Glass and mirrored residential cab by Columbia, featuring its ALURE® linear door operator for limited-use/limited-access and home lift applications. As with early open-design birdcage elevators, today's residential glass cabs revive the concept of passengers enjoying dynamic views of the elevator's exterior architectural surroundings; photo courtesy of Chad Jordan, Residential Elevators.

Captivating Cabs

Advanced materials and design create compelling, moving rooms.

by Ralph M. Newman

Interior design, whether in a home or business environment, is a major influencer on peoples' impressions, moods, states of mind and desire/propensity to occupy a space. Life-defining decisions — such as whether to buy, rent, visit or remain in an environment — are made daily by millions of people based on the way a space looks and how it makes them feel. Rooms are designed to represent their creators' points of view, statements about who they are, and whom they seek to invite into the space and for what purpose.

Observes Louis "L.J." Blaiotta, Jr., CEO of Columbia Elevator Products Co. Inc.:

"What, essentially, is an elevator cab but a small room that transports its temporary inhabitants vertically through a structure? As such, a cab is subject to the same interior-design principles as any other room. When a person enters a building, the lobby may be the first thing they see, but the elevator is likely the first thing they fully experience. More than strictly utilitarian, the elevator cab is an outstanding opportunity to convey the personality and attitude of the building that surrounds it, and, on an ongoing basis, make riders feel good about engaging with it."


Blaiotta

It is estimated that, in America, there are nearly 20 billion passenger trips per annum with, on average, about six passengers per trip. That represents more than 100 billion individual rider engagements every year — a considerable number of opportunities to please people and bring value to the buildings and occupants they serve. Elevator cab design — a compendium of design, aesthetics and safety concerns — affects more people in more ways than commonly considered.

A Room With a View (Glass)

Such effect has been the case from the elevator's earliest days, when the new technology began to impact not only the look of cities, but also people's homes. Found primarily within the grander residences of the early 20th century, ornate "birdcage" cabs were designed to please the eye, while providing dynamic views from within as they traveled through the elaborate stairwells into which they often were set. Following subsequent decades of cabs designed largely for safety reasons as "enclosed boxes," today, with the advent of glass cab designs, attention has refocused on leveraging the view from the cab to delight elevator passengers. Beyond interior installations, the development of extremely strong, laminated, shatter-retardant glass, advanced ventilation techniques — plus ultraviolet (UV) light filtering and gels to manage exposure to the sun — collectively make possible previously undreamt-of elevator designs outside the building. As always, safety continues to be the overarching concern as these new glass creations evolve into the mainstream of elevator architecture. Current code, ANSI Z97.1, mandates the use of lamination to keep the glass intact if it should break, while section 2 of the code governs the structural integrity required to keep riders inside the cabin in the event of a failure.


Jayson

Not all use of glass in cab design is simply to enable exterior views. Glass can be used inside the car, overlaying sensitive decorative materials to avoid damage — keeping the materials visible, while enhancing them with depth and luster — or as a decorative element unto itself. A growing trend, for example, is back-painted glass featuring patterns, artwork and scenes, augmented by special lighting effects and all manner of sensory treatments.

Bendheim, formed in 1927 in New York City (NYC), specializes in providing architectural glass treatments to the elevator industry. Says Donald Jayson, Bendheim's co-owner and senior vice president:

"Back-painted glass and specialty mirrors add a dynamic quality and luxury to elevator interiors and lobbies. Bendheim offers these types of glass in a wide range of custom and standard aesthetics, including unlimited colors; antique finishes; and a variety of fire-polished, matte and luminous semi-matte surfaces. These nonporous, durable glass surfaces are easy to maintain and ideal for high-traffic elevator applications.

"Baked on to ensure superior durability and quality, Bendheim's HardShell® color coatings for back-painted glass are specifically formulated for such demanding applications.

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Back-painted glass in production

Three views of Bendheim back-painted glass

Red back-painted glass

Perfection in fabrication and the highest-quality materials are key to elevator interior applications, because of the passengers' proximity to the glass. A unique aesthetic, durability and weight limitations are equally important. We are often tasked to engineer our glass in the most lightweight configuration possible for elevator interiors, while retaining the sense of depth unique to glass.

