

View

Reference magazine
2014

Parkroyal on Pickering in Singapore

**A spectacular hotel –
more garden than building**

De Rotterdam and IJDock

**High-density, mixed-use
waterfront complexes**

Water is our element.

Published by
Geberit International AG,
Corporate Communications,
Schachenstrasse 77, CH-8645 Jona

Concept
Linkgroup, Zurich
www.linkgroup.ch

Number of copies
30,000. Issued: one time annually.
The reproduction of individual articles,
in part or in full, is subject to approval
from the editorial staff.

On the cover
The entrance to the parking garage gives
the hotel guests at the "Parkroyal on
Pickering" a sneak preview of the organically
curved architecture that awaits them.

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Editorial

Dear readers,

The digital age is characterized by new products being churned out at a relentless pace. No sooner is a product on the market and it is already being overtaken by the next, often only half-finished generation. In the sanitary industry, other principles apply when it comes to developing innovations. Hastily introduced products that have not been fully developed are unacceptable and can result in costly renovations or even pose a risk to health.

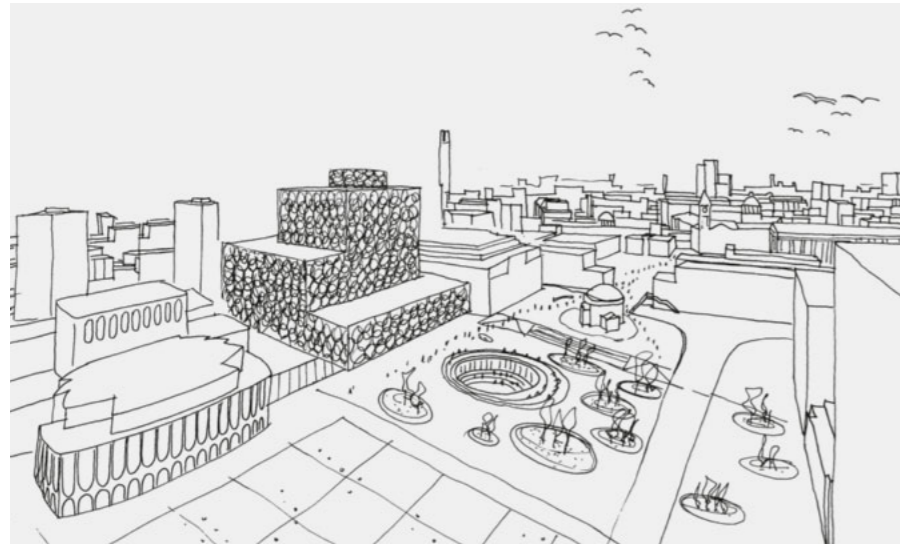
Our products are therefore the result of years of development work – as well as a pioneering spirit without which our far-sighted innovations would not be possible. When Geberit manufactured the first mass-produced plastic concealed cisterns back in 1964, nobody could foresee that this product would take on such an important role in the area of sanitary technology. However, the 1960s were an excellent breeding ground for pioneering activities. New technologies, materials and products were met with great interest by young architects and plumbers, which helped the Geberit concealed cistern to finally make the breakthrough. Over 60 million units have been installed worldwide to date, which is quite a feat indeed. This is also documented by the internationally acclaimed construction projects presented in the current issue of our reference magazine "View".

Our pioneering spirit continues to drive us forward. Our products are environmentally friendly, conserve resources and save water, and we strive to make constant improvements on all three fronts. This means that Geberit will continue to contribute significantly towards meeting the high sustainability standards in green building projects such as the King Abdullah Financial District in Riyadh, the new library in Birmingham and the SwissTech Convention Center in Lausanne.

I wish you an enjoyable read.



Albert M. Baehny, Chief Executive Officer (CEO) and Chairman of the Board of Directors



← The new public library in Birmingham designed by Mecanoo is the largest library in Europe.



→ The organically curved hotel Parkroyal on Pickering is located right in the heart of the densely built-up city of Singapore.

→ A species-appropriate complex for bonobos and gorillas – the new ape house in Wilhelma in Stuttgart.



↑ Jürgen Mayer H. designed the new Court of Justice in Hasselt to look like a giant sculpture.



← An experimental urban development – the new Palace of Justice in Amsterdam dominates the skyline on a man-made peninsula on the IJ.

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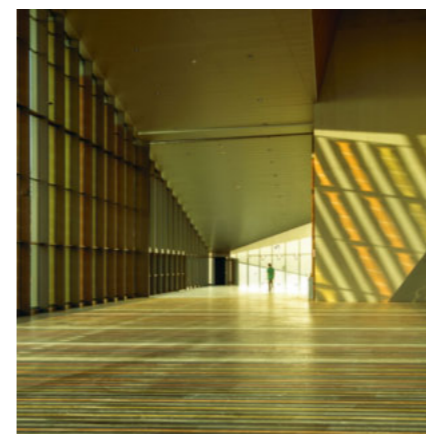
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→ The new Convention Center at the Swiss Federal Institute of Technology in Lausanne is one of the most modern of its kind in the world.

Europe's new libraries

Striking downtown structures



↑ The new public library in Birmingham, flanked by the Repertory Theatre (left) and Baskerville House (right).

What role are new library buildings playing in urban development in Europe? The public library in Birmingham designed by Mecanoo and the Mediathèque in Saint-Denis-la-Plaine designed by Antonini + Darmon Architectes show some interesting approaches.

As recently as ten years ago, Birmingham was a city characterized by decades of decline and structural change. However, anyone visiting this major city today will get a different, positive impression. Birmingham has set itself the ambitious goal of realigning its economic foundations and becoming one of the most livable cities in the world by 2031. Connected to this are several new construction projects – particularly in the city center. These include the new public library which aims to become the city's social and cultural hub.

Transparent ringed facade

With the striking complex, the Delft-based architecture firm Mecanoo has not just simply created a new library. The new structure at Centenary Square closes a gap in the ur-

Library of Birmingham, Birmingham (UK)

Building owner: Birmingham City Council (UK)
Architects: Mecanoo, Delft (NL)
Completed: 4/2013
Plumber: EMCOR Group, Birmingham (UK)

Geberit know-how

PE-HD piping systems
Mapress piping systems
Duofix installation systems
Sigma concealed cisterns 12 cm
Actuator plates Bolero

Green building: nominated for BREEAM "Excellent" certification



↑ The architects from Mecanoo designed a filigree pattern of decorative steel elements for the facade.



↑ The dominant structure blends into the urban context thanks to its striking ringed facade.

ban landscape between Birmingham Repertory Theatre (a building from the 1960s) and the neoclassical facade of Baskerville House, giving the previously uninspiring location a sense of atmosphere and a new identity. With its roof gardens, glass facades and visible courtyards, Mecanoo designed the library as a public building. Despite its voluminous size, the glass structure blends into the urban context in a dominant yet non-oppressive fashion. This is thanks in no small part to the transparent, colored facade featuring a filigree pattern of decorative steel rings – a design element with which the architect Francine Houben of Mecanoo aims to recall the artisan tradition of this once industrial city.

Systematic sustainability

The public library in Birmingham not only distinguishes itself with its outstanding architecture. Thanks to its sustainable concept in the areas of design, material, energy and ecology, it is also nominated for BREEAM "Excellent" certification. An important aspect in this respect is water consumption and recovery, particularly in the toilet facilities. The Geberit products used here – such as the Duofix installation systems and the cisterns with dual flush – contribute significantly to the building meeting the stringent requirements for BREEAM "Excellent" certification.

The largest library in Western Europe

The 35,000-square-meter public library covers an exhaustive array of library and educational uses and even features a community health center, a roof garden and a studio theater that seats up to 300 people. It is currently the largest library in Western Europe. Attracting some 10,000 visitors a day, the library is not only a source of knowledge and culture, it also specifically aims to encourage research and innovation in Birmingham. The eight circular spaces within the building create clear paths through the library. Equipped with diagonal escalators, these "rotundas" also provide natural light and ventilation. At the heart of the building is a large book rotunda which conveys the atmosphere of a traditional



← An ensemble of open reading and work areas.
↓ The "Shakespeare Memorial Room" is located in the rotunda on the roof.



↑ The 35,000-square-meter public library covers an array of library and educational uses.

reading room while also doubling as a passageway and place where visitors split off to other areas. The roof also houses a very special rotunda which is home to the "Shakespeare Memorial Room". Originally erected in Birmingham's first central library in 1882, this wood-paneled Victorian reading room has been reassembled in this building. Thanks to its prominent position in the golden rotunda, the famous Shakespeare room can even be seen from quite a distance across the city.

A Parisian box of books

Situated to the north of Paris, Saint-Denis-la-Plaine is one of the suburbs characterized by housing developments whose run-down infrastructure is cited as one of the



← A compact cube behind delicate strips of wood – the Mediathèque in Saint-Denis-la-Plaine.

**Mediathèque,
Saint-Denis-la-Plaine (FR)**

Building owner: SEM Plaine Commune, Saint-Denis-la-Plaine (FR)
Architects: Antonini + Darmon Architectes urbanistes, Paris (FR)
Completed: 12/2013
Plumber: E.M.R. company, Coupvray (FR)

Geberit know-how
Duofix installation systems
Actuator plates Sigma01

reasons for the frequent flaring up of social unrest. Urban planners and architects are now reacting to this situation with a range of measures. These include the development of the new neighborhood Landy-Pleyel, where – among other buildings – a new library with archive rooms has been built. The new building was designed by the Paris-based architecture firm Antonini + Darmon Architectes urbanistes.

The project is a key part of the vision of a future-oriented city which is defined by sustainable development and the implementation of the aspects associated with modern quality of life. As explained by the architects, the library is to be an architectural icon and a symbolic sign on the cityscape. The intention is to help improve the cultural infrastructure with their contemporary design.

