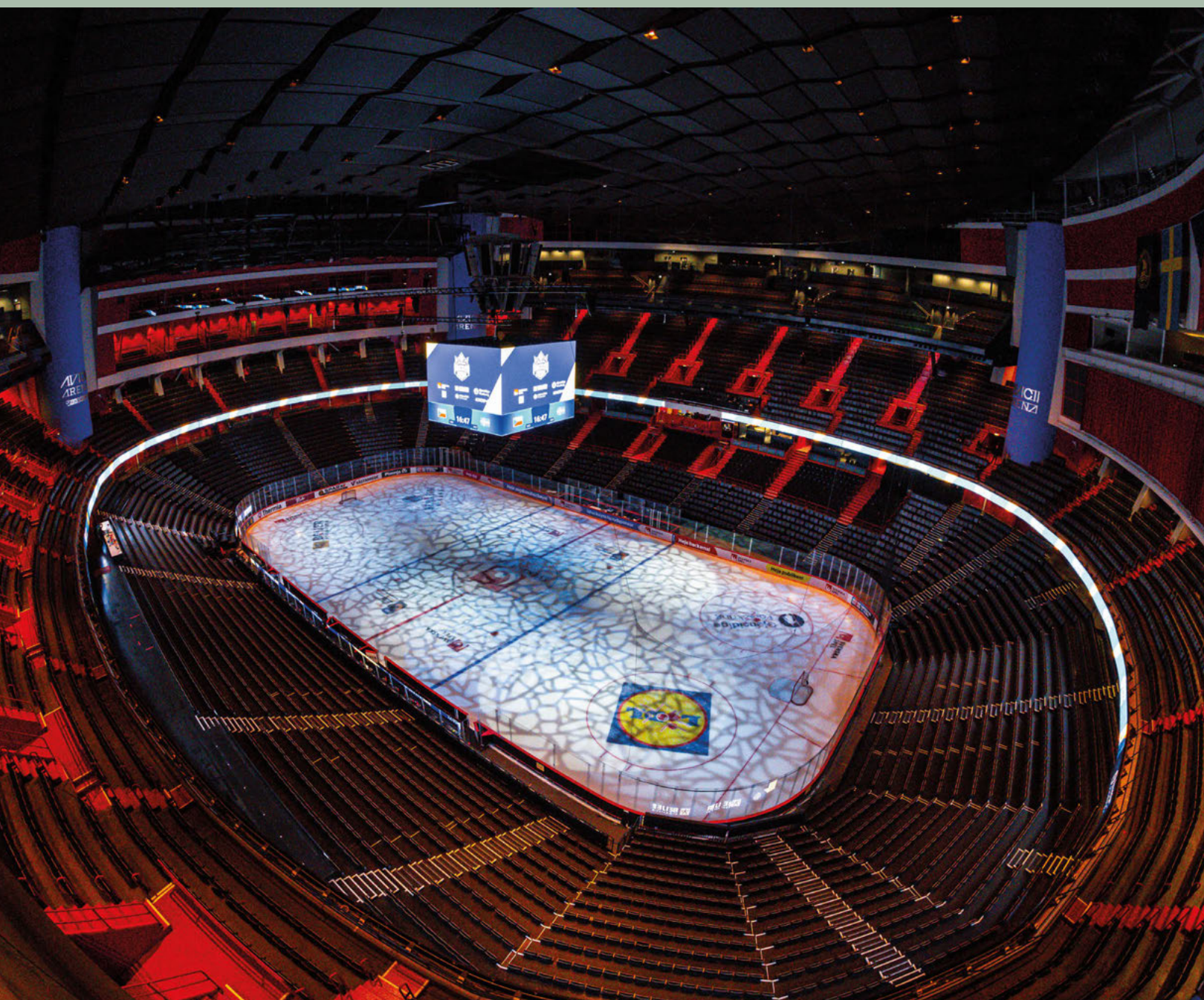


# AVICII ARENA

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Iconic arena receives  
an immersive audio  
upgrade to enhance  
the fan experience at  
sporting and musical  
events.

**Opposite Page and left:** A landmark Meyer Sound Constellation active acoustic system has been installed at Avicii Arena.

The Avicii Arena is an architectural marvel and the largest spherical building in Europe which towers 85m high and spans 110m in diameter. With seating for up to 14,000 at sporting events and also able to host all manner of touring productions, the venue recently underwent a massive renovation of its audio capability and now features a landmark Meyer Sound Constellation active acoustic system. The project showcases a Constellation installation of unprecedented scale, featuring 84 loudspeakers installed in the ceiling, 72 microphones, two racks of processors, and an array of network switches.

The system was designed by Meyer Sound's John Pellowe, Project Director for Constellation, and Ana Lorente, Senior Acoustic Engineer, in collaboration with Anders Jørgensen and the installation team at Danish AV integrator and consultancy firm Stouenborg, based on the original concept from acoustician Adam Foxwell and Sebastian Holm from Efterklang, who designed and constructed the venue's new acoustic ceiling.

