



“LA CANOPEE” in PARIS

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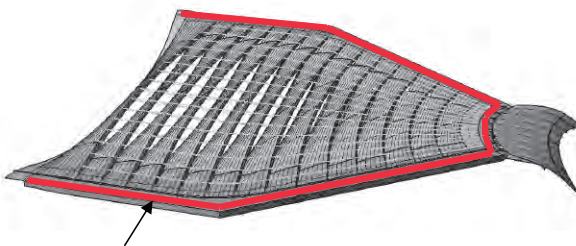
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At the heart of Paris, « Les Halles » is both the busiest underground station in Europe, and one of the busiest underground commercial malls in France. Above this very complex structure and constrained environment, LA CANOPEE consists of an innovative glass roof with a surface of nearly 1ha without any supporting column. Erecting LA CANOPEE gathers 3 specific complexities:

- The necessity to cope with the existing underground supporting structure without transferring horizontal loads;
- The complex geometry of this roof, bent in vertical and horizontal directions;
- The context of the works, in the very centre of Paris and above the shopping mall and metro station, during occupancy and operation, imposing very specific construction methods and safety measures.

The whole existing 5-level underground structure is wholly prestressed in both directions. This existing structure would allow only limited additional vertical loads, and no horizontal loads.

LA CANOPEE has been designed by the French architects Patrick Berger and Jacques Anziutti who reproduced the concept of a forest canopy. It consists of 15 elegant hollow and glazed twisted steel beams resting on an outer « U » shaped-structure. The « U » beam in turn is supported by 2 new buildings, with 2 stories each dedicated to commercial and cultural activities. The total steel structure weighs 6700 tons, about as much as the Eiffel tower.



« U » beam supporting the roof



Besides the structural complexity, the project poses specific difficulties:

- The reinforcement works of the existing structure are to be implemented without interrupting the public circulation and the commercial activity ;
- The roof is bent in both vertical and horizontal directions; every single piece of the covering glass tile has therefore a specific size. This required a full 3D-model CAD design and a BIM to be developed. This CAD 3D model was provided to the bidders and contractors in order to allow a good understanding of the project and smooth construction, which was a true innovation.

The construction has started in January, 2011. The steel structure of LA CANOPEE is now complete, fully glazed, and the whole facility should be opened to public mid-2015.