Reduced on a monastic scale

The cubic building is clad with delicate vertical strips of wood which give the three-story structure a compact yet light appearance. The ground floor contains the reception area and the garage for mobile libraries that set off from this building. All other areas can be directly reached via a central building core. The first floor houses archive rooms and communal spaces. On the third floor, administrative offices and seminar rooms surround an inner courtyard which allows ample light to flood into the rooms. Although the architecture almost appears somewhat monastic, the library aims to become a place for meeting up and socializing in Saint-Denis-la-Plaine. ←



↑ Due to its simple, restrained architecture, the library almost appears somewhat monastic.

Mammoth green project in the desert

King Abdullah Financial District, Riyadh, Saudi Arabia

One of the world's largest economic centers is currently being built in Riyadh – the King Abdullah Financial District (KAFD). It is also the largest project in the world seeking green building accreditation. The new district has an area of 1.6 million square meters and will be home to 34 high-rise complexes, all of which have been nominated for LEED Gold certification. The KAFD is expected to be completed in 2015. In this interview, Mohammed Abdul Kareem, Head of Sales Geberit for Saudi Arabia, discusses the challenges posed by a project of this scale.



↑ Expected to be one of the world's largest financial centers – the King Abdullah Financial District in Riyadh.



↑ 34 high-rise complexes are being built in the KAFD, with LEED certification planned throughout.

The King Abdullah Financial District, Riyadh (KSA)
 Owners: Al Ra'idah Investment Company, Riyadh (KSA)
 Supervision Consultants: Omrania & Associates, Riyadh (KSA)
 Architects for the master plan: Henning Larsen Middle East, Riyadh (KSA)
 Completed: 2015
 Building contractors/sanitary engineers/plumbers: Saudi Binladin Group, El Seif Engineering Contracting Co., Riyadh (KSA)

Geberit know-how
 Actuator plates Bolero, Sigma20 and Sigma50
 Lavatory taps type 185
 Electronic WC and urinal flush controls
 Duofix elements for WCs with Sigma concealed cisterns 12 cm
 Duofix elements for bidets
 Duofix elements for urinals
 Kombifix elements for WCs with Sigma concealed cisterns 8 cm

Green building: nominated for LEED Gold certification



Mohammed Abdul Kareem has been heading up the four-man Geberit sales team in the Kingdom of Saudi Arabia for the past year.

Mr. Kareem, the planning of the King Abdullah Financial District got underway in 2006. The ambitious project is expected to be completed in 2015. What makes this mammoth undertaking so unique?

In terms of its size, sustainability requirements, technical challenges and role as a new financial center, the KAFD is the first project of its kind in the Middle East. The project involves the construction of 34 high-rise complexes on an area of 1.6 million square meters. It will feature 900,000 square meters of office space, apartments for 12,000 residents as well as 62,000 parking spaces. Hotels, metro stations and mosques are also being built. 44,000 new jobs are to be created. As a result, the KAFD will not only be the largest financial center in the Middle East, but also one of the world's largest economic centers. With this new district, Saudi Arabia is aiming to further strengthen its status as a financial center and create jobs for the Saudi Arabian population in the financial, investment and economic sectors.

Who is responsible for building the district?

The KAFD is owned by Al Ra'idah Investment Company. The Danish architecture firm Henning Larsen Architects won the international competition for the master plan. Omrania & Associates, Archi-

tecture Engineering Consultants from Riyadh support the implementation of the project as supervision consultants. The individual buildings were designed by renowned architects. The metro station, for example, was designed by Zaha Hadid.

Can you describe the urban development concept?
The master plan covers an urban area that not only includes financial institutions, but also recreational areas, shops, restaurants, hotels, conference centers and sports facilities. The center of the district lies along the Wadi Hanifa and is evocative of an oasis. A landscaped promenade, the wadi and five striking buildings in the center form the heart of the district, helping it to stand out against the Riyadh skyline.

People get around differently in the KAFD. Can you tell us a little more about this?

In terms of public transport, a monorail system developed especially for the KAFD is currently being built and will connect the various areas of the district. Furthermore, all buildings and monorail stations are linked together by air-conditioned footbridges. This makes it possible to reach all buildings on foot, which for Riyadh with its extremely hot temperatures is quite extraordinary indeed. An energy-neutral



↑ Putting the finishing touches to the conference center.

↓ The Danish architecture firm Henning Larsen Architects designed the master plan for the mammoth project.



↑ The buildings in the KAFD are expected to be completed by 2015.

solar system provides the energy for the air-conditioned footbridges.

The new district is nominated for LEED Gold certification. What measures were taken to meet the requirements of the environmental label?

To ensure the sustainable nature of the project, numerous measures were taken that conform to LEED guidelines. For example, only high-quality, durable materials from the local region that only have to be transported short distances are used. The optimized building proportions result in a lowering of the temperature in the entire district by six to eight degrees Celsius (around 10 to 14 degrees Fahrenheit). The vegetation, the cooling water features in the cityscape and the use of light facade materials which absorb sunlight also help to reduce the temperature. The facades are also equipped with sophisticated shading systems that prevent the buildings from heating up and putting a strain on the air-conditioning systems. Solar cells are

integrated into the facades and installed on all roofs. The footbridges and the public transportation system aim to help reduce car traffic.

What special challenges do the climatic conditions pose in terms of meeting the LEED standards?

The greatest challenge is of course the heat and the resulting cooling of the buildings. All the buildings in the KAFD therefore feature district cooling. Water is cooled down at a central location and delivered to the individual buildings over an insulated underground supply network in order to cool down the air. District cooling is another important element of sustainable economic and urban development. It is a superior alternative to conventional air-conditioning systems as it reduces carbon dioxide emissions, energy consumption and costs. District cooling results in 50 percent less energy consumption and therefore less CO₂ emissions. Up to 30 percent of the potential cold water output can also be held in reserve so that fluctuations

in seasonal demand can be easily compensated for.

Geberit is one of the leading suppliers for the KAFD project. Why was Geberit given the nod and which products are being installed in order to meet the LEED standards?

The Global 100 Index – an internationally recognized annual ranking of the world's most sustainable corporations compiled by Corporate Knights – added Geberit to its list of the 100 most sustainable companies in the world. No other company from the sanitary industry made the list. This was one of the main reasons why the owners opted for our company. The careful use of water is also one of the key aspects when it comes to LEED certification. Geberit's special strength is the water efficiency of its electronic WC and urinal flush controls and its electronic lavatory taps. Our products contribute ten percent or, to put it another way, ten points towards the certification results achieved by the buildings in the KAFD. This is no mean feat.

Were there any technical peculiarities that had to be considered?

In our region, mechanical pressure flushing valves are standard on WCs, even in public areas. However, the problem with this is that there is often insufficient water pressure in the pipes. We convinced the owners that we can always guarantee the optimal flush volume with our cisterns and installation systems. By choosing these products, other essential aspects such as improved hygiene and the water-saving dual flush crucial for LEED certification are also taken care of at the same time. There were also stringent fire safety requirements. The fact that Geberit is the only provider of installation systems that feature a fire resistance of 120 minutes helped us to win over the owners in this area as well. ←

A physical materialization of the virtual stock market

Shenzhen Stock Exchange (SZSE), Shenzhen, China



↑ Rem Koolhaas' second major project in China – the new Stock Exchange in Shenzhen.

Emma Lie, Chief Application Engineer, South Technical Center, Geberit China

The 3-star Green building Label demands the highest standards with respect to water consumption and recovery. To meet these standards, the building owner opted for the Delta concealed cisterns from Geberit with dual flush. The fact that concealed cisterns are more hygienic than their floor-standing counterparts also played a role in this decision.

Shenzhen Stock Exchange (SZSE), Shenzhen (CN)
 Building owner: Shenzhen Stock Exchange, Shenzhen (CN)
 Architects: Office for Metropolitan Architecture (OMA), Rotterdam (NL)
 Completed: 10/2013
 Plumber: Shenzhen QiXin Construction Group Co Ltd., Shenzhen (CN)
Geberit know-how
 Delta concealed cisterns 12 cm

Green building: nominated for a 3-star Green building Label (corresponds to the LEED Platinum rating)

In autumn 2013, the 46-story Shenzhen Stock Exchange office tower in the financial district of Shenzhen opened its doors. Located not far from Hong Kong, the Shenzhen Stock Exchange is the largest trading center in mainland China alongside the Shanghai Stock Exchange. The striking 200,000-square-meter building was designed by Rem Koolhaas' Office for Metropolitan Architecture (OMA), representing its second major project in China following the completion of the CCTV Headquarters in Beijing back in 2012 (see "View" 2013, p. 16).

The skyscraper's most eye-catching feature is its three-story cantilevered platform which sits around the body of the tower like a life belt, creating a sheltered plaza below for public events. The architects see their design as a physical materialization of the virtual stock market: "The essence of the stock market is speculation. It is based on capital, not material." This is why symbolism was so important in this project. The new stock exchange does not stand on a solid base, thus defying a long-standing architectural convention that has survived to the present day. Instead, the base is propped up and floats 36 meters above the ground. The raised podium contains all the main stock exchange functions. ←



↑ Spectacular architecture for the knowledge of the future – the Musée des Confluences.

A cloud that holds the knowledge of the future

Musée des Confluences, Lyon, France

Explaining their deconstructivist design for the Musée des Confluences in Lyon, the architects from the Vienna-based firm Coop Himmelb(l)au describe it as a structure that is intended not as an exclusive "Temple of the Muses" for the educated elite, but as a public gateway to the knowledge of our time. After all, the spectacular building appears to have nothing in common with classic museum architecture at first glance. The building consists of two architectural units that are linked together with great complexity, namely a crystal and a cloud – a concept inspired by the surroundings of the museum.

