

CONFERENCE ROOM TECHNOLOGY THINGS TO CONSIDER



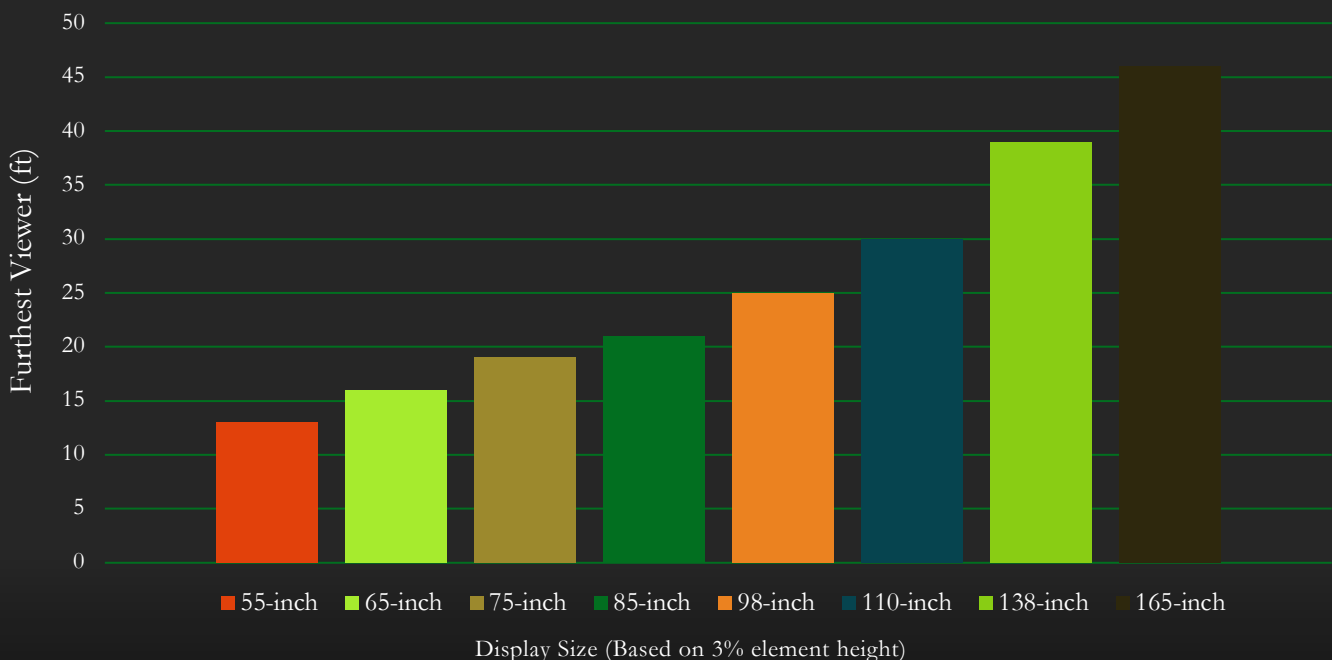
CONFERENCE ROOMS THAT WORK!

Technology is a tool that simply needs to work. The goal is for the gear to work all the time, every time. Simple Solutions for an exceptional experience. Most people have had a terrible experience with technology. In most cases, the needs of the users are often overlooked, and complex systems are installed. Embracing technology as a tool that is easy to use will ultimately lead to user adoption across the enterprise.



DISPLAY SIZE

Often people do not understand the relationship between resolution, screen size, and viewability. When choosing a display, it is important to understand that the size of the display is critical for proper viewing of the presented content without eye strain. Fortunately, there are standards created for this reason. The [AVIXA DISCAS](#) standard was created to ensure viewability whether for standard viewing of presentations or pixel level detail. AVIXA even created this [handy calculator tool!](#) The 95% use case utilizes standard viewing in the conference room. The following outlines the recommend furthest viewer for different display sizes:



DISPLAY TECHNOLOGY

There are several different types of display technology available for the conference room. The most common include flat panel, projection, and direct view LED. Each has its pros and cons:

Flat Panel Display



Pros

Low Cost, Brightness, Color, Contrast

Cons

Size Limitation

Projection



Pros

Larger Sizes

Cons

Requires Screen, Low Brightness, Low Contrast

Direct View LED



Pros

No Size Limitation, High Brightness & Contrast, Better Color Depth

Cons

Higher Cost, More Infrastructure Requirements

CAMERAS

Two primary types of cameras are used including smaller fixed and larger pan/tilt/zoom. A fixed camera will provide a wide shot of the room and often has an electronic tracking (ePTZ) built in. Often ePTZ is more of an annoyance while the fixed wider viewpoint is all that is required. A fixed camera can often be built into all-in-one bar solutions that are useful in smaller conference rooms.

