Date: December 3, 2025 **DOCUMENT 00 91 13**

ADDENDUM No. 3 TO THE CONTRACT DOCUMENTS

Bid Due Date – December 10, 2025

OES SECURITY UPGRADES
GOVERNOR'S OFFICE OF EMERGENCY SERVICES
MATHER, SACRAMENTO COUNTY, CALIFORNIA

PROJECT NO. 000000000009324

ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON BID FORM AND
REVISE THE CONTRACT DOCUMENTS AS FOLLOWS:

PROJECT MANUAL

PROCUREMENT AND CONTRACTING REQUIREMENTS

1. DOCUMENT 00 01 10 TABLE OF CONTENTS

   REMOVE Section 00 01 20 Table of Contents
   AND ADD Section 00 01 20 Table of Contents Addendum No. 3, dated December 3, 2025, making the following changes:

   CHANGE Table of Contents to include Section 27 05 26, Section 28 13 00, and Section 28 13 53.

SPECIFICATIONS

2. DIVISION 27 – COMMUNICATIONS

   ADD Section 27 05 26 Grounding and Bonding For Communications Systems Addendum 3, dated December 3, 2025.

3. DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

   ADD Section 28 13 00 Access Control Addendum 3, dated December 3, 2025.

   ADD Section 28 13 53 IP Network Compatible Intercom Addendum 3, dated December 3, 2025.

END OF ADDENDUM NO. 2

ATTACHMENTS:
DOCUMENT 00 01 10 TABLE OF CONTENTS, PAGES 1 THROUGH 5
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SECTION 28 13 00 ACCESS CONTROL, PAGES 1 THROUGH 8
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SECTION 27 05 26

GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Grounding conductors.
2. Grounding connectors.
3. Grounding busbars.
4. Grounding labeling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. As-Built Data: Plans showing as-built locations of grounding and bonding infrastructure, including the following:
1. BCT, TMGB, TGBs, and routing of their bonding conductors.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.

1. Installation Supervision: Installation shall be under the direct supervision of ITS Technician, who shall be present at all times when Work of this Section is performed at Project site.
2. Field Inspector: Currently registered by BICSI as a designer RCDD to perform the on-site inspection.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

C. Comply with TIA-607-B.

2.2 CONDUCTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Harger Lightning & Grounding.
2. Panduit Corp.
3. TE Connectivity Ltd.

B. Comply with UL 486A-486B.

C. Insulated Conductors: Stranded copper wire, green or green with yellow stripe insulation, insulated for 600 V, and complying with UL 83.

1. Ground wire for custom-length equipment ground jumpers shall be No. 6 AWG, 19-strand, UL-listed, Type THHN wire.

D. Bare Copper Conductors:

1. Solid Conductors: ASTM B3.
2. Stranded Conductors: ASTM B8.
3. Tinned Conductors: ASTM B33.
4. Bonding Cable: 28 kcmils, 14 strands of No. 17 AWG conductor, and 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Tinned-copper tape, braided conductors terminated with two-hole copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.3 CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Chatsworth Products, Inc.
2. Harger Lightning & Grounding.
3. Panduit Corp.

B. Irreversible connectors listed for the purpose. Listed by an NRTL as complying with NFPA 70 for specific types, sizes, and combinations of conductors and other items connected. Comply with UL 486A-486B.

C. Compression Wire Connectors: Crimp-and-compress connectors that bond to the conductor when the connector is compressed around the conductor. Comply with UL 467.

1. Electroplated tinned copper, C and H shaped.

D. Busbar Connectors: Cast silicon bronze, solderless compression-type, mechanical connector; with a long barrel and two holes spaced on 5/8- or 1-inch centers for a two-bolt connection to the busbar.

2.4 GROUNDING BUSBARS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Chatsworth Products, Inc.
2. Harger Lightning & Grounding.
3. Panduit Corp.

B. TGB: Predrilled rectangular bars of hard-drawn solid copper, 1/4 by 2 inches in cross section, length as indicated on Drawings. The busbar shall be for wall mounting, shall be NRTL listed as complying with UL 467, and shall comply with TIA-607-B.

1. Predrilling shall be with holes for use with lugs specified in this Section.
2. Mounting Hardware: Stand-off brackets that provide at least a 2-inch clearance to access the rear of the busbar. Brackets and bolts shall be stainless steel.
3. Stand-off insulators for mounting shall be Lexan or PVC. Comply with UL 891 for use in 600-V switchboards, impulse tested at 5000 V.

