

next floor



Technology Takes Flight

The power of partnership strengthens our business relationships and fuels our pioneering spirit to explore new frontiers in technology.



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Cover photo: Solar Impulse in the evening sky above the shimmering city of San Francisco. **Photo above:** Bertrand Piccard in the cockpit of Solar Impulse before takeoff.
Photo credits: © Solar Impulse | Jean Revillard.

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The next frontier



Exploring unknown territory is part of our nature and a driving force as we face the challenges of the future. In this issue of *Next Floor*, we highlight the Solar Impulse project, a pioneering effort to fly an aircraft around the world with the sun as its exclusive energy source.

Schindler has joined forces with Solar Impulse as a main partner in this venture, and Schindler engineers are embedded with the project's team of scientists and technicians. Our experience and innovations in creating the Solar Elevator, currently being introduced in Europe, reflect our mutual concern for the rising need for clean mobility and sustainability. By achieving new technological advances together, we will continue to conquer these challenges going forward.

Solar Impulse is one of today's most exciting clean technology projects. Schindler's participation will aid us in our efforts to improve our products with significantly reduced energy needs and move people more efficiently in the process. The application of renewable technologies like solar power, coupled with research into stronger but lighter materials, will also help us contribute to the goal of net-zero-energy buildings. An innovation like the Schindler Solar Elevator is just the start of what promises to be an exciting journey into the next frontier of innovation.

But Solar Impulse is not only about saving energy; it expresses our desire to create and innovate in an entrepreneurial spirit. While it will certainly aid us in reducing our dependence on fossil fuels, it also inspires us to expand our ideas and blaze new trails. Perhaps most importantly, it sends a message to the next generation that we care about the future and our legacy as caretakers of our planet.

On an added note please join me in welcoming Greg Ergenbright to the position of president of Schindler's U.S. Operations. Under Greg's leadership, we can look forward to the continued success of Schindler's thriving presence in the United States.

A handwritten signature in black ink, consisting of stylized, overlapping loops and lines, representing the name Jakob Züger.

Jakob Züger
Chief Executive Officer, Americas

Here Comes the Sun

"We lose a great deal, I think, when we lose this sense and feeling for the sun. When all has been said, the adventure of the sun is the great natural drama by which we live, and not to have joy in it and awe of it, not to share in it, is to close a dull door on nature's sustaining and poetic spirit."

Henry Beston

Photo credits: © Solar Impulse | Jean Revillard



Schindler is proud to be one of the main partners of Solar Impulse, the revolutionary aircraft powered only by sunlight that aims to circumnavigate the globe by 2015.



He took off with 7,400 pounds of liquid propane fuel for a flight around the world in a balloon. He was successful, but when he landed he only had 8 pounds of fuel remaining. That was much too close for comfort, and he thought how wonderful it would be if one could fly around the world without having to worry about fuel. That was March 21, 1999, and now he's planning to circle the globe again, only this time in an airplane ... without any fuel at all.

Plenty of help

Bertrand Piccard is a psychiatrist and an aeronaut. It was his dream in 1999 that sparked the idea for the development of an aircraft that would be powered solely by the sun and create zero emissions. Today, he is chairman of Solar Impulse, the company that brought his dream to life with an aircraft that bears the same name. He is joined by André Borschberg, an engineer and graduate in management science, an ex-fighter pilot and the company co-founder and CEO.

Of course, it takes more than two pioneering men to bring a project the magnitude of Solar Impulse into being. It requires the financial, scientific and technological backing of global organizations like Schindler, Omega, Deutsche Bank and Solvay. And it takes a cadre of 30 engineers including an embedded team from Schindler, 25 technicians and 22 mission controllers.

By embedding engineers in the Solar Impulse project, Schindler is facilitating a scientific exchange of ideas, knowledge and resources. The insights gained from working together with top researchers and technical experts in their fields will assist Schindler in achieving new solutions for the future.



Photo above, right: Solar Impulse soars above the clouds with San Francisco's Golden Gate Bridge in the background. **Photo below, left:** Pilots Bertrand Piccard and André Borschberg celebrate completion of the second leg of the Across America Mission from Phoenix to Dallas.



Bill Fiacco, president of Marketing and Sales for Schindler in the Americas, noted, "As a Solar Impulse partner, Schindler shares in a commitment to trailblazing technology that safely moves more people with less energy, and increasingly clean energy. We share a pioneering, entrepreneurial spirit that isn't afraid to think the unthinkable ... to walk on the very edge of possibility ... to challenge society's common assumptions and practices. We believe that working together will help bring the world closer than ever to this common goal of a sustainable, mobile, clean-energy future."

Solar Impulse Facts



Length	71.7 feet
Wingspan	208 feet
Height	21.0 feet
Solar collection cells	11,628 photovoltaic cells
Weight	3,500 pounds
Maximum takeoff weight	4,400 pounds
Power plant	Four 10-horsepower electric motors, powered by lithium-polymer batteries
Takeoff speed	22 mph
Cruise speed	43 mph
Service ceiling	maximum cruising altitude of 27,900 feet
Maximum altitude	30,300 feet

For more technical details on Solar Impulse, visit: www.schindler.com/solarimpulse-usa-flight.

Getting an idea off the ground

Designing a solar-powered airplane demands the interaction of a multidisciplinary team. Knowing that their power source would be the sun, the Solar Impulse engineers turned their attention toward reducing the weight of the aircraft and developing battery technology that could store enough energy to keep the plane flying at night. The design team brainstormed ideas for new materials, less expensive construction methods and more efficient solar collection technology.

Solar Impulse does not resemble the typical airplane, because the wingspan needs to

accommodate an extremely large number of solar collection cells. In fact, there was considerable concern within the team over just how large a wingspan it could design.

With an understanding of the physics of flight, power-to-weight ratios and the help of 3-D engineering software similar to that used in Building Information Modeling (BIM), the design for the first prototype, Solar Impulse HB-SIA, was completed in 2009. While HB-SIA relies on existing technologies, its successor, HB-SIB, will benefit from new materials and construction methods. HB-SIB is scheduled for testing in 2014. ►



Photo above: Bertrand Piccard and André Borschberg before the first Solar Impulse test flight in San Francisco.
 Photo right: The Solar Impulse plane takes off on its first test flight from Moffett Airfield in San Francisco.



