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D	1P	SINGLE POLE	DEG C	DEGREES CELSIUS		
	1PH	SINGLE - PHASE	DEG F	DEGREES FAHRENHEIT	PED	PEDESTAL
	2/C	TWO - CONDUCTOR	DEMO	DEMOLITION	PEND	PENDANT
	3/C	THREE - CONDUCTOR	DIAG	DIAGRAM	PF	POWER FACTOR
	3PH	THREE - PHASE	DISTR	DISTRIBUTION	PH	PHASE
	4/C	FOUR - CONDUCTOR	DN	DOWN	PNL	PANEL
	4W	FOUR - WIRE	DRSW	DOOR SWITCH	PVC	POLYVINAL CHLORIDE (PLASTIC)
	A/C UNIT	AIR CONDITIONING UNIT	DWG	DRAWING	PWR	POWER
	A/E	ARCHITECT/ENGINEER	EC	EMPTY CONDUIT	RCP	REFLECTED CEILING PLAN
	AB	ABOVE	EE	ESSENTIAL EQUIPMENT	REC	RECESSED
C	AC	ALTERNATING CURRENT OR ARMORED CABLE	EG	EQUIPMENT GROUND	RECPT	RECEPTACLE
	ACC	ACCESSIBLE	EL	ELEVATION	REQD	REQUIRED
	ADDL	ADDITIONAL	ELEC	ELECTRIC or ELECTRICAL	RGS	RIGID GALVANIZED STEEL
	ADJ	ADJACENT, ADJOINING	ELEV	ELEVATOR	RM	ROOM
	ADO	AUTOMATIC DOOR OPENER	EMER	EMERGENCY	SF	SQUARE FOOT (FEET)
	AFC	ABOVE FINISHED COUNTER	EMI	ELECTROMAGNETIC INTERFERENCE	SHT	SHEET
	AFF	ABOVE FINISHED FLOOR	EMT	ELECTRICAL METALLIC TUBING	SI	INTERNATIONAL SYSTEM OF UNITS
	AFG	ABOVE FINISHED GRADE	ENCL	ENCLOSURE	SPEC	SPECIFICATION
	AHJ	AUTHORITY HAVING JURISDICTION	EPO	EMERGENCY POWER OFF	SURF	SURFACE
	ALT	ALTERNATE	ETR	EXISTING TO REMAIN	SW	SWITCH
B	AMB or A	AMBIENT	EX or EXIST	EXISTING	TEL	TELEPHONE
	ARCH	ARCHITECT	FLEX	FLEXIBLE METALLIC CONDUIT	TP	TWISTED PAIR
	ATS	AUTOMATIC TRANSFER	FOUTT	TELEPHONE FLOOR OUTLET	TPS	TWISTED PAIR SHIELDED
	AUTO	AUTOMATIC	FP	FIRE PROTECTION	TTB	TELEPHONE TERMINAL BOARD
	AV	AUDIO VISUAL	FT	FEET or FOOT	TV	TELEVISION
	BAT	BATTERY	FU SW	FUSED SWITCH	TYP	TYPICAL
	BC	BARE COPPER	G or GND	GROUND	UFD	UNDERFLOOR DUCT
	BD	BOARD	GEN	GENERATOR	UGND	UNDERGROUND
	BFF	BELOW FINISHED FLOOR	GTB	GROUND TERMINAL BOX	UL	UNDERWRITERS LABORATORY
	BLDG	BUILDING	HOA	HAND-OFF-AUTOMATIC	UNO	UNLESS NOTED OTHERWISE
A	BPIP	BOILER PLANT INSTRUMENTATION PANEL	HPC	HIGH PAIR COUNT	UPS	UNINTERRUPTIBLE POWER SUPPLY
	BYP	BY-PASS	HT	HEIGHT	UTIL	UTILITY
	C	CONDUIT	HZ	HERTZ	V	VOLTAGE
	CAB	CABINET	IMC	INTERMEDIATE METAL CONDUIT	WP	WEATHERPROOF
	CALC	CALCULATE	IR	INFRARED		
	CAP	CAPACITY	J-BOX	JUNCTION BOX		
	CAT	CATALOG	LAN	LOCAL AREA NETWORK		
	CATV	COMMUNITY ANTENNA TELEVISION	LF	LINEAR FEET (FOOT)		
	CC	CRITICAL CARE	LS	LIFE SAFETY		
	CCTV	CLOSED CIRCUIT TELEVISION	LTNG	LIGHTING		
	CD	CONSTRUCTION DOCUMENTS	LV	LOW VOLTAGE		
	CF	CONTRACTOR FURNISHED	MATV	MASTER ANTENNA TELEVISION SYSTEM		
	CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED	MAX	MAXIMUM		
	CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED	MECH	MECHANICAL		
	CFE	CONTRACTOR FURNISHED EQUIPMENT	MIN	MINIMUM		
	CLG	CEILING	MM	MULTI-MODE		
	CMU	CONCRETE MASONARY UNIT	MT	MOUNT		
	COAX	COAX CABLE	MTD	MOUNTED		
	COMM	COMMUNICATION	MTG	MOUNTING		
	COMPT	COMPARTMENT	NA	NOT APPLICABLE		
	CONC	CONCRETE	NEC	NATIONAL ELECTRICAL CODE		
	CONT	CONTINUE	NEUT or N	NEUTRAL		
	CONTR	CONTRACTOR	NIC	NOT IN CONTRACT		
	COORD	COORDINATE	NS	NO SCALE		
	CTV	CABLE TELEVISION	NTS	NOT TO SCALE		
	CU	COPPER	OC	ON CENTER		
	CU FT	CUBIC FEET	OD	OUTSIDE DIAMETER		
	CUR	CURRENT	P	POLE		
	DB	DECIBEL OR DIRECT BURIAL	PA	PUBLIC ADDRESS		
	DC	DIRECT CURRENT	PB	PANELBOARD or PULL BOX or PUSHBUTTON		
			PBPU	PREFABRICATION BEDSIDE PATIENT UNIT		

