

Cohasset Town Hall
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ELECTRICAL SYSTEMS

NARRATIVE REPORT

The following is the Electrical Systems narrative, which defines the scope of work and capacities of the Power and Lighting systems, as well as, the Basis of Design for the Town Hall. The Electrical systems will be designed and constructed to comply with LEED standards.

1. CODES

All work installed under Section 26 00 00 shall comply with the Massachusetts State Building Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the electrical work and all items incidental thereto, including commissioning and testing.

Capacities of systems and equipment are as specified on the drawings and schedules.

A. Electrical Distribution System:

Electrical power will be brought into the site via underground medium voltage cables from the utility company network. A pad mounted step-down transformer will be located at grade adjacent to the building. Service entrance and distribution switchgear will be located in the electrical room, along with lighting, power distribution, and mechanical equipment panels. The service capacity will be sized for 1200 amperes at 120/208V, 3Ø, and 4 wire.

B. Emergency Power System:

A natural gas powered 125KW emergency generator will be provided with sound attenuating weather proof enclosure, critical grade exhaust silencer, and automatic starting and safety controls. The generator will include two (2) service breakers: one (1) for life safety equipment and one (1) for optional standby equipment.

The emergency power distribution system will consist of two (2) automatic transfer switches, one for life safety equipment and one for optional stand-by systems. A separate system of distribution panels and conduit systems will be provided for each level of emergency or standby power.

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C. Interior Lighting System:

- Lighting for General offices and meeting rooms will consist of a combination of pendant mounted direct/indirect and recessed 2'x4' LED luminaries with dimming drivers. The fixtures will be wired for automatic dimming where natural day light is available and also for multi-level switching. Lighting in meeting rooms will also consist of recessed down lights with LEDs and dimmable drivers for a multi-functional space.
- Corridors and other functional lighting fixtures will consist of acrylic recessed direct fixtures with LEDs and dimmable drivers.
- Storage and mechanical spaces will be provided with LED industrial wraparound fixtures with acrylic lens, with Electronic drivers.
- Exit signs will be of the energy efficient, long life LED type.
- All fixtures will be provided with dimmable drivers and LED lamps.
- Each area will be locally switched and designed for multi-level controls. Each office space and toilet room will have an occupancy sensor to turn lights off when unoccupied.
- The entire facility will be controlled with an addressable networked automatic lighting control system for programming lights on and off.
- Stage and auditorium theatrical lights with connector strips and a dimming system will be provided for performances. House lighting in auditorium will be dimmable LED and controlled by theatrical dimming system.

D. Site Lighting System:

- Fixtures for area lighting will be pole mounted LED luminaries in the parking area and roadways. The exterior lighting will be controlled by photocell on and schedule timed off operation.
- Building perimeter fixtures will be wall mounted LED luminaries over exterior doors.
- All fixtures will be of the dark sky compliant, cut-off type.

E. Wiring Devices:

- Offices will generally have one (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.
- Corridors will have a cleaning receptacle at approximately 25 foot intervals.
- Exterior weatherproof receptacles will be installed at exterior doors.

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- A system of computer grade panelboards with double neutrals and surge protection devices will be provided for receptacle circuits.

F. Fire Alarm System:

- A fire alarm and detection system will be provided with battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms.
- Smoke detectors will be provided in open areas, Auditorium, Corridors, and other egress ways.
- The sprinkler system will be supervised for water flow and supervisory on valves.
- Speaker strobes will be provided in egress ways, assembly spaces, open areas, and other large spaces. Strobe only units will be provided in single toilets and conference rooms.
- Manual pull stations will be provided within 5 feet of all exit doors.
- The system will be connected to automatically report alarms to the Fire Department.

G. Security System:

- An addressable intrusion security system will be provided. The intrusion system will be integrated with the card access and closed circuit TV (CCTV) system.
- Position switches will be provided at all exterior doors.
- A UL Listed closed circuit TV system will be provided. The system will consist of computer servers with image software, computer monitors, and IP based closed circuit TV cameras. The head end server will be located in the server room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The Stored Appliance Network (SAN) will store this information for 45 days at 30 images per second.
- The location of the cameras is generally in corridors, secure areas, and exterior building perimeter. The exterior cameras will pan-tilt-zoom type. The site will be 100% covered.
- The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video shall be linked to the access system to allow retrieval of video that is associated with the event.

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- The system includes a card access controller, door controllers, and proximity readers/keypads. The electrical hardware for each door will be provided by the door Hardware Contractor. Proximity readers will be located at various locations as shown on the security drawings. The purpose is to only allow access to authorized personnel at all times. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.
- The alarm condition will also initiate real time recording on the integral CCTV system that is included as part of the system. The system is programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.
- The system will be tested and complete documentation will be provided to the Owner on the operational and programming functions available. The system may be easily expanded to accommodate any additional devices that may be added in the future.

H. Lightning Protection System:

- A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for UL Master Label System.
- The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.
- The lightning protection system will be provided with a UL Master Label Certificate.

3. TESTING REQUIREMENTS

The Electrical Contractor shall provide testing of the following systems with the Owner and Owner's Representative present:

- Lighting and power panels for correct phase balance.
- Emergency generator system.
- Lighting control system (interior and exterior).
- Fire alarm system.
- Security systems.

Testing reports shall be submitted to the Engineer for review and approval before providing to the Owner.

4. OPERATION MANUALS AND MAINTENANCE MANUALS:

When the project is completed, the Electrical Contractor shall provide operation and maintenance manuals to the Owner.

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5. RECORD DRAWINGS AND CONTROL DOCUMENTS:

- When the project is completed, an as-built set of drawings, showing all lighting and power requirements from contract and addendum items will be provided to the Owner.

6. COMMISSIONING:

- The project will be commissioned per Section 018100 of the Specifications.