

KONE'S MAGAZINE

ISSUE 12

KONE

people flow

PROCESS
PERFECTION WITH
KONE NANOSPACE™

MODERN SOLUTIONS
MEET AGING MEGATREND

BRINGING
HERITAGE TO LIFE



Modernization mindset

The world's population is aging rapidly. This demographic change increases the importance of accessibility in buildings. A well-functioning elevator can help improve the lives of all residents in a building, as well as add value to an existing property.

Regardless of market, elevator and escalator modernization are important issues in today's cities where urban infrastructure is aging. Be it the conservative skyline of Paris, Chicago's balanced landscape, or the rapidly urbanizing Shanghai, different modernization solutions are needed.

What is KONE's role and how can we impact urban heritage? In many markets, a large proportion of existing equipment is well over 25 years old. In that time frame, even the best maintained equipment could fall short of expectations. For customers and their tenants, KONE modernization solutions mean safety, eco-efficiency, and the aesthetic appeal of modern design.

KONE constantly looks for better solutions for our customers. This year we launched the KONE NanoSpace™, a completely new approach to elevator replacement. Both the equipment and processes have been completely rethought to deliver maximum benefit in the shortest possible time. This solution will not only benefit residents, but deliver everything that a building needs for years to come.



Henrik Ehrnrooth

President & CEO, KONE Corporation



KONE IN BRIEF

KONE is one of the global leaders in the elevator and escalator industry. The company has been committed to understanding the needs of its customers for the past century, providing industry-leading elevators, escalators, and automatic building doors as well as innovative solutions for modernization and maintenance. The company's objective is to offer the best People Flow® experience by developing and delivering solutions that enable people to move smoothly, safely, comfortably, and without waiting in buildings in an increasingly urbanizing environment. KONE is present in over 150 countries with more than 43,000 dedicated employees and distributors to serve you globally and locally.

www.kone.com

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Growing OLDER AND WISER

The global population is aging at an unprecedented rate. Award winning architect Michael Heenan considers the implications for the built environment.

TEXT CLAIRE PRENTICE PHOTOS LISA PEARL TAPPIN



By 2050, the proportion of the global population over 60 years will double, from about 11 percent in 2000 to 22 percent in 2050. Or from 605 million to 2 billion people.

The fact that we can look forward to living longer is a cause for celebration. But it also presents a challenge for architects, town planners, and governments everywhere, raising the importance of accessibility in buildings and urban infrastructure.

So how is the aging megatrend redefining the built environment? And what do the dual realities of increasingly aging populations and aging buildings mean for architecture?

MORE THAN HOUSING AT STAKE

“The world is about to be hit with a tsunami of age care. We need to treat it as an urgent priority,” says **Michael Heenan**, CEO and principal of Allen Jack+Cottier Architects in Sydney, Australia, who has twenty-five years of designing housing for elderly people.

Not only are we living longer, birth rates are declining dramatically so that there are fewer tax payers to support the old.

Against this backdrop, institutionalized care is typically four times more expensive than providing support for an older person living in their own home. So there is definitely an economic incentive for addressing these needs as well as a moral one.

In the past, housing and care facilities for the elderly were typically uninspiring places that few of us would choose to live in. Heenan believes this has to change. “This aging population is different from any other before. They’ve not grown up during a major war or recession and they have a high expectation when it comes to their quality of life.



60

BY 2050, PEOPLE AGED 60 OR OVER WILL MAKE UP ONE-FIFTH OF THE GLOBAL POPULATION.

SOURCE: *Global Age Watch Index 2013*

They often don't feel old and they want to be able to live a different, more active life than older people in the past. Buildings must be able to respond to that," he says.

Most architects working in this highly specialized field agree that we need to move away from single-use facilities accommodating only older people, who are often cut off from the wider community. "It's not healthy for your state of mind to be divorced from the rest of the population," says Heenan.

MORE INTEGRATION

He cites the positive example of a care facility he visited in Barcelona, Spain, the Centre Sociosanitari Putget Dolors Aleu, which overlooks the town square. It has huge sun screens that open up so that the elderly can enjoy the view, feel the benefits of the fresh air and the sunshine, and watch the children in the nearby park. "There is nothing hidden about it. It is part of the city and the city landscape."

Increasingly architects are looking at mixed-use developments, which include many generations of family members. These could offer graduated levels of care for older residents, with an on-site facility providing medical, catering, and other services.

