
EKATERINBURG ARENA

Yekaterinburg's impressive stadium underwent a huge audio and lighting upgrade ahead of the World Cup.

ION OBLEMENCO STADIUM

We take a closer look at the state-of-the-art technology installed at one of the newest stadiums in Romania.

JAY WALLACE

Clear-Com's Regional Sales Manager for NW/MW USA and Canada discusses his career and recent projects.

AUDIO FOCUS

We delve into the world of audio, with products and projects all featured in our first focus.

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EKATERINBURG ARENA

Yekaterinburg, Russia

Images: The 2018 FIFA World Cup Russia™ Local Organizing Committee

Ekaterinburg Arena garnered a lot of attention before the World Cup in Russia due to a unique solution that saw the venue temporarily increase in capacity for the tournament.

The stadium, which opened in 1957, holds 23,000 fans, however, a FIFA requirement for all host stadiums is that

they have to seat at least 35,000, so the city's World Cup organising committee were presented with a problem, particularly as Ekaterinburg Arena is a protected landmark, with its historical façade - complete with columns in a Soviet, neoclassical aesthetic - also needing to be preserved.





The decision was made to build two temporary, 45-metre stands outside the venue, which offered a view of the pitch through large holes at each end of the ground. It was an unorthodox solution, but one that made perfect sense. Local side, FC Ural has an average attendance around the low 20,000 mark, meaning that a permanent extension up to 35,000 seats would leave the club with a stadium that simply didn't after the tournament. With the temporary stands, the extra seating can be deconstructed after the World Cup, leaving a much more sustainable capacity. While it may look strange, it is certainly a solution to one of the main criticisms of past tournaments, which have left large, soulless stadiums in cities that simply do not need them beyond the excitement of a World Cup.

After the competition, as well as continuing as FC Ural's home ground, the stadium will be used by the city as a multifunctional sports and entertainment complex. It is planned to hold sports competitions of various levels, concerts, performances and exhibitions. CROC was appointed as the general contractor for the development of the stadium infrastructure, creating and implementing a complete suite of facilities, including low-current designs, ticket entry and physical security systems, telecommunications, broadcast, multimedia, sound reinforcement and engineering systems monitoring. At the invitation of Andrey Korogodin, Director of Corporate Customers Department of CROC, Sofit Light Company worked closely with the lead contractor in the design of the sound reinforcement system. As a distributor of Outline systems in the Russian Federation, the decision was made to use the Italian companies products for the audio at the venue.