ELECTRICAL LEGEND (MISC.)	
SYMBOL	DESCRIPTION
	ELECTRICAL PANEL BOARD - SURFACE MOUNTED
	ELECTRICAL PANEL BOARD - RECESSED
	INDICATES NOTES ELSEWHERE
	PHASE
	SWITCH LEG
	BRANCH CIRCUIT
	SWITCHED CIRCUIT
	HOMERUN TO PANEL BOARD - 3 #12-3/4"C UNO
	CROSS HATCHING INDICATES EQUIPMENT AND/OR WIRING TO BE RENDERED DEAD AND REMOVED BY EC.

POWER LEGEND	
SYMBOL	DESCRIPTION
	AUTOMATIC TRANSFER SWITCH
	ENCLOSED CIRCUIT BREAKER
	RELAY
	FINAL CONNECTION BY EC TO EQUIPMENT
	JUNCTION BOX
	COMBINATION FVNR STARTER AND NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	NON-FUSED DISCONNECT SWITCH
	VARIABLE FREQUENCY DRIVE
	VARIABLE FREQUENCY DRIVE - FURNISHED BY OTHERS, FINAL CONNECTION BY E.C.
	MOTOR

RECEPTACLES LEGEND	
SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE - 120V, 20A
	DUPLEX RECEPTACLE FOR DEDICATED EQUIPMENT CONNECTION - 120V, 20A
	- MICROWAVE (MW) - REFRIGERATOR (REF)
	DUPLEX RECEPTACLE - 120V, 20A ABOVE COUNTER
	TWO DUPLEX RECEPTACLES - 120V, 20A EACH W/ SHARED COVERPLATE
	DUPLEX GROUND FAULT INTERRUPTER TYPE RECEPTACLE - 120V, 20A
	DUPLEX WEATHERPROOF GROUND FAULT INTERRUPTER TYPE RECEPTACLE - 120V, 20A

