

42 OCEAN AT THE CAVALIER VIRGINIA BEACH, VA

Project Completion: 2022

Structural Engineer: Lynch Mykins Structural Engineers

Architect: Cooper Carry, Inc.

General Contractor: W.M. Jordan Company

Wall Panelizer: Agent Wall Systems, Inc.

Developers/Owners: Gold Key | PHR

85,717 square feet



CASE STUDY

ECOSPAN HELPED TURN THE TIDE FOR 42 OCEAN

The 42 Ocean at the Cavalier condominium project in Virginia Beach, VA was originally designed to be constructed with wood. But after a nearby seaside wood condo project suffered serious weather intrusion in only a few years, the owners decided to switch to a steel building using cold-formed steel panels and Vulcraft's Ecospan Structural Floor System. Not only did Ecospan provide a significantly longer lifespan for the luxury condo project, it also allowed for a more open floor plan, a higher STC rating, and it shaved weeks off the schedule by eliminating shoring.

BACKGROUND

42 Ocean at the Cavalier is a five-story luxury condo complex wrapped around the Marriott Virginia Beach Oceanfront Hotel, and adjacent to the historic Cavalier Hotel. The 35 units offer residents refined and sophisticated one- and two-story condominiums, costing around \$1.2M each. Originally designed to be primarily constructed with wood, the decision was made to transition the planned project to steel for better longevity and lower maintenance costs when another seaside wooden project in town suffered serious weather intrusion after only a few years.

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Vulcraft and Ecospan really helped our company get to the next level. Their product is better, and their engineering is better. It allows us to do more with metal studs. We can build buildings that are taller; buildings that have larger rooms; and buildings that incorporate balconies into the design. It allows us to offer our customers more.

Adam Taubman, President - Agent Wall Systems

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The advantage that I see with Ecospan is the ability to have larger rooms, greater spans, and really maintain your cost of the floor. With Ecospan, you can have huge 30 to 40-foot spans and the square foot cost of the product stays the same. A unique advantage is when a developer comes in and says ‘Hey we have a nice condo, but we want bigger rooms. Can your metal stud system accommodate these big rooms?’ Because of Ecospan, the answer’s yes.

Adam Taubman, President - Agent Wall Systems

OPENING UP FLOOR PLANS AND INTEGRATING BALCONY FRAMING

A major appeal of the switch to Vulcraft’s Ecospan structural flooring system was the ability to design wider open spaces. By offering longer spans at essentially the same weight, Ecospan allowed the design team to create the wider spaces demanded by luxury apartment tenants.

Luxury apartments also call for high ceilings. Ecospan can be engineered to maximize spans for wider open spaces while minimizing depths for taller floor to ceiling heights. 42 Ocean was able to achieve the desired unit heights according to Justin Padgett LEED AP BD+C, Project Manager at W. M. Jordan, who said “The unique architecture of the building created an issue, and the owner wanted to maximize the ceiling heights of the units. Vulcraft’s Ecospan system was the best solution for both of these challenges.”

Part of Ecospan’s ability to achieve larger clear spans comes from the joists’ orientation running from the center of the building to the exterior wall. For this reason, the demising walls and the interior walls no longer needed to be load bearing. Adam Taubman, President of Agent Wall Systems explained, “One thing that tipped the scales for us was that we were able to switch the orientation of the joists. Using exterior walls and corridor walls as bearing allowed for more open unit plans and open floor plans, much more so than they had with their wood design.”

An additional benefit to this system was the simplification of balcony construction. Protruding balcony floor framing was incorporated into the joist detailing, allowing for the balcony to be constructed at the same time as the rest of the floor.





SILENCE IS A LUXURY - ACHIEVING SUPERIOR STC RATINGS

Nothing says luxury quite like a quiet space that feels private, and 42 Ocean's design team was focused on providing high levels of sound insulation between units.

"The biggest consideration was STC ratings because these were going to be luxury condos," Taubman said. "And if they were wood framed then the STC ratings just would not have been up to par. A unique advantage of Ecospan is the sound

ratings. You can get an STC of 50 right out of the gate. With other types of floor construction that's very difficult to do. We've seen developers focus on sound ratings and that ends up being the driving reason of why they choose Ecospan."

Ecospan has many typical installation specs to help architects meet their desired sound and fire ratings without requiring excessive sound absorption materials that can drive up cost or construction time.

SPEEDING UP BY ELIMINATING SHORING

Keeping on schedule is key for any project, and Vulcraft helped 42 Ocean stay ahead by eliminating shoring. The Ecospan flooring system is self-supporting, which allowed for rapid erection of the walls and upper floors without waiting weeks for concrete on lower floors to cure. Taubman explained, "When you eliminate the need for shoring, it drives the construction schedule much, much faster."

Eliminating shoring also speeds up construction by not slowing the work of trades. Plumbers, electricians, and HVAC techs could run lines and install on finished floors without any shoring getting in the way. This cut down on subcontractor schedule time as well as cost.

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This was my first Ecospan project, and the design and support team did a great job adjusting to changes as the project went along and fast-tracking material when we needed it. I look forward to my next Ecospan project.

Justin Padgett, LEED AP BD+C, Project Manager - W. M. Jordan Co.

ALL IN THE DETAILING

Because the condos were built wrapping around another structure, the detailing work performed by Vulcraft was extremely intricate. Ben Merritt, Project Manager at Agent Wall Systems said, "I think Vulcraft's detailers do a good job interpreting the ideas of the EOR and the architect. Ecospan was a very smart system, a very intuitive system. We have a crew that leads the charge on all our Ecospan jobs. They pass that knowledge on to other guys because once you've got it, you've got it."

The project involved extensive coordination with separate engineers for the structure and framing. Pre-construction communication is one of Vulcraft's greatest strengths, and extensive detailing and planning help to eliminate construction coordination issues and field modifications before they arise.

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Vulcraft worked with us through a variety of irregularities in the project because the buildings are very unique and they're highly detailed. The detailing that Vulcraft ultimately had to do to complete the project was intense, and they stepped up every time. Everything worked when it came out in the field. If you look at the rendering of the building, it's a very complex structure. The detailing department stepped up and did a great job and, of course, the fabrication and delivery was on time.

Adam Taubman, President - Agent Wall Systems



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