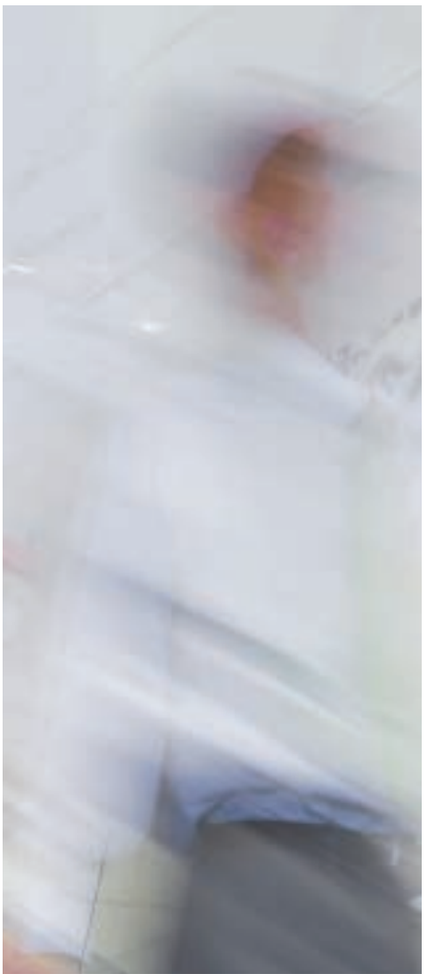


Schindler Escalator Upgrade Programs

New technology for older equipment

Schindler Modernization

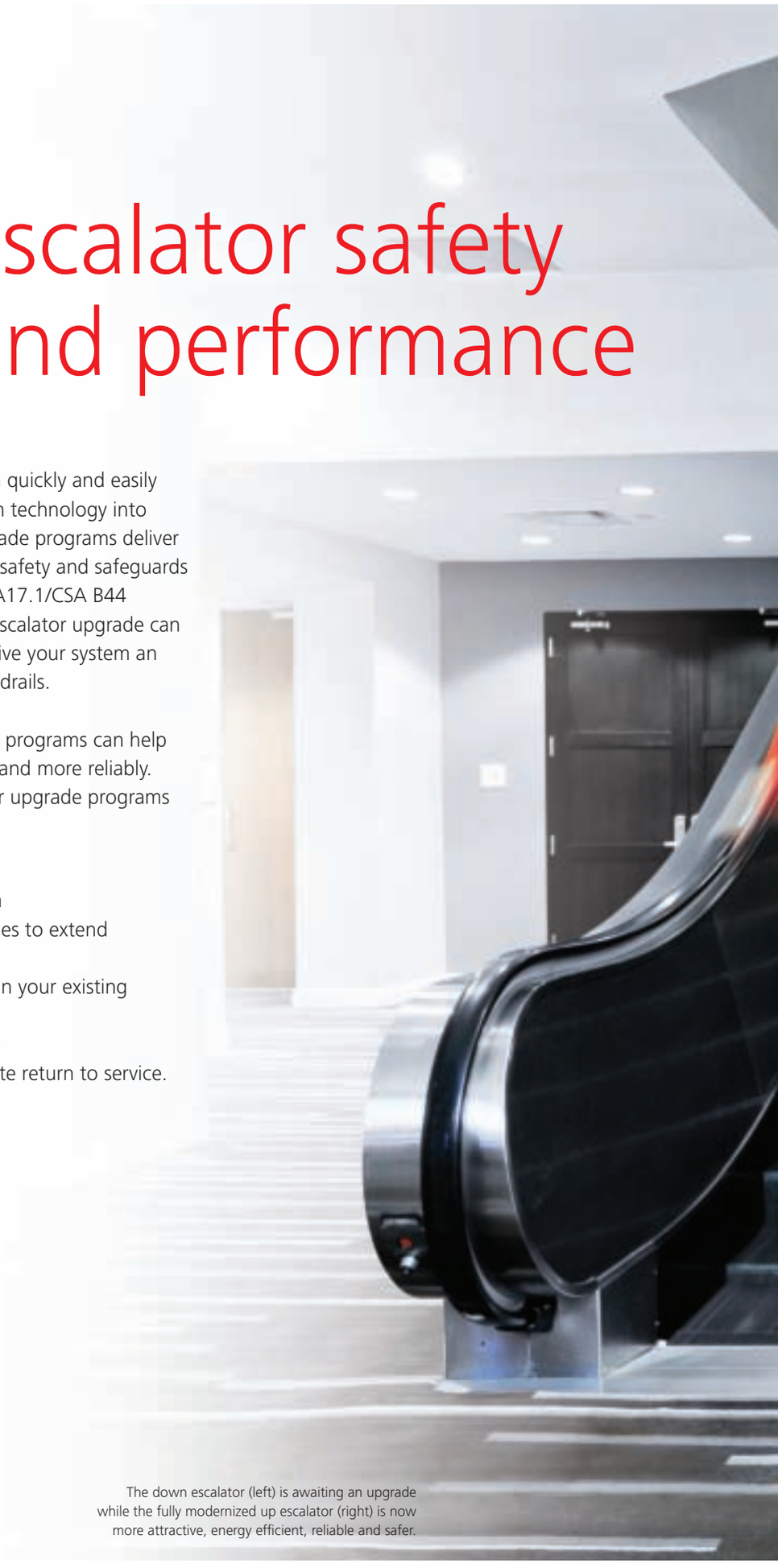
Schindler

Enhancing escalator safety and performance

With Schindler upgrade programs you can quickly and easily incorporate many of the latest advances in technology into your escalators. Schindler's escalator upgrade programs deliver significant improvements in providing the safety and safeguards required on new escalators by the ASME A17.1/CSA B44 elevator and escalator code. A Schindler escalator upgrade can also enhance the quality of the ride and give your system an up-to-date appearance, from steps to handrails.

Cost-effective Schindler escalator upgrade programs can help make your escalators run smoother, safer and more reliably. Select one or more of Schindler's escalator upgrade programs to achieve your goals:

- Comply with current safety codes
- Meet or exceed regulations in your area
- Make structural and mechanical upgrades to extend equipment life and improve ride quality
- Achieve full system reconditioning within your existing equipment footprint
- Improve handrail speed synchronization
- Improve escalator diagnostics to expedite return to service.



The down escalator (left) is awaiting an upgrade while the fully modernized up escalator (right) is now more attractive, energy efficient, reliable and safer.

Upgrade and enhance every aspect of your escalator operation

Safety and code enhancements

All items in Schindler's safety and code upgrade program meet or exceed ASME A17.1/CSA B44 elevator and escalator code requirements. Many of these products will automatically stop the escalator when problems are detected.

1 Combplate detector protects your entry and exit platforms from damage caused by wedged items.
2 Emergency stop button is relocated to the top of the balustrades (required by current ASME A17.1/CSA B44 code).
