

Dedicated to People Flow™

KONE

ROTTERDAM, THE NETHERLANDS

Innovation all around

Intelligent design requires innovative solutions. De Rotterdam is the largest mixed-use building – and one of the greenest – in the Netherlands, and cutting-edge technologies were utilized from the start. Aesthetics combine with industry-leading people flow solutions to enhance the vertical transportation in this sustainable vertical city.

KONE References

2013

KONE References

KONE is proud to present these selected achievements from around the world. Join us on a journey through 2013.

Enjoy your visit.

Barrakka Lift Tower – Valletta, Malta	4
Cayan Tower – Dubai, UAE	8
De Rotterdam – Rotterdam, The Netherlands	10
Madison Square Garden – New York City, USA	14
The Iceberg – Aarhus, Denmark	16
China Merchants Plaza – Shenzhen, China	20
ProRail – The Netherlands	22
Madras Lighthouse – Chennai, India	26
Gate Towers – Abu Dhabi, UAE	28
London Underground – London, UK	32
Mariinsky II – Saint Petersburg, Russia	34
Shenzhen Bao’an International Airport Terminal 3 – Shenzhen, China	36
Donau City Tower I – Vienna, Austria	40





BARRAKKA LIFT TOWER – VALLETTA, MALTA

Bringing heritage to life

The Barrakka Lift is a key link to the old quarter of Valletta, taking tourists and commuters from the shores of the Mediterranean Sea to the top of a sixteenth-century bastion built to guard the Maltese capital.



Valletta is an intriguing city steeped in historic tradition. The Barrakka Lift provides rapid access to the capital's famed baroque attractions for thousands of visitors who dock at the modern cruise liner terminal in the Grand Harbour, as well as for Maltese using water taxis to cross the port.

Tourists storm the ramparts

For most of the twentieth century, a much-loved elevator graced the location, but was later decommissioned and then dismantled. Increased tourist numbers in recent years made a replacement crucial.

While meeting the demands of up to 800 passengers per hour, the peak after the arrival of cruise ships, the elevator design had to fit in with the ancient city and appease residents who well-remember the original piece of equipment. Conservation orders stipulated the structure could not rely on support from the city fortifications to withstand the sometimes-severe waterfront weather.

Working in partnership

The project demanded close collaboration and teamwork, particularly in engineering and construction.

KONE came on board in the early stages after forming part of the consortium selected for the project. For KONE, there were two requirements to follow: meet the stringent technical specifications set by the consulting engineer, Ing Ray Spiteri, and accommodate the elevator structure's architectural design. "During the construction phase, we were pleased to see that the architect vision took shape as conceived," says **Konrad Buhagiar**, a founding partner at Architecture Project, designers of the structure for the Barrakka Lift project.

KONE also played a crucial role in technical aspects, employing extensive simulation and wind-tunnel testing to determine the suitability of the structure. This ensured the elevators can operate within some degree of deflection by strong sea winds.

To take advantage of the unique setting, two KONE MiniSpace™ scenic elevators were installed, providing changing views of the honey-colored bastion rock, the wall above and the harbor.

"As you ride the elevator, you are in close contact with the rock, which was cut by hand in the sixteenth century and then the wall above that built at the same time," Buhagiar says. "So you go from the rock-hewn wall to the man-made wall and have the sea on one side. You have these incredible three elements."

Quality control

Construction was constrained by the small footprint of the project in a deep, narrow site outside the city walls. Elevator installation was completed on time, with careful monitoring at all stages by the consulting engineer to ensure the construction met the precise dimensions required for the complicated location.

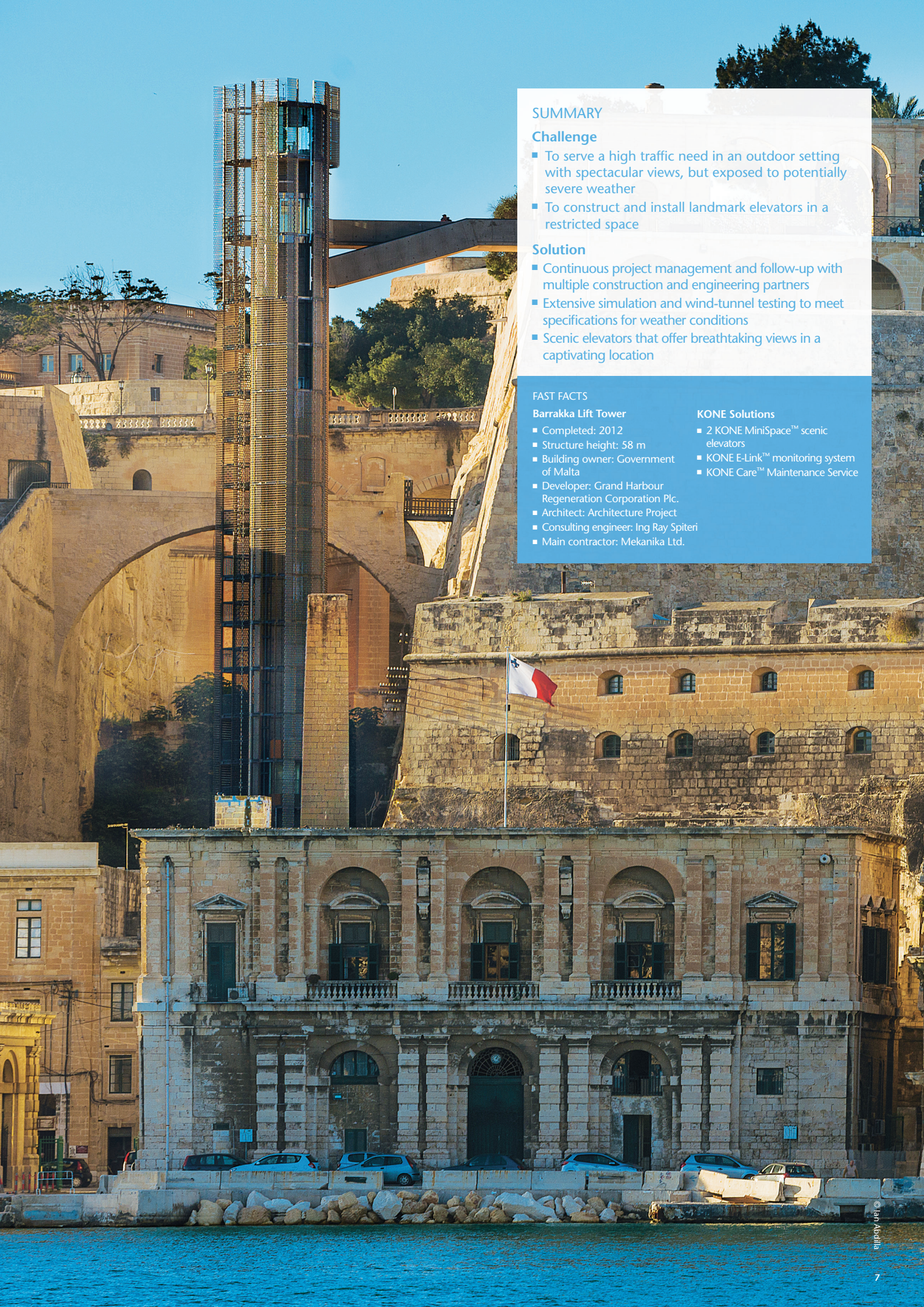
"We held a tight rein on quality control while the construction was carried out, so when it was time to install the elevator, it was quite a smooth process despite the height and the exposed installation," says **Michael Francica**, Operations Director at KONE's Maltese distributor Mekanika Ltd.

