

REQUEST FOR BID - #N00020069C

FOR

**ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN
ASTRONOMY
(AURA)**

**Operating the
National Science Foundation's (NSF's)
National Optical-Infrared Astronomy Research Laboratory
(NOIRLab)
Tucson, Arizona**

“Kitt Peak Fire Alarm System Project”

BIDS MUST BE RECEIVED BY

Wednesday, 3/1/23, 3:00 p.m. MST

Prepared by:

AURA/CAS
Procurement Office
950 N. Cherry Avenue
P. O. Box 26732
Tucson, AZ 85726-6732

26 January, 2023

TABLE OF CONTENTS

“Kitt Peak Fire Alarm System Project”

RFB Schedule

Section I. INSTRUCTIONS TO BIDDERS

MAP TO KITT PEAK

Section II. MANDATORY PRE-BID MEETING/SITE VISIT INFORMATION

Section III. SCOPE OF WORK/TECHNICAL SPECIFICATIONS

Section IV. CONTRACTOR’S BID DOCUMENTS

The following items are found on the **AURA/NOIRLab Bid Opportunities webpage**:

- **SAMPLE FIXED PRICE, CONSTRUCTION SERVICES CONTRACT**

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KPNO Fire Alarm Project

RFB released/posted: Friday, 1/27/2023

Communication of interest in attending site visit to CO:
Friday, 2/3/23, noon MST

Site Visit, MANDATORY: Friday, 2/10/23, 10:00 a.m. at Kitt Peak

Pre-bid questions due: Friday, 2/17/23, 9:00 a.m. MST

Answers distributed: Thursday, 2/23/23, by 4:00 p.m. MST

Bids Due: Wednesday, 3/1/23, 3:00 p.m. MST

Decision made: Friday, 3/10/23, 4:00 p.m. MST

Project start date: April 2023 (tentative)

SECTION I.

INSTRUCTIONS TO BIDDERS

ARTICLE 1. DEFINITIONS

1.1 All terms and conditions set forth in the Fixed Price Construction Contract template and attachments will be applicable to the final bid.

1.2 Bidding documents include: Request to Bid, Instructions to Bidders, proposed Construction Contract, and Scope of Work/Technical Specifications with support documentation, any amendments issued prior to receipt of bids and Vendor's Bid Form.

1.3 Any amendments as issued prior to bid award will become part of the documents when the Fixed Price Construction Contract is issued.

1.4 The "Vendor Contract Documents" will consist of the following: Request for Bid, Instructions to Bidders, Vendor's Bid, the written Contract between AURA and the Vendor, the Scope of Work/Technical Specifications with the support documentation, and all amendments and/or modifications incorporated into the documents before their execution.

1.5 The Association of Universities for Research in Astronomy, Inc. is an Arizona non-profit corporation, hereinafter referred to as AURA. The term "AURA" includes its authorized representatives. AURA manages and/or operates astronomy "Centers" under cooperative agreements with the National Science Foundation. One such "Center" is the National Optical-Infrared Astronomy Research Laboratory ("NOIRLab"), formerly known as NOAO.

1.6 NOIRLab has main facilities located at 950 North Cherry Ave., Tucson, AZ 85719.

1.7 The National Science Foundation, hereinafter referred to as the "NSF", is an agency of the United States of America created under the National Science Foundation Act of 1950. The term "NSF" includes its authorized representatives.

1.8 The "Bidder" is the person or organization who/that submits a Bid in accordance with these Bid Instructions and Procedures and proposes to perform the work described in the Statement of Work and/or specifications, and who/that proposes to perform the work described in the Fixed Price Construction Contract. The term "Bidder" may be used in lieu of the term "Contractor" or "Vendor" throughout these Bid documents.

1.9 The term "Subcontractor" means a person or organization, who/that has a direct agreement with the Vendor to furnish labor, or labor and materials, at the site of the work. The term also includes lower tier Contractors of a Subcontractor, but it does not include suppliers who/that furnish materials not worked to a special design according to the drawings and specifications. Nothing contained in the Fixed Price Construction Contract Documents shall be deemed or construed to create any contractual relationship between AURA and any Subcontractor as defined above.

ARTICLE 2. DESCRIPTION OF PROJECT

AURA/NOIRLab is releasing a Request for Bid (RFB) for a project to supply and install a Fire Alarm System at the Kitt Peak National Observatory (KPNO). Multiple buildings will be involved.

ARTICLE 3. BIDDING PROCEDURES

- 3.1 Bids shall be prepared on the forms provided in Section VI and include the following:
- a. **Completed “Contractor’s Bid for Contract”:** Bidder must complete in its entirety the contractor bid form labeled, “Section VI, Contractor’s Bid Documents, A. Contractor’s Bid for Contract which will set forth Contractor’s bid on the project.
 - b. **Completed “Qualification Package”:** Bidder shall fully complete the “Qualification Package” forms which follow Section VI titled, “Contractor’s Bid Documents.” It is very important that Bidder complete in detail the references form included in the Qualification Package. Bidder may include a more detailed written description of the references provided and the work performed for each referenced firm highlighting significant accomplishments, if desired.
 - c. **License Numbers and Resolution.** The Bidder shall submit with its Bid, the Vendor’s License number(s) applicable to the work to be performed, and a copy of a corporate or LLC resolution certified either by the Secretary of the Corporation or by a Member of the LLC that the resolution passed at a meeting of the board of directors of the corporation or by the members of the LLC, validly called, at which a quorum of board members or LLC members were present, indicating who within the Bidder’s organization has legal authority to bind the organization on a contract. The Bidder shall include the information for their organization’s registrations with the Arizona Board of Technical Registration.
- 3.2 a. Prices quoted in the Bid(s) are to INCLUDE all applicable federal, state and local taxes. AURA is sales tax exempt.
- b. Prices are to include the cost of all transportation, materials, equipment, tools, supplies, labor and services necessary or proper for the performance and completion of the work, except such as may be otherwise expressly provided for in the Bid documents.
- 3.3 In the event of a discrepancy between the prices quoted in the Bid in words and those quoted in figures, the words shall control.
- 3.4 Submission of the Bid. Subject to the following procedures and requirements, Bids shall be submitted electronically to the Contracts Officer in charge of this project.
- a. **Electronic Submission.** Bidder shall submit the documents described in Article 3.1 above electronically, in PDF format. **The date/time signature-marked no later than the due date and time for receipt of bids for this RFB.** The failure to timely submit these documents to AURA in accordance with these rules shall result in the elimination of Bidder’s Bid from consideration.

b. In case of technical difficulties, a phone call must be received by the Contracts Officer by the date/time due, and a plan to have a copy hand delivered to the Contracts Officer will be arranged.

3.5 No other forms of submission of Bids will be considered. No other forms of submission for modifications to Bids will be considered. Modifications to Bids submitted may be made electronically or via the delivery of a hard-copy of the modified Bid Documents, if the modified Bid Documents are delivered to AURA in accordance with the rules set forth in 3.4 above on or before the 3:00 o'clock P.M. Mountain Standard Time on the Bid due date.

3.6 A Bidder may withdraw its Bid(s), either personally or by written request, at any time prior to the scheduled closing time for receipt of Bids.

3.7 A person, firm or organization who/that has submitted a sub-Bid to a Bidder, or who has quoted on materials to a Bidder, is not disqualified from submitting a sub-Bid or quoting to other Bidders.

3.8 Unless otherwise provided for in any addendum to these Bid Instructions, no Bidder may withdraw, modify or cancel its Bid(s) for a period of one hundred twenty (120) days after the time designated for receipt of Bids.

ARTICLE 4 COMMUNICATION AND QUESTIONS

Any questions or requests for clarification of this proposal should be directed to:

Sherri Abney, Contracts Officer
Association of Universities for Research in Astronomy, Inc.
950 N. Cherry Avenue
Tucson, AZ 85719
Ph: 520-404-6106 (cell)
Email: sabney@aura-astronomy.org

Clarification or direction by other persons at AURA is NOT permitted during the RFB process.

General or procedural questions can be addressed by telephone or email. Technical or scientific questions must be submitted by email and must be received by the date noted on the schedule (Friday, 2/17/2023, 9:00 a.m. MST). All questions and responses will be provided to ALL parties present at the site visit by Thursday, 2/23/23 by 4:00 p.m. MST

ARTICLE 5. EXAMINATION OF DOCUMENTS

5.1 AURA reserves the right to make additions, deletions, or modifications to the Bid documents in writing by amendment at any time prior to the closing date. If, in the opinion of the Contracts Officer (hereinafter CO), any such change causes an increase in the time required for submission of Bids, the CO may, at her sole discretion, adjust the closing date and time accordingly.

