



**INTRO**

**6 SPORTS VENUES TIMELINE**

Milestones in sports venue construction and equipment from 1871 until today.

**8 The biggest venues around the globe**

Where is the biggest indoor, outdoor, cricket and baseball stadium on each continent, where is the biggest racetrack?

**13 “Business-as-usual can only proceed when restrictions are lifted”**

While Europe were in the middle of the lockdown, the Eden Park in New Zealand hosted its first concert with over 50,000 visitors. Interview with CEO Nick Sautner.

**14 “Co-op Live will be one of the world’s best venues”**

The construction of Co-op Live, the then biggest indoor venue of the United Kingdom, has begun. STADIAWORLD spoke to Mark Donnelly, Chief Operating Officer, OVG International.

**16 The Sports Data Maturity Model**

61% of all sports organisations do not use data for their overall strategy. This statistic has been calculated by the Sports Data Maturity Model in research conducted by Bas Schnater and Geoff Wilson.

**18 Bringing the industry back together**

As the sports and entertainment sector begins reopening, Europe’s first in-person event – the hybrid edition of ALSD International – is bringing the industry back together.

**OPERATION**

**24 The power of the sun**

Sports facilities have an enormously high energy consumption. As a result, alternative solutions are increasingly in demand – this is where photovoltaics come into play.

**26 “This is a far more sustainable approach”**

Jonathan Emmett, Principal and Design Director at Gensler and Lead Designer for Q2 Stadium & St. David’s Performance Center in Austin, speaks with STADIAWORLD about the environmental aspects of planning a stadium and the Q2 Stadium.

**28 The stadiums of the 2021/22 season**

The league constellations in the five most important leagues in European football for the upcoming season have been confirmed. Facts about the stadium landscapes in Germany, England, France, Italy and Spain.

**34 Philips Stadion: Traditionally innovative**

The Philips Stadion has been the home of the PSV Eindhoven for more than 100 years. Nevertheless, even today it operates on the highest level and is known for providing room for innovations to unfold.

**37 “We want to stay in the front line”**

STADIAWORLD spoke to Peter Fossen, Board Member at PSV Eindhoven, about Philips Stadion, future developments and the importance of digitization.

**38 Always the biggest stage**

The Stade de France is not only the largest stadium of the country, but it has constantly been in the focus of major events. The next years are full of highlights – but there were also dark hours.

**42 Liverpool: Big developments ahead**

Liverpool FC as well as Everton FC are facing changes concerning their stadium infrastructure.

**44 Back to the roots**

With the UBS Arena opening in late 2021, the NHL franchise New York Islanders will finally be back home in Long Island. More than 1 billion euros are invested in the arena.

**46 “Always on the lookout for the latest and greatest technologies”**

In this interview, Tim Townsell, Senior Vice President of Business Operations at TD Garden, speaks about the venue’s history, the effects of the pandemic, innovative technologies and smart updates.

**48 The lucrative business with naming rights**

For quite some time now, naming right deals have been a proven method in the industry.

**50 The game of games**

When Boca Juniors meets River Plate in Buenos Aires you can cut the air with a knife. The stadiums are cult objects but now rather outdated. Both stadiums have plans for the future, but will that jeopardize their iconic status?

**52 City portrait: Rio de Janeiro**

Thanks to the 2014 FIFA World Cup and the 2016 Summer Olympic Games, Rio de Janeiro has a modern and diverse portfolio of venues available.

**CONSTRUCTION**

**54 SPORTS VENUES 2021/22: Construction Report**

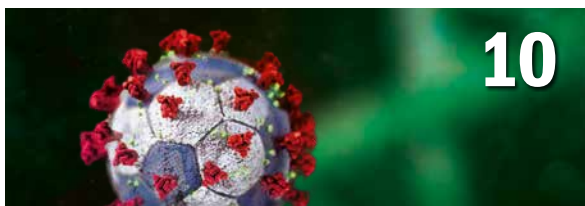
The matchless report by STADIAWORLD provides the most comprehensive overview about the construction of sports facilities.

**57 se cover – Moving Membrane Architecture**

With innovative materials and ambitious building envelopes, se cover is changing the face of architecture worldwide – in sports facilities, infrastructure, shopping centers and even shipbuildings.

**68 China’s big construction boom**

A range of mega stadiums are currently being built in China most of which will be venues for the Asian Cup 2023. At the same time, the World Cup application is expected to be accelerated with the new infrastructure.



10

## REOPENING WITH CONFIDENCE

The sports and entertainment sector begins the big reopen and Katie McIntyre reports on the state of events.



20

## SEATTLE: AN ARENA AS A PROMISE

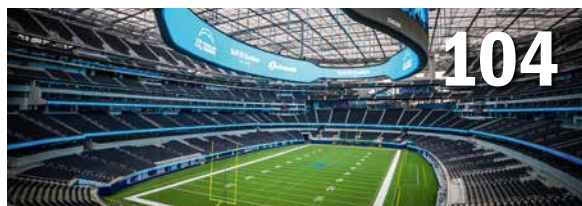
The Climate Pledge Arena will be the future home of the NHL's Seattle Kraken. The operators have set ambitious goals.