In addition, KONE carried out simulations to ensure efficient people flow in conformity with the client's requirements. The 21 passengers in each elevator have slightly less than half a minute to take in the views.

"Our traffic analysis determined the travel times for people moving into and out of the cars. We factored these in to come up with the ideal speeds and configuration," Francica says. Further efficiency is realized from the KONE regenerative drive system which resupplies power back to the project supply network.

KONE's distributor in Malta is responsible for regular maintenance, which is particularly important given the exposed conditions and the salt air of the Mediterranean Sea.





SUMMARY

Challenge

- To serve a high traffic need in an outdoor setting with spectacular views, but exposed to potentially severe weather
- To construct and install landmark elevators in a restricted space

Solution

- Continuous project management and follow-up with multiple construction and engineering partners
- Extensive simulation and wind-tunnel testing to meet specifications for weather conditions
- Scenic elevators that offer breathtaking views in a captivating location

FAST FACTS

Barrakka Lift Tower

- Completed: 2012
- Structure height: 58 m
- Building owner: Government of Malta
- Developer: Grand Harbour Regeneration Corporation Plc.
- Architect: Architecture Project
- Consulting engineer: Ing Ray Spiteri
- Main contractor: Mekanika Ltd.

KONE Solutions

- 2 KONE MiniSpace™ scenic elevators
- KONE E-Link™ monitoring system
- KONE Care™ Maintenance Service

Outstanding design with a twist

The spiral of the Cayan Tower makes it a standout building, even in the astonishing skyline of Dubai. The residential skyscraper is the tallest in the world with a 90-degree twist.

The unconventional Cayan Tower twists through a full 90 degrees from ground level to the top of its crown at 306 meters. The striking design makes it the tallest building in the world with a quarter turn – and a unique addition to the Dubai cityscape.

The unusual helix of the residential block, which shows an hourglass figure when viewed from one angle but appears to bulge in the middle when viewed from another, demanded innovative solutions. KONE was involved early in the planning process to ensure the project's technical requirements would be met.

Helical hexagon

KONE worked with the developer, Cayan Group, to assess the needs of the skyscraper and also meet the demands for elevator speed and efficiency.

The hexagonal floor plan, where each level is slightly offset from the next to advance the twist, necessitated an exceptional solution: the installation of circular elevator shafts. This set challenging requirements that KONE met at both a design and technical level.



The solutions implemented included space and energy efficient KONE MonoSpace® and KONE MiniSpace™ elevators. Three of the seven high-rise passenger elevators travel with speeds of up to eight meters per second. KONE InfoScreens installed in six of the elevators ensure passengers are up-to-date with the latest building information.

Construction time benefits

KONE worked in close partnership with the main contractor to maximize efficiency, safety and speed in the building process by providing construction time elevators for an extended period of time.

"This was very useful for the client, the builder and the other contractors," says KONE Project Manager **Sivaraman Rajagopalan**. Using these elevators helped avoid the need to dismantle and readjust an external hoist to follow the atypical building shape.

"Compared to an external hoist, the construction time elevators were substantially quicker and the waiting time was much lower," Rajagopalan adds. "This was a great help when completing the interior finishes."

Working together

To meet the client's high level of technical and performance requirements, KONE was able to tailor its offering throughout the project.

"Through our experience, KONE proves to have a dedicated team of vertical transportation professionals," says **Ashraf Qudsieh**, Project Manager at Cayan Group.

"They delivered what they promised and were very flexible and cooperative through all the stages, starting with the early phases of planning to implementation and installation of the system."

Full commitment meant KONE took care of the smallest details, even down to redesigning the ladder used by service technicians to access the circular elevator shafts.



SUMMARY

Challenge

- To ensure the smooth flow of residents and visitors with permanent vertical transportation solutions that also facilitate the construction process
- To install unconventional elevator shafts in a twisting building profile

Solution

- Strong cooperation between KONE and other partners through all development phases
- Providing construction time use of permanent elevators for an extended period to ensure efficient completion of interior finishes
- Circular elevator shafts positioned in the center of the building to suit the helical design

FAST FACTS

Cayan Tower

- Completed: 2013
- Height: 306 m
- Floors: 75
- Building Owner: Cayan Group – Real Estate Investment & Development
- Developer: Cayan Group – Real Estate Investment & Development
- Architect: SOM Skidmore, Owings & Merrill LLP
- Contractor: Arabtec Construction LLC

KONE Solutions

- 7 KONE MiniSpace™ elevators
- 1 KONE MonoSpace® elevator
- KONE InfoScreen

DE ROTTERDAM – ROTTERDAM, THE NETHERLANDS

Manhattan on the Maas

The Rotterdam skyline has been transformed by a new, unique icon of green architecture coined the Vertical City.







Completed in November 2013, De Rotterdam is the latest project by celebrity architect Rem Koolhaas and his studio, OMA. Spanning a gross floor area of 162,000 square meters, this large mixed-use building in the Netherlands comprises three transparent towers atop a six-story pedestal at Wilhemina Pier on the south bank of the Maas River.

Conceived as a city within a city, the three interconnected towers rise to a height of 150 meters, accommodating offices, apartments, a hotel, conference facilities, shops and eateries. Named after one of the ships that once carried thousands of Dutch emigrants to New York from the same pier, De Rotterdam is part of an ambitious urban revitalization plan aimed at transforming the historic port into a lively waterfront hub of commerce, housing and leisure.

Phenomenal views unfold from the towers of irregularly stacked blocks, which change subtly when viewed from different angles. The lobbies occupy a long hall that serves as a traffic hub for the 5,000 people who move through the miniature city daily.

All in the timing

The timely completion of the project – which took four years, 40,000 sketches and the work of thousands – was a small triumph, not least due to the challenging inner-city location. With as many as 600 workers moving up and down the towers several times a day on a site the size of a soccer field, successful execution boiled down to well-planned logistics.

“Together with KONE’s experts, we decided to install three KONE JumpLift solutions which played a very important role in transporting people and materials to the right spot at the right time. We were able to deliver the largest mixed-use project ever built in the Netherlands exactly on schedule,” says **Jan van’t Westeinde**, Senior Sustainability Manager at MAB, the developer of De Rotterdam.

“Our collaboration was very professional. We constantly challenged KONE to reach our mutual goals in terms of timing, budget and quality. Everyone had great drive and was proud to work on this major project. After four years of hard work, we literally reached the top together,” adds van’t Westeinde.

