

# FORT PIERCE HEALTH CARE

1309 EASTER AVENUE  
FORT PIERCE, FL 34950

# GENERATOR REPLACEMENT

OWNER:

CONSULATE HEALTH CARE  
800 CONCOURSE PARKWAY S  
MAITLAND, FL 32751

MEP ENGINEERS:

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LIST OF APPLICABLE CODES, GUIDELINES AND STANDARDS

FLORIDA BUILDING CODE – 6TH EDITION (2017), BUILDING  
FLORIDA BUILDING CODE – 6TH EDITION (2017), EXISTING BUILDING  
FLORIDA BUILDING CODE – 6TH EDITION (2017), FUEL GAS  
FLORIDA FIRE PREVENTION CODE – 6TH EDITION (2017)  
FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF RESIDENTIAL HEALTH, CARE AND SUPPORT FACILITIES – 2014 EDITION

NATIONAL FIRE PROTECTION ASSOCIATION  
NFPA 31, 2011 EDITION, STANDARD FOR THE INSTALLATION OF OIL-BURNING EQUIPMENT  
NFPA 37, 2015 EDITION, STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES  
NFPA 54, 2015 EDITION, NATIONAL FUEL GAS CODE  
NFPA 70, 2014 EDITION, NATIONAL ELECTRICAL CODE  
NFPA 72, 2013 EDITION, NATIONAL FIRE ALARM AND SIGNALING CODE  
NFPA 99, 2015 EDITION, HEALTH CARE FACILITIES CODE  
NFPA 101, 2015 EDITION, THE LIFE SAFETY CODE (FLORIDA-SPECIFIC EDITION)  
NFPA 110, 2013 EDITION, STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS  
NFPA 170, 2012 EDITION, STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS  
NFPA 241, 2013 EDITION, STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION AND DEMOLITION OPERATIONS  
NFPA 704, 2012 EDITION, STANDARD SYSTEM FOR THE IDENTIFICATION OF THE HAZARDS OF MATERIALS FOR EMERGENCY RESPONSE

INDUSTRY STANDARDS AND TESTING COMPANIES  
UNDERWRITERS LABORATORIES INC. (UL)  
AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)  
AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

NOTE: THIS LIST IS NOT COMPREHENSIVE. THE CODES, GUIDELINES, AND STANDARDS NOT REFERENCED HERE MAY BE APPLICABLE TO THIS PROJECT.

OWNER FURNISHED/CONTRACTOR INSTALLED GENERATOR

INDUSTRIAL STATIONARY EMERGENCY-STANDBY RATED GENERATOR, CONSISTING OF THE FOLLOWING FEATURES AND ACCESSORIES:

- PERMANENT MAGNET EXCITATION
- LEVEL 2 ACOUSTIC ENCLOSURE, ALUMINUM –INDUSTRIAL GREY BAKED-ON POWDER COAT FINISH
- 200MPH WIND LOAD CERTIFIED
- UL2200
- EPA CERTIFIED
- CONTROL PANEL WHICH MEETS NFPA 99 AND 110 REQUIREMENTS AND HAS A TEMP RANGE OF -40°F TO 158°F
- 21 LIGHT REMOTE ANNUNCIATOR SURFACE-MOUNTED WITH INTEGRAL 8 FUNCTION RELAY BOARD
- BATTERY CHARGER, 10 AMP, NFPA 110 COMPLIANT, INSTALLED
- 110 AH, 925 CCA GROUP 31 BATTERY, WITH RACK, INSTALLED
- COOLANT HEATER, 1500W, 120VAC
- REMOTE EMERGENCY STOP SWITCH, SURFACE-MOUNT, SHIPPED LOOSE
- 100DB ALARM HORN
- 120V GFCI RECEPTACLE
- ALTERNATOR TROPICAL COATING
- FLEX FUEL LINE
- MLCB, 100% RATED, LSI ELECTRONIC TRIP
- 2 HOUR FACTORY LOAD TEST AT REACTIVE (0.8) POWER FACTOR – TESTED PER SECTION 7.13 OF NFPA 110.
- 2-YEAR COMPREHENSIVE WARRANTY
- INTERIOR/EXTERIOR GENERAL BATTERY POWERED TASK LIGHTING

INFECTION CONTROL RISK ASSESSMENT (ICRA):  
MATRIX OF PRECAUTIONS FOR CONSTRUCTION AND RENOVATION

TYPE OF CONSTRUCTION PROJECT ACTIVITY – TYPE C  
WORK THAT GENERATES A MODERATE TO HIGH LEVEL OF DUST OR REQUIRES DEMOLITION OR REMOVAL OF ANY FIXED BUILDING COMPONENTS OR ASSEMBLIES INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- o MINOR DUCT WORK OR ELECTRICAL WORK ABOVE CEILING
- o MAJOR CABLING ACTIVITIES
- o ANY ACTIVITY THAT CANNOT BE COMPLETED WITHIN A SINGLE WORK SHIFT

PATIENT RISK GROUPS – LOW RISK – NURSING HOME

IC MATRIX--CLASS OF PRECAUTIONS: CONSTRUCTION PROJECT BY PATIENT RISK				
PATIENT RISK GROUP	CONSTRUCTION PROJECT TYPE			
	TYPE A	TYPE B	TYPE C	TYPE D
LOW RISK GROUP	I	II	II	III / IV
MEDIUM RISK GROUP	I	II	III	IV
HIGH RISK GROUP	I	II	III / IV	IV
HIGHEST RISK GROUP	II	III / IV	III / IV	IV

CLASS II DESCRIPTION OF REQUIRED INFECTION CONTROL PRECAUTIONS	
DURING CONSTRUCTION PROJECT	UPON COMPLETION OF PROJECT
1. PROVIDE ACTIVE MEANS TO PREVENT AIRBORNE DUST FROM DISPERSING INTO THE ATMOSPHERE.	1. WIPE WORK SURFACES WITH CLEANER/DISINFECTANT.
2. WATER MIST WORK SURFACES TO CONTROL DUST WHILE CUTTING.	2. CONTAIN CONSTRUCTION WASTE BEFORE TRANSPORT IN TIGHTLY COVERED CONTAINERS.
3. SEAL UNUSED DOORS WITH DUCT TAPE.	3. WET MOP AND/OR VACUUM WITH HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTERED VACUUM BEFORE LEAVING WORK AREA.
4. BLOCK OFF AND SEAL AIR VENTS.	4. UPON COMPLETION, RESTORE HVAC SYSTEM WHERE WORK WAS PERFORMED.
5. PLACE DUST MAT AT ENTRANCE AND EXIT OF WORK AREA.	
6. REMOVE OR ISOLATE THE HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEM IN AREAS WHERE WORK IS BEING PERFORMED.	

SHEET TITLE LIST	
SHEET NUMBER	SHEET TITLE
E000	COVER SHEET
E100	LEGEND, DIAGRAMS AND NOTES – ELECTRICAL
E101	SCHEDULES AND STUDIES – ELECTRICAL
E102	UTILITY DOCUMENTATION – ELECTRICAL
E200	SITE PLAN – ELECTRICAL
E300	FLOOR PLAN – ELECTRICAL
E500	DETAILS – ELECTRICAL
E501	LIGHTNING PROTECTION – ELECTRICAL
E600	SPECIFICATIONS – ELECTRICAL

FUNCTIONAL PROGRAM

1. THE EXISTING EMERGENCY GENERATOR DOES NOT MEET THE CURRENT REQUIREMENTS AS DEFINED BY THE FLORIDA BUILDING CODE AND WILL BE REMOVED AND REPLACED WITH A NEW GENERATOR SIZED FOR THE CURRENT FULL LOAD OF THE EXISTING BUILDING BASED ON THE MAXIMUM DEMAND LOAD AS RECORDED BY THE ELECTRICAL UTILITY COMPANY. A SECONDARY BREAKER WILL ALSO BE PROVIDED AND SIZED TO RE-FEED THE EXISTING ESSENTIAL ELECTRICAL SYSTEM TRANSFER SWITCH.
2. THE NEW GENERATOR WILL BE A LEVEL 1, TYPE 10, CLASS 48 GENERATOR IN ACCORDANCE WITH 2017 F.B.C. 450.3.18.1. A SERVICE ENTRANCE RATED TRANSFER SWITCH WILL BE INSTALLED AND FED FROM A FULL RATED BREAKER IN THE GENERATOR. THIS TRANSFER SWITCH WILL BE SHED IN THE EVENT THE GENERATOR BECOMES OVERLOADED.
3. ALL OF THE EMERGENCY GENERATOR (INCLUDING THE EXHAUST) SHALL BE PROTECTED AND DESIGNED AND CONSTRUCTED TO MEET THE DEBRIS IMPACT REQUIREMENTS IN ACCORDANCE WITH 2017 F.B.C. 450.4.2.5.
4. A SHUTDOWN OF THE MAIN ELECTRICAL SYSTEM WILL BE NECESSARY IN ORDER TO TIE IN THE SERVICE ENTRANCE RATED TRANSFER SWITCH. SHUTDOWNS WILL BE LIMITED TO MAXIMUM OF FOUR HOURS. A TEMPORARY GENERATOR HAS BEEN PROVIDED BY THE OWNER TO PROVIDE BACKUP POWER TO THE ESSENTIAL ELECTRICAL SYSTEM AND WILL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. THE PROJECT WILL BE CONSTRUCTED IN THE FOLLOWING PHASES: (1) INSTALLATION OF THE NEW GENERATOR SYSTEM, (2) CONNECTION OF THE NEW SERVICE ENTRANCE RATED TRANSFER SWITCH, (3) CONNECTION OF THE EXISTING ESSENTIAL ELECTRICAL SYSTEM TRANSFER SWITCH.
6. WHILE THE CONNECTION OF THE EXISTING ESSENTIAL ELECTRICAL SYSTEM IS BEING DONE, AN INTERIM LIFE SAFETY PLAN CONSISTING OF A FIRE WATCH AND RELOCATING ALL ESSENTIAL EQUIPMENT TO NORMAL POWER RECEPTACLES WILL BE IMPLEMENTED.
7. THE OCCUPIED RESIDENT AREAS WILL CONSIST OF THE ENTIRE FACILITY. ALL EXISTING COOLING SYSTEMS PREVIOUSLY DESIGNED TO MAINTAIN A 75 DEGREE FAHRENHEIT TEMPERATURE WILL BE PROVIDED WITH EMERGENCY POWER FOR A MINIMUM PERIOD OF 96 HOURS.
8. THERE IS NO INTERNAL WIRING IN THE BUILDING WITH THE EXCEPTION OF WORK WITHIN THE MAIN ELECTRICAL ROOM AND CONNECTION OF THE GENERATOR ACCESSORIES TO PANEL E.

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Stamp:

Job Number: 2018101.00	Designer: CTA
Date: 09/28/18	Drafter: MWH

Submital:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

Project Title:  
**FORT PIERCE  
HEALTH CARE  
GENERATOR REPLACEMENT  
1309 EASTER AVENUE  
FORT PIERCE, FL 34950**

Drawing Title:  
**COVER SHEET**

**E000**

COPPER FEEDER SCHEDULE																			
FEEDER DESIGNATION	No. OF SETS	PHASE CONDUCTORS		N NEUTRAL CONDUCTOR		G GROUND CONDUCTOR		SG SYSTEM BONDING JUMPER		P PARTIAL NEUTRAL SERVICE CONDUCTOR		I ISOLATED GROUND CONDUCTOR		CONDUIT SIZE - CONDUIT TYPES EMT, FMC, LPMC, IMC, RMC, SCH 40 PVC			CONDUIT SIZE - CONDUIT TYPES SCH 80 PVC		
		(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	(PER SET)	3 PHASE NEUTRAL & GROUND	3 PHASE & GROUND	3 PHASE NEUTRAL, GROUND & ISOLATED GROUND	3 PHASE NEUTRAL & GROUND	3 PHASE & GROUND	3 PHASE NEUTRAL, GROUND & ISOLATED GROUND
15	1	3 # 12	1 # 12	1 # 12	1 # 8								3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
20	1	3 # 12	1 # 12	1 # 12	1 # 8								3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
30	1	3 # 10	1 # 10	1 # 10	1 # 8								3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
40/50	1	3 # 8	1 # 8	1 # 10	1 # 8								3/4"	3/4"	1"	1"	3/4"	1"	1"
60	1	3 # 6	1 # 6	1 # 10	1 # 8								1"	3/4"	1"	1"	1"	1 1/4"	1 1/4"
70/80	1	3 # 4	1 # 4	1 # 8	1 # 8								1 1/4"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
100	1	3 # 2	1 # 2	1 # 6	1 # 6	1 # 8	1 # 8						1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/4"	1 1/2"	1 1/2"
115	1	3 # 2	1 # 2	1 # 6	1 # 6	1 # 8	1 # 8						1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/4"	1 1/2"	1 1/2"
130	1	3 # 1	1 # 1	1 # 6	1 # 6	1 # 6	1 # 6						1 1/2"	1 1/2"	1 1/2"	2"	1 1/2"	2"	2"
150	1	3 # 1/0	1 # 1/0	1 # 6	1 # 6	1 # 6	1 # 6						2"	1 1/2"	2"	2"	1 1/2"	2"	2"
175	1	3 # 2/0	1 # 2/0	1 # 6	1 # 4	1 # 4	1 # 4						2"	1 1/2"	2"	2"	2"	2"	2"
200	1	3 # 3/0	1 # 3/0	1 # 6	1 # 4	1 # 4	1 # 4						2"	2"	2"	2 1/2"	2"	2 1/2"	2 1/2"
225	1	3 # 4/0	1 # 4/0	1 # 4	1 # 2	1 # 2	1 # 4						2 1/2"	2"	2 1/2"	2 1/2"	2"	2 1/2"	2 1/2"
250	1	3 # 250	1 # 250	1 # 4	1 # 2	1 # 2	1 # 4						2 1/2"	2"	2 1/2"	3"	2 1/2"	3"	3"
300	1	3 # 350	1 # 350	1 # 4	1 # 2	1 # 2	1 # 4						3"	2 1/2"	3"	3"	3"	3"	3"
350	1	3 # 500	1 # 500	1 # 3	1 # 1/0	1 # 1/0	1 # 3						4"	3"	4"	4"	3"	4"	4"
400	2	3 # 3/0	1 # 3/0	1 # 3	1 # 1/0	1 # 1/0	1 # 3						2 1/2"	2"	2 1/2"	2 1/2"	2"	2 1/2"	2 1/2"
460	2	3 # 4/0	1 # 4/0	1 # 2	1 # 1/0	1 # 1/0	1 # 2						2 1/2"	2"	2 1/2"	2 1/2"	2"	2 1/2"	2 1/2"
500	2	3 # 250	1 # 250	1 # 2	1 # 1/0	1 # 1/0	1 # 2						2 1/2"	2 1/2"	3"	3"	2 1/2"	3"	3"
600	2	3 # 350	1 # 350	1 # 1	1 # 2/0	1 # 2/0	--						3"	2 1/2"	--	3"	3"	--	--
700	2	3 # 500	1 # 500	1 # 1/0	1 # 2/0	1 # 2/0	--						4"	3"	--	4"	3"	--	--
800	3	3 # 300	1 # 300	1 # 1/0	1 # 2/0	1 # 2/0	--						3"	2 1/2"	--	3"	2 1/2"	--	--
1000	3	3 # 400	1 # 400	1 # 2/0	1 # 3/0	1 # 3/0	--						3"	3"	--	4"	3"	--	--
1200	4	3 # 350	1 # 350	1 # 3/0	1 # 4/0	1 # 4/0	--						3"	2 1/2"	--	3"	3"	--	--
1600	5	3 # 400	1 # 400	1 # 4/0	1 # 250	1 # 250	--						3"	3"	--	4"	3"	--	--
2000	6	3 # 400	1 # 400	1 # 250	1 # 300	1 # 300	--						3"	3"	--	4"	3"	--	--
2500	7	3 # 500	1 # 500	1 # 350	1 # 500	1 # 500	--						4"	3"	--	4"	4"	--	--
3000	8	3 # 500	1 # 500	1 # 400	1 # 500	1 # 500	--						4"	3"	--	4"	4"	--	--
4000	11	3 # 500	1 # 500	1 # 500	2 # 350	1 # 500	--						4"	4"	--	4"	4"	--	--

- EXAMPLES:  
1. 150NG = INDICATES 1 SET OF 4# 1/0 + 1# 6 GROUND CONDUCTOR PER SET.  
2. 500P = INDICATES 2 SETS OF 3 # 250KCMIL AND 1 # 1/0 PARTIAL NEUTRAL CONDUCTOR PER SET.  
3. 300NG = INDICATES 5 # 350KCMIL AND 1 # 4 GROUND CONDUCTOR.

GENERATOR LOAD CALCULATIONS	
MAXIMUM DEMAND	231 KW
SAFETY FACTOR (x1.25)	289 KW
GENERATOR CAPACITY	350 KW
REMAINING CAPACITY	119 KW

FUEL TANK SIZE CALCULATIONS	
CALCULATED PERCENT LOAD	66.00 %
100% LOAD FUEL CONSUMPTION	25.3 GAL/HR
DEMAND LOAD FUEL CONSUMPTION	18.47 GAL/HR
96-HOUR CAPACITY	1773.12 GALLONS
72-HOUR DEMAND LOAD FUEL	1329.84 GALLONS
64-HOUR 100% LOAD FUEL	1619.2 GALLONS
SAFETY FACTOR (x1.25)	2024 GALLONS
MINIMUM REQUIRED FUEL STORAGE	2024 GALLONS
FUEL TANK SIZE	2125 GALLONS

LOW FUEL ALARM	
100% LOAD FUEL CONSUMPTION	25.3 GAL/HR
48-HOUR FUEL CONSUMPTION	1214.4 GALLONS
LOW FUEL ALARM SETTING	1214.4 GALLONS

ELECTRICAL ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
A	AMPERES
AFG	ABOVE FINISHED GRADE
EC	ELECTRICAL CONTRACTOR
ETR	EXISTING ELECTRICAL DEVICE TO REMAIN - MAINTAIN DURING DEMOLITION
FBC	FLORIDA BUILDING CODE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER - PERSON PROTECTION
KAIC	KILOAMPERES INTERRUPTING CURRENT RATING
KWC	KILOWATTS CONNECTED
KWD	KILOWATTS DEMAND
MCB	MAIN CIRCUIT BREAKER
Ø	PHASE
SER	SERVICE ENTRANCE RATED
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WIRE

- EXISTING CONDITIONS NOTES:  
1. DIAGRAMS AND PANEL SCHEDULES HAVE BEEN REPRODUCED FROM ORIGINAL DESIGN DOCUMENTS AND MAY NOT REFLECT FIELD CONDITIONS.  
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEYING AND VERIFYING ALL EXISTING CIRCUITS AND PANELS OF ORIGIN SERVING ALL EQUIPMENT SCHEDULED TO BE RE-CIRCUITED AS PART OF THIS PROJECT.

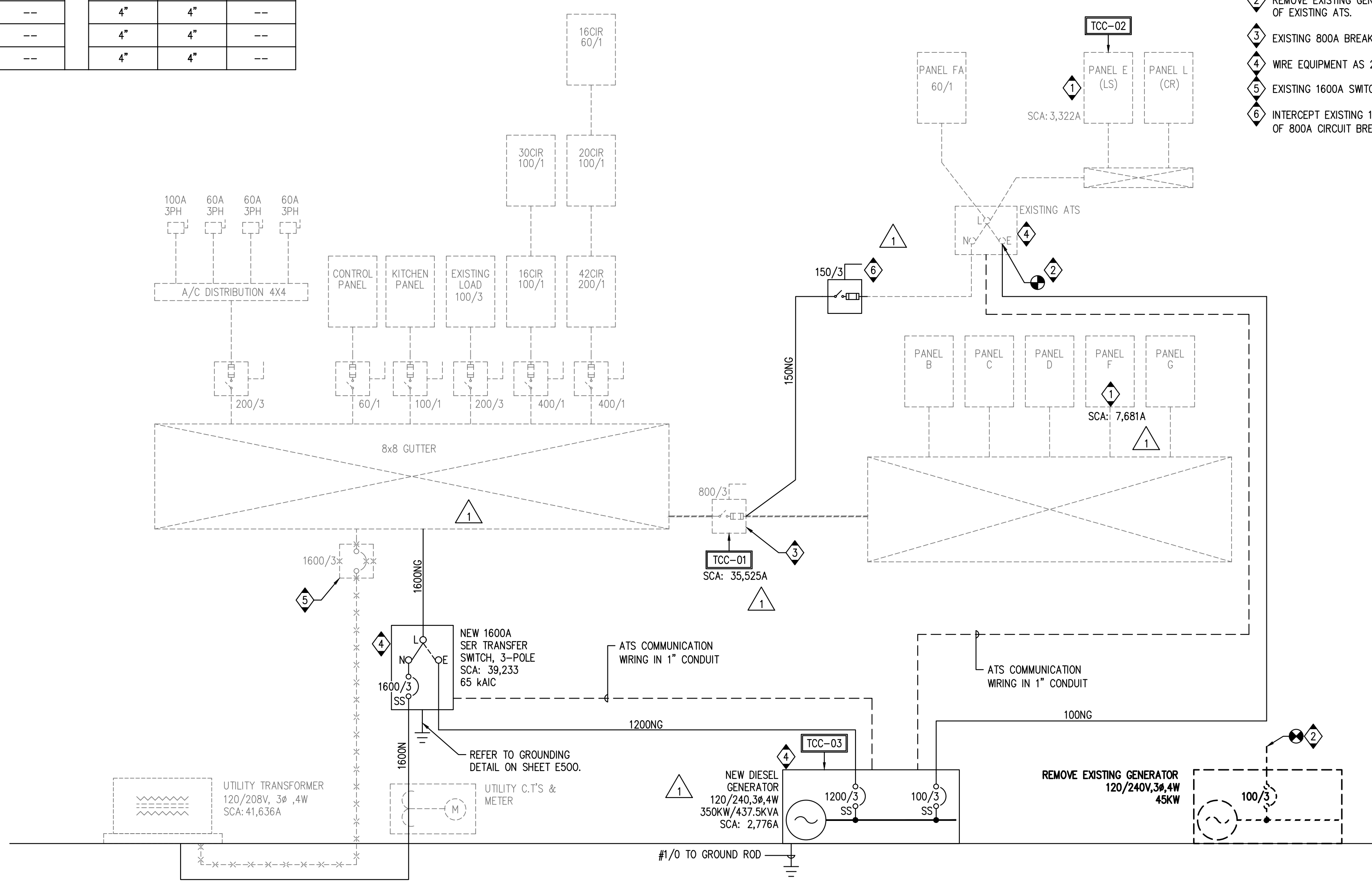
- TEMPORARY GENERATOR REQUIREMENTS:  
1. PROVIDE TEMPORARY GENERATOR WITH A MINIMUM 45 KW CAPACITY AT 60 HZ.  
2. PROVIDE TEMPORARY WIRING RATED FOR THE MAXIMUM GENERATOR OUTPUT CURRENT IN CONDUIT OR OTHER MEANS OF PROTECTION.  
3. PROVIDE A MINIMUM OF 64 HOURS OF FUEL ON SITE IN A FUEL TANK THAT MEETS SAFETY REQUIREMENTS OF NFPA 101 (LIFE SAFETY CODE), NFPA 1 (FIRE PREVENTION CODE), AND NFPA 30 (FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE).  
4. VERIFY AUTOMATIC TRANSFER SWITCH WILL PROPERLY START THE TEMPORARY GENERATOR WITHIN 10 SECONDS AND THAT THE GENERATOR EMERGENCY STOP FUNCTIONS PROPERLY.  
5. PROVIDE UL-LISTED DRY CHEMICAL FIRE EXTINGUISHER SIMILAR TO ANSUL SENTRY CORROSION RESISTANT HIGH FLOW 20-20LB, 60SQFT COVERAGE AREA, DRY CHEMICAL WITH A DISCHARGE RATE OF OVER 1LB/SEC. PROTECTS AN EXTRA HAZARD THREE DIMENSIONAL CLASS B FIRE AND IS LOCATED OVER 10' AND UNDER 30' AWAY FROM THE GENERATOR. PROVIDE IN SURFACE MOUNTED STAINLESS STEEL FIRE EXTINGUISHER CABINET WITH TEMPERED SAFETY GLASS SIMILAR TO POTTER ROEMER MODEL 7069.

