



Rijksmuseum Amsterdam

Amsterdam | The Netherlands | Realised by: Brakel Atmos, The Netherlands

"This is an extremely pleasant and welcoming museum."
Wim Pijbes, Rijksmuseum Director

The glass roofs have introduced this historic building to modern daylight

Task: create a daylight system in the style of the 19th century while meeting 21st-century standards

The Rijksmuseum dating from 1884 has been returned to its former glory. The challenge: to do justice to the original design of architect Pierre Cuypers while meeting the standards of today. The new glass roofs intended to make the museum more transparent and comfortable needed to be constructed to 19th-century dimensions. The glass roofs also contribute to an optimum climate for the works of art. They need to be wind and watertight, resistant to condensation and excessive heat loss and be able to maintain a reasonably constant temperature. Brakel also needed to consider the smoke and heat extraction aspect.



Solution: 56 new glass roofs that satisfied all requirements

- Architectural requirements**
 Brakel subjected every angle and line to a digital survey. This enabled the original glass surface distribution to be reproduced exactly.
- Careful attention to detail**
 The structural connections to zinc and slate work used on the roof were checked using a model (mock-up). This allowed the fine tuning of the final connection details. Brakel also manufactured a special cover strip.
- Glass roofs**
 Brakel reproduced each one of the original 56 glass roofs: To pitched roofs, each being 38 x 16 metres with end gables and 54 lean-to roofs varying from approx. 1.70 x 2.10 metres to 21.4 x 11.6 metres. The glass constructions were manufactured using low iron glass so any daylight entering the building remains clear and bright (no greenish tint).
- HR profile with a low U value**
 Brakel developed a glazing profile especially for the glass roofs that was capable of satisfying a U value of 1.4.
- Smoke and heat extraction**
 Opening lights for the purpose of smoke and heat extraction were installed in the two glass roofs above the inner areas. Brakel developed a customised aesthetic solution: Ventría louvred windows comprise 3 glass louvres and a special high profile. The actuators in these windows are largely hidden.

Logistics crucial

The logistics of this project were extremely challenging. Space is always at a premium on construction sites in the heart of Amsterdam. Brakel eliminated a great deal of transport problems by setting up an extra storage facility near Amsterdam.

"Brakel develops and customises."

Materials were stored here and checked for quality and quantity before leaving for their final destination. A high degree of flexibility was required when planning such a large project where no less than seven contractors were involved. A Brakel project manager was in charge and maintained contact with the contractor and architect. A foreman and a member of the Brakel logistic staff were responsible for the day-to-day running and quality control of the project.

Result

The Rijksmuseum will once again open its doors to the public on 13th April, 2013. Director Wim Pijbes has already been impressed by the result: "The two courtyards have bathed the plan of the building in daylight. Visitors are now able to find their way around much more easily." "This has become an extremely pleasant and welcoming museum."

Success factors

- Specific expertise in the field of glass roofs, climate and smoke control.
- Cooperation and coordination in both the engineering and execution phase.
- Careful attention to detail and customised systems.
- Aesthetic consideration for the 19th-century architectural design.
- Logistics solutions saved space on the construction site.
- Flexibility and good communication during execution.



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