One-of-a-kind look

The architects had specific wishes regarding the decoration of the elevator cars. To achieve the desired aesthetic, the interiors of the cabs were customized locally.

“We collaborated closely with the designers and our local cab decoration supplier to meet the architect’s expectations. The operating panels are one-of-a-kind. The contours of the building are etched into the stainless steel faceplate and filled with vertical white LEDs. There is one LED per stop, which lights up with every passing floor,” says KONE Project Manager **Vincent Meijer**.

Alternative energy

Sustainability was as important as aesthetics in the design of De Rotterdam, one of the greenest buildings in the Netherlands. All offices are energy class A, powered by rooftop solar panels and nine wind turbines. The building is heated and cooled using the water of the Maas. This cutting-edge technology is matched by the KONE elevators, which return power back to the grid.

“In all respects, De Rotterdam was a unique project for KONE. Our team feels privileged to have delivered such a fine people flow solution,” concludes Meijer.

SUMMARY

Challenge

- To provide an efficient logistical solution enabling fast vertical movement of people and materials on a challenging site
- To deliver eco-efficient transit technology meeting the stringent standards of one of Holland's greenest buildings
- To provide a unique visual solution matching the building's bold architectural identity

Solution

- Construction time elevators provided contractors with easy access to the towers, enabling efficient and timely completion of the project
- KONE provided a total elevator and escalator package equipped with advanced eco-efficiency features including the ability to return power back to the grid
- The customized scenic elevators feature specially etched car operating panels

FAST FACTS

De Rotterdam

- Completed: 2013
- Size: 162,000 sqm
- Floors: 44
- Building owner: De Rotterdam CV
- Developer: MAB Development with OVG Real Estate
- Architect: OMA (Rem Koolhaas)
- Contractor: Zublin GmbH

KONE Solutions

- 15 KONE MiniSpace™ elevators
- 7 KONE MonoSpace® elevators
- 2 KONE MonoSpace® scenic elevators
- 3 KONE JumpLift construction time elevators
- 6 KONE TravelMaster™ 110 escalators
- KONE E-Link™ monitoring system
- KONE Polaris™ Destination Control System

The legend lives on in Manhattan

When Madison Square Garden calls itself “The World’s Most Famous Arena”, few disagree. It has a rich history of hosting nearly every major name in music, all-star athletes, national political conventions, and numerous world-famous shows and events. Renovating the iconic building was neither quick nor easy, but the transformation ensures the facility will continue to be a legendary venue well into the future.

The indoor arena has been in its present location since 1968 and is currently home to two major New York sports teams. After years of high traffic use, the arena was in need of a major transformation to meet the expectations of today’s spectators.

Modern equipment, maximum benefit

As part of the USD 1 billion renovation, KONE was brought in to modernize the existing elevators and escalators, ensuring optimal people flow for the crowds of 18,000 and more frequently visiting the arena.

“We replaced the existing escalator equipment with KONE’s lighter, more efficient systems,” says **LeVaur Livingstone**, KONE Regional Project Manager. “The new glass designs also fit extremely well with the layout of the arena.”

KONE installed 45 new eco-efficient escalators to fully replace the old equipment. In addition, the KONE EcoMod™ escalator modernization solution was utilized to upgrade the entire workings of three escalators without removing the existing trusses.

“The modernized equipment has more advanced safety and energy efficient features compared to the old equipment,” Livingstone says. “That makes for more comfort and reliability for the passengers.”

KONE also managed the installation of five new elevators.

Home team advantage

Transforming a major site in crowded midtown Manhattan poses logistical problems of its own. To further complicate matters, Madison Square Garden is home to the New York Knicks basketball team and New York Rangers ice hockey franchise, and the owners wanted to keep the arena open for the full seasons.

As a result, the venue was only available for renovation over the summer off-season with work carried out over three years. “We had to carefully map out the job, draw up a detailed schedule and then coordinate the schedule with the other parties involved,” Livingstone says.

Even getting the old equipment out of the building took a great deal of ingenuity. To minimize the temporary access required, existing equipment was removed through the windows on the second floor. Later, all new equipment was hoisted through the windows and into position.

“There was a lot of planning and engineering that went into this transformation,” says **Frank Gramarossa**, Project Executive at Turner Construction Company, the contractor on the project.

Gramarossa adds, “We knew each other going in and that is an advantage. It made the planning and the collaboration much easier. When push came to shove, KONE got it done. It was a very successful undertaking on both sides.”

KONE will maintain the equipment at Madison Square Garden and will have two service technicians on site during events to keep the equipment in peak running condition.





SUMMARY

Challenge

- To modernize escalators in a multipurpose arena on an extremely tight work schedule when resident sports teams are on hiatus
- To ensure smooth logistics of people and equipment while working on a busy downtown site

Solution

- Proactive planning and scheduling, as well as close coordination with the builder
- Use of innovative installation and site clearance methods to optimize efficiency and minimize public inconvenience

FAST FACTS

Madison Square Garden	KONE Solutions
■ Completed: 2013	■ 45 KONE Eco3000™ escalators
■ Capacity: 18,000	■ 3 KONE EcoMod™ escalators
■ Building owner: The Madison Square Garden Company	■ 5 hydraulic elevators
■ Developer: Van Deusen Associates	■ 12 elevators modernized
■ Architect: Brisbin Brook Beynon Architects	■ KONE Care™ Maintenance Service
■ Contractor: Turner Construction Company	

THE ICEBERG – AARHUS, DENMARK

Cool as ice

Those luminous peaks are not a frozen mirage – they belong to the Iceberg, an award-winning residential scheme in the Aarhus Docklands development in Denmark. But how do you install elevators in buildings shaped like jagged chunks of ice?





The Iceberg rises from the frigid waters of Aarhus Bay like a glistening cluster of floating ice. Designed by an innovative team of architects, the apartment complex is the first phase in the socially sustainable redevelopment of a disused shipping container terminal in Denmark's second-largest city.

This City by the Harbor will see the run-down docklands transformed into a vibrant meeting place for business, culture and mixed housing types, eventually to accommodate 7,000 residents and 12,000 new workplaces. Measuring 800,000 square meters in area, it is one of the largest waterfront urban development projects under construction in Europe.

The Iceberg's quartet of L-shaped wings contain over 200 apartments ranging from affordable units to exclusive penthouses, in keeping with the municipality's desire to create a diverse social profile for the area. The project won the coveted 2013 Best Residential Project award at the MIPIM (Le marché international des professionnels de l'immobilier) international property show.

Frozen poetry

The architectural brief for the project was challenging, as the desired square meters conflicted with the site's height restrictions. Furthermore, each apartment was to be provided ocean views and maximal daylight. The architects solved this problem by designing an open, sculptural pattern of steeple-like peaks and valleys to ensure that residents in the rearmost apartments enjoy stunning harbor views and generous natural light. The resulting resemblance to an iceberg was a happy coincidence, report the architects.