- GENERAL NOTES:  
1. ITEMS SHOWN AS DASHED AND SHADEN ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE. ITEMS SHOWN AS SOLID DARKENED ARE NEW TO BE INSTALLED.

- KEY NOTES:  
1. NEW GENERATOR ACCESSORY LOADS SHALL BE ADDED TO EXISTING LIFE SAFETY PANEL 'E' AND EXISTING NORMAL PANEL 'F'.  
2. REMOVE EXISTING GENERATOR, CONNECT NEW GENERATOR TO EMERGENCY SIDE OF EXISTING ATS.  
3. EXISTING 800A BREAKER TO BE REPLACED WITH A NEW SQUARE D 800A 'NH'.  
4. WIRE EQUIPMENT AS 240/120V, 3 PHASE, 4W HIGH LEG DELTA.  
5. EXISTING 1600A SWITCH AND FEEDERS TO BE REMOVED.  
6. INTERCEPT EXISTING 100A FEEDER AND PROVIDE A NEW BREAKER WITHIN 10' OF 800A CIRCUIT BREAKER (REFER TO NOTE 3).

ELECTRICAL SYMBOLS	
	CKT BREAKER, '###' INDICATES TRIP SETTING, '###' INDICATES NUMBER OF POLES
	FUSED SWITCH, '###' INDICATES TRIP SETTING, '###' INDICATES NUMBER OF POLES
	ENCLOSED NON-FUSED SWITCH
	KIRK KEY INTERLOCK
	GROUND FAULT PROTECTION
	SURGE PROTECTIVE DEVICE
	UTILITY METER
	PANELBOARD
	TRANSFORMER
	AUTOMATIC TRANSFER SWITCH
	GENERATOR
	DRAW-OUT CKT BREAKER, '###' INDICATES TRIP SETTING, '###' INDICATES NUMBER OF POLES
	ENCLOSED CIRCUIT BREAKER
	ENCLOSED FUSED SWITCH
	SOLID STATE, ELECTRONIC ADJUSTABLE TRIP
	SHUNT TRIP
	DIGITAL MULTIMETER
	GEN REMOTE ANNUNCIATOR PANEL
	GROUND
	POINT OF DEMARCATION
	POINT OF CONNECTION
	ISOLATION TRANSFORMER
	AUTOMATIC TRANSFER SWITCH, WITH BYPASS ISOLATION
	PAD MOUNTED TRANSFORMER

CONSTRUCTION LEGEND	
	EXISTING TO REMAIN
	EXISTING TO REMAIN
	NEW CONSTRUCTION
	NEW CONSTRUCTION



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**CONSULATE HEALTH CARE**  
*At the Heart of Caring*

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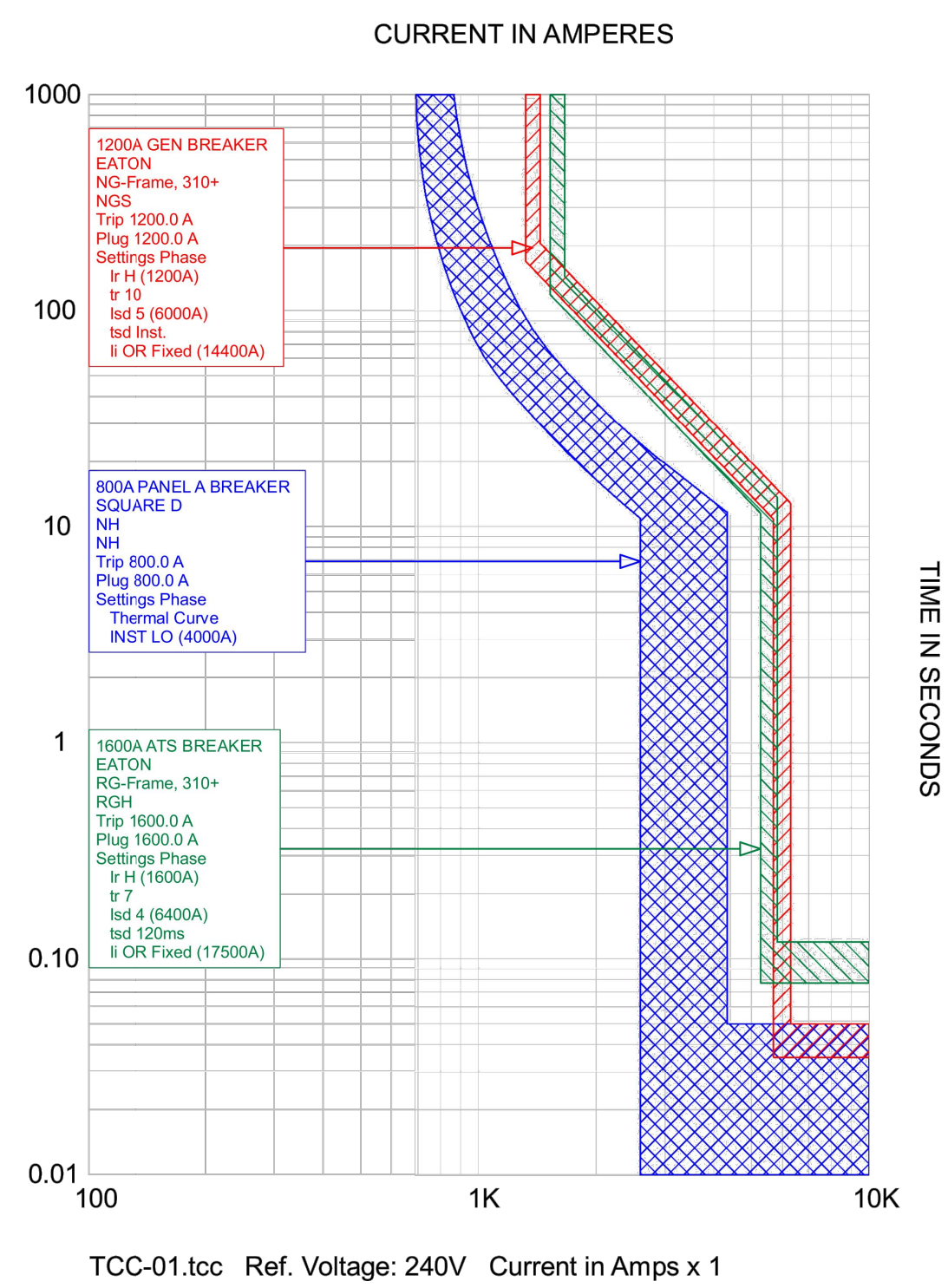
Job Number:	2018101.00	Designer:	CTA
Date:	09/28/18	Drafter:	MWH

Submital:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

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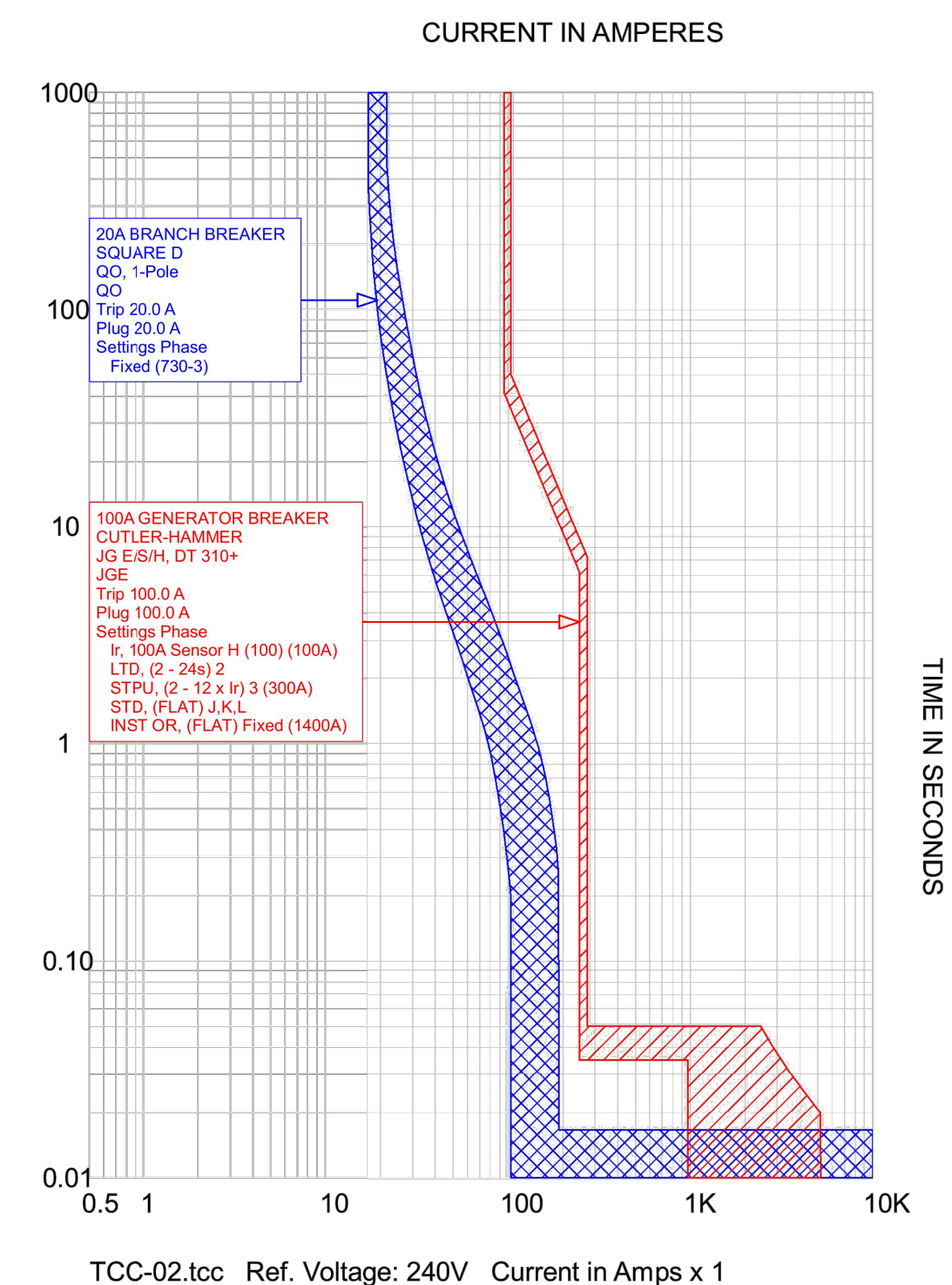
Drawing Title:  
**LEGEND, DIAGRAMS AND NOTES - ELECTRICAL**

**E100**



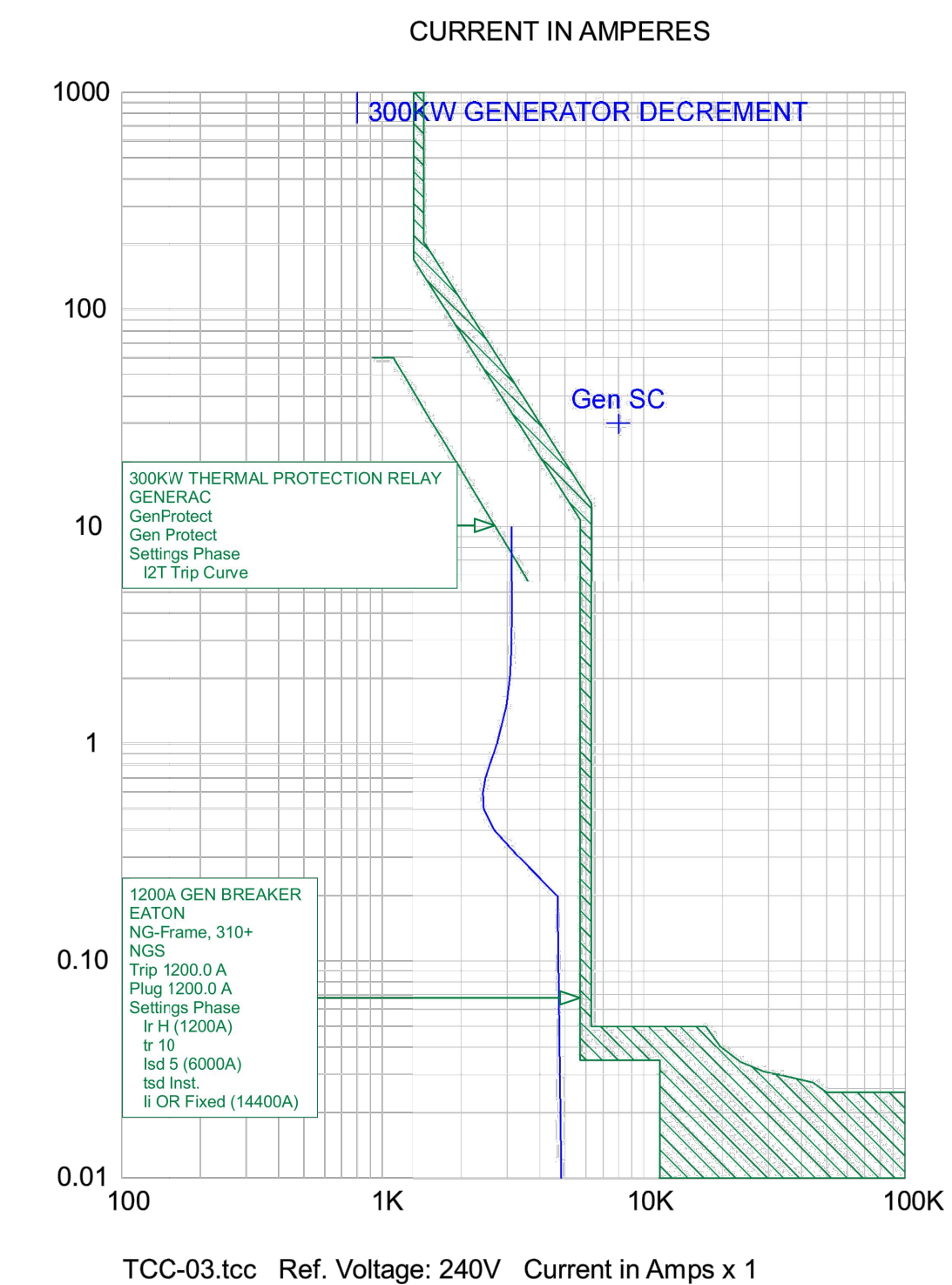
TCC-01.tcc Ref. Voltage: 240V Current in Amps x 1

TCC-01



TCC-02.tcc Ref. Voltage: 240V Current in Amps x 1

TCC-02



TCC-03.tcc Ref. Voltage: 240V Current in Amps x 1

TCC-03

**EXISTING PANEL E** CB OPT: ST - SHUNT TRIP 10KA AIC RATING  
 VOLTAGE: 120/240 VCLTS SINGLE PHASE, 3 WIRE AF - ARC FAULT CIRCUIT INTERRUPTER  
 BUS RATING: 100 AMPS GF - GROUND FAULT  
 MAIN: MLO SPECIAL OPTIONS  
 BRANCHTYPE: LIFE SAFETY BRANCH

LOAD TYPE	LOAD (VA)	CN KO T	LOAD SERVED	CB AMP	CB T	CB B	CB C	LOAD SERVED	CN KO T	LOAD (VA)	LOAD TYPE
RECEPTACLE	360	1	RECEPT.	20/1	A	B		HALL LIGHTS/RECEPT.	2	500	LIGHTING
LIGHTING	500	3	HALL LIGHTS	20/1	A	B		SHOCKING PALETTE FAN	4	400	MOTOR
RECEPTACLE	540	5	ROOM 49	20/1	A	B		NURSE CALL	6	700	MISC
LIGHTING	500	7	EXT LIGHTS	20/1	A	B		LIGHTS CAFE	8	500	LIGHTING
RECEPTACLE	540	9	JANITOR CLOSET	20/1	A	B		RECEPT.	10	180	RECEPTACLE
RECEPTACLE	360	11	RECEPT.	20/1	A	B		RECEPT.	12	180	RECEPTACLE
MISC	1000	15	ROOM 50	20/1	A	B		ROOM 51	14	540	RECEPTACLE
RECEPTACLE	540	13	ROOM 52	20/1	A	B		EMER LIGHT	16	500	RECEPTACLE
RECEPTACLE	540	17	RECEPT.	20/1	A	B		JANITOR CLOSET	18	500	MISC
RECEPTACLE	540	19	SPACE	20/1	A	B		SPACE	20		
RECEPTACLE	540	21	SPACE	20/1	A	B		SPACE	22		
RECEPTACLE	360	23	GEN RECP TL & LTG.	20/1	A	B		SPACE	24		

EXISTING METERED PHASE A (VA) PHASE B (VA) FEED THROUGH PANEL LOAD (kVA)  
 LOAD X 125%  
 PANEL CALCULATIONS:  
 LOAD TYPE LOAD (VA) DEMAND FACTOR DEMAND LOAD  
 RECEPTACLE 4140 PER NEC ARTICLE 220.44 4140 VA  
 LIGHTING 2500 125% 3125 VA  
 MOTOR 400 100% 400 VA  
 HEAT 0 100% 0 VA  
 MISC 2200 100% 2200 VA

LOAD SUMMARY  
 Phase Loading  
 Phase A 5 kVA  
 Phase B 4 kVA

Total Connected Load 9 kVA  
 Total Demand Load 10 kVA  
 Line to Line Voltage 240 VCLTS  
 Spare Capacity 0%  
 Panel Amps 42 AMPS

**EXISTING PANEL F** CB OPT: ST - SHUNT TRIP 22KA AIC RATING  
 VOLTAGE: 120/208 VOLTS 3 PHASE 4 WIRE AF - ARC FAULT CIRCUIT INTERRUPTER  
 BUS RATING: 225 AMPS GF - GROUND FAULT FR - 100% RATED SPECIAL OPTIONS  
 MAIN: MLO SURFACE MOUNTED  
 BRANCHTYPE: NORMAL BRANCH L-LOCKABLE EP - EQUIPMENT GROUND FAULT (30mA)

LOAD TYPE	LOAD (VA)	CN KO T	LOAD SERVED	CB AMP	CB T	CB B	CB C	LOAD SERVED	CN KO T	LOAD (VA)	LOAD TYPE
MOTOR	625	1	A/C	20/2	A	B		A/C	22	625	MOTOR
MOTOR	625	2	---	---	---	---	---	---	23	625	MOTOR
MOTOR	625	3	A/C	20/2	A	C		A/C	24	625	MOTOR
MOTOR	625	4	---	---	---	---	---	---	25	625	MOTOR
MOTOR	625	5	A/C	20/2	A	B		A/C	26	625	MOTOR
MOTOR	625	6	---	---	---	---	---	---	27	625	MOTOR
MOTOR	625	7	A/C	20/2	A	B		A/C	28	625	MOTOR
MOTOR	625	8	---	---	---	---	---	---	29	625	MOTOR
MOTOR	625	9	A/C	20/2	A	C		A/C	30	625	MOTOR
MOTOR	625	10	---	---	---	---	---	---	31	625	MOTOR
MOTOR	625	11	A/C	20/2	A	B		A/C	32	625	MOTOR
MOTOR	625	12	---	---	---	---	---	---	33	625	MOTOR
MISC	110	19	BATTERY CHARGER	20/1	A	B		N EAST AC	40		
HEAT	600	20	CTL PNL STRP HEATER	20/1	A	B		---	41		
HEAT	1500	21	BLOCK HEATER	20/1	A	B		SPACE	42		

EXISTING METERED PHASE A (VA) PHASE B (VA) PHASE C (VA) FEED THROUGH PANEL LOAD (kVA)  
 LOAD X 125%  
 PANEL CALCULATIONS:  
 LOAD TYPE LOAD (VA) DEMAND FACTOR DEMAND LOAD  
 RECEPTACLE 0 PER NEC ARTICLE 220.44 0 VA  
 LIGHTING 0 125% 0 VA  
 MOTOR 15000 100% 15000 VA  
 HEAT 2100 100% 2100 VA  
 MISC 110 100% 110 VA

SUB FEED LOADS AMP LOAD LOAD TYPE

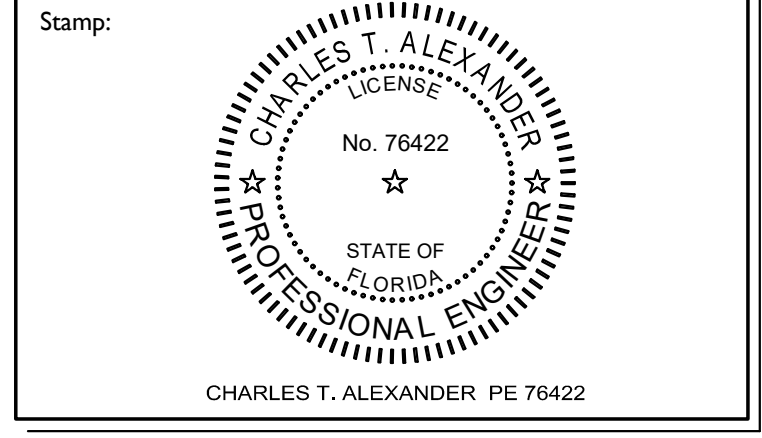
LOAD SUMMARY  
 Phase Loading  
 Phase A 5 kVA  
 Phase B 6 kVA  
 Phase C 7 kVA

Total Connected Load 17 kVA  
 Total Demand Load 18 kVA  
 Line to Line Voltage 208 VOLTS  
 Spare Capacity 0%  
 Panel Amps 49 AMPS

- PANEL SCHEDULES GENERAL NOTES:**
- ITEMS SHOWN AS SHADED ON PANEL SCHEDULES ARE EXISTING TO REMAIN, UNLESS OTHERWISE NOTED.
  - ALL CIRCUIT BREAKERS INDICATED AS DARK WITHIN EXISTING PANELS ARE NEW.
  - EXISTING CIRCUITS HAVE BEEN TAKEN FROM AS-BUILT DRAWING AND EXISTING CONDITIONS HAVE NOT BEEN VERIFIED.
  - PROVIDE 30A NON-FUSED DISCONNECT SWITCH WITHIN GENERATOR ENCLOSURE AS REQUIRED BY SECTION 3.31 OF NFPA 110 FOR GENERATOR BATTERY AND BLOCK HEATERS.

