

DC Courts Audiovisual Standards
 Audiovisual System Narrative and Budget / Equipment List
 September 26, 2018



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AUDIOVISUAL STANDARDS SYSTEM DESCRIPTION NARRATIVES

0) **Background / Basis of Design**

The Audiovisual Standards are the result of several prototype and predecessor projects for both the Superior Court and Court of Appeals. The AV Standards include “lessons learned” from several of these projects while incorporating updated technology. The intent of the Standards is to document AV functionality requirements as well as other AV scope related details for use by the Courts in the acquisition of future AV systems. By standardizing AV system designs, users are provided with a consistent experience, and training, support and maintenance of the AV systems are simplified.

Please note that the standards include video displays which are sized based on previous projects. The size of each display should be evaluated for usable viewing distance as well as ADA compliance (i.e. projection from the wall / head height) for each planned space. Below is a table of recommended display size by viewing range. This chart is based on viewing of text, spaces with video only requirements (such as lunch rooms) can be provided with smaller displays.

Table 1 - Recommended Display Size by Viewing Range

Viewing Range (Feet)	Recommended Display Size	Current Display Model
Less than 12'	50" Diagonal	NEC E506
12' – 15'	60" Diagonal	Sharp PN-LE601
15' – 17'	70" Diagonal	Sharp PN-LE701
17' – 20'	80" Diagonal	Sharp PN-LE801
20' – 24'	90" Diagonal	Sharp PN-LE901

The existing and planned video systems utilize HD Base-T (HDBT) technology to extend digital video signals (such as HDMI video from a laptop computer) over standard network Cat-6A cabling for video switching and distribution to the various video displays in each space.

The use of a wireless presentation device is planned for the larger conference and training spaces. The basis of design product is the Barco Clickshare. There is currently a Clickshare in the Clerk of the Court’s Suite 2500 Conference Room. The Clickshare uses a small USB “dongle” to load a software driver onto a laptop computer (Windows or Apple). Once the software driver is installed, the user presses a button on the USB dongle to wirelessly project video to the display. As these wireless systems are better for viewing of static images (such as PowerPoint) and tend to lag with motion video, the use of wired inputs to the video system is recommended for viewing of video from portable devices.

All spaces with touch panel AV control systems will be provided with the ability for remote help desk support and operation by the CTB as is currently implemented in the new 2nd Floor West Courtrooms.

1) Central Recording Connections

Each Courtroom and Hearing Room, along with several specialty spaces, is connected back to Central Recording (Moultrie Suite 2300) to be recorded and monitored using CourtSmart recording servers and software. Each of these spaces provides (4) audio channels, (1) backup audio channel, as well as a low-voltage logic signal to enable the BFL light in each Courtroom and Hearing Room. The BFL light is located at the Clerk's Desk, and indicates that the space is being recorded or is "on the record." Each BFL light is provided by CourtSmart.



Figure 1- Typical CourtSmart BFL or "Blue Man" light. Image Courtesy of CourtSmart

The current connection between each space and the Central Recording Suite is a multi-channel, analog audio cable. Any new Central Recording cables are to be pulled from each Courtroom / Hearing Room AV equipment rack to Suite 2300 by the low-voltage contractor. Cable pathways into the recording server in Suite 2300 are reaching capacity, and the current analog cabling is becoming difficult to source.

Details regarding the existing analog central recording connections can be found in the document "A Contractor's Guide to Interfacing with Central Recording."

CourtSmart is currently working with Dante digital audio networking at other locations. Dante is a standard audio format which transmits multiple channels of audio over standard networking cable and equipment. The Dante format is stable, and is used for critical audio in performance and broadcast uses as well as applications throughout many industries. The use of Dante to connect either future new or renovated Courtroom and Hearing should be considered as the cabling is reduced to one network cable, and no audio hardware is required to interface with the CourtSmart servers.

Adding Dante audio to the existing Central Recording system is straightforward, requiring only basic network equipment (which likely exists) and a \$35 "virtual sound card" license for each CourtSmart server. Existing analog-connected Courtrooms and Hearing Rooms can remain as is, with new spaces or renovated spaces utilizing Dante for connection.

Each new standard Hearing Room and Courtroom will be provided with Dante audio networking to allow for the future upgrade of the Central Recording system to networked

audio. The analog audio connections will also be provided with each system to allow for use with the existing Central Recording system.

2) Typical Hearing Room

Each Typical Hearing Room will be provided with an adjacent AV closet (12 Sq Ft minimum) to house an AV equipment rack. Two Hearing Rooms can share one equipment rack as required.

An 8” poke thru device will be provided at each Litigant Table to provide power, data, and AV connections. Additional AV connection plates will be provided in the Bench millwork as detailed on the AV system drawings.

An 80” LCD TV will be provided for video teleconferencing (VTC) and evidence presentation uses. The TV will be provided with a swingout wall mount with a recessed back box. The display will be mounted on a side wall of the Hearing Room, allowing the Judge, Clerk, Witness and both Litigants to view the display as well as to be seen by the VTC camera located at the display.

A 12X zoom pan, tilt, and zoom video camera will be located above the display and will be provided with a camera extension system to extend the camera video and control signals to the VTC codec located in the equipment rack.

A Court standard, H.323 standards-based VTC system will be provided. The VTC system will be registered to the Court’s existing VTC bridge for multi-point VTC calls.

An 8X4 video switcher with integral control system processor and HD Base-T inputs and outputs will be provided. Inputs to the video system include the VTC system, (2) HDMI and (1) VGA input from each Litigant’s Table poke thru device, and one HDMI input at the Judge’s Bench. These sources will be capable of both local display and of being transmitted to the far site during VTC use.

The audio system provided will be the Court’s standard audio system. Ceiling speakers will be provided for the Well Area and above the Litigant Tables. The Judge will be provided with a control panel providing for both volume control of the Judge’s microphone as well as a “husher” button. When activated, the “husher” will flood the Litigant Table ceiling speakers with pink noise to conceal any conversations occurring during bench conferences. A compact, self-powered speaker with integral volume control will be provided under the Judge’s Bench.

Court’s standard gooseneck microphones will be provided for the Judge, Clerk, Witness, Litigant Tables, and Evidence Lectern. Two additional “button” microphone will be installed into the front and top of the bench to record bench conferences.

A Court's standard DSP (digital signal processing) system with telephone hybrid will be provided for all audio mixing, routing, and audio teleconferencing. The provided audio DSP units will include Dante digital audio networking for interconnection as well as to allow for a future, network audio based upgrade to the Central Recording system.

An infrared assistive listening system / interpretation system will be provided with (3) modulators and an emitter panel. Interpreter's microphone inputs will be located at both Litigant's Tables and at the Witness Stand.

