#13

REPORT

REYNAERS
aluminium

Architectural
Magazine
by Reynaers
Aluminium

LAZIKA MUNICIPALITY

Sculpture on steel legs

FOCUS

Multifunctional is the new smart

STUDENT ACCOMODATION

A landmark for students

#13

Edition Autumn 2013

Publisher responsible:
Birgit Huybrechs
Production:
A10, RSM Co-Publishers

INTELLIGENT BUILDINGS

While in the past a window may once have been merely a way of covering an opening in the façade, a way of letting in daylight, or a way of viewing the outside world from indoors, today's window is an intelligent façade with increasingly smart functions.

The window is no longer a façade element simply added at the last minute, as an afterthought in the construction process. The glass façade has become an integral element in the intelligent façade, a smart element within the total function of a building.

Various disciplines often work alongside each other in order to facilitate the use of new technical innovations in this area. Where matters such as heat storage and ventilation are concerned in particular, innovations are developing at a rapid pace. Glass panels not only take care of climate control, they also increasingly determine the architectural image. Breathtaking tours de force in glass, sometimes in combination with layers of ETFE plastic sheeting, acrylic plastics, and other materials such as steel and aluminium, resulting in spectacular glass churches; in skyscrapers consisting of glass façades stretching hundreds of metres into the sky; in buildings with double-walled glass façades in which the space between both walls serves as a huge heat storage area, forming the axis of the climate control system of the building as a whole; in CO_2-neutral, recyclable houses consisting of triple layers of glass panels that take care of their own energy needs - it is all possible with an intelligent building management system.

Architects and engineers are therefore gradually shifting from state-of-the-art façades to intelligent buildings. These intelligent buildings are still not common in the CIS (Commonwealth of Independent States), but hopefully the trend will also develop soon in this region; it helps to save money and improve returns on investments. Reynaers acknowledges the importance of this requirement, and is constantly innovating in order to develop systems that offer a combination of aesthetic design, optimum stability, high thermal and acoustic insulation.

Utilizing and optimizing the overall functionality of buildings together is and remains an exciting challenge.

Andrey Klimenko
Regional Manager Reynaers CIS
(Commonwealth of Independent States)

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*Max. 2 tickets per person.

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Ski hotel with style

VAL THORENS (FR) – Val Thorens, located in the French Alps, is the highest ski resort in Europe. Hotel Altapura, completed in 2011 compliments the mountain scenery while adhering to the local style. The architects of Studio Arch refined the 'building blocks' of architecture characteristic to this region with staggered façades, adapting it to today's standards. The result is a striking building with all the modern conveniences, including indoor climate control.
Three curtain walls give the façade a harmonic, playful appearance. They are constructed with Reynaers CW 60 Solar system, an integrated photovoltaic curtain wall system that produces energy through the conversion of sunlight - and even artificial light - into electricity. This system features fixing and facing strips specially designed to maximise light entry and minimise shadows on the PV panels. The façades are made of glass and integrated solar panels and reflect the beautiful countryside of Val Thorens. In combination with the luxurious interior, the result is a unique hotel with great appeal that will serve the region well.

HOTEL ALTAPURA
Architect: **Studio Arch, Tresserve**
Client: **Hôtel Altapura, Val Thorens**
Fabricator: **Seraq Aluminium, Montbonnot-Saint-Martin**
Reynaers system: **CW 60 Solar**

Floating lofts

AMSTERDAM (NL) – In Amsterdam's Zuidas development area, five architectural firms collaborated on the development of what is known as the Gershwin, Cluster III district. With its nine storeys, the Django building (block 8) designed by KCAP Architects & Planners is the lowest city block among the surrounding high-rise buildings. Django comprises 108 rental apartments, commercial spaces, a sunken garden, and an underground car park. The commercial spaces on the lower floors stand out with their printed glass façade, featuring a pattern reminiscent of a fringe of tall green reeds. This serves as a plinth for the two separate stone structures, finished in black stone masonry, that house the apartments. These feature large windows and a repeating yet slightly staggered pattern of anodised window frames and balconies that dominate the building's powerful, sculptural appearance.
The Miles building (block 7), designed by architects Bedaux de Brouwer and nominated for the 2012 Amsterdam Architecture Prize, also includes commercial space and more than seventy stylish homes with large outdoor areas and parking facilities. They not only created apartments and penthouses but also town houses and two-storey lofts that float above the water of Amsterdam's Boelegracht. An innovative, sustainable climate control system also enables residents to enjoy energy cost reductions of up to 70%. Reynaers supplied window and sliding door systems for both buildings.

GERSHWIN APARTMENTS, MILES BUILDING (BLOCK 7)
Architect: **Bedaux de Brouwer Architecten, Goirle**
Main contractor: **Era Contour, Zoetermeer**
Fabricator: **Hendriks Geveltechniek bv, Veenendaal**
Reynaers systems: **CS 68, TP 110**

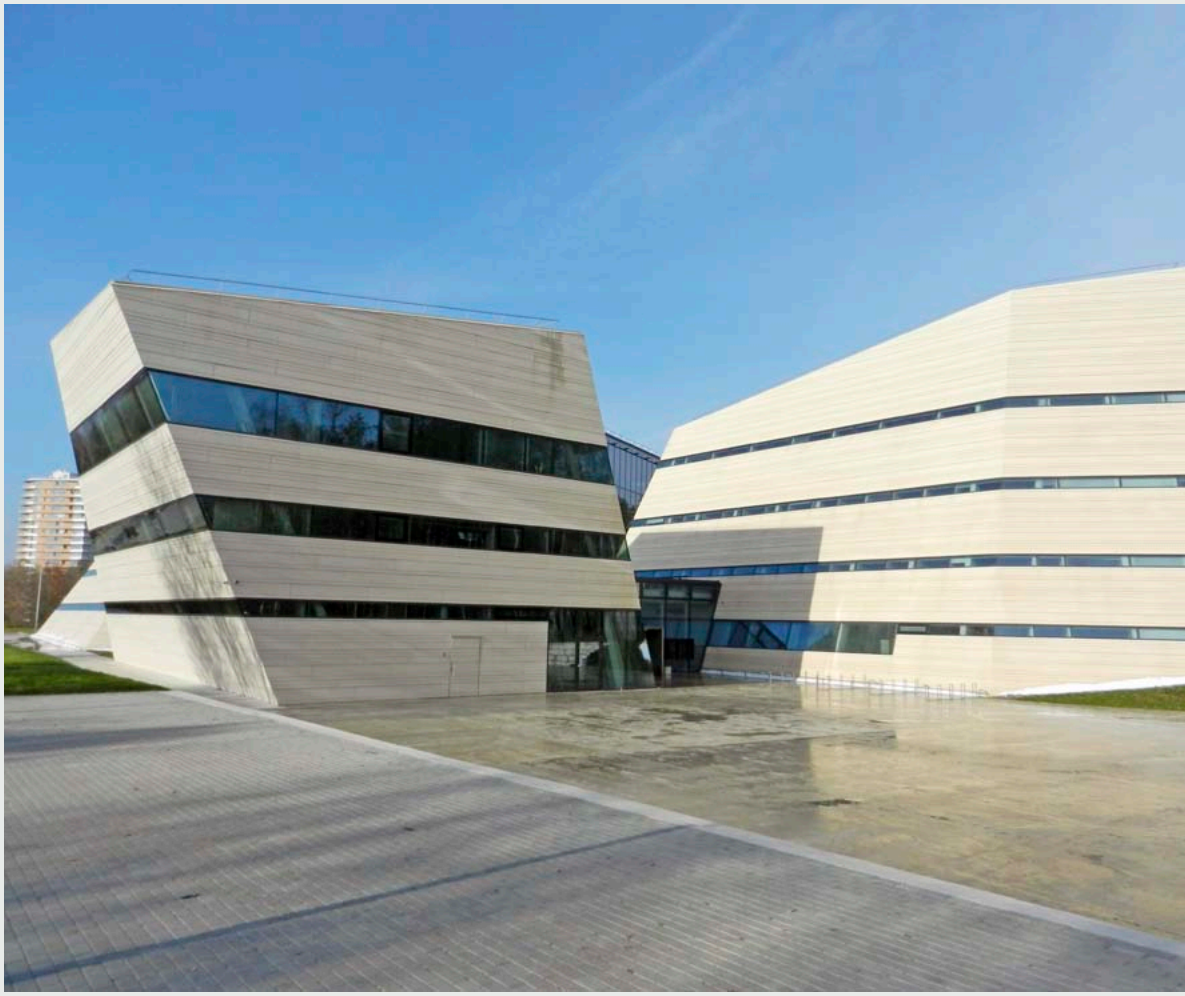
GERSHWIN APARTMENTS, DJANGO BUILDING (BLOCK 8)
Architect: **KCAP Architects & Planners, Rotterdam**
Main contractor: **Era Contour, Zoetermeer**
Fabricator: **Hendriks Geveltechniek bv, Veenendaal**
Reynaers systems: **CS 68, CP 96**


PAUL JEN BORST


LOUK KRAMER

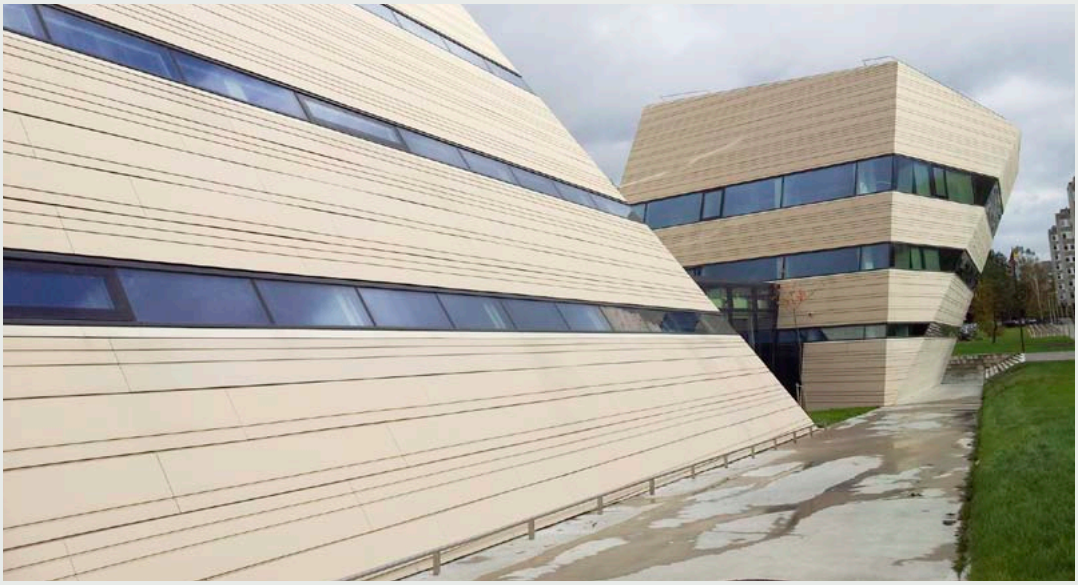
Boulder-like university library

VILNIUS (LT) – The city centre of Vilnius is dotted with Baroque buildings, and the university, one of the oldest in Eastern Europe, is no exception. The central campus is a collection of buildings from the 16th, 17th, and 18th centuries. The new library, designed by Paleko ARCH studija, ushers the university into a new era. The building is designed to facilitate the modern approach to learning and research and forms the first building block of a future knowledge complex on the outskirts of the city. Access to the library is via a spacious paved plaza, recessed slightly below grade. The stone steps along the edges of the plaza call to mind the ascending rows of benches in an amphitheatre and serve a secondary function as an informal meeting place. Unlike the plaza, which is designed as a social meeting place, the three boulder-like building structures serve as beacons of peace and tranquillity. The sloping walls are executed



in a neutral palette and include terracotta and glass. The thin ribbons of glass at the buildings' various levels create a façade suggestive of the horizontal layers of sedimentary rock. From the interior they provide a limited view of the plaza and adjacent intersection, distracting students as little as possible from their studies. Where the building borders a dense pine forest, the façades are made of glass, with narrow profile strips from the CW 50 and CS 68 Reynaers systems providing an unobstructed view. The central hall, which connects the three, four, and five storey structures, consists mainly of glass. The achieved effect is to make the boundary between outdoors and indoors virtually indistinguishable. This is emphasised by the paving that continues from the plaza into the hall. The resulting studio-like space immediately impresses upon the visitor an understanding that the library is not static but rather a dynamic, contemporary institution.

