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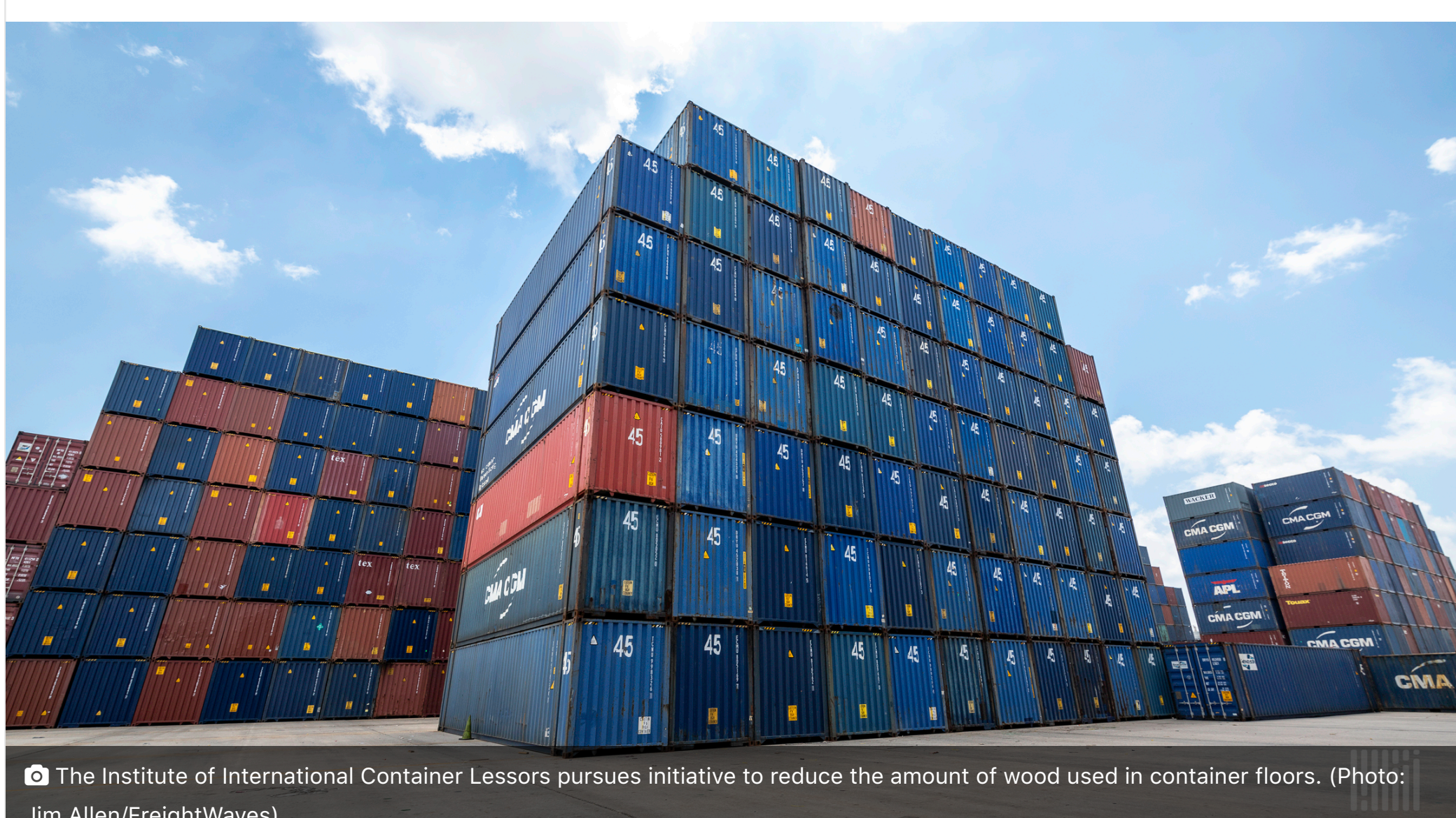
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How much wood would a container manufacturer chuck?