A feed from the Clerk's PC will be provided for playback of recorded testimony. A typical CourtSmart control panel with a "cue / playback" switch as well as a headphone output will be provided for use by the Clerk. An audio output will be provided at the Witness Stand for occasional use by a Court Reporter.

Control of the audiovisual system will be via two wired, 9" touch panel located at the Bench. One touch panel will be provided for the Judge and one will be provided for the Clerk. The control system touch panel pages will be based on those currently in use in the renovated 2nd Floor West Courtrooms.

3) Typical Hearing Room (without Video)

Each Typical Hearing Room without video will be provided with a nearby AV closet (12 Sq Ft minimum) to house the equipment rack. A total of (3) Hearing Rooms without video can share one equipment rack as needed.

Infrastructure such as wall-blocking, power, and AV conduits will be provided to allow for the future addition of video equipment to these rooms.

An 8" poke thru device will be provided at each Litigant Table to provide power, data, and AV connections. Additional AV connection plates will be provided in the Bench millwork as detailed on the AV system drawings.

The audio system provided will be the Court's standard audio system. Ceiling speakers will be provided for the Well Area and above the Litigant Tables. The Judge will be provided with a control panel providing for both volume control of the Judge's microphone as well as a "husher" button. When activated, the "husher" will flood the Litigant Table ceiling speakers with pink noise to conceal any conversations occurring during bench conferences. A compact, self-powered speaker with integral volume control will be provided under the Judge's Bench.

Court standard gooseneck microphones will be provided for the Judge, Clerk, Witness, and Litigant Tables. Two additional "button" microphone will be installed into the front and top of the bench to record bench conferences.

A Court standard DSP (digital signal processing) system with telephone hybrid will be provided for all audio mixing, routing, and audio teleconferencing. The provided audio DSP units will include Dante digital audio networking for interconnection as well as to allow for a future, network audio based upgrade to the Central Recording system.

An infrared assistive listening system / interpretation system will be provided with (3) modulators and an emitter panel. Interpreter's microphone inputs will be located at both Litigant's tables and at the Witness Stand.

A feed from the Clerk's PC will be provided for playback of recorded testimony. A typical CourtSmart control panel with a "cue / playback" switch as well as a headphone output will be provided for use by the Clerk. An audio output will be provided at the Witness Stand for occasional use by a Court Reporter.

Control of the audio system will be via two wired, 9" touch panel located at the Bench. One touch panel will be provided for the Judge and one will be provided for the Clerk. The control system touch panel pages will be based on those currently in use in the renovated 2nd Floor West Courtrooms.

4) Typical Courtroom

Each Typical Courtroom will be provided with a 1.6", low-profile, FreeAxez raised floor in the Well Area, as well as cable management with cable access points in the Bench. Each Typical Courtroom requires one full-height AV equipment rack. Preferably, each pair of Courtrooms is provided with an AV closet to house (2) racks or two Courtroom AV systems.

A floor box (in the raised floor) will be provided at each Litigant Table and Evidence Lectern Location to provide power, data, and AV connections. Each larger Courtroom with (4) Litigant Tables will be provided with (4) Litigant Table Floor Boxes and (2) Evidence Lectern Floor Boxes to allow the Evidence Lectern to be placed at one of two available locations. Smaller Courtrooms with (2) Litigant Tables will be provided with (2) Litigant Table Floor Boxes and one Evidence Lectern Floor Box.

Additional AV connection plates will be provided in the Bench millwork as detailed on the AV system drawings.

The main video display for the Jury will be a wall mounted, 90" LCD / LED commercial TV located directly across from the Jury Box. An additional wall mounted, 60" LCD / LED commercial TV will be located behind the Witness Stand for evidence presentation as well as for "virtual witness" use. The "virtual witness" can be used with either the VTC system or a protected witness located in an associated Jury Room. Both of these displays will be provided with a swingout wall mounted and associated recessed back box.

Two 60” LCD / LED commercial TVs will be ceiling mounted above the Gallery Rail on the left and right side of the Courtroom. These displays will service the Gallery. Alternatively, one display may be rotated to face the Judge for use by the Judge as directed.

Several additional, smaller evidence displays will be provided for the Judge, Witness, Clerk(s), and Court Reporter. These evidence displays will be 22” LCD touch screens and will allow for touch annotation by each user over the video being displayed. The video being displayed, as well as any associated annotations, will be capable of being printed out by the printer at the Clerks Desk (via the Judge’s or Clerk’s control system touch panels). A USB port will be provided at the Clerk’s Desk to allow images and annotations to be saved to a USB thumb drive for use with a digital evidence archive system (such as JERs).

The evidence displays for the Judge and Witness will be provided with low-profile desk stands to preserve sightlines. The displays for the Clerks will be mounted to the video monitor rail provided at the Clerk’s Bench. Larger Courtrooms will be provided with (2) Clerk’s evidence displays, smaller courtrooms will be provided with one Clerk’s evidence display. The Court Reporter’s evidence display will use the included table stand for use at the Court Reporter’s desk.

Ceiling mounted, 12X zoom, pan, tilt, and zoom (PTZ) video cameras will be provided with one at the front and one at the rear of the Courtroom. The cameras will be used for video teleconferencing (VTC use), protected witness use, and can also be routed to the Judge’s evidence display for their use in observing persons seated in the gallery (as needed).

Wired HDMI and VGA video inputs, transmitted via HD Base-T, will be provided with (2) inputs at the Judge’s Bench, one input at the Clerk’s Bench and one input at each Litigant Table. Additional inputs to the video system include the feed from the Evidence Lectern, the feed from an associated Jury Room, the (2) PTZ video cameras, and the VTC system.

A Court standard, H.323 standards-based VTC system will be provided. The VTC system will be registered to the Court’s existing VTC bridge for multi-point VTC calls.

A card-frame video switcher with HD Base-T inputs and outputs will be provided. All video will be capable of both local display and of being transmitted to the far site during VTC use.

The Court’s standard evidence lectern will be provided. These lecterns are custom made, and fabrication / shop drawings must be coordinated to ensure that the latest generation of AV equipment is utilized so that the device cut outs are the appropriate size. The lectern includes a side drawer with a video document camera, a video preview monitor on the work surface, a touch panel controller on the surface, and a microphone. Additional cables for the connection of HDMI and VGA inputs from a laptop computer are provided. The touch panel at the evidence lectern is capable of controlling the Courtroom AV system as needed. An integral

equipment rack is provided in the lectern to house the video switcher / control system processor, Blu-Ray disc player, and a control system LAN switch.

