2 EQUIPMENT GROUNDING CONDUCTORS: INSULATED WITH GREEN COLOR INSULATION.

3 GROUNDING–ELECTRODE CONDUCTORS: BARE STRANDED CABLE.

4 UNDERGROUND CONDUCTORS: BARE, TINNED, STRANDED, EXCEPT AS OTHERWISE INDICATED.

5 CONNECTOR PRODUCTS
   A. HIGH–CONDUCTIVITY–PLATED UNITS.
   B. BOLTED CLAMPS: HEAVY–DUTY TYPE.
   C. EXOTHERMIC–WELDED CONNECTIONS: PROVIDED IN KIT FORM AND SELECTED PER MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND CONNECTED ITEMS.

6 GROUNDING RODS SHALL BE COPPER–CLAD STEEL. 3/4 INCH BY 120 INCHES (19 BY 3000 MM).

7 ALL ELECTRODES AS DEFINED BY THE NEC (PIPE, GROUND RING, CONCRETE ENCASED ELECTRODES, ETC.) SHALL BE BONDED TOGETHER TO FORM THE SERVICE GROUND SYSTEM WITH THE SERVICE GROUNDING ELECTRODE SIZE SHOW ON THE DRAWINGS AND I ACCORDANCE WITH NEC 250

GENERAL PURPOSE, DRY–TYPE TRANSFORMERS

1 COMPLY WITH NEMA STANDARD ST 20 ""DRY–TYPE TRANSFORMERS FOR FOR GENERAL APPLICATIONS."", NEMA TP1 ""GUIDE FOR DETERMINING ENERGY EFFICIENCY FOR DISTRIBUTION TRANSFORMERS"" AND ENERGY ACT REQUIREMENTS.

2 TRANSFORMERS: TWO–WINDING TYPE, 3–PHASE UNITS USING 1 COIL PER PHASE IN PRIMARY AND SECONDARY, COPPER WINDINGS INDOOR, VENTILATED, 115 DEG C MAXIMUM RISE ABOVE 40 DEG C. WITH 220 DEG C INSULATION

3 TAPS: FOR TRANSFORMERS 3 KVA AND LARGER, FULL CAPACITY TAPS IN HIGH–VOLTAGE WINDING ARE TWO 5–PERCENT TAPS BELOW RATED HIGH VOLTAGE.

PANELBOARDS

1 MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, CUTLER HAMMER, OR SIEMENS

2 PANEL BOARD AND PROTECTIVE DEVICES SHALL BE ""FULLY RATED"" WITH INTERRUPTING RATINGS EQUAL TO OR GREATER THAN SYSTEM AVAILABLE SHORT CIRCUIT CURRENT AT INCOMING LINE TERMINALS. USE OF SERIES RATED"" OR ""INTEGRATED RATED"" SYSTEMS AND DEVICES SHALL BE ACCEPTABLE AS LONG AS EACH PANEL IS SPECIFICALLY LABELED WITH SERIES RATING AT BOTH THE SERIES RATED DEVICE AND THE MAIN DEVICE PROVIDING THE RATING. (I.E. IF A BRANCH MLO PANEL IS SERIES RATED, THE MDP AND PANEL BOARD MUST BOTH BE LABELED INDICATING THE SERIES RELATION SHIP TO EACH)

3 ENCLOSURES: FLUSH– OR SURFACE–MOUNTED CABINETS AS INDICATED. NEMA PB 1, TYPE 1, UNLESS OTHERWISE INDICATED TO MEET ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.

4 FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS, UNLESS OTHERWISE INDICATED. FRONT FOR SURFACE–MOUNTED PANEL BOARDS SHALL BE SAME DIMENSIONS AS BOX. FRONTS FOR FLUSH PANEL BOARDS SHALL OVERLAP BOX, UNLESS OTHERWISE INDICATED. FRONT SHALL HAVE DOOR IN DOOR CONSTRUCTION WITH LOCKABLE KEYS FOR TERMINATION AND BREAKER CONNECTION.

5 DIRECTORY FRAME: METAL, MOUNTED INSIDE EACH PANEL BOARD DOOR.

6 MAIN AND NEUTRAL LUGS: COMPRESSION TYPE.

7 EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH–CIRCUIT EQUIPMENT GROUND CONDUCTORS AND BONDED TO BOX.

8 SERVICE EQUIPMENT APPROVAL: LISTED FOR USE AS SERVICE EQUIPMENT FOR PANEL BOARDS WITH MAIN SERVICE DISCONNECT.

9 FUTURE DEVICES: EQUIP WITH MOUNTING BRACKETS, BUS CONNECTIONS, AND NECESSARY APPURTENANCES, FOR THE OVER CURRENT PROTECTIVE DEVICE AMPERE RATINGS INDICATED FOR FUTURE INSTALLATION OF DEVICES

10 SUB FEED: OVER CURRENT PROTECTIVE DEVICE OR FEED THROUGH LUG PROVISION AS INDICATED SIZED TO ACCOMMODATE FEEDERS INDICATED. LIGHTING AND APPLIANCE BRANCH–CIRCUIT PANEL BOARDS

11 BUS: ALL PHASE, NEUTRAL AND GROUND BUSSES SHALL BE COPPER.

12 CONTRACTOR SHALL PROVIDE FINAL COORDINATION DRAWINGS OF ALL PANELS, TRANSFORMERS, AND MISCELLANEOUS CONTROL DEVICES IN ELECTRICAL CLOSETS. FINAL LAYOUT SHALL MAINTAIN ALL VERTICAL AND HORIZONTAL CLEARANCES.

