VERTICAL INSPIRATION

1st edition 2021

Lakhta Center

St. Petersburg, Russia
The tallest building in Europe and a testing project executed under extreme conditions

One Vanderbilt

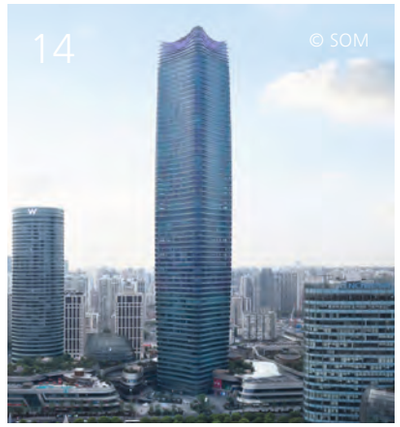
New York, US
The tallest office building in Midtown Manhattan; elevated by a large project team working together for a decade

80 Collins Street

Melbourne, Australia
New installation and modernization in one project; first project with modern double-deck elevators in Australia

Challenges and solutions, innovations and teamwork
Success stories behind landmarks around the world

Schindler



By 2030 over

750 million people will concentrate in just

43 megacities worldwide

Editor’s letter

Dear readers, welcome to this first edition of Vertical Inspiration.

In these times of rapid change, it can be easy to lose track of how quickly our cities are transforming around us. It is estimated that by 2030 over 750 million people will concentrate in just 43 megacities worldwide. These cities will need to grow vertically to accommodate a rapidly growing urban population – and their residents will rely on smart and sustainable urban mobility solutions to get around.

In this inaugural edition of Vertical Inspiration, we look back at some of our proudest urban projects from recent years. Many of these projects have redefined entire city skylines, while pushing the boundaries of what we thought was technically possible. Many brought with them their fair share of challenges – whether technical hurdles of various kinds, extreme weather conditions, or seemingly impossible tight timeframes.

Vertical Inspiration puts the spotlight on some of the technology that has made these projects possible: our destination control technology Schindler PORT, Schindler double-deck elevators, Schindler Ahead predictive maintenance technology, Schindler SLIM and CLIMB Lift on-site installation advances – each one of these technologies helped to overcome different challenges, or meet a specific client need.

Technology lies at the heart of the smart and sustainable cities of tomorrow – but we need to look beyond new infrastructure. The world’s existing buildings are aging. In 2019, over 50% of all elevators and escalators in Europe had been in operation for more than 20 years. Modernizing these buildings with more performant and energy-efficient technology will help breathe new life into them.

With a long history of success that stretches back 145 years, combined with our relentless focus on innovation, we believe we’re in a great place to tackle the challenges of today – and those of tomorrow.

We hope you enjoy your read.

New York, US

One Vanderbilt

In the heart of Manhattan

As the tallest office building in Midtown Manhattan, the 427-meter One Vanderbilt is impossible to miss. The gigantic skyscraper dominates New York's skyline, standing shoulder to shoulder with the Empire State Building and the Chrysler Building.

Challenges and client brief

- Design of the observation deck finalized after the One Vanderbilt project was won
- Smart and flexible transit management system
- Complicated logistics management at the heart of Manhattan

Schindler solutions

- A customized Schindler double-deck elevator
- Schindler PORT with multi access methods
- Trusted team, a global partnership

Investor
S.L. Green

Developer
S.L. Green

Architect
Kohn Pedersen Fox (KPF)

General contractor
AECOM Tishman

Project overview

2021	1	35	5	3
Construction end year	Double-deck elevator	Single-deck elevators	Mid/Low-rise elevators	Escalators

324 m	9.0 m/s	Schindler PORT & conventional
Max travel height	Max speed	Elevator control

Schindler PORT: get anywhere in 60s

This massive construction project right in the heart of downtown, called for an experienced, qualified, and resourceful mobility partner.

Project highlights

A customized Schindler double-deck elevator. When Schindler got awarded the contract, the design of the observation deck at the top of the tower had not been finalized. The original design called for two dedicated elevator cars to service the observation deck. The owner, anticipating the popularity of the attraction, had wanted to add a third elevator car.

However, there wasn't enough space for an additional elevator shaft. Our teams found a way around the problem: by turning one of the other single-deck elevators into a double-deck elevator, its lower deck could swing into action and serve the observation deck as the third car. Since the two cars of the double-deck elevator operate in the same hoistway, no changes to the design of the building were needed.

It took a year to nail the final design of the lower-deck car's interior: the cabin's interior's esthetics match those of the observation deck, and is lined with special Corning® Gorilla® Glass, which is both durable and light weight.

Schindler PORT for flexible transit management during crises. One Vanderbilt is located smack in the heart of downtown New York. Flanking Grand Central Station, the building's base provides easy pedestrian access to the station. Inside the 73-story building, an estimated number of 8 500 white-collar workers and visitors come and go every day. An intelligent management system was therefore a must to provide secure access and to ensure a smooth traffic flow.

Tenants simply have to swipe their cards at any turnstile or Schindler PORT terminal to be assigned an elevator. Each floor can be reached within 60 seconds of entering the building.

