

Solicitation 144-09

Emergency Management and IT Services Audio- Visual Package



City of Garland

Bid 144-09

Emergency Management and IT Services Audio-Visual Package

Bid Number	144-09
Bid Title	Emergency Management and IT Services Audio-Visual Package
Bid Start Date	Jan 13, 2009 9:40:46 AM CST
Bid End Date	Feb 5, 2009 3:00:00 PM CST
Question & Answer End Date	Feb 2, 2009 12:00:00 PM CST
Bid Contact	Rose Berger Buyer
Contract Duration	One Time Purchase
Contract Renewal	Not Applicable
Prices Good for	Not Applicable
Pre-Bid Conference	Jan 27, 2009 10:30:00 AM CST Location: Emergency Management Resource Room 1490 Hwy. 66 Garland, TX 75040
Standard Disclaimer	The right is reserved to accept or reject all or part of the bid, and to accept the offer considered most advantageous to the City by item or total bid. The City of Garland will award to the lowest responsible bidder or to the bidder who provides goods or services at the best value to the City.
Bid Comments	All questions must be posted on Bidsync website. This bid is exempt from any transaction fee.

Item Response Form

Item	144-09-1-01 - Furnish & install audio-visual package, per COG Spec.
Quantity	1 lump sum
Unit Price	
Delivery Location	City of Garland <u>Purchasing Dept</u> 200 N Fifth St Garland TX 75040 Qty 1
Description	none

Garland EMIT Systems
PMK Project No. 0801G077.01

Construction Documents Issue
December 18, 2008

SECTION 11130

AUDIO VIDEO SYSTEM

1.1 GENERAL

1.2 RELATED DOCUMENTS

- A. The Drawings, General, Special, and Supplementary Conditions of the Contract and Division 01 apply to the Work of this Section.
- B. All work shown on Contract Drawings AV series drawings is provided under this section. Refer to these drawings for plans, graphic representations, schedules, and notations showing Audio Video System work.
 - 1. Refer to 'AE' Audio Visual Electrical series drawings for related work provided under Division 16.
 - 2. Switches, switchboards, contactors, panel boards, transformers, conduit, wire, outlets, connectors and other electrical devices specified herein or on accompanying drawings shall conform to provisions of other sections of Division 16 of these specifications unless otherwise noted.

1.3 SCOPE

- A. Section Includes supply, delivery, supervision, coordination, installation of equipment items specified herein and shown on drawings as well as testing, documentation, and instruction related to complete Audio Video Systems, Equipment Racks, Consoles, Cables, and Control wiring for the following systems:
 - 1. Audio Video Systems Electronics and Wiring, including connections to the audio system network.
 - a. Control Systems Electronics and Wiring, including connections to control system network.
 - b. Sound Masking Systems as an Add Alternate #1, including wiring, connections, amplification, digital signal processing, and speakers.
 - c. Miscellaneous portable equipment and accessories.
 - d. Coordination with other trades.
- B. Products Supplied But Not Installed Under This Section.
 - 1. Special back boxes as noted on the 'AE' series drawings
 - 2. Portable equipment (e.g. Microphones, stands etc...)
- C. Products Installed But Not Supplied Under This Section.
 - 1. Owner furnished equipment (O.F.E).
- D. Provision of system testing and demonstration, system documentation and instruction of Owner Personnel.

1.4 REFERENCES

- A. National Electric Code (N.E.C.).
- B. National Electric Safety Code (N.E.S.C.).
- C. Davis, Don, Sound System Engineering, Second Edition, Howard W. Sams and Co., Indianapolis, Indiana, 1986.
- D. Society of Cable Telecommunications Engineers (S.C.T.E).
- E. National Fire Protection Association (N.F.P.A.).
- F. American National Standards Institute (A.N.S.I.).
- G. Electronics Industries Association (E.I.A).
- H. Telecommunications Industries Association (T.I.A.).
- I. Audio - Design and Installation, Giddings, Howard W. Sams, 1990.
- J. Society of Motion Picture and Television Engineers (S.M.P.T.E.)
- K. American Society for Testing Materials (A.S.T.M.).
- L. Building Seismic Safety Council (B.S.S.C.)

AUDIO VIDEO SYSTEM

1.5 SYSTEM DESCRIPTION

A. Audio Video System. AV systems under this specification are as described below:

1. OEM Resource Room
 - a. Floor box and wall plate I/O Connectivity
 - b. Microphones and loudspeakers for voice lift
 - c. Distributed LCD's
 - d. Multi-view multi-resolution video projector
 - e. Angled video projection screen
 - f. Control System
2. Training Room
 - a. Floor box and wall plate I/O Connectivity
 - b. Microphones and loudspeakers for voice lift
 - c. Distributed LCD's
 - d. Multi-view multi-resolution video projector
 - e. Angled video projection screen
 - f. Control System
3. Conference Rooms
 - a. Floor box I/O Connectivity
 - b. Video projector with mount
4. War Room
 - a. Floor box I/O Connectivity
 - b. Video projector with mount
5. Corridor #159/132
 - a. Sound masking system (Alternate #1)
6. Open Plan Room #119
 - a. Sound masking system (Alternate #1)
7. Corridor & Lobby #106/100
 - a. Sound masking system (Alternate #1)
8. Corridor #121/149
 - a. Sound masking system (Alternate #1)

1.6 SUBMITTALS

A. Product Data: In addition to the quantities required by "Division 01, Submittal Procedures" and before ordering, submit one (1) additional set of catalog data sheets, neatly bound with title page, space for submittal stamps, and tabbed dividers between sections. List all proposed equipment with reference to corresponding specification paragraph numbers or equipment title. Indicate all accepted substitutions.

1. Submit a schedule of finishes indicating proposed materials and color selections for all exposed items subject to Architect's selection.
2. Submit a list showing coordination of selected frequencies for all wireless transmitters.

B. Shop Drawings: In addition to the quantities required by "Division 01, Submittal Procedures", submit one (1) additional bond sets of drawings showing 'Submittal for Construction' work to the Architect for its Consultant review. If 'Submittal for Construction' documents are rejected, correct and resubmit in the manner specified

1. Provide Shop Drawings and Record Drawings using the following scales:
2. Plans - not less than 1/8" = 1'-0"
3. Details - not less than 1/4" = 1"
4. Submit point-to-point wiring diagrams and typed wire lists identifying every connection for information. Include electronic devices such as switches, transformers, and terminal blocks. Indicate locations of all components. Identify cables by types, colors, and wire numbers.
5. Submit system plans showing all device locations and ceiling distributed loudspeaker layouts with wattage tap settings.
6. Submit conduit riser diagrams showing connection of all devices, required conduit sizes along with types and quantities of cables to be used and cable identification tags.

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7. Submit rack layouts indicating the proposed arrangement of mounted equipment including junction boxes and locations of conduit penetrations.
8. Submit fully dimensioned construction details of all panels, plates and other custom fabricated items or modifications (e.g. installation of audio/visual equipment in lecterns). Include complete parts lists and, as required, schematic diagrams.
9. Submit diagrams of antenna orientation, mounting elevation and attachment hardware schedule. For satellite antennas show orbital arc clearance and elevations rosette on site or roof plan as appropriate, and terrestrial interference surveys as required.
10. Submit full plan view, front elevation, and side elevation of the projection systems. Include projection distances, lens selections, and use of mirror assemblies.
11. Submit mounting details of video projectors, TV mounts, and plasma displays, LED displays and all other visual devices.
12. Submit mounting and support details for distributed ceiling loudspeakers, and all other items mounted overhead complete with parts lists and dimensions. Include a full plan view, front elevation, and side elevation of each item with corresponding support structure and mounting hardware. Verify load ratings of all hanging components including attachment hardware. All details shall be stamped by a structural engineer registered in the State of Texas.

1.7 CLOSEOUT SUBMITTALS

- A. Drawings: Maintain a full set of shop drawings at the project site marked up to indicate actual locations, wattage tap settings and, in general, the true state of the installation. Furnish one initial set of record drawings along with the results of all source quality control tests specified in Part 2 and field quality control tests specified in Part 3 to the Consultant for use during acceptance testing and equalization. Submit one (1) bond black line set. If 'as installed' documents are rejected, correct and resubmit in the manner specified.
 1. After approval of 'as installed' documents, submit five (5) sets of record drawings each consisting of the following:
 - a. One (1) set of full size prints
 - b. One (1) set of CAD drawing files on CD-ROM media.
- B. Manuals: Furnish one initial set of product manuals to the Consultant for use during acceptance testing and equalization. At the time of contract closeout, submit the system Operation Manual and the Maintenance Data Manual. Neatly bind each with tabbed dividers between sections and include a title page with space for submittal stamps.
 1. Operation Manual
 - a. Table of Contents
 - b. Typed description of each system including key features and operational concepts (e.g. remote control features, switching or routing functions, patch points, mixing and linking capabilities).
 - c. Setup diagrams and typed instructions for use in typical situations as directed by the Consultant.
 - d. Small scale plans showing locations and circuit numbers for all system outlets and receptacles.
 - e. Single-line block diagrams showing all major system components.
 - f. Two sets of A size drawings showing the components and wiring in each individual rack. One drawing of each rack shall be mounted in a plastic jacket to the rear door of the associated rack. The other complete drawing set shall be included in the manual.
 - g. Manufacturer's operation manuals for equipment intended for operation by system users (e.g. tape decks, VCRs, communication equipment).
 - h. A properly licensed working copy of the latest version of any and all software required to operate or configure the systems specified herein shall be a part of the system supplied. This includes, but is not limited to, all software, firmware and hardware required for configuration, adjustment, diagnosis and repair.
 - i. All software shall be fully documented, and that documentation included.

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- j. Software shall be included in its "installable" state on industry standard 3.5" 1.44MB IBM format disks, CD-ROM, or other appropriate format. Back up of the working software may be provided as an additional inclusion. Disk images are unacceptable.
- k. All user definable software configurations and/or programming shall become the sole property of the owner. This includes all source code, source code copyrights, and related documentation.
- l. Software compiler shall be property of the owner with all related documentation.
- m. Key schedule cross-referencing all keys to their respective functions.
- 2. Maintenance Data Manual
 - a. Table of Contents
 - b. Company name, address, telephone number and contact name for system service or maintenance.
 - c. Listing of all equipment and materials with names of manufacturers and model numbers or part numbers.
 - d. Catalog data sheets displaying manufacturer's names, addresses, and telephone numbers.
 - e. Product manufacturers' warranties and a typed one-year system warranty explicitly covering all materials and labor.
 - f. Manufacturers' service manuals for all major equipment items.
 - g. Test documentation showing results of source quality control tests, field quality control tests, acceptance testing, and equalization. Document final settings for all non-user devices and controls after completion of acceptance testing and equalization including raw and equalized house curves. Document the physical position of settings as well as input and output signal levels measured in dbmV.
 - h. Provide a recommended preventative maintenance schedule with reference to the applicable pages in the manufacturer's maintenance manuals. Where the manufacturer provides inadequate information, provide the information necessary for proper maintenance.
- 3. Electronic Submittals: Submit all files necessary to produce the above submittals as follows:
 - a. Transportation media shall be in IBM-type structure on CD ROM format.
 - b. A Disk Master File List (in text format shall be placed on the CD ROM with a short description of files on that disk.
 - c. A Master File List in text format shall be placed on each CD ROM with a short description of files in the submittal.
 - d. Drawings shall be in AutoCAD R2000 or later drawing (.DWG) format. Drawing Exchange File Format (.DXF) is not acceptable. All XREFs, fonts, and other drawing parts necessary to the drawings shall be included
 - e. Word processing files shall be in MS Word 7.0 or later format. Graphs and charts shall be in MS Excel 7.0 or later format. Any graphic images necessary for the reproduction of the submittals shall be included in the files, and shall be included in JPEG (.JPG) file format.
 - f. Manufacturers' data sheets, equipment manuals, and other documentation provided by the Manufacturers to the Contractor or documents that are similarly not otherwise available to the Contractor in electronic format shall be excluded from this requirement.
- 4. Keys:
 - a. Submit in triplicate all keys required for access to and operation of the systems.

1.8 QUALITY ASSURANCE

A. Qualifications

- 1. Submit the following contractor qualifications:
 - a. A completely filled out AIA Document A305 Contractor's Qualification Statement for installer showing a minimum of five years experience installing systems of similar size and scope to the Work specified in this Section.

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- b. Evidence of an in-house electronic service department:
 - c. List names and certifications of full-time service technicians.
 - d. List in-house electronic test equipment meeting the following minimum specifications for use during the source quality control tests specified in Part 2 and field quality control tests specified in Part 3 as well as use by the Architect's Consultant at the project site during acceptance testing and equalization.
 - e. Evidence of full-time personnel with experienced on projects of similar size, scope, and construction schedule to the Work of this Section.
 - f. List the name, date of employment, qualifications and experience of the installation supervisor for this project.
 - g. List the company's drafting capabilities including the name, date of employment, qualifications and experience of the employee who will draft shop drawings and project record drawings for this installation.
 - h. List the names, dates of employment, qualifications and experience of all other personnel to be used on this project.
 - 2. Submit a statement that the bid is based upon specified products or accepted Substitutions by systems design consultant.
 - 3. Submit a work plan indicating scheduling of employees and time frames for shop drawings, ordering of equipment, installation, testing, punch-list correction, and instruction.
 - B. Regulatory Requirements
 - 1. Obtain all required permits and inspections.
 - 2. Furnish material and workmanship for this work in conformance with all code requirements.
 - 3. Obtain review from compliance officials responsible for enforcement of applicable codes and regulations to establish that the work complies with all requirements of reference codes indicated herein. Make corrections, changes acceptance, operation, and/or compliance with the final submittal as described herein.
 - C. Field Samples
 - 1. Before delivery of equipment to the job site, submit test reports for all measurements specified under Source Quality Control Tests.
 - 2. Before delivery to the job site, submit photographs depicting the quality of wiring and grounding within equipment racks.
- 1.9 DELIVERY, STORAGE, AND HANDLING
- A. Packaging, Shipping, Handling, and Unloading
 - 1. Coordinate with Owner's Representative for any equipment and materials to be delivered or stored on site.
 - B. Storage and Protection
 - 1. Provide appropriate protection of stored and/or installed equipment from both damage to the item and damage to other work, or finishes.
- 1.10 PROJECT CONDITIONS
- A. Project Environmental Requirements
 - 1. Seismic Safety
 - a. Observe mechanical and electrical support means of all installed equipment as required for the seismic hazard zone for this installation. Refer to Federal Emergency Management Agency (FEMA) Document 303: Recommended Provisions for Seismic Regulations for New Buildings and Other Structures. Also refer to any applicable local building codes.
 - b. All equipment racks are to be anchored with suitable anchors to meet safety standards.
 - c. Appropriate safety attachments as required for overhead mounting of devices.
 - d. Shock and/or vibration isolation of equipment or fixtures as required.
 - 2. Fiber Optic Cable Safety

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- a. The following warnings shall be posted on the job site: WARNING: PERMANENT EYE DAMAGE CAN RESULT FROM LOOKING DIRECTLY INTO A LIGHT BEAM GENERATED BY AN LED OR LASER SOURCE OR INTO THE END OF A CABLE FIBER CONNECTED TO ONE OR THESE SOURCES. CAUTION: LIGHT GENERATED BY THESE SOURCES MAY NOT BE VISIBLE, YET REMAIN HAZARDOUS TO THE EYE. LOOK FOR WARNING LABELS ON SOURCE DEVICES.
 - b. Observe all warning signs on equipment and all written safety precautions in the instruction manual or equipment technical manual.
 - c. Always handle cable carefully to avoid personal injury. Care should be taken with individual fibers to prevent injury to the eyes or penetration of the fibers into the skin.
 - 3. Asbestos Prohibition
 - a. No Asbestos containing materials shall be used under this section. The contractor shall ensure that all materials incorporated in the project are Asbestos free unless specifically authorized in writing by the Owner.
 - B. Existing Conditions
 - 1. Verify all project site conditions applicable to the Work of this Section. Notify the Architect in writing of any discrepancies, conflicts, or omissions prior to bid opening. Otherwise, correct these at no additional cost to the Owner.
 - 2. Continue to monitor the project site. If conditions develop requiring a need to vary from the Specifications or Drawings, notify the Architect's Consultant immediately in writing. Otherwise, make recommendations, submit drawings showing how the Work may be installed, and on approval, proceed with the necessary changes without additional cost to the Owner.
- 1.11 SUBSTITUTIONS
- A. Substitutions must be approved in writing, prior to bid.
- 1.12 WARRANTY
- A. Provide system warranty for a period of one (1) year against faulty materials and defects in workmanship. In addition to the above warranty, honor any manufacturer warranties that exceed this period of time.
 - B. During the system warranty period, answer all service calls and requests for information within 24 hours. Repair or replace faulty materials and correct faulty workmanship within 24 hours of all service calls.
- 1.13 PRODUCTS
- 1.14 GENERAL
- A. Equipment, excepting Owner Furnished Equipment (OFE), and materials shall be new, latest version at time of bid and shall conform to applicable UL, CSA, or ANSI provisions. Take care during installation to prevent scratches, dents, chips, etc.; equipment with significant or disfiguring cosmetic flaws will be rejected.
- 1.15 AUDIO SIGNAL PROCESSING
- A. Digital Signal Processor (DSP TYPE 1). Provide an eight in eight out digital signal processor with a minimum of 264 MIPS processing capacity, 24-bit Sigma delta audio converter capable of sampling rates of 48kHz +/- 100 ppm, 20-20000Hz, less than .005% total harmonic distortion, output level at least +24 dBu, mic preamp, phantom power +48VDC, Sym Lynk capability, and a minimum of 1000 stored presets. Acceptable product.
 - 1. Symetrix 8X8 DSP
 - 2. Approved Substitute
 - B. Break Out Box (BOB TYPE 1). Provide an analog audio output channel expander with a

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frequency response from 20-20000 +/- .5 dB, a dynamic range of 110 dB A-weighted, a total harmonic distortion of less than .0025% at 1kHz, twelve outputs, and a Sym Link connection.

Acceptable product:

1. Symetrix BreakOut 12
2. Approved Substitute

- C. Break In Box (BIB TYPE 1). Provide an audio input channel expander with 12 inputs, a 24-bit Sigma Delta converter, a Sampling Rate of 48kHz +/- 100ppm, a dynamic range of 111dB A-weighted, a total harmonic distortion less than .003% at 1kHz, a phantom power of +48VDC, and a Sym Link connection. Acceptable product:

1. Symetrix BreakIn 12
2. Approved Substitute

1.16 EQUIPMENT POWER PROTECTION

- A. Power Surge suppressors (SSP TYPE 1). Provide 15-amp load capable industrial grade grounded AC receptacles in a one-rack-space. The unit will operate from 120 volts AC and have a 9-foot, grounded 3-wire #14 line cord. There shall be 8 grounded AC receptacles on the back panel, with 6 switched and 2 always on. The unit shall have a front-panel courtesy receptacle. No units Containing MOV's will be considered an acceptable substitute. Acceptable product:

1. Surgex SX1115
2. Approved Substitute

1.17 LOUDSPEAKERS

- A. Ceiling Loudspeaker (TYPE A). Provide a 6.5" driver with a 1" coaxial compression driver ceiling mounted loudspeaker with a frequency response of 775-3000Hz (-3dB), sensitivity of 91dB (1W @ 1M), 90 degree coverage angle. The loudspeaker shall be supplied with matching baffle plate, grille, cross-over, 60 watt 70 volt transformer, and necessary hardware. Coordinate color with the Architect / Owner prior to ordering. Acceptable products:

1. Tannoy CMS 601 DC BM
2. Approved Substitute

- A. Headphones (TYPE 1). Provide a high efficiency 50mm neodymium drivers for ultra transparency and full 20-20KHz response. Unit shall have one side (mono) headphone. Provide with 10'(3M) cord with gold-plated mini connector and locking 1/4" adapter. Acceptable products:

1. Nady DJ-1 (QTY: 16)
2. Approved Substitute

1.18 POWER AMPLIFIERS

- A. Audio Amplifier (PA TYPE 1). Provide 4 channels of 70V audio amplification at 200W a channel with .05% total harmonic distortion between 20-20000Hz, load protection, 35 dB of Gain, an input sensitivity of 1.26Vrms, and less than -105 dB of noise between 20-20000Hz. Acceptable products:

1. QSC CX-204V
2. Approved Substitute

1.19 MICROPHONES

- A. Wireless Microphone (WRLS TYPE 1). Provide a wireless desktop base transmitter with miniature gooseneck microphone and wireless receiver. Transmitter shall have an operating range of 100ft, a frequency stability of +/-10ppm, and a battery life greater than 8 hours. The receiver shall have automatic frequency selection up to 960 selectable frequencies across the 24MHz bandwidth, XLR audio output, 1/4" audio output, and a sensitivity of -105 dBm for 12 dB SINAD. The microphone shall be 5" long super cardioids with a bi-color status indicator, a sensitivity of -34 dBV/Pa at 1kHz, and a dynamic range of 93 dB. Acceptable products:

1. Shure
 - a. MX890 (QTY: 6)
 - b. MX405/S (QTY: 6)

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- c. SLX4L (QTY: 6)
 - 2. Approved Substitute
 - B. Wired Mic (MIC TYPE 1). Provide 18" super cardioid desk top gooseneck microphone with a sensitivity of -33.5 dBV/Pa at 1kHz, a signal to noise ratio of 67.5 dB referenced at 94 dB SPL, a dynamic range of 96.2 dB at a 1k ohm load, and a maximum SPL of 122.7 dB with a 1% total harmonic distortion at 1kHz. Acceptable products:
 - 1. Shure MX418SE/S (QTY: 2)
 - 2. Approved Substitute
- 1.20 VIDEO AND AUDIO ROUTING EQUIPMENT
- A. Video Switcher (SWITCH TYPE 1) (OFE). Unit is capable of matrix switching up to eight RGBHV input sources with independent audio to any eight RGBHV output destinations with separated audio.
 - 1. Kramer Electronics VP-88 8x8 RGBHV and Stereo
 - B. Video Switcher (SWITCH TYPE 2) (OFE). Unit is capable of switching up to eight S-video sources with independent balanced audio to any six S-video output destinations..
 - 1. Kramer Electronics VS-806YC 8x6 S-video balanced-audio matrix switcher
 - C. Video Switcher (SWITCH TYPE 3). Provide 8x8 VGA and stereo audio matrix switcher with a switching speed of 20ms, input and output on 8 female 15-pin HD, audio frequency response of +-2 dB 20-20000Hz, and a total harmonic distortion of .05% at 1kHz. Approved product:
 - 1. Extron MVX 88 VGA A
 - 2. Approved Substitution
 - D. Video Multi-Viewer (MULTI-VIEWER) (OFE). Unit capable of accepting multiple formats and resolutions of video. Unit must also have capability of combining up to four screens and outputting all over one RGBHV output.
 - 1. RGB Spectrum QuadviewXL
- 1.21 VIDEO PLAYBACK EQUIPMENT
- A. Video Projector (VP TYPE 1) (OFE). Unit capable of accepting multiple formats and resolutions of video. Unit must also have RS-232 control.
 - 1. Sanyo PLC-XT16
 - 2. Approved Substitution
 - B. Video Display (VD TYPE 1). Provide 42" diagonal 1366 x 768 LCD display with a contrast ratio of 12000:1, a brightness of 500 cd/m2, a built in ATSC tuner, a built in NTSC tuner, a built in QAM tuner, HDMI inputs, component inputs, composite inputs, computer inputs, and audio outputs. Acceptable product:
 - 1. LG 42LG30
 - 2. Approved Substitution
 - C. Video Display (VD TYPE 3). Provide a metal ceiling mount capable of housing a 19" Sharp flat screen CRT with adjustable height and width dimensions, top and front roll out protection, adjustable tilt up to 30 degrees, 360 degrees swivel, and includes ceiling plate with required hardware.
 - 1. Sharp
 - a. 19" Flat Screen (OFE)
 - 2. Peerless
 - a. JMC 2640D (NEW)
 - D. Video Display (VD TYPE 4) (OFE). Unit shall be 12" sunphonic cathode ray tube.
 - 1. 12" Synphonic CRT
 - E. Video Display (VD TYPE 5). Provide a metal ceiling mount capable of attaching a 28"

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Electrograph flat panel with two adjustable height ranges in 1" increments, -5 to +20 degrees of tilt, ceiling plate included, 360 degree swivel action, cord management covers, security fasteners and all required hardware.

1. Electrograph
 - a. 28" Flat Panel (OFE)
 2. Peerless
 - a. LCC-36 (NEW)
- F. Video Display (VD TYPE 6). Provide a metal ceiling mount capable of housing a 28" JVC flat screen CRT with adjustable height and width dimensions, top and front roll out protection, adjustable tilt up to 30 degrees, 360 degrees swivel, and includes ceiling plate with required hardware.
1. JVC
 - a. 28" JVC Flat Screen (OFE)
 2. Peerless
 - a. JMC 2265 (NEW)
- G. Video Projector (VP TYPE 2). Provide multi-format video projector with 1024 x 768 native pixels, contrast ratio of 550:1, 4000 ANSI lumens, component input, video input, digital input, and RS-232 control port. Provide appropriate lens. Acceptable product:
1. Sharp XG-C435X XGA
 2. Approved Substitution
- H. Projection Screen. Provide fixed 4:3 format, flame retardant, and mildew resistant blow through screen with the dimensions of 80" x 59". Front projection surface should snap on easily to a 1" silver aluminum frame. Acceptable product:
1. Da-Lite Audio Vision 80" X 59"
 2. Approved Substitution
- I. DVP Type 1 (OFE). Unit shall be able to read and play DVD's with an S-video output.
1. Samsung DVD-V5500
- J. VCR Type 1 (OFE). Unit shall be able to read and play VCR tapes and with an S-video output and have an input capable of accepting a RF signal.
1. JVC HR-S5912U
- K. Document Camera (DOC CAM TYPE 1). Provide 1024 x 768 resolution desktop visual presenter with 12x optical zoom, 24 fps real-time progressive output, 2 customizable hot keys, a rotatable camera head, DVI outputs, and a built in USB connectivity. Acceptable product:
1. Lumens
 - a. PS5505 (OFE)
 - b. PS400 (NEW)
 2. Approved Substitution
- L. Graphic Tablet. Provide a fully integrated electronic imaging technology with the capability of capturing information written on board and save to a computer directly or printed with the touch of a button. Acceptable product:
1. GBC
 - a. Q8600 (OFE)
 - b. Q8600 (NEW)
 2. Approved Substitution
- M. Flat Panel Mount Type 1. Provide universal LCD mount with a tilt range of +15 through -5 degrees, and integrated security options. Provide with all necessary screen attachment hardware.
1. Peerless ST640
 2. Approved Substitution

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1.22 CONTROL SYSTEM

- A. Control System Master Type 1 (OFE). Unit shall be capable of dual bus control with cresnet as the communication backbone with a 40Mbps Y-bus, midi interface, single or dual port Ethernet cards enabling a full-duplex 10/100 Ethernet connection with built-in web server and email client, and supports both static and dynamic IP addressing.
 - 1. Crestron AV2
 - 2. Approved Substitution
- B. Control System interface Type 1 (OFE). Unit shall be a Y-bus expansions slot of a 2-series control system to provide two bi-directional RS-232/422/485 ports with hardware handshaking.
 - 1. Crestron C2COM-2
 - 2. Approved Substitution
- C. Control System Ethernet Card Type 1 (OFE). Unit shall be a 10/100BaseT half/full duplex Ethernet card that installs in any Z-Bus expansions slot of a 2-series control system. Unit shall provide Ethernet connectivity to enable the control system's built-in web server and allows remote diagnostics and programming as well as Ethernet intersystem communications over and Ethernet LAN, WAN, or Internet.
 - 1. Crestron C2Net-1
 - 2. Approved Substitution
- D. Control System cage Type 1 (OFE)
 - 1. Crestron CAGE2
 - 2. Approved Substitution
- E. Control Touch Panel (TP TYPE 1). Provide 10.4" active matrix color LCD touch screen display with a resolution of 640 x 480 pixels, a 32-bit CPU, a processing speed of 63 <IPS minimum, 8MB of flash memory, 8MB of DRAM, auto-detecting video signal of composite, S-video, NTSC/PAL, built in microphone with defeatable AGC , built in speakers, and RS-232 control. Acceptable product:
 - 1. Crestron TPS-4000
 - 2. Approved Substitution
- F. Control Panel (TP TYPE 2). Provide a 12 engravable button keypad with LED dimmable backlight and a 4-pin detachable terminal block connection. Provide mounted in a custom table top enclosure with control cable to connect to floor box. Acceptable product:
 - 1. Crestron CNX-B12 w/ custom table box (QTY: 16)
 - 2. Approved Substitute

1.23 CATV SYSTEM

- A. One Way Post Amplifier. Provide CATV amplifier with a bandwidth of 54-862MHz and a return path bandwidth of 5-42MHz with a gain of 36dB, a -20dB of gain control, a 0-18 dB cable slope control, a noise figure less than 6dB, and an output level of 46dBmV at 129 channels. Acceptable product:
 - 1. Toner TDA35-862/42
 - 2. Approved Substitute
- B. Modular Tap system. Provide die cast aluminum housing with six cavities and customizable eight port tap plates with values of 26dB, 23db, 20dB with a bandwidth of 5-1000MHz. Typical insertion loss of a 26 dB tap plate is to be between .7 and .9. Typical insertion loss of a 23 dB tap plate is to be between .9 and 1.4. Typical insertion loss of a 20 dB tap plate is to be between 1 and 1.4. Provide equalizer plates with values of 3 dB, 6 dB, and 9 dB with an insertion loss between 1.2 dB and .7 dB at 1000MHz. Acceptable product:
 - 1. Toner
 - a. TXMT-6H Housing
 - b. TXMT 108-26
 - c. TXMT108-23