"Our goal is to continue pushing the technological capabilities of the material. Laminated metal interlayers and metallic textiles are trending right now. We recently provided woven metal mesh laminated between mirror and etched glass for a large elevator application at Hudson Yards in NYC, and we are about to introduce a collection of metallic laminated glass designs. Another exciting development in elevator applications is the use of ventilated glass façades to enclose exterior elevator towers. These systems are tested to protect occupants from wind-driven rain and snow, while providing the required passive ventilation. An important added benefit is maintaining clear sightlines that make occupants feel more secure and comfortable in these types of environments."

While glass is a major factor in today's advanced elevator design – across all environments, both indoors and out – such newly visioned use of glass is only one of many aesthetic contributions to the highly-experiential elevator ride of 2018.

Metals

Metal traditionally has been a popular, adaptive medium for the design of cab interiors, with widely differing applications subject to development costs and tastes and trends of the day. Past decades have seen the use of various metal treatments in cabs and their surroundings, including, for example, oxidized bronze, bright brass, nickel-silver, aluminum and, of course, the mainstay, stainless steel.

Says Blaiotta:

"'Stainless,' as it is commonly referred to, can be shiny, which is highly subject to fingerprints and scratching, or matte, which also shows scratches but not fingerprints. Vandalization and accidental damage are an eternal problem, but "pre-vandalizing" the finish — by using a grinding wheel to intentionally scratch the surface in a random pattern — can eliminate concern about future appearance issues and possibly expensive repair work. For a consistent, less edgy look, there is nondirectional stainless, a hand finish that, if damaged, can easily be 'reblended' in the field with hand tools. Another style finished by hand is Classic Satin #4, with straight up-and-down lines that can be fashioned into an elegant long-grain look. Topping such finishes with a clear coat of lacquer can add a deeper luster resembling the appearance of nickel-silver. Budget allowing – since the cost is generally three to five times that of stainless – nickel-silver itself can be used, providing a dullish finish looking somewhat like platinum.

"One of the more stunning recent additions to the elevator design palette is the so-called 'super-mirror' finish on stainless steel, yielding a reflection virtually equivalent to high-end glass. The quest for the perfect metal mirror has been an ongoing pursuit, and recent technological advancements are allowing this to be achieved. While, in the past, one could perceive visible brush strokes in the finish upon close inspection, now, there are none to be

seen. This is accomplished via the use of new-generation buffing wheels and rosins, and finishing by machine, rather than by hand. Since such a finish is very easily scratched, it is best deployed in an out-of-reach position, such as a ceiling."

The past few years have seen several extraordinary new applications of metal in elevator cab design. One example is the use of cold-rolled steel, showing some intentional rusting covered by clear-coat material, for an aged "industrial" look. Another is anodized stainless, made to appear — but not actually be — black and various colors, accomplished by absorption/reflection treatment of the metal at the molecular level.

Leveraging the fact that the human brain interprets light in different ways, depending on its wavelengths, this technology governs how light wavelengths are absorbed and reflected by the metal's surface, resulting in colors our eyes then perceive. Explains Mike Horbal, president of Rimex USA of Edison, New Jersey, which has been supplying surface-finished stainless-steel to the elevator industry for decades:

"We offer this particular technology in a product called ColourTex®, with color choices including black, bronze, champagne, blue, gold and rosy gold, with even more variations available by altering the finish prior to coloring, say, to a satin (grit) or mirror finish. The color of the objects we see is largely due to the way those objects interact with light and, ultimately, reflect or transmit it to our eyes. The color of an object is not actually within the object itself, but, rather, in the light that shines upon it, and is ultimately reflected or transmitted to our eyes.

"We know that the visible light spectrum consists of a range of frequencies, each of which corresponds to a specific color. When visible light strikes an object, and a specific frequency becomes absorbed, that frequency of light will never make it to our eyes. Any visible light that strikes the object and becomes reflected or transmitted to our eyes will contribute to the color appearance of that object. The visible 'color' — actually a 'living color' — changes with the angle of inspection and environmental lighting. Aside from its striking visual appearance, ColourTex offers many inherent advantages: the color will not crack or flake on fabrication, the colored metal can be laser cut without issue, the thickened chromium-oxide film leads to enhanced corrosion performance, the color will not fade in UV light, and, unlike with other metals, there is no leaching of chemicals into the ground."


