

Invitation for Bids
For
Installation of Fire Alarm System on 50 David Rd School Campus, Monticello Florida
For the School Board of Jefferson County, Florida
Contract # 2019-0010
September 20, 2019

(Legal Notice)

SCHOOL BOARD OF JEFFERSON COUNTY, FLORIDA
INVITATION FOR BIDS
INSTALLATION OF FIRE ALARM SYSTEM AT 50 DAVID ROAD SCHOOL CAMPUS

The School Board of Jefferson County, Florida (the "District") is seeking sealed bids to provide all labor and materials required to perform the **"INSTALLATION OF FIRE ALARM SYSTEM AT 50 DAVID ROAD SCHOOL CAMPUS"**.

Invitation for Bids will be available on or after September 20, 2019 on www.jeffersonschooldistrict.org website or by contacting the District office at 1490 West Washington Street, Monticello, FL 32344, 850-342-0100 Monday through Friday between the hours of 8:00 a.m. - 4:00 p.m.

Bids must be sealed and clearly marked **"INSTALLATION OF FIRE ALARM SYSTEM AT 50 DAVID ROAD SCHOOL CAMPUS"** and submitted to the District Office no later than 10:00 a.m. on Friday, October 11, 2019.

Each bid must be accompanied by a certified check, issued by a responsible bank or trust company, or a bid bond duly executed by the bidder as principal and having as surety thereon a surety company approved by the District, all in the amount of 5% of the bid payable to the "School Board of Jefferson County, Florida"

The District reserves the right to accept any bid, to reject any/or all bids and to waive minor irregularities and/or formalities as it deems to be in the best interest of the District.

Section 1 PROCUREMENT SCOPE

The District is publishing this Invitation for Bids for a qualified vendor to provide services for Installation of Fire Alarm System at the 50 David Road School Campus.

1.1 Authority

Invitation for Bid Procedures and award of the Contract shall be in accordance with Florida General Law, plus all applicable Federal, State and Local laws and regulations.

1.2 Withdraw, Modify, and Amend Bids

Bidders who wish to withdraw, modify or amend their bid must do so in writing utilizing electronic mail to the District, Superintendent marianne.arbulu@jeffersonschooldistrict.org or via fax at 850-342-0108, no later than the time and date set forth herein for the receipt of the bids. All such withdrawals, modifications or amendments must so state in the subject line of the email correspondence. Any withdrawal, modification or amendment arriving after the date and time set forth for accepting responses will not be considered. After the opening of the bids, a bidder may not change any provision of the bid in a manner prejudicial to the interests of the District or fair competition. Minor informalities will be waived at the discretion of the District.

1.3 Bid Security

Each bid must be accompanied by a certified check: of the bidder or a bid bond duly executed by the bidder as principal and having as surety thereon a surety company approved by the District, in the amount of 5% of the bid, payable to the "Jefferson County School District" and must be filed with the original bid.

1.4 Bid Bonds

The successful bidder is required to furnish performance bonds and payment bonds in the contract amount and with surety satisfaction to the District, in an award form this Invitation for Bids. The Bidder must pay all costs. The Performance Bond shall be in the sum of 50% of the contract price. The Payment Bond shall be in the sum of 50% of the contract price. The bonds shall be provided by the successful bidder to the District within five business days of the contract award.

1.5 Familiarity with Requirements

Bidders are to thoroughly familiarize themselves with the requirements of this Invitation for Bids. Ignorance of the requirements will not relieve the bidder from any obligations or liabilities of any contract(s) issued as a result of this Invitation for Bids.

1.6 Independent Party

Under this Invitation for Bids, the successful bidder declares itself to be at all times acting and performing as an independent party and nothing in this Invitation for Bids or any subsequent contract(s) is intended to constitute a partnership or joint venture between the Bidder and the District.

1.7 Conflict of Interest

No officer or employee of the District shall participate in any decision relating to any contract which would affect their financial or personal interest or the interest of any corporation, partnership, sole proprietorship or association in which they are directly or indirectly interested.

1.8 Subcontracting

None of the services to be provided by the contractor pursuant to any contract shall be subcontracted or delegated in whole or in part to any other organization, association, individual, corporation, partnership, or any other such entity without the prior written approval of the District. All intended subcontracts must be in writing and must be submitted with the bid documents. All intended subcontracts shall be provisions, which are functionally identical to and consistent with the language of this Invitation for Bids.

1.9 Choice of Law

Any contracts awarded as a result of this Invitation for Bids shall be construed under the laws of Florida. The successful bidder and agents thereof agree to bring any federal or state legal proceedings arising from any such contract in which the District is a party in a court of competent jurisdiction within the State of Florida. This section shall not be construed to limit any rights any party may have to intervene in any action in any court or wherever pending in which the other is a party.

1.10 Notices

Unless otherwise specified, any notice hereunder shall be in writing and shall be deemed delivered when sent via electronic mail (e-mail), given in person to either party or deposited in the U.S. Mail, postage prepaid and addressed to the persons indicated in any contract or as specified by any amendment hereto.

1.11 Severable Sections Do Not Affect Entire Contract

If any provision of the Invitation for Bids or any subsequent contract is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations under the provision. The remainder of the Invitation for Bids and any subsequent contract shall remain in full force and effect and enforceable to the fullest extent provided by law.

1.12 Liquidated Damages for Failure to Enter into Contract

The successful bidder, upon its failure or refusal to execute and deliver the Contract, Bond and Certificates of Insurance required within ten days after receipt of notice of the acceptance of the bid, shall forfeit to the District, as liquidated damages for such failure or refusal, the security deposited with its bid, provided that the amount forfeited shall not exceed the difference between its bid price and the bid price of the next lowest responsive and responsible bidder. In case of death, disability, bonafide clerical or mechanical error of a substantial nature or similar unforeseen circumstances affecting the bidder, its bid deposit shall be returned.

