#14

REPORT

FOCUS
Architecture for the people

PARAGON TOWER
Landmark with solid dynamism

PERTH ARENA
A giant 3D puzzle

TOGETHER FOR BETTER

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Buildings are designed in relation to the people who live, work, and enjoy leisure time in them. Buildings bring people together. Whether it’s a hotel lobby, the atrium of an office building, the entrance hall of a residential building, or a theatre foyer, every social meeting place has to take various needs and uses into account. One building may invite people inside through its transparent and open design; another building calls for a more warm and intimate atmosphere. One building needs to funnel people quickly and efficiently to their destination without detours (an airport, for instance), while another needs to make people feel calm and comfortable (like a hospital reception area). Increasingly, people are feeling lost in massive, anonymous, interchangeable environments. They have a need for buildings which are unique and which create a sense of collectivity, where there is space for shared experiences and memories. In this context, social meeting spaces such as airports, blocks of flats, and shopping centres are increasingly taking on the function of comfortable places where people want to linger and spend time sitting down, talking, strolling, and shopping.

Reynaers has an important role in this: it contributes to creating pleasant social living and working environments. In this light, Reynaers’ innovative and sustainable system solutions are more of a social product than a functional product. After all, Reynaers places great importance on its collaboration with architects, contractors, and fabricators to give shape to the social aspects of buildings - and this is particularly true for the projects in the Middle East. Reynaers demonstrates the importance it places on the social aspects of buildings by creating systems which enable people to experience openness or enter into a relationship with the outside world or with each other. We also consciously look at other aspects, such as sun reflection and windproofing, which help create a pleasant and comfortable environment. A good example of this is the Qatar National Convention Centre in Qatar. This unique project was achieved through very close collaboration between Reynaers and its partners. The building is a perfect demonstration of Reynaers’ slogan: ‘Together for Better’.

Ali Khalaf
Director, Reynaers Middle East
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ESBJERG (DK) – The streamlined façade and entrance hall of the office building of the Danish union Det Faglige Hus represent the strength of the workers’ movement. At the same time, the flowing lines recall the nearby Esbjerg Airport - seen from above, the Y-shaped building by the architecture bureau Arkitema is somewhat reminiscent of an aeroplane. The building has a clear layout and is oriented towards the sun, and its centre is formed by a three-storey atrium. The glass façades and circular skylights let in massive amounts of daylight thanks to the narrow profiles of the CW 50-HI system, yet at the same time the system provides excellent insulation. The bright atrium also serves to create a feeling of spaciousness by visibly connecting the three levels of the building. That feeling is strengthened by the layout of the floors, which have been designed as continuous circuits. The atrium flows seamlessly into the company canteen and the meeting rooms located at a slightly lower level.

Offices are found in the three ‘legs’ of the Y-shape. The façades are characterised by a combination of brickwork and glass-covered fronts. Reynaers’s BS 100 sunscreening system has been used on the three short ends of the Y-shape. This system of louvres has been attached to the exterior façade and keeps out excess heat, creating a more comfortable indoor working climate and saving on air conditioning costs. Det Faglige Hus’s desire for sustainability is further demonstrated by the flexible office concept, which saves space because not everyone is present every day. The use of the CS 104 profile also contributes to optimum energy
efficiency. And by using natural light to illuminate the building as much as possible, the use of artificial light is reduced. And then of course there’s the panoramic view of the Danish countryside. That more than anything makes this an enjoyable place to work.
BEEKBERGEN (NL) — The remarkable apartment complex Ginkgo De Bergbeek seems to blend seamlessly in with its natural surroundings. The eighteen apartments, eight terraced houses, semi-subterranean car park, and common spaces combine art, technology, and architecture. Ginkgo faces a park on one side and a 1950s residential neighbourhood on the other side. With that in mind, the architects decided to create two buildings, each with its own ‘skin’ that would communicate with its own environment. One building is clad in an organic-look ‘coat of vegetation’. The green skin consists of a transparent façade, behind which long balconies alternate with panoramic terraces with a view of the park. The terraces are covered in eye-catching prints of the unique fan-shaped leaves of the Ginkgo biloba tree. The prints are in various shades ranging from lime green to ochre yellow, and they create a continuous play of reflection, shadow, and silhouette, depending on the light, the sky, and the time of year.

The urban skin consists of brick alternating with openings in the façade. The CS 68 glass window and door system offers an airy counterpart to the stone skin, which visually connects the building with the existing residential district.
Red Apple

SOFIA (BG) - Aedes Studio is a fast developing young architecture firm which has created a number of impressive structures in the Bulgarian capital in a relatively short time. The apartment complex Red Apple, located in the old city centre right next to a huge park, is the newest addition to their growing portfolio. The building takes its name from New York’s famous nickname and the striking colour of the brickwork. The brick façade evokes the same feelings of opulence as architecture from the 19th and 20th centuries, but at the same time the irregularity of the façade composition gives the complex a very contemporary look. The building’s roughly triangular footprint makes it stand out among the surrounding nondescript architecture dating from the 1970s.

The well-thought-out combination of closed walls and transparent glass allocates the influx of sunlight in such a way that a balance is created between the sheltered interior and the contact with the outside. The loggias and high windows were created with Reynaers systems CS 77 and CW 50. In combination with the skylights and interior windows, they give the apartments a loft-like feel.

RED APPLE
Architect: Aedes Studio, Plamen Bratkov, Sofia
Developer: Sofbuild & Co, Sofia
Fabricator: Muharski Ltd, Sofia
Reynaers systems: CS 77, CW 50
Buildings are designed for living, working, meeting, learning, relaxing, sleeping and so on. When buildings bring people together this requires public spaces. The more people using this public space, the more neutral and efficient the architecture should be. One has only to compare a hotel lobby to a shopping mall to understand how different needs and uses in the various scales of functions and square meters influence the design of public space.

