

**APPENDIX 3C**

**UBC FACULTY OF MEDICINE TECHNOLOGY ENABLED LEARNING ROOM SPECIFICATIONS**

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**ATTACHMENT 1 DESIGN GUIDELINES FOR LEARNING SPACE AV SYSTEMS & ASSOCIATED  
INFRASTRUCTURE ENHANCED CLINICAL SKILLS ROOMS DATED MARCH  
14, 2013**

## APPENDIX 3C

### UBC FACULTY OF MEDICINE TECHNOLOGY ENABLED LEARNING ROOM SPECIFICATIONS

#### 1. GENERAL

##### 1.1 UBC Technology Enabled Learning (TEL) Rooms

(a) This Appendix 3C sets out specifications for the design and construction of the following spaces to be included in each of the Facilities:

- (1) Small (8 seat) Seminar Room (the “**UBC Small Seminar Room**” or “**SSR**”), room identifier 14 in the space table included in Section OS-GP.02 Central Medical Staff/UBC FOM Academic Teaching Facilities of Appendix 3A [Clinical Specifications]; and
- (2) Clinical Skills Room (the “**UBC Clinical Skills Room**” or “**CSR**”), room identifier 17 in the space table included in Section OS-GP.02 Central Medical Staff/UBC FOM Academic Teaching Facilities of Appendix 3A [Clinical Specifications]

(collectively the UBC Small Seminar Room and the UBC Clinical Skills Room are referred to as the “**UBC TEL Rooms**”).

(b) This Appendix does not apply to any rooms within the Facility other than the UBC TEL Rooms.

(c) Additional specifications for the UBC TEL Rooms are set out in the Clinical Specifications, Schedule 3 [Design and Construction Specifications] and Appendix 2D [Equipment and Furniture]. Refer to Appendix 3K [Millwork and Casework] for millwork and modular casework requirements. Refer to the Equipment List for clinical equipment and furniture requirements.

##### 1.2 Responsibilities Related to the UBC TEL Rooms

(a) Authority Responsibilities

As described in Appendix 2D [Equipment and Furniture], the Authority, in coordination with UBC, is responsible for:

- (1) the procurement, Delivery, Setup, Installation, Commissioning and maintenance of the Category C Equipment and the equipment listed in Section 5.3 of this Appendix; and
- (2) the procurement, Delivery and maintenance of the Category D Equipment,

required for the UBC TEL Rooms.

(b) Project Co Responsibilities

Except as described in Section 1.2(a) above, Project Co, in coordination with UBC, will procure, deliver, setup, store, install, test and commission all equipment and materials and perform all

design (in coordination with UBC) and construction required to complete the UBC TEL Rooms in accordance with the requirements of this Agreement (including this Appendix) so that the UBC TEL Rooms are ready to be occupied and used for their intended purposes as described in this Appendix, including design, construction, testing and commissioning of all building systems, infrastructure and equipment.

### 1.3 Interpretation

- (a) This Appendix is written as an output specification and defines what Project Co must achieve in the design, construction, commissioning and testing of the UBC TEL Rooms. Except as expressly stated otherwise, Project Co will carry out the design, construction, testing and commissioning of the UBC TEL Rooms (in cooperation with UBC) as required and contemplated by each provision of this Appendix whether or not the provision is written as an obligation of Project Co or is stated in the imperative form.
- (b) The following Acronyms are used in this Appendix:
- (1) AFF – Above the Finished Floor
  - (2) AV - Audiovisual
  - (3) CAC - Ceiling Attenuation Class
  - (4) DMP - Distributed Medical Program
  - (5) DSP - Digital Signal Processor
  - (6) FOM – Faculty of Medicine
  - (7) FSTC - Field Sound Transmission Class
  - (8) GWB – Gypsum Wall Board
  - (9) HVAC – Heating, ventilation and air conditioning
  - (10) IIC – Impact Insulation Class
  - (11) MDV – Most Distant Viewer
  - (12) NC – Noise Criterion
  - (13) NRC – Noise Reduction Coefficient
  - (14) SH – Screen Height
  - (15) STC - Sound Transmission Class
  - (16) TEL – Technology Enabled Learning

(17) VC - Videoconference

## 2. PROJECT BACKGROUND

The UBC TEL Rooms will be used for UBC's Distributed Medical Program (DMP).