VILNIUS UNIVERSITY LIBRARY
Architect: **Paleko ARCH studija, Vilnius**
Client: **Vilnius University**
Main contractor: **Yit Kausta, Kaunas**
Fabricator: **Duru Sistemos, Kaunas**
Reynaers systems: **CW 50, CW 50 Flush Roof Vents, CS 68**



MULTIFUNCTIONAL IS THE NEW SMART

CORAL REEFS AS UNDERWATER STRUCTURES ARE NOT ONLY AESTHETIC, BUT ALSO MULTIFUNCTIONAL. THEY PROVIDE FOOD FOR FISHES, ARE A SAFE HOME FOR MARINE SPECIES, PROTECT THE SHORELINE AND EVEN PROVIDE LIFE-SAVING DRUGS FOR DISEASES LIKE AIDS. AS ONE OF THE MOST DIVERSE ECOSYSTEMS ON EARTH, CORAL REEFS ACT AS A METAPHOR FOR MULTIFUNCTIONAL, INNOVATIVE AND INTELLIGENT BUILDINGS OF TODAY'S ARCHITECTURE.

Text: Indira van 't Klooster
Photography: Dreamstime, iStockphoto

Beautiful construction of the Crystal Palace in London
↑

The acrylic skin of United States Pavilion
→

Eden Project with self-supporting geodesic domes
↑

Philip Johnson's Glass House
→

Now that the façade has become an integral element in the way a building works, windows are no longer relegated to the last minute details that are given little thought until the end of the building process. Today, specialists in a growing number of different disciplines are working together, enabling them to continually develop new technical innovations. The relevant question is no longer 'What is the architect's intention?' but rather 'What is the building capable of?' Glass is getting smarter, and serving an ever increasing number of functions. We may be under the impression that these are recent developments, but the search for the polyvalent façade and integrated building management goes back to the Roman era.

CUCUMBERS AND GEODESIC DOMES

The suitability of glass structures for harnessing heat has long been known. Roman emperors, for example, grew cucumbers in greenhouses. In the 18th century, Dutch greenhouses already had intelligent climate control systems based on ventilation and temperature control. However, the greenhouse only truly became an architectural challenge when the glass buildings began to be designed to accommodate large numbers of visitors and thus had to serve more than one function. The Crystal Palace, designed by Joseph Paxton for the 1851 World's Fair in London and which served as the inspiration for the Palm House at Kew Gardens, was built in typical 19th century Victorian style, yet functionality was paramount. Crystal Palace had a floor area of 92,000 m^2 with dimensions of 564 x 124 metres, and reached 39 metres at its highest point. The glass and iron structure consisted largely of prefabricated and standardised parts produced in blast furnaces and glass factories. The glass building also featured ingenious ventilation shafts and underground heating systems to regulate the temperature. Since then, especially

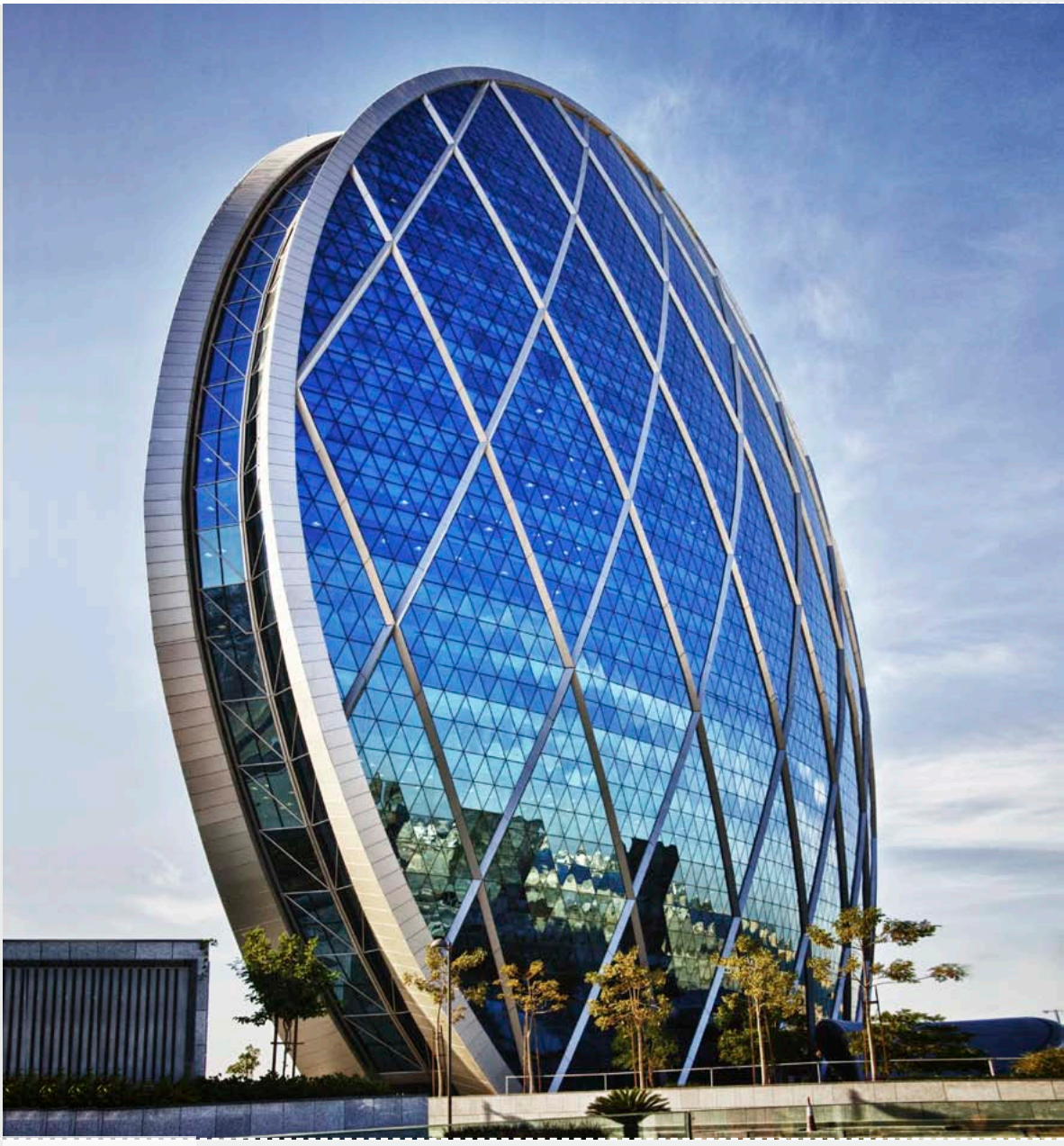
Palm House: Victorian iron and glass structure
←

Metallic screen with moving geometric motifs of the Institute du Monde Arabe
↑

with the introduction of acrylic plastics, breathtakingly beautiful constructions have been created, examples of which include the United States Pavilion in Montreal in 1967 and John Portman's Hyatt Regency House in Atlanta. At the Eden Project in Cornwall, the UK, the greenhouse concept has been taken to new heights. This complex consists of several self-supporting geodesic domes constructed of hundreds of pentagonal and hexagonal panels having diameters as large as nine metres. The frame consists of galvanised steel tubes clad with three layers of ETFE thermoplastic film. Currently the Eden Project has planning permission to build a geothermal power plant that will generate enough heat and electricity for the entire complex and 3.500 households in the immediate vicinity.

SUSTAINABLE HOUSE

But what if you wanted to live in it? In 1920 this idea seemed very far away. Walter Benjamin spoke of it longingly: 'To live in a glass house is a revolutionary virtue par excellence. It's an intoxication, a moral exhibitionism, that we badly need!' Philip Johnson's Glass House from 1948 fulfilled the wildest dreams. This all-glass house, inspired by the work of Mies van der Rohe, builds on the ideas of Paul Scheerbart (1914). The beautiful view of the surroundings and the high construction costs elicited Johnson's famous declaration: 'I have very expensive wallpaper'. This house was far from energy efficient, yet it motivated other architects to take the idea further, searching for more sustainable variants. In 2000, German architect Werner Sobek designed his house, the R128, in Stuttgart. This four-story house is fully recyclable, CO^2 neutral, and energy self-sufficient. The modular façades consist of triple-glazed glass panels with a U-value of 0.4 W/m²K. In Amsterdam, architect Hans van Heeswijk designed a house of his own in 2011. This project made use of heat and cold stor-



The world's first circular skyscraper in Abu Dhabi

↗

WHEN A BUILDING AND A FAÇADE ACTUALLY WORK TOGETHER, WE TALK OF SELF-THINKING MECHANISMS THAT CAN DO VIRTUALLY EVERYTHING

age in the ground, a heat pump and solar collectors on the roof. Sustainability was addressed through an efficient and compact design, good insulation, effective use of available energy, and the use of natural materials.

The pursuit of multifunctional façades and grand architectural success can be seen in high-rise buildings. After all, this is where glass façades, construction, safety, fire regulations, daylight and climate control finally come together. They are both architecturally spectacular and technically innovative. Ultimately, all who design skyscrapers with glass façades are indebted to Mies van der Rohe and the glass tower he envisioned in 1920. Although nowadays we would include many more functions in all those square metres of glass, his design, although never realised, contributed greatly to the belief that such architecture would be the future and it still inspires us today.

CRYSTAL PALACES

The next step is the Crystal Cathedral, based on another design by again Philip Johnson. Starting with a structure consisting of 10.000 rectangular panes of silver glass glued together with silicone adhesive, Johnson designed a glass cathedral that was not only a new interpretation of the Gothic church, but was also capable of withstanding an earthquake measuring 8.0 on the Richter scale. Imagine that: a glass façade being able to withstand an earthquake! Another extra task for the façade emerged: the control of the daylight entering the building.The most efficient way to achieve this is by applying external sunscreening systems. These systems reduce the need for air conditioning without compromising the advantages of daylight entering the building. In 1982 Jean Nouvel found an amazing way of doing just that in the Institut du Monde Arabe in Paris. This building comprises 27.000 metallic diaphragms that regulate the amount of sunlight entering the building. Nowadays we often use louver systems set in aluminium mounted on the outside of the façade, offering the most effective sun shading solution.

MORE FUNCTIONS

In the 1990s, the fusion of botanical systems and high-rise techniques reached a new summit in Norman Foster's Commerzbank in Frankfurt. This sixty-storey building is divided into sections, each with four floors and each with a winter garden. The double-walled glass façade has opening windows on the inside wall. The space between the two walls serves as a massive heat storage system which, utilising the heat storage capacity of the concrete floor, is a key element in the climate control system for the entire building. In Sofia the Sopharma Litex Towers are a good example of how all these improvements can be taken one step further. The Litex Towers are a double-glazed, closed cavity façade, with solar blinds incorporated into the cavity. The outside is a single layer of transparent glass. The inner side of the façade has a transparent layer of tempered double glass. The façade provides optimised heat transmission by using blinds that control UV rays, reflecting them in the summer and using them to help heat the building in the winter.

The concept, called an 'adaptive façade', comprises five working regimes. The buildings have their own meteorological station that reports the changing climate conditions, making it possible to adjust the building's behaviour individually in different parts of the building. At the same time users have direct control over the environment of their office in terms of light, ventilation and heat. The Puerta Venecia (L35 Arquitectos, 2012) and the Lazika municipal building (Architects of Invention, 2012) have also benefited from the knowledge gained in these projects. Today, the double-layered façade has become so familiar that engineers and architects have started looking for new boundaries. Al Dar Headquarters in Abu Dhabi by MZ Architects, completed in 2010, is the world's first circular skyscraper. It has a system that sends the waste in the building directly to a local waste treatment centre for recycling. Technological innovation now goes more deeply into the possibilities for the use of bulletproof glass and the integration of ever smarter building automation. Labs are looking further into the development of façades that store energy or convey information. When thinking about what could happen when a building and a façade actually work together in a close relationship, we understand that we should talk not of buildings, but of self-thinking mechanisms that can do virtually everything. ■

PROJECT

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PUERTO VENECIA SHOPPING CENTRE

FORMS IN A LAGOON

ZARAGOZA, SPAIN

Text: Sander Laudy
Photography: Marçal Font

Puerto Venecia shopping centre, located on the southern outskirts of Zaragoza, is a fairly unique combination of sleek modern forms and an idyllic-looking morphology. The many building volumes that collectively form the complex vary in height, feature different façade materials, and range in shape from slanting to straight to round.

Yet this diversity is never disturbing, because the overall architecture – including the choice of materials and carefully selected colour palette – creates unity. The architectural firm, L35, led by José Ignacio Galán and Jose Luis Martínez, has thus created a coherent, serene visual ambience in which each individual shop in this shopping centre is given a place of its own.