Horbal

By default, stainless steel already has a natural passive and transparent chromium-oxide layer that gives the material its corrosive resistance. According to Horbal, Rimex achieves its dynamic ColourTex product range through a dipping process that increases the thickness of this chromium-oxide layer. The stainless steel is immersed into a hot aqueous solution contained in heated tanks. A natural reaction leads to a thickening of the chromium-oxide layer, which, in turn, leads to light interference effects between the surfaces of the film and stainless steel. This results in a breakdown of reflected white light and creates a perception of color. The perceived color moves through a spectrum of colors as the thickness of the chromium-oxide layer is increased on the stainless steel. The thickness of the chromium-oxide layer (and, consequently, the color resulting from the process) is monitored in production through the changes in electrical resistance across the sheet and recorded in millivolts. The increase in the thickness of the chromium-oxide layer on ColourTex stainless steel ranges from 0.02 to 0.36 microns.


Sandmire

Another example of advanced cab design with metals is the use of woven wire, incorporating stainless, bronze and other metals. These can be shiny or dull, and produced in wide-open or closed-weave patterns, often to dramatic effect. Such walls are extremely durable, not easily vandalized, and, when bumped or scratched, show hardly (if any) noticeable damage. Gage Architectural Products of Sparta, Wisconsin, is in the business of designing and manufacturing specialty metal architectural products. Among other applications, the company's decorative metal products are used extensively in elevator design.

Explains Kären Sandmire, the company's Director of Design and Sales:

"Since 1988, Gage has been supplying architectural metal products to the elevator industry, offering a variety of products to create unique cab wall panels, as well as custom doors and surrounds. Specified by architects, designers and elevator cab interior companies, our products are found worldwide in prestigious elevators from Hudson Yards to the Shanghai Tower.

"With a couple exceptions, Gage products are crafted in the Midwest from recyclable materials. GageCarve™ and GageCast™ are both tactile and dimensional metal surfacing used for cab walls, while GageMetal™ is custom-finished or designed stainless steel, typically specified for elevator doors and surrounds. GageWoven™ wire mesh is panelized by the installing contractor onto cab walls. Gage is sold in sheet goods for easy fabrication. This allows for the ultimate in creativity by the designer/architect, as well as value-added by the skilled craftspeople of the elevator-interior industry in producing custom panels within their own shop."

Yet another leap forward in metal-based cab design is the emergence of upgraded polishing techniques to produce the faux impression of 3D elements on a flat surface. This can create the appearance of raised panels or patterns on metal, achieved by sanding the surface to create illusions that, from a slight distance, appear to be 3D. Such treatments can be further enhanced by combining the etching, polishing and plating of different materials in different patterns on a door skin using, for example, bronze, silver and chrome to create visually striking patterns. At the same time, metal-punching techniques have been upgraded to create actual, precise 3D patterns and effects.

Explains Blaiotta:

"Back in the day, we created various effects by manually striking the metal sheet with a hammer and/or implementing the best look we could with the then-available punch presses. Now, when assembling a car, we can buy pre-textured material with a certain hole pattern punched into it. Even better, with currently

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Cab by Columbia installed at the Philadelphia Museum in anticipation of a visit to the facility by Pope Francis. Rimex Metals contributed the side and back panels, consisting of T22 Platinum Nickel Hairline FPR (fingerprint resistant) finish with a 3-in. diamond pattern.

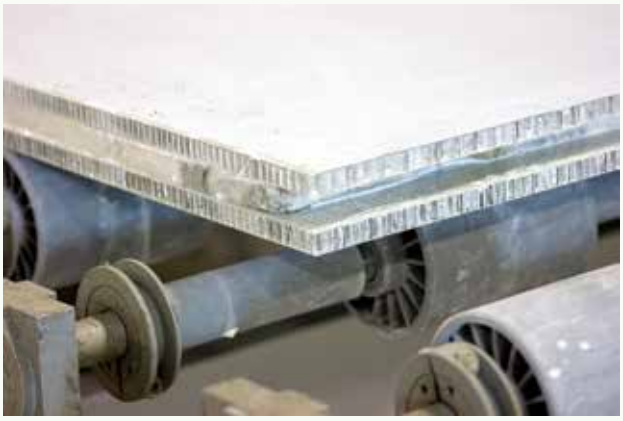
An example of Rimex Metals' ColourTex® effects