Another approach is to create adaptable or "whole of life" buildings which

"TO PROTECT OUR ARCHITECTURAL HERITAGE, WE NEED TO GIVE OLD BUILDINGS A NEW LEASE ON LIFE."

can be reconfigured as inhabitants age to fit their changing needs. Walls could be adjusted in order to enlarge a room to make it suitable for a wheelchair and intelligent control systems could be introduced which use sensors, voice, and facial recognition technology to help people with cognitive and physical impairments such as dementia, impaired mobility, hearing, or sight loss.

CARING TECHNOLOGY

This might involve embedding sensors in apartments which set off an alarm if the resident fails to stop breathing or

move around, or a jewelry-like device that allows people with limited mobility to control household appliances using simple hand gestures. Heenan goes a step further, imagining transforming an apartment wall into a huge computer screen. "An older person could approach the wall and say, 'How is my granddaughter Sarah?' at which voice recognition technology would pull up Sarah's Skype account or Facebook page, showing what she's been up to and allowing them to get in touch or leave a message for her," he says.

Systems have been developed to help people navigate around their homes and mixed-use developments, by sensing obstacles and giving directions verbally or with embedded signage. Other systems use GPS and Bluetooth technology to help people find their way in the wider community outside their homes. One of these, Opportunity Knocks, learns its user's regular routes, then if they take a wrong turn or board the wrong bus it makes a knocking sound to alert them and provides information about how to get back to where they are supposed to be.

Monitoring technology can also be used to assess a resident's behavior and cognitive function over a period of time, such as whether or not they have been mentally active, taking exercise, eating

THE CHANGING FACE OF AN AGING WORLD

Japan, where there are 40 million over 60s today, is currently the only country in the world with more than 30 percent of its population over 60. But by 2050, 64 countries are expected to reach that proportion. In China there are 180.7 million people over 60 today – that's 13.3 percent of the population, a figure which is predicted to reach 33.9 percent in 2050. The number of centenarians in the world is projected to increase from fewer than 316,600 in 2011 to 3.2 million in 2050.

The projected growth of the proportion of the population over 60 in countries around the globe from 2012 to 2050:



Finland 25.8% to 31.5%



United Kingdom 23% to 29.6%

regular meals, or receiving visitors, and checking for irregularities. This information is then fed to a relative or healthcare provider.

Innovations like these are not without challenges. Not least the privacy issues involved in using surveillance techniques for care giving and crucially the need for a reliable back-up system in case something goes wrong.

AGING BUILDINGS

Many of our towns and cities have an aging building stock. How can we protect our architectural heritage and make these safe and comfortable places for an aging population to live?

“There’s heritage that needs to be respected 100 percent and you do that and you also do a careful retrofit,” says Heenan. “But generally speaking we have to be less precious about our building stock and realize we can’t make museums out of everything. We need to give these old buildings a new lease on life.

“There’s a lot of interesting work being done, but there’s an awful lot more to do,” believes Heenan. “If we get it right and help older people to feel happier, more productive, and more relevant then the contribution they can give back to the community is unlimited.” ■



Moran Sylvania aged care facility in Sydney.

ON URBAN ARCHITECTURE

Allen Jack+Cottier Architects integrate ecologically sustainable design principles in all their projects, including residences for older people. At Cardinal Freeman Village in Sydney, Australia, the architects incorporated photovoltaic cells which offset 100 percent of energy used in all common areas that require 24-hour artificial light, heating, and cooling. Individual apartments have their own energy meter to

assist monitoring and management. Energy efficient glass has been used throughout the new build, reducing energy costs and improving comfort. At the Miranda Residential Care Facility, also in Sydney, thermal chimneys reduce reliance on conditioned air while improving natural light and ventilation. Roof mounted photovoltaic cells offset house services power in common areas.



PHOTOS ISTOCK

SOURCE: Global Age Watch Index 2013

Australia 19.6% to 28.9%

United States 19.1% to 26.6%

India from 8% to 19.1%



MODERN MACHINES, HERITAGE BUILDINGS

A modern machine in a heritage building meets today's building codes, yet preserves the aesthetic of the original structure.

"In Helsinki, Finland, there are 880 hallways which are protected by the heritage board," says KONE's **Ilpo Marjamaa**. "When we modernize or add elevators, the visual appearance must remain the same."



SECOND LIFE FOR BUILDINGS

As our population matures, the buildings we depend on also grow older. KONE's challenge: to help buildings keep pace with our changing lifestyles.

TEXT SCOTT DIEL PHOTOS KONE AND SAMI KULJU

In as few as ten years, our planet will be home to more than one billion people 60 years and older. Over the next 40 years, this older generation will come to constitute 30 percent of the total population. As we age, how will the infrastructure and equipment we depend on match with our needs?

Studies conclude that what we desire as a maturing population is to live in our homes as long as possible. We are happier and healthier at home, and the cost to society is lower. So when we put

down the tennis racket and pick up the walker, the buildings we live in should allow for that.

