DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 00 00 ELECTRONIC SAFETY AND SECURITY

28 01 00 Operation and Maintenance of Electronic Safety and Security

28 01 10 Operation and Maintenance of Electronic Access Control and Intrusion Detection

- 28 01 10.51 Maintenance and Admin. of Electronic Access Control and Intrusion Detection
- 28 01 10.71 Revisions and Upgrades of Electronic Access Control and Intrusion and Detection

28 01 20 Operation and Maintenance of Electronic Surveillance

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28 01 40 Operation and Maintenance of Electronic Monitoring and Control

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28 05 00 Common Work Results for Electronic Safety and Security

CONSULTANT DESIGN GUIDELINE

The University has an IDIQ for electronic safety and security systems see attachment in this folder.

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- 28 05 13.13 CCTV Communications Conductors and Cables

28 05 13.23 Fire Alarm Communications Conductors and Cables

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28 30 00 Electronic Detection and Alarm

28 31 00 Fire Detection and Alarm

CONSULTANT DESIGN GUIDELINE

1. **Fire Alarms:** Smoke detection shall be required in public spaces such as corridors, atriums and hallways and shall be spaced at no less than 30 foot intervals between devices.
2. **Fire Alarms:** Remote fire alarm enunciators shall be placed at the main entrance to buildings OR as determined by Campus Fire Marshal.
3. **Fire Alarms:** Fire alarm pull stations shall be required at every exit of the building, and in other hazardous locations as determined by the Campus Fire Marshal.
4. **Fire Alarms:** When programming the fire alarm it shall be programmed so that all tamper switches and flow switches can be disabled per floor or per area as determined by the Campus Fire Marshal.

Combination
Mass Notification/Emergency Communications
and Fire Alarm System

PART 1 - GENERAL

1.1 Building Codes and Standards

A. Apply latest adopted versions of all codes and standards unless these specifications stipulate a specific version

B. National Fire Protection Association (NFPA):

1. NFPA-70 National Electrical Code (NEC)
2. NFPA-72 National Fire Alarm Code

a. Chapter 12 - Emergency Communications ROP-568 shall be applied to this project as if it were part of the approved NFPA-72.

3. NFPA 101 Life Safety Code
4. IBC International Building Code
5. IFC International Fire Code
6. IMC International Mechanical Code

C. National Electrical Manufacture's Association (NEMA)

D. Underwriters Laboratories, Inc. (UL)

1. UL-864 Control Units for Fire Protective Signaling Systems (9th Edition)
2. UL-268 Smoke Detector for Fire Protective Signaling Systems
3. UL-268A Smoke Detectors for Duct Applications
4. UL-521 Heat Detectors for Fire Protective Signaling Systems
5. UL-464 Audible Signaling Appliances
6. UL-1971 Signaling Devices for the Hearing Impaired
7. UL-38 Manually Actuated Signaling Boxes
8. UL-1480 Speakers for Fire Alarm, Emergency, and Commercial and Professional Use
9. UL-1481 Power Supplies for Fire Protective Signaling Systems
10. UL-1638 Signaling Appliances – Private Mode Emergency and General Utility Signaling
11. UL 2572 Control and Communication Units for Mass Notification Systems
12. Note control equipment that is not dually UL 864 and 2572 listed are not acceptable.

E. Fire Protection Research Foundation

1. Intelligibility of Fire Alarm & Emergency Communication Systems, dated November 2008. This document shall be complied with as though it were a published and accepted standard.

1.2 SUBMITTALS

PART 2 - PRODUCTS

2.1 SYSTEMS OPERATIONAL DESCRIPTION

A. Signal priority shall be in accordance with UL 2572 as indicated below:

1. Special suppression (CO2, Halon, FM200, Intergen or similar total flooding gaseous suppression system)
2. Mass Notification
3. Life Safe/Fire Alarm
4. Other

B. MNEC operation shall be initiated only from the CCS or respective building ACU/FACP or Local Operations Console (LOC). No automatic operation shall be permitted.

1. Any operation of MNEC at the building ACU/FACP or LOC shall be indicated at the CCS.
2. Any operation of the MNEC from the CCS shall indicate at the ACU/FACP & LOC (if provided) that the respective building system is in MNEC mode.
3. Provide all indicators required by UL 2572 and AHJ.
4. System operation shall be as specified in UL 2572.
5. Pre-recorded messages shall be selectable at the CCS and respective building ACU/FACP or LOC and shall consist of a minimum of the following:
   a. Lockdown
   b. Weather warning
   c. All Clear
   d. Evacuation
   e. Stand by
   f. Chemical emergency
   g. Test
6. The system shall be capable of live voice page from the CCS to each respective building. Live voice paging inside the respective building shall be capable of being initiated from the ACU/FACP or LOC

C. Fire-alarm signal initiation shall be by one or more of the following devices:

1. Manual stations.
2. Heat detectors.
3. Flame detectors.
4. Smoke detectors.
5. Duct smoke detectors.
6. Verified automatic alarm operation of smoke detectors.
7. Automatic sprinkler system water flow.
8. Heat detectors in elevator shaft and pit.
9. Fire-extinguishing system operation.
10. Fire standpipe system.

D. Fire-alarm signal shall initiate the following actions:

1. Activate multiple channel pre-recorded voice messages followed by temporal tone.

2. Continuously operate the visual notification appliances.
3. Identify alarm at fire-alarm control unit and remote annunciators.
4. Transmit an alarm signal to the remote alarm receiving station.
5. Unlock electric door locks in designated egress paths.
6. Release fire and smoke doors held open by magnetic door holders.
7. Switch heating, ventilating, and air-conditioning equipment controls to fire alarm mode.
8. Activate stairwell and elevator-shaft pressurization systems.
9. Close smoke dampers in air ducts of designated air-conditioning duct systems.
10. Recall elevators to primary or alternate recall floors.
11. Activate emergency shutoffs for gas and fuel supplies.
12. Record events in the system memory.
13. Record events by the system printer.

E. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.
2. Low-air-pressure switch of a dry-pipe sprinkler system.
3. Elevator shunt-trip supervision.

F. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of primary power at fire-alarm control unit.
4. Ground or a single break in fire-alarm control unit internal circuits.
5. Abnormal ac voltage at fire-alarm control unit.
6. Break in standby battery circuitry.
7. Failure of battery charging circuitry
8. High or low battery charge.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
10. Fire-pump power failure, including a dead-phase or phase-reversal condition.
11. Low-air-pressure switch operation on a dry-pipe or pre-action sprinkler system.

G. System Trouble and Supervisory Signal Actions: Initiate notification appliance and annunciate at fire-alarm control unit and remote annunciators. Record the event on system printer.

2.2 GLOBAL EVENT GRAPHICAL WORKSTATION

A. Provide Global Event Graphical Workstation (GEGW) where indicated on the project drawings that shall communicate with the fire alarm network(s) via supervised IP communications protocol with full command and control capability. The GEGW shall be password protected to operate common control functions from the Workstation including acknowledging, silencing, and resetting of fire alarm functions as well as manually activating, deactivating, enabling and disabling of individual system points while maintaining UL 864 listing. The workstation shall be capable of generating status, maintenance and sensitivity reports. The workstation must be capable upon receipt of any event to activate an audio WAV file over the workstation speakers alerting the operator to an event, and providing audible instructions. The computer shall operate using Windows XP, SP3. Any other operating systems are not acceptable.

B. The GEGW shall support a minimum of 80 Networks Systems via Ethernet using IP protocol communications. In addition the GEGW shall be able to support Digital Alarm Receiver unit that will monitor systems using Contact ID format via phone lines or Ethernet. The GEGW shall have the ability to create multiple commands between Networks to operate any sequence of operation.

C. The GEGW shall have a paging microphone to selectively communicate to any building network or level within a building network or multiple selective combination or All Call. This voice paging shall be accomplished by Voice over IP communications to each network.

1. Graphical screens shall be provided to select the manual paging virtual switch panel.

2. Provide separate console with paging microphone and manual audio selector switches. Audio paging shall be accomplished by Voice over IP protocol to each network system.

D. The GEGW shall have a Layout Manager to manage and configure the different screen (window) layouts for the operator System Control to be display simultaneously on the screen. Each of the windows can reside in any area on the screen. Layouts can also be assigned to access groups so that they load when a user from that access group logs in. A different layout can be assigned to every access group. The screen shall have dedicated areas for the following functions:

1. Event List Display: All events shall be display in the order of priority, each event is color-coded by its type. The event type, description, location, date and time and count information is displayed for each event in columns on each tab. New events are displayed by priority and remain until they are acknowledged. Once the event is acknowledged, it moves into the Acknowledged Events list. The All Events tab displays all of the events that have taken place in your system, up to a maximum of 10,000 events.

a. Red – Mass Notification or Alarms.

b. Gold – Supervisory.

c. Yellow – Trouble, Monitor, Non-Security, or Security By-Pass.

d. Orange – Security Alarm.

e. Grey – Disabled or Security Partition Armed.

f. Green – Restored to normal.

2. Workstation Display Filter: The GEWS shall be able to be configurable to filter events that would be displayed or not displayed at the workstation. Shall be able to select between; Alarms, Supervisory, Monitor, Troubles and Security events to be viewed

Examples are:

a. Telecommunications Workstation – View only Alarm events.
b. Security Workstation – View only Alarm and Supervisory events.
c. Maintenance Workstation – View all events.

3. Event Action Display: The Event Action displays the device custom message minimum of 2,500 characters, and flashes corresponding event LED. The custom message shall provide instructions to the operator on what to do, information on the event/device and possible hazards.

a. Event Log: Provide user the ability to record data entry electronically in response to the selected event. Event logs allow the user to document up to a 65,000 character entry that is stored in history and available for review.

b. System Controls: Provide screen buttons for; Acknowledge, Alarm Silence, Panel Silence, Drill, Reset, and Silence Workstation.

4. Map Window: Shall display site plan photo of building or campus, followed by photo building profile and every level of building floor plan map.

5. Image Display: Shall be able to display additional information of the event in the following format types; AVI movie, still picture/image (BMP, JPEG, WMF and RLE).

6. Video Camera: Display and control of CCTV video cameras connected to Video Switcher. The CCTV Cameras can be controlled using pan/tilt, focus, zoom, preset and sequence buttons. Any event can be linked automatically to pull up the corresponding video camera.

7. Browser Window: The Browser window displays HTML files linked to the Internet. This shall be able to be linked with the Building Automation System, IP Video Cameras, Weather Channel, ChemTec, or any website. Any event can be linked automatically to display webpage or IP Camera/DVR.

E. The workstation must be capable upon receipt of an event to send e-mail messages to appropriate recipients via a SMTP mail server. Within the email message shall be the event message, instructional text, date and time. System must support 100 email recipients.

F. The software shall have the ability to customize each Access Level with the ability to limit system restrictions and be password protected. Provide minimum of 128 users with access levels.

G. Graphical Maps shall be import from anyone of the following formats: DXF, DWG, JPEG, RLE, TIF, BMP, and WMF. The main screen shall be an Aerial Photo of the Building or Campus, followed by Photo of the Building Profile, floor plan architectural drawing, and multiple zoom fields on the floor plan.

1. Drawing display shall allow for zoom out to full floor view or zoom in to individual device location. It shall be possible for the operator to manually zoom down to any portion of a vector-based graphic without aliasing, artifacting, or pixilation of the image. Preset zoom levels shall not be considered equal. Include floor plan Legend to identify location on floor plan key view.
2. There shall be a toggle button on screen for all drawing levels that allow instant migration to the floor above or the floor below the floor currently being displayed on screen.
3. Floor plans shall have the minimum:
    a. 32 Zoom field views on drawing.
    b. Door swings.
    c. Window locations.
    d. Room number and designation of occupancy.
    e. All initiating and notification device locations.
    f. Locations of video camera/view.

H. The GEGW shall have NET-CENTRIC software an IP network alerting system for the management of and mass distribution of emergency notification messages within buildings, throughout installations, across entire geographical regions, or throughout a worldwide network. Distributed recipient mass notification systems leverage the IP network infrastructure to instantly reach those personnel who have access to nearly any IP-connected devices (such as pop-up alerts on personal computers (PC), text messages to personal data assistants (PDA) and cellular telephones, electronic mail to IP-capable cellular telephones, and recorded distributed recipient mass notification system voice messages to voice-over-IP (VoIP) telephones and PCs).

I. PC Computer shall have the following minimum operating requirements:

1. Operating software shall be MS XP, SP3.
2. Dual Core 2.13GHz Intel Core 2 Duo Processor with 1066 MHz system bus.
3. 1GB memory DDR2 800Mhz, upgradeable to 8GB.
4. Dual video; DVI and SVGA
5. Audio sound
6. Dual 1G LAN
7. 500GB Hard Drive
8. 24X DVD-R/W, DVD+RW, CD-R/W
9. Computer hardware shall be UL864 listed.

