

ELECTRICAL SPECIFICATIONS CONT'D

4-DISTRIBUTION EQUIPMENT

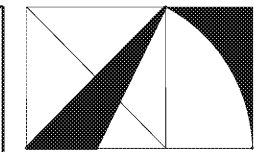
- 4.1 CIRCUIT BREAKERS**
- A. CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, MOLDED CASE, THERMAL MAGNETIC TYPE BOLTED TO THE BUS. MULTI-POLE BREAKERS SHALL BE COMMON TRIP AND COMMON RESET TYPE; TIE HANDLE CONNECTIONS ARE NOT ACCEPTABLE. ALL CIRCUIT BREAKERS 110A AND LARGER SHALL BE EQUIPPED WITH A "LOCK-OUT/TAG-OUT" DEVICE.
 - B. CIRCUIT BREAKERS RATED 400A AND HIGHER SHALL UTILIZE AN ELECTRONIC, ADJUSTABLE TRIP MECHANISM. CIRCUIT BREAKERS RATED 400A AND HIGHER SHALL BE RATED AT 100% OF THE LISTED AMPERAGE.
 - C. CIRCUIT BREAKERS RATED 1200A AND HIGHER SHALL INCORPORATE AN INSTANTANEOUS TRIP SETTING, AN ENERGY-REDUCING MAINTENANCE SWITCHING WITH LOCAL STATUS INDICATOR SETTING, AND AN ENERGY-REDUCING ACTIVE ARC FLASH MITIGATION SYSTEM SETTING.
 - D. ALL ELECTRONIC TRIP CIRCUIT BREAKERS SHALL INCLUDE THE FOLLOWING ADJUSTABLE SETTINGS:
 - 1. INSTANTANEOUS.
 - 2. SHORT TIME DELAY.
 - 3. SHORT TIME PICKUP.
 - 4. LONG TIME DELAY.
 - 5. LONG TIME PICKUP.
 - E. ALL CIRCUIT BREAKERS INDICATED TO PROVIDE GFI PROTECTION SHALL INCLUDE THE FOLLOWING ADJUSTABLE SETTINGS:
 - 1. GROUND FAULT DELAY.
 - 2. GROUND FAULT PICKUP.
- 4.2 DISCONNECT SWITCHES**
- A. ACCEPTABLE MANUFACTURERS:
 - 1. SQUARE D.
 - 2. SIEMENS.
 - 3. GENERAL ELECTRIC.
 - 4. CUTLER HAMMER.
 - B. DISCONNECT SWITCHES SHALL BE HEAVY DUTY FUSIBLE SAFETY SWITCH TYPE WITH CLASS RK5 FUSES, WHERE FUSES ARE INDICATED.
 - 1. FURNISH AN EQUIPMENT GROUNDING CONDUCTOR LUG BONDED TO THE SWITCH ENCLOSURE.
 - 2. FURNISH NEMA TYPE 1 ENCLOSURE FOR ALL INTERIOR DRY LOCATIONS, AND NEMA TYPE 3R FOR ALL DAMP, WET, OR EXTERIOR LOCATIONS UNLESS OTHER TYPES ARE INDICATED ON THE DRAWINGS.
 - C. LOCATE SWITCHES TO PROVIDE FULL ACCESSIBILITY AND WORKING CLEARANCES REQUIRED BY THE NEC. LOCATE ADJACENT TO EQUIPMENT SERVED. MOUNT SWITCH DIRECTLY TO STRUCTURE OR TO METAL CHANNEL DEPENDING UPON FIELD CONDITIONS. MOUNT SWITCH HANDLE BETWEEN 36" AND 60" ABOVE FINISHED FLOOR.

5-LIGHTING

- 5.1 LUMINAIRES AND LUMINAIRE COMPONENTS GENERAL**
- A. PLASTIC PARTS: HIGH RESISTANCE TO YELLOWING AND OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, AND UV RADIATION.
 - B. LENSES AND REFRACTORS: MATERIALS AS INDICATED. USE HEAT-AND AGING-RESISTANCE, RESILIENT GASKETS TO SEAL AND CUSHION LENS AND REFRACTOR MOUNTING IN LUMINAIRE DOORS.
 - C. FIXTURES SHALL BE AS INDICATED IN SCHEDULE, NO SUBSTITUTIONS.
- 5.2 INSTALLATION**
- A. SET UNITS PLUMB, SQUARE, LEVEL, AND SECURE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE SUPPORT WIRES INDEPENDENT TO CEILING THAT COMPLY WITH IBC SEISMIC INSTALLATION PROCEDURE REQUIREMENTS.
 - B. LAMP LUMINAIRES WITH INDICATED LAMPS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. REPLACE MALFUNCTIONING LAMPS.
- 5.3 FIELD QUALITY CONTROL**
- A. INSPECT EACH INSTALLED UNIT FOR DAMAGE. REPLACE DAMAGED LUMINAIRES AND COMPONENTS.
 - B. TESTS AND OBSERVATIONS: VERIFY NORMAL OPERATION OF LIGHTING UNITS AFTER INSTALLING LUMINAIRES AND ENERGIZING CIRCUITS WITH NORMAL POWER SOURCE.
- 5.4 ADJUSTING AND CLEANING**
- C. CLEAN UNITS AFTER INSTALLATION. USE METHODS AND MATERIALS RECOMMENDED BY MANUFACTURER.

