

A & E Guide Specifications

9300 Rescue Assistance System

PART I: GENERAL

1.1 WORK INCLUDED

- 1.101 Furnish and install a complete microprocessor controlled voice communication system as described herein and shown on the plans. System shall include all necessary electronic boards, power supplies, master control stations, substations, receptacles, speakers, mounting boxes, special housings, terminal boards, cable, connectors, equipment and accessories for a complete operational system.
- 1.102 Scope of work shall include all the area of rescue locations or any location requiring security intercom in a building or complex.

(NOTE TO SPECIFIER: Indicate Exact Scope of Work)

1.2 CONTRACT DOCUMENTS

- 1.201 All equipment and work specified in this section shall comply with all the General Conditions and requirements of the contract documents.

1.3 RELATED WORK

- 1.301 Communications Contractor shall coordinate all work with other contractors and trades where necessary, i.e. cable pulling, setting back boxes, installation labor, power hook-up, etc.
- 1.302 All necessary conduit, raceways, pull boxes, standard boxes, (and special boxes provided by intercom manufacturer), shall be furnished and installed by the Electrical Contractor.
- 1.303 Installation of the communications systems shall be coordinated with installation of other related systems such as: Closed Circuit TV video systems, security systems, access control systems, telephone systems, alarm systems, elevators, etc.

(NOTE TO SPECIFIER: Indicate Other Related Systems)

1.4 QUALITY ASSURANCE

- 1.401 Installation shall comply with all applicable codes.
- 1.402 All equipment shall be new, in current production, and the standard products of an acceptable intercom manufacturer with proven experience.
- 1.403 Manufacturer shall guarantee availability of parts for a minimum of ten (10) years from date of shipment.
- 1.404 Manufacturer shall be able to demonstrate features, functions, operating characteristics and clarity of sound to the owner and/or consultants, if required.
- 1.405 System shall be installed by a factory authorized, and trained Communications Contractor, or qualified Security Systems Integrator.
- 1.406 Maintenance and repair service shall be available locally and within four (4) hours of notification for emergency conditions.

1.5 WARRANTY

- 1.501 System shall include a factory warranty that equipment is free from defects in design, material, manufacturing and operation.
- 1.502 Factory warranty period shall be for two (2) years or twenty-four (24) months from date of equipment shipment from factory warehouse.
- 1.503 Installing Communications Contractor shall guarantee equipment, wire, cable, and installation for one (1) year from date of acceptance.
- 1.504 Warranty shall not cover malfunctions or damages caused by misuse, abuse, neglect or acts of nature.

1.6 SUBMITTALS

- 1.601 Shall include equipment lists, data sheets, system description and block diagrams on all equipment to be furnished.
- 1.602 Shall include all data necessary to evaluate the function, quality, and configuration of the proposed system.

PART II: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- 2.101 The system described herein is based on the 9300 system as manufactured by Zenitel USA, Kansas City, Missouri. The 9300 Intercom System meets all quality and functional requirements of the specifications, and shall be considered as the acceptable Base Bid.
- 2.102 Any substitution must meet all requirements of Prior Approval, as outlined in the contract documents. Substitutions that meet Prior Approval requirements must be listed as an Alternate.
- 2.103 Any substitutions must meet all quality and functional requirements of the specifications, and contractor shall list all deviations to the Base Bid System.

2.2 SYSTEM DESCRIPTION

- 2.201 The purpose of the building security intercom system shall be to provide clear, two-way, remote reply intercommunication between security personnel in control centers, and employees, tenants and visitors at doors, entryways, controlled access areas or area of rescue locations. It shall allow calls from the area of rescue locations or other security substations to the master in main control. System shall provide hands-free, remote reply at the receiving (substations).
- 2.202 The system requires a network controller to provide the overall system control between the intercom master and the substations.
- 2.202 The system shall have an intercom master station to communications with the substations. This master shall be either a desk unit designed for this specific application or a PC running application specific software.
- 2.204 The total system requires some quantity of substations that are to be connected on a CAT 5 network with the controller.
- 2.205 Components of the system shall use microprocessors for communications and control.
- 2.206 The system must be able to provide a data interface to external systems for integration. The data protocol must be publicly available to any such integrators. Data must report at minimum: call placed by substation, call answered by master, press-to-talk button functions, call canceled (reset) by master, and group call activated by master. NOTE:

External equipment must match the protocol or request a protocol converter from the manufacture of the system.