5.2 The Bidder shall examine the Bid documents carefully and, not later than three (3) days prior to the date for receipt of Bids, make a request for interpretation or correction of any ambiguity, inconsistency, or error which it may discover. All requests shall be made in writing, including postal services, next day services and via email, addressed to the AURA CO.

5.3 All interpretations and corrections shall be issued in writing by the AURA CO in the form of an Amendment. The Bidder shall not rely on any interpretation or correction given by any other method.

5.4 Prior to receipt of Bids, addenda, if required, will be mailed to each Bidder who has requested and/or has been sent the Bid documents.

5.5 The failure of any Bidder to receive or examine any form, instrument, amendment or other document, or failure to acquaint itself with existing conditions shall not relieve the Bidder from obligations and responsibilities with respect to its Bid or to the Fixed Price Construction Contract. The submission of a Bid shall be taken as prima facie evidence of compliance with this section.

ARTICLE 6. REPRESENTATIONS

6.1 Each Bidder **MUST attend** the mandatory pre-bid site visit meeting that is scheduled and visit the work/project site prior to submitting a bid. Information about the location, date and time of the mandatory pre-bid/site visit meeting is set forth Section II of this RFB.

6.2 By submitting a Bid, each Bidder represents that it is familiar with existing conditions under which the work will be performed.

6.3 a. The Bidder, by submitting its Bid, represents that it has read and understands the Bid documents, and by submitting a Bid acknowledges acceptance of all of the Terms and Conditions of the Bid Documents as defined in 1.2 of these Bid Instructions.

b. Any exceptions to the Contract Documents shall be stated on the Vendor's Letterhead, if available, and submitted with its Bid. Exceptions shall be stated clearly and concisely. If the Bidder has exceptions, alternative wording shall be provided for consideration by Bidder to the AURA CO.

c. The Bidder, by submitting a Bid, certifies that the Contract Documents, have been reviewed and accepted by the Bidder, or that the Bidder has noted its exceptions to the Contract Bid Documents with its Bid.

6.4 The Bidder shall submit with its Bid, the Bidder's License number(s), if applicable to the work to be performed, and a resolution indicating who within the Bidder's organization has authority to bind the organization.

ARTICLE 7. SUBSTITUTIONS

7.1 Each Bidder represents that its Bid is based upon the specifications, materials and equipment described in the Bid documents, unless substitutions have been permitted in advance.

7.2 All Bids containing substitutions shall be accompanied by full and complete technical specifications for approval purposes. The AURA Technical Representative may request such other information as may be required for approval either before or after receipt of bids.

ARTICLE 8. COMPLETION TIME

The Bidder shall specify in its Bid the number of calendar days required to complete the work described. All costs included in the Bid shall be for the work to be completed within that period.

ARTICLE 9. TRIBAL REGULATIONS

9.1 The Observatory is located within the boundaries of the Tohono O’odham Nation. To the extent applicable, all Bidders shall comply with Ordinance No. 01-85, “TERO Ordinance” and the implementing regulations issued by the Tohono O’odham Employment Rights Commission, as well as any other applicable tribal laws or regulations. A copy of the Ordinance No. 01-85 may be found on our website <http://auracas.aura-astronomy.org/?q=bids> or at <http://www.tonation-nsn.gov/department-public-safety/tero/>.

9.2 All entities, contractors or subcontractors that intend to engage in business activity on the Tohono O’odham Nation must submit for approval to the Tribal Employment Rights Office a contracting, subcontracting, employment and training plan prior to the commencement of work on the Tohono O’odham Nation. A copy of the TERO Compliance Agreement Plan is posted on our website <http://auracas.aura-astronomy.org/?q=bids> and also can be obtained by clicking on “Compliance” at the following Website www.tonation-nsn.gov/department-public-safety/tero/. Under Ordinance No. 01-85 and its implementing regulations, no new employer may commence work on the Tohono O’odham Nation until it has met with TERO and developed an acceptable plan for meeting its obligations under Ordinance 01-85. The primary contractor/employer is responsible for the TERO compliance of its subcontractors or suppliers.

9.3 The successful bidder is required to contact Tribal Employment Rights Office (“TERO”) of the Tohono O’odham Nation, at the number indicated below, to obtain a copy of the Ordinance.

Director
Tribal Employment Rights Office
Tohono O'odham Nation
P. O. Box 40
Sells, AZ 85634
(520) 383-3304 or (520) 547-8160
FAX (520) 383-2781
www.tonation-nsn.gov/department-public-safety/tero/

9.4. The Tohono O’odham Nation charges an employment rights fee to raise money for the Tohono O’odham Employment Rights Commission. The current Employment Rights Fee required to be paid by a “covered employer” is a one-time fee of ½ of 1% of the total value of any

construction contract to be performed on the Reservation having a value of \$100,000 or more, see Section 1110 (A) of the TERO Ordinance. The payment of this fee is administered by the TERO office. See www.tonation-nsn.gov/department-public-safety/tero/ , click [Contractor Information](#).

9.5 The successful Bidder may also be subject to Ordinance No. 03-81, "Transaction Privilege Taxes."

See <http://www.tonation-nsn.gov/tax-information/>

9.6. Questions regarding any applicable tribal taxes should be directed to the Tohono O'odham Office of Treasurer in Sells at 520-383-1800.

9.7 Questions regarding hauling permits should be directed to the Tohono O'odham Solid Waste Regulatory Office in Sells at 520-383-8680.

ARTICLE 10. BID GUARANTEE; PERFORMANCE AND PAYMENT BONDS

A Bid Guaranty and Performance and Payment Bonds are required for contracts involving construction or facility improvements exceeding \$100,000.00. If Bidder's Bid exceeds \$100,000.00 the following shall be applicable:

10.1 Bidder shall provide a bid guarantee equivalent to five (5%) percent of the bid price ("Bid Guarantee"). The Bid Guarantee shall consist of a firm commitment such as a bid bond, certified check or other negotiable instrument which shall accompany Contractor's Bid as assurance that Contractor shall upon acceptance of its Bid execute such contractual documents as may be required within the time specified.

10.2 Bidder shall provide a performance bond in the full amount of the Contractor's Bid Price, guaranteeing the performance of the terms of the Fixed Price Construction Contract for the stipulated price within the time specified for completion ("Performance Bond").

10.3 Bidder shall provide a payment bond in the full amount of the Contractor's Bid Price assuring payment as required by statute of all persons supplying labor and materials in the execution of the work provided for in the Fixed Price Construction Agreement ("Payment Bond").

10.4 Bonds shall be obtained from companies holding certificates of authority as acceptable sureties pursuant to 31 CFR, part 223, "Surety Companies Doing Business with the United States."

10.5 Bidder shall include the original bid guarantee, the original performance bond and the original payment bond with its "Contractor's Bid Documents" submitted to AURA.

ARTICLE 11. EVALUATION OF BIDS

11.1 Bids will be opened and evaluated privately after the deadline for receipt of Bids.

11.2 Bids will be evaluated based on the following factors:

- Cost to AURA
- Ability to meet technical specifications and scope of work
- Warranties provided by Contractor

- Contractor’s qualifications, experience and references
- Ability and history of successful completion of contracts of this type, meeting projected schedules, and overall experience performing similar work
- Material Vendors or Sub-Contractors used
- Exceptions to terms set forth in Vendor Agreement provided by Bidder

11.3 All bidding documents received are considered confidential and will not be released.

11.4 The award of the Fixed Price Construction Contract for the work described in the Scope of Work/Technical Specifications, if made by AURA, will be made to the responsible and qualified bidder. However, AURA shall determine, in its own discretion, which Bid best meets the requirements and qualifications of the Scope of Work/Technical Specifications and Construction Contract and whether it is in the best interests of AURA to accept the Bid. Therefore, Bidder should ensure that all information requested is included in its Bid.

ARTICLE 12. TIME PERIOD FOR EVALUATION OF BIDS; REJECTION OF BIDS; IRREGULARITIES

12.1 AURA reserves the right to hold any or all Bids for a period of up to one hundred twenty (120) calendar days.

12.2 AURA shall have the right to take up to one hundred twenty (120) calendar days to evaluate the Bids submitted and to make a decision.

