



**WILLIAMSON COUNTY
PURCHASING DEPARTMENT
301 SE INNER LOOP - SUITE 106
GEORGETOWN, TEXAS 78626**

<http://www.wilco-online.org/ebids>

ADDENDUM #1 – Master Quotations and General Specifications

I. Master Quotations

During the preparation of the specification documents, master quotations for certain sub-systems have been developed with the major vendors. This is typical for control systems and certain audio and video sub-systems that cannot be commingled with other vendors. Please be aware of the following:

1. While every effort has been made to ensure that the master quotation is complete, it is the sole responsibility of the Proposer and Contractor to ensure that the quotation is complete.
2. Unless otherwise noted, complete systems from competing manufacturers may be provided, pursuant to [Section II-D-F.10](#) relating to Alternate Equipment and [Section II-D-F.11](#) relating to Exceptions and Proposed Modifications.
3. The Control System specifications are based on a Crestron control system. A master quotation has also been developed with AMX.
 - a. Crestron, www.crestron.com Master Quote # 1013717
 - b. AMX, www.amx.com Master Quote # 8809-20137
4. Programming including custom code and graphic user interfaces are critical to the successful system implementation and Owner satisfaction. The Owner has elected to utilize 3rd party programming firms with a history of developing programming for similar installations. Firms submitting proposals shall utilize one of these 3rd parties for programming.
 - a. ICs+, www.icsplusonline.com Master Quote # Wilco EOC
 - b. Tekvox, www.tekvox.com Master Quote # 1202

Confirmation of Master Quote with revision number shall be provided with response.

J. Contractor's Documentation

2. D - A room by room listing is a spreadsheet format for all equipment. Space shall be provided for serial numbers and warranty information that will be added to this document as an as-built submittal.

S. Cable Types

Unless otherwise called for in these specifications and drawings, the following cables, or their approved equals, shall be used in these systems.

Note: Audiovisual cabling installed in or passing thru open ceiling areas must have a BLACK OUTER JACKET, so that they can be easily distinguished from network and other cabling.

1. Audio Applications

a. Microphone/Line Level; fixed installation

BELDEN 8451

Miniature PVC insulated, AWG 22 stranded copper wire twisted pair with 100% foil shield and drain wire, in PVC jacket, 3.51 mm nominal overall diameter.

Plenum Equivalent: Belden 88761

b. Speaker Level; fixed installation; 18 Gauge (70 Volt distribution only)

BELDEN 5300UP

PVC insulated AWG 18 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 4.67 mm nominal overall diameter.

Plenum Equivalent: Belden 82740

c. Speaker Level; fixed installation; 16 Gauge

BELDEN 5200UP

PVC insulated AWG 16 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 5.28 mm nominal overall diameter.

Plenum Equivalent: Belden 6200UE

d. Speaker Level; fixed installation; 14 Gauge

BELDEN 5100UP

PVC insulated AWG 14 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 6.6 mm nominal overall diameter.

Plenum Equivalent: Belden 6100UE

e. Speaker Level; fixed installation; 12 Gauge

BELDEN 5000UP

PVC insulated AWG 12 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 7.67 mm nominal overall diameter.

Plenum Equivalent: Belden 6000UE

General Specification (cont.)

- f. Speaker Level; fixed installation; 10 Gauge

BELDEN 5T00UP

PVC insulated AWG 10 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 9.04 mm nominal overall diameter.

Plenum Equivalent: Belden 6T00UP

- g. Antenna Cable-Wireless Microphone

BELDEN 9913F7

Coaxial cable, RG-8U, 50 Ohm, maximum VSWR 1.43:1 from 5MHz to 2,250MHz.; equal to or better in high frequency attenuation performance at 2,250MHz (-8.0dB, 100') as specified, with braided shield for minimum 95% coverage and foil shielding for minimum 100% coverage, in an overall PVC insulated jacket, 11 mm nominal overall diameter.

Plenum Equivalent: Belden 89913

2. Video Applications

- a. Base-band Analog Video

BELDEN 8281

Coaxial video cable, RG-59U, 75 Ohm, equal to or better in high frequency attenuation performance at 100 MHz (-9dB, 100m) as specified, with double braided shield for minimum 98% coverage, in an overall PVC insulated jacket, 8 mm nominal overall diameter.

Plenum Equivalent: Belden 88281

- b. Serial Digital Video

BELDEN 1505A

Coaxial video cable, RG-59U, 75 Ohm, equal to or better in high frequency attenuation performance at 100 MHz (-7.6dB, 100m) as specified, with braided shield for minimum 95% coverage and foil shielding for minimum 100% coverage, in an overall PVC insulated jacket, 6 mm nominal overall diameter.

