

FM Project Addenda

Work Order Number	Addendum Number 1	Addendum Date 05/10/16
Project Location 2349 Virlow St., Idaho Falls, Idaho 83401	Project Description Add hot water fan coil units with DX cooling to 3 areas with associated ductwork, furr-outs, doors, electrical, etc	
Project ID 504-6955	Bid Opening Date 05/19/16	

Owner/Trust

The owner or trust is as marked below:

- Corporation of the Presiding Bishop of The Church of Jesus Christ of Latter-day Saints, a Utah corporation sole
 The Church of Jesus Christ of Latter-day Saints in Canada, a Canadian Trust

From consultant or architect:

Engineered Systems Associates, Inc.

Instructions to prospective bidders:

This addendum forms a part of the contract documents and modifies the original bidding documents and/or prior addenda as noted below. All conditions, requirements, materials and workmanship are to be as described in the contract documents unless specifically stated otherwise. This addendum consists of this cover page and the attached drawings and sheets dated: 10-May-2016

1. Changes to prior addenda:

N/A

2. Changes to bidding requirements:

Bid Opening has been changed to the Office of the Architect. NBW Architects, 990 John Adams Parkway, Idaho Falls, Idaho.
Phone: 208-522-8779.

3. Changes to conditions of the contract or scope of work:

N/A

4. Changes to specifications:

Add attached Section 23 2500- HVAC Water Treatment.
Add attached Section 27 5117-Audio Systems.

5. Changes to drawings:

Sheet ME-1: Reference Note 3. Owner wants to retain salvage of cabinet unit heaters. Contractor to remove and return to Owner.
Sheet ME-4: Locate new thermostat for new HVAC zone in basement boiler room with other existing thermostats.

SECTION 23 2500

HVAC WATER TREATMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Procure services of Water Treatment Service Organization which shall:
 - a. Perform initial cleaning and flushing procedures.
 - b. Provide chemicals required for cleaning and flushing systems.

Note: Walter Pietz of Boiler Treatment Services (208- 356-0306) does the current maintenance on this building.

- B. Related Requirements:
 - 1. Owner will supply operating chemicals after start-up chemicals have been exhausted.

1.2 SUBMITTALS

- A. Informational Submittals:
 - 1. Manufacturer Instructions:
 - a. Written recommended treatment procedures, chemicals, chemical feeding equipment, and basic water analyses test equipment, based on chemical analysis of representative sample of water supply.

PART 2 - PRODUCTS NOT USED

2.1 ASSEMBLIES

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Treat boiler and system piping with specified corrosion inhibitor and liquid biocide. Maintain nitrate level between 500 and 800 ppm.

END OF SECTION

SECTION 27 5117**AUDIO SYSTEMS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install operational sound masking system as described in Contract Documents.
- B. Related Requirements:
 - 1. Division 26 'Electrical':
 - a. Raceway, boxes, and installation of speaker enclosures and mounting rings furnished by Division 27.
 - b. Power to equipment location and power relay wiring if applicable.