LIGHTING AND APPLIANCE BRANCH–CIRCUIT PANEL BOARDS

1 BRANCH OVER CURRENT PROTECTIVE DEVICES: BOLT–ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.

2 FOR PHASE–TO–PHASE VOLTAGES NOT EXCEEDING 240 VOLTS AND NO BRANCH DEVICE RATED OVER 100A: USE BREAKERS WITH MINIMUM INTERRUPTING RATING OF 22,000 AMPERES RMS SYMMETRICAL, UNLESS NOTED OTHERWISE ON THE PANEL SCHEDULES OR SINGLE LINE DIAGRAM; DOORS: IN PANEL BOARD FRONT, WITH CONCEALED HINGES. SECURE WITH FLUSH CATCH AND TUMBLER LOCK, ALL KEYED ALIKE. SQUARE D NQOD OR EQUAL

3 FOR PHASE–TO–PHASE VOLTAGES NOT EXCEEDING 480 VOLTS AND NO BRANCH DEVICE RATED OVER 100A: USE BREAKERS WITH MINIMUM INTERRUPTING RATING OF 35,000 AMPERES RMS SYMMETRICAL, UNLESS NOTED OTHERWISE ON THE PANEL SCHEDULES OR SINGLE LINE DIAGRAM; DOORS: IN PANEL BOARD FRONT, WITH CONCEALED HINGES. SECURE WITH FLUSH CATCH AND TUMBLER LOCK, ALL KEYED ALIKE. SQUARE D NF OR EQUAL

DISCONNECT SWITCHES

1 PROVIDE SURFACE MOUNTED, HEAVY DUTY TYPE DISCONNECT SWITCH OF TYPES AND SIZES AS INDICATED OR REQUIRED BY CODE. SWITCHES SHALL BE QUICK MAKE, QUICK BREAK CONSTRUCTED SO THAT BLADES ARE VISIBLE IN OFF POSITION WITH THE DOOR OPEN. SWITCH SHALL BE PAD LOCKABLE IN OFF POSITION, EXCEPT THAT FOR FIRE PUMP SERVICE SWITCH SHALL ALSO BE LOCKABLE IN THE ON POSITION. CURRENT CARYINF PARTS SHALL BE COPPER WITH WITH SILVER TUNGSTON SWITCH CONTACTS.

2 SWITCH ENCLOSURES SHALL GENERALLY BE NEMA TYPE 1 FOR INDOOR APPLICATIONS, TYPE 3R FOR OUTDOOR USE, AND TYPE 4, 4X OR 12 WHEN INDICATED FOR SPECIAL APPLICATIONS.

3 PROVIDE FUSES FOR SWITCHES OF CLASS, TYPE AND RATINGS AS SHOWN ON THE DRAWINGS. WHERE INTERUPTING RATING FOR SWITCH IS NOT SHOWN ON THE SINGLE LINE DIAGRAM, USE RATING OF THE NEXT UPSTREAM PANEL, SWITCHBOARD, SUBSTATION, ETC.

4 AUXILARY CONTACTS (2 EACH NO, NC) SHALL BE PROVIDED FOR EACH SWITCH PROVIDED FOR VARIABLE FREQUENCY DRIVES (VFD), ELEVATORS, OR FIRE PUMP SERVICE AND ALSO WHERE SPEIFICALLY INDICATED ON THE DRAWINGS.

5 DISCONNECT SWITCHES SHALL BE INSTALLED WITHIN LINE OF SIGHT OF THE MOTOR, MOTOR CONTROLLER, OR ELECTRICAL EQUIPMENT IT IS INTENDED TO SERVE.

6 PROVIDE INTERLOCK WIRING BETWEEN VFD AND ELEVATOR CONTROLLERS TO PREVENT MISOPERATION OF THE CONTROLLERS WHEN DISCONNECT IS IN THE OPEN POSITION.

LIGHTING

1 PRODUCTS: PROVIDE ALL OF THE PRODUCTS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE OR ON THE CONSTRUCTION DOCUMENTS.