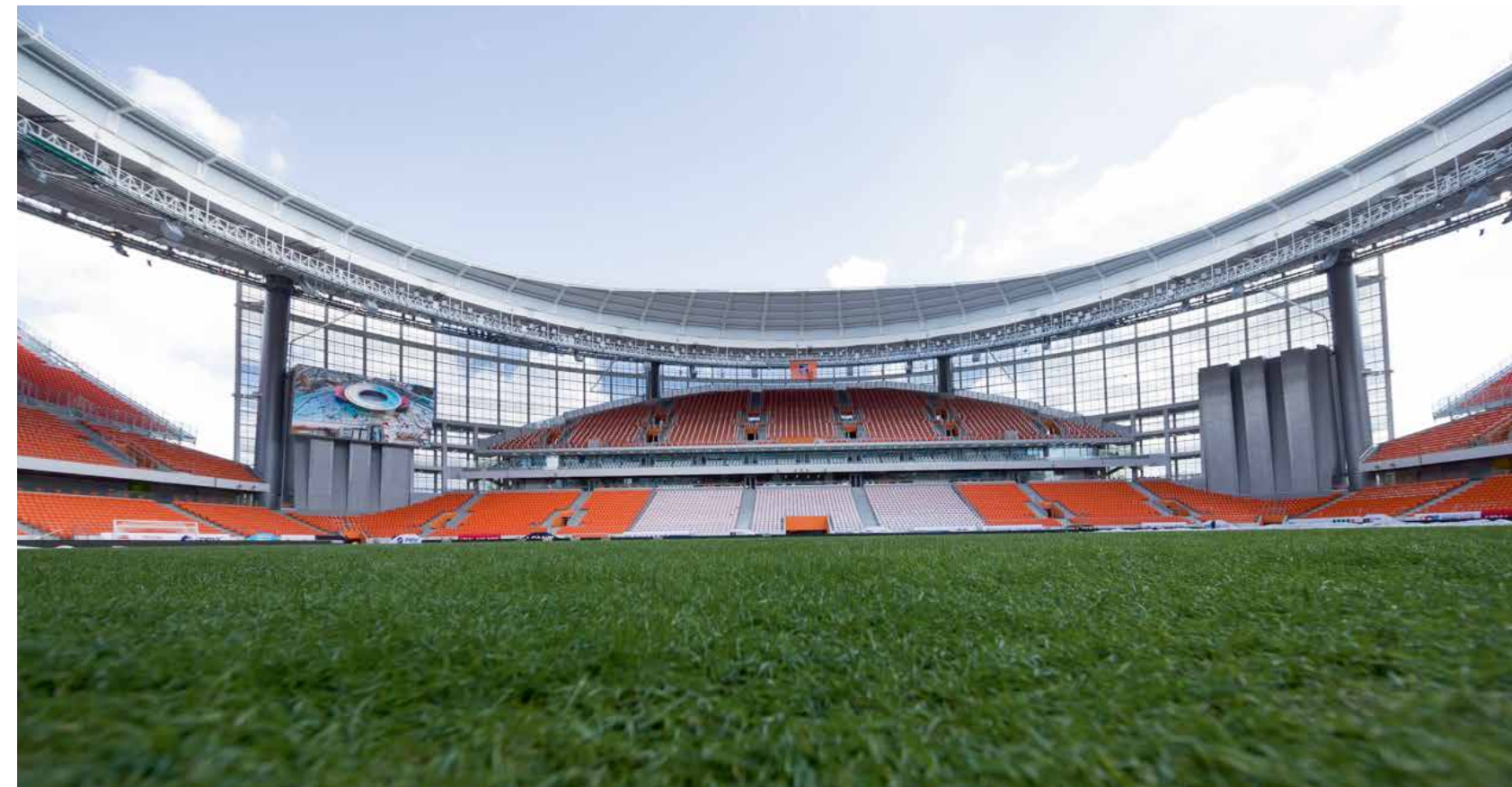
Alexander Klinushkin, Sofit Light's Senior Engineer, takes up the story: "When the stadium was reconstructed, this kind of architectural solution, naturally, was reflected in the configuration of the sound reinforcement system of

