SECTION 27 51 13
EVENT ANNUNCIATION SYSTEM
Construction Specification

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: event annunciation system's building distribution (subsystem of the EAS).

1. For existing buildings and small remodel projects, follow the design guidelines within this section.

2. For new buildings and major building modernization projects will utilize the Siemens XLSV Emergency Voice Alarm Communications System (EVACS) to transmit messages from the existing campus Event Annunciation System (EAS) to the building occupants. Confirm the specific project requirements with the District Project Manager.

B. Related Sections

1. Comply with the Referenced Standards.

1.2 REFERENCED STANDARDS

A. SECTION 27 00 00 Basic Communications Requirements

B. SECTION 28 31 00 Fire Detection and Alarm Systems

1.3 DEFINITIONS

A. Refer to Section 27 00 00 for Definitions.

B. In addition, the following list of terms as used in this specification shall be defined as follows:

1. "EAS": Event Annunciation System

2. "CL2P": Class 2 Power Listed Circuit Plenum, plenum rating

3. "CMP": Communications Media Plenum, plenum rating; synonymous with "MPP"

1.4 SYSTEM DESCRIPTION

A. Other System Elements

1. EAS systems installed at the District Office, Cañada, CSM And Skyline campus shall connect to the existing carillon system headend.

2. SMCCCD will provide amplifiers per building in the IDF rooms, where the loudspeaker wiring originates.

3. Siemens will provide the audio interface for connection of the EAS to the Siemens XLSV fire alarm control panel for distribution of the EAS program over the fire alarm system speakers within the building.

B. Base Bid Work

1. Provide engineering, labor, materials, apparatus, tools, equipment, and transportation required to complete the building distribution segment of the District's event annunciation system throughout designated spaces within campus buildings and exteriors, as described in these specifications.

2. Consider wiring/cabling and loudspeakers to be base bid work, unless otherwise noted. Amplifiers shall not be base bid work.

C. Loudspeaker Criteria

1. Selection Guidelines: The following list offers guidelines for selecting the appropriate loudspeaker type per instance to be noted on shop drawings for approval by the District.

a. For indoor spaces with lay-in tile suspended ceilings (such as corridors), provide indoor ceiling-mount type loudspeaker.

b. For indoor spaces with no ceilings (such as stairwells, lobbies, and corridors with no ceilings), provide indoor wall-mount type loudspeaker.

2. Placement Guidelines: The following list offers guidelines for the installer to locate loudspeakers on shop drawings for approval by the District.

a. In public corridors, equal to or less than 10 feet wide and 10 feet high, provide loudspeakers spaced approximately 30 feet apart. Attempt to locate loudspeakers near exits and elevators.

b. In stairwells of three stories or less, provide at least one loudspeaker per stairwell located on the middle landing. In stairwells of greater than three stories, provide at least one speaker on every other floor.

c. Provide loudspeakers in small/medium and large classrooms (lecture, lab, etc.), meeting rooms, lounges, offices and other occupied rooms.

d. Classrooms etc should get one speaker,center of the room if poss.

D. In general, the base bid work includes:

1. Preconstruction Submittals

2. Cabling/Wiring

3. Supplemental pathway devices and cable management

4. Loudspeakers

5. Cable identification tags and system labeling

6. Record Documents

7. Warranty

1.5 SUBMITTALS

A. Comply with the Submittals article of Section 27 00 00 for procedural, quantity, and format requirements.

B. Preconstruction Submittal Requirements:

1. Product Data Submittal, indicating conformance with NEC, UL listings, certifications and specifications

2. Shop Drawings Submittal, consisting of proposed loudspeaker locations and cable routing

C. Closeout Submittal Requirements:

1. As-Built Drawings

1.6 QUALITY ASSURANCE

A. Comply with the Quality Assurance requirements of Section 27 00 00.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with the Delivery, Storage and Handling requirements of Section 27 00 00.

1.8 WARRANTY

A. Warrant wiring/cabling and loudspeakers for a period of 2 years. Warranty period shall begin upon SMCCCD's written acceptance of system installation.

PART 2 PRODUCTS

2.1 AUDIO CABLE - INDOOR

A. Application: Suitable for indoor installation within closed ceiling space or open corridors.

B. Wires: Wires shall be 14/2 shielded AWG stranded copper, fully-insulated with a flame retardant thermoplastic material (PVC, or equivalent), and individually color-coded

C. Shield: The cable shall have one foil/tape shield fully covering the wires with a drain wire.

D. Outer Jacket: The cable shall be sheathed with a seamless thermoplastic (LS-PVC, or similar) jacket applied to and completely covering the internal components (wires and shield).