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- d. TXMT108-20
 - e. TXMT-EQ-3
 - f. TXMT-EQ-6
 - g. TXMT-EQ-9
- 1.24 SOUND MASKING ADD ALTERNATE #1
- A. The contractor shall provide an alternate bid pricing separate from the base bid encompassing all cost included in providing and installing a working sound masking system who's function it will be to increase speech privacy in critical areas i.e.: conference room, war room, offices etc... by raising the noise floor around critical spaces in a predictable way.
- 1.25 SOUND MASKING AUDIO SIGNAL PROCESSING ADD ALTERNATE #1
- A. Digital Signal Processor (DSP TYPE 1). Provide an eight in eight out digital signal processor with a minimum of 264 MIPS processing capacity, 24-bit Sigma delta audio converter capable of sampling rates of 48kHz +/- 100 ppm, 20-20000Hz, less than .005% total harmonic distortion, output level atleast +24 dBu, mic preamp, phantom power +48VDC, Sym Lynk capability, and a minimum of 1000 stored presets. Acceptable product.
- 1. Symetrix 8X8 DSP
 - 2. Approved Substitute
- 1.26 SOUND MASKING LOUDSPEAKERS ADD ALTERNATE #1
- A. Loudspeaker Type A. Provide a 70V, 8" driver contained in a dust-proof perforated steel baffle with internal rigid foam damping material, an average sensitivity of 96dB SPL at 1W/1M, a frequency response of 65-17000Hz according to EIA 462A Standard, a nominal coverage angle of 90 degrees, and a light steel chain for hanging.
- 1. Quam MA/e5/S7/T8
 - 2. Approved Substitute
- 1.27 SOUND MASKING POWER AMPLIFIERS ADD ALTERNATE #1
- A. Audio Amplifier (PA TYPE 1). Provide 4 channels of 70V audio amplification at 200W a channel with .05% total harmonic distortion between 20-20000Hz, load protection, 35 dB of Gain, an input sensitivity of 1.26Vrms, and less than -105 dB of noise between 20-20000Hz. Acceptable products:
- 3. QSC CX-204V
 - 4. Approved Substitute
- 1.28 MISCELLANEOUS
- 1.29 EQUIPMENT RACK ASSEMBLIES **(OFF)**. (ER). FREESTANDING EQUIPMENT RACK ASSEMBLY, 30" DEEP WITH 77" OR 94.5" OF PANEL SPACE NOMINALLY, 19" WIDE AND PAINTED NON-GLOSS BLACK. PROVIDE WITH TOP AND SIDE PANELS, LOCKING REAR DOORS, REAR-MOUNTING RAILS, AND EQUIPMENT SHELVES AS REQUIRED. FILL UNUSED MOUNTING SPACES WITH VENT PANELS OR BLANK PANELS PAINTED NON-GLOSS BLACK. VERIFY VENT PANEL REQUIREMENTS TO ENSURE IN-RACK TEMPERATURES OF LESS THAN 100 DEGREES F. INSTALL ALL RACK MOUNTED PANELS AND EQUIPMENT WITH STAINLESS STEEL 10-32(OR 12-24 AS REQUIRED BY MOUNTING RAILS), BUTTON HEAD MACHINE SCREWS WITH PLASTIC FLAT WASHERS. INSTALL WIREMOLD 3000G RACEWAY WITH ISOLATED GROUND (IG) TYPE 120-VOLT, 20-AMP DUPLEX OUTLETS EQUAL TO HUBBELL IG 5262 ON 6" TO 8" INCH CENTERS FROM TOP-TO-BOTTOM AS REQUIRED BY EQUIPMENT SPACING. DISTRIBUTE THE ELECTRICAL CIRCUITS WITHIN THE RACK PER MANUFACTURERS LOAD REQUIREMENTS. PROVIDE A MINIMUM OF TWO ADDITION OUTLETS IN EACH RACK FOR SERVICE USE. INSTALL A COPPER GROUND BUSS OF SUBSTANTIAL CROSS SECTIONAL AREA (#00 AWG MINIMUM) FROM TOP TO BOTTOM IN EACH RACK SECTION. PROVIDE AN ATLAS/SOUNDOLIER RWL-1 LIGHT SOURCE IN THE TOP REAR OF EACH RACK SECTION. PROVIDE BLACK PAINTED WOOD OR RUBBER BASE IN LOCATIONS IN WHICH RACKS ARE ON STRUCTURAL FLOOR. PROVIDE RAISED-FLOOR RISER BASES

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(ISOLATED FROM RAISED FLOOR STANDARD GROUNDING SYSTEM) ON COMPUTER ROOM RAISED FLOOR LOCATIONS. ACCEPTABLE PRODUCTS:

1. Middle Atlantic MRK-44-32
 2. Atlas
 3. Lowell
 4. Approved Substitution
- A. Rack Blowers. FAN. Dual squirrel cage rack ventilators with variable speed motors and front panel serviceable intake filter unit. Provide with optional airflow controller and temperature sensor. Rack-mounted blowers in bottom of selected equipment racks as shown on drawings. Mount temperature sensor in top of equipment rack. Mount on rear rails, when possible. Acceptable products:
1. Atlas Soundolier
 2. Approved Substitution
- B. Plates and Panels:
1. Custom panel fabrication as shown on AV series drawings
- C. Terminations. Refer to Part three of this specification for termination practice requirements.
1. Type 1 – Low-level (microphone, line level, control system) signal wiring. Acceptable products:
 - a. Wago 280 series quick connect blocks with Wago 210 mounting rail and Wago 216 series ferrules crimped with a Wago 260 series crimp tool. No exceptions or substitutions.
 2. Type 2 - High level (speaker, DC power) signal wiring. Acceptable products:
 - a. Wago 280 series quick connect blocks with Wago 210 mounting rail and Wago 216 series ferrules crimped with a Wago 260 series crimp tool. No exceptions or substitutions.
 3. Type 3 - Category 5 data wiring. Acceptable products:
 - a. Industry standard 110 style punch down blocks.
- D. Indicator Lamps. Provide lamps rated at 115% of service voltage (i.e. use 28 volt lamps in 24 volt circuits). Provide 100% spare lamps of each type.
- E. Fuses. Provide 100% spares of each type.
- F. Line Transformers. All transformers shall be shielded, have a ± 1 dB frequency response of 20 Hz to 20 kHz and be rated for maximum input level of at least 6.0 V at 40 Hz and higher frequencies.
1. Type T1 Impedance 600 ohm: 600 ohm. Acceptable products:
 - a. Jensen JE-11P-7
 - b. Triad A-57J
 - c. TRW/UTC A-21
 2. Type T2 Impedance 600 ohm:15 kohm. Acceptable products:
 - a. Jensen JE-15P-1
 - b. Triad HS-50
 - c. TRW/UTC A-24
 3. Type T3 Impedance 15 kohm:15 kohm. Acceptable products:
 - a. Jensen JE-11P-1
 4. Type T4 Impedance 600 ohm: 600 ohm: 600 ohm. Acceptable products:
 - a. TRW/UTC A-43
 - b. Type T5 Impedance 150 ohm:150 ohm:150 ohm. Acceptable products:
 - c. Jensen JE-MB-D
 - d. TRW/UTC A-43
- G. Headphones. Provide single-sided 50mm neodymium driver headphone with closed ear muff, and frequency response from 20 to 20000 Hz. Unit must have 10' cord with gold-plated mini connector and locking 1/4" adapter. Acceptable products.
1. Nady DJ-1
 2. Approved substitution
- H. Wire and Cable:
1. Wire and cable is specified by generic "type". Refer to the cross-reference chart shown on drawings for acceptable products

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1.30 SOURCE QUALITY CONTROL

A. Tests:

1.31 AFTER ASSEMBLY OF RACK SYSTEMS IN THE SHOP, MEASURE, AND RECORD THE DC RESISTANCE BETWEEN THE RACKS GROUND BUS BAR AND THE CHASSIS OF ALL RACK-MOUNTED COMPONENTS. ALSO MEASURE AND RECORD THE DC RESISTANCE BETWEEN THE RACK GROUND BUS BAR AND THE SIGNAL COMMON FOR ALL COMPONENTS.

1. Use a sine-wave signal generator, dual trace oscilloscope and dBm meter to measure and document the level, which produces clipping at each component input used in the system.
2. Using a +4 dBm sine-wave input, set controls of each component to produce a +4 dBm sine-wave output. Under these operating conditions (unity gain), note the presence of any waveform distortion, interference, or oscillations. Take corrective action to eliminate the anomalies and document the corrective measures

B. Verification of Performance:

1. In the shop, photograph the interconnect wiring within racks including patch panels and grounding to show the quality of workmanship and compliance with the specified grounding procedures.
2. Submit the test reports and photographs to the Architect's Consultant before delivery of racks to project site.

1.32 FABRICATION

A. Shop Assembly:

1. Complete all custom fabrication work at the shop.
2. Verify the depth of each rack prior to assembly to ensure that mounted equipment will fit completely inside with the rear door closed. Install all rack-mounted equipment and test the systems before delivery of equipment racks to the project site.
3. Fabrication Tolerances

1.33 EXECUTION

3.1 INSTALLATION

- A. Execute all work in accordance with the NEC, NESC, and with all local and state codes, ordinances, and regulations.
- B. Install all rack mounted equipment with stainless steel 10-32 pan head machine screws with flat black plastic washers protecting equipment panel.
- C. Provide security covers on non-user-operated equipment having front panel controls. Install covers at the conclusion of Acceptance Testing. Rack slides shall be provided for all equipment requiring access to side or top panels for routine adjustment or cleaning; all Video Cassette and Open Reel Video Tape Recorders; all Picture Monitors over 20 Pounds.
- D. Provide rack slides and mounts equal to those of the original manufacturer for the OFE requiring rack mounting. Where no same manufacturer mount is available, contractor shall supply custom mounts as manufactured by Middle Atlantic Audio Products.
- E. Mount all equipment to be installed over public areas in a manner adequate to support the equipment loads with a minimum safety factor of five, using methods recommended in the referenced Handbook for Riggers and in JBL Technical Notes Volume 1, Number 19. Use attachment hardware with a minimum SAE Grade 5 load rating. Do not use formed eye bolts or lag screws for support of suspended equipment.
- F. Firmly and permanently, attach electrical boxes, enclosures, and permanent equipment to the building. Rigidly mounted equipment and devices shall be plumb and square.
- G. Choose colors and finishes of all exposed and custom fabricated items and labels to blend in with the surroundings as approved by the Architect.
- H. Install equipment in accordance with manufacturers' recommendations. Ensure that levels and impedances are properly matched between components. Verify that projector distances and lensing are appropriate for the corresponding screen sizes.
- I. Provide shaft locks or security covers on all non-user equipment as directed by the Architect's

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Consultant during acceptance testing and equalization.

- J. Wireless Systems:
 - 1. Ensure that all wireless systems operate on different frequencies from each other and from any other transmitters in the area.
 - 2. Coordinate frequency selection for compatibility with local RF environment.
- K. Grounding and Shielding
 - 1. Mount and enclose all electrical and electronic equipment in metal enclosures or equipment racks.
 - 2. Use EMT type conduit for all wiring outside of equipment racks.
 - 3. Mount equipment racks in a manner, which provides electrical isolation from the building structure and electrical raceways. Use flexible conduits and PVC fittings to provide insulated connections between equipment racks and the building electrical raceways.
 - 4. Ground the chassis of all rack-mounted components in accordance with the Drawings and verify a D.C. resistance between each chassis and the rack ground bus of no more than 0.01 ohms.
 - 5. Ground the shields of interconnecting wires on one end only in accordance with the Drawings and treat the unused opposite ends as described below under Wiring Practices. Shield drain wires shall be insulated in all instances by use of appropriately sized black heat shrink tubing equal to Alpha FIT-221 series.
- L. Wiring Practices
 - 1. Where specific instructions are not given, perform all wiring in strict adherence to standard broadcast and sound engineering practices as described in the referenced Broadcast Audio Equipment for AM, FM, Television and in Sound System Engineering.
 - 2. Group all wiring into the following classifications by power level or signal type:
 - a. Microphone Level: less than -20 dBm.
 - b. Line Level Audio and DC Control Circuits: -20 dBm to +30 dBm.
 - c. Speaker Level: greater than +30 dBm.
 - d. Video/RF Circuits
 - e. AC Power Circuits
- M. Audio System
 - 1. Maintain a minimum six-inch separation between wiring of different level classifications wherever possible. Otherwise, cross them perpendicular to each other. Where wiring of different level classifications share a common enclosure or junction box, provide metallic isolation barriers to completely electrically separate wiring groups.
 - 2. Neatly harness wires together within racks by power level classification using horizontal and vertical wiring supports as required. Rigidly support all wires within twelve inches of connection points.
 - 3. Observe consistent polarity throughout the audio systems as follows:
 - a. XLR Type Connectors
 - 1) Positive = Pin 2
 - 2) Negative = Pin 3
 - 3) Common = Pin 1
 - b. TRS Type Connectors
 - 1) Positive = Tip
 - 2) Negative = Ring
 - 3) Common = Sleeve
 - 4. Use only balanced differential inputs throughout all sound systems unless noted otherwise. Use approved transformers to convert all unbalanced inputs to balanced inputs. Output signals may be unbalanced if inputs of subsequent devices are within the same rack. Otherwise use approved transformers to balance the outputs.
 - 5. Exercise care in wiring to avoid damaging the cables and equipment. Use grommets around cut-outs and knock-outs where conduit or chase nipples are not installed.
 - 6. Cut off unused wire ends approximately one-half inch ($\frac{1}{2}$ ") past the wire jacket. Fold them back over the jacket, and secure in place with heat-shrink tubing.
 - 7. Make connections using rosin-core solder or approved mechanical connectors.
 - 8. Terminate all field wiring in terminal boxes mounted to the walls in each equipment room prior to connection to any equipment or devices unless otherwise noted. All equipment in

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each equipment room shall connect to the field wiring at the appropriate terminal box. Field wiring shall not terminate directly in equipment racks unless otherwise noted. Provide 10% spare terminals at each location. Label each terminal with a unique number. Video, RGBS, and RF cables are exempted from this requirement.

9. All cable installed under this specification which is to be terminated by others for "future" or Owner Furnished Equipment (OFE) in racks, shall be provided with ten (10) feet of slack when dressed to the location of future or OFE equipment. All cable installed under this specification which is to be terminated by others, shall be provided with twenty (20) feet of slack when ending in a rack enclosure. All cable provided under this specifications, to be terminated by others, shall be provided with fifty (50) feet of slack when terminating in an equipment room without a clear point of demarcation, or in a group of racks where the destination is not known.

N. Video System

1. All cables shall originate and terminate at active or passive devices; cables shall not be spliced. Where several devices are in close proximity, utilize approved housing-to-housing connectors and adapters.
2. All cables terminated in a connection plate mounted in an enclosure shall be dressed to allow removal from the enclosure and sufficient cable length for service or re-termination. Plate shall set on floor or freely swing clear.
3. Splices in any cable - Baseband or RF - are not acceptable, except in cases of difficult "pulls", by prior written approval only; terminate all cables at active or passive devices. Do not splice wire under any circumstances.
4. Test and record cable-section time-domain-reflectometer (TDR) for structural return loss before (on the reels) and after cable has been installed, but not terminated. Attach records on forms attached to this section.
5. All coaxial or triaxial video or RF connections to plates or panels in boxes, pedestals, racks or any similar location with limited clearance, that would prevent that the associated cable manufacturer's minimum bend radius from being strictly observed shall be provided with the appropriate right angle or similar adapter as appropriate.
6. All cable installed under this specification which is to be terminated by others for "future" or Owner Furnished Equipment (OFE) in racks, shall be provided with ten (10) feet of slack when dressed to the location of future or OFE equipment. All cable installed under this specification which is to be terminated by others, shall be provided with twenty (20) feet of slack when ending in a rack enclosure. All cable provided under this specifications, to be terminated by others, shall be provided with fifty (50) feet of slack when terminating in an equipment room without a clear point of demarcation, or in a group of racks where the destination is not known.

O. Cable Installation in Conduit and Duct Banks

1. Pull mandrel one size smaller than the conduit, through entire length of all underground conduits.
2. Cable pulling lubrication shall be utilized when pulling cable.
3. A dynamometer shall be used to measure pulling tension during long or difficult runs. The dynamometer is to be placed between the cable puller and the pull line to monitor pulling tension. The manufacturer's pulling tension maximum range shall not be exceeded.
4. Pulling grips suitable for use with fiber cables shall be applied to the ends of the cable. Consult cable manufacturer to determine appropriate pulling grip and method of attachment. Breakaway or fuse links shall be used at the pulling grip. Insure that the correct "fuse pin" is installed in the fuse link.
5. Cable caps (heat-shrinking type) shall be used to seal the ends of the cable to protect the cable ends prior to terminating.
6. Use of cable blocks shall facilitate the bending of cable. For bends between 5 degrees and 45 degrees, a 45-degree cable block shall be utilized. For 45 degree to 90 degree bends, utilize a 90-degree cable block.
7. The bend radius for all cables shall conform to manufacturer's specifications.
8. Provide spare cables between terminal cabinets equal to 10% of the installed cables or a minimum of two cables of each type cable installed. Provide spare cables between

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terminal cabinets and equipment racks/consoles equal to 15% of the installed cables or a minimum of five cables of each type cable installed. Label all spare cables as spares with unique identifiers. Do not use any spare cables without prior approval from the Architect's Consultant.

P. Fiber Optic Cables

1. Adhere to the previous guidelines for Cable Installation in Duct Banks.
2. Consult Sumitomo document #SP-F01-001, issue 2, for installation.
3. All fiber splicing shall utilize the fusion splice method. The maximum allowable loss per fusion splice shall be 0.2 dB average.
4. The bend radius shall be no less than manufacturer's specifications.
5. The total degrees of turn shall be no more than the manufacturer's specifications.
6. The pull force shall be no more than the manufacturer's specifications.
7. When each cable reel arrives from the manufacturer, it shall have a Factory Lot test report attached to it. Factory Lot test reports, for example: Belden Wire & Cable Company Fiber Tracking System shall be copied to the owner and their representatives upon acceptance of the cable on the site.
8. The use of the cable shall be tracked from the reel to each pull. Paperwork, in chart form, shall include the Reel Number, Code ID, and each conduit designator and description that includes cable from the specific reel.
9. Splices, terminations, and any patching shall take place after the location has been declared "Dust Free" or "Clean". Special care shall be taken to ensure the integrity of the fiber and connection(s) when these conditions cannot be met. Fiber found to be broken in the length of the run after the pull shall be deemed to be damaged during the installation process and replaced at the expense of the installer.

Q. Labeling

1. Label products in a logical, legible, and permanent manner corresponding to the Drawings using wording, format, style, color, and arrangement of text approved by the Architect.
2. Label all panels and wall plates using 1/8" engraved lettering. On dark panels and plates, fill engraving with white paint, and on aluminum or stainless steel panels and plates, fill engraving with black paint.
3. Provide engraved plastic labels similar to Lamicoid, squarely and permanently attached, to label patch panels, barrier strips, terminals, transformers, switches, relays and similar devices as well as the front and rear of all signal processing equipment (e.g., PA, LIM, EQ). Label all controls on distribution amplifiers, mixers, etc. as to the function of each.
4. Label push-button switches with engraved lettering filled with contrasting color paint.
5. Label all permanent wiring on both ends with approved permanent clip-on type or sleeve type markers. Wrap-around adhesive labels will not be accepted unless completely covered with clear heat shrink tubing.
6. Label all portable wiring as specified above plus color code all cable lengths with permanent paint applied in a one-inch band at each end of the cable. Color code may be covered by heat shrink in conjunction with label. Label and color shall not obstruct each other.
 - a. 5 foot cables - green
 - b. 10 foot cables - gray
 - c. 25 foot cable - purple
 - d. 50 foot cables - burnt orange
 - e. 100 foot cables – yellow

3.2 FIELD QUALITY CONTROL

A. General Testing

1. Maintain a competent supervisor and supporting technical personnel, acceptable to the Owner during the entire installation. Change of supervisor during the project shall not be acceptable without prior written approval from the Owner.
2. Before connecting any equipment to electrical power outlets, measure and record the A.C. voltages between hot, neutral, and ground and verify correct outlet polarity. Verify, test and document correct and safe function of isolated ground power systems.

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3. Determine the best sequence of energizing systems to minimize the risk of damage.
4. After successfully energizing the systems, make preliminary adjustments and document the settings of all controls, parameters of corrective networks, voltages at key interconnection points, gains and losses as applicable. Replicate the unity gain tests performed at the shop and document the absence of any waveform distortion, interference signals, or oscillations.
5. Upon completion of the system installation, it shall be the responsibility of the Contractor to perform the necessary adjustments and balancing of all signals, amplifier gain, and other level controls to ensure proper system operation. The system shall be physically inspected by the Owner to assure that all equipment is installed in a neat and workmanlike manner as called for by the plans and specifications.
6. Verify the performance parameters of the individual systems following established professional procedures, in addition to those specified herein. Document all acceptance testing, calibration and correction procedures described herein, being careful to include the following information:
 - a. Performance date of the given procedure.
 - b. Condition of performance of procedure.
 - c. Type of procedure, and description.
 - d. Parameters measured and their values, including values measured prior to calibration or correction, as applicable.
 - e. Parameters associated with calibration or corrective networks, components, or devices.
 - f. The names of personnel conducting the procedure.
 - g. The equipment used to conduct the procedure
7. Analog channel CATV Performance - Check all paths and outlets for appropriate compliance with the Performance Standards. Analog channel measurements to be made as peak envelope power at sync tip. Measure levels at all feeder termination points. Compare actual values to design calculations and investigate any difference of more than 2 db, rectify or justify these discrepancies to the satisfaction of the Owner. Where not specified, FCC Rules part 76.605 provisions for July 1, 1995 shall apply. In all cases, the more stringent of any referenced standard shall apply.
 - a. Television Distribution System amplitude standards:
 - 1) Minimum visual sync-tip level: +3 dbmV
 - 2) Maximum visual sync-tip level: +10 dbmV
 - 3) Maximum amplitude difference between visual carriers 6MHz apart: 2 db
 - 4) Maximum amplitude difference between any visual carriers: 7 db
 - 5) Minimum visual/aural carrier ratio: 15 db
 - 6) Maximum visual/aural carrier ratio: 17 db
 - 7) Maximum FM station amplitude: -7 dbmV
 - 8) Minimum FM station amplitude: -20 dbmV
 - 9) Maximum variation between FM stations on adjacent channels: 3 db
 - 10) Long-term variations in amplitude: 8 db
 - b. Television Distribution System frequency standards:
 - 1) Visual frequency accuracy: +5 kHz of standard channel frequency
 - 2) Inter-carrier frequency: 4.5MHz, +/- 1kHz
 - 3) FM frequency accuracy: +2kHz of standard channel frequency.
 - c. Television Distribution System flatness standards:
 - 1) Amplitude response within any TV channel: +0.5 db (-0.75 MHz to +3.6MHz from visual carrier)
 - 2) Amplitude response for entire spectrum (50Hz - 750 MHz): 4 db
 - d. Television Distribution System fault standards:
 - 1) Maximum hum or low-frequency variations: 2% p-p
 - 2) Minimum visual carrier-to-noise ratio (4MHz BW): 47 db
 - 3) Maximum visual carrier-to-coherent spurious signal ratio (intermodulation): -53 db
 - 4) Maximum Cross modulation ratio: -53 db
 - 5) Maximum reflections within system: -40 db

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- 6) Burst noise: Not longer than 25 μ s at 10-Hz repetition rate
8. Television Distribution System isolation:
 - a. Minimum drop-to-drop isolation: 25 db
9. Television Distribution System signal leakage:
 - a. 15uV/M maximum (at 100')
10. Television Distribution System Video Standards:
 - a. Chroma / Luma Delay: not more than 170 ns
 - b. Differential Phase: not more than 8 degrees
 - c. Differential Gain: not more than 10%
11. Sweep and balance reverse system path.
12. Audio Testing
 - a. Measure and record impedance of each speaker line terminating at equipment rack at frequencies of 250, 500, 1000, and 2000 Hz. with loudspeakers connected to each line. Where speaker lines have autotransformer type volume controls set all attenuators for maximum level (i.e. full on). Where amplifiers have external output impedance matching (auto) transformers measure and record impedances as seen by the amplifier and as seen by the (auto) transformer. Correct any lines found to have improper impedance.
 - b. Before connecting loudspeaker lines to power amplifiers, measure and record the impedance curves of all lines using a sweep test or impedance bridge at least six frequencies from 125 Hz through 8,000 Hz.
 - c. Test all low-level audio cables and connections for continuity and ground faults and correct polarity.
 - d. Apply a sine-wave sweep signal to each loudspeaker system, sweeping from 50 Hz to 5,000 Hz at a sound pressure level that is 10 dB below the loudspeaker's rated electrical input power. Listen for rattles or objectionable noise and correct if apparent.
 - e. Check for proper polarity of loudspeakers by applying music program or pink noise to each system and walking through the transition areas of coverage from one loudspeaker to the next. Transition should be smooth with no apparent shifting of source back and forth from one loudspeaker to the next.
 - f. Achieve uniform distribution of sound from each loudspeaker system after all interior furnishings are in place. Drive each system with one full octave of noise centered at 4000 Hz at a level of 85 to 90 dB. Use a sound level meter that meets ANSI ST 4-1971 Type 2 standards set for slow meter damping and "A" weighting. Take all readings at seated ear height. Adjust speaker angles as necessary to achieve ± 3 dB over entire seating area. Provide plan of achieved sound distribution from each system, plotted with 4kHz pink noise levels as measured on a 10-foot square grid pattern. The process of equalizing and testing the Sound Systems may necessitate moving and adjusting certain component parts, e.g., loudspeakers. This shall be done without claim for additional payment.
 - g. Provide a list showing all build-out, termination, and pad resistor calculations. List to include measured line and source impedances used in calculations and results of tests after installation, and impedance of all inputs to equipment brought up on patch bay. Impedances in ohms are to be within $\pm 10\%$ of design value. Levels in dB are to be within ± 1 dB of design value.
 - h. Using a sine wave signal source, send a 1 kHz sine wave signal out of the mixing console at a level just below clipping as observed on an oscilloscope. Increase the input and then the output gain in turn on each device downstream in the signal path until the oscilloscope indicates the level in and out of each device is just below clipping. Be sure that the clipping threshold of the input attenuator, if the device under test has one, is found before adjusting its output attenuator. If the input attenuator on any device lacks sufficient padding to prevent input clipping, insert the minimum value pad required to prevent input clipping. Adjust the input attenuator on all amplifiers by first disconnecting any loudspeaker.

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- i. Upon completion of initial tests and adjustments, submit written results of tests to Architect/Consultant. In addition, submit written notification that the installation has been completed in accordance with the requirements of the Contract Documents, and is ready for equalization and inspection by representatives of the Architect/Consultant and Owner.
- 13. Video Testing
 - a. Verify the performance parameters of the individual systems following established professional procedures, in addition to those specified herein. Required tests include but are not limited to: visual inspection of all crimp-on connectors for proper termination, visually inspect cable for nicks or cuts where all cable exits junction box or equipment rack.
 - b. Reset all parameters on the display to factory default settings prior to any beginning any calibration.
 - c. Allow all displays to warm-up for a minimum of 30 minutes prior to any adjustments.
 - d. Lower all ambient light to lowest setting or completely off as practical for balance of test.
 - e. Using internal test pattern or external device, calibrate the image for proper geometry. If required, correct all mounting issues before proceeding with any electronic adjustments.
 - f. Focus image on display as required.
 - g. Use a PLUGE test pattern to calibrate for proper Black Level. Increase the Brightness level until the two distinctive vertical stripes on a gray background can be seen. Decrease the Black Level until the dark stripe and the gray background begin to match in level. The second and brighter stripe should still be visible. Save setting.
 - h. Use a Needle Pulse pattern to calibrate for proper White Level. Increase the Contrast level from its lowest level until the line in the pattern starts to bend anywhere along the vertical line. Decrease slightly below this level and save setting.
 - i. Brightness and Contrast are interdependent, so review the Black Level again and adjust if necessary. Black Level must always be set first. Make any necessary adjustments in both Black and White Levels.
 - j. Set display for 6500° Kelvin.
 - k. Using SMPTE Color Bar pattern and a blue filter: start adjusting the Color control while looking through the blue filter at the left most bar and patch of the Color Bar pattern. Adjust until the level of the patch equals the bar. Using the blue filter, adjust the Tint control so that the center two bars appear to be equal in amplitude with their patches. Color and Tint controls may interact so it will be necessary to go back and forth between the two controls until all four bar/patch combination matches properly. If using a Color Analyzer, follow equipment manufacturer's guidelines for testing.
- 14. CATV Cable Testing - Each Trunk Cable line shall be inspected for proper termination:
 - a. Using a standard TV receiver connected to each outlet, observe picture quality. No visible components of cross modulation (windshield wiper effect), ghosting, noise, or beat interference shall appear on the screen of the receiver tuned to any normal signal.
 - b. Carrier-to-noise test shall employ an approved field strength meter. Measurements shall be made at the termination of each Trunk Cable and system extremity. With the normal levels in the system, the field strength meter shall be tuned to the picture carrier of each channel in turn and the meter reading noted. Tune the field strength meter to an unused portion of the spectrum within the passband, read the level of remaining noise in the absence of the signal and algebraically add the meter bandwidth correction factor. Record the difference between the two readings. Provide calculations or the manufacturer's data concerning the bandwidth correction factor.

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- c. System flatness, both forward and reverse, test shall employ an approved high level sweep transmitter receiver pair. Sweep measurements shall be taken at the termination of every branch line termination in the system. Where possible, record sweep results by photographic or computer data logging means.
- 15. Digital FAT Channel performance. In addition to the analog channel tests, verify performance to meet specifications as specified in SCTE 40 2004. Digital measurements to be made as average signal power.
 - a. C/N not less than 27 dB for 64 QAM FAT channels and not less than 33dB for QAM 256 FAT Channels.
 - b. CTB and CSO not worse than -53 dBc, referenced to in-band analog carrier channels.
 - c. Normal relative FAT power levels related to analog channels: Analog channel 0 dBc (reference level); 256 QAM FAT -5 ± 2 dBc; 64 QAM FAT -10 ± 2 dBc
 - d. Absolute limits for FAT levels at the terminal: 64 QAM: -15 dBmV to + 15 dBmV 256 QAM: -12 dBmV to +15 dBmV consistent with correct analog channel levels.
 - e. Phase Noise < -88 dBc/Hz @ 10 kHz offset (relative to the center of QAM signal spectrum)
 - f. Adjacent Channel Characteristics: The worst-case Adjacent Channel performance shall be as follows. Desired (D) Channel Modulation to Undesired (U) Adjacent Channel Modulation Worst Case D/U Ratio: Analog NTSC 64 / QAM -1 dB; Analog NTSC / 256 QAM -6 dB; Analog NTSC / QPSK FDC -6 dB; 64 QAM / Analog NTSC -21 dB; 64 QAM / 256 QAM -21 dB; 64 QAM / QPSK FDC -21 dB; 256 QAM / Analog NTSC -16 dB; 256 QAM / 64 QAM -11 dB; 256 QAM / QPSK FDC -16 dB; QPSK FDC / Analog NTSC -22 dB; QPSK FDC / 64 QAM -17 dB; QPSK FDC / 256 QAM -22 dB. Independent of the D/U ratios, the C/(N+I) and the absolute signal levels shall meet the requirements for those parameters as described elsewhere in the specification.
- 16. Fiber Optic Testing
 - a. An OTDR shall be used to check each strand for:
 - 1) Loss per Unit Length: in db.
 - 2) Splice and Connector Evaluation.
 - 3) Possible Fault Location.
 - b. Test results from the OTDR shall be bound and copied to the owner and their representatives. A strand-per-data file index shall be included. Additionally, the raw data, on 3.5" 1.44MB IBM formatted diskette shall accompany the bound copies. Data files shall be accompanied with a strand-per-data file correspondence on each diskette. Other data transfer formats may be substituted by owner approval.
 - c. The binder shall also include the Factory Lot test reports, as well as the tracking information described previously.
 - d. Diligence shall be employed to produce efficient testing: i.e. connectors shall be checked with a microscope to determine whether a bad test run is a bad connector, bad termination, dirt, or a connector needing polishing.
 - e. Each OTDR shall have a minimum of 3 fully functional "Dead Zone" cables.
 - f. The "Dead Zone" cable shall be checked every 40 connections, or every new set-up, whichever comes first. Set-up shall be determined as either movement of the OTDR to a new location, or changes in the test parameters.
 - g. Connectors shall remain capped, or otherwise protected, when not in use.
- B. Test Equipment
 - 1. Provide the following test equipment on site during construction and available to the Owner during final adjustment and acceptance testing:
 - a. Laptop computer with all installed software
 - b. Multimeter - Measurement range, DC to 20,000 Hz, 100 mV to 300 V, 10 ma to 10A. Acceptable: Fluke 75, or as approved
 - c. OTDR configured for 62.5/125 multimode fiber at a wavelength of 1300nm & 1550nm
 - d. Real Time Analyzer: Ivie IE-30 or equivalent.

