

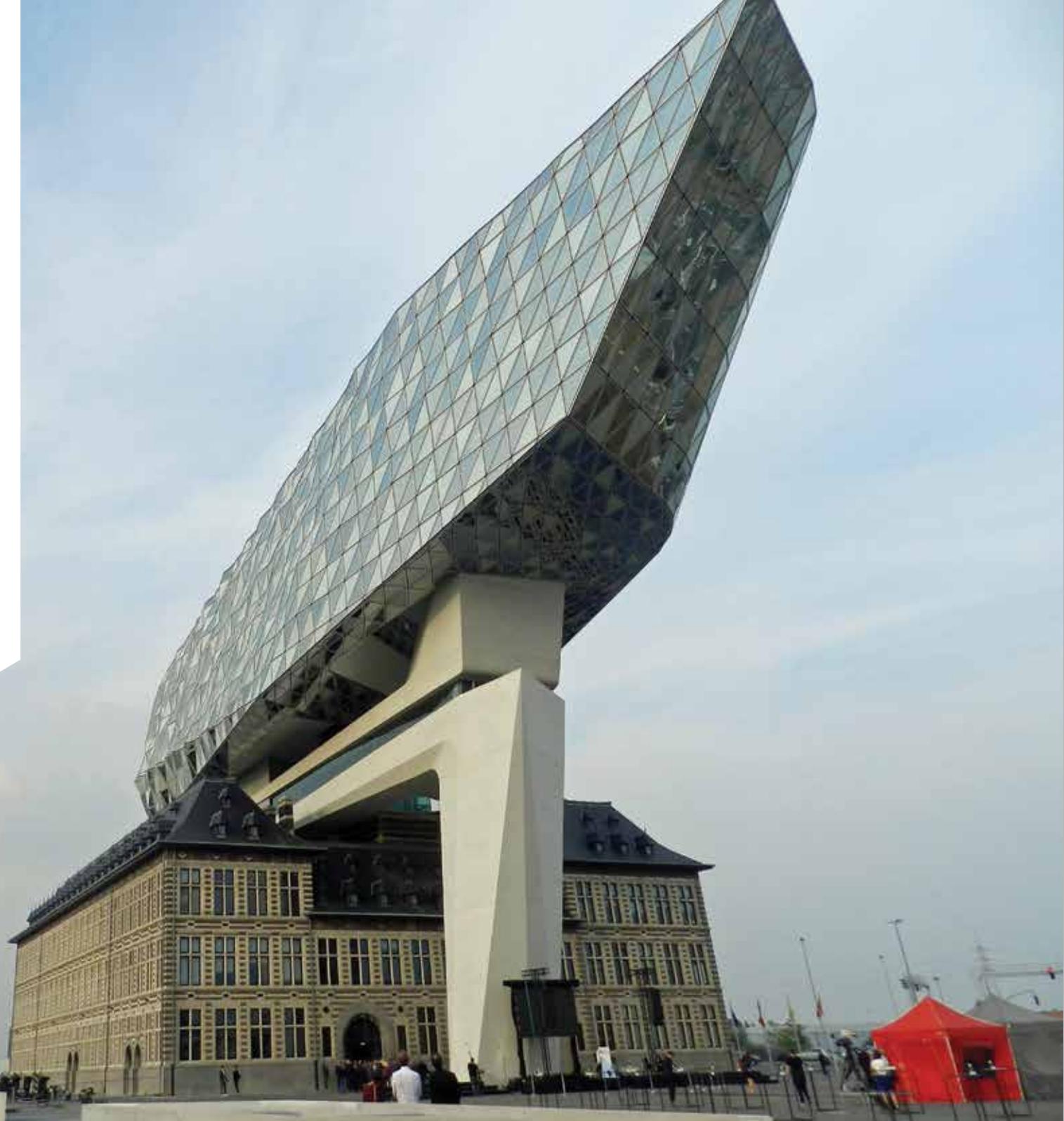
WINNER

Category 1: Buildings



“This genius architectural design, located in the harbor of Antwerp, is a very unique structure. Transferring this great idea into a structural design that fits the architectural needs is a real engineering challenge. SCIA Engineer greatly supported the design of this structure under the challenging circumstances, making it possible to combine a restored fire station with a new impressive structure hanging over it.”