The audio system provided will be the Court's standard audio system. Ceiling speakers will be provided for the Jury Box, Well Area and above the Gallery. The Judge will be provided with a control panel providing for both volume control of the Judge's microphone as well as a "husher" button. When activated, the "husher" will flood the Jury and Gallery ceiling speakers with pink noise to conceal any conversations occurring during Bench conferences. A compact, self-powered speaker with integral volume control will be provided under the Judge's Bench.

Court's standard gooseneck microphones will be provided for the Judge, Clerk, Witness, Litigant Tables, and Evidence Lectern. Two additional "button" microphone will be installed into the front and top of the Bench to record bench conferences.

A Court standard DSP (digital signal processing) system with telephone hybrid will be provided for all audio mixing, routing, and audio teleconferencing. The provided audio DSP units will include Dante digital audio networking for interconnection as well as to allow for a future, network audio based upgrade to the Central Recording system.

A Court Reporter audio output will be provided for use by a Stenographer. Two additional "Press" audio outputs will be provided with one on either side of the public entry door to the Courtroom for future use by the press (as permitted).

An infrared assistive listening system / interpretation system will be provided with (3) modulators and two emitter panels (with one at the front and one at the rear of the Courtroom). Interpreter's microphone inputs will be located at each Litigant's tables, at the Gallery Rail and at the Witness Stand.

A feed from the Clerk's PC will be provided for playback of recorded testimony. A typical CourtSmart control panel with a "cue / playback" switch as well as a headphone output will be provided for use by the Clerk.

A Clerk's Call Light in a small desktop enclosure, will be provided at the Clerk's Bench for notification that a Jury in an associated Jury Room requires their attention.

Control of the AV system will be via two wireless, 9" touch panels with tabletop docking stations, located at the Bench. One touch panel will be provided for the Judge and one will be provided for the Clerk. The control system touch panel pages will be based on those currently in use in the renovated 2nd Floor West Courtrooms.

5) Typical Jury Room

A 60” LCD / LED commercial TV will be provided for each Jury Room. Preferably, the Jury Rooms will be provided with a swing-out wall mount with a recessed back box. In spaces where a wall mounted display is not feasible due to ADA code issues, a ceiling mount will be provided for the display instead. Inputs to the TV include a wall plate with (1) HDMI input, (1) VGA input, a fixed PC (provided by the Courts), and a Blu Ray disc player.

Jury Rooms which are associated with a Courtroom will be provided with a microphone input as well for protected witness use in the Jury Room.

A protected witness, located in the Jury Room, with a portable microphone and video camera, will be displayed on the Courtroom video displays (on the display behind the Witness Stand). The protected witness will view and hear the Courtroom camera and audio feeds on the Jury Room TV. The protected witness is heard through the ceiling speakers in the Courtroom.

Each Jury Room will be provided with a 22” touch screen (located on the credenza) for control of the fixed PC. The fixed PC and touchscreen will be used for content selection when viewing of evidence by the Jury (with the JERs software).

The fixed PC, Blu-Ray disc player, and 22” touch screen will be located at the credenza in each typical Jury Room.

Each Jury Room will be provided with a 4” wall mounted touch panel for control of the AV system. The touch panel will be located by the door for itinerant access by the Clerk. Jury Rooms associated with a Courtroom will also use the touch panel to alert the Clerk (via the Courtroom Clerk Call Light) that their attention is required by the Jury.

6) Typical Conference Room

Each typical conference room is equipped with a 6” poke thru device at the conference table to provide power, data, and AV connections.

A commercial LCD / LED TV with swingout wall mount and recessed back box will be provided for each conference room. The basis of design is a 70” LCD.

Inputs to the TV include Cable TV, a wall plate with (2) HDMI inputs and a poke thru device under the conference table with (1) VGA input and an HDMI over HD Base-T extender.

The remote control provided with the TV will be used for control of the AV system.

A speaker phone will be provided by the Courts for audio teleconferencing.

7) Typical VTC Conference Room with Dual Displays

Each Typical VTC Conference Room with Dual Displays will be provided with either an adjacent AV closet (12 Sq Ft minimum) to house an AV equipment rack, or a custom AV credenza with integral equipment racks and ventilation will be provided.

Two or more 6” poke thru devices will be provided at the conference table to provide power, data, and AV connections. Some larger spaces, with a lectern presenting location, will be provided with a wall plate with additional AV inputs for presentations from this location.

Two 80” LCD TVs, mounted side-by-side will be provided for video teleconferencing (VTC) and presentation uses. The TVs will be provided with a swingout wall mount with a recessed back box.

A 12X zoom pan, tilt, and zoom video camera will be located above the displays and will be provided with a camera extension system to extend the camera video and control signals to the VTC codec located in the equipment rack. A second 12X zoom pan, tilt, and zoom video camera will be ceiling mounted at the rear of the space to capture a presenter. A similar camera cable extension system will be provided for the rear camera.

A Court standard, H.323 standards-based VTC system will be provided. The VTC system will be registered to the Court’s existing VTC bridge for multi-point VTC calls.

An 8X4 video switcher with integral control system processor and HD Base-T inputs and outputs will be provided. Inputs to the video system include a cable TV tuner, wireless presentation device, the VTC system and two HD Base-T inputs. These sources will be capable of both local display and of being transmitted to the far site during VTC use.

Each of the HD Base-T inputs will include dual HDMI and one VGA input each. The base design provides connections for both inputs from the conference table with one HD Base-T input at each of two poke thru devices. Alternatively, one HD Base-T input from the conference table could be replaced with one HD Base-T input from the wall plate lectern location (as required for each space layout).

Ceiling speakers will be provided for audio playback, audio teleconferencing, and VTC uses. A pair of ceiling pendant microphone arrays, with Beamtracking technology, will be provided for audio capture during audio and video teleconferencing. Please note that the layout and quantity of ceiling speakers and ceiling microphone arrays should be evaluated for each room. An audio digital signal processor (DSP) will be provided for audio mixing, routing, and audio teleconferencing uses.

Control of the audiovisual system will be via a wireless 9” touch panel. The touch panel will be provided with a docking station located at the credenza or side table in each space. The control system touch panel pages will be based the touch panel in use in the renovated Clerk of the Court’s Suite 2500 Conference Room.

8) Typical VTC Conference Room with Single Display

Each Typical VTC Conference Room with Single Display will be provided with either an adjacent AV closet (12 Sq Ft minimum) to house an AV equipment rack, or a custom AV credenza with integral equipment rack and ventilation will be provided.

Two or more 6” poke thru devices will be provided at the conference table to provide power, data, and AV connections.

A 70” LCD TV will be provided for video teleconferencing (VTC) and presentation uses. The TV will be provided with a swingout wall mount with a recessed back box.

