

ALUMINIUM & ARCHITECTURE

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ASR HEAD OFFICE, UTRECHT

THE LIGHT RETURNS

From a gloomy, foreboding, 1970s office block made of concrete emerges a modern, energy-efficient office building flooded with natural light and offering flexible workspaces – within just three years, the headquarters of the insurance company ASR in the Dutch city of Utrecht has undergone a fundamental metamorphosis. As part of the elaborate conversion work, the renowned Amsterdam-based architects' firm Team V Architectuur planned a spectacular glass façade with three-dimensional sawtooth structures and an ingenious sun protection system. The resulting energy savings of around 50% saw the building's certification shoot up to level A. The building was officially reopened in mid 2016. Then, in February 2017, the ambitious conversion project was awarded the prestigious "Nederlandse Bouwprijs 2017" prize for construction. To create the complex, three-dimensional glass façade, Hueck worked with the Oskomera Group to develop a whole series of sophisticated special profiles.

With usable floor space of 86,000 square metres, the ASR head office is currently one of the largest office complexes in the Netherlands. The three-year process of converting the three-wing building, dating back over 40 years and featuring a colossal concrete façade, was carried out alongside the company's ongoing operations. During this time, the architects worked according to the motto "keep what's good, renovate what needs improving, and bring it up to the state of the art". Among other improvements, therefore, the old façade consisting of concrete elements was removed and replaced with an extensive glass façade so that daylight now reaches deep into the building's interior. Open areas with conservatories and green atria form other key elements of the architectural concept. "The impossible dimensions of buildings like the ASR headquarters are a real gift for us as architects," explains architect Jeroen van Schooten. "This allows us to enhance the building's interior with oases of green, whereas additional spaces of this kind would tend to be dispensed with in a new build for cost reasons." Instead of small, dark offices, the building now offers 2,800 flexible workspaces in a healthy and pleasant working environment. A public area with a café, brasserie, restaurant and conference rooms invites people to communicate and relax.

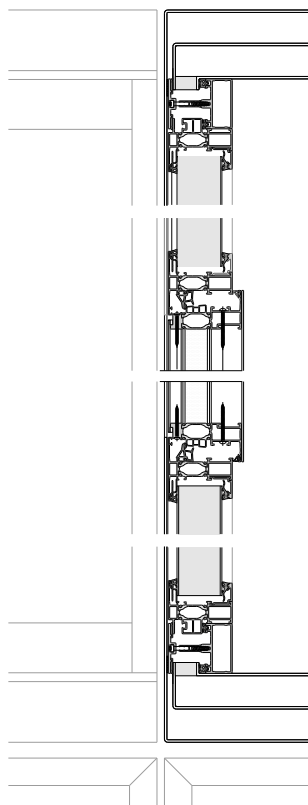
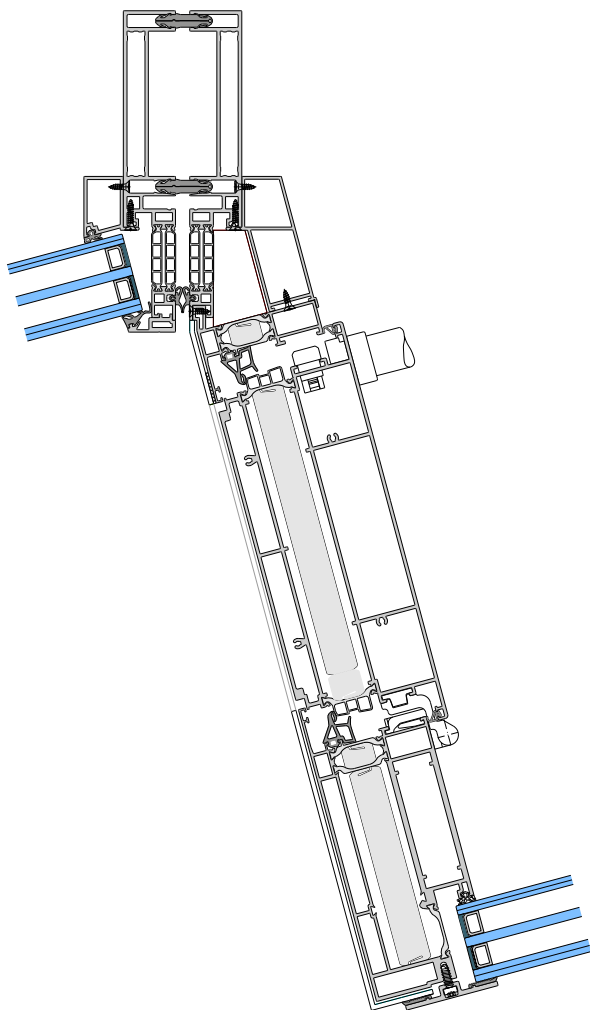
From the outside, the faceted glass façade makes the entire ASR head office sparkle in the sun like a giant crystal. The slanted glass surfaces of the sawtooth structures channel daylight deep into the building's interior. Varying in orientation from storey to storey, the three-dimensional elements give the building a "stacked" appearance that is reminiscent of the original façade. In order to achieve a high level of energy

efficiency, the architects included two different types of façade in their plans: the north façade with traditional, highly insulated triple glazing and a double-shell façade on all other sides. At the same time, their aim was for the spectacular exterior to look the same from all sides.