**KEY NOTES:**

1. FOR EACH CIRCUIT, PROVIDE IN-LINE SURGE PROTECTION DEVICE TO BE MOUNTED AND INSTALLED AT PANEL. PROVIDE SSI MODEL 'RESIPI-52'.



Job Number: 2018101.00 Designer: CTA  
 Date: 09/28/18 Drafter: MWH

Submittal:

Date:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

Project Title:  
**FORT PIERCE HEALTH CARE GENERATOR REPLACEMENT**  
 1309 EASTER AVENUE  
 FORT PIERCE, FL 34950

Drawing Title:  
**SCHEDULES AND STUDIES - ELECTRICAL**

**E101**

**Matthew Horton**

**From:** Michael Chidgey <mchidgey@fpua.com>  
**Sent:** Wednesday, February 6, 2019 3:10 PM  
**To:** Matthew Horton  
**Cc:** Paul Laguerre  
**Subject:** 611 S 13th St - 12 Month Peak Demand

Mr. Horton,

The peak demand for the past 12 months at 611 S. 13<sup>th</sup> St is: 231kW (Sept 2018) at 117000kWh.

Should you still need a full utility bill, I will request it from customer service and get it for you.

As an aside, we serve the facility with natural gas currently. If a natural gas generator wasn't the direction you were looking to go, we can most certainly provide service for it should it be preferable.

Let me know if I can be any further assistance.

Thanks,

**Michael Chidgey - FPUA**  
Engineering Tech I - Electric & Gas Engineering  
1701 South 37<sup>th</sup> Street, Fort Pierce, Florida 34947  
[mchidgey@fpua.com](mailto:mchidgey@fpua.com) - [www.fpua.com](http://www.fpua.com)  
Office: (772) 466 1600 ext. 6459

Please note: Florida has a very broad public records law. Most written communications to or from Fort Pierce Utilities Authority employees regarding government business are public records, available to the public and media upon request. Your e-mail communications may be subject to public disclosure.  
(For additional information, go to [http://www.fpua.com/important\\_information/privacy.php](http://www.fpua.com/important_information/privacy.php))

**ROBBINS, JON W**

**From:** MOON, SHELBY  
**Sent:** Monday, April 30, 2018 8:22 AM  
**To:** ROBBINS, JON W  
**Subject:** FW: 611 S 13th Street  
**Attachments:** Demand Analysis.pdf

Thank you,

**Shelby Moon**  
Purchasing Specialist  
Consulate Health Care  
800 Concourse Parkway South  
Maitland, FL 32751  
[www.consulatehealthcare.com](http://www.consulatehealthcare.com)  
o: 407.571.1550, ext. 2312  
f: 407.571.1588



**From:** Jason Mittler [mailto:jmittler@fpua.com]  
**Sent:** Friday, April 27, 2018 4:16 PM  
**To:** MOON, SHELBY  
**Subject:** 611 S 13th Street

Shelby,

Per your request attached are the demand reads for the site as well below are the information related to the fault current.

Transformer (kVA): 300  
Transformer impedance (%): 2%  
Secondary Voltage (V): 208  
Secondary Fault Current (Amps): 41636

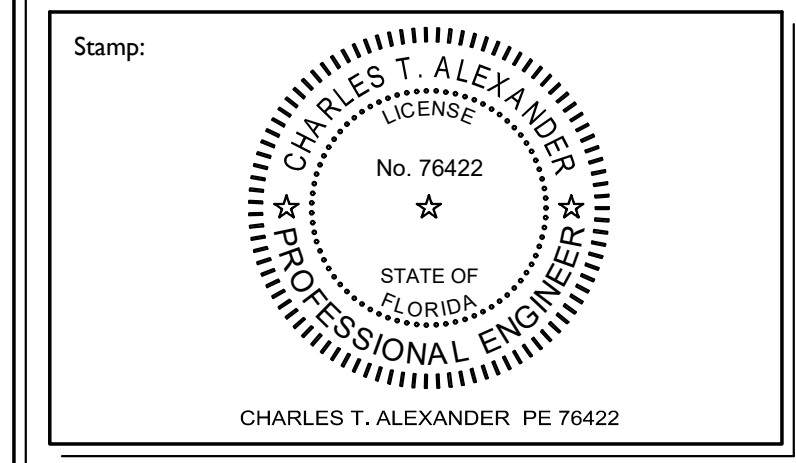
If you have any questions please feel free to contact me.

Thanks

**Jason M. Mittler** | FPUA  
Utility Designer | Electric & Gas Engineering  
1701 South 37<sup>th</sup> Street | Fort Pierce, Florida 34947  
[jmittler@fpua.com](mailto:jmittler@fpua.com) | [www.fpua.com](http://www.fpua.com)  
P: 772-466-1700, 4-856 | F: 772-461-1938

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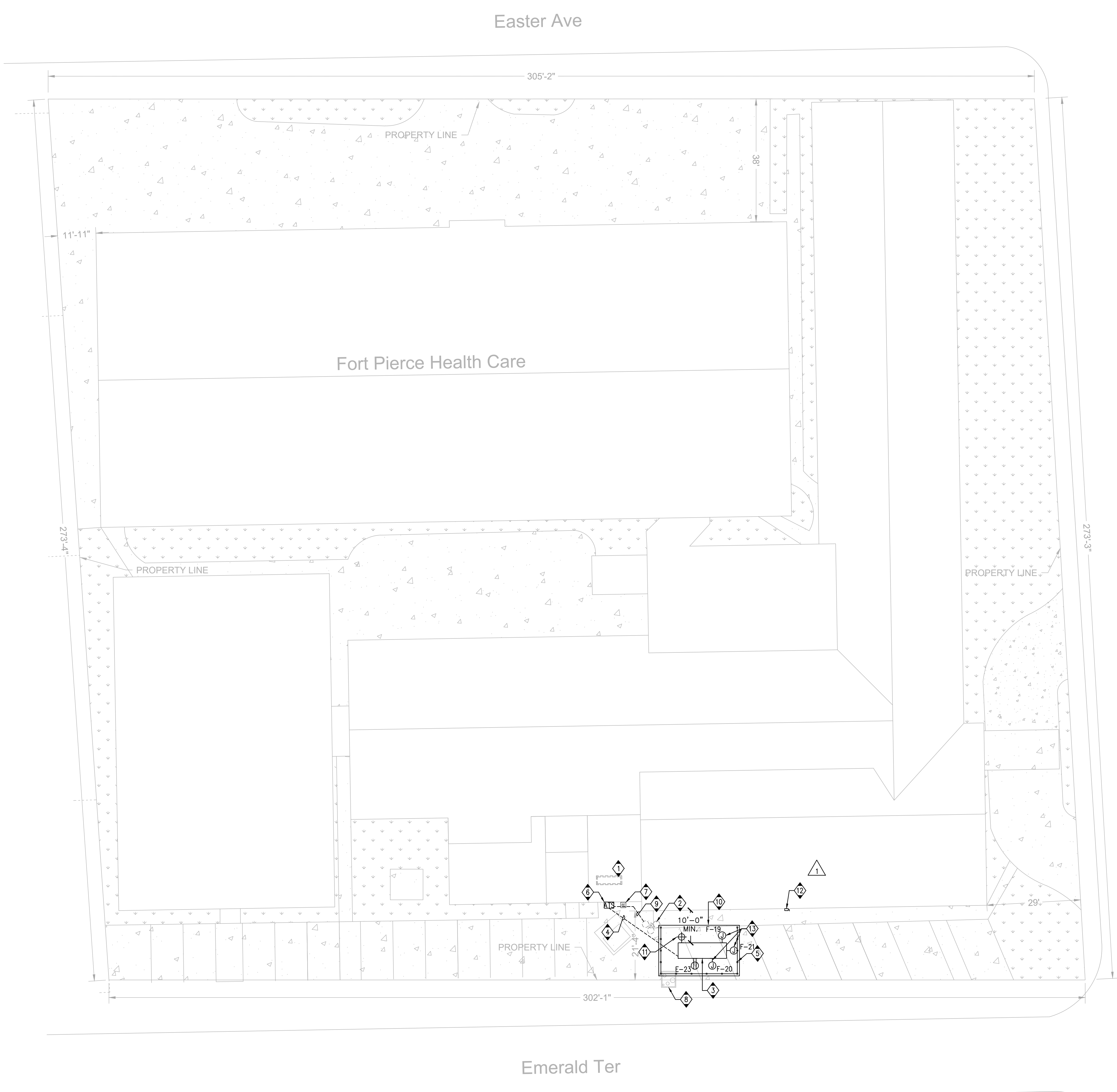
Job Number: 2018101.00	Designer: CTA
Date: 09/28/18	Drafter: MWH

Submittal Date:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

Project Title:  
**FORT PIERCE  
HEALTH CARE  
GENERATOR REPLACEMENT  
1309 EASTER AVENUE  
FORT PIERCE, FL 34950**

Drawing Title:  
**UTILITY  
DOCUMENTATION  
- ELECTRICAL**

**E102**



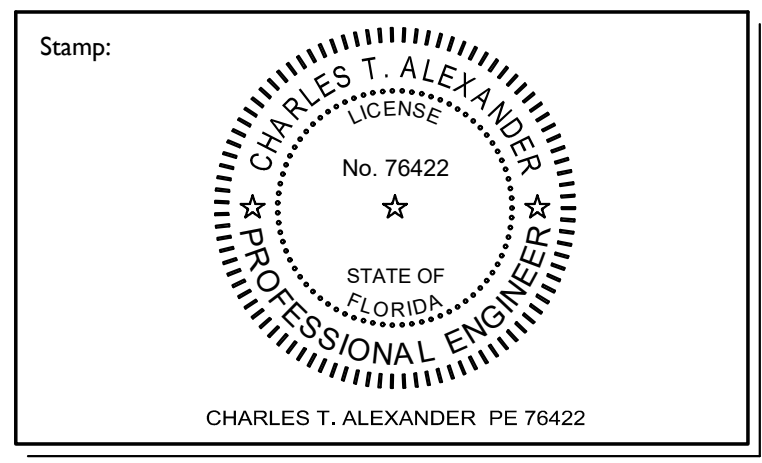
**GENERAL NOTES:**

1. REFER TO ONE-LINE ON SHEET E100 FOR ADDITIONAL INFORMATION.
2. REFER TO DETAIL SHEET E500 FOR ADDITIONAL INFORMATION.

**KEY NOTES:**

- 1 REMOVE EXISTING GENERATOR AND ALL ASSOCIATED ACCESSORIES.
- 2 EXISTING POLE MOUNTED UTILITY TRANSFORMERS.
- 3 PROPOSED LOCATION OF NEW GENERATOR WITH DIESEL BELLY TANK. GENERATOR EXHAUST DISCHARGE SHALL BE A MINIMUM OF 10 FEET AWAY FROM ANY OUTSIDE AIR INTAKE OR BUILDING OPENING.
- 4 PROPOSED ROUTING OF NEW DUCTBANK FROM GENERATOR TO NEW ATS.
- 5 PROVIDE HURRICANE RATED PROTECTION SCREENING. CONTACT ARMOR SCREEN AT (877) 237-2337 TO PROVIDE THE DESIGN AND MATERIALS FOR THE SCREEN. SCREEN SHALL BE A MINIMUM OF 12'-6" TALL AND HAVE AN ACCESS SECTION FOR MAINTENANCE AND INSPECTION OF THE GENERATOR. COORDINATE ANCHOR REQUIREMENTS WITH CONCRETE PAD. HURRICANE PROTECTION SCREEN SHALL HAVE A MIAMI-DADE NOA OR FLORIDA PRODUCT APPROVAL NUMBER.
- 6 NEW SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH (ATS).
- 7 PROVIDE UL-LISTED DRY CHEMICAL FIRE EXTINGUISHER SIMILAR TO ANSUL SENTRY CORROSION RESISTANT HIGH FLOW 20-20LB, 60SQFT COVERAGE AREA, DRY CHEMICAL WITH A DISCHARGE RATE OF OVER 1LB/SEC. PROTECTS AN EXTRA HAZARD THREE DIMENSIONAL CLASS B FIRE AND IS LOCATED OVER 10' AND UNDER 30' AWAY FROM THE GENERATOR. PROVIDE IN SURFACE MOUNTED STAINLESS STEEL FIRE EXTINGUISHER CABINET WITH TEMPERED SAFETY GLASS SIMILAR TO POTTER ROEMER MODEL 7069.
- 8 REMOVE EXISTING TREE PLANTER, EXISTING POWER POLE TO REMAIN.
- 9 PROPOSED ROUTING FROM POLE MOUNTED UTILITY TRANSFORMER TO NEW ATS.
- 10 CONCRETE GENERATOR PAD TO EXTEND 4' AROUND GENERATOR TO ACCOMMODATE HURRICANE SCREEN WALL FENCE.
- 11 PROVIDE GARDCO LIGHT FIXTURE WITH EMERGENCY BATTERY PACK. MODEL #121/16L/530/NW-G3/2/EBPC/120V/MR12/F1/BK.
- 12 GENERATOR REMOTE EMERGENCY STOP DEVICE.
- 13 THE GENERATOR ACCESSORIES: THE BLOCK HEATER (F-21), THE BATTERY CHARGER (F-19), AND THE CONTROL PANEL STRIP HEATER (F-20) WILL BE PLACED ON PANEL 'F'. THE GENERATOR RECEPTACLE AND TASK LIGHTING (E-23) WILL BE PLACED ON LIFE SAFETY PANEL 'E'.

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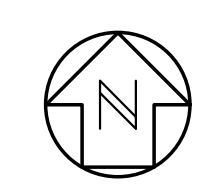
Job Number: 2018101.00	Designer: CTA
Date: 09/28/18	Drafter: MWH

Submittal Date:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	1 AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

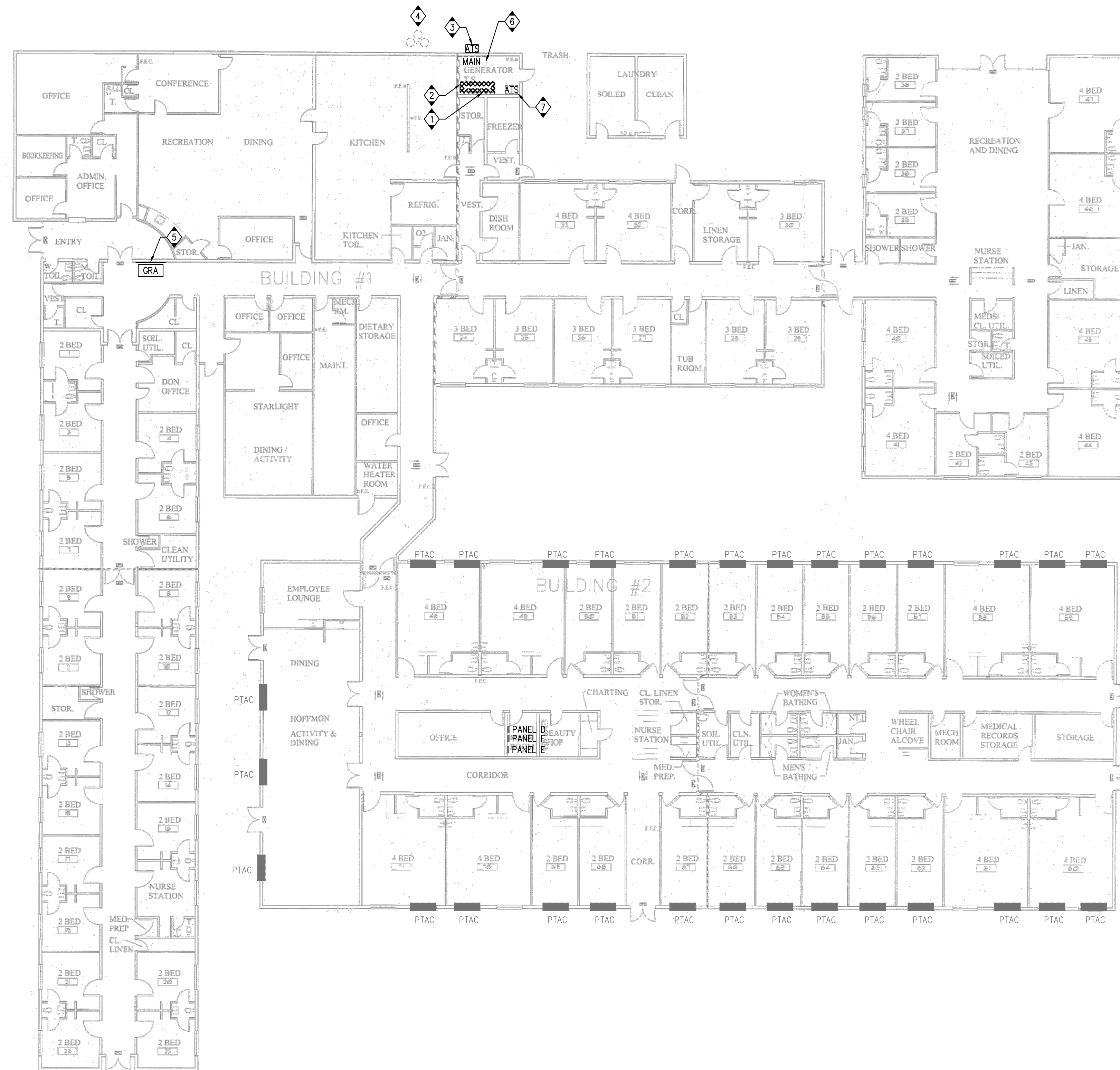
Project Title:  
**FORT PIERCE HEALTH CARE  
 GENERATOR REPLACEMENT  
 1309 EASTER AVENUE  
 FORT PIERCE, FL 34950**

Drawing Title:  
**SITE PLAN  
 - ELECTRICAL**

**E200**



SCALE  
 1/16"=1'-0" A



**GENERAL NOTES:**

1. REFER TO ONE LINE ON SHEET E100 FOR ADDITIONAL INFORMATION.
2. EGRESS PATHS SHALL BE MAINTAINED CLEAR OF OBSTRUCTIONS DURING AND AFTER CONSTRUCTION.
3. LICENSED BEDS = 171  
 REQUIRED OCCUPIED RESIDENT AREA = 171 \* 30 FT<sup>2</sup> = 5,130 FT<sup>2</sup>.  
 TOTAL OCCUPIED RESIDENT AREA = 42,780 FT<sup>2</sup> (ENTIRE FACILITY).

