

# HIGH EFFICIENCY HOT WATER BOILER SCHEDULE

BOILER NO.	MANUFACTURER	MODEL NO.	EWL	LWT	GPM	AGA INPUT (MBH)	AGA OUTPUT (MBH)	OPER EFF (%)	ELECTRICAL VOLTS PH	MOC	FLA	OPER. WT. (LBS)	REMARKS
B-1	TRIAD	GPS-1700-SH-HEP-JR50A-L/H/L	155	180	113	1700	1400	83	120 1	30	---	3050	ALL

**REMARKS:**

1. PROVIDE CDS-1 BOILER TRIM.
2. PROVIDE PRIMARY PUMP, SEE PUMP SCHEDULE FOR FLOW AND HEAD LOSS ASSUMPTIONS.

## PUMP SCHEDULE

PUMP NO.	MANUFACTURER	MODEL NO.	DESCRIPTION	STYLE	SIZE	GPM	HEAD (FT)	MOTOR			ELEC.		SUCTION SIZE	DISCH SIZE	REMARKS
								MHP	BHP	RPM	VOLTS	PH			
P-B1	---	---	BOILER PRIMARY	INLINE	---	113	20	2/5	---	---	120	1	---	---	1

**REMARKS:**

1. BOILER PRIMARY PUMPS PROVIDED WITH BOILER. SHOWN HERE FOR REFERENCE ONLY. 5' FOR BOILER. 15' FOR PIPING AND ACCESSORIES. HP SHOWN IS AN ESTIMATE.

## FAN SCHEDULE

FAN NO.	SERVES	MANUFACTURER	MODEL NO.	TYPE	LOCATION	CFM SEE NOTE	S.P.	RPM	MOTOR		ELEC.		SONES	REMARKS
									MHP	BHP	VOLTS	PH		
SF-1	COMBUSTION AIR	GREENHECK	SQ-160-VG	INLINE	BOILER RM	2800/1950	0.5	1206	1	0.62	208	1	13.0	ALL

**REMARKS:**

1. PROVIDE INTEGRAL ELECTRICAL DISCONNECT, FAN SPEED CONTROLLER, BACKDRAFT DAMPER, ANTI-VIBRATION HANGING KIT.
2. FAN SHALL BE CAPABLE OF THE SPECIFIED AIRFLOW FOR FUTURE REQUIREMENTS BUT SHALL BE BALANCED TO 1950 CFM TO MEET THE CURRENT REQUIREMENTS.
3. BASIS OF DESIGN FAN INCLUDES AN ECM MOTOR. A PSC MOTOR MAY BE USED IF PERFORMANCE CAN BE MET.

## REGISTER GRILLE & DIFFUSER SCHEDULE

SYMBOL	MANUF.	CONSTR MAT'L	MODEL NO.	MAX CFM	OVERALL SIZE	THROAT SIZE	NC	THROW	TOTAL PD (IN.W.G.)	FRAME	PATTERNS	REMARKS
G1	KRUEGER	S	880H	1400	22/22	20/20	25	69	0.05	SURFACE	DD	

**LEGEND:**

- |              |                        |                            |
|--------------|------------------------|----------------------------|
| R - REGISTER | SD - SINGLE DEFLECTION | A - ALUMINUM CONSTRUCTION. |
| G - GRILLE   | DD - DOUBLE DEFLECTION | S - STEEL CONSTRUCTION.    |
| D - DIFFUSER |                        |                            |

**GENERAL NOTES:**

1. THROWS ARE BASED ON TERMINAL VELOCITIES AT 50 FPM.
2. NC VALUES ARE BASED UPON A 10dB ROOM ATTENUATION.

## UNIT HEATER SCHEDULE

UNIT NO.	SERVES	MANUFACTURER	UNIT SIZE	TYPE	INTAKE LOCATION	DISCHARGE LOCATION	CFM	FAN MOTOR(S)			HEATING CAPACITY					REMARKS	
								RPM	FAN HP-1	FAN HP-2	V/PH	MBH	EWL	LWT	GPM		WPD
UH-1	BOILER RM	BEACON/MORRIS	HB-144	HP	R	F	2200	1140	1/3	---	115/1	181.4	180	155	7.7	5'	1,2

MODEL TYPE: F - FLOOR; FI - FLOOR INVERTED FLOW; W - WALL; WI - WALL INVERTED FLOW; FRW - FULLY RECESSED WALL  
 FRWI - FULLY RECESSED WALL INVERTED FLOW; SRW - SEMI RECESSED WALL; SRWI - SEMI RECESSED WALL INVERTED FLOW  
 C - CEILING; RC - RECESSED CEILING; HP - HORIZONTAL PROPELLER UNIT

LOCATIONS: F - FRONT; R - REAR; B - BOTTOM; T - TOP

**REMARKS:**

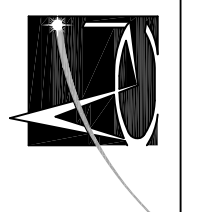
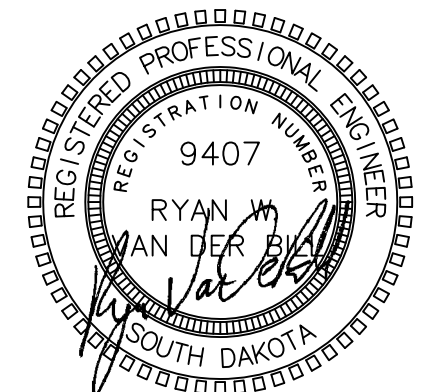
1. HEATING CAPACITY BASED ON 75% WATER/25% PROPYLENE GLYCOL.
2. HANG UNIT FROM STRUCTURE WITH NEOPRENE ISOLATORS.

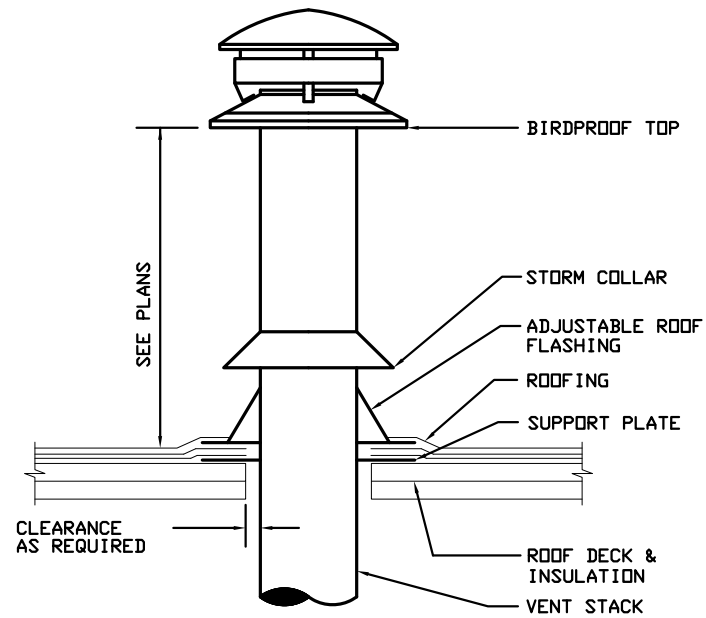
SHEET  
**M1**  
 1 OF 6  
 PROJ. NO. 117054  
 DATE 6/19/17  
 DRAWN BY JDW