The architecture elicited astonishment from the contractors for altogether different reasons. The tapered design posed various technical challenges, not least for KONE. "In order for our elevators to fit in this unique architectural structure, we needed to modify the hoisting beams. We went to considerable effort customizing the hoists to achieve a perfect balance with the sloping walls at the top of the building," explains KONE Sales Director **Brian Bo Pedersen**.

"The unusual architectural solution also presented difficulties fulfilling fire codes, but thanks to our flexible collaboration with the contractor, we were able to come up with a regulation-compliant solution," adds Pedersen.

Sustainable energy

KONE has established a track record of successful partnership with the contractor. "Customer loyalty is extremely important to us and we're proud to have a close relationship with NCC Construction in Scandinavia. In fact, 85 percent of the new buildings in the Aarhus docklands development will be equipped with KONE elevators," reveals Pedersen.

With sustainability high on the agenda – the Aarhus docklands project being a pioneering example of upcycling a disused container park – KONE's reputation as an eco-efficiency innovator was a further decisive factor.

"All of the elevators installed in this project are equipped with regenerative drives, which convert excess energy generated by the elevator into electricity that can be reused elsewhere in the building," explains Pedersen.

KONE will be maintaining the elevators to ensure seamless performance for years to come.





SUMMARY

Challenge

- To install high-performance elevators in a landmark building with a highly unusual tapered shape
- To design a solution compliant with fire codes
- To deliver an eco-efficient solution for a project with a strong sustainability agenda

Solution

- Customized hoisting beams accommodate the sloping walls on the top floors of the building
- KONE worked together with the contractor to devise a structural solution compliant with fire safety codes
- Regenerative drives recapture excess energy, enabling it to be used elsewhere in the buildings

FAST FACTS

The Iceberg

- Completed: 2013
- Size: 22,000 sqm
- Building owner: PensionDanmark
- Architect: CEBRA, JDS, SeARCH, Louis Paillard
- Contractor: NCC Construction Danmark A/S

KONE Solutions

- 12 KONE MonoSpace® elevators

Shenzhen's future looks smart

Southern China's most exclusive office tower sets a new benchmark for intelligent buildings in Asia.

A new seaside town is taking shape in the Shekou district of Shenzhen. As part of the facelift of the Sea World urban complex, China's earliest pilot zone for economic reforms in the 1980s, the coastal development is being transformed into a commercial and recreational hub hosting an arts center, deluxe hotel, IMAX theater and seaside park.

The center of it all

The commercial centerpiece is the new China Merchants Plaza office building, which marks a milestone in the development of intelligent office space in the Shenzhen region. Towering 211 meters above the coastline, it is the most exclusive office estate developed by China Merchants Property Development Co., Ltd. during its 100-year history.

KONE was chosen to supply the elevators based on a long-term partnership and a proven ability to deliver premium value. The project included 21 KONE elevators in total, including high-speed KONE MiniSpace™ elevators that are able to travel at six meters per second. Because ride comfort becomes even more important at high speeds, KONE created a special wiring solution for these elevators to prevent electromagnetic interference and maximize passenger comfort.

"KONE overcame all difficulties and provided excellent service without any delays," praised the developer.

Top marks for intelligence

Office buildings around the world are entering the intelligent era, with China at the forefront. "With its many high-tech features, the tower ranks among China's most intelligent buildings. This is the first project in China with a traditional KONE Polaris™ Destination Control System," says **Shang Ruilin**, KONE Project Manager.

Integrated with the building's access control system, KONE's destination control system provides enhanced security while guiding passengers to the right elevator. This ensures less crowded cars, shorter travel times and fewer stops. The KONE E-Link™ monitoring system provides real-time data on transportation demand, traffic performance and equipment status. Together, the intelligent systems guarantee a superior people flow experience.

Touches of luxury

The magnificent skyscraper offers breathtaking views of the mountains and sea, and the inside is just as impressive with an 18-meter-high lobby and massive column-free interior space.

KONE created a one-of-a-kind elevator car to match the exclusive look of the interiors. The car walls are crafted out of stainless steel, matte glass and rare laminated steel net. The complex combination of materials creates a rich sense of layering, adding a luxurious feel to the car. Special attention was paid to the detailing, landing door, car door and operating panel, all finished in smudge-free stainless steel to achieve both form and function.



SUMMARY

Challenge

- To provide a premium people flow solution for a high-profile international office building, featuring a full range of built-in intelligent solutions
- To create a visual look for the elevators fulfilling the bold vision of the architects

Solution

- High-speed 6 m/s elevators and KONE People Flow Intelligence solutions, including KONE Polaris™ and KONE E-Link™, enable the best people flow experience
- The tailored car solution and design match the modern style of the architecture, enhancing the overall look of the interiors

FAST FACTS

China Merchants Plaza

- Completed: 2013
- Size: 107,000 sqm
- Height: 211 m
- Floors: 38
- Certification: China Green Building Certificate, 2nd level
- Building owner: China Merchants Property Development Co., Ltd.
- Developer: China Merchants Property Development Co., Ltd.
- Architect: SOM, AECOM
- Contractor: China First Construction Engineering Company Ltd. of China Construction Second Engineering Bureau

KONE Solutions

- 16 KONE MiniSpace™ elevators
- 5 KONE MonoSpace® elevators
- KONE Polaris™ Destination Control System
- KONE E-Link™ monitoring system



PRORAIL – THE NETHERLANDS

Better access for the long haul

Punctuality is one thing. Seamless transfer from platform to platform is another. For the Dutch railway network ProRail, this means upgrading its stations to ensure access for all passengers, including those with impaired mobility.





ION

M

Rotterdam Centraal



ProRail moves 1.2 million passengers and 100,000 barrels of goods per day. Smooth movement through more than 400 railway stations is a key part of the transit package.

Within the next decade, the Dutch railway network is rolling out an extensive accessibility plan which includes the addition of vertical transportation solutions. KONE will provide a substantial number of escalators and elevators as part of a multi-year program to improve travel and convenience for travelers in several stations around the Netherlands.

Strength in numbers

“This is the start of a productive long-term relationship,” says **Bob van Meijgaarden**, Public Transport & Escalators Manager at KONE Netherlands.

“Our operations are well organized and our equipment is easy to use for all passengers, not only people with disabilities. In terms of reliability, KONE really makes a difference,” van Meijgaarden says.

Such dependability will benefit both sides over the coming decades as plans solidify. Some 175 elevators are expected to be installed at 76 stations, up from an original 165 elevators. More than 120 escalators are expected to be installed at 19 stations.

Durable and visually appealing

To meet the demands of ProRail’s busy transport hubs, the customized KONE equipment includes the use of heavy-duty and vandal-resistant components as well as compliance with electromagnetic compatibility requirements, a big issue in railway stations.

KONE’s eco-efficiency credentials help to keep down the total cost of ownership, which ProRail appreciates. The use of regenerative solutions reduces energy requirements by recovering the energy generated when an elevator or escalator is used.

LED lighting for the skirting and balustrade further enhance safety and visual appearance. “The aesthetic element is important as well,” van Meijgaarden notes. “We have to ensure safe transport in a high-use environment.”

