



INVITATION FOR BID NUMBER AEPA IFB #009-F

SECURITY AND FIRE ALARM SYSTEMS INSTALLATION, MAINTENANCE AND REPAIR PRODUCTS AND SERVICES

PART B – SPECIFICATIONS

TABLE OF CONTENTS

1. IFB Goal.....2
2. Anticipated Member Agency Participation2
3. IFB Intent3
4. Scope of Bid4
5. Categorical Definitions6
6. Categorical Terms & Conditions8
7. Categorical Specifications12

1. IFB Goal

- 1.1 The general goal of this IFB is to establish multi-state purchasing contracts for qualified agencies of the participating AEPA agencies located in 23 member states. AEPA state organizations serve all levels of public educational institutions, governmental agencies and non-profit organizations that have been authorized to utilize AEPA contracts accepted and awarded by the individual state agency to assist their clients in the individual states to deal with and overcome ongoing problems and issues they encounter with security and fire alarm systems.
- 1.2 It is also known that by offering security and fire alarm systems manufacturers/distributors a multi-state opportunity to provide and install their products, they are highly motivated to partner with the best-certified local contractors and have the ability to control the correct installation of their products and embrace the responsibility and the incentive to guarantee the end results of products and services offered. By utilizing their own crews and/or independent, licensed, authorized contractors/installers who have cooperative arrangements with them to perform work on their behalf, it creates a consistent, effective and sound procurement option for AEPA member clients.

2. Anticipated AEPA Member Agency Participation

State	Participate (Yes/No/Undecided)	Estimated First year Purchase Volume	State	Participate (Yes/No/Undecided)	Estimated First year Purchase Volume
California	Yes	\$500,000	New Jersey	Yes	Unknown
Colorado	Yes	Unknown	New Mexico	Yes	\$100,000
Connecticut	Yes	\$50,000	North Dakota	Yes	\$20,000
Florida	Yes	\$50,000	Ohio	Yes	Unknown
Indiana	Yes	Unknown	Oregon	Yes	\$100,000
Iowa	Yes	Unknown	Pennsylvania	Yes	\$250,000
Kansas	Yes	Unknown	Texas	No	N/A
Kentucky	Yes	Unknown	Virginia	Yes	Unknown
Michigan	Yes	Unknown	Washington	Yes	\$100,000
Minnesota	Yes	Unknown	Wyoming	Yes	Unknown
Missouri	Yes	Unknown			
Montana	Yes	Unknown			
Nebraska	Yes	\$10,000	Total		\$1,180,000

Please note that individual AEPA state agencies that have indicated above that they would like to participate in any contract awarded under this solicitation does not guarantee or mean that the individual AEPA Agency will enter into a contract with any AEPA approved offeror. Each AEPA Member Agency will make that determination after reviewing offeror responses and AEPA's recommendation for acceptance and bid award. The AEPA Member Agency's contracting decision shall be final.

The above information relating to the estimated/projected volume for the first year for this solicitation is provided based on submittals from its members. AEPA Member Agencies anticipate that purchase volumes will increase in contract years two through four (2-4). This information is provided as an aid to Offerors in preparing bids only. It is not to be considered a guarantee of volume under this IFB. The successful Offeror's discount and pricing schedule shall apply regardless of the volume of business under the contract.

To assist Members in their effort to meet their needs, AEPA is seeking Offerors that possess and can demonstrate they have the knowledge, background, experience, and qualified and properly licensed staff to provide facility electronic systems to include, but not be limited to, security, fire, intercommunication, media management/distribution, clocks and permanent sound systems to AEPA Member Agencies. Offerors must be willing and able to provide the planning, design, engineering, installation and maintenance of these systems.

AEPA believes that no single Offeror has either the expertise or capability to provide all the planning, design and implementation skills and the latest equipment to meet all of the requirements of both current and future facilities. Therefore, a company that responds to this RFP must have as a primary goal to deliver the very best equipment and services to meet the public's need through partnerships with both the AEPA Member Agencies and other contractors.

3. IFB Intent

3.1 The intent of this solicitation is to award a contract to provide for the construction products and services required to meet the current and future needs of the qualified AEPA customers as understood and anticipated by the responding Offeror, as well as relating to the Manufacturer

Terms, Conditions, Specifications and the line item material pricing requests outlined in this IFB. The contracted services are to meet or exceed all federal, state and industry standards and requirements as defined, established, set forth and adopted by individual governmental agencies and/or industry organizations.

- 3.2 It is further the intent of the specifications and expectations enumerated within this IFB to allow AEPA member agencies and their clients to have as an option the highest quality, most complete and comprehensive product line security and fire alarm system products and services available to meet their individual facility's needs and requirements, at cooperative purchasing volume pricing.
- 3.3 It is further the intent of the AEPA to award a contract to the best responsible Offeror(s) meeting specifications and qualifications, provided the response to the IFB has been submitted in accordance with the requirements of these procurement documents. The AEPA shall have the right to waive any informality or irregularity in any response to the IFB received and to accept the IFB which, in the group's judgment, is in its own best interest. We also reserve the right to advertise for a new IFB where the acceptance, rejection, waiving, or re-award will be based on, but not necessarily limited to, the following:
 - 3.4 Adherence to all requirements of the IFB specifications as proposed and defined by industry standards.
 - 3.5 Knowledge of the Offeror in terms of past performance of the products and services to include market place success in the AEPA states.
 - 3.6 Ability to service and meet or exceed the current and future needs or requirements of the AEPA member agency's clients geographically located in all 23 states as defined.
 - 3.7 Completeness of information provided in response to this IFB.
 - 3.8 Financial standing, capacity and bond rating of the Offeror.
 - 3.9 Nature and extent of company data furnished upon request of AEPA.
 - 3.10 Evaluation of the quality of products and services offered and proven track record.
 - 3.11 Overall ability of products and services offered to meet, comply and fulfill the needs and requirements of individual clients within the 23 states.
 - 3.12 Value added programs and services beyond the traditional services offered that enhances and/or improves the client's ability to manage and maintain their facility envelopes throughout their life cycle.
 - 3.13 Ability, past performance, track record and commitment to the research and development of new technologies and products to better meet owners' needs.
 - 3.14 Offeror's ability to demonstrate a proven track record and past performance relating to their staff's and subcontractors' workmanship, delivery timelines, warranty work, performance over time, customers service history and satisfaction, industry awards and acknowledgements.
 - 3.15 General reputation and experience of the Offeror and its delivery network from a national perspective.
 - 3.16 Offeror's ability to demonstrate its new product development and testing, and the utilization of the latest technology to assess, evaluate, track and allow individual facility owners to establish and maintain adequate record keeping relating to their facility's envelopes and their operational status and conditions.
 - 3.17 Offeror's ability to demonstrate its current and future ability, capacity, resources and willingness to market, promote and provide the individual facility owners within the 23 AEPA member states with the type and level of assistance and support required for AEPA member agencies to offer their clients a complete and comprehensive cooperative procurement option.
 - 3.18 Offeror's ability to communicate and demonstrate it and its distribution network understanding of the types, level and quality of products and services requested, the expectations and various current and future needs and requirements of the AEPA member agency's clients.

- 3.19 Offeror's willingness, ability, commitment and track record in developing and operating within a collaborative and cooperative market place and entering into an AEPA-type business relationship.
- 3.20 A response to this IFB is an offer and commitment to contract with participating AEPA agencies based upon the terms, conditions, scope of work and specifications contained and referenced in this bid. The awarded Vendor will be required to deliver supplies, materials and services proposed in its response and accepted by AEPA to all qualified AEPA member agency clients as applicable to the award and in accordance with the pricing established for each state and the specific terms, conditions, construction regulations and other applicable laws that are applicable to each state. In the event that the awarded Vendor and AEPA are not able to come to an agreement with regard to an executable contract, AEPA reserves the right to recommend rejecting the awarded Vendor and making the award to the second responsive Vendor based on the 1,000 point Evaluation system or rejecting all bids.