PROJECT  
**JUVENILE DETENTION CENTER BOILER REPLACEMENT**  
**SIOUX FALLS, SOUTH DAKOTA**

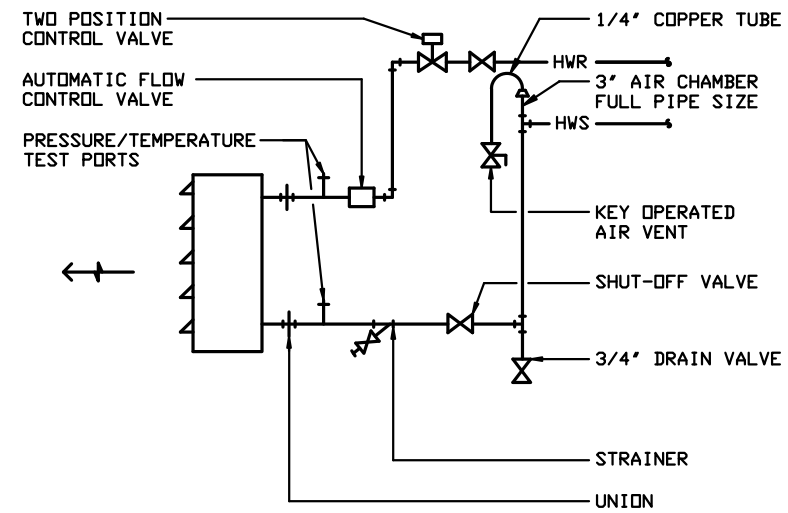
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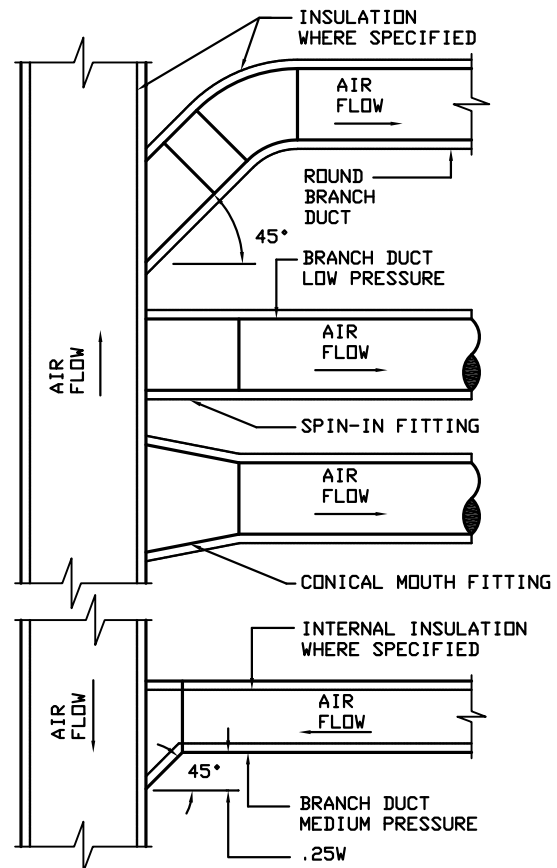




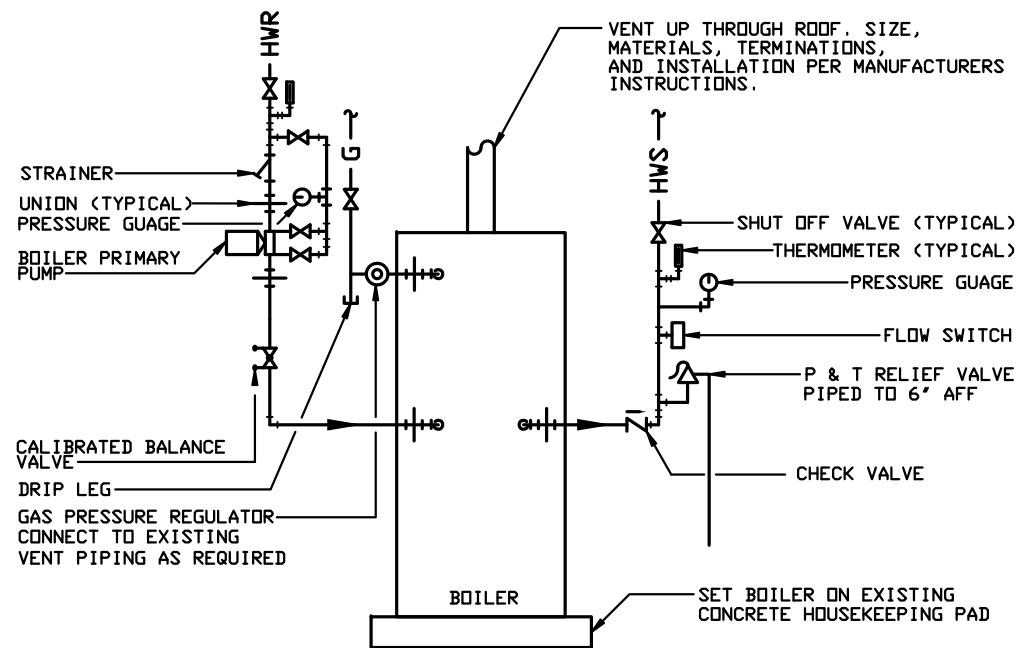
**GAS VENT DETAIL**  
NO SCALE



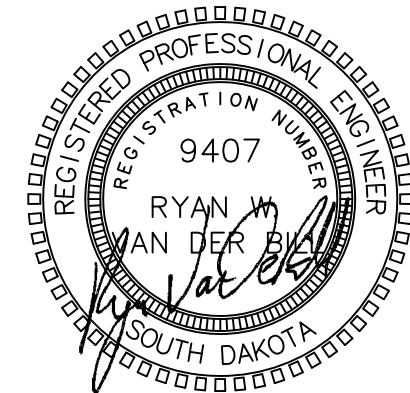
**UNIT HEATER PIPING DETAIL**  
NO SCALE



**DUCT TAKE-OFF & CONNECTION**  
NO SCALE



**BOILER DETAIL**  
NO SCALE



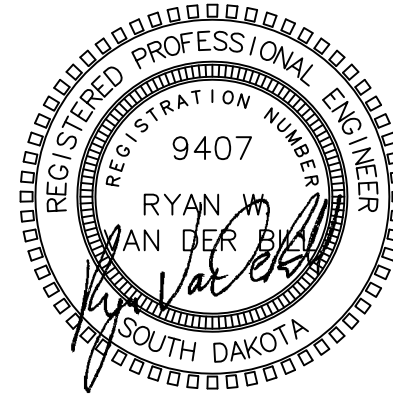
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M2  
2 OF 6