1.13 Liquidated Damages for Failure to Perform Under Terms of the Contract

Should the successful bidder fail to commence or diligently perform according to the terms of the contract, the successful bidder agrees to pay to the District, as liquidated damages, Two Hundred Fifty Dollars (\$250.00) per calendar day that the successful bidder fails to commence or diligently perform the work in accordance with the contract documents and/or is in violation of the contract. Liquidated damages assessed under this provision shall be deducted from any payment(s) due to the successful bidder.

1.14 Contract Performance

The failure of any party to insist in any one or more situations, upon performance of any of the terms or provisions of any part of this Invitation for Bids or resulting contract shall not be considered as a waiver or relinquishment of the right of either party to future performance of any such term or provision, and the rights and obligations of the parties to such future performance shall continue in full force and effect.

1.15 Duration of Contract

The contract term will commence upon signature and work must be completed no later than December 31, 2019.

End of Section

Section 2 GENERAL BID INFORMATION

2.1 Required IFB Sections

The Bidder must provide, in its bid, a reply to the particular specifications included in the Invitation for Bids.

2.2 The Contract Award

Based upon the bids received, the contract will be awarded to the lowest responsive and eligible Bidder.

2.3 Indemnification

Any successor in exchange for entering into an agreement or contract resulting from this Invitation for Bids shall indemnify and hold harmless the District and all persons acting for or on behalf of either of them from all suits and claims against them, or either of them, arising from or occasioned by the use of any service, material, equipment or apparatus, or any part thereof, which infringes or is alleged to infringe on any patent rights. In case such service, material, equipment or apparatus, or any part thereof in any suit is held to constitute infringement, the successful bidder, within a reasonable time, will at its expense, and as the District may elect, replace such material, equipment or apparatus with non-infringing material, equipment or apparatus or remove the material, equipment or apparatus and refund the

2.4 Federal, State and Local Laws

The successful bidder will comply with all applicable Federal, State and Local laws and regulations.

2.5 Tax Exempt

Purchases made by municipalities and government are exempt from Federal Excise Taxes and Florida Sales Taxes and bid prices must show the exclusion of such taxes. Tax exemption certificates will be furnished as required.

2.6 Insurance

The successful bidder in addition to any insurance required by State or Local Law, shall maintain in force during the term of any contract(s) issued as a result of this Invitation for Bids, the following insurance issued by an insurance company licensed to do business in State of Florida. Failure to provide or maintain such insurance shall be grounds to reject a bid or execute a contract.

a. Public Commercial Liability coverage in the amount of \$1,000,000.00 per occurrence and \$2,000,000.00 aggregate. Automobile Liability Insurance coverage in the amount of \$500,000.00 per person, \$1,000,000.00 per occurrence. Property damage Insurance in the amount of \$250,000.00.

b. Worker's Compensation Insurance in the amounts required by Florida Law.

c. Evidence of such insurance must name the District as the named insured as well as the successful bidder.

d. An Insurance Certificate giving evidence of the insurance must be delivered to the District within 10 days by the successful bidder receiving the award of this Invitation for Bids.

2.7 Costs

Costs for services that are not specifically identified in the bidder's response and identified as part of a contract, will not be compensated under any contract awarded pursuant to this Invitation for Bids.

The District will not be responsible for any costs or expenses incurred by responders responding to this Invitation for Bids.

2.8 Required Contract Attachments

All Responders are required to complete, sign and return at minimum the following documents:

1.) Bid Information- to be included as cover page of bid

2.) Certificate of Non-Collusion- Signature required

3.) Statement of Corporate Authority (If Responder is a Corporation) - If the Responder is a Corporation, a vote of the Corporation approving participation in this Invitation for Bids process must be signed by the corporate officers with the Corporate Seal Affixed and attached to the original Invitation for Bids.

If the Responder is a Corporation, the names and addresses of the corporate Officers and the state and date of incorporation must be included. The Responder must state if the Corporation is publicly held or privately held. If the Corporation is publicly held, the exchange on which it is traded and the symbol under which it is traded is required.

Sole Proprietorship (If Responder is a Sole Proprietorship)- If the Responder is a Sole Proprietorship, a partnership or any other legal business entity, the names and addresses of the officers must be included, the parent state of business and the numbers of years this entity has been in business. In short, a complete business profile must be included in the bid.

3.) Bid Pricing Form - Signature required

4.) Reference Form- To include three current contract references, at least one of which is government agency that can be contacted during the IFB process. Two of the references must be customers for which the Responder is or has provided services similar to those outlined in the Scope of Services of the IFB. Include customer name, contact person, his/her title, address and telephone number.

Do not use the names of relatives or District Employees as references. Do not use any previous District contracts as a source of project reference information. You may use previous District contracts as a record of your experience only.

2.9 Submitted Bids

The District shall be under no obligation to return any bids or materials submitted by the bidder in response to this Invitation for Bids. All materials submitted by bidders become the property of the District and will not be returned to the bidder. The District has the right to use any ideas, concepts or configurations that are presented in the bidder's bid whether or not the bid is selected for contract award.

2.10 Clarification of Bid

The District is not required to seek clarification of bids; therefore, the bidder should be as clear as possible in all of its responses to this Invitation for Bids.

