What Size Screen Should I Use?

There are many approaches to determining the correct screen size for an event, but no hard and fast rules. The reason is, there are many different types of events that use projected media in different ways. Trying to select a screen for 200 people seated at round tables for dinner, viewing a spread sheet with small fonts, using the same selection rules as the same 200 people seated theatre style viewing a travel video, is ridiculous. The first example requires a much larger screen than the second. If you will be viewing a PowerPoint presentation, the content (mostly photos and large font titles, or detailed charts and smaller font text) will determine if it should be placed in the video, or spread sheet category. With this in mind, I'll try to provide some guidelines for screen selection that should help. In an effort to keep the math simple, all examples below will use screens with aspect ratios of 4:3, and the calculations will be based on the area of the screen in square feet. Common screen sizes and the square foot area of these screens is listed below. (The concept will work for other formats as well.)

Screen sizes are always listed as Height x Width.

4.5x6'=27sq' 6x8'=48sq' 7.5x10'=75sq' 9x12'=108sq' 10.5x14'=147sq' 12x16'=192sq' 15x20'=300sq'

First, let's relate screen area, to the number of people viewing. The base value for the number of viewers, should be approximately 2 to 4 times the square foot area of the screen. In the example used above, this would match our 200 attendees with a 6x8, 7.5x10 or 9x12 screen. These are vastly different sizes, so how do we decide? Next, let's look at how our viewers are seated in the room. Are they seated theatre style, where everyone is close together and the distance to the screen is minimal, or are they spread out at tables for dinner, with a much large average distance to the screen? With theatre style seating, we can stay at the lower end of the range and the 9x12 screen may be overkill, leaving the 6x8 and 7.5x10 as our two choices. If they are seated for dinner, the upper end of the range is more appropriate, eliminating the 6x8, and leaving the 7.5x10 and the 9x12 as our two possible choices. To narrow down a little more, let's look at the type of presentation. If the presentation is a video where fine detail is not critical, the lower end of the range would be acceptable, making our theatre seating choice a 6x8 and our dinner seating choice a 7.5x10. If like our other example, the projected material is a small font spread sheet where detail is critical, the upper end of the range would be more appropriate, making out theatre seating choice a 7.5x10, and our dinner seating choice a 9x12.

All these considerations used to determine the correct size screen are great, but what about the room? The ceiling may be too low to accommodate the screen we choose. The shortest screen skirt made by the major screen manufacturers is 30 inches. Although we might like to raise the bottom of the screen more than this in many situations by using a higher skirt or placing the screen on a stage, let's use this 30 inch or 2.5' value for the next part of our size determination. Most screen companies agree that for a seated audience, the minimum height above the floor, for the bottom of the screen is 2.5'. If no valance drapery is used and the screen is pressed right to the ceiling, the following are minimum ceiling heights for the same screen sizes listed earlier. Truss frame screens require 6 inches extra at the top, and truss heights will be listed after the non-truss heights.

4.5x6'=7' 6x8'=8.5/9' 7.5x10'=10/10.5' 9x12'=11.5/12' 10.5x14'=13/13.5' 12x16'=14.5/15' 15x20'=17.5/18'

In our example with 200 people seated for dinner and viewing a spread sheet on a 9x12' screen, we may learn that the room only has a 9.5' ceiling, so the 9x12 will not fit and we must change our plan. The optimum solution to this problem would be to use 2 screens and effectively divide the one viewing space into 2 smaller spaces. If the fictitious hotel ballroom we are using is 50'x100' and we put 2 screens on the long wall, we are dividing the room into two 50x50' spaces with 100 viewers in each space. This allows us to use two 6x8' screens with each screen still satisfying our size criteria (for 100 people each) and keeping the height within the room limits. There may be other situations where the room is oddly shaped, or has obstructions and viewing a single screen is impossible. These rooms need to be approached in the same way as a room with a low ceiling, dividing the space into 2 or more smaller spaces and following the guidelines for each section independently.

The bottom line when determining how your content will look on a particular screen in the last seat of a large ballroom is this; if the image on your 12 inch wide desktop monitor (approx. 14" diagonal) is readable and looks good at a distance of 50 inches, then it will look the same on a 12 foot wide screen at a distance of 50 feet. I hope this helps simplify one AV planning issue that has been very confusing for many event planners.

Enjoy your presentation,

Glen Sherman

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