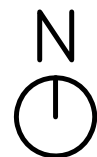
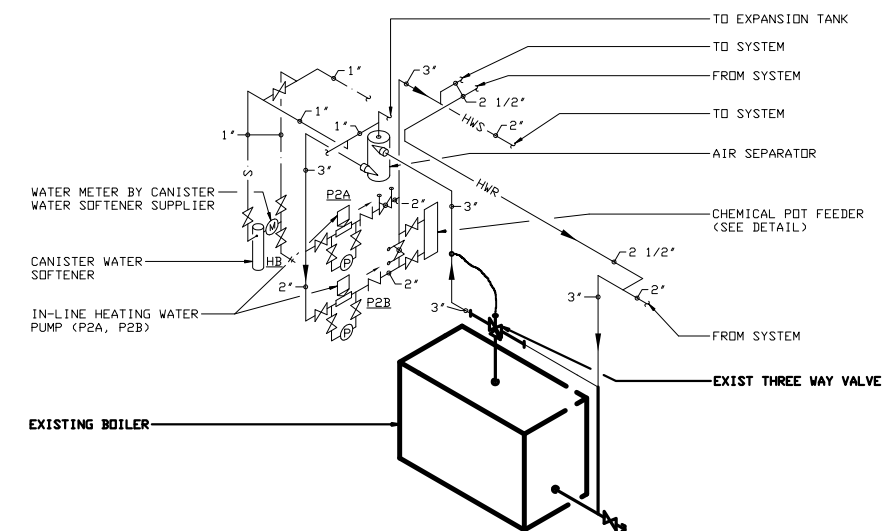
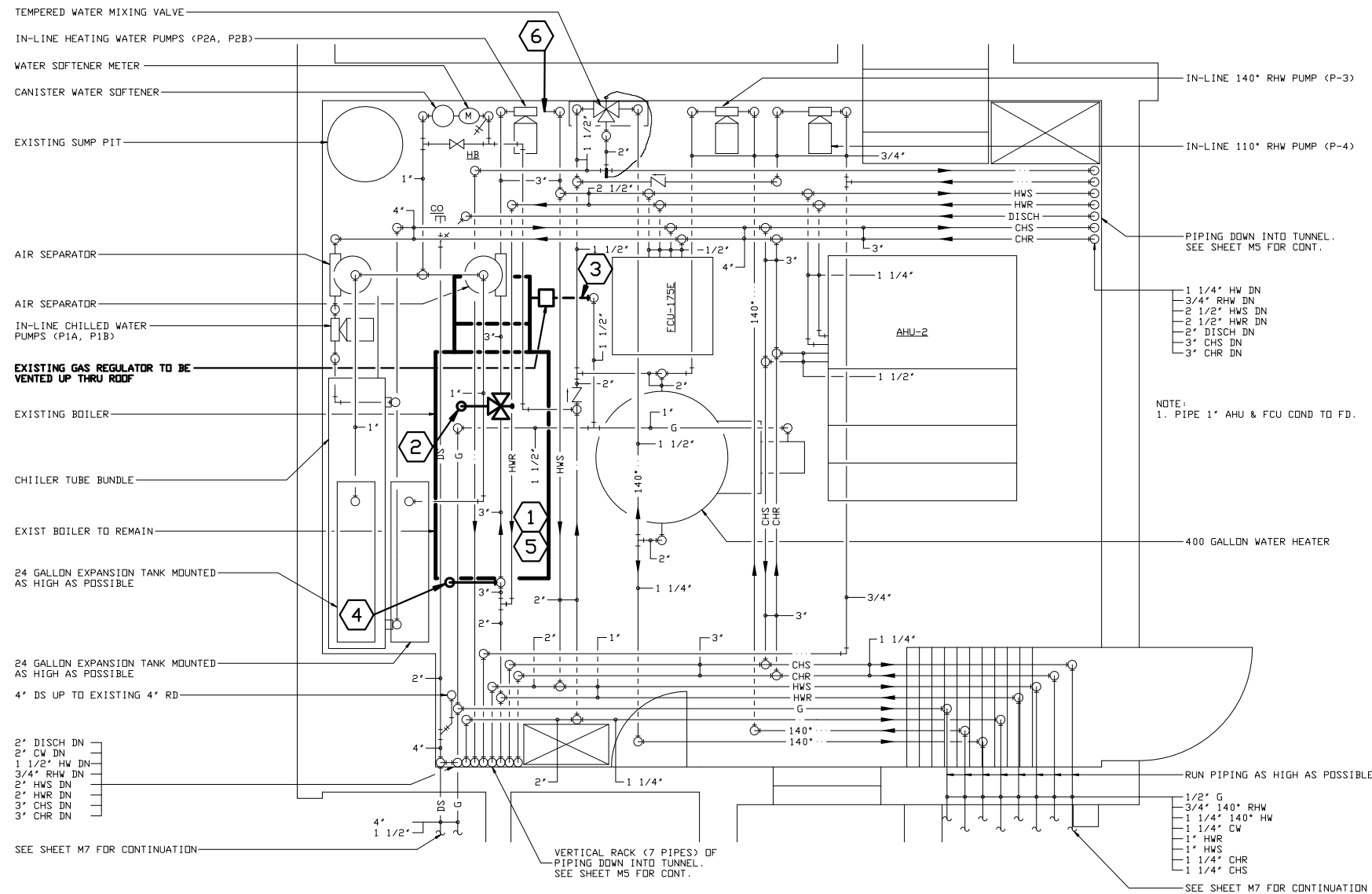


## GENERAL NOTES

1. VERIFY SIZES, LOCATIONS, AND EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
2. THE CEILING SPACE AVAILABLE REQUIRES COORDINATION WITH OTHER TRADES. THE CONTRACTORS SHALL PROVIDE ALL OFFSETS AND RELOCATE AS REQUIRED TO COORDINATE THE INSTALLATION OF ALL MATERIALS AND EQUIPMENT WITH OTHER TRADES.
3. ON DEMO PLANS, PIPING, DUCTWORK AND EQUIPMENT TO BE REMOVED IS SHOWN BOLD.
4. ON MECHANICAL PLANS, PIPING, DUCTWORK AND EQUIPMENT SHOWN LIGHT IS EXISTING TO REMAIN.
5. ON MECHANICAL PLANS, PIPING, DUCTWORK AND EQUIPMENT TO BE PROVIDED IS SHOWN BOLD.
6. COORDINATE SERVICE INTERRUPTIONS WITH OWNER & GENERAL CONTRACTOR PRIOR TO ASSOCIATED WORK.

## DEMOLITION NOTES

- 1 REMOVE BOILER.
- 2 REMOVE 3-WAY VALVE, VERTICAL HWR PIPE, AND A SECTION OF HORIZONTAL HEATING PIPING.
- 3 REMOVE BOILER GAS PIPING, REGULATOR, AND REGULATOR VENT PIPING FROM BOILER. GAS PIPING AND REG VENT PIPING SHALL REMAIN FOR CONNECTION TO NEW BOILER AND REG.
- 4 REMOVE HWR PIPE FROM BOILER AND CAP AT THE MAIN.
- 5 CAPTURE EXISTING HYDRONIC FLUID IN CLEAN BARRELS FOR REINSTALLATION.
- 6 SHUT OFF VALVES ARE PRESENT AT THE HEATING PUMPS. SHUT OFF VALVES DO NOT APPEAR TO BE PRESENT IN THE HEATING RETURN PIPING TO THE BOILER. DRAIN AND CAPTURE THE HYDRONIC FLUID AS REQUIRED.



## BOILER ROOM PLAN - PLUMBING & HEATING - DEMO

SCALE 0 2 4 6 8

## HWS/HWR PIPING RISER - DEMO

NO SCALE

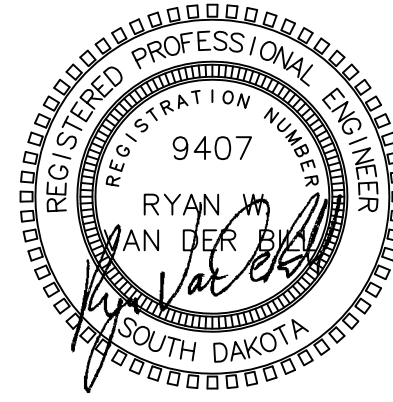
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 M3  
 3 OF 6

