

## **FIRE ALARM SYSTEMS - UNL**

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**The following narrative pertains to UNL city and east campus buildings only. The design of Fire Alarm Systems for UNO, UNK and UNL owned outstate buildings shall be coordinated with NU engineering on a project-by-project basis.**

### **FIRE DETECTION AND ALARM**

**Requirements:** All new buildings shall be provided with fully addressable fire alarm systems.

**Additions:** Additions to existing buildings shall have existing fire alarm systems extended and expanded, if necessary, to include the new construction.

**Procurement:** Fire alarm systems shall be designed by the project architect/engineer and be fully defined in the contract drawings and specifications. The contract documents shall clearly indicate that the fire alarm system, including cabling, conduit, detectors, pull stations, horns, strobes, panels, and relays will be furnished and installed by the UNL Building Systems Maintenance (UNL BSM). 120 Volt AC power wiring will be the responsibility of the Electrical Contractor. All locations of fire alarm related panels may not be shown on the prints. Panels shall be connected to emergency power, when available. Coordinate locations with UNL BSM.

**System Description and Capabilities:** Fire alarm systems in new buildings or in complete remodel projects should be a combination microprocessor-based fire detection/fire alarm/emergency audio system providing the functions and capabilities described below:

**Fire Detection/Fire Alarm System:** The system should function as follows when an area manual station, or water flow switch operates:

- a) Sound required audio devices and transmit signal to emergency audio communication system through appropriate interface.
- b) Automatically notify the University operator. Notification of the UNL operator shall be via IP connection. All information at enunciator shall be made available to the operator and shall be point specific. Provide all equipment required for this function.
  - An additional matching cabinet back box with solid blank door shall be provided and installed next to the main fire alarm panel for installation of equipment required for UNL Telecommunications connections with minimum internal dimensions of not less than 24" x 30".
  - Equipment to be installed shall include:
    - FireWatch IPDACT-2 (IP Communicator) with mounting bracket.
    - Valcom model V-9970 voice over paging device
- c) Automatically display individual detector and/or zone number on alphanumeric display with user-defined message. Device labels must be submitted and approved by UNL Facilities Maintenance & Planning (FMP).
- d) Light an indication lamp on the device initiating the alarm.
- e) Shut down the HVAC system and operate dampers. Approve zoning of HVAC shutdown with UNL FMP. A normally closed alarm contact shall be provided and attached to the HVAC monitoring system for alarm status.
- f) Activate the elevator return sequence.
- g) Close all magnetically-held fire doors.
- h) Unlock magnetic electric locks for egress. Coordinate with UNL Card Access group.

Upon activation of a duct detector, the system shall report a supervisory signal at the main fire alarm panel and shall shut down the associated air-handling unit. The supervisory signal shall be investigated immediately.

**Emergency Audio Communication System:** The emergency audio communication system should be a digital audio system that will function in combination with the fire alarm system, providing fire alarm tone and voice page to the fire zones. The system should be a single channel. The alarm tone should be cut out or attenuated during voice page originating at the

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control panel. Any voice page originating from any other location should not function or prohibit the alarm tone to the zones during any active alarm condition. The system should provide, as a minimum, the following functions and features:

- a) Interface with the fire alarm system, utilizing appropriate and approved interfacing methods.
- b) Continuous electronic supervision of all components for opens, shorts, grounds, or other faults that would interfere with the distribution of the fire alarm tone or voice page.
- c) Supervision of the speaker lines for opens, shorts, or grounds that would prevent the proper distribution of the emergency audio communications.
- d) Failure of any of the components or speaker lines would cause an audible and visual trouble fault indication at the equipment rack and at the fire alarm control panel.
- e) Upon actuation from the fire alarm panel, the alarm tone should be transmitted over the building speakers continuously throughout the entire facility until the speaker/recorded announcement begins. The tone should be a slow whoop, sweeping from 800 HZ to 1,200 HZ.
- f) Visual signals should flash upon alarm until the system is reset.
- g) Provide manual fire alarm tone initiation to selected zone(s).
- h) Provisions for the system to be used for "alert" paging. Alert paging is ability to access the system from remote locations by either microphones or telephone lines. Provide circuits to cut out "alert" paging when system is activated by fire alarm control panel.
- i) Provide a separate emergency tone generator for signals other than fire alarm tone.
- j) The system should have a minimum of two digital amplifiers not exceeding 60% load on any circuit.
- k) The Fire Alarm Installer is required to supply a "Valcom" unit for voice over paging.
- l) Fire Alarm Installer should be required to provide up to four hours of training on the operation and maintenance of the installed system for UNL maintenance personnel.
- m) The Fire Alarm Installer should be required to provide to the UNL Maintenance Department, at no additional cost, any specialized tools, equipment or software required to service the fire alarm system.

**Acceptable Manufacturers:** Fire Detection/Alarm Systems: Acceptable manufacturer for fire detector/alarm systems are Notifier Division. The fire alarm panel shall be Notifier NFS-3030 ONYX Series Intelligent Fire Panel, pre-approved by UNL Project Representative.

Emergency Audio Communications System: System should meet or exceed the standards of performance, quality and appearance of equipment manufactured by Notifier.

Speakers: UL-listed for fire protection service and approved for the system being installed. Ceiling mount speaker strobes shall be used wherever possible.

Note: Provide specification-grade devices approved for use with the system being installed.

**Connection to UNL Telecommunications:** The emergency audio communications system will be connected by three communication circuits to the UNL 24 hour operator station. UNL Telecommunication connections and voice over paging systems circuits shall be provided and installed next to the main fire alarm panel in a three port surface mounted matching cabinet. The first circuit will monitor the fire alarm system and report alarms over the secure fire alarm network. Programming for this network function shall be performed by UNL Building Systems Maintenance. The second circuit will be a backup dedicated campus lifeline phone line to transmit alarms in case of a network failure. The final circuit will enable live or recorded messages to be broadcast throughout the building by the campus operator. The cost of installing these circuits will be reimbursed to UNL Telecommunications and should be included in the construction budget. The building occupants will be responsible for paying the monthly service charge for the two telephone circuits used for the fire alarm/emergency audio communications systems.

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Exterior fire alarm system annunciators should be lockable with a standard UNL padlock.

Strobe lights on fire alarm visual alarms should be set at a frequency which minimizes effects to those subject to seizures.

Surface mounted fire alarm break panels should be mounted on back-boxes specifically made for the purpose.

Fire detection devices which require testing by Code should be self-testing type where such devices are mounted more than 10 feet above the floor. Self-testing devices are preferred for all locations.

***Additional Requirements:*** Manufacturer's parts are to be interchangeable with any installer's stock.

Fire alarm system installer should be capable of providing emergency service within three hours of notification and have technicians permanently based within a 30-mile radius of the project site.

All as-built CAD files and Operation and Maintenance Manuals (pdf format) shall be provided to UNL upon final acceptance of the installed system by the authority having jurisdiction.

All programming files, detector and module point sheets and central station reports must be saved to USB located at main fire alarm panel.