Abattoir

In the nineteenth century, the municipality of Anderlecht decided to build a slaughterhouse within its borders. In 1888, the concession was granted to Adolphe and Guillaume Charlet, Emile Pierret, Emile Tirou, Henry Chevalier and Cie A. Charlet & Pierret. Architect Emile Tirou drew the plans of the market hall. In 1890, the hall, which spans 100 by 100 meter, was inaugurated. The slaughterhouse flourished until the 1970s when the municipality suspended the license. From the 1980s onwards the association ABATTOIR repurposed the main hall for weekly markets.

In 1988, the main hall was listed as protected monument. Today, renovation works are ongoing. Architect Tars Steevens (T.ar.S architects) and civil engineer Thijs Van Roosbroeck (Ney&Partners) are involved in the assessment of the building. This renovation-in-progress is a wonderful opportunity for students to get acquainted with nineteenth century building materials and their challenging renovation.

The students of the first master in Architectural Engineering were asked to analyze the actual structure, assess the bearing capacity of the truss typologies and put forward renovation strategies.

Existing literature on the history of the Anderlecht slaughterhouse mentions that architect Emile Tirou was inspired by the slaughterhouse of Paris, the Halles de la Villette, built in 1865-67. And indeed, when comparing the shape and the general lay-out of the two slaughterhouses, they resemble. The Anderlecht roof is carried by cast iron columns, placed on a rectangular grid of 10 meters and the wide central bay is lifted to incorporate daylight.

Emile Tirou was inspired by La Villette, built in 1865.

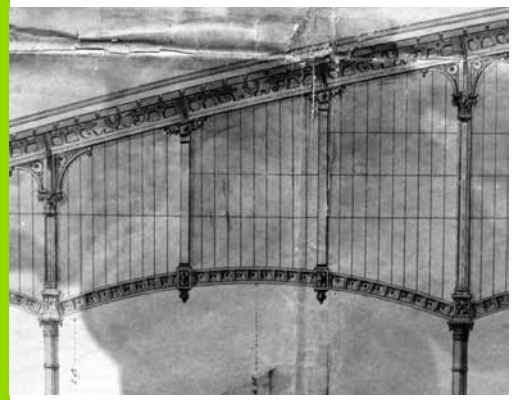
Instead of an inclined straight roof, architect Emile Tirou introduced a curved shape, creating an elegant industrial building with architectural quality.

The hall of La Villette was built in cast and wrought iron. The 1889 drawing of the Anderlecht slaughterhouse (see fig) shows trusses drawn as if they were conceived in cast iron. This underlines the limited structural insight of the author of the drawing. In reality however, the trusses are conceived in a different way. Various typologies are applied depending on the loads to be carried. The design concerns of the nineteenth century are clearly reflected in the structural optimization. As the costs of a construction could be reduced by limiting the amount of material applied, the section of the members within one truss varies with the stresses to be resisted. The section of the members in the main truss increases with steps of only 5cm² from a flat iron 70x7 mm in the middle to 110x14mm at the supports.
Material tests pointed out that part of the sections in the trusses were constructed in mild steel. Applying mild steel in 1889 is quite innovative as this material became only just available. The Paris Eiffel tower, for instance, which was constructed in 1887-89, was not yet built in mild steel.

Despite the pioneering application of mild steel, the production of the cast iron columns was rather poor. The small and irregular wall thickness of the cast iron columns caused some columns to crack, already in the nineteenth century. When the foundations settled, new cracks were introduced in the brittle columns.

As renovation works will start in the near future, we can warmly advice to visit this nineteenth century hall. When visiting, although distracted by the merchandises, do look up to discover the marvelous roof structure.

Source:
Patricio Teresa. Analyse historique (2013)



Detail of the 1889 plan of the Anderlecht slaughter-house signed by architect Emile Tirou

In the past the vertical crack in the column was repaired by bracing

The curved roof of the Anderlecht Slaughterhouse turns this nineteenth century industrial building into an elegant structure

Brittle cast iron columns are cracked due to settlement of the foundations

Architect Tars Steevens guides the students of the first master in architectural engineering through the slaughterhouse site