Rising towards the city side, the crystal functions as an urban forum that receives

visitors. Defined by the architects as a "mellow space of hidden currents and countless transitions", the cloud holds the knowledge of the future – namely the exhibition spaces. The main exhibition themes in the new museum deal with the latest developments in the areas of technology, biology and ethics. The architects created an alternating spatial structure for the exhibition spaces in order to present the topics from the present day and the future, and from the known and the still-to-be-explored. Closed-off black boxes and free exhibition spaces alternate, utilizing the double room height stretching across two floors. As explained by Coop Himmelb(l)au, the architecture aims to be just as changeable as the contents of the museum itself. ←



↑ The building bears Coop Himmelb(l)au's deconstructivist signature.

Musée des Confluences, Lyon (FR)
 Building owner: Département du Rhône, Lyon (FR)
 Architects: Coop Himmelb(l)au, Vienna (AT)
 Completed: end of 2014
 Plumber: MOOS entreprise, Amplepuis (FR)
Geberit know-how
 Duofix installation systems
 Sigma concealed cisterns 12 cm
 Mepla piping systems
 Pneumatic urinal flush controls and lavatory taps

In the dry dock

The Danish Maritime Museum,
Helsingør, Denmark



↑ As part of the museum construction process, the old dock wall was completely uncovered and the dry dock left empty.

Located a good hour's drive north of Copenhagen, the new Danish Maritime Museum in Helsingør is spectacular – even though it can't be seen from close by. There is a very good reason for this – the architects from Bjarke Ingels Group (BIG) who won the competition in 2007 had to comply with the stipulation not to block the view of Kronborg Castle. As a result, they had no choice but to build downwards, not upwards. The site for the museum was a disused dry dock – a remnant of the famous Helsingør shipyard.

As part of the conversion, the old dock wall was completely uncovered and the dry dock left empty, with the architects developing the museum in a subterranean space created around this empty basin. As a result, visitors looking down eight meters onto the bottom of the dry dock from behind the glass railing at the top get an immediate sense of the scale of the 150-meter-long, 21-meter-wide dock structure. The museum is accessed via a sloping bridge which smoothly zigzags down to the entrance in the underground floor. The

bridge also simultaneously fulfills the requirement of creating barrier-free access to the museum. The oblique bridges and steep stairways which lead through the structure are designed to cause the visitors to sway and convey the feeling of being on the high seas. The permanent exhibition on the history of Danish seafaring features glass display cabinets which look like transparent icebergs and sink into the floor at an angle. ←

Jan Henriksen, engineer at Aksel V. Jensen:

The maritime museum's unusual architecture posed us several problems. With the downward-sloping entrance bridge, we had to ensure that the rainwater can run off while still on the bridge before reaching the entrance to the museum. According to our calculations, it would take the rainwater only three minutes to reach the entrance. To prevent it from entering the rooms and damaging the exhibits, we worked together with a technical advisor from Geberit to calculate the optimal positions on the bridge for the Pluvia roof drainage system based on a rainfall intensity of 13 liters per second.

**The Danish Maritime Museum,
Helsingør (DK)**

Building owner: The Danish Ministry of Culture,
Copenhagen (DK)
Architects: Bjarke Ingels Group,
Copenhagen (DK)
Opened: 10/2013
Sanitary engineers: Aksel V. Jensen,
Rådgivende Ingeniørfirma A/S, Hillerød (DK)
Plumber: Fredensborg VVS Teknik,
Fredensborg (DK)

Geberit know-how
Pluvia roof drainage systems
Duofix installation systems

A school for 3,000 young Europeans

Deuxième Ecole européenne
et Centre polyvalent de l'enfance,
Mamer, Luxembourg

**Deuxième Ecole européenne et Centre
polyvalent de l'enfance, Mamer (LU)**

Building owner: Ministère du Développement
durable et des Infrastructures + Administration
des bâtiments publics, Luxembourg (LU)
Architects: Schilling Architekten, Cologne (DE)
in collaboration with michel petit architecte,
Luxembourg (LU)

Completed: 8/2013

Buildings MAT+SPO

Sanitary engineers: EKOplan, Steinheim (LU)

Plumber: Köhl Facility S.A., Wecker (LU)

Buildings ADM+SEC+PRI

Sanitary engineers: Goblet Lavandier &
Associés S.A., Luxembourg (LU)

Plumber: Lagrange Luxembourg, Munsbach (LU)

Building CPE

Sanitary engineers: EKOplan

Plumber: Delta Thermic S.A., Ehlerange (LU)

Geberit know-how

Pluvia roof drainage systems

In Luxembourg, a major new school complex has been built for the children of employees who work at the various institutions of the European Union. The international competition for the project was won by the architects Johannes Schilling and Michel Petit with a multi-part design. This involved planning a building for 3,000 schoolchildren – ranging from preschool to secondary school – as well as a child care center with a day nursery and an after-school care facility for 800 children.

The six different school types are each housed in their own formally distinguishable self-contained building. In their spatial arrangements and intersections, they combine to form an ensemble that frames the terraced schoolyard. This leads down towards the valley, at the end of which the sports facilities are located. The administration building featuring the cafeteria and school hall is located at the highest point of the complex. Inside, differently colored glass elements help the schoolchildren find their way around. The large, simply designed hallways offer expansive views of the campus. The rhythm of the complex is accentuated by enormous canopies which give a unique shape and offer protection from the rain. The new buildings stretch out across the 15-hectare site. At first glance, the buildings appear simple and almost austere. Explaining why they deliberately dispensed with colorful facades and other colorful elements, the architects commented that it is the children's job to bring color to the complex. ←



↑ Six different school types are each housed in their own self-contained building.

← Inside, colored glass elements assist with orientation.

A small alpine world

Museo delle Scienze (MUSE), Trento, Italy



↑ The Science Museum was designed by Renzo Piano Building Workshop.

In summer 2013, the new Science Museum Museo delle Scienze di Trento (MUSE) was opened on the site of the former Michelin factory in Trento. Following on from NEMO in Amsterdam and the California Academy of Sciences in San Francisco, this project represents the third science museum designed by the architect Renzo Piano.

When designing this new museum surrounded by a large pool of water, Piano drew inspiration from the frayed outline of Monte Bondone and the jagged peaks of the Alps that frame Trento. The roofs, each equipped with solar cells, are pointed and soar high above the five museum floors at varying inclinations. The interior design features some exceptional details and was also designed by Piano's architecture firm. The permanent exhibition explores a range of topics, including the history of the Dolomites. One of the main attractions is the six-story atrium featuring 45 stuffed animals hanging from the ceiling at staggered heights. A glacier is also simulated on the

top floor, visibly melting and reforming before the visitors' eyes. The high point of the exhibition is the "tropical forest" – a recreation of the Tanzanian jungle landscape. On a meandering trail, visitors wander through a simulated waterfall and the tropical greenhouse formed by two gigantic glass surfaces. ←



Museo delle Scienze di Trento (MUSE), Trento (IT)
 Building owner: Castello SGR S.p.A., Trento (IT)
 Architects: Renzo Piano Building Workshop, Genoa (IT)/Paris (FR)
 Opened: 7/2013
 Plumber: Gelmini impianti, San Martino Buon Albergo VR (IT)
Geberit know-how
 Duofix installation systems
 Actuator plates Sigma01

Green building:
 LEED Gold certification

↓ The design for the unusual building was inspired by the Monte Bondone and the jagged peaks of the Alps.



↑ Striking pipelines and metal superstructures on the roof, a multipurpose hall of sports and culture inside of it.

The esthetics of shipbuilding

Centro Cultural, Viana do Castelo, Portugal

Already featuring a library designed by Álvaro Siza and a leisure center designed by Fernando Távora, the cultural center of the northern Portuguese town of Viana do Castelo has now been graced with a further architecturally outstanding structure. Commissioned by the town authorities, Pritzker Architecture Prize laureate Eduardo Souto de Moura constructed a multipurpose building along the bank of the Limia River that can be used for sporting, musical, cultural and other events. The outer appearance of the building is defined by its unusual design. The pipes from the building's technical installations clad the upper walls of the outer facade and underscore the structure's horizontal orientation. Despite looking like a miniature version of the Centre Pompidou in Paris, the metal superstructures and the striking pipelines on the roof were not inspired by the famous museum. According to Souto de Moura, they instead refer to the building's proximity to the port and are intended as a reference to the

esthetics of shipbuilding. The "Gil Eannes", which was the lead ship of the Portuguese fishing fleet in the North Atlantic between 1955 and 1973 and launched in Viana do Castelo, is anchored nearby and today serves as a museum.

The ground floor of the cultural center is almost entirely glazed, allowing views in and out of the building from the surrounding area. The main entrances on the north and south facade are set back several meters, which creates a large shading screen. The three-story building comprises a some 4,000-square-meter, 12-meter-high multipurpose hall which is surrounded by wooden stands that double as stairs to the main room. The side wings contain locker rooms and relaxation rooms. The architect also designed the outdoor area in the same linear fashion as the hall, with ramps leading into the building via the tree-lined forecourt to the north. ←



↑ The new cultural center features a 4,000-square-meter multipurpose hall.

Centro Cultural, Viana do Castelo (PT)
 Building owner: Town of Viana do Castelo (PT)
 Architects: Eduardo Souto de Moura, Porto (PT)
 Completed: 7/2013
 Sanitary engineers: GOP – Eng. Raquel Fernandes, Porto (PT)
 Plumber: Chave D'Água, Instalações Sanitárias, Lda., Canelas VNG (PT)
Geberit know-how
 Pluvia roof drainage systems

High-density, mixed-use complexes

“De Rotterdam” and “IJDock”, the Netherlands

Amsterdam and Rotterdam have two new landmarks. “De Rotterdam” and “IJDock” are impressive large-scale construction projects that significantly shape the public space and have the potential to breathe new life into both cities.



