Elevator cabs today can be seen as moving works of art in more ways than one. Louis “L.J.” Blaiotta, Jr., CEO of Columbia Elevator Products Co., Inc., opines:

“It is incredible to me, in just the few decades that I have been involved in the elevator industry, cabs have progressed from being merely functional, sometimes-pretty vertical conveyances to serving as canvases upon which designers and architects express profound, revolutionary ideas — so much so that, in fact, the goal of today’s elevator ride can include extraordinarily delightful sensory experiences for the riding public.”

Elevators, when first introduced, were used primarily as material lifts, with aesthetics taking a backseat to functionality and safety. Blaiotta continues:

“But, once we started putting humans atop those moving platforms, the ‘look’ and ‘experience’ became as important as the ride. Unlike the enclosed hoistways of today that penetrate the various floors of a building in a blind/dark shaft, those early passenger elevators of the late 19th century were in full-view/open-atrium applications, with the elevator running up the middle of a grand staircase. These displayed with pride the miracle of mechanically moving people ‘up and down’ with everything exposed in full view — a reflection of the age’s great technological and industrial advancement. Naturally, there were safety exposures that needed to be addressed. To protect the riding public from all the moving hazards, we locked riders into ‘birdcages’ made of open latticework that kept them safe, while allowing everything to be seen. And, since these early installations were initially reserved for the über-wealthy in ultra-luxe buildings, these cab enclosures were mandated to look ‘pretty’ and naturally became the subject of artistic expression and elaborate design.”

As time passed and elevators became more of a modern convenience than a luxury product, they began to have a dramatic effect on the architectural design of the modern multistoried building. Gone were the grand staircases of the 1800s,
FOCUS ON CAB AESTHETICS AND DESIGN

replaced by the more space-efficient enclosed elevator shafts of the 20th century. Once the cabs were traveling in these dark spaces, the need for open latticework cab enclosures gave way to designs more driven by concerns for comfort and safety. There was a major change to close up the cab walls and ceilings to protect passengers and keep the cab interiors free of dust and debris. These boxlike cubicles were (even by definition) unattractive, so it was not long before creative forces set in to beautify the cab interior. Designers began to rethink the visual form of elevator cabs, outfitting them with curvy, domelike car tops reminiscent of the early “bird cage” and more contemporary looks that eventually gave way to canopies and dropped ceilings.

Over the coming decades, walls evolved from simple wood to raised wood panels to utilitarian, interchangeable and seasonally reversible hanging panels. Ultimately, today’s cabs are highly aesthetic, lightweight, eco-sensitive, and include relatively inexpensive cab walls and lighting solutions. In the current real-estate environment, property owners face fierce competition from new construction, and, in response to the constant challenge of keeping their buildings occupied and their tenants happy, they are redoing/remodeling the elevators. Today’s steel-shell designs provide an infinite array of approaches adaptable to any budget, style and aesthetic preference, and can easily and economically respond to evolving trends, conditions and needs. The steel-shell model has been a driver of rapid change in the development of elevator aesthetics.

As recently as the 1980s, code committees were still grappling with issues such as the placement of seating in elevator cabs, installation of TV screens and in-cab

A Columbia cab designed and built for the Philadelphia Museum of Art in anticipation of a visit to the institution by Pope Francis in September 2015: luxury materials used include bronze-tinted stainless steel embossed with a diamond pattern, hardwood maple and bronze handrails.

Continued
signage or displays indicating or advertising what was to be found on various floors of public buildings. The code committees’ logic was that if a cab feature did not absolutely relate to the functionality of the elevator, it was a distraction that did not belong there: for example, electronic “ribbons” — digital displays that horizontally scroll information, such as a stock market ticker or weather forecast — might cause elevator delays, because riders might hold the door open for someone to read a display. There were also concerns about safety issues resulting from protruding wall displays on cab walls that might catch on passengers’ clothing. The sheer number of disparate code rules developed to cover various “in-cab features” created a burdensome complexity that was bound to change in response to today’s increasingly time-challenged society, gravitating toward a more streamlined and information-based approach to life.

An early step forward was the introduction of internal cab digital displays showing on which floor the cab was located and describing what was to be found at that stop (such as the pool or banquet hall level of a hotel, sometimes with pictures), but the major breakthroughs appeared in the mid-to-late 1990s. According to Charles Simpkins of CE Electronics, which already had installations in Chicago, Atlanta and Toronto by 1997:

“In 1996, CE developed the Elite PI, a multifunction display utilizing active matrix thin-film-transistor screens interfacing with the elevator controller, allowing inputs for priority messages, floor information and scheduled messages. It also allowed for video inputs and live data feeds, with information from New York Stock Exchange ticker tapes and weather information specific to the area where the displays were installed. By 1997 CE had already installed jobs in Chicago, Atlanta and Toronto.

“Today, we interface with Reuters News Service to provide customizable newsfeeds. Thousands of CE screens are used daily throughout the Americas, Europe, Australia, Africa, Asia and the Middle East.

“With the introduction of destination control in elevators, CE adapted the technology to interface with these systems, allowing destination information to be displayed alongside the traditional elevator information. The CE Elite system also gives the customer the ability to modify or change the screen’s look entirely at will, either at the display or remotely via Ethernet access.”
Simpkins emphasizes CE does not need to have codes forgiven or relaxed to install its systems, because the construction and interfacing of the screens are a component of the elevator, ASME A17.1 and UL/CSA compliant, and inherently meet all local and national codes.

Additionally, they are designed to operate within elevators’ heat and shock restrictions, within which traditional electronics are incapable.

1997 also saw the emergence of a technology branded as Captivate, consisting of flat-panel displays delivering “infotainment” and marketing messages to “captive” elevator riders. Conceived by founders Michael DiFranza, Todd Newville and Ray Pineau, Captivate launched in October 1998 at Boston’s Seaport Hotel. The company was acquired by Gannett Co. in 2004 and, today, is a major digital media service found in thousands of elevator cabs throughout the U.S. and Canada. A distinguishing feature of Captivate is that it was the first to seamlessly integrate such technology into modern cab aesthetics.

With increased granting of local elevator code variances (and the spread of digital innovations such as those by CE Electronics and Captivate) came the realization that, contrary to what had been speculated, introductions of revolutionary features integrated into cab interiors did not, in fact, have a negative effect on the performance of elevators. This realization opened the door to an expanded vision of what the interior of an elevator cab should and could be — a foreshadowing of once-unimaginable cab designs. Along with the trend of constructing highly architectural special-purpose buildings came a progressive loosening of interior cab code restrictions and the granting of many more far-reaching variances.

Blaiotta comments:

“Fast-forward to today and consider how very far we’ve come in just these past few years. For example, in the observation elevator that goes to the top of One World Trade Center (1 WTC), the surfaces of all three cab walls — side-to-side, floor-to-ceiling — consist entirely of LED screens displaying a digital panorama. Even before passengers reach the top floor to see the view, the elevator ride itself is a breathtaking experience. In the 45 s. or so it takes to ride the elevator from the lobby to the observation tower, the wall panels serve as observational windows on the historical evolution of Lower New York and the harbor. At first, the walls display a realistic image of how the area would have looked in precolonial times (nothing more than undeveloped woodlands) and, as the car climbs the side of the building, a smooth transition of images unfolds the story of 300 years of local history, continually changing the riders’ view. Riders feel as if they are looking out a window and time traveling at the same time.

(www.bit.ly/1WTCElevator)

“Unique as the ride may be on the way up, it gets even more interesting as riders travel all the way down toward their final exit: the cab walls display rocks and other subterranean objects, simulating the experience of being surrounded underground. An extremely impressive feature of the LED displays is that they are far from fragile. Rather, they are extremely durable, relatively inexpensive and easy to replace in case of damage, allowing an opportunity for an ‘always-new’ look to the elevator.”

Says Jeff Friedman of National Elevator Cab & Door Corp., which worked on 1 WTC:

“We anticipate that cab design in the future will be transformed by such displays to create an experiential ride like this, or allow a marketer to deliver a message or the building to change the look of the cab seasonally (or as frequently as hourly) if applicable. Even

Continued
possible are changes corresponding to, or influencing, the mood of the rider community at any given time, such as being ‘energizing’ in the morning and ‘relaxing’ in the evening.”

