



FIFA WORLD CUP 2006 FIFA WORLD CUP 2006 FIFA WORLD CUP 2006 FIFA WORLD CUP 2006



This past April, a select group of audio professionals and members of the media from around the world were given an exclusive tour of two of the largest stadiums to be used for FIFA World Cup football action in June 2006. And for the purpose of this article, the term “football” will be used in the international sense, referring to a game where players actually kick a ball, which logic seems to have failed when North Americans selected the same term for a game played with hands. (I’ll never understand that one ... one of life’s great unsolved mysteries I suppose?) Back to the tour: hosted by Telex Communications on a 72-hour whirlwind tour of Germany, the group would travel to Berlin and Munich, to have behind-the-scenes tours of the Olympic Stadium (Berlin) and Allianz Arena (Munich).

Following their great success at the 2004 Summer Olympics in Athens, Greece, Telex was again at the forefront in providing professional audio solutions for the venues supporting these world-class events.

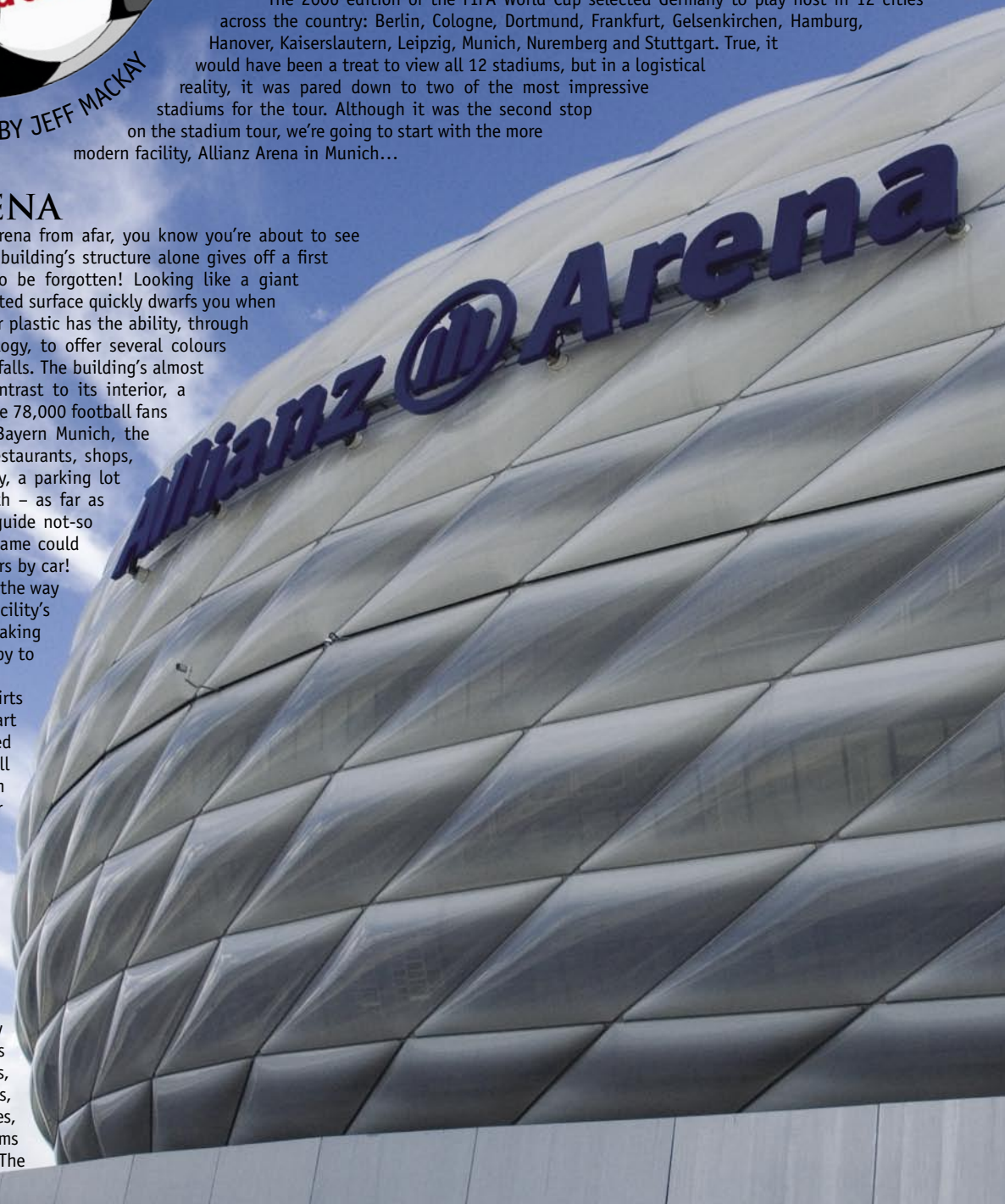
The 2006 edition of the FIFA World Cup selected Germany to play host in 12 cities across the country: Berlin, Cologne, Dortmund, Frankfurt, Gelsenkirchen, Hamburg, Hanover, Kaiserslautern, Leipzig, Munich, Nuremberg and Stuttgart. True, it would have been a treat to view all 12 stadiums, but in a logistical reality, it was pared down to two of the most impressive stadiums for the tour. Although it was the second stop on the stadium tour, we’re going to start with the more modern facility, Allianz Arena in Munich...

