

The Vessel

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Abstract

Designed by Thomas Heatherwick, Vessel (Figure 1) is the centerpiece of the Public Square and Gardens at Hudson Yards. Both a monumental sculpture and interactive structure, the 46 meter-tall Vessel is an expanding lattice of 154 flights of stairs and 80 landings. The compact 15meter-diameter base minimizes the impact to the landscape and invites a more personal experience, while the expanding width, which reaches 46 meter at the top, offers a broader relationship with the surrounding park and buildings.

The structural framework supporting the mile of ramps and landings was developed with inspiration drawn from shipbuilding and bridge designs. As the thin-walled, steel structure evolved, attention was given to aesthetics, structural integrity, constructability and economy. From the outset, consideration was paid not only to the details, which would influence the plate assembly, weld sequence and fabrication, but also to the overall logistics of transportation, site connections and erection sequence.

Conceptually, the project was broken down into an interconnecting series of “dog bones” – essentially transportable, thin-walled, lightweight monologue-construction modules. The resulting Vessel is a sculpture on an industrial scale with a beautifully refined design that balances form and function. It celebrates craftsmanship and attention to detail while creating a new signature structure in New York’s urban fabric.

As the structural engineer-of-record, Thornton Tomasetti will present the background on the evolution of the project and discuss the structural analysis, detailing, vibration studies and design assist process.

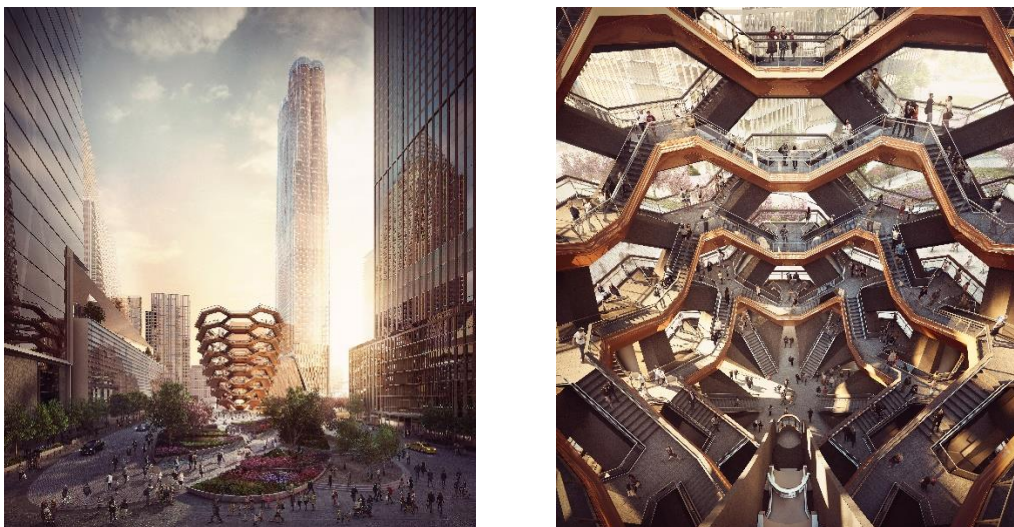


Figure. 1 The Vessel