

SECTION 16760 - PLANT INTERCOMMUNICATION SYSTEM

City of San Diego, CWP Guidelines

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing plant intercommunication systems with power supplies, signal amplifiers, sound reproducers, signal generators and accessories.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 16050 Basic Electrical Materials and Methods
 - 2. Section 16720 Fire and Smoke Alarm System
 - 3. Section 16722 Intrusion Detection and Security Access
 - 4. Section 16750 Closed Circuit Television (CCTV)

1.3 CODES

- A. The WORK of this Section shall comply with the current editions, with revisions, of the following codes and City of San Diego Supplements:
 - 1. Uniform Building Code
 - 2. Uniform Fire Code
 - 3. National Electrical Code

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the applicable standards of the following apply to the WORK of this Section:
 - 1. NEC National Electrical Code; Article 800 Communication Circuits
 - 2. EIA Electronic Industries Association Standards
 - 3. ANSI/IEEE 241 Electric Power Systems in Commercial Buildings, Recommended Practice for
 - 4. ANSI/NEMA 250 Enclosures for Electrical Equipment

1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
 - 1. Manufacturer's product data including catalogue cuts.
 - 2. Block diagram showing system relationships of major components and quantities and interconnecting cable requirements.

3. Plans showing locations of components.
4. Shop drawing showing panel arrangements, devices, and special mounting details.
5. Wiring diagrams showing terminal identification for field-installed wiring.
6. Documentation of qualifications of system component manufacturer

1.6 PROJECT RECORD DRAWINGS

- A. The following shall be included on the PROJECT RECORD DRAWINGS in compliance with Section 01300:

1. Accurate record of actual locations of components and wiring.

1.7 OWNER'S MANUAL

- A. The following shall be included in the OWNER'S MANUAL in compliance with Section 01300:

1. Operations data, including instructions for routine operation of master and remote stations.
2. Maintenance data, including instructions for minor troubleshooting, preventive maintenance, and cleaning.

1.8 MAINTENANCE SERVICE

- A. The WORK of this Section includes service and maintenance of intercom system for [1] [] year from Date of Substantial Completion.

1.9 SERVICES OF MANUFACTURER

- A. The WORK of this Section includes systems demonstration and instructions by manufacturer's field representative to demonstrate system operation to [CONSTRUCTION MANAGER] [OWNER]; the representative shall:

1. Conduct walking tour of system and describe function, operation, and maintenance of each component.
2. Demonstrate signal input from panel, microphone and telephone systems with speaker power output adjusted for proper paging coverage and without hum and feedback.
3. Use submitted operation and maintenance manual as reference during demonstration and training.

- B. After demonstration, adjustments shall be locked or sealed.

- C. **Local Service:** The manufacturer shall have a local service agency (within 50 miles of the site) which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.

1.10 QUALIFICATIONS

NTS: In the paragraph below, define the terms "comparable size and complexity" for the equipment or system specified. Requiring experience of more than one successful project requires sound justification and prior written approval from the City Project Manager.

- A. **Manufacturer:** Company specializing in manufacturing the products specified in this Section with a minimum of one successful installation of comparable size and complexity completed in the recent past. Installations of comparable size and complexity shall have the following characteristics: [].

PART 2 - PRODUCTS

2.1 GENERAL

- A. **Description of System:** The Plant Intercommunication System shall be a locate/reply multi-channel type, with [] [2] channels for 2-way voice communication and [] [1] channel for communication between the lobby and front gate, and 2 individual channels for voice locating. The system shall include 2-channel handset stations and sound reproducers, power supplies, power booster, control box, conduit, junction boxes, line matching transformers selected for uniform sound intensities when installed, and accessories.
- B. **Telephone Interconnect:** The Locate/Reply System shall include facilities for the interconnection of telephone company lines for 2 channels of voice communication. One telephone company interface shall be installed for each telephone company line. Interconnections shall enable handset stations to talk with people off the plant premises. "Night Owl" facilities shall be included to automatically transfer incoming calls from the operator's attendant station onto the system when a manual selector switch at the receptionist station is actuated.

