Using the basic House of Worship Front of House System.

This example shows a facility that seats about 350. It is typical of the new construction that we are seeing today: It has six sides, with some parallel walls and a sloped ceiling. Only the front and rear walls actually face each other (the room is symmetrical along a line from the center of the front to the center of the rear). The others, while parallel are offset from each other. This helps to reduce room modes and helps make this room a pleasant acoustic environment. The ceiling is high enough that the speakers (which are flown) are not aimed directly at a wall. Figure 1 shows a plan view of this room.

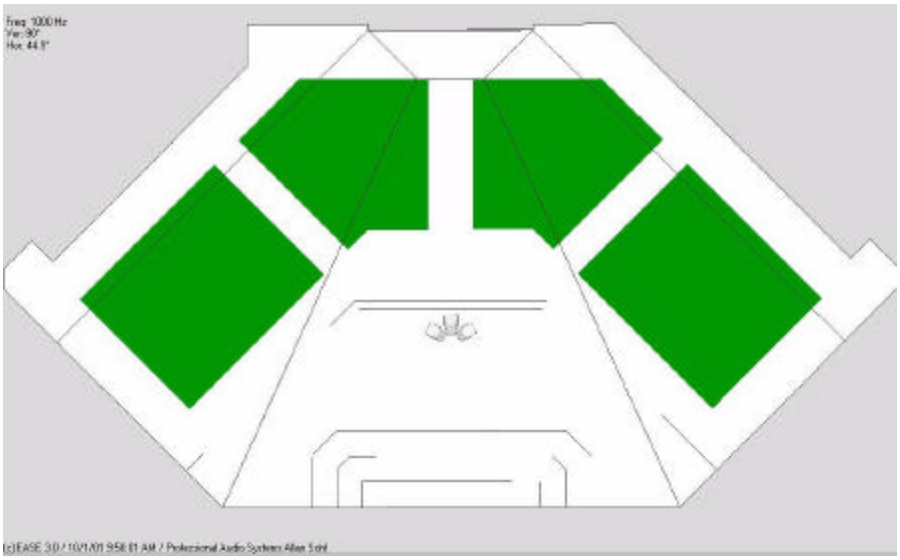

Figure 1.

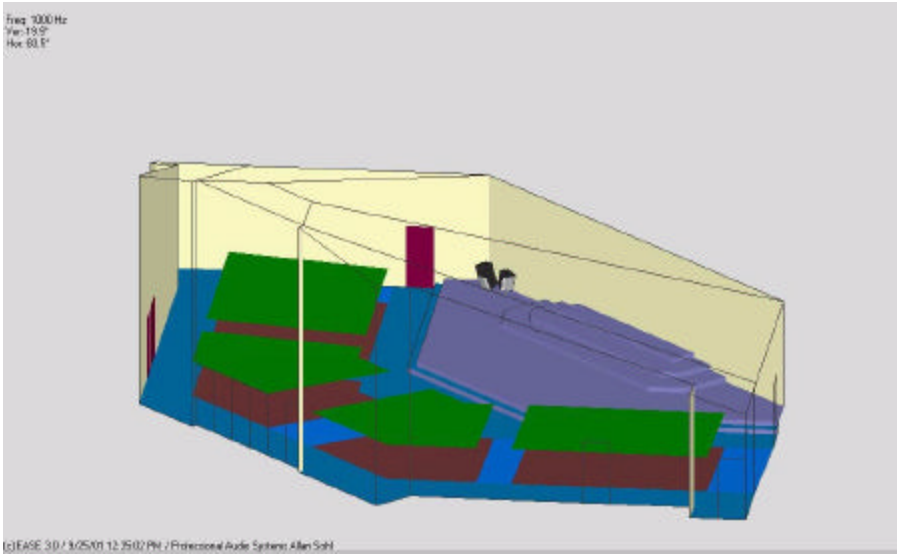

Figure 2.

The usual location for a podium in this space would be at the center front of the stage (where the speaker cluster is shown). Acoustically this is not the best place for a podium. The reason for this is that in a room of this shape, sounds reflected from the rear walls arrive before any of the sounds reflected from the side walls.

These sounds reflected from the side walls (known as lateral reflections) must arrive at the listener's ears before those from the rear walls or the source of the sounds will appear too far away and indistinct. This means that amplification is *required* for a person speaking from the front of the stage.

This disadvantage is considerably reduced as the person speaking gets closer to the wall where the choir risers are. Figure 2 is a 3D rendering which shows the location of these risers

Before looking at the sound levels and coverage that can be expected in this facility, we should look at the type and placement of the loudspeakers.

