AUDIO VISUAL CRITERIA

a) General Comments

In this section we have outlined the design criteria for:

- Media Room
- Courtrooms
- Large Conference Rooms
- Small Conference Rooms
- Interview Rooms

Sound Reinforcement & Reproduction Systems: These systems permit presentation of program audio accompanying video presentations and computer presentations, and provide the audio feed for recording.

Control Systems: These systems allow the remote control of audio-visual equipment and systems, and room equipment including projection screens, lighting and drapery. Lighting Control shall be via RS-232 interface to Lighting Control System. Lighting Control System shall be as specified under Division 16 Sections.

Video Systems: These systems permit distribution recording and presentation of video program material.

b) Media Room

Audio: The audio systems shall provide speech reinforcement and program audio playback. The systems shall utilize a distributed array of ceiling loudspeakers. The loudspeakers shall be spaced roughly a ceiling-height apart. Loudspeakers shall be powered from a 70.7 volt distribution amplifier located in the rack. Audio processing shall be accomplished with a programmable digital audio system This system shall provide routing, equalization and level control. Microphone inputs shall be provided on the front wall at the podium location and also in the floor below the conference table.

Video: Video sources shall include a built-in BluRay/DVD player located in the rack and computer inputs at the front wall and in the floor below the conference table. Video display shall be via a ceiling mounted video projector with an electric roll-down projection screen. Video switching shall be accomplished with an auto-scaling video switcher.

Control: All aspect of the audio-visual system operation shall be controlled with a programmable remote control system. A wired touchpanel to control the system shall be provided and shall have connection points in the front wall at the podium location and in the floor below the conference table.

c) Courtrooms

Audio: The audio systems shall provide speech reinforcement and program audio playback. The systems shall utilize a distributed array of ceiling loudspeakers. The loudspeakers shall be spaced roughly a ceiling-height apart. Loudspeakers shall be powered from a 70.7 volt distribution amplifier located in the rack. Audio processing shall be accomplished with a programmable digital audio system This system shall provide routing, equalization and level control. Microphone inputs shall be provided on the front wall at the podium location and also in the floor below the conference table.

Video: Video sources shall include a built-in BluRay/DVD player located in the rack and computer inputs at the front wall and in the floor below the conference table. Video display shall be via a ceiling mounted video projector with an electric roll-down projection screen. Video switching shall be accomplished with an auto-scaling video switcher.

Control: All aspect of the audio-visual system operation shall be controlled with a programmable remote control system. A wired touchpanel to control the system shall be provided and shall have connection points in the front wall at the podium location and in the floor below the conference table.

d) Large conference rooms (600 sq. ft or above)

Audio: The audio systems shall provide speech reinforcement and program audio playback. The systems shall utilize a distributed array of ceiling loudspeakers. The loudspeakers shall be spaced roughly a ceiling-height apart. Loudspeakers shall be powered from a 70.7 volt distribution amplifier located in the rack. Audio processing shall be accomplished with a programmable digital audio system This system shall provide routing, equalization and level control. Microphone inputs shall be provided on the front wall at the podium location and also in the floor below the conference table.

Video: Video sources shall include a built-in BluRay/DVD player located in the rack and computer inputs at the front wall and in the floor below the conference table. Video display shall be via a ceiling mounted video projector with an electric roll-down projection screen. Video switching shall be accomplished with an auto-scaling video switcher.

Control: All aspect of the audio-visual system operation shall be controlled with a programmable remote control system. A wired touchpanel to control the system shall be provided and shall have connection points in the front wall at the podium location and in the floor below the conference table.

e) Small conference rooms (less than 600 sq. ft.)

Small conference rooms shall be provided with large flat-panel video monitors. AV inputs shall be provided in the floor under the conference table and at the front of the room. No sound reinforcement system shall be provided.

f) Interview Rooms

Interview rooms shall be provided with a closed-circuit video and audio system to allow operators in a remote room to monitor the interview session. Camera and microphones shall be provided in the interview rooms. The monitoring rooms shall be provided with large flat-panel video displays and ceiling loudspeakers powered from a rack located in the monitor room.

g) Performance Criteria

Audio: 80 dBA maximum acoustical output with speech, 105 dB maximum acoustical output with music, measured in audience area, at listener height, with applicable program material. Actual operating levels shall be field adjusted to provide a comfortable listening level with volume control ceiling set just below acoustic feedback level. Maximum 6 dB variation in level, moving throughout the listening area, with pink noise input. Design target for spatial uniformity shall be equal to or less than 3 dB variance. Plus or minus 3 dB variation with frequency measured from 40 Hz to 10 kHz, averaged throughout the listening area. 6 dB minimum acoustical gain with voice 6 inches from microphone. No audible distortion with any program material at specified acoustical output.

Media Display: Provide projected images, which properly fill their respective screens to full size without overhang, and without color fringing or aberration. Projectors shall be located to avoid keystone image distortion. Video projection system shall provide screen brightness of 30 ANSI Lumens per square foot of screen area minimum. Video projectors shall be network compatible for remote status monitoring.

Control: Integrated control systems shall be designed to control all applicable AV equipment and system functions via serial data connection where ever possible and at the very least, one way IR type control. System control functions shall include AV source equipment transport controls, audio volume, electric screen operation, AV input source selection, projector on/off, camera controls with presets where applicable, videoconferencing system and lighting control. The control system shall be Ethernet compatible and IP addressable to allow control from off-site, status monitoring and diagnostics.

System Power Requirements: Power for the AV systems equipment except that specifically for rotating machinery such as projector lifts and projection screen motors shall be provided by a dedicated, clean power service separated from other building power systems by an appropriately sized isolation transformer. Circuits feeding AV equipment shall be 120 VAC, 20A isolated ground type with separate green ground wire. Receptacles serving AV equipment shall be orange isolated ground type. AV power circuits shall be from a dedicated isolated ground panel supplied from the isolation transformer. AV power grounds shall ultimately terminate only at the isolation transformer ground and shall not be connected to or be in electrical contact with building steel, or the conduit system. The isolation transformer ground shall be bonded to the building grounding electrode or similar reliable earth ground point. Rotating machinery or other noise inducing equipment must not be powered by the AV power system or share a ground bus with the AV power system. AV equipment racks shall be direct wired to the AV power system. The appropriate number of 20A circuits shall be dedicated to the AV equipment racks to power current equipment and to provide an additional 30% for future expansion. The AV equipment racks shall not make electrical contact with the conduit system. Each video projector or large flat-panel display shall have It's own dedicated circuit. AV floor and wall box receptacles shall be

fed from circuits so that one circuit supplies no more than five duplex receptacles. A duplex IG receptacle shall be provided in every AV system floor box and adjacent to every AV system wall panel or outlet.

AV System Cooling requirements: Generally, it is expected that the AV systems for this project shall not require dedicated equipment room cooling units, but that regular building HVAC shall suffice for cooling AV equipment rooms. Equipment racks located in cabinetry shall be provided with adequate flow-through ventilation and exhaust fans where required.

AV System structural requirements: Video projectors and projection screens are the primary loads, which may be suspended from the ceiling slab. Wall mounted video monitors shall require backing plates for attachment of the monitor mounts.

Conduit system : The conduit system to support the AV systems shall be entirely metal and shall consist of metal conduit and standard gang boxes where ever possible, and larger boxes where necessary. Some floor boxes shall be required. These shall be of the large recessed hinged cover type due to the nature of the AV receptacles to be located in them. The system shall include extra conduit space and additional box locations where applicable to support future system expansion, although it is anticipated that future needs shall be met with fewer rather than more discreet cables as a digital backbone approach to media distribution is adopted.