► The pilots

Bertrand Piccard is the initiator and chairman of the Solar Impulse project. He was born into a dynasty of explorers and scientists. Piccard made the first-ever nonstop around-the-world balloon flight. An internationally renowned psychiatrist, aeronaut and lecturer, he combines science and adventure in order to tackle some of the greatest challenges of our times. Piccard is intrigued by the study of human behavior in extreme situations and is passionate about exploration. He was one of the pioneers of hang gliding and microlight flying in the 1970s and became the European hang-glider aerobatics champion in 1985. An aviator through and through, he then went on to obtain his licenses to fly balloons, airplanes, gliders and motor-gliders.

André Borschberg is the CEO and co-founder of the Solar Impulse project. He is an engineer by education and a graduate of the Massachusetts Institute of Technology (MIT) in management science. Borschberg has extensive experience in creating and managing companies. His passion for aviation and his interest in innovative solutions have led him to team up with Bertrand Piccard to direct Solar Impulse and be one of the pilots who will fly around the world in a solar aircraft. Borschberg trained as a pilot in the Swiss Air Force, flying first Venoms, then Hunter and Tiger fighter aircraft for more than 20 years. Today, he holds an assortment of professional airplane and helicopter pilot's licenses and also does aerobatics in his spare time.

Photo left: Sir Richard Branson, the newest patron of the program and a strong advocate for clean energy initiatives, meets with the Solar Impulse team. Photo middle: Chesley "Sully" Sullenberger III, the famed airline pilot who landed a plane on the Hudson River, visits Moffett Airfield and Solar Impulse pilots, Piccard and Borschberg. Photo right: Delmar Boni, a Native American traditional healer, is blessing Solar Impulse's pilots before their departure on the flight from Phoenix to Dallas.





Across America

On May 3, 2013, Solar Impulse began its celebrated coast-to-coast flight across the United States, west to east, thanks to the support of partners like Schindler. The adventure began in San Francisco with scheduled stopovers in Phoenix, Dallas, St. Louis, Washington, D.C., and New York City.

Events for media, sponsors and the public were held in each stopover city. Media coverage for the project exceeded 7 billion impressions, and thousands of people viewed the airplane in each location. ►



Photo above: "CBS This Morning" interviews Solar Impulse pilots Bertrand Piccard and André Borschberg. Photo below: Alisa Jost, honorary consul of Switzerland, and Jan Brewer, governor of Arizona, with Bertrand Piccard and André Borschberg shown holding the Clean Generation flag at a dinner hosted by the Swiss Consulate.





► **Brave new world**

Schindler believes that Bertrand Piccard and André Borschberg are doing something very important with the Solar Impulse project, an endeavor that will soon place them shoulder to shoulder with the likes of the Wright brothers, Thomas Edison, Robert Goddard and other famous inventors who gave humankind flight, modern energy and increased mobility.

Schindler shares a common purpose with Solar Impulse, to capitalize on the potential of new technologies so that we can realize the promise and benefits of clean mobility. Like many journeys, Solar Impulse started with a dream and is helping to lead us to a brighter, better world. With Schindler's latest development, a solar-powered elevator, Schindler is highlighting its own revolutionary and forward-looking spirit.

Schindler introduces the world's most advanced elevator that can be powered exclusively by sunlight

Inspired in part by our partnership with the Solar Impulse project, Schindler Group introduced the Schindler Solar Elevator earlier this year. Commercially available in Europe and India in 2013, and in the U.S. and other global markets in 2014, the Solar Elevator is a hybrid system designed to supply up to 100 percent of the elevator's power needs from solar panels and a proprietary Hybrid Power Manager (HPM) that stores the solar energy in batteries until needed. The new Solar Elevator system uses a standard Schindler 3300 gearless machine room-less elevator, which is already up to 60 percent more energy efficient than hydraulic elevators. The elevator system includes many features that are designed to save energy and reduce costs: stable start; a frequency converter with an energy-efficient standby power mode; controls that automatically switch car lights to standby mode; and LED car lights. The Schindler 3300 is a proven sustainable technology that requires no extra application engineering for adaptation to the Schindler Solar Elevator system.

The new Solar Elevator uses a Schindler 3300 gearless machine room-less elevator.



The Schindler Solar Elevator replaces the use of net energy by using solar panels.

Solar elevator integrated with existing photovoltaics (PV) panel system.



Solar panels supply most of the Schindler Solar Elevator's power requirements, which will vary depending on size and daily traffic. Backup power needs are provided by a one-phase grid connection, which is significantly simpler and less costly to install and operate than the standard three-phase connection. The Schindler Hybrid Power Manager collects and stores the clean energy generated from the solar panels and the elevator's operation to provide a reserve energy supply should a power interruption occur. Bill Fiocco, president, Marketing and Sales for Schindler, commented, "The Schindler Solar Elevator is a major step forward in creating net-zero-energy buildings in urban environments. This new system is a highly efficient, robust and affordable solution available today for residential and low-rise commercial buildings. As we roll out this exciting new technology in the Americas next year, further refinements will continue to make Schindler Solar Elevator systems even more efficient." ■

The top tier of the southeastern coastal region of the United States is composed of Virginia, North Carolina and South Carolina. The three states combine for a total population of more than 22 million and form an economic region of significant importance. Mountains, lakes, lush valleys and Atlantic beaches attract millions of tourists each year, with the Carolinas becoming popular retirement destinations. This is a vibrant and growing area that offers a pleasant climate, abundant outdoor activities and a business-friendly environment.

Southern Successes

Three's company

Virginia, the northernmost of the three states, is nicknamed "Mother of the Presidents" and was the home of eight U.S. presidents. At present, Virginia's varied economy embraces everything from high technology to mining and farming to government. While coal and tobacco are traditional exports, computer chips have now taken the lead.

North Carolina is situated between Virginia and South Carolina. Famous for tobacco growing and furniture manufacturing, it has added finance, biotechnology and engineering to its economic portfolio. The city of Charlotte is the second largest banking center in the U.S. and is also referred to as "The New Energy Capital" since it is home to numerous energy sector firms.

South Carolina, like its northern neighbor, is known for its production of tobacco along with a range of other agricultural products. It has seen an influx of large corporations and significant foreign investment with almost 2,000 foreign-owned firms operating in the state. South Carolina is also a popular tourist attraction. Charleston, the second largest city in South Carolina behind Columbia, the state capital, was named the "Top U.S. City" and "Top Destination in the World" in 2012 by *Condé Nast Traveler's* "Readers' Choice Awards."



