State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DEFK9002	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
JOHN ABBOTT
304-558-2544

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE

SHIP TO
DIV ENGINEERING & FACILITIES
ARMORY BOARD SECTION

1707 COONSKIN DRIVE
CHARLESTON, WV
25311-1099 341-6368

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
07/03/2008				

BID OPENING DATE: 08/07/2008 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		340-16		

FIRE ALARM SYSTEMS

CONTRACT TO PROVIDE ALL DESIGN, MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO INSTALL AN EXPANDABLE EMERGENCY EVACUATION FIRE ALARM SYSTEM FOR THE WEST VIRGINIA ARMY NATIONAL GUARD, COONSKIN DRIVE, CHARLESTON, WV, PER THE SPECIFICATIONS.

MANDATORY ON-SITE PRE-BID: 7/24/2008; 10:00 AM
1707 COONSKIN DRIVE
CHARLESTON, WV 25305

CONTACT: MAJOR MICHAEL BECKNER @ 304-561-6333

EXHIBIT 5

NOTICE TO PROCEED: THIS CONTRACT IS TO BE PERFORMED WITHIN 120 CALENDAR DAYS AFTER THE NOTICE TO PROCEED IS RECEIVED. UNLESS OTHERWISE SPECIFIED, THE FULLY EXECUTED PURCHASE ORDER WILL BE CONSIDERED NOTICE TO PROCEED.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE MATERIALS OR WORKMANSHIP SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HERE IN.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

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WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.

2. The State may accept or reject in part, or in whole, any bid.

3. All quotations are governed by the ***West Virginia Code*** and the ***Legislative Rules*** of the Purchasing Division.

4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required $125.00 registration fee.

5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.

6. Payment may only be made after the delivery and acceptance of goods or services.

7. Interest may be paid for late payment in accordance with the ***West Virginia Code.***

8. Vendor preference will be granted upon written request in accordance with the ***West Virginia Code.***

9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.

11. The laws of the State of West Virginia and the ***Legislative Rules*** of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.

12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.

13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.

14. **HIPAA Business Associate Addendum:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (**http://www.state.wv.us/admin/purchase/vrc/hipaa.htm**) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

15. **West Virginia Alcohol & Drug-Free Workplace Act:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.

2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.

3. Complete all sections of the quotation form.

4. Unit prices shall prevail in cases of discrepancy.

5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.

6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

State of West Virginia
Department of Administration
Purchasing Division
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25311-1099 341-6368

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WAGE RATES: THE CONTRACTOR OR SUBCONTRACTOR SHALL PAY THE HIGHER OF THE U.S. DEPARTMENT OF LABOR MINIMUM WAGE RATES AS ESTABLISHED FOR KANAWHA COUNTY, PURSUANT TO WEST VIRGINIA CODE 21-5A, ET, SEQ. (PREVAILING WAGE RATES APPLY TO THIS PROJECT)

ARBITRATION: ANY REFERENCES MADE TO ARBITRATION OR INTEREST FOR PAYMENTS DUE (EXCEPT FOR ANY INTEREST REQUIRED BY STATE LAW) CONTAINED IN THIS CONTRACT OR IN ANY AMERICAN INSTITUTE OF ARCHITECTS DOCUMENTS PERTAINING TO THIS CONTRACT ARE HEREBY DELETED.

WORKERS' COMPENSATION: VENDOR IS REQUIRED TO PROVIDE A CERTIFICATE FROM WORKERS' COMPENSATION IF SUCCESSFUL.

ALL OF THE ITEMS CHECKED BELOW WILL BE A REQUIREMENT OF THIS CONTRACT:

(XX) INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO ISSUANCE OF CONTRACT. UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE COVERAGE REQUIRED IS $250,000.

( ) BUILDERS RISK INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF BUILDERS RISK - ALL RISK INSURANCE IN AN AMOUNT EQUAL TO 100% OF THE AMOUNT OF THE CONTRACT.

(XX) BONDS: FIVE PERCENT (5%) OF THE TOTAL AMOUNT OF THE BID PAYABLE TO THE STATE OF WEST VIRGINIA, SHALL B SUBMITTED WITH EACH BID AS A BID BOND. THE SUCCESSFUL BIDDER SHALL ALSO FURNISH A PERFORMANCE BOND AND LABOR/MATERIAL BOND FOR 100% OF THE AMOUNT OF THE CONTRACT. BONDS MAY BE PROVIDED IN THE FORM OF A CERTIFIED CHECK, IRREVOCABLE LETTER OF CREDIT, OR BOND FURNISHED BY A SOLVENT SURETY COMPANY AUTHORIZED TO DO BUSINESS IN TH

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STATE OF WEST VIRGINIA. A LETTER OF CREDIT SUBMITTED IN LIEU OF A PERFORMANCE AND LABOR & MATERIAL BOND WILL ONLY BE ALLOWED FOR PROJECTS UNDER $100,000. PERSONAL OR BUSINESS CHECKS ARE NOT ACCECPTABLE IN LIEU OF THE 5% BID BOND, PERFORMANCE BOND, OR LABOR AND MATERIAL BOND.

( ) MAINTENANCE BOND: A TWO (2) YEAR MAINTENANCE BOND COVERING THE ROOFING SYSTEM WILL BE A REQUIREMENT OF THE SUCCESSFUL VENDOR.

REV. 11/00

EXHIBIT 7

DOMESTIC ALUMINUM, GLASS & STEEL IN PUBLIC WORKS PROJECTS

IN ACCORDANCE WITH WEST VIRGINIA CODE 5-19-1 ET., SEQ., EVERY CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REPAIR, IMPROVEMENT OR MAINTENANCE OF PUBLIC WORKS, WHERE THE COST IS MORE THAN $50,000 AND, IN THE CASE OF STEEL ONLY, WHERE THE COST OF STEEL IS MORE THAN $50,000 OR WHERE MORE THAN 10,000 POUNDS OF STEEL ARE REQUIRED, THE STATE WILL ACCEPT ONLY ALUMINUM GLASS, OR STEEL PRODUCTS PRODUCED IN THE UNITED STATES. IN ADDITION, ITEMS OF MACHINERY OR EQUIPMENT PURCHASED FOR USE AT THE SITE OF PUBLIC WORKS SHALL BE MADE OF DOMESTIC ALUMINUM, GLASS OR STEEL, UNLESS THE COST OF THE PRODUCT IS LESS THAN $50,000 OR LESS THAN 10,000 POUNDS OF STEEL ARE USED IN PUBLIC WORKS PROJECTS.

FOREIGN MADE ALUMINUM, GLASS OR STEEL PRODUCTS MAY BE ACCEPTED ONLY IF THE COST OF DOMESTIC PRODUCTS IS FOUND TO BE UNREASONABLE. SUCH COST IS UNREASONABLE IF IT I

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20% OR MORE HIGHER THAN THE BID PRICE FOR FOREIGN MADE PRODUCTS. IF THE DOMESTIC ALUMINUM, GLASS OR STEEL PRODUCTS TO BE SUPPLIED OR PRODUCED IN A "SUBSTANTIAL LABOR SURPLUS AREA", AS DEFINED BY THE UNITED STATES DEPARTMENT OF LABOR, FOREIGN PRODUCTS MAY BE SUPPLIED ONLY IF DOMESTIC PRODUCTS ARE 30% OR MORE HIGHER IN PRICE THAN THE FOREIGN MADE PRODUCTS.

IF, PRIOR TO THE AWARD OF A CONTRACT UNDER THE ABOVE PROVISIONS, THE SPENDING OFFICER OF THE SPENDING UNIT DETERMINES THAT THERE EXISTS A BID FOR LIKE FOREIGN ALUMINUM, GLASS OR STEEL THAT IS REASONABLE AND LOWER THAN THE LOWEST BID DOMESTIC PRODUCTS, THE SPENDING OFFICE MAY REQUEST, IN WRITING, A REEVALUATION AND REDUCTION IN THE LOWEST BID FOR SUCH DOMESTIC PRODUCTS. ALL VENDORS MUST INDICATE IN THEIR BID IF THEY ARE SUPPLYING FOREIGN ALUMINUM, GLASS OR STEEL.

REV. 3/88

EXHIBIT 9

NOTICE FOR ISSUANCE & ACKNOWLEDGEMENT OF CONSTRUCTION PROJECT ADDENDA

THE ARCHITECT/ENGINEER AND/OR AGENCY SHALL BE REQUIRED TO ABIDE BY THE FOLLOWING SCHEDULE IN ISSUING CONSTRUCTION PROJECT ADDENDA FOR STATE AGENCIES:

(1) THE ARCHITECT/ENGINEER SHALL PREPARE THE ADDENDUM AND A LIST OF ALL PARTIES THAT HAVE PROCURED DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. THE ADDENDUM AND LIST SHALL BE FORWARDED TO THE BUYER IN THE STATE PURCHASING DIVISION. THE ARCHITECT/ENGINEER SHALL ALSO SEND A COPY OF THE ADDENDUM TO THE STATE AGENCY FOR

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WHICH THE CONTRACT IS ISSUED.

