

## Creating a Home Theater Gameplan

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**P**utting together a true home-theater system involves more than simply parking a big television in the corner of the family room. A real home-theater system consists of a screen and a separate projector, put into an appropriate room. Here, we'll focus on the screen side of the equation.

### Choosing the Room

The first step is finding an appropriate room, one that allows you to absolutely control light, including ambient light from windows, doorways and other parts of the house. The room should also be one in which noise from the theater isn't going to disturb others in the house.

Next, consider elements of the room like height, width and depth. Height is important because we want to install a screen in the room so it's comfortable to look at. If we go with too large a screen it will be too low and folks in the second row of seats won't be able to see the subtitles on the movies. Consider it this way; if a 110-inch screen in a 16:9 format is installed in a room with 7-foot ceilings, we'd have a problem. The 110-inch screen is going to have a vertical dimension of 54 inches. If we're starting with 84 inches (the 7-foot ceiling equals 84 inches), that means we have only 30 inches of space remaining. Take into account that you really want to have the bottom of the screen up from the ground about 36 inches and that you typically don't want the screen to butt up against the ceiling—and you understand the problem.

A room with a 9-foot ceiling might be a better candidate for that 110-inch screen; an 8-foot ceiling might do better with a smaller, 103-inch screen. Meanwhile, the 103-inch diagonal, 16:9 screen will have a height of 50½ inches, leaving around 46 inches of height to work with. A 7-foot high room should really have a 92-inch screen for proper fitting.

### Finding a Seat

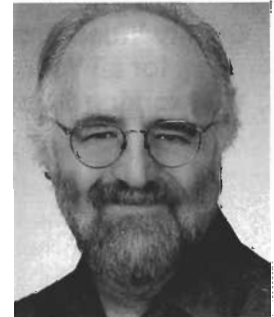
Where to sit in relation to the screen type is the next question. We've all had the experience of sitting in the front row of the multiplex theater. Frankly, it's unpleasant. Conversely, you want to avoid the last row of seats as well. Somewhere in the middle is best for the multiplex, and the philosophy can be translated to home theater design.

There are lots of formulas available to help determine what the best seating position versus screen size might be. Your results may vary, but here are some good guidelines: The money seat should be back from the screen about 13 feet for a 92-inch diagonal screen. A 103-inch diagonal screen has the money seat at about 15 feet, and a 110-inch screen works best about 16 feet away.

### Selecting a Screen

There are several options to consider on screen types. One option is painting the wall with a specific type of reflective paint. Since you'll be shining a very bright light on the wall, you should make sure the sheetrock taping and mudding is perfect. Otherwise, your customer will see the imperfection of the wall every time.

Another choice is a fixed style of screen. These screens typically are stretched on some sort of frame, and often will have a black velvet layer on the surface of the frame to minimize overspill reflections. You can get a pull-down style of screen or you can explore motorized screens that either sit on the wall or ceiling or recess into the ceiling. If you are considering those screens, remember to put electricity and whatever additional wiring needed to raise and lower the screen in place early in the game.



Screens offer other options to consider as well, including choice of surface, whether the screen has some sort of mechanism to keep it flat (commonly called tab tensioning), and whether the screen allows sound to pass through it.

The surface of the screen will have a characteristic reflectiveness, which indicates how bright the image will be. That specification is called gain. The higher the number, the more light the screen reflects back to the viewer. In most cases a higher gain also narrows how wide the usable viewing area will be before the image brightness starts to fall off. If you have a long, narrow room, a high gain screen might make sense, since the viewing angle will be restricted by the walls of the room.

When you are installing a fixed screen, you generally don't worry about maintaining flatness, but a drop down screen can have problems with curvature. Tab tensioning holds the edges of the screen taught and maintains a flatter image. Do think about placing the screen in a place where air vents, windows, and doorways won't blow on the screen while a movie is playing. It's quite distracting to watch the screen flutter back and forth in the breeze.

Screens are occasionally perforated to allow sound to transmit through more clearly. Since 85 percent of a movie's dia-

logue is directed toward the center channel in a surround-sound system, having the center-channel speaker as close to where the lips are moving makes a great deal of sense. By employing precision perforations, the screen manufacturers allow users of these sound screens to place the center-channel speaker, and consequently the voices, right where

they should be.

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Motorized screens require integrators to think about electricity and wiring requirements early in the game.