



Pic: Courtesy THX



Computer-generated image of Riyadh Villa Theatre  
Pic: Courtesy Eastlake Audio

**‘Someone who has been exposed to a calibrated home cinema... will recognise the difference immediately’**

Dominique Rigolet,  
Audire

addressed by people who have a complete understanding of the specifics.”

Rigolet makes the point that installers are sometimes inhibited in providing effective diffusors because materials of the necessary thickness are not available. “If you want to be effective at 300Hz, just above the bass, the diffusors need to be at least 30cm thick,” he says. “A lot of those on the market are 10 or 12cm, and that is just not enough.”

The next priority is to select loudspeakers that have sufficient directivity and off-axis response, and to acknowledge that different aspects of the specification handle various vital tasks – for example, the front loudspeakers provide the

majority of the sound picture, while the side-surround units are responsible for most of the atmospheric or scene-setting elements.

The final stage is likely to be a comprehensive process of calibration, which may take as long as two days. As Rigolet puts it: “If don’t do that you aren’t doing your job. Someone who has been exposed to a calibrated home cinema and then one that has not been calibrated will recognise the difference immediately. It’s like when are young and begin to have some money, it is 35 degrees outside and you buy your first climatized car... It is extremely difficult to go back!”

Providing an easily accessible and comprehensible user interface is another crucial consideration, as

is ensuring that this complements the overall décor and tenor of the room.

#### Supporting sound design

While the above sections cover most of the basic principles, the detailed specifics must – if for reasons of space alone – be the preserve of guidebooks and industry guidelines. Speaking of which, new or ongoing initiatives by CEDIA and THX help to convey the emphasis that is now being placed on high quality home cinema sound.

Established in the 1980s by Star Wars director George Lucas to spearhead technological developments in commercial cinema audio, THX has become increasingly

prominent in the residential world over the last few years. The company’s Certified Screening Room programme has been applied to numerous high-end home cinema projects in the US, and the initiative is now beginning to make an impact in Europe. Equipment, picture, sound, interface and measurement requirements are all stipulated by THX’s guidelines.

While THX does not divulge detailed costs, it estimates the average overall budget for a THX Certified Screening Room to be \$250,000 and upwards. Additional services, including THX Video and Audio Calibration, may also be added.

“It’s all about raising standards and educating people throughout



the world,” says Andrew Poulain, account executive for THX’s professional services group. “While the principles for larger [facilities] don’t necessarily apply across the board, THX has put a lot of effort and resources into small room acoustic research, and feels that it has a lot to contribute in that regard.”

The company’s involvement in any given project begins at the design stage, when it will work with the customer and integrator to assess the characteristics of the room and help to produce a set of acoustic guidelines encompassing everything from room volume to reverberation and decay times. Once this process has been completed, the integrator will either undertake basic modelling himself, or enlist an expert acoustician.

With a design that meets THX’s guidelines in place, fit-out can begin, although equipment will need to be selected from the organisation’s list of approved or certified product partners (which, in the UK, include Klipsch, Onkyo, Pioneer, Yamaha, Meridian, JBL Synthesis and many others).

In addition, THX is expanding the reach of its training programme for home theatre dealers and installers. Germany and Dubai have both hosted training events, while the company has also appeared at the ISE (Integrated Systems Europe) event to help spread the word.

Having established a strong presence for these initiatives in the US, the company is now targeting



**‘Across Europe, the Middle East and Asia, a lot of people are now trying to build high quality rooms’**

Graham McKenna,  
THX

Europe, the Middle East and Asia. “We’re really looking at markets where people are starting to invest



**CRESTRON LAUNCHES SURROUND SOUND AND VIDEO PROCESSOR**

Newly introduced by Crestron, the Adanto Media System (AMS) has been developed to suit home cinema and whole house audio distribution projects.

Incorporating a surround sound processor and 100W 7-channel amplifier, the AMS enables a theatre to be configured as 7.1, 6.1, 5.1 or lower. Other features include DRS 96/24 decoding, built-in tuners, the Crestron 2-Series control system, e-Control web browser and Audyssey MultEQ XT equalisation technology.

“Audyssey MultEQ XT facilitates an optimum listening experience for every seat in your theatre using an ingenious equalisation solution that corrects for both time and frequency response problems,” says Robin van Meeuwen, MD of Crestron UK. “MultEQ XT is the only technology of its kind capable of properly measuring sound response throughout the listening area, and combining that information to accurately represent the acoustical intricacies of the room. Based on these measurements, MultEQ XT calculates an equalization solution that effectively minimises response distortion at every listening position. This equalisation set-up is automated through an easy software tool and the Professional Surround Sound Tuning Kit (CSSTK).”