The reference to Venice is reflected in the heart of the complex. Here we find a scenic landscaped lagoon, complete with a fringe of reeds. Around it runs a promenade from which the visitor enters the different parts of the complex. Because the emphasis in the perception of the whole is so explicitly focused on the exterior, the challenge is then to make the inside of the centre as light and open as possible. The concept of the 'indoor street' is a generally accepted structure for shopping centres, but in many cases these spaces appear to be oversized corridors rather than streets. Here it is the careful design of the skylights and façade openings allowing the entry of light that determine the extent to which a design succeeds or fails.

SCULPTURAL LIGHT WELLS

Designing for an environment beneath the Spanish sun has its pros and cons. Control of the incidental sunlight is important to prevent excessive light contrasts. Northern light and

THE CHOICE OF WINDOW AND DOOR FRAMES WAS CLEARLY VERY IMPORTANT SO AS TO GUARANTEE THE OPEN FEEL OF THE INTERIOR

The scenic landscape lagoon has a reference to Venice
↓

Puerto Venecia is a unique combination of sleek modern forms and an idyllic-looking morphology

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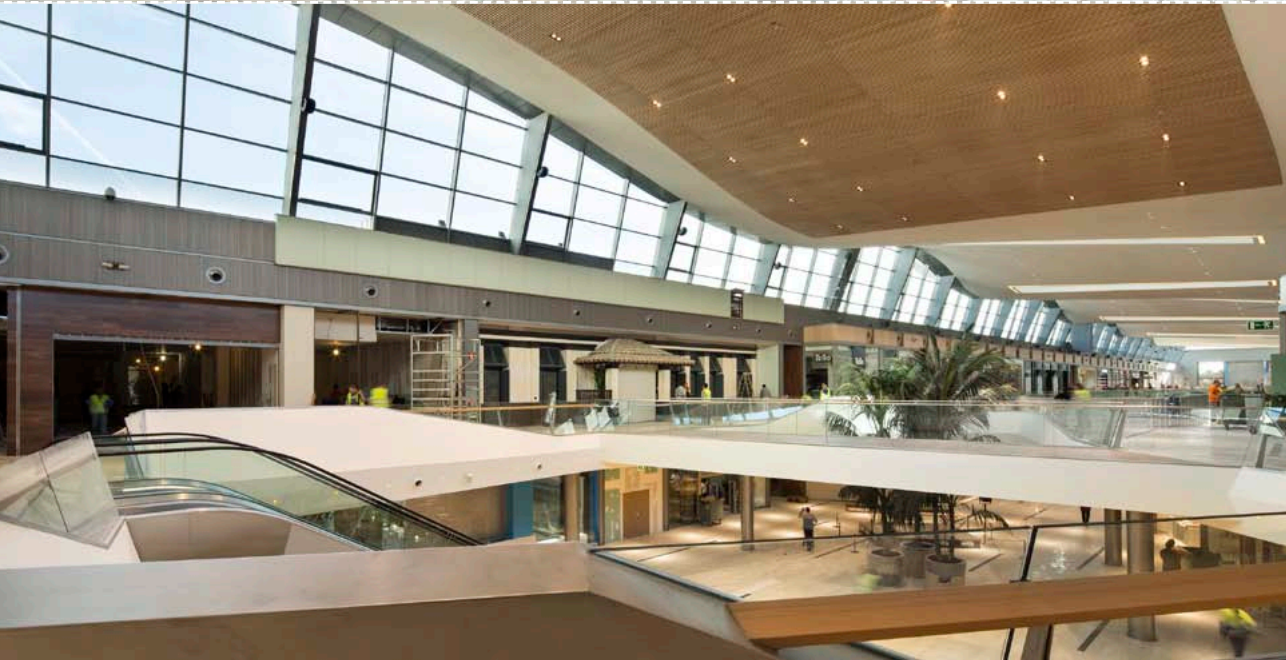
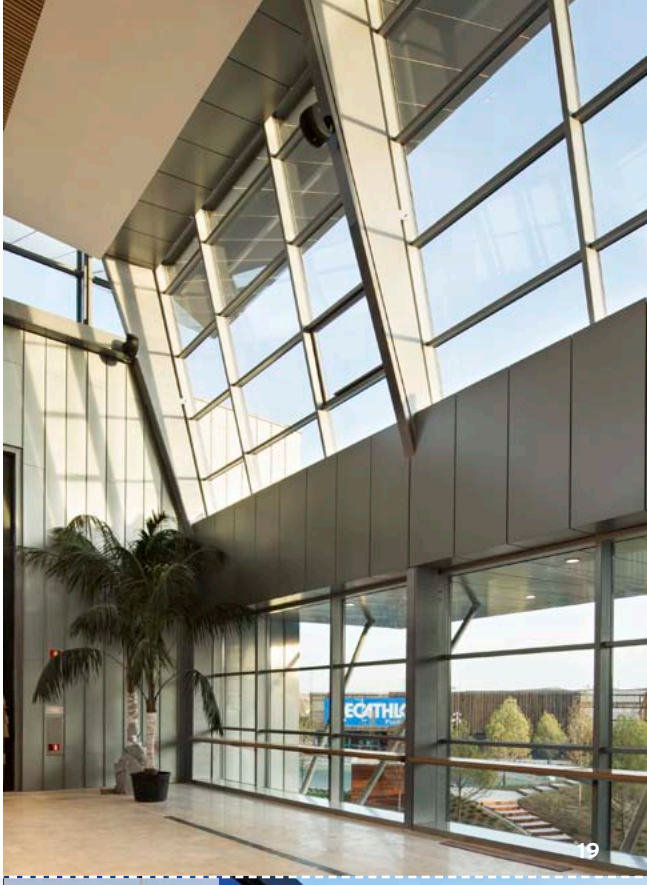
THE ARCHITECTURAL FIRM HAS CREATED A COHERENT, SERENE VISUAL AMBIENCE IN WHICH EACH INDIVIDUAL SHOP IS GIVEN A PLACE OF ITS OWN



indirect light are therefore essential, and in Puerto Venecia this was realised through sculptural light wells and corrugated glass façade surfaces on the north side. For these elements, the choice of window and door frames was clearly very important so as to guarantee the open feel of the interior.

For this reason, Reynaers CW 50 profiles were used for the large façade surfaces of the different curtain walls, such as the striking undulating roof of the main gallery in the northern flank of the complex. This visually-prominent architectural structure naturally required a solution that would minimise aesthetic disruption of the underlying glass surface where the supporting columns coincide with the frames and where the automatically opening windows were to be located. The narrow CW 50 profiles and the large window dimensions work together to create the illusion from the inside that the roof is floating

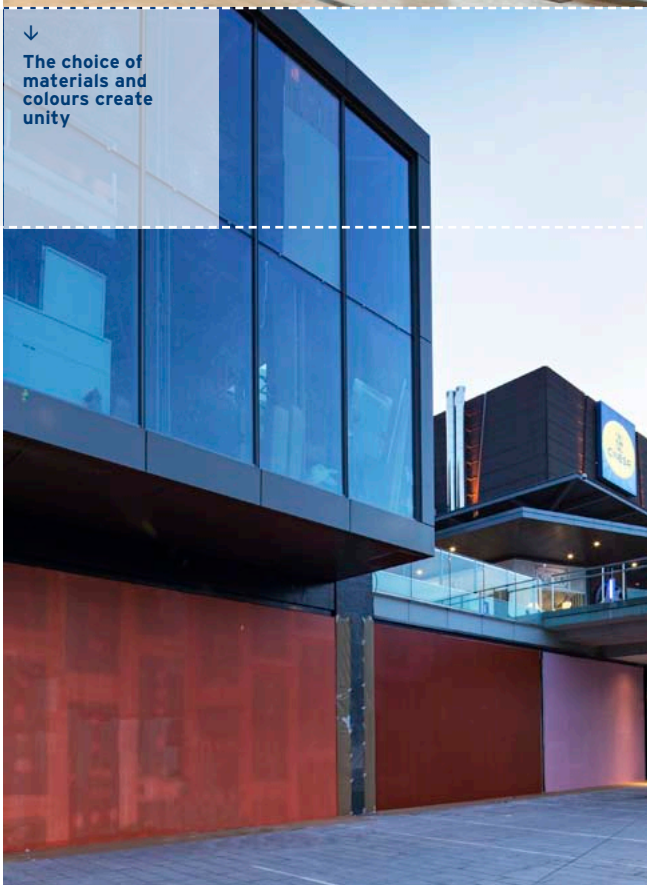


↖ **A series of square light wells are integrated into a flat roof**

↙ **The architects create the illusion that the roof is floating**

↗ **The inclined façade is slightly tilted**

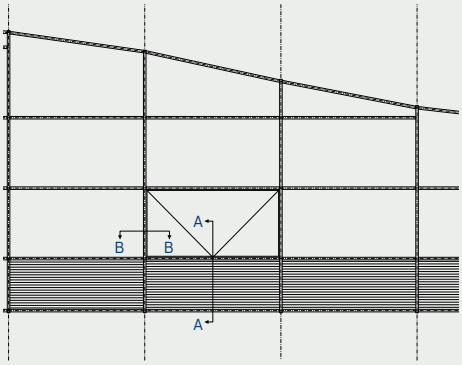
↓ **The choice of materials and colours create unity**



above the clouds drifting by outside. From the outside this building defines the Puerto Venecia skyline and attains a scale that makes it part of the landscape. The slender lines of the frames disappear completely in the reflected sky, partly because the façade is slightly tilted. These aspects reinforce the sculptural quality of this façade.

POINTS OF LIGHT

In the south-east wing of the complex is a block with another indoor street where bringing in natural light has once again served as a leitmotif for the interior design. Here, however, a series of square light wells are integrated into a flat roof. They are



A: Inclined vertical section transom
↓

B: Horizontal section motorized top hung window
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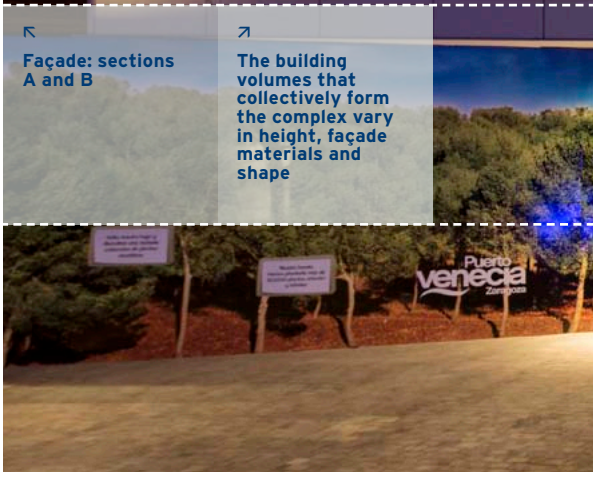
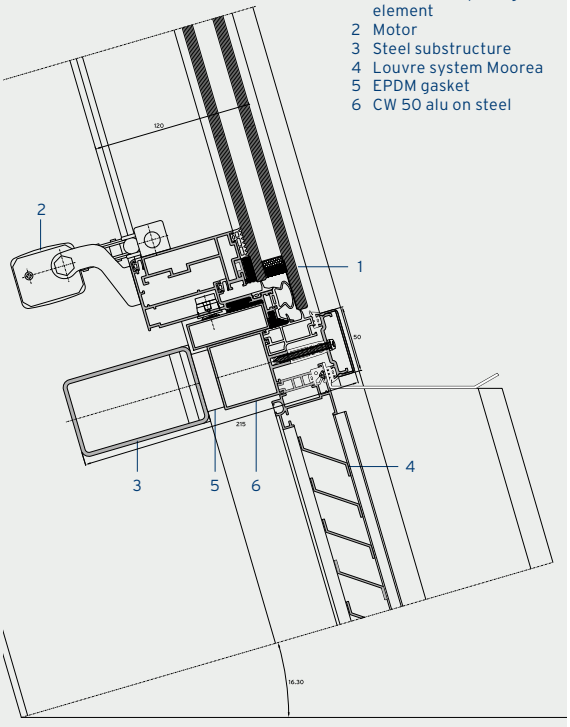
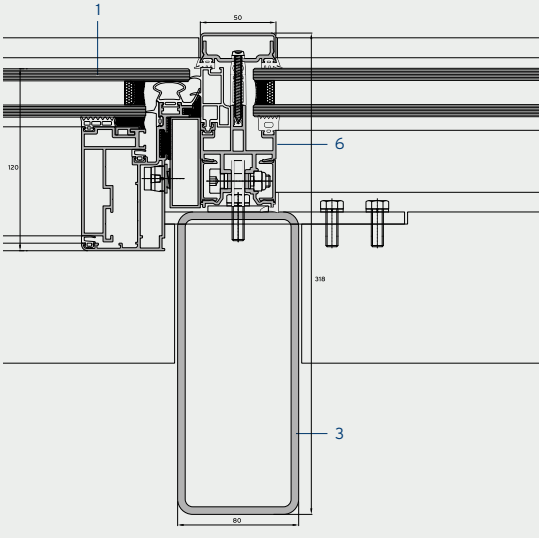
↖
Façade: sections A and B

↗
The building volumes that collectively form the complex vary in height, façade materials and shape



1 Motorized top hung element
2 Motor
3 Steel substructure
4 Louvre system Moorea
5 EPDM gasket
6 CW 50 alu on steel





painted red-orange outside and white inside to maximise reflected sunlight. For days with less sun and evenings, the design includes dozens of small electric lights so these elements can also function as oversized lamps. At the top of these wells, Reynaers CW 50 profiles have again been used and here they promote the sense of uninterrupted contact with the outside, yet in this part of the complex the objective is daylight and not panoramic views.