A new floor design developed by the industry promises significantly reduced maintenance

Chris Gillis • Thursday, September 10, 2020

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The Institute of International Container Lessors pursues initiative to reduce the amount of wood used in container floors. (Photo: Jim Allen/FreightWaves)

How can something so universally accepted and efficient in global maritime transportation like the standard ocean container be further improved?

For the Washington, D.C.-based [Institute of International Container Lessors \(IICL\)](#), the answer lays at the industry's feet — that is the floor of the container.

After a dozen years of real-world testing, the IICL said it is ready to press forward with promoting its new container floor design to the world's container manufacturers.

"Things like this take time to develop in our industry," said IICL President Steven Blust in an interview with [American Shipper](#). "Now we're on the cusp of introducing this new floor design for full-scale production."

Ocean container floors are traditionally composed of hardwood lumber and plywood, which offers a flexible and durable platform for loading and securing cargo.

Initiatives by other parties to utilize standard container floors made of steel continue to be evaluated and tested in the market for functionality and acceptance.

With the migration of container manufacturing to Asia during the past 20 years, hardwood timber has become scarcer and more expensive to legally source. Organic composites made from bamboo recently have become an abundant substitute to hardwood timber, but labor-intensive manufacturing processes and premature wear and tear during service remains challenging.

New design for container floors

Fifteen years ago, the IICL realized that the industry must develop a new floor system for the millions of future ocean containers that is affordable, rugged, lightweight and environmentally friendly.

In 2007, IICL's Flooring Working Group settled on two container floor patterns: one that uses a pattern of every other wood plank separated by a steel strip that runs the length of the container, which the institute calls the "omega," and the "tunnel" pattern that includes a wide steel strip through the middle of the container with wood planks on both sides. Both designs use up to 45% less wood than standard design container floors.

The omega and tunnel floor designs met [International Standards Organization](#) and classification society criteria, IICL said.



One of the 200 40-foot containers testing the IICL's omega floor system. (Photo: Institute of International Container Lessors)

In 2008, 400 test containers were constructed: 200 20- and 40-footers with the omega floor and 200 20- and 40-footers with the tunnel floor. IICL members CAI, Triton, TAL and Textainer acquired 50 of each design. The blue-colored containers were immediately placed into the international container trades.

After reviewing the results of the trials, it was decided to focus on the omega design going forward due to its advantages in the manufacturing process and for in-service repairs, Blust said.

The current omega floor design adds 100 kilograms to the 2,100-kilogram tare weight of a 20-foot container and 140 kilograms to the 3,700-kilogram tare weight of the 40-foot container with conventional wood floors.

"Work will continue to refine and improve the floor design in the areas of functionality and tare weight as more containers are placed into service and additional experience is gained," Blust said.

10 years of testing

Blust said the test was initially expected to last a year but ended up being carried out over the next 10 years, first due to the 2009 collapse in the container trades and followed by prolonged patent hurdles in China.



Steel-wood combination Omega floor design (Photo: Institute of International Container Lessors)

The 10 years of service data collected on the containers since 2008 proved to the IICL that the omega pattern exceeds performance and durability expectations over traditional container floors. In fact, the omega floor is five times less prone to damage than current all-wood designs.

Floor repairs account for nearly 20% of the maintenance costs per container. IICL's omega floor design reduced that cost to 4%, Blust said.

IICL members planned to meet with China's top container manufacturers during the 2020 Intermodal Asia conference. Due to the COVID-19 travel and gathering restrictions, however, the institute conducted conference calls with four Chinese container manufacturers — CIMC, CXIC, DFIC and FUWA — to promote future production using the omega floor.

Blust said it will likely take years before the omega design becomes an industry standard. There are about 23 million

ocean containers in the world fleet, primarily 20-footers and 40-footers, which have traditional all-wood floors and a 12- to 15-year operational lifecycle.

