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Sept/Oct 2009
\$8.95

Marina[®] DOCK AGE

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SPECIAL REPORT:

*Dry Storage
Systems*

Aero-Docks

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Adapting a carousel design

With more than 25 years of experience moving and storing aircraft and locomotive engines weighing more than 350,000 lbs., Richard Lydle, CEO of Aero-Docks, considers moving a 120,000-lb. boat a small feat. His company's boat storage technology grew out of the automated storage of finished steel products. To store different sized boats, Aero-Docks uses four different systems, each one using increasingly more sophisticated technology, the company said.

All of the Aero-Docks storage systems—except Aero-1—use a patent-pending technology called a 'tug.' This hydraulic-powered platform lifts vessels into the air and retracts back onto an elevator system, which then moves vessels to a storage spot.

Lydle claims that the Aero-1 system can store boats up to 45 feet long in a cantilevered rack system. Instead of the tug technology, Aero-1 uses a carrier suspended from an overhead crane to lift vessels from the water and place them into a storage rack.

Aero-2 can store boats up to 65 feet long, using an overhead crane and either a centered or offset loading and unloading aisle. With the use of the tug, Lydle states, Aero-2 can store boats up to four deep with an offset aisle to maximize the arrangement of the marina.

The Aero-3 design has a centered or offset aisle but uses a traveling elevator shaft called the elevator transporter that houses the tug. Lydle claims this system can accommodate vessels in either a custom carrier or rail system, depending on the weight and type of boats in storage.

Unlike the other systems, Aero-4 is a carousel design that rotates around the circumference of the building similar to airport luggage terminals. Outside on the elevator transporter, vessels move horizontally and vertically among the stacked carousels to the correct storage



Artist's rendering of the Aero-Dock elevator.

spot. Electric motors move equipment at an average speed of between five to six feet per second, Lydle noted.

The benefits

Lydle said that Aero-Docks' tugs have the ability to reach out from the building up to 200 feet, so dry storage facilities do not have to sit on the waterfront. In addition to the tug mechanism, part of Aero-Docks' patent also covers its unique electrical system, which keeps boats attached to power while in their storage spots. Additionally, a radio transmitter attached to each boat monitors the system for malfunctions.

To connect to electricity, the Aero-Docks systems move and store boats in a custom cradle carrier. Typically, the automated systems use cradles for boats 50 feet and longer, and smaller vessels rest on a bunk rail system. With both mechanisms, the overhead crane or

elevator transporter interlocks with the storage spot rack to ensure an accurate and sturdy drop off and pick up in the storage space.

Aero-Docks uses the Internet to monitor its computer system. Most importantly, though, the computer system monitors boat usage. By tracking customer's boating habits, the computer, either automatically or after asking for operator permission, will maximize the arrangement of the marina at noon and midnight each day.

Aero-Docks currently has several projects underway—one in Maryland, three in South Florida, and two in the Bahamas—all Aero-3 designs, Lydle said. He added that the Maryland project, which is a 45,000-square-foot dry stack building for up to 1,000 vessels, is being built in 350-boat increments over the next four years. Barring any legal or permitting issues, Lydle said he hopes to complete the South Florida projects by 2010.

Aero-Docks' flagship project is a facility called Solamar in Palm Beach Gardens, Fla. Though the economy has put the project on hold for right now, Lydle hopes the economy will have recovered sufficiently to move forward with construction plans in October 2009.

Solamar will have 20 wet slips and store 400 boats in its dry stacks, employing both the Aero-3 and Aero-4 systems. Though Aero-3 systems typically employ an interior elevator transporter, Solamar's will be exterior.

The largest boats, from 50 to 70 feet, will be stored in an Aero-3 system, while the vessels from 20 to 49 feet will use Aero-4. Solamar will serve as Aero-Docks' franchise facility, Lydle said,

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