- 2.207 System capacity shall allow interconnection of a master and multiple substations. Base Bid standard master shall be able to communicate with up to (95) substations. It shall be possible to expand the system by adding additional network controllers and data routing equipment.
- 2.208 System shall include all features and functions described herein and all equipment shown on the plans. System shall be capable of adding optional features and components listed in specifications, even if not initially included or shown on the plans.
- 2.209 The extent, size, locations, and layout of the system shall be as shown on the plans.
- 2.210 A complete and operational system shall be provided.

2.3 SYSTEM CONFIGURATION

- 2.301 The network controller is to be mounted in a secure location such as a telephone closet or electrical room, as shown on plans. A single controller can communicate with up to 95 substations.
- 2.302 The standard intercom master shall be located in the security control location. This location can be up to 3000 foot from the controller. The connection between these units is RS422 data and four wire 600 ohm audio.
- 2,303 As an alternative a PC running the 9300 Call Handler Software can be used to communicate with the controller. This configuration will require an RS232 to RS422 data converter for the data connection and a 600 ohm interface for audio.
- 2.304 Indoor tamper resistant substations shall be flush wall mounted, outdoor tamper resistant stations shall be surface wall mounted.
- 2.305 Special interfaces for intercom access to telephone dialers, pocket paging and LED panels shall be as described under “options” and as shown on the plans.
- 2.306 Remote intercoms and multi-building security intercoms shall be interconnected as a complete system with network controller units, as required and shown on the plans.

(NOTE TO SPECIFIER: Indicate Project Requirements)

2.4 SYSTEM OPERATION with 9453 Master, Option 1

2.401 CALLS FROM SUBSTATION TO 9453 MASTER STATION

A call request from a substation shall cause a text message to be displayed in the LCD display, and cause a tone to sound. The text message shall remain on the display and the tone shall sound intermittently until answered at the master. Multiple call-in requests shall be stacked in queue in the display. Up to 16 call requests can be held in queue at one time.

2.402 CALL ACCEPTANCE AT THE 9453 MASTER

Pressing the Answer Next key shall initiate a “call-connect tone” to the selected substation and establish an audio connection between the master and that substation. This shall cause the associated text message to move from the lower “Call Request” line to the top “Connected To” line on the display. This will also silence the audible tone. Two-way communication shall be controlled by the (PTT) press-to-talk button on the master. The call shall be canceled by either pressing the Cancel button on the master or if there are more calls waiting, pressing the Answer Next key will clear the current call and set up a call to the next substation in queue.

2.403 SELECTIVE CALL ACCEPTANCE AT THE 9453 MASTER

The master shall have a Scroll through queue function button to allow the operator to see what calls are waiting. The operator can select a call using the Scroll key and then the Answer Next button to select a specific call to respond to.

2.404 CALLS FROM 9453 MASTER TO SUBSTATION

A call may be initiated from the master station at any time by simply entering the dial number of the substation. From that point on communications is as described above.

2.405 ALL CALL PAGING

A page to all substations can be established by dialing 99 on the master stations keyboard. The page will be preceded with a unique audio tone to the substations. To communicate with the substation, push and hold the PTT button while speaking and release when finished. Monetarily pushing the Cancel button will end the page.

2.406 LINE ERROR TESTING.

The system shall continually poll the substations and report any failures. The report will be sent to the 9453 as a text message with substation number and “Line Error” in the display. To clear the message, just answer it like a standard substation call.

2.407 AUDIO VOLUME CONTROL.

The master shall contain a digital incoming volume control to allow the operator to set the desired listen level. The master must retain this setting in memory.

2.408 PROGRAMING

It shall be possible to program a text name for each substation. This information is programmed into the 9453. The name can be up to 12 ASCII characters per substation. This information must be stored in non-volatile memory. Note: PC equipped with a terminal emulations program such as Windows Hyper Terminal required to program station.

2.5 SYSTEM OPERATION with PC and Call Handler Software, Option 2

2.501 CALLS FROM SUBSTATION TO PC MASTER STATION

A call request from a substation shall cause a text message along with the calling substations dial number to be displayed in the Call Waiting Box on the PC's display. It shall also cause a tone to sound in the PC's speakers. The text message shall remain on the display and the tone shall sound intermittently until accepted (answered) at the PC. All call-in requests shall be stacked in queue in the display.