AUDIO VIDEO SYSTEM

- e. NTSC Television Generator.
 - f. NTSC Television Waveform Monitor: Acceptable: Tektronix
 - g. NTSC Television Vectorscope:
 - h. Time Domain Reflectometer: Tektronix 1502B with paper tape recorder or equivalent.
 - i. Microphone terminated cable
 - 1) 10 foot cables – Qty (x)
 - 2) 25 foot cables - Qty (x)
 - 3) 50 foot cable - Qty (x)
 - 4) 100 foot cables - Qty (x)
 - 5) 150 foot cables – Qty (x)
 - j. Speaker terminated cable
 - 1) 25 foot cables - Qty (x)
 - 2) 50 foot cable - Qty (x)
 - 3) 100 foot cables - Qty (x)
 - k. RF and Video cable
 - 1) 25 foot cables - Qty (x)
 - l. Portable speaker
 - m. Microphones, microphone stands and assortment of jumper cables and adapters
- C. Inspection
1. Provide a statement of completion certifying that the system is installed and is ready for acceptance testing and equalization to the Architect's.
 2. Schedule a time for the Architect's Consultant to perform system acceptance testing and equalization with at least 14 days advance notice.
 3. Designate technicians who are familiar with and qualified to operate the systems for instruction of the Owner. Provide instruction of Owner-designated personnel in the design features and proper operation of the systems. Provide a minimum of 40 hours for on-site instruction and videotape the training sessions. Make any Owner requested changes to the control system programming during this time. Coordinate instruction times through the Architect.
 4. Under the direction of the Architect's Consultant, adjust signal levels and loudspeaker aiming as required to achieve the uniform sound distribution within a tolerance of +2dB.
 5. System flatness test shall employ an approved sweep transmitter receiver pair. Sweep measurements shall be taken at the termination of every cable termination in the system. Where possible, record sweep results by photographic means.
 6. Record the final settings on all equipment and submit with contract closeout documents.
 7. Record final settings on all equipment and submit with contract closeout documents.
 8. Heat shrinking tubing shall be shrunk to cover the external connection to amplifier/passive components only after system alignment and acceptance has been completed.
 9. Upon completion of initial tests and adjustments, submit written report of tests to the Owner along with all documents, diagrams, and record drawings required herein. Cable SRL, system sweep, Egress / CLI, and all FCC tests shall be performed and submitted. Report shall include date of each test, pertinent conditions such as control settings, etc., test circuit, and test equipment employed. In addition, submit written notification that the installation has been completed in accordance with the requirements of the Contract Documents, and is ready for final equalization and acceptance testing.
 10. If the system does not meet criteria or if additional trips to the job site for testing or equalization are required, the Contractor shall reimburse the owner for all expenses and professional time encountered by the Architect and its Consultant.
- 3.3 CLEANING
- A. Remove all unnecessary tools and equipment, unused materials, packing materials, and debris from each area where Work has been completed unless designated for storage.
 - B. Clean all areas around system equipment and be sure that the inside of each equipment rack is free of wire stripping and other debris.

AUDIO VIDEO SYSTEM

3.4 DEMONSTRATION

- A. Upon completion of the Work, the Owner may elect to verify test data as part of the acceptance procedure. Provide personnel and equipment, at the convenience of the Owner, to reasonably demonstrate system performance and to assist with such tests without additional cost to the Owner.
- B. Within three months after final acceptance, the Owner reserves the right to direct changes to the control system software. Such changes shall be made without additional cost to the Owner.

END OF SECTION

Description**Amount**

OEM Resource Room and Training Room - Audio
Visual Complete:

Dollars \$

Conference Room and War Room - Audio Visual
Complete:

Dollars \$

Cable TV Complete:

Dollars \$

Total Audio-Visual Package:

Dollars \$

Alternate No. 1. To provide Sound Masking as
indicated ADD:

Dollars \$

Alternate #2 - Vanity Screens at Resource and Training
shown on AV1.0 ADD:

Dollars \$

ADDITIONAL CLAUSE #7

Your only opportunity to submit questions regarding this contract will be at the pre-bid conference. No clarifications of bid specifications or other contract matters will be given, allowed, or accepted other than at the pre-bid conference. If you submit a bid without attending the pre-bid conference, your bid may be non-responsive and you risk having your bid rejected as non-conforming.

ADDITIONAL CLAUSE #4

Bidder shall submit a bid bond equal to five percent (5%) of the bid price. Failure to submit a bid bond when required may deem the bid non-responsive. Bid Bonds may be submitted electronically with the executed original provided immediately upon request.

The following is the Council of Governments Liquidated Damages Clause for Public Works.

1.36.1 LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

The time of completion is the essence of this contract. For each calendar day that any work shall remain uncompleted after the time specified in the proposal and the contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the CONTRACTOR:

Amount of Contract (\$)		Amount of Liquidated Damages (\$)	
Less than	\$5000	60.00	per day
5,000.00 to	14, 999.99	80.00	per day
15,000.00 to	24,999.99	100.00	per day
25, 000.00 to	49,999.99	120.00	per day
50,000.00 to	99,999.99	160.00	per day
100,000.00 to	1,000,000.00	240.00	per day
More than	1,000,000.00	500.00	per day

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the CONTRACTOR shall be in default after the time stipulated in the contract for completing the work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or his surety shall pay any additional amounts due.

RETAINAGE: As security for the faithful completion of the work by the CONTRACTOR, the OWNER shall retain ten percent (10%) of the total dollar amount of work done on all contracts less than \$200,000.00; five percent (5) of the total dollar amount of work done on all contracts of \$200,000.00 or more.

On all contracts in excess of \$200,000.00, the following shall apply:

- (a) when work progress is fifty percent (50%) complete, retainage may a the OWNER'S option be reduced to two percent (2%) of the dollar value of all work satisfactorily completed to date (not to include material on hand) provided that the CONTRACTOR is on or ahead of the approved progress schedule and there is no cause for greater retainage as determined by the Engineer;
- (b) when work progress is substantially complete, the retainage may be further reduced to only that amount necessary to assure completion as determined by the Engineer;
- (c) if the OWNER determines that the CONTRACTOR is not making satisfactory progress or if there is other specific cause, the OWNER may, at his discretion, reinstate up to the five percent (5%) retainage.

PREVAILING WAGES

Requirements:

Pay not less than the minimum wage scale and benefits indicated on the "Minimum Wage Schedule" provided here.

Wages listed are minimum rates only.

No claims for additional compensation shall be considered by the Owner because of payments of wage rates in excess of the applicable rate contained in this contract.

Penalty for Violations – Texas Government Code section 2258.023(b) states as follows: "A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that he worker is paid less than the wage rates stipulated in the contract."

Payroll Records – Texas Government Code section 2258.024 requires the contractor and subcontractor to keep the records showing: (a) the name and occupation of each worker employed by the contractor or subcontractor in the construction of the public work; and (b) the actual per diem wage paid to each worker. The records shall be open at all reasonable hours to inspection by the officers and agents of the public body.

Minimum Wage Rates – Pay prevailing basic wage listed, plus any applicable fringe benefits.

PREVAILING WAGE SCALE NOTICE

This determination of prevailing wages shall not be construed to prohibit the payment of more than the rates named. Under no condition shall any laborer, workman or mechanic employed on this job be paid less than the minimum wage scale.

In execution of this contract, the contractor shall comply with all applicable state and federal laws, including but not limited to laws concerned with labor, equal employment opportunity, safety and minimum wage.

Basic Rates:

Classification Basic Wage Rates

Acoustical Ceiling Installer	\$15.24
Acoustical Ceiling Installer Helper	\$11.74
A/C Mechanic	\$17.59
A/C Mechanic Helper	\$10.55
Asbestos Worker	\$12.56
Bricklayers/Stone Mason	\$19.12
Bricklayers/Stone Mason Helper	\$10.79
Carpenter	\$15.31
Carpenter Helper	\$11.29
Concrete Finisher	\$13.49
Concrete Finisher Helper	\$9.38
Concrete Form Builder	\$13.12
Concrete Form Builder Helper	\$8.59
Drywall Installer	\$14.31
Drywall Installer Helper	\$10.33
Drywall Taper	\$13.00
Drywall Taper Helper	\$9.00
Electrician (Journeyman)	\$19.91
Electrician Helper	\$12.59
Electronic Technician	\$16.65

Electronic Technician Helper	\$12.00
Floor Layer (Resilient)	\$17.43
Floor Layer (Carpet)	\$15.19
Floor Layer Helper	\$11.86
Glazier	\$16.35
Glazier Helper	\$10.94
Insulator	\$14.78
Insulator Helper	\$10.72
Laborer - Skilled	\$11.87
Laborer - Common	\$9.57
Lather	\$16.10
Lather Helper	\$10.80
Metal Building Assembler	\$12.21
Metal Building Assembler Helper	\$8.30
Painter	\$12.98
Painter Helper	\$8.00
Plasterer	\$17.25
Plasterer Helper	\$11.22
Plumber/Pipefitter	\$18.15
Plumber/Pipefitter Helper	\$11.12
Reinforcing Steel Setter	\$11.63
Reinforcing Steel Setter Helper	\$9.31
Roofer	\$14.00
Roofer Helper	\$9.97
Sheet Metal Worker	\$16.11
Sheet Metal Worker Helper	\$10.09
Sheetrock Hanger	\$14.38
Sheetrock Hanger Helper	\$10.96
Sprinkler System Installer	\$17.86
Sprinkler System Installer Helper	\$10.09
Structural Steel Worker	\$15.69
Structural Steel Worker Helper	\$9.39
Tile Mechanic	\$13.48
Waterproofer	\$11.31
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel	\$16.24
Concrete Pump Truck Driver	\$16.57
Foundation Drill Operator	\$13.90
Forklift	\$12.38
Front End Loader	\$11.26
Truck Driver	\$12.17
Welder	\$15.89
Welder Helper	\$10.11

Apprentice Pay – All Trades and Crafts – The minimum rate for apprentices shall be in accordance with the scale determined by the approved apprenticeship program of \$1.00 per hour less than journeymen's rates, whichever is lower. An approved apprenticeship program is one approved by the U.S. Department of Labor, Bureau of Apprenticeship training, and only apprentices enrolled in an approved program may be paid apprenticeship rates.

Base Per Diem Rate – Hours Worked/Day Times Base Hourly Rate

Multipliers for Overtime Rates:

-

Over 40 hours per week: Base hourly rate times 1.5

Holidays: Base hourly rate times 1.5

New Year's Day

Martin Luther King Day
Memorial Day
July 4th
Labor Day
Thanksgiving (2 days)
Christmas (2 days)

CITY OF GARLAND TERMS AND CONDITIONS

OFFICIAL BID NOTIFICATION: The City of Garland utilizes the following for official notifications of bid opportunities: www.bidsync.com and the Commercial Daily Record of Dallas County. These are the only forms of notification authorized by the City. The City is not responsible for receipt of notifications and information from any source other than those listed. It shall be the vendor's responsibility to verify the validity of all bid information received from any source other than the City of Garland.

1% EXEMPTION: Vendor is exempt from 1% transaction fee payable to BidSync.

ANNUAL CONTRACT SHIPMENTS: The Vendor will make shipments under this contract only when requested and only in the quantities requested. If there are minimum shipments or standard packaging please note the items affected.

WARRANTY STANDARDS: Successful bidder to include copy of complete warranty standards listing for unit bid.

OEM PARTS: All vehicle options to be OEM factory installed unless otherwise identified on this bid.

EASEMENT PERMISSION: The contractor shall not enter or use private property except as allowed by easements shown on the contract documents or if the contractor obtains specific written permission from the property owner.

EQUIPMENT IDENTIFICATION: All equipment used on the project shall be clearly marked with the contractor's name and LOGO. Subcontractor equipment shall also be similarly marked.

APPLICABLE LAW: This agreement shall be governed by the Uniform Commercial Code as adopted in the State of Texas as effective and in force on the date of this agreement.

ASSIGNMENT: Seller shall not assign this order or any interest herein, including any performance or any amount which may be due or become due hereunder, without Buyer's prior written consent.

PERFORMANCE: If Seller fails to comply with any provisions or terms of this order, the Buyer, may at Buyer's option, cancel this order or any other orders outstanding. In the event of cancellation Buyer retains all rights and remedies it may have.

SUBSTITUTION: Every tender or delivery of goods must comply with all the provisions of this order as to time of deliver, quality and quantity. Any tender which does not fully conform shall constitute a breach and Seller shall not have a right to make a substitute conforming tender except as agreed to by the Buyer.

DELIVERY: All goods shall be delivered F.O.B. Destination unless otherwise indicated herein. C.O.D. shipments or deliveries are not permitted or acceptable, and for any C.O.D. tender the Buyer reserves the right to terminate the contract.

INSPECTION: Goods purchased are subject to inspection and approval by Buyer. Buyer reserves the right to reject or refuse acceptance of goods which are not in accordance with Buyer's instructions, specifications, drawings and data, or Seller's warranties (express or implied). Goods not accepted will be returned to Seller at Seller's risk and expense. Payment for any goods shall not be deemed an acceptance thereof.

WARRANTY: By accepting this order Seller warrants that the goods and services to be furnished will be free from defects in materials and workmanship, be of merchantable quality and fit for ordinary use, be in full conformance with Buyer's specifications, drawings and data, Seller's samples or models, and express warranties, and to be fit for any Buyer's particular purpose expressly or impliedly known. These warranties are in addition to all others given to the Buyer by the Seller or by law. Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer, and any such limitations or exclusions are void.

DELIVERY PROMISE/PENALTIES: Bids MUST show the number of calendar days required to place the goods in the City's receiving dept. or Warehouse under normal conditions. DO NOT quote shipping dates. A minimum of five day better delivery promise will automatically break a tie bid. Consistent failure of a Bidder to meet delivery promises without valid reason may cause a removal from the Bid List.

PATENTS: Seller agrees to indemnify and hold harmless the Buyer against all costs and expenses, including attorneys fees and undertakes and agrees to defend at Seller's own expense, all suits, actions or proceedings in which buyer or the users of Buyer's products are made defendants of actual or alleged infringement of any U.S. or foreign patent resulting from the use or sale of the items purchased hereunder (except infringement necessarily resulting from adherence to Buyer's specifications or drawings) and further agrees to pay and discharge any and all judgments or decrees which may be rendered in any such suit, action or proceeding.

INDEMNITY/INSURANCE: See attached City of Garland minimum requirements, required for all on-site work on City property.

INVOICING: Send ORIGINAL INVOICE and DUPLICATE COPY, with ORIGINAL BILL OF LADING or ORIGINAL EXPRESS RECEIPTS, to address indicated on day of shipment. If invoice is subject to cash discounts the discount period will begin on the day invoices are received. So that proper cash discount may be computed, your invoice should show amount of freight as a separate item, if applicable; otherwise, cash discount will be computed on total amount of invoice.

COMPLIANCE WITH LAWS & GOVERNMENT REGULATIONS: (a) Seller shall comply with the provisions of all Federal, State and local laws and regulations applicable to this order, or to any goods or services to be furnished hereunder, and shall, upon request by Buyer, furnish Buyer with satisfactory proof of compliance with any designated law or regulation. (b) If this order is an order within the meaning of Executive Order 11246, the nondiscrimination provisions of Section 202 of that order shall be deemed incorporated herein, and applicable to the parties hereto, and Seller will comply with all provisions of the Civil Rights Act of 1964, all pertinent rules, regulations, and orders of the Secretary of Labor and the provisions of Executive Order 11246 to the extent they are applicable to this order.

ENTIRE AGREEMENT: This order sets forth the entire agreement between the Buyer and Seller and no terms, conditions, understandings, or agreements purporting to modify or vary the terms of this order shall be binding unless made in writing and signed by the Buyer and Seller. No terms contained in Seller's invoice or statement shall serve to modify this order. If any conflict exists between written provisions on the face of, or attached to this order, and these printed Terms and Conditions, these written provisions shall prevail.

PACKAGING: Unless otherwise indicated, items will be new, not rebuilt, in first class condition, and in containers suitable for damage-free shipment.

CORRESPONDENCE: The Bid number must appear on all correspondence and inquiries pertaining to the Request for Bid. The Purchase Order number must appear on all invoices or other correspondence relating to the contract.

DELIVERY TIMES: Deliveries will be accepted only during normal working hours, i.e., 8:00a.m. to 4:00p.m., Monday through Friday at designated City receiving departments or Warehouse, unless prior arrangements have been made with the receiving department.

TIE BIDS: In case of tie bids, preference will be given to local vendors in accordance with State law.

BID LIST REMOVAL: The City reserves the right to remove a company from any Bid List for: (1) continued failure to respond when approached, (2) failure to deliver merchandise within promised time, or (3) delivery of substandard merchandise.

ACCEPTANCE: The right is reserved to accept or reject all or part of the bid, and to accept the offer considered most advantageous to the City by item or total bid.

SPECIFICATIONS-SAMPLES: If bidding on other than referenced, bid must show trade name, manufacturer name and/or catalog number, and certify article offered is equivalent. Descriptive literature must be submitted with alternate brands. Samples shall be furnished free of expense to the City and if requested, may be returned at bidder's expense.

CONTRACT QUANTITIES: The quantities in the request for bid are estimated annual requirements and the City reserves the right to increase, decrease or delete any item to be furnished. The successful bidder shall have no claim against the City for anticipated profits for quantities diminished or deleted.

CONTRACT RENEWAL OPTIONS: In the event a clause for option to renew for an additional period is included in the request for bid. Renewals will be based solely upon the option and agreement between the City and the vendor. Either party dissenting will terminate the contract in accordance with its initial specified term.

TERM CONTRACTS: Prices as stated in the purchase order shall remain firm for the entire contract period. Unforeseen changes in the economy may suggest price adjustments. Any price adjustment requested must contain specific information the relevant material in the product, actual cost of that material, the Bureau of Labor Statistics Data Description used to calculate the request, etc. Criteria may be obtained from the Purchasing Department. The City may reject any request for price adjustment.

TAXES-EXEMPTION: All quotations are required to be submitted LESS Federal Excise and State Sales Taxes. Tax Exemption Certificate will be executed for the successful vendor.

COOPERATIVE PRICING: It is the intent of the City to consider Interlocal Cooperative Agreements and State/Federal contracts in determining the best value for the City.

INTERLOCAL AGREEMENT: Successful bidder agrees to extend prices to all entities who have entered into or will enter into joint purchasing interlocal cooperation agreements with the City of Garland. The City of Garland is a participating member of several interlocal cooperative purchasing agreements. As such, the City of Garland has executed interlocal agreements, as permitted under Chapter 791 of the Texas Government Code, with certain other political subdivision, authorizing participation in a cooperative purchasing program. The successful vendor may be asked to provide products/services based upon the bid price, to any other participant..

COUNCIL POLICY: It is the policy of the City Council to forbid any individual or business entity to conduct business with the City if such person(s) currently owe(s) the City money which is past due or delinquent on property taxes, impact fees, utility bills, Municipal Court fees, EMS fees or damage claims to City property. (City Council Policy OPNS-28). Submission of this bid/proposal or acceptance of this contract certifies compliance with the policy.

COUNCIL POLICY: By the execution and submission of this bid, bidder acknowledges that bidder has received a copy of City Council Policy OPNS-04 (enclosed) and bidder represents and warrants that bidder complies with the requirements of the City Council Policy OPNS-04 and is in no manner disqualified from doing business with the City under that policy.

CITY PROVIDED SERVICES: The contractor, or any sub-contractor or vendor shall use only city provided services in performing this contract including but not limited to: Electric (if available), Water, Sanitation and Solid Waste Services. The rate charged by the City shall be the same as charged for the same or similar services. Commercial Solid Waste rates may be obtained from City of Garland Solid Waste, Commercial Rates, 972-205-3500.

PROHIBITION AGAINST PERSON INTEREST IN CONTRACTS: No City of Garland employee shall have a direct or indirect financial interest in any contract with the City, or be directly or indirectly financially interested in the sale of land, materials, supplies or services to the City.

TERMINATION: This agreement may be terminated by the City without notice and without penalty or liability in the event that (1) the City lacks sufficient funds for this agreement; (2) funds for this agreement are not appropriated by the City Council of the City; and (3) funds for this agreement that are or were to be provided by grant or through an outside service are withheld, denied or otherwise not available to the City.

The City at time of issuance of this agreement, by 30 day written notice, have the absolute right to terminate this agreement for cause or for convenience. Cause shall be the vendor's refusal or failure to perform the work or failure to meet specifications, quantity or quality of work performed within the time specified by this agreement. In such case, the vendor shall be liable for any damage suffered by the City.

However, the vendor shall not be held responsible for failure to perform if such failure is caused by acts of God, acts of the public enemy, acts of the governments, provided the vendor notifies the City within 30 days after such cause occurs. If the agreement is terminated by the City for convenience, the vendor has no further obligation under the agreement. Payment shall be made to cover the cost of material/work in progress or "cosigned" to the City as of the effective date of termination.

ELECTRONIC BIDS: The City of Garland uses BidSync to distribute and receive bids and proposals. There will be **NO COST** to the vendor for bids or proposals. Refer to www.bidsync.com for further information.

ELECTRONIC SIGNATURE – UNIFORM ELECTRONIC TRANSACTION ACT: The City adopts Vernon's Texas Statutes and Codes Annotated Business and Commerce Code Chapter 43. Uniform Electronic Transaction Act, allowing individuals, companies, and governmental entities to lawfully use and rely on electronic signatures.

RIGHT TO AUDIT: Purchaser shall have the right to examine and audit after reasonable notice any and all books and records of Seller/Contractor that may relate to this agreement including, without limitation, the performance of Seller/Contractor, its employees, agents, and subcontractors. Such books and records will be maintained in accordance with generally accepted accounting principles and shall, upon request and at Purchaser's request, be made available at a location designated by Purchaser. Seller-Contractor shall, except for copying costs, otherwise bear all costs of producing such records for examination and copying by Purchaser. Unless otherwise agreed by the parties, such records must be made available to Purchaser within five business days. The provisions of this paragraph shall survive the termination of this agreement.

FUNDING OUT CLAUSE: This agreement may be terminated by the City without notice and without penalty or liability in the event that (1) the City lacks sufficient funds for this agreement; (2) funds for this agreement are not appropriated by the City Council of the City; and (3) funds for this agreement that are or were to be provided by grant or through an outside service are withheld, denied or are otherwise not available to the City.

DISPUTE RESOLUTION: Pursuant to subchapter I, Chapter 271, TEXAS LOCAL GOVERNMENT CODE, Contractor agrees that, prior to instituting any lawsuit or other proceeding arising from any dispute or claim of breach under this Agreement (a "Claim"), the parties will first attempt to resolve the Claim by taking the following steps: (i) A written notice substantially describing the factual and legal basis of the Claim shall be delivered by the Contractor to the City within one-hundred eighty (180) days after the date of the event giving rise to the Claim, which notice shall request a written response to be delivered to the Contractor not less than fourteen (14) business days after receipt of the notice of Claim; (ii) If the response does not reasonably resolve the Claim, in the opinion of the Contractor, the Contractor shall give notice to that effect to the City whereupon each party shall appoint a person having authority over the activities of the respective parties who shall promptly meet, in person, in an effort to resolve the Claim; (iii) If those persons cannot or do not resolve the Claim, then the parties shall each appoint a person from the highest tier of managerial responsibility within each respective party, who shall then promptly meet, in person, in an effort to resolve the Claim.

DISCLOSURE OF CERTAIN RELATIONSHIPS: Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of the City of Garland not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. Chapter 176 and the questionnaire may be found at www.garlandpurchasing.com.

By submitting a response to this request, vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code.

COMPETITIVE PRICING: Pricing from Interlocal and cooperative purchasing agreements may be considered.

PROCUREMENT PROCESS: The City will comply with and require all contractors to comply with all applicable federal, state and local laws, regulations and guidelines containing EEO/AA and Disadvantaged Business Enterprise requirements.

VENUE: This agreement will be governed and construed according to the laws of the State of Texas. This

agreement is performable in Dallas County, Texas.

**CITY OF GARLAND
CITY COUNCIL POLICY**

OPNS-04 – Qualifications for Doing Business with the City

I. Purpose and Need for Policy

The purpose of this policy is to foster the public's trust in the conduct of City business and to further insure the expenditures of public funds is beyond reproach.

II. Policy

Other than the exceptions cited below, it is the policy of the City Council to not enter into or renew a contract to purchase, sell, or lease property or services to or from any entity described in this policy.

III. Procedure to Accomplish Policy

- A. The City of Garland shall not, except as provided herein, enter into or renew a contract to purchase, sell, or lease property or services to or from any person or entity who has been:
- 1) Convicted of any state or federal felony offense. Conviction includes a final probation, deferred adjudication or similar disposition.
 - 2) Convicted or fined in excess of \$50,000 on certain state or federal discrimination offenses. Discrimination charges include only those brought for discrimination against the race, sex, or religion or an individual or class of individuals.
- B. Persons or entities doing business with the City include:
- 1) Individuals, corporations, partnerships, associations, or limited liability companies.
 - 2) Owner or principal operators of entities referenced in paragraph B(1).
 - 3) Principal officers of entities referenced in paragraph B(1).
 - 4) Shareholders in corporations or limited liabilities companies if there are five or fewer shareholders.
 - 5) Majority owned affiliates of any entity referenced in paragraph B(1).
- C. This policy shall not apply when:
- 1) Three years have elapsed between the conviction and the approval of the contract.
 - 2) The contract does not require City Council approval.
 - 3) Anything of value is paid or given to informants or participants in a crime stopper program, or
 - 4) The City Council determines this policy could cause grave injury or impose a severe financial hardship to the City of Garland by its application, and is waived by an affirmative vote of not less than six (6) Council members.
- D. On bid applications that may result in a contract award by the City Council, the City shall require a representation by bidders that the bidder is not disqualified by the application of this policy.
- E. After contract award, but prior to the commencement of the project or the delivery of the service or property, a determination that the bidder is in violation of this policy shall be cause for terminating the contract.

By the execution and submission of this bid, bidder acknowledges that bidder has received a copy of City Council Policy OPNS-04 and bidder represents and warrants that bidder complies with the requirements of the City Council Policy OPNS-04 and is in no manner disqualified from doing business with the City under that policy.
--

**CITY OF GARLAND
CITY COUNCIL POLICY**

OPNS-28 – Business Conduct with Delinquent Account Holders and Litigants

I. Purpose and Need for Policy

The City conducts business with its citizens and the public at-large. In so doing, there are instances where the City may be asked to conduct business with those who are delinquent in their payment(s) to the City on various accounts or who may be involved in litigation with the City. Examples of the types of delinquent accounts which can be substantial in nature are impact fees, property taxes (generally person property), utility bills, EMS fees, and damage claims to City property. A policy is needed to ensure that the City does not conduct business with those individuals.

II. Policy

It is the policy of the City Council to forbid any individual or business entity to conduct business with the City if such person(s) currently owe(s) the City money which is past due or delinquent on property taxes, impact fees, utility bills, Municipal Court fees, EMS fees, or damage claims to City property. Unless prohibited by law, it shall further be the policy of the City Council to forbid any individual or business entity who files meritless litigation against the City from conducting business with the City.

III. Procedure to Accomplish Policy

On a monthly basis, the Managing Director of Customer Services shall produce a delinquent accounts list containing the names of those businesses and/or individuals who are delinquent in paying the City for property taxes, impact fees, utility bills, EMS fees, or damage claims. Copies of the delinquent tax history shall be distributed to the City Manager's office, Purchasing, Engineering, Planning, and Building Inspection Departments. The delinquent accounts list relating to impact fees, utility bills, EMS fees, and/or damage claims shall be housed in the Customer Service Department. These lists will be available to the City Manager, Assistant City Manager's, and other departments upon request, to be checked prior to permit issuance or other conduct of business by the City with any business or individual. The City will not do business with any business or individual until the delinquent account is paid in full. The City shall not award any contracts for services and/or goods to any business, firm, and/or individual(s) who are delinquent or have demonstrated that they are not the most responsible bidder.

IV. Responsibility and Authority

1. The Managing Director of Customer Service shall be responsible for producing and distributing a delinquent accounts list containing names of businesses and/or individuals who are delinquent in paying their property taxes, impact fees, utility bills, EMS fees, or damage claims to the City.
2. The Purchasing Manager shall be responsible for the reporting and removal of any bids submitted by any business(es), firm(s), and/or individual(s) who are delinquent in payment(s) of their utility bills, EMS fees, property taxes, impact fees, or have damage claims to the City.
3. The City Manager is responsible to ensure that this policy is upheld and that the Council is kept abreast of its effectiveness.

By the execution and submission of this bid, bidder acknowledges that bidder has received a copy of City Council Policy OPNS-28 and bidder represents and warrants that bidder complies with the requirements of the City Council Policy OPNS-28 and is in no manner disqualified from doing business with the City under that policy.

IF VENDOR IS AWARDED BID/PROPOSAL, INSURANCE AND BONDS WILL BE REQUIRED WITHIN 10 DAYS OF NOTICE OF AWARD.

DO NOT FILL OUT THESE FORMS UPON SUBMISSION OF YOUR BID/PROPOSAL. THEY ARE INCLUDED TO FAMILIARIZE THE BIDDER WITH THE DOCUMENTS REQUIRED TO BE EXECUTED UPON AWARD OF THIS BID/PROPOSAL.

