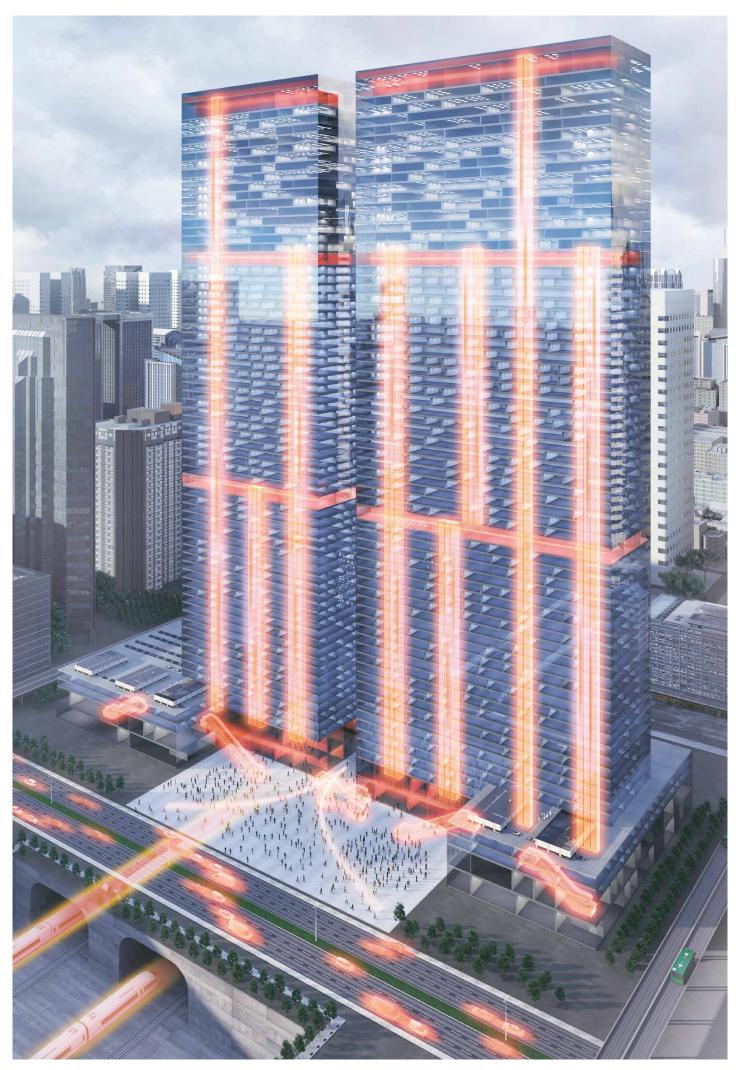# High-rise solutions – Operate.
Optimizing the stream of
people and goods.

Schindler

The vision.
Your building as a complete organism.

Schindler's high-rise track record is proof of our experience. You can count on our global network of high-rise experts which offers you – throughout the whole life-cycle of your building – an unprecedented level of service and quality. Our solutions are specified to suit every stage of the building:

Design
Bringing form and function to life.

Install
Pioneering new building methods.

Operate
Optimizing the stream of people and goods.

Maintain
Revolutionizing performance with intelligent engineering.

This refreshing perspective of 'Operate' leads to a well-founded and carefully considered vision for your building:

- Considering your high-rise building in its entirety and creating the adequate solution for an efficient and smooth stream of people and goods.

- Having perfect connections to public transportation systems.

- Giving the environmental aspects great importance with ecologically optimized solutions.

- Guaranteeing an optimal people stream in the building with the industry-leading Transit Intelligence System, 'PORT Technology', and the enhancing 'myPORT' system, based on a smartphone application.

- Creating a safe and comfortable experience for the users in the building and its elevators systems.

- Providing immediate support in case of problems, to guarantee a seamless operation of the complete building.

Understanding complex buildings.
Smart elevator zoning.

Different sections of the building

For well-founded, all-round planning of a mixed-use building, the proven practical know-how of Schindler's specialists is indispensable.