(2) THE BUYER SHALL SEND THE ADDENDUM TO ALL INTERESTED PARTIES AND, IF NECESSARY, EXTEND THE BID OPENING DATE. ANY ADDENDUM SHOULD BE RECEIVED BY THE BUYER WITHIN FOURTEEN (14) DAYS PRIOR TO THE BID OPENING DATE.

(3) ALL ADDENDA SHOULD BE FORMALLY ACKNOWLEDGED BY ALL BIDDERS AND SUBMITTED TO THE STATE PURCHASING DIVISION. THE SAME RULES AND REGULATIONS THAT APPLY TO THE ORIGINAL BIDDING DOCUMENT SHALL ALSO APPLY TO AN ADDENDUM DOCUMENT. THE ONLY EXCEPTION MAY BE FOR AN ADDENDUM THAT IS ISSUED FOR THE SOLE PURPOSE OF CHANGING A BID OPENING TIME AND/OR DATE.

REV. 11/96

EXHIBIT 10

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NOS.:

NO. 1 .....

NO. 2 .....

NO. 3 .....

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NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF THE BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

.....SIGNATURE

.....COMPANY

.....DATE

REV. 11/96

CONTRACTORS LICENSE

WEST VIRGINIA STATE CODE 21-11-2 REQUIRES THAT ALL PERSONS DESIRING TO PERFORM CONTRACTING WORK IN THIS STATE MUST BE LICENSED. THE WEST VIRGINIA CONTRACTORS LICENSING BOARD IS EMPOWERED TO ISSUE THE CONTRACTORS LICENSE. APPLICATIONS FOR A CONTRACTORS LICENSE MAY BE MADE BY CONTACTING THE WEST VIRGINIA DIVISION OF LABOR CAPITOL COMPLEX, BUILDING 3, ROOM 319, CHARLESTON, WV 25305. TELEPHONE: (304) 558-7890.

WEST VIRGINIA STATE CODE 21-11-11 REQUIRES ANY

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PROSPECTIVE BIDDER TO INCLUDE THE CONTRACTORS LICENSE NUMBER ON THEIR BID.

BIDDER TO COMPLETE:

CONTRACTORS NAME: .....

CONTRACTORS LICENSE NO.: .....

THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FURNISH A COPY OF THEIR CONTRACTORS LICENSE PRIOR TO ISSUANCE OF A PURCHASE ORDER/CONTRACT

APPLICABLE LAW

THE WEST VIRGINIA STATE CODE, PURCHASING DIVISION RULES AND REGULATIONS, AND THE INFORMATION PROVIDED IN THE "REQUEST FOR QUOTATION" ISSUED BY THE PURCHASING DIVISION IS THE SOLE AUTHORITY GOVERNING THIS PROCUREMENT.

ANY INFORMATION PROVIDED IN SPECIFICATION MANUALS, OR ANY OTHER SOURCE, VERBAL OR WRITTEN, WHICH CONTRADICTS OR ALTERS THE INFORMATION PROVIDED FROM THE SOURCES AS DESCRIBED IN THE ABOVE PARAGRAPH IS VOID AND OF NO EFFECT.

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.

REV. 1/2005

NOTICE

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A SIGNED BID MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
P.O. BOX 50130
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: JOHN ABBOTT----------

REQ. NO.: DEFK9002----------

BID OPENING DATE: 8/7/2008----------

BID OPENING TIME: 1:30 PM----------

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:

PLEASE PRINT OR TYPE NAME OF PERSON TO CONTACT CONCERNING THIS QUOTE:

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NETWORKED VOICE EVACUATION FIRE ALARM SYSTEM
SPECIFICATIONS
WV Army National Guard
Joint Forces Headquarters
Coonskin Drive, Charleston, WV

PART 1 GENERAL

1.1 PROJECT:

A. BASE BID – Provide design, materials, and labor to install an Expandable Emergency Evacuation Fire Alarm System. Each bidder will quote a networked, fully peer-to-peer, microprocessor-controlled fire detection and emergency voice alarm communication system. The system will include the capability to detect and alarm for fire while also providing automated or manual non-fire notification both as unique alarm and strobe and voice communication. Manual voice will override all other alarms.

B. ADD/ALT - Provide design, materials, and labor to install an Exterior Mass Notification System. Each bidder will quote an ADD/ALT for an electronic voice and siren warning system that is an omni-directional, non-rotating, electronic, voice-siren and sufficient for the area being covered. This system will be compatible with the base bid and bid such that no additional effort is required to create a complete and usable system.

C. SCOPE / LOCATION: This system will be installed in 7 buildings and distinct areas: The Coonskin Amory, Headquarters Building, Records Room, Recruiting & Retention, C&FMO, Family Life Center, and Annex Building. These are located at 1703 Coonskin Drive, Charleston, WV

D. PRE-BID MEETING: A mandatory pre-bid meeting will be held at the coonskin complex. Potential bidders will enter at the visitor's entrance which is to the right of the two cannons and flag pole. The meeting will be held in the "War Room". Building floor-plans will be provided and an extensive tour of the existing facilities will take place.

E. BID:

ITEM	PRICE
BASE BID: Expandable Emergency Evacuation Fire Alarm System	
ADD/ALT: Exterior Mass Notification System	
TOTAL	

1.2 REQUIREMENTS:

A. SCHEDULE: The WVARNG must be notified prior to the commencement of work. The Contractor shall submit a schedule for the timely completion of work associated with this contract. Regular working hours shall be from 7:30 a.m. To 4:30 p.m. Monday through Friday. All work accomplished by this contract shall be performed in this time. If the Contractor desires and/or is required to work on Saturdays, Sundays, Holidays or other hours outside normal work schedule, the Contractor shall be required to seek written approval from the WVARNG. The Contractor is not entitled to premium time if the request is approved.

B. ENTRY: The Contractor will submit a roster of employees working on this project to the WVARNG. Each employee must carry government issued picture identification such as a valid driver's license.

C. POINTS OF CONTACT:
Major Mike Beckner: 304-561-6333
Jonathan Neal: 304-561-6550

D. INVOICES: All invoices (requests for payments) shall be submitted to the WVARNG

E. COMPLIANCE WITH REGULATIONS: The Contractor will ensure all work adheres to current applicable Building Codes (National, State and Local), regulations of the Environmental Protection Agency (EPA) and the Occupational Safety and Health Agency (OSHA), as well as all applicable Federal, State, and Local requirements. In addition, all work shall be performed in a professional manner by journeyman craftsmen certified in the trade in which they are employed.

F. FIRE AND SAFETY: The Contractor shall take all necessary precautions to adequately protect all personnel, public and private property in the areas of work. Approved contractor furnished barriers and warning signs shall be provided to re-route personnel around areas of work. The Contractor shall not block passage of sidewalks, roads or other entranceways to the building during performance of work related to this contract without permission from the WVARNG.

G. STORAGE OF EQUIPMENT AND MATERIALS: The location and amount of equipment and materials stored on the site for performance of work must be approved by the WVARNG.

H. DEBRIS REMOVAL: The Contractor shall provide his own trash receptacles and/or dumpster at no additional cost to the Government, and remove debris from the work site daily.

I. ENVIRONMENTAL PROTECTION: The contractor is responsible for obtaining and maintaining all necessary permits.

J. DEMOLITION: The disassembling, disconnecting, cutting, removal or altering in any way of existing work shall be carried on in such a manner as to prevent injury or damage to all portions of existing work, whether they are to remain in place, be re-used in the new work or be salvaged and stored. All portions of existing facilities which have been cut, damaged or altered in any way during performance of work shall be repaired or replaced in kind, in an approved manner to match existing adjoining work. All work of this nature shall be performed by the Contractor at his expense and left in a condition similar to that which existed prior to the start of the work.

K. VERIFICATION OF DIMENSIONS: The Contractor shall become familiar with all details of the work and verify all dimensions on site.

L. CURRENT PREVAILING WAGE RATES APPLY. Certified payrolls will be required.

M. LIQUIDATION DAMAGES: In accordance with FAR 11.504(b) and DFARS 211.504(b), liquidated damages will be assessed for each calendar day required to complete the construction work on this project past the scheduled completion date. The contractor has complete control of the pace of work. Liquidated damages shall be assessed at a rate of $1,345.13 as follows:

Itemized Costs

ITEM	Daily Costs	Notes
Project Management		
Project Manager	$ 412.39	Based upon 8 hours per day at $51.55/hr
Transportation Costs	$ 131.25	Based upon 350 miles round trip at $.375/mile
Subtotal cost per Day	$ 543.64	
Procurement		
Contracting Officer	$ 412.39	Based upon 8 hours per day at $51.55/hr
Contract Administrator	$ 340.35	Based upon 8 hours per day at $42.54/hr
Transportation Costs	$ 48.75	Based upon 130 miles round trip at $.375/mile
Subtotal cost per Day	$ 801.49	
Total for Liquidated Damages	$ 1,345.13	

1.3 REFERENCES (Design)

A. UFC 4-021-01 (Unified Facilities Criteria, 20 September 2006)

B. NFPA 70 and 72 (National Fire Protection Association)

1.4 SYSTEM DESCRIPTION

A. A new intelligent reporting, Style 7 networked, fully peer-to-peer, microprocessor-controlled fire detection and emergency voice alarm communication system shall be installed in accordance with the specifications.

