

LIGHTS, CAMERA, ACTION

The Latest in Home Theater Systems

By Lee Lareau, Custom Home Theater Systems

A home theater system transports you from your couch right onto the set of the show you're watching, with larger than life color, lights, and sound. With an array of new technology options, it's easier and more affordable than ever before. While it provides hours of entertainment pleasure, it also adds value to your home.

Think about the difference between watching your TV at home and going to your favorite cinema to see a show. Your TV doesn't even come close to the experience that you feel when you're watching a flick on the big screen. The pictures are large and luminous. The rich sounds literally surround you. You are there! With a home theater system installed in your house, you can feel the same sensation.

Whether you're a movie buff, sports fanatic, concert lover or just a Nick-at-Night fan, it's fun to relax with friends and family and watch your favorite programs.

What is a Home Theater System?

Home theater systems give you cinema scale and quality presentations of your favorite TV programs, VCR or DVD movies, music, video games and increasingly, Internet surfing. In the near future, we will be able to download movies via the Internet. Just imagine seeing your spam e-mail 6 feet wide and 3 feet tall!

When designed and installed properly, a home theatre system delivers a wonderfully orchestrated symphony for all your senses. It will actually sound and look better than what you experience at the cinema. Done poorly, it can be a loud, frustrating and expensive mess.

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You have to plan each of them carefully and come up with an integrated plan that works best for the space you're using. More specifically, a home theatre has a TV/video display that is 27" or larger, a multi-channel audio system that can decode multi channel soundtracks such as Dolby Digital and DTS with five to seven speakers, plus a subwoofer.

The biggest mistake that people make is focusing on just two of the four ingredients: the audio and video components. They'll buy the best equipment on the market, but then they will set it up in any old configuration in any old room. Another big problem is that people don't realize how important it is to connect all these components with the right high-quality cables and wires.

Video Display Components

A home theater system focal point is—quite literally—the TV/video display component, which can range in size from 27" up to over 10 feet.

When picking the right size video display, there are some guidelines. Many times people may go with a huge screen, but end up sitting too close. For example, with a 100" diagonal standard (old format TV) screen or a 106" diagonal new HD widescreen format TV, a good viewing distance from the screen would be at least 12, if not 15 feet or more.

Video quality is important too. When you take most TVs out of the box, the color is off. There are several color measurements to check, including gray scale and what is called "color temperature". Most TV and video displays are initially set way too bright to look good in the retail show room.

If you need some help getting the optimum display, check with an expert certified by the



For the ultimate home theater, try Premier Home Theatre Surroundings, voted #1 for home theater seating in 2003 by "Inside Track". Photo courtesy of Premier HTS.



The Traditional Theater design uses sophisticated lighting that create the sparkle and drama essential for a cinematic feel. Photo courtesy of Accoustic Innovations.



The seating area of the Traditional Theater design employs character and restraint to create an environment of serenity. Photo courtesy of Accoustic Innovations.

Imaging Science Foundation (ISF). An ISF technician can calibrate your set's color for you. The pictures not only look more natural, with more detail, but seem almost 3D, with much better depth of field.

Audio Components

Sight and sound go together, so picking a speaker that works with your display is important. Audio systems have a three-speaker configuration right up front—a left, center and right speaker. The center speaker is very important. This is where you hear most of the dialogue. Use the same speakers and same series so they are as similar as possible.

For sound effects, you have side surrounds left and right, and more recently rear surrounds left and right. For the low frequency material you will use subwoofers

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A wide screen display and state-of-the-art sound system transforms this family room into a home theater, without a special room or seating. Photo courtesy of Lutron.

Subwoofers

Subwoofers are speakers that reproduce sound at the lowest frequencies of our hearing range, like low notes on a string bass or special effects and explosions in movies (typically 100 Hz—cycles per second—down to 20 Hz.).

To produce low frequencies and do it at a fairly moderate sound level takes amplifier power. There are many good sub woofers on the market today. Buying one is the easy part; setting up for optimum performance takes some time and experience.

For home theaters you can never have too much amplified power. To attain “standard reference level” you need a reference calibration. Depending on the size of the room and your personal volume preference, power required will vary. But, most people agree when you hit the standard reference level volume, it is loud. Many systems just don’t have enough power to reach this benchmark.

Speaker Distortion & Noise

Many people hear a theater system and say, “it’s too loud.” What they are really saying, and don’t realize, is that “the distortion is driving me crazy.” Our ears are very delicate. But you can really hear the difference between low quality and high quality speakers. With a good speaker, you hear much more detail. You may even hear things you have never heard in a familiar piece of music—really!

Installing Your Speakers

When you’re ready to fire up your system, you need to calibrate the SPL/sound pressure level (volume) of each of the speakers with a calibrated signal with a SPL Meter. What is more challenging is getting your subs to integrate properly with the other speakers. You may want to contact a professional installation company for help with this.

