

**Part 1 General****1.1 Summary**

- .1 Unless otherwise indicated, follow the guidelines below when planning for Standard Audio-Video Installation Practices. These guidelines are not intended to restrict or replace professional judgment.
- .2 This section of the AV standards is a reference for the AV Contractor, concerning the installation of equipment and infrastructure related to audio, video, and control. The detail listed in this section serves to give the AV Contractor an idea of common practice in AV installation campus-wide and is the McGill University's minimum standard for quality. All aspects of installation are subject to inspection and approval by IIS-AVS.

**Part 2 Video Projector Mounts and Screens**

Largely, rooms on campus will require the projector to be ceiling mounted. Occasionally, a projection booth may be found in the room, in which case, the projector may be ceiling mounted or floor mounted. Screen size (width) should be approximately:

$$\text{Screen Width} = \frac{\text{Distance from Screen to Last Seat}}{4}$$

**2.1 Mounting projection screens**

Electric screens must be anchored to the ceiling slab. If this is not possible, screen brackets must be attached to a ¾ inch piece of plywood the width of the screen. The plywood must then be secured to the gypsum walls using a minimum of 8 toggle bolts.

**2.2 Projector mounts**

Projector mounts must be installed at an appropriate distance from the projection screen, so that the correct image size is approximately in the middle of the specified projector's zoom range. The following requirements also apply:

- .1 The projector mount shall be installed such that the vertical position of the projector lens is level with the top edge of the screen's projection surface, or at a position prescribed by the projector manufacturer, with **no** digital correction employed (keystone or arc).
- .2 Projector mounts must be secured to the cement slab, or other foundational element, in the floor or ceiling such that if a false or suspended ceiling exists, it is not part of the support. Mounts should be secured to the slab or other secure surface with appropriate fastenings (e.g., Lag Bolts).
- .3 For maintenance purposes, the projector mount must not block access to the projector's service areas. The mount must allow for changing the projector lamp and for cleaning the filter without removing the projector from the mount.

**Part 3      Infrastructure****3.1          Cables****.1          Cable runs**

Cables shall be pulled in a continuous run. No cable splices shall be permitted. No female-to-female adapters shall be used in the case where a new cable run exceeds the length of an existing cable. In cases where a signal type does not permit the necessary cable run length, extender or converter devices may be used, as approved by IIS-AVS.

**.2          Cable bends**

Cable bends shall respect the minimum bend radius stipulated by the manufacturer. During installation, the cables shall not be kinked or bent past their specified minimum bend radius. If no bend radius information is supplied by the manufacturer, a minimum bend radius of four (4) times the cables diameter shall be used.

**.3          Cable dressing**

Cables not run within a conduit or Panduit style wire mold product shall be dressed in a tidy and secure fashion. Any cabling runs terminated inside an equipment rack shall be dressed, utilizing any cable management products available inside the rack, and shall be strain relieved using Velcro ties.

**.4          Cable Termination**

All cables must be properly terminated, such that there are no exposed wires, to avoid shorting between conductors. Heat shrink tubing or rubber sleeving, such as Hellermann sleeves, shall be used on all conductors that do not come with their own outer jackets by default. (Example: ground wire within a multicore cable.) Heat shrink tubing shall also cover any transition between outer jackets and the internal pairs or conductors of a cable.

**.5          Balanced and Unbalanced Audio wiring conversions**

There are several different scenarios where balanced audio must be passively converted to unbalanced audio and vice versa. See the following sections and subsequent diagrams:

**.1          Balanced output to unbalanced input (Mono)**

For balanced to unbalanced mono audio connections, connect the positive (tip) to the positive contact. Connect the ground (sleeve) to the ground contact. **Do not** connect the ground (sleeve) to the negative contact.

**.2          Unbalanced output to balanced input (Mono)**

For unbalanced to balanced audio mono connections, split the ground conductor (sleeve) into two conductors and attach one to the negative (ring) contact and the other to the ground (sleeve) contact. The positive conductor should be connected to the positive contact.