Central to the DMP is the distributed learning model (or distance education), where lectures and labs are delivered both to learners in the same physical location as the lecturer, and simultaneously to learners at multiple remote locations. The lectures are viewed by all learners in the remote locations in real time, and are configured to provide an equivalent educational experience for all learners, regardless of their geographical location. The UBC Faculty of Medicine uses videoconference-capable audiovisual systems to deliver distance education, in facilities that are designed to meet the specialized functional requirements of medical education.

The DMP has videoconference facilities located at three types of campuses located across BC:

- (a) University campuses (UBC, UVic, UBCO and UNBC), for delivery and support of Year 1 and 2 undergraduate medical education;
- (b) clinical academic campuses, for delivery and support of undergraduate and post graduate programs, located at regional hospitals throughout BC; and
- (c) affiliated regional centres, for delivery and support of undergraduate and post graduate programs, located at regional hospitals throughout BC. The difference between clinical academic campuses and affiliated regional centres is in the number and size of education facilities each contains.

## 3. OVERVIEW OF THE UBC TEL ROOMS

The descriptions in this section are provided to give Project Co an understanding of the features and functionality that will be implemented in these rooms.

### 3.1 UBC Small Seminar Room (SSR)

- (a) Room Usage Description
  - (1) SSRs are VC-enabled teaching, learning, and meeting spaces for between 4 and 20 local participants. They are used to connect a small group of people in a meeting-style room with other groups of people in other VC enabled rooms. All participants (both in the same physical space as the presenter or in a remote space) must have equivalent ability to interact with the other participants. SSRs are located at University sites, clinical academic campuses, affiliated regional centres and community education facilities. SSRs are used by students, instructors, and staff for core curriculum delivery, administration, and FOM management and development meetings.
- (b) Functional Requirements:
  - (1) SSRs must enable all participants (located at all connected sites) to see, hear, and speak to the other participants, regardless of which site the participants are physically located.

All participants must also be able to see (and hear, where applicable) other participants' presentation material.

- (2) Participants must be able to display content for all participants (at all connected sites) from a laptop. A lectern PC and/or DVD player and/or document camera may be provided in some cases.
- (3) UBC FOM technology-enabled learning spaces have active AV equipment 24 hours per day, 7 days per week. Spaces are primarily used during business hours (6am-6pm Monday-Friday), but can be used at any time.
- (4) The AV equipment in this space has a life cycle. The best practices included herein consider renewal as part of this cycle.

### **3.2 UBC Clinical Skills Room (CSR)**

- (a) For the UBC Clinical Skills Room (CSR), refer to and comply with the requirements set out Attachment 1 [Design Guidelines for Learning Space AV Systems & Associated Infrastructure Enhanced Clinical Skills Rooms dated March 14, 2013].

## **4. TECHNICAL REQUIREMENTS FOR THE UBC TEL ROOMS**

### **4.1 UBC Small Seminar Room (SSR)**

- (a) Architectural and Interior Design
  - (1) General Description
    - (A) The room will be a minimum of 26 net square meters, rectangular with an aspect ratio of side walls to front/back walls of 1:1.13. Site lines to the main screen at the front of the room will be unobstructed from all seats.
    - (B) The floor will be flat and seating will be around either a rectangular or u-shaped table.
    - (C) The minimum distance from the front wall to the participant table will be 1600 mm.
    - (D) The ratio of distance from the displays to the most distant viewer (MDV), to image height, will not exceed a factor of 6.7 (distance from display to MDV divided by image height) for all seats.
    - (E) The horizontal viewing angle for all seats will not exceed 60 degrees for both displays.
    - (F) The entire front wall will be reinforced to permit secure mounting of approximately 600 pounds of equipment (exact weight load depends on display size).

