

ELECTRICAL SYSTEMS DESCRIPTIONS

General Criteria and Specification Listings

The electrical systems installation will meet the requirements of the following codes and standards:

- International Building Code, 2018 Edition, with latest Georgia Amendments
- National Electrical Safety Code (ANSI-C2).
- National Electrical Code (NFPA 70).
- Life Safety Code (NFPA 101).
- The International Energy Conservation Code, 2015 Edition with latest Georgia Amendments.
- ADA, Americans with Disabilities Act Guidelines.
- State and local ordinances governing electrical work.
- The Georgia Accessibility Code for Buildings and Facilities

All equipment, devices, and fixtures will conform to the standards of the following where such standards are applicable:

- National Electrical Manufacturers Association.
- Underwriters' Laboratories, Inc.
- Institute of Electrical and Electronics Engineers.
- American National Standards Institute.
- National Fire Protection Association.

All existing electrical systems and equipment will be demolished.

Refer to architectural drawings for building arrangement, size and functions. In addition to the services indicated on the plans, the following project descriptions will apply.

Electrical Exterior Distribution

The existing electrical service and distribution systems will be replaced with a new 120/208 volts, three phase, four wire, with solidly-grounded neutral service. Service laterals will be coordinated with local utility company. The service and distribution design will be based upon an estimated main service capacity of 2,000 Amps.

The main service switchboard and associated distribution equipment basis of design will be products of Cutler-Hammer, General Electric, Siemens, or Square-D. Panelboards will be the dead front, safety enclosed type with bolted-on molded case circuit breakers.

Overcurrent protection devices will be selected based on available fault current interrupting capability, and will be coordinated with downstream feeder devices.

Exterior Lighting

Building mounted fixtures and site lighting fixtures will be provided adjacent to each entryway and in the parking area. Lighting fixtures for the exterior will be high efficiency type, and will be cut-off type to minimize light pollution.

Time clocks and photocells will be provided to control all exterior lighting, including building mounted fixtures.

Interior Lighting

Building office and support area standard lighting fixtures will be LED troffers and high-quality event lighting for the Showroom space. Warehouse area fixtures will be high-bay LED type.

Fixtures will be coordinated with Architectural features and locations will be evaluated to provide optimum lighting uniformity and to minimize shadowing. Generally, Illuminating Engineering Society guidelines will be followed.

Interior lighting circuits will be provided with local wall switches for control of each individual room or functional space. Automatic occupancy sensing will be provided in common areas.

Emergency Lighting

Lighting fixtures will be provided with battery-backup ballast modules for emergency lighting where required for illumination of paths of egress. Exit signs will be located as required and will be provided with self-contained battery-backup. These fixtures will be connected to dedicated circuits with lock-tab devices on circuit breakers.

Raceway Systems and Conductors

Wiring systems will be installed in metallic raceways, unless otherwise indicated. Raceways and wiring devices in finished spaces are to be concealed unless otherwise indicated.

Raceways will be electrical metallic tubing (EMT) in interior spaces. PVC will be used only for below grade or slab locations.

At the Contractor's option, Type MC cable may be used for branch circuiting in areas with accessible ceilings and metal stud drywall partition construction or other areas as indicated on the plans, for 20A, 120V branch circuits except homeruns, where permitted by the National Electrical Code. Outer jacket will be impervious metal sheath without an overall nonmetallic covering listed for use in environmental air plenums. Conductors will be copper, minimum size No. 12, with THHN/THWN or XHHW insulation. Each cable will contain an internal grounding conductor; the outer jacket will not be used for the ground. Type AC cable, or BX, will not be used. For circuits serving receptacles, the metal clad cable will contain a neutral conductor sized 173% (minimum) of the phase conductor ampacity; or individual, dedicated, separate neutrals will be provided for each branch circuit (i.e., no sharing of neutrals).

Boxes will be ferrous metal or aluminum. Materials will be steel, malleable iron, or copper-free aluminum. Covers will be cast of the same material as the box. Boxes are not to be installed back-to-back due to transmission of sound and due to fire ratings of walls. Thru-wall boxes will not be used. Boxes will be offset 6" minimum when installed in a common partition back-to-back.

Wiring Devices

Wall receptacles for general applications in office and event areas will be flush mounting, straight blade grounding type rated 125 volts, and 15 amperes.

Wall switches for general lighting branch circuits throughout the building will be specification grade, two position AC toggle switches rated 20 amperes at 120/277 volts.

Color of receptacles and switches will be selected by the Architect based on finishes of each area.

Special Design Considerations

Provisions will be provided for (4) exterior EV charging stations.

Grounding

Grounding conductors will be copper. Equipment grounding conductors will be provided in each raceway. Use of the metallic conduit material alone will not be an acceptable grounding means. Service grounding electrodes will consist of connections to building steel (reinforcing bars in the concrete columns or foundations), to the main cold water piping entering the building, and to made electrodes (a ground rod grid) outside the building near the point of service entrance. The main switchboard's neutral bus and ground bus will be jumpered together per NEC Article 250.

Telephone, Data, and CATV Systems

Infrastructure and power connections will be provided for each low voltage system. Exact scope and locations are yet to be determined.

Fire Alarm System

A new fire alarm system will be provided for the building and will include pull stations and smoke detectors as required to initiate alarms and speaker and strobe devices for occupant evacuation. Connections to Fire Protection system flow and tamper switches will be provided.

Heat and smoke detectors will be provided for common areas, including the electrical, telecomm, utility and janitor closet.

Electronic Security, Access Control, Intrusion Detection, and CCTV Systems

Infrastructure and power connections will be provided for each low voltage system. Exact scope and locations are yet to be determined.

Energy Conservation Measures

Energy saving measures will concentrate on the Lighting systems. Automatic controls such as time clocks, photocells, and occupancy sensors will be provided.

End of Electrical Narrative