Trust in the future

To keep the systems running, with minimum inconvenience for passengers, KONE conducts regular maintenance work. This means close coordination with ProRail to ensure there is no disruption during the morning or late afternoon peak flows of traffic.

“Our joint objective is for passenger satisfaction,” says **Wino Cuijpers**, Contract Manager at ProRail. “KONE is responsive to our goal and must do everything possible to ensure as little disruption as possible.”



SUMMARY

Challenge

- To deliver a system built around accessibility, energy efficiency and cost effective solutions
- To install and maintain equipment at busy transport hubs

Solution

- Long-term partnership for the installation and regular maintenance of heavy-duty equipment
- Careful coordination to ensure off-peak installation and maintenance run smoothly with existing transport schedule

FAST FACTS

ProRail

- Completed: 2012-2016 (phased handover of stations)
- Building owner: NS Stations
- Developer: ProRail
- Architect: Varies per station
- Contractor: Varies per station

KONE Solutions

- 30 KONE MonoSpace® elevators; 175 expected in total
- 71 KONE TravelMaster™ 140 escalators; 120 expected in total
- KONE Care™ Maintenance Service



lift

Chennai's beacon shines again

The reopened Madras Lighthouse on the east coast of the Indian subcontinent is one of the latest unique structures modernized by KONE.

Overlooking the Bay of Bengal on the world's second-longest beach stands a triangular edifice painted with large red and white stripes in typical lighthouse fashion. After being closed for 22 years, the legendary Madras Lighthouse on Chennai's popular Marina Beach was reopened to the public at the end of 2013 following a facelift and technical overhaul.

Built in 1976, the iconic landmark is one of the few lighthouses in the world – and the only one in India – to be equipped with an electric elevator. Closed for security reasons for over two decades, the Madras Lighthouse has now been restored to its original glory. It houses the Indian meteorological department and a newly opened tourist attraction, a Lighthouse Museum established through a public-private partnership.

Crowd pleaser

KONE equipped the 46-meter tall lighthouse with a new elevator complete with emergency rescue equipment, intercom and a floor announcement system. The KONE MiniSpace™ elevator features a durable stainless steel car and a KONE EcoDisc® hoisting motor with regenerative drive features, making it approximately 50 percent more energy-efficient than the old unit it replaced.

Huge crowds lined up to see the much-anticipated opening of the lighthouse. For many visitors, it was their first opportunity to admire the Bay of Bengal from such a spectacular height.

"We were excited to see a long queue of visitors waiting to take the elevator to the viewing gallery on inauguration day.

Over 10,000 people used our elevator in the first four days," says **K. Srinivasan**, KONE Modernization Senior Manager.

Fast-tracking with precision

KONE was chosen to provide a turnkey solution based on a sound understanding of end-user requirements in similar modernization projects. The front wall and doors of the elevator car were custom-designed to accommodate the existing entrance wall. By adapting the elevator to the site's requirements, KONE accelerated the installation process, thus accruing savings for the customer.

Due to its location, the damp site is buffeted by heavy winds and called for special safety precautions during installation. Adding to these physical challenges, the entire project was on a fast-track schedule of 60 days, including delivery of materials, dismantling the existing elevator and installing the new unit.

KONE carefully coordinated schedules and reviewed site progress on a daily basis to ensure that work was completed on time and met established quality standards. Thorough preparatory work was carried out in a timely manner and the hoistway was ready ahead of the arrival of equipment, enabling the installation to proceed seamlessly.

"We completed the installation from shutdown to handover of the new elevator in only 28 days, which was 10 days ahead of the time allocated for installation," reveals Srinivasan. KONE will also handle the maintenance of the new elevator.





SUMMARY

Challenge

- To install a high-performing, energy-efficient turnkey elevator solution while maintaining the existing entrance wall
- To follow an ambitious fast-track schedule on a site with challenging physical conditions

Solution

- Custom-designed elevator front walls and doors enabled the existing entrance wall to be retained
- KONE EcoDisc® hoisting motor with regenerative drive delivers up to 50 percent energy savings
- KONE carefully synchronized schedules, delivering a turnkey solution in only 28 days

FAST FACTS

Madras Lighthouse

- Modernization completed: 2013
- Height: 46 m
- Building owner: Directorate of Light Houses and Lightships
- Developer: Directorate of Light Houses and Lightships, Ministry of Shipping, Government of India
- Architect: Directorate of Light Houses and Lightships
- Contractor: East Coast Construction and Industries Limited

KONE Solutions

- 1 KONE MiniSpace™ elevator
- KONE Care™ Maintenance Service

GATE TOWERS – ABU DHABI, UNITED ARAB EMIRATES

Ancient inspiration for a monumental welcome

Gate Towers has a monumental presence in Abu Dhabi's skyline. With echoes of the ancient columns of Stonehenge on a gigantic scale, three imposing residential tower blocks are connected by a series of penthouses forming a sky bridge unique in the region.





The towers stand as a curved gateway to Shams Abu Dhabi, a thriving new community on Al Reem Island, which is being developed as a residential and commercial extension to Abu Dhabi's central business area.

A unique development

Duplex penthouses link three of the towers across their highest floors to crown the structure, which reaches a height of 238 meters. Behind them is a fourth, semicircular mid-rise building known as the Arc, to which they are connected through a retail and leisure podium.

"With its eye-catching design and sky bridge, Gate Towers is one of Abu Dhabi's most iconic developments," says **Omer Al-Jamel**, Regional Business Development Manager for KONE.

Luxurious comfort and efficiency

The KONE solutions for the residential and commercial applications in the four buildings totaled 41 elevators and four escalators. KONE's aim was to provide efficient and comfortable people flow solutions for residents and visitors to the development, which includes more than 3,500 residential units.

The decision to install 27 KONE MiniSpace™ and 11 KONE MonoSpace® elevators avoids the need for large machine rooms and ensures continuous power savings.

"KONE solutions are extremely eco-efficient and reduce total energy consumption, which ensures our products meet green building certification requirements," Al-Jamel says. "In addition to savings in energy usage, the superior ride quality of the elevators delivers added value for passengers."

Solid cooperation during all phases

With a tight schedule and phased installation plan, emphasis during the project was on safety as well as quality. But flexibility and cooperation were crucial in ensuring an efficient process from start to finish. KONE made construction time elevators available for the contractors in order to facilitate the timely completion of the project.

Building on a strong history with the main contractor, Arabian Construction Company, contributed to a particularly smooth operating relationship during construction, Al-Jamel notes. "Working together on several major projects has ensured positive experiences. We work as a great team. They know we meet the deadlines, and they appreciate our professionalism. They know they can rely on us," he adds.

Possibilities for future development are for a fourth tower to be added and linked through the penthouse sky bridge, as well as for another semi-circular mid-rise building to mirror the Arc.



