

# 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 1996 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 CONSTRUCTION POWER FOR ALL TRADES AS REQUIRED TO COMPLETE THE PROJECT.
- G. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND COMPLETED IN A FIRST-CLASS WORKMANLIKE 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 & FULL STATION . . . 46" AFF TO CENTER OF BOX
  - RECEPTACLES . . . . . 20" AFF TO CENTER OF BOX
  - TELEPHONE 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
- 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 WALL 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 EQUIPMENT 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 SCREW JOINTED CONDUIT FITTINGS. USE CAPPED BUSHINGS OR "RUSH PENNY" PLUGS.
- C. ALL OUTLET, SWITCH AND JUNCTION BOXES, SHALL BE SHERARDIZED OR GALVANIZED STAMPED STEEL BY STEEL CITY, RAGO, APPLETON, 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 THIN/THIN INSULATION, #12 AWG 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 ROMEX 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 FIRELLI, ROYAL, TRIANGLE OR EQUIVALENT.

| SYSTEM   | PHASE A | PHASE B | PHASE C | NEUTRAL | GROUND |
|----------|---------|---------|---------|---------|--------|
| 120/208V | BLACK   | RED     | BLUE    | WHITE   | GREEN  |

- G. THE COLOR CODING SYSTEM LISTED BELOW SHALL BE USED THROUGHOUT THE BUILDING.
- H. THE WIRE SIZE INDICATED IN THE HOMERUN SHALL BE USED THROUGHOUT THE CIRCUIT.
- I. PROVIDE DISCONNECT SWITCHES WHERE INDICATED AND AS REQUIRED. SWITCHES SHALL BE OF SIZE, NUMBER OF POLES AND FUSED OR NONFUSED, AS REQUIRED FOR JOB CONDITIONS AND THE NATIONAL ELECTRICAL CODE. ALL SAFETY SWITCHES SHALL BE NEMA 1 ENCLOSURE TYPE "HD" WITH INTERLOCKING COVER AND HANDLE, MANUFACTURED BY SQUARE "D" OR APPROVED EQUAL. PROVIDE NEMA 3R ENCLOSURES WHERE REQUIRED.
- J. 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.
- K. 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 1911. THREE AND FOUR-WAY SWITCHES SHALL BE OF THE SAME MANUFACTURER AND GRADE.
  - 2) RECEPTACLES: ARROW HART 5362 FOR 20 AMPERES. GFCI SHALL BE #6FC520 RATED 20 AMPERE, 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 59. ARROW HART TELEPHONE BLANK PLATES 514.
- L. MOUNT WEATHERPROOF DEVICES IN CAST METAL BOXES WITH GASKETED, SPRING-HINGED LID-TYPE LOCKING COVERS HAVING CORROSION-RESISTANT FINISH.

- M. THE ENTIRE ELECTRICAL SYSTEM SHALL BE SOLIDLY GROUNDED INCLUDING MAIN SERVICE EQUIPMENT, DISCONNECT SWITCHES, WIRING TROUSHS AND PULL BOXES, CONDUIT SYSTEM, OUTLET BOXES, MOTORS, ELECTRIC HEATING EQUIPMENT, LIGHTING FIXTURES, TRANSFORMERS, EMERGENCY SYSTEMS, UPS SYSTEMS, AND FIRE ALARM SYSTEMS.
- N. THE MAIN SERVICE GROUNDING SYSTEM SHALL CONSIST OF THREE BRANCHES PER NEC ARTICLE 250. THE GROUND SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS.
- O. PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN ALL BRANCH CIRCUITS AND FEEDERS SIZED IN ACCORDANCE WITH THE NEC.
- P. ALL BRANCH CIRCUITS SHALL BE RUN CONCEALED IN EXISTING AND NEW WALLS. CUT AND PATCH EXISTING WALLS AND SURFACES AS REQUIRED.
- Q. GROUND, PHASE AND NEUTRAL CONDUCTORS SHALL BE PIG-TAILED IN OUTLET BOXES OR MULTI-OUTLET 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 IN THE MAIN ELECTRIC ROOM. COORDINATE ALL NEW WORK WITH THE POWER COMPANY.
- B. CIRCUIT NUMBERS ARE FOR GUIDANCE ONLY. BALANCE LOADS AS CLOSELY AS POSSIBLE. PROVIDE THREE (3) 3/4 INCH SPARE CONDUITS FROM EACH RECESSED PANEL TO THE CEILING SPACE.
- C. PROVIDE UPDATED, TYPED DIRECTORIES IN PANELBOARDS.

