

**CENTRAL CONNECTICUT STATE UNIVERSITY
NEW PUBLIC SAFETY BUILDING
NEW BRITAIN, CONNECTICUT
PROJECT: BI- RC - 311**

BID OPENING	1:00 P.M.	APRIL 6, 2011
ADDENDUM NUMBER 2	DATE OF ADDENDUM	MARCH 30, 2011

The following clarifications are applicable to drawings and specifications for the project referenced above.

Item 1

The bid opening will be changed from (April 6, 2011 @ 1:00 p.m.) to (April 20, 2011 @ 1:00 p.m.).

Item 2

In Section 28 31 00, REPLACE revised 3-28-11, in its entirety.

Item 3

DELETE reference to the hot box for the backflow preventer shown on C103, P2.1 and E2.1. ADD Watts 909, 6" backflow preventer as part of the incoming fire service. DELETE concrete pad.

Item 4

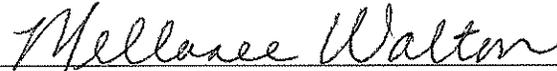
DELETE reference to plastic laminate window sill at room 20500000. Details on sheet A7.3 are correct.

Item #5 BIDDERS QUESTIONS/CLARIFICATIONS

- A. The C100 and C102 are rescanned for clarity- there are no changes to the documents they are rescanned to improve legibility.
- B. Clarification of flooring finishes for Rooms 0040000 and 0050000 –
 - Ceramic tile flooring in shower areas- *should be constructed to flow to drain- minimum pitch is 1/8 "per foot.
 - VCT in corridors and vestibules, marble threshold at transition, ceramic tile in all wet areas
- A. SDC-1 Static Dissipative Carpet Tiles specified in Section 09 69 00 paragraph 2.2.A Access Flooring

All questions must be in writing and sent by fax (not phone or e-mail) and must be forwarded to the consulting Architect/Engineer (Kathyann Cowles 860657-0757) with copies sent to the DPW Project Manager (Scott Dunnack 86-713-7264) and Construction Manager (Norman Benjamin 860-704-6120)

End of Addendum Number Two



Mellanee Walton
Associate Fiscal Administrative Officer
Department of Public Works

SECTION 28 31 00 – FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 SCOPE & RELATED DOCUMENTS

- A. The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials, and performance of all operations in connection with the installation of the Fire Alarm System as shown on the drawings and as herein specified.
- B. The requirements of the conditions of the Contract, Supplementary Conditions and General Requirements, apply to the work specified in this section.
- C. The scope of this project shall also include work to be performed by the fire alarm vendor that currently services the campus. Electrical contractor shall include costs for this work by TPC as a separate line item. The cost for this allowance shall be \$34,675.00
1. The system described herein is a part of an existing campus-wide fire alarm system.
 2. All connections to the CCSU fire alarm system, fire alarm panels and sub-panels, fireworks computer programming, assignment of building device addresses, data loop assignments, system testing and updating of the building .DXF/.DWG files shall be performed by the Agency approved fire alarm contractor.
Approved vendor: TPC Associates, Inc.
261 Pepe's Farm Rd.
Milford, CT. 06460
(203) 878-1321 (Al Sullivan)
 3. TPC shall provide the following equipment, project management, supervision of the installing electrical contractor and labor to transfer the existing fire alarm head end equipment from the old Police Station to the new Police Station.
 - a. Provide new cabinets for the fire alarm panels. (CAB 45, ~~3-CAB21B~~, ~~3-CAB21D~~, battery cabinets. It is the responsibility of the installing electrical contractor to mount the cabinets in the locations shown on the contract drawings and provide power to the cabinets. Battery cabinets installed and wired by the installing electrical contractor as shown on the drawings. TPC to supervise installation of cabinets.
 - b. Install fiber cards, provided under this contract, in the new Police Station fire alarm panel and the Gallaudet Hall fire alarm panel.
 - c. Provide jobsite supervision of the installation of new cable between the new Police Station fire alarm panels and the fire alarm panels in East Hall, Burritt Library, North Hall, and Copernicus Hall. The installing contractor shall provide cable and install (3) Atlas Cable #218-16-1-1TP from the new police station fire alarm panel to each of the above buildings. The cable shall terminate in the building fire alarm control

- panel in each building. Terminations of the cables will be the responsibility of TPC.
- d. Provide jobsite supervision on the installation of new fiber optic cable between the new Police Station fire alarm EST3 panel and the Gallaudet Hall fire alarm control panel. The installing contractor shall provide (1) 12 strand 62.5/125 or 100/140 multi-mode fiber cable and shall terminate with ST type connectors in the fire alarm control panels in the new Police Station and Gallaudet Hall. Connection of the cables within the fire alarm panels will be the responsibility of TPC.
 - e. Move the fireworks computer, monitor, keyboard, mouse, and printer into the new Police Dispatch Center. The installing electrical contractor shall provide and install (5) #16awg twisted shielded pair cables between the fireworks computer location and the fire alarm control panels. Connection of the cables to the fireworks computer and the fire alarm control panels will be the responsibility of TPC.
 - f. Once the new cabinets are installed and powered, TPC shall move the head end fire alarm equipment from the old Police Station to the new Police station. This move will be done in phases, one loop at a time. Following the move of each loop a test of each building on the loop will be done. This will be a random alarm test in each building to insure communications.

1.2 SECTION INCLUDES

- A. This specification provides the requirements for the installation, programming and configuration of a complete Analog Addressable Peer to Peer Token Ring Network for the Central Connecticut State University Safety Building. The system shall include, but not limited to: Fire Alarm Control Panels, Automatic and Manually Activated Voice Evacuation Alarm Subsystem per building, Equipment necessary to allow the connection of Mass Notification and Emergency Communications networking to the Campus Public Safety Building which will be the Central Control Station, Automatic and Manually activated alarm Initiating and Indicating Peripheral Devices and Appliances, conduit, wire and accessories required to furnish a complete and operational Life Safety System.

1.3 RELATED SECTIONS

- A. Division 23 - Mechanical
- B. Division 26 - Electrical

1.4 ALTERNATES

- A. Equipment specified is EST3 as manufactured by Edwards Systems Technology and constitutes the quality and performance required. Any deviation from the specified equipment , in regards to functionality or survivability , must be clearly stated in the bid package. Failure to adhere to this requirement will be grounds for immediate disqualification without further review. These deviations must be provided to the engineer 10 days before bids are due.

1.5 REFERENCES

- A. The equipment and installation shall comply with the current provisions of the following standards:
- National Electric Code, Article 760.
 - National Fire Protection Association Standards:
 - NFPA72 National Fire Alarm Code
 - NFPA101 Life Safety Code
 - Local and State Building Codes.
 - Local Authorities Having Jurisdiction.
 - Underwriters Laboratories Inc.
- B. The system and all components shall be listed by Underwriters Laboratories Inc. for use in fire protective signaling system under the following standards as applicable:
- UL 864/UOJZ, APOU Control Units for Fire Protective Signaling Systems.
 - UL 268 Smoke Detectors for Fire Protective Signaling Systems.
 - UL 268A Smoke Detectors for Duct Applications.
 - UL 217 Smoke Detectors Single Station.
 - UL 521 Heat Detectors for Fire Protective Signaling Systems.
 - UL 228 Door Holders for Fire Protective Signaling Systems.
 - UL 464 Audible Signaling Appliances.
 - UL 1638 Visual Signaling Appliances.
 - UL 38 Manually Activated Signaling Boxes.
 - UL 346 Waterflow Indicators for Fire Protective Signaling Systems.
 - UL 1971 Standard for Signaling Devices for the Hearing Impaired
 - UL 1481 Power Supplies for Fire Protective Signaling Systems.
 - UL 1711 Amplifiers for Fire Protective Signaling Systems.
 - Americans with Disabilities Act (ADA)
 - International Standards Organization (ISO)
- ISO-9000
 - ISO-9001

1.6 SYSTEM DESCRIPTION

- A. The Fire Alarm / Life Safety System supplied under this specification shall be a microprocessor-based Peer to Peer Token Ring Fiber network . All Control Panel Assemblies and connected Field Appliances shall be both designed and manufactured by the same company, and shall be tested and cross-listed as compatible to ensure that a fully functioning Life Safety System is designed and installed.
- B. Provide a Fiber Optic Token Ring for the fire alarm network loop to the EST3 system that is currently on campus. This will require multi-mode fiber optic cable from the new Police Station to Gallaudet Hall. Provide multimode fiber optic communication interface cards at the police station and Gallaudet Hall. Each panel to incorporate (1) 3-FIBMB and (2) MMXVR cards. Contractor shall allow for 100 feet of fiber optic cable and conduit within Gallaudet Hall.
- C. The existing IRC3 loops (4) total, will require copper to be run from the new Police station to each of the buildings where the copper network loops begin. IRC Loop #1 begins at East Hall, Loop #2 begins at Burritt Library, Loop #3 begins at North Hall, Loop #4 begins at Copernicus Hall. Provide (3) Atlas cable #218-1-1TP from

the police station to each of these buildings and terminate in the existing IRC3 fire alarm control panel. Contractor shall allow for 100 feet of conduit and wiring within each building.

- D. Provide an Audio Paging and Emergency Evacuation system using the EST 3-ASU Audio source unit.
- E. Provide equipment for connection of the future mass notification network including, MN-BRKT (mounting bracket), MN-COM1S (Ethernet port), MN-ABPM (audio bridge), MN-FVPN (VoIP encoder), and MN-NETSW1 (fiber Ethernet switch).

