

ELECTRICAL SPECIFICATION

A. GENERAL

- CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIAL, EQUIPMENT, DEVICES, ACCESSORIES AND LABOR FOR A COMPLETE, FULLY OPERATIONAL, TESTED SYSTEM(S), CODE LEGAL AND APPROVED BY THE APPROPRIATE AUTHORITIES HAVING JURISDICTION.
- THIS CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, LICENSES OR CERTIFICATES OF APPROVAL. THEY SHALL PAY ALL FEES REQUIRED BY AND CONFORM TO ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS GOVERNING THEIR WORK, AND AT THE CONCLUSION OF THEIR WORK, THEY SHALL FURNISH TO THE OWNER CERTIFICATES OF INSPECTION AND APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION.
- ALL WORK SHALL BE EXECUTED TO THE HIGHEST STANDARDS OF THE INDUSTRY BY EXPERIENCED ELECTRICIANS LICENSED BY THE STATE OF MAINE, IN ACCORDANCE WITH THE MOST MODERN ENGINEERING PRACTICE AND SHALL PRESENT A NEAT APPEARANCE WHEN COMPLETE.
- THE ELECTRICAL CONTRACTOR'S WORK SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE PUBLICATIONS OF THE FOLLOWING ORGANIZATIONS AND LAWS:
 - NATIONAL ELECTRICAL CODE (NEC)
 - American National Standards Institute (ANSI)
 - LIFE SAFETY CODE (NFPA 101)
 - THE AMERICANS WITH DISABILITIES ACT (ADA)
 - NATIONAL ELECTRICAL SAFETY CODE (NESC)
 - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION (NEMA)
 - UNDERWRITER'S LABORATORIES, INC. (UL)
 - LOCAL AND STATE BUILDING CODES AND ALL AUTHORITIES HAVING JURISDICTION.
 - INTERNATIONAL BUILDING CODE.
- THE DRAWINGS ARE SCHEMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND THE EXTENT OF THE WORK AND MAY NOT NECESSARILY BE TO SCALE.
- SYMBOLS SHOWN ON THE DRAWINGS SHOW APPROXIMATE LOCATION OF FIXTURES, OUTLET BOXES AND OTHER EQUIPMENT. UNLESS OTHERWISE DETAILED, THE EXACT LOCATION SHALL BE GOVERNED BY STRUCTURAL CONDITIONS AND OBSTRUCTIONS. THIS IS NOT TO BE CONSTRUED TO PERMIT REDESIGNING SYSTEMS. LOCATE AND INSTALL ALL BOXES AND EQUIPMENT WHERE THEY WILL BE READILY ACCESSIBLE. COORDINATE EXACT LOCATIONS WITH ARCHITECT AND ENGINEER BEFORE ROUGHING IN WHERE QUESTIONS ARISE.
- THIS CONTRACTOR SHALL GUARANTEE THAT ALL WORK EXECUTED BY HIM/HER WILL BE FREE FROM ALL DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWO YEARS FROM FINAL ACCEPTANCE. ANY ITEM FURNISHED BY THE CONTRACTOR THAT REQUIRES EXCESSIVE SERVICING DURING THE GUARANTEE PERIOD, AS DETERMINED BY THE ENGINEER, SHALL BE CONSIDERED DEFECTIVE AND SHALL BE REPLACED BY THIS CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- ALL MATERIALS SHALL BE NEW AND DELIVERED TO THE SITE IN THE ORIGINAL SEALED CONTAINERS OR PACKAGES BEARING THE MANUFACTURER'S NAME, BRAND DESIGNATION AND CATALOG NUMBER. ALL MATERIALS SHALL BE STORED IN A WARM, DRY, CLEAN AND VENTILATED AREA. CARE SHALL BE EXERCISED IN HANDLING ALL MATERIALS DURING DELIVERY, STORAGE AND INSTALLATION. ALL MATERIALS DAMAGED IN THE OPINION OF THE ENGINEER SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- SUBMIT SHOP DRAWINGS OF ALL MATERIAL (6 COPIES OR AS DIRECTED BY THE ARCHITECT) TO THE GENERAL CONTRACTOR FOR APPROVAL PRIOR TO ORDERING.
- AT THE COMPLETION OF THE PROJECT THIS CONTRACTOR SHALL PROVIDE THE OWNER WITH TWO COPIES OF AN O.M. MANUAL IN LOOSE LEAF BINDER FORM CONTAINING AS-BUILT DRAWINGS, SHOP DRAWINGS AND WARRANTY CARDS.
- ALL WIRING SHALL BE RUN CONCEALED IN FINISHED AREAS AND EXPOSED IN UNFINISHED AREAS.
- PROVIDE TEMPORARY SERVICE, POWER AND LIGHTING AS REQUIRED. PROVIDE 10 AVERAGE FOOT CANDLES IN ALL WORK AREAS AND 25 FOOT CANDLES WHERE FINISH WORK IS BEING DONE. PROVIDE A 120 VOLT QUAD RECEPTACLE ON A DEDICATED CIRCUIT FOR EVERY 10,000 SQUARE FEET OF WORK AREA.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENGINEERING, DESIGN AND PROVISION OF SEISMIC RESTRAINT SYSTEMS FOR THE ELECTRICAL EQUIPMENT AS REQUIRED BY THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE, SECTION 1619, AND TO PROVIDE THE NECESSARY VIBRATION ISOLATION MATERIALS TO ELIMINATE EXCESSIVE VIBRATION FROM BEING TRANSMITTED FROM THE EQUIPMENT TO THE STRUCTURE, AND SERVE AS THE SEISMIC RESTRAINT SYSTEM FOR THE ENTIRE ELECTRICAL SYSTEM WITHIN THE BUILDING. THIS DESIGN AND PROVISIONS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER AND INSTALLED BY THE EC. THE ENGINEER'S CALCULATIONS SHALL CLEARLY NOTE ALL EQUIPMENT THAT DOES NOT REQUIRE SEISMIC RESTRAINTS. THE EC SHALL HAVE THAT LICENSED PROFESSIONAL ENGINEER VISIT THE SITE AFTER ALL RESTRAINTS ARE INSTALLED AND PROVIDE WRITTEN CERTIFICATION THAT ALL RESTRAINTS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE SEISMIC RESTRAINT DESIGN.
- VERIFY LOCATION OF "FIRE WALLS" AS DEFINED BY THE MOST CURRENT EDITION OF THE INTERNATIONAL BUILDING CODE SECTION 105. COORDINATE ALL PENETRATIONS OF THESE STRUCTURES WITH ARCHITECT AND GC TO CONFORM WITH LOCAL CODE REQUIREMENTS.
- PROVIDE EXPANSION FITTINGS ON RACEWAYS AND CONDUITS AT BUILDING EXPANSION JOINTS.