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

(To be executed prior to acceptance of project)

STATE OF TEXAS

COUNTY OF DALLAS

Personally, before me the undersigned authority, on this day appeared _____ who, being duly sworn, on oath, says that he is a legal representative of _____ (Full name of Contractor as in Contract) and that the contract for the construction of the project, designated as _____ (Project No) has been satisfactorily completed and that all bills for materials, apparatus, fixture, machinery and labor used in connection with the construction of this project have, to the best of my knowledge and belief, been fully paid.

Signature _____
Title _____

Sworn to and subscribed before me this _____ day of _____, 2 _____.

Notary Public in and for _____ County, Texas

Instructions:

If the Contractor is an individual, he shall sign the affidavit. If the Contractor is a partnership, any partner may sign the affidavit. If the Contractor is a corporation, a person authorized by the by-laws or by the Board of Directors shall sign the affidavit. If the Contractor is a joint venture of individuals, any of the individuals may sign the affidavit. If the Contractor is a joint venture of partnerships, or of individuals and partnerships, the individual or any partner of any partnership may sign the affidavit. If the contractor is a joint venture in which a corporation is a party, separate affidavits must be executed in the name of the joint-venture; one by each corporation and one by each individual or partnership. Signatures for corporations should be by a duly authorized officer. If signature is by another, a showing of authority to sign must accompany the affidavit.

-----title-----CONTRACT

THIS CONTRACT is made and entered into by and between the **CITY OF GARLAND, TEXAS (the "City")**, a municipal corporation located in Dallas County, Texas, and _____ a Texas corporation, herein referred to as "Contractor."

RECITALS:

WHEREAS, the City requested bids for (brief scope of work) _____ and _____

WHEREAS, Contractor submitted the lowest responsible bid in response to the City's request for bids,

NOW THEREFORE, in consideration of the mutual covenants contained herein, the sufficiency of which is acknowledged, the City and the Contractor hereby agree as follows:

1. Services Provided. The Contractor undertakes, covenants, and agrees to provide the services required by the City in accordance with the requirements,

terms and conditions contained in the City's request for bids in connection with Bid Number _____ (entitled "_____").

2. Incorporation by Reference. All terms and conditions contained in the City's request for bids in connection with Bid Number _____ are incorporated into this Contract by reference as if full set forth at length.

3. Price and Payment. The Contractor shall be entitled to receive (amount in words) _____ dollars (\$_____.00) for performance of the services contemplated by this Contract. Payment shall be governed by the terms and conditions set forth in the request for bid in connection with Bid Number _____.

4. Additional Security. It is mutually agreed that should it appear to the City of Garland, or to the Authorized Agent in charge, at any time during the existence of this Contract, that the sureties on the Contractor's bond have become insolvent, bankrupt, or otherwise financially unable to protect the City under the terms of the Contract, the City may demand the Contractor to furnish additional security in some approved surety company satisfactory to the City. The acts of the City or the Agent with reference to demanding new or additional security shall never be construed to relieve the original sureties of their obligations under the Contract, or to relieve the Contractor. The City may stop performance under the Contract until additional security has been furnished by the Contractor, and the City shall in no case be liable to the Contractor on account thereof. In the event of the refusal or failure of the Contractor to comply with the demands of the City with reference to furnishing additional security, the City may exercise its right as provided herein to stop all payments under the Contract and to arrange for completion of the Contract requirements obligating the Contractor for any and all additional expenses incurred.

5. Entire Agreement. It is understood and agreed that this contract contains the entire agreement between the parties and supersedes any and all prior agreements, arrangements or understandings between and parties relating to the subject matter. No oral understandings, statements, promises or inducements contrary to the terms of this contract exist.

This contract cannot be changed or terminated orally and no written modification of this contract shall be effective unless executed by both parties.

EXECUTED on this the _____ day of _____, 2

CITY OF GARLAND:

By: _____ By: _____
(City /Owner) Party of the Second Part (Contractor)

Name: _____ Name: _____

Title: _____ Title: _____

Date: _____ Date: _____

Before me this day personally appeared the person whose signature appears above, who after being by me duly sworn upon oath says that he/she is

_____,
(title and name of company)

and is authorized to sign as an act of the corporation.

Subscribed and sworn to before me on this the _____ day of _____, 2

Notary Public in and for the State of Texas

Printed Name of Notary

My Commission Expires _____

MAINTENANCE BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns the sum of _____ Dollars in the lawful currency of the United States of America (\$_____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, under the Contract it is provided that the Contractor will maintain and keep in good repair all work to be performed and done under the Contract for a period of one (1) year from the date of acceptance of the completed work by the City, and to do and perform all necessary work and repair any defective condition, it being understood that the purpose of this maintenance bond is to insure all warranties, express or implied, made or given by the Contractor to the City and to cover all defective, inadequate or non-conforming conditions arising by reason of any materials or labor installed, provided, constructed or performed by the Contractor and in case the Contractor shall fail to correct any such conditions it is agreed that the City may make such corrections and charge the cost of making those corrections against the Contractor and the Surety on this obligation, and the Contractor and Surety shall be subject to the liquidated damages provided in the contract, the plans and the specifications for each day's failure on its part to comply with the terms and provisions of the Contract;

NOW, THEREFORE, if the Contractor shall keep and perform its obligation to maintain the work and keep the work in repair for the full maintenance period of one (1) year as herein provided, then these presents shall be null and void and have no further effect, but if default shall be made by Contractor in the performance of its obligations, then these presents shall have full force and effect, and the City shall have and recover from the Contractor and its Surety damages in the premises as provided and it is further understood and agreed that this obligation shall be a continuing one against the Contractor and the Surety and that successive recoveries may be had hereon for successive breaches until the full amount of this bond shall have been exhausted; and it is further understood that the obligation under this bond to maintain the work shall continue throughout the maintenance period and shall not be changed, diminished, or in any other manner affected during the term of this bond. The obligations of Contractor and Surety under this bond

apply both to the original Contract and to any extension or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas County, Texas such that exclusive venue for any legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 20__.

CONTRACTOR:

SURETY:

By: _____
 Printed Name: _____
 Title: _____

By: _____
 Printed Name: _____
 Title: _____

Address of Principal:

Address of Surety:

ACKNOWLEDGMENTS

[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

[Surety]

STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the _____ day of _____, 20____ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 20____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

PAYMENT BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension of time or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas County, Texas such that exclusive venue for any

legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 20__.

CONTRACTOR:**SURETY:**

By: _____

By: _____

Title: _____

Title: _____

ACKNOWLEDGMENTS

[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2_____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

[Surety]

STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the _____ day of _____, 2__ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 2_____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

PERFORMANCE BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall well, truly and faithfully perform all of the undertakings, duties, terms, conditions and agreements of the Contract; shall satisfy all claims and demands incurred under the Contract; shall fully indemnify and hold the City harmless; shall reimburse and repay the City for any outlay or expense which the City may incur in making good any default, and shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas

County, Texas such that exclusive venue for any legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the ____ day of _____, 2____.

CONTRACTOR:

SURETY:

By: _____
Title: _____

By: _____
Title: _____

ACKNOWLEDGMENTS
[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

[Surety]
STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the ____ day of _____, 2____ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____ day of _____, 2____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

Revised 1/10/00 revised 2/28/06(year signed only) revised 7/6/06(notary wording)

ALL BIDDERS ARE NOTIFIED THAT THE FOLLOWING QUALIFICATION STATEMENT MUST BE COMPLETED AND SUBMITTED WITH THE BID PROPOSAL.

QUALIFICATION STATEMENT INFORMATION RETAINED FOR 12 MONTHS

- | Complete qualification statement once
- | Information retained for 12 months from initial date
- | Document will appear in documents section for each City of Garland bid
- | Do not have to click on it BUT
- | Can review and update as needed – be sure to save if updating
- | At end of 12 months form will be blank, “Pending acceptance” message will appear

SC.37 CONTRACTORS QUALIFICATIONS

The contractor shall show that he has experience with similar projects that require working in confined areas in close proximity to many physical features (fences, utility poles, guy lines, gas lines and meters, sewer manholes and cleanouts, etc.) which will require the Contractor to plan his work efforts and equipment needs with these limitations in mind. The Contractor shall submit a list of projects successfully completed that required work under similar specifications. This list shall include the names of supervisors and type of equipment used to perform this work.

BIDDERS QUALIFICATION STATEMENT

Project:

Contractor:

Indicate One: ☐ Sole Proprietor ☐ Partnership ☐ Other
☐ Corporation ☐ Joint Venture

Name:

Partner:

Title:

Title:

Address:

Address:

City:

City:

State & Zip: State & Zip: Phone: Phone: State and Date of Incorporation, Partnership, Ownership, Etc. Location of Principal Office: Contact and Phone at Principal Office: Liability Insurance Provider and Limits of Coverage: Workers compensation Insurance Provider: Surety (Performance and Payment): Address: Contact and Phone: Total Number of Employees to be Associated with this Job: Managerial Administrative Professional Skilled Semi-Skilled Other Percentage of Work to be Done by Bidders Employees (Based on Dollars Bid):

Type(s) of Work to be Done by Bidders Employees (examples: concrete paving, structural concrete, water lines, sanitary sewer lines, storm pipe, storm inlets, excavation, lime, bridge fencing, etc.)

Access to Tools and Equipment: Percent Owned Percent Rented Number of Years in Business as a Contractor on Above Types of Work:

Type(s) of Work to be Done by Sub-Contractors

Include Name, Address, and Phone Number of Sub-Contractor, Use Additional Sheets if needed.

Type of Work and Sub-Contractor

List your most current completed projects, with information, similar to the type of work bid.
(Use Additional Sheets if Necessary)

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person:

Phone:

Project:

Project Description:

Owner/Agency:

Year Built

Contract Price:

Contact Person:

Phone:

Project:

Project Description:

Owner/Agency:

Year Built

Contract Price:

Contact Person:

Phone:

Project:

Project Description:

Owner/Agency:

Year Built

Contract Price:

Contact Person:

Phone:

Project:

Project Description:

Owner/Agency:

Year Built

Contract Price:

Contact Person:

Phone:

Trade References (List Company, Address, Contact Person, and Phone):

Bank References (List Institution, Address, Contact Person, and Phone):

Claims and Suits (If the answer to any of the questions is yes, please attach details):

- ┆ Has your organization ever failed to complete any work awarded to it?
- ┆ Are there any judgments, claims, arbitration proceedings, or suits pending or outstanding against your organization or its officers?
- ┆ Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?
- ┆ Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract?

I, being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Dated this day of , 20 .

Name of Organization:

By:

Title:

STATE OF TEXAS

COUNTY OF DALLAS

City of Garland
CONTRACTOR INSURANCE REQUIREMENTS & AGREEMENT

REQUIREMENTS

Contractors performing work on City property or public right-of-way for the City of Garland shall provide the City a certificate of insurance or a copy of their insurance policy(s) evidencing the coverages and coverage provisions identified herein. Contractors shall provide the City evidence that all subcontractors performing work on the project have the same types and amounts of coverages as required herein or that the subcontractors are included under the contractor's policy.

All insurance companies and coverages must be authorized by the Texas Department of Insurance to transact business in the State of Texas and must be acceptable to the City of Garland Risk Management office.

Listed below are the types and amounts of insurances required. The City reserves the right to amend or require additional types and amounts of coverages or provisions depending on the nature of the work.

TYPE OF INSURANCE	AMOUNT OF INSURANCE	PROVISIONS
1. Workers' Compensation Employers' Liability	Statutory Limits \$100,000 per occurrence	City to be provided a WAIVER OF SUBROGATION and 30 day notice of cancellation or material change in coverage. Insurance company must be A-rated or above.
2. Commercial General (Public) Liability to include coverage for: a) Premises/Operations b) Products/Completed Operations c) Independent Contractors d) Personal Injury e) Contractual Liability	Bodily Injury - \$250,000 per person, \$500,000 per occurrence; Property Damage - \$100,000 per occurrence	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. Insurance company must be A-rated or above.
3. Business Auto Liability to include coverage for: a) Owned/Leased vehicles b) Non-owned vehicles c) Hired vehicles	Bodily Injury - \$250,000 per person, \$500,000 per occurrence; Property Damage - \$100,000 per occurrence	City to be listed as additional insured and provided 30 day notice of cancellation or material change in coverage. Insurance company must be A-rated or above.

Certificate of Liability Insurance forms may be **faxed** to Purchasing Department , attn: Sharon or Nancy, @ **972-205-2495, phone 972-205-2415**. Questions regarding required insurance should be directed to Robby Neill, City of Garland Risk Manager, (972)205-2481.

This form must be signed and returned with your quotation. You are stating **that you do have the required insurance and if selected to perform work for the City, will provide the certificates of insurance with the above requirements** to the City. **A PURCHASE ORDER WILL NOT BE ISSUED WITHOUT EVIDENCE OF INSURANCE.**

AGREEMENT

I agree to provide the above described insurance coverages within 10 working days if selected to perform work for the City of Garland. I also agree to provide the City evidence of insurance coverage on any and all subcontractors performing work on the project.

City of Garland
INDEMNIFICATION AGREEMENT

The Contractor agrees to indemnify, hold harmless and defend the City of Garland, its officers, agents and employees, both past and present, from and against liability for any and all claims, liens, suits, demands, and actions for damages, injuries to persons (including death), property damage (including loss of use), and expenses, (including court costs, attorneys' fees and other reasonable costs of litigation) arising out of or resulting from Contractor's work and activities conducted in connection with or incidental to this Contract and from any liability arising out of or resulting from intentional acts or negligence of the Contractor, including all such causes of action based upon common, constitutional, or statutory law, or based in whole or in part upon the negligent or intentional acts or omissions of Contractor, including but not limited to its officers, agents, employees, subcontractors, licensees, invitees, and other persons.

It is the express intention of the parties hereto, both the City and the Contractor, that the indemnity provided for in this Contract indemnifies and protects the City from the consequences of the City's own negligence.

The Contractor further agrees that it shall at all times exercise reasonable precautions on behalf of, and be solely responsible for, the safety of its officers, agents, employees, subcontractors, licensees, invitees and other persons, as well as their property, while in the vicinity where the work is being done. It is expressly understood and agreed that City shall not be liable or responsible for the negligence or other fault of the Contractor, its officers, agents, employees, subcontractors, licensees, invitees, or other person associated with the Contractor.

The Contractor agrees to indemnify and save the City harmless from all claims growing out of any demands of subcontractors, laborers, workers, mechanics, materialmen, and furnishers of supplies, equipment, financing, or any other goods or services, tangible or intangible. When the City so desires, the Contractor shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid discharged or waived.

INDEPENDENT CONTRACTOR

Contractor acknowledges that Contractor is an independent contractor of the City and that Contractor is not an employee, agent, official or representative of the City. Contractor shall not represent, either expressly or through implication, that Contractor is an employee, agent, official or representative of the City. Any income taxes, self-employment taxes, social security taxes and the like are the sole responsibility of the Contractor.

Nothing contained in this Contract shall be deemed or construed by the parties hereto or by any third party to create the relationship of principal and agent or of partnership or of joint venture or of any association whatsoever between the parties, it being expressly understood and agreed that no provision contained in this Agreement nor any act or acts of the parties hereto shall be deemed to create any relationship between the parties other than the relationship of independent parties contracting with each other solely for the purpose of effecting the provisions of this Contract.

I understand that the indemnification and Independent Contractor provisions are requirement of all City of Garland Contracts. I have read the provisions agree to the terms of these provisions.

COMPANY NAME

TITLE

SIGNATURE

DATE

j:\data\purchase\sfg\train\insur.doc revised 6-12-00 Revised 7-18-05 Revised 2/07(30 day cancellation added on WC)

AGREEMENT & INFORMATION FORM

DELIVERY WILL BE F.O.B. CITY OF GARLAND. ALL TRANSPORTATION CHARGES PAID BY THE SUPPLIER TO DESTINATION.

PROMPT PAYMENT DISCOUNT % FOR PAYMENT MADE WITHIN DAYS OF ACCEPTANCE OF GOODS OR SERVICES.

PAYMENT TERMS: Net 30. If PROMPT PAYMENTS are not offered or accepted, payments shall be made 30 days after receipt and acceptance of goods or services or after the date of receipt of the invoice, whichever is later.

DELIVERY TO BE SPECIFIED IN CALENDAR DAYS FROM DATE OF ORDER.

PRICES QUOTED SHALL REMAIN FIRM AND IRREVOCABLE FOR A PERIOD OF DAYS.

☐ We **DO NOT** take exception to the Bid specifications.

☐ We **TAKE** exception to the Bid specifications (explain):

Would bidder be willing to allow other local governmental entities to participate in this contract, if awarded, under the same Terms and Conditions? ☐ YES ☐ NO

The City of Garland reserves the right to reject any and/or all bids.

The City shall at time of issuance of this agreement, by 30 day written notice, have the absolute right to terminate this agreement for cause or for convenience. Cause shall be the vendor's refusal to perform any provision of the work or failure to meet specifications, quantity or quality of work performed within the time specified by this agreement. In such case, the vendor shall be liable for any damage suffered by the City. However, the vendor shall not be held responsible for failure to perform if such failure is caused by acts of God, acts of the public enemy, acts of the governments, provided the vendor notifies the City within 30 days after such cause occurs. If the agreement is terminated by the City for convenience, the vendor has no further obligation under the agreement. Payment shall be made to cover the cost of material/work in progress or "cosigned to the City as of the effective date of termination.

Bidder agrees to comply with all conditions of this sheet and additional terms, conditions and specifications as pertains to this bid process. The undersigned hereby offers to furnish and deliver the articles or services as specified at the prices and terms herein stated and in strict accordance with the

specifications and general conditions of bidding, all of which are made part of this offer. This offer is not subject to withdrawal after award is made. Bidder guarantees product offered will meet or exceed specifications identified in this bid request.

Signatory certifies no change has been made whatsoever to the content of this document as provided by the City of Garland

Name of Business:

Business Address:

City / State / Zip Code:

Phone:

Fax:

Authorized (Name):

Signature:

E-Mail Address:

FEDERAL ID #:

Date:

The City of Garland is an active supporter of Disadvantaged & Minority/Women-owned business enterprises development and is committed to increasing its purchases from minority and women-owned companies through the competitive bid process. The City of Garland accepts certification from the State of Texas, resident state and North Central Texas Regional Certification Agency (NCTRCA).

Minority Owned Business: Yes ☐ No ☐ Certification #

Quotations will not be considered unless quoted F.O.B. delivered, City of Garland, Texas.

For special delivery of bids, our physical address is: 200 N. Fifth Street, Garland, TX 75040.

The City of Garland will award to the lowest responsible bidder or to the bidder who provides goods or services at the best value for the City.

No employee shall have a direct or indirect financial interest in any contract with the City, or be directly or indirectly financially interested in the sale of land, materials, supplies or services to the City.

FRAUD POLICY: Vendors submitting proposals to the City of Garland must review the City's policy related to fraudulent activities and acknowledge their responsibilities for protection against acts of fraud in the conduct of business.

The signature below acknowledges that I am aware of and have read the City of Garland Fraud Policy Directive. As a contractor/vendor engaged in a business relationship with the City of Garland, I understand that I am responsible for aiding in the protection against fraudulent acts (which are defined in the Fraud Policy) by complying with all aspects of the Fraud Policy. One key responsibility is to report all suspected fraud to the City's Fraud Hotline at 972-205-2739.

Copies of the City of Garland's Fraud Policy can be located at www.ci.garland.tx.us, City Hall/Internal Audit/ Fraud Policy.

ELECTRONIC BIDS: The City of Garland uses BidSync to distribute and receive bids and proposals. There will be **NO COST** to the vendor for standard bids or proposals. For **Cooperative Bids and Reverse Auctions ONLY**, the *successful* Vendor (s) agree to pay to BidSync a transaction fee on one percent (1%) of the total awarded amount of all contracts for goods and/or services. Cooperative Bids and Reverse Auctions will be clearly marked on the bid documents. To assure that all Vendors are treated equally, the fee will be payable whether the bid/proposal is submitted electronically, or by paper means. Refer to www.bidsync.com for further information.

VENDOR RESPONSIBILITY It is the vendors responsibility to check for any addenda or questions and answers that might have been issued before bid closing date and time.

A W-9 form will be required from the awarded vendor.

Acknowledgement of Addenda: #1 € #2 € #3 € #4 € #5 €

Vendors WILL be notified of any addenda and Q&A if they are on the invited list, they view the bid or add themselves to the watch list.

Is Bid Bond attached if applicable? ☐ Yes ☐ No

Please supply Remit To Address, if different than your physical address:

REMIT TO ADDRESS:

	 
--	--



From what source do you normally receive notice of solicitations?

- ☐ Newspapers
- ☐ Website
- ☐ Email Notice
- ☐ Regular Mail Notice
- ☐ Other



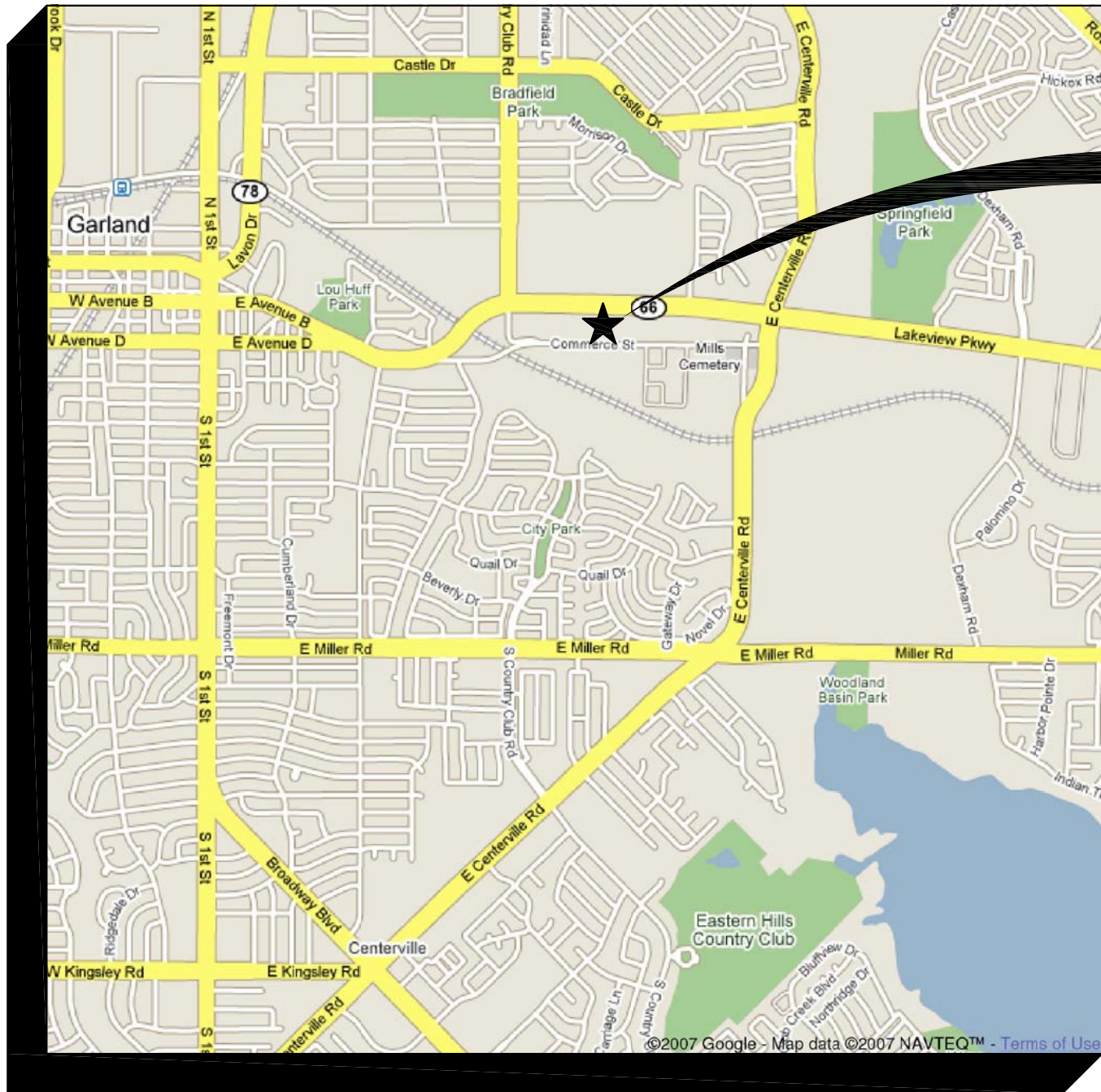
CITY OF GARLAND

EMERGENCY MANAGEMENT AND IT SERVICES

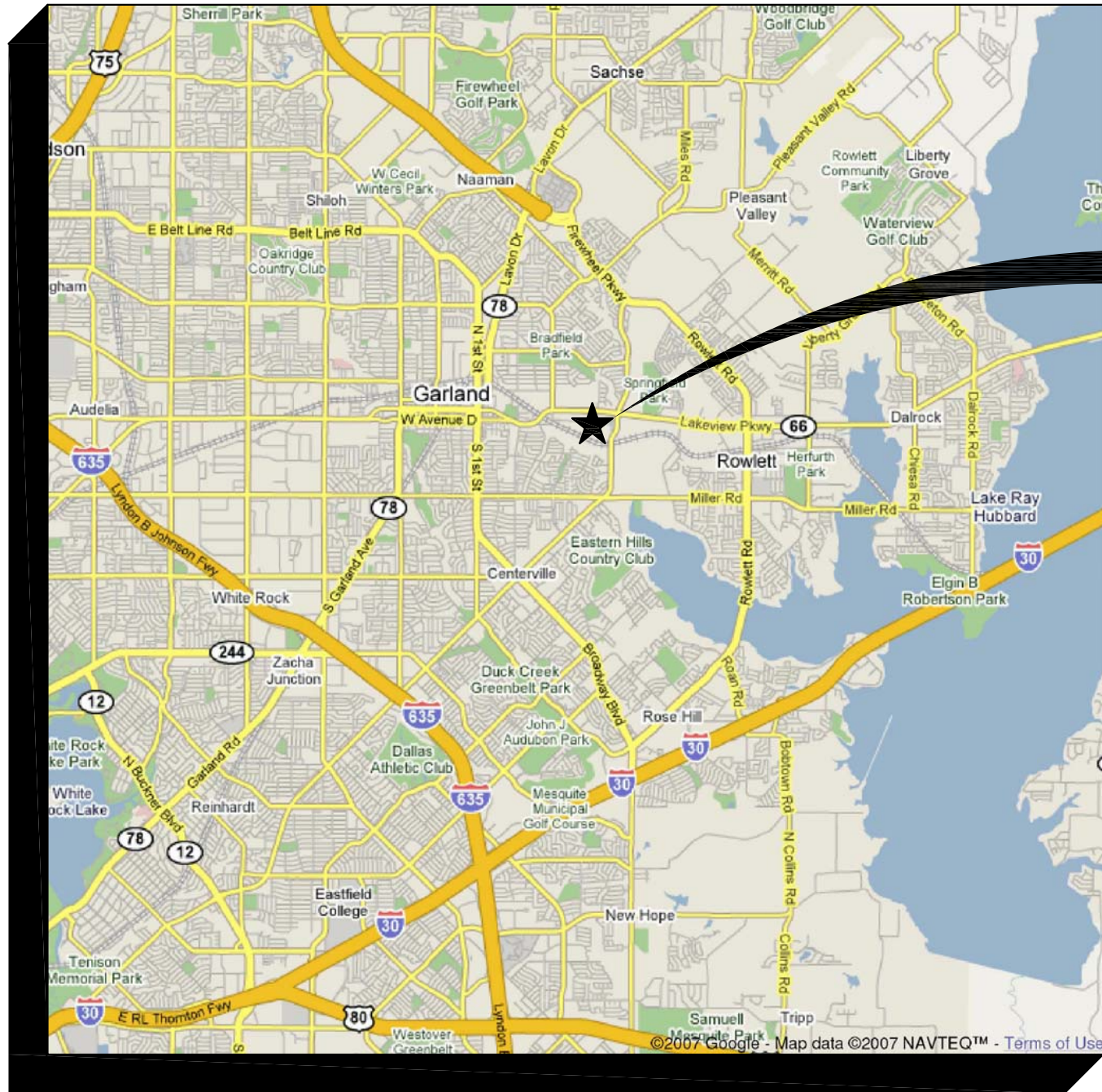
(EMIT)

1500 EAST STATE HIGHWAY 66

OFFICE OF EMERGENCY
MANAGEMENT
AUDIO VISUAL SYSTEM
11-4-2008



LOCATION MAP



VICINITY MAP

INDEX OF DRAWINGS

Sheet Number	Sheet Title
General	
--	COVER SHEET
Audio Visual System	
AE-000	SYSTEM ELECTRICAL ABBREVIATIONS, SYMBOLS AND NOTES
AE-002	SYSTEM ELECTRICAL MISCELLANEOUS DETAILS
AE-102	SYSTEM ELECTRICAL FLOOR PLAN AREA A
AE-502	SYSTEM ELECTRICAL CEILING PLAN AREA A
AV0.0	A/V ABBREVIATIONS, SYMBOLS, AND NOTES
AV0.1	A/V MISCELLANEOUS DETAILS
AV0.2	A/V CABLE SCHEDULES
AV1.0	A/V AUDIO BLOCK DIAGRAM
AV1.1	A/V AUDIO BLOCK DIAGRAM
AV2.0	A/V VIDEO BLOCK DIAGRAM
AV3.0	A/V CONTROL BLOCK DIAGRAM
AV4.0	A/V CATV BLOCK DIAGRAM
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AV5.0	A/V RACK ELEVATIONS
AV6.0	A/V PLATES AND PANELS
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SM0.1	SOUND MASKING (ALTERNATE) DETAILS AND BLOCK DIAGRAM
SM1.0	SOUND MASKING (ALTERNATE) FLOOR PLAN AREA A
SM2.0	SOUND MASKING (ALTERNATE) CEILING PLAN AREA A

C-B PROJECT NUMBER - 024453.010

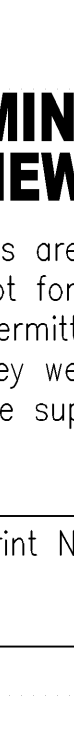
ARCHITECT / ENGINEERS

CarterBurgess

CARTER & BURGESS, INC.
1420 WEST MOCKINGBIRD LANE
DALLAS, TEXAS 75247
214-920-8100

C&B PROJECT NO. 024453.010

REVISIONS:

Carter = Burgess CARTER & BURGESS, INC. 1420 WEST MOCKINGBIRD LN. DALLAS, TEXAS 75247 214.920.8100	
 ACOUSTICS (ARCHITECTURAL SYSTEMS) 1000 W. MOCKINGBIRD LANE, SUITE 400, DALLAS, TEXAS 75247 800.226.7444 • FAX 972.989.7444 • FAX 972.989.7408	
PRELIMINARY FOR REVIEW ONLY	
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TX _____	04/10/2008
RA # _____	Date _____
CITY OF GARLAND EMERGENCY MANAGEMENT AND IT SERVICES	C&B PROJECT NO. 024453.010
	