PROJECT  
 JUVENILE DETENTION CENTER BOILER REPLACEMENT  
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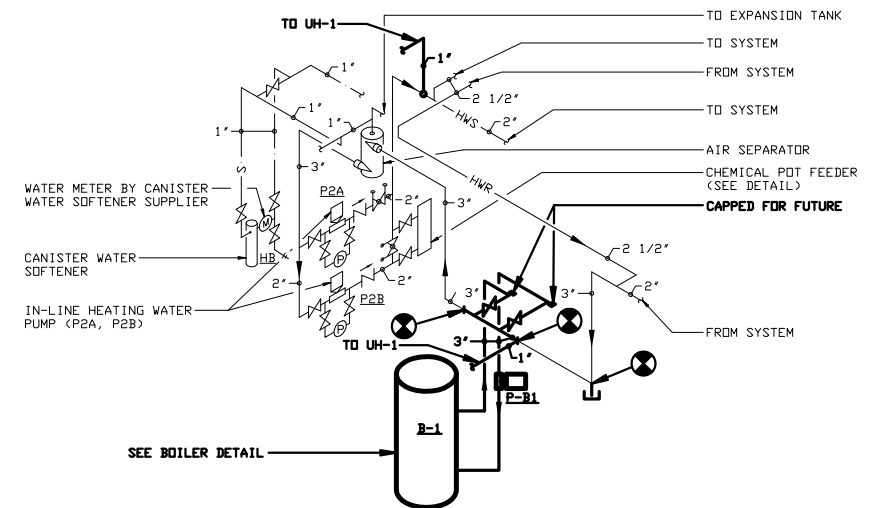
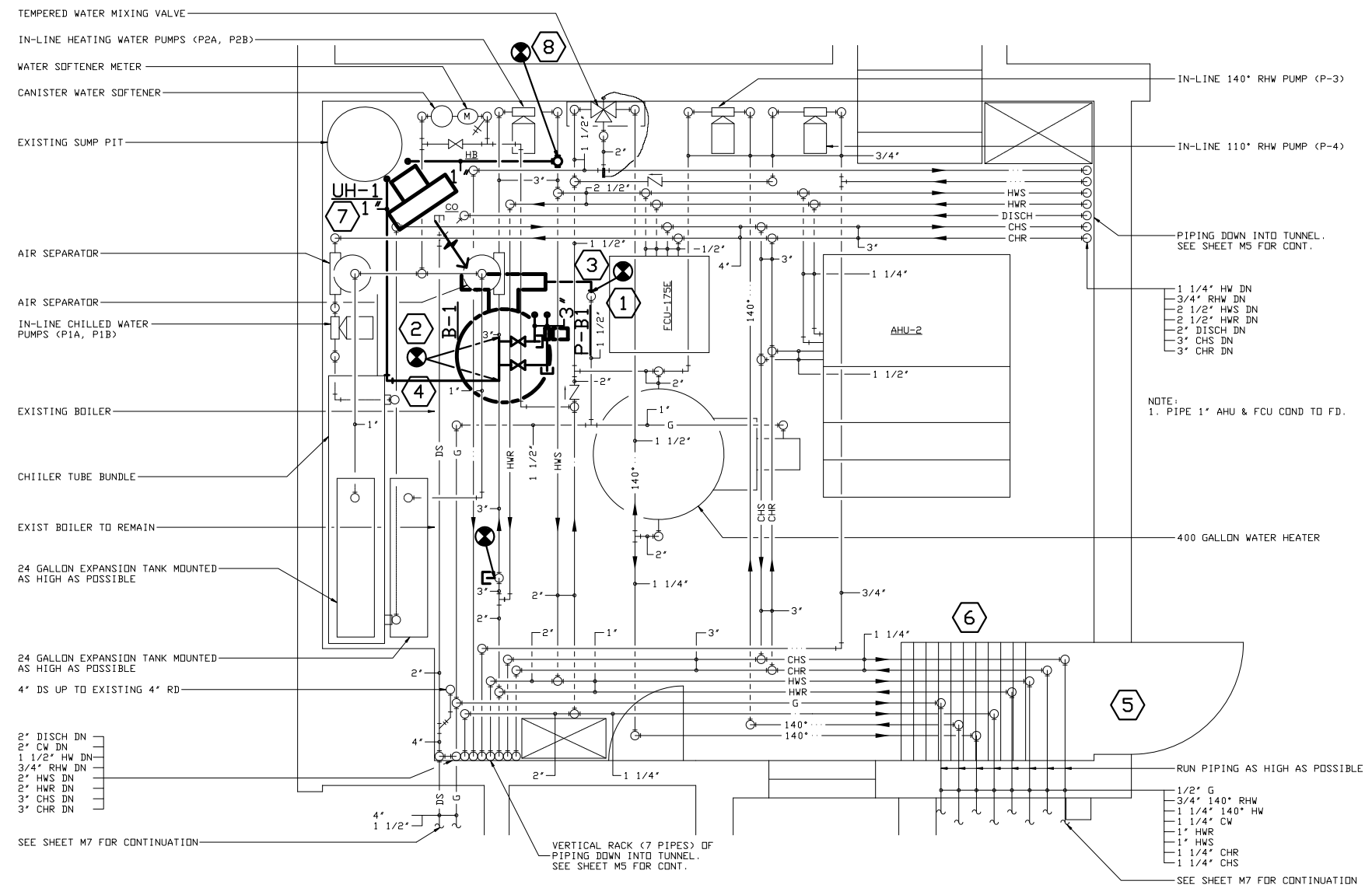


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## MECHANICAL NOTES

- ① BOILER PRIMARY PUMP. SEE DETAIL.
- ② BOILER SET ON EXISTING CONCRETE PAD. SEE DETAIL.
- ③ CONNECT GAS AND REG. VENT TO EXISTING.
- ④ CONNECT TO EXISTING HWS AND HWR PIPING.
- ⑤ EXISTING DOORWAY IS 46.75' WIDE. EXISTING RAILING ALLOWS 36.5' CLEAR. RAILING MAY BE REMOVED AND WELDED BACK IN PLACE IF NECESSARY.
- ⑥ STEEP STAIRCASE DOWN APPROX 5'.
- ⑦ UNIT HEATER. SEE DETAIL.
- ⑧ CONNECT TO EXISTING HWS.



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⊙

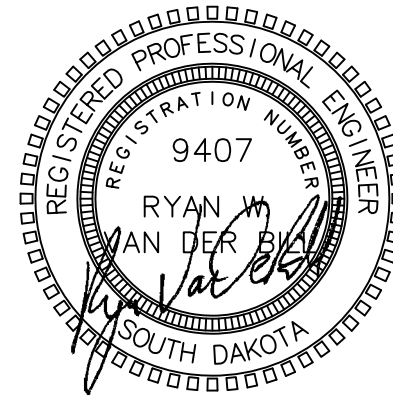
# BOILER ROOM PLAN - PLUMBING & HEATING

SCALE 0 2 4 6 8

## HWS/HWR PIPING RISER

NO SCALE

SHEET	M4	DATE	6/19/17	DRAWN BY	JDW
PROJ. NO.	117054	PROJECT			
<b>JUVENILE DETENTION CENTER BOILER REPLACEMENT</b> <b>SIOUX FALLS, SOUTH DAKOTA</b>					
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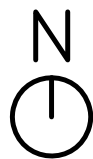
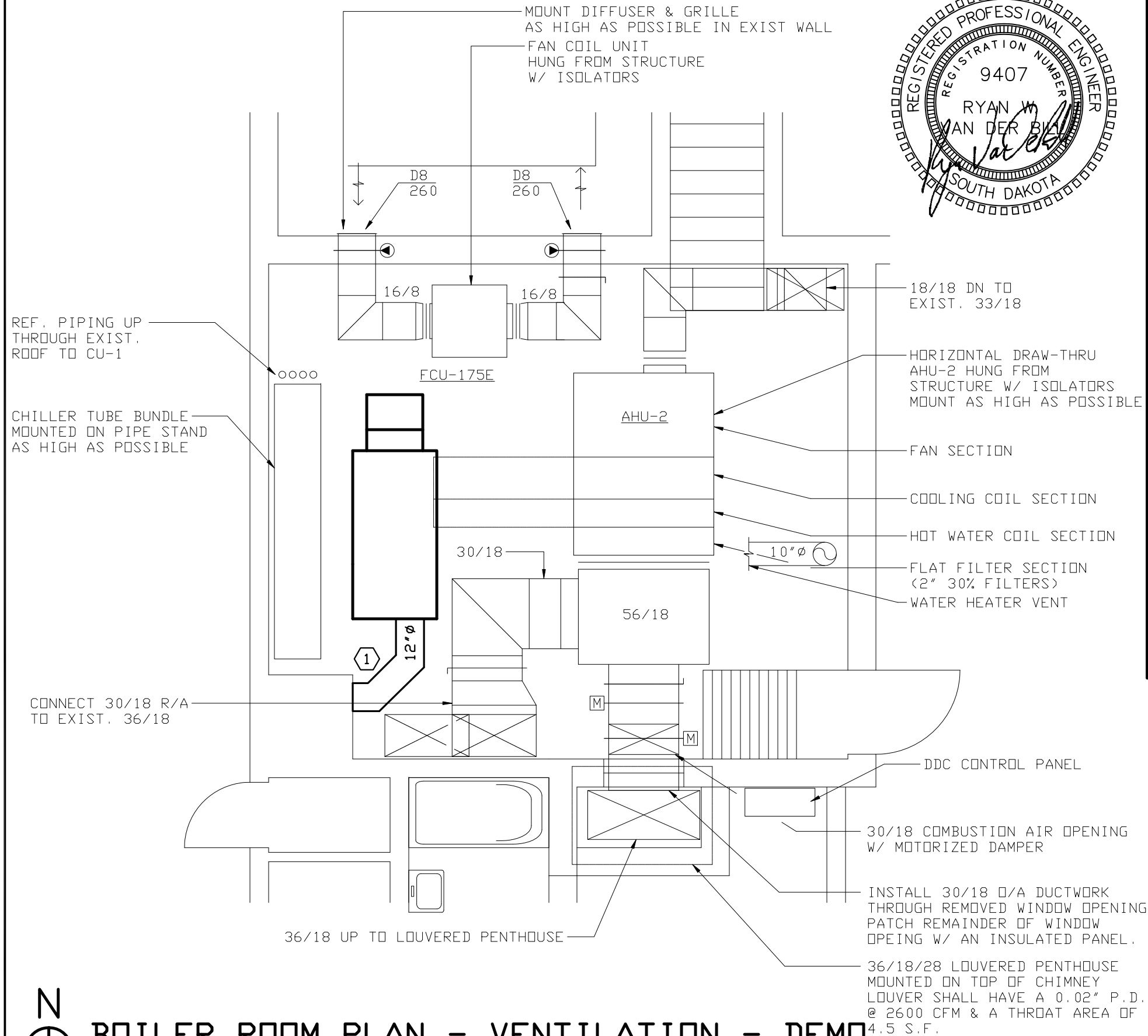


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## DEMOLITION NOTES

- 1 REMOVE BOILER VENT, CAP AT CHIMNEY WALL.