B. MATERIALS

- RACEWAYS
 - INTERIOR RACEWAYS RUN CONCEALED OR EXPOSED SHALL BE GALVANIZED ELECTRICAL METALLIC TUBING (EMT) WITH SET SCREW TYPE CONNECTORS. LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE INSTALLED WHERE FLEXIBLE CONNECTIONS ARE REQUIRED AT OUTDOOR LOCATIONS OR AT CONNECTIONS TO VIBRATING EQUIPMENT.
- CONDUCTORS
 - ONLY COPPER CONDUCTORS ARE PERMITTED. CONDUCTORS SHALL BE TYPE THHN FOR DRY AND WET LOCATIONS 75 DEGREES C, (167 DEGREES F.) MAX OPERATING TEMPERATURE AND 4X44 FOR MAIN FEEDERS. THE USE OF ALUMINUM OR ALUMINUM CLAD CONDUCTORS IS NOT PERMITTED. CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG FOR BRANCH CIRCUIT CONDUCTORS. WIRES #8 AWG AND LARGER SHALL BE STRANDED AND SMALLER CONDUCTORS SHALL BE SOLID. THE INSULATION ON ALL CONDUCTORS SHALL BE RATED 600 VOLTS, 75 DEGREES C, UNLESS HIGHER TEMPERATURE INSULATION IS REQUIRED BY MANUFACTURERS OF EQUIPMENT BEING INSTALLED. ALL CONDUCTORS THROUGHOUT THE PROJECT SHALL BE COLOR CODED. BEFORE CONDUCTORS ARE FILLED INTO METALLIC RACEWAYS INSULATION TYPE BUSHINGS SHALL BE INSTALLED.
- OUTLET BOXES
 - EACH OUTLET BOX SHALL BE PROVIDED WITH A SUITABLE COVER TO SUIT THE CONDITIONS ENCOUNTERED AND ANY DEVICES INSTALLED. INTERIOR BOXES SHALL BE GALVANIZED STEEL WITH GALVANIZED STEEL COVERS AND EXTERIOR BOXES SHALL BE CAST IRON WITH CAST ALUMINUM WEATHERPROOF COVERS SUITABLE FOR THE DEVICES. EACH BOX WILL HAVE SUFFICIENT VOLUME TO ACCOMMODATE THE NUMBER OF CONDUCTORS ENTERING THE BOX PER THE NEC.
- FULL AND JUNCTION BOXES
 - PROVIDE A BOX WITH SCREEN COVER AT EACH JUNCTION POINT AND WHEREVER REQUIRED TO FACILITATE THE PULLING IN OF CONDUCTORS. EACH BOX SHALL BE ACCESSIBLE AT THE COMPLETION OF THE PROJECT. EACH BOX SHALL BE SIZED TO HAVE SUFFICIENT VOLUME TO ACCOMMODATE THE NUMBER OF CONDUCTORS ENTERING THE BOX PER THE NATIONAL ELECTRICAL CODE. EACH BOX SHALL BE LABELED WITH BRANCH CIRCUITS NOTED.
- DISCONNECT SWITCHES
 - SHALL BE THE HEAVY DUTY TYPE, MOTOR RATED, QUICK-MAKE AND QUICK-BREAK, WITH THE NUMBER OF POLES INDICATED ON THE DRAWINGS. SWITCHES SHALL BE RATED FOR CIRCUIT VOLTAGE AND AMPERAGE, WITH OR WITHOUT FUSES AND NEMA 1 OR 3R ENCLOSURE AS INDICATED ON THE DRAWINGS. DISCONNECT SWITCHES SHALL BE A MANUFACTURED BY SIEMENS, GENERAL ELECTRIC, 3G-D OR CUTLER-HAMMER. SWITCHES SHALL BE LOCATED WHERE THEY ARE FULLY ACCESSIBLE.
- IDENTIFICATION
 - PROVIDE LAMINATED PLASTIC ENGRAVED NAMEPLATES ON ALL ELECTRICAL PANELBOARDS AND DISC. SWITCHES, TO IDENTIFY ALL EQUIPMENT. NAMEPLATES SHALL BE BLACK ENGRAVED PLATES TO WHITE GORE EXCEPT THAT FIRE ALARM PLATES SHALL BE RED WITH MINIMUM 3/8" LETTERS AND SECURED IN PLACE WITH SCREWS OR RIVETS.
- EQUIPMENT GROUNDING
 - ALL EXPOSED NON-CURRENT CARRYING CONDUCTIVE MATERIAL ENCLOSING ELECTRICAL EQUIPMENT OR FORMING PART OF SUCH EQUIPMENT SHALL BE BONDED TOGETHER IN A POSITIVE CONTINUOUS RACEWAY AND EQUIPMENT GROUNDING SYSTEM.
 - EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TABLE 250-122 OF THE NATIONAL ELECTRICAL CODE.
 - GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN EVERY LIGHTING, POWER AND RECEPTACLE CIRCUIT RACEWAY BONDED TO THE DEVICE OR EQUIPMENT AND CONNECTED TO THE EQUIPMENT GROUND BUS WITHIN THE PANELBOARD. GROUNDING CONDUCTOR SHALL BE #12 AWG MINIMUM. THERE SHALL BE ONE GROUNDING CONDUCTOR FOR EACH CIRCUIT. RACEWAYS SHALL BE SIZED TO INCLUDE THE REQUIRED EQUIPMENT GROUNDING CONDUCTOR.
 - WRAPPING OR LOOPING EQUIPMENT GROUNDING CONDUCTORS AROUND CONNECTORS WILL NOT BE ACCEPTED. FOR MULTIPLE BOND WIRES AT PULL OR JUNCTION BOXES, THEY MUST BE TWISTED TOGETHER, TAPPED WHERE EXPOSED TO LIVE PARTS, AND INSTALLED UNDER A SOLDERLESS LUG BOLTED TO THE BOX. BOND WIRES AT PANELBOARDS SHALL BE CONNECTED TO THE EQUIPMENT GROUND BUS. FOR BONDS IN OUTLET OR DEVICE BOXES, A SINGLE WIRE FROM THE DEVICE EQUIPMENT GROUND TERMINAL ON THE DEVICE MAY BE SECURED TO THE BOX USING A 1/2" CLIP OR "SIKON" TYPE LUG. FOR SEVERAL WIRES, A PIGTAIL SPICE MUST BE MADE AND A SINGLE WIRE MAY BE USED AS DESCRIBED ABOVE TO SECURE THE BOX BOND. AT THE PIGTAIL SPICE A "GREENIE" GROUNDING WIRE CONNECTOR SHALL BE USED.

