



Messe Frankfurt –
North Gate, oval roof on
existing street bridge,
Photo: Ingo Schrader

Allplan in practice

ARCHITECTURE AND IDENTITY

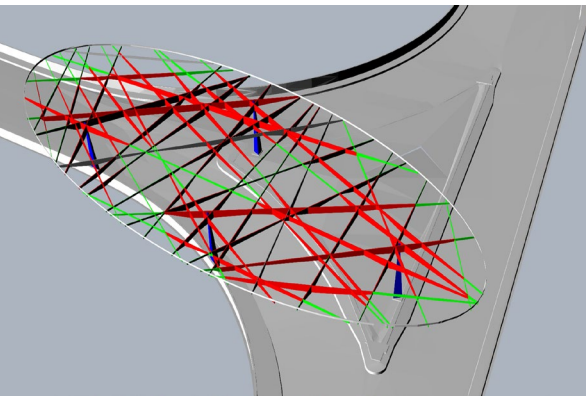
“The finished result matters to me. Consequently, I try to oversee the project from idea to completion for as long as it takes to ensure the quality of the architecture.”

In the past few years Ingo Schrader designed and realized different construction projects for Messe Frankfurt, including the North Gate, which has been awarded several architectural prizes, plus various guard houses. Although mainly involving smaller scale construction projects, the resulting buildings represent precise interventions, serving to enhance Messe Frankfurt's identity and corporate culture. The architect used Allplan Architecture for the

design and implementation planning across all work phases. But he also made effective use of Allplan to create presentation documents and as an internal design check. The scope of the projects includes new constructions and modifications and also interior work for the trade fair's existing building stock. Mobile shelters, a bus right of way, new guard houses and the conversion of foyer areas were amongst the many construction tasks.



Top: Oval roof North Gate



Bottom left: the colours designate different material strengths of the sheet metals



Bottom right: North Gate, 3D study from the design stage

Fig./photo: Ingo Schrader

THE CHALLENGE

North Gate is the main gate to the exhibition site. It concerns a highly conspicuous oval steel roof which protects the guard house below and controlled access zone against the wind and elements. The roof membrane, or covering, consists of polyurethane-coated veneer timber. The roof's visual presence is based on its exposed site on a bridge and its delicate construction. Almost 600 square metres of roof space with a total weight of 110 tons are supported by four steel columns, each with a triangular base area. The parametrically designed, innovative supporting structure made of flat steel louvres evokes natural, evolved structures and the irregular position of the column shows the flow of force. This irregular support structure with many steel beams with different shapes and sizes proved to be a challenge for the design. An assessment and review of these support structures using section cuts was practically impossible.

New guard houses

Ingo Schrader developed a family of buildings in different sizes as part of the work carried out on the North Gate. Specifically, to give the small guard houses a presence in the midst of the large-size exhibition architecture.

> **Integrating requirements, technical aspects and contributions of the project participants**

> **Reducing complexity via innovative, holistic solutions**

> **Creating identity with architecture**

For they are on the border between public space and exhibition site and thus constitute the initial contact between the trade fair and its visitors and exhibitors.

Following functional and urban planning analyses the architect selected a triangular outline. The constructive base is made up of a steel skeleton with mounted aluminium façade. The red colour tone of the façades corresponds with the trade fair's corporate colour. The guard houses provide space for one to four workstations. Common characteristics, such as the triangular plan, identical sill and fascia heights, similar window formats and colour and materiality of the façade reveal their "family" attributes. Thanks to their conspicuous colour the guard houses on the exhibition site are visible from afar and denote strategically important intersections such as, for example, the entrance gates.



Messe Frankfurt –
North Gate, guard house
type L beneath oval roof;
Photo: Ingo Schrader

THE SOLUTION

In accordance with the initial sketches and conceptual thoughts Ingo Schrader used Allplan Architecture in the design stage already in order to create 3D models which were used to refine and verify the concept. In order to demonstrate situations in detail to other project participants or discuss variants with the client, the firm used digital sketches or renderings in the course of further planning. Allplan Architecture helped the architect to think through his design from a three-dimensional point of view and check details such as transitions, walkways and corner constructions. The 3D model meant that the architect was able to view his design as a volumetric element in an integrated and holistic way. Allplan Architecture assisted him in this process, from design to implementation, as a powerful tool and supported the integrated working method. This is characterized by intensive communication and a lively data exchange with other project participants.

In particular, in the case of the oval roof on the North Gate the architect did not want to dispense with a 3D working method. The irregular support structure resulted in many different sizes of steel beams and complex situations. It was not possible to assess or check these using 2D planning documents. In order to solve this problem the 3D model of the steel constructor was scanned in Allplan Architecture and could subsequently be verified in 3D view. Screenshots of different

- > **Allplan Architecture is universally deployable for all work phases and project types thanks to its great functionality.**
- > **The integrated interfaces enable smooth data exchange with external specialist planners.**
- > **Powerful tools for 3D modeling and rendering provide many design check and presentation options.**

angles were then created and annotated. These documents were used for corrections directed at the steel constructor. The end result: a building which would appear to have tuned out quite simply amidst all the complex requirements: functional and at the same time aesthetic, with depth effect at second glance and its own identity.

Client: Messe Frankfurt Venue GmbH

Architect: Ingo Schrader Architekt BDA, Berlin

Structural design: Bollinger + Grohmann Ingenieure, Frankfurt a. M.

Lighting design: Licht Kunst Licht AG, Berlin



"We use Allplan Architecture as a 3D solution for the internal design check and presentations. Or as digital 3D sketches in order to demonstrate a detail to project participants or to discuss a variant with the client. Allplan Architecture is the CAD tool for all work phases, scales and tasks, from architecture to exhibition organization or design."

INGO SCHRADER ARCHITECT

Ingo Schrader studied architecture at the Technical University in Braunschweig and at the IUAV (Istituto Universitario di Architettura Venezia) in Venice. Between 1992 and 1995 he was in charge of the office of Prof. O. M. Ungers in Frankfurt am Main, where he opened his own practice in 1995. He subsequently relocated to Berlin in 2007. The practice works largely for commercial and public clients. Areas of work range from construction work on existing buildings to Corporate Architecture right through to designs for furnishings and exhibition organization. As well as his practical

work as an architect Ingo Schrader taught at the MSA (Münster School of Architecture). As part of the 15th Architecture Biennale in Venice in 2016 he participated in the exhibition entitled "Time Space Existence".

Ingo Schrader's architecture demonstrates a clear and scaled back styling and develops specific solutions from each task and the conditions of the location. What are at first glance minimalist buildings have presence thanks to their proportions, materiality and detail.

ABOUT ALLPLAN

ALLPLAN is a global provider of BIM design software for the AEC industry. True to our "Design to Build" claim, we cover the entire process from the first concept to final detailed design for the construction site and for prefabrication. Allplan users create deliverables of the highest quality and level of detail thanks to lean workflows. ALLPLAN offers powerful integrated cloud technology to

support interdisciplinary collaboration on building and civil engineering projects. Around the world over 500 dedicated employees continue to write the ALLPLAN success story. Headquartered in Munich, Germany, ALLPLAN is part of the Nemetschek Group which is a pioneer for digital transformation in the construction sector.

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