C. Rack and Cabinet Grounding Busbars: Rectangular bars of hard-drawn solid copper, accepting conductors ranging from No. 14 to No. 2/0 AWG, NRTL listed as complying with UL 467, and complying with TIA-607-B. Predrilling shall be with holes for use with lugs specified in this Section.

1. Cabinet-Mounted Busbar: Terminal block, with stainless-steel or copper-plated hardware for attachment to the cabinet.
2. Rack-Mounted Horizontal Busbar: Designed for mounting in 19- or 23-inch equipment racks. Include a copper splice bar for transitioning to an adjoining rack, and stainless-steel or copper-plated hardware for attachment to the rack.
3. Rack-Mounted Vertical Busbar: 72 or 36 inches long, with stainless-steel or copper-plated hardware for attachment to the rack.

2.5 IDENTIFICATION

A. Comply with requirements for identification products in Section 27 05 53 "Identification for Communications Systems."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the ac grounding electrode system and equipment grounding for compliance with requirements for maximum ground-resistance level and other conditions affecting performance of grounding and bonding of the electrical system.

B. Inspect the test results of the ac grounding system measured at the point of BCT connection.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with connection of the BCT only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Bonding shall include the ac utility power service entrance, the communications cable entrance, and the grounding electrode system. The bonding of these elements shall form a loop so that each element is connected to at least two others.

B. Comply with NECA 1.

C. Comply with TIA-607-B.

3.3 APPLICATION

A. Conductors: Install solid conductor for No. 14 AWG and smaller and stranded conductors for No. 12 AWG and larger unless otherwise indicated.

1. The bonding conductors between the TGB and structural steel of steel-frame buildings shall not be smaller than No. 6 AWG.

B. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Connections to Structural Steel: Welded connectors.

C. Conductor Support:

1. Secure grounding and bonding conductors at intervals of not less than 36 inches.

D. Grounding and Bonding Conductors:

1. Install in the straightest and shortest route between the origination and termination point, and no longer than required. The bend radius shall not be smaller than eight times the diameter of the conductor. No one bend may exceed 90 degrees.
2. Install without splices.
3. Support at not more than 36-inch intervals.
4. Install grounding and bonding conductors in 3/4-inch PVC conduit until conduit enters a telecommunications room. The grounding and bonding conductor pathway through a plenum shall be in EMT. Conductors shall not be installed in EMT unless otherwise indicated.

    a. If a grounding and bonding conductor is installed in ferrous metallic conduit, bond the conductor to the conduit using a grounding bushing that complies with requirements in Section 27 05 28 "Pathways for Communications Systems," and bond both ends of the conduit to a TGB.

3.4 GROUNDING BUSBARS

A. Indicate locations of grounding busbars on Drawings. Install busbars horizontally, on insulated spacers 2 inches minimum from wall, 12 inches above finished floor unless otherwise indicated.

B. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

3.5 CONNECTIONS

A. Bond metallic equipment in a telecommunications equipment room to the grounding busbar in that room, using equipment grounding conductors not smaller than No. 6 AWG.

B. Stacking of conductors under a single bolt is not permitted when connecting to busbars.

C. Assemble the wire connector to the conductor, complying with manufacturer's written instructions and as follows:

1. Use crimping tool and the die specific to the connector.
2. Pretwist the conductor.
3. Apply an antioxidant compound to all bolted and compression connections.

D. Interconnections: Interconnect all TGBs with the TMGB with the telecommunications backbone conductor. If more than one TMGB is installed, interconnect TMGBs using the grounding equalizer conductor. The telecommunications backbone conductor and grounding equalizer conductor size shall not be less than 2 kcmils/linear foot of conductor length, up to a maximum size of No. 3/0 AWG unless otherwise indicated.

E. Telecommunications Enclosures and Equipment Racks: Bond metallic components of enclosures to the telecommunications bonding and grounding system. Install vertically mounted rack grounding busbar unless the enclosure and rack are manufactured with the busbar. Bond the equipment grounding busbar to the TGB No. 2 AWG bonding conductors.

F. Electrical Power Panelboards: Where an electrical panelboard for telecommunications equipment is located in the same room or space, bond each TGB to the ground bar of the panelboard.

G. Shielded Cable: Bond the shield of shielded cable to the TGB in communications rooms and spaces. Comply with TIA-568-C.1 and TIA-568-C.2 when grounding shielded balanced twisted-pair cables.

