

The faculty of Engineering of the Vrije Universiteit Brussel and the Faculty of Engineering Science of the Katholieke Universiteit Leuven invite you to attend the public defense leading to the degree of

DOCTOR OF ENGINEERING SCIENCES (VUB)

DOCTOR OF ENGINEERING SCIENCE (PHD): ARCHITECTURE (KUL)

of **Romain Wibaut**

The public defense will take place on **Monday, 28<sup>th</sup> June 2021 at 4pm.**

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**HIDDEN INNOVATION: ROOF FRAME DESIGN AND CONSTRUCTION IN  
PARISH CHURCHES OF BRUSSELS AND CHARLEROI, 1830-1940**

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## Abstract of the PhD research

In 1830-1940, construction of churches increased considerably in Belgium and became matters of public concern. Churches are complex buildings that combine numerous architectural parameters and require therefore corresponding structural solutions. Their design had to face a large range of challenges: fulfilling of liturgical requirements, spanning large spaces, taking a stand on the use of new materials and techniques, etc. Until now, it was however the architectural forms and the decoration of these churches that almost exclusively aroused the attention of scholars and filled bookshelves. Nevertheless, their historical and architectural values extend beyond visible forms and decoration and should include roof structures, which constituted hitherto an underestimated heritage. Yet, the complexity or innovative character of some of them deserve to be dwelled on.

To gather insight into the links that exist between the architectural evolution of churches and their roof construction, the present dissertation focusses on roof frames of Catholic parish churches built from 1830 to 1940 in the Brussels-Capital Region and in the city of Charleroi. The research considered a methodology which included in-depth literature review in the history of architecture and construction, extensive research in administrative and building archives and systematic on-site measuring campaigns. In total, 89 roof frames were examined in 81 churches built between 1830 and 1940 in the Brussels-Capital Region (53) and in the city of Charleroi (28).

Based on this methodology, the present dissertation develops new insight in the evolving historical contexts, architectural considerations, building actors and construction techniques of these 19<sup>th</sup>- and 20<sup>th</sup>-century church roofs. It subsequently looks at the influence of architectural styles on the design of roof structures, explores the role of the different building actors in the design and construction phases of these roofs and draws attention to the evolution of material, form, and techniques in the construction of timber, metal, and reinforced-concrete roof frames. All in all, this dissertation represents a key to enter in the world of roof structures in Belgian parish churches, to contribute to their heritagisation, as well as to support proper maintenance, protection, and rehabilitation projects.