

City Point Shopping Centre, Am Königsplatz, Kassel



*Architect: Prof. Jochem Jourdan/Büro PAS, Frankfurt/Main
Artistic concept: Prof. Thomas Bayrle, Frankfurt/Main
Glass facade: Anders Metallbau, Fritzlar*

Mission

City Point, the biggest and recent shopping centre in the central German city of Kassel, is a unique and impressive achievement embodying a triumphant marriage of art and architecture. Its signature element is an organic-looking glass skin, displaying printed motifs of the city, which almost completely envelops the building.



Innovative ideas consummately realized

■ A work of art: the City Point facade



The scheme developed by Professor Jochem Jourdan and artist Professor Thomas Bayrle, both based in

Frankfurt/Main, pays tribute to Kassel as the venue of the international documenta exhibition of modern and contemporary art. Its main element is a glass facade which wraps around the building like a second skin.

The 3,500 sqm glazed facade is printed with an undulating arrangement of palm-sized photos showing documenta exhibits and local sights.

Itself a work of art, which holds the onlooker in thrill, the glass creation

posed a unique challenge for all those involved in its construction.

■ Architectural concept

City Point impressively demonstrates how the design of contemporary shopping emporia can be enriched by aesthetic and artistic inspiration. Key architectural features include the bold contrasts between glass and metal, masterfully styled forms and innovative lighting design. Luminaires discreetly integrated in the glass facade produce a wide diversity of lighting effects that enhance the open, transparent character of the whole exterior.

Occupying some 23,000 sqm of shopping space on four levels, the tenants – some 70 specialist retailers and café or restaurant proprietors – reap all the benefits of a micro-electronically controlled, high-comfort environment. All windows are regulated by a modern building management system and close automatically in bad weather conditions.

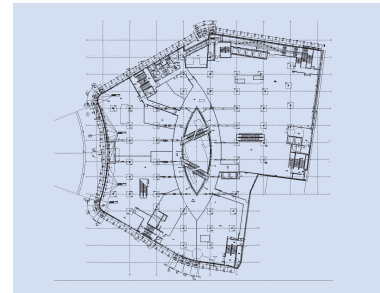
The highly intelligent architectural concept also manifests itself in the design of the shopfronts: the movable glass screens can be flexibly arranged to meet specific needs or to create spatial continuity between the shop area and the outside mall.

■ Glass facade

The facade construction required the use of numerous special components. The mission also placed strict demands in terms of performance and cost-effectiveness.

The curvilinear shape of the building complex necessitated the insertion of bent and partially curved glass. Overall, the point-fixed glass facade incorporated 652 individual panes.

Another technical challenge was posed by the steel cantilever arms, which stick out one metre beyond the building line at the head of the facade.



Building floorplan

■ Anders Metallbau: an expert in glass facade construction

In the spring of 2001, specialist metal-work provider Anders Metallbau was contracted by the Kassel-based ARGE City Point consortium to fabricate and install the metal and glass construction for the shopping centre facade. The contract – a challenge which we truly accepted – was duly completed within the agreed timeframe to the full satisfaction of the entire project team.



Stainless-steel advertising support frame blends harmoniously with the facade

■ Contract co-ordination

Initially, the main task consisted in choosing suitable suppliers for the special components. Distinguished specialist companies were entrusted with fabricating the steel sections and glass facade units, and with printing the special motifs onto the glass panes.



Structural & Facade Design

Anders Metallbau is renowned for its specialist engineering services. In mastering highly complex projects, our in-house design team is committed to upholding impeccable standards of quality.

Facade design at the cutting edge of technology

Partnered by Ingenieurbüro Hamm from Gelnhausen, we developed a structural concept permitting deferred installation of the facade units, with later insertion of the intermediate units. Due to the longer fabrication times needed for the curved and partially curved panes, all other units completed upfront had to be pre-mounted. The work programme also considered during pre-assembly a specified anti-corrosion finish to all steel sections.

After carrying out initial structural calculations using the basic design, we commissioned the University of Kassel (Steelwork Faculty) to conduct the necessary component tests.



With some 20 CAD workstations in our design department, our engineers combine efficiency with creativity in turning sophisticated architectural concepts into reality.