2.11 Evaluation and Award of Contract

All pricing must remain constant for the entire term of the contract, as well as any possible extension offered. Bids will be evaluated and awarded based upon the lowest, responsive and eligible bid.

2.12 Rejection of Bidder's Bid

A bidder's bid may be rejected by the District if the bidder's bid:

- Fails to adhere to one or more of the requirements
- Fails to submit its bid to the required address on or before the Invitation for Bid responses due date
- Fails to submit a bid in accordance to the format and instructions specified or to supply the minimum information requested in this Invitation for Bids.
- Fails to meet unconditionally or is unable to demonstrate competence to meet the requirements of this Invitation for Bids.
- Misrepresents its equipment, systems or services or provides demonstrably false information in its response or fails to provide material information.
- Violates the restrictions on contacts with the District employees and representatives

- Refuses, is unable to, or fails to provide clarification requested by the District in a reasonable time frame.

2.13 Invitation for Bids Cancellation

The District retains the right to cancel this Invitation for Bids, or any portion thereof, at any time prior to the execution and approval of a contract. If this Invitation for Bids is cancelled, all responses received to this Invitation for Bids will be rejected. All expenses related to the preparation of responses to this Invitation for Bids remain the responsibility of the bidder.

2.14 Prime Contractors and Subcontractors

Prior approval of the eligible entity is required for any subcontracted service of the contract. Contractors are responsible for the satisfactory performance and adequate oversight of its subcontractors. Subcontractors are required to meet the same state and federal financial program and reporting requirements and are held to the same reimbursable cost standards as the successful bidder.

The District requires a single point of contact for any contract resulting from this Invitation for Bids. Subcontractors may be used, but the successful bidder, as prime contractors, shall be responsible for meeting all of the terms of any contract resulting from this Invitation for Bids and must accept full responsibility for any subcontractor's performance.

Bidders must provide a list of subcontractors, a description of each subcontractor's responsibility in regards to this contract and signed letters of agreement between the bidder as the prime contractor, and its subcontractor(s) identifying their responsibilities and their relationship to the prime contractor. The prime contractor must notify each individual account (eligible entity) in writing; the name of their subcontractor both initially and when a sub-contractor is changed. If a subcontractor has filed for Chapter 11 Bankruptcy or Chapter 7 Bankruptcy, the prime contractor also must notify the District. The notification must be written and must be within one week of the events noted above.

2.15 Instructions for Submission of IFB Responses

Each Invitation for Bid Response must be sealed, labeled and submitted to the address listed on the cover page of this document.

The Bidder must submit one (1) original response to the Invitation for Bids marked "ORIGINAL" The envelope must be clearly marked "Installation of Fire Alarm System at 50 David Rd School Campus".

2.16 Deadline for Submission

All responses to this Invitation for Bids are due at the address listed on the cover page.

End of Section

Section 3 Scope of Services Installation of Fire Alarm System at 50 David Road School Campus

PART 1.0 – GENERAL

1.1 DESCRIPTION:

- A. This section of the specification includes the furnishing, installation, connection, and testing of the intelligent, microprocessor controlled, analog addressable, fire alarm equipment required to form a complete and operational system. It shall include but not be limited to a Fire Alarm Control Panel (FACP), alarm initiating devices, alarm notification appliances, auxiliary control devices, annunciators, TCP/IP (Ethernet) and/or digital alarm communications to central stations, and wiring as shown on the drawings and specified herein.
- B. The fire alarm system shall comply with the requirements of NFPA 72 National Fire Alarm Code except as modified by the local Authority Having Jurisdiction and supplemented by this specification. The system field devices shall be supervised either electrically or through software driven polling process.
- C. The FACP and associated field devices shall be manufactured or supplied 100% by a single U.S. manufacturer that is ISO 9001 certified.
- D. The FACP and associated field devices system shall comply with the following Underwriters Laboratories Inc. (UL) USA listing standards as applicable.
 - 1. No. 38 Manually Actuated Signaling Boxes
 - 2. No. 50 Cabinets and Boxes
 - 3. No. 864 Control Units for Fire Protective Signaling Systems
 - 4. No. 268 Smoke Detectors for Fire Protective Signaling Systems
 - 5. No. 268A Smoke Detectors for Duct Applications
 - 6. No. 346 Water flow Indicators for Fire Protective Signaling Systems
 - 7. No. 464 Audible Signaling Appliances
 - 8. No. 521 Heat Detectors for Fire Protective Signaling Systems
 - 9. No. 1638 Private Mode Emergency and General Utility Signaling
 - 10. No. 1971 Visual Notification Appliances
- E. The FACP shall meet the requirements of UL ANSI 864 Ninth Edition. Systems listed to UL ANSI 864 Eighth Edition or earlier revisions are not acceptable.
- F. The installing company shall provide employ NICET Level II (or higher) fire alarm technicians to supervise the programming and testing of the system and to ensure the systems integrity.

1.2 SCOPE:

- A. An intelligent, microprocessor controlled, analog addressable fire alarm detection system shall be installed in accordance with the project specifications and drawings.
- B. Basic Performance:
 - 1. Analog Addressable devices shall be connected to the FACP Signaling Line Circuit (SLC)
 - 2. The FACP SLC shall support Class A (Style 6 or 7), Class B (Style 4), or Class X wiring configuration.

3. The SLC loop shall not require twisted or shielded cabling. Systems that require twisted and/or shielded cabling for the SLC loop are not acceptable.
4. The FACP Notification Appliance Circuits shall support either Class A (Style Z) or Class B (Style Y) wiring configuration.
5. The FACP RS-485 bus shall support either Class A or Class B wiring configuration.
6. All circuits shall be power limited per UL 864 requirements.
7. The secondary power source of the fire alarm control panel shall be capable of providing at least 24 hours of backup power with the ability to power the system for an additional 5 minutes in an alarm condition, at the end of the 24 hour backup period.