Quote of the Jury

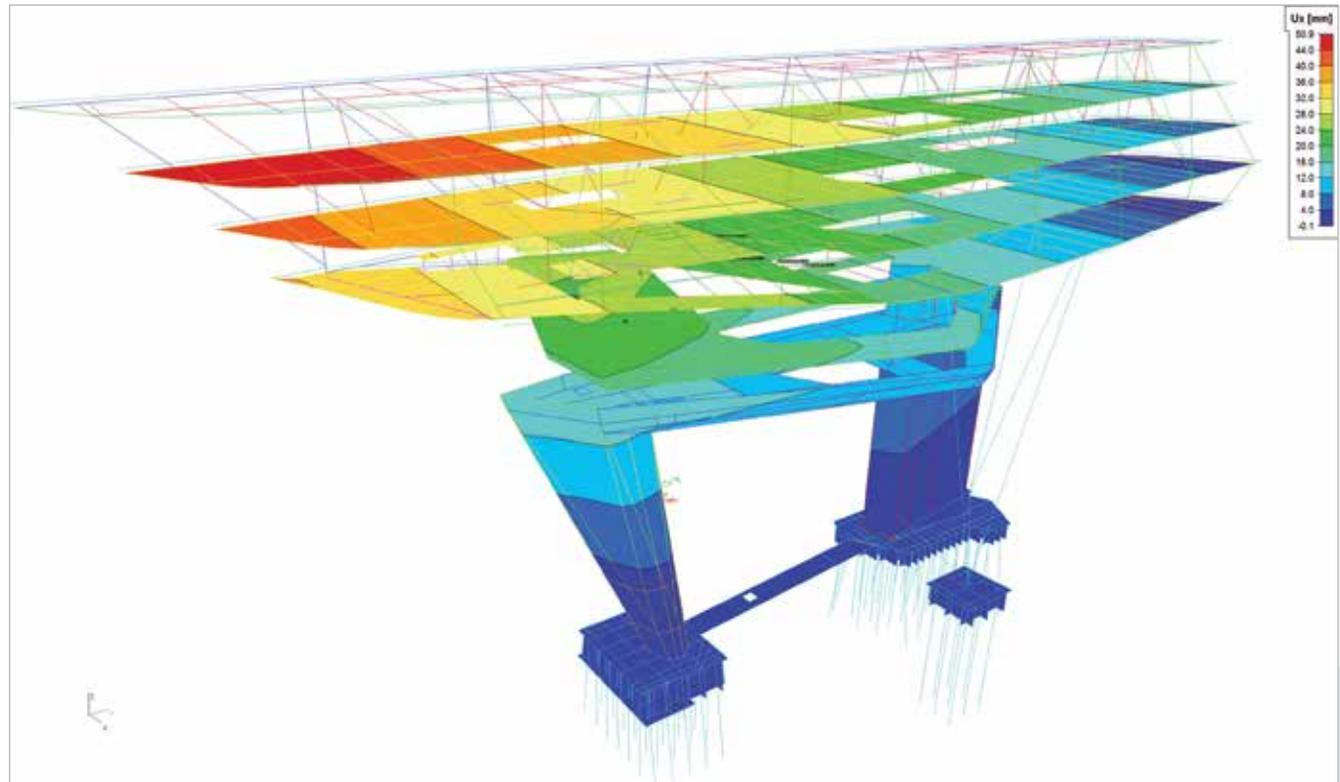


Port House - Antwerp, Belgium

Owner *Antwerp Port Authority*
Architect *Zaha Hadid Architects in collaboration with Bureau
Bouwtechniek and Origin architecture and engineer-
ing*
General Contractor *Interbuild*
Engineering Office *Studiebuuro Mouton*
Construction Period *09/2012 - 09/2016*

The new Port House consists of two buildings: a restored former fire station and new construction that has a truly remarkable sculptural form. This elongated volume is approximately 100 m long, 24 m wide and four stories high. It consists of three three-story-high steel trusses: a middle one and two angled facade trusses. The supporting structure of this volume consists of two parts: a sculptural construction in concrete in the form of a trapezium-shaped ring that encloses the south wing of the existing building in a vertical direction, and a four-legged steel structure bent rather like an opened paper clip. The most prominent part of the concrete ring is the inclined concrete front-leg located in front of the building. The bridge links the front-leg with the concrete core in the atrium splits around the masonry tower of the existing building.

SCIA Engineer was used to calculate a global model of the new building (steel structure and sculptural concrete forms), including steel checks and reinforcement calculation. For the steel columns in the atrium (with an arbitrary quadrilateral cross section), a nonlinear calculation was performed considering bow imperfections. The eigenfrequencies of the new building were computed and seismic analysis of the structure was performed.



Mouton cvba

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MOUTON

Mouton is active in designing structures, with a strong emphasis on architectural projects. Its philosophy is that structure, like architecture, has to be designed. Moreover, it is often the case that the structure is inseparable from the architecture and structure plays a prominent role in the perception of the design. Mouton's ambition is to develop a strong structural concept and to help shaping the architectural design. This happens preferably in a team with the architect and other construction partners, and from an early design phase.