B. Each Signaling Line Circuit (SLC) and Notification Appliance Circuit (NAC): Limited to only 80 percent of its total capacity during initial installation.

C. Basic Performance:
   1. Network Communications Circuit (NetSOLO) Serving Network Nodes: Wired using single twisted non-shielded 2-conductor cable or connected using approved fiber optic cable between nodes in Class A configuration (NFPA Style 7).
   2. Signaling Line Circuits (SLC) Serving Addressable Devices: Wired Style 6 (Class A).
   3. Initiation Device Circuits (IDC) Serving Non-addressable Devices Connected to Addressable Monitor Modules: Wired Class A (NFPA Style D).
   4. Notification Appliance Circuits (NAC) Serving Strobes and Speakers: Wired Class A (NFPA Style Z).
   5. On Style 6 or 7 (Class A) Configurations: Single ground fault or open circuit on Signaling Line Circuit shall not cause system malfunction, loss of operating power, or ability to report alarm.
   6. Alarm Signals Arriving at INCC COMMAND CENTER: Not be lost following primary power failure until alarm signal is processed and recorded.
   7. Transponders:
      a. Operate in peer-to-peer fashion with other panels and transponders in system.
      b. Each transponder shall store copy of audio evacuation messages and tones.
      c. Systems that use centralized message storage and control at main fire alarm control panel shall not be acceptable.
   8. Network Node Communications, Audio Evacuation Channels and Fire Phone Communications:
      a. Communicated between panels and transponders on single pair of copper wires or fiber optic cables.
      b. To enhance system survivability, ability to operate on loss of INCC Command Center, short or open of entire riser at INCC Command Center shall be demonstrated at time of system acceptance testing.
      c. Systems that are not capable of providing true Style 7 performance for fire fighter's phone communications shall not be acceptable.
   9. Signaling Line Circuits (SLC):
      a. Reside in remote transponders with associated audio zones.
      b. SLC modules shall operate in peer-to-peer fashion with all other panels and transponders in system.

c. On loss of INCC Command Center, each transponder shall continue to communicate with remainder of system, including all SLC functions and audio messages located in all transponders.
d. Systems that provide a "Degraded" mode of operation upon loss of INCC Command Center or short in riser shall not be acceptable.

10. Audio Amplifiers and Tone-Generating Equipment: Electrically supervised for normal and abnormal conditions.
11. Amplifiers: Located in transponder cabinets serving no more that 3 floors per transponder to enhance system survivability, reduce required riser wiring, simplify installation, and reduce power losses in length of speaker circuits.
12. Speaker NAC Circuits: Arranged such that there is a minimum of 1 speaker circuit per fire alarm zone.
13. Notification Appliance Circuits (NAC), Speaker Circuits, and Control Equipment: Arranged such that loss of any 1 speaker circuit will not cause loss of any other speaker circuit in system.
14. Speaker Circuits:
    a. Electrically supervised for open and short circuit conditions.
    b. If short circuit exists on speaker circuit, it shall not be possible to activate that circuit.
    c. Arranged for 25 VRMS and shall be power limited in accordance with NECd.
    d. 20 percent spare capacity for future expansion or increased power output requirements.
15. Speaker Circuits and Control Equipment:
    a. Arranged such that loss of any 1 speaker circuit will not cause loss of any other speaker circuit in system.
    b. Systems utilizing "bulk" audio configurations shall not be acceptable.
16. 2-Way Telephone Communication Circuits:
    a. Supervised for open and short circuit conditions.
    b. Short circuit condition on 2-way telephone communications circuit shall result in trouble condition and not result in call-in condition.
17. Voice Communication:
    a. Connect telephone circuits to speaker circuits to allow voice communication over speaker circuit from telephone handset.
    b. Capable of remote phone-to-phone conversations and party-line communications as required.

D. Basic System Functional Operation: When fire alarm condition is detected and reported by 1 of the system alarm initiating devices, the following functions shall immediately occur:
    1. System Alarm LEDs: Flash.
    2. Local Piezo-Electric Signal in Control Panel: Sound at a pulse rate.
    3. 80-Character LCD Display: Indicate all information associated with fire alarm condition, including type of alarm point and its location within protected premises.

4. Historical Log: Record information associated with fire alarm control panel condition, along with time and date of occurrence.
5. System output programs assigned via control-by-event equations to be activated by particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.
6. Audio Portion of System: Sound 3 rounds of slow whoop tone followed by voice evacuation message and this scenario repeating or other message as approved by local authority until system is reset.

E. Fire Alarm System Functionality:
7. Provide complete, electrically supervised distributed, Style 7 networked analog/addressable fire alarm and control system, with analog initiating devices, integral multiple-channel voice evacuation, and fire fighter's phone system.
8. Fire Alarm System:
   a. Consist of multiple-voice channels with no additional hardware required for total of 4 channels.
   b. Incorporate multiprocessor-based control panels, including model E3 Series including Intelligent Network INCC Command Center(s) (INCC), Intelligent Loop Interface (ILI-MB-E3), Intelligent Network Transponders (INX), communicating over peer-to-peer token ring network with capacity of up to 64 nodes.
9. Each ILI-MB-E3 Node: Incorporate 2 Signaling Line Circuits (SLC), with capacity to support up to 99 analog addressable detectors and 98 addressable modules per SLC.
10. Voice, Data, and Fire Fighter's Phone Riser: Transmit over single pair of wires or fiber optic cable.
11. Each Intelligent Network Transponder: Capable of providing 16 distributed voice messages, fire fighter phones connections, SLC loop for audio control devices, and integral network interface.
12. Each Network Node: Incorporate Boolean control-by-event programming, including as a minimum AND, OR, NOT, and Timer functions.
13. Control Panels: Capability to accept firmware upgrades via connection with laptop computer, without requirement of replacing microchips.
14. Network:
   a. Based on peer-to-peer token ring technology operating at 625 K baud, using Style 7 configuration.
   b. Capability of using twisted-pair wiring, pair of fiber optic cable strands up to 200 microns, or both, to maximize flexibility in system configuration.
15. Each Network Node:
   a. Capability of being programmed off-line using Windows-based software supplied by fire alarm system manufacturer. Capability of being downloaded by connecting laptop computer into any other node in system. Systems that require system software to be downloaded to

each transponder at each transponder location shall not be acceptable.

b. Capability of being grouped with any number of additional nodes to produce a "Region", allowing that group of nodes to act as 1, while retaining peer-to-peer functionality. Systems utilizing "Master/Slave" configurations shall not be acceptable.

c. Capability of annunciating all events within its "Region" or annunciating all events from entire network, on front panel LCD without additional equipment.

16. Each SLC Network Node: Capability of having integral DACT (digital alarm communicator transmitter) that can report events in either its region, or entire network to single central station monitoring account.
17. Each Control Panel: Capability of storing its entire program, and allow installer to activate only devices that are installed during construction, without further downloading of system.
18. Password Protection: Each system shall be provided with 4 levels of password protection with up to 16 passwords.

1.5 SUBMITTALS

A. Equipment Submittals:
1. Cover Page: Indicate the following:
   a. Project name and address.
   b. Engineered systems distributor's name and other contact information.
   c. Installing contractor's name and other contact information.
   d. Date of equipment submittals. Indicate on revised submittals the original submittal date and revised submittal date.
2. Table of Contents: Lists each section of equipment submittal.
3. Scope of Work Narrative: Detail indented scope of work.
4. Sequence of Operations: Use matrix or written text format, detailing activation of each type of device and associated resulting activation of the following:
   a. Control panel.
   b. Annunciator panels.
   c. Notification appliances.
   d. Building fire safety functions, including elevator recall, elevator power shutdown, door lock release, door holder release, HVAC unit shutdown, smoke evacuation system activation, and stair pressurization fan activation.
5. Bill of Material: Indicate for each component of system the following:
   a. Quantity.
   b. Model number.
   c. Description.
6. SLC Circuit Schedule: Detail address and associated description of each addressable device. Clearly provide information that indicates number of both active and spare addresses.

7. Battery Calculations: Show load of each of, and total of, components of system along with standby and alarm times that calculations are based on. Show calculated spare capacity and size of intended battery.

