

JACKSON COUNTY HISTORIC COURTHOUSE UPPER LEVEL RESTORATIONBCB1705

SECTION 16720 - FIRE ALARM SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes fire alarm systems. It includes requirements for system components including the following:
1. Manual stations.
 2. Smoke Detectors.
 3. Horn/Strobe signals.
 4. Fire alarm control panel (FACP).

1.2 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
1. Product data for fire alarm system components including dimensioned plans, sections, and elevations showing minimum clearances, installed features and devices, and list of materials and NRTL listing data.
 2. Wiring diagrams from manufacturer differentiating between manufacturer-installed and field-installed wiring. Include diagrams for equipment and for system with all terminals and interconnections identified.
 3. System operation description including method of operation and supervision of each type of circuit and sequence of operations for all manually and automatically initiated system inputs.
 4. Calculations for battery capacity for both alarm and supervisory modes.
- B. Submission to Authority Having Jurisdiction: In addition to routine submission of the above material, make a simultaneous identical submission to the authority having jurisdiction. Include copies of annotated Contract Drawings as required to depict component locations to facilitate review. Upon receipt of comments from the authority, submit a copy of the marked-up submittal for review. Make resubmissions to the authority if required to make clarifications or revisions to obtain approval.
- C. QUALITY ASSURANCE
1. Compliance With Local Requirements: Comply with the applicable building code, local ordinances, and regulations and the requirements of the authority having jurisdiction.
 2. Permits and Fees: Contractor is responsible for all permits and fees to this work.
 3. Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."
 4. NFPA 72 Compliance: Provide fire alarm and detection systems conforming to the requirements of NFPA 72, The National Fire Alarm Code.
 5. UL Listing and Labeling: Provide system and components specified in this Section that are listed and labeled by UL - Sections 1076 and 864.
 6. Single-Source Responsibility: Obtain fire alarm components from a single source who assumes responsibility for compatibility for system components furnished.
- D. MAINTENANCE SERVICE
1. Maintenance Service Contract: Provide to the owner a maintenance service contract for maintenance of the fire alarm systems and equipment for a period of 12 months commencing with Substantial Completion, using factory-authorized service representatives.

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Acceptance of this agreement is a voluntary and non-acceptance shall in no way relieve the supplier of their normal warranty obligations.

- a) **Basic Services:** Systematic, routine maintenance visits on a semi-annual basis at times coordinated with the Owner. In addition, respond to service calls within 24 hours of notification of system trouble. Adjust and replace defective parts and components with original manufacturer's replacement parts, components, and supplies.
- b) **Additional Services:** Perform services within the above 12 month period not classified as routine maintenance or as warranty work as described in Division 1 Section "Warranties and Bonds" when authorized in writing. Compensation for additional services must be agreed upon in writing prior to performing services.
- c) **Renewal of Maintenance Service Contract:** No later than 60 days prior to the expiration of the maintenance services contract, deliver to the Owner a proposal to provide contract maintenance and repair services for an additional one-year term. Owner will be under no obligation to accept maintenance service contract renewal proposal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. **Available Manufacturers:** Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
 1. Simplex (Specified Equipment)
 2. Edwards
- B. All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component. The catalogue numbers specified under this section are those of the Simplex . The equipment specified constitutes the type, quality of design, material, and operating features.
- C. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in normal supervisory mode for up to 24 hours followed by a minimum of 5 minutes of an alarm condition. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate to provide a minimum of 70% capacity in 12 hours.

2.2 SYSTEM OPERATION

- A. Upon activation of any manual station, automatic detection device, or sprinkler flow switch the following shall occur:
 1. The appropriate initiating device circuit LCD message shall be displayed on the control panel and the red LED alarm indicator shall flash until the alarm has been silenced at the control panel. Once silenced, this same LED shall latch on. A subsequent alarm received after silencing shall replicate this operation and place the subsequent alarm into the alarm list for operator identification and use.
 2. The pulsing alarm tone shall occur within the control panel until silenced.
 3. All alarm indicating appliances shall sound until silenced by the alarm silence switch at the control panel.