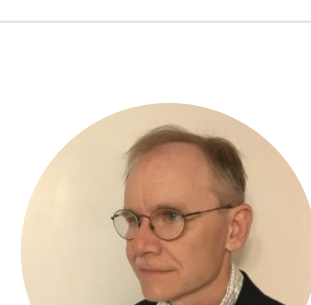
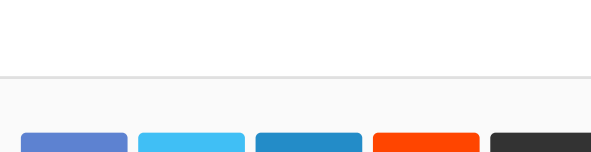
The IICL hopes the Chinese container manufacturers will begin introducing their first production runs using the omega floor in 2021. "We think there's a great possibility of this happening," Blust said.

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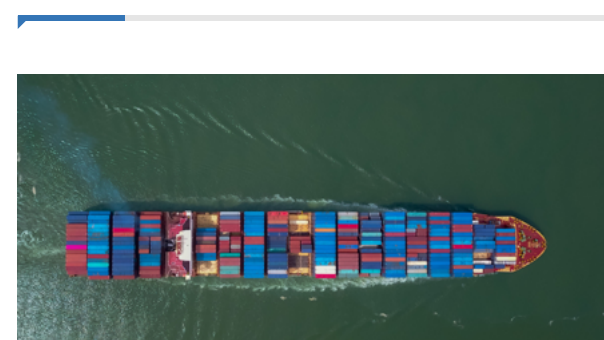
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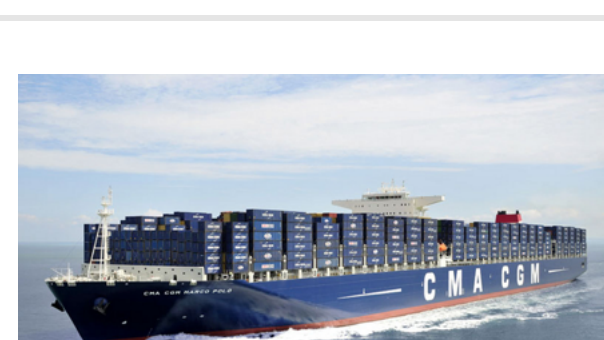
Chris Gillis

Located in the Washington, D.C. area, Chris Gillis primarily reports on regulatory and legislative topics that impact cross-border trade. He joined [American Shipper](#) in 1994, shortly after graduating from Mount St. Mary's College in Emmitsburg, Md., with a degree in international business and economics.

