

4. THE ELECTRICAL INSTALLATION WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES, LAWS AND ORDINANCES APPLICABLE TO ELECTRICAL WORK.
5. THE NOTE, SPECIFICATION OR CODE WHICH PRESCRIBES AND ESTABLISHES THE HIGHEST STANDARD OF PERFORMANCE, SHALL PREVAIL IN THE EVENT OF ANY CONFLICT OR INCONSISTENCY BETWEEN THEM SHOWN ON THE PLANS AND/OR SPECIFICATIONS.
6. ALL MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER OR HIS REPRESENTATIVE. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO FAULTY WORKSMANSHIP, MATERIAL OR EQUIPMENT, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE PROBLEM AT NO ADDITIONAL COST TO THE OWNER.
7. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITER'S LABORATORIES.
8. ALL WORK TO BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT, MECHANICAL APPEARANCE WHEN COMPLETED.
9. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER TYPE "THWN" #12 AWG SOLID AND #10 AWG SOLID, #8 AWG AND LARGER STRANDED.
10. UPON COMPLETION OF THE WORK, THE INSTALLATION SHALL BE FREE FROM GROUNDS AND SHORT CIRCUITS.
11. ELECTRICAL CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS TO THE OWNER UPON COMPLETION OF THE JOB.
12. ALL STARTERS FURNISHED WITH THREE (3) OVERLOAD RELAYS.
13. CONDUIT TRADE SIZES 1-1/4" AND LARGER, SHALL BE TERMINATED WITH GROUNDING BUSINGS. GROUNDING BUSINGS SHALL BE BONDED TO GROUND THROUGH IN CONDUIT. WHEN NO GROUND CONDUITOR EXIST, THE BUSING SHALL BE BONDED TO THE PANELBOARD GROUND BAR WITH A #10 AWG THWN CU CONDUCTOR MINIMUM SIZE.

3.1. GENERAL REQUIREMENTS

3.1.1. INTERIOR ELECTRICAL DISTRIBUTION (600V OR LESS) INTERIOR LIGHTING AND POWER LOADS SHALL BE SERVED AT THE HIGHEST VOLTAGE PRACTICABLE.

3.1.2. LIGHT FIXTURE TYPE—FLOURESCENT LIGHTING SHALL BE 1-8. ELECTRONIC BALLAST AND SUPPLIED WITH 277/480V SYSTEM. EXEMPTION: MAGNETIC BALLAST SHALL BE USED IN OPERATING ROOMS, DELIVERY ROOMS, LABORATORIES, SPECIAL PROCEDURE ROOMS, MRI AREAS, MEDICAL EQUIPMENT REPAIR AND TEST ROOMS.

3.1.3. DRY-TYPE TRANSFORMERS SHALL BE UTILIZED TO PROVIDE (120/208) POWER FOR INCANDESCENT, RECEPTACLE AND SMALL EQUIPMENT LOADS. ALL DRY-TYPE TRANSFORMERS SHALL BE 1-4, K RATED TRANSFORMERS AND WIRED AS SEPARATELY SERVED SYSTEM.

3.1.4. SWITCHGEAR AND SWITCHBOARDS SHALL BE UL LISTED, CONTAIN ELECTRONICALLY OPERATED CIRCUIT BREAKERS AND BE OF DRAW-OUT, SOLID STATE, ADJUSTABLE TRIP CIRCUIT BREAKER.

3.1.5. ALL BRANCH CIRCUIT DISTRIBUTION PANELS SHALL BE OF THE CIRCUIT BREAKER TYPE.

3.1.6. SURGE PROTECTION DEVICE (SPD) AND GROUND FULT PROTECTION SHALL BE PROVIDED WHERE REQUIRED. ALL PROTECTIVE DEVICES SHALL BE COORDINATED FOR SELECTIVE OVERLOAD, SHORT CIRCUIT AND GROUND FAULT PROTECTION.

3.1.7. LOCATION AND SPACE REQUIREMENTS—PIPES AND OTHER EQUIPMENT, FOREIGN TO THE ELECTRICAL EQUIPMENT, SHALL NOT BE LOCATED IN, ENTER OR PASS THROUGH SUCH SPACES OR ROOMS AT ALL TIMES THE PROVISIONS FOR CLEAR WORKING SPACE IN ARTICLE 110.26 (A) (1), NFPA 70 MUST BE MET.