available servo-controlled punching equipment, we can control the tonnage and pressure applied to the sheet metal without deforming elements of the sheet. In the past, when we bought a sheet of diamond plate and specified a cutout where the buttons were to go, there was no way to prevent cutting through one or more of the diamonds, thereby resulting in a rough, unbalanced look. But, with the tooling we have today, we can precisely position our own bumps around the cutouts: this gives us exact control of the pattern to eliminate issues such as half diamonds and altogether avoid bumps on flat spots where we'll later want to engrave notices, such as 'No Smoking,' or create cutouts for digital displays. This tooling allows us to create effects such as precisely positioned flat areas behind handrails and flat surfaces around the perimeter of a textured metal floor where it meets the side panels. Further, following a series of evolutions in punch presses, rather than the press applying the same tonnage on every hit, the tonnage is now precisely controlled to yield punches of differing depths and shapes for a nuanced, rather than overall consistent, final look."

With today's tooling, bumps can be precisely positioned around cutouts, allowing exact control of patterns to eliminate issues such as fractional bumps and bumps on flat spots where notices such as "No Smoking" will later be engraved. Such tooling also allows for the creation of refined effects such as precisely positioned flat areas behind handrails and flat surfaces around the perimeter of a textured metal floor where it is met by the side panels.

Marble, Tile and Stone

Elevator cabs, especially in high-end hotels and commercial buildings, are seeing increased use of stone materials in their design, with a growing trend toward synthetic quartz that is virtually indistinguishable from natural material. Using natural stone can present deflection and load-level issues, so stone suppliers have found ways to produce and supply thinner and



3/4-in. stone slab with honeycomb panel on both sides

Breakdown showing honeycomb, fiberglass skin and 1/8-in. stone

Custom GageMetal elevator doors in Miami; photo by Jerry Rabinowitz

Parc 55 Hilton elevator interiors in San Francisco using GageCarve C1003 Ribbon design in nickel finish; photo by Dean J. Birinyi

Atlantic Station elevator interior in Atlanta using GageWoven GW905 Watchband design in stainless steel; photo: Brian Gassel of TVS Design

thinner slices of material to help lighten the load and stress on the equipment lifting the cab. To keep such thin panels strong, stable, flat and safe, they are supported by honeycomb backing that does not foster combustion.

Ingelmo

Miguel Ingelmo, founder and president of Stone Brokers of America (SBA), based in Doral, Florida, brings more than three decades of experience to the field. He began working in the stone industry in 1986 and, in 1989, founded SBA, which today specializes in the manufacture of lightweight stone panels for elevators.

Explains Ingelmo:

"We are using cutting-edge technology to make stone elevator panels lighter without losing the beauty of the natural look. Lightweight panels, which can be made using natural stone or manmade materials, are 80% lighter than conventional 3/4-in. slabs. Honeycomb backing made of either aluminum or fiberglass is glued to both sides of a 3/4-in.-thick slab, after which, using diamond wire, the slab is split into two identical 3/8-in.-thick pieces, and polished or finished to the customer's preferences. Such panels not only address the weight issue, they also allow the customer to optimize the use of materials by covering twice the area."

Lighting

High on the list of dramatic advancements in cab design is the treatment of lighting. While ceiling-mounted "downlighting" remains in play, largely gone are the once-standard incandescent and fluorescent bulbs, replaced by LED fixtures. Consuming significantly less energy than standard bulbs, LEDs are far more eco friendly and cost efficient, and can help building owners obtain Leadership in Energy and Environmental Design certification.

Among this technology's most profound impacts on the cab experience is its ability to produce stunning color ambience via use of different lighting frequencies on the Kelvin scale in varied, unusual positions within the cab. Instead of placing lighting in the ceiling, it can be installed above to make the canopy glow. Instead of perimeter lighting,

Mandy

Continued

LED fixtures by Man-D-Tec: the rectangular light is the aeRoBeamPlatinum (note the heat sink designed to absorb and dissipate heat produced by the LED to significantly lengthen its life), and the round light is the Swivel Beam.

wall panels can be made to illuminate and glow by installing LED lighting behind them. Different effects can be achieved depending on the material used for the wall: for example, by combining yellow/orange lighting with stainless-steel panels to approximate a bronze look. Lighting designers today are no longer restricted to only round or tubular bulbs. LED fixtures can be virtually any shape: square, rectangular, triangular or even in linear format to create glow behind handrails. Their small size makes them adaptable to an infinite number of lighting applications. Many effects created within cabs can now be echoed or replicated in the hallway, such as a current trend to place lighting in the throat of the jamb surrounding the elevator entrance, indicating the cab's arrival and departure as it enters and leaves the floor.

