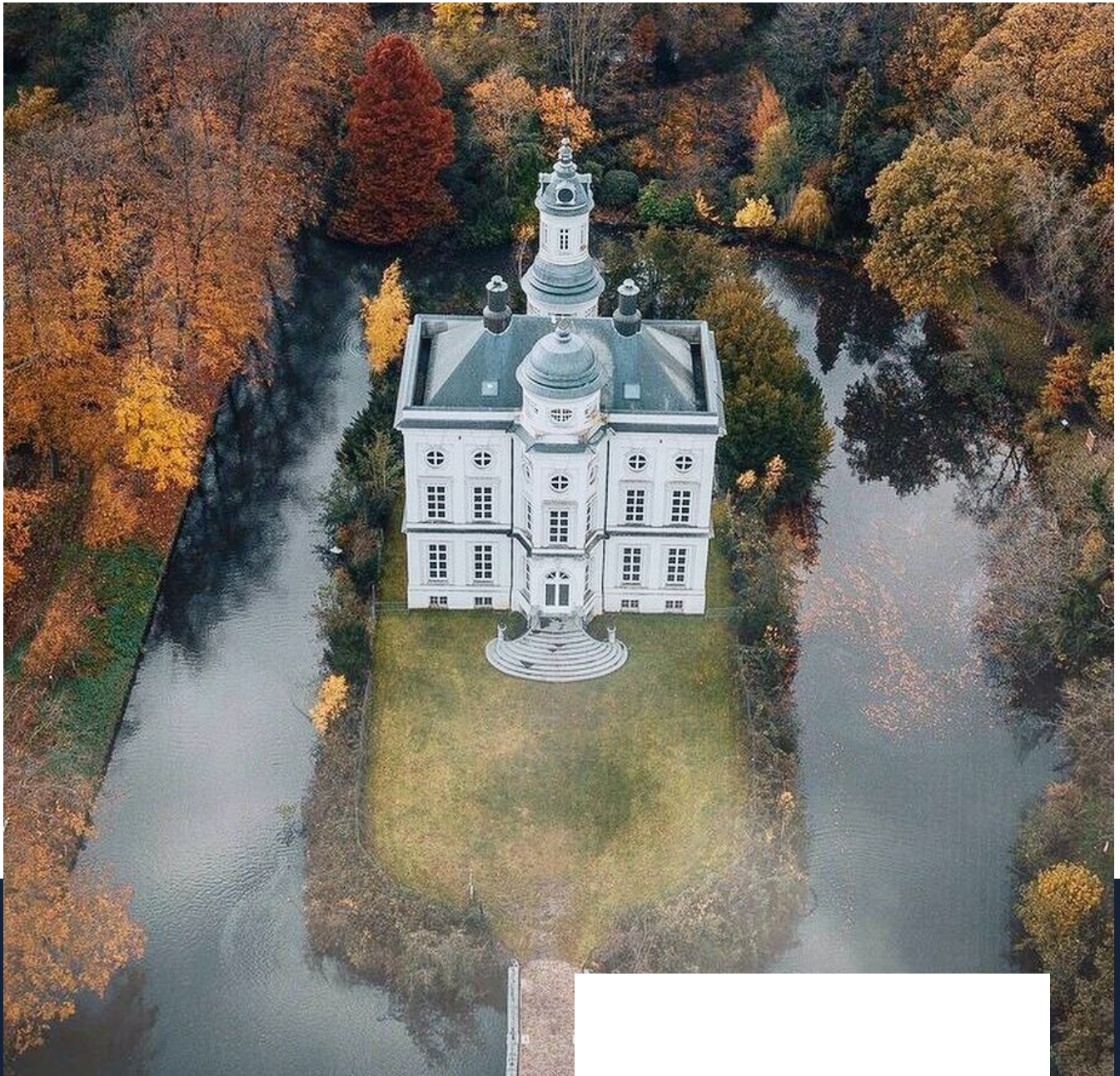




RESTAURATIE HOF TER SAKSEN

Beveren-Kruike-Zwijndrecht

Renovation of castle into banquet halls



Status

2023 - ongoing



Services:

Building Services, Structural



Sectors:

Office & Commercial: Hospitality



Client:

B2 Project bvba



Architect:

BVBA B2 Project

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General

Stylish overnight stays and refined dining will soon be possible at Hof ter Saksen, a remarkable renovation project in Haasdonk. Those who visited during Open Monuments Day already got a first impression of this site-wide repurposing project in which heritage and contemporary comfort are carefully reconciled.

BM Engineering Group made a significant contribution to the realization of this project through its Structural and Building Services departments. Our expertise was deployed both inside and outside the castle. In addition to the study of the building structure, we were also responsible for the structural design of the 25-meter-long pedestrian bridge over the moat, which opens up the site to visitors.

Building Services

The building installations were designed with attention to high energy efficiency, controllability, and integration within the heritage framework. Heat generation and passive cooling are achieved through a borehole energy storage system (BES field) in combination with heat pump technology, whereby both heating and cooling are realized at low temperature levels. Heat and cold distribution is provided via ceiling and wall convectors, tailored to the low-temperature regime and discreetly integrated into the building structure. The installation is designed with individual room control, enabling precise adjustment of comfort and energy consumption per zone.

Building ventilation is provided by a mechanical ventilation system type D with a collective air handling unit equipped with heat recovery. The system is designed in accordance with applicable comfort and indoor air quality requirements for residential, hotel, and restaurant functions. Domestic hot water production is provided by a water-to-water booster heat pump, tailored to peak consumption based on hotel and kitchen activities.

For the industrial kitchen, specific technical provisions were developed in terms of electricity, plumbing, and HVAC, taking into account increased power requirements, specific extraction needs, and hygienic boundary conditions. Since no connection to street sewerage is available, an autonomous water treatment system was provided, including a grease separator for the discharge of kitchen wastewater.

The electrical installations include, among other things, the installation of a high-voltage cabin, general low-voltage distribution, access control systems, and the complete electrical equipment of the building, tailored to the functional and safety requirements of the site.

Structural Engineering

This project involves a major structural renovation and extension of a historic building, with BM Engineering responsible for the complete structural concept. The assignment amounted to €363,478.44 in structural studies and brought together diverse technical challenges requiring a well-considered and integrated approach.

During previous renovation works, the original wooden floors had been replaced by concrete floors, without the existing foundations being adapted accordingly. The considerable increase in dead weight meant that the load-bearing capacity of the foundations was no longer sufficient. BM Engineering thoroughly analyzed the existing foundations and developed a reinforcement concept that absorbs the additional loads in a sustainable manner.

The basement was deepened as part of the project, necessitating underpinning of the existing foundation walls. The design of both the underpinning and the new foundation slab is dimensioned such that not only the new but also the existing loads are fully accommodated. In this way, we guarantee a coherent and future-proof foundation system.

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A special component of the project is the design of a steel pedestrian bridge over the moat, with a span of approximately 25 meters. The bridge is constructed as a truss structure, offering an optimal ratio between load-bearing capacity and material use.

Finally, BM Engineering also provided the necessary structural interventions for the integration of the technical provisions, ensuring that all disciplines are seamlessly coordinated.

Construction Partners

- Client: Municipality of Beveren-Kruibeke-Zwijndrecht
- Architect: M4 architects and engineers I B2 Project
- Engineering firm: BM Engineering group Structural and Building Services
- Contractor: WYCORN nv