1.7 SUBMITTALS

A. Product Data

1. The contractor shall submit three (3) complete sets of documentation within 30 calendar days after award of purchase order. Indicated in the documentation will be the type, size, rating, style, catalog number, manufacturers names, photos, and/or catalog data sheets for all items proposed to meet these specifications. The proposed equipment shall be subject to the approval of the Architect/Engineer and no equipment shall be ordered or installed on the premises without that approval.
2. The Contractor shall provide hourly Service Rates and Semi-Annual inspection prices, performed by a factory trained and authorized personal, for this installed Life Safety System with the submittal. Proof of that training and authorization of the servicing ESD shall be included in the submittal. These hourly service rates shall be guaranteed for a one year period unless otherwise specified.

B. Shop Drawings

1. A complete set of Shop Drawings, one for each unit sub-assembly which requires that a field wire be connected to it, shall be supplied. The Shop Drawings shall be reproduced electronically from a Master Copy supplied by the manufacturer in digital format.
 - a. Samples
2. Two samples of each field connected device (smoke detectors, intelligent modules , strobes, and/or speakers) shall be provided to the contractor for their familiarization.
 - a. Close-out Submittals
3. Four (4) copies of the following Manual shall be delivered to the Building Owner's representative at the time of system acceptance. The close out submittals shall include:
 - a. Operating manuals covering the installed Life Safety System.
 - b. Point to Point diagrams of the entire Life Safety System as installed. This shall include all connected Smoke Detectors and addressable field modules. All drawings shall be provided in CAD and supplied in standard

- .DXF format. Vellum plots of each sheet shall also be provided. A system generated point to point diagram is required to insure accuracy.
- c. The application program listing for the system as installed at the time of acceptance by the building owner and/or Local AHJ (Disk and Hard copy printout).
- d. Name, address and telephone of the authorized factory representative.
- e. All drawings must reflect device address and programmed characteristics as verified in the presence of the engineer and/or the end user unless device addressing is electronically generated, and graphically printed.

1.8 QUALITY ASSURANCE

- A. Qualifications: The installing ESD shall provide proof of their qualifications as Factory Authorization and Factory Training for the product(s) specified herein. These qualification credentials shall not be more than two years old, to ensure up-to-date product and application knowledge on the part of the installing ESD.
- B. Warranty
 - 1. Warranty all materials, installation and workmanship for three (3) years from date of acceptance, unless otherwise specified. This shall include all new and relocated equipment including all work performed by TPC.
 - 2. A copy of the manufacturers' warranty shall be provided with close-out documentation and included with the operation and installation manuals.

1.9 SYSTEM STARTUP, OWNERS' INSTRUCTIONS, COMMISSIONING

- A. System startup shall be performed by a Factory Trained and Authorized Engineered Systems Distributor. Certain functions of the Systems Startup Procedure may be performed by a contractor under the direction of the Factory Trained and Authorized Engineered Systems Distributor.
- B. Owners' Instructions and Operation Manuals, specific for this project, shall be supplied to the Building Operations Staff by the Factory Trained and Authorized Engineered Systems Distributor. A "Generic" or "Typical" Owners' Instruction and Operation Manual shall not be acceptable to fulfill this requirement.
- C. Commissioning of the installed system shall be performed by the Factory Trained and Authorized Engineered Systems Distributor in the presence of the Local AHJ, the Building Owners' Representative, and a Representative of the General Contractor, if deemed appropriate.
- D. A System Generated device map, which will serve as an "as-built" drawing shall be provided to the Local AHJ and the Building Owners' Representative.

1.10 MAINTENANCE

- A. The Factory Trained and Authorized Engineered Systems Distributor who Designed and Installed this system shall provide a separate maintenance contract for a period of 2 Years from the date of system commissioning.

PART 2 - PRODUCTS

2.1 GENERAL

- A. This Life Safety System Specification must be conformed to in its entirety to ensure that the installed and programmed Life Safety System will accommodate all of the future requirements and operations required by the building owner. Any specified item or operational feature not specifically addressed prior to bid date will be required to be met without exception.

- B. Submission of product purported to be equal to those specified herein will be considered as possible substitutes only when all of the following requirements have been met:
 - 1. Any deviation from the equipment, operations, methods, design or other criteria specified herein must be submitted in detail to the Specifying Architect or Engineer a minimum of 10 working days prior to the scheduled submission of bids. Each deviation from the operation detailed in these specifications must be documented in detail, including Page Number and Section Number which lists the system function for which the substitution is being proposed.
 - 2. A complete list of such substituted products, with three (3) copies of working drawings for each, shall be submitted to and be approved by the architect and/or consulting engineer, not less than ten (10) calendar days prior to the scheduled date for opening bids.
 - 3. The contractor or substitute bidder shall functionally demonstrate that the proposed substituted products are, in fact, equal in quality and performance to those specified herein. Because the decision to specify the Life Safety System(s) and Equipment detailed herein was made by an Architect and/or Consulting Engineer on behalf of their client(s) (the Building Owners), such evidence of the applicability of any substitute materials must be submitted to, and accepted by, the Architect and/or Consulting Engineer, not less than ten (10) calendar days prior to the scheduled date for opening bids for this project. Substitute equipment will be accepted only on the discretion of the Architect and/or Consulting Engineer on behalf of the Building Owner.

- C. General Equipment and Material Requirements

- D. All equipment furnished for this project shall be new and unused. All components and systems shall be designed for uninterrupted duty. All equipment, materials, accessories, devices, and other facilities covered by this specification or noted on contract drawings and installation specifications shall be the best suited for the intended use and shall be provided by a single manufacturer. If any of the equipment provided under this Specification is provided by different manufacturers, then that equipment shall be recognized as compatible by both manufacturers, and "Listed" as such by Underwriters' Laboratories.

- E. System installation and operations shall be verified by the manufacturer's representative and a verification certificate presented upon completion. The manufacturer's representative shall be responsible for an on-site demonstration of the operation of the system and initial staff training. Provide a minimum of four hours of training for owner's staff, to be scheduled by the owner.

- F. The system shall be capable of detecting the electrical location of each Signature intelligent device including new and existing devices. It shall be possible to display the intelligent device map on the laptop PC.
- G. If a device map cannot be generated by the Control Panel, the contractor must include a minimum of (3) days to verify location of all wire runs while in the presence of the Architect/Engineer or Building Owners Representative to verify all conduit and wire runs.
- H. In addition, "As-Built" riser and wiring diagrams reflecting all T-Taps, each programmed device characteristic including detector type, base type, serial number, sensitivity setting and wire configurations will be provided to the Architect/Engineer, based on the information gathered during the verification process described above.
- I. It shall be possible for authorized service personnel using a Program/Service Tool or laptop PC to change the personality/function of a Signature Series Device to meet changes in building layout or environment. System changes shall be verified by the manufacturer's representative and a verification certificate presented upon completion.

2.2 MANUFACTURERS

- A. Equipment and materials shall be provided by an Authorized Engineered Systems Distributor to ensure proper Specification Adherence, final connection, test, turnover, warranty compliance, and service.
- B. Service availability: The supplier shall have sufficient stock on hand and have a fully equipped service organization capable of guaranteeing response time within 8 hours of service calls, 24 hours a day, 7 days a week to service completed systems.
- C. The Engineered Systems Distributor of the Fire Alarm / Life Safety Equipment specified herein shall provide a copy of their certificate of successful completion of an authorized Training Course given by the Manufacturer of the Fire Alarm / Life Safety Equipment.

2.3 EQUIPMENT

- A. The Life Safety System shall be a Multi-Processor Based Network System designed specifically for Fire, Audio Evacuation and Security applications. The Life Safety System shall be a Model EST3, and shall be UL listed under Standards 864 (Control Units for Fire-Protective Signaling Systems) under categories UOJZ and APOU, and ULC listed under standard CAN/ULC-S527. The specified modules shall also be listed under UL 1076 (Proprietary Burglar Alarm Units and Systems) under category APOU.
- B. The Life Safety System shall include all required hardware and system programming to provide a complete and operational system, capable of providing the protected premises with the following functions and operations:

1. Modular systems design, with a layered application design concept, including an "Operational Layer" and a "Human Interface Layer", to allow maximum flexibility of the system with a minimum physical size requirement.
2. Audio Paging and Emergency Evacuation system shall be the EST-3 3-ASU series. The audio evacuation system will contain amplifier modules, integral microphone with push to talk switch for all call paging within the building, and speaker zone modules for a total of 4 speaker zones. Panel will include tone generator, and digitized message repeater. Digital voice message to be approved by the Campus Fire Marshal.
3. All System operational software is to be stored in FLASH memory. Control Panel disassembly, and replacement of electronic components of any kind shall not be required in order to upgrade the operations of the installed system to conform to future application code and operating system changes.
4. Up to 128 Service Groups must be definable within the system program to allow the testing of the installed system based on the physical layout of the system, not on the wiring of the field circuits connected to the Fire Alarm Control Panel.
5. Advanced Windows™-based System Definition Utility 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.
6. System response to any alarm condition must occur within 3 seconds, regardless of the size and the complexity of the installed system.
7. Each speaker circuit shall be individually supervised by the audio evacuation panel.
8. HVAC Status LED Illumination shall be controlled by the activation of the output device. A "Flash", followed by a "Steady" illumination will verify operation without the need for a "sail" switch in each air handling unit.
9. System Common Control Functions shall be automatically routed to any node of the system as a function of the time of day and date.
10. Provide equipment for connection of the future mass notification network including, MN-BRKT (mounting bracket), MN-COM1S (Ethernet port), MN-ABPM (audio bridge), MN-FVPN (VoIP encoder), and MN-NETSW1 (fiber Ethernet switch).

