

IN THIS ISSUE

CITY REPORT
Rotterdam

PROJECT OZ'ONE
A beacon in
Montpellier

#15
Architectural Magazine
by Reynaers Aluminium

PROJECT ARHUS
Open Glass House

"Behind the apparent randomness is strict rhythm and regularity"

REPORT

REYNAERS
aluminium

#15

IN THIS ISSUE

4 CITY REPORT: ROTTERDAM



14 PREVIEW

18 KRKONOŠE MTS. ENVIRONMENT EDUCATION CENTRE, VRCHLABÍ



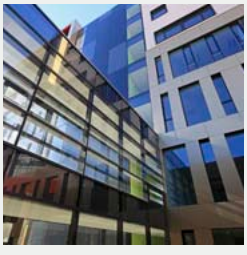
26 KONSTRUKTORSKA BUSINESS CENTER, WARSAW



38 KNOWLEDGE CENTRE ARHUS, ROESELAERE



48 OZ'ONE, MONTPELLIER



56 INNOVATIONS

62 REFERENCES

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FUNDAMENTALS

Rotterdam, comprising one of the largest ports of the world, is facing a rapidly growing population. To maintain a qualitative environment for working and living the city needs strong architecture. Often called the 'Gateway to Europe', Rotterdam's emphasis on great architecture sets an example and features many innovative buildings.

We are proud that Reynaers systems are used throughout the city as part of these fascinating projects. One of the latest realisations is MUSA, by diederendirrix architecten, a new-built construction in the city district of Katendrecht (see page 14).

The overall vibrant architectural scene of Rotterdam must have been instrumental in the large number of internationally renowned architecture practices based in Rotterdam, which together define the past and future of the city. The OMA architectural practice is an example of this. Its founder and Rotterdam-born architect Rem Koolhaas, was selected to be the curator of the 2014 Venice Biennale of Architecture. The theme he chose for this year's Biennale is 'Fundamentals', which he envisions as 'Elements of Architecture' in the Central Pavilion. 'We will pay close attention to the fundamentals of our buildings, used by any architect, anywhere, anytime: the floor, the wall, the ceiling, the roof, the door, the window, the façade, the balcony, the corridor, the fireplace, the toilet, the stairs...,' stated Koolhaas.

The Biennale, which runs from 9 June until 23 November, brings together and inspires architects internationally, and our company is proud to sponsor the Belgian Pavilion. In this way, we support curators Sébastien Martinez Barat, Bernard Dubois, Sarah Levy and Judith Wielander, as well as the Walloon region, in their interpretation of the criterion set by Koolhaas.

We strive to inspire in all kinds of ways. After all, such passion is what defines Reynaers. From our completely renewed Report Magazine to connecting our stakeholders worldwide: collaboration and inspiration are key.

Together for Better!

Martine Reynaers



ROTTERDAM (NL)

DEMOGRAPHY

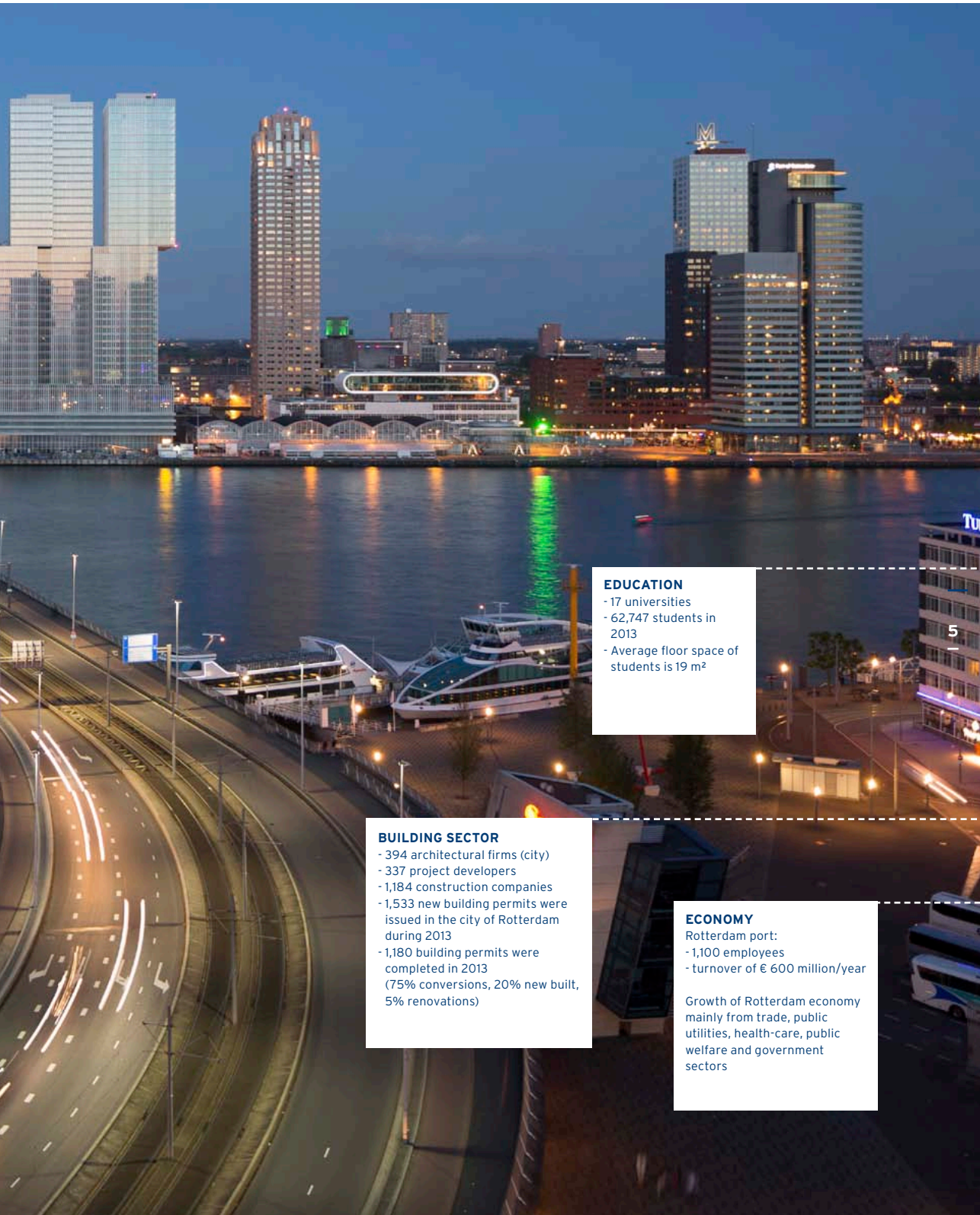
Rotterdam region:
- 1,2 million inhabitants

Rotterdam City:
- 618,467 inhabitants
- 319 km², of which 1/3rd is water
- 2,962 residents per km²

HOUSING
- More than 570,000 homes in the Rotterdam region
- Average floor space of homes between 60 and 74 m² (75 m² in The Netherlands)

LOCATION





EDUCATION
- 17 universities
- 62,747 students in 2013
- Average floor space of students is 19 m²

BUILDING SECTOR
- 394 architectural firms (city)
- 337 project developers
- 1,184 construction companies
- 1,533 new building permits were issued in the city of Rotterdam during 2013
- 1,180 building permits were completed in 2013 (75% conversions, 20% new built, 5% renovations)

ECONOMY
Rotterdam port:
- 1,100 employees
- turnover of € 600 million/year

Growth of Rotterdam economy mainly from trade, public utilities, health-care, public welfare and government sectors





REVOLUTIONARY ARCHITECTURE FOR THE PEOPLE

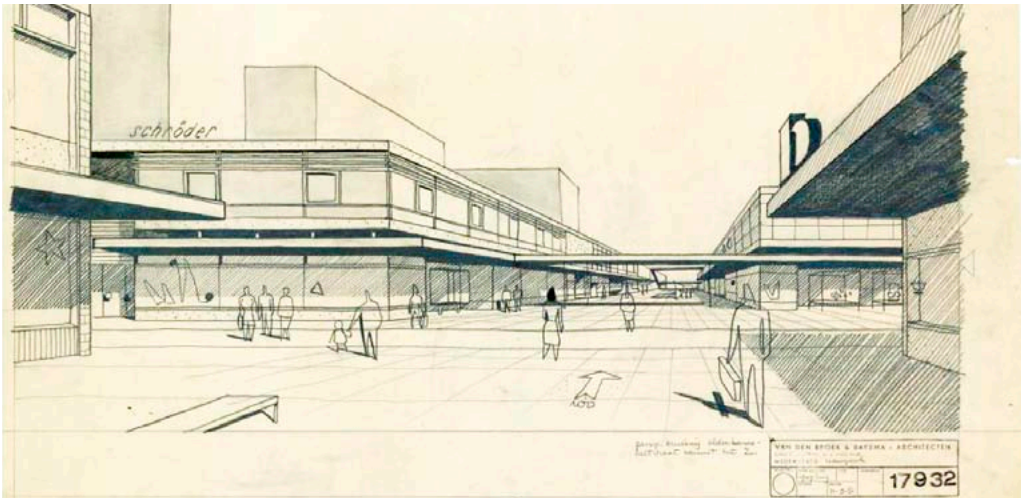
No other architecture agency has a closer connection with Rotterdam than Van den Broek en Bakema. Before the Second World War, they gave a face to its rising trade and industry; and after the bombings, they were part of the city's reconstruction. The Dutch presentation at the Architecture Biennale in Venice, with Jaap Bakema as the central theme, has brought renewed attention to their ideals, of which the Lijnbaan has become a symbol.

Text **Kim Hoefnagels** Photography **van den Broek en Bakema**

These days, the Lijnbaan shopping street is not the first thing that comes to mind when thinking of the revolutionary architecture. The buildings on this street do not exactly attract attention, and the shop windows are dominated by strident advertisements. If you didn't know any better, you'd think the Lijnbaan was just an average shopping district. But nothing could be further from the truth.

REVOLUTION IN URBAN DESIGN

The Lijnbaan was a revolution in urban design after World War II. At its opening in 1953, it was the first car-free shopping zone in Europe with delivery access roads at the back of the shops. In addition to its functional purpose, this layout also had social significance: It gave back to pedestrians their place in the city, and created a new meeting place.



CLEAR ORIENTATION

It is exactly this attention to the human side of things which typifies the oeuvre of Van den Broek en Bakema. As the agency's former director, Meindert Booij, expresses it: "The primary goal was to allow people to feel at home. For this reason, Van den Broek en Bakema placed the emphasis on clear orientation and function. Visitors could see at a glance where they were going and where they came from." In his opinion, this is best expressed in the former furniture shop H.H. de Klerk, located on the Lijnbaan. The five storeys in this building are arranged in a step formation around a central atrium. In this way, continuity is created, which also shows up throughout the Lijnbaan: Porches and shop windows make the barrier between outside and inside as small as possible.

MODERNISM

Van den Broek en Bakema's design philosophy is firmly rooted in the ideas of modernist architecture, a movement which is characterised by its focus on the creation of light, air, and space, and is typified by the Rotterdam Van Nelle factory. This former coffee, tea, and tobacco factory was designed by Brinkman en van der Vlugt, the architectural agency which gave rise to Van den Broek en Bakema about sixty years ago. Now, the factory has been transformed into an office building, where the agency, now known as Broekbakema, has its offices since 2004.

It is no coincidence that both the Van Nelle factory and the Lijnbaan are located in Rotterdam. Their no-nonsense architectural style is a physical expression of Rotterdam's roll up your sleeves mentality, a reputation which the city has always been proud of.

"THE PRIMARY GOAL WAS TO ALLOW PEOPLE TO FEEL AT HOME"

DESIGN PHILOSOPHY

The new generation of architects at Broekbakema still work with a design philosophy going back to its roots. "For a long time, a poster hung in our office with the words 'human', 'social', and 'realistic', and we still create our designs with that in mind", says Aldo Vos, one of the current directors. "This isn't always conscious on our part; but our basic philosophy is still the function of the building as the living environment for people." ■

ARCHITECTURE IN A BLENDER

Anyone walking through the streets of Rotterdam is treated to a succession of bold and daring architectural sensations. The British newspaper The Guardian describes the Netherlands' second largest city as looking as if someone had 'put the last fifty years of architecture in a blender, and spat it out in building-sized chunks across the skyline.'

