UWE Estates and Facilities Design Guide

Chapter 10: Audio-Visual (AV) Infrastructure

UWE Bristol | University of the West of England

SOUTH WEST BUILT ENVIRONMENT AWARDS 2017
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10.1 Change Control

Version Number	Date of Issue	Chapter Ref	Brief Description of Change(s)
1.3	01/05/2019		Change Control Log Added.
2021	JAN2021		No updates. Renumbered to 2021

10.2 Introduction

This document is to assist the design and preparation of the specific mechanical and electrical infrastructure to enable the IT/AV fit out to take place. We would expect that the items discussed below will be installed by the construction contract and not as part of fit out works procured/managed directly by UWE. It is current practice that ITS will appoint the AV contractor.

All AV cabling is to be supplied and fitted by the AV contractor. The only exceptions are for Network Data and Power for IT and AV installations.

The fit out works may occur concurrently with the main building works. Contract clauses will allow for access by UWE contractors. ITS will follow their own processes for appointing and managing their contractors. While on any Principal Contractor's site, the AV contractor will undergo induction and obey site rules.

If ITS staff go onto construction sites, please refer to general health and safety requirements set out in the IT Infrastructure Chapter.

This chapter should be considered in tandem with the IT infrastructure chapter.

10.3 Design Process

Design is key to the successful implementation of IT/AV Services and to the smooth running of the project, regardless of whether it is a new build or refurbishment. In all circumstances, ITS should be represented at all design meetings where IT or AV systems are required.

It is critical that design teams ensure that the design accounts for the cable routes and containment detailed in this chapter and ensure that the overall design is properly co-ordinated. For example, UWE has had to contend with designs where, after a lectern was installed, it was no longer possible for a wheelchair to pass along the front row of seats.

It is also incumbent on the wider design team to identify the specific needs of users of the room/space so that assistive technologies can be incorporated as required. Chapter 3 of the design guide deals with issues of equality and diversity in more depth.

After discussing generic requirements for cable routes and containment, this chapter will detail the requirements for different room types.

10.4 Cable Routes

Direct cable routes, taking in consideration for design and construction, will run from point of control to point of display/s. For example, projector to teaching position (lectern), monitor to hard wired control point. Signal cables will follow the same route as control cables.

Cables should not be run through fire breaks.

10.5 Containment

10.5.1 Underfloor

Perforated cable tray is to run from the lectern floor box to the riser.

10.5.2 Riser

- Containment should be in the presentation wall wherever practicable.
- External dado will be considered, especially in rooms where cabling is being delivered via dado (i.e. not underfloor).
- If use of dado has been agreed by UWE, it is preferable that the riser is not on the teaching wall but is as close to the lectern as is practicable.
- Containment should not be less than 50mm x 50mm (or 50mm diameter) but may be larger depending on room type and use.
- Rigid containment will be used (such as Copex but alternative, comparable systems may be used with ITS approval).
- Where containment is hidden or inaccessible, draw cords will be required.
- Exposed containment should complement the design of the room.
- Containment will be Cat 6E compliant.

10.5.3 In ceiling

- A cable basket of suitable capacity must run from the top of the riser to the projector/speakers/camera/microphones etc.
- Where it is exposed, the basket must be in keeping with the design of the room.
- The basket should follow the most practicable, shortest route.
- AV cables can be mounted in baskets supplying other services.

Ceilings must be capable of holding a mounting plate for the projector and the weight of the projector.

10.6 Room Type:

10.6.1 Signage Screen

1. **Teaching Position** – N/A
2. **Cable Routes** – High level power and data directly behind the display that does not conflict with the fixing positions (see Appendix drawing for an example).
3. **Containment** – Only small power and data both terminated behind the display. Surface trunking should be avoided. Where inaccessible containment is used then draw cords are required.
4. **Projection Screens/Monitors**
    a. Suitable wall construction and patrissing will be required for large screen monitors.
        i. Approx. weights:
        ii. 42" – 16.9 Kg
        iii. 55" - 26.5 Kg
        iv. 80" – 61 Kg
5. **Projectors** – N/A
6. **Speakers** – N/A
7. **Microphones** – N/A
8. **Hearing Loops** – N/A
9. **Lecture/Events capture** – N/A
10. **Small Power and data** – 1 x double power, 1 x single data.
11. Exceptions will be by agreement with UWE IT Services.