A 12X zoom pan, tilt, and zoom video camera will be located above the displays and will be provided with a camera extension system to extend the camera video and control signals to the VTC codec located in the equipment rack. A second 12X zoom pan, tilt, and zoom video camera will be ceiling mounted at the rear of the space to capture the presenter. A similar camera cable extension system will be provided for the rear camera.

A Court standard, H.323 standards-based VTC system will be provided. The VTC system will be registered to the Court’s existing VTC bridge for multi-point VTC calls.

An 8X4 video switcher with integral control system processor and HD Base-T inputs and outputs will be provided. Inputs to the video system include a cable TV tuner, wireless presentation device, the VTC system and two HD Base-T inputs. These sources will be capable of both local display and of being transmitted to the far site during VTC use.

Each of the HD Base-T inputs will include dual HDMI and one VGA input each. The base design provides connections for both inputs from the conference table with one HD Base-T input at each of two poke thru devices. Alternatively, one HD Base-T input from the conference table could be replaced with one HD Base-T input from a wall plate location instead (as required for each space layout).

Ceiling speakers will be provided for audio playback, audio teleconferencing, and VTC uses. A pair of ceiling pendant microphone arrays, with Beamtracking technology, will be provided for audio capture during audio and video teleconferencing. Please note that the layout and quantity of ceiling speakers and ceiling microphone arrays should be evaluated for each room. An audio digital signal processor (DSP) will be provided for audio mixing, routing, and audio teleconferencing uses.

Control of the audiovisual system will be via a wireless 9” touch panel. The touch panel will be provided with a docking station located at the credenza or side table in each space. The control system touch panel pages will be based the touch panel in use in the renovated Clerk of the Court’s Suite 2500 Conference Room.

9) Typical Training Room with VTC

Each Typical Training Room with VTC (video teleconferencing) will be provided with either an adjacent AV closet (12 Sq Ft minimum) to house an AV equipment rack or a custom AV credenza with integral equipment racks and ventilation will be provided.

A 6” poke thru device will be provided at the instructor’s desk to provide power, data, and AV connections.

Computer training software to allow the instructor to control and display video from each student PC will be provided by the Courts.

The main display for the room will be a 70” Aquos Board interactive display, with touch screen. The interactive display is essentially a large wall-mounted LCD / LED display with touch screen and specialty pens for annotation over computer-based sources. The functionality is similar to a front-projection Smart Board, with the improved video quality of an LCD / LED display. The Aquos Board display ships with a low-profile, flat wall mount for interactive display use.

A second 70” LCD / LED TV will be provided for video teleconferencing (VTC) and presentation uses. For distance learning applications, this display may be located on the rear wall of the space to provide the instructor with a view of “remotely located” students while looking at the local participants. The 70” LCD TV will be provided with a swingout wall mount with a recessed back box.

A 12X zoom pan, tilt, and zoom video camera will be located above the front display and will be provided with a camera extension system to extend the camera video and control signals to the VTC codec located in the equipment rack. A second 12X zoom pan, tilt, and zoom video camera will be ceiling mounted at the rear of the space to capture the instructor. A similar camera cable extension system will be provided for the rear camera.

A Court standard, H.323 standards-based VTC system will be provided. The VTC system will be registered to the Court’s existing VTC bridge for multi-point VTC calls.

An 8X4 video switcher with integral control system processor and HD Base-T inputs and outputs will be provided. Inputs to the video system include a cable TV tuner, wireless

presentation device, the VTC system and two HD Base-T inputs. These sources will be capable of both local display and of being transmitted to the far site during VTC use.

Each of the two HD Base-T inputs will include dual HDMI and one VGA input each. One HD Base-T input will be at the instructor's desk poke thru device and one input is a wall plate location (as required for each space layout).

Ceiling speakers will be provided for audio playback, audio teleconferencing, and VTC uses. A pair of ceiling pendant microphone arrays, with Beamtracking technology, will be provided for audio capture during audio and video teleconferencing. Please note that the layout and quantity of ceiling speakers and ceiling microphone arrays should be evaluated for each room. A headset, wireless microphone will be provided for both local amplification of the instructor in the ceiling speakers as well as for voice capture for audio and video teleconferencing. An audio digital signal processor (DSP) will be provided for audio mixing, routing, and audio teleconferencing uses.

Control of the audiovisual system will be via a wired 7" touch panel located at the instructor's desk. The control system touch panel pages will be based the touch panel in use in the renovated Clerk of the Court's Suite 2500 Conference Room.

10) Typical Training Room without VTC

Each Typical Training Room without VTC (video teleconferencing) will be provided with either an adjacent AV closet (12 Sq Ft minimum) to house an AV equipment rack or a custom AV credenza with integral equipment rack and ventilation will be provided.

A 6" poke thru device will be provided at the instructor's desk to provide power, data, and AV connections.

Computer training software to allow the instructor to control and display video from each student PC will be provided by the Courts.

The main display for the room will be a 70" Aquos Board interactive display, with touch screen. The interactive display is essentially a large wall-mounted LCD / LED display with touch screen and specialty pens for annotation over computer-based sources. The functionality is similar to a front-projection Smart Board, with the improved video quality of an LCD / LED display. The Aquos Board display ships with a low-profile, flat wall mount for interactive display use.

A 10X2 video switcher with integral control system processor and HD Base-T inputs and outputs will be provided. Inputs to the video system include a cable TV tuner, wireless

presentation device and two HD Base-T inputs. These sources will be capable of both local display and of being transmitted to the far site during VTC use.

Each of the two HD Base-T inputs will include dual HDMI and one VGA input each. One HD Base-T input will be at the instructor's desk poke thru device and one input is a wall plate location (as required for each space layout).

Ceiling speakers will be provided for audio playback from video sources. A headset, wireless microphone will be provided for local amplification of the instructor in the ceiling speakers.

Control of the audiovisual system will be via a wired 7" touch panel located at the instructor's desk. The control system touch panel pages will be based the touch panel in use in the renovated Clerk of the Court's Suite 2500 Conference Room.

11) Typical Office and Lunch Room

A 50" commercial LCD / LED TV with swingout wall mount and recessed back box will be provided for each office designated to receive a wall mounted display as well as for each lunch room.

Inputs to the TV include Cable TV and a wall plate with (2) HDMI and (1) VGA inputs.

The remote control provided with the TV will be used for control of the AV system.