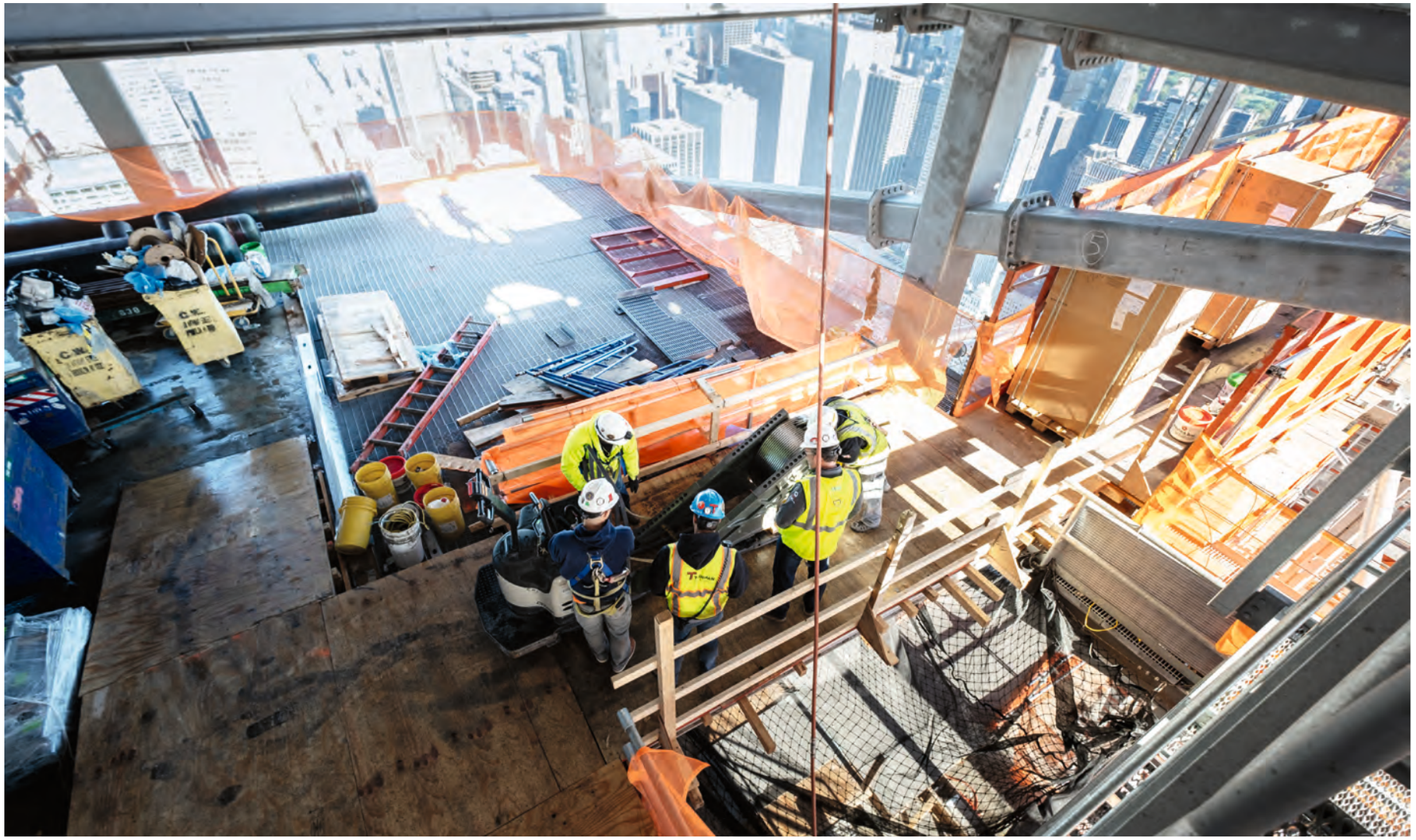
Amid the COVID-19 outbreak, we integrated Bluetooth readers to all Schindler PORT fixtures for a touchless journey: users were able to use their smartphones or access cards to get around the office tower without having to press a single button.

Smooth logistics during construction and operation. A project of that magnitude, in the heart of Manhattan, was nothing short of a logistical feat. There was hardly any space set aside on-site for the storage of materials. Fortunately, Schindler's huge warehouse, where all materials for our projects in New York city are stored, is located just four miles out of Midtown Manhattan. Whenever materials were needed, our teams had them delivered on-site.

Logistics in a megacity

Schindler Field Superintendent for One Vanderbilt, Patrick Dineen on-site

A staggering amount of supplies made its way into the building each day. The building's two 60 000-pound-capacity (27215 kg) truck elevators on the ground floor meant that a fully loaded semitrailer truck could simply drive into the elevator car and make its way down to the underground loading dock, where it could unload its cargo: a neat solution to avoid traffic congestion at street level. Fitting these enormous elevators cars and their equally enormous hydraulic machines into the building was no easy task: they had to be hauled down through holes in the ground.



4 World Trade Center, another Schindler project led by the same team

Large projects, small circle. It is difficult to convey the complexity of this project. Our team members have over ten years of experience working together in large projects in New York, and their knowledge of the city is equal to none. Candace Cooper and Patrick Dineen have worked together on 3 WTC and 4 WTC (World Trade Center), with the two being involved in several projects led by the general contractor AECOM Tishman.

> “I would continue to partner with Schindler for all my future projects and highly recommend them if asked by other owners. They’re true professionals who deliver a quality product on schedule and on budget.”

Harry Olsen
Vice President of S. L. Green, Project Director for One Vanderbilt

The Vice President of Schindler Large Project Division, Mike Azzaro, led One Vanderbilt’s tendering process. According to him, it’s the combined wealth of expertise of our team that won over the customer. “To have this caliber of people doing the same thing in the same market for over ten years is very rare.”

Shanghai, China

White Magnolia Plaza

Blooming along the North Bund

You haven’t seen Shanghai if you’ve missed the Bund, any Shanghainese would tell you. Widely regarded as the symbol of Shanghai, the city’s iconic waterfront is at once a financial district and a cultural and entertainment hotspot loaded with history.

Challenges and client brief

- High expectations for a high-profile project
- Schindler as an experienced high-rise consultant

Schindler solutions

- Traffic analysis for the most adequate solutions
- Schindler double-deck elevators to maximize space usage

Investor
APP & Hong Kong construction

Developer
Shanghai Jingang North Bund Realty Co., Ltd.

Architect
SOM

General contractor
Shanghai Construction Engineering Management Co., Ltd.

© SOM

Project overview

2017	6	36	46	56
Construction end year	Double-deck elevators	Single-deck elevators	Mid-zone elevators	Escalators
330 m	6.0 m/s		Schindler PORT	
Max travel height	Max speed		Elevator control	

Schindler double-deck elevators: smart & space-saving

Project challenges

High expectations for a high-profile project. So, when in early 2000 word got out that an imposing new complex, the White Magnolia Plaza – named and designed after the city's emblematic flower – would soon dominate the Bund's skyline, expectations ran high.[1]

In a city already awash with shopping malls, the White Magnolia Plaza was conceived as a multi-use complex, one that would house a 320-meter Grade-A office building, Shanghai's first W hotel, and a world-class shopping mall.

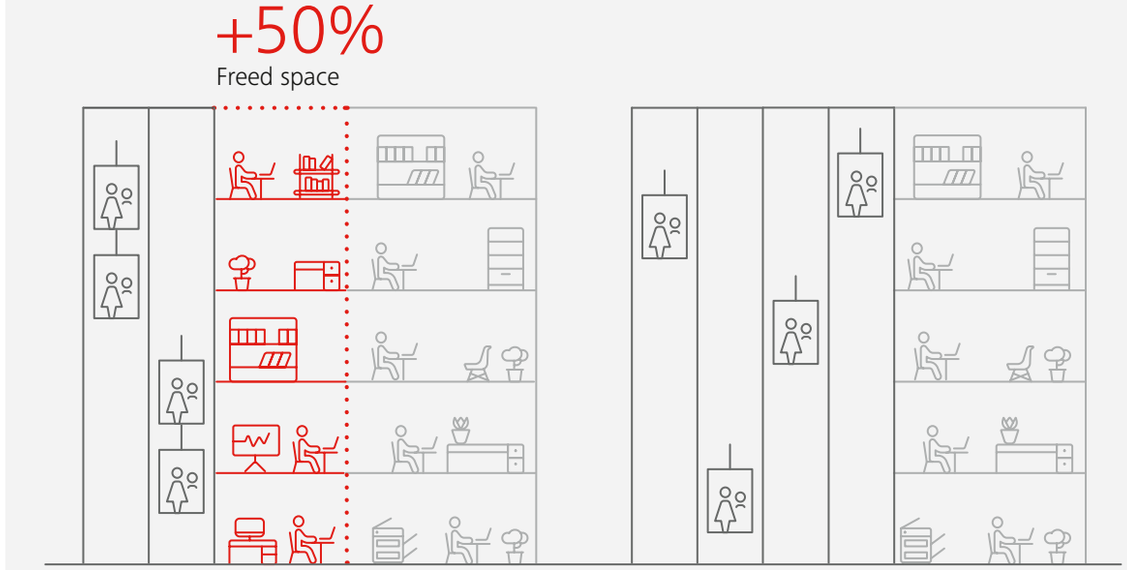
The plaza was designed to welcome over 10 000 visitors and office workers daily. A secure and intuitive transit management system was therefore a must. Eager to free up as much space as possible for commercial lease, the customer had also requested that space-saving elevators be used.