12.3 AURA reserves the right to accept or reject any or all Bids or any combination thereof, to withhold an award for any reason it may determine, or to waive any irregularities or informalities in the Bids or in the submission of Bids.

ARTICLE 13. FORM OF AGREEMENT

The form of agreement that will be used shall be a “Fixed Price Construction Agreement.” A template of the above mentioned contract and the terms and conditions incorporated by reference into said agreement may be found at AURA/NOIRLab Bid Opportunities webpage: <http://auracas.aura-astronomy.org/?q=node/103>. The final form of agreement presented to the Contractor selected to perform the work may vary from the template format attached hereto, depending on the Bid documents submitted by Contractor and other facts and circumstances deemed relevant by AURA.

ARTICLE 14. LAW

The laws of the state of Arizona shall govern the interpretation of these Bid Documents and the interpretation of the Fixed Price Construction Contract.

ARTICLE 15. DAVIS-BACON WAGE RATES

15.1 Bidders shall note that procurements of over \$2,000.00 for construction, alteration or repair are subject to the Davis-Bacon Act (40 U.S.C. 276a-276a-7), and that laborers or mechanics must be paid in accordance with the Wage Rates set forth in the current wage rate decision for building construction projects performed in Pima County, Arizona. A copy of the current wage rates for building construction in Pima County, Arizona is attached and appears in Section VII A.

Further, Davis Bacon also requires that companies that employ laborers and mechanics in building construction projects pay their mechanics and laborers at least weekly. Each Bidder, by submitting a Bid, certifies that: (i) it accepts the Davis Bacon wage rate set forth in Section VII A and will pay its mechanics and laborers the then current Davis Bacon wage rate for building construction in Pima County, Arizona, if selected to perform the work covered by this RFB; and (ii) it will pay its mechanics and laborers at least weekly.

15.2 The Davis-Bacon Act and Wage Determination material is found at: <http://www.gpo.gov/davisbacon/> and <http://www.wdol.gov/>.

15.3 Certified payroll reports must be submitted to the U.S. Department of Labor and a copy should be sent to the AURA Contracts Administrator, sabney@aura-astronomy.org.

ARTICLE 16. CONTRACTING WITH SMALL BUSINESSES, MINORITY-OWNED FIRMS AND WOMEN’S BUSINESS ENTERPRISES

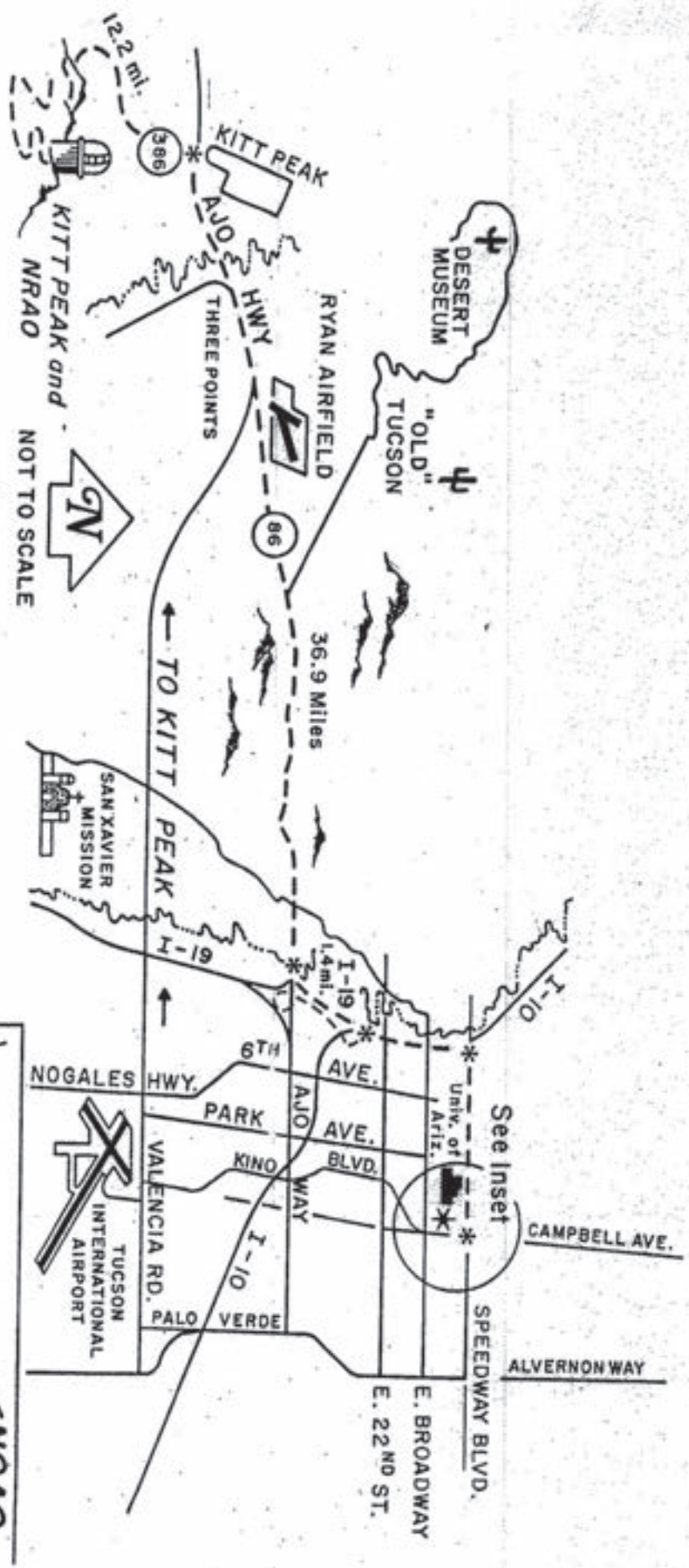
AURA encourages small businesses, minority owned firms and women’s business enterprises to bid on AURA jobs that they are qualified to bid on. Contractors seeking to bid on “Kitt Peak National Observatory – SOLIS Tower Demolition” project are encouraged to utilize, as much as possible, small businesses, minority owned firms and women’s business enterprises as subcontractors.

ARTICLE 17. AURA/NOIRLab BID OPPORTUNITIES WEB PAGE DISPLAYING BID OPPORTUNITIES; DUTY OF BIDDER TO CHECK WEB PAGE; PARTICIPATION IN PRE-BID MEETING AND PUBLICATION OF NAMES OF ATTENDEES WHO ATTENDED PRE-BID MEETINGS ON AURA/CAS BID OPPORTUNITIES WEB PAGE

AURA has established a Web page to display AURA bid opportunities. The link to the webpage is: <http://auracas.aura-astronomy.org/?q=node/103>

The AURA/CAS Bid Opportunities Web page will display all pending RFB, RFPs, etc., issued by the AURA/CAS as well as any amendments issued to such RFBs, RFP’s, etc. In addition, AURA shall display the name and contact information for any company which attends an AURA/NOIRLab pre-bid meeting on the AURA/CAS Bid Opportunities Web page for the purpose of apprising prospective subcontractors and the public which firms attended the pre-bid meeting(s). This will enable interested subcontractors to contact such firms for purposes of supplying subcontract prices. It shall be the Bidder’s obligation to check the AURA/CAS Bid Opportunities Web page to view and obtain copies of amendments and announcements related to the RFB they seek to bid on.

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----- LOCATION and ROUTE PLAN -----

NOAO TUCSON OFFICES TO KITT PEAK

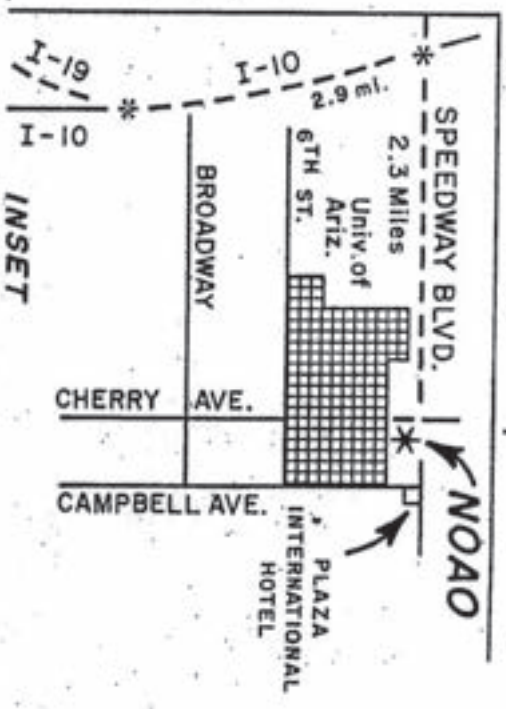
Also Alternate Routes from the Tucson International Airport to Kitt Peak

LEGEND

----- ROUTE TO FOLLOW

----- 36.9 mi. ----- APPROXIMATE MILEAGE

Total Distance Between Tucson Headquarters and Kitt Peak = 55.7 mi.