Those views and the contact with the central outdoor space, the lagoon, are recurring themes found elsewhere in the building, and there, too, Reynaers frames are present, integrated into the clean-lined window surfaces. There, with their naturally anodised look colour (RAL 9006), they reinforce the modern character of the complex yet again. Moreover, they contribute to the fact that despite its fragmented make up and the diverse architectural expressions of its individual parts, the overall concept behind this immense shopping centre always remains clear for the visitor. ■

PUERTO VENECIA SHOPPING CENTRE
Architect: **L35 Arquitectos, Barcelona**
Main contractor: **Eurofund Investments Zaragoza SL, (British Land, London and Orion Capital Managers, Zaragoza)**
Fabricator: **Acieroid, Barcelona**
Reynaers systems: **CW 50, CW 50 alu on steel, CS 59, CS 59Pa/CD, ES 50, Moorea**

PROJECT

SCULPTURE ON STEEL LEGS

LAZIKA, GEORGIA

Text: Viveka van de Vliet
Photography: Nakanimamasakhlisi Photo Lab

LAZIKA MUNICIPALITY

How unique it must be for a city to consist of just one building. For now, that is the case in Lazika, a new city being developed along the coast of the Black Sea in Georgia. The young British and Georgian architectural firm Architects of Invention realised a steel municipal building that consists of a Public Service Hall, a wedding hall, terrace and offices. Through their vision, a floating sculptural building on steel legs arose from the marshland.

The first building to be constructed in Lazika had to be a municipal building, where work on the urban development for the future city could take place. After all, Lazika is intended to become one of Georgia's largest cities. At least that is what the client, the Ministry of Justice of Georgia, is hoping for.

'We wanted to maintain a close connection to the natural surroundings: the wetland environment,' said Niko Japaridze, co-founder of Architects of Invention. 'In these kinds of damp, marshy environments, the traditional huts were built on stilts rather than a foundation. This kept the houses dry, and ventilation was provided from beneath.'

This was the springboard for creating a series of floating objects that hark back to the local architecture in these wetlands. Yona Friedman's 'Spatial City' also served as inspiration. The Hungarian-born French architect built floating cities on massive pillars, an idea put in practice in some of the world's largest cities in and around the 1960s. In the Georgian project we also see various structural volumes which are supported by a steel frame that is integrated into all parts of the design.

The first building in Georgia clad entirely with steel sheeting
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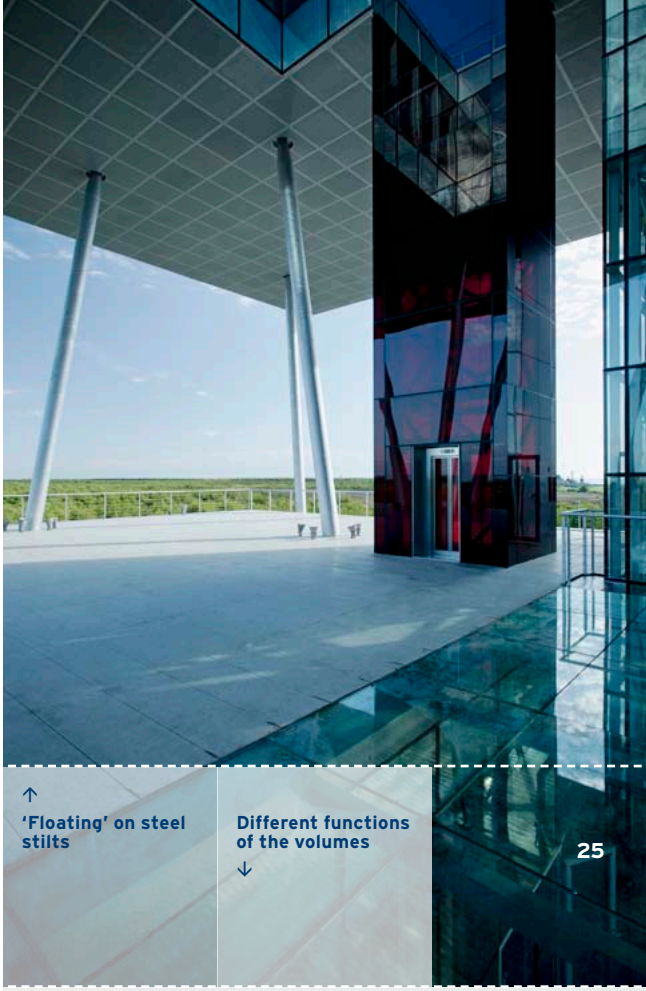


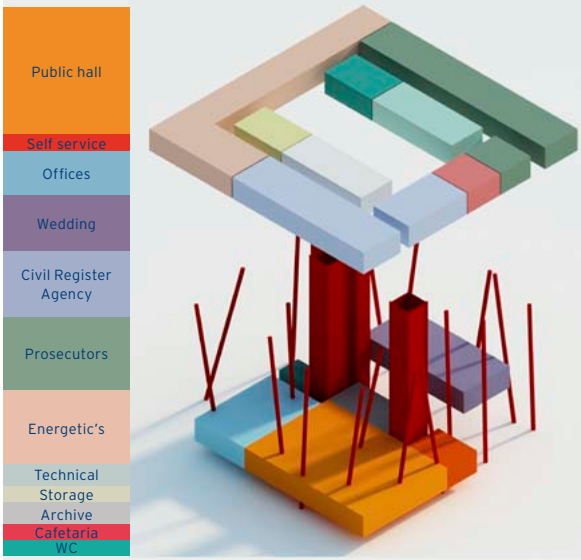
↑
'Floating' on steel stilts

Different functions of the volumes
↓

"The challenge was to create a sculptural building out of a single material. Because time was extremely tight – the 1500 m² municipal building was built in just 168 days – prefabricated steel was the best solution. This is therefore the first building in Georgia clad entirely with steel sheeting, with the structural volumes 'floating' on a steel stilt construction," explains Japaridze. For the three individual volumes, the stairs, and the lift, however, Reynaers's CW 50-SC and CS 77 glass systems are used.

INVISIBLY LINKED VOLUMES

"The starting point was not the mass, but rather the empty space – as a metaphor for the city that is yet to come: the emptiness, where no memory exists to which the mass can relate", says Japaridze. So, instead of



The curved line of the wedding hall resembles a horseshoe
↓

↑
The vertical column of red glass conceals a lift

The main entrance with a public function ↓

↑ The volumes have different transparent colours and lots of daylight

Different volumes are placed on top of each other ←

defining space within a volume, the architects turned it around: volumes are placed in an empty space. The three different volumes function independently of each other and each have a private entrance from the street. Internally, a nearly invisible connection has been established between them – the vertical column of red glass conceals a lift. When you get to the underlying space, it is like looking through a red lens; you experience the emptiness more than the solid form.

The first volume on the ground floor is the main entrance with a public function. The second volume is a wedding hall with access to a large balcony. The third volume 'floats' twenty metres above the ground and consists of offices where the urban development work takes place.

The volumes each took on their own character, depending on the amount of daylight required. To make the public space inviting, maximum daylight was admitted: all four walls are transparent. The curved line of the wedding hall resembles a horseshoe stuck into the building and provides a certain degree of dynamism. "In this 'spaceship' we saw a metaphor for the infinite time/space continuum of marriage," say the architects. The wedding hall is a semi-transparent volume: floor, walls, and ceiling are made of the same material. Because the emphasis in the top layer is on work, we opted for a more enclosed mass of 35 by 35 metres. The perforated steel plates that cover the façade of this volume protect against the intense sun; they allow around fifty per cent of the daylight to enter.

STEEL STILTS IN THE SWAMP

Together with the engineering firm Engenuiti, a solution was devised to sink the eighty piles in the most problematic type of building ground: wetland. The 'Structural Steel Framing Solution,' as they call it, permitted the stilts on which the volumes rest to be 'screwed' into the ground to a depth of 25 metres, eliminating any concerns about potential earthquakes and the expected rise of sea levels due to global warming.

With the establishment of an international port for tankers travelling east to west along the 'Silk Road' and the navy, and a major economic and commercial centre, Lazika should become one of the largest cities in Georgia. But for now Lazika consists of just this lonely yet undeniably striking municipal building. ■

LAZIKA MUNICIPALITY
Architect: **Architects of Invention, London-Tbilisi**
Client: **Ministry of Justice, Georgia**
Constructional engineer: **Engenuiti.com, London / Progresi.com.ge, Georgia**
Main contractor: **Atak Engineering, Anagi Ltd.**
Fabricator: **LG Glass, Tbilisi**
Reynaers systems: **CW 50-SC, CS 77**

↑
View from the top volume

Facade system CW 50-SC, mullion with ix of 2690 cm⁴
↙

↗

Without any future development, the Lazika building will stay lonely at the shore

THE 'STRUCTURAL STEEL FRAMING SOLUTION' PERMITTED THE STILTS ON WHICH THE VOLUMES REST TO BE 'SCREWED' INTO THE GROUND TO A DEPTH OF 25 METRES

PROJECT

MANCHESTER, UNITED KINGDOM

Text: Andrew Guest
Photography: Jill Tate

A LANDMARK FOR STUDENTS

STUDENT ACCOMODA-TION

As the number of students in higher education in the UK steadily increases, so too does the need to provide them with accommodation. Once upon a time universities themselves built 'halls of residence' but now the private sector has a growing share of an ever more competitive market. 'Student Castle' is a new company specialising in student accommodation with a commitment to 'change the perception of traditional private student accommodation by meeting 21st century student aspiration.' 1 Great Marlborough Street is its second scheme in the UK.

With approximately 110.000 students over its four universities Manchester is said to have the highest student population in Europe. By locating in the city centre what they believe is the tallest student accommodation in Europe, and what is definitely the third tallest building in Manchester, 'Student Castle' have certainly made their mark. This 37-storey mark could easily have been a crude disfigurement, not just of the immediate location but of the whole city itself, but architects Hodder + Partners have sculpted an elegant solution which is strong and confident and at the same time carefully stated.