1. The White Magnolia Plaza is also known as Sinar Mas Plaza.

Schindler solutions

Traffic analysis for the most adequate solutions. Jack He, sales engineer of Schindler Global Large Projects, performed a comprehensive traffic analysis to determine the best high-rise solutions for the building. The outcome: 36 Schindler 7000 elevators with traveling speeds of up to 6 m/s, providing an excellent handling capacity; for the office building, 6 Schindler double-deck elevators and the intelligent transit management system Schindler PORT, which integrated seamlessly with the building's security system to deliver short waiting times.

Schindler double-deck elevators to maximize space usage. Schindler's double-deck elevators are space-saving solutions particularly well-suited for this project. The concept: two vertically stacked elevators operating simultaneously in one shaft, taking up only half of the shaft space otherwise required for single-deck elevators. During off-peak time, these double-deck elevators can operate as single-deck elevators, optimizing the building's energy consumption.

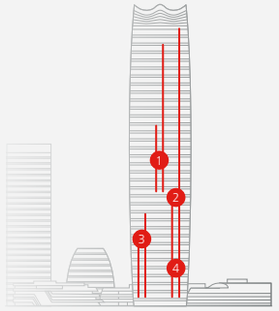


Top: Increased rentable space (marked in red) with double-deck elevators

Above: State-of-the-art car design consistent with the design of the landing hall

Left: Black-and-white Schindler PORT terminals adding to the lobby's esthetics

Schindler as an experienced high-rise consultant



1 High-rise passenger elevators from the sky lobby
High-rise passenger elevators

2 VIP double-deck elevators

3 Low-rise passenger elevators

4 Double-deck shuttle elevators to the sky lobby

Illustration of the elevator arrangement in the office building

Throughout the project, the team took the initiative to seek out the best solutions for the customer. Case in point: they recommended that two double-deck elevators serve the top observation deck, which, in the original design, was only accessible by stairs. A double-deck elevator would make it possible to get from the building's basement all the way to the observation deck – which commands breathtaking views of the city – without having to change elevators at the sky lobby. This was a daring suggestion, and one that would have a significant impact on other elements of the construction. The multinational team – made up of the building's architect, designer, general contractor, Schindler technicians, and of our Project Manager Rony Gan – had to go back to the drawing board. In six months, the team had developed a new plan. And it was all worth the trouble: about a dozen government officials visited the plaza before the topping-out ceremony. All were left impressed by the smooth journey to the observation deck and the flawless performance of Schindler elevators.

> "In the many times that I have worked with Schindler, what has impressed me most is the professionalism, expertise, and dedication of every Schindler employee."

Xiaotong Fan

Vice General Manager of Shanghai Jin Gang North Bund Realty Co. Ltd. Developer of the White Magnolia Plaza

Special mention

Since its completion, the White Magnolia Plaza has received several architecture and engineering awards in recognition of its outstanding design and applications of green technologies. These include the LEED Gold Certification and the prestigious Luban Prize, one of China's highest accolades in architecture.

To this day, Schindler continues to act as the customer's mobility consultant. The White Magnolia still towers over the city – and Schindler is proud to have contributed to its blooming success.

Singapore

Jewel Changi Airport

True to its name

Airports are transient spaces – people travel through them to get to their final destination. Jewel, the latest addition to the already famous Singapore Changi Airport, is flipping that notion on its head: with its many gardens and attractions shops and eateries, Jewel is a destination in its own right.

Challenges and client brief

- Elevators cars matching the esthetics of Jewel
- New installations between operating terminals
- Predictive maintenance

Schindler solutions

- Customized panoramic cars
- Minimum disruption
- Schindler Ahead

Client
Jewel Changi Airport Trustees Pte. Ltd.

Investor
Changi Airport Group

Developer
Changi Airport Group
CapitaLand Mall Asia

Architect
Moshe Safdie, RSP Architects Planners & Engineers

General contractor
Woh Hup Pte. Ltd.

Project overview

2019	35	4	67	60
Construction end year	Schindler 5500 elevators	Schindler 5500 panoramic elevators	Escalators	Moving walks

49.2 m	1.6 m/s	Schindler Ahead
Max travel height	Max Speed	New technology employed

For Schindler, the story of Jewel is one of perseverance and innovation. Schindler's mobility solutions were designed to blend with Jewel's unique architecture; their installation was carried out without disrupting the airport's normal operation, and Schindler's predictive maintenance system Schindler Ahead ensured high uptimes.

Panoramic elevators: no limit to your vision

Rendering images of the panoramic elevators, photo courtesy of Wittur

Project highlights

Elevator cars compatible with Jewel's esthetics. Jewel, with its dome glass structure, is a sight to behold: it is home to 2 000 trees and more than 100 000 plants, ferns, shrubs, as well as the world's tallest indoor waterfall. Here, elevators would need to be more than just a means of transport – each would offer a different vantage point to take in the views of Jewel. Standard elevators wouldn't cut it.

The architect firm behind Jewel, Safdie Architects (SA), knew exactly what it wanted: panoramic glass elevators with full-height glazing, allowing passengers to enjoy an uninterrupted view of Jewel from every angle – and at all times. In technical terms, this meant full-glass cars with minimal visible joints and a shaft with minimal fixing points.

This was a first for Singapore, but that didn't deter the team. They accommodated SA's every request, coordinating tirelessly with Schindler's design partner in Italy, Wittur, to bring their vision to life. Each new iteration pushed the boundaries of creativity and engineering.

"Name it and you will have it," said Ivan Ho, Schindler Project Director for Jewel. Even when working under a tight schedule, the team stayed focused on realizing the customer's vision.

The hard work paid off: stunning frameless glass cars now move up and down a minimalistic shaft, blending effortlessly with their lush surroundings.

New installations at an operating airport. The customer had requested that the installation not cause any damage to the existing structure. As the dome had already been completed, using a crane was not an option. The team engineered a hoisting beam just to lift escalators up to level 5. They used several thick layers of floor protection when transporting heavy equipment – not a scratch was left behind.

Jewel is linked to the airport's three passenger terminals, making it a critical transit hub for the airport. Schindler was asked to avoid disrupting the airport's daily operation. For the installation of the moving walk units on the two link bridges located just beside the Skytrain track, the team had only a window of a few hours each day. For almost five months, they carried out on-site work from 1:00 am to 4:00 am. All installations were completed on schedule.