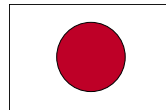
ALLIANZ ARENA

When you first spot Allianz Arena from afar, you know you’re about to see something truly unusual. The building’s structure alone gives off a first impression that’s not soon to be forgotten! Looking like a giant inflatable toy, the plastic, quilted surface quickly dwarfs you when you first approach it. The clear plastic has the ability, through colour-changing light technology, to offer several colours of illumination once darkness falls. The building’s almost playful exterior is a stark contrast to its interior, a concrete stadium built to house 78,000 football fans for a single game. Home to Bayern Munich, the facility features many large restaurants, shops, and perhaps most impressively, a parking lot stretching kilometres in length – as far as the eye could see! Our tour guide not-so fondly stated that leaving a game could take up to two-and-a-half hours by car! Maybe public transportation is the way to go after all ... and the facility’s designers knew this as well, making sure major rail lines were nearby to connect fans to Munich.

Located on the outskirts of Munich, this state-of-the-art facility was recently constructed with the intent to offer football fans the chance to be much closer to the field than other stadiums (such as the Olympic Stadium, more to come on that historical building later) due to the lack of an in-field track. Seating is able to approach the pitch, bringing fans that much closer to the action.

A sound system is an extremely important part of any stadium being constructed, as it is used for announcements, for any safety or security needs, music for entertainment purposes, and lastly, national anthems before a World Cup match. “The





actual system design was done by myself and EVI Audio," explains Oliver Sahn, Project and Sales Manager Permanent Installation Europe, for Telex Communications. "We did the acoustic design, EASE simulations as well as the network design. We had a functional description and requirements from the general building contractor and from the general electrical contractor."

Providing coverage for the entire stadium, including the stands and playing area, the system features digitally networked signal processors, remote-controlled and -monitored high-powered amplifiers and Electro-Voice loudspeakers specially made for the arena. Consisting of 24 clusters of six loudspeakers, with a complement of 10 singly-mounted speakers, the system is easily able to clearly deliver whatever is being expected of it. Sahn explains, "The performance requirements were set very high ... the Allianz Arena was supposed to set international new quality standards, for the whole building and also for the sound system. The system in the arena is completely custom tailored. It is a perfect integration of ProSound and PAVA life safety system, fulfilling all European norm and FIFA requirements. Every operator has the interface he is used to having or wants to have: the firefighter has a simple push of a button to talk into a microphone with, more or less, general zone selection. The police and security officers have big paging consoles with a detailed zone and group selection, to make dedicated announcements to individual zones."