**.3          Balanced output to unbalanced input (Stereo)**

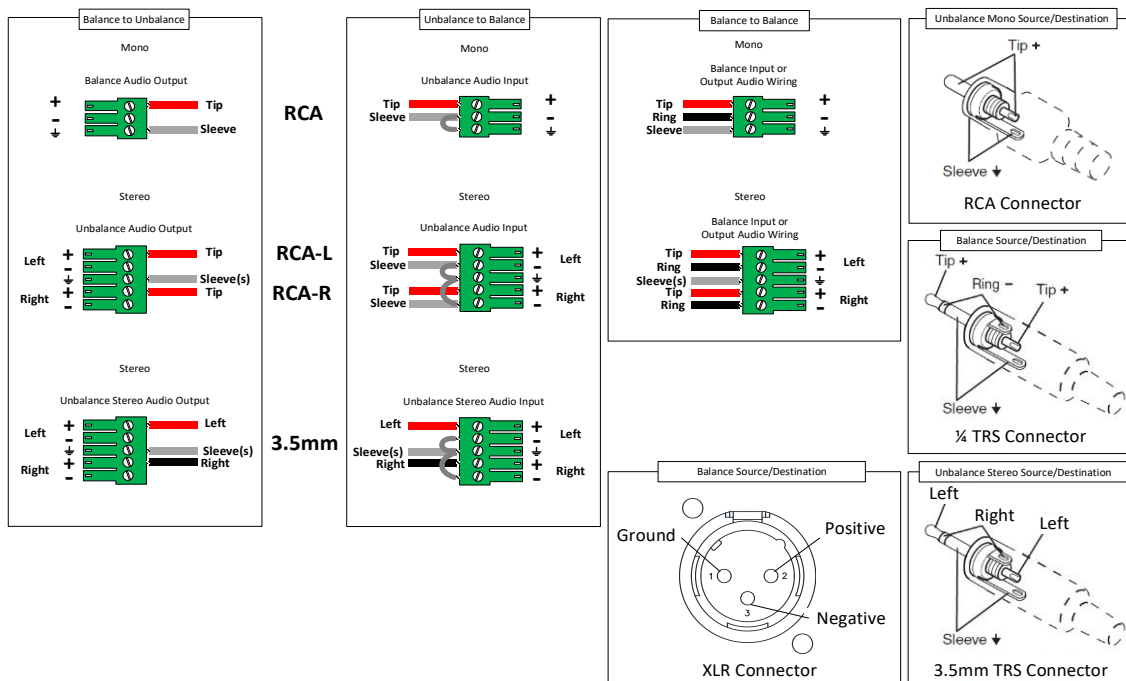
For balanced to unbalanced stereo connections, the positive conductor of the left channel is connected to positive contact (tip). The positive conductor of the right

channel is connected to the negative contact (ring). The ground conductors of both channels should be summed and connected to the ground contact (sleeve). The negative conductors of each input channel **should not** be connected.

.4 Unbalanced output to balanced input (Stereo)

For unbalanced to stereo connections, the positive conductor (tip) is connected to the positive contact for the left channel. The negative conductor (ring) is connected to the positive contact for the right channel. The ground conductor (sleeve) is split into four conductors, which are connected to the negative (ring) and ground (sleeve) contacts of the left **and** right channels.

.5 Balanced and Unbalanced Audio wiring



### 3.2 Connector Panels

All wall mounted panels for connecting to audio and video services (example: additional microphones, auxiliary AV input or out panels) must have a receptacle box with an appropriate amount of space allocated for infrastructure behind the panel.

### 3.3 Conduits

All audio, video and control cable runs not terminated at both ends within the same equipment rack, or a connected rack, shall be run inside dedicated conduit of appropriate size, minimum 3/4 inch inner diameter. These conduit runs will be provided by the project (electrician), based on the design requirements. In cases where it is not possible to use conduit, a surface mounted cable raceway product shall be provided by the AV Contractor and routed in an aesthetically pleasing manner. All conduit or surface raceway products used shall respect the minimum cable bend radius of the cable run inside it (specified by the manufacturer). Where conduit/Panduit products need to bend around corners, only wide radius (45 degree) bends shall be installed. This is subject to approval by IIS-AVS.

### 3.4 Service loops

All cabling connected to equipment and connector panels should have enough slack to allow for the equipment or panel to be serviced without disconnecting it from the cabling. In the case of rack mounted equipment, the service loop must be long enough to pull the equipment out of the rack in order to disconnect it from the infrastructure for servicing.