Plenum Equivalent: Belden 1506A

- c. Computer Video Cable

West Penn-CDT WP8195

Five (5) conductor bundled coaxial video cable, RG-59U, 75 Ohm, equal to or better in high frequency attenuation performance at 135 MHz (-8.3dB, 100m) as specified. Each sub-unit with double braided shield and individual jackets in Red, Green, Blue, White and Yellow jacket colors, in overall PVC jacket, 19.69 mm overall diameter

Plenum Equivalent: West Penn-CDT WP825195

General Specification (cont.)

- d. Camera Video Cable; Triaxial
BELDEN 8233
75 Ohm RG-11, bare copper braid, 96% coverage. Inner jacket of polyethylene between braids; 12.07 mm nominal overall diameter. Bare copper braid, 95% coverage.
Sweep Tested: 5 MHz - 3 GHz.
 - e. Digital Media Cable; CAT6A
BELDEN 2413F
23 AWG Solid Bare Copper Bonded-Pair Conductors, Polyolefin Insulation, X-Spline Center Member ~Inner Jacket ~ F/UTP Overall Foil Screen with Drain Wire, PVC Jacket with Ripcord.
Standard: Category 6 – TIA 568.C.2
Plenum Rated Cable
3. RF/CATV Applications
- a. Horizontal Distribution, <150' only.
BELDEN 9118
RF Broadband Cable - 75 Ohm Broadband Coaxial Video cable, RG-6, with braided shield for minimum 60% coverage and triple foil shielding for minimum 100% coverage.
Sweep Tested: 5 MHz - 1 GHz, Structural Return Loss 20 db minimum.
High Frequency Attenuation performance equal to or better than at 1000 MHz (-21.5dB, 100m), as specified Type, in an overall PVC insulated jacket, 6.99 mm overall diameter.
Plenum Equivalent: Belden 1152A
 - b. Horizontal Distribution, <250' only.
BELDEN 9064
RF Broadband Cable - 75 Ohm Broadband Coaxial Video cable, RG-11, with braided shield for minimum 77% coverage and triple foil shielding for minimum 100% coverage.
Sweep Tested: 5 MHz - 1 GHz, Structural Return Loss 20 db minimum.
High Frequency Attenuation performance equal to or better than at 1000 MHz (-13.9dB, 100m), as specified Type, in an overall PVC insulated jacket, 10.16 mm overall diameter.
Plenum Equivalent: Belden 1153A

General Specification (cont.)

- c. Primary Riser; Horizontal Distribution, > 250'.

COMM-SCOPE P3 500 JCAR

RF Broadband Riser Cable - 75 Ohm Broadband Riser cable; meets NEC Article 820 Riser Rating.

High Frequency Attenuation performance equal to or better than at 1000 MHz (-7.91 dB, 100m), as specified; 14.22 mm overall diameter.

Note: It is the responsibility of the Audiovisual Contractor to verify, furnish and install the correct CATV cable type, as per the local CATV provider.

4. Remote Control System Applications

- a. Device Interconnection; Relay Systems

BELDEN 9744

Two twisted pair stranded AWG 22 copper wire, individually jacketed, in an overall PVC jacket, 6.20 mm nominal overall diameter.

Plenum Equivalent: Belden 88741

- b. Device Interconnection; RS-232/RS-422/RS-485

BELDEN 8723

Two twisted pair stranded AWG 22 copper wire, individually jacketed with individual shielding of pairs, in an overall PVC jacket, 4.39 mm nominal overall diameter.

Plenum Equivalent: Belden 88723

- c. Device Interconnection; with Power

BELDEN 1502R

One twisted pair stranded AWG 22 copper wire with shield; one AWG 18 TC unshielded power pair in an overall PVC jacket, 6.35 mm nominal overall diameter.

Plenum Equivalent: Belden 1502P

Note: These cable types are cited to illustrate the type and quality of cable required. Unless otherwise noted, cables from other manufacturers, i.e. West Penn, Comm-Scope, Liberty Cable, etc. will be considered acceptable.

Data sheets must be submitted and approved for all project cables prior to installation.

The Contractor shall only use plugs and jacks specifically manufactured and designed for the cable used. Unless otherwise noted, third-party connectors from other manufacturers, i.e. Kings, Switchcraft, AMP, Amphenol, Lemo, etc. will be considered acceptable if data sheets are submitted prior to installation.