"This is far from a typical Constellation system," began Jørgensen. "We call it an audience enhancement system, because it has been designed to create the feeling of being embraced by the crowd, meaning that spectators can actually hear each other across such a vast space."

For sporting events, Constellation's real-time processing ensures that crowd noise, chants, and music are evenly redistributed throughout the arena to elevate the emotional connection.

"One of the key motivations for this install was ice hockey," continued Jørgensen. "In Sweden, fans sing to each other from opposite ends of the arena. Before the upgrade, fans couldn't hear each other properly, but now they can – and it sounds like it is coming from the direction of the source."

Achieving that kind of seamless coverage in a venue of this scale required extraordinary precision and planning. Fitting the loudspeakers in the ceiling grid with the constraints of the new acoustic panelling was one of the major hurdles in the design phase.

"The acoustic panels run on rails, with I-beams and walkways located above," said Jørgensen. "It was calculated that each speaker has only 50mm of clearance on each side, and we used 3D modelling to calculate the precise positions, down to the last millimetre."

"Each speaker had its own mounting system, which was pre-built in our warehouse. The loudspeakers were attached and angled per our

design, and tested, before installation. Once tested, we had to take them up to the ceiling, hang them and connect them."

All 84 loudspeakers are attached to an individual pole, which was cut to a specific length defined by its position within the ceiling.

"The simplest way to describe the acoustic ceiling is to say that it is contorted like a Pringle potato chip – bent upwards in two directions," said Jørgensen. "And this presented us the major challenges in the mounting, aiming, and spacing of the speakers and microphones."

Adding to the challenge of placing the equipment was the rails on which the acoustic panels run – nothing could be hung which could interfere with the moving panels, or a speaker or mic would get damaged.

"The grid is 35 meters above the arena floor. You can't just send someone up to tweak a speaker angle. It all had to be perfect on arrival," added Pellowe.

The retrofits, based on an array of 12 Meyer Sound ULTRA-X40 and 72 ULTRAX42 compact point source loudspeakers and 72 DPA 2017 shotgun microphones, are all precisely angled and suspended from the custom-built acoustic ceiling.

The new acoustic ceiling dramatically improves the reverberation time of the venue, and was key in allowing the Constellation system to work as designed.

Everything is driven by Meyer Sound's Nadia digital audio platform that runs AVB Milan and overviewed by Nebra, which is a software platform by Meyer Sound designed for controlling, routing and monitoring networked audio systems using the MILAN AVB protocol. The two racks are installed at the top of the concrete level of the building, before the curve of the domed roof begins.

At this level, technicians have access to walk onto the acoustic ceiling – made up of netting which is fixed between the beams – which was intimidating for the Stouenborg team who had to walk onto the netting in order to access some of the rigging points for the loudspeaker poles. The entire system is segmented into eight distinct zones, enabling precise spatial control, with Spacemap Go functionality built into the system.

"We created six different presets that you can choose from, with six discrete inputs," said Jørgensen. "Each of those inputs is routed differently depending on the preset. You just load one, listen, and go, and that kind of quick turnaround is what we're aiming for. The inputs and presets can be utilised for different stage or audience arrangements, meaning that a touring show can connect quickly

and use the system. The presets allow for in-the-round stage setups, delay configurations, and east/west stage blocking.”

The project’s time constraints were extreme. What would typically be a three-month on-site installation had to be completed in two weeks due to scheduling demands surrounding the 2025 IIHF World Championship.

The Stouenborg team pre-built and tested the entire system in its Copenhagen workshop, with each loudspeaker and microphone pre-angled, rigged, and labelled for pinpoint placement.

“We knew we had zero margin for error,” said Jørgensen. “That meant months of planning, modelling, and building off-site so that the install could be completed without hesitation. We created a suspension system that would work, and each speaker had its own individual angles and off-center mounting.”

Microphones were also installed on truss around the venue’s LED cube, and within each of the audio zones is a mixture of loudspeakers and mics, which meant for a complex active acoustic system design.

“The project is groundbreaking for arenas of this type,” said Jørgensen. “The culture of fans singing to each other is common at sporting events in countries such as Germany and the UK, and adding immersive capabilities and the scalability of the system makes this project truly stand out, internationally.”

This project also reflects an expansion in Meyer Sound’s

approach to large-scale venue audio. “We’re proving that immersive audio and active acoustics have value far beyond the concert hall,” said Pellowe. “It’s about delivering a richer, more connected audience experience, and here we are redistributing the excitement.

“If the north end of the arena starts a chant or cheer, the system can carry that energy across the entire venue. It’s about creating a more unified and visceral experience.”

