STADE DE LUXEMBOURG

STADE DE
LUXEMBOURG

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LUXEMBOURG
LET'S MAKE IT HAPPEN

LYDIE POLFER
MAYOR

As mayor of the City of Luxembourg, I am proud and delighted to inaugurate the Stade de Luxembourg.

The construction of this stadium is the culmination of lively political discussions to find the ideal location, as Josy Barthel Stadium, on *Route d'Arlon*, no longer met today's standards in terms of safety and comfort. As I was working on the preparations for the new general development plan, it occurred to me that the area between the motorway and *Boulevard de Kockelscheuer* would be the ideal location for the stadium. Fortunately, the Minister of Sport agreed.

This news heralded the creation of a new facility for the football and rugby teams and their spectators, which would at the same time contribute added value to the capital. Ninety years separate the commissioning of these two stadiums – on *Route d'Arlon* and in Gasperich – and during that time, the city has evolved, as have the requirements it wants and needs to meet.

To build a lasting facility and execute this iconic project, which will add to the capital's appeal as well as meet the current and future needs of residents and visitors, we had to satisfy a number of town planning criteria.

Thanks to the immediate proximity of the *Croix de Gasperich* interchange, a car park for buses and cars, and above all the extension of the tramline, visitors will have different options for travelling to the stadium, which will help distribute the flow of people.

In addition, Stade de Luxembourg is a welcome addition to the southern part of the capital, a fast-growing area that offered the necessary space to build a category 4 UEFA stadium. As the stadium is set on the other side of the A6 motorway and therefore apart from current and future residential areas, as well as the Ban de Gasperich Park, the impact on the surrounding areas during matches could be minimised.

As mayor, and on behalf of the college of aldermen, I would like to thank the Ministry of Sport, the FLF and the FLR, the City of Luxembourg municipal departments and everyone who contributed to the completion of this magnificent project, for our successful collaboration over the years.

Stade de Luxembourg is now ready to host its first games. I hope it exceeds the expectations of all future players and spectators, and that it offers our city the added value that all the stakeholders worked so hard for together over the last few years.

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SIMONE BEISSEL,
ALDERWOMAN FOR SPORTS

For the last 80-some years, Luxembourg City has been able to provide local sports associations with facilities that meet their needs, allowing them to host nationally and internationally renowned competitions. The Olympic pool in Kirchberg opened its doors in 1982 and has been improved and extended over the years to become the d'Coque National Sports and Cultural Centre we know today. Other venues include the CK Sportcenter and the Kockelscheuer Ice Rink, as well as the facilities and sites operated by the City of Luxembourg municipal departments, such as the Boy Konen Bike Park, the Péitruss Skatepark and the Badanstalt municipal swimming pool.

In September 2021, the new Stade de Luxembourg was added to this roster, offering national and international football and rugby teams a facility that meets current standards.

As the alderwoman for sports, I am awed by the end result. This project would never have been completed without the joint efforts of the Ministry of Sport *(Ministère des Sports)*, UEFA, FLF, FLR and the City of Luxembourg municipal departments. Congratulations!

The new stadium will help position Luxembourg City as a host of high-level sporting events. It is an eye-catcher that, together with the headquarters of the City's *Service Sports* (Sports Department), the CK Sportcenter and the Kockelscheuer Ice Rink, form a genuine sports hub.

The new stadium is sure to make a lasting impression on the spectators who come to cheer on their favourite teams from the stands, and on the players who come to take possession of the playing field – at least for the duration of the match.

But a sports complex is more than its stands and the playing field. Many more elements are needed to ensure that every match runs smoothly, and these must meet the needs of all stakeholders. For example, the criteria for the media and VIP areas, infirmary and various emergency service entrances were laid out right from the start, and have resulted in facilities that are far superior to what would have been possible at the *Route d'Arlon* site.

After operating for more than 90 years, during which time myriad teams faced off on its pitch and many historic events occurred within its walls, the Josy Barthel Stadium no longer meets current standards. The new Stade de Luxembourg is ready to take the helm. This is just the beginning of its story, which I hope will be as rich and stirring as that of its predecessor.

© Yves Kortum

DAN KERSCH,
DEPUTY PRIME MINISTER
MINISTER OF SPORT

TIME TO ROLL THE ROUND AND OVAL BALLS

At long last, we have a national football and rugby stadium that will provide our "Roud Léiwen" with the best possible conditions to compete against the world's football and rugby powerhouses. Baptised "Stade de Luxembourg", this new showcase for Luxembourg sports complies with international standards, combining modernity and comfort with simplicity. The new sports arena meets a clearly identified need and is a vital undertaking for the Grand Duchy of Luxembourg and the development of sports in general – in short, it is a sporting facility that is essential for hosting international competitions.

Boasting the national colours, Stade de Luxembourg – which was co-financed by the Luxembourg Government and the City of Luxembourg, the stadium's owner – will become the new home for Luxembourg football and rugby, and is poised to stand alongside the world's most legendary football and rugby arenas.

It is a stadium that will see free kicks and penalties, tackles, goals and tries, and will undoubtedly be the backdrop for many unforgettable moments that will be engraved in our national memory.

The scene is now set: Stade de Luxembourg is a fantastic addition to the calling card of the Grand Duchy of Luxembourg, in line with our country's motto, Luxembourg – Let's make it happen.

I will leave you with this thought: "Roude Léiw huel se!"

PAUL PHILIPP,
PRESIDENT OF THE LUXEMBOURG
FOOTBALL FEDERATION

NOSTALGIA AND A DREAM COME TRUE

The time has come to bid farewell to Josy Barthel Stadium. We can't help but feel nostalgic, and even a bit sad, as we think about this venerable site and its storied place among our local institutions.

We will always remember our excitement – and sometimes disappointment – as we witnessed notable athletic feats:
- in 1961, the 4-2 victory over Portugal;
- in 1990, the unfortunate 2-3 defeat to Germany, the reigning world champion;
- in 1995, the 1-0 victory over Czechoslovakia, the future European runner-up.

Of course, these are just a few of the momentous events the stadium saw. However, endings should be celebrated, for they precede new beginnings.

In 2007, an initial meeting with the future main stakeholders – the City of Luxembourg and the Government – was held to address the need to plan a new national stadium that would better meet modern-day requirements. The two parties ultimately agreed that our points were well founded.

It goes without saying that such a large-scale venture could not be executed overnight.

Careful planning, countless discussions, close monitoring of the finances, and eventually the coordination of the construction works: all this went into building the new stadium, which at long last has been completed and is now a wonderful new addition to the city with its extraordinary architectural design.

The Luxembourg Football Federation (*Fédération Luxembourgeoise de Football* – FLF) and its 44,000 members are deeply grateful to the City of Luxembourg and the Government for all their efforts, especially amid the current pandemic, which has now been ongoing for over a year.

This monumental investment by the City of Luxembourg and the Government is testament to their immense support for the activities of our federation, our 120 clubs and our countless volunteers, without whom there would be no football in Luxembourg.

May the new Stade de Luxembourg be the arena for the challenges facing our new international generation of footballers, who over the last few years have been enthralling us with their stunning play and strong record.

JEAN-FRANÇOIS BOULOT,
PRESIDENT OF THE LUXEMBOURG
RUGBY FEDERATION (*FÉDÉRATION LUXEMBOURGEOISE DE RUGBY* - FLR)

Ninety years after the Josy Barthel sports complex was unveiled, we are now inaugurating a new fortress that will take its place in Luxembourg's sporting landscape.

It is with a host of fond memories and a tear in our eye that we now turn the page on the Josy Barthel Stadium.

It is time to open a new book and fill it with stories about the "Stade de Luxembourg". Sports have a magical quality: they nourish the hopes and dreams of an entire nation, and can be the cause of great joy, but also of bitter disappointment. Our country may be small, but I know our teams will fill this book with some memorable tales.

In this new arena, the "Stade de Luxembourg", we will welcome, honour and do battle with our rivals. We will remain true to our values as a new era dawns for us.

