

period and the financial advantages, the choice fell at an early stage on a sandwich construction with core insulation. The entire wall element with base layer, insulation and façade shell is manufactured in the precast plant. The elements measure 6.60 m x 3.90 m with a thickness of up to 62 cm and a weight of up to 24 tonnes.

**Alexa department store, Berlin (Germany)**

**Architecture: José Manuel Quintela da Fonseca**

Alexa is the name of a shopping and leisure centre that was built on the Alexanderplatz in Berlin (Fig. 2). From a technical point of view, the Art Déco-style façade made of precast elements represents the state of the art in the manufacture of concrete façades. As a rear-ventilated curtain wall with a three-dimensional surface, the façade had to satisfy the highest architectural demands. Due to the high demands on the quality of the fair-faced concrete and the complex geometrical forms, the entire façade was designed to be built with precast elements, which were subsequently mounted onto the shell construction at the building site with a custom fit as an exterior shell. Various façade structures were manufactured for the Alexa: vertical double columns and horizontal beams form a mullion and transom construction, the areas in-between form an even, negative wave structure. A further structural element is



Fig. 2. Alexa, Berlin

characterised by vertical, smooth double pilaster strips with curtain walls hung in-between. The structure resembles a slightly inclined and gathered theatre curtain with one upper and one lower border. One particular highlight is a façade element in the two lower storeys that is comprised of a continuous arch structure. The surface structures of the dyed fair-faced concrete façade were not handed over as conventional working plans on paper, but rather as a CAD-designed 3D data model. Based on the CAD construction designed by the architect, the moulds had to be manufactured as negatives of the subsequent fair-faced concrete façade elements. The prototype façade thereby became a pilot project in three-dimensional CNC-assisted formwork construction. This production technique, which was new in formwork construction, was used mainly for the manufacture of the wavy surface structures, almost like a gathered theatre curtain.

**Community centre, Mannheim (Germany)**

**Architecture: netzwerkarchitekten**

The community centre in Mannheim (Fig. 3) can be considered to be a successful example of the use of a delicate façade made of concrete precast elements. The building presents itself to the outside with its striking individual white concrete façade, which above all provides a poetic counterpart to the homogeneous surroundings. The form, inspired by blades of grass, gives the building a uniform appearance, independent of openings and closed elements in the mullion and transom façade behind it, which is the actual room partition. The precast elements were manufactured from smooth-formed concrete with white cement in a made-to-measure mould. One of the difficulties in manufacturing the precast parts was that the steel reinforcement had to be bent in order to adapt it to the form of the mould.



Fig. 3. Community centre, Mannheim

**Ultra high performance concrete**

**Dress Your Body, Comondréche (Switzerland)**

**Architecture: Atelier Oi**

The Dress Your Body company opened a production building on the slopes above Lake Neuchâtel in Switzerland with a striking façade made of concrete precast elements (Fig. 4). The south façade, which is well visible from a distance, is the company's representative dress. It is assembled from rectangular concrete elements, creating the