De Rotterdam, Rotterdam (NL)

Building owner: De Rotterdam C.V., MAB Development, The Hague and OVG Projectontwikkeling, Rotterdam (NL)
Architects: Office for Metropolitan Architecture (OMA), Rotterdam (NL)
Completed: 11/2013
Plumbers: Sanitair Installatie Hoogendoorn B.V., T.J. Woerden (NL); Spindler Installatietechniek B.V., Rotterdam (NL)

Geberit know-how
Pluvia roof drainage systems
Silent-db20 piping systems
PE piping systems
Mapress piping systems
Duofix installation systems



↑ Spatial breakdown: apartments (blue), offices (green), hotel (red).

In terms of floor area, “De Rotterdam” is the largest building in the Netherlands. Designed by Rem Koolhaas and his Office for Metropolitan Architecture (OMA), the new landmark in the Kop van Zuid neighborhood is located in the immediate vicinity of the other new architectural highlights on the Rotterdam cityscape – the Erasmus Bridge designed by Ben van Berkel, the inclined KPN Tower building designed by Renzo Piano and the World Port Center designed by Norman Foster. For almost 20 years, the Kop van Zuid neighborhood has been undergoing a total regeneration and is expected to one day be the second vibrant hub of downtown Rotterdam.

Vertical city

Standing at 150 meters tall and with a width of just under 100 meters, the high-rise ensemble on the Wilhelminapier along the Meuse in Rotterdam consists of three high-rise towers positioned side by side and interconnected by a massive six-floor base. The West Tower has 45 residential levels, the 41-floor Mid Tower is used as an office high-rise and the 43 floors of the East Tower are divided into office and hotel areas. With just under 250 apartments, 285 hotel rooms and 72,000 square meters of office space in a complex with a total gross floor area of 162,000 square meters, “De Rotterdam” has everything a city needs. The base

← 150 meters tall and with a width of just under 100 meters – the impressive high-rise ensemble “De Rotterdam”. →



IJDock, Amsterdam (NL)
 Building owner: Wester IJDock c.v., Amsterdam (NL)
 Opened: 9/2013
Palace of Justice
 Architect: Felix Claus, Amsterdam (NL)
Hotel
 Architects: Bakers Architecten
 Plumber: Wolter & Dros, Amersfoort (NL)
Office building and apartment building
 Architects: Zeinstra van Gelderen, Amsterdam (NL)
 Plumbers: Loodshuis B.V., Genemuiden (NL); Lomans Amersfoort B.V., Amersfoort (NL)

Geberit know-how
 PE piping systems
 Mepla piping systems
 PushFit piping systems
 Duofix installation systems

Green building: BREEAM "Excellent" certification (Palace of Justice)

↑ A new mini district has been created in Amsterdam on a man-made peninsula on the IJ. The compact group of buildings is home to the new Palace of Justice (right) and a hotel (left), among others.

section also contains retail stores, restaurants, conference rooms, a large cinema and a fitness center, as well as three parking levels with 670 parking spaces.

Rem Koolhaas broke up the colossal appearance of the skyscraper by segmenting it into different building structures. Halfway up, the building is shifted with a horizontal offset to the west and north. From a height of 86 meters, the blocks cantilever outwards by up to nine meters, giving the impression that "De Rotterdam" – with all its projections and recesses – looks like a "vertical city", or a mirror image of Manhattan along the Meuse. Indeed, the name of the building is not only a play on the city in which it is located, it is also a reference to

the flagship of the Holland America Line which for decades departed for New York from the Wilhelminapier, taking many tens of thousands of Dutch emigrants to new lives on the other side of the Atlantic.

A compact peninsula

Amsterdam is also undergoing further building work. Located on a man-made peninsula on the IJ, "IJDock" is a central element in both the revitalization of the waterfront and in the urban planning aimed at opening up the city center to the former port area. With its varied array of building types and uses and the hundreds of people living and working on the peninsula, "IJDock" is expected to breathe new life into the IJ waterfront.

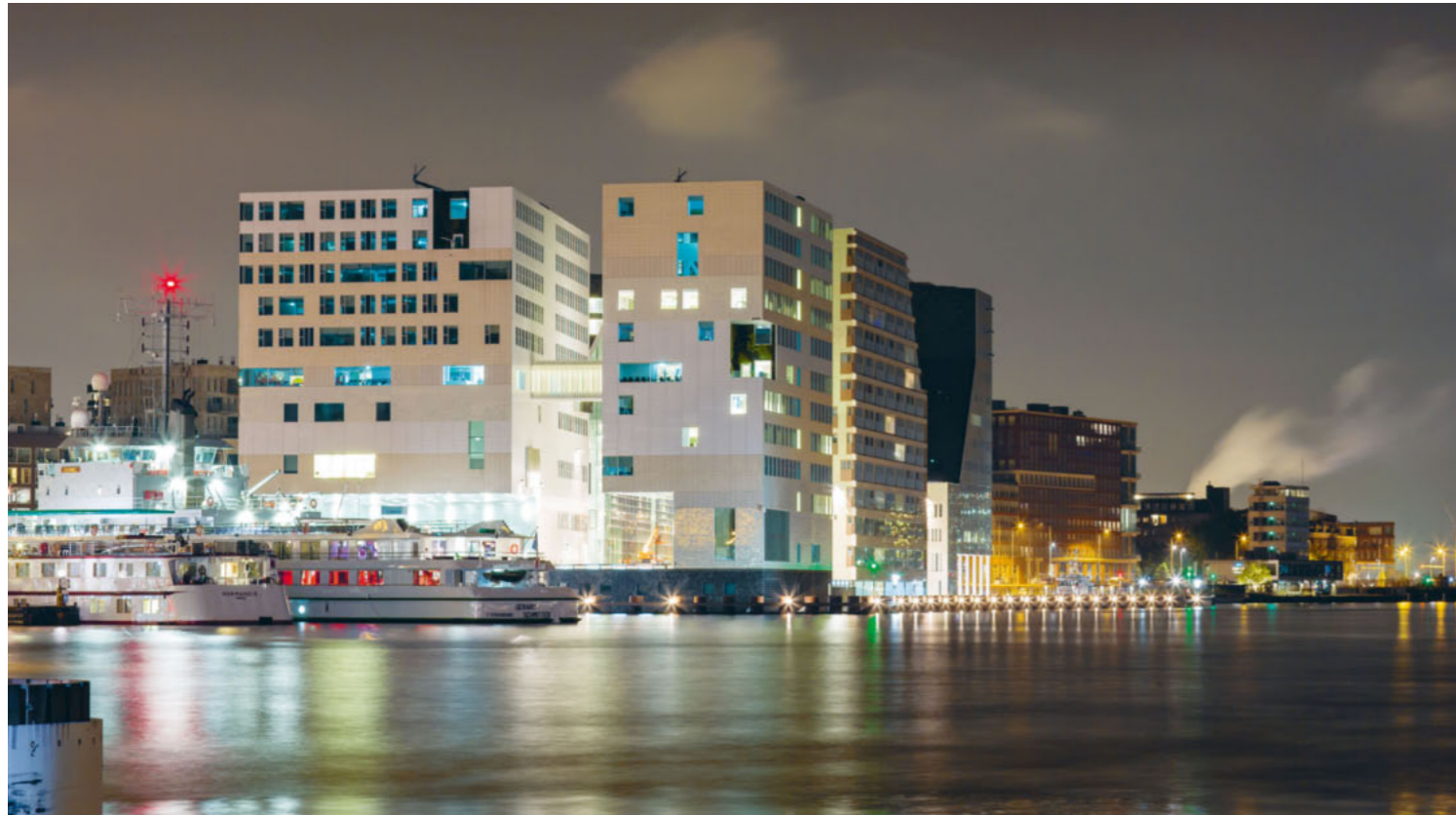
The master plan for the site located around 500 meters west of Amsterdam Central Station – namely a compact group of buildings on a common base – was drawn up some 16 years ago by architects Dick van Gameren and Bjarne Mastenbroek. "IJDock" contains a harbor for the water police, an office building, an apartment building with 56 apartments, a car park with 500 spaces as well as a hotel and the new Palace of Justice – the most defining building on "IJDock".

An abstract cube

Located on the southern face of "IJDock", the Palace of Justice has an area of 34,000 square meters and accommodates 700 desk spaces, 19 courtrooms and 26 cells. The complex, which was designed by Am-



↑ The units in the apartment building feature glazed folding doors, thus offering an unobstructed view over the IJ.



↑ The new Palace of Justice consists of two buildings that are connected to one another via a walkway.



↑ "IJDock" – a central element in the revitalization of the waterfront in Amsterdam.

sterdam-based architect Felix Claus, replaces the historic building along the Prinsengracht canal in the heart of Amsterdam which had been home to the court since 1836 and was bursting at the seams. Due to high security requirements, the interior had to be divided into two areas that are strictly separated from one another – an area accessible to the public and a closed-off security zone. As a result, the new Palace of Justice consists of two buildings that are connected to one another via a walkway on one of the upper floors. The major challenge arising from this strict separation was the organization of the way in which people moved within the complex. The only place where magistrates, the accused and visitors meet is in the courtrooms. The logistical setup otherwise ensures that their paths cannot cross.