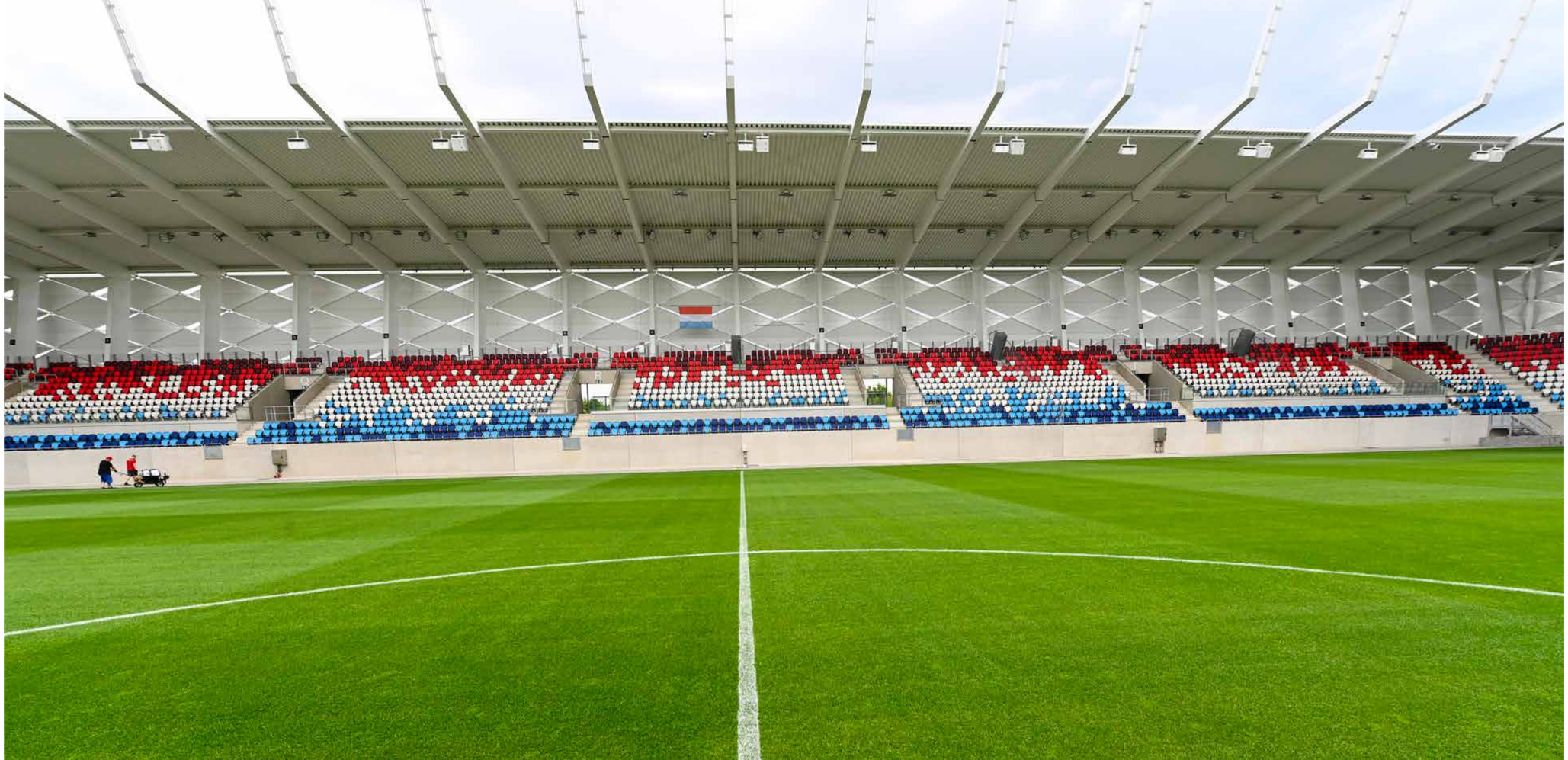
Although rugby is not so widely played in Luxembourg, it is becoming increasingly popular and the national teams are gaining international recognition. They are eager to play their first match in Stade de Luxembourg in front of new fans.

Our players look forward to treading the new turf, and the future belongs to the upcoming generations.

Let us write the story of Stade de Luxembourg together.

The authorities, friends and supporters thank everyone who contributed, both directly and indirectly, to this undertaking, which will give Luxembourg rugby the opportunity to grow, evolve and soar to new heights.

Loosst déi Rout Léiwen lass.



9,471 SEATS DISTRIBUTED ACROSS 4 SECTIONS

In 1848, the Constitution of the Grand Duchy of Luxembourg "introduced for the first time the right to assemble freely without fear of preventive or repressive measures."[1] This sparked the creation of a plethora of associations, but it was not until 1928 that non-profit organisations – including sports associations – were legally recognised. It is against this backdrop that the need to build a stadium in Luxembourg City emerged. According to Jean Hansen[2], municipal councillor from 1925 to 1929, the stadium had to satisfy "all the requirements of the entire sports community". The architect Jean Schoenberg presented a project in 1928, but the municipal council rejected it on the grounds of its excessive budget. To cut costs, the plan to include a velodrome was dropped, limiting the stadium's infrastructure to a football pitch and an athletics track. Once the amended project was approved by the Olympic Committee (which represented all sports federations), the *Cercle Artistique* and the *Association des Architectes*, construction began. The structure was completed in 1931, and the first international sporting event – a football match between Luxembourg's national team and Belgium's Red Devils – was held at Josy Barthel Stadium (known at the time as the *Stade Municipal*) on 1 March 1931 before 6,000 spectators.

In addition to football and athletics competitions, the stadium came to host a number of other sporting events over the years, such as the pre-Olympics celebrations in 1931 to mark the 25th anniversary of the founding of the Luxembourg Olympic Committee. In 1937, the stadium was the finish line of the Tour de Luxembourg, a cycling race that has become a tradition in the Grand Duchy. The stadium was retroactively renamed in 1993 in honour of Josy Barthel, a Luxembourg athlete and politician who won the gold medal in the 1500 metre run at the Helsinki Olympics in 1952.

As the 21st century dawned, Josy Barthel Stadium continued to play an important role in Luxembourg football, serving as the venue for international matches. Despite its national significance, however, the stadium failed to meet UEFA standards. Temporarily, it received an official exemption to host international football matches. Among the facility's shortcomings were the lack of a roof over the stands, the absence of a backup power system in the event of electrical outages, and press rooms that were too small. It therefore became necessary for officials to find a better venue, especially as Luxembourg was the only one of the 53 UEFA member countries that lacked a stadium that complied with international regulations.

In November 2008, on the occasion of the celebration of the Luxembourg Football Federation's centennial, the government pledged to have a new football stadium built with the support of private developers as part of a new commercial complex. This project drew considerable criticism and was ultimately abandoned in May 2012.

The debate about renovating Josy Barthel Stadium was rekindled, but expert appraisals found that renovating the stadium would be technically challenging. Officials were left with only one option: finding a new site that would ensure compliance with international standards. As part of the preparatory work for a new general development plan (*plan d'aménagement général* – PAG), Luxembourg City Mayor Lydie Polfer proposed a site at the south end of Cloche d'Or. This proposal, which was endorsed by Minister of Sport Romain Schneider and the FLF, helped speed up the process.

As part of the launch of the project to build the new stadium, the City of Luxembourg, backed by the Ministry of Sport, issued a Europe-wide call for applications for a project management consortium comprising an architect, a civil engineer and a technical engineer that would be tasked with building the new stadium. The City received 25 joint applications, each outlining a "master plan" and a "new national stadium" project. Three of these were selected: the firms *Gerkan Marg & Partner* (D) and *BENG* (LU) were chosen as architects, *Schlaich*, *Bergmann & Partner* (D) and *TR-Engineering* (LU) were chosen as civil engineers, and ZWP (D) and Luxautec (L) were chosen as technical engineers. These six firms are part of the PGNL (Planungsgemeinschaft Nationalstadion Luxemburg) group, along with ESPACE et PAYSAGES SA, which is handling the landscape architecture, and GRANER PETER @ Associés, which is handling the video and sound walls.

Josy Barthel Stadium continued to serve as the national stadium while Stade de Luxembourg was under construction, and over the coming years the area surrounding the old stadium will be transformed into a residential district called "Wunnquartier Stade". The new site reflects the City of Luxembourg's efforts to promote housing development, which is one of the top priorities of its college of the mayor and aldermen.

1. HAMDI MOHAMED, ONS STAD, VILLE DE LUXEMBOURG, NO. 123, 2021, PAGES 40-44.
2. MUNICIPAL COUNCIL MEETING OF 17 NOVEMBER 1928

LOCATION

The location of the new stadium was proposed to Minister of Sport Romain Schneider by Luxembourg City Mayor Lydie Polfer. Situated at the south end of Luxembourg City, it was chosen for several strategic and logistical reasons. Firstly, it is easy to reach for visitors from both Luxembourg and abroad. Secondly, the stadium will further increase the appeal of the fast-growing Cloche d'Or district where it is located, and eventually come to symbolise this neighbourhood.