4. Scope of Bid

To assist Members in their effort to meet their needs, AEPA is seeking Offerors that possess and can demonstrate they have the knowledge, background, experience, and qualified and properly licensed staff to provide facility electronic systems to include, but not be limited to, security, fire, intercommunication, media management/distribution, clocks and permanent sound systems to AEPA Member Agencies' Members. Offerors must be willing and able to provide the planning, design, engineering, installation and maintenance of these systems.

AEPA believes that no single Offeror has either the expertise or capability to provide all the planning, design and implementation skills and the latest equipment to meet all of the requirements of both current and future facilities. Therefore, a company that responds to this RFP must have as a primary goal to deliver the very best equipment and services to meet the public's need through partnerships with both the AEPA Member Agencies and other contractors.

5. Categorical Definitions

ADSL: Asymmetrical Digital Subscriber Line.

ANSI: American National Standards Institute.

Architecture: The logical structure of the communications system of a network including protocols, formats and sequences of operations.

ATM: Asynchronous Transfer Mode.

AWG: American Wire Gauge.

Bridge: A networking device that connects two LANs by forwarding or filtering data packets.

Campus Area Network: A network designed to provide for connectivity between buildings located in the same general area.

CAN: Campus Area Network.

CCIA: Computer Communications Industry Association.

CCTV: Closed Circuit Television.

Client: A device that requests services from a server.

Closed Architecture: One that is compatible with only the hardware and software from a single vendor.

Connection Oriented Network: Data is transferred following the same pre-established path between two points.

Connectionless Network: Specified by IEEE 802 standards; communications which do not require a logical connection to be established between two stations before transmission takes place.

DCE: Data Communications Equipment – Equipment found at the transmission sources and destination that allows communications to occur. It is responsible for establishing, maintaining and terminating connections. It performs signal conversion and coding between the transmission medium and the DTE.

De facto Standard An informal standard created by large public popularity and acceptance.

De jure Standard: A formal standard developed and produced by a committee.

Distributed Architecture: A LAN that uses shared communications medium and shared access methods.

DSU/CSU: Data (Digital) Service Unit and Channel Service Unit.

DTE: Data Terminal Equipment – The device that produces data to be transmitted across an internet work.

EIA: Electronics Industries Association.

EISA: Extended Industry Standard Architecture.

FDDI: Fiber Distributed Data Interface.

Groupware: Applications software designed for use in a LAN environment.

Hub: Provides connections to and from multiple network devices.

IEEE: Institute of Electrical and Electronics Engineers.

ISA: Industry Standard Architecture.

ISO: International Standards Organization.

ITU: International Telecommunications Union.

LAN: A data communications system allowing a number of independent devices to communicate directly with each other within a moderately sized geographic area over a physical communications channel of moderate data rates. These devices include servers, CD-ROM drives, computers, facsimile machines, printers and telephones.

MAC: Media Access Control.

MAN: Metropolitan Area Network.

NEC: National Electric Code.

NFPA: National Fire Protection Association.

Open Architecture: One that is compatible with the hardware and software from any and many vendors.

Packet Switching: A data transmission method that routes packets along the most efficient path and allows a transmission channel to be shared by multiple connections.

PCM: Pulse Code Modulation.

Peer-to-Peer LANs: Where any PC can contribute to or share network resources; all network devices are able to work as equals.

Protocol: A set of rules, procedures or conventions relating to format and timing of data transmission between two devices.

Repeater: A network device used to repeat signals from one cable to another.

Router: A network device used to channel messages from one cable link to another.

SACII: American Standard code for Information Interchange.

SMDS: Switched Multi-Megabit Data Services.

SNMP: Simple Network Management Protocol.

Telecommunications: Any transmission, emission or reception for signs, signals, writings, images and sound that is information of any nature by cable, radio, optical or other electromagnetic systems.

TIA: Telecommunications Industry Association.

Topology: The physical appearance and/or manner of operation of a network.

Transmission Channel: The physical infrastructure providing the foundation for the connection of all other network devices, usually cables, although certain wireless transmission channels are available.

Transmission Medium: The type of cable or wireless system used to connect the network devices.

Uplink: Signals transmitted from ground stations to satellites.

UPS: Battery back-up system to provide continuous power in the event of a power failure, often included with surge protection.

USTSA: United States Telecommunications Suppliers Association.

WAN: A data communications system allowing a number of LANs to communicate directly with each other over long distances using telecommunications links such as telephone lines, satellites or microwave rather than a lengthy cable.

6. Categorical Terms and Conditions

The following categorical terms and conditions are in addition to the applicable general terms and conditions that appear previously. Please review them and sign the Special Terms and Conditions and Specifications page.

1. The Offeror must demonstrate that it possesses the following:
 - A. Automatic Fire Detection & Alarm System
 - 1). ES-3 (low Voltage Special Systems) or EE-98 Contractor license.
 - 2). The contractor license holder must be Offeror or qualifying party must be on the Offerors payroll and cannot be a subcontractor.
 - 3). Copy of current Certificate of Fitness as issued by each member states Fire Marshall.
 - 4). Copy of current members state contractor licenses.
 - B. For not fire related systems
 - 1). ES-3 (low Voltage Special Systems) or EE-98 Contractor license.
 - 2). The contractor license holder can be Offeror or subcontractors that are properly licensed to do work.
 - 3). Copy of current members states contractor licenses.
2. Applicable Codes
 - A. International Building Code with each Member States' Building Code revisions.
 - B. International Fire Code with each Members States Building Code revisions.
 - C. NFPA 72, 70
 - D. National Fire Alarm Code.
 - E. National Electric Code
 - F. American National Standards ICC/ANSI A117.1

- G. The applicable codes for systems in existing buildings shall be the currently adopted International Existing Building Code (IEBC) with supplements for New Mexico Building Code amendments.
3. The Offeror will cooperate with any architect, engineer, general contractor, subcontractor or other agency working on the same project, as necessary and as directed by the Member to insure that the scope of work for a project is accomplished.
 4. Documentation/Plan Submittal
 - A. The Offeror will submit documentation for the solicitation being proposed to the Member for approval. The documentation will include model numbers, type, rating, size, style, manufacturer's name and manufacturer's catalog data sheets.
 - B. Offeror will provide the copies of any documentation required by the Member, Member's design professional or Member's designated representative.
 - C. The Offeror will submit any required documents direct to the Member's State Fire Marshal's office for review and approval.
 - D. All information submitted will be clearly presented and include sufficient information to show compliance with performance criteria.
 - E. Submittals will include plans and equipment data, including manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
 - F. Submittals will include a certification from the equipment manufacturer that the proposed supervisor of the installation and the proposed performer of warranty and, if requested, contract maintenance is an authorized representative of the equipment manufacturer. Include names and addresses in the certification.
 - G. If required, submittals will include specific and complete cabling drawings showing the connections between network devices and all floor plans and layouts showing all interconnected cabling of devices.
 - H. Standards Applicable To The Installing Fire Alarm Contractors
 - 1). Specifications shall require that the installation contractor of record shall possess a "Certificate of Fitness" issued by the Fire Marshal.
 - 2). Engineer should consider appropriate manufacturers of fire alarm system equipment during the design process. Should the AEPA Member Agencies or engineer wish to qualify specific vendors, care must be taken to comply with appropriate procurement statutes or local Member's procurement policies. Considerations that may warrant investigation for qualifying specific vendors include, but are not limited to:
 - (a). Existing addressable systems in the school building.
 - (b). Testing and maintenance technician availability.
 - (c). Future expansion plans of the facility.
 - (d). Historical experience with vendors.
 - (e). Current owning school district agreements or relationships.
 - 3). Possible manufacturers are, but not limited to:
 - (a). EST
 - (b). Firelite
 - (c). Gamewell
 - (d). Notifier
 - (e). Siemens
 - (f). Simplex Grinnell
 - I. Standards Applicable To Fire Alarm Contractor Submittals
 - 1). As a minimum, all submittals shall be in accordance with NFPA 72.
 - 2). Specifications shall require the following submittals be received by the AEPA Member Agency prior to the commencement of work by the fire alarm contractor:
 - (a). One (1) copy of the transmittal of each appropriate permit application for the system.
 - (b). One (1) copy of the authorization that the installing contractor is a duly qualified representative of the fire alarm equipment manufacturer.