States Terry Mandy, president of Man-D-Tec, a lighting manufacturer headquartered in Scottsdale, Arizona:

"Lighting today is a major component of the market's demand for advanced elevator design, allowing for astonishing wall and ceiling treatments. When you evaluate the numerous benefits offered by LEDs, it is small wonder that these are changing the way we look at lighting in the elevator industry. LEDs have swept the conventional lighting marketplace for a variety of reasons, including and beyond their oft-noted reduced energy consumption and lower maintenance requirements.

"One of their most significant advantages, when compared to traditional lighting solutions, is their long lifespan. The useful life of LED lighting products is defined differently than that of other light sources, such as incandescent or compact fluorescent. LEDs typically do not 'burn out' or fail. Instead, they experience 'lumen depreciation,' whereby the brightness of the LED dims slowly over time. Unlike incandescent bulbs, LED lifetime is established by prediction, or when the original light output decreases to 70%.

"As solid-state devices, LEDs do not require the traditional glass bulb surrounding the light, making them less susceptible to damage from breakage or vibration. LEDs are directional light sources, unlike conventional bulbs, which emit light in all directions. LEDs are mounted on a flat surface, allowing them to emit light hemispherically, rather than spherically, which reduces wasted light and energy. They can turn on and off instantaneously and continuously without delay or shortening their life. Consequently, in larger commercial settings, with their longer operational life, LEDs can significantly reduce the labor costs of replacing bulbs."

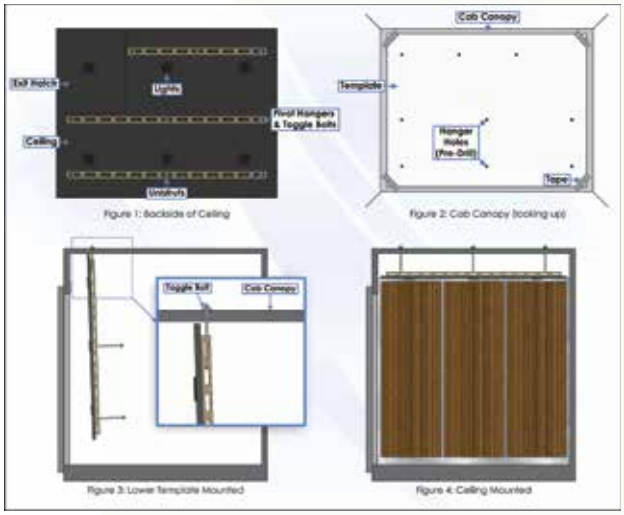
But, according to Mandy, the single most important factor in the successful performance of an LED over its lifetime is the use of heat sinks to absorb the heat produced by the LED and dissipate it into the surrounding environment. This keeps the LED fixtures from overheating and their lives being shortened. By contrast, incandescent bulbs, which produce light using electricity to heat a metal filament until it becomes "white" hot, release 90% of their energy as heat.

As LEDs become the standard in lighting, Mandy emphasizes that designers should understand the difference between watts and lumens, and how to determine the proper amount of the latter to achieve their desired effects. The lumen is the international unit that measures the total quantity of visible light emitted by a source. Watts, on the other hand, measure the amount of energy required to operate a light source. LED chip manufacturers test their LEDs for lumen output, but fixture manufacturers must retest for lumen output on the final product designs to determine the actual lumen output of the fixture, not just the LED chip. Several factors determine the final fixture lumen output, with fixture design, reflector parabolic and lens opacity all contributing. Independent labs can test fixture designs in an integrating sphere (a hollow sphere with an internal surface of a diffuse reflector) according to Illuminating Engineering Society standards and produce reports with the findings. Says Mandy: "At Man-D-Tec, our slogan is, 'It's all about the lumens!'"