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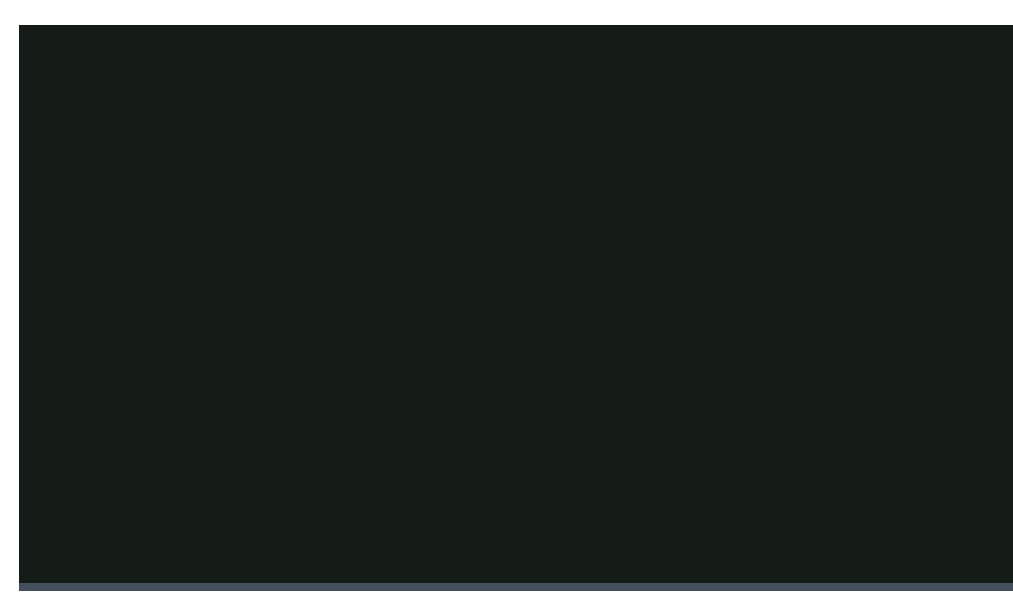
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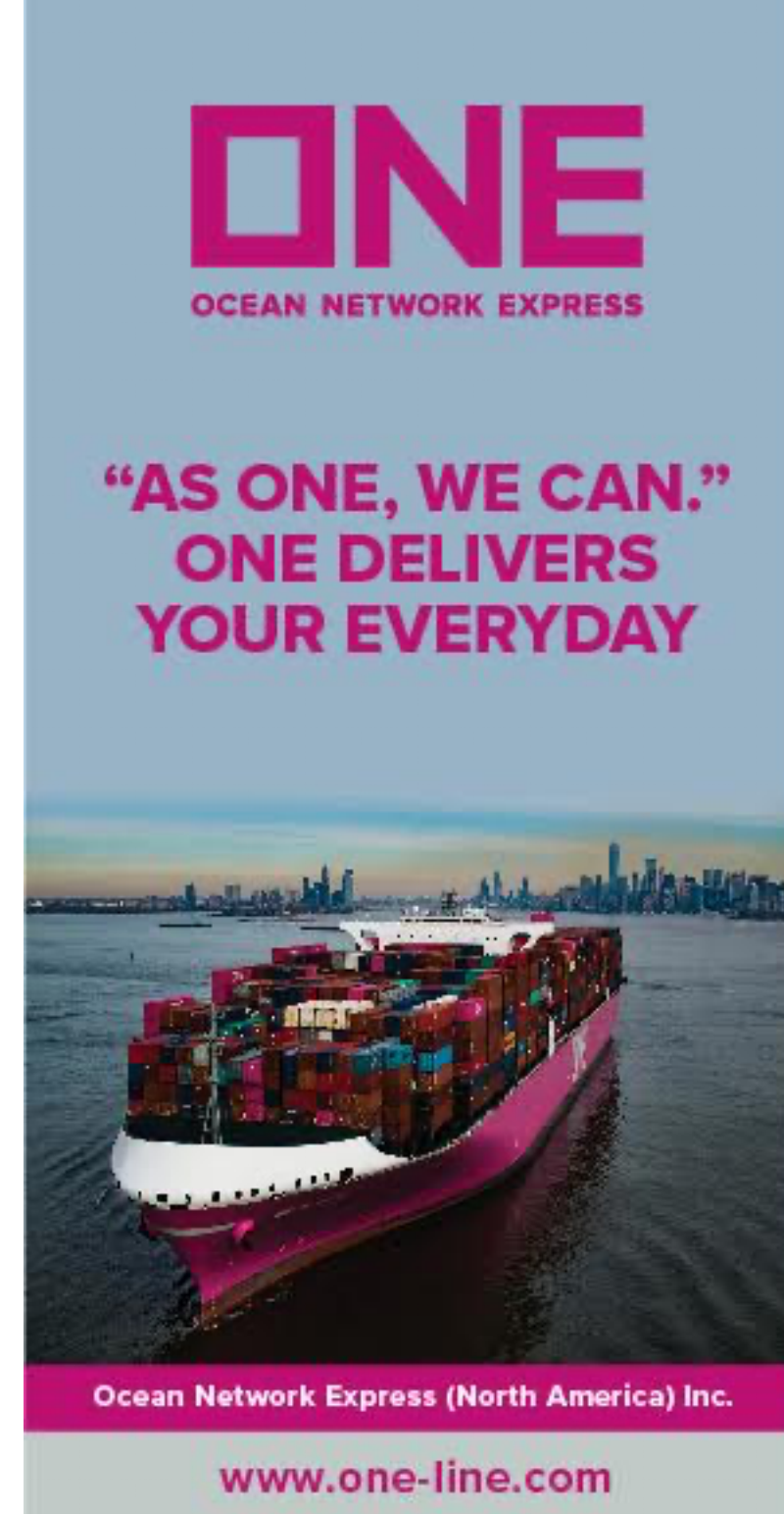
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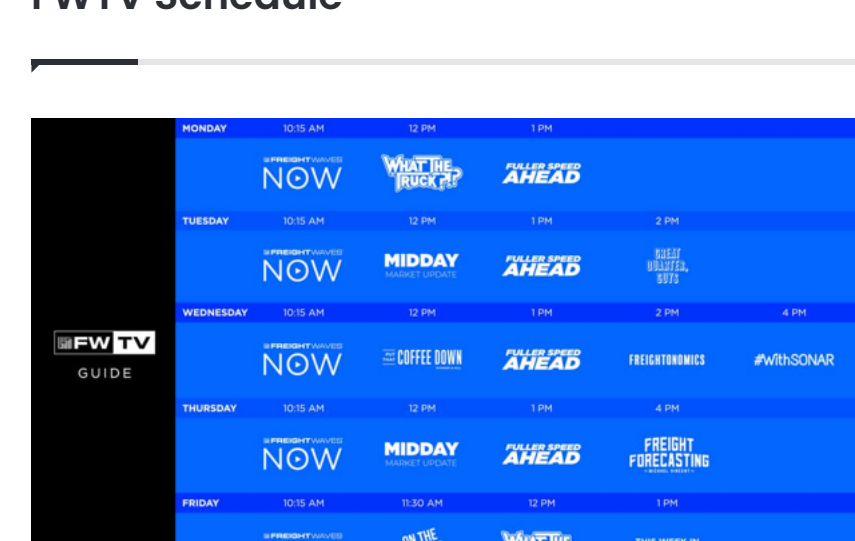


