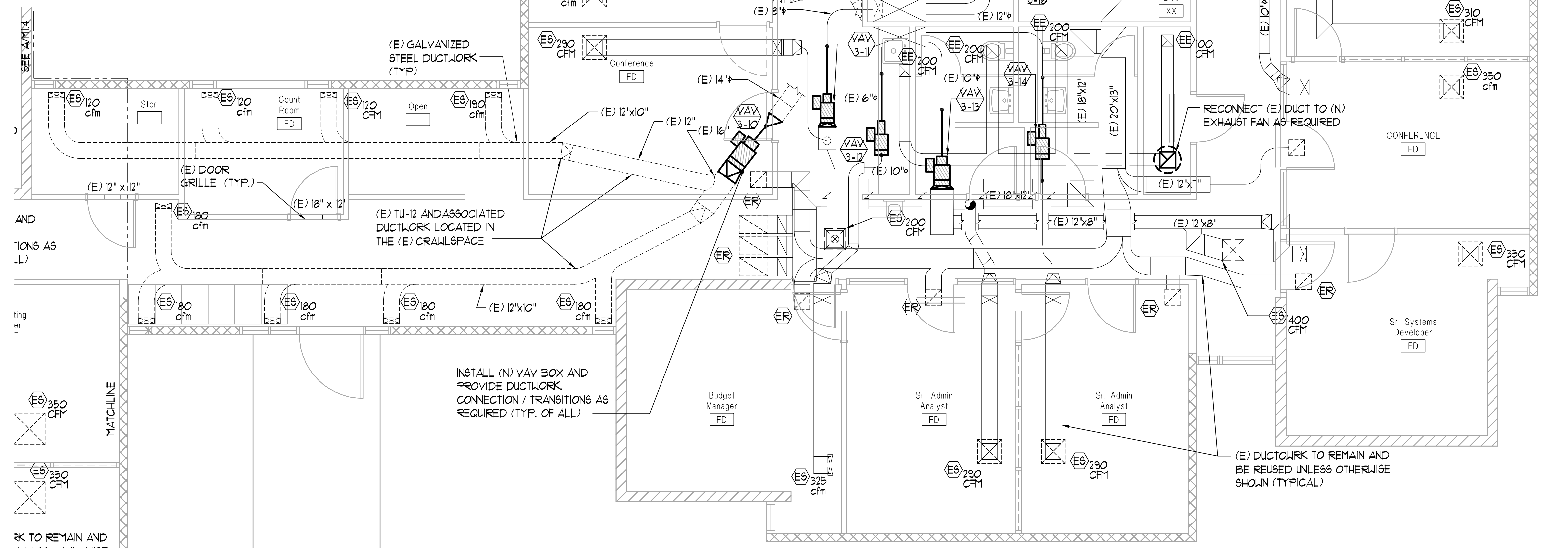
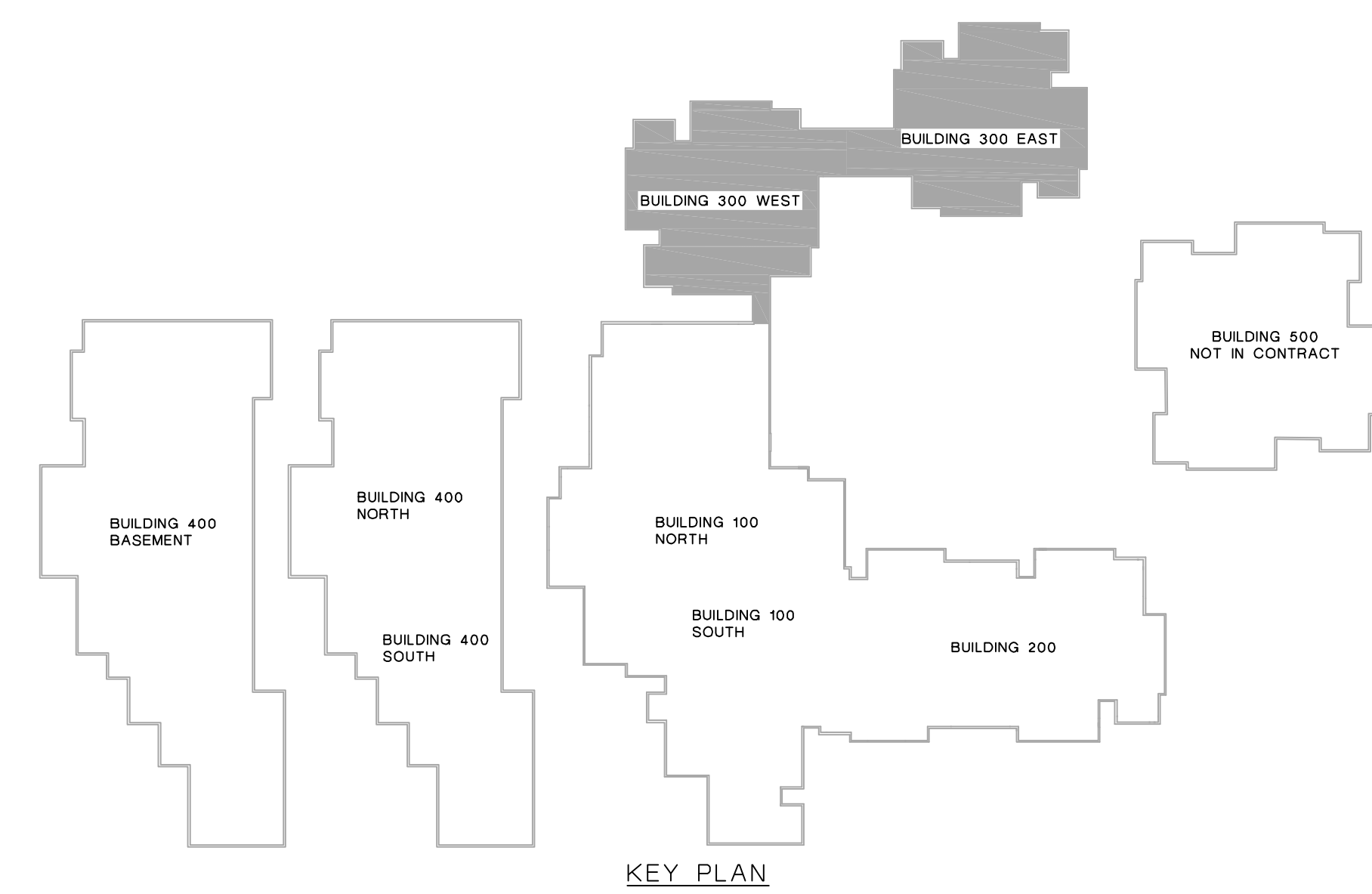




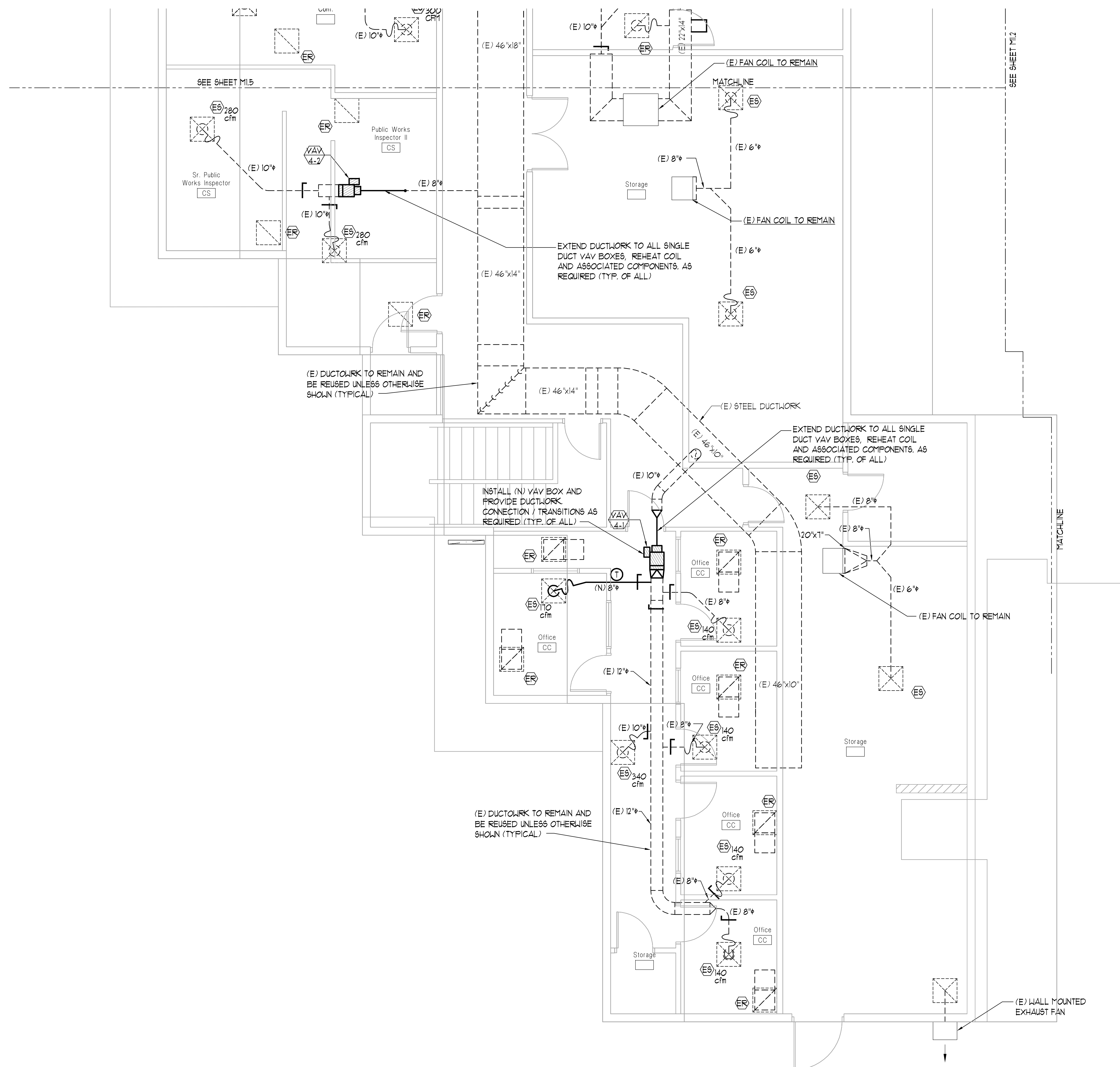
A BUILDING #300 FLOOR PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES

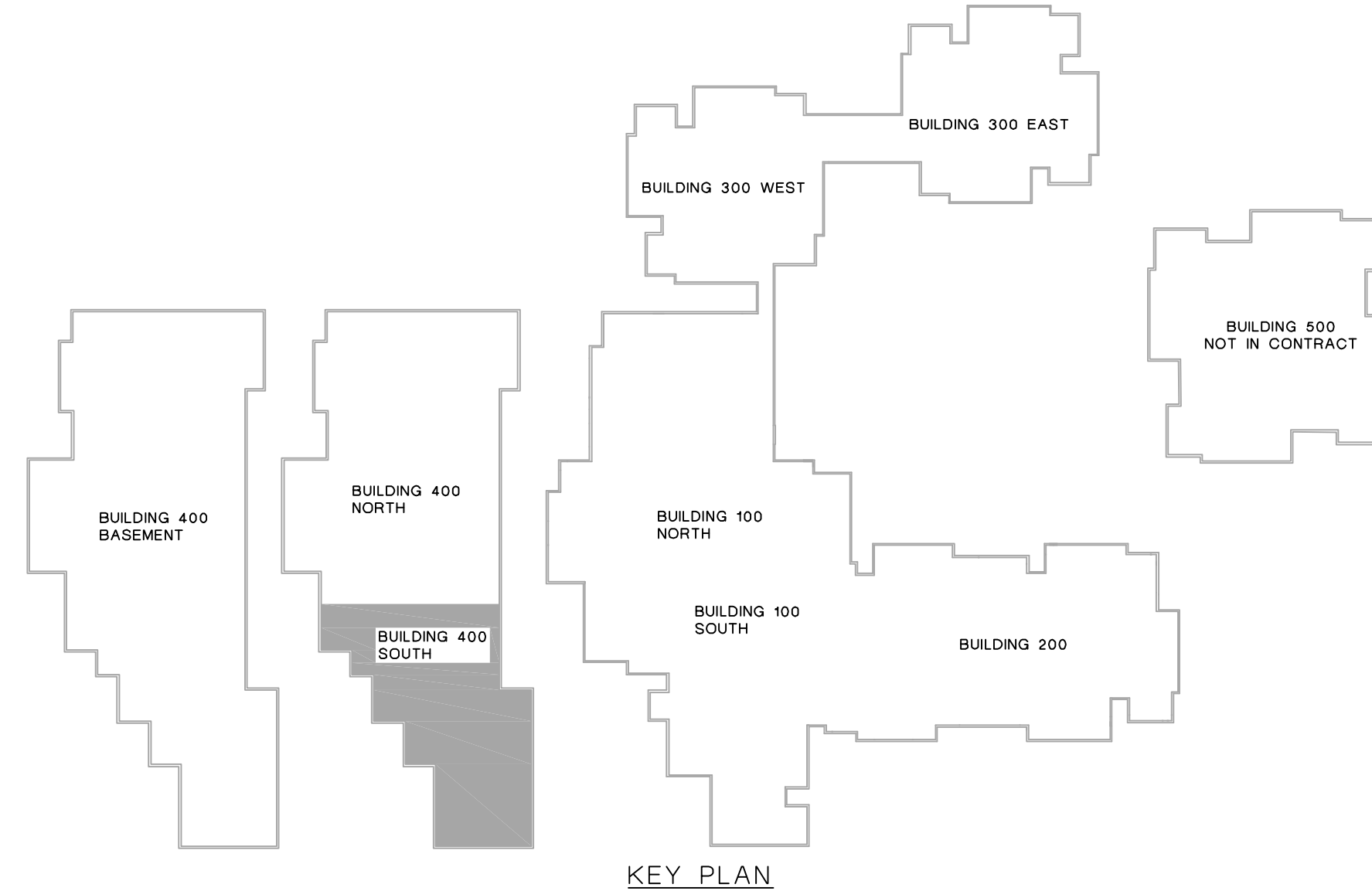
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3. THE THERMOSTAT AND HYDRONIC PIPING SYSTEMS ARE SHOWN ON THE M1 SERIES, M2 SERIES AND M3 SERIES SHEETS.
4. CONTRACTOR SHALL EXTEND ALL DUCT WORK FROM THE (E) VAV BOX AND COIL LOCATION TO THE POINT OF CONNECTION TO THE EXISTING DUCTWORK AS REQUIRED. THE CONTRACTOR SHALL PROVIDE DUCT TRANSITIONS AS REQUIRED TO ACCOMMODATE SIZE DIFFERENCES. FOR THE DUCT SECTIONS THAT NEED TO BE EXTENDED, THE CONTRACTOR SHALL MATCH THE SIZE OF THE (E) DUCTWORK UNLESS OTHERWISE NOTE OF THE PLANS.
5. THE CONTRACTOR SHALL REBALANCE THE AIR FLOWS ONCE THE UPGRADES HAVE BEEN COMPLETED FOR THE WHOLE SYSTEM.



B BUILDING #300 FLOOR PLAN
SCALE: 1/4"=1'-0"



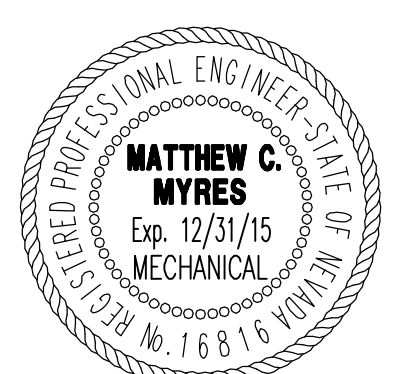
BUILDING #400 - (SOUTH HALF)
MECHANICAL PLAN - SYSTEM SERVING BASEMENT
 SCALE: 1/4"=1'-0"



GENERAL NOTES

1. THE DASHED OUTLINE OF THE (E) SUPPLY AIR DIFFUSERS AND RETURN AIR GRILLES ARE SHOWN FOR REFERENCE ONLY. THE (E) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE M1 SERIES AND M2 SERIES SHEETS.
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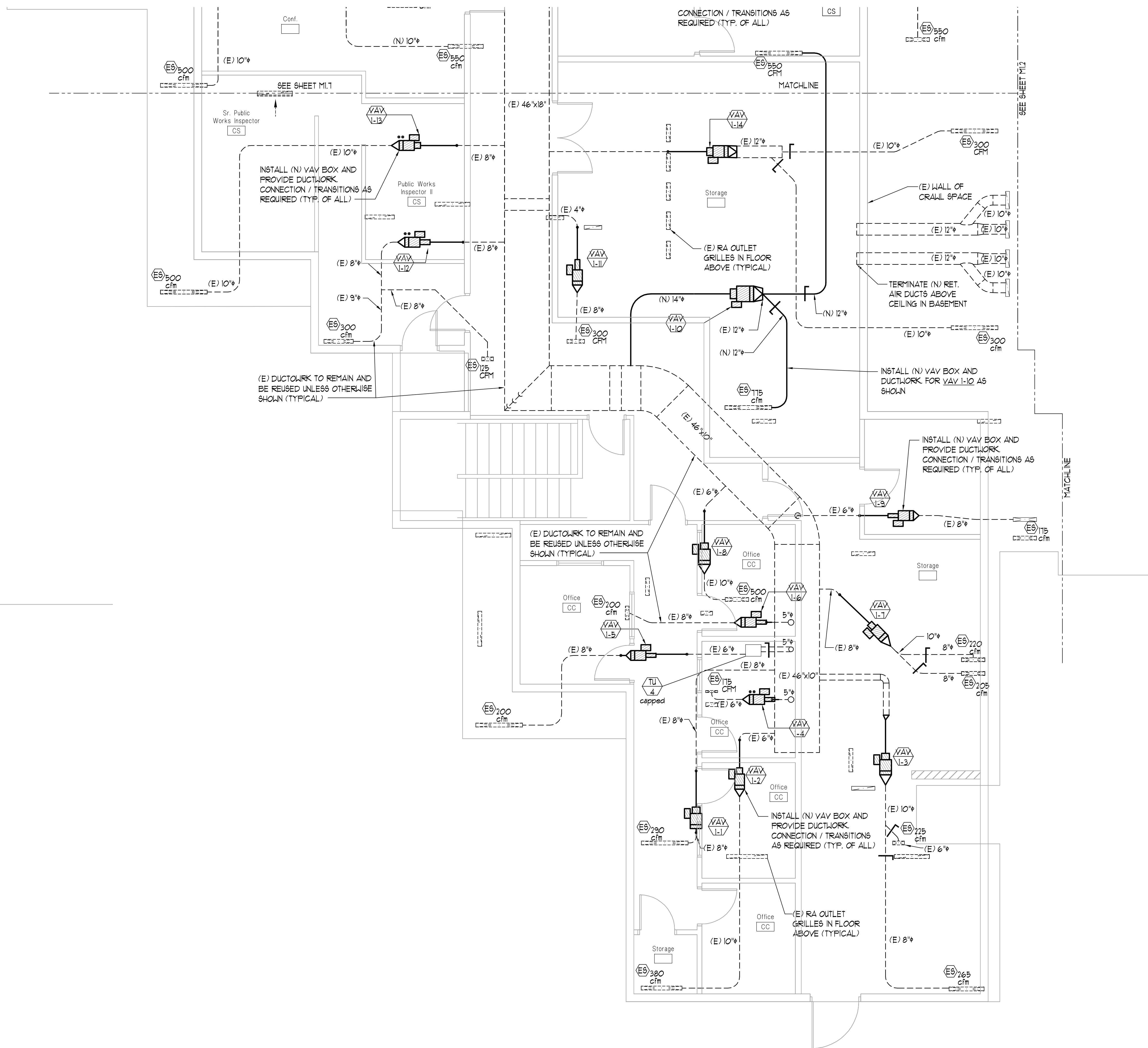
6/4/2015

SPARKS CITY HALL
CAMPUS HVAC UPGRADE
 SPARKS, NEVADA

SHEET TITLE
BUILDING #400 (SOUTH)
MECHANICAL
PLAN - SYSTEM SERVING
BASEMENT

REVISIONS

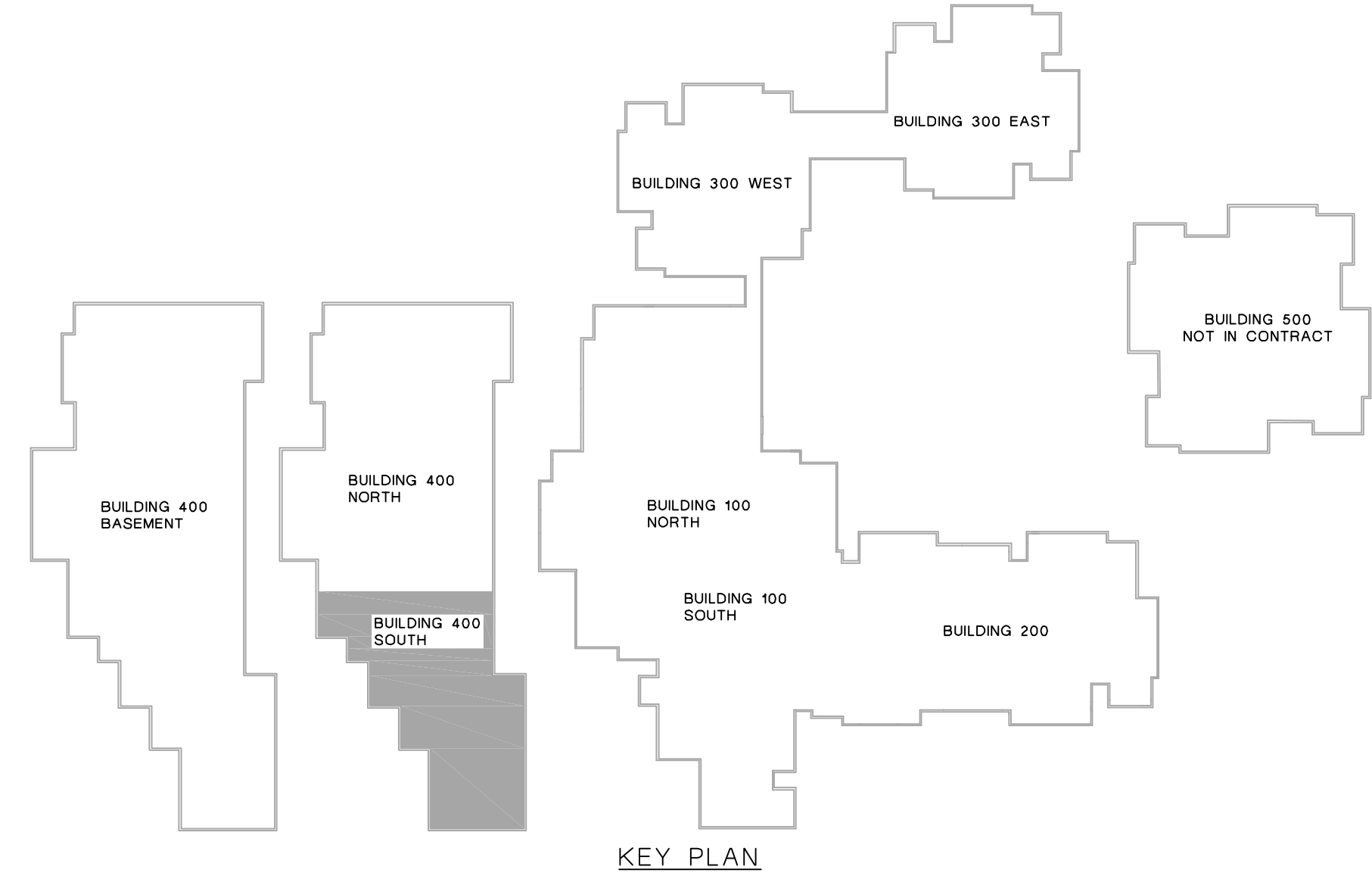
DATE :
JUNE 4, 2015
 SHEET NUMBER :
M1.6



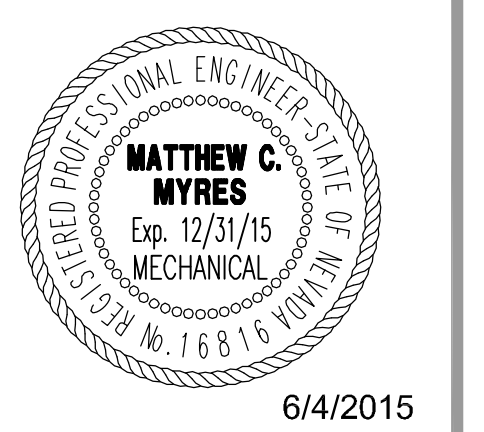
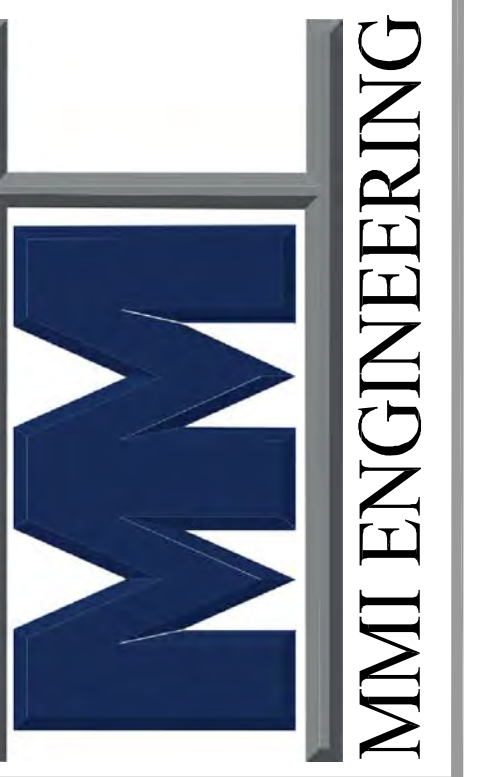
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5. THE CONTRACTOR SHALL REBALANCE THE AIR FLOWS ONCE THE UPGRADES HAVE BEEN COMPLETED FOR THE WHOLE SYSTEM.

BUILDING #400 - (SOUTH HALF)
MECHANICAL PLAN - SYSTEM SERVING 1ST FLOOR
 SCALE: 1/4"=1'-0"



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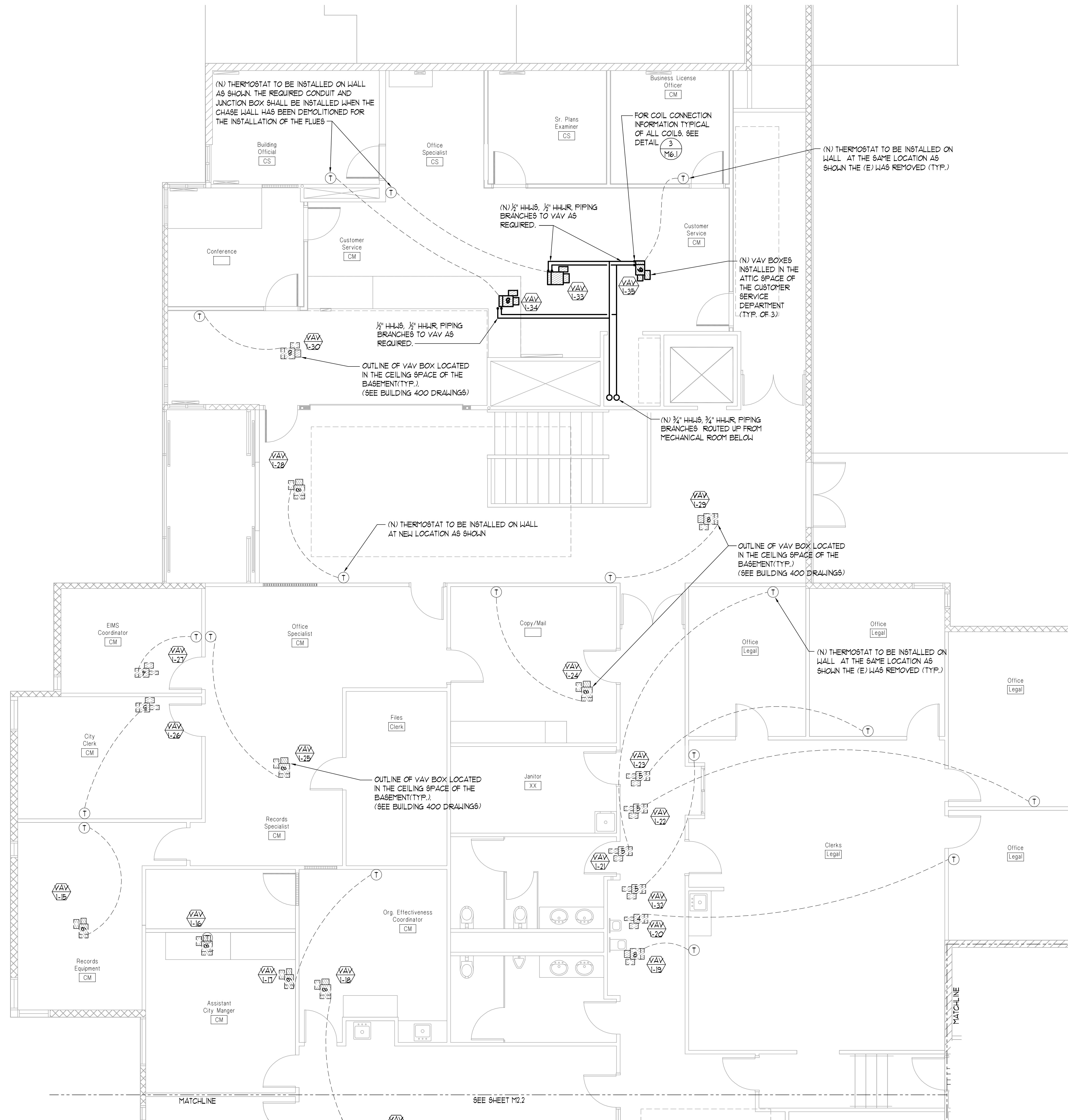


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 SPARKS, NEVADA

SHEET TITLE
 BUILDING #400 (SOUTH)
 MECHANICAL PLAN - SYSTEM SERVING 1ST FLOOR

REVISIONS

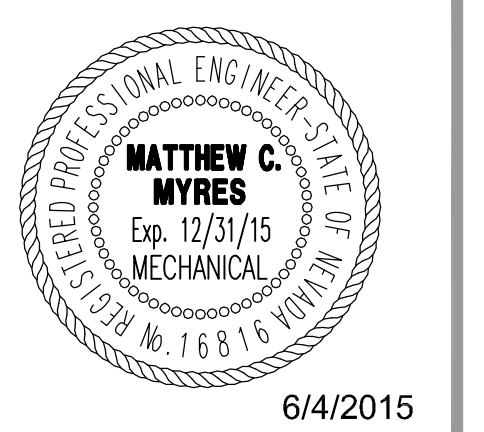
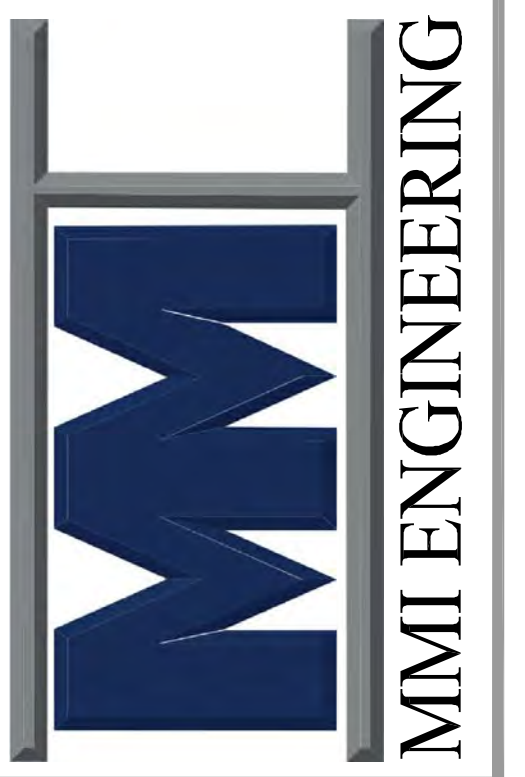
DATE : JUNE 4, 2015
 SHEET NUMBER : **M1.8**



GENERAL NOTES

1. THE DASHED OUTLINE OF THE (N) VAV BOXES LOCATED IN THE CEILING SPACE OF THE OF THE BASEMENT BELOW AND INTERLOCKED TO THE (N) SPACE THERMOSTATS ARE SHOWN FOR REFERENCE ONLY. THESE (N) VAV BOXES AND DUCT ASSOCIATED DUCT SYSTEMS ARE SHOWN ON THE M1 SERIES SHEETS.
2. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL REUSE ALL (E) THERMOSTAT LOCATIONS, CONDUIT AND JUNCTION BOX TO INSTALL THE NEW CONTROL THERMOSTATS / SENSORS.
3. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL NEW CONTROL PANELS, INTERLOCK WIRING AND COMPONENTS TO PROVIDE A FULLY FUNCTIONALLY CONTROL SYSTEM AS SPECIFIED.
4. CONTRACTOR SHALL EXTEND ALL (E) PIPING TO THE NEW COIL CONNECTIONS AS REQUIRED. FOR ADDITIONAL COIL CONNECTION REQUIREMENTS SEE DETAILS (M6.1) (M6.1)

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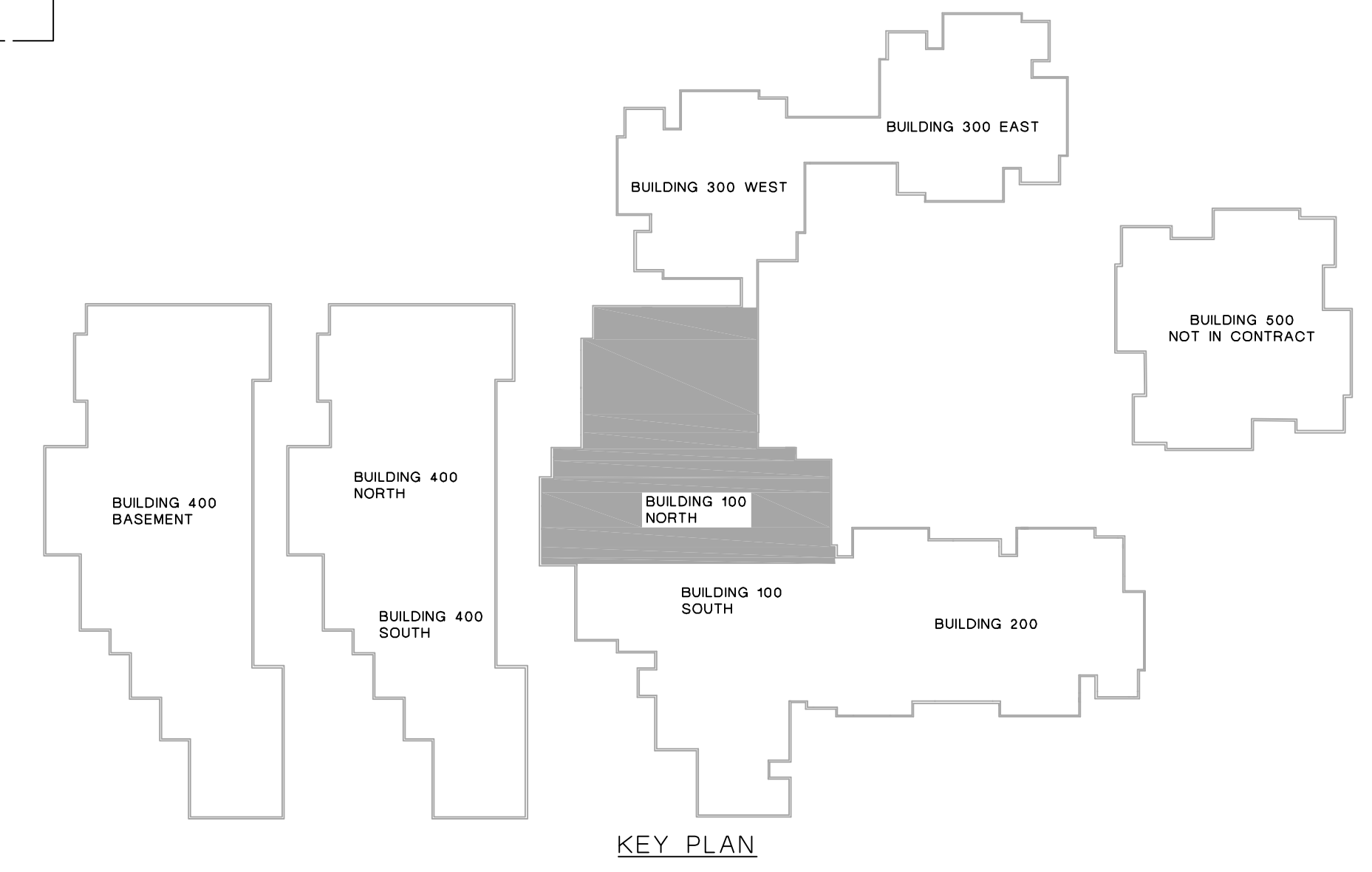