Farming and electronic products are two economic engines in the southeastern coastal region of the United States.

An aerial view of Ballantyne Corporate Park, a 535-acre master-planned business community developed by The Bissell Companies.



Commerce on the move

Businesses have begun a steady march to the southeastern coastal region of the United States, owing to its favorable commercial climate and attractive quality of life for workers. Developing the necessary office space and multi-use communities to meet the needs of businesses in Virginia, North Carolina and South Carolina has been the forte of The Bissell Companies. Founded in 1964 by H.C. “Smoky” Bissell as a small real estate firm with one employee, the company has grown to a collection of closely affiliated organizations with more than 600 employees that engage in all forms of real estate, including development of office and hotel properties, and offering services that include office leasing and management, hotel management, commercial brokerage, and golf management and instruction. Bissell has developed 200 properties in the region, totaling 13,650,733 square feet. Today, Bissell manages 6,510,146 square feet of commercial real estate. This includes 84 buildings and 10 parking decks ... many with elevators made and serviced by Schindler. ►



Photo above: The Boyle Building, a Class A 10-story building within Ballantyne Corporate Park.



Photo below, left: Aloft Charlotte Ballantyne is located in the heart of Ballantyne Corporate Park. Photo below, right: “The Ballantyne Bulls” sculptures recline in front of Bissell’s corporate office as a testament to the company’s motto: *Bullish on our families. Bullish on our work. Bullish on our country.*



► **A test of time**

While most businesses have been affected by the ups and downs of the economy, Bissell has always believed that having standing office products available was a winning strategy due to the short-term nature of business decision making. Companies have become consistently more risk averse and put off commitments like leasing space until their business analytics confirm the need. Once decided, they cannot wait for the multiyear time frames associated with the design and ground-up development process.

An added comfort for corporations seeking office products is the fact that Bissell maintains unified ownership of its 4-million-plus-square-foot Ballantyne Corporate Park, which allows greater flexibility in meeting employers' needs to expand, contract or relocate within the park.

According to Ned Curran, Bissell's president and chief executive officer, "Over the long term, we have enjoyed robust activity in both our office and hospitality products. Each faces its own cyclical dynamics, but we are pleased and satisfied with

our results. We recognize we are in a unique position of strength in a challenging environment. We have intentionally decided not to pursue growth opportunities that could offer potentially greater profits at the price of potential distractions to our core businesses. Instead, we chose to focus on our initiative to drive exceptional customer service. This initiative propels Bissell to elevate its standards for leadership, customer service, teamwork, communications and personal development on a daily basis."



The Boyle Building from the 14th hole of Ballantyne Golf Course.



Bissell Chairman Smoky Bissell (left) greets Ray Falduti (right), Schindler's area general manager, East.

A remarkable relationship

Schindler started working with The Bissell Companies more than 40 years ago in the SouthPark area of Charlotte and today services more than 120 Schindler elevators in 55 Bissell buildings. At Ballantyne Corporate Park, 19 of the most recent elevators are the newest Schindler traction elevators with Power Factor 1 regenerative drives that return electrical energy to the buildings' power grids.

Smoky Bissell, the company chairman, tells it best, "If I had to guess, our relationship with Schindler began almost 40 years ago and I can honestly say that there has never been a day that our expectations have not been exceeded. This doesn't mean that there haven't been glitches, but when there have been, the problem has been remediated in a fashion that should appear in a best practices book on service recovery, as it has been outstanding."

Bissell continues, "My dad always told me that life was a series of relationships and to establish good ones. Our relationship with Schindler for certainly more than half the time that we have worked with them has been with Ray Falduti, their area general manager, East, who attends

virtually every progress construction meeting that he can. He is always filling us in on scheduling and keeps us fully informed on his commitment to meeting our expectations."

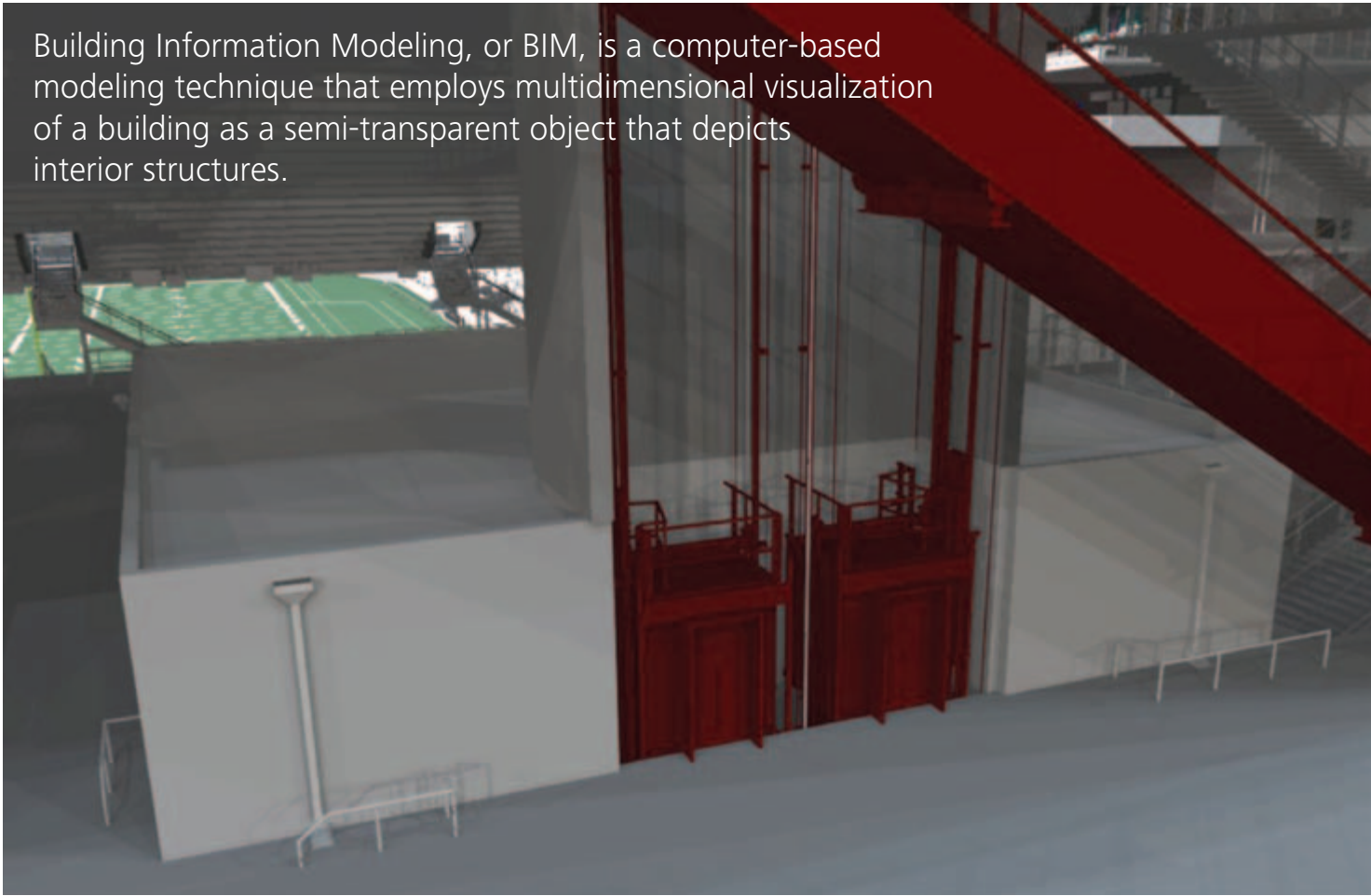
While the geographic proximity of three states like Virginia, North Carolina and South Carolina may help to form a region, enduring business relationships forged from an understanding of trust and confidence shape its commercial character. Bissell and Schindler, with a business partnership spanning four decades, will surely play a continuing role in the future of the Southeast. ■

