

		CONSULTANTS:
Revisions:	Date	Affiliated Engineers Affiliated Engineers SE, Inc. Tioga Town Center 12921 SW 1st Road Ste 205 Gainesville, Florida 32669 Tel 352.376.5500 Fax 352.375.3479 CA-5140

VA FORM 08-6231

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Checklist for Water Treatment

)	Sulfite (ppm)	Phosphate (ppm)	()-Alk (ppm)	Hardness (ppm)	pН
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%Makeup = $\frac{Conductivity_of_Feedwater-Conductivity_of_Condensate}{Conductivity_of_MU-Conductivity_of_Condensate}*100$

Conductivity _ of _ Feedwater -*100 Conductivity _ of _ Boiler – Conductivity _ of _ Feedwater

Checklist for General Plant Safety & Reliability

Item	Present Y/N
Deaerator Tank Bypass.	
Condensate Tank Bypass.	
Softener Bypass.	
Auxiliary makeup to Deaerator.	
Emergency water to Boilers.	
High Oil Alarm on Oil Tanks.	
High Gas Pressure Cutout on Main Gas Line Coming into plant.	
Emergency Kill Switch (Oil and Gas) in Office and ALL Points of Egress.	

September 2008

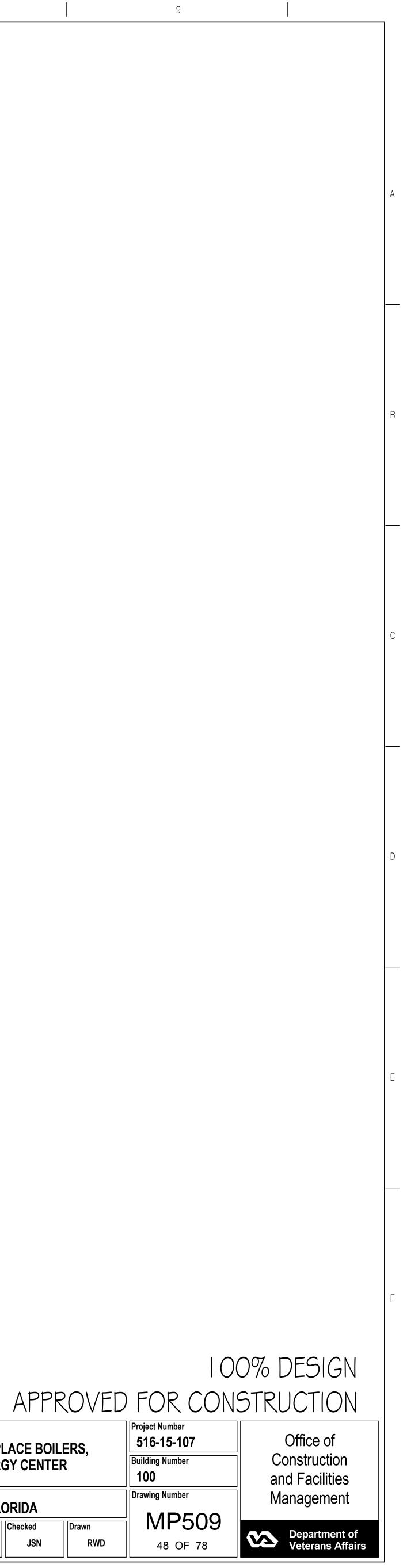
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AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	ENGINEER-OF-RECORD JACK S NEALE	FL. P.E. NO. 42678	ARCHITECT/ENGINEERS:
			3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578

Drawing Title			Project Title			Project Numb		
SAFETT DEVI	CE LESTING PI	KUCEDUKES			•	Building Num 100		
Approved: Project Directo	pr		Location BAY PINES,	Florida		Drawing Num		
			Date	Checked	Drawn	╡ MF		
			MAY 15, 2017	JSN	RWD	48 (
	7		8					
			SAFETY DEVICE TESTING PROCEDURES	SAFETY DEVICE TESTING PROCEDURES DESIGN TO R BLDG 100 EN Approved: Project Director Location BAY PINES, Date MAY 15, 2017	SAFETY DEVICE TESTING PROCEDURES DESIGN TO REPLACE BOI BLDG 100 ENERGY CENTE Approved: Project Director Location BAY PINES, FLORIDA Date MAY 15, 2017 Checked JSN	SAFETY DEVICE TESTING PROCEDURES DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER Approved: Project Director Location BAY PINES, FLORIDA Date MAY 15, 2017 Checked JSN Drawn RWD		

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CONDENSATE SURGE TANK AND TRA DESIGN TANK OPERATING CAPACITY AT PRESSURE OVERFLOW (PSIG) (GAL) TOTAL FLOW HEAD SUCTION / (GPM) (FEET H₂0) DISCHARGE (2) TANK TANK TYPE TANK PUMP PUMP DIMENSIONS (DIA x L) DESIG. TYPE 100-CST-1 HORIZONTAL 25 6' x 14' CTP-1 VERTICAL SINGLE STAGE 145 70 2-1/2" x 2-1/2" 2,000 CTP-2 VERTICAL SINGLE STAGE 145 70 2-1/2" x 2-1/2"

1. TANK INTERIOR SHALL BE EPOXY COATED PER 235011 PARAGRAPH 2.1.H. 2. TOTAL FLOW INCLUDES 97 GPM (PLANT FLOW) + 35 GPM (MANUFACTURE'S RECOMMENDED MIN RECIRC) + 13 GPM (10%).

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						SCOTO	CH MAR	INE FIRI	ETUBE E	BOILER	SCHEDULE	Ξ			
			CAPACITY				DEGION		MIN		MIN BOILER EFFICIENCY (GAS/OIL)(%) SKID MOUNTED AIR COMPRESSOR (HP)		TOTAL	APPROXIMATE	BASIS OF DESIGN
DESIG	SERVICE	TYPE	POUNDS PER HOUR (PPH)	HORSEPOWER (HP)	MBTU's PER HOUR	EXHAUST GAS TEMPERATURE (GAS/OIL)(°F)	DESIGN PRESSURE (PSIG)	OPERATING PRESSURE (PSIG)	HEATING	ELECTRICAL		APPROXIMATE OPERATING WEIGHT (LBS)	OVERALL DIMENSIONS (LxWxH)		
I00-B-1	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE
100-B-2	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE
100-B-3	STEAM	-	24,150	700	23,433	375 / 383	200	100	2,400	84 / 87	7.5	480 / 3 / 60	65,000	25' x 10.5' x 12'	CLEAVER BROOKS, CBEX ELITE

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1. ALTITUDE: 100 FEET ABOVE SEA LEVEL 2. REFER TO LOW NOX BURNER SCHEDULE FOR ADDITIONAL INFORMATION.

4. BOILER MUST BE STAMPED 200 PSIG.

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	LOW NOX BURNER SCHEDULE																
							FORCED DRAFT FAN										
BOILER No	COMBUSTION AIR TEMPERATURE (°F)	HUMIDITY (%)	EXCESS AIR (%) (GAS/OIL)	TURNDOWN	TRAIN INLET PRESSURE (PSIG)	NOx (PPM)	CO (PPM)	TURNDOWN	TRAIN INLET PRESSURE (PSIG)	NOx (PPM)	CO (PPM)	HP	RPM	ELECTRICAL	DUTY	VSD	BASIS OF DESIGN
1	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER
2	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER
3	80	50	15 / 22.5	10:1	10	30	50	8:1	120	90	50	50	3,500	480 / 3 / 60	INVERTER	YES	PROVIDED BY BOILER MANUFACTURER

1. NO COMBUSTION AIR PRE-HEAT. 2. GAS SPUDS SHALL BE STAINLESS STEEL. 3. FORCED DRAFT FAN INLET SHALL BE SCREENED. 4. EMISSIONS PARTS PER MILLION (PPM) ARE BASED ON 3% OXYGEN (O 2).

	FAN SCHEDULE (DEDUCT ALTERNATE #3)																			
									MOTOR		MOTOR		MOTOR		MOTOR					
DESIG.	SERVICE	TYPE	CFM	ESP (IN. WC)	APPROX RPM	BHP	WHEEL DIA. (IN.)	HP	ELECTRICAL	DRIVE	AMCA CONSTRUCTION CLASS	APPROXIMATE WEIGHT (LBS)	NOTES	BASIS OF DESIGN MFR/MODEL NO.						
100-SF-1	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-2	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-3	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-4	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-5	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-6	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800	123	GREENHECK. RSFP-200-50						
100-SF-7	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800		GREENHECK. RSFP-200-50						
100-SF-8	BOILER PLANT	POWER ROOF VENTILATOR	12,000	0.25	539	4.7	20	5	460 / 3 / 60	BELT	-	800		GREENHECK. RSFP-200-50						

NOTES:

(1) PROVIDE UNIT MOUNTED FACTORY DISCONNECT SWITCH.

(2) FAN SHALL BE THIRD CERTIFIED FOR HIGH WINDS UP TO 150 MPH.

(3) PROVIDE WITH PITCHED ROOF CURB, COORDINATE WITH ROOF SLOPE ABOVE SKY-LIGHTS.

(4) PROVIDE WITH ROOF CURB.

		
one foot		
eighth inch		
	Revisions:	Date
	VA FORM 08-6231	

CONSULTANTS:

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VA FURM 08-6231

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RAN	RANSFER PUMPS SCHEDULE									
		MOTOR			MINIMUM PUMP		BASIS OF DESIGN			
HP	RPM	ELECTRICAL	DUTY	VSD	EFFICIENCY (%)	NEMA TYPE				
5.0	3,500	480 / 3 / 60	CONTINUOUS	NO	80.0	TEFC	AURORA PUMPS, PVM (X) 33-1			
5.0	3,500	480 / 3 / 60	CONTINUOUS	NO	80.0	TEFC	AURORA PUMPS, PVM (X) 33-1			

3. REFER TO STEAM NOZZLE LOADS AND MOMENTS DETAIL. 5. BOILER B-3 IS DEDUCT ALTERNATE #5.

5. BOILER B-3 IS DEDUCT ALTERNATE #5.

DESIG	AREA SERVED	TYPE
100-WSF-1	HOSPITAL (NP)	TWIN ALTERNATIN

NOTE: REGENERATION ONCE PER DAY MAX.

						DEAI	LKALIZEF	R SCHED	DULE (D	EDUCT	ALTERNA ⁻	TE #4)						
					GRAIN	DESIGN	CONTINUOUS	PEAK		VESSEL	MAXIMUM	MAXIMUM	BRINE TAN	١K	CAUSTIC -	TANK		
DESIG	AREA SERVED	TYPE	ALKALINITY INLET (PPM)	ALKALINITY REDUCTION	CAPACITY	FLOW RATE/PD (GPM/PSID)	FLOW RATE/PD (GPM/PSID)	FLOW RATE/PD (GPM/PSID)	VESSEL SIZE (EACH TANK) (DIA x H)	PRESSURE RATING (PSI)	REGENERATION TIME (MINUTES)		CAPACITY (GAL)	DIMENSIONS (DIA x H)	CAPACITY (GAL)	DIMENSIONS (DIA x H)	ELECTRICAL	BASIS OF DESIGN
100-DEA-1	BOILER MAKE-UP (NP)	TWIN ALTERNATING	72	90%	350,000	-	87.5/15	175/25	48" x 72"	100	75	-	500	30" x 30"	55	-	120 / 1 / 60	MARLO MGTD-350-3

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NOTE: TRIPLEX SEQUENTIAL: ONE TANK OPERATIONAL, ONE TANK REGENERATION, ONE TANK STAND-BY.

		S	ΓΕΑΝ	/I TR	AP	SCH	EDL	JLE					
DESG		TYPE	TRAP		SURE SIG)	DIFF P (PS			FLOW RAT (LB/HR)	E	STEAN (°		
DESG	GENERAL LOCATION	TYPE	SIZE	OPER	MAX	OPER	MAX	OPER FLOW	SAFETY FACTOR	DESIGN FLOW	OPER	MAX	BASIS OF DESIGN
T-07	100S TO MPS PRV	INVERTED BUCKET	¹ /2"	100	140	80	112	17	3	51	338	361	-
T-08	60S FROM MPS PRV	INVERTED BUCKET	1/2"	60	80	48	64	17	3	51	293	312	-
T-09	60S FROM MPS PRV	INVERTED BUCKET	¹ / ₂ "	60	80	48	64	17	3	51	293	312	-
T-21	MOBILE BOILER HPS	INVERTED BUCKET	1/2"	100	140	80	112	17	3	51	338	361	-

	STEAM PF	RESSUR		NG VA	LVE S	SCHEDULE
DESIG	LOCATION	REQUIRED	MAXIMUM FLOW		SURE SIG)	REMARKS
	LOOAHON	(PPH)	(PPH)	IN	OUT	
PRV-1B	MPS REDUCING STATION	1,350	1,350	100	62	SEE GENERAL NOTES
PRV-1A	MPS REDUCING STATION	2,700	2,700	100	60	SEE GENERAL NOTES

	AI	R DEVICE S	CHEDULE (DEDUCT AL	TERNATE #3)
No.	DUTY	CFM	DUCT NECK SIZE	MAX DP (IN W.G.)	BASIS OF DESIGN MFR/MODEL NO.
M1	DRUM LOUVER	3000	70"x15"	0.04	TITUS/DL

ENGINEER-OF-RECORD FL. P.E. NO. JACK S NEALE FL. P.E. NO. 42678 ARCHITECT/ENGINEERS:		
AKEA Design, Inc.	ENGINEER-OF-RECORD FL. P.E. NO. JACK S NEALE 42678	ARCHITECT/ENGINEERS:
3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16		Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578

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GENERAL NOTES: 1. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RESIDENT ENGINEER FOR RESOLUTION. FAILURE OF THE CONTRACTOR TO RESOLVE, OR POINT OUT ANY ISSUES WILL RESULT IN THE CONTRACTOR CORRECTING AT NO ADDITIONAL COST TO THE GOVERNMENT.

			WA	ATER SO	OFTENER	SCHED	ULE (D	EDUCT	ALTERNA	TE #4)				
	WATER	WATER	GRAIN	DESIGN	CONTINUOUS	PEAK		VESSEL	MAXIMUM	MAXIMUM	BRINE TAN	IK		
	HARDNESS INLET (PPM)	HARDNESS OUTLET (PPM)		FLOW	FLOW RATE/PD (GPM/PSID)	FLOW RATE/PD (GPM/PSID)	VESSEL SIZE (EACH TANK) (DIA x H)	PRESSURE RATING (PSI)	REGENERATION TIME (MINUTES)	BACKWASH	CAPACITY (GAL)	DIMENSIONS (DIA x H)	ELECTRICAL	BASIS OF DESIGN
٧G	250	0	1,500,000	130/6.5	235/15	325/25	63" x 86"	100	75	110	500	64" x 74"	120 / 1 / 60	MARLO MRG-1500-3

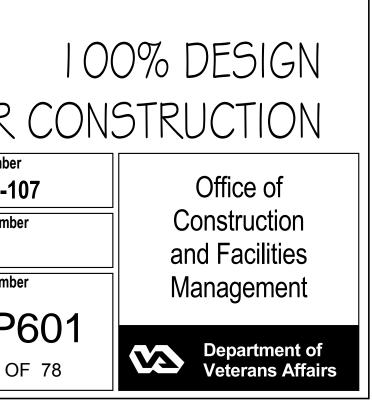
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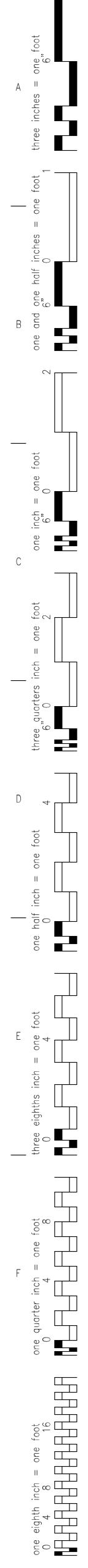
	BLC)WDO	WN S	EPAR	ATOR	SCHEDULE
DESIG	TANK HEIGHT (INCHES)	INLET (INCHES)	VENT (INCHES)	DRAIN (INCHES)	COOLING WATER TEMP (°F)	BASIS OF DESIGN
100-BDS-1	34	2	5	5	70	PENN SEPARATOR , A34
NOTE: PRO	OVIDE FLAN	IGED VENT	AND DRAI		FIONS	

		PRESSURE	SAFETY V	ALVE	SCHEI	DULE	
VA NOMENCLATURE	DESIG	LOCATION	SERVICE	TEMP (°F)	MINIMUM CAPACITY	SET PRESSURE (PSIG)	REMARKS
SVB1	PSV-6104	BOILER No 1	STEAM	356	_ PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6105	BOILER No 1	STEAM	358	_ PPH	135	STAINLESS STEEL TRIM
SVB1	PSV-6204	BOILER No 2	STEAM	356	_ PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6205	BOILER No 2	STEAM	358	_ PPH	135	STAINLESS STEEL TRIM
SVB1	PSV-6304	BOILER No 3	STEAM	356	_ PPH	130	STAINLESS STEEL TRIM
SVB2	PSV-6305	BOILER No 3	STEAM	358	_ PPH	135	STAINLESS STEEL TRIM
-	PSV-6612	REDUCING STATION	STEAM	303	4,050 PPH	70	STAINLESS STEEL TRIM
-	PSV-8102	BOILER No 1	ATOMIZING AIR	-	_ SCFM	-	STAINLESS STEEL TRIM
-	PSV-8202	BOILER No 2	ATOMIZING AIR	-	_ SCFM	-	STAINLESS STEEL TRIM
-	PSV-8302	BOILER No 3	ATOMIZING AIR	-	_ SCFM	-	STAINLESS STEEL TRIM

NOTE: SVB1 AND SVB2 PROVIDED BY BOILER MANUFACTURER.

					APP	ROVE	D FOR
S:		Drawing Title MECHANIC	CAL SCHEDULES	Project Title DESIGN TO RE BLDG 100 ENE		•	Project Number 516-15-10 Building Number 100
		Approved: Project D	irector	Location BAY PINES, F	LORIDA		Drawing Number
				Date MAY 15, 2017	Checked JSN	Drawn RWD	49 OF
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	MISCELLANEOUS SYSTEM		• • •											
			Annunciation					Line						/A
Notes	Remarks	Annunciation Type	Locations	Signal To/From	Signal	Point Type	Range / Setpoint	Size	Mounting / Location	Function	System	Device Type	Device Label	nclature
	Contractor Furnished / Contractor Installed	Status - Flow	BAS	PMCP	4 - 20 mA DC	AI	26 - 260 GPM	4"	Supply to System	Flow	Domestic Water	Flow Element, Turbine	FE - 1 5 0 2	-
	Contractor Furnished / Contractor Installed	Low Pressure Alarm	BAS	PMCP	120 V	DI	Field Set	4"	Softener Skid Discharge	Low Pressure	Soft Water	Pressure Switch	PSL - 1 5 0 3	•
	Contractor Furnished / Contractor Installed	Status - Pressure	BAS	PMCP	4 - 20 mA DC	AI	0 - 100 PSIG	4"	Supply to Softener Skid	Pressure	Non-Potable Water	Pressure Transmitter	PT - 1 5 0 4	-
	Contractor Furnished / Contractor Installed	Status - Pressure	BAS	PMCP	4 - 20 mA DC	AI	0 - 100 PSIG	4"	Softener Skid Discharge	Pressure	Soft Water	Pressure Transmitter	PT - 1 5 0 5	-
	Contractor Furnished / Contractor Installed	Status - Pressure	BAS	PMCP	4 - 20 mA DC	AI	0 - 100 PSIG	3"	Supply to Condensate Surge Tank	Pressure	Soft Water	Pressure Transmitter	PT - 1 5 0 6	-
	Contractor Furnished / Contractor Installed			РМСР	120 V	DI	Open / Closed	1"	Building Supply Main	Flow, Emergency Shut-Off	Liquefied Petroleum Gas	Safety Valve	FSV - 4 7 0 1	-
	Contractor Furnished / Contractor Installed						10 PSIG / 350 SCFH		Building Supply Main	Pressure	Liquefied Petroleum Gas	Regulating Valve	PRV - 4 7 0 3	-
	Contractor Furnished / Contractor Installed	High Pressure Alarm	BAS	PMCP	120 V	DI	Field Set	1"	Building Supply Main	High Pressure	Liquefied Petroleum Gas	Pressure Switch	PSH - 4 7 0 4	-
	Contractor Furnished / Contractor Installed	Low Pressure Alarm	BAS	PMCP	120 V	DI	Field Set	1"	Building Supply Main	Low Pressure	Liquefied Petroleum Gas	Pressure Switch	PSL - 4 7 0 5	-
	Manufacturer Furnished / Contractor Installed	Position Verification - Fully Closed	BAS	PMCP	120 V	DI	Closed		FSV-4701	Position Verification	Liquefied Petroleum Gas	Position Switch	ZSC - 4 7 0 1	-
	Manufacturer Furnished / Contractor Installed	Position Verification - Fully Open	BAS	РМСР	120 V	DI	Open		FSV-4701	Position Verification	Liquefied Petroleum Gas	Position Switch	ZSO - 4 7 0 1	-
	Gas Supply Company Furnished / Contractor Installed						2,400 - 76,000 SCFH	6"	Building Supply Main	Flow, Totalizing	Natural Gas	Flow Element, Per Gas Supplier	FE - 4 8 0 1	
	Contractor Furnished / Contractor Installed			PMCP	120 V	DI	Open / Closed	6"	Building Supply Main	Flow, Emergency Shut-Off	Natural Gas	Safety Valve	FSV - 4 8 0 2	-
	Contractor Furnished / Contractor Installed	High Pressure Alarm	BAS	PMCP	120 V	DI	Field Set	6"	Building Supply Main	High Pressure Alarm	Natural Gas	Pressure Switch	PSH - 4 8 0 5	-
	Contractor Furnished / Contractor Installed	Low Pressure Alarm	BAS	PMCP	120 V	DI	Field Set	6"	Building Supply Main	Low Pressure Alarm	Natural Gas	Pressure Switch	PSL - 4 8 0 6	-
	Contractor Furnished / Contractor Installed	Status - Pressure	BAS	PMCP	4 - 20 mA DC	AI	0 - 30 PSIG	6"	Building Supply Main	Pressure	Natural Gas	Pressure Transmitter	PT - 4 8 0 7	-
	Manufacturer Furnished / Contractor Installed	Position Verification - Fully Closed	BAS	PMCP	120 V	DI	Closed		FSV-4802	Position Verification	Natural Gas	Position Switch	ZSC - 4 8 0 2	-
	Manufacturer Furnished / Contractor Installed	Position Verification - Fully Open	BAS	РМСР	120 V	DI	Open		FSV-4802	Position Verification	Natural Gas	Position Switch	ZSO - 4 8 0 2	-
	Contractor Furnished / Contractor Installed	Low Pressure Alarm	BAS	CHP-1	120 V	DI	Field Set	10"	Steam Header	Low Pressure	Steam	Pressure Switch	PSL - 6 6 1 1	
Consolidated 1900 Series	Contractor Furnished / Contractor Installed						70 PSIG, 8,210 PPH	6"	100 - 60 PSIG, Pressure Reducing Station	Pressure	Steam	Safety Valve, "P" 4"x6" Class 150	PSV - 6 6 1 2	PRV
	Contractor Furnished / Contractor Installed	Status - Pressure	BAS	CHP-1	4 - 20 mA DC	AI	0 - 250 PSIG	10"	Steam Header	Pressure	Steam	Pressure Transmitter	PT - 6 6 1 4	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	Al	0 - 100 % LEL / 10% LEL		Upper Level Mezzanine	Combustible Gas Level	Indoor Air Quality	Combustible Gas Sensor	QE - 9 9 0 1	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	AI	0 - 100 % LEL / 10% LEL		Upper Level Mezzanine	Combustible Gas Level	Indoor Air Quality	Combustible Gas Sensor	QE - 9 9 0 2	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	AI	0 - 100 % PPM / 25-50 PPM		Breathing Level, Front of Boiler	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 3	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	AI	0 - 100 % PPM / 25-50 PPM		Breathing Level, Front of Boiler	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 4	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	Al	0 - 100 % PPM / 25-50 PPM		Breathing Level, Front of Boiler	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 5	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	AI	0 - 100 % PPM / 25-50 PPM		Breathing Level, Front of Boiler	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 6	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	9 - 20 mA DC	Al	0 - 100 % PPM / 25-50 PPM		Breathing Level, Control Rm 106	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 7	-
Alarm / Refer to Plans	Contractor Furnished / Contractor Installed	Status - Level	BAS	CHP-1	4 - 20 mA DC	AI	0 - 100 % PPM / 25-50 PPM		Breathing Level, Shop Area Rm 101	Carbon Monoxide Level	Indoor Air Quality	Carbon Monoxide Sensor	QE - 9 9 0 8	-
Provide w/ TE - 9 9 0 9	Contractor Furnished / Contractor Installed	Status - Temperature	BAS	CHP-1	4 - 20 mA DC	Al	-20 - 120 F		Exterior Wall	Temperature	Outside Air	Temperature Transmitter	TT - 9 9 0 9	

