SECTION 260500

GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 REFERENCES

A. AS USED IN THIS SECTION, "PROVIDE" MEANS "FURNISH AND INSTALL", "FURNISH" MEANS "TO PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT AND TO STORE IN A SECURE AREA IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS", AND "INSTALL" MEANS "TO UNLOAD AT THE DELIVERY POINT AT THE SITE OR RETRIEVE FROM STORAGE, MOVE TO POINT OF INSTALLATION AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT".

1.2 EXAMINATION OF SITE

A. BEFORE SUBMITTING A BID, THE ELECTRICAL CONTRACTOR SHALL VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT THE WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS.

B. BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, THE ELECTRICAL CONTRACTOR SHALL EXAMINE THE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK PERFORMED UNDER OTHER TRADES, AND REPORT CONDITIONS THAT MIGHT ADVERSELY AFFECT THE WORK IN WRITING TO CONSTRUCTION MANAGER. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.

1.3 SCOPE

A. THE WORK TO BE ACCOMPLISHED UNDER THESE SPECIFICATIONS INCLUDES PROVIDING ALL LABOR, MATERIALS, EQUIPMENT, CONSUMABLE ITEMS, SUPERVISION, ADMINISTRATIVE TASKS, TESTS AND DOCUMENTATION REQUIRED TO INSTALL COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEMS AS DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL COMPLETELY COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER TRADES.

B. THE ELECTRICAL CONTRACTOR SHALL FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND OBTAIN NECESSARY INSPECTIONS AND APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION, AS REQUIRED TO PERFORM WORK IN ACCORDANCE WITH ALL LEGAL REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL PAY UTILITY BACKCHARGES AND EXCESS COSTS AND PERFORM WORK IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS.

C. THE WORK SHALL BE COMPLETE FROM POINT OF SERVICE TO EACH OUTLET OR DEVICE WITH ALL ACCESSORY CONSTRUCTION AND MATERIALS REQUIRED TO MAKE EACH ITEM OF EQUIPMENT OR SYSTEM COMPLETE AND READY FOR OPERATION. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING.

1. COMPLETE POWER AND LIGHTING DISTRIBUTION SYSTEMS INCLUDING OVERCURRENT DEVICES, RACEWAY, CABLE AND WIRE.
2. BRANCH CIRCUITS AND DEVICES FOR POWER AND CONVENIENCE RECEPTACLES.
3. COMPLETE INTERIOR LIGHTING SYSTEM INCLUDING NORMAL AND EMERGENCY FIXTURES, EXIT SIGNS, LAMPS, CONTROLS, TRIM AND ACCESSORIES.
4. EXTENSION OF EXISTING FIRE ALARM AND DETECTION SYSTEM INCLUDING PULL STATIONS, AREA SMOKE DETECTORS, INDICATING APPLIANCES, AUXILIARY CONTACTS FOR EQUIPMENT INTERLOCKING, AND OTHER DEVICES SHOWN ON THE DRAWINGS.
5. BOXES IN WALL AND CONDUIT WITH PULL STRING FROM BOX TO ABOVE ACCESSIBLE CEILING FOR VOICE/DATA LOCATIONS. WIRING, JACKS AND TERMINATIONS ARE BY THE OWNER.
6. CONTROL WIRING NOT PROVIDED BY DIVISION 23.
7. GROUNDING.
8. ALL SUPPORT MATERIAL AND HARDWARE FOR RACEWAY AND ELECTRICAL EQUIPMENT.
9. BRANCH CIRCUITS TO CONTROL PANELS AND DEVICES FURNISHED UNDER OTHER SECTIONS.
10. TERMINATION OF ALL CABLE AND WIRE UNLESS OTHERWISE NOTED.
11. INSTALLATION OF ACCESS PANELS IN CEILINGS AND WALL CONSTRUCTION.
12. SEALING OF CEILING, WALL AND FLOOR PENETRATIONS.
13. DEMOLITION.

1.4 RELATED WORK IN OTHER SECTIONS

A. THE FOLLOWING WORK IS NOT INCLUDED IN THIS SECTION AND SHALL BE PERFORMED UNDER OTHER SECTIONS:

1. CONCRETE WORK, INCLUDING CONCRETE HOUSEKEEPING PADS AND OTHER PADS AND BLOCKS FOR VIBRATING AND ROTATING EQUIPMENT.
2. CUTTING AND PATCHING OF MASONRY, CONCRETE, TILE, AND OTHER PARTS OF STRUCTURE, WITH THE EXCEPTION OF DRILLING FOR HANGERS AND PROVIDING HOLES AND OPENINGS IN METAL DECKS.
3. PAINTING.
4. TEMPORARY WATER, HEAT, GAS AND SANITARY FACILITIES FOR USE DURING CONSTRUCTION.
5. CONTROL WIRING SPECIFICALLY INDICATED AS PART OF DIVISION 23.

B. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY LOCATIONS OF PENETRATIONS, STRUCTURAL SUPPORTS, ETC. REQUIRED FOR THE COMPLETION OF THE WORK OF THIS SECTION TO THE GENERAL CONTRACTOR IN A TIMELY MANNER.