- (G) The entrance will be at the back of the room (opposite the wall with the displays and camera). A single door is generally sufficient for an SSR.
  - (H) No exterior windows.
  - (I) Provide a 48" x 36" whiteboard.
  - (J) Provide a door with vision glazing.
  - (K) Provide room signage with an 8.5 x 11" page insert.
- (2) Camera Position
- (A) The camera requires positioning for appropriate image angles and complete visual coverage of all different educational usage scenarios. Specifically designated positions in the walls and/or ceilings are required to accommodate the cameras.
  - (B) The cameras require appropriate protection from theft and damage, where applicable.
  - (C) The camera will be positioned such that when the audience is looking at the screens, they appear to be looking in the direction of the camera.
  - (D) Adjoining spaces will be carefully selected to avoid structural borne vibration. High Definition cameras have a low tolerance for structure borne vibration, and magnify the problem when using zoom function. Spaces that have a detectable vibration will use dampening material to stabilize the image.
- (3) Furniture
- (A) SSRs will have a permanently installed half rack contained within millwork or a securable cabinet to house the AV system and other media inputs. The millwork or cabinet must be located next to (or enclosing) the AV pull box (the AV pull box is the central connection point for all AV equipment and should be located in the lower right hand corner of the display wall).
  - (B) The millwork will house a 12U rack for mounting equipment.
  - (C) Conduits providing power, network, and AV lines will terminate inside the AV pull box millwork. See Section 4.1(c)(3) for more information on conduits and pathways.
  - (D) The participant table will be either rectangular or u-shaped in a room that seats 4 – 10 seats, a rectangular table should generally be used, with one table or a ganged set of tables.

- (E) Two or three table top microphones will be placed on the table with power available at the head of the table (and the sides if the table is u-shaped). Internet will be provisioned for users of the space via Wi-Fi provided by the building host. Power and microphones require cable pathways from the table to the AV pull box. See Section 4.1(c)(3) for more information on conduits and cable pathways.
- (4) Colours
- (A) The colour of the walls, carpeting and chairs will be either grey or solid blue to provide visual definition to the participants relative to the background. The purpose of the solid colour is to avoid adding unnecessary bandwidth to the videoconferencing signal, and to avoid the reflected light from the background affecting colour quality of the images.
  - (B) The colour of the table surface will be either antique white, light grey or light maple to allow the 45 degrees light to bounce off the surface and reflect light upward helping to illuminate the faces of the participants and eliminate the dark shadows under the chin/nose. This also minimizes changes in light quality when the participants place paper in front of themselves on the desk.
- (b) Mechanical
- (1) SSR space HVAC designs will account for all AV equipment and maximum occupancy to maintain temperatures comfortable for occupants and safe for AV equipment.
    - (A) Long term ambient room temperature target for these rooms to operate is 21 degrees Celsius with a humidity level of 30% - 50%.
    - (B) Maximum short term (1 hour) sustainable ambient temperature for these rooms is 24 degrees Celsius with a humidity level of 30% - 50%.
  - (2) SSRs AV equipment may require up to 6000 Btu/hour of cooling capacity, depending on equipment. Sometimes a room's HVAC system can handle this load, but this should be confirmed. Maximum occupancy must be factored in for all heating calculations.
  - (3) Consideration should be given to the location of the compressor such that it does not interfere with the acoustical requirements and does not introduce vibration into any wall or bulkhead that supports a camera.
  - (4) Design and construct all VC rooms to protect the AV equipment from damage caused by plumbing failures and excessive condensation.
  - (5) Each SSR will have a dedicated temperature control.
- (c) Electrical

- (1) Electrical infrastructure, power receptacles, and data/telephone requirements specified in this section are for the specific TEL needs, and represent the minimum requirements. Project Co will provide larger conduits, additional power and data outlets if required to support other systems or equipment.
- (A) Lighting is a key factor in a properly functioning VC room. Lighting will be designed to:
- (i) allow the participants to be well-illuminated for the VC cameras;
  - (ii) avoid light reflecting off screens and video display surfaces;
  - (iii) avoid an overly illuminated or glaring participant area;
  - (iv) avoid hot spots or shadows on participants;
  - (v) allow the participants to easily control the lighting conditions; and
  - (vi) illuminate the entire participant area.
- (B) Light reflecting off the table surface will be set at an appropriate 15 – 20 degree angle.
- (C) Colour temperature should be 3500 degrees Kelvin in a VC room. Different lights/colour temperature should not be mixed.
- (D) Lighting will provide a minimum brightness of 80 foot candles.
- (E) Lights within 1.5 Meters of the video display surfaces will be separately switched.
- (F) Lights reflecting off video display surfaces will be avoided.
- (G) Lights over the seating area will be dimmable.
- (2) Power Outlets
- (A) The AC load from AV equipment located in the SSR is approximately 3000 watts in operation and 200 watts at idle.
- (B) Power receptacles will be provided for the following AV equipment locations:
- (i) the AV pull box (15 amp quad on its own circuit) will have two 15 Amp duplex, each with its own circuit;
  - (ii) the camera (15 Amp duplex on its own circuit);
  - (iii) the participant table:
    - one floor mount, recessed quad under a rectangular table;