Typical Hearing Room

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment

2	Boundary Microphone for Bench	AKG	C562 CM	\$299	\$598	
1	Gooseneck Microphone for Judge	AKG	GN-15E	\$179	\$179	
4	Gooseneck Microphone for Clerk, Witness, and Litigants	AKG	GN-30E	\$199	\$796	
5	Microphone Capsules for Above	AKG	CK-31	\$89	\$445	
5	Microphone Stand with Push to Mute	Audio Technica	AT8666RSP	\$129	\$645	
1	Stereo Direct Box	Radial Engineering	JPC	\$200	\$200	
2	12x8 Audio DSP Mixer with AEC, Telephone Hybrid, and Dante Networking	Biamp	Tesira Forte DAN VT	\$4,198	\$8,396	
1	10 Port Dante Network Switch	Cisco	SG300-10	\$395	\$395	
1	Powered Speaker for Under Judge's Bench	Galaxy Audio	Hot Spot Nano NSPA	\$200	\$200	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
4	4" Ceiling Speaker	Atlas Sound	FAP-43T	\$142	\$568	
3	IR Modulator	Listen Technologies	LT-82-01	\$689	\$2,067	
2	Rack Kit for Above	Listen Technologies	LA-326	\$65	\$130	
1	IR Emitter Panel	Listen Technologies	LA-140-GY	\$795	\$795	
6	Stethoscope Receiver for Above	Listen Technologies	LR-42	\$199	\$1,194	
1	8 Unit Charger for Above	Listen Technologies	LA-350-01	\$299	\$299	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Video Equipment						
1	8x4 HDMI / HDBT Video Matrix	Crestron	DMPS3-4K-350-C	\$10,000	\$10,000	
1	POE over DM Power Supply for Above	Crestron	PW-4830DUS	\$500	\$500	
2	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$3,000	
1	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$900	
1	HDMI over HDBT TX/RX Set	Crestron	HD-EXT3-C	\$1,000	\$1,000	
1	80", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE801	\$4,195	\$4,195	
1	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$368	
1	Camera Shelf for Above	Chief	FCA810	\$131	\$131	
1	VTC Codec with 12X Zoom PTZ Camera	Polycom	Group 500 (7200-64250-001)	\$10,999	\$10,999	
1	1 Year Service Plan for Above (Required for Puchase)	Polycom	4870-64250-112	\$1,320	\$1,320	
1	RS-232 to Din Cable	Polycom	2457-63542-001	\$50	\$50	
1	VTC Camera Extender Over CAT-X Cabling	Sound Control Technologies	RC4-E4P	\$1,809	\$1,809	
1	Rack Shelf for Codec	Middle Atlantic	RSH4A2S Polycom Group 500	\$189	\$189	

Control System Equipment						
2	7" Wired Touch Panel	Crestron	TSW-760-B-S	\$1,400	\$2,800	
2	Table Top Kit for Above	Crestron	TSW-760-TTK-B-S	\$250	\$500	
1	10 Port POE+, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-10PP	\$516	\$516	

Equipment Rack, Wall Plates, Misc. Equipment						
4	Custom Wall Plates for Judge, Clerk, Witness, and Court Reporter	Custom	Custom - See Plans	\$150	\$600	
2	AV Inserts for Litigant Table Poke Thru Devices	Custom	Custom - See Plans	\$150	\$300	
1	Judge's Husher Control Plate	Custom	Custom - See Plans	\$150	\$150	
1	CourtSmart Control Plate	Custom	Custom - See Plans	\$150	\$150	
2	2 Gang Desktop Box for Above	FSR	DSKB-2G	\$80	\$160	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$60,956
Estimated Installation Cost:	\$15,239
Total Cost for Equipment and Installation:	\$76,195

Typical Hearing Room (w/o Video)

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment						
2	Boundary Microphone for Bench	AKG	C562 CM	\$299	\$598	
1	Gooseneck Microphone for Judge	AKG	GN-15E	\$179	\$179	
4	Gooseneck Microphone for Clerk, Witness, and Litigants	AKG	GN-30E	\$199	\$796	
5	Microphone Capsules for Above	AKG	CK-31	\$89	\$445	
5	Microphone Stand with Push to Mute	Audio Technica	AT8666RSP	\$129	\$645	
1	Stereo Direct Box	Radial Engineering	JPC	\$200	\$200	
2	12x8 Audio DSP Mixer with AEC, Telephone Hybrid, and Dante Networking	Biamp	Tesira Forte DAN VT	\$4,198	\$8,396	
1	10 Port Dante Network Switch	Cisco	SG300-10	\$395	\$395	
1	Powered Speaker for Under Judge's Bench	Galaxy Audio	Hot Spot Nano NSPA	\$200	\$200	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
4	4" Ceiling Speaker	Atlas Sound	FAP-43T	\$142	\$568	
3	IR Modulator	Listen Technologies	LT-82-01	\$689	\$2,067	
2	Rack Kit for Above	Listen Technologies	LA-326	\$65	\$130	
1	IR Emitter Panel	Listen Technologies	LA-140-GY	\$795	\$795	
6	Stethoscope Receiver for Above	Listen Technologies	LR-42	\$199	\$1,194	
1	8 Unit Charger for Above	Listen Technologies	LA-350-01	\$299	\$299	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Control System Equipment						
1	Control System Processor	Crestron	RMC3	\$1,000	\$1,000	
2	7" Wired Touch Panel	Crestron	TSW-760-B-S	\$1,400	\$2,800	
2	Table Top Kit for Above	Crestron	TSW-760-TTK-B-S	\$250	\$500	
1	10 Port POE+, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-10PP	\$516	\$516	

Equipment Rack, Wall Plates, Misc. Equipment						
4	Custom Wall Plates for Judge, Clerk, Witness, and Court Reporter	Custom	Custom - See Plans	\$150	\$600	
2	AV Inserts for Litigant Table Poke Thru Devices	Custom	Custom - See Plans	\$150	\$300	
1	Judge's Husher Control Plate	Custom	Custom - See Plans	\$150	\$150	
1	CourtSmart Control Plate	Custom	Custom - See Plans	\$150	\$150	
2	2 Gang Desktop Box for Above	FSR	DSKB-2G	\$80	\$160	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$27,495
Estimated Installation Cost:	\$6,874
Total Cost for Equipment and Installation:	\$34,369

Typical Courtroom

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment						
2	Boundary Microphone for Bench	AKG	C562 CM	\$299	\$598	
1	Gooseneck Microphone for Judge	AKG	GN-15E	\$179	\$179	
6	Gooseneck Microphone for Clerk, Witness, and Litigants	AKG	GN-30E	\$199	\$1,194	(4) Required for smaller Courtrooms
7	Microphone Capsules for Above	AKG	CK-31	\$89	\$623	(5) Required for smaller Courtrooms
7	Microphone Stand with Push to Mute	Audio Technica	AT8666RSP	\$129	\$903	(4) Required for smaller Courtrooms
1	Stereo Direct Box	Radial Engineering	JPC	\$200	\$200	
2	12x8 Audio DSP Mixer with AEC, Telephone Hybrid, and Dante Networking	Biamp	Tesira Forte DAN VT	\$4,198	\$8,396	
1	10 Port Dante Network Switch	Cisco	SG300-10	\$395	\$395	
1	Powered Speaker for Under Judge's Bench	Galaxy Audio	Hot Spot Nano NSPA	\$200	\$200	Under Judge's Bench, volume control on front, requires 120 VAC at nearest outlet
2	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$800	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
12	6" Ceiling Speaker	Atlas Sound	FAP-63T	\$230	\$2,760	
3	IR Modulator	Listen Technologies	LT-82-01	\$689	\$2,067	
2	Rack Kit for Above	Listen Technologies	LA-326	\$65	\$130	
2	IR Emitter Panel	Listen Technologies	LA-140-GY	\$795	\$1,590	
6	Stethoscope Receiver for Above	Listen Technologies	LR-42	\$199	\$1,194	
1	8 Unit Charger for Above	Listen Technologies	LA-350-01	\$299	\$299	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Video Equipment