ABBREVIATIONS:

BAS - Building Automation System BBC - Boiler Blowdown Controller

BMS - Burner Management System - (Flame Safeguard Control) CCS - Combustion Control System

CGP - Combustible Gas Detection Panel CHP-1 - CHP-1 Field Panel Miscellaneous Process Points CST-PLC - Condensate Surge Tank PLC

PMCP - Plant Master Control Panel WSF-PLC - Water Softener PLC

											CONDENSATE SURGE TA	NK - DEVICE	JUNEDULE
				Line					Annunciation				
Device Type	System	Function	Mounting / Location	Size	Range / Setpoint	Point Type	Signal	Signal To/From	Location	Annunciation Type	Remarks	Notes	
Flow Element	Non-Potable Water	Flow, Totalizing	Supply to Condensate Surge Tank CST-1	3"	0 - 130 GPM	AI	4 - 20 mA DC	CST-PLC	BAS	Status - Flow	Contractor Furnished / Contractor Installed	Provide w/	FT - 1 7 0 1
Flow Element	Soft Water	Flow, Totalizing	Supply to Condensate Surge Tank CST-1	3"	0 - 130 GPM	AI	4 - 20 mA DC	CST-PLC	BAS	Status - Flow	Contractor Furnished / Contractor Installed	Provide w/	FT - 1 7 0 2
Control Valve	Non-Potable Water	Level	Supply to Condensate Surge Tank CST-1	3"	0 - 130 GPM		ZT-1703				Contractor Furnished / Contractor Installed		
Control Valve	Soft Water	Level	Supply to Condensate Surge Tank CST-1	3"	0 - 130 GPM		ZT-1704				Contractor Furnished / Contractor Installed		
Position Transmitter	Non-Potable Water	Position Feedback	LCV-1703		0 - 100 %	AI	4 - 20 mA DC	CST-PLC / LC-6707	BAS	Position Indication %	Contractor Furnished / Contractor Installed	Fail Open	
Position Transmitter	Soft Water	Position Feedback	LCV-1704		0 - 100 %	Al	4 - 20 mA DC	CST-PLC / LC-6707	BAS	Position Indication %	Contractor Furnished / Contractor Installed	Fail Open	
Pressure Switch	Steam Condensate	Differential Pressure	Condensate Transfer Pump CTP-1		Field Set	DI	120 V	CST-PLC	BAS	Pump Status - Low Pressure Alarm	Contractor Furnished / Contractor Installed		
Pressure Switch	Steam Condensate	Differential Pressure	Condensate Transfer Pump CTP-2		Field Set	DI	120 V	CST-PLC	BAS	Pump Status - Low Pressure Alarm	Contractor Furnished / Contractor Installed		
Pressure Transmitter	Condensate Surge Tank	Level	Condensate Surge Tank CST-1		Field Set	AI	4 - 20 mA DC	CST-PLC	BAS	Status - Level	Manufacturer Furnished / Contractor Installed		
Flow Element	Condensate Surge Tank	Flow, Totalizing	Pumped Return from Campus	4"	110 GPM	AI	4 - 20 mA DC	CST-PLC	BAS	Status - Flow	Contractor Furnished / Contractor Installed	Provide w/	FT - 6 7 0 5
Level Controller	Condensate Surge Tank	Level	Condensate Surge Tank CST-1		Field Set	AI/AO	4 - 20 mA DC	CST-PLC / ZT-170x			Manufacturer Furnished / Contractor Installed		
Level Switch	Condensate Surge Tank	High Level Alarm	Condensate Surge Tank CST-1		Field Set 1	DI	120 V	CST-PLC	BAS	High Level Alarm	Manufacturer Furnished / Contractor Installed		
Level Switch	Condensate Surge Tank	Low Level Alarm	Condensate Surge Tank CST-1		Field Set (2)	DI	120 V	CST-PLC	BAS	Low Level Alarm	Manufacturer Furnished / Contractor Installed		
Level Switch	Condensate Surge Tank	Low-Low Level Alarm, Shutdown	Condensate Surge Tank CST-1		Field Set	DI	120 V	CST-PLC	BAS	Low-Low Level Alarm, Pump Shutdown	Manufacturer Furnished / Contractor Installed		
Pressure Switch	Condensate Surge Tank	Low Pressure	Condensate Transfer Pump CTP-1		Field Set	DI	120 V	CST-PLC	BAS	Low Pressure	Contractor Furnished / Contractor Installed		
Pressure Switch	Condensate Surge Tank	Low Pressure	Condensate Transfer Pump CTP-2		Field Set	DI	120 V	CST-PLC	BAS	Low Pressure	Contractor Furnished / Contractor Installed		
Temperature Transmitter	Steam Condensate	Temperature	Condensate Surge Tank CST-1		32 - 212 F	AI	4 - 20 mA DC	CST-PLC	BAS	Status - Temperature	Manufacturer Furnished / Contractor Installed	Provide w/	TE - 6 7 1 4
	Flow Element Flow Element Control Valve Control Valve Position Transmitter Position Transmitter Pressure Switch Pressure Switch Pressure Transmitter Flow Element Level Controller Level Switch Level Switch Level Switch Pressure Switch	Flow ElementNon-Potable WaterFlow ElementSoft WaterControl ValveNon-Potable WaterControl ValveSoft WaterPosition TransmitterNon-Potable WaterPosition TransmitterSoft WaterPosition TransmitterSoft WaterPressure SwitchSteam CondensatePressure SwitchSteam CondensatePressure TransmitterCondensate Surge TankFlow ElementCondensate Surge TankLevel ControllerCondensate Surge TankLevel SwitchCondensate Surge TankPressure SwitchCondensate Surge TankLevel SwitchCondensate Surge TankPressure SwitchCondensate Surge Tank	Flow ElementNon-Potable WaterFlow, TotalizingImage: Solution of the second s	Flow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-1Flow ElementSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-1Control ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-1Control ValveSoft WaterLevelSupply to Condensate Surge Tank CST-1Position TransmitterNon-Potable WaterPosition FeedbackLCV-1703Position TransmitterSoft WaterPosition FeedbackLCV-1703Position TransmitterSteam CondensateDifferential PressureCondensate Transfer Pump CTP-1Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-1Pressure SwitchSteam CondensateDifferential PressureCondensate Surge TankFlow ElementCondensate Surge TankLevelCondensate Surge TankFlow ElementCondensate Surge TankLevelCondensate Surge TankLevel ControllerCondensate Surge TankLevelCondensate Surge Tank CST-1Level SwitchCondensate Surge TankLevel AlarmCondensate Surge Tank CST-1Level SwitchCondensate Surge TankLow Level Alarm, ShutdownCondensate Surge Tank CST-1Pressure SwitchCondensate Surge Tank </td <td>Device TypeSystemFunctionMounting / LocationSizeFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°1Gent Control ValveSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°1Control ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-13°1Control ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13°1Position TransmitterNon-Potable WaterPosition FeedbackCOntrol Valve3°1Position TransmitterSoft WaterPosition FeedbackCOndensate Transfer Pump CTP-11°1Pressure SwitchSteam CondensateDifferential PressureCondensate Transfer Pump CTP-21°1Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-11°1Condensate Surge TankCondensate Surge TankFlow, TotalizingCondensate Surge Tank CST-11°1Pressure SwitchCondensate Surge TankFlow, TotalizingCondensate Surge Tank CST-11°1Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-1<td>Device TypeSystemFunctionMounting / LocationSizeRange / SetpointFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMGonton ValveSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMConton ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMOction ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMPosition TransmitterNon-Potable WaterPosition FeedbackLCV-17033*0-100 %Position TransmitterSteam CondensateOffferential PressureCondensate Transfer Pump CTP-2**0-100 %Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-1**Fleid SetPressure SwitchSteam CondensateDifferential PressureCondensate Transfer Pump CTP-2**Fleid SetPressure SwitchSteam Condensate Surge TankCondensate Surge Tank CST-1**Fleid SetCondensate Surge TankCondensate Surge Tan</td><td>Decice TypeSystemFunctionMounting / LocationSizeRange / SeptionPoint TypeFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlControl ValveNon-Potable WaterElevelSupply to Condensate Surge Tank CST-13°0 - 130 GPM-Control ValveSoft WaterPosition FeedbackSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlPosition TransmitterNon-Potable WaterPosition FeedbackCL/V-1703-0 - 010 %AlPosition TransmitterStean CondensateDifferential PressureCondensate Transfer Pump CTP-1Fleid SetOlPressure SwitchStean CondensateDifferential PressureCondensate Transfer Pump CTP-2Fleid SetOlPressure TransmitterCondensate Surge Tank CST-1LowLow-Fleid SetOlAl/ADAl/ADPressure TransmitterCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate</td><td>Device TypeSystemSystemFunctionMounting / LocationSizeRange / SeptionPoint TypeSignalFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCControl ValveNon-Potable WaterElevelSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackCLV-17030 - 0100%AI4 - 20 nA DCPosition TransmitterSteam CondensatePosition FeedbackCLV-17030 - 100 %AI4 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkCLO1 - 20 NA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkGondensate Surge Tark</td><td>Device TypeSystemFunctionMunding / LocationSizeRange / SepticityPoint TypeSignalSignal To FromFlow ElementNon-Ababe WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-13*0-130 CPMAL4-20 mA DCCST-PLCControl ValveSoft WaterPosition FeedbackCST-PLCSoft Water<td< td=""><td>Device Type System System System System for Location Location Flow Element Non-Potable Mater Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Flow Element Soft Water Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Control Valve Non-Potable Mater Gott Level Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA </td><td>Device TypeSystemSystemFunctionSystemSystemSystemSystemSystemLocationLocationAnnuclation TypeRober DeviceNon-Detable WaterRober, TotalizingSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSastatus FlowObstatus Flow Supply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRAS</td><td>Deck System Function Line Line Resp: Septimine Signal Signal Signal Constrainting Annuclation Signal Constrainting Flow Element Soft Water Flow, Totalizing Supply to Condensate Supp Tank CS11 3' 0 - 130 GPM Al 4.20 nA DC GS1P-LC BAS Status - Flow Controlocity Funitibiel Controlocity Funitibiel</td><td>DebtoryFunctionFunctionStateReligneetPointySignationSignationCalculationAnomationMemory<th< td=""></th<></td></td<></td></td>	Device TypeSystemFunctionMounting / LocationSizeFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°1Gent Control ValveSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°1Control ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-13°1Control ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13°1Position TransmitterNon-Potable WaterPosition FeedbackCOntrol Valve3°1Position TransmitterSoft WaterPosition FeedbackCOndensate Transfer Pump CTP-11°1Pressure SwitchSteam CondensateDifferential PressureCondensate Transfer Pump CTP-21°1Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-11°1Condensate Surge TankCondensate Surge TankFlow, TotalizingCondensate Surge Tank CST-11°1Pressure SwitchCondensate Surge TankFlow, TotalizingCondensate Surge Tank CST-11°1Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-11°11Condensate Surge TankCondensate Surge TankCondensate Surge Tank CST-1 <td>Device TypeSystemFunctionMounting / LocationSizeRange / SetpointFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMGonton ValveSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMConton ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMOction ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMPosition TransmitterNon-Potable WaterPosition FeedbackLCV-17033*0-100 %Position TransmitterSteam CondensateOffferential PressureCondensate Transfer Pump CTP-2**0-100 %Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-1**Fleid SetPressure SwitchSteam CondensateDifferential PressureCondensate Transfer Pump CTP-2**Fleid SetPressure SwitchSteam Condensate Surge TankCondensate Surge Tank CST-1**Fleid SetCondensate Surge TankCondensate Surge Tan</td> <td>Decice TypeSystemFunctionMounting / LocationSizeRange / SeptionPoint TypeFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlControl ValveNon-Potable WaterElevelSupply to Condensate Surge Tank CST-13°0 - 130 GPM-Control ValveSoft WaterPosition FeedbackSupply to Condensate Surge Tank CST-13°0 - 130 GPMAlPosition TransmitterNon-Potable WaterPosition FeedbackCL/V-1703-0 - 010 %AlPosition TransmitterStean CondensateDifferential PressureCondensate Transfer Pump CTP-1Fleid SetOlPressure SwitchStean CondensateDifferential PressureCondensate Transfer Pump CTP-2Fleid SetOlPressure TransmitterCondensate Surge Tank CST-1LowLow-Fleid SetOlAl/ADAl/ADPressure TransmitterCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate Surge Tank CST-1Fleid SetOlAl/ADPressure SwitchCondensate Surge TankCondensate</td> <td>Device TypeSystemSystemFunctionMounting / LocationSizeRange / SeptionPoint TypeSignalFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCControl ValveNon-Potable WaterElevelSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackCLV-17030 - 0100%AI4 - 20 nA DCPosition TransmitterSteam CondensatePosition FeedbackCLV-17030 - 100 %AI4 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkCLO1 - 20 NA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkGondensate Surge Tark</td> <td>Device TypeSystemFunctionMunding / LocationSizeRange / SepticityPoint TypeSignalSignal To FromFlow ElementNon-Ababe WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-13*0-130 CPMAL4-20 mA DCCST-PLCControl ValveSoft WaterPosition FeedbackCST-PLCSoft Water<td< td=""><td>Device Type System System System System for Location Location Flow Element Non-Potable Mater Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Flow Element Soft Water Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Control Valve Non-Potable Mater Gott Level Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA </td><td>Device TypeSystemSystemFunctionSystemSystemSystemSystemSystemLocationLocationAnnuclation TypeRober DeviceNon-Detable WaterRober, TotalizingSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSastatus FlowObstatus Flow Supply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRAS</td><td>Deck System Function Line Line Resp: Septimine Signal Signal Signal Constrainting Annuclation Signal Constrainting Flow Element Soft Water Flow, Totalizing Supply to Condensate Supp Tank CS11 3' 0 - 130 GPM Al 4.20 nA DC GS1P-LC BAS Status - Flow Controlocity Funitibiel Controlocity Funitibiel</td><td>DebtoryFunctionFunctionStateReligneetPointySignationSignationCalculationAnomationMemory<th< td=""></th<></td></td<></td>	Device TypeSystemFunctionMounting / LocationSizeRange / SetpointFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMGonton ValveSoft WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 GPMConton ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMOction ValveSoft WaterLevelSupply to Condensate Surge Tank CST-13*0-130 GPMPosition TransmitterNon-Potable WaterPosition FeedbackLCV-17033*0-100 %Position TransmitterSteam CondensateOffferential PressureCondensate Transfer Pump CTP-2**0-100 %Pressure SwitchSteam CondensateDifferential PressureCondensate Surge Tank CST-1**Fleid SetPressure SwitchSteam CondensateDifferential PressureCondensate Transfer Pump CTP-2**Fleid SetPressure SwitchSteam Condensate Surge TankCondensate Surge Tank CST-1**Fleid SetCondensate Surge TankCondensate Surge Tan	Decice TypeSystemFunctionMounting / LocationSizeRange / SeptionPoint TypeFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13°0 - 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130 GPMAI4 - 20 nA DCFlow ElementNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCControl ValveNon-Potable WaterElevelSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackSupply to Condensate Surge Tark CST-13"0 - 130 GPMAI4 - 20 nA DCPosition TransmitterNon-Potable WaterPosition FeedbackCLV-17030 - 0100%AI4 - 20 nA DCPosition TransmitterSteam CondensatePosition FeedbackCLV-17030 - 100 %AI4 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchSteam Condensate Surge TarkGondensate Surge TarkCLO1 - 20 nA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkCLO1 - 20 NA DCPressure SwitchCondensate Surge TarkGondensate Surge TarkGondensate Surge Tark	Device TypeSystemFunctionMunding / LocationSizeRange / SepticityPoint TypeSignalSignal To FromFlow ElementNon-Ababe WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterFlow, TotalizingSupply to Condensate Surge Tank CST-13*0-130 CPMAl4-20 mA DCCST-PLCControl ValveNon-Potable WaterLevelSupply to Condensate Surge Tank CST-13*0-130 CPMAL4-20 mA DCCST-PLCControl ValveSoft WaterPosition FeedbackCST-PLCSoft Water <td< td=""><td>Device Type System System System System for Location Location Flow Element Non-Potable Mater Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Flow Element Soft Water Flow, Totalizing Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA Control Valve Non-Potable Mater Gott Level Supply to Condenate Surge Tank GST 5" 0-130 GPM Al 4.20 mAC CST-PLC BASA </td><td>Device TypeSystemSystemFunctionSystemSystemSystemSystemSystemLocationLocationAnnuclation TypeRober DeviceNon-Detable WaterRober, TotalizingSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSAStatus FlowControl ValveNon-Detable WaterGubersSupply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRASSastatus FlowObstatus Flow Supply to Condensate Surge Tank CST 13"0.130 GPMAl4.200 ADCCST-RLCRAS</td><td>Deck System Function Line Line Resp: Septimine Signal Signal Signal Constrainting Annuclation Signal Constrainting Flow Element Soft Water Flow, Totalizing Supply to Condensate Supp Tank CS11 3' 0 - 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130 GPM Al 4.20 nA DC GS1P-LC BAS Status - Flow Controlocity Funitibiel Controlocity Funitibiel	DebtoryFunctionFunctionStateReligneetPointySignationSignationCalculationAnomationMemory <th< td=""></th<>

NOTES: (1) Set below 2/3 of tank height and at least 4" below overflow.