A grand total of 154 speaker enclosures are in use in the stadium including 72 subwoofers, according to EV, that are equivalent to those used in concert sound systems. The speakers are enclosed in colour-matched steel structures for two reasons: fire safety, plus the desires of the architect. The speakers are mounted at a height of 42 metres, weighing 1 tonne. Power is supplied by remote Electro-Voice amplifiers giving a total output of 158,000 watts. Housed in 14 separate control cabinets, the amplifiers are mounted within the roof.

Part of the state-of-the-art system is the ability to constantly monitor the amplifiers' performance using the integrated, digital signal processors, while offering users the option of matching the output to the arena and other loudspeakers. EV's system check allows users to know that everything is in order in addition to being able to request and obtain detailed information within minutes on every loudspeaker component.

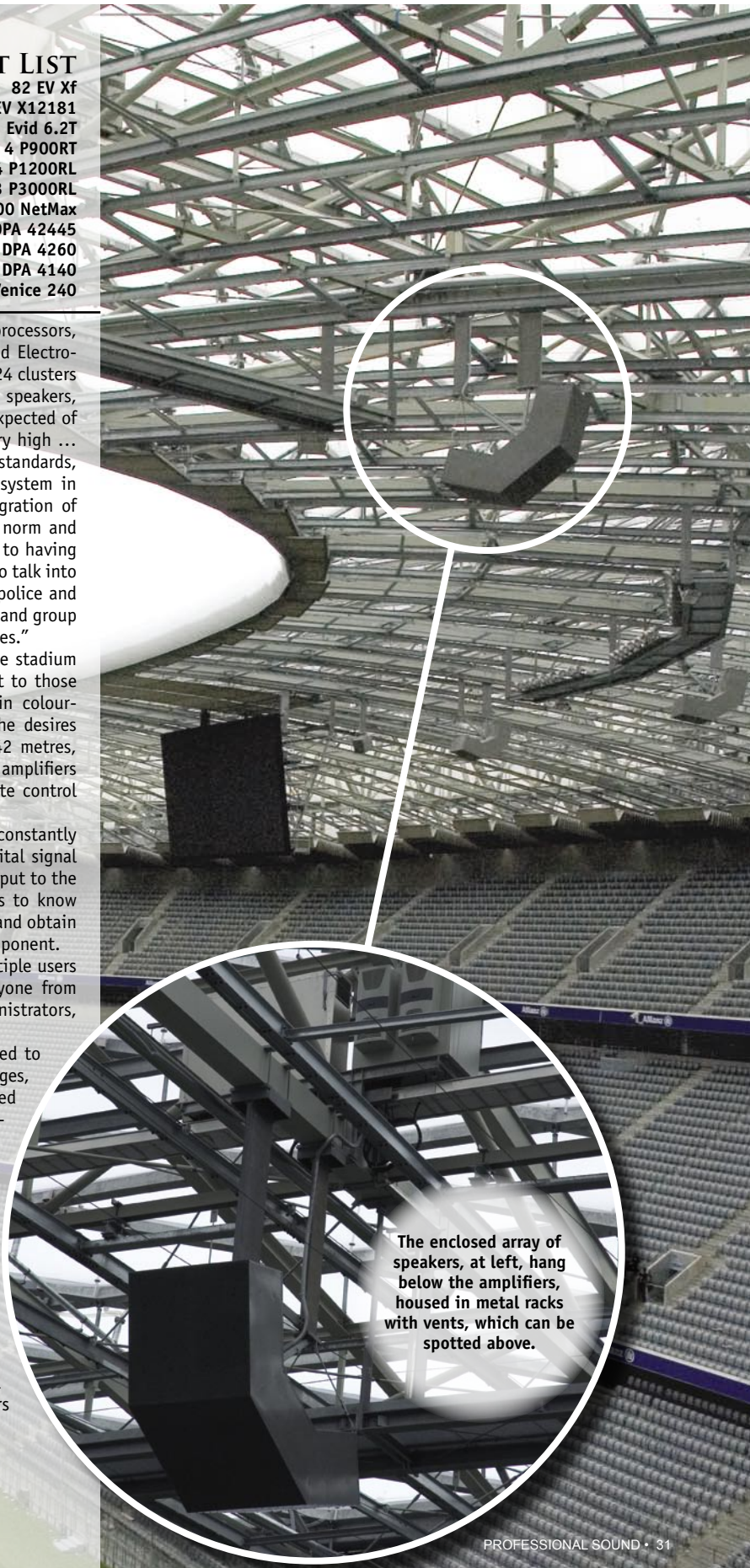
EV's IRIS software, offering tailor-made interfaces to multiple users on a touch TFT screen in the main control room, lets everyone from maintenance technicians to sound engineers, even system administrators, to create their own passwords to access the system.