3 Handrail guards, top and bottom, help protect against items becoming entrapped in the handrail opening; an internal switch stops the escalator in the unlikely event that an item does become trapped (required by current ASME A17.1/CSA B44 code).
4 Handrail speed monitor senses if the handrail is running slower than normal before riders would notice a difference or the handrail could be damaged, assuring reliable performance (required by current ASME A17.1/CSA B44 code). An audible alarm is sounded before bringing the escalator to a smooth, safe stop.
5 Step level monitor, top and bottom, detects downward displacement of 1/8 inch or more in a step before it enters the combplate (required by current ASME A17.1/CSA B44 code).
6 Broken step switches detect broken, damaged or misaligned steps before they can affect riders.
7 Missing step monitors, in the top and bottom turnaround areas, detect missing steps before the opening can be visible to passengers (required by current ASME A17.1/CSA B44 code).
8 Understep fluorescent lighting at top and bottom landings improves aesthetics and helps highlight the separation between steps, helping passengers get a good footing on their step; (required by current ASME A17.1/CSA B44 code).
9 The SureGuide™ step guidance system installed on each step helps to minimize the step-to-skirt gap, and is designed to assure consistent code-required clearance throughout the ride.
10 Roller monitors check every step roller every time they pass the monitoring points to assure optimum performance. They react if a roller wears below minimum diameter, or if there is sudden roller damage.
11 Voice annunciator can provide important safety announcements to passengers, including alerts before reaching the end of the ride, and general safety suggestions.
12 Skirt brushes extend out from the skirt, just above the moving steps, and gently guide feet away from the step-skirt interface area. They improve appearance and help to reduce the chance of entrapments (required on most escalators by current ASME A17.1/CSA B44 code).