Only through the intense collaboration of everyone involved can optimal solutions be found to the complex problems posed by today's tall buildings. The goal is to integrate all the traffic-related zones of a building into a single transit intelligence system:
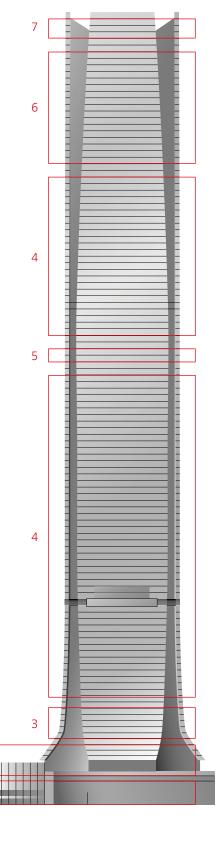
1 Traffic from public underground transportation systems
2 Main lobby
3 Shopping mall
4 Offices
5 Skylobby, transfer floors
6 Hotel/restaurant
7 Observation deck, Roof-top bar

Zoning of the elevators

In order to offer every passenger fair and efficient elevator service, high-rise buildings are divided into groups of floors, so-called zones.

Both the number of passengers in the different groups and the floor-usage (e.g. shopping mall, hotel/restaurant or offices) must be taken into account.

Express zones are intended for the operation of shuttle elevators between the lobby and the higher situated zones. They maximize speed, shorten travel time and increase passenger handling capacity.

Transit Intelligence.
The evolution of Destination Control.

Passenger stream perfectly handled

Iconic buildings with their architectural innovations demand smart transportation systems with optimized elevating concepts.

Schindler Transit Intelligence System is the result of what we have learned over the last 20 years. It's not just about replacing buttons and keypads. It's the creative use of an enormous amount of knowledge that we gained from passenger traffic patterns and behavior in different types of building located around the world.

The highly innovative system, operated by PORT Technology, is designed for single- as well as double-deck elevators. The key features of the system are cutting-edge traffic performance, reduced time to destination, greater architectural flexibility, and optimized usable building space. It can also provide individualization for passengers and their needs, multi-level access control, as well as visitor control and guidance – all reconfigurable by the customer at any time.

PORT Technology

The PORT Technology Personal Transit Intelligence helps provide your tenants with a new and enhanced service experience, for which communication is key.

Perfection is quite a challenge in a modern facility where each trip may involve taking one or more means of vertical transport.

Obtaining relevant access to secure areas, navigating unfamiliar offices, and ensuring journey efficiency, are all handled seamlessly by the PORT system.

Operation of the building

The latest development in the groundbreaking innovations, is Schindler's Transit Intelligence System. This third generation of intelligent destination control systems uses new concepts in computer software, which are adapted to the continually shifting challenges. These require highly sophisticated algorithms that can identify and manage the complex transportation patterns which constantly change throughout the day. The system continuously and systematically optimizes the transportation capacity of the elevators.

The all-in-one solution now includes the horizontal transport axis as well as the vertical.

In addition, all of the building's safety and access-control processes can also be managed by the system. For the building operator in turn, this means minimized interfaces along with corresponding cost savings.

An additional feature within PORT 2.0 now includes portOS. This software allows building owners to create customized styles and layouts on their PORT terminals and more intuitive operating systems.
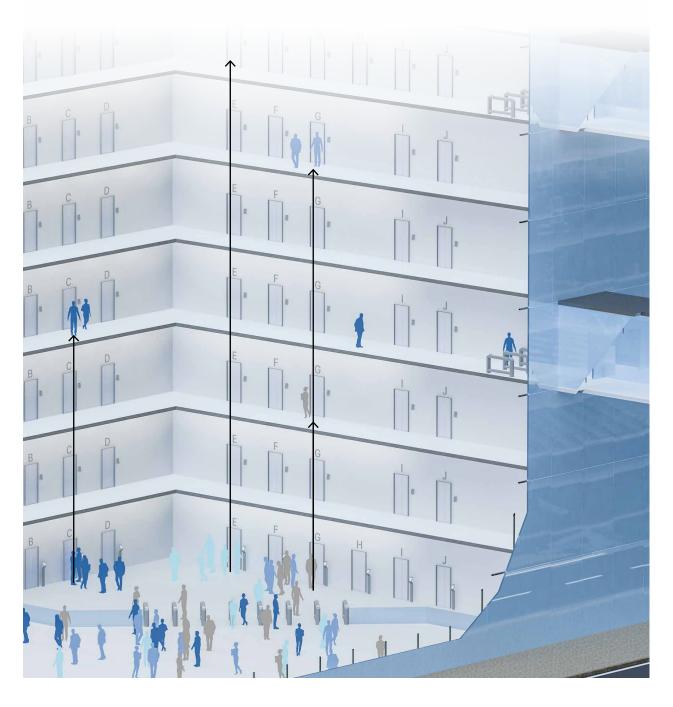
The evolution to Transit Intelligence