**4. SECTION 16500 - LIGHTING**

- A. PROVIDE 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/SF41R5/2250 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 (90%) TYPE WITH SOUND RATING "A", DISCRETE TYPE AND PROVIDE PARALLEL OPERATION. BALLAST THD 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 SEMOTOROLA.
- 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 PROVIDE ADDITIONAL EXIT LIGHTS AND EMERGENCY BATTERY PACK WITH DUAL HEADS AS NEEDED TO MEET FIRE MARSHAL'S WALK-THROUGH AND ACCEPTANCE.
- I. CONNECT EXIT LIGHTS, EMERGENCY BATTERY UNITS AND NIGHT LIGHTS (NL) TO UNSWITCHED PORTION OF LIGHTING CIRCUIT SERVING RESPECTIVE AREA.
- J. CONTRACTOR SHALL CLEAN, RELAMP, REPAIR OR REPLACE ALL BROKEN OR DEFECTIVE BALLASTS AND PARTS OF EXISTING LIGHTING FIXTURES.

**5. SECTION 16700 - COMMUNICATION SYSTEMS**

- A. TELEPHONE SERVICE IS EXISTING TO THE SPACE.
- B. PROVIDE WALL OUTLETS IN 4" SQUARE 2-1/8" DEEP BOX WITH RAISED SINGLE GANG COVERS EQUIPPED WITH BLANK STAINLESS STEEL DEVICE PLATES. EXTEND 3/4" EMPTY CONDUIT FROM EACH OUTLET TO THE CEILING SPACE AND TERMINATE WITH INSULATED BUSHINGS. PROVIDE NYLON PULL WIRE IN ALL CONDUITS LEFT EMPTY.

**6. SECTION 16620 - STAND-BY EMERGENCY GENERATOR**

- A. ONAN MODEL 50D6CA STAND-BY GENERATING SYSTEM SHALL INCLUDE AN ELECTRIC PLANT RATED FOR CONTINUOUS STAND-BY SERVICE AT 50 KW @ 208 VOLTS, 3 PHASE, 60 CYCLE. THE SYSTEM SHALL BE A PACKAGE OF NEW AND CURRENT EQUIPMENT CONSISTING OF:
  - 1. A DIESEL ENGINE DRIVEN ELECTRIC PLANT.
  - 2. ENGINE MOUNTED START/STOP CONTROL SYSTEM.
  - 3. AUTOMATIC LOAD TRANSFER CONTROLS TO PROVIDE AUTOMATIC STARTING AND STOPPING, AND SWITCHING OF THE LOADS.
  - 4. MOUNTED ACCESSORIES INDICATED.
  - 5. THE SYSTEM SHALL BE BUILT, TESTED, AND SHIPPED BY A MANUFACTURER'S AUTHORIZED REPRESENTATIVE, WHO HAS BEEN REGULARLY ENGAGED IN THE PRODUCTION OF SUCH EQUIPMENT FOR THE PAST FIVE YEARS AND WHO HAS PARTS AND SERVICE FACILITIES LOCALLY SO THERE IS ONE SOURCE OF SUPPLY AND RESPONSIBILITY.
  - 6. APPROVED MANUFACTURERS ARE ONAN, KOHLER AND CATERPILLAR.
- B. THE GENERATOR SHALL OPERATE ON #2 DIESEL FUEL, FOUR-CYCLE, WATER COOLED WITH MOUNTED RADIATOR FAN AND PUMP. THE ENGINE SHALL HAVE 24 VOLT, D.C. BATTERY CHARGING AUTOMATICALLY CONTROLLED BY A TWO-STEP VOLTAGE REGULATOR. STARTING SHALL BE BY 24 VOLT ELECTRIC STARTER. ENGINE SHALL BE PROVIDED WITH WATER JACKET HEATER.
- C. THE ENGINE INSTRUMENT PANEL SHALL CONTAIN AN OIL PRESSURE GAUGE, WATER TEMPERATURE GAUGE AND BATTERY CHARGE RATE AMMETER.
- D. PROVIDE A NEMA 3R WEATHERPROOF ENCLOSURE WITH ACCESS PANELS. GENERATOR BATTERIES AND CONTROLS SHALL BE PROTECTED BY THE ENCLOSURE.
- E. PROVIDE A REMOTE ANNUNCIATOR PANEL. SEE FLOOR PLAN FOR LOCATION.
- F. AUTOMATIC TRANSFER SWITCH AND CONTROLLER SHALL BE BY ONE MANUFACTURER.
  - 1. TRANSFER SWITCH SHALL BE MANUFACTURED BY ONAN, RUSSELL, ASCO OR EQUAL.
  - 2. UPON POWER LINE OUTAGE, AUTOMATICALLY START THE GENERATOR AFTER A 1-10 SECOND DELAY (FACTORY SET 5 SECONDS), AND WHEN PLANT COMES UP TO VOLTAGE, DISCONNECT THE LOAD CIRCUITS FROM THE MAIN LINE AND TRANSFER THEM TO THE STAND-BY PLANT'S OUTPUT.
  - 3. UPON POWER LINE RETURN, AUTOMATICALLY START THE GENERATOR AFTER 2-10 MINUTE DELAY (FACTORY SET 2 MINUTES), AND A FIXED DELAY OF 5 MINUTES UNLOADED RUNNING TO COOL THE GENERATOR PRIOR TO STOP.
  - 4. TRANSFER SWITCH SHALL BE 3 POLE.
  - 5. PLANT EXERCISER TO AUTOMATICALLY START THE GENERATOR AT REGULAR INTERVALS WITH 'LOAD' AND 'NO LOAD' SELECTION SHALL BE PROVIDED.
  - 6. PROVIDE A TWO HOUR FULL FIELD LOAD TEST PRIOR TO FINAL ACCEPTANCE OF THE GENERATOR.

