

## Appendix 3F(iv) A/V and Video Conferencing Standard

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### **1. Introduction**

The Authority uses meeting and conference rooms for a variety of purposes. All new construction will have a mix of each type of room type as identified below. A significant percentage of these rooms will contain video conferencing and/or projector/screen functionality. Those rooms that do not have either video conferencing or projector/screens are smaller than 3 meters by 3 meters and will be equipped with power, phone and data to enable the use of portable video conferencing equipment.

This document describes the various room types and how the Authority tends to use these rooms from an audio/video perspective.

### **2. Typical Meeting/Conference Room Setup**

The Authority provides a variety of different meeting/conference room types. Each room type has different standard setup and equipment requirements as enumerated below.

#### Standard Room Setups

1. Meeting Room Setup.

This is typical of smaller rooms where the rooms are used predominantly as meeting rooms.

The smaller of these will usually have a Polycom Conference Phone at minimum while the larger of these may also be small video conference rooms or, possibly, the Emergency Operations Centre (EOC) for the facility.

2. Conference/Presentation Room Setup.

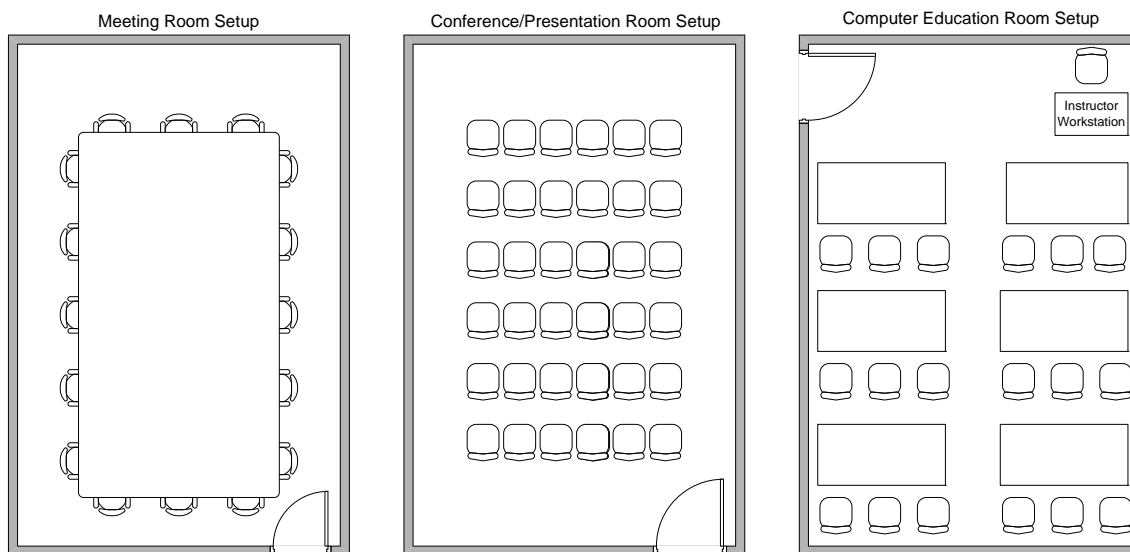
Larger rooms usually default to this room setup. These rooms are usually video conference rooms as well. Some may come as dividable rooms where the video conferencing component(s) will need to provide audio/video switching to either room or both rooms together.

3. Computer Education Room Setup

Most facilities have one fixed Computer Education Rooms. These are used primarily for computer related training activities.

Each room type will have a default room style as identified in Figure 1 below. In order to provide for maximum flexibility we require that each room type is configurable, at least to some degree, into each of these room styles. This typically means some number of in-slab floor boxes each containing power, data, video and audio connections that are routable to the audio/video equipment contained in the room or to the computer equipment that will be used for presentations.