A magnificent view

The hotel, which was designed by Bakers Architecten, was also governed by the urban planning requirement of creating sight lines between the "IJDock" buildings in order to break up the compactness of the group of buildings. As a result, the architects divided the hotel into two building structures. The tower-like section flanking the Palace of Justice contains long-stay apartments, while the opposite building section con-

tains hotel rooms and the administrative center as well as conference rooms, a bar and a restaurant. The facade of the hotel is extensively glazed. The architects wanted to place a transparent structure beside the other "IJDock" buildings – one which takes away from the bulky appearance of the building, creates visual transparency and offers views of the evening life in the hotel. At the same time, the glazed facade provides hotel guests with a magnificent view of the old city center, the marina and the IJ.

One of the most distinctive features of the office building and the neighboring apartment building designed by Zeinstra van Gelderen architecten is the facade featuring windows of various widths. The surfaces facing the water are characterized by dark and smooth as well as bright and rough panels of different widths. The eleven-story apartment building sets itself apart from the neighboring buildings with its light-green brick facade, brown balconies, bay windows and niches. By adding pearlescent elements to the bricks, the building shimmers in the sun with a delicate golden glow. The apartment building opens out towards the water via room-height, seven-meter-wide, glazed folding doors, thus offering its residents a maximum sense of closeness to the IJ. ←



Interview with Marco Lek, Project Manager at Sanitair Installatie Hoogendoorn BV

Problem solvers for complex architecture

In terms of floor area, "De Rotterdam" is the largest building in the Netherlands. What special challenges had to be overcome in this project when it came to sanitary technology?

The enormous building area, its height of 150 meters and the large quantities of waste water that have to be transported vertically downwards as a result caused us the most headaches. A normal drainage system was never going to be an option. Another important factor that had to be considered was the noise in the discharge pipes. Geberit offered us an all-round technical solution that cannot be found elsewhere on the market.

Which Geberit products were used to solve these problems?

The drainage system is over six kilometers long and has an enormous number of connection points. There are 685 toilets in total in the offices and hotel alone. This poses a major challenge when it comes to drainage. To ensure that the drainage system works perfectly, in the hotel sector we opted for the Silent-db20 piping systems as these make it possible to prevent noise emissions in the discharge pipes – even in a project of such a large scale.

With "De Rotterdam", the upper sections of the towers are slightly offset from the lower sections. Did this have an impact on the waste water installation?

Yes, this projection in the buildings represented an additional challenge when planning the drainage system. The pipes had to be curved at the intersections between the upper and lower blocks, yet still be able to deal with the large amounts of water being transported from the roof. Thanks to the extensive range of fittings from Geberit, we handled each of these intersections with two 45-degree bends that can be installed without the need for other measures. In this way, we were able to find the perfect solution to the issue caused by the building architecture.

How important was product quality to you?

We focused primarily on reliability when planning "De Rotterdam", which is why the quality of the piping systems was naturally also of vital importance. We also opted for PE pipes thanks to their impact resistance. With other materials, there is a danger that the pipes could burst in a project

of this magnitude. There was no way we were going to take such a risk. Another quality feature is that PE pipes cannot be damaged even when the pipes are clogged and have to be cleaned by a plumber with high pressure and external mechanical factors. With a drainage system that spans many floors, this is of utmost importance.

The roof is another architecturally challenging feature of this building. What convinced you that the Pluvia roof drainage system was the best solution here?

The system offers outstanding solutions, particularly for architecturally difficult situations. Due to structural specifications and the related lack of space, we were not able to install the Pluvia under the roof. We had to instead install the roof drainage system when the concrete floor was being poured. For acoustic reasons, we also covered the pipes with an insulation hose. With this solution, Geberit also offers additional protecting and optimal sound insulation. ←



← Pluvia roof drainage system



↑ A look inside one of the restaurants – the interior of the hotel features warm materials and an elegant design.

A green oasis in a sea of buildings

“Parkroyal on Pickering”, Singapore

Building in tropical climates is their specialty – with an abundance of greenery their hallmark. In the “Parkroyal on Pickering”, the Singapore-based architecture firm WOHA Architects has designed an unusual organic structure that meets all the requirements to receive Singapore’s BCA Green Mark Platinum rating.

The Singaporean architects from WOHA attach great importance to creating the strongest possible connection between nature and architecture. This is particularly the case in buildings that are to be constructed in densely built-up metropolises, such as the hotel complex “Parkroyal on Pickering” erected close to Chinatown at the gateway to Singapore’s Central Business District. With its 15,000 square meters of gardens, water pools, terraces and planter walls, the area of the high-rise is double that of the park situated directly opposite. With their concept, the architects explain that they wanted to show that it is possible to not only conserve greenery in a densely populated city like Singapore,

Parkroyal on Pickering, Singapore (SG)
 Building owner: UOL Group Limited, Singapore (SG)
 Architects: WOHA Architects, Singapore (SG)
 Opened: spring 2013
 Plumber: Tiong Seng Contractors, Singapore (SG)
Geberit know-how
 300T concealed cisterns 15 cm
 Dual flush control, pneumatic operated
 Duofix installation elements

Green building: Green Mark Platinum rating



↑ The hotel’s green areas have become home to birds and butterflies.

but even multiply it: “The building creates a vertical continuation of the park, extending it across the street.” Not only that, the hotel’s green areas have since become home to birds, butterflies, insects and lizards.

In contrast to the strict orthogonal high-rises found in major international cities, WOHA Architects gave their project an organic structural form. The complex consists of four towers and shoots up from a curved multi-story podium and wildly undulating terraces. The various levels feature free spaces and gardens blooming with plants that almost seamlessly flow into the interior.

The interior, which was also designed by the architects, continues the organically curved style in the public hotel areas and hotel rooms, albeit on a finer scale and with warmer materials. The free spaces on the podium between the public hotel areas and where the guests reside feature lush gardens, pools, terraces, waterfalls and areas in which to kick back and relax.

“Parkroyal on Pickering” is a green building in every respect. In addition to featuring extensive lush greenery, it also meets the high requirements set by Singapore’s official green building rating system to receive the BCA Green Mark Platinum rating. For example, by incorporating the greenery

throughout the building, there was no need to install an energy-intensive air-conditioning system in the hotel rooms and corridors. The plants not only create fresh air but also ensure the required level of shading and cooling in the rooms. The plants are partly watered by rainwater, while solar collectors on the roofs take care of the energy needs. The lighting and escalators are controlled by motion detectors. These comprehensive measures have enabled the complex to reduce energy requirements to an impressive 30 percent below the level required to receive the BCA Green Mark Platinum rating. ←



↑ A contrast to the strict orthogonal high-rises – the organic structural form designed by WOHA Architects.



↑ At 306 meters, "One57" towers above every other skyscraper in New York. The postmodern building was designed by French architect Christian de Portzamparc.

At eye level with helicopters

"One57", New York, USA

Upon its completion, the 306-meter-high tower "One57", which soars into the sky at the southern end of Central Park, became the tallest residential tower in New York.

One57, New York (USA)

Building owner: Extell Development Company, New York (USA)
Architects: Christian de Portzamparc, Paris (FR)
Completed: 2/2014
Plumber: PAR Plumbing, a division of The PAR Group, Lynbrook (USA)

Geberit know-how
Duofix installation systems
Sigma concealed cisterns 12 cm
Actuator plates Bolero

When you wake up, you are greeted by the sunrise over the Atlantic. At dinner, you can enjoy the evening sun over Central Park. And while brushing your teeth before going to bed, you can whisper "sleep tight" to the Statue of Liberty – and all this from the same apartment in the tallest residential tower in New York, "One57". Designed by French architect Christian de Portzamparc, the building is one of an array of skyscrapers springing up in the Big Apple. Spanning 75 floors, it is home to 135 residential units and a hotel featuring 210 rooms and suites. While New Yorkers rave about the impressive height of



Geberit actuator plate Bolero

Geberit concealed cisterns have been in use worldwide for decades. Once the cistern is installed, only its actuator plate is visible. In addition to reliable functionality, the design of the actuator plate therefore also plays an important role. Through a great many design solutions with different finishes and shapes, Geberit offers architects and interior designers a large selection and considerable creative freedom. The actuator plate Bolero also won over Christian de Portzamparc and his team of architects with its sleek, linear design. The actuator plate was installed in all bathrooms in the 135 residential units and 210 hotel rooms in "One57". Bolero is available in a total of 13 different colors, including chrome-plated, bright chrome-plated and matt chrome-plated versions. It has two buttons that release either a large or small volume of water, thus enabling a resource-efficient use of water.

the tower, the mind-boggling prices of the luxury apartments are the main talking point. For example, a group of investors paid 90 million dollars for the penthouse – and one would have to part with 67 million dollars for a "normal" floor.

The tall postmodern skyscraper consists of three sections that are connected to one another in a cascade-like fashion. A distinctive design feature of the facade is its curved strips of glass which flow vertically along the building's surface. These strips are made of different glass types and create a contrast-



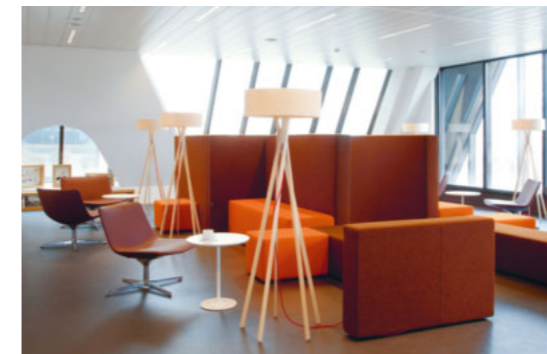
**50 years
concealed
cistern**

Geberit's concealed cisterns have been in use for 50 years. They have a long service life and the availability of spare parts is guaranteed for at least 25 years. Having been installed over 60 million times, Geberit concealed cisterns represent the ultimate tried-and-tested solution.

ing wavy pattern that conceals the terraces and residential units. As luxury properties in New York are more sought-after than ever before, "One57" will not be able to boast its status as the tallest residential tower in Manhattan for long. Indeed, Rafael Vinoly is currently constructing a new 426-meter complex just half a mile away on Park Avenue. When completed in 2015, this will become the tallest residential tower in the western hemisphere. An even taller skyscraper is also already in planning in the immediate vicinity of "One57". ←

Under the hazel tree

Court of Justice, Hasselt, Belgium



↑ The color orange pervades throughout the modern, naturally lit rooms of the new Court of Justice.