2.4

A. The Life Safety System

1. Life Safety System Mechanical and Overall Feature Summary

B. The Life Safety System shall include the following features and shall support the following operations in each installed cabinet or node of the system:

1. Up to 10 Signature Series Intelligent Device loops.
2. Up to 125 Intelligent Smoke Detectors and 125 Intelligent Modules per SDC.
3. Up to 120 Hardwired input/output Circuits.
4. Up to 342 Manual Control (Input) Switches
5. Up to 456 LED Annunciation Points
6. Up to 63 Remote Display Units.

7. Multi-Priority, token passing, peer-to-peer network connection of up to 64 system nodes wired as Class B (Style 4).
 8. Ground fault detection by panel, by Signature Data Circuit, and by device module.
 9. Ability to download all system applications programs and "firmware" from a computer through a single point in the system.
 10. True Distributed Intelligence, including microprocessor-based Detectors and Modules.
 11. A.C. Power Trouble Delay adjustable from 4 Hours to 10 Hours.
 12. Removable, Interlocked terminal blocks for the connection of the field wiring to the Fire Alarm Control Panel.
 13. Electronic Addressing of Field Devices.
 14. Advanced Power Management
 15. Dead Front Construction.
- C. Life Safety System Human Interface
- D. System Common Controls and Emergency User Interface
- E. The Fire Alarm / Life Safety System shall include a Emergency Operators' Interface Panel which shall include the following system annunciation and control functions:
- F. System Annunciation and Control Functions:
1. Hands free Emergency Operation. The first and last highest priority event on the system shall be displayed automatically and simultaneously.
 2. Control Panel Internal Audible Signal shall have four programmable signal patterns, to allow for the easy differentiation between Alarm, Supervisory, Trouble and Monitor conditions within the installed system.
- G. Discreet "System Status" LEDs:
1. Power Status LED - Green LED shall illuminate when AC power is present.
 2. Test Status LED - Yellow LED shall illuminate when any portion of the system is in the test mode. A programmable timer shall cause the system to automatically exit the test mode after a period of system inactivity. This Test LED shall function in a local or in a group mode.
 3. CPU Fail Status LED - Yellow LED shall illuminate when the panel controller has an internal failure.
 4. Ground Fault Status LED - Yellow LED shall illuminate when un-grounded wiring connected to the cabinets' power supply has continuity to ground. This feature shall function in either a local or group mode.
 5. Disable Status LED - Yellow LED shall illuminate whenever any point or zone in the installed system is manually disabled.
- H. Discreet Common Control Switches with associated Status LEDs:
1. Reset: Depression of the Reset Switch starts the system reset operation. The associated Yellow LED shall have three flash rates during this operation to inform the user of the progress status of the reset cycle. The LED shall flash fast during the smoke detector power down sequence, then it shall flash slowly during the restart phase, and shall illuminate steadily for the restoral

phase. The LED shall go out completely when the system is back to normal mode. Each phase, as well the overall reset cycle shall be programmable to perform other functions.

2. Alarm Silence: Depression of the Alarm Silence Switch shall turn off all (audible and/or visible) Notification Appliance Circuits. The associated yellow LED illuminates when the Alarm Silence function is active, whether by the Alarm Silence Switch, or by an integral software timer. Subsequent activation of the Alarm Silence Switch shall resound the signals. Activation of the Alarm Silence switch shall be programmable to perform other functions.
3. Panel Silence: Depression of the Panel Silence Switch shall turn off the systems' internal audible signal when configured as a 'local' system. The associated yellow LED illuminates when the panel silence feature is activated.
4. Drill Switch / LED: Depressing the DRILL switch activates the fire drill function. Yellow LED indicates that the fire drill function is active. The Drill Switch shall also be programmable to perform system functions other than the Drill Function.

I. Other Operator Control Switches:

1. Previous Message Switch: Pressing the Previous Message Switch shall scroll the display to show the preceding message in the selected queue. Holding the Previous Message Switch and pressing any queue select switch moves to the top of the respective queue event list. Scrolling through event messages may be done by the operator at any time.
2. Next Message Switch: Pressing the Next Message Switch shall scroll the display to show the following message in the selected queue. Holding the Previous Message Switch and pressing any queue select switch moves to the bottom of the respective queue event list. Scrolling through event messages may be done by the operator at any time.
3. More Details Switch: Pressing the More Details Switch shall show the address and 42 character location message of the active device on display. If a zone is active, pressing the switch displays the address and message of active devices within the zone. When multiple devices are active, the "Previous/Next" message switch may be used to scroll through the messages.

J. The System Main Liquid Crystal Display:

1. The Liquid Crystal display shall provide the means to inform the System Operator with detailed information about the off-normal status of the installed Fire Alarm / Life Safety System. The Main Display shall automatically respond to the status of the system, and shall display that status on a 8 line by 21 character backlit alpha-numeric Graphical Liquid Crystal Display.

K. Automatic Functions:

1. The following status functions shall be annunciated by the Main Liquid Crystal Display:
2. When the Fire Alarm / Life Safety System is in the "Normal" Mode, the LCD displays:
 - a. The current Date and Time.
 - b. A Custom System Title (2 lines X 21 characters).

- c. A summary total of the Alarm History of the system.
- 3. With the Fire Alarm Life Safety System in the Alarm Mode, the LCD shall automatically reconfigure into four logical windows.
- 4. Systems Status Window
 - a. The LCD shall show the system time, and the number of active points and disabled points in the system in this section of the LCD Display.
- 5. Current Event Window
 - a. The LCD shall show the first active event of the highest priority in reverse text to highlight the condition to the Emergency Operator. The top line of the reversed text shall show the sequence number in which the displayed event was received, as well as its event type. The second and third lines of reversed text shall display an identification message related to the displayed event.
- 6. Last Event Window
 - a. The LCD shall show the most recent, highest priority event received by the system.
- 7. Type Status Window
 - a. The LCD shall show the total number of active events in the system, by event type. b. There shall be four different System Event Types which shall be displayed, "Alarm Events", "Supervisory Events", "Active Trouble Events", and "Active Monitor vents".
- L. System Message Processing:
 - 1. In order to simplify, and to clarify the System Status information which is given to the Emergency Operator, the Main LCD shall include queues for each of the System Event Types. The Main LCD shall allow the Emergency operator access to the System Status information contained within those queues by pressing an associated queue select switch. Whenever there is an unacknowledged event in any of the System Event queues, the associated Status LED shall flash. Viewing each event listed in a queue shall acknowledge all events in that queue, and shall cause the associated LED to illuminate steady.
 - 2. All messages contained in any of the System Event queues shall be accessible for review by the Emergency Operator using the "Previous/Next" message switch. It shall be possible to route additional event information to a printer.
- M. Maintenance Menu:
 - 1. The Main LCD shall also allow the System Operator to access system maintenance functions through a four level password system. The authorized System Operator shall be able to access the following functions:

2. System Status: The system shall allow the operator to determine the status of individual system components, including active points, disabled points, and active points by panel. ****list additional****
 3. Enable: The system shall allow the operator to restore a disabled point (device) in the system, allowing that point (device) to operate as originally intended by the application program of the system.
- N. Additionally, the system shall allow the operator to restore any group function, guard patrol function, Panel, system module, "software - defined zone", operator control, or time control function.
- O. Disable: The system shall allow the operator to disable any point (device) in the system, inhibiting that point (device) from operating as originally intended by the application program of the system.
- P. Additionally, the system shall allow the operator to disable any group function, guard patrol function, Panel, system module, "software - defined zone", operator control, or time control function within the system.
- Q. Activate: The system shall allow the operator to manually turn on any system output point, or system function. Alternate Smoke Detector sensitivity, message routing within the system, guard patrol timing, and check-in group timings shall be modifiable with this simple command from the control panel.
- R. Restore: The system shall allow the operator to restore the primary (application program defined) operation to the Smoke Detector sensitivity and the message routing functions with this simple command from the control panel.
- S. Control Output: The system shall allow the operator to manually command and control relays and LEDs. Relays shall be able to be commanded to "Latch", to energize as a "High Priority", or as a "Low Priority", to "Energize", or to "De-Energize".
- T. LEDs shall be able to be commanded to "Latch", to energize as a "High Priority", or as a "Low Priority", to turn "On", to turn "Off", to "Slow Blink", or to "Fast Blink".
- U. Reports: The system shall provide the operator with system reports which give detailed description of the status of certain system parameters for corrective action, or for preventative maintenance programs. The system shall provide these reports via the Main LCD, and shall be capable of being printed on any of the connected system printers.
1. The system shall provide a report which gives a sensitivity listing of all detectors which have less than 75% environmental compensation remaining.
 2. The system shall provide a report which provides a sensitivity listing of any particular detector.
 3. The system shall provide a report which gives a listing of the sensitivity of all of the detectors on any given panel in the system, or any given SDC loop within any given panel.
 4. The system shall provide a report which gives a chronological listing of up to the last 1740 system events.