The tight site is immediately adjacent to Oxford Road station and the viaduct that carries the main line railway through the city. At ground level there is a street pattern of largely 5-storey 19th century red-brick industrial buildings, many converted to a wild mixture of apartments, clubs and bars, and through this the River Medlock winds its secretive course through the city. The base of the building is formed of a six-storey plinth which occupies the full 22 meters depth of the site, and addresses the heights of the railway viaduct and the adjacent buildings to the east in New Wakefield Street. The majority of the building is placed above the plinth in a narrow structure that occupies less than fifteen

The mass is presented in a cluster of four towers each rising to a different height
←

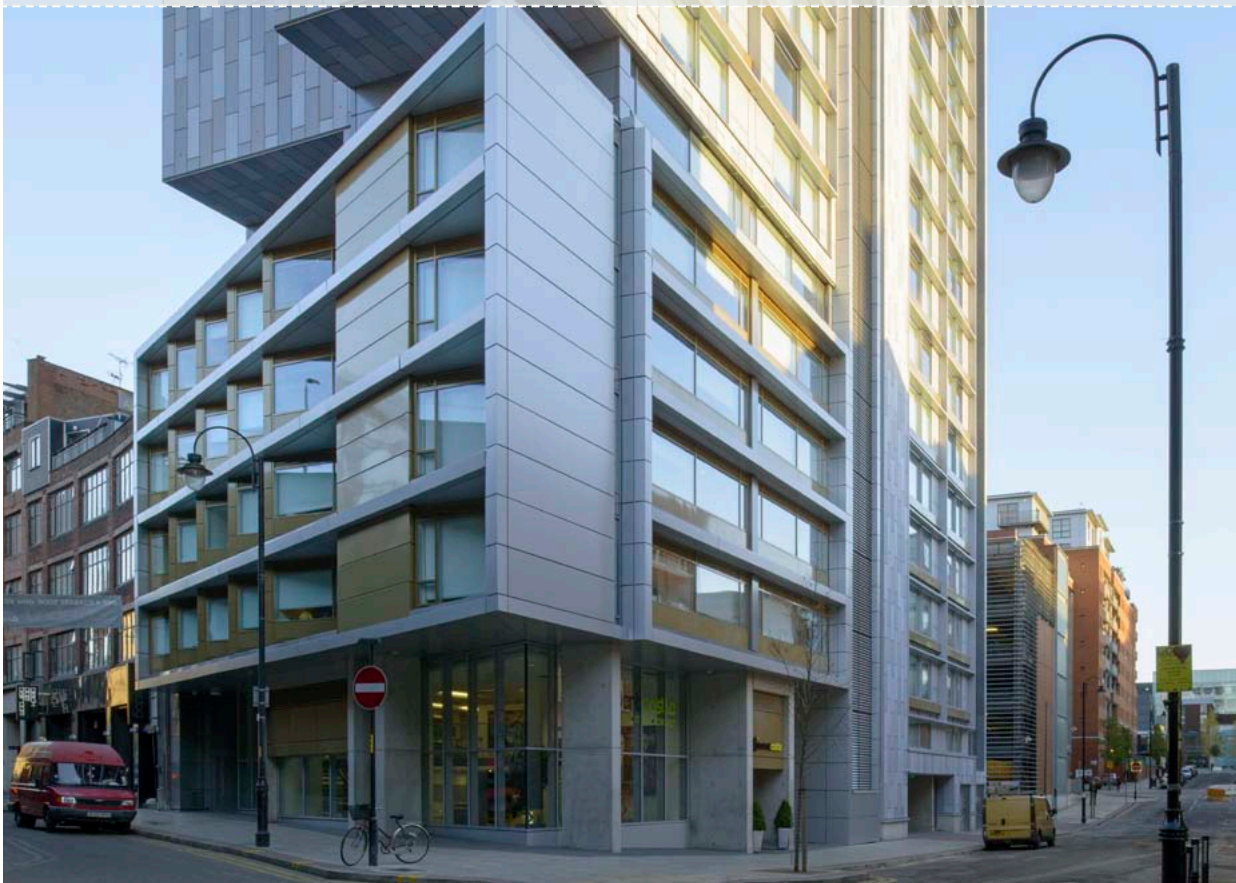
metres of the site's depth, facing east-west, parallel to Great Marlborough Street. The thin profile that the building presents to the north and the south, and the fact that the mass is presented in a cluster of four towers or slices each rising to a different height, all reduce the building's potential dominance of its site. This 'shearing' of the mass is underlined by the architects ordering the windows that light the lift lobbies and the ends of the corridors on each floor in continuous vertical lines which mark the division between the four towers on each face of the building.

MULTIPLE FACES

Hodder + Partners have worked hard to give the multiple faces of the building interest and dynamism. This is achieved partly by deeply profiled curtain walling and the careful organisation of the various components of windows, aluminium panels and room vents using the full capabilities of the Reynaers CW 50 and CW 60 systems, but also by the selective use of bronze-finished panels to relieve the dominant palette of grey. The most distinctive feature of the building's external form is the soft pattern of 450mm wide

The base of the building is formed of a six-storey plinth
→

ARCHITECTS HODDER + PARTNERS HAVE SCULPTED AN ELEGANT SOLUTION WHICH IS STRONG AND CONFIDENT AND AT THE SAME TIME CAREFULLY STATED



THE CONTRAST BETWEEN THE STUDENT ACCOMODATION ON 1 GREAT MARLBOROUGH STREET AND THE SURROUNDING BUILDINGS IN MANCHESTER IS REMARKABLE


Manchester Oxford Road

ceramic tiles which clad the extensive unbroken planes on all sides of the building. Made up of a random disposition of only four colours, this has the effect of merging the building into the Manchester skyline.

An ingenious internal configuration uses eleven different room or apartment shapes to provide a range of accommodation types for 540 students. Rooms are cleverly planned, with big windows - and big views. None of the windows can be opened (each room being separately ventilated) but the building still gained a BREEAM 'Very Good' classification, partly due to the extensive use of air-source heat pumps and heat exchange for both cooling and hot water, as well as Reynaers CS 68 high performance three-chamber window system for insulation and air-tightness. Vision 50 doors provided on the ground floor are integrated into a 24/7 security control system where all users gain access through doors and into lifts by a numeric security system.

Although Manchester's skyline is already pierced by a variety of smaller towers rising above Victorian mills, factories and insurance company headquarters, 1 Great Marlborough Street is a new feature on the Manchester skyline that marks a new phase in the development of the city, putting a new economy at the top of its agenda. ■

STUDENT ACCOMODATION 1 GREAT MARLBOROUGH STREET
Architects: **Hodder + Partners, Manchester**
Client: **Student Castle, Manchester**
Main contractor: **Shepherd Construction, Manchester**
Façade Engineer: **Cladtech, Farnborough**
Reynaers systems: **CW 50, CW 60, CS 68, ES 50, Vision 50**

PROJECT SOLUTION

- BREEAM 'very good' label for sustainable buildings

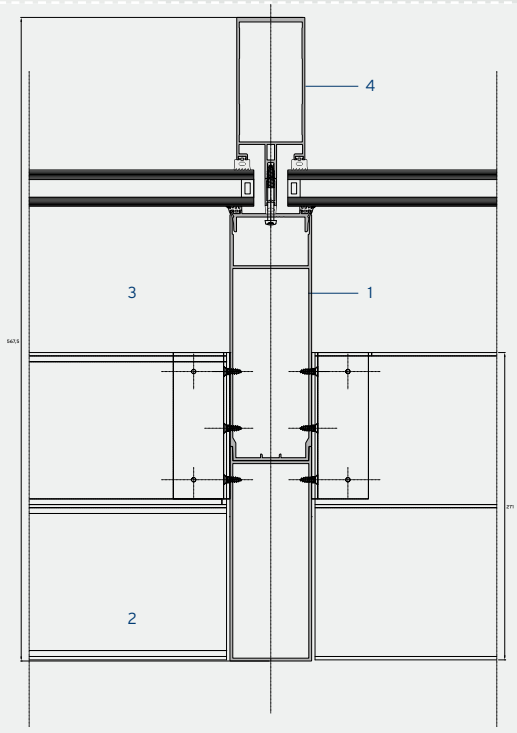
Systems:
- Combination of CW 50 and CW 60 relative to specific load requirements
- Windows: ES 50, CS 68
- Doors: Vision 50

Project description:
- Bespoke mullion cap with a depth of 405 mm
- Bespoke capping to create flush look of the aluminium panels with the curtain wall cap profiles
- A gap was included underneath the bespoke capping to assist with the cleaning strategy of the building
- Wind loads on the project of up to 2000 N/m²

Glazing:
Various glass sizes:
- 2665 mm x 1300 mm
- 2110 mm x 2385 mm
- 3200 mm x 1650 mm

Horizontal profile section transom A
↓

1 Bespoke solution face cap transom
2 Bespoke solution face cap mullion
3 Cavity
4 Transom
5 Terracotta tile rain screen
6 Flush effect



↑

Accomodation with a 21st century student aspiration

Bespoke cap profiles ensure that the insulated aluminium panels glaze flush with the curtain wall cap profiles

↓

NARVIL HOTEL

SEROCK, POLAND

Text: Maciej Czarnecki
Photography: Piotr Kopyt

NATURAL ARCHITECTURE

The Narvil Hotel is a new luxurious recreational complex, built in the small city of Serock, forty kilometres from Warsaw. One of the important aspects of the investment is its location within a unique landscape. The Narvil hotel is situated by the Narew River, near Zegrzyńskie Lake and is surrounded by an oak and pine forest. There are also other holiday resorts and beaches nearby, which have been the preferred holiday destinations of Warsaw residents for many years.

The design of the KM Rubaszkiewicz studio was realised between 2010 and 2012. The facility was designed by architects Konrad Rubaszkiewicz and Monika Ambrożej in cooperation with architects Anna Wilk and Rafał Pieton. The Narvil hotel is characterised by its wide range of services, its luxurious standards, and the high quality of its furnishings. It offers its clients a wide range of attractions. The hotel part consists of 332 rooms and apartments. There is a large swimming pool with saunas, SPA parlours, and a lounge section. The complex offers various forms of sport facilities such as a gym, squash, bowling, and billiards. The extensive food and beverage services include a cafe, a restaurant, and one large three-floor banquet restau-

THE DYNAMICS OF THE CONSTRUCTION HAVE BEEN HIGHLIGHTED WITH THE WHITE COLOUR OF THE ELEMENTS BETWEEN WINDOWS

rant which can accommodate up to 450 people in a 600 m^2 area at one time.

The Narvil is also a large conference centre which offers all services necessary for various kinds of conferences, seminars, training sessions, and other events. The complex consists of 32 conference halls situated on three floors. The largest has an area of 1,650 m^2, is six metres high, and can be divided into six smaller rooms. The conference section is equipped with all necessary appliances and multimedia systems.

In the vicinity of the complex there are tennis courts and a multi-storey car park. Green areas around the hotel allow guests to relax and spend leisure time surrounded by natural landscapes. A beach is situated at the bank of the Narew River. There are plans for the construction of a marina in the coming years, which will enable guests to enjoy water sports.

The area around the project has great potential. In 1963, a large impoundment lake was created at the convergence of two rivers. It became known as Zegrzyńskie Lake. In the years that followed, the area around the artificial lake was built up with a multitude of recreational centres, marinas, and sports facilities. Many of them no longer able to fulfil their primary functions after all those years. Some have been

The use of natural materials are complemented with green roofing
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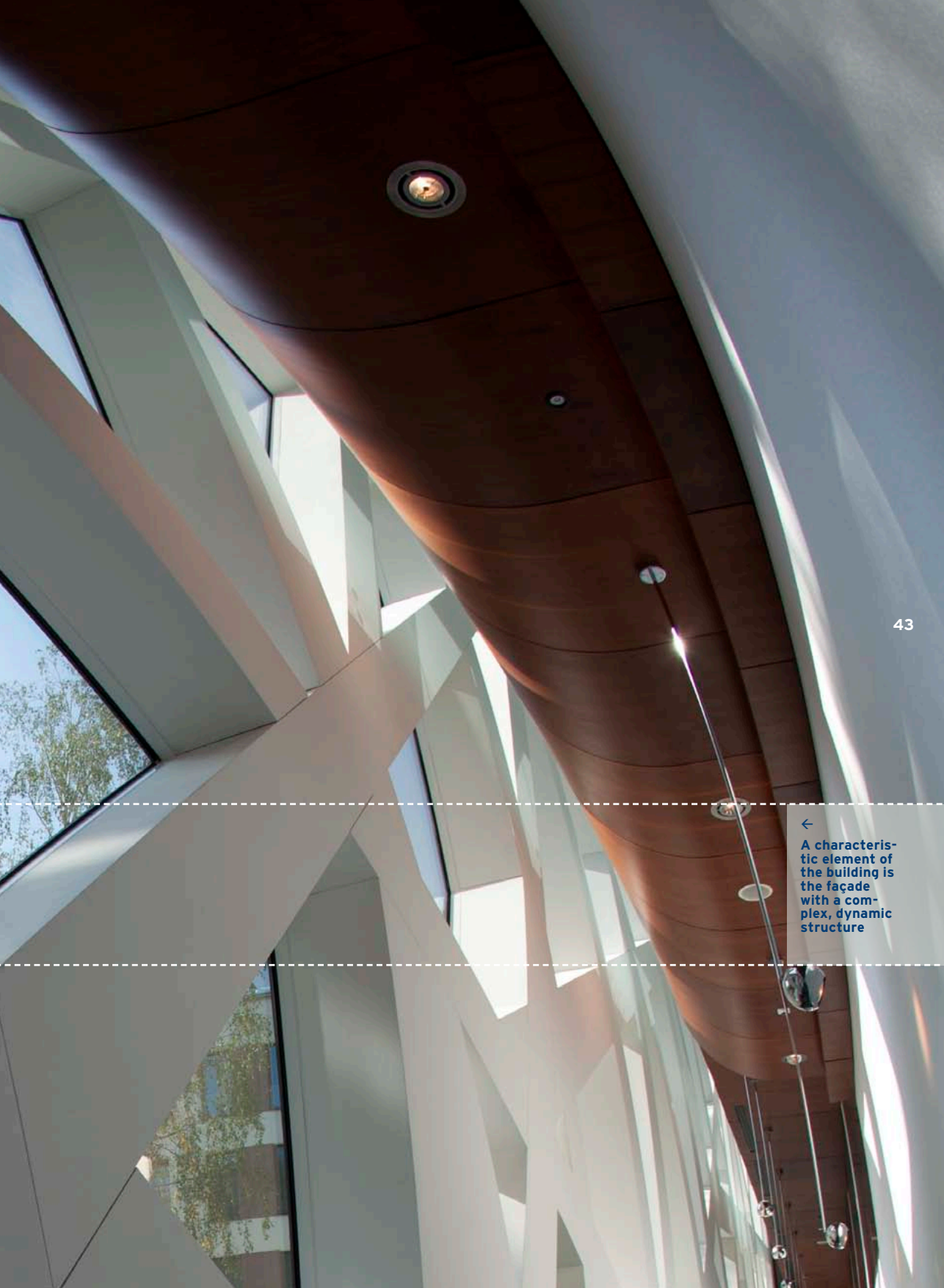
THE GEOMETRIC TEXTURE OF THE FAÇADE WAS INSPIRED BY TREE BRANCHES



←
A characteristic element of the building is the façade with a complex, dynamic structure

↑ The fusion of nature and architecture

A CHARACTERISTIC ELEMENT OF THE BUILDING IS THE FAÇADE WITH A COMPLEX, DYNAMIC STRUCTURE

closed, some demolished, and the rest are still functioning but offer a lower standard of services. A new hotel may presage the future reconstruction of the tourism potential of the area. It is certain to be an inspiration for other investors.

