

Instructions:
Include this sheet as shown.

ABBREVIATIONS

A OR AMP	AMPERES
AF	AMPS FRAME
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AM	AMMETER
AS	AMMETER SELECTION SWITCH
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AT	AUTOMATIC TRANSFORMER OR AMPS TRIP
BCP	BACKUP CONTROL PANEL
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CNTL	CONTROL
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
Δ	DELTA CONNECTION
D	DEPTH
DP	DISTRIBUTION PANELBOARD
DS OR DISC	DISCONNECT SWITCH
DTC	DATA TERMINAL CABINET
ECUA	EMERALD COAST UTILITIES AUTHORITY
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EMCP	EMERGENCY MANAGEMENT CONTROL PANEL
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
ESTOP	EMERGENCY STOP
ETR	EXISTING TO REMAIN
EX OR EXIST.	EXISTING
EXP	EXPLOSION PROOF
F	FUSE
FA	FIRE ALARM
FCR	FLOAT CONTROL RELAY
FLR	FLOOR
FACP	FIRE ALARM CONTROL PANEL
FMPX	FIRE ALARM MULTIPLEX PANEL
G OR GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTING
H	HEIGHT
HP	HORSEPOWER
HTR	HEATER
HV	HIGH VOLTAGE, 600VAC
HVAC	HEATING, VENTILATION AND AIR
IMC	INTERMEDIATE METAL CONDUIT
JB OR J	JUNCTION BOX
KVA	KILOVOLT - AMPS
KW	KILOWATTS
KWH	KILOWATT-HOUR
L	LENGTH
LA	LIGHTING ARRESTOR
LCP	LIGHTING CONTROL PANEL
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LP	LIGHTING PANELBOARD
LR	LINE REACTOR
LS	LIMIT SWITCH
LV	LOW VOLTAGE, 240VAC
M	METER OR STARTER
MCB OR MB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MH OR MTG	MOUNTING HEIGHT
MLO	MAIN LUG ONLY
MMS	MICROPROCESSOR-BASED METERING SYSTEM
MOT	MOTOR
MS	MOTOR STARTER
MT OR MTD	MOUNT OR MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSIBLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATES
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OR	OUTPUT/LOAD REACTOR
P	POLE
PDB	POWER DISTRIBUTION BLOCK
PFC	POWER FACTOR CAPACITOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMT	PAD MOUNT TRANSFORMER
PNL	PANEL
PS	POWER SUPPLY
PVC	POLYVINYLCHLORIDE CONDUIT
RC	REMOTE CONTROL SWITCH
REC OR RECPT	RECEPTACLE
RGC	RIGID GALVANIZED COUDDIT
RMS	ROOT MEAN SQUARE
RTU	REMOTE TERMINAL UNIT
SA	SURGE ARRESTOR
SS	STAINLESS STEEL, SOFT START
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TB	TERMINAL BLOCK
TBB	TELEPHONE BACKBOARD
TCP	TEMPERATURE CONTROL PANEL
TTC	TELEPHONE TERMINAL CABINET
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITER'S LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VMS	VOLTMETER SELECTOR SWITCH
W	WIDTH
W/	WITH
WHDM	WATT HOUR DEMAND METER
WM	WATTMETER
WP	WEATHER PROOF
XFMR OR XF	TRANSFORMER
Y	WYE CONNECTION

ABBREVIATIONS (CONT.)

VMS	VOLTMETER SELECTOR SWITCH
W	WIDTH
W/	WITH
WHDM	WATT HOUR DEMAND METER
WM	WATTMETER
WP	WEATHER PROOF
XFMR OR XF	TRANSFORMER
Y	WYE CONNECTION