GENERAL ELECTRICAL NOTES

- WHERE BUILDING CONSTRUCTION MUST BE CUT TO CONCEAL NEW CONDUIT AND WIRING THE CONTRACTOR SHALL SAW CUT A CHANNEL IN BUILDING CONSTRUCTION, PROVIDE CONDUIT AND PATCH AND FINISH DISTURBED AREAS TO MATCH ADJACENT SURFACES AS APPROVED BY THE PROFESSIONAL.
- DISCONNECT, REMOVE, RELOCATE, AND RECONNECT AS NECESSARY EXISTING ELECTRICAL EQUIPMENT CIRCUITS AND CONDUCTORS THROUGHOUT THE RENOVATED AREAS OF THE EXISTING BUILDING THAT INTERFERE WITH THE INSTALLATION OF THE NEW EQUIPMENT BEING INSTALLED. MAINTAIN THE CONTINUITY OF ALL EXISTING SYSTEMS AND WIRING. ALL WORK RELATED TO MODIFICATIONS TO ANY EXISTING ELECTRICAL SYSTEM SHALL BE COORDINATED WITH THE DESIGNER.
- ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
- WIRE, CONDUIT, CONNECTORS, OUTLETS BOXES, ETC. NECESSARY TO ACHIEVE A COMPLETE ELECTRICAL INSTALLATION WHERE AN ELECTRICAL DEVICE IS REQUIRED BY CODE BUT NOT SHOWN SHALL BE FURNISHED AND INSTALLED AS THOUGH FULLY SHOWN AND SPECIFIED.
- CONDUIT, JUNCTION BOXES, ETC. ABOVE CEILINGS SHALL BE SUPPORTED FROM THE BUILDING DECK,. LIGHTING FIXTURES WHICH ARE INSTALLED IN SUSPENDED CEILING SYSTEM MUST BE MECHANICALLY FASTENED TO STRUCTURE AS PER SPECIFICATIONS.
- NEW OPENINGS, CHASES IN WALLS, FLOORS AND PARTITIONS FOR CONDUIT, HANGERS, SUPPORTS AND OTHER EQUIPMENT IN THE EXISTING BUILDING SHALL BE PROVIDED AS REQUIRED FOR THE NEW AND REMODELED INSTALLATION. NEW OPENINGS IN EXISTING CONSTRUCTION AND THE REPAIR OF SUCH OPENINGS FOR THE ENTRANCE OF NEW EQUIPMENT INTO THE BUILDING OR FOR THE REMOVAL OF EXISTING EQUIPMENT IN THE EXISTING BUILDING SHALL BE PROVIDED.
- NO CUTTING OF BUILDING CONSTRUCTION SHALL BE DONE WHICH MAY IN ANYWAY AFFECT THE BUILDING STRUCTURALLY OR ARCHITECTURALLY WITHOUT FIRST SECURING THE DESIGNER'S CONSENT AND APPROVAL.
- CONDUITS SHALL NOT BE ROUTED THROUGH OR SUPPORTED FROM DUCTWORK.
- EXISTING WIRING WHICH IS ALTERED IN THE EXISTING BUILDING DUE TO THE WORK SHALL BE MADE ELECTRICALLY CONTINUOUS. WHERE THE REMOVAL OF EXISTING DEVICES OR EQUIPMENT OCCURS IN THE BEGINNING OR THE MIDDLE OF A CIRCUIT, THE EC SHALL PROVIDE NEW BOXES, CONDUITS, CONDUCTORS, ETC. REQUIRED TO MAINTAIN THE CONTINUITY OF THE AFFECTED CIRCUIT. NEW OPENINGS IN THE EXISTING FLOOR SLAB SHALL BE GROUTED SHUT BY THE EC. THE COMPLETE INSTALLATION SHALL BE AS APPROVED BY THE ENGINEER.
- ALL EXISTING AREAS WHICH ARE DAMAGED BECAUSE OF THE ELECTRICAL WORK UNDER THIS CONTRACT SHALL BE REPAIRED AND/OR REFINISHED. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CUTTING, PATCHING, PAINTING AND REMOVING/REPLACING CEILING TILES DAMAGED OR SOILED AS IS NECESSARY FOR HIS WORK.
- THE DEMOLITION SHALL INCLUDE THOSE ELECTRICAL ITEMS THAT INTERFERE WITH THE NEW CONSTRUCTION AND ARE NO LONGER REQUIRED. THE USING AGENCY WILL HAVE FIRST OPTION AT RETAINING TITLE TO EXISTING MATERIALS, FIXTURES AND OTHER ITEMS.
