

The Current State of the Elevator Cab Industry

by Ralph M. Newman

In November 2002, ELEVATOR WORLD featured an educational article on the history, development and design of elevator enclosures authored by the founder and chairman of Columbia Elevator Products Co., Inc., Lou Blaiotta, Sr. Since then, the field has substantially evolved, and now Columbia's current president, L.J. Blaiotta, Jr., provides his thoughts here on industry-shaping new developments over the past five years.

Demand for elevator cabs, in the view of Columbia Elevator Products Co., has in the new century been traveling in only one direction: up. So much so, in fact, that the 40-plus-year-old firm added a new, 55,000-square-foot plant last year in Miami devoted exclusively to the design, manufacture and shipment of cabs, with further acquisitions in progress. Heading up this expansion program is Blaiotta, Jr., who sees no end in sight to this trend.

Similar to all architecturally focused industries, the elevator-cab trade has been quick to reflect the modern design sensibilities of the construction market. This has often mandated new design uses of classic materials such as natural stone, patterned glass and/or textured metals, or the introduction of new materials altogether. However, amidst these innovations, the onus remains on cab manufacturers to ensure that these new materials and uses are in full compliance with fire-resistance, smoke-development, electrical-shock and structural-integrity requirements of the ASME A17 code. How can an elevator-cab company make such assurances?

According to Blaiotta, Jr.:

In several ways. For example, many of the fire resistivity and smoke development statistics of a new material can be obtained from suppliers and the materials-testing laboratory reports that those suppliers employ. However, the cab manufacturers must even go beyond that to ensure that the combinations of materials used in a cab still meet the performance language requirements of the code. An industry exclusive, Columbia itself employs the certification services of Underwriters Laboratories (UL), the decades-long standard in independent, third-party testing. Through vigorous up-front testing and follow-up procedures (including random surprise inspections of manufacturing processes), UL is able to certify that Columbia's cabs – in their 'end-use configuration' – fully comply with section 2 of the elevator safety code. Columbia cabs go out the door bearing a UL label similar to the UL fire-door labels found on all elevator entrances [UL approves]. As a result, an elevator inspector in the field can simply look for a UL label on a cab and be assured that the cabin was manufactured to a strict procedure, certifying its full compliance to the code.

As is true of many manufacturing sectors, recent technological advances have played a major role in every aspect of the cab business. "We see this clearly," added Blaiotta, Jr., "in how our customers now routinely use our website to design/configure a cab online." Undreamt of just a few years ago, contractors and architects can now get instant price quotations for

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their custom requirements. Once cab quotations are accepted and become cab orders, they are immediately downloaded into Columbia's engineering system; the cabs are "virtually built" in 3-D model space, and checked for fit and errors well before the jobs arrive on the factory floor. Because today's cabs are designed fully to scale in computer-aided design systems, factory automation is driven by computer-aided manufacturing systems to produce precision elevator components at increasingly faster rates. While of obvious advantage to the manufacturer (and to the end-user due to saved money and time) does any of this technology help the installing elevator contractor in the field?

Blaiotta, Jr. noted:

Absolutely. The precision manufacturing capabilities of factory automation allows cab companies to constantly improve the quality of the products delivered to the jobsite. Improved cab components are simultaneously more durable, yet lightweight, making the cab much easier to install in the field. 'Lightweight' and 'easy-to-install' translate into a quicker and safer installation for the field mechanic. [For] example, [Columbia's] patented InstaFast™ system. This system – designed for INSTANTly FASTening elevator-

cabin components without the need for bolts – allows the bending of a male joint into the end of one elevator wall (or ceiling) panel, and a female joint into the adjacent panel, engaging them without additional fasteners. The joints themselves secure the panels together, faster and safer than the traditional, century-old process of assembling a cab with bolts. We could never have been able to manufacture cab components of InstaFast's quality and precision without today's automated factory equipment.

Often, such technological advancements yield a "multiplier effect," with future advances built upon previous improvements. For instance, Columbia would have been unable to develop its LamiCan™ product line without the foundational advancements of its InstaFast technology. LamiCan is Columbia's term for its LAMInated CAN (the elevator industry's nickname for a steel-shell car). The LamiCan process involves application of plastic laminates, wood veneers or metallic skins directly to steel wall panels. This advancement was unprecedented in the elevator industry until Columbia incorporated a stainless-steel feature strip into the InstaFast joint, securing the edge of the laminates to the wall panels.

