

**SAM HOUSTON STATE UNIVERSITY
DESIGN AND CONSTRUCTION STANDARDS**

DIVISION 28 30 00

FIRE ALARM

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A. Fire Alarm Contractor Qualifications

1. The Fire Alarm contractor shall be an Edwards Systems Technology (EST) or Notifier designated representative and authorized to sell, install, and service EST or Notifier equipment. The contractor shall have a minimum of 2 factory trained and certified technicians for the system proposed.
Equipment furnished shall be of current manufacture.

B. System Installer

1. SHSU requires the installers be direct employees of the fire alarm company awarded the fire alarm contract. No third-party sub-contractors shall be allowed (this includes third-party sub-contractors used for the pulling of fire alarm cabling).

C. The fire alarm contractor shall provide the Texas Insurance Code Fire Alarm System Installation Inspection Form to the SHSU Fire System Safety Specialist (FSSS) & AHJ at the following intervals:

1. At the completion of the device back-box installation but prior to the start of cable installation.
2. At the completion of cable installation but prior to the start of device installation.
3. At the completion of device installation but prior to activating the fire alarm system.
4. Final acceptance.

D. Barcode Stickers

1. As part of the fire alarm system installation, the contractor shall apply barcode stickers from BuildingReports.com to all panels, detectors, power supplies, batteries, and control modules/relays as applicable.

E. The shop drawing submittal package shall be signed by the State of Texas Fire Alarm Planning Superintendent (NICET III) or signed and sealed by a Professional Engineer (F.P.E.) registered in Fire Protection in the State of Texas.

All Code deficiencies and/or variances shall be noted on the fire alarm submittals and/or drawings.

F. Fire Alarm Control Units (FACU)

1. Acceptable Manufacturers models are Edwards EST3 or Notifier. Small buildings may be permitted to install other Edwards or Notifier models, where approved by SHSU Facilities Services. SHSU Facilities Services shall determine where a building is permitted to be considered a small building.
2. Upon installation or modification of a fire alarm control unit, the contractor shall provide all completion documentation required by NFPA 72. This includes, but is not limited to:
 - a. As-Built Drawings
 - b. Record of Completion
 - c. Site-Specific Software
 - d. Verification of Compliant Installation

G. All Fire Alarm System components shall be keyed alike (where applicable).

- H. All initiating devices shall be Edwards System Technology (EST) or Notifier
- I. Terminal boxes are not allowed. Fire alarm system should be designed and installed panel to device and device to device.
- J. Legibly mark each cable or wire at each FACP and BPS with labeling tool. All Labels must include both source and destination at each end of the cable or wire.
- K. Zone labeling shall be textual by alpha-numeric display at the FACU and remote annunciator to allow "first response" by persons not trained in fire alarm technology.
- L. Textual (alpha-numeric) language shall be conventional, concise, clear and accurate to facilitate rapid response. The label shall contain the device type, floor location, equipment or area served, and an exact device location.
- M. Remote Monitor
 - 1. All systems shall be capable of interconnection to the Campus-Wide Proprietary Supervisory Signaling System (UTC Fireworks System). All signals shall report location of signal by exact point.
 - 2. The programming of the campus wide supervisory signaling system shall be done by a fireworks factory certified technician approved by SHSU FSSS and AHJ.
 - 3. Communication shall be via internet protocol (IP) "Edwards" Ethernet network.
- N. Manual Pull Stations
 - 1. All manual pull stations shall be of the "double-action" type to reduce unintentional or vandal alarms. Pull stations required to break glass to activate are not acceptable. Provide pull stations that utilize the same key as FACU for resetting. No conventional pull stations permitted.
 - 2. Each manual pull station shall have a unique digital address on the SLC.
- O. Signaling Line Circuits (SLC) and Initiating Device Circuits (IDC) shall be monitored at a level of Class B.
- P. Conventional type Initiating Device Circuits (IDC) are not acceptable in occupied buildings.
- Q. Notification Appliance Circuits (NAC)
 - 1. All Notification Appliance Circuits (NACs) shall be monitored at a level of Class B.
 - 2. Direct current notification appliance power provided from a distributed power supply shall be controlled by a digital addressable control device on the SLC.
- R. Where voice fire alarm notification is required, the following shall apply:
 - 1. Provide speakers for annunciation of voice messages. Provide a pre-recorded message preceded and followed by a minimum of two cycles of the distinctive evacuation signal (three-pulse temporal pattern).
 - 2. Audible message required for voice evacuation shall be pre-programmed or upon approval of the SHSU FSSS & AHJ recorded as specified by SHSU.