2 Set above 1/3 of tank height.

3 Setpoint at least 4" below top of tank.

					Line					Annunciation				
Device Label	Device Type	System	Function	Mounting / Location	Size	Range / Setpoint	Point Type	Signal	Signal To/From	Location	Annunciation Type	Remarks	Notes	
TCV - 1 6 0 1 TT - 3 6 0 5	Control Valve	Soft Water	Temperature	Supply to Blowdown Separator BDS-1	2"	Open / Closed	DI	120 V	CHP-1 / TT-3605			Manufacturer Furnished / Contractor Installed	Fail Open	
TT - 3 6 0 5	Temperature Transmitter	Blowdown	Temperature	Drain from Blowdown Separator BDS-1	5"	32 - 212 F	AI	4 - 20 mA DC	CHP-1	BAS	Status - Temperature	Manufacturer Furnished / Contractor Installed	Provide w/	TE - 3 6 0 5
BREVIATIONS:								1		I				
BBC - Boiler Blowdown Control	oller	CGP - Combustible Gas Detection Panel	LCP - Local Control Panel											

BMS - Burner Management System - (Flame Safeguard Contro CCS - Combustion Control System CCS-PLC - Condensate Surge Tank PLC

	CGP	-	Combustible Gas Detection Panel	LCP	-	Local Control Panel
rol)	CHP-1	•	CHP-1 Field Panel Miscellaneous Process Points	PMCP	-	Plant Master Control Pa
	FO-PLC	•	Fuel Oil System PLC	WSF-PLC	-	Water Softener PLC

Revisions: VA FORM 08-6231	Date	Affiliated Engineers SE, Inc. Tioga Town Center 12921 SW 1st Road Ste 205 Gainesville, Florida 32669 Tel 352.376.5500 Fax 352.375.3479 CA-5140		3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	
		Tioga Town Center 12921 SW 1st Road Ste 205		3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124	
		Affiliated Engineers SE, Inc.		AKEA Design, Inc.	
		CONSULTANTS:	ENGINEER-OF-RECORD FL. P.E. NO. JACK S NEALE 42678	ARCHITECT/ENGINEERS:	

3 4 5				
	3	4	5	

LCP - Local Control Panel

Panel Control Panel

4 5 3

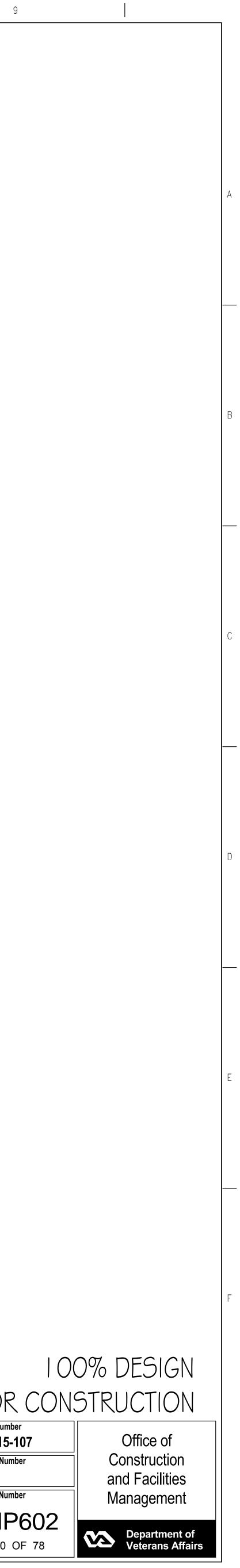
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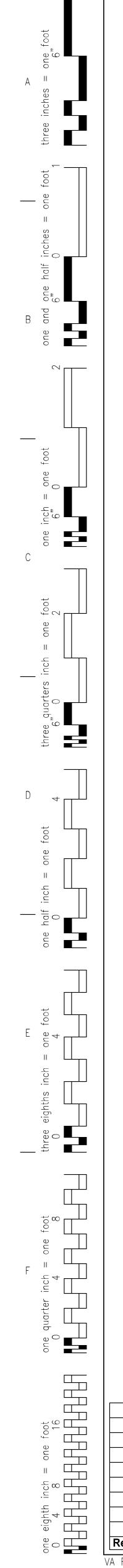
8

CONDENSATE SURGE TANK - DEVICE SCHEDUI E

BLOWDOWN SYSTEMS - DEVICE SCHEDULE

MECHANICAL SCHEDULES) REPLACE BOI ENERGY CENTI	•	Project Nur 516-1 Building Nu 100
Approved: Project Director	Location BAY PINE	S, FLORIDA		Drawing Nu
	Date	Checked	Drawn	╡ MF
	MAY 15, 2017	JSN	RWD	50





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 | | BOILE | R - DEVICE SCHEDULE |

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--|--|---|--|--|
| VA Boiler No 1 Boiler No 2 Boiler No 3
 | 5 · 7
 | | - " | N <i>C U C</i>
 | Line |
 | |
 | Annunciation | | |
| menclature Device Label Device Label Device Label - BSB - 3 1 0 1 BSB - 3 2 0 1 BSB - 3 3 0 1
 | Device Type Shunt Switch
 | System
Boiler Feedwater | Function
Manual Re-Set | Mounting / Location Float Type Water Column
 | Size | Range / Setpoint Poir Open / Closed
 | t Type Signal DI 120 V | Signal To/From BMS / CCS
 | Location Annunciation Type BMS Status | Remarks Manufacturer Furnished / Contractor Installed | Notes |
| - BSB - 3 1 0 2 BSB - 3 2 0 2 BSB - 3 3 0 2
 | Shunt Switch
 | Boiler Feedwater | Manual Re-Set (Auxiliary) | Conductivity Probe Type Water Column
 | | •
 | DI 120 V | BMS / CCS
 | BMS Status | Manufacturer Furnished / Contractor Installed | |
| - BSC - 3 1 0 3 BSC - 3 2 0 3 BSC - 3 3 0 3 - BSC - 3 1 0 4 BSC - 3 2 0 4 BSC - 3 3 0 4
 | Shunt Switch
Shunt Switch
 | Boiler Feedwater
Boiler Feedwater | Safety By-Pass
Safety By-Pass (Auxiliary) | Float Type Water Column
Conductivity Probe Type Water Column
 | | ••••••
 | DI 120 V
DI 120 V | BMS / CCS
BMS / CCS
 | BMS Blowdown Override BMS Blowdown Override | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Manual Reset
Manual Reset |
| - DPT - 3 1 0 5 DPT - 3 2 0 5 DPT - 3 3 0 5
 | Pressure Transmitter
 | Boiler Feedwater | Level | Float Type Water Column
 | | Field Set
 | Al 4 - 20 mA DC | CCS
 | CCS Status - Drum Water Level | Manufacturer Furnished / Contractor Installed | |
| - FE - 3 1 0 6 FE - 3 3 0 6 - LCV - 3 1 0 7 LCV - 3 2 0 7 LCV - 3 3 0 7
 | Flow Element, V-Cone
Control Valve
 | Boiler Feedwater Boiler Feedwater | Flow | Supply to Boiler
Supply to Boiler
 | 2" | 2,300 - 23,000 PPH
0 - 23,000 PPH
 | Al 4 - 20 mA DC
ZT-3x07 | BMS
 | BMS Status - Flow | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Provide w/ FT - 3 x 0 6 |
| HWAB LSH - 3 1 0 8 LSH - 3 2 0 8 LSH - 3 3 0 8
 | Level Switch
 | Boiler Feedwater | High Level | Conductivity Probe Type Water Column
 | |
 | DI 120 V | BMS / CCS
 | BMS High Level Bell | Manufacturer Furnished / Contractor Installed | |
| LWA LSL - 3 1 0 9 LSL - 3 2 0 9 LSL - 3 3 0 9 LWCO LSLL - 3 1 0 3 LSLL - 3 2 0 3 LSLL - 3 3 0 3
 | Level Switch
Level Switch
 | Boiler Feedwater Boiler Feedwater | Low Level Low-Low Level | Conductivity Probe Type Water Column
Float Type Water Column
 | |
 | DI 120 V
DI 120 V | BMS / CCS
BMS / CCS
 | BMS Low Level Bell BMS Low-Low Level Cut-Off Alarm | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
| ALWCO LSLL - 3 1 0 4 LSLL - 3 2 0 4 LSLL - 3 3 0 4
- ZT - 3 1 0 7 ZT - 3 2 0 7 ZT - 3 3 0 7
 | Level Switch
Position Transmitter
 | Boiler Feedwater
Boiler Feedwater | Low-Low Level (Auxiliary)
Position Feedback | Conductivity Probe Type Water Column
LCV-3x07
 | | 1" Below LWCO
0 - 100 %
 | DI 120 V
AI 4 - 20 mA DC | BMS / CCS
CCS
 | BMS Low-Low Level Cut-Off Alarm (Auxiliary)
CCS Position Indication % | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Last Position |
| - CC - 3 1 0 1 CC - 3 2 0 1 CC - 3 3 0 1
 | Conductivity Controller
 | Blowdown | Conductivity | Supply from Boiler to CBHX-1
 | |
 | /AO 4 - 20 mA DC |
 | | Contractor Furnished / Contractor Installed | |
| - CE - 3 1 0 1 CE - 3 2 0 1 CE - 3 3 0 1
 | Conductivity Element
 | Blowdown | Conductivity | Supply from Boiler to CBHX-1
 | 1" |
 | Al 4 - 20 mA DC | BBC
 | | Contractor Furnished / Contractor Installed | |
| - FCV - 3 1 0 1 FCV - 3 2 0 1 FCV - 3 3 0 1
 | Control Valve, Ball Type
 | Blowdown | Flow | Supply from Boiler to CBHX-1
 | 1" |
 | DI 120 V | BBC
 | | Contractor Furnished / Contractor Installed | Fail Open |
| APFGSOV FSV - 4 1 0 1 FSV - 4 3 0 1 APFGSOV FSV - 4 1 0 2 FSV - 4 3 0 2
 | Safety Valve
Safety Valve
 | Gas Igniter
Gas Igniter | Flow | Supply to Burner Supply to Burner
 | 3/4"
3/4" | Open / Closed Open / Closed
 | DI 120 V
DI 120 V | BMS
BMS
 | | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Closed
Fail Closed |
| APFGSVV FSV - 4 1 0 3 FSV - 4 2 0 3 FSV - 4 3 0 3 - PRV - 4 1 0 4 PRV - 4 2 0 4 PRV - 4 3 0 4
 | Safety Valve
Regulating Valve
 | Gas Igniter
Gas Igniter | Flow Pressure | Vent
Supply to Burner
 | 3/4" |
 | DI 120 V | BMS
 | ··· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Open
Fail Closed |
| - PRV - 4 1 0 5 PRV - 4 2 0 5 PRV - 4 3 0 5
 | Regulating Valve
 | Liquefied Petroleum Gas | Pressure | Supply to Burner
 | 1/2" | 8 PSIG / 120 SCFH
 | |
 | | Manufacturer Furnished / Contractor Installed | Fail Closed |
| - PSH - 4 1 0 6 PSH - 4 2 0 6 PSH - 4 3 0 6 . </td <td>Pressure Switch Pressure Switch</td> <td>Gas Igniter
Gas Igniter - NG</td> <td>High Pressure</td> <td>Supply to Burner Supply to Burner</td> <td>3/4"</td> <td></td> <td>DI 120 V
DI 120 V</td> <td>BMS
BMS</td> <td>BMS High Pressure Alarm BMS Low Pressure Alarm</td> <td>Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed</td> <td></td>
 | Pressure Switch Pressure Switch
 | Gas Igniter
Gas Igniter - NG | High Pressure | Supply to Burner Supply to Burner
 | 3/4" |
 | DI 120 V
DI 120 V | BMS
BMS
 | BMS High Pressure Alarm BMS Low Pressure Alarm | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
| PFGPCS PSL - 4 1 0 8 PSL - 4 2 0 8 PSL - 4 3 0 8
 | Pressure Switch
 | Gas Igniter - LPG | Low Pressure | Supply to Burner
 | 1/2" | 80% of Regulated Pressure
 | DI 120 V | BMS
 | BMS Low Pressure Alarm | Manufacturer Furnished / Contractor Installed | |
| - ZSC - 4 1 ZSC - 4 2 0 1 ZSC - 4 3 0 1 - ZSC - 4 1 0 2 ZSC - 4 3 0 2
 | Position Switch Position Switch
 | Gas Igniter Gas Igniter | Position Verification Position Verification | FSV-4x01
FSV-4x02
 | |
 | DI 120 V
DI 120 V | BMS
BMS
 | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
| - ZSC - 4 1 0 3 ZSC - 4 2 0 3 ZSC - 4 3 0 3 - ZSO - 4 1 1 ZSO - 4 3 0 1
 | Position Switch Position Switch
 | Gas Igniter
Gas Igniter | Position Verification Position Verification | FSV-4x03
FSV-4x01
 | | Closed
Open
 | DI 120 V
DI 120 V | BMS
BMS
 | BMS Position Verification - Fully Closed
BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
| - ZSO - 4 1 0 2 ZSO - 4 2 0 2 ZSO - 4 3 0 2
 | Position Switch
 | Gas Igniter | Position Verification | FSV-4x02
 | | Open
 | DI 120 V | BMS
 | BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed | |
| - ZSO - 4 1 0 3 ZSO - 4 2 0 3 ZSO - 4 3 0 3
 | Position Switch
 | Gas Igniter | Position Verification | FSV-4x03
 | |
 | DI 120 V | BMS
 | BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed | |
| - FCV - 4 1 0 8 FCV - 4 2 0 8 FCV - 4 3 0 8 - FE - 4 1 0 9 FE - 4 2 0 9 FE - 4 3 0 9
 | Control Valve Flow Element, Thermal Mass
 | Natural Gas
Natural Gas | Flow
Flow, Totalizing | Supply to Burner Supply to Burner
 | 3"
4" | 0 - 25,000 SCFH
2,500 - 25,000 SCFH
 | ZT-4x08
Al 4 - 20 mA DC |
CCS
 |
CCS Status - Flow | Manufacturer Furnished / Contractor Installed
Contractor Furnished / Contractor Installed | Fail Closed Provide w/ FT - 4 x 0 9 |
| AFGSOV FSV - 4 1 1 0 FSV - 4 2 1 0 FSV - 4 3 1 0
 | Safety Valve
Safety Valve
 | Natural Gas | Flow | Supply to Burner
 | 3" | ••••••
 | DI 120 V
DI 120 V | BMS
 | | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Closed
Fail Closed |
| AFGSVV FSV - 4 1 1 2 FSV - 4 2 1 2 FSV - 4 3 1 2
 | Safety Valve
 | Natural Gas Natural Gas | Flow
Flow | Supply to Burner
Vent
 | | Open / Closed
 | DI 120 V
DI 120 V | BMS
 | | Manufacturer Furnished / Contractor Installed | Fail Open |
| - PRV - 4 1 1 3 PRV - 4 2 1 3 PRV - 4 3 1 3 HFGPCS PSH - 4 1 1 4 PSH - 4 2 1 4 PSH - 4 3 1 4
 | Regulating Valve Pressure Switch
 | Natural Gas
Natural Gas | Pressure
High Pressure | Supply to Burner
Supply to Burner
 | 3" |
 |
DI 120 V |
BMS
 |
BMS High Pressure Alarm | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Closed
Setpoint No Higher Than 120% of Regulated Pres |
| LFGPCS PSL - 4 1 1 5 PSL - 4 2 1 5 PSL - 4 3 1 5
 | Pressure Switch
 | Natural Gas | Low Pressure | Supply to Burner
 | 3" | 4 PSIG
 | DI 120 V | BMS
 | BMS Low Pressure Alarm | Manufacturer Furnished / Contractor Installed | Setpoint No Higher Than 80% of Regulated Pres |
| - PT - 4 1 6 PT - 4 3 1 6 - PT - 4 1 7 PT - 4 3 1 6
 | Pressure Transmitter Pressure Transmitter
 | Natural Gas
Natural Gas | Pressure
Pressure | Supply to Burner Supply to Burner
 | 3" | 0 - 25 PSIG
0 - 25 PSIG
 | | PMCP
PMCP
 | BAS Status - Pressure BAS Status - Pressure | Contractor Furnished / Contractor Installed
Contractor Furnished / Contractor Installed | |
| - ZSC - 4 1 0 8 ZSC - 4 2 0 8 ZSC - 4 3 0 8
 | Position Switch
 | Natural Gas | Position Verification | FCV-4x08
 | | Closed
 | | BMS
 | BMS Position Verification - Fully Closed | Manufacturer Furnished / Contractor Installed | |
| LFPS ZSC - 4 1 0 9 ZSC - 4 2 0 9 ZSC - 4 3 0 9 C-AFGSOV ZSC - 4 1 1 0 ZSC - 4 2 1 0 ZSC - 4 3 1 0
 | Position Switch Position Switch
 | Natural Gas
Natural Gas | Position Verification Position Verification | FCV-4x08
FSV-4x10
 | |
 | DI 120 V
DI 120 V | BMS
BMS
 | BMS Low Fire Position BMS Position Verification - Fully Closed | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Wired in Series with ZSC 4x11 (1) |
| C-AFGSOV ZSC - 4 1 1 ZSC - 4 3 1 1 - ZSC - 4 1 1 ZSC - 4 3 1 1 1 1 2 2 2 1 1 2 1 1 2 2 1
 | Position Switch Position Switch
 | Natural Gas
Natural Gas | Position Verification Position Verification | FSV-4x11
FSV-4x12
 | |
 | DI 120 V
DI 120 V | BMS
 | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Wired in Series with ZSC 4x10 (1) |
| - ZSO - 4 1 1 0 ZSO - 4 2 1 0 ZSO - 4 3 1 0
 | Position Switch
 | Natural Gas | Position Verification | FSV-4x10
 | | Open
 | DI 120 V | BMS
 | BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed | |
| - ZSO - 4 1 1 1 ZSO - 4 2 1 1 ZSO - 4 3 1 1 - ZSO - 4 1 1 2 ZSO - 4 2 1 2 ZSO - 4 3 1 2
 | Position Switch Position Switch
 | Natural Gas
Natural Gas | Position Verification Position Verification | FSV-4x11
FSV-4x12
 | | Open
Open
 | DI 120 V
DI 120 V | BMS
BMS
 | BMS Position Verification - Fully Open
BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
| - ZT - 4 1 0 8 ZT - 4 2 0 8 ZT - 4 3 0 8
 | Position Transmitter
 | Natural Gas | Position Feedback | FCV-4x08
 | | 0 - 100 %
 | Al 4 - 20 mA DC | CCS
 | CCS Position Indication % | Manufacturer Furnished / Contractor Installed | |
| - FCV - 5 1 0 1 FCV - 5 2 0 1 FCV - 5 3 0 1 - FE - 5 1 0 2 FE - 5 2 0 2 FE - 5 3 0 2
 | Control Valve
Flow Element, Positive Displacement
 | Fuel Oil
Fuel Oil | Flow | Supply to Burner
Supply to Burner
 | 3/4"
3/4" | 0 - 180 GPH
18 - 180 GPH
 | ZT-5x01
Al 4 - 20 mA DC |
CCS
 |
CCS Status - Flow | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Closed
Provide w/ FT - 5 x 0 2 |
| - FE - 5 1 0 2 FE - 5 3 0 2 AFOSOV FSV - 5 1 0 3 FSV - 5 2 0 3 FSV - 5 3 0 2
 | Safety Valve
 | Fuel Oil | Flow | Supply to Burner
 | 3/4" | Open / Closed
 | | BMS
 | | Manufacturer Furnished / Contractor Installed | Fail Closed |
| AFOSOV FSV - 5 1 0 4 FSV - 5 2 0 4 FSV - 5 3 0 4 HFOPCS PSH - 5 1 0 5 PSH - 5 2 0 5 PSH - 5 3 0 5
 | Safety Valve Pressure Switch
 | Fuel Oil
Fuel Oil | Flow
High Pressure | Supply to Burner Supply to Burner
 | 3/4" |
 | DI 120 V
DI 120 V | BMS
 | BMS High Pressure Alarm | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | Fail Closed |
| LFOPCS PSL - 5 1 0 6 PSL - 5 2 0 6 PSL - 5 3 0 6
 | Pressure Switch
 | Fuel Oil | Low Pressure | Supply to Burner
 | 3/4" | 90% of Regulated Pressure
 | DI 120 V | BMS
 | BMS Low Pressure Alarm | Manufacturer Furnished / Contractor Installed | |
| - PT - 5 1 0 7 PT - 5 2 0 7 PT - 5 3 0 7 - ZSC - 5 1 0 1 ZSC - 5 3 0 1
 | Pressure Transmitter
 | Fuel Oil | Pressure
Position Verification | Supply to Burner
 | 3/4" | 0 - 250 PSIG
Closed
 | | PMCP
BMS
 | BAS Status - Pressure BMS Position Verification - Fully Closed | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | |
|
 | Position Switch
 | Fuel Oil | Position vertication | FCV-5x01
 | |
 | | BMS
 | | Manufacturer Furnished / Contractor installed | |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3
 | Position Switch
 | Fuel Oil | Position Verification | FCV-5x01
 | |
 | DI 120 V | BMS
 | BMS Low Fire Position | Manufacturer Furnished / Contractor Installed | 0 |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4
 |
 | | |
 | | Closed
 | | BMS
BMS
BMS
 | BMS Low Fire Position BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed | | 3
3 |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 3 ZSO - 5 2 0 3 ZSO - 5 3 0 3
 | Position Switch
Position Switch
Position Switch
Position Switch
 | Fuel Oil
Fuel Oil | Position Verification Position Verification | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
 | | Closed
Closed
Open
 | DI 120 V
DI 120 V | BMS
 | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS Position Verification - Fully Open | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | 3
3 |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 3 2 2 1 3 2 3 2 3 </td <td>Position Switch
Position Switch
Position Switch</td> <td>Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil</td> <td>Position Verification
Position Verification
Position Verification
Position Verification</td> <td>FCV-5x01
FSV-5x03
FSV-5x04</td> <td></td> <td>Closed
Closed
Open</td> <td>DI 120 V DI 120 V DI 120 V DI 120 V DI 120 V</td> <td>BMS
BMS
BMS</td> <td>BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully ClosedBMSPosition Verification - Fully Open</td> <td>Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed</td> <td>3
3
</td>
 | Position Switch
Position Switch
Position Switch
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil | Position Verification
Position Verification
Position Verification
Position Verification | FCV-5x01
FSV-5x03
FSV-5x04
 | | Closed
Closed
Open
 | DI 120 V | BMS
BMS
BMS
 | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully ClosedBMSPosition Verification - Fully Open | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | 3
3
 |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 4 2 2 1 2 3 0 3 2 3 2 3 0 3 2 3 3 3 3 3 3<
 | Position Switch
Position Switch
Position Switch
Position Switch
Position Switch
Position Transmitter
Flow Element, V-Cone
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam | Position Verification Position Verification Position Verification Position Verification Position Verification Position Verification Position Feedback Flow | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
 |

6" | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH
 | Image: Display state Image: Display state DI 120 V AI 4 - 20 mA DC | BMS
BMS
BMS
CCS
CCS
 | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication % CCS Status - Flow | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | 3 3 Provide w/ FT - 6 x 0 1 Automatic Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 3 ZSO - 5 3 0 3 2 2 1 ZSO - 5 3 0 1 2 2 0 1 <td>Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch</td> <td>Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil</td> <td>Position Verification Position Verification</td> <td>FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01</td> <td></td> <td>Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG</td> <td>DI 120 V DI 120 V AI 4 - 20 mA DC</td> <td>BMS
BMS
BMS
BMS
CCS</td> <td>BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS Position Verification - Fully Open BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication %</td> <td>Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed</td> <td>③ ③ ③ Provide w/ FT - 6 x 0 1 Automatic Reset Manual Reset</td>
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch
 | Fuel Oil | Position Verification | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
 | | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG
 | DI 120 V AI 4 - 20 mA DC | BMS
BMS
BMS
BMS
CCS | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS Position Verification - Fully Open BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication %
 | Manufacturer Furnished / Contractor Installed
Manufacturer Furnished / Contractor Installed | ③ ③ ③ Provide w/ FT - 6 x 0 1 Automatic Reset Manual Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 3 ZSO - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 2 0 3 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZT - 5 1 0 1 ZT - 5 2 0 1 ZT - 5 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 1 - FE - 6 1 0 2 PSHH - 6 2 0 2 PSHH - 6 3 0 2 IRBSPLS PSHH - 6 1 0 3 PSHH - 6 2 0 3 PSHH - 6 3 0 3 SVB1 PSV - 6 1 0 4 PSV - 6 2 0 4 PSV - 6 3 0 4
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Steam | Position Verification Position Verification Position Verification Position Verification Position Verification Position Feedback Flow High-High Pressure | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
 | | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG
 | Image: Display state Image: Display state DI 120 V AI 4 - 20 mA DC DI 120 V | BMS
BMS
BMS
CCS
CCS
BMS / CCS
 | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication % CCS Status - Flow BMS High-High Pressure Cut-Off | Manufacturer Furnished / Contractor Installed | Automatic Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZT - 5 1 0 1 ZT - 5 2 0 1 ZT - 5 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 2 IRBSPLS PSHH - 6 1 0 2 PSHH - 6 2 0 2 PSHH - 6 3 0 3 SVB1 PSV - 6 1 0 4 PSV - 6 2 0 4 PSV - 6 3 0 4 SVB2 PSV - 6 1 0 5 PSV - 6 2 0 5 PSV - 6 3 0 5 - PT - 6 1 0 6 PT - 6 2 0 6 PT - 6 3 0 6
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam | Position Verification Position Verification Position Verification Position Verification Position Verification Position Verification Position Feedback Flow High-High Pressure High-High Pressure Pressure Pressure Pressure Pressure Pressure | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
 | | ClosedClosedOpenOpen0 - 100 %2,100 - 21,000 PPH120 PSIG125 PSIG135 PSIG140 PSIG0 - 250 PSIG
 | Image: Display state Image: Display state DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC DI 120 V | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS

CCS | BMS Position Verification - Fully Closed BMS Position Verification - Fully Closed BMS
Position Verification - Fully Open BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication % CCS Status - Flow BMS High-High Pressure Cut-Off BMS High-High Pressure Cut-Off (Auxiliary) CCS Status - Pressure | Manufacturer Furnished / Contractor Installed | Automatic Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 3 ZSO - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZT - 5 1 0 1 ZT - 5 2 0 1 ZT - 5 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 1 - FE - 6 1 0 2 PSHH - 6 2 0 2 PSHH - 6 3 0 2 IRBSPLS PSHH - 6 1 0 3 PSHH - 6 2 0 3 PSHH - 6 3 0 3 SVB1 PSV - 6 1 0 4 PSV - 6 2 0 4 PSV - 6 3 0 4 SVB2 PSV - 6 1 0 5 PSV - 6 2 0 5 PSV - 6 3 0 5
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam | Position Verification Position Verification Position Verification Position Verification Position Verification Position Verification Position Feedback Flow High-High Pressure High-High Pressure Pressure Pressure | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
 | | ClosedClosedOpenOpen0 - 100 %2,100 - 21,000 PPH120 PSIG125 PSIG135 PSIG140 PSIG
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V DI 120 V DI 120 V AI 4 - 20 mA DC AI 4 - 20 mA DC AI 4 - 20 mA DC | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
 | BMS Position Verification - Fully Closed BMS Position
Verification - Fully Closed BMS Position Verification - Fully Open BMS Position Verification - Fully Open BMS Position Verification - Fully Open CCS Position Indication % CCS Status - Flow BMS High-High Pressure Cut-Off BMS High-High Pressure Cut-Off (Auxiliary) | Manufacturer Furnished / Contractor Installed | Automatic Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 1 ZT - 5 3 0 1 ZT - 5 3 0 1 - ZT - 5 1 0 1 ZT - 5 2 0 1 ZT - 5 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 2 IRBSPLS PSHH - 6 1 0 2 PSHH - 6 2 0 2 PSHH - 6 3 0 3 SVB1 PSV - 6 1 0 4 PSV - 6 2 0 4 PSV - 6 3 0 4 SVB2 PSV - 6 1 0 5 PSV - 6 2 0 5 PSV - 6 3 0 5 - PT - 6 1 0 6 PT - 6 2 0 7 PT - 6 3 0 7 - TT - 6 1 0 8 TT - 6 2 0 8 TT - 6 3 0 8
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam | Position Verification Position Verification Position Verification Position Verification Position Verification Position Verification Position Feedback Flow High-High Pressure High-High Pressure (Auxiliary) Pressure Pressure Pressure Pressure Pressure Pressure Pressure Pressure Pressure | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x04
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
 | | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 140 PSIG 0 - 250 PSIG 0 - 250 PSIG
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC AI 4 - 20 mA DC AI 4 - 20 mA DC | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication
%CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-OffCCSStatus - PressureCCSStatus - PressureCCSStatus - Pressure | Manufacturer Furnished / Contractor Installed | Automatic Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 3 ZSO - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZT - 5 1 0 1 ZT - 5 2 0 1 ZT - 5 3 0 1 - FE - 6 1 0 1 FE - 6 2 0 1 FE - 6 3 0 1 - FE - 6 1 0 2 PSHH - 6 2 0 2 PSHH - 6 3 0 2 RBSPLS PSHH - 6 1 0 3 PSHH - 6 2 0 3 PSHH - 6 3 0 3 SVB1 PSV - 6 1 0 4 PSV - 6 2 0 4 PSV - 6 3 0 4 SVB2 PSV - 6 1 0 5 PSV - 6 2 0 5 PSV - 6 3 0 5 - PT - 6 1 0 7 PT - 6 2 0 7 PT - 6 3 0 7 - TT - 6 1 0 8 TT - 6 2 0 8 TT - 6 3 0 8 LFGOLI AE -
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Oxygen Monitor Opacity Meter
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion | Position Verification Position Feedback Flow High-High Pressure High-High Pressure (Auxiliary) Pressure Pressure Pressure Pressure Oxygen Content Opacity | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Breeching
Breeching
 | | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 140 PSIG 0 - 250 PSIG 0 - 250 PSIG 32 - 392 F 0 - 100 %
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V DI 120 V AI 4 - 20 mA DC | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
CCS
CCS | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - VoxygenBASStatus - % Oxygen
 | Manufacturer Furnished / Contractor Installed | Automatic Reset Manual Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 3 0 1 - ZESO - 5 1 0 1 ZESO - 5 3 0 1 - ZESO - 5 1 0 1 ZESO - 5 3 0 1 </td <td>Position Switch Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner Pressure Transmitter</td> <td>Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion Combustion Combustion Combustion</td> <td>Position Verification Position Verification Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring Differential Pressure</td> <td>FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Breeching
Breeching
Burner
Combustion Air Supply</td> <td> 6" <!--</td--><td>Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 140 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 10 % 0 - 100 % Per Manufacturer</td><td>DI 120 V DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC AI 4 - 20 mA DC</td><td>BMS
BMS
BMS
CCS
CCS
BMS / CCS
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CCS</td><td>BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - TemperatureCCSStatus - TemperatureCCSStatus - WoygenBASStatus - % OpacityBMSStatus - Burner Flame FailureCCSStatus - Flome Failure</td><td>Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnishe</td><td>Automatic Reset Manual Reset</td></td> | Position Switch Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner Pressure Transmitter | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion Combustion Combustion Combustion | Position Verification Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring Differential Pressure | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler, FE-6x01
Breeching
Breeching
Burner
Combustion Air Supply | 6" </td <td>Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 140 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 10 % 0 - 100 % Per Manufacturer</td> <td>DI 120 V DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC AI 4 - 20 mA DC</td> <td>BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
CCS
CCS
CCS
CCS</td> <td>BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - TemperatureCCSStatus - TemperatureCCSStatus - WoygenBASStatus - % OpacityBMSStatus - Burner Flame FailureCCSStatus - Flome Failure</td> <td>Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnishe</td> <td>Automatic Reset Manual Reset</td> | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 140 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 250 PSIG 0 - 10 % 0 - 100 % Per Manufacturer | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
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CCS
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CCS | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - TemperatureCCSStatus - TemperatureCCSStatus - WoygenBASStatus - % OpacityBMSStatus - Burner Flame FailureCCSStatus - Flome Failure | Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnishe | Automatic Reset Manual Reset |
| LFPS ZSC 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 1 ZT - 5 3 0 1 ZT - 5 3 0 1 - ZSO - 5 1 0 1 ZT - 5 3 0 1 - ZT <td< td=""><td>Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner</td><td>Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion Combustion</td><td>Position Verification Position Verification Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring</td><td>FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
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Boiler</td><td></td><td>Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 135 PSIG 0 - 250 PSIG 0 - 250 PSIG 32 - 392 F 0 - 10 % 0 - 100 %</td><td>DI 120 V DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC DI 0 - 5 V DC</td><td>BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
CCS
CCS
CCS</td><td>BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - VoxygenBASStatus - % OxygenBASStatus - % OpacityBMSStatus - Burner Flame Failure</td><td>Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed</td><td>Automatic Reset Manual Reset</td></td<> | Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion Combustion
 | Position Verification Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x03
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
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Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
 | | Closed Closed Open Open 0 - 100 % 2,100 - 21,000 PPH 120 PSIG 125 PSIG 135 PSIG 135 PSIG 0 - 250 PSIG 0 - 250 PSIG 32 - 392 F 0 - 10 % 0 - 100 %
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC DI 0 - 5 V DC | BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
CCS
CCS
CCS | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - VoxygenBASStatus - % OxygenBASStatus - % OpacityBMSStatus - Burner Flame Failure | Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed
 | Automatic Reset Manual Reset |
| LFPS ZSC - 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 3 0
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner Pressure Transmitter Voltage Transformer Voltage Transformer Control Valve
 | Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion | Position Verification Position Feedback Flow High-High Pressure High-High Pressure (Auxiliary) Pressure Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring Differential Pressure Differential Pressure Burner Ignition Flow | FCV-5x01
FSV-5x03
FSV-5x04
FSV-5x04
FSV-5x04
FCV-5x01
Supply from Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
Boiler
FE-6x01
Supply from Boiler, FE-6x01
Supply from Boiler
Fresh Air Fan Damper
 | | ClosedClosedOpenOpen0 - 100 %2,100 - 21,000 PPH120 PSIG125 PSIG135 PSIG135 PSIG0 - 250 PSIG0 - 250 PSIG32 - 392 F0 - 10 %Per ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer Manufacturer
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V AI 4 - 20 mA DC DI 0 - 5 V DC AI 4 - 20 mA DC DI 0 - 5 V DC AI 4 - 20 mA DC DI 120 V ZT-7x08 ZT-7x08 | BMS
BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
PMCP
BMS
CCS
CCS
CCS
CCS
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CCS
CCS
CCS
C | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - TemperatureCCSStatus - VoygenBASStatus - % OxygenBMSStatus - RateCCSStatus - RateCCSStatus - RateCCSStatus - RateCCSStatus - RateCCSStatus - RateCCS <td>Manufacturer Furnished / Contractor Installed Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnis</td> <td>Automatic Reset Manual Reset</td> | Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnis | Automatic Reset Manual Reset
 |
| LFPS ZSC 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 2 0 4 ZSC - 5 3 0 3 - ZSO - 5 1 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 3 0 4 ZSO - 5 3 0 3
 | Position Switch Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner Pressure Transmitter Valve States Conner Pressure Transmitter Oypacity Meter Flame Scanner Pressure Transmitter Voltage Transformer
 | Fuel Oil Steam Combustion Combustion Combustion Combustion Combustion Combustion Combustion Combustion Combustion | Position Verification Position Feedback Flow High-High Pressure High-High Pressure (Auxiliary) Pressure Pressure Pressure Pressure Pressure Oxygen Content Opacity Flame Monitoring Differential Pressure Differential Pressure | FCV-5x01 FSV-5x03 FSV-5x04 FSV-5x03 FSV-5x04 FSV-5x01 Supply from Boiler Supply from Boiler, FE-6x01 Breeching Burner Combustion Air Supply Breeching Burner Fresh Air Fan Damper Combustion Air Supply Across Boiler
 | | ClosedClosedOpenOpen0 - 100 %2,100 - 21,000 PPH120 PSIG125 PSIG135 PSIG140 PSIG0 - 250 PSIG0 - 250 PSIG32 - 392 F0 - 10 %0 - 100 %Per ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerField Set
 | DI 120 V AI 4 - 20 mA DC DI 120 V AI 4 - 20 mA DC DI 120 V DI 120 V DI 120 V AI 4 - 20 mA DC DI 0 - 5 V DC AI 4 - 20 mA DC DI 0 - 5 V DC AI 4 - 20 mA DC | BMS
BMS
BMS
BMS
CCS
CCS
BMS / CCS
BMS / CCS
BMS
CCS
CCS
CCS
CCS
CCS
PMCP
BMS
CCS
CCS
CCS
CCS
CCS
CCS
CCS | BMSPosition Verification - Fully ClosedBMSPosition Verification - Fully ClosedBMSPosition Verification - Fully OpenBMSPosition Verification - Fully OpenCCSPosition Indication %CCSStatus - FlowBMSHigh-High Pressure Cut-OffBMSHigh-High Pressure Cut-Off (Auxiliary)CCSStatus - PressureCCSStatus - PressureCCSStatus - PressureCCSStatus - TemperatureCCSStatus - VersureCCSStatus - MoxygenBASStatus - % OxygenBASStatus - Burner Flame FailureCCSStatus - Flow Flame FailureCCSStatus - RateCCSStatus - RateCCSStatus - Rate
 | Manufacturer Furnished / Contractor Installed Contractor Furnished / Contractor Installed Contractor Furnished / Contractor Installed Manufacturer Furnis | Automatic Reset Manual Reset |
| LFPS ZSC 5 1 0 2 ZSC - 5 2 0 2 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 3 ZSC - 5 2 0 3 ZSC - 5 3 0 3 C-AFOSOV ZSC - 5 1 0 4 ZSC - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 2 0 4 ZSO - 5 3 0 4 - ZSO - 5 1 0 4 ZSO - 5 3 0 4 - 2 0 1 ZSO - 5 3 0 1 - - 7 3 0 1 - - 3 0 1 - - 2 0 1 ZSO - 5 1 <td>Position Switch Position Switch Position Switch Position Switch Position Switch Position Transmitter Flow Element, V-Cone Pressure Switch Pressure Switch Safety Valve Safety Valve Pressure Transmitter Pressure Transmitter Oxygen Monitor Opacity Meter Flame Scanner Pressure Transmitter Voltage Transmitter Voltage Transformer Control Valve Flow Switch</td> <td>Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Fuel Oil Steam Combustion Combustion</td> <td>Position VerificationPosition VerificationPosition VerificationPosition VerificationPosition VerificationPosition FeedbackFlowHigh-High PressureHigh-High Pressure (Auxiliary)PressurePressurePressurePressureOxygen ContentOpacityFlame MonitoringDifferential PressureDifferential PressureFlowFlowFlowFlowFlowFlowFlowFlowFlowFlow, Low AirFlow, Purge AirCurrent Sensor</td> <td>FCV-5x01 FSV-5x03 FSV-5x04 FSV-5x03 FSV-5x04 FSV-5x01 Supply from Boiler Supply from Boiler, FE-6x01 Supply from Boiler, FE-6x01 Burner Combustion Air Supply Breeching Burner Combustion Air Supply Burner Fresh Air Fan Damper Combustion Air Supply Across Boiler Boiler FD Fan</td> <td></td> <td>ClosedClosedOpenOpen0 - 100 %2,100 - 21,000 PPH120 PSIG125 PSIG135 PSIG135 PSIG0 - 250 PSIG0 - 250 PSIG32 - 392 F0 - 10 %0 - 100 %Per ManufacturerPer ManufacturerPer ManufacturerPer ManufacturerField SetField SetField SetField SetField Set</td> <td>I <thi< th=""> I <thi< th=""> <thi< th=""></thi<></thi<></thi<></td> <td>BMS
BMS
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CCS
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(1) Wiring for POC - AFGSOV shall be easily accessible. Wiring is accessed during switch testing. (2) FGR damper switch as required by manufacturer. If manufacturer states in writing to the facility that the position of the damper does not matter to achieve proper purge, then no switch is required. ③ Ensure oil valves are mounted in such a way that there is easy access to the proof of closure switch wiring.

		CONSULTANTS:	
Revisions:	Date	Affiliated Engineers SE, Inc. Tioga Town Center 12921 SW 1st Road Ste 205 Gainesville, Florida 32669 Tel 352.376.5500 Fax 352.375.3479 CA-5140	

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ENGINEER-OF-RECORD JACK S NEALE	FL. P.E. NO. 42678	ARCHITECT/ENGINEERS:
		AKEA 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16

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BAS - Building Automation System BBC - Boiler Blowdown Controller

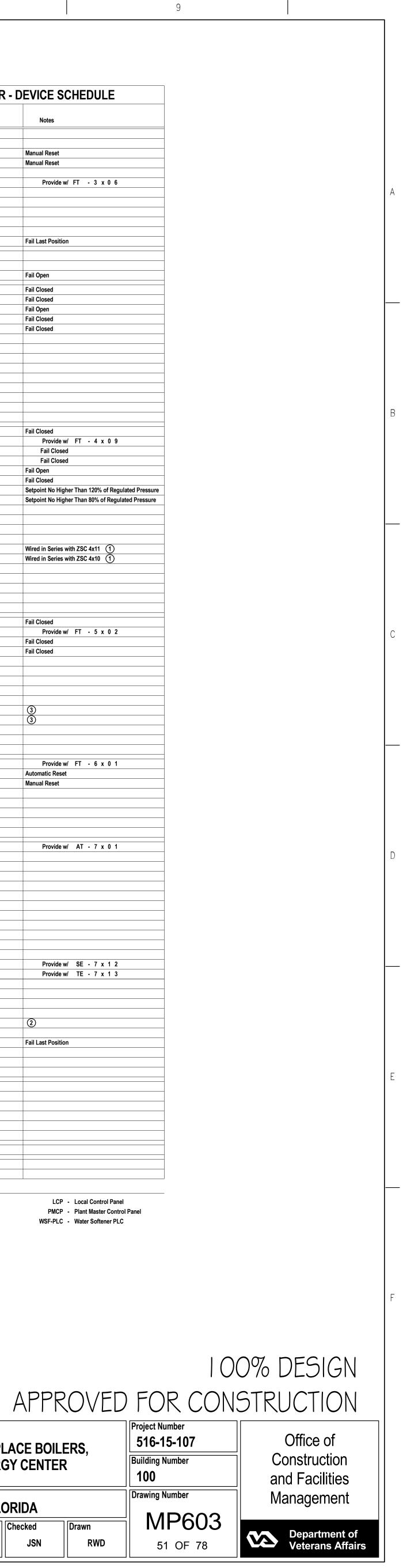
BMS - Burner Management System - (Flame Safeguard Control) CCS - Combustion Control System

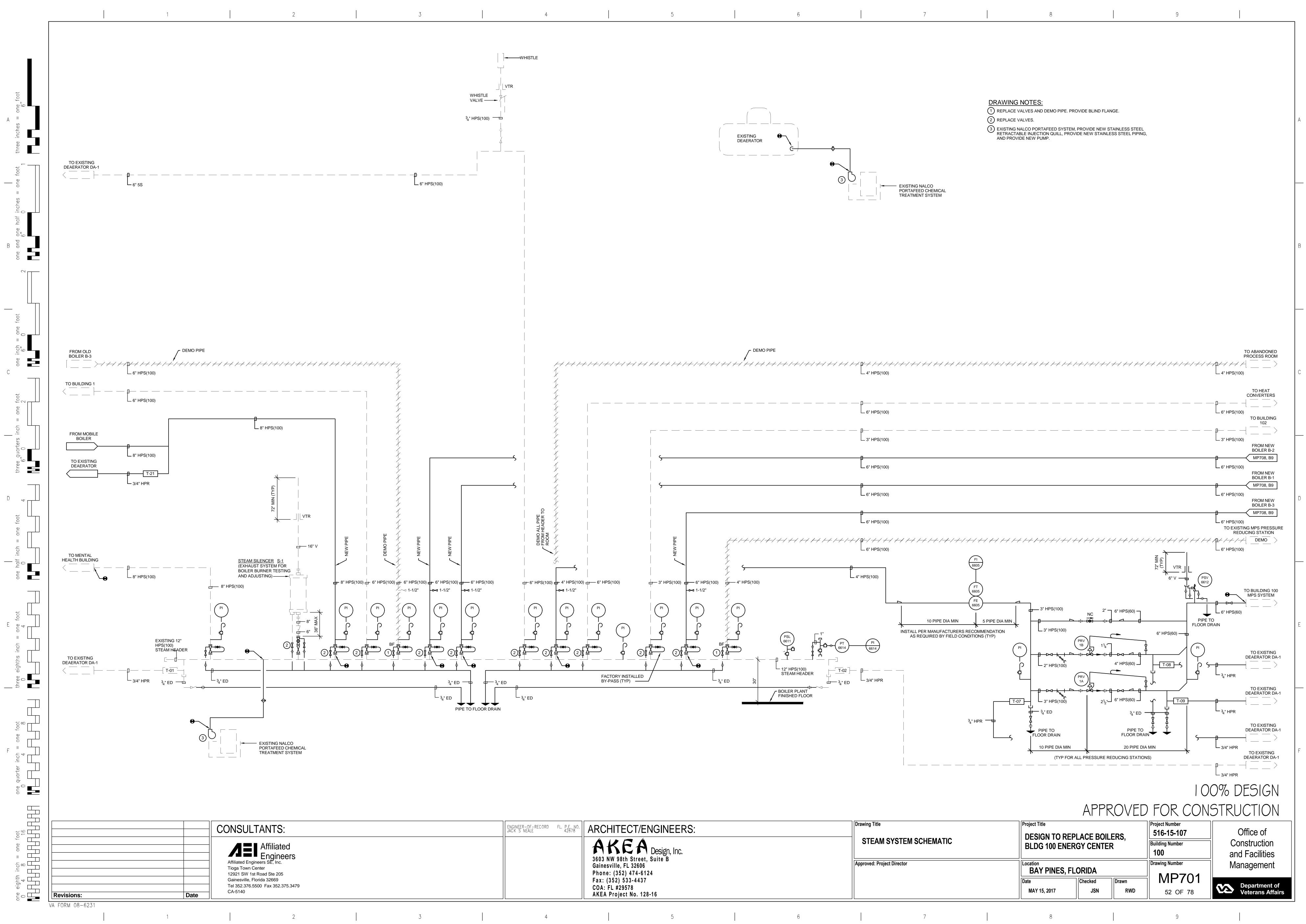
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CGP - Combustible Gas Detection Panel CHP-1 - CHP-1 Field Panel Miscellaneous Process Points DA-PLC - Deaerator and Condensate Surge Tank PLC