- three floor mount, recessed duplexes, one approximately at the centre of the bottom of the U-shaped table, and one at each end of the table; and
    - (iv) each video screen will have its own dedicated 15 amp outlet circuit on the front wall.
- (3) Conduits and cable Pathways
- (A) The SSR will be equipped with a conduit/cable-tray and back-box infrastructure to support the low-voltage AV system connectivity requirements.
  - (B) Appropriate quantity and size of conduits will be needed to facilitate AV, IT, and power cable runs between:
    - (i) the AV pull box and the camera location
    - (ii) the AV pull box and the displays (for displays and side-mount speakers)
    - (iii) with a U-shaped table (if floor coring is possible):
      - From the electrical panel to three floor boxes, one in the centre and one at either end of the U-shaped table
      - from the AV pull box to the centre of the base of the U-shaped table
      - from the AV pull box to both sides of the U-shaped table
    - (iv) with a square or rectangular table:
      - from the electrical panel to the centre of the table
      - from the AV pull box to the centre of the table
      - from the AV pull box to the centre of the table
  - (C) Conduit runs with more than three 90 degree turns require cable pull boxes to be inserted in the proper locations.
  - (D) For any location that requires a power outlet (as described in this Appendix), appropriate conduits will be installed.
  - (E) All power lines will use their own independent conduits (nothing else may be run in these conduits.)
- (4) Data & Telephone
- (A) Room design will account for Wi-Fi coverage with sufficient density for the number of occupants and multiple devices per occupant. The following will be placed next to the primary pull box (in the lower right hand corner of the display wall):

- (i) two RJ45 Data outlets (one must be assigned on the video conferencing vlan);
  - (ii) one VoIP phone outlet; and
  - (iii) one Analog Phone outlet to accommodate a conference speakerphone
- (B) Floor box Data Outlets Minimum Requirements:
- (i) one RJ45 data outlet per floor box.
- (5) Security
- (A) Provide security access with card reader for this room.

#### **4.2 UBC Clinical Skills Room (CSR)**

- (a) Architectural & Interior Design, Mechanical, Electrical:
  - (1) For the UBC Clinical Skills Room (CSR), refer to and comply with the requirements set out Attachment 1 [Design Guidelines for Learning Space AV Systems & Associated Infrastructure Enhanced Clinical Skills Rooms dated March 14, 2013].

#### **4.3 Acoustics**

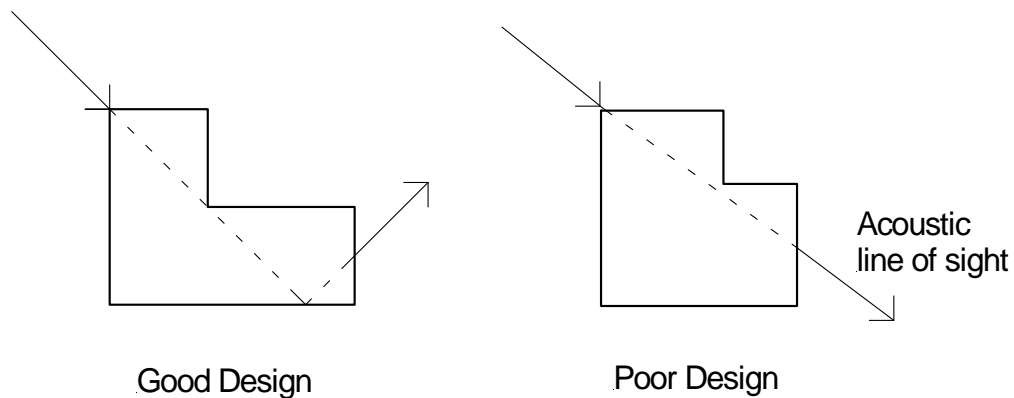
This Section 4.3 applies to the UBC Small Seminar Room and the UBC Clinical Skills Room.