With the emergence of such new cab designs have come several considerations, as Friedman continues:

“The job of the cab company in some sense is the same as whenever any new material or design is introduced into the cab space: ‘Does it comply with the governing codes?’ ‘Is it safe?’ ‘How well will it hold up?’ ‘How can it be maintained?’ and ‘Can it be used in a cost-efficient manner?’ But, displays and electronics are more complex than metal mesh and thin-cut stone, and the audio/visual contractors of the world are not elevator experts. Architects, elevator contractors and cab companies will need either to learn and make it their mission to integrate displays into elevator cabs. By example, at 1 WTC, we engineered our way through hundreds of hours on subjects addressing questions such as: ‘How do we protect displays from people, and people from displays, which are faced in thin, un-laminated glass?’ ‘How do we provide adequate cooling for all the heat created by the displays and also meet the ventilation requirements for the passengers?’ ‘What can be done to make sure the riders taking this nearly 1-min.-long ride at a top speed of 2,000 fpm only hear and “feel” what they see on the displays, not the roar of the wind and motor as the cab travels?’”

Other applications of such technology include the simulation of a building’s exterior surroundings on the cab walls, moving with the cab and creating the illusion of gliding up and down through the open air, even though the elevator is contained within the center of the structure, nowhere near the outside walls.

Blaiotta explains:

“This is quite a difference from previous approaches to such a rider experience. Take, for example, ‘observation structures’ such as Toronto’s iconic CN Tower, where passengers rode to the top in an all-glass elevator. While providing a thrilling overview of the city and a compelling experience, there were maintenance downsides: keeping the glass clean, overheating of the cab by the beating sun, and other weather-related and operational issues. By contrast, digital displays now can simulate and even enhance the elevator experience, without the difficulties of the ‘real thing’ and with the flexibility to modify and freshen the experience at will. The ability to periodically refresh the experience is particularly relevant to work environments, where the same people ride the same elevators every day, with today’s visually attuned and media-savvy riders constantly seeking something new.”

These days, such experiential technology is being applied not only to cab walls, but to cab floors and ceilings, as well. Blaiotta continues:

“I’ve seen elevator cabs with floor displays that make riders feel as if they’re looking down a hole into the elevator shaft. These images are so realistic that some people experience a degree of fear upon first entering the cab, with fear converting to wonder when they ‘get it.’ Riders can see moving images of whales swimming or panthers roaming beneath them as they

Ultimately, today’s cabs are highly aesthetic, lightweight, eco-sensitive, and include relatively inexpensive cab walls and lighting solutions.
ride the elevator. Creative designers are taking great pride in seeking opportunities to take the initially deceptive look of an ordinary wood-panel car and suddenly and unexpectedly morph the walls into an illusion, such as riding in a spaceship, moving past stars and other celestial objects.

“Taking this a step further, destination elevators can deliver an illuminating presentation, specifically about the occupant of the floor being visited. Imagine an elevator wall displaying a greeting to the rider, specifically by name and company, using data downloaded from the swipe of the visitor’s security card. Over the course of the elevator ride, information corresponding to the rider’s specific purpose in the building would be presented and timed to terminate immediately upon arrival, eliminating any concerns about interference with the speed or operation of the elevator car. Such possibilities to create sensory (rather than merely architectural) experiences — in effect delivering highly sophisticated, informational, emotional amusement rides — are endless!”

Beyond simple amusement and emotional engagement, research scientists and design practitioners have been working on a new design theory looking at how the use of nature displays is thought to add value by positively impacting peoples’ physical state and wellbeing. Consequently, a certain kind of virtual skylight, an optical illusion known as biophilic (a love of life and the living world) has begun to appear on hallway ceilings of hospitals, wellness centers and medical/dental practices. Biophilic design is believed to reduce stress, heighten clarity of thought and promote healing. Made by companies such as The Sky Factory, these digital trompe-l’oeils (French for “fool the eye”) can create highly realistic illusions of bright blue skies and gently moving clouds designed to calm and relax patients and visitors by connecting them to a view and feeling of nature.

David A. Navarette, an American Institute of Architects Continuing Education provider, and The Sky Factory’s director of Research Initiatives, wrote in October 2015 for High Rise Facilities that these displays are “designed as biophilic illusions that take advantage of how our cognitive perception assesses visual/spatial stimuli to create a surprising experience of openness in otherwise enclosed interiors.” To further leverage these properties, this concept is being taken to a new place by Columbia, which is in the process of installing such biophilic ceilings in elevator cabs at Ohio’s Dayton Children’s Hospital, where the first such application in the elevator industry is taking place.

As such technologies work their way into the architectural landscape, they remain, for the moment, still an exception and futuristic, while conventional approaches to cab aesthetics continue to evolve. Says Blaiotta:

“Using static, high-resolution photo images and advanced digital printing technology, Columbia can integrate company logos or entire scenes directly into laminate cab walls for visually stunning effects. For example, at Columbia’s 50th-anniversary booth at the 2015 National Association of Elevator Contractors Exposition in Boston (ELEVATOR WORLD, December 2015), we showed cab walls displaying all of the company’s logos used over the past half-century, not using decals or appliqués of any kind, but rather with the images directly integrated as part of the laminate finish. Recently, I rode an elevator with digital images behind glass walls, simulating a view into a giant aquarium. I’ve seen cab walls showing the spiral staircase at the Vatican and other famous architectural interiors with all manner of artistic treatments. We’re also seeing natural landscapes, such as full-scale images of beachfront dunes and waves, or thickly wooded forests, or expansive meadows filled with wildflowers.

“Using any graphic image, this is all easily accomplishable and deliverable today as part of the cabs Columbia currently builds, including our XChangaCab® upgrades and modernizations. Other aesthetic looks we can accommodate are steel finishes colored at the molecular level, rather than just stained on the surface, allowing for the look of bronze without the worry of oxidation and repeated lacquering. We can provide hybridized looks, a combination of static laminate panels and digital displays of moving images, reflecting the incremental

Continued
movement away from simple static treatments.”

Today’s digital displays are evolving from strictly flat to fully flexible, allowing for a wide array of dramatic effects. Further, as lighting has evolved from incandescent to halogen to energy-efficient LED, work is underway to eliminate fixtures altogether by painting ceilings with electrically charged phosphorescent paint that would glow and brightly illuminate the space. Even with what is available today, and within a fairly short turnaround time, a building can be converted to an entirely new head-turning look and attitude cost effectively and with minimum elevator downtime.

“What’s ahead?” asks Blaiotta, speculating:

“It’s fun to contemplate what we’ll see in the future to deliver an elevator ride as an artistic experience, rather than merely as a utilitarian function. We started with the birdcage experience, where riders admired the beauty of the ironwork design and were able to appreciate the idea of moving vertically through space. Next, as safety and swift, smooth mechanical function became an established ‘given’ in the industry, interior cab aesthetics became the paramount focus, designed for the rider to be impressed by the rich décor of the elevator ‘room’ with materials such as bronze or mahogany on the walls, complemented by floors of plush carpeting or terracotta.”

An outstanding current example of this philosophy is a cab designed and built by Columbia for the Philadelphia Museum of Art (the iconic “Rocky stairs” museum) as part of the historic institution’s ongoing expansion and renovation. The project — involving architects Ghery Partners of California, General Contractors L.F. Driscoll and installation by Code Elevator — was completed in anticipation of a visit to the museum by Pope Francis in September 2015. Blaiotta believes this cab represents a culmination of what can be designed and implemented using organic materials to create a “wow” factor without relying on electronic technology.

Today, as a reflection of our visual and technologically advanced society, cab design is evolving to be more artistically experiential, where riders look up from their mobile-device screens to admire a compelling backlit, high-resolution wall or ceiling “screen,” or peer out through glass walls at an architecturally appealing landscape. Tomorrow will bring some form of “fast fashion” — perhaps 3D displays or some other aesthetic technological advancement that, only imaginable today, will certainly allow the elevator experience to further evolve.