ELECTRICAL DRAWINGS INDEX

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- E3 ELECTRICAL DETAIL 1

GENERAL NOTES

1. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION (UNLESS NOTED OTHERWISE) OF THE FOLLOWING CODES AND STANDARDS:
1.1. NATIONAL ELECTRICAL CODE (NFPA 70).
- 1.2. STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES (NFPA S20).
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING ALL PROJECT SPECIFICATIONS AND WILL BE RESPONSIBLE FOR MEETING ALL REQUIREMENTS OUTLINED IN THE SPECIFICATIONS.
3. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
4. WORKING SPACE FOR ALL ELECTRICAL AND CONTROL EQUIPMENT OPERATING AT 600V VOLTS OR LESS TO GROUND AND LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED SHALL COMPLY WITH NEC, ARTICLE 110.26.
5. THE ELECTRICAL DESIGN PROVIDES A NUMBER OF BRANCH CIRCUITS, AMPACITY AND OVERCURRENT PROTECTION FOR OTHER DIVISIONS DESIGN BASIS EQUIPMENT CONFORMING TO MANUFACTURER'S SPECIFICATIONS AVAILABLE AT TIME OF DESIGN. THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOADS PRIOR TO ROUGH-IN. IF REQUIREMENTS OF EQUIPMENT ACTUALLY PROVIDED UNDER CONTRACT FOR CONSTRUCTION ARE DIFFERENT, CONTRACTOR SHALL MAKE ALL CHANGES NECESSARY WITHOUT INCREASE IN THE CONTRACT AMOUNT. SUCH CHANGES SHALL BE BASED UPON EQUIPMENT'S, NAMEPLATE VALUES AND CODE REQUIREMENTS, WHICHEVER IS MORE STRINGENT, AND MAY INCLUDE, BUT ARE NOT LIMITED TO: SIZE OF CONDUCTORS, SIZE OF CONDUIT, QUANTITY OF CONDUCTORS AND CONDUITS, TYPE AND SIZE OF CIRCUIT BREAKER OR DISCONNECT, OVERLOADS, FULL-VOLTAGE STARTERS, REDUCED VOLTAGE SOFT STARTERS, VARIABLE FREQUENCY DRIVES, AND FUSE PROTECTION.
6. THE ELECTRICAL CONTRACTOR IS REQUIRED TO COORDINATE, PROVIDE, AND INSTALL A FULLY OPERATIONAL AND CODE COMPLIANT ELECTRICAL SYSTEM. THIS MAY INCLUDE THE ADDITION OF ELECTRICAL ITEMS NOT SHOWN ON THE ELECTRICAL PLANS, BUT REQUIRED FOR SYSTEM OPERATION.
7. CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SERVICE WITH ELECTRICAL UTILITY COMPANY PROVIDING ELECTRICAL SERVICE TO FACILITY. CONTRACTOR SHALL PAY ALL FEES ASSESSED BY ELECTRICAL UTILITY COMPANY TO PROVIDE ELECTRICAL SERVICE TO FACILITY.
8. CONTRACTOR SHALL EXCAVATE AND CONDUCT DEMOLITION SO AS TO AVOID DAMAGE TO EXISTING UTILITIES AND OTHER UNDERGROUND OR CONCEALED ITEMS. IF EXISTING OR NEW ITEMS ARE DAMAGED, THE CONTRACTOR SHALL NOTIFY THE OWNER AT ONCE OF ALL DAMAGE AND SHALL REPAIR (OR REPLACE IF NECESSARY) TO THE ORIGINAL CONDITION TO THE SATISFACTION OF OWNER AND ENGINEER AT NO CHARGE IN THE CONTRACT AMOUNT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DETAILED ELECTRICAL AND CONTROL EQUIPMENT LAYOUT DRAWINGS TO THE ENGINEER AND OWNER FOR APPROVAL PRIOR TO INSTALLATION.
10. ALL CONDUITS NOT LOCATED UNDER SLAB SHALL HAVE A MINIMUM BURIAL DEPTH OF 42", UNLESS NOTED OTHERWISE.
11. CONDUITS SHALL BE BURIED 42" (MINIMUM) BELOW GRADE WITH MARKER TAPE 6" ABOVE TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
12. MINIMUM SIZE CONDUIT SHALL BE 1" (UNLESS NOTED OTHERWISE).
13. CONDUIT ROUTINGS AND DEVICE/EQUIPMENT LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD ROUTE AND LOCATE AS REQUIRED.
14. CONTRACTOR SHALL PROVIDE PULL BOXES IN POWER CIRCUIT CONDUIT AS REQUIRED TO LIMIT THE NUMBER OF BENDS TO A MAXIMUM OF 270 DEGREES OR THREE 90 DEGREE BENDS.
15. ALL WIRE SHALL BE COPPER.
16. ALL ELECTRICAL CIRCUITS SHALL INCLUDE A GREEN GROUNDING CONDUCTOR SIZED PER NEC.
17. CONDUCTORS SHALL BE TERMINATED ON TERMINAL BLOCKS.
18. THE CONTRACTOR SHALL TAG ALL POWER AND CONTROL SYSTEM CABLING AT ALL TERMINATION POINTS.
19. FINAL CONNECTION TO ALL EQUIPMENT IS SHOWN DIAGRAMMATIC. PROVIDE FINAL CONNECTION AS REQUIRED PER MANUFACTURER OF EQUIPMENT.
20. CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AND MARK-UP DURING CONSTRUCTION TO REFLECT AS-BUILT CONDITIONS. PRINTS SHALL BE DELIVERED TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
21. ALL HARDWARE SHALL BE STAINLESS STEEL.
22. ALUMINUM CONDUIT SHALL BE COATED WITH (2) WRAPS OF ANTI-CORROSION TAPE OR RUN THROUGH A SCHEDULE 80 PVC SLEEVE TO WHEN IN CONTACT WITH CONCRETE.
23. BARE COPPER SHALL BE COATED WITH (2) WRAPS OF ANTI-CORROSION TAPE OR RUN THROUGH A SCHEDULE 80 PVC SLEEVE TO WHEN IN CONTACT WITH CONCRETE.
24. ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR FINAL SIZING OF ALL EQUIPMENT.