- AFTER CONSTRUCTION OF NEW RENOVATED AREAS IS COMPLETED, LABEL REUSED AND EXISTING UNUSED CIRCUIT BREAKERS IN ALL ELECTRICAL PANELS INVOLVED. SPARES SHALL BE MARKED SPARES. ALL SPARE BREAKERS SHALL BE PLACED IN THE OFF POSITION AND LABELED AS 'SPARE'.
- PATCH AND FINISH UNUSED OPENINGS AND DISTURBED SURFACES IN EXISTING BUILDING CONSTRUCTION RESULTING FROM THE REMOVAL OF ELECTRICAL EQUIPMENT. PATCHING AND FINISHING WORK SHALL BE APPROVED BY THE ENGINEER.
- THE INSTALLATION MUST BE GROUNDED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE. ALL DEVICES, EQUIPMENT BOXES, ETC. MUST BE CONNECTED TO A SOLID, INSULATED GREEN, COPPER GROUNDING CONDUCTOR. THIS GROUNDING CONDUCTOR MUST BE CONTINUOUS WITHOUT SPLICES FROM POINT OF ORIGIN IN PANELBOARD TO ALL BOXES AND EQUIPMENT ON EACH BRANCH CIRCUIT. VERIFY GROUNDING VALUES AND SUBMIT A TYPEWRITTEN REPORT TO THE ENGINEER INDICATING TESTING RESULTS OF EACH CIRCUIT AT THE COMPLETION OF THE PROJECT.
- FURNISH, INSTALL, & PERFORM ANY & ALL NECESSARY WORK AND EQUIPMENT ON A TEMPORARY BASIS TO ASSURE UNINTERRUPTED SERVICE TO THE FIRE ALARM, TELEPHONE AND SIGNAL/DATA SYSTEMS UNTIL NEW EQUIPMENT CAN BE INSTALLED ON A PERMANENT BASIS FOR THESE SYSTEMS. ALL OUTAGES MUST BE SCHEDULED WITH THE USING AGENCY PRIOR TO ANY INTERRUPTIONS OF THESE SYSTEMS.
- FOR SINGLE PHASE CIRCUITS, UNLESS NOTED OTHERWISE, NEW WIRING INDICATED SHALL BE 2 #12 & 1#12 GROUND IN 3/4" CONDUIT. FOR THREE PHASE CIRCUITS, UNLESS NOTED OTHERWISE, NEW WIRING INDICATED SHALL BE 3 #12 & 1 #12 GROUND IN 3/4"CONDUIT. FOR CIRCUITS THAT REQUIRE LONG TRAVEL DISTANCES, REFER TO VOLTAGE DROP NOTE ON FLOOR PLANS.
- OPENINGS LEFT AFTER THE REMOVAL OF EXISTING ELECTRICAL CONDUITS ETC. SHALL BE PATCHED AND REPAIRED TO MATCH THE ADJACENT MATERIALS INCLUDING ALL OPENINGS REMAINING FROM PREVIOUS PROJECTS. LOCATIONS TO BE VERIFIED IN FIELD.
- FIRESTOP ALL EXISTING CONCEALED AND ACCESSIBLE CONDUITS WITHIN THE LIMITS OF THE CONTRACT WORK AREA. THE CONTRACTOR SHALL FIRESTOP ALL NEW AND EXISTING CONDUITS AS PART OF THE REMODELING AND EXISTING SYSTEMS TO REMAIN. (REFER TO SPECIFICATIONS)
- PROVIDE APPROVED FIRE STOPPING AT ALL NEW AND EXISTING FLOOR SLAB/CEILING AND WALL PENETRATIONS WITHIN THE LIMITS OF CONTRACT WORK AREA TO MAINTAIN THE FIRE RATED CONSTRUCTION.
- IF HAZARDOUS MATERIALS (ASBESTOS, ETC.) NOT IDENTIFIED IN THIS DRAWING SET ARE DISCOVERED DURING THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROFESSIONAL..
- MAKE ALL CHANGES, RELOCATIONS, AND INSTALLATIONS WITH A MINIMUM OF NOISE. PROTECTION SHALL INCLUDE TEMPORARY BARRIERS AND COVERINGS. AT NO TIME SHALL THE CONTRACTOR INTERFERE WITH THE NORMAL OPERATION OF PRESENT BUILDINGS BY ALLOWING DEBRIS TO REMAIN ON THE SITE OR PREMISES. SEE DIVISION ONE SPECIFICATION SECTIONS.