The storey-height, three-dimensional sawtooth elements of the external shell presented some challenges for the Hueck engineers. In total, 300 tonnes of aluminium profiles were installed here. To achieve this, Hueck's Project Department in Lüdenscheid developed eight insulated and 14 uninsulated special profiles. "This project presented us with an especially high level of difficulty," explains Jeroen van der Roest, a Hueck architectural adviser in the Netherlands. "Following my initial meeting about the project, I first had to make myself a model." Otherwise, he says, he simply wouldn't have been able to get his head around this complex façade. "If you think of each storey as a slice, then the outer edge looks like a saw blade from above." Another challenge for the façade engineers was not only that these "teeth" were staggered from storey to storey but also that numerous corridors had to be relocated.

For the construction on the north side, the triangular "sawtooth faces" protruding from the building not only had to carry the enormous weight of the triple glazing but also had to be loadable and suitable to stand on.

Furthermore, the plans called for inward-opening ventilation sashes on the short face of the triangle.



03 + 04

In the old-fashioned office building from the 1970s, single cavity windows and concrete elements were replaced with an extensive glass façade. Varying in orientation from storey to storey, the three-dimensional elements are reminiscent of the original façade.

05

In order to implement the storey-height sawtooth elements of the outer shell that protrude from the building, Hueck's engineers "combined" the Hueck Trigon Unit L element façade, the Hueck Trigon 60 mullion-transom construction, and the HUECK Lambda 77 L window system.

"In order to solve that, our project design engineers combined three different Hueck profiles, each with their own characteristics," says van der Roest. "The HUECK Trigon Unit L element façade was to be integrated to ensure a weatherproof seal, the HUECK Trigon 60 mullion-transom construction to support the heavy weight of the glass, and the HUECK Lambda 77 L window system to combine all of this and to integrate the ventilation sash." With these special profiles, each individual glazed "saw tooth" was prefabricated to fit perfectly and installed on-site as a complete three-dimensional element. By using heavy steel plates, it was possible to have the façade project 150 millimetres over the edge of the floor, thereby allowing glass weights of up to 600 kilograms to be supported outside of the building's structural floor plan.

The building's excellent energy efficiency is in a large part down to the elaborate double-shell façade on the "sunny sides". Between the thermally insulated inner shell and the "cold" outer shell, there is an interior space that can be walked through on gratings; this walkway can be used to clean the windows and carry out maintenance work. In winter, the still air inside the exterior space acts as additional insulation,

whereas in summer the heated air can move between the individual storeys and is carried away through built-in motorised ventilation slats. The ventilation is controlled centrally via the building management system, as is the sun protection in the form of external louvre blinds between the inner and outer shells.

Thermal insulation is provided on the inside by highly insulated floor-to-ceiling window strips, up to 3.30 metres in height, made up of the HUECK Lambda 77 L window and door series. Here, it was quite a bit easier to implement the sawtooth external façade than on the north side. "After all, we had already solved many of the problems relating to the 3D façade," recalls van der Roest. "We were also dealing with much lower glass weights because the outer shell isn't insulated." The outer shell is ventilated by special ventilation grates on the top of the elements. Here too, the complete elements, measuring 3.30 metres in height and 1.80 metres in width, were prefabricated before being installed at the construction site. ➔



BRIEF INFO

CLIENT:
ASR Nederland NV, Utrecht, NL

ARCHITECT:
Team V Architectuur, Amsterdam, NL

GENERAL CONTRACTOR:
Ballast Nedam, Nieuwegein, NL

METAL WINDOW MANUFACTURER:
Oskomera Gevelbouw B.V.,
Deurne, NL

HUECK CONSTRUCTIONS:
Trigon Unit L, Trigon 60,
Lambda 77 L



01

With its faceted glass façade, the head office of ASR sparkles in the sun like a giant crystal. The slanted glass surfaces of the sawtooth structures channel daylight deep into the building.

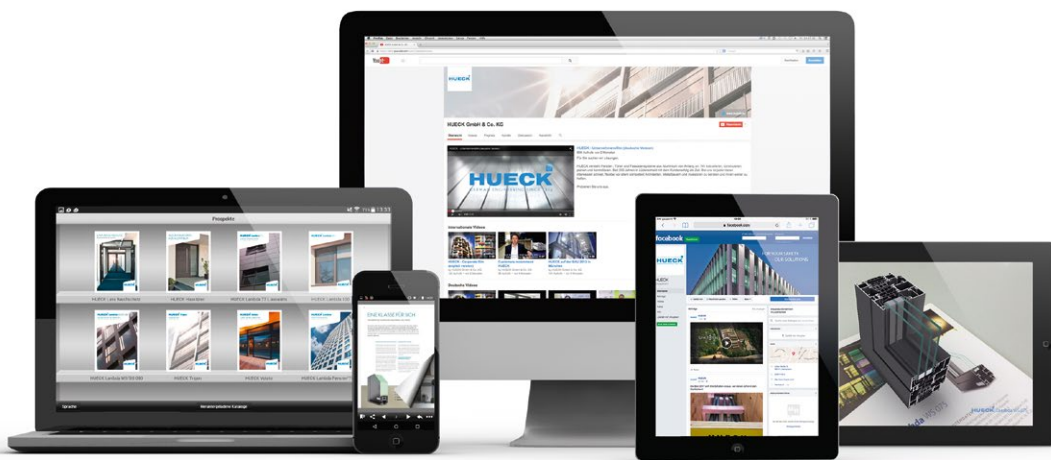
02

Foyers with expansive areas of glazing emphasise the transparent feel of the complex.



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