- (c). One (1) copy of the installing contractor's Certificate of Fitness on the form.
 - (d). Reproducible sets of installation drawings shall be stamped and sealed by the licensed professional engineer. Submittal must be comprehensive of the entire project, detailed, and include, but not be limited to, the following:
 - (i) All information and sheets required by the Fire Marshal's published "Fire Detection and Alarm System Submittal Guidelines".
 - (ii) Construction drawings should be compatible with AUTOCAD showing equipment placement, including placement of all existing equipment to be reused or used for temporary service. For equipment circuits to be installed in this project, floor plans shall show wiring types and sizes, conduit types and sizes, wiring and raceway routes. Construction drawings shall be provided in AUTOCAD 2000 or later version and also in PDF format.
 - (iii) Sequence of Operations to include a detailed description of the operation of each system function.
 - (iv) Point-to-point wiring diagrams for equipment to be installed as a part of this contract.
 - (v) Single riser diagram for notification devices and circuits, auxiliary power supplies, audio devices and circuits, and existing devices and circuits.
 - (vi) Supervisory and alarm current calculations for primary power and emergency battery sizing.
 - (vii) Voltage drop and signal loss calculations for notification and communications circuits.
 - (viii) Manufacturers' literature on all system equipment and system conductors. Literature shall include specification and description of recommended supporting methods, enclosures or boxes, and wiring connections.
 - (ix) If the project is sponsored by the Public School Facility Authority, the following is also required prior to submitting the request for a Fire Marshal Inspection:
 - One (1) copy each of all installation manuals in electronic document format.
 - One (1) original Fire Marshal's "Public School Fire Alarm Pre-Inspection Checklist" in electronic document format.
 - One (1) sample copy of the documentation format for recording the fire alarm system acceptance test. Test document format shall, as a minimum, comply with the requirements of NFPA 72 and individually indicate each addressable initiating device.
 - Half scale (11 inches by 17 inches) contractor record drawings of the system showing all devices, circuit designations and device addresses.
 - Provide all information not specified as electronic format in hardcopy. Electronic format is to be provided where possible.
- 3). Documentation for project close out:
- (a). Copies of all reports for tests and inspections.
 - (b). All permits and licenses required.
 - (c). Final Record drawings of the complete installation to include, but not be limited to, information required on the installation drawing submittal. All information shall accurately show the completed installation. Record drawings of the floor plans shall be provided in AUTOCAD 2000 or later version and also in PDF.
 - (d). Original warranty documents including, but not limited to, those of the fire alarm equipment manufacturer and installing contractor(s).
 - (e). Copies of all site specific programming on electronic media suitable for downloading into the fire alarm system.
 - (f). Service directory which includes the main 24-hour emergency service number and at least three alternate numbers which are monitored on a 24-hour basis.

- (g). Three (3) sets of equipment warranties and three (3) sets of operations and maintenance instructions to the Owner.
- 4). Any proposed changes or substitutions by the contractor must be submitted in writing to Member or Members representative, with appropriate documentation.
- 5). For renovations and additions to existing buildings, the contractor shall receive from the Architect the designated "Level" (per the International Existing Building Code [IEBC]) of renovation for design purposes. Where no architect is involved in the project, the contractor shall consult the Member for determination of the appropriate "Level" of renovation.
- 6). All substitutions and alternates will have separate documentation including individual review and approval in accordance with Member guidelines.
- 7). Contractor engineer shall review for accuracy all submittals required to be received prior to equipment release or installation. The Member shall not be responsible for any additional costs resulting from placement of equipment or materials not reviewed prior to installation.
- 5. The review and approval process during a project may include, but is not limited to, the following:
 - A. Prior to obtaining any supplies, materials and/or equipment or commencing any work for a project, the Offeror must obtain project approval from the Member, Member's design professional or representative and the State Fire Marshal (SFM).
 - B. In the event that any of the reviewing parties request changes to the submitted information, the Offeror will be responsible for ensuring that all others are advised of the change(s) and obtain their agreement on the change(s).
 - C. In the event of a conflict between the reviewing parties, the Offeror must pursue the resolution of the conflict with the Member and the parties. The Offeror cannot start work until such conflict is resolved and signed by all parties.
- 6. All equipment must be new, unused and listed by UL for the purpose intended. All electronics will be designed for continuous use without degradation of function or performance. When practical, one manufacturer will be used to guarantee compatibility. All equipment offered on this contract will be from manufacturers regularly engaged in networking infrastructure and will be the latest standard designs current at the time of delivery.
- 7. All installation will be in strict compliance with manufacturer's recommendations and local, state and national legal codes and industry standards. During installation, all connections and pieces of equipment will be fully tested by a technical representative trained by the manufacturer. The contractor will install only local area network cable that has been tested and verified by ETL and has been listed in compliance with TIA/EIA, ISO/IEC, IBM or Bellcore Standards. As evidence of certification, a dated copy of a directory of ETL verified cable must be placed after Tab 8.
- 8. The system will be accepted in writing only after a satisfactory test of the entire network or installation in the presence of an authorized representative of the Member.
- 9. Closeout procedures and documentation will be established during the pre-construction meeting. Closeout documents are a condition for final acceptance and final payment. They must be received and accepted by the Member prior to request for Final Payment. Project closeout may include, but is not limited to:
 - A. Project record documents must include drawings, project manual and product data, actual "as-built" work, including all revisions, record information concurrent with the construction progress legibly marked to record actual construction, and actual locations of fire alarm equipment, devices and cabling routes.
 - B. Provide two (2) sets of hard copy record drawings and electronic (.dwg or .pdf format) drawings.
 - C. Provide two (2) sets of hard copy Project Manual, Product Data and electronic (.pdf or .rtf format) data.
 - D. Provide three (3) copies of the installed system's final test report.
 - E. Provide documentation describing the subjects and areas covered during the onsite training and evidence of who completed the training.