5. The system shall provide a listing of all of the firmware revision listings for all of the installed network components in the system.
- V. Program: The system shall allow the authorized operator to perform all of the following system functions:
1. Set the System Time
 2. Set the System Date
 3. Set (Change) the System Passwords.
 4. Restart the System.
 5. Set the Dates for the System Holiday Schedule.
 6. Clear the Chronological System History File.
- W. Test: The system shall allow the authorized operator to perform test functions within the installed system. Test functions shall be defined by the authorized operator to be performed on a per cabinet, circuit, or service group basis.
- X. Local Control and Display Annunciators: Each panel in the installed system shall include local Control and Display Annunciators. These annunciators shall have integral membrane style, tactile push-button control switches, for the control of system functions, and LEDs with programmable (software-controlled) flash rates and slide-in labels for annunciation of system events.
1. The Local Control Display Annunciators shall provide the system with individual zone and / or device annunciation.
 2. The Local Control Display Annunciators shall provide the system with individual zone and / or device annunciation with zone and / or device disable.
 3. The Remote Control Display Annunciators shall provide the system with individual alarm and trouble annunciation per zone and / or device with zone and / or device disable.
 4. The Local Control and Display Annunciators shall provide the system with groups of three switches which have a software controlled interlock to allow only one of the switches to be active at any time. The switch triads shall be used for all of the fan and damper controls in the protected premises.
- Y. Remote System Point Annunciators: Each remote panel in the installed system shall include remote Control and Display Annunciators. These annunciators shall have integral membrane style, tactile push-button control switches for the control of system functions, and LEDs with programmable (software-controlled) flash rates and slide-in labels for annunciation of system events.
1. The Remote Control Display Annunciators shall provide the system with individual zone and / or device annunciation.
 2. The Remote Control Display Annunciators shall provide the system with individual zone and / or device annunciation with zone and / or device disable.
 3. The Remote Control Display Annunciators shall provide the system with individual alarm and trouble annunciation per zone and / or device with zone and / or device disable.
 4. The Remote Control Display Annunciators shall provide the system with groups of three switches which have a software controlled interlock to allow

only one of the switches to be active at any time. The switch triads shall be used for all of the manual zone/floor paging operations in the protected premises.

5. The Remote Control and Display Annunciators shall be provided to provide the system with groups of three switches which have a software controlled interlock to allow only one of the switches to be active at any time. The switch triads shall be used for all of the fan and damper controls in the protected premises.

Z. System Printers

1. The event and status printer shall be a 9 pin, impact, dot-matrix printer with a minimum print speed of 200 characters per second at 10 characters per inch. Printer parameters shall be set up with a menu drive program in the printer. The serial cable connecting the Fire Alarm Control Panel to the Printer shall be supervised. The serial printer shall support short haul modems or Fiber-Optics modules. The printers shall list the time, date, type, and user defined message for each event printed. It shall be possible to support multiple printers per CPU. It shall be possible to define which event types are sent to the printer(s) including alarm, supervisory, trouble, monitor, and service groups.
2. The printer shall be powered from 115 VAC, and shall use standard 9 1/2" x 11" fan fold paper. Battery backup if required shall use an emergency power unit or uninterrupted power supply.

AA. Life Safety System Operations Interface: SDC Card

1. The Signature Device Card (SDC) shall be the interface between the Fire Alarm Control Panel and the Signature Series Detectors and Modules.
2. The communications format between the SDC and the Signature Series Devices shall be 100% digital. Communications to devices must incorporate BROADCAST POLLING and DIRECT ADDRESS SEARCH to ensure the fastest reporting of off-normal conditions to the system human interface layer.
3. It shall be possible to wire the SDC as Class A (Style 6 or Style 7) or Class B (Style 4) without twisted or shielded wire. It must be possible to wire branch circuits (T-Taps) from Class B Circuits.
4. The associated controller (3-SSDC), through the SDC, shall provide the ability to set the sensitivity and alarm verification of each of the individual intelligent detectors on the circuit. It shall be possible to automatically set the sensitivity of individual intelligent detectors during day and night periods.
5. It shall be possible for the SDC to address all intelligent devices connected to it without having to set switches at the individual devices.
6. It shall be possible to obtain a mapping report of all devices connected to the circuit for confirmation of "as-built" wiring. The map shall show physical wiring of T-Taps, device types, and the panel addresses of devices connected to the circuit. The SDC shall be capable of reporting unexpected additional device addresses and changes to the wiring in the data circuit. A specific trouble shall be reported for any off-normal non-alarm condition.
7. The SDC shall be able to report the following information on a per intelligent device basis:
 - a. Device Serial Number

- b. Device Address
 - c. Device Type
 - d. Current Detector Sensitivity Values and the Extent of Environmental Compensation.
 - e. Any of 32 possible trouble codes to specifically diagnose faults.
8. Should a Signature Driver Controller CPU fail to communicate, the Signature circuit shall go into the stand alone mode. The circuit shall be capable of producing a loop alarm if an alarm type device becomes active during stand alone mode.
9. Hard Wired NAC Circuits Provide where indicated on the plans supervised hard wired Notification Appliance Circuits (NAC) for the control of 24Vdc EST Integrity Series Signaling Appliances. The NAC shall be Class B (Style 4), and shall control up to 3.5 amps of power to the circuit.
10. Provide where indicated on the plans supervised hard wired Notification Appliance Circuits (NAC) for the control of 70.7Vrms EST Integrity Series Audio Signaling Appliances. The NAC shall be Class B (Style 4), and shall control up to 35 Watts of power to the circuit.
11. Provide where indicated on the plans supervised hard wired Notification Appliance Circuits (NAC) for the control of 25Vrms EST Integrity Series Audio Signaling Appliances. The NAC shall be Class B (Style 4), and shall control up to 50 Watts of power to the circuit.
12. Panel NACs shall be power limited to 3.5A at 24Vdc and 4.1A at 20.4Vdc to support higher current demand by visible appliances at lower battery voltages.
13. Hard Wired (2-Wire) Smoke Detector Circuits
14. Provide where indicated on the plans supervised hard wired two wire initiating device circuits capable of supporting up to 50 (6250 series) ionization or 30 (6270 series) photoelectric smoke detectors. It shall be possible to configure IDCs for alarm verification with programmable verification times within UL guidelines.
15. Hard Wired Initiating Device Circuits
16. Provide where indicated on the plans supervised hard wired initiating device circuits. It shall be possible to configure IDCs for alarm, supervisory, or monitor operation.
17. Life Safety System Programmable Operations:
18. System Message Processing and Display Operations:
19. The Fire Alarm / Life Safety System shall allow Network Routing to be configured to any or all nodes (cabinets) in the network.
20. All of the system Printer ports can be configured to display any or all of the following functions:
- a. Alarm
 - b. Supervisory
 - c. Trouble
 - d. Monitor
 - e. Service Group
21. Each LCD Display on each node (cabinet) in the system shall be configurable to show the status of any or all of the following functions anywhere in the system:

- a. Alarm
 - b. Supervisory
 - c. Trouble
 - d. Monitor
22. The system shall provide the capability to label each of the system points with up to 256 characters of location message. The first 42 characters shall be directed to the LCD while the entire message shall be sent to the printer.
23. The system shall have the capability to provide up to 128 logical Counting AND Groups. Each group shall have a programmable 'activation' number. Whenever the number of active devices in an AND Group reaches the activation number, the AND Groups' rules will execute. It shall be possible to 'overlap' AND groups by having devices appear in more than one group.
24. The system shall provide a means to monitor the well being of any or all of the occupants of the protected premises by means of a Check-In Group feature. The Check-In Group shall display an emergency alarm whenever any member of a check-in group fails to check-in during the programmable check-in period. Subsequent check-in activations during the check-in period, or activations outside of the check-in period shall also activate an emergency response. It shall be possible to have a minimum of 128 check-in groups. All event messages for the Check-In feature shall be directable to any system monitor or printer.
25. The system shall have the ability to define a minimum of 64 Guard Patrols with up to 10 different tours each. For each tour it shall be possible to program a minimum-maximum time period between patrol stations. Each guard patrol can have up to 50 stations. Guard patrol can be started from the control panel or by operation of the first station in a tour. Guard patrol delinquencies occur when a guard is early to a station, late to a station and out of sequence. Delinquencies shall display at the control panel, perform programmable system responses, and may be directed to any printer.
26. The system shall have the ability to define a minimum of 128 Matrix Groups with up to 250 points each. For each matrix, it shall be possible to define a 'radius' and an 'activation' number. The radius number defines the proximity between detector locations. When two detectors activate at or within the value of the 'radius' or whenever the number of active devices reaches the activation number the Matrix Group activates. It shall be possible to 'overlap' Matrix groups by having devices appear in more than one group.
27. The system shall include the ability to define an alternate set of device commands which may be used in combination with the system test command for the testing of the connected Signature Series Smoke Detectors. This function shall disable the normal alarm command for each of the members of the group, so that the testing process will not result in an activation of the building evacuation signals, auxiliary relays or central station connections.
28. The system shall include Time Control functions which will have the ability to control any system output or function, or initiate any system operational sequence as a function of the Month, Day of Week, Date, Hour, Minute, or Holiday.
29. The system shall include up to 600 software defined Logical Zone Groups which may group any input from any Signature Data Circuit, or other Initiating Device Circuit, in order to control a system 30.output or function, or initiate any system operational sequence. A device or IDC may be a member

- of one Logical Zone Group. Each of these zones shall have an associated message.
30. The system shall provide the ability to download data from the Signature Series Detectors to a P.C. 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.
 31. The Fire Alarm/ Life Safety System shall incorporate a microprocessor based audio system. The main audio system shall include ~~(2) 40 watt amplifiers,~~ integral microphone, tone generator, digital message repeater, and 4 speaker zone ~~modules~~. In alarm condition the system will automatically deliver a slow-whoop tone for (3) seconds to the entire building, followed by a digitized voice evacuation message (message to be approved by the Campus Fire Marshal). The digitized message will be repeated (4) times and then be followed by the slow-whoop tone. At any time during the evacuation sequence the push to talk microphone switch may be operated for a live voice message to be broadcast to the building. The audio evacuation system shall be fully supervised by the fire alarm system. The audio evacuation system zone ~~modules~~ shall automatically detect and annunciate zone active or zone fault conditions on the speaker circuits. The audio evacuation system shall be the ~~EST 3-ASU~~ series.

