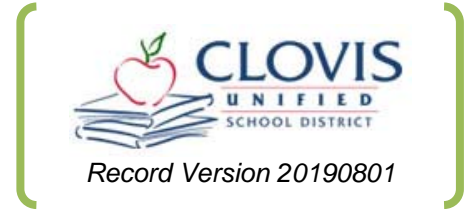


SECTION 274040 – ASSISTIVE LISTENING SYSTEMS

Part 1 - General



1.1 Work Included

Provide all labor, materials, tools and equipment required for the infrastructure so Owner's Assistive Listening System can be used.

NOTE: The ALS System is an Owner Furnished item and the information in this document is being provided for DSA review and approval purposes only. Do not include the costs of such a system unless specifically asked for it.

1.2 Related Work in Other Sections

- A. All 120VAC power conductors and conduits associated with power circuits to all equipment locations shall be furnished and installed by Division 260000 contractor.
- B. All raceway systems including but not limited to conduit, j-boxes, outlet boxes, floor boxes, & surface mounted raceway shall be furnished and installed by Division 260000 and 270528 contractors.

1.3 Scope of Work

- A. The intent of these Specifications is to provide the infrastructure only for the existing Owner Assistive Listening System. It is the responsibility of the bidding Contractor to provide all of the needed infrastructure. It is also the responsibility of the Contractor to verify the system used by Owner and provide all material needed, even if the material is not described specifically in the following documentation. All questions concerning non specified product and services will be address to the Owner's Representative before the Contactor provides a bid. Owner expects that by accepting the Contractor's bid proposal that they [the Contractor] have provided a competent bid for a complete solution.
- B. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities of devices, typical installation details, and mounting details will be provided as an attachment to this document. The successful vendor shall meet or exceed all requirements for the cable system described in this document.

1.4 Approvals

- A. The system shall maintain the following listings and/or approvals from the following agencies:
 - 1. (UL) Underwriter's Laboratories
 - 2. FCC Federal Communications Commission

1.5 Regulatory References

- A. The following industry standards are the basis for the assistive listening systems described in this document.
 - 1. ADA – Americans with Disabilities Act
- B. If there is a conflict between applicable documents, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.
- C. This document does not replace any code, either partially or wholly. The contractor must be aware of local codes that may impact this project. If these documents conflict with local code it is the Contractor's responsibility to inform the Owner and the Owners Representative in writing before the set Bid Date.

1.6 Contractor Qualifications/Quality Assurance

- A. Safety and Indemnity
 - 1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 270000 "1.5 A. Safety & Indemnity".
- B. Contractor Qualifications

1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 270000 "1.5 B. Contractor Qualification".
- C. Quality Assurance
 1. Contractor shall comply with all requirements as specified in Section 270000 "1.5 C. Quality Assurance".
- D. Warranty
 1. Contractor shall comply with all requirements as specified in Section 270000 "1.8. Acceptance & Warranties".

1.7 Submittal Documentation

- E. The successful contractor shall provide their submittal package in accordance with the Section 01 20 00 1.06 Submittal Schedule, and Section 270000 "1.6 Submittal Documentation".

1.8 Equivalent Products

- A. All Product provided in this Specification are those of Listen Technologies.
- B. Pre-Approved Equals:
 1. Telex, Williams Sound, Shure & Sennheiser
- C. Contractors wishing to approve a system other than those specified in this document shall do so in accordance with Section 270000 ":1.7 Equivalent Products".

Part 2 - System Description

2.1 Assistive Listening System

- A. Furnish and install an FM wireless assistive listening system for use by the hearing-impaired. The assistive listening system (ALS) shall be capable of broadcasting on 57 channels and be frequency agile. The ALS system shall have 80dB SNR or greater, end-to-end. Receivers shall be frequency agile and frequency set with a "seek" button. The receiver will incorporate a stereo headset jack that allows the user to plug in either a mono or stereo headset and listen to audio normally. The portable receivers and transmitters shall incorporate automatic battery charging circuitry for recharging of Ni-MH batteries. Listen Technologies Corporation products are specified

Part 3 - Products

The following sections specifically list the acceptable equipment types and items for this project. Where quantities are not noted, they may be obtained from the project drawings. In the event of a discrepancy between the specifications and the project drawings, the greater quantity or better quality shall be furnished.

3.1 Refer to CA Building Code as quoted below;

- A. 2-202 ASSEMBLY AREA. [DSA-AC] A building or facility, or portion thereof, used for the purpose of entertainment, educational or civic gatherings, or similar purposes. For the purposes of these requirements, assembly areas include, but are not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands or convention centers.
- B. 2-202 Assistive Listening System (ALS). An amplification system utilizing transmitters, receivers, and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment.
- C. 11B-216.10 Assistive listening systems. Each assembly area required by Section 11B-219 to provide assistive listening systems shall provide signs informing patrons of the availability of the assistive listening system. The sign shall include wording that states "Assistive - Listening System Available" and shall be posted in a prominent place at or near the assembly area entrance. Assistive listening signs shall comply with Section 11B-703.5 and shall include the international Symbol of Access for Hearing Loss complying with Section 11B-703.7.2.4. Refer to plans for locations.
- D. 11B-219.2 Required systems. An assistive listening system shall be provided in assembly areas, including conference and meeting rooms. Refer to plans for locations.