Photo below, top: The Cullman Park Building overlooks scenic Cullman Park with its waterfall, walking trail and picnic areas. Photo below, bottom: The Ballantyne Hotel & Lodge and Golf Course.



BIM ... the Next Step

Building Information Modeling, or BIM, is a computer-based modeling technique that employs multidimensional visualization of a building as a semi-transparent object that depicts interior structures.

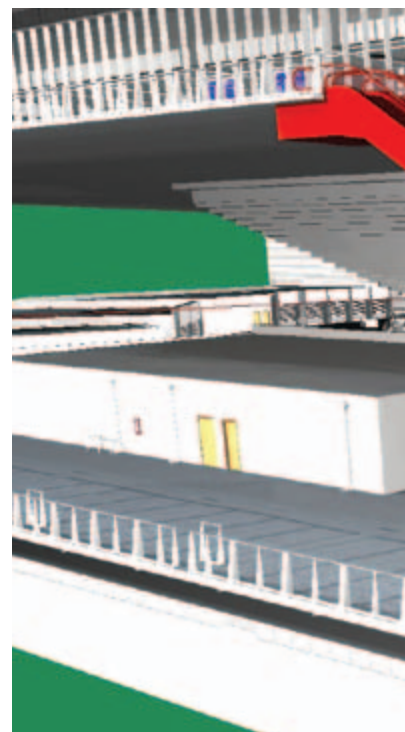


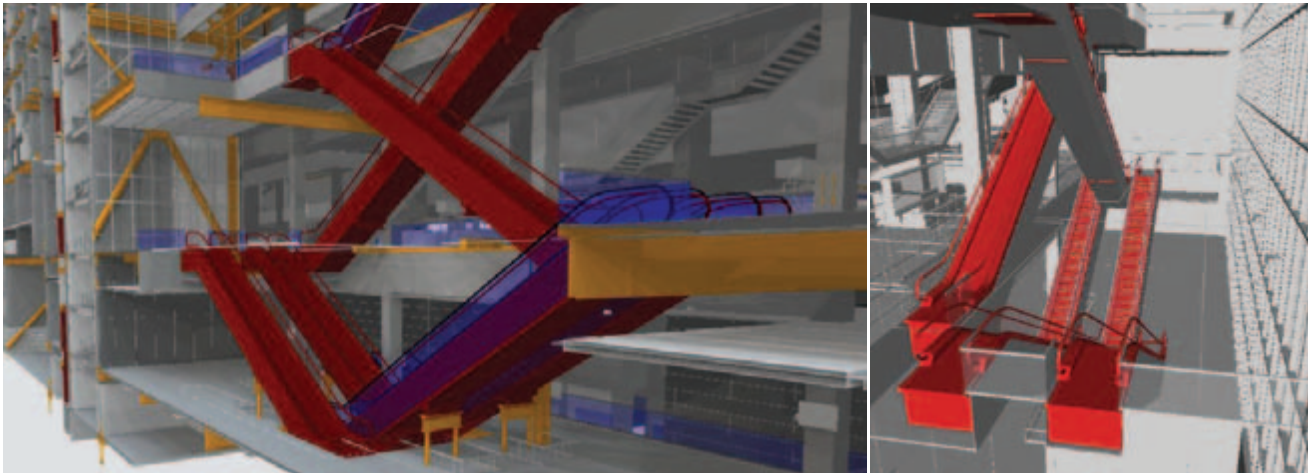
As architects draw floor plans, modeling software automatically creates elevations and materials schedules from information built into the BIM objects. The model offers users the ability to rotate it 360 degrees or view it from an overhead or bottom-up perspective. BIM is extremely helpful in determining the best location for building systems and for spotting potential conflicts. The software even provides helpful conflict alerts.

Schindler enhances BIM offering

Schindler has enhanced its BIM software offering by adding more detailed models for elevator and escalator planning. These newest parametric models offer architects

remarkable flexibility to compare capacities and door opening and travel options directly in the Revit® software program when designing the building. The extraordinarily detailed models also help identify conflicts earlier in the design process and highlight limitations to prevent incompatible product usage. The results are far fewer errors or omissions, reducing change orders and improving quality. In addition, seismic requirements are built into the new models. These advancements have taken Schindler's BIM product to the next level in software development and set a new benchmark for performance and utility.