← Despite looking like a supporting structure, the branch-like timber frame has a purely ornamental character.

Jürgen Mayer H. set himself a complex task. In Hasselt, he built a new Court of Justice alongside the railway tracks that bears the Berlin-based architect's unique signature.

With the new Court of Justice in Hasselt, the capital of the Belgian province of Limburg now boasts a new architectural highlight. The impressive building was designed by the Berlin-based architect Jürgen Mayer H. The shooting star in the German architecture scene is internationally renowned for his buildings, which range between design object and sculpture. He has created an array of structures that have received a great deal of attention, including the mushroom-shaped "Metropol Parasol" in Seville. In 2005, Mayer H. worked on the competition project for the Hasselt Court of Justice in collaboration with the local architecture firms Lens Ass architecten and a2o architecten. The goal of the new complex was to house the various services that had previously been spread across the entire city in a single building.

Abstract tree sculpture

Whether arriving via the motorway, by train or coming from the city, the Court of Justice stands out as a striking urban landmark in the new district around the central station. This district is currently being restructured and revitalized with a park, as well as office, hotel and

Court of Justice, Hasselt (BE)

Building owner: SOHA (Stedelijke ontwikkelingsmaatschappij Hasselt) (BE) in cooperation with Autonoom Gemeentebedrijf Hasselt and Euro Immo Star (BE)

Architect: Jürgen Mayer H., Berlin (DE)

Completed: 9/2013

Plumbers: Borzee nv, Heusden-Zolder (BE); Peeters & Zonen nv, Bree (BE)

Geberit know-how

Pluvia roof drainage systems

PE piping systems

Duofix installation elements

Electronic urinal flush controls



↑ A striking urban landmark in the new district around the Central Station.

residential buildings based on a master plan by the Rotterdam-based company West 8. The fact that the almost 70-meter-high, 13-floor tower flanked by two lower blocks is a courthouse is something one would hardly suspect from the exterior. The building consists of a 15-story "tree structure" sprouting from a six-story base. The base houses offices, a police station, courtrooms and a library for the faculty of law. The administrative services are located in the upper section, with the remaining premises also including an underground archive and garage.

Ornamental character

In terms of the architectural theme flowing throughout this building, Jürgen Mayer H. drew inspiration from Hasselt's coat of arms featuring three hazel trees stacked in the form of a pyramid. The name Hasselt is derived from the word "Hasaluth", which means hazel wood. At the same time, the Court of Justice with its tree-like structure also intends to evoke the image of the courts held under large, old trees – a common tradition in the Middle Ages.

The curved facade consists of irregularly shaped surfaces made of steel mesh and glass. Although the branch-like timber frame between the facade sections gives the impression of a supporting structure, it merely has an ornamental character. The interior is dominated by a modern design with naturally lit rooms. The color orange pervades throughout all areas – from the entrances and corridors right through to the department areas, elevators and even the WC facilities – providing a refreshingly bright contrast to the otherwise rather restrained building shell. ←



↑ The new building, which consists of two individual structures, features a striking dark red metal skin which also functions as outer bars.

Bringing law closer to the people

Justice Center, Eisenstadt, Austria

The new Justice Center in Eisenstadt is both a court and a prison. The suspended dark red metal skin also serves as inconspicuous outer bars on the building.

The new Justice Center, which was recently completed in Eisenstadt in the Austrian state of Burgenland, is not particularly spectacular, instead focusing more on functional aspects. The building comprises both a prison and a court. As the old building constructed in 1968 had become too small, a competition was advertised for the new building in 2008, which was won by the young Vienna-based architecture firm YF architekten.

Inconspicuous outer bars

The team from YF architekten designed a new building consisting of two individual structures with a distinctive facade. One of the structures is home to the new district court while the other contains part of the prison. Both structures are visually connected by a suspended dark red metal skin which is not only emblematic and decorative but also takes on a functional role as inconspicuous outer bars. When designing the prison, the architects took their lead from the shape of the existing prison wing, extending it into an L-shaped building structure.

The extension for the district court and the office of the district attorney takes on the form of the old courthouse, to which the new building is directly connected.

Justice Center, Eisenstadt (AT)

Building owner: Bundesimmobiliengesellschaft, Vienna (AT)
Architects: YF architekten, Vienna (AT)
Completion: 6/2013
Plumber: BACON, Vienna (AT)

Geberit know-how

Mepla piping systems
PE piping systems
Silent-db20 piping systems
Huter installation elements
Electronic WC flush control

Green building: low-energy standard



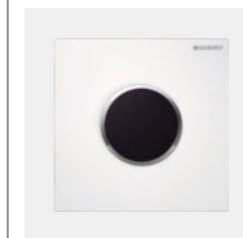
↑ The new one-bed and two-bed cells were equipped with their own sanitary units.

The new court building is around 4,500 square meters in size and is accessed via the central main entrance. A glass roof creates an open and friendly atmosphere for visitors and employees.

Sustainable and modern

In addition to architectural quality, great importance was also attached to the sustainability of the building. The entire Justice Center is designed in compliance with the low-energy standard. Low energy consumption and CO₂ emissions are ensured by various features, including a mechanical ventilation system with heat recovery and a solar system with a collector surface of around 100 square meters used for heating water. ←

↓ The glass roof was designed to create an open, friendly atmosphere.



Elegant, vandal-resistant solutions

Touchless urinal flush controls from Geberit offer users greater hygiene in public and semi-public areas and ensure that a clean, flushed environment awaits them at all times. However, in highly frequented public buildings, such solutions must also offer a high degree of vandal resistance. This is particularly important in institutions such as justice centers with prison cells, including the two new buildings in Hasselt and Eisenstadt which are subject to extensive security regulations. This is why electronic urinal and WC flush controls from Geberit were used in these buildings.

The hidden urinal control is discreetly located behind the ceramic appliance and cannot be seen by the user. This therefore enables a great deal of freedom when designing the toilet facilities while also effectively protecting the technology against violent acts of vandalism. A sensor in the trap reliably detects when the urinal is being used as well as when the water level in the trap is too high or too low. The touchless actuator plate Sigma10 (picture left) combines functionality with elegant design. At the same time, the stainless steel actuator plate also fulfills the most exacting demands in terms of robustness and vandal resistance. The minimalist actuator plate is screwed in and does not offer any edges that can be gripped to enable physical acts of vandalism to be carried out. The touchless Sigma10 comes with automatic flush actuation and dual-flush technology – features which won the actuator plate an A-category rating from the WELL water efficiency label.

Big data for "smart cities"

↑ What will the city of the future look like? A patchwork city that combines elements from Berlin, Barcelona, Siena, Paris and Zurich.

How will sustainable building develop in the future? An interview with sustainability expert Professor Holger Wallbaum on the most important issues and trends.

Mr. Wallbaum, what issues are currently being discussed when it comes to the topic of "sustainable building" in Europe?

For a long time, the "sustainable building" debate centered solely on individual buildings. However, we have since recognized that we have to look at the topic in a larger context and, above all, understand it from an economic viewpoint. That means it's now all about looking at and, above all, managing sites, residential neighborhoods or entire districts. After all, that's what it's about at the end of the day. One issue is where sources of heat are located, how we can use them and how we can distribute this heat. Take for example a bank with a large server room containing computers that produce heat. This heat is very valuable and could be used for residential buildings 200 meters away. Managing sources of

energy will be one of the most important topics in future. There is also great economic potential in this area. "Smart cities" – progressive cities that embody intelligent, innovative solutions and the responsible and sustainable use of resources – are naturally also important in this regard.

What trends can be seen in this context?

The concept of "smart cities" has already triggered new developments in the area of sustainability. It is now also about tapping into the possibilities provided by information and communication technologies. The main keyword is big data, the utilization of large amounts of data that provide us with important information – such as where is what being consumed, with which products and at what times, plus what energy requirements result from this and where will they arise.

For example, it would be possible to manage the supply of energy to several residential neighborhoods based on weather forecasts if we linked all the required information. These are important issues which companies such as IBM, Microsoft, Siemens and ABB and many other smaller, innovative firms are already intensively engaging in as we speak, and which are decisive for their business models. This trend will have a major impact on sustainable building. The construction industry is extremely innovative in this regard, from the individual materials right through to the building systems and techniques.

Are there regional differences in sustainable building?

Yes, regional differences do exist. In Japan, building structures have to be more focused on earthquake safety. However, in other regions with severe water shortages, such as in Spain, sustainable building is influenced by issues such as the careful use of water. There are also regional differences in terms of energy. In Iceland, for example, the issue of energy hardly ever arises. They simply take the geothermal energy and supply it to all the buildings. Here, on the other hand, there are requirements when it comes to the building shell and the technical building systems as a result of the climatic conditions. The regional idiosyncrasies are determined by these specific circumstances. This is why generalized global standards simply don't work here. Sustainability is not something that can be evaluated the same way right across the board. This also explains the motivation to develop one's own standards – such as Minergie and DGNB – in response to the international certification programs LEED or BREEAM in order to meet the respective regional requirements. The fact that we now have 120 to 130 different labels worldwide is a result of this. LEED and BREEAM have also followed this trend themselves with regional adaptations.

What role do private building owners play in the area of sustainable building compared with public building owners and investors?