CHALLENGES OF THE SILVER GENERATION

Although one might think to build more is a solution, it is not so simple. In the UK alone, the total number of workers in the construction industry over 60 years old has increased more than any other age group, with the biggest reduction in workers under 30. Build more is easier said than done:

knowledge and skills are lost with fewer professionals in line to replace retiring builders. While this scenario is not universal, it emphasizes the importance of modernization.

"Thanks to urbanization, 600,000 new pieces of equipment are installed annually," says **Ilpo Marjamaa**, KONE's Senior Vice President for Modernization. But new construction statistics, he says, can serve to mask a large opportunity.

"It's difficult to prove scientifically, but it's our belief we are not addressing the issue of aging vertical transportation equipment fast enough," says Marjamaa, who cites post-World War II data that indicates more new buildings are being built year on year.

"But because we're building new units exponentially faster, if only slightly, the amount of equipment aging is



“IN ASIA, EQUIPMENT AGES FASTER DUE TO FREQUENT STARTS AND BUILDING HEIGHT.”

growing faster than you would expect. The age curve of equipment is not linear.” Simply put, we’re not keeping up.

Marjamaa says equipment must be addressed when it is 20 to 25 years old, sometimes sooner. “In the Asian markets, where elevators get more use due to frequent starts and building height, equipment ages even faster.”

“WE ESTIMATE THAT IN EUROPE ALONE, 2.2 MILLION ELEVATORS AND ESCALATORS WILL REQUIRE MODERNIZATION.”

THE NEED TO MODERNIZE

According to the European Lift Association, 5.2 million elevators and escalators are in operation just in Europe.

“We estimate that 2.2 million of those units will require modernization

in one way or another,” says Marjamaa. “This is based on what we know about our own equipment, and then estimating for the rest of the market.”

Benefits of modernization are many, with safety and accessibility primary. In elevators, safety means leveling accuracy and a voice link to the service center. Handrails give support, improved lighting and mirrors make it easier to reverse a wheelchair, and Braille signalization or audible announcements assist the visually impaired. Full replacement of an elevator can increase interior car space by 50 percent, and wider opening doors allow entry with walkers.

Reduction of energy consumption is another benefit. Over time, a new elevator will save 40 to 50 percent over the old.

In Europe, more than four million residential buildings over three stories exist without elevators. While twenty-somethings may not object to carrying groceries up stairs, families with young children and older people require elevators.

Beyond modernization there is the option of installing an elevator in a

NO ELEVATOR? NO PROBLEM.

Modern technology enables the construction of elevators in buildings never designed to accommodate them. When accessibility is increased, property value is positively influenced, particularly in apartments on a building’s upper floors.

In the United States, where cities still grow outward and residents wish to stay in suburban homes as they age, it’s increasingly common to install elevators in two-story homes. The new KONE ProSpace™ elevator is ideal for this type of situation.

building which has never had one. They may be attached to an outside wall or placed in a stairwell. Not only accessibility is gained, but the presence of an elevator adds to property value. ■

Read more ▶ www.kone.com/en/solutions

Setting benchmarks for **YEARS TO COME**

Modernizing an elevator might seem like a huge inconvenience to residents, especially for those living on the upper floors of a multi-level building. A non-functioning elevator means disruption to routine. With KONE's new modernization solution, this is not the case anymore.

TEXT HANNA RUTANEN

PHOTOS AND ILLUSTRATION KONE



Samu Salmelin heads one of KONE's global R&D units.

The groundbreaking KONE NanoSpace™ is a machine-room-less elevator full-replacement solution. Both the equipment and processes have been designed to offer the industry's shortest downtime.

"Now, we can replace an old elevator with a modern one in as little as two weeks compared to the industry average of six," says **Samu Salmelin**, who heads one of KONE's global R&D units.

But how do you go from six weeks to two weeks? Salmelin explains: "The answer lies with a combination of new innovative technology, optimized installability, and a streamlined planning process. In addition, KONE NanoSpace offers maximized space efficiency, best-

in-class ride comfort, and excellent eco-efficiency."

MORE SPACE, SAME SHAFT

KONE's latest innovation is well-suited for old residential buildings with small elevator shafts – which there are many in Europe. "What's great about KONE NanoSpace is that it provides up to 50 percent more space inside the elevator compared to the current solution, with no changes to the shaft."

This is made possible by a highly compact design and the new KONE HybridHoisting™ system, which combines belt and rope technologies in a completely new way – the belt moves the elevator and the ropes suspend the car in the shaft.