C. Basic System Operation

1. When an off normal condition occurs (Alarm, Supervisory, or Trouble) the respective LED on the FACP shall illuminate.
2. A piezo sounder shall activate at the FACP during any off normal condition until the SILENCE button is pressed by an authorized user.
3. A Red LED shall illuminate when an alarm or pre-alarm condition exists.
4. An Amber (yellow) LED shall illuminate when a Supervisory or Trouble condition exists.
5. A backlit 4 line 40 character LCD screen shall display all messages that refer to an off-normal condition.
6. An Alarm condition shall have priority over all other signals.
7. The FACP shall include an event buffer that maintains the last 4,000 system events including a date and time stamp for each.
8. In response to a fire alarm condition, the systems notification appliances and relay controlled output circuits that are associated through programming with the device initiating the alarm, shall automatically activate. Additionally the system shall notify an approved central station via dial-up, IP, or cellular means as deemed acceptable by the local Authority Having Jurisdiction (AHJ).

1.3 SUBMITTALS:

A. General

1. Two (2) copies of all submittals shall be submitted to the Architect/Engineer for review and approval.
 2. All references to manufacturers model numbers and other pertinent information herein is intended to establish minimum standards of performance, function, and quality.
 3. For equipment other than that specified, the contractor shall provide proof that the proposed substitute equipment equals or exceeds the form, feature, function, performance, and quality of the specified equipment.
- B. Shop Drawings
1. Drawings shall be provided that include all field devices that are installed as part of the fire alarm system including the address, circuit, location, and type for each. Whenever possible, the drawings shall reflect other components of the building such as air diffusers, HVAC returns, lights, etc. to determine compliance.
 2. The drawings shall include conductor counts and wire sizes for each circuit.
 3. The location and mounting configuration of the FACP, remote power supplies, and terminal cabinets shall be indicated on the drawings.
- C. Other documentation
1. In addition to the shop drawings, the following information shall also be included with the submittal.
 - a. Manufacturer's technical data sheets for each piece of equipment that will be installed.
 - b. Standby battery calculations for the FACP and any remote power supply or other panels that include their own standby batteries.
 - c. Voltage drop calculations showing the worst case end of line voltage for all notification appliance circuits
 - d. Detailed description of the overall operation of the system or a sequence of operation matrix.
 - e. Proof of factory training and certification of the supervising technician assigned to the project.
 - f. Proof of factory training and certification of a service technician employed by the Installation Company that can be onsite to troubleshoot and repair any service related problems with the system, within 4 hours of being notified of the problem.

1.4 WARRANTY:

A. All of the main fire alarm system components including control panels, detectors, modules, and notification devices furnished under this contract shall include a warranty from the manufacturer for a period of five (5) years from the date of purchase. All other materials, labor and work performed under this contract shall be free of defects and shall remain so for a period of one

(1) year from the date of acceptance. The full cost of materials and labor to correct any defects during these warranty periods shall be included in the installed price of the system.

1.5 MAINTENANCE:

A. Maintenance and testing shall be on a semi-annual basis or as required by the AHJ. A preventative maintenance schedule shall be provided by the contractor describing the protocol for preventative maintenance. The schedule shall include:

1. Systematic testing and complete inspection of the entire fire alarm system including control panels, field devices, and wiring terminations including smoke sensors, heat sensors, manual pull stations, sprinkler system switches, remote panels, power supplies, and terminal boxes, and all other fire alarm accessories, in accordance with NFPA 72. Cleaning and adjusting of these devices shall be conducted at this time.
2. An inspection and test of system power supplies, batteries, circuit breakers, and fuses as well as a load test of the batteries shall be conducted in accordance with NFPA 72.
3. Placing the system into an alarm condition and checking each notification device for proper operation.
4. Removing devices from the FACP SLC circuit to ensure a trouble condition occurs.
5. Input and output mapping shall be tested to ensure proper sequence of operation.
6. Signal transmission shall be tested to the Monitoring Station.
7. A report showing the calibrated sensitivity of each of the systems smoke detectors shall be generated from the fire alarm control panel and verified to ensure all smoke detectors are within UL tolerance.
8. Following each periodic maintenance and test, the owner shall be provided with a detailed report of the test results including any deficiencies found.

1.6 POST CONTRACT EXPANSIONS:

The contractor shall supply any necessary parts and/or labor necessary for expansion of the system for a period of 1 year from the date of completion.

1. When submitting the fire alarm system bid package, the contractor shall provide a quote for the expansion of the system by 10%. The quote shall include all costs for a complete installation including labor and materials for 1/10th of the number of devices used in the original overall specification and installation. The pricing shall be itemized to show single lot individual pricing of each item.
2. The prices quoted for system expansion will remain valid for 1 year from the date of completion.
3. The system expansion pricing shall be all inclusive and include costs for programming or reprogramming the system as needed.
4. Submittals that do not include a quote for expansion will be rejected.

1.7 APPLICABLE STANDARDS AND SPECIFICATIONS:

A. The specifications and standards listed below form a part of this specification. The system shall fully comply with the latest issue of these standards, if applicable.

1. National Fire Protections Association (NFPA)
 - a. No. 13 Sprinkler Systems
 - b. No. 70 National Electric Code (NEC)
 - c. No. 72 National Fire Alarm Code
 - d. No. 101 Life Safety Code
2. Local and State Building Codes
3. All requirements of the local Authority Having Jurisdiction (AHJ)

1.8 APPROVALS:

The system shall have the proper listing and/or approval from the following recognized agencies:

UL Underwriters Laboratories Inc.

