

Taking it to a different level

A seven-metre 'art wall' that transforms into a state-of-the-art movie cinema, in a room flooded with ambient light? "We pride ourselves on helping a client to achieve their dreams," says Wavetrain Cinemas...

You might call it a home cinema, you might call it a media room — it's certainly a unique space, combining two projection systems on the one screen — and a successful one.

But the project, part of a larger home renovation, was not without its challenges.

"The primary goal was the cinema," the owner tells *Sound+Image*. "I wanted a great cinema experience from the projector and the screen, and obviously on the audio side of things as well. But a secondary benefit was what I call an 'art wall' — something I thought would really enhance the space, if it was technically possible."

The idea of the 'art wall' was to deliver a full seven-metre-wide feature wall that spanned the entire width of the room from floor to ceiling.

"So the whole wall is effectively a screen," confirms the owner. "I can put an image on that screen, or a video, whatever I want."

Then when required, this system would transform into the desired state-of-the-art movie cinema.

Quite the plan! So how to transform this bold concept into reality? The owner contacted David Moseley of Wavetrain Cinemas.

"The client found us by searching through CEDIA Award-winning



▲ In 'art wall' mode, the entire 275-inch front wall becomes an artwork, with images projected by a commercial Epson projector.

◀ For movie viewing the presentation switches to a 4K Sony VW760ES projector, illuminating a 140-inch portion of the same screen.

companies, and then he dropped in for a chat one day. What he wanted to achieve created an interesting challenge — and that's exactly the sort of project we love. We pride ourselves on helping a client to achieve their dreams."

Fighting the light

The owner was already aware that a full-wall video image was no small ask.

"The art wall was the big challenge," he confirms. "The throw distance between the projector and the wall was

quite short, so we had to find a projector that would work at the short distance and give us the brightness that we needed."

And as you can see from the pictures, the potential brightness issues were compounded by ambient light flooding in from the windows along one wall.

"A projection system is just not going to compete with the Sun," as David Moseley puts it bluntly. "We brought out an extremely powerful projector to the site very early on to prove the point. While the light wasn't direct we could produce an image, but it would not in any way be uniform."

The first part of Wavetrain's suggested solution was to add a sheer curtain and some bespoke light blocking.

"The curtain allows for a fairly consistent image in the morning," says David. "Then once the sun swings around in the after-

noon, a blind at the screen end drops down to cut the light hitting that end of the screen directly. There are three blinds in total, plus blackout and the sheer curtains."

Screen specs

With the lighting thus mollified, Wavetrain turned to technology to further assist the image quality.

"To improve contrast generally we needed to use an ambient light rejecting screen," explains David. "Optical wasn't going to be suitable for several reasons — freighting a seven-metre-wide optical screen would have been extremely difficult, and have blown the budget on the image only. It would also mean having compromised audio, using in-ceiling speakers for the front speakers. We needed a woven acoustically-transparent screen, and selected a Severtson TAT4K 0.8-gain screen,

both to assist in ambient light reduction and to improve black levels.

Next came that tricky choice of projector — which in this case was actually two choices.

"For the art wall we needed to achieve approximately 32 foot-lambert (luminance) to have any chance of creating a good image in the daytime," says David. "So with the negative gain screen we needed a very high output projector, and one with approximately a 0.9-to-1 throw ratio. And since we were projecting a very large image with a short viewing distance, it had to be a high resolution image as well. The best fit for this was an Epson commercial projector."

The result is certainly impressive. "Yes, the art wall paid off," the owner tells us. "It's exactly as I hoped it would be."

For movies, however, a different solution was needed, and for this second scenario the



ambient light from the windows would be less of an issue.

“This was always going to be a purpose-built room,” the owner tell us. “We were only ever going to watch cinema content when the blinds are drawn. So when I want to watch a movie I switch to a different projector, and the picture fills a slightly smaller space on the same screen.”

That ‘slightly smaller space’ is still an impressive 140-inch image diagonal.