10.6.2 Meeting Room

1. **Teaching Position** – N/A
2. **Cable Routes**
   Behind the display will be 1 x double power, 1 x double data. In the dado there should be a switched fused spur to the double socket behind the display, two single back boxes (one for control one for input plate).
3. **Containment**
    a. For cable route will run from empty back boxes in mid level dado to single brush plate back box behind the display (with draw cords)
    b. For the construction stage rigid containment will be used although Copex or comparable will be considered with our agreement.
    c. Containment should be in the presentation wall or under floor wherever practicable and not less than 50mm x 50mm (or 50mm diameter) but may be larger depending on room type and use.
    d. Where containment is hidden or inaccessible draw cords will be required.
    e. Containment should complement the design of the room.
    f. Containment – Only small power and data both terminated behind the display. Surface trunking should be avoided.
4. **Projection Screens/Monitors**
    a. Suitable wall construction and patrissing will be required for large screen monitors. The approximate weights are:

i. 42" – 16.9 Kg
ii. 55" - 26.5 Kg
iii. 80" – 61 Kg

5. **Projectors** – N/A
6. **Speakers** – N/A
7. **Microphones** – N/A
8. **Hearing Loops** – N/A
9. **Lecture/Events capture** – N/A
12. **Small Power and data** – 1 x double power, 1 x single data.
13. Exceptions will be by agreement with UWE IT Services.

10.6.3 Standard General Practice Teaching (GPT) Room.

1. **Teaching Position**
   All standard teaching rooms and lecture theatres will follow the pattern noted below.
   a. Non standard or specialist spaces will need to be agreed with ITS at the earliest possible design stage.
   b. Teaching spaces and theatres are primarily equipped with a lectern, one or two ceiling mounted projector, two program sound speakers, a large projection screen and event capture solutions. Spaces seating over 50 will also have voice reinforcement speakers and a hearing loop system.
   c. ITS will advise if the space is to be single or dual projection.
      i. For single projection the teaching position will be:
         1. off to one side furthest from the door with sufficient space between the teaching wall and the lectern for wheelchair access.
      ii. For Dual projection the teaching position will be:
         1. Centred between the projection screens with sufficient space between the teaching wall and the lectern for wheelchair access.
   d. Services should not foul projection screens.
   e. The presentation wall will typically have projection screen/s and two passive speakers for program sound.
2. **Cable Routes**
   a. Cable Routes – From control to ceiling mounted projector/s via floor box and riser.
   b. Floor box will contain 1 x double power, 3 x single data, empty double back box (for AV cables)
   c. Floor box must be a minimum 125mm deep with total void (box plus below) to be not less than 225mm (to allow for cabling turn radius).
   d. Floor box will be positioned under the teaching position.
   e. Speakers will require direct cable routes from each speaker to point of control.
3. **Containment**
   a. for cable route will run from empty back boxes in mid level dado to single brush plate back box behind the display (with draw cords)
   b. For the construction stage rigid containment will be used although Copex or comparable will be considered with our agreement.

c. Containment should be in the presentation wall or under floor wherever practicable and not less than 50mm x 50mm (or 50mm diameter) but may be larger depending on room type and use.
d. Where containment is hidden or inaccessible draw cords will be required.
e. Containment should complement the design of the room.
f. Containment – Only small power and data both terminated behind the display.
g. Surface trunking should be avoided.

4. **Projection Screens**
   a. Suitable wall construction and patrissing will be required for projection screens. Screen monitors.
      i. Approx. weight:2.4m x 1.8m – 30kg
   b. Projection screen will be TK Team wet wipe board or equivalent.
5. **Projectors**
   a. To be 1.8-2.2m from the presentation wall.
   b. To be central to the screen/s
   c. Securely mounted to the ceiling
   d. Ceiling should be capable of holding approx. 18kgs held vertically
   e. Services will not foul projection sight lines or mounting.
6. **Speakers**
   a. Program sound at either side of the presentation wall only.
   b. Speakers will be wall mounted usually under 10 kg
   c. Where voice reinforcement is required these will be ceiling mounted unless agreed as an exception.
7. **Microphones**
   a. Should consist of a teaching position goose neck mic, a lapel mic and a hand held for voice reinforcement where room capacity of 50 or more.
8. **Hearing Loops/Assistive Technology**
   To be agreed on a project-by-project basis.
9. **Lecture/Events capture**
   a. Current standard specs can be supplied when required but consists of a camera and single microphone – note cable route to point of control will be required.
10. **Small Power and data**
    a. 1 x double power, 3 x single data at the lectern position.
    b. 1 x double power and 1 x single data at mounting position of the projector.
11. Exceptions will be by agreement with UWE IT Services.