H. Rack- and Cabinet-Mounted Equipment: Bond powered equipment chassis to the cabinet or rack grounding bar. Power connection shall comply with NFPA 70; the equipment grounding conductor in the power cord of cord- and plug-connected equipment shall be considered as a supplement to bonding requirements in this Section.

I. Access Floors: Bond all metal parts of access floors to the TGB.

3.6 IDENTIFICATION

A. Labels shall be preprinted or computer-printed type.
   1. Label TGB(s) with "fs-TGB," where "fs" is the telecommunications space identifier for the space containing the TGB.
   2. Label the BCT and each telecommunications backbone conductor at its attachment point: "WARNING! TELECOMMUNICATIONS BONDING CONDUCTOR. DO NOT REMOVE OR DISCONNECT!"

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

   1. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
   2. Test the bonding connections of the system using an ac earth ground-resistance tester, taking two-point bonding measurements in each telecommunications equipment room containing a TMGB and a TGB and using the process recommended by BICSI TDMM. Conduct tests with the facility in operation.

      a. Measure the resistance between the busbar and the nearest available grounding electrode. The maximum acceptable value of this bonding resistance is 100 milliohms.

3. Test for ground loop currents using a digital clamp-on ammeter, with a full-scale of not more than 10 A, displaying current in increments of 0.01 A at an accuracy of plus/minus 2.0 percent.

    a. With the grounding infrastructure completed and the communications system electronics operating, measure the current in every conductor connected to the TMGB and in each TGB. Maximum acceptable ac current level is 1 A.

C. Excessive Ground Resistance: If resistance to ground at the BCT exceeds 5 ohms, notify Architect promptly and include recommendations to reduce ground resistance.

D. Grounding system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 27 05 26

SECTION 28 13 00

ACCESS CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Access Control:

a. Regulating access through automatic vehicular barrier gates
b. Credential card readers.

1.2 DEFINITIONS

A. CCTV: Closed-circuit television.

B. LAN: Local area network.

C. PDF: Portable Document Format. The file format used by the Acrobat document-exchange-system software from Adobe.

D. ROM: Read-only memory. ROM data are maintained through losses of power.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Reference each product to a location on Drawings. Test and evaluation data presented in Product Data shall comply with SIA BIO-01.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Diagrams for cable management system.

2. System labeling schedules, including electronic copy of labeling schedules that are part of the cable and asset identification system of the software specified in Parts 2 and 3.

3. Wiring Diagrams. For power, signal, and control wiring. Show typical wiring schematics including the following:

a. Complete access control system schematic showing the interconnection of each sub-devices/equipment. Include catalog and model numbers.
b. Description of sequence of operation.

c. POE switches.
d. Patch cords.
e. Patch panels.

4. Cable Administration Drawings: As specified in "Identification" Article.

C. Qualifications: Documentation certifying that the device and service provider is a Software House authorized reseller, installer and servicer, proficient in the installation and programming of devices used with C-Cure 9000 Software systems.

D. Product Schedules.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For security system to include in emergency, operation, and maintenance manuals. Include the following:

1. Hard copies of manufacturer's specification sheets, operating specifications, design guides, user's guides for software and hardware, and PDF files on CD-ROM of the hard-copy submittal.

2. Warranty and contact information.

3. Provide two hard copies to be kept on-site complete with tabs and properly bound.

4. Provide digital copy (in PDF format).

B. System Warranty: 2 years (starting at the acceptance by the State of the completed project).

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

1. Cable installer must have on staff a registered communication distribution designer certified by Building Industry Consulting Service International.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC 2022, by a qualified testing agency, and marked for intended location and application.

C. Comply with CEC 2022, "National Electrical Code."

D. Comply with SIA DC-01, SIA DC-03, and SIA DC-07.

1.7 DELIVERY, STORAGE, AND HANDLING

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. HID Global, Iclass SE R90, or equal.

2. Software House, Tyco International

3. Bosch

4. Or Equal

B. Items shown are basis of design, and any deviation from such items will be the sole responsibility of the contractor. The contractor shall be responsible for confirming the proper operation of any/all substitutions with existing Access Control system located at Agency Headquarters.

C. Access Control and Alarm Monitoring System

1. Manufacturer's catalog and system numbers of equipment listed in this specification indicate type, quality, and functions of the equipment required, and represent the minimum acceptable standards. Provide all compatible parts to match base-building system.

