

# Teaching hospital Tivoli in La Louvière - new building and car park

Avenue Max Buset, La Louvière (BE)

## Complete mission of stability

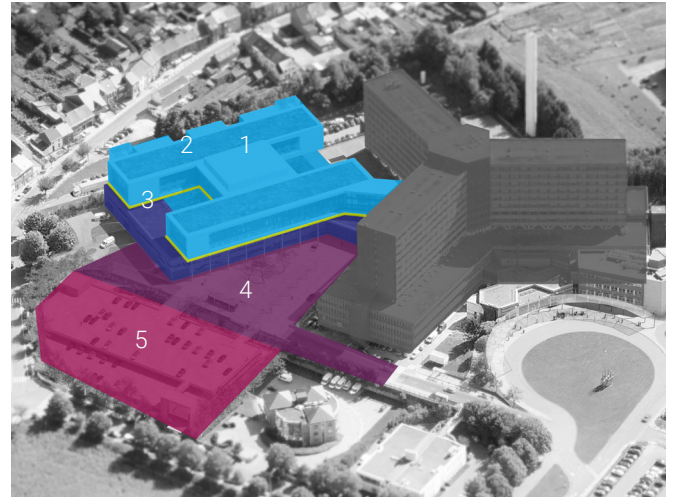
Owner  
CHU de Tivoli in La Louvière

Architect  
Art&Build

Cost of the works  
€ 80 M. excl. vat of wich  
€ 11,6 M. structural works

Studies  
2012 - 2016

Execution  
2017 - 2023



The project is mainly composed of a new car park and new building K.

The car park has three parking levels for a total surface of nearly 11 000 m<sup>2</sup>. Levels 0 and +1 are for the the staff of the hospital, while level +2 is accessible to the visitors of the hospital.

The structure is mainly of reinforced concrete, partly prefabricated (and prestressed) and partly cast in situ.

The floors are made of prefab slabs laid parallel to the great span (15 m).

The beams are prefabricated and prestressed to limit the protusion under the plate and to maximize the free height of the parkings. The columns are prefabricated two levels high.

Building K has a ground floor on a (thermal) underfloor space and six levels (upside), for a total surface of round 38 000 m<sup>2</sup>, roofs included. The building is subdivided as follows:

- the first 4 levels dedicated to surgery, laboratories, offices...,
- a technical level,
- the three upper floors dedicated to care-units, bedrooms...

The majority of the structure is made of reinforced concrete of quality ranging from C30/37 to C80/95.

The general stability of the building is ensured by the vertical elements (walls and columns) transferring the loads to the deep foundations (piles).

These elements are connected to one another horizontally by floors of different types, conferring a very great stiffness to the ensemble.

The floors are mainly made of precast concrete slabs and planks (corridors) supported by prefabricated beams. The ceiling of the surgical rooms and of the technical level are

1. Care-units
2. Technical level
3. Surgery, laboratories, offices
4. Esplanade
5. Car park

hyperstatic concrete floors lightened by means of expanded polystyrene through which large holes can be drilled.

Vertical circulation shafts are made of reinforced concrete cast in place and play a predominant role as rigid bracing core.

The facades are made of reinforced concrete and are mainly prefabricated. The cantilevered facades are connected to the building via «flag walls» of reinforced concrete cast in place.

Given the low consistency of the first layers of the ground, the foundation system of the car park and building K is provided on piles