**Figure 1 - Standard Room Setups**



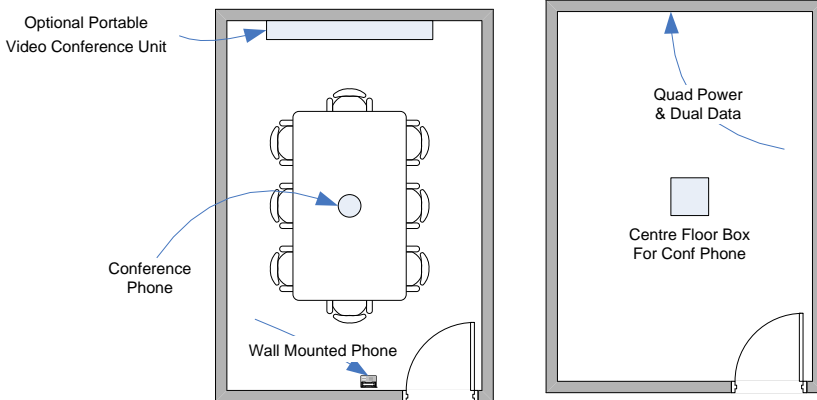
### 3. Room Types

Rooms can be loosely categorized as noted below. There are variations on these room types that may see rooms not normally equipped with video conferencing having fixed video conferencing. Rooms may also be split, using folding wall panels, into either two or three adjacent rooms which can be opened up into one or more conference rooms. See Table 1 at the end of this appendix for details on the functionality required in each room type.

#### Basic Meeting Room

This is a typically a small, department focused meeting space with a central table(s) usually meeting room setup (see Typical Meeting/Conference Room Setup) below. These rooms will have only a Polycom Conference Phone as standard equipment, but will be equipped with power and data to support a portable video conferencing unit.

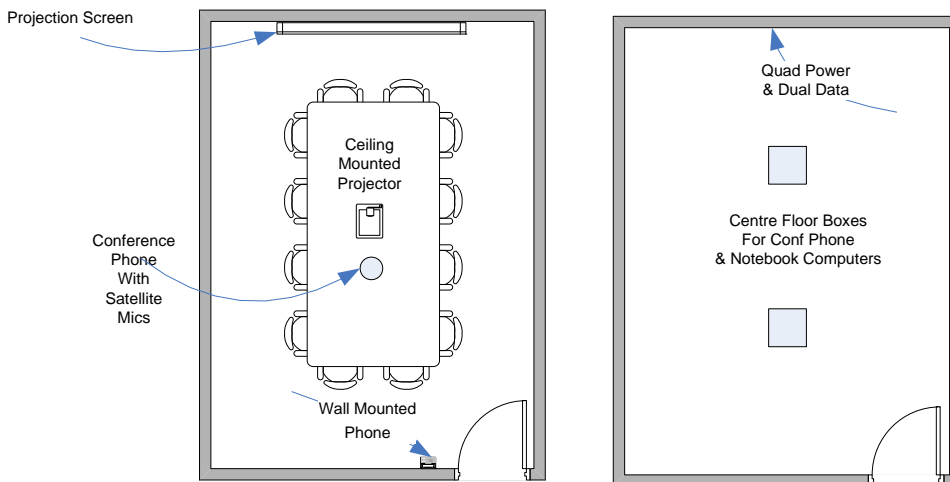
**Figure 2 - Basic Meeting Room**



### Projector Only Room

These rooms may be department or secondary larger meeting rooms in a building wing or floor. They contain a ceiling mounted projector and projection screen along with a Polycom conference phone, but do not have video conferencing or audio functionality except via a portable video conferencing unit. Default setup is typically meeting, but may also be conference.