1.5 CODES, STANDARDS, AND AUTHORITIES

A. ALL WORK SHALL BE PERFORMED STRICTLY AS REQUIRED BY RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LAWFUL JURISDICTION. ADDITIONALLY, MATERIALS AND EQUIPMENT SHALL BE MANUFACTURED, INSTALLED AND TESTED AS SPECIFIED IN LATEST EDITIONS, (EXCEPT WHERE NOTED OTHERWISE), OF PUBLICATIONS, STANDARDS, RULINGS, AND DETERMINATIONS OF:

1. LOCAL AND STATE BUILDING, PLUMBING, MECHANICAL, ELECTRICAL, FIRE AND HEALTH DEPARTMENT AND PUBLIC SAFETY CODES AGENCIES.
2. INTERNATIONAL BUILDING CODE (IBC). 2015 EDITION.
3. INTERNATIONAL FIRE CODE (IFC). 2015 EDITION.
4. INTERNATIONAL ENERGY CONSERVATION CODE (IECC). 2012 EDITION.
5. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
6. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
7. FACTORY MUTUAL ASSOCIATION (FM)
8. NATIONAL ELECTRICAL CODE (NEC). 2014 EDITION.
9. NATIONAL ELECTRICAL SAFETY CODE (NESC).

B. ALL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL), AND APPROVED FOR INTENDED SERVICE.

C. WHEN REQUIREMENTS CITED IN THIS PARAGRAPH CONFLICT WITH EACH OTHER OR WITH CONTRACT DOCUMENTS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN CONDUCT OF WORK.

1.6 CONTRACT DRAWINGS

A. WORK TO BE PERFORMED UNDER THIS SECTION IS SHOWN ON THE CONTRACT DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.

B. THE LISTING OF ELECTRICAL DRAWINGS DOES NOT LIMIT RESPONSIBILITY OF DETERMINING THE FULL EXTENT OF WORK REQUIRED BY CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL, PLUMBING, HVAC, STRUCTURAL, AND OTHER DRAWINGS AND OTHER SECTIONS THAT INDICATE TYPES OF CONSTRUCTION WITH WHICH WORK OF THIS SECTION MUST BE COORDINATED. ELECTRICAL CONTRACTOR SHALL CHECK WITH THE GENERAL CONTRACTOR AND OTHER TRADES TO DETERMINE WHETHER THERE WILL BE ANY INTERFERENCE BY SUCH TRADES WITH THE ELECTRICAL WORK. IF THE ELECTRICAL CONTRACTOR FAILS TO CHECK WITH THE GENERAL CONTRACTOR AND THE ELECTRICAL WORK IS LATER FOUND TO INTERFERE WITH THEIR OTHER WORK, THE ELECTRICAL CONTRACTOR SHALL MAKE NECESSARY CHANGES, WITHOUT ADDITIONAL COST TO THE OWNER, TO ELIMINATE SUCH INTERFERENCE.

SECTION 260519

LOW VOLTAGE ELECTRICAL CONDUCTORS

PART 1 - GENERAL

1.1 GENERAL

A. THE PROVISIONS OF SECTION 260500, GENERAL REQUIREMENTS FOR ELECTRICAL WORK APPLY TO THE WORK OF THIS SECTION.

1.2 CODES AND STANDARDS

A. PRODUCTS SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS AND SHALL BE UL_LISTED AND LABELED:

ASTM B-3	SOFT OR ANNEALED COPPER WIRE
ASTM B-8	CONCENTRIC LAY STRANDED COPPER CONDUCTORS
NEMA WC-5	THERMOPLASTIC INSULATED WIRE AND CABLE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY.
UL 44	RUBBER INSULATED WIRES AND CABLES
UL 83	THERMOPLASTIC INSULATED WIRES AND CABLES