LCP - Local Control Panel PMCP - Plant Master Control Panel WSF-PLC - Water Softener PLC

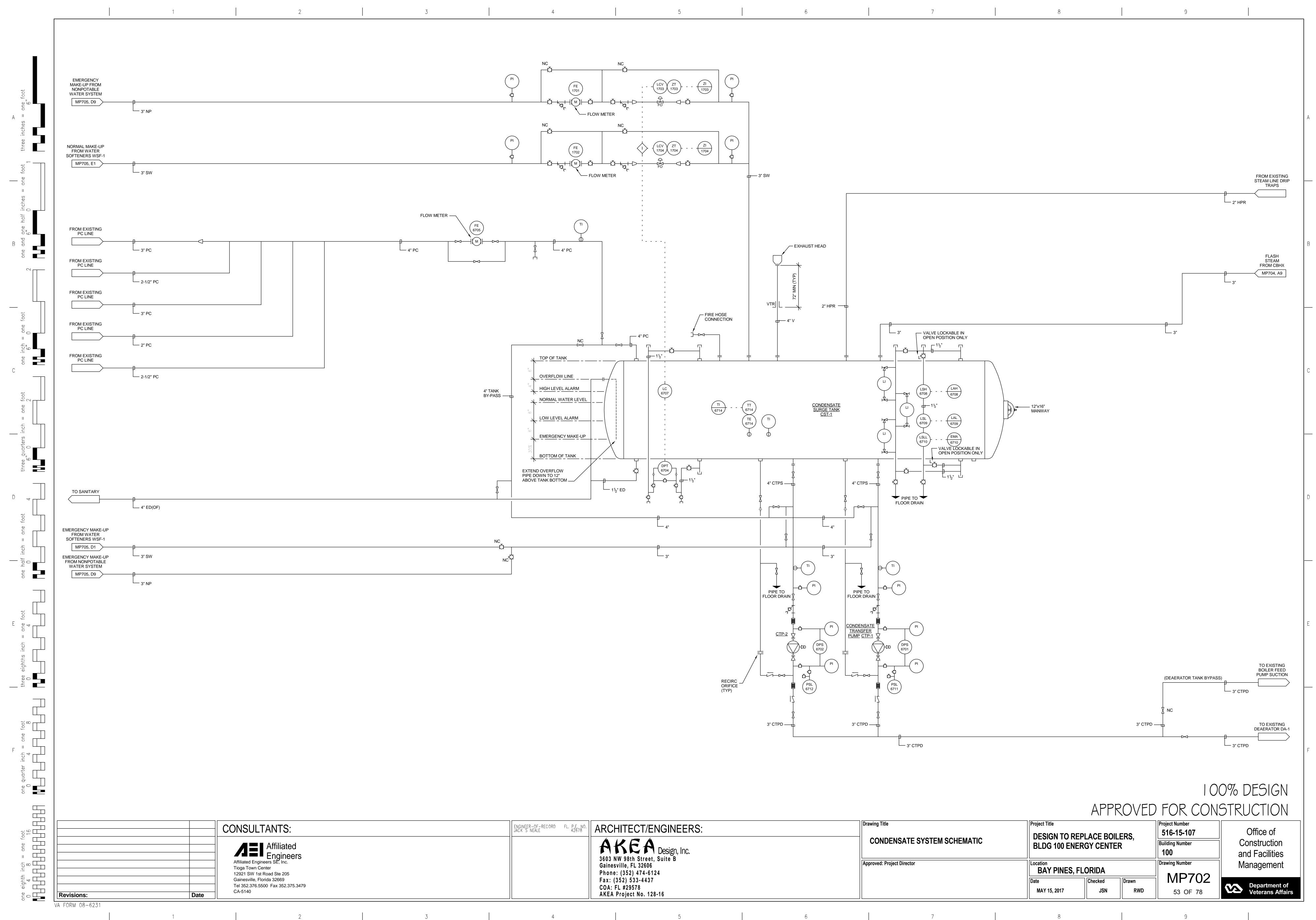
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	Drawing Title			Project Title		Project Number 516-15-10			
	MECHANI	MECHANICAL SCHEDULES			DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER				
	Approved: Project	Director		Location BAY PINES, FLORIDA			Drawing Number		
				Date MAY 15, 2017	Checked JSN	Drawn RWD	51 OF		
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Project Number 516-15-10			Project Title	Drawing Title	ARCHITECT/ENGINEERS:	ENGINEER-OF-RECORD FL. P.E. NO. JACK S NEALE 42678	
KJ,		DESIGN TO REPLACE BOI BLDG 100 ENERGY CENTE Location BAY PINES, FLORIDA Date	STEAM SYSTEM SCHEMATIC	AKEA Design, Inc.			
Drawing Number		Florida		Approved: Project Director	3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437		
MP7	Drawn	Checked	Date		Fax: (352) 533-4437 COA: FL #29578		
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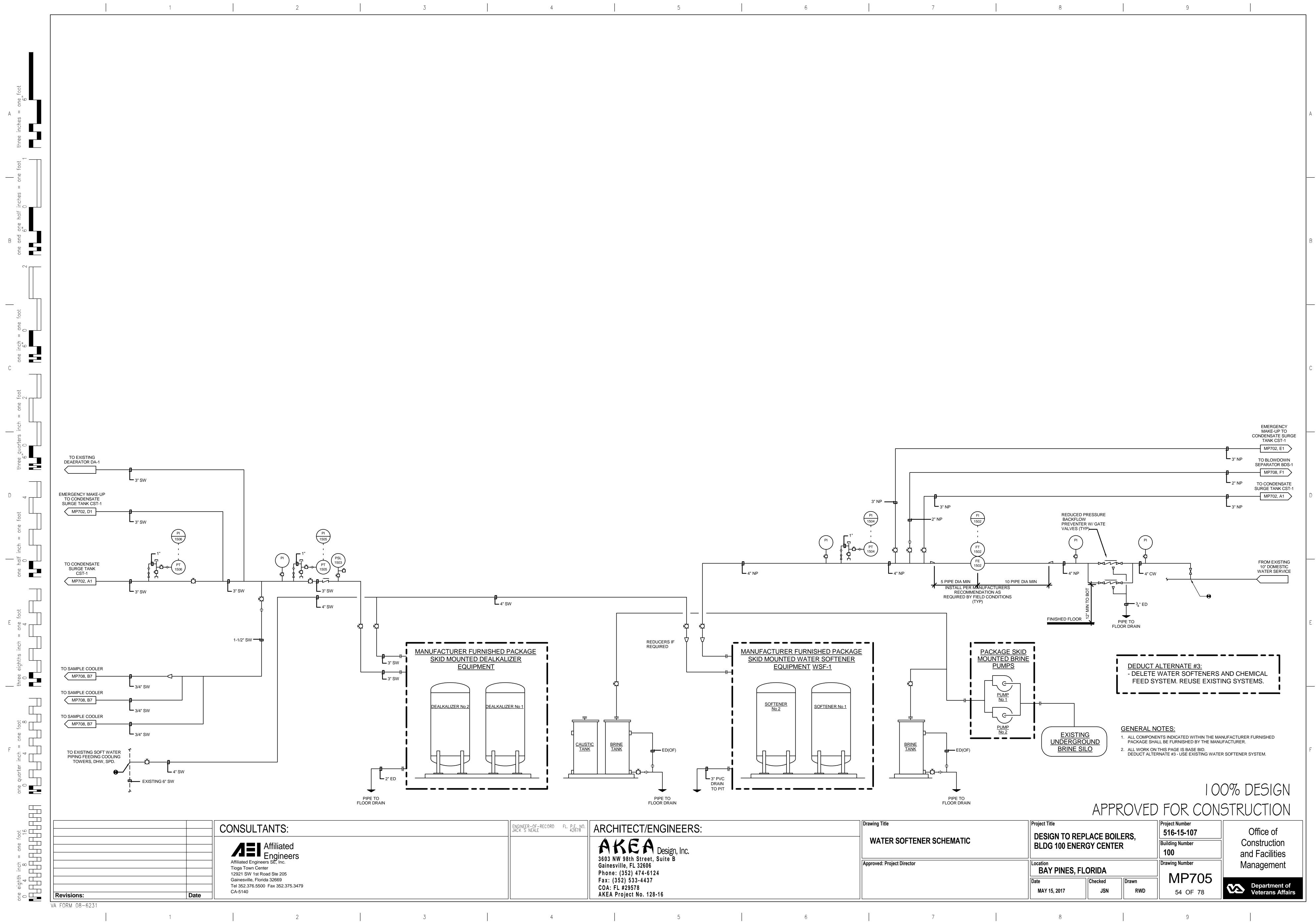


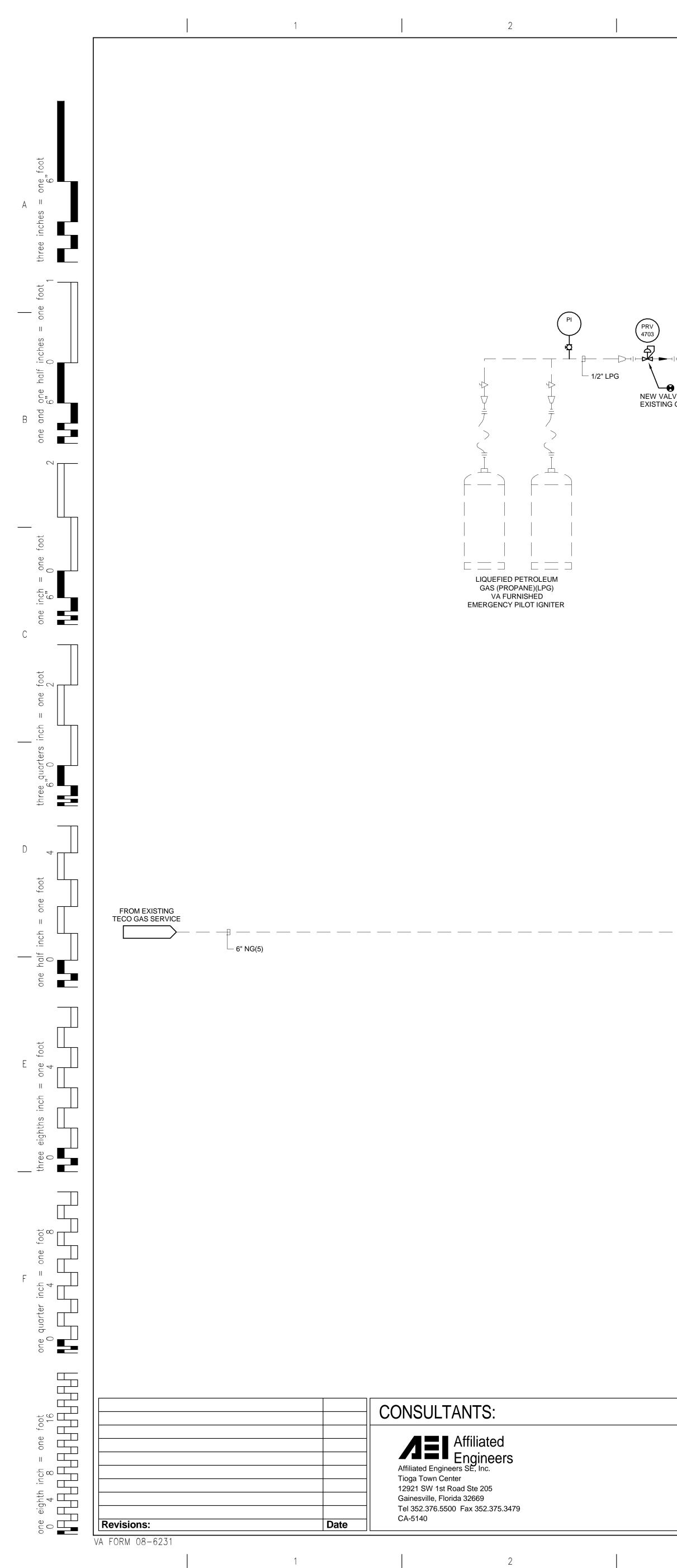
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	Drawing Title			Project Title			Project Number 516-15-10	
	CONDENS	CONDENSATE SYSTEM SCHEMATIC			DESIGN TO REPLACE BOILERS,			
					BLDG 100 ENERGY CENTER			
	Approved: Project	Director		Location BAY PINES, FLORIDA			Drawing Number	
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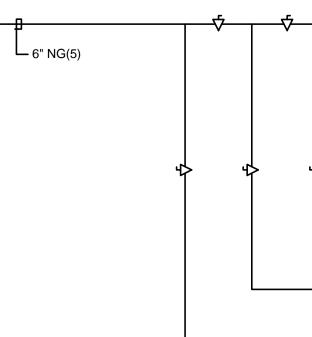




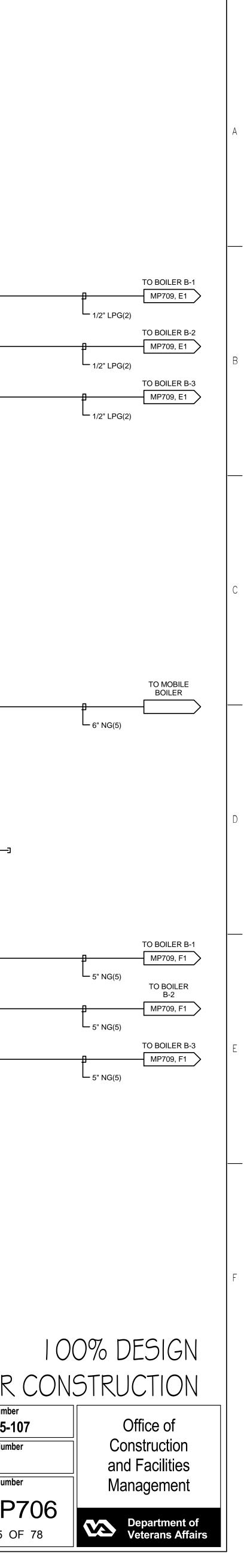
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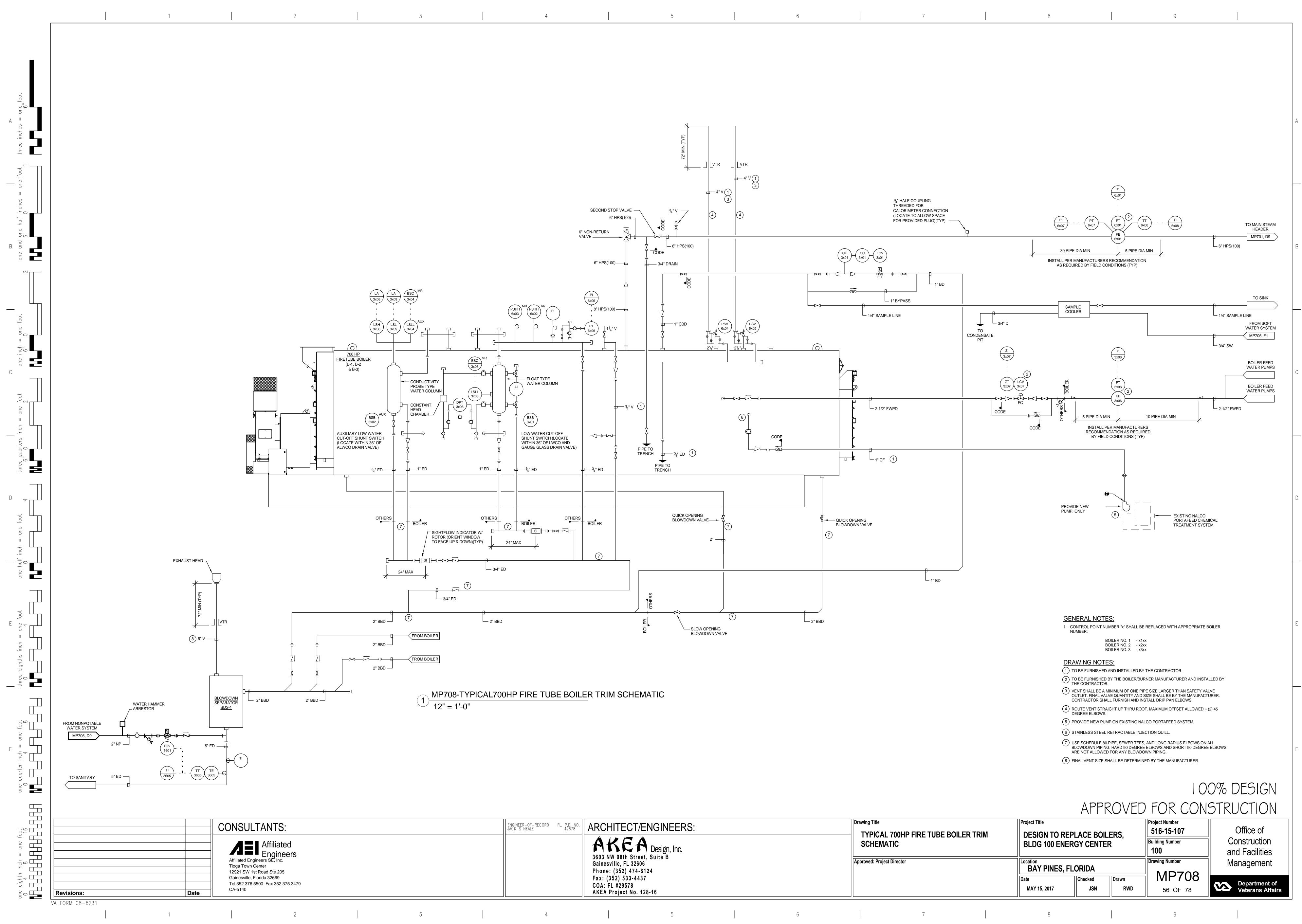
ENGINEER-OF-RECORD JACK S NEALE	FL. P.E. NO. 42678	ARCHITECT/ENGINEERS:
		AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16