- (a) Interior Acoustics
  - (1) Project Co will engage an acoustical consultant as part of the design team from the beginning of the design until final testing and commissioning of the UBC TEL Rooms. The acoustical consultant will be involved in all aspect of the design, construction and testing and commissioning, including architectural, structural and mechanical.
  - (2) Design, construct, test and commission all of the UBC TEL Rooms in accordance with the requirements as outlined in the following paragraphs and as instructed by the acoustical consultant to provide appropriate acoustical conditions to make the rooms functional for presentations, video conferencing, and/or monitoring. Ambient noise including HVAC and ballast noise will be controlled, and appropriate acoustical treatment will be installed to control reverberation, minimize reflections, flutter echo and other acoustical issues that may adversely affect the microphone pickup.
  - (3) Hard reflective wall or ceiling surfaces within 2500mm of lectern or table top microphones will be avoided, and may require the addition of absorption or diffusion materials. The reflections from these surfaces will create audible artefacts or lower feedback thresholds.

- (4) In rooms with any length or width dimension less than 5m, acoustical wall treatment between chair rail height and approximately 2500mm AFF, will be provided on two adjacent walls to eliminate flutter echo. As a minimum, unless required differently by the acoustical consultant, the wall treatment will consist of fabric covered acoustic panels that are minimum 25 mm thick with a minimum NRC 0.85 rating.
- (5) UBC TEL Rooms require a full acoustic ceiling, minimum NRC rating of 0.70 and a minimum Ceiling Attenuation Class (CAC) rating of 35. In addition, the ceiling will be back loaded with batt insulation (bagged, if necessary) to broaden the sound absorbing range.

(b) Background Noise

- (1) Noise control measures will be undertaken to achieve a background noise criterion of NC-25 for all of the UBC TEL, in order to provide good speech intelligibility for both local and remote listeners. This includes noise from HVAC and lighting ballasts.
- (2) To reduce the noise generated by the airflow of the HVAC system, a maximum airflow of 1.52 metres per second at the face of the diffusers and 1.8 meters per second at the face of the return air grilles will be allowed for, diffusers selected for low noise levels, and open diffusers with no dampers (or the dampers placed upstream of the diffuser by at least 3m) and the duct downstream of the dampers lined with fibreglass duct liner. Dampers will never be closed down to less than 80% of the maximum opening to prevent excess turbulence-generated noise.
- (3) Selection of noise rating of the HVAC diffusers will be based on the actual design airflow, and Project Co will not presume that they will meet their noise rating at any airflow. Project Co, in consultation with its acoustical consultant, will take into consideration the total number of diffusers understanding that each doubling of the number of diffusers increases the overall noise level by 3dB. Diffusers must be selected to be 10 NC points lower than the NC rating for the room.
- (4) Care will be taken in locating return air elbows in systems that are not ducted. Acoustically lined return air elbows must be located in non-critical acoustical walls (i.e. walls with doors, typically), must contain minimum 25 mm thick acoustic insulation and must be designed to block the line of sight through the elbow as per the "Good Design" shown below.



Note : Not To Scale

## Acoustic Elbows - Minimum Acoustic Requirements

Figure 1: Design considerations for acoustic elbows.

- (5) The return air grilles in the rooms will be located an optimum distance from the return air elbow to reduce the potential for cross-talk.
  - (6) It is essential that all noise-producing HVAC equipment including mixing boxes, fan powered mixing boxes, and fan coil units be located outside the UBC TEL Rooms and not within the ceiling plenum space.
- (c) Sound Isolation – Interior
- (1) One of the key issues is achieving adequate sound isolation between the UBC TEL Rooms and adjacent spaces. The adjacent spaces may include but are not limited to similar distance learning spaces, meeting rooms, lecture rooms, washrooms, corridors etc.
  - (2) In order to achieve the proper sound isolation, all perimeter walls of the UBC TEL Rooms must achieve a Sound Transmission Class (STC) rating of STC 55. The laboratory STC ratings of all such perimeter walls must meet the requirements of ASTM E90-09: *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*, and must be based on test results obtained within the last 15 years and on results from an accredited and current test facility.
  - (3) Party walls must be full height.
  - (4) If a stud wall design is used:
  - (5) Non-load bearing studs must be maximum 25 ga. and will be spaced at minimum 600 o.c. For all single stud walls, the lab STC rating is based on these details unless otherwise stated.