**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

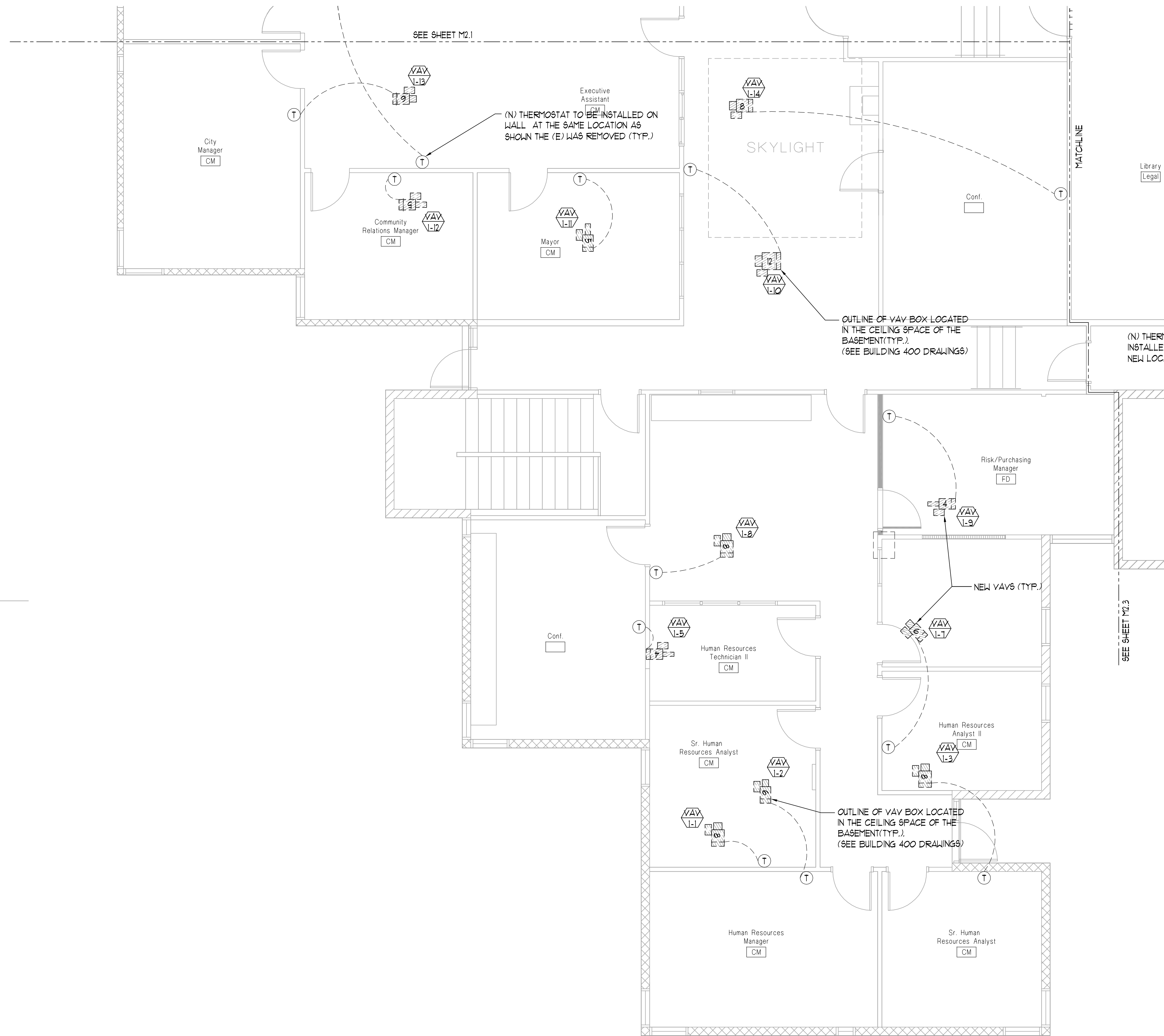
SHEET TITLE
 BUILDING #100
 MECHANICAL
 FLOOR PLAN

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :
M2.1



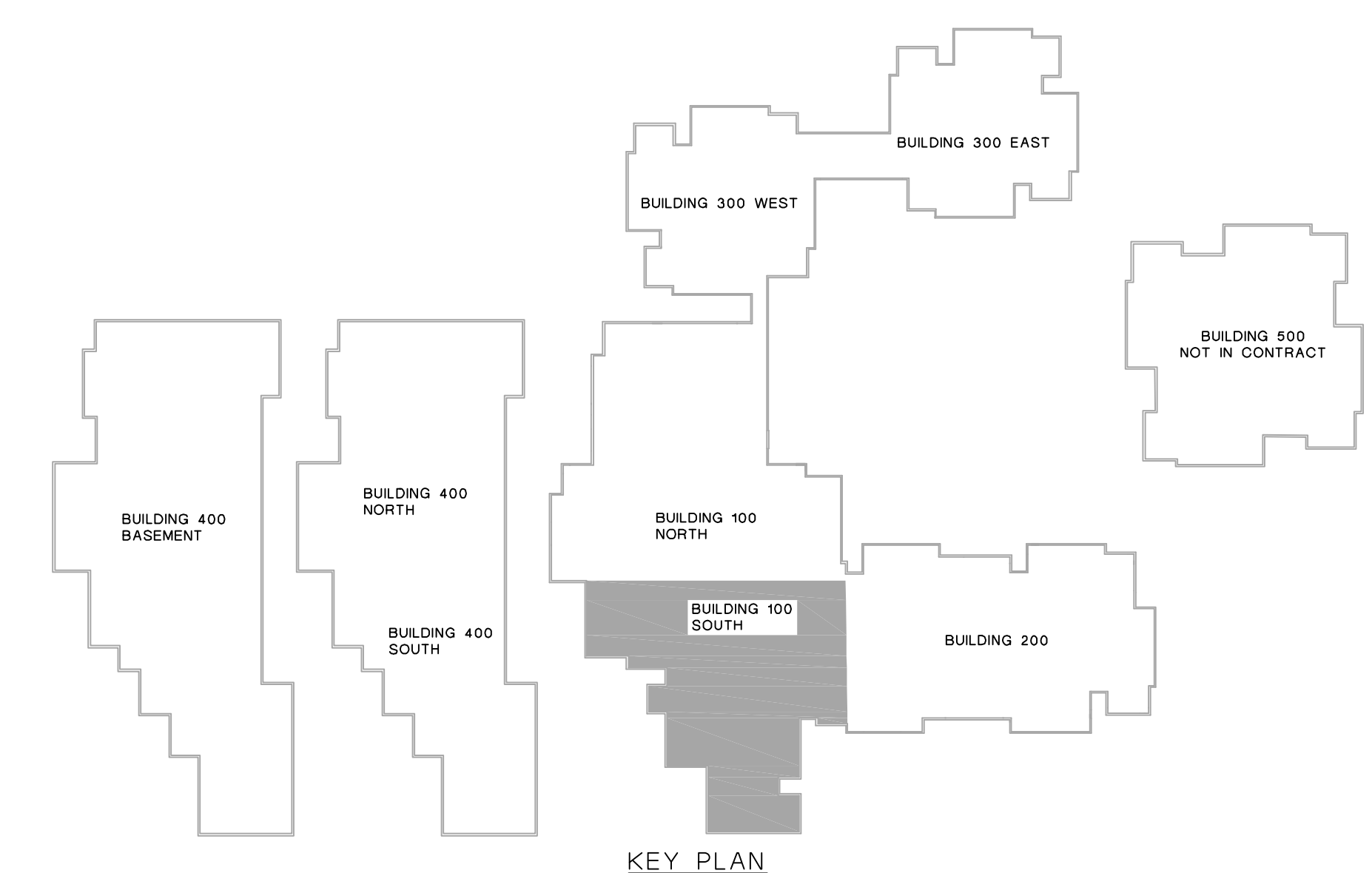
**BUILDING #100 (NORTH HALF)
 MECHANICAL FLOOR PLAN**
 SCALE: 1/4"=1'-0"



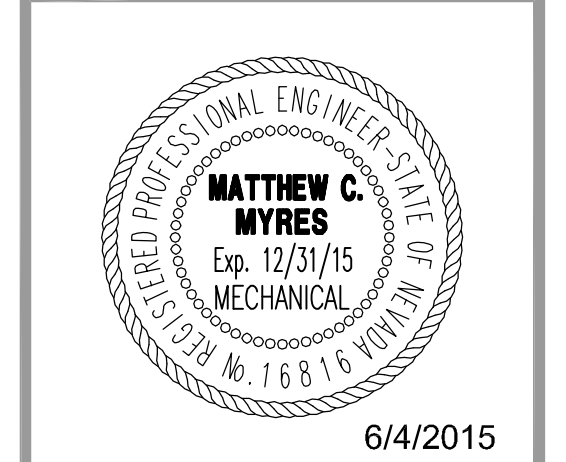
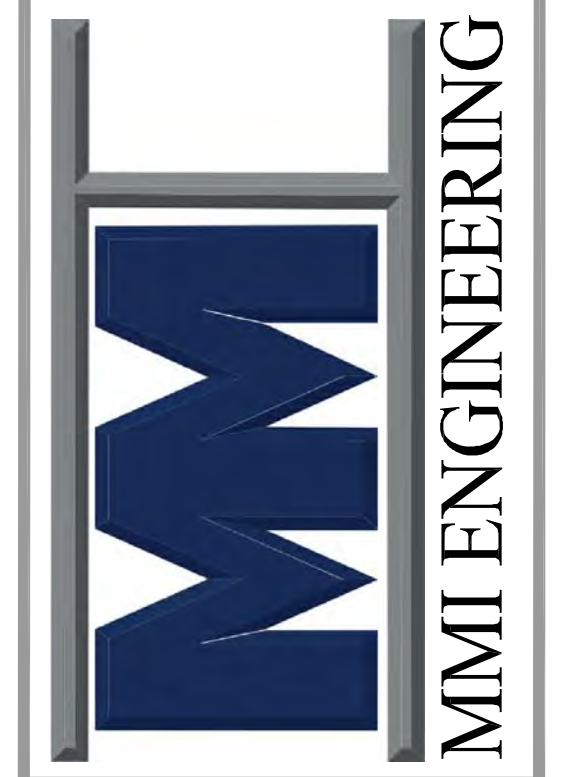
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**BUILDING #100 (SOUTH HALF)
MECHANICAL FLOOR PLAN**
SCALE: 1/4"=1'-0"



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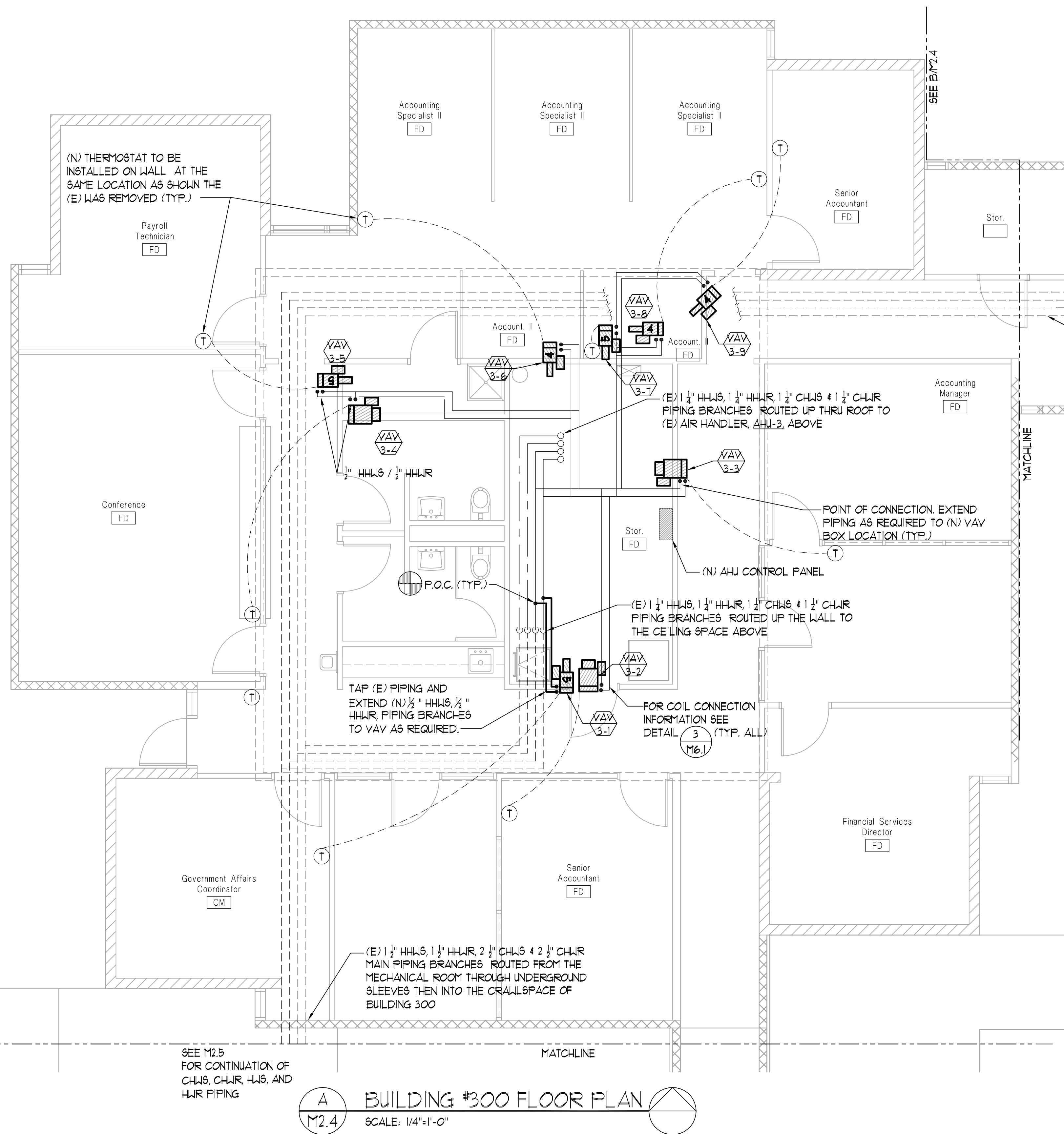
6/4/2015

**SPARKS CITY HALL
CAMPUS HVAC UPGRADE
SPARKS, NEVADA**

SHEET TITLE
**BUILDING #100
MECHANICAL
FLOOR PLAN**

REVISIONS

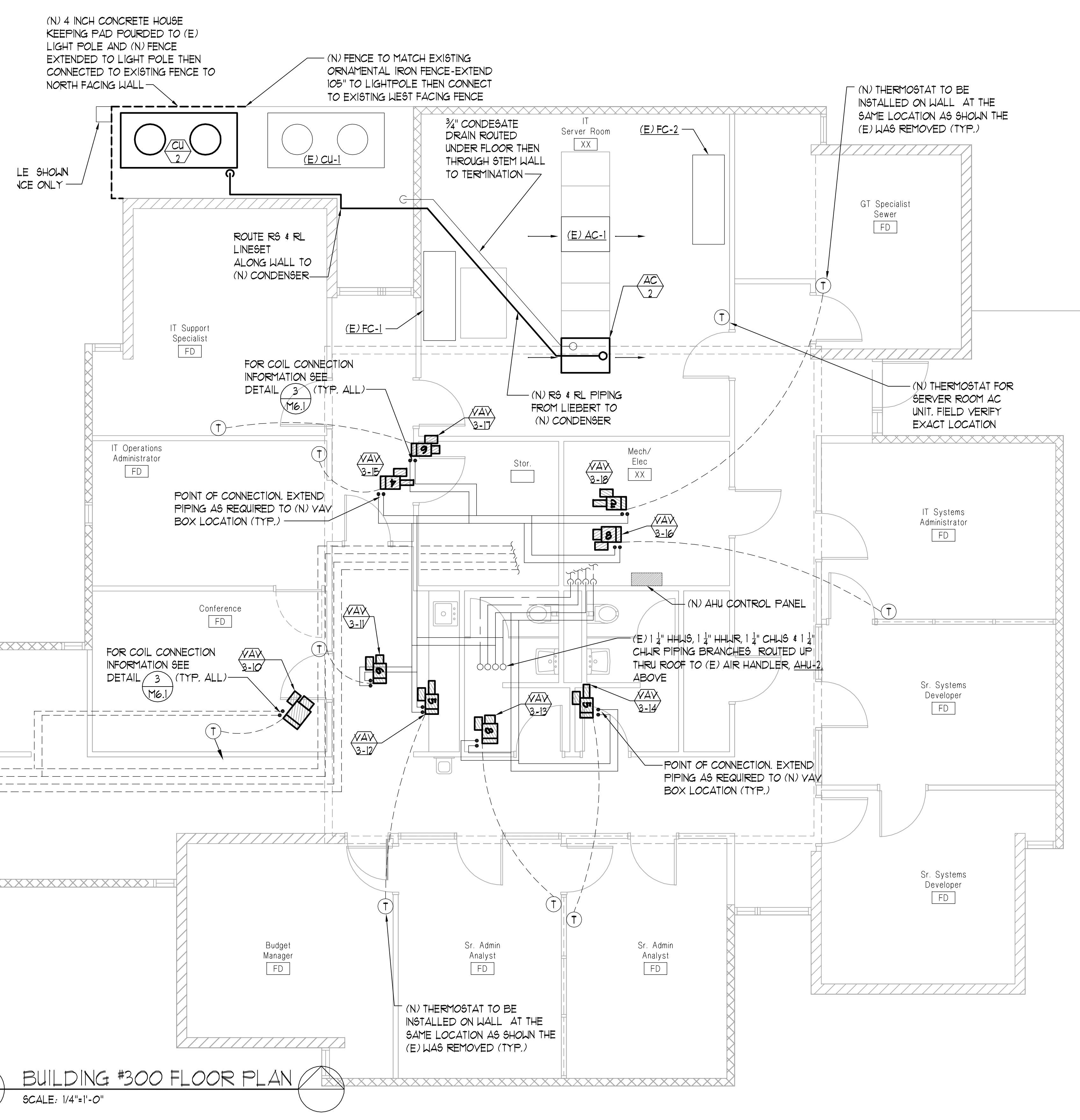
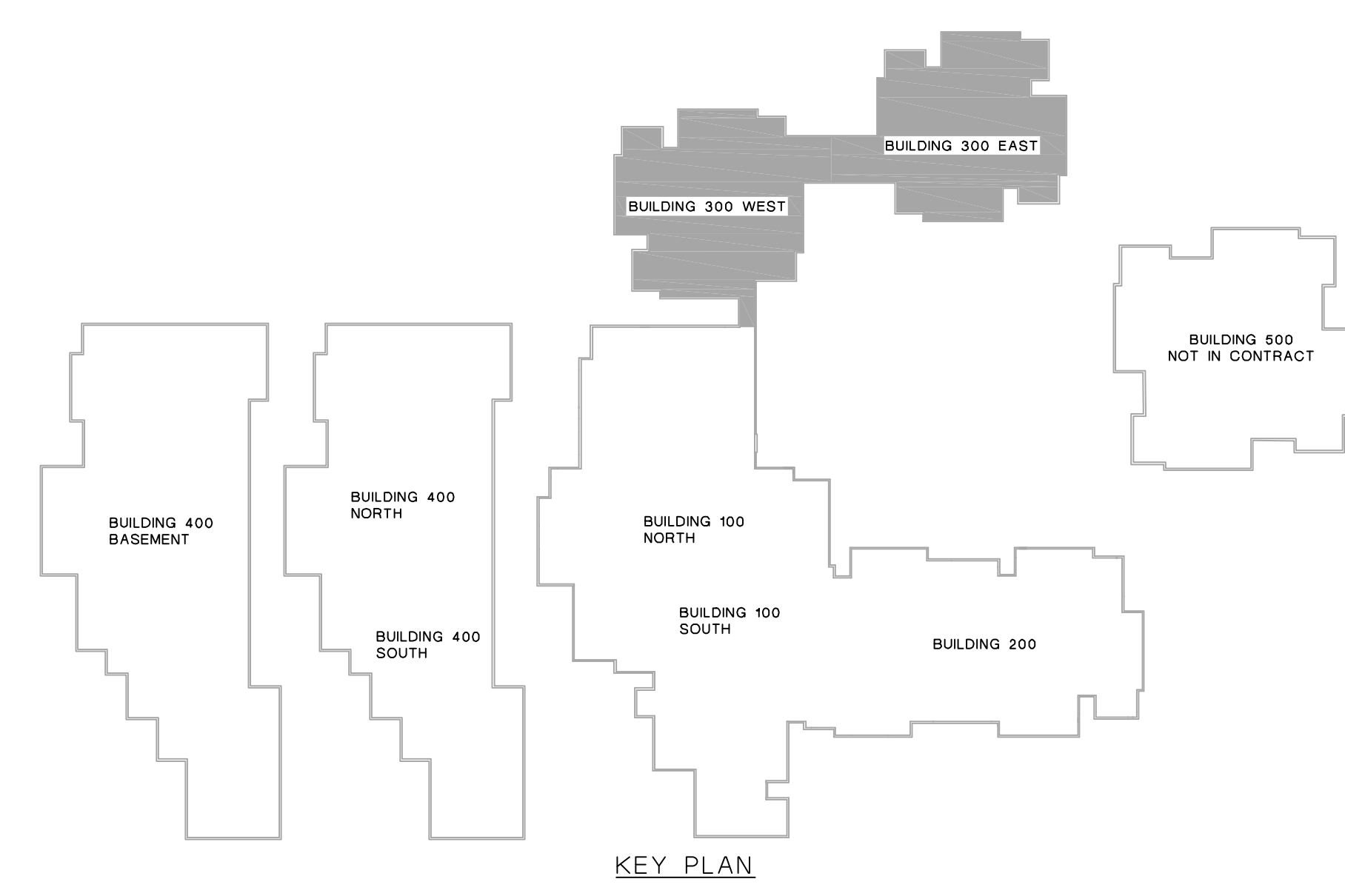
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SHEET NUMBER : **M2.2**



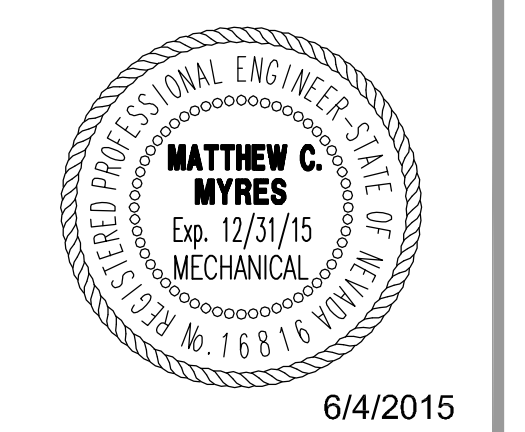
A BUILDING #300 FLOOR PLAN
SCALE: 1/4"=1'-0"

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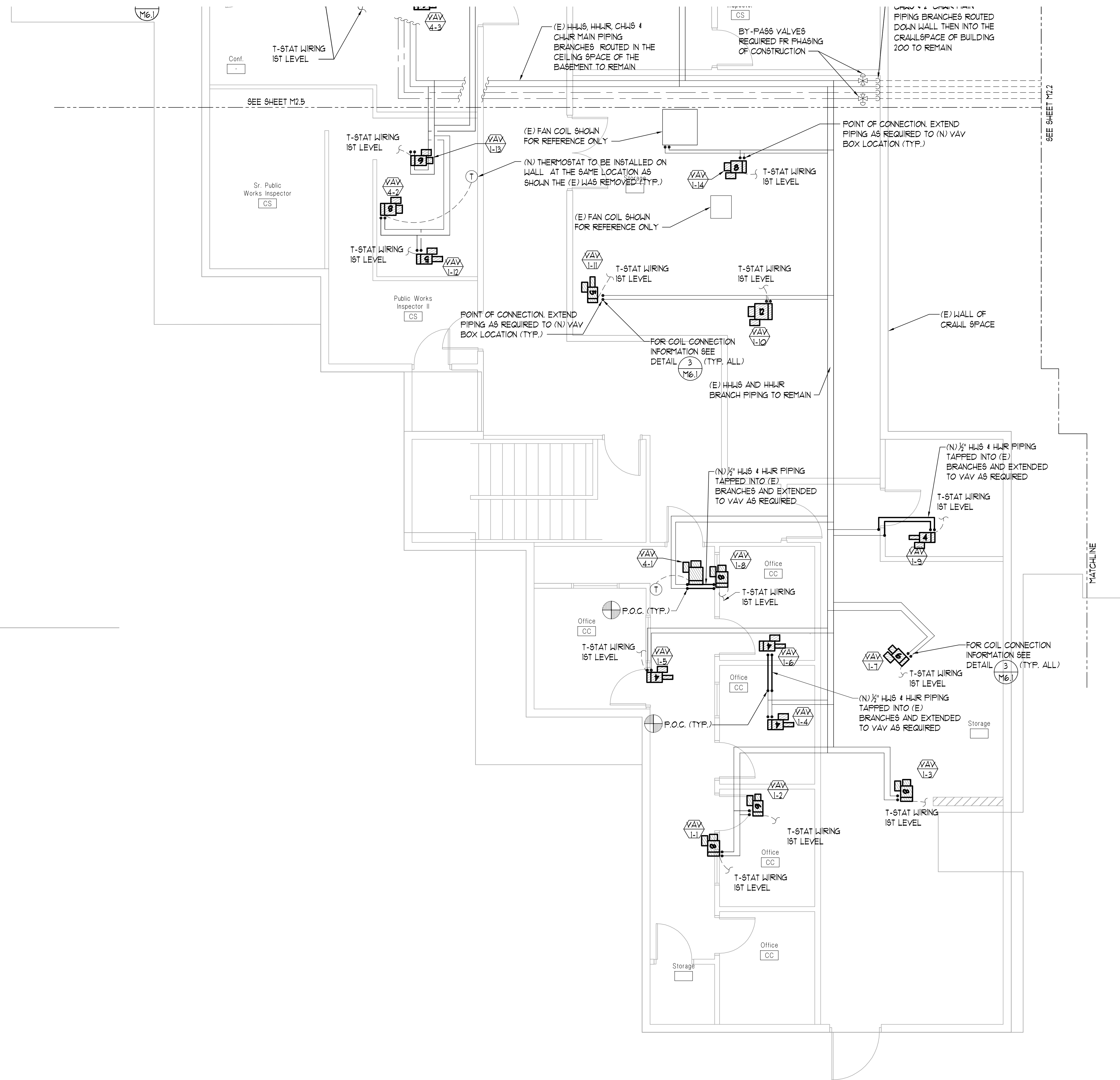
B BUILDING #300 FLOOR PLAN
SCALE: 1/4"=1'-0"



**SPARKS CITY HALL
CAMPUS HVAC UPGRADE
SPARKS, NEVADA**

SHEET TITLE
**BUILDING #300
MECHANICAL
FLOOR PLAN**

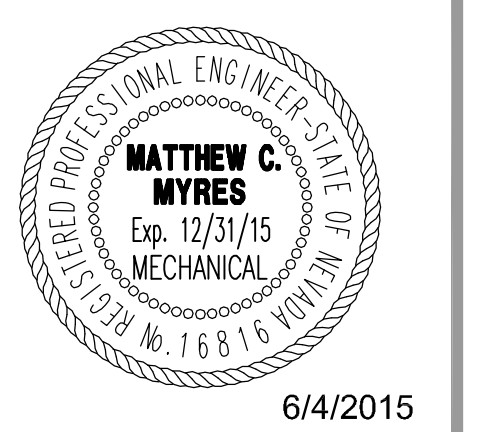
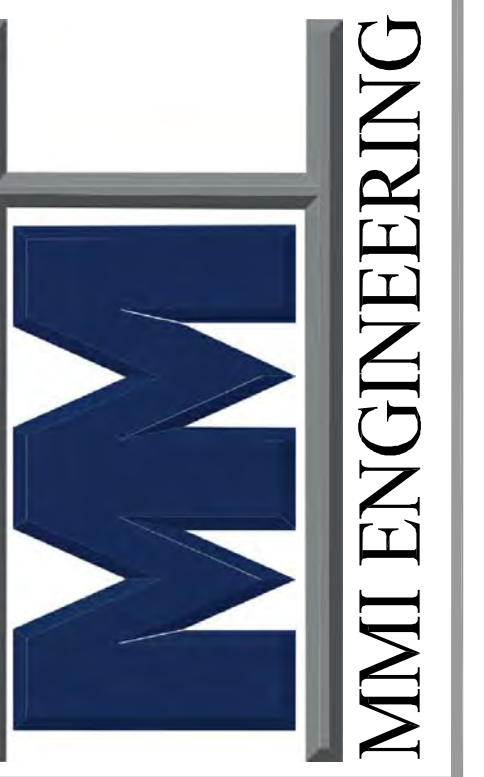
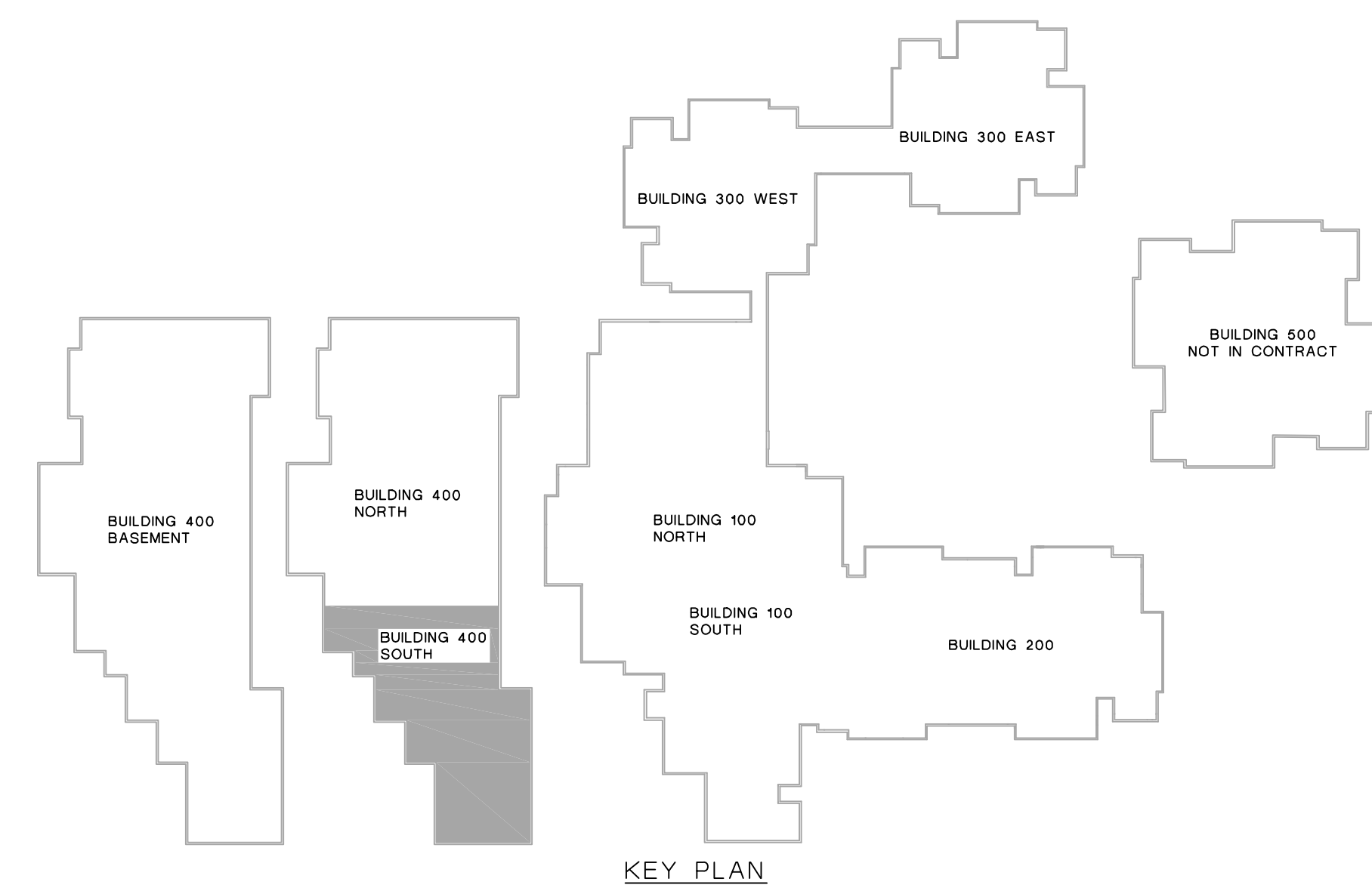
REVISIONS



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BUILDING #400 - (SOUTH HALF)
MECHANICAL PLAN - SYSTEM SERVING 1ST FLOOR
 SCALE: 1/4"=1'-0"



SPARKS CITY HALL
CAMPUS HVAC UPGRADE
 SPARKS, NEVADA

SHEET TITLE
 BUILDING #400 (SOUTH)
 MECHANICAL
 PLAN - SYSTEM SERVING
 1ST FLOOR

REVISIONS

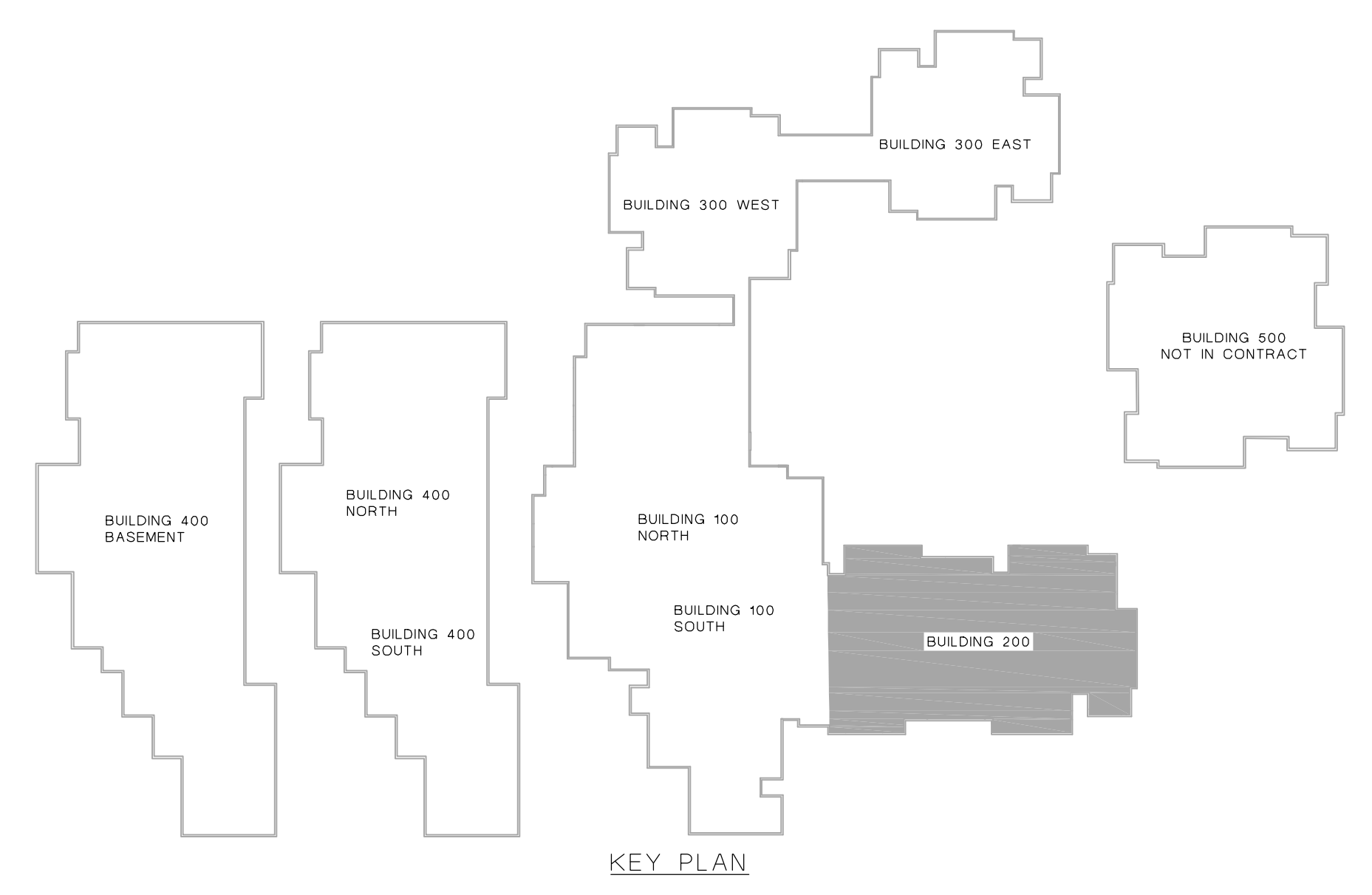
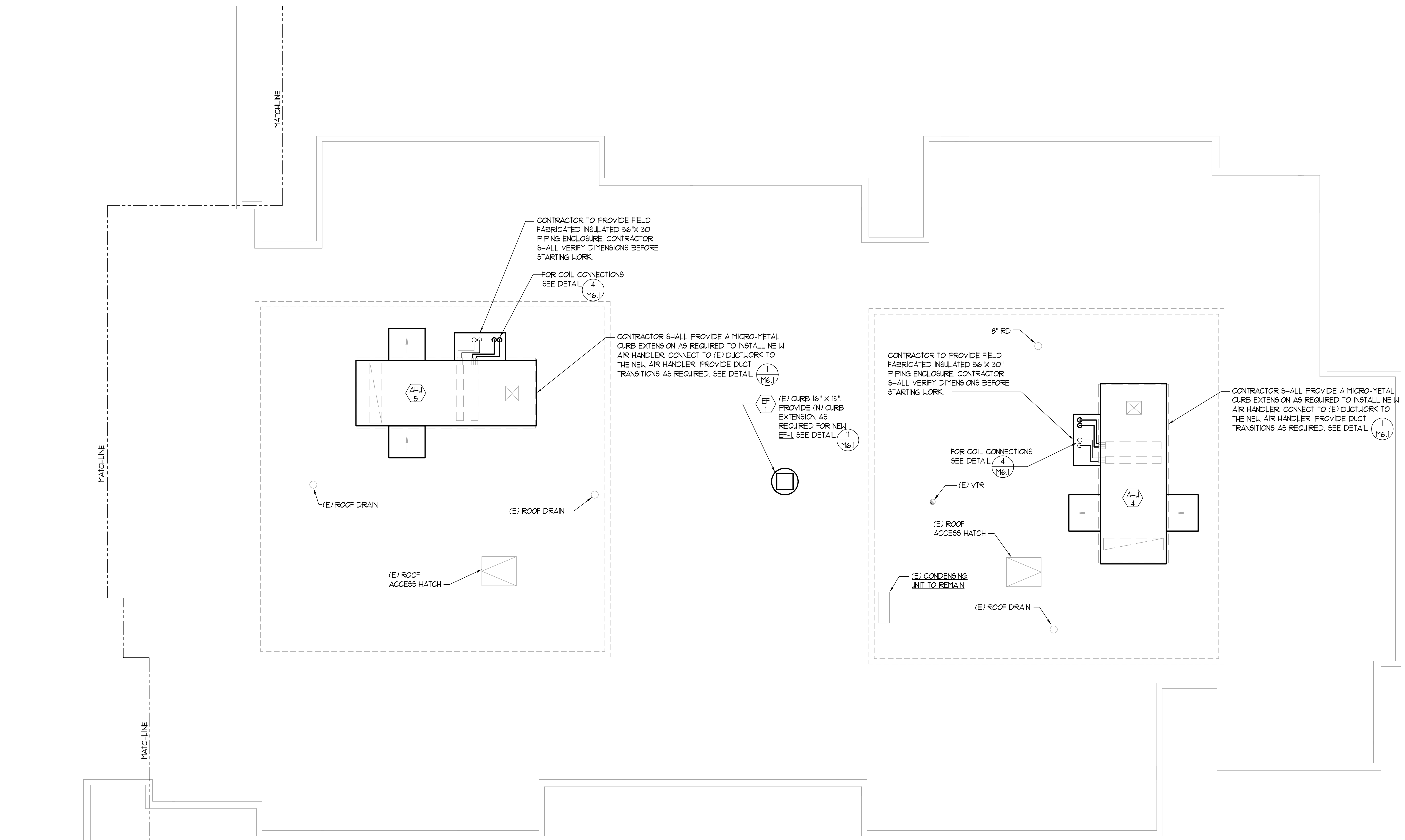
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**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

