ELECTRICAL SPECIFICATION:
GENERAL ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SCOPE OF WORK:
FURNISH ALL LABOR, TOOLS, MATERIALS INCLUDING ALL SPECIALTIES AND APPURTENANCES FOR THE INSTALLATION OF THE COMPLETELY TESTED AND OPERATING ELECTRICAL SYSTEM INDICATED HEREIN AND ON THE CONTRACT DRAWINGS.
COMPLETE ELECTRICAL SYSTEMS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. POWER DISTRIBUTION SYSTEM
2. LIGHTING SYSTEM AND CONTROL
3. COMMUNICATION RACEWAY AND SYSTEM.
4. FIRE DETECTION AND ALARM SYSTEM.
5. CONNECTIONS TO EQUIPMENT FROM OTHER SECTIONS OF THE SPECIFICATION.

1.02 WORK PERFORMED AND MATERIAL PROVIDED SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES. WORK CODES SHALL BE EXECUTED IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, RULES AND REGULATIONS OF LOCAL AND STATE AGENCIES HAVING JURISDICTION OVER THIS WORK. SUCH CODES SHALL TAKE PRECEDENCE OVER THE DRAWINGS. OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS. PAY REQUIRED FEES.

1.03 ELECTRIC SERVICE SHALL COMPLY WITH NEC, LOCAL CODES, AND LOCAL UTILITY REQUIREMENTS. PROVIDE ALL REQUIRED EQUIPMENT AND CONNECTION S FOR A FULLY FUNCTIONAL SYSTEM. COORDINATE SERVICE WITH UTILITY COMPANY.

1.04 SUBMIT FOR REVIEW THREE (3) COPIES Of MANUFACTURER'S CATALOG LITERATURE OF MAJOR COMPONENTS CONTAINED IN THE ELECTRICAL WORK INCLUDING:

A. LIGHT FIXTURES AND CONTROL DEVICES.
B. POWER DISTRIBUTION EQUIPMENT : PANELBOARDS, CIRCUIT BREAKERS AND SAFETY SWITCHES
C. FIRE DETECTION AND ALARM EQUIPMENT.

ALL MATERIALS SHALL BE NEW, BEST OF THEIR KIND , FREE FROM DEFECTS AND LISTED BY THE UNDERWRITERS LABORATORIES, INC. BEFORE ORDERING MATERIALS OR EQUIPMENT, SUBMIT ENGINEERING DATA FOR MATERIAL AND EQUIPMENT PROPOSED FOR USE. CHECK EQUIPMENT DIMENSIONS FOR ADEQUATE SPACE ALLOTMENT ON PROJECT. NO SUBSTITUTION WILL BE ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OR THE OWNER'S REPRESENTATIVE.

1.05 ELECTRICAL DRAWINGS ARE CONSIDERED DIAGRAMMATIC AND INDICATE MAJOR COMPONENT, GENERAL LOCATION OF WORK AND SYSTEM. PROVIDE ALL REQUIRED EQUIPMENT FOR FULLY OPERATIONAL SYSTEMS. COORDINATE WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS, AND BE FAMILIAR WITH ALL CONDITIONS, NEW AND EXISTING, WHICH AFFECT THE WORK. VERIFY AND FIELD CHECK ALL DIMENSIONS AND CONDITIONS PRIOR TO START OF ANY WORK AND REVIEW THE DRAWINGS FOR ANY CONDITIONS WHICH AFFECT HIS WORK. EQUIPMENT LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.

1.06 ALL WORK SHALL BE INSTALLED IN A NEAT AND GOOD WORKMANSHIP MANNER.. GUARANTEE WORK AND WORKMANSHIP FOR A PERIOD OF ONE YEAR BEGINNING FROM THE DAY OF FINAL ACCEPTANCE OF THE WORK OR BENEFICIAL OCCUPANCY BY THE OWNER, WHICHEVER OCCURS FIRST. GUARANTEE WORK SHALL BE PERFORMED PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER. GUARANTEE SHALL APPLY TO ALL MATERIALS, EQUIPMENT, AND SERVICES.