B. MATERIALS CONTINUED

- PANELBOARDS
 - PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE WITH VOLTAGE, PHASE, AMPERE RATINGS, AND EQUIPPED WITH AN EQUIPMENT GROUND BUS, MAIN LUGS OR BREAKER AS INDICATED ON THE DRAWINGS. MAIN BUS BARS SHALL BE TIN PLATED ALUMINUM. THE NEUTRAL BUS SHALL BE FULL CAPACITY AND THE EQUIPMENT GROUND BUS SHALL BE RATED 50 PERCENT OF THE NEUTRAL AMPACITY. PANELBOARD CABINETS SHALL BE DEAD FRONT TYPE AND SHALL BE MOUNTED SO THAT THE TOP CIRCUIT BREAKER IS NOT MORE THAN SIX FEET ABOVE THE FINISHED FLOOR. PANELBOARD TRIM SHALL BE SECURED TO ONE SIDE OF THE BACK BOX WITH A CONTINUOUS PIANO HINGE WITH ADJUSTABLE TRIM CLAMPS ON THE OTHER SIDE.
 - TRIMS SHALL BE PROVIDED WITH HINGED DOORS HAVING COMBINATION LOCK AND LATCH WITH ALL LOCKS KEYED ALIKE. A NEATLY TYPED DIRECTORY IDENTIFYING EACH CIRCUIT SHALL BE PROVIDED INSIDE EACH TRIM DOOR. PANELBOARD CIRCUIT NUMBERS SHOWN ON THE DRAWINGS ARE FOR GUIDANCE ONLY. ACTUAL CIRCUIT NUMBERS SHALL BE ASSIGNED IN THE FIELD BY THE CONTRACTOR AFTER ALL LOADS ARE CONNECTED TO THE PANEL AND THE PANEL HAS BEEN LOAD BALANCED.
- OVERCURRENT PROTECTIVE DEVICES
 - CIRCUIT BREAKERS INSTALLED IN PANELBOARDS SHALL BE BOLT-ON TYPE AND BE OF THE SAME MANUFACTURER AS THE PANELBOARD. CIRCUIT BREAKERS SHALL BE THE MOLDED CASE TYPE WHICH WILL OPERATE BOTH MANUALLY FOR NORMAL SWITCHING AND AUTOMATICALLY UNDER OVERLOAD OR SHORT CIRCUIT CONDITIONS. ALL MULTIPOLE BREAKERS SHALL HAVE A COMMON OPERATING HANDLE WHICH WILL OPEN ALL POLES SIMULTANEOUSLY. CIRCUIT BREAKER INTERRUPTING RATINGS SHALL BE AS NOTED ON THE DRAWINGS. CIRCUIT BREAKERS SERVING HVAC EQUIPMENT SHALL HAVE "HACR" RATINGS. FUSES SHALL BE DUAL-ELEMENT TIME DELAY TYPE.
- WIRING DEVICES
 - SWITCHES AND RECEPTACLES SHALL BE SPECIFICATION GRADE HEAVY DUTY TYPE RATED 20 AMPERES. SWITCHES SHALL BE RATED 120V AND RECEPTACLES 125V. DEVICES SHALL BE GRAY WITH STAINLESS STEEL PLATES.
- LIGHTING FIXTURES
 - LIGHTING FIXTURES SHALL BE NEW, FURNISHED COMPLETE WITH A FULL COMPLIMENT OF THE LAMPS SPECIFIED. FIXTURES SHALL BE MOUNTED INDEPENDENTLY OF SUSPENDED OR FURRED CEILINGS AND SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE. GROUNDING CONDUCTOR SHALL BE #12 AWG MINIMUM. THERE SHALL BE ONE GROUNDING CONDUCTOR FOR EACH CIRCUIT. RACEWAYS SHALL BE SIZED TO INCLUDE THE REQUIRED EQUIPMENT GROUNDING CONDUCTOR.
- EXIT SIGNS
 - EXIT SIGNS SHALL BE NEW, INTERNALLY ILLUMINATED L.E.D. TYPE EXIT SIGNS AND SHALL NOT EXCEED 5 WATTS PER SIDE. EXIT SIGNS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS AND IN SUCH A MANNER SO THAT SO THAT EACH MEANS OF EGRESS THAT IS NOT READILY APPARENT IS IDENTIFIED. SUPPORT FROM BUILDING STRUCTURE.
- EMERGENCY LIGHTING
 - EMERGENCY LIGHTING SYSTEMS SHALL CONSIST OF EMERGENCY BATTERY UNITS WITH REMOTE EMERGENCY LIGHTING HEADS AND LIGHTING FIXTURES CONTAINING EMERGENCY INVERTER BATTERY PACK(S). SEE DRAWINGS FOR THE REQUIRED LOCATIONS OF EACH TYPE OF EMERGENCY LIGHTING SYSTEM. THE COLOR OF THE REMOTE EMERGENCY LIGHTING HEADS SHALL BE BLACK.
 - EMERGENCY LIGHTING SHALL BE PROVIDED SO THAT ALL EXIT WAYS ARE ILLUMINATED FOR A MINIMUM OF 90 MINUTES UPON LOSS OF COMMERCIAL A.C. POWER.
- FIRE ALARM SYSTEM
 - PROVIDE INITIATION AND NOTIFICATION DEVICES AND WIRING, CONNECT TO FIRE ALARM CONTROL PANEL FURNISHED AND INSTALLED BY OTHERS. PROVIDE A COMPLETE, OPERATIONAL AND CODE COMPLIANT FIRE ALARM SYSTEM.