**Figure 3 - Projector Only Meeting Room**

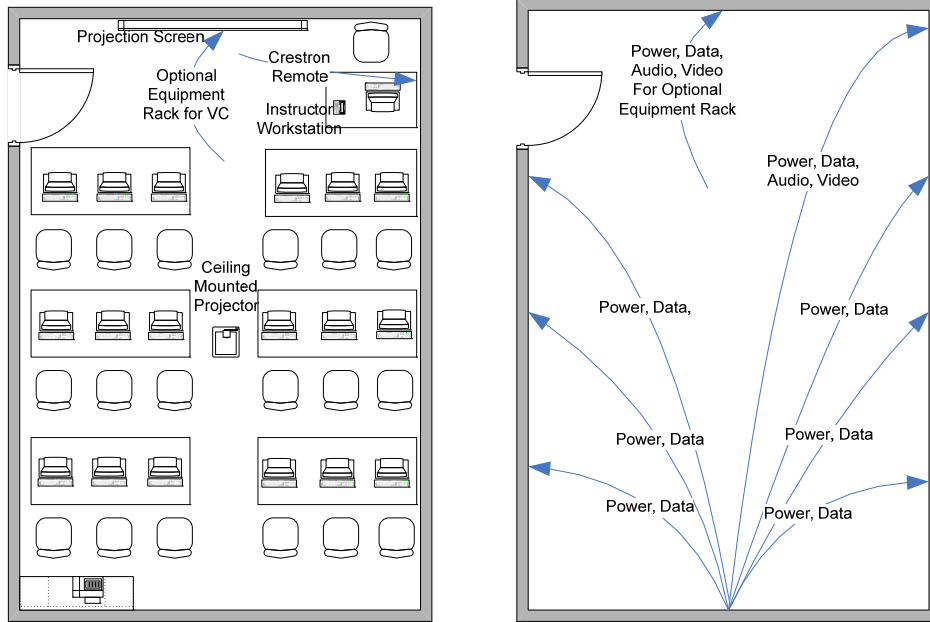


### Education Room

These are rooms dedicated to computer training. They are configured in classroom/education format and will be equipped with fixed student desks with computers facing the front of the room and an instructor workstation with computer at the front of the room to one side of the projection screen. Each of these rooms is equipped with a projector and screen with audio/video cabling routed to the

instructor workstation. Increasingly these rooms also have video conferencing functionality as education is now often provided via education institution video conferencing.

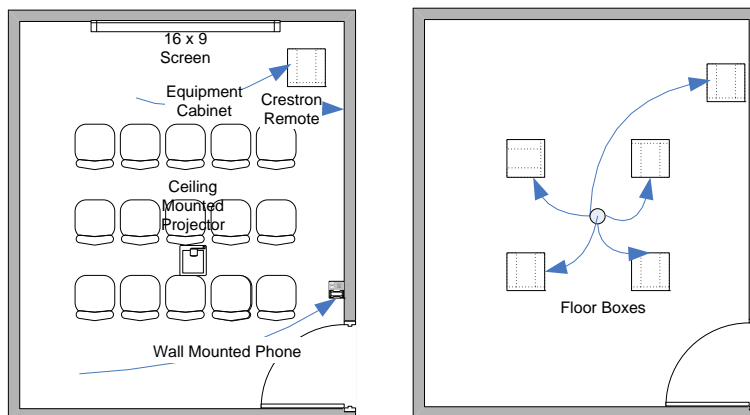
**Figure 4 – Computer Education Room**



**Small Video Conference Room**

Small Video Conference rooms are usually smaller conference/meeting rooms used for video conferencing. They contain fixed video conference setups and are usually set up by default in conference format. They may also be a one half/one third of a split room arrangement.