3. Digitized audible evacuation messages shall sound once and shall be preceded by a minimum of two cycles of the three pulse temporal pattern emergency evacuation signal.
 4. Banked audio is not permitted.
- S. All sleeping units shall be provided with low-frequency sounders in accordance with NFPA 72.
- T. Wiring
1. All wiring shall be run square and plum to building structure. All plenum rated wiring not run in conduit shall utilize a manufactured wiring management system.
 2. All system wiring shall be color coded in accordance with the following:
 - a. Exposed Fire Alarm System wiring shall not be painted over.
 - b. All wiring shall be RED.
 3. All wire shall be solid conductor cable.
- U. It is the responsibility of the Contractor to assure that there is no disruption of the University's normal functions as studying, testing, class, research, or administration during construction, testing, or maintenance.
- V. Connecting to or Modifying Existing Systems
1. Operating, modifying, and connecting to existing fire alarm systems shall be supervised and/or coordinated by the SHSU Fire Safety Systems Shop (FSSS) staff. Documentation indicating all changes shall be provided at the FACU before the changes are made.
 2. Existing systems shall remain operational during modifications or additions to the existing system throughout the duration of the project.
 3. Where part or all of the existing fire alarm system is required to be demolished, remove the existing fire alarm components only after the new system installation is complete and accepted by FSSS and SHSU AHJ where feasible. All existing fire alarm system components not required for the operation of the new fire alarm system shall be removed, including all cabling. Do not leave existing cabling abandoned in place.
 4. Existing equipment that is required to be salvaged by the University shall be stored in a secure area designated by the University.
- W. Testing
1. SHSU will use SHSU personnel inspection as required by State Fire Marshal. Contactor shall fix any deficiencies to the satisfaction of the SHSU Staff at no cost to SHSU. Testing shall be performed at the conclusion of final cleaning. If testing performed before final clean, contractor shall be responsible for replacement of devices until end of warranty period. If testing is conducted before final clean, a report will be pulled from panel. Any detector with any obscurity reading shall be replaced at no cost to SHSU.
 2. Fire alarm testing shall be under the direct supervision of SHSU FSSS. Testing shall include 100% test of all devices.
 3. Contractor is responsible for performing all testing and providing all documentation required by NFPA 72.
- X. Warranty and Maintenance

1. The contractor shall warranty all materials, installation and workmanship for two (2) years from date of acceptance by the SHSU, unless otherwise specified. A copy of the manufacturer's warranty shall be provided with closeout documentation and included with the operation and installation manuals.
2. Materials, installation or workmanship found to be defective during that period shall be replaced without cost to the SHSU. This Contractor shall initiate repair of any warranty defects within 8 hours of notification of such defects and shall be repaired within 24 hours.
3. The warranty or any part of the warranty shall not be made void by any required operation or inspection of the system after acceptance during the warranty period.
4. If the Owner experiences more than two Nuisance alarms or unexplained false alarms or troubles in any 24-hour period while the system is under warranty, the Contractor shall provide the necessary labor, materials, and technical expertise to promptly correct the problem(s) at no cost to the SHSU.
5. The fire alarm contractor shall maintain a service organization with adequate spare parts stock within 75 miles of the installation.
6. Spare Parts - The Contractor shall supply the following spare parts:
 - a. Automatic detection devices - Two (2) percent of the installed quantity of each type AND/OR NO LESS THAN 2 DEVICES
 - b. Manual fire alarm stations - Two (2) percent of the installed quantity of each type. AND/OR NO LESS THAN 2 DEVICES
 - c. Modules - Two (2) percent of the installed quantity of each type AND/OR NO LESS THAN 2 DEVICES.
 - d. Audible and visible devices - One (1) percent of the installed quantity of each type and color, but no less than two (2) devices. AND/OR NO LESS THAN 2 DEVICES
 - e. Keys - A minimum of three (3) sets of keys shall be provided and appropriately identified.
 - f. FACU parts to include FACU modules required to get a failed system back up and operating 100%. No more than 2 panel device modules and no less than 1 panel device modules.

Y. Training

1. Provide services of manufacturer's representative to instruct SHSU FSSS in operation and maintenance of system for a minimum of two 4-hour sessions.
2. Factory training if necessary at the expense of the Fire alarm contractor for two SHSU FSSS Personnel is required for the installed system. Expenses shall include all travel, hotel, meals, training and training materials.

Z. Supervising Station Programming

1. Prior to final acceptance testing, the contractor shall program the new building alarm system into the University's central monitoring station (UTC Fireworks).
2. The programming shall be coordinated with and supervised by SHSU FSSS.
3. A signal verification test shall be conducted to verify communication between the FACU and the central monitoring station (UTC Fireworks).