Sills

One of the most visible of an elevator's aesthetics is the elevator sill. Positioned where they are, sills are subject to the constant ravages of foot traffic; things of all sorts and weights loaded into and out of the elevator; and seasonal damage by items such as salt, sand, Christmas tree needles and, in the case of exterior applications, the weather. While worn sills can be replaced, this is often difficult and costly.

SILLSKIN modernization cladding overlay in a stainless-steel brushed finish installed over an existing nickel silver entrance sill



Breakout of island downlight ceiling; drawing courtesy of LWI Elevator Panel Co.

Biophilic ceiling panels, shown here in a hallway, are now being installed as elevator ceilings.

Says Scott Akin, owner of New Jersey-based Archi-Tread®, a supplier and manufacturer of elevator sills:

"Removing an existing sill is a laborious process that risks damaging the existing flooring and surroundings and could involve significant mess and downtime of the elevator. To get around this, our company has brought to market an alternative called SILLSKINS®, a product line and installation system consisting of an overlay (effectively, a cap that delivers a fresh, new look), while avoiding the need for 'chopping out' the existing sill. These overlays, which look just like original new sills, are available in every imaginable metal type, style, finish and pattern."

Akin

According to Akin, in addition to its aesthetic advantages, this process is minimally disruptive. Doors do not need to be removed, and installation can be completed within hours. The existing sill groove is machined wider, thus allowing the SILLSKIN overlay to maintain the 1/2-in.-wide door groove. A 3M adhesive is used to make the bond, and the overlay encapsulates the entire length of the sill.

Ceilings

In today's cab design environment, ceiling treatments can range from the conventional to the fantastic. In the more conventional vein, most elevators have a false or dropped ceiling, with construction typically falling into four types. Quite common, because it is the least expensive, is the aluminum frame with light diffusers, used with fluorescent or LED strip lights, with the downside that they can tend to act as dirt traps. Other approaches include the use of aluminum frames with opaque inserts, panned metal sections and island ceilings, all using LED downlights.

Seymour

According to Bill Seymour, president of Seymour Technologies, island ceilings are architecturally desirable, because they show minimal seams between sections and no visible frame. Usually, they are of one-piece construction with a removable escape hatch, allowing for more precise alignment of the hatch in the dropped ceiling, with the hatch in the canopy.

Another issue concerning ceilings is the weight they add to the car, as Seymour explains:

"Traditionally, island ceilings have been constructed out of fire-rated particle board, faced with metal or laminate. Due to the nature of such construction, these can become quite heavy — in the range of 150-200 lb. — which makes installation a cumbersome job. Such ceilings can require two or three workers to install, often with specialized lifting equipment to fix them in place. Many newer elevators are being designed to only hoist close to their specified capacity and cannot take the extra weight involved with a traditional elevator cab remodel."

To address this challenge and help reduce labor costs, Seymour Technologies and LWI Elevator Panels have collaborated to design and flame test a lightweight island ceiling using a metal-faced composite material. This reduces overall ceiling weight by as much as 50% and features a mounting method allowing it to be hung vertically from one side and swung upward into its final position. When used together with lightweight wall panels, this approach can provide an effective modernization solution for elevators that have little capacity for increased weight.

Continued

Columbia label (applied to each cab it builds) showing UL certification that all requirements of section 2 of the code are being fully met

WilsonArt Compact Laminate panels in Grey Elm 8201 finish

On the "fantastic" side of the cab ceiling design spectrum is the use of so-called "biophilic" panels that emulate natural views such as blue skies and moving clouds. Initially seen in the hallways of hospitals, medical practices and wellness centers (because of the calming, relaxing effect they are believed to have on people), biophilic panels are now being installed as elevator ceilings. In October 2015, as this technology was being developed, David A. Navarette, an American Institute of Architects Continuing Education provider and The Sky Factory's director of Research Initiatives, explained that such displays are "designed as biophilic illusions that take advantage of how our cognitive perception assesses our visual/spatial stimuli to create a surprising experience of openness in otherwise enclosed interiors."