The dynamic mix is the result of an ambitious reconstruction programme that made a radical break from the pre-war city, when it was already a metropolis that was home to more than 600.000 people. The current appearance is largely determined by the developments of recent decades. Wide boulevards and high-rise buildings give Rotterdam the strong character of a metropolis; a character that is further underlined by recently completed mega projects, including the Central Station by Benthem Crouwel and Meyer & Van Schooten, and 'De Rotterdam' by Rem Koolhaas. In 2014, the port city is firmly on the map as the city with the most architecture worth seeing in the Netherlands, or possibly even in the world, at least in the opinion of The New York Times and travel guide publishers Rough Guide. ■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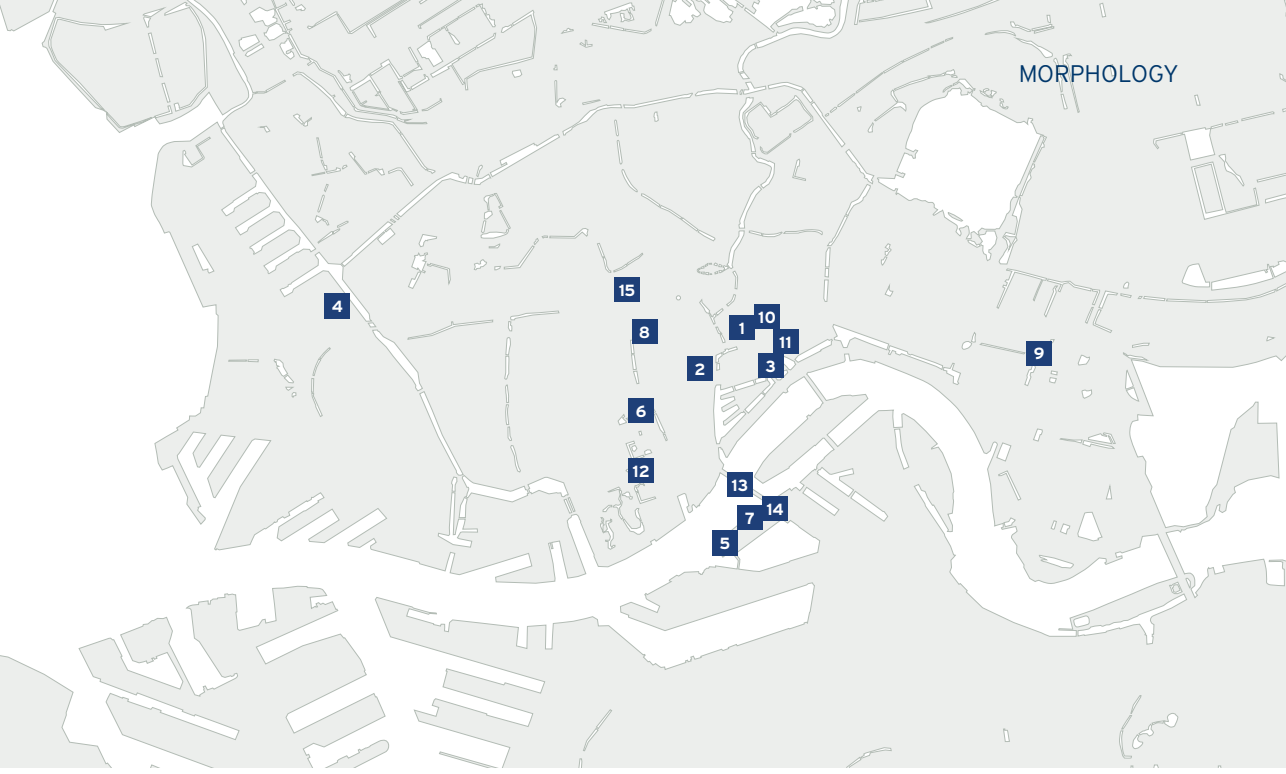

1. **Laurenskerk (St. Lawrence church)**, 1525. Architect: J.C. and M.C.A. Meischke.
2. **Schielandshuis**, 1665. Architect: Jacob Lois and Pieter Post. Refurbishment: Jan Walraad, 1985.
3. **Het Witte Huis (White House)**, 1898. Architect: W. Molenbroek, S. Miedema.
4. **Van Nelle factory**, 1931. Architect: Brinkman and Van der Vlugt Refurbishment: Wessel de Jonge, Claessens Erdmann, 2004
5. **Headquarters of Holland-Amerika Lijn (Holland America Line)**, 1901 Architect: J. Müller, C.M. Droogleever Fortuyn, C.B. van der Tak.
6. **Sonneveld House Museum**, 1933 Architect: Brinkman and Van der Vlugt
7. **Las Palmas**, 1953 Architect: Van den Broek and Bakema Refurbishment: Benthem Crouwel Architecten, 2007
8. **Concert venue De Doelen**, 1966 Architect: E.H.A. & H.M. Kraaijvanger, R.H. Fledderus
9. **Erasmus University**, 1970 Architect: Elffers Van der Heyden Hoogeveen
10. **Central Public Library**, 1983 Architect: Van den Broek and Bakema
11. **Cube Houses**, 1984 Architect: P. Blom
12. **Kunsthal**, 1992 Architect: Rem Koolhaas
13. **Erasmus Bridge (Erasmusbrug)**, 1996 Architect: Ben van Berkel
14. **De Rotterdam**, 2013 Architect: Rem Koolhaas (OMA)
15. **Rotterdam Central Station**, 2014 Architect: Benthem Crouwel, Meyer & Van Schooten, Team CS


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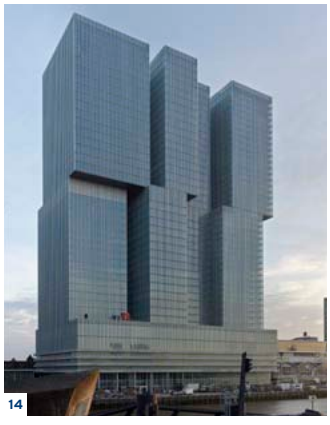
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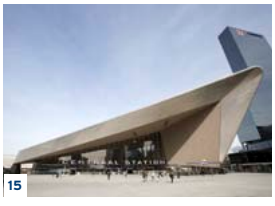
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INVESTING IN A LIVELY STREET CULTURE

Besides being a very motivated and pragmatic citizen of Rotterdam, Adriaan Geuze is also a highly decorated and distinguished landscape architect and the founder of West 8. This international design firm for urban development and landscape architecture has branches in Rotterdam, Brussels, and New York. 'Rotterdam needs to keep working fast to equip the centre with lively urban streets.'

Text V**iveka van de Vliet** Photography **Menno Schaap**

What are the characteristics that typify Rotterdam as a tenacious and determined city?

'The city has always had ambitious urban design objectives, but it has always been a small group of people determining how the city should look. This is in stark contrast with Amsterdam, which is a lively participation-centred city. That is the stubborn reality. Rotterdam is an amalgamated city, an agglomeration in which millions of people live. Inhabitants actually want to feel part of a small city – a clear and identifiable world.

In this regard, Rotterdam is characterised by an exceptional and difficult demography, a phenomenon known in the USA as Detroit. The problem is the absence of a middle class as the cement of the community. Rotterdam needs

a more balanced population composition. Urban development could assist with this.'

"SMALL-SCALE, WARM, PEOPLE-ORIENTED, INSPIRING, MULTI-FUNCTIONAL STREETS ARE THE FUTURE"

What do you see as examples of urban development contributions to the improved future of the city?

'I want to appeal to the urban developers: get building in the city. No skyscrapers but low-rise buildings for the middle class in districts that are already attractive such as Kop van Zuid, Katendrecht, and Kralingen. The potential of the inner city does not lie in a monofunctional city centre but in investing in a civil society of young, highly-educated people - a growing group that will determine the character of the city.

Small-scale, warm, people-oriented, inspiring, multifunctional streets are the future, such as the Witte de Withstraat, or 'De Kaap' (Katendrecht) with restaurants and shops on the trendy Deliplein square, the SS Rotterdam, housing, and plenty of green areas. Rotterdam needs to keep working fast to equip the central district with this kind of lively urban street culture.'

You also advocate a new use for the office buildings that are now left vacant in the city centre as a result of the economic crisis.

'A guerrilla store in a former bank building - that's the reality. It restores vitality and creates a cheerful and safe alternative in these otherwise dead areas. The area around the Schieblock office building is a good example; it was transformed into a lively and popular creative meeting place, comprising studios and semi-public spaces. Districts such as Crooswijk and Katendrecht have this potential too. Here, attempts are being made to create a better balance in the population distribution. The current dominance of social housing needs to be reduced in order to make way for streets with character, in which new groups of people will want to commit themselves to the city.'

The new Central Station is just as important for development. A team of urban designers and landscape architects from West 8 worked alongside Benthem Crouwel Architekten and Meyer & Van Schooten Architecten (MVSA) on this successful anchor within the city.

'Rotterdam needs a building with which the typical citizen of Rotterdam can identify. Utrecht has the Dom church with its tower, and Amsterdam has its Rijksmuseum. We wanted to create a station that connected four different characters of the city: the city centre, Delftse-straat, Weena, and Provenierswijk behind the station; a habitat with the scale of an aircraft hangar and the feel of a living room. A terminal that will soon welcome more than 300,000 passengers a day thanks to the High-Speed Line (HSL), who will encounter each other in the light, airy, spacious public hall and on the square. It is an environment in which residents and commuters experience a certain sensation: the romanticism of the incidence of light, resembling that of a Rembrandt painting, and the warmth of materials including wood and red stone. Visitors are reminded of historical elements, stored in our collective memories: the spectacular clock, the blue neon letters, the video of the activity of the Port of Rotterdam.

Rotterdam has one great gift: the port, and the river on which the ships of the whole world sail'. It's a place where you always have a view of something great, where you can smell water, an imposing place that radiates strength. That is an incredibly strong hand, allowing Rotterdam to compete on an international stage.' ■

LIVE AND LIFE IN ROTTERDAM

Rotterdam is on its way to becoming a true residential city. The attitude of working hard is paying off. In the Kop van Zuid and Katendrecht districts, disadvantaged neighbourhoods are being reinvigorated and neglected silos and storehouses are being renovated. There's a solid plan and a vision behind these changes. Rotterdam is investing a lot in architecture, with international leading architects like Rem Koolhaas and Renzo Piano.

Text **Viveka van de Vliet** Photography **Hollandse Hoogte**



→
The Kop van Zuid district is nearly complete

A lot has changed in Rotterdam in recent years. In part because of the financial crisis, many architectural firms have disappeared or seriously downsized. Yet the crisis doesn't seem to have had much effect on the development of Rotterdam itself. The harbour is gradually moving further from the city, and more and more people are moving into the city - a nationwide trend. Rotterdam is developing into a dedicated residential area combined with commercial activities. "In other Dutch cities there's little construction going on, but Rotterdam is booming. I think it's one of the most interesting cities in the Netherlands right now in terms of developments in construction", says Timo Keulen, of diederendirrix architecten in Eindhoven.

INSPIRATION

The Kop van Zuid district is nearly complete; Katendrecht, the peninsula on the Maashaven port, is in development. Reynaers is involved in a number of renovation and new-build projects in this area. One of them is MUSA, a new construction project which is designed by diederendirrix architecten and being built by BAM, at a fantastic location. MUSA includes residences and a school. With the school, diederendirrix created a safe haven in a large-scale environment. The architects took their inspiration from the context: "We give the solidity and robustness of the surroundings a poetic twist. Masonry and concrete provide mass, while glass offers transparency", Keulen explains. In order to emphasise the sturdiness of the brick, the architects wanted the window frames to be as invisible as possible.

Another project in Katendrecht is the redevelopment of the Fenix warehouses. In 2013, Mei Architecten won the transformation competition for their commission from the builder Heijmans and the developer Proper Stok. The remains of the warehouses dating from the 1950s have a beautiful location at the Rijnhaven port near the bridge connecting Katendrecht to the Wilhelmina Pier. The Fenix warehouses will house restaurants, shops, and cultural activities (Fenixdocks). Above this there will be a ten-storey residential tower, with between 180 and 230 newly-built loft apartments (Fenixlofts). With projects like this, Rotterdam is rapidly changing into a beautiful residential city where people like to live. ■

THE HIDDEN TREASURES SUGGESTED BY

DIEDERENDIRRIX ARCHITECTEN

1 It is barely visible from the street: **'Didden Dorp'** (Didden Village) on Beatrijsstraat. On top of a residential building, MVRDV built an extra little 'village': a bright blue rooftop extension and terrace. It is reminiscent of the work of sculptor and designer Joep van Lieshout.

2 **Sjømannskirken**. The wooden Norwegian seamen's church on Westzeedijk was built in 1914 for seamen from Scandinavia. It has been relocated several times and now stands close to the Euromast.

3 **Motel Mozaïque**. A two-day international cultural festival in april, on and around Schouwburgplein square. A unique mix of artists, theatre makers, musicians, and film makers. And... spend the night surrounded by great architecture.

4 A real asset: the renovation of the front façade and **entrance of the Witte de With Center** for Contemporary Art by the architectural firm Zandbelt.


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ROBUST PORT ARCHITECTURE

ROTTERDAM (NL) - The Rotterdam city district of Katendrecht is a rather neglected peninsula. It is set to become a lively, green residential district with panoramic views across the water. diederendirrix architecten is the first architectural firm to contribute to the metamorphosis of this area situated beside the Maashaven port. The firm is currently working on 'Musa' - A rugged and robust multifunctional building housing a secondary school (higher general secondary education/pre-university education), 135 rental apartments for senior citizens, community-oriented social housing, sports facilities, and an underground car park. Musa forms part of the master plan named 'De Pols'. The area between Kop van Zuid and Katendrecht includes new and revitalised building volumes making reference to the historic port architecture. (See also City Report, page 4-13).

MUSA
Architect: **diederendirrix architecten, Eindhoven**
Main contractor: **BAM Woningbouw, Bunnik**
Fabricator: **Alkondor, Hengelo**
Reynaers systems: **CW 50, CS 77**
Expected date of completion: **Winter 2014**



FIRST AFRICAN PASSIVE BUILDING

KINSHASA (CD) - The Ministry of Foreign Affairs is having the new Belgian Embassy built on Boulevard du 30 Juin. The modern building with its large roof terrace is the first passive building in a tropical climate. The embassy will be awarded a BREEAM certificate with the rating 'Excellent'. The building has five floors with 5,200 square metres of office space on both sides of an elevated driveway with a glass entrance.

BELGIAN EMBASSY
Architect: **A2M architecten, Brussels (BE) and JLP Concept, Kinshasa**
Main contractor: **Willemen General Contractor, Mechelen (BE)**
Client/investor: **Ministry of Foreign Affairs, Belgium**
Fabricator: **Kyotec Maroc/JP Industrie, Casablanca (MA)**
Reynaers systems: **CS 59Pa, CS 77-BP, CW 50**
Expected date of completion: **Spring 2016**



ILLUMINATED TOWER

JEDDAH (SA) - Mohamed Harasani Architects is building a 21-story commercial and office building commissioned by Princess Samira Al Saadawi. For the 18,000 square metres curtain wall, the CW 50-SC system was selected. One striking feature is the BS 100 sunscreening, a bespoke solution which covers the entire façade of the tower (for a total of 21,000 meters) and has integrated LED lighting.

AL KHEIR TOWER
Architect: **Mohamed Harasani Architects, Jeddah**
Main contractor: **Saudi Ruwad Civil Construction, Jeddah**
Fabricator: **Cube Metal Industries, Jeddah**
Reynaers systems: **bespoke solution based on CW 50-SC and BS 100**
Expected date of completion: **Autumn 2014**





STACKED LAYERS

MOSCOW (RU) - First a hospital, soon a spectacular sculptural office building. Zaha Hadid Architects designed a series of stacked layers that shift per floor, based on the tectonic plates that make up the earth's crust. The layers have corbelling on all four sides. The façade is characterised by the alternating solid and transparent parts.