- THE CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR APPROVAL TO THE USING AGENCY TWO WEEKS IN ADVANCE OF SHUTTING ELECTRICAL POWER OFF TO AN INDIVIDUAL BUILDING AND SIX WEEKS IN ADVANCE OF SHUTTING ELECTRICAL POWER OFF TO ONE OR MORE 12.47 KV CIRCUITS. THE USING AGENCY SHALL APPROVE THE PROPOSED LENGTH OF TIME FOR THE REQUESTED UTILITY SHUTDOWN. THE CONTRACTOR IS TO FOLLOW ALL REQUIREMENTS STATED IN ARTICLES 6.21 AND 6.22 OF THE GENERAL CONDITIONS AND SUBMIT THE "UTILITY SHUTDOWN CHECKLIST" FORM ACCESSED THROUGH E-BUILDER FORMS MODULE FOR APPROVAL. FORMS ARE LOCATED UNDER THE PROJECT MENU ALONG THE LEFT COLUMN OF E-BUILDER. THE UTILITY SHUTDOWN CHECKLIST FORM IS LISTED UNDER WORKFLOW FORMS WITHIN THE "ALL WORKFLOW AND STATIC FORMS" DROP-DOWN MENU.
- ANY DAMAGE TO EXISTING UTILITIES BY THE CONTRACTOR MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE USING AGENCY. DETAILS FOR REPAIRS AND COORDINATION OF NECESSARY OUTAGES TO PERFORM THOSE REPAIRS MUST BE COORDINATED WITH THE USING AGENCY. INSPECTION AND ACCEPTANCE OF REPAIR MUST BE SECURED FROM USING AGENCY PRIOR TO CLOSING ANY EXCAVATION THAT IS REQUIRED FOR REPAIRS TO TAKE PLACE.
- THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL LABOR, MATERIALS, AND EQUIPMENT NEEDED TO SAFELY PERFORM WORK IN THE EXISTING ELECTRICAL MANHOLES INCLUDING BUT NOT LIMITED TO GAS DETECTION EQUIPMENT AND CONFINED SPACE ENTRY EQUIPMENT. THE CONTRACTOR WILL BE REQUIRED TO WORK IN EXISTING ELECTRICAL MANHOLES CONTAINING ENERGIZED CONDUCTORS. THE CONTRACTOR SHALL PROVIDE LABOR AND MATERIAL TO PUMP WATER FROM EXISTING MANHOLES ON AN AS NEEDED BASIS.
- THE CONTRACTOR SHALL NOTE THAT PRIOR TO ANY TELECOMMUNICATION OR ELECTRICAL OUTAGE, ALL MATERIALS NEEDED FOR INSTALLATION DURING THE OUTAGE MUST BE ON SITE PRIOR TO THE OUTAGE TAKING PLACE.
- FOR BIDDING PURPOSES, THE CONTRACTOR SHALL ASSUME THAT ALL FEEDERS THAT ARE BEING SPLICED ARE COPPER CONDUCTOR. DURING INSTALLATION OF SPLICED FEEDERS, THE CONTRACTOR SHALL MATCH THE EXISTING CONDUCTORS (COPPER FOR COPPER, ALUMINUM FOR ALUMINUM).

VOLTAGE DROP NOTE

THE FOLLOWING LIST APPLIES TO ALL NEW BRANCH WIRING PROVIDED UNDER THIS CONTRACT. LISTS INDICATE THE NECESSARY GAUGE OF CONDUCTORS NECESSARY FOR BRANCH CIRCUITS ONE WAY FROM PANEL TO LAST OUTLET OR LIGHTING FIXTURE ON THE CIRCUIT:

120/208V CIRCUITS	277/480V CIRCUITS	WIRE SIZE
• 0 - 100 FEET	0 - 150 FEET	No. 12 AWG
• 101 - 250 FEET	151 - 350 FEET	No. 10 AWG
• 250 - 400 FEET	351 - 500 FEET	No. 8 AWG

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BID DOCUMENTS

ISSUES

REVISIONS

Sheet Title:
ELECTRICAL SYMBOLS,
ABBREVIATIONS, AND NOTES

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