Conventional Control		Destination Control					
		Traffic Management		Transit Management	Transit Intelligence		
one button	up/down button	Miconic 10	Schindler ID	PORT Technology 1.0	PORT Technology 2.0	myPORT	
1902	1934	1992	2002	2009	NOW	NOW	
●	●	●	●	●	●	●	Board floor
	●	●	●	●	●	●	Direction
		●	●	●	●	●	Destination
			●	●	●	●	Individualization
			●	●	●	●	Touchless
				●	●	●	Communication
				●	●	●	Building access
				●	●	●	Energy Control Options
					●	●	Visitor Access
					●		portOS
						●	Bluetooth Interface
						●	Smartphone App
						●	High security (equal e-banking)

Transit Intelligence.
Perfect grouping of passengers.

Schindler 7000 Transit Intelligence System is based on a simple principle: to bring passengers to their destinations faster, with less crowding and more comfort than any conventional elevator system. This goal is achieved primarily by grouping the people according to their destination.

Passengers going to the same destination, are assigned to the same elevator. Intelligent grouping also assigns elevators to serve a group of floors or a zone. The result is a faster and better organized service.
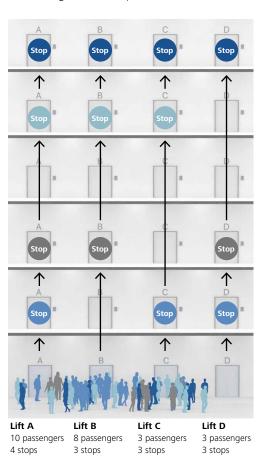
The reality of passenger grouping

In this example of a classic up-peak situation, over a period of a few seconds, 24 people call elevators to travel from the lobby to various different floors.
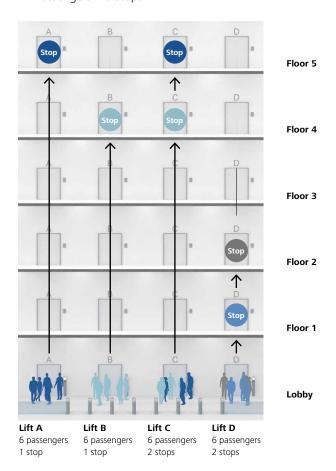
The traditional way	The intelligent way
24 Passengers – 13 Stops	24 Passengers – 6 Stops

Lift A	**Lift B**	**Lift C**	**Lift D**		**Lift A**	**Lift B**	**Lift C**	**Lift D**	
10 passengers	8 passengers	3 passengers	3 passengers		6 passengers	6 passengers	6 passengers	6 passengers	
4 stops	3 stops	3 stops	3 stops		1 stop	1 stop	2 stops	2 stops	

With the conventional control, the first 10 people cram themselves into the first available car. The next 8 fill up the second, and the few remaining occupy the other cars.

This random behavior by passengers means that every car makes multiple stops, so journey times are lengthened and most passengers experience over-crowding.

Schindler 7000 Transit Intelligence System knows not only that the maximum comfortable car load is 6 persons, but also that floors 4 and 5 have the highest density of calls in up-peak traffic. It directs the 6 passengers traveling to each of the two busy floors to individually assigned cars, and optimally distributes the others.

As a result, the system ensures that all of the passengers experience a fast one- or two-stop ride, no one suffers overcrowding, and time to destination is shorter.

Double-deck solutions.
Pioneering elevating technology.

For many years, Schindler has been operating in the high-rise market with well-known, high-quality single-deck solutions. The proven technology is constantly being further developed and adapted to the increasing requirements.
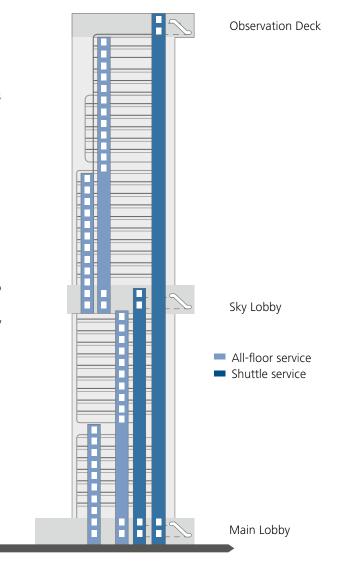
With the innovative double-deck solutions, another significant improvement has been made: The pioneering double-deck elevators are now available as a standard option in the modular Schindler 7000 elevator system.