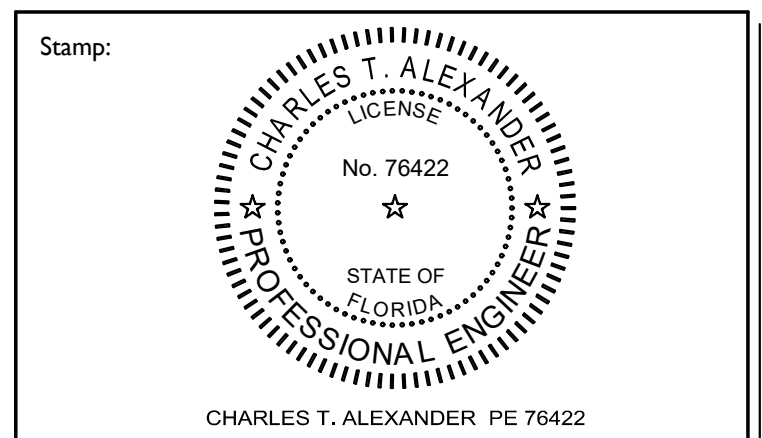
**KEY NOTES:**

1. EXISTING GENERATOR TO BE REMOVED.
2. REMOVE GENERATOR RADIATOR EXHAUST GOOSENECK ON ROOF AND COVER ROOF CURB WITH SHEET METAL CAP SEALED WATER TIGHT.
3. NEW SER ATS LOCATED ON EXTERIOR OF BUILDING.
4. APPROXIMATE LOCATION OF EXISTING POLE MOUNTED UTILITY TRANSFORMER.
5. PROPOSED LOCATION OF NEW GENERATOR ANNUNCIATOR PANEL. CONFIRM FINAL LOCATION WITH OWNER PRIOR TO ROUGH-IN.
6. APPROXIMATE LOCATION OF MAIN DISCONNECT SWITCH. CONTRACTOR TO VERIFY EXACT LOCATION.
7. APPROXIMATE LOCATION OF EXISTING AUTOMATIC TRANSFER SWITCH TO REMAIN.

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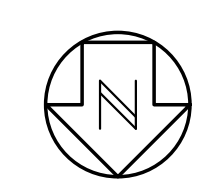
Job Number: <b>2018101.00</b>	Designer: <b>CTA</b>
Date: <b>09/28/18</b>	Drafter: <b>MWH</b>

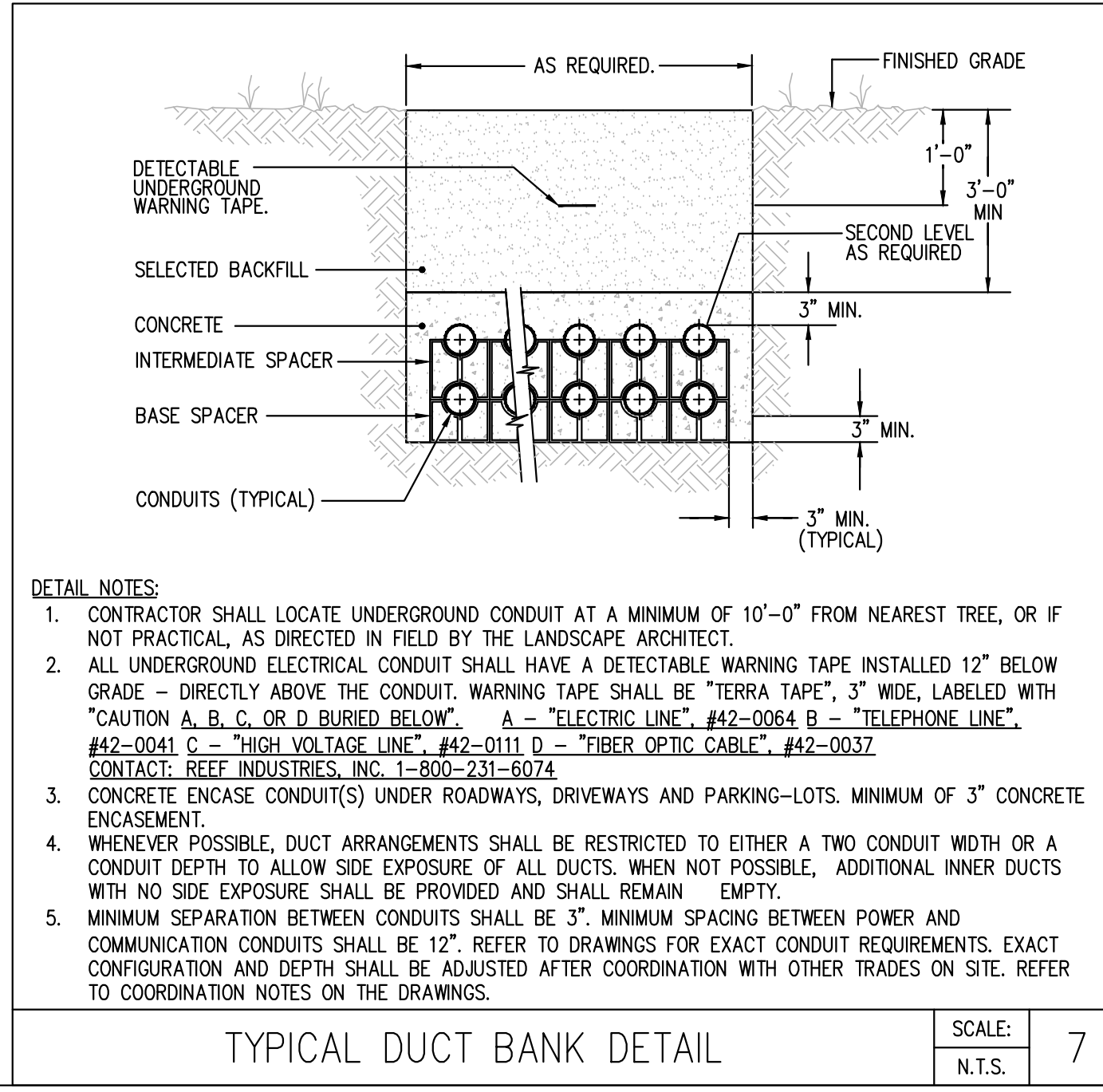
Submittal Date:	Description:
08/01/18	AHCA SUBMISSION
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Project Title:  
**FORT PIERCE HEALTH CARE  
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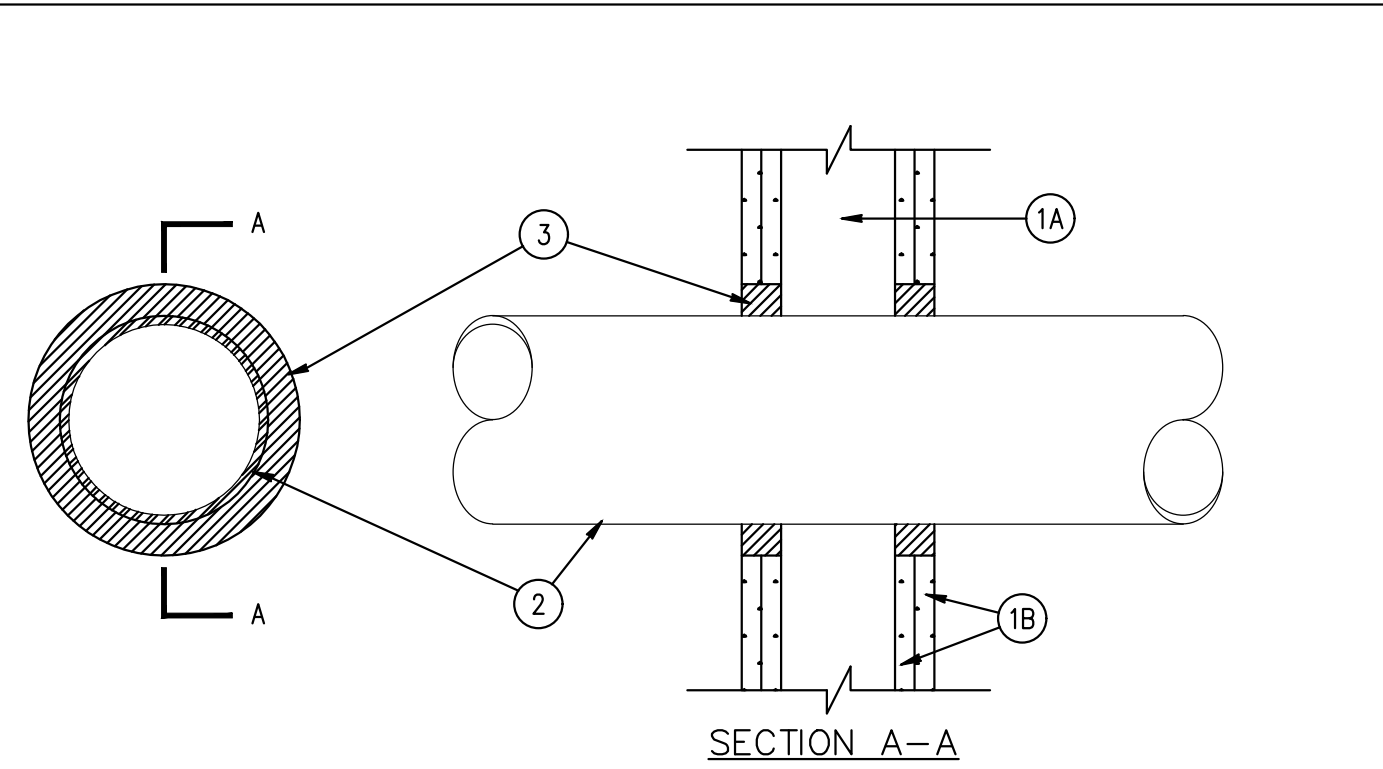
Drawing Title:  
**FLOOR PLAN  
 - ELECTRICAL**

**E300**





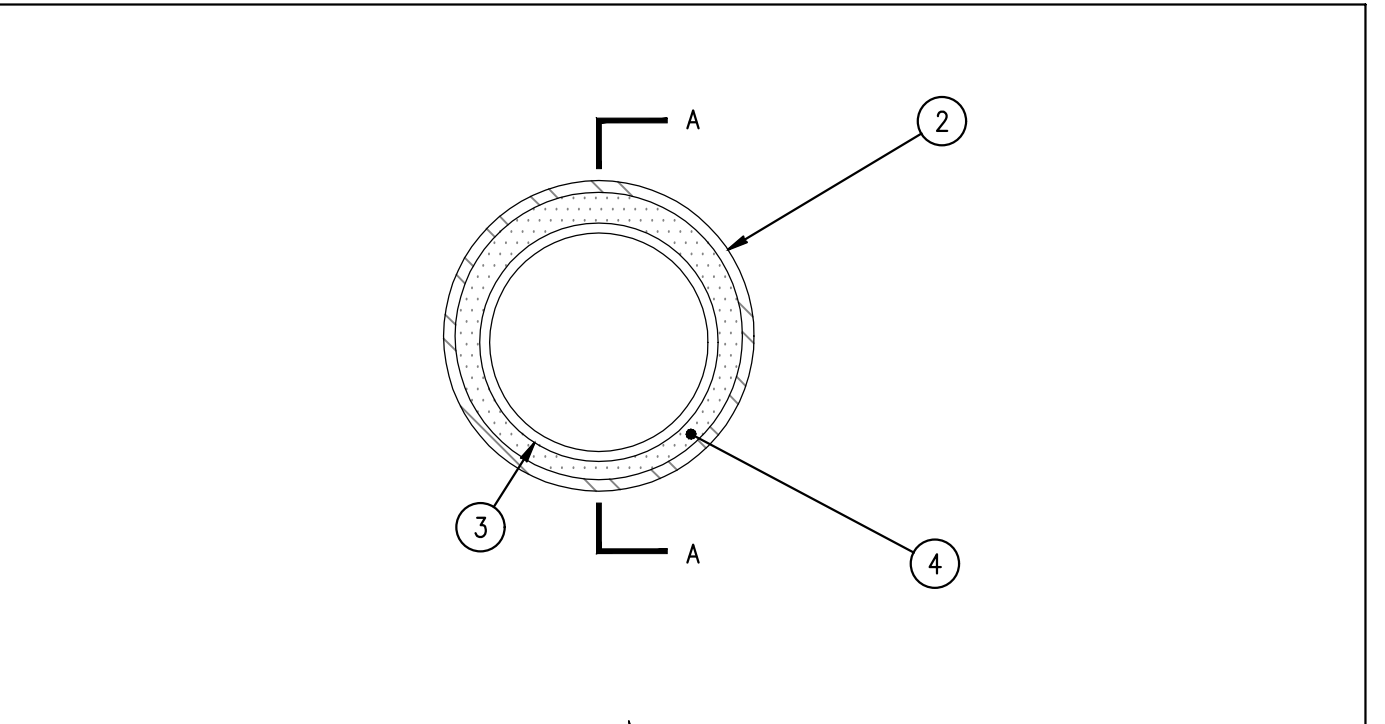
TYPICAL DUCT BANK DETAIL SCALE: 7 N.T.S.



1-2 HOUR GYPSUM WALL SYSTEM NO W-L-1054

- DETAIL NOTES:**
- WALL ASSEMBLY - THE 1 OR 2 HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
    - A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS SHALL CONSIST OF NOMINAL 2"x4" LUMBER SPACED 16" O.C. STEEL STUDS SHALL BE MINIMUM 2-1/2" WIDE AND SPACED MAXIMUM 24" O.C. WHEN STEEL STUDS ARE USED AND THE DIAMETER OF OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4" TO 6" WIDER AND 4" TO 6" HIGHER THAN THE DIAMETER OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2" TO 3" CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES.
    - B. GYPSUM BOARD - 5/8" THICK, 4" WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAXIMUM DIAMETER OF OPENING IS 32-1/4" FOR STEEL STUD WALLS. MAXIMUM DIAMETER OF OPENING IS 14-1/2" FOR WOOD STUD WALLS. THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.
  - THROUGH-PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING SHALL BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MINIMUM 0" TO MAXIMUM 2-1/4". PIPE MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE, CONDUIT OR TUBING SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
    - A. STEEL PIPE - NOMINAL 30" DIAMETER OR SMALLER (SCHEDULE 10 OR HEAVIER) STEEL PIPE.
    - B. IRON PIPE - NOMINAL 30" DIAMETER OR SMALLER CAST OR DUCTILE IRON PIPE.
    - C. CONDUIT - NOMINAL 4" DIAMETER OR SMALLER STEEL ELECTRICAL METALLIC TUBING OR 6" DIAMETER STEEL CONDUIT.
    - D. COPPER TUBING - NOMINAL 6" DIAMETER OR SMALLER (TYPE L OR HEAVIER) COPPER TUBING.
    - E. COPPER PIPE - NOMINAL 6" DIAMETER OR SMALLER (REGULAR OR HEAVIER) COPPER PIPE.
  - FILL, VOID OR CAVITY MATERIAL BEARING THE UL CLASSIFICATION MARK - SEALANT SHALL BE MINIMUM 5/8" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MINIMUM 1/2" DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON BOTH SURFACES OF WALL. HILTI FS-ONE SEALANT, CP601S ELASTOMERIC FIRESTOP SEALANT OR CP606 FLEXIBLE SEALANT OR APPROVED EQUAL BY SM.

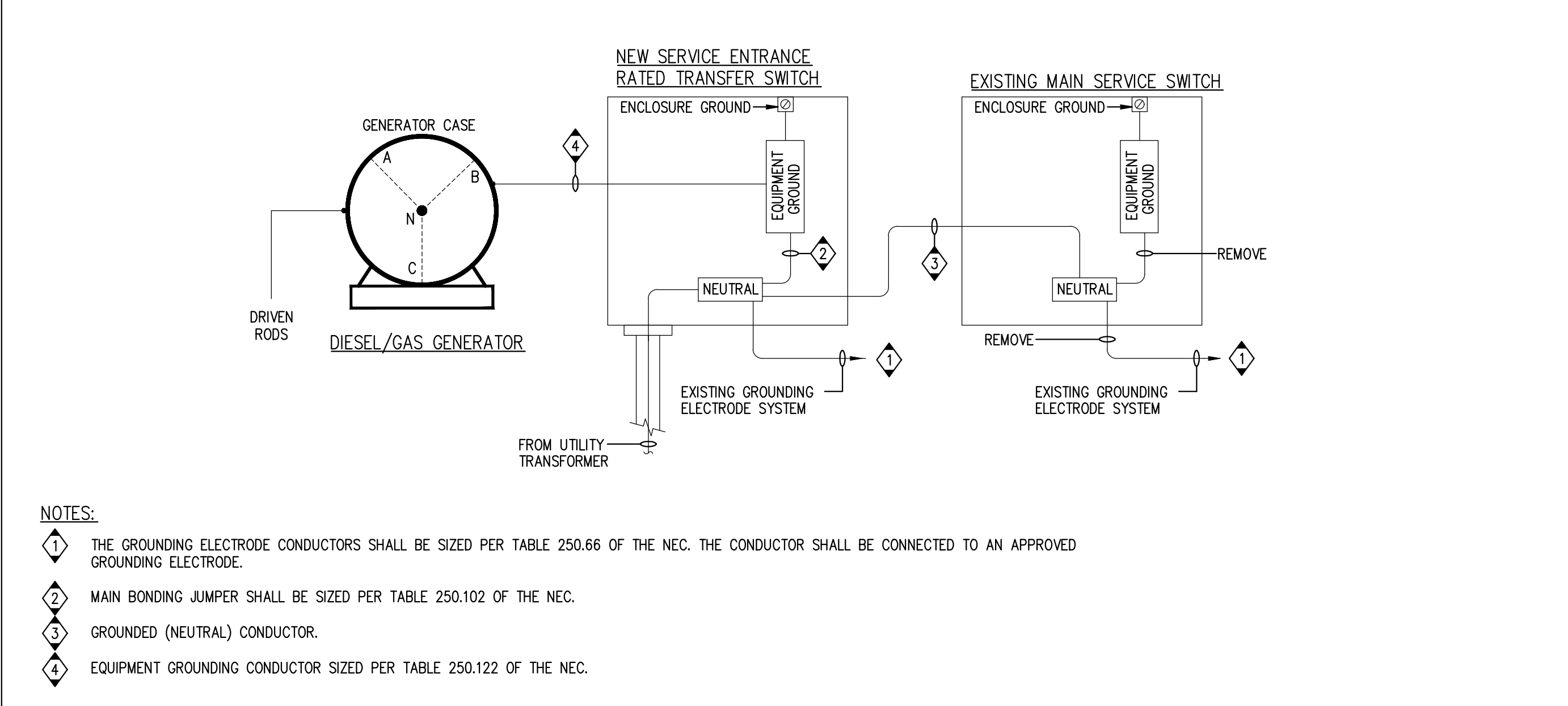
FIRESTOP DETAIL 2 SCALE: 4 N.T.S.



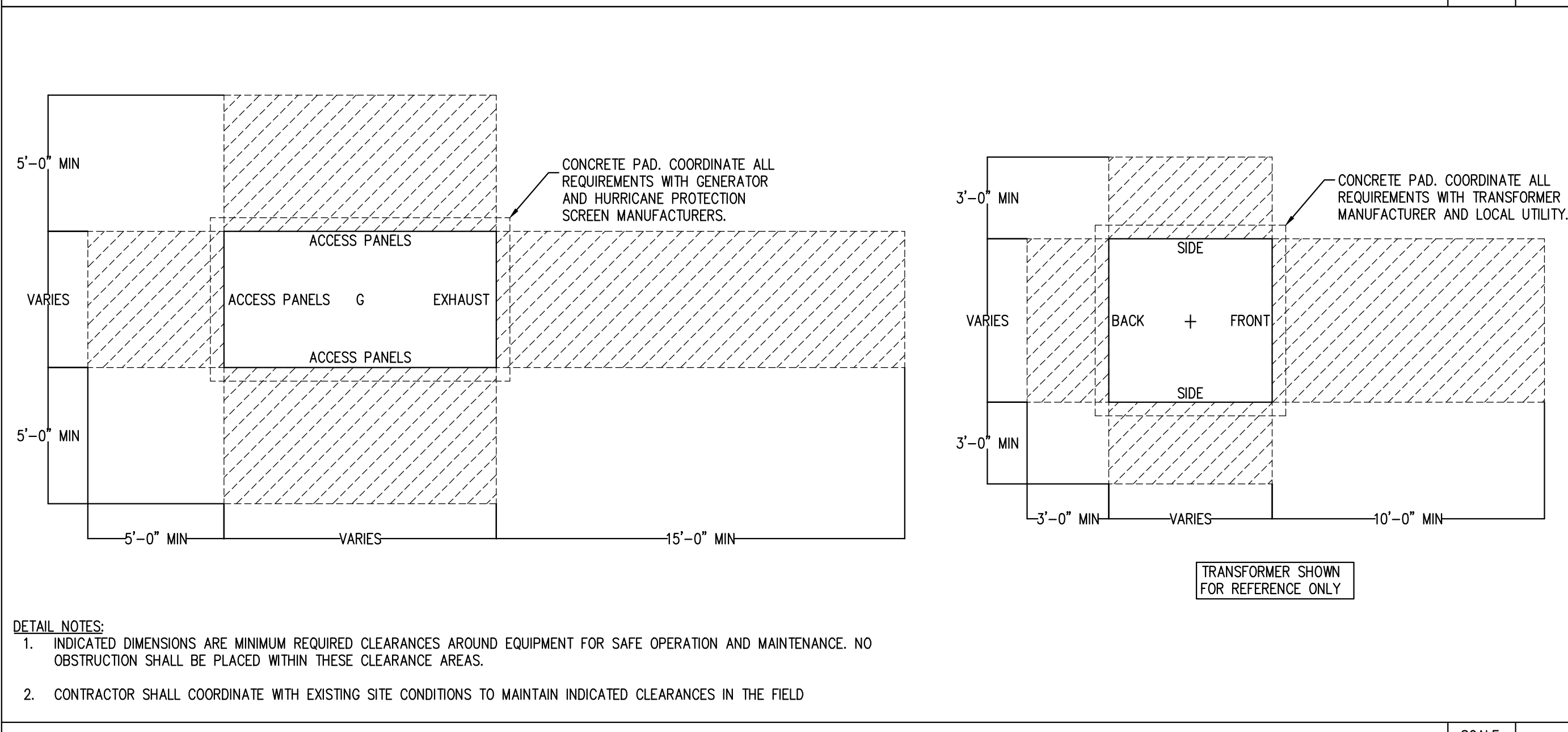
2 HOUR WALL OR FLOOR SYSTEM NO C-AJ-1435

- DETAIL NOTES:**
- FLOOR OR WALL ASSEMBLY - MINIMUM 7 1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAXIMUM DIAMETER OF OPENING IS 8".
  - STEEL SLEEVE - NOMINAL 8" DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE FRICTION FIT IN NOMINAL 8" DIAMETER CIRCULAR OPENING CORE DRILLED THROUGH WALL. LENGTH OF STEEL SLEEVE SHALL BE EQUAL TO THICKNESS OF WALL.
  - THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR TUBING AND THE STEEL SLEEVE SHALL BE MINIMUM OF 0" TO MAXIMUM 1-0". PIPE OR TUBING SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPE OR TUBING MAY BE USED:
    - A. STEEL PIPE - NOMINAL 6" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
    - B. STEEL CONDUIT - NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING
    - C. COPPER TUBING - NOMINAL 6" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
    - D. COPPER PIPE - NOMINAL 6" DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
  - FILL, VOID OR CAVITY MATERIALS - SEALANT SHALL BE MINIMUM 1 1/2" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.