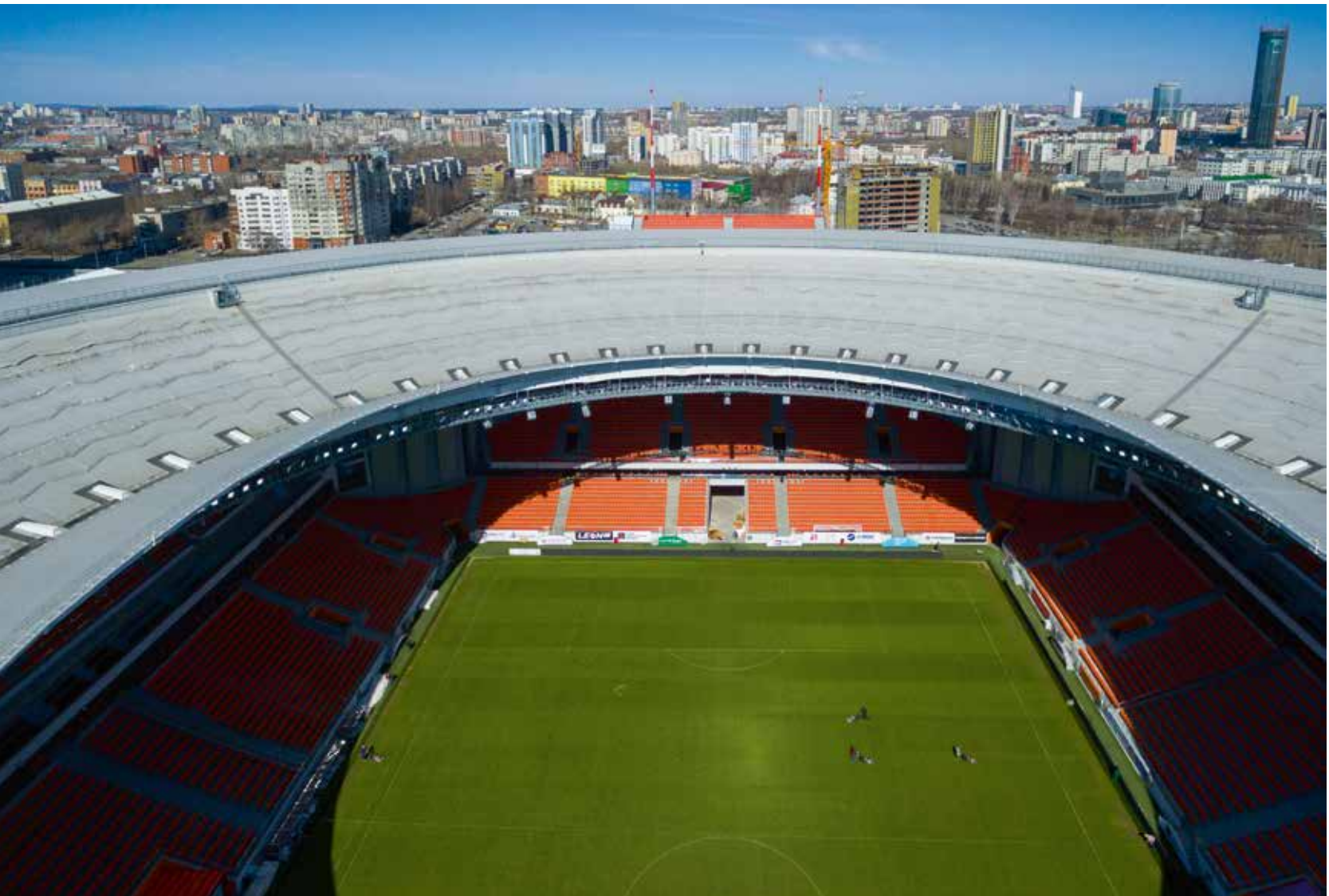
the stadium. It was necessary to allocate separate acoustic systems for the external tribunes. At the same time, it was important to cover the stationary stands, so that, later, after the tournament, there would be no need to remodel the system and all these carefully tuned and calibrated acoustic systems continued to work.

"After the World Cup, the acoustic systems intended for the external stands will have to be dismantled and used inside the stadium to cover the pitch. According to FIFA regulations, there is no need to cover the playing field, whereas UEFA requires it. Therefore, all the stadiums of the European Championship in Ukraine and Poland were equipped with additional acoustic systems for the field. And this kind of configuration will also be requested for other types of events."

The design process for the audio system was a complex one, with the stadium design as well as FIFA requirements taken into consideration. Sofit Light was in charge of this task, as Alexander explained: "In accordance with the FIFA requirements, the sound system should provide a level of intelligibility not lower than 0.55 STI for a full stadium. "The difficulty is that we must ensure the intelligibility of the voice, and the crowd creates noise with the same voices, that is, in the same frequency spectrum. We, of course, achieve the result, also by increasing the sound pressure level. For adverts and music intros, such levels are not needed, but in certain situations, such as security and emergency evacuation, it is extremely necessary, so you need to be able to reach it with the help of a sound reinforcement system. All our electroacoustic calculations, preliminary modelling, repeated measurements and so on were focussed on this task."