The Allianz Arena has a huge variety of areas that needed to be covered by the audio system, ranging from indoor passages, stairwells, boxes, restaurants and car parks. Dynacord supplied the Allianz Arena with a ProMatrix system utilizing Electro-Voice N8000 signal processors. The areas served by additional amplifier cabinets, seven in total, with a total output of 129,000 watts. This system allows information, as well as alarm messages, to be directed to specific zones within the stadium and a different program of background music to be assigned to each zone.

The control rooms running everything are linked by a redundant fibre-optic network, linking the integrated PA and pro sound systems, which through the high quality of the components used and its entangled double-ring topology, according to EV, satisfies the most stringent standards in terms of safety and secure operation. EV also conducted acoustical measurements that confirm that the Allianz Arena bears comparison acoustically with the finest venues in the world.

EQUIPMENT LIST

- 82 EV Xf
- 72 EV X12181
- 96 Evid 6.2T
- 4 P900RT
- 14 P1200RL
- 53 P3000RL
- 23 N8000 NetMax
- 49 DC DPA 42445
- 68 DC DPA 4260
- 7 DC DPA 4140
- 1 Venice 240



The enclosed array of speakers, at left, hang below the amplifiers, housed in metal racks with vents, which can be spotted above.

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OLYMPIC STADIUM

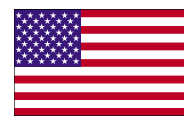
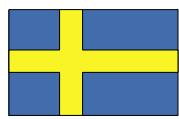
Berlin's historic Olympic Stadium is the exact opposite of the previously mentioned Allianz Arena in many ways: from the stone architecture, to the torch-like lights on the building's exterior. This stadium played host to a football match between Berlin and Stuttgart that the Telex tour attended. For any North American who hasn't had the opportunity to witness a football match in Europe, it is truly a sight to be had! The local teams' fan clubs are seated in one section of the stadium, almost continually singing and chanting various songs written for the events. If only North Americans were able to support these sporting events in a similar manner... Europeans know how to have a good time at a large event!

The stadium's history is fascinating, dating back to the late 1800s and early 1900s, when the popularity of horse racing created a need to construct a facility for spectators. After switching locations a few times, architects finally settled on the current location to begin construction. Holding 40,000 people, the Grunewald horserace track was opened in 1909 and had future plans already in play as they left a great depression in the centre of the stadium with plans to construct a stadium later. The stadium would be completed in time to host the Olympic Games in 1916. However, with the onset of World War I in 1914, the stadium closed its doors to the public, eventually serving as a military hospital during the war.

