



# WHOLE TREES

## Architecture and Structures



Amelia  
Baxter

A successful entrepreneur sets her company apart from the competition while furthering environmental causes.

When Amelia Baxter encountered a round-timber framed building in 2004—when she stood in awe before the building's branched tree columns, sensual timber beams and distinctly modern use of an ancient material—she knew she had been transformed.

Yet she couldn't have known that, in the decade to come, she would partner with Roald Gundersen, AIA, the building's architect, to influence the larger building industry. Together they would found a groundbreaking company, WholeTrees® Architecture and Structures, that produces sustainable and transformative products.

Modern urban environments are home to severe design—the sharp steel and glass of towering skyscrapers, the crisp edges of office buildings and housing complexes. Baxter says, "This stern design works so well in many appli-

cations, but at times fails to capture the human side of residential and commercial construction. I'm interested in that human side."

That interest shows in her work: Baxter's company is focused around mimicking nature's soothing forms in affordable, green building solutions. To accomplish this, WholeTrees brings the superior, natural engineering of the unmilled or whole tree to construction through manufacturing technologies and structural products such as columns, beams and trusses.

Whole trees make for such successful structural products because they are by definition trees that evade milling—the process that grinds and shapes large tree trunks into slabs with even edges. Whole trees are smaller and immensely beautiful. While cleaned and shaped slightly, they're not characterless planks of wood; they are clearly, wholly from nature.

Whole trees are also 50 percent stron-



ger than milled trees, as milling reduces lumber's strength by disrupting its fiber structure. Baxter says "the same structural genius that supports a tree under axial and wind loads allows it to gracefully support heavy building loads while absorbing carbon." Using whole trees in place of milled trees also means using all of the strong timber in forests instead of just the trees that are over a certain diameter.

Using whole trees is a fantastic business concept, yet no one had attempted it.

Perhaps this is because it seems wild to replace steel, concrete and other structural options with any type of tree. But major shifts in forestry and construction, such as increased environmental awareness and shifting supply chains, created a space for innovation.

Baxter and Gundersen were eager to fill that space, placing their bets on the global marketplace's hunger for creative solutions. With Baxter at the helm, they have built a company with an unparalleled portfolio in the use of trees in construction, while raising federal grants and investment dollars to develop manufacturing technologies so that other forest and building product companies can follow in their footsteps.

There is a path to follow because Baxter and Gundersen were successful in predicting international market trends in forestry and construction—something they were able to do because of their expertise and backgrounds in related fields.

Gundersen's national reputation stems from his sole-proprietor architecture business, founded in 1991 and based on a 134-acre forest in Wisconsin. He brought unmilled trees into construction for their beauty and superior strength, and to improve forest health.

Baxter's background includes a degree

in international land management issues from the University of Chicago, with a specific focus on the market forces that motivate sustainable agriculture. "So-called 'conscious companies' have long intrigued me," says Baxter. "Companies like Patagonia® apparel and Equal Exchange® coffee influence supply chains and change behaviors."

Another influence has been Baxter's family; her father and brother are archi-

fects, and she grew up in a Connecticut town near Yale's architecture school, where design professionals per capita are uniquely high. WholeTrees was Baxter's way of leveraging Gundersen's valuable body of architectural work toward an international market they were distinctively positioned to serve.

That international market joins two industries: forestry and construction. Regarding the forest industry, an esti-

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mated 56 million acres of national forests are critically under-managed according to the Forest Products Laboratory of the U.S. Department of Agriculture (USDA) Forest Service.

Without management of 'waste-trees' too small to be milled, forests risk insect and disease infestation and high concentrations of fuel buildup or fire. "WholeTrees provides an incentive for healthy forest management by taking what would other-

wise be forest waste and transforming it into highly valued construction materials," says Baxter.

The construction industry, meanwhile, accounts for 39 percent of the nation's carbon emissions and energy use. Baxter says, "WholeTrees offers solutions to internationally relevant issues such as sustainable forestry, climate stabilization and habitat restoration.

Through the innovative use of the cull-

ings of well-managed forests, WholeTrees products store carbon while displacing the pollution and carbon from the use of steel and concrete. Supporting well-managed forests in turn helps diversify forest habitats." All in all, a worthwhile practice.

Baxter's practice is all the more notable because it occurs in a particularly challenging industry for women. Construction is still dominated by men, with women making up less than 3 percent of the industry's employment. But Baxter knew WholeTrees was a knock-out idea. She also knew the importance of using team building, intuitive leadership and communication skills to build a cohesive company.

The team at WholeTrees has been strong enough to bring Baxter's products into high-profile projects like a Dallas YWCA, the Minnesota Zoo and a product line sold nationally through Morton Buildings.

Baxter's leadership has also led to success when working with investors and boards of directors. When WholeTrees sought to raise equity capital to expand product sales nationally, Baxter succeeded in raising investment dollars from women, maintaining 60 percent company ownership and leadership and qualifying for Women's Business Enterprise certification, an important market driver in the construction industry. Since 2007, WholeTrees has grown to more than \$1 million in annual revenue, with a projected doubling of revenue in 2015, and over a dozen employees.

Baxter says, "As president of a high-growth, early stage company, I am charged with future vision. I see that radical technology-based solutions are on trend across industries, as are effective uses of natural resources that may defy convention but enable unforeseen breakthroughs."

Baxter notes another future-forward driver: "People love trees. They tell stories about them, they Google them, hug them and prefer to be around them." WholeTrees is good news for everyone who loves trees, and for the construction industry that is now freed to build with trees, and in so doing, use a regenerative solution to meet a growing market.

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