The Narvil hotel boldly clashes with the natural landscape. Its architecture could not be further from the local character. Only remote connotations with the modernist style of the nearby recreational centres can be observed. The hotel is much more modern in style than could have been expected by contemporary projects in the area. The architects have processed fashionable worldwide architectural forms in an original manner, at the same time retaining a significant dose of restraint. They have utilised modern technology without forgetting the unique natural pattern of the area.

ORGANIC FAÇADE

A characteristic element of the building is the façade with a complex, dynamic structure. According to the main design assumptions, it constitutes a reflection of the forest. The geometric texture of the façade was inspired by tree branches. The use of this organic structure allowed the designers to clearly contrast the generally-accessible conference and recreational section from the residential wing of the building. The construction of such a complex glazing form required advanced technology and perfect mastery of the details.

An important element of the design was the clear separation of the organic structure from the simple forms utilised in other parts of the building. The dynamics of the construc-

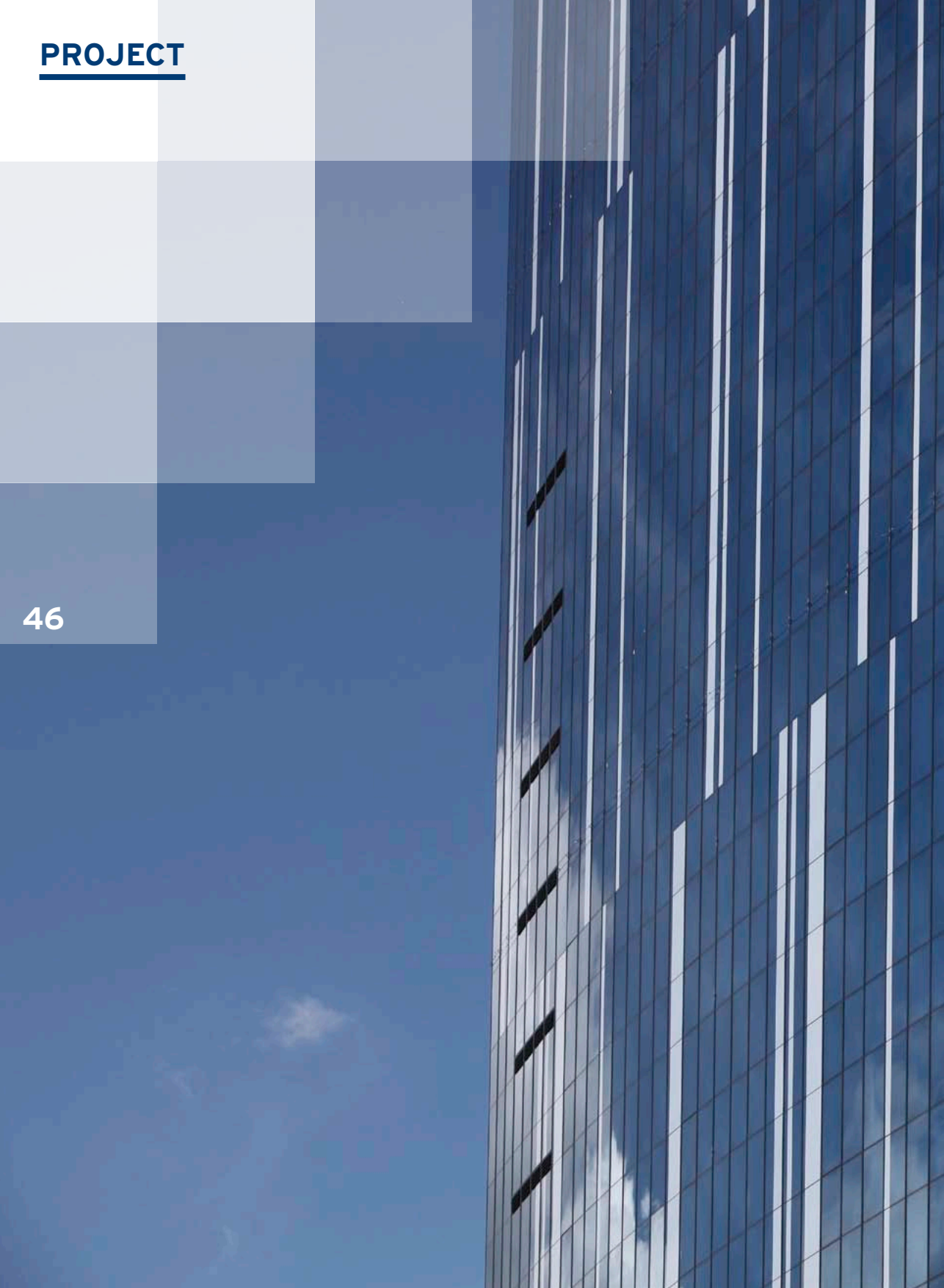
↑
Fashionable architectural forms

tion have been highlighted with the white colour of the elements between windows. Other parts of the building possess a simple pattern of windows, or become a background for such an expressive form by being collared in darker tones. In order to further highlight the horizontal composition, large horizontal glass panels and transparent glass railings have been used, which on the arches of the terraces are composed of bent glass.

The Narvil hotel has been constructed with the use of natural materials. Stone, wood, glass, and concrete are complemented with green roofing, terraces overgrown with natural flora, and special shaping of the surrounding landscape, which allowed the fusion of nature and architecture. Many old trees have been preserved. They are visible from inside the building thanks to the transparent façades. As an effect, the use of advanced technologies allowed emphasis of the qualities of the surrounding natural landscape, which is especially significant in the case of recreational and holiday facilities. ■

NARVIL HOTEL
Architect: **KM Rubaszkiewicz Sp. z o.o., Warsaw**
Main developer: **Budimex S.A., Warsaw**
Fabricator: **Bogard Ryszard Szulc i Wspólnicy, Warsaw**
Reynaers systems: **CW 50, CW 50-SC , CS 77, CS 59Pa, CP 155-LS**

PROJECT



BUSINESS CENTRE IN FAÇADE SUIT

101 TOWER

KIEV, UKRAINE

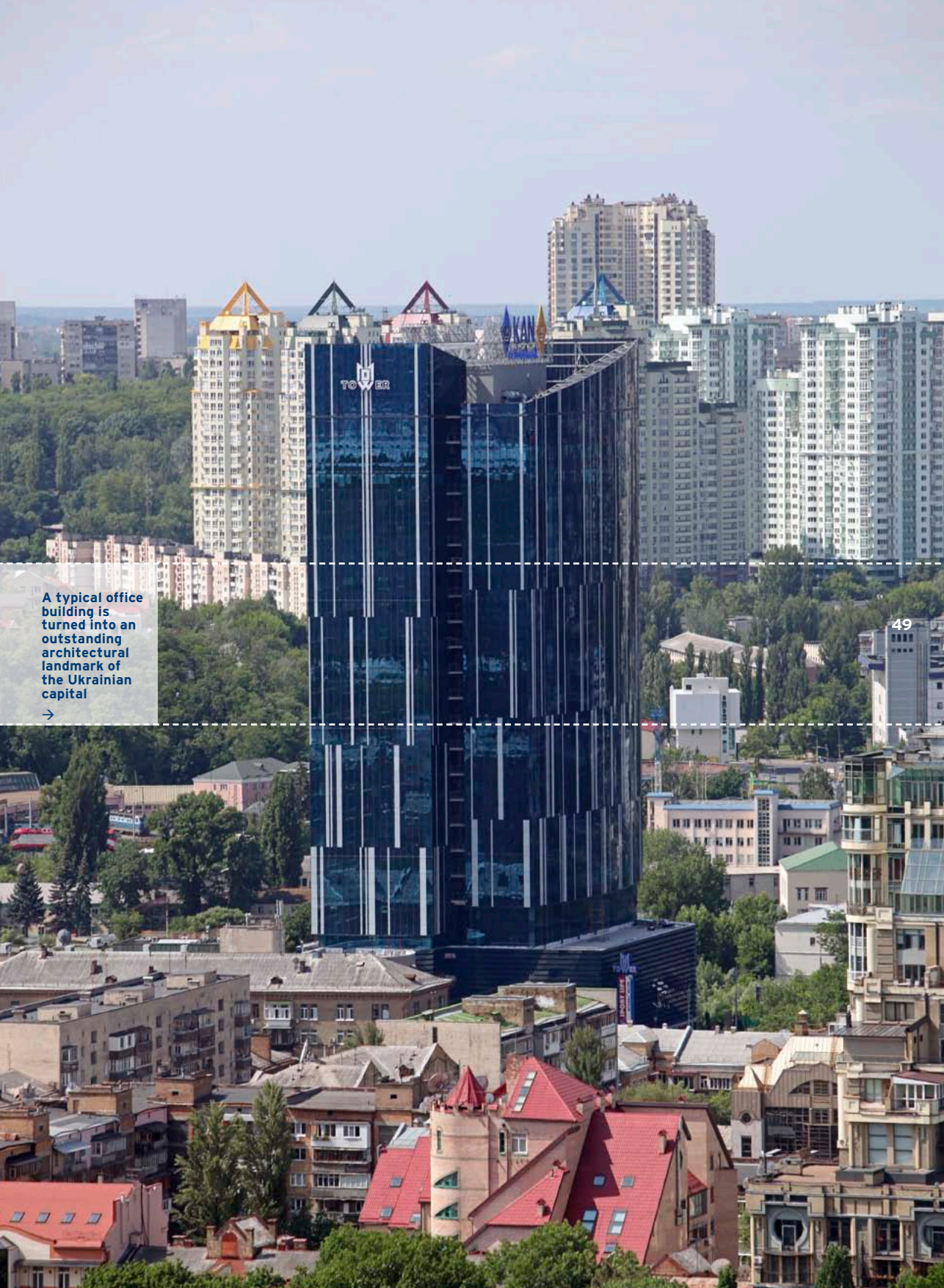
Text: Kseniya Dmytrenko
Photography: Alexander Koval, Oleg Gerasymenko

Located not far from the historical quarter with the National University and Botanical garden, the business centre 101 Tower successfully combines in its design functional and aesthetic properties. Compact and elegant, the building encompasses 61,850 m² of total floor area and offers plenty of public space for its inhabitants as well as outside visitors, including a restaurant, fitness centre, bank, and parking facilities. The special feature of the centre is its glass and aluminium façade: equipped with a unique pattern of silvery strips, it turns a typical office building into an outstanding architectural landmark of the Ukrainian capital.

The tower had to comprise 32 floors and a five-level underground car park. However, as the building lot was located within the Lybed River floodplain, the initial plan was rejected due to the high cost of construction works. Finally, the aboveground car parks were incorporated into a high-rise volume of 27 floors standing on a six-storey stylobate (the top step of the stepped platform on which temple colums used to be erected).