C&B JOB NUMBER: 024453.010	
DATE ISSUED: 10/01/08	
ISSUES:	
DEM AV PACKAGE	10/23/08
_____	_____
_____	_____
_____	_____
REVISIONS:	
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
SHEET CONTENTS:	
ABBREVIATIONS	
LEGENDS AND	
NOTES	
SHEET NUMBER:	
AE-000	

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IT SERVICES**
C&B PROJECT NO. 024453.010

GARLAND

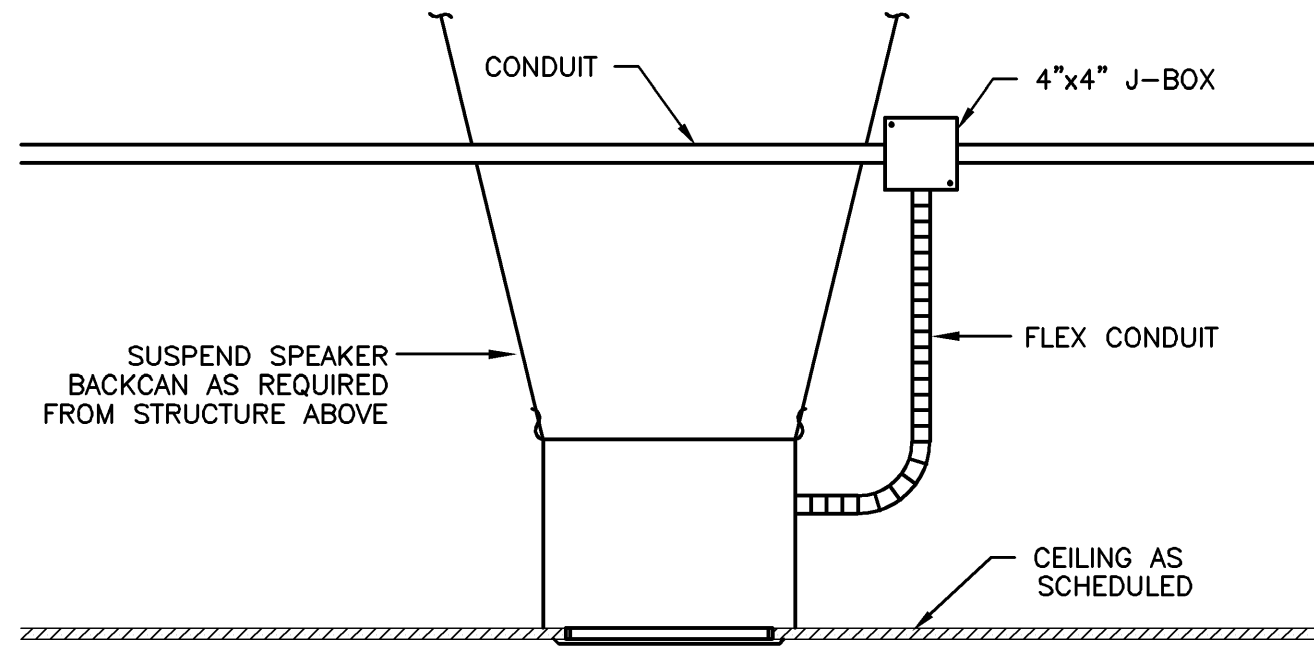
C&B JOB NUMBER:
024453.010
DATE ISSUED:
10/01/08

ISSUES:
OEM AV PACKAGE 10/23/08

REVISIONS:

SHEET CONTENTS:
**MISCELLANEOUS
DETAILS**

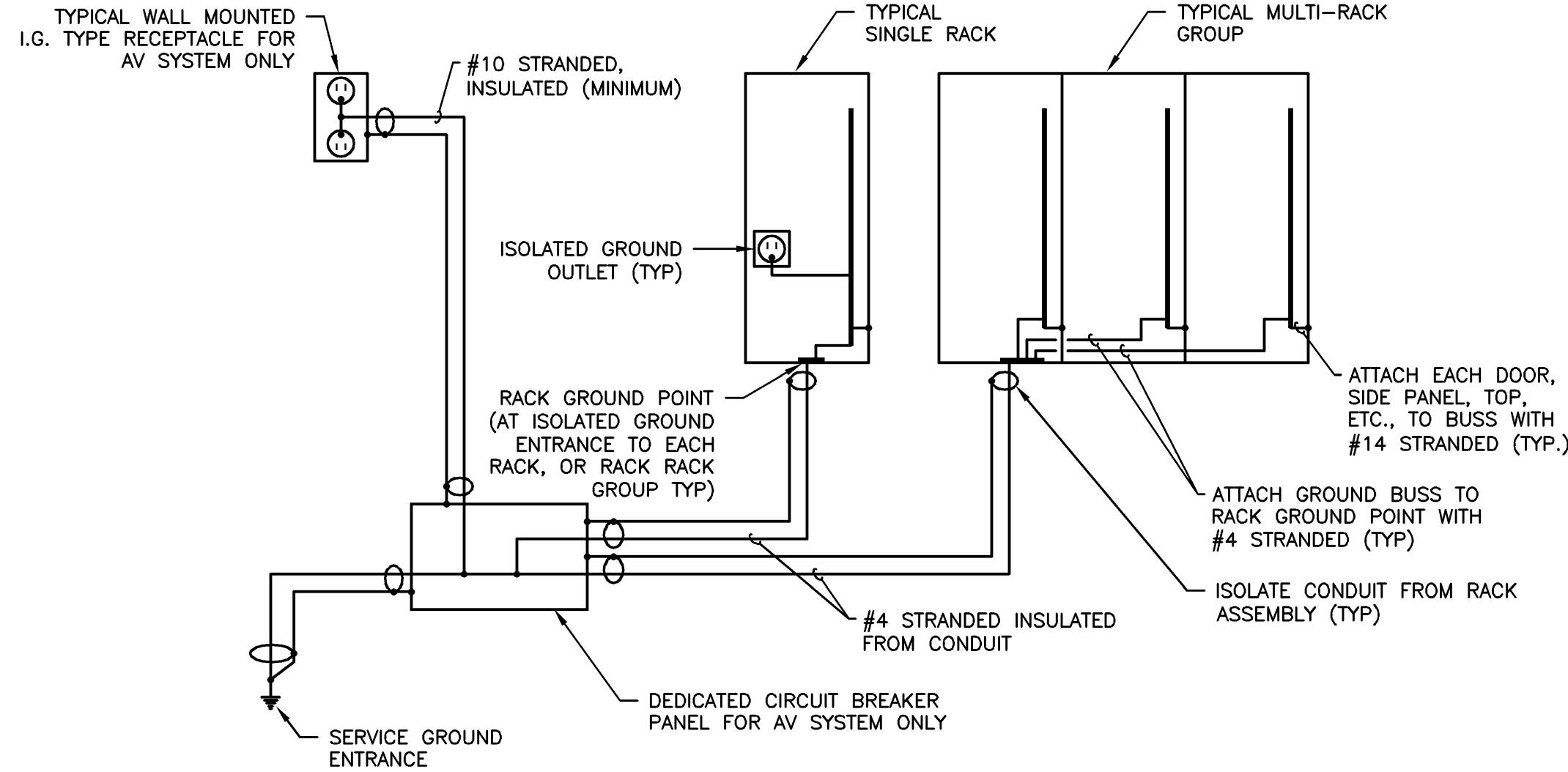
SHEET NUMBER:
AE-001



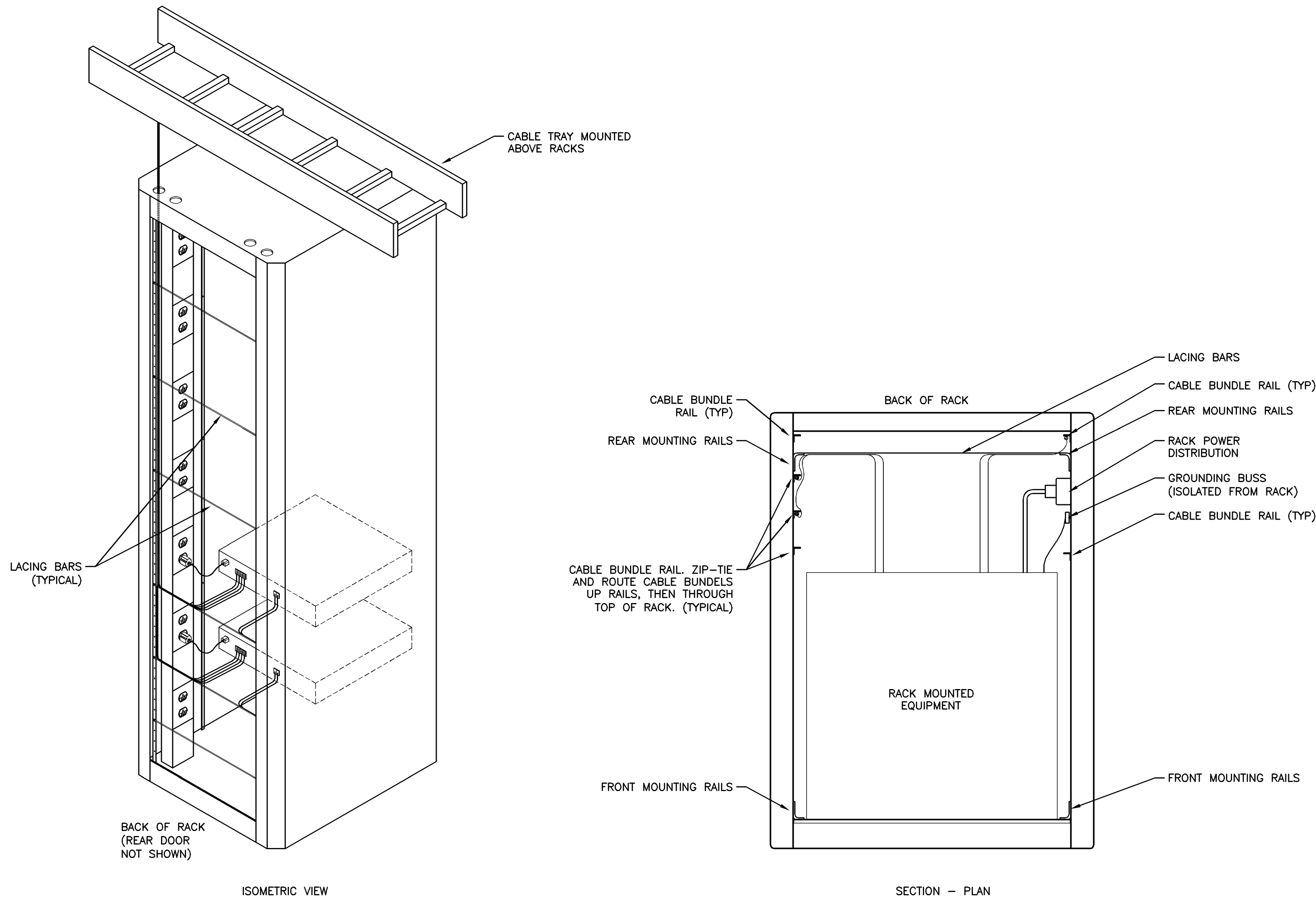
1 **DETAIL - TYPICAL CEILING MOUNTED LOUDSPEAKER**
AE-001 SCALE: NONE

NOTES:

1. IN INACCESSIBLE CEILING SPACE LOCATIONS (ie: GYPBOARD CEILINGS, ETC.) ELIMINATE JUNCTION BOX AND CONNECT CONDUIT DIRECTLY TO BACKCAN



2 **DETAIL - EQUIPMENT RACK GROUNDING**
AE-001 SCALE: NONE



3 **DETAIL - EQUIPMENT RACK ASSEMBLY & WIRE ROUTING**
AE-001 SCALE: NONE

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TX	08X10X2008
RE #	Date

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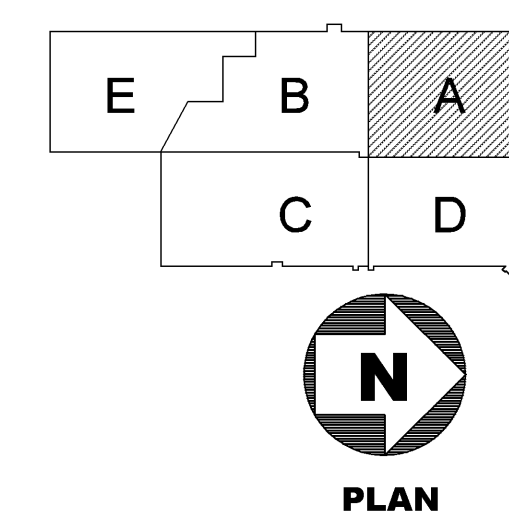
GARLAND

ISSUES:
OEM AV PACKAGE 10/23/08

REVISIONS:

SHEET NUMBER:

AE-102



1 COMPOSITE FLOOR PLAN
AEV-102 SCALE: 1/8"=1'-0"

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EMERGENCY MANAGEMENT AND
IT SERVICES**

C&B PROJECT NO. 024453.010

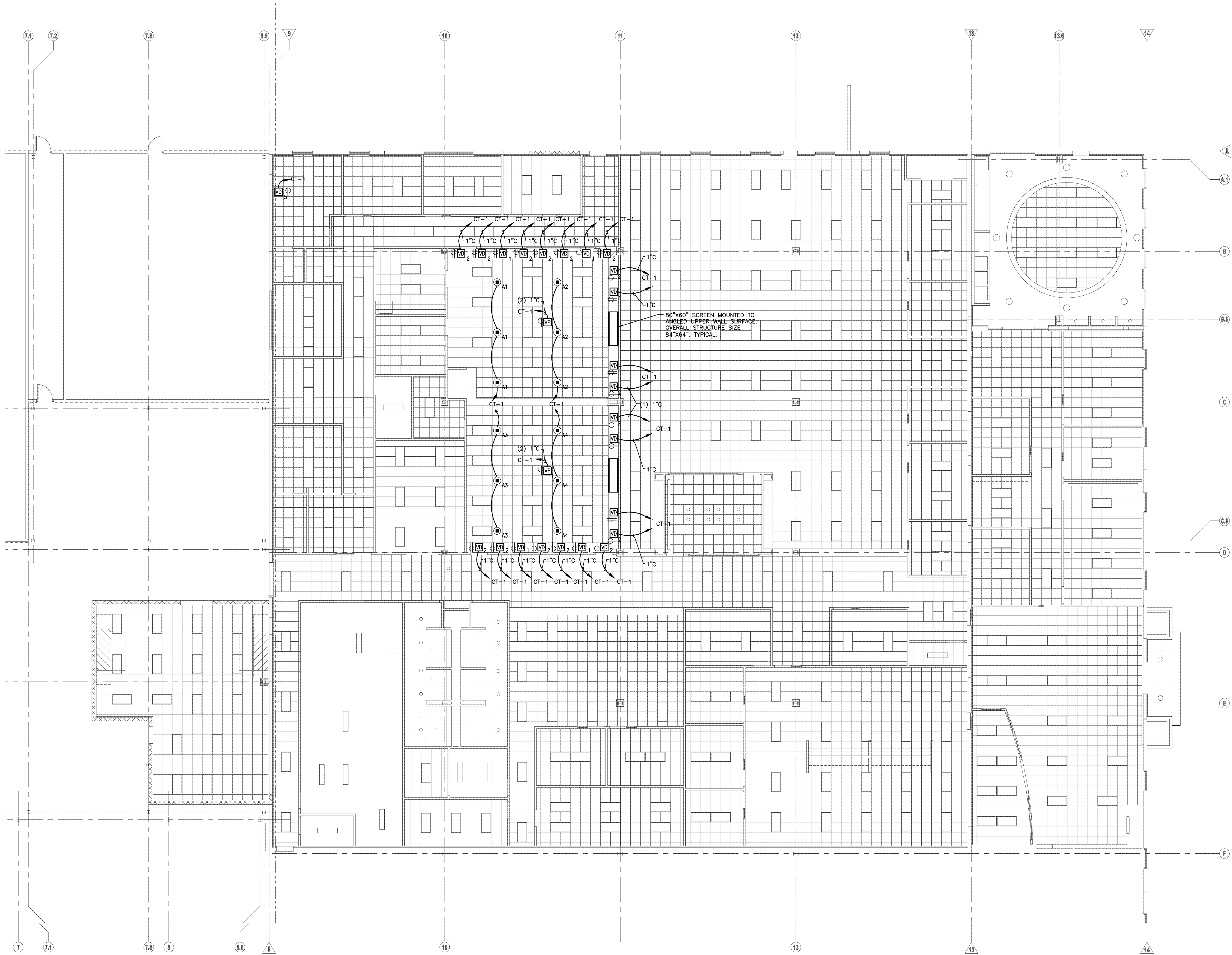
GARLAND

C&B JOB NUMBER:
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DATE ISSUED:
10/01/08
ISSUES:
OEM AV PACKAGE 10/23/08

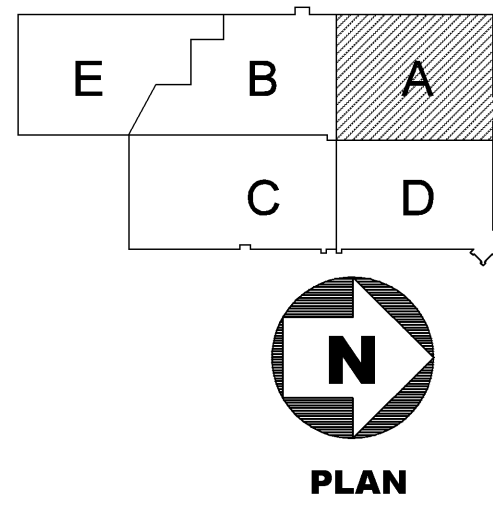
REVISIONS:

SHEET CONTENTS:
**CEILING PLAN
AREA A**

SHEET NUMBER:
AE-502



1 REFLECTED CEILING PLAN
AE-502 SCALE: 1/8"=1'-0"



PLAN

CarterBurgess

CARTER & BURGESS, INC.
1420 WEST MOCKINGBIRD LN.
DALLAS, TEXAS 75247
214.920.8100

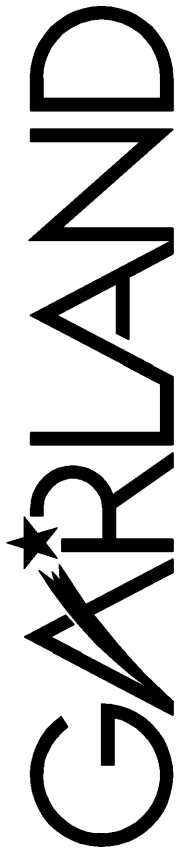


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C&B JOB NUMBER: 024453.010
DATE ISSUED: 10/01/08

ISSUES:
OEM AV PACKAGE 10/23/08

REVISIONS:

SHEET CONTENTS: ABBREVIATIONS LEGENDS AND NOTES

SHEET NUMBER:

AV0.0

ABBREVIATIONS (ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED)

A

A/C AIR CONDITIONING
ABV ABOVE
AC ALTERNATING CURRENT
ACR AUDIO CASSETTE RECORDER
ADJ ADJUSTABLE
ADR AUDIO DISC RECORDER
AFC ABOVE FINISHED CEILING
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AMP AMPERES, AMPLIFIER
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH ARCHITECT, ARCHITECTURAL
ASTM AMERICAN SOCIETY OF TESTING AND MATERIALS
ATR AUDIO TAPE RECORDER
AUX AUXILIARY
AWG AMERICAN WIRE GAUGE

B

BETA SP BETACAM SPECIAL PERFORMANCE
BFF BELOW FINISHED FLOOR
BFC BELOW FINISHED CEILING
BKR BREAKER
BLDG BUILDING
BOD BOTTOM OF DUCT
BOP BOTTOM OF PIPE
BOS BOTTOM OF STRUCTURE

C

C CONDUIT
CATV CABLE TELEVISION
CCTV CLOSED CIRCUIT TELEVISION
CD COMPACT DISC
CG CHARACTER GENERATOR
CKT CIRCUIT
CLG CENTERLINE
CLG CEILING
CMR CENTRAL MACHINE ROOM
CMU CONCRETE MASONRY UNIT
COL COLUMN
COMP COMPUTER
CONV CONVERTER

D

DA DISTRIBUTION AMPLIFIER
D DEPTH, DEEP
DB DIMMER BANK
DC DIRECT CURRENT
DCA DIGITALLY CONTROLLED ATTENUATOR
DEG DEGREES
DH DIGITAL HYBRID
DIA DIAMETER
DIM DIMENSION
DM DIMMING SYSTEM MANUFACTURER
DISC DISCONNECT
DN DOWN
DPDT DOUBLE-POLE, DOUBLE-THROW
DPST DOUBLE-POLE, SINGLE-THROW
DS DATA SWITCH
DSP DIGITAL SIGNAL PROCESSOR
DVE DIGITAL VIDEO EFFECTS
DWG DRAWING

E

EA EACH
EL ELEVATION
ELEC ELECTRICAL
ENCL ENCLOSURE
EQ EQUALIZER
EQUIP EQUIPMENT
ESS ELECTRONIC STILL STORE
EXIST EXISTING

F

F FLUSH
FLEX FLEXIBLE
FPM FEET PER MINUTE
FT FOOT, FEET

G

G, GND GROUND
GA GAUGE

H

H HEIGHT
HOR HORIZONTAL
HI-B HIGH BAND BMM
HP HORSEPOWER
HZ HERTZ

I

ICOM INTERCOM
ID INSIDE DIAMETER
IDTV IMPROVED DEFINITION TELEVISION
IFB INTERRUPTED FOLDBACK
IG ISOLATED GROUND
I/O INPUT/OUTPUT

J

J-BOX JUNCTION BOX
JD DIMMING SYSTEM JUNCTION BOX
JL LINE LEVEL JUNCTION BOX
JM MICROPHONE LEVEL AUDIO JUNCTION BOX
JR RIGGING SYSTEM CONTROL OR POWER JUNCTION BOX
JS SPEAKER LEVEL AUDIO JUNCTION BOX
JP SYSTEM POWER JUNCTION BOX
JV TRANSMISSION (RF DISTRIBUTION) JUNCTION BOX

K

KBD KEYBOARD
KV KILOVOLT
KVA KILOVOLT-AMPS
KW KILOWATT
KWH KILOWATT-HOUR

L

L LENGTH, LONG
LB POUNDS
LF LINEAR FEET
LM LIMITER
LL LINE LEVEL
LRA LOCKED ROTOR AMPS
LTG LIGHTING

M

MATV MASTER ANTENNA TELEVISION
MAIN MAINTAINED
MAX MAXIMUM
MCC MOTOR CONTROL CENTER
MECH MECHANICAL
MH METAL HALIDE
MIC MICROPHONE
MIN MINIMUM
MIX MIXER
MIX/AMP MIXER/AMPLIFIER
ML MICROPHONE LEVEL
MOD MODULATOR
MON MONITOR
MTD MOUNTED

N

NA NOT APPLICABLE
NC NORMALLY CLOSED
NEC NATIONAL ELECTRICAL CODE
NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NIC NOT IN CONTRACT
NO NORMALLY OPEN
NTS NOT TO SCALE

O

OC ON CENTER
OD OUTSIDE DIAMETER
OFE OWNER FURNISHED EQUIPMENT

P

PA PUBLIC ADDRESS, AUDIO POWER AMPLIFIER
PDS PREMISE DISTRIBUTION SYSTEM
PCM PROGRAM
PH PHASE
PNL PANEL
PS POWER SUPPLY
PSF POUNDS PER SQUARE FOOT
PSI POUNDS PER SQUARE INCH
PTZ PAN/TILT/ZOOM
PVC POLYVINYL CHLORIDE
PXM PICTURE MONITOR

Q

QTY QUANTITY

R

RCP REFLECTED CEILING PLAN, RADIO CONTROLLED PANEL
RE: REFERENCE, REFER
REINF REINFORCING
REQD REQUIRED
REV REVISION, REVISE
RF RADIO FREQUENCY
RM ROOM
RPM REVOLUTIONS PER MINUTE

S

S SURFACE
S-VHS SUPER VHS
SATV SATELLITE TELEVISION
SF SQUARE FEET
SHT SHEET
SIM SIMILAR
SL SPEAKER LEVEL
SPEC SPECIFICATION
SQ SQUARE
STD STANDARD
SURF SURFACE
SUSP SUSPEND

T

THRU THROUGH
TYP TYPICAL
TV TELEVISION

U

UL UNDERWRITERS LABORATORIES, INC.
UON UNLESS OTHERWISE NOTED
UPS UNINTERRUPTIBLE POWER SUPPLY

V

VBS VIDEO BURST SYNC
VCA VOLTAGE CONTROLLED AMPLIFIER
VCP VIDEO CASSETTE PLAYER
VCR VIDEO CASSETTE RECORDER
VDA VIDEO DISTRIBUTION AMPLIFIER
VECT VECTORSCOPE
V VOLT
VA VOLT-AMPERE
VERT VERTICAL
VHS VIDEO HOME SYSTEM

W

W WATT, WIDTH, WIDE
WFM WAVEFORM MONITOR
W/ WITH
W/O WITHOUT
WT WATERTIGHT, WEIGHT
WVS WAVEFORM/VECTORSCOPE

X

XFMR TRANSFORMER
XMIT TRANSMITTER
XVR CROSSOVER

Y

Y/C LUMA/CHROMA

AV SYSTEM SYMBOLS (ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

BLOCK DIAGRAM LEGEND

SYMBOL	DESCRIPTION
	VIDEO DISTRIBUTION AMPLIFIER EO - WITH EQUALIZATION D - WITH DELAY R - WITH REMOTE CONTROL
	AUDIO DISTRIBUTION AMPLIFIER
	VIDEO SIGNAL LOOP-THRU (BRIDGED)
	VIDEO OR AUDIO ISOLATION TRANSFORMER
	AUTOTRANSFORMER TYPE ATTENUATOR
	OPTICAL TRANSMITTER
	OPTICAL RECEIVER
	OPTICAL BI-DIRECTIONAL TRANSMITTER/RECEIVER
	OPTICAL SPLICE BOX
	POWER AMPLIFIER-N DENOTES TYPE
	INFRARED RECEIVER
	I/O MODULE
	CONTINUATION AROUND DEVICE
	CONTINUATION TO
	CONTINUATION FROM
	CONNECTOR
	MONO INTEGRAL ACTIVE LINE BALANCER/ BUFFER
	STEREO INTEGRAL ACTIVE LINE BALANCER/ BUFFER
	NORMALE PATCH POINT
	PATCH POINT
	PAD
	EQUALIZER-FIXED
	2 PORT TAP - SUBSCRIPT DENOTES TAP SERVICE VALUE INSIDE SYMBOL DENOTES ISOLATION VALUE
	4 PORT TAP - SUBSCRIPT DENOTES TAP SERVICE VALUE INSIDE SYMBOL DENOTES ISOLATION VALUE
	8 PORT TAP - SUBSCRIPT DENOTES TAP SERVICE VALUE INSIDE SYMBOL DENOTES ISOLATION VALUE
	DIRECTIONAL COUPLER - SUBSCRIPT DENOTES ISOLATION VALUE
	TERMINATION
	POWER BLOCKING TERMINATION
	POWER BLOCKING TERMINATION W/TEST POINT
	SPLITTER-2WAY
	UNBALANCED SPLITTER-3WAY
	BALANCED SPLITTER-3WAY
	ONE WAY POST AMPLIFIER

GENERAL NOTES

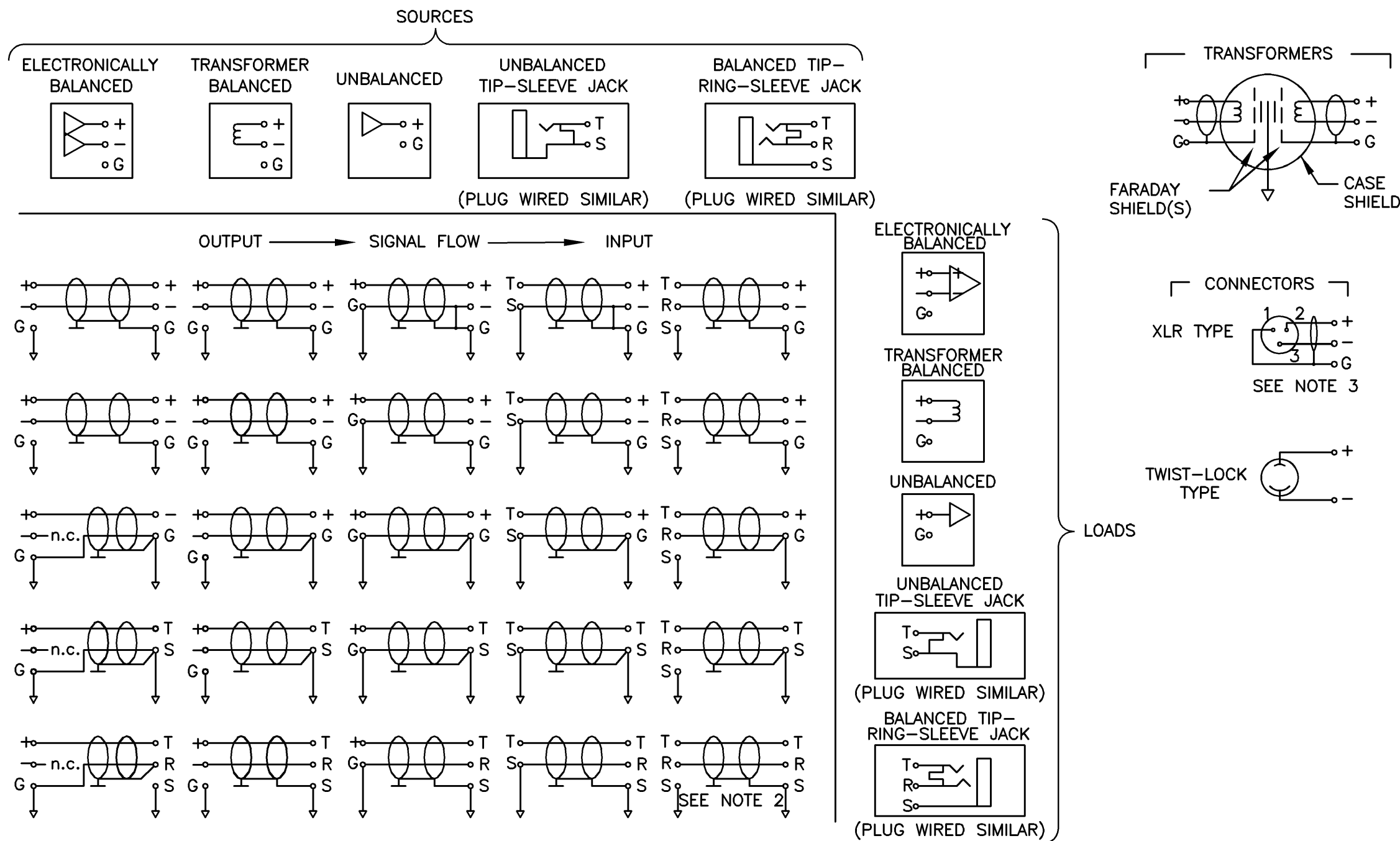
- ALL WORK SHOWN ON "AV" SERIES DRAWINGS SHALL BE PROVIDED IN ACCORDANCE WITH SPECIFICATION DIVISION 11.
- DIVISION 16 SHALL PROVIDE ELECTRICAL POWER, TECHNICAL GROUND, EMPTY CONDUIT SYSTEMS, JUNCTION BOXES, FLOOR BOXES AND BACK BOXES FOR WALL PANELS AND LOUDSPEAKERS UNLESS OTHERWISE NOTED.
- ALL BOXES AND CONDUIT IN NEW WALLS AND CEILINGS SHALL BE FLUSH MOUNTED OR CONCEALED.
- SUPPORT ALL LOUDSPEAKER ENCLOSURES FROM STRUCTURE RATHER THAN FROM CEILING.
- ALL WIRING SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
- VERIFY ALL DEVICE PLATE FINISHES WITH ARCHITECT.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT PLACEMENT OF ALL DEVICES.
- ELECTRICAL OUTLETS SHOWN FOR COORDINATION ONLY - REFER TO ELECTRICAL SHEETS FOR CIRCUIT DETAILS.