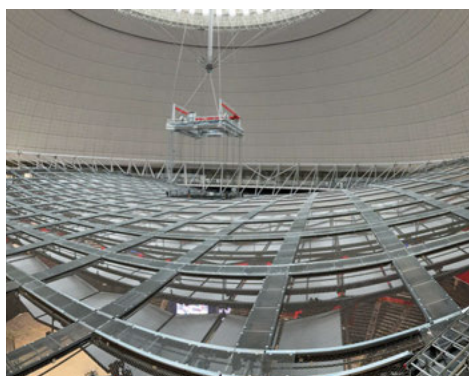
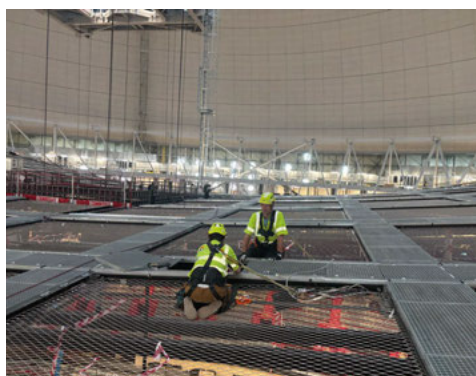
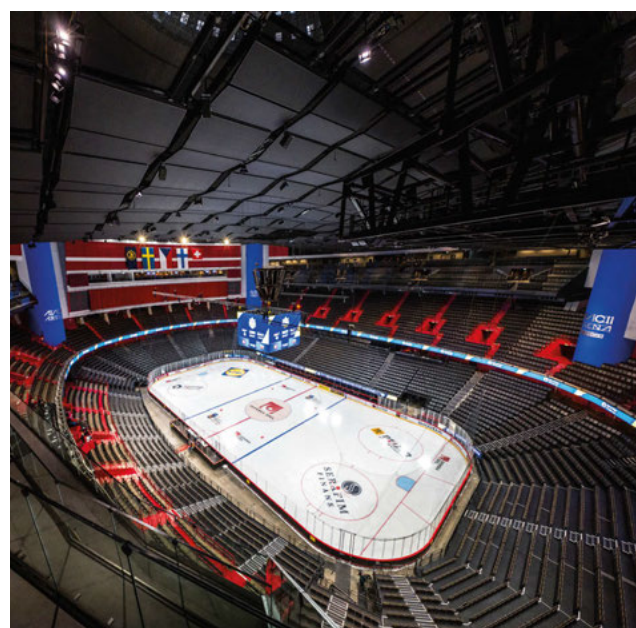
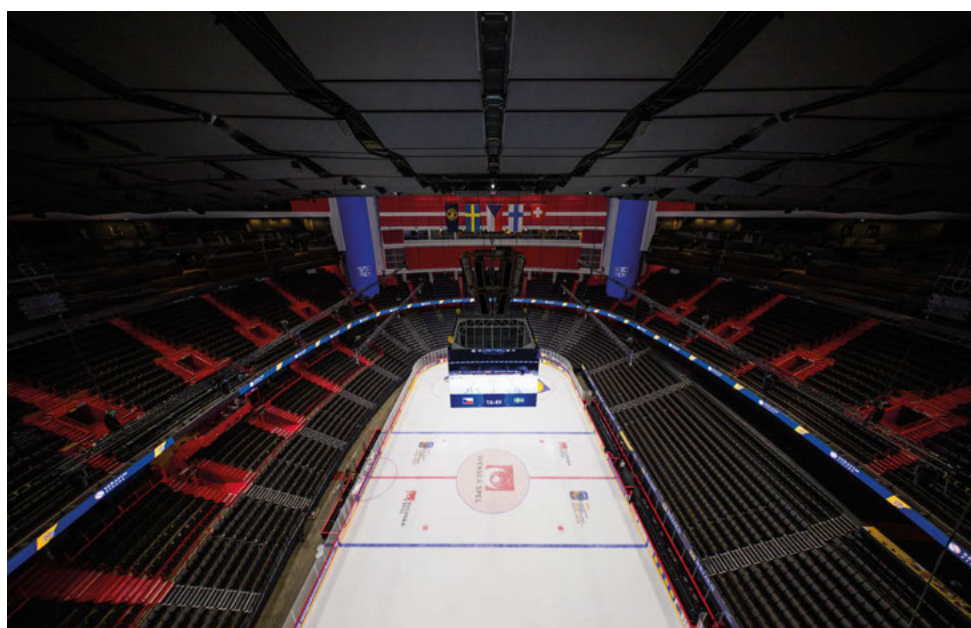
The new system made its debut during the IIHF World Championship in May, delivering powerful, immersive sound engineered to match the venue’s monumental scale and architectural ambition.

“We wanted to create a space that delivers more than just sound – it brings people together,” said Mats Viker, CEO of Stockholm Globe Arena Fastigheter AB, the venue’s owner. “Whether fans are cheering a goal or on the edge of their seats in overtime, Constellation makes every moment feel shared.”

For Stouenborg, the project was a landmark one. “Every ten years or so, it seems that a prestigious project of this scale and complexity comes along, and the value we see in this is in the testing of our knowledge and skill – which becomes invaluable for us in the years ahead,” said Jørgensen. “It proved to us that with preparation, a system of this scale can be installed in such a short timeframe.” ■

[www.stouenborg.dk](http://www.stouenborg.dk)

[www.aviciiarena.se](http://www.aviciiarena.se)



Left: Stouenborg’s technicians install the new audio system on the venue’s acoustic ceiling.



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