B. Shop Drawings:
   1. Cover Page: Indicate the following:
      a. Project name and address.
      b. Engineered systems distributor's name and other contact information.
      c. Installing contractor's name and other contact information.
      d. Date of equipment submittals. Indicate on revised submittals the original submittal date and revised submittal date.
   2. Floor Plans:
      a. Provide separate floor plan for each floor.
      b. If a floor plan must be split using match lines to fit on the page, provide match lines and match line references that refer to sheet number that shows area on opposite side of match line.
      c. Prepare using AutoCAD.
      d. Prepare to scale 1/8 inch = 1'-0", unless otherwise required by the Architect or Engineer.
      e. Show equipment and device locations.
      f. Show wiring information in point-to-point format.
      g. Show conduit routing, if required by the AHJ.
   3. Title Block: Provide on each sheet and include, at a minimum, the following:
      a. Project name.
      b. Project address.
      c. Sheet name.
      d. Sheet number.
      e. Scale of drawing.
      f. Date of drawing.
      g. Revision dates, if applicable.
   4. Control Panel: Provide sheet that details exterior and interior views of control panel and clearly shows associated wiring information.
   5. Annunciator Panels: Provide sheet that details exterior and interior views of annunciator panels and clearly shows associated wiring information.

C. Certification: Submit with equipment submittals and shop drawings, letter of certification from major equipment manufacturer, indicating proposed engineered system distributor is an authorized representative of major equipment manufacturer.

D. Project Record Drawings:
   1. Submit complete project record drawings within 14 calendar days after acceptance test.
   2. Project record drawings shall be similar to shop drawings, but revised to reflect changes made during construction.

E. Operation and Maintenance Manuals:
   1. Submit complete operation and maintenance manuals within 14 calendar days after acceptance test.
   2. Operation and maintenance manuals shall be similar to equipment submittals, but revised to reflect changes made during construction.
   3. Include factory's standard installation and operating instructions.

1.6 QUALITY ASSURANCE

A. Codes and Standards:

   1. NFPA: System shall comply with the following NFPA 12, 13, 15, 16, 16A, 70, 72, 90A, 101, 750, and 5000 codes and standards:

   2. ADA: System shall conform to American with Disabilities Act (ADA).

B. Equipment, Programming, and Installation Supervision:
   1. Provide services of approved engineered systems distributor for equipment, programming, and installation supervision.
   2. Provide proof of factory training within 14 calendar days of award of the Contract.

C. Software Modifications:
   1. Provide services of factory-trained and authorized technician to perform system software modifications, upgrades, or changes.
   2. Provide use of all hardware, software, programming tools, and documentation necessary to modify fire alarm system software on-site.
   3. Modification includes addition and deletion of devices, circuits, zones, and changes to system operation and custom label changes for devices or zones.
   4. System structure and software shall place no limit on type or extent of software modifications on-site.
   5. Modification of software shall not require power-down of system or loss of system fire protection while modifications are being made.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.

C. Handling: Protect materials from damage during handling and installation.

1.8 COORDINATION: Coordinate the Work with elevators and HVAC systems.

1.9 WARRANTY: Warranty Period for System Equipment: 1 year from date of final acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. References to manufacturer's model numbers and other information are intended to establish minimum standards of performance, function, and quality. An equal product may be proposed so long as the submittal requirements are met and the proposed system is compatible with existing systems.

B. Substitute equipment proposed as equal to equipment specified shall meet or exceed requirements of this section. For equipment other than Gamewell-FCI E3 Series Expandable Emergency Evacuation Fire Alarm System, provide proof that such substitute equipment equals or exceeds features, functions, performance, and quality of specified equipment. This proof shall be provided by submission of a copy of specification with each copy of the submittals that has had each paragraph marked as either compliant or non-compliant. In order to ensure that the Owner is provided with a system that incorporates required survivability features, this letter shall also specifically certify that the system is capable of complying with the test requirements of this section.

2.2 DISTRIBUTED NETWORKED FIRE ALARM SYSTEM

A. Distributed Networked Fire Alarm System: Gamewell-FCI E3 Series Expandable Emergency Evacuation Fire Alarm System or equal.

2.3 INTELLIGENT NETWORK INCC COMMAND CENTER HARDWARE

A. Intelligent Network INCC Command Center (INCC): Supply user interface, including LCD or touch-screen 1/4 VGA display Intelligent Loop Interface Modules (ILI-MB-E3), manual switching, phone, and microphone inputs to the network. INCC shall consist of the following units and components:
   1. System Cabinet (B-, C-, or D-Size Cabinet) with associated inner door.
   2. Power Supply Module (PM-9) with batteries.
   3. Intelligent Network Interface Voice Gateway INCC Command Center (INI-VG).
   4. 80-Character LCD Display (LCD-E3).
   5. Intelligent Loop Main Board Interface (ILI-MB-E3).
   6. Optional Intelligent Loop Supplemental Interface (ILI-S-E3).
   7. Optional DACT (DACT-E3).
   8. Optional RS-485 Repeater (RPT-E3).

9. Optional 1/4 VGA touch-screen display (NGA).
10. Optional Auxiliary Switch Module (ASM-16).
11. Optional Microphone Assembly (INCC-MIC).
12. Optional Telephone Assembly (INCC-TEL).

B. System Cabinet:
1. Surface or semi-flush mounted with texture finish.
2. Consist of back box, inner door, and door.
3. Available in at least 3 sizes to best fit project configuration.
4. Houses 1 or more PM-9 Power Supply Modules, INI-VG Intelligent Network Interface Voice Gateway, 1 or more ILI-MB-E3 assemblies, and other optional modules as specified.
5. Construction: Dead-front steel construction with inner door to conceal internal circuitry and wiring.
6. Wiring Gutter Space: A minimum of 1-inch wiring gutter space behind mounting plate.
7. Wiring: Terminated on removable terminal blocks to allow field servicing of modules without disrupting system wiring.

C. Power Supply Module (PM-9): Use latest technologies to provide power to INCC and incorporate the following features:
1. Power-saving switching technology using no step-down transformers.
2. 9-amp continuous-rated output to supply up to all power necessary under normal and emergency conditions for INCC Command Center Modules.
3. Integral battery charger with capacity to charge up to 55 amp-hour batteries while under full load.

D. Batteries:

1. Sufficient capacity to provide power for entire system upon loss of normal AC power for a period of 60 hours with 15 minutes of alarm signaling at end of this 60-hour period, as required by NFPA 72, Auxiliary Systems.

E. Intelligent Network Interface Voice Gateway INCC Command Center (INI-VG): INI-VG shall be a multi-function board interchangeable in both INCC and INX. Functions of board shall have the following features as a minimum:
1. Microprocessor: INI-VG shall have Digital Signal Processor (DSP). Microprocessor shall monitor all system events and perform all system programs, for all control-by-event (CBE) functions. System program shall not be lost upon failure of both primary and secondary power. Programming shall supporting Boolean logic including AND, OR, NOT, TIMING functions for maximum flexibility.
2. Network Interface: Operate at 625 K baud configurable with any combination of wire and/or fiber topologies. Interface shall communicate with up to 64 nodes in peer-to-peer fashion.
3. Fire Fighter Phone Riser: INI-VG shall generate local phone riser for use

with AOM-TEL phone modules for connection to fire fighter phone stations and/or for connection of local phone when used as INCC Command Center, including phone circuits. INI-VG shall mix its local phone riser to network in true Style 7 fashion. Systems not capable of true Style 7 communications for fire fighter's phone risers shall not be acceptable.

4. Advanced Processing: INI-VG shall incorporate latest in digital signaling processing technology with supporting Boolean logic including AND, OR, NOT, TIME DELAY functions.
5. Microphone Input: On-board and allow for addition of local microphone when used as INCC Command Center, including speaker circuit control.
6. Signal Processing: INCC shall use advanced Digital Signal Processing (DSP) technology to allow maximum flexibility of digital audio and control capabilities and operation. Signals to and from INCC shall be transmitted over single pair of twisted unshielded wire or fiber optic pair.
7. Field Programmable: INCC shall be capable of being fully programmed or modified by Field Configuration Program (FCP), to be downloaded via portable computer from any node in system.
8. Control-by-Event Programming (CBE): INCC shall be capable of programming using Boolean logic including AND, OR, NOT, COUNT, TIMING, and CALENDAR functions to provide complete programming flexibility.
9. Remote INCC Command Center Options: System shall have capability of adding remote INCC Command Centers or re-locating INCC Command Centers utilizing only single pair of twisted unshielded wire or fiber optic pair for all functions.
10. RS-485 Serial Output: System shall incorporate RS-485 bus via ribbon harness for connection of modules inside same cabinet, and via 4-wire quick connector for connection of modules up to 3,000 feet from cabinet.
11. Riser Wiring: All data, voice, and fire fighter phone riser shall transmit over single pair of twisted unshielded wire or fiber optic pair for all functions configured in Style 7 format. Any short or open in data, voice, or phone sections shall not affect transmission over remainder of network.
12. FocalPoint Gateway shall be provided to connect to the central stations located in the state. The gateway is a powerful interface that provides the capacity to monitor multiple networks installed in remote locations. The gateway interfaces with the 7100, 7200, or E3 series panels via the RS-232 port.
12. Style 7 Network: All communication between control panels and transponders shall be through supervised Style 7 token passing network. In event of single short, open, or ground, all system communication shall operate as normal and report fault. This protection shall incorporate all data, voice, and fire fighter phone transmissions. Upon single short, open, or ground of either system data, live voice, pre-recorded channels, or phone risers, the function of each of these items shall continue to operate. "Degrade" functionality shall not be acceptable. This shall be demonstrated at system acceptance.