## BOILER ROOM PLAN - VENTILATION - DEMO

SCALE 0 2 4 6 8

SHEET M5 5 OF 6

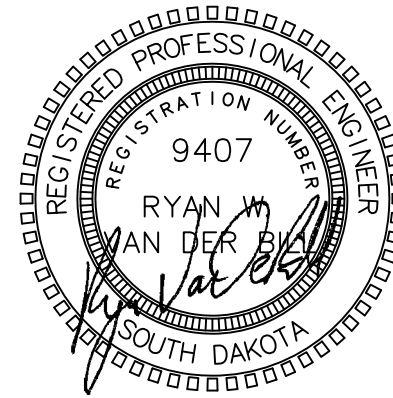
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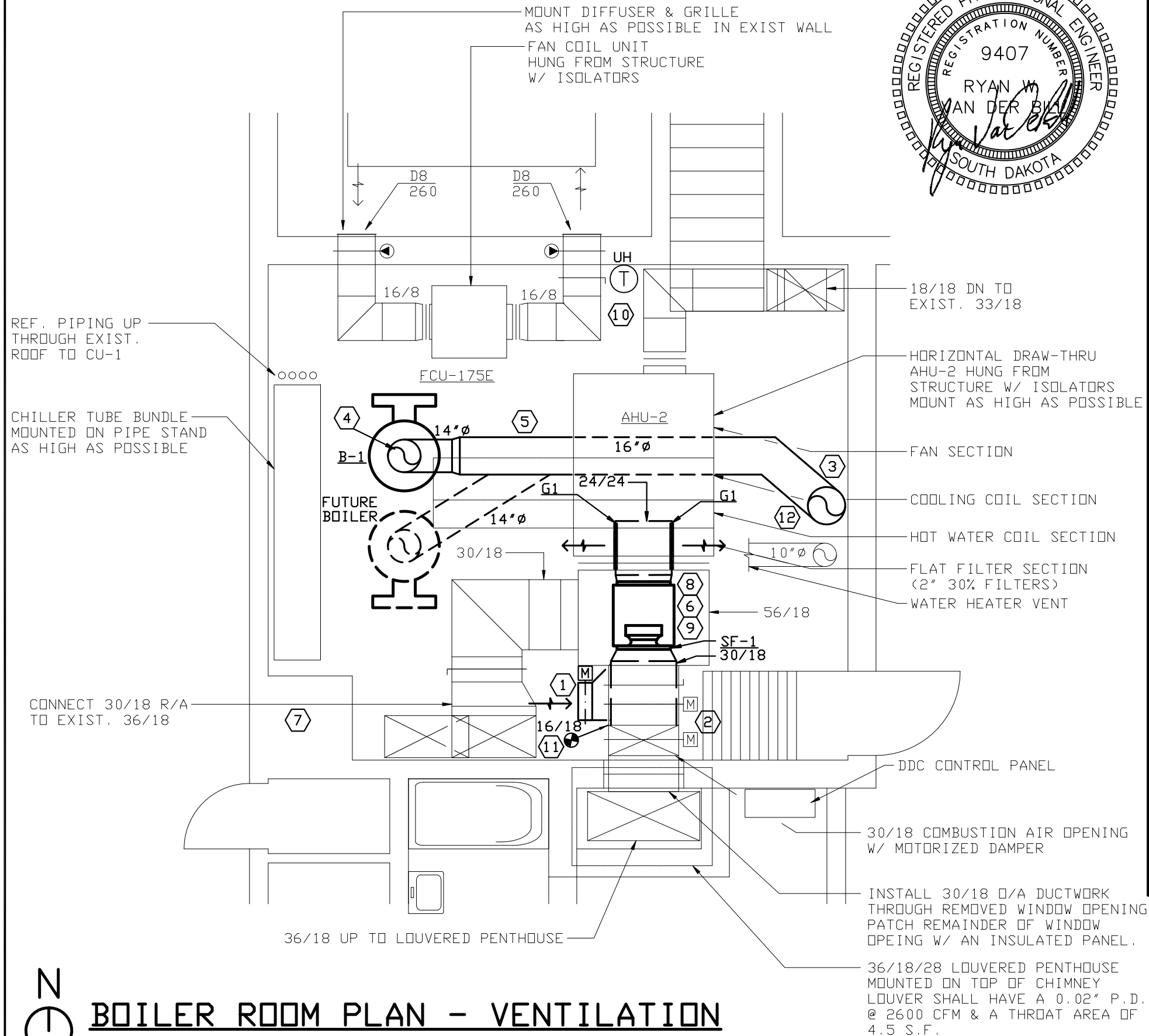


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## MECHANICAL NOTES

1. MOTORIZED DAMPER PROVIDED BY 230900 AND INSTALLED BY 230800.
2. EXISTING MOTORIZED DAMPER.
3. BOILER VENT UP THRU CONCRETE DOUBLE TEE ROOF. TERMINATE APPROX. 10' ABOVE ROOF, AT LEAST 3' ABOVE NEARBY AIR INTAKES. ADJUST EXISTING WATER HEATER VENT BRACKET AS NEEDED.
4. BOILER VENT DOWN TO BOILER.
5. BOILER VENTING SIZED FOR A FUTURE 900 MBH BOILER.
6. COMBUSTION AIR FAN SIZED FOR A TOTAL OF 3000 MBH INPUT AT 0.35 CFM/MBH. 200 WHTR + 200 WHTR + 1700 BOILER + 900 FUTURE BOILER.
7. CAP BRICK CHIMNEY WITH SHEET METAL WEATHER TIGHT CAP. CHIMNEY IS APPROX. 48"X48" AND 10' ABOVE THE ROOF.
8. INSULATE COMBUSTION AIR AND OUTSIDE AIR DUCTS. SEE SPEC 230700.
9. COMBUSTION AIR SUPPLY FAN WITH RETURN AND OUTSIDE AIR MIXING DAMPERS INSTALLED BELOW EXISTING CEILING MOUNTED AHU.
10. TSTAT FOR UNIT HEATER. COORDINATE EXACT LOCATION.
11. CONNECT DUCT TO EXISTING COMBUSTION AIR DUCT.
12. RAISE ELEVATION OF EXISTING WATER HEATER VENT AS REQUIRED TO FIT COMBUSTION AIR FAN.