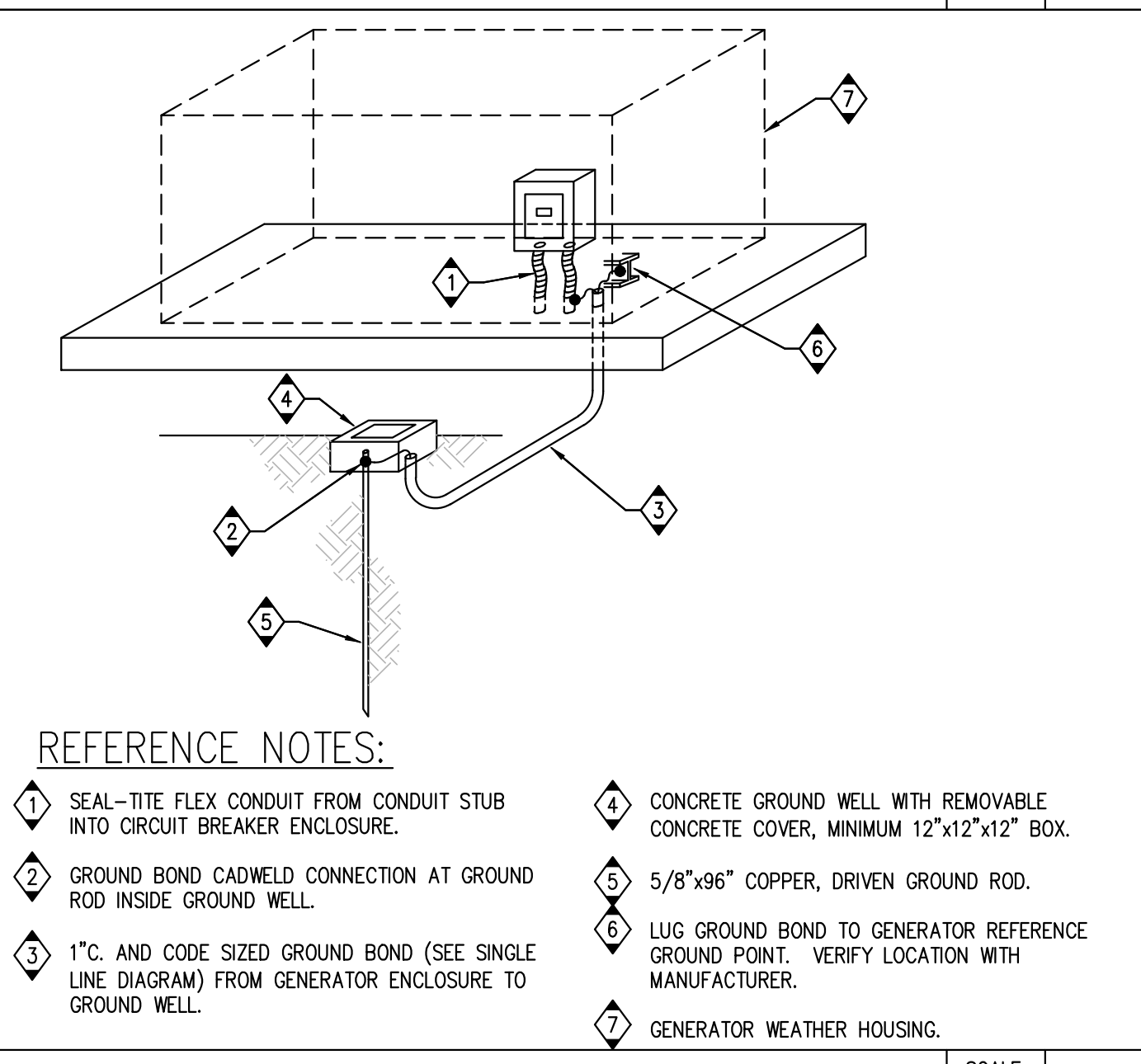
FIRESTOP DETAIL 1 SCALE: 2 N.T.S.



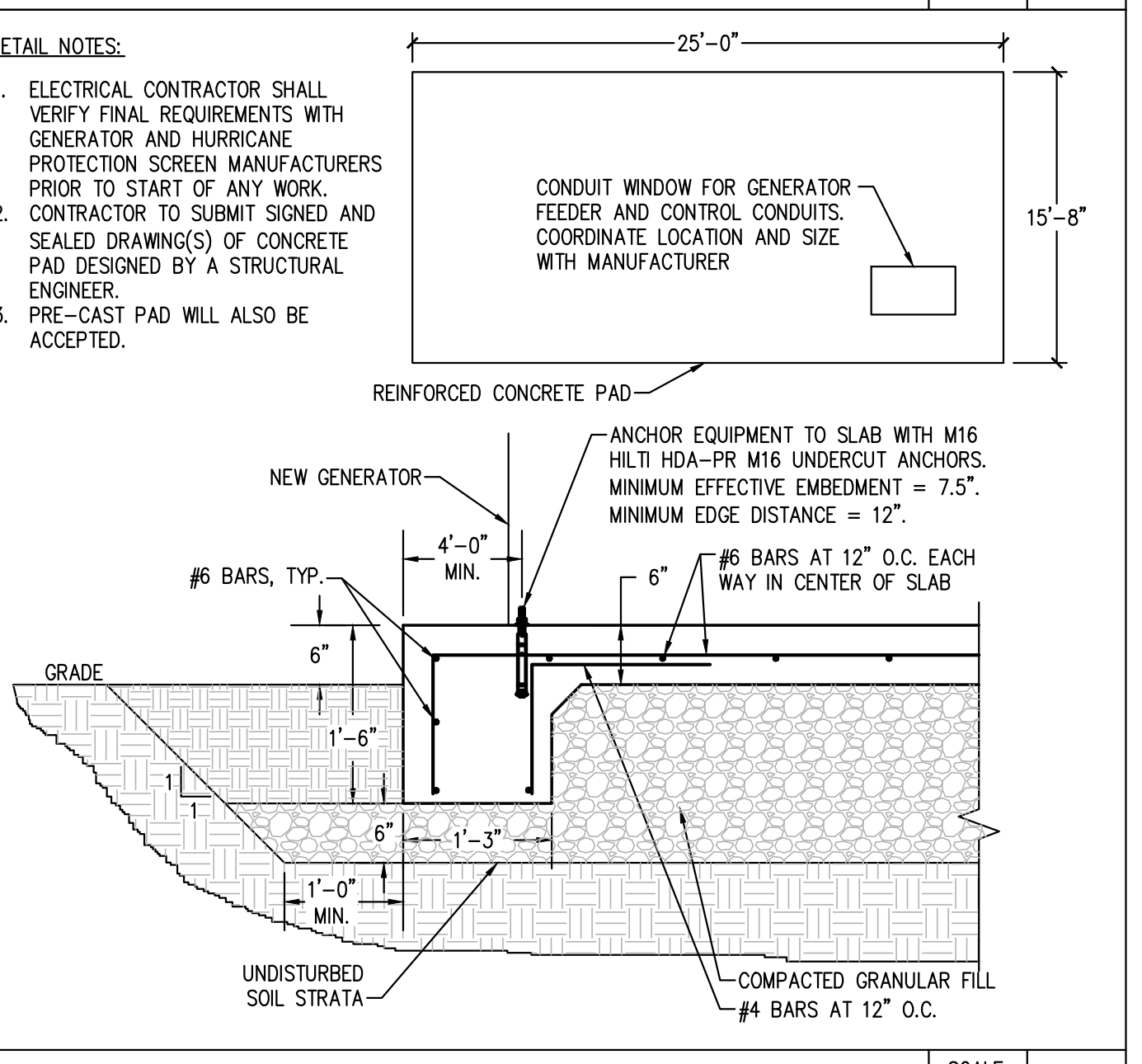
GENERATOR GROUNDING ELECTRODE SYSTEM DIAGRAM SCALE: 6 N.T.S.



SITE TRANSFORMER AND GENERATOR INSTALLATION DETAILS SCALE: 5 N.T.S.



GENERATOR GROUNDING DETAIL SCALE: 3 N.T.S.



GENERATOR PAD DETAIL SCALE: 1 N.T.S.

**CONSULATE HEALTH CARE**  
*At the Heart of Caring*

Stamp: CHARLES T. ALEXANDER  
 LICENSE No. 76422  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 CHARLES T. ALEXANDER PE 76422

Job Number: 2018101.00	Designer: CTA
Date: 09/28/18	Drafter: MWH

Submital: Date:	Description:
08/01/18	AHCA SUBMISSION
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Project Title:  
**FORT PIERCE HEALTH CARE  
 GENERATOR REPLACEMENT**  
 1309 EASTER AVENUE  
 FORT PIERCE, FL 34950

Drawing Title:  
**DETAILS -  
 ELECTRICAL**

**E500**

LIGHTNING PROTECTION SPECIFICATIONS

1.1 ACTION SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
- B. SHOP DRAWINGS: SUBMIT SCALED PLANS MATCHING SCALE OF CONTRACT DOCUMENTS SHOWING THE FOLLOWING:
  1. LAYOUT OF THE LIGHTNING PROTECTION SYSTEM INCLUDING AIR-TERMINAL LOCATIONS, CONDUCTOR SIZES, ROUTING AND CONNECTIONS, BONDING AND GROUNDING PROVISIONS, INCLUDING BONDING TO NON-STRUCTURAL METAL OBJECTS, ALONG WITH DETAILS OF THE COMPONENTS TO BE USED IN THE INSTALLATION.
  2. INCLUDE INDICATIONS FOR USE OF RACEWAY, DATA ON HOW CONCEALMENT REQUIREMENTS WILL BE MET, AND CALCULATIONS REQUIRED BY NFPA 780 FOR BONDING OF GROUNDED AND ISOLATED METAL BODIES.
  3. INCLUDE DETAILS OF BONDING TO BUILDING OR STRUCTURE'S GROUNDING ELECTRODE SYSTEM.
  4. INCLUDE LOCATIONS AND DETAILS FOR ALL ROOF PENETRATIONS.
  5. INCLUDE LOCATIONS OF ALL DOWN CONDUCTORS AND INDICATE HOW CONDUCTORS ARE CONCEALED FROM VIEW.

1.2 INFORMATIONAL SUBMITTALS

- A. QUALIFICATION DATA: FOR QUALIFIED INSTALLER AND MANUFACTURER.
- B. CERTIFICATION, SIGNED BY CONTRACTOR, THAT ROOF ADHESIVE FOR ANY SINGLE-PLY MEMBRANE ROOFING MATERIAL IS APPROVED BY MANUFACTURER OF ROOFING MATERIAL.
- C. FIELD QUALITY-CONTROL REPORTS.
- D. COMPLY WITH RECOMMENDATIONS IN NFPA 780, ANNEX D, "INSPECTION AND MAINTENANCE OF LIGHTNING PROTECTION SYSTEMS," FOR MAINTENANCE OF THE LIGHTNING PROTECTION SYSTEM.

1.3 CLOSEOUT SUBMITTALS

- A. INSPECTION REPORTS INDICATING COMPLIANCE WITH SPECIFIED REQUIREMENTS.
- B. PLANS SHOWING DIMENSIONED AS-BUILT LOCATIONS OF GROUNDING FEATURES, INCLUDING THE FOLLOWING:
  1. GROUND RODS.
  2. GROUND LOOP CONDUCTOR.
  3. UNDERGROUND BONDING CONNECTIONS AND CONDUCTOR ROUTING.

1.4 QUALITY ASSURANCE

- A. INSTALLER QUALIFICATIONS: CERTIFIED BY UL AS A MASTER INSTALLER/DESIGNER, TRAINED AND APPROVED FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 780, "DEFINITIONS" ARTICLE.

1.5 COORDINATION

- A. COORDINATE INSTALLATION OF LIGHTNING PROTECTION WITH INSTALLATION OF OTHER BUILDING SYSTEMS AND COMPONENTS, INCLUDING ELECTRICAL WIRING, SUPPORTING STRUCTURES AND BUILDING MATERIALS, METAL BODIES REQUIRING BONDING TO LIGHTNING PROTECTION COMPONENTS, AND BUILDING FINISHES.
- B. COORDINATE INSTALLATION OF AIR TERMINALS ATTACHED TO ROOF SYSTEMS WITH ROOFING MANUFACTURER AND INSTALLER.
- C. FLASHINGS OF THROUGH-ROOF ASSEMBLIES SHALL COMPLY WITH ROOFING MANUFACTURERS' SPECIFICATIONS.

PART 2 - PRODUCTS

2.1 LIGHTNING PROTECTION SYSTEM COMPONENTS

- A. COMPLY WITH UL 96 AND NFPA 780.
- B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
  1. ERICO INTERNATIONAL CORPORATION.
  2. HARGER.
  3. HEARY BROS. LIGHTNING PROTECTION CO. INC.
  4. PREFERRED LIGHTNING PROTECTION.
  5. ROBBINS LIGHTNING, INC.
  6. THOMPSON LIGHTNING PROTECTION, INC.
- C. ROOF-MOUNTED AIR TERMINALS: NFPA 780, CLASS I AND CLASS II AS REQUIRED, 1/2 INCH(12MM) DIAMETER MINIMUM, SOLID COPPER UNLESS OTHERWISE INDICATED AND SHALL EXTEND AT LEAST 10 INCHES ABOVE THE OBJECT TO BE PROTECTED.
  1. MID-ROOF AIR TERMINALS SHALL BE 24 INCHES HIGH.
  2. AIR TERMINAL POINTS SHALL BE BLUNT WITH THE RADIUS OF CURVATURE EQUAL TO THE ROD DIAMETER.
  3. SINGLE-MEMBRANE, ROOF-MOUNTED AIR TERMINALS: DESIGNED SPECIFICALLY FOR SINGLE-MEMBRANE ROOF SYSTEM MATERIALS. COMPLY WITH REQUIREMENTS IN DIVISION 07 ROOFING SECTIONS.
  4. WHERE AIR TERMINALS WILL BE IN CONTACT WITH ALUMINUM STRUCTURES, PROVIDE 5/8" DIAMETER SOLID ALUMINUM AIR TERMINALS. AIR TERMINAL BASES SHALL BE CAST ALUMINUM WITH STAINLESS STEEL BOLT-PRESSURE CABLE CONNECTORS.
- D. AIR TERMINAL BASES: CAST COPPER OR CAST BRONZE WITH STAINLESS STEEL BOLT-PRESSURE CABLE CONNECTORS.
  1. WHERE AIR TERMINALS WILL BE IN CONTACT WITH ALUMINUM STRUCTURES, AIR TERMINAL BASES SHALL BE CAST ALUMINUM WITH STAINLESS STEEL BOLT-PRESSURE CABLE CONNECTORS.
- E. MAIN AND BONDING CONDUCTORS: COPPER.
  1. CONDUCTORS SHALL CONSIST OF UL LISTED 29 STRANDS OF 17 GAUGE COPPER WIRE WEIGHING 190 LBS. PER 1000 FEET AND INSTALLED IN ACCORDANCE WITH UL STANDARDS FOR CLASS I. FOR CLASS II, MAIN CONDUCTORS SHALL BE 15 GAUGE COPPER.
  2. FOR FLAT ROOFS, A MAIN PERIMETER CABLE SHALL BE INSTALLED AROUND THE ENTIRE MAIN ROOF, ALL PENTHOUSES AND COOLING TOWERS, ETC. EACH PERIMETER CABLE SHALL BE CONNECTED TO AT LEAST (2) DOWN LEADS, PROVIDING A TWO WAY PATH TO GROUND FROM EACH AIR TERMINAL. PROVIDE ROOF CROSS-RUN CONDUCTORS IN COMPLIANCE WITH NFPA 780, PARAGRAPH 3.12.8. GROUND CONNECTIONS SHALL BE MADE AROUND THE PERIMETER OF EACH ROOF AND TO THE MAIN DOWN CONDUCTOR AT A MAXIMUM OF 100'-0" ON CENTERS.
  3. WHERE CONDUCTORS WILL BE IN CONTACT WITH ALUMINUM STRUCTURES, PROVIDE CONDUCTORS CONSISTING OF UL LISTED 24 STRANDS OF 14 GAUGE ALUMINUM WIRE WEIGHING 110 LBS. PER 1000 FEET FOR MAIN CONDUCTORS AND INSTALLED IN ACCORDANCE WITH THE UL STANDARDS.
- F. GROUND RODS: COPPER-CLAD STEEL; 3/4 INCH (19 MM) IN DIAMETER BY 10 FEET (3 M) LONG.
- G. FASTENERS:
  1. CONDUCTOR FASTENERS SHALL BE AN APPROVED ADHESIVE TYPE THAT IS COMPATIBLE WITH THE ROOF MEMBRANE WHERE THERE IS NO STRUCTURE TO MOUNT THE FASTENERS TO AND SHALL BE OF THE BOLTED TYPE AND SHALL BE MANUFACTURED OF NON-CORROSIVE METAL, HAVE AMPLE STRENGTH TO SUPPORT CONDUCTORS AND SHALL BE SPACED NOT TO EXCEED 3'-0" CENTERS. MASONRY TYPE CABLE FASTENERS SPACED EVERY 3'-0" ON MASONRY. ADHESIVE TYPE CABLE FASTENERS SPACED EVERY 3'-0" ON FLAT ROOF MEMBRANES.