PART 2.0 – PRODUCTS:

2.1 EQUIPMENT AND MATERIALS:

1. All equipment and components shall be new, and of the manufacturers current model. The materials, appliances, equipment, and devices shall be tested and listed for its intended purpose by a recognized national listing testing laboratory.

2. All equipment and components shall be installed in strict compliance with the manufacturer's recommendations as indicated in the installation manuals and wiring diagrams for the system.
3. All equipment attached to walls and ceiling shall be securely fastened. Ceiling mounted devices shall not be supported solely by suspended ceilings. A back box shall be used for mounting all equipment. A listed and compatible back box shall be used on all outdoor devices or those devices installed in locations subject to moisture.
4. All equipment shall be manufactured by an ISO 9001 certified company.
5. All equipment shall be readily available through wholesale distribution outlets to licensed installation contractors that are independent of the systems manufacturer.

2.2 CONDUIT AND WIRE:

A. Conduit:

1. The conduit or raceway shall be installed in accordance with the National Electrical Code, state and local requirements.
2. Where required, all wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40% on the interior cross sectional area where three or more cables are contained within a signal conduit.
3. All conduit and raceway shall be listed and/or approved by a recognized national testing laboratory.
4. Conduit size shall be $\frac{3}{4}$ " minimum.
5. Conduit may only enter the fire alarm control panel, power supply, annunciator, and other system cabinets through the pre-punched knockouts provided by the system manufacturer.
6. Fire alarm cables must be separated from any Class 1 circuits, and shall not be placed in any conduit, junction box, or raceway containing Class 1 or light or power circuits.
7. With the exception of telephone connections, wiring for 24 volt DC control, alarm, notification, emergency communication and similar power-limited auxiliary functions, may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.

B. Wire:

8. All fire alarm wiring shall be new.
9. Wiring shall be installed in accordance with local, state, and national codes and as recommended by the manufacturer of the fire alarm system.
10. All wire and cable shall be listed and/or approved by a recognized national testing laboratory for its intended purpose.
11. The Signaling Line Circuit (SLC) loop shall be installed with a minimum #18 AWG wire, and shall allow the use of non-twisted and non-shielded solid or stranded wire. Systems that require twisted and/or shielded wiring are not acceptable.
12. Notification Appliance Circuits (NAC) shall be wired with not less than #16 AWG wire as required for proper end of line operating voltage.
13. All field wiring shall be supervised for open circuits and earth ground faults.
14. The FACP RS-485 wiring bus shall be capable of operating system devices up to 6500 feet away from the main panel, without the use of additional power supplies, boosters or signal amplifiers.

C. Terminal Boxes, Junction Boxes, and Cabinets

15. All terminal boxes, junction boxes, and accessory cabinets shall be listed for their intended purpose.

2.3 FIRE ALARM CONTROL PANEL (FACP)

A. The FACP shall be a Potter Electric Signal Company model AFC-1000 microprocessor based analog addressable type system.

B. Overview and Features:

1. The FACP shall include one (1) Signaling Line Circuit (SLC) that will power, supervise, monitor, and control a maximum of 127 analog addressable devices which may be made up of any combination of sensors and modules. Sub-points allow for more than 127 analog addressable software points. The FACP shall be capable of expanding up to 1270 by use of up to 9 PAD100-SLCE Signal Line Communication expansion board. The SLC shall have the capability to be wired in an NFPA Style 4, 6, or 7 (Class A, B or X) configuration.
2. The FACP shall have 3 form C relays dedicated to Alarm, Trouble, and Supervisory conditions. These relays shall have a contact rating of 3 Amps at 24VDC.

3. The FACP shall have a power supply capable of providing a minimum of 10 amps of 24 VDC power to devices requiring auxiliary power and/or notification appliances.
4. The FACP shall have six (6) programmable Notification Appliance Circuits rated at no less than 3 amps per circuit and capable of being wired in a Class A or Class B configuration. These circuits shall be programmable for the following output types:
 - a. Notification Appliance Circuit – Continuous Output
 - b. Notification Appliance Circuit – ANSI Temporal Output
 - c. Notification Appliance Circuit – Sounder Base Power
 - d. Notification Appliance Circuit – Synchronized Output
 - e. Auxiliary Power – Constant
 - f. Auxiliary Power – Resettable
 - g. Door Holder Power – Constant
 - h. Door Holder Power – Low AC Dropout
 - i. City Tie - Reverse Polarity Output for applications in compliance with applicable NFPA standards.
 - j. Releasing Circuit – For use with pre-action sprinkler systems.
5. The FACP NAC circuits shall include the capability to automatically synchronize notification appliances from multiple manufacturers simultaneously on the same FACP without the need for a synchronization module. Systems that do not allow for multiple brands of strobes to be synchronized together on the same panel are not acceptable. The following manufacturers synchronization protocol shall be supported as a minimum:
 - a. Amseco
 - b. Gentex
 - c. Gentex Sync with T4
 - d. Wheelock
 - e. System Sensor
6. The FACP shall include a 4-wire serial P-LINK bus for communication with system annunciators, power supplies, expansion modules, and other accessories. The P-LINK bus shall support a wiring distance of no less than 6500 feet from the panel to the furthest device.
7. The FACP shall have four (4) programmable I/O Circuits rated at 1 amp per circuit and capable of being wired in a Class B configuration. These circuits shall be programmable for the following input/output types.
 - a. Notification Appliance Circuit – Continuous Output
 - b. Notification Appliance Circuit – ANSI Temporal Output
 - c. Notification Appliance Circuit – Synchronized Output
 - d. Notification Appliance Circuit – Sounder Base Power
 - e. Auxiliary Power – Constant
 - f. Auxiliary Power – Resettable
 - g. Door Holder Power – Constant