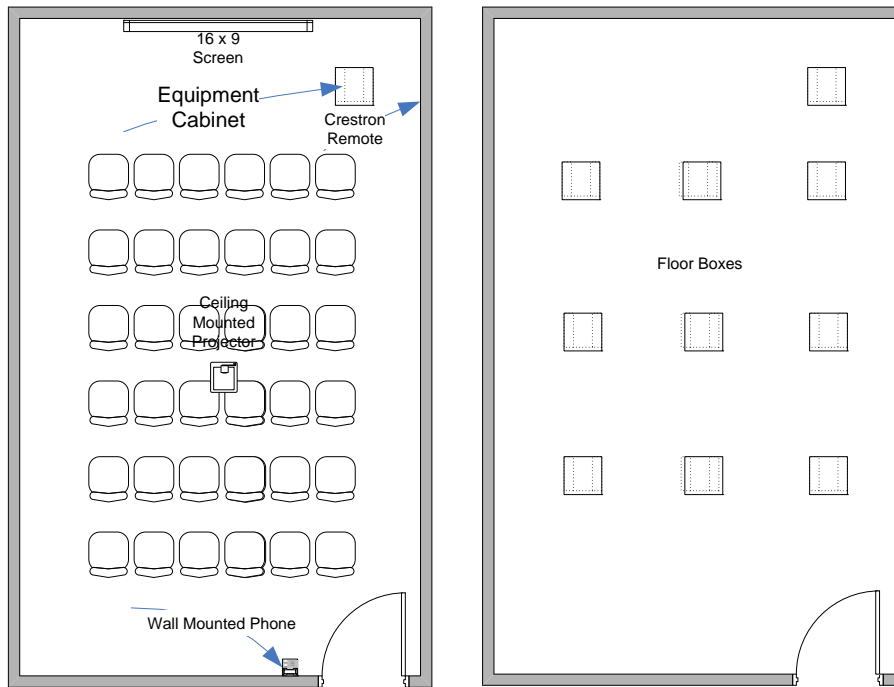
**Figure 5 - Small Conference Room**



## Large Video Conference Room

Most buildings will have one or two large conference room. These are essentially always set up as fixed video conferencing rooms and will have the most sophisticated video conferencing capability including optional podiums and monitors for the presenter to see the far end of the conference. They may also be provided as split able rooms in configurations of either two or three adjacent rooms.

**Figure 6 - Large Conference Room**



## 4. Video Conferencing Infrastructure

In order to provide for the flexibility to configure most rooms in a variety of ways we require in-slab floor boxes containing power, data, audio and video connections. Connections provided from the floor boxes are consolidated and switchable in the equipment cabinet located at the front of the room. See Figure 7 below for a pictorial view of in-slab services required.

### Floor Boxes

Enough floor boxes are required to enable a small or large videoconference room to be used as a computer education room, should the Authority wish to temporarily provide this type of service in a videoconference room. Floor boxes will be located such that the front left and right boxes will support the requirements for a table mounted connection box containing power, data, audio and video such that a laptop could plug in to provide an audio/video presentation through the room's sound and video

facilities. Power and data are required to enable power and network port for a presentation laptop or other laptops.

As well, a floor box will be located under the equipment cabinet in each room. This cabinet will be the switching and consolidation hub for the room. Conduit is required to support power, data, audio and video feeds from the room's projector(s), as well as from each other in-floor box.

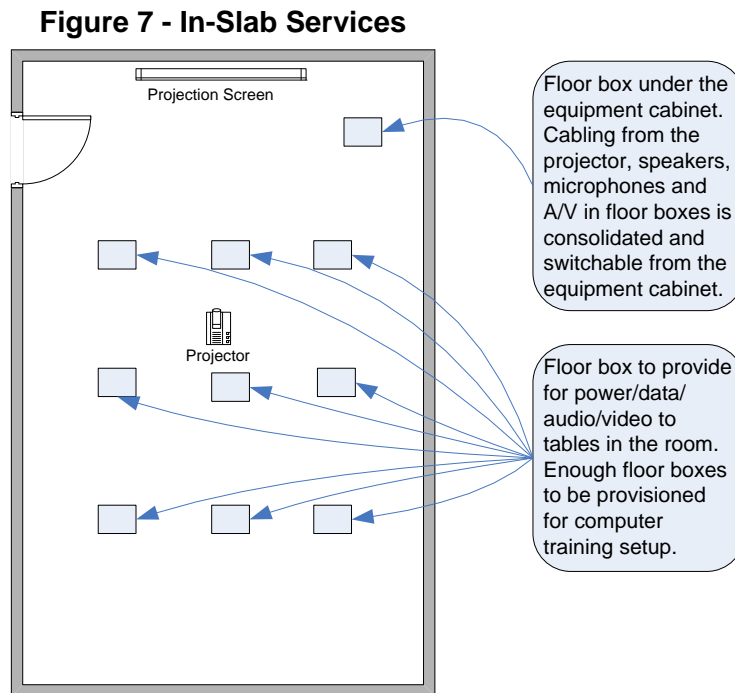
### In Floor Service Requirements

Each in-floor box will have at minimum:

- Quad power
- 3 data drops
- One video connection (VGA, HDMI or DVI)
- One audio connection

### Conduit

Separate power and low voltage conduit leading from each floor box to an adjoining wall is required. Conduit will be sized, at minimum, to accommodate the largest video or audio connector utilized at the time of construction (eg. VGA, HDMI, DVI, etc). Conduit will also run from the equipment cabinet floor box to either the front or near side wall so it can be linked with the projector and/or monitors required in the room.



