

IMd

Contact Remko Wiltjer, Paul Korthagen
 Address Jan Leentvaarlaan 62
 3065 DC Rotterdam, Netherlands

Phone +31 10-2012381
 Email imd@imdbv.nl
 Website www.imdbv.nl

NOMINATION



I M d
 INGENIEURSBUREAU

Organisation

IMd Raadgevende Ingenieurs is an organisation with a great core of highly qualified employees, who have been applying their experience, know-how and expertise for many years with regard to advising about, designing and working out main structures for buildings. At present the firm consists of 40 highly educated employees. IMd is completely independent and does not have any business links with manufacturers, suppliers, contractors, developers and other interested parties who could influence our impartial and independent consultancy.

IMd is a member of the Dutch association of consulting engineers (ONRI) and possesses the "quality management system" certificate according to NEN-AND-ISO 9001.

It is a firm where the internal communication proceeds smoothly and all employees are kept informed about the most recent developments.

In the almost 50 years that our firm has existed the quality of our service has always been a key issue. The most important characteristics of this service for us are:

- A good product that fits the budget of the client
- A product that fits the concept of the architect
- Creativity and ingenuity
- A flexible and service-oriented attitude

Projects

They vary greatly: from prestigious office complexes to pedestrian bridges, from houses to complex shopping centres, from alterations to new-housing and from simple and small to complex and large. Each project has its own charm and is a

constructive challenge. The projects are carried out at the request of property developers, government organisations, foundations, architects, contractors and private parties. This diversity in clients is made possible because of the independence of the firm of consulting engineers.

View IMd Raadgevende Ingenieurs

The view of IMd is that the success of a project largely depends on the first stage of the design process. The cooperation between architect, client, mechanical engineer and structural engineer is decisive in order to have a fine design in complex projects. In the preliminary design various alternatives are presented for the structure of a building. The advantages and disadvantages of every constructive alternative will then be discussed in the design team. Wishes of the client and architect, requirements in the field of building physics, possibilities regarding the technical installations: they all affect the choice of an optimal structural design.

In addition to the constructive design, IMd regards its role as a coordinating engineer as very important. In its existence IMd has built up a perfect reputation. In addition to the inspection of the basic principles of the drawings and calculations of suppliers of prefabricated concrete and steel constructions, the content of these elements is also assessed with great care. We ask the client to make it possible for us to carry out the consultancy work in a constructive way. In the end this will create the best result for the client.

Health Education Museum CORPUS, Oegstgeest

Short Description

This eye-catching building, located on the A44 motorway and consisting of a sitting human figure, contains not only a museum, but also a congress centre and a car park. In the museum, visitors go on a 'journey through the human body'. Within the museum's set-up, a variety of installations are used, such as lifting platforms and moving walkways. During the construction of the building, various Scia software models were used. The congress and the museum were designed using relatively simple 2D models. The human body was designed using a 3D framework.

Project Information

Owner: Corpus Experience, Wassenaar / Heddes Vastgoed, Hoorn
Architect: PBV Architecten, Wassenaar i.s.m. B3 Bouwadviseurs, Wassenaar
General Contractor: Heddes Bouw, Woerden

Engineering Office: IMd Raadgevende Ingenieurs
Construction Start: 01/06/2006
Construction End: 01/02/2008
Location: Oegstgeest, Netherlands



Introduction

This eye-catching building, located on the A44 motorway and consisting of a sitting human figure, contains not only a museum, but also a congress centre and car park. In the museum, visitors go on a 'journey through the human body'. Within the museum's set-up, a variety of installations are used, such as lifting platforms and moving walkways. During the construction of the building, various Scia



software models were used. The congress and the museum were designed using relatively simple 2D models. The human body was designed using a 3D framework.

Museum

The museum part consists of 8 building layers. A 7,4 m x 6,3 m grid was used, which ensured a limited span of the integrated girders, as well as sufficient flexibility to accommodate the museum's exhibitions. The wind bracing was placed in the building's façades instead of locating them in wind cores, to achieve further flexibility. The many floating plateaus, crevices, elevator- and lifting platform shafts, often uniquely shaped, are fitted within the main framework wherever possible, and are supported by cross-members. This constructive design ensures the possibility of future adjustments, by closing up the crevices or creating additional ones instead.



The part of the building where the congress centre is located is cantilevered, protruding over 5 storeys. This can be seen by visitors entering the congress centre directly below this cantilever. All façade planes, including the protruding parts, were designed as 2D models.

Congress centre and car park

Noticeable features of the congress centre are the large column-free spaces and its cantilever, protruding over the split-level car park. These are created by an architectural lattice framework, which also ensures the stability. The façade beams have been outfitted with lattice girders, which in their turn are covered with steel roof slabs. This façade lattice framework enabled the relatively easy construction of the 5-metre cantilever. The lattice framework was calculated with the use of ESA-Prima Win.

Human body

The museum's façade shows the most remarkable feature of the building: the model of a human body, measuring 35 metres. The steel framework of the figure was custom-designed, surrounding the escape staircase in the body's torso. It was constructed from stabilising rings on storey level. The weight is carried by the body's spine, using 6 columns. Taking into account the uninsulated nature of this construction, the vertical connections with the building have been made flexible, which takes care of possible thermal deformation. For this reason, too, the head above the museum's roof has been made to protrude from the main structure. By prefabricating the body's head right next to building, the costs of an expensive scaffold were saved. The

placing of the head, by a mobile tower crane, saw the spectacular celebration of reaching the building's highest point.

For the construction of this human body, two computational models were used. The first, a 3D framework, showed a schematic presentation of the head and the torso. These transfer their weight vertically. The legs were captured in a second model, which was shifted from the torso. This part rests on a section of the museum's roof. During the construction, the 3d model was also used to determine the weight of parts of the building, as well as for calculating the head's mass centre, including the covering; this consequently determined the suitable hoist points.

The development of a special connection between façade planes (made of Corten steel) and the steel construction enabled the façade to be attached without taking special measurements. This resulted in an extremely short construction period. The connection consists of a bushing, which can be adjusted to three levels of manoeuvring space. The bushing is placed on a wiring end, which in its turn is part of the steel construction. By placing a wooden beam between two adjacent bushings, one of the many indentations is realised in the faceted cover.

