

«La Défense Arena»: a unique stadium for culture and sport



The construction of the La Défense Arena represented a real collaborative challenge, offering the city of Paris an intelligent, modular space covering more than 94,000 sqm.

Jaillet-Rouby looks back at this monumental project.

About the project « La Défense Arena »

The «**Paris La Défense Arena**», located in the famous La Défense district of Nanterre, is a covered stadium. Its aerial architecture is characterised by a metal framework made up of four large beams, resting on bridge-like supports, on which the roof rests.

Weighing around 6,000 tonnes, the metal structure was installed using a 12-point cable and jacking system. The hoisting operation took 12 hours and lifted the structure 35 metres. With its total flexibility, this space will welcome the world's best swimmers in the summer of 2024.



« Paris La Défense Arena » in figures

- Capacity of **40,000** people for a concert
- **32 000** spectators in stadium configuration
- **6 000 tons** of steel
- **31 000 sqm** of offices

Jaillet-Rouby, a French engineering and consultancy firm specialising in **building and civil engineering**, particularly for sports and cultural buildings, was commissioned to design all the steelwork for the project.

« It is one of the largest concert halls built in this way in France. Located in one of the country's architectural showcases, its construction was shaped by a number of key issues. »



Najah Ayoub
Director and partner
at Jaillet-Rouby

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Identifying BIM requirements

An extraordinary project that rapidly imposed the use of BIM...

- **Respect** for **architectural constraints** in terms of the shape of the site and the requirement for a multifunctional enclosure.
- Adapting to the location of the site, in an area that may be prestigious but has limited space.
- **Collaboration** involving several architects and design offices on a single project.

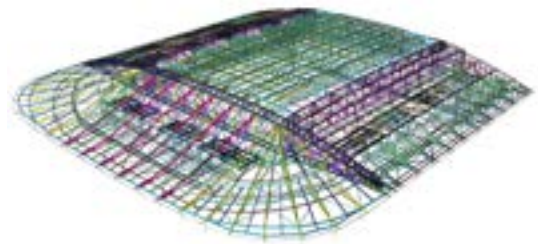
Project phases

- Opening of the **call for projects**.
- Delivery of the **architectural sketch**.
- Predimensioning phase: launch of the first calculations and 3D models of metal structures in **Tekla Structures**.

The phasing of the project is conditioned by a dual challenge

1. Rising to the structural challenge, with large spans and very heavy structures, in order to meet **architectural expectations**.
2. To meet the operating, comfort and acoustic constraints of a **non-standard auditorium**.

- **Jaillet-Rouby** selected to design all the metal structures for the modular stadium.



- **Civil engineering** validation of support points on the basis of initial models
- Transmission of models to MEP and concrete design offices via **IFCs** and iterations to adjust the models.
- Transmission of revised models to **launch the industrialisation** of metal structures.

The software's plus

The 3D models made it possible to better **manage the breakdown of the structure** imposed by the location of the site and the lifting system adopted during the construction phase.

- Final assembly checks and final revision of 3D models.

Trimble's advantages for Jaillet-Rouby



Simplifying the transition to the Execution phase

- Allows **structures to be created with precision**, integrating architectural choices and the various constraints of the project.
- Facilitates the **transmission** of plans.



Improved collaboration

- Provides **instant access** to the same data for all stakeholders.
- Facilitates information sharing and iterations via **IFCs**.



Precise monitoring and adaptation

- Optimises **monitoring** and encourages adaptation throughout the project.
- Guarantees **very faithful** data to reality.



A convincing asset

- Helps **end-customers** to project themselves more easily and supports decision-making.



« When responding to a call for tenders, you need to be convincing from the outset. When customers visualise their work in 3D, they can be sure that the architectural project is viable and that it will be implemented correctly. That's what makes the difference. »



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**A temple of sport and culture
to be rediscovered in summer 2024!**

Discover all sports projects