SUMMARY

Challenge

- To meet a tight delivery schedule in a complicated and challenging development
- To install elevators that can be used to move people and materials efficiently and safely during the construction process

Solution

- Providing the contractor with construction time elevators to ensure project completion with maximum efficiency
- Setting safety as the highest priority and ensuring flexibility and cooperation with the multiple partners throughout the development process

FAST FACTS

Gate Towers

- Completed: 2013
- Height: 238 m
- Floors: Towers 3, 4, 5 – 68 floors; Tower 7 – 23 floors; Basement + podium – 6 floors
- Building owner: Aldar Properties
- Developer: Aldar Properties
- Architect: Arquitectonica
- Architect of record: M/S Khatib & Alami
- Main contractor: Arabian Construction Company (ACC)

KONE Solutions

- 27 KONE MiniSpace™ elevators
- 11 KONE MonoSpace® elevators
- 3 KONE TranSys™ freight elevators
- 4 KONE TravelMaster™ escalators
- 15 construction time elevators
- KONE E-Link™ monitoring system



Keeping the Tube on track

The London Underground, more commonly called the Tube, celebrated its 150th anniversary in 2013, but it's showing no signs of its age. KONE and the world's oldest underground railway system work closely together to ensure a smooth and seamless transit experience for one billion commuters annually.

As visitors to the UK capital know, the easiest way to get around London is to ride the Tube. With three and a half million journeys made each day on 11 lines serving 270 stations, it is paramount that all stations within this complex logistical network are operating at full efficiency.

As part of the Tube Improvement Plan initiated by Transport for London (TfL), owner of the London Underground, KONE secured an order to fully replace fifteen elevators and modernize a further four elevators at six busy Tube stations. Further modernization packages will be provided when the need for upgrades arises.

Step-free partnership

The new order marks the continuation of a long-term partnership between KONE and TfL, which began in 2000 with the extension of the Jubilee line, the London Underground's biggest expansion project in over 20 years. The installation of 118 escalators and 34 elevators was followed by an order for 35 KONE MonoSpace[®] elevators, all enhanced to meet the London Underground's specifications as part of its Step Free Access project at a number of stations.

"We have a long-standing relationship with the London Underground, and we are pleased to continue to improve the commuter experience in the Tube. Modernizing this equipment will minimize disruption to commuters in one of the world's busiest metro systems," says **Michael Williams**, Managing Director for KONE Great Britain.

The new order includes customized KONE MiniSpace[™] elevators that will carry up to 50 people at a time from street level to platforms. At super-busy Bank station, the new elevators are heavy-duty enough to handle peak-hour traffic, carrying over 4,000 passengers per hour. The first upgrade will begin at the Gloucester Road station in 2014, with the final elevators to be installed at Lambeth North in 2017. All new elevators will be incorporated with the KONE E-Link[™] remote monitoring system to maximize equipment availability.

Night owls on call

Though invisible when all goes well, efficient equipment maintenance is crucial to the safe and efficient transport of commuters. Operational problems with an elevator or escalator could result in bottlenecks and frustration during busy peak hours.

The new contract includes the preventive maintenance of all newly installed units of equipment until 2034.

KONE's dedicated team already maintains 150 escalators and 45 elevators in the Tube, accounting for one-third of the London Underground's equipment base.

KONE's service culture is the cornerstone of its trusted relationship with the London Underground. One of their shared goals is to avoid station closures at all costs, with as much work as possible carried out between 1 am and 5 am when the Tube is closed to the public.

"We are proactive, accessible 24/7 and flexible in maximizing the maintenance window, which is during the middle of the night – a unique situation that could only occur with such a busy underground system," says **Adam Lawrie**, KONE's London Underground Operations Director, who heads a team of 100 KONE service technicians.

"We ensure that everything runs smoothly by having the right people ready to attend to call-outs and repairs around the clock. We also stock a wide range of spare parts, so that if we do get a problem we are able to respond immediately," adds Lawrie.

SUMMARY

Challenge

- To meet extreme demands for smooth passenger flow in a complex logistical network
- To maximize equipment availability and avoid station closures and equipment shutdowns at all costs
- To provide flexible maintenance at times when the Tube is closed to the public

Solution

- Customized elevators can carry up to 50 passengers at a time and accommodate over 4,000 people per hour
- KONE E-Link[™] remote monitoring helps to guarantee that all equipment is functioning at all times
- KONE service technicians available 24/7, carrying out most of their work between 1 am and 5 am

FAST FACTS

London Underground

- Project completion: ongoing (until 2034)
- Flow: 3.5 million passengers daily
- Coverage: 11 lines serving 270 stations
- Owner: Transport for London

KONE Solutions

- New equipment for 11 stations:
 - 34 KONE elevators
 - 118 KONE escalators
 - 2 KONE autowalks
- KONE E-Link[™] monitoring system
- New equipment for Crossrail:
 - 54 KONE elevators
 - KONE Care[™] Maintenance Service



MARIINSKY II – SAINT PETERSBURG, RUSSIA

A star is reborn

Saint Petersburg makes sound waves with one of the world's largest and most sophisticated concert halls, the long-awaited Mariinsky II.



Hailed as Russia's most ambitious cultural venture since the time of the Czars, the USD 700 million venue opened in 2013 with a star-studded gala featuring renowned tenor Plácido Domingo. Located on the legendary Theater Square and connected via a pedestrian bridge across the Kryukov Canal to the original Mariinsky Theater – built for Czar Alexander II's wife Maria in 1860 – the new facility provides a high-tech home for opera, ballet and symphony concerts.

The glass-and-limestone edifice was designed by Canadian architect Jack Diamond to complement St. Petersburg's distinctive 19th century architecture. But inside is where the magic really happens. Seating 2,000 at full capacity, the concert hall features advanced acoustic design and sophisticated technological capabilities enabling the opera house to stage modern productions only dreamed of in the original Mariinsky.

The show must go on

KONE played an active role in designing the people flow logistics of the ten-story complex and its backstage facilities. Every unit of equipment was custom-designed to offer the best solution for every need, be it moving crowds, performers or stage sets.

"A theater building is always a logistical challenge because of the technology involved, but especially so with the Mariinsky, which aims to be the most advanced opera house in the world. We delivered special car capacities and non-standard car and door sizes to really get things moving," says local KONE Director **Alexey Samkovich**.

Two KONE escalators move visitors from the entrance to the cloakroom. Each of the 24 KONE elevators is unique, some reserved for visitors, others exclusively for theater personnel. There's also a freight elevator dedicated to moving just props and scenery.

"A group of elevators moves large numbers of chorus singers and dancers, and there are separate elevators for soloists. We worked hard to understand how the theater works and how to move artists smoothly during a performance," says **Roman Pronikov**, KONE Sales Manager.

Silence, please

Issues with site readiness and changes in the building's design during the execution phase called for flexibility from KONE during installation. A decade in the making, the controversial project was troubled by delays, bringing it under intense media scrutiny.



© Daria Shlyar

“The schedule was tough. The handover took place while construction was still ongoing. Numerous contractors were involved, and they kept changing – as a result, we had to work with elevator shafts of varying states of readiness. By focusing attention on overcoming difficulties, we finished the installation on time,” says Pronikov.