Easy access

Architects, specifiers, general contractors and others in the building design and construction industry in the U.S. and Canada can access links to create three-dimensional, real-time, dynamic BIM models from Schindler's website, www.us.schindler.com, for the following Schindler products:

- Schindler 330A hydraulic elevator for low-rise buildings

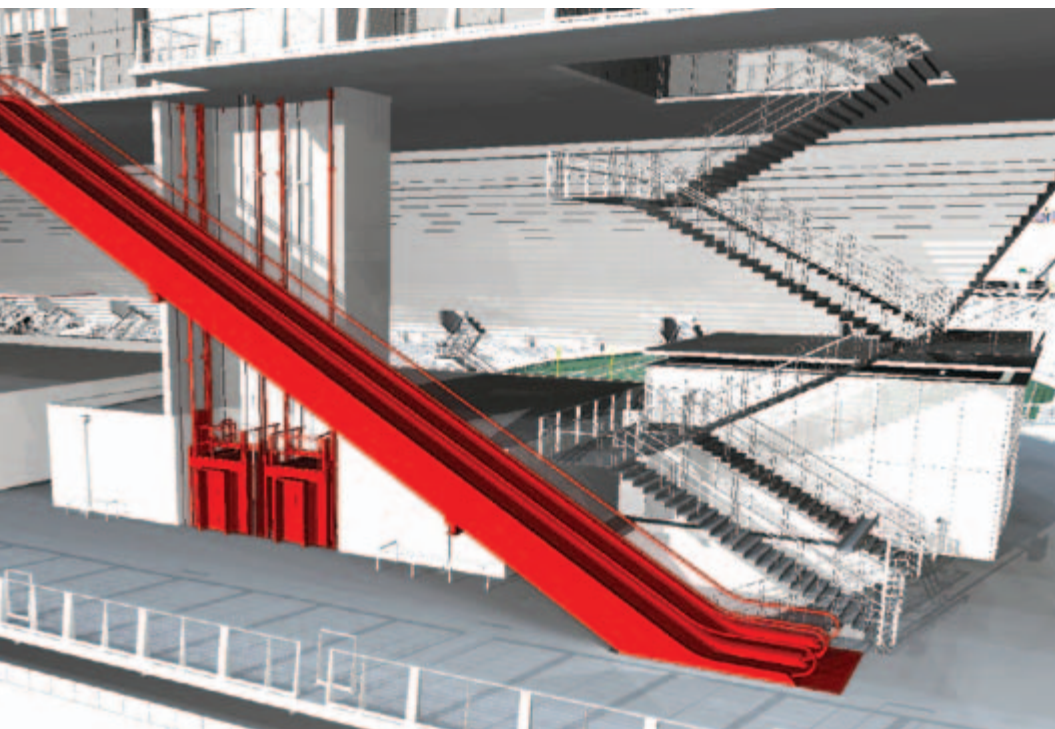
- Schindler 3300 machine room-less traction elevator for low- to mid-rise buildings
- Schindler 400AE machine room-less traction elevator for mid-rise buildings.

Three-dimensional models for the Schindler 7000 custom elevator for high-rise buildings or for Schindler escalators can also be produced with assistance from a company representative.

Advancing technology

"BIM is an outstanding tool that helps eliminate building change orders and the extra expense associated with them," said Chris Smith, director of marketing for Schindler. "As the demand for BIM has increased dramatically over the past few years, we have expanded the number of products in our BIM model portfolio and have also enhanced the models' detail and flexibility, providing the industry's preferred BIM offering."

In addition to BIM, Schindler customers also benefit from the company's online Schindler e-tools, which can be found on the Schindler U.S. website. The e-tools provide around-the-clock access to drawings, specifications, service activities, performance history and project schedules. ■





Atlanta, Georgia's capital, cultural center and largest city, was established in 1837 at the intersection of two rail lines that served the state and soon grew to become a commercial center. Atlanta is the main transportation hub of the southeastern United States with interlinking highway, railroad and air transportation systems. Hartsfield–Jackson Atlanta International Airport has ranked as the world's busiest since 1998.

Metro Mobility



Atlanta's economy ranks 15th among world cities and sixth in the United States with business services, media operations, logistics and higher education as key segments. It's home to the headquarters of Coca-Cola, CNN, Delta Airlines, The Home Depot and UPS. The Georgia World Congress Center in the heart of the city plays host to numerous conventions and expositions, while professional baseball, basketball and football

teams draw fans year round. In fact, the Atlanta metropolitan area is the ninth most populous in the United States, accounting for 5.5 million residents across 29 counties.

A region on the move

With Atlanta as its commercial nexus, the surrounding metropolitan area grew rapidly and found itself in need of mobility solutions. In the 1950s, planners recognized the importance of a public transportation

system, one that would integrate both bus and rail to continue the growth of the region. In 1965, an act was passed by the Georgia state legislature that created MARTA, the Metropolitan Atlanta Rapid Transit Authority.

Several years of legislative and electoral activity, including a voter referendum, were needed before MARTA became a reality in 1972 and took control of the area's bus



A Schindler escalator takes thousands of MARTA passengers to an underground rail station at Peachtree Center.



transportation system. Fares were immediately reduced from 40 cents to 15 cents throughout MARTA's service area, and by the end of the year, 9 million more passengers had used the service than were anticipated. After a year of fare reduction, MARTA enjoyed an overall increase of 21 percent more passengers. The system was on the move.

In 1979, a rail system was added to MARTA. Only two stations were linked, but the system expanded quickly and soon links to surrounding counties and the airport were added. Today, MARTA consists of 48 miles of rail track linking 38 stations. MARTA's diesel and compressed natural gas buses serve a wider area than the rail system with more than 91 bus routes. The MARTA system moves more than 420,000 passengers every day. ►

► Vertical mobility

In addition to moving passengers to destinations in four Atlanta area counties, MARTA also efficiently moves travelers to and from its train and bus stations. To do this requires 149 escalators and 111 elevators, all multiple brands and all serviced and maintained by Schindler.

According to the director of the Office of Vertical Transportation for MARTA, Tom Beebe, “In 2009 we began the process of modernizing what we refer to as Group 1 of our



Schindler elevators offer travelers access to multiple levels at MARTA's Peachtree Center.



Schindler technicians in the process of modernizing one of the Peachtree Center escalators.

escalators, which consists of 32 units. We selected Schindler for the project because of their superior drive systems and excellent value. They just completed the upgrades on units number 31 and 32.

“At MARTA we’re also committed to energy efficiency and safety, and the Schindler escalator control devices reduce torque when the units are not under load, thereby reducing energy demand. This system also provides a soft start when passengers enter the escalator. Since we are a public transportation system, Schindler incorporates vandal-resistant features into each of the modernized escalators.”

