



CTBUH Research Paper

ctbuh.org/papers

Title: **Greening Office Towers**

Author: Christoph Ingenhoven, Ingenhoven Overdiek und Partners

Subject: Architectural/Design

Keywords: Design Process
Office
Sustainability

Publication Date: 2001

Original Publication: CTBUH 2001 6th World Congress, Melbourne

Paper Type:

1. Book chapter/Part chapter
2. Journal paper
3. **Conference proceeding**
4. Unpublished conference paper
5. Magazine article
6. Unpublished

© Council on Tall Buildings and Urban Habitat / Christoph Ingenhoven

BUILDING SYSTEMS AND CONCEPTS

Greening Office Towers

Christoph Ingenhoven

1.1 THE OFFICE INGENHOVEN OVERDIEK UND PARTNER

The Ingenhoven Overdiek und Partner Office in Düsseldorf has been under the leadership of Christoph Ingenhoven and Jürgen Overdiek since it was founded in 1992 as a shared architectural practice.

Christoph Ingenhoven, born 1960. Studied architecture at the RWTH in Aachen and at the Academy of Arts in Düsseldorf. Jürgen Overdiek, born 1954. Studied architecture at the RWTH Aachen and Villa Massimo Stipendium Rome. Today, there are 150 staff working in the office (architects, interior architects, designers and model makers).

The projects are mainly offices and administration buildings, commercial and insurance company headquarters, high rise buildings in Germany and abroad, department stores and infrastructure projects (airports, railway stations), town planning and landscape architecture works.

The aim in all the projects is to work closely with engineers and other specialists throughout the whole of the design process. Internal questionnaires are used to measure the efficiency, the ecological consciousness, the economy of resource usage and the buildability of every project. This creates an architecture that is characterised by technological innovation and produces buildings appropriate to people's working and leisure needs. It does not spring from artistic requirements alone but is rather a reflection of the architect's responsibility for the environment.

2.1 HEADQUARTERS FOR RWE AG ESSEN, 1991–1997

The construction of the 163 metre high cylindrical high-rise tower which houses the RWE AG represents the completion of the first stage of the competition decided upon in 1991 for the headquarters of the RWE AG/RAG. The ecologically oriented building will be completed at the end of 1996.

The RWE tower is free-standing, built behind the curved slab block. Areas of higher density keep the interior of the site free for a generously proportioned park. Access to the high-rise is through a public plaza extending outwards. The newly created streetscape is interrupted at this point and bridged over by a roof-level loggia with photo-voltaic lamellae. The 30 floors of the building, including a roof garden, are accessible from the lobby through lifts located outside the tower itself.

Ingenhoven Overdiek und Partner, Düsseldorf

The RWE AG company headquarters can be described as an ecological high rise development. The building incorporates innovative systems for optimisation of the building services.

The office zones are naturally ventilated by a full storey-high double skinned glass façade and by openable windows. Ventilation is optimised by the incorporation of a newly developed integrated “fish’s mouth” element, with sun shading and anti-glare blinds to make the most of daylight and natural ventilation. Control panels ensure that the building environment can be adjusted to suit individual demands and requirements. Roof elements contain the necessary building services for air and space conditioning such as 2 component lighting, cooling and acoustic absorption panels, in addition to smoke alarms and sprinklers.

The element is freely suspended in order to be able to use the energy storage qualities of the concrete floor.

Even the interior architecture and furnishing follow the integrated architectural philosophy and forms, and are found recurrent applications in the various usage zones.



Figure 1 RWE AG Highrise, Essen – photo: H.G. Esch, Köln.

2.2 WAN XIANG INTERNATIONAL PLAZA, SHANGHAI, 1995–2003

The high-rise project for the Wan Xiang International Plaza Company in Shanghai was awarded 1st prize in an international competition in 1995.

The site is in the centre of Shanghai on Nanjing Road in the immediate vicinity of the People's Gardens. Approx. 1.5 million passers-by flow daily through the largest commercial street in China. A spacious public plaza is planned on Nanjing Road. From the plaza, you can reach the adjacent department store and the offices in the high-rise over a transparent multi-level access area that runs on the diagonal.

The 53-storey and 288 m high building, based on a triangular plan, was developed for hybrid use incorporating shopping areas, flexible office space, restaurants and rooftop gardens. Its architectonic image is created by the structure of diagonal struts parsing up the front of the façade.



Figure 2 Wan Xiang International Plaza Shanghai – Illustration: Peter Wels, Hamburg.

2.3 HQ3A/4B, CANARY WHARF, LONDON, PROJECT 2000

The two high rise buildings on Heron Quays are part of the world financial centre at Canary Wharf. The plan shape creates highly efficient office and administrative zones and provides extensive space for financial trading offices.

The multi-skinned façade design allows natural ventilation in the office areas. This results in a reduction of the required storey height in comparison to conventional designs.



Figure 2 HQ3A/4B, Canary Wharf, London – Illustration: Peter Wels, Hamburg.