2.502 CALL ACCEPTANCE AT PC

Clicking on the Answer Next box shall initiate a "call-connect tone" to the selected substation and cause the associated text message to move to the top Connected Too box on the display and silence the audible tone. This establishes an audio connection with the substation. Two-way communication shall be controlled by the mouse using the (PTT) press-to-talk box on the screen. The call shall be canceled by pressing the Cancel box on the display. If there are more calls waiting, clicking in the Answer Next box will clear the current call and set up a call to the next substation in queue.

2.503 SELECTIVE CALL ACCEPTANCE AT THE PC MASTER

The operator may select any unanswered call by double clicking on the name in the call waiting box.

2.504 CALLS FROM PC TO A SUBSTATION

A call may be initiated from the master station to any substation at any time by double clicking on the desired station line in the substation name list. From that point on communications is as described above.

2.505 ALL CALL PAGING

A page to all substations can be set up by clicking on the 'All Call' box. The page will be preceded with a unique tone to the substations. To speak, click on the PTT box. When done click on the Cancel box.

2.506 LINE ERROR TESTING

The system shall poll the substations and report any failure. The report will be sent to the Call Waiting box as a text message with substation number and "Line Error" in the display instead of the normal name. To clear the message, just answer the call in the standard manner.

2.507 AUDIO VOLUME CONTROL

The incoming audio volume can be set by the operator for the desired listen level by selecting the setting on the Volume box.

2.508 PROGRAMING

Each substation can have a text name associated with it. This is programmed using the 9301 Call Handler configuration software.

2.6 **EQUIPMENT AND PRODUCTS**

2.601 STANDARD MASTER

Each 9453 master shall be microprocessor controlled with internal audio controls and a 2 X 16 charter display with back light. The master module shall include a 2" x 3" oval, 45 ohm, 1.5 watt speaker, an electric microphone, the unit will have a standard keyboard for dialing substations as well as extra functions button to facilitate call handling within the system. These buttons shall include Answer Next, Scroll through queue and digital volume control buttons. The unit shall include a Piezo electric buzzer for call-in tones. The master module shall include an RJ45 jack, for (optional) handset. Master shall be STENTOFON #9453D.

2.602 MASTER STATION POWER SUPPLY

Power supply shall provide a regulated 12 VDC with at 500ma.
Shall be STENTOFON #1119.

2.603 NETWORK CONTROLLER

The network controller will provide all functions required to connect up to 95 substations onto a common CAT 5 cable. It provides two serial data connections as well a four wire 600 ohm audio to the 9453. Provides LED indicators to show date in the network as an aid in installation.
Shall be STENTOFON #9360

2.604 NETWORK CONTROLLER POWER SUPPLY

Power supply shall provide a regulated 24 VDC at 1.5 amp.
Shall be STENTOFON #1117

2.604 TAMPER RESISTANT SUBSTATION

Units are to be microprocessor controlled for communication with the network controller. They shall provide clear two-way, hands-free communication, and call initiation. Shall include heavy duty, 1" round, machined stainless steel push button and bezel. Button shall be all metal, smooth, rounded and tamper resistant. Call-in switch shall be sealed, snap-action with gold plated contacts. Speaker shall be 2" x 3" oval, moisture treated, 45 ohm, (1) watt, mounted behind double offset metal grills. Station shall have internal condenser microphone and call status LED. The station shall contain an internal Piezo buzzer for audio confirmation of call in. the call will be repeated at slow rate until the call is answered. The station also contains rotary switches to set its local network address. Faceplate shall be 11 gauge, #304 stainless steel suitable for mounting on a standard (3) gang deep masonry box. Note a minimum of three twisted pair of wire required for the basic functions. Options may require an additional pair. Shall be STENTOFON #9320.

2.605 WEATHERPROOF EMERGENCY CALL SUBSTATION

Shall be a rugged, weatherproof, tamper resistant substation with large (1.5") bright red mushroom call-in button that can be easily pressed by an elbow or shoulder. Station shall be designed with machined off-set speaker grill, stainless steel call switches, epoxy coated electronic PC board, and submersible 3" speaker. Substation shall be on a .25" anodized aluminum plate with a silicone seal gasket. Shall operate in temperatures between 10° to +40° C.

Shall be STENTOFON #9325. Shall mount on either Stentofon #6297 flush box or #6299 surface mount weatherproof box.

2.7 **SYSTEM STANDARD FEATURES**

System shall include the following basic features:

2.701 Master-to-sub, press -to-talk, remote-reply communications

2.702 LCD display with text description for calling substations

2.703 Programmable functions and add-on features

2.704 Data connections to other devices or systems

2.705 Call annunciation on masters from all substations

2.706 Keyboard for calling substations directly

2.707 All-Call with unique call tone

2.708 Line test of substation wiring

2.8 OPTIONAL FEATURES

2.801 TONE TEST

It shall be possible to set up a tone test sequence which will test the microphone and speaker in each substation at a preset time each day. Errors will be reported as line errors.

