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PEGASUS TECHNOLOGIES INC.
932 PILOT DRIVE
GREEN COVE SPRINGS, FL 32043
ADDENDUM 005 - 12/17/2019

Please note that all modifications to Specification Sections have been included in **BOLD** print for reference.

INCLUDED DOCUMENTS:

- Specification sections: all revisions are in **BOLD** print
 - **DELETE SPEC SECTION 27 05 36 - NOT REQUIRED**
 - **ADD SECTION 27 51 19.11 - REPLACE SECTION**

RFI'S / RESPONSES (IN BOLD)

1. Drawings E3.2 are showing the ladder tray in the hallways and the cable tray in the rooms. Normally it is opposite, cable tray in the hallways and ladder tray in each room. Also what sizes are you wanting for the cable tray and ladder tray? Do we quote the work putting the cable tray in the hallways and the ladder tray in the room or do we leave it as the drawing shows.
 - a. **RESPONSE: Ladder Tray in Mech rooms and Cable Tray outside IT rooms; Ladder cable trays in IT room, below ceiling, to be 18" wide x 4" deep. Wire Mesh cable trays, in ceiling space, outside IT rooms to be 12" wide x 2" deep.**
2. Please confirm Fixture Type M
 - a. **RESPONSE: Not required, Delete Type M fixture from schedule.**
3. Please confirm Fixture Type N:
 - a. **RESPONSE: Not required, Delete Type N fixture from schedule.**
4. Specification 260533 Part 3.1, A-3 states to provide 3" thick envelope around primary and secondary conduits, please confirm this will be required for this project.
 - a. **RESPONSE: Not required.**
5. The specifications do not mention the use of metal clad cable, can metal clad cable be used for branch circuits 20 amps or less where concealed in walls?
 - a. **RESPONSE: 3#12 copper wire (Line, Neutral and Ground) MC cable will be acceptable in wall space only. Outlet to outlet and outlet to junction box in ceiling space.**
6. Please confirm all voice/data cabling, security, and access control cabling, equipment and devices will be provided by owner's vendor and is not be included.
 - a. **RESPONSE: Correct, voice/data cabling, security, and access control cabling, equipment and devices by others. Provide pathways, and power as shown on construction documents.**

END OF ADDENDUM 004

SECTION 275119.11
SOUND MASKING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Electronic noise generators.
 - 2. Amplifiers.
 - 3. Wiring.
 - 4. Masking speaker assemblies.
 - 5. Controls.
 - 6. Component mounting racks.

1.2 SYSTEM DESCRIPTION

- A. Sound masking system with audio for paging and background music.
- B. Channels: Separate channel of masking sound to each of two groups of speakers in each zone.
- C. Uniformity with Respect to Time: One-minute time-averaged sound-pressure level of any octave band of masking sound from 250 to 8000 Hz remains constant in any space to within a standard deviation of 2 dB when measured over a 30-minute period.
- D. Sound Quality: No audible hum or noise from this system in covered spaces when noise generators are off and power amplifiers are on with input volume controls set at 50 percent.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include nationally recognized testing laboratory listing data.
- B. Shop Drawings: Dimensioned plans and elevations showing minimum clearances and installed features and devices for system components. Show types and locations of masking speakers and their wiring connections, channel assignments, and axis orientations. Show ducts, beams, and other significant sound-reflecting and -absorbing elements in ceiling space and show locations of partitions below ceiling. Include a diagram showing interconnection of major system components for each zone and channel and indicating grounding connections.
 - 1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer trained and approved by manufacturer of sound-masking equipment.
- B. 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.
- C. Comply with NFPA 70.
- D. Comply with UL 813 unless a more stringent standard is specified in Part 2.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Cambridge Sound.

2.2 GENERAL REQUIREMENTS FOR SOUND-MASKING EQUIPMENT

- A. Components: Modular plug-in, heavy-duty, industrial-grade integrated circuit devices.
- B. Protection from Power Line Surges: Integral surge protection devices listed in UL 1449.

