

ELECTRICAL SPECIFICATIONS

I. SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

- A. THE WORK OF EACH OF THE ELECTRICAL SECTIONS INCLUDES FURNISHING AND INSTALLING THE MATERIAL, EQUIPMENT, AND SYSTEMS COMPLETE AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS. THE ELECTRICAL INSTALLATIONS, WHEN FINISHED, SHALL BE COMPLETE AND COORDINATED, READY FOR SATISFACTORY SERVICE.
- B. THE WORK UNDER THIS CONTRACT SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE MUNICIPAL, STATE, AND OTHER LOCAL CODES, THE 1998 EDITION OF THE NATIONAL ELECTRICAL CODE, AND THE 1990 AMERICANS WITH DISABILITIES ACT.
- C. THE CONTRACTOR SHALL MAKE APPLICATION AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS AS REQUIRED UNDER THE ABOVE CODES.
- D. THE GENERAL ARRANGEMENT OF CONDUIT, WIRING AND EQUIPMENT SHALL BE AS IDENTIFIED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE SITE, STRUCTURAL, AND FINISH CONDITIONS AFFECTING HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, PROVIDING SUCH FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.
- E. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES NECESSARY FOR AND REASONABLY INCIDENTAL TO THE COMPLETE INSTALLATION OF THE ELECTRICAL WORK AND RELATED SYSTEMS AS INDICATED ON THE DRAWINGS OR AS NECESSARY TO PROVIDE A COMPLETE SYSTEM.
- F. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY WIRING, LIGHTING AND CONNECTION POWER FOR ALL TRADES AS REQUIRED TO COMPLETE THE PROJECT.
- G. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND COMPLETED IN A FIRST-CLASS MANNER. ALL MATERIALS SHALL BE NEW AND THE BEST OF THEIR RESPECTIVE KINDS. ALL EQUIPMENT AND SYSTEMS SHALL BE APPROVED BY UL OR SIMILAR NATIONALLY ACCEPTED TESTING AGENCY SUCH AS ETL TESTING LABORATORIES.
- H. THE CONTRACTOR SHALL VISIT THE SITE AND OBSERVE THE CONDITIONS UNDER WHICH THE WORK SHALL BE COMPLETED. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS CONTRACT FOR ANY ERROR OR NEGLIGENCE IN THE CONTRACTOR'S PART.
- I. THE CONTRACTOR SHALL SUBMIT DETAILED DIMENSIONED SHOP DRAWINGS, TOGETHER WITH WIRING DIAGRAMS, SPECIFICATIONS, OPERATING DATA, AND/OR CATALOG CUTS FOR ALL EQUIPMENT.
- J. A THOROUGH TEST SHALL BE MADE PRIOR TO ENERGIZING THE SYSTEM TO DEMONSTRATE THAT THE SYSTEM IS ENTIRELY FREE FROM GROUND FAULTS, SHORT CIRCUITS, AND OPEN CIRCUITS; THAT THE RESISTANCE TO GROUND ALL NON-GROUNDED CIRCUITS, BEFORE AND AFTER CONNECTION OF EQUIPMENT MEETS THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND IEEE STANDARDS/RECOMMENDATIONS.
- K. IDENTIFY ALL MOTOR STARTERS, SWITCHES, CONTROLS, PANELBOARDS, SWITCHBOARDS, TERMINAL BOARDS, CONTROL CENTERS AND OTHER EQUIPMENT. IDENTIFICATION PLATES SHALL BE LAMINATED PLASTIC, BLACK AND WHITE ENGRAVED LETTERS. LETTERING FOR CONTROL CENTERS, CONTROL PANELS, METERING AND INSTRUMENT PANELS SHALL BE 3/8" HIGH.
- L. THE MATERIAL AND WORKMANSHIP OF ALL PARTS OF THE ELECTRICAL INSTALLATION SPECIFIED HEREIN SHALL BE GUARANTEED UNCONDITIONALLY FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE.
- M. UPON COMPLETION OF THE ELECTRICAL INSTALLATION, THE CONTRACTOR SHALL DELIVER TO THE OWNER ONE (1) SET OF PRINTS OF ELECTRICAL CONTRACT DRAWINGS WHICH SHALL BE LEGIBLY MARKED IN RED PENCIL TO SHOW ALL ADDITIONS, CHANGES AND DEPARTURES OF THE INSTALLATION AS COMPARED WITH THE ORIGINAL DESIGN. THEY SHALL BE SUITABLE FOR USE IN PREPARATION OF RECORD DRAWINGS.
- N. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A RECORD AND INFORMATION MANUAL. THE MANUAL SHALL BE BOUND IN A THREE-RING LOOSE-LEAF BINDER. PROVIDE THE FOLLOWING DATA IN THE BOOKLET:
 - 1) CUTS OF ALL EQUIPMENT WITH TECHNICAL SPECIFICATIONS.
 - 2) OPERATION AND MAINTENANCE PROCEDURES.
 - 3) SERVICING INSTRUCTIONS.
 - 4) COPIES OF PANELBOARDS DIRECTORIES.
 - 5) COPIES OF WARRANTIES.
 - 6) LIST OF LAMPS SHOWING QUANTITY, TYPE, WATTAGE, MANUFACTURER, CATALOG NUMBER, ETC., FOR EACH FIXTURE TYPE.
 - 7) COPIES OF TEST REPORTS.
- O. EXACT LOCATIONS OF OUTLETS SHALL BE COORDINATED WITH DOOR SWINGS AND VARIOUS PROTRUSIONS. MOUNTING HEIGHTS OF THE VARIOUS ELECTRICAL DEVICES SHALL BE AS FOLLOWS:

SWITCHES & PULL STATION	46" AFF TO CENTER OF BOX
RECEPTACLES	20" AFF TO CENTER OF BOX
COMMUNICATIONS OUTLETS	20" AFF TO CENTER OF BOX
EXIT LIGHTS	CENTERED BETWEEN CEILING AND TOP OF DOOR (UP TO 1'-0" ABOVE DOOR), SURFACE OR CEILING MOUNTED AS SHOWN
DISCONNECTING SWITCHES	52" AFF TO CENTER OF SWITCH
FIRE ALARM BELLS/HORN/S	80" AFF TO BOTTOM OF DEVICE OR 6" BELOW CEILING TO TOP OF DEVICE, WHICHEVER IS LOWER.
FLASHING LIGHTS	BELONG TO TOP OF DEVICE, WHICHEVER IS LOWER.
- P. PROVIDE A DISCONNECT FOR EACH MOTOR AS SHOWN ON THE DRAWINGS SIZED AS REQUIRED TO MEET THE NEC AND PROVIDE ALL WIRING CONNECTIONS FROM SOURCE. PROVIDE REQUIRED VOLTAGE.
- Q. SEAL ALL CONDUIT PENETRATIONS THRU RATED WALLS AND FLOORS TO MAINTAIN FIRE INTEGRITY. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RALL LOCATIONS.
- R. ELECTRICAL CONTRACTOR SHALL VERIFY ALL VOLTAGES OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

2. SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

- A. INSTALL ALL WIRING IN CONDUIT EXCEPT AS OTHERWISE INDICATED. MINIMUM CONDUIT SIZE SHALL BE 1/2". ALL CONDUIT EMBEDDED IN CONCRETE SHALL BE 3/4" MINIMUM. INSTALL ALL CONDUIT CONCEALED UNLESS ON UNFINISHED WALLS, ON UNFURRED CEILINGS OR MECHANICAL EQUIPMENT SPACES. PROVIDE CONDUIT AS FOLLOWS:
 - 1) RIGID STEEL CONDUIT FOR WORK EXPOSED TO WEATHER OR EMBEDDED IN CONCRETE OR MASONRY.
 - 2) GALVANIZED ELECTRICAL METALLIC TUBING (EMT) FOR INTERIOR EXPOSED WORK, CONCEALED WORK ABOVE SUSPENDED CEILINGS, AND WITHIN INTERIOR PARTITIONS OR NON-MASONRY WALLS.
 - 3) FLEXIBLE METAL CONDUIT IN SHORT LENGTHS (6' MAXIMUM) FOR THE CONNECTION OF RECESSED LIGHTING FIXTURES AND MOTORS.
 - 4) LIQUID TIGHT FLEXIBLE METAL CONDUIT WHEREVER MOISTURE MAY BE PRESENT AND MOTORS IN MECHANICAL EQUIPMENT SPACES.
 - 5) POLYVINYLCHLORIDE (PVC) SCHEDULE 40 CONDUIT WITH GROUND CONDUCTOR FOR UNDERGROUND OUTSIDE OF BUILDING (SITE) INSTALLATION.
- B. INSTALL CONDUITS PARALLEL AND PERPENDICULAR TO WALLS AND INTERIOR SURFACES. CLEAN AND PLUG AND PROVIDE A FULL LINE IN EACH CONDUIT TO BE LEFT EMPTY. USE MANUFACTURED ELBOWS AND SCREEN JOINTED CONDUIT FITTINGS. USE CAPPED BUSHINGS OR "FISH PENNY" PLUGS.
- C. ALL OUTLET SWITCH AND JUNCTION BOXES SHALL BE SHERARDIZED OR GALVANIZED STAMPED STEEL BY STEEL CITY, RACO, APFLETON, VALEN, OR EQUIVALENT. OUTLET BOXES IN CONCRETE CONSTRUCTION SHALL BE OCTAGONAL. NO "THRU-WALL" BOXES SHALL BE USED IN PARTITIONS. ALL BOXES SHALL BE FURNISHED WITH APPROPRIATE COVERS.
- D. JUNCTION AND PULL BOXES SHALL BE FURNISHED AND INSTALLED AS INDICATED OR WHERE REQUIRED TO FACILITATE PULLING OF WIRES OR CABLES. BOXES FOR EXTERIOR WORK SHALL BE CAST ALUMINUM OR GALVANIZED CAST IRON TYPE WITH THREADED HUBS, UNLESS OTHERWISE DIRECTED. GASKETED COVER PLATES SHALL BE FURNISHED FOR OUTDOOR INSTALLATIONS.
- E. BUILDING WIRE, UNLESS OTHERWISE INDICATED, SHALL BE COPPER, 600 VOLT, TYPE THIRTYEIGHT INSULATION, #12 AND MINIMUM FOR INTERIOR AND EXTERIOR USE. FOR BRANCH CIRCUITS TYPE MC (METAL CLAD) CABLE MAY BE USED WHERE PERMITTED BY THE NEC AND LOCAL CODES. NO RDMEX OR AC (BX) CABLE WILL BE ALLOWED ON THE PROJECT.
- F. MINIMUM WIRE SIZE SHALL BE NUMBER TWELVE (12) AWG. NO SPLICES SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES. WIRES NUMBER EIGHT (8) AWG AND LARGER SHALL BE STRANDED. WIRES AND CABLES SHALL BE AS MANUFACTURED BY PIRELLI, ROYAL, TRIANGLE OR EQUIVALENT.
- G. THE COLOR CODING SYSTEM LISTED BELOW SHALL BE USED THROUGHOUT THE BUILDING:

SYSTEM	PHASE A	PHASE B	PHASE C	NEUTRAL	GROUND
120/208V	BLACK	RED	BLUE	WHITE	GREEN
277/480V	BROWN	ORANGE	YELLOW	GRAY	GREEN
- H. THE WIRE SIZE INDICATED IN THE HOBBSMAN SHALL BE USED THROUGHOUT THE CIRCUIT.
- I. PROVIDE DISCONNECT SWITCHES WHERE INDICATED AND AS REQUIRED. SWITCHES SHALL BE OF SIZE NUMBER OF POLES AND PUSED OR NONPUSED, AS REQUIRED FOR JOB CONDITIONS AND THE NATIONAL ELECTRICAL CODE. ALL SAFETY SWITCHES SHALL BE NEMA 1 ENCLOSURE TYPE 'NO' WITH INTERLOCKING COVER AND HANDLE, MANUFACTURED BY SQUARE 'D' OR APPROVED EQUAL. PROVIDE NEMA 3R ENCLOSURES WHERE REQUIRED.
- J. PROVIDE STARTERS AND CONTROL WIRING AS INDICATED ON THE DRAWINGS, OR SPECIFIED HEREIN. ALL TEMPERATURE CONTROL WIRING AND COMPONENTS SHALL BE UNDER DIVISION 15.
- K. PROVIDE THERMAL MANUAL MOTOR STARTING SWITCHES FOR FRACTIONAL HORSEPOWER, SINGLE PHASE MOTORS. THE STARTERS SHALL BE SQUARE D COMPANY, CLASS 2510, ALLEN BRADLEY BULLETIN 600, OR APPROVED EQUAL FOR SINGLE SPEED MOTORS. ENCLOSURES SHALL BE NEMA 1 FOR INTERIOR USE AND NEMA 3R FOR EXTERIOR USE.
- L. THREE PHASE MOTOR STARTERS SHALL BE 3 POLE, FULL-VOLTAGE, MAGNETIC TYPE. ENCLOSURES SHALL BE NEMA 1 FOR INTERIOR USE AND NEMA 3R FOR EXTERIOR USE. PROVIDE NOA SWITCH WHEN AUTOMATICALLY CONTROLLED, PILOT INDICATING LIGHT, CONTROL TRANSFORMER, AND NOVC AUXILIARY CONTACTS. STARTERS SHALL BE SQUARE D COMPANY, CLASS 2536 AND CLASS 2530 COMBINATION TYPE OR APPROVED EQUAL.
- M. WIRING DEVICES SHALL BE ARROW HART, GENERAL ELECTRIC, P & S OR HUBBELL, EQUAL TO THE FOLLOWING ARROW HART NUMBERS. COORDINATE COLORS AND FINISHES WITH ARCHITECT.
 - 1) WALL SWITCHES: ARROW HART 1941, THREE AND FOUR-WAY SWITCHES SHALL BE OF THE SAME MANUFACTURER AND GRADE.
 - 2) RECEPTACLES: ARROW HART 5362 FOR 20 AMPERES, 6PFC SHALL BE 6PFC520 RATED 20 AMPERES, 120 VOLT.
 - 3) DIMMERS: 600/1000/1500/2000 WATTS AS REQUIRED BY JOB CONDITIONS. LUTRON 'NOVA' SERIES OR EQUAL.
 - 4) DEVICE PLATES: ARROW HART SWITCH PLATES 51-56 SERIES, ARROW HART RECEPTACLE PLATES 50, ARROW HART TELEPHONE BLANK PLATES 514.
- N. MOUNT WEATHERPROOF DEVICES IN CAST METAL BOXES WITH GASKETED, SPRING-HINGED LID-TYPE LOCKING COVERS HAVING CORROSION-RESISTANT FINISH.
- O. THE ENTIRE ELECTRICAL SYSTEM SHALL BE SOLIDLY GROUNDED INCLUDING MAIN SERVICE EQUIPMENT, DISCONNECT SWITCHES, WIRING TRAYS AND PULL BOXES, CONDUIT SYSTEM, OUTLET BOXES, MOTORS, ELECTRIC HEATING EQUIPMENT, LIGHTING FIXTURES, TRANSFORMERS, EMERGENCY SYSTEMS, UPS SYSTEMS, AND FIRE ALARM SYSTEMS.
- P. THE MAIN SERVICE GROUNDING SYSTEM SHALL CONSIST OF THREE BRANCHES PER NEC ARTICLE 250. THE GROUND SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS.
- Q. PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN ALL BRANCH CIRCUITS AND FEEDERS SIZED IN ACCORDANCE WITH THE NEC.