Inside, a central atrium extends from the floor to the skylight through which plenty of natural light enters. The balconies, bridges, and spiralling staircases connect all the floors. The atrium is a semi-public space, with features including coffee bars where employees of different companies can meet.

DOMINION TOWER
Architect: **Zaha Hadid Architects, London**
Local architect: **Ltd AB Elis, Moscow**
Façade consultant: **Ove Arup, London**
Main contractor: **StroyGroup, Moscow**
Developer: **Dominion, Moscow**
Investor: **Peresvet Group, Moscow**
Fabricator: **MBK-Stroy, Rostov on Don**
Reynaers systems: **CW 50-SC, CS 50-FRV, CS 77-HI, CF 77**
Expected date of completion: **Winter 2014**



STRIKING MULTIFUNCTIONAL BUILDING



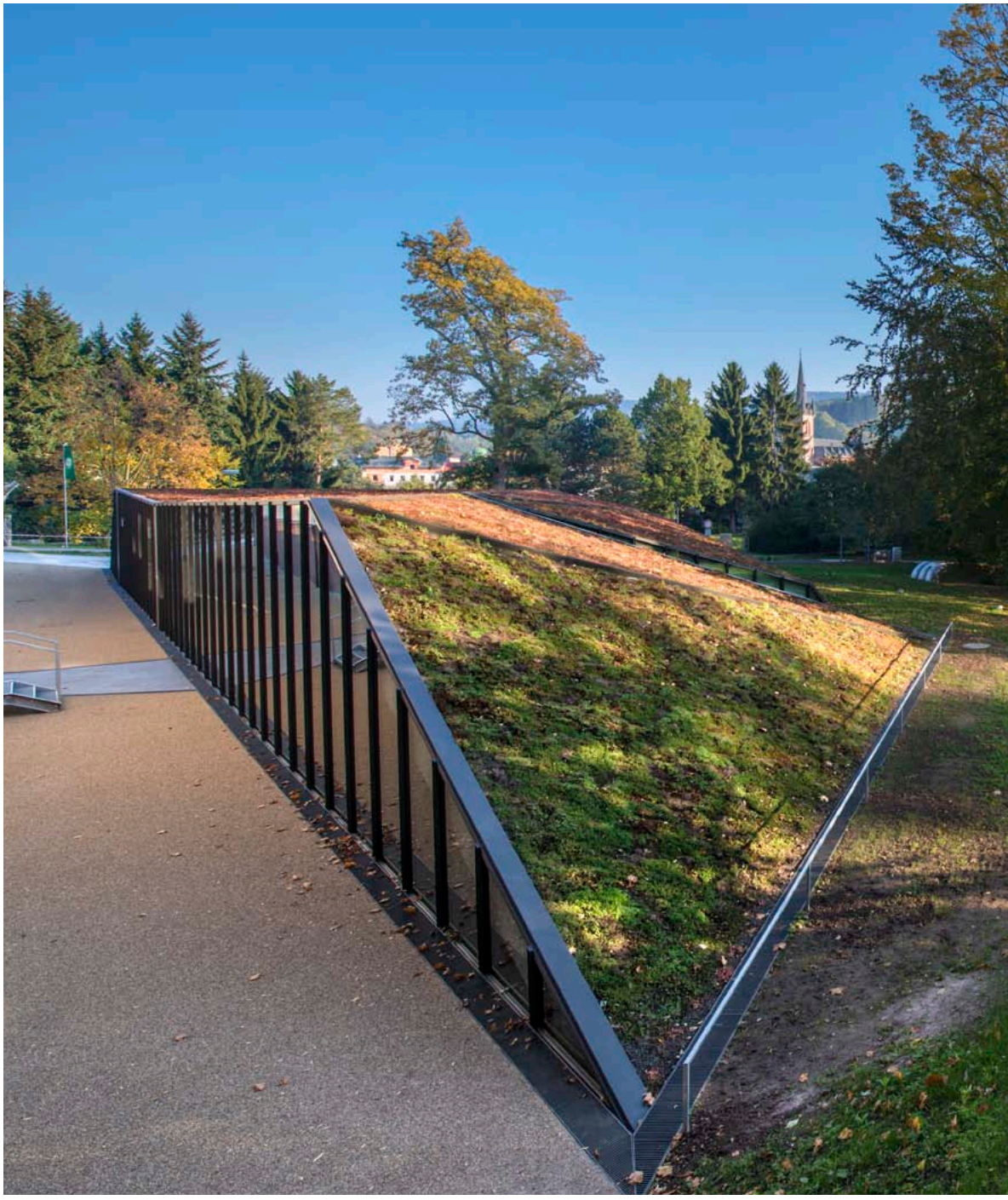
BRUSSELS (BE) - Strategically located in the heart of the European district of Brussels, Belview will soon be the ideal place for companies and organisations wanting to be close to the European Parliament and the European Commission.

The architects Jaspers Eyers and A.2R.C won the International Property Award for the 'Best Mixed Use Building in the World'. In their hands, Belview is set to be a striking and multifunctional building with an 84-metre tall, 24-storey tower. It will house 272 apartments, 5,000 square metres of office space, 1,700 square metres of retail space, and car parking. Belview has been awarded a BREEAM certificate with the rating 'Very Good'.

BELVIEW
Architects: **Jaspers Eyers Architects, A.2R.C Architects, Brussels**
Main contractor: **BCP, CFE, Brussels**
Project developer: **Allfin, BPI, Brussels**
Investor: **iii-Investments, Munich (DU)**
Fabricator: **Serralharia Cunha Lda, Aveleda-Braga (PT)**
Reynaers systems: **CS 77, CP 130, CW 50**
Expected date of completion: **Winter 2014**

PROJECT

KRKONOŠE MTS.
ENVIRONMENT EDUCATION CENTRE



VRCHLABÍ, CZECH REPUBLIC – Architect: **Petr Hájek** Fabricator: **Nevšímal**



EXPERIMENTAL LANDSCAPE DESIGN



→

The experimental centre was designed as a hybrid between a building and a landscape



The new building of the Environment Education Centre in Vrchlabí represents a modern view of science and its connection with the wider public. The project was initiated by the administration of the National Park with the goal of opening up the professional debates to the public and engaging park visitors with the protection and exploration of nature.

Text **Adam Štěch** Photography **Benedikt Markel**

"From the outset, the main aim of the design was to link the building with the natural character of its location. The building should be presented as an example of how to build in a protected natural area", says architect Petr Hájek about his latest experimental project. "We had the full confidence of National Park director Jan Hřebečka, who wanted to take a new contemporary approach to the protection of nature through the design of the building", says Petr Hájek about the new educational centre of the Krkonoše Mountains National Park.

He takes an individual approach towards each of his projects; he examines the context and intelligently comments on each project's meaning, identity, and location through his clear concepts. "We had a very free hand in designing an experimental building. We wanted to demonstrate how people should behave towards nature. We had no limitations there", the architect adds. The result is a unique topographical design. It is a tool in discovering local nature. Petr Hájek describes his project in the following words: "The central idea of the design is an image of a building serving as a tool in the study and understanding of the topography of the Krkonoše Mountains. The centre was designed as a hybrid between a building and a landscape. Its geometry is based on the geometry of the Krkonoše mountain range. Each individual incline and angle of the tilt-slab roof has its natural counterpart."

LIKE A MOUNTAIN MEADOW

The building itself resembles a landscape, and its roof blends elegantly into its surroundings, despite its radical, abstract geometry. It looks like a mountain meadow, from which visitors can clearly see and understand the ancient formation of the local landscape, and it becomes a learning model. However, behind the clever conceptual thinking of the project, there were a lot of technical challenges relating to the structure

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All the furniture was made without any wastage from single sheets of plywood, laser-cut and with a simple assembly process



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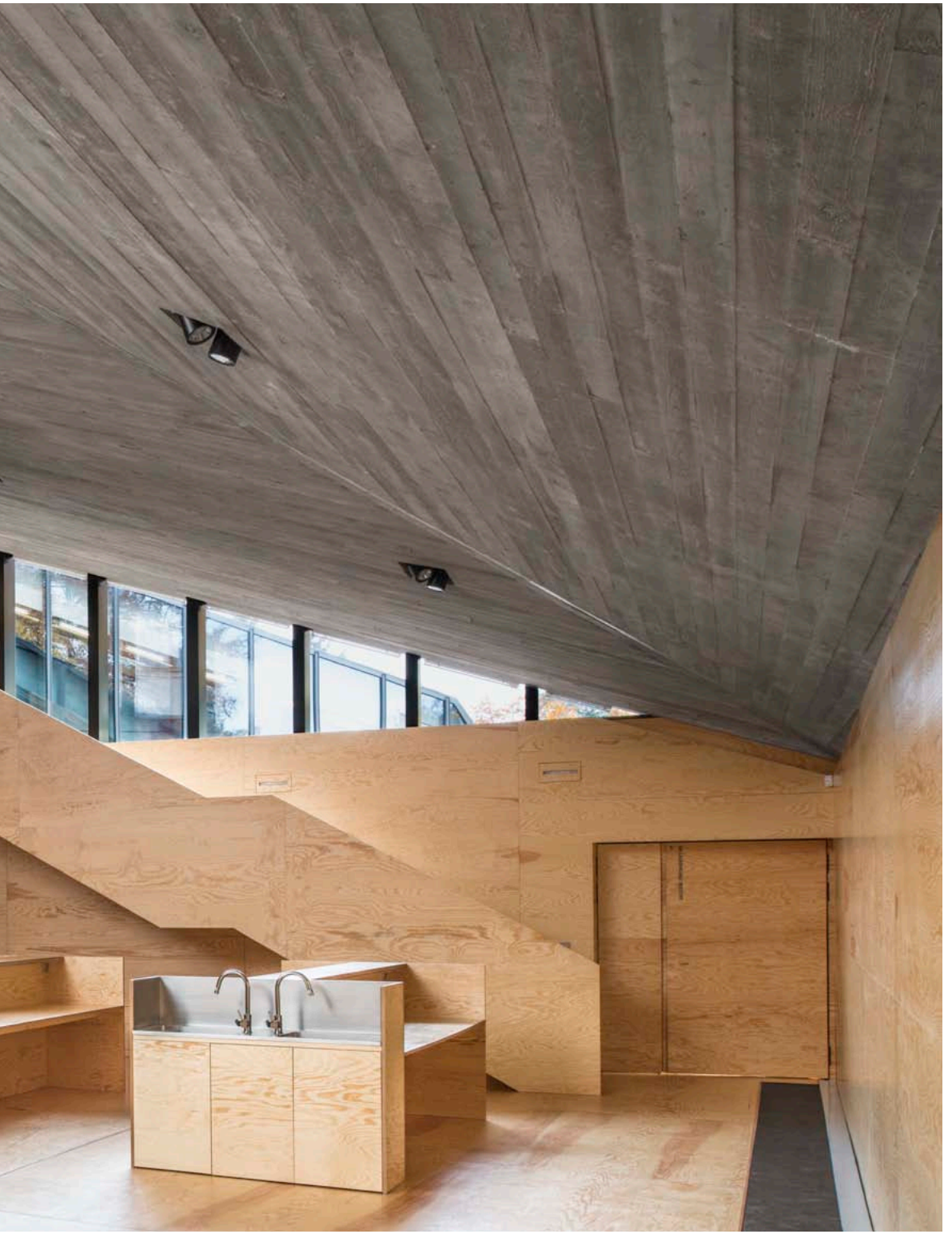
Model of the building with the remarkable roof





itself. "We resolved many difficulties during the design phase. Many parts of the building were custom-made especially for the project. We had to design a special kind of insulation because of the very wet ground.

One of the most challenging aspects was the design and construction of the glazed façade of the building. With its EI30 fireproof classification, this 4.30-metre tall glazing developed exclusively by Nevsimal and set in the Reynaers CW 50 elements is unique in the world. This kind of glazed façade is one of the largest in the world", says Hájek. "The other striking feature is the geometric concrete roof which was engineered for us by Jaroslav Hulík", he adds. Inside the structure we find the learning spaces, including a large auditorium with its 76-seat capacity, laboratories, libraries, and smaller classrooms for thirty students. All rooms are intended for meetings of the professional world and the wider public, demonstrations of scientific activities and their presentation through public lectures, symposiums, and other activities. "All the furniture was made without any wastage. Simple seating and tables were made from single sheets of plywood, laser-cut and with a simple assembly process", says Petr Hájek about the furnishings.

GREAT SUCCESS

"I am very satisfied with the whole project. It opens up the theoretical discussion about the topographical design approach within the Czech Republic as well as elsewhere. I think the main goal of the project was to bring all the specifications and features together in one



←
A striking feature is the geometric concrete roof

"THE PROJECT OPENS UP THE THEORETICAL DISCUSSION ABOUT THE TOPOGRAPHICAL DESIGN APPROACH WITHIN THE CZECH REPUBLIC AS WELL AS ELSEWHERE"

compact result. One great achievement is that all the suppliers specialising in the specific disciplines met and worked together side by side. The result is a great success not only because of the design, but also because of the perfect communication between everyone involved. New working relationships came into being during this wonderful project", concludes Petr Hájek. ■

KRKONOŠE MTS. ENVIRONMENT EDUCATION CENTRE
Architect: **Petr Hájek, Prague**
Main contractor: **Metrostav a.s. divize 9, Prague**
Fabricator: **Nevšímal, Nymburk**
Reynaers system: **CW 50-FP**

PETR HÁJEK ARCHITEKTI



Architect Petr Hájek was born in Prague in 1970 and studied at the Faculty of Architecture of the Czech Technical University in Prague from 1988 till 1995. In 1998 he graduated at the School of Architecture of the Academy of Fine Arts in Bratislava. He established Petr Hájek Architekti (Cornelia Klien, Dominik Saitl and Petr Hájek) in 2009 after the separation of the partners of HŠH architekti (Petr Hájek, Jan Šépka, Tomáš Hradečný) He is founder of the Laboratory of Experimental Architecture and Leader of the design studio at the Academy of Fine Arts. "Inspiration can be found everywhere. My work is influenced by nature, science, music and even by fairy tale books of my son", he says.

www.hajekarchitekti.cz

PROJECT

KONSTRUKTORSKA BUSINESS CENTRE



WARSAW, POLAND – Architects: **Epstein, Emkaa Architects** Fabricators: **Mega Aluminium, Defor**



ELEGANCE MEETS COMFORT

The Konstruktorska Business Centre (KBC) is one of many office buildings that have recently been erected in the southern part of Warsaw, in a corporate district located between the city centre and the airport. With its design and spatial quality, the KBC certainly stands out from the other neighbouring structures. Designed as a purely commercial volume, it reflects the overall business vision established over the years by its investor, Slovakian firm HB Reavis.