2 FIXTURE SUPPORT COMPONENTS
   A. SINGLE–STEM HANGERS: 1/2–INCH (12–MM) STEEL TUBING WITH SWIVEL BALL FITTING AND CEILING CANOPY. FINISH SAME AS FIXTURE.
   B. TWIN–STEM HANGERS: TWO, 1/2–INCH (12~MM) STEEL TUBES WITH SINGLE CANOPY ARRANGED TO MOUNT A SINGLE FIXTURE. FINISH SAME AS FIXTURE.
   C. ROD HANGERS: 3/16–INCH– (5–MM–) CADMIUM–PLATED, THREADED STEEL ROD.
   D. HOOK HANGER: INTEGRATED ASSEMBLY MATCHED TO FIXTURE AND LINE VOLTAGE AND EQUIPPED WITH THREADED ATTACHMENT, CORD, AND LOCKING–TYPE PLUG.

3 ELECTRONIC BALLASTS: ELECTRONIC INTEGRATED CIRCUIT, SOLID–STATE, FULL–LIGHT–OUTPUT, ENERGY–EFFICIENT TYPE COMPATIBLE WITH LAMPS AND LAMP COMBINATIONS TO WHICH CONNECTED.
   A. CERTIFICATION BY ELECTRICAL TESTING LABORATORY (ETL); LABELING BY CERTIFIED BALLAST MANUFACTURERS ASSOCIATION (CBM); TYPE: CLASS P, HIGH POWER FACTOR, EXCEPT AS OTHERWISE INDICATED; SOUND RATING: ""A"" RATING, EXCEPT AS OTHERWISE INDICATED; LAMP FLICKER: LESS THAN 5 PERCENT; MINIMUM POWER FACTOR: 90 PERCENT; TOTAL HARMONIC DISTORTION (THD) OF BALLAST CURRENT: LESS THAN 20 PERCENT; CONFORM TO FCC REGULATIONS PART 15, SUBPART J FOR ELECTROMAGNETIC INTERFERENCE; CONFORM TO IEEE C62.41, CATEGORY A, FOR RESISTANCE TO VOLTAGE SURGES FOR NORMAL AND COMMON MODES
   B. MULTI–LAMP BALLASTS: USE 2, 3, OR 4 LAMP BALLASTS FOR MULTI–LAMP FIXTURES WHERE POSSIBLE, UNLESS SPECIFIC INDICATION OF SPLIT SWITCHING IS SHOWN ON THE DRAWINGS
   C. LOW–TEMPERATURE FLUORESCENT BALLASTS: COMPLY WITH ABOVE REQUIREMENTS, EXCEPT BALLAST MAY BE CLASS P ELECTROMAGNETIC TYPE. STARTING TEMPERATURE IS MINUS 20 DEG C OR COLDER.

4 HID BALLASTS: CONFORM TO UL 1029 AND ANSI C82.4. INCLUDE THE FOLLOWING FEATURES, EXCEPT AS OTHERWISE INDICATED.
   A. CONSTANT WATTAGE AUTOTRANSFORMER (CWA) OR REGULATING HIGH–POWER–FACTOR TYPE, UNLESS OTHERWISE INDICATED.
   B. SINGLE–LAMP BALLASTS: MINIMUM STARTING TEMPERATURE OF MINUS 30 DEG C.
   C. NORMAL AMBIENT OPERATING TEMPERATURE: 40 DEG C.
   D. OPEN CIRCUIT OPERATION WILL NOT REDUCE AVERAGE LIFE.

RestorixHealth®
Excellence in Wound Care

DENNIS NOSKIN ARCHITECTS

Z&F CONSULTING
MECHANICAL · ELECTRICAL · PLUMBING · FIRE PROTECTION

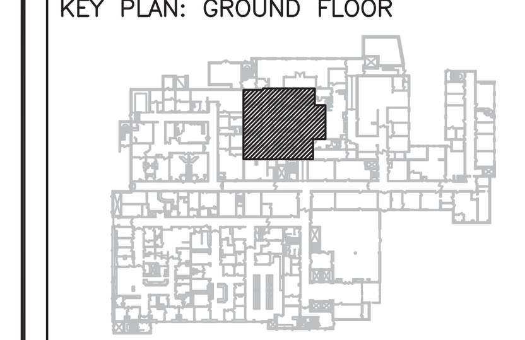
JOHN ZABLOWICZ, P.E.
PROFESSIONAL ENGINEER
LICENSE NO.: 13662

STATE: MAINE

JOHN ZABLOWICZ, P.E.
PROFESSIONAL ENGINEER
LICENSE NO.: 13662

PROJECT:
MAINE MEDICAL CENTER
BRIGHTON CAMPUS
WOUND CARE AND
HYPERBARIC MEDICINE
335 BRIGHTON AVENUE
PORTLAND, ME 04103

KEY PLAN: GROUND FLOOR



ISSUE DATES:

△	JANUARY 26, 2015 STATE APPROVALS
△	MARCH 20, 2015 BLDG. DEPT. REVIEW
△	
△	
△	
△	

DRAWN BY:	ARE
CHECKED BY:	JZ
SCALE:	AS NOTED
PROJECT NO.:	P14110

SHEET TITLE:
ELECTRICAL
SPECIFICATION
SHEET 2

DRAWING NO.:
E-5