Text: Indira van ’t Klooster
Photography: Thomas Saraceno, IAF
The rise of the consumer society in the 1960s has forced architects, contractors and developers alike to rethink their role as creators of public space. To design high quality space while at the same time working with the unwritten laws of numbers and money? Since then they have tried to find a balance between these two impulses in every way imaginable. And when people’s needs change, so does architecture for the people.

In public spaces people have a tendency to mark off their own territory, such as by putting a photo on their desk at work or putting their coat on the seat next to them in the train. In large public buildings such as transport hubs, people unsure of their route almost always head to the right and head for the lightest areas. In public toilets, the toilet cubicles are almost always arranged at right angles to the door, because people don’t like to look directly at toilets. Extroverted people need less office space than introverted people and generally have more lively decorations in their workspaces. And why do we always buy more than we planned to when we go to IKEA? After having wandered along the arrow-marked path for half an hour, we want to feel like there’s a purpose to the time we’ve spent. All this information about human behaviour is derived from scientific research in the field of environmental psychology.

**MAXIMISE MOMENTS**

For architects, contractors and investors this kind of knowledge is essential. Buildings like shopping centres and libraries have developed into places which also encourage recreation, relaxation, and encounters with others. In this sense they are following the trend of railway stations, airports, and museums. Here, public spaces are designed to maximise moments for sitting and talking, walking and shopping, passing the time and meeting people. And whether the space is the lobby of a block of flats, the atrium of an office building, the reception area of a hospital, or the foyer of a theatre - the more generic the purpose of a building, the more generic its shape language. What effect does this have on developments and trends in architecture?

The power of large numbers and big money is what drives standardisation. Standardisation made post-war social housing and large-scale production processes possible, but it also meant that architects became much more political and economic in their work. Should architects be willing to be so closely connected with the rationalisation of the building process? Or would this distract them from the architect’s ultimate task: to create an autonomous, cultural, and ideological language of shapes? This was the debate in the 70s of the previous century, headed by Manfredo Tafuri who discussed the relationship between architecture and capitalism in his book ‘Architecture and Utopia’ (1973). What he meant exactly only became clear some twenty years later, when economy and subsequently architecture were booming. After all, the flip side of architecture for the masses is the presence of chains such as McDonald’s and IKEA which are the same everywhere in the world. And that results not just in interchangeable buildings, but also in interchangeable cities.

The French anthropologist Marc Augé discussed this phenomenon in 1992 in his essay ‘Non-Places: Introduction to an Anthropology of Supermodernity’ (Non-Lieux, introduction à une anthropologie de la surmodernité). People’s living environments are getting more and more impersonal. Augé calls all of these transport hubs, shopping centres, and blocks of flats ‘non-places’. These are buildings for the masses, buildings with which you have no relationship as an individual: you are born and die in a hospital (instead of in your own bed), you spend your holiday at an all-inclusive resort (instead of in a leaky tent), and you do your shopping in a supermarket (instead of at the local baker). As a result, people spend the majority of their lives in impersonal, anonymous buildings and spaces.

So it became clear that to design these impersonal spaces it was vital to make them more personal and meaningful. Research such as described above helps architects in this process. That’s how we know that in blocks of flats, people are less likely to go and hide away in their own apartment if the route to it is...
PUBLIC SPACES ARE DESIGNED TO MAXIMISE MOMENTS FOR SITTING AND TALKING, WALKING AND SHOPPING, PASSING THE TIME AND MEETING PEOPLE
‘PLACEMAKING’, RATHER THAN EFFICIENCY HAS BECOME AN IMPORTANT THEME IN CONTEMPORARY ARCHITECTURE.
UNIQUENESS

But where the rate of new construction is declining, standardisation and large scales are less of an issue. Furthermore people tend to value craftsmanship and uniqueness more. There’s a good reason why market halls are so popular in Europe at the moment, such as the market hall in Ghent by Robbrecht & Daem or the one in Rotterdam by MVRDV. Another good example of this is the Sir Duncan Rice library in Aberdeen by schmidt hammer lassen architects. Here the atrium has not only been created as a spatial spectacle, but as a window onto the activity within the building, through the clever use of a ‘vortex’: the openings in the floors of the various storeys in the atrium are shifted slightly in relation to each other. This creates a double effect in that you can look onto other storeys from above and from below, giving the feeling of looking into a doll’s house or a beehive. You can see books, students, groups of people, life, all at once.

Architects, clients, and users are accommodating this need for collectivity and artisan- ship. ‘Placemaking’, rather than efficiency has become an important theme in contemporary architecture. This coordinates with a shift in what people want to gain from public spaces: a sense of collectivity, an experience, a unique place that offers them memories and stories. The point is no longer that people should be efficiently subsumed by a large space but that they should have the feeling of being part of a greater whole.

more lively and inviting. So architects now create floor plans with spaces for personal encounters and for shelter. Naturally, this kind of approach won’t work at an airport - where maximum visual perspective and light are necessary, in order to keep people moving. Designers address the need to have a protected territory in this situation by creating demarcations in rooms such as low walls or hedges or by designing spaces between chairs. An interesting example of this is the Australian concert venue and sporting events stadium Perth Arena (see p. 14) where a ‘humanity in scale’ has been found in subdividing the façades into smaller ones, colours schemes and wooden passageways. Yet buildings like this are first and foremost efficient machines still which - even though the public areas were designed with great care - are primarily designed to move people efficiently from one place to another.
A GIANT 3D PUZZLE OF ARCHITECTURE

PERTH, AUSTRALIA

Text: Isabelle Priest
Photography: Stephen Nicholls

PERTH ARENA
The design of Perth Arena is based on Christopher Monckton’s Eternity Puzzle, a puzzle filling an almost regular dodecagon (polygon with twelve sides and twelve angles) with 209 irregularly-shaped smaller polygon pieces. The architects designed an impressive, flexible concert venue and sporting events stadium. It is a piece of architecture that resembles a giant and complex jigsaw puzzle.