## BOILER ROOM PLAN - VENTILATION

SCALE 0 2 4 6 8

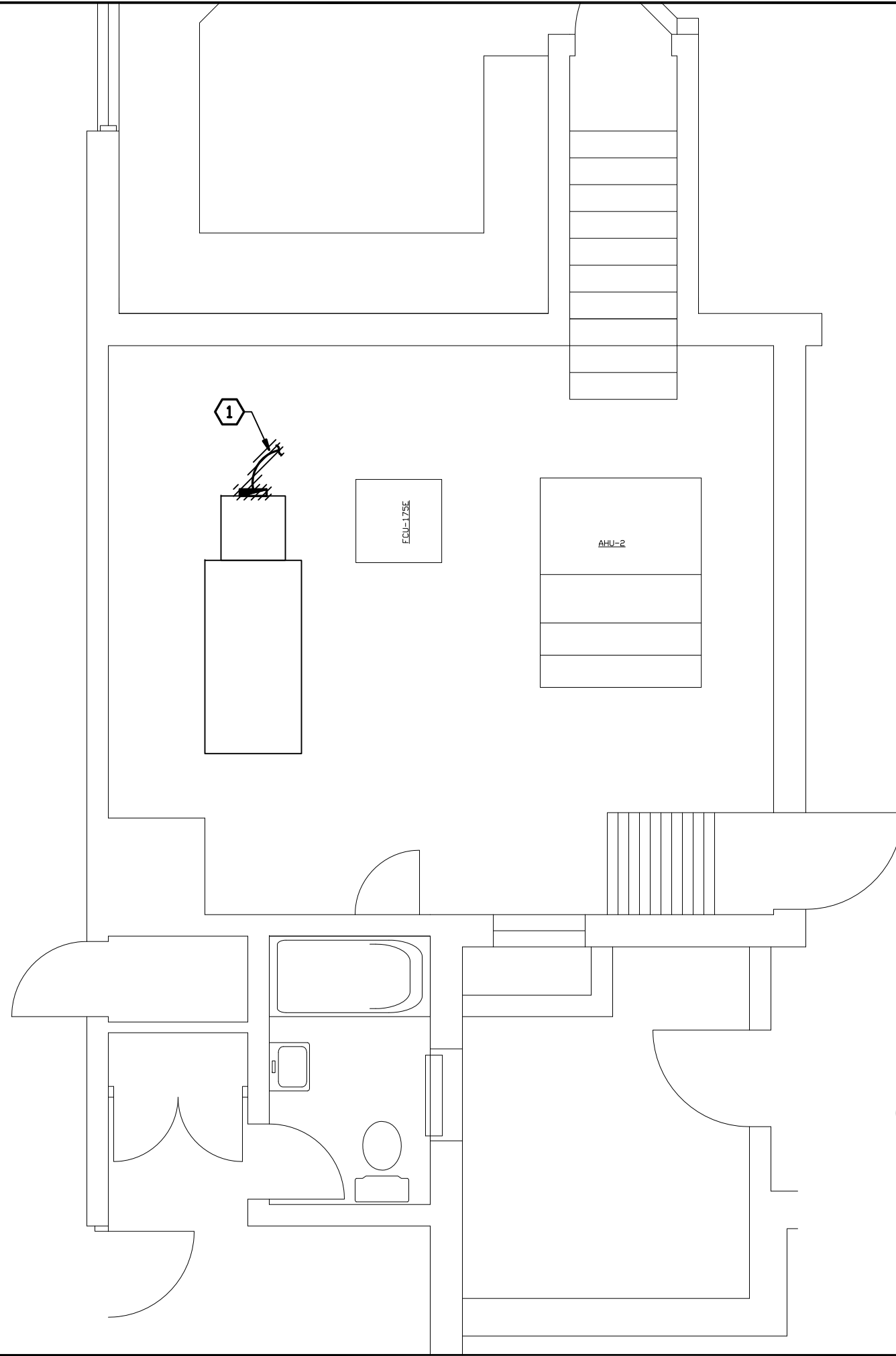
SHEET  
PROJ. NO. 117054  
DATE 6/19/17  
DRAWN BY JDW

PROJECT  
JUVENILE DETENTION CENTER BOILER REPLACEMENT  
SIOUX FALLS, SOUTH DAKOTA

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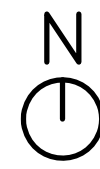
**ELECTRICAL NOTES**

1. REMOVE BOILER ELECTRICAL CONNECTIONS AND ASSOCIATED DISCONNECTS, RACEWAYS, AND CONDUCTORS TO THE EXTENT POSSIBLE.

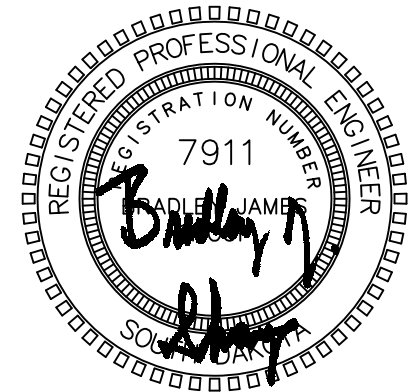
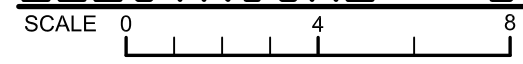
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**GENERAL ELECTRICAL NOTES**

A. SEE SHEET E5 FOR DEMOLITION NOTES.



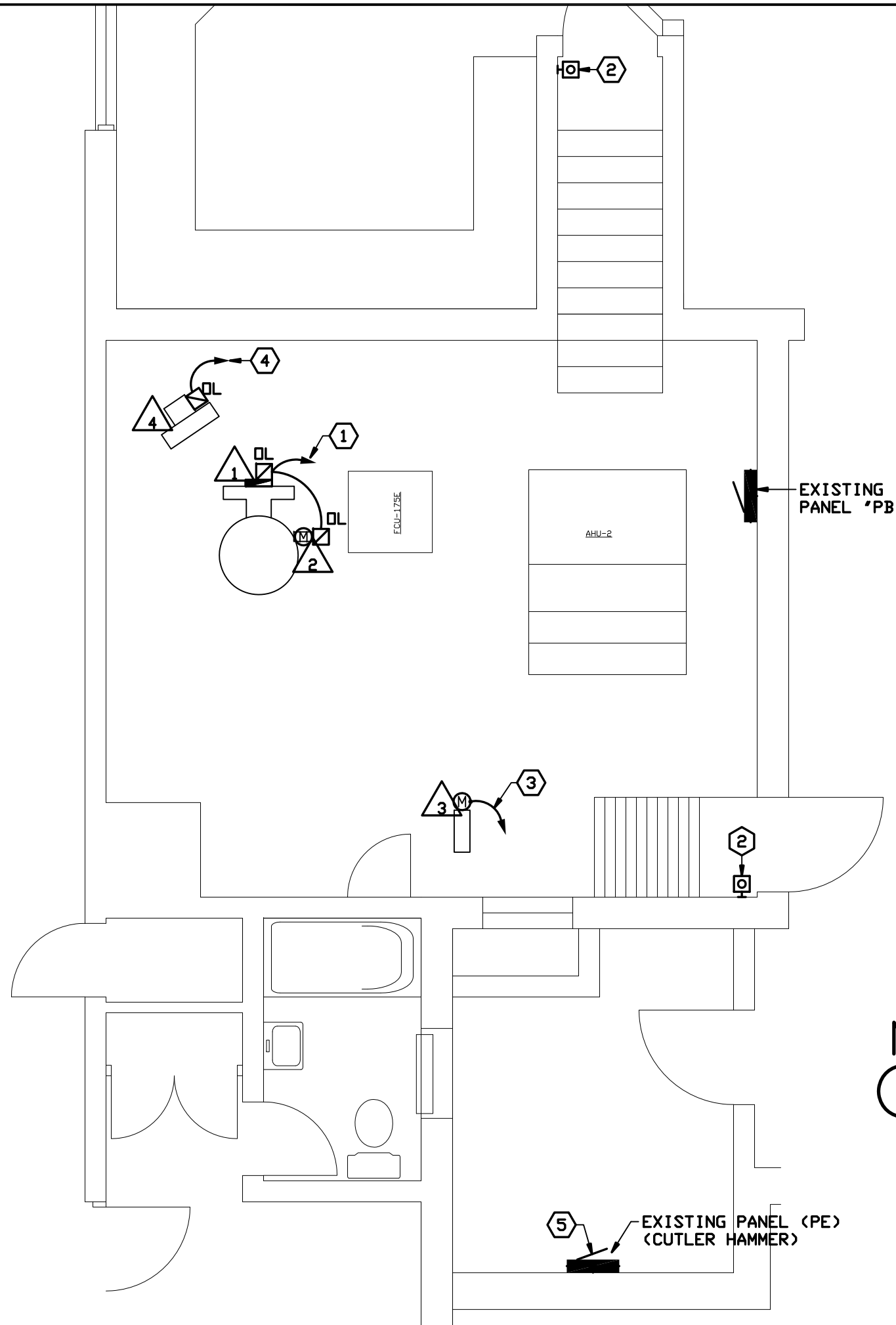
**BOILER ROOM PLAN -  
ELECTRICAL - DEMO**



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	PROJ. NO.	DATE	DRAWN BY
	117054	6/19/17	BJS/ADP
SHEET	E1		1 OF 5

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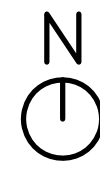
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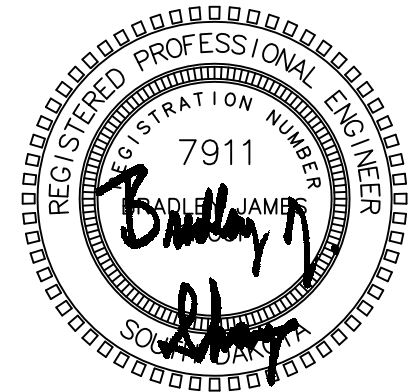
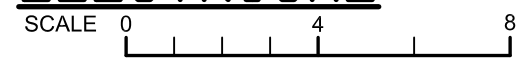
## ELECTRICAL NOTES

1. TO A NEW 30A/1P SHUNT TRIP CIRCUIT BREAKER IN PANEL 'PE'.
2. MUSHROOM HEAD 'BOILER EMERGENCY OFF' PUSHBUTTON SWITCH. VERIFY LOCATION WITH THE 'AHJ' AND INTERLOCK WITH NEW SHUNT TRIP CIRCUIT BREAKER IN PANEL 'PE'.
3. TO A NEW 20A/2P CIRCUIT BREAKER IN PANEL 'PE'.
4. TO AN EXISTING 20A/1P CIRCUIT BREAKER IN PANEL 'PB' MADE SPARE BY DEMOLITION OF BOILER.
5. AIC RATING OF NEW CIRCUIT BREAKERS SHALL MATCH EXISTING.