Located close to the Croix de Gasperich interchange, it links directly to the A3 motorway (from Metz) and the A6 motorway (from Belgium). Visitors will be able park at the P+R car park, which is just a stone's throw away from the stadium and can accommodate up to 2,000 vehicles.

Moreover, thanks to changes to the public transport networks, visitors will be able to get to the stadium easily by tram or bus – the stadium has its own stop – or use the national network of cycle paths. There are also plans to create parking spaces for buses bringing in supporters of visiting teams.

With its proximity to other existing sports infrastructure, the Stade de Luxembourg creates a sports hub at the southern end of Luxembourg City. The CK Sportcenter and Kockelscheuer Ice Rink – which host international tennis and ice hockey events – are located nearby. The City of Luxembourg's *Service Sports* (Sports Department), located east of the stadium, houses administrative offices, workshops, and maintenance and upkeep equipment for all of the city's municipal sports facilities.

As part of the project to build the stadium and create a sports hub, other projects had to be undertaken simultaneously. As such, *Boulevard de Kockelscheuer* was extended south beyond the A6. In addition, the site on which the stadium was built had to be made ready for development (rough preparatory work and landscaping).

The site's natural topography features a slope descending from northwest to southeast all the way to the *Weierbaach*. After the land was made ready for development, a vast flat area was cleared between the stadium and the *Service Sports* building. This is a multi-purpose space that can be put to a variety of uses.

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VIEW OF THE STADIUM FROM THE MULTIPURPOSE SPACE

THE SITE IS AT THE SOUTH END OF THE CITY

01 TIMELINE

TIMELINE

STADE DE LUXEMBOURG

2007-2012

Josy Barthel Stadium fails to comply with UEFA infrastructure requirements; the government and the City of Luxembourg agree on the need to build a new stadium. First project for a new stadium in Livange, as part of a wider shopping complex; eventually abandoned after protracted discussions.

UEFA President Michel Platini writes to FLF President Paul Philipp announcing the September 2014 expiry of the exemption allowing Josy Barthel Stadium to host international matches.

The City of Luxembourg and the government consider renovating Josy Barthel Stadium, but abandon the idea owing to the technical complexity of the task.

2014

EARLY 2014

As part of the preliminary work for the new general development plan, Luxembourg City Mayor Lydie Polfer locates a site in the Cloche d'Or district – between the motorway and *Boulevard de Kockelscheuer* – most of which already belongs to the City. Mayor Polfer proposes the site as the location for the new stadium to Minister of Sport Romain Schneider and the FLF, both of whom support the proposal.

21 JANUARY

The government gets the green light from Parliament to invest €100 million to subsidise the construction or development of several sports facilities. €40 million are earmarked for a national stadium.

14 FEBRUARY

Luxembourg City Mayor Lydie Polfer and Minister of Sport Romain Schneider hold a press conference to announce the construction of a new football stadium at the south end of Cloche d'Or. The City of Luxembourg acquires the remaining land required for the project.

MID-JUNE

The City of Luxembourg announces a call for applications for a project management consortium (architect, civil engineer, technical engineer). The eligibility criteria for the architecture firms stipulate that applicants must have already built a category 4 UEFA stadium. Engineering firms must have completed three reference projects of approximately the same scale and complexity.

21 JULY

Receipt of 25 group applications.

26 SEPTEMBER

Appointment of the project management consortium under the overall coordination of Paul Wurth Geprolux:
Architects: Gerkan Marg & Partner (D) and *BENG* (LU)
Civil engineers: *Schlaich, Bergmann & Partner* (D) and *TR Engineering* (LU)
Technical engineers: ZWP (D) and Luxautec (L).

2015

17 JULY

Presentation of the summary draft project to the press.

2016

END JANUARY

Presentation of the final draft project.

JUNE 2016

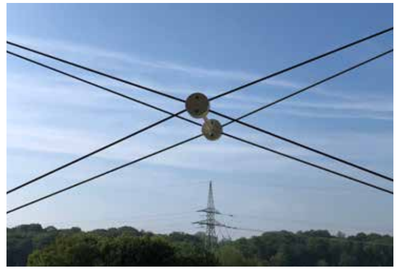
The Ministry of Sport confirms that the government will subsidise 70% of the cost of the new stadium, with the amount capped at €40 million.

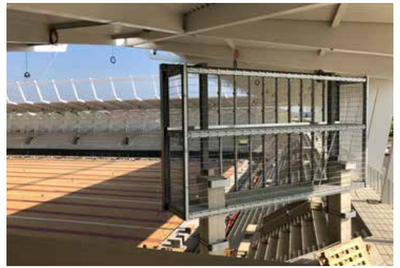
END JUNE 2016

Presentation of the final project and decisions.

5 DECEMBER 2016

Vote on the final project by the municipal council: the sum of €60,358,250, including tax, is approved to build the new stadium.





2017

MAY

Start of preparatory excavation and construction works.

19 JUNE

Signature of the National Stadium Operating Agreement *(Convention d'exploitation du stade national)* by the Ministry of Sport and the City of Luxembourg. Among other things, this agreement stipulates that:

- The City of Luxembourg is the owner of the stadium, the land and, more broadly, all annexes and outbuildings.
- All matters pertaining to the operation of the stadium fall under the purview of a Management Committee, composed of three members from the City and three from the Ministry of Sport.
- The stadium's staff are under the authority of the college of the mayor and aldermen.
- The City and State may use the stadium and all its facilities free of charge. In return for the State's financial contribution, the stadium shall be made available to the FLF and FLR free of charge for basic services.

6 SEPTEMBER

Start of structural work.

2018

JUNE

Start of works on the metal frame.

AUGUST

Start of works on the technical installations.

OCTOBER

Start of exterior joinery works.

2019

APRIL

Start of works on the anchored facade.
Start of hybrid-grass laying works.

8 JULY

Vote by the municipal council on an additional estimate in the amount of €16,562,952.87, including tax.

SEPTEMBER

Start of field-lighting installation works.

2020

JANUARY

Start of stand-seating installation works.

MARCH–APRIL

Suspension of construction following the declaration of a state of emergency due to the COVID-19 pandemic.

JUNE

Start of finishing works on the food stands.
Start of works on the insulating facade.
Start of kitchen installation works.

SEPTEMBER

Operational roll-out of HVAC (heating, ventilation and air conditioning) systems, adjustment of kitchen lights, start of sound system works.

NOVEMBER

Exterior works, installation of turnstiles.

2021

FEBRUARY

Installation of CCTV cameras, delivery of furniture.

MARCH

Installation of equipment in the multi-purpose area.

APRIL

Installation of the Wi-Fi network.

MAY

Initial tests.

14 JULY

First test event match.

1 SEPTEMBER

First official match.

25 SEPTEMBER

Opening ceremony.

26 SEPTEMBER

Open house.