NEW

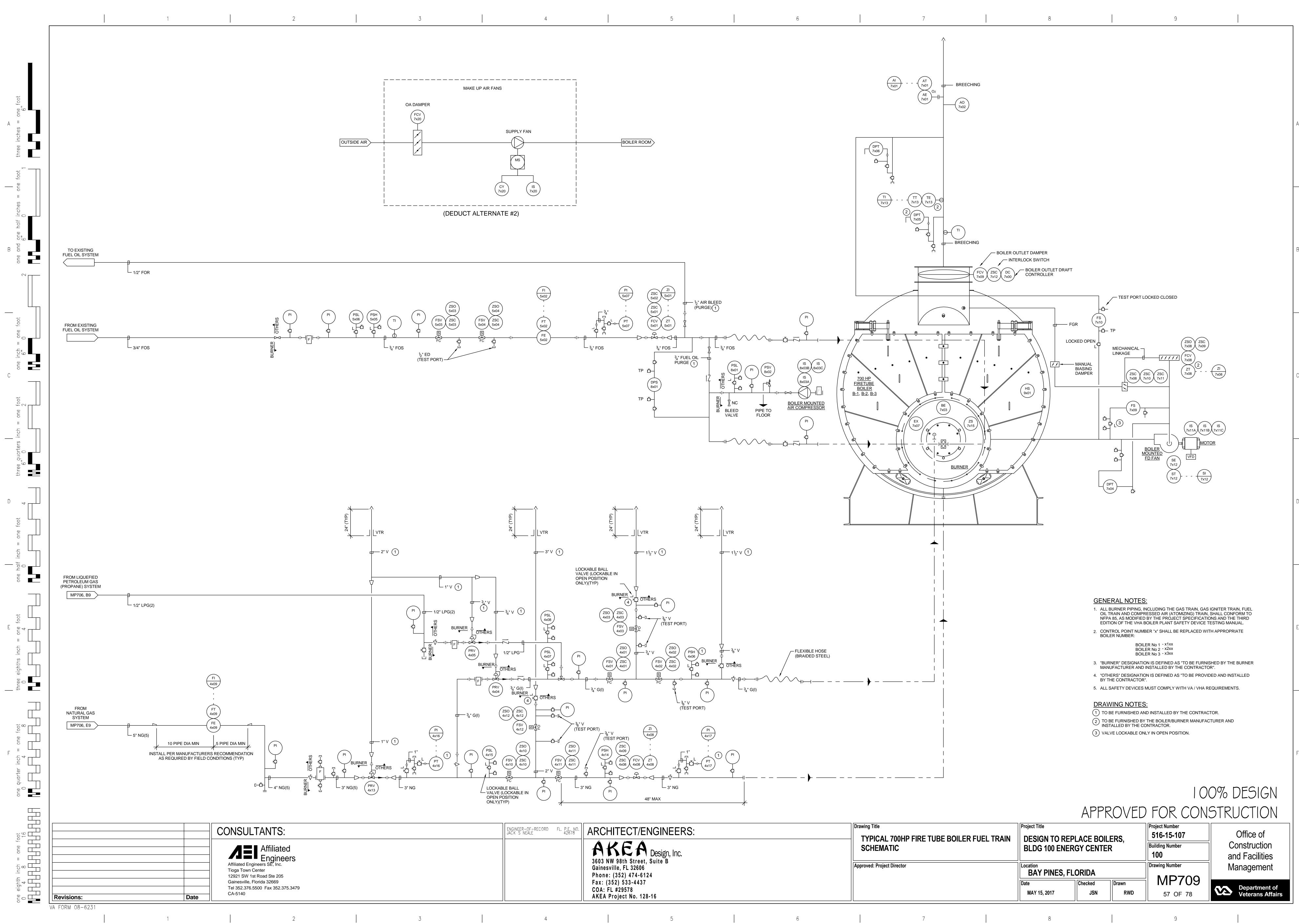


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	Drawing Title NATURAL GAS SY	STEM SCHEMATIO	Project Title DESIGN TO REP BLDG 100 ENER		•	Project Number 516-15-10 Building Numbe 100
	Approved: Project Director		BAY PINES, FL	orida		Drawing Numbe
			Date MAY 15, 2017	Checked JSN	Drawn RWD	
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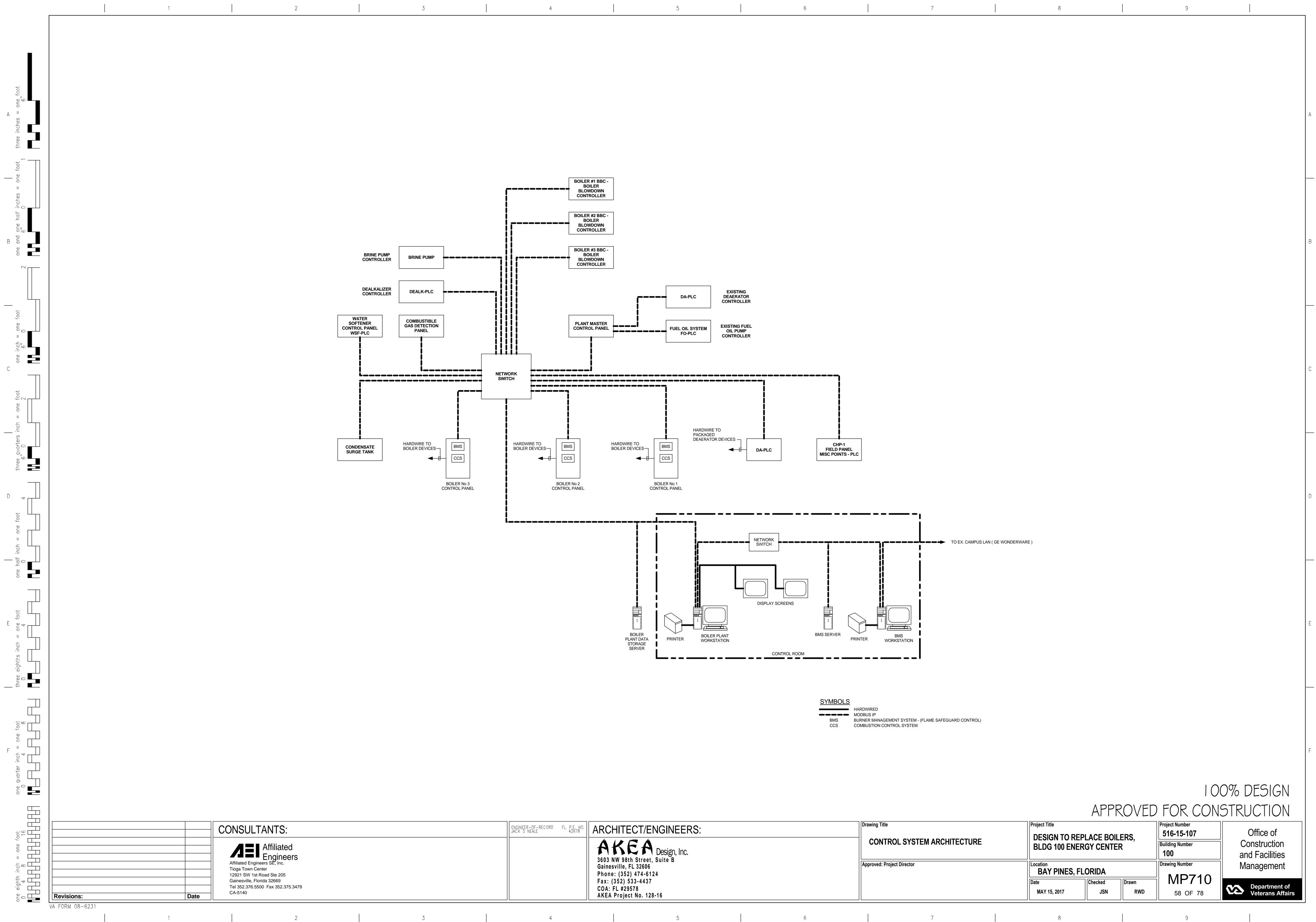




ENGINEER-OF-RECORD JACK S NEALE	FL. P.E. NO. 42678	ARCHITECT/ENGINEERS:
		AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16

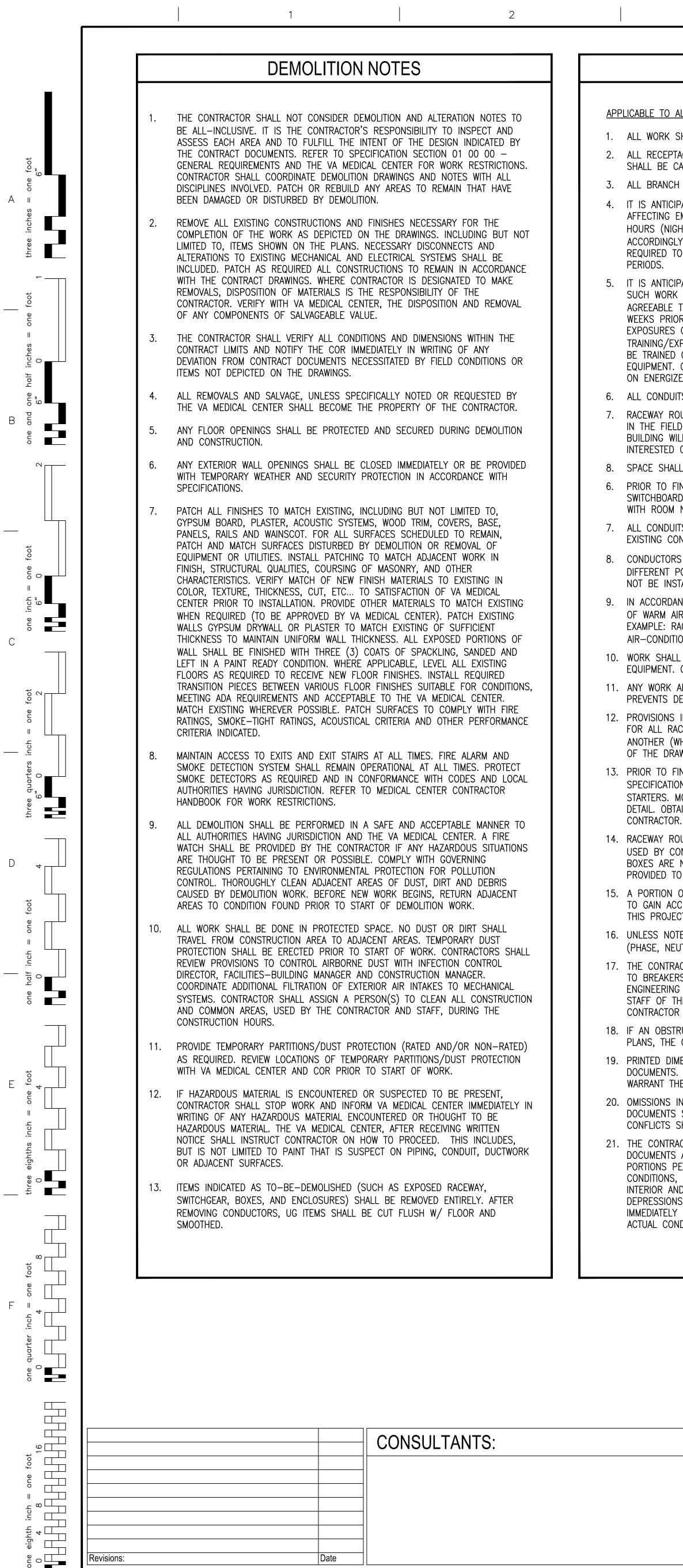


ENGINEER-OF-RECORD JACK S NEALE	FL. P.E. NO. 42678	ARCHITECT/ENGINEERS:	
		AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	



	ENGINEER-OF JACK S NEAL	-RECORD FL. P.E. N 42678		T/ENGINEERS:		Drawing Title) FOR CON Project Number 516-15-107
			AKE	A Design, Inc.		CONTROL SYSTEM ARCH	ITECTURE	DESIGN TO R BLDG 100 EN		•	Building Number
			3603 NW 98th St Gainesville, FL 32 Phone: (352) 47	2606		Approved: Project Director		Location BAY PINES,	Florida		Drawing Number
			Fax: (352) 533-4	4437				Date	Checked	Drawn	MP710
			COA: FL #29578 AKEA Project No					MAY 15, 2017	JSN	RWD	58 OF 78
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ELECTRICAL & FIRE ALARM NOTES

APPLICABLE TO ALL ELECTRICAL SHEETS:

- 1. ALL WORK SHALL COMPLY WITH NEC, NFPA, AND ALL APPLICABLE FEDERAL CODES. 2. ALL RECEPTACLES SHALL HAVE THE NEMA 5-20R CONFIGURATION, UNO. EACH RECEPTACLE SHALL BE CAPABLE OF ACCEPTING BOTH 15A AND 20A PLUGS.
- 3. ALL BRANCH CIRCUITS SHALL BE RUN WITH DEDICATED NEUTRALS: NO SHARED NEUTRALS.
- 4. IT IS ANTICIPATED THAT ANY CRITICAL WORK (SHUTDOWNS, ETC.), AFFECTING OTHER AREAS OR AFFECTING EMERGENCY BRANCHES OF THE ELECTRICAL SYSTEM, WILL BE DONE DURING OFF HOURS (NIGHTS, WEEK-ENDS, HOLIDAYS, ETC.) AND INTERESTED CONTRACTORS SHOULD PLAN ACCORDINGLY. A TWO (2) WEEK ADVANCE NOTIFICATION IS REQUIRED. INTENSIVE PLANNING IS REQUIRED TO ALLOW SCHEDULED WORK TO BE ACCOMPLISHED DURING SCHEDULED SHUTDOWN
- 5. IT IS ANTICIPATED THIS PROJECT WILL INVOLVE WORK ON OR VERY NEAR LIVE CIRCUITS. ANY SUCH WORK WILL REQUIRE A WRITTEN, TASK SPECIFIC, DETAILED PLAN OF ACTION THAT IS AGREEABLE TO BOTH THE CONTRACTOR AND COR. SIGNED BY BOTH. AND SUBMITTED TWO (2) WEEKS PRIOR TO STARTING THE TASK. ADDITIONALLY, DUE TO THE COMPLEXITY AND INHERENT EXPOSURES OF THIS TYPE WORK, ALL ELECTRICAL WORKERS SHALL MEET THE MINIMUM TRAINING/EXPERIENCE REQUIREMENTS AS DESCRIBED IN THE SPECIFICATIONS. CONTRACTOR SHALL BE TRAINED ON ARC FLASH SAFETY PROCEDURES AND SHALL POSSESS THE PROTECTIVE EQUIPMENT. CONTRACTOR SHALL COMPLY WITH THE VAMC INTERNAL PROCEDURES FOR WORKING ON ENERGIZED CIRCUITS.
- 6. ALL CONDUITS SHALL BE CLEAN AND FREE OF DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS. 7. RACEWAY ROUTING DEPICTED IN EXISTING BUILDINGS IS PROPOSED AND SHALL BE COORDINATED IN THE FIELD. EXISTING AREAS SUCH AS THE PIPE BASEMENT, THE PIPE TUNNELS, AND THE MEP BUILDING WILL REQUIRE SIGNIFICANT IN-FIELD COORDINATION. IT IS HIGHLY RECOMMENDED THAT INTERESTED CONTRACTORS VISIT THESE AREAS PRIOR TO BID.
- 8. SPACE SHALL BE ALLOCATED FOR FUTURE EQUIPMENT, AS NOTED ON PLANS.
- 6. PRIOR TO FINAL INSPECTION. PROVIDE NEW PANEL SCHEDULES FOR ALL PANELBOARDS AND SWITCHBOARDS THAT ARE PROVIDED OR MODIFIED BY THIS PROJECT, INDICATE ANY NEW CIRCUITS WITH ROOM NUMBERS AND LOAD TYPE.
- 7. ALL CONDUITS SHALL BE CLEAN AND FREE OF DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS. EXISTING CONDUITS SHALL NOT BE RE-USED, U.N.O.
- 8. CONDUCTORS FROM DIFFERENT VOLTAGE SYSTEMS (FOR EXAMPLE: 120V AND 277V) OR FROM DIFFERENT POWER BRANCHES (FOR EXAMPLE: EQUIPMENT BRANCH AND NORMAL BRANCH) SHALL NOT BE INSTALLED IN THE SAME RACEWAY OR PULLBOXES.
- 9. IN ACCORDANCE WITH NEC 300.7, PROVIDE DUCT SEAL MATERIAL TO PREVENT THE CIRCULATION OF WARM AIR TO A COOLER SECTION OF RACEWAY IN APPLICABLE RACEWAY SECTIONS (FOR EXAMPLE: RACEWAY BETWEEN INTERIOR AND EXTERIOR LOCATIONS. RACEWAY BETWEEN AIR-CONDITIONED AND NON-AIR-CONDITIONED SPACES).
- 10. WORK SHALL BE PLANNED SUCH THAT THERE IS NO CLIMBING OR STANDING ON ELECTRICAL EQUIPMENT. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY SCAFFOLDING AS REQUIRED. 11. ANY WORK ABOVE OR AT THE TOP OF EQUIPMENT SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS AND DROPPED PARTS FROM ENTERING THE EQUIPMENT.
- 12. PROVISIONS IN ACCORDANCE WITH THE SPECIFICATIONS AND APPLICABLE CODES SHALL BE MADE FOR ALL RACEWAY CROSSING EXPANSION JOINTS OR EXTENDING FROM ONE BUILDING INTO ANOTHER (WHETHER THE RACEWAY IS DEPICTED ON THE PLANS OR NOT). IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW COMPLETE ROUTING FOR ALL RACEWAY.
- 13. PRIOR TO FINAL INSPECTION. PROVIDE LABELS FOR ALL NEW EQUIPMENT IN ACCORDANCE WITH SPECIFICATIONS (INCLUDING BUT NOT LIMITED TO PANELS, TRANSFORMERS, AIR HANDLERS, MOTOR STARTERS, MOTORS, DISCONNECT SWITCHES, VFDS, PULLBOXES, AND DRAWOUT BREAKERS). SEE DETAIL. OBTAIN FINAL EQUIPMENT DESIGNATIONS FROM COR AND COORDINATE WITH MECHANICAL
- 14. RACEWAY ROUTING DEPICTED ON PLANS IS PROPOSED ROUTING; ALTERNATE ROUTES MAY BE USED BY CONTRACTOR, U.N.O. (PENDING APPROVAL BY COR AND ENGINEER). TYPICALLY, PULL BOXES ARE NOT SHOWN ON THE PLANS: LOCATION AND QUANTITY OF PULL-BOXES SHALL BE PROVIDED TO ACCOMPLISH PULLS AND COMPLY WITH NEC.
- 15. A PORTION OF THIS PROJECT MAY REQUIRE THE CONTRACTOR TO REMOVE EXISTING CEILING TILES TO GAIN ACCESS ABOVE THE CEILING. TILES THAT BECOME DIRTY OR DAMAGED AS A RESULT OF THIS PROJECT SHALL BE REPLACED WITH TILES TO MATCH EXISTING SURROUNDING TILES. 16. UNLESS NOTED OTHERWISE, 20A ELECTRICAL DEVICES SHALL BE FED VIA 12AWG CONDUCTORS (PHASE, NEUTRAL, AND GROUND) IN 3/4" MIN. DIAMETER CONDUIT.
- 17. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING EQUIPMENT INCLUDING, BUT NOT LIMITED TO BREAKERS, DISCONNECT SWITCHES, ETC., WITHOUT AUTHORIZATION FROM THE VAMC ENGINEERING SERVICE, UNLESS AN EMERGENCY SITUATION EXISTS. IN GENERAL, THE OPERATING STAFF OF THE VAMC ENGINEERING SERVICE WILL OPERATE ANY EXISTING EQUIPMENT WHICH THE CONTRACTOR MAY REQUIRE.
- 18. IF AN OBSTRUCTION SHOULD BE ENCOUNTERED THAT REQUIRES A DEVIATION FROM THE ORIGINAL PLANS. THE CONTRACTOR SHALL CONTACT THE COR AND ENGINEER FOR GUIDANCE.
- 19. PRINTED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON CONSTRUCTION DOCUMENTS. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DOES NOT WARRANT THE ACCURACY OF SCALED DIMENSIONS.
- 20. OMISSIONS IN AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND COR. CONFLICTS SHALL BE RESOLVED BY THE SAME BEFORE PROCEEDING WITH ANY WORK INVOLVED.
- 21. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL PORTIONS OF THE CONSTRUCTION DOCUMENTS AND SHALL ENSURE THAT ALL SUBCONTRACTORS ARE FAMILIAR WITH THOSE PORTIONS PERTAINING TO THEIR AREA OF WORK. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, DIMENSIONS, ELEVATIONS, COORDINATE ALL DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS. ELEVATIONS, SLOPES, STAIRS, CURBS, DRAINS, RECESSES, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES, CHAMFER, KERFS, AND SO FORTH, AND IMMEDIATELY NOTIFY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE REGARDING ACTUAL CONDITIONS WHICH ARE NOT IN AGREEMENT WITH THE CONSTRUCTION DOCUMENTS.

	LIGHTING
A O o	2' X 4' FLUOR. LIGHT FIXTURE, A = LIGHT FIXTURE TYPE a = SWITCHING DESIGNATION
	1' X 4' FLUOR. LIGHT FIXTURE
0	2'X 2'LED LIGHT FIXTURE
⊢−0−−1	4' LINEAR LIGHT FIXTURE
└─── ○────┤	8' LINEAR LIGHT FIXTURE
\$ a	TOGGLE SWITCH a = SWITCHING DESIGNATION
\$3	TOGGLE SWITCH, 3-WAY

INVESTIGATIVE SE

THIS PROJECT MAY REQUIRE NEW PENETRATIONS THROUGH EXISTING CONCRETE FLOORS. PRIOR TO LAYOUT AND INSTALLATION OF NEW CONDUIT REQUIRING NEW PENETRATIONS OF EXISTING CONCRETE FLOOR SLABS, THE CONTRACTOR SHALL SUBMIT TO THE COR THE TESTING AND INVESTIGATION SERVICE (TIS) WHICH WILL BE USED TO LOCATE THE EXISTING SLAB REINFORCEMENT FOR APPROVAL. THE TIS SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN THE USE OF X-RAY AND GROUND PENETRATING RADAR (GPR). THE CONTRACTOR SHALL SUBMIT THE INVESTIGATIVE TESTING SERVICES WORK PLAN AND SCHEDULE FOR APPROVAL. THE TIS SHALL USE X-RAY. GPR OR OTHER SUITABLE NON-DESTRUCTIVE TESTING METHODOLOGY TO ACCURATELY IDENTIFY THE SLAB REINFORCING, FROM WHICH ADJUSTMENTS TO THE PENETRATIONS WILL BE MADE SO AS NOT TO COMPROMISE THE STRUCTURAL INTEGRITY OF THE EXISTING CONCRETE FLOOR SLABS. THE X-RAY OR GPR SHALL BE A CONTINUOUS 3-D GRID PROCESS (SCANNING GRID OF 2" ON CENTER) FOR AN AREA OF 24" BEYOND THE PROPOSED PENETRATION IN ALL DIRECTIONS. THE IDENTIFIED X-RAY OR GPR OF THE REINFORCING SHALL BE IDENTIFIED BY PENETRATION TYPE AND COLUMN GRID LINE DESIGNATION. THE AREA SHALL BE SURVEYED, MAPPED AND SUBMITTED TO THE COR FOR RECORD PURPOSES. THE REINFORCING SHALL BE MARKED ON THE CONCRETE SLAB AND USE DIFFERING COLORS FOR THE IDENTIFICATION OF TOP AND BOTTOM REINFORCING. THE CONTRACTOR SHALL GIVE THE COR 72 HOURS NOTICE PRIOR TO ANY INVESTIGATIVE TESTING WORK.

ENGINE	EER-OF-RECORD FL. P. J. FRALICK 73811		S:
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COA: FL #29578

AKEA Project No. 128-16

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POWER SHEET SYMBOLS	A AFC	AMF
	AFF	AVA ABC
\square PANELBOARD, SURFACE MOUNTED $\langle 1 \rangle$ Sheet keynote symbol, see right border	BKR	BRE
DISCONNECT SWITCH	BR CKT	BRA CIR(
Φ DUPLEX RECEPTACLE, MTD. +18" UNO DUPLEX RECEPTACLE, MTD. +18" UNO DETAIL NUMBER WHERE DETAIL CAN BE	CLG COORD	CEIL
FOUND	CP CRI	CON
⊕ DUPLEX RECEPTACLE MTD. ABOVE COUNTER, +44" UNO	CTRL	COL
₽ _{GFI} GFI-TYPE DUPLEX RECEPTACLE	DISC EBJ	DIS(EQU
Φ_{WP} DUPLEX RECEPTACLE WITH WEATHERPROOF	EGC ELEV	EQU ELE
COVER, MTD. +18", UNO	ENCL ETR	ENC EXIS
♥ QUADPLEX RECEPTACLE, MTD. +18" UNO	EXIST FLA	EXIS FUL
J WALL MOUNTED JUNCTION BOX	FLUOR FTR	FLU FUT
ELECTRICAL CONNECTION	FVNR GBB	FUL
CONDUIT CONCEALED IN WALL OR CLG.	GEC	GRC
CONDUIT UNDER FLOOR (OR ROOF)	GFI GWB	GRC GYP
FLEXIBLE CONDUIT PER SPECS	HD HMI	HEA HUN
HOMERUN TO PNL WITH (2) #12, #12G IN	H–O–A JB	HAN JUN
3/4"C, UNO.	K KA	KEL KILC
CONTINUATION OF CIRCUIT AS NOTED	KAIC	KILC
DENOTES SCOPE OF DEMOLITION ON RISER AND	LED	LIGH
	LS LT	LIFE LIGH
 LIGHTNING PROTECTION AIR TERMINAL 	MANUF MCB	MAN MAII
LIGHTNING PROTECTION CONDUCTOR	MCC	MOT
DRY-TYPE TRANSFORMER	MLO MTD	MAII MOU
	MW	MICI
	N NEC	NEU NAT
	NF	NON
	NTS	NOT
	OEM P	ORI(POL
	PH	PHA
	PNL	PAN
	POE PRI	POW PRIM
	REC	REC
	REF	REF
	SBJ	SYS
	SEC SFCCP	SEC SPR
	SPCP	SUN
	SS	STA
	SW	SWI
	TEMP THD	TEM TOT
	TVSS	TRA
	TYP	TYP
	UC	UNE
	UG UH	UNE UNI
SERVICES DEDUCTIVE ALTERNATES	UNO	UNL
	UPS	UNII

THIS PROJECT INCLUDES MULTIPLE DEDUCTIVE ALTERNATES. CONTRACTOR SHALL REFER TO SPEC SECTION 01 00 00 FOR DETAILED DESCRIPTIONS. IN SUMMARY: BASE BID - ALL WORK SHOWN.