3.1.8. CONDUIT, CABLE TRAY AND WIRE-IN WALL WIRING SHALL BE INSULATED COPPER IN CONDUITS AND INSTALLED PER NFPA 70 AND 450-501. METAL ENCLOSED FEEDERS, PULG-IN BUSWAYS OR SURFACE METAL RACINAY MAY BE USED.

3.1.9. GROUNDING CONDUCTORS—A GREEN INSULATED COPPER GROUND CONDUCTOR SHALL BE RUN WITH ALL BRANCH CIRCUITS.

3.1.10. CRITICAL CARE PANELBOARDS—BRANCH CIRCUIT PANELS SERVING CRITICAL CARE AREAS SHALL BE LOCATED IN THE VICINITY OF THEIR LOADS. UNDER NO CIRCUMSTANCES, SHALL A PANELBOARD BE PLACED IN A HALLWAY.

3.1.11. CRITICAL CARE WIRING—IN ALL PATIENT CARE AREAS, THE LIFE SUPPORT AND CRITICAL CARE BRANCH CIRCUITS OF ESSENTIAL ELECTRICAL SYSTEM SHALL CONSIST OF INSULATED CONDUCTORS INSTALLED IN A SEPARATE METALLIC RACEWAY. OPEN CABLE TRAYS ARE NOT TO BE USED IN THE MAIN SWITCHROOM OR GENERATOR ROOM. CONDUCTORS INSTALLED TO FURNISH ENERGY POWER SHALL NOT BE INSTALLED IN THE SAME RACEWAY WITH NORMAL POWER CONDUCTORS. ALL NORMAL AND EMERGENCY POWER JUNCTION BOXES, PULL BOXES AND SIMILAR PARTS SHALL BE READILY ACCESSIBLE WITH CLEARLY IDENTIFIED ACCESS PANELS FOR PROPER MAINTENANCE AND OPERATION OF THE ELECTRICAL DISTRIBUTION SYSTEM.

THRU 3.1.3. (NOT APPLICABLE)

3.1.4. MAIN UTILITY ROOM AND GENERATOR ROOM LIGHTING—LIGHTING IN THE MAIN ELECTRICAL SWITCHROOM SHALL BE FLOURESCENT TR LIGHTING WITH WIRE GUARD AND ELECTRONIC BALLAST TO FACILITATE EASE OF SWITCHING AND REPAIRS.

3.1.5. ESSENTIAL ELECTRICAL SYSTEMS FOR HEALTHCARE OCCUPANCIES—THE ESSENTIAL ELECTRICAL SYSTEM SHALL CONSIST OF AT LEAST TWO (2) (N+1) DIESEL ENGINE GENERATOR SETS, AUTOMATIC TRANSFER SWITCHES WITH MAINTENANCE BYPASS CAPABILITY (FOR ESSENTIAL LOADS), USER SELECTABLE PRIORITY LOAD MANAGEMENT CONTROL SYSTEMS AND PARALLELING SWITCHGEAR.

3.1.5.1. THE ESSENTIAL ELECTRICAL SYSTEM SHALL NOT BE PROVIDED WITH GROUND FAULT PROTECTION DEVICES. THE GENERATOR CIRCUIT BREAKER AND ESSENTIAL ELECTRICAL MAIN DISTRIBUTION BOARD CIRCUIT BREAKER WILL BE PROVIDED WITH GROUND FAULT DETECTION FEATURES TO INDICATE A GROUND FAULT AND SOUND AN AUDIBLE ALARM BUT NOT TRIP THE BREAKER.