Jewel is like a second home for many Schindler employees: they know every component of every Schindler installation

Schindler's solutions for Jewel help move 82 million people each year

Schindler Ahead ActionBoard provides timely insights to the building owner anytime, anywhere

Schindler Ahead. Jewel is a sprawling ten-story building spanning an area of 135 700 m2, featuring 280 retail stores and eateries. This means any service downtime would not only affect circulation within the airport, but would also have a negative impact on retail activity. But not under Schindler Ahead's watch: Remote-monitoring and predictive-maintenance system Schindler Ahead ensures higher uptime and a better visitor experience overall.

Schindler Ahead is an intelligent closed-loop system that connects service technicians and property stakeholders to the Internet of Elevators and Escalators (IoEE), providing them with timely insights. "It is like having an engineer looking at the controller event log and analyzing 24/7", Edwin Tan, Manager of Schindler Ahead Sales and Operations, explains. This way, all anomalies are detected in time to avoid unnecessary service interruptions. In a recent customer satisfaction survey, Jewel rated Schindler a high 9 out of 10.

"Jewel Changi Airport is an architectural wonder. It is a combination of innovation, retail offerings, food paradise, leisure attractions, and lush green spaces. We value all partners who helped to see Jewel to its fruition and Schindler was one of them."

Kelvin Tan
Jewel Changi Airport, Head of User Experience

Basel, Switzerland

Roche Site Basel

A long-lasting partnership

Take an already complex CHF3 billion, 10-year construction project. Throw in a pandemic of unprecedented proportions, with all its disruptions. Add a tight timeframe, a pinch of strict Swiss regulations, and harsh winter working conditions for good measure. Mix well and you get Roche Site Basel.

Challenges and client brief

- On-site work in a time of pandemic
- Fast and safe vertical transportation system
- High standard throughout both buildings

Schindler solutions

- Prompt new rules and regulations; Schindler CleanAir; Schindler PORT to help implement social distancing measures
- Schindler CLIMB Lifts
- Experienced crew, building a trusted partnership

Investor
F. Hoffmann-La Roche Ltd.

Developer
F. Hoffmann-La Roche Ltd.

Architect
Herzog & de Meuron

Project overview

2015
Building 1 construction end year
Building 2 construction end year: still ongoing

14
High-zone elevators (Building 1)

16
High-zone elevators (Building 2)

23
High-zone elevators (pRED Center, Buildings 4, 5, 6 & 7)

213 m
Max travel height

7.0 m/s
Max speed

Schindler PORT
Elevator control

Staying safe and well in times of crisis

Schindler's UV CleanAir
Air cleaning efficacy of the device has been measured and certified by SGS; SGS Verification Statement of Device Efficiency Assessment number is CH-220063 SCHINDLER MGMT

This would be enough to deter anyone. But our teams have never been known to shy away from challenges. Thanks to their responsiveness and their knack for innovation, they helped to turn this project into a success.

Project highlights

Schindler innovations for enhanced safety and health. Building 1 was already in operation when the COVID-19 pandemic hit. Our industry-leading technologies helped our customer maintain a safe and hygienic workplace. Thanks to the flexibility offered by our advanced transit management system Schindler PORT, the maximum capacity of each elevator was lowered to 4 (from 23 previously), to help implement social distancing measures.

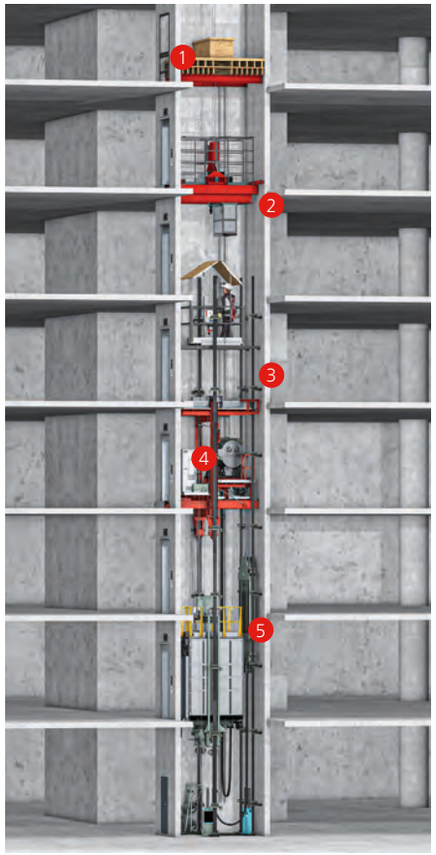
As one of the first E&E companies to release clean mobility solutions, we were able to offer our customer Schindler's UV CleanAir solution as soon as it became available, in October 2020.

All construction elevators in Building 2 came complete with this solution. Using UV-C light technology, Schindler's UV CleanAir sanitizes the air automatically on a routine basis.

The partnership between Roche and Schindler dates back to 1936. Schindler Project Manager for Roche Site Basel Werner Gabathuler, with 41 years of experience at Schindler under his belt, reflected: "Sometimes we laugh together, sometimes we have to fight together to overcome challenges; and this was one of the times."

Elegant Schindler PORT devices complementing Roche's interior design

Construction site of pRED Center, Roche Site Basel,
where Schindler CLIMB Lift was also applied



Rendering image of a typical Schindler CLIMB Lift

1 Crash deck
2 Lifting platform
3 Installation platform (optional)
4 Machine platform
5 Elevator

Schindler CLIMB Lift is a certified self-climbing vertical transportation system that allows for safer and more efficient elevator installation. Schindler CLIMB lift uses a permanent elevator in the building's final hoistway – doing away with the need for temporary external hoists and the bottlenecks associated with them. The elevator rises incrementally to service higher floors as the building grows taller. As such, it brings the numerous benefits of a permanent elevator from the very beginning of the construction, such as all-weather operation, improved site logistics, and increased productivity.

Three Schindler CLIMB Lifts were installed in Building 1 and 2, which gave workers a safer and more comfortable working environment, while speeding up the transportation of materials and people by two to three times.

Schindler CLIMB Lift

Schindler CLIMB for a faster and safer installation. Building 2 stands now as the tallest building in Switzerland, culminating at 205 meters. Both buildings are visible from neighboring France and Germany. Our teams had to abide by the city of Basel's strict noise restrictions: work could only be carried out from 7am to 5pm. Low temperatures in winter (sometimes below -10 °C) also made manual work testing. We had just the right transportation method to make up for lost progress: Schindler CLIMB Lift.

Comparison of typical performance data

Traditional external hoist	Schindler CLIMB Lift
20 800 kg moved per hour	48 800 kg moved per hour
200 people moved per hour	600 people moved per hour
1 m/s average travel speed	5 m/s average travel speed

Schindler engineers working on
a Schindler CLIMB Lift

Partnership in the large project journey

Experienced crew. Roche Site Basel is the culmination of ten years of work. What the customer wanted was not just excellent equipment, but a mobility partner they could count on. They appointed two local Schindler veterans, Project Manager Werner Gabathuler, and Installation Supervisor Ulrich Schneider, to lead the project through to success. Both worked closely with our customer from the very first engagement right through to the final delivery of the project.