- F. Provide three (3) sets of operation and maintenance manuals, bound in 8 1/2 x 11 inch text pages, three D side ring binders with durable plastic covers and two electronic files in Adobe PDF format provided on CDs. The binder contents may include, but are not limited to:
- 1). Directory listing names, addresses and telephone numbers of contractor, subcontractors and major equipment suppliers.
 - 2). Operation and maintenance instructions, arranged by system.
 - 3). Project documents and certificates.
10. Complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets.
 11. Final wiring diagrams indicating internal wiring for each device and the interconnections between the items of equipment.
 12. Narrative clear and concise describing any/all special instructions and/or procedures relating to proper operation and maintenance of system's hardware, software and other peripherals as they relate to the installed configuration and environment.
 13. Project documents relating to permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments and similar documents, correspondence and records established in conjunction with the systems installed, work performed and compliance with the standards.
 14. Any/all original warranty documents issued by product manufacturers, contractor or subcontractors covering products and services offered with their registration information.
 15. The Offeror will provide as part of any project comprehensive onsite training on the operation, testing and maintenance of the installed system to personnel selected by the Member.
 16. All materials used by the Offeror/subcontractor at a work site will have a Material Safety Data Sheet (MSDS) as required by law. The MSDS sheets will be filed in a centrally located area accessible by both the workers and Member's personnel.
 17. All work sites must be returned to original condition including patching, paving, and addition to fill and landscaping. Repair of sunken trenches or damaged asphalt or concrete by trenching or saw cutting is the sole responsibility of the Offeror.
 18. All penetrations of walls and buildings must be sealed in an appropriate manner subject to the approval of the Member and must meet local and state fire codes.
 19. All building cabling installed under this RFP will conform to ANSI/TIA/EIA-568-A standards.
 20. All pathways and spaces in the infrastructure will conform to ANSI/TIA/EIA-569-A standards. Firestops and seismic considerations will be installed, as described in the latest edition of this standard. Pathways and space systems will be as independent as possible from the cabling and equipment that currently occupy the pathways and spaces.
 21. All grounding and bonding of electrical infrastructure will conform to ANSI/TIA/EIA-607 requirements.
 22. Any conduit that is installed with pulling wire must have steel elbows to allow pulling around a bend without destroying the elbow.
 23. Hybrid cable will not be used in new construction and only in a remodel project when pathway problems cannot be overcome.
 24. The Offeror will install plenum-rated cable in all plenum spaces. Any non-plenum cable discovered in a plenum space will be replaced, unless the fire marshal approves, in writing, its non-removal.
 25. No cabling will be installed under a carpet in new construction. In a remodel, under carpet installation will be limited to areas where no foot traffic will ever occur.
 26. All infrastructures will be designed for easy change in the future.
 27. All system devices offered will be industry standards compliant.
 28. All system devices offered will be in direct accordance with the following codes and standards, as applicable to the device; National Electrical Code (NEC), American National Standards Institute (ANSI), American Society of Testing Materials (ASTM), CCITT, Electronic Industries Association (EIA), Federal Communications Commission (FCC), Institute of Electrical and Electronic Engineers (IEEE), Internet Engineering Task Force (IETF), ISO/OSI and Underwriters Laboratories (UL).

29. The State of New Mexico has established New Mexico Public School Facilities Authority (NMPSFA) under the Department of Education, which assesses school needs, develops, oversees and allocates funds for corrective projects. The following are applicable standards that the Offeror must be able to demonstrate compliance.
 - A. National Fire Protection Association (NFPA) – USA: No. 12 CO2 Extinguishing Systems, No. 13 Fire Extinguishing Systems, No. 70 National Electrical Code, No. 72 National Fire Alarm Code (Latest Edition), and No. 101 Life Safety Code.
 - B. Underwriters Laboratories Inc. (UL) – USA: No. 268 Smoke Detectors for Fire Protective Signaling Systems; No. 864, Control Units for Fire Protective Signaling Systems; No. 268A Smoke Detectors for Duct Applications; No. 521 Heat Detectors for Fire Protective; No. 464 Audible Signaling Appliances; No. 38 Manually Actuated Signaling Boxes; No. 346 Waterflow Indicators for Fire Protective Signaling Systems; No. 1076 Control Units for Burglar Alarm Proprietary Protective Signaling Systems; and No. 1971 Visual Notification Appliances.
 - C. Fire alarm control panels must meet UL Standard 864, (Control Units) and UL Standard 1076 (Proprietary Burglar Alarm Systems).
 - D. System must be listed by the national agencies as suitable for extinguishing release applications.
30. All system cabling must be compatible with and meet applicable structured wiring practices as defined by the EIA/TIA and the IEEE.
31. Upon the completion of any project requiring drawings, the Offeror must provide a complete set of as-built drawings, specifications that identify each module, data rate, network protocol, size, weight, interface options, electrical requirements, memory, electromagnetic emission and susceptibility level, thermal rating, flammability rating, environmental requirements and the IEEE standards supported by the equipment.
32. Before starting any work on an existing system, the Offeror is required to demonstrate its competency in the system components being installed and/or modified by providing the CES Member with documentation from the system's manufacturer(s) that Offeror and/or subcontractor is trained and certified by the manufacturer to provide and perform the goods and services proposed.
33. All alarm products will meet or exceed the most stringent current performance standards of the National Fire Protection Association. Offeror must provide written evidence that the alarm systems do in fact meet NFPA standards. Place after Tab 8.
34. When possible, the electronic systems offered will be centralized.
35. Offeror will identify the cabling of choice and topology used for each of the following applications: fire alarm systems, security systems, intercom systems, sound systems, video systems, master clock systems. Place information after Tab 8.
36. Manufacturers/companies specializing in manufacturing of systems offered under this RFP must have a minimum of three (3) years verifiable documented experience of providing those systems to the public sector.
37. Offeror must be able to demonstrate its ability and capacity to respond to any system trouble, failure or malfunction in the time specified herein. The Offeror will respond within eight (8) business hours of notification and, if required, provide a qualified technician to the site to correct any problem to have the system fully operational within 24 business hours of notification.
38. Permits required for work described herein will be purchased and paid for by the Offeror and invoices as a reimbursable expense. Certificate of final payment will not be issued until certificates of satisfactory inspection from the inspection authorities and all items required for Project Closeout are delivered and approved by the Member.
39. The Offeror must be willing, able and capable of providing a warranty/maintenance program that includes, but is not limited to, the following:
 - A. All work performed and all material and equipment furnished under this contract will be free from defects for a period of three (3) years from the date of acceptance.
 - B. Any/all labor, materials and travel required to correct any defect for three (3) years from date of acceptance will be at no cost to the Member.

- C. Any/all labor, materials and travel required to maintain, test and/or service the installed system for three (3) years from date of acceptance will be at no cost to the Member.
 - D. Cost-free to the Member, the Offeror will provide an annual on-site service call to perform an inspection, testing and verification of the installed system to ensure it is in proper working order and to perform any preventative maintenance that may be required. Maintenance and/or service calls may be required at other times to correct a system malfunction and/or failure at no cost to the Member.
 - E. A preventative maintenance plan and schedule will be provided consistent with the manufacturer's published recommendations for the installed system.
40. The Offeror must be willing, able and capable of providing post warranty inspections, maintenance and repair services for those items not included as part of a manufacturer's original warranty for a period of seven (7) years from the end of the warranty period as described herein. The Offeror will include detailed descriptions of their maintenance and support plans offered and their associated costs. The level of services offered must be equal or better than those offered during the three (3) year warranty period.
 41. The contractor will document any response or work on the fire alarm system and provide and maintain an on-site copy of all documentation for use by the Member or contractor. A copy of each annual or other system test or inspection report will also be provided to the Member and be included in the on-site document set.
 42. The Offeror must be willing, able and capable of maintaining a spare-parts inventory on hand for any system offered under this category for which a warranty and/or maintenance/support agreement is in force. The spare-parts inventory must include, but not be limited to, the following quantities: smoke sensor heads, heat sensor heads and sensor bases 5% of the number installed and other installed system components that will permit the Offeror to meet the timelines for system repair as stipulated herein.