2. Wire and Cable

a. Contractor shall follow the manufacturers' recommendation for cabling. Wire and cable sizes, number of conductors, shielding, or other data listed in this specification or shown on Drawings are a guide to the correct product required to achieve a working system and represent minimum acceptable equipment.
b. Cables are to be shielded as necessary and as shown on Drawings to preclude any outside noise or interference from entering the cable and degrading system performance.

3. Card Readers

a. Card Readers shall be of the proximity type. Reader shall display a green/red light when access is granted. Card readers shall utilize Weigand-standard interface and be compatible with access control cards.
b. Mount on custom stand-off where mounting on or near metal surfaces is required.
c. Provide custom surface-mount or flush box as required for each mounting condition.

4. Lock Power Supplies

   a. Furnish and install 24VDC power supplies for all electrically controlled door locks; connect these supplies to electric locks, access control system, and 120VAC power at security riser locations as shown on drawings.
   b. Size all power supplies to permit simultaneous continuous-duty activation of all door locks, with an additional minimum 30% capacity on each supply. Calculate voltage drop to locks and size lock control wiring to provide proper lock operation.
   c. Furnish and install interface relays between access controllers and lock power supplies. Install noise suppression diodes on all locks as close as possible to the lock and at the control relay coil. Mount all interface relays and noise suppression devices within equipment enclosures.
   d. Provide individually-fused outputs for each lock.
   e. Lock power supplies shall be as manufactured by Security Door Control, Securitron, Folger-Adams, or approved equal.

5. Miscellaneous Equipment
   Also included are all required power supplies, battery backup, power filtering, mounts, housings, equipment stand, and interfaces to equipment furnished by others. Coordinate with supplier of doors and frames, locks, and other hardware so as to assure proper mounting details, voltages, etc.

2.2 TRANSFORMERS

A. CEC 2022, Class II control transformers, NRTL listed. Transformers for security access-control system shall not be shared with any other system.

2.3 EXISTING SYSTEM DESCRIPTION

A. Existing Security Access System: C-Cure 9000 software systems.

B. Existing System Software: Software House Access Control System

2.4 OPERATION

A. Contractor shall program and integrate new construction, including gates, card readers, intercom devices, CCTV cameras, into the existing security access system.

B. Control and monitoring functionality integration within existing security access system includes, but not limited to,

   1. Automatic vehicular barrier gate operations

   2. Intercom communication

   3. Video surveillance

   4. Card reader access control

C. Gate Hardware Interface:

1. Comply with requirements for gate hardware required to be monitored or controlled by the existing security access system.

2. Electrical characteristics of controllers shall match the signal and power requirements of gate hardware.

3. Program and integrate the control and monitoring of the automatic vehicular barrier gates as specified in Section 11 12 00 "Parking Control Equipment" into the existing security access system.

PART 3 - EXECUTION

3.1 REQUIREMENTS

A. Contractor shall be a Software House authorized reseller, installer and servicer, proficient in the installation and programming of devices used with C-Cure 9000 Software systems.

B. Contractor shall furnish and install all conduit, raceways, cable trays, conductors, etc. for all building Security Systems. All wiring shall be in conduit or approved raceway unless shown otherwise on the Drawings.

C. Wiring and conduit shown on Drawings represents a minimum requirement. Contractor shall furnish and install all wiring and conduit recommended by submitted system manufacturers' for optimum system performance at no additional cost to the State.

D. Refer to individual Security System sub-sections for additional installation requirements.

3.2 AS-BUILT DRAWINGS

A. Maintain a complete set of prints of contract Drawings of the work forming a part of the Security Systems. As work is installed, carefully draw on prints, in colored pencil, correct location of work including depth of underground runs, if any, with dimensions from permanent walls, walks, etc. Wiring diagrams and details shall be included.

B. Upon completion of the project, transfer this information to reproducible Drawings and updated CAD disks, and submit to the State.

C. As-built Drawings shall be provided in 4 sets, as well as one set of PDF and CAD disks, to the State. One additional complete set shall remain on the job site in folders secured inside the electronic racks.

3.3 PROGRAMMING

A. Contractor shall provide initial programming for all new systems installed under this contract. Contractor programming shall include, but not be limited to:

1. English-language description of each alarm, access control, and camera location.

2. Alarm and Access Control time and group schedules.

3. Direct program reporting to Access Control System.

B. Submit for State's review proposed programming, including device names and descriptions, timings, sequence of operations, etc.