- h. Door Holder Power – Low AC Dropout
- i. City Tie - Reverse Polarity Output for applications in compliance with applicable NFPA standards.
- j. NAC Release Solenoid
- k. Contact Input Pull Station
- l. Contact Input Water flow
- m. Contact Input Supervisory
- n. Contact Input Tamper
- o. Contact Input Fire Drill
- p. Contact Input Trouble Monitor
- q. Contact Input Aux.
- r. Contact Input Abort

- s. Contact Input Release Follower
- t. Trigger IO Reverse Polarity
- u. Trigger IO Reverse Polarity No Trouble
- v. Contact Input Reset
- w. Contact Input Silence
- x. Contact Input Fire Alarm
- y. Contact Input Disable Inputs
- z. Contact Input Disable Outputs
- aa. Contact Input Disable Inputs & Outputs
- bb. Contact Input Lamp Test
- cc. Contact Input CO Alarm
- dd. Contact Input CO supervisory
- ee. Contact Input HVAC Restart
- ff. Contact Input Medical Alert
- gg. Contact Input Tornado Alert
- hh. Contact Input Process Alert
- ii. Contact Input Security Alert

8. The FACP shall include an operator interface keypad and annunciation panel that includes a 160 character backlit LCD display and color coded system status LED's.

9. The FACP shall include a LEARN feature to quickly and automatically detect and enroll all system devices, and make them operational. The LEARN function shall allow an authorized user to subsequently run a LEARN function after initial installation in order to make changes to the system, without deleting any existing programming. Systems that include auto-program functions that delete existing programming when ran are not acceptable

10. The FACP shall be housed in a UL listed key locked cabinet with sufficient space to house 8AH or 18AH batteries.

11. The FACP shall be capable of being programmed with an IP address so that it can reside on a standard TCP/IP network. The IP address shall be able to be assigned dynamically through DHCP or programmed statically.

12. The FACP shall include a built-in TCP/IP Ethernet port for programming and communications purposes.

- a. The TCP/IP Ethernet port shall be capable of communicating to an approved UL listed central station via the internet or other compliant TCP/IP network connection, without the need for additional modules or software.
 1. The central station communication shall be transmitted in a format capable of transmitting event information by point or by software zone.
 2. If applicable, the installation contractor shall verify the building network components compliance with any applicable codes and standards including NFPA and UL.
- b. The TCP/IP Ethernet port shall be capable of connecting a computer to the FACP for programming purposes using a standard Ethernet patch cable. Systems that require special cables, modules or adapters for programming are not acceptable.
- c. The FACP shall be capable of emailing the systems software program, event history, detector status, and any off-normal events that occur, to up to 20 preauthorized email recipients. Authorized email recipients shall have the ability to opt in and out of email transmissions by sending the FACP a standard email message.

13. The FACP shall include the ability to add a Digital Alarm Communicating Transmitter (DACT). The DACT shall be capable of being used in lieu of or in addition to the IP central station communication capability.

14. The FACP operating software shall include the following features:

- a. The ability to program any input to activate any output or group of outputs on the system.
- b. Drift compensation to ensure smoke detector accuracy between maintenance inspections.
- c. Maintenance alert function to warn of excessive dust or dirt accumulation in a smoke detector.
- d. Built-in detector sensitivity test meeting the requirements of NFPA 72.
- e. 4,000 event history buffer that stores all off-normal conditions and actions along with a time/date stamp of when they occurred.
- f. Alarm verification feature with a programmable timer.
- g. Positive Alarm Sequence capability meeting NFPA 72 requirements.

- h. One person walk-test capability with all devices tested during walk-test mode recorded in the event history buffer.
- i. Duplicate device address detection to determine if more than 1 device per SLC loop shares the same address. An authorized user shall also be able to turn on the LED for any device address to assist in troubleshooting duplicate address troubles.

C. Operator Control and Interface

- 1. The FACP shall include an intuitive operator interface that includes the following:

- a. Acknowledge (ACK) Button

- 1. Depressing the FACP ACK button in response to new alarms and/or troubles shall silence the local piezo sounder and change the alarm and trouble LED's from flashing mode to steady ON mode. The alarm or trouble event information on the LCD display shall also display an icon indicating that the event has been acknowledged.

- b. Alarm Silence (SILENCE) Button

- 1. Depressing the FACP SILENCE button shall cause all silenceable alarm notification appliances and relays to return to their normal non-alarm condition. The selection of which notification appliance circuits and relays that are silenceable by this button, shall be fully field programmable within the confines of all applicable codes and standards. The FACP software shall include silence inhibit and auto silence/unsilence timers.

- c. Alarm Activate (DRILL) Button

- 1. Depressing the FACP DRILL button shall activate all notification appliance circuits should the panel be programmed with a Fire Drill zone

- d. System (RESET) Button

- 1. Depressing the FACP RESET button shall cause all electronically latched input devices and software zones, as well as all associated output devices and circuits to return to their normal condition.

- e. Display

- 1. The user interface display shall be a backlit 4 line 40 character LCD.