7. Categorical Specifications

1. Minimum Design Standards

A. New Construction – New Schools, Sprinklered

- 1). New School Construction for buildings that are fully sprinklered as defined in the applicable codes, shall include the following fire alarm devices and equipment:
 - (a). All fire alarm systems shall be addressable with analog level sensing heat and smoke detection capabilities.
 - (b). Standby-batteries shall be sized for a minimum of 24 hours of standby operation followed by five (5) minutes of alarm operation. Engineers may design for additional back-up battery capacity if considered appropriate for the facility.
 - (c). The main fire alarm panel shall be installed in the main administrative office. Other locations are acceptable if compliant with all of the following conditions:
 - (i) The location is accepted, in writing, by the local responding fire department.
 - (ii) The Engineer notifies the owning school district that the location is an exception to State design criteria.
 - (iii) If the location is not within a normally occupied location, the area with the panel shall be protected with area smoke detection.
 - (d). One (1) alpha-numeric annunciator that mimics the main fire alarm panel display shall be mounted in the main entry vestibule or other location suitable to emergency response personnel.
 - (e). In schools where "two-way communication" is provided between the main administrative office and the classrooms, manual "pull" stations need only be installed in the following locations:
 - (i) In the public corridor "within sight" of the main administrative office.
 - (ii) At kitchen exits.

- (iii) At required exits from gymnasiums and auditoriums.
- (iv) At mechanical room exits not located on the level of egress.
- (v) At entrances to stairs on floors other than the level of egress.
- (f). Area smoke detectors shall be installed in the following locations:
 - (i) In all corridors and means of egress.
 - (ii) On both sides of smoke doors with magnetic hold open devices.
 - (iii) In egress paths that traverse cafeteria, auditoriums, libraries or other similar large rooms, excluding gymnasiums.
 - (iv) Student restrooms with three or more toilets.
 - (v) At all fire alarm control equipment.
 - (vi) The owner, with the approval of the AHJ, has the option to provide either smoke detectors or pull stations at the means of egress locations as required by code.
- (g). Duct mounted smoke detectors shall be fire alarm system – addressable duct smoke detectors. Factory installed or other non-system duct smoke detectors are not acceptable and shall be removed. The duct smoke detectors shall be installed:
 - (i) On the supply-side of all air handling units with air movement greater than 2,000 cfm.
 - (ii) On the return-side of all air handling units with air movement greater than 15,000 cfm.
 - (iii) On the supply-side of all gymnasium make-up air units or other gymnasium air handling equipment (except exhaust fans) with air movement greater than 2,000 cfm.
 - (iv) For smoke damper operation where ductwork transverses fire separation walls and other locations required by the Building Code.
- (h). Audible notification shall be installed to provide compliant sound levels throughout the building without placing audible notification devices in classrooms or restrooms. Audible devices can be installed in laboratories, music rooms, libraries, lecture halls and other unique rooms that house classes, if required to obtain audibility.
- (i). Visual notification strobes shall be installed in:
 - (i) Each classroom.
 - (ii) Each room of greater than 100 square feet, except for single person administrative offices.
 - (iii) All common areas.
- (j). A supervised electric or electronic bell shall be mounted on the building exterior at the fire department connection.
- (k). Provide addressable monitoring modules to individually report activation of each of the following devices:
 - (i) Waterflow switches.
 - (ii) Kitchen equipment suppression systems.
 - (iii) Closing of a sprinkler control valve.
 - (iv) Closing of a sprinkler sectional valve.
 - (v) “Fire Pump Run” condition.
 - (vi) “Fire Pump Loss of Power” condition.
 - (vii) “Fire Pump Loss of Phase” condition.
 - (viii) “Fire Pump Phase Reversal” condition.
- (l). Provide addressable control modules to individually cause and report activation of each of the following devices:
 - (i) Air handling unit shutdown.
 - (ii) Magnetic door holder release. (Door holders shall be 120 volt AC and provided by door hardware specification sections.)
- (m). Exterior valves and valve boxes shall be padlocked and not electronically monitored.
- (n). Upon loss of power to the control panel, the entire system shall transfer to secondary power within 10 seconds, and without loss of signals. The system shall operate under

secondary power in normal or trouble conditions for twenty-four (24) hours and have sufficient power to support complete alarm condition operation for a subsequent five (5) minutes.

- (o). Upon loss of primary power to the control panel(s), all emergency exits that are locked by electronic means and that can prevent egress by manual means, shall be unlocked.

B. New Construction – New Schools, Unsprinklered

- 1). New School Construction for buildings that are not fully sprinklered as defined in the applicable codes shall include the following fire alarm devices and equipment:

- (a). All fire alarm systems shall be addressable with analog level sensing heat and smoke detection capabilities.
- (b). The main fire alarm panel shall be installed in the main administrative office.
- (c). One alpha-numeric annunciator that mimics the main fire alarm panel display shall be mounted in the main entry vestibule or other location approved by emergency response personnel.
- (d). In schools where “two-way communication” is provided between the main administrative office and the classrooms, manual “pull” stations shall only be installed in the following locations:
 - (i) In the public corridor “within sight” of the main administrative office.
 - (ii) At kitchen exits.
 - (iii) At required exits from gymnasiums and auditoriums.
 - (iv) At mechanical room exits not located on level of egress.
 - (v) At entrances to stairs on floors other than the level of egress.
- (e). Area smoke detectors installed to provide complete smoke detector coverage throughout the facility with the following exceptions:
 - (i) Area smoke detectors shall not be installed in gymnasiums.
 - (ii) On both sides of smoke doors with magnetic hold open devices.
 - (iii) Area detectors may be omitted from classrooms upon special written permission from the Authority and Fire Marshal and the installation of manual “pull” stations at all main exits from the school. The owner, with the approval of the AHJ, has the option to provide either smoke detectors or pull stations at the means of egress locations as required by code.
 - (iv) Where alternate means of smoke detection are more practical due to ceiling height and acceptable to the Authority and Fire Marshal. Engineer should obtain approval from the Authority and Fire Marshal’s office prior to installing alternative smoke detection methods.
- (f). Duct mounted smoke detectors shall be installed:
 - (i) On the supply-side of all air handling units with air movement greater than 2,000 cfm.
 - (ii) On the supply-side of all gymnasium make-up air units.
- (g). Audible notification shall be installed to provide compliant sound levels throughout the building without placing audible notification devices in classrooms or restrooms. Audible devices can be installed in laboratories, music rooms, libraries, lecture halls and other unique rooms that house classes, if required to obtain audibility.
- (h). Visual notification strobes shall be installed in:
 - (i) Each classroom.
 - (ii) Each room of greater than 100 square feet, except for single person administrative offices.
 - (iii) All common areas.
- (i). Provide addressable monitoring modules to individually report activation of kitchen suppression systems.
- (j). Provide addressable control modules to individually cause and report activation of each of the following devices:

- (i) Air handling unit shut down.
 - (ii) Magnetic door holder release. (Door holders shall be 120 volt AC and provided by door hardware specification sections.)
 - (k). Upon loss of power to the control panel, the entire system shall transfer to secondary power within 10 seconds, and without loss of signals. The system shall operate under secondary power in normal or trouble conditions for twenty-four (24) hours and have sufficient power to support complete alarm condition operation for a subsequent five (5) minutes.
 - (l). Upon loss of primary power to the control panel(s), all emergency exits that are locked by electronic means and that can prevent egress by manual means, shall be unlocked.
- C. School Repairs and Alterations
- 1). Fire alarm systems that display “trouble” conditions shall be evaluated by the engineer, and specifications shall be provided for system repairs.
 - 2). Specifications shall provide for protection of fire alarm system devices from physical damage, dust and dirt.
 - 3). Fire alarm systems determined by the engineer to be dilapidated or near the end of its usable life shall be considered for replacement.
 - 4). Systems specified for replacement shall comply with the requirements of new construction for sprinklered and unsprinklered.
- D. School Additions
- 1). Fire alarm systems where the main fire alarm panel is not capable of the required addition, is not addressable, or is determined by the engineer to be dilapidated shall be replaced. Systems specified for replacement shall comply with the requirements of new construction for sprinklered and unsprinklered. For small additions, the engineer shall consult with the Authority to consider exemption from complete fire alarm system replacement.
- E. Temporary or Portable Classroom Buildings
- 1). All new temporary or portable classrooms, and all existing temporary or portable classrooms when relocated, shall be provided with the following system:
 - (a). A fire alarm panel for the structure; this panel need not be addressable, but shall have a minimum of two (2) zones. The fire alarm panel and all devices shall be of a type and installation so that they can be operational when the temporary classroom is relocated on the same or a new campus.
 - (b). One single-action manual “pull” station with a sounding, lift-up polycarbonate cover per classroom.
 - (c). Complete smoke detection coverage.
 - (d). Supply-side duct smoke detectors on units with air movement greater than 2,000 cfm.
 - (e). Complete audible and visual notification per applicable codes.
 - (f). One exterior audible-visual notification appliance.
 - 2). Fire alarm systems of temporary or portable classroom buildings shall:
 - (a). On “trouble” conditions, activate a “supervisory” condition on the main building fire alarm panel.
 - (b). On “Alarm” conditions, shall:
 - (i) Energize all notification devices in the affected temporary or portable classroom building.
 - (ii) Not energize notification devices in the main fire alarm building unless written approval is obtained from the Authority and Fire Marshal.
 - (iii) Activate an alarm condition, specifying the building in alarm, on the main building fire alarm panel.
 - (iv) Energize all notification devices in those other temporary or portable classroom buildings, determined by the Authority, to be in the vicinity of the affected building.

- (v) Automatically notify off-site responding personnel unless otherwise directed by the Authority and Fire Marshal. Notification may be accomplished through the main building fire alarm panel.
- 3). These requirements apply to sprinklered and unsprinklered temporary classroom buildings.
- F. Installation Methods and Mounting Requirements
 - 1). Notification appliances shall be wall mounted.
 - 2). Only notification appliances in the following locations shall be provided with vandal-resistant covers:
 - (a). Corridors, student restrooms and locker rooms of high schools and middle schools.
 - (b). Gymnasiums of all schools.
 - 3). Classroom visual notification appliances shall not have vandal-resistant covers.
 - 4). Smoke detectors mounted on walls or ceilings less than 12 feet above the finished floor in corridors and common areas of high schools and middle schools shall be provided with vandal-resistant covers. Classroom smoke detectors shall not have vandal-resistant covers.
 - 5). All manual “pull” stations, except those installed in mechanical rooms, shall be single action and provided with hinged, sounding polycarbonate covers.
 - 6). Addressable heat detectors may be substituted for smoke detectors in locations where nuisance alarms or harsh environments are likely to occur.
- G. Sequence of Operations
 - 1). Alarm conditions shall occur on activation of the following devices:
 - (a). Area smoke detectors, manual pull stations, return-side duct smoke detectors and heat detectors.
 - (b). Addressable monitoring modules on the following devices and systems:
 - (i) Waterflow switches.
 - (ii) Kitchen equipment suppression systems.
 - 2). Supervisory conditions shall occur on activation of the following devices:
 - (a). Supply-side duct smoke detectors.
 - (b). Addressable monitoring modules on the following devices and systems:
 - (i) Closing of a sprinkler control valve.
 - (ii) “Fire Pump Run” condition.
 - (iii) “Fire Pump Loss of Power” condition.
 - (iv) “Fire Pump Loss of Phase” condition.
 - (v) “Fire Pump Phase Reversal” condition.
 - 3). Occurrence of an Alarm condition shall result in the following system performance:
 - (a). All notification devices in the affected building shall be energized.
 - (b). Energize all notification devices in those other buildings determined by the Authority to be in the vicinity of the affected building.
 - (c). Automatically notify emergency response personnel through a listed central monitoring station or in another manner acceptable to the Fire Marshal’s Office. Any method other than use of a listed central station should be approved by the Authority and Fire Marshal’s Office.
 - (d). Simultaneously display all device information on the main fire alarm panel display and the remote annunciator.
 - 4). Occurrence of a Supervisory condition shall result in the following system performance:
 - (a). Automatically notify maintenance response personnel.
 - (b). Simultaneously display all device information on the main fire alarm panel display and the remote annunciator.
 - 5). Activation of either the supply-side or return-side duct smoke detector shall shutdown the affected air handling unit.
 - 6). Only activation of a waterflow switch shall energize the exterior fire department connection bell.

- 7). Activation of an area smoke detector located on either side of smoke doors with magnetic hold open devices shall release the affected doors to close.
- 8). Design of Electronic Systems
 - (a). Develop a comprehensive analysis that addresses the following: Who will use the system and in what capacity? What are the current and long-term goals for the system and who will be responsible for doing what?
 - (b). This analysis should determine the disruptions and inconveniences to the Member likely to be encountered during the installation and testing of the new equipment. List the changes to the worksite that will happen upon implementation.
 - (c). All recommendations will be consistent with the ANSI/TIA/EIA-569-A standard as related to horizontal pathways and related spaces, intrabuilding backbone pathways and related spaces, equipment room, firestops and entrance facilities.
 - (d). The pathways/space system should be designed as independent as possible from the cabling and equipment that occupy the pathways and space. The location of people and furniture is transitory and the pathways/space design should be as independent as possible from current locations.
 - (e). Prepare a final report for the Member that includes an assessment of current hardware and identifies what can be incorporated into the new design.
- 9). Electronic Systems Cabling Requirements
 - (a). The cabling system must be one that will last at least 15 years and be based on the structured cabling standard, ANSI/TIA/EIA-568-A and 569-A.
 - (b). All cable pathways must be designed through conduit, cable trays, under-floor ducts, access floors, etc., always with the idea of protecting the cable and for an easy way to install additional cable or to replace the system, as needed.
 - (c). Only horizontal cable types recommended by ANSI/TIA/EIA-568-A will be installed.
 - (d). Cabling density in a work area should be reasonable but with the future needs in mind.
 - (e). An equipment closet should be located as close as possible to the center of the location it will be serving; the closet should be large enough to house the equipment that may potentially be located there. The infrastructure will be administered as described in TIA-606.
 - (f). All equipment will be grounded and bonded as described in ANSI/TIA/EIA-607.
 - (g). Copper-based cabling systems will be protected from electromagnetic interference by being located a sufficient distance from power lines and other sources of EMI.
 - (h). Equipment will be protected from power fluctuations (spikes, surges, brownouts, blackouts) by surge suppressers and uninterruptible power supplies.
 - (i). Pathways will be planned to accommodate any applicable seismic zone requirements. The integrity of all firestop assemblies will be maintained when penetrated by cable, wires and pathways.
 - (j). Infrastructure backbone distances will be within industry standards.
 - (k). The Offeror will provide for the installation of equipment, configuration and testing of the equipment and establish a management capability for the administrators of the system.
 - (l). The Offeror will coordinate all cabling and termination requirements, including media converters, physical connectivity, impedance matching and filtering.
 - (m). The system will be capable of operation without damage to its functionality or components when subjected to ANSI/IEEE C62.41 Category "B" AC line-voltage surges. The contractor will supply all necessary transient voltage surge suppression devices needed to assure this operation.
 - (n). Local code-approved firestop means will be applied at each interface between floors and between all fire-rated spaces. All necessary drawings will show firestop means and materials. Copies will be provided to the Member and to other authorities.