Structural and mechanical upgrades

Even though most of the improvements included in Schindler's structural and mechanical upgrade program are not visible, the results will be readily apparent to you and your riders:

– Longer life: New, rebuilt and cleaned internal components, wiring and switches will extend the operating life of your escalator dramatically.
– Smoother ride: Adjusting the drive system will improve the quality of the ride, for increased performance and passenger satisfaction.

13 Install new racks and axles.
14 Rebuild the drive unit, including new motor, reducer, drive chain, drive and idler sprockets, stub bearing and shaft, drive belt and pulleys, plus new broken-belt assembly and service drive for top performance and energy efficiency.
15 Clean the truss thoroughly, inspect it for rust and seal as needed.
16 Inspect step guide tracks and turnarounds and adjust as needed for smooth performance.
17 Replace existing wiring and switches with new, throughout the unit (not pictured).
18 Install new steps to help minimize the step-to-skirt clearance throughout the ride, and to improve the appearance, safety and strength of the steps.

Aesthetics

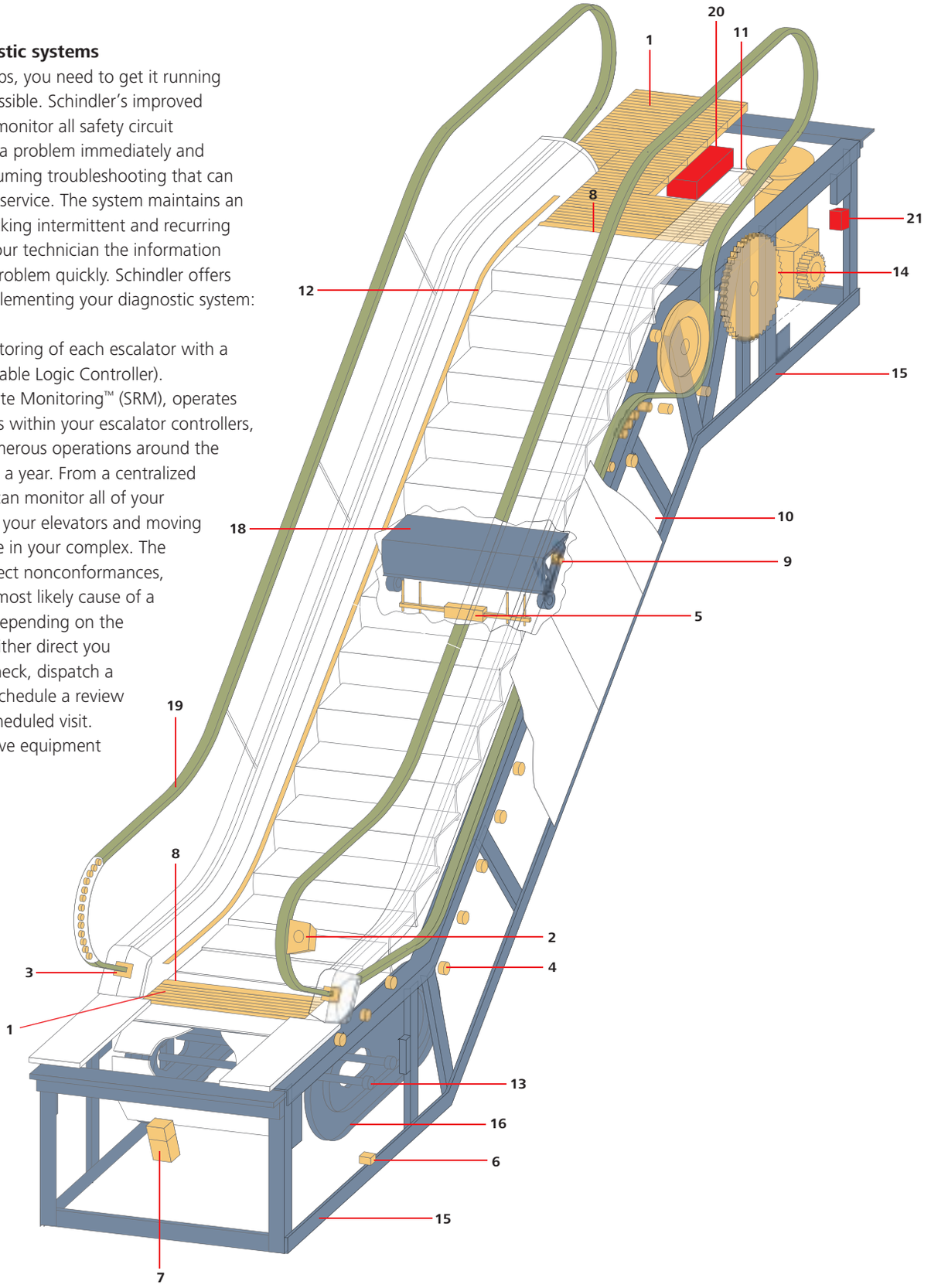
19 New handrail to present the most attractive appearance at your riders' immediate point of contact with your escalator.