- R. ALL BRANCH CIRCUITS SHALL BE RUN CONCEALED IN EXISTING AND NEW WALLS. CUT AND PATCH EXISTING WALLS AND SURFACES AS REQUIRED.
- S. ALL D.C. WIRING SHALL BE #10 AWG MINIMUM.
- T. GROUND, PHASE AND NEUTRAL CONDUCTORS SHALL BE FIB-TAILED IN OUTLET BOXES OR MOUNTING ASSEMBLY FOR RECEPTACLES SO THAT GROUND AND ELECTRICAL SERVICE WILL NOT BE DISTURBED TO OTHER RECEPTACLES ON THE SAME MULTI-WIRE CIRCUIT IF RECEPTACLE IS REMOVED.

3. SECTION 16400 - SERVICE AND DISTRIBUTION

- A. ELECTRICAL SERVICE IS EXISTING TO THE BUILDING.
- B. DISTRIBUTE POWER AT 277/480V, 3 PHASE, 4 WIRE, FOR FLUORESCENT LIGHTING, AIR CONDITIONING, ELECTRIC HEATING, MOTOR CIRCUITS, AND 120/208V FOR RECEPTACLES, INCANDESCENT LIGHTS AND SMALL MOTORS.
- C. PANELBOARDS SHALL BE 277/480 VOLTS AND 120/208 VOLTS, THREE PHASE, EMPLOYING BREAKERS WITH A MINIMUM 10,000 SYMMETRICAL A.I.C. AT 120 VOLTS OR 240 VOLTS AND 14,000 SYMMETRICAL A.I.C. AT 277 VOLTS. FURNISH PANELBOARDS AS INDICATED:

MANUFACTURER	120/208V	277/480V
SQUARE D	NQ00	NEB
GENERAL ELECTRIC	AQ	AE
CUTLER-HAMMER	POW-R-LINE 1	POW-R-LINE-2
- D. PANELBOARDS SHALL BE FACTORY ASSEMBLED WITH BOLT-ON TYPE CIRCUIT BREAKERS. BUS SHALL BE ALUMINUM. PANELS 600 AMPS OR LARGER SHALL BE SQUARE-D I-LINE TYPE OR EQUAL. PROVIDE 50% GROUND BUS BAR. PANELS CONNECTED TO K-RATED TRANSFORMERS SHALL HAVE 200% RATED NEUTRAL BUS BARS.
- E. CIRCUIT NUMBERS ARE FOR GUIDANCE ONLY, BALANCE LOADS AS CLOSELY AS POSSIBLE. PROVIDE THREE (3) 1/2 INCH SPARE CONDUITS FROM EACH RECESSED PANEL TO THE CEILING SPACE.
- F. PROVIDE TYPED DIRECTORY FOR EACH PANELBOARD.
- G. PROVIDE SELF-COOLED, DRY TYPE TRANSFORMERS OF KVA, PHASE, 'K' AND VOLTAGE RATINGS AS INDICATED. TRANSFORMERS 15 KVA AND LESS SHALL HAVE A CLASS F INSULATION, 115 DEGREES C RISE. TRANSFORMERS ABOVE 15 KVA SHALL HAVE CLASS H INSULATION, 150 DEGREE C RISE. PROVIDE FOUR 2-1/2 TAPS BELOW AND TWO 2-1/2 TAPS ABOVE RATED PRIMARY VOLTAGE. TRANSFORMERS OF 150 KVA AND LESS SHALL BE RATED 45 DB, LARGER TRANSFORMERS SHALL BE RATED 55 DB. TRANSFORMER SHALL BE HEAVY-DUTY ELECTRIC COMPANY, GENERAL ELECTRIC, SORGEL, AGME OR HOWARD INDUSTRIES.