Text **Roman Rutkowski** Photography **HB Reavis, Piotr Kopyt, Pan Carter**

This company, founded in the early 1990's, went international a few years ago, transferring the quality of buildings previously constructed in Slovakia and the Czech Republic to other countries. As HB Reavis's technical building specialist Milena Mrázková explains, "the firm's policy for every investment is to implement a number of general principles based on past experiences, adjust them to local standards, and ultimately end up with an elegant building that is different from previous ones."

The Konstruktorska Business Centre, the first building by HB Reavis in Poland is simple and efficient. It is based on an octagonal floor plan, connected vertically by means of four communication shafts, offering space for let for both large-scale tenants requiring a whole floor and small enterprises requiring only a modest office. With its 48,000 square metres of offices for lease, it has the largest floor plan in Poland. As is the case in many office buildings built by the company in the past, the KBC has high-ceilinged lobby areas, extending upwards over two storeys, finished with natural materials. Situated on opposite corners of the floor plan, they open out onto large patios through glass covering their full height, providing a sense of prestige.

The patios are certainly the most intriguing part of the volume. Carefully designed, complemented by a number of tall trees, other foliage, and water features, they filter natural light into the interior spaces. They therefore offer views of natural features that are relatively uncommon in commercial structures. Preserving the building's open character for its tenants, and connected at ground level into a single, unified space, the patios offer a place for relaxation and integration. They are also a clear sign of HB Reavis's interest in ecology and sustainability.

COMFORT FOR THE PEOPLE INSIDE

"We never do standard window elevations", says Milena Mrázková. "We always go for a floor-to-ceiling high façade that gives the tenants the best connection with the outside world. The comfort of the people working inside the building is always the most important thing for us." In the case of the KBC, the word 'comfort' has multiple meanings. Although the building holds a BREEAM certificate with the rating Very Good ,' the word 'comfort' means more than just the technical parameters that had to be met in various aspects of the design. It also relates to the quality of the internal space, its close connection with the outside space, the largest possible amount of daylight coming into the offices, and lots of windows letting fresh air inside.

One crucial factor here of course was the design of the elevations. The central principle of HB Reavis's investments is very sim-



←
High-ceilinged lobby areas are finished with natural materials



→

The carefully designed patios are certainly the most intriguing part of the volume





"THE FINAL APPROVAL OF THE FAÇADE WAS CONFIRMED BY MEANS OF A LARGE MOCK-UP"

ple: it is architecture that sells the building, and it is its elevations that are visible at first sight. The future appearance of the KBC was therefore tested in countless computer renderings, first analysing the overall graphics of the façades and then their details such as the proportions of glass panels and the colours of aluminium elements. Of course, the elevations were also developed from technical and ecological points of view, in terms of thermal and acoustic insulation, sun exposure, and reflection parameters along with ventilation, air-conditioning, and heating use inside.

The result is a quiet and repetitive façade with dominant horizontal bands indicating the floors. The fabricators of the façade were Defor S.A. and Warsaw-based company Mega Aluminium, already highly experienced with Reynaers products before construction work



HB REAVIS



Milena Mrázková was born in 1970 in Levice, Slovakia. In 1994 she graduated in building structures from the Slovak Technical University in Bratislava. From 1994 till 2004 she worked for Reynaers Aluminium in Slovakia. Since 2007 Mrázková works at HB REAVIS as a senior technical specialist, specialized in landscape and façade design and the influences of the building envelope on the energy performance of the building. "Simplify to be understood", is her slogan.

www.hbreavis.sk

began on the KBC. "The final approval of the façade was confirmed by means of a large mock-up", says Agnieszka Wojsa-Cosentino, co-owner of Mega Aluminium, "which is always better than basing a decision on the typically small samples of aluminium mullions and glass panels." The façade system used in the KBC's project is a graphite coloured stick façade CW 50-HI. A custom made mullion transom connection was created for the staggered mullions. Narrow vertical top-hung windows are placed in every potential office. The spandrel areas are finished with aluminium sheets, mounted without visible screws. This solution was tested for impact resistance at the Reynaers test centre in Poland.

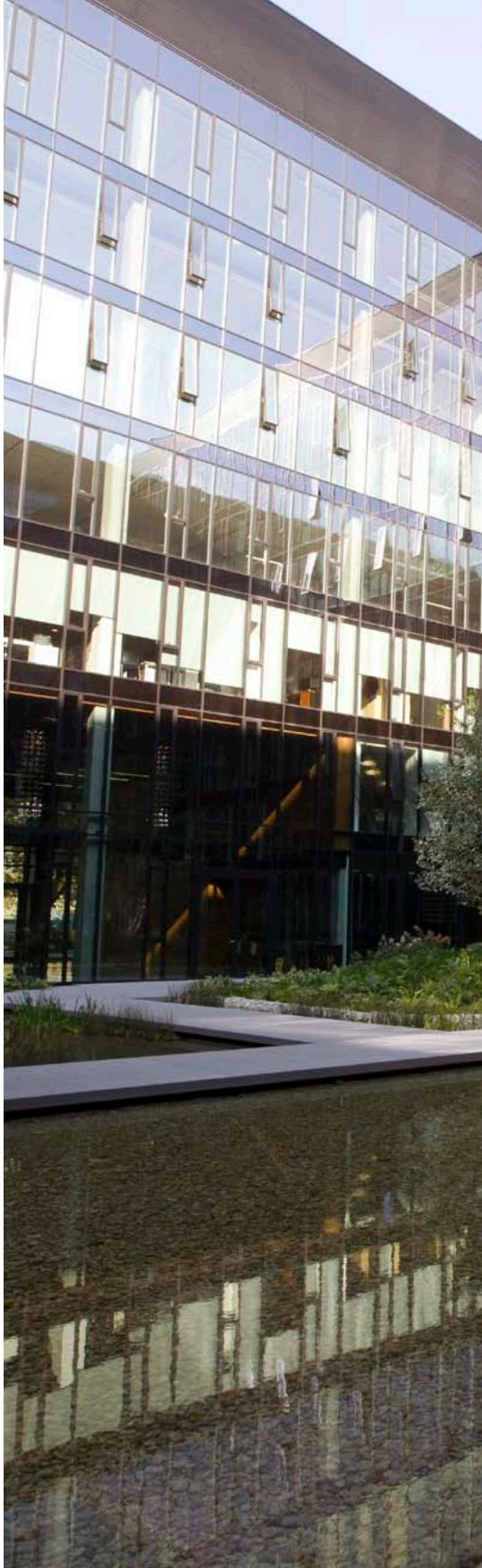
One of the most difficult issues on this project was to create as much as possible narrow dilatation connections of the aluminium construction in line with the building dilatation. For the two entrance lobbies the structural glazed façade CW 65-SC was installed due to the great height of the glass partitions. Reynaers created a bespoke solution where the 65 mm mullions were fixed to a steel substructure. Special attention was also devoted to the selection of glass. "For us it was important to meet both technical and aesthetic requirements", Wojsa-Cosentino explains. "We therefore used technical

enhancements such as a SunGuard glass coating to prevent the interior space from becoming too warm, as well as eight millimetre thick tempered glass outside instead of the typical six millimetre thick glass. We did this in order to provide a flat reflective surface, adding value to the visual quality of the building."

"IT WAS IMPORTANT TO MEET BOTH TECHNICAL AND AESTHETIC REQUIREMENTS "

Of course, visual quality is very important in today's world. Offering a combination of good design, qualitative materials, an architecture-oriented investor, and excellent execution, the Konstruktorska Business Centre is a building that balances eco-engineering driven by numbers, subtle elegance, and an efficient use of space. In other words, it is undoubtedly an excellent workplace. ■

KONSTRUKTORSKA BUSINESS CENTRE
Architects: **Epstein (Warsaw), Emkaa Architects, (Warsaw)**
Main contractor: **HB Reavis Construction PL Sp. z o.o., Bratislava (SK)**
Fabricators: **Mega Aluminium (Wołomin), Defor (Śrem)**
Reynaers systems: **CW 50-HI, bespoke solution based on CW 50-HI, CW 50 top-hung windows, CW 65-SC bespoke solution transom-mullion system alu on steel substructure, CS 86-HI doors**



MEGA ALUMINIUM



Agnieszka Wojsa-Cosentino was born in Warsaw in 1957. She graduated at the Academy of Fine Arts in Warsaw and got a master degree in Architecture, Warsaw University of Technology, at the University of Detroit (USA), and the Universita' di Napoli in Italy. After six years of building site and project management experience in Nigeria, the architect worked in three architectural design studios in Italy. In 1994 she came back to Poland to establish façade fabricator Mega Aluminium and system distributor Metra Poland together with her husband Franco Cosentino. "We wanted to form a medium-sized company with very young people fresh from technical school." In 2013 she won the 'Puls Biznesu' as 5th most enterprising female manager in Poland.

www.mega-aluminium.pl

←

Glass provides a flat reflective surface, adding value to the visual quality of the building

PROJECT SOLUTION

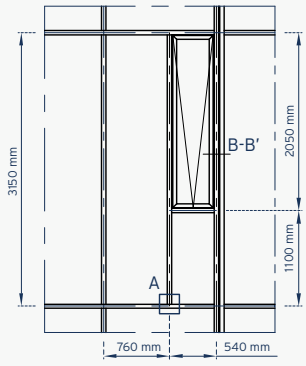
Systems:
CW 50-HI, bespoke solution based on CW 50-HI, CW 65-SC bespoke solution, CW 50 top hung windows, CS 86-HI doors

Project description:
- 21.000 m² of façade
- Transom-mullion CW 50-HI with a special mullion to transom connection with effective water evacuation
- Opening elements:
  - Narrow, vertical top-hung CW 50 windows placed in every office
  - Special extended glazing beads to minimize the gap between the glazing bead and the face cap
- Narrow dilatation connections of the aluminium construction in line with the building dilatation
  - At the building dilatation two half mullion profiles are used to allow a building movement of 17 mm
  - A wider external face cap is fixed on one of the halve mullion's pressure plate
- CW 65-SC structural glazed façade was installed at the entrance lobbies due to the great height of the glass partitions. A bespoke solution was developed where the 65 mm mullions are fixed to a steel substructure.

Elements:
- CW 50-HI: 20.200 m²
- CW 65-SC: 800 m²
- CW 50 top hung windows:
  - 1520 elements
  - 540 x 2050 mm

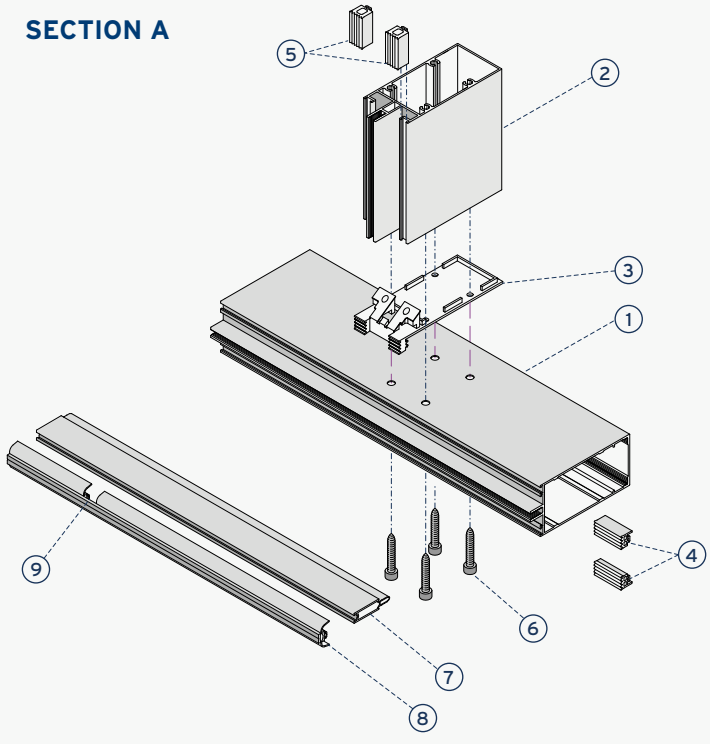
Glazing:
- CW 50-HI:
  - Special SunGuard glazing
  - Composition of glass: 8-16-55.2
  - Max. glass dimensions 1350 x 3150 mm
  - Max. weight of glass panel: 200 kg
- CW 65-SC:
  - Special SunGuard glazing
  - Composition of glass: 10-16-66.2
  - Max. glass dimensions on ground level: 2600 x 3862,5 mm
  - Max. weight of glass panel on ground level : 570 kg
  - Max. glass dimensions above ground level: 2600 x 2837,5 mm
  - Max. weight of glass panel above ground level : 420 kg

Testing:
The CW 50-HI mullion transom solution was tested for impact resistance at the Reynaers test centre in Poland.