**7. SECTION 16721 - FIRE ALARM SYSTEM**

- A. PROVIDE AN AUTOMATIC FIRE DETECTION AND EVACUATION SYSTEM COMPLETE INCLUDING ALL WIRING, CONDUIT AND BOXES, CONTROLS, AUTOMATIC AND MANUAL INITIATION DEVICES, ANNUNCIATORS, AUDIBLE AND VISUAL DEVICES.
- B. THE RMS LIFE LINE SYSTEM SHALL MATCH THE EXISTING BUILDING FIRE ALARM SYSTEM. THE EXISTING BUILDING SYSTEM SHALL MONITOR THE NEW SYSTEM AND SHALL INITIATE ALL WARNING DEVICES THROUGHOUT THE BUILDING, LIGHT FIRE AND ZONE INDICATION ON THE MAIN CONTROL PANEL, TRANSMIT AN ALARM INDICATION TO THE FIRE DEPARTMENT WHEN THE NEW SYSTEM IN THE RMS LIFE LINE TENANT IS ACTIVATED.
- C. PROVIDE ADDITIONAL INITIATION AND INDICATING DEVICES AS NEEDED TO MEET FIRE MARSHAL'S WALK-THROUGH AND ACCEPTANCE.
- D. PROVIDE A UL LISTING FOR THE COMPLETE INSTALLED SYSTEM. CERTIFICATION SHALL BE BY AN INDEPENDENT FIRE ALARM SERVICE COMPANY.
- E. ANNUNCIATION SHALL BE BY FLOOR, ZONE AND TYPE OF DEVICE AT THE SYSTEM CONTROL PANEL AND AT EACH REMOTE ANNUNCIATOR.
- F. SYSTEM SHALL PROVIDE SIGNALING FOR THE HANDICAPPED IN ACCORDANCE WITH MARYLAND BUILDING CODE FOR THE HANDICAPPED WITH THE ADA. SYSTEM SHALL COMPLY WITH BOCA, NFPA, ANSIA/ASME AND ALL OTHER APPLICABLE CODES AND REGULATIONS.
- G. SYSTEM OPERATION:
  - 1) WHEN ANY AREA OR ROOM DETECTOR OR MANUAL PULL STATION IS ACTIVATED THE SYSTEM SHALL INITIATE ALL WARNING DEVICES THROUGHOUT THE BUILDING, LIGHT FIRE AND ZONE INDICATION ON THE MAIN CONTROL PANEL AND REMOTE CONTROL PANEL, TRANSMIT AN ALARM INDICATION TO THE FIRE DEPARTMENT VIA EXISTING FIRE ALARM SYSTEM.
  - 2) WHEN A BUILDING DEVICE IS ACTIVATED THE BUILDING SYSTEM SHALL INITIATE ALL WARNING DEVICES THROUGHOUT THE NEW TENANT SPACE.
- H. ALARM MONITORING, SIGNALING AND CONTROL FUNCTIONS SHALL BE ACCOMPLISHED BY A SYSTEM COMPATIBLE WITH THE EXISTING BUILDING FIRE ALARM SYSTEM.
- I. INSTALL FIRE ALARM AND DETECTION SYSTEM WIRING IN CONDUIT 1/2 INCH MINIMUM. MINIMUM WIRE SIZE SHALL BE NO. 18 AWG SOLID COPPER FOR INITIATION AND ANNUNCIATOR CIRCUITS, NO. 14 AWG SOLID COPPER FOR INDICATING CIRCUITS, AND NO. 12 AWG SOLID COPPER FOR 120 VOLT CIRCUITS.
- J. MAKE ALL MODIFICATIONS AND ADDITIONS AS NECESSARY TO THE EXISTING FIRE ALARM SYSTEM.

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TENANT RENOVATIONS FOR:  
**RMS LIFE LINE**  
 WALL STREET AND WESLEY AVENUE  
 NORWOOD, OHIO

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| DATE        | 9/26/01  | DRAWING NO.   | E4         |
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| DESIGNED BY | MJB      | FOR THE OWNER | 2011215.00 |
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