2.4 SYSTEM COMPONENTS

A. Compatible FACP Accessories

1. Digital Alarm Communicating Transmitter
 - a. Potter Electric Signal model UD-1000
 1. Shall be used to provide dual line telephone communication
2. Class A module
 - a. Potter Electric Signal model CA-6500
 1. CA-6500 shall provide the means to allow the FACP's SLC, P-LINK, and NAC circuits to be wired in a Class A configuration.
3. Signaling Line Expansion Module
 - a. Potter Electric Signal model PAD100-SLCE
 1. Shall provide means of connecting and communicating to additional PAD SLC devices.
 2. The system shall support 127 Addressable devices per card
 3. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
 4. The system shall support a total of 9 additional SLC loops.
 - b. Potter Electric Signal model SLCE-127
 1. Shall provide means of connecting and communicating with existing Nohmi protocol based devices.
 2. The system shall support 127 Addressable devices per card
 3. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
 4. The system shall support a total of 9 additional SLC loops.
4. LCD Remote Annunciators
 - a. Potter RA-6500R
 1. RA-6500R shall provide the means for an authorized user to operate the system from a location remote to the main panel.
 2. RA-6500R shall include a 4 line 160 character backlit LCD display.
 3. The system shall support a total of 31 LCD Remote Annunciators.

b. Potter RA-6075R

1. RA-6075R shall provide the means for an authorized user to operate the system from a location remote to the main panel.
2. RA-6075R shall include a 2 line 32 character backlit LCD display.
3. The system shall support a total of 31 LCD Remote Annunciators.

c. LED-16

1. 16 LED annunciator with common indicators in a locked metal enclosure
2. The system shall support a total of 10 LED Remote Annunciators.

5. Intelligent Power Expanders

a. Potter Electric Signal model PSN-1000(e)

1. PSN-1000(e) shall add 10 amps of power, 6 programmable NAC circuits, and 2 programmable Dry Contact Input circuits.
2. The PSN-1000(e) shall be capable of Quadrasync strobe synchronization as described earlier in this specification.
3. The system shall support a total of 31 PSN-1000(e) Intelligent Power Expanders.

6. LED Driver

a. Potter Electric Signal model DRV-50

1. Shall be used to connect up to 50 LEDs in a graphic display
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
3. The system shall support a total of 10 LED Drivers.

7. Fire Communication Bridge

a. Potter Electric Signal model FCB-1000

1. Shall provide remote mounting of the FACP's Ethernet connection
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply

3. May be installed in the stacker bracket or ordered with optional rack mount enclosure.

8. Fiber Interface Bridge

a. Potter Electric Signal model FIB-1000

1. The system shall support a total of 31 Fiber cards
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
3. May be installed in the stacker bracket or ordered with optional rack mount enclosure.

9. Serial Parallel Gateway

a. Potter Electric Signal model SPG-1000

1. The system shall support a total of 31 Serial / Parallel Printer modules.
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
3. May be installed in the stacker bracket or ordered with optional rack mount enclosure.

10. Relay Expander

a. Potter Electric Signal model RLY-5

1. The system shall support a total of 31 Relay cards
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply
3. Contacts Rated to 3.0A at 24VDC and 3.0A at 125VAC.

11. Multi-Connect Expander

a. Potter Electric Signal model MC-1000

1. The system shall support a total of 31 Multi-Connect cards.
2. May mount in panel, accessory cabinet, AE-2 ,AE-8 or AE-14 Accessory Cabinets or the PSN- 1000/E Power Supply

3. Allows multiple panels to communicate to a remote station receiver through a single panel designated as the host

Compatible SLC Devices

12. Analog Addressable Photoelectric Smoke Detector
 - a. Potter Electric Signal model PAD100-PD
13. Analog Addressable Photoelectric Smoke Detector w/Heat Detector
 - a. Potter Electric Signal model PAD100-PHD
14. Analog Addressable Temperature Heat Detector
 - a. Potter Electric Signal model PAD100-HD
 - b. The PAD100-HD shall be programmable for a 135 up to 185 degree operating temperature.
 - c. The system shall allow for the heat detector to be programmed to be either Fixed or Rate of Rise.
15. Analog Addressable Duct Smoke Detector
 - a. Potter Electric Signal model PAD100-DUCTR
 1. The PAD100-DUCTR shall come with one (1) Form C Relay
 2. Shall require both 24 VDC and SLC to operate
 - b. Potter Electric Signal model PAD100-DUCT
 1. PAD100-DUCT does not come with relay
16. Analog Addressable CO Gas Detector
 - a. Potter Electric Signal model PAD100-CD
17. 6" Detector base
 - a. Potter Electric Signal model PAD100-6B
18. 4" Detector Base
 - a. Potter Electric Signal model PAD100-4B

19. Addressable Detector Base with Sounder

- a. Potter Electric Signal model PAD100-SB
 - 1. Shall require both 24VDC and SLC to operate

20. Addressable Detector Base with Relay

- a. Potter Electric Signal model PAD100-RB
 - 1. The relay base shall have 1 set of Form C contacts rated for 2 amps at 24 VDC or 0.5 amps at 125VDC.

21. Addressable Detector Base with Isolator Module

- a. Potter Electric Signal model PAD100-IB

22. Single Action Pull Station

- a. Potter Electric Signal model PAD100-PSSA

23. Dual Action Pull Station

- a. Potter Electric Signal model PAD100-PSDA

24. Relay output Module

- a. Potter Electric Signal model PAD100-TRTI
 - 1. The Two Relay Two Input Module (TRTI) shall have 2 sets of Form C relays, rated for 2 amps at 24VDC or 0.5 amps at 125VAC. Also provides two (2) contacts inputs.
- b. Potter Electric Signal model PAD100-OROI
 - 1. The One Relay One Input Module (OROI) shall have one form C relay, rated for 2 amps at 24VDC or 0.5 amps at 125VAC. Also provides a single input contact.
- c. Potter Electric Signal model PAD100-RM
 - 1. Provides one (1) form C relay controlled by the control panel. The relay is rated for 2 amps at 30VDC or 0.5 amps at 125VAC.