Facade substructure



The facade is held in place by a steel substructure fitted around the entire building.



Head of facade

The steel cantilever arms at the head of the facade were fixed to tension anchors cast into the structural slabs. Threaded, 20 mm dia. tie rods connected

the steel cantilever arms to the cast-steel nodes, which were fixed to the building structure.

To secure the horizontal steel transoms, these were passed through the cast-steel nodes. Given that the cast-steel nodes threaded different (right-

hand and left-hand) at top and bottom, the interlinking tie rods – likewise provided with different threads at either end – could be used to adjust the lengths between the individual levels.

A (M 30) pressure bracket was rigidly connected to the rear of the cast-steel nodes. To mount the stainless-steel bracket to the building structure a (M 30) fork head was used.

Cast-steel glass clamps were mounted on the steel transoms to the left and right of the nodes. The glass clamps were designed as fixed and loose supports to ensure restraint-free fixing of the glass panes.

Numerous component tests showed the facade support frame developed by us to offer extremely high load capacity and structural stability. It is able to carry the glass panes while fully accommodating all wind loads, snow loads and thermal expansion.



Detail views: glass clamps



Detail view: nodes, glass clamps, transoms and tie rods

Installation

Perfectly organized site procedures and professional teamwork allow us to deliver even the most demanding projects within extremely tight deadlines. Our designers, planners, technicians and installers make the impossible become possible.



Erection of steelwork

Installation of substructure

The steel substructure was erected by our own installers, with all operations requiring the utmost precision. Fixing of the top cantilever arms was subject to a maximum tolerance of +/- 5 mm.

The connection points on the upper steel cantilever arms, set out beforehand by a surveyor, were exactly positioned by our operatives to ensure a perfect fit.



Installation of glazing

Over 20 installers of Anders Metallbau were involved in the facade erection process. Given that the curved and partially curved glass had been contracted out for custom fabrication by a specialist company in Finland, our engineers had to make allowance for varying delivery periods in the work programme. The glass was therefore installed in several phases, with work sometimes proceeding simultaneously at different locations. Our specialists started by fitting the straight runs of glazing, the curved and partially curved panes being inserted between these sections upon their later arrival on site.

Final installation

Not only has the City Point shopping centre created new amenities, it has also enhanced the visual impact of Kassel's city centre. Our team of specialists needed only six months to complete the eye-catching facade together with its complex steel support structure.

The final installation stage involved mounting the stainless-steel advertising supports that encircle the facade like a ribbon.



Over 20 installers were involved in constructing the 3,500 sqm glass facade. The overall assembly comprises 545 no. rectangular and 107 no. curved glass panes, with unit weights exceeding 220 kg.



Installation of glazing with suction cup device

In consultation with the electrical contractor, the special gratings and vertical metal facings with luminaire mountings were fixed at the lower end of the facade. The upper end of the facade incorporates 72 no. motorized flaps for storage of the facade access system.

The one-of-a-kind shopping centre was completed on schedule and inaugurated by client ECE Hamburg on 24 February 2002.

Fabrication

The facade system was manufactured by the workshop staff at our Fritzlar plant and produced using advanced technology. The single-provider solution thus guaranteed professional co-ordination throughout the fabrication process.

■ Fabrication of glass facade

Unmatched in Germany, the custom-fabricated City Point glass facade testifies to Anders Metallbau's close attention to engineering detail, compounded by special in-house production facilities.

The point-fixed glass facade incorporates 652 individual panes with a standard size of 3330 mm x 1600 mm. Each pane is held at the perimeter by six (105 mm dia.) glass clamps.

The straight lengths of glazing comprise 16 mm laminated safety glass (VSG) made up of two 8 mm heat-strengthened glass (TVG) sheets with a 1.52 mm PVB film interlayer. The curved and partially curved panes consist of two 10 mm float glass sheets with a 1.52 mm PVB film interlayer.

The photo screenprints were applied to the internal face of the outer pane. All panes were made from low-iron glass.