CW 50-HI section
←

SECTION A



CW 50-HI: 3D model of transom mullion connection

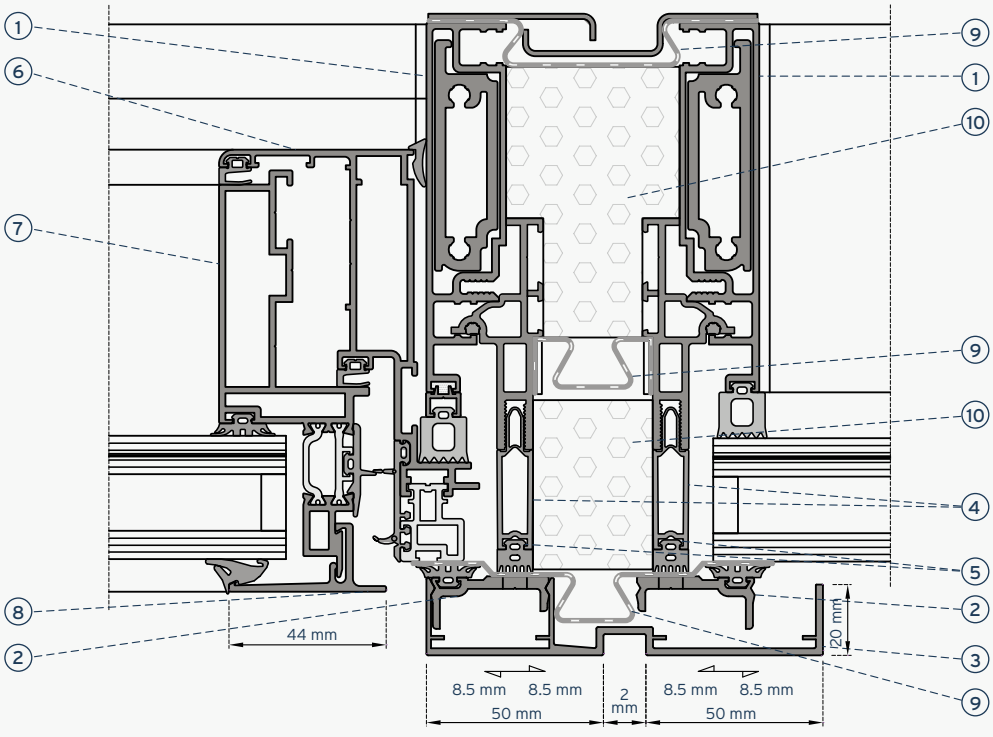
1. Transom
2. Custom-made mullion
3. Mullion -transom connection end gasket
4. Internal transom glazing gasket
5. Internal mullion glazing gasket
6. Fixing screws
7. HPVC insulator
8. HI compartimentation gasket
9. Drainage hole

SECTION B-B'

CW 50-HI with top hung window: dilatation connection

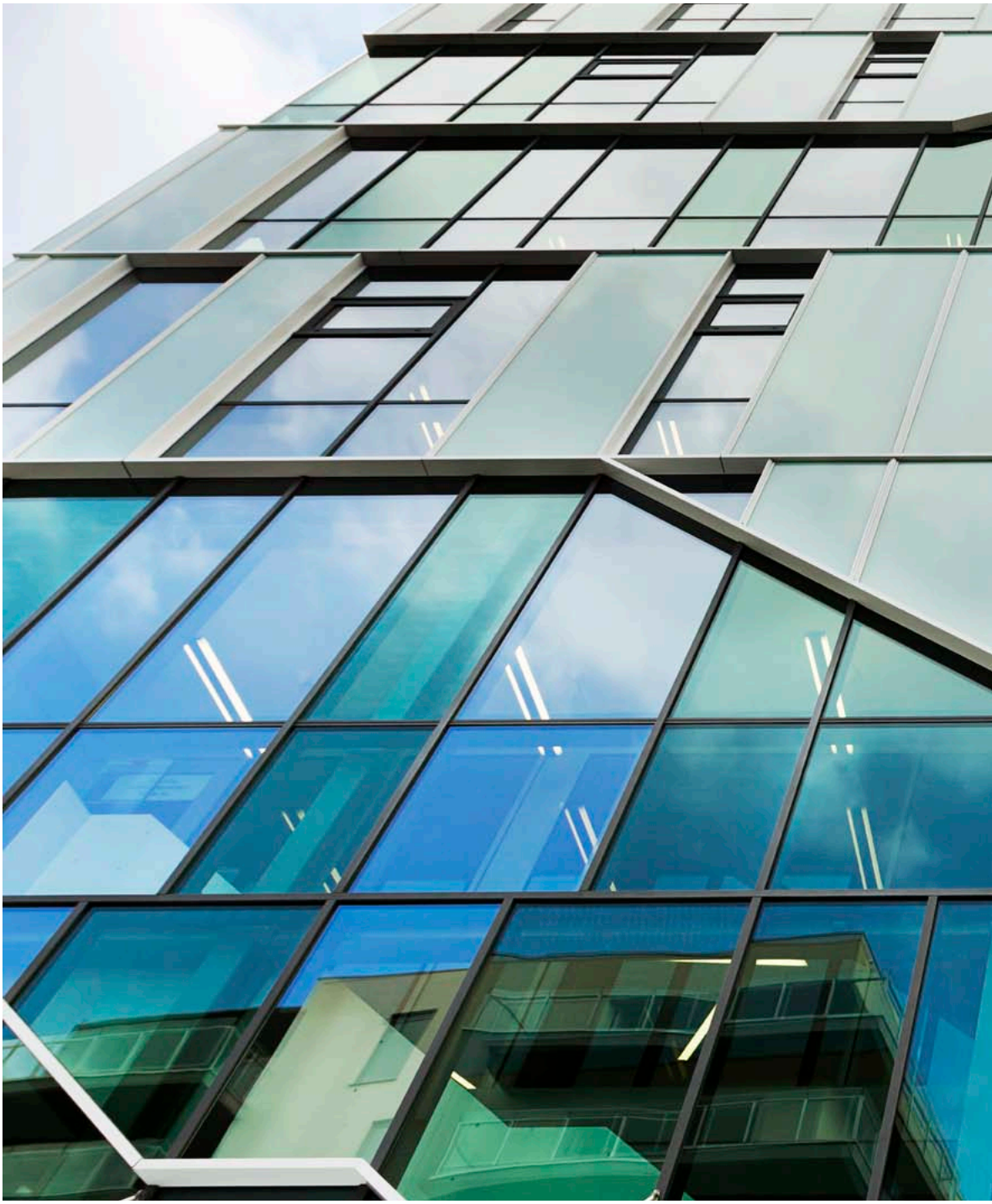
1. Half mullion profile
2. Custom-made half pressure plate
3. Custom-made face cap
4. HPVC insulator
5. EPDM gasket
6. THW* outerframe
7. THW vent
8. THW extended glazing bead
9. EPDM membrane
10. Flexible insulation material

** Top Hung Window*



PROJECT

KNOWLEDGE CENTRE **ARHUS**



ROESELARE, BELGIUM – Architects: **BURO II & ARCHI+I** Fabricator: **De Witte Aluminiumconstructies NV**



OPEN GLASS HOUSE



→
BURO II & ARCHI+I have used glass to create an open and lively building



The Knowledge Centre ARhus opened in the very centre of the provincial Flemish city of Roeselare early this year. It is a multifunctional building housing facilities including a city library, an archive, bicycle parking, offices, teaching rooms, meeting facilities, and various cultural and social spaces. BURO II & ARCHI+I have used glass to create an open and lively building.

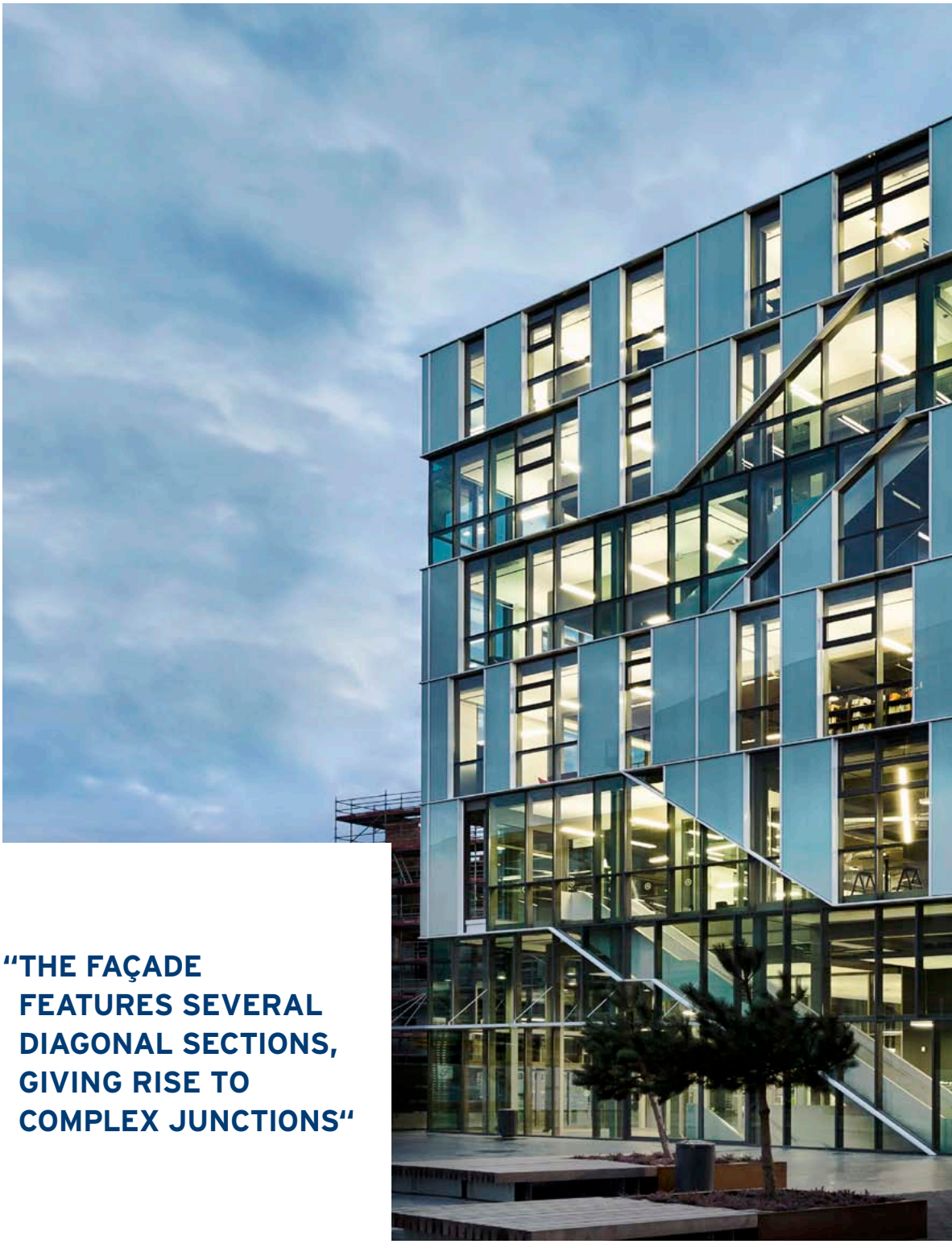
Text **Emilie Lamers** Photography **Klaas Verdru, Debbie De Brauwer**

According to the director of ARhus, Yves Rosseel, the fact that the building houses so many different functions resulted in it being given the new name of ARhus. The letters A and R are the initials of Albrecht Rodenbach, a Flemish poet born in the mid-19th century in Roeselare. 'Hus' is the West-Flemish word for 'house'. The 'open house' currently fulfils the role of meeting place and public information forum for the residents of and visitors to Roeselare.

The entire glass building has been designed by BURO II & ARCHI+I. This multidisciplinary firm with more than 120 employees has branches in Brussels, Ghent, and Roeselare itself, where architect Jo Baeke is based. He himself has been involved with the city centre regeneration project, of which ARhus forms an important part. Originally, the 'Bank van Roeselare en West-Vlaanderen' (Bank of Roeselare and West Flanders) stood at this location - a solid-looking closed building constructed from natural stone and a lot of reflective glass. The decision was made to strip the building entirely and to only retain the concrete structure. The enclosed core with its stairwells and lifts at one end of the old bank building have been completely demolished. In the knowledge centre, the new stairs have now been constructed in the zone directly behind the glass façade. The 'architectural route' that is created within the building in this way gives the façade a dynamic and lively look and feel, which fits in well with the public character of the building.

DEPTH AND LIVELINESS

Project architects Jo Baeke and Lorenzo Kemel explain that the glass façade is made up of three different types of glass: clear, transparent glass, green tinted glass, and enamelled white glass. "The surfaces of the clear and green glass panels are all level with each other while the closed-off white glass panels are positioned about twelve centimetres further forwards", explains Jo Baeke. This lends additional depth



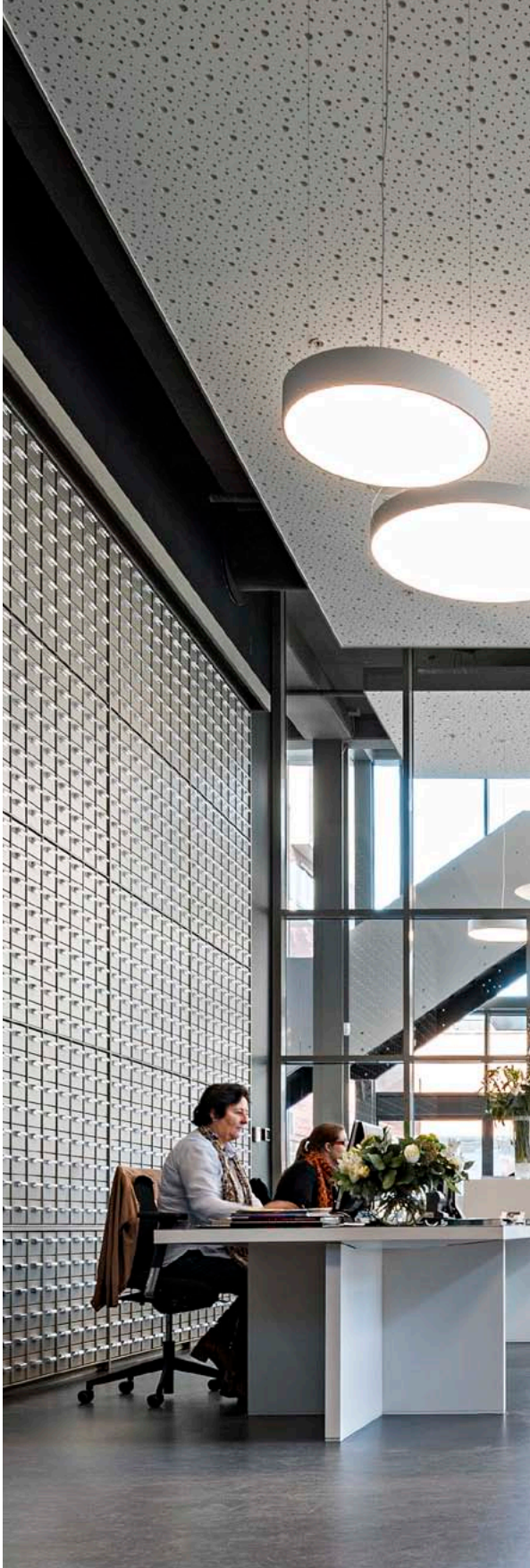
“THE FAÇADE FEATURES SEVERAL DIAGONAL SECTIONS, GIVING RISE TO COMPLEX JUNCTIONS“



and liveliness to the flat curtain wall with its total surface area of around 2,700 square metres. Lorenzo Kemel continues: "The enamelled glass panels have two different widths (100 cm and 140 cm) and appear to have been arranged at random. In fact, however, there is a strict rhythm and regularity behind the apparent arbitrariness. Every other bay features a single curtain wall style, running from top to bottom."