02
ARCHITECTURAL CONCEPT

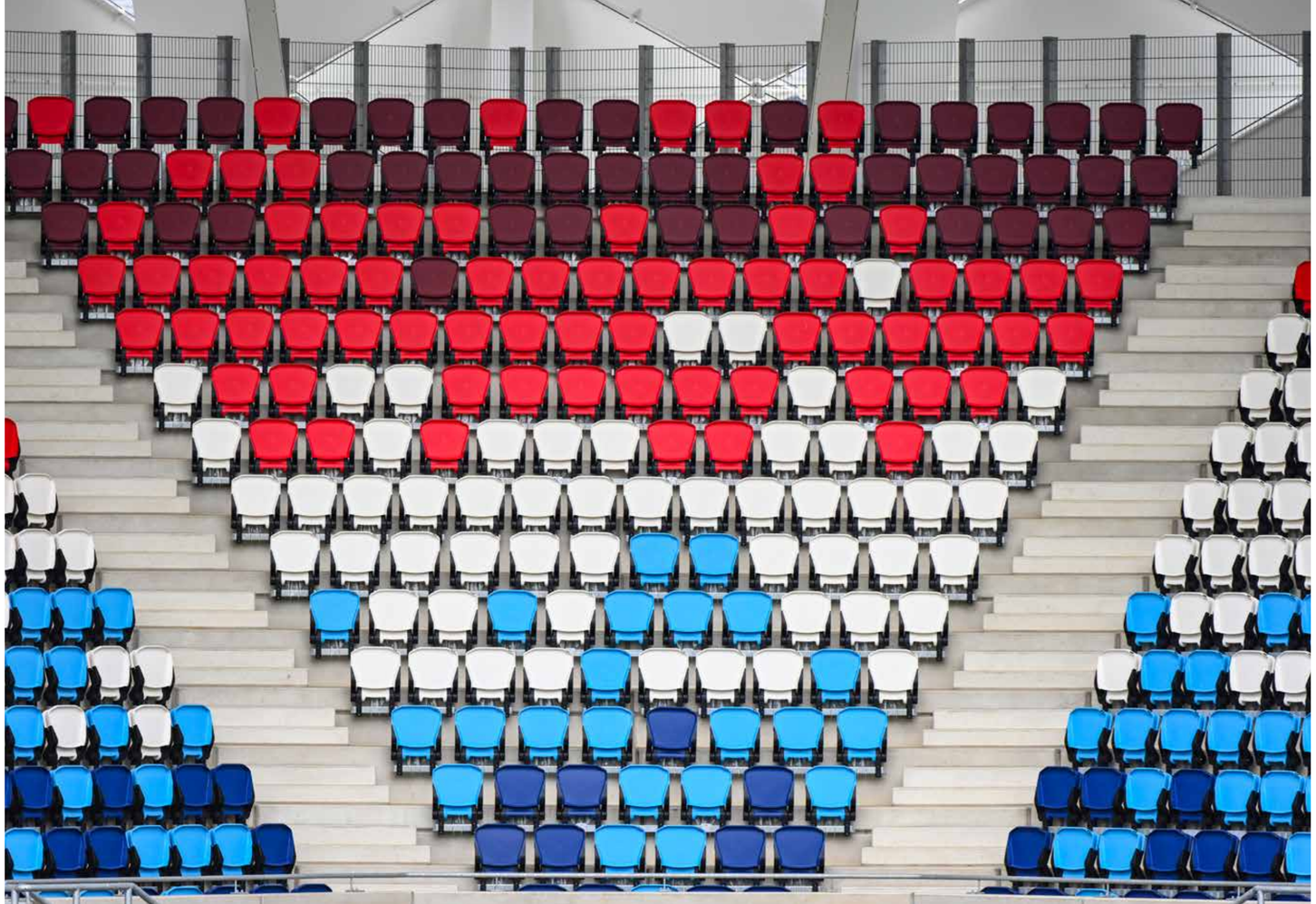
Instantly recognisable owing to its distinctive architectural design, the Stade de Luxembourg is a prominent feature in the skyline of the newly developed Cloche d'Or district at the southern end of the capital. With its timeless architecture, it is the symbol of Luxembourg football.

The stadium has been built in compliance with the applicable UEFA regulations, in line with its category 4 classification. Furthermore, the building and pitch have also been designed in accordance with World Rugby regulations.

In addition to the general standards applicable to all categories, stadiums classified as category 4 by UEFA must meet very specific infrastructural criteria. They must have a minimum seated capacity of 8,000; a pitch floodlighting system with a minimum vertical and horizontal illuminance of 1,400 lux and 1,000 lux respectively; a video surveillance system covering both the inside and outside of the stadium; designated media suites (television studios, camera platforms, press conference rooms, etc.); and a VIP area of at least 400 m² in size.

The covered stands accommodate approximately 9,471 spectators. The tiered seating is angled to ensure optimum visibility from each seat. The stands have been positioned near the edge of the pitch to help create atmosphere and achieve a specific density.

The majority of the stadium's functional and representative spaces are in the main two-storey building to the south, along the *Boulevard de Kockelscheuer*. The building and stadium are connected by the anchored facade that surrounds the entire structure. The main building contains designated areas for VIPs, players and the press, all of which are very much separate, both physically and in terms of function. The VIP area can be used independently for various types of events, both sporting and otherwise.



THE TRANSITION FROM RED TO BLUE CREATES A DYNAMIC WAVE-LIKE EFFECT

The anchored facade, composed of a steel cable structure upon which diamond-shaped metal panels are positioned, features prominently in the new stadium's visual identity. The intricate structure surrounds both the main building and the stands. While its primary function is to separate the stadium from the outside, the staggered arrangement of the metal panels in the facade allows light to shine through, creating a bright, vibrant atmosphere in the stands. At night, the facade is lit up. Various scenes can be used to create a range of atmospheres. The diamond-shaped metal panels are backlit by adjustable, variable light sources.

Another architectural feature are the regular steel partitions of the supporting structure, which are clearly visible from the tiered seating and are evenly spaced 7.5 m apart. These columns and beams, to which the sound system and floodlights are attached, support both the roof construction and the facade. Lights are built into the top of the steel trusses that crown the building and mark the outline of the pitch. The lighting can be seen from afar on game days, serving as a shining signal.

03
DESCRIPTION OF THE PROJECT

CONSTRUCTION PROGRAMME

LOWER GROUND FLOOR

4 changing rooms for players (150 m² each)
3 changing rooms for trainers (50 m² each)
1 changing room for referees (50 m²)
1 changing room for ball kids (60 m²)
1 doping test station (50 m²)
1 first aid room (35 m²)
Storage facilities (approx. 650 m²)

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GROUND FLOOR

Foyer (325 m²)
Conference room (225 m²)
Multifunctional room (225 m²)
4 first aid points
Ticket office (30 m²)
14 food kiosks
18 toilet facilities

—

FIRST FLOOR

VVIP lounge (65 m²)
Business club 1 (490 m²)
Business club 2 (390 m²)
Warming kitchen (155 m²)
2 pitch-view studios (33 m² each)
Security office
Service Sports office
Meeting room
Control centre for the Grand Ducal Police (105 m²)
Control room (25 m²)

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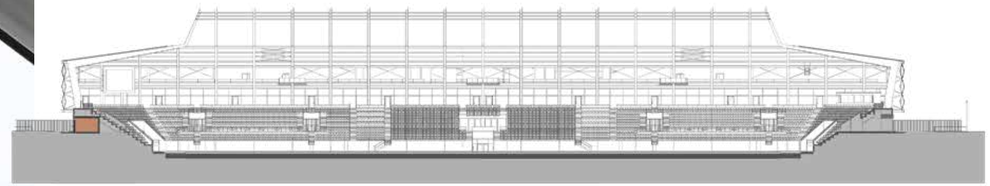
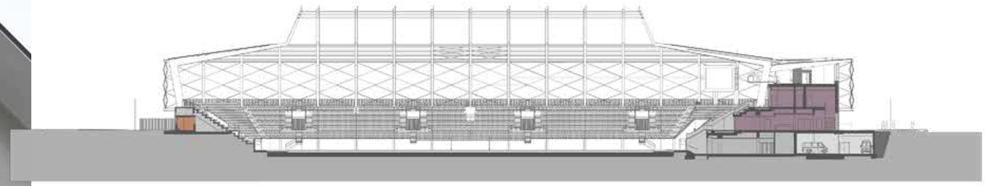