■ Fabrication of steelwork

The facade's steel substructure, also produced in-house, incorporated some 34 tonnes of special hollow steel sections, 750 no. cast-steel nodes and 2,100 no. cast-steel glass clamps. Given the exceedingly low tolerances governing the steel sections, the



View of Königsplatz front

production process required in-depth expertise backed up by leading-edge system technology.

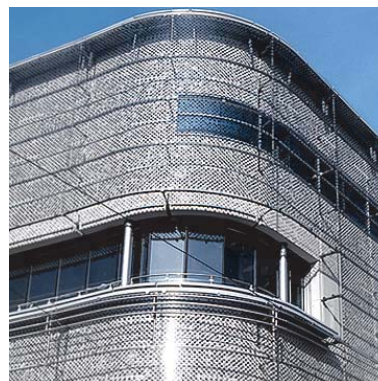
All steel transoms received an anti-corrosion finish in the form of an 80 μ hot-dip zinc coating, an approx. 60 μ primer and an 80 μ finishing coat. The silver-grey finishing coat was applied using airless spray equipment. All hollow steel sections were treated with an 80 μ sprayed zinc coating, then primed and finished as the steel transoms.



Half-tone screenprint techniques allowed photos to be displayed on facade



Projecting escape balconies



Facade curvature at building corners

■ Maximum safety through certified quality

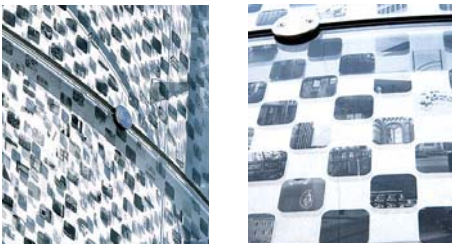
As early as 1996, Anders Metallbau received DIN EN ISO 9001 certification for its newly launched quality management system. This was followed, in 1997, by the award of a RAL quality label for the fabrication and installation of aluminium windows. In May 2001 Anders Metallbau GmbH became the first facade contractor in Germany to receive the RAL quality label for the fabrication and installation of aluminium curtain walls.

Exteriors

Kassel's new, modern emporium boasts a convincing artistic concept and unique shopping atmosphere. The interior design concept excels by its diverse mix of materials, consummate modelling and stimulating colour scheme.

Shopping to soothe the soul

The City Point's bright and spacious interior epitomizes the shifting demands placed on modern-day shopping facilities. The transparent shopfronts, which can be adaptably configured in line with retailers' needs, add variety to the indoor scenery while creating a smooth transition between the internal and external environments.



The facade owes its inimitable texture to the thousands of photographs printed on the glass.



Many of the neighbouring buildings are reflected in the glass facade to create a fascinating play of images.

Facts and figures: the essentials in brief

Client:	Taurus Beteiligungs GmbH, Pöcking	Special components/special fabrication methods:	
Lead designer:	ECE Projektmanagement GmbH, Hamburg	Steel sections:	Hoesch, Hohenlimburg
Operator:	ECE City Point, Kassel	Glazing (supplier):	Interpane, Lauenförde
Architect/designer:	Prof. Jochem Jourdan, Architekturbüro PAS, Frankfurt/Main	Curved/partially curved panes:	Tambest, Tampere (Finland)
General contractor:	ARGE City Point consortium represented by: Hochtief Construction AG, Kassel branch, Hermanns HTI-Bau GmbH u. Co KG, Kassel, Gerdum und Breuer GmbH & Co. KG, Kassel	Half-tone screenprints:	SGT, Oelnitz
Artistic concept:	Prof. Thomas Bayrle, Frankfurt/Main	Cast-steel nodes and cast-steel glass clamps:	Claasguss, Gütersloh
Glass facade:		Project data:	
Structural concept:	Anders Metallbau, Fritzlar, in collaboration with Ingenieurbüro Hamm, Gelnhausen, and Steelwork Faculty of University of Kassel	Usable area:	Approx. 20,000 sqm
Curtain wall package:	Anders Metallbau, Fritzlar	Facade area:	Approx. 3,500 sqm
		Glass panes:	545 (rectangular) and 107 (curved)
		Steel components:	Approx. 34 t
		Cast-steel nodes:	Approx. 750
		Cast-steel glass clamps:	Approx. 2,100