PART 3 - EXECUTION

3.1 INSTALLATION

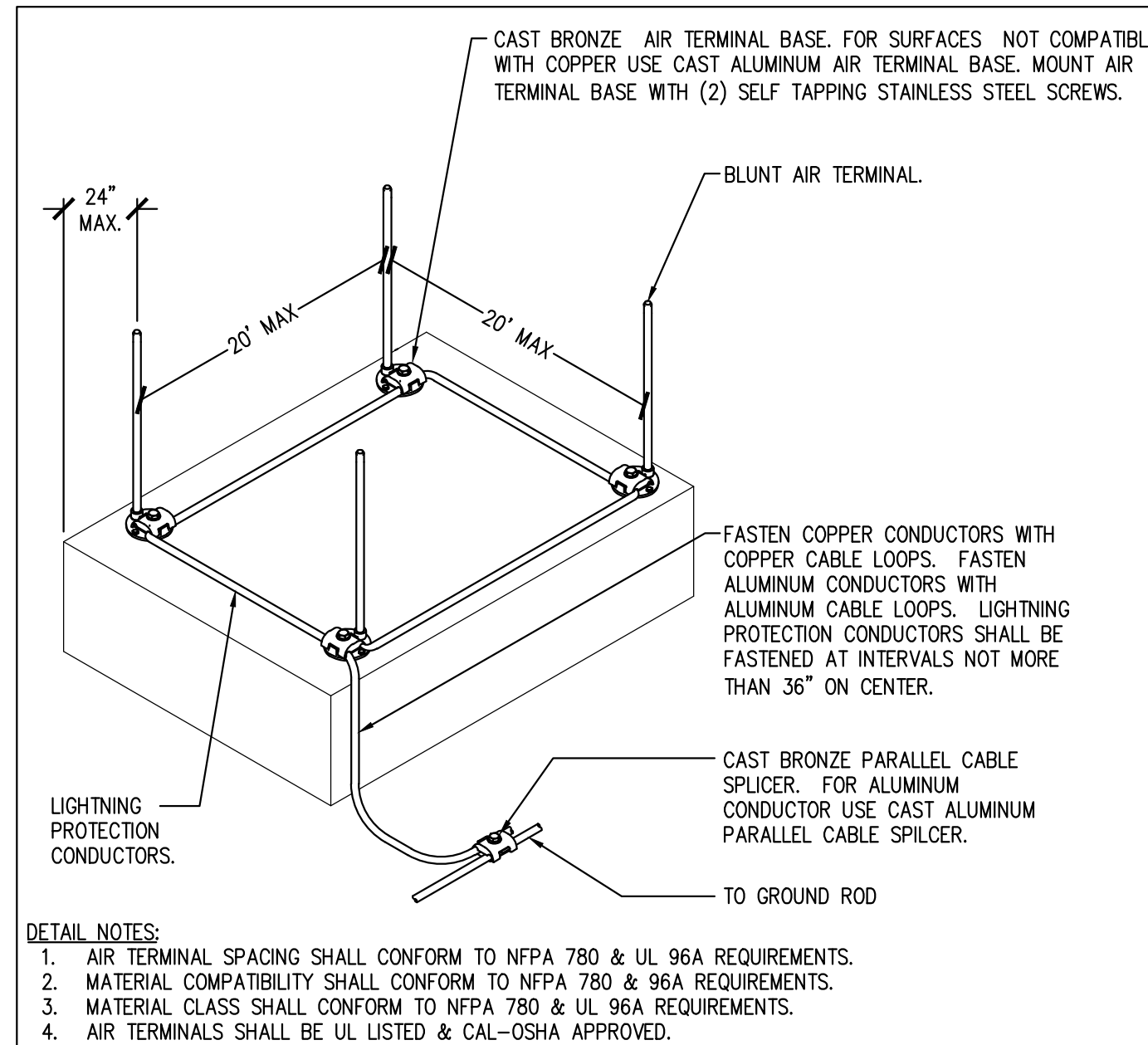
- A. INSTALL LIGHTNING PROTECTION COMPONENTS AND SYSTEMS ACCORDING TO UL 96A AND NFPA 780.
- B. INSTALL CONDUCTORS WITH DIRECT PATHS FROM AIR TERMINALS TO GROUND CONNECTIONS. AVOID SHARP BENDS AND NARROW LOOPS.
- C. CONCEAL THE FOLLOWING CONDUCTORS:
  5. SYSTEM CONDUCTORS.
  6. INTERIOR CONDUCTORS.
  7. CONDUCTORS WITHIN NORMAL VIEW FROM EXTERIOR LOCATIONS AT GRADE WITHIN 200 FEET (60 M) OF BUILDING.
  8. DOWN CONDUCTORS SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE AND SHALL BE INSTALLED IN 1 INCH PVC CONDUIT (PVC CONDUIT SHALL NOT BE EXPOSED). THE CONDUCTOR SHALL BE BONDED TO ALL BUILDING STEEL AT THE TOP AND BOTTOM OF THE DOWN LEAD. THE DISTANCE BETWEEN DOWN LEADS SHALL NOT EXCEED 100.
- D. CABLE CONNECTIONS: USE EXOTHERMIC-WELDED CONNECTIONS FOR ALL CONDUCTOR SPLICES AND CONNECTIONS BETWEEN CONDUCTORS AND OTHER COMPONENTS.
  1. EXCEPTION: IN SINGLE-PLY MEMBRANE ROOFING, EXOTHERMIC-WELDED CONNECTIONS MAY BE USED ONLY BELOW THE ROOF LEVEL.
- E. AIR TERMINALS ON SINGLE-PLY MEMBRANE ROOFING: COMPLY WITH ADHESIVE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- F. BOND EXTREMITIES OF VERTICAL METAL BODIES EXCEEDING 60 FEET (18 M) IN LENGTH TO LIGHTNING PROTECTION COMPONENTS.
- G. THE AIR TERMINALS SHOULD BE SPACED SO AS NOT TO EXCEED 20' APART AROUND THE OUTSIDE PERIMETER OF THE ROOF OR THE RIDGE AND PER NFPA REQUIREMENTS.
- H. PROVIDE AIR TERMINALS FOR ROOF-MOUNTED HVAC AND EXHAUST FAN EQUIPMENT. LIGHTNING PROTECTION INSTALLED ON ROOF TOP EQUIPMENT SHALL ALLOW THE REMOVAL OR OPENING OF ALL ACCESS PANELS FOR MAINTENANCE WITHOUT THE REMOVAL OF THE LIGHTNING PROTECTION SYSTEM.
  1. METAL RACEWAYS, ENCLOSURES, FRAMES AND OTHER NONCURRENT-CARRYING METAL PARTS OF ELECTRIC EQUIPMENT SHALL BE KEPT AT LEAST 6 FEET AWAY FROM LIGHTNING ROD CONDUCTORS, OR THEY SHALL BE BONDED TO THE LIGHTNING ROD CONDUCTORS.
  2. METAL BODIES OF INDUCTANCE LOCATED WITHIN SIX FEET OF A CONDUCTOR OR OBJECT WITH SECONDARY BONDS, SHALL BE BONDED WITH SECONDARY CABLE AND FITTINGS. TYPICAL OF THESE ARE: ROOF FLASHINGS, PARAPET COPING CAPS, GRAVEL GUARDS, ISOLATED METAL BUILDING PANELS OR SIDING, ROOF DRAINS, DOWN SPOUTS, ROOF INSULATION VENTS AND ANY OTHER SIZABLE MISCELLANEOUS METALS, ETC.
    1. AIR TERMINALS LOCATED ON METAL BODIES SHALL BE ATTACHED WITH BOLTED CONNECTIONS, I.E., BOLT, LOCKWASHER, NUT.
  - K. FOR FLAT ROOFS, A MAIN PERIMETER CABLE SHALL BE INSTALLED AROUND THE ENTIRE MAIN ROOF, ALL PENTHOUSES AND COOLING TOWERS, ETC. EACH PERIMETER CABLE SHALL BE CONNECTED TO AT LEAST (2) DOWN LEADS, PROVIDING A TWO WAY PATH TO GROUND FROM EACH AIR TERMINAL. PROVIDE ROOF CROSS-RUN CONDUCTORS IN COMPLIANCE WITH NFPA 780. GROUND CONNECTIONS SHALL BE MADE AROUND THE PERIMETER OF EACH ROOF AND TO THE MAIN DOWN CONDUCTOR AT A MAXIMUM OF 100'-0" ON CENTERS.
  - L. PROVIDE COMMON GROUNDS BETWEEN THE LIGHTNING PROTECTION SYSTEM AND THE ELECTRIC AND TELEPHONE SERVICE ENTRANCE WIRES, T.V. AND RADIO ANTENNA GROUNDS, IN ACCORDANCE WITH NFPA 780.
  - M. PROVIDE LIGHTNING ARRESTERS AND PROTECTORS ON ELECTRIC AND TELEPHONE SERVICE ENTRANCES AND ON RADIO AND TELEVISION ANTENNA LEAD-INS. CONNECT THE ARRESTERS TO THE LIGHTNING CIRCUIT CONDUCTORS AT SUITABLE LOCATIONS. GROUND AND BOND THEM TO THE LIGHTNING PROTECTION SYSTEM.

3.2 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. INSTALL SLEEVES AND SLEEVE SEALS AT PENETRATIONS OF EXTERIOR FLOOR AND WALL ASSEMBLIES.

3.3 CORROSION PROTECTION

- A. DO NOT COMBINE MATERIALS THAT CAN FORM AN ELECTROLYTIC COUPLE THAT WILL ACCELERATE CORROSION IN THE PRESENCE OF MOISTURE UNLESS MOISTURE IS PERMANENTLY EXCLUDED FROM JUNCTION OF SUCH MATERIALS.
- B. USE CONDUCTORS WITH PROTECTIVE COATINGS WHERE CONDITIONS CAUSE DETERIORATION OR CORROSION OF CONDUCTORS.

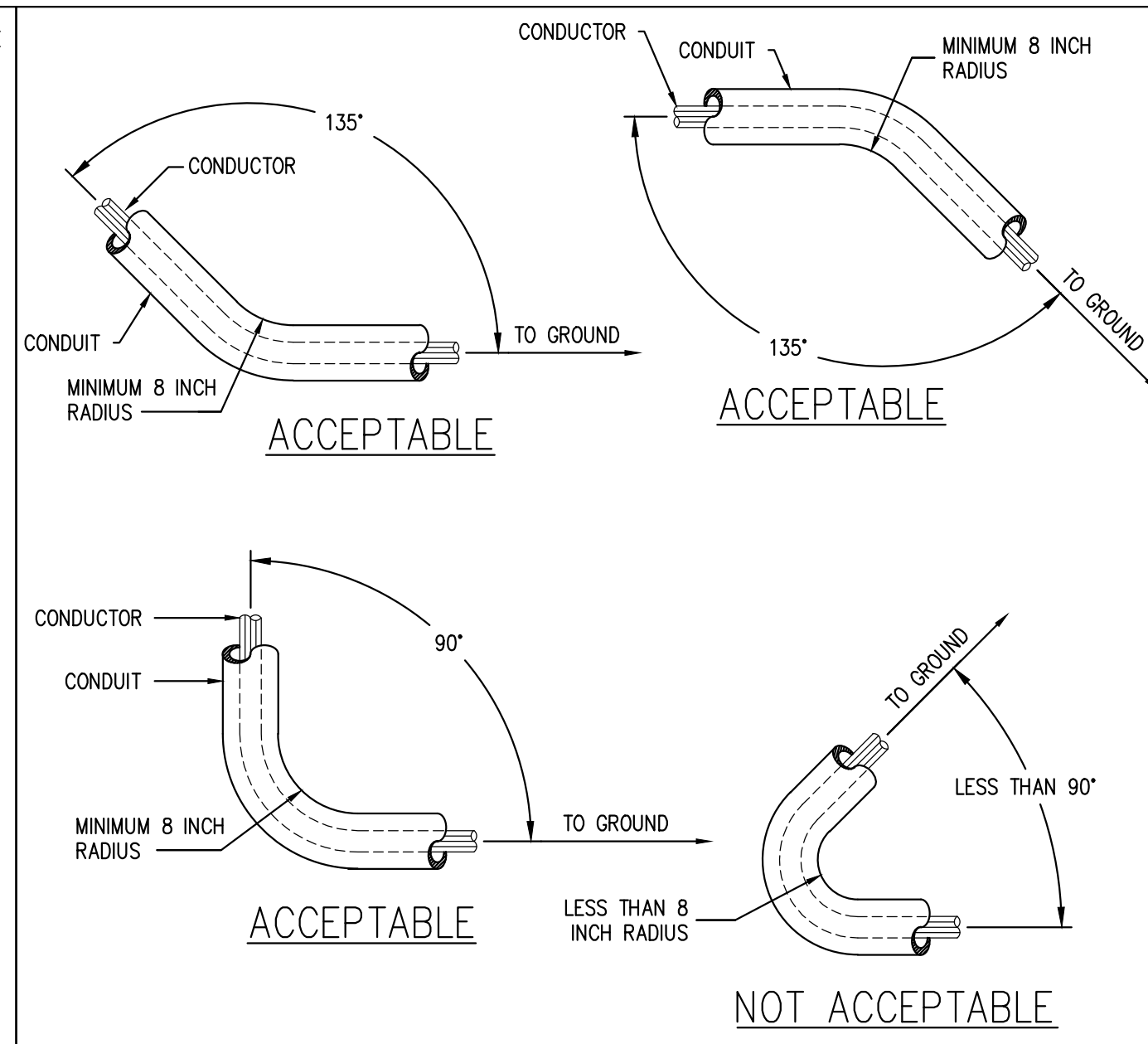


DETAIL NOTES:

1. AIR TERMINAL SPACING SHALL CONFORM TO NFPA 780 & UL 96A REQUIREMENTS.
2. MATERIAL COMPATIBILITY SHALL CONFORM TO NFPA 780 & 96A REQUIREMENTS.
3. MATERIAL CLASS SHALL CONFORM TO NFPA 780 & UL 96A REQUIREMENTS.
4. AIR TERMINALS SHALL BE UL LISTED & CAL-OSHA APPROVED.

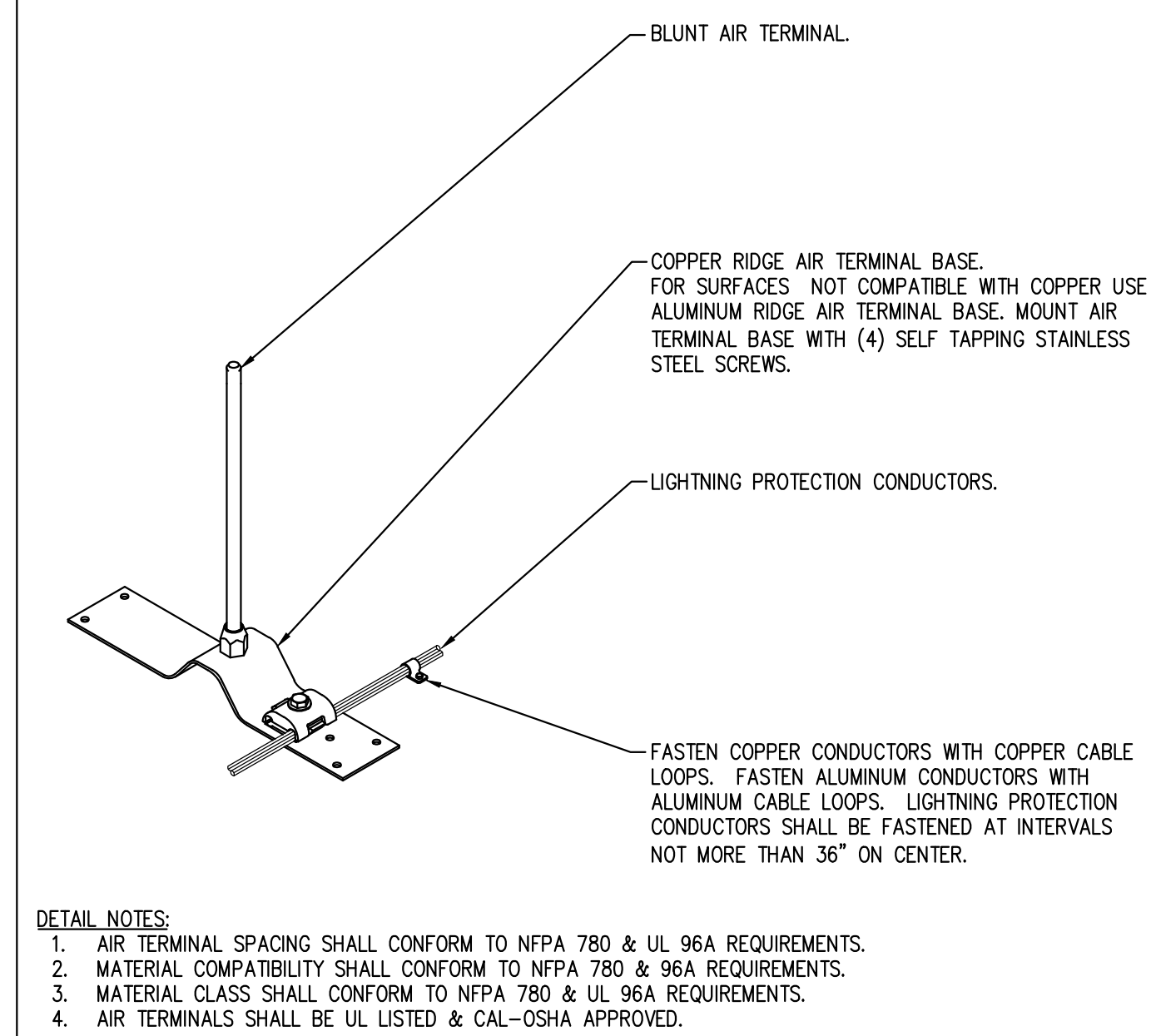
GENERATOR PROTECTION DETAIL

SCALE: 5  
N.T.S.



LIGHTNING PROTECTION CONDUCTOR BENDING REQUIREMENTS DETAIL

SCALE: 3  
N.T.S.

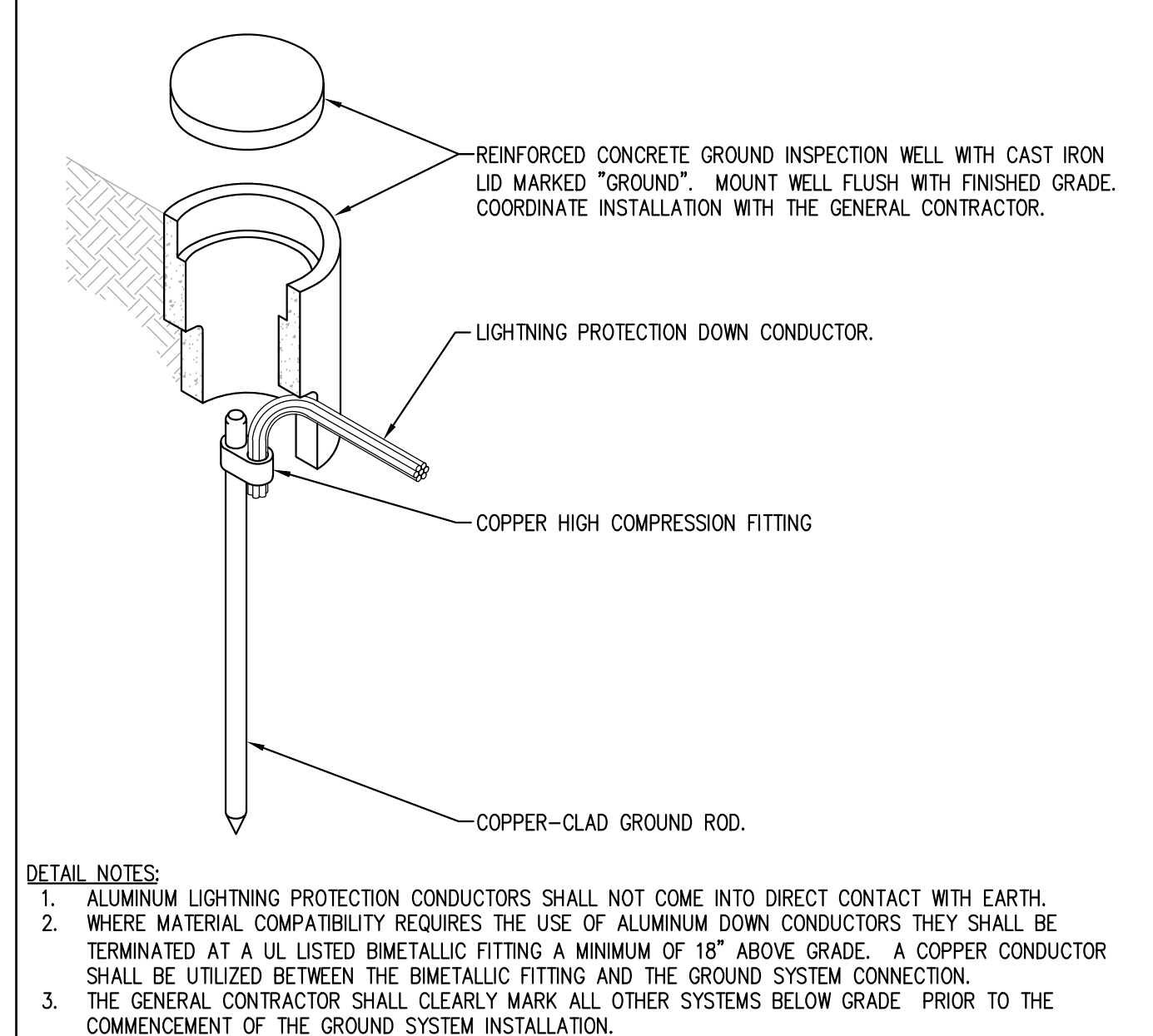


DETAIL NOTES:

1. AIR TERMINAL SPACING SHALL CONFORM TO NFPA 780 & UL 96A REQUIREMENTS.
2. MATERIAL COMPATIBILITY SHALL CONFORM TO NFPA 780 & 96A REQUIREMENTS.
3. MATERIAL CLASS SHALL CONFORM TO NFPA 780 & UL 96A REQUIREMENTS.
4. AIR TERMINALS SHALL BE UL LISTED & CAL-OSHA APPROVED.

AIR TERMINAL DETAIL

SCALE: 4  
N.T.S.

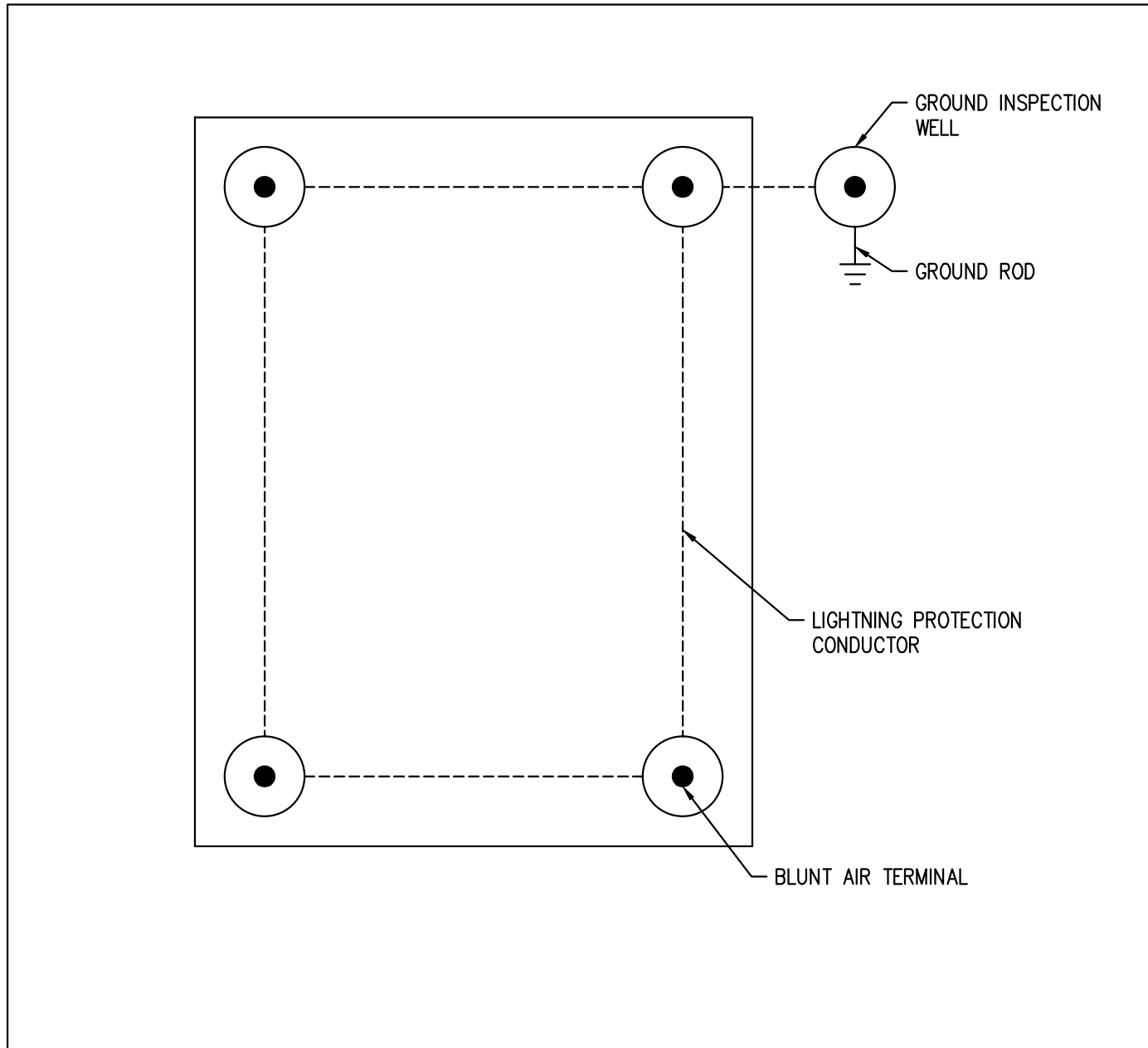


DETAIL NOTES:

1. ALUMINUM LIGHTNING PROTECTION CONDUCTORS SHALL NOT COME INTO DIRECT CONTACT WITH EARTH.
2. WHERE MATERIAL COMPATIBILITY REQUIRES THE USE OF ALUMINUM DOWN CONDUCTORS THEY SHALL BE TERMINATED AT A UL LISTED BIMETALLIC FITTING A MINIMUM OF 18" ABOVE GRADE. A COPPER CONDUCTOR SHALL BE UTILIZED BETWEEN THE BIMETALLIC FITTING AND THE GROUND SYSTEM CONNECTION.
3. THE GENERAL CONTRACTOR SHALL CLEARLY MARK ALL OTHER SYSTEMS BELOW GRADE PRIOR TO THE COMMENCEMENT OF THE GROUND SYSTEM INSTALLATION.