Perfect double-deck traffic

Schindler 7000 double-deck solutions, in combination with the revolutionary Schindler Transit Intelligence System, handle passenger traffic perfectly. Double-deck elevators serve two floors at the same time. So twice as many passengers can be carried on each trip. Passenger capacity is increased enormously. Double-deck elevators need fewer hoistways than single-deck cars. Therefore, significantly more rentable space is available.

Managing massive streams of people

To ensure that passengers migrate smoothly into the building, the double-deck system provides both a direct shuttle service from the main lobby to the sky lobby and an all-floor service. Due to improved capacity, Schindler 7000 double-deck solutions manage massive streams of people, including peak traffic arriving from public underground transportation.

Observation Deck

Sky Lobby

All-floor service
Shuttle service

Main Lobby

Intuitive operation

Entering the building
When people enter the building, signs guide them to the correct landing, either for the lower or upper deck, depending on if they want to travel to an odd or even floor. Escalators guide passengers to and from the floor of the lower or upper deck.

At the boarding point, passengers use a PORT terminal to indicate their destination floor where they want to go. The display immediately shows the assigned car. The passengers board the car and travel to their destination.

Upper Deck
Lower Deck

Escalator

Incoming traffic from the main lobby
The passengers boarding the lower deck at the lower landing can select only an odd destination floor. The passengers entering an upper deck on the upper landing, have a limited choice to an even floor.
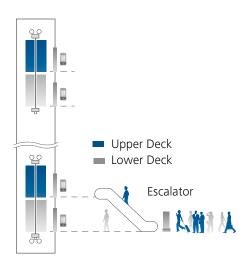
For a shuttle service, only the two lobby and two top floors are served.
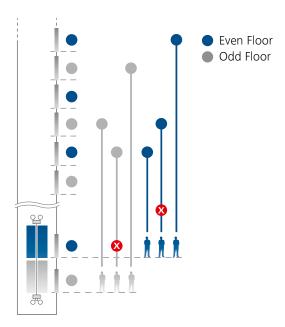
Even Floor
Odd Floor

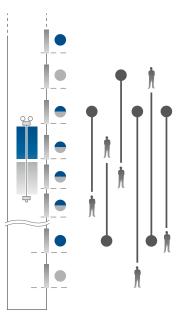### Interfloor traffic above the main lobby
For interfloor service (up or down), passengers can travel from any floor to any other floor seamlessly. They have no indication that they are using the upper deck or the lower one.

When only one deck is answering a call, the other one does not open its doors. An audio-visual message states "Other deck being served".

When leaving the building, people are not aware that they are boarding the upper or lower deck. Those who take the upper deck exit at the upper main lobby while travelers on the lower deck leave the car at the lower main lobby.
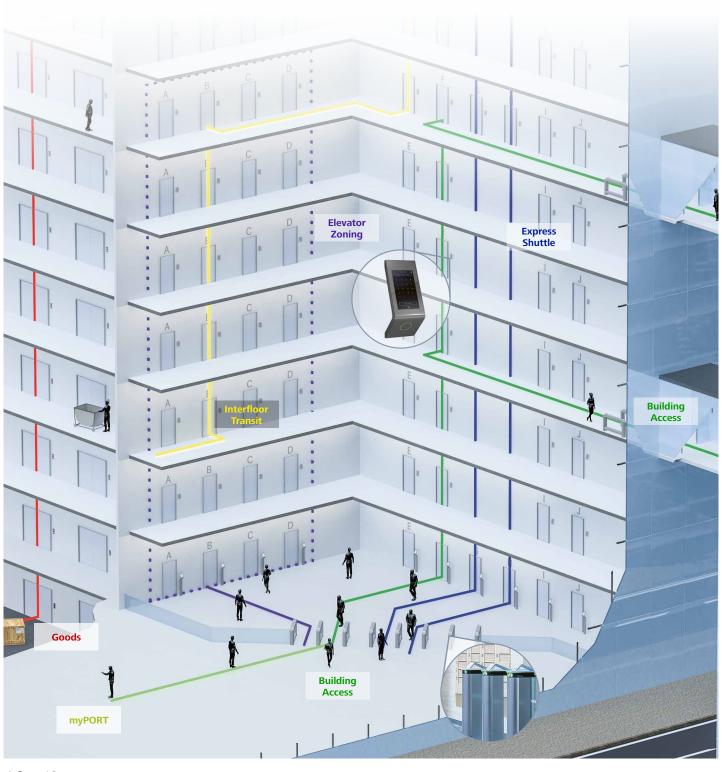
Transit Intelligence.
The smart way through the building.