From the viewpoint of interior layout, 101 Tower is a typical office building, designed with the maximum efficiency of floor area. The centre comprises a functional core with ten elevators and blocks of bathroom units. Each storey contains 1,500 m² of flexible office space with various possibilities for

The building is wearing a stripped blue suit
↓



A typical office building is turned into an outstanding architectural landmark of the Ukrainian capital
→

THE CAR PARK IS COVERED WITH GLASS IN AN ULTRAMARINE TONE SO THAT IT FITS PERFECTLY INTO THE BUSINESS APPEARANCE OF THE BUILDING

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The high-rise volume of 27 floors is standing on a six-storey stylobate

inner division and rental. Two scissor stairs were also incorporated in order to cut down the area of the functional premises of the building.

Despite its strict economy, the tower is perceived as an open and lively space not only by its inhabitants but also by outside visitors. Entering the building through a revolving door, one arrives in the transparent hall with a gorgeous empty area and a calm combination of grey, white, and silver surfaces. The exterior is visible in its entirety thanks to a glazed curtain wall. There is a cosy corner in which to stop and rest, and there is also a restaurant, a bank, a florist's and a beauty salon. The building attracts additional visitors with its 3,500 m² fitness centre on the sixth floor, which includes a 25-metre swimming pool among other sport and leisure facilities. The conference hall on the seventh floor makes it a hospitable place for organising large corporate and public events. The multi-level car park for 259 vehicles is also available for guest use.

UNIQUE FAÇADE

With plenty of public and service premises, the tower has certainly enlivened the marginal storage zone with nearby old industrial buildings and a heating plant. However, the developers also aimed at creating distinguished architecture features for the building, which could be achieved through a unique façade appearance. Initially there were about ten versions of façade design; ultimately, an ultra-modern concept was chosen, proposed by architecture group Archimatika and developed by architectural firm A.Koval The material and engineering solution of fabricator Evroviknobud was chosen through the highly competitive tender procedure.

The curtain wall systems used on the façade are considered to be the optimal choice for this type of building. Structural, energy-efficient glazing with top hung, outward opening windows provides safety and at the same time does not limit an architect's creativity. It was a challenge to put the eightteen opening parts on each floor, with a weight of 300 kg per window. The main challenge, however, was to design silvery strips spread across the façade in an irregular pattern. Searching for a solution, the fabricators finally rejected a previously used version with blind cassettes. Instead, the strips were painted onto the outside of the installed glazing using the screen printing method. On one hand this made it possible to pursue an outer visual effect of rhythmical strips, whilst on the other hand maximising the view through the façade from within the building (creating a vertical louver effect).

The glazing of the stylobate is of a different type: it combines vertical and inclined glass planes reflecting the diverse surroundings of the building. The car park is covered with glass in an ultramarine tone so that it fits perfectly into the strictly business appearance of the building. During the day the impression that the building is wearing a stripped blue suit makes it an attractive newcomer near the central railway station, whereas at sunset the mass of the façade gradually disappears and only 'northern lights' are left shimmering in the night. ■

101 TOWER BUSINESS CENTRE
Architects: **Architecture office A. Koval, architecture group Archimatika (façade concept), Kiev**
Investor: **K.A.N Development, Kiev**
Contractor: **K.A.N Stroy, Kiev**
Fabricator: **Evroviknobud, Kiev**
Reynaers systems: **CW 50, CS 77**

↗
The building has a unique façade appearance

AT SUNSET THE MASS OF THE FAÇADE GRADUALLY DISAPPEARS AND ONLY ‘NORTHERN LIGHTS’ ARE LEFT SHIMMERING IN THE NIGHT

The folding door can be stored completely out of the way →

NEW FOLDING DOOR

NEW

People are continuously looking for new ways to increase their living space, or at least give it the feeling of being bigger. The innovative new CF 68 folding door system makes that possible. CF 68 is the smaller sibling of the CF 77 system. It has numerous opening possibilities, similar to CF 77, but has a maximum height of 2.5 metres as opposed to the three metres possible with the CF 77.

Natural light
CF 68 allows you to optimise your space, because when open, the folding wall can be stored completely out of the way, unlike a standard sliding door. This lets in large amounts of natural light, and it makes outdoors and indoors seem like a single transparent whole. As a result, CF 68 is perfectly suited for use in living rooms as well as in restaurants and bars with a terrace.

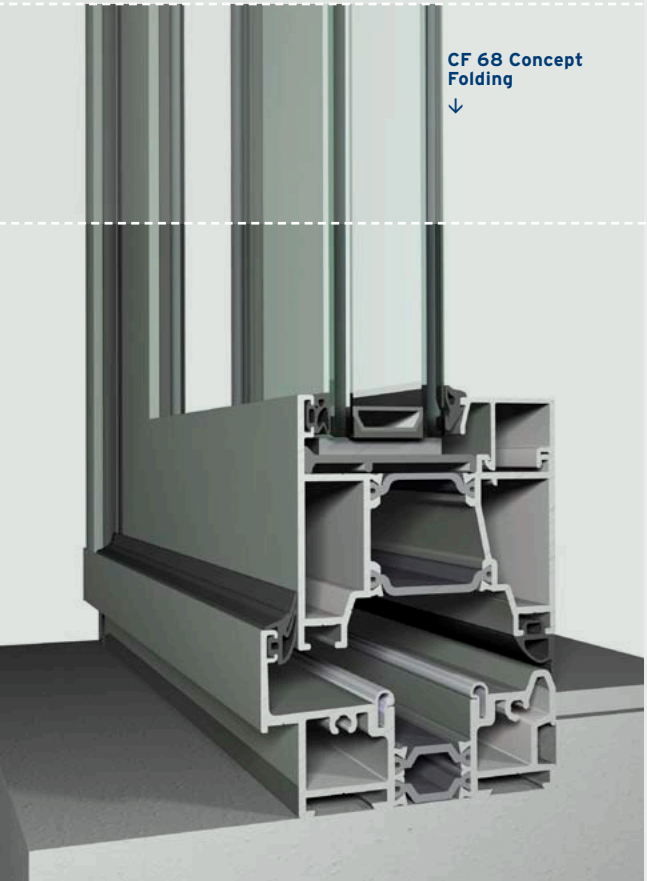
THE FOLDING DOOR WITHOUT INTERRUPTING THE STREAMLINED LOOK OF THE FOLDING SYSTEM

Aesthetic design combined with performances
CF 68 has an aesthetic and elegant design. The locking system makes it possible to use the first panel of the folding door as an entrance without interrupting the streamlined look of the folding system.

In terms of thermal performance, CF 68 does just as well as the CF 77 system. The system provides a high level of thermal insulation, with a Uf value as low as 2.25 W/m²K. Both double and triple glazing are possible with a glass thickness of between 24 and 52 mm.
In addition, the CF 68 system offers new profiles and accessories and an adjustable frame which is specially designed for folding door systems, as well as four different floor solutions: from completely

flush with the floor to one providing high watertightness levels, suitable for coastal residences and tall apartment buildings.

Purity handles
The door closure works in the same way as the CF 77. The elegantly shaped Purity handles can be used. These exclusive handles are made from the new material Pura™*, for which Reynaers has obtained exclusive usage rights worldwide. Purity was already available for doors, windows, and sliding doors, and now it is available for these folding doors as well.



CF 68 Concept Folding
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EXTENDED FIRE PROOF RANGE

In an emergency situation such as a fire in a building, the number one priority is the safety of the people inside. Reynaers offers a wide range of fire-proof solutions for façades (CW 50-FP), partition walls, and doors (CS 77-FP). Recent technical developments have also made it possible to use very large glass elements in fire-resistant doors and partition walls.

Fire resistance
Fire-resistant partition walls and doors are often used for escape routes. Depending on the class required, the Reynaers systems can guarantee insulation and integrity of these escape routes for as much as 30 to 60 minutes, enabling people to leave the building safely. When used between different rooms, the doors and fixed glass walls (CS 77-FP) retard the rate at which the fire can spread throughout the building. Elements in the outer façade such as doors, fixed glass elements and façade systems protect neighbouring buildings and retard the rate at which the fire can spread to higher floors in the same building.

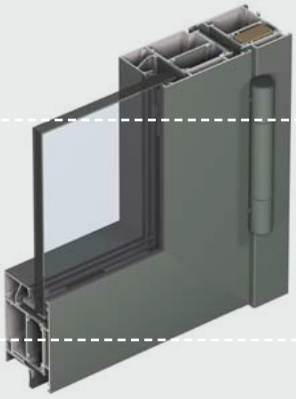
Fire-proof solutions for large glass elements
←

Extreme dimensions
The challenge is combining safety with freedom in architecture. In order to meet this challenge,

the maximum dimensions of Reynaers' systems have been increased and the glass elements can now be up to 4 m high, alone or in combination with doors. Safety and freedom of design are also made possible by the fact that the system and design are identical in both the standard and fire-resistant versions. Moreover both versions offer the same high system and quality guarantees.
In addition, the range of fire-resistant profiles and accessories has been expanded; and collaborations are approved with new glass suppliers. All of this allows more combinations with other Reynaers products.

Approved lock range
Because in many cases fire resistance is a feature of escape routes in public buildings or offices, there are often additional requirements. The range of tested locks can be used with panic doors with a push rod (EN 1125) and emergency doors (EN 179), in their standard form or in combination with class 2 burglary resistance (EN RC2).

Improved performance at a competitive price
The use of high-quality cooling material and fire-resistant building foam, which can be applied quickly and simply, results in an improved performance, combined with lower material and production costs. This results in a competitively priced product range of the highest quality.



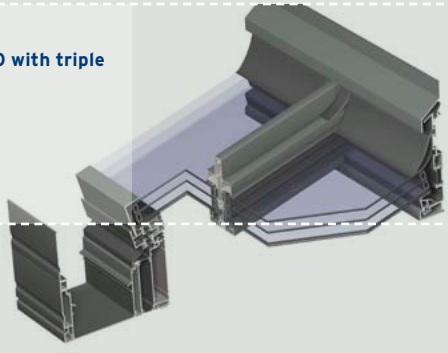
CS 77-FP EI30 door
←

HIGH PERFORMANCE CONSERVATORY SOLUTION

The TR 200 system, used for verandas, conservatories, and glass roofs, consists of insulated aluminium T profiles. The latest innovation allows that the supporting profiles which hold the glazing now bear a heavier load. As a result, it is possible to use glass of up to 61 mm thick. In other words, TR 200 can be used with triple glazing, so heat is retained even better. Adding foam also significantly improves the insulation value, from Uf 3.4 to 1.9 W/m²K.

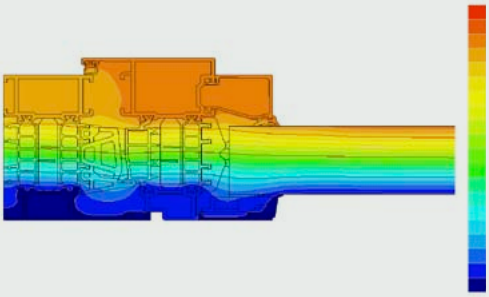
Renaissance, Functional, Elipse
TR 200 is characterised by a minimalist, flat design on the interior side. Combined with the possibility of large spans of up to four metres, this creates the desired feeling of space and ensures that a maximum amount of light can enter. The aluminium tube profiles for the exterior of the conservatory are available in three different styles: Renaissance (with contour in relief), Functional (straight), and Ellipse (curved). The option of using different styles will create the desired look for the exterior. TR 200 can be combined with all window and door systems as well as sliding doors and recessed roof openings.

TR 200 with triple glazing
→



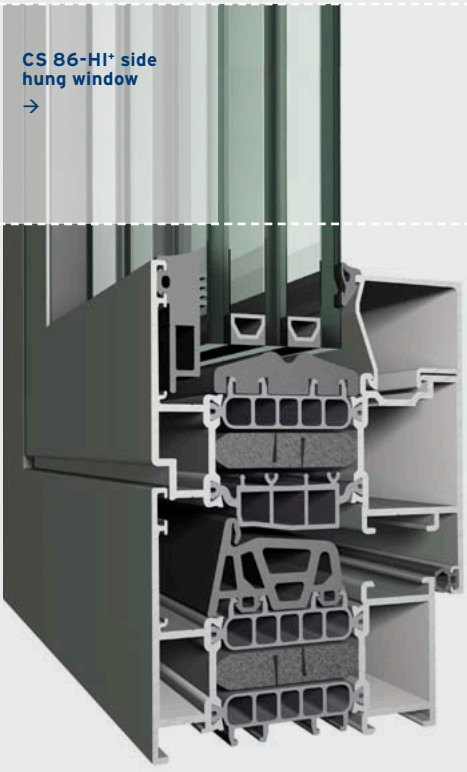
INTRODUCING: HI+

NEW **Reynaers has worked hard to optimise the insulation values for its most popular window and door systems, CS 86-HI and CS 77.**



CS 86-HI+

The improved CS 86-HI+ is a system for windows, balcony doors, and flush doors which, with its high-performance thermal break, is ideal for low energy applications. Reynaers has succeeded in achieving an improvement of 0.2 W/m²K, for a section with a visible height of 117 mm, lowering the Uf-value to 1.4 W/m²K. This has been accomplished through three modifications. Whereas the thermal break in the aluminium profiles previously consisted mainly of polyamide, the intermediate space is now also filled with XPS. The glass is optimally positioned relative to the thermal break. An exterior glazing seal forms a tight envelope enclosing the glass. The result is an even greater thermal comfort.