C. EXECUTION

- THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, DEVICES AND WIRING INDICATED ON THE DRAWING OR SPECIFIED HEREIN IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE TO THE COMPLETE SATISFACTION OF THE OWNER, ARCHITECT AND ENGINEER.
- THIS CONTRACTOR SHALL REFER TO ARCHITECTURAL, REFLECTED CEILING, MECHANICAL, FURNITURE, EQUIPMENT AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT AND TO ADJUST MOUNTING HEIGHTS OR WIRING DEVICES SHOWN ON THE ELECTRICAL DRAWINGS ACCORDINGLY. FIELD VERIFY ALL LOCATIONS PRIOR TO ROUGH-IN.
- THIS CONTRACTOR SHALL FULLY COORDINATE HIS WORK WITH OTHER TRADES INCLUDING THE WORK OF THE GENERAL CONTRACTOR.
- AFTER INSTALLATION, ALL ELECTRICAL EQUIPMENT SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONSTRUCTION PERIOD.

SYMBOL		DESCRIPTION	
S		SINGLE POLE SWITCH - 20 AMP - LEVITON 1221-26Y WITH A 84001-40 PLATE - WALL MOUNT	
S3		THREE WAY SWITCH - 20 AMP - LEVITON 1223-26Y WITH A 84001-40 PLATE - WALL MOUNT	
SWP		SINGLE POLE SWITCH - 20 AMP WITH WEATHERPROOF PLATE - LEVITON 1221-26Y WITH TAYMAC 4019 CLO SMALL CLEAR COVER PLATE FOR SIGN DISCONNECT SWITCH - WALL MOUNT AT HEIGHT 4' IN LOCATION DIRECTED BY THE ARCHITECT.	
SD		0-10V, SINGLE POLE - 20 AMP HUNT DIMMING DIMMER SWITCH FOR CONTROL OF LED TYPE D2 LIGHT FIXTURES - DIMMER SWITCH SHALL BE LISTED FOR COMPATIBILITY OF THE TYPE D2 LIGHT FIXTURES - WALL MOUNT - COLOR SHALL BE AS DIRECTED BY THE ARCHITECT	
		DUPLEX RECEPTACLE - 20 AMP - LEVITON 5362-6Y WITH A 84003-40 PLATE - WALL MOUNT. * INDICATES MOUNT ABOVE COUNTER BACKSPLASH, "WC" INDICATES MOUNT BEHIND WATER COOLER	
		COMPUTER RECEPTACLE - 20 AMP - LEVITON 5362-6Y WITH A 84003-40 PLATE ENGRAVED "COMPUTER" - WALL MOUNT. * INDICATES MOUNT ABOVE COUNTER BACKSPLASH	
		DOUBLE DUPLEX RECEPTACLE - 20 AMP - (2) LEVITON 5362-6Y RECEPTACLES WITH A 84016-40 PLATE - WALL MOUNT	
		GROUND FAULT INTERRUPTING DUPLEX RECEPTACLE - LEVITON 7894-6Y WITH A 84401-40 PLATE - WALL MOUNT. * INDICATES MOUNT ABOVE COUNTER BACKSPLASH	
WF	GF/W	WEATHER RESISTANT GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLE - 20 AMP - LEVITON W7894-W WITH 5917-6Y WEATHERPROOF WHILE-IN-USE COVER PLATE SURFACE MOUNT ON MECHANICAL UNIT	
		DRYER RECEPTACLE - 125/250 VOLT, 30 AMP, 3 POLE WITH GROUND - LEVITON 218 WITH A 4432 PLUG AND 4 FOOT CORD	
		JUNCTION BOX - SIZED IN ACCORDANCE PER NEC	
		LED LIGHT FIXTURE - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		LED LIGHT FIXTURE WITH EMERGENCY BATTERY PACK FOR EMERGENCY LIGHTING - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		FLUORESCENT LIGHT FIXTURE - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		FLUORESCENT LIGHT FIXTURE WITH EMERGENCY INVERTER BALLAST FOR EMERGENCY LIGHTING - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		EXIT SIGN - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		EMERGENCY BATTERY UNIT WITH TWO EMERGENCY LIGHTING HEADS - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		WALL MOUNTED OCCUPANCY SENSOR - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		CEILING MOUNTED OCCUPANCY SENSOR - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		CORNER MOUNTED OCCUPANCY SENSOR - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		POWER PACK FOR OCCUPANCY SENSOR - FURNISHED BY OWNERS, INSTALLED AND WIRED BY EC	
		TELEPHONE OUTLET - SEE TELECOMMUNICATIONS RISER ON DRAWING E104 FOR DETAILS	
		DATA OUTLET - SEE TELECOMMUNICATIONS RISER ON DRAWING E104 FOR DETAILS	
		TELECOMMUNICATIONS OUTLET - SEE TELECOMMUNICATIONS RISER ON DRAWING E104 FOR DETAILS	
		WALL MOUNTED TELEPHONE OUTLET - SEE TELECOMMUNICATIONS RISER ON DRAWING E104 FOR DETAILS - MOUNT WITH TOP OF BACK BOX AT 54" AFF	