J. The video display shall be minimum of 19 inch LCD display monitor or larger with built-in audio speakers. The monitor shall also have Touch Screen control operation.

K. Provide second video display minimum of 19 inch LCD display monitor.

L. The GEGW shall have secondary power source to support for minimum of 8 hours or operation.

M. The GEGW shall be EST FireWorks.

2.3 REMOTE CLIENT SOFTWARE– TEXT BASED

A. It shall be possible via a compatible remote PC connection through an accessible connection to a VPN, LAN, or WAN to obtain status, diagnostics, and reports from the GEGW. The GEGW shall act as a server to simultaneously communicate the status of all systems connected to the graphics work station to up to five (5) concurrent remote PCs running graphics client software over the owner's data network or VPN. Clint software shall actively poll the graphic work station server to determine event status. All event changes shall be automatically announced on the client PC. No operator interaction shall be required to retrieve or display incoming events. Web browser technology shall not be considered as equal. All workstation to client communications shall be encrypted for privacy. It shall be possible to capture at the remote PC events that take place on the workstation. It shall be possible from the remote PC to run workstation and panel reports

1. Shall be GE-EST, model FW-1S or FW-4S.

2.4 SYSTEM EVENT PRINTER

A. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

1. Each control panel (network node) shall be capable of supporting a printer. All control panel printer ports shall be configurable to output any combination of alarm, supervisory, trouble, monitor, or group event messages.

2. Printer shall be EST, model PT-1S/P.

2.5 GRAPHICAL MAP and REPORTS LASER PRINTER

A. Provide a Color Laser printer connected to the GEGW that will print the graphical floor plan views and system reports. The printer shall be Hewlett Packard Color Laser printer that supports PCL (Printer Control Language) and dual paper size shall be 8-1/2 x 11 & 11 x17.

2.6 IP CAMPUS NETWORK

A. Provide dedicated Emergency Communications Ethernet IP Network. The IP Network shall be Multi-Mode (62.5/125 micron only) fiber optic cable. The TCP/IP network switches shall be industrial grade auto-negotiating switching hubs. Switch shall be UL864 listed, shall provide four (4)10/100 Mbps shielded RJ-45 connectors for twisted pair (Ethernet) connections and two 100 Mbps multi-mode fiber ports. The switches shall operate on a nominal 24 VDC supplied from a battery backed up fire alarm control panel or booster power supply to insure power to the switch is always available. Switches shall provide LED indicators for data rate, activity/link integrity, power and loop detection.

1. Shall be EST, model MN-NETSW1.

B. Each fire alarm control panel to LAN/WAN network interface shall be an industrial grade 10/100BASE T Ethernet® device server. The interface shall have diagnostic LEDs on the front of the unit make it easy to determine its status, and incorporate flash ROM memory facilitating upgrading the operating firmware. Power shall be supplied directly from the FACP, ensuring a reliable and monitored power source.

1. Shall be EST, model MN-COM1S.

C. The CCS control panel audio source shall be connected to the LAN/WAN network. The interface shall be Network audio connectivity and shall consist of a supervised encoder capable of encoding MP3, WMA, G.711 and PCM data streams in either HTTP, UDP or RTP format. Audio encoder shall operate on filtered-regulated 24 VDC power derived from the panel power supply. Power shall be supplied directly from the FACP or listed Auxiliary Power Supply, ensuring a reliable and monitored power source.

1. Audio encoder shall be equipped with:
    a. A RCA jack line-level audio input.
    b. RJ45 10/100BASE T Mbit Automatic Ethernet port.
    c. RS232 DB9 male interface capable of 115,200 baud communication.
    d. Normally open relay contact rated at 500 mA @ 24 VDC.
    e. Reset button.
    f. Aluminum case.
    g. Audio from dedicated driver amplifier shall be stepped down from 25 VAC to 1 VAC by an MN-ABPM audio bridge.
    h. Shall be EST model MN-FVPN

D. Each ACU/FACP control panel audio source shall be connected to the LAN/WAN network interface. Each Network audio connectivity shall consist of a supervised decoder capable of decoding MP3, WMA, G.711 and PCM data streams in either HTTP, UDP or RTP format. Audio decoder shall operate on filtered-regulated 24 VDC power derived from the panel power supply. Power shall supplied directly from the FACP or listed Auxiliary Power Supply, ensuring a reliable and monitored power source.

1. Audio decoder shall be equipped with:
    a. A RCA jack line-level audio output.
    b. RJ45 10/100BASE T Mbit Automatic Ethernet port.
    c. RS232 DB9 male interface capable of 115,200 baud communication.
    d. Normally open relay contact rated at 500 mA @ 24 VDC.
    e. Reset button.
    f. Aluminum case.
    g. Analog audio from the decoder shall connect to the ACU/FACP audio source unit, then to a MN-PASM supervisory module that is monitored by a SIGA-RM1 supervisory module.
    h. Shall be EST model MN-FVPN

2.7 FIRE-ALARM CONTROL UNIT

A. The main control panel or remote control panel(s) shall be a multi-processor based networked system designed specifically for detection, and one-way emergency audio communications applications. The control panel(s) shall be listed and approved for the application under the standard(s) as listed. The control panel shall be model EST3.

B. The control panel(s) shall include all required hardware, software and site-specific system programming to provide a complete and operational system. The control panel(s) shall be designed such that interactions between any applications can be configured, and modified using software provided by a single supplier. The control panel operational priority shall assure that life safety takes precedence among the activities coordinated by the control panel.

C. The network of control panels shall include the following features.
    1. Ability to download all network applications and firmware from the configuration computer on the network or at any control panel (network node) location.
    2. Each control panel (network node) shall have an LCD display with common controls. The display shall be configurable to display the status of any and all combinations of alarm, supervisory, trouble, monitor, or group event messages.
    3. Each LCD display on the system shall be capable of being programmed for control functions of any node or the entire network. The LCD display shall reside on the network as a node and continue to operate with a or with multiple faults fault on the network. An LCD can be programmed to be only operational when a node is operational in stand-alone mode, with a network fault.
    4. The system program shall have a minimum of 100 system definable Service Groups to facilitate the testing of installed system based on the physical layout of the system. Service groups that disable entire circuits serving multiple floors or fire zones shall not be considered as equal.

5. Advanced Windows based programming with Program Version Reporting to document any and all changes made during system start-up or system commissioning. Time and date stamps of all modifications made to the program must be included to allow full retention of all previous program version data. The operator display shall clearly identify unacknowledged and acknowledged alarm, supervisory, trouble, and monitor status messages. The system shall provide the ability to download data from the analog/addressable detectors to a PC while the system is on-line and operational in the protected premises. The downloaded data may then be analyzed in a diagnostic program supplied by the system manufacturer.

6. Provide system reports that list a detailed description of the status of system parameters for corrective action or for preventive maintenance. Reports shall be displayed on the operator interface or be capable of being sent to a printer.

7. Provide an authorized operator with the ability to operate or modify system functions such as system time, date, passwords, holiday dates, restart the system and clear the control panel event history file.

8. Provide an authorized operator the ability to perform test functions within the installed system.

9. Supervision of system components, wiring, initiating devices and software shall be provided by the control panel. Failure or fault of system component or wiring shall be indicated by type and location on the LCD display. Software and processor operation shall be independently monitored for failure. The system shall provide fail-safe operation, with multiple-levels of system operation

D. Each network control panel shall be capable of:

1. Supporting up to 2500 intelligent analog/addressable points.

2. Supporting up to ten (10) intelligent addressable loops, each loop supporting 125 detectors and 125 modules, total of 250 points per loop.

3. Supporting network connections up to 63 other control panels and annunciators.

4. Supporting up to 124 (security/access control) Keypad/Displays.

5. Support up ten network digital dialers with Contact ID or SIA format and TAP Pager protocol.

6. Supporting multiple RS-232 communication ports and protocol.

7. Supporting up to 1000 chronological history events.

8. Total network response shall not exceed 3 seconds

E. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, monitor, trouble and component status messages and control menu.

1. The common control switches and with corresponding LEDs provided as minimum will be; Reset, Alarm Silence, Panel Silence, and Drill. It shall be able possible to add additional switches/LEDs as required.

2. The main control panel shall have a display that is a 24 lines by 40 character graphic LCD and backlit when active.

3. Each point shall have a custom event message of up to 40 charters, for a total of 80 characters. In addition instructional text messages shall be supported with a maximum of 2,000 characters each.

4. Provide 8 simultaneous events to be displayed. The first seven (7) highest priority events in addition to the most recent event. The events shall be automatically placed in event types (Alarm, Supervisory, Monitor & Trouble) for easy access and it shall be possible to view the specific event type separately. Having to scroll through a mixed list of event types is not acceptable.

5. Provide an internal audible signal with different programmable patterns to distinguish between alarm, supervisory, trouble and monitor conditions.

6. This display shall be an EST 3-LCDXL1.

7. Systems not capable of such a display on the main panel faceplate shall include a CRT/Monitor display meeting the above requirements and battery stand-by.

F. Audio One-Way Voice Communications

1. The voice communication system shall be eight (8) channel audio evacuation system, to allow the ability to have eight simultaneous announcements/paging. The audio channels shall be designed as such:

   a. Mass Notification Message (HIGHEST PRIORITY)

   b. Fire Message

   c. Alert Message

   d. Stand-by Message

   e. Elevator Message

   f. Stairwell Message

   g. Security/Weather Threat

   h. Manual Paging

2. The system custom digital voice message shall provide a minimum of 100 minutes and be created as a .wav file format. All messages shall be able to be created on-site without any special tools or burning of chips. Provide as a minimum one twenty (20) watt supervised audio amplifier per paging zone. The system software shall be capable of selecting the required audio source signal for amplification. To enhance system survivability, each audio amplifier shall automatically provide an internally generated local 3-3-3, 1000 Hz temporal pattern output upon loss of the audio signal from the one-way emergency audio control unit, during an alarm condition.

3. Audio amplifiers shall be power limited and protected from short circuits conditions on the audio circuit wiring. Each amplifier output shall be a supervised, dedicated, selectable 25/70 Vrms output.

4. Provide a standby audio amplifier per node that will automatically sense the failure of any primary amplifier installed in the same panel and replace the function of the failed amplifier.

G. Provide an Emergency Voice Communication System with the following design features:

1. An audio control unit with Microphone for Paging.

2. Provide 3-position switch for each evacuation signaling zone and “All-Call”, with "Page FIRE", "Auto" and “Page ALERT” positions identified and two LED status indicators for each audio visual evacuation signaling "zone", one red and one yellow.

3. These LED's shall illuminate to indicate respectively:

a. Evacuation signals activated (red),

b. Trouble in audio (speaker) or visual (strobe) circuit(s) (yellow).

H. Provide 2-position switch for manually activate pre-recorded voice messages, with “Message Name" positions identified and one LED status indicators, one red. Provide minimum of 12 selector switches.

1. These LED's shall illuminate to indicate respectively:

a. Message activated (red)

I. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions

J. Circuits Requirements:

1. Signaling Line Circuits for Network Communications:

a. Class B, Style 7.

2. Dedicated Ethernet IP Network shall be Class B.

3. Signaling Line Circuits for Intelligent Analog Addressable Loop:

a. Class B, Style 4.

b. No more than 100 detectors or 100 modules installed on a loop.

4. Initiating Device Circuit:

a. Class B, Style B

5. Notification Appliance Circuits:

a. Class B, Style Y.

b. Maximum circuit loading to 2 amps for visuals.

6. Activation of alarm notification appliances, smoke control, elevator recall and other functions shall occur within 3 seconds after the activation of an initiating device.

K. Smoke-Alarm Verification:

1. Initiate an audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an NRTL-listed and -approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

L. Elevator Recall:

1. Smoke detectors at the following locations shall initiate automatic elevator recall. Alarm-initiating devices, except those listed, shall not start elevator recall.
    a. Elevator lobby detectors except the lobby detector on the designated floor.
    b. Smoke detector in elevator machine room.
    c. Smoke detectors in elevator hoistway.
2. Elevator lobby detectors located on the designated recall floors shall be programmed to move the cars to the alternate recall floor.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.
    a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

M. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke barrier walls shall be connected to fire-alarm system.

N. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change to alternate settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

O. Digital Alarm Communicator Transmitter: The system shall have an integrated off premise communications capability using a digital alarm communications transmitter (DACT) for sending system events to multiple central monitoring station (CMS) receivers. The system shall provide the CMS(s) with point identification of system events using 4/2, 3/1, Contact ID or SIA DCS protocols. The dialer shall have the capability to support up to 255 individual accounts and to send account information to eight (8) different receivers, each having a primary and secondary telephone access number.