## **5. Furniture & Equipment**

Furniture and Equipment is detailed in the Equipment List and in the following Table 1.

**Table 1 – Typical Meeting /Conference Room Requirements**

Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
<b>Furniture</b>						
<b>Equipment Cabinet</b>			At minimum the computer education room will have video from the ceiling mounted projector and audio from computer based presentations. Increasingly we are also providing a fixed video conference setup in these rooms as education materials are increasingly provided via video conference. A lockable A/V cabinet is required to be located on the front wall under the screen. Unlocked access is required to VCR/DVD player where provided	A/V equipment cabinet located to the side of or either side (outside) of the screens depending on room layout and whether room contains dividing doors. Equipment cabinet will typically be 2 metres from the front wall. The cabinet will be lockable to prevent user access except that the VCR/DVD unit must be accessible outside the lock.	A/V equipment cabinet located to the side of or either side (outside) of the screens depending on room layout and whether room contains dividing doors. Equipment cabinet will typically be 2 metres from the front wall. The cabinet will be lockable to prevent user access except that the VCR/DVD unit must be accessible outside the lock.	



**Table 1 – Typical Meeting /Conference Room Requirements**

<b>Equipment &amp; Requirements</b>	<b>Basic Meeting Room</b>	<b>Projector Only Meeting Room</b>	<b>Computer Education Room</b>	<b>Small Video Conference Room</b>	<b>Large Video Conference Room</b>	<b>Video Conferencing Infrastructure Only</b>
<b>Additional Requirements</b>						
<b>Wall Based Services</b>			Wall based services are fine for fixed education rooms as data and power can be placed along walls. If an education room could be used as either a meeting room or conference room, in-slab services would instead be required			
<b>Power</b>	Provide one quad plug on the front wall in the event video conferencing might be provided via a portable video conferencing unit	Provide one quad plug on the front wall in the event video conferencing might be provided via a portable video conferencing unit	Duplex power for each workstation;			
<b>Data</b>	One data outlet is required on the front wall in the center to provide for the possible use of a portable video conferencing unit	Provide one quad plug on the front wall in the event video conferencing might be provided via a portable video conferencing unit	Three data drops for each 2 students are required; Three data drops at the instructor desk location are required; Three data drops are required at the location of the printer.			

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<b>Video</b>		Provide port for VGA and/or DVI/HDMI on front wall to enable computer based video presentations. Type of video port is dependant on the standard in effect at the time of room construction	Route projector video ports to a wall location next to the instructor desk. If a video conferencing unit is provided, route the projector to the A/V equipment cabinet either in the instructor's desk or at the front of the room.			
<b>Audio</b>			Route audio to a wall mounted port on the wall next to the instructor workstation. If a video conferencing unit is provided, route the audio to the equipment cabinet at the front of the room or in the instructor's desk.			
<b>Video Conferencing Infrastructure (In Slab Services)</b>						
<b>Floor Boxes &amp; Conduit</b>	One centre floor box is required containing duplex power and 2 data ports. Cables from this box will be joined via junction box or grommet to the Polycom conference and an optional	Provide a minimum of 2 floor boxes on either side of the front of the room to be used in conjunction with a table top box to provide for power/data/audio/video to a computer/laptop on the table top for presentation purposes.		Floor boxes and associated cabling routed, via conduit, to side walls and into ceiling cavity. Provide sufficient floor boxes, in consultation with the Authority, to enable services to optionally be run to PCs/Workstations in a table/desk education	Floor boxes and associated cabling routed, via conduit, to side walls and into ceiling cavity. Provide sufficient floor boxes, in consultation with the Authority, to enable services to optionally be run to PCs/Workstations in a table/desk education	Floor boxes and associated cabling routed, via conduit, to side walls and into ceiling cavity. Provide sufficient floor boxes, in consultation with the Authority, to enable services to optionally be run to PCs/Workstations in a table/desk education configuration