Concludes Blaiotta:

“There will always be tension between the ‘traditional’ and the ‘modern,’ two sensibilities that our industry will continue to serve at the same time to fulfill man’s inherent desire to function in beautiful, artistic, uplifting spaces. The variable will be taste: today’s ‘modern’ may become tomorrow’s ‘traditional’ or ‘dated-looking,’ depending on constantly unfolding cultural shifts. That’s why Columbia is always pursuing more flexible, innovative ways of changing interiors and bringing artistry to cab design. With newly available technologies and biophilic applications, when it comes to cab aesthetics, the sky’s the limit!”

Ralph M. Newman has written for ELEVATOR WORLD over the years and is a freelance writer with extensive experience in the elevator industry. Newman is a partner in Dott Communications, an Internet development company and advertising agency with several clients in the field.
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Mileage Matters

Dated, dingy elevator cabs leave a lasting impression.

by Nick Lehmann

First impressions last, and cab interiors should not be overlooked. Dated, dark, dirty and damaged elevator cab interiors could leave the impression that a building and its elevators are not well maintained and even unsafe. Simple aesthetics aside, mileage really matters. The National Elevator Industry, Inc. (NEII) estimates that elevators in the U.S. and Canada travel a whopping 1.36 billion miles per year. That’s more than 2,700 trips to the moon and back. And, all this mileage means that elevator interiors can take a real beating. Freight, stretchers and suitcases can ding and mark the walls and doors. Flooring can become stained, and finish choices made decades ago can be out of style.

Cab upgrades can and should be included when and if you are mechanically modernizing your elevators. A full-scale modernization can be lengthy and inconvenience tenants, and stepping into a modernized machine that looks just as unappealing as its predecessor will likely disappoint them.

Elevators are made up of many components and are designed based on weight. Therefore, the weight of specific finish materials, such as flooring, can affect movement. If building owners want to hire interior designers or architects to advise them on finish selections, those professionals also need to be knowledgeable about elevator code requirements regarding design, weight, fire rating on materials, fabrication and installation.

Cabs can also be renovated by a company solely dedicated to upgrading elevator cab interiors. These companies understand the many details involved in upgrading cabs and have designed a process that makes installation and future renovations easy. After the old cab interior is removed, a clip system with
interlocking joints is installed on the cab walls. Then, wall panels can simply be hung on the clips. This makes the installation time quick and clean. And, if the interior of the cab is damaged, it can be replaced easier and less expensively. There are literally thousands of finish choices, arrangements and trims to choose from, and these companies can also offer preselected designs to make the whole process easier.

Using this method can also be advantageous if building owners are working under a tight schedule. That was the case for Jason Lee, project manager for Copeland & Johns, Inc., when overseeing the renovation of a historic building being transformed into a convention center on Mississippi State University’s campus in Starkville, Mississippi. He recalled:

“When the architect made some specification changes on the finish options of the cab interiors, it meant we were not going to be able to get the elevator installation finished in time for a planned opening event. The fast installation time helped us meet our shortened timeline.”

The elements that make up an elevator cab include the walls, ceiling, flooring, lighting, handrails and controls. Each should be considered carefully when planning a renovation. Cab walls come in many forms: plastic laminate, wood-veneer laminate, wood panels, glass or steel. The elevator walls are likely the most important element. They set the tone for the style, but choose carefully. While the finish should look beautiful, it must be durable. Remember that elevator cabs can take a lot of abuse.

People are more comfortable in a well-lit interior, and a brighter ceiling can make the cab look newer and cleaner with an increased lighting output. Cab ceilings come in a downlight style with recessed lighting or a suspended style with fluorescent lighting behind a grille. Also, consider upgrading to LED over incandescent and fluorescent bulbs. LEDs last up to 50,000 hr. – that’s 45,000 hr. longer than others – and their energy consumption is decreased by up to 90%.

Nick Lehmann is an architectural products sales engineer at thyssenkrupp. He can answer inquiries about the company’s premium cabs at nick.lehmann@thyssenkrupp.com.

Nick Lehmann
More than Just Design

This Reader’s Platform addresses why the best elevator interiors have it all.

by Andy Heiser

“Design is a funny word. Some people think design means how it looks. But, of course, if you dig deeper, it’s really how it works.” – Steve Jobs

Often overlooked, the elevator-cab interior is an extension of any building’s lobby – the feel of the space. Other than first-floor offices, the elevator is the one place everyone in the building visits every day. Design expresses the feeling, and this feeling is communicated throughout the building’s interior. This is why it is important to ensure the elevator interior continues the theme in a cohesive and functional way.

Our society is drawn toward products that serve many purposes, rather than one, linear function. An example of this in the automobile industry can be seen in the shift from the era of the minivan to that of the crossover: instead of purchasing based solely on functionality (sorry, minivan owners), consumers now want the sportiness of a sport utility vehicle with the functionality of a minivan. We want it all in one product in so many cases; why should elevator interiors be any different? When thinking about design, also think about functionality. Below are five things to consider when selecting an elevator-cab interior for both design/style and functionality.

Traffic

It is estimated that more than 18 billion passenger trips are taken per year in elevators across the U.S. With all of that traffic, it is important to select the proper interiors that will stand the test of time. Some cabs only move a handful of people, while others are used to move thousands every day. Different interiors are recommended based on the amount of traffic, so be sure to choose an interior that meets your traffic needs. Don’t forget that it can also have style!

Know Your User

Does the elevator only move internal company employees, or does the elevator transport clients of the building’s tenants? Studies prove that decisions are primarily based
upon emotion — knee-jerk reactions at the point of decision making. If you have a window in your office, your decision might be altered because of your surroundings. If an elevator is intended to carry cancer patients to and from appointments, you may want to alter the design from that of an attorney’s office. Considering the user may impact the productivity of your tenants. Know who they are!

**Maintenance**

Consider maintenance when selecting your cab interior. If the elevator is in an office building where cleaning crews can easily use any products needed to get the job done, there may be a wider selection of interiors from which to choose. However, if the cab services traffic in an unheated building or parking structure, you may consider an interior that is easily cleaned with basic solutions.

**Match the Building**

The lobby is important because it sets the tone the architect wanted the occupant to feel. With so much invested in the lobby, why would you not want to carry that same feeling into the room where an average visitor is about to spend standing for 118 s.? Set the right expectation by carrying the right design from the lobby through the entire elevator ride.

**Replacement and Refinishing**

Nothing is worse than walking into a new elevator cab interior that was installed three months ago to find a huge scratch in a ceiling panel or gash on the back wall. Damage will occur, especially in high traffic cabs. It is important to select an interior that can either be refinished or replaced without scrapping the entire interior.

While most cab-interior projects are completed during major elevator overhauls, the cabin is the one piece that everyone in the building will get to see. It will be the impression that is left behind. At FabACab, these considerations are what shape the product, service and user experience.

Andy Heiser is director of Marketing at FabACab. He has five years of experience in the web design and software industry.
Pre-Engineered Elevator Cab Solutions

Taking the complexity out of aesthetics

by Bill Swenson

When planning an elevator modernization, the focus is most typically on the operational aspects of the equipment. New technologies and products are typically designed to make elevators more reliable, safer and faster. Most elevator companies have expertise in these areas, with employees trained in the mechanical and electrical aspects of the equipment. When it comes to aesthetics, however, many will bring in outside contractors to perform this work for them. This is mainly due to the complexities with finish upgrades, scheduling and coordination. But, pre-engineered cab solutions take the complexity out of cab renovations.

Pre-engineered solutions are designed as a system that works with various types of existing cab shells. They come in various panel arrangements and finishes. Installations require minimal measurements and should take less than one day to be installed.

There are several factors to be considered when updating the finishes on existing elevators:
- Weights
- Code-compliant materials
- Proper attachment
- Durability
- Appearance
- Ease of installation

**WEIGHTS**

Weights are a critical factor when considering cab finishes. Regardless of the type of operation, weight affects performance, reliability and safety. Installers need to consider how much weight is removed and how much will be reinstalled. Any variance should be evaluated to determine the impact on the equipment and measures that need to be taken to mitigate weight changes. New materials and installation methods are now available to reduce the weights of installed materials, while keeping the same appearance.

**MATERIALS**

Any new materials installed must be evaluated to confirm code compliance. Flamespread and smoke development of materials are critical factors in selecting which ones are to be installed in the elevator. There are several common materials used in cab finishes,
including metals, woods, glass and plastics. All must be evaluated in terms of compliance, as well as the means of installation. In addition, the lighting must be evaluated to confirm it complies with minimum requirements. New ceilings should be designed to permit access to the existing escape hatch, regardless of location.