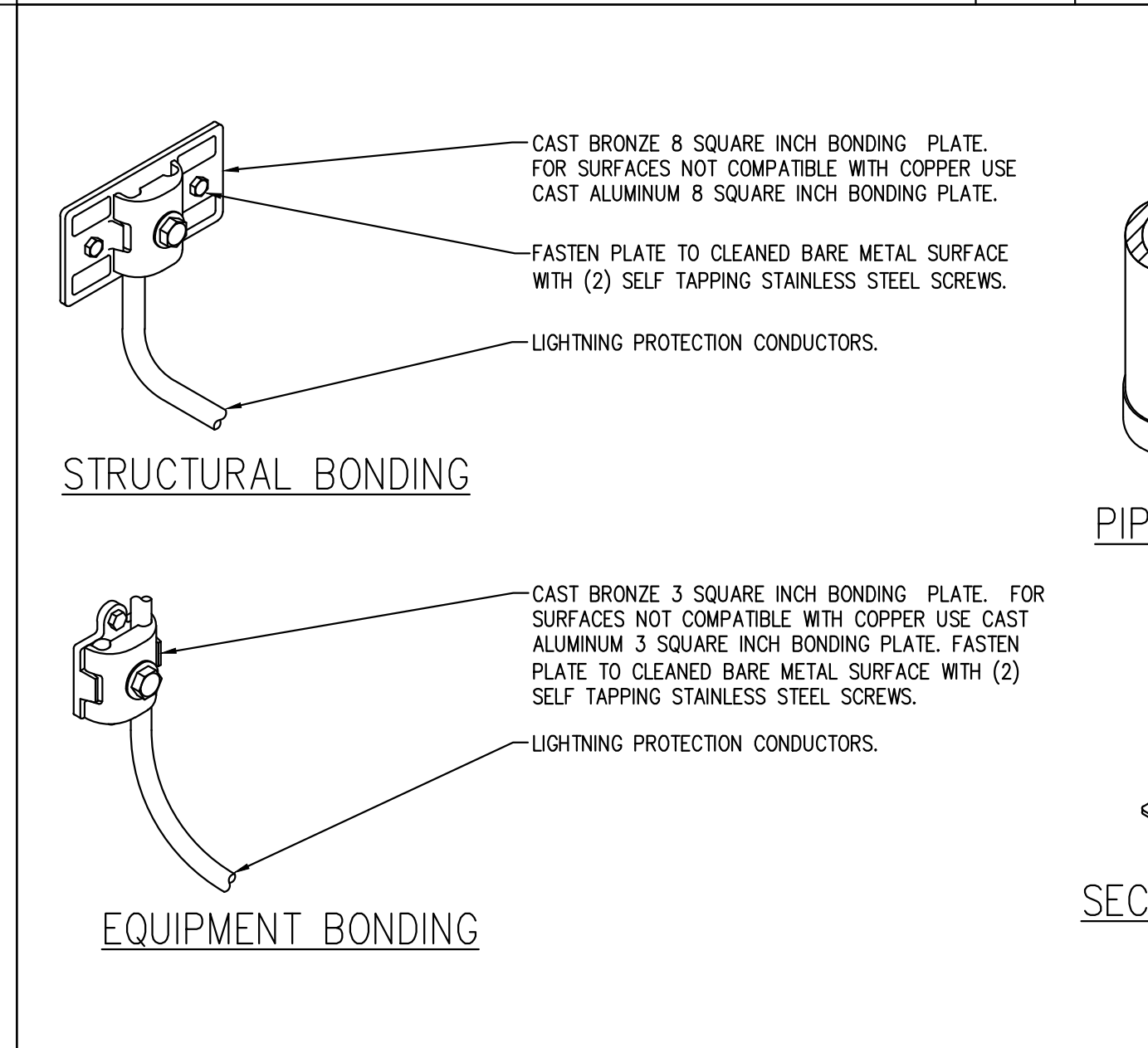
GROUND ROD INSTALLATION DETAIL

SCALE: 2  
N.T.S.



GENERATOR PLAN VIEW - LIGHTNING PROTECTION

SCALE: 6  
N.T.S.



TYPICAL BONDING DETAILS

SCALE: 1  
N.T.S.

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CONSULATE HEALTH CARE  
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Job Number: 2018101.00	Designer: CTA
Date: 09/28/18	Drafter: MWH

Submital Date:	Description:
08/01/18	AHCA SUBMISSION
01/16/19	AHCA COMMENTS
02/15/19	PERMIT SUBMISSION

Project Title:  
**FORT PIERCE HEALTH CARE GENERATOR REPLACEMENT**  
1309 EASTER AVENUE  
FORT PIERCE, FL 34950

Drawing Title:  
**LIGHTNING PROTECTION - ELECTRICAL**

**E501**

## ELECTRICAL SPECIFICATIONS

### ELECTRICAL GENERAL PROVISIONS

- THE PROVISIONS OF THE INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, ALTERNATES, ADDENDA AND DIVISION 1 ARE A PART OF THIS SPECIFICATION. ELECTRICAL, ARCHITECTURAL, MECHANICAL AND ALL OTHER DRAWINGS AS WELL AS THE SPECIFICATIONS FOR ALL THE DIVISIONS SHALL BE DEFINED AS THE CONTRACT DOCUMENTS. CONTRACTOR SHALL REVIEW ENTIRE SET OF CONTRACT DOCUMENTS PRIOR TO BIDDING.
- VISIT THE SITE OF THE WORK AND BECOME FAMILIAR WITH THE CONDITIONS AFFECTING THE INSTALLATION. THE CONTRACTOR SHALL FIELD VERIFY THAT ALL ELECTRICAL WORK CAN BE INSTALLED AS SHOWN ON THE DRAWINGS. ANY DISCREPANCY SHALL BE COMMUNICATED IN WRITING TO THE ARCHITECT OR ENGINEER PRIOR TO SUBMISSION OF A PROPOSAL. SUBMISSION OF A PROPOSAL SHALL PRESUPPOSE KNOWLEDGE OF SUCH CONDITIONS AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED WHERE EXTRA LABOR OR MATERIALS ARE REQUIRED BECAUSE OF IGNORANCE OF THESE CONDITIONS.
- "CONTRACTOR" AS USED WITHIN THE CONTEXT OF THE ELECTRICAL CONTRACT DOCUMENTS SHALL EXPLICITLY REFER TO THE "ELECTRICAL CONTRACTOR" AND THE ELECTRICAL CONTRACTOR'S "SUBCONTRACTORS". THE TERM "FURNISH" SHALL MEAN TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" SHALL MEAN WORK WHICH INCLUDES THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE. THE TERM "EQUAL" SHALL MEAN TO MEET OR EXCEED THE STANDARDS OF THE SPECIFIED PRODUCTS OR LISTED MANUFACTURERS.
- INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, SERVICES AND PERMITS NECESSARY FOR THE PROPER COMPLETION OF ALL ELECTRICAL WORK SHOWN. ITEMS OMITTED, BUT NECESSARY TO MAKE THE ELECTRICAL SYSTEM COMPLETE AND WORKABLE, SHALL BE UNDERSTOOD TO FORM PART OF THE WORK. SECURE AND PAY FOR PERMITS AND INSPECTIONS REQUIRED FOR ELECTRICAL WORK.
- IT IS THE PURPOSE OF THE ELECTRICAL DRAWINGS TO INDICATE THE APPROXIMATE LOCATION OF ALL EQUIPMENT, DEVICES, ETC. ASCERTAIN EXACT LOCATIONS AND ARRANGE WORK ACCORDINGLY. THE RIGHT IS RESERVED TO EFFECT REASONABLE CHANGES IN THE LOCATION OF DEVICES UP TO THE TIME OF ROUGHING-IN, WITHOUT ADDITIONAL COST TO THE OWNER. CHANGES IN LOCATION OF DEVICES RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THE CONTRACT DRAWING OR SPECIFICATION REQUIREMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
- WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF LOCAL AND STATE CODES, AS WELL AS THE NATIONAL ELECTRICAL CODE (NEC), AS INTERPRETED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- CONSULT THE DRAWINGS, PRODUCT DATA, WIRING DIAGRAMS AND SHOP DRAWINGS COVERING THE WORK FOR VARIOUS OTHER TRADES, THE FIELD LAYOUTS OF THE CONTRACTORS FOR THE TRADE AND MAKE ADJUSTMENTS ACCORDINGLY IN LAYING OUT THE ELECTRICAL WORK.
- WARRANT THAT EQUIPMENT AND ALL WORK IS INSTALLED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AND THAT ALL EQUIPMENT WILL MEET THE REQUIREMENTS SPECIFIED. GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS; REPAIR OR REPLACE ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WITHIN ONE YEAR FROM DATE OF FORMAL WRITTEN ACCEPTANCE BY THE OWNER.
- THE EXISTING ELECTRICAL AND TELECOMMUNICATIONS SERVICES, AND ALL EXISTING LOW VOLTAGE COMMUNICATION SYSTEMS WITHIN THE BUILDING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. ANY SERVICE SHUTDOWNS THAT MAY BE REQUIRED SHALL BE SCHEDULED THROUGH THE OWNER AND SHALL BE DONE AT A TIME AS DIRECTED BY THE OWNER. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE SHUTDOWN EVENTS EVEN THOUGH PREMIUM TIME WORK MAY BE REQUIRED. PROVIDE TEMPORARY SERVICE TO EQUIPMENT OR SYSTEMS THAT CANNOT BE SHUT DOWN, AS DETERMINED BY OWNER, AND AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS.
- BIDS SHALL BE BASED UPON THE SPECIFIED PRODUCTS OR LISTED ALTERNATIVES. WHERE ONLY ONE MAKE IS NAMED, IT SHALL BE PROVIDED. VERBAL REQUESTS OR APPROVALS SHALL NOT BE BINDING ON THE ARCHITECT, ENGINEER OR OWNER.
- EQUIPMENT AND MATERIALS USED ON THIS PROJECT SHALL BE NEW AND U.L. LABELED FOR THE APPLICATION.
- PREPARE SHOP DRAWINGS AND PRODUCT DATA FOR PANELBOARDS, DISTRIBUTION EQUIPMENT, MOTOR STARTERS, AND ALL OTHER SPECIFIED SYSTEMS AND COMPONENTS. THE SUBMITTALS THAT ARE RETURNED SHALL BE USED FOR PROCUREMENT. WHERE ADDITIONAL INSTALLATION DRAWINGS, WIRING DIAGRAMS OR OTHER DRAWINGS ARE SPECIFIED AS A PART OF THE SUBMITTAL, THEY SHALL BE SUBMITTED AT THE SAME TIME WITH SHOP DRAWINGS AND PRODUCT DATA.
- THE CONTRACTOR SHALL KEEP ONE COMPLETE SET OF THE CONTRACT DRAWINGS ON THE PROJECT SITE ON WHICH SHALL BE RECORDED ANY DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION. THE UPDATED CONTRACT DRAWINGS SHALL BECOME "RECORD DRAWINGS" OF THE COMPLETED CONSTRUCTION. AFTER THE PROJECT IS COMPLETED, THE RECORD DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS CONSTRUCTED.
- PROVIDE NAMEPLATES ON PANELBOARDS, DISTRIBUTION EQUIPMENT, SAFETY SWITCHES, MOTOR STARTERS, SYSTEM DISTRIBUTION JUNCTION BOXES AND PULLBOXES, CONTROL PANELS, INDIVIDUAL RECURRENT PROTECTION DEVICES IN DISTRIBUTION TYPE PANELBOARDS, RECEPTACLE COVERPLATES, AND METERING EQUIPMENT. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LETTERING SHALL INCLUDE THE NAME OR DESIGNATION OF EQUIPMENT, HORSEPOWER, VOLTAGE RATING AND SERVICE DESIGNATION. NAMEPLATES SHALL BE LAMINATED PHENOLIC WITH A BLACK SURFACE AND WHITE CORE FOR NORMAL BRANCH, A GREEN SURFACE AND WHITE CORE FOR EQUIPMENT CRITICAL BRANCH, AND A YELLOW SURFACE AND BLACK CORE FOR LIFE SAFETY BRANCH. IDENTIFICATION WITH A DYMO TYPE INSTRUMENT IS NOT PERMISSIBLE. THE INSIDE COVER OF ALL RECEPTACLE COVERPLATES SHALL BE PERMANENTLY MARKED TO INDICATE THE PANEL AND CIRCUIT NUMBER OF THE RECEPTACLE. THE OUTSIDE OF THE COVERPLATES FOR ALL JUNCTION BOXES SHALL BE PERMANENTLY MARKED TO INDICATE THE SYSTEM. IDENTIFICATION SHALL BE ON THE INSIDE OF COVERPLATES FOR ALL JUNCTION BOXES IF THEY ARE LOCATED IN FINISHED AREAS. IDENTIFICATION OF BRANCH CIRCUITS SHALL BE TYPED WRITTEN ON DIRECTORY CARDS FURNISHED WITH ALL PANELS AND PLACED IN THE CARD HOLDER ON THE DOOR. PROVIDE NEW TYPED WRITTEN DIRECTORY CARDS WITH UPDATED SCHEDULES FOR ALL EXISTING PANELS WITH NEW OR MODIFIED CIRCUITS.
- IDENTIFY SPARE CONDUITS AND CONDUIT STUBS AS FOLLOWS: IDENTIFY SYSTEM AND/OR PURPOSE AT SOURCE, IF POSSIBLE, AND AT TERMINATION END. ALSO, AT TERMINATION END, INDICATE LOCATION OF CONDUIT ORIGINATION.
- AFTER INSTALLATION, TEST FOR GROUNDS, SHORT CIRCUITS AND PROPER FUNCTION OF EACH NEW SYSTEM AND RELATED WIRING. FAULTS IN THE INSTALLATION SHALL BE CORRECTED.
- INSULATION RESISTANCE TESTS SHALL BE MADE ON THE NEW ELECTRICAL SYSTEM WITH AN APPROVED MEGOHMMETER.
- A GROUND CONTINUITY TEST SHALL BE MADE ON THE ENTIRE GROUNDING SYSTEM FROM THE SERVICE TO EVERY NEW OUTLET.
- AFTER ALL TESTS AND ADJUSTMENTS HAVE BEEN COMPLETED, CLEAN ALL EQUIPMENT LEAVING EVERYTHING IN WORKING ORDER AT THE COMPLETION OF THIS WORK.
- PROVIDE A TEMPORARY ELECTRICAL SERVICE ADEQUATE IN SIZE FOR HEATING, FOR THE USE OF ALL TRADES AND FOR THE LIGHTING OF EACH ROOM DURING CONSTRUCTION. TEMPORARY SERVICE CAN BE EXTENDED FROM THE OWNER'S EXISTING POWER DISTRIBUTION SYSTEM. THE OWNER MUST APPROVE OF THE POINT OF SUPPLY, THE METHOD OF EXTENSION AND THE ROUTING OF NECESSARY TEMPORARY FEEDERS. INSTALLATION SHALL CONFORM TO ARTICLE 590 OF THE NEC.
- ALL CUTTING AND PATCHING IN CONSTRUCTION AS NECESSARY FOR INSTALLATION OF THIS WORK SHALL BE THE RESPONSIBILITY OF THIS DIVISION. HAVE CUTTING DONE BY SKILLED MECHANICS AS CAREFULLY AS POSSIBLE AND WITH AS LITTLE DAMAGE AS POSSIBLE. (PROVIDE CUTTING AND PATCHING FOR INSTALLATION OF NEW AND/OR RELOCATED DEVICES AND ASSOCIATED CONDUITS IN EXISTING WALLS TO REMAIN.)