- E. 11B-219.3 Receivers. The minimum number of receivers to be provided shall be equal to 4 percent of the total number of seats, but in no case less than two. Twenty-five percent minimum of receivers provided, but no fewer than two, shall be hearing-aid compatible in accordance with Section 11B-706.3.
- F. 11B-219.5 Permanent and portable systems. Permanently installed assistive-listening systems are required in areas if (1) they accommodate at least 50 persons or if they have audio-amplification systems, and (2) they have fixed seating. If portable assistive-listening systems are used for conference or meeting rooms, the system may serve more than one room. An adequate number of electrical outlets or other supplementary wiring necessary to support a portable assistive-listening system shall be provided.
- G. 11B-703.7.2.4 Assistive listening systems. Assistive listening systems shall be identified by the International Symbol of Access for Hearing Loss complying with Figure II B-703.7.2.4.



- H. 11B-706 Assistive listening systems
- I. 11B-706.1 General. Assistive listening systems required in assembly areas, conference and meeting rooms shall comply with Section 11B-706. Refer to plans for locations.
- J. 11B-706.2 Receiver jacks. Receivers required for use with an assistive listening system shall include a 1/8 inch (3.2 mm) standard mono jack.
- K. 11B-706.3 Receiver hearing-aid compatibility. Receivers required to be hearing aid compatible shall interface with telecoils in hearing aids through the provision of neck loops.
- L. 11B-706.4 Sound pressure level. Assistive listening systems shall be capable of providing a sound pressure level of 110dB minimum and 118 dB maximum with a dynamic range on the volume control of 50 dB.
- M. 11B-706.5 Signal-to-noise ratio. The signal-to-noise ratio for internally generated noise in assistive listening systems shall be 18 dB minimum.
- N. 11B-706.6 Peak clipping level. Peak clipping shall not exceed 18 dB of clipping relative to the peaks of speech.

3.2 Listening Systems. Refer to plans for locations.

- A. For rooms requiring between 0-1 devices.
 - 1. The approved Assistive Listening system shall be the **Listen Technologies LS-05**
- B. For rooms requiring between 2-7 devices.
 - 1. The approved Assistive Listening system shall be the **Listen Technologies LS-06**
- C. For rooms requiring between 8-15 devices.
 - 1. The approved Assistive Listening system shall be the **Listen Technologies LS-07 or LS-08**
- D. For rooms requiring between 16-30 devices.
 - 1. The approved Assistive Listening system shall be the **Listen Technologies LS-13**
- E. For rooms requiring between 31-120 devices
 - 1. The approved Assistive Listening system shall be the **Listen Technologies LS-14**
- F. Every system shall include;
 - 1. Carrying case for equipment supplied in ALS kit.
 - 2. LT-700 Portable FM Display Transmitter; minimum of ONE

- LA-261 Lavalier Microphone; one for each transmitter
- Option; LA-278 Behind-the-Head Microphone
- 3. LR-400 Portable Display FM Receiver; minimum as required by the ADA 4% rule
 - LA-164 Ear Speaker; one for each receiver
 - Option; LA-166 Neck Loop
- 4. One complete set of batteries
 - Option; Rechargeable AA NiMH Batteries and charging system

Part 4 - Execution

4.1 General

- A. All Work described in this specifying document and on the Project drawings shall be performed in accordance with the acknowledged Professional and Industry standards and practices. All installed equipment shall meet and/or exceed the specified manufactures regulations.
- B. Furnish and install all materials, devices, components and equipment required for a complete and operational system.
- C. It is the contractor's obligation to inform the Owner and/or the Owner's Representative of any and all conflict's, between the project documents and the onsite conditions.
- D. It is the Contractor's responsibility and obligation to coordinate with all necessary trades to ensure the integrity and compliance of the Manufacture and Industry standards are meet during the duration of the installation.

4.2 Installation

- A. Furnish components, materials, parts, equipment, labor, etc. necessary for the complete installation of the systems in full accordance with the recommendations of the equipment manufacturers and the requirements of the drawings and specifications.

4.3 Programming

- A. Contractor shall provide all necessary programming to provide a complete operating system.

4.4 Testing

- A. The completed systems shall be physically inspected by the Owner's representative to assure that all equipment is installed in a neat and professional manner, and in accordance with these Specifications.
- B. The final system testing and commissioning shall be performed after all installation and initial testing has been completed by the Installer, but prior to any use of the systems.
- C. The Contractor, prior to requesting systems testing and demonstration to the Owner's representative, shall ensure that all systems are in first-class working condition and free of short circuits, ground loops, parasitic oscillations, excessive hum and noise, RF interference, or instability of any form.

4.5 Training

- A. Contractor shall provide no less than one (1) two (2) hour training sessions.
 1. The first training session will be a "Train the Trainer". The owner will appoint their representative to be provided extensive training so that he/she will be able to provide additional support once the project has been completed.
 2. The additional training session will be provided as a general overview of the system operation for large groups or several smaller groups as designated by the owner. Usually these additional training events will coincide with a school function when the sound system will be used.
 3. Provide sign in sheets for all training events. Deliver to architect in the close out documents.

4.6 Warranty

- A. Contractor will provide a minimum of a 1 year Workmanship Warranty that includes Parts and Labor.

- B. All equipment provided under this specification shall be warranted to be free from defects in materials and workmanship for a period of 12 months from the notice of completion.

4.7 System Documentation

- A. Upon completion of the installation, the contractor shall provide four copies (one hardcopy and three electronic copies) of Project Close-Out Documents to the Owner. Documentation shall include the items detailed in the sub-sections below:
 - 1. Maintenance and Operation Manuals
- B. The **As-Built** drawings are to include Equipment Layout and System Single Line Drawings.

END OF SECTION