Cable and Wire

Use the best cable and wire you can; it really makes a big difference. People will spend top dollar for the best components, but then go and purchase any old cable and wire they can find. Industry studies have shown most people have their DVD players hooked up wrong! They are getting the worst possible results, with significant picture distortion.

There are at least four different types of video cables, from worst to best:

- **Composite.** This is the single cable that most of use in setting up our DVD players and VCR’s, for example. Unfortunately, this gives the worst performance. Other cables have up to five separate conductors, whereas composite has one combined signal.
- **S Video Cable.** This is better than a composite cable. However, they are difficult to connect properly—it is a plug with four small pins that require precision.
- **Component Cables.** This is a bundle of three cables, designed to separate the red, green, and blue (RGB) colors for better performance and clarity. RGB also separates horizontal and vertical.
- **DVI (Digital Video Interface).** The newest development for top-of-the-line cable is now



A projection screen drops down in front of the bar to transform an entertainment area into a home theater area too. Photo courtesy of Lutron

available in many newer video systems. It provides the best performance because it is all digital. It avoids the conversion between digital and analog.

Your home theater system will perform only as well as its weakest link, so make sure you choose the best cable available for your components.

Room Location

The biggest variable in home theatre planning is not any of the audio or video components—it’s the room where you want to install your system. The size, shape, layout, and design of the room can have the most dramatic impact on the quality of your home theater system.

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The acoustics—how sound travels from the source to your ear—work better in rectangular spaces, or should I say create less problems. If you walk into a room and clap your hands and hear an echo, you’ve got an acoustics problem. Adding rugs or window treatments can eliminate echoes. Sometimes, it works the other way and removing some room décor elements can improve the sound quality dramatically.

You want your theater to be as quiet as possible from outside noise as well as noise from other parts of the home. The goal is to prevent the sound coming in and going out of the room as much as possible. But, if for example you have a location where there is higher background noise it is a good idea to lower those levels. This creates a couple of problems: in quiet portions of movies you will be distracted with this exterior noise, and you will need more amplifier power to overcome this residual noise.

If there are windows, get shades made specifically to darken the room, otherwise you will be compromising picture quality.

The acoustics of the room play a key role in good sound reproduction. It is not uncommon to use acoustic panels to tame down a reflective room, or to use bass traps to temper too much bass information. Many high-end theaters use wall to wall panels. They are pleasing to look at, and are a combination of reflective, absorptive, and diffuse material. The key is to have a room that is well-balanced. What you want out of your front three speakers is detailed information. Most people put their speakers too close to the wall, and end up with a boomy sound, which in fact creates distortion, and gives you listener fatigue.

Lighten Up

Lighting for your theater is also important. During the movie you may want to have some low-level lighting just as in a movie theater, so if you get up to go to the bathroom you don’t walk into a wall.

Another convenience is to have remote control lighting so if you want to check the TV listings quickly, all you have to do is hit your remote control and a recessed light from above your seat is illuminated.

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Your favorite movies come alive with sight and sound in your own home theater system.



Casually elegant, the Lifestyle Theater reflects a sense of airy space, comfort and lightness. All wall surfaces are treated with appropriate Soundboard panels.



The Oak Park Theater, inspired by Frank Lloyd Wright, uses the finest hardwoods to create a natural, contemporary design. Photo courtesy of Accoustic Innovations



The action on the screen comes alive in the Oak Park Theater. Art glass lighting provides just the right accent too. Photo courtesy of Accoustic Innovations.

Bring in a dedicated 20-amp circuit to eliminate any AC Noise from the rest of the home. Appliances, motors, furnaces, pumps create are the worst offenders. Today there are such things as AC line conditioners that isolate even more noise and interference.

Stay in Control

Your remote control/user interface is a key item in a theater. A well-designed system should be easy to use.

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Remote controls allow you to pre-program in macros that will let you execute specific tasks with just one press of a button. For example, with one press of a remote, your theater comes alive with sound and picture the lights dim slowly and your DVD starts playing. When comparing remotes, make sure you find one that illuminates when touched so you can see what the heck you're doing when the lights are low.

Many Pleasurable Returns

According to Parks Associates, a leading market research firm, houses with home theater systems sell faster. They are a good investment. If you are going to make the move to a serious home theater, it is a good idea to find a professional to help guide you through the maze.

For more information, check out these leading magazines: Widescreen Review, Stereophile's Guide to Home Theater, Home Theater Magazine, The Perfect Vision. These magazines have great web sites too.

Having a home theater system is a lots of fun; it also provides you with a great escape. How far you want to go is up to you, but my guess is you will never regret making the voyage. Beam me up Scotty. ■

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