With its 9800 triangular panels and a thousand rectangular panels, its architects - Ashton Raggatt McDougall (ARM) and Cameron Chisholm Nicol (CCN) - appear to have used the rhetoric of the puzzle to describe the building’s outward and inward aesthetics. However, this interpretation is rather superficial, based on subsequent impressions rather than the architects’ original ideas.

The idea of the puzzle can be extended to the very essence of the building. Containing a flexible concert venue and sporting events stadium with a capacity of 15,000 people, where coaches can drive directly onto the arena floor, and featuring five multipurpose function rooms, a 686-bay car park in the basement, a 56-metre by 35-metre retractable roof that opens in just seven minutes, 36 corporate suites, and half a dozen food and beverage outlets; the building is highly complex. Interlocking basketball courts slide over tennis courts. It is easy to see how a puzzle became the vehicle for its external expression. Its sheer multi-functionality makes Perth Arena an impressive giant 3D puzzle and piece of architecture.

The complex is based on ‘Eternity,’ a puzzle that was launched in 1999. Thought to be practically unsolvable, its manufacturer offered a £1 million prize for whomever could solve it within four years. Unsurprisingly, it became a global craze, and was solved about a year after its launch. By the time Eternity Puzzle II came out in 2007, preparatory construction work for Perth Arena had already begun.

Located in the city centre, the new 28,000 square metre arena replaces Perth Entertainment Centre as the first phase of a 13.5-hectare urban renewal project to link Perth’s central business district directly to Northbridge by sinking the Fremantle railway line. Opening last November, the building cost AUD 548.7 million (about €355 million) and has become home to the Perth basketball team, the Wildcats, and the international tennis tournament, the Hopman Cup.

**UNIQUE FAÇADES**

Whether viewed from the grand boulevard to the south or from the elevated freeway to the west, the building has been designed so
A thousand rectangular panels and 9,800 triangular panels. The glazing panels are arranged in bold geometric patterns.
that no façade or entrance can be seen as more important than another. Instead, the building is defined by nine unique façades, which take the form of interconnecting polygons that fold over and overlap each other. In turn, these façades are broken up by the colour ‘International Klein Blue’, white and black cladding, and glazing panels arranged in bold geometric patterns, reflecting the explosive atmosphere of events held inside. This theme is continued at the interior entrances, foyers, and multifunctional spaces where splashes of red, orange, and yellow have been added to timber panelling to aid zoning and orientation, and as a continuation of the entertainment vibe.

**LIGHTWEIGHT AESTHETIC ELEMENTS**

In the context of such a complex façade system, Reynaers created a bespoke solution based on the CW 50 Structurally Clamped Curtain Wall range. The glazing has been adapted to a non-standard shape with parallel sashes to integrate seamlessly into the overall triangular cladding system. The design can withstand all wind loads, thermal movements, structural movements, and system loads imposed by the building’s diagonal transoms. For ARM and CCN, the system had to merge into the lightweight aesthetics of the exterior. During the day, the windows appear almost - if not completely - invisible against the other façade materials. At night, however, bolts of light streak across the building, transforming it once again. Inside, the windows are the connecting device between outdoors and indoors. The variously angled glazing frames that merge with the patterns on the exterior are picked up and continued in alternative directions.

And as if the building’s structure and aesthetics were not ambitious enough, Perth Arena also has a strong environmental agenda with mixed-mode natural ventilation, low-energy displacement air conditioning, and photovoltaic arrays on the roof. With U-values of approximately 1.5 and an SHGC ranging from 0.23 to 0.6, the CW 50 system fulfils these ambitions. The building has also been recognised for its bespoke windows by the Australian Window Association.
by means of the ‘Best Use of Windows and Doors Commercial – New Construction’ award.

For all the building’s complexity, however, it has been designed to be easy to navigate and bring people together. Standing at over fifty meters tall, the circulation spaces are arranged around huge atriums. Staircases within these spaces allow visitors to get a perspective of their orientation and feel more connected to activities happening on the many different levels; aided by more than 300 screens for digital signage. This method of opening up floor plates in strategic areas also means that away from the atrium, by the food outlets and bars, there is a cosier ambiance with lower ceiling heights. A similar approach has been taken in the main arena itself where differently sized events and more intimacy can be accommodated by curtain screens which pull across to divide the space.

In Perth Arena, the architects have created a building with the level of buzz through its vivid colours and dynamic geometry that will attract acts to the city that may not have otherwise visited. And most importantly for Perth, and Western Australia as a whole in relation to the East Coast, it keeps the city and its sporting and entertainment scenes vibrant. ■

RECREATION/ENTERTAINMENT CENTRE PERTH ARENA
Architects: ARM Architecture, Perth and Melbourne and Cameron Chisholm Nicol, Perth
General contractor: BGC Construction, Perth
Fabricator: Alcom Fabrications, Perth
Reynaers system: bespoke solution based on CW 50-SC
### PROJECT SOLUTION

**Systems:**
- Bespoke solution based on CW 50 structural clamped façade

**Project description:**
Development of a bespoke solution to be used in a very complex inward and outward sloping façade:
- The irregular shaped elements required custom-made glass supports and T-connections
- Integration of several irregular shaped Parallel Opening Windows in the façade
- Special corner connections
- Bespoke transom and mullion
- Frames had to be slim with a minimum of aluminium visible through the glass
- Bespoke finishing profile and accessories

**Elements:**
- Mullions of some elements are clamped onto a steel substructure
- Several different-sized elements with irregular shapes
- Air-Wind-Water testing in the Reynaers Institute

**Glazing:**
- Some elements in single and some in double glazing
- Acoustical variants with a 32 mm spacer and an acoustic layer between the glass panes
- Due to the high loads caused by the slope, special protection was foreseen to avoid the glass from falling out.
AT NIGHT BOLTS OF LIGHT STREAK ACROSS THE BUILDING, TRANSFORMING IT ONCE AGAIN
When the leading Japanese architect Arata Isozaki designed the Qatar National Convention Centre, he came up with a spectacular and inviting entrance in the form of two intertwined trees supporting the roof of the striking building. The QNCC serves as a multifunctional meeting place. It is a conference centre that also accommodates concerts, gala events, and exhibitions.