6-FIRE ALARM

- 6.1 DESCRIPTION:**
- A. THE FIRE ALARM SYSTEM SHALL COMPLY WITH REQUIREMENTS OF NFPA STANDARD NO. 72 FOR PROTECTED PREMISES SIGNALING SYSTEMS EXCEPT AS MODIFIED AND SUPPLEMENTED BY THIS SPECIFICATION. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED AND MONITOR THE INTEGRITY OF ALL CONDUCTORS. CONTRACTOR SHALL PROVIDE ALL MATERIALS, CONDUIT AND WIRING FOR A COMPLETE AND WORKING FIRE ALARM SYSTEM. FIRE ALARM SYSTEM SHALL BE DESIGNED BY QUALIFIED DESIGN SPECIALIST FOR THE MANUFACTURER OF THE FIRE ALARM SYSTEM AND THE MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE DETAIL DRAWINGS INDICATING PARTS, MATERIALS, PLAN DRAWINGS, RISERS AND WIRING.
- 6.2 SCOPE:**
- A. PROVIDE ALL NEW PARTS, MODULES AND ACCESSORIES AS REQUIRED. THE FINISHED SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS AND DRAWINGS AND SHALL BE COMPLETE.
- 6.3 BASIC PERFORMANCE:**
- A. ALARM, TROUBLE AND SUPERVISORY SIGNALS FROM ALL INTELLIGENT ADDRESSABLE REPORTING DEVICES SHALL BE ENCODED ON TWO CLASS A (NFPA STYLE 6, 7) SIGNALING LINE CIRCUIT (SLC).
 - B. INITIATING DEVICE CIRCUITS (IDCS) SHALL BE WIRED CLASS A (NFPA STYLE D).
 - C. NOTIFICATION APPLIANCE CIRCUITS SHALL BE WIRED CLASS B (NFPA STYLE Y) OR CLASS A (NFPA STYLE Z).
 - D. BUILT-IN HORN STROBE SYNCHRONIZATION W/ SELECTIVE SILENCE.
 - E. DIGITIZED ELECTRONIC SIGNALS SHALL EMPLOY CHECK DIGITS OR MULTIPLE POLLING.
 - F. A SINGLE GROUND OR OPEN ON THE SYSTEM SIGNALING LINE CIRCUIT (SLC) SHALL NOT CAUSE SYSTEM MALFUNCTION, LOSS OF OPERATING POWER OR THE ABILITY TO REPORT AN ALARM.
 - G. ALARM SIGNALS ARRIVING AT THE MAIN FACP SHALL NOT BE LOST FOLLOWING A POWER FAILURE (OR OUTAGE) UNTIL THE ALARM SIGNAL IS PROCESSED AND RECORDED.
- 6.4 BASIC SYSTEM FUNCTIONAL OPERATION:**
- A. WHEN A FIRE ALARM CONDITION IS DETECTED AND REPORTED BY ONE OF THE SYSTEM INITIATING DEVICES THE FOLLOWING FUNCTIONS SHALL IMMEDIATELY OCCUR:
 - 1. THE SYSTEM ALARM LED SHALL FLASH.
 - 2. A LOCAL PIEZO ELECTRIC SIGNAL IN THE CONTROL PANEL SHALL SOUND.
 - 3. A 80- CHARACTER, BACKLIT LCD DISPLAY OR EQUIVALENT SHALL INDICATE ALL INFORMATION ASSOCIATED WITH THE FIRE ALARM CONDITION, INCLUDING THE TYPE OF ALARM POINT AND ITS LOCATION WITHIN PROTECTED PREMISES.
 - 4. PRINTING AND HISTORY STORAGE EQUIPMENT SHALL LOG THE INFORMATION ASSOCIATED WITH EACH NEW FIRE ALARM CONTROL PANEL CONDITION, ALONG WITH TIME AND DATE OF OCCURRENCE.
 - 5. ALL SYSTEM OUTPUT PROGRAMS ASSIGNED VIA CONTROL-BY-EVENT EQUATIONS TO BE ACTIVATED BY THE PARTICULAR POINT IN ALARM SHALL BE EXECUTED, AND THE ASSOCIATED SYSTEM OUTPUTS (ALARM NOTIFICATION APPLIANCES AND/OR RELAYS) SHALL BE ACTIVATED.
- 6.5 TESTING:**
- A. TESTING: SYSTEMS AND COMPONENTS SHALL BE TESTED AND DEMONSTRATED TO MEET FULL FUNCTIONAL REQUIREMENTS. SPECIFIC TESTS SHALL BE PERFORMED AS SPECIFIED, INDICATED, OR REQUIRED.

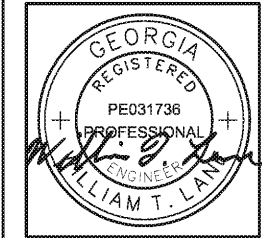


THE ARCHITECTURE GROUP, INC.

375 Peachtree St.
Atlanta, GA 30303
Phone: (678) 222-0375
Fax: (678) 222-0384
tag@architecturegroup.com

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ELECTRICAL SPECIFICATIONS

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SPENCER BRISTOL ENGINEERING, INC.
A Gray Company
3577 Parkway Lane, Suite 250
Peachtree Corners, Georgia 30092
Tel. 770.414.1628 Fax 770.414.6024
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