

Owner & Developer  
Ping An Financial Center  
Construction &  
Development

Main Contractor  
China Construction

Architect Design  
KPF

Shenzhen, China

# Ping An Finance Center

## Going beyond the usual limits

The Ping An Finance Center towers over the Shenzhen skyline – standing at 599 meters, it's over 150 meters taller than its nearest rival in the city and was one of the last mega-tall skyscrapers to be completed before China restricted buildings to a 500-meter limit in 2021. During construction in the early 2010s, all the elevator suppliers who were involved faced unprecedented challenges due to the extreme height of the building. But – by pulling together expertise from across our organization – we delivered what we had promised and more.

### Challenges and client brief

- World-renowned supertall building and fierce competition
- First Schindler double-deck project in Shenzhen with demanding specifications
- Shaft structure unfit for conventional anchoring
- Challenging maintenance

### Schindler solutions

- Assembled the best team and best products
- Gathered experts from across our organization to deliver excellent ride quality
- Stud welding by trained technicians
- Excellent on-site maintenance team providing extensive service



Project overview

2016

Year construction ended

33

Schindler 7000  
double-deck elevators

218.6 m

Max travel height

7.0 m/s

Max. speed

Schindler  
PORT

Control system

Schindler double-deck  
elevators

Innovation employed



Jonathan Huang  
Schindler Master Installation Trainer  
Internally known as 'Mr. Ride Quality'



## Project highlights

### **"Competition is the permanent theme," said Mr. Ride Quality.**

Like all large projects, the Ping An Finance Center required a huge number of elevators and escalators, and the client contracted four major E&E suppliers for the project. We won the lion share of the business – 33 double-deck elevators, our first double-deck project in Shenzhen.

The skyscraper is home to the headquarters of Ping An Insurance, so an excellent ride quality was a must-have – so much so that it was stipulated in our contract that we must limit ride vibrations to under 10 milli(g). With a maximum travel height of over 200 meters for each unit, this was no simple task.

"We have a saying in our trade," said Jonathan Huang, Schindler Installation Master Trainer, "30% of ride quality comes from the products, 70% comes from the installation." Jonathan oversaw the installation of our elevators at the Ping An Finance Center for three years. During installation, most parts of a high-rise elevator are assembled on-site. For a double-deck elevator there are a lot more parts than a normal unit, so the process is significantly

more complicated. Just getting all the components on-site – which came in from across China, Switzerland, and other parts of Europe – was complex logistics task. But in less than two years, more than 1,600 tons of material and machinery had arrived safely.

When it came to installation, we pulled together an all-star team: Jonathan, known internally as 'Mr. Ride Quality', teamed up with several experts from our Customer Design Engineering (CDE) teams in Suzhou and Switzerland. They had to consider the usual factors such as noise and vibration, while being mindful of additional issues that can occur with mega-tall projects like building sway and building shrinkage. In the end, they delivered a ride quality that consistently maintains single-digit milli(g) vibrations, even while travelling a 7m/s max speed – no mean feat.

"It's one of the tallest buildings in the world, and it rounds up four major industry players, but we want to be the best," said Jonathan. "Our experts across the whole organization joined forces and walked the extra mile as one team – a team dedicated to our customer."

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Jonathan Huang  
Schindler Master Installation Trainer

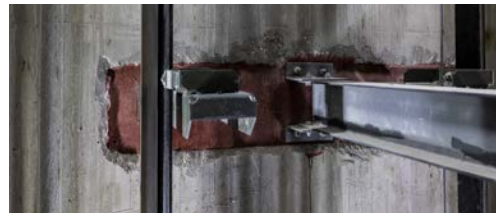


**A first in China**

Typically, when installing guiderail brackets in an elevator shaft in China, holes will be drilled directly into the body of the core in which anchor bolts will then be set – a process known as ‘anchoring’. But in shafts that are over 200 meters tall, having that many holes in the structure can create points of weakness that can be subject to distortion as the building ages.

To avoid this, our team opted for stud welding – a process where the guiderail bracket is welded directly onto the steel structure of the shaft with a metal stud. This forms a much stronger bond than anchoring, as the steel, the bracket, and the bolt cool to become one.