### 3.5 Wall panel connections for Laptop (Umbilical)

In rooms where the AV requirements are minimal, and only projection from a laptop is required, a wall panel providing the necessary connectivity shall be installed. This wall panel shall be equipped with a bundle of cables of appropriate length for the room, covered in a braided nylon sleeve, which will serve to connect the user's laptop to the AV system. This bundle or 'umbilical' will contain the following cables:

- VGA (HD15 Male to Male)
- HDMI, Version 1.4 (Male to Male)
- 3.5mm stereo audio cable (Male)
- Cat5 Network cable

## Part 4 Labelling

### 4.1 Equipment

The AV Contractor shall label all audio, video, and control equipment with a McGill label showing a unique ID number. These labels shall be provided by IIS-AVS. The AV Contractor shall provide the unique ID numbers assigned to each piece of equipment to IIS-AVS by completing the information in the provided IP Table document and returning it.

### 4.2 Cables

One label shall be applied to each end of all cables installed by the AV Contractor. The labels shall not be handwritten, shall be black text on white background, and shall be equivalent to Panduit Self-Laminating label products (Example: **DYMO RHINO Flexible Nylon ½ inch, sku 18490**). Within each room's AV system, each cable shall have a unique number assigned to it. The cable numbers shall be alpha numeric, with identifiable prefixes and number ranges as follows:

- |                           |          |
|---------------------------|----------|
| • Network:                | LAN-000  |
| • HDMI:                   | HDMI-100 |
| • DVI:                    | DVI-150  |
| • Power:                  | POW-200  |
| • USB:                    | USB-300  |
| • Serial control:         | RS-400   |
| • Crestnet:               | CRES-450 |
| • Crestron Digital Media: | DM-500   |
| • Audio:                  | AUD-600  |
| • VGA:                    | VGA-700  |
| • SDI:                    | SDI-750  |
| • Contact closure:        | CC-800   |
| • Infrared:               | IR-850   |
| • Fiber Optics:           | FO-900   |

The AV Contractor shall indicate the unique cable number of each cable installed, on the as-built system schematics (as per section **27 40 02; Part 2.1**)

## **Part 5 Security**

### **5.1 Security of AV equipment (outside of an equipment closet)**

For most classroom AV installations, IIS-AVS requires the use of security devices as an effort to protect the AV equipment installed in the room, or on the podium, from theft or vandalism. The common security devices used on campus, and their required usages, can be found in the sections below. Currently, the most prevalent security device kits used for securing AV equipment in the classrooms are the **Kensington 64425S – Desktop & Peripherals Locking Kit 2.0 – Supervisor Keyed**. The AV Contractor shall procure and install these kits as indicated in the design drawings.

#### **.1 Security Devices**

- Padlock with security cable:
  - Description: Reinforced aircraft cable loop with a security padlock.
  - Cost: \$50 per unit including installation.
- HASP with Padlock and Security Cable:
  - Description: An anti-theft “puck” with a cable loop securely fastened to the equipment, secured with a padlock and security cable.
  - Cost: \$80 per unit including installation.
- Kensington lock assembly:
  - Description: A combination or key lock device that fits into the standard Kensington security slot on equipped devices. Can be used in combination with the Padlock and security cable.
  - Cost: \$25 per unit including installation.

#### **.2 Implementation of security devices**

The following sections of this document are general guidelines outlining the types of equipment required to be fitted with security devices and indicate which security devices should be used in each case. On occasion, exceptional circumstances may result in the need to deviate from these guidelines. In such cases, the means of securing the equipment will be subject to approval by IIS-AVS.

##### **.1 Projectors, Video Displays, and Interactive Whiteboards**

- Long throw projectors:
  - Average cost of unit: ~\$7500 (List)
  - Security: Kensington lock/cable are required. McGill standardized products in this category come equipped with a cable loop built into the projector.
- Ultra-short throw projectors:
  - Average cost of unit: ~\$2300 US

- Security: Kensington lock/cable are required. The McGill standardized product in this category is equipped with a Kensington security slot.
- Wall mount video displays:
  - Average cost of unit: ~\$1500-\$3000, depending on size of unit
  - Security: Kensington lock/cable are required.
- Interactive whiteboards:
  - Average cost of unit: ~\$7500
  - Security: Kensington lock/cables are required.