BB. COMPONENTS

1. Intelligent Detectors - General Operation
2. The System Intelligent Detectors shall be capable of full digital communications using both broadcast and polling protocol. Each detector shall be capable of performing independent fire detection algorithms. The fire detection algorithm shall measure sensor signal dimensions, time patterns and combine different fire parameters to increase reliability and distinguish real fire conditions from unwanted deceptive nuisance alarms. Signal patterns that are not typical of fires shall be eliminated by digital filters. Devices not capable of combining different fire parameters or employing digital filters shall not be acceptable.
3. Each detector shall have an integral microprocessor capable of making alarm decisions based on fire parameter information stored in the detector head. Distributed intelligence shall improve response time by decreasing the data flow between detector and Analog loop controller. Detectors not capable of making independent alarm decisions shall not be acceptable. Maximum total Analog loop response time for detectors changing state shall be 0.5 seconds.
4. Each detector shall have a separate means of displaying communication and alarm status. A green LED shall flash to confirm communication with the Analog loop controller. A red LED shall flash to display alarm status. Both LEDs on steady shall indicate alarm-standalone mode status. Both LEDs shall be visible through a full 360 degree viewing angle.
5. The detector shall be capable of identifying up to 32 diagnostic codes. This information shall be available for system maintenance. The diagnostic code shall be stored at the detector.
6. Each smoke detector shall be capable of transmitting pre-alarm and alarm signals in addition to the normal, trouble and need cleaning information. It shall be possible to program control panel activity to each level. Each smoke detector may be individually programmed to operate at any one of five (5) sensitivity settings.

7. Each detector microprocessor shall contain an environmental compensation algorithm which identifies and sets ambient "Environmental Thresholds" approximately six times an hour. The microprocessor shall continually monitor the environmental impact of temperature, humidity, other contaminants as well as detector aging. The process shall employ digital compensation to adapt the detector to both 24 hour long term and 4 hour short term environmental changes. The microprocessor shall monitor the environmental compensation value and alert the system operator when the detector approaches 80% and 100% of the allowable environmental compensation value. Differential sensing algorithms shall maintain a constant differential between selected detector sensitivity and the "learned" base line sensitivity. The base line sensitivity information shall be updated and permanently stored at the detector approximately once every hour.
8. The intelligent Analog device and the Analog loop controller shall provide increased reliability and inherent survivability through intelligent Analog standalone operation. The device shall automatically change to standalone conventional device operation in the event of a loop controller polling communications failure. In the Analog standalone detector mode, the Analog detector shall continue to operate using sensitivity and environmental compensation information stored in its microprocessor at the time of communications failure. The Analog loop controller shall monitor the loop and activate a loop alarm if any detector reaches its alarm sensitivity threshold.
9. Each Signature Series device shall be capable of automatic electronic addressing and/or custom addressing without the use of DIP or rotary switches. Devices using DIP or rotary switches for addressing, either in the base or on the detector shall not be acceptable.
10. The intelligent Analog detectors shall be suitable for mounting on any Signature Series detector mounting base.
 - a. Fixed Temperature Heat Detector, SIGA-HFS
11. Provide intelligent fixed temperature heat detectors <SIGA-HFS>. 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.
 - a. Fixed Temperature/Rate of Rise Heat Detector, SIGA-HRS
12. Provide intelligent combination fixed temperature/rate-of-rise heat detectors <SIGA-HRS>. 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.

- a. Ionization Smoke Detector, SIGA-IS
13. Provide intelligent ionization smoke detectors <SIGA-IS>. The analog ionization detector shall utilize a unipolar ionization smoke sensor to sense changes in air samples from its surroundings. The integral microprocessor shall dynamically examine values from the sensor and initiate an alarm based on the analysis of data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental affects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a laptop PC or the SIGA-PRO Signature Program/Service Tool. The ion detector shall be rated for ceiling installation at a minimum of 30 ft (9.1m) centers and be suitable for wall mount applications. The ion smoke detector shall be rated for operation in constant air velocities from 0 to 75 ft/min. (0-0.38 m/sec) and with intermittent air gusts up to 300 ft/min. (1.52m/sec) for up to 1 hour.
 14. The percent smoke obscuration per foot alarm set point shall be field selectable to any of five sensitivity settings ranging from 0.7% to 1.6%. The ion detector shall be suitable for operation in the following environment:
 - a. Temperature: 32°F to 120°F (0°C to 49°C)
 - b. Humidity: 0-93% RH, non-condensing
 - c. Elevation: Up to 6,000 ft. (1828 m)
 - d. Photoelectric Smoke Detector, SIGA-PS
 15. Provide intelligent photoelectric smoke detectors <SIGA-PS>. The analog photoelectric detector shall utilize a light scattering type photoelectric smoke sensor to sense changes in air samples from its surroundings. The integral microprocessor shall dynamically examine values from the sensor and initiate an alarm based on the analysis of data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental affects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a laptop PC <or the SIGA-PRO Signature Program/Service Tool>. The photo detector shall be rated for ceiling installation at a minimum of 30 ft (9.1m) centers and be suitable for wall mount applications. The photoelectric smoke detector shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide with air velocities up to 5,000 ft/min. (0-25.39 m/sec) without requiring specific duct detector housings or supply tubes.
 16. The percent smoke obscuration per foot alarm set point shall be field selectable to any of five sensitivity settings ranging from 1.0% to 3.5%. The photo detector shall be suitable for operation in the following environment:
 - a. Temperature: 32°F to 120°F (0°C to 49°C)
 - b. Humidity: 0-93% RH, non-condensing

- c. Elevation: no limit
17. 3D Multisensor Detector, SIGA-PHS
18. Provide intelligent 3D multisensor smoke detectors <SIGA-PHS>. The multisensor analog detector shall use a light scattering type photoelectric smoke sensor and a fixed temperature type heat sensor to sense changes in air samples from its surroundings. The integral microprocessor shall employ time based algorithms to dynamically examine values from both sensors simultaneously and initiate an alarm based on that data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental affects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a laptop PC or the SIGA-PRO Signature Program/Service Tool. Separately mounted photoelectric detectors and heat detectors in the same location are not acceptable alternatives. The 3D Multisensor detector shall be rated for ceiling installation at a minimum of 30 ft (9.1m) centers and be suitable for wall mount applications. The 3D Multisensor smoke detector shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide and with air velocities up to 5,000 ft/min. (0-25.39 m/sec) without requiring specific duct detector housings or supply tubes.
19. The percent smoke obscuration per foot alarm set point shall be field selectable to any of five sensitivity settings ranging from 1.0% to 3.5%. The fixed temperature alarm set point shall be 135°F (57°C) nominal. The 3D Multisensor detector shall be suitable for operation in the following environment:
- a. Temperature: 32°F to 100°F (0°C to 38°C)
 - b. Humidity: 0-93% RH, non-condensing.
 - c. Elevation: no limit.
20. 4D Multisensor Detector, SIGA-IPHS
21. Provide intelligent 4D multisensor smoke detectors <SIGA-IPHS>. The multisensor analog detector shall use a light scattering type photoelectric smoke sensor, a unipolar ionization smoke sensor and an ambient temperature sensor to sense changes in air samples from its surroundings. The integral microprocessor shall employ time based algorithms to dynamically examine values from the three sensors simultaneously and initiate an alarm based on that data. The 4D Multisensor shall be capable of adapting to ambient environmental conditions. The temperature sensor shall self-adjust to the ambient temperature of the surrounding air and input an alarm when there is a change of 65°F (35°C) in ambient temperature. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall continually monitor any changes in sensitivity due to the environmental affects of dirt, smoke, temperature, age and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a laptop PC or the SIGA-PRO Signature Program/Service Tool. Separately mounted photoelectric detectors, ionization detectors and heat detectors in the same location are not acceptable alternatives. The 4D Multisensor smoke detector shall be rated for ceiling installation at a minimum of 30 ft (9.1m) centers and suitable for wall

- mount applications. The 4D Multisensor shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide and air velocities up to 500 ft/min. (0-2.54 m/sec) without requiring specific duct detector housings or supply tubes.
22. The percent smoke obscuration per foot alarm set point shall be field selectable to any of five sensitivity settings ranging from 1.0% to 3.5%. The integral heat sensor shall cause an alarm when it senses a change in ambient temperature of 65°F (35°C) or reaches its fixed temperature alarm set point of 135°F (57°C) nominal. The 4D Multisensor detector shall be suitable for operation in the following environment:
- a. Temperature: 32°F to 100°F (0°C to 38°C)
 - b. Humidity: 0-93% RH, non condensing
 - c. Elevation : Up to 6,000 ft (1828 m)
23. Standard Detector Mounting Bases, SIGA-SB / SIGA-SB4
24. Provide standard detector mounting bases <SIGA-SB> <SIGA-SB4> suitable for mounting on <North American 1-gang, 3½" or 4" octagon box and 4" square box> <European BESA or 1-gang>. The base shall, contain no electronics, support all Signature Series detector types and have the following minimum requirements:
- a. Removal of the respective detector shall not affect communications with other detectors.
 - b. Terminal connections shall be made on the room side of the base. Bases which must be removed to gain access to the terminals shall not be acceptable.
 - c. The base shall be capable of supporting one (1) Signature Series <SIGA-LED> Remote Alarm LED Indicator. Provide remote LED alarm indicators where shown on the plans.
25. Relay Detector Mounting Bases, SIGA-RB / SIGA-RB4
26. Provide relay detector mounting bases <SIGA-RB> <SIGA-RB4> suitable for mounting on <North American 1-gang, 3 ½ " or 4" octagon box and 4" square box> <European BESA or 1-gang>. 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 operation shall be exercised by the detector processor upon power up.
 - d. The relay shall automatically de-energize when a detector is removed.
 - e. The operation of the relay base shall be controlled by its respective detector processor. Detectors operating standalone mode shall operate the relay upon changing to alarm state. Relay bases not controlled by the detector microprocessor shall not be acceptable.
 - f. Form "C" Relay contacts shall have a minimum rating of 1 amp @ 30 Vdc and be listed for "pilot duty".
 - g. Removal of the respective detector shall not affect communications with other detectors.