2.3 NOISE GENERATOR AND FILTER UNITS

- A. The controller shall consist of all electronics required for operating a sound masking system from a single accessible location. The controller shall permit password protected access for control and monitoring via LAN/Browser interface. The controller shall provide six zones and shall be sufficient to generate sound masking, audio control and audio power for up to 72,000 square feet (6,689m²) of coverage. The unit shall be capable of time-of-day masking level control; per-zone settings shall be available for day/night levels and start times, ramping interval, and weekday/Sat/Sun behavior. Each audio output shall provide 4 incoherent channels of masking noise to minimize phase interference and hotspots. The complete system shall consume less than 24 watts of power. The unit shall meet all requirement of Underwriters Laboratories, the US and Canadian National Electrical Codes, FCC Part 15, and all pertinent UK and EU codes. Cambridge Sound QT 600.
- B. Auxiliary Inputs: Able to accept two, high-level, auxiliary signals such as music and telephone paging as well as general paging.
- C. Mounting: Rack 3-1/2 inches (90 mm) high.

2.4 MASKING SPEAKER ASSEMBLIES

- A. The emitter shall consist of a single 1.25” (3.17 cm). 4ohm, full range transducer installed in a vented enclosure. The enclosure shall be made to meet UL Standard 2043 requirements for heat and smoke release in accordance with the provisions of the following codes: National Electric Code, NFPA 70; International Mechanical Code, NFPA 5000; Standard for the Installation of Air Conditioning and Ventilating Systems, and NFPA 90A. The emitter shall be provided with internal logic to automatically sequence 4 channels of mutually incoherent masking sound generators when connected with standard Category rated cables. Input and output receptacles shall be standard RJ45 quick connect network type with positive locking. A twist-and-lock mounting ring shall be provided for quick and secure mounting in ceiling materials. The enclosure shall provide a secondary attachment for a security. Cambridge Sound QT Active Sound Masking Loud Speaker.

2.5 POWER SUPPLY

- A. 600 Watt Active Emitter Power Supply that provides DC power to the Active Emitter through the Active Emitter Power Injector. Three 14/2 conductor cabling outputs that each power up to 50 Active Emitters for a total of 150 Active Emitters. The Active Emitter Power supply shall be rack mountable.

2.6 ACTIVE EMITTER POWER INJECTOR

- A. Active Emitter Power Injector to combine DC power from the Active Emitter Power Supply with the audio signal from the QtPro module in order to provide a powered “signal” for the Qt® Active Emitter. Two output ports that each supports up to 25 Qt Active Emitters. The Active Emitter Power Injector shall be placed in the headend rack.
- B. Assemblies installed in air-handling spaces shall comply with NFPA 70 requirements for rate of heat-release and rate of smoke-release characteristics. Tests for these requirements shall be according to UL 2043.
- C. Provide layout showing location and quantity of speakers.

2.7 WIRE

- A. Speaker Wire: UTP CAT 5 cable complying with manufacturer's requirements; listed and labeled for environmental air plenums.

2.8 COMPONENT MOUNTING RACKS

- A. Configuration: Comply with CEA-310-E. Factory-fabricated units designed for interchangeable mounting and enclosure of standard 19-inch (482-mm) relay rack modules.
- B. Mounting Provisions: Equipped for freestanding floor mounting.
- C. Cabinet: Factory-finished steel with component mounting rails and prewired plug strips for component power connections. Full front and rear doors with continuous hinges, handles, and cylindrical keyed locks.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Speaker Connections: For two- or three-channel systems, connect speaker assemblies alternatively so masking sound is redundant throughout zones of coverage.
- B. Wiring Method: Conceal conductors and cables in accessible ceilings, and walls.
 - 1. Install plenum cable in environmental air spaces, including plenum ceilings.
 - 2. Comply with requirements for raceways and boxes specified in Section 16130 "Raceway and Boxes for Electrical Systems."
- C. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
- D. Cable: Install parallel to building lines, follow surface contours, and support as recommended by manufacturer.
- E. Grounding: As recommended by manufacturers unless more stringent requirements are indicated. Ground equipment and conductors to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments with a maximum of 5-ohm to ground at main equipment location. Measure, record, and report ground resistance.
- F. Impedance Matching: For system components, including connecting cable, provide end-to-end level and impedance-matched signal paths. Use matching networks and balancing devices at connections where necessary to avoid mismatches.