CONNECTOR SYMBOLS

	CANARE BCJ RJU-BLACK (TYP.)
	CANARE FJ RJU-BLACK (TYP.)
	NEUTRIK NC3FD-L-B (TYP.)
	NEUTRIK NC3MD-L-B (TYP.)
	NEUTRIK NC4FD-L-B (TYP.)
	NEUTRIK NC5FD-L-B (TYP.)
	NEUTRIK NL3FP6C-BAG (TYP.)
	CANARE RJ-BCJRU-BLACK (TYP FOR VIDEO) OR CANARE RJ-RU-BLACK (TYP FOR AUDIO)
	CANARE NL4MP (TYP)
	NEUTRIK DBA (TYP.)
	NEUTRIK NE8FBV (TYP.)

SHEET INDEX

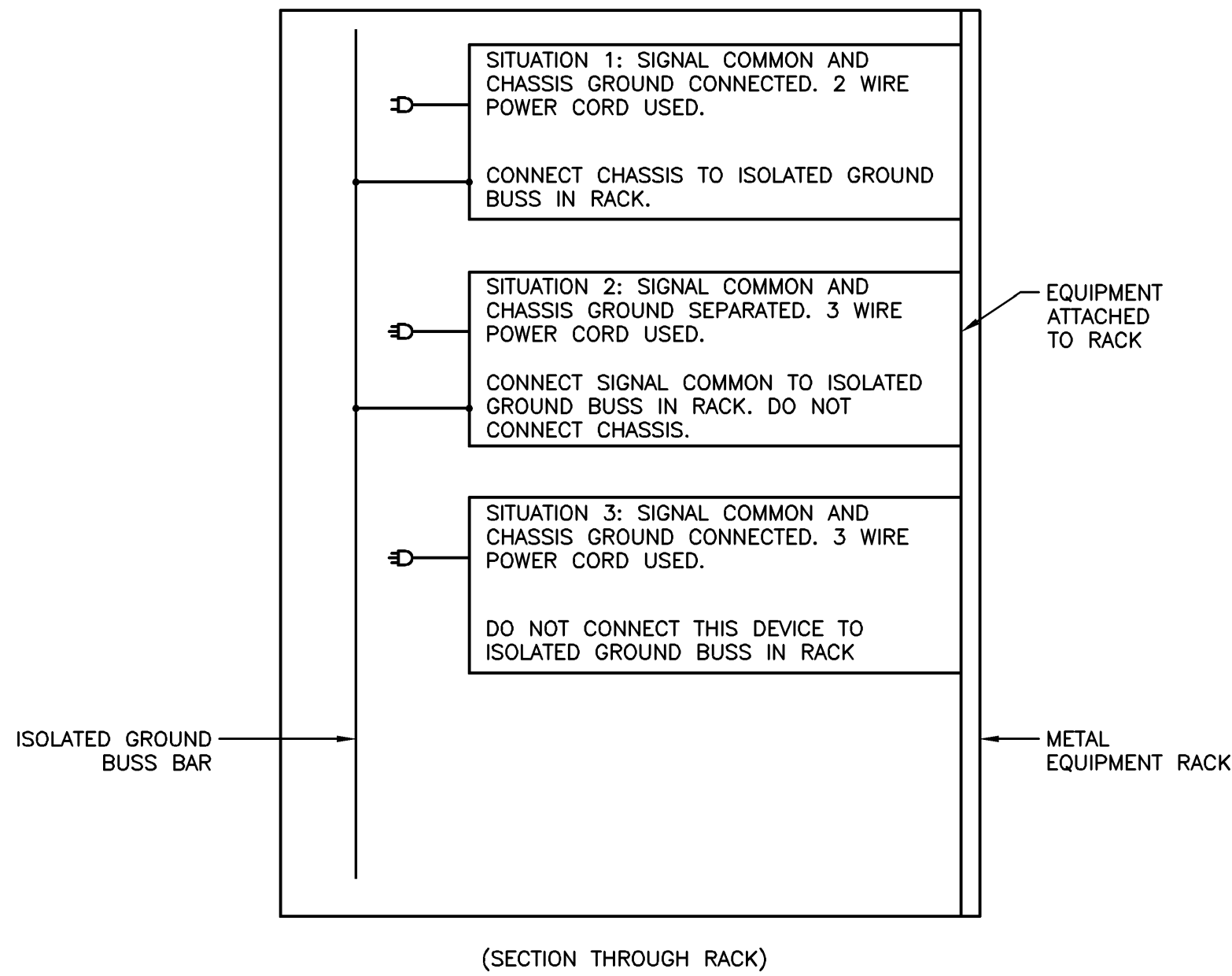
AV0.0 - ABBREVIATIONS LEGENDS AND NOTES
AV0.1 - MISCELLANEOUS DETAILS
AV0.2 - CABLE SCHEDULES
AV1.0 - AUDIO BLOCK DIAGRAM
AV1.1 - AUDIO BLOCK DIAGRAM
AV2.0 - VIDEO BLOCK DIAGRAM
AV3.0 - CONTROL BLOCK DIAGRAM
AV4.0 - CATV BLOCK DIAGRAM
AV4.1 - CATV BLOCK DIAGRAM
AV5.0 - RACK ELEVATIONS
AV6.0 - PLATES AND PANELS
AV6.1 - PLATES AND PANELS



1 SIGNAL WIRING GROUNDING AND SHIELDING

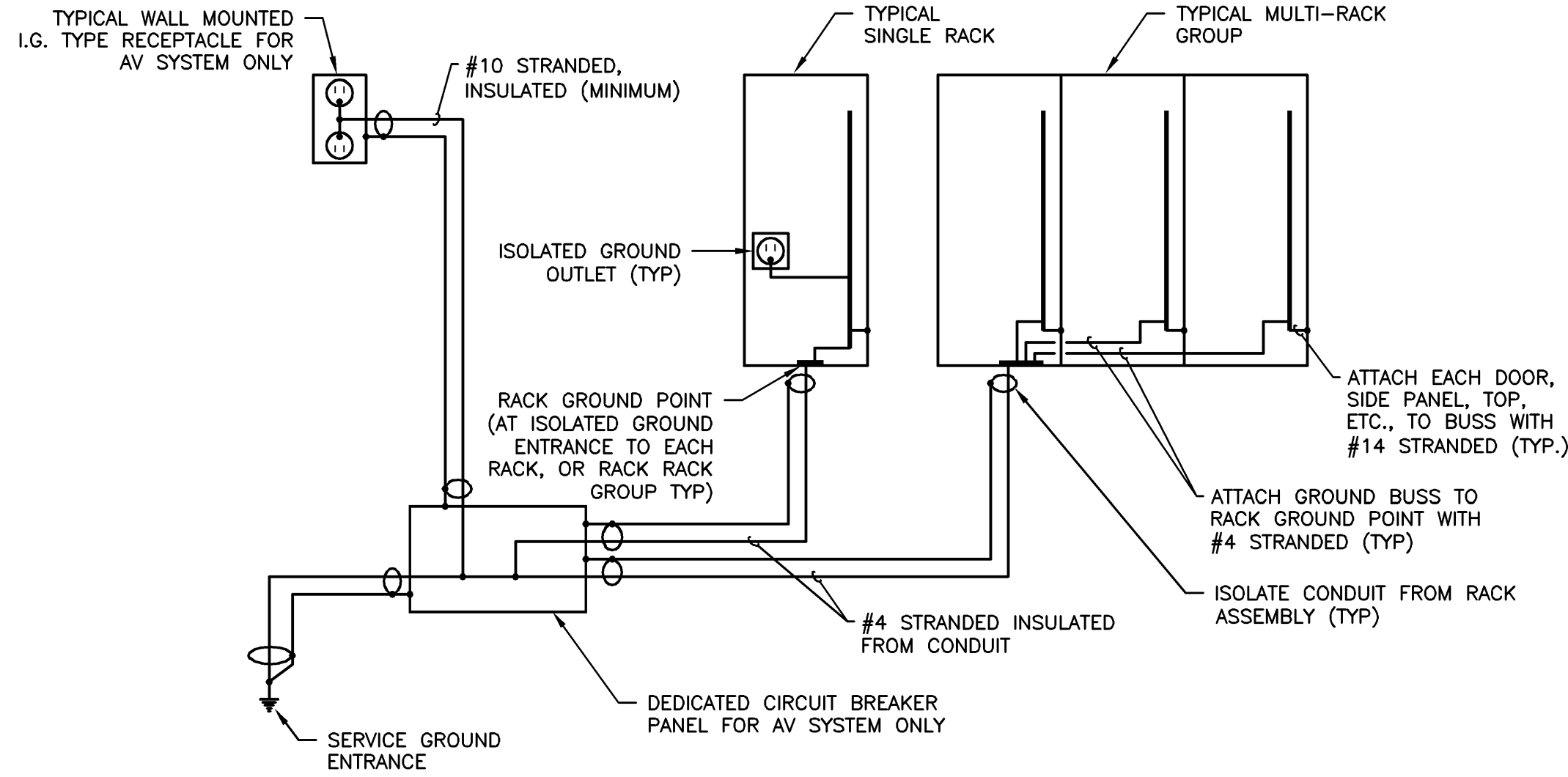
AV0.01 SCALE: NONE

- NOTES:
1. ALL EQUIPMENT CHASSIS MUST BE BONDED TO GROUND BUSS.
 2. CONNECT SHIELDS AT BOTH ENDS OF 'TIE LINES'.
 3. DO NOT GROUND CONNECTOR SHELL TO PIN ONE (1) FOR CHASSIS MOUNT AND CABLE MOUNT XLR TYPE CONNECTORS.
 4. ISOLATE ALL SYSTEM SHIELDS AND TECHNICAL GROUNDS FROM BUILDING CONDUIT SYSTEM.



2 DETAIL - EQUIPMENT GROUNDING

AV0.01 SCALE: NONE



3 DETAIL - EQUIPMENT RACK GROUNDING

AV0.01 SCALE: NONE

Carter-Burgess

CARTER & BURGESS, INC.
1420 WEST MOCKINGBIRD LN.
DALLAS, TEXAS 75247
214.920.8100

pmk
CONSULTANTS
ACQUISITION, DESIGN, VISUALIZATION
1403 W. Mockingbird Lane, Suite 402 • Dallas, Texas 75247
800.239.1444 • 214.489.1444 • Fax 214.489.1404

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SHEET CONTENTS:
MISCELLANEOUS
DETAILS

SHEET NUMBER:

AV0.1

USER:PM, CHANGE:JESDZ, V02B1
FILE NAME: J:\C08308\A000\097701 GARLAND BATTOWS\SHEETS\02A SHEETS\AV0.2.DWG
TIME: 24 OCT 2009 2:10PM

CarterBurgess
CARTER & BURGESS, INC.
1420 WEST MOCKINGBIRD LN.
DALLAS, TEXAS 75247
214.920.8100

pmk
CONSULTANTS
ACoustics Lighting Visual Systems
1402 W. Mockingbird Lane Suite 402 • Dallas, Texas 75247
800.339.7444 • 214.693.7444 • Fax 214.693.7426

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REVISIONS:

SHEET CONTENTS:
**CABLE
SCHEDULES**

SHEET NUMBER:
AV0.2

WIRE AND CABLE SCHEDULE - PLENUM								
USE	WIRE TYPE	BELDEN	WEST PENN	COMMSCOPE	LIBERTY	GEPCO	EXTRON	WHIRLWIND
LOUDSPEAKERS								
VOICE COIL (100' OR MORE)	#10/2 THHN							
70V (500' OR MORE)	#10/2 TWISTED							
70V (100' - 500')	#12/2 TWISTED		25227B					
VOICE COIL (100' OR LESS)	#14/2 TWISTED		25226B					
70V (100' OR LESS)	#16/2 TWISTED		25225B					
MICROPHONE & LINE LEVEL/AES-EBU								
SINGLE PAIR	#22/24/SH					5596TS		
2 PAIR								
4 PAIR								
8 PAIR								
12 PAIR								
16 PAIR								
24 PAIR								
VIDEO								
COMPOSITE (50' OR LESS)		1506A	25819	2065V				
COMPOSITE (50' OR MORE)		1695A	256350	2279V				
RGBS								
RGBHV		1826A			RGB5C-SD-PLN		22-103-**-	
Y/C / S-VHS					SVHS-PLENUM		22-129-**-	
SDI - RG59		1506A						
SDI-RG6		1695A						
RF								
DROP CABLE/ WORD CLOCK	RG6	1694A		2227K				
DISTRIBUTION CABLE	RG11	1153A		2287K		2287K		
TRUNK	0.500			2312				
HEADEND								
REMOTE CONTROL								
REMOTE CTRL BUSS + PWR (AMX)	SPECIAL				22/18-1/PSH/2C-P			
REMOTE CTRL BUSS + PWR (CRESNET)	SPECIAL				CRESTNET-P			
RS-422/ 232 DATA	8 #24/2/SH	89504						
PRODUCTION INTERCOM								
CLEARCOM	2PR.#20/2/SH	88760						
MULTIMODE FIBER (INDOOR)								
6 FIBER	50/125 - 6							
12 FIBER	50/125 - 12							
24 FIBER	50/125 - 24							
SINGLEMODE FIBER (INDOOR)								
6 FIBER	8.3/125 - 6	PDT1006		P006DS8HFHDZZ				
12 FIBER	8.3/125 - 12	PDT1012		P012DS8HFHDZZ				
24 FIBER	8.3/125 - 24	PDT1024		P024DS8HFHDZZ				
ETHERNET DATA								
CATAGORY 6		7882A		7504		CT604/450P		

NOTE: ALL CABLE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, AND ALL LOCAL AND STATE CODES. FIELD VERIFY EXACT CONDITIONS AND USE CABLE WHICH IS INTENDED FOR THAT APPLICATION. RISER RATED, PLENUM RATED AND GENERAL PURPOSE CABLES SHALL BE SELECTED FROM THE ABOVE CHART. USE CABLE FROM ABOVE CHART UNLESS SPECIAL PURPOSE CABLES ARE SPECIFIED.

1 **DETAIL - CABLE TYPES**
AV0.2 SCALE: NONE

WIRE AND CABLE SCHEDULE - NON PLENUM								
USE	WIRE TYPE	BELDEN	WEST PENN	COMMSCOPE	LIBERTY	GEPCO	EXTRON	WHIRLWIND
LOUDSPEAKERS								
VOICE COIL (100' OR MORE)	#10/2 THHN							
70V (500' OR MORE)	#10/2 TWISTED							
70V (100' - 500')	#12/2 TWISTED		25227B					
VOICE COIL (100' OR LESS)	#14/2 TWISTED		25226B					
70V (100' OR LESS)	#16/2 TWISTED		25225B					
MICROPHONE & LINE LEVEL/AES-EBU								
SINGLE PAIR	#22/24/SH							
2 PAIR								
4 PAIR								
8 PAIR								
12 PAIR								
16 PAIR								
24 PAIR								
VIDEO								
COMPOSITE (50' OR LESS)		1505A	25819	2065V				
COMPOSITE (50' OR MORE)		1694A	256350	2279V				
RGBS								
RGBHV		7712A						
Y/C / S-VHS		1807A						
SDI - RG59		1505A						
SDI-RG6		1694A						
RF								
DROP CABLE/ WORD CLOCK	RG6	1322R						
DISTRIBUTION CABLE	RG11	1523R						
TRUNK	0.54			QR540JCAR				
HEADEND	RG59			F59HEC-2				
REMOTE CONTROL								
REMOTE CTRL BUSS + PWR (AMX)	SPECIAL		77350		22/18-1/PSH/2C-P			
REMOTE CTRL BUSS + PWR (CRESNET)			77350		CRESTNET-P			
RS-422/232 DATA	4pr.#22/2/SH	9944	D3653					
PRODUCTION INTERCOM								
CLEARCOM	#18/2/SH	8760	77293					
MULTIMODE FIBER (INDOOR)								
6 FIBER	50/125 - 6							
12 FIBER	50/125 - 12							
24 FIBER	50/125 - 24							
SINGLEMODE FIBER (INDOOR)								
6 FIBER	8.3/125 - 6	PDT1006	M93039	R006DS8HFHDZZ				
12 FIBER	8.3/125 - 12	PDT1012	M93042	R012DS8HFHDZZ				
24 FIBER	8.3/125 - 24	PDT1024	M93602	R024DS8HFHDZZ				
ETHERNET DATA								
CATAGORY 6		7881A	4246	75J4				

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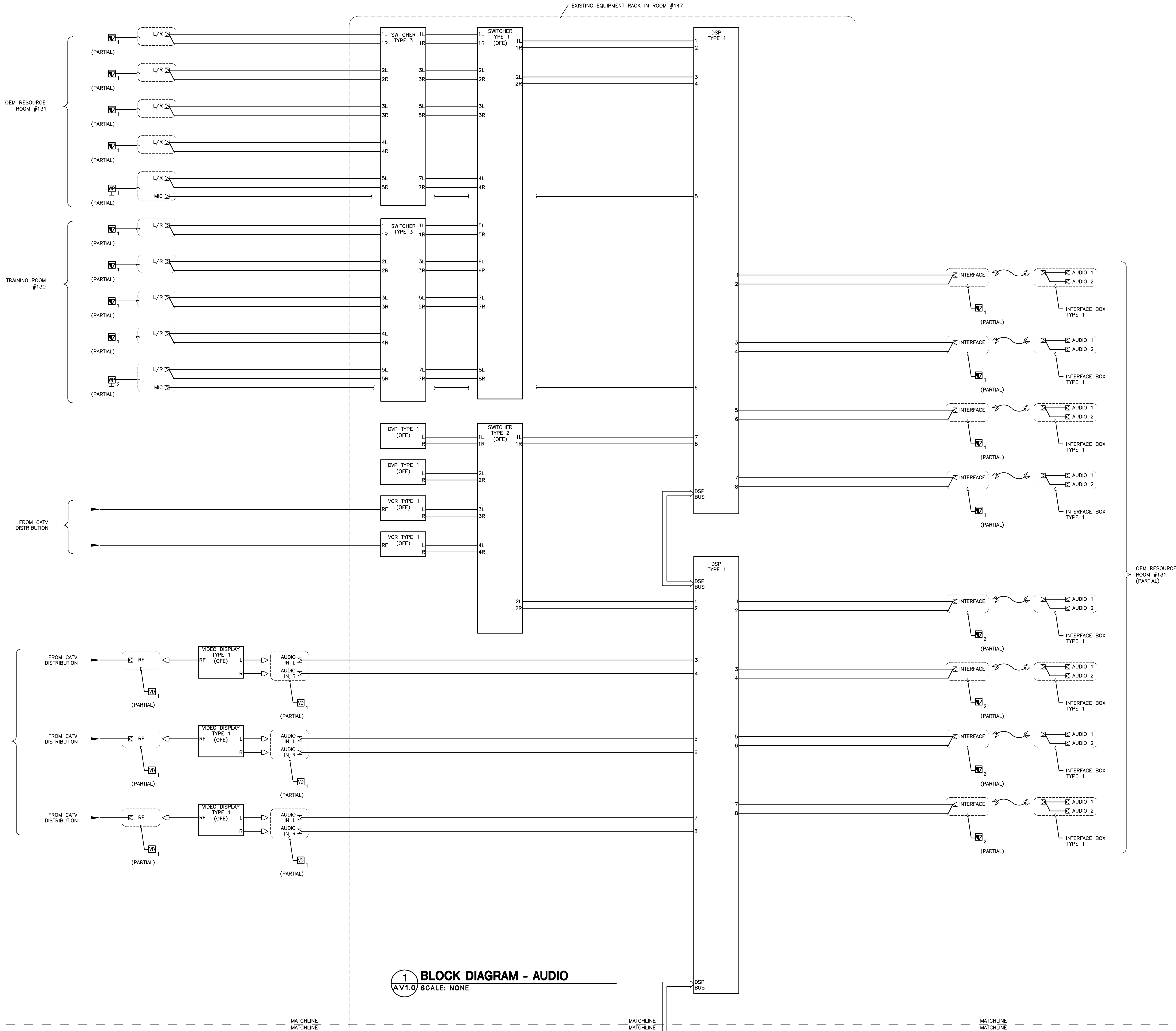
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OEM AV PACKAGE 10/23/08

REVISIONS:

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SHEET NUMBER:

AV1.0

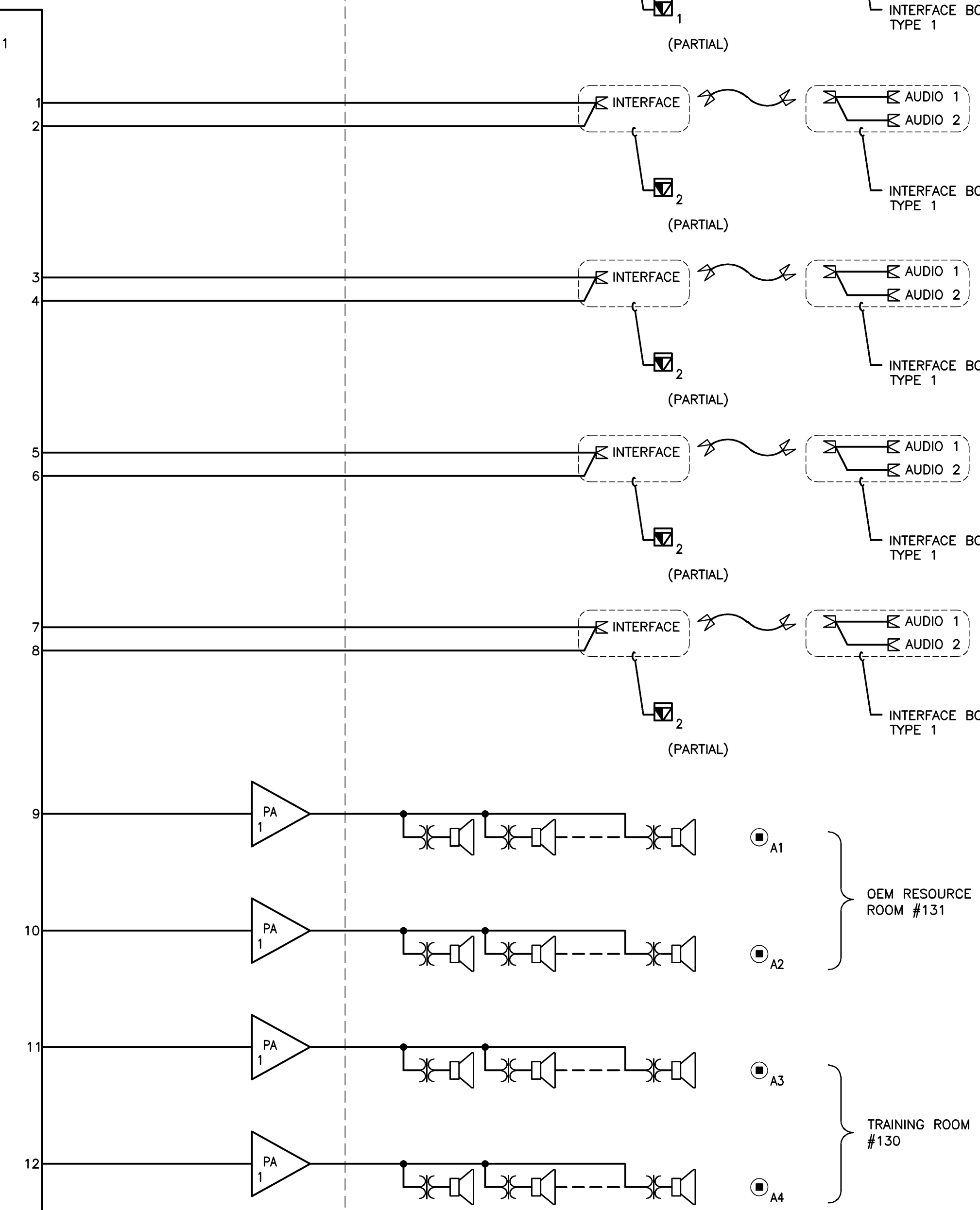
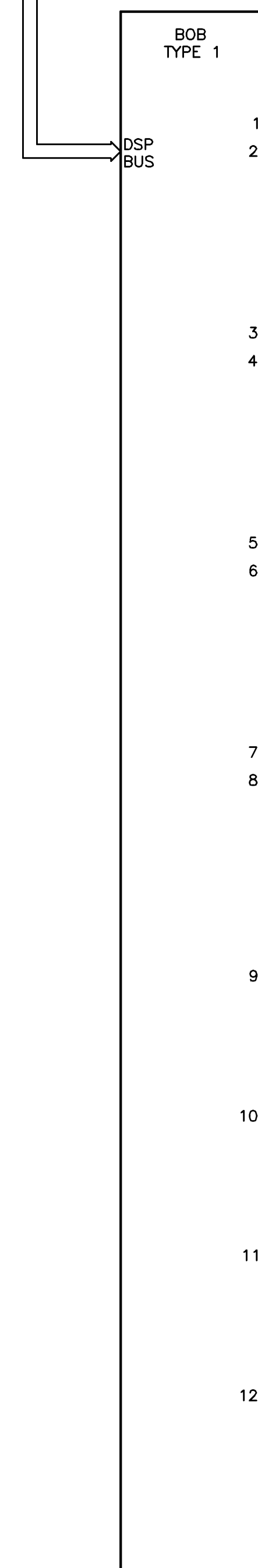
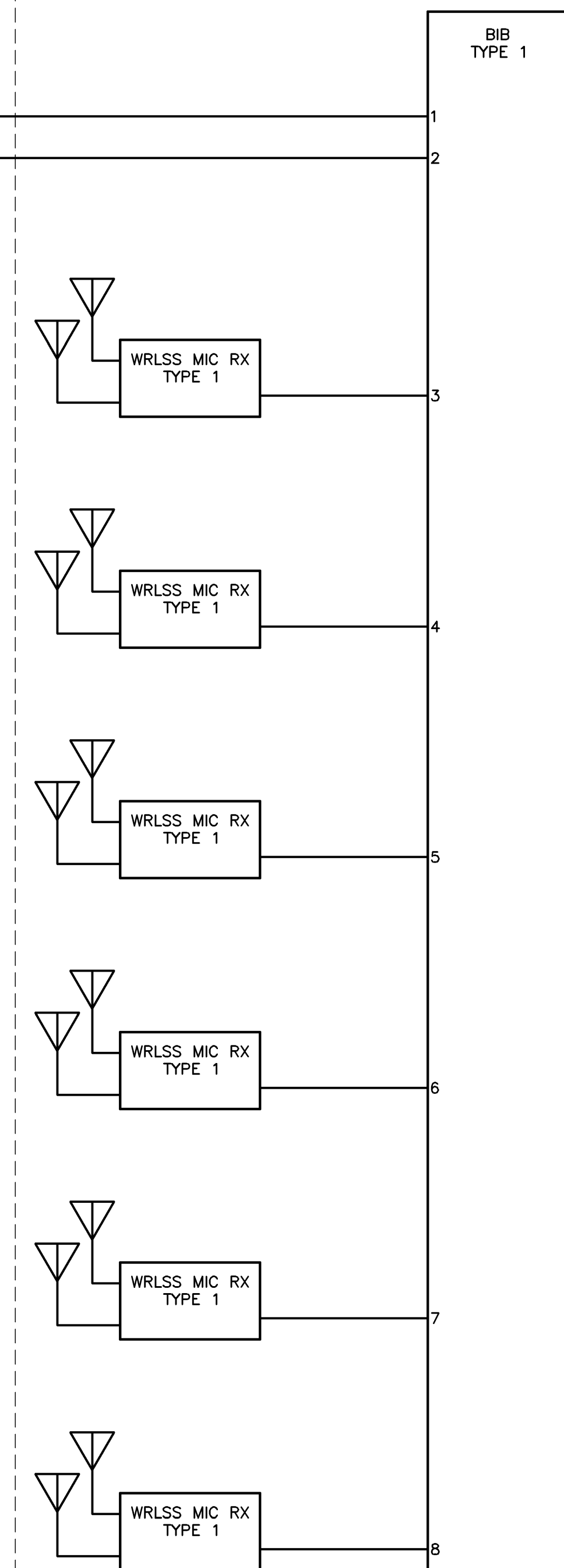
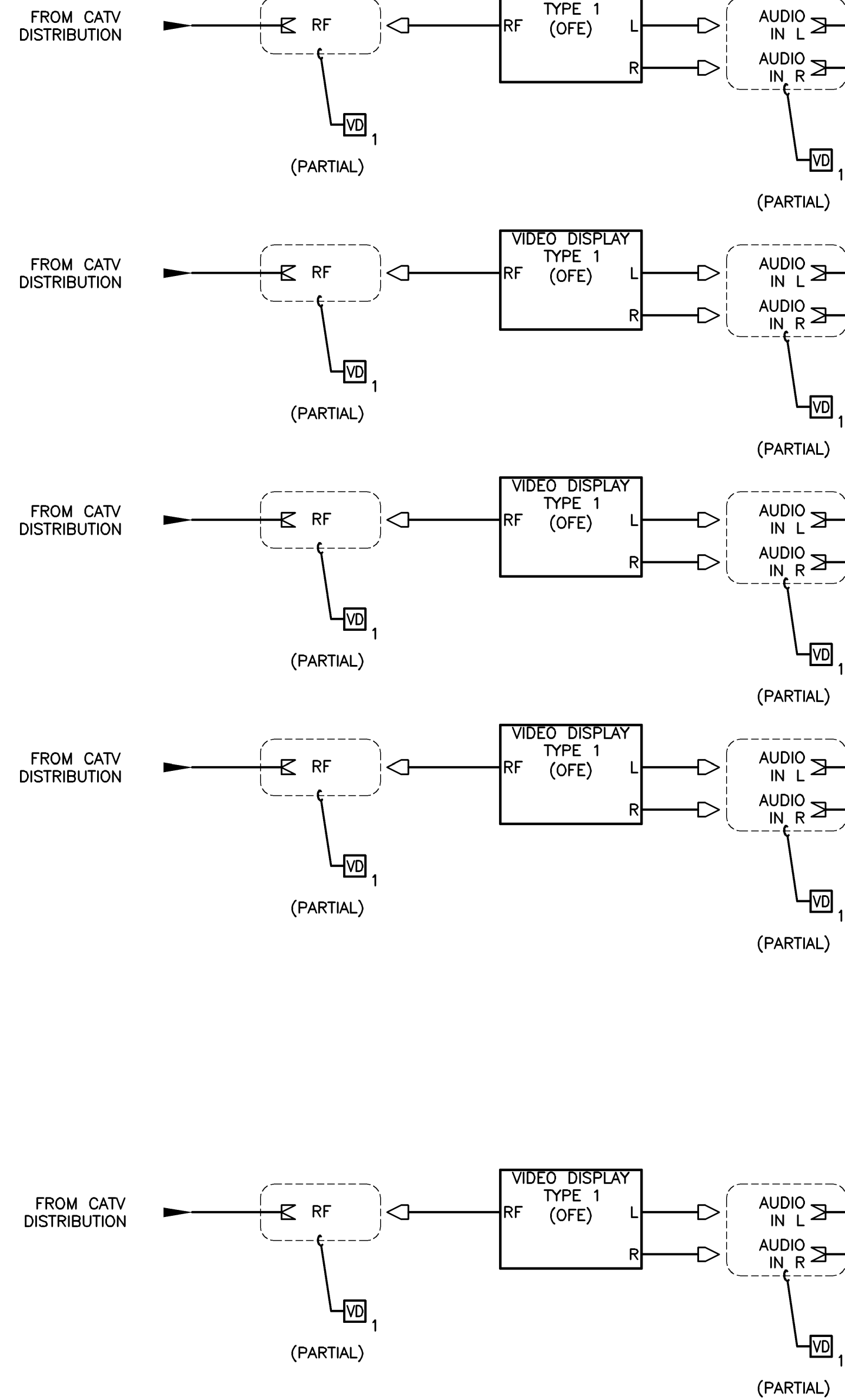