## GENERAL ELECTRICAL NOTES



## BOILER ROOM PLAN - ELECTRICAL



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	2 OF 5			
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FEEDER SCHEDULE														
MARK (AMPS)	4-WIRE FEEDER				3-WIRE FEEDER				'K' RATED 4-WIRE FEEDER					MARK (AMPS)
	SETS	PH	GND	C	SETS	PH	GND	C	SETS	PH	N	GND	C	
15	1	14	14	0.75	1	14	14	0.75	1	14	12	14	0.75	15
20	1	12	12	0.75	1	12	12	0.75	1	12	10	12	0.75	20
25	1	10	10	0.75	1	10	10	0.75	1	10	8	10	0.75	25
30	1	10	10	0.75	1	10	10	0.75	1	10	8	10	0.75	30
35	1	8	10	0.75	1	8	10	0.75	1	8	6	10	0.75	35
40	1	8	10	0.75	1	8	10	0.75	1	8	4	10	1.00	40
45	1	6	10	1.00	1	6	10	0.75	1	6	4	10	1.00	45
50	1	6	10	1.00	1	6	10	0.75	1	6	3	10	1.00	50
60	1	6	10	1.00	1	6	10	0.75	1	6	3	10	1.00	60
70	1	4	8	1.25	1	4	8	1.00	1	4	1/0	8	1.25	70
80	1	4	8	1.25	1	4	8	1.00	1	4	1/0	8	1.25	80
90	1	3	8	1.25	1	3	8	1.25	1	3	2/0	8	1.25	90
100	1	3	8	1.25	1	3	8	1.25	1	3	2/0	8	1.50	100

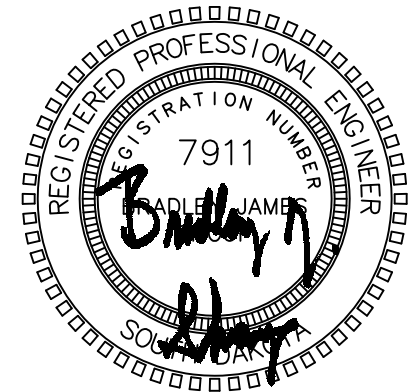
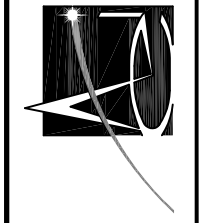
MOTOR & APPLIANCE FEEDER SCHEDULE (100 Amps & Less)

MARK (AMPS)	MOTOR LOAD (HP)		4-WIRE FEEDER			3-WIRE FEEDER			MARK (AMPS)
	480V	208V	PH	GND	C	PH	GND	C	
20	7.5 & LESS	3 & LESS	12	12	0.75	12	12	0.75	20
25	10	--	10	10	0.75	10	10	0.75	25
30	15	--	10	10	0.75	10	10	0.75	30
35	--	5	8	10	0.75	8	10	0.75	35
40	15	--	8	10	0.75	8	10	0.75	40
45	--	--	6	10	1.00	6	10	0.75	45
50	--	7.5	6	10	1.00	6	10	0.75	50
60	20	10	6	10	1.00	6	10	0.75	60
70	25	--	4	8	1.25	4	8	1.00	70
80	30	--	4	8	1.25	4	8	1.00	80
90	40	15	3	8	1.25	3	8	1.25	90
100	50	20	3	8	1.25	3	8	1.25	100

- NOTES:**
1. FEEDERS SHALL BE 4-WIRE, UNLESS DENOTED WITH:  
 "-3W" WHICH SHALL BE 3-WIRE (3W)  
 "-IG" WHICH SHALL BE 4-WIRE PLUS INSULATED GROUND AND EQUIPMENT GROUND.  
 "-K" WHICH SHALL BE 4-WIRE WITH OVERSIZED NEUTRAL.
  2. SERVICE ENTRANCE CONDUCTORS SHALL NOT BE PROVIDED WITH GROUND CONDUCTOR.
  3. ALL FEEDERS SHALL HAVE EQUIPMENT GROUND CONDUCTOR.
  4. NEUTRAL SHALL BE SAME SIZE AS PHASE CONDUCTOR, UNLESS OTHERWISE NOTED.
  5. CONDUCTOR SIZES FOR FEEDERS OVER 40A ARE BASED ON TERMINATIONS TO EQUIPMENT LISTED FOR 75°C, INCREASE FEEDER SIZES AS REQUIRED FOR TERMINATIONS TO EQUIPMENT NOT LISTED FOR 75°C.
  6. RACEWAY AND CONDUCTOR SIZING IS BASED ON THE USE OF THHN/THWN COPPER CONDUCTORS AND EMT CONDUIT. MODIFY RACEWAY AND CONDUCTOR SIZES AS REQUIRED FOR THE USE OF OTHER RACEWAY AND CONDUCTOR TYPES. SEE SPECIFICATIONS FOR ALLOWABLE CONDUCTOR MATERIAL, INSULATION, AND RACEWAY TYPES.
  7. NOT ALL FEEDER SIZES SHOWN IN THIS SCHEDULE ARE USED IN THIS PROJECT.

## ELECTRICAL SYMBOL LEGEND

	LIGHT FIXTURE, LETTERS INDICATE TYPE.
	LIGHTING AND APPLIANCE PANELBOARD
	MAIN DISTRIBUTION PANELBOARD
	CONTROL CABINET
	SPECIAL EQUIPMENT CABINET AS NOTED.
	TRANSFORMER
	HOME RUN TO PANELBOARD. ARROWS INDICATE QUANTITY OF CIRCUITS. NUMBERS INDICATE PANEL AND CIRCUITS.
	CONDUIT CONCEALED IN WALL OR CEILING
	CONDUIT UP
	CONDUIT DN
	CONDUIT CONCEALED UNDER GRADE
	CONDUIT EXPOSED
	FEEDER CONDUIT
	DENOTES EMPTY CONDUIT
	EQUIPMENT. NUMBER INDICATES TAG. SEE EQUIPMENT SCHEDULE.
	INDICATES EQUIPMENT TO BE REMOVED.



EQUIPMENT SCHEDULE FOR JDC BOILER REPLACEMENT, SIOUX FALLS SD						ACEI Project #: 117054	
NO.	DESCRIPTION	KW	HP	MCA	VOLTS	PH	NOTES
1	BOILER B-1	-	-	30	120	1	1
2	PUMP P-B1	-	2/5	-	120	1	1, 2
3	FAN	-	1	-	208	1	3
4	UNIT HEATER	-	1/3	-	120	1	1

**NOTES:**

1. PROVIDE A MANUAL MOTOR STARTER WITH THERMAL OVERLOAD. CONTROL BY MECHANICAL CONTRACTOR (MC).
2. CONNECT TO BOILER CONTROL PANEL.
3. PROVIDE A SINGLE POINT POWER CONNECTION. DISCONNECT AND CONTROL BY MC.

**ELECTRICAL SPECIFICATIONS:**

**DRAWINGS AND MEASUREMENTS:** The drawings are not intended to be scaled for roughing-in measurements nor to serve as shop drawings. The Contractor shall consult existing conditions and equipment drawings for dimensions, obstructions and locations of equipment. Equipment are shown on the drawings only in a schematic manner and not necessarily in their specific location.

**ORDINANCES AND CODES:** All work shall be executed in accordance with the current edition of the City Electrical Ordinances, OSHA, State Electrical Laws and Statutes and National Electrical Code (NEC) and be subject to the inspection of these departments. All fees, permits, licenses, etc., necessary in order to complete the work of this section shall be paid by this Contractor.