3.2 IDENTIFICATION

- A. Use color-coded conductors, and apply wire and cable marking tape to designate wires and cables so media are identified in coordination with system wiring diagrams. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- B. Label speaker assemblies as to channel, zone, and address.

3.3 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. Operational Test: Start system to confirm proper operation. Remove malfunctioning units, replace with new units, and retest. Make initial sound-spectrum and -level adjustments for each zone.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.
 4. Masking Sound-Power-Level Adjustments: Adjust independently for each space to minimum level between 40 and 50 dB that will provide speech privacy between adjacent workstations while complying with other system requirements.
- C. Final Acceptance Testing: Provide a minimum of 10 days' notice of acceptance test performance schedule.
1. Tests and Calibration Conditions: Spaces shall be completely furnished but unoccupied; lights and HVAC systems shall be on; HVAC system testing and balancing shall be completed; and electronic ballasts, lighting relay panels, and low voltage transformers shall be in place.
 2. Test Conditions: Complying with ASTM E 1130 and calculated according to ANSI S3.5.
 3. Instrumentation: Use a professional-quality, sound-level meter with octave-band filters and documentation of recent calibration against recognized standards.
 4. Record test observations, readings, and corrective actions.
 5. System Tests: Include the following for each system zone:
 - a. Speaker Circuit Impedance Test: Measure impedance at 1000 Hz with amplifier disconnected, using a professional impedance meter or bridge. Locate and correct faults denoted by abnormal readings.
 - b. Ambient Sound-Level Tests: With system off, measure ambient sound level in one-third octave bands. Also measure ambient sound level as a single, wide-band, A-weighted reading.
 - c. Amplifier Noise Test: Check for performance specified in "System Description" Article with masking noise generator off and amplifiers on.
 - d. System Noise Test: With masking noise signal on and amplifiers adjusted at a working level 10 dB above ambient sound level, check for hum, buzz, rattle, or other operating deficiencies.
 - e. Spatial Uniformity Test: Measure sound level at locations no greater than 15 feet (4.6 m) o.c. throughout covered spaces to determine compliance with specified performance level.
 - f. Frequency Response Adjustment and Test: Adjust one-third octave frequency bands and other unit filters to provide response. Adjust to meet requirement of space speech intelligibility and quality of background sound. Comply with ANSI S3.2, CEA 426, and ASTM E 1110.
 6. Adjust level of masking sound for each space so one-third octave band centered at 500 Hz has final selected sound-power level for that space. Measure deviation from listed values in one-third octave bands from 100 to 1000 Hz. Measured values must not deviate from those listed by more than 4 dB for open plan areas and 8 dB for enclosed offices. The total of individual band deviations in eight bands must not exceed 16 dB for open plan areas and 30 dB for enclosed offices.
 7. Walk-through Test: People in covered spaces cannot discern speaker locations.
 8. Temporal Stability Test: Check for uniformity of time by measuring sound level in each of 14 octave bands at one-minute intervals over a 30-minute test period. Deviations must not exceed limits specified in "System Description" Article.
 9. Where required, space shall meet the Health Insurance Portability and Accountability Act for privacy and the Gramm-Leach Bliley Act to protect consumer personal and financial information in open office layouts.
- D. Retest: Correct deficiencies identified by tests and observations and retest until meeting specified requirements.

- E. Recording Control Settings and System Adjustments: Record final control settings and programming, and final tap setting of speaker matching transformers. Record final sound-level measurements and observations.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain services.

END OF SECTION