

You asked for a list of renovation items that, from an acoustician's standpoint, would be needed to turn the Reader's Digest auditorium into a first rate multipurpose community facility that could successfully accommodate a wide range of activities. A few comments are first provided to give perspective to the listed items...

The differing requirements of music and speech represent the principal acoustic problem to be confronted, while differing staging requirements represent the principal theatrical problem to be dealt with. Back in 2000, I was asked by TCO to comment on the acoustics of this hall, and I noted that the less-than-3/4-sec reverberation time was as bad as it gets for music performance. For speech and A/V activities, though, the absence of reverberation is a good thing. In sum, the auditorium is presently acoustically well suited to speech (lecture) and A/V activities, but not much else. Functionally, the stage is too small and ill equipped to serve drama, musical theatre and dance, to say nothing of its unsuitability for symphony orchestra.

Acoustic character comes from the containment and redistribution of sound by a room's boundaries. Size, shape, finishes and furnishings are the parameters that are manipulated to determine a room's sound. A concert hall requires hard surface boundaries and a very high ratio of cubic volume per audience member to produce reverberation... say, 500 cu. ft per occupant, which would require a ceiling height of probably/possibly around 40'. The only alternative for achieving concert hall room sound would be electronic simulation, in which case the "room sound" can be turned on with a switch.

Once a room has the volume and hard-surfaces to serve as a concert hall, acoustic adjustability is needed to reduce the reverberation to a time more suitable to speech and amplified events. In a room without a full fly tower, this adjustability can be in the form of 1) tracked and rotatable hard paneled legs on-stage, and 2) tracked sound absorbing draperies on-stage and in the upper volume over the audience that withdraw into hard surfaced storage pockets. The acoustic advantage afforded by hard-paneled, sound reflecting legs (and borders, too) is that hard, sound reflecting stage surfaces are in place all the time, offsetting the need for removing stage cloth and installing a concert shell each time the room is used as a concert hall. For theatrical events, the tracked draperies are extended for full exposure, and the legs are turned 90° to expose a black side for traditional masking.

Now, a list of items needed to implement this briefly outlined concept...

- Raise the roof. To maintain the scale of the room, a false sound transparent ceiling can be installed at something like 20' above the stage.
- A new enlarged stage is required. The suggestion is to do this as an addition to the current stage end of the building. The raised roof would continue over the new stage. The existing stage would become a forestage.

- A proscenium frame would be added to the new stage, but there would be no physical barrier over the top of the proscenium. The proscenium arch would conform roughly in height with the new false ceiling over the audience. This is to produce a pure concert hall stage in which the musicians and audience are in a single acoustic space.
- Incorporate hard, tracked, rotating masking legs as permanent stage equipment.
- Incorporate complementary masking borders that can be flipped into a horizontal position as overhead reflecting surfaces for a concert shell configuration.
- Allow sufficient wing space for ballet dancers to run off stage without fear of hitting a wall.
- This isn't a strong recommendation, but the seating area could be removed and replaced with a gently sloped floor plus a rear balcony. In this instance, the control rooms can be placed at the ideal location on the floor at the rear below the balcony.
- An absence of background noise (i.e., silence) is a fundamental requirement in any listening space is. A new, quiet air delivery system will be needed.
- Over-the-house stage lighting positions should be created as part of the new false ceiling.
- How about an orchestra pit? Probably even more of a pipe dream than anything listed so far, but designing the forestage with tri-level capability permits 1) proper placement of pit musicians in a recessed area, 2) an extended forestage, and 3) supplementary audience seating when placed at floor level. A 45-piece orchestra requires 800 sf to be comfortably arranged. The additional area of a forestage can be valuable supplemental area in a small hall.

Photos are included of an extremely successful small hall that employs most of the listed concepts— false ceiling 16' below a raised roof, false proscenium (i.e., no barrier above to restrict sound from stage to audience), hard-surfaced tracked and rotating legs, tracked sound-absorbing draperies on-stage and above the false ceiling, a large forestage, and over-the-house lighting positions.

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