With acoustics designed by Müller-BBM of Munich, the concert hall offers a crisp balance of sound between the singers and orchestra pit, which can be raised and lowered to achieve the optimum levels for every production. Clearly, elevator noise is the last thing audiences wish to hear during a classical concert.

“The architects specified that all equipment near the stage must be as silent as possible. In addition to our standard low-noise solutions, extra soundproofing was achieved through shaft-in-shaft solutions designed for double sound absorption. We also supplied isolated brackets to reduce vibration. KONE’s presence in the building is virtually inaudible,” says Samkovich.

SUMMARY

Challenge

- To provide solutions for the smooth and silent movement of people, goods, props and scenery
- To respond flexibly to numerous changes in the building design, schedule and contractor teams

Solution

- Custom-designed elevators accommodate large stage sets and move performers behind the scenes
- A shaft-in-shaft solution and isolated brackets reduce noise and vibration from equipment near the stage
- KONE collaborated flexibly with changing teams of contractors to ensure a timely handover

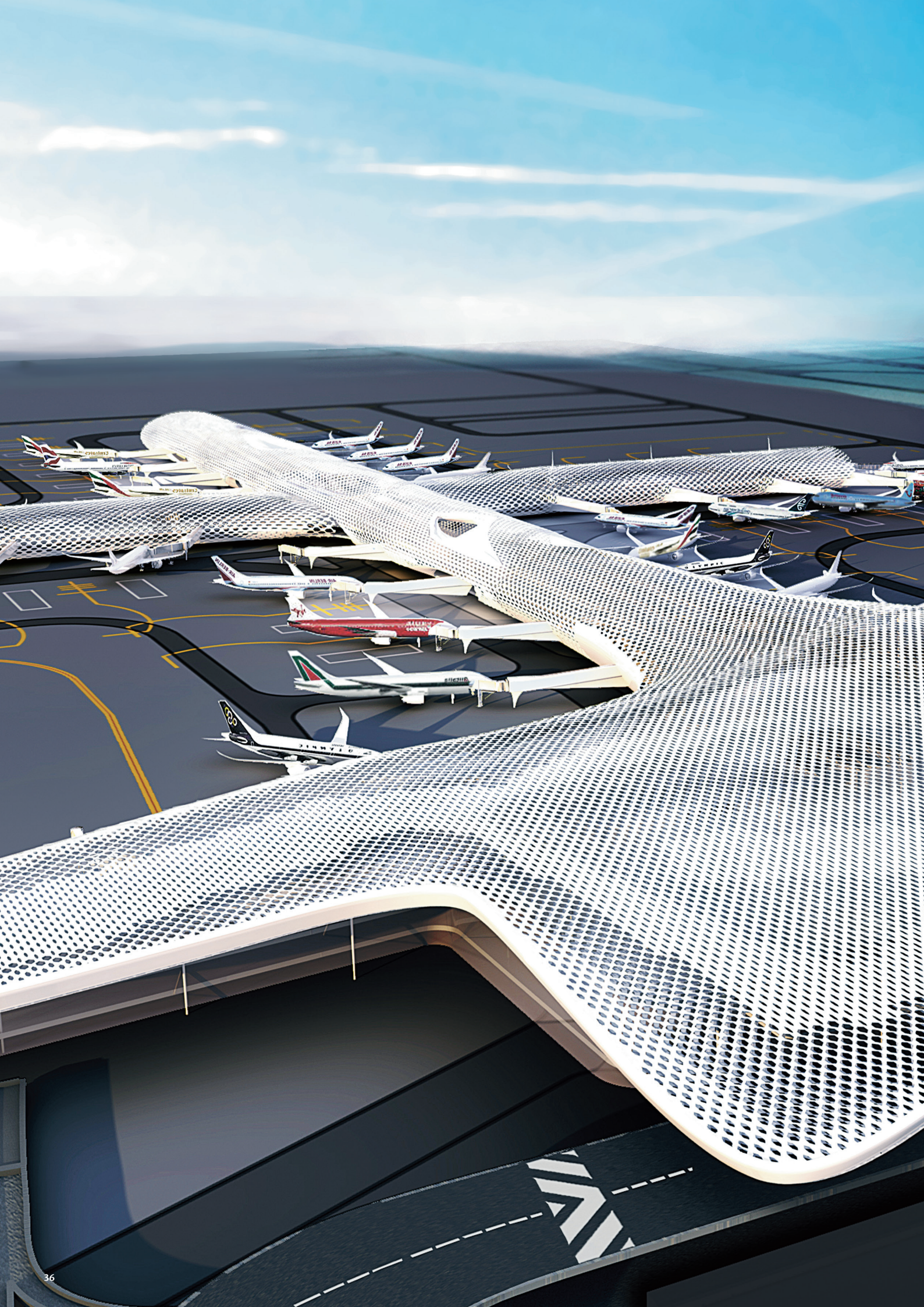
FAST FACTS

Mariinsky II

- Completed: 2013
- Floors: 7 + 3 underground
- Total floor area: 79,114 sqm
- Seating capacity: 2,000
- Building owner: Mariinsky Theater
- Developer: Ministry of Culture, North-West Construction Headquarters
- Architect: Diamond Schmitt Architects & KB ViPS
- Contractor: OJSC General Construction Corporation

KONE Solutions

- 24 KONE MonoSpace® elevators
- 2 KONE ECO3000® escalators
- KONE E-Link™ monitoring system



SHENZHEN BAO'AN INTERNATIONAL AIRPORT TERMINAL 3 – SHENZHEN, CHINA

The flying fish of Shenzhen

An architectural chameleon, Shenzhen Airport's iconic new terminal nearly triples its capacity, enabling one of the world's fastest-growing cities to handle up to 45 million air passengers annually.





Evoking the shape of a manta ray – a fish that breathes and changes shape – Terminal 3 at Shenzhen Bao'an International Airport is the city's largest public building, covering an area of 450,000 square meters. Dubbed by locals as the "giant flying fish", the terminal is a key traffic hub in the Pearl River Delta region.

With 63 contact gates and extensive retail space, the new terminal will handle approximately 14,000 passengers per hour during peak traffic, placing special demands on the capacity and flexibility of the airport's traffic flow configuration.

Nothing left to chance

The design and construction of the terminal was completed on a grueling three-year schedule. After careful analysis and design, KONE experts provided a complete tailored solution to minimize passenger walking distance, comprising elevators, inclined autowalks and heavy-load freight elevators. With teams working around the clock, mobilization of all possible resources enabled KONE to complete the installation and certification of 75 KONE MonoSpace® elevators within only two months.

Two months prior to the official opening, Shenzhen Airport organized three drills with 7,000 passengers to test the efficiency of the traffic flow plan, system and equipment, with KONE technicians standing by on site.

"KONE equipment performed seamlessly in the drills, guaranteeing smooth people flow and receiving high recognition from our client," says **Shang Ruilin**, KONE Project Manager. Shenzhen Airport Co. Ltd. also praised KONE for its outstanding service and resourcefulness in overcoming difficulties to ensure the airport was completed as scheduled.