According to Blaiotta, Jr., "LamiCan had a fascinating origin and has evolved into a genuine breakthrough solution to several challenges." Columbia's initial purpose for LamiCan cabs was for use in the Caribbean and Central American markets – in countries such as Puerto Rico and Panama – where the preferred aesthetic is the "look" of wood, but site conditions demand the durability of the steel-shell car. Builders often found that by the time wood-core elevator cabins had arrived at their sites, the substrate material had absorbed so much humidity from the journey – worsened by continued moisture

absorption in tropical environments – that the walls would expand and eventually deteriorate. Since LamiCan walls are fashioned with corrosion-resistant, coated-steel products such as galvanealed, galvanized or stainless steel, they not only survive under these conditions, but perform extremely well and often emerge as the only practical way to go.

"The next application of the LamiCan cab was the modernization market," Blaiotta, Jr. said, "involving 'rip outs' of old elevator cabs and replacement with new ones." In new construction, the elevator is usually installed before sheetrock or masonry corridor walls are in place. A modernization job, by contrast, mandates bringing all of the cab components into the hoistway through a pre-existing door-opening. In this case, one cannot bring a one-piece, 5-foot X 8-foot wood-core wall through the typical 3-foot X 7-foot door opening. Installing such a wood-core cab would require the opening or demolition of corridor walls, creating major inconvenience if not worse problems.

Blaiotta, Jr. recalled:

Landlords seldom found this acceptable, leading to the development of the steel-shell cab several decades ago. Since steel-shell cabs were specifically designed for assembly inside the shaft, they incorporated several smaller, sectionalized steel wall panels. Each panel is very light and portable, fitting easily through typical entrance openings, as opposed to the large, one-piece walls of the traditional wood-core cab.

Problem solved? Only partially. While this was an elegant and practical solution to a fundamental construction problem, other issues emerged. Plain-steel cars appeared very industrial and were rarely pleasing to building owners. For a more aesthetically pleasing car – mandated by rapidly emerging architectural demands – the landlord was faced with having



Blaiotta, Jr.

to install decorative laminated panels, at considerable additional expense. The installer, in turn, was faced with the additional work of *de facto* hanging a second wooden car over the already-completed steel-shell installation, upsetting the installation schedules required by modernizations. (Speedy installations are critical during modernizations since they often occur in occupied buildings where an out-of-service elevator is a major inconvenience, and this is especially true if the job involves the building's sole elevator.)

"But," Blaiotta, Jr. noted, "this was far from the entire story. Building owners were not alone in their unhappiness with this type of construction. Traditional steel cabs became unpopular with installing elevator contractors as well." While steel cabs were lighter and more maneuverable, they required significantly more installation time because each panel required bolting to the adjacent one with no small measure of contortion from the installer. To fit through the existing doorway, the panels had to be assembled on the platform *inside* the hoistway, leaving little working room

for the installer. Adding to the difficulty, steel cabs needed to be bolted together on the *backside* of the wall for invisibility to the riding public. Installation time was additionally stretched when hanging panels needed to be attached. Further, the extra weight of the hanging panels often exceeded the cab weight that the original elevator system was designed to carry. This risked violating elevator safety codes that do not allow for more than a 5% deviation in system weights.

Blaiotta, Jr. concluded:

So, the LamiCan cab, utilizing the InstaFast joining system, is creating tangible benefits for the manufacturer, the installer and the building owner. This package offers all the lightweight portability of the traditional steel cab with the aesthetic benefits of a wood-core cab or hybrid hanging panel. It provides customers with a revolutionary competitive advantage – not only in the modernization market, but (because of three-way savings in budget), installation time and cab weight in the new construction market as well. Consequently, since these cabs weigh so much less, the contractor can often buy a lighter-duty pump and/or lower-horse-powered motor, producing yet additional elevator-system savings unrelated to the architectural components provided by the cab company.

Here we have seen the coming together of innovation, technology and automation to solve a myriad of challenges across the board. And this type of synergy is what I see as the future of the elevator industry.

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