Thin balancing weights, smaller pulleys, and compact safety devices add up to more space for a larger car.

"In practice, this means that where there used to be an elevator for four people, the new elevator can carry as much as six passengers. A more spacious car with wide opening four-panel doors improves accessibility and makes it easier to transport baby strollers, wheelchairs, furniture, and other large objects," says Salmelin.

MODERNIZATION BOOSTS ECO-EFFICIENCY

The new energy-efficient hoisting system requires less energy to move the elevator. "We've introduced a new way of managing friction. The system



50

KONE NANOSPACE ENABLES UP TO 50 PERCENT MORE SPACE INSIDE THE ELEVATOR WITH NO CHANGES TO THE SHAFT.

separates suspension and driving functions, helping to achieve absolute traction," clarifies Salmelin.

Low-energy LED lighting and energy-efficient standby solutions also cut power consumption. This translates directly into significantly lower running costs. The new KONE EcoReel™ permanent magnet synchronous motor powers the elevator to maximize energy efficiency. KONE NanoSpace can be up to 70 percent more energy-efficient compared to traditional hydraulic and two-speed geared elevators.

OPTIMIZED COMFORT

One other thing that's new with KONE

NanoSpace is the location of the machinery – for the first time KONE places the motor to the bottom of the shaft.

"Pit-based machinery means less noise on the residential floors and apartments. And because there's no need for a machine room, the elevator can serve penthouse apartments that have been added to the top floor," adds Salmelin.

A bigger car, wide-opening automatic doors, smooth leveling, silent operation and visually appealing design matching the building's architecture all improve the convenience of residents.

A CLOSER LOOK

With the launch of KONE NanoSpace, savings and efficiency improve even more. What's new?

NEW HYBRID HOISTING SYSTEM

- The KONE HybridHoisting system combines belt and rope technologies in an innovative way: the belt moves the elevator and the ropes suspend the car in the shaft.

SPACE-SAVING DESIGN

- Thin balancing weights are located next to the guide rails allowing more space for a larger car in the same shaft.

PROVEN MOTOR TECHNOLOGY

- KONE NanoSpace is powered by the KONE EcoReel motor, which fits energy-efficient technology into a compact design. The motor is located in a pit with minimum disturbance to tenants living on upper floors.

THE HEART OF THE INNOVATION

KONE is known for its product innovations, and now, according to Salmelin, the innovation lies in the process as well.

"KONE NanoSpace is a continuation of our company's renown product innovation," Samu explains. "This time, a notable innovation also lies in the process perfection. We have designed every step of the new replacement process to deliver the shortest elevator downtime for our customers."

This is good news for building owners and facility managers, making their job a bit easier. ■

KONE NanoSpace is available in the European markets in 2014.

Read more ► www.kone.com/en/solutions



DOING THE KAISER PROUD

TEXT SILJA KUDEL PHOTOS FRANZ PFLUEGL

Nothing has changed at the Parkhotel Schönbrunn in Vienna, Austria, for more than a century – at least outwardly. Invisibly retrofitted elevators offer modern transit comfort without sacrificing an inch of style.

PARKHOTEL SCHÖNBRUNN

Modernization completed: 2011
(originally built: 1907)
Floors: 7
Rooms: 314 (18 suites and 7 barrier-free rooms)
Architect: ACC Ziviltechniker GmbH
Building owner: Hübner Hotel Betriebe Komm. Ges.

KONE SOLUTIONS

1 Kone MonoSpace® Special elevator
6 Kone MonoSpace® elevators
1 Kone TranSys™ elevator
KONE Care™ Maintenance Service



Stately portraits of the Habsburg dynasty keep watch over tradition at the Parkhotel Schönbrunn, the historic landmark where Johann Strauss, Jr. debuted as a composer and guests of Kaiser Franz Josef I waltzed the night away. Built in 1907 as the Kaiser's guest residence, the hotel is part of a heritage district near Schönbrunn Palace. The hotel accommodates a traditional Viennese coffee house, deluxe suites featuring original period furniture, and one of Vienna's few surviving classic ballrooms.

Tampering with tradition was unthinkable when the hotel set about updating this protected heritage site four years ago. The subtly modernized hotel now combines five-star convenience with old-world Viennese charm. Major comfort-enhancing additions are the sophisticated new KONE MonoSpace® elevators discreetly retrofitted into the existing shafts, looking as if they always belonged there.

"Space efficiency was a critical issue, because we had to fit the new elevators within the existing structure without making any shaft alterations," says **Günter Baca** of KONE Austria. "We carefully preserved the original architectural detailing, while delivering the superior ride comfort expected of a high-end hotel. In both comfort and style, the result is worthy of our Habsburg heritage." ■

VIENNA'S HOT DISTRICTS

Urban revitalization schemes and a lively hipster scene are transforming Vienna from a city of pomp into a capital of cool. We share our top picks of the city's new hotspots.