Upgraded diagnostic systems

If your escalator stops, you need to get it running again as soon as possible. Schindler's improved diagnostic systems monitor all safety circuit switches to identify a problem immediately and minimize time-consuming troubleshooting that can delay restoration of service. The system maintains an incident history, tracking intermittent and recurring problems, to give your technician the information required to fix the problem quickly. Schindler offers two options for implementing your diagnostic system:

20 Individual monitoring of each escalator with a PLC (Programmable Logic Controller).

21 Schindler Remote Monitoring™ (SRM), operates through sensors within your escalator controllers, monitoring numerous operations around the clock, 365 days a year. From a centralized location, SRM can monitor all of your escalators, plus your elevators and moving walks anywhere in your complex. The system can detect nonconformances, determine the most likely cause of a problem, and depending on the situation, will either direct you to an on-site check, dispatch a technician, or schedule a review at your next scheduled visit. SRM can improve equipment uptime.



Aesthetics that create style and harmony

From the structural elements to the materials, finishes and colors, upgrading offers a wide range of options to help ensure the aesthetic harmonization of your escalators with your environment. For example:

- The balustrade: Stainless steel balustrade profiles provide refined style and maximum durability. Transparent balustrade designs provide an unobstructed view and classic grace. Colorful powder-coated balustrades are also available.
- Deckings: Attractive, robust deckings are available in scratch-resistant, powder-coated aluminum or brushed stainless steel. Deckings, skirt panels, handrails and newel end caps are available in innovative colors.
- Lighting: Optional lighting can add substantial visual impact and help promote safety. Durable, vandal-resistant LED skirt lighting is eye-catching while neon skirt lighting adds an elegant accent while enhancing safety.
- Steps: Stylish steps are available in a variety of colors and finishes. Schindler manufactures this core component in-house to ensure product quality and rider safety.

