



The value proposition of sustainable marine lumber - by Charles Zimmerman

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Among New York's greatest attributes are its many waterfront areas. Surrounded by the Atlantic Ocean, Long Island Sound and with countless rivers, lakes and arteries, it is a marine lover's paradise. Striking the balance between conscientious commercial and residential waterfront development and environmental preservation is critical for the real estate development and construction industry, as well as the general public. One way builders and local public works directors are assuring that this balance is maintained is through the specification of sustainable marine lumbers. These woods have proven to deliver on many fronts, from protecting our waterways and the ecosystems that inhabit them, as well as significant cost savings.

Legislation and Environmental Movement Drives Sustainable Construction

While laws existed to protect our waters and surrounding environments such as the National Environmental Policy Act of 1969 and Clean Water Act of 1972, it wasn't until some devastating maritime incidents that the focus on protecting our waters really took hold. It took oil spills like the Torey Canyon oil spill in the United Kingdom and the Exxon Valdez spill in Prince William Sound, Alaska, as well as the Deepwater Horizon oil drilling rig explosion in the Gulf of Mexico to generate strong marine-related environmental mandates. In addition to those governing oil tankers, there were other laws regulating construction activities for various projects along waterways (e.g., marinas, ferry stations, piers, waterfront developments, etc.) Agencies such as the U.S. Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce and, at the international level, the Permanent International Commission for the Navigation Congresses, all had a role in developing new rules and technical guidelines for sustainable development, construction and management of ports, marinas and waterfront projects. Within these were guidelines relating to construction materials.

Environmentally-Preferred Materials

The specification of construction materials that do not "leach" hazardous chemicals into the water or

degrade in less than ten years are suggested as environmentally-preferred materials. Suggested are materials such as reinforced concrete, coated steel and composite plastics. What aren't included are sustainable marine lumbers despite the fact that these woods offer a high value proposition.

Under the Forest Stewardship Council (FSC C117772), select marine lumbers are certified to have been harvested from forests that are responsibly managed according to environmental, social and economic objectives. Sustainable marine lumbers also are completely aligned with eco-friendly marina construction and engineering with nature principles. Equally important, they offer performance features that other woods and materials do not, making them especially suitable for marine-related construction. Greenheart Wood (aka *Chlorocardium Rodiei*) is one of the leading sustainable marine lumbers, which has been used in projects across the New York-Metro area from marinas, bridges and ferry stations to beach boardwalks, roadways, docks and piers.

Greenheart is responsibly harvested from Guyana and is valued for its high strength and durability. Additionally, it is pest and marine borer resistance and virtually immune to rot. Therefore, it requires minimum maintenance and eliminates the risk of toxic chemicals spilling into the water unlike pine and other soft woods, which rot, experience mold and fungi, and are not insect-resistance.

As for composites, their claim to be maintenance free didn't hold water, as a class-action lawsuit ultimately decided. They also pose a slipping risk when wet.

Both composites and soft woods also don't have the lifespan that sustainable marine lumbers such as Greenheart offer. Specifically, whereas Greenheart provides a lifespan of over 75 years, composites and soft woods last approximately 25 years and that is with a lot of maintenance for the soft woods.

From an environmental standpoint, sustainable marine lumbers' reduced maintenance and longer lifespan equates to less construction to renovate deteriorating marinas, piers, piles, etc. Not only does that represent lower costs, but also less negative impact on the waterways, wetlands and marine ecosystems, in, around and below them. On the East Coast, these ecosystems serve as natural habitats for crabs, lobsters, blackfish, fluke, striped bass and other fish, as well as for living organisms including corals, sponges, tunicates and sea anemones.

Construction Specifications

If you look at the specifications of Greenheart, its value proposition is further established for engineers and contractors. From a building and construction standpoint, Greenheart's specifications include:

Air dried density (12%) of 970 kg/m³ (kilogram / cubic meter);

Bending strength (at 12%) of 240 N/mm²;

Modulus of elasticity (at 12%) of 24500 N/mm²; and

Class "A" Fire Rating – highly resistant to fire and does not spread flames quickly.

For their environmental-friendly composition, durability and long lifespan, aesthetics and ease of use, sustainable marine lumbers such as Greenheart, are fast-becoming the go-to choice of municipal public works directors, engineers and marine contractors who realize its viability across the marine environment -- for docks, pilings, piers, lock gates, ferry stations, and harbor works to decking, handrails, boardwalks, and other flooring.

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