33. It shall be possible to address each Intelligent Signature Series module without the use of DIP or rotary switches. Devices using DIP 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. Modules requiring EPROM, PROM, ROM changes or DIP switch and/or jumper changes shall not be acceptable. 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. The module shall be capable of storing up to 24 diagnostic codes which can be retrieved for troubleshooting assistance. Input and output circuit wiring shall be supervised for open and ground faults. The module shall be suitable for operation in the following environment:
- a. Temperature: 32°F to 120°F (0°C to 49°C)
 - b. Humidity: 0-93% RH, non-condensing
34. Single Input Module, SIGA-CT1
35. Provide intelligent single input modules <SIGA-CT1>. The Single Input Module shall provide one (1) 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:
- a. Normally-Open Alarm Latching (Manual Stations, Heat Detectors, etc.)
 - b. Normally-Open Alarm Delayed Latching (Waterflow Switches)
 - c. Normally-Open Active Non-Latching (Monitor, Fans, Dampers, Doors, etc.)
 - d. Normally-Open Active Latching (Supervisory, Tamper Switches)
36. Dual Input Module, SIGA-CT2 Provide intelligent dual input modules <SIGA-CT2>. The Dual Input Module shall provide two (2) supervised Class B input circuits each 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 dual input module shall support the following circuit types:
- a. Normally-Open Alarm Latching (Manual Stations, Heat Detectors, etc.)
 - b. Normally-Open Alarm Delayed Latching (Waterflow Switches)
 - c. Normally-Open Active Non-Latching (Monitor, Fans, Dampers, Doors, etc.)
 - d. Normally-Open Active Latching (Supervisory, Tamper Switches)
37. Monitor Module, SIGA-MM1 Provide intelligent monitor modules <SIGA-MM1>. The Monitor Module shall be factory set to support one (1) supervised Class B Normally-Open Active Non-Latching Monitor circuit. The monitor 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.
38. Waterflow/Tamper Module, SIGA-WTM Provide intelligent waterflow/tamper modules <SIGA-WTM>. The Waterflow/Tamper Module shall be factory set to

- support two (2) supervised Class B input circuits. Channel A shall support a Normally-Open Alarm Delayed Latching Waterflow Switch circuit. Channel B shall support a Normally-Open Active Latching Tamper Switch. The waterflow/tamper 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.
39. Single Input Signal Module, SIGA-CC1 Provide intelligent single input signal modules <SIGA-CC1>. The Single Input (Single Riser Select) Signal Module shall provide one (1) supervised Class B output circuit capable of a minimum of 2 personalities, each with a distinct operation. When selected as a telephone power selector, the module shall be capable of generating its own "ring tone". The module shall be suitable for mounting on 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 single input signal module shall support the following operations:
- a. Audible/Visible Signal Power Selector (Polarized 24 Vdc @ 2A, 25Vrms @50w or 70 Vrms @ 35 Watts of Audio)
40. Dual Input Signal Module, SIGA-CC2 Provide intelligent dual input signal modules <SIGA-CC2>. The Dual Input (Dual Riser Select) Signal Module shall provide a means to selectively connect one of two (2) signaling circuit power risers to one (1) supervised output circuit. The module shall be suitable for mounting on 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 dual input signal module shall support the following operation:
- a. Audible/Visible Signal Power Selector (Polarized 24 Vdc @ 2A, 25 Vrms @ 50w or 70 Vrms @ 35w of Audio)
41. Control Relay Module, SIGA-CR Provide intelligent control relay modules <SIGA-CR>. The Control Relay Module shall provide one form "C" dry relay contact rated at 2 amps @ 24 Vdc to control external appliances or equipment shutdown. The control relay shall be rated for pilot duty and releasing systems. The position of the relay contact shall be confirmed by the system firmware. The control relay 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.
42. Universal Class A/B Module, SIGA-UM Provide intelligent class A/B modules <SIGA-UM>. The Universal Class A/B Module shall be capable of a minimum of fifteen (15) distinct operations. The module shall be suitable for mounting on 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 universal class A/B module shall support the following circuit types:
- a. Two (2) supervised Class B Normally-Open Alarm Latching.
 - b. Two (2) supervised Class B Normally-Open Alarm Delayed Latching.
 - c. Two (2) supervised Class B Normally-Open Active Non-Latching.
 - d. Two (2) supervised Class B Normally-Open Active Latching.
 - e. One (1) form "C" dry relay contact rated at 2 amps @ 24 Vdc.
 - f. One (1) supervised Class A Normally-Open Alarm Latching.

- g. One (1) supervised Class A Normally-Open Alarm Delayed Latching.
 - h. One (1) supervised Class A Normally-Open Active Non-Latching.
 - i. One (1) supervised Class A Normally-Open Active Latching.
 - j. One (1) supervised Class A 2-wire Smoke Alarm Non-Verified.
 - k. One (1) supervised Class B 2-wire Smoke Alarm Non-Verified.
 - l. One (1) supervised Class A 2-wire Smoke Alarm Verified
 - m. One (1) supervised Class B 2-wire Smoke Alarm Verified
 - n. One (1) supervised Class A Signal Circuit, 24Vdc @ 2A.
 - o. One (1) supervised Class B Signal Circuit, 24Vdc @ 2A.
43. Intelligent Manual Pull Stations - General Operation It shall be possible to address each Signature Series fire alarm pull station without the use of DIP or rotary switches. Devices using DIP switches for addressing shall not be acceptable. The manual stations shall have a minimum of 2 diagnostic LEDs mounted on their integral, factory assembled single or two stage input module. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status. The station shall be capable of storing up to 24 diagnostic codes which can be retrieved for troubleshooting assistance. Input circuit wiring shall be supervised for open and ground faults. The fire alarm pull station shall be suitable for operation in the following environment:
- a. Temperature: 32°F to 120°F (0°C to 49°C)
 - b. Humidity: 0-93% RH, non-condensing
44. Manual Pull Station, SIGA-270, SIGC-270F, SIGC-270B Provide intelligent single action, single stage fire alarm stations <SIGA-270> <SIGC-270F> <SIGC-270B>. The fire alarm station shall be of metal construction with an internal toggle switch. Provide a locked test feature. Finish the station in red with silver "PULL IN CASE OF FIRE" <English> <French> <English/French Bilingual> lettering. <The station shall be marked "LOCAL ALARM".> The manual station 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.
45. Double Action Manual Pull Station, SIGA-278 Provide intelligent double action, single stage fire alarm stations <SIGA-278>. The fire alarm station shall be of lexan construction with an internal toggle switch. Provide a key locked test feature. Finish the station in red with white "PULL IN CASE OF FIRE" lettering. The manual station shall be suitable for mounting on North American 2½" (64mm) deep 1-gang boxes and 1½" (38mm) deep 4" square boxes with 1-gang covers.
46. 2-Stage (Presignal) Manual Pull Station, SIGA-270P, SIGC-270PB Provide intelligent single action, two stage fire alarm stations <SIGA-270P> <SIGC-270PB>. The fire alarm station shall be of metal construction with an internal toggle switch for first stage alarm and key switch for second stage alarm. Provide a locked test feature. Finish the station in red with silver "PULL IN CASE OF FIRE" <English> <English/French Bilingual> lettering. The manual station shall be suitable for mounting on a North American 1½" (38mm) deep, 4" square box with ½" (13mm) raised cover.

CC. Conventional Fire Alarm Initiating Devices

1. Manual Pull Stations Manual Pull Station, 270 Series Provide single action, <single> <two> stage fire alarm stations. The fire alarm station shall be of metal construction with an internal toggle switch. Provide a locked test feature to permit transmission of an alarm for fire drills or tests. Finish the station in red with silver "PULL IN CASE OF FIRE" lettering. <Provide a key operated switch for general alarm activation. Key all stations alike.> The manual station shall be suitable for mounting on North American 4" square boxes with 1-gang 1/2" raised covers.
2. Manual Pull Stations, 276/277 Series Provide single action, fire alarm stations with <screw terminals (276B series)> <6" wire leads (277B series)> for connection of installation wiring. All stations shall be break glass type. The station shall be constructed of red lexan with white raised letters.
3. The alarm handle shall be marked "PULL FOR FIRE", to provide simple, concise instructions for activation of the station by the general public. Pulling the alarm handle shall break a glass rod and activate a toggle switch which shall cause the handle to latch in the alarm position. Momentary push button type switches shall not be acceptable. To reset the station it shall be necessary to open the station using <a key> <a special tool>, restore the toggle switch to its normal position and replace the glass rod. <Provide a general alarm key switch for second stage operation. All stations shall be keyed alike.>
4. Double-Action Manual Pull Stations Provide double action, single stage fire alarm stations with <screw terminals (278B series)> <6" wire leads (279B series)> for connection of installation wiring. All stations shall be break glass type. The station shall be constructed of red lexan with white raised letters.
5. The alarm handle shall be marked "PULL FOR FIRE", to provide simple, concise instructions for activation of the station by the general public. It shall be necessary to first lift an upper door marked "LIFT THEN PULL HANDLE" to gain access the alarm handle. Pulling the alarm handle shall break a glass rod and activate a toggle switch which shall cause the handle to latch in the alarm position. Momentary push button type switches shall not be acceptable. To reset the station it shall be necessary to open the station using <a key> <a special tool>, restore the toggle switch to its normal position and replace the glass rod. <Provide a general alarm key switch for second stage operation. All stations shall be keyed alike.>
6. Heat Detectors
 - a. Combination Fixed Temperature/Rate-of-Rise Heat Detectors, 281B, 282B
 - 1) Provide low profile heat detectors rated for a maximum smooth ceiling rating of <2500 sq. ft.> <232 m2>. The detector shall be finished pure white and have a positive identification for the operation of the fixed temperature element. The detectors shall be rated at <15°F (9°C) per minute rate-of-rise and 135°F (57°C) fixed temperature.> <15°F (9°C) per minute rate-of-rise and 194°F (88°C) fixed temperature.>
 - b. Fixed Temperature Heat Detectors, 283B, 284B
 - 1) Provide low profile heat detectors rated for a maximum smooth ceiling rating of <2500 sq. ft.> <232 m2>. The detector shall be

finished pure white and have a positive identification for the operation of the fixed temperature element. The detectors shall be rated at <135°F (57°C) fixed temperature.> <194°F (88°C) fixed temperature.>