System events shall be capable of being directed to one or more receivers depending on event type or location as specified by the system designed. In the event of a panel CPU failure during a fire alarm condition, the DACT degraded mode shall transmit a general fire alarm signal to the CMS.

1. Digital data transmission shall include the following (Contact ID)
    a. Address of the alarm-initiating device.
    b. Loss of ac supply or loss of power.
    c. Low battery.
    d. Abnormal test signal.
    e. Communication bus failure
2. Shall be EST, model 3-MODCOM.

P. Alpha-Numerical Pager Interface: The system shall transmit an alphanumeric system activity message, by event, by point descriptor to a commercial paging system of the owner's choice, using TAP Pager protocol.

1. Shall be EST, model 3-MODCOM/P

Q. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, shall be powered by nominal 24-V dc source.

R. Secondary Power: Shall provide 24 hours supervisory and 15 minutes of alarm with batteries, automatic battery charger, and automatic transfer switch.

2.8 REMOTE ANNUNCIATOR

A. Annunciator shall match those of fire-alarm control unit LCD display functions for alarm, supervisory, monitor and trouble indications and common system controls including; acknowledging, silencing, resetting, and testing. See section 2.3 E for specific requirements.

1. This display shall be EST, model 3-LCDXL1 or 3-LCDANN

2.9 NAC Power Supply:

A. The NAC power supply shall be independent unit that will provide power to visual strobe notification appliances. It shall be possible to configure the NAC's to follow the main panel's NAC or activate from intelligent synchronized modules. The booster NAC's must be configurable to operate independently at any one of the following rates: continuous synchronized, or 3-3-3 temporal. Fault conditions on the power supply shall not impede alarm activation of host NAC circuits or other power supplies. The NAC power supply must be able to provide concurrent power for notification devices, security devices, access control equipment and auxiliary devices such as door holders. All the NAC Power

Supplies shall be synchronized. The power supply shall support up to 24 amp hour batteries.

1. Power supply shall be minimum of 10 amps and UL 864 Listed.
2. Four independent 3amp NAC circuits. Each being configurable as auxiliary power.
3. All circuits shall be synchronized.
4. Shall be EST, model BPS10A or APS10A

2.10 INTELLIGENT ANALOG SYSTEM SMOKE DETECTORS

A. General Requirements for Intelligent Analog Detectors

1. Integral Microprocessor: All decisions are made at the detector determining if the device is in the alarm or trouble condition.
2. Non-Volatile Memory: Permanently stores serial number, and type of device. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, time of last alarm and analog signal patterns for each sensing element just before last alarm.
3. Electronic Addressing: Permanently stores programmable system address. It shall be possible to address each intelligent module without the use of DIP or rotary switches. Devices using switches for addressing shall not be acceptable.
4. Automatic Device Mapping: Each detector transmits wiring information regarding its location with respect to other devices on the circuit, creating an As-Built wiring diagram. This will also provide enhanced supervision of the device physical location and the device message shall reside with the location and not the device address. Devices installed in the wrong location will always report the correct message of the physical location.
5. Sensitivity Range: Each analog addressable smoke detector's sensitivity shall be capable of being programmed individually as: most sensitive, more sensitive, normal, less sensitive or least sensitive. It shall be possible to automatically change the sensitivity of individual analog/addressable detectors for the day and night periods. It shall be possible to program control panel activity to each level.
6. Pre-Alarm: Detector stores 20 pre-alarm sensitivity values to alert local personnel prior to the sensor reaching a full evacuation sensitivity. Sensitivity values can be set in 5% increments.
7. Environmental Compensation: The detector's sensing element reference point shall automatically adjust, compensating for background environmental conditions such as dust, temperature, and pressure. Periodically, the sensing element real-time analog value shall be compared against its reference value. The detector shall provide a maintenance alert signal when the detector reaches 75% (Dirty) to 99% (More Dirty) compensation has been used. The detector shall provide a dirty fault signal when 100% or greater compensation has been used.

8. Twin Status LEDs: Flashing Green LED shows normal; flashing RED shows alarm state; steady RED and steady GREEN show alarm state in stand-alone mode, visible from any direction.

9. UL Sensitivity Testing: The detector shall utilize a supervised microprocessor that is capable of monitoring the sensitivity of the detector. If the detector sensitivity shifts outside of the UL limits, a trouble signal is sent to the panel.

10. Device Replacement: The system shall allow for changing of detector types for service replacement purposes without the need to reprogram the system. The replacement detector type shall automatically continue to operate with the same programmed sensitivity levels and functions as the detector it replaced. System shall display an off-normal condition until the proper detector type has been installed or a change in the application program profile has been made.

B. Intelligent 4D Multi-sensor Detector (Photo/Ion/Thermal and Time)

1. Provide intelligent analog addressable 4D multi-sensor smoke detectors or equivalent at the locations shown on the drawings. The detectors shall gather analog information from each of its three fire sensing elements, photo, ion and temperature and convert these into digital signals. The signals shall be monitored and analyzed separately with respect to a fourth element – Time. Historical readings shall be compare against time patterns and known fire characteristics to make an alarm decision. Digital filters shall remove signal patterns that are not typical of fires.

2. Separately mounted combinations of photoelectric detectors, ionization detectors and heat detectors in the same location, clustered at the manufacturer's listed spacing is an acceptable alternative.

3. Provide EST, model SIGA2.

C. Intelligent 3D Multi-sensor Detector (Photo/Thermal and Time)

1. Provide intelligent analog addressable 3D multi-sensor smoke detectors at the locations shown on the drawings. The 3D Intelligent detector gathers analog information from each of its two fire sensing elements and converts it into digital signals. The detectors on-board microprocessor measures and analyzes these signals separately with respect to a third element – Time. It compares the information to historical readings, time patterns and known fire characteristics to make an alarm decision. Digital filters remove signal patterns that are not typical of fires.

2. Provide EST, model SIGA2-PHS.

D. Intelligent Photoelectric Detector

1. Provide intelligent analog addressable photoelectric smoke detectors at the locations shown on the drawings.

2. Provide EST, model SIGA2-PS.

E. Intelligent 135 Degree Fixed Temperature / Rate of Rise Heat Detector

1. Provide intelligent combination fixed temperature/rate-of-rise heat detectors at the locations shown on the drawings. The heat detector shall have a low mass thermistor heat sensor and operate at a fixed temperature and at a temperature rate-of-rise. It shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on the analysis of the data. Systems using central intelligence for alarm decisions shall not be acceptable. The intelligent heat detector shall have a nominal fixed temperature alarm point rating of 135°F (57°C) and a rate-of-rise alarm point of 15°F (9°C) per minute. The heat detector shall be rated for ceiling installation at a minimum of 70 ft (21.3m) centers and be suitable for wall mount applications.

2. Provide EST, model SIGA2-HRS.

F. Fixed Temperature Heat Detector

1. Provide intelligent fixed temperature heat detectors at the locations shown on the drawings. The heat detector shall have a low mass thermistor heat sensor and operate at a fixed temperature. It shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on the analysis of the data. Systems using central intelligence for alarm decisions shall not be acceptable. The heat detector shall have a nominal alarm point rating of 135°F (57°C). The heat detector shall be rated for ceiling installation at a minimum of 70 ft (21.3m) centers and be suitable for wall mount applications.

2. Provide EST, model SIGA2-HFS.

G. Detector Base Types

1. Provide standard detector mounting bases suitable for mounting on 1-gang, or 4” octagon box and 4” square box. The base shall, contain no electronics and support all series detector types. Bases with electronics or dip-switches are not acceptable.

    a. Provide EST, model SIGA2-SB or SB4.

2. Provide relay detector mounting bases suitable for mounting on 1-gang, or 4” octagon box and 4” square box. The relay base shall support all Signature Series detector types and have the following minimum requirements:

    a. The relay shall be a bi-stable type and selectable for normally open or normally closed operation.

    b. The position of the contact shall be supervised.

    c. The relay shall automatically de-energize when a detector is removed.

    d. The operation of the relay base shall be controlled by its respective detector processor or under program control as required by the application. Detector relays not capable of operational programming

independent of the detector shall not be considered equal. Form "C" Relay contacts shall have a minimum rating of 1 amp @ 30 Vdc and be listed for "pilot duty".

e. Removal of the respective detector shall not affect communications with other detectors.

f. Provide ST, model SIGA2-RB or RB4

3. Provide audible detector mounting bases suitable for mounting on 4" x 4" octagonal concrete ring (mud box) and 4" square x 2-1/8" (54 mm) deep box.

a. The base shall support all Signature Series detector types and be capable of single or group operation. The audible base shall emit a temporal alarm tone and be selectable for low or high output.

b. The operation of the audible base shall be controlled by its respective detector processor or under program control as required by the application. Detector audible base not capable of operational programming independent of the detector shall not be considered equal.

c. The audible bases shall be UL268 and UL464 Listed, and provide a reverberant room sound output per UL464 of 81 dBA at 10ft (3m). and an average anechoic sound output of 90 dBA at 10 ft.(3m).

d. Provide EST, model SIGA2-AB4G.

H. Intelligent Duct Smoke Detector - Photoelectric

1. Provide intelligent photoelectric duct smoke detector at the locations shown on the drawings.

a. One form C auxiliary alarm relay rated at 2amps @ 30Vdc.

b. The operating range shall be 100ft/min to 4,000ft/min air velocity and temperature range of –20 to 158°F.

c. Sample tube can be installed with or without the cover place and be rotated in 45 degree increments to ensure proper alignment with duct airflow.

d. Local magnet-activated test switch.

e. Each and every duct detector shall be installed and testing in accordance with manufacturer's instructions. This specifically includes pressure differential, velocity and humidity testing. Said test results shall be documented and submitted to the owner.

f. Provide EST, model SIGA2-SD

2. Provide remote test station with Alarm LED and Key Switch.

a. Provide EST, model SD-TRK.

3. Relay Fan Shutdown: Rated to interrupt fan motor control circuit. Furnish and install separate device for each motor start. Connect to motor start as required for fan shutdown during alarm condition.

a. Provide EST, model SIGA-CR.

I. Beam Smoke Detectors

1. Provide reflective beam type smoke detectors at the locations shown on the drawings. This detector shall consist of a integrated transmitter and receiver capable of being powered separately or together.

2. The detector shall operate in either a short range of 15 to 160 ft. or a long range of 160 to 330 ft. The detector shall feature a bank of alignment LEDs on both the receiver and transmitter to ensure proper alignment without the use of special tools.

3. The detector shall utilize an automatic gain control to compensate for gradual signal deterioration from dirt accumulation on lenses. The beam smoke detectors shall be powered from the system control panel. Testing shall be carried out using calibrated test filters.

4. Provide a remote key activated remote test station.

a. Provide GE Beam Smoke Detector, model EC-50R or EC-100R with EC-LLT Test Station.

2.11 INTELLIGENT MODULES

A. It shall be possible to address each intelligent module without the use of DIP or rotary switches. Devices using switches for addressing shall not be acceptable. The personality of multifunction modules shall be programmable at site to suit conditions and may be changed at any time using a personality code downloaded from the Analog Loop Controller.

1. Integral Microprocessor: All decisions are made at the module determining if the device is alarm or trouble condition.

2. Non-Volatile Memory: Permanently stores serial number, and type of device. Automatically updates historic information including hours of operation, number of alarms and troubles, time of last alarm.

3. Automatic Device Mapping: Each detector transmits wiring information regarding its location with respect to other devices on the circuit, creating an As-Built wiring diagram. This will also provide enhanced supervision of the device physical location. The device message shall reside with the location and not the device address. Devices installed in the wrong location will always report the correct message of the physical location.

4. Twin Status LEDs: The modules shall have a minimum of 2 diagnostic LEDs mounted behind a finished cover plate. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status.

5. Input and output circuit wiring shall be supervised for open and ground faults.

6. Two styles of modules shall be available, those designed for gang box mounting, and where multiple modules are required in a single location, plug in modules shall be provided with a Universal Input/Output motherboard.

B. Intelligent Input Module. The Input Module shall provide one or two supervised Class B input circuit capable of a minimum of 4 personalities, each with a distinct operation. The module shall be suitable for mounting on North American 2 ½" (64mm) deep 1-gang boxes and 1 ½" (38mm) deep 4" square boxes with 1-gang covers. The single input module shall support the following circuit types:

- Normally-Open Alarm Latching (Manual Stations, Heat Detectors, etc.)
- Normally-Open Alarm Delayed Latching (Waterflow Switches)
- Normally-Open Active Non-Latching (Monitor, Fans, Dampers, Doors, etc.)
- Normally-Open Active Latching (Supervisory, Tamper Switches)

1. Provide GE-EST model SIGA-CT1 or CT2 or SIGA-MCT2

C. Intelligent Relay Module. Provide addressable control relay circuit modules shall provide one (1) form C dry relay contacts rated at 24Vdc @ 2 amps (pilot duty) to control external appliances or equipment. The position of the relay contact shall be confirmed by the system firmware. The module shall be suitable for mounting on North American 2 ½" (64mm) deep 1-gang boxes and 1 ½" (38mm) deep 4" square boxes with 1-gang covers.