SECTION II

MANDATORY PRE-BID MEETING/SITE VISIT INFORMATION

There is a MANDATORY pre-bid/site visit meeting scheduled for this project. **To be eligible to bid on this project, the Bidder MUST attend this meeting.** This site visit is tentatively scheduled for **10:00 a.m., MST on Friday, February 10, 2023.** The meeting will be held at Kitt Peak within the confines of the Kitt Peak National Observatory.

In order to coordinate the site visit, interested bidders MUST notify Sherri Abney, the AURA Contracts Officer via email at sabney@aura-astronomy.org by **Friday, 2/3/23, noon MST.** Confirmation of attendance and number of attendees planned must be communicated so that we can plan for travel up to the summit and road restrictions due to the recent wildfire.

Due to the continued COVID concerns, AURA is practicing procedures suggested by the CDC to minimize exposure. These are outlined in the documents listed below. Masking, social distancing, etc. are contingent on current CDC Community Risk Levels.

AURA CEPP Version 5.0:

https://drive.google.com/drive/u/0/folders/1CgwTtOv5MXPgGXZ35kq_M7k6uEk9CVF9

In addition, the recent Contreras Fire has impacted the mountain environment. Hazardous road conditions and erosion are possible as is weather related summit evacuation. Please read the safety and logistics documents linked in the form below:

https://docs.google.com/forms/d/165BLLj94ybSGx9fYCvJoxPOLf7oe9qmhilcdss_BOww/edit?usp=drive_web.

Bidders attending the meeting are requested to park in the large parking lot at the Visitor's Center and assemble in front where directions will be given. Attendees will meet with KP personnel and the AURA contracts personnel for a meeting to discuss the scope of work and technical specifications. Attendees will then participate in a walk-through of the buildings involved in the project.

Suggestions: Please be sure to wear appropriate footwear for outdoor/indoor walking (walking shoes or hiking boots suggested). Some areas are NOT wheelchair accessible. A flashlight may be helpful in some areas. Feel free to bring a camera/cellphone to take pictures for reference. Temperatures are always much cooler at KP than in Tucson, so be prepared for a 10-20 degree difference.

AURA's Standards of Workplace Conduct Policy will be distributed and must be signed by each visitor prior to tour of the work site.

Section 3

Statement of Work

KPNO Fire Alarm System with install

Situation: KPNO current fire alarm system is mostly inoperable and is a standalone system. There is immediate need to replace the system which includes 14 buildings with an expandable emergency evacuation fire alarm system.

KPNO has a fully developed SOW with plans and specifications which must be strictly followed for the project (attached).

Locations for the new fire alarm system:

1. Fire & First Aid station (will be the central location for the main system).
2. Dorm 1
3. Dorm 2
4. Dorm 3
5. Dorm 4
6. House 1
7. House 2
8. House 3
9. House 4
10. House 5
11. House 6
12. Calypso
13. Admin
14. Dining Facility

SECTION 28 31 00

NETWORKED FIRE ALARM SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Expandable emergency evacuation fire alarm system.

1.2 REFERENCES

- A. Electrical Industries Association (EIA):
 1. RS-232-D – Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
 2. RS-485 – standard defining the electrical characteristics of drivers and receivers for use in balanced digital multipoint systems
- B. National Fire Protection Association (NFPA):
 1. NFPA 12 – Standard on Carbon Dioxide Extinguishing Systems.
 2. NFPA 13 – Installation of Sprinkler Systems.
 3. NFPA 15 – Standard for Water Spray Fixed Systems for Fire Protection.
 4. NFPA 16 – Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.
 5. NFPA 16A – Standard for the Installation of Closed Head Foam-Water Sprinkler Systems.
 6. NFPA 17 – Dry Chemical Extinguishing Systems
 7. NFPA 17A – Wet Chemical Extinguishing Systems
 8. NFPA 70 – National Electrical Code (NEC).
 9. NFPA 72 – National Fire Alarm Code.
 10. NFPA 2001 – Clean Agent Extinguishing Systems
 11. NFPA 90A – Standard for the Installation of Air Conditioning and Ventilating Systems.
 12. NFPA 101 – Life Safety Code.
 13. NFPA 750 – Standard on Water Mist Fire Protection Systems.
 14. NFPA 5000 – Building Construction and Safety Code.
- C. Underwriters Laboratories (UL):
 1. UL 268 – Standard for Smoke Detectors for Fire Alarm Signaling Systems.
 2. UL 8649th – Standard for Control Units and Accessories for Fire Alarm Systems.
 - a. UOJZ, Control Units, System.
 - b. SYZV Control Units, Releasing Device.
 - c. UOXX, Control Unit Accessories, System.
 3. UL 1971 – Standard for Signaling Devices for the Hearing Impaired.

1.4 SYSTEM DESCRIPTION

- A. A new intelligent reporting, Style 7 networked, fully peer-to-peer, microprocessor-controlled fire detection and notification system shall be installed in accordance with the specifications and as indicated on the Drawings.
- 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 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.
 - 2. Signaling Line Circuits (SLC) Serving Addressable Devices: Wired Class A.
 - 3. Initiation Device Circuits (IDC) Serving Non-addressable Devices Connected to Addressable Monitor Modules: Wired Class A
 - 4. Notification Appliance Circuits (NAC) Serving Strobes and Horns: Wired Class A.
 - 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 Control Panel: Not lost following primary power failure until alarm signal is processed and recorded.
 - 7. Network Node Communications:
 - a. Communicated between panels on single pair of copper wires or fiber optic cables.
 - b. To enhance system survivability, ability to operate on loss of Command Center, short or open of entire riser at Command Center shall be demonstrated at time of system acceptance testing.
 - c. Systems that are not capable of providing true Style 7 riser performance shall not be acceptable.
 - 8. Signaling Line Circuits (SLC):
 - a. Reside in remote panels with associated audio zones.
 - b. SLC modules shall operate in peer-to-peer fashion with all other panels in system.
 - c. On loss of Command Center, each remaining panel shall continue to communicate with the remainder of the system, including all SLC and control functions. Systems that provide a "Degraded" mode of operation upon loss of the Command Center or short in riser shall not be acceptable.
 - 9. NAC Circuits: Arranged such that there is a minimum of 1 audible device per fire alarm zone.
 - 10. Notification Appliance Circuits (NAC), and Control Equipment: Arranged such that loss of any 1 NAC circuit will not cause loss of any other NAC circuit in system.
 - 11. NAC Circuits:
 - a. Electrically supervised for open and short circuit conditions.
 - b. If short circuit exists on NAC circuit, it shall not be possible to activate that circuit.
- 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. Strobes flash synchronized continuously.
7. Audible devices sound continuous Temporal pattern until system is reset.

E. Fire Alarm System Functionality:

1. Provide complete, electrically supervised distributed, Style 7 networked analog/addressable fire alarm and control system, with analog initiating devices.
2. Fire Alarm System:
 - a. Incorporate the S3 Series multi-processor-based control panels and the RPT-E3 repeater modules communicating over a peer-to-peer token ring network with the capacity of up to 64 nodes.
3. Each ILI-MB-E3 or ILI95-MB-E3, SLC module: Incorporate 2 Signaling Line Circuits (SLC), with the capacity to support up to 159 analog addressable detectors and 159 addressable modules per SLC or support in Apollo mode with up to 126 detectors and modules per ILI95-MB-E3 SLC.
4. All data transmits over single pair of wires or fiber optic cable.
5. Each Network Node: Incorporate Boolean control-by-event programming, including as a minimum AND, OR, NOT, and Timer functions.
6. Control Panels: Capability to accept firmware upgrades via connection with laptop computer, without requirement of replacing microchips.
7. 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.
8. Each Network Node:
 - a. Capability of being programmed off-line using Windows-based software utilized by fire alarm system manufacturer. Capability of being downloaded by connecting the laptop computer into any other node in the 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.
9. 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.
10. 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.
12. Password Protection: Each system shall be provided with 4 levels of password protection with up to 16 passwords.