1.07 CONTRACTOR SHALL EXERCISE CARE IN REMOVING DEMOLISHED ITEMS AND REPAIR OR REPLACE ANY DAMAGE CAUSED TO EXISTING CONSTRUCTION AND EQUIPMENT TO REMAIN. CONTRACTOR SHALL RE ROUTE AND RECONNECT ANY CIRCUITS THAT REMAIN IN USE OR RELOCATED.

1.08 ALL ELECTRICAL WORK SHALL COMPLY WITH NFPA 70, INDUSTRIAL SECTION 40.5.1

PART 2 - PRODUCTS

2.01 GENERAL : THE PRODUCT MANUFACTURERS AND COMPONENT MODEL NUMBERS IN THE FOLLOWING PARAGRAPHS ARE GIVEN TO ESTABLISH A LEVEL OF QUALITY AND PERFORMANCE AND THEY ARE NOT INTENDED TO EXCLUDE EQUIVALENT PRODUCTS OF ALTERNATE MANUFACTURERS . ALTERNATE MANUFACTURERS OF EQUIVALENT PRODUCTS WILL BE CONSIDERED UPON SUBMISSION AND APPROVAL BY ARCHITECT.

2.02 CONDUIT SHALL BE EMT IN DRY INTERIOR SPACES. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO EXTERIOR EQUIPMENT. MINIMUM CONDUIT SIZE SHALL BE 3/4'.

2.03 NEW PANELBOARDS SHALL BE EQUIPPED WITH COPPER BUS AND SQUARE "D" TYPE NQOB OR MATCH EXISTING.

2.04 CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL MAGNETIC, QUICK-MAKE, QUICK-BREAK, BOLT-ON TYPE. CIRCUIT BREAKER SHALL BE RATED AT OR ABOVE EXISTING PANELBOARD FAULT CURRENT (AIC) RATING.

2.05 CABLE

A.CONDUCTORS SHALL BE COPPER, THHN OR THWN 600 VOLT INSULATION.
B. CONDUCTORS #10 AND SMALLER SHALL BE SOLID, LARGER SHALL BE STRANDED.

2.06 LIGHT FIXTURES SHALL BE AS SCHEDULED. REPAIR AND RE-LAMP LIGHT FIXTURES THAT ARE REUSED

2.07 DEVICES SHALL BE WHITE, COMMERCIAL GRADE, 20 AMP; DEVICE PLATES SHALL BE STAINLESS STEEL, NON-MAGNETIC, SATIN FINISH. ALL DEVICES SHALL BE FLUSH MOUNTED U.N.O.

2.08 FIRE ALARM VISUAL ALARM SIGNAL DEVICES SHALL HAVE THE MINIMUM PHOTOMETRIC CHARACTERISTICS IN ACCORDANCE WITH ADA AND NFPA REQUIREMENTS

2.09 COORDINATE TELEPHONE AND DATA OUTLET LOCATIONS WITH OWNER/ TENANTS. PROVIDE PLASTER RING AND PULL WIRE TO ACCESSIBLE CEILING SPACE. PROVIDE OUTLET BOX AND EMPTY RACEWAY WITH PULL WIRE IN INSULATED OR SOLID OR INACCESSIBLE AREA.

PART 3 - EXECUTION

3.01 ALL EQUIPMENT AND SYSTEMS DESIGNS, INSTALLATIONS AND TESTING SHALL BE IN CONFORMANCE WITH APPLICABLE CODES, STANDARDS, AND ORDINANCES, THE MANUFACTURER'S RECOMMENDATIONS, UTILITY REQUIREMENTS, AND THE CRITERIA NOTED.

