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# AUDIO BASICS

## ROOM TYPES AND MIKING ROOMS



**SHURE**  
SOUND EXTRAORDINARY

# ROOM TYPES AND MIKING ROOMS

THE OPTIMAL AUDIO SOLUTION FOR ANY GIVEN MEETING SPACE DEPENDS ON A WIDE RANGE OF FACTORS, INCLUDING THE SIZE OF THE ROOM, THE NUMBER OF PEOPLE INVOLVED, THE NUMBER OF PRESENTERS, AND THE STYLE OF PRESENTATION.

The biggest factor in microphone selections is whether or not a sound reinforcement system – which enhances and distributes sound throughout a room – is involved. Another major consideration is presentation style. Examples include:

- One-to-many: one person addressing an audience, such as a lecture
- Many-to-many: all attendees speaking at will, as an open forum
- Hybrids: special cases of many-to-many communication with restricted or prioritized microphone access. Examples include city councils, courtrooms, boardrooms, and panel discussions with an audience.



## KEY FEATURES THAT DETERMINE MIC SELECTION



**THE SIZE OF THE ROOM**



**NUMBER OF PEOPLE INVOLVED**



**PRESENTATION STYLE**



**NUMBER OF PRESENTERS**



# HUDDLE ROOM

**THESE SMALL, INFORMAL MEETING SPACES HAVE BECOME INCREASINGLY POPULAR IN RECENT YEARS.**

In general, there is no need for sound reinforcement in basic meeting spaces. However, many huddle rooms do incorporate audio or video conferencing, which may be a permanently installed or portable system.

Because there is no PA system involved, this is a perfect situation for an area miking approach, with one or two mics overhead. The key issue to be aware of is to avoid placing the mic too close to the loudspeaker from the teleconferencing system.



## MIC OPTIONS



If the system does not have its own dedicated microphones, try placing a couple of boundary microphones – wired or wireless – on the table



1-2 small condenser microphones hanging a few feet above the table can also be useful



# MEETING ROOM

**THESE LARGER SPACES TYPICALLY ACCOMMODATE BETWEEN 6 AND 30 PEOPLE AT ONE OR MORE LARGE TABLES, OFTEN SEATED "IN THE ROUND" SO THAT EVERYONE CAN SEE EACH OTHER.**

If the room has well-controlled acoustics, sound reinforcement may not be required. However, both recording and teleconferencing are common in meeting rooms, which means that microphones will be necessary.

Whenever four or more microphones are used, it is strongly recommended that there be some way of turning off unused microphones. The easiest way is to use microphones with integral on/off switches and rely on the presenters to operate their own microphones.



## MIC OPTIONS



If the tables are movable, wireless tabletop microphones can provide flexibility and speed of setup



Gooseneck microphones on the table have typically been the preferred option in meeting rooms, although boundary microphones are also used



In order to maintain the aesthetics of a meeting room, ceiling mics offer an invisible solution that provide consistent coverage in a wide variety of room shapes and sizes





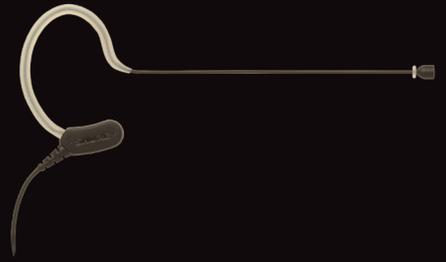
# TRAINING ROOM

**THIS IS A CLASSIC ONE-TO-MANY COMMUNICATION SCENARIO, WITH UP TO 30 STUDENTS AT CHAIRS OR TABLES FACING THE INSTRUCTOR.**

The larger and more reverberant the room, the more need there is for a sound reinforcement system at the front, facing the learners. Smaller rooms that do not require a sound system may still need miking to feed streaming, videoconferencing, and/or recording of the presentation. Ensuring clarity of speech is critical in any learning environment.



## MIC OPTIONS



The lecturer may work from a podium, but is more likely to move about during the presentation to use a blackboard, whiteboard, or other tools. To accommodate this, a headworn or lavalier wireless microphone is the preferred solution.