LONGITUDINAL CROSS-SECTION



TRANSVERSE CROSS-SECTION

LOWER GROUND FLOOR

PLAN OF THE LOWER GROUND FLOOR

PLAYERS' CHANGING ROOM

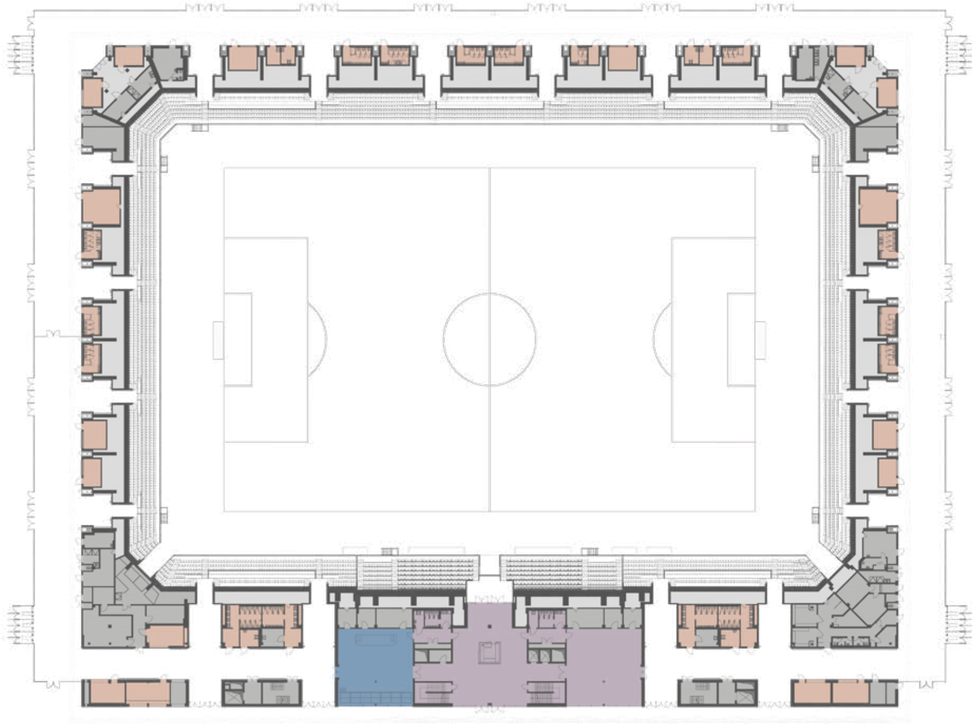
The lower ground floor of the main building contains functional areas for teams and the press. These areas are largely separate, with the exception of the mixed area, where media representatives can engage with players entering or leaving the stadium for interviews.

The teams can access the dressing rooms directly via a separate entrance next to the parking area reserved for team buses. The four changing rooms are located on either side of the entrance to the pitch. Each can accommodate at least 25 players. They have toilets, showers and an adjacent massage facility, as well as a room for the team doctor. The lower ground floor also has separate changing rooms for trainers, referees and ball kids, as well as the anti-doping testing and first aid facilities, and specific areas for officials.

There are also separate workspaces for accredited media representatives. A separate set of stairs lead to the upper floors.

Media equipment and catering are all delivered to the lower ground level, with catering then going to the first floor. In addition, the lower ground level provides access for maintenance works, as well as essential storage and technical areas.

GROUND FLOOR



PLAN OF THE GROUND FLOOR

PRESS ROOM

VIP ENTRANCE

Spectators can access the stadium via the four entrances at each corner of the building. After their tickets are checked, spectators arrive at an enclosed area from which they can get to their seats via entrances to the stands. To help guide spectators in the right direction, the stadium is divided into four sections, which are clearly marked at each entrance. The north-east area may be reserved for away fans and can be separated from the rest of the tiered seating using mobile partitions when needed.

In the outdoor area below the stands are a range of amenities, including toilet facilities, food and drink kiosks, and first aid rooms, all directly accessible from the stands.

VIP guests also enter through the ground floor of the main building. After passing through the reception, they can access the VIP areas on the floor above or head straight to their seats. The press room and multifunctional room are located on either side of the foyer.

AS SOON AS NIGHT FALLS, THE FACADE'S LIGHTING SYSTEM CAN BE USED TO PROJECT A HOST OF DIFFE-RENT SCENES

FIRST FLOOR

PLAN OF FLOOR 01

^

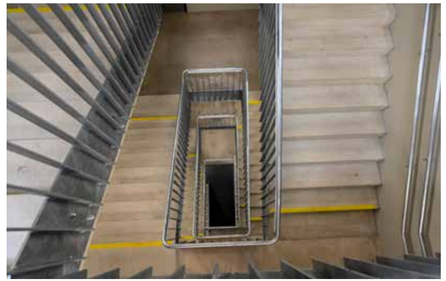
BUSINESS CLUB

On the first floor are two large business clubs, designed to accommodate around 500 VIP guests. Both are equipped with a bar and a warming kitchen. The fully glazed facade provides direct access to comfortable seats in the stand. Between the two business clubs is a VVIP lounge that can accommodate up to 27 guests. 27 seats – separate from the rest of the stand and offering an unobstructed view of the pitch – can be accessed directly via the VVIP lounge.

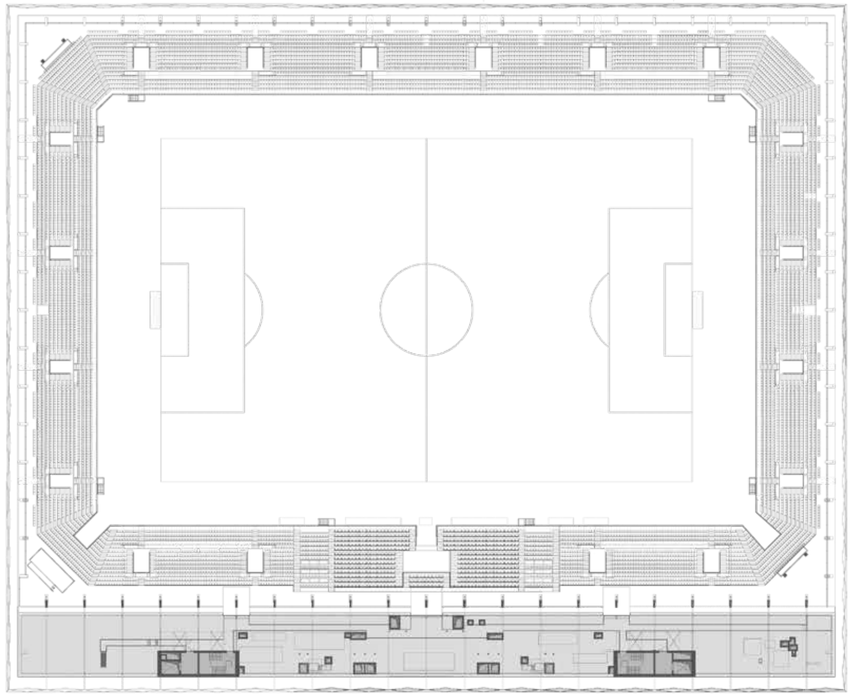
In accordance with UEFA regulations, the first floor also contains security facilities for the Grand Ducal Police *(Police grand-ducale)*, the Grand Ducal Fire and Rescue Corps (*Corps grand-ducal d'incendie et de secours* – CGDIS) and the security services, as well as two pitch-view studios and a control room, also for the stadium announcer, overlooking the stands and the pitch.

>

KITCHEN

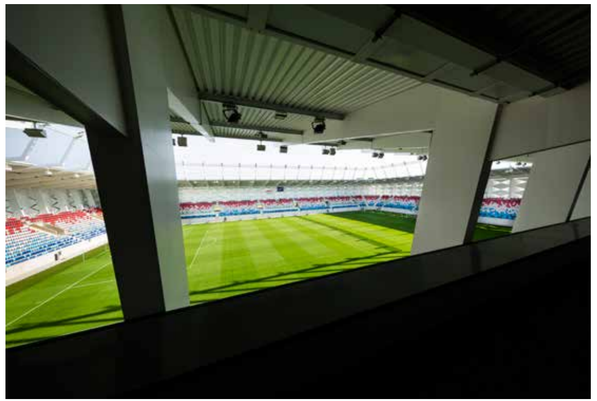


SECOND FLOOR



PLAN OF FLOOR 02

The rooftop of the building to the south, hereinafter referred to as the second floor, is sheltered from the weather by the roof above the stands, and is an ideal location for technical equipment, such as ventilation units and camera platforms for TV broadcasting, as required under UEFA regulations. To ensure that the cameras are positioned accurately on the axis between the centre line and the two 16-metre lines of the pitch, the platforms are cantilevered in relation to the parapet of the functional building.



04
DESIGN PRINCIPLE

DESIGN PRINCIPLE

11,500 m³
of reinforced concrete

1,800 t
of steel structures

3,090 m³
of precast concrete

410 t
of anchoring elements

2,500 t
of concrete reinforcement

12,000 m²
of roof

7,000 m²
of waterproofing material

The building's supporting structure protects its facilities and enhances spectator comfort. The architecture of the roof provides adequate weather protection, while also serving as a mounting support for technical equipment.

The design principle was based on a 165 m × 135 m grid, with a uniform centre-to-centre distance of 7.5 m.

The stands are made of reinforced concrete. All related construction elements, including the serrated beams, the L-shaped steps for the tiered seating, the slabs and the stairs, are made of precast concrete. As well as significantly speeding up construction, the use of precast concrete means that all visible concrete surfaces are uniform and of high quality.