## .2 Video Cameras

To date, no security devices have been used to secure video cameras, such as Pan-Tilt-Zoom (PTZ) cameras. Security devices are not used since these cameras, by their nature, move and therefore their function might be inhibited.

## .3 Podium Equipment

In medium and large sized classrooms, the podium is the “control center” for the presenter, and as such, it is populated with various equipment often operated directly by the presenter. The following sections depict how security for this equipment shall be implemented:

- Crestron touch panels:
  - Average cost of unit: ~\$2000, depending on size of unit.
  - Security: Crestron touch panels shall be securely fixed to the desktop surface of the podium using Crestron’s Tabletop Kit, with the security screws, and the Swivel Mount Kit. Or, in the case of a wall mount touch panel, it shall be secured to the wall using the security bracket that comes with the panel.
- Document camera:
  - Average cost of unit: ~\$6000
  - Security: The document camera shall be secured to the podium using a mounting bolt on the underside of the unit (provided with the unit). The unit will be affixed with a Kensington lock.
- Interactive displays:
  - Average cost of unit: ~\$3000
  - Security: Mounted on a monitor arm, secured with a Kensington lock. The McGill standardized product in this category comes equipped with a Kensington lock slot.
- Computers and monitors: (See next section)

#### .4 Computers and monitors

Campus wide, computers are deployed in several different configurations. In classrooms large enough to warrant a podium, there are often local computers available for use by the presenter. This podium computer may or may not have a monitor dedicated to it, depending on the configuration of the room. Other classrooms have computers at each student seat.

The means of securing computers and monitors largely depends on the furniture they are mounted in.

- Average cost of equipment: Varies
- Security: Where possible, the computer tower and monitor shall be secured using one common security device. This security device shall consist of a security cable and a padlock and/or a Kensington lock.

#### .3 Exceptions to the Requirement for Security Devices

There are certain situations where security devices may not be required or possible, such as:

- The equipment is very hard to access:
  - Equipment is secured within a locked equipment rack
  - Equipment is secured within a locked AV closet
  - Ceiling mounted projectors/cameras are mounted high enough to require scaffolding for access
  - Equipment is otherwise securely fastened to furniture
- Another means of security is in place:
  - Lenel card readers are installed
  - Security cameras cover the area
  - Lab managers or other staff are always present
- The equipment itself has moving parts making it impossible to attach a security device

## 5.2 Keys

Due to the large number of rooms on campus ITS has standardized the keys required to access equipment in a variety of situations:

### .1 Telecom/AV equipment closets

The lock on the door to all Telecom/AV equipment closets on campus shall be keyed with the Medeco KB key. The exception to this shall be Telecom/AV closets also containing electrical service, which will most likely be keyed with the Medeco KC key.

### .2 AV equipment racks

AV equipment racks that are not located in a secure area, such as a Telecom/AV equipment closet, shall be supplied with locking doors. The standardized product for equipment racks are Middle Atlantic products (see sections **27 41 01**; **Part 11** and **27 41 02**; **Part 8** of the AV

standards). The standard Middle Atlantic rack door keys shall be used to lock and unlock equipment racks of this type.

\*\*In the case where an equipment rack is provided with a door other than a Middle Atlantic product, the **Häfele 101TA** lock shall be used. \*\*

.3 AV cabinets/Podiums

On occasion, when there is a small amount of equipment deployed, purpose-built AV cabinets may be used instead of equipment racks. In such cases, these cabinets shall have locking doors, with **Häfele 101TA** locks only. This same lock shall be used on both the front and back doors of any podia deployed in a classroom on campus.