1.2 REFERENCES

- A. Association Publications:
 - 1. Building Industry Consulting Service International (BISCI):
 - a. *Information Transport Systems Installation Methods Manual (ITSIMM)* (5th Edition).
 - b. *Telecommunications Distribution Methods Manual (TDMM)* (12th Edition).
 - 2. InfoComm International Association:
 - a. *Audiovisual Best Practices: The Design & Integration Process for the AV and Construction Industries*.
 - b. *AV Design Reference Manual* (1st Edition, 2006).
 - c. *Basics of Audio and Visual Systems Design* (2003).
 - 3. Institute of Electrical and Electronics Engineers:
 - a. IEEE 1100-2005, '*Recommended Practice for Powering and Grounding Electric Equipment*'.
- B. Reference Standards:
 - 1. American National Standards Institute/InfoComm International Association:
 - a. ANSI/INFOCOMM 1M:2009, 'Audio Coverage Uniformity in Enclosed Listener Areas'.
 - b. ANSI/INFOCOMM 2M:2010, 'Standard Guide for Audiovisual Systems Design and Coordination Processes'.
 - c. ANSI/INFOCOMM 4:2012, 'Audiovisual Systems Energy Management'.
 - 2. National Fire Protection Association:
 - a. NFPA 70: 'National Electrical Code (NEC)' (2014 Edition).
 - b. NFPA 72: 'National Fire Alarm and Signaling Code' (2016 Edition).
 - 3. Telecommunications Industry Association:
 - a. TIA-568-C.2, 'Balanced Twisted-Pair Telecommunications Cabling and Components Standards' (Revision C, 2009).
 - b. TIA-569, 'Telecommunications Pathways And Spaces' (Revision D, 2015).
 - c. TIA-606, 'Administration Standard for Telecommunications Infrastructure' (Revision B, 2012).
 - d. TIA-607, 'Telecommunications Bonding and Grounding (Earthing) for Customer Premises' (Revision C, 2015).
 - e. TIA-758, 'Customer-Owned Outside Plant Telecommunication Infrastructure Standard' (Revision B, 2012).
 - 4. Underwriters Laboratories (UL):
 - a. UL 486A-486B, 'Wire Connectors' (January 2013).

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Special Procedure Submittals:
 - a. Provide itemized list of equipment to be supplied.
 - b. Provide proposed labeling for system components.
 - 2. Qualification Statement:

- a. Installer:
 - 1) Provide Qualification documentation as requested by Engineer/Architect including:
 - a) List of Projects requested.
 - b) List of certified technician(s) with dates of training courses completed.
- B. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Operations and Maintenance Data:
 - 1) Equipment Manufacture's manual:
 - a) Audio system operation and maintenance instructions.
 - b) List of equipment provided, including portable equipment, showing make, model, and serial number.
 - b. Warranty Documentation:
 - 1) Include copy of final, executed warranty.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. System shall be installed in accordance with applicable standards, requirements, and recommendations of International Building Code, National Electrical Code and all local authorities having jurisdiction.
- B. Qualifications:
 - 1. Installer. Requirements of Section 01 4301 applies, but not limited to following:
 - a. Approved Installers:
 - 1) Installers are to furnish and install components of audio system and meet qualification requirements.
 - 2) Approval subject to agreement process for Pre-Approval Installers.
 - b. Alternate Installer(s):
 - 1) Firm specializing in performing work of this section:
 - a) Minimum three (3) years of successful installation experience of AV system projects of comparable size, and complexity required for this project. Audio systems must have included complete installation and setup work and must have been completed by factory trained and certified technician.
 - b) Firm successfully completed minimum of three (3) projects in past two (2) years before bidding.
 - c) Firms must have certified technician that has successfully completed all relevant training courses recommended by manufacturers and proficient of all specified equipment of this section.
 - d) Comply with specifications and Contract Documents.
 - 2) Submit documentation of compliance of qualifications before bid to Architect or Owner's Representative.
 - c. Same Approved Installer shall furnish and install components of Section 27 1116 'Communications Cabinets, Racks, Frames and Enclosures'.
 - d. Same Approved Installer shall furnish and install components of Section 27 4117 'Video Systems'.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 - 1. Materials shall be delivered in original, unopened packages with labels intact.
- B. Storage And Handling Requirements:
 - 1. Provide secure location protected from weather in cool, dry location, out of direct sunlight in compliance with Manufacturer's instructions and recommendations.
 - 2. Keep materials free from dirt and foreign matter.

1.6 WARRANTY**A. Special Warranty:**

1. Provide complete warranty repair or replacement for one (1) year at no cost to Owner, except in case of obvious abuse.