ELECTRICAL SYMBOLS LEGEND

WIRING	
	HOMERUN TO PANEL BOARD (ARROW HEADS INDICATE THE NUMBER OF CIRCUITS)
	SOLID LINES ON PLANS INDICATE NEW EQUIPMENT AND MATERIALS
	CENTER LINES ON PLANS INDICATE UNDERGROUND OR INFLOOR CONDUIT (SEE PLANS).
	CURVED LINES ON PLANS INDICATE CIRCUITS ON "NORMAL" BRANCH POWER
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT STUBBED AND CAPPED AS SHOWN PROVIDE INSULATED THROAT BUSHINGS.
	GUY WIRE
	DELTA CONNECTION
	WYE CONNECTION
	CAPACITOR
	UNDERFLOOR JUNCTION BOX
	JUNCTION BOX
	PULL BOX
	HANDHOLE
	DUCT CELL FLOOR HEADER
	CONDUIT CONDUCTOR WIRE TAG. P-DENOTES POWER, L-DENOTES 120V CIRCUITS, I-DENOTES INSTRUMENTATION TO PLC, AND C-DENOTES CONTROL CIRCUIT FROM MCC.
COMMUNICATION	
	DATA COMMUNICATION OUTLET
	DATA COMMUNICATION FLOOR OUTLET
	TELEPHONE FLOOR RECEPTACLE
	WALL MOUNTED TELEPHONE
	CEILING MOUNTED SPEAKER
LIGHTING	
	EXIT SIGN WALL MOUNTED LIGHT
	ELECTRIC RESISTANCE HEATER
	FLUORESCENT EMERGENCY LIGHT FIXTURE
	SINGLE POLE SWITCH
	THREE-WAY SWITCH
	TIMER OPERATED SWITCH
	FUSED SWITCH
	SWITCH WITH PILOT LIGHT
	CEILING MOUNTED PULL SWITCH
	DOUBLE POLE SWITCH

LIGHTING (CONT)

	FOUR-WAY SWITCH
	KEY OPERATED SWITCH
	LAMP HOLDER POLE SWITCH
	LOW VOLTAGE MASTER SWITCH
	WEATHER PROOF SWITCH
	MULTIPOSITION SWITCH
	INCANDESCENT CEILING MOUNTED LIGHT
	RECESSED FLUORESCENT 2X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X4 LIGHT FIXTURE
	RECESSED FLUORESCENT 1X8 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 2X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X4 LIGHT FIXTURE
	SURFACE MOUNTED FLUORESCENT 1X8 LIGHT FIXTURE
	STREET LIGHT WITH BRACKET
	AIRFIELD RUNWAY LIGHT
	AIRFIELD TAXIWAY LIGHT
	EXTERIOR BUILDING LIGHT
	RUNWAY LIGHT
	ONE EMERGENCY BATTERY POWER LIGHT
	THREE EMERGENCY BATTERY POWER LIGHTS
	2' X 2' LIGHT FIXTURE
	INDUSTRIAL OR STRIP FIXTURE

POWER

	CLOCK HANGER RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX ON EMERGENCY POWER RECEPTACLE
	DUPLEX WITH GFI RECEPTACLE
	QUADRAPLEX RECEPTACLE
	SINGLE RECEPTACLE
	GENERATOR RECEPTACLE
	POWER DISTRIBUTION BLOCK
	SINGLE RECEPTACLE WITH SWITCH
	TRANSFER SWITCH
	POWER DISTRIBUTION BLOCK

POWER (CONT)

	SPECIAL PURPOSE RECEPTACLE
	DUPLEX RECEPTACLE WITH SWITCH
	FLUSH MOUNTED PANELBOARD CABINET
	SURFACE MOUNTED PANELBOARD CABINET
SINGLE LINE	
	EARTH GROUND
	MOTOR
	MOTOR LARGE
	POWER GENERATOR
	TRANSFORMER
	CURRENT TRANSFORMER
	SUBSTATION
	CIRCUIT BREAKER
	FUSED DISCONNECT SWITCH
	UNFUSED DISCONNECT SWITCH
	REACTANCE REACTOR OR - OUTPUT REACTOR
	METER
	POWER / VOLTAGE MONITOR
	GROUND FAULT MONITOR
	DISTRIBUTION PANEL
	LIGHTING PANEL
	COMBINATION STARTER WITH DISCONNECT SWITCH
	STARTER OR MOTOR CONTROLLER
	POWER PANEL
	FUSE WITH RATING
	BUSWAY
	WIREWAY
	DUCT TROLLEY
	CABLE LADDER
	TRANSIENT VOLTAGE SURGE SUPPRESSER
	VARIABLE FREQUENCY DRIVE
	SOFT START
	FUSIBLE LINK
	AERIAL SERVICE WEATHER HEAD

Electrical Symbols and Abbreviations.dwg



SHEET NO.
DS-10

DATE: 9/01/2016

SEE NOTE #10 ON SHEET DS-0.1