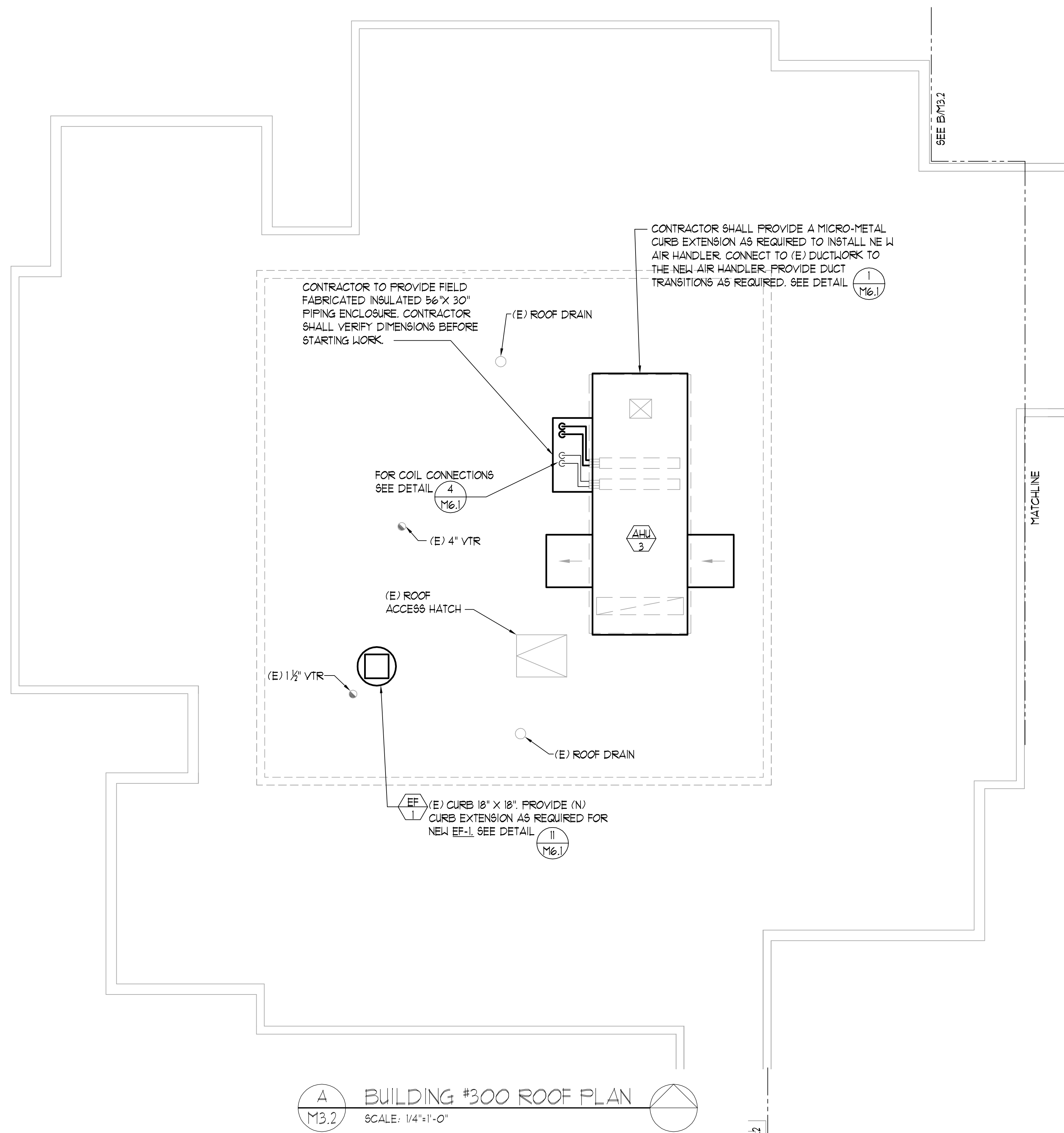
SHEET TITLE
**BUILDING #200
 MECHANICAL
 ROOF PLAN**

REVISIONS

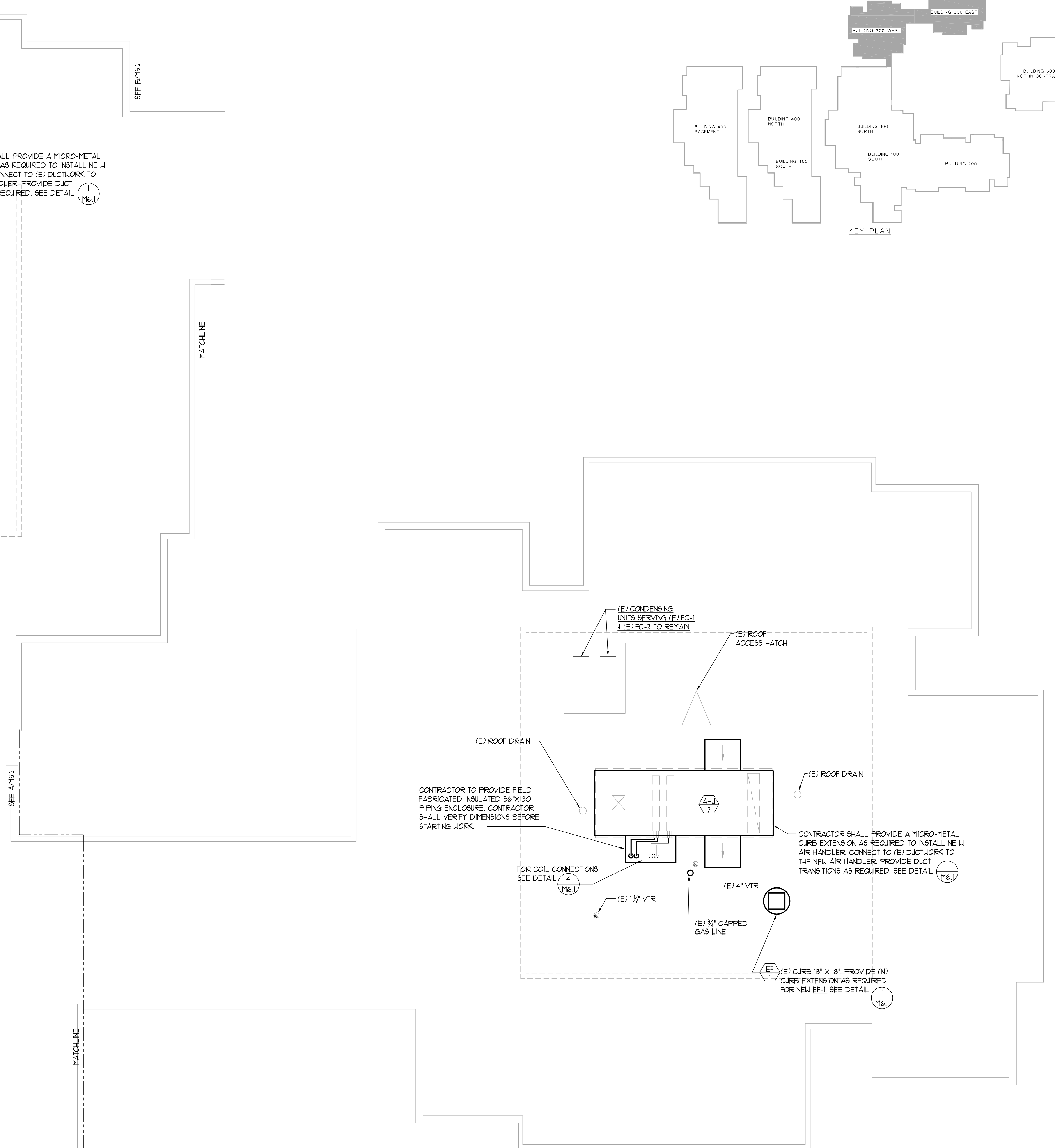
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JUNE 4, 2015
 SHEET NUMBER :
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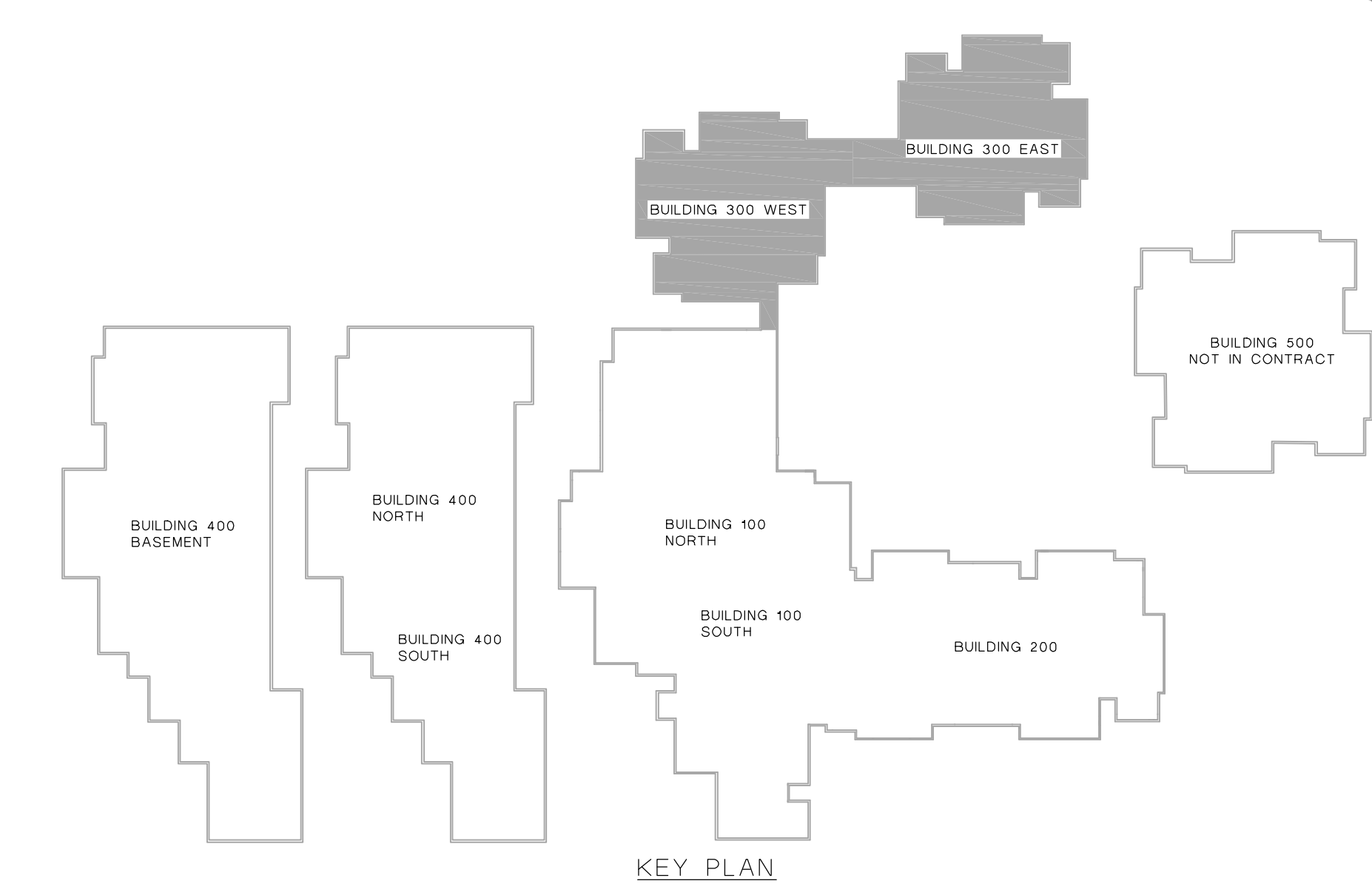
**BUILDING #200
 MECHANICAL ROOF PLAN**
 SCALE: 1/4"=1'-0"



A BUILDING #300 ROOF PLAN
SCALE: 1/4"=1'-0"



B BUILDING #300 ROOF PLAN
SCALE: 1/4"=1'-0"



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SPARKS, NEVADA**

SHEET TITLE
**BUILDING #300
MECHANICAL
ROOF PLAN**

REVISIONS

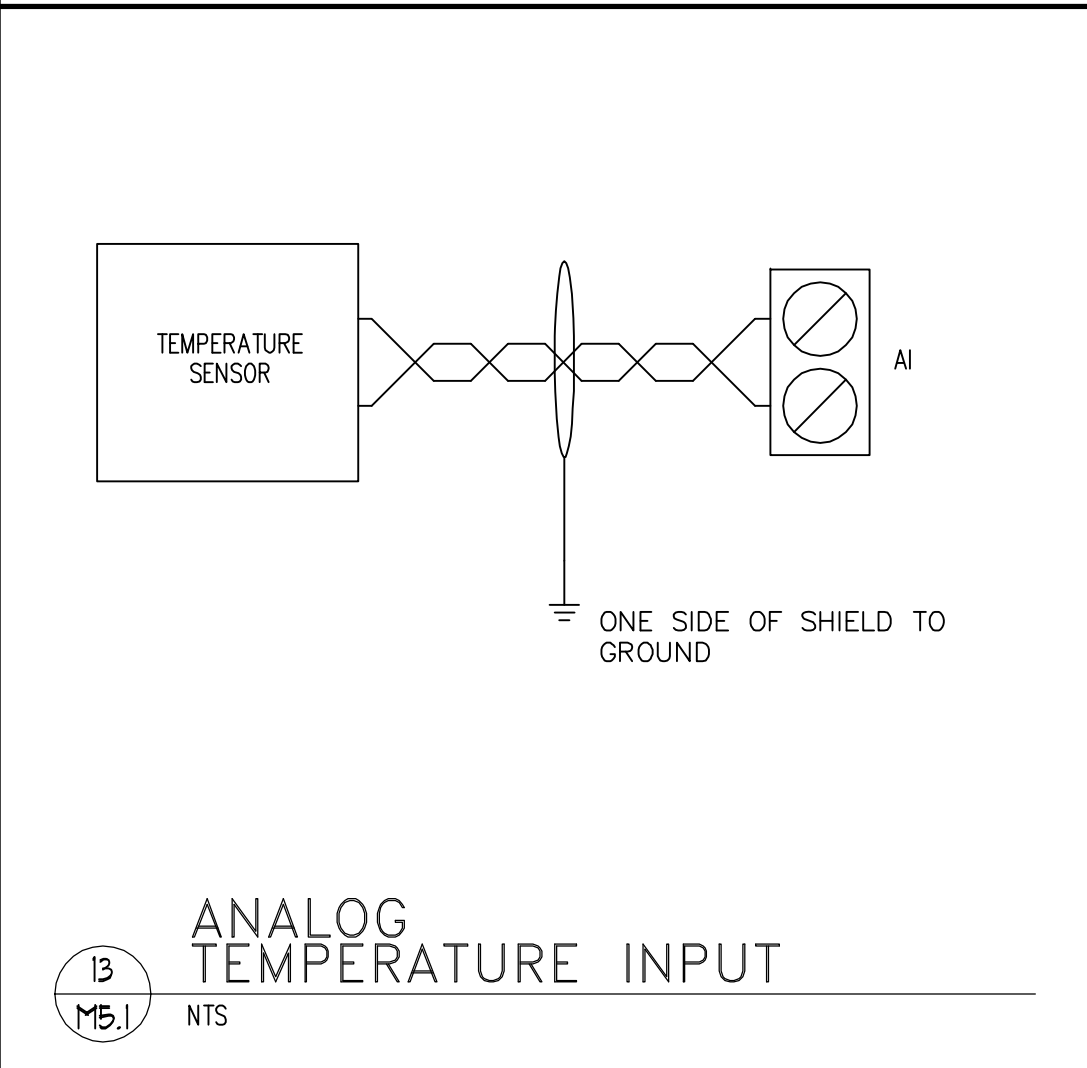
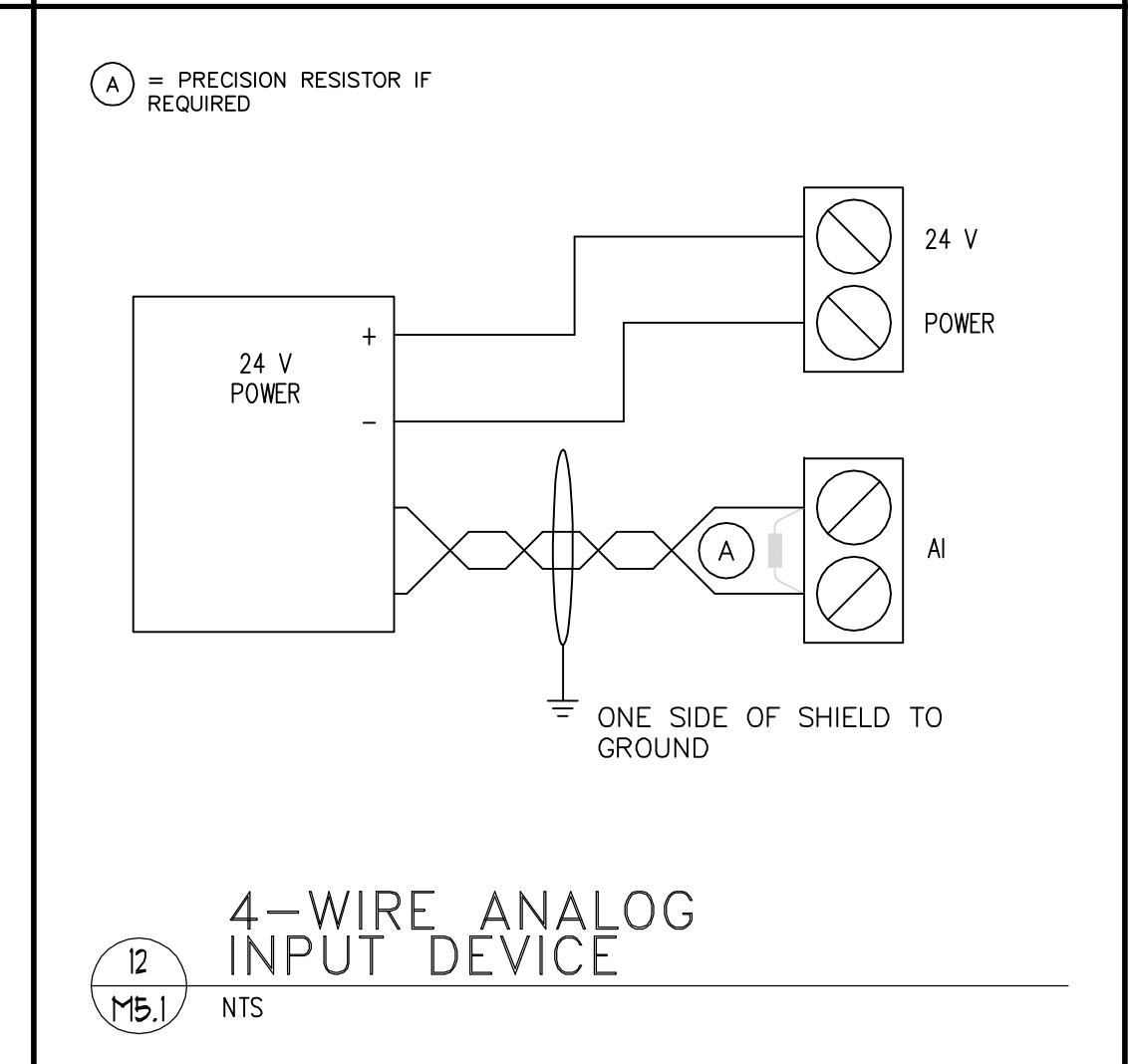
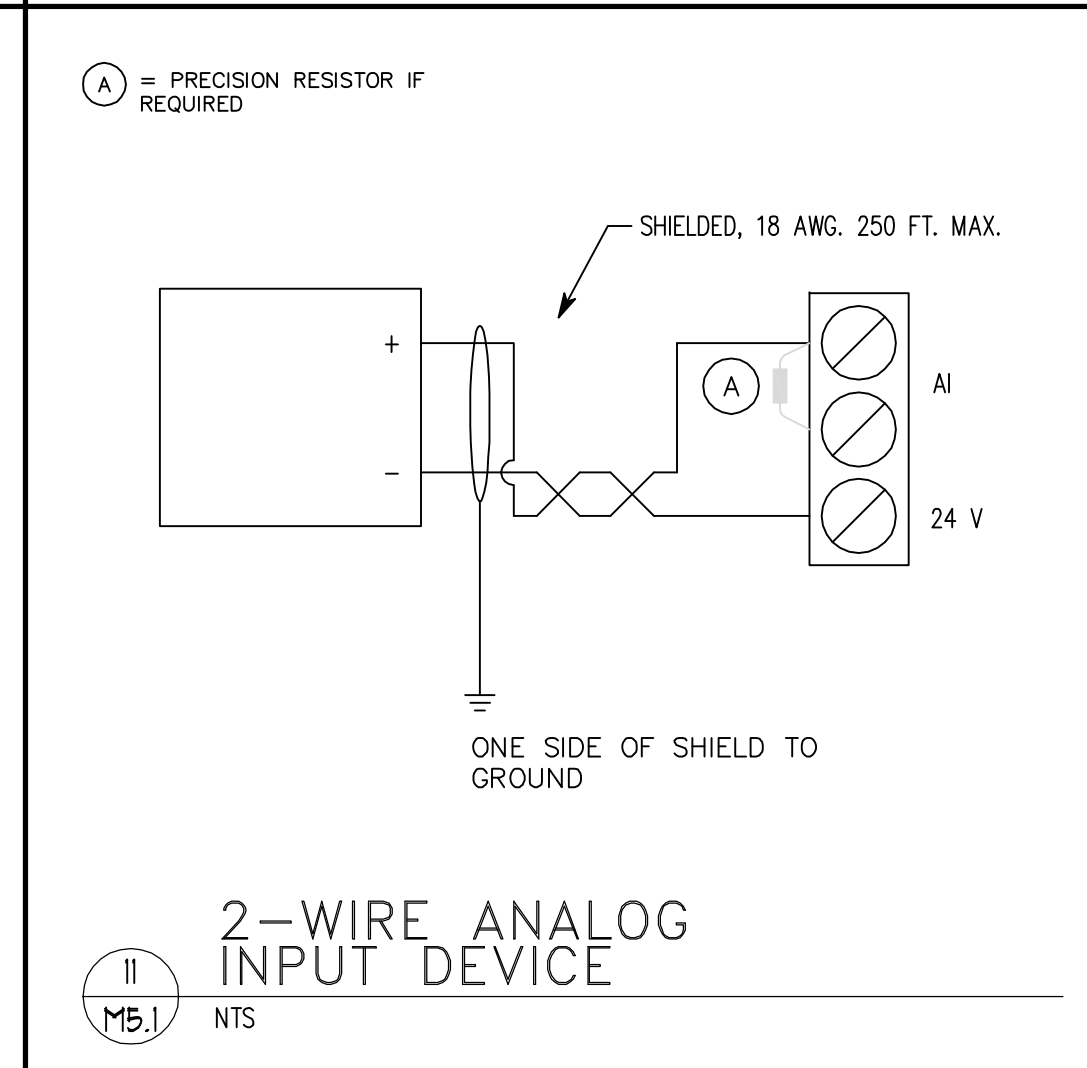
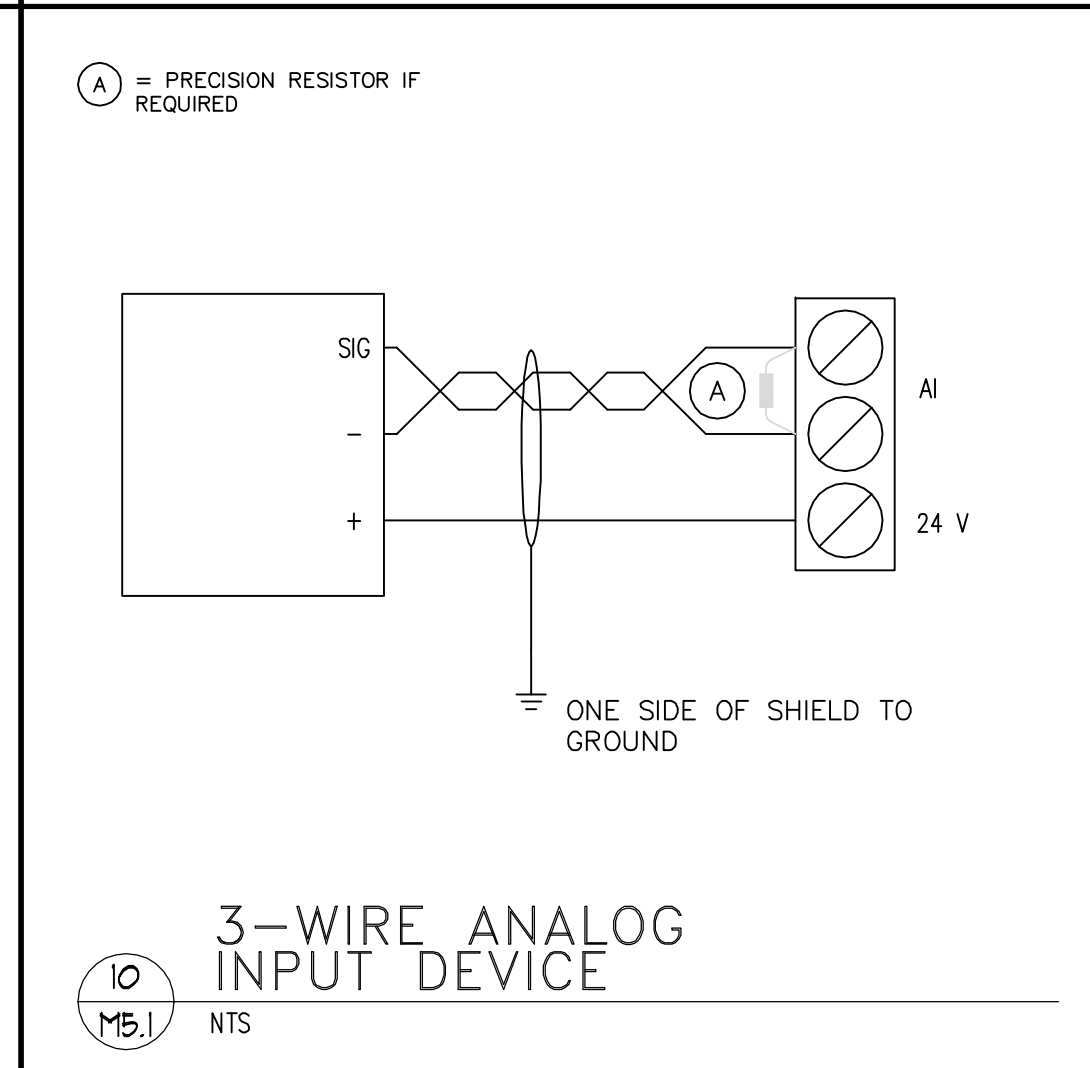
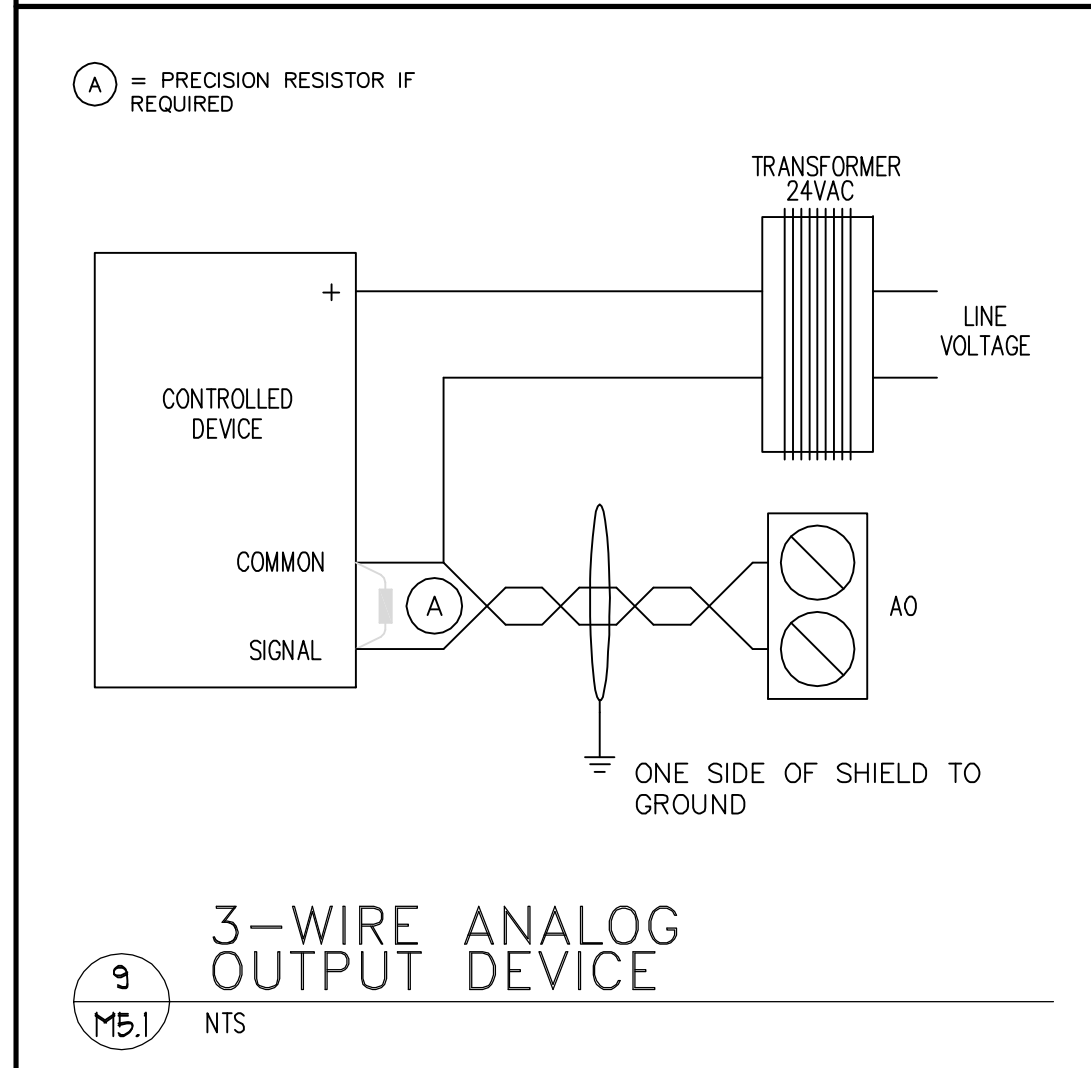
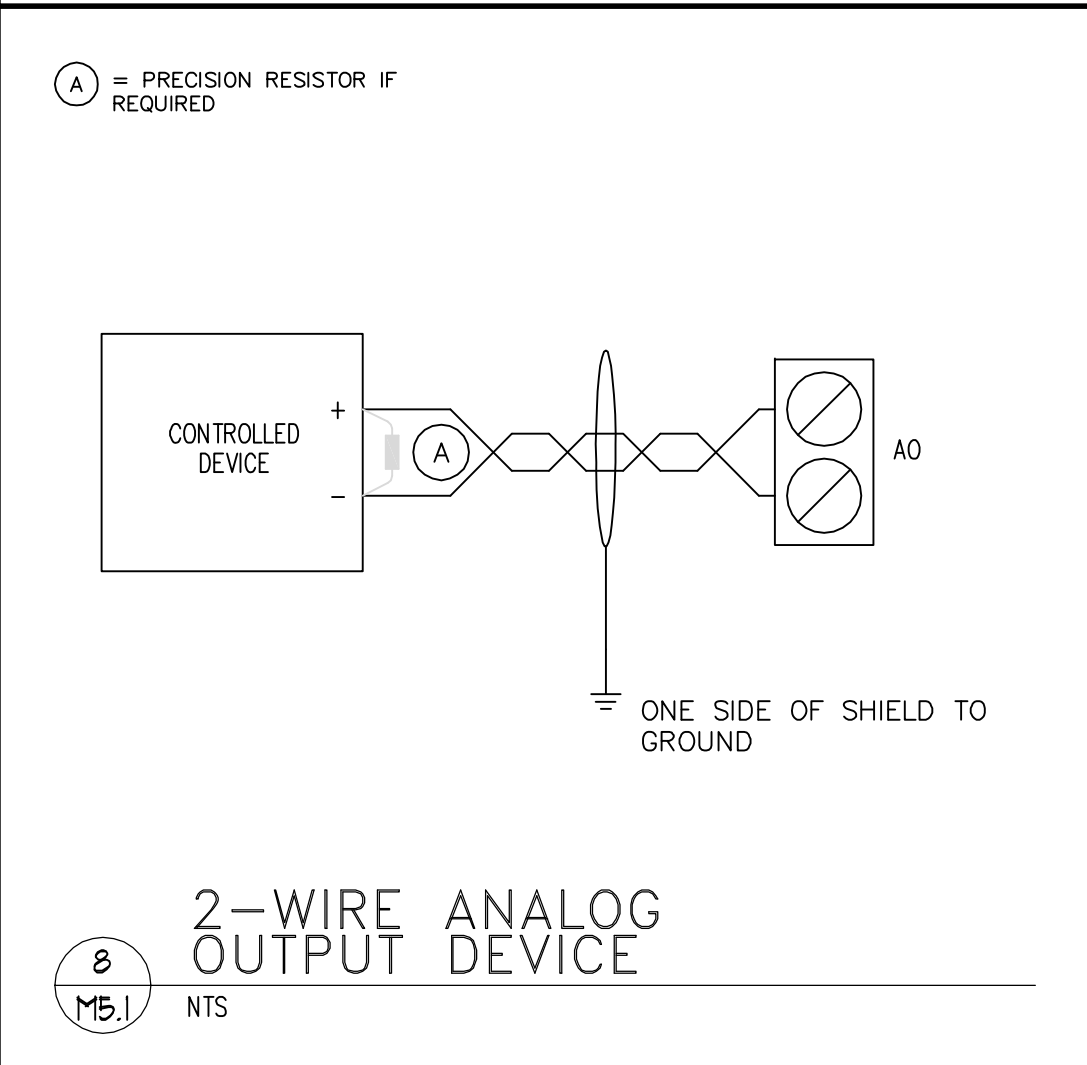
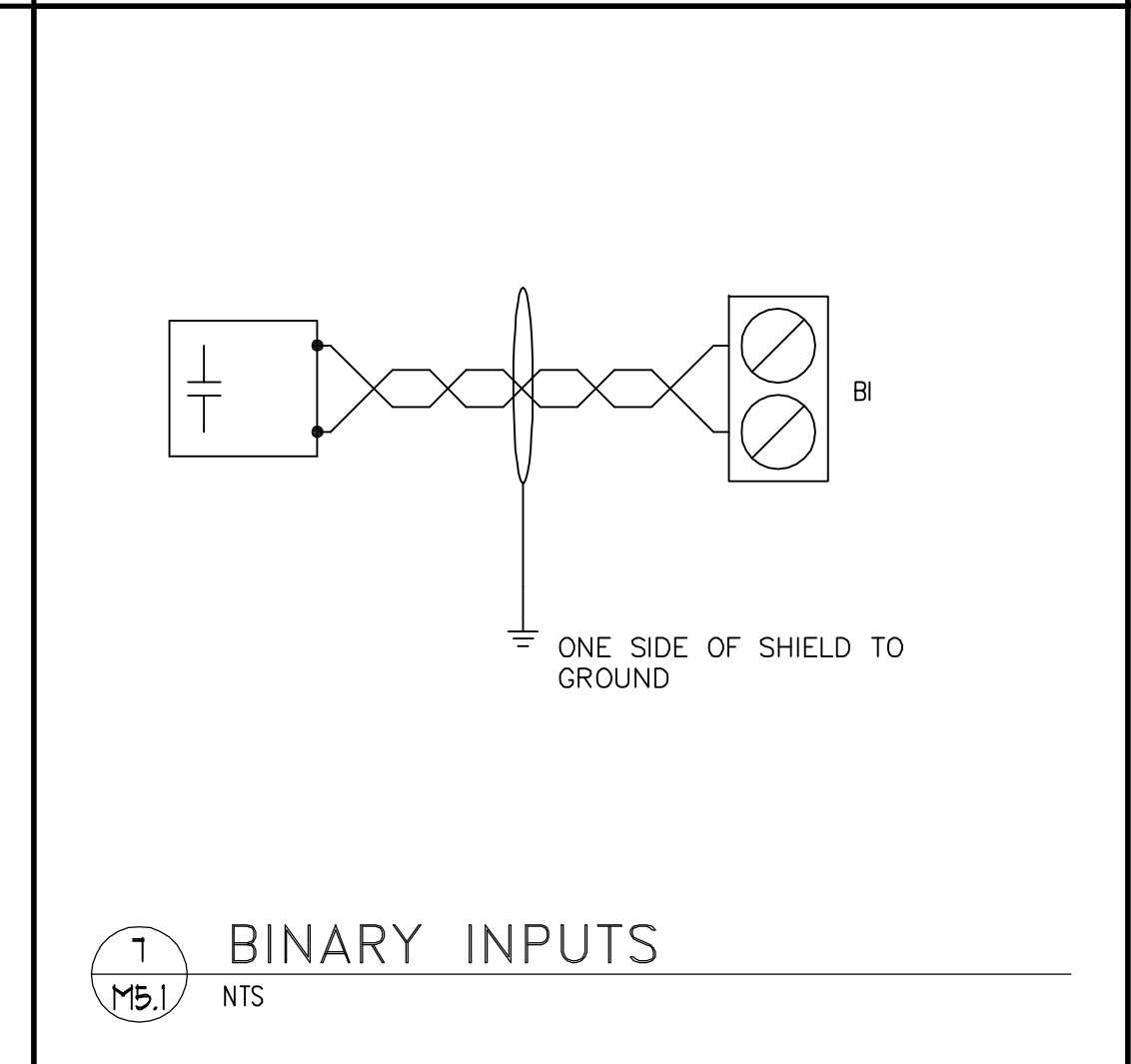
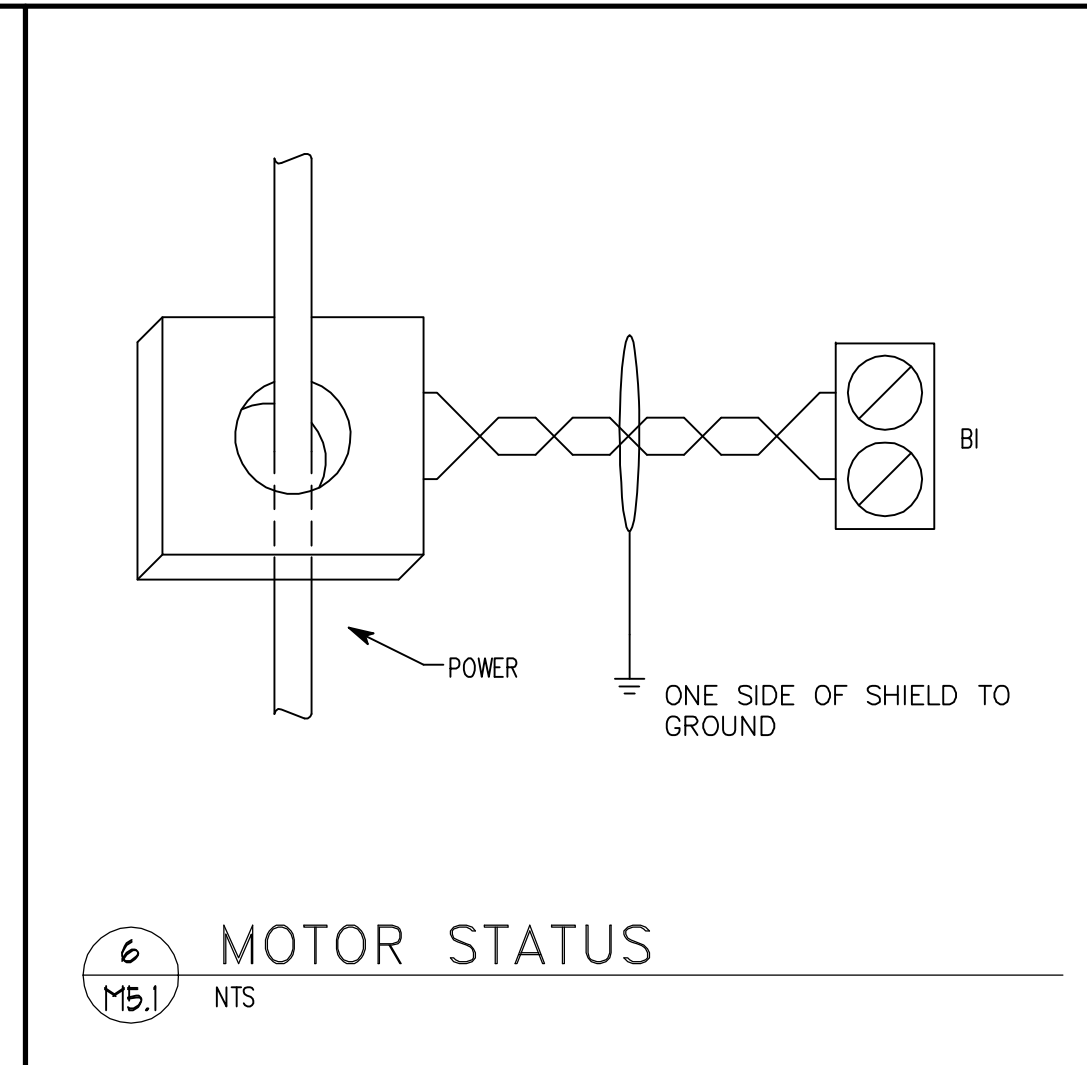
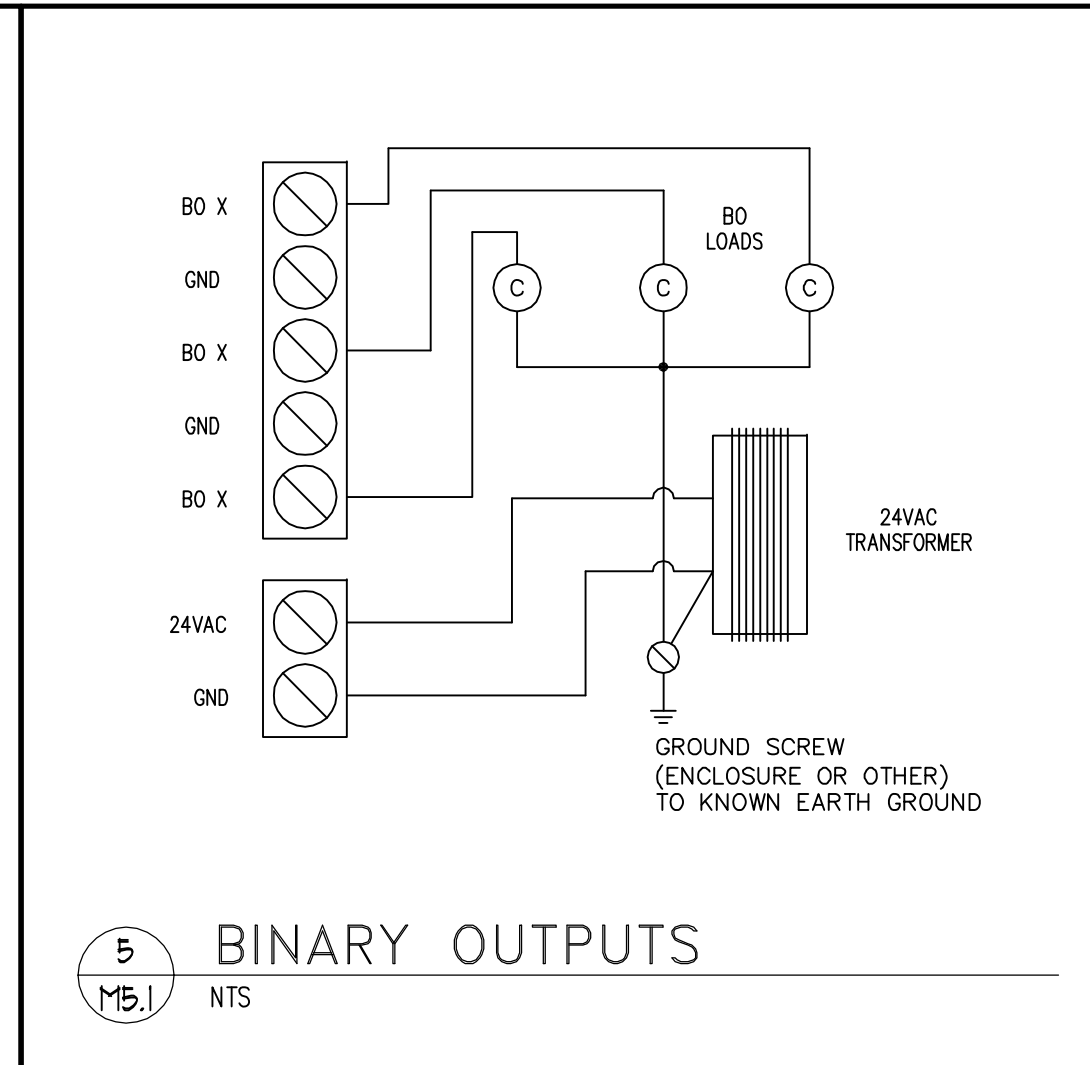
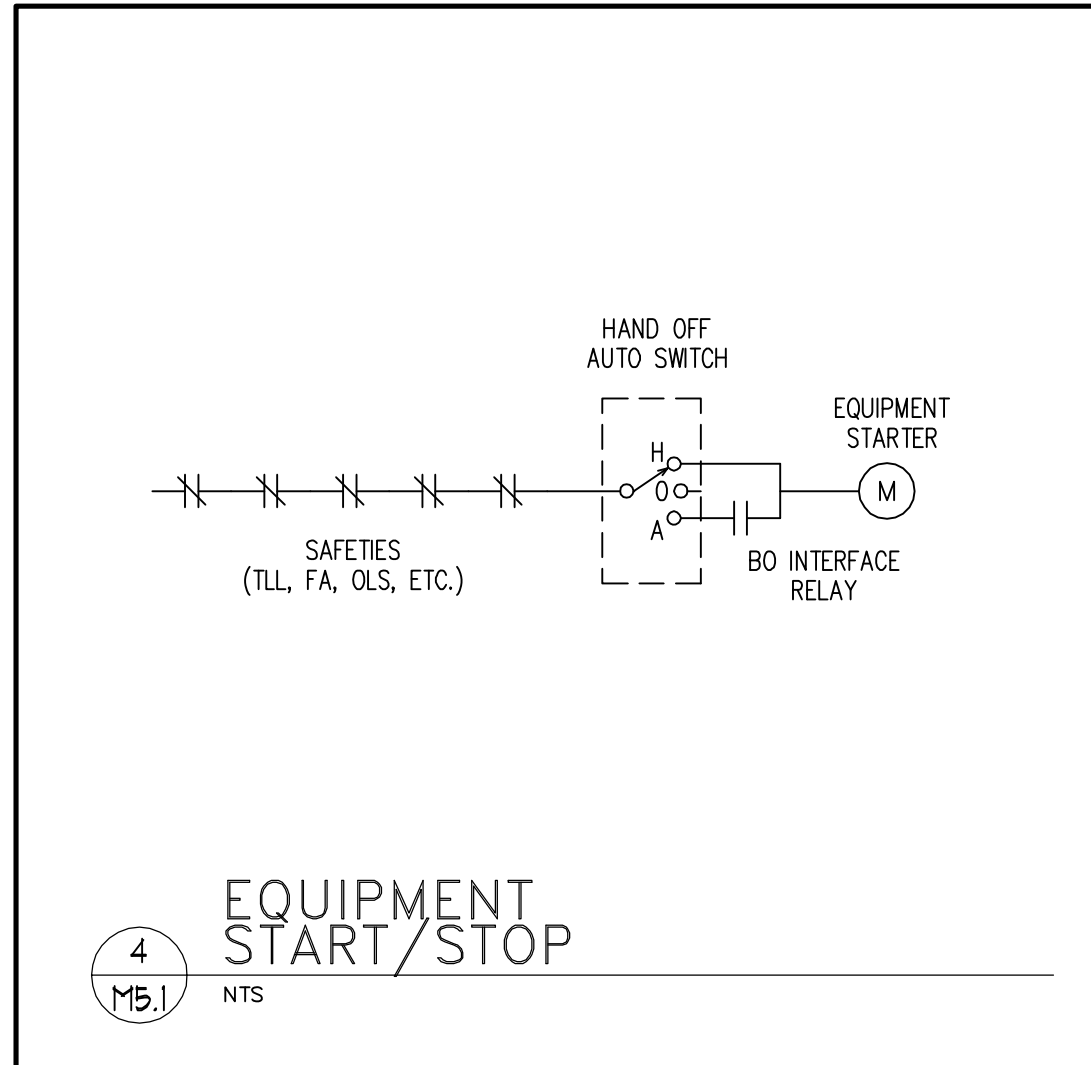
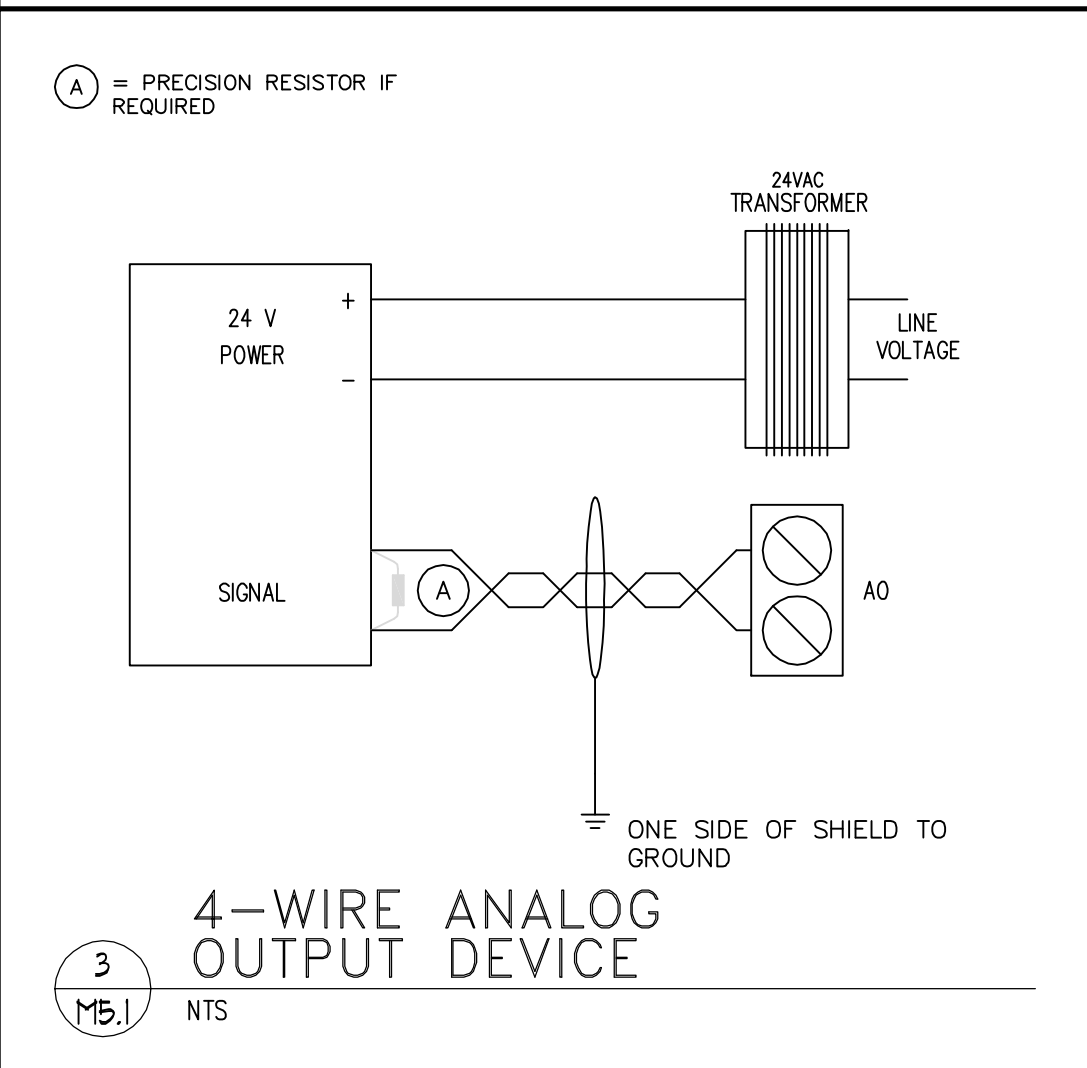
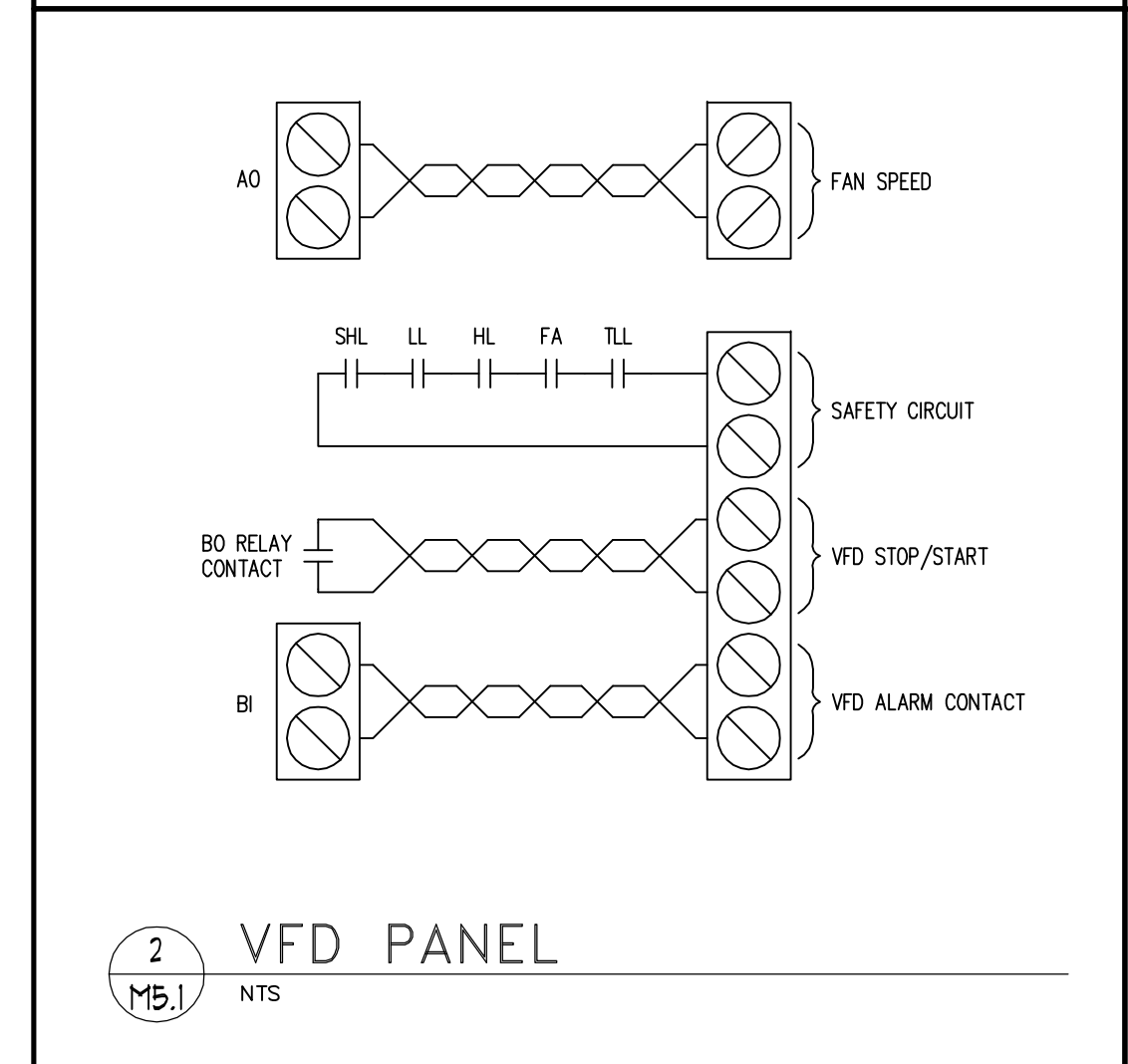
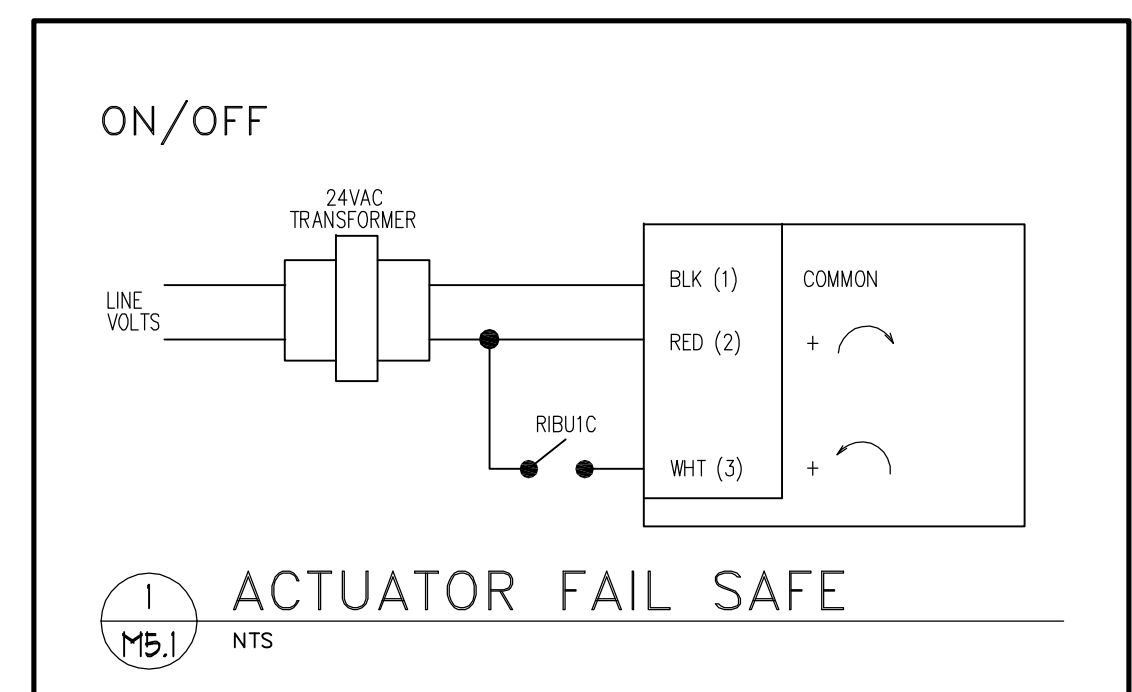
DATE :
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SHEET NUMBER :
M3.2