The tiered seating to the west, north and east sides of the building, the corners of which are designed to structurally connect the different sets of tiered seating, serves as the main structure of the stands.

The main functional building extends along *Boulevard de Kockelscheuer.* Its structural concept is centred around the design principle of the adjacent stands, i.e. reinforced concrete.

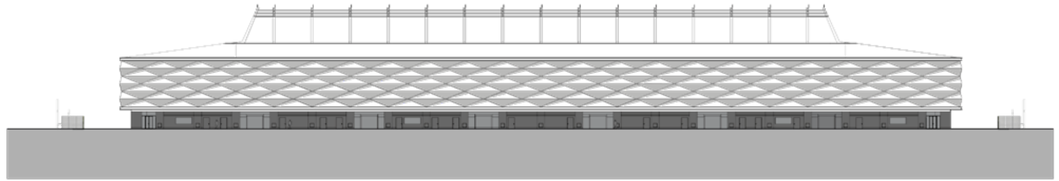
The roof and facade surrounding the entire stadium are built of steel structures. For both technical and architectural reasons, such as the lack of metal beams perpendicular to the tiered seating, structural choices resulted in the installation of cantilevered metal beams.

The main structure of the stadium's roof and facade consists of metal half-frames (columns + beams), positioned perpendicular to each axis (every 7.5 m), so that the 22-m cantilevered beam can redistribute the load of the roof onto the columns.

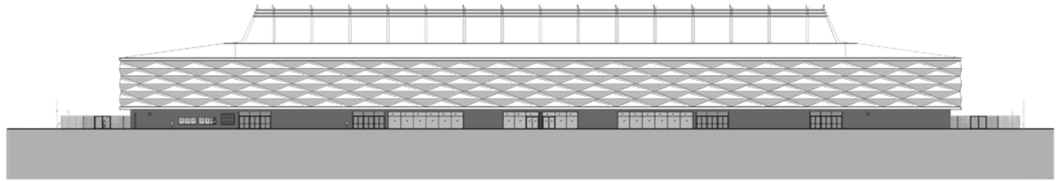
On the south side, all columns have two cantilevered beams on either side, allowing the functional building to be entirely covered and incorporated within the structure.

The main columns consist of hollow steel caissons, which are welded together and house the power supply for the stands and floodlighting, in addition to the downpipes.

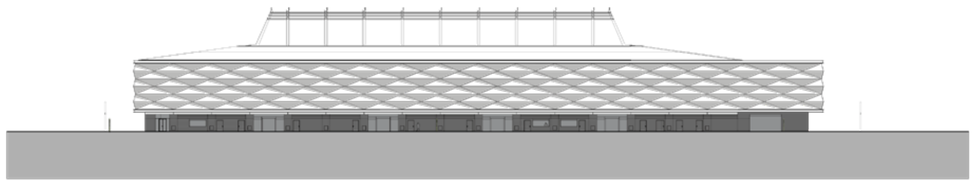
The purlins mounted between the cantilevered beams form the secondary roof structure. They distribute the load across the main beams and strengthen the entire roof structure. The structure is then reinforced with steel cable stiffening elements positioned vertically between the columns, to the left and right of the building's axis of symmetry on the west, north and east sides. The roof, designed without an expansion joint, is covered with trapezoidal simple steel sheets.



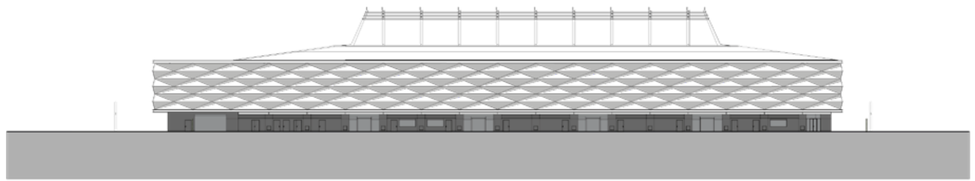
NORTH ELEVATION



SOUTH ELEVATION

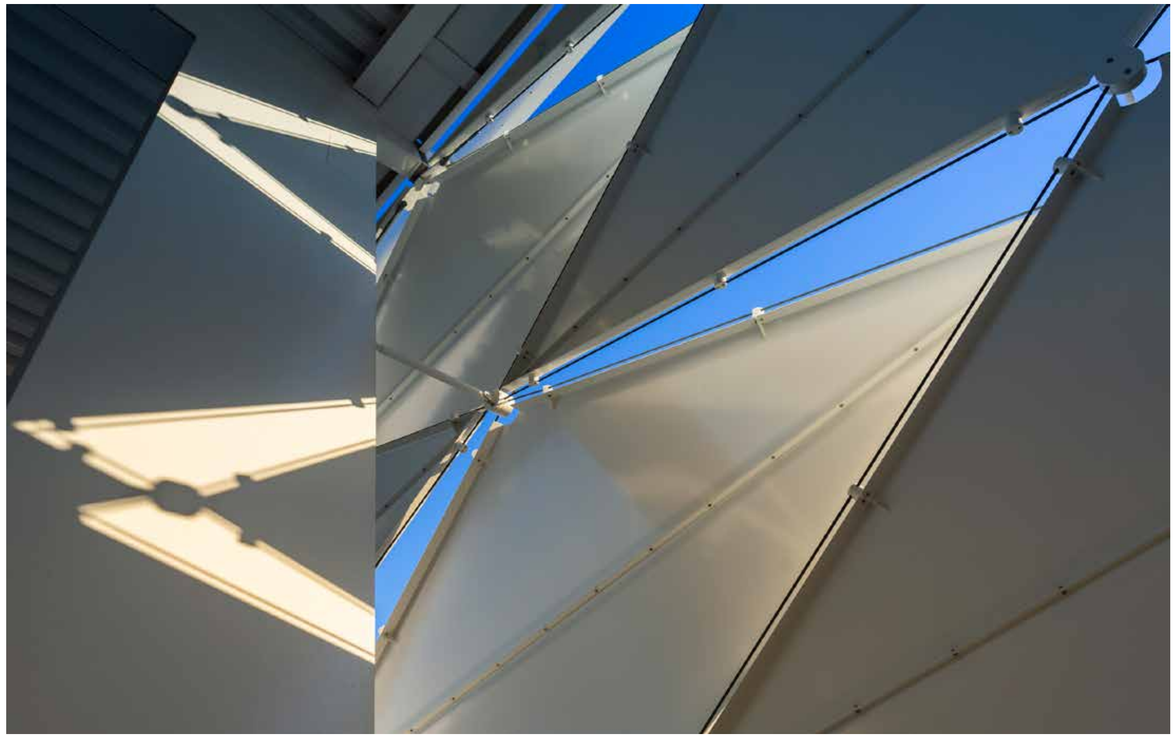


WEST ELEVATION



EAST ELEVATION

ANCHORED FACADE



560
metal panels
—

7,800 m
of steel cable
—

The anchored facade is a lightweight structure composed of diagonal steel cables, between which diamond-shaped aluminium panels are positioned. The facade surrounds the entire stadium on all four sides, reaching a height of 9 m between two peripheral profiles and spanning a surface area of 5,400 m².

The cables, fixed at the top and bottom to a cantilevered beam attached to the main column, are stretched diagonally across three axes. To imbue the building with a sense of weightlessness, free from structural constraints, and to allow light to pass through, the cables are positioned horizontally over the axes and spaced 0.75 m apart using compression struts. This creates two levels with different depths, giving the facade a sense of structural plasticity.

To ensure the facade can withstand strong winds, all cables are pre-stressed to 30 kN (kilonewtons). Where they cross, the cables are fastened together with assembled steel washers (the "nodes") which are affixed to the compression struts.

Amid the cable mesh are 560 white, aluminium panels. These three-dimensional panels consist of two triangular metal sheets joined together on their longitudinal sides. The panels at the upper and lower parts of the edge profile are single triangular panels, while the corner panels consist of four interlocking components. The panels are clamped to the cable mesh, preventing them from warping in strong winds.

In the south section, the top part of the mesh is supported by the roof's metal structure, while the bottom end and middle sections at node-level are supported by the reinforced concrete wall.

The fittings at the upper and lower ends of the mesh are constructed using runners. This prevents any impact likely to cause horizontal differential distortion – originating from the supporting structure of the roof – that may affect the anchored wall. Articulated pillars stand at the four corners of the building, so each face of the facade acts as an independent "disc".