© Roche

“With Schindler and the trusted team from Building 1, we knew we had the right partner for Building 2 to ensure we achieve our project goals: safety, energy efficiency, and the highest quality while meeting deadlines and budgets.”

Markus Wöllner
F. Hoffmann- La Roche AG, Technical Project Manager for Building 1 and Building 2

St. Petersburg, Russia

Lakhta Center

Peak of Europe, peak of a career

In the spring of 2015, Donald John received an urgent phone call. On the line was a Schindler Global Large Projects Sales Manager, asking for Donald's CV: "We have to show the client that Schindler's got the right person to lead a huge project," the GLP Sales Manager said.

Challenges and client brief

- Tallest building in Europe
- Extreme weather conditions
- Tight schedule and strict requirements

Schindler solutions

- Tailored solutions, including customized panoramic elevators, with excellent ride comfort
- A veteran project leader
- Schindler installation team worked in 2 shifts throughout the entire installation phase

Investor
JSC Gazprom

Developer
Lakhta Center Multifunctional Complex

Architect
RMJM (Robert Matthew, Johnson Marshall)

General contractor
Renaissance construction JSC

Project overview

2021 Construction end year	16 Double-deck elevators	10 Single-deck elevators	4 Mid-zone elevators
2 Dumbwaiters	4 Round panoramic elevators	4 Squared panoramic elevators	4 Escalators

348.6 m Max travel height

8.0 m/s Max Speed

Schindler PORT & Conventional Elevator control

Tailored solutions

Rendering images of the customized panoramic cars, courtesy of Sematic (Wittur Group)

Donald, who leads large projects and has almost 50 years of experience at Schindler under his belt, didn't hesitate. Six months later, he was on a plane to St. Petersburg, where he'd go on to spend the next five years to work on what would become the tallest building in Europe: the Lakhta Center.

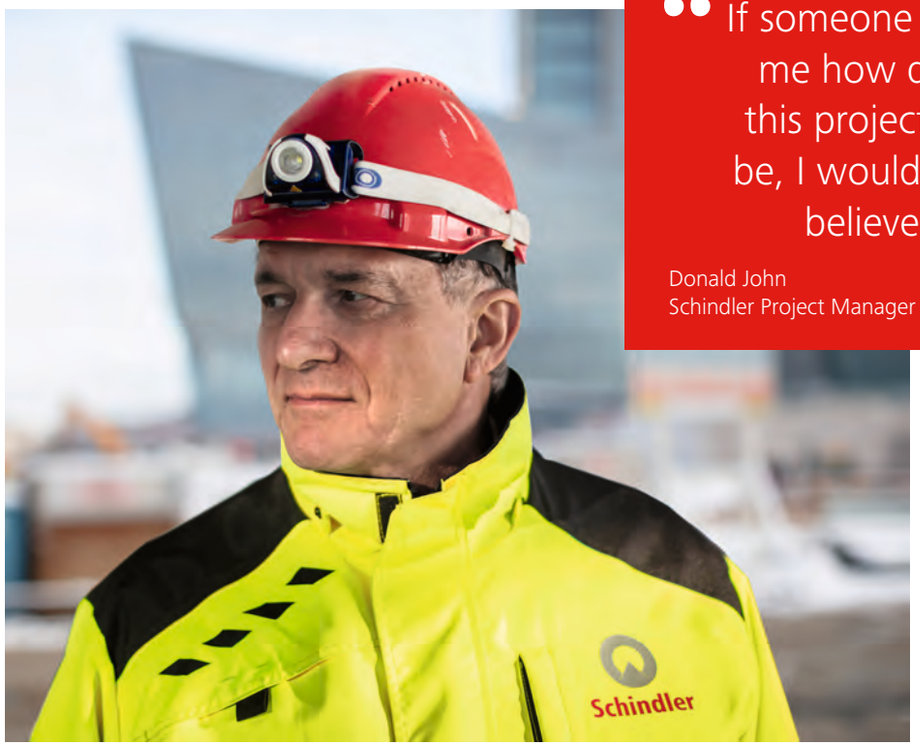
Project highlights

A project of epic proportions. The 462-meter-high tower, with its 87 floors, would accommodate up to 4 500 office workers. Russian state-owned energy corporation Gazprom, which had commissioned the building, would move its headquarters there.

The sheer scale of the Lakhta Tower's project would be a challenge in itself – but there were other challenges in store for the teams who'd secure the contract. No delays or changes – common in projects of this size – would be allowed, the tender documentation made clear. All specifications would have to be followed to the letter. Only a seasoned veteran and an experienced crew could lead this project to success.

Following a fiercely competitive tender process, Gazprom awarded Schindler the contract for 40 elevators.

> "If someone had told me how difficult this project would be, I wouldn't have believed it."
>
> Donald John
> Schindler Project Manager for Lakhta Center



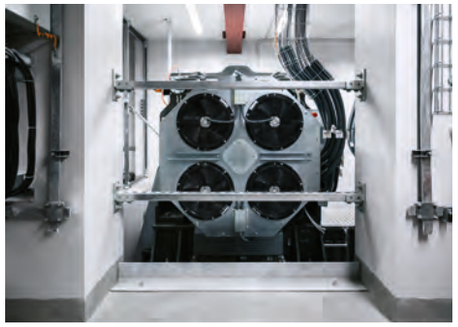
Tailored solutions. The Lakhta Center features a restaurant and several observation decks. To keep the daily operation running smoothly in this supertall mixed-use building, Schindler delivered a range of customized elevators equipped with the intelligent transit management system Schindler PORT.

One Schindler 7000 elevator was made to measure to serve the restaurant on the 75th and 76th floors, while three customized circular panoramic elevators were designed to service exclusively the observation deck at the top. These elevators do not only help ease traffic congestion during peak hours – their unique design also make them a nice esthetic addition to the building.

Tight deadlines met with stamina. Our Schindler teams had to work within tight timeframes: they had only 26 months to install the 40 elevators before the final handover to the customer.

The Schindler team rose to the challenge. Up to 60 Schindler employees worked in two shifts throughout most of the installation phase. Schindler also provided 50 elevator operators for the 12 construction time use (CTU) elevators, which ran nonstop. Despite the pressure to meet the tight deadline and the complex installation conditions on the 400 000-m2 site, none of our employees got injured.

Weather conditions an added challenge. The teams also had to put up with extreme weather conditions. During the winter of 2016-17, temperatures were down to minus 30°C outside and inside the tower, making on-site progress testing. The Schindler team worked in shifts to avoid frostbite. Despite such odds, the teams were able to deliver all elevators on time, and with superior ride comfort.



Upper: Extremely rough conditions on-site
Lower: Schindler 7000 elevator drive motor installed on the 85th floor

Fast forward to today, the Lakhta Tower soars into the sky with five rotating wings resembling the shape of a flame, a nod to Gazprom's logo.