1.5 SUBMITTALS

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Include sufficient information, clearly presented, to determine compliance with the specifications and the Drawings.
- C. 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.
- D. 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.

E. 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.

F. 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.

G. 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 codes and standards:
 - a. NFPA 12.
 - b. NFPA 13.
 - c. NFPA 15.
 - d. NFPA 16.
 - e. NFPA 16A.
 - f. NFPA 17.
 - g. NFPA 17A.
 - h. NFPA 70.
 - i. NFPA 72.
 - j. NFPA 2001.
 - k. NFPA 90A.
 - l. NFPA 90B When smoke control is required by code.
 - m. NFPA 101.
 - n. NFPA 750.

- o. NFPA 5000.
 - 2. ADA: System shall conform to American with Disabilities Act (ADA).
 - B. To ensure reliability and complete compatibility, all items of fire alarm system, including control panels, power supplies, initiating devices, and notification appliances, shall be listed by Underwriters Laboratories Inc. (UL) and shall bear "UL" label.
 - C. Fire Alarm Control Panel Equipment: UL-listed under UL 864 Ninth Edition.
 - D. Equipment, Programming, and Installation Supervision:
 - 1. Provide services of approved Engineered systems distributor of Honeywell | Gamewell-FCI for equipment, programming, and installation supervision.
 - 2. Provide proof of factory training within 14 calendar days of award of the Contract.
 - E. Software Modifications:
 - 1. Provide services of Honeywell | Gamewell-FCI 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

- A. Coordinate the work of this Section with the existing systems installed in the buildings.

1.9 WARRANTY

- A. Warranty Period for System Equipment: 1 year from date of final acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Honeywell | Gamewell-FCI, Honeywell Fire, 12 Clintonville Road, Northford, Connecticut 06472. Phone (203) 484-7161. Fax (203) 484-7118. Website: www.gamewell-fci.com.
- B. References to the manufacturer's model numbers and other information are intended to establish minimum standards of performance, function, and quality. Equivalent equipment from Gamewell may be substituted for the specified equipment, as long as the minimum standards are met.
- C. Substitute equipment proposed as equal to equipment specified shall meet or exceed requirements of this section. For equipment other than Honeywell | Gamewell-FCI S3 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 along with a letter from engineering manager or product manager at factory that certifies information presented as either compliant or non-compliant including a detailed explanation of each paragraph identified as 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: Honeywell | Gamewell-FCI S3 Series Fire Alarm System.

2.3 CONTROL PANEL HARDWARE

- A. Intelligent Control Panel: Supply user interface, including LCD or touch-screen 1/4 VGA display Intelligent Loop Interface Modules (ILI-MB-E3), manual switching, Control Panel 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. 80-Character LCD Display (LCD-E3).
 - 4. Intelligent Loop Main Board Interface (ILI-MB-E3 or ILI95-MB-E3).
 - 5. Optional Intelligent Loop Supplemental Interface (ILI-S-E3 or ILI95-S-E3).
 - 6. DACT (DACT-E3).
 - 7. Network Repeater (RPT-E3) with fiber optic modules (FSL-E3 or FML-E3).
 - 9. Optional 1/4 VGA touch-screen display (NGA).
 - 10. Optional Auxiliary Switch Module (ASM-16).
- 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, 1 or more ILI-MB-E3 or ILI95-MB-E3, ILI-S-E3 or ILI95-S-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: 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 the Control Panel 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.
 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 24 hours with 15 minutes of alarm signaling at end of this 24-hour period, as required by NFPA 72, Local Systems.
- E. 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.
- F. Intelligent Loop Interface (ILI-MB-E3/ILI95-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 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. Each ILI-MB-E3's 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 driver becomes disabled, each remaining loop driver shall continue to communicate with remainder of network and maintain normal operation.
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 units 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 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. The Fire department shall be consulted as to authorized central station companies serving the 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 Command Center followed by extraction of history log from any loop driver location, including Command Center or Transponder.
 15. LEDs Indicator and Outputs: Each ILI-MB-E3 or ILI95-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, Class A power-limited.
 - b. 24 VDC resettable, 1 amp. maximum, Class A 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. Shall Automatically generate professionally formatted NFPA 72, NFPA 10, or Joint Commission Reports such as (GW-eVance Inspection Manager) A second technician will not be required at the fire panel during testing.
 - c. 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 159 analog sensors and 159 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. On-board synchronization of System Sensor, Wheelock and Gentex notification appliances.
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.
27. Permitted zone types shall be general zone, releasing zone, and special zone. Each output point (control module, panel circuit module) can support a list of up to eight zones including general zone, logic zone, releasing zone, and trouble zone. It shall be possible

for output points to be assigned to list general alarm. Non-Alarm or Supervisory points shall not activate the general alarm zone.

28. Multiple Agent Releasing Zones: The system shall support up to eight releasing zones to protect against eight independent hazards. Releasing zones shall provide up to three cross-zone and four abort options to satisfy any of the local jurisdiction requirements.

H. Auxiliary Switch Module (ASM-16):

1. Each ASM-16 has 16 programmable push-button switches.
2. Each push-button switch has 3 associated status LEDs (red, yellow, and green), configurable to indicate any combination of functions.
3. Flexible switch configurations to allow auxiliary functions.
4. An insertable label to identify function of each switch and LEDs combination.
5. Provide capability to communicate with up to 16 ASM-16 modules locally, or up to 3,000 feet from the Control Panel.

I. Addressable Node Expander (ANX):

1. Addressable Node Expander shall provide interconnection between the Fire Alarm Control Panel networks.
2. ANX-MR-FO (Addressable Node Expander Multi-Ring with Fiber Optic connectors) and ANX-MR-UTP (Addressable Node Expander Multi-Ring with Fiber Optic and Twisted Pair connectors) shall expand the E3 Series network from 64 nodes to 122 nodes. ANX-SR (Addressable Node Expander Single Ring) will function in single 64 node systems.
3. ANX shall provide an Ethernet Port for use in Systems Integration and for use with the Emergency Communication System (ECS) functions. The Ethernet port may also be used to communicate with a graphic interface software.

J. Network Repeater Module (RPT-E3):

1. Intelligent Network Interface shall provide interconnection and protection of remote INCC Command Centers and Transponders. Repeater shall regenerate and condition token passing, 625 K baud signal between units. Repeater shall be available in wire, or wire/fiber configurations as determined by field conditions.
2. Interface shall have jumper to allow selection of ground detection of wiring when used in wire mode. Interface shall have integral LEDs to display current status of board.
3. Fiber configurations shall use:
 - a. Multi-Mode ST-type connectors with a maximum attenuation of 8db with 62.5/125 micron cable.
 - b. Single-Mode LC-style connector with a maximum attenuation of 30db with 9/125 micron cable.

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.