Thanks to the Transit Intelligence System – with PORT Technology, including the innovative myPORT smartphone app – Schindler can control and guide the entire traffic in a building with a single system.

Elevator Zoning

Express Shuttle

Interfloor Transit

Building Access

Building Access

Goods

myPORT

Perfect stream of people and goods through your building

Building Access
- interface to all third-party access systems
- only one card for all applications
- maintaining one system/database
- controlled transit to other buildings
- security checks

Elevator Access
- turnstiles integrated into the elevator system
- faster and user-friendly elevator assignment
- smooth stream of people through the lobby
- perfect solution, even during peak times
- control of building population
- reduced waiting times
- predictive parking of elevators

Interfloor Transit
- interfloor transit requires only one call from origin to destination
- guidance systems helps passengers to move smoothly to the destination
- advanced information of next assigned elevator

Elevator Zoning
- efficient and flexible elevator layout to provide the best transit performance to the destination
- shortest travel time to upper floors
- more rentable space
- easy orientation

Special Space Requirements
- special requirements, e.g. for disabled passengers, are recognized by the system. It therefore can assign a specific elevator with more space and wider doors
- intelligent and efficient management of car capacities and space
- direct allocation of the most appropriate car

Express Shuttle
- guided-shuttle mode to enhance the capacity of the car and the efficiency of the elevator system
- shorter waiting time
- no need to issue a call
- flexible adaptation to the transit demand

PORT Terminal
- the PORT terminal allows communication in real-time about the current transit situation
- up-to-date building information
- personal adaptation of the user profile

portOS
- customized content
- intuitive button layout
- opportunity to further enhance brand/colours

myPORT (smartphone application)
- more convenience and security for the users
- visitor access
- Bluetooth interface
- high security standard (equal to e-banking)

PORT Products.
Versatile, smart, seamless.

PORT Technology Now
PORT's unique curved glass, design is now more powerful than ever. Available in three color variations, wall-mounted or free standing and with different customizable displays.

PORT 1 pedestal

PORT 1

PORT 1 wide

PORT 4

portOS
The new PORT operating system can be completely customized in terms of functionality and style to suit your needs.

The customizable displays:

List view
- Scrollable list view
- Suited best for office buildings
- Offers a lot of space for floor information

Tiles view
- Big tiles to maximize readability
- Ideally suited for apartment buildings with less than 10 floors

Panel view
- Panel view with page swipe
- Display up to 20 floors per page on PORT 1
- For high-rise buildings

Category view
- Two-click interface with grouped floors
- The perfect layout for mixed-use buildings, i.e. hotels

myPORT

The smartphone application

myPORT enables the PORT Technology System to reach it's full potential. It's not simply a smartphone app but instead a total mobile strategy – letting each occupant get to their destination comfortably and quickly with all their access, guidance, and transportation needs organized via their own smartphone.

With a seamless, four-step identity verification on entry, "e-banking level" security is provided with no inconvenience to the user. Once inside the building, myPORT allows users to move throughout the building just by keeping their smartphones on their person. Occupants have more freedom and convenience than ever before and building owners get greater access control.

Schindler's myPORT is in constant communication with the building's PORT Technology elevator interface to provide building owners, managers, tenants, and visitors with real-time information. With myPORT, users gain convenience, security and comfort with features that can be individually programmed.

Building owners can unlock additional capabilities for myPORT by pairing it with Schindler's PORT Technology visitor station:

- Image and voice of building visitors can be sent from the lobby directly to the myPORT phone of the host to obtain access, even if the host is offsite.
- Users can grant admission to delivery personnel or other visitors with a button in myPORT that opens the outer door, assigns a pre-programmed elevator, and even unlocks the apartment or office door, if desired.
- The customizable features within myPORT carry specific benefits for people with special trans-portation requirements whose journey can be controlled from their own smartphone.