We recommend a cluster of three of the popular FT-1.2 cabinets. These contain a 15 inch woofer with a concentrically mounted constant coverage horn. A 2-inch compression driver drives this. The FT-1.2 uses a passive dividing network, which contains Time Offset Correction™ along with a small amount of equalization.

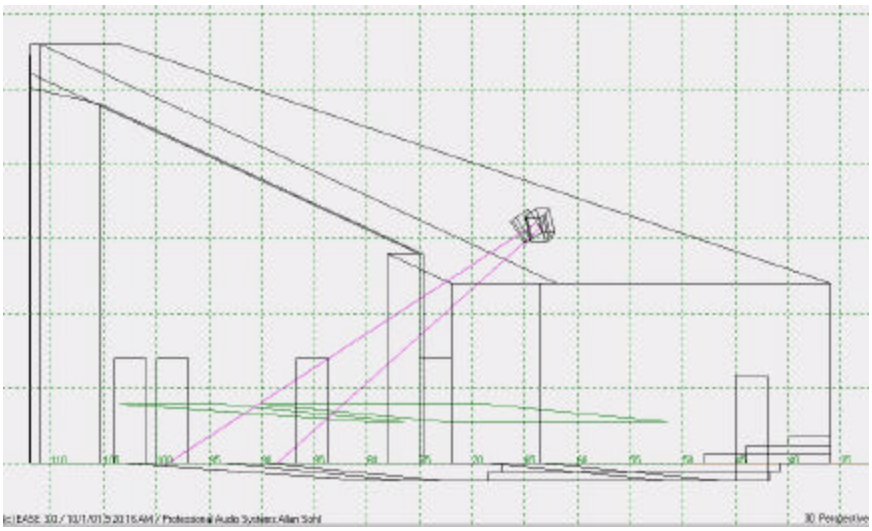

Figure 3.

The cabinets are aimed down by a little over 30 degrees. They are suspended about 16 feet above the main floor (the horizontal lines in figure 3 represent 5 feet). This height makes the ratio between the distance from the cluster to the front row of pews and the distance to the back row about 2.5:1.

Looking at figure 4, we can see that the SPL in the back row of the middle sections is about 4 dB lower than in the front row. This is a very good ratio. In the outside seat in the back row of the side sections, the level is not quite -6 dB. This is still a good ratio.

The power level of these simulations is 100 watts per cabinet. Since the amplifier included with the system is capable of 500 watts per channel into 8 ohms or 800 watts into 4 ohms, the system will produce peaks of 6 dB higher than this.

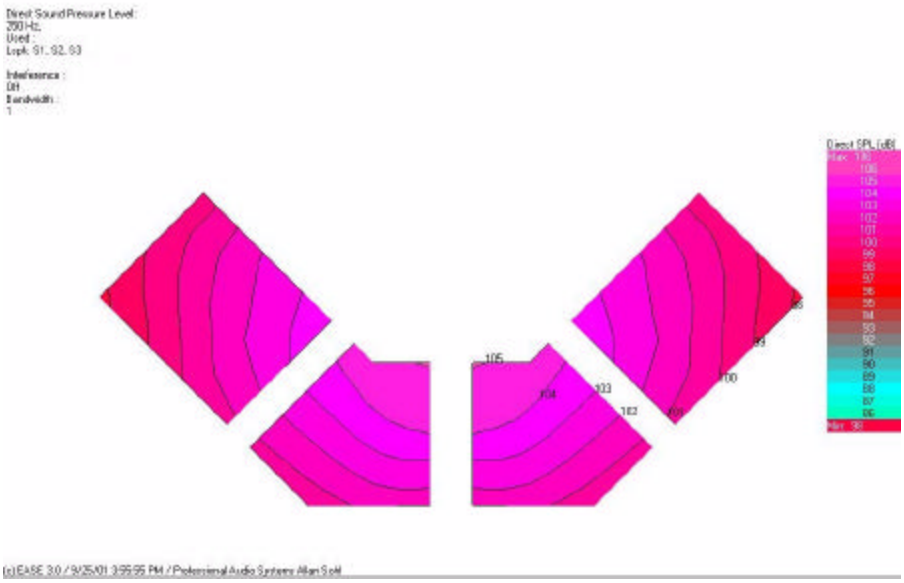

Figure 4.

At other frequencies, the coverage will be somewhat different.

Figure 5 on the following page shows coverage at 1 kHz with 100 watts input per cabinet. The coverage is still fairly even, however it decreases towards the back.