<u>DEDUCT ALTERNATE #1 – DEDUCT STEAM TRAP MONITORING.</u> DEDUCT ALTERNATE #2 – DEDUCT INDIVIDUAL STACKS.

<u>DEDUCT ALTERNATE #3 – DEDUCT VENTILATION SYSTEM.</u>

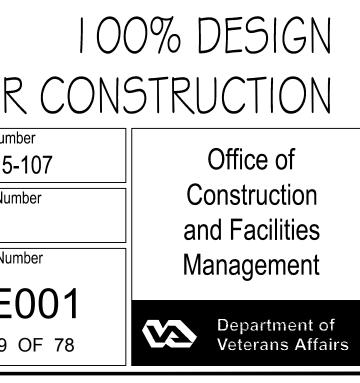
<u>DEDUCT ALTERNATE #4</u> – DEDUCT WATER SOFTENER.

<u>DEDUCT ALTERNATE #5</u> – DEDUCT BOILER.

			APP	ROVE) FOR
	Drawing Title ELECTRICAL LEGEND, ABBREVIATIONS, AND NOTES	Project Title DESIGN TO REI BLDG 100 ENEF		•	Project Number 516-15-1 Building Number 100
	Approved: Project Director	Location BAY PINES, FL Date MAY 15, 2017	LORIDA Checked CJF	Drawn CJF	Drawing Num EC 59 C
6	7	8			ç

BBREVIATIONS

MPERE VAILABLE FAULT CURRENT BOVE FINISHED FLOOR REAKER RANCH RCUIT EILING OORDINATE ONTROL PANEL OLOR RENDITION INDEX ONTROL ISCONNECT QUIPMENT BONDING JUMPER QUIPMENT GROUNDING CONDUCTOR LEVATOR NCLOSURE XISTING TO REMAIN XISTING ULL LOAD AMPS LUORESCENT JTURE ULL VOLTAGE NON-REVERSING ROUND BUS BAR ROUNDING ELECTRODE CONDUCTOR ROUND FAULT INTERRUPT YPSUM WALL BOARD EAVY DUTY UMAN MACHINE INTERFACE AND-OFF-AUTO JNCTION BOX ELVIN ILO-AMPERES ILO-AMPERES INTERRUPTING CURRENT ILO-WATT GHT EMITTING DIODE FE SAFETY GHT FIXTURE ANUFACTURER AIN CIRCUIT BREAKER NOTOR CONTROL CENTER AIN LUGS ONLY IOUNTED ICROWAVE EUTRAL ATIONAL ELECTRICAL CODE ON-FUSED OT TO SCALE RIGINAL EQUIPMENT MANUFACTURER HASE ANEL OWER OVER ETHERNET RIMARY ECEPTACLE EFRIGERATOR YSTEM BONDING JUMPER ECONDARY PRINKLER FIRE CYCLE CONTROL PANEL UMP PUMP CONTROL PANEL TAINLESS STEEL WITCH EMPORARY OTAL HARMONIC DISTORTION RANSIENT VOLTAGE SURGE SUPPRESSOR YPICAL NDER COUNTER NDERGROUND INIT HEATER INLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY VOLT VOLT-AMPERES VOLTS ALTERNATING CURRENT VARIABLE FREQUENCY DRIVE VARIABLE SPEED DRIVE WIRE OR WATT (PER CONTEXT) WEATHERPROOF XF. XFMR TRANSFORMER 100% DESIGN



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VA

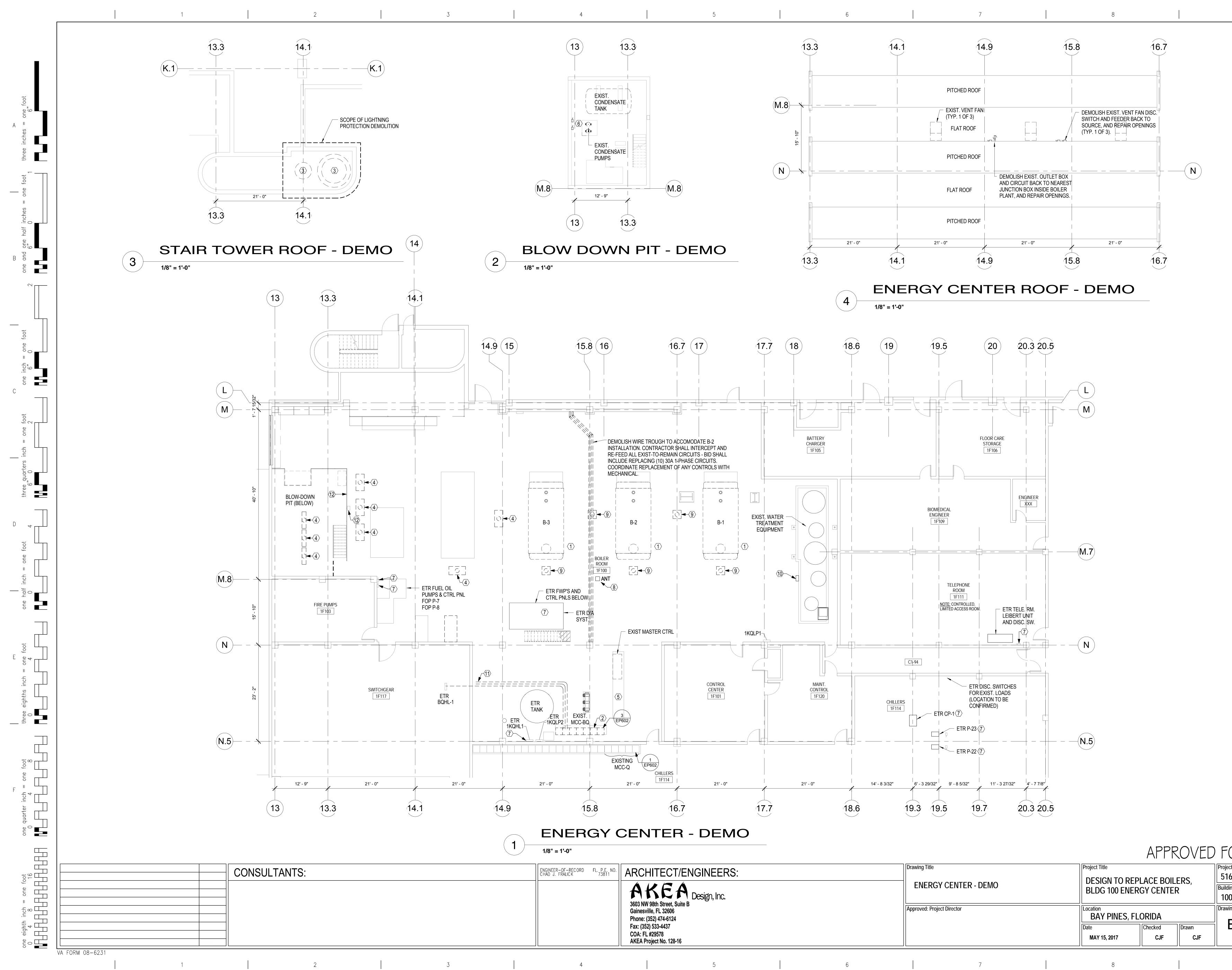
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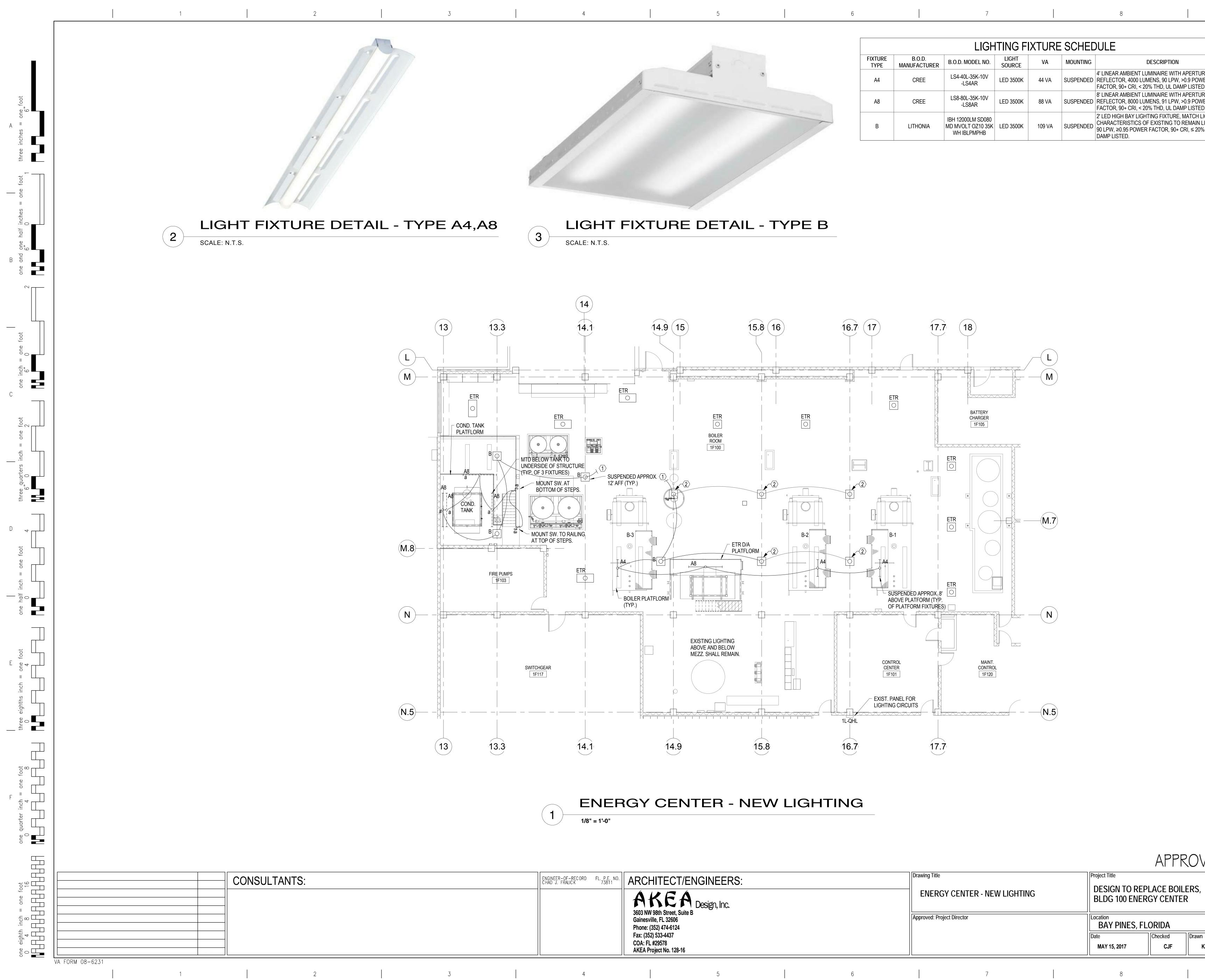
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			MAY 15, 2017	CJF	CJF	60 OF 78
			Date	Checked	Drawn	ED101
	Approved: Project Director		BAY PINES, F	LORIDA		Drawing Number
		, 	BLDG 100 ENE	RGY CENTE	R	Building Number
	ENERGY CENTER - DEMC)	DESIGN TO RE			516-15-107
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18.6	19.3 19.5 19.7	20.3 20.5				
14' - 8	3/32" 6' - 3 29/32" 9' - 8 5/32" 11'	- 3 27/32" 4' - 7 7/8"				
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	ETR P-22 (7)					
	ETR P-23 (7)		(N.5)			
	CHILLERS (LOGATION T 1F114 CONFIRMED)					

9	ENERAL SHEET NOTES	
ر ۱	EXISTING MV, COMMUNICATION, CONTROL, AND LV CONDUITS TRAVERSE THE PROJECT AREA. CONTRACTOR SHALL NOT DAMAGE	
3	EXISTING TO REMAIN CONDUIT RUNS. DEMOLITION SHALL BE PHASED. COORDINATE SEQUENCE OF ELECTRICAL DEMOLITION WITH MECHANICAL WORK.	
)	CONTRACTOR SHALL PROVIDE APPROPRIATE FALL PREVENTION/PROTECTION FOR WORK ON ROOFS OR ELEVATED SURFACES.	A
	SHEET KEYNOTES	
	DISCONNECT EXIST. BOILER CONTROL PANEL. COMPLETELY REMOVE CONDUCTORS BACK TO SOURCE (MCC-BQ). REMOVE EXPOSED CONDUIT, GRIND FLUSH WITH SLAB, AND PERMANENTLY SEAL CONDUITS.	В
2	TRANSFER LOADS, AND THEN DEMO EXIST. MCC-BQ AND PAD. SEE ONE-LINE AND DETAILS.	
;	DISCONNECT EXISTING LIGHTNING PROTECTION COMPONENTS ATTACHED TO EXISTING EXHAUST STACK AND REMOVE. REPAIR AND RECONNECT EXISTING-TO-REMAIN ITEMS AS REQUIRED TO MAINTAIN PROTECTION SYSTEM INTEGRITY THRU-OUT CONSTRUCTION. ALSO, PROVIDE TEMPORARY AIR TERMINALS (2) MIN. TO COVER RENOVATION AREA DURING CONSTRUCTION.	
Ļ	DEMO LIGHT FIXTURE.	
5	TEMPORARILY RELOCATE LOCKER AND SHELF UNITS TO ACCOMODATE NEW MCC.	С
;	DEMO FEEDERS AND ASSOC. ELEC. TO EXIST. CONDENSTATE PUMPS AND CONTROL PANELS.	
•	EXIST. LOAD TO BE RE-FED FROM NEW MCC. DEMO EXISTING FEEDER BACK TO MCC-BQ.	
}	TEMPORARILY DISCONNECT AND REMOVE EXISTING ANT. # 1-1-73 ACCESS POINT.	
)	TEMPORARILY DISCONNECT AND REMOVE EXISTING LIGHTING FIXTURE TO BE RELOCATED AS NECESSARY TO ACCOMMODATE NEW WORK.	D
0	DEMO WATER TREATMENT CIRCUITS BACK TO SOURCE. (DO NOT DEMO UNDER DEDUCT ALT #4.)	
1	DEMO PORTION OF EXISTING FEEDER TO BQHL-2.	
2	TEMPORARILY DISCONNECT AND REMOVE EXISTING EM. SUMP PUMP CONTROLLER, CONTROL POWER TRANSFORMER, SWITCHES, BELL, RECEPTACLES AND ALL OTHER ELECTRICAL ITEMS FROM TO-BE-DEMOLISHED RAILING. ENSURE SUMP PUMPS REMAIN OPERABLE DURING CONSTRUCTION.	E
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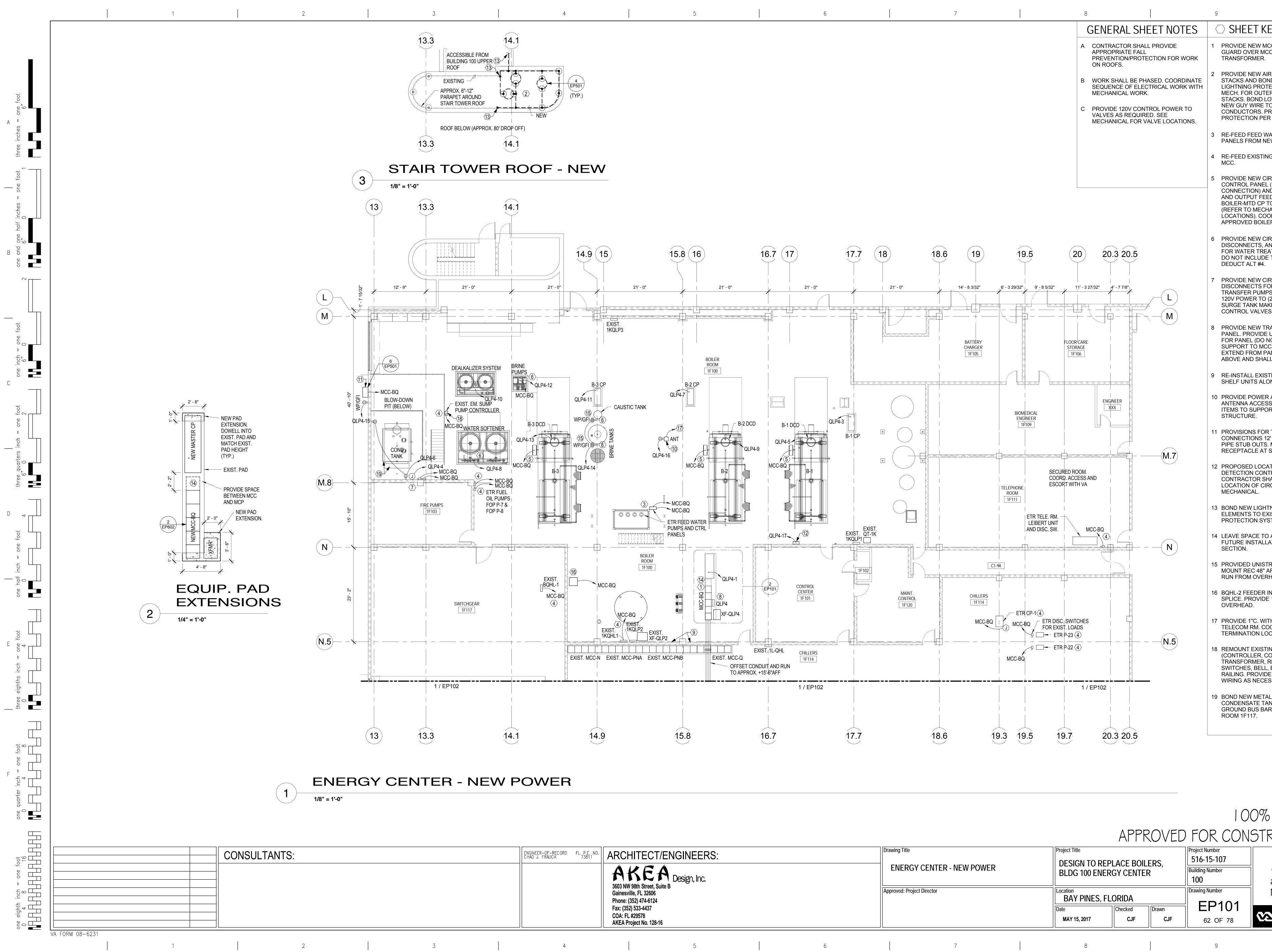


	AKEA Design, Inc. 3603 NW 98th Street, Suite B Design, Inc. 3603 NW 98th Street, Suite B Design, Inc. Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16 AKEA Project No. 128-16

		APPI	ROVED) FOR
Drawing Title ENERGY CENTER - NEW LIGHTING	Project Title DESIGN TO RE BLDG 100 ENE			Project Numb 516-15- Building Num 100
Approved: Project Director	Location BAY PINES, F			Drawing Num
	Date MAY 15, 2017	Checked CJF	Drawn KLL	61 (

LIGHTING FIXTURE SCHEDULE									
FIXTURE TYPE	B.O.D. MANUFACTURER	B.O.D. MODEL NO.	LIGHT Source	VA	MOUNTING	DESCRIPTION			
A4	CREE	LS4-40L-35K-10V -LS4AR	LED 3500K	44 VA	SUSPENDED	4' LINEAR AMBIENT LUMINAIRE WITH APERTURED REFLECTOR, 4000 LUMENS, 90 LPW, >0.9 POWER FACTOR, 90+ CRI, < 20% THD, UL DAMP LISTED.			
A8	CREE	LS8-80L-35K-10V -LS8AR	LED 3500K	88 VA	SUSPENDED	8' LINEAR AMBIENT LUMINAIRE WITH APERTURED REFLECTOR, 8000 LUMENS, 91 LPW, >0.9 POWER FACTOR, 90+ CRI, < 20% THD, UL DAMP LISTED.			
В	LITHONIA	IBH 12000LM SD080 MD MVOLT OZ10 35K WH IBLPMPHB	LED 3500K	109 VA	SUSPENDED	2' LED HIGH BAY LIGHTING FIXTURE, MATCH LIGHTING CHARACTERISTICS OF EXISTING TO REMAIN LIGHTING, 90 LPW, ≥0.95 POWER FACTOR, 90+ CRI, ≤ 20% THD, UL DAMP LISTED.			

