

27 41 00
GENERAL AUDIO-VIDEO SYSTEMS REQUIREMENTS

1. GENERAL

- A. Related sections:
 - i. 00 00 13 - Designing Learning Environments
 - ii. 11 52 00 – Audio-Visual Equipment
 - iii. 11 52 13 – Projection Screens
 - iv. 12 56 52 – Audio-Visual Furniture
 - v. 27 00 00 – General Communications Requirements
 - vi. 27 41 00.01 – Audio-Visual Control System
- B. The information in this section establishes a baseline for audio-visual system design that conforms to current campus audio-video standards maintained by The UGA Center for Teaching and Learning (CTL). The CTL continually evaluates products, services and systems design in order to provide cost effective, dependable and supportable technology for the UGA campus. The CTL maintains standard equipment list and diagrams for audio, video and control systems currently installed in the CTL supported classrooms, conference rooms and other instructional spaces. It is the responsibility of the Design Professional and Contractor to request documentation for reference. Refer to section 27 41 00.01 – Audio-Visual Systems Requirements for additional control system specifications.
- C. Video conference and lighting systems shall operate independently from audio-video presentation systems, even when integrated together. Room lighting will be managed by a dedicated lighting controller. The primary controls for operating and configuring lighting scenes shall be part of the lighting control system. For convenience some lighting control may be accessible through the AV control interface. Refer to section 26 09 36 – Modular Dimming Controls and 26 51 00 Interior Lighting for additional details regarding lighting and lighting presets.

2. PRODUCTS

- A. Audio-Visual Cabling Specifications
 - i. All audio-visual twisted pair cabling shall use only Siemon Category 6A Shielded Twisted Pair cables or equal and associated Siemon or equal products installed to the manufacturer standards.
 - ii. All horizontal cables should be blue jacketed.
 - iii. All patch cables should be green jacketed and pre-terminated.
- B. Assisted Listening Devices
 - i. Radio Frequency (RF) is the preferred ALS technology. All associated hardware must be in the 72 MHz frequency band.
 - ii. All classrooms shall have either an installed assistive listening system (for large lecture halls) or the ability to easily connect a portable assistive listening system (ALS) in smaller classrooms. For large lecture halls that have speech reinforcement systems, a full mix of speech and program audio should be mixed and sent to ALS transmitters. For rooms that are small enough to not require speech reinforcement, an easily accessible output of the room’s program audio system should be provided at the instructor station so that this audio feed can be inserted into a portable ALS transmitter and mixed with a speech feed from the portable system.



- C. Designing Learning Environments
- i. Comparable to the role room acoustics plays to the transmission of the spoken work, audiovisual (AV) systems similarly support the transmission of digital audio and video content within today's learning environments. As such, classrooms should be designed such that all students can easily hear and see instructional content.
 - ii. A typical classroom AV system is comprised of several subsystems as noted below:
 - e. An instructor workstation with connections for mobile presentation sources (e.g. laptop computers, tablets, etc.), as well as an array of installed source devices (e.g. room PC, document camera, DVD player, etc.) The exact complement of sources is dependent on the needs of each particular project/discipline/department.
 - f. Video display(s) including front projection systems (projector and motorized screen) for larger spaces and flat-panel monitors (LCD, LED, etc.) for smaller spaces and/or for group tables
 - g. Program playback speakers (typically distributed ceiling speakers) and associated amplifier(s)
 - h. Audio and video routing/distribution/processing equipment which can be either installed within the instructor workstation or in a nearby AV rack closet. Increasingly, the trend in higher education is to specify multi-function AV processors which can replace several single purpose devices with one box.
 - i. Control processors and associated instructor control interface, typically a touch panel at the instructor console, but potentially also control via instructor tablet
 - j. For larger spaces, speech reinforcement systems including wired and wireless microphones, digital signal processors (DSPs) and the same speakers and amplifiers required for AV program playback
 - k. Either portable or installed ALS systems to meet the ADA as noted in the previous section on Accessibility.
 - iii. Please note that the UGA does not intend to equip each classroom on campus with lecture capture technology (i.e. cameras, digital recording/streaming capture stations, etc.) or distance learning systems (i.e. cameras, codecs, etc.). The Design Professional should assess on a case-by-case basis the extent to which lecture capture and distance learning is required on a project and respond accordingly understanding that lighting requirements, room acoustics, light control from windows are much more sensitive when recording and videoconferencing are added to a classroom environment. Likewise, AV costs per room are increased when these capabilities are included.
 - iv. Voice amplification is required in 200-280 lecture halls and potentially in 100-120 seat rooms depending on the room geometry, background noise levels and acoustical treatments. Voice amplification needs for all other room types should be determined on a case-by-case basis. In many instances, sound absorbing materials should be utilized in classrooms to minimize the need for voice amplification systems. Students with hearing difficulties will receive individual assistive devices for classroom listening.