“The client had originally thought we could zoom the image down or create an image inside of the projected frame,” explains David. “But the difference in throw ratio is too much, and the projector needed to be a much higher quality 4K image. We selected the new Sony VW760ES — it projects an image around 140-inches wide

at about 14 foot-lamberts. We might have preferred 16 foot-lamberts and we demonstrated the difference, but the owner preferred the larger size — which is very much a personal preference, like deciding how close to the screen you like to sit in a cinema.”

Sound and silence

Regular readers will know from previous projects how Wavetrain pays great attention to achieving a low noise floor from which the true dynamics of a movie soundtrack can be achieved. In this case it required a significant reworking of the proposed cassette-style air-conditioning system — “which is an incredibly noisy design,” says David Moseley. “To accommodate the required full ducted and now silent system took literally weeks of back and forth between the A/C company,

the joiner, builder and Wavetrain to get the final workable outcome. In the end it required a complete redesign of the bedroom joinery which backs onto the cinema.”

In addition the projectors needed to be placed in a hush box to eliminate their noise, while the AV rack, which included a gaming PC, needed to be not only ventilated, but actively cooled.

Was the owner surprised by this dedication to the sound of silence?

“Surprised? Probably not, as I could sense that David was like that...”, the owner tells us. “‘Impressed’ is probably the word. The fact that he’s like that is impressive, because a lot of people wouldn’t be — and they wouldn’t need to be to deliver an adequate room. But David just takes it to a different level. His attention to detail ensures that the room is

always going to be spectacular across so many different aspects. And without his work on the air-conditioning I would have a projector that turns itself off every hour or so because of overheating. He did a great job.”

The audio system uses Pro Audio Technology speakers driven by two of the company’s multichannel amplifiers, with three front LCR speakers (bi-amped with 400W) behind the screen, four Atmos ceiling speakers, and two rear speakers matching the front trio. Two subwoofers behind the screen were carefully located to cancel two standing waves across the width of the room and one in the height, along with judiciously-applied absorptive and diffusive room treatment.

“The seats were positioned to provide even bass response and then calibrated to ensure the flattest frequency response,” says



◀ The seats were positioned to provide even bass response, and then calibrated to deliver the flattest frequency response. Note also how neatly the rear wall incorporates the projection ‘hush boxes’ and cabinetry (above), all of which is actively cooled to ensure optimal operation of all electronics.



EQUIPMENT LIST

- Sony VPL-VW760ES 4K projector
- Epson EB-G7905UNL installation projector with ELPLU03 short-throw lens
- Severtson 275-inch wide 2.9:1 A.T TAT4K grey with 0.93 gain projection screen
- Oppo UDP-203 UHD Blu-ray player
- Foxtel IQ set-top box
- Apple TV media player x 2
- Lumagen RP4444 4K video scaler
- Pro Audio Technology SCRS-25im loudspeakers x 3 (LCR)
- Pro Audio Technology SCRS-6c-ica loudspeakers x 4 (ceiling)
- Pro Audio Technology SCRS-25im loudspeakers x 2 (surround)
- Pro Audio Technology LFC-12v subwoofers x 2
- Marantz AV7703 11-channel AV processor
- Pro Audio Technology DMA-1508 8-channel power amplifier x 2
- IsoTek power conditioning and boards
- MSR Acoustics/Artnovian absorption/diffusers/bass trap

Installation: WAVETRAIN CINEMAS
Telephone: 02 9526 5497
Web: www.wavetrain.com.au

David Moseley. “As in any Wavetrain Cinema, the end result met our high standards and exceeded the clients’ expectations. In this case the owner’s last comment to me was that he wished he had spent less on the rest of house and given me more money for the cinema, as it’s the best part of the house.”

The owner confirms the enjoyment they get from their new home cinema/media room.

“Being able to sit and watch a movie with the sound and feel of a commercial cinema — it’s a pretty special experience,” he says.

Which pleases Wavetrain just as much it does the owner. As David Moseley says: “Nothing bring us more joy than a client who uses the cinema more than they ever expected.” +