**WORKMANSHIP:** The installation work included in this specification shall be performed in a neat workmanlike manner by people experienced and skilled in the Electrical trade. Only the best quality workmanship will be accepted. All exposed parts of the electrical wiring systems such as exposed conduits, flush plates, fixtures, etc., shall be square and true with the building construction.

**GUARANTEE:** This Contractor shall assume responsibility for any defects which may develop in any part of his work caused by faulty workmanship, material or equipment, and agrees to replace, repair, or alter, at his expense, any such faulty workmanship, material or equipment that has been brought to his attention during a period of one year from the date of the final certificate for payment. Acceptance of the work shall not waive this guarantee.

**QUALITY ASSURANCE:** All materials and equipment shall be new and of best quality, of the type best suited for the purpose intended, and be made by nationally recognized and substantially established manufacturers. All electrical materials used in this work shall be listed by the Underwriters Laboratories, Inc., where testing is provided and shall bear their label.

**EQUIPMENT IDENTIFICATION AND CLEANUP:** All electrical equipment shall be provided with identification indicating its use or function. Equipment to be identified shall include special control switches, junction boxes & empty conduits provided for future use. All electrical equipment must be kept completely protected from weather elements, painting, etc., until the work is substantially completed. Damage from rust, paint, scratches, etc., shall be corrected as directed by the A/E.

**RACEWAY:** Wiring shall be installed in raceway; electrical metallic tubing (interior), flexible metal conduit (light fixture whips and connections to interior vibrating equipment), PVC (below floor or exterior below grade), GRS (exterior exposed), or LFMC (connections to exterior vibrating equipment).

**RACEWAY FITTINGS:** On all conduit systems the connector fitting shall be of the insulated throat type. All conduit fittings shall be of steel construction. Malleable iron fittings shall not be used on any conduits. Indenter fittings shall not be used for EMT. Set screw fittings may be used for EMT.

**RACEWAY INSTALLATIONS:** Conduits and raceways shall be sized as noted or as required by NEC for number and size of conductors installed. All conduit and raceways shall be securely positioned by galvanized steel straps, clamps, and hangers with suitable fastenings. Exposed conduits shall be run parallel to and at right angles to building lines and neatly grouped and supported with approved conduit hangers or channel supports.

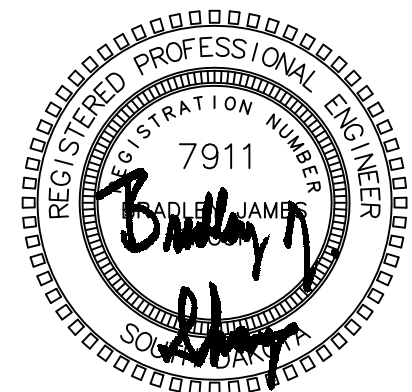
**WIRE AND CABLE:** All wire and cable for Feeders and branch circuits shall conform to the requirements of the current edition of the NEC and shall meet all relevant ASTM Specifications. Conductors shall be 600 volt rated, coated soft-drawn copper and unsoft-drawn copper and unless otherwise noted, shall have type THWN or THHN insulation, unless otherwise noted. Aluminum conductors shall not be used.

**GROUNDING AND BONDING:** All feeders and branch circuits shall be provided with equipment grounding conductor sized in accordance with the NEC. Bond the grounding conductor to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground conductor passes.

**PULL BOXES AND JUNCTION BOXES:** Pull boxes and junction boxes are generally not indicated on drawings except for special requirements. This Contractor shall install pull boxes or junction boxes as required to facilitate wire pulling. Pull boxes and junction boxes shall be sized as required. Pull boxes and junction boxes shall be installed in accessible locations and shall not be installed in finished spaces without approval of the A/E.

**PANELBOARDS:** Panelboards are existing. New circuit breakers shall be bolt-on inverse time thermal magnetic type. Provide updated circuit directory on the inside of the door.

**SHOP DRAWINGS:** Provide shop drawings for circuit breakers, and EPO'S.

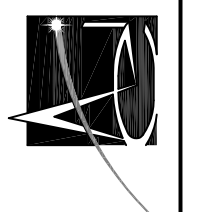


PROJ. NO. 117054  
 SHEET E4  
 DATE 6/19/17  
 DRAWN BY BJS/ADP  
 4 OF 5

PROJECT  
 JUVENILE DETENTION CENTER BOILER REPLACEMENT  
 SIOUX FALLS, SOUTH DAKOTA

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 Sioux Falls, S.D. 57104  
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 E-mail acei@aceinet.com

**Associated Consulting Engineering, Incorporated**



## GENERAL DEMOLITION NOTES

- A. PERFORM ALL DEMOLITION WORK AS REQUIRED AND REMODELING WORK AS SHOWN ON THE DRAWINGS INCLUDING MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
- B. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND SHOULD HAVE HAD VISITED THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE/SHE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT IN BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS/HER PART.
- C. CERTAIN REMODELING OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN, ALTHOUGH A FULL ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS, OF WHICH INFORMATION HAS BEEN TAKEN FROM EXISTING RECORD DRAWINGS OF THIS PROJECT. THE DRAWINGS SHOWING LOCATIONS OF EXISTING EQUIPMENT, OUTLETS, FIXTURES, ETC. IN EXISTING AREA ARE APPROXIMATE ONLY (FIELD VERIFY).
- D. BRANCH CIRCUITS SHALL BE REUSED WHERE PRACTICAL AND SHALL, IN ADDITION, BE REMODELED AS REQUIRED. THE CONTRACTOR SHALL CONCEAL ALL WORK WHERE POSSIBLE. WHERE EXPOSED WORK IS REQUIRED IN FINISHED AREAS, THE CONTRACTOR SHALL USE SURFACE MOUNTED, MULTI-OUTLET RACEWAY, PANDUIT T70 SERIES. EXISTING RUNS SHALL BE VERIFIED.
- E. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION, AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES, IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING OR INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING OR REPLACE OLD WIRING WITH NEW.
- F. OUTLETS FROM WHICH FIXTURES, SWITCHES, RECEPTACLES, AND/OR OTHER ELECTRICAL DEVICES ARE MOVED AND WHICH ARE NOT REPLACED OR REUSED SHALL BE REMOVED OR, IF NOT POSSIBLE, PROVIDED WITH A BLANK PLATE ON THE OUTLET BOX. WHERE OUTLETS, BOXES, ETC. ARE COMPLETELY REMOVED, THE CONTRACTOR SHALL CUT OFF CONDUITS AND REMOVE WIRING.
- G. WHERE EXISTING LIGHT FIXTURES ARE TO BE RE-USED, THE CONTRACTOR SHALL CLEAN THE FIXTURES AND REPLACE LAMPS. THE CONTRACTOR SHALL ALSO REPAIR OR REPLACE DEFECTIVE PARTS, INCLUDING LENSES, BALLASTS, ETC. AS REQUIRED SO THAT THE FIXTURES ARE FUNCTIONING CORRECTLY.
- H. WHERE CONDUITS EXTENDING THROUGH FLOORS ARE TO BE ABANDONED, THE CONTRACTOR SHALL CUT AND CAP OR PLUG CONDUIT, SO THAT IT WILL NOT PROTRUDE ABOVE THE FLOOR.
- I. WHERE EXISTING CONDUIT IS TO BE ABANDONED, THE CONDUIT SHALL BE REMOVED IF IT IS EXPOSED, INTO A CRAWL SPACE OR ACCESSIBLE CEILING. WHERE IT IS IMPOSSIBLE TO REMOVE THE CONDUIT, IT SHALL BE CUT OFF AND CAPPED OR PLUGGED.
- J. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS CONTRACT. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC. AS REQUIRED.
- K. THE CONTRACTOR SHALL EMPLOY QUALIFIED AND EXPERIENCED WORKMEN FOR THIS WORK. ALL RESTORATION WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND/OR THE OWNER.
- L. ALL TEMPORARY AND REMODELING WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
- M. EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING EXISTING, TEMPORARY, REMODELED AND NEW AREAS.
- N. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SELECTED SALVAGE ITEMS, ALL OTHER ITEMS SHALL BE THE CONTRACTORS RESPONSIBILITY FOR LEGAL DISPOSAL.

SHEET  
**E5**  
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