- (6) Walls rated at STC 55 and higher must be, at a minimum, double stud (i.e. two rows of studs and not staggered studs on a common base or complex single stud constructions). Stud ga. is not an issue for double stud walls.
  - (7) Resilient channel will not be used.
  - (8) Field Sound Transmission Class (FSTC), results meeting ASTM E336-09: Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings will be required for a random sample of partitions. For all such tests, results within 5 FSTC points of the lab STC rating for the partition in question must be achieved.
  - (9) In order to achieve the required minimum FSTC results, the following measures will be undertaken, as a minimum:
    - (A) carefully seal all penetrations of the party walls;
    - (B) active (i.e. those components containing moving air and/or water) ducts and pipes will not be grouted into party walls, but are free of the GWB, with a maximum 6mm gap caulked light tight with a non hardening mastic caulking material such as Tremco Acoustical Sealant or equivalent fire-rated sealant;
    - (C) seal all cable trays which pass through key party walls;
    - (D) electrical boxes, etc. will not be installed back-to-back (i.e. have at least one complete insulated stud space separation);
    - (E) caulk all floor and header tracks; and
    - (F) seal party wall/mullion details in such a way that the overall FSTC rating of the partition is not unduly compromised.
- (d) Noise Isolation - Doors and other Entryways
- (1) Where a single door (non-vestibule) opens to a noisy corridor, lobby or waiting area, a single width purpose-built acoustic door with a minimum STC 50 rating will be used.
  - (2) For all other situations (including vestibule doors):
    - (A) use solid core wood or filled metal doors;
    - (B) ensure use of properly selected acoustic seals such as Pemko Type Silicon Seal S-88 plus Pemko Type 350 around the perimeter;
    - (C) install automatic threshold closers similar to Pemko Type 430 which close over wood or metal sill plates which are levelled and caulked or grouted in place; and

- (D) install all such doors/door systems so that light will not pass through the doors/door systems.
- (e) Noise Isolation – Floor/Ceiling
- (1) The location of the UBC TEL Rooms is important not only from a horizontal noise (i.e. not locating such rooms next to the main mechanical room, etc.) perspective, but also in terms of the floor/ceiling acoustic performance.
  - (2) The airborne noise isolation between vertically stacked spaces will meet minimum STC 50 rating.
  - (3) Impact noise including footfall noise, chair scraping etc can have a significant impact to the room acoustics. If there is occupied space above any of the UBC TEL Rooms, it will be necessary to include a full acoustic ceiling in the room to help control impact noise.
  - (4) While the floor/ceiling STC rating of a room might meet the required STC rating without an acoustic ceiling, impact noise might be problematic for rooms with exposed structural ceilings. Further, the room above must be carpeted or must have an Impact Insulation Class, IIC, (i.e. ASTM E492-09: Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine) rating which exceeds 70. In the field, the rating must be FIIC 65, or higher (re ASTM E1007-04e1: Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures).
  - (5) Fluorescent light ballasts will be remote mounted in an adjacent room to minimize noise in the room. If there are any low voltage lighting devices in the room with integral transformers, they will be potted to prevent airborne or structure borne transformer noise from being introduced.
- (f) Noise Isolation – Exterior Noise Impact
- (1) For all UBC TEL Rooms, the maximum noise level due to exterior noise will be 35 dBA.
  - (2) To meet low ambient noise levels requirements, none of the UBC TEL Rooms will be located adjacent to mechanical or electrical rooms, exercise areas, washrooms, elevators, exterior walls adjacent to busy roadways, airports, helicopter pads, major exterior equipment (such as cooling towers, chillers, emergency generator sets), or below roofs which contain major equipment or helicopter pads.