Design in mind

With roof spans as high as 80 meters, the new terminal is an architectural statement, from its distinctive honeycomb skin to its cathedral-like concourse. Designed by acclaimed Italian architects Massimiliano and Doriana Fuksas, its stand-out features include white "trees" serving as air conditioning vents and thousands of hexagonal skylights allowing natural light to enter the terminal, creating a playful dialogue with the glass elevators. The transparent shafts and elegant glass cars required a special design solution: the controllers are concealed inside the door pockets to maintain a sleek aesthetic.

The new terminal is not only a work of art, but also a green masterpiece. High-level eco-performance was a priority in all aspects of its design, which combines various technologies for energy saving and emission reduction. The most sophisticated among them include the KONE elevators with their space-saving machine room-less design and energy-efficient KONE EcoDisc® motors, which achieve notable energy savings. All KONE systems utilize variable frequency technology to reduce unnecessary energy consumption in this busy transit hub.



SUMMARY

Challenge

- To guarantee smooth people flow by providing a transit solution for a large and highly complex traffic hub
- To meet a tough deadline working with multiple teams and equipment suppliers, requiring careful synchronization during installation
- To deliver a green elevator solution visually complementing the world-class architecture

Solution

- Timely communication with the client during construction ensured the project's successful completion
- Spacious elevators, large-load freight elevators and high-efficiency inclined autowalks ensure safe, convenient and smooth people flow
- Custom glass elevators provide a perfect balance of sleek looks and functionalism, complete with a range of energy-saving features

FAST FACTS

Shenzhen Bao'an International Airport Terminal 3

- Completed: 2013
- Size: 450,000 sqm
- Floors: 4 above + 2 underground
- Flow: 45 million passengers per year
- Building owner: Shenzhen Airport Co., Ltd.
- Developer: Shenzhen Airport Co., Ltd.
- Architect: Beijing Institute of Architectural Design, FUKSAS
- Contractor: China State Construction Engineering Corporation

KONE Solutions

- 131 KONE MonoSpace® elevators
- 8 KONE TranSys™ freight elevators
- 10 KONE TravelMaster™ autowalks

Taking smart building to new heights

Austria's tallest building is also among its smartest. Equipped with a full range of KONE solutions, Donau City Tower I is designed for a completely intuitive people flow experience.

At 220 meters in height, Donau City Tower I (commonly referred to as DC Tower) is one of the tallest buildings in Europe, adding a distinctive high-tech accent to the Vienna skyline. It is the first in a pair of skyscrapers designed by celebrated French architect Dominique Perrault for Donau City, a new city within a city taking shape in Vienna's 22nd district on the right bank of the Danube River.

Ahead of its class

This building is no ordinary multipurpose skyscraper: it can read your mind – or at least your access card. It knows exactly who is entering and where they are headed. KONE technology plays a key part in the day-to-day logistics by guiding users smoothly and efficiently to their destination.

DC Tower features a complete family of KONE People Flow Intelligence solutions combining a flexible elevator and escalator configuration with integrated access control, touchscreen destination control, equipment monitoring and information communication. KONE worked closely with the customer and a third-party access control supplier to ensure the building's people flow requirements were met.

Smooth logistics

Responsibility for seamless people flow was delegated to KONE based on a trusted, long-term partnership with the developer. The ability to interface KONE elevators with a third-party access control system was one of the key reasons KONE was selected for this challenging project.

"The client chose to partner with us again thanks to our proven project management skills and our understanding of their vision to create a futuristic landmark for the new Vienna," says KONE Key Account Manager **Wolfgang Hofmann**.

In this mixed-use building, the integrated technology must help tenants and visitors move around quickly and comfortably while simultaneously providing improved security and access control.

KONE's People Flow Intelligence solutions address these demands.

"The hotel occupies the first 15 floors, with offices on the middle floors, lofts on floors 53 to 56, a restaurant on 57 and a sky bar on 58, so we carried out a detailed traffic analysis to develop a flexible configuration for the smoothest, fastest transit," explains Hofmann. "The elevators also scored top points in KONE's ride comfort tests, listing them as some of the best in Austria."

Environmental generation

DC Tower combines visual innovation with world-class green functionality. It is the first Austrian office tower complying with the European Commission's new energy and sustainability requirements for green buildings and is aiming for LEED Platinum certification.

"KONE conducted an in-depth analysis of potential energy savings. All elevators are equipped with regenerative drives that recapture elevator braking energy and feed it back to the supply network. Additional energy savings are achieved with LED lighting and optimized destination guidance," says Hofmann.

Thomas Jakoubek, CEO of the developer WED AG, adds, "At the end of the day, using energy sensibly not only cuts down on operating costs, but above all, also saves on available resources, thus complying with the 'green building' philosophy."

To complement the building's sleek architecture, select elevators feature customized glass and steel cars while specially tailored ceilings add to the aesthetic of the hotel elevators. In the main lobbies, custom touchscreen destination operating panels help users move smoothly and quickly to their next location. Inside the cars, KONE InfoScreens serve as a platform for both destination guidance and multimedia content.



SUMMARY

Challenge

- To deliver an intelligent elevator configuration serving multiple user groups
- To integrate the elevator system with third-party access control
- To maximize energy savings in line with the European Commission's new requirements and LEED Platinum performance

Solution

- A detailed traffic analysis served as a basis for a flexible elevator, escalator and KONE People Flow Intelligence solutions configuration
- Close collaboration with the customer and a third-party access control supplier resulted in smooth people flow and enhanced security
- Energy savings are maximized by regenerative drives, LED lighting and destination control

FAST FACTS

Donau City Tower 1

- Completed: 2013
- Height: 220 m
- Floors: 64
- Certification: LEED
- Building owner: WED AG
- Developer: WED AG
- Architect: Dominique Perrault
- Contractor: Max Bögl

KONE Solutions

- 16 KONE MiniSpace™ elevators
- 10 KONE MonoSpace® elevators
- 2 KONE TranSys™ freight elevators
- 2 KONE EcoMaster® 130 escalators
- Access Control Interface with KONE elevators
- KONE Polaris™ Destination Control System
- KONE InfoScreen
- KONE E-Link™ monitoring system







KONE provides innovative and eco-efficient solutions for elevators, escalators, automatic building doors and the systems that integrate them with today's intelligent buildings.

We support our customers every step of the way; from design, manufacturing and installation to maintenance and modernization. KONE is a global leader in helping our customers manage the smooth flow of people and goods throughout their buildings.

Our commitment to customers is present in all KONE solutions. This makes us a reliable partner throughout the life cycle of the building. We challenge the conventional wisdom of the industry. We are fast, flexible, and we have a well-deserved reputation as a technology leader, with such innovations as KONE MonoSpace®, KONE EcoMod™ and KONE UltraRope™.

KONE employs on average 40,000 dedicated experts to serve you globally and locally.

KONE Corporation
www.kone.com