Pan/Tilt/Zoom cameras allow full control of the camera allowing it to do just as it describes; Pan, Tilt, and Zoom. These can be controlled on a touch panel with precision or can recall simple presets to change between seating areas. More advanced systems will allow for fully automated tracking and production style switching.



Camera Location is critical. Most meeting participants want to feel as if the far end is in the same room. To accomplish this, you will want to get close eye to eye contact. A camera with a single display is always centered below the display (no lower than 40") but often must be placed on top of the display due to the overall display size and ceiling height limitations. This often creates the unwanted fishbowl effect. A camera with a dual display can be mounted between the displays ideally on the bottom or between.

AUDIO

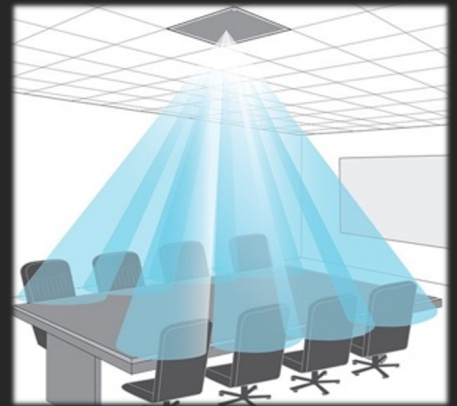
Audio is a HUGE factor in proper technology design for the conference room. Audio is integral to every meeting that takes place. Proper room acoustics create a better environment for participants within the room as well as the far end. Ensure that your room is not too “lively” as a reverberant room will create an unpleasant space for all. Stone or glass tables, concrete or hard surfaced floors, glass walls or windows, and a box design with untreated parallel surfaces all contribute to an unpleasant and lively room.

Speakers

Speaker coverage for proper audio playback of presentations and to intelligibly hearing the far end of a conference call is critical. This can be done with overhead distributed speakers or from display mounted speakers (or all-in-one sound bars) for smaller to medium sized rooms.

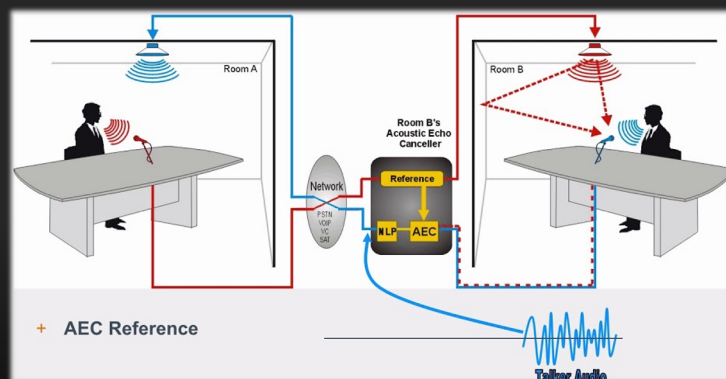
Microphones

In order for the far end of any audio and video conference call to hear the in-room participants selecting the correct microphone is key. There are many advances in technology utilizing beam shaping directional microphones as well as more traditional desktop or push-to-talk microphones. The most common and least obtrusive option is the ceiling mounted (large or small rooms) or flat panel mounted (small or medium rooms) beam forming microphones. Table microphones are a good option for those that wish to utilize individual level control and muting for meeting participants. Larger spaces may require wireless microphone technology or reinforced audio from a presenter within the room.



Acoustic Echo Cancellation

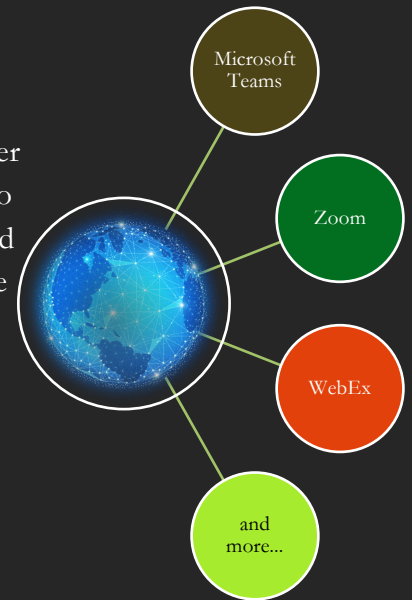
Often overlooked, acoustic echo cancellation (AEC) is required for ALL meetings that take place with any type of conferencing. Many people do not understand that this feature only benefits the far end of the conference, or those on the other end of the call. Incoming audio from the far end is played through the room speakers. That audio is then picked up by the local room microphones. If AEC was not in place, the participants on the other end of the call would hear themselves as an echo. AEC filters and removes that far end audio only allowing those within the room that are speaking to be sent out. Remember, if you hear an echo, the other end of the conference has been improperly designed!