## 5. REFERENCE INFORMATION

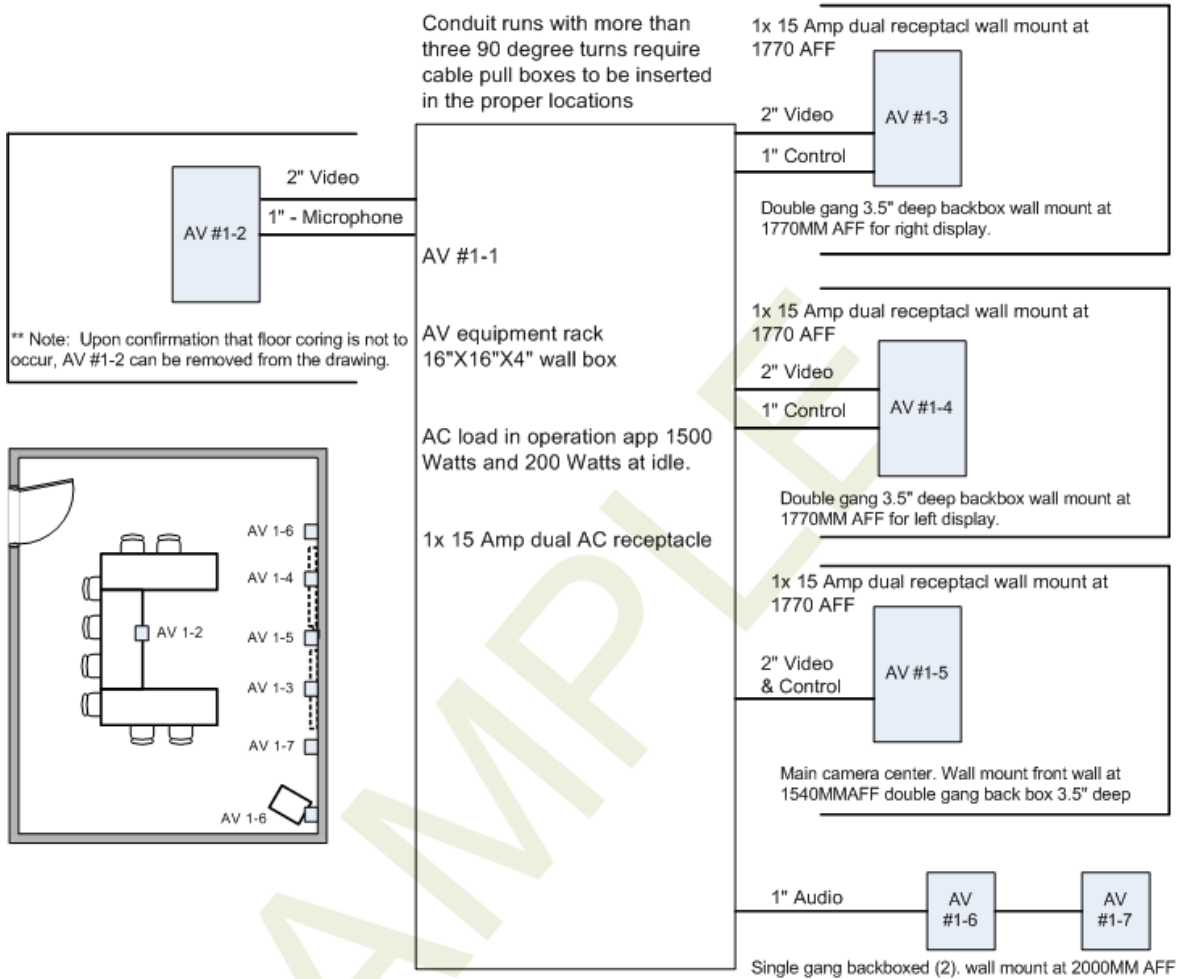
The following information is provided for reference.

## 5.1 Clinical Skills Room – Sample Layout & Riser Diagram

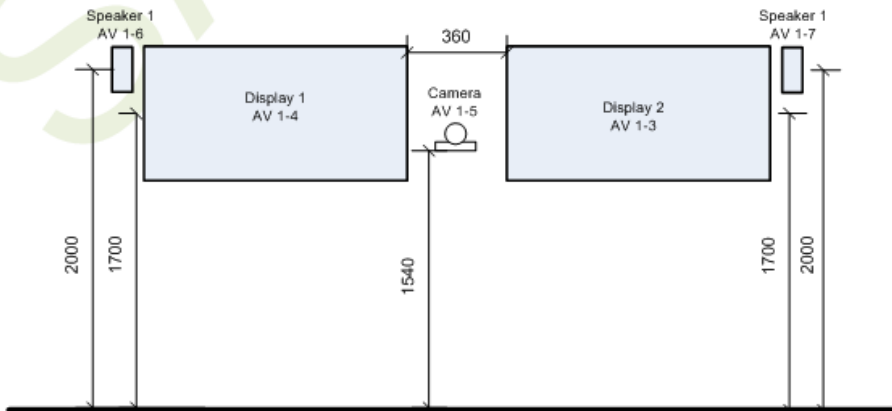
- (a) Refer to Attachment 1 [Design Guidelines for Learning Space AV Systems & Associated Infrastructure Enhanced Clinical Skills Rooms dated March 14, 2013] for reference diagrams for representative layouts of the UBC Clinical Skills Room (CSR), except that
- a) the Enhanced Clinical Skills Room plan layout should have a total of net 20m<sup>2</sup> area for both the Clinical Skills Room and the Control Room added together, per Clinical Specifications OS-GP.02.
  - b) The capacity of the CSR will be for 2-9 students and, plus 1 instructor/clinician and 1 volunteer or standardized patient and sometimes 1 family member. It is not intended to hold 4-11 students, plus instructor/clinician, as referenced in section 1.3 of Attachment 1 [Design Guidelines for Learning Space AV Systems & Associated Infrastructure Enhanced Clinical Skills Rooms dated March 14, 2013].