E. Flame Rating: NEC (Article 725) rated as CL2P or NEC (Article 800) rated as CMP, and UL listed as such.

F. Manufacturer: Honeywell #JSC8240 or Belden #6100FE or equal

2.2 AUDIO CABLE – OUTDOOR UNDERGROUND

A. USE:

1 Underground main feed line level cable from MPOE EAS distribution rack to building MDF/IDF EAS amp location or FA panel:

Manufacturer:

WestPenn AQC294 16/2 Aqua Seal shielded with drain wire. 2ea lines – underground homerun from MPOE EAS distribution system rack to building MDF.

Where the building will have a fire alarm voice annunciation system, the EAS MPOE wiring shall land at the building FA panel.

2. Splicing is permitted if needed. Matching the wire colors, twist and solder all wires including the drain wire. Water seal all wires separately. Use strain relief on the connections. Restore the shield. Water seal the outer jacket and splice location. Enclose in a water proof enclosure for a flooded location.

B: AUDIO CABLE – OUTDOOR TO ROOF

USE:

1 Exterior speakers. Usually to roof of a building or along an exterior wall etc.

Manufacturer:

WestPenn 12/2 Aqua Seal shielded from EAS Amp room to roof.

2.3 LOUDSPEAKER – INDOOR CEILING-MOUNT TYPE

A. Suitable for indoor installation within closed ceiling space into corridors.

B. Finish shall be flush with ceiling tile, including trim ring

Set tap to 4 watts. Red Dot facing the door.

C. Manufacturer:

Primary speaker for most all locations (halls, classrooms large meeting rooms, other large areas)

1. Bogen #HFCS1, enclosed ceiling-mount loudspeaker
2. Bogen #TBCR, tile bridge support ring
3. Bogen #CK10, safety cable kit or other safety wire

D Alt Speaker:

1. Bogen HFCS1LP for ceilings that do not accommodate the Bogen HFCS1. The following three units must be installed at each location. Set tap to 4 watts. Red dot facing the door.
4. 2. Bogen #HFCS1LP, enclosed ceiling-mount loudspeaker
5. 3. Bogen #TBCR, tile bridge support ring
4. Bogen #CK10, safety cable kit or other safety wire

A. Small Rooms: (Offices, meeting rooms, other small areas) Set tap to 4 watts. Red dot facing the door.

1 Bogen #HFSF1 Small-Footprint Ceiling Speaker
2 Bogen #TBSF Tile Bridge Support Ring
3 Bogen CK10 Safety cable kit or other safety wire

2.4 LOUDSPEAKER – INDOOR WALL-MOUNT TYPE

A. Suitable for indoor wall-mount installations, such as stairwells and/or corridors with no ceilings.

Set tap to 4 watts (black & yellow wires). Mount with transformer in the up position. Red dot below the grill.

B. Manufacturer: Bogen #MB8TSLVR

LOUDSPEAKER – Indoor Horn Type:

Speakers Horns (70V):
a. Bogen BDT30A indoor Duel horn. Set tap to 3.7 watts.
e. Bogen SPT30A Indoor single horn. Set tap to 3.7 watts.

2.5 LOUDSPEAKER – OUTDOOR HORNS SURFACE-MOUNT TYPE

A. Suitable for outdoor installation for open spaces

B. Loudspeaker shall be horn type

C. Manufacturer:

1. Bogen #KFLDS30T (Small coverage area) Set tap to 30 watts

2. Atlas Sound CJ-46 Horn & PD60AT Driver (Large coverage areas) Set Tap to 60 watts. Contractor may need to supply approiate roof mounting. Free standing with weights, pipe or wall brackets/braces.

New Section:
Supplied and Installed by ITS via Project Funds:

Important: ITS will purchase & install all amplifiers, DA's, Mixers etc in the head end's MPOE's & IDF and other locations for the system as needed. The list of this equipment is held by ITS.

2.6 LABELS for Wiring:

A. Labels shall be machine printable with a laser printer, ink jet printer, thermal transfer printer, or hand-held printer.

B. Cable Labels

1. Labels shall be adhesive backed and have a self-laminating feature.

2. Labels shall wrap around the cable's jacket.

3. Printable Area: size: 2" x 0.5", minimum; color: white.

4. Manufacturer: Panduit #LJSL7-Y3-1, or equal

5. Speaker ID labels will be done by ITS staff.

2.7 MISCELLANEOUS MATERIALS

A. Cable Hangers

1. Application: Suitable for indoor installation within ceiling space for the support of cables.

2. Listings: UL 2043, for use in air handling spaces

3. Manufacturers (or variation per installation method): B-Line #BCH12-W2, or equal

B. Velcro Cable Ties

1. Width: .75”.

2. Color: Velcro cable ties shall be the same color as the cable to which it is being applied.

3. Manufacturer, or equal: Panduit

- #HLS-15R-0 Black, 15’ roll, cut to length.

