Acoustical Environment of Drama Spaces

Storytelling is one of the oldest human traditions, and drama spaces must connect the audience to the actors, and to the playwrights, and their stories...

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What does the room have to do with communication?
The communication between the actors and their audience form the basis of live theatre. Issues of room shaping and construction detailing can have a significant impact on this communication. The acoustical treatment that supports the voices of the actors as they interact onstage is important to the quality of the final production. The shape and materials used in the "house" impact both the audience's ability to clearly hear the voices and the actor's perception of the audience reaction. By careful attention to room shaping and acoustical materials, problems such as confusing echoes, "dead spots" and focussing can be avoided.

What is on the programme?
The programming of a facility will greatly impact the design requirements. Theatres that double as concert spaces must accommodate an entirely separate set of acoustical criteria to support musical performance. Optimal speech intelligibility requires relatively short reverberation times but music is more pleasant to perform and listen to in spaces that have longer reverberation times. In the early stages of design the conflicting requirements for music and speech can be balanced. This can reduce the cost of design and construction while increasing the efficacy of acoustic and sound system features.

Don't distract the audience!
The acoustical design incorporates much more than the sound in the theatre. Sounds or noises originating from outside of this space should not intrude on the performance. Skilled acoustical design includes attention to the design of the heating, ventilation and air conditioning systems. Reducing the intrusion of noise from these systems without excessively increasing their cost and complexity requires a detailed understanding of the techniques and materials used in HVAC systems to achieve appropriate noise criteria.

The theatre must also remain isolated from sounds produced in the lobby or backstage. The boisterous extras in the second act should not distract the audience or performer during the soliloquy at the close of the first act. Similarly, the crew loading out the Act 1 sets must not disturb the closing moments of the show. Acoustical consulting can provide wall construction details and advise in the layout of backstage dressing rooms, scenery shops, technical areas and crossover to prevent offstage sounds from becoming part of the play. This also extends to the sounds produced by late-comers in the lobby arguing with the ushers and the traffic and aircraft sounds produced outside of the building. All of these sounds must be excluded from the theatre so that the members of the audience can be transported to the playwright's setting and not be randomly jolted back to their everyday world.

Coordination – who looks after the details?
The design team comprises many disciplines whose recommendations can impact the listening environment of the theatre in ways they never imagine. It is important to the overall success of the venue that the acoustical implications of the various design trade-offs and compromises (the warp and weft of the design process) are reviewed in terms of their overall impact on the audience's perception of the room and the performance. An acoustician with a broad experience of all aspects of theatre design can provide a bridge for resolution of disparate design details, and so improve the process and end product.