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	laptop.			configuration	configuration	
<b>Power</b>	Duplex power in 1 floor box	110V quad power in each box. 110V duplex power in ceiling at projector location.		110V quad power in each box. 110V duplex power in ceiling at projector location. Power adequate for all A/V components is required for the floor box for the equipment cabinet.	110V quad power in each box. 110V duplex power in ceiling at projector location. Power adequate for all A/V components is required for the floor box for the equipment cabinet.	110V quad power in each box. 110V duplex power in ceiling at projector location. Power adequate for all A/V components is required for the floor box for the equipment cabinet
<b>Data</b>	Data outlet for conference phone and one data outlet	3 data ports per box at least one of which is activated initially		3 data drops per box at least one of which is activated initially	3 data drops per box at least one of which is activated initially	3 data jacks per box at least one of which is activated initially
<b>Video</b>		VGA and/or DVI/HDMI ports in each box to enable computer based video presentations. Type of video port is dependant on the standard in effect at the time of room construction		VGA and/or DVI/HDMI ports in one box to enable computer based video presentations. Type of video port is dependant on the standard in effect at the time of video conferencing wiring	VGA and/or DVI/HDMI ports in each box to enable computer based video presentations. Type of video port is dependant on the standard in effect at the time of room construction	
<b>Audio</b>				Provide for an audio output, for the selected video box location, to be terminated and consolidated at the equipment cabinet	Provide for an audio output, for the selected video box location, to be terminated and consolidated at the equipment cabinet	

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Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
<b>Projector</b>						
<b>Projector</b>		Standard or high definition projector depending on the specific requirements of the room.	Standard or high definition projector depending on the specific requirements of the room and whether it is also used as a video conference room. Provide conduit from the equipment cabinet floor box to ceiling.	One high definition Projector per room. Provide conduit from the equipment cabinet floor box to ceiling.	One high definition Projector per room. Multiple projectors may be used in either large rooms or rooms that are split into 2 or 3 rooms via folding partitions. Provide conduit from the equipment cabinet floor box to ceiling.	Provide conduit from designated floor box to ceiling.
<b>Screen</b>		Standard (4 x 3) or wide (16 x 9) motorized screen depending on the quality of the projector. Screens will be controlled by an up/down switch on the adjacent wall Fully recessed, heavy-duty type for electrical operation, listed by Underwriter's Laboratories and CSA. Quick reversal type motor, especially designed for the purpose, ball-bearing and oiled for life, with automatic thermal overload cut-out and integral interlocking gears, and include preset but adjustable limit switches to automatically stop	Standard (4 x 3) or wide (16 x 9) motorized screen depending on the quality of the projector. Screens will be controlled by an up/down switch on the adjacent wall.	Wide (16 x 9) Screen. Screens will be controlled by an up/down switch on the adjacent wall.	Wide (16 x 9) Screen. Screens will be controlled by an up/down switch on the adjacent wall.	Provide power at location of motorized projection screen and provide switch for motorized projection screen at room light switch location.

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Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
		screen fabric in the up and down positions. Stop action will be positive to prevent coasting. Mount roller on two heavy-duty brackets equipped with self-aligning bearings. Flame-retardant and mildew-resistant surfaces. Line motor compartment with sheet metal.				
<b>Video Conferencing Equipment</b>						
<b>Portable Video Conferencing Unit</b>	A portable, self contained mobile cart containing all required equipment and one or two monitors may be used in small rooms. These units required only wall mounted power and data outlets.					
<b>Amplifier</b>			<ul style="list-style-type: none"> <li>- Noise floor audio levelling</li> <li>- Separate small DB adjustment for users via wall switch and/or Crestron remote</li> <li>- FHA Standard Polycom Vortex audio mixer</li> </ul>	<ul style="list-style-type: none"> <li>- Noise floor audio levelling</li> <li>- Separate small DB adjustment for users via wall switch and/or Crestron remote</li> <li>- FHA Standard Polycom Vortex audio mixer</li> </ul>	<ul style="list-style-type: none"> <li>- Noise floor audio levelling</li> <li>- Separate small DB adjustment for users via wall switch and/or Crestron remote</li> <li>- FHA Standard Polycom Vortex audio mixer</li> </ul>	