1. Provide GE-EST, model SIGA-CR or SIGA-MCR.

D. NAC Control Module: Provide intelligent NAC control module shall provide one (1) supervised Class B output circuit capable of a minimum of 2 personalities, each with a distinct operation. The gang box -mounted version shall be suitable for mounting in North American 2 ½" (64mm) deep 2-gang boxes and 1 ½" (38mm) deep 4" square boxes with 2-gang covers, or European 100mm square boxes. The plug-In version shall plug into a universal multi-module motherboard. The NAC control module shall support the following operations:

- 24volt NAC circuit
- Audio notification circuit 25v or 70v
- Telephone Power Selector with Ring Tone (Firefighter's Telephone)
- Visual Synchronized Output to Genesis appliances or to NAC Power Supply.

1. Provide GE-EST, model SIGA-CC1 or –CC1S or SIGA-MCC1 or MCC1S.

E. FA Elevator Interface Cabinet

1. Provide red metal cabinet enclosure with word FIRE in white letters on the cover. Inside will be four intelligent relays (Primary Recall, Alternate Recall, Fire Hat and Shunt Trip), one monitor input (Shunt Trip AC Power Supervision) and 120vac relay (Shunt Trip AC Power Supv).
2. Label all the relays and input modules for the function.

3. Provide GE-EST, model MFC-A with SIGA-UIO6, -MCR, MCT2 and MR-101.

2.12 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. The manual pull station will have an intelligent module integral of the unit.
3. Station Reset: key operated switch shall match the control panel key.
4. Manual pull stations that initiated an alarm condition by opening the unit are not acceptable.
5. Provide EST, model SIGA-278.

B. Indoor Protective Shield: Factory-fabricated clear plastic enclosure. Hinged at the top to permit lifting for access to initiate alarm. Lifting the cover actuates an integral battery powered audible horn (when noted on the drawings) intended to discourage false-alarm operation.

C. Weatherproof manual pull station shall be provided of red metal construction with special weatherproof gasket metal red box.

1. Single-action operation.
2. Station Reset: key operated switch shall match the control panel key.
3. The intelligent monitor module will be located within the building and not with the station
4. Provide EST, model MPSR1.

2.13 NOTIFICATION APPLIANCES

A. All appliances shall be of the same manufacturer as the Fire Alarm Control Panel specified to insure compatibility between the appliances and the control panels, and to insure that the application of the appliances are done in accordance with the single manufacturers' instructions.

B. Notification Appliances – Visual (Fire – Evacuation)

1. Provide wall or ceiling mounted clear lens strobes with red body and "FIRE" markings. Strobes shall provide a smooth light distribution pattern field selectable candela 15 cd, 30 cd, 75 cd, and 110 cd flash output rating, UL1971 listed with in-out screw terminals shall be provided for wiring. The strobe (15, 30, 75, 110) candela rating shall be view from the side window to verify the

setting. All strobes shall be synchronization to within 10 milliseconds for an indefinite period shall not require the use of separately installed remote synch modules. The strobes shall mount to one-gang electrical box.

2. The device shall have plastic protective cover for during installation.

3. The actual candela setting on the visual shall be marked on the appliance.

4. Provide EST, model Genesis Series devices.

C. Notification Appliances – Visual (ALERT – Mass Notification)

1. Provide wall or ceiling mounted amber colored lens strobe with white body and "ALERT" markings. Amber strobe shall provide a smooth light distribution pattern field selectable candela 15 cd, 30 cd, 75 cd, and 110 cd flash output rating UL1638 listed, with in-out screw terminals shall be provided for wiring. The strobe (A, B, C, D) candela rating shall be view from the side window to verify the setting. All strobes shall be synchronization to within 10 milliseconds for an indefinite period shall not require the use of separately installed remote synch modules. The strobes shall mount to electrical box

2. Provide Amber Strobe adapter plate that will allow G4 Speaker-Strobe. The amber strobe shall be located directly below the Fire clear lens strobe.

3. The device shall have plastic protective cover for use during installation.

4. Provide EST, model Genesis G1A or G4E Strobe Expander Series appliances.

D. Notification Appliance - 4" Cone Speaker

1. Speakers shall have a 4" Mylar cone, paper cones shall not accept as equal. The rear of the speakers shall be completely sealed protecting the cone during and after installation. In and out screw terminals shall be provided for wiring. Speakers shall provide 1/4w, 1/2w, 1w, and 2w power taps for use with 70V systems. The actual speaker wattage & strobe candela setting shall be viewable from the device window to verify the wattage setting, without removing the device. To make any changes to the speaker wattage will only require the removal of the cover plate.

2. At the 2-watt setting, the speaker shall provide a 90 dBA sound output over a frequency range of 400-4000 Hz. as measured in reverberation room per UL-1480.

3. Combination speaker strobes shall meet both sections of above.

4. The device shall have plastic protective cover for use during installation.

5. The actual wattage setting on the speaker shall be marked on the face of the appliance.

6. Provide EST, model Genesis Series devices.

E. Notification Appliance - Re-entrant Speakers

1. Provide 4" red re-entrant speakers at loud ambient locations or for outdoor weatherproof installation. Weatherproof boxes shall be provided for outdoor

mounting. Speakers shall provide 2w, 4w, 8w, and 15w power taps. The re-entrant speakers shall utilize a high-efficiency compression driver. Cone type drivers are not acceptable. At the 15 watt setting, the speaker shall provide a 102 dBA sound output over a frequency range of 400-4000 Hz. when measured in reverberation room per UL-1480.

2. Combination speaker strobes shall meet both sections of above.

3. Provide EST, model Genesis Series devices.

2.14 GUARDS FOR PHYSICAL PROTECTION

A. Provide welded mesh of size and shape for the manual pull stations, smoke detectors, notification appliances at location noted on the drawings.

2.15 MAGNETIC DOOR HOLDERS

A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.

1. Electromagnet: Requires no more than 3 W to develop 25-lbf holding force.

2. Wall-Mounted Units: Flush mounted unless otherwise indicated.

3. Rating: 120-V ac, 24-V ac or dc.

4. Provide EST, model 1500 series or DH Series.

2.16 INSPECTION BAR CODES

A. Inspection bar codes shall be installed on all initiating devices, annunciators, control panels and power supplies.

B. Inspection bar codes used by the system must utilize Code 3 of 9 or other approved format, and contain a minimum of eight (8) digits that comprise a unique serial identifier within the Web-based Reporting System. There shall be no duplication of serial numbers. Serial number shall be printed below the bar code for identification purposes.

C. Inspection bar codes shall be limited in size to no more than 2” (5cm) in width, and 3/8” (2 cm), in height and shall include a Mylar® or other protective coating to protect the bar code from fading due to sunlight or exposure.

D. Inspection bar codes shall be installed on each device in such a manner as to require that scanning of the bar code take place no further than 12” from the device during inspection.

2.17 WIRE AND CABLE

A. Signaling Line Circuits – Network Data: Twisted pair, not less than No. 18 AWG or as recommended by the manufacturer.

B. Signaling Line Circuits – Intelligent Loop: Non-Twisted pair, not less than No. 16 AWG or as recommended by the manufacturer.

1. Circuit Integrity Cable: Provide as required to meet NFPA or Local Code requirements.

2. CI Cable shall meet article 760, power limited fire alarm service.

C. Notification Appliance Circuits –

1. Audio: Twisted pair, not less than No. 16 AWG or as recommended by the manufacturer.

2. Visual. Non-Twisted pair, not less than No. 12 AWG or as recommended by the manufacturer.

D. 120 VAC circuits

1. Minimum 10 AWG for panel power circuits. Minimum 12 AWG for all other circuits.
2. Sharing of neutrals is prohibited. Each circuit shall have its own dedicated neutral conductor.

E. Fiber Optic Cable

1. Only glass filament cable permitted. Plastic filament fiber optic cables are not acceptable.
2. 62.5/125 micron fiber optic cables
3. ST connectors used at all equipment terminations

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72 and NEC Article 760.

B. Any low-voltage copper wiring that leaves the protection of a building shall be provided with a system manufacturer specified UL 497B listed transient protection devices where the circuit leaves the building and where it enters the next building.

C. Equipment Mounting: Install MNEC/FA control unit on finished floor with tops of cabinets not more than 72 inches above the finished floor.

D. Smoke- or Heat-Detector Spacing:

1. Comply with NFPA72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.

2. Comply with NFPA72, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.

3. Smooth ceiling spacing shall not exceed 30 feet.

4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Appendix A [**or Appendix B**] in NFPA 72.

5. HVAC: Locate detectors not closer than [**3 feet**] [**5 feet**] from air-supply diffuser or return-air opening.

6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture.

E. Duct Smoke Detectors: Comply with NFPA72 and NFPA90A. Install sampling tubes so they extend the full width of duct.

F. Heat Detectors in Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location.

G. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.

H. Wall-Mounted Notification Appliances: Install so entire appliance is between 80 and 96 inches above finished floor on the wall.

I. MNEC/FA Control Units: Surface mounted, with tops of cabinets not more than 72 inches above the finished floor.

J. LOC/Annunciator: Install with top of panel not more than 72 inches above the finished floor.

3.2 CONNECTIONS

3.3 IDENTIFICATION

3.4 GROUNDING

3.5 FIELD QUALITY CONTROL

3.6 Training

A. The System Supplier shall schedule and present a minimum of 8 hours of documented formalized instruction for the building owner, detailing the proper operation of the installed System.

B. The instruction shall be presented in an organized and professional manner by a person factory trained in the operation and maintenance of the equipment and who is also thoroughly familiar with the installation.

C. The instruction shall cover the schedule of maintenance required by NFPA 72 and any additional maintenance recommended by the system manufacturer.

D. Instruction shall be made available to the Local Municipal Fire Department if requested by the Local Authority Having Jurisdiction.

END OF SECTION 28 31 00

28 31 13 Fire Detection and Alarm Control, GUI, and Logic Systems
28 31 23 Fire Detection and Alarm Annunciation Panels and Fire Stations
28 31 33 Fire Detection and Alarm Interfaces
- 28 31 33.13 Fire Detection and Alarm Interfaces to Remote Monitoring
- 28 31 33.16 Fire Detection and Alarm Interfaces to Access Control Hardware
- 28 31 33.23 Fire Detection and Alarm Interfaces to Access Control System
- 28 31 33.26 Fire Detection and Alarm Interfaces to Intrusion Detection
- 28 31 33.33 Fire Detection and Alarm Interfaces to Video Surveillance
- 28 31 33.43 Fire Detection and Alarm Interfaces to Elevator Control

28 31 43 Fire Detection Sensors
28 31 46 Smoke Detection Sensors
28 31 49 Carbon-Monoxide Detection Sensors
28 31 53 Fire Alarm Initiating Devices
- 28 31 53.13 Fire Alarm Pull Stations
- 28 31 53.23 Fire Alarm Level Detectors Switches
- 28 31 53.33 Fire Alarm Flow Switches
- 28 31 53.43 Fire Alarm Pressure Sensors

28 31 63 Fire Alarm Integrated Audio Visual Evacuation Systems
- 28 31 63.13 Fire Alarm Horns and Strobes

28 32 00 Radiation Detection and Alarm
28 32 13 Radiation Detection and Alarm Control, GUI, and Logic Systems
28 32 23 Radiation Detection and Alarm Integrated Audio Evacuation Systems
28 32 33 Radiation and Alarm Detection Sensors
28 32 43 Radiation and Alarm Dosimeters

28 33 00 Fuel Gas Detection and Alarm
28 33 13 Fuel Gas Detection and Alarm Control, GUI, and Logic Systems
28 33 23 Fuel Gas Detection and Alarm Integrated Audio Evacuation Systems
28 33 33 Fuel Gas Detection Sensors

28 34 00 Fuel Oil Detection and Alarm
28 34 13 Fuel Oil Detection and Alarm Control, GUI, and Logic Systems
28 34 23 Fuel Oil Detection and Alarm Integrated Audio Evacuation Systems
28 34 33 Fuel Oil Detection Sensors

28 35 00 Refrigerant Detection and Alarm
28 35 13 Refrigerant Detection and Alarm Control, GUI, and Logic Systems
28 35 23 Refrigerant Detection and Alarm Integrated Audio Evacuation Systems
28 35 33 Refrigerant Detection Sensors

28 40 00 ELECTRONIC MONITORING AND CONTROL

28 46 00 Electronic Detention Monitoring and Control Systems
28 46 13 Hard-Wired Detention Monitoring and Control Systems
28 46 16 Relay-Logic Detention Monitoring and Control Systems
28 46 19 PLC Electronic Detention Monitoring and Control Systems
28 46 23 Computer Based Detention Monitoring and Control Systems
28 46 26 Discreet Logic Detention Monitoring and Control Systems
28 46 29 Discreet-Distributed Intelligence Detention Monitoring and Control Systems

6505536

PURCHASE CONTRACT or ATTACHMENT TO
A PURCHASE ORDER FOR PROCUREMENT OF:

Campus Security Management Systems (CSMS) and Services IDIQ

University of Arkansas at Fayetteville
Fayetteville, Arkansas

I. GENERAL. This purchase contract/order is issued in accordance with an agreement reached between the University of Arkansas at Fayetteville (Owner) and Triple-S Alarm Company, Inc. (Contractor) on August 20, 2007 for the supply and installation of **Campus Security Management Systems (CSMS) and Services,** (Access Controls, Building Security, Fire Alarm Systems, Video Surveillance and Integration Equipment for monitoring), systems referenced in the RFP Response dated June 7, 2007. The agreement is for a term of one year, beginning on September 1, 2007. Annual renewals may be made up to a maximum of six (6) renewals by mutual agreement of the parties. Negotiations will begin 60 days prior to the renewal date and be completed on or before the renewal date. The Owner and Contractor shall agree to all of the below listed terms and conditions of the agreement.

