

## IMd

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### 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.

## Container Origami, Rotterdam

### Short Description

This project regards a work of art for the Rotterdam exposition follyDOCK, a part of 'Rotterdam 2007 - City of Architecture'

Participants were to design a folly, which was to surmount the restrictions of actual practice and which stretches the boundaries between fantasy and reality. 'Container Origami', designed by Wouter Roeterink, Ron Nout, Femke Bijlsma and Allard Roeterink was chosen. Their project: take a steel sea container, cut it open, and 'fold' it like a piece of paper, according to the Japanese technique of origami. After the initial manual calculations, a 3D-drawing was made of the final shape. This was then used to compute a Scia Engineer model of the vast object. The model was first drawn up as a wire-frame model, after which the steel slabs were added as discs. After that, the model was used to optimise the steel edge moulding, which was welded alongside the sea container's slabs.

Ultimately, "Container Origami" was manually constructed, using a carefully cut-open sea container.

### Project Information

**Owner:** follyDOCK, Rotterdam

**Architect:** Wouter Roeterink, Ron Nout, Femke Bijlsma & Allard Roeterink

**General Contractor:** Petit 3D Techniek, Rotterdam

**Engineering Office:** IMd Raadgevende Ingenieurs

**Construction Start:** 01/05/2007

**Construction End:** 01/08/2007

**Location:** Rotterdam, Netherlands



### Introduction

On 26 May, the Rotterdam exposition follyDOCK was opened. This international folly competition included artists, designers and architects, who created a wide variety of 'useless' folly constructions. IMd designed two of these constructions, and acted as the project's sponsor as well. FollyDOCK is part of 'Rotterdam 2007 - City of Architecture'.

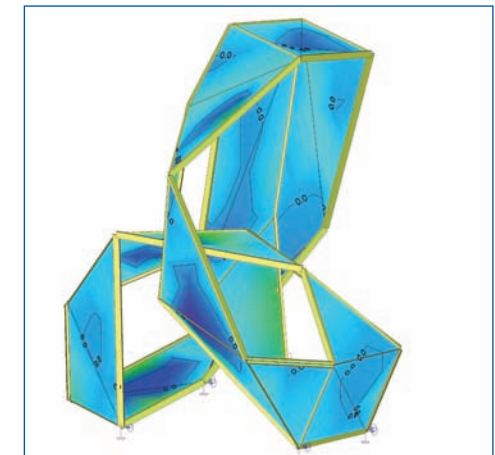
Participants were to design a folly, which was to surmount the restrictions of actual practice, and which stretches the boundaries between fantasy and reality. Of over 45 designs, the organisation picked 21 that were considered suitable for actual construction. One of those was "Container Origami", designed by Wouter Roeterink, Ron Nout, Femke Bijlsma and Allard Roeterink.



### Design

IMd Raadgevende Ingenieurs have created a model for "Container Origami". The idea behind the folly is a simple one: take a steel sea container, cut it open, and 'fold' it like a piece of paper, according to the Japanese technique of origami. This leads to a completely different shape of the object.

From the cardboard model, and in a later stage, the steel one, it was concluded that the planned object, measuring eight-and-a-half metres in height, proved



Used software: Scia Engineer

to be rather frail when exposed to (wind) pressure. IMD suggested an extra connection on two places, which led to a much more solid object. This meant that the amount of steel could be reduced.

After the initial manual calculations, a 3D-drawing was made of the final shape. This was then used to compute a Scia Engineer model of the vast object. The model was first drawn up as a wire-frame model, after which the steel slabs were added as discs. After that, the model was used to optimise the steel edge moulding, which was welded alongside the sea container's slabs.

Ultimately, "Container Origami" was manually constructed, using a carefully cut-open sea container. The entire work of art was then moved, by special transport, to its final position. The folly, which initially was to be a temporary construction, was adopted by the city of Rotterdam, and thereby gained its permanent status as a work of art.