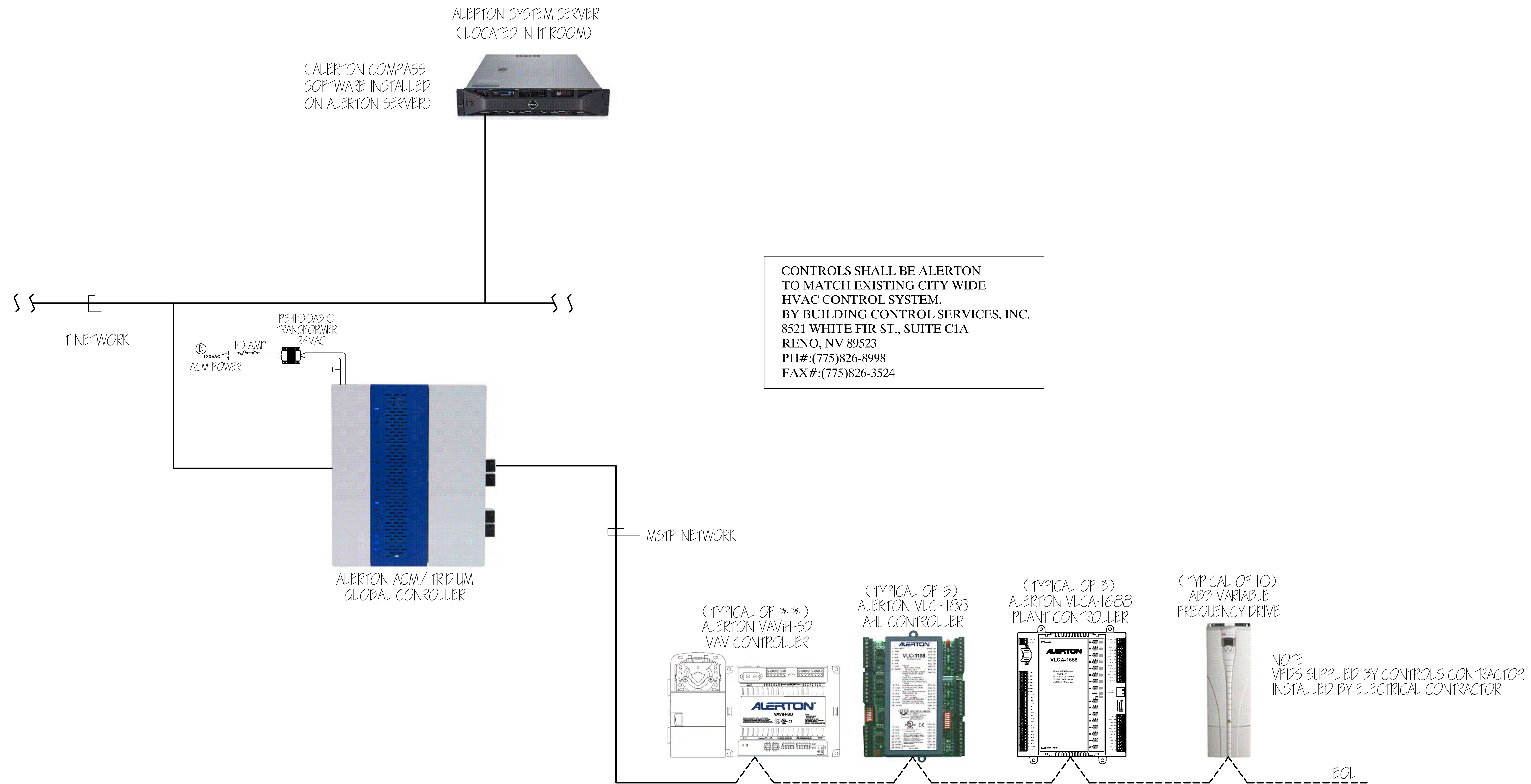
SYMBOL LEGEND	
	KEYNOTE INDICATOR.
	REVISION INDICATOR.
	EQUIPMENT INDICATOR.
	BREAK, ROUND.
BUILDING MANAGEMENT CONTROL SYSTEM DEVICES	
	SENSOR.
	CONTROLLER.
	ELECTRIC ACTUATOR.
	ANALOG INPUT.
	ANALOG OUTPUT.
	BINARY INPUT.
	BINARY OUTPUT.
SENSOR AND CONTROLLER TYPES	
	HIGH LIMIT.
	LOW LIMIT.
	MANUAL RESET.
	TEMPERATURE.
	DIFFERENTIAL PRESSURE.
	ABSOLUTE PRESSURE.
	FLOW.
	REMOTE SET POINT.
	HUMIDITY.

SYMBOL LEGEND	
SENSOR AND CONTROLLER PROBE TYPES	
	DUCT INSERTION PROBE.
	DUCT HUMIDITY PROBE.
	DUCT AVERAGING PROBE.
	OUTSIDE AIR PROBE WITH SUN SHIELD.
	DUCT STATIC PRESSURE PROBE.
	PITOT TUBE PROBE.
	PIPE WELL INSERTION PROBE.
	PIPE SURFACE MOUNTED PROBE.
	CENTRIFUGAL FAN.
	DAMPER, PARALLEL.

SYMBOL LEGEND	
EQUIPMENT	
	HUMIDIFIER.
	HEATING COIL.
	COOLING COIL.
	2-WAY CONTROL VALVE.
	3-WAY CONTROL VALVE.
	WATER PUMP.
	MAGNETIC STARTER.
	VARIABLE FREQUENCY DRIVE.
	EXAMPLE: TEMPERATURE SENSOR WITH DUCT PROBE.
	EMERGENCY SHUT DOWN SWITCH.

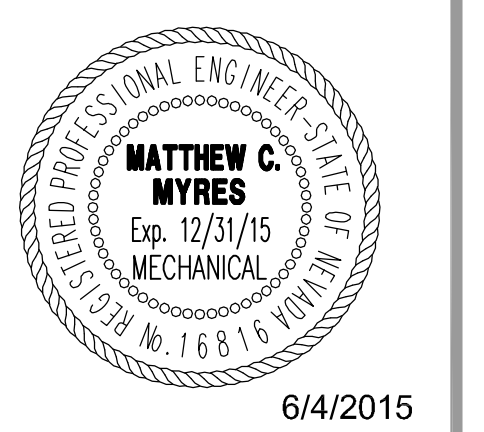
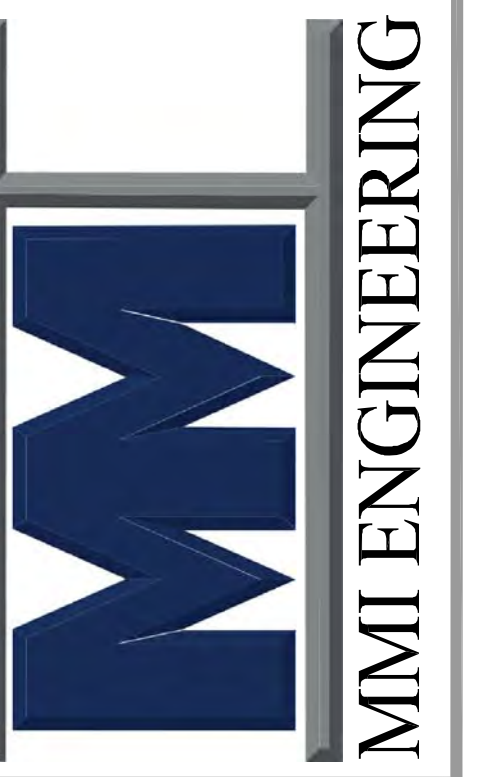
ABBREVIATIONS			
NOTE: ALL ABBREVIATIONS MAY NOT BE USED.			
BMCS	BUILDING MANAGEMENT CONTROL SYSTEM	HWR	HOT WATER RETURN
CHW	CHILLED WATER	HWS	HOT WATER SUPPLY
CHWR	CHILLED WATER RETURN	LL	LOW LIMIT
CHWS	CHILLED WATER SUPPLY	LG	LOW
CO2	CARBON DIOXIDE	MA	MIXED AIR
CT	COOLING TOWER	NC	NORMALLY CLOSED
CW	CONDENSER WATER	NO	NORMALLY OPEN
CWR	CONDENSER WATER RETURN	OA	OUTSIDE AIR
CWS	CONDENSER WATER SUPPLY	RA	RETURN AIR
DA	DISCHARGE AIR	SA	SUPPLY AIR
DC	DIRECT COUPLED	SHL	STATIC HIGH LIMIT
DIFF	DIFFERENTIAL	SLL	STATIC LOW LIMIT
EA	EXHAUST AIR	STAT	STATISTAT
FA	FIRE ALARM	TLL	TEMPERATURE LOW LIMIT
HI	HIGH LIMIT	TW	TOWER WATER
HL	HIGH LIMIT	TWR	TOWER WATER RETURN
HW	HOT WATER	TWS	TOWER WATER SUPPLY
		VFD	VARIABLE FREQUENCY DRIVE





CONTROLS SHALL BE ALERTON TO MATCH EXISTING CITY WIDE HVAC CONTROL SYSTEM. BY BUILDING CONTROL SERVICES, INC. 8521 WHITE FIR ST., SUITE C1A RENO, NV 89523 PH#:(775)826-8998 FAX#:(775)826-3524

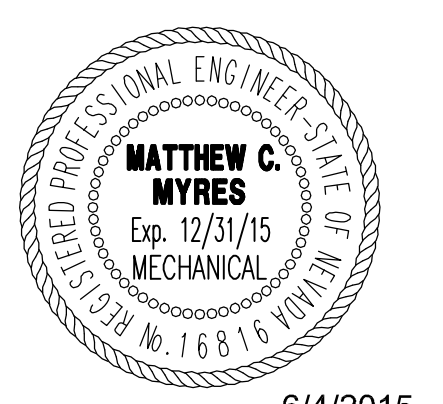
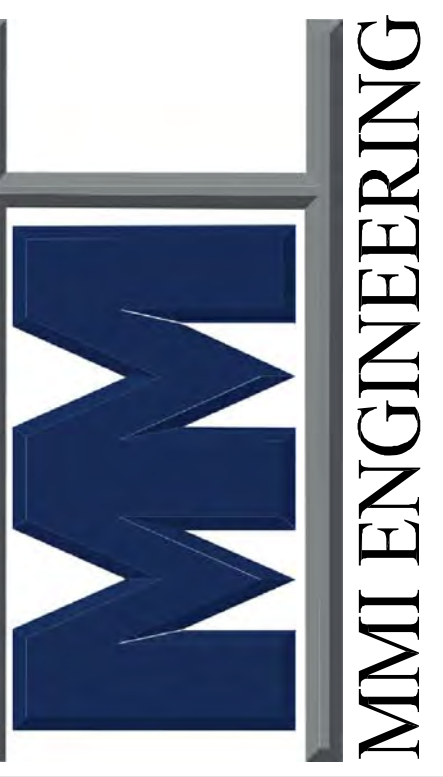
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**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
 CONTROL SYSTEM ARCHITECTURE

REVISIONS



6/4/2015

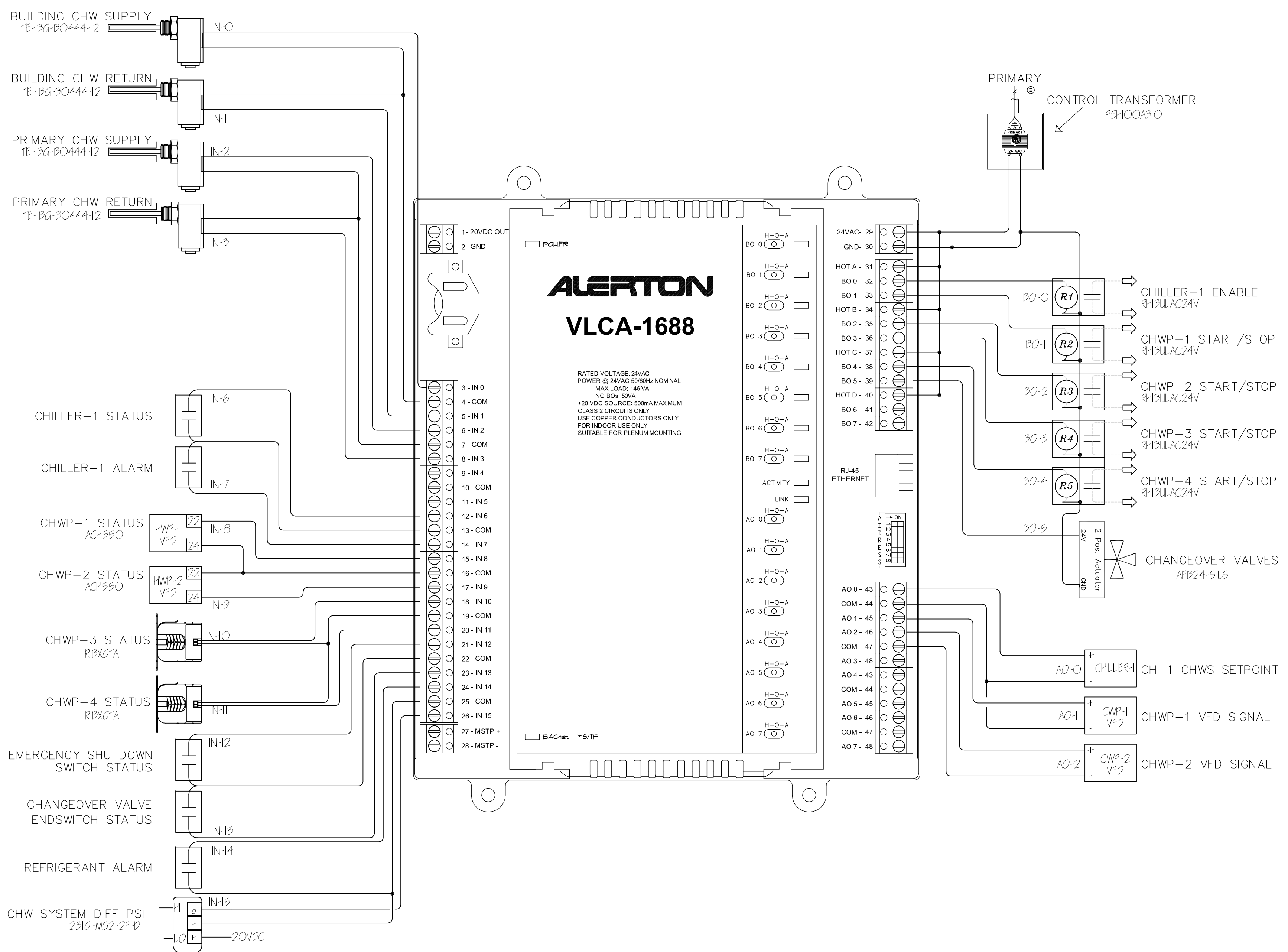
SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA

SHEET TITLE
 CHILLED WATER PLANT CONTROL

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

M5.4



CHILLED WATER SYSTEM SEQUENCE OF OPERATION

A. SETPOINTS

- THE CHILLED WATER SYSTEM SHALL BE ENABLED WHENEVER THERE IS A COOLING DEMAND FROM THE BUILDING AND OSA TEMPERATURE IS AT OR ABOVE 65°F. THE SYSTEM SHALL BE DISABLED AT 55°F (10°F DEADBAND) OR WHENEVER THERE IS NO LONGER A DEMAND FOR COOLING FROM THE BUILDING. ALL SETTINGS SHALL BE ADJUSTABLE.
- THE CHILLED WATER SUPPLY TEMPERATURE SHALL BE RE-SET BY THE BUILDING MANAGEMENT SYSTEM IN ACCORDANCE WITH THE FOLLOWING CURVE (INITIALLY 1:1 RATIO):

CHILLED WATER SUPPLY RESET CURVE

Outdoor Air Temperature (F)	Chilled Water Supply Target Temp (F)
65	55
70	50
75	45
80	45