II. CONDITIONS OF AGREEMENT RENEWAL. Renewal of the agreement will be by mutual agreement of the parties. Cost increases for material and labor at contract renewal will be negotiated with certain limitations (3%, as listed in the RFP Response) and will require justification from the Contractor. The general terms and conditions of the agreement will remain intact throughout the term of the contract and its successors. If in the sole opinion of the Owner, the pricing does not remain competitive, or if service or product quality becomes unsatisfactory, the Owner reserves the right to terminate the agreement with thirty (30) days written notice.

III. TERMINATION OF THE AGREEMENT.

A. DEFAULT.

1. Default in promised delivery, or failure to meet specifications authorized by the Owner may be deemed adequate for termination of this agreement. The Contractor shall give written notice, to the university, for any reason for backorder and the expected delivery date for backordered materials.
2. Consistent failure to meet project expectations or delivery schedules without a valid reason may be deemed adequate for termination of the agreement.

B. FOR CAUSE.

1. This award may be cancelled for cause by either party by giving thirty (30) days written notice of intent to cancel. The emphasis of responsibility of performance is and should be directed to the contractor. If there is a reason the contractor does not want to continue in the contract, the University should not force the issue, but let them go. Performance will not be good in this case anyway.

2. Cause for the Owner to cancel shall include, but not be limited to, failure to perform to contract conditions.

3. The Contractor shall be required to honor all purchase contract/orders that were prepared and dated prior to the date of expiration or cancellation.

4. Cancellation by the Owner does not relieve the Contractor of any liability arising out of a default or nonperformance.

IV. AMENDMENTS TO THE AGREEMENT. The agreement may be amended from time to time by mutual agreement of the parties. Amendments may be proposed by either party, and each hereby agrees to negotiate the terms of the proposed amendment in good faith. In the event that the terms of the proposed amendment cannot be agreed upon by the parties, either party may initiate termination proceedings if it so desires. This would involve termination of the entire agreement. This negotiation will typically happen yearly. If the contractor proposes a rate increase that we feel to be unfair, we can terminate the agreement.

A. In the case of "non-standard and updated" CSMS, systems shall be provided with pricing structure that is considered "usual and customary" markup as represented in the RFP response from Triple-S Alarm Company, Inc.

V. CONDITIONS OF THE AGREEMENT. This contract is in no way a commitment by the Owner to purchase any specific, estimated, minimum, or maximum quantities of materials or services from the Contractor. The agreement in no way binds the Owner to procure life safety and security systems exclusively from the Contractor. The Owner specifically reserves the right to procure **Campus Security Management Systems (CSMS) and Services** from any vendor or supplier, if in its sole discretion, it is deemed to be in the Owner's best interests.

VI. APPLICABLE LAWS. Any dispute arising from this agreement shall be decided by the laws of the state of Arkansas. Nothing in this contract shall be construed to waive the sovereign immunity of the state of Arkansas or any entities thereof, including the Owner.

VII. SCOPE OF PURCHASE CONTRACT/ORDER. Each purchase contract/order issued under the terms of the agreement constitutes a separate, specific agreement for delivery at a specific price. No purchase contract/order will be considered as a precedent in determining the conditions of any future purchase contract/order.

VIII. OTHER DOCUMENTS INCORPORATED BY REFERENCE. The following documents are hereby made a part of this purchase contract/order:

A. A Request for Proposals (RFP) made by the Owner dated May 15, 2007 for the procurement of **Campus Security Management Systems (CSMS) and Services**, including Addendum 1.

B. Drawings of the JBHT-CAE building used for pricing.

C. Any other documents referenced in the RFP and RFP Response.

D. Any other documents attached to or referenced in this purchase contract/order including but not limited to drawings, specifications or others, including any addenda to those documents.

E. An electronic version (PDF or Excel) of the Triple-S Alarm Company, Inc. RFP proposal. This provides the unit price & quantities submitted by Triple-S Alarm Company, Inc.

VIII. ORDER OF PRECEDENCE FOR CONTRACT DOCUMENTS. In the event of conflicting requirements in the documents, the following order of precedence shall apply, in descending order.

A. This purchase contract/order, including any addenda, for the delivery of materials and/or services;

B. The specific drawings, specifications and other documents related to this purchase contract/order;

C. This purchase contract/order attachment;

D. The attached pricing document;

E. The Request for Proposal response.

IX. PAYMENT FOR MATERIALS AND SERVICES. Payment to the Contractor for materials and services rendered directly to the Owner will be in accordance with the terms of this purchase contract/order. When required by the purchase contract/order, the Contractor shall submit Consent of Surety, Release of Claims, and other closeout documents required by the purchase contract/order prior to payment. Payment amounts to the Contractor for materials and services rendered to a Prime Contractor shall be made in accordance with the terms of UAF pay application documents (this will be a standard AIA document). Other payment terms shall be in accordance with the Contractor's subcontract with the Prime Contractor.

X. PROCESS FOR DELIVERY OF MATERIALS AND SERVICES.

A. The process for **delivery of materials or parts ONLY** directly to the Owner will be as follows:

1. The Owner will submit a list of parts or materials to the Contractor.

2. The Contractor shall submit detailed pricing including descriptions, part numbers, quantities, unit prices, taxes, overhead and profit, as defined for outside vendor materials, extended prices and total exact price to the Owner.

3. The Owner issues a purchase contract/order to the Contractor for the materials or parts.

B. The process for **delivery of materials, parts, and services** directly to the Owner will be as follows:

1. The Owner will submit a detailed description of the work to the Contractor. The description may include drawings, specifications or other documents.

2. The Contractor shall submit detailed pricing for the work including standard systems pricing (including allowable adjustments), non-standard systems "other services" pricing (including allowable adjustments), catalog parts, subcontracts, outside materials, taxes, allowable labor charges, and markups as defined for sub-contractors and outside vendor materials.

3. The Owner will issue a purchase contract/order to the Contractor for the work.

4. The Contractor shall provide, submit and maintain, a current Certificate of Insurance consistent with the values stated in the original RFP, acceptable to the Owner, for each separate project.

5. The Contractor shall provide and submit a current payment and performance bond, acceptable to the Owner, for each separate project where the value of the work is in excess of $20,000.00

6. The Contractor shall provide and submit a current Wage Rate Determination from the Arkansas Department of Labor, acceptable to the Owner, for each separate project where the value of the work is in excess of $75,000.00

C. The process for **delivery of parts, materials, and services assigned to a Prime Contractor**, on behalf of the Owner, for a specific contract shall be as follows:

1. The Owner will issue a Notice to the Contractor directing the Contractor to provide services to Design Professionals, and pricing to Prime Contractors for the project according to the provisions of this purchase contract/order.

2. The Contractor shall provide all services required by this document to the Design Professionals.

3. The Contractor shall provide detailed pricing as in paragraph "XI. B. 2."; above to any potential Prime Contractor in accordance with the provisions of this agreement.

4. If, for any reason, the Prime Contractor is unable to reach an agreement with the Owner for delivery of a construction project, the Contractor is due no payment or reimbursement of any kind from the Owner or Design Professional for services rendered under this purchase contract/order.

5. When the Owner awards a contract to a Prime Contractor, subsequent pricing by Contractor for proposal requests and change orders will be in accordance with the provisions of the IDIQ agreement only, and not subject to markup limits in the Owner's agreement with the Prime Contractor.

6. The Contractor shall provide insurance, payment & performance bond, etc. as reasonably directed through the project documents and/or Prime Contractor.

XI. SPECIFIC TERMS OF THE AGREEMENT FOR THE SUPPLY AND INSTALLATION OF **Campus Security Management Systems (CSMS) and Services** AND RELATED EQUIPMENT. The below listed provisions supplement the provisions of the RFP.

A. STANDARD SYSTEMS

1. Standard system prices **do not** include state, county, city and local sales taxes. When applicable, sales taxes shall be applied at the current rate for the City of Fayetteville, AR.

2. Standard system prices **do** include freight.

3. Standard system prices **do** include the labor components below:

    i. Review and provide detailed design consultation of electrical and systems drawings.

    ii. Development of shop drawings and submittals.

    iii. Supervision at the usual and customary level as determined by the Owner, Engineer, and Contractor.

    iv. Installation of systems and controls programming.

    v. Programming, including graphic displays, sequences of operation, weekly schedules, and alarms.

    vi. Commissioning assistance at the usual and customary level for a project not employing third party Commissioning Agents.

    vii. Owner training.

    viii. Development of record drawings and calculations for systems capacities.

4. Standard system prices do include the warranty per the Supplier submittals and a 1-year warranty on labor and services from date of substantial completion.

5. Standard system prices do not include installation of power wiring (conduit and wiring) and demolition of existing systems. Prices do include coordination with other crafts for installation of power, control conduit, and wiring.

6. Standard system prices do include supply of all necessary new equipment and components to provide a fully functioning standard system.

7. Standard system prices do not include smoke dampers. On projects, which have additional dampers or replacement of faulty units, this work will be handled as other services by UAF. UAF will determine to procure work with others or issue change orders for Supplier to perform the work.

8. Standard system prices do not include performance and payment bonds. Bond rate was provide in the RFP response and will be itemized to show cost.

9. Standard system prices **do** include all Contractor overhead and profit. The Contractor's quoted overhead is ten percent **(10%)** and the quoted profit is four percent **(4%)**.

B. INTEGRATION OF **Campus Security Management Systems (CSMS) and Services** WITH OTHER EQUIPMENT.

1. Standard system prices includes all required software, hardware, integrators, interfaces, gateways and other devices (not including the Cat V ether net hubs) necessary to permit all viewing and command operations of exposed points from operator workstations for the equipment. Prices **do** include all necessary setup and programming of the equipment supplied for a complete and operable system.

C. ORDERS FOR DELIVERY OF PARTS, MATERIALS, AND SERVICES DIRECTLY TO THE OWNER

1. For projects in which the Contractor is acting as a Prime Contractor, the submitted prices shall cover all overhead, profit, and fee. A predetermined percentage overhead, profit, and fee have been submitted for work identified outside the scope of the original RFP.

2. When Subcontractor work is necessary, as directed by the Owner, Triple-S Alarm Company, Inc. shall competitively procure three bids on subcontracted scopes of work. The lowest "qualified" acceptable bidder, as determined by the Contractor and Owner, will be selected. The Owner and Contractor will determine if the bidders and bids are acceptable. Contractor shall furnish copies of actual subcontractor bids to Owner upon request.

3. Add actual cost of performance and payment bonds, if required.

D. PROCESS FOR DELIVERY OF PARTS, MATERIALS, AND SERVICES TO A PRIME CONTRACTOR FOR A SPECIFIC CONTRACT

1. The Owner will issue a notice to the Contractor directing the Contractor to provide consultation services to Design Professionals and pricing to potential Prime Contractors for the project.

2. The Engineer shall submit narratives, drawings, and specifications to Contractor at various stages of the progress; including, but not limited to 25%, 50%, 75% and 100% complete construction documents. The Design Group shall make such submissions so that the Contractor is allowed a sufficient and reasonable time period in which to complete the review and consultation.

3. The drawings submitted by the Engineer shall include the quantity of system devices, layout, and operational conditions of the design.

4. Contractor shall provide review of Engineer's drawings and specifications, and unit price of scope of work. Price shall be submitted in excel format for review and evaluation. A list of design and operational issues shall be provided for review. The intent is that the Owner, Engineer, and Contractor shall participate in a collaborative process to arrive at a final design.