CS 86-HI+ side hung window →

CS 77-HI+

A 'plus' version of the CS 77 is now also available: CS 77-HI+. Here, too, the space between the insulation chambers is filled, the glass is ideally positioned and a better-insulating glazing seal is added. The result is that a section with a visible height of 117 mm, now attains a Uf insulation value of 1.7 W/m²K.

ES 50-HI+

ES 50 has received an update that significantly improves the insulation of an outward opening window: a central gasket has been developed which thermally divides the zone between frame and vent into two chambers. Filling the space between the insulation strips and the addition of PEX foam under the glass results in an energy performance improvement: the Uw value for ES 50-HI+ drops to 1.4 W/m²K (window dimensions: 1.23 by 1.48 metres, Ug= 1.0w W/m²K).
Both the filling of the insulation chambers and the addition of foam under the glass can also be applied to the inward-opening windows and flush doors, resulting in the same performance improvement.

LAVAL, FRANCE

The modern boarding school is given a friendly, pleasant appearance by the application of a façade cladding consisting of square blocks in soft shades of green and yellow. The common areas are light and airy, while the bedrooms offer more privacy.

LYCÉE AGRICOLE DE LAVAL (BOARDING SCHOOL)
Architects: **Pellegrino Gilbert, Nantes, Pièces Montées Architecture, Le Mans**
Main contractor: **Conseil régional pays de la Loire, Laval**
Fabricator: **MAP, Laval**
Reynaers systems: **CW 86-VEP, XS 50, CD 50, BS 100**

PHILIPPE GAUCHER

ISTANBUL, TURKEY

The stylish apartment complex is built around an enchanting water garden. It is characterised by staggered glass balconies and large windows.
The building achieved the Leed Gold certificate, a dedicated label for sustainable buildings.

TEKFEN BOMONTI APARTMENTS
Architect: **DB Architects, Istanbul**
Main contractor/investor: **Tekfen Real Estate Development and Investment Co. Inc., Istanbul**
Fabricator: **Fyt Aluminium, Istanbul**
Reynaers systems: **CP 130-LS, CW 50, CS 68**


GURKAN AKAY

SOFIA, BULGARIA

This residential complex is a real show-stopper. Silver City owes its name to the prominent semicircular residential tower which is largely constructed out of silver reflective glass. This unusual tower is flanked on both sides by four multi-storey residential volumes with a tree pattern worked into the façade.

SILVER CITY TOWER RESIDENTIAL COMPLEX
Architect: **Cityscape studio, Sofia**
Main contractor: **Balkanstroy, Sofia**
Investor: **Silver City, Ltd**
Fabricator: **Tekso, Sofia**
Reynaers systems: **CW 50, CW 50-RA, CS 77, CP 155-LS, BS 40**

KIRIL KONSTANTINOV


MILUTA FLUIERAS

ILFOV, ROMANIA

This modern residence is characterised by a sense of being enclosed yet open. Glass sliding doors combine the covered veranda and the interior into a fluid whole.

PRIVATE HOUSE
Architect: **Gabriel Raicu, CUB Arhitect, Bucharest**
Fabricator: **Aluminium Promotion, Magurele, Ilfov**
Reynaers systems: **CW 50-SC, CS 77, CP 130-LS**

WROCLAW, POLAND

The dynamic street scenes are reflected in the expressive glass volume.

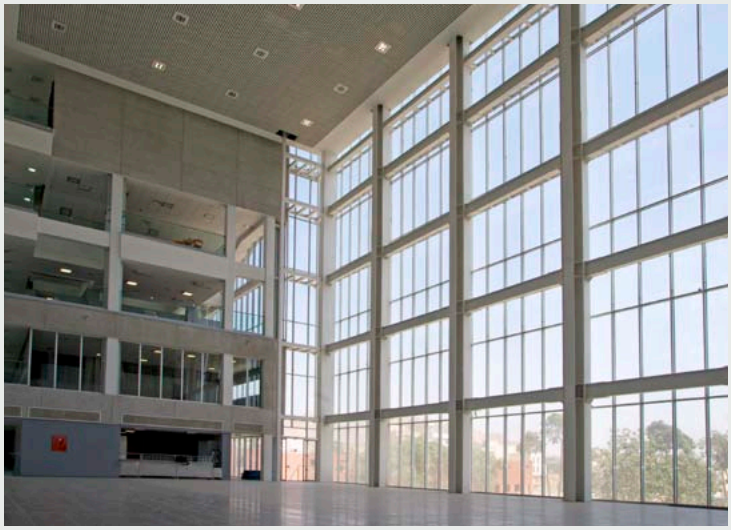
ACADEMY OF FINE ARTS IN WROCLAW
Architect: **Pracownia Architektury Głowacki, Wroclaw**
Main contractor: **Hochtief Polska SA oddział Poznań, Warsaw**
Investor: **Akademia Sztuk Pięknych**
Fabricator: **Riwal, Nowe Miasto, Wroclaw**
Reynaers systems: **CW 60-HI, CW 50-HI, CW 50-FP, CS 86-HI, CS 68**


JAROSŁAW CEBORSKI

TEHRAN, IRAN

The sports complex for people with a disability is characterised by a central series of windows flanked by smaller shuttered windows.

GHAMAR E BANI HASHEM SPORTS COMPLEX FOR DISABLED
Architect: **Mr Arash-Mozaffari, Tehran**
Main contractor: **Sang Bon Bana co., Tehran**
Investor: **Tehran Municipality cultural area development co., Tehran**
Fabricator: **Kashaneh Gostaran Farda, Tehran**
Reynaers systems: **CW 50, CS 59**



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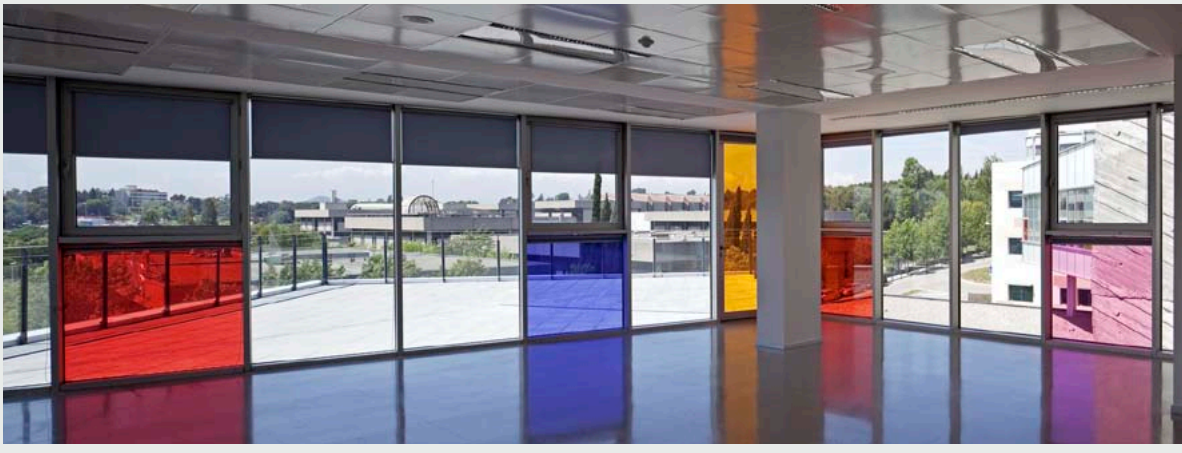
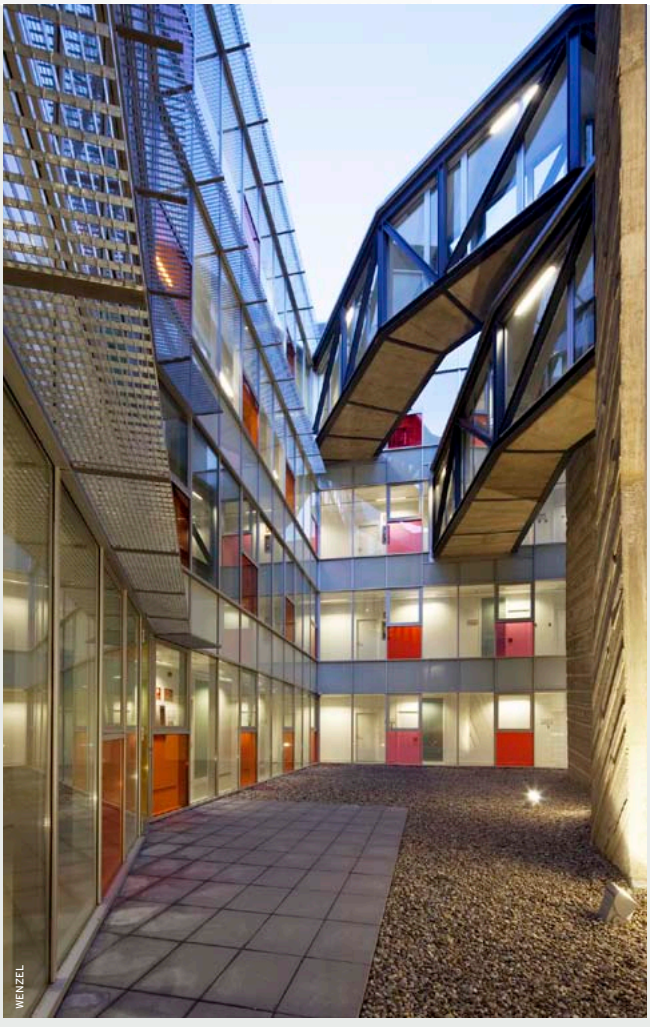


BARCELONA, SPAIN

Eureka forms a playful contrast to the two other buildings on the campus of the research park connected with the Universitat Autònoma de Barcelona (UAB). The stacked volumes house thirty research centres and institutes and approximately four thousand researchers. The use of brightly coloured glass gives Eureka an airy appearance and offers a view into a large courtyard and the wider surroundings. What really stands out are the glass pedestrian bridges connecting Eureka with other buildings, as well as the third floor, which resembles a piece of pie sticking out from the building.

EUREKA RESEARCH BUILDING AT UAB RESEARCH PARK IN BARCELONA
Architect: **GECSA Ingeniería y Obras, Barcelona**
Main contractor: **Contratas y obras SA, Barcelona**
Investor: **Consorcio de la Zona Franca de Barcelona**
Fabricator: **Acieroid SA, Barcelona**
Reynaers systems: **CW 50, ES 50, CS 59-CD**


WENZEL

OOSTKAMP, BELGIUM

The minimalist, modern office building is the calling card of the contracting company Christiaens. The façade is characterised by wood-coloured block shapes and slightly receding window frames. The green glass sliding door which connects the offices to the courtyard is a prominent feature.

CHRISTIAENS OFFICE BUILDING
Architect: **Salens Architecten, Bruges**
Main contractor: **Christiaens N.V., Oostkamp**
Fabricator: **Soete Pedro bvba, Boezinge**
Reynaers systems: **CS 77, CP 155-LS/HI**

PRAGUE, CZECH REPUBLIC

FILIP ŠLAPAL

The sturdy new office building belongs to the second part of the City West business district. This new urban district in Prague, masterplanned by AHK architekti, is extensive. The total area will be 115 hectares with a vision to expand to even 600 hectares. In style the buiding is similar to the already existing offices, but is distinguished by its shapes, colours and details. The entire project should be completed around 2025 and contains apartments, villas, offices, restaurants, shops, schools, parks, and a river.

ZÁPADNÍ MĚSTO (CITY WEST) OFFICE BUILDING
Architects: **AHK, Prague**
Main contractor: **VCES, Chrudim**
Fabricator: **Nevsimal, Nymburk**
Investor: **Finep, Prague**
Reynaers systems: **CS 86-HI, CW 50**

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