E. FREECOOL MODE (HX-1)

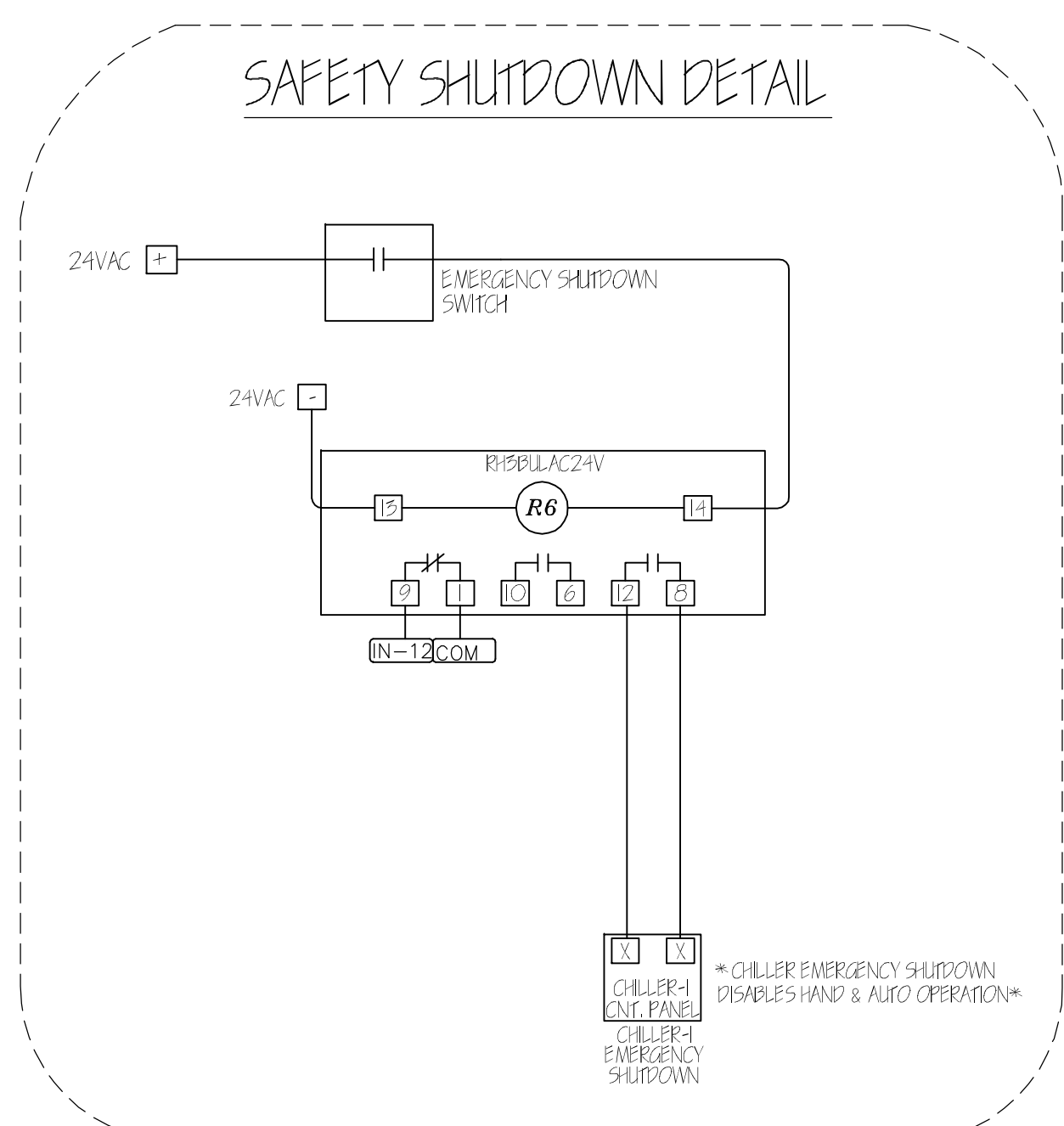
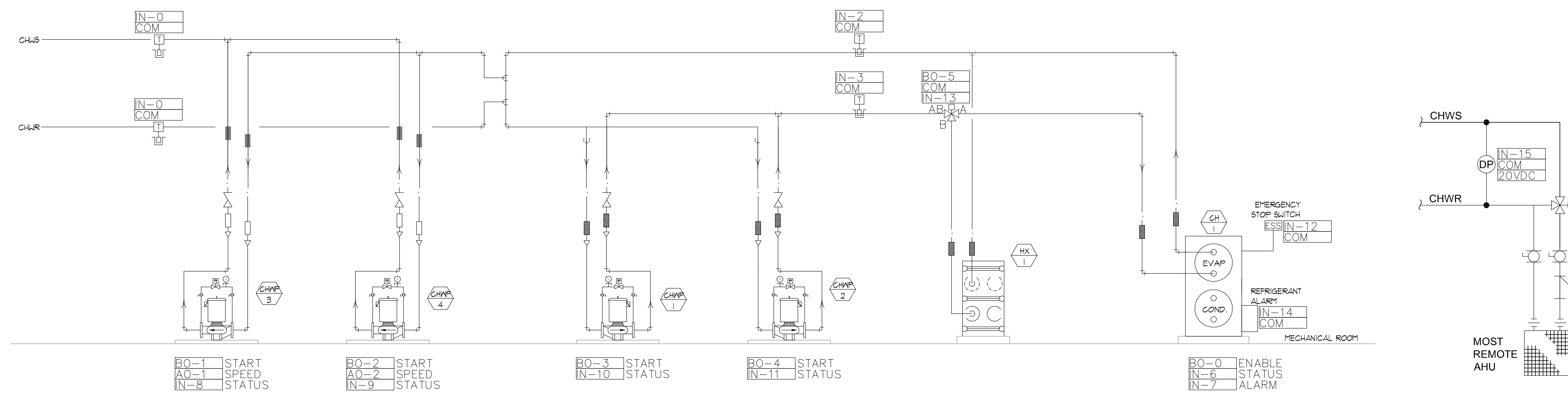
- ONCE THE CHILLED WATER SYSTEM IS ENABLED AND THE OUTSIDE AIR WETBULB TEMPERATURE IS LESS THAN THE CURRENT BUILDING CHILLED WATER SUPPLY SETPOINT, FREECOOLING MODE SHALL BE ENABLED.
- THE CHANGEOVER VALVES SHALL POSITION TO FLOW THROUGH HX-1.
- THE COOLING TOWER FAN VFD SHALL MODULATE TO MAINTAIN THE CURRENT BUILDING CHILLED WATER SUPPLY SETPOINT.
- IF THE COOLING TOWER FAN VFD IS AT 100% AND THE CHILLED WATER SUPPLY TO THE BUILDING IS MORE THAN 5°F ABOVE SETPOINT FOR MORE THAN 30 MINUTES, FREECOOLING MODE SHALL BE DISABLED AND THE CHILLER SHALL BE ENABLED.

F. CHILLER MODE (CH-1)

- ONCE THE CHILLED WATER SYSTEM IS ENABLED AND THE OUTSIDE AIR WETBULB TEMPERATURE IS GREATER THAN THE CURRENT BUILDING CHILLED WATER SUPPLY SETPOINT, OR IF FREECOOLING MODE HAS BEEN DISABLED, CHILLER MODE SHALL BE ENABLED.
- THE CHANGEOVER VALVES SHALL POSITION TO FLOW THROUGH CH-1.
- THE COOLING TOWER FAN VFD SHALL MODULATE TO MAINTAIN THE CURRENT CONDENSER WATER SUPPLY SETPOINT (75°F ADJ.).
- ONCE THE CHANGEOVER VALVES HAVE FULLY POSITIONED TO FLOW THROUGH THE CHILLER, THE CHILLER SHALL BE ENABLED AND SET TO MAINTAIN THE CURRENT BUILDING CHILLED WATER SUPPLY SETPOINT.
- IF THE CHILLER FAILS FOR ANY REASON AND IS UNABLE TO PROVIDE CHILLED WATER, FREECOOLING MODE SHALL BE ENABLED BY DEFAULT.
- SAFETIES:
 - FLOW SWITCH SHALL DISABLE CHILLER AND SET ALARM.
 - CHILLER INTERNAL SAFETIES SHALL DISABLE CHILLER AND SEND AN ALARM TO THE OPERATOR WORK STATION.

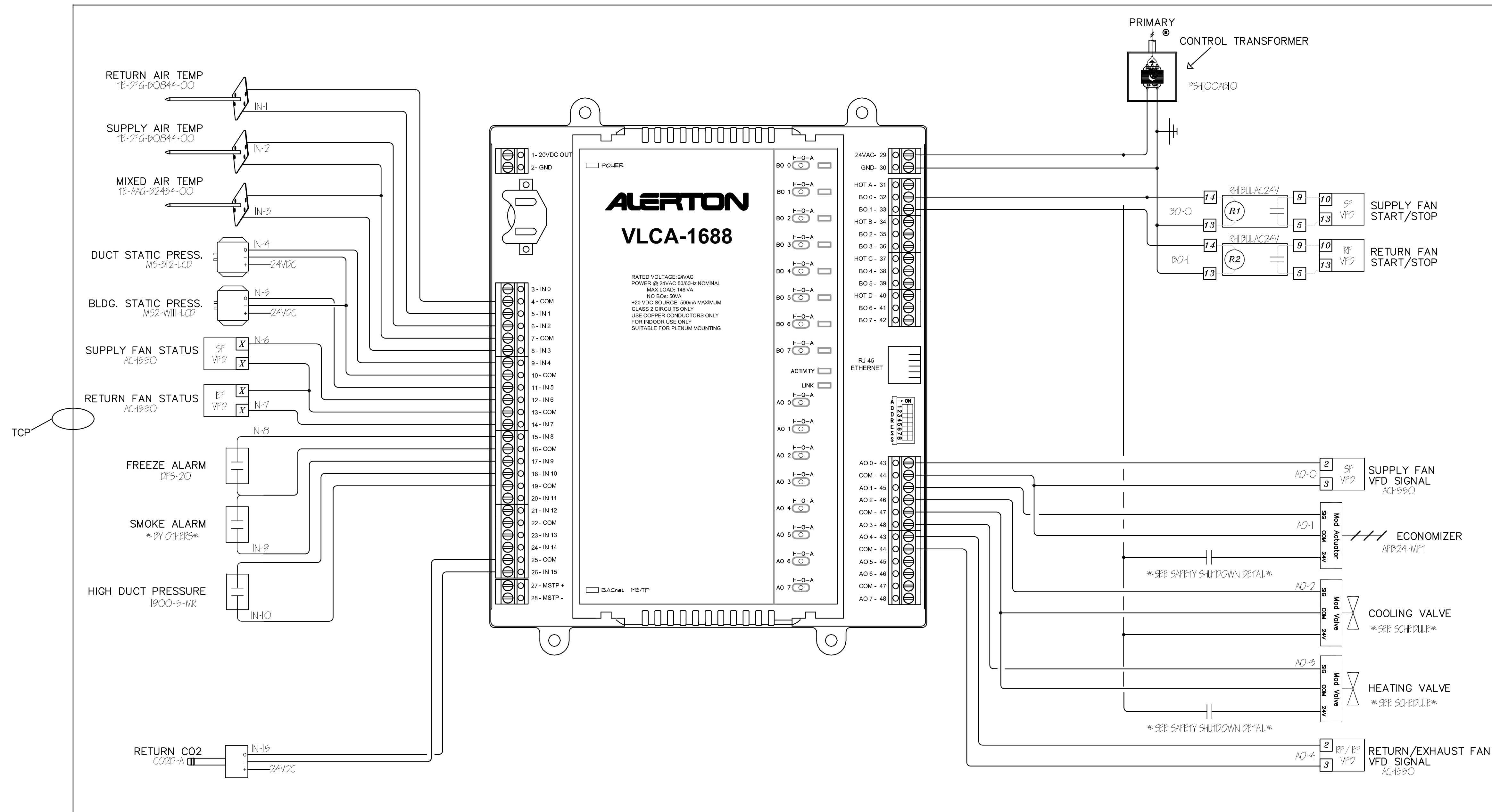
D. OPERATOR'S TERMINAL

- SEE "TEMPERATURE CONTROL AND EMCS GENERAL NOTES".
- BUILDING CHILLED WATER SUPPLY TEMPERATURE (°F).
- BUILDING CHILLED WATER RETURN TEMPERATURE (°F).
- PRIMARY CHILLED WATER SUPPLY TEMPERATURE (°F).
- CONDENSER WATER SUPPLY TEMPERATURE (°F).
- CONDENSER WATER RETURN TEMPERATURE (°F).
- CHILLED WATER RESET TEMPERATURE (°F).
- CHILLER COMMAND (ENABLE/DISABLE).
- CHILLER STATUS (ON/OFF).
- CHILLER ALARM (ALARM/NORMAL).
- PUMP COMMAND (START/STOP).
- PUMP STATUS (ON/OFF).
- PUMP VFD SIGNAL (0-100%).
- CT-1 COMMAND (START/STOP).
- CT-1 STATUS (ON/OFF).
- CT-1 VFD SIGNAL (0-100%).
- CT-1 VIBRATION ALARM (ALARM/NORMAL).
- CHANGEOVER VALVE COMMAND (OPEN/CLOSE).
- CHANGEOVER VALVE STATUS (OPEN/CLOSED).



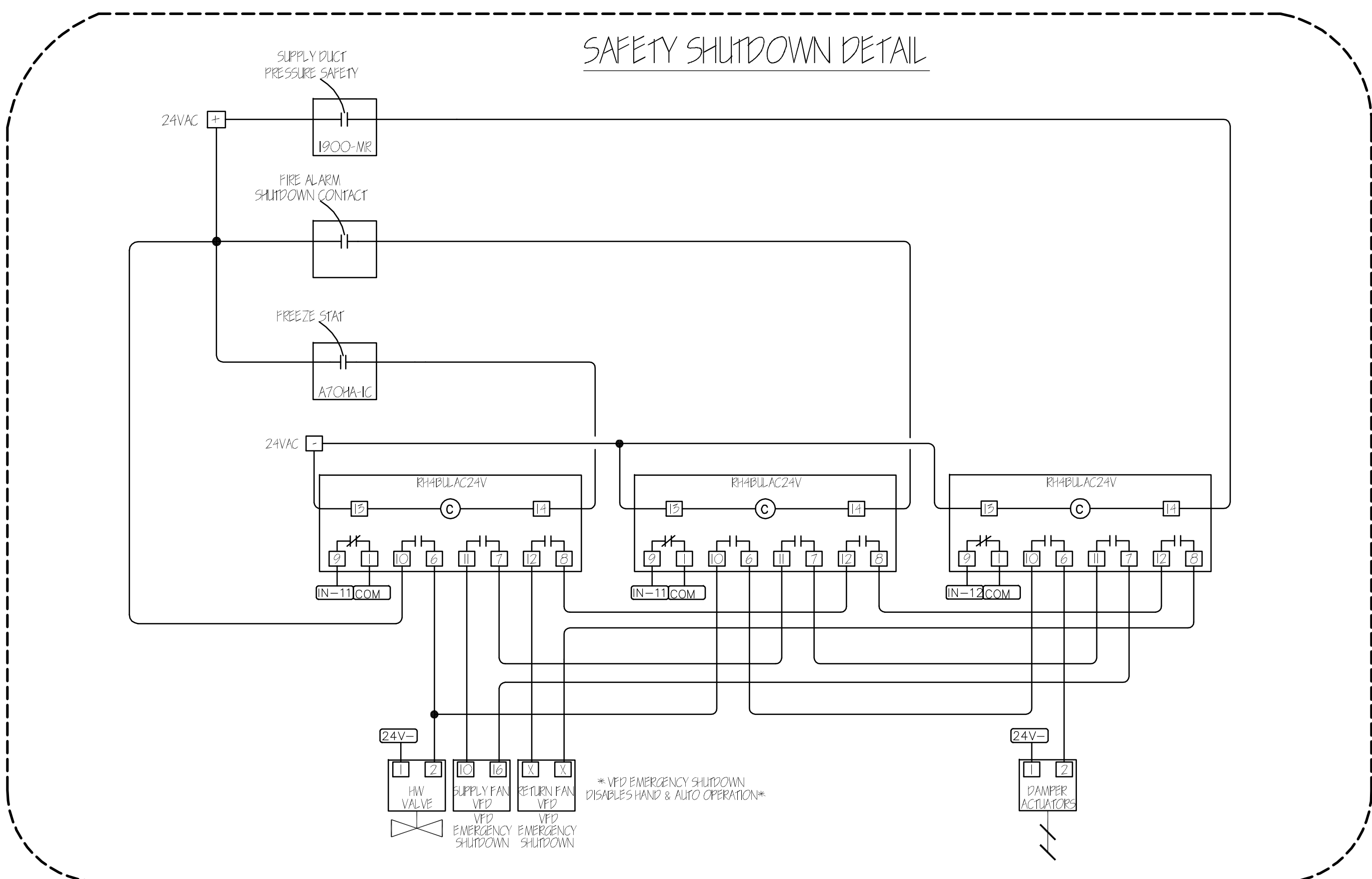
NOTE: SEE SPECIFICATION SECTION 26 29 23 FOR VARIABLE FREQUENCY DRIVE REQUIREMENTS

M5.4 CHILLED WATER PLANT CONTROL
 SCALE: NONE



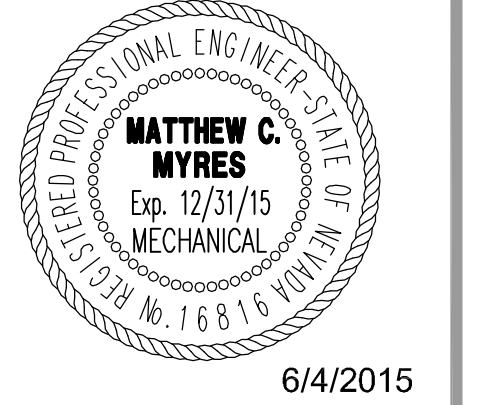
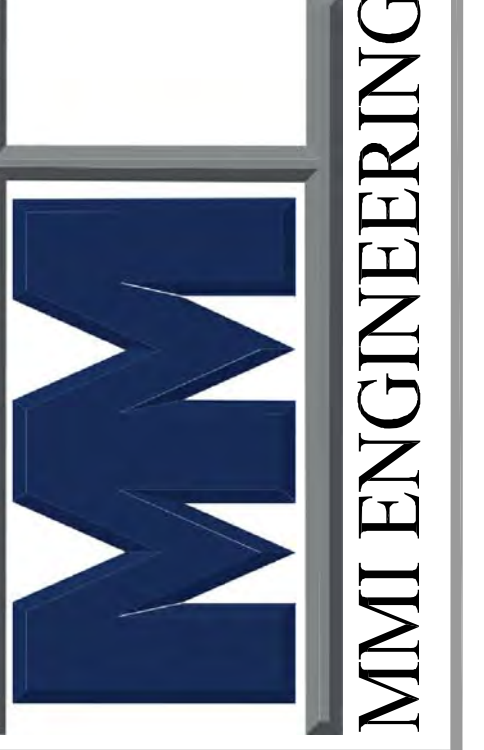
VAV AHU CONTROL

- WARM UP CYCLE:**
- SUPPLY FAN SHALL START AND VFD SHALL MODULATE TO MAINTAIN MORNING WARM UP DUCT STATIC PRESSURE SETPOINT.
 - OSA DAMPERS SHALL REMAIN CLOSED.
 - HEATING WATER VALVE SHALL MODULATE OPEN TO MAINTAIN 80°F(ADJ.) SUPPLY AIR TEMPERATURE SETPOINT.
- OCCUPIED CYCLE:**
- SUPPLY FAN SHALL START IF NOT ALREADY RUNNING THROUGH MORNING WARMUP SEQUENCE.
 - VFD SHALL MODULATE TO MAINTAIN DUCT STATIC PRESSURE SETPOINT, INITIALLY 1"(ADJ.).
 - OSA DAMPER SHALL OPEN TO MINIMUM POSITION WHICH WILL VARY BASED ON RETURN CO2 LEVELS. CO2 SETPOINT SHALL BE SET INITIALLY AT 1000PPM(ADJ.).
 - THE COOLING WATER VALVE AND HEATING WATER VALVE SHALL BE MODULATED TO MAINTAIN THE CURRENT SUPPLY AIR TEMPERATURE SETPOINT.
 - IF THE OUTSIDE AIR TEMPERATURE IS LESS THAN 68°F(ADJ.), THE ECONOMIZER DAMPERS SHALL BE USED AS THE PRIMARY MEANS OF COOLING. ONCE THE ECONOMIZER DAMPERS HAVE REACHED 100%, THE COOLING WATER VALVE SHALL MODULATE TO MAINTAIN THE CURRENT SUPPLY AIR TEMPERATURE SETPOINT.
 - THE EXHAUST FAN VFD SHALL START AND MODULATE TO MAINTAIN THE CURRENT BUILDING STATIC PRESSURE SETPOINT, INITIALLY 1"(ADJ.).
- UNOCCUPIED CYCLE:**
- SUPPLY/EXHAUST FANS STOP AND OSA DAMPER CLOSES AT PROGRAMMED TIME.
 - CHILLED WATER VALVE AND HEATING WATER VALVE CLOSES.
 - VAV ZONES REVERT TO "SET-BACK/SET-UP" TEMPERATURE SETPOINT.
 - MOMENTARY CONTACT PUSH-BUTTON IN ANY ROOM TEMPERATURE SENSORS OVERRIDES "UNOCCUPIED CYCLE" AND PLACES SYSTEM IN "OCCUPIED CYCLE" FOR A PROGRAMMED LENGTH OF TIME.
- SETPOINTS:**
- SUPPLY TEMPERATURE RESET: AS HIGHEST VAV ZONE COOLING SIGNAL INCREASES FROM 0% TO 100%, THE SUPPLY AIR TEMPERATURE SETPOINT DECREASES FROM 65°F(ADJ.) TO 55°F(ADJ.).
- SAFETY CONTROL:**
- IF COMMUNICATION FAILS BETWEEN AIR HANDLER CONTROLLER AND GLOBAL CONTROLLER, THE AIR HANDLER CONTROL SHALL AUTOMATICALLY MAINTAIN THE LATEST TEMPERATURE SETPOINTS IN OCCUPIED MODE.
 - FREEZE, SMOKE, OR HIGH DUCT PRESSURE ALARMS SHALL DE-ACTIVATE UNIT AND SEND AN ALARM TO THE OPERATORS WORKSTATION.
 - FILTER DIFFERENTIAL PRESSURE TRANSMITTER SHALL SEND AN ALARM TO THE OPERATOR WORKSTATION WHENEVER PRESSURE EXCEEDS THE FILTER ALARM PRESSURE SETPOINT. FILTER ALARM SETPOINT SHALL BE BASED UPON SETTING UP STATIC PROFILE WITH BALANCE CONTRACTOR TO TRIGGER THE ALARM BASED UPON THE FILTER PRESSURE DROP AND THE VFD SPEED OF THE SUPPLY FAN.



A TYPICAL VAV AHU CONTROL
M5.6 SCALE: NONE

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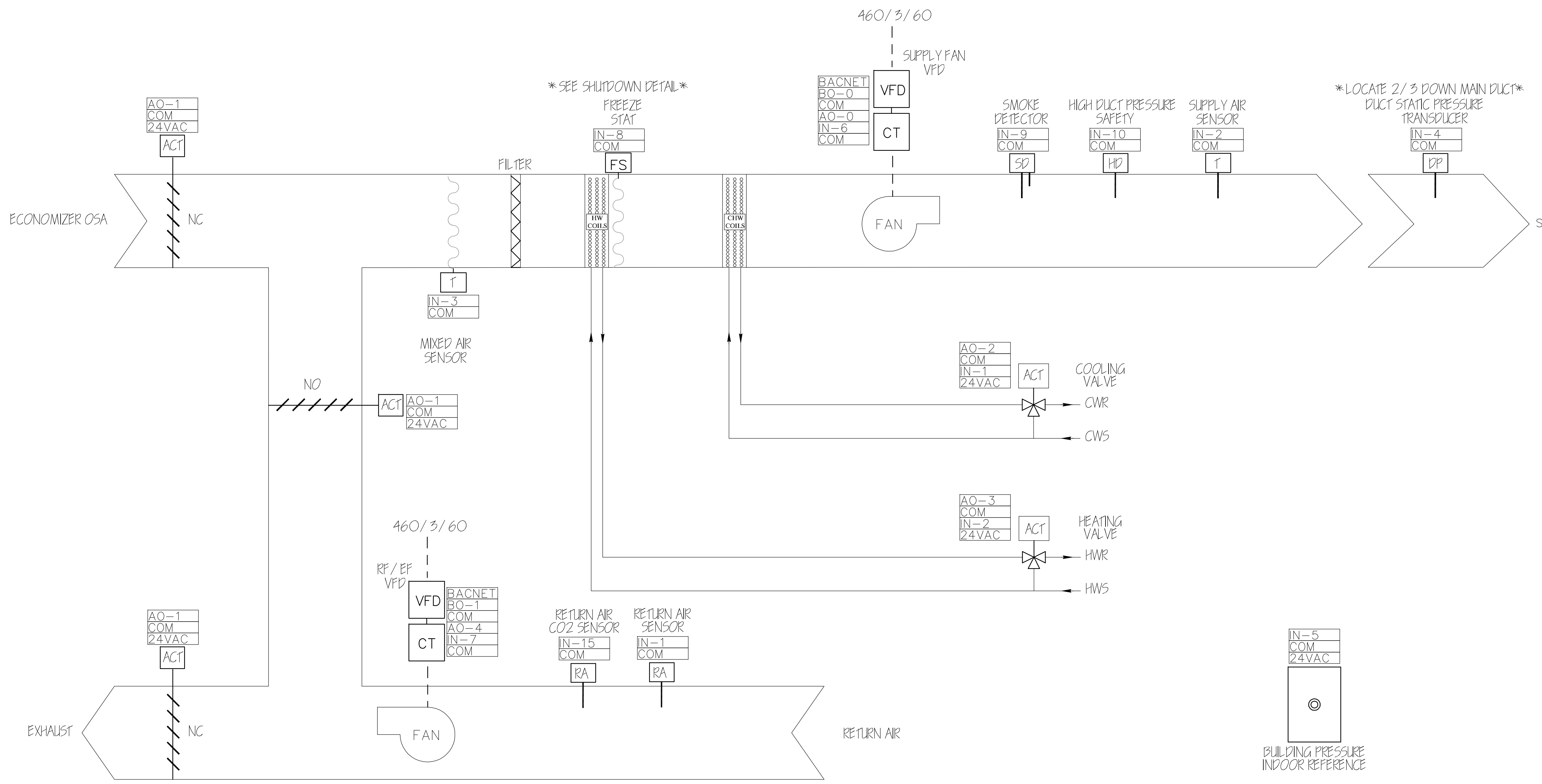


SPARKS CITY HALL
CAMPUS HVAC UPGRADE
SPARKS, NEVADA

SHEET TITLE
TYPICAL VAV AHU CONTROL

REVISIONS

DATE :
JUNE 4, 2015
SHEET NUMBER :
M5.6



NOTE: SEE SPECIFICATION SECTION 26 29 23 FOR VARIABLE FREQUENCY DRIVE REQUIREMENTS

- AIR HANDLER SEQUENCE OF OPERATION
1. THE UNIT WILL BE ENABLED BY THE DDC CONTROL SYSTEM. ONCE STARTED THE AIR HANDLER SHALL PROVIDE SUPPLY AIR TEMPERATURE CONTROL AND DUCT STATIC PRESSURE CONTROL ALONG WITH BUILDING STATIC PRESSURE CONTROL. (ALL CONTROL COMPONENTS AND WIRING TO BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR.)
 2. MINIMUM POINTS TO BE PROVIDED BY THE DDC CONTROL SYSTEM INTERFACE (BACNET):
 - A. SUPPLY AIR SETPOINT (WITH ADJUSTMENT FROM THE DDC CONTROL SYSTEM BACNET OBJECT).
 - B. SUPPLY AIR TEMPERATURE.
 - C. DUCT STATIC PRESSURE.
 - D. DUCT STATIC PRESSURE SETPOINT (WITH ADJUSTMENT FROM THE DDC CONTROL SYSTEM BACNET OBJECT).
 - E. SUPPLY FAN VFD STATUS.
 - F. RETURN/EXHAUST FAN VFD STATUS.
 - G. P.O.C.D. ALARM STATUS.
 - H. HEATING WATER VALVE POSITION (COMMANDED)
 - I. CHILLED WATER VALVE POSITION (COMMANDED)
 - J. OSA TEMPERATURE. (GLOBAL)
 - K. OUTSIDE AIR DAMPER POSITION (COMMANDED).
 - L. ECONOMIZER MINIMUM POSITION SETPOINT (WITH ADJUSTMENT FROM THE DDC CONTROL SYSTEM BACNET OBJECT).
 - M. MIXED AIR TEMPERATURE.
 - N. RETURN AIR TEMPERATURE.
 - O. FREEZESTAT ALARM.

3. COOLING MODE, OCCUPIED: OUTSIDE AIR AND DUCT MOUNTED MIXED AIR TEMPERATURE CONTROLLERS MODULATE ECONOMIZER CONTROLS AND CHILLED WATER CONTROL VALVE TO MAINTAIN THE CURRENT SUPPLY AIR SETPOINT (ADJUSTABLE VIA RESET SCHEDULE). FREEZE STAT WITH MANUAL RESET SHALL SHUT DOWN THE AIR HANDLER'S SUPPLY AIR FAN AND THE RETURN AIR FAN, CLOSE THE OUTSIDE AIR DAMPER, AND OPEN THE HEATING WATER VALVE. IF THE SUPPLY AIR TEMPERATURE FALLS BELOW 40°F. INTERLOCK ALL DUCT MOUNTED SMOKE DETECTORS TO SHUT DOWN THE AIR HANDLER FAN AND RETURN AIR FAN AND CLOSE THE OUTSIDE AIR DAMPER UPON ACTIVATION OF ANY SMOKE DETECTOR.
4. HEATING MODE, OCCUPIED: WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW 60°F. SYSTEM (SECONDARY) CHILLED WATER CIRCULATION PUMP CHWP-3 OR CHWP-4 (ALTERNATING) IS DEENERGIZED. ON A CALL FOR HEATING THE AIR HANDLER UNIT'S HEATING WATER VALVE SHALL MODULATE TO MAINTAIN THE CURRENT SUPPLY AIR SETPOINT (ADJUSTABLE VIA RESET SCHEDULE).
5. NIGHT SETBACK MODE: NIGHT SETBACK IS INITIATED BY THE DDC CONTROL SYSTEM. THE AIR HANDLER SUPPLY FAN AND RETURN AIR FAN CONTROLS ARE OFF AND OUTSIDE AIR DAMPERS CLOSE. SPACE THERMOSTATS ARE RESET TO 64°F DURING THE WINTER MONTHS AND 84°F DURING THE SUMMER MONTHS. AIR HANDLER AND RETURN AIR FAN CYCLE TO MAINTAIN SETPOINTS. CHILLED WATER AND HEATING SYSTEM CONTROLS & CIRCULATION PUMP OPERATION ARE THE SAME AS IN THE OCCUPIED MODE.
6. OPTIMUM START/STOP: OPTIMUM START (OST) SCHEDULED START TIME, CONTROLLED BY THE DDC CONTROLLER, CAN BE ALTERED BY CONTROLLERS OPTIMUM START PROGRAM CALCULATION. THE RESULT OF THE CALCULATION IS TO COMPUTE THE EQUIPMENT START TIME SO THAT THE SPACE TEMPERATURE CAN BE MOVED FROM ITS UNOCCUPIED MODE SETTING, TO THE OCCUPIED MODE SETTING FOR THE SPACE CONTROLLED, EARLY ENOUGH TO MEET THE SCHEDULED START TIME FOR THE SPACE.

- PROGRAMS
1. SCHEDULE
 2. START/STOP PROGRAM
 3. OPTIMUM START/STOP PROGRAM
 4. OUTSIDE/RETURN/RELIEF DAMPERS
 5. DDC - HISTORICAL TEMPERATURE RATE OF CHANGE (FROM SELECTED SENSOR) CONTROL POINTS:
 - OUTSIDE AIR TEMP. X
 - OUTSIDE AIR HUMIDITY X
 - SPACE TEMP.
 - START/STOP, AHU FAN X
 - OPTIMUM STOP (OSP), AHU SCHEDULED STOP TIME, CONTROLLED BY THE DDC CONTROLLER, CAN BE ALTERED BY CONTROLLERS OPTIMUM START/STOP PROGRAM. THE RESULT OF THE CALCULATION IS TO COMPUTE THE EQUIPMENT STOP TIME, SO THAT THE SPACE TEMPERATURE IS ALLOWED TO DRIFT FROM ITS OCCUPIED MODE SETTING FOR THE SPACE CONTROLLED, TO THE UPPER OR LOWER TEMPERATURE LIMIT BY THE SCHEDULED STOP TIME.

- PROGRAMS
1. SCHEDULE
 2. START/STOP PROGRAM
 3. OPTIMUM START/STOP PROGRAM
 4. DDC - HISTORICAL TEMPERATURE RATE OF CHANGE
 7. DISCHARGE TEMPERATURE CONTROL. RESET SCHEDULE THE DISCHARGE AIR TEMPERATURE (DAT) SHALL BE MAINTAINED AT SETPOINT AS DESCRIBED BELOW.

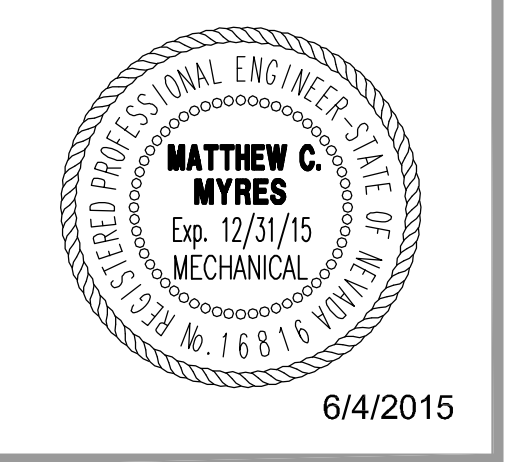
THE CHW VALVE SHALL MODULATE TO MAINTAIN THE SETPOINT. THE COOLING VALVE SHALL BE ENABLED WHENEVER OUTSIDE AIR TEMPERATURE IS GREATER THAN EITHER THE DAT SETPOINT OR 53°F (ADJ.). THE ECONOMIZER IS DISABLED OR FULLY OPEN AND THE SUPPLY FAN STATUS IS ON. ALARMS SHALL BE PROVIDED AS FOLLOWS:

1. HIGH SUPPLY AIR TEMP. - IF SUPPLY AIR TEMPERATURE IS 5°F (ADJ.) GREATER THAN FLOATING SETPOINT.
2. DAT SETPOINT - OPTIMIZED: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL RESET THE SUPPLY AIR TEMPERATURE SETPOINT BASED ON OUTSIDE AIR CONDITIONS AND SATISFYING ALL ZONE COOLING REQUIREMENTS.
3. THE INITIAL DATSPT SHALL BE 57°F (ADJ.).
4. THE DATSPT SHALL RESET BETWEEN A HIGH (70°F ADJUSTABLE) AND LOW (55°F ADJUSTABLE) OFFSET RANGE AS DESCRIBED BELOW AND SHALL BE THE OUTPUT OF A SLOW ACTING PID LOOP. AS ZONE COOLING DEMAND INCREASES, A MINIMUM OF 3 COOLING REQUESTS (ADJ.), THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF THE LOW OFFSET. WITH NO COOLING REQUESTS, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM HIGH OFFSET.
8. DEMAND LIMITING - SETPOINT ADJUST TO LOWER POWER CONSUMPTION. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL AUTOMATICALLY ADJUST (RAISED FOR COOLING, LOWERED FOR HEATING) WHEN THE FACILITY POWER CONSUMPTION EXCEEDS DEFINABLE THRESHOLDS. THE AMOUNT OF ADJUSTMENT SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING METHODS:

1. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL ADJUST BY 1°F (ADJ.) FOR EACH DEMAND THRESHOLD EXCEEDED.
2. THE SETPOINTS IN THE ZONES SUPPLIED BY THIS UNIT SHALL BE ADJUSTED AS SPECIFIED IN THE SEQUENCE OF OPERATIONS FOR THE ZONES. THIS SHALL IN TURN ADJUST THE UNITS SUPPLY AIR TEMPERATURE SETPOINT BY A USER DEFINABLE AMOUNT.
3. ALL SETPOINTS SHALL AUTOMATICALLY RETURN TO THEIR PREVIOUS SETTINGS WHEN THE FACILITY POWER CONSUMPTION DROPS BELOW THE THRESHOLDS.

POINT ALARMS - THE FOLLOWING POINT ALARMS SHALL BE GENERATED AT THE OPERATOR WORK STATION:

1. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE HIGHEST ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM (ADJ.).
2. THE OSA DAMPER CONTROL SHALL INCLUDE A HIGH SELECT BETWEEN THE MINIMUM OSA POSITION, ECONOMIZER POSITION, AND ZONE CO2 CONTROL POSITION.
3. THE MIXED AIR TEMPERATURE SHALL OVERRIDE CO2 CONTROL TO LIMIT THE OSA DAMPER POSITION TO MAINTAIN A PREDETERMINED MINIMUM VALUE (ADJ.).
4. IN THE UNOCCUPIED MODE, THE OSA DAMPER(S) SHALL REMAIN CLOSED, EXCEPT FOR USE OF ECONOMIZER OPERATION (IF PRESENT).
5. THE EXHAUST AIR (EA) AND RETURN AIR (RA) DAMPERS SHALL MODULATE ACCORDINGLY (EA IN UNISON WITH OSA, RA IN OPPOSITION TO OSA).
6. PROVIDE A MANUAL OVERRIDE OSAMIXING DAMPER CONTROL FROM GRAPHIC INTERFACE WITH INDICATOR WHEN IN MANUAL OVERRIDE MODE.