F. LCD Display Module (LCD-E3):
   1. LCD Display: 80-character RS-485 based textual annunciator with capability of being mounted locally or remotely. Provides audible and visual annunciation of all alarms and trouble signals. Provide dedicated LEDs for:
      a. AC Power On: Green.
      b. Alarm: Red.
      c. Supervisory: Yellow.
      d. System Trouble: Yellow.
      e. Power Fault: Yellow.
      f. Ground Fault: Yellow.
      g. System Silenced: Yellow.
   2. 80-Character Alphanumeric Display: Provide status of all analog/addressable sensors, monitor and control modules. Display shall be liquid crystal type (LCD), clearly visible in dark and under all light conditions.
   3. Panel shall contain 4 functional keys:
      a. Alarm Acknowledge.
      b. Trouble Acknowledge.
      c. Signal Silence.
      d. System Reset/Lamp Test.
   4. Panel shall contain 3 configuration buttons:
      a. Menu/Back.
      b. Back Space/Edit.
      c. OK/Enter.
   5. Panel shall have 12-key telephone-style keypad to permit selection of functions.

G. Intelligent Loop Interface (ILI-MB-E3): System shall be of multiprocessor design to allow maximum flexibility of capabilities and operation. Intelligent Loop Interface shall be capable of mounting in stand-alone enclosure or integrated with Intelligent Network INCC Command Center (INCC) as specified.
   1. Field Programmable: System shall be capable of being programmed by Field Configuration Program (FCP), allowing programming to be downloaded via portable computer from any node on network.
   2. RS-232C Serial Output: Supervised RS-232C serial port shall be provided to operate remote printers and/or video terminals, accept downloaded program from portable computer, or provide 80-column readout of all alarms, troubles, location descriptions, time, and date. Communication shall be standard ASCII code operating from 1,200 to 115,200 baud rate.
   3. RS-485 Serial Output: Each ILI-MB-E3 shall incorporate RS-485 bus via ribbon harness for connection of modules inside same cabinet, and via 4-wire quick connector for connection of modules up to 3,000 feet from cabinet. RS-485 bus shall support up to 16 ASM-16 auxiliary switch modules, 6 LCD-E3 main annunciators, and 5 LCD-7100 annunciators.
   4. Peer-to-Peer Panel Configuration: All Loop Interface Modules shall incorporate own programming, log functions, Central Processor Unit, and

control-by-event (CBE) programming. If any loop becomes disabled, each remaining loop driver shall continue to communicate with remainder of network and maintain normal operation. "Degrade" configurations under these conditions shall not be acceptable.

5. Control-by-Event (CBE) Program: ILI-MB-E3 shall be capable of programming using Boolean logic including AND, OR, NOT, and TIMING functions to provide complete programming flexibility.
6. Alarm Verification: Smoke detector alarm verification shall be standard option while allowing other devices such as manual stations and sprinkler flow to create immediate alarm. This feature shall be selectable for smoke sensors that are installed in environments prone to nuisance or unwanted alarms.
7. Alarm Signals: All alarm signals shall be automatically latched or "locked in" at control panel until operated device is returned to normal and control panel is manually reset. When used for sprinkler flow, "SIGNAL SILENCE" switch may be bypassed, if required by AHJ.
8. Electrically Supervised:
    a. Each SLC and NAC circuit shall be electrically supervised for opens, shorts, and ground faults. Occurrence of fault shall activate system trouble circuitry, but shall not interfere with proper operation of other circuits.
    b. Yellow "SYSTEM TROUBLE" LEDs shall light and system audible sounder shall steadily sound when trouble is detected in system. Failure of power, open or short circuits on SLC or NAC circuits, disarrangement in system wiring, failure of microprocessor or any identification module, or system ground faults shall activate this trouble circuit. Trouble signal shall be acknowledged by operating "TROUBLE ACKNOWLEDGE" switch. This shall silence sounder. If subsequent trouble conditions occur, trouble circuitry shall resound. During alarm, all trouble signals shall be suppressed with exception of lighting yellow "SYSTEM TROUBLE" LEDs.
9. Drift Compensation - Analog Smoke Sensors: System software shall automatically adjust each analog smoke sensor approximately once each week for changes in sensitivity due to effects of component aging or environment, including dust. Each sensor shall maintain its actual sensitivity under adverse conditions to respond to alarm conditions while ignoring factors which generally contribute to nuisance alarms. System trouble circuitry shall activate, display "DIRTY DETECTOR" and "VERY DIRTY DETECTOR" indications and identify individual unit that requires maintenance.
10. Analog Smoke Sensor Test: System software shall automatically test each analog smoke sensor a minimum of 3 times daily. Test shall be recognized functional test of each photocell (analog photoelectric sensors) and ionization chamber (analog ionization sensors) as required annually by NFPA 72. Failure of sensor shall activate system trouble circuitry, display "Test Failed" indication, and identify individual device that failed.

11. Off-Premises Connection:

    a. Fire Alarm System: Connect via Digital Alarm Communicator Transmitter (DACT) and telephone lines to central station or remote station. Panel shall contain disconnect switch to allow testing of system without notifying fire department.

12. Central Station Option: Fire alarm control panel shall provide integral Digital Alarm Communicator Transmitter (DACT) for signaling to central station. DACT shall contain "Dialer-Runaway" feature preventing unnecessary transmissions as result of intermittent faults in system and shall be Carrier Access Code (CAC) compliant, accepting up to 20-digit central station telephone numbers. Fire department shall be consulted as to authorized central station companies serving municipality. Fire alarm system shall transmit both alarm and trouble signals, with alarm having priority over trouble signal. Contractor shall be responsible for all installation charges and Owner will be responsible for line lease charges.

13. Network Annunciator Option: Each ILI-MB-E3 and associated display shall provide option of being configured as network annunciator. Options for annunciation shall default as regional annunciator with capability of selecting global annunciation to provide system-wide protection and Acknowledge, Silence, and Reset capabilities.
14. Redundant History Log: Each ILI-MB-E3 shall contain full 4100 event history log supporting local and network functions. If a main processor or network node is lost the entire log shall be accessible at any other Loop Interface board. This shall be demonstrated by removing power from INCC Command Center followed by extraction of history log from any loop driver location, including INCC Command Center or Transponder.
15. LEDs Indicator and Outputs: Each ILI-MB-E3 Loop Interface shall incorporate as a minimum the following diagnostic LED indicators:
    a. Power: Green.
    b. Alarm: Red.
    c. Supervisory: Yellow.
    d. General Trouble: Yellow.
    e. Ground Fault: Yellow.
    f. Transmit: Green.
    g. Receive: Green.
16. Auxiliary Power Outputs: Each ILI-MB-E3 Loop Interface shall provide the following supply outputs:
    a. 24 VDC non-resettable, 1 amp. maximum, power limited.
    b. 24 VDC resettable, 1 amp. maximum, power limited.
17. Microprocessor: Loop interface shall incorporate 32-bit RISC processor. Isolated "watchdog" circuit shall monitor microprocessor and upon failure shall activate system trouble circuits on display. Microprocessor shall

access system program for all control-by-event (CBE) functions. System program shall not be lost upon failure of both primary and secondary power. Programming shall support Boolean logic including AND, OR, NOT, TIME DELAY functions for maximum flexibility.

18. Auto Programming: System shall provide for all SLC devices on any SLC loop to be pre-programmed into system. Upon activation of auto programming, only devices that are present shall activate. This allows for system to be commissioned in phases without need of additional downloads.
19. Environmental Drift Compensation: System shall provide for setting Environmental Drift Compensation by device. When detector accumulates dust in chamber and reaches unacceptable level but yet still below allowed limit, control panel shall indicate maintenance alert warning. When detector accumulates dust in chamber above allowed limit, control panel shall indicate maintenance urgent warning.
20. NON-FIRE Alarm Module Reporting: Non-reporting type ID shall be available for use for energy management or other non-fire situations. NON-FIRE point operation shall not affect control panel operation nor shall it display message at panel LDC. Activation of NON-FIRE point shall activate control by event logic, but shall not cause indication on control panel.
21. 1-Man Walk Test:
    a. System shall provide both basic and advanced walk test for testing entire fire alarm system. Basic walk test shall allow single operator to run audible tests on panel. All logic equation automation shall be suspended during test and while annunciators can be enabled for test, all shall default to disabled state. During advanced walk test, field-supplied output point programming shall react to input stimuli, such as CBE and logic equations. When points are activated in advanced test mode, each initiating event shall latch input. Advanced test shall be audible and shall be used for pull station verification, magnet activated tests on input devices, input and output device, and wiring operation/verification.
    b. Test feature is intended to provide for certain random spot testing of system and is not intended to comply with requirements of testing fire alarm systems in accordance with NFPA 72, as it is impossible to test all functions and verify items such as annunciation with only 1 person.
22. Signaling Line Circuits: Each ILI-MB-E3 module shall provide communication with analog/addressable (initiation/control) devices via 2 signaling line circuits. Each signaling line circuit shall be capable of being wired Class B, Style 4 or Class A, Style 6. Circuits shall be capable of operating in NFPA Style 7 configuration when equipped with isolator modules between each module type device and isolator sensor bases. Each circuit shall communicate with a maximum of 99 analog sensors and 98 addressable monitor/control devices. Unique 40-character identifier shall be available for each device. Devices shall be of the Velocity series with capability to poll 10 devices at a time with a maximum polling time of 2

seconds when both SLCs are fully loaded.