- (o). The Offeror will supervise the installation of any cable, copper or fiber. The contractor will require the cable installation personnel to be familiar with safety procedures, equipment operations and cable manufacturer's installation requirements such as maximum pulling tensions and the correct use of a pulling-eye. Pull-throughs of copper with offsets will be rigged with two (2) sheaves.
 - (p). In long pull-through racking, slack will be obtained by the use of bending shoes or equivalent to avoid sheath damage. Cable will be secured in a neat and organized manner with plastic tie-wraps. Any excess cable in splicing vaults will be neatly coiled for storage before splicing. After splicing is completed, splice cases will be properly secured to racks with plastic tie-wraps.
 - (q). Cable-pulling lubricant will be used per manufacturer's instruction; the manufacturer's pulling tension limitations will not be exceeded under any circumstance. No copper splicing will be allowed within the system.
 - (r). All cable and cable pairs will be terminated according to industry standards; terminating blocks will be grounded; only the minimum amount of sheathing required to obtain access for termination of individual pairs will be removed (less than ½ inch). Extreme care will be taken to maintain any native twist rate in all cable.
 - (s). All copper wiring will be routed as closely as possible to the backboard and cable tray groundplanes. Cable rings or another physical means will be used to assure that all cabling will permanently maintain correct position.
 - (t). The Offeror will provide physical support and cable management means for all copper runs and termination points, especially between floors, between cable tray and equipment racks and on equipment racks. Proper bend radius to wire diameter will be maintained. Cable run outside will be suitable for runs buried in conduits and aerial runs. Cable performance will not be degraded and the cable will not be damaged in any way by long-term immersion in ground water. Aerial cable outer jacket will be suitable for long-term exposure to sunlight and weather, with a life cycle greater than 20 years. Outer jackets on all cables will be fungus inert and crush resistant.
 - (u). If optical fiber is spliced, the loss per splice will be 0.2db or less. The contractor will test the system to verify loss by splices is within specifications. All cable must be properly capped and terminated, following industry standards.
 - (v). Any fiber cabling will be tested and 100% of all fibers will test within specifications. If any segment of cable is found to have unsatisfactory test results, that specific cable link will be replaced with a new link, which must then pass the test.
 - (w). Any copper cabling will pass all tests for Category 5e wire. Cable used will be standard color-coded and UL listed.
 - (x). The Offeror will provide the Member with a complete set of cabling records, as described in TIA/EIA-606. Common symbols will be used to represent infrastructure elements.
- 10). Interbuilding Underground Pathways, Entrance and Rise Needs
- (a). All underground pathways and building backbone work will be in conformance with the latest edition of ANSI/TIA/EIA-569-A.
 - (b). Tunnel pathways design will be corrosion-resistant; metal pathways will be bonded to ground per applicable electrical code; separation from electrical facilities will be per applicable electrical code; conduit pathways and trays installed in a tunnel will be designed and installed as described above. An underground facility is a component of an entrance facility that consists of conduit, duct and trough and may include one or more maintenance holes.
 - (c). Underground entrance pre-planning will include land development, topographical limitations and grading of the underground facility to permit drainage. If required, venting of gaseous vapors will be provided. The depth of the cover over a maintenance

hole will be determined by vehicular traffic; weather conditions may require special covering. A concrete encasement will be used, when necessary.

- (d). Conduit and the maintenance facility will slope away from an entrance to a building to prevent drainage. To permit the pulling of wire, steel elbows will be used in conduit at all turns.
 - (e). A metal sleeve will be used to exit a building to the conduit; the sleeve will reach beyond the backfill area of the building to prevent shear.
 - (f). The entrance room or space will be located in a dry area not subject to flooding and be as close as possible to the building entrance point and next to the electrical service room or area in order to reduce the length of bonding conductor to the electrical grounding system.
 - (g). Any entrance facility will be placed considering the needs for satellite dish entrance provisions, interbuilding links and backbone/riser needs. A plan to allow easy extension of the riser to the roof will be made, even when the extension is not installed.
 - (h). Pathways will not be located in elevator shafts.
 - (i). Ceiling areas, if used for either vertical or horizontal pathways, will have telecommunications cable installed in both air plenum and non-plenum hollow-ceiling systems according to the applicable electrical and building code.
 - (j). All cable support will be coordinated with a structural engineer.
 - (k). In a multistory building, at least one equipment closet will be located on each level with one closet per 10,000 square feet of floor space. Closet size will meet ANSI/TIA/EIA-569-A recommendations.
 - (l). An equipment closet will have proper HVAC 24 hours per day, 365 days per year. In small buildings, a willow closet may be used. The equipment closet will have a minimum floor loading rating of 50 pounds per square foot.
 - (m). Maximum cable horizontal runs will not exceed industry standards.
 - (n). When possible, horizontal pathways will be below the ceiling in trays to reduce crosstalk, allow for easy changes and permit additions of new cabling as needed. Conduit is not preferred for hallway cabling.
 - (o). Firestop systems will meet current applicable BICSI standards. The contractor will make every effort to establish and maintain firestop integrity in any move, change or addition to cabling.
 - (p). As much as possible, the electrical system will be as independent from the telecom cabling and equipment system as possible. The grounding system will be together to protect the equipment. For life safety, the correct grounding system will be installed by a licensed professional.
 - (q). Under carpet cabling will not be used in new construction, and only in cabling historic buildings or in limited remodel projects.
 - (r). No low voltage cable will be installed in the same conduit as power cable.
 - (s). When cable is being installed, the pulling tensions (24 AWG, 4 lbs.; 22 AWG, 7 lbs.; 20 AWG, 12 lbs.; 18 AWG, 19 lbs.; 16 AWG, 30 lbs.; 14 AWG, 48 lbs.; 12 AWG, 77 lbs.) must never be exceeded.
 - (t). The permissible area for conduit to be occupied by cabling must never exceed the limits established by the National Electric Code.
 - (u). During a renovation or system replacement project where approved by the Member and/or design professional, existing wiring, devices and other system equipment may be used. Prior to accepting the project, Offeror must complete its own assessment and accept existing systems. Upon the acceptance of the project, the entire system, including the existing wiring and equipment, will become the responsibility of the Offeror.
- 11). Fire Control Instruments
- (a). Offeror will provide a fire alarm system that is modular and able to monitor virtually any size or style of facility.

- (b). System offered will permit a Member to purchase only the level of protection needed while offering affordable upgrades as needs change.
- (c). As much as possible, the system offered will be from one supplier.
- (d). All products offered will be listed by Underwriters' Laboratories and comply with applicable Factory Mutual (FM) safety requirements.
- (e). Offer solutions that connect all systems, equipment and devices normally associated with Division 15, including, but not limited to, standpipe and fire hose system, sprinkler system (flow switches, tamper switches), ansul systems, duct work accessories (fire/smoke dampers), and automatic shutoffs for air-moving equipment.
- (f). Offer solutions that connect all systems, equipment, and devices normally associated with Division 16, including, but not limited to, security access system, telephone system (central station or fire station monitoring), and protection of electronic computer/data processing equipment.
- (g). Offeror must be able to install all accouterments normally associated with Division 16 to facilitate a complete fire alarm system installation, including, but not limited to, building wire and cable, boxes, wiring devices, cabinets and enclosures, grounding and bonding, supporting devices, electrical identification, enclosed switches, panel boards, circuit breakers, motor controllers, and contactors.
- (h). Software used to monitor and report field conditions must be easily modifiable to meet changing fire codes or local needs.
- (i). If software or software modifications are included in the project work, the Offeror must provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system onsite. Modifications may include, but are not limited to, addition and deletion of devices, circuits, zones and changes to system operation and custom changes for devices or zones. The software installed must be designed for the system structure proposed and will place no limit on the type or extent of software modifications that may be installed on-site.
- (j). Modular systems offered will have built-in lightning protection and be unaffected by voltage spikes, power surges, power failures, radio frequency (RF) interference and similar disabling situations.
- (k). Systems offered must include equipment for single floor plants, mid, and high rise buildings. Units must be able to monitor multi-structure, school campus facilities, including classrooms, libraries, gymnasiums, multi-purpose rooms, offices, auditoriums, teacher lounges, warehouses, bus storage areas, restrooms, vocational work areas and science labs.
- (l). Fire alarm control panels should be configured with more than one microprocessor.
- (m). Units must provide alarm processing in case of individual or multiple processor failure. When a line is broken, or a network controller is off-line, the system will regenerate itself into a new system, using the remaining and still functioning modules.
- (n). Units must be easily programmable, store information in a non-volatile state, function in temperatures between 32 and 120 and up to 85% humidity and be completely automatic in operation.
- (o). Modules to support the multiprocessor should include, but not be limited to, system control unit, power supply unit, zone units and relay units.
- (p). When customer needs individual identification of initiating devices, initiating zones and control points information, an intelligent microprocessor fire alarm control system will be offered.
- (q). Units will work with ionization smoke sensors, photo electronic smoke sensors and thermal sensors. The heat detectors will be available in a variety of settings, from 135 to 194, or with a rate-of-rise temperature setting. Thermal units should never be the only sensor used in a system.

