



VA Hospital Retrofit Lift

Pflow Retrofits Two Lifts in Single Shaft to Keep Supplies Moving at Large VA Hospital

Features and Benefits

Efficient VRC replaces antiquated “dumbwaiter” conveyor system

Industry Group: Vertical Reciprocating Conveyors

“Pflow was the only company that could design a custom lift system to fit within the structure of the existing clean-side shaft. The shaft was simply too tight and the necessary connections within its aging walls too delicate for common solutions,” said Buddy Chadwell, the Craft sales VP in charge of the project. “The Pflow concept allowed the shaft infrastructure to basically stay the same, right down to the two access windows on each floor.”



VRC in Shaftway

Milwaukee, Wisconsin (March 11, 2013) - “A dumbwaiter, for lack of a better term.”

Pflow Industries sales reps and engineers have often heard the term “dumbwaiter” when referring to the smaller platform variations of the vertical reciprocating conveyor (VRC) product class the company pioneered in 1977. Though both dumbwaiters and VRCs move materials and not people, the comparison ends there. A recent retrofit installation of several VRCs in the Malcom Randall VA Medical Center in Gainesville, FL illustrates the engineering sophistication that elevates VRCs well beyond the colloquial “dumbwaiter” term.

The Gainesville VA is one of two major hospitals in the North Florida/South Georgia Veterans Health System, housing over 450 beds and serving patients with a full range of patient care services and state-of-the-art technology. With approximately 600,000 outpatient visits and 12,000 in-patient admissions a year, it is easily one of the busiest VA medical centers in the country.



The hospital opened in 1967 with a unique logistical feature - three chain-driven vertical conveying systems to move supplies between the medical supply room in the basement and each of the five patient care floors. Two “clean-side” conveyors in one shaft carried new supplies up, and one “dirty-side” conveyor in a separate shaft carried used supplies down to the basement for disposal. The conveyors carried the supplies in custom plastic totes that rested on a series of two lift-arm sets (aka “forks”), spaced out along the revolving chains that moved them up and down, much like a carousel. The totes, which had to be a specific size and dimension to rest properly on the forks, were manually placed on and removed from the forks at each level.

The system, called a TrayVeyor, worked well for more than 40 years, but, over time, it became antiquated technology. Compounding its obsolescence, the specific plastic totes were difficult to replace and the company that made the system had gone out of business. In looking for a solution to replace the system, the VA Hospital turned to Arco Construction, an American Service-Disabled Veteran Contractor based in Florida with whom they had worked on other projects.

Arco quickly found that a solution would not be easy. The elevator and lift companies that they initially contacted could not work within the parameters of the existing shaftways. Not only were the shafts extremely tight, but they had also been used to route utility lines and other connections over the course of its life. Either a new shaft or shafts would need to be constructed, or the supplies would need to be transported by hospital staff members on carts via the standard elevators. This option would require additional personnel, and create additional traffic on an elevator system already in constant use.

As the options were being evaluated, Arco got in touch with Craft Equipment of Tampa, a leading material handling company in the southeast and a longtime dealer of Pflow VRCs. Craft contacted Chuck Cobb, the Pflow regional manager in the southeast, who visited the hospital several times to analyze the challenge and develop a potential solution. Cobb reviewed the limitations of the existing shaftway, consulted with Arco and Craft, and began to develop a plan that would make the medical supplies flow better than ever.

If the utility lines and other connections could be rerouted and cleaned out, a pair of custom designed Series-M, 2-post cantilevered VRCs could be installed in the clean side shaftway. The two lifts would handle more capacity than the three-lift TrayVeyor system, allowing the dirty side shaft to be entirely closed.

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The two identical lifts are installed side-by-side, with carriage floor dimensions of 2 ft x 1.5 ft, and an accessible height of 3 ft, small enough to conjure the inevitable comparisons to a dumbwaiter. Yet, moving at a speed of 220 fpm, it can travel the 59 ft from the basement to the fifth floor apex in approximately 16 seconds. This achieves two lift cycles per minute based on the average travel time from each level and the basement. The lifts can also handle any size tote that fits within the carriage, and any load weight up to 100 lb.

“The dual Pflow lift system provides a highly beneficial redundancy to the VA. At the flip of a switch either lift can go either direction. In the morning when supplies need to be stocked, both lifts can go up, and during the day they can be adjusted as needed,” said Chadwell. “And because the totes are more secure on the Pflow carriage than on the TrayVeyor forks, dirty supplies can go on either side in sealed totes that will travel with guaranteed security.”

Another departure from the common dumbwaiter is the automated conveyor system in place for both lifts in the

basement and on the five upper floors. The system allows the totes to be automatically discharged from and loaded onto the lift at all levels. Totes can be staged on the conveyors when in loading mode to be automatically fed into the lift, and accumulate on the conveyors in discharge mode waiting to be manually moved to their destination. The system includes a 20" x 20" conveyor on the carriage floor of each lift that works collaboratively with the floor conveyors to feed or discharge the loads. One control interface for each lift coordinates the directions of the conveyors and lift.

"This particular project was a challenge from the beginning, requiring a lot of initial time on site to make we sure we designed the best possible system using the existing clean-side shaft," said Cobb. "We analyzed everything, from how many totes the lifts could move per hour, to how many totes would need to go to each floor on a typical day, and how the bi-directional redundancy would enhance the overall system."



Pflow Industries

6720 N Teutonia Ave, Milwaukee WI 53209

414.352.9000

info@pflow.com

www.pflow.com