Schindler's myPORT is suitable for a wide variety of building environments from low-rise offices to high-rise luxury residences where speed, volume, durability, safety, and security are essential.

Monitoring your building.
Lobby Vision – the supervisional system.

Lobby Vision is a multi-platform product management tool. The monitoring system visualizes and controls elevators and escalators in one or more buildings from a single location. It offers easy and intuitive handling.

The customized user interface allows an excellent overview of the current status of elevators and escalators. This includes a full visualization of the complete building, the group floor, each individual car position, and the door status.

Lobby Vision presents information on display screens and accepts control inputs through it's user friendly software features. The specification of each Lobby Vision installation is user-defined. Interaction allows the operator to turn different Lobby Vision features and services of the elevator or escalator system on or off.
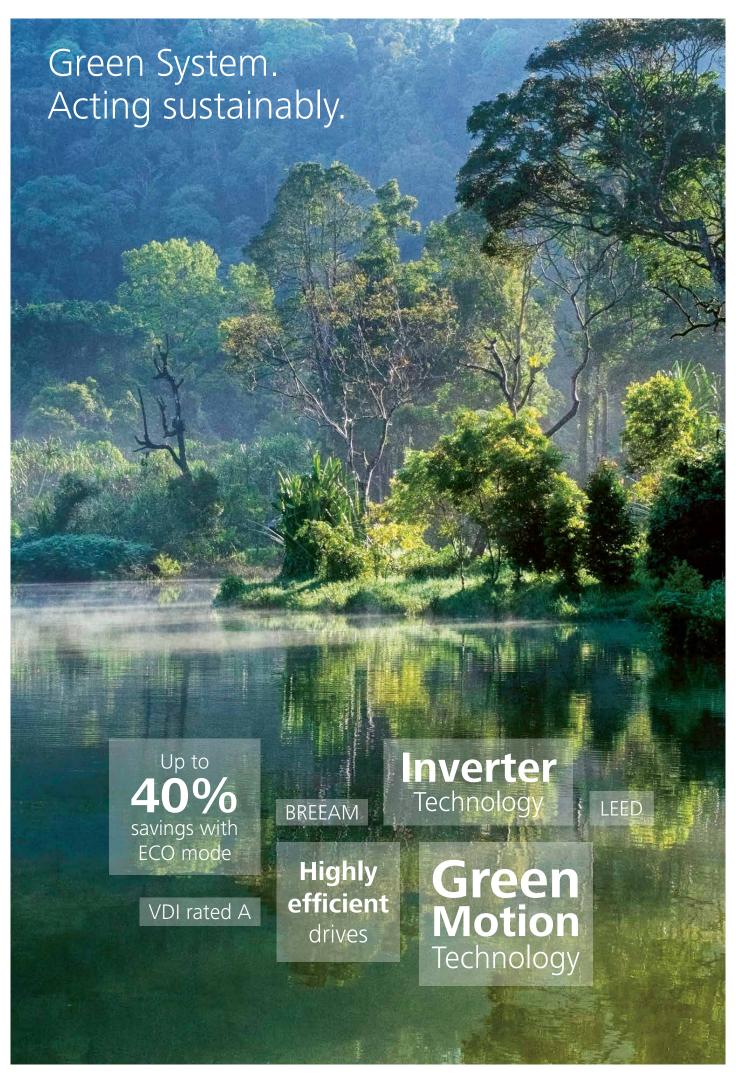
Lobby Vision also incorporates a scheduler, which can be used to carry out time-controlled actions, or actions can also be initiated manually via user-defined keyboard hot-keys. It monitors and records any operation of each elevator or escalator. Operators can display all sorts of statistical information via the Lobby Vision menu system.

All the information is provided in real time and the current status of the whole system is visible at a glance.

Every event in the system is stored and saved in a documentation. This allows extended analysis and the system to grow with the customer's requirements.

Green System.
Acting sustainably.