C. Upon State's request, each system shall be reprogrammed by the Contractor one time during the warranty period at no additional cost.

3.4 PREPARATION

A. Comply with recommendations in SIA CP-01.

B. Comply with TIA/EIA 606-A, "Administration Standard for Commercial Telecommunications Infrastructure."

C. In meetings with the State, present Product Schedules and review, adjust, and prepare final setup documents. Use approved, final Product Schedules to set up system software.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Use Class 2, bidirectional, Category 5 tester. Test for faulty connectors, splices, and terminations. Test according to TIA/EIA 568-B.1, "Commercial Building Telecommunications Cabling Standards - Part 1: General Requirements." Link performance for UTP cables must comply with minimum criteria in TIA/EIA 568-B.1.

2. Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power-supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup shall be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.

3. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

C. Devices and circuits will be considered defective if they do not pass tests and inspections.

D. Perform systems tests using personnel who have attended a manufacturer's training school for installation and testing of the systems as described above. Perform testing with the test instruments as required by the manufacturer; testing by means other than the manufacturer's procedures will not be acceptable unless agreed to by the Authority and manufacturer.

E. Upon completion of the installation of the Security Systems, the Contractor shall submit reports including, but not limited to, the following information:

1. A complete list of all equipment installed, including serial numbers of major components.

2. Certification that all equipment is properly installed and functional and conforms with contract Specifications and Drawings.

3. Test reports of all zones, devices, and equipment.

4. Test technician's name, company, and date of test.

F. Following review of the test report by the State, the Contractor shall perform a test of all Security System equipment in the presence of the State’s representative. Test shall include performance tests of each device, switch, control unit, power supply, battery standby unit, monitor panel, controller, printer, and all other equipment and material required by the contract.
At a minimum, perform tests to demonstrate that:

1. All systems are free from grounding and open circuits.

2. Each alarm initiating device consistently functions as specified and produces the specified alarm actions. Each camera shall be positioned by the Contractor to provide the coverage of the protected area in accordance with the capabilities of the device.

3. An abnormal condition of any circuit or device required to be electrically supervised will result in activating the specified trouble or tamper alarm signal.

4. Systems operate properly on emergency generator power and/or battery back-up.

5. Alarm signals are audible at the monitor.

6. The system is operable under specified trouble conditions.

7. All software functions properly as specified, and all equipment is fully programmed. The Contractor shall be responsible for programming system English-language descriptors as specified by the Authority's representative.

8. System as-built Drawings correspond with actual installation.

G. Sixty days prior to expiration of warranty, Contractor shall retest all systems as described above, and submit a test report of findings. All items covered by warranty shall be corrected immediately. Warranty remains in effect until 100% of defective items are corrected by the Contractor.

H. Prepare test and inspection reports.

3.6 STARTUP SERVICE

A. Engage a factory-authorized service representative to supervise and assist with startup service.

1. Complete installation and startup checks according to approved procedures that were developed in "Preparation" Article and with manufacturer's written instructions.

2. Enroll and prepare badges and access cards for the State's operators, management, and security personnel.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train the State's maintenance personnel to adjust, operate, and maintain security access system.

B. Develop separate training modules for the following:

1. Computer system administration personnel to manage and repair the LAN and databases and to update and maintain software.

2. Security personnel.

3. Hardware maintenance personnel.

4. Corporate management.

END OF SECTION

SECTION 28 13 53
IP NETWORK COMPATIBLE INTERCOM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. IP video intercom (Aiphone IX Seires)

1.2 REFERENCES

A. American National Standards Institute (ANSI/TIA/EIA) 568 - Commercial Building Telecommunications Cabling Standard.

B. International Organization for Standards (ISO) 9001:2000 - Quality Management Systems - Requirements.

1.3 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: Submit the following:
   1. Wiring Diagrams: Indicate wiring for each item of equipment and interconnections between items of equipment.
   2. Include manufacturer's names, model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.

C. Installation and Operation Manuals:
   1. Submit manufacturer's installation and operation manual, including operation instructions and component wiring diagrams.
   2. Provide detailed information required for Owner to properly operate equipment.