"THE 'ARCHITECTURAL ROUTE' GIVES THE FAÇADE A DYNAMIC AND LIVELY LOOK AND FEEL, WHICH FITS IN WITH THE PUBLIC CHARACTER OF THE BUILDING "

The curtain wall using Reynaers CW 50 profiles was executed by De Witte Aluminiumconstructies NV from Wetteren, as a subcontractor of Strabag Belgium nv Region West. The company first produced a mock-up at the building location, in which all the diagonal details and different types of glass could be clearly seen. This was a very special project for project coordinator Filip Middernacht of De Witte. "The façade features several diagonal sections, giving rise to complex junctions that all needed to be drawn separately. This was particularly important for ordering the various types of glass and aluminium profiles", according to Middernacht. He also explains that the drainage takes place as much as possible via the vertical parts. "In places where the vertical parts are interrupted by horizontal parts, the water is led via the horizontal section to the nearest vertical section. We therefore needed to continually pay attention to ensuring a perfect seal between the vertical and horizontal façade profiles", concludes Middernacht.





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The 'open house' currently fulfils the role of meeting place and public information forum for the residents of and visitors to Roeselare

BURO II & ARCHI+I





Jo Baeke was born in Brugge, Belgium (1966) and studied Architecture with a specialization in building physics at Hoger Architectuurinstituut St.-Lucas in Ghent. After his graduation, he studied building restoration at the Vormingsinstituut in Brugge. He founded Jo Baeke Architects in 1990. From 2000 till 2010 he worked as a freelancer on several projects for BURO II.

Since 2011 he's head of the department BURO II & ARCHI+I in Roeselare. Baeke is most proud of the project ARhus in Roeselare. For him design is determined by the synthesis of the various disciplines: urban planning, interior design and landscape design.
His motto is "Stay in form!"

Lorenzo Kemel was born in Nieuwpoort, Belgium (1970). He studied Architecture, specialized in building physics at Hoger Architectuurinstituut St.-Lucas in Ghent where he graduated in 1995. He also did several courses such as building techniques, building details and building promotion at Vormingsinstituut in Kortrijk.

From 1998 till 2010 he was freelance architect for BURO II and co founder at ARtuur architectenbureau. Since 2011 he is project architect at BURO II & ARCHI+I, a multidisciplinary group of architects with several departments including urban planners, interior design, landscape design, architecture.
"Keep calm and carry on is my work philosophy", says Kemel.

www.b2ai.com



↑
The façade is made up of transparent, green tinted and enamelled white glass

Several bespoke solutions were developed by Reynaers in collaboration with De Witte Aluminiumconstructies such as a T-shaped face cap for the clamping of the enamelled white glass panel . Horizontally, this protruding element is shut off by a rectangular face cap that runs through to accentuate the lines of the façade. Special brackets were created to carry the weight of these elements. For a more flush appearance, a flat face cap was used for the CW 50 transoms that are positioned between two floors.

All of this has worked very well, as demonstrated by the fact that ARhus has already won several prizes. In 2012, the project won the 'Schrijnwerk Award' (Joinery Award) due to the excellent execution and exceptional technical challenges. A year later, the building won another prize; this time the 'Benelux Aluminium Award,' a distinction awarded to exceptionally sustainable renovations. ■

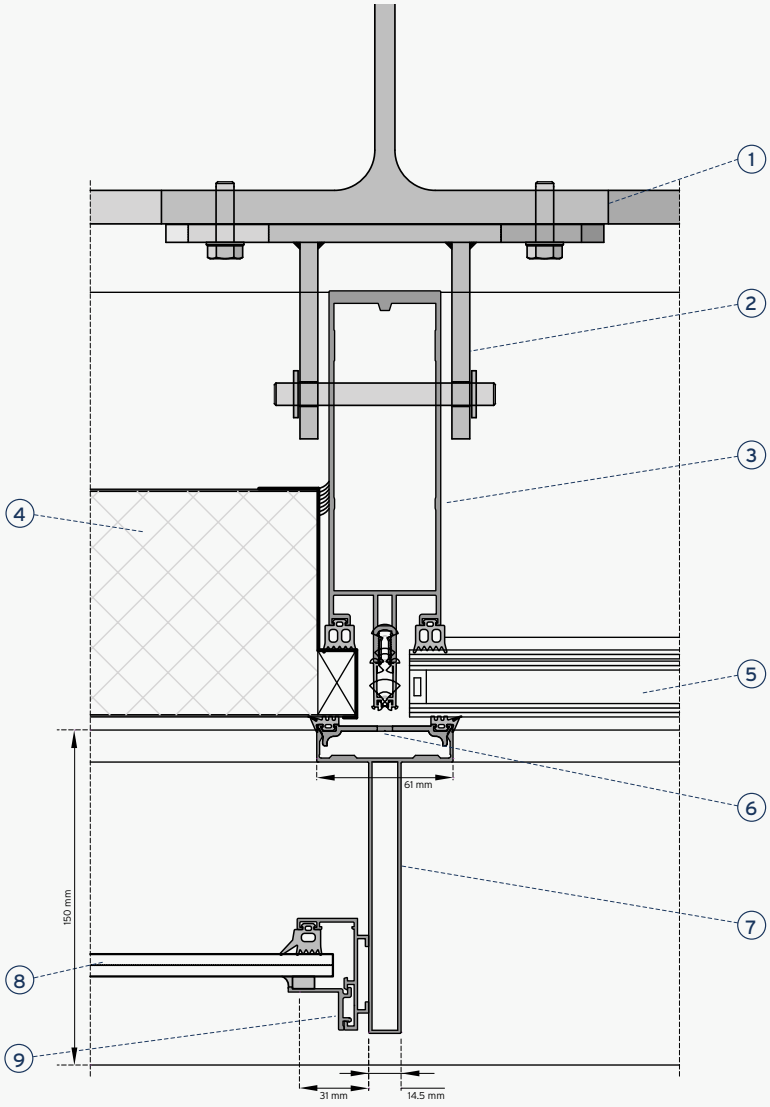
KNOWLEDGE CENTRE ARHUS
Architects: **BURO II & ARCHI+I, Jo Baeke and Lorenzo Kemel, Roeselare**
Main contractor: **Stabaq Belgium NV,Region West**
Client: **The municipal administration of Roeselare / vzw Het Portaal, Roeselare**
Fabricator: **De Witte Aluminiumconstructies NV, Wetteren**
Reynaers systems: **bespoke solution based on CW 50, CS 86-HI, CS 86-HI/HV, CP 155**

DE WITTE ALUMINIUM-CONSTRUCTIES



Philip Middernacht was born in Belgium and graduated as a civil engineer at the Katholieke Hogeschool (KAHO) Sint-Lieven in Ghent in 1999. Since then he works at De Witte Aluminium-constructies nv in Wetteren. First as an assistant-project manager, later as a project manager. He often works together with Reynaers Aluminium on projects such as Faubourg d'Egmond in Brussel (appartments and offices) and OLV College in Bevegem. His company won the 'Schijnwerk Awards 2012' in the category aluminium joinery for ARhus in Roeselare.

www.dewitte-aluconstructies.be



Horizontal section CW 50 bespoke solution

1. Steel substructure
2. Anchor
3. CW 50 mullion
4. Insulation material
5. DGU (double glass unit)
6. Pressure plate
7. Custom made face cap
8. Enamelled white glass
9. Frame profile

PROJECT

OZ'ONE



MONTPELLIER, FRANCE – Architect: **AS.Architecture-Studio** Fabricator: **Martifer**



A BEACON IN MONTPELLIER



Oz'one, designed by AS.Architecture-Studio, is today the figurehead for Port Marianne, part of the Parc Marianne city district. In this new residential district which was designed by the same architects, Oz'one is also Montpellier's first tertiary building to achieve BBC status (Bâtiment Basse Consommation – Low Energy Building). Oz'one is like a beacon among the contours and profiles of the buildings which set up a dialogue with one another around a park. Standing proudly along the edge of the site, it is organised around a transverse fault-line of greenery that reconciles the scale of the city with that of the pedestrian.

Text **Sophie Roulet** Photography **Aurelie Leplatre, Julien Thomazo**

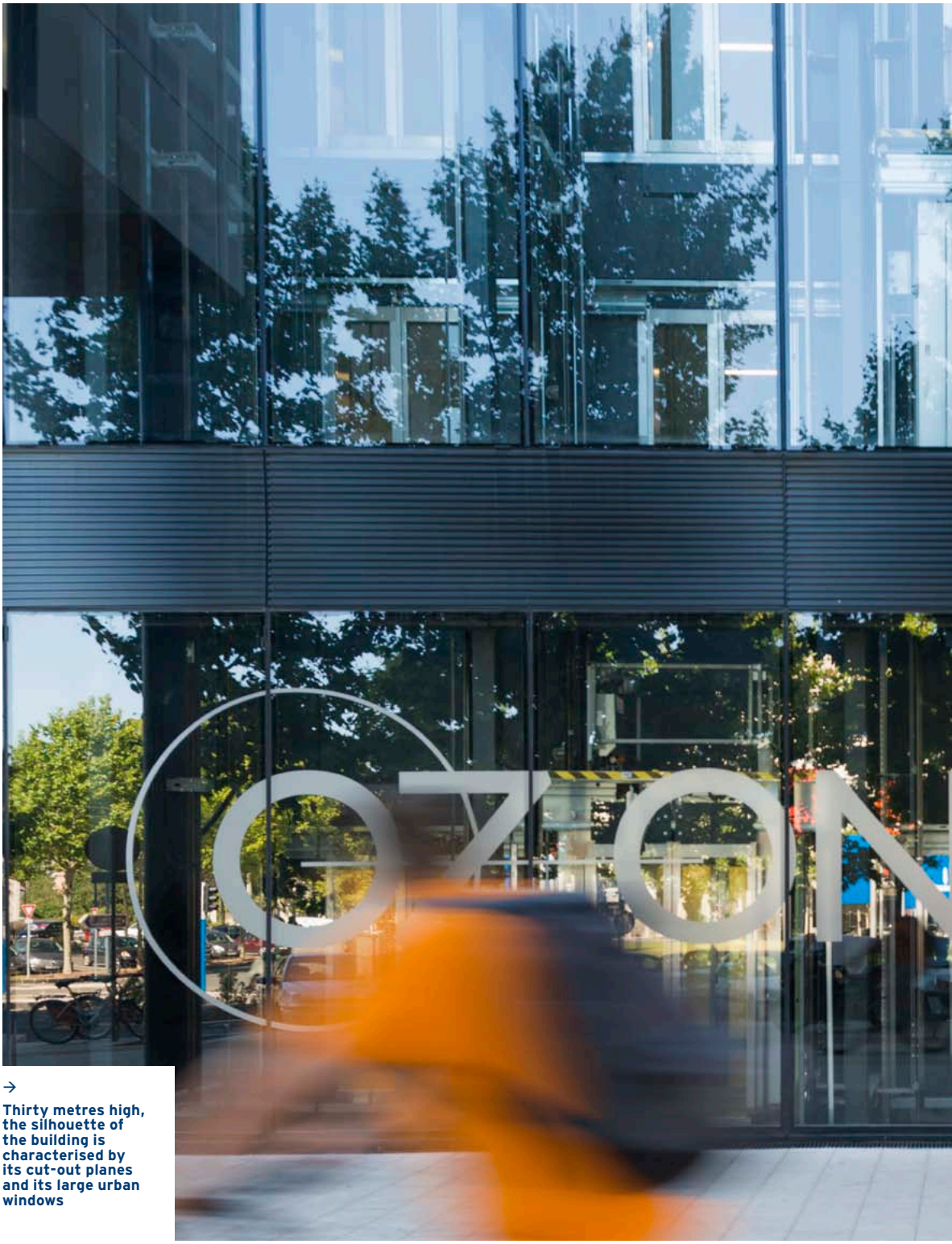
This programme - consisting of 1400 m^2 of commercial space and 9000 m^2 of office space, has taken some time to reach completion. Like a good wine, Oz'one has improved with age, as the architects who won the competition in 2005 explain. The representative of the contracting owner Slimane Haddouche, director of Eiffage Construction Languedoc-Roussillon, stresses that this project, awarded a Pyramide d'Argent business building prize by the Development and Building Federation, is now an exceptional reference: "With Oz'one, Eiffage Immobilier Méditerranée has established its model as builder and developer.

Providing legal, financial and technical support from the design phase to delivery makes it easier to guarantee the cost, lead time and level of services to our investors and users."