## Part 6 Electrical

### 6.1 Electrical requirements for Audiovisual installations

- .1 The projector must have one 120V AC outlet on or inside the ceiling. In the case where the projector is mounted in a location that is too high to be easily accessible, the outlet should be switched with a Leviton 1201-L series key switch on the wall, near the AV System, to allow the projector and/or any Crestron equipment installed in the ceiling to be reset.
- .2 All cabinets, rolling carts, podia, etc., should have enough electrical outlets to provide power to all accessories on or around them, including a laptop.
- .3 All electrical equipment (including relays, lighting fixtures, dimmers, etc.) should be of selected brands, models, and specifications to conform to campus standards (see Facilities Design Standards for McGill University: <http://www.mcgill.ca/buildings/design-standards/> ).
- .4 All conduits should be of continuous electrical metallic tubing (EMT) type material where possible.
- .5 In cases where EMT is not possible, junction boxes or flexible conduit shall be installed. Should this be required, approval shall be required from IIS-AVS prior to installation.
- .6 Junction boxes should not be installed in hidden or inaccessible corners.
- .7 All conduits should be at least 3/4" inside diameter or larger. Generally, it is requested that larger conduit be installed to ensure space for future expansion.
- .8 Low voltage cables (i.e., audio, video, and control cables) are all required to run in a separate conduit from any AC wiring.
- .9 All conduit and electrical circuits should have the same ground reference.
- .10 In cases where power transformers are required, all audio, video, computer and control electrical circuits should be fed from the "clean" legs of the transformer and should be free of high inductive loads. There should be no elevator motors, compressors motors, blower motors, etc., on the side of the power transformer that feeds the media equipment.



- .11 All electrical control circuits (per classroom) should come to a single location. This location should be large enough to house the lighting contactor's cabinet and should be convenient for maintenance and secure from vandalism. If possible, this location should be isolated from the classroom to eliminate repair and contractor noise.
- .12 There must be electrical circuits dedicated for the media equipment (i.e., data projectors, portable VCR's, laptops, audio amplifiers, etc.). These circuits must be brought to the equipment rack, and to the podium.
- .13 There should be at least one duplex outlet on each wall. If there is a projection booth, there must also be an outlet on the front, classroom side wall. In larger rooms with fixed seating on risers, an outlet should be provided on the face of the first riser (centered in the room), this for the use of overhead projectors. Another outlet should be located on the face of a riser midway back in the seating area (centered in the room).
- .14 Whenever possible, power and audio/video outlets shall not be floor mounted to avoid the intrusion of water and debris.
- .15 In classrooms with dimmable lighting (Lightolier or Lutron), the appropriate control interface with the Crestron control unit must be specified by the electrical engineer and provided by the electrical contractor. **\*\*Note: The design of lighting zones within a classroom shall be done such that lights closest to any projection screens may be turned off during projection.\*\***
- .16 In the case of motorized blinds, a control interface will also be required for the Crestron control unit. Any such control interface shall be specified by the Electrical Engineer on the project and supplied by the electrical contractor.

## **Part 7 Podia**

### **7.1 General**

- .1 The following sections outline the AV equipment typically found in standard classroom podium installations, detailing special requirements for their integration, and discuss special considerations for custom podium design. For more information about the podium itself, see section **27 41 01**; **Part 13**, and **Division 12**, section **12 50 10** of McGill Building Design Standards.
- .2 The podium may have some or all the following user controllable equipment located on or inside it:
- ITS Help phone
  - Crestron touch panel
  - PC computer
  - Interactive display
  - Document camera
  - Fixed microphone
  - Auxiliary microphone input (XLR 3 pin – chassis mounted)
  - Connections for Laptop: (VGA + Audio [3.5mm], HDMI, and Network)

## 7.2 Connections for the Laptop

The services and connections for any laptop computer brought to the podium for use are listed in the section above. These services shall be cables available to be pulled out by the user, using cable pass-through holes into a table monument with a lid, such as **FSR RT6-S4**. When the user is finished using the podium, the cables shall be pushed back into the table monument and the lid closed.

- .1 For the laptop's 3.5mm TRS audio connection, the AV Contractor shall use the **Canare L-2T2S** cable or equivalent Belden product, and **Canare F-12** connector. Transformer isolation of this input into the AV system may be required.
- .2 The VGA and 3.5mm connections for the laptop shall be implemented as separate cables. For reasons of support, no VGA/audio combo cables shall be accepted.
- .3 For ease of replacement, a short passive VGA extender cable (D-sub 15 Male to Female) is often added to the end of the VGA connection available for the laptop at the podium since the pins in this type of connection may become damaged. Heat shrink tubing shall be applied to cover the transition between the cable and the extender.