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OEM RESOURCE
ROOM #131

TRAINING ROOM
#130



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Jan 13, 2009 9:45:19 AM CST

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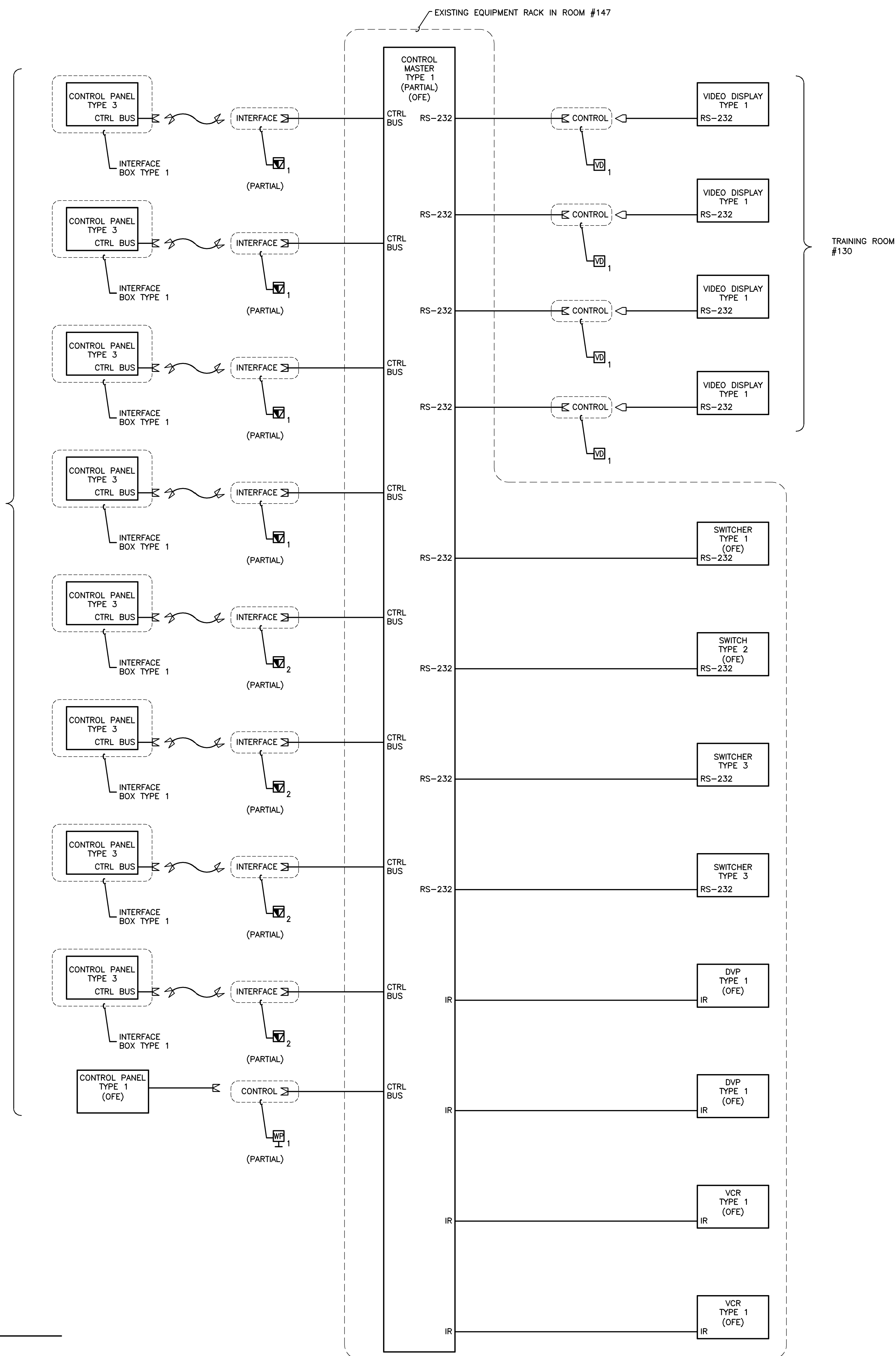
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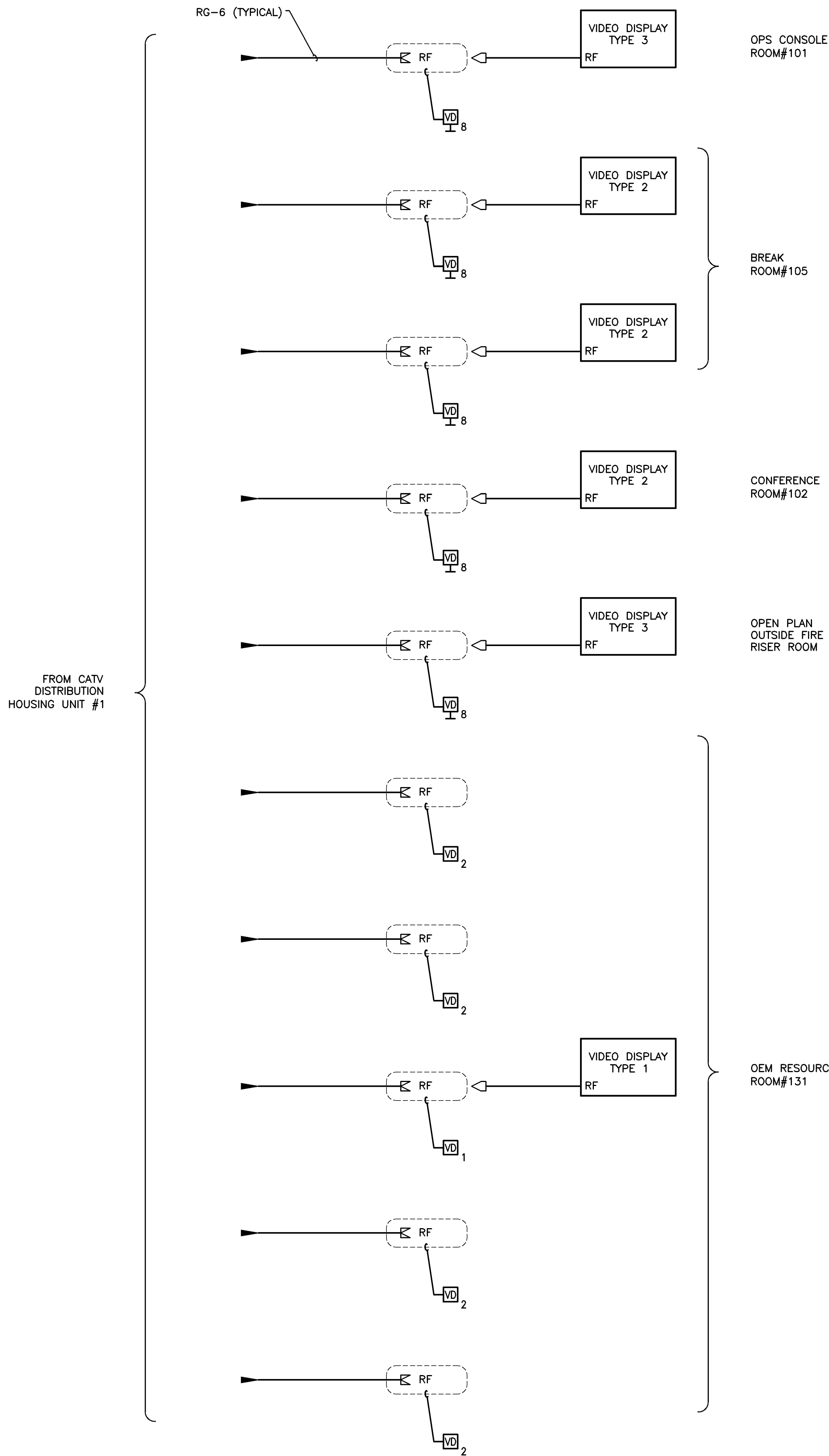
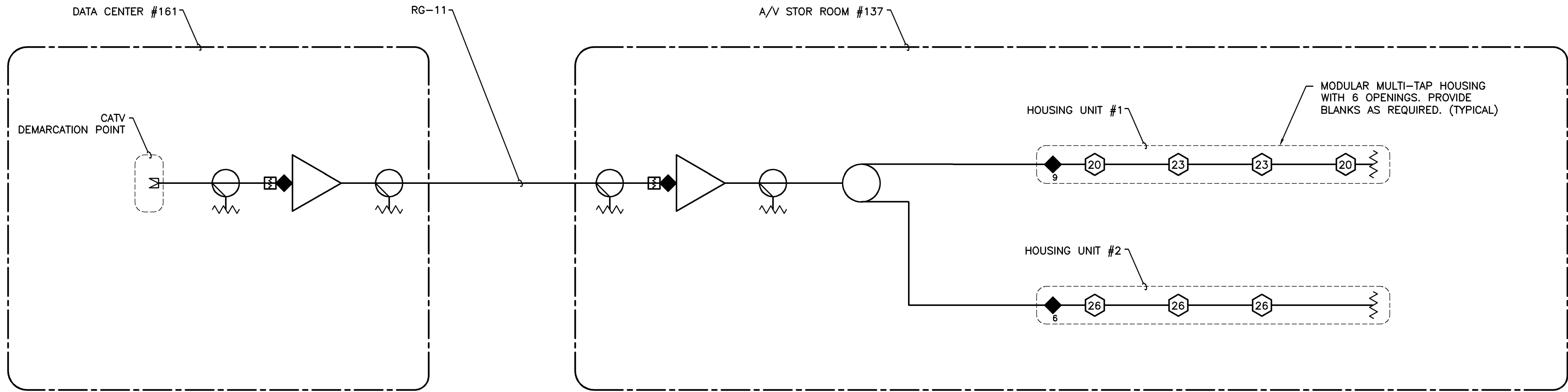


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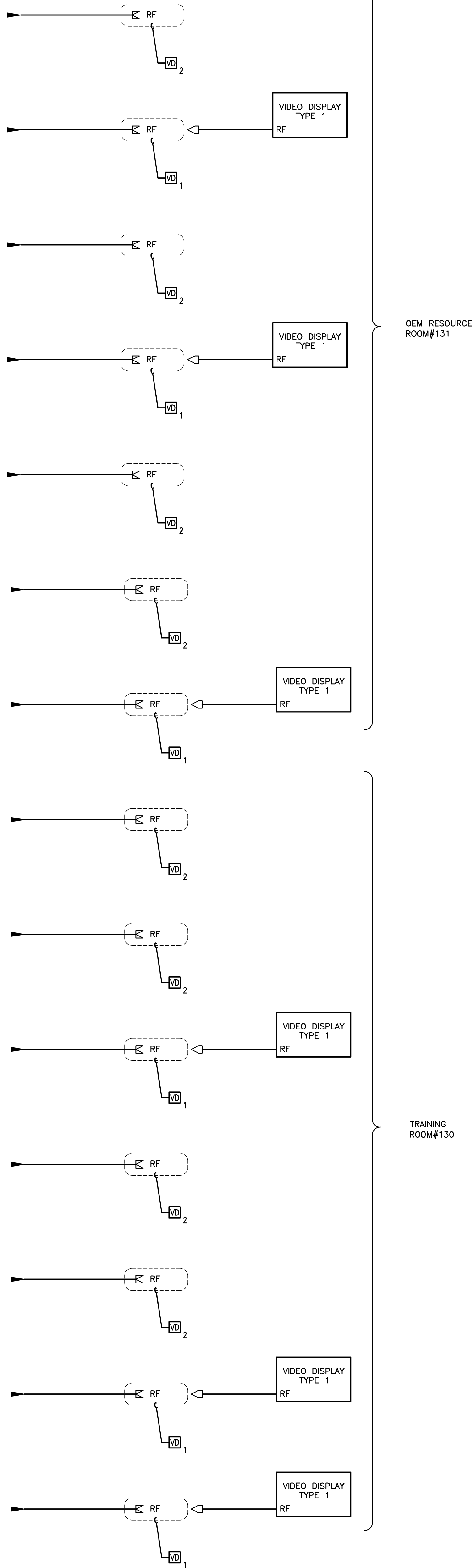
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City of Garland



FROM CATV
DISTRIBUTION
HOUSING UNIT #1



1 BLOCK DIAGRAM - CATV
AV4.0 SCALE: NONE

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BLOCK
DIAGRAM**

SHEET NUMBER:

AV4.0

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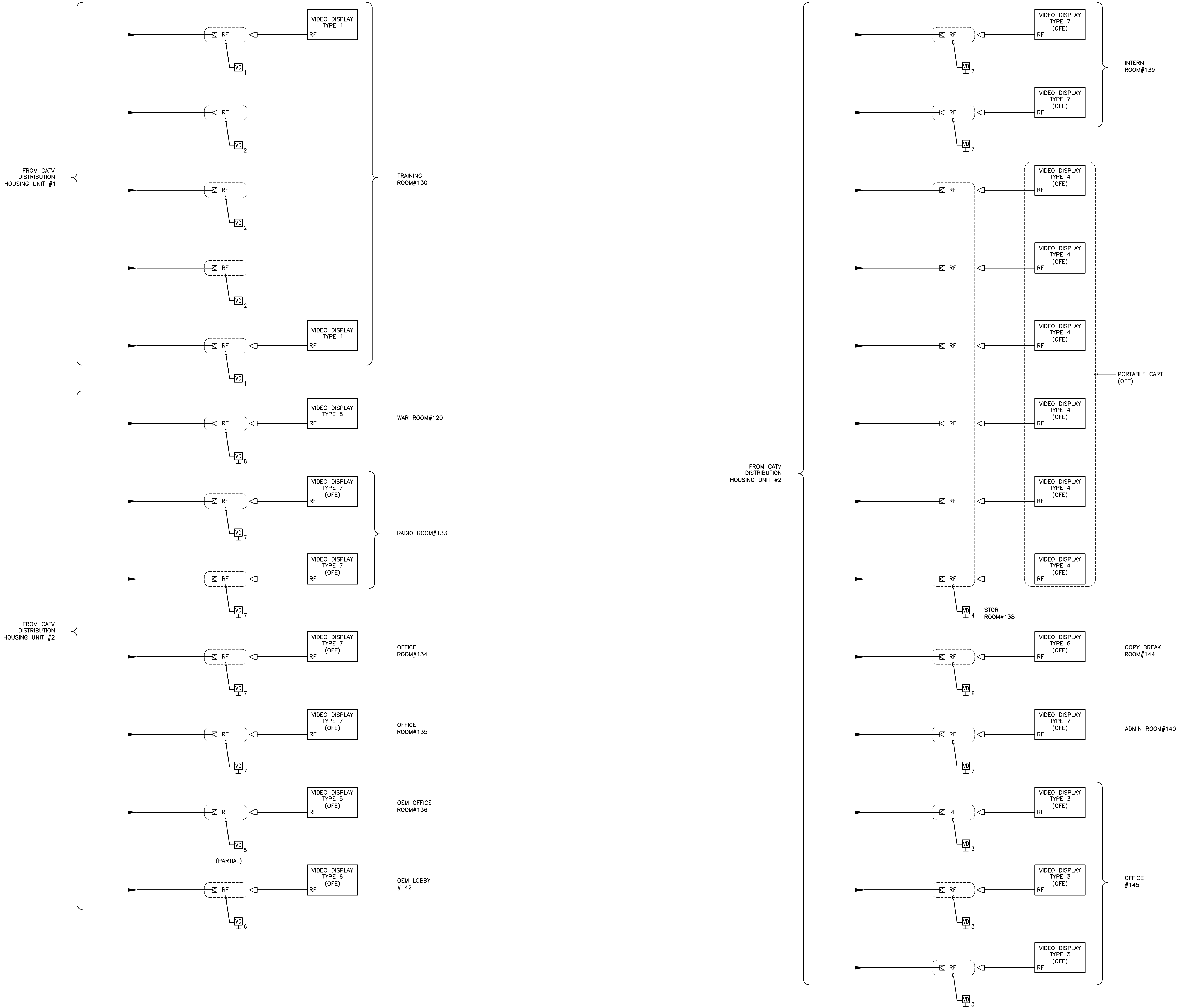
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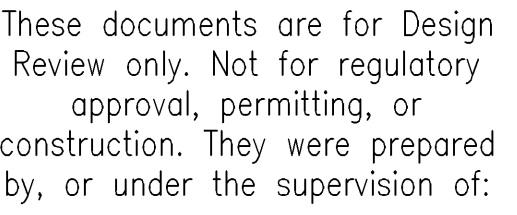
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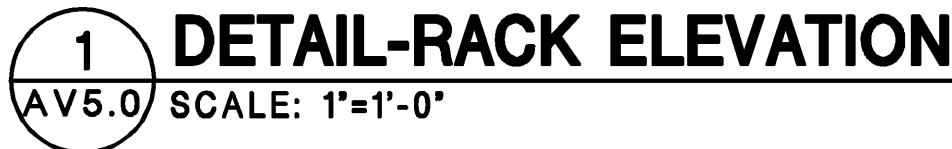
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AV5.0



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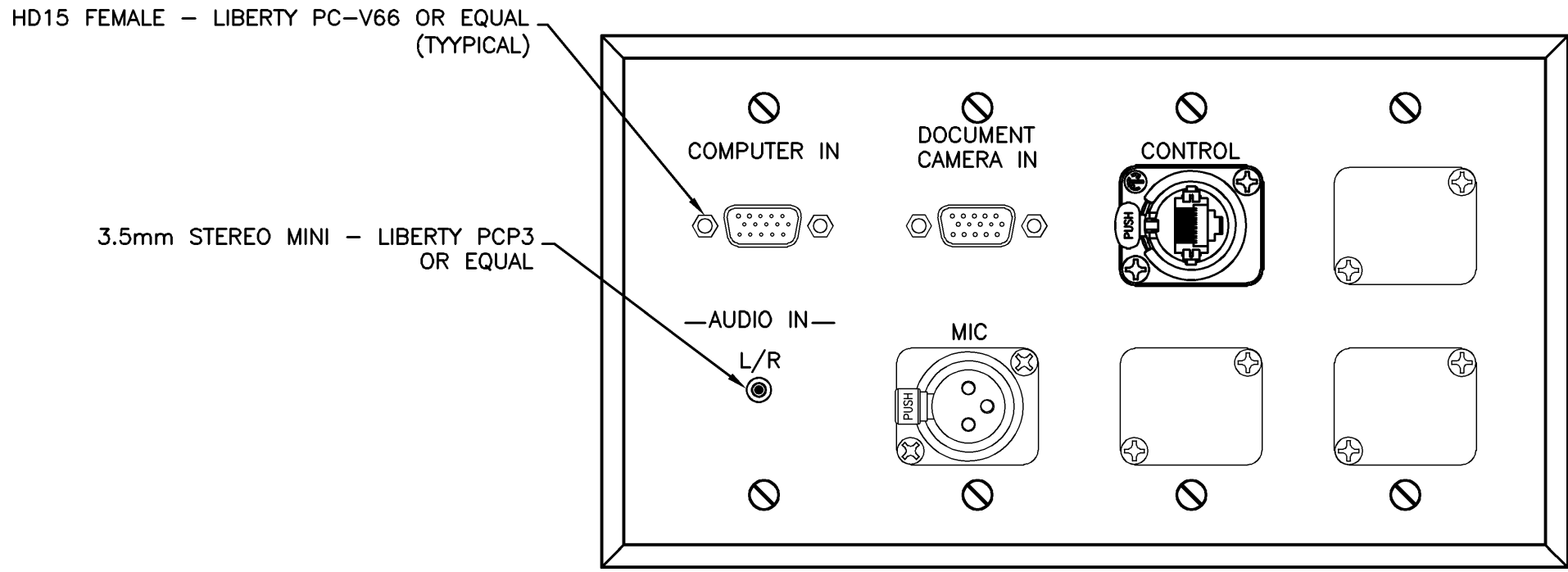
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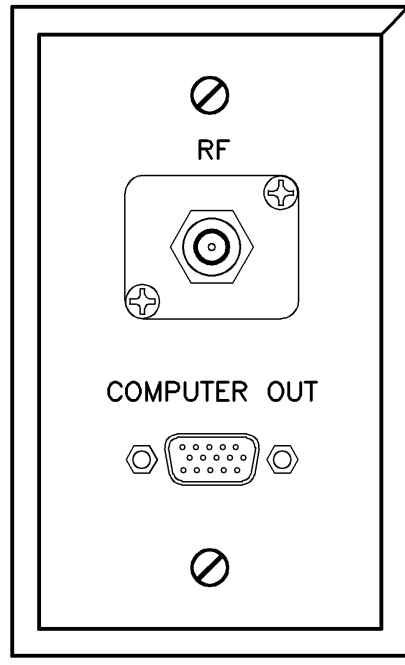
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SHEET CONTENTS:
PLATES AND PANELS

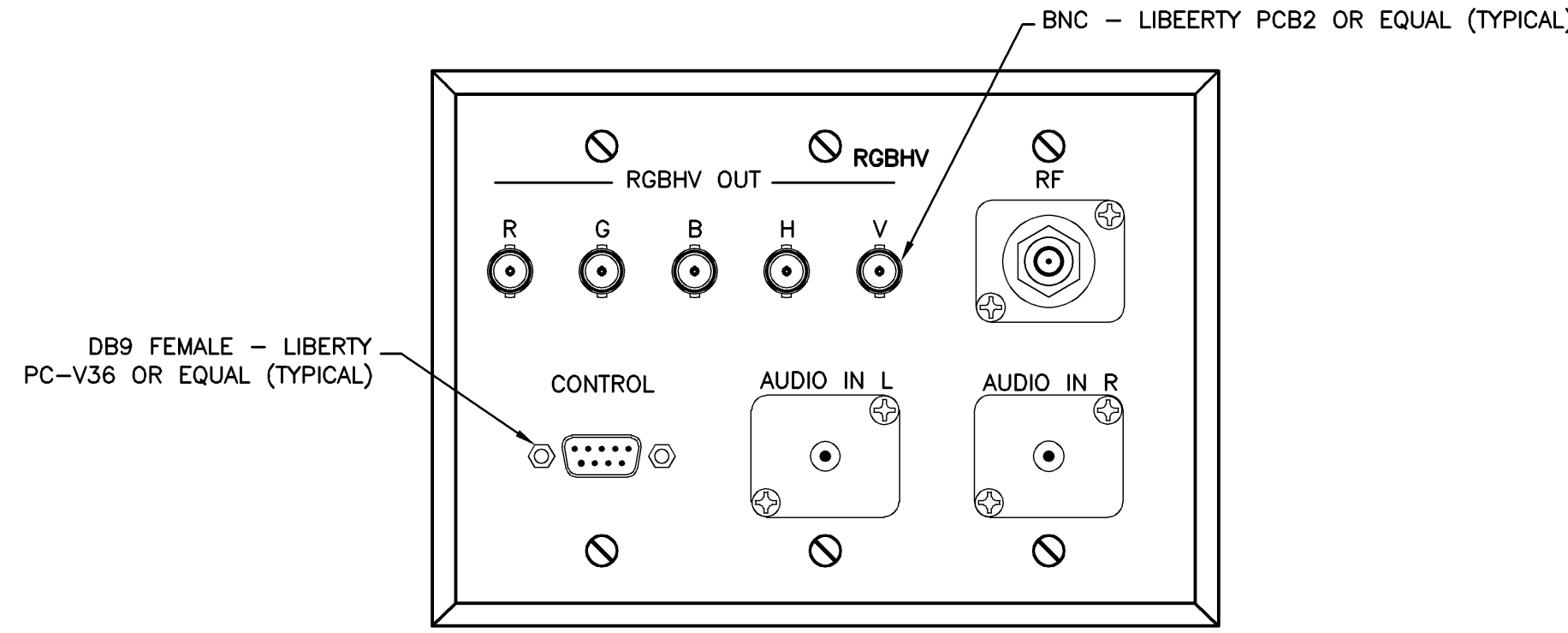
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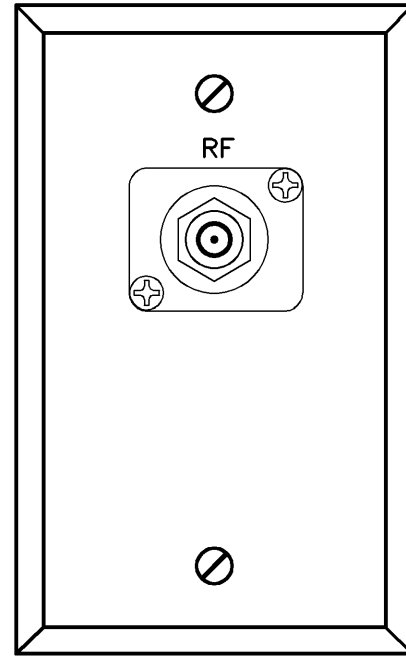
1 **DETAIL - LECTURN INPLUT PLATE TYPE 1 & 2**  
AV6.0 SCALE: 3/4"=1"



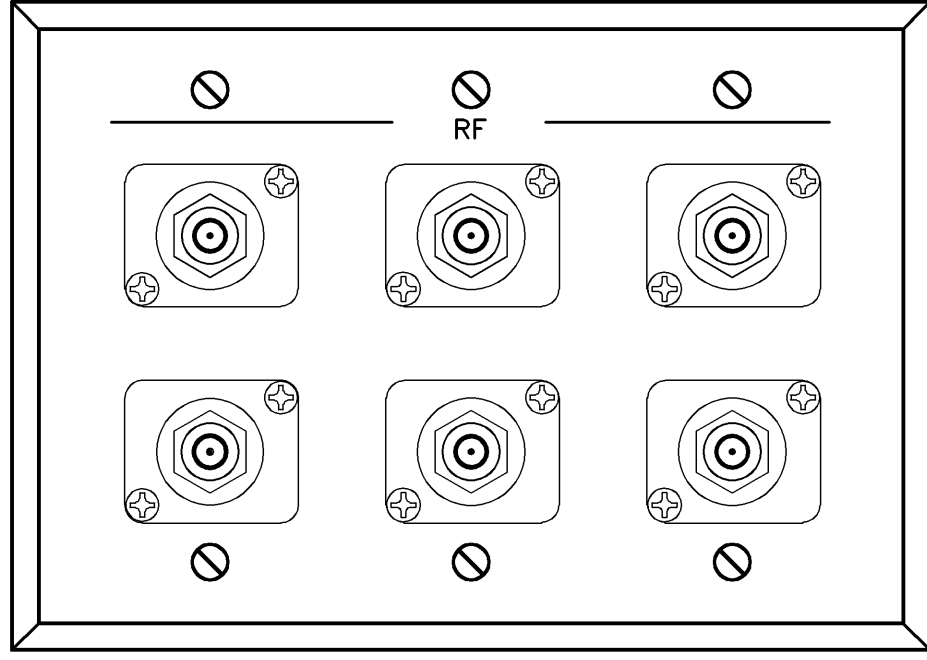
2 **DETAIL - VIDEO DISPLAY OUTLET TYPE 3 & 5**  
AV6.0 SCALE: 3/4"=1"



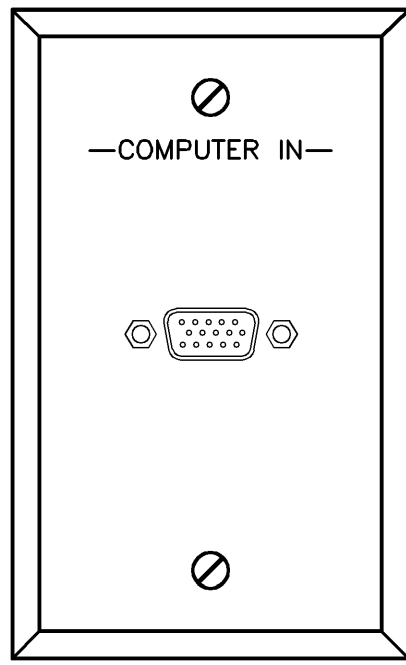
3 **DETAIL - VIDEO DISPLAY OUTLET TYPE 1** 
AV6.0 SCALE: 3/4"=1"