Up to
40%
savings with
ECO mode

VDI rated A

BREEAM

**Highly
efficient**
drives

Inverter
Technology

LEED

**Green
Motion**
Technology

Schindler Green Motion Technology

Especially in tall buildings, the power consumption of the vertical transportation system is a significant component of the building's total energy consumption. With Schindler's Green Motion Technology, substantial energy savings can be achieved: For example, the annual savings of 453 MWh for a typical 8-car high-rise elevator group with this technology are equivalent to the annual electricity consumption of 130 average households.

1. Schindler Inverter Technology
When the elevator is in generator mode, Schindler's Power Factor 1 drive (PF 1) recuperates the energy and feeds it back in to the power grid of the building. The technology reduces or eliminates the need for machine-room cooling.

2. Optimized standby mode
The elevator system detects components such as car lighting, fans etc. which are not in use and activates the sleep mode.

3. Adaptable system acceleration
An additional feature is the variable acceleration when the elevator starts. The elevator system can adapt the acceleration in response to traffic conditions to reduce the energy consumption during the up and down starting situations.

4. High-efficiency drives
Industry-leading technology (e.g. permanent-magnet drive) minimizes the energy consumption of the drive at the highest mechanical and electrical efficiency factors possible.

5. ECO Mode (Energy Control Option)
The unique ECO mode allows intelligent reduction of the elevator's energy consumption up to 40% savings. Since ECO mode dynamically monitors the traffic situation in the building, a high level of service quality is assured at all times.
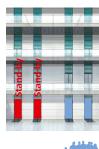
High Traffic
4 elevators in service

Low Traffic
2 elevators in service

International certificates
Our Technology and Strategic Supply Management Group operates an environmental management system (EMS). It has been certified in accordance with ISO 14001 since December 2000. Schindler high-rise products and services contribute to the achievement of all global building certificates.

Presenting industry-leading solutions.
We make daily operations seamless.

Dual Load

Schindler creates solutions which can benefit the building on a daily basis. One of them is for the movement of heavy goods without the need for a specific goods elevator.
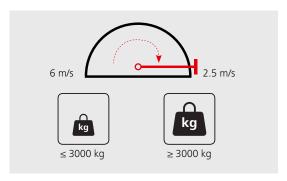
With the new dual load option we are able – by reducing the speed – to switch the elevator from its standard rated load and increase it significantly.

This allows large objects such as transformers to be easily transported throughout the building. There is no longer a need for dedicated heavy-duty elevator and it's hoistway. This means also, that building owners benefit from more rentable space in their building.

Because the elevator is balanced to its normal load, no configuration change is necessary to switch over, and no separate heavy-duty elevator is required. There is also no negative impact on traffic performance.
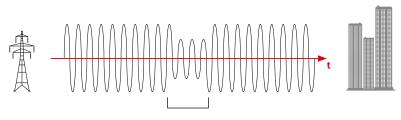

Dual load (2 in 1)

6 m/s 2.5 m/s

kg kg

≤ 3000 kg ≥ 3000 kg

Adjust the speed

Voltage Dip Proofed Design

No more unnecessary stops of the elevator system. The elevator system copes with weak power-supply voltages of the building's electrical system and avoids unnecessary emergency stops of the elevator cars.

t

The Schindler high-rise elevator copes with weak power-supply voltages and never stops.

Graceful Release

Our elevators now have features to prevent passenger entrapments. If a fault occurs, we simply park the elevator at the closest floor and open the doors.

AESD (Automatic evacuation supply device)

In every case, AESD evacuates you to the next floor. In the event of a power interruption in the building, the elevator automatically triggers an emergency stop. With the aid of AESD, the elevator system evacuates the passengers at reduced speed to the next possible stop (up or down) and leaves the doors open.

- Automatic protection for overvoltage, overload, short circuit, and over-temperature during evacuation process

- Safe evacuation aligned with all safety-circuit checking

- Graceful release behavior

- Automatic evacuation to next floor

- Business package 'Rescue'

- Independent power supply (battery bank) for car evacuation process

Pioneering the future
of building operation.

The fixtureless building

The future is here today. Imagine the operation of tomorrow's building without call buttons, or in other words, the fixtureless building. The advent of mobile phones in the life of building users everywhere has brought new considerations with regard to the way that buildings are operated, especially tall ones.

Schindler is developing new technologies to allow all building users to call their elevators by different devices rather than via traditional push-button or card swiping as of today.

Schindler 7000.
We pulse the skyline.

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