The facade is framed at the top and bottom by an edge profile fixed at each axis to the cantilevered beam.

ILLUMINATION OF THE ANCHORED FACADE

80

LED
light fixtures with
3 optics

—

LED light fixtures with three optics are positioned in the middle of each construction axis, so the anchored facade can be illuminated with projections of different scenes. The facade is illuminated from the inside, to further highlight the depth and plasticity of its design principle.

An LED light strip, on the lower level of the anchored facade's lower peripheral cantilevered beam, illuminates the base with neutral, uniform lighting, further emphasising the floating nature of the facade.

The lighting concept allows different atmospheres to be created depending on the desired effect.

Spotlighting on top of the beams serves to highlight the contours of the building and echo the shape of the pitch.

ENERGY CONCEPT

SPEAKERS ON THE UNDERSIDE
OF THE ROOF

The building has been constructed with a view to limiting heat and electrical consumption, thus meeting the criteria for an energy-efficient functional building.

The energy concept of the building is designed to simultaneously optimise insulation, natural lighting, shading from the sun and the passive use of solar energy. The stadium has an A rating for energy efficiency (94.2 kWh/m² per year) and a B rating for heat insulation (52.2 kW/m² per year).

The building is heated by a pellet boiler system in the new administrative and technical facilities of the Luxembourg City *Service Sports*. A district heating system provides the stadium with heating.

A photovoltaic solar installation with a maximum capacity of 30-kWp is installed on the southern face of the roof.

All the lighting, including the floodlighting, uses LEDs.

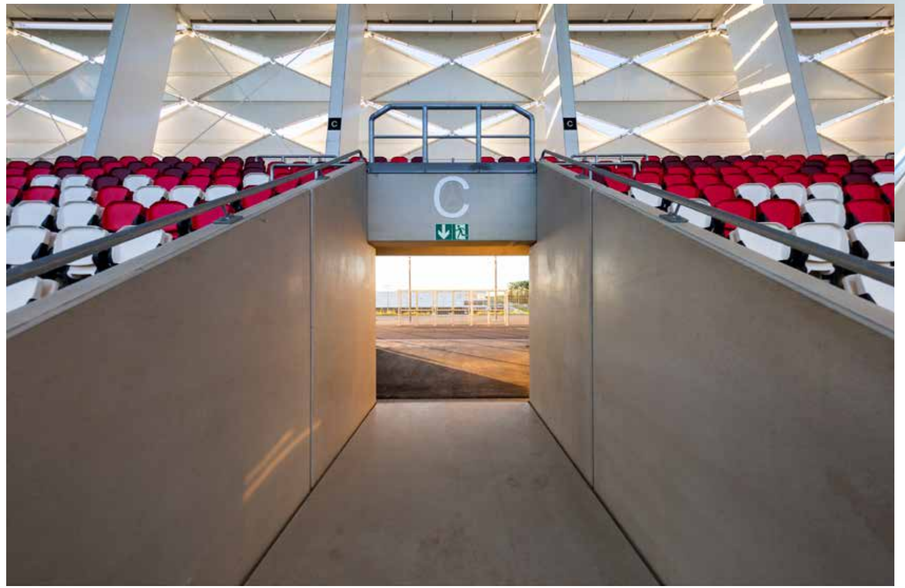
Rainwater is collected in a large retention basin, before draining back into the *Weierbaach*. This rainwater can also be used to water the pitch.

THE PITCH CAN BE CONFIGURED FOR BOTH FOOT-BALL AND RUGBY

DESIGN PRINCIPLE

STADE DE LUXEMBOURG

TECHNICAL FACILITIES



The stadium is supplied with power by two 1,000-kVA transformer stations connected to the medium-voltage public grid.

The stadium's heating needs are met by a 350-kW district heating substation linked to the district pellet boiler in the new administrative and technical building of the Luxembourg City *Service Sports*, which, in addition to the administrative building and the stadium, also supplies the new Stade de Luxembourg park and ride.

Hot water is supplied by an instant hot water heater, ensuring facilities with high flow rates (such as changing room showers) receive sufficient clean hot water using renewable energy generated by the district pellet boiler system.

Heating equipment (radiators, convection heaters, etc.) was chosen based on the various areas' heating-energy consumption and heating requirements (e.g., constant heating, rapid heating for events and matches, lowering to a minimum temperature outside of events, etc.).

To ensure comfort and above all prevent technical facilities from overheating, a district cooling system, backed up locally by split-system air-conditioning units with a total capacity of 250 kW, was installed.

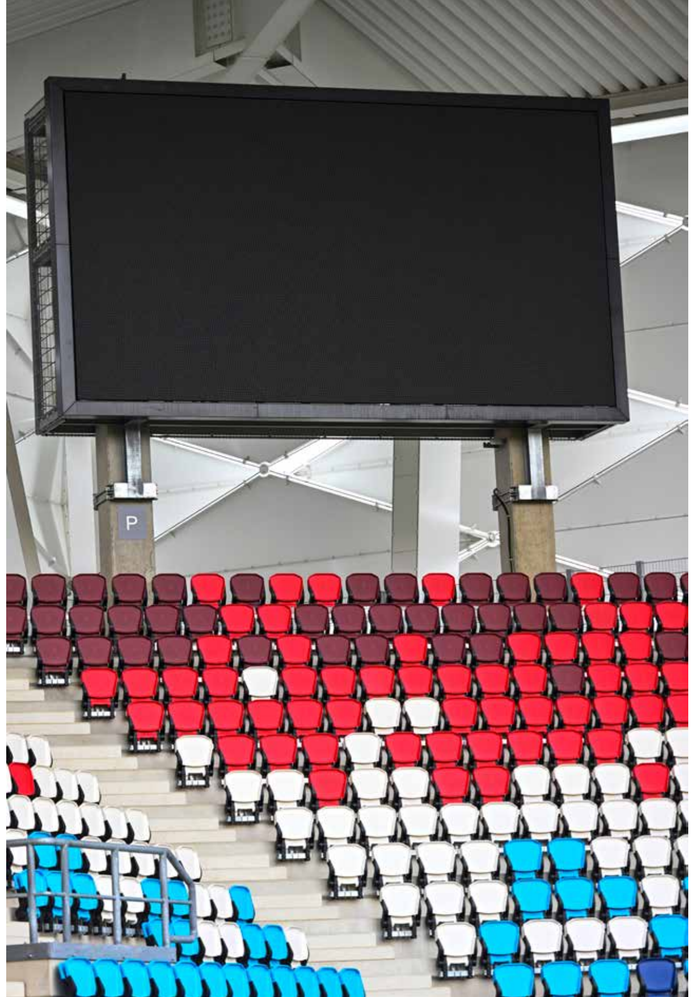
All the new stadium's technical infrastructure is connected to Luxembourg City's centralised technical management system (*gestion technique centralisé* – GTC). This means the relevant authorities are promptly notified when system faults are reported, and energy meters used to optimise facility settings can be closely monitored.

In accordance with UEFA regulations, a backup generator with a 630-kW capacity provides continuous power supply in the event of an electrical outage, allowing matches to continue without interruption.

The entire building is designed in full compliance with current safety regulations and is equipped with all necessary installations, including voice alarm and fire detection systems, and emergency lighting.

During the design of the new stadium, particular attention was paid to prevailing regulations regarding accessibility for persons with reduced mobility. The functional building features four lifts, two of which also function as service lifts, providing access to every floor.

TECHNICAL EQUIPMENT



MEDIA EQUIPMENT

The new stadium's multimedia technical equipment mainly consists of the sound system, the LED video walls and their wiring.

The sound system for the tiered seating consists of a distributed system of speakers on the underside of the roof above the stands. The speakers are uniformly distributed between each axis of the construction to ensure that sound is broadcast evenly and that messages can be heard clearly.

Installed in the upper part of the stands, in the north-west and south-east corners, are two large video screens, each measuring 7.35 m × 4.15 m and with an approximate resolution of 720 × 400 pixels. These screens display the match score, textual information, ads, video footage, etc.

They are mounted on a three-dimensional metal structure beyond the last row of the tiered seating, ensuring the screens can be clearly seen from all seats.

The large screens and sound system are connected to a video switcher and audio mixer in the control room, both of which can be operated by the stadium speaker.

The rest of the stadium's functional facilities, such as the food and drink stands, toilets and offices, also have speakers as part of the alarm system.