"We didn't have the luxury of time to feel proud when we were working on-site," said Donald, matter-of-factly. "But now, looking back, there's a lot to be proud of."

Melbourne, Australia

80 Collins Street

New + Modernized

For over 175 years, Collins Street has been the most prestigious address for business in Melbourne. While Schindler had equipped 13 buildings on this street alone with mobility solutions, none of these projects had been as complex as 80 Collins Street.

Challenges and client brief

- NI and MOD executed at the same time
- NI: Long-standing distrust of double-deck elevators in the country
- MOD: minimum disruption

Schindler solutions

- Experienced and dedicated team, hitting milestones on time
- Schindler double-deck elevators + intelligent Schindler PORT system
- Meticulous planning and flawless execution

Investor
Dexus and Dexus Wholesale Property Fund

Developer
QICGRE

Architect
Woods Bagot

General contractor
Multiplex

Project overview

2020
Construction end year

9
Double-deck elevators

5
Hotel elevators

19
Upgraded high-zone elevators

166 m
Max travel height

7.0 m/s
Max speed

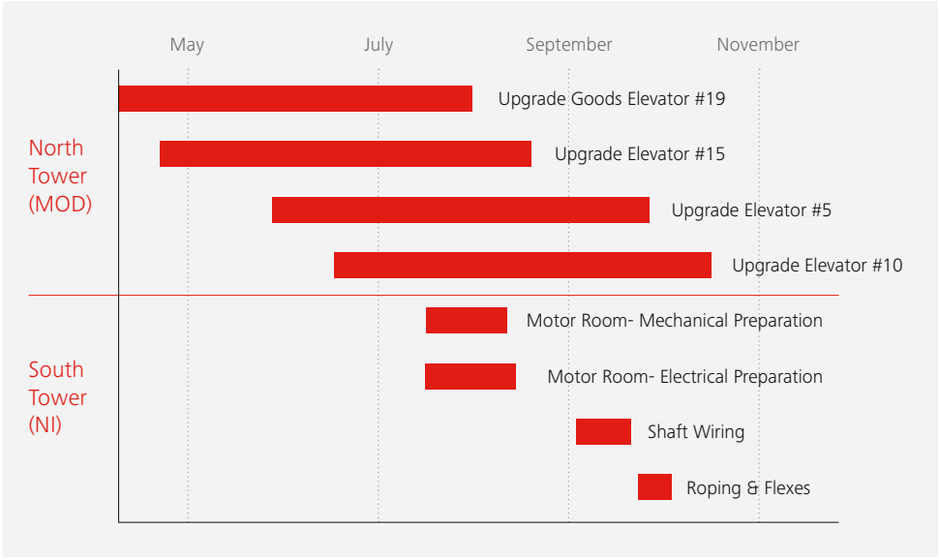
Schindler PORT
Elevator control

80 Collins Street was not only the first combined MOD (modernization) and NI (New Installation) project for the local Schindler team – it was also the first project in Australia to use modern double-deck elevators. Before 80 Collins Street, double-deck elevators had developed a reputation for being inefficient – among other things. Schindler helped to dispel that myth.

Project highlights

NI and MOD at once. 80 Collins Street is made up of three distinct buildings: a 52-story North Tower – a city landmark built in 1977 – a freshly built 39-story South Tower, and a new, swanky low-rise hotel. Our customer wanted both MOD and NI carried out simultaneously in one single project. To pull that off, solid project management credentials and a robust experience in both NI and MOD were needed.

Project schedule of 80 Collins



Schindler NI and MOD Project Manager, Peter Carlton, with 21 years of experience under his belt, fit that bill. He led this complex project, coordinating with all parties involved to ensure a smooth and timely delivery. For instance, hoisting the five 9-tonne machines powering the double-deck elevators to the motor room with a crane from the street required special permission from the Melbourne City Council weeks in advance. Thanks to meticulous planning, the hoisting was completed in only one day.

A project of that magnitude, because it involves many different parties, required careful logistical planning. “About half a dozen stakeholders would be at the handover for each elevator: general contractor, developer, and so on,” said Peter. “Hitting our program dates made everyone’s life easier.”

Double-deck elevators "reinvented"

NI: Giving double-deck elevators the credit they deserve. In the 1980's, conventional double-deck elevators entered the Australian market – but failed to win over the Australian public, largely on account of "ghost calls": when one of the double-deck elevators would stop for passengers, the other car would also stop mid-shaft, doors closed, without any indication given to passengers, who, more often than not, believed they were trapped. Double-deck elevators had developed a bad rap.

But data told a different story: our traffic simulation showed the compelling benefits of double-deck elevators, especially when used in conjunction with transit management technology Schindler PORT. Other benefits of the technology included:

– Terminals and signage directing passengers to the correct elevator
– Optimal grouping of upper-deck and lower-deck passengers
– Drastic reduction of unwanted stops
– In-car displays and audio announcements keeping passengers informed in the event of unwanted stops

Our engineer found another way to improve handling capacity even further: by slightly expanding the space originally intended for four elevator shafts, the building could house five shafts for five space-saving double-deck elevators. With experienced large project experts such as National Sales Manager Peter Foster and High-rise Engineering Manager Fernando Ferrao in our team, we worked closely with the architect for a year and a half to bring that plan to life.

3D rendering image of a fully glazed Schindler double-deck elevator

A journey to quality

Off-site preparation for perfect on-site execution. The modernization of the North Tower took place in stages: the old elevator control system was replaced with Schindler PORT, and the old motors replaced with Schindler's energy-regenerative drives; new car interiors were fitted, but the car structures and the rails stayed. To ensure an efficient and timely dismantling of the old machines and installment of the new ones on-site, the installation team organized simulation training sessions offsite. To guarantee minimum disruption to the tenants, most of the heavy work took place during non-working hours.

The new double-deck elevators required even more planning: a small team of Schindler engineers and senior installers from Australia flew to Schindler's Shanghai campus – our main outpost in the Asia-Pacific region – to be trained on how to install double-deck elevators. One of the double-deck elevators was assembled in our Shanghai factory, providing them the opportunity to practice and perfect their technique, under the guidance of their more seasoned colleagues – before heading back to Melbourne for the real thing.

Schindler's Jiading campus in Shanghai, with factories, a 200m test tower, a R&D center, a training center, and the head office of Schindler China. It's been awarded a LEED Gold certification.

A sustainability superstar. 80 Collins Street was a flagship project for Schindler Victoria and for Melbourne. The new South Tower achieved a 6-star Green Star design rating, one of the highest sustainability rating performances in Australia. With our smart solutions, we played a key role in helping our client to deliver such an outstanding result. "We took a holistic approach and never settled," said Steve Newton. "At Schindler, we always strive for the best long-term solutions for our customers."

Landing hall of 80 Collins equipped with Schindler PORT terminals

Shanghai, China

CITIC Pacific Plaza

Hardest modernization project to date?