23. Notification Appliance Circuits: 2 independent NAC circuits shall be provided on ILI-MB, polarized and rated at 2 amperes DC per circuit, individually over current protected and supervised for opens, grounds, and short circuits. They shall be capable of being wired Class B, Style Y or Class A, Style Z.
24. Alarm Dry Contacts: Provide alarm dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system alarm occurs.
25. Supervisory Dry Contacts: Provide supervisory dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system supervisory condition occurs.
26. Trouble Dry Contacts: Provide trouble dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system trouble occurs.

H. Intelligent Network Interface Voice Gateway (INI-VG): INI-VG shall be a multi-function board interchangeable in both INCC and INX. Functions of board shall include the following features as a minimum:
   1. Network interface operating at 625 K baud configurable with any combination of wire and/or fiber topologies. Interface shall communicate with up to 64 total INCC, INX, and 7100 control panels in peer-to-peer fashion.
   2. Fire Fighter Phone Riser: INI-VG shall generate local phone riser for use with AOM-TEL phone modules for connection to fire fighter phone. INI-VG shall mix its local phone riser to network in true Style 7 fashion.
   3. Signaling Line Circuit (SLC): INI-VGX shall generate local SLC to communicate with and control up to 16 AOM-TEL modules and 32 AOM-2S or AOM-MUX circuits for fire phone interfacing and additional split-speaker circuits.
   4. RS-485: Provide capability to communicate with up to 16 ASM-16 modules, when used in INX mode up to 3,000 feet.
   5. Advanced Processing: INI-VG shall incorporate latest in digital signaling processing technology with supporting Boolean logic including AND, OR, NOT, TIME DELAY functions.
   6. Voice Generation: INI-VG shall incorporate all processing to allow for 16 distinct pre-recorded messages used in priority fashion with message 1 as highest priority. Total length for 1 to 16 messages shall be up to 3 minutes.

I. Power Supply Module (PM-9): PM-9 power supply shall supply all power necessary under normal and emergency conditions. Power supply shall provide capacity to charge up to 55 amp-hour batteries while under full load. Technology used shall be of power-saving switching configuration, eliminating need of stepping transformer.

J. Audio Amplifier (AM-50): Include as a minimum, the following features:
   1. 50-watt switching audio amplifier, requiring no transformer when used in 25-watt mode.

2. 2 individually addressable speaker circuits, each with capability of handling part or all of 50-watt supplied power.
3. Power shall be 24 VDC supplied via terminal block from local PM-9 power supply.
4. Ability to select from 1 of 16 pre-programmed messages in INI-VG, and paging from locally or from INCC Command Center.
5. Back-up amplification configurable so 1 AM-50 can perform back-up or 3, or perform 1-to-1 back-up if configured to do so in programming.
6. Status LEDs to indicate normal operation and trouble condition.

2.4 PRINTERS

A. Printers: Automatic type, printing code, time, date, location, category, and condition.
1. Provide hard-copy printout of all changes in status of system and time-stamp such printouts with current time-of-day and date.
2. Standard carriage with 80 characters per line.
3. Use standard pin-feed paper.
4. Enclose in separate enclosure suitable for placement on desktop or table.
5. Communicate with control using interface complying with EIA-232-D.
6. Power: 120 VAC at 60 Hz.

2.5 SUPPLEMENTAL NOTIFICATION APPLIANCE CIRCUIT (HPF24)

A. Supplemental Notification Appliance Circuit (HPF24) shall be Model HPF24S8 offering 8.0 amps (6.0 amps continuous) of regulated 24-volt power. HPF24 shall include the following features:
1. Integral Charger: Charge up to 18.0 amp-hour batteries and support 60-hour standby.
2. 2 Input Triggers. Input trigger shall be Notification Appliance Circuit (from fire alarm control panel) or relay.
3. Surface-mount back box.
4. Ability to delay AC fail delay in accordance with applicable NFPA requirements.
5. Power limited circuitry in accordance with applicable UL standards.
6. Operates as sync follower or a sync generator.

2.6 SYSTEM PERIPHERALS

A. Addressable Devices - General:
1. Provide address-setting means using rotary-decimal switches.
2. Use simple to install and maintain decade-type (numbered 0 to 9) address switches by using standard screwdriver to rotate 2 dials on device to set address. Devices which use binary address set via dipswitch packages, handheld device programmer, or other special tools for setting device address shall not be acceptable.

3. Detectors: Analog and addressable. Connect to fire alarm control panel's Signaling Line Circuits.
4. Addressable Thermal and Smoke Detectors: Provide 2 status LEDs. Both LEDs shall flash under normal conditions, indicating detector is operational and in regular communication with control panel, and both LEDs shall be placed into steady illumination by control panel, indicating alarm condition has been detected. If required, flashing mode operation of detector LEDs can be programmed off via fire control panel program.
5. Fire Alarm Control Panel: Permit detector sensitivity adjustment through field programming of system. Sensitivity can be automatically adjusted by panel on time-of-day basis.
6. Using software in INCC Command Center, detectors shall automatically compensate for dust accumulation and other slow environmental changes that may affect their performance. Detectors shall be listed by UL as meeting calibrated sensitivity test requirements of NFPA 72, Chapter 7.
7. Detectors shall be ceiling-mounted and shall include separate twist-lock base with tamper-proof feature.
8. Following bases and auxiliary functions shall be available:
   a. Standard base with remote LED output.
   b. Sounder base rated at 85 dBA minimum.
   c. Form-C relay base rated 30 VDC, 2.0 A.
   d. Isolator base.
9. Detectors shall provide test means whereby they will simulate alarm condition and report that condition to control panel. Such test shall be initiated at detector itself by activating magnetic switch or initiated remotely on command from control panel.
10. Detectors shall store internal identifying type code that control panel shall use to identify type of device (ION, PHOTO, THERMAL).

B. Addressable Manual Stations (MS-7AF):
   1. Manual Fire Alarm Stations: Non-code, non-break glass type, equipped with key lock so they may be tested without operating handle.
   2. Operated Station: Visually apparent, as operated, at a minimum distance of 100 feet (30.5 m) from front or side.
   3. Stations shall be designed so after actual activation, they cannot be restored to normal except by key reset.
   4. Manual stations shall be constructed of Lexan with clearly visible operating instructions provided on cover. The word FIRE shall appear on front of stations in raised letters, 1.75 inches (44 mm) or larger.
   5. Addressable manual stations shall, on command from control panel, send data to panel representing state of manual switch and addressable communication module status.

C. Intelligent Thermal Detectors (ATD-RL2F): Intelligent addressable devices rated at 135 degrees F (58 degrees C) and have rate-of-rise element rated at 15 degrees F (9.4 degrees C) per minute. Connect via 2 wires to fire alarm control

panel signaling line circuit.

D. Intelligent Photoelectric Smoke Detectors (ASD-PL2F): Use photoelectric (light-scattering) principal to measure smoke density and shall, on command from control panel, send data to panel representing analog level of smoke density.

E. Intelligent Duct Smoke Detectors (ADPF):
   1. In-Duct Smoke Detector Housing: Use on-board intelligent photoelectric detector, which provides continuous analog monitoring and alarm verification from panel.
   2. When sufficient smoke is sensed, alarm signal is initiated, and appropriate action taken to shut down or change over air handling systems to help prevent rapid distribution of toxic smoke and fire gases throughout areas served by duct system.
   3. Duct Smoke Detectors Mounted Above Ceiling or Otherwise Obstructed from Normal View: Provide with remote alarm indicator.
   4. Each Detector: Install in either supply side or return side duct in accordance with local mechanical code.

F. Addressable Dry Contact Monitor Modules (AMM-2F):
   1. Provide to connect 1 supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to 1 of the fire alarm control panel SLCs.
   2. Mount in standard deep electrical box.
   3. IDC Zone: Suitable for Style B operation.

G. Addressable Dry Contact Monitor Modules (AMM-4F):
   1. Provide to connect 1 supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to 1 of the fire alarm control panel SLCs.
   2. Mount in 4-inch (102-mm) square, 2-1/8-inch (54-mm) deep electrical box.
   3. IDC Zone: Suitable for Style D or Style B operation.
   4. LEDs: Flash under normal conditions, indicating monitor module is operational and in regular communication with control panel.