Master Drawing List

DRAWING NUMBER	DRAWING TITLE	RELEASE DATE
TA000	TECHNOLOGY AUDIOVISUAL SYMBOLS AND LEGEND	04/02/12
TA100	TECHNOLOGY AUDIOVISUAL OVERALL FACILITY PLAN	04/02/12
TA101	TECHNOLOGY AUDIOVISUAL OVERALL ELECTRICAL PLAN	04/02/12
TA102	TECHNOLOGY AUDIOVISUAL OVERALL ELECTRICAL RCP	04/02/12
TA308	TECHNOLOGY AUDIOVISUAL ENLARGED SITE PLAN	04/02/12
TA400	TECHNOLOGY AUDIOVISUAL AUDIOVISUAL DETAILS	04/02/12
TA401	TECHNOLOGY AUDIOVISUAL AUDIOVISUAL DETAILS	04/02/12
TA402	TECHNOLOGY AUDIOVISUAL AUDIOVISUAL DETAILS	04/02/12
TA403	TECHNOLOGY AUDIOVISUAL AUDIOVISUAL DETAILS	04/02/12
TA404	TECHNOLOGY AUDIOVISUAL AUDIOVISUAL DETAILS	04/02/12
TA500	TECHNOLOGY AUDIOVISUAL, RF SYSTEM SCHEMATIC	04/02/12
TA501	TECHNOLOGY AUDIOVISUAL, AUDIO SYSTEM SCHEMATIC	04/02/12
TA502	TECHNOLOGY AUDIOVISUAL, COMMAND RMS. SCHEMATIC	04/02/12
TA503	TECHNOLOGY AUDIOVISUAL, MEETING RMS. SCHEMATIC	04/02/12
TA504	TECHNOLOGY AUDIOVISUAL, MISC. RMS. SCHEMATIC	04/02/12
TA505	TECHNOLOGY AUDIOVISUAL, RACK AND PLATE DETAILS	04/02/12

Detailed Specifications; Communications Operating Floor

A. Functional Description

This room's primary function is essentially as a regional 911 call center. Williamson County 911 Operations functions as the primary PSAP for all unincorporated areas in the county, as well as incorporated areas of Liberty Hill, Florence, Jarrell, Weir, Granger, and Hutto. It is also the secondary PSAP for all 911 calls originating in the other five county PSAPs, and occasionally as back-up PSAP for regional emergencies.

Monitoring of visual information shall be by a distribution of wall-mounted displays situated around the room such that they are visible by the call taker and dispatch group nearby.

Audio program material from in-room computers shall be provided by a distributed overhead system for those occasions when a unified monitoring of audio content is required. Paging and announce is provided by the building wide audio distribution system.

Multimedia feeds are provided via the RF distribution system and as noted previously are comprised of Television as well as data from EOSC servers.

Control of the Communications Operating Floor audiovisual systems will be achieved via a desktop application accessible via the network by any operator with appropriate access rights and/or via a Touch Screen control panel. Back-up control is provided by a wired panel in the AV Rack Room.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

The conduit and power systems are detailed in the Electrical Engineer's drawings. Any conduit required that is not detailed on the Electrical Engineer's drawings shall be responsibility of the Audiovisual Contractor.

1. Display
 - a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Displays, Type C (nominal 47" to 52" diag.)
 - ii. Flat Panel Displays, Type E (nominal 60" to 70" diag.)

Detailed Specifications; Communications Operating Floor (cont.)

- b. Provide wall mount for display with integrated box for supporting equipment. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
 - c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.
- 2. Audio
 - a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.
 - b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents.
 - c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.
- 3. Video
 - a. Provide input for digital and analog computer signals with accompanying audio. Matrix shared and content shared with other Command Rooms.
 - b. Provide Digital Media cabling to all displays for current or future provisioning.
 - c. Provide CATV cabling to all displays.
 - d. Provide all loose cables, connectors, etc. required to complete a full working system.
- 4. Control
 - a. Provide audiovisual system control from one wireless color video touch panel. This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
 - b. Provide and install application software for the wireless control panel.
 - c. Provide audiovisual system control from user computers via a browser interface.
 - d. Back-up controller, shared, and located in AV Rack Room.
 - e. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; Communications Operating Floor (cont.)

5. Miscellaneous
 - a. Provide power surge protection for all displays (projectors, TV, monitors).
 - b. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.
2. Provide cover plates for all currently unused (future) audiovisual infrastructure locations; confirm finish with Architect.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. Architectural lighting, dimmer systems, and low-voltage interfaces.
2. LAN connections.
3. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Emergency Operation Center

A. Functional Description

The EOC serves as the primary meeting space in emergency situations. This room allows for effective room-wide communication as well as the ability for each agency to work somewhat autonomously in addressing their specific tasks during a situation.

A projection screen at the front of the room serves most day-to-day uses. Flat panel displays enable operators to monitor televised news and weather or specialized content on selected, in-house, channels. Local control is provided within the room for supervisor or technical staff use via a Touch Screen, or via the network and a desktop application.

Audio program material (typically the audio associated with video) shall be provided by a distributed overhead system for those occasions when a unified monitoring of audio content is required. Wireless microphones are provided to for in-room announcements and special presentations.