In figure 6, we can see that there is some

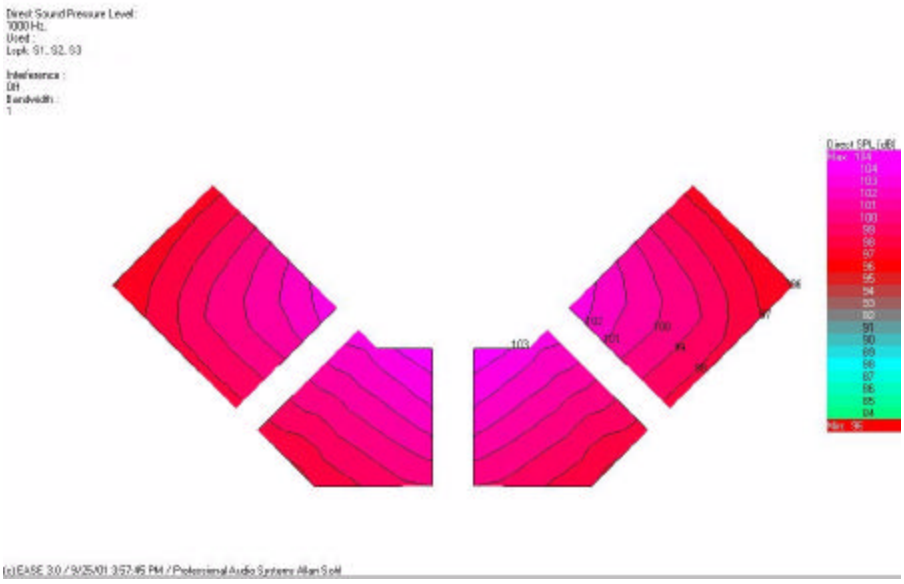

Figure 5.

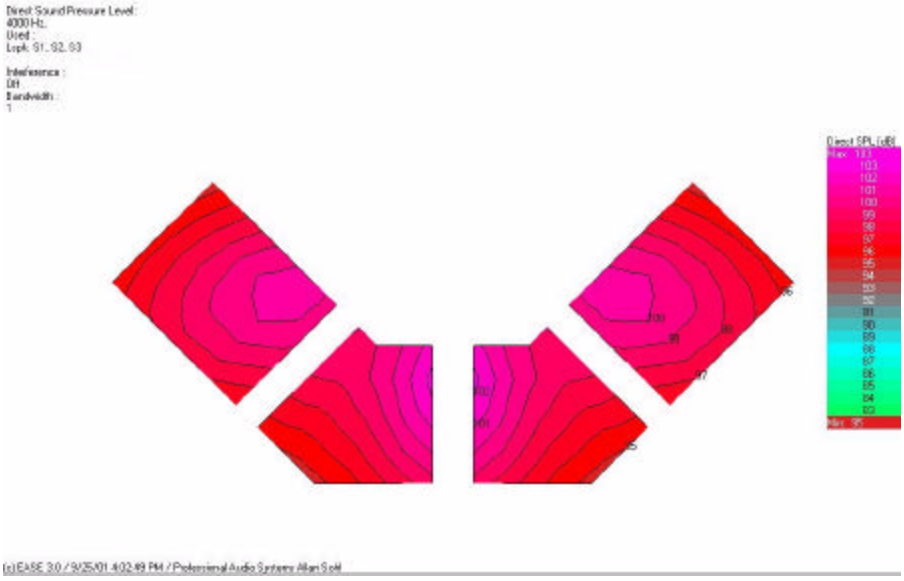

Figure 6.

narrowing of the pattern at 4 kHz. The balance in the side sections is still quite good. The balance at the sides of the central sections, though not quite as smooth is quite acceptable and will not detract from the overall sound quality or intelligibility.

SubWoofers:

Everyone will want to know how loud the subwoofers will get. Typically in a conventional HOW space, loud sub bass is not a requirement of the system. The subs are simply used as an enhancement. However, with the PAS MF-218, it is possible to get very loud. Since the EASE simulation software does not take into consideration the wave nature of sound, it is not possible to accurately simulate frequencies below 100 Hz. Therefore the maximum SPL in the subwoofer range can only be approximated. Given the sensitivity of the 18 inch driver used in the subwoofer cabinets, the power capability of the subwoofer channel of the amplifier (2000 watts into 2 ohms) and mutual coupling of the cabinets (providing that they are placed next to each other), the subwoofer section can produce 150 acoustic watts at 60 Hz. Putting this into a room of this size (72,000 cubic feet), the peak SPL in the reverberant field can be over 125 dB SPL.