## 7.3 Auxiliary connections

If the project requirements stipulate it, auxiliary inputs can be made available at the podium to accommodate the connection of legacy devices such as VHS/Audio cassette players or additional microphones. These inputs shall be mounted on panels inside the table monument if possible and shall be compatible with the **FSR RT6-S4**.

## 7.4 Podium PC

The Podium PC integrated into the podium is specified, and installed by McGill ICS, but procured by the McGill Facilities project. The current ICS standard machine is the small form factor (SFF) **Lenovo ThinkCentre M900**. This computer is equipped with two full size DisplayPort outputs and one VGA output. Typically, one DisplayPort output shall feed the room's AV system via a **Kramer C-DPM/HM series** DisplayPort to HDMI cable. The computer's second DisplayPort output shall be used to feed a monitor local to the Podium, should this be required, and shall use a **Kramer C-DPM/HM series** DisplayPort to HDMI cable.

## 7.5 Design criteria for custom podia

As referenced above, there may be times when projects for private rooms require custom podium designs. The following sections represent criteria considered by IIS-AVS to be fundamental to a design that takes the function of the AV equipment and the support and maintenance of said equipment into account:

- .1 Space considerations
  - .1 Space on the desktop

All podium designs shall allow enough space on the desktop of the podium for ease of use. The following shall be considered:

- The desktop of the podium shall have enough space for all user operated equipment, services, and auxiliary devices (i.e., laptops, hard drives, etc.).
- In addition to the above point, there shall be space allowed for physical documents, (i.e., books, paper, etc.).
- The desktop of the podium shall allow space for the ITS Help phone, either on the desktop itself, or within reach of the AV system's control surface.

## .2 Space for infrastructure

All podium designs shall allow an appropriate amount of space for the infrastructure connecting equipment in the podium to the equipment in an AV equipment rack. The following shall be considered:

- Clearance for cables that need to move:
  - Cables connecting the podium to the rest of the AV system, when the podium goes up and down, or rotates.
  - Cables for the laptop connectivity that need to slide in and out of the podium (must be easy for the user to pull out and push in, with enough clearance to reach where it needs to.)
- Space allocation for equipment not operated by the user (Automation system transmitters, etc.):
  - There must be adequate space between devices, and devices must not be completely enclosed, to avoid overheating.
- Space allocation for possible future equipment.

## .2 Ventilation

Proper ventilation of the equipment is of great importance, especially when considering integration into enclosed or semi-enclosed spaces, such as furniture. The following shall be considered for design of a podium with AV devices integrated into it:

- There shall be appropriate circulation of air around all equipment. (i.e., Computers, automation devices, etc.)
- There shall be vents or air holes in the furniture if the equipment is at all enclosed.
- If passive venting is not satisfactory, then fans must be integrated to ensure proper airflow.

.3 Maintenance

A podium shall be designed with a mind for future maintenance of the equipment integrated into it. The equipment must be quickly and easily accessible and must be secured. Locking hinged access traps are recommended.

.4 Safety

A podium design shall consider the safety of its users. The users should not have access to moving parts that may cause injury.

## **Part 8 Equipment racks**

This section describes the optimal location of an equipment rack within a facility, as well as the expected quality of the integration of the infrastructure and equipment within the rack itself.

### **8.1 Location**

.1 AV/Telecom closet

Wherever possible, the equipment rack housing AV equipment shall be secured within an AV/Telecom closet, keyed with a **Medeco KB** key (Section **27 41 02; Part 5.2**). Ideally, this AV/Telecom closet would adjoin with the classroom, for ease of support once the room is in operation. However, there are occasions when such a telecom closet may not be directly adjoined with the room it serves but located in a central area on the floor of the building in which it resides.

.2 Open areas

On some projects, due to space limitations, it may not be possible to locate the equipment rack in a dedicated closet. In such cases, the equipment rack may be located within a common storage area, or if acceptable, within the classroom itself. In open spaces, it is imperative that the equipment rack be supplied with a locking door, as per section **27 41 02; Part 5.2** of the AV standards. Special allowances may be made for any user operable equipment, while ensuring that the non-user operable equipment remains secure.