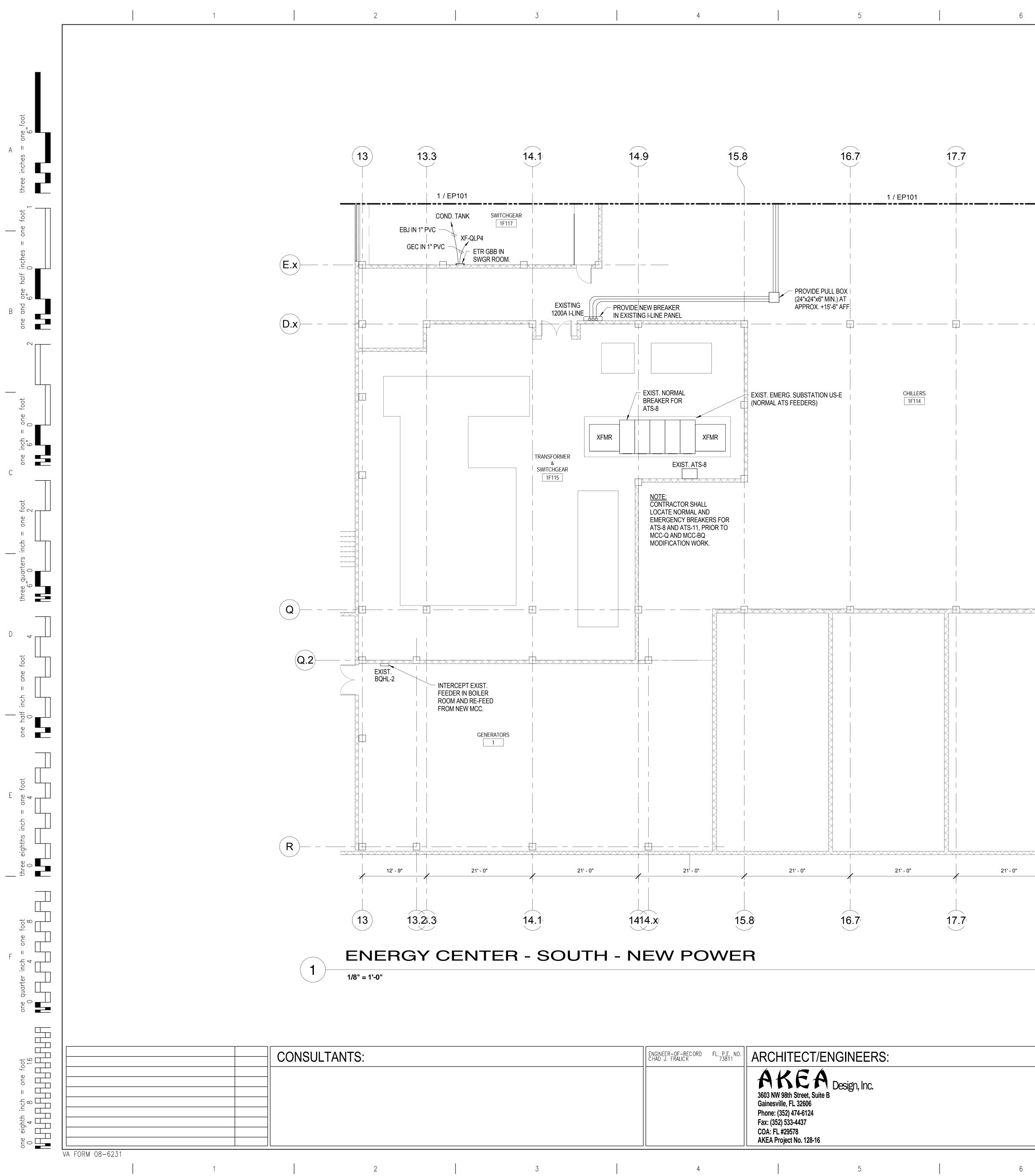
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SHEET NOTES	
COORDINATE FINAL MOUNTING LOCATIONS OF FIXTURES WITH NEW AND EXISTING SYSTEMS.	
WORK SHALL BE PHASED. COORDINATE SEQUENCE OF ELECTRICAL WORK WITH MECHANICAL WORK.	
EXISTING TO REMAIN LIGHTING ELEMENTS SHOWN WITH LIGHT LINEWEIGHTS, NEW/RELOCATED LIGHTING ELEMENTS SHOWN WITH HEAVY LINEWEIGHTS.	А
○ SHEET KEYNOTES	-
EXTEND CONDUIT AND WIRING AS NECESSARY TO CONNECT TO NEAREST SWITCHED EXISTING LIGHTING CIRCUIT FED FROM PANEL 1L-QHL.	
EXTEND CONDUIT AND WIRING AS NECESSARY TO RECONNECT RELOCATED LIGHT FIXTURE.	
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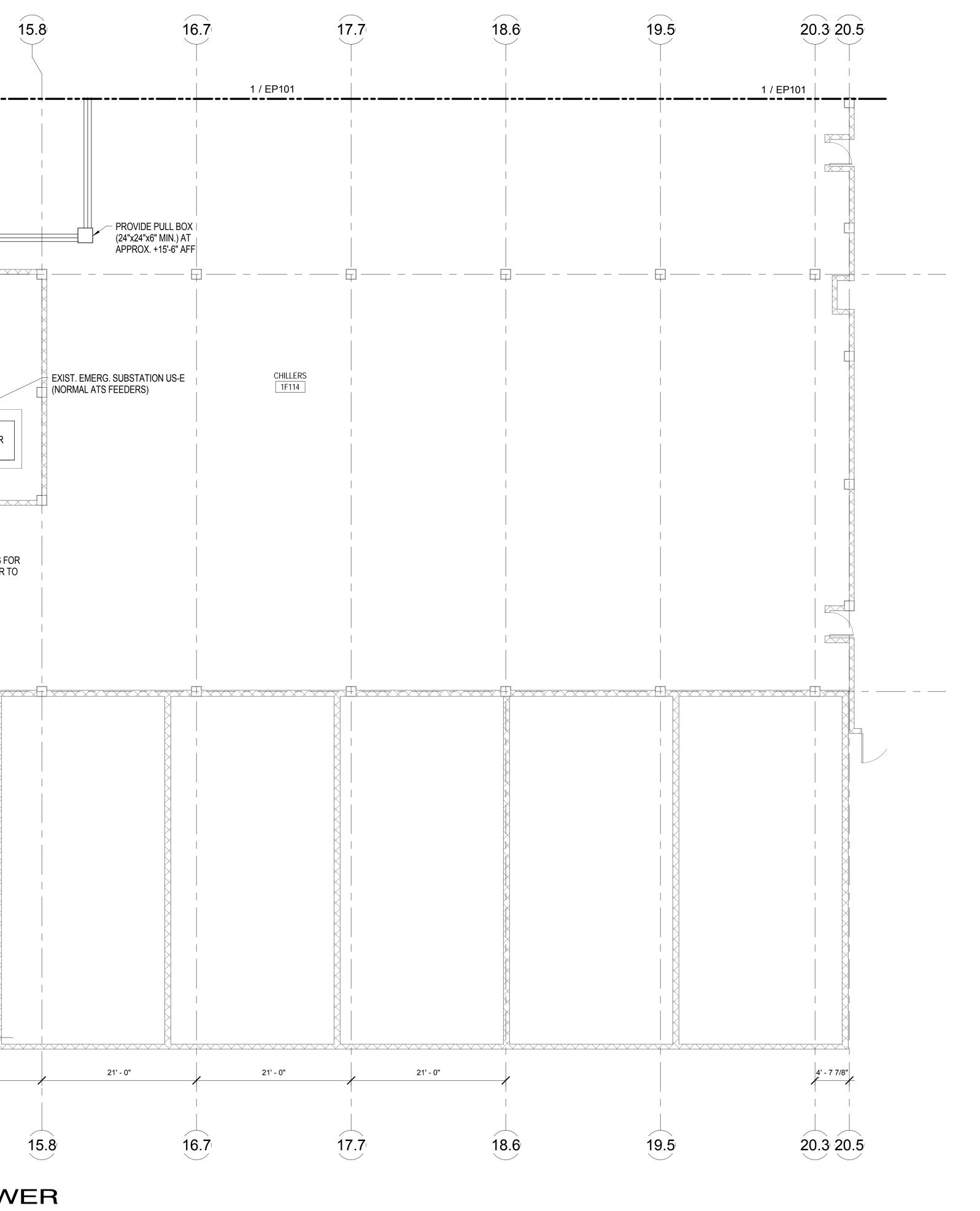
		APP	ROVE) FOR
Drawing Title ENERGY CENTER - NEW POWER	Project Title DESIGN TO RE BLDG 100 ENE			Project Numbe 516-15-1 Building Numb 100
Approved: Project Director	Location BAY PINES, I Date MAY 15, 2017	FLORIDA Checked CJF	Drawn CJF	Drawing Numb EP 62 C
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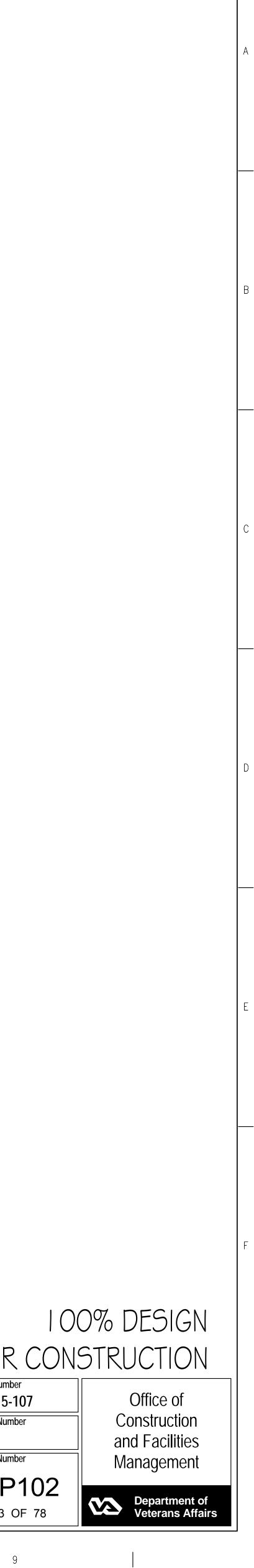
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\langle	SHEET KEYNOTES	
	PROVIDE NEW MCC-BQ. PROVIDE DRIP GUARD OVER MCC, PANEL, AND TRANSFORMER.	
	PROVIDE NEW AIR TERMINALS ON STACKS AND BOND TO EXISTING LIGHTNING PROTECTION SYSTEM. SEE MECH. FOR OUTER DIAMETER OF STACKS. BOND LOWER END OF EACH NEW GUY WIRE TO ROOF CONDUCTORS. PROVIDE CORROSION PROTECTION PER NFPA 780.	А
	RE-FEED FEED WATER PUMP CONTROL PANELS FROM NEW MCC.	
	RE-FEED EXISTING LOAD FROM NEW MCC.	
	PROVIDE NEW CIRCUIT TO BOILER-MTD CONTROL PANEL (SINGLE POINT CONNECTION) AND PROVIDE INPUT AND OUTPUT FEEDERS FROM BOILER-MTD CP TO REMOTE VFD (REFER TO MECHANICAL FOR VFD LOCATIONS). COORDINATE WITH FINAL APPROVED BOILER SHOP DRAWINGS.	
	PROVIDE NEW CIRCUITS, DISCONNECTS, AND RECEPTACLES FOR WATER TREATMENT EQUIPMENT. DO NOT INCLUDE THIS ITEM UNDER DEDUCT ALT #4.	В
	PROVIDE NEW CIRCUITS AND DISCONNECTS FOR CONDENSATE TRANSFER PUMPS. ALSO, PROVIDE 120V POWER TO (2) CONDENSATE SURGE TANK MAKEUP WATER CONTROL VALVES.	
	PROVIDE NEW TRANSFORMER AND PANEL. PROVIDE UNISTRUT SUPPORT FOR PANEL (DO NOT ATTACH PANEL SUPPORT TO MCC). SUPPORT SHALL EXTEND FROM PAD TO STRUCTURE ABOVE AND SHALL NOT SWAY.	
	RE-INSTALL EXISTING LOCKER AND SHELF UNITS ALONG THIS WALL.	С
0	PROVIDE POWER AND TELECOM TO ANTENNA ACCESS POINT. MOUNT ITEMS TO SUPPORT SUSPENDED FROM STRUCTURE.	
1	PROVISIONS FOR TEMPORARY BOILER CONNECTIONS 12' AFF, ADJACENT TO PIPE STUB OUTS. MOUNT ADJACENT RECEPTACLE AT SAME HEIGHT.	
2	PROPOSED LOCATION FOR GAS DETECTION CONTROL PANEL CIRCUIT. CONTRACTOR SHALL COORDINATE LOCATION OF CIRCUIT WITH MECHANICAL.	
3	BOND NEW LIGHTNING PROTECTION ELEMENTS TO EXISTING LIGHTNING PROTECTION SYSTEM.	D
4	LEAVE SPACE TO ACCOMMODATE FUTURE INSTALLATION OF MCC SECTION.	
5	PROVIDED UNISTRUT SUPPORT AND MOUNT REC 48" AFF. CIRCUIT SHALL BE RUN FROM OVERHEAD.	
6	BQHL-2 FEEDER INTERCEPT AND SPLICE. PROVIDE 16"X16"X6" MIN. BOX OVERHEAD.	
7	PROVIDE 1"C. WITH (1) CAT5E CABLE TO TELECOM RM. COORDINATE TERMINATION LOCATION WITH VA.	
8	REMOUNT EXISTING ITEMS (CONTROLLER, CONTROL POWER TRANSFORMER, RECEPTACLES, SWITCHES, BELL, ETC.) BACK TO NEW RAILING. PROVIDE NEW CONDUIT AND WIRING AS NECESSARY.	E
9	BOND NEW METALLIC STRUCTURE AND CONDENSATE TANK WITH #6G TO GROUND BUS BAR IN SWITCHGEAR ROOM 1F117.	
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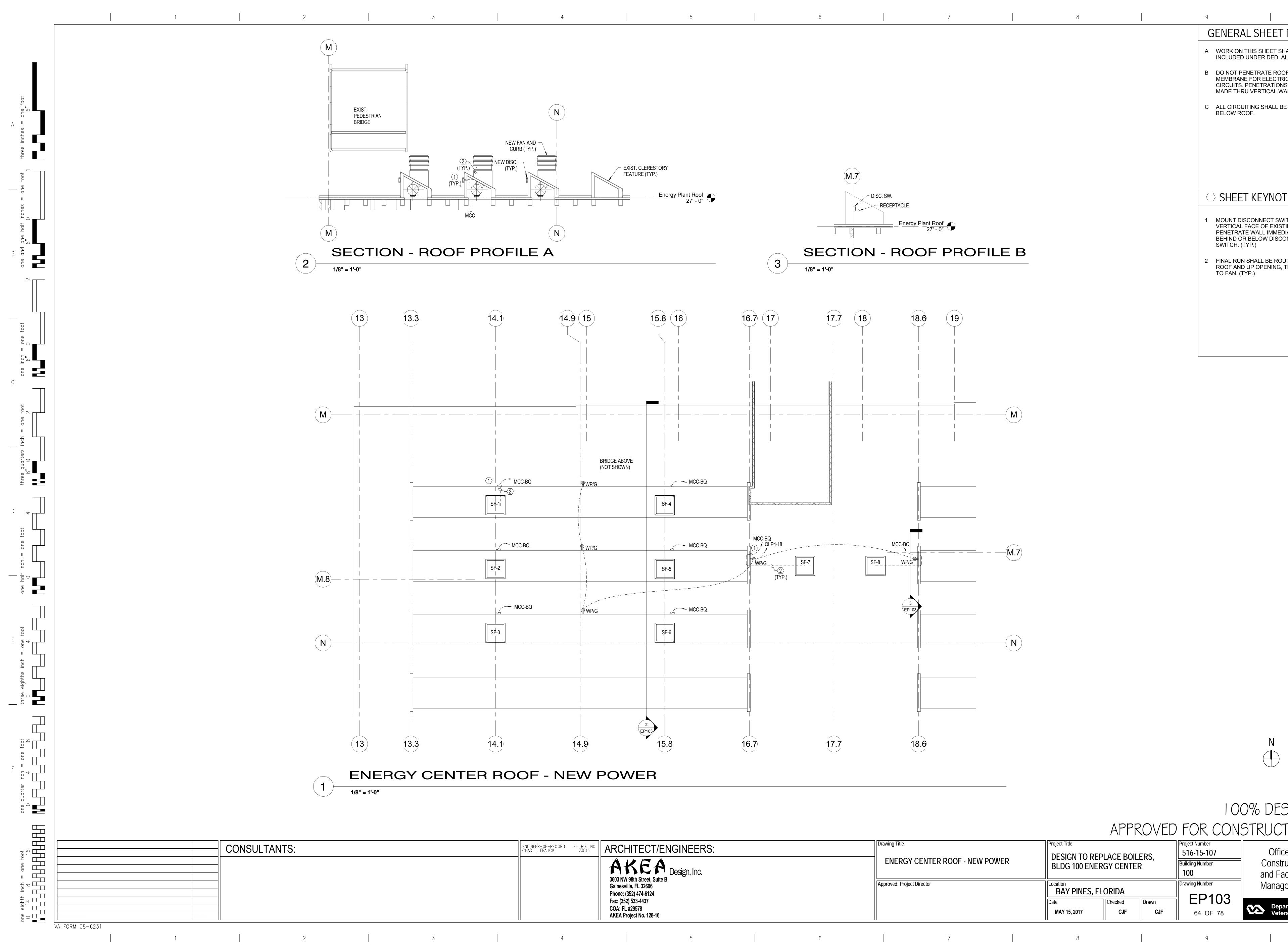


CHAD J. HIALICK	73011	
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		APF	PROVED) FOR
	Drawing Title ENERGY CENTER SOUTH - NEW POWER	Project Title DESIGN TO REPLACE BO BLDG 100 ENERGY CEN		Project Number 516-15-1 Building Number 100
	Approved: Project Director	Location BAY PINES, FLORIDA Date MAY 15, 2017 Checked CJF	Drawn CJF	Drawing Number EP 63 O
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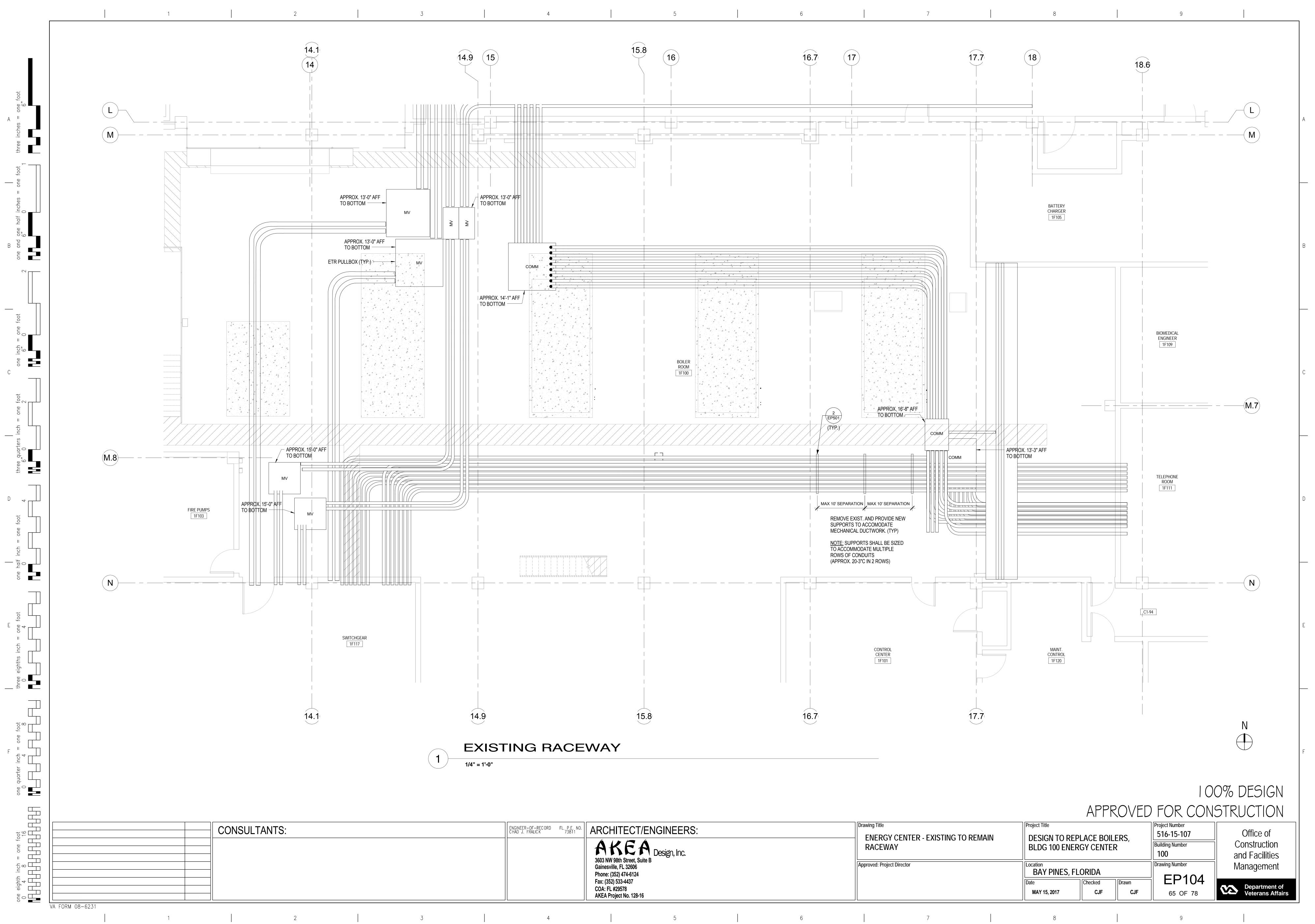




Y CENTER ROOF - NEW POWER				
	ENGINEER-OF-RECORD CHAD J. FRALICK	FL. P.E. NO. 73811	ARCHITECT/ENGINEERS:	
			AKEA Design, Inc. 3603 NW 98th Street, Suite B Gainesville, FL 32606 Phone: (352) 474-6124 Fax: (352) 533-4437 COA: FL #29578 AKEA Project No. 128-16	

		APPF	ROVED) FOR
	Project Title DESIGN TO REP	LACE BOIL	ERS,	Project Number 516-15-1
ENERGY CENTER ROOF - NEW POWER	BLDG 100 ENERGY CENTER			Building Numb
Approved: Project Director	BAY PINES, FL	orida		Drawing Numb
	Date MAY 15, 2017	Checked CJF	Drawn CJF	

9		
G	ENERAL SHEET NOTES	
A	WORK ON THIS SHEET SHALL NOT BE INCLUDED UNDER DED. ALT. #3.	
В	DO NOT PENETRATE ROOF MEMBRANE FOR ELECTRICAL CIRCUITS. PENETRATIONS SHALL BE MADE THRU VERTICAL WALLS.	
С	ALL CIRCUITING SHALL BE ROUTED BELOW ROOF.	
		А
\bigcirc	SHEET KEYNOTES	
1	MOUNT DISCONNECT SWITCH ON VERTICAL FACE OF EXISTING WALL; PENETRATE WALL IMMEDIATELY BEHIND OR BELOW DISCONNECT SWITCH. (TYP.)	
2	FINAL RUN SHALL BE ROUTED UNDER ROOF AND UP OPENING, THRU CURB,	В
	TO FAN. (TYP.)	
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			PPROVE	
	Drawing Title ENERGY CENTER - EXISTING TO REMAIN RACEWAY	Project Title DESIGN TO REPLACE BLDG 100 ENERGY CE	Project Number 516-15-1 Building Number 100	
	Approved: Project Director	Location BAY PINES, FLORIDA Date MAY 15, 2017 C.		Drawing Numl EP 65 (C
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