5. Contractor shall provide detailed calculation of price with appropriate documentation.

6. Owner and/or Engineer will review pricing, contract quantities, and overall scope of project. Owner, Engineer, and Contractor shall agree upon final pricing.

7. When applicable, the Design Group shall insert quoted pricing into the specifications as an allowance and / or coordinate that each prime contractor be given an allowance to include in their bid.

8. The Owner selected Prime Contractor shall contract (via Purchase Contract/Order) with the Contractor for the prescribed scope of work.

9. Change Orders to the Prime Contract.

    i. Contractor shall price additions and deletions to the scope, in accordance with this contract and the contract documents; whichever is in the best interest of the Owner.

ii. Prime Contractor shall incorporate the Contractor's price to the Design Group as provided in the General Conditions of the project documents and contract.

E. PROJECT MANAGEMENT FEE. A project management fee will not be added to the total price. The project management responsibilities and any associated "fee" is included in the unit prices submitted.

F. COMMISSIONING SUPPORT PROVIDED BY CONTRACTOR.

1. For projects that do not include a formal commissioning program by a listed Commissioning Agent, Contractor shall provide the industry standard usual and customary level of performance testing, documentation, and certification.

2. For projects that do include a formal commissioning program by a listed Commissioning Agent, Contractor shall provide the level of support shown in the Commissioning specification for those projects. If the Cx Agent or Owner deems additional hours are necessary, the Contractor shall submit detailed pricing to Owner for approval.

Signature of review and acceptance for the **Campus Security Management Systems (CSMS) and Services** IDIQ Purchase Contract/Order Agreement as follows:

_____ _____

Triple-S Alarm Company, Inc. (Contractor) Print Name

License Number: 0035140507

Date: 9-26, 2007 Title: PRESIDENT

_____ _____

University of Arkansas (Owner) Print Name

Date: 9/26, 2007 Title: DIRECTOR DESIGN & CONSTRUCTIO

	Project Name: UNIVERSITY OF ARKANSAS IDIQ			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Systems Integration and Front End			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
	Facility Commander Wnx - Headend System Software			
0	FCWnx v7.0 Regional single server software license package (1) server client, (1) remote client, (16) readers w/ GE Micro driver, (16) cameras w/ GE video drivers	$1,784.84	$0.00	
0	FCWnx v7.0 Global multi-server software license package (1) server client, (1) remote client, capacity license for supporting (2) regional server systems	$3,966.30	$0.00	
	Facility Commander Wnx - System Software Options			
0	FCWnx Additional single client license.	$495.79	$0.00	
0	FCWnx Guard Tour, add-on option per server	$1,189.89	$0.00	
0	FCWnx Osborn Hoffman or Sureguard Receiver emulator for GE NX-590E Intrusion alarm monitoring direct over IP, add-on option per instance	$1,189.89	$0.00	
0	FCWnx API Connectivity, add-on option per instance application.	$594.95	$0.00	
	Facility Commander Wnx - New System Reader Capacity Licenses Upgrades			
0	FCWnx new system Reader capacity license, 16 to 32 readers per server	$247.89	$0.00	
0	FCWnx new system Reader capacity license, 32 to 64 readers per server	$396.63	$0.00	
0	FCWnx new system Reader capacity license, 64 to 128 readers per server	$694.10	$0.00	
0	FCWnx new system Reader capacity license, 128 to 256 readers per server	$1,289.05	$0.00	
0	FCWnx new system Reader capacity license, 256 to 512 readers per server	$2,429.36	$0.00	
0	FCWnx new system Reader capacity license, 512 to 1024 readers per server	$4,709.98	$0.00	
0	FCWnx new system Reader capacity license, 1024 to 2048 readers per server	$8,924.18	$0.00	
0	FCWnx new system Reader capacity license, 2048 to 4096 readers per server	$17,848.35	$0.00	
	Facility Commander Wnx - New System Camera Capacity Licenses Upgrades			
0	FCWnx new system Camera capacity license, 16 to 32 cameras per server	$247.89	$0.00	
0	FCWnx new system Camera capacity license, 32 to 64 cameras per server	$396.63	$0.00	
0	FCWnx new system Camera capacity license, 64 to 128 cameras per server	$694.10	$0.00	
0	FCWnx new system Camera capacity license, 128 to 256 cameras per server	$1,289.05	$0.00	
0	FCWnx new system Camera capacity license, 256 to 512 cameras per server	$2,429.36	$0.00	
0	FCWnx new system Camera capacity license, 512 to 1024 cameras per server	$4,709.98	$0.00	
0	FCWnx new system Camera capacity license, 1024 to 2048 cameras per server	$8,924.18	$0.00	
0	FCWnx new system Camera capacity license, 2048 to 4096 cameras per server	$17,848.35	$0.00	
	Servers			
0	DELL 1900 Entry Level Tower Server (O.S., Monitor not included)	$3,347.56	$0.00	
	Workstations			
0	Dell OptiPlex GX745 Entry Level Workstation, Windows XP Pro (Monitor not included)	$943.98	$0.00	
0	DELL Precision 490 High End Workstation with dual video monitor support, Windows XP Pro (Monitor not included)	$3,942.50	$0.00	
0	Printers for Servers	$101.70	$0.00	
	Monitors & Displays			
0	DELL 19" DVI/RGB Flat Panel	$396.63	$0.00	
	Software & Services			
0	Windows XP Professional Edition O.S.	$341.90	$0.00	
0	Windows Server 2003 Standard Edition O.S., 5 CAL License	$1,081.21	$0.00	
0	SQL Server 2005 Standard Edition D.B. , 5 CAL License	$1,829.26	$0.00	
0	Custom Graphics set-up per building	$711.90	$0.00	
	Accessories			
0	FCWnx Integrated Photo ID Credentialing, add-on option per client	$753.60	$0.00	
0	Badge Production System. Videology camera kit, USB, high resolution, auto focus, color, 1/4" CCD, 480 TVL, built-in, lens, USB Cable, PAL format, power cable, tripod. Does not require Capture Card.	$867.63	$0.00	
0	Fargo DTC 550 Single Side base model printer	$3,147.26	$0.00	
0	Osbourn Hoffman or Surguard Receiver Upgrade to Existing UA PD Receiver	$5,339.25	$0.00	
	Secure Perfect Upgrades & Conversions			
0	SP Global Edition Installation Service. Travel expenses NOT included. Performed by GE IT Engineer. All companies should have factory installation.	$10,170.00	$0.00	
	Facility Commander Wnx Level 1 SSA - Global Server Software			
0	FCWnx Level 1 SSA - Regional single server system, base software licensed up to (5) remote clients, (32) reader (32)camera capacity. Additional software options and capacity licenses apply separately.	$762.75	$0.00	
0	FCWnx Level 1 SSA - Global multi-server system, base software licensed up to (5) remote clients, (2) regional server support	$1,017.00	$0.00	
	Facility Commander Wnx Level 1 SSA - System Software Options			
0	FCWnx Level 1 SSA per Additional single client license	$127.13	$0.00	
		$0.00		
	Facility Commander Wnx Level 1 SSA - System Capacity Licenses			
0	FCWnx Level 1 SSA Reader capacity license, 128 readers per server	$381.38	$0.00	
0	FCWnx Level 1 SSA Camera capacity license, 64 cameras per server	$203.40	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	**$0.00**	
		Material and Installation Cost	**$0.00**	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ NEW BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Access Control			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
	M5 Enclosures			
	PXNplus CPU requires Facility Commander Wnx			
0	M5 PXNplus, FC Wnx, Secure Perfect - Serial & Ethernet, 10/100Mb	$1,891.62	$0.00	
	M5 & M3000 Reader, Input and Ouput Option Boards			
0	16 Digital Output with relays, 16 -.04A @ 24VDC (max.), Micro/5-All versions	$531.89	$0.00	
0	20 Digital Input, 20 supervised points, 1K supervision resistors supplied, Micro/5-All versions	$531.89	$0.00	
0	8RP Reader Interface, 12VDC F/2F and Supervised F/2F readers, No provision for REX or Door Status contacts. M/5-all versions, not in combination with 2RP or 2SRP	$867.63	$0.00	
	Power Supply and Battery Backup			
0	Power Supply 3 amp, 110VAC to 12VDC, (UL listed)	$104.12	$0.00	
0	Battery Back-Up and Power Supply, 6-amp, 110/220VAC,UL294, FCC, CE listed, 7-Ah battery. Enclosure: 10 x 12 x 6 inches. Recommended for M/5-PX, M/5-PXN, and M/5-PXNplus microcontrollers. Not required for M/2000-PX(N) or M/3000-PX(N).	$422.06	$0.00	
	Readers and Door Hardware			
0	Model T-520SW reader kit, gray single-width, F/2F and Wiegand formats, 18" pigtail, with MR/J Box.	$457.65	$0.00	
0	Proximity Cards with external ID, Single Side Printing.	$3.05	$0.00	
0	Proximity Key Fobs	$4.60	$0.00	
0	Push to Exit Buttons	$101.70	$0.00	
0	Egress Motions for Doors	$166.79	$0.00	
0	Single Mag-locks **(PROVIDED AND INSTALLED BY DOOR HARDWARE CONTRACTOR**	$0.00	$0.00	
0	Single Mag-locks **(PROVIDED AND INSTALLED BY TRIPLE-S ALARM**	$289.85	$0.00	
0	Double Mag-locks **(PROVIDED AND INSTALLED BY DOOR HARDWARE CONTRACTOR**	$0.00	$0.00	
0	Double Mag-locks **(PROVIDED AND INSTALLED BY TRIPLE-S ALARM**	$625.46	$0.00	
0	Door Strikes **(PROVIDED AND INSTALLED BY DOOR HARDWARE CONTRACTOR**	$0.00	$0.00	
0	Door Strikes **(PROVIDED AND INSTALLED BY TRIPLE-S ALARM**	$274.59	$0.00	
0	Service outside of warranty	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$5,125.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Access Control Maintenance Agreement (Devices for this building only) **(See Attached)**	$11,278.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
	add 5% every year there after.			
0	Access 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00	
0	Access Additional 2 Year Warranty Only (Without Maintenance Agreement)	$14,847.00	$0.00	
0	**Access Control 18awg 8 conductor Power (enter numerical value per thousand feet)**	$0.58 cents per foot	$0.00	
0	**Access Control 22/4 awg (enter numerical value per thousand feet)**	$0.09 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ RENOVATED BUILDING		
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER		
	Access Control		
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**
0	M5 PXNplus, FC Wnx, Secure Perfect - Serial & Ethernet, 10/100Mb	$1,891.62	$0.00
0	8RP Reader Interface, 12VDC F/2F and Supervised F/2F readers, No provision for REX or Door Status contacts. M/5-all versions, not in combination with 2RP or 2SRP	$867.63	$0.00
0	WIU-4 Wiegand Interface Unit converts existing readers to GE Data Format	$111.87	$0.00
0	Power Supply 3 amp, 110VAC to 12VDC, (UL listed)	$104.12	$0.00
0	Battery Back-Up and Power Supply, 6-amp, 110/220VAC,UL294, FCC, CE listed, 7-Ah battery. Enclosure: 10 x 12 x 6 inches. Recommended for M/5-PX, M/5-PXN, and M/5-PXNplus microcontrollers. Not required for M/2000-PX(N) or M/3000-PX(N).	$422.06	$0.00
0	Service outside of warranty	$80.00 / Per Hour	
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour	
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$5,125.00 each person	$0.00
0	Response Time	1 hrs / 24 hrs system working	
0	Access Control Maintenance Agreement (Devices for this building only) **(See Attached)**	$11,278.00	$0.00
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year		
	add 5% every year there after.		
0	Access 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00
0	Access Additional 2 Year Warranty Only (Without Maintenance Agreement)	$14,847.00	$0.00
0	**Access Control 18awg 8 conductor Power (enter numerical value per thousand feet)**	$0.58 cents per foot	$0.00
0	**Access Control 22/4 awg (enter numerical value per thousand feet)**	$0.09 cents per foot	$0.00
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax is Not Included.	**Line Items Total Cost**	$0.00
		Material and Installation Cost	$0.00
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING		
	Triple-S Alarm will re-use existing readers, maglocks, strikes, door contacts, exit buttons, and motions. This system price would be used when retrofitting a building with access control devices already installed. If new devices are to be installed refer to new installation prices.		

