by Steven J. Thorburn, PE, CTS-D, CTS-I

Designing presentation facilities can be challenging, yet the basic principles are not difficult. In a previous rAVe Europe issue , we looked at how to determine the screen size for a presentation facility, taking into account the 4-6-8 rule that dictates the image height based on the type of content being presented.

The next step in the design process is to look at the space and determine the minimum distance from the floor to the bottom of the image. The most precise method to achieve this is to use ray tracing from the furthest viewer using an eye height of approximately three-and-a-half feet above the finished floor and looking over the top of seated heads at four feet above the finished floor. This will indicate how low the bottom of the screen can be without having the person's head in front of a viewer obstruct the image.

OK, now for the napkin version: The boardroom ceiling is 10 feet high. We want to start at the bottom of the image/screen at four feet above finished floor in order to get over the heads of other viewers. From there we want to make the image as tall as possible, yet keeping it six inches below the ceiling to miss the track lights and sprinkler heads. From that, our image height is 10 feet minus four feet minus six inches, or 5'6". We then look at standard screen sizes and round up to the next biggest size.

The final step is determining the viewing cone or viewing angle that the projected image can cover in the room without creating problems for the viewer. Generally, a 90-degree viewing cone is preferred. To measure, a scaled floor plan should be marked with a straight line from the center of the screen, perpendicular to the screen. Then measure 45 degrees to either side of that center line. Anyone within this cone should see the image well. If seats or viewers are going to be located outside of this area, then additional screens should be added to provide coverage. That may mean having two side-by-side images in a wide room or having supplemental displays on the side walls in a deep room.

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