SYMBOL		DESCRIPTION	
		TV OUTLET - FURNISH AND INSTALL A BACK BOX 3/4" CONDUIT, A STAINLESS STEEL PLATE WITH "F" FITTING AND AN R66 QUAD SHIELD COAXIAL CABLE IN CONDUIT FROM TV OUTLET TO BACKBOARD IN IT CLOSET I30. LEAVE ONE FOOT COIL OF CABLE AT THE BACK BOX AND A FIVE FOOT COIL OF CABLE AT THE BACKBOARD. LABEL CABLES AT BOTH ENDS TO INDICATE LOCATION SERVED. IDENTIFICATION SHALL BE BY MEANS OF BRADY TAGS. TERMINATIONS OF CABLE SHALL BE BY THE CABLE TV COMPANY.	
		INDICATES FEED FROM PANELBOARD NOTED - PROVIDE MINIMUM #12 AWG COPPER FEEDER FED FROM A 20 AMP, 1 POLE CIRCUIT BREAKER UNLESS OTHERWISE NOTED, PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC 250-122	
		FLEXIBLE CONNECTION TO EQUIPMENT, CONDUCTOR SIZE SHALL BE THE SAME SIZE AS FEEDER	
		SINGLE POLE MANUAL MOTOR STARTER SWITCH PROVIDED BY ELECTRICAL CONTRACTOR FOR EACH SINGLE POLE MOTOR - MOUNT ADJACENT TO EQUIPMENT - PROVIDE OVERLOAD PROTECTION IF NOT FURNISHED ON MOTOR	
		208Y/120 VOLT, 3 PHASE PANELBOARD - SEE PANEL SCHEDULE	
		ROOF EXHAUST FAN - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		HEAVY DUTY DISCONNECT SWITCH - 240 VOLT, SINGLE OR THREE PHASE - 30/20 INDICATES 30 AMP SWITCH WITH 20 AMP TIME DELAY FUSES - 3R INDICATES THAT SWITCH SHALL BE FURNISHED IN A NEMA 3R ENCLOSURE - FW INDICATES SWITCH IS FURNISHED WITH UNIT, EC TO FURNISH AND INSTALL FUSES	
		MOTOR STARTER - FURNISHED BY OTHERS, INSTALLED AND WIRED BY THE EC	
		MOTOR - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY EC - 1/2 INDICATES HORSEPOWER	
		ROOF TOP UNIT - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		ELECTRIC WALL HEATER - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		DUCTLESS AIR CONDITIONER - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		CONDENSING UNIT - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		ELECTRIC DUCT HEATER - FURNISHED AND INSTALLED BY OTHERS, POWER WIRING BY THE EC	
		EMERGENCY POWER OFF (EPO) PUSH BUTTON FOR EMERGENCY POWER SHUT DOWN OF X-RAY GENERATOR - FURNISHED BY OTHERS INSTALLED AND WIRED BY EC - CONNECT TO X-RAY GENERATOR IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS SO THAT WHEN THE PUSH BUTTON IS OPERATED POWER TO THE X-RAY GENERATOR WILL BE SHUT-OFF - MOUNT AT 45" AFF - FURNISH AND INSTALL A RED PHENOLIC ENGRAVED NAMEPLATE DIRECTLY ON THE WALL ABOVE THIS SWITCH WITH WHITE 3/4" HIGH TEXT THAT READS "X-RAY GENERATOR EMERGENCY OFF". NAMEPLATE SHALL BE SCREWED ONTO THE WALL.	
		ELECTRIC DOOR OPERATOR - FURNISHED BY OTHERS, INSTALLED AND POWER WIRING BY EC	
		ELECTRIC DOOR ACTUATOR - FURNISHED BY OTHERS, INSTALLED AND POWER WIRING BY EC	
		ABOVE FINISHED GRADE	GC GENERAL CONTRACTOR
		ABOVE FINISH FLOOR	MC MECHANICAL CONTRACTOR
		WEATHERPROOF	EC ELECTRICAL CONTRACTOR
		CENTRAL MAINE POWER	

