

This spreadsheet provides an example of a specification for a set of collaboration rooms. It includes a high-level functional breakdown of collaboration room requirements, a more detailed description of the components, an example of a piece of equipment that fills that need, an approximate price for that equipment, and a rationale about what the equipment is used for. Note that the specific pieces of equipment listed here should be considered examples only. The equipment below is listed because there is experience with this equipment within WestGrid. Individual institutions should use this as a guideline rather than a specific piece of equipment that should be purchased. Purchasing projectors, displays, H323 codecs, and computers that your institution has experience with may be more practical than buying exactly the equipment below.

Function	Item	Model (example)	Cost	#	Standard GridRoom		Standard Upgrade	
					Total	#	Total	#
Display								
	Projectors	Canon REALiS SX6 2500 Lumens	\$4,000	3	\$12,000	3	\$12,000	
Cameras								
	Cameras	Canon VC-C50i	\$1,200	2	\$2,400	0	\$0	
	HD Camera	Sony EVI HD1	\$4,500	1	\$4,500	1	\$4,500	
H323								
	HD H323 Videoconference	Lifesize Express	\$6,000	0	\$0	1	\$6,000	
	HD H323 Videoconference	Lifesize Room	\$12,000	1	\$12,000	0	\$0	
Data								
	Document camera	Elmo HV8000	\$5,400	1	\$5,400	1	\$5,400	
Audio								
	Echo cancellation	ClearOne XAP800	\$7,000	1	\$7,000	0	\$0	
	Microphones	Sony wireless	\$400	4	\$1,600	0	\$0	
	Wireless receiver	Sony wireless receiver	\$400	1	\$400	0	\$0	
	Audio system	Stereo with mixer and speakers	\$5,000	1	\$5,000	0	\$0	
Infrastructure								
	Composite video switch	Composite video switch (8x8)	\$1,700	1	\$1,700	1	\$1,700	
	RGB Video switch	Extron high bandwidth (8x8)	\$2,980	1	\$2,980	1	\$2,980	
	Audio switch	Stereo audio (8x8)	\$2,500	0	\$0	0	\$0	
Computation								
	Capture computer	Dell, 3 video capture cards	\$2,000	1	\$2,000	1	\$2,000	
	Display computer	Dell, quad out video card	\$2,000	1	\$2,000	1	\$2,000	
Control								
	LCD monitors	Viewsonic 19"	\$500	3	\$1,500	0	\$0	
Miscellaneous								
	Renovations	Renovations	\$1,000	1	\$1,000	0	\$0	
	Wiring	Wiring	\$1,000	1	\$1,000	1	\$1,000	
	Miscellaneous		\$5,000	0	\$0	1	\$5,000	
	Total				\$62,480		\$42,580	
	With Taxes				\$68,728		\$46,838	

Possible extension items

AV control system	Crestron control system	\$8,000	1	\$8,000
AV control programming	Crestron programming	\$2,000	1	\$2,000
Design and installation	AV contractor	\$4,000	1	\$4,000
Extended Total				\$91,600

Rationale/Comments

At least two displays (>2560 pixels across) are recommended for WestGrid collaboration rooms. This allows for displaying many remote sites and/or several remote sites and data/presentations.

At least two cameras are recommended, one for the audience and one for the speaker. A third camera is desirable.

High Definition (HD) video is now relatively inexpensive (720p). Most WestGrid sessions will be moving to HD video soon so sites should be able to transmit and receive HD video.

H323 video conferencing is widely used in many research communities, particularly in High Energy Physics. Rooms should support H323 video conferencing.

HD H323 video conferencing is now relatively inexpensive. For a small premium over SD units, it is possible to purchase HD. WestGrid rooms should support HD H323 video.

Many collaborations involve paper documents. A document camera that can display such documents to remote sites is desirable.

High quality acoustic echo cancellation (EC) is critical to a collaboration room. All audio should be routed through the EC. This makes it possible to use all hardware (computer, H323) and a wide variety of software on that hardware seamlessly in the collaboration room. An eight input/output EC is recommended to provide flexibility. Good quality microphones should be used. Specific mics will vary based on the room. It is recommended that at least one wireless lapel mic be available in each room to support high quality audio for the presenter.

Good quality wireless receivers are required to maintain good quality with wireless mics.

Either powered speakers or unpowered speakers and an amplifier are required for each room. These speakers should be of sufficient quality for the room being built.

WestGrid collaboration rooms have many cameras. The ability to switch camera outputs between devices (AG capture computer, display computer, H323 unit) is desirable.

WestGrid collaboration rooms have multiple displays and multiple display sources (display computer, H323 codec, laptop). It is desirable to have a RGB switch that makes it simple to switch data sources to displays in the room.

A capture computer typically handles all of the audio and video processing in a room for AccessGrid. This system should have the ability to capture at least three video sources through composite capture cards. It is desirable for this computer to have at least a firewire port and if possible an HDMI capture card (Black Magic Intensity).

A display computer drives the displays in a collaboration room. This computer should have one more display output than the number of displays in a room. This extra output is for a control station so that the operators of a room can control what is on the larger displays without being seen on the main displays.

At least one display for the control station of the display computer and control of the room.

Funding for surface mount conduit and mounting of equipment to walls/ceilings. Planning wiring and conduit is essential in creating a flexible and usable room.

Good quality cabling is required for a functional room. Most video signals can be sent over CAT5 with transmitters and receivers, so if getting cabling to equipment is a problem, CAT5 can be used if needed.

All rooms vary and therefore there will always be added costs. This is a small fudge factor to meet those requirements.

In complicated rooms it is often desirable to have a touch panel control system from Crestron or AMX. This is desirable if it can be fit into a rooms budget.

AV control panels require custom programming. The complexity and cost of this programming will vary based on the complexity of the room and the room usage. Using an AV contractor to design and install a room is often a good idea, utilizing their expertise. If you can take advantage of local expertise within your institution this may be much more inexpensive.