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Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
<p><b>Video conferencing core equipment</b></p>	<p>Codec and camera with mic, speaker and telephone interface (could be combo)</p>		<p>Codec and camera. Individually installed microphones and speakers. Telephony interface used through core system A second camera if needed for separate speaker location. All controlled through centralized room control</p>	<p>Codec and camera with mic, speaker and telephone interface (could be combo). Codec must have two camera inputs. Second camera if needed for separate location</p>	<p>Codec and camera. Individually installed microphones and speakers. Telephony interface used through core system A second camera if needed for separate speaker location. All controlled through centralized room control</p>	
<p><b>Video Switching/ Consolidation</b></p>			<p>Minimum of 3 inputs                      - 1 terminated next to the instructor's desk for PC/Laptop                      - 1 from patient entertainment/education                      Video switching is controlled from Crestron remote</p>	<p>Minimum of 3 inputs                      - 1 from cable located in equipment cabinet/lectern for presenter notebook                      - 1 from patient entertainment/education                      - 1 from floor box containing audio/video/data/power for notebook                      Where rooms are splittable into multiple rooms, we require the ability to either split or consolidate the video signals depending on whether the rooms are split or joined.                      Video switching is controlled from Crestron remote</p>	<p>Minimum of 3 inputs                      - 1 from cable located in equipment cabinet/lectern for notebook                      - 1 from patient entertainment/education                      - 1 from floor box containing audio/video/data/power for notebook                      Where rooms are splittable into multiple rooms, we require the ability to either split or consolidate the video signals depending on whether the rooms are split or joined.                      Video switching is controlled from Crestron remote</p>	

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<b>Audio Switching/ Consolidation</b>					Require the ability to switch audio signals between joined/splittable rooms.A simple wall switch is appropriate.	
<b>Speakers</b>			Where the Education Room is also used as a video conferencing room provide in ceiling equally spaced to provide complete room audio coverage	In ceiling equally spaced to provide complete room audio coverage	In ceiling equally spaced to provide complete room audio coverage	
<b>Microphones</b>			Where the Education Room is also used as a video conferencing room provide in ceiling equally spaced to provide good coverage for either meeting or presentation formats	In ceiling equally spaced to provide good coverage for either meeting or presentation formats	In ceiling equally spaced to provide good coverage for either meeting or presentation formats	

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<b>Crestron Remote Control</b>		As provided with the projector for basic on/off functionality	A/V and room control functions on a wall mounted, fixed Crestron remote control to be located at instructor's desk	<ul style="list-style-type: none"> <li>- DTMF Dialling</li> <li>- Remote unit located near room lighting controls and wall mounted phone (usually near door)</li> <li>- Remote unit hard wired, not wireless</li> <li>- Rack mounted control unit in equipment cabinet</li> <li>- All programming available on remote unit to be available through control unit on FHA LAN for troubleshooting and administration</li> <li>- Remote will control motorized projection screen</li> <li>- Remote will control all audio and video equipment settings plus inputs and outputs</li> <li>- Remote will operate projector controls</li> <li>- Remote screen will be no smaller than 8 inches diagonal viewable</li> </ul>	<ul style="list-style-type: none"> <li>- DTMF Dialling</li> <li>- Remote unit located near room lighting controls and wall mounted phone</li> <li>- Remote unit hard wired, not wireless</li> <li>- Rack mounted control unit in equipment cabinet</li> <li>- All programming available on remote unit to be available through control unit on FHA LAN for troubleshooting and administration</li> <li>- Remote will control motorized projection screen</li> <li>- Remote will control all audio and video inputs and outputs</li> <li>- Remote will operate projector controls</li> </ul>	
<b>Telephony</b>				Video conferencing equipment will also be used for teleconference. We will require an analog line for audio only (PBX extension).	Video conferencing equipment will also be used for teleconference. We will require an analog line for audio only (PBX extension).	
<b>Programming</b>			Provide control of all audio, video and switching requirements from Crestron remote controls	Provide control of all audio, video and switching requirements from Crestron remote controls	Provide control of all audio, video and switching requirements from Crestron remote controls	