The Qatar National Convention Centre (QNCC) is situated in ‘Education City,’ not far from the skyscrapers of the modern business centre in Doha, the capital of the oil-rich state of Qatar. The remarkable design icon is located on the enormous campus among faculties of some of the world’s best universities, such as Weill Cornell, Texas A&M, and Georgetown, as well as research and technology institutes like the Sidra Medical and Research Center, and Qatar Science & Technology Park. This is
the home of Qatar’s ambitious future plans, including the knowledge-based economy: here, oil and gas must make way for science and education; for innovation, technology, and entrepreneurship.

The architectural firm Arata Isozaki & Associates was given a total area of 200,000 square metres to use. The firm produced three buildings: the convention centre, the exhibition centre, and the multi-storey car park. The striking four-storey main building has a truly spectacular entrance. The two 250-meter long, curved steel Sidra tree structures supporting the roof are incredible eye-catchers. But that is not all. The Sidra tree was not chosen by chance. The tree is an icon in the Qatari culture. It has its origins as a beacon in the desert and is used by the Bedouin as a meeting place and shelter.
VISITORS DO NOT FEEL LOST OR INSIGNIFICANT, PARTLY BECAUSE OF THE FURNITURE SELECTION AND THE CAREFULLY PLACED LOUNGE SETTINGS.
SYMBOLIC MEETING PLACE

The architects instantly set the tone with this symbolism: the convention centre is a meeting place. Outside the building, people can share knowledge and stories in the shade Beneath the trees; inside, the visitor is invited into the conference center where everything is large, high, and transparent. A sense of spaciousness is given by ensuring the incidence of lots of daylight. Through the use of Reynaers' slim CW 50 system, the extended curtain wall can let in the maximum amount of light.

However, visitors do not feel lost or insignificant, partly because of the furniture selection and the carefully placed lounge settings which allows visitors to engage comfortably. The fact that visitors have a sense of being part of a large entity has been made possible by the architect through creating the opportunity to divide and arrange spaces flexibly, by means of movable ceilings.

The main building is connected by means of two interlinked oval volumes. The car park has space for more than three thousand cars and forty buses. On the other side, the architect produced a multifunctional exhibition hall with a total of 40,000 square metres of space. It is a hall that can accommodate scientists invited for a seminar, or international visitors attending the United Nations climate change conference, one of the world's largest ever conferences (with 17,000 delegates who attended this event). This instantly put the brand-new QNCC on the world map in the fields of logistics (the smooth movement of large groups of people) and technology (with audio-visual, acoustic, and high-tech tours de force concealed in mobile ceilings with lamps that open and close as a finishing touch).

The QNCC also features a theatre with 2300 plush seats and the stage, which is characterised by warm colours and luxurious materials. There are also three auditoriums, 52 smaller meeting rooms, a room for gala events and other activities, six luxurious VIP lounges with five star catering, and seven hospitality suites. These facilities make QNCC one of the most sophisticated, most flexible, and largest convention centres in the Middle East.

LIGHT AND GREEN

Reynaers' efforts in the project have been considerable. It supplied the solutions required to allow the construction of the transparent extended glass façade of the exhibition centre with a span of at least sixteen meters without additional support. The façade with aluminium and steel features stainless steel covers on the inside and is reinforced with OS façades measuring 650 millimetres in depth and covering 5500 square metres.

QNCC was built with a focus on sustainability. The 'green' building was built in accordance with the 'US Green Building Council's Leadership in Energy and Environment Design' (LEED) gold certification standard. Through the application of innovative solutions for matters such as economical water and energy consumption, the building is at least 32 percent more efficient than comparable buildings that do not make use of these technological innovations. One of these innovations is the use of 3500 square metres of solar panels, providing more than twelve percent of the energy used within the centre. Energy-efficient LED lighting is also used in the exhibition halls.

In the future, a railway station will connect Doha's business centre with Education City, and more car parks and luxury hotels will be built. These measures will make the QNCC more accessible to even more people.

QATAR NATIONAL CONVENTION CENTRE

Design architect: Arata Isozaki, Japan
Executive architects: Halcrow Yolles/RHWL, UK (Conference Centre) - Burns and McDonnell Inc., US (Exhibition Center) - WS Atkins and Partners, UK (Main Car Park)
Project Management: ASTAD, Qatar
Construction Management: KEO International Consultants & ASTAD, Qatar
Contractors: Baytur Insaat Tahhut A.S., Turkey (Conference Centre) - Victor Buyck Steel Construction Sdn. Bhd., Malaysia (Sidra Tree Structure) - Eversendai Engineering Qatar W.L.L., Qatar (Exhibition Centre) - Midmac-Six Construct J.V., Qatar (Exhibition Centre) - MAN Enterprise, Qatar (Main Car Park)
Developer: Qatar Petroleum, Qatar
Fabricator: Jungbluth Alu Partners S.A., Belgium
Reynaers-systems: CW 50, CW 50 bespoke solution, CW 50-Ra, CS 59-Pa, CS 68
**Systems:**
- Bespoke solution based on CW 50 curtain wall

**Project description:**
An extremely large span called upon a custom-made development
- 250 meters long x 15 meters high façade without an intermediary support
- Façade needed to be as transparent as possible whilst avoiding deflection:
  - Profile width: 70 mm
  - Width of outside profile cap: 50 mm
  - Profiles connected to a slim steel structure that is fully clad on the inside with stainless steel caps
  - Reinforcement via 4 glass fins per façade module of 2 meters wide (each module has 4 elements on top of each other)
  - Tension bars are placed behind the glass fins for extra strength, stiffness and leveling of the sockets