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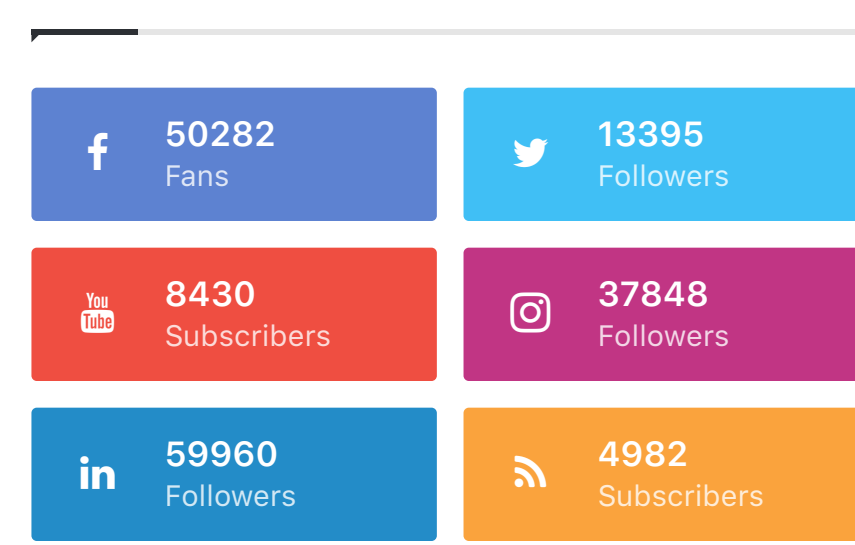
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