Tables are equipped with inputs for laptop PCs enabling operators to share information to the central display.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Projection screen to be furnished and installed by others.
- b. Provide ceiling mounted data/video projector. All support is by the Construction Manager; support hardware (ceiling mounts) is by the AV Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Displays, Type C (nominal 47" to 52" diag.)
 - ii. Flat Panel Displays, Type E (nominal 60" to 70" diag.)
- d. Provide wall mount for display, with integrated gear box and tilt capability, sized for the display. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect
- e. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

Detailed Specifications; EOC (cont.)

2. Audio

- a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.
- b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

3. Video

- a. Provide input for digital and analog computer signals with accompanying audio as indicated on documents accompanying this specification.
- b. Provide digital media routing, shared system with other command rooms.
- c. Provide Digital Media cabling to all displays for current or future provisioning.
- d. Provide CATV cabling to all displays.
- e. Provide HDTV tuner for display or projectors that are not internally equipped with this capability. Tuner shall provide digital and analog outputs for video and audio, it shall be 232 controlled.
- f. Provide all loose cables, connectors, etc. required to complete a full working system.

4. Control

- a. Provide audiovisual system control from one wireless color video touch panel,. This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
- b. Provide and install application software for the wireless control panel.
- c. Provide audiovisual system control from user computers via a browser interface.
- d. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; EOC (cont.)

5. Miscellaneous
 - a. Provide power surge protection for all displays (projectors, TV, monitors).
 - b. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.
2. Provide cover plates for all currently unused (future) audiovisual infrastructure locations; confirm finish with Architect.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. Lighting dimmer lighting systems.
2. LAN connections.
3. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).
4. Device enclosures in millwork walls.

Detailed Specifications; Expanded EOC

A. Functional Description

The Expanded EOC serves as the secondary meeting space in emergency situations. This room provides for effective room-wide communication as well as allows each agency to work somewhat autonomously in addressing their specific tasks during a situation.

Projection screens at the front of the room serve most day-to-day uses, while additional displays are located around the room perimeter. Local control is provided within the room for supervisor or technical staff use via a networked Touch Screen, or via a networked desktop application.

Audio program material (typically the audio associated with video) shall be provided by a distributed overhead system for those occasions when a unified monitoring of audio content is required. Wireless microphones are provided to for in-room announcements and special presentations.

Tables are equipped with inputs for laptop PCs enabling operators to share information to the central display. Flat panel displays enable operators to monitor televised news and weather or specialized content on selected, in-house, channels.

Audiovisual equipment serving local presentation functions would be located in secured rack space within the room. Equipment not requiring or permitting user interface would be located in an adjacent AV rack room if required.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Projection screen to be furnished and installed by others.
- b. Provide ceiling mounted data/video projector. All support is by the Construction Manager; support hardware (ceiling mounts) is by the AV Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Displays, Type C (nominal 47" to 52" diag.)
 - ii. Flat Panel Displays, Type E (nominal 60" to 70" diag.)

Detailed Specifications; Expanded EOC (cont.)

- d. Provide wall mount for display with integrated gear box or swing arm design as indicated on drawings and schedule. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
 - e. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.
- 2. Audio
 - a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.
 - b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents.
 - c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.
- 3. Video
 - a. Provide input for digital and analog computer signals with accompanying audio as indicated on documents accompanying this specification.
 - b. Provide digital media routing, shared system with other command rooms.
 - c. Provide Digital Media cabling to all displays for current or future provisioning.
 - d. Provide CATV cabling to all displays.
 - e. Provide HDTV tuner for display or projectors that are not internally equipped with this capability. Tuner shall provide digital and analog outputs for video and audio, it shall be 232 controlled.
 - f. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; Expanded EOC (cont.)

4. Control

- a. Provide audiovisual system control from one wireless color video touch panel. This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
- b. Provide and install application software for the wireless control panel.
- c. Provide audiovisual system control from user computers via a browser interface.
- d. Provide all loose cables, connectors, etc. required to complete a full working system.

1. Miscellaneous

- a. Provide power surge protection for all displays (projectors, TV, monitors).
- b. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.
2. Provide cover plates for all currently unused (future) audiovisual infrastructure locations; confirm finish with Architect.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. Lighting dimmer lighting systems.
2. LAN connections.
3. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).
4. Device enclosures in millwork walls.

Detailed Specifications; Triple Display Rms.

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided with a cluster of three displays for monitoring local content in addition media or unique content developed by WILCO.

There are three (3) Cluster Display Rooms in this section of the specification:

- J/C Copy Room, Rm. # 30
- Executive Policy and Conference Room, Rm. # 34
- Briefing Conference Room, Rm. # 43
- Conference Room, # 56

Each room will have three (3) wall-mounted flat panel televisions, one (1) larger, central display with two (2) smaller flanking displays. The central display can image content from local, in-room sources in addition to the in-house CATV system. The two (2) flanking displays provide CATV content only. The supporting audiovisual equipment for each room is shared and located in the central AV rack room.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display
 - a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Displays, Type A (nominal 32" to 37" diag.)
 - ii. Flat Panel Displays, Type D (nominal 52" to 57" diag.)
 - b. Provide wall mount for displays with tilt function. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
 - c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

Detailed Specifications; Triple Display Rooms (cont.)