**Glass fins:**
- 650 mm deep x 40 mm thick (3 sheets of 12 mm layered glass with PVB film in between)
- Fins are glued in an aluminium profile and then mounted on the slim steel structure
- Weight: 225 kg per fin, 900 kg in total per module

**Elements:**
- 4 elements per module
- 3.75 m high x 2 meters wide
- Total weight of 1 glazing module incl. steel structure, profiles and fins: 3.7 tonnes

**Glazing:**
- Double layered glazing with a thickness of 46.5 mm (66.2/16/88.4)
- Burglary and explosion resistant
- Weight: 530 kg per element

**Testing:**
- Air-Wind-Water tests in the Reynaers Institute
- Water tightness up to 600Pa
- Wind tightness (deflection) up to 1200Pa
- Safety test up to 1800 Pa
  - 13.5 kN per elements
  - 54 kN per module

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**PROJECT SOLUTION**

- CW 50 Vertical section transom
- CW 50 Horizontal section mullion
- 4 glass fins per module support the 15 metres high façade

1. Aluminium face cap
2. EPDM gasket
3. Aluminium mullion profile
4. Steel support profile
5. Stainless steel cover cap
6. Glue profile
7. Norton tape
8. Silicon seal
9. Glass fin
10. Stainless steel glass socket
11. Aluminium transom profile
HOLIDAY-
HOUSE WITH A
VIEW

QUEENSTOWN,
NEW ZEALAND
Text: Andrew Guest
Photography: James Jubb

LAKE
WAKATIPU
HOUSE
Perched on the edge of Lake Wakatipu in New Zealand’s South Island and surrounded by miles and miles of mountains, Queenstown has an enviable reputation as ‘the Southern Hemisphere’s premier four season lake and alpine resort’, a role which boosts its year-round population of 19,000 with an average 1.9 million visitors a year. The centre of Queenstown is on the north side of the lake, but much development now takes place on the sunnier north-facing side of the lake, where on a peninsula that juts out into Lake Wakatipu, known as Kelvin Heights, houses can enjoy views of lake and mountains to both north and south. It was on just such a site that New Zealander Anne and Australian Bryan Oliver purchased a plot occupied by a modest ‘bach’ or ‘crib’, to build a holiday-house for themselves, their family and friends – their permanent home being some 4000 miles away in Perth, Western Australia.

Designed by Queenstown and Auckland-based Koia Architects, four simple box-like units clad in cedar and local schist stone step down the steeply sloping site between Peninsula Road and the lake. Thanks largely to a variety of Reynaers window and door systems, the house makes the most of its location in...
terms of views and light, and achieves the architect’s aim of a house where the boundary between inside and outside is blurred; this effect is reinforced by the use of the schist stone inside and outside and with grey Kerlite tiles being used for both internal and external floors. The architect wanted to create a building that responded to rather than competed with its location, while the clients wanted a house where they could spend as much time outside as inside – as Kiwis do.

**MAGNIFICENT VIEWS**

Entering the house from the south, your eye is immediately drawn through to the lake and mountains beyond as the main living area is set six steps down in front of you. To the left the entrance hall leads to the staircase up to the master bedroom and guest bedroom or sitting-room. Set at the highest level of the house, Reynaers CS 77 windows placed in north, east and south walls provide these rooms with magnificent views to lake and mountains on both sides of the peninsula. The staircase that leads up to this floor is the first of several in the house lined with fins of rimu, a native New Zealand timber reclaimed from the ‘bach’ previously on the site and from other demolished properties. The rimu provides a warm thread connecting the different parts of
THE HOUSE MAKES THE MOST OF ITS LOCATION IN TERMS OF VIEWS AND LIGHT
the house, but also connects the house to its location and its past.

**SLIDING DOORS**

The main living room spans the entire width of the house, combining together fire, sitting, dining and kitchen areas. Using a combination of Reynaers CP 155 large sliding doors and Reynaers CS 77 fixed windows, Koia were able to provide an entire thermally insulated and condensation-free translucent north wall, with the CP 155 windows able to be slid back to incorporate the spacious balcony as part of the living area. A deep overhang on the living room roof reduces the potential solar gain in this area from the summer sun.

A stair behind the stone wall at the west end, lit by Reynaers CS 77 windows, leads down to two further bedrooms, a bathroom and a laundry. Reynaers CP 96 sliding doors provide the two north-facing bedrooms with magnificent views as well as excellent thermal insulation. The next stair, again clad with rimu fins, leads down to the lowest level of the house.

The architects have combined local materials and the latest Reynaers glazing and aluminium technology to make a stunning house that will be a pleasure to inhabit in any of Queenstown’s four diverse seasons.

**LAKE WAKATIPU HOUSE QUEENSTOWN**

Architect: Koia Architects, Queenstown & Auckland
Main contractor: Justbuilditnz, Queenstown
Fabricator: Unique Window Technique, Whangarei
Reynaers systems: CS 77, CP 96, CP 155, CF 77
Large sliding doors bring the outside in
ETOPIA CENTRE FOR ART AND TECHNOLOGY

ZARAGOZA, SPAIN

Text: Sander Laudy
Photography: Wenzel

WELL-ORDERED CREATIVITY
Etopia, Center for Art and Technology (Centro de Arte y Tecnología) in Zaragoza, Spain, is welcoming and light and at the same time solid and modern. It is an open space where artists, engineers, and the general public can come together. The architecture bureau MCBAD/Colomer Dumont has designed an expressive building merging research, art, economics, communication, culture, and technology.

Even the building’s location is outstanding. Etopia is part of La Milla Digital (the Digital Mile), an agglomeration of developments and activities in the field of digital media technology which connects the centre of Zaragoza with the former international exposition grounds. At the centre of this configuration is the Delicias high-speed railway station. Etopia is directly opposite the station and is connected to it by means of an elegant suspended pedestrian bridge. In this way Etopia is rooted in its environment and at the same time connected with the wider world.