Carmelite Quarter

The heart of Jewish life in Vienna, this emerging bohemian district has witnessed a gastronomic boom in recent years.

Freihausviertel

Vienna's Greenwich Village is a cluster of hip boutiques, galleries, and bistros a stone's throw from Naschmarkt, the city's mile-long open-air food market.

Gasometer City

Famed architects designed the conversion of four enormous century-old gas holders into an unusual community of malls, restaurants, and avant-garde accommodation.

Gürtel

The former red light district is the new epicenter of Vienna night life. Railway arches designed by Jugendstil architect Otto Wagner are now home to the city's hottest music venues, including the Chelsea club.

Donaucity

This new city within a city taking shape in Vienna's 22nd district features Donau City Towers, one of the world's first skyscrapers equipped with a full range of KONE People Flow Intelligence™ solutions.

Read more ► www.kone.com/en/references/

A tale of THREE CITIES

To preserve or not to preserve?
Three KONE executives share why their
hometowns have different answers to
the question of urban renewal.

TEXT SILJA KUDEL PHOTOS ANTOINE
DOYEN, KEVIN PENCZAK, AND ERIC LELEU

PRUDENT PARIS

- The protection of heritage sites is subject to strict control by the Architectes des Bâtiments de France.
- With the evolution of safety laws, many towers are undergoing extensive renewal.

A 2007 law entails the installation or modernization of elevators to enable disabled access in all high-rises by 2015.

- Elevator safety is governed by EuroNorm (EN) standards.

Project Laennec is the redevelopment of a historic hospital in Paris dating back to the 17th century. Pierre Liataud enjoys the view from one of the residential unit balconies.



PROJECT LAENNEC

is the renovation of a former hospital in the center of Paris' 7th district. Hôpital Laennec is an architectural heritage building, classified as a historic monument, and has recently been transformed into a multi-use facility.

KONE SOLUTIONS

14 KONE MonoSpace® elevators to the residential buildings

5 KONE MonoSpace® 500 elevators to the office buildings

2 KONE MonoSpace® 500 elevators to the retirement home

3 KONE freight elevators to the retirement home

height regulations are observed within city limits, and super-tall buildings are quarantined on the fringes of Paris proper. That's not to say that Paris rejects avant-garde architecture – quite the contrary.

“Look at the Louvre Museum and the glass pyramid serving as its main entrance. You see landmarks such as these all over Paris that blend perfectly with cutting-edge accents,” says Paris-born **Pierre Liataud**, KONE Executive Vice President for West and South Europe.

Smartening up old buildings with high-tech technology is also where KONE stands out in Paris. “Modernization is our bread-and-butter business. More than half of Paris' elevators are more than 30 years old, so a large number of buildings are due for overhaul.”

SACRED SKYLINE?

Liataud and his family are getting ready for a move into an apartment neighboring a protected hospital dating

from 1634 in the heart of Paris. The hospital will become the headquarters of a luxury goods powerhouse, and the surrounding auxiliary buildings have been replaced by high-end residential units.

“This project is a beautiful example of what makes Paris such an enchanting city – its ability to combine heritage and modernity. I'm proud to say that the equipment in my new home will be powered by KONE.”

With world capitals competing to boost their tourist appeal, hotel conversions represent another major business opportunity for KONE in Paris. Many luxury hotels are upgrading, the Royal Monceau being among those recently retrofitted by KONE.

Liataud sees Paris as a city that has aged gracefully, with the exception of La Défense, the high-rise business district built in the 70s and 80s. “Paris' old skyscrapers haven't evolved with the times. Many are currently being modernized by KONE, including the 231 meter Tour First, the tallest building in France.”

La Défense is also home to one of KONE's largest elevator modernization projects, Tour Areva, where 23 elevators are being overhauled and fitted with eco-efficient technology and destination control systems.

Three years ago, Paris relaxed its laws to allow building heights up to 180 meters, but Liataud has little fear that high-rises will intrude upon the historic skyline. The 324 meter Eiffel Tower will remain unchallenged as France's globally recognized cultural icon.

GROWING UP, NOT OUT

The ever-climbing skyline over Lake Michigan in Chicago, Illinois, never fails to mesmerize **Dennis Gerard**, KONE Senior Vice President for the North Region of the US. There are two towers that say Chicago to him better than any other landmark. One is the 423 meter

One of the notable things about Paris, France, is the absence of skyscrapers in the downtown area. The only true high-rise in the historic center is the 59-floor Montparnasse Tower – the most despised building in France.