Fire Safety

While today's adventurous aesthetic applications vary widely in scope and use of materials, all continue to strictly require at least one thing: fire safety and compliance with the code designed to ensure it. Since its earliest days, Columbia has been undertaking active steps to provide its customers with this assurance. According to Blaiotta, Columbia was the first and remains the only company to provide Underwriters Laboratories (UL) certification that the requirements of section 2 of the code — including the flame-spread and smoke-development ratings — are fully met in all its cabs. The definitive way to accomplish this is to set up an end-use configuration and submit it to a Steiner tunnel test. This test, developed in 1944 by Al Steiner of UL, defines widely accepted

North American standards for evaluating various finishes for their ability to support and propagate fire, and the degree to which they emit smoke. These standards are used in the regulation and selection of materials for interior construction in the building trades.

Elaborates Blaiotta:

"As a basis, the Steiner tunnel test measures how fast a flame will move on a particular material by comparing it to the flame spread rate of a 1-in.-thick, 1-ft.-long piece of oak, a slow-burning hardwood. We use a lot of decorative laminate in our cabs, but we can't individually test just the laminate or any other particular component of the job. Instead, we must test the final product in the Steiner tunnel in its end-use configuration: just because we use flame-retardant plastic laminate, fire-retardant particle board and fire-retardant adhesives, we cannot assume that combining the three together will result in a fire-retardant final product."

Over the years Columbia has tested many configurations, including the use of traditional solvent-based contact cement, which was revealed to perform very well in such tests. This is because the solvent emulsifies the solids of the adhesive, to render it fluid in the drum while it is being sprayed. But, once the solvent flashes off and evaporates, what remains is just the neoprene, which is self extinguishing and does not support combustion. If one were to hold a blowtorch to a piece of fire-retardant particle board, a hole would burn right through it, but as soon as the source of the flame is removed, it self extinguishes and will not burn beyond that spot and spread the flame. This is also true of flame-retardant plastic laminate.

According to Blaiotta, installers can make the serious mistake of applying flame-retardant plastic laminate onto flame-retardant particle board, using water-based adhesive or hot-melt glue, which contains no solvent, and incorrectly assume this combination will be fire retardant. In such a case, under the flame-spread test, one end of the board is heated with a blowtorch to start a fire, causing the flame-retardant laminate to peel up. The laminate does not support combustion, and neither does the particle board. But, what does happen is that the adhesive itself begins to burn, and, as it does, the laminate continues to peel further and so on. Such a scenario presents a flame-spreading situation that fails the requirement of section 2 of the code.

Wilsonart, a manufacturer and distributor of engineered surfaces used in elevator cab design, offers several laminate and decorative metal options bearing a Class A-1 fire rating. Says Wilsonart's Danny Teague, sales manager, Performance Laminates & Decorative Metals:

"Beyond safety concerns, we offer a wide array of aesthetic and performance options for use in cab design. On the aesthetic side, growing in popularity is what we call 'material mixology,' a seamless blending and layering of materials that allows designers to express unique concepts in new ways: for example, by mixing high-pressure laminate (HPL) and decorative metals to bring a dramatic 'wow' factor to their looks.

"On the performance side, Wilsonart's materials are designed for resistance to fingerprints, water, scratches and scuffs; enhanced durability; and advanced finish options such as synchronized texture and ultra-matte surfaces. For rugged environments such as healthcare and hospitality settings, Compact Laminate, available with the Class A-1 fire rating, is made to withstand impact from luggage, wheelchairs or medical equipment. Fire-rated HPL can be used where the impact-resistance of Compact Laminate is not required."


Teague

The question of fire resistivity naturally arises when the design calls for natural hardwoods, instead of synthetics, as with, for example, raised-panel traditional mahogany. In such cases, using veneers made of fire-retardant substrate is usually OK. But, if the rails or solids of the raised panels are made of hardwood and might support combustion, this calls for the use of fire-resistant paint or finishing material, or the soaking of these elements in a fire-resistant solution such as a salt bath. Property owners and managers must be particularly careful when they bring in someone from outside the elevator industry to aesthetically modernize a car. Without the required knowledge, such a person might use the same kind of paneling in the car as was used in the lobby, which might not meet code and, in fact, could be extremely dangerous and life threatening.

Concludes Blaiotta:

"I think most people would be quite surprised to know the depth of strategy and complexity that goes into making their daily elevator trips as aesthetically pleasing — while as safe — as they are. Going forward, as architectural boundaries continue to be pushed ever further, we will endeavor to keep it so that passengers of the future will continue to be delighted by their elevator rides without ever having to give such matters even a thought!"

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.