1	16x16 Video Matrix Card Frame	Crestron	DM-MD16X16	\$8,600	\$8,600	
10	HDBT / DM Input Card for Above	Crestron	DMC-4K-C-DSP-HDCP2	\$1,300	\$13,000	
5	HDMI Input Card for Above	Crestron	DMC-4K-HD-DSP-HDCP2	\$1,000	\$5,000	
1	DVI-D w/ audio Input Card for Above	Crestron	DMC-DVI	\$800	\$800	
5	Dual HDBT / DM Output Card for Above	Crestron	DMC-4K-CO-HD-HDCP2	\$1,300	\$6,500	
2	Dual HDMI w/ Scaler and Audio Card for Above	Crestron	DMC-4K-HDO	\$1,800	\$3,600	
2	16 Port POE+ Power Supply for Above	Crestron	DM-PSU-16-Plus	\$1,750	\$3,500	
7	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$10,500	
9	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$8,100	
1	90", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE901	\$6,795	\$6,795	Main Jury Display
3	60", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE601	\$1,325	\$3,975	For Behind Jury Box and (2) Ceiling Mounted for Gallery
2	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$736	For Jury and Behind Witness Box
2	Recessed In-Wall Backbox for Above	Premier Mounts	INW-AM325	\$595	\$1,190	Recesses mount above into wall cavity
2	Ceiling Mount for Above (Alternate Mount)	Premier Mounts	ECM-3763S	\$299	\$598	For Gallery Displays
1	VTC Codec Only	Polycom	Group 500 (J7200-65088-001)	\$6,999	\$6,999	
1	1 Year Service Plan for Above (Required for Purchase)	Polycom	4870-64250-112	\$1,320	\$1,320	
2	Ceiling Mount PTZ Camera with 12X Zoom and CCU	Vaddio	Roboshot 12 QDVI	\$5,242	\$10,484	
2	Mud Ring for Above Cameras	Soundtube	CM660	\$75	\$150	
1	Rack Shelf for Codec	Middle Atlantic	RSH4A2S Polycom Group 500	\$189	\$189	
5	22" Touch Screen	Planar	PXL-2230	\$260	\$1,300	(4) Required for Smaller Courtrooms
2	Low Profile LCD Desk Mount for Judge's and Witness Evidence Touchscreen	Innovative Workspaces	IOP 9109-S-104	\$275	\$550	Posts cut down to 6" for low-profile use
1	Video Annotation Device	Pointmaker	CR-100	\$3,695	\$3,695	Prints to color laserjet at Clerk's Desk

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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USB Equipment						
5	USB Over CAT-6 Extender	Pointmaker	EXT-USB-1	\$115	\$575	(4) Required in Smaller Courtrooms
2	USB Hub	IO Gear	GUH-274	\$250	\$500	
1	10 Port POE+, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-10PP	\$516	\$516	

Evidence Lectern Equipment						
1	10x2 HDMI / HDBT Video Matrix	Crestron	DMP53-4K-150-C	\$5,000	\$5,000	
1	7" Wired Touch Panel	Crestron	TSW-760-B-S	\$1,400	\$1,400	
1	Blu Ray Disc Player	LG	BP350	\$100	\$100	
1	Rack Shelf for Above	Middle Atlantic	RSH4A2S LGBP350	\$189	\$189	
1	Gooseneck Microphone for Evidence Lectern	AKG	GN-30E	\$199	\$199	
1	Microphone Capsules for Above	AKG	CK-31	\$89	\$89	
1	Microphone Stand with Push to Mute	Audio Technica	AT8666RSP	\$129	\$129	
1	Document Camera, 1080P	Wolfvision	VZ-8 Light IV	\$3,790	\$3,790	
1	7" LED Preview Monitor with HDMI Input	Marshall	V-LED70W-FH	\$559	\$559	
1	8 Port, POE Manged Switch for Above	Cisco	SF302-08PP	\$516	\$516	

Control System Equipment						
1	Control System Processor	Crestron	PRO3	\$5,300	\$5,300	
2	9" Wireless Touch Panel w/ Table Dock	Crestron	TST-902	\$3,800	\$7,600	
1	Wireless Gateway for Above	Crestron	CEN-GWEXER	\$450	\$450	Under Clerk's Bench
1	POE+ Injector for Above	Trendnet	TPE-115GI	\$85	\$85	Under Clerk's Bench
1	20 Port, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-20	\$546	\$546	

Equipment Rack, Wall Plates, Misc. Equipment						
9	Custom Wall Plates for Judge, Clerk, Witness, Court Reporter, Interpreter and	Custom	Custom - See Plans	\$150	\$1,350	
4	AV Inserts for Litigant Table Floor Boxes	Custom	Custom - See Plans	\$150	\$600	(2) Required in smaller Courtrooms
2	AV Inserts for Evidence Lectern Floor Boxes	Custom	Custom - See Plans	\$150	\$300	(1) Required in smaller Courtrooms
1	Judge's Husher Control Plate	Custom	Custom - See Plans	\$150	\$150	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
1	CourtSmart Control Plate	Custom	Custom - See Plans	\$150	\$150	
2	2 Gang Desktop Box for Above	FSR	DSKB-2G	\$80	\$160	
1	Clerk Call Light Plate	Custom	Custom - See Plans	\$175	\$175	Alerts clerk that their attention is needed in corresponding Jury Room
1	1 Gang Desktop Box for Above	FSR	DSKB-1G	\$75	\$75	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$153,624
Estimated Installation Cost:	\$38,406
Total Cost for Equipment and Installation:	\$192,030