25. Single Contact Input Module

- a. Potter Electric Signal model PAD100-SIM
- b. Potter Electric Signal model PAD100-MIM

- 1. Micro Input Module (MIM) provides a small foot print contact module for mounting inside an enclosure.

26. Dual Contact Input Module

- a. Potter Electric Signal model PAD100-DIM

27. Conventional Initiating Zone Module

- a. Potter Electric Signal model PAD100-ZM

28. Monitored Output Module

- a. Potter Electric Signal model PAD100-NAC

29. Speaker Output Module

- a. Potter Electric Signal model PAD100-SM

30. Short Circuit Isolator Module

- a. Potter Electric Signal model PAD100-IM

31. LED Plate

- a. Potter Electric Signal model PAD100-LED

32. LED Switch Plate

- a. Potter Electric Signal model PAD100-LEDK

33. Remote Test Switch

- a. Potter Electric Signal model PAD100-DRTS

34. Notification Appliances

- a. Audible Indicating Appliances

- 1. All audible sounding devices shall operate on 24 VDC and be UL listed as compatible with the FACP.

2. All audible devices shall be programmed to sound in the ANSI Temporal 3 sound pattern or Temporal 4 sound pattern for Carbon Monoxide signaling.
3. Audible appliances shall be Potter Electric Signal model HS-24, or LFH for low frequency

b. Visual Indicating Appliances

1. All visual indicating appliances shall operate on 24VDC and be listed as compatible with the FACP.
2. All visual indicating appliances shall support an adjustable candela feature that is set for the appropriate coverage area per NFPA 72.
3. Visual indicating appliances shall meet UL and ADA requirements.
4. Visual indicating appliances shall be Potter Electric Signal model S-24 for wall mounted applications or model CS-24 for ceiling mounted applications.

c. Audible/Visual Indicating Appliances

1. All audible/visual indicating appliances shall operate on 24VDC and be listed as compatible with the FACP.
2. All audible/visual indicating appliances shall support an adjustable candela feature that is set for the appropriate coverage area per NFPA 72.
3. All audible/visual appliances shall be programmed to sound in the ANSI Temporal 3 sound pattern.
4. Visual indicating appliances shall meet UL and ADA requirements.
5. Audible/Visual indicating appliances shall be Potter Electric Signal model HS-24 for wall mounted applications or CHS-24 for ceiling mounted applications.
6. Visual indication appliances shall be Potter Electric Signal model LFHS-24 for wall mounted applications.

35. Batteries

- a. Batteries used for backup power to the main FACP or remote power supply panels shall be of the sealed lead acid, maintenance free type.

- b. Batteries shall be sized according to the power requirements of the FACP and be capable of operating the system in standby mode for a minimum of 24 hours followed by 5 minutes in alarm condition.
- c. Battery calculations shall be supplied showing the calculated standby battery size after factoring in a minimum 20% efficiency/derating factor.

PART 3.0 – EXECUTION

3.1 INSTALLATION:

- A. The entire installation shall be in accordance with NFPA 72, NFPA 70 (NEC), state and local codes, and meet the requirements of the local Authorities Having Jurisdiction.
- B. The installation shall be in accordance with manufacturers recommended practices and installation instructions.
- C. Smoke detectors shall not be installed until all construction is completed and construction dust and debris are removed. Detectors that were installed in construction areas shall be removed, cleaned, and recalibrated prior to final acceptance.
- D. All conduit, junction boxes, and supports shall be concealed in finished areas and may be exposed in unfinished areas.

3.2 ACCEPTANCE TEST:

- A. All tests shall be conducted in accordance with NFPA 72
- B. Persons conducting fire alarm acceptance tests shall be knowledgeable in fire alarm systems. This is verified by the proper training and recognition from wither the factory, NICET, International Municipal Signal Association, State or locally certified, or trained by a company that is listed by a national testing laboratory.
- C. The fire alarm test shall be thorough and test 100% of all circuit, devices, and signals. That test shall include but not be limited to the following:
 - a. Prior to powering the system, check for ground faults, short circuits, and continuity.
 - b. Test the supervisory valves connected to the fire suppression system for a supervisory signal sent to the panel.
 - c. Test all sprinkler water flow switches. Retard times shall not exceed 90 seconds.
 - d. Open and short each SLC circuit and verify a trouble condition occurs.

- e. Open and short each notification appliance circuit and verify a trouble condition occurs.
- f. Ground all circuits and verify a trouble condition occurs.
- g. Verify the installation is in accordance with the approved drawings.
- h. Test audibility of all audible notification appliances and that the output volume is in accordance with NFPA 72.
- i. Test all visual notification appliances for synchronization and proper operation.
- j. Test the operation of every addressable device on the system per manufacturer's recommendations.
- k. Verify the appropriate outputs are activated when each input device is put into an alarm condition.
- l. Verify the appropriate messages are displayed and LED's illuminate on the FACP and remote annunciators, corresponding to each point tested.

3.3 OPERATOR INSTRUCTION:

The manufacturer-trained representative shall instruct and demonstrate to the building owner and operations staff the operation of all system components. An operator's manual shall be provided and kept with the FACP for future reference. A drawing or list shall be provided to the building owner and operations staff detailing the device locations, addresses, and programming of each system device. If requested, the installation contractor shall provide a typewritten sequence of operations.