3 EXECUTION

3.1 GENERAL

A. Comply with the Execution requirements of Section 27 00 00.

B. Install products, components, accessories, hardware, etc, according to local, state, and federal codes, and per the manufacturer’s instructions.

3.2 EXAMINATION

A. Pathways: Prior to installation, verify route and capacity of existing pathways, and ready for new cables.

3.3 INSTALLATION

A. Loudspeaker – Indoor Ceiling-Mount Instances

1. Cut ceiling tile such that no visible cuts and/or openings are visible after installation of loudspeaker and trim.

2. Provide one bridge support ring per loudspeaker spanning the “T-bar” of the suspended ceiling system.

3. Provide one safety cable per loudspeaker attached to building structure for seismic bracing. Provide accessories, such as power-actuated masonry fasteners, to attach safety cable to structure.

- Obtain written approval from SMCCCD of fastening component prior to installation.

B. Loudspeaker – Indoor Wall-Mount Instances

1. Coordinate the loudspeaker's installation location with cable route to minimize the route of surface-mounted raceway and cable (minimize the length of 'exposed' raceway and cable).

2. Locate loudspeaker at least 8 feet 6 inches above finished floor in public spaces such as corridors. Locate loudspeakers at least 6 inches from nearest obstruction (soffit, duct, etc.).

3. No loudspeaker shall block visibility to an exit sign. The Contractor shall relocate loudspeakers at SMCCCD's discretion should the installed conditions potentially violate code.

4. Attach loudspeaker to surface using fasteners appropriate for the substrate; for example, provide masonry fasteners (screws such as Tap-Con) for concrete walls.

C. Pathways

1. Utilize existing pathways to the maximum possible extent.

2. Where necessary, provide supplemental pathways devices such as cable hangers.

3. Where cables route on exposed walls, provide metallic surface raceway. Attach raceway to surface using fasteners appropriate for the substrate; for example, provide masonry screws for concrete walls.

D. Loudspeaker Cable

1. General

- Cable runs shall have continuous sheath continuity, homogenous in nature. Splices are not permitted anywhere.
- Provide at least one cable run per floor. If the building's layout/floor plan will not allow a single run per floor in a logical manner, then provide two runs on that floor(s).
- Connect the audio cable to the loudspeakers in a parallel wiring configuration.
- Install OSP cable runs (interbuilding connections) simultaneous with other OSP cable runs (copper and fiber OSP backbone).

2. Installation

- Maintain a minimum bend radius of 6 times the cable diameter during and after installation.
- Maintain pulling tension within manufacturer's limits.
- Protect cable during installation. Replace cable if damaged during installation.
- Place cables with no kinks, twists, or impact damage to the sheath.
- Place and suspend cables in a manner to protect them from physical interference or damage.

- Place cables onto/into pathways or approved support devices, such as cable hangers. Do not strap and/or cable tie cables to the outside of existing pathways (which is a code violation) and to ceiling support wires.

Provide a 5 feet (minimum) sheathed cable slack loop at the speaker end of run (for future use).

3. Routing

- Route cables a minimum of 6" away from power sources to reduce interference from EMI.
- Route cables at 90-degree angles, allowing for bending radius along corridors for ease of access. Do not route through an adjacent space if a corridor borders at least one wall of the room.
- Within Telecommunications Rooms:
  - Routing horizontally, utilize the overhead cable support.
  - Routing vertically, fasten the cable bundles using approved cable ties to the wall-mounted vertical cable support every 24 inches on center.
- Provide a 20 feet (minimum) sheathed cable slack loop at the telecommunication room end of the run (for future termination).

3.4 LABELING

A. Labels shall be permanent with machine-generated text; hand-written labels will not be accepted.

B. Text Attributes:

1. Black,
2. 1/8” high, minimum, or #12 font size.
3. Font: Verdana preferred; SansSerif or Arial acceptable.

C. Install labels on both ends of cables no more than 4" from the edge of the cable jacket. Install labels such that they are visible by a technician from a normal stance.

D. Label Content: Labels shall display the building and floor, and (if applicable) the run number.

3.5 FINAL INSPECTION

A. Inspect installed products and work in conjunction with SMCCCD ITS.

Develop a punch list for items needing correction.

B. Issue punch list to the SMCCCD for review prior to SMCCCD ITS performing their punch walk.

C. Repair defects prior to system acceptance.

D. Inspect installed products and work in conjunction with SMCCCD for sign off.

END OF SECTION