2.6 SYSTEM PERIPHERALS - SYSTEM SENSOR VELOCITI

- 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 15) 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, 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. Intelligent Addressable Sounder base rated at 75 dBA minimum.
 - d. Form-C relay base rated 30 VDC, 2.0 A.
 - e. 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-L3R/ATD-L3R-IV): 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-PL3/ASD-PL3-IV): Intelligent photoelectric smoke detector shall be a Honeywell Gamewell-FCI model number ASD-PL3 or ASD-PL3-IV. Smoke detector shall be an addressable intelligent photoelectric smoke detector and shall connect with two wires to the fire alarm control panel signaling line circuit (SLC). The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.
- E. Intelligent Fire/Carbon Monoxide Detectors (MCS-COF3/MCS-COF3-IV):
 - 1. The detector shall be comprised of four sensing elements, including a photoelectric (light-scattering) particulate sensor, an electrochemical CO sensor, a daylight-filtered infrared (IR) sensor and solid state thermal sensor(s) rated at 135°F (57.2°C). The device shall be able to indicate distinct smoke and heat alarms.
 - 2. The advanced multi-criteria detection device shall include the ability to combine the signal of the photoelectric signal with other sensing elements in order to react quickly in the event of a fire situation. It shall also include the inherent ability to distinguish between a fire condition and a nuisance alarm condition. The detector shall be capable of selecting the appropriate sensitivity levels based on the environment type (office, manufacturing, kitchen, etc.) in which it is installed, and then have the ability to automatically change the setting as the environment changes.
 - 3. The CO detector component shall be capable of a functional gas test using a canned test agent to test the functionality of the CO sensing cell.
 - 4. The detector shall indicate CO trouble conditions, including six months of sensor life remaining and sensor life has expired. The detector shall indicate a combined signal for any of the following: low chamber trouble, thermistor trouble, CO self test failure, IR self test failure, and freeze warning
 - 5. The MCS-COF3 Fire/CO Detector shall be used with the B200S Intelligent Sounder Base.
- F. Intelligent Low Frequency Sounder Base (B200S-LF-WH/B200S-LF-IV):
 - 1. The B200S sounder base “listens in” to the SLC communication between the attached sensor head and the fire alarm control panel (FACP) to adopt the same address as the detector, but as a unique device type on the loop. The FACP can then be programmed to use that address to command an individual sounder or a group of sounders to activate. The command set from the panel can be programmed to the specific event, allowing selection of volume, tone, and group. In addition, the FACP will enable custom tone patterns.
 - 2. The sounder can be programmed to be silenced whenever a live page or active message is being played over the system.
- G. Intelligent Duct Smoke Detector Base (DNR, DNRW):
 - 1. In-Duct Smoke Detector Housing: Use ASD-PL3R/ASD-PL3R-IV 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 an (RTS151KEY) Remote test station accessory, designed to test a remotely located Intelligent Duct Smoke detector with remote alarm indicator.
 4. Each Detector: Install in either supply side or return side duct in accordance with local mechanical code.
 5. DST Sampling Tube
 - a. No tools needed for installation or removal
 - b. Installs/removes from front or back of detector
 - c. Available in 1 ft, 1.5ft, 3 ft, 5 ft, and 10 ft lengths
- H. 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.
- I. 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.
- J. Addressable Dry Contact Monitor Modules (AMM-2IF):
1. Provide to connect 2 supervised IDC zones 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 (101.6-mm) square, 2-1/8-inch (54-mm) deep electrical box.
 3. IDC Zones: Suitable for Style B operation.
 4. LEDs: Flash under normal conditions, indicating monitor module is operational and in regular communication with control panel.
- K. Addressable Two Input and Two Output Modules (AMM-2RIF):
1. Provide two isolated sets of Form-C contacts, which operate as a single pole double throw switch. The module shall allow the control panel to switch these contacts on command. The module shall not provide supervision for the notification appliance circuit (NAC). Module shall have both normally open and normally closed connections available for field wiring. Two input modules shall connect two supervised initiating device circuit (IDC) or zone of conventional alarm initiating devices (any normally open dry contact device) to the fire alarm control panel signaling line circuit (SLC) Loop.
 2. Mount in 4-inch (101.6-mm) square, 2-1/8-inch (54-mm) deep electrical box.
 3. IDC Zones: Suitable for Style B operation.
 4. LEDs: Four LEDs that are controlled by the panel to indicate status of each input and output. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off. Flash under normal conditions, indicating monitor module is operational and in regular communication with control panel.
- L. Addressable Dry Contact Monitor Modules (MMI-10F):

1. Provide to connect 10 supervised Style B IDC zones or 5 supervised Style D IDC zones of conventional alarm initiating devices (any N.O. dry contact device) to 1 of the fire alarm control panel SLCs.
 2. Mount in factory-supplied MBB-2 or MBB-6 enclosure.
 3. LEDs: Flash under normal conditions, indicating monitor module is operational and in regular communication with control panel.
- M. 2-Wire Detector Monitor Modules (AMM-4SF):
1. Provided to connect 1 supervised IDC zone of conventional 2-wire smoke detectors or alarm initiating devices (any N.O. dry contact device).
 2. Mount in 4-inch (101.6-mm) square, 2-1/8-inch (54-mm) deep electrical box or to optional surface-mounted back box.
 3. IDC Zone: Wired for Class A or B (Style D or Style B) operation.
 4. LEDs: Flash under normal conditions, indicating monitor module is operational and in regular communication with control panel.
- N. Addressable Control Modules (AOM-2SF):
1. Provide to supervise and control operation of 1 conventional NAC of compatible, 24-VDC powered, polarized audio/visual notification appliances or UL-listed polarized relays for fan shutdown and other auxiliary control functions.
 2. Mount in standard 4-inch (101.6-mm) square, 2-1/8-inch (54-mm) deep electrical box or to surface-mounted back box.
 3. Control Module NAC: Wire for Style Z or Style Y (Class A/B) with up to 1 amp of inductive signal or 2 amps of resistive signal operation. Relay coil shall be magnetically latched to reduce wiring connection requirements and to ensure 100 percent of all auxiliary relay or NACs shall be energized at same time on same pair of wires.
 4. Audio/Visual Power: Provide by separate supervised power circuit from main fire alarm control panel or from supervised, UL-listed remote power supply.
- O. Addressable Relay Modules (AOM-2RF):
1. Available for HVAC control and other building functions. Relay shall have 2 Form C sets of contacts that operate in tandem and are rated for a minimum of 2.0 amps resistive or 1.0 amps inductive. Relay coil shall be magnetically latched to reduce wiring connection requirements and to ensure 100 percent of all auxiliary relay or NACs shall be energized at same time on same pair of wires.
 2. Mount in standard 4-inch (101.6-mm) square, 2-1/8-inch (54-mm) deep electrical box or to surface-mounted back box.
- P. Isolator Modules (M500X):
1. Provide to automatically isolate wire-to-wire short circuits on SLC Class A or Class B branch. Isolator module shall limit number of modules or detectors that may be rendered inoperative by short-circuit fault on SLC loop segment or branch. At least 1 isolator module shall be provided for each floor or protected zone of building. No more than 25 devices shall be connected to 1 isolator module.
 2. If wire-to-wire short occurs, isolator module shall automatically open-circuit (disconnect) SLC. When short-circuit condition is corrected, isolator module shall automatically reconnect isolated section.
 3. Does not require address-setting, and its operations shall be totally automatic. Not necessary to replace or reset isolator module after normal operation.
 4. Mount in standard 4-inch (101.6-mm) deep electrical box or in surface-mounted back box.

5. Single LED: Flash to indicate isolator is operational and illuminate steadily to indicate short-circuit condition has been detected and isolated.

2.8 SYSTEM PERIPHERALS – E3 SERIES

- A. Horns:
 1. Operate on 24 VDC or with field-selectable outputs.
 2. Have two selectable tone options of temporal 3 and non-temporal continuous pattern.
 3. Have at least 2 audibility options
- B. 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.
- C. Horn/Strobes:
 1. Operate on 24 VDC
 2. Have two selectable tone options of temporal 3 and non-temporal continuous pattern.
 3. Have at least 2 audibility options
 4. Maximum Pulse Duration: 0.2 second.
 5. Strobe Intensity: UL 1971.
 6. Flash Rate: UL 1971.
 7. 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, manufacturer's instructions, and as indicated on the Drawings.
- 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 as indicated on the Drawings. Install not less than 42 inches, nor 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 Control Panel.
 - 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 installation, supervision, and operation of intelligent smoke detectors.
 - 11. Introduce on system each of the alarm conditions that system is required to detect. Verify proper receipt and proper processing of signal at Control Panel 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, 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 main Control Panel 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.
 - 5. 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.

6. 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.

END OF SECTION

SECTION IV.