PART 2 - PRODUCTS**2.1 SYSTEM****A. Manufacturers Contact List:**

1. Category Four components as shown on Drawings from following Manufacturers. See Section 01 6200 for definition of Categories.
 - a. Atlas Sound, Phoenix, AZ www.atlassound.com.
 - b. Audio-Technica US Inc, Stow, OH www.audio-technica.com.
 - c. Belden Wire & Cable Co, Richmond, IN www.belden.com.
 - d. BSS Audio, Sandy, UT www.bssaudio.com.
 - e. Chatsworth, Westlake Village, CA www.chatsworth.com.
 - f. Community Professional Loudspeakers, Chester, PA www.communitypro.com.
 - g. COMTEK Inc, Salt Lake City, UT www.comtek.com.
 - h. Conquest Sound Co, Tinley Park, IL www.conquestsound.com.
 - i. Crown Audio Inc, Elkhart, IN www.crownaudio.com.
 - j. Countryman, Menlo Park, CA www.countryman.com.
 - k. EIKI International, Laguna Nigel, CA www.eiki.com.
 - l. Electro-Voice Inc, Burnsville, MN www.electro-voice.com.
 - m. Emtech Electronics Inc, Orem, UT www.emtechelectronics.com.
 - n. Extron, Anaheim, CA www.extron.com.
 - o. HellermannTyton, Milwaukee, WI www.hellermann.tyton.com.
 - p. Hubbell Inc, Orange, CT www.hubbell-wiring.com.
 - q. IVIE Technologies Inc, Lehi, UT www.ivie.com.
 - r. JBL Professional, Northridge, CA www.jblpro.com.
 - s. König & Meyer, Wertheim, Germany www.k-m.de/en.
 - t. Leviton Manufacturing Co, Little Neck, NY www.leviton.com.
 - u. Liberty AV Solutions, Colorado Springs, CO www.libertycable.com.
 - v. Lowell Manufacturing Co, Pacific, MO www.lowellmfg.com.
 - w. Middle Atlantic Products, Fairfield, NJ www.middleatlantic.com.
 - x. Neutrik USA Inc, Lakewood, NJ (732) 901-9488. www.neutrikusa.com.
 - y. Newark Electronics, Sola and Triad, Chicago, IL www.newark.com.
 - z. QSC Audio Products, Costa Mesa, CA www.qscaudio.com.
 - aa. Radio Design Labs, Carpinteria, CA www.rdl.net.
 - bb. Rane Corp, Mukilteo, WA www.rane.com.
 - cc. Shure Brothers, Evanston, IL www.shure.com.
 - dd. SoundTech, Mundelein, IL www.soundtech.com.
 - ee. Soundtube Entertainment, Park City, UT www.soundtube.com.
 - ff. Surgex, Knightdale, NC www.surgex.com.
 - gg. Switchcraft, Chicago, IL www.switchcraft.com.
 - hh. TOA Electronics, South San Francisco, CA www.toaelectronics.com.
 - ii. TV One, Erlanger, KY www.tvone.com.
 - jj. Whirlwind Music Distributors, Inc., Rochester, NY www.whirlwindusa.com.
 - kk. Wireworks Corp, Hillside, NJ www.wireworks.com.

B. Performance:**a. Sound masking system:**

- 1) Sound masking system shall provide adequate speech privacy in Corridor when set between 42 dBA and 46 dBA at ear-height under speaker so conversation in Office at slightly raised voice levels cannot be understood in Corridor.

C. System Requirements:**1. General:**

- a. Provide complete and fully functional sound masking systems using materials and equipment of types, sizes, ratings, and performances as indicated in equipment list in accompanying drawings:
 - 1) Use materials and equipment that comply with referenced standards and manufacturers' standard design and construction in accordance with published product information.
2. Provide all wire, cable, and connectors as required to complete installation of all systems as designed and specified.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification Of Conditions:
 1. Verify compliance with following items before beginning work of this Section:
 - a. No cables spliced.
 - b. Isolated ground run back to electrical panel from all equipment cabinets.
 - c. Specified conduit, cables, speaker enclosures and equipment cabinets are properly installed.
 - d. Location and angle of speaker cabinets.
 2. Ensure that no solid structural or decorative member impedes sound propagation from speakers and that no member with cross section greater than 3/4 inch (19 mm) is placed in front of speakers.
 3. Verify installation of fiberglass insulation in field-fabricated speaker enclosures.
 4. Verify proper functionality for all system components being reused or remaining untouched.