Typical Jury Room						
DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes	

Video Equipment						
1	Blu Ray Disc Player	LG	BP350	\$100	\$100	
1	60", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE601	\$1,325	\$1,325	
1	Swingout Wall Mount for Above (Typical Mount)	Premier Mounts	AM-175	\$368	\$368	Wall mounted preferred
0	Ceiling Mount Mount for Above (Alternate Mount)	Premier Mounts	ECM-3763S	\$299	\$0	Ceiling mounted when required
1	Custom Wall Plate	Custom	Custom - See Plans	\$100	\$100	
1	1 X 2 HDMI Distribution Amplifier	Extron	DA2 HD 4K	\$250	\$250	
1	22" Touch Screen	Planar	PXL-2230	\$260	\$260	
1	4" Wall Mounted Touch Panel	Crestron	TPMC-4SM-W-S	\$1,100	\$1,100	To be provided with associated Courtroom AV System
1	HDMI to HDBT Transmitter	Crestron	DM-TX-4K-302-C	\$1,500	\$1,500	To be provided with associated Courtroom AV System
1	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$900	To be provided with associated Courtroom AV System

Total List Price for Equipment:	\$5,903
Estimated Installation Cost:	\$2,500
Total Cost for Equipment and Installation:	\$8,403

Typical Conference Room						
DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes	

Video Equipment						
1	70", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE701	\$1,850	\$1,850	
1	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$368	
1	Custom Wall Plate	Custom	Custom - See Plans	\$100	\$100	
1	AV Inserts for Poke Thru Device	Custom	Custom - See Plans	\$150	\$150	
1	HDMI over HDBT TX/RX Set	Crestron	HD-EXT3-C	\$1,000	\$1,000	

Total List Price for Equipment:	\$3,468
Estimated Installation Cost:	\$1,250
Total Cost for Equipment and Installation:	\$4,718

Typical VTC Conference Room with Dual Displays

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment

1	4x4 Audio DSP Mixer with AEC, Telephone Hybrid, and AVB Networking	Biamp	Tesira Forte AVB VT4	\$2,798	\$2,798	
1	Beamtracking Microphone for Above	Biamp	TCM-1	\$1,598	\$1,598	
1	Expansion Beamtracking Microphone for Above	Biamp	TCM-1EX	\$850	\$850	
1	POE+ Injector for Above	Trendnet	TPE-115GI	\$85	\$85	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
6	6" Ceiling Speaker	Atlas Sound	FAP-63T	\$230	\$1,380	

Video Equipment

1	8x4 HDMI / HDBT Video Matrix	Crestron	DMPS3-4K-350-C	\$10,000	\$10,000	
1	POE over DM Power Supply for Above	Crestron	PW-4830DUS	\$500	\$500	
2	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$3,000	
2	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$1,800	
2	80", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE801	\$4,195	\$8,390	
2	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$736	
1	Camera Shelf for Above	Chief	FCA810	\$131	\$131	
1	VTC Codec with 12X Zoom PTZ Camera	Polycom	Group 700 (7400-64270-001)	\$16,999	\$16,999	
1	Additional 12X Zoom PTZ Camera for Above	Polycom	8200-64350-001	\$4,299	\$4,299	
1	1 Year Service Plan for Above (Required for Purchase)	Polycom	4872-64270-112	\$2,295	\$2,295	
2	VTC Camera Extender Over CAT-X Cabling	Sound Control Technologies	RC4-E4P	\$1,809	\$3,618	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
1	Wall Mount for Rear Camera	Sound Control Technologies	RCM-EE4	\$150	\$150	
1	Cable TV Tuner	TBD	By DC Courts / Comcast	\$0	\$0	
1	Wireless Presentation Device with (2) USB Transmitters	Barco	Clickshare CSE-2000	\$1,750	\$1,750	

Control System Equipment						
1	9" Wireless Touch Panel w/ Table Dock	Crestron	TST-902	\$3,800	\$3,800	
1	Wireless Gateway for Above	Crestron	CEN-GWEXER	\$450	\$450	
1	10 Port Managed Network Switch for Control System	Cisco	SG300-10	\$395	\$395	

Equipment Rack, Wall Plates, Misc. Equipment						
2	AV Inserts for Poke Thru Devices	Custom	Custom - See Plans	\$150	\$300	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
2	2 RU Rack Shelf	Middle Atlantic	U2	\$78	\$156	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$69,892
Estimated Installation Cost:	\$17,473
Total Cost for Equipment and Installation:	\$87,365

Typical VTC Conference Room with Single Display

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment

1	4x4 Audio DSP Mixer with AEC, Telephone Hybrid, and AVB Networking	Biamp	Tesira Forte AVB VT4	\$2,798	\$2,798	
1	Beamtracking Microphone for Above	Biamp	TCM-1	\$1,598	\$1,598	
1	Expansion Beamtracking Microphone for Above	Biamp	TCM-1EX	\$85	\$85	
1	POE+ Injector for Above	Trendnet	TPE-115GI	\$850	\$850	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
4	6" Ceiling Speaker	Atlas Sound	FAP-63T	\$230	\$920	

Video Equipment

1	8x4 HDMI / HDBT Video Matrix	Crestron	DMPS3-4K-350-C	\$10,000	\$10,000	
1	POE over DM Power Supply for Above	Crestron	PW-4830DUS	\$500	\$500	
2	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$3,000	
1	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$900	
1	70", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE701	\$1,850	\$1,850	
1	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$368	
1	Camera Shelf for Above	Chief	FCA810	\$131	\$131	
1	VTC Codec with 12X Zoom PTZ Camera	Polycom	Group 500 (7200-64250-001)	\$10,999	\$10,999	
1	1 Year Service Plan for Above (Required for Purchase)	Polycom	4870-64250-112	\$1,320	\$1,320	
1	RS-232 to Din Cable	Polycom	2457-63542-001	\$50	\$50	
1	VTC Camera Extender Over CAT-X Cabling	Sound Control Technologies	RC4-E4P	\$1,809	\$1,809	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
1	Rack Shelf for Codec	Middle Atlantic	RSH4A2S Polycom Group 500	\$189	\$189	
1	Cable TV Tuner	TBD	By DC Courts / Comcast	\$0	\$0	
1	Wireless Presentation Device with (2) USB Transmitters	Barco	Clickshare CSE-2000	\$1,750	\$1,750	

Control System Equipment						
1	9" Wireless Touch Panel w/ Table Dock	Crestron	TST-902	\$3,800	\$3,800	
1	Wireless Gateway for Above	Crestron	CEN-GWEXER	\$450	\$450	
1	10 Port Managed Network Switch for Control System	Cisco	SG300-10	\$395	\$395	

Equipment Rack, Wall Plates, Misc. Equipment						
2	AV Inserts for Poke Thru Devices	Custom	Custom - See Plans	\$150	\$300	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
2	2 RU Rack Shelf	Middle Atlantic	U2	\$78	\$156	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$48,630
Estimated Installation Cost:	\$12,158
Total Cost for Equipment and Installation:	\$60,788