For the existing and temporary stands, 26 clusters of Outline STADIA 100 LA loudspeakers and 16 clusters of STSUB 215 subwoofers were used to deliver an exceptional level of sound to each seat. The guest and VIP boxes were





equipped with small, two-way acoustic systems, made up of 54 Outline VEGAS 24 loudspeakers. Powersoft X8 amplifiers are predominantly used with the Outline audio system.

“Thanks to integrated processors and the ability to integrate into local networks, amplifiers allow you to remotely monitor all of their main operating modes, such as input and output voltages and current, internal temperature, and track errors,” added Alexander. “Each STADIA 100 LA loudspeaker system is driven by two separate amplifier channels for the mid-range and high-frequency sections.”

Although the project went smoothly, according to Alexander, it wasn’t without its issues when it came to the stadium drawings.

“At a certain point, we had to redo the acoustic model. This happened when we looked at the pictures of the already constructed part of the venue and found out the discrepancy with our drawings of the roof of the stadium and the structure to which all clusters of loudspeakers had to be attached,” he said.

“As it turned out, at some point the developers changed the project, and no one sent us new drawings. Therefore, we had to make changes in the upper part of the acoustic model and completely correct the composition and change the position of the clusters. Fortunately, this was done on time, and, in the end, everything turned out well. It will now serve us as a lesson for the future: to be attentive to the details at all stages of the work, in order to avoid

problems.”

Mikhail Vasilyev, under contract with the company CROC, oversaw the implementation of the project consistently up to the stage of commissioning. During the first three matches at the World Cup, together with the specialists of CROC, Mikhail worked in the control room behind the mixing desk and controlled the operation of the system. The final result left everyone involved with audio section of the project delighted, which is exactly the reason needed ahead of such a huge tournament.

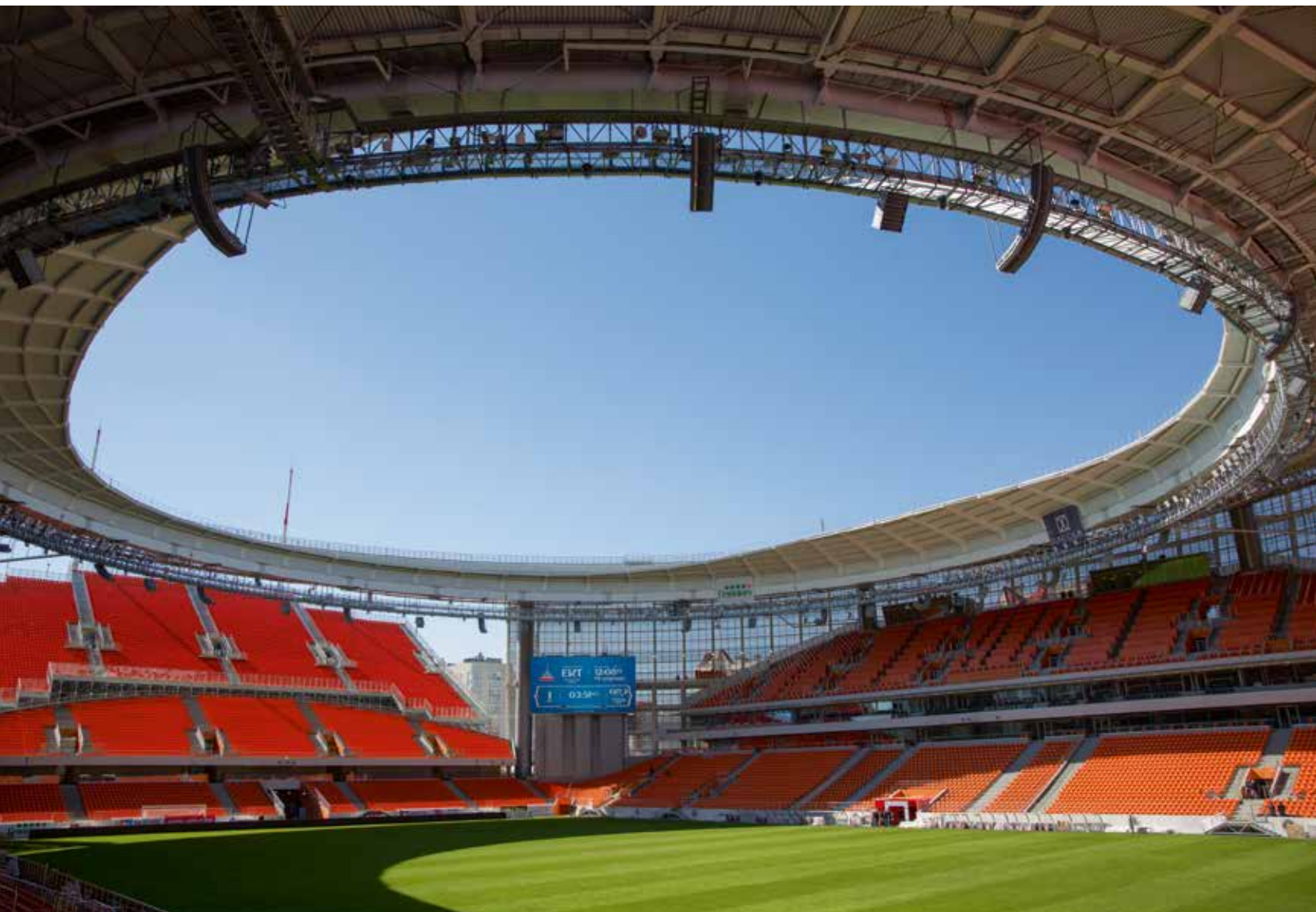
“When we turned on the system for the first time, it was impressive. The use of just the factory presets offered an intelligible sound. Of course, we did some fine tuning, mostly because of the increase in low frequencies due to the radiation area of the clusters,” Mikhail added.

