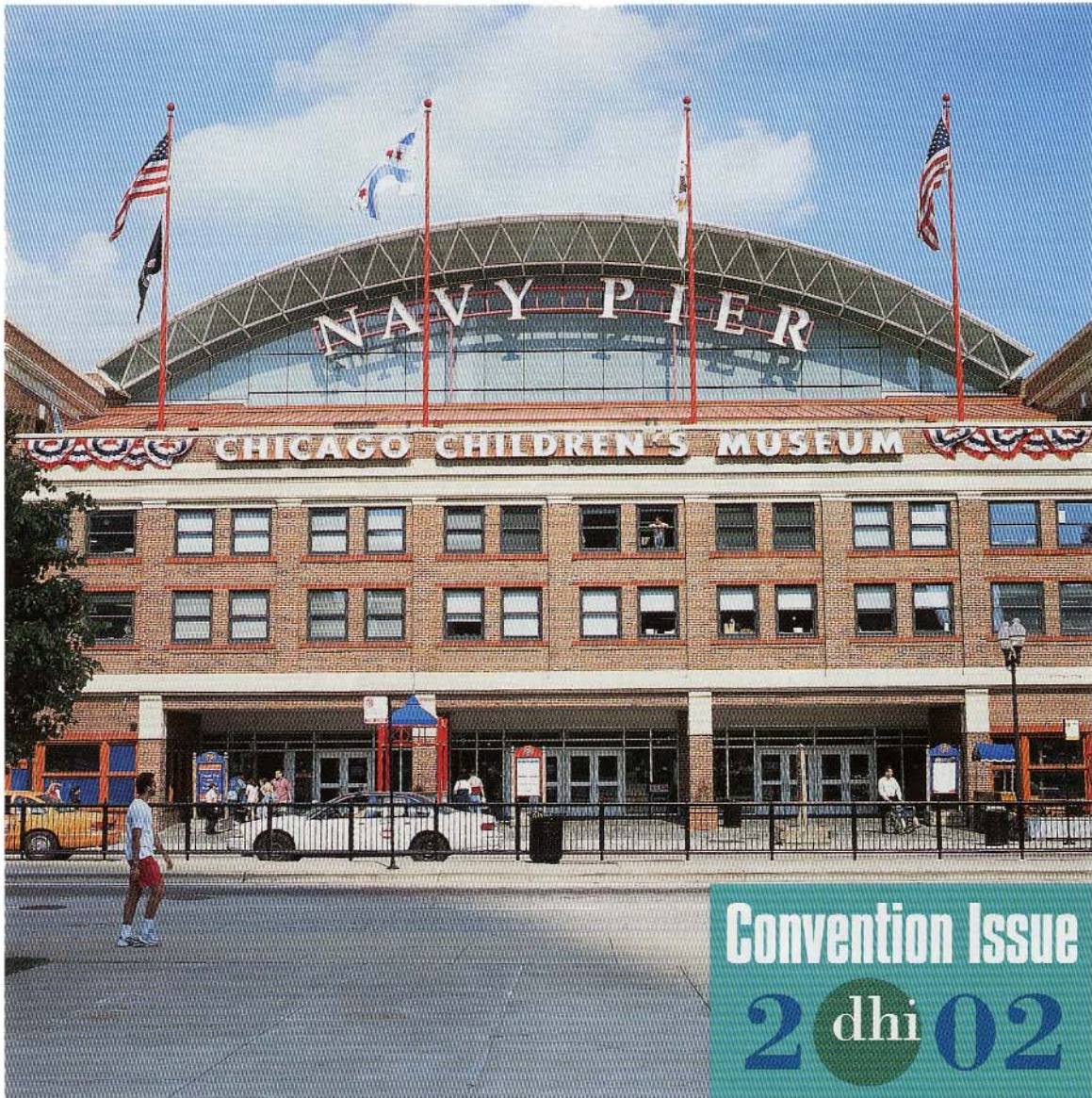




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CASE STUDY

Patti Emmerson, Special-Lite, Inc.



How One Door Company Roped the Wind on Navy Pier

THE PEOPLE WHO WORK AND PLAY ON NAVY Pier know why Chicago is called the Windy City. Nearly a century old, this pier, with its unique shops, restaurants and entertainment, juts more than a mile into the Chicago Harbor. Unprotected from all sides, it takes the brunt of gale-force winds that average 35 miles per hour and can clock over 50.

It was on such a gale-force day in the winter of 1995 when a visitor exited Navy Pier's Crystal Gardens, a glass-enclosed, one-acre paradise of tropical plants and leapfrog fountains. As the visitor pushed open the stile and rail door, a rush of wind swung it 180°, slamming the exterior trim handle into an adjoining pane of glass. Shards of glass crashed onto the pier and into the gardens, leaving a gaping frame where the \$2,500 glass pane once blocked the wind.

