



HOW GREEN ARE THEY?

by Barbara Horwitz-Bennett, contributing writer



ELEVATORS



An elevator lobby featuring a bank of Schindler 7000 high-speed, high-rise elevators



Although the elevator industry has put a lot of work into making its products more energy-efficient and sustainable, the truth is that the LEED rating system still does not directly award points to elevators and escalators.

“Currently, the exclusion of elevators in many parts of the LEED rating system leaves people thinking that elevators cannot contribute to a green or sustainable building,” explains Oytun Calapover, brand manager of ThyssenKrupp Elevators’ Americas Business Unit, Frisco, Texas. However, “the fact is that elevators are sustainable by nature; with exceptionally long lives and composition almost exclusively of recycled and recyclable content, they occupy minimal material footprints.”

Whether it’s the replacement of hydraulic elevators with more energy-efficient, machine room-less models, (MRL) the development of regenerative drives, or advances in controls and standby energy, manufacturers are substantially reducing the environmental footprint of elevators.

Take KONE, for example. In 2007, the company announced that it would no longer be manufacturing hydraulic elevators. And like others in the industry, it’s offering regenerative drives, which convert an elevator’s braking energy back into usable electricity. “The regenerative option can save up to 25% of the energy used by a typical elevator, which in turn reduces operating expenses,” says Kellie Lindquist, marketing manager, KONE, Moline, Ill.

Describing regenerative drives as “the product of choice for green building initiatives,” Clay Cosby, senior product manager, new equipment, Otis Elevator Co., Farmington, Conn., explains that regenerative drives feed energy lost during braking back into the building’s internal electrical grid, so it can be used by other loads or users connected to the same network.

Another quickly developing area has been standby energy; fan-saving modes, signalization dimming and LED lights are helping to put a significant dent in the amount of energy consumed in standby. In fact, according to Lindquist, standby energy can be 70% to 80% of the total energy consumed by an elevator in low-rise buildings with the most efficient hoisting equipment in place.

Yet another noteworthy industry development is full replacement solutions for both elevators and escalators. “A complete modernization of an existing escalator provides brand-new technology without the removal of the existing truss,” explains Lindquist. “This, in turn, significantly reduces the amount of construction, minimizes the disruption and delivers more energy-efficient technology.”

In terms of LEED, William V. Fiacco, executive vice president, field operations, Schindler Elevator Corp., Morristown, N.J., points out that although they do not directly contribute, elevators can assist in obtaining points in the energy & atmosphere, materials & resources, and indoor environment categories. Elevators can potentially help earn up to 7 of the 26 points needed for certification.

Fiacco predicts that with the industry “continually investing in research and development, and creating products and systems with cutting-edge technology that are energy-efficient and sustainable, these advances—and those to come—will almost certainly prompt the LEED structure to more directly credit elevators in sustainable building design.”

Calapover agrees, “In keeping with the evolving nature of the green community and the LEED rating system, we believe that it is possible for elevators to be included in future versions of the LEED system.”

THE BUZZ ABOUT MRL

With traditional hydraulic elevators beginning to fade into the background, MRL elevators are becoming more popular as sustainable business practices increase.

“MRL systems require fewer building materials [and] less vertical and horizontal space; take less time to install; [are] easily serviced from the car top; and use 30% less energy than traditional geared elevators,” Fiacco notes. “In addition, the system uses high-efficiency equipment for clean, quiet and environmentally friendly operation.”

And, according to Lindquist, those efficiencies can be even greater. For example, KONE’s EcoDisc hoisting machine is a permanent-magnet gearless motor. KONE claims that it consumes 70% less energy than a hydraulic elevator and 50% less than a geared-traction elevator.





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This Schindler ID console serves as an access control system for the building’s elevator bank.

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Besides energy efficiency, the space-saving aspect of MRL is what’s most lauded. “By putting all the elevator equipment inside the hoistway, elevator manufacturers give the designers the chance to design without the constraints that would otherwise arise from having to worry about a control/machine room inside the building,” says Calapover. “This saves building owners a lot of money in terms of space and energy savings.”

Noting the growing popularity of MRL, Calapover estimates that 15% to 20% of all new elevators installed in North America today are MRL elevators, as compared to just 5% five years ago. Backing those percentages with hard numbers, Cosby notes, “According to the National Elevator Industry Inc. data, this segment has grown to over 5,000 units worth nearly \$1 billion in sales in just four years.”

Making an even stronger statement, elevator consultant David Mirch, president of DMT LLC, Washington, D.C., says, “We look at hydraulics, but any time you can put a traction product in place of a hydraulic, that’s a no-brainer. We foresee in the coming years—not too long out—MRL will replace hydraulics. The wave of the future is MRL.”

CUTTING-EDGE CONTROL SYSTEMS

Of course, the other big trend with elevators is the control systems that send patrons to their destinations in a more efficient and personalized manner.

“The latest in destination-based elevator systems offers passengers a customized ride using electronic identification badges,” explains Fiacco. “Based on information programmed into the system, the elevator can identify personalized attributes such as space required, special needs, floor destination and traveling preferences. Visitor stations are also equipped with technology that allows the rider’s personal preferences to be stored and recalled on repeated occasions.”

