

Planning Rooms for Videoconferencing

There are a number of issues to consider when choosing and preparing a room for use as a videoconferencing studio. Many of these issues should also be considered when preparing meeting rooms with videoconferencing facilities, or when setting up desk-top terminals. Studio planning and creation should involve personnel with responsibility for audio/visual equipment, computer networks and estates. Potential users of the room should be consulted if possible, and a visit to an established studio is helpful when drawing up plans.

Practical and environmental considerations

Location – Studios should be in a location that is quiet, convenient, central and accessible. They should be sited away from heavy plant or electrical equipment such as lifts or substations, and away from busy thoroughfares, if possible.

Size – The planned use of the room will dictate its size. Many studios will be multi-purpose, and these should be designed so as to be adaptable for small group meetings as well as teaching rooms. For example, consider using curtains to hide rows of tables and chairs when not in use.

Shape – Try to avoid square rooms. Oblong or irregular shapes are best for good acoustics.

Furniture and Layout – Avoid bright or shiny surfaces. Use carpet on the floor and soft furnishings. Flexible furniture is useful if the room is to be multi-purpose. Lots of small tables can be re-arranged (or stacked out of sight), whereas one large table cannot. If the main use is for meetings however, a solid, heavy table will dampen sound and help improve the acoustics.

A horseshoe layout is effective for meetings as it allows participants to see each other and the monitor(s) easily. Rows of tables and chairs are more suitable for teaching, although careful consideration must be given to the siting of whiteboards, second cameras and additional monitors (so that the lecturer can see, and be seen by, the local and remote audiences, simultaneously). In smaller rooms, the camera should be positioned to allow a 'portrait' view of the room (looking down the room), rather than a 'landscape' view (looking across the room).

Décor – Avoid windows in the room if possible, but if they are unavoidable, use heavy curtains and not roller or vertical blinds. Room colours should be mid-tone, tending towards lighter shades. Patterns and strong contrasts should be avoided. Where paint is used, it should have a matt finish. Loosely gathered curtains across walls work well and curtains can also be sited to hide storage and/or reception areas. If conferencing from a working office, consider using curtains to hide office clutter and provide a uniform backdrop.

Equipment – Carefully consider the use and location of any peripheral equipment (PC, document camera, etc.). If equipment is housed in cabinets or behind false walls, consider ease of access for maintenance.

Lighting – With a modern camera, the intensity of normal office lighting (500 Lux) is fine. Dispersed fluorescent lighting works well, and should be adequate enough to give full, even coverage. Avoid pools of light, strong light sources or glare in camera shot. Desk-top users should be careful to avoid back-lighting.

Acoustics – the aim is for a balance between echo (reverberation) and sound absorbency (deadness). This can usually be achieved by using adequate soft furnishings, carpet and curtains.

Heating and Ventilation – Normal office levels of warmth and humidity should be the aim. Air-conditioning systems always introduce some noise that can be amplified by the microphone. If air-conditioning is provided, a high-volume, low-speed system is preferable, and local controls should be available within the studio.

Cabling and ducting – Plan cable runs from the outset. Larger studios can generate large amounts of coiled cable. Some cabling between the terminal and the table(s) is inevitable for microphone(s) and control systems. These should be under the floor or protected by rubber covers. Wherever possible, use wireless or remote control devices to operate equipment, thus reducing cabling in the room.

Finishing Touches – Always provide a direct dial telephone into the room, a wall clock (out of shot) and adequate network and power points. Provide some kind of identification: a wall-mounted organisation logo or table-top sign will help in multi-site conferences. An ‘On Air’ red light above the entrance to the room is also useful.

Network connections

For an H.323 videoconferencing terminal, a 100Mbit/s, full-duplex, switched environment is highly recommended. It is usually wise to set ports on the terminal and the switch explicitly to these settings, rather than trust auto-sensing. The entire path from terminal to gatekeeper to H.323 proxy to gatekeeper and/or site router should be 100Mbit/s and should consist of as few hops as possible. It should not be in contention with any PCs in the studio and should avoid the Local Area Network, either physically or, if this is not possible, by use of Virtual LANs (VLANs).

Access and security

To offer a service for all, there should be access for disabled people and people with mobility problems. In some cases this may mean siting the studio on the ground floor.

Cameras, projectors, PCs etc. are desirable and expensive equipment. Studios should normally be locked when not in use. Consideration should be given to the responsibility and mechanisms for booking and gaining access to the room. This will include the location of the key and protocols for authenticating users in larger organisations.

Further information

Videoconferencing Rooms:
<http://www.video.ja.net/rooms/>

Welsh Video Network – Studio Design:
<http://www.wvn.ac.uk/support/studio.htm>

A number of illustrated presentations on studio design (including a case study) and network topologies for videoconferencing can be found at:
<http://www.wvn.ac.uk/presentations/>

Video Technology Advisory Service (VTAS):
<http://www.video.ja.net/>

Videoconferencing Cookbook:
<http://www.videnet.gatech.edu/cookbook/>