A fibre-optic and hybrid-cable network, with connection units, is provided for the local broadcaster's connectivity requirements. In a similar vein, as per UEFA recommendations, the new stadium is also equipped with camera platforms, all strategically positioned in relation to the pitch, so sporting events can be televised.

Likewise, other areas reserved for the press, such as the press conference room, the pitch-view studios, the mixed area, and the areas between the pitch and the changing rooms designated for flash interviews, are all equipped with connection units. These are linked up to the television control room to provide access to television companies' OB vans.

The conference room features a podium with a lectern, a camera platform, an audio system (microphones, speakers and distributor) and lighting suitable for broadcasting, to facilitate press conferences, panel discussions and public conferences.

A second room, with a similar setup and basic media equipment, is immediately adjacent to the foyer. This room is designed to also accommodate the same equipment as installed in the press conference room if needed.

More generally, the multimedia infrastructure has been deliberately designed to allow for future adjustments and technological developments.

VIDEO SURVEILLANCE

The new stadium is a equipped with a high-performing video surveillance system, in compliance with security requirements prescribed by both UEFA and the Grand Ducal Police. Around 200 cameras, some of which are very high resolution, are connected to the Grand Ducal Police control centre inside the stadium, enabling the organiser and the police to ensure maximum safety and security.

PITCH

8,500 m²
of hybrid grass

—

28
sprinklers

—

156
LED fittings
for the pitch lighting

—

As the stadium is designed to host football and rugby matches, the playing surface can be used both as a football pitch (105 × 68 m) and a rugby pitch (115 × 70 m).

The grounds consist of three distinct areas: the pitch, covered with reinforced natural turf; the 4 metre-wide side strips bordering the pitch, serving as a warm-up area and also covered with artificial turf; and finally, a paved area for assembling any equipment.

The surface of the pitch is covered with GrassMaster hybrid turf. The natural grass is reinforced with synthetic fibres, which increase stability and reduce surface damage. Owing to these qualities, this hybrid grass was laid on the entire surface of the pitch.

The pitch also features an automatic sprinkler system. The water is supplied by a rainwater collection tank.

To ensure a high-quality playing surface during the winter months, an electric heating system is built into the pitch's foundations. The system is divided into multiple heating zones, so it is possible to either heat the whole pitch, or just the areas receiving least sunlight over the winter. Depending on the weather, mobile ultraviolet lights can be used to support the turf's growth.

The pitch lighting has been designed in compliance with UEFA recommendations. There are 156 LED lights on the underside of the roof. Each light has been individually adjusted to ensure even lighting across the playing field.

THE TIERED SEATING

Folding seats for spectators: 8,708 seats
Seating areas for persons with reduced mobility (PRM), each with 10 folding seats:
50 places for PMR + those accompanying them
Folding seats for the press stand: 174 seats
VIP seating for 512 guests
VVIP seats: 27 seats

—

The stands, composed of precast concrete elements, have folding seats of different colours, reminiscent of the Luxembourg flag. The gradual transition from dark red to dark blue creates a wave-like effect.

A section of the tiered seating can be reserved for fans and separated from the rest of the stands using mobile partitions.

Altogether, 9,471 seats are distributed across four sections, including a press area and a stand for VIP and VVIP guests.

EXTERNAL FACILITIES/ MULTIPURPOSE AREA

^

MULTI-PURPOSE SPACE

The new stadium, and the new administrative and technical building of the Luxembourg City *Service Sports*, are located along *Boulevard de Kockelscheuer*. The access road is specifically designed to ensure all vehicles can access the site, including heavy-goods vehicles, semi-trailers and buses.

Likewise, the design of the stadium accounts for both the emergency services' need to be able to bypass the stadium and access the building from all four sides, and the Grand Ducal Police's need to be able to access the building with a truck-mounted water cannon. For regulatory reasons linked to specifications laid down by the National Roads Administration (*Administration des Ponts et Chaussées*) regarding non-buildable areas, the entrance to the north is paved with turf slabs. All other exterior surfaces are paved with a smooth and even layer of asphalt.

Street furniture, including benches, bicycle racks, bins and flag poles, complete the aesthetic.

The multipurpose area is at the lowest point of the site, between the stadium and the *Service Sports* building. It serves primarily as a car park for media vehicles, the organiser's vehicles, fan buses, and Grand Ducal Police and CGDIS emergency vehicles during scheduled sporting events. Up to 222 marked parking spaces and 6 parking spaces for persons with reduced mobility are available. Outside of game days, this multipurpose area can be used for various other events. The stairs and the sloping lawns also serve as spaces to relax. The *Weierbaach*, which traverses the site at its lowest point, has been incorporated into the design of the outdoor areas and separates the stadium from the *Service Sports* zone.

With its location on the outskirts of the city, its ease of access, the noise-reducing embankment shielding it from the A4 motorway to the north, the natural boundary of the landscaped embankment to the south and the east, and the *Weierbaach* to the east, the stadium is the perfect venue for events of all kinds. The embankment to the west has been landscaped to form natural turf steps.

The outside areas were designed in close collaboration with the *Service Espace public, fêtes et marchés* (Department of Public Spaces, Festivals and Markets), the Luxembourg City Tourist Office and the Luxembourg City *Service Sports*, and boasts all the technical and safety infrastructure required for hosting open-air concerts, with standing room for +/- 12,500, seating for +/- 4,300, and 2 marquees for +/- 2,400 people.

PROJECT OWNER
The City of Luxembourg
Overall coordination: Paul Wurth Geprolux

PROJECT-MANAGEMENT
PGNL (Planungsgemeinschaft Nationalstadion Luxemburg) group:
Architects: GMP Architekten GmbH (DE) and BENG architectes associés (LU)
Civil engineering: SBP GmbH (DE) with TR-ENGINEERING (LU)
Technical engineering: ZWP (DE) with LUXAUTEC (LU)
Acoustics and multimedia technical installations: GRANER PETER @ Associés (LU)
Technical inspection firms/experts:
Technical inspection firm: Vinçotte Luxembourg ASBL (LU)
Accredited inspection body: SECO Luxembourg ASBL (LU)
Health and safety: Argest SA (LU)
Soil survey: Grundbaulabor Trier Dipl.-Ing. E. Lehmann Ingenieurgesellschaft mbH (DE)
Fire risk assessment: HHP West Beratende Ingenieure GmbH (DE)

TRADES
Earthworks, structural work, metal frame, waterproofing, roof and external facilities:
Giorgetti SARL / CDCL SA / Cimolai SPA (LU) + (IT) (consortium)
Elevators: KONE Luxembourg SARL (LU)
HVAC systems: a+p kieffer omnitec SARL (LU)
Electrical installations: ENGIE Solelec SARL (LU)
Exterior joinery: METALICA SA (LU)
Multimedia technical installations: SALZBRENNER Media GmbH (DE)
Work-site preparation: Polygone Sàrl et ENGIE Solelec SA (LU)
Anchored facade: TMS SA / PFEIFFER GmbH (LU) + (DE) (consortium)
Screed and tiling: Andreosso chapes / Andreosso carrelages SARL. (LU) (consortium)
Kitchen equipment: Maison Josy Juckem SARL (LU)
Modular wood construction: Rollingertec SA (LU)
Locks: Ateliers Nic Olinger (LU)
Plastering and false ceilings: Apleona R&M Ausbau SARL (LU)
Security: Dussmann Security SARL (LU)
Floor covering: General Floor SARL (LU)
Painting: Peinture Dave Feltus SARL (LU)
Laying of hybrid grass pitch: C. Karp Kneip Constructions SA (LU)
Pitch lighting: Socom SA (LU)
Facade and insulation: Kuhn / Trigatti / Di Lorenzi (LU) (consortium)
Provision and installation of stand seating: 3S-TECH SARL (LU)
Final cleaning: Nettoservice SARL (LU)
Interior joinery: Holzgestaltung Irsch SARL (LU)
Signs: Grün Signalisation SARL (LU)
Provision and installation of mobile partitions: 3S-TECH SARL (LU)
Access control – turnstiles: Axxess AG (AU)
Access control – locks: Beweng SA (LU)
Elevators for the multipurpose area: Thyssenkrupp Ascenseurs Luxembourg (LU)
Structural work for the multipurpose area: Felix Giorgetti Sàrl - CDCL SA (LU) (consortium)
Locks for the multipurpose area: Franck SA (LU)
Planting: Isogreen SARL (LU)