Student questions can be fed into a distant learning link in a number of ways. A dedicated microphone can be placed at a specific table for this purpose, or a handheld wireless can be passed around as needed.



Overhead miking of the seating area should only be considered when no sound reinforcement system is involved, and only in rooms with good acoustics.



If the class experience is intended to be highly interactive, consider a system of desktop microphones with an automatic mixer or discussion system.



A woman with long dark hair is seen from behind, sitting at a desk in a meeting room. She is looking at a large monitor that displays a video conference with a man who has a grey beard and is wearing a blue shirt. The room is dimly lit, and there is a laptop and a white mug on the desk in front of her. A bright green diagonal line runs across the top left of the image.

# VIDEOCONFERENCING

**VIDEOCONFERENCING SYSTEMS ALLOW MULTIPLE GROUPS OF PEOPLE TO INTERACT IN REAL TIME. THERE ARE TWO PRIMARY TYPES OF SYSTEMS: DEDICATED AND DESKTOP, AND THEY CAN BE BASED ON EITHER TRADITIONAL TELEPHONY OR AN ENTERPRISE VOIP SYSTEM.**

The audio part of a videoconferencing system follows the function of any typical meeting room, often with pre-selected speaker systems and microphones. As with any sound system, care must be taken to maximize intelligibility and minimize unwanted noise. When setting up a teleconference, use solid techniques for microphone selection and placement. Wireless microphones can be incorporated to eliminate unsightly cables while adding mobility.



## TROUBLESHOOTING



The biggest audio problems in videoconferencing tend to be related to microphone placement. Distant mics produce a hollow, indistinct sound and increase the potential for echo problems.



Placing microphones within arm's reach of all participants is a good guideline for improving sound quality, and has the added benefit of improving the performance of the system's acoustic echo cancellation (AEC), which works to enhance voice quality by removing or suppressing echo at the far end.

# BOARDROOM

**A BOARDROOM IS NOT UNLIKE A STANDARD MEETING ROOM, BUT INCORPORATES TURNKEY CONTROL SYSTEMS TO ENABLE PARTICIPANTS TO FOCUS ON THE PROCEEDINGS RATHER THAN THE EQUIPMENT.**

Typically, a control system will allow users to access any equipment through a single touchscreen. Any sound reinforcement is usually limited to videoconferencing systems and playback systems for video.

Microphones are common in boardrooms, both for teleconferencing and as a means of recording the proceeding for archival purposes. Automatic microphone systems are popular, as they ensure full capture of the proceedings without the need for a system operator in the room.





## MIC OPTIONS



In a boardroom, aesthetics are always a major consideration, particularly in mic selection and placement

Permanent microphones may pose a challenge, as they require drilling through expensive conference tables to run cables

For this reason, tabletop wireless microphones are popular in the boardroom as they eliminate unsightly cables, preserve the conference table, and can be quickly removed when not in use



# CITY COUNCIL / COURTROOM LARGE MEETING FACILITIES

**THE BIGGER THE MEETING FACILITY, THE GREATER THE NEED FOR ADVANCED SYSTEMS.**

With a chairman presiding over a large group like a city council, usually with an audience gallery, a comprehensive sound system with advanced features is required. International conferences are even more demanding, with interpretation capabilities often needed.

Such facilities have complex requirements, including the need for participants to hear each other across the room, for the audience or gallery to hear everything, and of course the need to maintain some semblance of order with so many participants. Sound systems must be carefully designed, with multiple destinations including monitoring for the participants, a PA system for the audience, and separate feeds for recording, for the press, for cable broadcast and streaming, etc.