2. Audio

- a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.
- b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

3. Video

- a. Provide input for digital and analog computer signals with accompanying audio.
- b. Provide a shared matrix switching for digital and analog signals via UTP and native RGBHV, HDMI, composite video, etc. Matrix shall be modular and expandable with 20% spare capacity and a redundant power supply.
- c. Provide receivers for UTP switched signals with native digital and analog outputs, internal scaling and device control.
- d. Provide CATV cabling from all displays to distribution located in the AV Rack Room.
- e. Provide UTP cabling to all displays. Cabling not used on day one shall terminate in a shared patch panel in the AV equipment room.
- f. Provide all loose cables, connectors, etc. required to complete a full working system.

4. Control

- a. Provide audiovisual system control from one wireless color video touch panel. This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
- b. Provide and install application software for the wireless control panel.
- c. Provide audiovisual system control from user computers via a browser interface.
- d. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; Triple Display Rooms (cont.)

5. Miscellaneous
 - a. Provide power surge protection for all displays (projectors, TV, monitors).
 - b. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.
2. Provide cover plates for all currently unused (future) audiovisual infrastructure locations; confirm finish with Architect.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. LAN connections.
2. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Dual Display Rooms

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided as part of the Contractor's scope of work in the Dual Display Rooms. Dual displays located in key office spaces enable staff to monitor news events, Wilco generated video content and provide connections for local computers. Rooms are intended to be flexible and easy to operate.

There are eight (8) Dual Display Rooms:

- WSCO LT. , Rm. #51*
- WSCO SGTS., Rm. #54*
- ARES, Rm. # 57**
- ITS/GIS, Rm. # 75*
- Communications Director., Rm. # 20
- Deputy Comm. Director, Rm. # 18
- EM Mrg., Rm. # 10
- Sr. Director., Rm. # 8

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Displays, Type A (nominal 32" to 37" diag.)
- b. Provide wall mount suitable for the display size with tilt capability. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

Detailed Specifications; Dual Display Rooms (cont.)

2. Audio
 - a. Speakers integrated with the display provide audio reproduction for all sources.
1. Video
 - b. Provide input for digital computer signals with accompanying audio transmitter and receiver connection via UTP cable. Transmitter shall provide loop-thru for local monitor.
 - c. Provide CATV cabling from displays to distribution located in the AV Rack Room.
 - d. Provide all loose cables, connectors, etc. required to complete a full working system.
3. Control
 - a. Provide audiovisual system control from user computers via a browser interface.
 - b. Manufactures remote will provide a secondary means of control. Include spare controls in miscellaneous equipment.
2. Miscellaneous
 - a. Provide power conditioning for displays.
 - b. Custom plates as indicated on the drawings and schedule.
 - c. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. LAN connections.
2. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Single Display Rooms

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided as part of the Contractor's scope of work in the Single Display Rooms. Displays are located in key office spaces enable staff to monitor news events, Wilco generated video content and provide connections for local computers. Rooms are intended to be flexible and easy to operate.

There are nine (9) Dual Display Rooms:

- Plans Supv. (Rm. 11)
- Plans Section (Rm. 12)
- Recpt & Mail Center (Rm.15)
- Office Mgr. (Rm. 16)
- Quality Control Supervisor (Rm.26)
- Training Coord. (Rm. 52)
- Logistics (Rm. 53)
- CAD Mgr. (Rm.71)
- TLETS (Rm. 72)

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Display, Type A (nominal 32" to 37" diag.)
- b. Provide wall mount for display, suitable sized with tilt or swing arm capability as indicated in the schedule and drawings accompanying this specification. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

Detailed Specifications; Single Display Rooms (cont.)

2. Audio
 - a. Speakers integrated with the display provide audio reproduction for all sources.
3. Video
 - a. Provide input for digital computer signals with accompanying audio transmitter and receiver connection via UTP cable. Transmitter shall provide loop-thru for local monitor.
 - b. Provide CATV cabling from displays to distribution located in the AV Rack Room.
 - c. Provide all loose cables, connectors, etc. required to complete a full working system.
3. Control
 - a. Provide audiovisual system control from user computers via a browser interface.
 - b. Manufactures remote will provide a secondary means of control. Include spare controls in miscellaneous equipment.
4. Miscellaneous
 - a. Provide power conditioning for displays.
 - b. Custom plates as indicated on the drawings and schedule.
 - c. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. LAN connections.
2. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Conference Room

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided for the central Conference Room. This room will be used for briefing visitors and more formal staff meetings. The Conference Room operates similar to a Cluster Room, but with a single display.