VENDOR'S/CONTRACTOR'S BID DOCUMENTS
FIXED PRICE CONSTRUCTION SERVICES CONTRACT

DATE: _____

Project: "KPNO Fire Alarm Project"

TO: Procurement Office
AURA/CAS
Attn: Sherri Abney
950 N. Cherry Avenue
Tucson, AZ 85721
Email: sabney@aura-astronomy.org

Via mail:

AURA/CAS
Procurement Office
950 N. Cherry Ave.
Tucson, AZ 85719

1. By submitting this Bid, the Undersigned accepts all of the terms and conditions of the Bidding Documents as defined in 1.2 of the Instructions to Bidders.
2. In compliance with AURA's Request for Bid and Instructions to Bidders, the Undersigned hereby proposes to furnish all labor, materials, equipment and supplies to perform the work for AURA's Project, entitled, "**KPNO Fire Alarm Project**" in accordance with the Scope of Work/Technical Specifications, and pertinent Fixed Price Construction Services Contract Documents.
3. The Undersigned hereby specifies, in accordance with Article 7, Completion Time, of Instructions to Bidders, that the work shall be begin within _____ **calendar days** after signing the Fixed Price Construction Services Agreement and receiving a written notice to proceed.
4. In accordance with the above completion schedule (Paragraph 3) and attached scope of work and technical specifications, the Undersigned hereby proposes to accomplish the work described above ANNUALLY for the TOTAL of:

Title of Project: "**KPNO Fire Alarm Project**"

_____ DOLLARS (\$ _____)
Total cost

5. To facilitate the bid review process, please provide below a general cost breakdown of the bid total in Paragraph 4 above. Note that costs may include both material and labor, or can be separated into cost for material and cost for labor. If an item that is listed is not included in this project, please enter a value of zero for this category.

If more room is needed, a separate page may be used for the cost breakdown.

6. The cost of the bid guaranty (if required) is:
_____ DOLLARS (\$_____).
7. The cost of the performance bond (if required) is:
_____ DOLLARS (\$_____).
8. The cost of the payment bond (if required) is:
_____ DOLLARS (\$_____).
9. The amount allocated to taxes is:
_____ DOLLARS (\$_____).

(Legal Name of individual, firm or Corporation Bidding)

(Complete Business Address)

(Signature of Authorized Representative)

(Title)

Qualification Package

ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY, INC.

CONTRACTOR/CONSULTANT QUALIFICATIONS

This form is used to obtain information from Contractors/Consultants about their qualifications. The information that is used to evaluate them is taken from this form as well as from other sources, including but not limited to the proposal submitted by Contractor/Consultant, performance evaluations, any additional data requested by the Association of Universities for Research in Astronomy, Inc., outside research and interviews with the most highly qualified Contractors/Consultants and their references.

GENERAL INSTRUCTIONS

This form presents the qualifications for a specific contract. Carefully comply with instructions when preparing and submitting this form. Be as concise as possible and provide all information pertaining to this project and contract.

DEFINITIONS

Association of Universities for Research in Astronomy, Inc. (AURA): AURA is a consortium of universities, and educational and other non-profit institutions that operates world-class astronomical observatories that AURA terms "centers." AURA's members are 42 U.S. institutions and 5 international affiliates. AURA views itself as acting on behalf of the science communities that are served by its centers, and as a trustee and advocate for the centers' missions.

Contractor/Consultant: (Contractor): A company or individual providing goods and/or services required for a program or project.

Discipline: Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.

Key Personnel: Individuals who will have major contract responsibilities demonstrated through unusual or unique expertise, e.g. architects, engineers.

The NSF's National Optical-Infrared Astronomy Research Laboratory (NOIRLab): The National Science Foundations (NSF's) National Optical-Infrared Astronomy Research Laboratory (hereinafter "NOIRLab") main facilities are located at 950 North Cherry Ave., Tucson, AZ 85719.

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SPECIFIC INSTRUCTIONS

Contract-Specific Qualifications

Section A. Contract Information.

Contractor Point of Contact.

1 - 5. Name, Title, Name of Contractor, Telephone Number, Fax (Facsimile) Number and E-mail (Electronic Mail) Address. Provide information for a representative of the contractor that AURA may contact for additional information.

Section B. Sub-Contractor Information.

6 - 8. List any sub-contractors (if applicable). Provide Company name, address, and role in this contract. Then provide the firm's name, full mailing address, and a brief description of the role of each firm's performance activities in this contract. The named subcontractors and outside associates or consultants must be used. Any changes warrant approval by the AURA/NOIRLab contracting officer. If needed, attach an additional sheet in the same format as Section C.

Section C. Business References

Section D. Representations and Certifications

The Contractor is requested to check the appropriate boxes making the Representations and Certifications of the project a formal part of its pre-qualification. Failure to provide this information will prevent your company from being pre-qualified.

9. Small Business and Small Disadvantaged Business Contracting Program. AURA/NOIRLab maintains a Small Business and Small Disadvantaged Business Contracting Program. Check Business Size as Small or Large as defined. Check as many that apply under the Business Classification. Check one under Business Status, for IRS reporting requirements.

10. Identification Numbers. Enter appropriate D-U-N-S Number and Federal Employee Identification Number and (Central Contractor Registration Number) (or Social Security Number, if appropriate).

Section E. Debarment/Suspension Status

The Contractor is required to read and certify the understanding of the debarment procedure and process.

11-12. Signature and Date: Signature and Date of an authorized representative attests that the information provided is current and factual.

13-14. Name, Title, and Address.

Section F. Byrd Anti-Lobbying Amendment Certification

The Contractor is required to read and certify that it has not used federal appropriated funds to pay anyone for influencing an agency or a member or employee of Congress in connection with the award of any federal contracts, grants, loans or agreements.

15-17. Signature, Date and Title: Signature and title of an authorized representative who certifies to the truthfulness of the statements set forth therein.

Section G. Qualification of Corporate Signature

Signature of the qualified person authorized, empowered, and directed on behalf of the Contractor to make and execute bids, offers, and contracts is required.

18-19. Signature and Date: Signature and Date of Contractor's officer to attest that the officer signing the Bid Documents is authorized to make and execute bids, offers, and contracts binding upon this corporation for the offer and sale of goods and/or services by this corporation in the course of its business in an amount specified in the Contractor's Bid Document.

20-21. Name, Title, and Address.

Section H. Qualification of Limited Liability Company Signature

Signature of the qualified person authorized, empowered, and directed on behalf of the Contractor to make and execute bids, offers, and contracts is required.

22-23. Signature and Date: Signature and Date: Signature and Date of Contractor's member/manager/officer to attest that the individual signing the Bid Documents is authorized to make and execute bids, offers, and contracts binding upon this limited liability company for the offer and sale of goods and/or services by this limited liability company in the course of its business in an amount specified in the Contractor's Bid Document.

24-25. Name, Title, and Address.

Section I. Certification that no Conflict of Interest Exists.

The Contractor is required to read and certify that no organizational conflict of interest exists as defined in the certification form.

26-28 Signature of authorized representative, date and printed name of authorized representative and title of authorized representative.

Section J. Additional Information

Use this section to provide additional information specifically requested or to address selection criteria not covered by the information provided.

Section K. Declarations

29. Signature and Date: Signature and Date of Contractor's officer to attest that the information contained in the Bid Documents is true and correct and to confirm that the Contractor understands its statements in the Bid Documents are subject to investigation and that dishonest answers may be grounds for disqualification and may subject the Contractor and its representative to criminal and civil liability.

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Section A. Contract Information

Contractor Point of Contact

1. Name and Title: _____
2. Name of company: _____
3. Telephone number: _____
4. Fax number: _____
5. E-mail address: _____

Section B. Sub-contractor (ONLY if applicable)

6. Company Name: _____
7. Address: _____
8. Role in this contract: _____

Section C. BUSINESS REFERENCES:

On a separate sheet of paper, list five customers for whom your business is currently providing the same or similar services as those covered in the scope of work/technical specifications described in Section III of this RFB. Include all information requested below.

Please provide: the name of the business, the point of contact name and email contact information, the address, their phone and fax numbers and the type of project completed for the references:

You may include any other information or documentation that may assist AURA in evaluating your qualifications.

D. REPRESENTATIONS AND CERTIFICATIONS

The contractor, by checking the appropriate boxes makes the following Representations and Certifications as a part of its bid (proposal). Submitted in response to the request identified above:

9. Small Business/Small Disadvantaged Business Contracting Program

AURA/NOIRLab maintains a “Small Business” and a “Small Disadvantaged Business” Contracting Program. Please check the appropriate circles below.

Business Size (check one)

- Small A domestic concern that is independently owned and operated, is not dominant in the field of its operations, qualifies under the criteria covering annual receipts set forth in Section 3 of the Small Business Act and does not employ more than 500 employees.
- Large A domestic concern which, including domestic and foreign divisions and affiliates, normally employs 500 or more persons, is independently or publicly owned or controlled and operated, and which may be division of another domestic or foreign concern.