When it comes to its iconic skyline, Paris is proudly conservative. Strict



Dennis Gerard notes that Chicago will continue to offer a balance of heritage projects and new high-rises.

Trump Tower, the tallest building erected in the US in 40 years prior to the One World Trade Center. The other is the Chicago Water Tower, a symbol of Old Chicago and one of the few buildings to

survive the Great Chicago Fire of 1871.

Together they represent Chicago's two-pronged policy on urban renewal. As one of the world's first high-rise metropolises, the Windy City is home to four of the ten tallest buildings in the US. With no regulatory limits to high-rise construction, the skyline keeps ambitiously inching skyward. And, with

ON-THE-GROW CHICAGO

- New high-rises are reviewed for safety by the City of Chicago building and zoning commission.
- All elevator construction is covered by ANSI A17.1, 2007 and the City of Chicago Building Code and Elevator Codes. All modernizations must be inspected for compliance upon completion.

the city landlocked on its eastern side, there is little space for sprawl. "The best way for Chicago to grow is up rather than out," affirms Gerard.

PARIS ON THE PRAIRIE

While pushing for the clouds, Chicago takes a strong sense of pride in its heritage. Parks, fountains, boulevards, and graceful Neo-Classical architecture have earned the city the moniker of "Paris on the Prairie".

For KONE, this means the best of both worlds. "We are historically the leaders in modernization, but we are also strong in the new building segment, with key projects such as the Trump and Hyatt Towers on our reference list."

Walk up and down LaSalle Street – Chicago's Wall Street – and you will see numerous buildings modernized by KONE, including a total of 280 units just on one stretch.

As the third most populous city in the US and a growing commercial hub, Gerard foresees Chicago remaining a high-rise capital, but unlike the supertall cities of the Middle East, it will continue to offer a good balance of heritage projects and new high-rises. "And with KONE UltraRope™ technology, there are no limits to how high we can go!"

SHINY SHANGHAI

William B. Johnson, Executive Vice President for KONE in Greater China takes us to his favorite spot in Shanghai, the top floor of the Peninsula Hotel. Originally from the United States, Johnson has raised three children in Shanghai and has lived in Asia almost as long as in the US.

Below unfolds a contrasting picture of China's commercial capital. On the west bank of the Huangpu River is the historic art deco waterfront area known as the Bund, where many historic buildings have been converted into elegant restaurants and hotels. Across the river to the east is the futuristic skyline of Pudong.

"I've seen Shanghai evolve into a world-class business hub that attracts talent from all across Asia. Something new pops up daily, from restaurants and cafés to skyscrapers."

But which side of the river is winning, the old or the new? With the exception of rehabilitated pockets such as the Bund and Xintiandi, an upscale district modeled on traditional 19th century alleyway homes, Shanghai is a city that embraces an "out with the old" mindset.

WRECKING BALL FEVER

"Old buildings cannot compete with new ones in Shanghai," states Johnson. Rapid urbanization is the key driver of the high-rise trend, but many low-rises become feed for bulldozers primarily for economic reasons.

"The renovation of many old buildings has been deferred for up to three generations. Modernization requires a huge amount of investment, particularly as China's rapidly growing middle class has high expectations in terms of living space and residential amenities."

Johnson emphasizes the positive side of new development for residents of Shanghai. "Many old apartment



"Many historic buildings in the Bund have been converted into modern day usage," says William B. Johnson.

buildings have no elevators, with aging people literally trapped on the upper floors. Countless families live in dilapidated low-rises without proper sanitation and modern comforts, often 4 to 5 families per house. Replacing these overcrowded buildings with mid- or high-rise apartment buildings brings significantly enhanced comfort, safety, and living space." ■

CLOUD-PIERCING SHANGHAI

- With millions occupying inadequate residential quarters, the majority of Shanghai's buildings over 20 years old need to be rebuilt.
- Urban development is monitored by the Shanghai Urban Construction and Communication Commission.
- Elevator safety is governed by Guobiao (GB) standards, which are very close to European EN standards.



Linking ANCIENT AND MODERN

TEXT REX MERRIFIELD PHOTOS IAN ABDILLA

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

Valetta's position at the center of the Mediterranean has made for a dramatic past. Its rich history includes many buildings that have survived for hundreds of years, shielded by bastions and fortifications and earning it UNESCO World Heritage status.

The Barrakka Lift provides a connection to Renaissance and Baroque attractions for the hundreds of thousands of visitors who dock at the modern cruise liner terminal in the harbor each year, as well as for residents crossing the port by water taxi.