There two (2) Conference Room in this section of the specification:

- Conference Room, Rm. #19
- Conference Room, Rm. # 29

Displayed images may be base-band video (DVD, demodulated CATV, etc.) or computer generated. Connectivity for external devices will be through a panels located in the tables or wall.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Display, Type D (nominal 52" to 57" diag.)
- b. Provide wall mount for display with tilt functionality. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

2. Audio

- a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.

Detailed Specifications; Conference Room (cont.)

- b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents
 - c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.
- 3. Video
 - a. Provide input for digital and analog computer signals with accompanying audio. Output to matrix using UTP cabling as specified by the manufacturer.
 - b. Provide matrix switching for digital and analog signals via UTP and native RGBHV, HDMI, composite video, etc. Matrix shall be modular and expandable with 20% spare capacity and a redundant power supply.
 - c. Provide receivers for UTP switched signals with native digital and analog outputs, internal scaling and device control.
 - d. Provide CATV cabling from displays to distribution in AV Rack Room.
 - e. Provide all loose cables, connectors, etc. required to complete a full working system.
- 4. Control
 - a. Provide audiovisual system control from one wireless color video touch panel. This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
 - b. Provide and install application software for the wireless control panel.
 - c. Provide audiovisual system control from user computers via a browser interface.
 - d. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; Conference Room (cont.)

6. Miscellaneous

- a. Provide power conditioning for displays.
- b. Custom plates as indicated on the drawings and schedule.
- c. Provide all loose cables, connectors, etc. required to complete a full working system

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. LAN connections.
2. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Media Room

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided for the Media Room.

There is one Media Room in this section of the specification:

- Media Room, Rm.#6

Junction boxes located in the rear of the Media Room provide pathways for news services to connect to remote trucks via a pedestal located in parking area. It is anticipated that services will install their preferred cabling and such work is not included in the scope of this specification.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

1. Display

- a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Display, Type A (nominal 32" to 37" diag.)
- b. Provide wall mount for display, swing arm design allowing ready service and flexible adjustment for best viewing. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

Detailed Specifications; Media Room (cont.)

2. Audio

- a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.
- b. Provide wireless microphone with single receiver and dual (body pack and hand held) microphones.
- c. Provide audio network interface for input of local microphones and output for content or feed to press.
- d. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

3. Video

- a. Provide input for digital and analog computer signals with accompanying audio. Output to matrix using UTP cabling as specified by the manufacturer.
- b. Provide matrix switching for digital and analog signals via UTP and native RGBHV, HDMI, composite video, etc. Matrix shall be modular and expandable with 20% spare capacity and a redundant power supply.
- c. Provide receivers for UTP switched signals with native digital and analog outputs, internal scaling and device control.
- d. Provide CATV cabling from displays to central distribution located in the AV Rack Room.
- e. Provide all loose cables, connectors, etc. required to complete a full working system.

4. Control

- a. Provide audiovisual system control from one operator wired color video touch panel, This panel will be a nominal nine (9") inch diagonal panel, and include a secured wall-mount.
- a. Provide audiovisual system control from user computers via a browser interface.
- b. Provide all required network equipment, including, but not limited to, routers, hubs, gateways, media converters, etc., for integration of the networked AV Control system with the Owner's existing LAN and control system.
- c. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; Media Room (cont.)

7. Miscellaneous

- a. Provide power conditioning for selected components (matrices, DPS engines, control systems, etc.) within the audiovisual systems, with rack-mounted UPS for critical and microprocessor-based systems.
- b. Provide a Press Feed with electronics and plates as indicated in drawings.
- c. Provide custom plates as required or indicated on drawings accompanying this specification.
- d. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. Window drapery/shade systems.
2. LAN connections.
3. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).

Detailed Specifications; Exercise, Fitness, Lobby & Server Rooms

A. Functional Description

This section of the specification defines the functional details of the audiovisual system to be provided as part of the Contractor's scope of work in the Exercise, Fitness rooms the Lobby and Server Rooms. The Exercise and Fitness are general use areas providing more entertainment programing. The Lobby display provides general information along with an overflow feed from the Media Room during press briefings. The Server Room displays provides confidence monitoring of signals originating in this space.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

The conduit and power systems are detailed in the Electrical Engineer's drawings. The system diagrams are shown on the Master Control Systems drawings.

1. Display

- a. Provide flat panel displays for imaging televised video. Commercial quality displays with integrated tuner, speakers and RS-232 control. Refer to drawings and schedule for quantities and location.
 - i. Flat Panel Display, Type A (nominal 32" to 37" diag.) in Lobby and Server Rooms.
 - ii. Flat Panel Display, Type C (nominal 40" to 42" diag.) in Fitness and Exercise areas.
- b. Provide wall mount for display, tilting or swing arm design as described in documents accompanying this specification. All support is by the Construction Manager; support hardware (wall mounts) is by the Contractor. The mount location and support shall be coordinated with the Architect.
- c. Provide all loose cables, connectors, hardware, wire management accessories, etc. required to facilitate and complete the device installation.