	Project Name: UNIVERSITY OF ARKANSAS IDIQ NEW BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Security			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	NX-6 Control Panel Includes Owner's Manual and Installation Instructions. Keypad and transformer sold	$50.85	$0.00	
0	NX-1448E Fixed English Keypad with Fold-Down Door Euro design. 192 Zones. 6.2" W x 5.2" H x 1.3" D. Swing-down removable door conceals controls. White	$145.43	$0.00	
0	T-0001 16.5V Plug in Transformer for control panel	$5.79	$0.00	
0	1125-N Recessed Magnetic Door Contact	$55.94	$0.00	
0	2315 Overhead Magnetic Door Contact	$86.45	$0.00	
0	DT-435T Dual Motion Detector	$152.55	$0.00	
0	FG-730 Ceiling Mount Glassbreak Detector	$127.13	$0.00	
0	AP669 360 Degree Ceiling Mount Motion Detector	$254.25	$0.00	
0	DT-24 Indoor Surface Mount Siren	$76.28	$0.00	
0	DS-50 Outdoor Surface Mount Siren	$76.28	$0.00	
0	NX-540E Telephone Interface Module	$55.70	$0.00	
0	NX-590E Network Module for Interface to Surguard Receiver	$164.55	$0.00	
0	Service outside of warranty	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$5,125.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Security Maintenance Agreement (Devices for this building only) **(See Attached)**	$1,002.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
0	Security 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00	
0	Security Additional 2 Year Warranty Only (Without Maintenance Agreement)	$3,893.00	$0.00	
0	**Security 18awg Power (enter numerical value per thousand feet)**	$0.13 cents per foot	$0.00	
0	**Security 22/4 awg (enter numerical value per thousand feet)**	$0.09 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ RENOVATED BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Security			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	NX-6 Control Panel Includes Owner's Manual and Installation Instructions. Keypad and transformer sold	$50.85	$0.00	
0	NX-1448E Fixed English Keypad with Fold-Down Door Euro design. 192 Zones. 6.2" W x 5.2" H x 1.3" D. Swing-down removable door conceals controls. White	$145.43	$0.00	
0	T-0001 16.5V Plug in Transformer for control panel	$5.79	$0.00	
0	1125-N Recessed Magnetic Door Contact	$55.94	$0.00	
0	2315 Overhead Magnetic Door Contact	$86.45	$0.00	
0	DT-435T Dual Motion Detector	$152.55	$0.00	
0	FG-730 Ceiling Mount Glassbreak Detector	$127.13	$0.00	
0	AP669 360 Degree Ceiling Mount Motion Detector	$254.25	$0.00	
0	DT-24 Indoor Surface Mount Siren	$76.28	$0.00	
0	DS-50 Outdoor Surface Mount Siren	$76.28	$0.00	
0	NX-540E Telephone Interface Module	$55.70	$0.00	
0	NX-590E Network Module for Interface to Surguard Receiver	$164.55	$0.00	
0	Outside Central Station Monitoring	$27.00 / month	$0.00	
0	Service outside of warranty	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$5,125.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Security Maintenance Agreement (Devices for this building only) **(See Attached)**	$1,002.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
0	Security 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00	
0	Security Additional 2 Year Warranty Only (Without Maintenance Agreement)	$3,893.00	$0.00	
0	**Security 18awg Power (enter numerical value per thousand feet)**	$0.13 cents per foot	$0.00	
0	**Security 22/4 awg (enter numerical value per thousand feet)**	$0.09 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			
	Triple-S Alarm will re-use existing door contacts, motion detectors, glassbreaks, alarm panels, and keypads. This system price would be used when retrofitting a building with security devices already installed. If new devices are to be installed refer to new installation prices.			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ NEW BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Video Surveillance			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	Digi-PlexIV Matrix System, 256 inputs, 20 Monitor Outputs.	$19,300.63	$0.00	
0	Floor Rack Mount For Digi-PlexIV Matrix System.	$310.19	$0.00	
0	SymDec16+4-1.28T	$4,517.51	$0.00	
0	Rack Mount Ears for SYMDEC.	$123.06	$0.00	
0	Wall Rack Mounts for SYMDEC.	$483.08	$0.00	
0	GEC-DRHDN-VA3 Rugged Dome with Wall Mount, Day-Night, Exterior Camera , (**High End Camera)**	$605.12	$0.00	
0	GEC-DME-VA3 Dome with Flush Mount Kit, Surface Mount, Interior **(Middle Camera)**	$472.91	$0.00	
0	MD-1500 2" MINI dome camera **(Low End Camera)**	$307.24	$0.00	
0	GEC-IPVRH-POE rugged IP dome, 520TVL **(IP CAMERA)**	$897.50	$0.00	
0	GE Software for Each IP Camera added to Network	$406.80	$0.00	
0	GE 24VAC Indoor Power Supply , 16 Outputs	$269.51	$0.00	
0	17" LCD Monitor	$915.30	$0.00	
0	Wall Mount for LCD Monitor	$106.79	$0.00	
0	GEA-CE4-D26N Legend Dome, 26X Day/Night, Wall Mount Housing, Htr/Fan, Smoke Acrylic, NTSC, Coax/UTP	$2,394.02	$0.00	
0	GEA-F4-D26N Legend Dome, 26X Day/Night, Flush Mount Housing, Smoke Acrylic, NTSC, Coax/UTP, T-Bar Support Kit	$2,394.02	$0.00	
0	GEA-HE4-D26N Legend Dome, 26X Day/Night, Pendant Mount Housing, Htr/Fan, Smoke Acrylic, NTSC, Coax/UTP	$2,558.77	$0.00	
0	KTP-24 VAC/100 VA Outdoor Power Supply for PTZ	$100.68	$0.00	
0	KTD-83 Data Signal Distributor, 6 Channel for PTZ control	$393.58	$0.00	
0	S700VR-EST Fiber Communication Hubs includes transmitter and receiver	$889.88	$0.00	
0	KTD-405 Keypad Joystick for PTZ control	$784.11	$0.00	
0	NVT Converter for twisted pair to camera. Use instead of Coax	$66.11	$0.00	
0	Service outside of warranty	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$5,125.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Video Surveillance Maintenance Agreement (Devices for this building only) **(See Attached)**	$3,584.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
	add 5% every year there after.			
0	Video Surveillance 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00	
0	Video Surveillance Additional 2 Year Warranty Only (Without Maintenance Agreement)	$5,893.00	$0.00	
0	**Cat-6 Cable (enter numerical value per thousand feet)**	$0.13 cents per foot	$0.00	
0	**Fiber Cable (enter numerical value per thousand feet)**	$0.73 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ RENOVATED BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Video Surveillance			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	Digi-PlexIV Matrix System, 256 inputs, 20 Monitor Outputs.	$19,300.63	$0.00	
0	Floor Rack Mount For Digi-PlexIV Matrix System.	$310.19	$0.00	
0	SymDec16+4-1.28T	$4,517.51	$0.00	
0	Rack Mount Ears for SYMDEC.	$123.06	$0.00	
0	Wall Rack Mounts for SYMDEC.	$483.08	$0.00	
0	GEC-DRHDN-VA3 Rugged Dome with Wall Mount, Day-Night, Exterior Camera , (**High End Camera)**	$605.12	$0.00	
0	GEC-DME-VA3 Dome with Flush Mount Kit, Surface Mount, Interior **(Middle Camera)**	$472.91	$0.00	
0	MD2-1500 2" MINI dome camera **(Low End Camera)**	$307.24	$0.00	
0	GEC-IPVRH-POE rugged IP dome, 520TVL **(IP CAMERA)**	$694.10	$0.00	
0	GE Software for each IP Camera added to Network (License Per I.P. address)	$406.80	$0.00	
0	GE 24VAC Indoor Power Supply , 16 Outputs	$269.51	$0.00	
0	17" LCD Monitor	$915.30	$0.00	
0	Wall Mount for LCD Monitor	$106.79	$0.00	
0	GEA-CE4-D26N Legend Dome, 26X Day/Night, Wall Mount Housing, Htr/Fan, Smoke Acrylic, NTSC, Coax/UTP	$2,394.02	$0.00	
0	GEA-F4-D26N Legend Dome, 26X Day/Night, Flush Mount Housing, Smoke Acrylic, NTSC, Coax/UTP, T-Bar Support Kit	$2,394.02	$0.00	
0	GEA-HE4-D26N Legend Dome, 26X Day/Night, Pendant Mount Housing, Htr/Fan, Smoke Acrylic, NTSC, Coax/UTP	$2,558.77	$0.00	
0	KTP-24 VAC/100 VA Outdoor Power Supply for PTZ	$100.68	$0.00	
0	KTD-83 Data Signal Distributor, 6 Channel for PTZ control	$393.58	$0.00	
0	F700VR-EST Fiber Communication Hubs includes transmitter and receiver	$889.88	$0.00	
0	KTD-405 Keypad Joystick for PTZ control	$784.11	$0.00	
0	NVT Converter for twisted pair to camera. Use instead of Coax	$66.11	$0.00	
0	Video Surveillance Maintenance Agreement (Devices for this building only) **(See Attached)**	$2,383.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
	add 5% every year there after.			
1	Video Surveillance 3 Year Warranty Only (Without Maintenance Agreement)	$0.00	$0.00	
1	Video Surveillance Additional 2 Year Warranty Only (Without Maintenance Agreement)	$4,893.00	$0.00	
0	**Cat-6 Cable (enter numerical value per thousand feet)**	$0.13 cents per foot	$0.00	
0	**Fiber Cable (enter numerical value per thousand feet)**	$0.73 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales tax in not included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			
	Triple-S Alarm will re-use existing cameras, power supplies, and cable. This system price would be used when retrofitting a building with video surveillance devices already installed. If new devices are to be installed refer to new installation prices.			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ NEW BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Fire Alarm			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	**Fire Alarm Control Panel** Must Be Peer to Peer Analog Addressable Network Equipt.	$3,059.14	$0.00	
	Network Must have Capability of up to 65,000 Points. Panel Must be equipt to annunciate			
	all Alarm and Trouble information to each Fire Alarm Control Panel for future network control.			
	Panel includes (backcan, door, primary power supply w/ batteries, rs-485 card, chas-7, cpu)			
0	Liquid Crystal Display Must Have 960 Characters Minimum.	$144.41	$0.00	
0	Fire Alarm Control Panel Power Supply (7 amp minimum) with batteries.	$561.38	$0.00	
0	Remote Power Supply (10 amp minimum) with batteries.	$328.49	$0.00	
0	Control Display Modules for Custom Deactivation (12 button minimum).	$186.11	$0.00	
0	SLIC Addressable Cards (250 devices minimum).	$570.54	$0.00	
0	Fire Alarm Dialer	$339.68	$0.00	
0	Audio / Fire Phone Control Center	$1,528.55	$0.00	
0	Fire Alarm Amplifier 40 watt for Audio	$423.07	$0.00	
0	U.L. Listed Parallel Printer.	$406.80	$0.00	
0	Fire Alarm Network Annunciator (Back-can, Door, Display, Network Card)	$433.24	$0.00	
0	RS232 Fire Alarm Communication Card	$164.75	$0.00	
0	Fire Alarm Graphics Package **(Fireworks**)	$17,746.65	$0.00	
	All Components to be U.L. 864 , UOJZ, UOXX Listed P.C. for Fire Controls. Must Include UL Listed			
	Flat Screen Monitor.			
0	Fire Alarm Fire Fighter Graphic Smoke Control Station with Fire Alarm Annunciation	$2,101.12	$0.00	
0	In-graphic 3-pos Rotary Switch, ON-AUTO-OFF wired, 3 points **(For Each Exhaust Fan)**	$73.22	$0.00	
0	Driver Module **(FOR EACH EXHAUST FAN)**	$215.60	$0.00	
0	Smoke Detector Addressable. Must have Electronic Mapping Capabiliity	$105.77	$0.00	
0	Conventional Smoke Detector with Addressable Module	$144.41	$0.00	
0	Fixed Temp Heat Detector Addressable. Must have Electronic Mapping Capability	$96.62	$0.00	
0	Flame Detector U.V. Explosion Proof with addressable module	$1,321.08	$0.00	
0	Detector Sounder Base	$48.82	$0.00	
0	Detector Sounder Base Riser Module	$156.62	$0.00	
0	Standard Detector Base with Trim Ring	$8.14	$0.00	
0	Smoke Detector Vandel-Proof Guard	$57.77	$0.00	
0	Duct Detectors Addressable must include Housing, Addressable Smoke Detector, individual control relay,	$224.76	$0.00	
	and test station with LED.			
0	Single Action or Dual Action Manual Pull Station	$102.72	$0.00	
0	Key Operated Pull Station With Module and Backbox	$218.66	$0.00	
0	Single Input Addressable Module	$90.51	$0.00	
0	Single Control Relay	$101.70	$0.00	
0	Dual Input Addressable Module	$109.84	$0.00	
0	Strobe Sync Module	$121.02	$0.00	
0	Horn Strobe Wall Mount must be Multi-Candela Selectable	$103.73	$0.00	
0	Horn Strobe Ceiling Mount must be Mulit-Candela Selectable	$108.82	$0.00	
0	Speaker / Strobe must be Multi-Candela Selectable	$112.89	$0.00	
0	Speaker / Strobe Ceiling Mount must be Multi-Candela Selectable	$112.89	$0.00	
0	Strobe Wall Mount must be Multi-Candela Selectable	$98.65	$0.00	
0	Strobe Ceiling Mount must be Mulit-Candela Selectable	$101.70	$0.00	
0	Door Holders, Surface Mount 110v/24v	$134.24	$0.00	
0	Storage Back Can For Prints And Spare Parts	$550.20	$0.00	
0	Industrial Grade Label for All Device Descriptions	$0.00	$0.00	
0	Electronic Mapping Capability for All Device Descriptions	$0.00	$0.00	
0	**Fire Fighter Phones**	$57.97	$0.00	
0	**Fire Fighter Phone Cabinet**	$399.68	$0.00	
0	**Fire Fighter Phone 1/4" Jacks**	$104.75	$0.00	
0	Dell Laptop PC Inspirion 1300 1.4 G Processor Minimum for programming	$1,500.00	$0.00	
0	Service outside of warranty During Normal Business Hours.	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$3,700.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Test Equipment For Smoke Detector Sensativity Testing	$0.00	$0.00	
0	Fire Alarm Annual Inspection & Maintenance Agreement (Devices for this building only) **(See Attached)**	$9,733.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year			
	add 5% every year there after.			
0	Fire Alarm 5 Year Warranty Only (Without Maintenance Agreement) **Per NFPA Requirements, EST**	$0.00	$0.00	
	Certified Technicians or Triple-S EST Certified Technicians.			
0	Fire Alarm Plenum Cable 18/2 (75 ft Average Used Between Devices)	$.10 cents per foot	$0.00	