ATTACHMENT AND APPEARANCE

Most original cab installations have materials that are fastened before the cab is erected. Since cab renovations utilize the existing shell and canopy, the finishes typically have to be applied from inside the cab. This can create issues with alignment, proper attachment and critical measurements. Pre-engineered systems utilize technologies that provide flexibility and ease of installation.

Eleclip is a patented pre-engineered solution intended to eliminate the complexity and risks that can sometimes be associated with cab upgrades. The Eleclip system is designed with a fastening clip as part of the installed reveals. By installing the reveals in predetermined locations, one only has to clip on the panels and lock them into place, all from inside the cab with minimal effort and concealed attachment. In addition, if future panel replacement is needed, it can be done quickly and easily.

The most common finish found in elevators is a code-compliant wood panel faced in plastic laminate. There are varying arrangements and laminates to create different designs. With pre-engineered interiors such as Eleclip, different materials can be used to meet the needs of the application. Metals can be cleanly applied to lightweight substrates or wood. Utilizing V-groove technology, these panels can have clean edges and sharp lines. Composite materials can also be utilized, as well as stone and glass. Different combinations of panel arrangements, finishes and reveals can create a multitude of designs.

INSTALLATION

By far, the most critical component for elevator installation and maintenance companies is ease of ordering and installation. The ordering and approval process should require minimal field measurements and allow for some variance. Critical factors include locations of any coved bases, cove lighting, and escape-hatch location and fixture location. A simple survey form is key to ensure all items are accounted for prior to starting the renovation.

The installation typically starts with removing any existing finishes that can be removed. These include drop ceilings, handrails, wall panels, bases and lights. Once this has been completed, the cab measurements should be verified to the approved drawings. Pre-engineered systems such as Eleclip utilize a fixed base to locate the applied reveals. Each reveal is located in a fixed location and has integrated clips for panel attachment. After the reveals are installed, the panels are clipped into place. A single fastener is fixed at the top of the panel for security. The frieze is then locked into place to cover the fastener and extend above the ceiling.

Cab ceilings and lighting have always made cab renovations difficult. While many have existing lay-in ceilings with fluorescent light fixtures, some may have light coves or island ceilings. The Eleclip pre-engineered downhill ceiling utilizes a sliding-tray ceiling with LED lighting. With such a ceiling, the frame can be easily installed by two people within minutes. The metal or wood panels are then clipped to the frame, and the sliding escape panel is clipped into place. LED lighting can be used as either direct or perimeter lighting. With sliding-tray ceilings, half of the ceiling is open to allow for access to the escape hatch. Metal sliding-tray ceilings are typically half the weight of a wooden island ceiling and installed in less than half the time.

In addition to taking the complexity out of cab renovations, pre-engineered interior systems provide additional revenue opportunities to installation and service companies. These systems make the renovations much easier with minimal risk. Finally, they add a new product line to a company’s offerings.

Bill Swenson is vice president of Sales and Marketing for Concept Elevator Group. Swenson’s former roles include director of Sales and Marketing for CemcoLift, general manager for Unitec, Open Order manager for Otis and branch manager for US Elevator. He holds an MS in Management from Purdue University and a BS in Management from Southeast Missouri State University.
Where Does Engineering Meet Art?

This Reader’s Platform addresses the effect of visual elevator design on impressions and perceptions.

by Sam Bohbot

Elevators have changed since their first reference to one having been built by Archimedes in 236 BCE. Today, they not only move passengers up and down buildings in terms of transportation, they also move people emotionally in terms of design.

Every person who rides in an elevator often has his or her entire network in a pocket; the effect of social media impacts every aspect of marketing, including elevators in buildings. Twitter, Snapchat and Facebook open the doorway for passengers to share their experience with all their connections. When someone takes a selfie in an elevator and pushes it out to his or her friends, the interior of your cab is potentially viewed by a large number of people.

Your brand is potentially displayed not only to passengers, but to their friends and family, as well. Will the people viewing your cab interior give it a “like” or comment negatively?

Today, we live in a fast-paced and visually stimulating world. We are more aware of our surroundings, and our expectations of those surroundings are higher than they have ever been. In fact, architects and designers agree with neuroscientists and psychologists that space has a strong impact on individuals. Commercial elevators were invented because buildings were being constructed higher than people could manage to easily walk. Their sole purpose was to take people up and bring them back down.

Today, the elevator is where your guests make one of their first impressions; therefore, the interior of an elevator is just as important as its function.

As a passenger, we don’t give an elevator’s function much thought (unless it’s not working); however, we are aware and aesthetically pleased when the interior of an elevator creates an environment we can appreciate. Old elevator music has largely been replaced by interior elevator art and aesthetics. Blank walls have often been replaced with monitors displaying information regarding events and activities. Resources are often dedicated to modernizing equipment, but, passengers will never fully appreciate that investment in renovation simply because people don’t recognize what they can’t see.

Many of us were raised not to judge a book by its cover, but we all do, because first impressions
matter. Office buildings and apartments take great pride in the designs of their lobbies and hallways, investing heavily in those areas. If the elevator interior is old or outdated, it can negatively impact market value, brand perception and overall view of the environment. When someone comes into the building, walks through the lobby and enters the elevator, the entire experience should be one of synchronization and accord. In addition, the elevator has to blend functionality with aesthetics according to the environment, whether it is a hospital elevator, service elevator or passenger elevator.

Each detail of a custom elevator interior can be tailored to meet specific needs, including panel size, material, colors, finishes, ceilings, flooring, handrails, inlays and lighting. A custom elevator cab can be created to complement the look and feel of any building with the potential to become a unique feature that benefits from a captive and recurrent target market.

Where does engineering meet art? In the interior design of an elevator cab, as there are endless possibilities. Technical knowledge, therefore, must align with creativity. When creating a custom elevator cab design, how do you manage customers’ expectations while ensuring they will be happy? The answer is simple: show them.

Many cab companies are still using two-dimensional (2D) modeling to present design. However, those designs are being delivered to buyers who expect information to be delivered in a high-quality format that is easily visualized and simple to understand. In selling an elevator, the sales cycle can be long or short, based on the value proposition and ease in visualizing the end product. We can no longer rely on flat drawings and a few small swatches of material for a customer to make a buying decision. 3D renderings provide customers with peace of mind that they’ve made the right decisions on materials, colors, products and layout. This helps shorten the sales cycle, because it provides the customer with a realistic rendition of the elevator by which to make the decision.

Some cab companies are well known for their manufacturing capabilities; however, clients may only use them for shells, because they aren’t confident in their interior design. Businesses today don’t have to hire a staff of engineers to deliver what their customers need – to do so would be nearly impossible, as the talent pool of engineers well-versed in the elevator industry is limited. In addition, an “on-demand” engineer can be more valuable, since the position eliminates the need to recruit, hire, train, manage and retain a full-time employee who you may not need full time.

Elevator design engineers have multiple choices in engineering computer-aided design programs that offer excellent 3D modeling capabilities, including the ability to create high-quality renderings. There are multiple advantages to the utilization of 3D modeling software, and they aren’t just limited to pretty pictures. More importantly, 3D modeling includes the aesthetic intelligence behind the design, and this is where engineering meets art. 3D designs can be produced faster and more accurately. In addition, they also reduce design errors, because 3D modeling is capable of parametric design property changes. Fewer design errors also transfer to fewer fabrication errors, lowering the cost of production.

3D cab design and modeling not only benefit the cab company, but also its customers. Consider how you personally make your buying decisions. Then consider that your customers are making their decisions the same way. If they aren’t presented with information they can visualize and easily understand, they will be left in a state of “analysis paralysis,” which significantly extends the sales cycle. If they move forward without the right information, you may install the elevator only to find out that your customer isn’t pleased with the end product. The only way to effectively manage expectations is to show what will be delivered and have the buyer agree to the design, and that simply can’t be accomplished today with a 2D drawing.

When designing your next cab, consider the benefits of using an “on-demand” elevator engineering design partner that can provide a unique, comprehensive and cost-effective solution, including quick turnaround, advanced creative design and the illustration of the intent of that design. Today’s cab buyer expects 3D modeling views, 2D elevations, details and colored snapshots with accurate material properties and weight analysis.