The composition of the building reflects the need for rationality which has been growing increasingly prominent in Spain over the last few years. The financial crisis and the bankruptcy of a number of flamboyant, extravagant projects have brought about a reflective mood regarding the form of architecture. The architects at MCBAD have always shown a preference for designing clear, regular volumes, but in this case the result is also an unmistakeable reflection of the spirit of the age in Spain.

The reserved execution ensures that the complex forms a visible unit even when seen from a great distance. Three blocks of comparable proportions are linked together by means of a two-storey plinth opened at several points and connected with the surrounding park.

MEETING SPACE
Three large two-storey areas have been created within the building’s 16,000 square metres of floor space, immediately making
clear that this building is a space for meeting with others. It is an open area where everyone, from businesspeople to artists to engineers can hold workshops, think tanks, and training sessions and develop and share ideas. It is also a platform for start-up businesses and emerging entrepreneurs. To this end a series of rooms have been created for the use of new businesses, located around the entrance hall and auditorium, where the character gradually shifts from publicly accessible to more private. This flexibility and informality are intended to stimulate cross-pollination among entrepreneurs and to increase the ease of contact with possible clients. In this way it is hoped that the social climate will have a positive effect on the economic climate.

There are subtle contrasts among the various façades. Two of the blocks alternate glass elements with aluminium façade panels, while the third block is surrounded by a matt glass curtain wall. The façade elements of all three volumes are unified
A pedestrian bridge connects Etopia to the opposite station.

CW 50-SC glass elements that run from floor to floor.
by the fact that they indicate the dimensions of the various storeys. This modular delineation is the primary reason for the industrial-technological feel of the complex. It is an expression of the rational, rapid execution of the construction; but at the same time, this demarcation of the glass surfaces is not easy to achieve using standard solutions.

This project used profiles which were based on Reynaers’s CW 65 structural glazed façade, but which required greater depth in order to maintain the same narrow 65 millimetre width. The construction also entailed extra anchoring of the glass panels that run from floor to floor. All in all, the elegant façades with their quiet yet commanding glass surfaces create such an impression of lightness that even those façades which are largely solid don’t seem weighty.

ACCESSIBLE AND LIGHT

The air of accessibility reaches its apex on the ground floor with its many openings. This feeling is essential for the corporate image of Etopia, which has an important public role to fulfil as an incubator for creativity. For this reason, the plinth largely consists of glass surfaces which contain sun-reflective elements to a greater or lesser degree. For the upper storeys, it was also very important that the window frames appear as delicate as possible. With this in mind, the Reynaers CS 68-HV window profiles were used in such a way that when seen from outside, the moving parts completely disappear behind the fixed frame.

This was not the first time that the grounds of a long-past expo originally presented a depressing appearance. The municipality of Zaragoza impressed on Etopia the need to make this location into a buzzing hub of activity. It’s clear that the project is a focal point for the local population as well as for those who take the high-speed train into Zaragoza. The combination of economics and art, of research and openness, and of industry and creativity may seem contradictory on the surface; but it’s precisely this contrast which will give this project its strength. The building’s architectonic expression certainly opens up that possibility.

ETOPIA CENTRE FOR ART AND TECHNOLOGY
Architect: MCBAD/Colomer Dumont, Paris-Valencia
Main contractor: UTE Sacyr, S.A.U.- Marcor Ebro, S.A., Zaragoza
Investor: Ayuntamiento de Zaragoza
Fabricator: Eurosca, Huesca
Reynaers systems: OS profiles based on CW 65-EF, CW 50-SC, CS 77, CS 68-HV
Systems:
- Bespoke solution based on CW 65-EF/SG unitized façade
- CW 50-SC
- CS 68 opening windows with hidden vent inserted in CW 65-EF
- CS 77 entrance doors

Project description:
- Development of deeper profiles to obtain required Ix values of the big span elements
- CW 65-EF/SG profiles with a depth of 195.5 mm

Elements:
- 500 elements in total
- Floor height pre-assembled frames
  - 3960 mm
  - 4500 mm
- Installed without transom for an unobstructed view
- Cladding with glass panels or aluminium sheets
- Special anchor developed for glass panels to have a hook bracket in front of the floor slab
- 90 opening elements in CS 68-HV

Glazing:
- Structural sealed glazing
- Glass bonded directly onto the main frame (no cassettes)
CS 68 windows with hidden vent are integrated into the façade for a flush appearance.

THE CONSTRUCTION ALSO ENTAILED EXTRA ANCHORING OF THE GLASS PANELS THAT RUN FROM FLOOR TO FLOOR.
THE PARAGON TOWER

ANKARA, TURKEY
Text: Omer Kapinak
Photography: Selçuk Çınar

LANDMARK WITH SOLID DYNAMISM
A simple rectangular prism is rising up from its base.
The Paragon Tower is shaped as a simple rectangular prism rising up from its base. The office building was designed by architect Gokhan Aksoy and is located in the Çukurambar district of Ankara, the capital of Turkey. It comprises 27 floors of office space and five floors offering social and commercial facilities as well as service areas, parking facilities, and gardens.

The rectangular-shaped plot is situated next to a major arterial road in one of the recently developed districts of Ankara in which many similar office buildings started to rise around a decade ago. The office tower is a simple rectangular prism with two interlocking L-shaped floors surrounding the lift shaft and stairwell at the centre. The floor space becomes smaller with each storey upwards, creating a dynamic diagonal form in the overall mass of the tower.

The 27 floors of office space offering approximately 12,000 square metres in a 32-floor structure with a total of 44,600 square metres of construction area include social and commercial facilities as well as service areas and parking facilities. There are four semi-open ‘floor gardens’ located part-way up the building on the 7th and 17th floors, serving as socialising areas for office employees and offering café and restaurant facilities. The top floor also features a spacious restaurant with expansive city views.

