GENELEC®

CASE STUDY

Church Matches Traditional Wood with Genelec Speakers

HIGH QUALITY NETWORKED AUDIO HELPS SPREAD THE WORD AND IMPROVES EXPERIENCE FOR CHURCH-GOERS.

MAANINKA CHURCH, WHICH FORMS PART OF THE EVANGELICAL LUTHERAN CHURCH OF FINLAND, IS A LOVELY TRADITIONAL WOODEN CHURCH BUILDING WITH SEATING FOR 1200 PEOPLE.

Maaninka church, which forms part of the Evangelical Lutheran Church of Finland, is a lovely traditional wooden church building with seating for 1200 people. Designed by Finnish-Italian state architect Carlo Bassi in 1823, and built by renowned Finnish church builders, Jaakko and Heikki Kuorikoski, construction was completed in 1845. The existing sound system had been in place for several years and presented a number of problems in terms of coverage and intelligibility which was affecting the overall experience of church-goers. The church turned to local integrators, AVEK Esitystekniikka and Genelec to bring the audio system into line with modern-day expectations and improve the audio experience for everyone.

Genelec's technology service manager, Marcus

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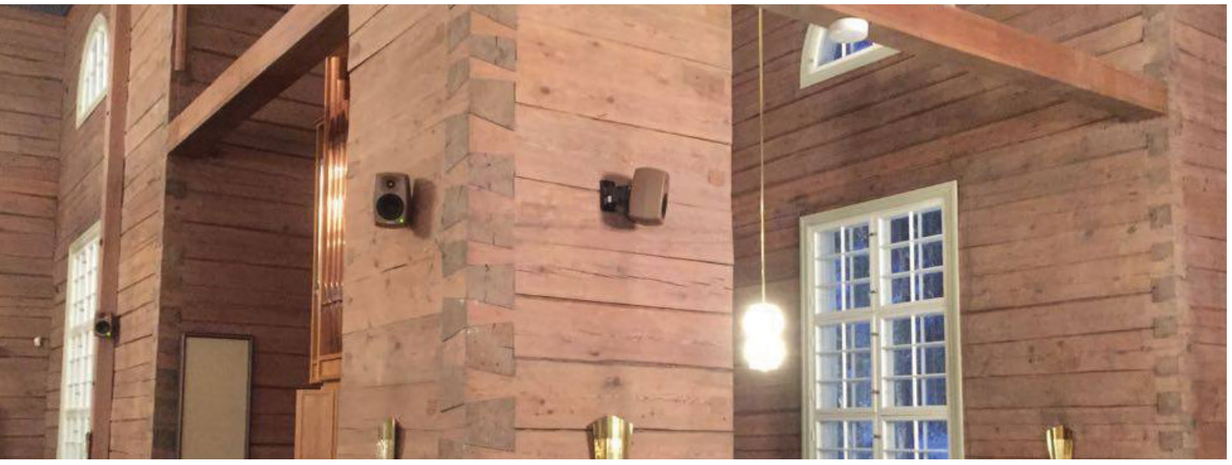
Kahelin, recalls that the project posed several challenges, not least of which was the sheer size of the space to be covered: “The inside of the church is a huge open space totalling 985 sq m with a very high ceiling culminating in central dome,” he explained. “The shape and size of building results in a relatively long reverberation time and a noticeable echo for the human voice. The existing audio system was unable to deliver natural, uncoloured sound to all of the congregation and so intelligibility of the spoken word was a real problem. The users inevitably tried to compensate by turning up the loudspeaker system too loud which then resulted in feedback problems when using the headset microphones.”

“The other major consideration is that the church is a listed building, which means that you can’t just go knocking holes in the wall or running cables wherever you like,” he continued. “AVEK ended up having to run all their cables via the roof space to reach every part of the church. That in itself was a challenge because extra-long cable runs can pose a risk for sound quality, latency and interference levels which can in turn cause audible issues with the playback system. However, fortunately at Genelec, we have solutions for these problems!”

The solution in question turned out to be a distributed system using ten Genelec 8430A IP SAM monitor speakers that were tuned and calibrated using Genelec’s GLM 3 loudspeaker management software. According to AVEK’s audio specialist, Jari Pöykiö, Genelec’s unique combination of networked loudspeakers with the integrated calibration features of GLM 3 solved all their problems.

“The first consideration was the audio quality of the 8430As – they are compact, active loudspeakers that deliver premium audio quality and clear, uncoloured sound,” noted Pöykiö. “We mounted them in carefully acoustically selected locations throughout the church to enable the focus and voice localization to remain in the correct direction and to sound as natural as possible. The wide dispersion angle of the 8430As meant that we were able to achieve good coverage throughout all the seating areas. Our aim was to have sufficient loudspeakers in the system so that the overall playback level can remain relatively low so as not to energize the live acoustics of the room or cause any microphone feedback issues.”

“Once installed, all the loudspeakers were calibrated and tuned to the room acoustics using Genelec’s GLM 3 software which works incredibly well.



A particular feature of the system tuning for this installation was that we assigned delay to each individual loudspeaker to localize the voice to the person speaking rather than to the nearest loudspeaker using very similar principles and techniques to those used in theatre.” The other reason for selecting the 8430A monitors was thanks to their unique IP system distribution qualities. “The clue is in the name!” said Pöykiö with a smile.

“The 8430A monitors are networked loudspeakers based on RAVENNA/AES67 for totally error-free, robust audio signal distribution over IP. It was the perfect solution for this project which necessitated massive cable runs so that all the cabling could be hidden in the roof space. If we’d had to rely on traditional analog line level cabling, we’d have run into problems with interference and signal loss which would have affected the audio quality. As it is, the sound quality is absolutely first class at every level. The client is delighted and so are we!”

Another advantage of IP technology is that it provides a very easy and flexible way of distributing the audio signal to large numbers of active loudspeakers in many different locations. Furthermore, although cable runs can be longer between fixed points, the total amount of cabling required is vastly reduced as all the signal data is carried via a single network cable. Thus, not only is the amount of cabling reduced, but network cabling is far less expensive than microphone cabling, making it also a highly cost-effective way of installing large scale distributed audio systems. For this particular project, the client opted for a custom colour finish for the 8430As, enabling them to blend seamlessly into the traditional wooden environment of the church.

“We’re delighted with the results, both aesthetically and acoustically,” concluded Pöykiö. “The Genelec 8340A solution provided us with everything we were looking for: compact size; elegant industrial design with custom coloured enclosure to blend into the listed historical interior of the church; network-based signal distribution plus integrated calibration features for frequency correction, delay and level adjustments. We couldn’t have asked for more.” ■

THE KIT

- Genelec 8430A IP SAM 10pcs
- Genelec GLM 3 software platform
- Axia Audio xNode A/D conerter with AES67 audio stream output
- Standard network switch by HP

GENELEC OY OLVITIE 5 | 74100 | IISALMI,FINLAND | TEL. +358 17 83881 | ENQUIRIES@GENELEC.COM | **WWW.GENELEC.COM**