Sam Bohbot is senior elevator design engineer for Vertical-Dynamics in Dallas. Bohbot previously held positions at Eklund’s, Blico Corp., DFW Test, Tidel Engineering and Alcatel-Lucent, all in Texas. He holds BS degrees in Operations Management and Supervision, Mechanical Engineering and Engineering, and can be contacted at sam@vertical-dynamics.com.
nationwide manufacturer Eklund’s, Inc. crafts complete elevator cabs and custom elevator interiors for both new construction projects and renovations. Its “total elevator cab solutions” include design, manufacturing and installation of luxury, custom-crafted cabs and interiors, and a wide selection of StreamLine standard cab interiors. With customers in the U.S. from coast to coast, its projects range from renovating existing cabs to creating custom glass observation cabs and ornate interiors for new buildings. Its elevator interiors are installed in some of the nation’s most recognizable properties, such as CityCenter in Las Vegas; Trump Tower in Chicago; Levi’s Stadium in San Francisco; Anadarko in Houston; Joule Hotel in Dallas; One Franklin Square in Washington, D.C.; Five Crescent Drive in Philadelphia; and Scottsdale Fashion Square in Scottsdale, Arizona.

Eklund’s often fabricates new cabs and interiors from architects’ specifications. Alternatively, it also offers customers who are starting from the drawing board with guidance in material selection and complete design services. In between, its StreamLine Cab Design Studio (ELEVATOR WORLD, March 2015) provides the opportunity to build virtual standard cab prototypes online using pre-engineered panels and preselected materials. This shortens production schedules and is intended to provide a custom cab look and feel at a standard cab cost (see sidebar).

Eklund’s clients include OEMs KONE, Schindler, thyssenkrupp, Otis, Fujitec and Mitsubishi Electric; building owners/property managers; and general contractors. It also regularly assists architects, designers and contractors specify its products, specifically StreamLine, considered its standard cab line. Rick Lockridge, vice president of sales and marketing, explains:

“Eklund’s has already sold and installed several StreamLine cabs, and we are very excited about having this new option that offers a custom look without the custom price tag. Since StreamLine is pre-engineered, lead times for materials, manufacturing and installation are reduced.”

Managing the entire process from concept through installation, Eklund’s products are fabricated in-house and installed by its certified Woman Business Enterprise installation partner BCE Specialties. Eklund’s corporate headquarters and a manufacturing facility are in Dallas/Fort Worth, with a second manufacturing facility in the Baltimore/Washington, D.C. area. The growing company recently hired staff in several departments, including Sales, Engineering, Manufacturing, Project Management and Field Operations (EW, May 2016). It continues to
Eklund’s offers a wide range of custom elevator cab solutions to meet both aesthetic desires and budget requirements.
look for talent. The manufacturer’s business-development representatives are located in and serve the following regions:

- Southern region with corporate/manufacturing facility: Dallas/Fort Worth
- Northeastern region with office and manufacturing facility: Lanham, Maryland (Washington, D.C./Baltimore area)
- Southeastern region: Houston
- Midwestern region: Chicago
- Western region: Portland

Since acquiring a Maryland-based elevator-interior manufacturer’s assets in 2011, Eklund’s’ presence in the Northeast grew significantly, to the point where its 2015 sales performance in the region was its highest. Within the last year, the company has been expanding its presence in southern California, where seasoned representative Janel Durko is taking the lead on business development.

Beth Cunningham, president, feels word of mouth has contributed much to Eklund’s’ longtime upward trend, explaining:

“With many of our customers being elevator manufacturers and prominent purchasers of elevator cabs and interiors, word spreads very quickly when customers have a positive or negative experience on a project. We are fortunate to have very strong relationships with many elevator companies across the U.S. that choose us as their preferred cab-interiors partner.”

In addition to frequenting tradeshows, Eklund’s regularly hosts customer-appreciation events in its largest markets. It sends representatives from its South Dallas/Fort Worth corporate office and manufacturing facility to exhibit at the National Association of Elevator Contractors Exposition each year and consistently attends Building Owners and Managers Association International shows with emphasis on major market locations.

This is not to say the company has not faced challenges over the years. Cunningham cites consistent scheduling of work as its tallest current hurdle. When project schedules get modified due to the work of other trades and/or the general contractor, she explained, work timing can be affected, which can create conflicts with other jobs. Less of a problem was the global economic downturn. When asked about its effects,
Eklund’s, Inc.’s StreamLine standard cab line includes eight pre-engineered passenger cabs, three observation cabs and two freight/service cabs. More than 140 panel finishes, six handrails and seven ceilings are available, with the handrails and ceilings having multiple finish options. There are eight passenger, three observation and two freight/service configuration options. A clip-in installation system enables customer installation or installation by BCE Specialties, Eklund’s installation partner, and is available at www.eklunds.com.
Cunningham responded that the economic situation made Eklund’s more diversified:

“In general, when the economy is strong, new construction work tends to increase and is a focus. Yet, we consistently pursue modernization work targeted at property owners and building-management companies. These opportunities can be stronger if and when the economy slows.”

The company feels that in the overall business of cab interiors, the biggest challenge is the reduced weight limits (which vary by manufacturer) of newer OEM elevator systems. While less weight for the elevator system provides greater energy efficiency, it also limits customers in the type of cab interiors they can have applied. Eklund’s works with customers to find lightweight solutions that can meet the desired aesthetic attributes within weight requirements. It is constantly on the lookout for new lightweight materials and works to reengineer its components to shave weight.

**HISTORY AND FUTURE**

Eklund’s has been family owned and operated since 1983, when it was founded as a small shop in Grapevine, Texas, by James B. “Jim” Eklund. Prior to founding the company, Eklund had spent his entire adult business career in the elevator cab and entrance business. His vision for Eklund’s was to create a company with customer service and satisfaction as its top priorities. Specialty elevator cabs were among the first orders for the business, which proved to be the beginning of Eklund’s’ market niche in the elevator industry.

Shortly after the company was incorporated, Bradley “Brad” Eklund, Jim’s son, became vice president of production. Cunningham, Jim’s daughter, joined the growing company as vice president of sales in 1984. Jim retired from Eklund’s in 2001 at age 65, and soon afterward, Brad departed from the family business to pursue his own lifelong interests. Jim passed away in December 2012 at the age of 76 (EW, April 2013).

Still family owned and operated, the company is led by Cunningham, who said her father was “one of the pioneers in the elevator-cab specialty trade, whose professional legacy lives on here at Eklund’s.” Jim’s two grandsons, Heath Cunningham and Joseph Eklund, also have management positions within the company. The family is proud of its continued growth in customer base, sales, employees, manufacturing capacity and service capabilities.

In its efforts to constantly grow and evolve, Eklund’s continues to try to improve its systems. All employees routinely participate in evaluating processes and procedures to determine areas of improvement that have the potential to result in better customer service/satisfaction, productivity, waste reduction and more.
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Shown here under construction is a typical Columbia “designer” cab, featuring side-wall upper panels in back-painted glass, rear-wall upper panels in leather with 8-ga. stainless-steel reveals, lower and upper panel trim in dark oak with 8-ga. stainless-steel reveals, and an 8-ga. stainless-steel handrail.

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For more information, contact Canton Architectural Products, 2575 Greensburg Rd., North Canton, OH 44720; phone 330-833-3600; fax 330-833-0229; email info@cantonelevator.com; or visit www.cantonarchitecturalproducts.com.
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SnapCab, Gorilla® Glass collaboration is hitting its stride, and the future looks bright.

by Kaija Wilkinson

Ask SnapCab Director of Architecture Evan Epstein to describe the growth of the elevator interior company’s collaboration with Corning Gorilla Glass (ELEVATOR WORLD, August 2014) in one word, and it is “explosive.” Cab panels made of the durable, versatile, lightweight, scratch-resistant glass (used for years to protect smartphones and tablets) are gaining traction among customers as they come to understand its benefits. In the two-plus years since the relationship was born, Epstein states:

“We have made hundreds of cabs, with demand increasing each month. We are seeing requests come in from all over, including Hawaii, Puerto Rico, Canada, the Caribbean, as well as the contiguous U.S. states. The architecture and design communities are really interested in glass these days, and when the elevator companies bring Gorilla Glass as a value-engineered, lightweight, durable option, it’s a no-brainer.”