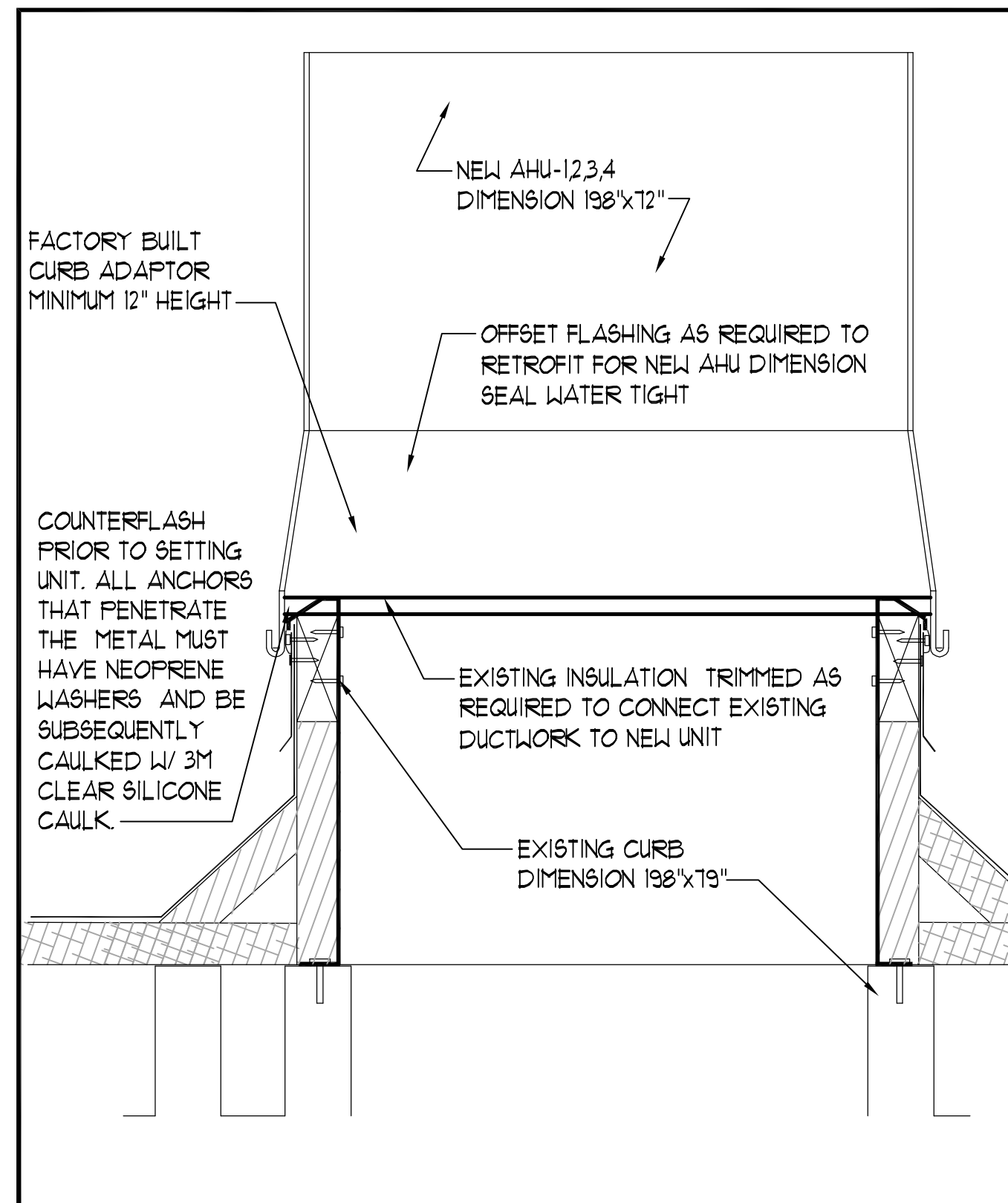


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CAMPUS HVAC UPGRADE
SPARKS, NEVADA

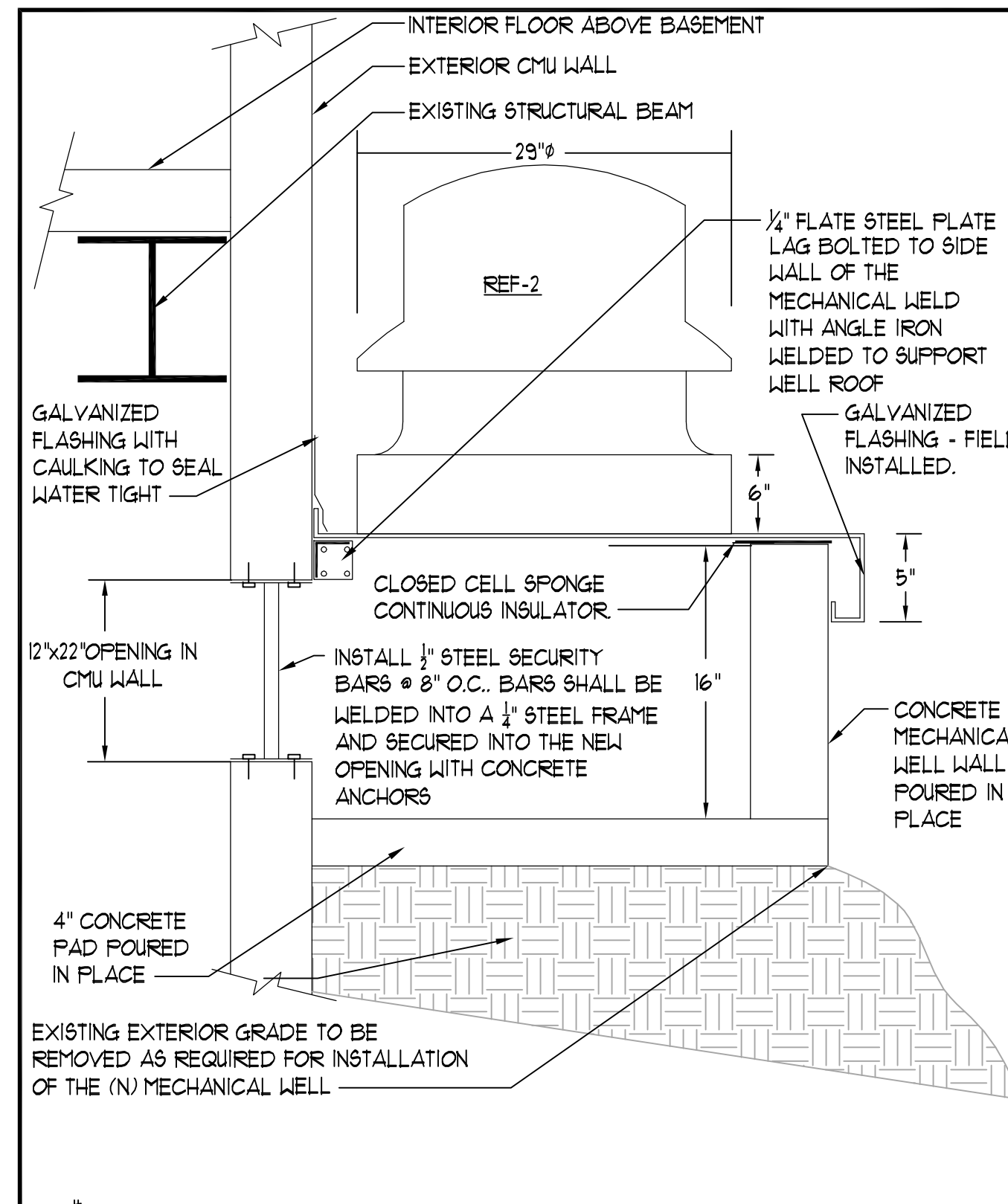
SHEET TITLE
TYPICAL VAV AHU CONTROL LAYOUT

REVISIONS

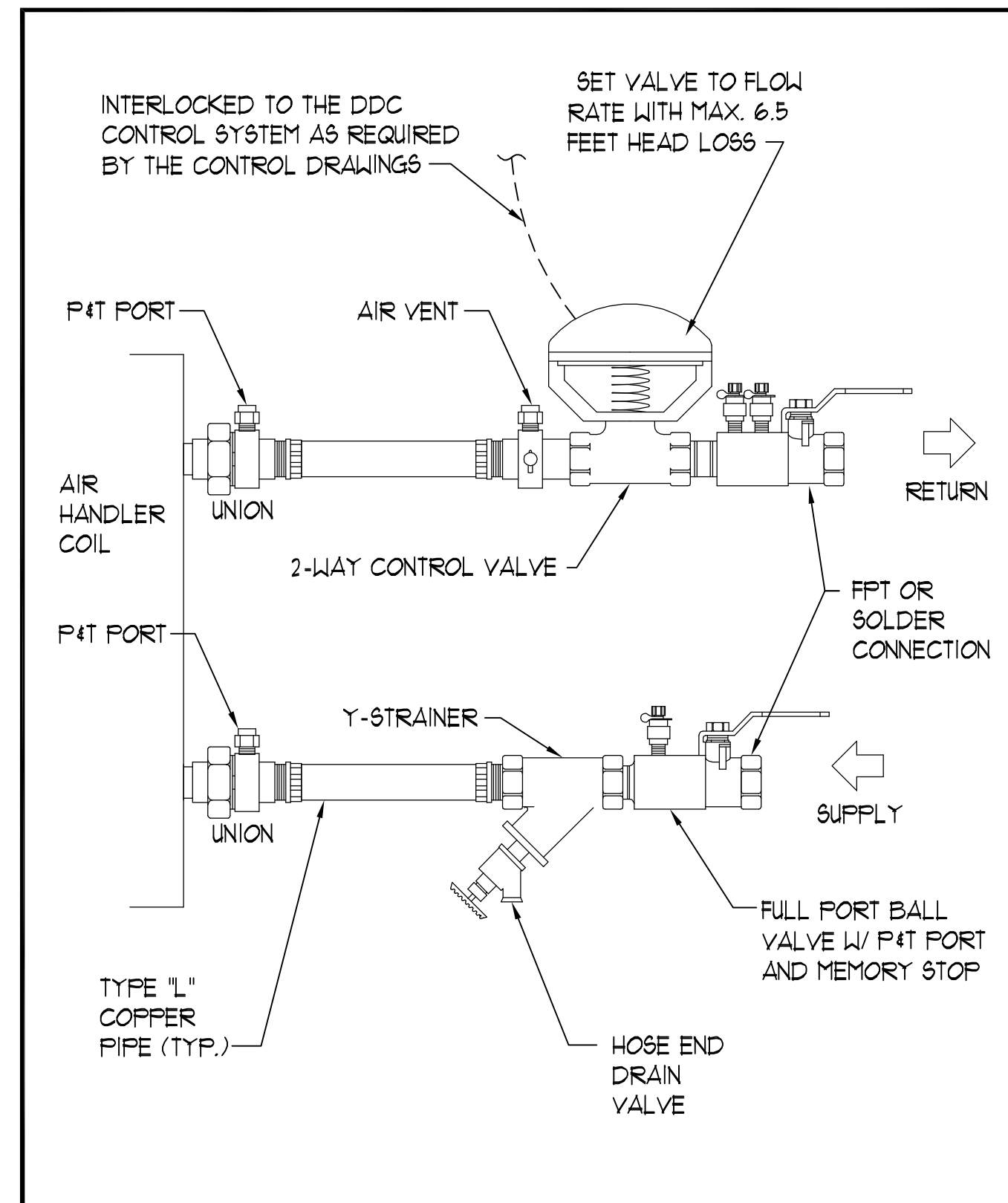
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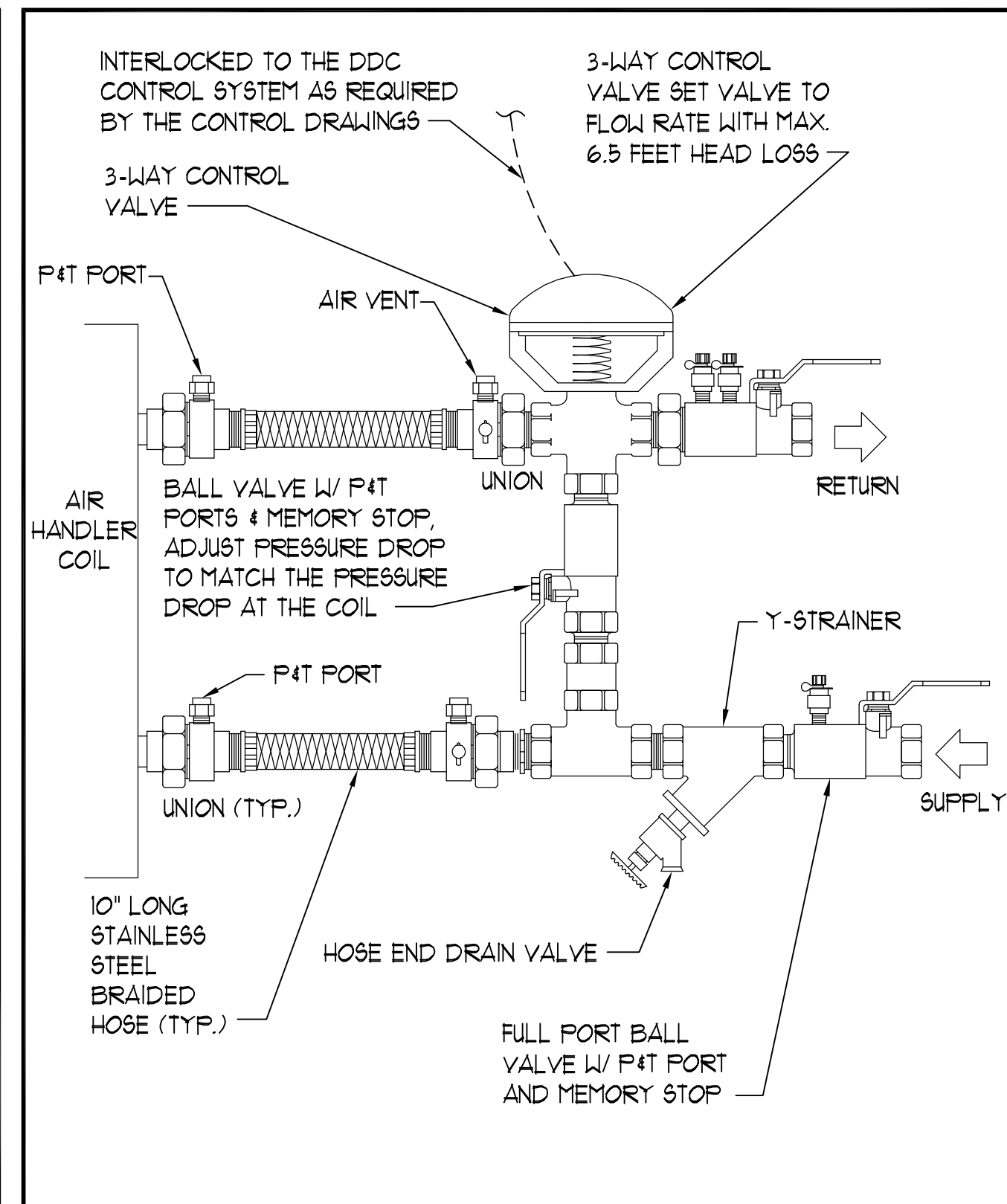
1 AHU-12,3,4 UNIT CURB MOD. DETAIL
M6.1 SCALE: NONE



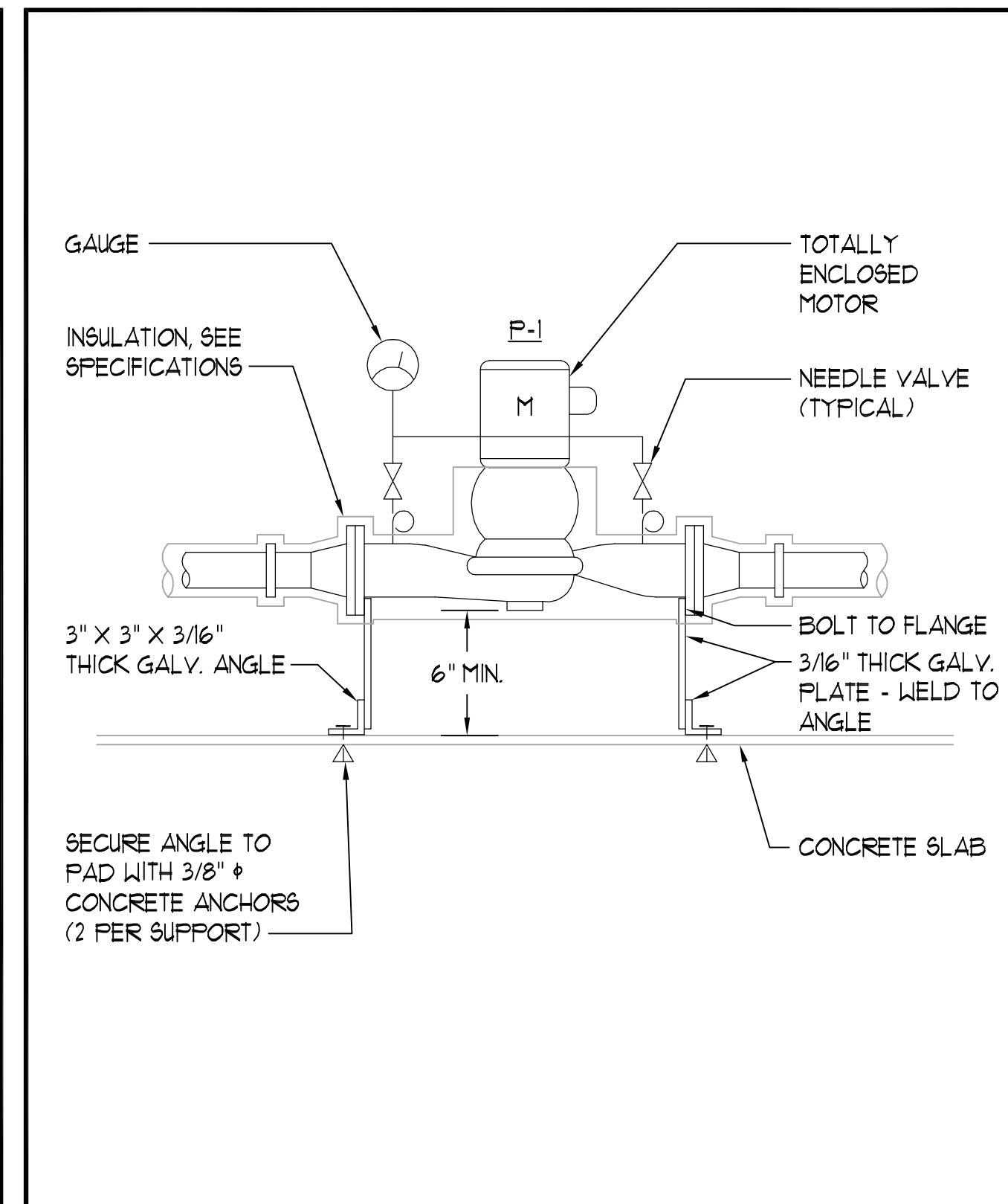
2 CHILLER RM. EMERGENCY EX. FAN
SCALE: NONE



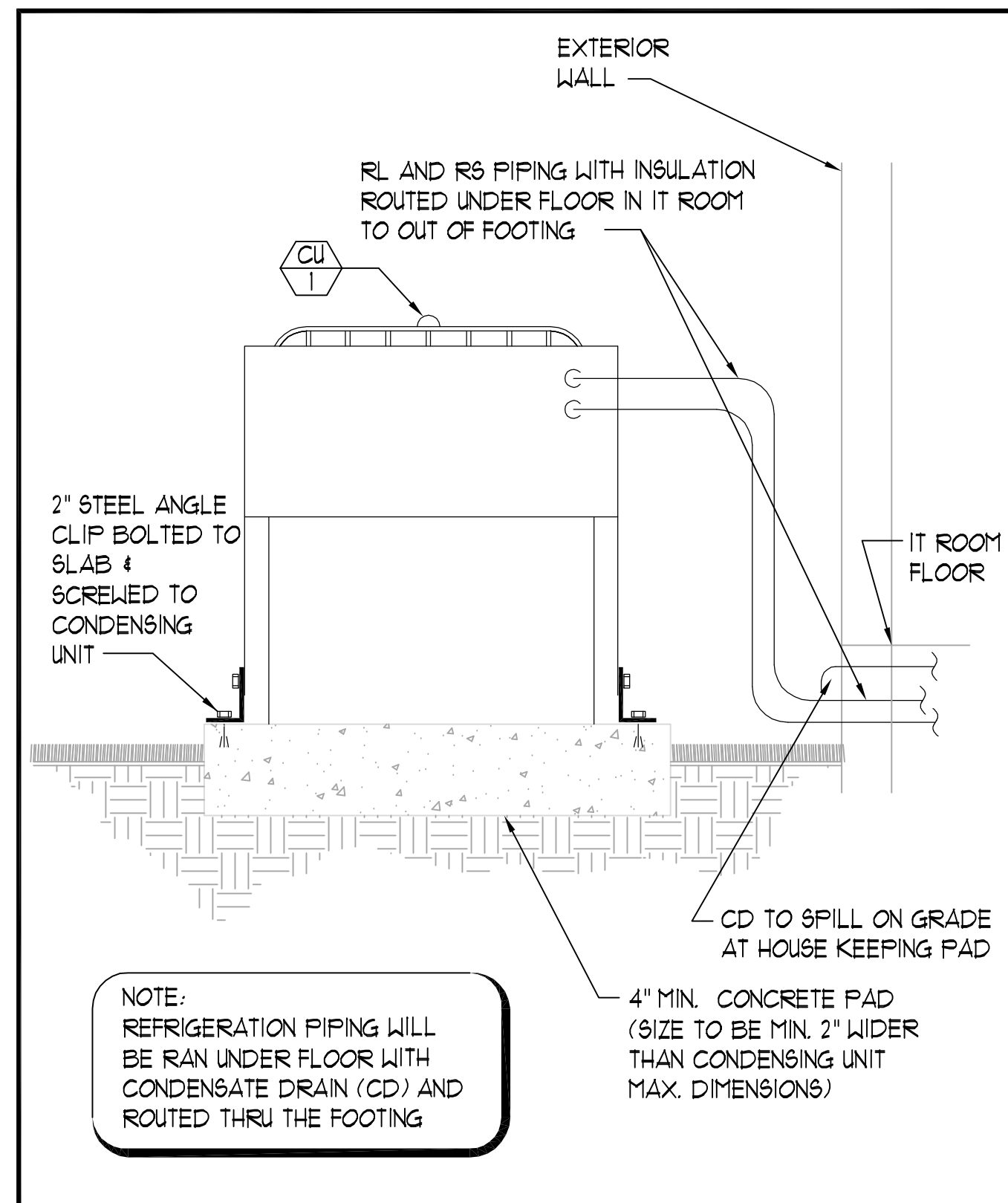
3 RE-HEAT COIL PIPING DTL. 2-WAY VALVE
M6.1 SCALE: NONE



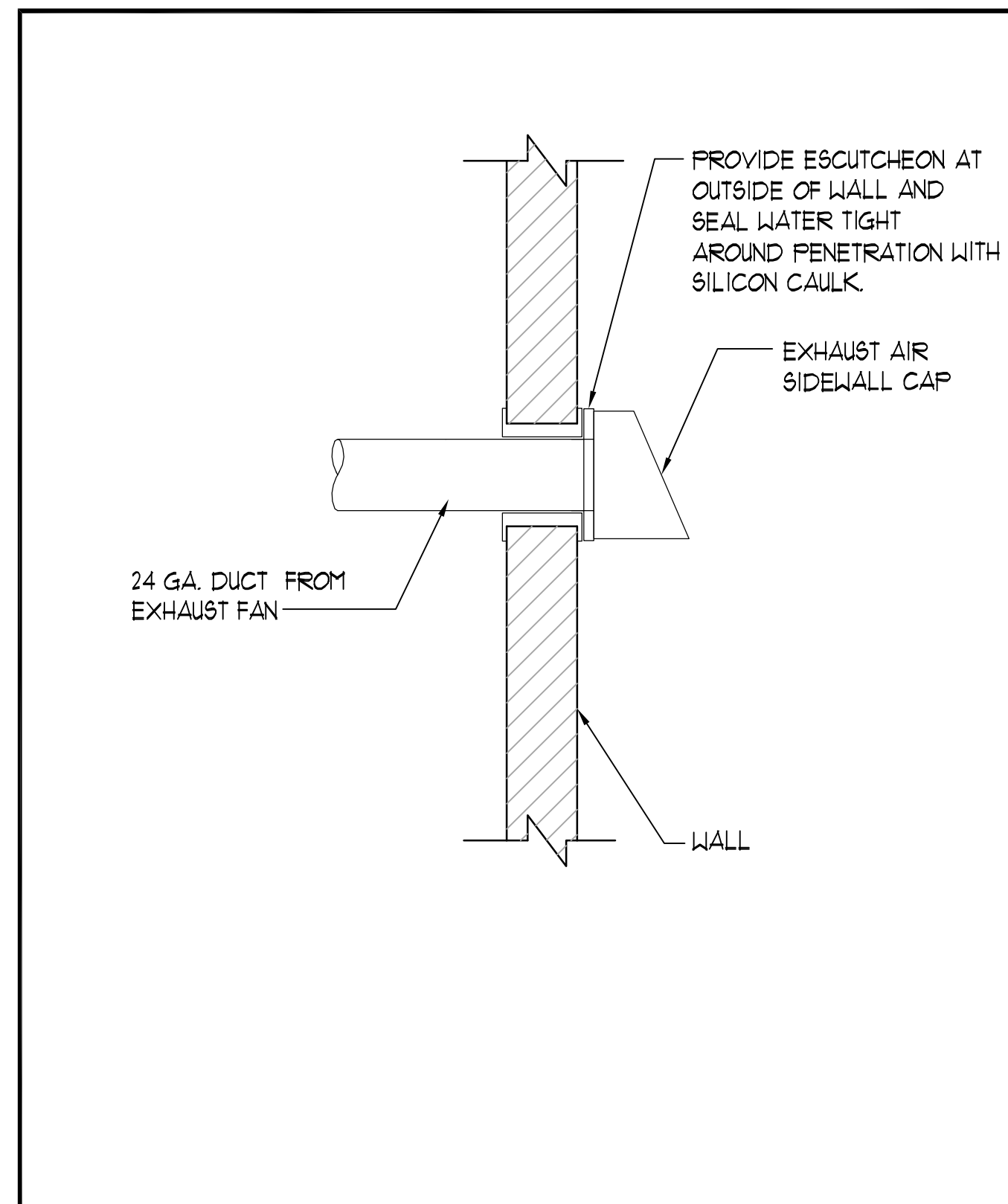
4 AIR HANDLER COIL 3-WAY VALVE (TYP.)
M6.1 SCALE: NONE



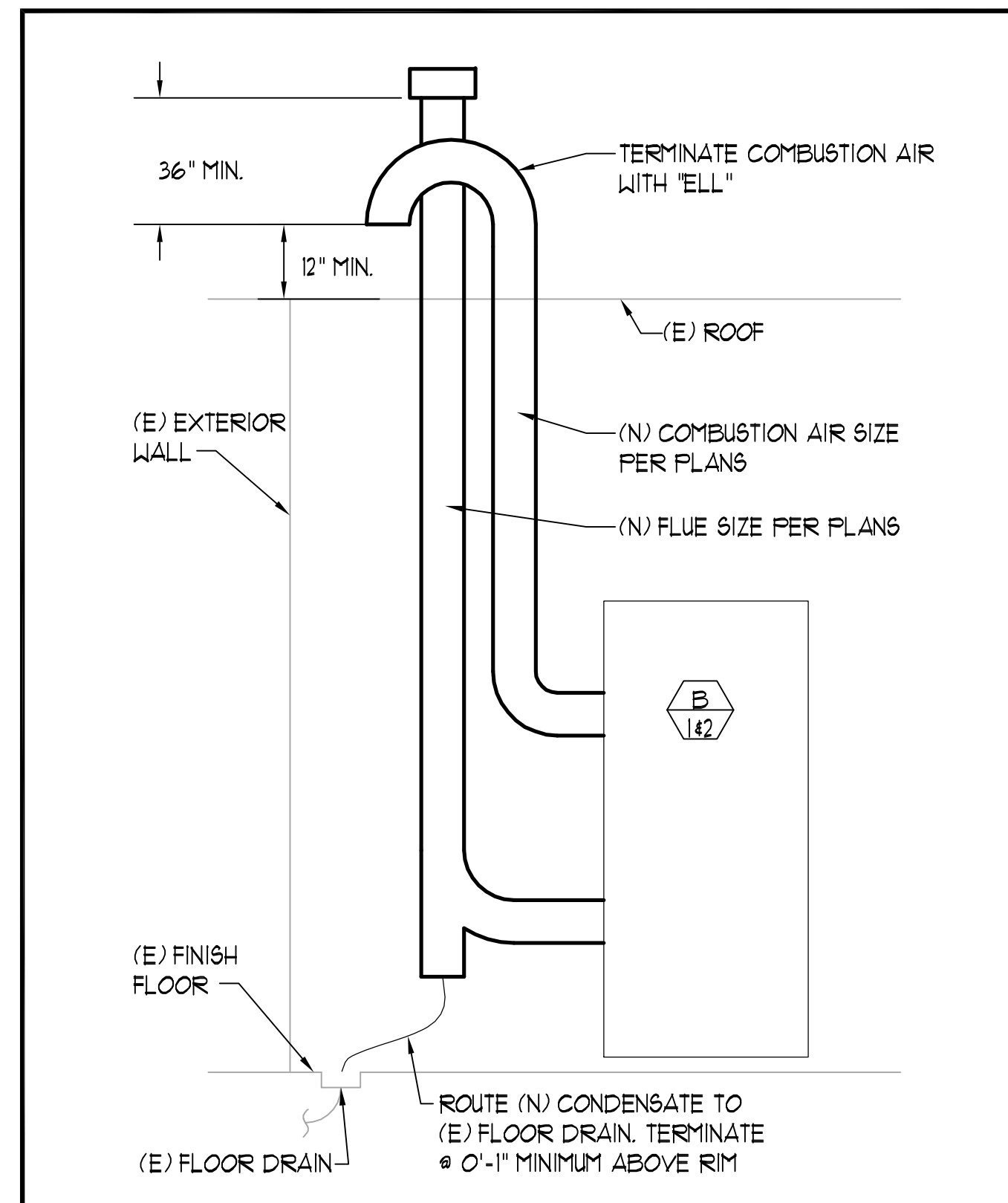
5 PUMP DETAIL
M6.1 SCALE: NONE



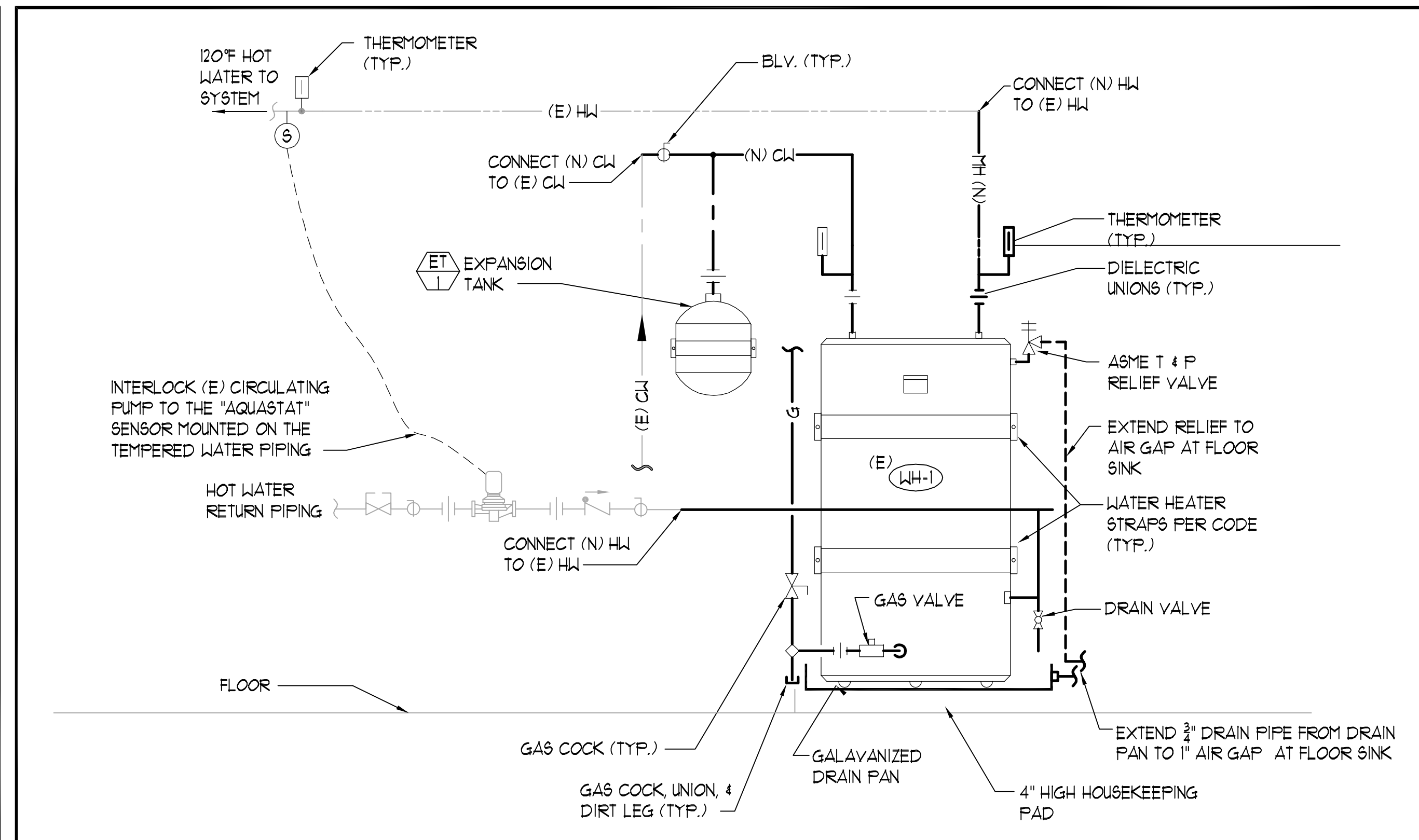
6 IT RM. CU UNIT MTG DETAIL W/ CD
M6.1 SCALE: NONE



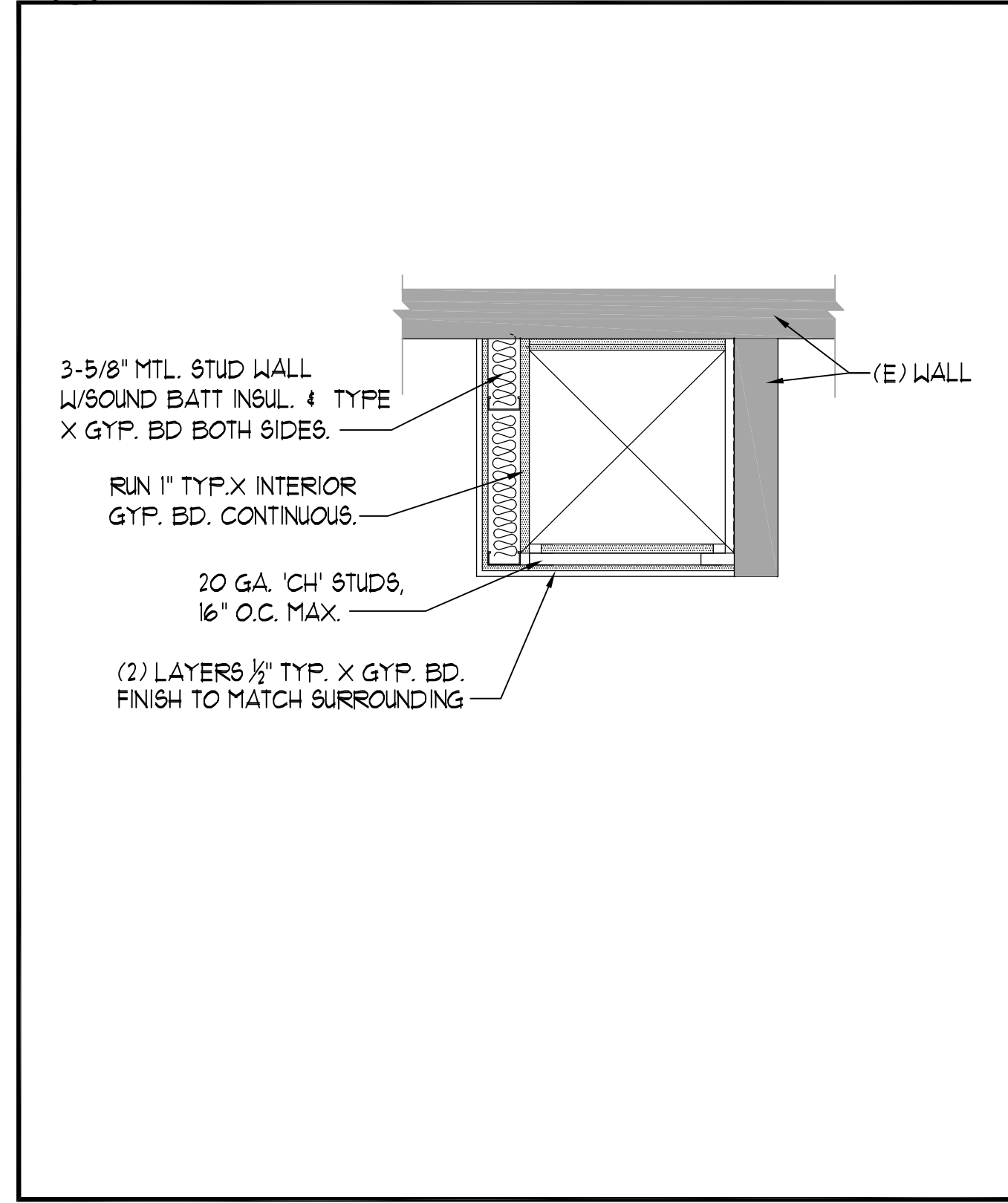
7 EXHAUST DUCT SIDEWALL TERMINATION
M6.1 SCALE: NONE



