# 1ST Place

## Category 5: Accessibility Systems

**Project:** Ground Zero Pedestrian Bridges
**Submitted By:** Kamran Shushtarian
**Company:** Mobility Elevator & Lift Co.
**Date of Completion:** August 2002
**Location:** World Trade Center Site, New York City

The World Trade Center (WTC) and the financial district of Manhattan are separated from the Battery Park city area by the West Side Highway. After the September 11 attacks, these two areas were completely cut off from each other. Battery Park is mainly residential, and most people who live there work in the financial district, making the commute extremely difficult. As a solution, two separate projects were undertaken. One was to repair the Liberty Street pedestrian bridge, which use to go directly into the WTC, the other was the Rector Street pedestrian bridge two blocks south. Kamran Shushtarian, engineer and vice president of Mobility Elevator & Lift Co. was approached for both separate cases to resolve the accessibility problem to the bridges. Due to time and space constraints, a full passenger elevator was not feasible. The total vertical rise was 25 feet and 23 feet respectively. Since NYC local law 58 has amended ANSI codes to allow vertical wheelchair lifts to travel up to 25 feet, we recommended a custom-designed vertical wheelchair lift with its own self-contained enclosure, ventilation system, landing doors, interlocks and cover dome. To my knowledge, a unit with these design parameters had never been built in North America. The biggest challenge was to design, manufacture and install these units in approximately 10 weeks. For this, I approached Savaria Industries, and they rose to the challenge.

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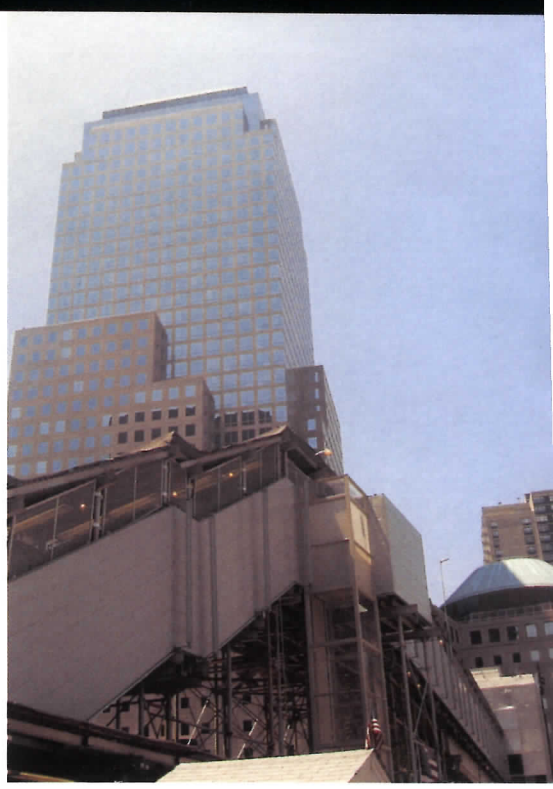

### Liberty Street Bridge

I was approached by Bovis Lend Lease LMB. Inc. They were one of the major contractors chosen for the WTC clean up. After hearing my ideas, we contacted the Department of Design and Construction who was in charge of the project, and after several design drawings, we got the architect's and structural engineer's approval to build the unit. The lift's plexiglass and aluminum enclosure needed to be designed to be self supporting, the only support for the lift was a steel frame structure built behind the machine tower. We took special care to make sure this steel structure is adequate, all loads including wind resistance were taken into account. The total height of the lift enclosure exceeded 34 feet. The drive mechanism was chain-hydraulic, and due to the amount of travel, a special auxiliary oil tank was designed to accommodate the hydraulic fluid.

The unit was manufactured on time at the Savaria plant in Montreal, Canada. The unit was assembled at the factory and tested, then broken down and delivered to the site. A crane was used to stand up the machine tower, and the plexiglass and aluminum enclosure was assembled on site. The sense of camaraderie at the site is impossible to describe, from the police officers and firemen to all the different trades at the site. Everyone worked with an incredible sense of purpose. We got the work done on time, and Mayor Bloomberg opened up the bridge and rode the lift.

### Rector Street Bridge

We were approached by the firm of Shop Architects in NYC to help them design a similar lift for the Rector Street bridge. The general contractor for this project was Tully Construction. This lift was manufactured and installed by Mobility similar to the Liberty Street unit.

**Credits**:

**Liberty Street Bridge**
Designer & Installer: Mobility Elevator and Lift Co.
Manufacturer: Savaria Industries
General Contractor: Bovis Lend Lease LMB, Inc.
Architect: Department of Design and Construction, World Trade Center Recovery Project

**Rector Street Bridge**
Designer & Installer: Mobility Elevator and Lift Co.
Manufacturer: Savaria Industries
General Contractor: Tully Construction
Architect: Shop Architects