3.02 CONDUITS AND CABLES SHALL BE CONCEALED. TEST CABLES FOR CONTINUITY AND GROUNDS.

3.03 OBTAIN ALL PERMITS AND PAY ALL FEES REQUIRED FOR ELECTRICAL WORK.

END OF SECTION

ELECTRICAL SYMBOLS

SYMBOL	ABRV.	DESCRIPTION	MOUNT	REMARKS
	PNL	ELECTRICAL PANEL 208Y/120V		
	PNL	ELECTRICAL PANEL 480/277V		
		HOME RUN CONNECT TO CIRCUIT BREAKER INDICATED		ARROWHEADS INDICATE # OF CIRCUITS
		WIRE RUN (SLASHES INDICATE # OF WIRES IF MORE THAN 2. 2#12 + 1 #12G, 3/4" C. MIN.)		
		LIGHT FIXTURE 1' x 4' - TYPE AS SPECIFIED IN LIGHT FIXTURE SCHED.		
		LIGHT FIXTURE 2' x 4' - TYPE AS SPECIFIED IN LIGHT FIXTURE SCHED.		
		LIGHT FIXTURE - 2' STRIP, 3' STRIP TYPE AS SPECIFIED IN LIGHT FIXTURE SCHEDULE		
		LIGHT FIXTURE - 4' STRIP TYPE AS SPECIFIED IN LIGHT FIXTURE SCHEDULE		
		INDICATE EMERGENCY LIGHT FIXTURE ON EMERGENCY BACKUP POWER CIRCUIT		
		LIGHT FIXTURE DOWN LIGHT, WALL WASHER		
		LIGHT FIXTURE WALL SCONCE		
		OUTDOOR WALL MOUNTED LIGHT FIXTURE		
		EXIT SIGN SINGLE FACE, DOUBLE FACE		
		POLE LIGHT TYPE AS SPECIFIED IN LIGHT FIXTURE SCHEDULE		
\$ \$3		SWITCH 1 POLE , 3 WAY	48" AFF UNO	
\$d	SD	SWITCH DIMMER	48" AFF UNO	
\$M	MMS	SWITCH MANUAL MOTOR STARTER	ON UNIT UNO	
\$r	LCR	SWITCH LIGHT CONTROL RELAY	48" AFF UNO	
PC	PC	SWITCH PHOTOCELL		
TC	TC	SWITCH TIME CLOCK		
	RECPT	DUPLEX RECEPTACLE	18"AFF UNO	
	RECPT	SWITCHED DUPLEX RECEPTACLE	24"AFF UNO	
	GFCI	DUPLEX RECEPTACLE GFCI		MOUNT 6" ABOVE LAV. OR COUNTER
	QUAD	QUADRAPLEX RECPTACLE STANDARD	18" AFF UNO	
	SPECIAL RECEPT	SPECIAL OUTLET - NEMA CONFIGURATION PER MANUFACTURER'S REQUIREMENTS		
J J	JB	JUNCTION BOX CEILING MOUNTED, WALL MOUNTED		
		MOTOR CONNECTION		
		OPEN, STOP, CLOSE SWITCH FOR ROLL-UP DOORS.		
F	FSS NFSS	DISCONNECT SWITCH FUSED, NON FUSED		
		MAGNETIC MOTOR STARTER		
4		COMBINATION STARTER/ DISCONNECT SWITCH		NUMBER DENOTES STARTER SIZE
FACP	FACP	FIRE ALARM CONTROL PANEL		
FAAP	FAAP	FIRE ALARM ANNUNCIATOR PANEL		
F	PS, HPS	FIRE ALARM INIATIATING DEVICE PULL STATION		COMPLY WITH ADA REQUIREMENTS
SD DD	SD, DD	FIRE ALARM INITIATING DEVICE SMOKE DETECTOR, DUCT SMOKE DETECTOR		
HD	HD	FIRE ALARM INIATIATING DEVICE HEAT DETECTOR		
WF TS	WF, TS	FIRE ALARM INIATIATING DEVICE WATER FLOW SWITCH, TAMPER SWITCH		SEE PLUMBING DWGS FOR EXACT LOCATION
DH	DH	FIRE ALARM MAGNETIC DOOR HOLDER		PROVIDE CONTROL WIRING & XFMR
AC	AC	FIRE ALARM INITIATION DEVICE ALARM CHECK VALVE		SEE PLUMBING DWGS FOR EXACT LOCATION
DS	DS	FIRE ALARM INITIATION DEVICE DRY SPRINKLER VALVE		SEE PLUMBING DWGS FOR EXACT LOCATION
A V AV	A, V, AV	FIRE ALARM, SIGNALING DEVICE AUDIBLE, VISUAL, COMBINATION	80" AFF UNO	COMPLY WITH ADA REQUIREMENTS
R		ROTATING BEACON LIGHT WITH HORN		COMPLY WITH ADA REQUIREMENTS