“Everyone was looking forward to the moment. It’s amazing - no other system brings so much joy and pride like a PA system.”

As well as the audio, the stadium lighting at Ekaterinburg Arena also had to be modernised, with the two main objectives being that it had to be compliant with broadcasting standards and support the revitalisation plan of the home city.

The latter was part of a vision for the city Yekaterinburg that would see the stadium become a landmark to attract both citizens and visitors.

MT Electro, one of the leading lighting design companies in Russia, were tasked with the project. After taking the brief into consideration, with the need for fully broadcast-



compliant, flicker-free lighting, the decision was made to utilise Philips ArenaVision LED floodlights from Signify across the pitch. As well as being fully compliant with international and national standards, and, therefore, able to facilitate high-quality, slow-motion broadcasting, the floodlighting solution from Signify also enables a better spectator experience for fans in the stands at Ekaterinburg Arena.

As part of the project to help the stadium become a new landmark in the city, the team at MT Electro installed colour-changing architectural lighting on the stadium façade. To increase the attractiveness and the impact of the façade further, the management decided to invest in the installation of media screens, providing the Ekaterinburg Arena with a platform, which can be used for both advertisement purposes and as a way to introduce a higher level of interaction with its visitors. The new lighting system from Signify offers a greater level of flexibility in terms of lighting management, as well as improved safety and visibility both on the pitch and in the spectator areas - all of which enhance the stadium, making it a modern venue that's more than capable of holding its own on the world stage.

Ekaterinburg Arena, with its new audio and lighting system, was a fine choice for the World Cup, successfully hosting four group games - including France's 1-0 defeat over Peru on its way to winning the tournament for the second time.

TECHNICAL INFORMATION

AUDIO: 121 x Outline STADIA 100 LA loudspeaker | 48 x Outline STSUB-215 subwoofer | 54 x Outline VEGAS 24 loudspeaker

LIGHTING: Philips UNIDot LED lighting system | Philips Tango G2 LED floodlight luminaires | Philips ArenaVision LED floodlight luminaires