Using two KONE scenic elevators, passengers scale the walls of the city perched above the sea and pass through to the historic treasures within.

TOURISTS STORM THE RAMPARTS

For most of the twentieth century, a much-loved industrial-style elevator graced the location, but it later fell into disuse and was dismantled in the 1980s.

BARRAKKA LIFT TOWER

Completed: 2012

Structure height: 58 m

Building owner: Maltese government

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

800

THE KONE MINISPACE SCENIC ELEVATORS MEET THE DEMANDS OF UP TO 800 CRUISE SHIP PASSENGERS PER HOUR.



Michael Francica (left) and Konrad Buhagiar from Architecture Project are very happy with the end result of the Barrakka Lift project.

Development of the cruise ship terminal increased visitor numbers in recent years and now more than half a million people dock in the port every year. That made a replacement crucial for the Grand Harbour Regeneration Corporation (GHRC), representing the Maltese government.

While meeting the demands of up to 800 passengers per hour, the design had to fit with Valletta's heritage and appease residents who well-remember the original elevator.

Regulations to conserve the historic site stipulated the new structure could not be attached to the bastion for support to withstand the sometimes-severe seafront weather. And KONE's equipment had to handle high people flow in a confined space, which also limited room for maneuver during construction.

IN A TIMELESS LANDSCAPE

Architecture Project (AP) envisioned a structure with echoes of the old landmark, but befitting the timelessness of the surrounding landscape.

"It has a big visual impact," says **Konrad Buhagiar**, a founding partner at Architecture Project, adding that working in the context of old Valletta brought the

"THE TEAM HAD TO ENSURE THE ELEVATORS COULD HANDLE THE FLOW OF SEVERAL CRUISE SHIPS BERTHING AT THE SAME TIME."

inspiration of ancient wonders.

The Barrakka Lift is clad with a specially designed and commissioned aluminum honeycomb mesh intended to begin taking on a patina immediately in the salty sea air. Gleaming in the sun, the structure is the pale honey hue of the nearby rock and city walls.

FROM SHIP TO CITADEL

KONE came on board in the early stages of the project, through the leading consortium partner Mekanika Limited.

The team had to ensure the Barrakka Lift could handle the flow of passengers from two or three cruise ships berthing at the same time.

"That can mean several thousand tourists arriving to visit the city. So

we had to look at moving them very efficiently," says **Michael Francica**, Operations Director at Mekanika, KONE's Maltese distributor.

Analyzing the people flow relied on data from the Maltese transport authorities as well as cruise schedules and information from ships' agents. And simulations helped to plan efficient ticketing systems.

"KONE's traffic analysis determined the travel times, such as for people moving into and out of the cabins, and factoring in all the other elements to come up with the ideal elevator speed and configuration," Francica says.

To take advantage of both the unique setting and high traffic influx, two KONE MiniSpace™ scenic elevators were installed. They each carry 21 passengers at two meters per second, for a journey of slightly less than half a minute.

The KONE scenic elevators provide changing views as they rise from the rock-hewn wall of the bastion, cut in the sixteenth century, to the man-made wall dating from the same time, to the Upper Barrakka Gardens entrance, with views across the harbor and the hills beyond.



MALTA'S BUSY PAST, AND FUTURE

Throughout the ages, Valletta's natural deep-water harbor has been a strategic focus for diverse civilizations, from the Phoenicians to the Carthaginians, the Romans to the Arabs, the Knights of Malta to the French under Napoleon, and the British.

These days Malta's central Mediterranean position makes it a prime tourist destination, attracting more than 1.4 million visitors each year with its sunny weather and historic sights. Well over half a million of those – more than the population of Malta itself – are passengers on cruise ships docking at Valletta.

The cruise terminal and Barrakka Lift have reinvigorated the Valletta Waterfront, including a row of 19 Baroque wharfside warehouses built 250 years ago. Today they house shops, restaurants, and bars that attract visitors as well as Maltese residents.

Tourists and locals have also revived the use of water taxis as a regular means of getting around the harbor. Malta will likely attract ever more visitors as its prime time in the limelight approaches: it will hold the rotating European Union presidency in the first half of 2017 and Valletta will be the European capital of culture in 2018.

MEETING THE STRESSES AND STRAINS

Engineering and construction faced several challenges, including the regulations that prevented the Barrakka Lift being attached to the bastion, and in ensuring the tower's long-term durability.

The freestanding structure had to be anchored underground; the exit and entrance ramps at the Upper Barrakka Gardens rest on bearings that allow it to move as the tower deflects or flexes in the sea winds.