The CITIC Pacific Plaza in the Jing'An District opened for business in 2002. Located smack in the heart of Shanghai – on Nanjing Road West, Shanghai's main shopping street – the multi-complex building, with its shopping mall topped by a 193-meter-high office tower, quickly became a city landmark.

Challenges and client brief

- Narrow elevator shafts
- Outdated third-party elevators
- A requirement: minimum disruption

Schindler solutions

- Modular PMR 490 machines
- A high level of customization
- Car Call Interface (CCI)
- Destination control Schindler PORT for improved traffic performance

Investor
China International Trust and Investment (Hong Kong Group) Co., Ltd.; Swire Properties Limited; Shanghai Jing'an City Commercial Corporation

Developer
Shanghai CITIC Pacific Plaza Co., Ltd.

Architect
P&T Group

Project overview

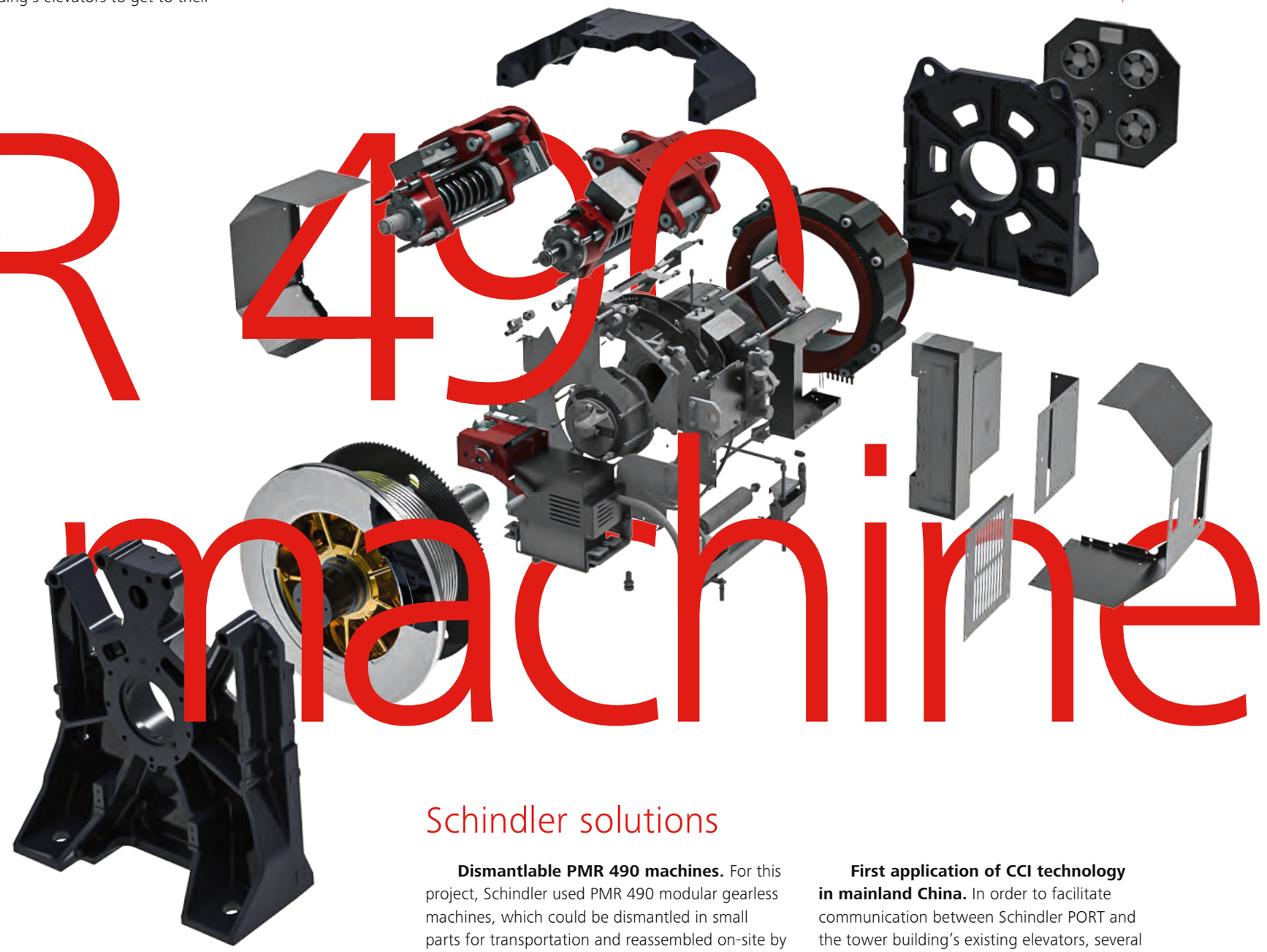
2019	6	6	6	3
MOD start year (still ongoing) Construction end year: 2000	Low-zone elevators	Mid-zone elevators	High-zone elevators	Service elevators

186 m	6.0 m/s	Conventional to Schindler PORT
Max travel height	Max speed	Elevator control

By 2018, however, the office building's transit system was operating at full capacity – and was struggling to cope. Office tower workers had to routinely wait in long lines to get into an elevator. During peak-hours, waiting lines would extend outside the building's lobby. Something had to be done – it was time to reinvigorate the plaza.

But not at any cost. Any work undertaken would have to create minimum disruption to the building's day-to-day operations – a client requirement. After all, hundreds of office workers relied on the building's elevators to get to their office floor.

PMR 490 machine



The dismantled parts of a PMR490 machine

Project challenges

Narrow elevator shafts. The CITIC Pacific Plaza's office tower had very narrow elevator shafts. Replacing the building's existing elevator cars with larger ones – the obvious go-to solution to increase handling capacity– was never an option.

Previous elevator supplier out of market. The only option was to install new, more powerful elevator machines and fitting the building's existing elevators with an intelligent transit management system – Schindler PORT – to increase their traffic performance.

Easier said than done. The manufacturer of the building's elevators, GEC, had gone out of business. That meant spare parts could no longer be found on the market. Schindler took it in stride. Over 70% of the components required for the modernization of the tower building's elevators had to be manufactured to measure by Schindler – no small task.

Schindler solutions

Dismantlable PMR 490 machines. For this project, Schindler used PMR 490 modular gearless machines, which could be dismantled in small parts for transportation and reassembled on-site by certified Schindler technicians. They were hauled easily through the building's existing pathways, causing minimum disruption, and installed in the building's machine room, where space was tight.

First application of CCI technology in mainland China. In order to facilitate communication between Schindler PORT and the tower building's existing elevators, several Car Call Interface (CCI) control cabinets were shipped from Schindler headquarters in Ebikon, Switzerland, and installed in the office building's machine room. These control cabinets allowed the building's existing elevators to work with our transit management system Schindler PORT.