3.2 INSTALLATION

- A. General:
 1. Install system in accordance with NFPA 70 'National Electrical Code', NFPA 72 'National Fire Alarm and Signaling', and other applicable codes. Install equipment in accordance with manufacturer's written instructions.
- B. Mounting And Securing Equipment:
 1. Equipment shall be firmly secured in place unless requirements of portability dictate otherwise.
 2. Fastenings and supports shall be adequate to support their loads with safety factor of at least three (3) times weight of equipment being installed.
 3. Any structural mounting that is not able to meet this requirement due to specific nature of equipment, manufacturer's requirements or limitations of facility, shall not be installed without prior approval of Engineer.
 4. Install all boxes, equipment, hardware, and other materials plumb, level, and square.
- C. Cables, Wires, And Connectors:
 1. Cables:
 - a. Cable and wire shall be new and unspliced.
 - b. Splicing:
 - 1) Splicing of cables and conductors is expressly prohibited in any location other than equipment racks.
 - 2) Splicing of control and speaker level conductors shall be accomplished via punch block or terminal strip connections only.
 - c. Additional cable length shall be provided at all connector locations. Duplex box, junction box, and floor box locations shall be installed with sufficient cable length behind cover plates to permit wiring maintenance and connector replacement in the future.
 - d. When cable runs utilize vertical cable raceways located within walls, acoustic integrity of walls shall be maintained:
 - 1) Cables that pass through cover plates of junction boxes and raceways, through slab-to-slab walls, and through conduit lines shall be properly gasketed and sealed. Acoustic material shall be restored or replaced.

- e. Separation between system cables and other services shall be maximized to prevent and/or minimize potential for electro-magnetic interference (EMI):
 - 1) Provide at least 12 inches (305 mm) separation from electrical lines whenever feasible.
 - 2) Where separation is unavoidable, distribution cables shall cross other services at right angles whenever practical to minimize EMI.
 - f. Do not install signal cables on top of light fixtures, ceiling speakers, projection screens, HVAC controls or sensing devices, fire safety and sprinkler system detection technology, or any other technology or mechanical equipment.
 - g. Do not lay cables directly on top of T-bar grid ceiling tiles:
 - 1) Support cables installed outside of conduit at 4 feet (1.20 m) maximum intervals from building structure.
 - 2) Do not utilize support wires from other trades or systems.
 - h. Install system cables shall not block access to other equipment or services, across removable service panels and/or in any other manner to prohibit routine maintenance of HVAC systems, fire safety equipment and building mechanical control systems.
 - i. Power cables, control cables, and high level cables shall be run on left side of equipment racks as viewed from rear. All other cables shall be run on right side of all equipment racks as viewed from rear.
 - j. Cables, except video cables which must be cut to electrical length, shall be cut to length dictated by cable run.
 - k. Terminal blocks, boards, strips or connectors, shall be furnished by installer for all cables which interface with racks, cabinets, consoles, or equipment modules. Affix terminal blocks, boards, strips or connectors to equipment racks using screws only. Double sided tape will not be accepted.
2. Wiring and Cabling:
- a. Comply with industry standard circuit polarity and loudspeaker wiring polarity. No cables shall be terminated with polarity reversal between connectors at either end.
 - b. System wire, after being cut and stripped, shall have wire strands twisted back to their original lay and be terminated by approved soldered or mechanical means. No bare wire ends shall be accepted.
 - c. Do not place any wires and cables for this system in any conduit, raceway, wire way or cable tray that is used for mechanical systems of building.
3. Connectors:
- a. Provide connectors of type and quality as detailed in Contract Drawings and/or as required to meet minimum bandwidth requirements of equipment to which connectors are terminated. Overall quantity of connectors shall not be limited by quantities indicated in Contract Drawings and shall be provided as required.
 - b. No connectors shall be installed in non-accessible locations or used for splicing cables. Connectors shall be new.
 - c. Connectors shall incorporate strain relief mechanisms which firmly grip the jacket of connected cables.
 - d. Connectors shall be properly polarized to prevent improper seating.
 - e. Connectors shall provide appropriate electrical characteristics for circuitry to which they are attached.
 - f. Exposed conductors inside of equipment racks shall be dressed with heavy duty neoprene heat-shrink tubing.
 - g. Heat-shrink type tubing shall be used to insulate and dress ends of all wire and cables including separate tube for ground or drain wire.
 - h. Solder connections shall be made with rosin-core solder. Temperature controlled soldering irons rated at least 60 watts shall be used for all soldering work. No soldering guns, gas or butane, or temperature unregulated irons shall be used on job site.
 - i. Mechanical connections shall be made with approved crimp lugs of correct size and type for connection. Wire nuts shall not be permitted except inside speaker enclosures. Each connector shall be attached with proper size controlled-duty-cycle ratcheting crimp tool approved by manufacturer.
 - j. Conventional non-ratcheting type crimping tools are unacceptable, and shall not be used on job site. Presence of such tools on job site shall constitute evidence of mechanical connections made with unauthorized tools and shall provide sufficient grounds for rejection of all mechanical connections in system, and will be considered non-conforming work.