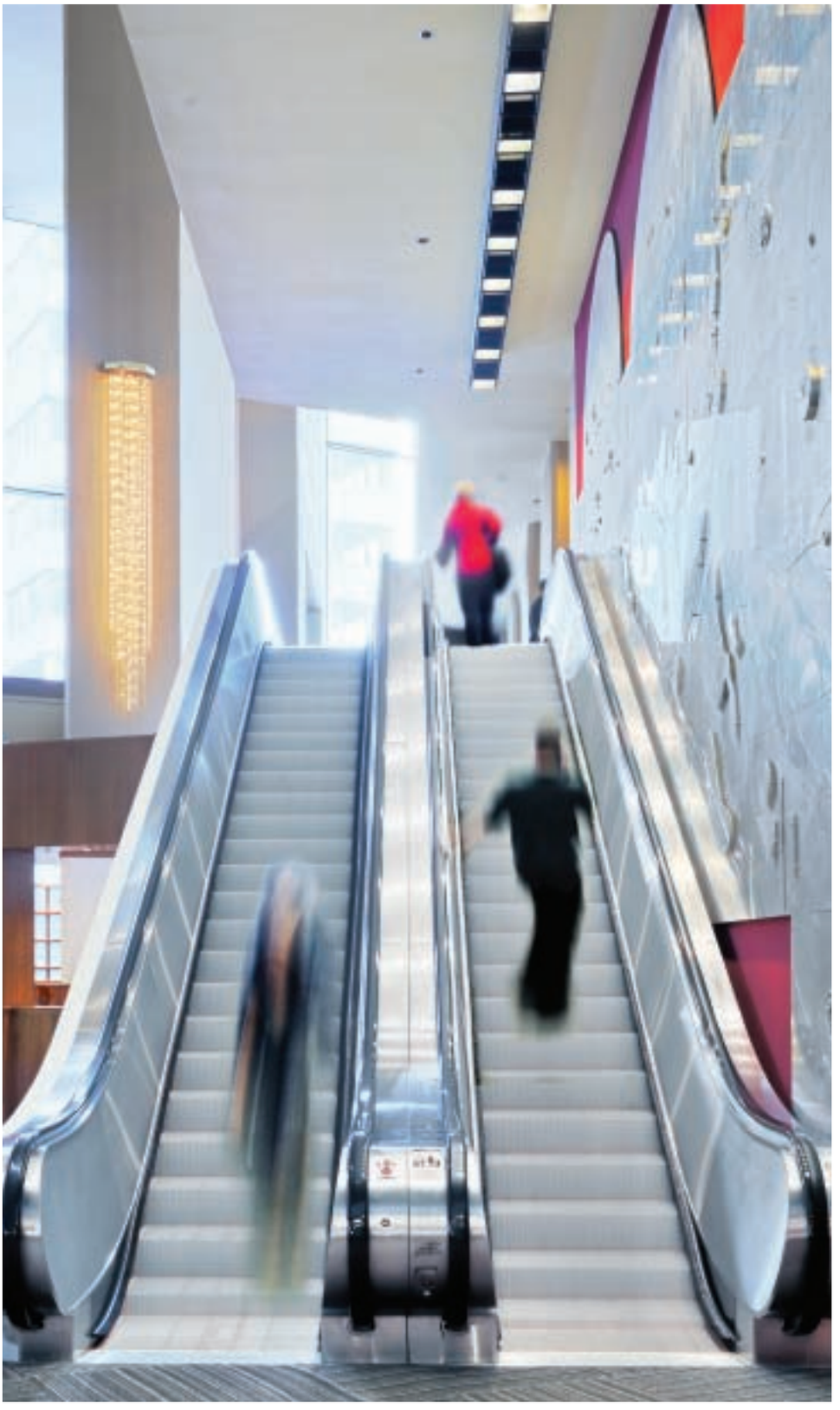


Photo above: Schindler technicians install new steps as part of an escalator upgrade. Photo right: Fully upgraded escalators can look and perform like new at lower cost and with less inconvenience.

Enhanced energy efficiency

Schindler upgrades will meet your highest expectations for performance and result in cost-effective operation. Schindler upgrades include:

- The Schindler Escalator Energy Efficiency Manager, a self-contained, solid-state motor controller designed to optimize the efficiency of 3-phase electric motors operating at a constant speed and under variable loads. It typically reduces energy consumption by 20–40% on appropriate applications.
- Schindler's industry-unique combination of a 6-pole motor with the Schindler reduction gear. This low-speed motor produces significantly less noise than a 4-pole motor.
- Schindler Remote Monitoring™, an optional feature that can be part of any upgrade to provide around-the-clock reporting of the escalators' operational status. In the event of a stoppage, automated diagnostics help enable fast response and return to service.
- Optimized drive systems, perfectly matched to the demands of the rise to help reduce energy costs. Nominal motor power drops by as much as 27%.
- Optional energy-saving upgrade packages that can generate energy savings of up to 20%.

A Schindler technician makes final adjustments to an escalator's new solid state controller.