4. SECTION 16500 - LIGHTING

- A. SECTION A COMPLETE LIGHTING FIXTURE AT EACH LOCATION INDICATED ON THE DRAWINGS. FIXTURES SHALL BE AS SPECIFIED ON THE LIGHTING FIXTURE SCHEDULE ON THE DRAWINGS.
- B. EACH FIXTURE SHALL BE COMPLETELY EQUIPPED WITH LAMPS OF THE SIZE, TYPE, WATTAGE AND SHAPE INDICATED AND SPECIFIED. ALL LAMPS SHALL BE MANUFACTURED BY THE GENERAL ELECTRIC CO., PHILIPS LIGHTING CO., VENTURE LIGHTING INTERNATIONAL OR SYLVANIA/OSRAM CORPORATION. LUMEN OUTPUT AND LIFE OF LAMPS SHALL BE EQUIVALENT TO THE GENERAL ELECTRIC LAMP OF THAT TYPE AND WATTAGE. EXACT VOLTAGE SHALL BE CHECKED BEFORE ORDERING LAMPS.
- C. FLUORESCENT LAMPS SHALL BE GENERAL ELECTRIC RAPID START ENERGY SAVER 32 WATT F32T8/RS/RS/2550 INITIAL LUMENS UNLESS OTHERWISE SPECIFIED. ALL INCANDESCENT LAMPS SHALL BE INSIDE FROSTED, 125-130 VOLT, UNLESS OTHERWISE SPECIFIED.
- D. FLUORESCENT FIXTURES SHALL GENERALLY HAVE TWO, THREE, AND/OR FOUR LAMP BALLASTS. BALLASTS SHALL BE ELECTRONIC SOLID STATE TYPE CBM AND UL CERTIFIED, HIGH POWER FACTOR (PFC) TYPE WITH SOUND RATING 'A', DISCRETE TYPE AND PROVIDE PARALLEL OPERATION. BALLAST TRIAD SHALL NOT EXCEED 20%. BALLASTS SHALL CARRY A ONE YEAR WARRANTY WHICH INCLUDES BOTH PRODUCT REPLACEMENT AND INSTALLATION COST. BALLASTS SHALL BE MAGNETEK TRIAD OR APPROVED EQUAL OF ADVANCE, VALMONT, OR GE/MOTOROLA.
- E. ALL PLASTIC DIFFUSERS SHALL BE 100 PERCENT VIRGIN ACRYLIC (NOMINAL 1/25 INCH THICK) AND ALL LEXAN DIFFUSERS SHALL BE LEXAN TYPE MR-4000, OR EQUAL.
- F. THE CONTRACTOR SHALL CONSULT THE CEILING CONTRACTOR AND ARCHITECT'S DRAWINGS FOR APPROVED REFLECTED CEILING PLANS BEFORE ORDERING FIXTURES TO INSURE THAT ALL ARE COMPATIBLE WITH THE CEILING SYSTEM AND PROPERLY LOCATED. VERIFY THAT ADEQUATE CLEARANCE FOR INSTALLATION, MAINTENANCE, AND HEAT DISSIPATION IS AVAILABLE.
- G. PROVIDE A MINIMUM OF TWO (2) GALVANIZED STEEL #12 GAUGE HANGER WIRES (ALTERNATE CORNERS) ON ALL RECESSED FIXTURES.
- H. CONTRACTOR SHALL RELOCATE OR PROVIDE ADDITIONAL EXIT LIGHTS AND EMERGENCY BATTERY PACK WITH DUAL HEADS AS NEEDED TO MEET FIRE MARSHAL'S WALK-THROUGH AND ACCEPTANCE.

5. SECTION 16700 - COMMUNICATION SYSTEMS

- A. TELEPHONE SERVICE IS EXISTING TO THE BUILDING. PROVIDE WALL AND FLOOR TELEPHONE OUTLETS, CONDUITS, BACKBOARDS, SLEEVES, RECEPTACLES AND OTHER EQUIPMENT SHOWN ON THE DRAWINGS FOR USE BY OTHERS.
- B. PROVIDE NYLON RING WITH PULLSTRING TO CEILING SPACE ABOVE FOR COMMUNICATIONS OUTLETS. CABLEING AND DEVICES SHALL BE FURNISHED AND INSTALLED BY OTHERS.
- C. PROVIDE 3/4" PLYWOOD BACKBOARD FOR SERVICE ENTRANCE EQUIPMENT.

REVISIONS		REVISIONS	DESCRIPTION
REV#	DATE		

REVISIONS TO:

RMS LIFELINE

DETROIT

DRAWING NO.

E5

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