Institutional building owners who specialize in office construction were essen-



Holger Wallbaum (46) is Full Professor in Sustainable Building at the Chalmers University of Technology in Gothenburg. Prior to assuming this role, the safety engineer and doctor of architecture lectured at the Institute of Construction and Infrastructure Management at the Swiss Federal Institute of Technology (ETH) in Zurich. Holger Wallbaum is a core member of the Sustainable City Systems platform of Climate-KIC – an initiative of the European Institute of Innovation and Technology. He deals with conceptual, technological and sustainable innovations in the construction industry. Holger Wallbaum has authored various publications and is an internationally sought-after advisor on the topic of sustainable building and sustainable urban development.

tial for the advancement of sustainable development. They contributed greatly to energy and environmental labels such as LEED, BREEAM and Minergie being used and to technologies such as water-saving faucets becoming so widespread. Public building owners have set standards and shown what is possible with a range of showcase projects. However, private building owners also play a key role. You only need to take a look at how Minergie has caught on in Switzerland, particularly in private residential construction. Single-family house construction was the driving force behind this success.

How important is modular building for sustainability?

I see great potential in modular construction and prefabrication – particularly in apartment building construction where the buildings no longer have the cheap look or feel of the prefabricated buildings of the past. Today's buildings are cost-effective, of high quality and characterized by fast construction times and a high degree of precision on the construction sites. Prefabrication also offers an incredible degree of flexibility when it comes to materials, colors and other aspects. This represents a major opportunity, particularly with regard to the synergies of various materials. After all, there is not just one but an entire range of ecological building materials.

If you could design your ideal city of the future, what would it be like?

My city of the future would be a patchwork city that combines the positive attributes of individual cities such as Zurich, Siena, Paris, Berlin, and Barcelona to create a functioning whole in terms of sustainable development. However, as we are talking about a vision of the future, it would also contain innovations that don't yet exist – cost-effective public transport, an environmentally sustainable energy supply that considers future generations, retailers offering a range of regional products and places where people can go to kick back and relax. The city I've just described will probably never exist. However, these ideas represent possible courses of action that reveal interactions and help us to make the future even more livable without promoting uniform cities. ←

An oasis of peace and tranquility

“The Chedi Andermatt”, Switzerland



↑ “The Chedi Andermatt” is made up of four interconnected buildings with overhanging double-pitched roofs.

The five-star hotel The Chedi Andermatt is an exceptional mixture of the traditional and modern with Far Eastern influences – an oasis where international clientele are treated to the highest standards and perfection right down to the smallest detail. With the Geberit AquaClean 8000plus shower toilet, a top level of comfort is also ensured in the bathroom.

Eight years ago, the Egyptian businessman Samih Sawiris had the bold idea of making the Swiss Alpine village of Andermatt one of the prime addresses for luxury vacations in the Alps. With the five-star hotel The Chedi Andermatt, an important part of this ambitious project has now been realized. The new complex is made up of four interconnected buildings with overhanging double-pitched roofs. The luxury hotel was designed by the Belgian architect Jean-Michel Gathy of Denniston International Architects & Planners in collaboration with the Altdorf-based architecture firm Germann & Achermann.

Sophisticated, international style

The facade features a timber structure that acts as a shading screen and ensures privacy in the loggias in front of the hotel rooms. At first glance, this timber structure is reminiscent of traditional chalets. However, the fine wooden panels are also a reference to Far Eastern buildings. As “The Chedi” hotels are located worldwide – predominantly in Asia and the Middle East – it is hardly surprising that these influences can also be found in Andermatt. The five-star hotel caters to international clientele. The interior is

The Chedi Andermatt (CH)

Building owner: Andermatt Swiss Alps AG, Altdorf (CH)
Architects: Denniston International Architects & Planners, Kuala Lumpur (MY) in collaboration with Germann & Achermann, Altdorf (CH)
Opened: 12/2013

Geberit know-how
AquaClean 8000plus
Mapress piping systems
Mepla piping systems
Silent-db20 piping systems
PE-HD piping systems
Duofix installation systems
GIS installation systems



↑ With a combination of Alpine chic and Asian softness, the hotel rooms invite you to relax.

therefore characterized by a sophisticated, international style featuring a lot of wood, furs, fine fabrics and an impressive 195 fireplaces. Soothing earth tones in beige, gold and brown – typical of the desert – dominate in the rooms.

“Our hotel aims to be an oasis of peace and tranquility,” explains Senior Vice President Hansjörg Meier, describing the atmosphere in “The Chedi Andermatt”. The hotel features 106 spacious rooms with a living area of at least 52 square meters, suites and nine residences. The hotel rooms skillfully combine alpine chic and Asian softness, with floors made of dark alpine wood as well as soft leather armchairs and sofas that invite you to relax. The large panoramic windows make you feel like you can literally reach out and touch the mountain landscape. As an additional highlight, each room has its own fireplace that can be opened both to the rooms and to the terrace. The bathrooms are just as spacious and of the same high quality, and are equipped with large bathtubs, natural stone floors with underfloor heating, separate rain showers and shower toilets. ←



↑ The luxurious bathrooms were all fitted with Geberit AquaClean 8000plus shower toilets.

Interview with Hansjörg Meier, Senior Vice President at General Hotel Management Ltd.

“For us, luxury primarily means ensuring personal comfort for our guests”

Mr. Meier, what does “The Chedi Andermatt” offer its guests?

“Chedi” means “temple”. When you enter our hotel, you quickly notice the Asian tranquility and softness that our rooms exude. Although we are a luxury hotel, there is a total lack of “stiffness”. You immediately feel comfortable in this informal atmosphere. In our hotel, “luxury” is not something demonstrated by showy opulence, but instead by perfection lovingly celebrated down to the smallest detail. One of the cornerstones of our hotel’s philosophy is the proverbial Asian hospitality – something which would not be possible without perfect service, comfort and cleanliness.

Is this the reason why all the hotel rooms, suites and residences have been equipped with Geberit AquaClean 8000plus shower toilets?

We want to offer our guests the very highest standards in all areas of our hotel. For us, it goes without saying that the shower toilet is a standard feature in our bathrooms. Besides, our guests are made up of international clientele that are used to a certain lifestyle. Most also have shower toilets at home and certainly won’t want to have to live without them when on vacation.

Why did you opt for the Geberit AquaClean 8000plus?

We always focus on ensuring that all our products are made of durable, sustainable and high-quality materials. This naturally also applies to the bathroom. The shower toilet from Geberit perfectly fulfills all our requirements with respect to quality, hygiene and comfort. We can therefore rest assured that we are offering our discerning guests the very best. ←

Monkey business in the shower

A hygienic drinking water supply thanks to Geberit Mapress



↑ The natural environment of the apes was incorporated as far as possible when designing the new complex.

The new ape house in Wilhelma in Stuttgart was created to offer the bonobos and gorillas a suitable environment in which to play and satisfy their natural urge to be active. Spanning 10,000 square meters, it is one of the most modern of its kind in Europe. Thanks to Mapress Stainless Steel piping systems from Geberit, perfect drinking water quality for the animals is guaranteed.

Wilhelma, the zoological and botanical garden in Stuttgart, dates back to the first half of the 19th century. Originally laid out under King Wilhelm I, the spacious garden has an extensive population of old trees. In 1951, the first enclosure for animals of the African steppes was built, with Wilhelma getting its first apes seven years later. However, a lot has changed in animal keeping in zoos since this time. In line with this progress, a new ape house – one of the most modern of its kind in Europe – was built for the bonobos and gorillas in Wilhelma in accordance with the guidelines of the European Endangered Species Programme (EEP). At around 10,000 square meters, the complex – which cost some 22 million euros to build – is approximately 14 times larger than the old enclosures. The new ape house

was designed by the Berlin-based architecture firm Hascher Jehle Architektur, which had won the competition for the unusual project back in 2006.

The elongated, S-shaped new building is home to two separate enclosures for the gorillas and the bonobos. The indoor enclosures consist of a concrete structure formed in one piece. As an open green area, the outdoor enclosures form a natural continuation of the green roofscape, which fits harmoniously into the zoo environment.

Large natural urge to play and be active

The original, natural environment of the apes was incorporated as far as possible when designing the new complex. The comprehensive care provided by the zoo-

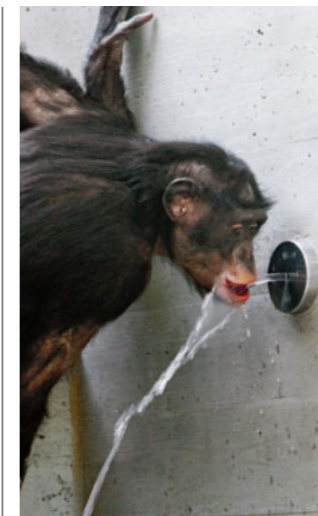
Complex for African apes, Wilhelma zoological and botanical garden, Stuttgart (DE)

Building owner: State of Baden-Württemberg (DE)
Architects: Hascher Jehle Architektur, Berlin (DE)
Completed: 5/2013
Sanitary engineers: Rentschler und Riedesser Ingenieurgesellschaft mbH, Filderstadt (DE)
Plumber: Gas & Wasser Stuttgart GmbH, Stuttgart (DE)

Geberit know-how
Mapress Stainless Steel piping systems
PE piping systems
GIS installation systems
Duofix elements for wall-hung WCs, barrier-free
Duofix elements for washbasins
Duofix elements for WCs
Electronic urinal flush controls and lavatory taps

keepers and the fact that these intelligent animals live in communities and have a large natural urge to play and be active were all important aspects that had to be considered during the planning phase. While the bright indoor enclosures with their terraced landscapes offer visitors the perfect conditions to watch the animals, the apes have privacy and quiet zones in the outdoor enclosures. The old trees in the gorilla enclosure were preserved to the greatest possible extent. The natural canopy of leaves offers the apes protection from the sun, while also emphasizing the nature-oriented design of the complex. The outdoor enclosure for the bonobos features thin steel mesh roofing and is equipped with a number of wooden climbing frames – like in a climbing garden – where the active bonobos can play, climb, swing, groom one another or simply kick back and relax.