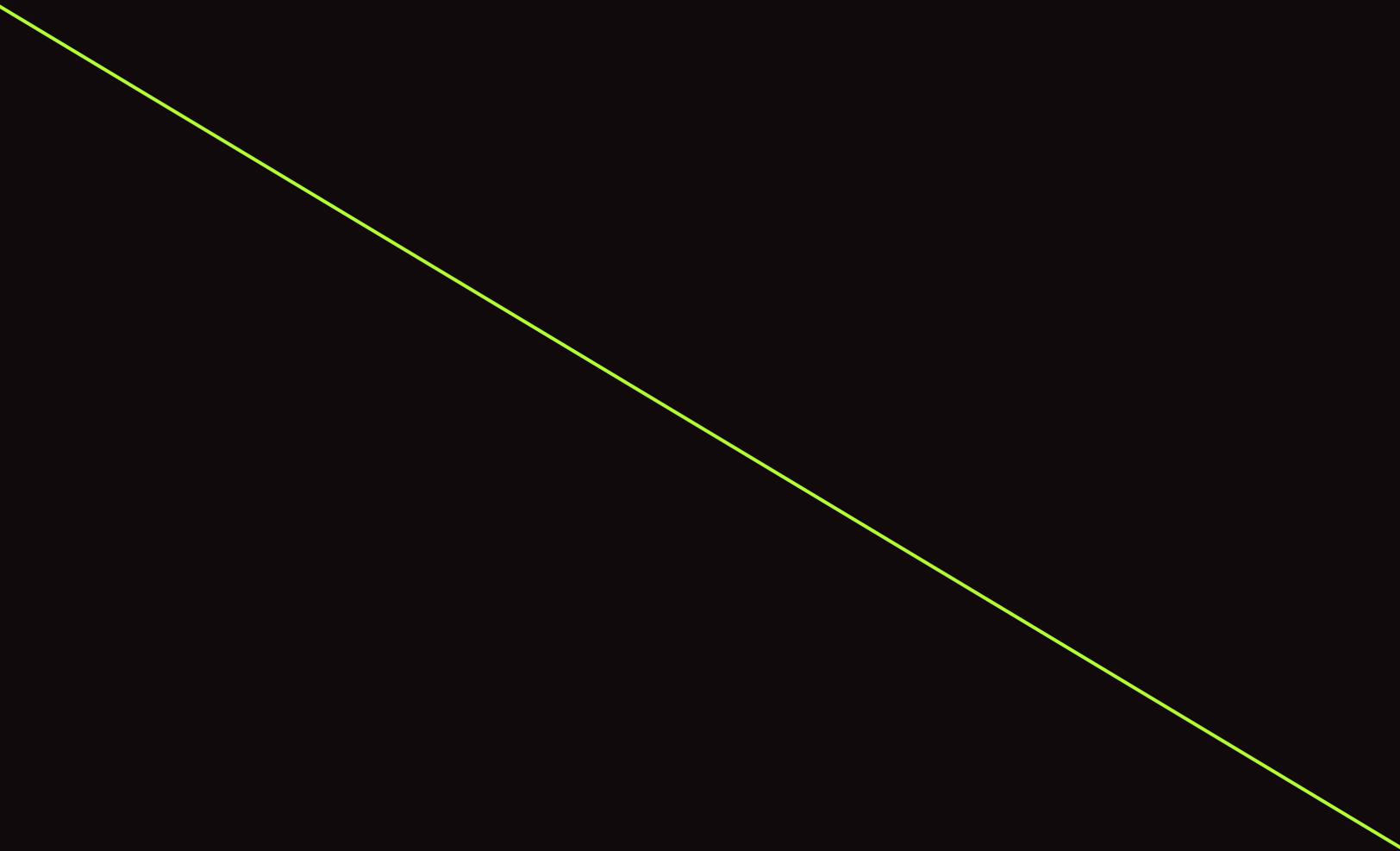


## MIC OPTIONS



Automatic microphone systems are a starting point. The ability to minimize the number of open microphones by turning them on only when the participant speaks, then smoothly off when not in use, helps maintain intelligibility while ensuring that all talkers are heard. In addition, many automatic microphone systems include logic switches to create priority for the chairperson's microphone.

Many installations can benefit even further by using a discussion system or conference system. These address one of the biggest problems of sound reinforcement for meetings by incorporating a small loudspeaker into the base of a tabletop gooseneck microphone. By placing these miniature sound systems in front of each participant, it ensures consistent sound quality for all. In addition, discussion and conference systems are almost uniformly digital, can be operated by non-technical users, and can be scaled up to accommodate virtually any size of gathering.



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