2.802 CALL LOGGING

It shall be possible to provide call logging in the PC if that device is being used as a master. If the 9453 is being used instead you can still connect a PC or printer to log such traffic.

2.803 MULTIPUL NETWORKS

It shall be possible to connect more than one 9360 controller to a single master. This allows connection with more than one network or building. This will require extra hardware such as RS485 Hubs, RS485 loop extenders, bidirectional audio amplifiers.

2.804 LED LOCATION PANEL

An optional LED panel can be connected to provide overall status indication at an entrance if desired. Stations that have placed a call will have flashing LED's while stations in conversation will have steady lit LEDs.

2.805 RING DOWN PHONE FUNCTION

The system will provide a dry contact to allow connection of a ring down phone device to report an event to an off site answering service.

2.806 WIRELESS CONNECTION

The system can provide a dry contact to allow the connection of a wireless base station to send a message to a roaming guard of an event.

2.9 SYSTEM TECHNICAL REQUIREMENTS

2.901 The Network controller and all substations shall be microprocessor controlled.

2.902 Connection between the network controller and the substations shall be on a CAT 5 multi-drop loop.

2.903 The network controller shall have a 10 watt substation amplifier. Amplifier frequency response shall be peaked for maximum voice articulation between 300 and 5000Hz. THD shall be less than 3 percent of full output, less than 0.5 percent at 1 watt. Optional a 25 Watt amplifier can be used for All Calls.

- 2.904 Network controller shall have a 4 wire, 600 ohms line level audio interface for external devices.
- 2.905 Network controller shall have a two wire electric microphone input for use with a PC.
- 2.906 Network controller shall have an RS422 port that allows total control of the system as well as a data stream providing reporting system status.
- 2.907 Network controller shall have an RS485 port that will allow up to 50 substations on one CAT 5 loop with out additional line drivers. An additional RS485 line driver or an SR485 hub will allow expanding the system to 95 substations.
- 2.908 All data shall be 9600 baud, ASCII charters in a published format.

PART III: EXECUTION

3.1 INSTALLATION

- 3.101 Shall be installed by qualified technicians who have been factory trained and certified in this particular system.
- 3.102 Wiring shall be color coded, uniform, and in accordance with national electric codes and manufacturer's instructions.
- 3.103 Equipment shall be firmly secured, plumb and level.
- 3.104 All splices shall be in easily accessible junction boxes, on terminal boards with punch down blocks, or on screw terminals. Twisted and taped splices are unacceptable.
- 3.105 All cable runs at the main terminal board and in all junction boxes shall be tagged and identified.
- 3.106 Coordinate all work with other affected trades and contractors.

3.2 SYSTEM INITIALIZING AND PROGRAMMING

- 3.201 System shall be turned on and adjustment made to meet requirements of specifications and on-site conditions.

3.202 System shall be programmed to function as specified, and a copy shall be made of the initial program and made available to the owner.

3.203 Any special programming shall be documented and a written copy made available to the owner.

3.3 SYSTEM TEST PROCEDURES

3.301 System shall be completely tested, as per manufacturer's installation manual, to assure all components, stations, speakers, accessories, etc., are hooked-up and in working order.

3.302 System shall be pre-tested by contractor and certified to function in writing in accordance with the plans and specifications.

3.303 System shall be final tested in the presence of the owner's representative.

3.4 OWNER INSTRUCTIONS

3.401 Installation contractor shall conduct up to four (4) hours of instruction in the use and operation of the system to designated owner representatives, within thirty (30) days of system acceptance.

3.402 Installation contractor shall conduct up to four (4) hours of technical training in the programming, trouble shooting, and service of the system to designated owner representative, within ninety (90) days of system acceptance.

3.403 Manufacture shall conduct periodic (every 90 days) technical training seminars and make them available to those responsible for on-going maintenance of the system.

3.5 MANUALS AND DRAWINGS

3.501 Contractor shall provide owner with two (2) copies of standard factory prepared operation, installation and maintenance manuals. Manuals shall include typical wiring diagrams.

3.502 Contractor shall provide owner with two (2) copies of any risers, layouts, and special wiring diagrams showing any changes to standard drawings, (if required on this project).