Mark Lester, Schindler’s project manager, was responsible for supervising the successful modernization project, which spanned several years. He noted that among the units Schindler has modernized are three escalators located in MARTA’s Peachtree Center station with rises over 95 feet. These are among the tallest escalators in the United States. Tom Beebe adds, “A key element in the efficiency of our vertical transportation system is the teamwork formed between Schindler and MARTA. Steve Watkins, Schindler’s maintenance project manager, and his team of technicians have done a great job in reducing units out of service and



Pictured from left to right in suits are: Bill Thomas, MARTA, resident engineer; Steve Watkins, Schindler, project manager — existing installation; Shawn Johnson, Schindler, district manager; Mark Lester, Schindler, project manager — Modernization; and Tom Beebe, MARTA, director of the Office of Vertical Transportation. Behind them are Schindler’s MARTA modernization and maintenance teams.



callbacks to keep our escalators and elevator systems running at top performance. In fact, Mark Lester and the entire Schindler team have gone above and beyond in developing a partnership with our group at MARTA to bring continuous improvement and enhanced safety to our vertical transportation systems. During a recent unannounced visit to one of our modernization construction sites an area safety and health inspector spent several hours evaluating the site. The inspector characterized the site as trend setting in safe operations and where safety is viewed as a way of conducting business.” ■

Fast Facts – MARTA

Began operation: buses — Feb. 17, 1972, rail — June 30, 1979

Equipment: 554 diesel and compressed natural gas buses, 218 rail cars, 149 escalators, 111 elevators

Passengers: 420,000 daily (227,000 rail, 193,000 bus)

Equivalent number of autos taken off the road daily: 185,000

Number of MARTA-related jobs created in Georgia: 20,000

System length: 48 miles

Photo above: One of three escalators at Peachtree Center with a rise of over 95 feet. Photo right: Schindler technicians perform preventive maintenance on an escalator and are responsible for servicing all of the escalators and elevators in the MARTA system.



“What was once the furthest outpost on the old frontier of the West will be the furthest outpost on the new frontier of science and space. Houston ... with its Manned Spacecraft Center, will become the heart of a large scientific and engineering community. During the next five years the National Aeronautics and Space Administration expects to double the number of scientists and engineers in this area, to increase its outlays for salaries and expenses to \$60 million a year; to invest some \$200 million in plant and laboratory facilities; and to direct or contract for new space efforts over \$1 billion from this center in this city.”

President John F. Kennedy, Rice University, Sept. 12, 1962

Two Frontiers



An early frontier

The city was named for a famous general, Sam Houston, in 1836 when it was still the Republic of Texas, and Houston was its president prior to statehood nine years later. The area was home to many Native American tribes, predominantly the Comanches as well as Apaches, Kiowas and the Cherokees, a favorite of Sam Houston and a tribe into which he was adopted as a citizen and into which he married. The city of Houston grew quickly and became the launch pad for a number of industries beginning with cotton, which was established as a major agricultural enterprise by 1860. Later and into the early 1900s, the business of oil drilling, production and refining began a steady climb into prominence.

Cosmopolitan heart

Today, Houston is the fourth largest city in the United States and a major port on the Gulf of Mexico. It boasts a diversified economy that encompasses manufacturing, energy, aerospace and transportation industries, among others. The Manned Spacecraft Center has been renamed the Johnson Space Center after another president, this time of the United States. Houston's economy continues to grow and it is second only to New York City as host to Fortune 500 companies. It is also recognized as a major educational and cultural center catering to the myriad interests of its large international community. More than 20 percent of Houston's residents were born outside the United States, and it is estimated that 90 different languages are spoken here. Mexican, Asian and Greek festivals are just a few of the many ethnic celebrations held each year throughout the city.



Photo left, top: A postage stamp honoring legendary Texan Sam Houston. Photo left, bottom: The huge first-stage rocket engines of a Saturn 5 rocket on display at Houston's Johnson Space Center.

A skyline takes shape


The 1920s saw the construction of buildings in Houston that would sequentially vie for the honor of being deemed the tallest in the city. In 1929, the Gulf Building, as it was known at the time, located at 712 Main St. would capture that distinction at 36 stories and, remarkably, would retain it for almost 35 years until it was eclipsed by a skyscraper eight stories higher in 1963. The driving force behind the construction of the Gulf Building and other notable Houston landmarks was Texas entrepreneur, banker and politician Jesse H. Jones. In 1933, President Franklin Delano Roosevelt called on him to help combat the Great Depression by making him chairman of the Reconstruction

Finance Corporation. Jones was placed in charge of investing \$50 billion, a staggering amount of money at the time, in railways and factories in an effort to put people back to work. Jones went on to serve as U.S. secretary of commerce from 1940 to 1945.

Currently, Houston's skyline is regarded as the third tallest in North America and the 10th tallest in the world. Spanning seven miles in length, the skyline embraces everything from art-deco to ultramodern architectural styles all appearing comfortable in mixed company. A fitting legacy to the pioneering work of Jesse Jones. ►



712 Main's art-deco-style stands in contrast to its modernist neighbors. Now more than 80 years old, it still commands attention as part of the Houston skyline.

A wide-angle photograph of the Grand Lobby of 712 Main. The space is characterized by its high, vaulted ceiling with intricate, golden-brown metalwork and large skylights. The walls are clad in light-colored marble, featuring large, colorful murals in arched niches. The floor is made of polished, reflective marble tiles. In the center, a woman in a light blue dress and red heels stands near a wooden reception desk. To the left, a man in a blue suit walks away. A glass entrance with a 'CHASE' sign is visible on the right. A sign above a doorway on the left reads 'EXPRESS WORK 1-12'.

The elegant Grand Lobby of 712 Main captivates visitors with its shimmering marble floors and decorative murals.

Fast Facts – 712 Main

Stories	36
Height	427 feet
Total space	800,000 square feet
Completed	1929
Restored	1989
Elevators	27; eight modernized with Schindler PORT

Ground floor banking center

Ceiling height	43 feet
Walls and floors	Marble
Windows	Stained glass
Listed	National Register of Historic Places National Historic Civil Engineering Landmark

A new frontier

At 84 years of age, 712 Main St. in Houston is one of the city's most iconic and historic buildings, an art-deco-style landmark listed in the National Register of Historic Places. Its elegant elevator doors are of nickel silver, as are its art-deco postal drop boxes. A giant stained glass window graces the bank lobby with a colorful serenity.