### BASIC MATERIALS AND METHODS

- ALL BOXES AND COVERPLATES SHALL BE SUITABLE FOR THE APPLICATIONS, RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE INDEPENDENT OF THE CONDUIT SYSTEM. ALL BOXES SHALL BE 4"x4"x2" DEEP MINIMUM WITH COVERPLATES SUITABLE FOR THEIR INTENDED USE. BOX STABILIZERS SHALL BE UTILIZED TO PROPERLY SUPPORT BOXES IN METAL STUD CONSTRUCTION. ALL JUNCTION BOXES AND COVERPLATES FOR FIRE ALARM SYSTEM WIRING SHALL BE PAINTED RED.
- EXTERIOR UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC, ENCASED IN CONCRETE UNDER DRIVES AND ROADWAYS WITH A MINIMUM 3" ENVELOPE. CONDUITS IN CONCRETE FLOORS, DAMP OR WET LOCATIONS, OR EXPOSED HIGH TRAFFIC AREAS WHERE SUBJECT TO PHYSICAL ABUSE SHALL BE HEAVY WALL RIGID GALVANIZED STEEL. ALL OTHER INTERIOR CONDUITS SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED ON THE DRAWINGS OR WITHIN THESE SPECIFICATIONS. CONDUITS SHALL BE 3/4" TRADE SIZE, MINIMUM, UNLESS OTHERWISE NOTED ON THE DRAWINGS OR WITHIN THESE SPECIFICATIONS. ALL EMT CONDUITS SHALL HAVE COLD-ROLLED STEEL DOUBLE SET SOREW FITTINGS.
- CONDUITS THAT PASS FROM THE INTERIOR TO THE EXTERIOR OF THE BUILDING, OR ARE SUBJECT TO DIFFERENT TEMPERATURES, SHALL BE SEALED WITH AN APPROVED MATERIAL SUCH AS DUCT-SEAL TO PREVENT THE CIRCULATION OF COLD AIR TO A WARMER SECTION OF THE CONDUIT.
  - CONDUITS THAT STUB THROUGH THE ROOF SHALL BE SUPPLIED WITH PIPE SEALS AS MANUFACTURED BY THE PATE CO. AND SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER. PIPE SEALS SHALL BE ONE PIECE ALUMINUM BASE TYPE WITH FIVE INCH SLOPED ROOF SURFACE FLANGES, GRADUATED STEPPED PVC BOOTS AND ADJUSTABLE STAINLESS STEEL CLAMPS. RPS CORPORATION AND THYCURB CORPORATION ARE APPROVED EQUIVALENT MANUFACTURERS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND VERIFY EXACT REQUIREMENTS WITH THE ROOFING CONTRACTOR BEFORE PROCUREMENT AND INSTALLATION OF THE PIPE SEALS.
  - CONDUITS THAT STUB THROUGH THE FOUNDATION WALLS SHALL BE SUPPLIED WITH PIPE SEALS AS MANUFACTURED BY UNK-SEAL, OR BY EQUIVALENT METHOD AS APPROVED BY THE ARCHITECT. PIPE SEALS SHALL BE EPDM (BLACK) WITH STAINLESS STEEL HARDWARE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND VERIFY EXACT REQUIREMENTS WITH THE ARCHITECT BEFORE PROCUREMENT AND INSTALLATION OF THE PIPE SEALS.
- ALL INTERIOR BRANCH CIRCUIT CONDUITS SHALL BE EMT CONDUIT, METAL CLAD (TYPE MC) CABLE OR ARMORED (TYPE AC) CABLE MAY BE UTILIZED IN LIEU OF BRANCH CIRCUIT EMT CONDUIT IN CONCEALED WALL SPACES. A SECURING CLIP SHALL BE PROVIDED TO SECURE THE MC OR AC CABLE TO THE WALL CONSTRUCTION AT A MINIMUM OF 16" ON CENTER. A GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL EMT CONDUIT, MC CABLE AND AC CABLE. THE CONDUIT OR METAL SHEATH SHALL ITSELF QUALIFY AS AN EQUIPMENT GROUNDING RETURN PATH IN ACCORDANCE WITH NEC 250.118. WIRING SHALL BE AS SPECIFIED ELSEWHERE IN THIS SECTION.
- FLEXIBLE METAL CONDUIT SHALL BE USED FROM OUTLET BOXES TO RECESSED LIGHTING FIXTURES, 6 FT. IN LENGTH.
- CONDUIT CONNECTIONS TO MOTORS, TRANSFORMERS, AND OTHER VIBRATING EQUIPMENT SHALL BE FLEXIBLE METAL "SEAL-TITE" TYPE "J" CONDUIT AS MANUFACTURED BY THE AMERICAN BRASS COMPANY OR EQUIVALENT AND SHALL BE OF THE SAME SIZE AS THE FEEDER CONDUIT.
- DUPLEX RECEPTACLES SHALL BE 20A, 125V, 2 POLE, 3 WIRE GROUNDING.
  - GENERAL PURPOSE "SPECIFICATION GRADE" DUPLEX RECEPTACLES: HUBBELL #5352, LEVITON #5362 OR PASS & SEYMOUR #5362.
- DUPLEX RECEPTACLES, WHERE INDICATED ON THE DRAWINGS OR WHERE REQUIRED BY CODE, SHALL HAVE INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION AND SHALL BE 20A, 125V, 2 POLE, 3 WIRE GROUNDING; HUBBELL #GF5352, PASS & SEYMOUR #2091 OR LEVITON #8899. (HOSPITAL GRADE GFCI DUPLEX RECEPTACLES: HUBBELL #GF8300.) GFCI RECEPTACLES SHALL NOT BE THROUGH-WIRED. PROVIDE INDIVIDUAL DUPLEX GFCI RECEPTACLES AS SHOWN ON THE DRAWINGS.
- ALL RECEPTACLES SHALL BE PROVIDED WITH A SELF-GROUNDING CLIP AT THE MOUNTING SCREW.
- ALL SWITCHES, DIMMERS, AND RECEPTACLES SHALL BE WHITE UNLESS OTHERWISE INDICATED WITHIN THESE SPECIFICATIONS. VERIFY COLOR WITH THE OWNER PRIOR TO PROCUREMENT OF THE DEVICES. ALL COVERPLATES SHALL BE SMOOTH HIGH IMPACT COMMERCIAL GRADE. THERMOPLASTIC OR SMOOTH NYLON FINISH WITH COLOR TO MATCH THE DEVICES. EMERGENCY RECEPTACLES AND SWITCHES SHALL BE RED, WITH COVERPLATES TO MATCH THE FINISH OF THE OTHER COVERPLATES PROVIDED IN THE AREA. IN UNFINISHED AREAS, USE CADMIUM PLATED, ROUND CORNER, STEEL COVERPLATES FOR SURFACE MOUNTED OUTLET BOXES. BOTH THE WIRING DEVICES AND THE COVERPLATES SHALL BE BY THE SAME MANUFACTURER.
- WIRE AND CABLE FOR BRANCH CIRCUITS AND FOR FEEDERS SHALL BE 90 DEGREES C, 600VOLT, TYPE THHN/THWN, COPPER ONLY, UNLESS OTHERWISE NOTED ON THE DRAWINGS. TYPE XHHW SHALL ALSO BE ACCEPTABLE FOR FEEDERS. MINIMUM SIZE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE #12.
- SAFETY SWITCHES SHALL BE HEAVY DUTY FUSIBLE OR NONFUSIBLE TYPE AS INDICATED ON THE DRAWINGS, AND SHALL BE SUITABLE FOR THE VOLTAGE AND CURRENT RATINGS AS SHOWN ON THE DRAWINGS.
- FUSES RATED 600 AMPERES OR LESS, 600 VOLTS OR LESS, SERVING ALL LOADS SHALL BE U.L. CLASS RK-1, BUSSMANN DUAL ELEMENT, TIME DELAY "LOW PEAK", TYPE LPN-RK (250 VOLT) OR TYPE LPS-RK (600 VOLT), OR APPROVED EQUIVALENT. (TYPE J FUSES ARE ALSO ACCEPTABLE.) FUSES OF EQUIVALENT OVERLOAD AND SHORT-CIRCUIT INTERRUPTING PERFORMANCE, AS MANUFACTURED BY RELIANCE FUSE, FERRAZ-SHAWMUT, LITTELFUSE, GENERAL ELECTRIC OR S & C ARE ACCEPTABLE. EXACT FUSE TYPE REQUIRED FOR MOTOR PROTECTION SHALL BE PROVIDED AS RECOMMENDED BY THE STARTER MANUFACTURER.
- DISCONNECT SWITCHES AND MOTOR STARTERS SHALL BE MANUFACTURED BY SQUARE 'D', GENERAL ELECTRIC, SIEMENS/ITE, OR CUTLER HAMMER/WESTINGHOUSE.
- ANY CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, SHAFTS AND WALLS SHALL BE FIRE STOPPED PRIOR TO FINISH PATCHING. ALL PENETRATIONS AND BACK BOXES SHALL BE SEALED IN ACCORDANCE WITH UL FIRE RESISTANCE HANDBOOK VOLUME II AND SHALL BE RATED TO MATCH THE FIRE RATING OF THE FLOORS, SHAFTS OR WALLS PENETRATED.
- PENETRATIONS THROUGH FIRE RATED FLOORS SHALL NOT EXCEED AN AGGREGATE AREA OF 1 SQUARE FOOT IN ANY 100 SQUARE FEET OF FLOOR AREA, OR AS DICTATED BY LOCAL CODES.
- CONDUITS SHALL BE CONTINUOUS AND SECURED TO ALL BOXES IN SUCH A MANNER THAT EACH CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS FROM THE POINT OF SERVICE TO ALL DEVICE BOXES. RUN CONDUITS CONCEALED UNLESS OTHERWISE INDICATED. THE ACTUAL ROUTING OF CONDUITS SHALL BE INSTALLED TO SUIT THE VARIOUS FIELD CONDITIONS.
- IN REMODELED AREAS WHERE IT IS NOT POSSIBLE TO INSTALL CONCEALED CONDUIT, PERMISSION MUST BE OBTAINED FROM THE OWNER TO RUN SURFACE MOUNTED RACEWAYS OR CONDUIT. THE ROUTING AND ELEVATION MUST BE COORDINATED WITH THE ARCHITECT BEFORE INSTALLATION. EXPOSED RACEWAYS SHALL BE PAINTED TO MATCH ADJACENT FINISHES.
- INDIVIDUAL BRANCH CIRCUITS ARE SHOWN ON THE DRAWINGS FOR CLARITY. LIGHTING AND RECEPTACLE CIRCUITS LESS THAN OR EQUAL TO 100 AMPERES MAY BE GROUPED FOR HOMERUNS, WITH A MAXIMUM OF THREE (3) CIRCUITS PER HOMERUN. NEUTRAL CONDUCTORS SHALL NOT BE SHARED.
- WIRING FROM LEGALLY REQUIRED EMERGENCY AND STANDBY POWER GENERATION SOURCES SHALL BE KEPT INDEPENDENT OF EACH OTHER AND INDEPENDENT OF ALL OTHER BRANCH CIRCUIT WIRING, AND SHALL NOT ENTER THE SAME RACEWAY, CABLE, BOX, OR CABINET WITH OTHER WIRING, UNLESS SPECIFICALLY ALLOWED BY THE NATIONAL ELECTRICAL CODE.
- ALL ENCLOSURES CONTAINING EMERGENCY CIRCUITS SHALL BE PERMANENTLY MARKED WITH A RED LABEL INDICATING "CONTAINS EMERGENCY CIRCUITS".
- FOR 120 VOLT BRANCH CIRCUITS WHERE SIZE IS NOT SHOWN, CONDUCTOR SIZE #12 MINIMUM SHALL BE USED FOR CIRCUITS LESS THAN 125 FEET, AND SIZE #10 MINIMUM SHALL BE USED FOR CIRCUITS 125 FEET OR GREATER. GROUND CONDUCTORS SHALL ALSO BE INCREASED TO #10 ACCORDINGLY.

- IDENTIFY WIRE AND CABLE FOR BRANCH CIRCUITS AS CALLED FOR IN THE NATIONAL ELECTRICAL CODE. IDENTIFICATION OF FEEDERS SHALL BE BY MEANS OF COLORED TAPE AT TERMINALS.
- ADJACENT DEVICES OF THE SAME VOLTAGE CLASS SHALL BE MOUNTED IN GANGED BOXES.
- MOUNTING HEIGHTS TO THE CENTER OF OUTLET BOXES SHALL BE AS INDICATED ON THE DRAWINGS.
- VERIFY MOUNTING HEIGHTS AND LOCATIONS WITH THE ARCHITECT BEFORE ROUGH-IN. REFER TO DETAILS AND INTERIOR WALL ELEVATIONS SHOWN ON THE ARCHITECTURAL DRAWINGS.
- OUTLETS SHALL NOT BE INSTALLED BACK TO BACK.
- ALL RECEPTACLES SHALL BE MOUNTED WITH THE GROUND OPENING ABOVE THE PHASE AND NEUTRAL OPENINGS.
- ALL DEVICES SHALL BE SECURED WITH MORE THAN A SINGLE SCREW.
- ALL HARDWARE, SUPPORTS, HANGERS, BRACKETS, ANGLE IRON, CHANNELS, RODS AND CLAMPS NECESSARY TO INSTALL ELECTRICAL EQUIPMENT SHALL BE PROVIDED TO SUIT THE FIELD CONDITIONS AND THE APPLICATIONS INTENDED AS SHOWN ON THE DRAWINGS. THE USE OF PERFORATED STRAPS IS NOT PERMITTED.
- ALL EQUIPMENT MOUNTED ON INTERIOR EQUIPMENT ROOM WALLS WHERE ADDITIONAL SUPPORT IS REQUIRED SHALL BE ATTACHED TO 3/4" PATED PLYWOOD FIRE RATED BOARDS FURRED OUT 1" FROM WALL. BOARDS SHALL BE PAINTED TO MATCH WALL FINISHES.

### POWER DISTRIBUTION

- THE ELECTRICAL SERVICE TO THE EXISTING BUILDING SHALL REMAIN. THE BUILDING'S EXISTING POWER DISTRIBUTION SYSTEM SHALL BE MODIFIED AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. THE BUILDING'S EXISTING GROUNDING ELECTRODE SYSTEM SHALL BE MAINTAINED.
- GROUND ALL ELECTRICAL SYSTEM CONDUITS, RACEWAYS, MOTORS, PANELS, CABINETS, FIXTURES, METAL BOXES, AND OTHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ALL PROVISIONS OF THE NEC, STATE BUILDING CODE AND LOCAL OR REGIONAL CODES.
- GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITH FEEDER AND BRANCH CIRCUIT CONDUCTORS IN ALL CONDUITS, SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122.
- WHERE GROUNDING CONDUCTORS ARE SUBJECT TO MECHANICAL DAMAGE PROTECT SUCH CONDUCTORS BY ENCASEMENT IN CONCRETE OR INSTALLATION IN A RIGID METALLIC RACEWAY.
- ALL TERMINATIONS OF THE GROUNDING CONDUCTORS SHALL BE BY MEANS OF SOLDERLESS CONNECTIONS.
- FURNISH AND INSTALL DISTRIBUTION AND POWER PANELBOARDS WITH THERMAL-MAGNETIC, MOLDED CASE CIRCUIT BREAKERS OF FRAME AND TRIP RATINGS AS LISTED ON THE DRAWINGS. BUS STRUCTURE AND MAIN LUGS OR MAIN BREAKER SHALL HAVE CURRENT RATINGS AS SHOWN ON THE DRAWINGS. EACH DISTRIBUTION SECTION SHALL BE FULLY BUSSED, READY TO ACCEPT FUTURE DEVICES. ALL CURRENT CARRYING PARTS OF THE BUS STRUCTURE SHALL BE TIN-PLATED ALUMINUM. EACH PANELBOARD SHALL CONTAIN A GROUNDING BUS AND A 100% RATED NEUTRAL BUS.
  - CIRCUIT BREAKERS SHALL BE EQUIPPED WITH INDIVIDUALLY INSULATED, BRACED AND PROTECTED CONNECTORS. THE FRONT FACES OF CIRCUIT BREAKERS SHALL BE FLUSH WITH EACH OTHER. LARGE, PERMANENT, INDIVIDUAL CIRCUIT NUMBERS SHALL BE AFFIXED TO EACH BREAKER IN A UNIFORM POSITION. TRIPPED INDICATION SHALL BE CLEARLY SHOWN BY THE BREAKER HANDLE TAKING A POSITION BETWEEN "ON" AND "OFF". PROVISIONS FOR ADDITIONAL BREAKERS SHALL BE SUCH THAT NO ADDITIONAL CONNECTORS WILL BE REQUIRED TO ADD BREAKERS.
- FURNISH AND INSTALL BRANCH CIRCUIT BREAKER PANELBOARDS (LOADCENTERS) EQUIPPED WITH CIRCUIT BREAKERS, WITH FRAME AND TRIP RATINGS LISTED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE BOLT-ON (PLUG ON) TYPE. PROVIDE (SWITCHING "SWD") (HIGH INTENSITY DISCHARGE "HID") (HVAC "HACR") (ARC FAULT CIRCUIT INTERRUPTING) TYPE AS REQUIRED. ALL CURRENT CARRYING PARTS OF THE BUS STRUCTURE SHALL BE TIN-PLATED ALUMINUM. EACH PANEL SHALL CONTAIN A 100% RATED NEUTRAL BUS AND A GROUNDING BUS. (PANELS SERVED BY A K-RATED TRANSFORMER SHALL CONTAIN A 200% RATED NEUTRAL BUS.) (PROVIDE AN INSULATED AND ISOLATED GROUND BUS IN EACH PANEL SERVING ISOLATED GROUND CIRCUITS. PROVIDE A SEPARATE ISOLATED GROUNDING CONDUCTOR (GREEN WITH YELLOW STRIPE) COMPLETE TO THE SOURCE OF THE SYSTEM GROUND.) PANELS SHALL HAVE "DOOR-WITHIN-DOOR" TRIM, HINGED BOX TO FRONT TYPE (WITH LATCH ON OUTER DOOR) (WITH SCREWS OPPOSITE OUTER HINGE). (LOADCENTERS SHALL HAVE DOORS WITH CONCEALED STEEL HINGES AND FLUSH CYLINDER TUMBLER TYPE LOCKS.) ALL LOOKS SHALL BE KEYPED ALIKE.
- EACH PANEL, AS A COMPLETE UNIT, SHALL HAVE A MINIMUM SYMMETRICAL SHORT CIRCUIT CURRENT RATING OF 10,000 (22,000) AMPERES FOR 208Y/120 VOLT RATED PANELS AND 14,000 (18,000) AMPERES FOR 480Y/277 VOLT RATED PANELS. CIRCUIT BREAKERS SHALL BE FULLY RATED. SERIES RATINGS ARE NOT PERMITTED.
- NEW CIRCUIT BREAKERS OR FUSIBLE SWITCHES INSTALLED IN EXISTING PANELS SHALL MATCH THE EXISTING IN TYPE, MANUFACTURER (IF POSSIBLE), AND SHORT CIRCUIT RATINGS.
- PANELS SHALL BE AS MANUFACTURED BY SCHNEIDER ELECTRIC, SIEMENS OR EATON.
- PANELS SHALL BE MOUNTED SO THAT TOP OF THE CABINET IS AT 6'-0" ABOVE FLOOR. A GLAZED DIRECTORY FRAME SHALL BE PROVIDED INSIDE EACH PANEL DOOR AND SHALL BE OF SUFFICIENT SIZE TO GIVE A COMPLETE DESCRIPTION OF EACH CIRCUIT. TYPED DIRECTORY CARDS SHALL BE PROVIDED LISTING EACH CIRCUIT SERVED.
- THE BRANCH CIRCUIT NUMBERS USED ON THE DRAWINGS SHALL BE APPLIED FOR THE CONSTRUCTION. HOWEVER, AT THE COMPLETION OF THE WORK, CIRCUIT NUMBER ADJUSTMENTS SHALL BE MADE AS REQUIRED TO PROVIDE BALANCED PHASE LOADING ON EACH PANEL.
- FLUSH MOUNTED PANELS SHALL BE INSTALLED WITH A MINIMUM OF THREE EMPTY 3/4" CONDUITS STUBBED UP TO THE NEAREST ACCESSIBLE CEILING SPACE FOR CONVENIENT FUTURE EXPANSION.
- SPARE CIRCUIT BREAKERS SHALL BE IDENTIFIED AS SUCH ON THE PANEL DIRECTORY CARDS AND SHALL BE LEFT IN THE "OFF" POSITION.
- ENGINE GENERATORS, TRANSFER SWITCHES, REMOTE START/STOP AND REMOTE ANNUNCIATORS SHALL BE FURNISHED BY THE OWNER AND INSTALLED BY THE CONTRACTOR. GENERATOR SHALL BE CONNECTED AS AN EMERGENCY SYSTEM IN ACCORDANCE WITH THE FUNCTIONAL PROGRAM. THE GENERATOR SHALL BE AS MANUFACTURED BY GENERAC WITH THE FUEL TYPE AND POWER RATING AS INDICATED ON THE DRAWINGS.
- CONTRACTOR SHALL INSTALL THE COMPLETE ELECTRICAL GENERATING SYSTEM INCLUDING ALL EXTERNAL FUEL CONNECTIONS IN ACCORDANCE WITH REQUIREMENTS OF NEC, NFPA, AND THE MANUFACTURER'S RECOMMENDATIONS AS REVIEWED BY THE ENGINEER.
- EXAMINE AREAS, EQUIPMENT BASES, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION AND OTHER CONDITIONS AFFECTING PACKAGED ENGINE-GENERATOR PERFORMANCE. EXAMINE ROUGHING-IN OF PIPING SYSTEMS AND ELECTRICAL CONNECTIONS. VERIFY ACTUAL LOCATIONS OF CONNECTIONS BEFORE PACKAGED ENGINE-GENERATOR INSTALLATION. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- COMPLY WITH PACKAGED ENGINE-GENERATOR MANUFACTURERS' WRITTEN INSTALLATION AND ALIGNMENT INSTRUCTIONS AND WITH NFPA 110. INSTALL PACKAGED ENGINE GENERATOR TO PROVIDE ACCESS, WITHOUT REMOVING CONNECTIONS OR ACCESSORIES, FOR PERIODIC MAINTENANCE. INSTALL PACKAGED ENGINE GENERATOR WITH RESTRAINED SPRING ISOLATORS HAVING A MINIMUM DEFLECTION OF 1 INCH ON 4-INCH-HIGH CONCRETE BASE. SECURE SETS TO ANCHOR BOLTS INSTALLED IN CONCRETE BASES.

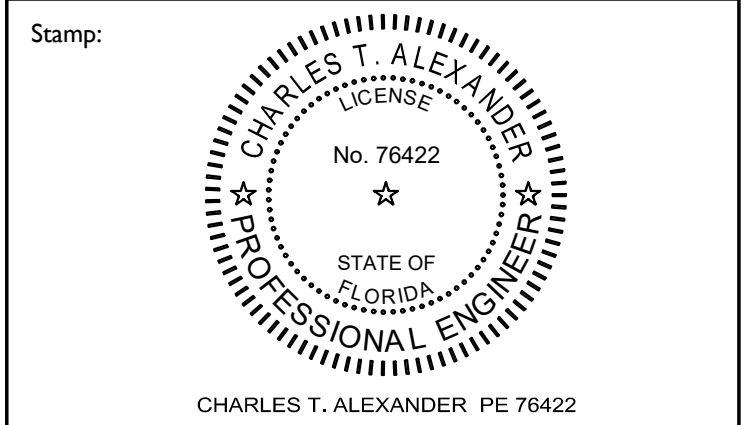
- ELECTRICAL WIRING: INSTALL ELECTRICAL DEVICES FURNISHED BY EQUIPMENT MANUFACTURERS BUT NOT SPECIFIED TO BE FACTORY MOUNTED. PROVIDE CONTROL WIRING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION DRAWINGS AND RECOMMENDATIONS BETWEEN THE GENERATOR, ANNUNCIATOR AND ALL TRANSFER SWITCHES.
- FOR DIESEL POWERED GENERATORS, PROVIDE INITIAL FILL OF DIESEL FUEL OF SUFFICIENT QUANTITY TO PERFORM ALL TESTING. FINAL FULL FUEL SHALL BE BY OWNER.
- INSTALL THE EMERGENCY/STANDBY ENGINE-GENERATOR SET ON A CONCRETE PAD. THE CONCRETE PAD SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. VERIFY ESSENTIAL INFORMATION WITH THE MANUFACTURER.
- THE SUPPLIER OF THE ELECTRIC GENERATING PLANT AND ASSOCIATED ITEMS COVERED HEREIN SHALL PROVIDE FACTORY TRAINED TECHNICIANS TO VALIDATE THE COMPLETED INSTALLATION AND TO PERFORM AN INITIAL STARTUP INSPECTION TO INCLUDE: ENSURING THE ENGINE STARTS (BOTH HOT AND COLD) WITHIN THE SPECIFIED TIME; VERIFICATION OF ENGINE PARAMETERS WITHIN SPECIFICATION; VERIFY NO LOAD FREQUENCY AND VOLTAGE, ADJUSTING IF REQUIRED.
- TEST ALL AUTOMATIC SHUTDOWNS OF THE ENGINE-GENERATOR. PERFORM A LOAD TEST OF THE ELECTRIC PLANT, ENSURING FULL LOAD FREQUENCY AND VOLTAGE ARE WITHIN SPECIFICATION BY USING BUILDING LOAD, PERFORM A LOAD TEST FOR 1.5 HOURS USING BUILDING LOAD PER SECTION 7.13 OF NFPA 110.
- TRAINING IS TO BE SUPPLIED BY THE START-UP TECHNICIAN FOR THE END-USER DURING COMMISSIONING. THE TRAINING SHOULD COVER BASIC GENERATOR OPERATION AND COMMON GENERATOR ISSUES THAT CAN BE MANAGED BY THE END-USER. TRAINING IS TO INCLUDE MANUAL OPERATION OF SYSTEM.

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CONSULATE HEALTH CARE

At the Heart of Caring



Job Number:	2018101.00	Designer:	CTA
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Submital Date:	Description:
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**FORT PIERCE  
HEALTH CARE  
GENERATOR REPLACEMENT  
1309 EASTER AVENUE  
FORT PIERCE, FL 34950**

Drawing Title:

**SPECIFICATIONS -  
ELECTRICAL**

**E600**