2. Audio

- a. Provide complete high quality ceiling mounted loudspeaker assemblies. The speakers shall come complete with integrated back box and grill. All mounting hardware, including tile bridges and other accessories, shall be furnished and installed by the Audiovisual Contractor. Ceiling preparation for the speakers will be by the Construction Manager.

Detailed Specifications; Exercise, Fitness, Lobby and Server (cont.)

- b. Provide audio amplification and a digital signal processing system with zone routing and control as described elsewhere in this specification and related documents.
 - c. Provide all loose cables, connectors, etc. required to complete a full working system
- 3. Video
 - a. CATV will feed available cable TV content to the displays. Provide cabling from central distribution.
 - b. Provide all loose cables, connectors, etc. required to complete a full working system.
- 4. Control
 - a. Provide audiovisual system control from user computers via a browser interface.
 - b. Manufactures remote will provide a secondary means of control. Include spare controls in miscellaneous equipment.
- 5. Miscellaneous
 - a. Provide power conditioning for displays.
 - b. Custom plates as indicated on the drawings and schedule
 - c. Provide all loose cables, connectors, etc. required to complete a full working system.

C. Equipment Layout

- 1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

- 1. Lighting dimmer lighting systems.
- 2. LAN connections.
- 3. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).
- 4. Device enclosures in millwork walls.

Detailed Specifications; AV Rack Room

A. Functional Description

This section of the specification defines the functional details of the AV Rack Room to be provided as part of the Contractor's scope of work and provides centralized distribution, routing and master control for individual rooms and building wide systems.

Centralized systems include:

- CATV head-end and distribution, building wide.
- Digital media routing for two (2) sub systems.
- Digital Audio Processing and routing for individual rooms and the building wide paging and announcement.

Some components of the AV Rack room will be located in the Server Rm. # 76, mounted on the master antenna tower.

B. System Interconnections

The functional interconnections of the audio, video and control systems shall be as detailed on drawings.

The Contractor shall provide all interconnection cable, connectors, terminal strips, wireways, flexible conduit, etc., to facilitate the audiovisual systems as detailed within these specifications and drawings.

The conduit and power systems are detailed in the Electrical Engineer's drawings.

1. CATV

- a. Provide HDTV tuners for off-air television channel reception.
- b. Integrate set-top boxes provide by the cable service provider.
- c. Provide HDTV encoders for computer and television content.
- d. Provide a star configuration CATV distribution with individual channel amplification and adjustment.
- e. Provide audio, video and UTP patch panels as required by the system design.
- f. Provide CATV system monitoring capability at a single wall mounted location.
- g. Provide and install antennas for off-air reception. Aim and adjust antennas for optimum reception.
- h. Provide termination, splitters, combiners, active and passive as necessary for signal distribution and routing. All unused CATV outlets shall have 75ohm termination.
- i. Provide all loose cables, connectors, etc. required to complete a full working system.

Detailed Specifications; AV Rack Room (cont.)

2. Audiovisual

- a. Provide matrix switching of video and stereo audio, integrated with the main video switch.
 - i. Normal operation will be an “audio-follow-video” configuration; audio breakaway capability shall be integrated through the control systems.
 - ii. This is not a separate device, but a segmented portion of the Command and Meeting room switching and will facilitate routing within the building without blocked inputs or outputs.
- b. Provide audio, video and UTP patch panels as required by the system design.
- c. Provide audio monitoring capability at single rack location.
- d. Provide active balancing devices between balanced and unbalanced inputs and outputs as required by system design. It is the intent that all audio signals going into a single switch be at the same level and of the same type. It shall not be acceptable to use a device’s internal gain controls to match signal level from input to input.
- e. Provide all loose cables, connectors, etc. required to complete a full working system.

3. Distributed Paging System

- a. Provide Distributed Paging system electronics, microprocessor based, to manage and control all system functions and hardware. This includes:
 - i. Master DSP unit, with digital I/O bus for expansion and communications with expansion modules and nodes.
 - ii. Digital Signal Processing, including equalization, signal compression, etc.
 - iii. Provide signal combining from multiple channel sources to single channel destinations.
 - iv. Provide tie-lines from remote nodes for distribution and processing of remote sources.
- b. Supporting Electronics and Hardware
 - i. Provide amplification for areas that do not have amplifiers.
 - ii. Provide a hardware interface from life-safety system to cut off all sound when the emergency systems are activated.
 - a. The Construction Manager shall provide a closure from the Life Safety system. This will terminate in the AV Rack Room.
 - b. Provide relays that turns off power to the amplifiers, and cuts all inputs and outputs to the system.