LEGEND NOTES

- DEVICE PLATES SHALL BE STAINLESS STEEL 302 5/8 AS NOTED ABOVE. DEVICE COLOR SHALL BE GRAY. ACTUAL COLOR OF DEVICES AND TYPE AND COLOR OF PLATES SHALL BE AS DIRECTED BY THE ARCHITECT.
- ALL DEVICES SHALL BE FURNISHED WITH A GROUNDING SCREEN.
- ALL MOUNTING HEIGHTS ARE TO THE CENTER OF THE DEVICE OR EQUIPMENT, UNLESS OTHERWISE NOTED IN LEGEND OR PLANS.
- ALL DEVICES SHALL BE FURNISHED AS INDUSTRIAL SPECIFICATION GRADE, HUBBELL, PASS 4 SETMYOUR, BRYANT AND GENERAL ELECTRIC SHALL BE CONSIDERED ACCEPTABLE SUBSTITUTES FOR LEVITON.
- THE ELECTRICAL CONTRACTOR SHALL VERIFY MOUNTING HEIGHTS AND LOCATIONS BEFORE INSTALLATION TO AVOID CONFLICTS WITH MECHANICAL EQUIPMENT AND OTHER EQUIPMENT.
- SEE DRAWINGS E103 AND E104 FOR ADDITIONAL SYMBOLS.