Long after World War I, the stadium's grounds hadn't been kept up sparking a remodelling. Adolf Hitler was made Chancellor in 1933, and quickly decided to build a new stadium over the old one's location. The Nazi regime would go on to complete the facility, due in part to their desire to utilize the propaganda opportunities hosting the Olympic Games would bring. Hitler himself ordered the demolition of the original stadium, only to build one much larger than anticipated. The XI Olympic Games officially opened on August 1, 1936. American athlete Jesse Owens would win four gold medals that year in 100 metre dash, long jump, 200 metre dash and 400 metre relay. His name is clearly spotted just outside the stadium on "Jesse Owens Way" street signs.

The stadium would start hosting football matches in 1937, the same year that thousands of torch carrying Nazis would march to the stadium to welcome Italian "Duce" Mussolini. The facility certainly





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EQUIPMENT LIST

19 line arrays of 9 enclosures each containing EV XLC 127+ (in all cabinets)

38 EV P1200 RL remote-controlled amplifiers

43 EV P3000 RL remote-controlled amplifiers

2 EV P900 RT remote-controlled amplifiers

8 EV RE90HW suspended microphones for noise sensing

2 EV PolarChoice 18" desktop speaker stations

1 DC ProMatrix (alarm and breakdown management)

has its place firmly rooted in history and it's no doubt that this venue should be one of the jewels in the crown of the FIFA World Cup's 2006 tournament.

As with the Allianz Arena, the Olympic Stadium's capacity is very large, hosting 74,228 seats after 2004's construction upgrades. The building's covered section was installed in phases, starting back in 1974, seeing complete coverage by 2004. The new roofing does not form a complete circle, allowing the Marathon Gate to stand open for runners to exit and then re-enter the stadium during long runs. The roof appears to be floating above the stands, as there is minimal visible support. Supported by 20 filigree steel columns standing in the upper ring, the roof contains both the audio and lighting systems, producing more than 150,000 watts.

The new audio installation was designed by TSE AG, based in Berlin, and features products from both Electro-Voice and Dynacord. The new equipment, according to Telex, offers reliable and convenient system control and monitoring. Electro-Voice's IRIS software and remote-controlled amplifiers play key roles. "The official tender was released with a decentral design: Mid/Hi systems at the front edge of the roof, Fullrange delay loudspeakers flown in the rear part of the roof and directional subwoofer arrays in between," details Sahn. "The design which is now installed was based on the good experience of TSE (the subcontractor for the sound system) had with EV line arrays before. TSE, supported by a German consultant and acoustician, Dr. Anselm Goertz, had the idea to use EV XLC line arrays in the way that is now installed."

Sahn explains that the system needed to be completely renovated, along with the roof of the structure. "The old sound system was used for paging and announcements only," he details. "It had not been used for entertainment and good music reproduction. It was a 100 V constant voltage-based system with distributed compression driver horns and column speakers. For bigger events, such as American football, TSE provided sound with ground stacked EV X-Line systems along the 400 m running track on a rental base."

"Having to install EV's IRIS software, however, you can check individual loudspeaker components for any impedance anomalies with a single mouse click," explains Sahn. "This warns you of potential problems and allows you to replace suspect components before there is any audible breakdown of the system. This level of sophistication in the monitoring of amps and loudspeakers is almost unique and saves the operating company a great deal of money and stress - greatly increasing reliability into the bargain!"