Detailed Specifications: AV Rack Room (cont.)

- c. Provide relays to the control system for automatic restart when the event is over, and the closure removed.
 - d. Provide all loose cables, connectors, etc. required to complete a full working system.
- 4. Control System
 - a. Provide audiovisual system control from two (2) operator wired color video touch panel, for use in the AV Rack Room for sub-system control and back up to the wireless network controls. These panels will be a nominal nine (9") inch diagonal panel, and include a secured rack-mount.
 - b. Provide control of architectural lighting system through Owner Furnished lighting interface.
 - i. Lighting control should include both discrete control of lighting presets and lighting preset selection based on room function.
 - ii. All controls on lighting system panels must be mimicked on the touch panels.
 - c. Provide control of the motorized projection screen through Owner Furnished low-voltage interface.
 - i. Projection screen control shall include up, down and stop functionality.
 - ii. Provide dedicated control for screen masking system, both discrete and integrated with functionality.
 - d. Provide remote control of systems with an integrated master controller, which provides ports for IR/serial, RS-232/422/485, Ethernet, relay closures and input and output control card frames and rack mounted, of all dedicated audiovisual components.
 - e. Provide all required network equipment, including, but not limited to, routers, hubs, gateways, media converters, etc., for integration of the networked AV Control system with the Owner's existing LAN and control system.

Note: Close coordination with the Owner will be required with regards to IP assignments.
 - f. Provide dedicated computer for CATV system control.

Detailed Specifications; AV Rack Room (cont.)

- g. Provide power conditioning for selected components (matrices, DPS engines, control systems, etc.) within the audiovisual systems, with rack-mounted UPS for critical and microprocessor-based systems.
 - h. Provide a hardware interface to life-safety system to cut off all sound when the emergency systems are activated. This will be through the Master Control systems; see [Section XII.B.2.b.iii](#).
 - i. Provide all loose cables, connectors, etc. required to complete a full working system.
- 5. Software
 - a. Provide control system software that utilizes a custom graphical user interface (GUI) that utilizes high resolution graphics licensed particularly for this use and application.
 - b. Provide icons on each page that show the current time in the upper right-hand corner and the current date in the upper left-hand corner.
 - c. Provide control graphics that include pull-down sub menus.
 - d. Provide graphics that include equipment as “icons” and with alpha numeric designations.
 - e. Provide feedback that indicates the current equipment and/or system status.
 - f. Provide control panel layouts that are consistent from page to page.
 - g. Provide control panel layouts that are consistent from room to room.
 - h. When a choice of control protocols is available for a piece of equipment, the most secure and flexible one shall be used; i.e. RS-232 control, where available, shall be used in place of either infra-red or relay control.
 - i. Equipment with a “toggled” power command are not to be powered on and off from the control system.
 - j. All software shall provide multiple levels of password protection. Initially minimum of two (2) levels of security will be established and specific rights to program areas shall be assigned by the AV Contractor to the user groups:
 - i. Level 1 shall allow user to operate the basic functions of the system, without a password. Control shall be limited to functionality that is within the Performance Space.
 - ii. Level 2 shall be password protected, and allow a technician access to configure the system, define graphical user screens, set system parameters and defaults, source selection, etc., as well as functions that affect other connected systems and features listed for level 1.

Detailed Specifications; AV Rack Room (cont.)

6. Provide audiovisual equipment racks. Unless otherwise noted:
 - a. Ensure that the equipment racks have a clear opening (between rack and cabinet mounting rails) that conforms to EIA standards of 17-3/4"; +1/16", -0".
 - b. Provide side panels for outside of equipment racks.
 - c. Provide lockable back doors for equipment racks. All locks are shall be identically keyed.
 - d. Provide blank and vent panels, as required. There are not to be any open areas on the front of the racks.
 - e. Provide lockable drawer in audiovisual rack for storage of loose items, such as equipment remote controls, wireless microphones, and other equipment dedicated to a specific room.
 - f. All equipment shall be installed with "rack ears" or custom rack-mounts/face-plates, using security screws. There shall not be any shelf-mounted components in the audiovisual racks.
7. Provide cover plates for all currently unused (future) audiovisual infrastructure locations; confirm finish with Architect.

C. Equipment Layout

1. The equipment in this area shall be as detailed on the Architect's drawings, with reference to the Audiovisual Facility drawings.
2. Antenna shall be installed by Contractor and mounted to the main antenna tower at 25 ft. above the ground. Coordination with Owner and other trades is required for installation.

D. Related Work Specified Elsewhere

The following systems and equipment are not provided under this contract:

1. EOSC LAN connections.
2. Telephone jacks and special telecom outlets, (switch 56, ISDN, T1).