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<b>Near/Far End Screen</b>			Required for in-room guests to view near and far end guests. A 42" flat screen positioned one on the right and one on the left of the centered projector or large collaboration / presentation flat screen.	Required for in-room guests to view near and far end guests. A 42" flat screen positioned one on the right and one on the left of the centered projector or large collaboration / presentation flat screen.	Required for in-room guests to view near and far end guests. A 42" flat screen positioned one on the right and one on the left of the centered projector or large collaboration / presentation flat screen.	
<b>Presenter Far End screen</b>			Might be required for presenter to view or interact with people at the far location from a presentation location. These will either be mounted on a side wall easily viewable from the presentation location or, perhaps, in a floor mounted cabinet at the front of the room pointing towards the presentation areas.		Required for presenter to view or interact with people at the far location from a presentation location. These will either be mounted on a side wall easily viewable from the presentation location or, perhaps, in a floor mounted cabinet at the front of the room pointing towards the presentation areas.	
<b>Access to Patient Entertainment /Education System</b>			Access to patient entertainment/education interface. This will be network (IP) based and consist of a menu based user	Access to patient entertainment/education interface. This will be network (IP) based and consist of a menu based user interface and an audio/video server.	Access to patient entertainment/education interface. This will be network (IP) based and consist of a menu based user interface and an audio/video server.	

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Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
			interface and an audio/video server.			
DVD/VCR			Stored in the equipment cabinet separated such that it is accessible to users (eg. Not locked up with the balance of the A/V equipment)	Stored in the equipment cabinet separated such that it is accessible to users (eg. Not locked up with the balance of the A/V equipment but locked to the cabinet)	Stored in the equipment cabinet separated such that it is accessible to users (eg. Not locked up with the balance of the A/V equipment)	
<b>Cabling Infrastructure to Equipment Rack</b>			Where the Computer Education Room is also used for Video Conferencing the following are required. Data Cable Runs - Data to Codec - Data to Crestron - Data to instructor PC - Data to TV feed - Data to the analog phone - Minimum 2 data outlets each with 3 data drops - power outlets as appropriate	Data Cable Runs - Data to Codec - Data to Crestron - Data to instructor PC - Data to TV feed - Data to the analog phone - Minimum 2 data outlets each with 3 data drops - power outlets as appropriate	Data Cable Runs - Data to Codec - Data to Crestron - Data to presenter/guest PC - Data to TV feed - Data to the analog phone - Minimum 2 data outlets each with 3 data drops - power outlets as appropriate	

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Equipment & Requirements	Basic Meeting Room	Projector Only Meeting Room	Computer Education Room	Small Video Conference Room	Large Video Conference Room	Video Conferencing Infrastructure Only
<p><b>Table Top Audio/Video Access</b></p>		<p>Floor box to contain video (VGA/HDMI/DVI) to projector, power, data(3) for table top control for laptop based presentations</p> <p>Data outlet on south wall for table top Polycom phone</p>		<p>Where the room is set up in meeting room format (large rectangular table setup) provide a flip up table top connection box in one rectangular table that can be connected to power/data/sound/video available in floor boxes such that Powerpoint like presentations can be run from a seated position.</p> <p>The cables will be long enough to reach the cable box with some slack so that the flip up connector does not need to be directly above a floor box.</p> <p>Flip Up Box Requirements:</p> <ul style="list-style-type: none"> <li>- 2 Power outlets</li> <li>- 2 Data drops</li> <li>- 1 Audio</li> <li>- 1 Video</li> </ul>	<p>Where the room is set up in meeting room format (large rectangular table setup) provide a flip up table top connection box in one rectangular table that can be connected to power/data/sound/video available in floor boxes such that Powerpoint like presentations can be run from a seated position.</p> <p>The cables will be long enough to reach the cable box with some slack so that the flip up connector does not need to be directly above a floor box.</p> <p>Flip Up Box Requirements:</p> <ul style="list-style-type: none"> <li>- 2 Power outlets</li> <li>- 2 Data drops</li> <li>- 1 Audio</li> <li>- 1 Video</li> </ul>	