Typical Training Room with VTC

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment

1	Wireless Microphone with Beltpack Transmitter and Receiver	Audio Technica	ATW-1301	\$500	\$500	
1	Headset Microphone for Above - Beige	Audio Technica	BP892	\$399	\$399	
1	4x4 Audio DSP Mixer with AEC, Telephone Hybrid, and AVB Networking	Biamp	Tesira Forte AVB VT4	\$2,798	\$2,798	
1	Beamtracking Microphone for Above	Biamp	TCM-1	\$1,598	\$1,598	
1	Expansion Beamtracking Microphone for Above	Biamp	TCM-1EX	\$850	\$850	
1	POE+ Injector for Above	Trendnet	TPE-115GI	\$85	\$85	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
4	6" Ceiling Speaker	Atlas Sound	FAP-63T	\$230	\$920	

Video Equipment

1	8x4 HDMI / HDBT Video Matrix	Crestron	DMPS3-4K-350-C	\$10,000	\$10,000	
1	POE over DM Power Supply for Above	Crestron	PW-4830DUS	\$500	\$500	
2	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$3,000	
2	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$1,800	
1	70", 1080P, Commercial LCD TV with Tuner and Speakers	Sharp	PN-LE701	\$1,850	\$1,850	
1	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$368	
1	Camera Shelf for Above	Chief	FCA810	\$131	\$131	
1	70" Interactive Aquos Board LCD Display with Wall Mount	Sharp	PN-C705B	\$4,695	\$4,695	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
1	USB Over CAT-6 Extender for Above	IO GEAR	GUCE51	\$45	\$45	
1	VTC Codec with 12X Zoom PTZ Camera	Polycom	Group 700 (7400-64270-001)	\$16,999	\$16,999	
1	Additional 12X Zoom PTZ Camera for Above	Polycom	8200-64350-001	\$4,299	\$4,299	
1	1 Year Service Plan for Above (Required for Purchase)	Polycom	4872-64270-112	\$2,295	\$2,295	
2	VTC Camera Extender Over CAT-X Cabling	Sound Control Technologies	RC4-E4P	\$1,809	\$3,618	
1	Wall Mount for Rear Camera	Sound Control Technologies	RCM-EE4	\$150	\$150	
1	Cable TV Tuner	TBD	By DC Courts / Comcast	\$0	\$0	
1	Wireless Presentation Device with (2) USB Transmitters	Barco	Clickshare CSE-2000	\$1,750	\$1,750	

Control System Equipment

1	7" Wired Touch Panel	Crestron	TSW-760-B-S	\$1,400	\$1,400	
1	Table Top Kit for Above	Crestron	TSW-760-TTK-B-S	\$250	\$250	
1	10 Port POE+, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-10PP	\$516	\$516	

Equipment Rack, Wall Plates, Misc. Equipment

1	AV Inserts for Poke Thru Devices	Custom	Custom - See Plans	\$150	\$150	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
2	2 RU Rack Shelf	Middle Atlantic	U2	\$78	\$156	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$65,534
Estimated Installation Cost:	\$16,384
Total Cost for Equipment and Installation:	\$81,918

Typical Training Room without VTC

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Audio Equipment						
1	Wireless Microphone with Beltpack Transmitter and Receiver	Audio Technica	ATW-1301	\$500	\$500	
1	Headset Microphone for Above - Beige	Audio Technica	BP892	\$399	\$399	
1	Stereo 60 W Power Amplifier	Lab Gruppen	Lucia 60/2	\$400	\$400	
1	Rack Kit for Above	Lab Gruppen	990692002	\$40	\$40	
4	6" Ceiling Speaker	Atlas Sound	FAP-63T	\$230	\$920	

Video Equipment						
1	10x2 HDMI / HDBT Video Matrix	Crestron	DMPS3-4K-150-C	\$5,000	\$5,000	
2	HDMI to HDBT Transmitter for Above	Crestron	DM-TX-4K-302-C	\$1,500	\$3,000	
1	HDBT to HDMI Receiver / Room Controller for Above	Crestron	DM-RMC-4K-100-C	\$900	\$900	
1	70" Interactive Aquos Board LCD Display with Wall Mount	Sharp	PN-C705B	\$4,695	\$4,695	
1	USB Over CAT-6 Extender for Above	IO GEAR	GUCE51	\$45	\$45	
1	Cable TV Tuner	TBD	By DC Courts / Comcast	\$0	\$0	
1	Wireless Presentation Device with (2) USB Transmitters	Barco	Clickshare CSE-2000	\$1,750	\$1,750	

Control System Equipment						
1	7" Wired Touch Panel	Crestron	TSW-760-B-S	\$1,400	\$1,400	
1	Table Top Kit for Above	Crestron	TSW-760-TTK-B-S	\$250	\$250	
1	10 Port POE+, 1 GB Managed Lan Switch for AV Control System	Cisco	SG300-10PP	\$516	\$516	

QTY	DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Equipment Rack, Wall Plates, Misc. Equipment						
1	AV Inserts for Poke Thru Devices	Custom	Custom - See Plans	\$150	\$150	
1	44 RU Equipment Rack	Middle Atlantic	WRK-44-27LRD	\$1,516	\$1,516	
1	Vent Top for Above	Middle Atlantic	MW-VT	\$74	\$74	
1	Caster Base for Above	Middle Atlantic	CBS-WRK-27	\$234	\$234	
1	Side Panels for Above	Middle Atlantic	SPN-44-267	\$654	\$654	
1	Power Sequencing Controller	Juice Goose	CQ-1520	\$509	\$509	
1	Power Strip for Above	Middle Atlantic	PDT-1615C-NS	\$209	\$209	
1	2 RU Rack Drawer	Middle Atlantic	D2	\$216	\$216	
2	2 RU Rack Shelf	Middle Atlantic	U2	\$78	\$156	
1	700 W - 1000 VA Rackmount UPS for Audio DSP	APC	SMT1000RM2U	\$560	\$560	

Total List Price for Equipment:	\$24,093
Estimated Installation Cost:	\$6,023
Total Cost for Equipment and Installation:	\$30,116

Typical Office and Lunch Room

DESCRIPTION	MANUFACTURER	MODEL	LIST PRICE EACH	PRICE EXTENDED	Notes
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Video Equipment						
1	50", 1080P, Commercial LCD TV with Tuner	NEC	E506	\$839	\$839	
1	Swingout Wall Mount for Above	Premier Mounts	AM-175	\$368	\$368	
1	Custom Wall Plate	Custom	Custom - See Plans	\$100	\$100	

Total List Price for Equipment: \$1,307 Estimated Installation Cost: \$327 Total Cost for Equipment and Installation: \$1,634
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