### **8.2 Integration of equipment and infrastructure**

.1 Integration of equipment

Equipment installed within an equipment rack shall be of rack mount type wherever possible. For equipment that is not rack mountable, the equipment should be properly secured to a rack mount shelf. Rack layout designs should leave at least 1 rack unit (RU) between devices within the rack to avoid situations where the equipment may overheat due to proximity. Ideally, where permitting, the equipment rack should have unused space reserved for future expansion.

.2 Integration of infrastructure

As per section **27 41 02; Part 3**, all cabling installed within an equipment rack shall be dressed in a tidy fashion such that their cable labels are clearly visible and respecting all cable bend radii. The equipment rack shall be provided with all necessary cable management accessories, such that all cabling is properly strain relieved. In addition to this, all cables must be properly terminated, such that there are no exposed wires, to avoid any shorting between conductors. Special attention shall be paid when using tie wrap products, not to damage any cabling by over tightening.

### 8.3 Ventilation of equipment racks

Special consideration shall be required for the ventilation of equipment racks containing AV equipment. The equipment rack shall be provided with the necessary fans to ensure the proper amount of airflow within the rack. Depending on the location of the equipment rack, especially for racks enclosed in small spaces, dedicated HVAC service may be required to keep the equipment from overheating. Ideally such an HVAC design should supply fresh cool air to the bottom of the rack, while removing the warmer air as it exits the top of the rack.

## Part 9 Definitions

- .1 **AV Contractor:** An AV firm external to McGill University, qualified by IIS-AVS to procure and install AV equipment in the context of renovation projects on campus. These external partners may also be called upon to provide other services periodically (i.e., AV design, programming, technical support). AV Contractors may be mandated by IIS-AVS directly, or by a General Contractor in the context of construction projects managed by McGill Facilities, in which case they are referred to as the “AV Subcontractor”.
- .2 **AVS:** *Audiovisual Services.* AVS, is one of the teams making up IT Infrastructure and Information Security (IIS), a unit within McGill’s Information Technology Services (ITS). The Audiovisual Services portfolio provides professional AV services for new builds and renovation projects including AV project management, design, and programming; and provides technical support for existing public classroom AV systems across campus. AVS is also referred to as **IIS-AVS**.
- .3 **ICS:** *IT Customer Services.* ICS, a division of McGill’s Information Technology Services (ITS), acts as the McGill community’s primary point of contact for IT-related support. ICS encompasses 5 teams, including the IT Enterprise Desktop Solutions team who, amongst other things, consults on and specifies software and hardware computing solutions. ICS specifies and supports computer models for Podium PCs and Computer labs on renovation projects.
- .4 **IIS:** *IT Infrastructure and Information Security.* IIS is a division of McGill’s Information Technology Services (ITS) that encompasses 7 unique teams including, but not limited to, Audiovisual Services (AVS) and Telecommunications Infrastructures and Systems (TIS). IIS was formerly known as Network and Communication Services (NCS).
- .5 **ITS:** *Information Technology Services.* McGill IT Services (or ITS) serves McGill students, faculty, academic and administrative support staff, and alumni. It is composed of six units that work together to provide comprehensive IT services (including Wi-Fi, email, campus

printing, software, and more) as well as client care (such as the IT Service Desk, IT Knowledge Base, and IT project management and delivery) to the McGill community. IT Infrastructure and Information Security (IIS) is one of the units within McGill ITS.

- .6 **TIS:** *Telecommunications Infrastructures and Systems*. TIS is one of the teams making up IT Infrastructure and Information Security (IIS), a unit within McGill's Information Technology Services (ITS). TIS installs and maintains physical network and physical security components across McGill's campus. TIS is also referred to as **IIS-TIS**.

## Part 10 Related Technical Sections

The technical sections of the McGill Building Design and Technical Standards should be consulted with the current document, most notably (but not limited to) the following:

<b>Section Number</b>	<b>Title of Section</b>
<b>12 50 10</b>	<b>Podiums</b>
<b>27 40 02</b>	<b>Scope of Work for Audio-Video Installation</b>
<b>27 41 01</b>	<b>Standard Audio-Video Products</b>
<b>27 41 02</b>	<b>Standard Audio-Video Installation Practices</b>
<b>27 41 03</b>	<b>Standard Audio-Video Automation System Implementation</b>

**END OF SECTION**