But 712 Main is also focused on the future. It is the first in Houston to install Schindler's highly advanced PORT Technology as part of modernizing nine of its 27 elevators. The major upgrade included custom-designed elevator cabs and Power Factor 1 regenerative drives that return energy to the building's power grid.



Photo top, left: A visitor accesses a Schindler PORT device en route to a destination floor. Photo top, right: Marc Vecchio, senior real estate manager for the building management firm, CBRE. Photo bottom, left: Sophisticated nickel silver elevator doors harken back to the art-deco style of the 1920s.



A colorful stained glass window can be seen through the doors and against the far wall of the expansive bank lobby.

When an affiliate of Brookfield Asset Management acquired the building in 2010, its strategy was to reposition the building by upgrading key services to attract new tenants and to better compete in the market. One of its priorities was to improve both elevator system performance and aesthetics of the cab interiors. According to Marc Vecchio, senior real estate manager for CBRE, the building management firm, "The nine modernized elevators were older units in need of upgrades; four were low rise, four high rise and one was a freight elevator. All but the freight elevator employ the PORT system. Tenants and visitors simply enter their destination floor into a PORT device and the system does the rest, directing the passenger to the optimal elevator route to complete the journey in the shortest time. We currently use card readers to restrict access to tenant floors after hours. Schindler is responsible for servicing all 27 elevators here at 712 Main."

It is not surprising that a building that dates back eight decades would be home to cutting-edge technology and managers whose eyes are firmly fixed on the future. ■



While the escalators shown in this photo are obviously inoperable, it's worth remembering that no one other than a qualified elevator and escalator mechanic should work with an elevator or escalator control system. Serious damage or severe injury could result from tampering with the control system by unqualified persons. An elevator and escalator service technician should determine if the system is operable and whether it can be placed in service. Photo credits: © MTA/L. Wiggins.

Recent storms like Hurricane Sandy are a vivid reminder of just how powerful nature can be. Sandy and similar massive storms remind building and facility managers of the importance of careful preparation before the storm hits and the challenges that may confront them once the storm has passed.

Before and after the Storm

The following steps taken before, during and after weather-related events will help prevent elevator damage and protect the safety of building occupants and staff.

Getting ready

1. Be sure to have a diagram of the location of elevators, car numbers and the car phone number in your security area.
2. Check that you have Schindler's emergency phone number with any required numerical designations.
3. Inspect the elevator machine room's ventilation openings, windows and doors for possible rain leakage.
4. If water leakage is found, prevent it from reaching electrical panels by installing metal splash guards around ventilation openings and weatherstripping around any machine room doors that open to the outdoors.
5. Close all vents and openings in the top of the hoistway to prevent water from entering.
6. Barricade machine room windows as necessary, and ensure no occupants are left in the building reliant on elevators for egress.
7. If the building has elevators that are enclosed, run each car to the center of the building, or the top floor for two-story buildings.
8. Elevators exposed to the outdoors should be run to the floor below the top.
9. After cars are parked, shut elevators down with the keyed switch and close the doors.
10. Place mainline disconnect in "off" position. There is one switch for each elevator usually located adjacent to the machine room or closet door.



Prepare for power problems

1. Become familiar with the elevator's emergency systems.
2. Ensure that the elevator has surge protection or is operating with a reliable emergency power generation system backup, or an emergency return system for hydraulic, machine room-less or traction elevators.
3. Make sure emergency lighting and a telephone are operable.

Emergency power operation

If your elevator system is equipped with emergency power operation (automatic or manual) and your building has an emergency generator, the following applies. Emergency power operation was designed to permit the lowering of one or more elevators at a time, depending on the size of your emergency generator and the power allocation for the other parts of your facility. In the event of a power outage, all elevators will stop immediately, and the emergency lights in the elevator cab will come on. It is important to contact each elevator via your communications system to see if anyone is in the elevator. If so, follow the instructions regarding removal of people inside a stalled elevator car.

Automatic sequential operation

If your elevator system has automatic sequential operation, when emergency power is up and running, your elevator controller will select the first car in the group, lower it to the main lobby, open the doors and shut the elevator down. Then the controller will choose the next car in line and repeat

the process until all cars are at the main lobby. Normally the last car selected will be left in group operation, and it will continue to answer car calls and hall calls.

Manual operation

If your elevator system has manual emergency power operation, there should be a panel in a secured room or station. After emergency power is up and running, you can select one elevator at a time and manually (usually using a key switch) lower the elevator to the main lobby. After the elevator has reached the main lobby and the doors are fully open, turn the key to the "off" position. Move to the next car and repeat the same procedure. After full power is restored, your elevators should automatically return to service.



During the storm

Never use elevators during a severe storm, even if your building has an emergency power generator. Rising water or wind-driven water can cause electrical short circuits that could disable an elevator and lead to entrapments.

After the storm

Before restoring power to your elevators, inspect the machine room for water on the floor or the control panels. Also check the pit area for water damage. If you find water in these areas, call your Schindler service technician for an inspection before you operate the equipment. Be sure to open any vents or openings at the top of the shaft if you sealed them just before the storm. ■



What do these names have in common: Jim Palmer, Eddie Murray, Cal Ripken Jr., Brooks Robinson, Frank Robinson and Earl Weaver? You'd be correct if you said that they were all Baltimore Orioles who have been inducted into the Baseball Hall of Fame. They form the rich history of America's pastime along with 300 other players and managers who are members of that elite club.

A Return to Style



The first to celebrate the past

The prevailing approach to the construction of sports stadiums up to the 1990s was to make them multipurpose. With costs in the hundreds of millions, it made sense to build venues that could host baseball, football, soccer and other professional and collegiate sports. Then in 1992 something happened that would buck the trend. It took shape a few blocks west of Baltimore's famous Inner Harbor ... the first downtown retro-style Major League stadium. Oriole Park at Camden Yards was an instant home run.

Photo top, left: The Orioles bird perched proudly on top of the scoreboard. Photo credit: Baltimore Orioles. Photo left: A statue honoring "The Iron Man" Cal Ripken Jr., the Orioles' celebrated third baseman. Photo below: The Sports Legends Museum at Camden Yards. Photo right: Behind a statue of Babe Ruth, period signs adorn the facade of the Warehouse at the Camden Yards Complex. Photo credit: Visit Baltimore. Photo below, right: The Eutaw Street admission gate to Oriole Park near right field. Photo credit: Visit Baltimore.