SnapCab’s Gorilla Glass panels are manufactured for the U.S. market in a 45,000-sq.-ft. facility in Warrington, Pennsylvania (approximately 45 min. north of Philadelphia), that employs 75. Its Canadian manufacturing plant is in Kingston, Canada. SnapCab has sales offices in Arizona and Texas, and is planning to add another in Chicago.

INTERESTING ROOTS

One man’s determination to find the solution to a problem was responsible for what would become SnapCab, founded by master woodworker and SnapCab CEO/owner Glenn Bostock in Bucks County in 1995. Bostock studied Fine Woodworking at Bucks County Community College in Newtown, Pennsylvania, and crafted fine, ecclesiastical furniture during an apprenticeship at the historic Bryn Athyn Cathedral in Bryn Athyn, Pennsylvania.

In 1983, Bostock opened his own high-end furniture and custom-cabinet shop, and began to renovate elevator interiors in 1989 — a very small niche at the time.

During the next seven years, it was not out of the ordinary for Bostock to spend a whole week on a single elevator-interior job. The process was complex and time consuming, and Bostock believed there had to be a better way. Thus, SnapCab was born when Bostock “put his skills and experience to work and developed a patented system of interlocking panels,” according to the company, adding that the system “not only simplified jobs, but lowered cost and improved quality.”

The systematic attention to detail established by Bostock persists in the company today. SnapCab states it delivers precise, turnkey solutions for customers. Since SnapCab began offering Gorilla Glass for elevator cabs, it has expanded the line to include panels for lobbies, hallways, entrances and conference rooms — “virtually anywhere a designer can imagine wall panels,” according to Epstein. Media walls have become popular, he states. This is where SnapCab adds an active display behind the glass and
incorporates speakers into the panels “for a seamless, audio-visual experience,” Epstein says.

Product growth has not come without significant effort on the part of SnapCab staff. They are constantly spreading the word about Gorilla Glass panels through face-to-face meetings. Epstein remarks:

“Many people are confused when they see how thin the glass is, and don’t believe it is actually glass. They say, ‘But it’s similar to glass, right?’ or, ‘Can we decorate it like glass?’ Make no mistake. Gorilla Glass is a glass product, but it is an ultra-thin, chemically strengthened glass. This product really needs to be seen to be understood. But, once it is showcased, everyone loves it.”

The healthcare and hospitality industries have been particularly receptive to the product, Epstein says. SnapCab just completed a major job that involved glass panels with custom images for more than 80 elevator cabs within a regional hospital system. The project was vast, representing a coordinated effort involving SnapCab, Dignity Health, multiple elevator maintenance companies and dozens of offices over several states.

SnapCab makes it a point to attend major elevator-industry trade shows to support its clients and showcase what’s new. These shows include the National Association of Elevator Contractors conventions in the spring and fall, International Association of Elevator Consultants events and Elevator U. “We also support the architecture and design communities by exhibiting at the American Institute of Architects show and NeoCon,” Epstein adds. “Moreover, we support building owners/managers at the Building Owners and Managers Association tradeshow and at many local chapter events across the country.”

Corning’s Director of Innovative Glass Solutions Hank Dunnenberger has said that Corning’s decision to collaborate with SnapCab was sealed when Corning interviewed various SnapCab customers and learned that it is a company that can be counted on to do what it says it’s going to do. This driven, can-do attitude permeates company culture, as illustrated by SnapCab’s focus on Lean manufacturing, which, according to SnapCab, results in “orders delivered on time, on budget and at the highest quality.”

**FUTURE TRENDS**

Gorilla Glass panels continue to evolve. SnapCab currently works with an anti-glare product that imparts a real-life look to printed surfaces, such as those with a veneer or marble look. Corning has the ability to make antimicrobial glass, which is ideal for certain medical settings but in smaller sizes than what architects typically want. “This is just another exciting product we see being released in the not-too-distant future,” Epstein states. SnapCab has also had more customers ask about interactive displays. Epstein observes: “I see interactive displays on the near horizon as the next-generation design upgrade.”
Let There be Light!

In this Reader’s Platform, your author discusses the impact of lighting on your elevator interior.

by Brian Schoonmaker

As any experienced salesperson will tell you, travel is just part of the job. As an account executive for an LED lighting manufacturer, you start to notice things that may go unseen by the untrained eye. Whether it’s an architect, artist, restaurant owner or retailer, they all use light to create a feeling or make their products more appealing to the consumer.

It’s not hard to see, but people are often just too busy to notice. We often make decisions based on the way things are lit without even knowing it. Since this is the business I’m in, I find it hard to walk through retail stores and restaurants without looking at their lighting applications and trying to identify what types of lights are being used and how.

I can say with complete confidence that everyone has been in an elevator at some point in their lives, if not regularly. Whether in an apartment building, the mall, or an office, elevators are everywhere and essential to everyday life.

Other than the exterior building and lobby, the elevator is usually your first impression of a building. You could have a dark elevator with dated finishes and recessed can lighting. Add some burned-out bulbs, flickering lights — maybe even a dank smell — and you have what horror movies are made of. This can send a poor message to the rider, leading them to take the stairs next time. On the flipside, you could have an elevator with high-end, reflective finishes and so much downlight that it feels like a tanning bed under the heat of those halogen bulbs.

Either way, it’s important to find a happy medium to make the rider feel welcome, while still meeting the minimum illumination requirements of the American Society of Mechanical Engineers. This is why designers are paying more attention to elevator interiors as part of an overall design, rather than an afterthought. This is most apparent in places like high-end office buildings, hotels and resorts where you often find custom architectural finishes such as murals, lit glass panels and textured cladding inside the elevator.

It’s important to find a happy medium to make the rider feel welcome, while still meeting the minimum illumination requirements of the American Society of Mechanical Engineers.
Throughout my travels, it has become apparent that perimeter lighting in elevators is a growing trend. It is being used to not only enhance these high-end finishes, but also improve the overall aesthetics of cab interiors. While many elevator cabs have already updated to LED lighting to reduce heat, energy and maintenance costs, LEDs are point sources that can produce glare and create unwanted reflection and striations in polished and brushed metal finishes. This is where even perimeter lighting comes in: it allows the designer to indirectly light the cab while hiding the source of light.

When designing the interior of a cab, the color temperature of the light also comes into play. Cabs with darker colors, such as wood-grain cladding, tend to use warmer color temperatures (3,000-3,500 K) to bring out the earth tones, whereas a cab with polished or brushed metal cladding would lean towards a neutral white (4,000 K). The use of perimeter lighting not only helps show off the cab interior, giving it a more modern feel, but it assists in reducing hotspots and glare in certain cab designs with low ceilings, as well as unwanted or unattractive reflections on brushed metal surfaces.

Any new trend presents a new set of challenges. Once you opt for smooth, even perimeter lighting, you must have a lighting system to accommodate the dimensions of the cab. There are a number of different cab sizes and configurations in the industry. I’ve seen as many as 13 for some manufacturers. This is coupled with the fact that the perimeter cove is often very shallow and does not allow much room to recess the light. This, in turn, can present additional issues (such as hotspots and unlit corners), so engineered optical systems can be used to provide even illumination without glare.

As cab designs continue to evolve, so must the lighting. The demand for a fixture that can be cost effectively made to accommodate cabs of all sizes — as well as provide the desired light output, smoothly and evenly, while not requiring a lot of depth — has never been greater. As lighting trends continue to change, a new list of challenges will follow, ensuring future travel filled with exciting observations for a lighting account executive.

**Brian Schoonmaker** is an account executive at i2Systems. He has been working in sales and marketing for more than 15 years and has been part of the i2Systems team since 2015.
Signal fixtures such as push buttons, indicators, hall lanterns and displays play an important role in any elevator installation in communicating and/or exchanging information with the actual users of an elevator. From very basic origins, today’s signal fixtures have been developed extensively by the manufacturers to meet user demands and improve their way of communicating with users. Various factors, including user-specific and application-specific requirements, have contributed to the wide range of signal fixtures available today. This article attempts to document the various signal fixtures, the terminologies associated with them and the applicability of a signal fixture to a particular project requirement. It serves as an aid to non-elevator professionals to understand the names and terminologies, and how to describe suitable fixtures in their projects.