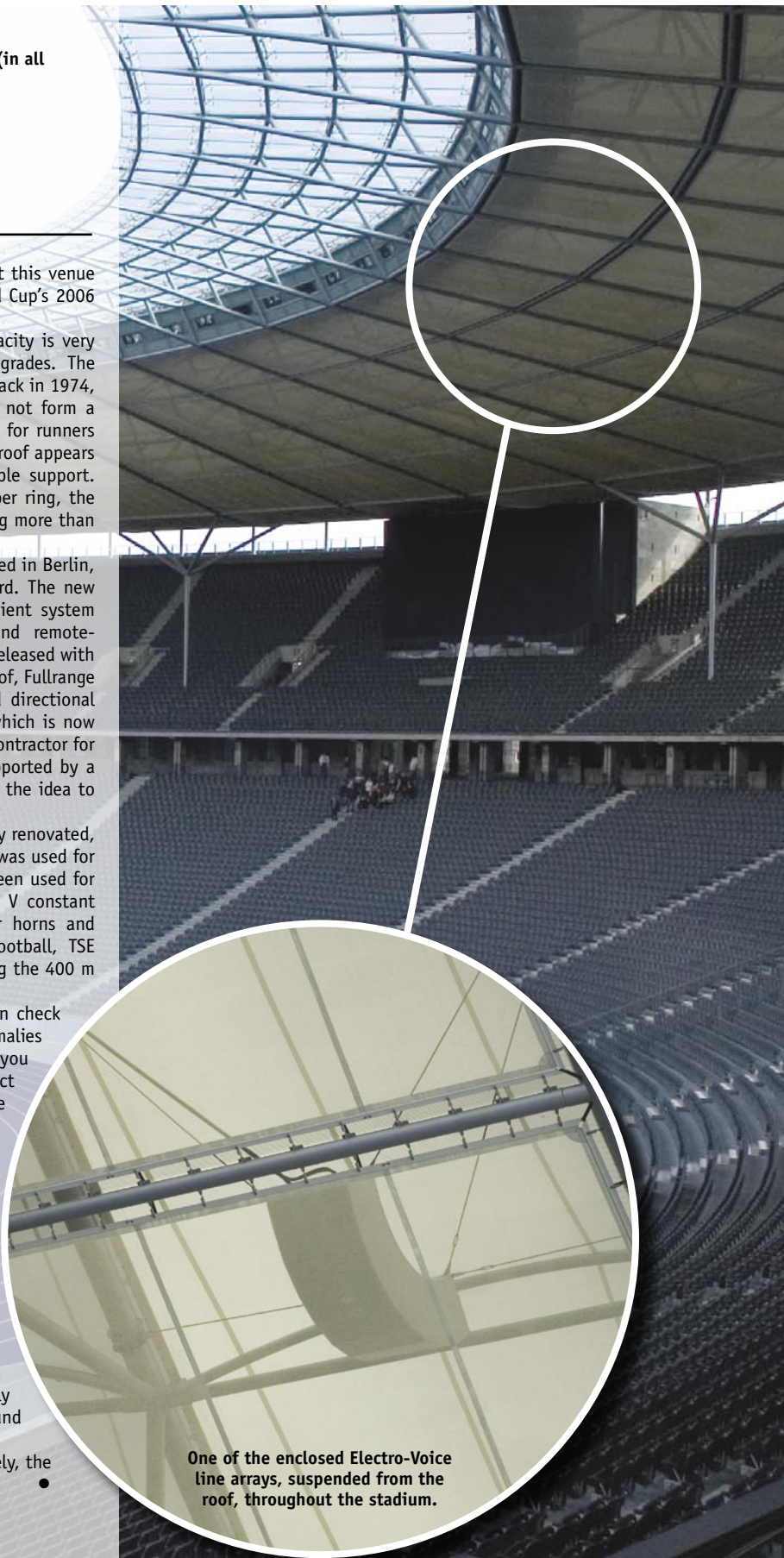
The speakers are mounted above spectators' heads, also encased in custom enclosures. (See photo for detail.) Similar to the Allianz Arena, the amplification is also placed in the roof, keeping the power close to the speakers.

During the game witnessed by the tour group, the audio was extremely clear and concise, delivering messages about the game to fans, announcing players, playing national anthems, etc. There's no question that attendees will miss any announcements now! We were seated directly under one of the flown arrays, and the sound level was truly impressive.

And for those who follow football closely, the home team, Berlin, won the match!



Jeff MacKay is Editor of Professional Sound.



One of the enclosed Electro-Voice line arrays, suspended from the roof, throughout the stadium.