



# Shopping Carts

## Used At Multi-Level Retailers?

*An Impossibility No More!*

by Tisha Eadie

As large-scale retailers ring in 2005, they're faced with an ongoing issue that's been challenging the retail industry over the past decade. Simply stated, many suburban retail markets have become heavily saturated with big box and mass merchandising stores. And, for example, with every 120,000-140,000 square-foot Wal-Mart and Target store built, approximately 14-16 acres of land is needed. Tough zoning laws evolving outside the city, as well as climbing real-estate costs, are in many cases stifling additional development, making it difficult to expand beyond what already exists.

One solution to this challenging issue is building up instead of moving out. Urban markets, which may not have been even considered due to the lack of space they offer, are now providing the answers. Savvy retailers

have found that it's very possible to build new multi-level facilities in heavily populated areas. Already, numerous retail industry giants and grocery store chains have established a strong presence after moving back to the city.

Of course, as with any change, new challenges were introduced with the "building up instead of out." Besides having warehouse and storage issues, customer shopping problems had to be solved relative to the carting of purchases from one level of the store to the next. Traditionally, retailers have provided shopping carts so that customers may purchase more than they can carry. However, with multi-level, urban-based superstores, just how to get carts laden with merchandise from one level to the next definitely presented a problem.

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One solution was to use oversized elevators for customers and carts. However, that approach was quickly found to be ineffective due to space limitations and very slow transport time from one floor to the next. Inclined moving walkways were also tried as a method to move customers and carts between levels. But, these moving walkways, in addition to taking up a significant footprint of floor space, also required retailers to have specialty carts equipped with special flange wheels. Baby strollers became a safety hazard when placed upon the moving walkway, because they aren't constructed with flange wheels.

As a result, a German cart conveyor device became one of the first options to be considered. However, it turned out to be an expensive investment, because it was manufactured overseas, with long lead production times and potential code issues to be addressed once delivered and installed in American establishments. Problems obtaining parts and a lack of stateside maintenance support were also unfortunate drawbacks that came with specifying this type of equipment.

That's when Pflow Industries, Inc. of Milwaukee, Wisconsin, developed the Cartveyor® shopping cart conveyor. In response to retailer difficulties transporting customers and their carts between levels, Pflow created a conveyor system specifically engineered for the movement of shopping carts in multi-level environments. Cartveyor is supported by a heavy-duty seismic compliant steel truss structure similar to that of an escalator.

Cartveyor can operate in parallel with a passenger escalator or as a stand-alone unit. Customers need only to push shopping carts through the Cartveyor's safety gates using floor guides that direct the front and rear cart wheels into the proper position. At that point, Cartveyor then senses the presence of the shopping cart, safely pulling it up to the next store level. The whole procedure basically entails customers riding the escalator next to their carts and then retrieving them at the next level.

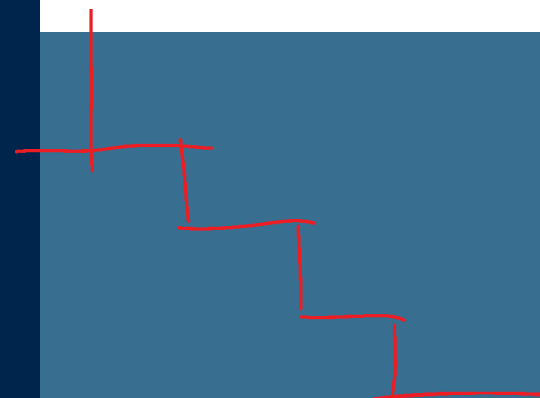
"Cartveyor operates at a speed of about 80fpm, while the average escalator runs at 90fpm," stated David Dux, Pflow's vice president of sales. "This allows shoppers plenty of time to load carts onto Cartveyor, step onto the escalator and subsequently retrieve the cart at the next level. With Cartveyor's variable frequency drive we can adjust the speed of Cartveyor to synchronize the delivery of carts with the arrival of people on the escalator."

In 2001, the very first Cartveyor units were installed in the Novi, Michigan, Sears Great Indoors Store. Soon after, Cartveyor was specified as the cart conveying system in approximately 30 Target, Wal-Mart, Sam's Club, Safeway and Sears Great Indoor stores.

One of the greater challenges Pflow faced in the development of its cart conveying technology was the fact that there wasn't an existing code for a tow-line conveyor with public interface such as that which was offered by Cartveyor. As a result, Pflow proceeded with months of meetings with standards committee members, made the

necessary product revisions and ultimately played a major role in helping to draft an addendum to the B20.1 Code to cover tow-line conveyors with a public interface.

Code-compliant features were applied to the original design of Cartveyor. These included special guarding and warning





signs to safeguard Cartveyor from unnecessary public access. Gates with one-way hinges were mounted at entry and retrieval points to prevent people from entering the Cartveyor track. And the problems presented by runaway carts and possible damaged merchandise were eliminated with the addition of shock-absorbing cart arrestors. Cart movement was monitored with proximity sensors installed along the entire length of the Cartveyor track. If a cart is jammed, these proximity sensors recognize the jam and a fault warning instantly occurs.

"It was essential for retailers and Pflow that a code was created for Cartveyor," explained Dux. "We conducted extensive testing in an effort to develop a safe device that was conducive to retail environments for the benefit of public safety."

Customer-friendly controls also made Cartveyor ideal for retailer managers. The system can be programmed for client preference, offers easy-to-understand instructions to operators, records all usage and any faults, and provides several levels of security, as well. Entrance/in-feed area floor guides prevent the use of foreign, damaged or stacked carts from being accepted. A tray beneath the discharge end of the belt catches small objects that are dropped within the Cartveyor. A red light at the discharge archway will remain steadily illuminated should a fault condition occur.

Additionally, Cartveyor features also include a caster straightening device and floor guides for easy loading of shopping carts. The system is equipped with a sleep mode, which conserves energy and eliminates the need to turn Cartveyor on-and-off everyday. An innovative, electronic thermostat monitors motor temperature, thus preventing thermal overload. It is also equipped with a programmable logic controller (PLC), which allows for the adjustment of time settings for sleep-mode reaction time and fault parameters.

Cartveyor's variable frequency drive provides a "soft start," offering complete control of conveyor belt speed. A touch screen display provides store personnel with secured access to fault diagnostics, step-by-step fault remedies and operation reset instructions.

According to Dux, Pflow's changes to Cartveyor over the past four years make it more cosmetically appealing and certainly more user-friendly. Controls have been simplified and improved. Doors were made easier for customers to push carts through with the newly-designed hinge and roller assembly. Cartveyor originally sported a rugged, industrial appearance with its heavy stainless steel archways, butt joints on the cladding and industrial warning lights. Today's Cartveyor design has been updated and presents an extremely consumer-friendly "retail look."

With the trend of retail veering back towards urban environments, Cartveyor units ultimately aid in making these moves less problematic for retailers and their customers. Once, the urban development of the large-scale retailer was considered near impossible. Now, utilizing innovations such as Cartveyor, that development has become even more realistic and is currently a strong trend within the retail community.

"Pflow was presented with a problem and came up with an excellent solution. Cartveyor transports shopping carts simply and efficiently," concluded Dux.

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