7. Smoke Detectors

a. Ionization Smoke Detectors, 6250 Series

- 1) Provide stable, solid state, unipolar ionization detectors capable of detecting visible and invisible products of combustion. Provide the detectors with a measuring chamber and a protected reference chamber sensitive to changes in temperature and humidity only. Protect the measuring chamber from damage and insects. Provide a built-in five second delay to minimize alarms due to transient smoke. Safeguard radioactive parts and protect circuitry against electrical transients, electromagnetic interference, and polarity reversal.
- 2) Factory set the detector sensitivity and provide for field adjustment within the range of ULI defined sensitivity. <Connect remote LED alarm indicators where shown on the plans.> The detector shall be tamper resistant plug mounted to a separate base. A built-in shorting device shall permit checking of the installation wiring before detector installation. Provide a concealed test switch to allow full logical testing without the use of smoke or aerosol spays.

b. Photoelectric Smoke Detectors, 6270 Series

- 1) Provide stable, solid state, photoelectric detectors capable of detecting visible products of combustion. Provide the detectors with self-compensating circuitry to protect its stability against the effects of aging, dust and film accumulation. Protect the measuring chamber from damage and insects. Provide a built-in five second delay to minimize alarms due to transient smoke. Safeguard and protect circuitry against electrical transients, electromagnetic interference, and polarity reversal.
- 2) Factory set the detector sensitivity. <Connect a remote LED alarm indicator where shown on the plans.> The detector shall be tamper resistant plug mounted to a separate base. A built-in shorting device shall permit checking of the installation wiring before detector installation. Provide a concealed test switch to allow full logical testing without the use of smoke or aerosol spays. <Provide an auxiliary 135oF (57oC) fixed temperature heat detector.>

c. Air Duct Smoke Detectors, 6260A-100

- 1) Provide stable, solid state, <unipolar ionization (6264B-001)> <photoelectric (6266B-001)> air duct smoke detector heads capable of detecting visible and invisible products of combustion. Provide the detectors with a measuring chamber and a protected

reference chamber sensitive to changes in temperature and humidity only. Protect the measuring chamber from damage and insects. Provide a built-in five second delay to minimize alarms due to transient smoke.

- 2) Variations in duct air velocity between 400 and 4,000 FPM (2 and 20.3 m/sec.) shall not cause any false alarms. Safeguard radioactive parts and protect circuitry against electrical transients, electromagnetic interference, and polarity reversal. Factory set the detector sensitivity. Mount the detectors head in an enclosure suitable for mounting to a air duct. Provide an air sampling tube that extends into the duct air stream. <Provide a LED alarm indicator on the enclosure> <and a key operated alarm indicator/test switch.>

8. Notification Appliances

a. General

- 1) All appliances shall be U.L. Listed for Fire Protective Service.
- 2) All strobe appliances or combination appliances with strobes shall be capable of providing the "Equivalent Facilitation" which is allowed under the Americans with Disabilities Act Accessibilities Guidelines (ADA(AG)), and shall be UL 1971, and ULC S526 Listed.
- 3) All appliances shall be of the same manufacturer as the Fire Alarm Control Panel specified to insure absolute 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.
- 4) Any appliances which do not meet the above requirements, and are submitted for use must show written proof of their compatibility for the purposes intended. Such proof shall be in the form of documentation from all manufacturers which clearly states that their equipment (as submitted) are 100% compatible with each other for the purposes intended.

9. Self-Synchronized Strobes

a. 1-Gang Strobes, Genesis Series

- 1) Provide strobes manufactured by EST, Cat No. G1RF-VM. In - Out screw terminals shall be provided for wiring. The strobes shall have a <red> plastic face plate. They shall provide <15 cd> <30 cd> <60 cd> <110 cd> synchronized flash outputs. Strobes shall mount in a North American 1-gang box.

10. Cone Speaker/Strobes

a. Wall Mount, Genesis G4 Series

- 1) Provide speaker/strobes with a 4" mylar cone as manufactured by EST, Cat. No. ~~G4RF-S2VM~~. Paper type cones are not acceptable. The rear of the speaker shall be completely sealed protecting the cone during and after installation. In - Out screw terminals shall be provided for wiring. Speaker/strobe housings shall be <red>. Speakers shall be provided for use with <25V> systems. Speakers shall provide power taps at 1/4w, 1/2w, 1w, and 2w. Speaker/strobes shall provide UL confirmed 87 dBA sound output at 2w.
- 2) Strobes shall provide <15 cd> <15/75 cd> <30 cd> <110 cd> synchronized flash output.
- 3) Speaker/strobes shall mount in a North American 4" electrical box.

11. Ancillary Devices

- a. Remote Relays
- b. Multi Voltage Control Relays, MR-100 Series
 - 1) Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be SPDT and rated for 10 amperes at 115 Vac. A single relay may be energized from a voltage source of 24 Vdc, 24 Vac, 115 Vac, or 230 Vac. A red LED shall indicate the relay is energized. <A metal enclosure shall be provided.>
- c. Multi Voltage Control Relays, MR-200 Series
 - 1) Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be DPDT and rated for 10 amperes at 115 Vac. A single relay may be energized from a voltage source of 24 Vdc, 24 Vac, 115 Vac, or 230 Vac. A red LED shall indicate the relay is energized. <A metal enclosure shall be provided.>
- d. Multi Voltage Control Relays, MR-700 Series
 - 1) Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be SPDT and rated for 10 amperes at 115 Vac. A single relay may be energized from a voltage source of 12 Vdc, 12 Vac, 24 Vdc, or 24 Vac. A red LED shall indicate the relay is energized.
- e. Multi Voltage Control Relays, MR-800 Series
 - 1) Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be SPDT and rated for 10 amperes at 115 Vac. A single relay may be energized from a voltage source of 24 Vdc, or 24 Vac, or 115 Vac. A red LED shall indicate the relay is energized.

- f. Manual Override Control Relays, MR-600 Series
 - 1) Provide remote control relays each with manual override feature connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be SPDT and rated for 10 amperes at 115 Vac or 24 Vdc. A single relay may be energized from a voltage source of 24 Vdc or 24 Vac. A red LED shall indicate the relay is energized.

 - g. Heavy Duty Power Relays, MR-199 Series
 - 1) Provide remote control relays connected to supervised ancillary circuits for control of fans, dampers, door releases, etc. Relay contact ratings shall be DPDT and rated for 30 amperes at 300 Vac or 2 HP motor load. A single relay may be energized from a voltage source of <24 Vac> <115 Vac>. <A metal enclosure shall be provided.>
12. Electromagnetic Doorholders, 1500 Series
- a. Floor Mounted, 1501/1502 Series
 - 1) Provide <single door> <double door> floor mounted electromagnetic doorholder/releases rated at <12 Vdc> <24 Vac/dc> <120 Vac> input. Finish shall be brushed zinc.

 - b. Wall Mounted, 1504/1505/1508/1509 Series
 - 1) Provide <flush> <semi-flush> <surface> wall mounted electromagnetic doorholder/releases rated at <12 Vdc> <24 Vac/dc> <120 Vac>. Finish shall be brushed zinc.

PART 3 - EXECUTION

3.1 GENERAL

- A. The entire system shall be installed in a workmanlike manner in accordance with approved manufacturers manuals and wiring diagrams. The contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation. All wiring shall be of the type recommended by the NEC, approved by local authorities having jurisdiction for the purpose, and shall be installed in dedicated conduit throughout.

- B. All penetration of floor slabs and fire walls shall be fire stopped in accordance with all local fire codes.

- C. End of Line Resistors shall be furnished as required for mounting as directed by the manufacturer.

- D. All wiring shall be installed according to NEC standards per the drawings submitted by the authorized Engineered Systems Distributor, unless otherwise noted.

E. Field Quality Control

1. The system shall be installed and fully tested under the supervision of trained manufacturer's representative and in accordance with NFPA 1996 72H. The system shall be demonstrated to perform all the functions as specified.
2. General Testing
 - a. Intelligent analog devices shall be tested for correct address and sensitivity using test equipment specifically designed for that purpose. These devices and their bases shall be tagged with adhesive tags located in an area not visible when installed, showing the system address, initials of the installing technician and date.
 - b. Wiring runs shall be tested for continuity, short circuits and grounds before system is energized. Resistance, current and voltage readings shall be made as work progresses.
 - 1) A systematic record shall be maintained of readings using schedules or charts of tests and measurements. Areas shall be provided on the logging form for readings, dates and witnesses.
 - 2) The acceptance inspector shall be notified before the start of the required tests. Items found at variance with the drawings or this specification during testing or inspection by the acceptance inspector, shall be corrected.
 - 3) Test reports shall be delivered to the acceptance inspector as completed.
 - c. Test equipment, instruments, tools and labor required to conduct the system tests shall be made available by the contractor. The following equipment shall be a minimum for conducting the tests:
 - 1) Ladders and scaffolds as required to access installed equipment.
 - 2) Multi-meter for reading voltage (current and resistance).
 - 3) Intelligent device programmer/tester.
 - 4) Laptop computer with programming software for any required program revisions.
 - 5) Two way radios, flashlights, smoke generation devices and supplies.
 - 6) Spare printer paper.
 - 7) A manufacturer recommended device for measuring air flow through air duct smoke detector sampling assemblies.
 - 8) Decibel meter.
 - d. In addition to the testing specified to be performed by the contractor, the installation shall be subject to test by the acceptance inspector.
 - e. System wiring: Fire alarm circuits shall be tested for continuity, grounds, and short circuits.

