



THX Theater Basics 101

Did your client request a certified home cinema? Here's what's involved.

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Like to build home theaters that would make George Lucas proud? If you haven't already received such requests, you can jolt your theaters into hyperdrive by constructing the rooms to meet specifications set by Lucas' famed company, [THX](#).

Maybe you've seen those cute pre-movie shorts with objects flying around the THX logo - sweet surround-sound effects, right?

A THX-certified home theater includes audio and video standards, as well as other aspects such as room shape, lighting, seating, acoustics and equipment. To give you an idea of what factors into home theaters such as the certified New Jersey room pictured, we asked THX's Graham McKenna, director of PR and communications, and Andrew Poulain, director of cinema and studio programs.



An acoustically transparent screen, like the one in this theater designed by Epic Home Cinema, is necessary in a THX theater so front speakers can be placed behind it.

"The THX Screening Room certification process mirrors that of THX [commercial](#) cinemas and studios," McKenna says. "We focus on room design and acoustic performance, the A/V gear that goes inside, and how they all work together."

From the start, THX works with the designer and architect to ensure the space meets specs for acoustics, sound isolation, viewing angles, equipment performance and installation. If you've read the label "THX Certified" or "THX Approved" associated with speakers, projectors, receivers and such, not surprisingly those electronics are a must. Brands such as JVC, Runco, Epson, Integra, Klipsch, Pioneer, Atlantic Technology and Procella Audio (whose speakers pump out sound in the pictured theater) offer THX-certified components products, to name a few.

"The process requires THX approval of all design plans prior to the project starting," says McKenna. "Throughout the build, THX is in constant communication with the homeowner to

ensure specs can be achieved. Final testing and calibration is performed by THX before certification can be granted."

Those spec guidelines, as outlined by Poulain, include:

Room and Layout

- Geometry that allows for a good image size, seating locations and reasonable distribution of room modes
- Controllable lighting system
- Decor that doesn't reduce image contrast or negatively affect color perception
- Seating away from the side and rear walls to prevent negative acoustical interactions
- Field of view for 16:9 image that's between 36 and 52 degrees, assuming multiple rows of seats

Environment

- Background noise less than NC-20 (that's ultra quiet) with all mechanical and presentation systems operational
- Control of room acoustics so reflections are inaudible
- Sufficient sound isolation, also below NC-20

Equipment

- Projection system with acoustically transparent screen
- Front speakers placement behind the screen
- THX-certified or approved equipment with sufficient output for the room size
- Four subwoofers minimum, at locations that provide uniform bass response
- Four surround channels minimum, for 7.1 capability
- Automation or simple-to-use remote

"Once the room is ready, we'll send an engineer to perform the testing. If the room passes, it is certified," says Poulain. If not? "We'll work with the homeowner and contractors to address any outstanding issue, and then retest."



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Inside a THX Theater

This THX-certified theater in New Jersey features a 132-inch wide Stewart Filmscreen CineCurve StudioTek model and Runco VX-22 projector to fill the superwide 2.35:1 aspect ratio plus A/V components from Meridian Audio and QSC Audio feed the system.

But you could say that the star is a sound system that pumps out ear-melting reference audio from 14 Procella Audio speakers: nine front and surround models and five subwoofers.

Sherman Peiffer, Dennis Erskine and Steve Kujala of [Epic Home Cinema](#) in Marietta, Ga. designed, constructed and tweaked the room.

"I've never experienced a residential theater with such a superb acoustical environment," says

Procella director Chuck Back.

That environment includes Procella's P815 left/right/center speakers and two P18 main subwoofers mounted in a baffle wall behind the microperforated screen. The P18s are between the center channel and the left and right speakers, respectively. Three powered P10 subs round out the low-frequency sounds, with one on the right wall behind the center point, another on the left wall behind the center point, and the third at the center of the rear wall. Six P8 surrounds — two on each side wall and two more in the back — complete the ultra-immersive audio attack.

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