1.3 SUBMITTALS

A. MANUFACTURER'S PRODUCT DATA SHEETS.

PART 2 - PRODUCTS

2.1 GENERAL

A. ALL CONDUCTORS SHALL BE ANNEALED COPPER IN ACCORDANCE WITH ASTM B-3.

B. THE JACKET OF ALL WIRE SHALL BE PRINTED WITH THE FOLLOWING INFORMATION:

1. MANUFACTURER
2. SIZE
3. INSULATION TYPE
4. MAXIMUM VOLTAGE
5. UL LABEL

C. ALL INSULATION SHALL BE RATED 600 VOLT.

2.2 POWER WIRING

A. FEEDERS AND MOTOR BRANCH CIRCUITS SHALL BE TYPE XHHW-2.

B. ALL POWER WIRING SHALL BE STRANDED, CLASS B STRAND IN ACCORDANCE WITH ASTM B-8, MINIMUM SIZE #12 AWG.

2.3 BRANCH CIRCUITS

A. ALL LIGHTING AND CONVENIENCE RECEPTACLE BRANCH CIRCUIT WIRING SHALL BE TYPE THHN/THWN.

B. BRANCH CIRCUIT WIRING SHALL BE SOLID OR STRANDED CONDUCTOR, MINIMUM SIZE #12 AWG.

2.4 CONTROL WIRING

A. WIRING FOR CONTROL CIRCUITS SHALL BE THHN/THWN.

B. CONTROL WIRING SHALL BE STRANDED, CLASS B STRAND IN ACCORDANCE WITH ASTM B-8, MINIMUM SIZE #14 AWG.

2.5 FIXTURE WIRE

A. WHERE HIGH TEMPERATURE FIXTURE WIRE IS REQUIRED IT SHALL BE SILICONE RUBBER TYPE SF-2.

PART 3 -EXECUTION

3.1 GENERAL

A. ALL WIRE SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 260560, INSTALLATION OF WIRE AND CABLE.

END OF SECTION 260519

SECTION 260526

GROUNDING

PART 1 - GENERAL

1.1 GENERAL

A. THE PROVISIONS OF SECTION 260500, GENERAL REQUIREMENTS FOR ELECTRICAL WORK, APPLY TO THE WORK OF THIS SECTION.

B. THE ELECTRICAL CONTRACTOR SHALL PROVIDE GROUNDING WHERE REQUIRED INCLUDING GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, EQUIPMENT GROUNDING CONDUCTORS, CONNECTIONS AND OTHER MATERIALS AS MAY BE REQUIRED.

1.2 CODES AND STANDARDS:

A. PRODUCTS SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS AND SHALL BE UL LISTED AND LABELED.

NFPA 70	NATIONAL ELECTRICAL CODE
UL 467	GROUNDING AND BONDING EQUIPMENT

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. BARE GROUNDING CONDUCTORS SHALL BE SOFT DRAWN STRANDED COPPER, SIZED IN ACCORDANCE WITH NEC ARTICLE 250, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

B. INSULATED GROUNDING CONDUCTORS SHALL BE STRANDED COPPER WITH TYPE TW, THW OR THHN/THWN INSULATION COLORED GREEN.

2.2 CONNECTIONS

A. WELDED CONNECTIONS SHALL BE EXOTHERMIC REACTION TYPE, CADWELD OR APPROVED EQUAL. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOLDS, CRUCIBLES, WELD METAL AND NECESSARY MATERIALS TO COMPLETE ALL CONNECTIONS.

B. LUGS SHALL BE LONG BARREL, TWO HOLE COMPRESSION TYPE FOR NO. 3/0 AWG WIRE AND LARGER AND SHORT BARREL, ONE HOLE COMPRESSION TYPE FOR GROUNDING CONDUCTORS NO. 2/0 AWG AND SMALLER.

PART 3 - EXECUTION

3.1 EQUIPMENT GROUNDING CONDUCTORS

A. A SEPARATE INSULATED GREEN COPPER CONDUCTOR SHALL BE INSTALLED AS AN EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAY AND WITH EVERY FEEDER, BRANCH CIRCUIT AND CONTROL CIRCUIT. THIS SHALL BE IN ADDITION TO THE GROUNDED METALLIC CONDUIT SYSTEM.

B. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE TERMINATED AT BOTH ENDS.

3.2 CONNECTIONS

A. ALL CONNECTIONS TO BUILDING STEEL SHALL BE EXOTHERMIC WELD.

B. CONNECTIONS TO EQUIPMENT GROUND BUSSES OR PADS SHALL BE COMPRESSION TYPE LUGS, BOLTED TO THE BUS OR PAD.

C. GROUNDING CONNECTIONS SHALL BE MADE TO CLEAN, DRY SURFACES. ALL SCALE, RUST, PAINT, GREASE AND OTHER CONTAMINATION SHALL BE REMOVED PRIOR TO MAKING CONNECTIONS. UPON COMPLETION OF WELDED CONNECTIONS, ALL SLAG SHALL BE REMOVED.

3.3 RACEWAY AND EQUIPMENT

A. ALL RACEWAY AND NON-CURRENT CARRYING METAL EQUIPMENT AND ENCLOSURES SHALL BE ELECTRICALLY CONTINUOUS AND BONDED TO THE GROUNDING SYSTEM.

B. WHERE EQUIPMENT IS PROVIDED WITH A GROUND BUS, ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE TERMINATED ON THE BUS. THE ELECTRICAL CONTRACTOR SHALL PERFORM ALL DRILLING AND TAPPING REQUIRED AND PROVIDE ALL HARDWARE.

END OF SECTION 260526

Reviewed for Code Compliance
Inside Maine Codes
Approved Without Comment
Date: 09/06/16

REV	DESCRIPTION	DATE
0	PERMIT SET	7-1-16

PERMIT SET
7-1-16

CURRENT ISSUE STATUS:

STATE OF MAINE
JAY T. WESTRA
13509
7/1/16
LICENSED
PROFESSIONAL ENGINEER

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MILLER DRUG FITUP
MERCY FORE RIVER MOB

195 Fore River Parkway, Portland, ME 04102

SPECIFICATIONS

SHEET TITLE:

0 1/4" 1/2" 1" 2" 3"

SCALE: NONE

PROJECT MANAGER:	KD	PROJECT NO:	16087
A/E OF RECORD:	RB		
JOB CAPTAIN:	SHK		
DRAWN BY:	CDS		
SMRT FILE:	E-002-16087	SHEET No.	E-002

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