H. LCD Display Annunciator:
   1. Furnish and install a remote serial annunciator, Model LCD-7100. Annunciator shall provide 80-character display, which shall duplicate all information on basic system display, including any network nodes its host panel is annunciating, with exception of menus. Contain the following function keys:
      a. Alarm Acknowledge.
      b. Trouble Acknowledge.
      c. Signal Silence.
      d. System Reset/Lamp Test.
      e. System Drill Test.

2. Key Lock: Enable switches only when placed in "ON" position, with exception of Trouble Acknowledge, which is used to silence local trouble audible sounder. Annunciator shall contain the following LEDs:
   a. Alarm.
   b. Supervisory.
   c. System Trouble.
   d. Power Fault.
   e. System Silenced.
3. Mount on standard 3-gang surface or flush electrical box.
4. Each ILI-MB-E3: Accommodate up to 5 remote LCD-7100 annunciators which shall be located up to 3,000 feet from control panel.

I. Fixed Emergency Telephone Handsets:
   1. Telephone Cabinets:
      a. Paint red and clearly label emergency telephone.
      b. Locate as directed by owner.
      c. Key same as INCC Command Center, INX Transponders, and manual stations.
   2. Handset Cradle: Cam-operated microswitch connection such that lifting handset off cradle sends signal to fire INCC Command Center which shall audibly and visually indicate on-line (off-hook) condition. Open blade finder contacts shall not be acceptable.
   3. 2-Way Emergency Telephone System: Support a maximum of five 5 handsets on line (off hook) without degradation of signal.

J. Speakers:
   1. Operate on 25 VRMS or with field-selectable output taps from 0.5 to 2.0 watts.
   2. Speakers in Corridors and Public Spaces: Produce nominal sound output of 84 dBA at 10 feet (3 m).
   3. Frequency Response: Minimum of 400 Hz to 4,000 Hz.
   4. Back of Each Speaker: Sealed to protect speaker cone from damage and dust.

K. Strobes:
   1. Compliance: ADA and UL 1971.
   2. Maximum Pulse Duration: 0.2 second.
   3. Strobe Intensity: UL 1971.
   4. Flash Rate: UL 1971.
   5. Strobe Candela Rating: Determine by positioning selector switch on back of device.

L. Speaker/Strobes:
   1. Operate on 25 VRMS or with field-selectable output taps from 0.5 to 2.0 watt
   2. Speakers in Corridors and Public Spaces: Produce nominal sound output

of 84 dBA at 10 feet (3 m).
3. Frequency Response: Minimum of 400 Hz to 4,000 Hz.
4. Back of Each Speaker: Sealed to protect speaker cone from damage and dust.
5. Audibility: NFPA 72.
6. Maximum Pulse Duration: 0.2 second.
7. Strobe Intensity: UL 1971.
8. Flash Rate: UL 1971.
9. Strobe Candela Rating: Determine by positioning selector switch on back of device.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and surfaces to receive fire alarm system.
1. Notify Architect of conditions that would adversely affect installation or subsequent use.
2. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

A. Install fire alarm system in accordance with NFPA 72, NFPA 70, state and local codes, and manufacturer's instructions.

B. Conceal conduit, junction boxes, and conduit supports and hangers in finished areas. Conceal or expose conduit, junction boxes, and conduit supports and hangers in unfinished areas.

C. Do not install smoke detectors before system programming and test period. If construction is ongoing during this period, take measures to protect smoke detectors from contamination and physical damage.

D. Flush-mount fire detection and alarm system devices, control panels, and remote annunciators in finished areas. Flush-mount or surface-mount fire detection and alarm system devices, control panels, and remote annunciators in unfinished areas.

E. Ensure manual stations are suitable for surface mounting or semi-flush mounting. Install not less than 42 inches, or more than 48 inches, above finished floor measured to operating handle.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide service of competent, factory-trained technician authorized by manufacturer to technically supervise and participate

during pre-testing and acceptance testing of system.

B. Testing:
   1. Conduct complete visual inspection of control panel connections and test wiring for short circuits, ground faults, continuity, and insulation before energizing cables and wires.
   2. Close each sprinkler system control valve and verify proper supervisory alarm at INCC Command Center.
   3. Verify activation of flow switches.
   4. Open initiating device circuits and verify that trouble signal actuates.
   5. Open signaling line circuits and verify that trouble signal actuates.
   6. Open and short notification appliance circuits and verify that trouble signal actuates.
   7. Ground initiating device circuits and verify response of trouble signals.
   8. Ground signaling line circuits and verify response of trouble signals.
   9. Ground notification appliance circuits and verify response of trouble signals.
   10. Check alert tone and prerecorded voice message to alarm notification devices.
   11. Check installation, supervision, and operation of intelligent smoke detectors.
   12. Introduce on system each of the alarm conditions that system is required to detect. Verify proper receipt and proper processing of signal at INCC Command Center and correct activation of control points.
   13. Consult manufacturer's manual to determine proper testing procedures when system is equipped with optional features. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality, and similar.

C. Acceptance Testing:
   1. Before installation shall be considered completed and acceptable by, AHJ **(Authority Having Jurisdiction)** a complete test using as a minimum, the following scenarios shall be performed and witnessed by representative approved by Engineer. Monitoring company and/or fire department shall be notified before final test in accordance with local requirements.
   2. Contractor's job foreman, in presence of representative of manufacturer, representative of Owner, and fire department shall operate every installed device to verify proper operation and correct annunciation at control panel.
   3. Open signaling line circuits and notification appliance circuits in at least 2 locations to verify presence of supervision.
   4. Completely disconnect INCC Command Center from rest of network, including Voice INCC Command Center. Activate initiating device from transponder. All speaker circuits activated from each transponder shall transmit the correct evacuation or alert message. These messages shall be same messages transmitted with INCC Command Center activated. Default tones or messages shall not be acceptable.
   5. Completely disconnect INCC Command Center from rest of network.

Activate initiating device. All control outputs supported by transponder SLC circuits shall operate under project programming mode. Default or degrade mode programming shall not be acceptable.

6. Fire fighter phone riser shall be directly shorted between INCC Command Center and first transponder, followed by test of fire phones between INCC Command Center and farthest transponder. Phones shall operate in normal fashion.
7. All audio risers shall be directly shorted between INCC Command Center and first audio transponder, followed by activation of alarm initiating device. Correct pre-recorded messages shall transmit from all speakers, including evacuation and alert channels. Default or degrade messages shall not be acceptable.
8. When testing has been completed to satisfaction of both Contractor's job foreman and representatives of manufacturer and Owner, a notarized letter co-signed by each attesting to satisfactory completion of said testing shall be forwarded to Owner and fire department.
9. Leave fire alarm system in proper working order and, without additional expense to Owner, replace defective materials and equipment provided within 1 year (365 days) from date of final acceptance by the owner.

3.4 DEMONSTRATION

A. Provide instruction as required for operating fire alarm system.

B. Provide hands-on demonstrations of operation of fire alarm system components and functions.

C. Provide up to three (3) onsite visits for adjustment of the system during the first year of operation to meet owners need.

PART 4 ADD / ALT:

4.0 EMERGENCY EXTERIOR WARNING SYSTEM

4.1 The Public Siren Warning System will utilize electronic, high power voice and siren systems. The System will consist of non-rotating, omni-directional speaker system that is capable of providing siren warning and voice communications throughout 360 degrees. The System shall be a two-way radio controlled system that will provide positive feedback for silently testing each siren.

4.2 Due to the high ambient noise levels, a minimum of 75dBC @ 3200' is needed in the certain areas. Siren coverage must be estimated in accordance to FEMA's Guideline for Outdoor Siren Warning System CPG 1-17, using the 10dB loss per distance doubled, and sound attenuation formula. To ensure that the model sirens used will provide adequate sound pressure levels required, each bidder must provide the decibel level at 100' of each siren being bid. The db level must be easily adjustable.

4.3 Each bidder shall submit, along with their proposal, a list of equipment by model or brand name that is being bid.

4.4 All system components furnished for this project shall be new products currently listed in the vendor's latest price sheet. All remote sirens, their controls, and encoders shall be current standard and advertised models.

4.5 Only bids for electronic voice and siren system will be accepted. Any bid that includes an alternate for sirens not capable of delivering both siren tones and voice communications will be deemed non-compliant and will be disqualified. The fact that a manufacturer chooses not to produce equipment to meet these specifications, providing the above criteria are met, will not be sufficient cause to adjudge these specifications as restrictive.

4.6 Any exceptions to these specifications must be clearly stated point-by-point on a separate attached form. Failure to provide this information will disqualify the bidder.

4.7 Warranty of the system shall be a minimum of 24 months for the siren's components mounted on the pole and encoding equipment. The repair of the warranted parts shall be done at the manufacturer's factory. The cost of repairing these parts shall be included in the 24-month warranty. This excludes any labor cost for removing the defective part, from the siren. Other items submitted, but not manufactured by the bidder, such as computers and printers, wherein the warranty is not included in the factory's warranty must be indicated.