One of the crucial technical aspects was to carry out extensive weather simulations, including wind-tunnel tests to determine the suitability of the structure to withstand the worst of the maritime conditions.

"Using the weather data and the geographical information, studies were carried out using this model to determine the deflections and forces on the structure," Francica says. The consortium took into account the possibility of seismic activity on the site in determining the required concrete reinforcement and structural elements.

The narrow site limited room for construction and assembly and in hoisting the building materials. Given

the scale and height of the structure, meticulous planning was required to ensure KONE's elevators were installed on time.

"We held a tight rein on quality control throughout the construction phase, so when it came time to install the elevator, it was a smooth process despite the height and the exposed installation," Francica says.

WORKING IN PARTNERSHIP

The project demanded close collaboration and teamwork, particularly in engineering the structure, Francica says, adding: "We were given the concept, we engineered it, and we made it a reality."

During construction, the architect's vision took shape as conceived. "We were very happy with the collaboration and the end result," AP's Buhagiar says.

The exposed conditions and salty Mediterranean air make regular maintenance essential, and the Barrakka Lift will be covered by a KONE Care™ Maintenance Service plan.

"This case is representative of all KONE projects: a lifelong commitment to our equipment," Francica concludes. ■

DESIGN INTERVENTION



PHOTO TANJA KONSTENIUS

Can you spot the elevator?

In a creative twist, the exterior of a KONE elevator door has been camouflaged to deter dementia patients from wandering into an elevator and leaving the premises of a senior facility.

The Hanzeborg multifunctional care center in Lelystad, the Netherlands, was opened in 2010 and houses up to 140 residents. Wandering is a common behavior among people with dementia and is of great concern for staff when it comes to the well-being of patients.

The use of camouflage is a design measure to help prevent wandering. The motif at

Hanzeborg is reminiscent of a forest and not only disguises the elevator door, but conceals the walls in the form of a cityscape.

“Out of respect for our residents, we do not lock them in because that denotes a prison-like atmosphere. But at the same time, we don’t want them to be at risk. We provide a safe environment and we do this by shifting their attention away from an exit point,” says **Dr. Gerdien Sloot-Raijen**, Location Manager at Hanzeborg.

“The elevator blends into the surroundings so well that many visitors really have to look twice,” acknowledges Sloot-Raijen. ■



St. Peter's Basilica in Vatican City, Italy, ranks number 10 on the Skyscraper Center's list of oldest buildings. Built in 1626, the basilica stands 133 meters tall – nearly 700 meters shorter than the tallest man-made structure in the world!

OLD WISDOM

Interestingly, most of the oldest buildings in the world are located in Europe, are constructed out of masonry, and are of religious use.

One might think these structures are energy inefficient. On the contrary, they are essentially energy efficient due to their traditional construction (thick solid walls and plenty of natural ventilation).

According to a study of buildings by the United States Department of Energy, buildings built before 1960 use less energy per square foot, on average, than buildings built since then. The reason is clear: people use buildings differently these days; and components experience more wear and tear over lifetime usage. ■

THE APPEAL TO MODERNIZE

Aging buildings from the 1980s are beginning to need upgrades in order to stay competitive – be it with newer, greener buildings or with tenants. It is estimated that 50 percent of elevators operating in the United States today are at least 20 years old; in Europe the number of units over the age of 20 years will represent 60 percent of the equipment base by 2020.

IMPACT OF (AGING) EQUIPMENT

Although people step on to elevators and escalators every day, they rarely give thought to the energy and mechanics that go into vertical transportation.

Some modern elevators consume less than half as much energy as one built two decades ago and reduce a building's greenhouse gas emissions by up to 36 percent compared to a hydraulic elevator.

Escalators, on the other hand, become painfully slow. Modern standby technology



LED decorative handrail lighting systems for escalators use up to 90 percent less energy.

reduces electricity consumption by up to 70 percent annually, depending on usage.

IT'S WISE TO MODERNIZE

Modernization has lasting effects on buildings by bringing them up to date, up to code, and increasing their valuation. Green retrofits raise a building's visibility and marketability – making them more competitive against newer construction. Successful modernizations can also result in a better return on investment and increased rents. ■

HEALTHY AGING

In less than 40 years, older people (aged 60 or over) will outnumber the under 15s. This data is based on the Global AgeWatch Index in which age-specific indicators are used to ensure international policy making is responsive to this changing demographic.

Although the index warns

that many countries do not have adequate support for their aging population, some governments do implement progressive social welfare policies for older individuals.

So where are the best places to grow old? Sweden came out on top, while other contenders were dominated by Western Europe and North America, along with Japan, Australia, and Chile. ■



Read the full report from <http://www.helpage.org/global-agewatch/>

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