- D. Identification And Labeling:
1. Cables, regardless of length, shall be identified with machine-printed wrap-around labeling system at both ends:
 - a. These labels shall be self-laminating to ensure durability.
 - b. Label format used shall be equal, or better than, system detailed.
 2. There shall be no unmarked cables any place in system.
 3. Marking codes used on cables shall correspond to codes provided with submittals, and/or written documentation of 'Record Drawings'.
 4. Connectors, controls, equipment components, terminal blocks and equipment racks are to be permanently labeled in format approved during submittal process.
 5. Equipment labels are to be permanently engraved in metal. Alternative method shall be approved during submittal process only.
 6. Clearly and permanently label all jacks, controls, connections, and so forth. Embossed or printed label tape shall not be used and is considered unacceptable for this system. Attach labels with double stick tape as required.
 7. Labeling shall be completed prior to acceptance of final system.
- E. Grounding:
1. Provide equipment grounding connections for audio system as indicated. Tighten connections to comply with tightening torques specified in UL Standard 486A-486B to assure permanent and effective grounds.
 2. Ground equipment, conductor, and cable shields to eliminate shock hazard and to eliminate ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide 5 ohm ground at main equipment location. Measure, record, and report ground resistance.
 3. Provide grounding conductor with green insulation between as indicated on Contract Drawings. Comply with IEEE and TIA standards.

3.3 FIELD QUALITY CONTROL

- A. Field Tests:
1. Installer Testing:
 - a. After completion of installation but before inspection by Audiovisual Consultant, perform following:
 - 1) Conduct system tests and make necessary corrections for proper system operation including, but not limited to, following:
 - a) Output level uniformity.
 - b) Polarity.
 - c) Loose parts and poor workmanship or soldering.
- B. Non-Conforming Work:
1. Correct any work found defective or not complying with contract document requirements at no additional cost to the Owner.
- C. Manufacturer Services:
1. Provide services of factory authorized service representative to supervise field assembly and connection of components and pretesting, testing, and adjustment of system.

3.4 CLEANING

- A. Waste Management:
1. All work areas are to be kept clean, clear and free of debris at all times.
 2. Disposal of rubbish, debris, and packaging materials in proper manner.

END OF SECTION