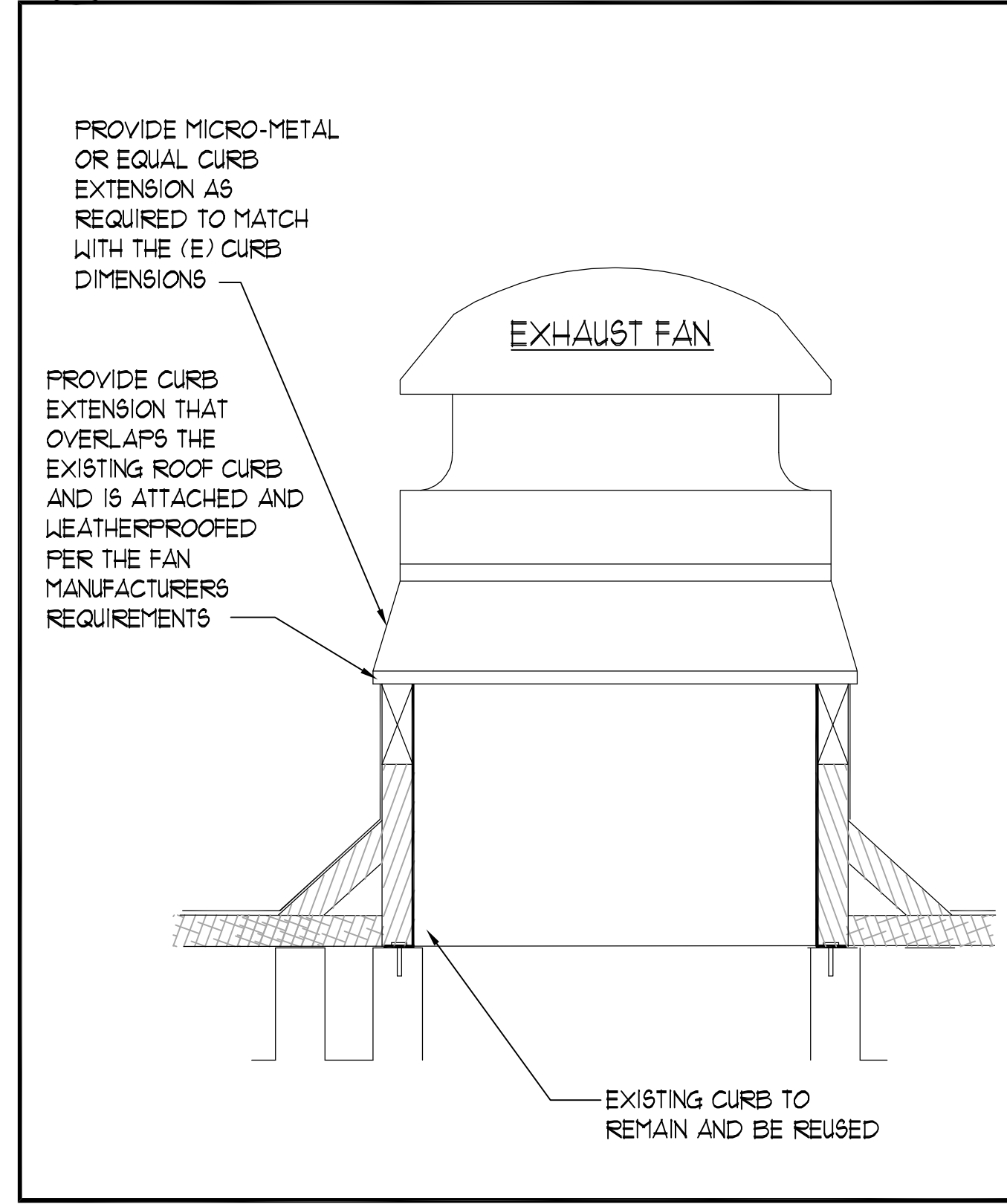
8 COMBUSTION AIR AND FLUE DETAIL
M6.1 SCALE: NONE



9 WATER HEATER PIPING DIAGRAM
M6.1 scale



10 DUCT CHASE DETAIL
M6.1 SCALE: NONE



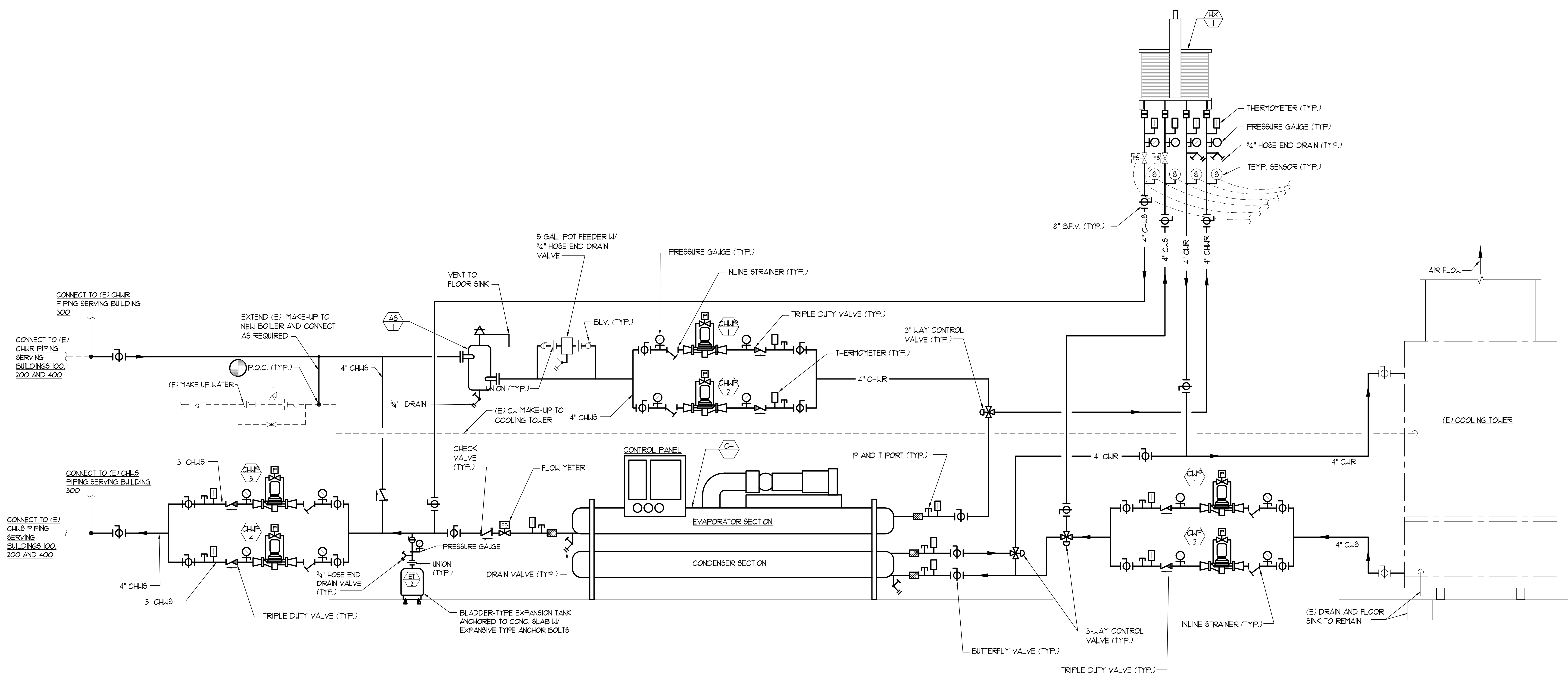
11 ROOFTOP EX. CURB MOD. DETAIL
M6.1 SCALE: NONE

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

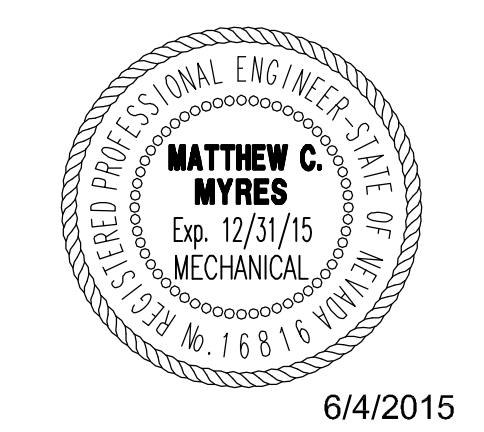
SHEET TITLE
 CHILLED WATER
 PIPING DIAGRAM

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER :
M6.2



1 CHILLED & CONDENSER WATER PIPING DIAGRAM
 M6.2 SCALE: NONE



6/4/2015

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
BOILER PIPING DIAGRAM

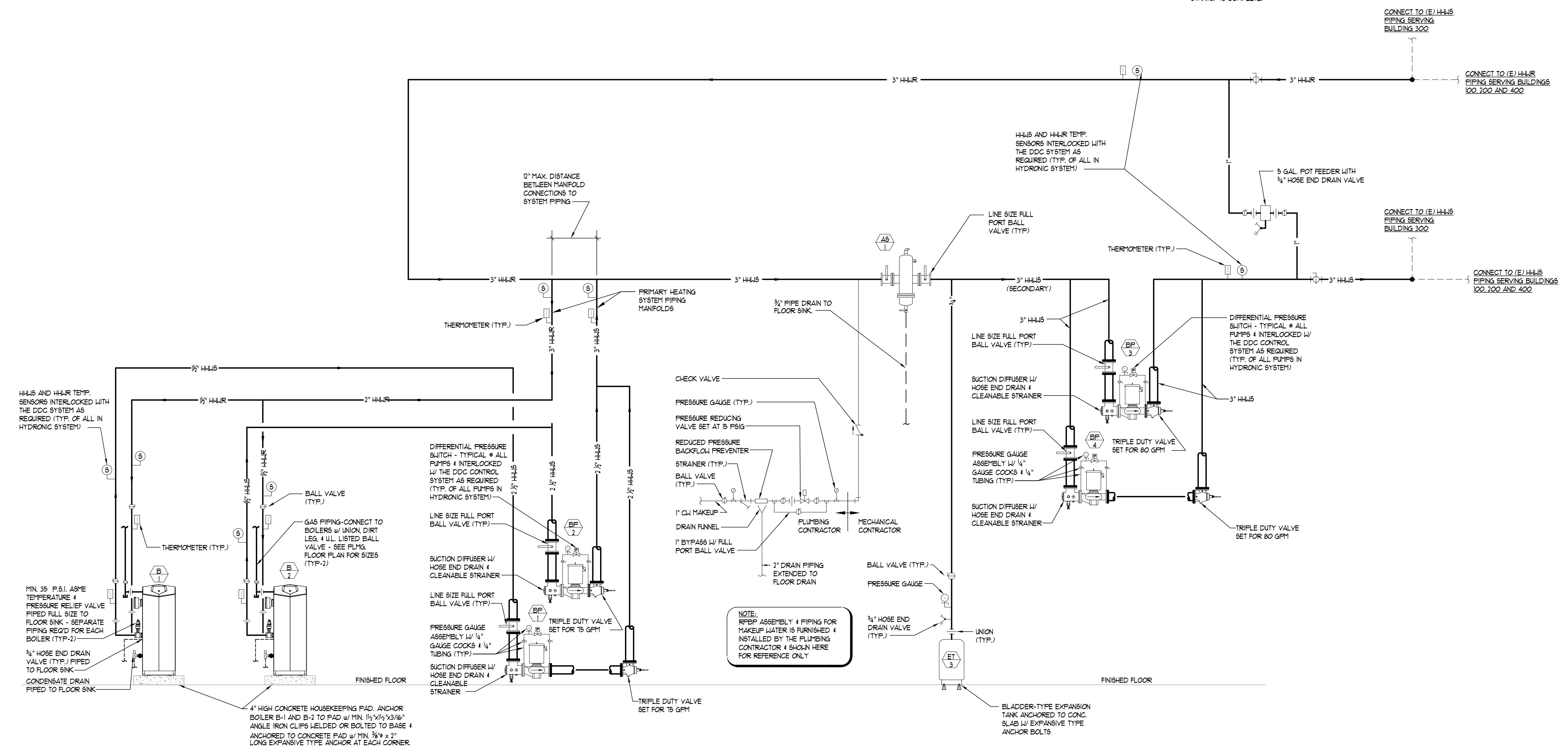
REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

M6.3

GENERAL NOTES

1. VERIFY ALL PIPING CONNECTIONS IN FIELD WITH EQUIPMENT FURNISHED AND MAKE MODIFICATIONS REQUIRED PER FURNISHED EQUIPMENT MANUFACTURERS RECOMMENDATIONS.
2. PROVIDE A MINIMUM OF 10 PIPE DIAMETERS UPSTREAM OF AND A MINIMUM OF 5 PIPE DIAMETERS DOWNSTREAM OF STRAIGHT PIPE AT EACH FLOW SENSOR AND FLOW MEASURING DEVICE.
3. THE EXPANSION TANK SHALL HAVE ITS PRESSURE FIELD VERIFIED AND ADJUSTED. AFTER HEATING PIPING SYSTEM IS OPERATING SHUT OFF BALL VALVE AT EXPANSION TANK - OPEN HOSE DRAIN VALVE AND DRAIN WATER FROM EXPANSION TANK - ADJUST AIR PRESSURE AT EXPANSION TANK TO 35.0 PSIG (MATCH SYSTEM PRV PRESSURE) - OPEN BALL VALVE AND REMOVE HANDLE OF BALL VALVE AND HANG ON BOILER ROOM WALL NEAR EXPANSION TANK.
4. PROVIDE HOSE END CAPS AT ALL BOILER PIPING NIPPLES THAT ARE UN-USED.
5. PERMIT AND INSPECTION REQUIRED FOR EACH BOILER AND STORAGE TANK IN ACCORDANCE WITH THE STATE BOILER CODE REQUIREMENTS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. PROVIDE EMERGENCY SHUTDOWN SWITCH FOR BOILERS LOCATED OUTSIDE OF THE MECHANICAL ROOM ADJACENT TO THE EXIT DOOR.
7. CONTRACTOR SHALL REMOVE, CLEAN AND REINSTALL STRAINER SCREENS AFTER STARTUP IS COMPLETE.



1 BOILER PIPING DIAGRAM
 M6.3 SCALE: NONE

BUILDING CODE SUMMARY

APPLICABLE DESIGN CODES (Latest edition as adopted by the City of Sparks)

INTERNATIONAL BUILDING CODE (2009)
NATIONAL ELECTRICAL CODE (2005)

ELECTRICAL SYMBOL LIST (NOTE: ALL OF THE SYMBOLS INDICATED BELOW MAY NOT APPEAR ON THIS PROJECT)

—	CONDUIT RUN IN OR ON CEILING OR WALL
- - -	CONDUIT RUN IN OR UNDER FLOOR OR UNDERGROUND
—P—	PRIMARY UTILITY LINE
—S—	SECONDARY UTILITY LINE
○	RACEWAY UP
●	RACEWAY DOWN
	MOTOR SYMBOL – HORSEPOWER AS INDICATED
	VARIABLE FREQUENCY DRIVE CONNECTION
	120V DUPLEX CONVENIENCE RECEPTACLE +18" AFF
	120V DOUBLE DUPLEX CONVENIENCE RECEPTACLE +18" AFF
	120V DUPLEX RECEPTACLE WITH DEDICATED CIRCUIT & ISOLATED GROUND; "D" INDICATES "DATA OUTLET", ENGRAVE FACEPLATE "COMPUTER POWER ONLY" +18" AFF
	120V DOUBLE DUPLEX RECEPTACLE W/ DEDICATED CIRCUIT & ISOLATED GROUND +18" AFF
	120V DOUBLE DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED
	208V – 1~ SPECIAL PURPOSE OUTLET (AMPS AS NOTED) +18" AFF
	208V – 3~ SPECIAL PURPOSE OUTLET (AMPS AS NOTED) +18" AFF
	480V – 1~ SPECIAL PURPOSE OUTLET (AMPS AS NOTED) +18" AFF
	480V – 3~ SPECIAL PURPOSE OUTLET (AMPS AS NOTED) +18" AFF
	120V DUPLEX CONVENIENCE OUTLET – FLOOR TYPE
	120V DOUBLE DUPLEX CONVENIENCE OUTLET – FLOOR TYPE
	PLUG MOLD – SURFACE MOUNTED
	JUNCTION BOX AS REQUIRED BY NATIONAL ELECTRIC CODE
	JUNCTION BOX – FLUSH FLOOR TYPE – AS REQUIRED BY NATIONAL ELECTRIC CODE
	TELEPHONE OUTLET – WALL MOUNTED +18" AFF
	TELEPHONE OUTLET – FLUSH FLOOR TYPE
	COMPUTER OUTLET (DATA) +18" AFF
	INTERCOM OUTLET – WALL MOUNTED +18" AFF
	PUBLIC PAY TELEPHONE OUTLET +48" AFF
	WALL PHONE OUTLET +48" AFF
	TELEPHONE / DATA COMBINATION WALL MOUNTED
	INDUSTRIAL TYPE TELEPHONE BELL
	ELECTRICAL PANELBOARD – SURFACE MOUNTED
	ELECTRICAL PANELBOARD – FLUSH MOUNTED
	SERVICE PANEL DISTRIBUTION EQUIPMENT
	AUXILIARY SYSTEM TERMINAL CABINET
	PRECAST CONCRETE PULLBOX (SIZE AS INDICATED)
— *	EXISTING WIRE AND/OR CONDUIT TO BE REMOVED OR ABANDONED
—	EXISTING WIRE AND/OR CONDUIT TO REMAIN
	DEVICES, LIGHT FIXTURES, ETC. INDICATES EXISTING TO BE REMOVED
	"E" ADJACENT TO DEVICES, LIGHT FIXTURES, ETC. INDICATES EXISTING TO REMAIN
	SHEET NOTE
	LIGHT FIXTURE DESIGNATION & WATTAGE. SEE FIXTURE SCHEDULE
	MECHANICAL EQUIPMENT DESIGNATION. SEE MECHANICAL & PLUMBING PLANS
	FEEDER – SIZE AS INDICATED ON SINGLE LINE DIAGRAM
	DETAIL DESIGNATION – "B" INDICATES DETAIL # ON SHEET E3.1
*	NOTE: ALL MOUNTING HEIGHTS AS INDICATED UNLESS NOTED OTHERWISE. ALL SYMBOLS MAY NOT BE USED ON PROJECTS.

ELECTRICAL GENERAL NOTES

- FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC. REQUIRED FOR A COMPLETE WORKING ELECTRICAL SYSTEM.
- ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY AND LOCAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT STANDARDS, CODES AND PRACTICES AS REQUIRED BY NEC(2005), NEMA, ANSI, NFPA(2009), IBC(2009), UL, IEEE, IECC(2009) AND CITY OF SPARKS STANDARDS.
- ALL EQUIPMENT, MATERIALS AND WORK SHOWN ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING. OR NOTED OTHERWISE ON OTHER SHEETS.
- UTILITIES SHOWN TO BE DEMOLISHED SHALL NOT BE REMOVED FROM SERVICE UNTIL THE NEW MAIN SWITCHBOARD IS FULLY OPERATIONAL AND ALL ELECTRICAL PANEL AND EQUIPMENT HAVE BEEN SWITCHED OVER TO NEW MAIN SWITCHBOARD.
- VERIFY EXACT LOCATION OF ALL RECEPTACLES ABOVE OR ADJACENT TO COUNTERS FIXTURES MIRRORS OUTDOOR FIXTURES AND MOUNTING HEIGHTS & LOCATIONS OF ALL FIXTURES & BOXES PRIOR TO ROUGH-IN. NO EXTRA COSTS WILL BE ALLOWED FOR FAILURE TO COMPLY.
- ANY POWER OUTAGE OF ANY CIRCUIT SHALL BE APPROVED BY THE OWNER IN WRITING A MINIMUM OF 5 DAYS PRIOR TO OUTAGE. ALL OUTAGES SHALL BE DONE EXACTLY WHEN DETERMINED BY THE OWNER AND DONE DURING WORKING HOURS. NO SINGLE OUTAGE SHALL REQUIRE MORE THAN 4 HOURS. PROVIDE TEMPORARY POWER, HEAT & COOLING IF REQUIRED DURING OUTAGE.
- DUE TO THE REQUIREMENTS TO INTERFACE WITH EXISTING FACILITIES AND UTILITIES, IT IS MANDATORY THAT THE CONTRACTOR ATTEND SITE VISIT TO DETERMINE EXISTING CONDITIONS PRIOR TO BID.
- PRIOR TO PURCHASE OF ANY PANEL, PROTECTIVE DEVICES, SWITCH, STARTER, CONDUIT, WIRE, ETC., TO FEED ANY PIECE OF MECHANICAL EQUIPMENT VERIFY THE VOLTAGE, PHASE, & LOAD OF THAT ITEM IN THE FIELD AND/OR WITH THE PARTICULAR ENTITY INVOLVED IN FURNISHING THE ITEM SUCH THAT THE PROPER SIZE & RATING OF THE MATERIALS ARE PURCHASED. NO EXTRAS WILL BE ALLOWED FOR FAILURE TO COMPLY. THIS APPLIES TO ALL EQUIPMENT UNDER OTHER SECTIONS & BY THE OWNER.
- PROVIDE ALL TRENCHING, EXCAVATION, BACK FILLING, SHORING, PUMPING, COMP ACTION TESTS, ETC. THAT ARE REQUIRED FOR THE SCOPE OF ELECTRICAL WORK.
- PULL ROPES: PROVIDE 12 GA PULL WIRE OR NYLON EQUIVALENT IN ALL INTERIOR EMPTY CONDUIT RUNS. PROVIDE 1/4" DIA NYLON PULL ROPE IN EACH EMPTY EXTERIOR CONDUIT OR DUCT.
- APPEARANCE AND WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND STANDARDS.
- ELECTRICAL CONTRACTOR SHALL GUARANTEE THE ELECTRICAL WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- VERIFY THE EXACT LOCATION AND ELEVATION OF ALL ELECTRICAL EQUIPMENT PRIOR TO ROUGH-IN. FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURERS APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- ORDER AND/ OR RELEASE ORDERED MATERIALS PROMPTLY AFTER SUBMITTAL APPROVAL. NO SUBSTITUTIONS OR ALTERNATE METHODS OF INSTALLATION WILL BE ACCEPTED FOR FAILURE TO ORDER MATERIALS IN A TIMELY FASHION.
- OBTAIN WRITTEN APPROVAL FROM THE ENGINEER OF ALL SHOP DRAWINGS AND MANUFACTURERS DATA FOR PANEL BOARDS, TRANSFORMERS, WIRING DEVICES, ETC. BEFORE RELEASING ORDERED MATERIALS. SUBMITTAL DATA SHALL INDICATE THAT THE CONTRACTOR HAS REVIEWED THE INFORMATION THEREIN AND THAT THE PROPOSED EQUIPMENT WILL MEET THE PHYSICAL CONSTRAINTS AT THE JOB SITE. ANY SUBSTITUTIONS SHALL BE OF EQUIVALENT OR BETTER QUALITY THAN THE SPECIFIED COMPONENTS.
- TYPE MC OR TYPE AC CABLE SHALL ONLY BE USED WITH THE SPECIFIC WRITTEN PERMISSION OF THE ENGINEER. ENT TYPE CONDUIT IS NOT ALLOWED.
- CONDUIT/ CONDUCTOR RUNS SHOWN ARE DIAGRAMMATICAL ONLY. THE BEST FINAL CONDUIT ROUTING SHALL BE AS DETERMINED BY THE ELECTRICAL CONTRACTOR AT TIME OF CONSTRUCTION AND ACCURATELY LOCATED ON THE ON-SITE RECORD DRAWINGS.
- ALL WIRE SHALL BE COPPER.
- ALL UNDERGROUND CONDUIT SHALL BE WRAPPED RIGID STEEL WITH THREADED COUPLINGS AND CONNECTORS, AND/ OR PVC SCHEDULE 40. ALL ELBOWS AND EXPOSED RISERS SHALL BE RIGID STEEL CONDUIT.
- PROVIDE ALL PANEL BOARDS WITH TYPED DIRECTORIES INSTALLED UNDER A CLEAR PLASTIC COVER. SUBMIT DIRECTORY INFORMATION TO THE OWNER FOR APPROVAL PRIOR TO FINALIZATION.
- SERIES RATING OF UPSTREAM OR DOWNSTREAM CIRCUIT BREAKERS OR FUSES IS PROHIBITED. ONLY FULLY RATED SYSTEM COMPONENTS WILL BE ACCEPTED.

GENERAL DEMOLITION NOTES

- ELECTRICAL DEVICES AND EQUIPMENT THAT ARE INDICATED BY DASHED 'X' LINES SHALL BE REMOVED ENTIRELY, INCLUDING JUNCTION BOXES AND CIRCUITING ASSOCIATED WITH SAID ITEM.
- THESE PLANS DO NOT PURPORT TO SHOW ALL EXISTING CONDITIONS. ANY OUTLETS, CIRCUITING AND/OR DEVICES THAT CONFLICT WITH ALL WORK BEING PERFORMED DURING THE COURSE OF THIS PROJECT SHALL BE RELOCATED/ROUTED OR REMOVED ENTIRELY AS DICTATED BY ENGINEER.
- ALL EXISTING EQUIPMENT REMOVED DURING THE COURSE OF THIS PROJECT SHALL BE OFFERED TO OWNER FOR SALVAGE. EQUIPMENT SELECTED SHALL BE TURNED OVER TO OWNER ON PROJECT SITE. ALL REMAINING EQUIPMENT BECOMES THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM PROJECT SITE.
- IT IS MANDATORY THAT THE CONTRACTOR VISIT SITE AND VERIFY EXISTING CONDITIONS THAT MIGHT AFFECT HIS OR HER WORK. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER PRIOR TO BID.
- EXISTING MECHANICAL POWER CIRCUITRY SHALL BE REUSED AND RECONNECTED FOR EXISTING MECHANICAL EQUIPMENT.

ABBREVIATIONS

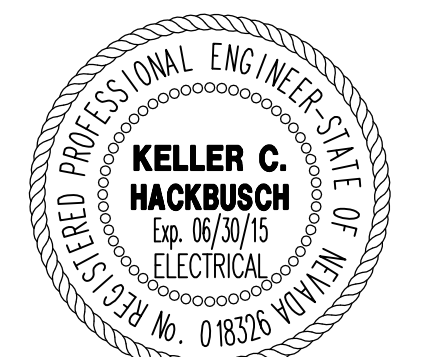
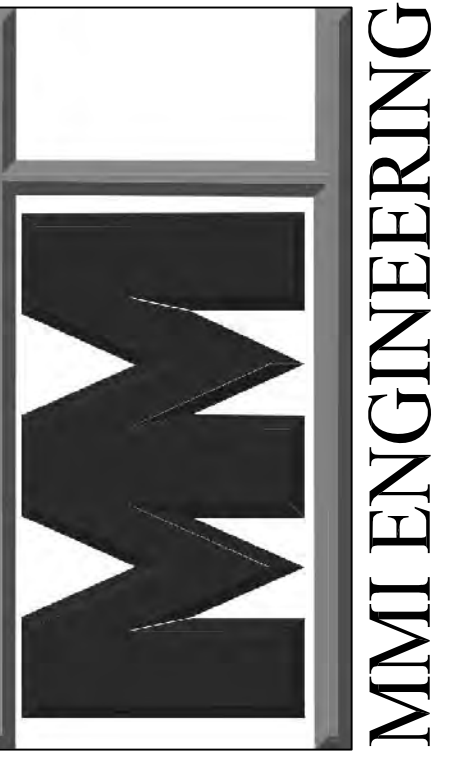
AC	ABOVE COUNTER. INSTALL 4" ABOVE SPLASH OR COUNTER OR AT HEIGHT AS INDICATED ON DRAWINGS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
CATV	CABLE TV SYSTEM
CU	COPPER
E	EXISTING
EC	EMPTY CONDUIT WITH PULL WIRE
EDF	ELECTRIC DRINKING FOUNTAIN
ER	EXISTING, TO REMAIN
EX	EXISTING, TO BE REMOVED
FBO	FURNISHED BY OTHER SECTION
GFI	GROUND FAULT INTERRUPTING
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
N	NEW
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NVE	NEVADA ENERGY COMPANY
PNL	PANEL
RFI	REQUEST FOR INFORMATION
SPD	SURGE PROTECTION DEVICE
UNO	UNLESS NOTED OTHERWISE
W/	WITH
WP	WEATHERPROOF (NEMA 3R)
XFMR	TRANSFORMER

ELECTRICAL SHEET LIST

E01	ELECTRICAL SYMBOL LIST, DEMO NOTES, ABBREVIATIONS AND GENERAL NOTES
E02	EXISTING ELECTRICAL SINGLE LINE DIAGRAM
E03	NEW ELECTRICAL SINGLE LINE DIAGRAM
E04	ELECTRICAL PANEL SCHEDULES
E11	MECHANICAL POWER COMPLEX DEMOLITION PLAN
E12	MECHANICAL POWER ROOF DEMOLITION PLAN
E21	NEW MECHANICAL POWER COMPLEX PLAN
E22	NEW MECHANICAL POWER ROOF PLAN
E23	BUILDING #400 (NORTH HALF) BASEMENT - ENLARGED NEW MECHANICAL POWER PLAN



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SHEET TITLE

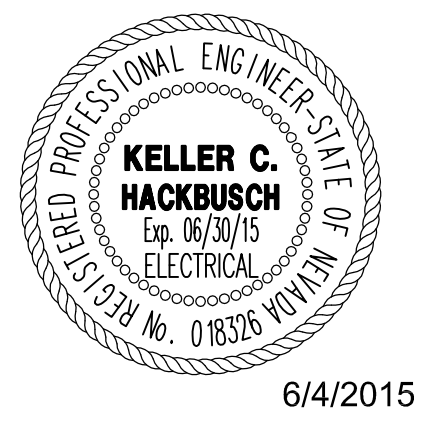
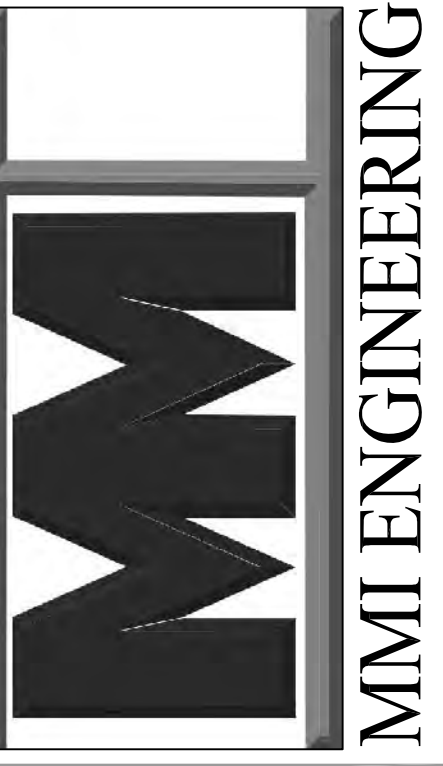
ELECTRICAL
SYMBOL LIST, DEMO NOTES,
ABBREVIATIONS,
AND GENERAL NOTES

REVISIONS

DATE :
JUNE 4, 2015

SHEET NUMBER :

E0.1



6/4/2015

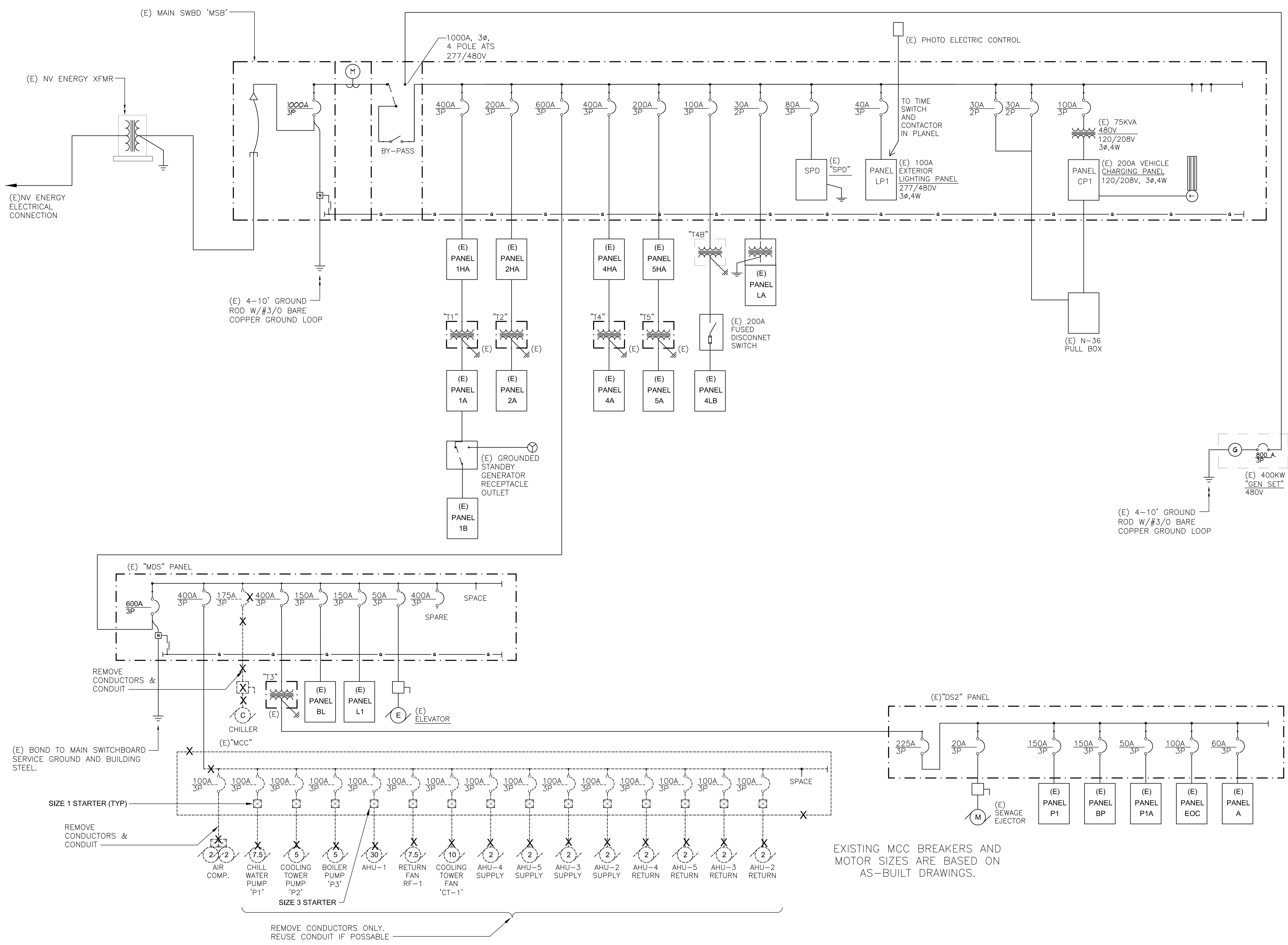
**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
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SHEET TITLE
 EXISTING SINGLE
 LINE DIAGRAM

REVISIONS

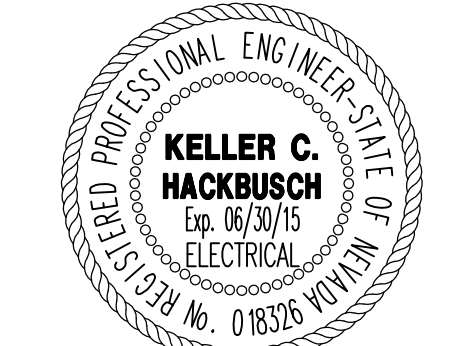
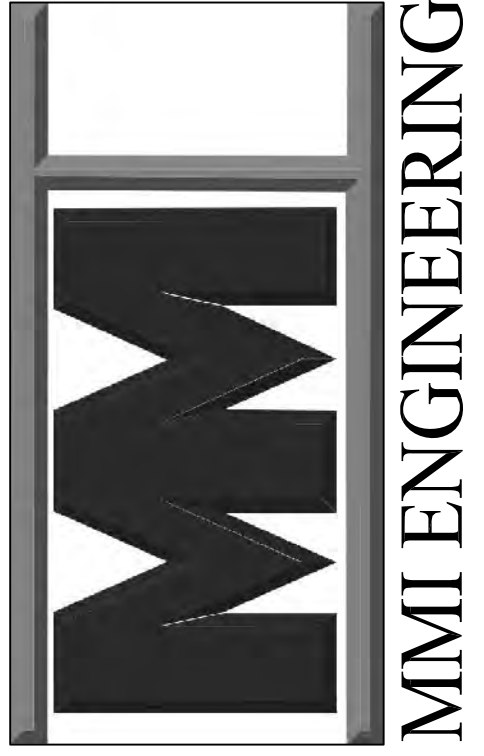
DATE :
 JUNE 4, 2015
 SHEET NUMBER :

E0.2



A
E0.2 EXISTING SINGLE LINE DIAGRAM
 SCALE: NTS

EXISTING MCC BREAKERS AND
 MOTOR SIZES ARE BASED ON
 AS-BUILT DRAWINGS.