Baseball fans know their history. They share a reverence not only for the great players but the places they played as well. Ebbets Field, Fenway Park, Wrigley Field, the original Yankee Stadium ... these are hallowed grounds if only in the memories of some old enough to have waited patiently to catch a ball hit by Duke Snider, Carl Yastrzemski, Ernie Banks or Mickey Mantle. This is fans in the parks with pencils in hand who keep score in the printed program. This is boys and girls who know every statistic of their favorite player. This is the little league pitcher who would grow up to be Sandy Koufax. This is the seventh-inning stretch and singing "Take Me Out to the Ball Game" with 70,000 other spectators. This is baseball.





Orioles fans cheer their team on during a home game.



Typically referred to as Camden Yards, the stadium was constructed on a site used by the Baltimore and Ohio Railroad known as Camden Station. As an homage to ballparks of the past, it has inspired the retro designs of many of the ballparks that followed over the years. Today, it is part of the Camden Yards Complex that includes the M&T Bank Stadium, home to the Super Bowl Champion Baltimore Ravens; the Warehouse at the Camden Yards Complex, Class A office space; and the historic Sports Legends Museum at Camden Yards, home to 20,000 Maryland sports artifacts. Dating to 1860, Camden Station was also noteworthy as having been visited by Abraham Lincoln on the way to his inauguration and, sadly, on the way to his final resting place.

Keeping the old new

The Maryland Stadium Authority is responsible for maintaining the Camden Yards Complex and makes continual additions, improvements and upgrades to the facilities, including Oriole Park. Much of the work done at the park has to be completed during the off-season and can be at the mercy of the weather. Tight timelines are the order of the day. At the end of the 2011 season, it was decided that one of the escalators would be replaced, and Schindler was selected for the project on a turnkey basis. ►

► According to Susan Thorman, director of facilities, “Schindler provided the equipment, a fully weatherized Schindler 9700 escalator, and was also responsible for all engineering and installation, serving as the project general contractor ... from start to finish. Since the escalator is exposed to the elements, it required a complete weatherization package and, as usual, timing was extremely tight. Installation was a challenge because the unit was quite large, extending from the main concourse to the upper deck, and a crane was required to lift it above the stadium wall and position it inside

the park. It all went smoothly, and Schindler just completed the replacement of a second unit at the end of the 2012 season. Schindler also handles the maintenance of all of our escalators, elevators and wheelchair lifts, including other brands. This encompasses all of the units at Oriole Park, M&T Bank Stadium, Camden Station and the Warehouse. That’s a total of 41 pieces of equipment at the Stadium Authority properties: seven escalators, four wheelchair lifts and 30 elevators.”

Oriole Park at Camden Yards reflects the sense of pride Baltimore has in its baseball team, and the larger stadium complex conveys an appreciation for its sports legends. Babe Ruth was born here, and it is also the birthplace of the retro ballpark. The Maryland Stadium Authority is keeping the spirit and history of sports alive at Camden Yards while working tirelessly to ensure the comfort and convenience of the fans who bring it to life. ■



Photos, page 30: A crane lifts the Schindler 9700 over the Oriole Stadium wall. Photo credits: Phil Cohen, Maryland Stadium Authority.

Fast Facts – Camden Yards Complex

Opened	April 6, 1992
Surface	Kentucky bluegrass
Deep center field	410 feet
Amenities	4,631 club seats and 72 luxury suites
Commemorative seats	One in left field marking the spot of Cal Ripken Jr.’s 278th career home run
	One in right field marking the spot of Eddie Murray’s 500th career home run
Milestone	Aug. 19, 2008, stadium hosted 50 millionth fan
Building height	456 feet

next news



SCHINDLER APPOINTS GREG ERGENBRIGHT PRESIDENT

Schindler Elevator Corporation announced the appointment of Mr. Greg Ergenbright as president of its U.S. operations, effective April 1, 2013. Most recently vice president for the East Area at Schindler, Ergenbright joined Schindler from Norment Security Group, where he served as president/CEO. Prior to this position, Ergenbright worked for Otis Elevator for 15 years in positions of increasing responsibility leading to a region general manager position. "Mr. Ergenbright's experience within the elevator business and his customer-driven focus will allow Schindler to build on our current successes and broaden our company's scope of business," says Schindler CEO, Americas Jakob Züger.

ATLAS SCHINDLER SUPPLIES ELEVATORS FOR SAO PAULO TOWER

Atlas Schindler will supply the construction company Eztec with 43 elevators for EZ Towers, two 36-story buildings located in the Chácara Santo Antonio district in the South Zone of the city of Sao Paulo, Brazil. The contract includes 32 Schindler 7000 elevators. These high-speed models are specially created for buildings with high levels of passenger traffic. They will also contribute to the project's LEED certification since they use LED lights, and offer a standby system that takes the elevators to the ground floor and turns off the internal lights when not in use.

SCHINDLER'S NEW VEHICLE FLEET GOES GREEN

Schindler is replacing more than 500 sedans in its North American vehicle fleet with the Toyota Prius Two, a gas-electric hybrid car, which is expected to reduce greenhouse gases by 42 percent over the company's current sedan fleet. The replacements reflect a commitment to conducting business activities in harmony with society and the environment. The company's additional 2,000-plus non-sedan fleet was replaced in 2010 with the Chevy HHR, which has already saved an average of 2,358 gallons of gasoline per year, resulting in a reduction in fleet greenhouse gas emissions by 34 percent.

SCHINDLER SUPPORTS DUBAI AIRPORT EXPANSION

Schindler will support the planned Phase Three expansion of Dubai International Airport's Concourse Four with 45 customized elevators, 43 escalators, six moving walks and its Lobby Vision® supervisory panel display. Installation began in April 2013, with an expected completion date of September 2014. The Dubai airport is a major hub serving the Middle East and handled 57.7 million passengers in 2012. One hundred and thirty airlines operate 6,000 flights per week to more than 200 destinations, making the Dubai airport the 10th busiest in the world and a major contributor to the local economy.



Bringing the Sun Down to Earth

By embedding our engineers in the Solar Impulse project, we're helping to keep Solar Impulse, the zero-fuel airplane aiming to circle the globe, flying high day and night. We're also applying clean mobility technology to our newest innovation, the Schindler Solar Elevator. It too, will perform day and night, capable of deriving 100 percent of its energy from solar panels and a proprietary Hybrid Power Manager that stores power in batteries until needed. Schindler's Solar Elevator ... bringing the sun a little closer to home.