The building has two entrances, situated on two different ground levels due to the sloped site. The lower level entrance serves as an entrance to the tower itself, while the upper level entrance provides access to the courtyard, located in the terrace at the base. At the entrance to the tower itself, the office block is set back from the road, creating a public space.
AT THE ENTRANCE TO THE TOWER ITSELF, THE OFFICE BLOCK IS SET BACK FROM THE ROAD, CREATING A PUBLIC SPACE THAT IS EMPHASISED BY THE CANOPY
In this dense urban location the floor area is maximised with creativity.
that is emphasised by the canopy. In order to give the public a good welcome, the upper courtyard area has been augmented through landscaping and with the addition of urban sculptures.

**INVITING COURTYARD**

The upper courtyard creates a link between the tower and the base. This effect is enriched by the canopy, which connects the building with the independent building units surrounding the courtyard. This courtyard has been designed with semi-public spaces, inviting the public to interact with the building and use the open spaces on the ground floor.

The Paragon Tower exhibits many similarities with its siblings scattered around the area. As in many other dense urban locations, the architects have had to maximise the floor area in the simplest way, allowing them to show their creativity only through the façade articulation since the volumes are partly defined by the restrictive zoning laws. However, in this case, the architect had succeeded in creating a dynamic and pleasing asymmetric form by simply modifying the floor space on each successive storey. This dynamism has also been achieved without sacrificing the utilitarian central core model. The façade patterns formed by anodised aluminium cladding and Reynaers’ CW 50-SC and CW 50-systems also enhances the dynamism of the tower.

**FLOATING CANOPY**

The success of the building also owes much to the public areas created on the ground floor, articulated with great architectural skill. The two large independent units situated on the edges of the rectangular plot have been designed to be used as large stores, and they are cleverly united with the base of the tower by means of an elegant floating canopy. The interior courtyard formed by these independent units and the canopy is well integrated with the base of the tower, intended to create an effective public space in Ankara.
At night, Paragon Tower lights up as a striking landmark.
The curtain wall system CW 50 is characterised by a high level of windproofing and water tightness and maximum light permeability.

Reynaers further responds to this trend by offering the option of supporting large panes of glass, thus allowing even more light in. With this technical improvement, the CW 50 system has been optimised for the use of triple glass, which also greatly increases the insulation value.

This improvement has been achieved through the addition of a minimum of materials to the profiles. This seemingly minor modification, ensures that heavier panes of glass can be supported better and more sturdily by the profiles.

A standard glass support can therefore carry a weight of up to 200 kg, opposed to 120 kg. The so-called 'tubular' glass supports have also undergone improvements. They can now support glazing with a weight of 250 kg instead of 150 kg. Lastly, there is the continuous glass support, which can carry a weight of 450 kg opposed to 350 kg before the update.

This technical redesign means it is no longer necessary to switch to a more expensive glass support for weights of more than 120 kg. This makes the new CW 50 system sturdier and more secure at a very competitive price.
The first series of unique PuRity handles for standard doors, sliding doors and windows was launched in the spring of 2013. The handles - which combine beautiful design and functionality - also bring together the quality of innovative materials, production, assembly, and modular options, and are made of a new material Pura™* for which Reynaers has been granted the exclusive global rights for use in handles. This innovative material offers many advantages: it is non-corrosive, hypoallergenic, and 100% recyclable. The great interest expressed from the market for the exclusive PuRity handles has prompted Reynaers to extend their applications. The new solutions will appear on the market early in 2014.

**Locks in handles for windows**

Not only is the design attractive, the lockable handle offers an important and attractive additional safety feature in the product. The anti burglar proof locking function can be used when the handle is in any position.

**Cockspur for outside opening windows**

Cockspur is a safe locking system for outside opening windows. The handles contain a kind of crank with which the windows can be closed without making use of a lock but by using a so-called 'safety pin'. Cockspur gives the best handle solution for the top segment outward opening windows markets like the UK and Asia.

**'Offset' handle for doors**

This handle has a dedicated look due to an angle in the design of the handle. With this reduced handle design, it is virtually impossible for clothing to get caught in it, it is less easy for hands to get hurt, while at the same time offering a very simple way of opening and closing doors. The offset handle also provides a good solution in terms of security. In public buildings in particular, such as hospitals...
The current trends in architecture include the use of large panes of glass, ensuring lots of light, a feeling of openness, and panoramic views. Reynaers designed Hi-Finity with this concept in mind. It is an elegant, modern-looking glass sliding door, extending from floor to ceiling, and reaching across the entire length of the façade. The profiles are barely visible thanks to the sleek lines and slimline forms, allowing the huge transparent glass wall with a maximum height of 3.5 metres to seamlessly connect the interior with the outside world. Reynaers now also offers an additional option: an opening corner solution, creating an even greater sense of openness and transparency.

**Triple glazing**

In addition to the double-glazed series, a triple-glazed variant is also available. To integrate this triple glass, the overall depth of the system had been increased to 179 mm, compared to 147 mm for the double-glazed system. With Ud values of less than 1.0 W/m²K, these glass panels are perfectly suited for low energy houses. Consequently, Hi-Finity has been awarded the energy-saving Minergie quality label. The improved air tightness - class 4 - also boosts the insulation properties of this system, and it is therefore even more suitable for homes in coastal and other open areas.

**Large glass panels**

The system can easily support sliding glass panels weighing up to 500 kg. These large triple-glazed panels can be opened by hand in a smooth movement thanks to a specially designed wheel base, running on twelve high-quality bearings. The glass panels open even more comfortably by activating a hidden electric motor with the press of a button.

Thanks to the laminated glass in combination with an ingenious concealed locking mechanism, Hi-Finity offers strong anti-burglary properties, complying with RC2 standards.