3.2 ACCEPTABLE INSTALLERS

- A. The Fire Alarm / Life Safety System specified herein shall be installed by a Factory Trained and Authorized Engineered Systems Distributor.

- B. Field Connected Devices may be installed and wired, and primary power may be wired by licensed contractors under the direct supervision of a Factory Trained and Authorized Engineered Systems Distributor.

3.3 EXAMINATION

- A. Prior to the commencement of any of the work detailed herein, an examination and analysis of the area(s) where the Fire Alarm / Life Safety System and all associated components are to be installed shall be made.
- B. Any of these area(s) which are found to be outside the manufacturers' recommended environments for the particular specified products shall be noted on a Site Examination Report which shall be given to the Building Owners' Representative, and the local AHJ.
- C. Any shorts, opens, or grounds found on existing wiring shall be corrected prior to the connection of these wires to any panel component or field device.

3.4 DEMONSTRATION

- A. Each of the intended operations of the installed Fire Alarm / Life Safety System shall be demonstrated to the Building Owners' Representative and the Local Authority Having Jurisdiction by the Installing ESD. Training shall consist of (2) 4 hour sessions by the fire alarm manufacturer for owner personnel on the operation and maintenance of all provided equipment. Session shall be digitally recorded by contractor and turned over to owner upon completion.

END OF SECTION



- ① REFER TO BUILDING PLANS FOR CONTINUATION OF WORKS SHOWN.
- ② REFER TO BUILDING PLANS FOR CONTINUATION OF WORK SHOWN.



NOTES:
 1. ALL NEW CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4000 PSI.
 2. EXISTING CONCRETE SHALL BE REPAIRED AS NECESSARY.
 3. ALL NEW CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONCRETE MANUAL, 9TH EDITION, AND SHALL BE PROTECTED FROM FREEZING TEMPERATURES.
 4. ALL NEW CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONCRETE MANUAL, 9TH EDITION, AND SHALL BE PROTECTED FROM FREEZING TEMPERATURES.

STATE OF CONNECTICUT	
DESIGNED BY	PERKINS + WILL
ARCHITECT	CENTRAL CONNECTICUT STATE UNIVERSITY
DATE	02/20/11
PROJECT	NEW UNIVERSITY POLICE BUILDING
SCALE	AS SHOWN
DATE	02/20/11

PERKINS + WILL
 100 N. LAKE STREET
 CHICAGO, IL 60606
 TEL: 312.279.2000
 WWW.PW.COM

Central Conn. State University
 100 N. LAKE STREET
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Architect Risk Management
 100 N. LAKE STREET
 CHICAGO, IL 60606
 TEL: 312.279.2000
 WWW.PW.COM

INVITATION TO BID

FOR PROJECTS ESTIMATED TO COST MORE THAN \$500,000.00

ADV. NO.: 11-13

ADV. DATE: February 18, 2011

SEALED BIDS FROM CONTRACTORS WHO HAVE BEEN PREQUALIFIED IN THE DAS CLASSIFICATION NOTED BELOW SHALL BE ADDRESSED TO THE DEPARTMENT OF PUBLIC WORKS - STATE OF CONNECTICUT FOR:

Project Title:	Central Connecticut State University New Public Safety Building 1500 East Street New Britain, CT
Project Number:	BI-RC-311
DAS Classification:	Group C – General Building Construction
Special Requirement:	N/A
Cost Estimate Range:	\$3,996,653. - \$4,417,350.
Plans & Specs Ready For Sale Date:	February 23, 2011
A NON-REFUNDABLE FEE OF PER SET IS REQUIRED	\$185.00 Checks should be made payable to “Treasurer, State Of Connecticut” and should <i>include</i> the prospective bidder’s correct mailing address, email address, telephone and fax numbers. USE A SEPARATE CHECK FOR EACH PROJECT.
Examination or Purchase of Plans & Specs	at the State Of Connecticut, Department Of Public Works, Plans And Specifications Section, Room No. G-36, 165 Capitol Avenue, Hartford, CT 06106, during the hours of 7:30 A.M. to 3:00 P.M. (Monday-Friday) or by addressing a request to the above address with your Fedex number.
Pre-Bid Conference:	All prospective bidders are encouraged to attend a pre-bid conference
Pre-Bid Conference Time	to be held AT 10:00 A.M.
Pre-Bid Conference Date	ON March 16, 2011
Pre-Bid Conference Location	AT Central Connecticut State University, 40 Wells Street, New Britain, CT., East Hall Conference Room 2
BID OPENING DATE:	April 6, 2011
Receipt of Bid Package	Bids will be received at the State Office Building, 165 Capitol Avenue, Hartford, CT, 06106 in Room No. G-36 UNTIL 1:00 P.M. on the date shown above and thereafter publicly opened and read aloud in Room No. G-32.
Bid Results:	Bid results are posted on the DPW Website in approximately

	two (2) days after the bid opening date.
Set-Aside Participation	25%
Including MBE	6.25%
Gift And Campaign Contribution Certification	If awarded the subject contract and the contract has a value of \$50,000 or more the contractor will be required to sign and submit, at the time of contract execution, a Gift And Campaign Contribution Certification. See the DPW home page, http://www.ct.gov/dpw , click on Affidavits. For the purposes of signing the Certification, the "date DPW began planning" the subject project or services is such date noted below.
Date DPW Began Planning the Subject Project:	5/6/2002
Summary and Affidavit Regarding State Ethics	Any one seeking a contract with a value of more than \$500,000 shall provide with their bid an Ethics Affidavit <i>located</i> at CT DPW Website (www.ct.gov/dpw). Failure to provide this affidavit with the bid proposal shall result in rejection of the bid.
Bid Security	As security, <i>each</i> bid must be accompanied by a CERTIFIED CHECK made payable to "Treasurer, State of Connecticut," or the bid must be accompanied by a BID BOND, in the form required by the awarding authority and having surety thereto such Surety Company or Companies as are authorized to do business in this State and/or accepted by the Commissioner of the Department of Public Works for an amount not less than 10% of the bid.
Bidders are advised that <i>both</i> the DEPARTMENT OF ADMINISTRATIVE SERVICES PREQUALIFICATION CERTIFICATE and UPDATE STATEMENT <u>must</u> accompany the bid proposal for projects <i>estimated to exceed</i> Five Hundred Thousand Dollars (\$500,000.00) (C.G.S. 4b-91 as amended). <i>Failure to supply them with the bid will result in rejection of the bid</i>	
Department of Administrative Services (DAS) Contractor Prequalification Program: http://www.das.state.ct.us/Purchase/New_PurchHome/Busopp.asp	
To access Executive Orders: http://www.ct.gov/governorrell/cwp/browse.asp?a=1719&bc=0&c=18433	
To access the Department of Public Works Web Site: http://www.ct.gov/dpw	

Performance and Labor and Material Bonds to be furnished by the bidder awarded the contract shall be an amount not less than 100% of the contract price.

The Commissioner reserves the right to do any of the following without liability, including but not limited to: (a) waive technical defects in the bid proposal as he or she deems best for the interest of the State; (b) negotiate with a contractor in accordance with Connecticut General Statutes Section 4b-91; (c) reject any or all bids; (d) cancel the award or execution of any contract prior to the issuance of the "Notice To Proceed;" and, (e) advertise for new bids.

Nonresident contractors: At the time of contract signing a certificate from the Commissioner of Revenue Services must be provided which evidences that C.G.S. 12-430 for non-resident contractors has been met. For details call the Department of Revenue Services at (860) 541-3280, ext. 7.

EXECUTIVE ORDERS:

The Contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it. At the Contractor's request, the Client Agency shall provide a copy of these orders to the Contractor. The Contract may also be subject to Executive Order No. 7C of Governor M. Jodi Rell, promulgated July 13, 2006, concerning contracting reforms and Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services, in accordance with their respective terms and conditions.

This contract is subject to the provisions of the Department of Public Works Sexual Harassment Policy ("Policy") and, as such, the contract may be canceled, terminated, or suspended by DPW for violation of or noncompliance with said Policy. Said document is hereby incorporated herein by reference and made a part hereof as though fully set forth herein. This policy may be found at the Department of Public Works Website at <http://www.ct.gov/dpw>, under Publications.

All technical questions must be in writing (not phoned or emailed) and faxed to the Architect/Engineer with a copy to the DPW Project Manager listed below.

Architect/Engineer/ Consultant:	Perkins + Will, Jennifer Rodriguez, Architect	Fax No:	860-657-0757
Construction Administrator	Arcadis U.S., Inc. Norman Benjamin, CA Representative	Fax No:	860-704-6120
DPW Project Manager:	Scott Dunnack	Fax No:	860-713-7261

All bid questions should be addressed to the Officer listed below.

Associates Fiscal Administrative Officer:	Mellanee Walton	Fax No:	(860) 713-7395
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Contract Time Allowed: 365 Calendar Days