MTR Rooms, Zoom Rooms, and more...

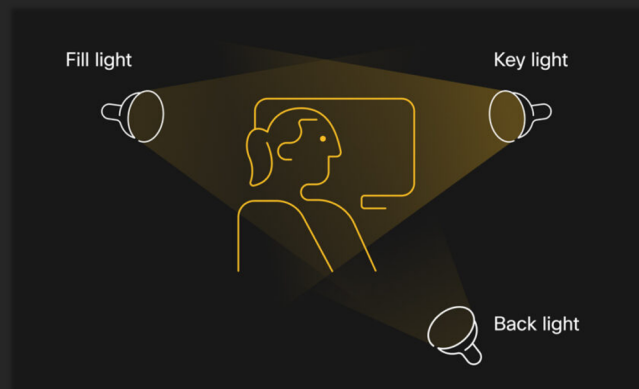
What is an MTR or Zoom Room? These are purpose driven rooms with a hardware device pre-loaded and configured to work directly with Microsoft Teams or Zoom. These rooms are great for ease of use and do not require a user laptop to have a meeting. They are not without limitation. Often these rooms do not integrate well with other platforms. For example, if using an MTR room and you bring in a laptop with the desire to use Zoom or other platform, this can be a complex process. It is important to understand if these purpose-built rooms are ideal for your enterprise and what the limitations are of each.

Agnostic rooms are fully capable of conducting a meeting utilizing any software-based conferencing. This type of room allows anyone and their laptop to connect to the room technology (speakers, microphone, display, etc...) and conduct a meeting or conference call. This is the most versatile option.



Lighting

A successful video call can be enhanced by proper lighting. Avoid backlighting such as windows or other natural light sources (also avoid wall patterns that are complex in the back of the camera view). These natural light sources are great, but only if they are NOT behind you. If possible, arrange it so the brightest source of light is located in front of you at a 45-degree angle (this includes scoop, directional lighting, or windows). A key light will be responsible for most of the light on your face and be located 45-degrees off axis. A fill light is second to the key and will help with shadows. The fill should be dimmer than and opposite of the key light. The back light should be out of frame opposite the key light and will give definition to your outline while adding depth.



Other important considerations for lighting include the use of diffused lighting rather than harsh concentrated light and color temperature. Lighting temperature refers to how warm or cool a light is (measured in Kelvin **K**). When combining natural light from a window with overhead lights you may end up looking too orange or too blue due to the color temperature difference in the various light sources. To mitigate this issue, look for LED bulbs that are closer to 6000K.

Other Considerations...

Control

User friendly controls of the system can include remotes to touch panels. Each offer a different set of features and functions, but ALL should be programmed and setup in such a way to simplify operation for the users. Automation of as many features as possible can help minimize down time and help start meetings on time!



Connectivity

Identify connections for user laptops and the locations they will be used most. Think about how many different locations and connections there should be for HDMI video and USB conferencing. Consider the addition of wireless presentation and collaboration. These devices will allow for multiple people to collaborate on screen with their own laptop, tablet, or smart phones wirelessly.

Equipment

Where will your equipment be located? Often there is equipment that will require space and mounting. This can be done within room credenzas, behind the displays, within the ceiling, using a stand-alone equipment rack in the room, or within a remote IT closet. Always consider proper ventilation to prevent this equipment from overheating as well as any other requirements such as power or data to the network. Another question often asked is how long will this equipment last? A typical refresh cycle is 5-7 years.

Infrastructure

Always be mindful of the unknown. Many things are required to support the technology systems that can add cost to a project. It is important to identify these things up front as to deal with them as early as possible. This will ultimately create a better experience for everyone when it comes time to implement the technology. Considerations include electrical power, ambient noise, lighting, ventilation, acoustics, structural integrity, conduit, and cable pathways.

Networking

Almost all audiovisual equipment will in some way reside on the network. Often this may be a closed AV network, but it could also be a vLAN on a larger corporate network. Some audiovisual equipment requires high amounts of bandwidth to transfer data such as video across the network so proper QoS and network segmentation must be considered. Network security and utilization of non-default equipment passwords are critical today for securing any workplace. Do not let your audiovisual equipment be left out of these conversations. To learn more about network or cyber security and your audiovisual equipment, contact the Pearl Technology [MSP](#) or [Security](#) team today!

Room Scheduling

Room scheduling panels outside of a room, or even on the display within a room, can maximize room utilization. By making the rooms a part of your calendar system, employees will know which rooms can be used and when as well as booking these spaces on the fly.