AN EMBLEMATIC PROJECT

On Place Ernest Granier, a continuation of the historic city that extends and mirrors the city of today, this project has become emblematic in terms of both urban development and architecture. Marc Lehmann, associated architect of AS.Architecture-Studio recalls: "The land was laid out around a park designed in its time by landscape designer Michel Desvigne and conceived as a way of regulating flood levels in the city's low plains at the end of the 90s. Already a green space, this district therefore pre-existed in the memory of residents. Something of an advantage when it came to developing an urban design that framed a natural space in this essentially residential district."

In architectural terms, it involved creating a 'compression of the city' to take account of all the different neighbourhoods, create breaks, and large frames for outside views. Starting from the uniform contour of the offices, the project was devided in three elements - base, main body of the building, and attic - in continuity with the neighbourhood, explains architect Carsten Bröge who followed the progress of the operation: "The building offers a frontage patterned with commercial spaces with SSG (Structural Silicone Glazing) fitted with Reynaers CW 86-VEC to cope with the large dimensions of certain frames (1800 by 3750 mm). The vertical fault-line as a visual opening is formed by curtain walls using Reynaers



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Thirty metres high, the silhouette of the building is characterised by its cut-out planes and its large urban windows


OZONE
N°181

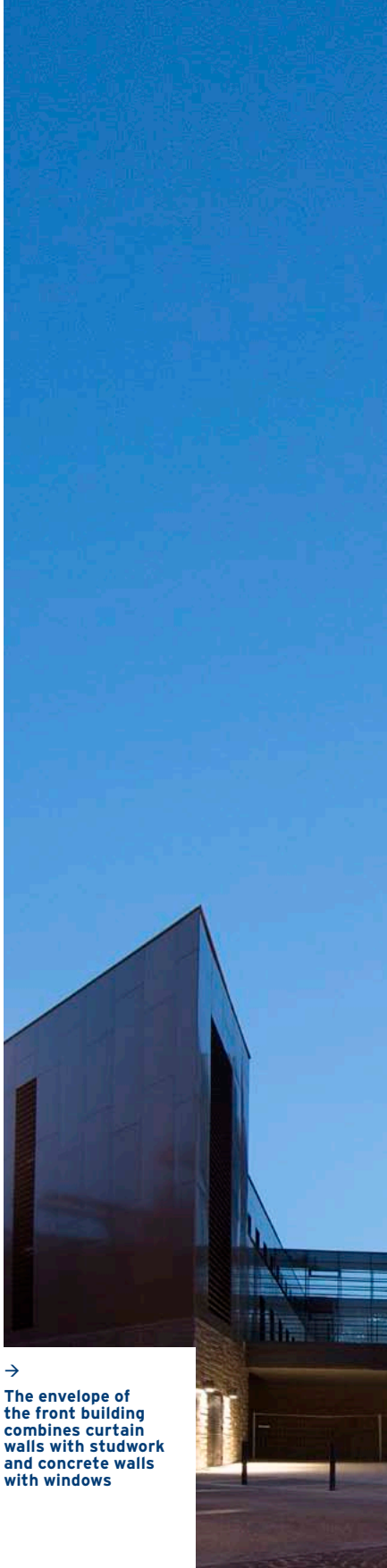
"THE DISTINCTIVE FEATURE OF THIS BUILDING LIES IN THE DIVERSE TECHNICAL SOLUTIONS THAT WERE REQUIRED "

CW 50-SG profiles, which allow the windows to be assembled without using exterior clamping profiles, give the appearance of a flat surface on the outside. Colourful, varied in materials and some thirty metres high, the silhouette of the building is characterised by its cut-out planes and its large urban windows dominating the landscape." To meet the constraints of ITE (External Thermal Insulation) with integrated sunscreening that is invisible from the outside, as well as required widths of 450 to 1300 mm, the façades are fitted with 900 composite frames using Reynaers TS 57.

BUILDING ENVELOPE

As Slimane Haddouche points out, the distinctive feature of this building lies in the diverse technical solutions that were required in order for it to become the first BBC (Low-Energy Building) status business building project in the area of Languedoc Roussillon. The treatment of its envelope optimises the management of thermal comfort between the front building and its rear part, connected by a bridge, and combining curtain walls with studwork and concrete walls with window openings. Various technical solutions all contribute to the success of this reference building: meeting the constraints of thermal insulation on the outside, assembling the glazing, the acoustics and the dimensioning of the different frames. ■

OZ'ONE
Architect: **AS.Architecture-Studio, Paris**
Main contractor: **Eiffage Construction Languedoc + Pragma, Montpellier**
Fabricator: **Martifer, Oliveira de Frades (PT)**
Reynaers systems: **TS 57, CD 50, CW 50-SG, CW 86-VEC**



→ **The envelope of the front building combines curtain walls with studwork and concrete walls with windows**

AS.ARCHITECTURE-STUDIO



Marc Lehmann was born in Rabat, Morocco in 1962. He finished his study Architecture at the Ecole d'Architecture et d'Urbanisme in Bordeaux in 1989. Since 1998 he's one of the twelve partners of AS.Architecture-Studio.
Founded in 1973 in Paris, the architectural firm brings together more than one hundred people. The team of 25 different nationalities is composed of architects, urban planners, designers and interior designers. Besides Paris, AS.Architecture-Studio has offices in Shanghai, Bejing and Venice.
"Architecture is an art involved with society, the construction of mankind's living environment, based on group work and shared knowledge", says Marc Lehmann.

www.architecture-studio.fr



HI-FINITY UPDATES

A minimised visible frame for a maximised view: the Reynaers Hi-Finity meets all the needs of contemporary architecture without concessions. The elegant sliding door has barely-visible profiles and extends from floor to ceiling, reaching across the entire length of the façade. Hi-Finity is available with double and triple glazing and ensures optimum performance, safety, and comfort. In response to the increased demand for this design, Reynaers has introduced a number of additional solutions.

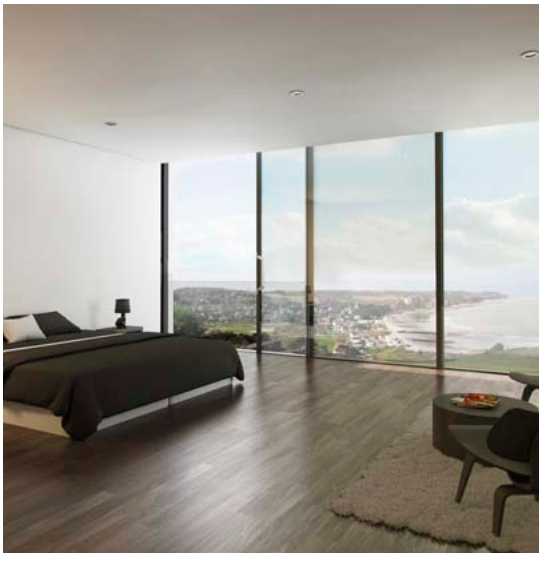
Opening corner solution
The opening corner solution makes it possible to open up Hi-Finity without any fixed corner element, allowing free passage in an open position. This solution is therefore ideal for high traffic areas such as restaurant terraces.

Glass corner solution
In a situation in which no opening corner is required, a glazed corner is ideal for creating an elegant and open appearance without any corner profile. This solution creates fully glazed façades with unobstructed views all around.

Integrated glass barrier
To support the use in high-rise buildings such as hotels and apartment buildings, Reynaers has developed a bespoke solution by integrating a glass balustrade. Two variants are



available. Where there are two vents, the glass plate is fixed to the external side of the outer frame by means of additional profiles, offering the advantage of providing safety while all vents can be opened. In the case of a fixed and an opening vent, the balustrade is integrated behind the opening vent, offering full safety.

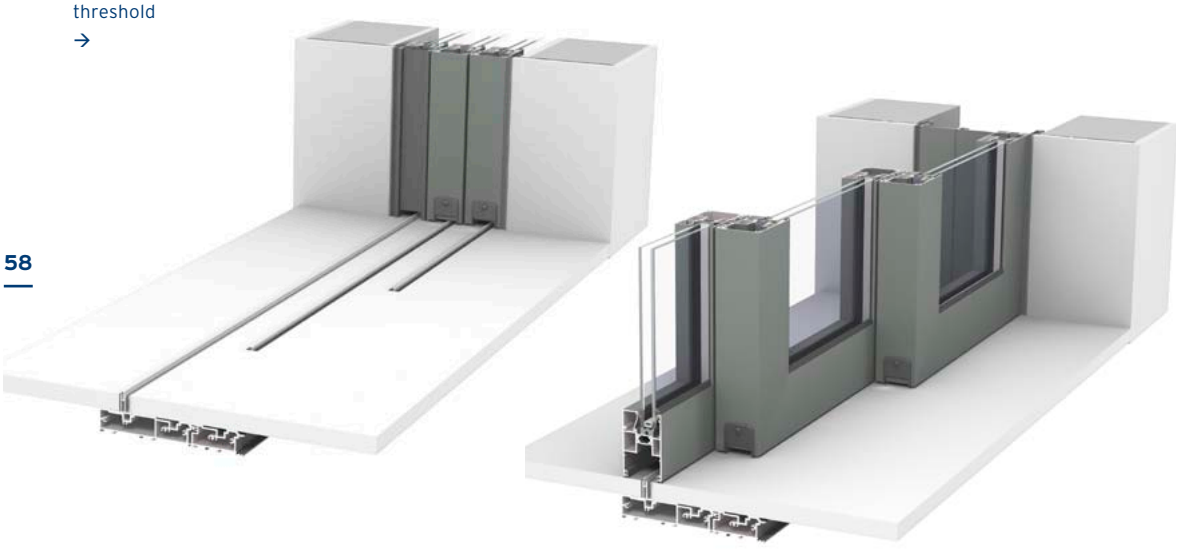


The Hi-Finity sliding system with triple glazing achieved the Minergie® component label. More information on Minergie® can be found on page 60

SLIDING DOOR UPDATE

Contemporary living spaces can benefit from large sliding elements; they create a visual extension to the outdoors, a sense of space, and allow lots of light to enter. Reynaers is continually improving its range and extending the possibilities. The following new innovations have been introduced for its Lift & Slide sliding systems:

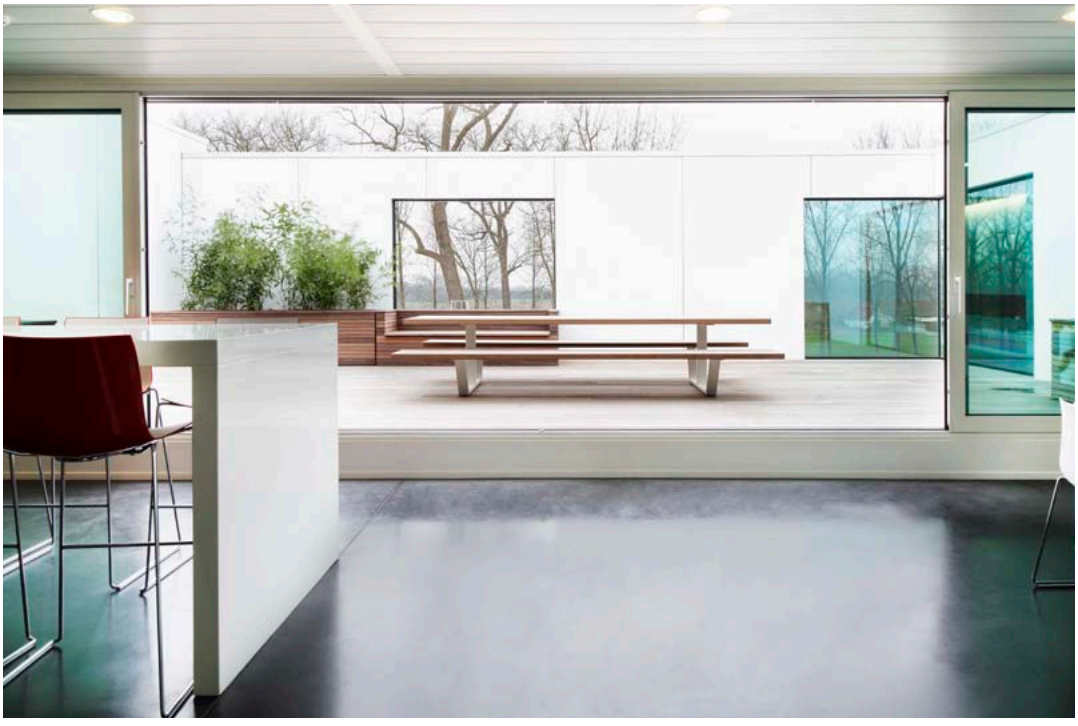
CP 130-LS pocket solution with zero threshold
→



CP 130-LS 750 Pascal
As sliding systems are used more frequently in apartment buildings, Reynaers has developed an extension for its CP 130 system for use in high-rise constructions or buildings located in coastal areas. By adding additional components, improved watertightness performances of up to 750 Pa and a wind load resistance of up to 1600 Pa has been achieved. This solution is available for the Lift & Slide system and can also be combined with the system's High Insulation variant.

CP 130-LS & CP 155-LS extensions
Various extensions to CP 130, CP 130 corner solution, and CP 155 Lift & Slide systems are available in a modular concept. These extensions can also be combined. The combination of all possible configurations creates a highly flexible system without any compromise in performance.

Pocket solution
The pocket solution is a modular system, which allows all vents to be slid into your wall, creating an even



↑ CP 155-LS/HI without meeting section

bigger open space without any visible elements. For optimal flush aesthetics in the open position, the vents can be given the same finish as the wall. The pocket solution is available for the Lift & Slide systems in duo rail, 3-rail, or up to 8-rail compositions.

Multi-rail

An innovative clamping solution allows the expansion of the outer frames of the sliding system from two to up to eight rails. These multi-rail solutions allow designs with very large openings. Special connection pieces are therefore available to create outer frames exceeding seven metres in length.

Zero threshold

For easy and unobstructed access, an additional zero threshold solution can be applied, in which the floor finishing can continue uninterrupted. The dedicated rail profiles are available in a variety of heights depending on the floor finish. These separate rail profiles make it possible to stop the rail where the element movement ends, thus improving the aesthetics of the floor finish.