4.8 Additionally, an extended warranty agreement for a period of three years, after the 24 month warranty expires, must include a flat rate repair for all modules, manufactured by the siren manufacturer, located inside the siren's control cabinets and encoders provided by the bidder. The extended period does not apply to items not manufactured by the siren manufacture. However, those items must be named. The extended period includes speaker drivers. The flat rate fee must be stated.

4.9 The bidder must be an authorized sales and service center for the products being bid. The bidder must have FCC licensed technicians and have a response time of not more than one hour.

4.10 SPEAKER ARRAY:

A. The electrical path between the speaker system's power amplifiers and speaker drivers will be hardwired. The speaker array shall consist of multiple omni-directional speaker cells. Each cell shall be comprised of only one (1) 400-watt speaker driver. The use of multiple stacked flared speaker horns, or stacked speaker arrays that require more than one (1) speaker driver per speaker cell will not be accepted.

B. Each 400-watt speaker driver will be connected to a 400-watt power amplifier. Only one speaker driver per power amplifier will be accepted. Each power amplifier must be capable of producing 400 watts minimum output rating. A dedicated pair of wires shall wire each speaker driver to its own power amplifier. These wiring pairs shall be twisted, 14awg, coded red and black and each wire shall be numbered. The use of common grounds is prohibited. A minimum of 50' of speaker and control cable must be provided, for each siren.

C. The speaker array will be pre-wired at the siren manufacturer's facility prior to shipping.

D. The speaker array shall be wind tunnel tested and capable of withstanding speeds up to 120 mph.

4.11 CONTROL CABINET:

A. The siren case for the speaker systems shall be a multi-compartment assembly consisting of separate cabinets seam-welded together. The siren case assembly shall be furnished in a natural finish aluminum material. The use of fiberglass or other non-metallic material will not be accepted. To minimize future maintenance, the speaker array and the voice/siren's electronic cabinet shall be manufactured from materials that have not been need painted nor will ever need painting. The unpainted material must be capable of withstanding the environmental conditions.

B. The siren case assembly shall be similar to a NEMA 4 type case assembly providing a raised rolled lip around the entrance of each compartment, removable hinged doors with gaskets for each compartment that is secured by a retaining mechanism and a provision for a hasp type lock.

C. All system electronics will be modular and installed on the hinged panel swing out, for service. For ease of troubleshooting, all modules may be serviced or inspected by opening the service panel without disconnecting any modules from operation.

D. All wiring and conduit entrance to the control cabinet assembly will be via the bottom of the cabinet. All wiring connections between the compartments of the control cabinet shall have sealed fitting to prevent fumes or gases from the battery compartment entering the electronics compartment. No conduit connection between the battery compartment and the siren's control cabinet is allowed unless the conduit is "Factory Sealed."

E. The battery compartment(s) shall be vented. Vents for the battery compartment(s) shall be screened.

4.12 A lightning arrestor must be provided for each siren. Specifications of the arrestor are: Maximum current: 60,000 Amps, Maximum energy: 2,000 Joules per line,

Maximum number of surges: Unlimited, Response time one milliamp test 5 nanoseconds, Reference Model, Delta Lightning Arrestor Model LA 302.

4.13 BATTERY CHARGER:

A. The control cabinet shall consist of a single 120 VAC battery charger.

4.25 The battery charger(s) for the remote siren system must be temperature compensated and voltage regulated, of a modular design and performs as follows:
-Input: 120 VAC fused at 7 amps.
-Output: 27-31 VDC, at 10 amps.

B. The battery charger shall incorporate line surge suppression facilities.

C. To minimize future maintenance expense, each voice/siren will require no more than four (4) 115 amp/hr batteries to provide a minimum of 30 minutes of run time, in the absence of electrical power.

4.14 MICROPROCESSOR CONTROLLER:

A. The microprocessor-based controller shall perform the following:
-Process remote and local station activation inputs
-Control event timing (timing 0-10 minutes)
-Initiate tone generator
-Perform system diagnostics
-Process local and remote voice broadcast

B. The microprocessor controller shall have the following local controls:
Siren tone activation to include: WAIL, ATTACK (Fast wail), ALERT (Steady), HI/LOW, AIR HORN, WHOOP and a 5 SECOND TEST -Silent test tone activation and one Digital Voice Message

4.15 TONE GENERATOR:

A. The tone generator shall be an integral module within the microprocessor-based controller capable of generating the following warning signals:
TONE FREQUENCY SWEEP RATE
WAIL 410-675 Hz 4 sec/ 1 sec
ATTACK 410-490 Hz 1 sec/ 1 sec
ALERT 465 Hz Steady
HI/LOW 465 / 650 Hz .8 sec/ .8 sec
WHOOP 300-675 Hz 3 sec
AIR HORN 465 / 650 Modulated/ 1.6 sec

B. The tone generator will be capable of generating an inaudible tone of at least 20 kHz for the purpose of testing the speaker system and its respective speaker drivers without disturbing the public.

C. The radio activated silent test will cause an exercise of the siren system components and a system diagnostic routine, permitting the verification of the following conditions:
-AC Power at operating levels
-DC Power at operation levels
-Partial speaker driver/amplifier operation
-Full speaker driver/amplifier operation
Additional diagnostic status must be made available via radio frequency and shall include
-Signal-to-noise
-Activation Counter

C. The inaudible test must be capable of diagnosing each speaker driver and power amplifier. The silent test function must be capable of detecting the failure of a single speaker or power amplifier. Each siren will report the results of the silent test back to the central control station.

4.16 SPEAKER SIGNAL PERFORMANCE: Speaker signal performance shall be based upon utilizing the Alert warning tone. The frequency of the Alert tone shall not to exceed 500 Hz.

4.17 VOICE PERFORMANCE:

A. The public warning voice/siren system requires that all speaker systems be capable of broadcasting live public address and prerecorded voice messages. When broadcasting public address messages or delivering prerecorded voice messages, the siren shall increase its power output by 25% when in the voice mode.

B. Bidders shall provide two different digital voice options that will provide a minimum of sixteen (16) variable length messages. The pre-recorded voice messages cannot be broadcast from the siren's Public Address function but must be a function performed at the remote siren station.

C. The pre-recorded voice option shall provide sixteen (16) variable length messages with a minimum recording time of 240 seconds, for voice messages.

D. Prior to any and all prerecorded voice message, the voice/siren shall deliver a seven (7) second 1 KHz pulsed audio tone. The pre-announcement tone must be integrated into the prerecorded voice module.

4.18 DECODER: The decoder shall be an integral system within the microprocessor controller and shall respond to FSK or DTMF signal code.

4.19 RADIO CONTROLS

A. The sirens will be controlled via radio frequency operating in the military VHF frequency band 136-144 MHz, 148-150 MHz, or 162-174 Mhz. The radio control shall be capable of performing silent diagnostic testing on each siren. The siren shall report the status of the test and each activation back, via radio frequency, to the central control base station encoder.

B. The radio receiver for the siren system shall be incorporated as a module, within the microprocessor controller. The siren system shall be equipped with a two to four watt state of the art transceiver.

C. The radio antenna shall be a 3dB omni-directional antenna. Also, a minimum of 35' of antenna cable shall be provided. Reconfiguration and diagnostic software must be loaded on either a PDA type device or laptop computer. The connection between the between the hand held or laptop computer and the siren will be via RS-232 cable. Therefore, changes made at a specific siren site cannot have the ability to interfere or affect any other siren. This device shall be capable of changing the length of the siren tones from 1 to 10 minutes, changing the siren's address code and other default settings. In addition to reconfiguration of default settings, this same device shall be able to retrieve diagnostic information:

4.20 Each bidder must provide the cost of on-site operator training and factory service training. A minimum of three different sessions must be provided to accommodate the personnel on all shifts. The operator training shall include both the activation software and backup encoder operations.

4.21 INSTALLATION:

A. The outdoor siren system shall be mounted on a 30' aluminum mono-pole. The bidder will be responsible for providing the required pole, setting the pole, mounting all siren components on the pole and making all electrical connections.

B. All wiring must be in rigid steel conduit.

4.22 BID EXCEPTIONS:

A. 100 watt compression drivers will not be accepted as an approved equal.

B. Mechanical or Electo-Mechanical sirens will not be accepted as an approved equal.

C. Painted steel cabinets to house the electronics will not be accepted as an approved equal.

D. Siren head assemblies fabricated from any material other than corrosive resistant composition material will not be accepted as an approved equal.

E. Any primary AC power source other than single phase 120VAC will not be accepted as an approved equal.

F. Any encoding system other than DTMF ***Dual Tone Modulation Frequency*** will not be accepted as an approved equal.

G. Each speaker driver will have its own power amplifier. There must be an independent amplifier for each siren driver. Other than a 1:1 ratio will not be accepted as an approved equal.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

VENDOR OWING A DEBT TO THE STATE:
West Virginia Code §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:
West Virginia Code §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

ANTITRUST:
In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

LICENSING:
Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY:
The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit **www.state.wv.us/admin/purchase/privacy** for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and is in compliance with the requirements as stated.

Vendor's Name: _____

Authorized Signature: _____ Date: _____