Business Classification (check as many as are applicable)

- Minority 51% of business is owned by one or more socially and economically-disadvantaged individuals and whose management and daily business operations are controlled by one or more of such individuals.
- Socially and economically disadvantaged individuals including, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Asian-Indian Americans, and other minorities, or any other individual found to be disadvantages pursuant to Section 8(a) of the Small Business Act.
- Native Americans include American Indians, Eskimos, Aleuts, and Native Hawaiians. Asian-Pacific Americans include United States citizens whose origins are Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan.
- For assistance in determining your business size and socially and economically disadvantaged status, contact the nearest office of the Small Business Administration.
- Women-Owned A business that is at least 51% owned, controlled and operated by a woman or women.
- Note:** “Controlled” is defined as exercising the power to make policy decisions. “Operated” is defined as actively involved in the day-to-day management.

- Non-Profit A business or organization that has received non-profit status under IRS Regulation 501(c)(3).
- Public An agency of the Federal or State Government Sector or a municipality.
- Sheltered A sheltered workshop or other equivalent business basically employing the handicapped.
- Handicapped A business that is owned, controlled, and operated by a handicapped person(s).
- Foreign A concern which is not incorporated in the United States or an unincorporated concern having its principal place of business outside the United States.

Business Status (check one) – For IRS Reporting Requirements

- Corporation A business entity that is registered with a state in the United States as a corporation, including non-profit corporations but excluding professional corporations.
- Other An individual, or other business entity, that is not a registered corporation. This includes limited liability companies, partnerships, limited partnerships, limited liability partnerships, independent contractors, and the like.

10. Indicate your:

D-U-N-S No. _____
and

Federal Emp. ID No. ____ - _____
and

SAM Registration (Yes or No) _____

WARNING: Failure to provide this information will prevent Contractor from being qualified and being considered for the work covered by this RFB.

E. DEBARMENT/SUSPENSION STATUS –

Contractor certifies to the best of its knowledge and belief that it and its principals:

(a) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from a covered transaction by any Federal department or agency;

(b) have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state or local) transaction or contract under a public transaction; violation of Federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, State or local) with commission of any of the offenses enumerated in paragraph b of this certification; and

(d) have not within a three-year period preceding this proposal for bid had one or more public transactions (Federal, state or local) terminated for cause or default.

The Contractor agrees to provide immediate notice to the AURA/NOIRLab Contracting Officer in the event of being suspended, debarred, or declared ineligible by any department or Federal Agency, or upon receipt of a notice of proposed debarment that is received after the submission of the bid or offer, but prior to the award of the purchase order or contract.

CERTIFICATION

The Contractor hereby certifies that he or she has read the above Debarment/Suspension Status requirements and that he or she understands and will comply with these requirements.

Please advise this facility as soon as possible when the status of your company changes from that indicated above.

11. SIGNATURE OF AUTHORIZED REPRESENTATIVE:

12. DATE SIGNED: _____

13. NAME AND TITLE OF SIGNER (PRINT OR TYPE):

14. ADDRESS: _____

F. BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION (31 U.S.C. §1352)

(To be signed with each bid or offer exceeding \$100,000.00)

Contractor certifies, to the best of its knowledge and belief that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying Activities," in accordance with its instructions to the [as amended by "Government wide Guidance for New Restrictions on Lobbying, "61 Fed. Reg. 1413 (1/19/96). Note Language in paragraph (2) herein has been modified in accordance with Section 10 of the lobbying disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S. C. 1601 *et seq.*)].

(3) Contractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

CERTIFICATION

Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, contractor understands and agrees that the provisions of 31 U.S.C. A 3801 *et seq.*, apply to this certification and disclosure, if any.

15. SIGNATURE OF AUTHORIZED REPRESENTATIVE:

16. DATE SIGNED:

17. NAME AND TITLE OF SIGNER (PRINT OR TYPE):

G. QUALIFICATION OF CORPORATE SIGNATURE

(To be completed if Contractor is a corporation.)

_____, incorporated in the
(Name of Corporation)

State of _____.

RESOLVED THAT:

_____, _____
(Name) (Title)

of this corporation is hereby authorized, empowered, and directed, for and on behalf of this corporation and its corporate name, to make and execute bids, offers, and contracts binding upon this corporation for the offer and sale of goods and/or services by this corporation in the course of its business in an amount up to:

_____ DOLLARS (\$_____)

CERTIFICATION

I hereby certify that I am a/the duly elected and qualified _____, of the above named corporation, that the forgoing is a true and correct statement of a resolution adopted at a meeting of the Board of Directors of said corporation, and that the foregoing resolution is in full force and effect, and has not been withdrawn, repealed, amended, or canceled.

IN WITNESS WHEREOF I have hereto set my hand on behalf of said corporation.

18. SIGNATURE OF OFFICER: _____

19. DATE SIGNED: _____

20. NAME AND TITLE OF SIGNER (PRINT OR TYPE):

21. ADDRESS: _____

H. QUALIFICATION OF LIMITED LIABILITY COMPANY SIGNATURE

(To be completed if Contractor is a limited liability company.)

_____, organized in the
(Name of Limited Liability Company)

State of _____.

RESOLVED THAT:

_____, _____
(Name) (Title)

of this limited liability company is hereby authorized, empowered, and directed, for and on behalf of this limited liability company and its limited liability name, to make and execute bids, offers, and contracts binding upon this limited liability company for the offer and sale of goods and/or services by this limited liability company in the course of its business in an amount up to:

_____ DOLLARS (\$_____)

CERTIFICATION

I hereby certify that I am (i) a member or (ii) a/the duly elected and qualified/appointed _____, of the above named limited liability company, that the forgoing is a true and correct statement of a resolution adopted at a meeting of the members/managers of said limited liability company, and that the foregoing resolution is in full force and effect, and has not been withdrawn, repealed, amended, or canceled.

IN WITNESS WHEREOF, I have hereto set my hand on behalf of said limited liability company.

22. SIGNATURE OF MEMBER/MANAGER/OFFICER: _____

23. DATE SIGNED: _____

24. NAME AND TITLE OF SIGNER (PRINT OR TYPE):

25. ADDRESS: _____

I. CONFLICTS OF INTEREST CERTIFICATION

(a) Contractor warrants that to the best of its knowledge and belief, and except as otherwise disclosed, it does not have any organizational conflict of interest which is defined as a situation in which the nature of work under a proposed contract and the prospective contractor’s organizational, financial, contractual or other interest are such that:

- (i) award of the contract may result in or be the result of an unfair competitive advantage;
- (ii) the Contractor’s objectivity in performing the contract work may be impaired; or
- (iii) that the Contractor has disclosed all relevant information and requested AURA to make a determination with respect to this Contract.

(b) Contractor agrees that if, after award, it discovers an organizational conflict of interest with respect to this Contract, it shall make an immediate and full disclosure in writing to the AURA Contracts Officer which shall include a description of the action which the Contractor has taken or intends to take to eliminate or neutralize the conflict. The AURA Contracts Officer may, however, terminate the contract for the convenience of AURA, if it would be in the best interests of AURA to do so.

(c) In the event the Contractor was aware of an organizational conflict of interest before the award of this contract and intentionally did not disclose the conflict to the AURA Contracts Officer, the Contracts Officer may terminate the Contract for default.

(d) Contractor shall require a conflict of interest disclosure or representation from subcontractors and consultants who may be in a position to influence the advice or assistance rendered to AURA and shall include any necessary provisions to eliminate or neutralize conflicts of interest in such consultant agreements or subcontracts involving performance or work under this Contract.

I declare under penalty of perjury that all statements and information contained in this document and any accompanying documents are true and correct, with full knowledge that all statements made in this document and any accompanying documents are subject to investigation and that any false or dishonest answer to any question may be grounds for disqualification from this solicitation or termination of any award and expose me and the represented organization to both civil and criminal liability.

26. _____
Signature of Authorized Officer/Member/Representative

27. _____
Printed Name and Title

28. Date: _____

J. ADDITIONAL INFORMATION

PROVIDE ANY ADDITIONAL INFORMATION AS REQUESTED. ATTACH ADDITIONAL SHEETS AS NEEDED.

K. DECLARATION

29. I declare under penalty of perjury that all statements and information contained in this document and any accompanying documents are true and correct, with full knowledge that all statements made in this document any accompanying documents are subject to investigation and that any false or dishonest answer to any question may be grounds for disqualification from this solicitation and expose me and the represented organization to both civil and criminal liability.

SIGNATURE OF AUTHORIZED REPRESENTATIVE

Date

Print Name