ELECTRICAL SYMBOLS (CONTINUED)

G		FIRE ALARM EXTERIOR GONG FOR SPRINKLER SYSTEM		
CR		CARD READER		IN WEATHERPROOF ENCLOSURE. COMPLY WITH ADA REQUIREMENTS.
PB		HANDICAP PUSH BUTTON		IN WEATHERPROOF ENCLOSURE. COMPLY WITH ADA REQUIREMENTS.
	AFF	ABOVE FINISHED FLOOR		
	CLG	CEILING		
	UNO	UNLESS NOTED OTHERWISE		
	ADA	AMERICANS WITH DISABILITIES ACT COMPLIANCE		
	P	POLES		
	Ø	PHASE		
	G, GRD	GROUND		
	C			
	C/T	CURRENT TRANSFORMER		
	WP	WEATHER PROOF		
	GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
	ENCL	ENCLOSURE		
	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.		

NOTE:

ALL SYMBOLS SHOWN ABOVE ARE NOT NECESSARILY USED ON THIS PROJECT.

LIGHT FIXTURE SCHEDULE

SYMBOL		DESCRIPTION	VOLTS	LAMPS	MANUFACTURER AND MODEL#	REMARKS
	A	4' FLUORESCENT STRIP LIGHT	277	2-32W T8	COLUMBIA CS4-232-EB8-277V-DL	STEM HEIGHTS AS RECOMMENDED BY ARCHITECT
	B	2X2 LAY IN FL FIXTURE	277	2-32W T8	COLUMBIA J22-232U6G-FSA12-125-EBTT-277V	
	C	1X4 LAY IN FL FIXTURE	277	2-32W T8	COLUMBIA J14-232G-FSA12-125-EBTT-277V	
	E	EMERGENCY BATTERY PACK; TWIN HEADS 90 MIN BATTERY AND AUTO CHARGER	DUAL	2-7.2W HAL	PRESCOLITE EDS2-EV1-NB	
	F	OUTDOOR WALL MOUNTED MH FIXTURE	277	250W	GENERAL ELECTRIC WM4T-25M5	
	G	OUTDOOR ABOVE DOOR MH FIXTURE	277	70W	GENERAL ELECTRIC W1LR-05M4-A1AMN3	
	H	CEILING MOUNTED MH FIXTURE	277	400W MH	GE EHBA40-M4-A5-D6	
	X	EXIT SIGN	DUAL	2,8W LED	PRESCOLITE EDC-1RENW	PROVIDE ARROWS AS SHOWN ON DRAWINGS

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5/31/02

REVISIONS
NO.	DATE	BY	DESCRIPTION

SEAL
STATE OF MARYLAND
PROFESSIONAL ENGINEER
5/31/02

CENTRAL LANDFILL FACILITY SITE
MUNICIPAL SOLID WASTE RECOVERY FACILITY
WORCESTER COUNTY, MARYLAND

ELECTRICAL SPECIFICATIONS, LEGENDS AND SCHEDULES

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