This was the first of many door failures on entrances installed 18 months before as part of a major renovation of Navy Pier. Wind also destroyed one of the wood grain doors on the historic Grand Ballroom by pulling the screws right through the butt hinges with overhead stops. Another new stile and rail door ripped free of the offset pivots and flew out into the harbor. Hardware from other recently installed doors skidded across the pier and sailed out into the churning waves. Don Johnson, carpenter foreman for the Metropolitan Pier and Exposition Authority (MPEA) carpenters and craftsmen on Navy Pier, needed an entrance solution fast.

"I had recommended a different door for the Navy Pier renovations," said Johnson, "but the architects had a

specific aesthetic style in mind. When the brand new doors started failing within 18 months, I knew I could not just fix them. I would have to replace them, even if it meant paying for the doors twice."

Johnson went back to Loren Norden, of Indiana Door & Hardware, who had bid the Special-Lite doors he had first recommended. Norden supplied him with two Special-Lite SL-15 monumental stile and rail doors that came with factory-installed Select Products continuous gear hinges.

Conquering the Navy Pier challenge

Replacing Navy Pier's damaged aluminum doors was not easy, admits Jeff Waggoner, Chicago sales representative for Special-Lite. The conditions on Navy Pier are more demanding than normal entrance applications. Special-Lite engineers and field representatives had to retrofit the door, frame and hardware designs to compensate for gale-force winds, fluctuating temperatures, and parking structure installations more than 20 feet above the pier, where there is even less protection from Lake Michigan's blasts. Entrances had to be easy to open and cycle for millions of visitors annually. Yet closers needed to be customized with advanced backcheck to prevent the doors from swinging out of control and damaging adjacent property.

"Special-Lite engineers also determined that the SL-15 monumental stile and rail doors needed a 4" tie-rod mid-rail. This option gives the doors extra horizontal strength



These photos show how strong winds have destroyed internal door reinforcements for pivots. MPEA carpenters were creative and used hardwood blocking inside storefront doors to reattach pivots as a temporary fix. This was the first door that Special-Lite replaced.



The Pier that Changed Chicago's Waterfront

As Daniel Burnham stood near the mouth of the Chicago River in 1909 and looked out at Lake Michigan, he imagined something no one had ever constructed before—a pier that would combine shipping and public recreation.

By 1916, Burnham's dream became Chicago's Municipal Pier, with Chicagoans and tourists enjoying food and entertainment alongside longshoremen hefting crates from docked steamships.

Renamed Navy Pier in 1927 as a tribute to World War I Navy personnel, the pier enjoyed decades of popularity, but fell into disuse by the early 1970s. Then the nation's Bicentennial Celebration inspired the renovation of the pier's spectacular Grand Ballroom. From 1978 to 1982, Navy Pier hosted ChicagoFest, an event that enticed millions of people to stroll its walkways again.

Encouraged by the renewed interest, the newly formed Metropolitan Pier and Exposition Authority (MPEA) decided in 1989 to redesign the city's unique exposition and recreational facilities. By 1995, \$150 million worth of renovations had Navy Pier sparkling like a diamond in Chicago Harbor where today it draws eight million visitors from around the world annually.

through the middle,” said Waggoner. “Not only do these doors face high winds, but unusual floor conditions, too. The pier pilings shift, and the floors are in constant motion. These are *not* your typical door installation conditions.”

Design considerations were also made to match the Special-Lite entrances to the existing storefront framing with its dark bronze, white and clear aluminum anodized finishes.

Johnson said Craig Hartsell, training manager for Special-Lite, came on site to help install the first two retrofit doors. Once the MPEA carpenters and craftsmen saw how easy they were to install, they began doing the rest of the installations.

Since 1995, Johnson said the MPEA has replaced 80 of Navy Pier’s original 225 doors with Special-Lite entrance systems and factory-installed hardware, including Select Products continuous gear hinges, SARGENT exit devices and LCN closers. “I have proven to my boss that maintenance is non-existent on the newly installed doors. According to my daily maintenance reports, we average two to three jobs a day working on the original doors. There has been no maintenance on the Special-Lite installations. Considering what we pay in labor per hour, we have been trying to replace as many of the original doors each year as our budget allows.”

Most replacement installations are in the highest trafficked areas such as the historic Navy Pier main entrance, the exterior doors for the parking garage and bus turnarounds, the restaurant supply receiving doors, the Food Court doors



Don Johnson, carpenter foreman at Navy Pier, stands in front of newly-installed Special-Lite doors.

(including the popular McDonald’s chain), the West End Arcade, and Reva’s parking lot entrance.

“I have worked at McCormick Place [also on the lake] for many years,” said Johnson. “That experience has taught me what works and what doesn’t work in high use and abuse environments. People who are in the trades pay closer attention to how the doors are put together and what materials they use to make them. The doors we are specifying now are made to take the abuse out here.”

Waggoner agrees. “Lots of manufacturers will tell you they make a heavy-duty door. Very few claim they make a ‘Navy Pier-duty’ door. Fortunately, Don Johnson has found one that can rope the wind.” **D**