According to Iain Kinner, KONE’s product manager for modernization in Dallas, KONE has also refined its destination dispatching system, Polaris. Its latest intelligence features include:

- **Artificial intelligence** to measure and learn the flow of passengers, including “ghost passengers” who don’t enter their intended destination.
- **Traffic forecasting** to more accurately predict passenger traffic flow based on historical information regarding real-time passenger movements in the building.
- **Group call** eliminates ghost passengers for more accurate reporting and allocates sufficient space to accommodate a group of passengers traveling together.
- **Disability call** offers audible feedback of call activation, longer access time, longer operation time for the doors at the floor before departure and additional car space.

Looking forward, Calapover anticipates control systems that can activate calls with fingerprint or card scans, better learn tenants’ daily elevator usage activities, and receive scans at the parking-garage level and automatically call the elevator to the corresponding floor for the tenant’s convenience.

OTHER TECHNOLOGICAL ADVANCES

Besides MRL and control systems, other noted technological advances include more efficient high-rise elevators, double-deck elevators and twin elevators. For example, Schindler’s new 7000 elevator system is reported to reach speeds of 2,000 ft. per minute, with a maximum travel height of 1,640 ft. The system uses a standby power-operating mode and a lighter car made of 85% recyclable material. And ThyssenKrupp’s TWIN is two elevators that move independently of one another in the same hoistway.

“This increases efficiencies by eliminating the need for one hoistway for each elevator,” explains Calapover.

Calapover also sees the potential to gain efficiencies in the future on the maintenance side. “For example, by remotely monitoring data collected from an elevator 24 hours a day, elevator companies could shorten the response time to potential problems and potentially prevent them even before they happen.”

Looking at the big picture, Lindquist points out that buildings consume 40% of the earth’s energy, and elevators consume some 2% to 10% of that total energy. Engineers and manufacturers should begin to increase the energy-efficiency of their products. KONE, for instance, has set the ambitious goal to cut the energy consumption of its standard elevator products by 50% by 2010, according to Lindquist. The elevator industry must continue to respond with ambitious energy-reduction plans to meet the demand for increasingly sustainable products.





BIG ENERGY SAVINGS

New machine room-less elevators from **KONE** offer a 30% reduction in energy consumption. Energy-saving features include regenerative solutions, standby energy-saving capabilities and LED lighting in the cabins. By 2010, KONE is targeting a 50% energy reduction. Visit kone.com or Circle (522)



SUPER FAST IN SWITZERLAND

Featuring the **Schindler** 7000 Traffic Management System and high-speed Schindler 7000 elevators, the Prime Tower is currently under construction in Zurich. When completed in 2011, it will be Switzerland's tallest building with one of the fastest high-rise elevators in the country. The traffic management system will check passenger access rights and assign an appropriate elevator car to take the fastest route to their destination. Visit schindler.com or Circle (521)



TOP OF THE ROCK

Featuring **Schindler's** Miconic 10 destination-dispatch system, New York's Rockefeller Plaza won an Elevator World 2007 Project of the Year award. The system efficiently dispatches passengers by grouping people traveling to similar destinations, including the "Top of the Rock" to view the city. Visit schindler.com or Circle (520)





ESCALATE IN STYLE

Public transport escalators from **Schindler** are ideal for airports, subways and convention centers. With a variety of options to choose from for the structural elements, materials, finishes and colors, escalators can easily be integrated into any architectural setting. Visit schindler.com or Circle **(519)**



LOW-RISE HYDRAULIC

Pre-engineered Oilraulic elevators from **ThyssenKrupp** offer a variety of options in wall panels, ceilings, finishes, handrails, front panels and metal finishes. Elevators are designed for buildings with seven or fewer floors. Visit thyssenkrupp.com or Circle **(518)**



ECO DEMO

Featuring eco-efficient solutions from **KONE**, a "Sustainability Hotel" interactive web feature enables viewers to easily see elevator sustainability design highlights such as signal dimming, corridor illumination control and the KONE EcoDisc, which utilizes 70% less energy than a hydraulic elevator and 50% less than a traction elevator. Visit kone.com.





HAIL A CAB

Build your own cab with **ThyssenKrupp's** Synergy suite of machine room-less elevators. On its website is a micro site featuring dimensional information, technical features and an interactive cab-selection section. Via this interactive feature, end users can mix and match design elements such as handrails, walls, doors and ceilings. Visit seewhatwebuilt.com.



MODERNIZATION KITS

Modular modernization kits from **Schindler** enable easy and cost-effective elevator and escalator renovation. In lieu of unit replacement, the kits effectively update the old installations. Visit schindler.com or Circle **(517)**



FLAT AUTOWALK

KONE's InnoTrack autowalk is a flat unit that doesn't require a pit. Offering greater architectural freedom, the moving walk can easily be installed without changing the floor structure. Visit kone.com or Circle **(516)**



EASY ACCESS

Custom elevator cab and hall switches from **Wikk** are designed to enable activation from any angle for easy wheelchair access. In addition, the elevator alarm button can energize voice communication. Visit wikk.com or Circle **(515)**