Top performance for a smooth ride

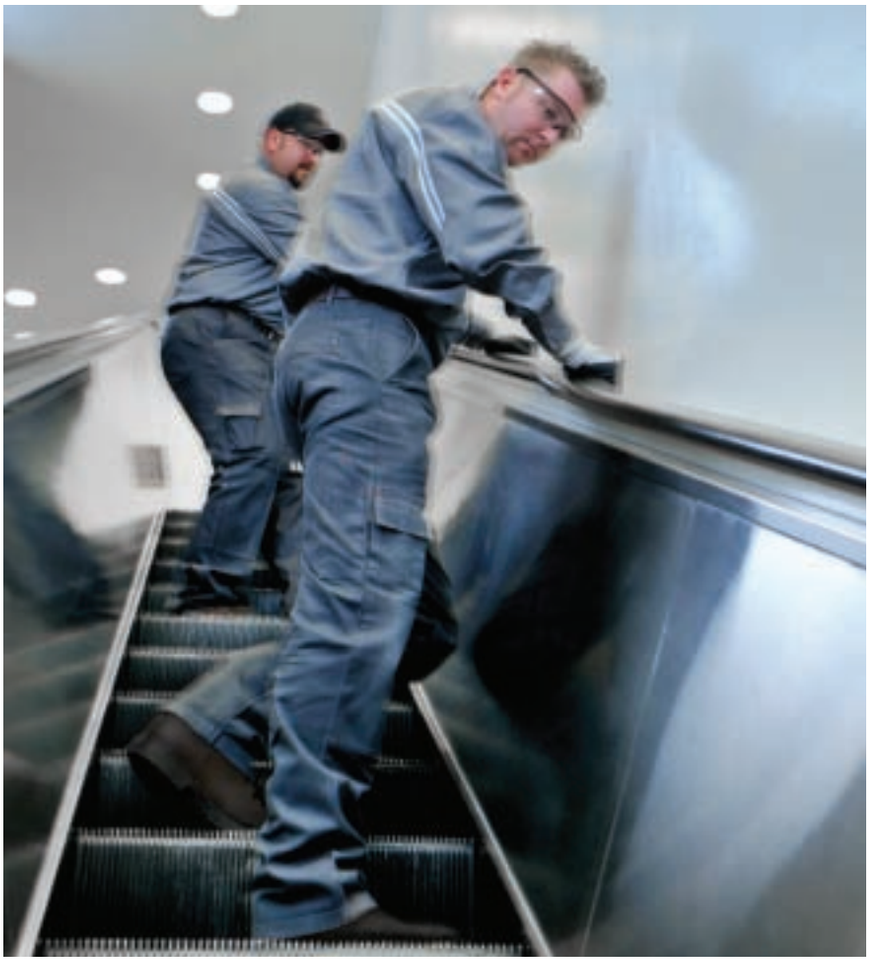
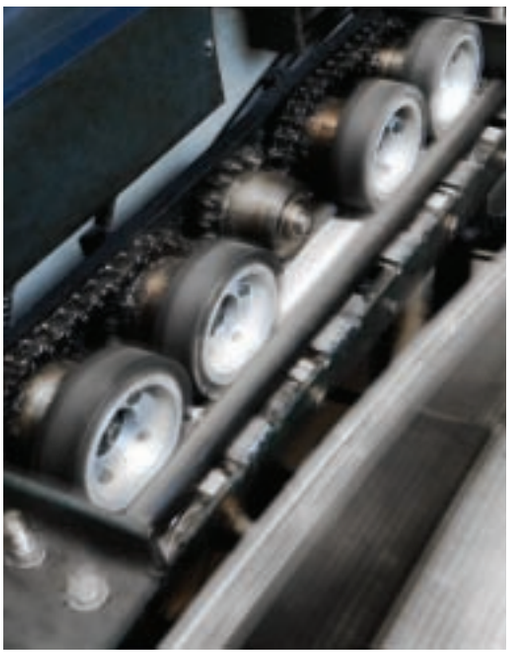


Photo above: Schindler technicians remove old handrail. Photo right: The new handrail drive assembly. Photo far right: The new handrail speed monitor.



In addition to improving aesthetics and saving energy, many upgrades deliver the added benefit of improving performance. These include:

- New components, like new steps, rollers, and a full-mesh gearbox help to deliver the latest technological improvements, resulting in a quieter, more comfortable rider experience.
- New high-performance drives offer increased uptime and quieter performance. Schindler escalators are available with optional VVVF (Variable Voltage Variable Frequency) drives. In high-rise and high-load transit applications, these drives deliver consistent speed under virtually any load.
- As drive components are upgraded, they bring the added benefit of reduced energy usage and expense.
- Consistent step and handrail speeds, combined with improved braking for controlled stops produce a smoother, more pleasant ride from entry to exit.
- New solid-state escalator controllers incorporate advanced onboard diagnostics. In the event of a system interruption, your Schindler technician will be able to quickly identify the precise source of the problem and then quickly return the escalator to service.