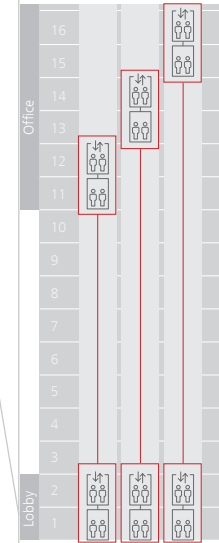
This was the first-time stud welding had been used in an elevator installation in China. The process requires highly skilled technical welders, but it’s also much faster than drilling holes – which allowed our team of more than ten certified welders, to set over 60,000 studs all within the tight project timeframe.



**10+** certified welders      **60,000+** studs

Schindler PORT shuttle mode

**57%**  
more traffic capacity



**Unimagined traffic**

“The number of trips for one elevator in a year here is on average 600,000 – that’s three times the normal number in other high-rise projects,” commented Maosheng You, our On-site Maintenance Manager.

The building was much more densely tenanted than had previously been estimated, with peak traffic volume twice as much as the number we used in our traffic simulations. This initially led to elevator queues and longer waiting times, and of course, complaints.

Our transit management experts in Switzerland helped solve this issue. By reviewing the building traffic flow data, they were able to dedicate some of the elevators to specific office floors during the peak hours – we call this the shuttle mode.

By doing this, we managed to channel a substantial portion of the daily traffic more efficiently – the system now operates with 57% more traffic capacity during the midday peak time. This was all managed through our transit management system, Schindler PORT, which was already installed in the building. Needless to say, there were no more complaints!



Prepared for even the most unlikely scenarios



**Prepared for any scenario**

Given the extraordinarily high traffic and the world-renowned status of this skyscraper, we also took precautions against all potential scenarios – no matter how unlikely.

After several discussions with our customer, we installed an additional Schindler PORT system, to ensure uninterrupted passenger flow in the highly unlikely scenario that the main system breaks down.

Another precaution we took was a bit more complex – it involved building a safety device for one of our safety devices!

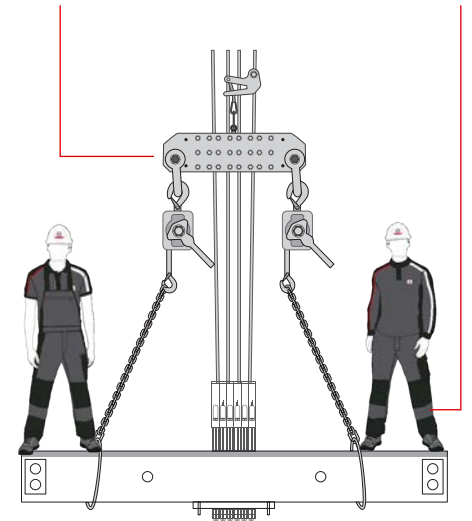
All our elevators are equipped with safety gears. Safety gears can stop an elevator in the event of an emergency. We provided both car and counterweight safety gears to fulfill building and code requirement. After they have stopped the elevator safely, extra forces are needed to release them: usually by lifting the car or the counterweight upwards using the traction of the machine.

Considering the weight of the whole double-deck system, we developed a powerful rope clamp device which can be installed along the traction ropes on top of the car. It can provide the force necessary to release the safety gears in case both car and counterweight safety gears remain engaged – a very, very small chance. Once installed, the device will use the traction ropes as a lifting point, allowing the elevator car to be safely hoisted up to release the safety gears – the standard evacuation process can then take place.

Our device has been tested by an independent, third-party company, TÜV Rheinland, who confirmed that our ingenious device not only works but does so without damaging the traction ropes.

A customized rope clamp device, powerful enough to lift the heavy double-deck system

Certified evacuation technicians



Elevator car



### Maintaining the fifth tallest building in the world

Delivering excellent ride quality is one thing, but maintaining it, with such a huge volume of traffic, is just as important. To do this Maosheng You and his team spare no effort. They perform extensive maintenance checks weekly and also conduct a special inspection monthly, which includes cleaning and lubricating the traction ropes – providing an excellent level of service.



To ensure the building is operating in a sustainable manner – the Ping An Finance Center is LEED-platinum certified – our Schindler 7000 motors feed power back into the grid, maximizing energy efficiency.

Since becoming China's first Special Economic Zone in 1980, Shenzhen's population has skyrocketed from approximately 300,000 people to become a megacity of over 12.5 million – the iconic Ping An Finance Center epitomizes the city's growth – innovative, future-ready, and reaching for the sky.

Mr. Maosheng You (left), Schindler On-site Maintenance Manager, conducting checks with his team