D. Warranty: Submit manufacturer's standard warranty.

1.4 SYSTEM DESCRIPTION

A. IP Network Compatible Video Intercom System: A network-based communication and security system featuring video entry security, internal communication, emergency stations, and paging. All units and app in the systems shall be able to unlock doors remotely on a network, assist onsite visitors from an offsite location, broadcast emergency announcements, and communicate using a PoE network.
   1. Power Source: Power over Ethernet (802.3af).
   2. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
   3. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, MJPEG, RTSP, RTP, RTCP, IGMP, MLD, SMTP, DHCP, NTP, DNS.
   4. Bandwidth Usage:
      a. G.711: 64Kbps x 2 per video call.

b. 64Kbps per monitor.
c. H.264: 24Kbps ~ 2,048Kbps.
5. Communication: Hands-free (VOX), push-to-talk (simplex), or handset (full-duplex).
6. Video Display: 7-inch color LCD.
7. Camera: IX-EA:
a. 1/3-inch 8-type color CMOS. 720p HD, wide dynamic range
b. View Area mounted at 4 feet 11 inches (1500 mm) AFF: 4 feet 3 inches (1300 mm) vertical and a range of 170 degrees in a 19 inch (500 mm) horizontal radius.
8. Video Stream: ONVIF Profile S.
9. Door Release: Programmable Form C dry contact, 24V AC/ DC, 1A (use RY-1824L for larger contact rating, which requires a 24V DC power supply) or use IXW-MAA with 10 multipurpose relays.
10. Wire Type: CAT-5e or CAT-6.
11. Distance:
a. Any station to Network Node: 330 feet (100 meters).

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001: 2008 certified company.

B. Installer Qualifications: Factory trained and experienced with system installations of scope and size required for the Project.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

1.6 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 during handling and installation to prevent damage.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Manufacturer: Aiphone Corp.

B. IP Video Intercom System: IX Series Intercom System as manufactured by Aiphone Corporation.

2.2 IP AUDIO/VIDEO ENTRY STATIONS:

A. Basis of Design: Aiphone IX-EA, IP Audio and Video Intercom as manufactured by Aiphone Corporation. A complete network-based communication solution with unlimited possibilities for any multi-tenant security application.
   1. Provide Selective Door/Gate Release.
   2. Provide Audio/video streaming via ONVIF Profile S.
   3. Provide ONVIF Profile S camera input.
   4. Provide Contact input at door station.
   5. Updates can be programmed remotely.
   6. All stations are PoE.
   7. Weather resistant.
   8. Vandal resistant.
   9. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
   10. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, RTSP, RTP.
   11. Wire Type: Cat-5e or Cat-6.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive integrated security and communication system.

B. Notify Architect of conditions that would adversely affect installation or subsequent use.

C. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

A. Verify the following compliance before starting installation.
   1. All units, except for the entrance station and tenant station, are designed for indoor use only. Do not use outdoors.
   2. The unit turns inoperative during power failure.
   3. In areas where broadcasting station antennas are close by, intercom system may be affected by radio frequency interference.
   4. Keep the intercom wires at least 1 foot (30 cm) away from strong electrical wiring (AC 100-240 V) including, in particular, wiring for inverter electrical appliances. Noise and malfunction could result.
   5. Keep the unit more than 3.3 feet (1 m) away from radio or TV set.
   6. If a strong light shines on the main unit screen, the picture will turn white or only silhouettes will be visible.
   7. Other manufacturer's devices (such as sensor, detectors, door releases) used with this system, comply with the manufacturer's installation requirements.
   8. The LCD panel is manufactured with very high precision techniques, inevitably will have a very small portion of its picture elements always lit or not lit at all. This is not considered a unit malfunction. Please be aware of this in advance.
   9. The sensor of an entrance station (Integrated type) may activate due to moving shadows or moving tree branches, etc. and cause a message to display.

3.3 INSTALLATION

A. Install integrated security and communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Mount equipment plumb, level, square, and secure. For video entrance stations and video

door stations, comply with manufacturer's design requirements to provide optimum picture quality of station monitoring.

3.4 SET-UP AND ADJUSTING

A. Adjust integrated security and communication system for proper operation in accordance with manufacturer's instructions.

3.5 DEMONSTRATION AND TRAINING

A. Demonstration:
   1. Demonstrate that integrated security and communication system functions properly.
   2. Perform demonstration at final system inspection by qualified representative of manufacturer.

B. Instruction and Training:
   1. Provide instruction and training of Owner's personnel as required for operation of integrated security and communication system.
   2. Provide hands-on demonstration of operation of system components and complete system, including user-level program changes and functions.
   3. Provide instruction and training by qualified representative of manufacturer.

3.6 PROTECTION

A. Protect installed integrated security and communication system from damage during construction.

END OF SECTION