The Hi-Finity system is the ideal solution for large transparent elements with openings in energy-efficient homes.
CS 86-HI OUTWARD OPENING WINDOWS

In line with the current trend, CS 86-HI ensures perfect insulation and outstanding air tightness. The robust system can support glass panes of large dimensions, and is also characterised by an attractive design.

Reynaers is therefore expanding this range even further: CS 86-HI is now also suitable for outward opening windows. In order to guarantee good insulation and air tightness, the outward opening window features a central seal. To meet the requirements of using large glazing dimensions, the window can have a maximum height of 2400 mm and a maximum width of 1600 mm, supporting a weight of up to 170 kg.
REFERENCES

MOSCOW, RUSSIA

This remarkable office complex on the banks of the Moskva river is located in the same historic district as the Kremlin and the State Tretyakov Gallery. The four buildings of different shapes and heights are arrayed along a slightly curved road and are characterised by modern grid façades, panoramic windows, and - unusual for Moscow - terraces. The complex houses shops, a restaurant, and high-tech offices with a lot of steel and glass.

AQUAMARINE BUSINESS CENTRE
Architect: Speech, Moscow
Investor: PSP Farman, Moscow
Fabricator: Narat-StekloStoy, Saratov
Reynaers systems: CS 77, CW 50

BRUZ, FRANCE

A technical and ecological tour de force. The double façade is typical of the modern university: a skin of stone and galvanised steel with an additional glass layer. This remarkable double façade is both insulating and sun-reflective. The building received the energy label ‘BBC’ (Batiment Basse Consommation).

UNIVERSITY: ECOLE NORMALE SUPÉRIEURE DE CACHAN (ENS)
Architect: Yves-Marie Maurer, Catherine Proux, Rennes
Main contractor: Académie de Rennes
Fabricator: CMA, Saint Brieuc
Reynaers systems: CW 50-FV, TS 57
FOROS, CRIMEA, UKRAINE

It’s like lounging on a luxurious yacht. The Concept Folding 77 door in this white stacked holiday home and yacht house offer unobstructed views of the Black Sea. From the terrace at 1000 metres above sea level, the panoramic view of the surrounding water and rocks is spectacular. The house is a winner of the 2013-2014 European Property Awards in the category ‘best architecture’.

YACHT HOUSE
Architect: Robin Monotti Architects, London
Fabricator: Niks-M, Dnipropetrovsk
Reynaers systems: CS 77, CF 77
The former factory complex for the high-tech company Nedinsco has been restored and transformed into streamlined apartments, office spaces, and a television studio. The use of concrete, steel, and glass places this Dutch national heritage building solidly within the New Objectivity movement. The characteristic steel elements such as the window frames have been refurbished in aluminium in the building’s new incarnation.

**NEDINSCO**

Architect: diederendirrix Architecten b.v., Eindhoven
Investor: Woonwenz, Venlo
Fabricator: Aluminiumbouw d’n Boelj, Schaijk
Reynaers systems: CF 77, CS 38-5L
WARSAW, POLAND

This BREEAM-certified environmentally friendly building, constructed largely of glass, has been awarded the title ‘Excellent’.

T-MOBILE OFFICE PARK
Architect: Jaspers-Eyers Architects, Leuven
Main contractor/investor: Ghelamco Poland, Warsaw
Fabricator: Mega Aluminium Sp. Z o o., Wolomin
Reynaers systems: CW 50-Hi, CW 50, CS 86-Hi
MARRAKESH, MOROCCO

The different stacked volumes with a large sliding door give the sheltered private home a light and transparent appearance.

PRIVATE VILLA
Architect: Hervé Marcel, Marrakech
Fabricator: Alphalu, Marrakech
Reynaers systems: CS 59Pa, CP 45Pa
TUNIS, TUNISIA

The robust embassy building is characterised by the columnar glass towers. Different bespoke solutions were developed to meet the stringent safety standards. Parallel opening windows in the façade guarantee fresh air whilst keeping a high level of security.

EMBASSY OF GERMANY
Architect: Slim Jbir, Tunis
Fabricator: Mas, Sfax
Reynaers systems: CW 50, CS 77, CW 86-EF
SHANGHAI, CHINA

The dynamic, chic hotel and holiday complex is wrapped around an elliptical interior garden. The eye-catching façade uses twenty thousand terracotta tiles.

TWELVE AT HENGSHAN HOTEL
Architect: Mario Botta Architetto, Mendrisio
Investors: Shanghai Land Group and Shanghai Shentong Metro Group, Shanghai
Fabricator: Wan Heng Glass & Aluminium, Shanghai
Reynaers system: CP 155-LS
HOLSBEEK, BELGIUM

This home is an oasis of peace and privacy. Characteristic of this residence is the feeling of enclosure created by the partially submerged walled patio. At the same time it welcomes in a maximum of light, thanks to the skylights and large expanses of glass on opposing walls, and offers an unobstructed view of the hills and forest.

RESIDENCE
Architect: DMOA, Heverlee
Fabricator: Janssens-Peeters, Rillaar
Reynaers systems: CS 77, CP 155-LS
Renovated with respect for the original architecture, the office building has a modern look. Particularly striking are the tiled façades.

**SUDOP OFFICE BUILDING**
Architect: Tomáš Pechman, Prague
Main contractor: Nevšímal a.s., Nymburk
Investor: Sudop Group, Prague
Fabricator: Nevšímal a.s., Nymburk
Reynaers systems: CW 50, CS 86-HI
These ingenious apartment buildings house both private sector and council housing. The transparent lower storeys are situated around a common courtyard garden and contain residences for the elderly as well as facilities such as a hairdresser, restaurant, spa, and terrace.
TOGETHER FOR BETTER

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REPORT #14
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FOCUS
Architecture for the people
PARAGON TOWER
Landmark with solid dynamism
PERTH ARENA
A giant 3D puzzle