0	Fire Alarm Plenum Cable 14/2 (75 ft Average Used Between Devices)	$.31 cent per foot	$0.00	
0	Fiber Cable Between Fire Panels and U OF A Switch	$.73 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans, 75ft of wire) Line Item Prices Reflect Change Orders, Future Budget Pricing. Sales Tax Is Not Included.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			

	Project Name: UNIVERSITY OF ARKANSAS IDIQ NEW RENOVATED BUILDING			
	TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER			
	Fire Alarm			
Project QTY	**DESCRIPTION OF EQUIPMENT**	**PRICE INSTALLED/per each**	**total price**	
0	**Fire Alarm Control Panel** Must Be Peer to Peer Analog Addressable Network Equipt.	$3,059.14	$0.00	
	Network Must have Capability of up to 65,000 Points. Panel Must be equipt to annunciate			
	all Alarm and Trouble information to each Fire Alarm Control Panel for future network control.			
	Panel includes (backcan, door, primary power supply w/ batteries, rs-485 card, chas-7, cpu)			
0	Liquid Crystal Display Must Have 960 Characters Minimum.	$144.41	$0.00	
0	Fire Alarm Control Panel Power Supply (7 amp minimum) with batteries.	$561.38	$0.00	
0	Remote Power Supply (10 amp minimum) with batteries.	$328.49	$0.00	
0	Control Display Modules for Custom Deactivation (12 button minimum).	$186.11	$0.00	
0	SLIC Addressable Cards (250 devices minimum).	$570.54	$0.00	
0	Fire Alarm Dialer	$339.68	$0.00	
0	Audio / Fire Phone Control Center	$1,528.55	$0.00	
0	Fire Alarm Amplifier 40 watt for Audio	$423.07	$0.00	
0	U.L. Listed Parallel Printer.	$406.80	$0.00	
0	Fire Alarm Network Annunciator (Back-can, Door, Display, Network Card)	$433.24	$0.00	
0	RS232 Fire Alarm Communication Card	$164.75	$0.00	
0	Fire Alarm Graphics Package **(Fireworks**)	$17,746.65	$0.00	
	All Components to be U.L. 864 , UOJZ, UOXX Listed P.C. for Fire Controls. Must Include UL Listed			
	Flat Screen Monitor.			
0	Fire Alarm Fire Fighter Graphic Smoke Control Station with Fire Alarm Annunciation	$2,101.12	$0.00	
0	In-graphic 3-pos Rotary Switch, ON-AUTO-OFF wired, 3 points **(For Each Exhaust Fan)**	$73.22	$0.00	
0	Driver Module **(FOR EACH EXHAUST FAN)**	$215.60	$0.00	
0	Smoke Detector Addressable. Must have Electronic Mapping Capabiliity	$105.77	$0.00	
0	Conventional Smoke Detector with Addressable Module	$144.41	$0.00	
0	Fixed Temp Heat Detector Addressable. Must have Electronic Mapping Capability	$96.62	$0.00	
0	Flame Detector U.V. Explosion Proof with addressable module	$1,321.08	$0.00	
0	Detector Sounder Base	$48.82	$0.00	
0	Detector Sounder Base Riser Module	$156.62	$0.00	
0	Standard Detector Base with Trim Ring	$8.14	$0.00	
0	Smoke Detector Vandel-Proof Guard	$57.77	$0.00	
0	Duct Detectors Addressable must include Housing, Addressable Smoke Detector, individual control relay,	$224.76	$0.00	
	and test station with LED.			
0	Single Action or Dual Action Manual Pull Station	$102.72	$0.00	
0	Key Operated Pull Station With Module and Backbox	$218.66	$0.00	
0	Single Input Addressable Module	$90.51	$0.00	
0	Single Control Relay	$101.70	$0.00	
0	Dual Input Addressable Module	$109.84	$0.00	
0	Strobe Sync Module	$121.02	$0.00	
0	Horn Strobe Wall Mount must be Multi-Candela Selectable	$103.73	$0.00	
0	Horn Strobe Ceiling Mount must be Mulit-Candela Selectable	$108.82	$0.00	
0	Speaker / Strobe must be Multi-Candela Selectable	$112.89	$0.00	
0	Speaker / Strobe Ceiling Mount must be Multi-Candela Selectable	$112.89	$0.00	
0	Strobe Wall Mount must be Multi-Candela Selectable	$98.65	$0.00	
0	Strobe Ceiling Mount must be Mulit-Candela Selectable	$101.70	$0.00	
0	Door Holders, Surface Mount 110v/24v	$134.24	$0.00	
0	Storage Back Can For Prints And Spare Parts	$550.20	$0.00	
0	Industrial Grade Label for All Device Descriptions	$0.00	$0.00	
0	Electronic Mapping Capability for All Device Descriptions	$0.00	$0.00	
0	**Fire Fighter Phones**	$57.97	$0.00	
0	**Fire Fighter Phone Cabinet**	$399.68	$0.00	
0	**Fire Fighter Phone 1/4" Jacks**	$104.75	$0.00	
0	Dell Laptop PC Inspirion 1300 1.4 G Processor Minimum for programming	$1,500.00	$0.00	
0	Service outside of warranty During Normal Business Hours.	$80.00 / Per Hour		
0	After Hour Service Call outside of warranty 8 AM TO 5 PM Normal Business Hours	$120.00 / Per Hour		
0	Factory Training As described in Specs (Current Prices of Hotel and Air Fare)	$3,700.00 each person	$0.00	
0	Response Time	1 hrs / 24 hrs system working		
0	Test Equipment For Smoke Detector Sensativity Testing	$0.00	$0.00	
0	Fire Alarm Annual Inspection & Maintenance Agreement (Devices for this building only) **(See Attached)**	$9,733.00	$0.00	
	Maintenance Agreement Calculated Not to EXCEED 7.5% of System Total Price On 1st Year	**(NOT INCLUDED IN TOTAL)**		
	add 5% every year there after.			
0	Fire Alarm 5 Year Warranty Only (Without Maintenance Agreement) **Per NFPA Requirements, EST**	$0.00	$0.00	
	Certified Technicians or Triple-S EST Certified Technicians.			
0	Fire Alarm Plenum Cable 18/2 (75 ft Average Used Between Devices)	$.10 cents per foot	$0.00	

0	Fire Alarm Plenum Cable 14/2 (75 ft Average Used Between Devices)	$.31 cent per foot	$0.00	
0	Fiber Cable Between Fire Panels and U OF A Switch	$.73 cents per foot	$0.00	
	Line Items Include (Labor, P/P Bond, Design Consultant, Shipping, Plans, 75ft of wire) Line Item Prices Reflect Change Orders, Future Budget Prices Per Item.	**Line Items Total Cost**	$0.00	
		Material and Installation Cost	$0.00	
	TAXES WILL BE ADDED AT TIME OF CONTRACT SIGNING			
	EST-3 can use existing wire. EST-3 can also use existing System Sensor Detectors and modules.			

Project Name: UNIVERSITY OF ARKANSAS IDIQ SPARE PARTS

TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER

FIRE ALARM

Project QTY	DESCRIPTION OF EQUIPMENT		Cost Each	Total
0	Smoke Detector Addressable. Must have Electronic Mapping Capabiliity		$86.00	$0.00
0	Fixed Temp Heat Detector Addressable. Must have Electronic Mapping Capability		$65.00	$0.00
0	Standard Detector Base with Trim Ring		$15.00	$0.00
0	Duct Detectors Addressable must include Housing, Addressable Smoke Detector, and Individual Control Relay.		$248.00	$0.00
0	Single Action Manual Pull Station		$97.00	$0.00
0	Single Input Addressable Module		$90.00	$0.00
0	Dual Input Addressable Module		$112.00	$0.00
0	Strobe Sync Module		$129.00	$0.00
0	Horn Strobe must be Multi-Candela Selectable and Must Not Protrude More Than 1-Inch off Wall.		$54.00	$0.00
0	Strobe must be Multi-Candela Selectable and Must Not Protrude More Than 1-Inch off Wall.		$51.00	$0.00
		TOTAL COST		**$0.00**

Project Name: UNIVERSITY OF ARKANSAS IDIQ CAE BUILDING

TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER

SECURITY

Project QTY	DESCRIPTION OF EQUIPMENT		Cost Each	Total
0	NX-6 Control Panel Includes Owner's Manual and Installation Instructions. Keypad and transformer sold separately		$50.00	$0.00
0	NX-1448E Fixed English Keypad with Fold-Down Door Euro design. 192 Zones. 6.2" W x 5.2" H x 1.3" D. Swing-down removable door conceals controls. White		$143.00	$0.00
0	T-0001 16.5V Plug in Transformer for control panel		$5.69	$0.00
0	1125-N Recessed Magnetic Door Contact		$6.00	$0.00
0	2315 Overhead Magnetic Door Contact		$48.00	$0.00
0	DT-435T Dual Motion Detector		$87.00	$0.00
0	FG-730 Ceiling Mount Glassbreak Detector		$59.00	$0.00
0	AP669 360 Degree Ceiling Mount Motion Detector		$175.00	$0.00
0	DT-24 Indoor Surface Mount Siren		$36.00	$0.00
0	DS-50 Outdoor Surface Mount Siren		$36.00	$0.00
0	NX-540E Telephone Interface Module		$54.77	$0.00
0	NX-590E Network Module for Interface to Surguard Receiver		$161.80	$0.00
		TOTAL COST		**$0.00**

Project Name: UNIVERSITY OF ARKANSAS IDIQ CAE BUILDING

TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER

VIDEO SURVEILLANCE

Project QTY	DESCRIPTION OF EQUIPMENT		Cost Each	Total
0	SymDec16+4-1.28T		$4,442.00	$0.00
0	Rack Mount Ears for SYMDEC.		$121.00	$0.00
0	Wall Rack Mounts for SYMDEC.		$475.00	$0.00
0	GE 24VAC Indoor Power Supply , 16 Outputs		$265.00	$0.00
0	17" LCD Monitor		$900.00	$0.00
0	Wall Mount for LCD Monitor		$105.00	$0.00
0	MD2-1500 2" MINI dome camera **(Low End Camera)**		$0.00	$0.00
		TOTAL COST		**$0.00**

Project Name: UNIVERSITY OF ARKANSAS IDIQ CAE BUILDING

TRIPLE-S ALARM CO., INC. ----------GE EST SUPPLIER

ACCESS CONTROL

Project QTY	DESCRIPTION OF EQUIPMENT		Cost Each	Total
0	M5 PXNplus, FC Wnx, Secure Perfect - Serial & Ethernet, 10/100Mb		$1,860.00	$0.00
0	8RP Reader Interface, 12VDC F/2F and Supervised F/2F readers, No provision for REX or Door Status contacts. M/5-all versions, not in combination with 2RP or 2SRP		$853.13	$0.00
0	Power Supply 3 amp, 110VAC to 12VDC, (UL listed)		$102.38	$0.00
0	Model T-520SW reader kit, gray single-width, F/2F and Wiegand formats, 18" pigtail, with MR/J Box.		$450.00	$0.00
0	Push to Exit Buttons		$100.00	$0.00
0	Egress Motions for Doors		$164.00	$0.00
0	Double Mag-locks		$465.00	$0.00
0	Door Strikes		$120.00	$0.00
		TOTAL COST		**$0.00**