10.6.4 Lecture Theatre

1. **Teaching Position**
   All standard teaching rooms and lecture theatres will follow the pattern noted below.
   a. Non standard or specialist spaces will need to be agreed with ITS at the earliest possible design stage.
   b. Teaching spaces and theatres are primarily equipped with a lectern, one or two ceiling mounted projector, two program sound speakers, a large projection screen and event capture solutions. Spaces seating over 50 will also have voice reinforcement speakers and a hearing loop system.

c. ITS will advise if the space is to be single or dual projection.
    i. For single projection the teaching position will be:
        1. off to one side furthest from the door with sufficient space between the teaching wall and the lectern for wheelchair access.
    ii. For Dual projection the teaching position will be:
        1. Centred between the projection screens with sufficient space between the teaching wall and the lectern for wheelchair access.
d. Services should not foul projection screens.
e. The presentation wall will typically have projection screen/s and two passive speakers for program sound.

2. Cable Routes

a. Cable Routes – From control to ceiling mounted projector/s via floor box and riser.
b. Floor box will contain 1 x double power, 3 x single data, empty double back box (for AV cables)
c. Floor box must be a minimum 125mm deep with total void (box plus below) to be not less than 225mm (to allow for cabling turn radius).
d. Floor box will be positioned under the teaching position.
e. Speakers will require direct cable routes from each speaker to point of control.

3. Containment

a. For the construction stage rigid containment will be used although Copex or comparable will be considered with our agreement.
b. Containment should be in the presentation wall or under floor wherever practicable and not less than 50mm x 50mm (or 50mm diameter) but may be larger depending on room type and use.
c. Where containment is hidden or inaccessible draw cords will be required.
d. Containment should complement the design of the room.
e. Surface trunking should be avoided.

4. Projection Screens

a. Suitable wall construction and patrissing will be required for projection screens.
    i. Approx. weight: 3.5m wide – 30kg
b. Projection screen will be fixed frame stretched skin or equivalent.

5. Projectors

a. To be confirmed distance from the presentation wall, depending on model.
b. To be central to the screen/s
c. Securely mounted to the ceiling
d. Ceiling should be capable of holding approx. 35kgs held vertically
e. Services will not foul projection sight lines or mounting.

6. Speakers

a. Program sound at either side of the presentation wall only.
b. Speakers will be wall mounted usually under 10 kg
c. Where voice reinforcement is required these will be ceiling mounted unless agreed as an exception.

7. Microphones

a. Should consist of a teaching position goose neck mic, a lapel mic and a hand held for voice reinforcement where room capacity of 50 or more.

8. Hearing Loops/Assistive Technology

To be agreed on a project-by-project basis.

9. **Lecture/Events capture**
    a. Current standard specs can be supplied when required but consists of a camera and single microphone – note cable route to point of control will be required.
10. **Small Power and data**
    a. 1 x double power, 3 x single data at the lectern position.
    b. 1 x double power and 1 x single data at mounting position of the projector.
    c. 1 x single power at camera location
11. Exceptions will be by agreement with UWE IT Services.

10.6.5 Technology Enhanced Active Learning (TEAL) Room.

Two Standard Types - A and B.

TEAL A is a wireless solution, and containment is restricted to small power and data for each workstation.

TEAL B is a wired solution and containment is required to run a series of cables between each workstation and point of control.

These spaces are considered an exception to the standard teaching model, and requirements must be confirmed with ITS before commencing work.

10.6.6 PC Lab

PC labs will normally consist of a standard teaching installation in addition to a number of workstations set out on desking.

Containment is restricted to small power and data for each workstation, and the Estates Design Guide should be consulted for load and distribution throughout the room.

Consideration of how cable management, layout and integration with furniture will be managed will need to be agreed with ITS.

10.6.7 Open Access Learning

Would not normally consist of AV teaching installations, but will require small power and data for each workstation. Requirement to be agreed with ITS.

10.6.8 Specialist Spaces

Requirement to be agreed with ITS.

10.6.9 Other

Requirement to be agreed with ITS.