THE POCKET SOLUTION IS A MODULAR SYSTEM, WHICH ALLOWS ALL VENTS TO BE SLID INTO YOUR WALL, CREATING AN EVEN BIGGER OPEN SPACE WITHOUT ANY VISIBLE ELEMENTS

CS 86-HI WINDOWS

To increase the range of possible applications for our CS 86-HI system, the air- and water tightness performances of the window-door have been upgraded to 300 Pa.



Outside glazing
A special modification to CS 86-HI allows the glazing to be installed from the outside of a building. This avoids the necessity to transport the glass through the building, and allows glass panes with larger dimensions and greater weights (triple glazing, up to 500 kg) to be installed, resulting in a more flexible building design.

Pivot window
Pivoting windows with a maximum height of 2500 mm are now available within the CS 86-HI system. These pivot windows are an attractive solution as the hinges are fully integrated into the profiles, thus creating a sense of transparency and openness. Depending on the position of the hinges, the pivot window can be supplied as tilting windows, pivoting around the horizontal axis (max. 200 kg), or pivoting around the vertical axis (max. 160 kg).

Minergie
Thanks to its high insulating performances, a number of CS 86-HI window and door configurations achieved the Minergie® and Minergie-P®component label.

MINERGIE® MODUL
FFF SZFF
Fenster Fenêtre

Minergie® is a Swiss sustainability label for new and refurbished buildings. Comfort of the users living or working in the building is at the heart of this label.
The energy consumption is used as the main indicator to quantify the building quality. The Minergie® certification on component level is used to certify components, applicable in Minergie® buildings, but at the same time, this label is widely accepted as a quality indicator for high insulation systems. This component certification is evaluating the energy performances and overall quality of the systems. The Minergie® component label for windows and doors requires a Uw value (installed) of ≤ 1.0 W/m²K.
The Minergie-P® label corresponds to the internationally-known passive house standard and requires a Uw value of ≤ 0.8 W/m²K.



MOSQUITO
Mosquito is a wire screen system, mounted on to a window, door or sliding door, which keeps out insects with a minimal interference of the view outside. The insect screen concept allows the windows, doors or sliding doors to be opened or closed without taking out the system. For the sliding insect screen, the rail is situated above or at the bottom of the door, assuring optimal comfort.







CS 68 & CS 77 OUTWARD OPENING SOLUTIONS

For outward opening windows, the options for keeping out insects are less obvious. Reynaers is therefore developing an integration of the Mosquito system into this opening type.

The ingenuity of this solution lies in the special dual handle used to operate the windows without having to remove the mosquito-proof mesh. A regular handle, to lock and unlock the locking points, is used in conjunction with a crank handle to open and close the window. These are both positioned on the outer frame, and do not interfere with the Mosquito system. They can be used in side-hung windows with hinges and top-hung windows with friction stays.

Alongside this extension, a new gear is available to allow the use of the handle ranges Orchid, Shield, Horizon, and Purity for the side-hung and top-hung outward opening CS 68 and CS 77 windows.



VENNESLA, NORWAY

The light and inviting library catches the eye thanks to the glass façade and the geometric skeleton of 27 glued wooden ribs. The ribs of the building determine the organic forms of the bookshelf units with integrated seats on which visitors can sit and read.

VENNESLA LIBRARY
Architect: **Helen & Hard AS, Oslo**
Main contractor: **Rambøll Norge AS, Oslo**
Fabricator: **CG-Glass AS, Vennesla**
Reynaers systems: **CW 50-HI, CS 59Pa-AD, CS 86-HI**



NICK SHORT

LONDON, UNITED KINGDOM

A riverside development in Greenwich, London comprising of a 16 storey residential tower with two smaller apartment blocks, and a renovated building complex with its beautiful original façade; housing a gallery, restaurant, and department store. This large-scale landmark alongside the River Thames proves that old and new work well together.

PAYNES & BORTHWICK
Architect: **KDS Associates, London**
Main contractor: **Ardmore, Enfield**
Fabricator: **Fleetwood Architectural Aluminium, Slough**
Reynaers systems: **CW 50, Vision 50, CS 77, CS 38-SL, CP 130**



KERZERS, SWITZERLAND

The robust-looking extension of this school complex is built from exposed concrete with striking details on the outer walls in gold and metallic colours. The building - extension (built with Minergie® -standard) has a centrally-positioned large, multi-storey entrance hall. The class rooms, recognisable as blocks suspended above the hall make a striking feature. The angular, sleek design of the classrooms is given extra character by the bright colours used.

SCHOOL EXTENSION
Architect: **Morscher Architekten BSA SIA AG, Bern**
Building contractor: **Wirz AG, Bern**
Investor: **Municipality of Kerzers**

Fabricator: **Dial Norm AG, Kirchberg**
Reynaers systems: **CS 86-HI, CP 155-LS/HI, CW 50-HI**



BARCELONA, SPAIN

Each wing of this modern, energy-efficient office building in Parc de l'Alba houses one of Sener's engineering bureaus. One striking detail is the roof, which seems to float fifteen metres above the complex. It protects the interior against excessive solar radiation while also allowing the use of photovoltaic cells for solar power. Reynaers CW 50 Parallel Opening Windows open parallel to the façade and provide the necessary ventilation.

SENER HEADQUARTERS
Architect: **Juan Francisco Paz Pascual (Sener), Barcelona**
Main contractor: **Sener, Barcelona**
Fabricator: **Vifasa, Ortuella**
Reynaers systems: **ES 50, CW 50 with POW (Parallel Opening Windows)**



KIRIL KONSTANTINOV

SOFIA, BULGARIA

A striking shopping centre flanked by two office buildings. The glass façade covering 20,000 square metres includes the largest glass roof in Bulgaria comprising 1.700 square metres of glass. The building that is currently in BREEAM certification procedure, has shops on four floors that are arranged around an atrium. They are all easy to find with one look around and thus perfect for fast shopping. The escalators, bridges, water features, and seating areas help create a beautiful indoor space.

BULGARIA MALL
Architect: **Studio 17,5, Sofia**
Main contractor: **Cordeel Bulgaria LTD, Sofia**
Fabricator: **Kristian Neiko 90 Ltd, Sofia**
Reynaers systems: **CW 50-SC, CW 50-Fu, CW 50-RA, CW 60, CS 77-HV, CS 77**

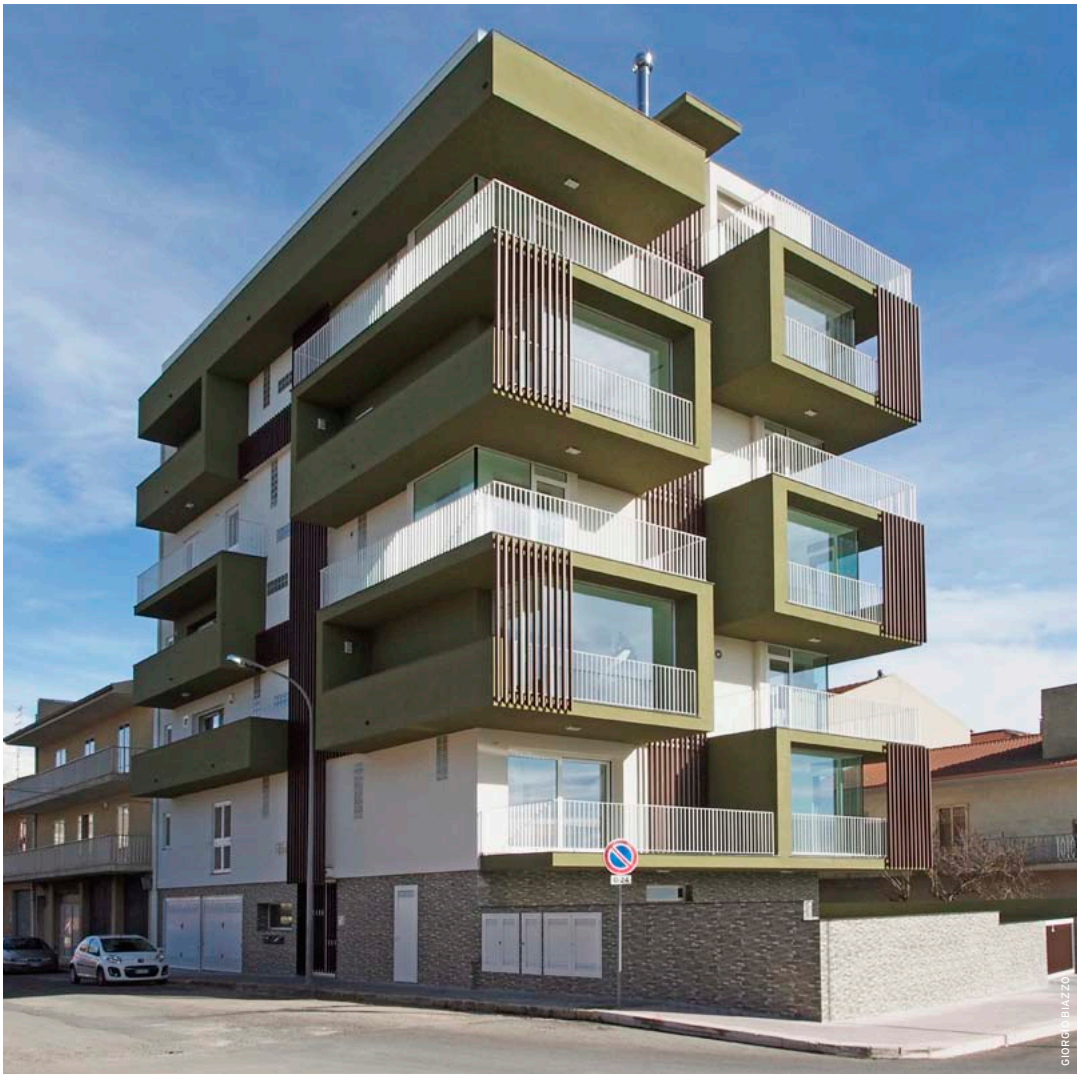


ARCHIE O'DONNELL

MEATH, IRELAND

This spectacular home is one of the first passive house rated energy-efficient homes in Ireland that has exploited the use of large areas of glass. This maximises the view to the rolling landscape without compromising on thermal performance. One particularly striking feature is the wooden volume on top of a storey made almost entirely of glass. The kitchen is housed in a floor-to-ceiling glass corner and ensures optimum light and view.

PRIVATE RESIDENCE
Architect: **Peter Legge Associates, Dublin**
Main Contractor: **Gem Construction, Longford**
Fabricator: **Phoenix Aluminium Ltd., Dublin**
Reynaers system: **CP 155-LS/HI**



RAGUSA, SICILY, ITALY

The six-storey apartment complex fits into the natural environment perfectly. It is as if the architect was inspired by the typical olive trees. A number of 'branches' emerge from the 'trunk' of the building, indicating individual cube-shaped apartments. These 'tree houses' are characterised by the vertical wooden boarding (like twigs) and the green colour (representing leaves). Large south-facing windows ensure plenty of light.

LA CASA SULL'OLIVO
Architect: **Claudio Criscione, Ragusa**
Investor: **Giovanni Borrometi Construzioni Edili s.a.s., Ragusa**
Main Contractor: **Gulino Maurizio, Ragusa**
Fabricator: **Giemme Infissi s.n.c., Ragusa**
Reynaers systems: **CS 77, CP 155**



SINGAPORE, SINGAPORE

This modern, eight-storey office building is situated in the Bukit Merah industrial estate and consists of 46 industrial units for lease and sale. Its design was inspired by the Eiffel Tower in Paris.

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8 CENTRAL LINK AT JALAN KILANG BARAT
Architect: **Universal Akitek, Singapore**
Main contractor: **Link (THM) Builders Pte Ltd, Singapore**
Fabricator: **Bond Building Products Pte Ltd, Singapore**
Reynaers systems: **CW 60, CS 59Pa**

HALMSTAD, SWEDEN

A sophisticated golf club with hotel complex. The rooms offer views across the golf course and water. High-quality insulating sliding windows ensure extra comfort.

RINGENÄS GOLF CLUB
Architect: **Tengbom Architects, Halmstad**
Main contractor: **Anjobygg AB, Halmstad**
Investor: **Ringenäs Golf AB**
Fabricator: **Preconal Aluminium & Glas, Falkenberg**
Reynaers system: **CP 155-LS/HI Minergie**



SOCHI, RUSSIA

The football stadium was built for the 2014 Olympic Winter Games and seats 40,000 spectators. Fisht means 'white head,' and refers to the view of the mountain top with the same name in the western Caucasus Mountains. The stadium will be used once again during the 2018 Football World Cup.

FISHT OLYMPIC STADIUM
Architect: **Populous, Damon Lavelle, London**
Main contractor: **Engeocom, Moscow**
Fabricator: **Top Glas M, Moscow**
Reynaers systems: **CW 50, CW 50 Alu on steel, CS 77, CP 155, CS 59Pa**



ČERNOŠICE, CZECH REPUBLIC

The simple-looking house with two residential floors is characterised by a lot of wood and glass. An ideal family home with garden, swimming pool, and a sun terrace on the upper floor level.


IVAN MELOEN

PRIVATE RESIDENCE, ALVIR, ČERNOŠICE
Architect: **Ivan Kroupa Architekti, Prague**
Contractor: **Oldrich Pilik, Prague**
Fabricator: **Alvir, Rudná**
Reynaers systems: **CS 104, CP 155-LS-HI**

PIPERA, ROMANIA

Transparency and spaciousness are characteristics that are typical of the sleek designer house. Outdoors and indoors flow seamlessly into each other thanks to the large floor-to-ceiling glass panels. Reynaers' high quality insulating windows and sliding windows contribute to the energy-efficiency.


COSMIN DRAGOMIR

PRIVATE RESIDENCE K
Architect: **Prographic Architecture Studio, Bucharest**
Main contractor: **Comnord, Bucharest**
Fabricator: **Aluminium Promotion, Bucharest**
Reynaers systems: **CS 86-HI, CP 155-LS-HI, BS 40**

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