The highest levels of safety and reliability

Schindler can upgrade your escalators with components to ensure your escalators will perform more reliably to maximize rider safety. Some key escalator safety components include:

- Escalator skirt brushes: Deflector brushes mounted on the stationary skirts, just above the moving steps, help keep passengers from placing their feet against the step-skirt interface. In some jurisdictions, tests are required and adding skirt brushes may be mandatory.
- Safety combfingers: It's important that passengers entering and exiting an escalator clearly see the point where the stationary combplate meets the moving steps. Bright yellow combfingers help call attention to this important transition area.
- Step demarcation lighting: This under-step lighting helps passengers notice the "break" between steps, encouraging them to stand solidly on a single step.
- Safety signage: There are a few important safe-riding rules that every passenger should follow. Our attractive signs can be added to any escalator to give riders these important messages (required by current ASME A17.1/ CSA B44 code).

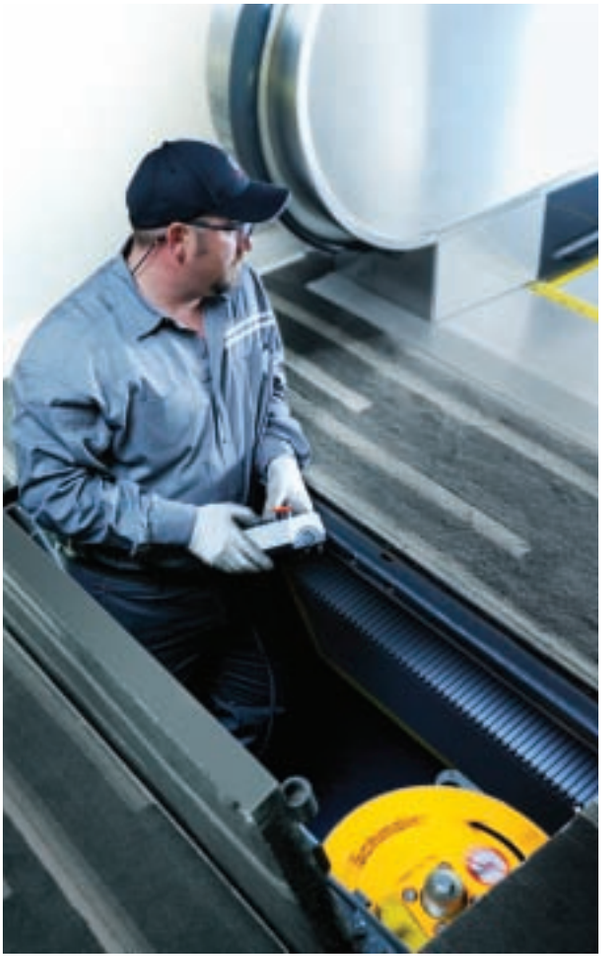


Photo above: Bright yellow safety and step guides keep passengers alert while entering and exiting the escalator. Skirt deflector brushes help prevent skirt panel entrapments and Hold Handrail signs announce ridership rules. Photo left: Schindler technicians run upgraded escalators through a full range of performance tests to ensure they meet all performance parameters.

Modular escalator upgrades

Schindler offers a range of upgrades for modular escalator systems. These include:

- The Saf-T-Brake™ controlled stop braking system for a smooth, controlled stop, regardless of passenger load or direction of travel (required by current ASME A17.1/CSA B44 code).
- A speed reduction kit that reduces the escalator speed to 90, 70, 60 or 50 fpm — allowing additional time for entry and exit. Particularly helpful for elderly riders and those with children.
- The SureGuide™ step guidance system installed on each step, minimizing the step-to-skirt gap. It assures consistent code-required clearance throughout the ride.
- Roller monitors that check every step roller every time they pass the monitoring points for smooth performance. They react if a roller wears below minimum diameter, or if there is sudden roller damage.
- The 6-roller drive unit with greater compression force than existing units, for transparent or opaque balustrades.
- New high-performance Posi-Drive™ units with tension wheel, for opaque balustrades.
- Handrail guide tracks and newel ends to create a lower-friction handrail guidance system.
- A new static arrestor to remove static charge from the handrail.

Schindler technician makes precision adjustments to new handrail drive assembly.

Upgrades for transit

Busy transit systems depend on escalators to keep the traffic flowing. Peak efficiency is required around the clock. As passenger volumes continue to rise, upgrading older systems will enable them to cope with even more extreme conditions. Schindler's efficient processes and components are geared specifically to the heavy demands of transit applications. The end result is minimal downtime, new robustness and reliability, and lifespan extension.