GENERAL NOTES	
1.	ALL WIRING SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRIC CODE (NEC) IN EFFECT AND ALL APPLICABLE STATE AND LOCAL CODES.
2.	WIRING LAYOUT IS SCHEMATIC IN NATURE. ACTUAL WIRING TO BE DETERMINED ON SITE BY QUALIFIED, LICENSED ELECTRICIAN FOLLOWING THE INTENT OF THE DRAWINGS.
3.	MINIMUM WIRE SIZE SHALL BE #12 AWG CU.
4.	MANUFACTURERS SHOWN OR SPECIFIED ARE INTENDED TO IDENTIFY QUALITY AND TYPE OF FIXTURES AND MATERIALS, EQUIVALENT UNITS MAY BE USED UNLESS OTHERWISE NOTED, WITH PRIOR APPROVAL OF THE ARCHITECT AND ENGINEER.
5.	ALL LOADS SHALL BE BALANCED EVENLY.
6.	ALL CIRCUITS TO BE IDENTIFIED CLEARLY AND IN A PERMANENT FASHION AT THE PANELS.
7.	VERIFY FINAL BUILDING DESIGN, PARTITIONS, DOORS, EQUIPMENT REQUIREMENTS AND LAYOUT, ETC, BEFORE STARTING WORK.
8.	CAREFULLY COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS.
9.	RUN EXPOSED WIRING ONLY WITH PRIOR APPROVAL OF THE ARCHITECT AND ENGINEER.
10.	WHERE LONG WIRE RUNS ARE REQUIRED, INSURE LESS THAN 3% VOLTAGE DROP UNDER FULL LOAD. UPSIZE WIRE SIZE ON RUNS OVER 200 FEET.
11.	ELECTRICAL CONTRACTOR SHALL BE FAMILIAR WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR WORK RELATING TO THIS CONTRACT.
12.	LIGHT FIXTURES SHALL BE SECURELY FASTENED TO STRUCTURAL BUILDING MEMBERS.
13.	COORDINATE EXACT POWER CONNECTION REQUIREMENTS & LOCATIONS ON SITE W/ EQUIP. SUPPLIER.
14.	PROVIDE SPECIFICATION GRADE, 20 AMP, NYLON FACED DEVICES WITH COVERS NOTED ON LEGEND.
15.	PROVIDE PULL STRINGS IN ALL CONDUIT SYSTEMS LEFT FOR USE BY OTHERS.
16.	COORDINATE EXACT LOCATIONS OF ALL FIXTURES AND DEVICES WITH ARCHITECT ON SITE. ALL FIXTURE AND DEVICE MOUNTING HEIGHTS SHALL CONFORM WITH ADA ACCESSIBILITY GUIDELINES.
17.	ALL WIRING SHALL BE IN CONDUIT OR MC CABLE. CONDUIT IN GROUND AND/OR IN OR UNDER SLABS SHALL BE RIGID STEEL, STEEL I.M.C., OR SCHEDULE 80 ELECTRICAL P.V.C. WIRING TO EQUIPMENT SHALL BE LIQUID-TITE FLEXIBLE CONDUIT. ALL OTHER WIRING SHALL BE EMT TO SUB PANELS OR MAJOR EQUIPMENT. FIRE ALARM & LIMITED ENERGY CIRCUITS MAY BE RUN IN APPROVED CABLE AND DOES NOT HAVE TO BE IN CONDUIT IF APPROVED BY AUTHORITIES HAVING JURISDICTION. BRANCH CIRCUITS WITHIN ROOMS & AREAS, WHIPS TO LIGHTS & HORIZONTAL WIRING IN WALL MAY BE IN MC CABLE.
18.	ELECTRICAL CONTRACTOR SHALL FIRE STOP ALL OPENINGS FOR CONDUIT, CABLES AND ANY OTHER ELECTRICAL DEVICES THROUGH: <ol style="list-style-type: none"> FLOOR-CEILING ASSEMBLIES FIRE RATED ASSEMBLIES SMOKE PARTITIONS PROVIDE FIRE STOP PRODUCTS AS SPECIFIED IN SPEC SECTION 07840.
19.	PROVIDE THERMAL/MAGNETIC CIRCUIT BREAKERS WITH HACR BREAKERS FOR HVAC EQUIPMENT AND SWITCH RATED WHERE USED FOR SWITCHING LIGHTS.
20.	ALL BOXES SHALL BE STEEL.
21.	ELECTRICAL CONTRACTOR SHALL REVIEW LOCATIONS AND ELECTRICAL REQUIREMENTS ON APPROVED MECHANICAL SHOP DRAWINGS BEFORE INSTALLING CIRCUITRY.
22.	METAL RACEWAYS SHALL BE USED TO PENETRATE THROUGH FIRE RATED ASSEMBLIES.
23.	LOCATE EQUIPMENT TO ENSURE COMPLIANCE WITH NEC 110.26 AND ARTICLE 408.

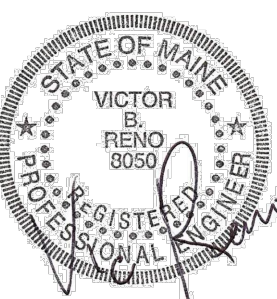
DEVICE MOUNTING HEIGHTS	
DEVICES	MOUNTING HEIGHT
LIGHTING SWITCHES	45"
RECEPTACLES	18" - SEE NOTE 5
GROUND FAULT RECEPTACLES	18"
TELECOMMUNICATION OUTLETS	18"
TELEVISION OUTLETS	HEIGHT DIRECTED BY OWNER
PANELBOARDS	12" TO TOP BREAKER
FIRE ALARM PULL STATIONS	45"
FIRE ALARM SIGNALS	80" TO BOTTOM OF STROBE LENS

NOTES:

- ALL DIMENSIONS ARE FROM THE CENTERLINE OF THE DEVICE UNLESS OTHERWISE NOTED. MOUNTING HEIGHT FOR FIRE ALARM SIGNALS ARE TO THE BOTTOM OF THE STROBE LENS.
- VERIFY ALL DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATION PLANS.
- ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
- RECEPTACLES SHALL BE MOUNTED 2" ABOVE COUNTER BACK SPLASH AND WORK TABLE SURFACES.
- VERIFY MOUNTING HEIGHTS WITH THE OWNER

Convenient MD
191 Marginal Way
Portland, Maine

RENO ENGINEERING & LIGHT DESIGN
MARLOW, NH 03456
603-446-9426, 603-446-9731 (F)
EMAIL: renoengr@maine.net



DENNIS MIRES, P.A.
ARCHITECTS
697 Union Street, Manchester, NH
603-625-5566 FAX 603-625-1067

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Electrical Specifications, Legend & Notes

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