Types of standard signal fixtures include hall call stations, car-operating panels (COPs), indicators, lanterns, gongs, firefighters’ control (lobby) panels and floor-registration panels. Special-operation features include displays, speakers, intercoms, special-operation key switches, card-reader access control, closed-circuit TV (CCTV) cameras, induction loops, Wi-Fi access points, Global System for Mobile Communications (GSM) signal boosters and evacuation communication systems.

With the introduction of destination-control systems, a new line of signal fixtures was developed, including floor/landing registration panels, destination-floor indicators, elevator designation plates and lanterns. All the signal fixtures can be provided in two different fashions (i.e., with and without faceplate). In many instances, signal fixtures with a faceplate are used wherein the signal elements (such as push buttons, indicators and lamps) are mounted on a separate plate at its front. This faceplate is then attached to the walls/panels provided by the architect. The faceplates can be installed either with or without screws to enhance aesthetics.

On special projects, the signal elements are integrated with the walls/panels provided by the architect to produce an elegant look.

**HALL CALL STATIONS**

Hall call stations are fixtures that primarily contain push buttons, which are necessary to register a call for an elevator from a landing. Hall call stations come in various combinations, such as combined with an indicator or hall lanterns.
HALL INDICATORS

Hall indicators are fixtures that provide visual information on the elevator car’s position and direction of movement. Hall indicators can be provided with a direction arrow and hall lantern. Hall indicators can be combined with a hall call station or mounted separately above the entrance.

HALL LANTERNS

A hall lantern is essentially a lamp and is used in on/off/blinking mode. Unlike hall indicators, hall lanterns do not indicate the floor (position) of the elevator. The hall lanterns are the fixtures that visually announce the arrival of an elevator car at any landing and its direction of travel. The hall lanterns have two lamps—one to indicate up and another to indicate down directions. Upon arrival of a car at any landing (or up to 4 s. prior to actual arrival), depending on the travel direction of the car, the up or down lamp illuminates and blinks.

Hall lanterns are also used for the “immediate prediction” (“early car announcement”) function. This is applicable for three or more elevators in one group. When a user presses the push button on a hall call station, the assigned elevator is immediately announced by way of illuminating the up or down lamp of an elevator that will serve the user.

ARRIVAL GONGS

Arrival gongs at landings are often combined with hall lanterns. The gongs produce a soft, electronic sound at each landing to announce the arrival of an elevator. The gongs sound once to indicate traveling up and twice to indicate traveling down, with adjustable volume. On simpler installations, a car-top arrival chime is used. The unit is mounted on top of the elevator car. Instead of a soft electronic sound, a bell sound is produced.

COPS

The COP is located inside each elevator car. It contains all the push buttons for the floors served by the elevator. It also has inscriptions showing the capacity of the elevator, the name of the manufacturer and a “No Smoking” sign. It is the complete operating panel that includes the indicators, communication system (intercom), maintenance/service controls and any other special-operation features, such as access control. They can be traditional segment/matrix indicators or LCD indicators.

COPs also contain floor name labels/designation plates indicating the services on specific floors. Such labels are either engraved on the COP or exist as custom-made stuck-on labels affixed adjacent to the push buttons.

A single COP per elevator car is provided as standard. For high-capacity and large elevator cars, two COPs are provided for operational convenience. Similarly, for elevators with more than one entrance, one COP is dedicated for each entrance. Generally, elevators with more than one entrance have different numbers for each entrance. Providing a dedicated COP for each entrance is necessary to correctly display the floor levels on the indicators and push buttons. Such COPs also house dedicated buttons to control the opening/closing of doors at each entrance.

COPs have traditionally been provided with physical, micro-click push buttons. However, touchscreen COPs are often provided. Touchscreen panels are helpful in quick reconfiguration of the push buttons, to change floor names and establish hot buttons for frequently used floors. Touchscreen panels can also display the building map to assist in wayfinding.
FOR THE DISABLED

On any elevator installation, the best practice is to incorporate features for the disabled. Specific features required are tactile/braille push buttons, audible response from push buttons and audio announcements. Generally, such features are integrated on the main COP itself. However, when the main COP cannot accommodate such features due to special designs such as touchscreen COPs, a separate, standalone COP is provided for disabled users. This panel is located at a much lower level to ensure easy accessibility. Special buttons are incorporated on this panel (such as “extend door open” to extend the door-open time) for the disabled to comfortably enter and exit the elevator.

CAR INDICATORS

The indicators inside elevator cars are generally located on the COP and provide information on the direction of travel and position (floor) of the lift car in real time. Generally, a numerical and an arrow indicator are included. Alternatively, the indicator can be located above the door at transom level. The car indicators are provided for each COP inside the elevator car, especially for cars with more than one entrance.

CAR LANTERNS

On simpler installations (such as back-of-house, service elevators), the lantern lamps are mounted at the entrance column of the elevator car. This type of lantern is visible only after the doors open and is used simply to indicate the direction of travel. Similar to hall lanterns, car lanterns are also provided with an arrival gong. The gongs sound once to indicate traveling up and twice to indicate traveling down, with adjustable volume. Alternatively, a car-top arrival chime can be used. The unit is mounted on top of the elevator car. Instead of a soft electronic sound, a bell sound is produced. It is common to see both the car arrival chime and arrival gong (from the lanterns) sounding at the same time. This is not desirable, and either the chime or gong must be eliminated.

PUSH BUTTONS

Push buttons are the important and interactive part of signal fixtures. The users input their desired service via the push button, which is generally provided for each floor served. Push buttons are also provided to initiate door close, door-open and alarm/intercom actions.
They are, ideally, provided with disabled friendly features, such as tactile letters, Braille letters and response beep. Alternatively, tactile and Braille stuck-on labels can be used beside each push button.

The active part of a push button should be clearly distinguished from its surroundings by way of a contrasting color and/or raised push-button panel. On public-transportation installations, extra-large push buttons may be provided.

Push button location, layout, maximum height and spacing should comply with the recommendations of EN 81-70 to ensure easy accessibility and operational clarity. For uniformity, it is better to designate all the floors using numbers. For example, instead of marking the push buttons with “B2” and “B1” for basement levels, it is recommended to use “-2” and “-1,” which is universally recognizable by the visually impaired.

Push buttons can also be used to initiate certain special features, such as false car canceling (i.e., canceling a mistakenly registered car call) and a secret access code for restricted floors.

**SPECIAL PUSH BUTTONS**

**Exit Floor**

The push button for the exit floor should be clearly distinguishable from other buttons on the COP. The codes recommend this button protrude beyond the other buttons by 5 mm and be mounted on a green push-button panel.

**Door Hold**

Located on the COP, this button is used to hold/extend the default door-open time so the doors remain open longer for convenient movement of wheelchairs/stretchers/trolleys across the doors.

**Call Cancel**

This button on the COP follows the firefighters’ elevator recommendations. The push button is provided alongside the Firefighter’s Emergency Operations Phase II key switch and is used to cancel an already-registered call inside the elevator car while in firefighting mode.

**Wheelchair**

Usually located on the hall call stations, this button is used by the wheelchairs at a landing. It temporarily increases the door dwell time so a person using a wheelchair can enter the elevator conveniently.

**Key Switches**

Key switches are provided with the elevator car and/or landings to enable specific operational modes, such as VIP, parking, Firefighter’s Emergency Operations Phase II operation, hospital...
code-blue operation, etc. Special-purpose key switches (such as emergency-power transfer, fire recall and homing) are provided on remote-monitoring/-control panels (supervisory panel/watch board/lobby panel) for the elevators.

**Special Grade/Vandal Proof**

The signal fixtures provided for elevators within public-transportation systems (pedestrian bridges, train stations, airports, parks, etc.) should be designed compliant to safety standard EN 81-71. Specific features include screw-less fixing for faceplates with IP X3 water resistance, IP 54-grade push buttons with reduced and least-possible gaps around push buttons, indicator panels hidden behind stainless-steel grilles, engraved/etched labeling and stainless-steel/metallic push-button panels.