Apes are highly intelligent and curious. Building for them required special structural measures to be considered in terms of the design, choice of materials and layout. For example, one of the special features of the new ape house is the bonobo cinema, where at certain times of the day the apes can switch between animal programs, nature documentaries or animated cartoons by pressing the knobs on a monitor. Operating the food labyrinths, automatic water dispensers and ape showers also promotes their skill and intelligence. In addition to keeping the animals occupied, top priority is also given to ensuring their protection and safety. This applies in particular to the drinking water supply in the enclosures. By installing the Mapress Stainless Steel piping systems from Geberit, the required hygienically perfect drinking water quality could be guaranteed. ←



↑ A bonobo drinks fresh water at an automatic water dispenser equipped with an IR sensor.

Interview with Project Manager Stephan Aschenbrenner, Gas & Wasser Stuttgart GmbH

“Apes need perfect drinking water quality”

In which areas of the ape house were the Geberit Mapress Stainless Steel piping systems installed? **The Mapress Stainless Steel pipes were installed in the ape showers and automatic water dispensers. The ape showers, which the animals can operate via an IR sensor, are located in the complex's daytime enclosures and consist of a vandal-resistant shower head embedded surface-even in the concrete. However, the apes not only use the water for showering and playing, but also for drinking. The automatic water dispensers are located in the cages in the nighttime area. The ends of the dispensers are equipped with a special mouthpiece from which the apes can drink.**

What requirements does the drinking water supply in the ape house have to fulfill?

To ensure that the animals do not drink any dirty water which could result in illness, the drinking water supply has to be hygienically perfect. The same high hygiene standards apply for the bonobos' and gorillas' drinking water supply as for people. We therefore opted for Mapress Stainless Steel as it is reliable and ensures the required drinking water quality.

Were other Geberit products installed in the ape house?

A terraced landscape made up of concrete levels at different heights was created for the apes in the daytime enclosures where they can frolic and play. These steps are cleaned with water each day. To make the different levels possible, the drainage had to be practically assembled in the air during construction before the concrete was poured. The Geberit GIS installation elements were best suited for this, and we installed PE pipes for the drainage. In addition, various Geberit products were installed in the WC facilities for the visitors, including Duofix elements for WCs for disabled persons and electronic urinal flush controls. ←



Mapress

Mapress Stainless Steel piping systems guarantee perfect hygiene and the very highest degree of safety. The system is made of high-quality stainless steel, is corrosion-resistant and extremely resistant to aggressive substances. During the production of Mapress pipes and fittings, Geberit ensures that they are in hygienically perfect condition when they leave the plant. The Geberit Mapress piping systems, which are suitable for drinking water pipes, are equipped with protection plugs to prevent the ingress of dirt and foreign bodies.

A metal titan

SwissTech Convention Center at the Swiss Federal Institute of Technology in Lausanne, Switzerland



↑ The glass front of the new Convention Center features colorful solar cells that provide the green building with energy.

The new SwissTech Convention Center at the Swiss Federal Institute of Technology in Lausanne is one of the most modern convention centers in the world. Together with a complex comprising student apartments, shops, restaurants and a hotel, it rounds off the campus in the “Quartier Nord”. The striking sustainable structure features a large glass front that has been fully equipped with colorful solar cells.

The Swiss Federal Institute of Technology in Lausanne received the first International Sustainable Campus Award in 2009. A new complex has now been added that has been praised for its architecture and environmental friendliness, receiving plaudits such as “ultra-modern” and “a role model for Europe”. With a colorful striped front made of solar cells and a roof with an expansive overhang as its signature features, the SwissTech Convention Center constitutes a striking finish to the campus in Ecublens in the “Quartier Nord”. The Congress Center also includes a housing complex with apartments for 516 students, shops, restaurants and a hotel. The buildings were designed by the Lausanne-based architecture firm Richter Dahl Rocha & Associés architectes.



↑ The roof with an expansive overhang is the signature feature of the SwissTech Convention Center in Lausanne.

A cut diamond

Bearing a resemblance to a cut diamond, the Convention Center represents a new landmark at the north entrance to the campus. Beneath the 1,000-ton metal skin is a 3,000-seat auditorium. The metallic shell gradually rises from the ground, uncovering large glass fronts on the southern and northern face and enabling daylight to flow into the vast auditorium. The roof coating made of natural anodized aluminum contrasts with the more intimate, refined character of the natural wood trim inside.

An exemplary green building

The Convention Center not only features exemplary architecture, it is also a role model when it comes to sustainability. For example, 300 square meters of dye-sensitized solar cells are integrated into the green building's western facade. These generate up to 2,000 kilowatts of renewable energy a year while acting as a shading screen, thus reducing the energy required for cooling. Additional solar panels were also installed on the roof. Due to the unstable terrain where it was built, the Congress Center rests on 200 piles, including five experimental thermic piles that – in addition to constituting structural foundation and support elements – also function as heat exchangers. They serve as a source of heat during the cold winter months and as a means of cooling during the warmer seasons. This technology can also be used to save the energy generated by the solar modules in order to compensate for seasonal fluctuations. ←

SwissTech Convention Center at the Swiss Federal Institute of Technology in Lausanne (CH)

Building owner: Credit Suisse Real Estate Fund Hospitality and Credit Suisse Real Estate Fund LivingPlus (CH)
Architects: Richter Dahl Rocha & Associés architectes SA, Lausanne (CH)
Opened: 4/2014
Sanitary engineers: duchein, Villars-sur-Glâne (CH)
Plumber: Riedo Clima AG, Düdingen (CH)

Geberit know-how
Mapress Stainless Steel piping systems
Mepla piping systems
PE-HD piping systems
Silent-db20 piping systems
Duofix installation elements
Electronic urinal flush controls

Green building: greenproperty (all buildings); Minergie standard (student apartments)

Interview with Alain Piller, Managing Director of the engineering firm duchein

Stringent requirements for comprehensive sustainability

Were there any specific structural issues during the planning phase that were able to be solved using Geberit products?

We had to develop concepts for the Convention Center, apartments for 516 students, a 66-room hotel, a large-scale kitchen and stores. This made the overall project challenging. We meticulously determined the amount of hot water that needs to be produced for all the tenants based on a breakdown across a day before opting for Geberit Mapress. We could only manage a hot water distribution on this scale using this piping system. For the Convention Center, we also had to ensure that each supply point has enough water to meet the needs of the 3,000 visitors. We used Geberit Mepla for these distribution pipes.

Were there any other technical difficulties that had to be overcome?

The kinked roof structure posed a challenge, especially as the roof only rests on two pillars. The weight of the drainage systems was therefore strictly limited and the installation work was difficult. We could only solve the roof drainage issue using the PE-HD piping system.

The Convention Center bears the “greenproperty” quality seal for sustainable real estate from Credit Suisse Real Estate Asset Management. Was importance therefore also attached to environmental friendliness when it came to product selection?

To achieve “greenproperty” certification, very clear guidelines were given with regard to sustainability in the sanitary facilities. Only products that meet the stringent requirements concerning healthy and environmentally sound building techniques could be used.

Can you give some examples of the Geberit products you mean here?

The piping systems that we installed in the Convention Center are durable, reliable and made of environmentally friendly materials. Thanks to the quality of the PE pipes that we used for the wastewater disposal, we can guarantee that the seals are reliable and that no ground water will be polluted. The additional insulation provided by Geberit Isol also takes care of the acoustic insulation aspect – a feature of importance in a building like the Convention Center. These were some of the qualities that led to the Convention Center receiving “greenproperty” certification. The Geberit products also meet all the requirements for Minergie-Eco certification. ←

Index of architects/sanitary engineers/plumbers

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Portrait, pages 12–15

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Panorama, pages 16–21

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Focus Dutch waterfront

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Focus Living in metropolises,

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Focus New justice centers,

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Architects

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</

Poetic rhythm

The motion of rowing in architectural form



Man has been paddling since time immemorial. First in hollowed-out tree trunks, later in rowboats. The ancient Egyptians had already discovered that, in addition to their vital importance for trade and obtaining food, rowing and skillfully mastering a boat can also be an enjoyable leisure activity. Many epochs later, the English cultivated rowing into a pure gentleman's sport which it exported across the Atlantic to the New World.

The architectural spectrum of American boat-houses ranges today from simple wooden shacks to ornate villa extensions. The new, spectacular building designed by Jeanne Gang on the site of the "Chicago Rowing Foundation" rowing club shows a new dimension in how boathouses can look. The American architect seems to have a special fondness for water. Back in 2010, she equipped her 260-meter-high "Aqua Tower" in Chicago with a rippled wavelike facade* which resulted in a range of international awards.

The new facility along the bank of the Chicago River comprises a large boathouse for rowboats and kayaks, a floating dock and a two-story training center. A special highlight of the complex is its state-of-the-art indoor rowing tank, where rowers can train in rowboats – from single sculls right through to eights – protected from the wind, rain and cold. The tank features 16 places for sweep rowing in the outside channels and eight places for sculling in the center channel. "The architecture is meant to visually capture the poetic rhythm and motion of rowing," explains Jeanne Gang on her design, which brings the rowing motion to life in her striking architecture. Here, the structural roof shapes alternate between an inverted "V" and an "M". ←

*See also the article in "View" 2011 entitled "Strong identity"