6/4/2015

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SHEET NOTES:

- 1 CONTRACTOR TO PROVIDE 20A/1P CIRCUIT BREAKER
- 2 CONTRACTOR TO USE EXISTING SPARE 20A/1P CIRCUIT BREAKER
- 3 CONTRACTOR TO PROVIDE 30A/3P CIRCUIT BREAKER
- 4 CONTRACTOR TO PROVIDE 20A/3P CIRCUIT BREAKER

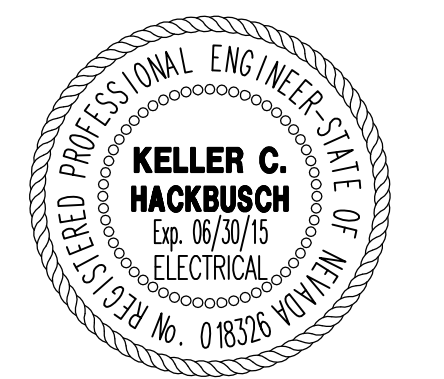
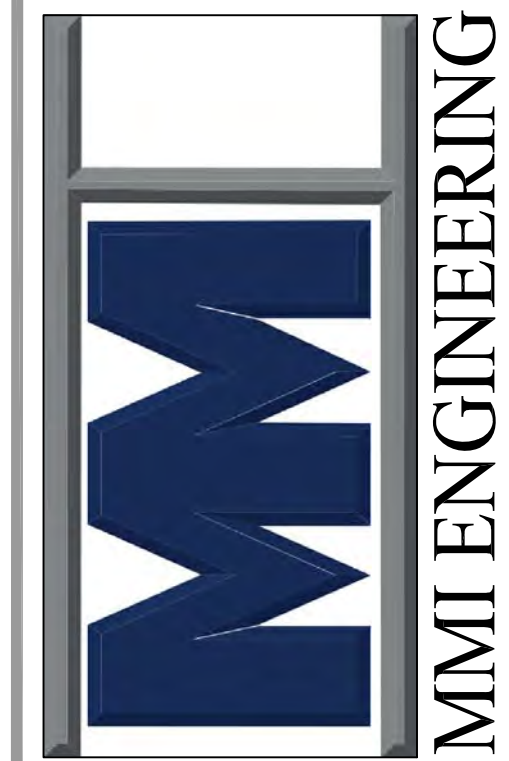
PANEL BOARD		1HA		EXISTING												
DIRECTORY	LOAD	BKR	CIR													DIRECTORY
(E) H2O HEATER		20/1	1	A	2	20/1										(E) LIGHTS
(E) EXIT LIGHTS			3	B	4											(E) LIGHTS
(E) TIMECLOCK/NGT LGTS			5	C	6											SPARE
(E) HALL LIGHTING			7	A	8											
SPARE			9	B	10											
			11	C	12											(E) A/C UNIT
			13	A	14	30										
			15	B	16											
			17	C	18	3										(E) A/C UNIT
			19	A	20	15										
			21	B	22											
			23	C	24	3										
(E) XFMR T1	125	25	A	26	30	4648										AC-2, CU-2
			27	B	28	4648										
			29	C	30	4648										
(E) SERVER RM UPS	60	31	A	32	20											(E) A/C UNIT
			33	B	34											
			35	C	36	3										
SPARE			37	A	38	20										(E) A/C UNIT
			39	B	40											
			41	C	42	3										
CONNECTED LOAD		13944 VA (17 A)		OTHER NOTES:												
A=		4648 VA 17 A		277/480V, 3PH, 4W												
B=		4648 VA 17 A		200 AMP MCB												
C=		4648 VA 17 A		200 AMP BUS												

PANEL BOARD		A		EXISTING												
DIRECTORY	LOAD	BKR	CIR													DIRECTORY
(E) LIGHTING		20/1	1	A	2	20/1										(E) COPIER
(E) RECEPT. HALLWAY			3	B	4											(E) RECEPT. RM 421
(E) RECEPT. RM 421, 422			5	C	6											(E) RECEPT. RM 426
(E) RECEPT. RM 423, 424			7	A	8											(E) RECEPT. RM 424
VAV XFMR PNL 1			9	B	10											(E) RECEPT. RM 423
VAV XFMR PNL 2			11	C	12											(E) RECEPT. RM 422
VAV XFMR PNL 3			13	A	14											SPARE
SPACE			15	B	16											
			17	C	18											
			19	A	20											
			21	B	22											
			23	C	24											
			25	A	26											
			27	B	28											
			29	C	30											
CONNECTED LOAD		0 VA (0 A)		OTHER NOTES:												
A=		0 VA 0 A		120/208V, 3PH, 4W												
B=		0 VA 0 A		100 AMP MCB												
C=		0 VA 0 A		100 AMP BUS												

PANEL BOARD		4LB		EXISTING												
DIRECTORY	LOAD	BKR	CIR													DIRECTORY
(E) RECEPT. 206,222,130		20/1	1	A	2	20/1										(E) RECEPT. 128,130,HALL
(E) RECEPT. 128,130,204,205			3	B	4											(E) RECEPT. 128,130
(E) RECEPT. 205			5	C	6											(E) RECEPT. 128,HALL
(E) RECEPT. 204,205			7	A	8											(E) RECEPT. 222
(E) RECEPT. 128,204			9	B	10											(E) RECEPT. 126,207
(E) RECEPT. 204,205			11	C	12											(E) RECEPT. 223,224
(E) RECEPT. 123,204,205			13	A	14											(E) RECEPT. ROOF ACCESS
(E) RECEPT. STATIONARY			15	B	16											(E) SITE LGT PHOTOCELL
(E) RECEPT. RESTRM. HALL			17	C	18											VAV XFMR PNL 6
(E) RECEPT. GFCI COUNTER			19	A	20											VAV XFMR PNL 5
(E) RECEPT. GFCI COUNTER			21	B	22	360										AHU-4 & 5 RECEPT.
SPACE			23	C	24											SPARE
SPACE			25	A	26											
			27	B	28											
			29	C	30											
			31	A	32											
			33	B	34											
			35	C	36											
			37	A	38											
			39	B	40											
			41	C	42											
CONNECTED LOAD		360 VA (1 A)		OTHER NOTES:												
A=		0 VA 0 A		120/208V, 3PH, 4W												
B=		360 VA 3 A		200 AMP MCB												
C=		0 VA 0 A		200 AMP BUS												

PANEL BOARD		P1A		EXISTING												
DIRECTORY	LOAD	BKR	CIR													DIRECTORY
(E) RECEPT. 145,46,HALL		20/1	1	A	2	20/1										(E) SPARE
VAV XFMR PNL #4			3	B	4											
(E) SPARE			5	C	6											
			7	A	8											
			9	B	10											
			11	C	12											
			13	A	14											
			15	B	16											
			17	C	18											
			19	A	20											
			21	B	22											
			23	C	24											
			25	A	26											
			27	B	28											
			29	C	30											
			31	A	32											
			33	B	34											
			35	C	36											
			37	A	38											
			39	B	40											
			41	C	42											
CONNECTED LOAD		0 VA (0 A)		OTHER NOTES:												
A=		0 VA 0 A		120/208V, 3PH, 4W												
B=		0 VA 0 A		50 AMP MCB												
C=		0 VA 0 A		50 AMP BUS												

PANEL BOARD		1A		EXISTING												
DIRECTORY	LOAD	BKR	CIR													DIRECTORY
SPARE		100	1	A	2	20/1										(E) RECEPT. 326,327,328,HALL
			3	B	4											(E) RECEPT. 326,327,328,329
			5	C	6											(E) RECEPT. 328,329
(E) RESTRM. WTR FNTN 313		20/1	7	A	8											(E) RECEPT. 327
(E) RECEPT. KITCHEN GFI			9	B	10											(E) RECEPT. 322
(E) RECEPT. 315			11	C	12											(E) RECEPT. 320,321,322
(E) RECEPT. 314,315			13	A	14											(E) RECEPT. 312,320,HALL
(E) RECEPT. 313,314,315			15	B	16											(E) RECEPT. HALL PLOTTER
(E) RECEPT. SERVER RM			17	C	18											(E) RECEPT. 310,312,HALL
(E) SERVER RM EX FANS			19	A	20											(E) RECEPT. IT HALL
(E) RECEPT. ELECT. RM.			21	B	22											(E) RECEPT. 321
(E) ATTIC RECAP			23	C	24											(E) RECEPT. 321
(E) A/C UNIT		20	25	A	26											(E) RECEPT. 322
			27	B	28											



6/4/2015

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
**MECHANICAL POWER
 ROOF DEMOLITION
 PLAN**

REVISIONS

DATE :
 JUNE 4, 2015
 SHEET NUMBER :

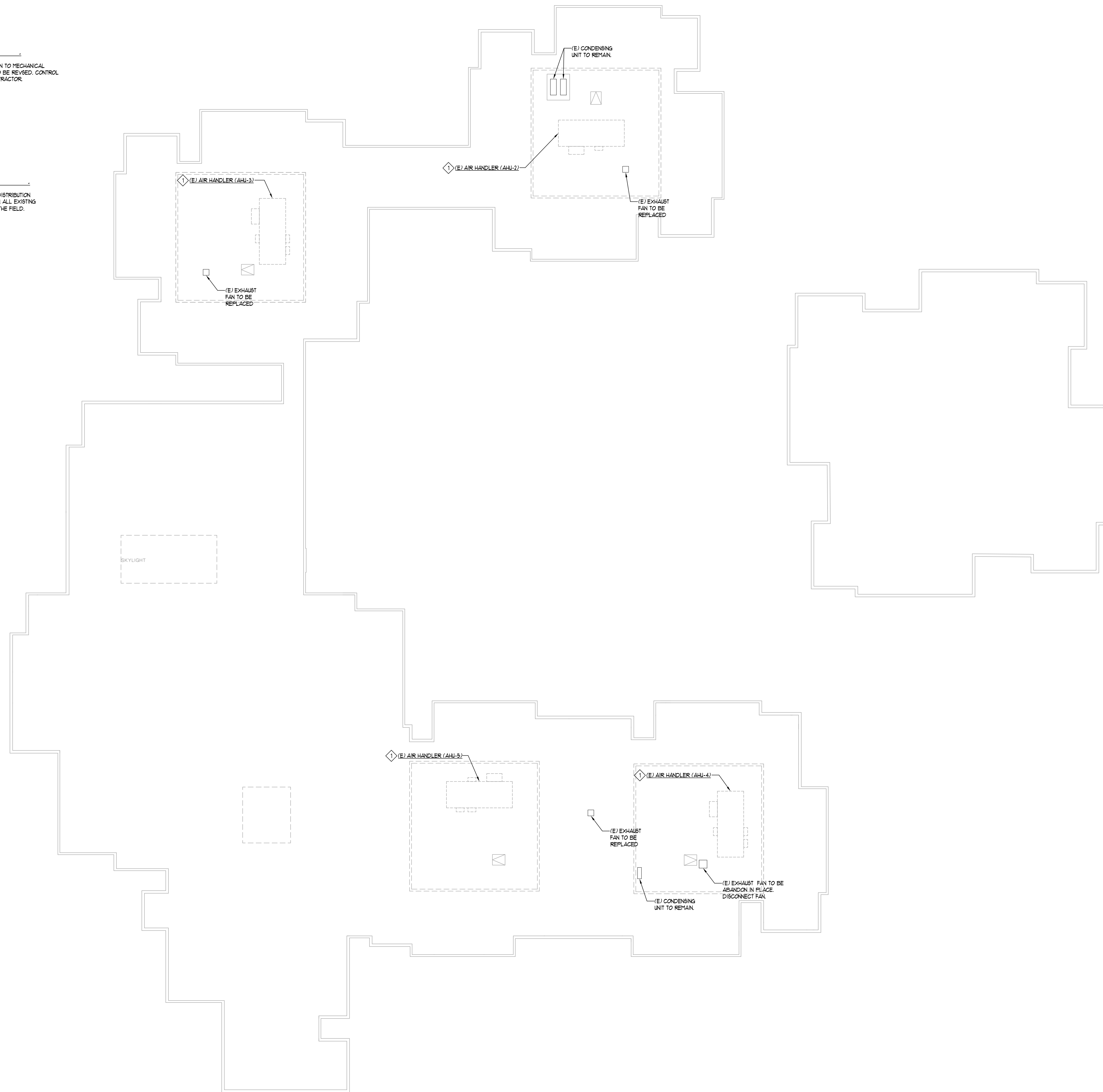
E1.2

SHEET NOTES:

- ◇ ELECTRICAL CONTRACTOR TO DISCONNECT ALL ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT. CONDUITORS TO BE REMOVED BACK TO PANEL. CONDUIT TO BE REVISED. CONTROL WIRING REMOVAL TO BE COMPLETED BY MECHANICAL'S CONTROLS CONTRACTOR.

GENERAL NOTES:

- 1. THIS PLAN INDICATES EXISTING MECHANICAL EQUIPMENT AND ELECTRICAL DISTRIBUTION EQUIPMENT FOR REFERENCE ONLY. THIS PLAN DOES NOT PURPORT TO SHOW ALL EXISTING CONDITIONS. ELECTRICAL CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD.



SHEET NOTES:

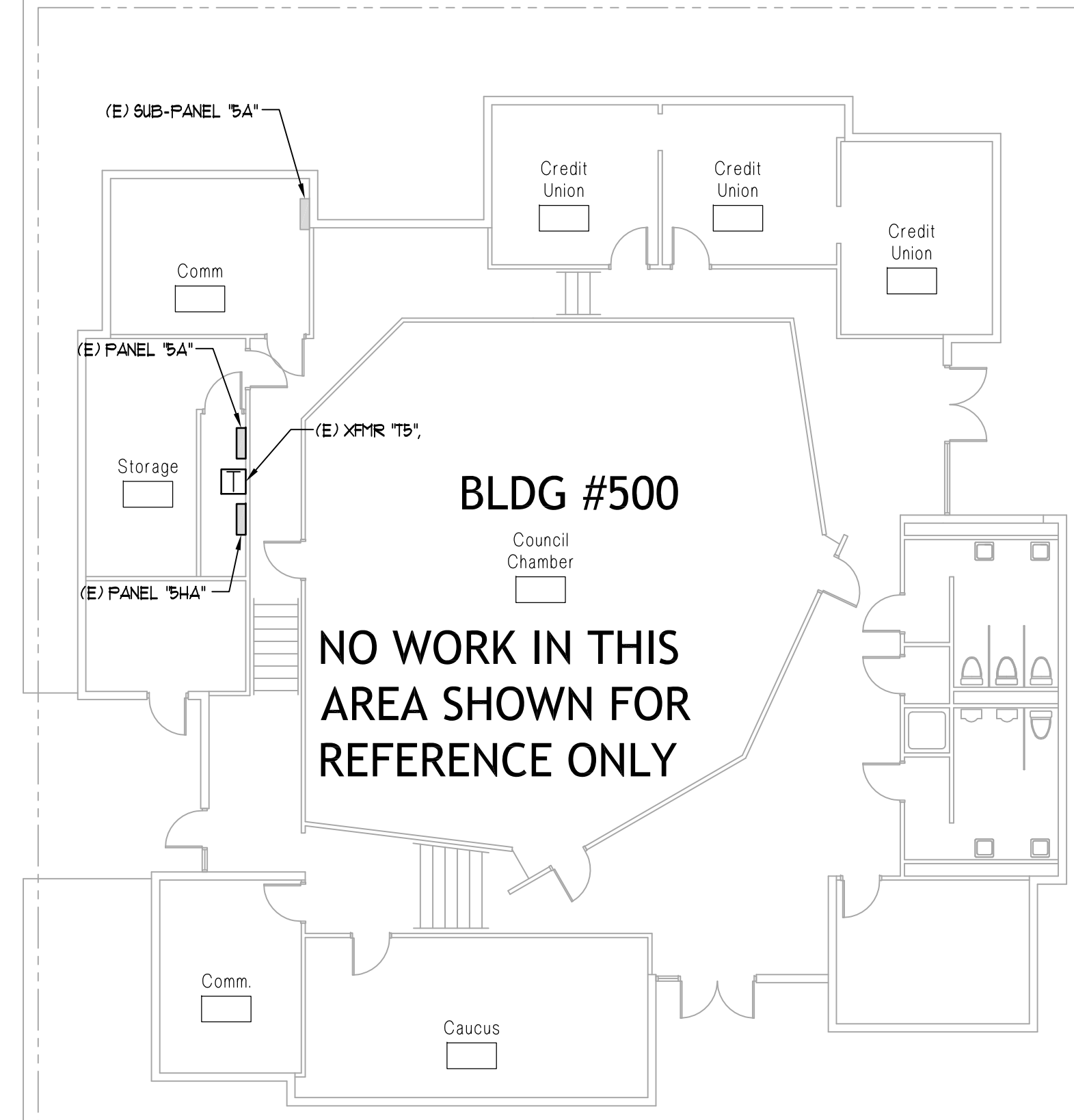
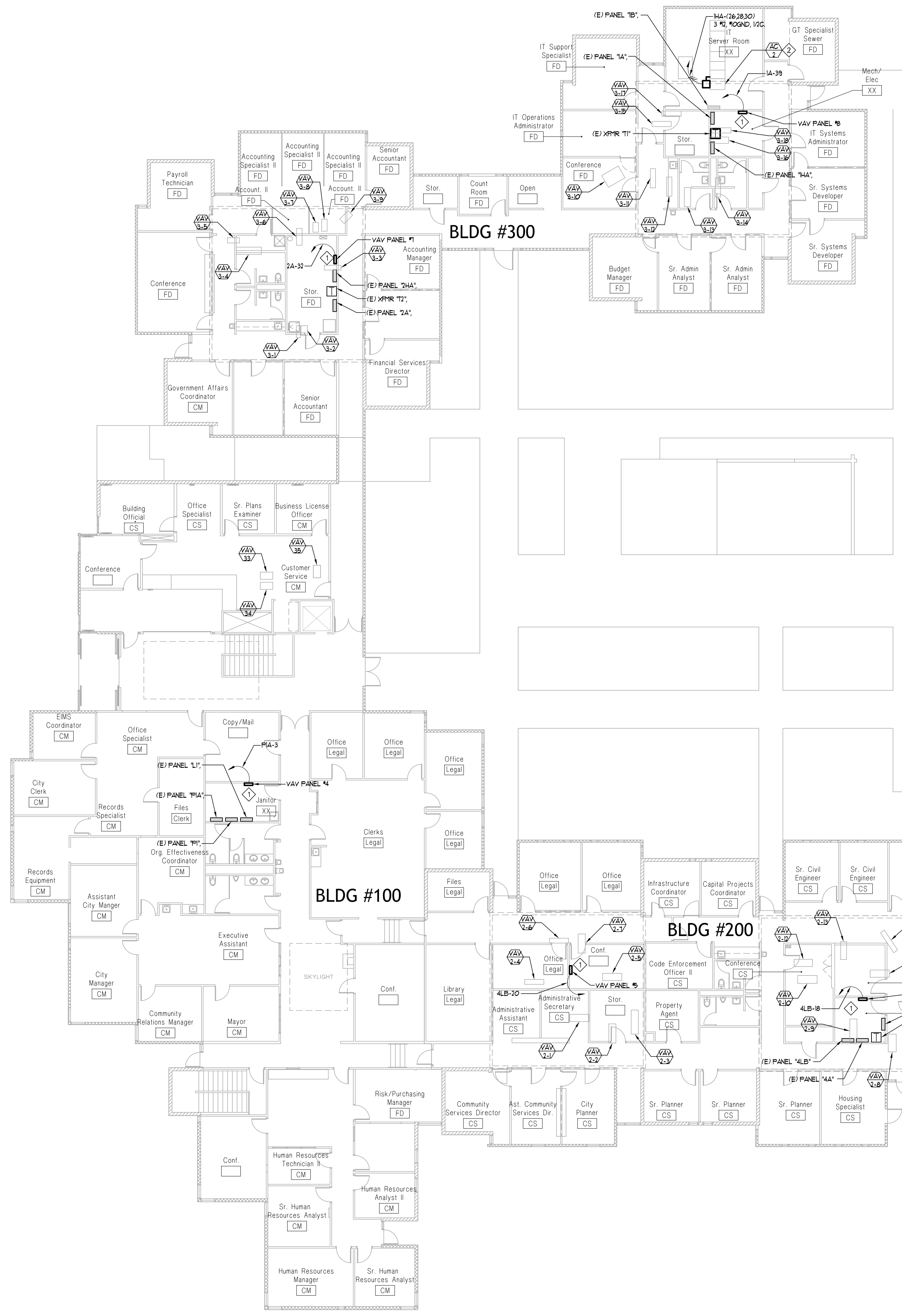
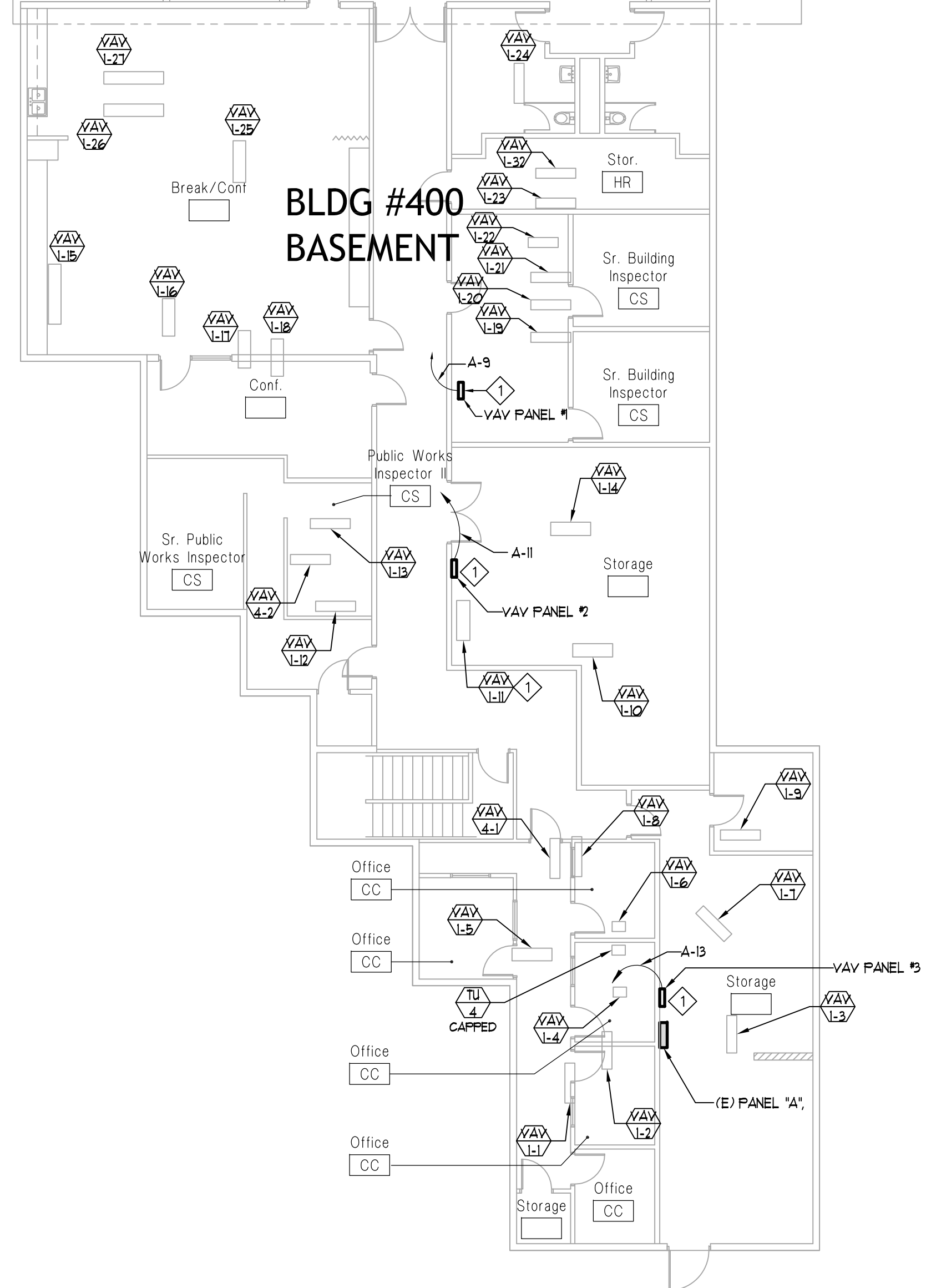
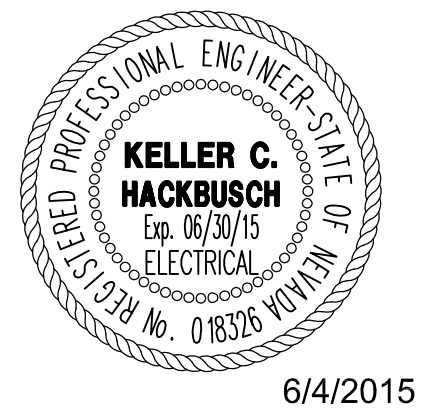
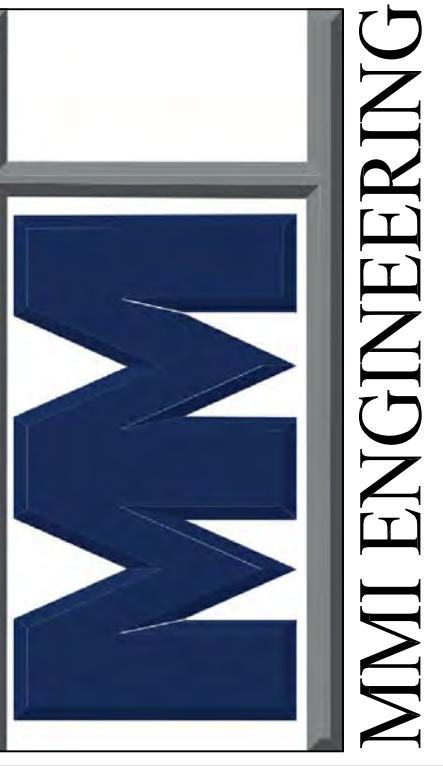
- 1. PROVIDED NEW ELECTRICAL VAV CONTROL TRANSFORMER PANEL WITH INTERNAL DISCONNECT. COORDINATE WITH CONTROLS CONTRACTOR FOR EXACT LOCATION AND POWER REQUIREMENTS. VAV UNITS ARE SHOWN FOR REFERENCE ONLY. THE CONTROLS CONTRACTOR WILL CONNECT VAV UNITS.
- 2. CONNECT NEW AC UNIT AND CONDENSING UNIT ON ROOF.

GENERAL NOTES:

- 1. THIS PLAN INDICATES DESIGN MECHANICAL EQUIPMENT LOCATION. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATIONS WITH MECHANICAL CONTRACTOR DURING CONSTRUCTION.

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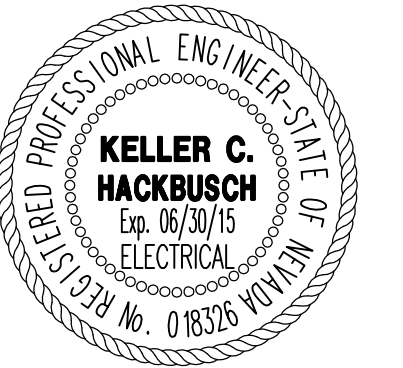
A NEW MECHANICAL POWER COMPLEX PLAN
E2.1 SCALE: 3/32"=1'-0"

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
 NEW MECHANICAL POWER
 COMPLEX PLAN

REVISIONS

DATE : JUNE 4, 2015
 SHEET NUMBER : **E2.1**



6/4/2015

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
 NEW MECHANICAL POWER
 ROOF PLAN

REVISIONS

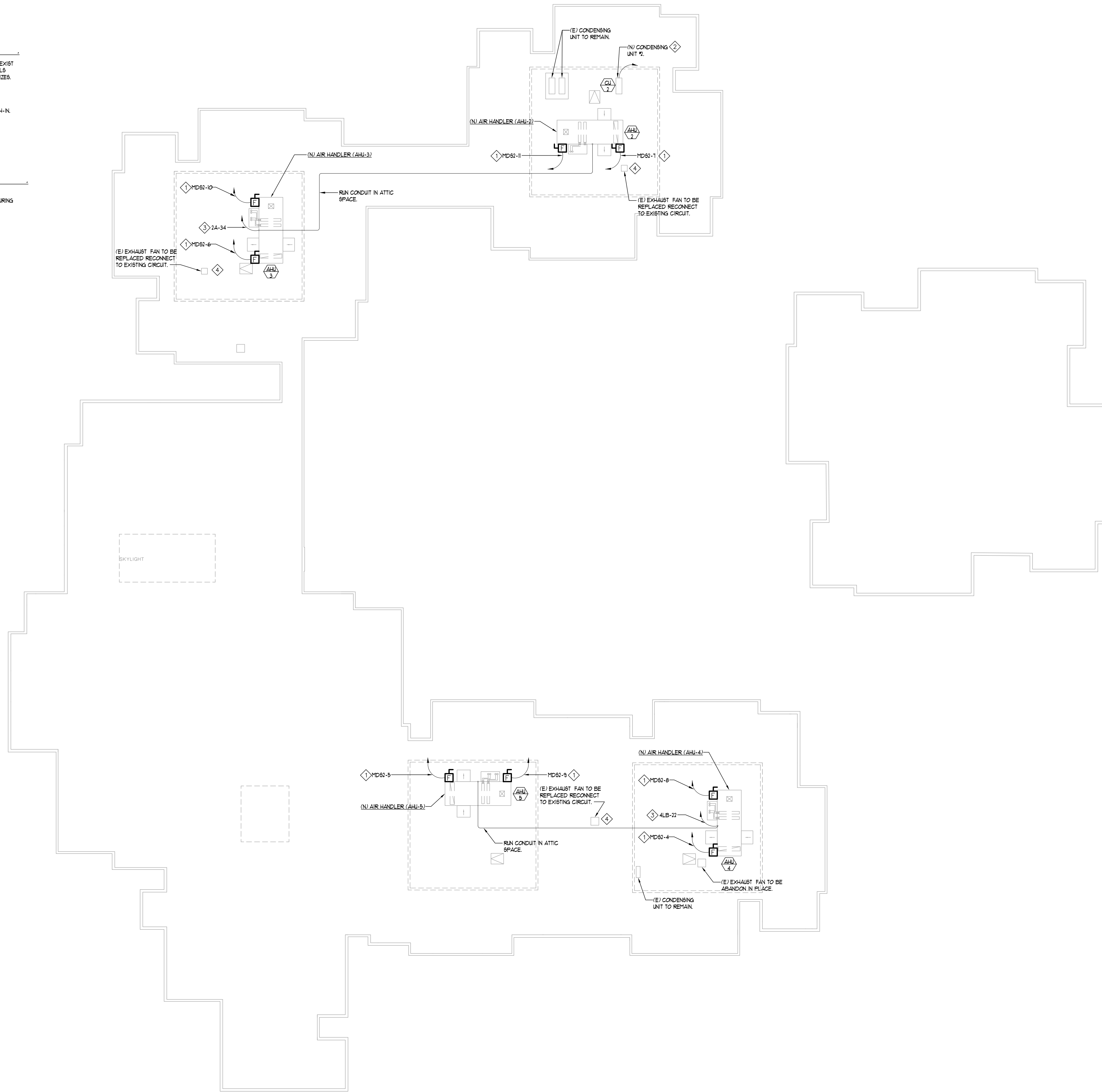
DATE :
 JUNE 4, 2015
 SHEET NUMBER :

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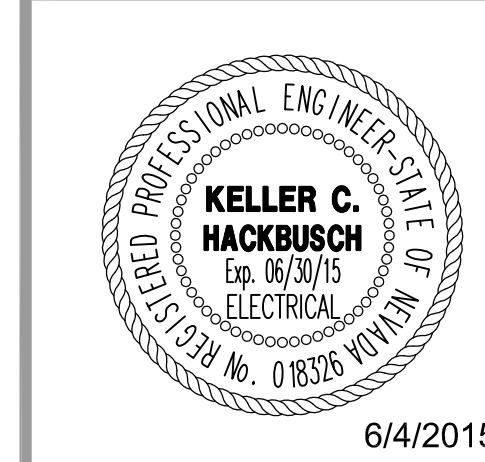
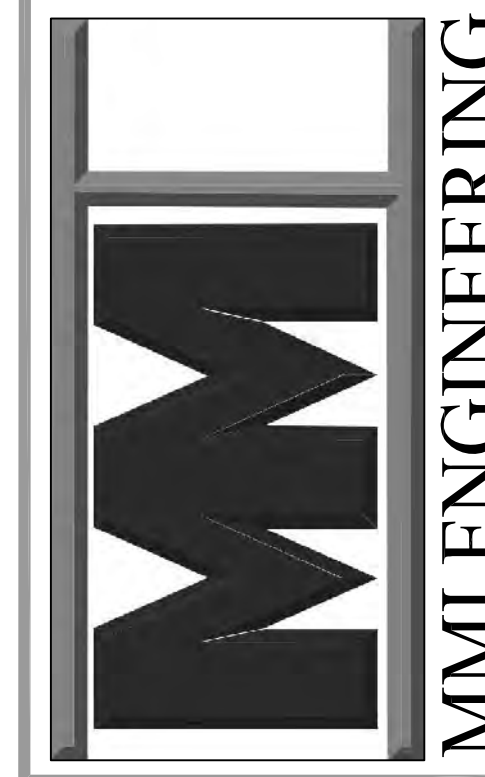
- SHEET NOTES:**
- 1. ELECTRICAL CONTRACTOR TO CONNECT AHU MECHANICAL EQUIPMENT TO EXIST PANELS. CONTROL WIRING TO BE COMPLETED BY MECHANICAL'S CONTROLS CONTRACTOR. SEE FEEDER SCHEDULE ON SHEET E0.3 FOR CONDUCTOR SIZES.
 - 2. CONNECT NEW CONDENSING UNIT AND AC UNIT IN IT ROOM.
 - 3. CONNECT 100V CONVENIENCE RECEPTACLE PROVIDED AS PART OF AHU. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
 - 4. COORDINATE EXHAUST FAN CONTROLS WITH MECHANICAL CONTRACTOR.

GENERAL NOTES:

1. THIS PLAN INDICATES DESIGN MECHANICAL EQUIPMENT LOCATION. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATIONS WITH MECHANICAL CONTRACTOR DURING CONSTRUCTION.



A
E2.2 NEW MECHANICAL POWER ROOF PLAN
 SCALE: 3/32"=1'-0"



6/4/2015

**SPARKS CITY HALL
 CAMPUS HVAC UPGRADE
 SPARKS, NEVADA**

SHEET TITLE
 BUILDING #400 (NORTH)
 BASEMENT - ENLARGED
 NEW MECHANICAL
 POWER PLAN

REVISIONS

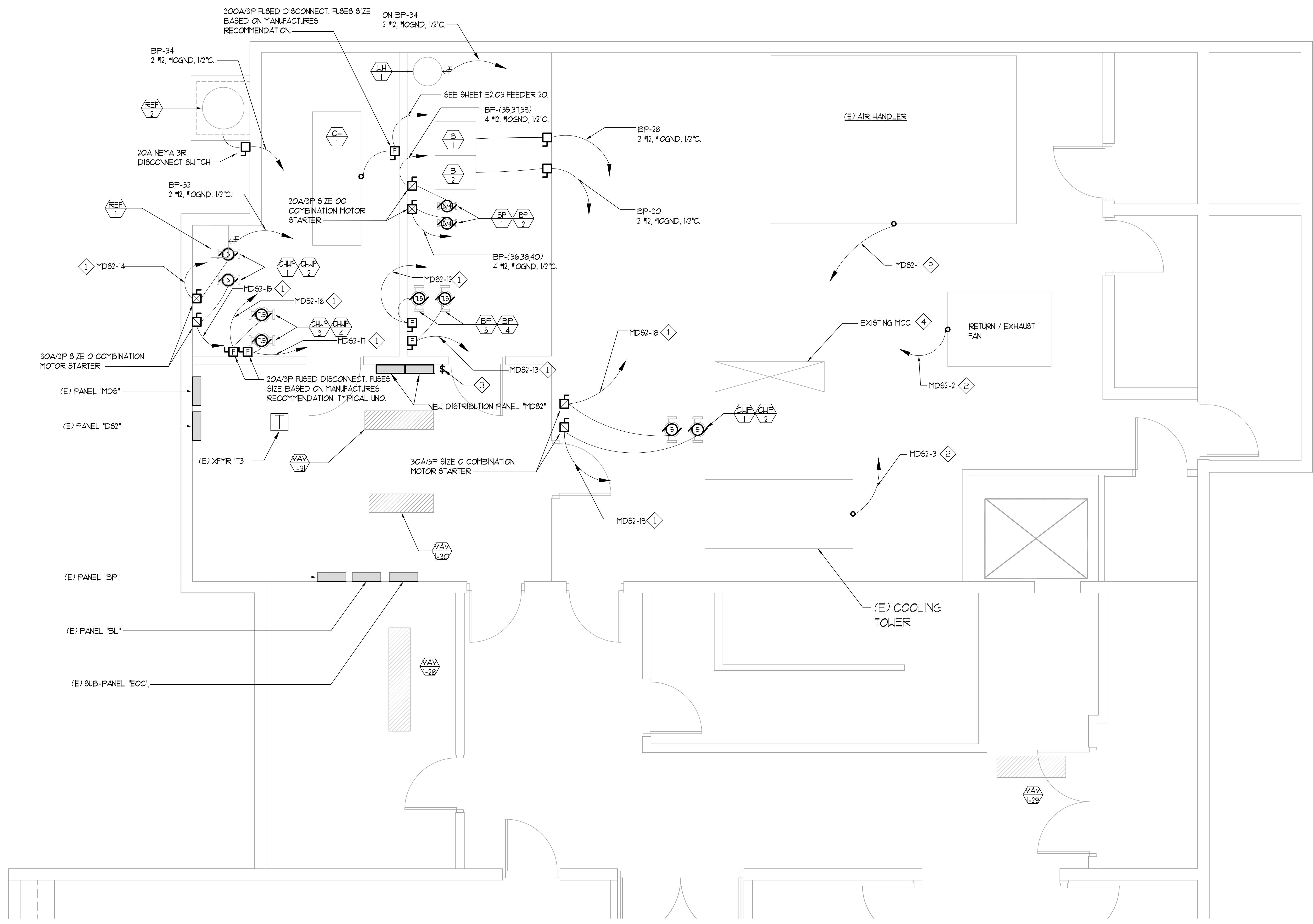
DATE : JUNE 4, 2015
 SHEET NUMBER : **E2.3**

SHEET NOTES:

- 1 ELECTRICAL CONTRACTOR TO CONNECT MECHANICAL EQUIPMENT. CONTROL WIRING TO BE COMPLETED BY MECHANICAL'S CONTROLS CONTRACTOR. SEE FEEDER SCHEDULE ON SHEET E0.3 FOR CONDUCTOR SIZES.
- 2 CONNECT EXISTING EQUIPMENT'S NEW VARIABLE FREQUENCY DRIVES (VFD). SEE FEEDER SCHEDULE ON SHEET E0.3 FOR CONDUCTOR SIZES.
- 3 NEW LOCATION FOR BOILER SHUTDOWN SWITCH. CONNECT TO BOTH NEW BOILERS.
- 4 THE MCC WILL REMAIN OPERATIONAL DURING CONSTRUCTION AND WILL BE REMOVED AFTER ALL EQUIPMENT CONNECTIONS ARE DISCONNECTED FROM MCC. REMOVE MCC FEEDER AND EXPOSED CONDUIT WHEN MCC IS REMOVED.

GENERAL NOTES:

1. THIS PLAN INDICATES DESIGN MECHANICAL EQUIPMENT LOCATION. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATIONS WITH MECHANICAL CONTRACTOR DURING CONSTRUCTION.



**BUILDING #400 (NORTH HALF) BASEMENT
 ENLARGED NEW MECHANICAL POWER PLAN**
 SCALE: 3/8"=1'-0"