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4. All system strobes shall operate in a continuous pattern until extinguished by the alarm reset switch.
 5. Common alarm relays on the control panel shall be operated.
- B. The alarm indicating appliances may be silenced, by authorized personnel upon entering the locked control cabinet and operating the alarm silence switch. A subsequent zone alarm shall reactivate the signals. In addition to the before mentioned, the operation of any duct smoke detector shall also shut down it's associated air handling unit and close any associated smoke fire dampers.
1. The activation of any standpipe or sprinkler tamper switch shall activate a distinctive system supervisory audible signal and illuminate a "Sprinkler Supervisory Tamper" LED as well as displaying a message on the LCD display indicating the device or devices that have originated the supervisory alarm. There shall be no confusion between valve tamper activation and opens and/or grounds on fire alarm initiation circuit wiring.
 2. Activating the trouble silencing switch will silence the supervisory audible signal while maintaining the "sprinkler supervisory tamper" LED indicating the tamper contact is still activated.
 3. Restoring the valves to the normal position shall cause the audible signal and LED to pulse at a March time rate.
 4. Activating the trouble silence switch will silence the supervisory audible signal and restore the system to normal.
- C. The actuation of the program "test set-up" switch at the control panel shall activate the "walk-test" mode of the system which shall cause the following to occur:
1. The city or remote station connection circuit shall be disconnected.
 2. Control relay functions shall be bypassed.
 3. The control panel shall show a trouble condition.
 4. The fire alarm activation of any initiation device shall cause the audible signals to sound.
 5. The panel shall automatically reset itself.
 6. Any momentary openings of an initiating or indicating appliance circuit shall cause audible signal to sound to indicate the trouble condition.
- D. A manual evacuation switch shall be provided to operate the systems indicating appliances or indicate the trouble condition.
- E. Activation of an auxiliary bypass switch shall override the automatic functions either selectively or throughout the system and initiate a trouble condition at the control panel.

2.3 SUPERVISION

- A. All auxiliary manual controls shall be supervised so that all switches must be returned to the normal automatic position to clear system trouble.
- B. Each independently supervised circuit shall activate a LCD message on the control panel (as well as activating the trouble LED) to indicate a disarrangement on that circuit.
- C. The incoming power to the system shall be supervised so that any power failure shall be audibly and visually indicated at the control panel. A green "power on" LED shall be audibly and visually indicated at the control panel.
- D. The system batteries shall be supervised so that disconnection of a battery shall be audibly and visually indicated at the control panel.

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- E. The system expansion modules connected by ribbon cables shall be supervised for module placement. Should a module become disconnected from the C.P.U. the system trouble indicator shall illuminate and audible trouble signal shall sound.

2.4 FIRE ALARM CONTROL PANEL IS EXISTING AND ALL DEVICES SHALL BE COMPATIBLE.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Provide in accordance with the manufacturer's instruction all wiring, conduit and outlet boxes required for the installation of a complete and operable system.
- B. Install all fire alarm wiring in its own dedicated conduit or with plenum rated cables in strict compliance with the NEC article 760, power limited protective signaling circuits.
- C. All junction boxes shall be sprayed red labeled "fire alarm". Wiring color code shall be maintained throughout the installation.
- D. The contractor shall clean all dirt and debris from the inside and the outside of the fire alarm equipment after the completion of installation.
- E. The manufacturer's authorized representative shall provide on-site supervision of installation.
- F. The control panel shall receive 120 VAC power (as noted on the plans) via a dedicated circuit.
- G. All circuits requiring system operating power shall be 24 VDC and shall be individually fused at the control panel.

3.2 SITE TESTS

- A. The site tests shall be performed under the supervision of a factory trained representative of the equipment manufacturer. The tests shall be complete and follow the manufacturer's specifications. The testing shall be conducted in the presence of the Owner's representatives. A certified report shall be given to the Owner upon completion of the testing. This test shall certify that each device (initiating, notification, and control) has been individually tested and found to be in working order and operating as required by the specifications.

3.3 TRAINING

- A. The operations of the system shall be thoroughly demonstrated to the Owner's satisfaction. Manufacturer shall provide a minimum of four hours jobsite training of owner personnel.

3.4 MAINTENANCE MANUALS

- A. Three copies of maintenance manuals shall be furnished, each shall contain sufficient detailed information to enable the Owner's technicians to understand, operate and maintain the system equipment and to identify replaceable parts.
- B. The Maintenance Manuals shall contain the following sections:
 - 1. General Description
 - 2. Operating Instructions

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3. Routine Maintenance
4. Trouble-shooting
5. Data, i.e. bill of materials, flow diagrams, single-line and three-line diagrams, schematic diagrams, layouts, exploded views and parts list.

MANUFACTURER'S STANDARD CATALOG CUTS ALONE SHALL NOT BE ACCEPTABLE.

3.5 GUARANTEE SERVICE

A. Guarantee

1. The Contractor and equipment manufacturer shall jointly guarantee all wiring and equipment for this system to be free of defects in workmanship materials for a period of one year from the date of FINAL ACCEPTANCE.

END OF SECTION 16720