As well as accommodating 10 analogue stereo inputs and one analogue 7.1 surround input, AMS also includes stereo audio distribution to support four to six rooms. A front panel with backlit LCD display enables home cinema or whole house AV control, while Crestron 12-button keypads or the APAD Wall Mount LCD controller can facilitate control of the AMS in every room.

“In addition to surround sound in the home theatre, the AMS also distributes stereo audio to feed several pairs of remote room speakers,” adds van Meeuwen. “Listeners in each room can enjoy their own choice of radio stations, CDs and MP3s, or even a stereo downmix of the surround sound output. Each room includes its own volume, bass, and treble controls, with the ability to combine a group of rooms easily at the press of the Party Mode button.”

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AIMING FOR EXCELLENCE

Although the Screen Excellence products offered by U.See Ltd are not the only acoustically transparent screens on the market, the company is highly unusual because its founder and CEO, Patrice Congard, gained a degree in Sound and Vibration Research in 1979 and was marketing director for L-Acoustics – an innovative sound reinforcement manufacturer.

"In 1996 I left the sound reinforcement loudspeakers market for the home theatre market, where I saw a huge potential, and technical problems too," Congard relates. "As an engineer, my motivation was to bring original solutions to these problems.

Congard was nonplussed to discover that although cinema screen were perforated to allow the dialogue to come from place as the actors' images, most projection screen you could buy were solid. It seemed to Congard that solid screen might be good enough for PowerPoint presentations but they would not "get a consistent, credible perception of the sound and image as coming from the same source".

Although he overcame a number of technical obstacles, Congard's first screen venture was not a commercial success but – after a few years in consultancy – he formed U.See Ltd. "We started R&D in 2005, but it is only in 2007 that we could say we were totally ready to launch a range of products," he explains. The company is also unusual in being based in the UK, under MS Sharlene Dodd, while Congard is in France, where he and Jean Pierre Charrier (technical director) conduct R&D and international marketing.

"So far, our main markets in Europe are the UK and France," Congard notes. "We are progressively expanding towards the East, and we also have a small market in Spain. There are some differences in the products we sell..."

"In France, the vast majority of our sales are fixed-frame screens," Congard reveals. "In Spain, we have only sold electric screens so far. I think that these differences are mainly due to the typical architecture, although there might also be some other reasons."

Congard concedes that there may be "slight loss in image resolution, or in HF audio response" using an acoustically transparent woven screen but says these are unimportant, providing there are no moiré effects ("which are unbearable") and that lip-sync is correctly maintained. "The really important question is 'how credible is the character on the screen?'," Congard adds.

The challenges of creating acoustically transparent screens are increasing all the time, because the relatively coarse weaves that were suitable for XGA and SXGA projectors are not good enough for higher resolution images. This is an ongoing area of development for the Screen Excellence range and the company already has an eye on 4K resolution projectors.

www.screenexcellence.com



with AV systems, and if you take those to the highest quality you end up with home cinemas," explains Aylett. "It's also much more complex than, for example, video. It's a core activity for CEDIA members, and basically these rules – if followed correctly – will make home cinema audio much easier and much better in terms of performance."

If anything, this issue is likely to assume ever-greater importance in CI circles in the years ahead. The current economic crisis notwithstanding, the demand for high-end home cinemas continues to spread far and wide, with the Middle East proving to be particularly rewarding territory. It's a development that is confirmed by Eastlake's Hawkins, whose company has carried out a number of high-spec projects in such key locations as Abu Dhabi, Dubai, Jeddah and Riyadh.

"People in the Middle East don't tend to entertain as much in public, and home cinemas offer an opportunity for mixed family groups to enjoy an evening's entertainment without being in the public gaze," he explains. "It's a factor that has contributed to a lot of these projects."

An increasing number of high-spec home theatre projects means that installers will need to understand the detailed specifics – not just the basics – of good cinema sound if they are to maintain a presence in this evermore competitive sector. Encouragingly, initiatives like those being pro-



'It's all about raising standards and educating people throughout the world'

Andrew Poulain, THX

moted by CEDIA and THX confirm that expert guidance is more readily available than ever before, suggesting that a bright future for home cinema sound could be within reach. **RSE**

Many thanks to Peter Aylett for his help with this feature

more money in their entertainment options," explains THX's senior PR manager, Graham McKenna. "Across Europe, the Middle East and Asia, a lot of people are now trying to build high quality rooms."

CEDIA is also putting its shoulder to the wheel with the first in a

series of recommended practices that will eventually cover all of its activities. Developed by an expert team led by former Harman International Industries corporate vice-president for acoustical engineering (and 2008 CEDIA Lifetime Achievement Award recipient) Dr

Floyd E Toole, 'Home Theatre Audio Design' runs to 41 pages and is scheduled to be available for purchase from the CEDIA website by the end of the year.

"We started with home cinema acoustics because I think that people still identify CEDIA primarily

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