- (r). Remote zone modules, addressable smoke detectors, transmitter, relays and all other necessary conventional controls will be provided.
 - (s). Units that permit one person to quickly test the operation of all initiating devices on the fire alarm system and generate a printed record of the tests are preferred.
 - (t). In situations where adverse environmental conditions may result in unwanted alarms, an alarm verification module will be installed.
 - (u). Battery backup and battery charger units will be installed as needed.
 - (v). Modules to automatically open or close fire doors shut down fans and control elevators will be available.
 - (w). Manual fire alarm stations will include designs that are ADA compliant. Units will be available with a variety of switch/button activations that include, but are not limited to, push and latch, momentary push and key, open door and push.
 - (x). Smoke detectors that can be mounted in an air duct are requested. Photo beam smoke detectors, units with audible sound and other specialty units are requested.
 - (y). Audible and visual warning devices that emit a high intensity strobe, a high dB noise level, bells or chimes are requested.
 - (z). Equipment to aid in the evacuation of children and adults in an emergency will be available with a choice of alarm tones, including a slow whoop, chime, horn or special pattern of sound.
 - (aa). Other modules, as needed, including, but not limited to, digital message repeating units that provide a message of seven (7) seconds up to one (1) minute; firefighter intercom phones and loud speakers.
 - (bb). New Mexico Public School Facility Authority Projects will need to comply with the following performance guidelines:
 - (i) Alarm, trouble and supervisory signals from all intelligent reporting devices will be encoded on an NFPA Style 4 (Class B) Signaling Line Circuit (SLC).
 - (ii) Initiation Device Circuits (IDC) will be wired Class B (NFPA Style D).
 - (iii) Notification Appliance Circuits (NAC) will be wired Class B (NFPA Style Y).
 - (iv) Digitized electronic signals will employ check digits or multiple polling.
 - (v) A single ground or open on the system Signaling Line Circuit will not cause system malfunction, loss of operating power or the ability to report an alarm.
 - (vi) Alarm signals arriving at the main FACP must not be lost following a power failure (or outage) until the alarm signal is processed and recorded.
 - (cc). When a fire alarm condition is detected and reported by one of the system initiating devices, the following functions will immediately occur:
 - (i) The system alarm LED will flash.
 - (ii) A local piezo-electric signal in the control panel will sound.
 - (iii) A backlit minimum 80 character LCD display will indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.
 - (iv) Printing with history storage equipment will log the information associated with each new fire alarm control panel condition, along with time and date of occurrence.
 - (v) All system output programs assigned via control-by-event equations to be activated by the particular point in alarm will be executed and the associated system outputs (alarm notification appliances and/or relays) will be activated.
- 12). Security, Burglar and Fire Packages
- (a). When possible, fire control modules that also serve security requirements will be offered.
 - (b). Siren drivers that activate high-powered sirens will be lightning resistant, have two (2) tones howl and steady sounds and provide at least 115dB at 10 feet.

- (c). To supervise fire speakers, a unit that is both tamperproof and triggered if the wires are cut will be provided. A speaker module that controls up to four (4) speakers will be offered.
 - (d). Siren speakers will be available in several versions, from small indoor units to tamper proof, high volume outdoor units. Speaker housings will be an enclosure of no less than 16-gauge weather-resistant steel.
 - (e). Passive infrared sensors must be able to reject common false alarm problems such as external lights, insects or animals and turbulence from heating or air conditioning. Sensors will be immune from radio frequency and electrical induction noise.
 - (f). Command centers that can monitor motion detectors, waterflow switches, doors left open, inside and outdoor lights, gates, thermostats, heating, air conditioning, office appliances, sprinklers, sirens and bells, smoke detectors and other types of sensors must be able to locate the exact point of trouble.
 - (g). Security units will have multiple levels of arming.
 - (h). Units will have the ability to connect to a police or fire station and to other remote stations.
 - (i). Units that are able to transmit video surveillance feed over the system backbone may be offered.
 - (j). Suppression systems that meet current and applicable NFPA standards should include, but not be limited to, chemical suppression systems, sprinkler systems and carbon dioxide systems.
 - (k). Leak detection and location systems that detect non-conductive and conductive fluids (acids, bases, industrial waste, leachant, ground water), solvents, fuels and oils may be offered.
- 13). Building and Campus Intercommunication Systems
- (a). A sound communication system control panel will be engineered for simplicity of use and color-keyed with pushbuttons.
 - (b). Duplex voice communication will be possible between the office and any classroom speaker or any speaker-equipped location.
 - (c). To override high noise levels, a minimum of 15 watts of output power will be provided.
 - (d). To prevent unauthorized monitoring, an automatic warning tone over any loudspeaker selected for two-way communications will repeat at regular intervals.
 - (e). Speakers may be put into a private mode in the classroom, but still permit the office to call the classroom.
 - (f). Voice levels will be automatically adjusted by a built-in voice compressor.
 - (g). The control set will have an optional handset.
 - (h). The office control set will be able to communicate to all locations at one time or to any number selected.
 - (i). An emergency override feature will permit by-pass and override of all other programs to transmit an emergency message.
 - (j). For Members that need a tone to be sent to all locations, a button on the control panel will accomplish the task.

- (k). The system will have the ability to broadcast radio, cassette tapes, CDs and other inputs to classrooms.
 - (l). The system will have the ability to connect to an emergency telephone for making remote announcements.
- 14). Master Clocks and Intercom Systems
- (a). Master clock controls will provide for multiple zones, allow programming for multiple schedules with at least 350 events and 100 holidays.
 - (b). A lithium battery will provide back-up for five (5) or more years.
 - (c). The system must allow for automatic daylight savings time change.
 - (d). Clocks offered will include both digital and analog models, with flush, double face, wall and ceiling mounted. Clocks will be corrected by the master clock each hour, daily and after a power failure.
- 15). UPS Equipment
- (a). Uninterruptible Power Supplies (UPSs) will support the installed system equipment.
 - (b). UPSs should be rack-mountable and located in the equipment rack of the equipment being protected.
 - (c). Any UPS unit supporting a server must have at least 100% greater rating than the supported loads and have a minimum of eight (8) minutes of run time at full speed.
 - (d). All UPS equipment will monitor power supplies for high speed voltage, current transients and power harmonics.

End of Part B