3.1.5.1.4. (NOT APPLICABLE)

3.1.5.3.5. AUTOMATIC TRANSFER SWITCH (ATS)—ALL ATS'S SHALL BE DOUBLE-THROW, A POLE WITH DRAW-OUT CONSTRUCTION AND GROUNDNED AS SEPARATELY SERVED SYSTEM. ALL CONTACTS SHALL HAVE VIEWING PORTS FOR EASE OF INSURED AND CONTACT INSPECTION. ALL ATS'S SHALL BE UL LISTED AS AN ASSEMBLY AND SHALL BE FACTORY ASSEMBLED (TO INCLUDE THE ITS ENCLOSURE). ATS'S SHALL HAVE INDICATOR LIGHTS TO INDICATE NORMAL OR EMERGENCY POWER, NORMAL OR IN COLOR) AND EMERGENCY POWER (RED IN COLOR). WHERE MULTIPLE ATS'S ARE EMPLOYED, THE PHYSICAL ARRANGEMENT, LIGHTS AND INDICATORS SHALL BE ARRANGED ALKO SO AS NOT TO CONFUSE THE OPERATOR WHEN VISUALLY SCANNING ALL SYSTEMS.

3.1.5.3.5.1. ALL ESSENTIAL LOADS SHALL HAVE ATS EQUIPPED WITH A LOAD BREAKER BY-PASS ISOLATION SWITCH AND MUST BE INITIATED WITH NOT MORE THAN TWO MOVEMENTS OF THE HAND TO EITHER POSITION, REGARDLESS OF THE POSITION OR CONDITION OF THE ATS TO MAINTAIN NORMAL OR EMERGENCY POWER, WHILE THE ATS IS BEING REPAIRED OR MAINTAINED.

3.1.5.3.5.2. LOAD BY-PASS MUST BE ACHIEVED WITH A LOAD INTERRUPTION OF NOT MORE THAN 10 CYCLE HERTZ.

3.1.5.3.5.3. ATS'S FEEDING HIGH EFFICIENCY MOTORS RATED 25HP OR LARGER, SHALL BE PROVIDED WITH AN IN-PHASE MONITOR TO PREVENT AN OUT OF PHASE TRANSFER, THE IN-PHASE TRANSFER SHALL BE ACHIEVED WITHOUT CONTROL OF FREQUENCY OF EITHER POWER. SWITCH TO PREVENT EXCESSIVE MOTOR IN-RUSH CURRENT, CLOST TRANSITION SWITCHES SHALL NOT BE UTILIZED. BY-PASS ISOLATION SWITCH FOR THE ATS SERVING NON-ESSENTIAL LOADS IS OPTIONAL.

3.1.5.3.5.4. EACH ATS SHALL BE EQUIPPED WITH A MANUAL "TEST" SWITCH. EACH "TEST" SWITCH SHALL SIMULATE A NORMAL POWER SOURCE FAILURE AND AUTOMATICALLY CAUSE THE ENGINE GENERATOR SET TO START, ATAIN RATED FREQUENCY AND VOLTAGE, AND TRANSFER ASSOCIATED ELECTRICAL SYSTEM LOADS FROM THE NORMAL SOURCE TO THE EMERGENCY SOURCE FOR A MINIMUM OF ONE HOUR AT THE END OF THE TEST, THE ASSOCIATED ELECTRICAL LOADS SHALL TRANSFER BACK TO THE NORMAL POWER SOURCE. THE ENGINE GENERATOR WILL ENTER INTO "COOLDOWN" MODE AND SHUT DOWN. IF AT ANY TIME DURING THE TEST, THE GENERATOR EXPERIENCES DIFFICULTY, THE ASSOCIATED ELECTRICAL LOAD WILL TRANSFER BACK TO THE NORMAL POWER SOURCE IMMEDIATELY. DURING THE TEST RUN, THE ESSENTIAL HOSPITAL LOADS WILL CONTINUE TO BE SERVED FROM THE NORMAL POWER SUPPLY WITHOUT EXPERIENCING INTERRUPTION.

3.1.5.3.5.5. DEPENDING UPON THE NUMBER OF ATS'S, A GROUP OF SWITCHES MAY BE INSTALLED AT A CENTRALIZED LOCATION, IN ORDER FOR THE OPERATOR TO CONDUCT THE TEST AT A SINGLE POINT. THESE SWITCHES SHALL BE WIRED IN SERIES WITH ITS CORRESPONDING ATS.

3.1.5.3.6. (NOT APPLICABLE)

[illegible]

AS-BUILTS 10/4/10