2.2 EQUIPMENT

- A. **Attendant Station:** Operator attendant shall be desk type, fully-selective, locate/reply stations with built-in speakers, volume control [and capability of interconnecting up to 2 incoming telephone lines, appearing at a key telephone, to the locate/reply multi-channel handset stations.] A buzzer shall be included for signalling from the main gate station.
- B. **Handset Stations:** Handset stations shall be surface-mounted, 2-channel locate/reply stations. Stations shall include a selector switch to switch the circuitry to any of the channels in the system. Busy lights shall illuminate busy channels. Speaker cut-offs shall be included.
- C. **Signal Generators:** Signal generator panels shall be provided for process malfunction alarms. Alarm signals shall be generated upon contact closures originated in the plant Main Control Board (MCB) and shall be transmitted throughout the plant site over the Plant Intercommunication system. The following signals shall be generated:
 - 1. Simulated 780-Hz bell tone, 48 pulses per minute,
 - 2. Simulated siren, rising and falling between 250- to 780-Hz tone at 4 cycles per minute,

- 3. Steady 780-Hz tone,
- 4. Chime tone signal, 440 Hz.
- D. **Control Box:** Control box shall be surface-mounted locate/reply system control unit designed for each channel of the system.
- E. **Power Supply:** Power source shall be 24-volt filtered dc power supply.
- F. **Solid State Power Booster:** The power booster shall be a solid state amplifier. Power output shall be [] [150] [200] watts at less than 2 percent THD over a frequency range of 25 to 20,000 ±1 dB. Amplifier shall be equipped with an "ON" indicator light, master AC power switch, and three-position input selector switch (range, music, voice). Master switch shall control 115-volt AC power to all electronic equipment in the system.
- G. **Two-Way Intercom Amplifier:** Intercommunication amplifiers shall be provided for the remote reply channel. Personnel reply at main gate shall be by reproducer without transformer.
- H. **Loudspeakers:** Outlets, loudspeakers, and baffles shall be provided at the locations indicated and in accordance with the following:

Type	Description
"A"	Horn loudspeaker shall be weatherproof type with a wide dispersion trumpet, pole mounting bracket for single or twin mounting with horizontal and vertical adjustment, and driver unit with built-in line matching transformer.
"B"	Flush ceiling assembly shall be a speaker with a frequency response of 70 to 14,000 Hz and a power rating of 15 watts. Speaker shall be equipped with a line matching transformer having wattage adjusting taps.
"C"	Surface wall-mounted speaker shall be similar to Type "B" except for mounting.
"D"	Surface ceiling-mounted speaker shall be similar to Type "B" except for mounting.
"E"	Flush-mounted weatherproof speaker/pushbutton station mounted in gate control cabinet.

es: Cables to speaker locations and handset stations shall be tinned copper, twisted pair, vinyl insulated, 16-gage minimum; station cable shall be copper, twisted pair within jacket.

- J. **Portable Handset Station Jacks:** Jacks shall be mounted on 2-gang FS type box cover and jacks shall be suitable for providing full system functions.

2.3 MANUFACTURERS

- A. **Attendant Stations:** Stations, of the model indicated, shall be manufactured by one of the following (or equal):

Executone, Model LR658L/2/1V
Dukane, Model []
Stromberg, Model []

- B. **Handset Stations:** Stations, of the model indicated, shall be manufactured by one of the following (or equal):

1. Stations With Built-In Speakers:

Executone, Model LR258L/1V
Dukane, Model []
Stromberg, Model []

2. Stations Without Built-In Speakers:

Executone, Model IPTH255LS301
Dukane, Model []
Stromberg, Model []

3. Portable Stations:

Executone, Model IPTH255LS301-25P
Dukane, Model []
Stromberg, Model []

- C. **Control Box:** Boxes, of the model indicated, shall be manufactured by one of the following (or equal):

Executone, Model J804
Dukane, Model []
Stromberg, Model []

- D. **Power Supply:** Power supplies, of the model number indicated, shall be manufactured by one of the following (or equal):

Executone, Model M217
Dukane, Model []
Stromberg, Model []

- E. **Two-Way Intercom Amplifier:** Amplifiers, of the model number indicated, shall be manufactured by one of the following (or equal):

Executone, Model F274K
Dukane, Model []
Stromberg, Model []

- F. **Horn Loudspeakers:** Loudspeakers, of the model number indicated, shall be manufactured by one of the following (or equal):

Executone, Model MRK
Dukane, Model []
Stromberg, Model []

- G. **Flush Ceiling Loudspeakers:** Loudspeakers, of the model number indicated, shall be manufactured by one of the following (or equal):

Executone, Model SR 8W4
Dukane, Model []
Stromberg, Model []

PART 3 - EXECUTION

3.1 GENERAL

- A. Materials and equipment shall be installed in accordance with the manufacturer's installation instructions.
- B. Equipment shall be installed plumb and square and shall be adequately ventilated and securely anchored.
- C. Conductor terminations at screw terminals shall be installed with hooked, spade lugs. Shielding shall be continuous and shall be grounded at the amplifier which shall be frame grounded. Wiring shall be cabled within enclosures and banded neatly to terminals.

3.2 INSTALLATION

- A. Speakers shall be mounted to minimize acoustic feedback between telephone stations and loudspeakers. Speakers, grilles, and backboxes shall be mounted to eliminate acoustic resonance and vibration.

**** END OF SECTION ****