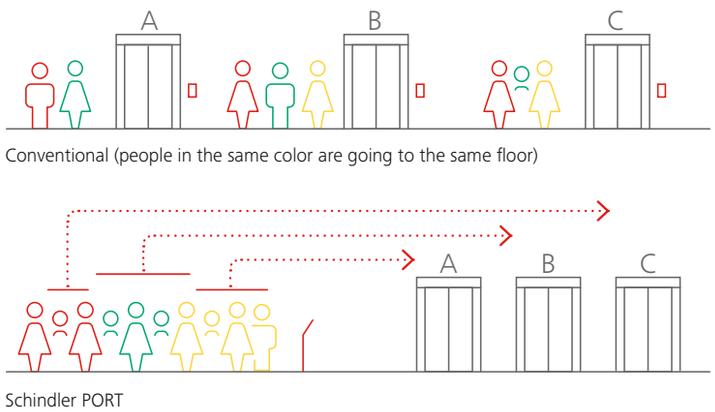
Traffic improvement with Schindler PORT

Schindler PORT for a hassle-free upgrade. In such projects, tenants are often concerned about the disruption caused to the building's day-to-day operations. Our Schindler PORT Overlay solution made that transition seamless.

Schindler PORT Overlay integrates both old and modernized elevators under one single umbrella, while modernization is carried out. In this specific case, elevators were upgraded one at a time, while the other elevators continued to convey passengers, leveraging Schindler PORT's efficiency gains. Thanks to Schindler PORT, the traffic performance of the entire elevator group was, at all times, better than before it had undergone modernization – and traffic performance improved steadily throughout the modernization phase.

Landing hall of the plaza, equipped with Schindler PORT for a more efficient traffic management

After installing Schindler PORT, there will be a significant improvement during up-peak traffic



Conventional (people in the same color are going to the same floor)

Schindler PORT

+25%
Transportation capacity

-50%
Waiting times

Average waiting times during up-peak time before and after modernization with Schindler, based on Schindler's traffic simulation for CITIC Plaza

Outcome

A comparison of the handling capacity before and after modernization shows that Schindler PORT allowed to:

– reduce waiting times by over 50%
– improve traffic efficiency by approximately 25%
– reduce the average number of stops per trip from 3.5 to almost 1.8

The office building of the CITIC Pacific Plaza completed its modernization at the end of 2020 – as scheduled. The building's tenants have since enjoyed shorter waiting times, as well as smarter journeys. Now fitted with an upgraded drive system and the innovative Schindler PORT technology, the building has caught up with the dazzling pace of urban life and is now heading full speed into the future.

Kuala Lumpur, Malaysia

Exchange 106

A crowning achievement

Imagine a 450-meter-long avenue lined up with hundreds of offices and shops. Now turn it upright and you get a rough idea of what Exchange 106 – the tallest skyscraper by roof height in Malaysia – feels like.

Challenges and client brief

- Construction-time-use (CTU) elevators asap
- Getting machines into the crown structure
- A flexible and integrated transit management system

Schindler solutions

- CTU elevators + customized Schindler SLIM
- Special lifting devices
- Schindler PORT + independent optical-fiber backbone

Investor
Mulia Property Development

Developer
Mulia Property Development

Architect
Mulia Group Architects

Structure contractor
China State Construction Engineering (Malaysia)

Project overview

2019	52	6	10
Construction end year	High-zone elevators	Mid-zone elevators	Escalators

413.5 m	6.0 m/s	Schindler PORT & conventional
Max travel height	Max speed	Elevator control

Despite the epic proportions of the project, the Schindler team had to work within an extremely tight timeframe – a project of that scale would usually require double the time, or longer. This ambitious project, which lies at the heart of the upcoming financial district Tun Razak Exchange, was rife with challenges. Schindler was always on hand to help our customer solve them.

Schindler SLIM

A faster installation method

Project highlights

Schindler SLIM for faster progress. Because of the ambitious construction timeline, one of the customers' first requests to Schindler was to install at least one construction-time-use (CTU) elevator in each of six construction site zones to transport workers and materials efficiently. In the end, Schindler provided more than 18 CTU elevators.

But we did much more than that: we applied Schindler SLIM (Scaffold-less Installation Methodology), which greatly reduced the installation time of our Schindler 7000 elevators. The teams used false cars in the elevator shafts (see illustration on the opposite page) to carry out the installation of hoistway equipment – a safer and more efficient method.

With over 1 000 landing doors to install in just a year, the teams decided to use two false car units per shaft to maximize efficiency. At peak times, there were up to 130 Schindler workers working in two shifts, with 16 false car units operating simultaneously. On average, the landing door installation of each floor took only between two to three days.

1 Crash deck
2 Material hoist
3 Hoistway platform
4 Suspended platform
5 Pit set and lower GRIK frame

Lifting a 10.5-ton machine 400m above the ground into the crown. Exchange 106 houses the tallest elevators in Malaysia, with 100 stops. Getting the elevator driving machines (two gearless 10.5-ton FM710) into the machine room inside the crown – the structure atop the building – was no easy task.

Just before the driving machines were delivered on-site, the Schindler team were informed of a major change of plans: the crown structure, it had been decided, would have a tapered design – becoming narrower at the top. This seemingly small change had far-reaching consequences: the driving machines could not be installed before the crown structure was completed. At the same time, waiting for the crown to be completed would mean that the team couldn't use the building's crane sitting atop the building to lift the driving machines into the crown, as that would run the risk of damaging the façade. There was no easy way out of this, it seemed.

The team brainstormed all possibilities (using a Russian heavy-lift helicopter was even considered for a while). Eventually, the machines were lifted using the builder's tower crane to the level below the current machine room. The tower crane was then dismantled to allow the construction of the crown structure; once the crown was completed, the team used a structural steel stand specially manufactured for the occasion, along with several chain blocks and hydraulic jacks, to haul the machines to their final location.

One of the luxurious lobbies in Exchange 106, equipped with Schindler PORT devices

Optical-fiber backbone cabling to support Schindler PORT. Exchange 106 is predominantly an office building – although its bottom five floors are for retail use and its six underground floors are used as parking space. To manage the complicated traffic flow efficiently and safely, the customer uses both Visitor Management System (VMS) and Building Management System (BMS) technologies. Our Schindler PORT was able to interface with these third-party systems through our latest API (Application Programming Interface) solution. By recording and analyzing traffic patterns on each floor, it optimizes traffic performance and reduces waiting times.

The teams were confronted with another challenge: they needed to install an optical-fiber backbone that could enable Schindler PORT to communicate with our connected units. After months of testing and commissioning, the teams designed and installed an optical-fiber backbone, connecting all eight machine rooms in a powerful network stretching from the building's basement, with its 36 lanes of turnstiles spread across four lobbies, to the highest machine room 450 meters above ground.

Looking back on Exchange 106

Like all the project stories featured in this publication, Exchange 106 wouldn't have been possible without the hard work, professionalism, and dedication of our teams. Malaysia's new iconic building stands tall in the skyline, with our mobility solutions at its heart.

"I could tell that our workers were enjoying the moment at the end of a tiring day when they sat on top of the building, facing the skyline of Kuala Lumpur, which is now crowned with Exchange 106."

Siti Salwani Ab Rahim
Schindler Project Manager
for Exchange 106

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We Elevate

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