72

## TECH REPORT

The pandemic has, in part, worked as a catalyst. An overview of the latest technology developments in sports venues.



104

## OUTLOOK: EVENTS 2021 & 2022

With EURO 2020 and Summer Olympics in Tokyo behind, several sporting highlights are waiting in the upcoming 12 months.

### 70 Tech Report: venues are upgrading further

Technologies in stadiums and arenas are no longer confined to house technology as well as light, sound and two display boards. Modern sports and event locations are exhibiting more and more technologies.

### 83 New possibilities: 5G on the rise

More and more sports venues around the world are implementing the new mobile communications standard 5G. American locations in particular can boast a large 5G landscape. But some German stadiums are equipped with 5G, too.

### 100 "I like to compare the pitch to a cake"

Interview with John Ledwidge, Head of Sports Turf & Grounds, Leicester City. John talks about his work in the King Power Stadium, the Premier League club's premises and operational concepts behind and beyond the turf tech.

## TECHNOLOGY

### 77 Kick-off for the stadium of the future

Signify is a global market and innovation leader in LED and sports lighting and knows what it takes to put the game in just the right light, giving fans a great experience.

### 79 Sound in the Porsche-Arena: d&b audiotechnik pushes through!

Multifunctionality is key in the Porsche-Arena: The interior space measuring 2,000 square metres can be used for sports like basketball, volleyball, indoor cycling, boxing or ice hockey. d&b audiotechnik provides the perfect sound.

### 80 "This is a revolution and we are very proud of it!"

With the Olympiastadion Berlin and the Deutsche Bank Park in Frankfurt, two of Germany's largest and most prestigious stadia now shine in a new light. The technology is an in-house development by LANZ Manufaktur from Germany.

### 82 "We connect the stadium with lighting technology – for those really big moments."

What if stadia of all sizes were equipped with full-color, multimedia-ready floodlights from the start? What if optimal conditions were already created during the planning and implementation stages to enable the event venue to be used for shows and concerts as well? With its partner LANZ Manufaktur, the Swiss event contractor NUSSLI offers stadium operators new possibilities and unforgettable experiences for audiences.

### 84 Weathering the crisis with high-tech

The Corona pandemic enforced the use of certain technologies. However, many of these had already been established in the venues. Some were reimaged and considered in a wider context.

### 86 "Each type of display is governed by its own set of rules"

An interview with J.R. Boyle, the Senior Director Facility and Venue Operations for the NHL. J.R. describes his area of operation and provides insights into ongoing and current challenges around the venues of the elite ice hockey league.

### 89 Olympic ice "Made in Germany"

The German ISS GmbH with locations in Neu-Isenburg near Frankfurt and Borna near Leipzig has worked on a project for the 2026 Winter Olympic Games in Milan and Cortina d'Ampezzo already.

### 90 South Tyrol: LED perimeter advertising in Bolzano

Enjo presents a new type of board advertising in the Eiswelle, home of the HC Bolzano. The FlexBoard PPS Motion is equipped with an ultra-thin and lightweight LED film.

### 92 Digital Displays: Size is not everything

Whether it's video walls, fascia boards or digital signage – large screens and high numbers are certainly impressive. But the conceptual and technical challenges are no less in small venues.

### 98 Pitch Technologies: digitisation on the go

The groundsmen in elite stadiums still rely on their green fingers. But without synthetic reinforcement and the use of all modern achievements available, there is no longer a professional playing field.

### 102 Grass grow lighting: Comprehensive system with LED and sensors

RHENAC SPORTS LED, part of RHENAC GreenTec AG, puts fully automatic CLS-LED turf lighting system into operation at Schalke 04.

## EVENTS

### 104 Outlook: Events 2021 & 2022

With EURO 2020 and Summer Olympics in Tokyo behind, several sporting highlights are waiting in the upcoming 12 months. An overview.

### 106 NFL requesting proposals for future regular-season games in Germany

Seeking to identify a long-term partner city to build on substantial German fan momentum, the National Football League announced the launch of a process to identify a partner city for regular-season games in Germany.

### 107 "Germany is very well-equipped on the stadium front"

In this interview with STADIAWORLD Brett Gosper, Head of Europe & UK NFL, talked about the current status of the process and the requirements for hosting an NFL game.

### 108 EHF EURO is coming to Hungary & Slovakia

For the first time ever, Hungary and Slovakia will host a European Handball Championship. The EHF EURO 2022 will be played in five venues in these two countries. Two new arenas were constructed for this.

### 110 Olympic Games' last dance in Asia – for now

In conclusion of the Asian Olympic triple the best winter sports persons will travel to Beijing in February 2022. With this, the Chinese mega city accomplishes a historic feat.