5.2 Typical UBC FOM Small Seminar Room (SSR) Riser Diagram & AV Requirements

Typical UBC FOM Small Seminar Room (SSR)  
Riser Diagram & AV Requirements



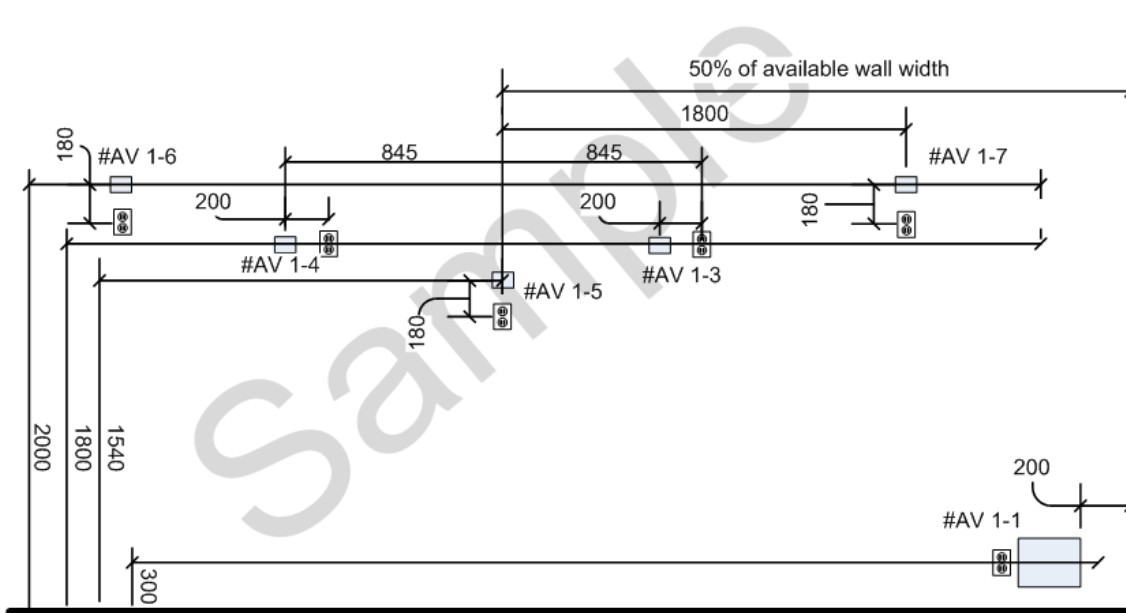
- \* Note: Speakers to be mounted 50mm away from displays. Top of speakers to align with top of display
- \* Note: Horizontal center of displays to be mounted 2000mm above floor.





### Typical UBC SSR Conduit and Receptacle locations (60" displays)

\*\* This is a typical layout for small videoconferencing enabled seminar rooms. Site conditions must be review by AV project manager to confirm exact layout.



### 5.3 UBC TEL Room Videoconference Equipment List

#### SSR Equipment List:

60" Panasonic HD Plasma Display	TH-60PF30U	Panasonic
60" Panasonic HD Plasma Display	TH-60PF30U	Panasonic
Cisco C20 Codec	C20	Cisco
Cisco 4x Optical Zoom HD Camera	CTS-PHD 1080P4XS1	Cisco
Cisco C20 Remote	N/A	Cisco
VGA Auto Switcher /w audio	VSW 2VGA A	Extron
VGA Cable /w audio	VGA-A M-M MD/6	Extron
VGA Cable /w audio	VGA-A M-M MD/25	Extron

#### CSR Equipment List:

60" Panasonic HD Plasma Display	TH-60PF30U	Panasonic
VGA Cable /w audio	VGA-A M-M MD/25	Extron
Ceiling speaker	Control 25AV	JBL
Audio Pre-AMP	MP 101	Extron
Boundary Microphone	ES-945	Audio-technical
Volume control	VCM 200D	Extron
Audio AMP	FP-PA18	RDL

**ATTACHMENT 1**

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