**Special Grade/IP Rated**

When an elevator installation is classified as “outdoor” (i.e., the elevator signal fixtures are exposed to weather conditions), the dust and water protection for such fixtures must be increased to withstand the severe atmospheric (temperature and humidity) conditions. A minimum of IP 54 (NEMA 3) protection is recommended for the outdoor signal fixtures. Typical applications include pedestrian bridges, marine elevators, and mine and pharmaceutical applications.

**Special Grade/Explosion Proof**

When an elevator installation is located within a highly inflammable environment, such as petrochemical factories, suitably protected signal fixtures must be used to prevent them from causing explosions. The fixtures should be suitably designed to contain electric sparks and be certified to specialty codes, such as ATEX.

**Emergency Communication System/Intercom**

Intercom systems enable two-way communication between the users within the elevator car and the receivers outside, immediately around the elevator installation (i.e., at the elevator lobby or machine room). These are generally hands-free systems, supported on battery power for power-failure conditions. The push-button panels have a clearly visible bell symbol in yellow. Intercoms should comply with the audio/visual (AV) indications (i.e., an audible signal, a yellow pictogram to indicate the call has been given and a green pictogram to indicate that the connection has been established).
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Auto-dialer systems are used to place a telephone call to external numbers (that are not immediately around the elevator installation), such as a central monitoring room or an elevator technician. The systems can be an analog (landline) or a GSM type (wireless cellular line). The systems have the capacity to store multiple numbers in memory and call them one by one in a preselected order.

In-Car Message Displays

In addition to standard indicators with an elevator car, special indicators can be provided to indicate overload, fire and earthquake warnings, and to display passenger information/instruction messages. The indicators can be integrated with the COP or mounted separately, directly above the entrance (transom panel).

In-Car AV Displays

AV displays inside an elevator car are provided to display advertising, floor directories, weather and news. The AV content can be prerecorded or a live feed, connected via a media server. Such displays require transmittance of a high amount of data and require advanced (such as fiber optic) cabling/connections with high data-transfer capabilities. Wireless displays can also be used in some cases, depending on the reliability of the wireless network for smooth and seamless transfer of AV data.

Voice Announcements

To improve user friendliness and support disabled users, multiple voice announcements can be made within the elevator car. Such announcements include elevator position, direction of travel, next stopping floor, and instructions for users to operate the intercom and exit the car under emergency conditions. Such announcements are prerecorded and programmed to play automatically at appropriate times.

Access Control

Elevator cars and landings can be provided with access-control (card reader) systems to restrict elevator access exclusively for authorized personnel. The hall call stations and/or COPs will not register a call unless a matching swipe card/password is provided. The card readers can be built into faceplates and hidden behind lenses showing the international symbol for card readers. When using a keypad, the password must be keyed in to register a call.

Elevator Evacuation Communication System

In high-rise buildings, elevators may become a part of evacuation concepts. When the elevators and elevator lobbies are not threatened by an emergency condition, elevators may be used to evacuate the occupants under predefined evacuation-management procedures. To carry out elevator-assisted evacuation successfully, standalone elevator evacuation communication systems are provided. These are hardwired systems that connect all the upper-level elevator lobbies, exit-floor lobby, elevator cars and fire command center with reliable two-way communication. Press-and-speak type intercom units are provided at the elevator lobby and assist in the exchange of real-time information between the evacuation management crew and the fire command center.

Destination Control

Landing Registration Panel

Destination-control systems are now widely in use. Users are required to input their desired destination floor outside the elevator car. Each elevator has a designation/identity number. When the user inputs his or her desired destination floor, the landing panel provides an instant response and confirms the elevator number assigned for the person’s trip. The system informs the user which elevator has been assigned, its location and the directions...
to reach it. Landing registration panels are provided at the elevator lobbies for this purpose. The panels can be a traditional keypad type or a modern touchscreen type.

Wide varieties of landing registration panels are available to deliver sophisticated user requirements, including disabled, VIP and group. Panels can be integrated with access-control systems that recognize each user. Upon swiping an access card, it automatically recognizes the user and registers a call on his or her behalf to a floor normally visited.

The landing registration panels can be of the wired or wireless type. Wireless ones are useful to instantly increase the number of landing panels to serve a sudden rush, such as for ballrooms, conference centers, etc. Since these are wireless units, the location of landing panels can be very flexible. With suitable interface/application, even tablet PCs and smartphones can be converted into a landing panel.

Depending on the crowd-management concept, the landing panels can be integrated with turnstiles (speed gates). Here, when the user swipes his or her access card on the turnstile, the system automatically recognizes the user, opens the speed gate and, at the same time, registers a call on the user’s behalf to a floor normally visited. The system informs the user which elevator has been assigned, its location and the directions to reach it.

**COP**

Elevators with destination control do not have a traditional COP inside the elevator car. Instead, the COP has only door open, door close and alarm buttons. Key switches may be provided on the COP as necessary. In specific cases, a set of floor push buttons or a keypad can be provided hidden behind the COP for use by firefighters, elevator technicians and attendants.

Continued
**Designation Plates/Flags**

In a destination-control system, each elevator is provided with a designation. The designation can be a simple inscribed plate.

Designation plates can also be provided in a “hall lantern-active” version, wherein the elevator designation is inscribed on the hall lantern. The lamp blinks with a gong upon arrival of the elevator at any particular floor. To improve visibility from all directions, the designation plate/lamp can be provided in a 3D format.

**Destination-Floor Indicator**

In a destination-control system, specific elevators are assigned to serve a pre-identified set of floors in one trip. To inform the floors being served by an elevator in a trip to the waiting passengers, a destination indicator is provided for each elevator. The indicator can be provided at the elevator lobby or on the entrance column of the elevator car. This serves as a confirmation to the waiting passenger and to ensure he or she is boarding the correct elevator.

**Hall-Call Registration Status Panel**

Under “attendant” operation mode, the waiting hall calls are normally indicated to the attendant by way of illuminating respective floor buttons on the COP. The attendant gathers the waiting call information and, depending on the direction and space availability, may choose to serve the waiting hall call or bypass it. Typically used in service

Continued

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and freight elevators under the “attendant” operation mode, this panel indicates the hall calls waiting and the requested direction for each hall call. This panel is particularly useful in high-rise elevators with many served floors. It is not practical to lay out push buttons for hundreds of floors on the COP. In this situation, a keypad is provided to place the car calls and controlled by an attendant. However, to display and communicate the status of waiting hall calls to the attendant, a hall-call registration status panel is used. It has all the floors listed in miniature. Each floor and entrance is provided with mini LED lamps (green for up and red for down). Whenever there is a hall call waiting, these lamps light up appropriately to indicate the location and direction of a waiting hall call.

**FIREFIGHTERS’ CONTROL PANEL (LOBBY PANEL)**

This panel is supplied by the elevator manufacturer and essentially located within the fire command center of a building. It provides real-time information about the current operating status of each elevator, and its position and direction of movement. It also contains key switches to initiate Phase 1 recall operation manually.

In case of transferable emergency (generator) power supply, this panel also contains an emergency power transfer switch to manually select and feed the emergency power to any selected elevator. Centralized intercom and public-address systems can also be integrated within this panel to monitor, control and communicate with each elevator car.

**COMPUTERIZED ELEVATOR MONITORING SYSTEM**

This is a standalone computer system with a monitor and a central processing unit, which is connected with the elevators’ control panels. The real-time information regarding the current operating status of each elevator, and its position and direction of movement are displayed graphically on an LCD monitor. Alarm conditions are also displayed, with a sound.

The computerized system records the performance of the elevators and helps in reviewing their waiting time for further analysis and improvement. This system can also be used to recall the elevator to any desired lobby for VIP service. Individual floors can be locked/unlocked to the users for security reasons. The system can be hardwired or web based, wherein multiple elevator groups on a large campus are connected to one centralized system for monitoring and control.

**CONCLUSION**

Each building project requires a specific set of signal fixtures and user features, depending on the application and the client’s requirements. Such requirements should be clearly reviewed, and a clear tender specification must be developed including all the desired fixtures/features. It is essential to understand the terminologies used within the elevator industry to incorporate them in the tender specification. Your author believes this article will help architects, engineers and specification writers understand and include appropriate signal fixtures and user features in their projects.

**IMAGE CREDITS**

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