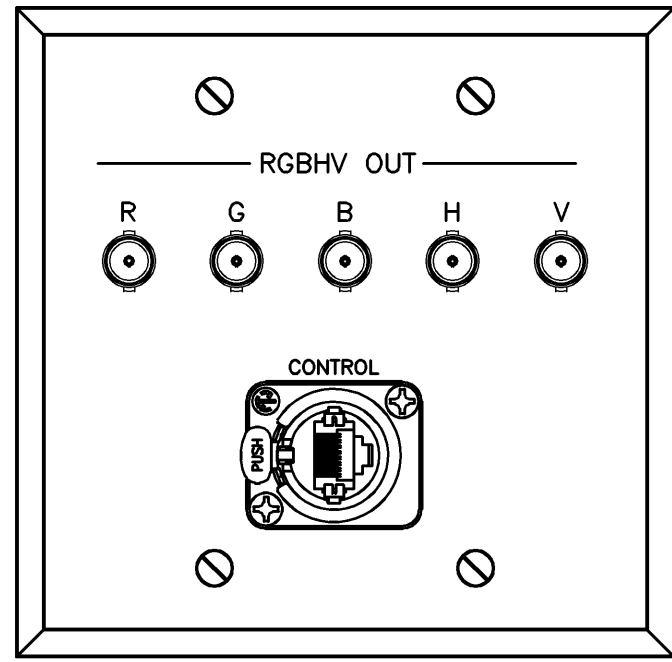
4 **DETAIL - VIDEO DISPLAY OUTLET 2, 6, 7, & 8**    
AV6.0 SCALE: 3/4"=1"



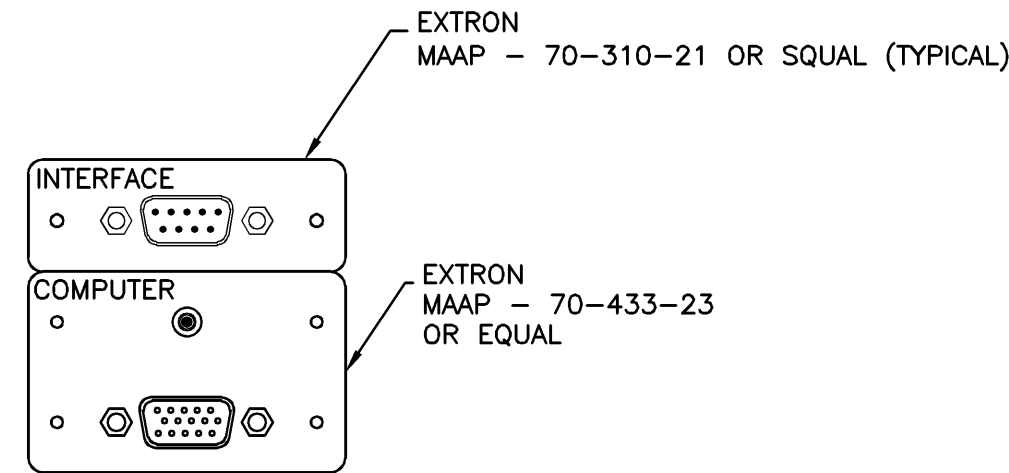
5 **DETAIL - VIDEO DISPLAY OUTLET TYPE 4** 
AV6.0 SCALE: 3/4"=1"



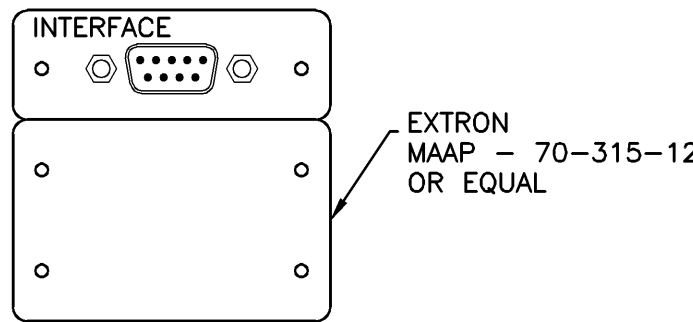
6 **DETAIL - WALL PLATE OUTLET TYPE 3** 
AV6.0 SCALE: 3/4"=1"



7 **DETAIL - VIDEO PROJECTOR OUTLET TYPE 1** 
AV6.0 SCALE: 3/4"=1"



8 **DETAIL - EXISTING FLOOR BOX TYPE 2** 
AV6.0 SCALE: 3/4"=1"



9 **DETAIL - EXISTING FLOOR BOX TYPE 1** 
AV6.0 SCALE: 3/4"=1"

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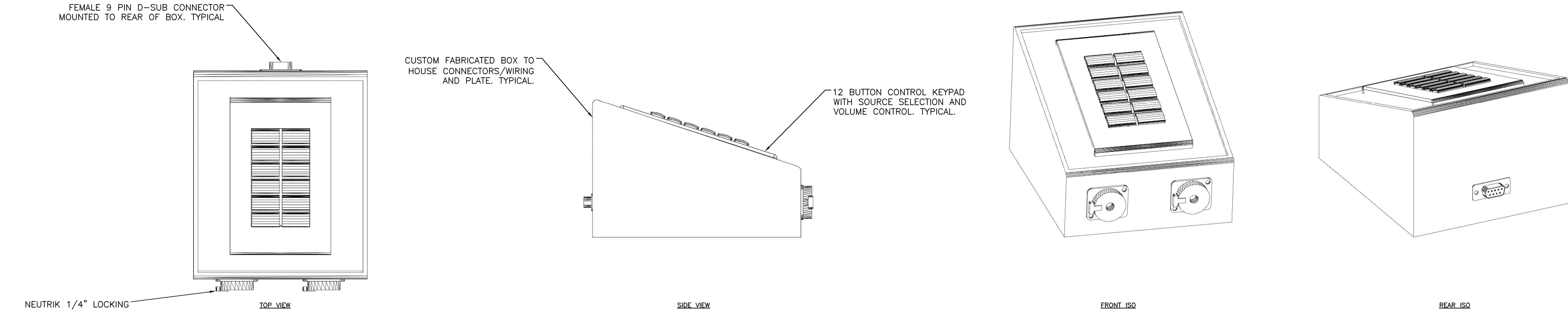
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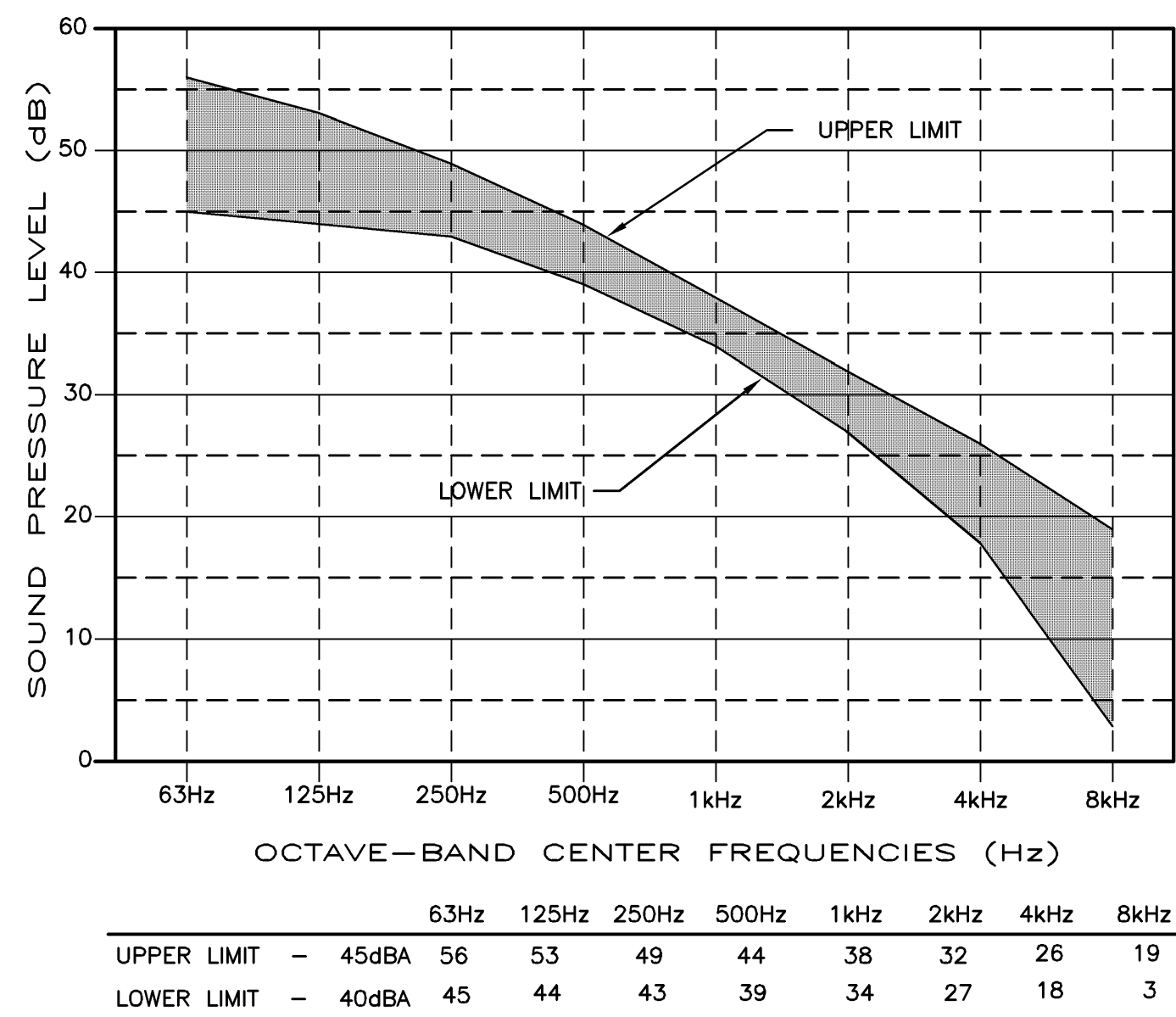
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SHEET CONTENTS:
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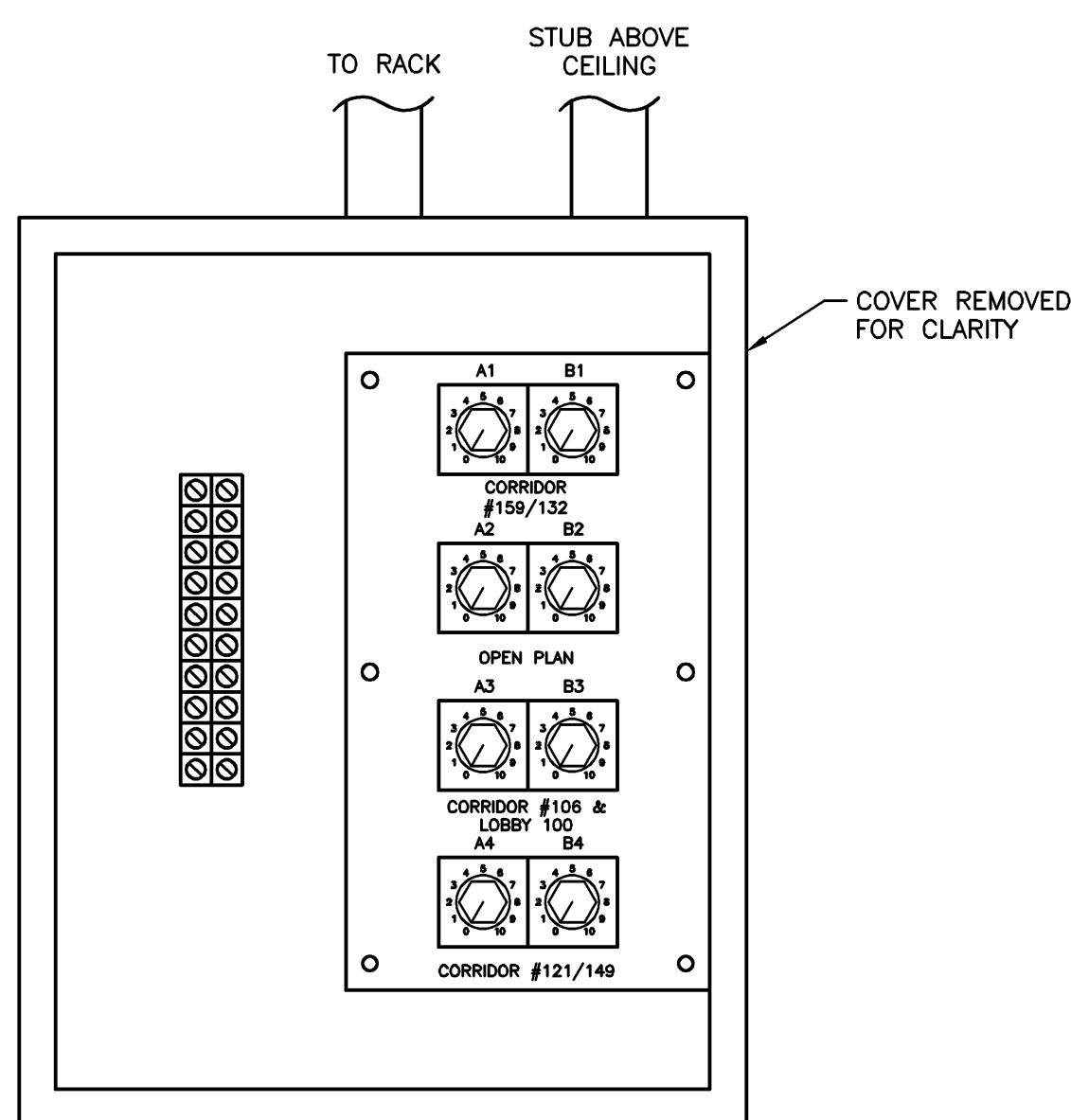
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AV6.1 **DETAIL - WORKSTATION INTERFACE BOX**
SCALE: 1:1



1 DETAIL - TONAL QUALITY CURVE

SM0.1 SCALE: NONE

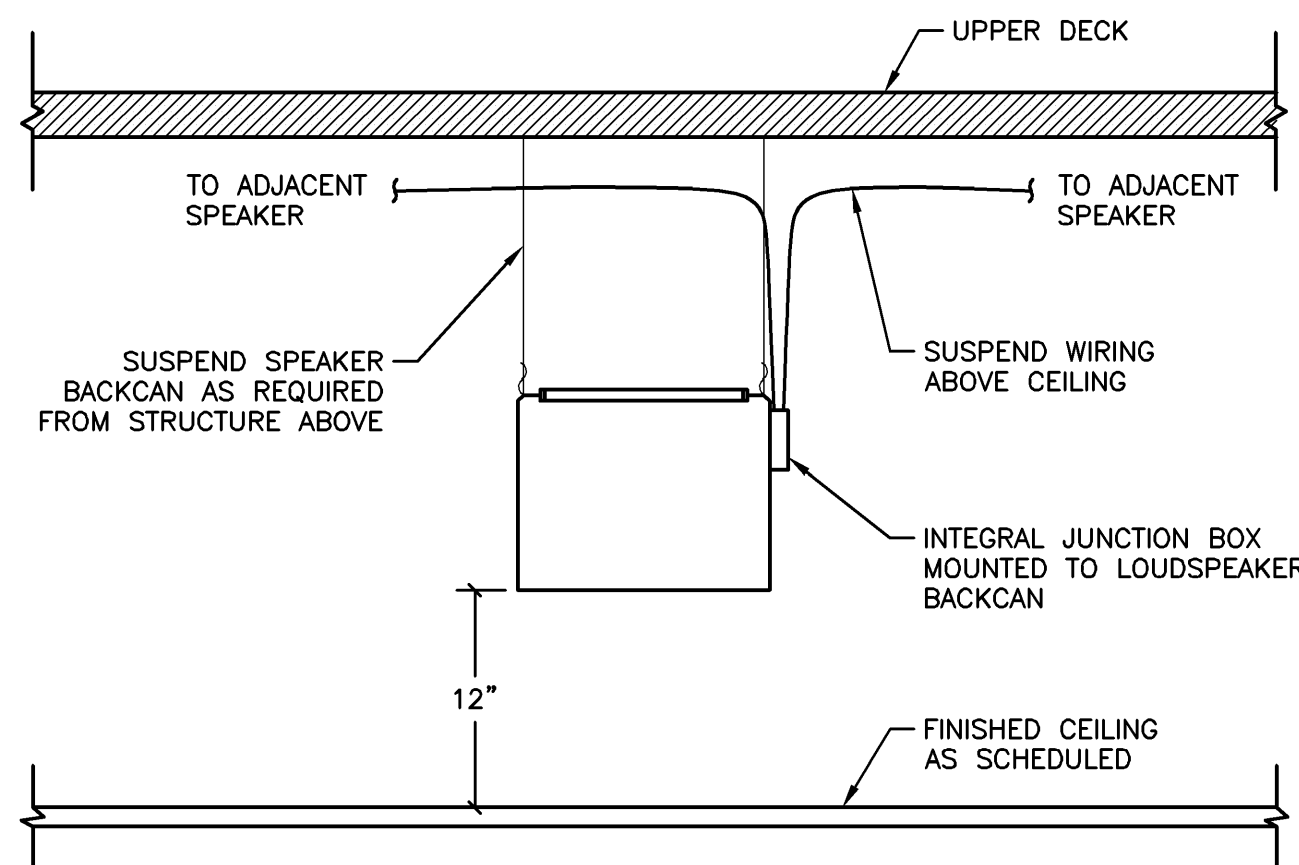
NOTE: CURVE REPRESENTS COMPLETE AUDIO SPECTRUM.
HVAC NOISE IS INCLUDED BELOW 125Hz.



3 DETAIL - VOLUME CONTROL JUNCTION BOX

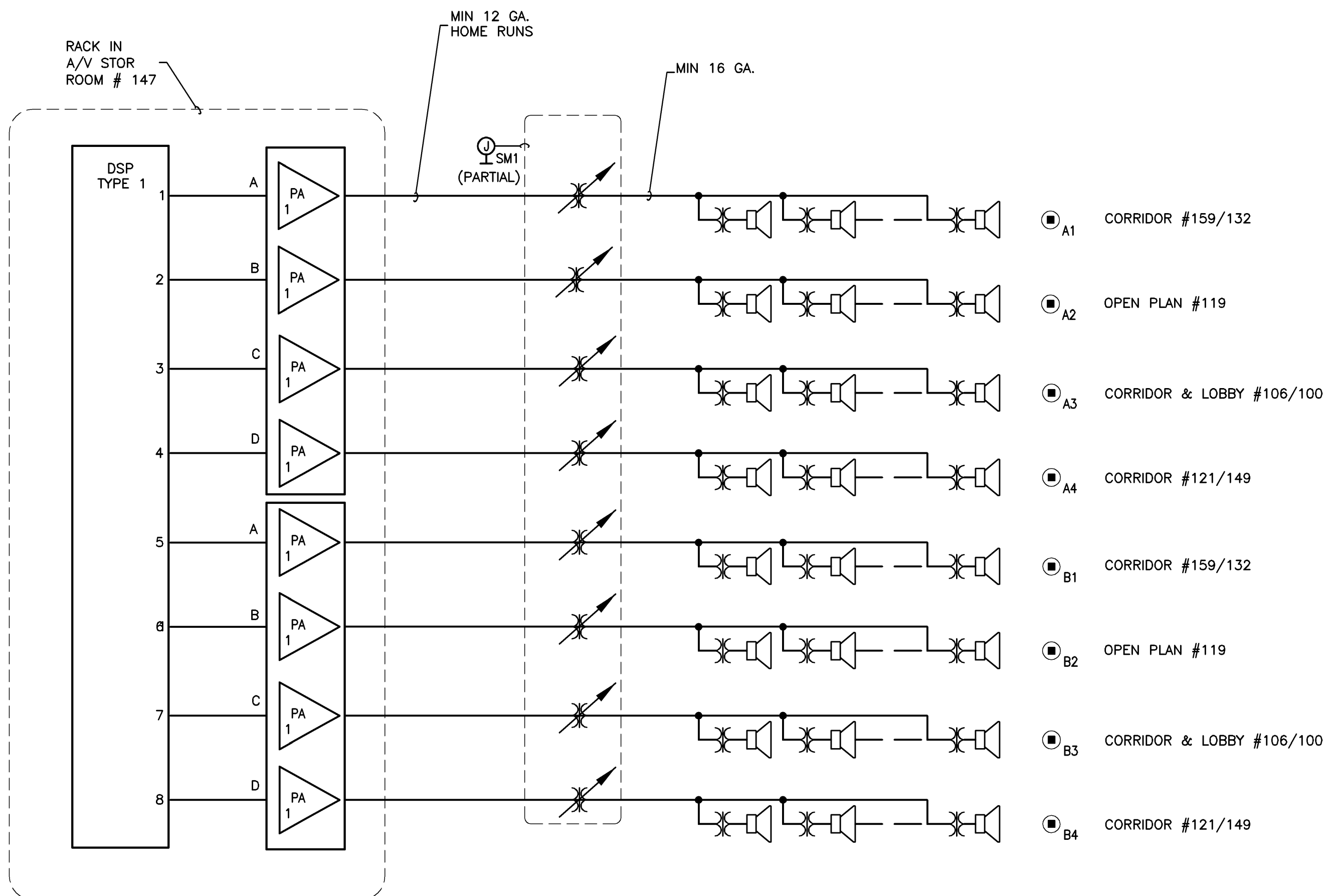
SM0.1 SCALE: 3" = 1'-0"

NOTE: SCREW BOX EQUAL TO HOFFMAN ASE10X10X4.
MOUNT 14AWG VOLUME CONTROL PANEL TO BACK PANEL
USING 3" STANDOFF THREADED FOR #8/32 SCREWS



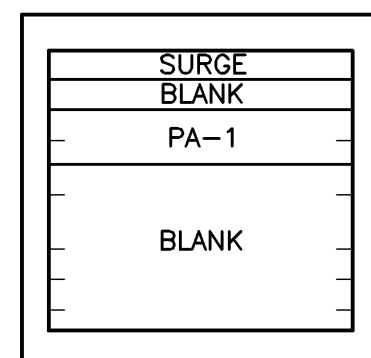
2 DETAIL - TYPICAL SOUND MASKING SPEAKER

SM0.1 SCALE: NONE



4 BLOCK DIAGRAM - SOUND MASKING

SM0.1 SCALE: NONE



6 DETAIL - RACK ELEVATION

SM0.1 SCALE: 1" = 1'-0"

NOTE: A/V EQUIPMENT TO BE INSTALLED IN EXISTING RACK.

WIRE AND CABLE SCHEDULE - PLENUM								
USE	WIRE TYPE	BELDEN	WEST PENN	COMMSCOPE	LIBERTY	GEPCO	COVID	WHIRLWIND
LOUDSPEAKERS								
TYPE XX	#10/2 THHN							
TYPE XX	#10/2 TWISTED							
70 VOLT HOMERUN/ RISER	#12/2 TWISTED		25227B					
TYPE XX	#14/2 TWISTED		25226B					
70 VOLT DISTRIBUTED	#16/2 TWISTED		25225B					
MICROPHONE & LINE LEVEL								
SINGLE PAIR	#22/2/SH	82761	25291					
2 PAIR	#22/2/SH	89729						
4 PAIR	#22/2/SH	89728						
8 PAIR	#22/2/SH	89732						
12 PAIR	#22/2/SH	89734						
16 PAIR	#24/2/SHX16	89758						
56 PAIR	#24/2/SHX56							
VIDEO								
COMPOSITE FOR SHORTER RUNS		1506A	25819	2065V				
COMPOSITE FOR LONGER RUNS		1695A	256350	2279V				
RGBS								
RGBHV		1826A						
S-VHS								
RF								
DROP CABLE	RG6			2227K				
DISTRIBUTION CABLE	RG11	1153A		2287K		2287K		
TRUNK	0.500			2312				
HEADEND								

NOTE: ALL CABLE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, AND ALL LOCAL AND STATE CODES. FIELD VERIFY EXACT CONDITIONS AND USE CABLE WHICH IS INTENDED FOR THAT APPLICATION. RISER RATED, PLENUM RATED AND GENERAL PERPOSE CABLES SHALL BE SELECTED FROM THE ABOVE CHART.

5 DETAIL - WIRE AND CABLE SCHEDULE

SM0.1 SCALE: NONE

SHEET INDEX

SM0.1 - SOUND MASKING DETAILS AND BLOCK DIAGRAM
SM1.0 - FLOOR PLAN AREA A
SM2.0 - CEILING PLAN AREA A



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SHEET CONTENTS:
SOUND MASKING DETAILS AND BLOCK DIAGRAM

SHEET NUMBER:

SM0.1

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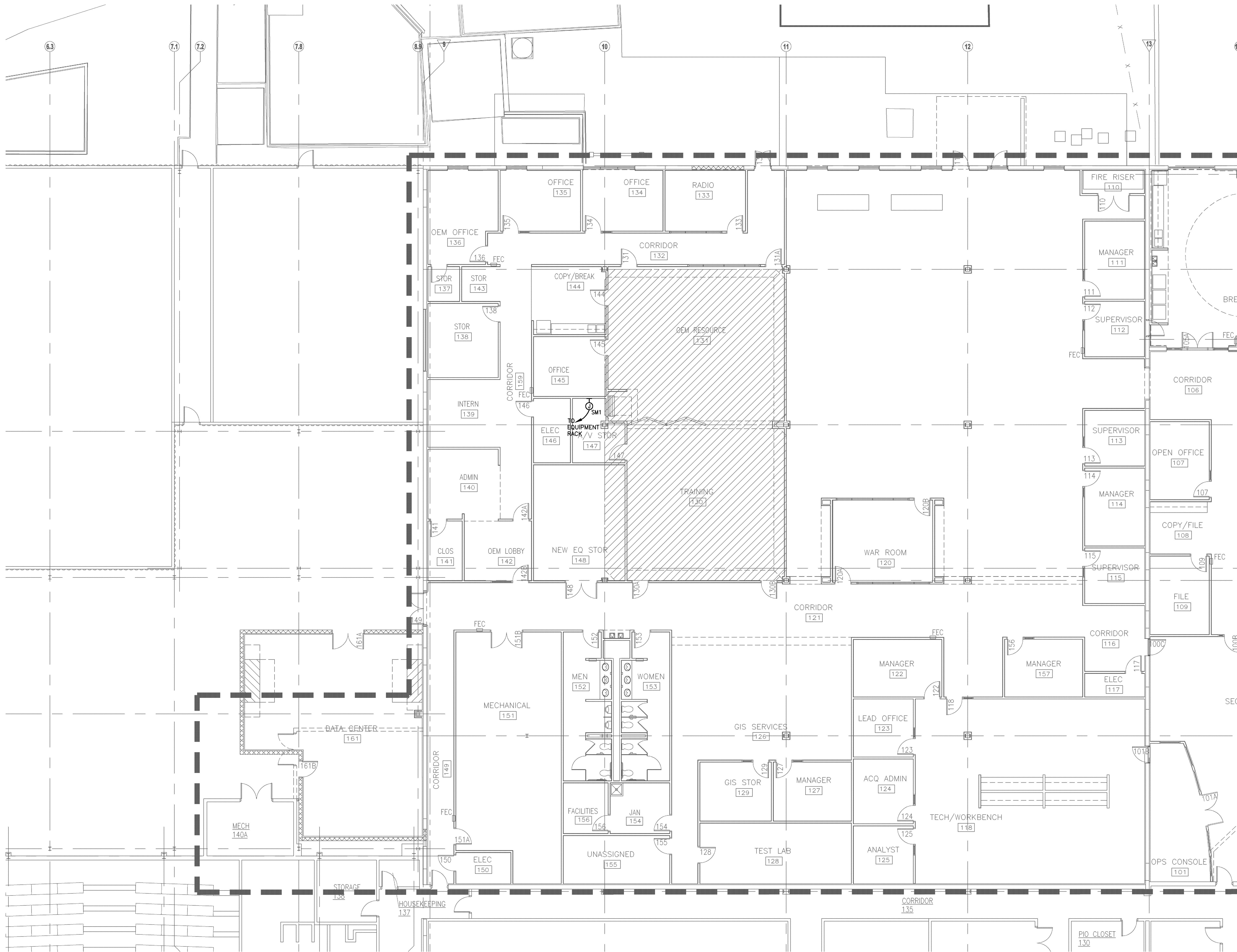
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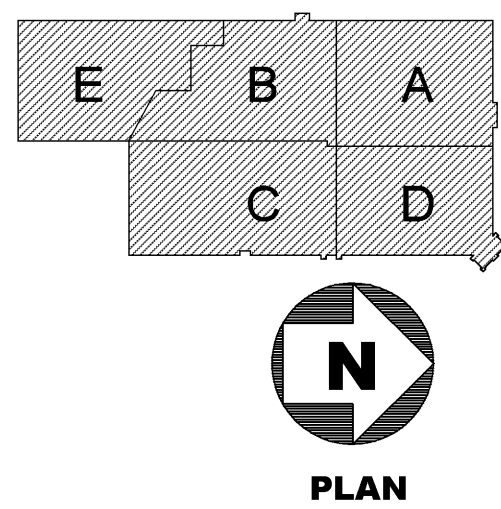
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**SOUND
MASKING
FLOOR PLAN
AREA A**

SHEET NUMBER:

SM1.0



1 FLOOR PLAN - SOUND MASKING
SM1.0 SCALE: XX'-X'-0"



PLAN

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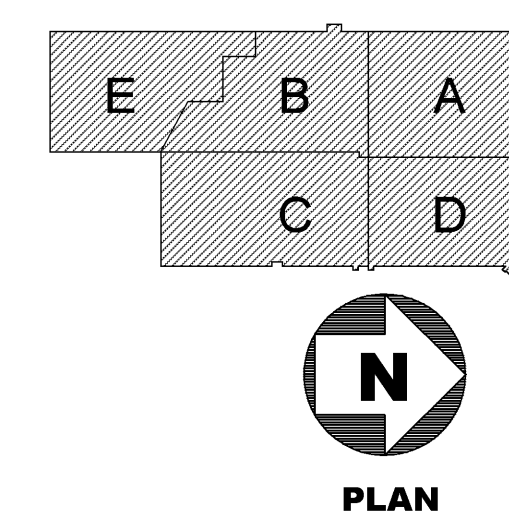
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SHEET NUMBER:

SM2.0



1 REFLECTED CEILING PLAN - SOUND MASKING
SM2.0 SCALE: XX"=X'-0"

Question and Answers for Bid #144-09 - Emergency Management and IT Services Audio-Visual Package

OVERALL BID QUESTIONS

There are no questions associated with this bid. If you would like to submit a question, please click on the "Create New Question" button below.

Question Deadline: Feb 2, 2009 12:00:00 PM CST