

Tiny house

interview with Elizabeth Turnbull

Elizabeth Turnbull is a graduate student at the Yale School of Forestry and Environmental Studies. In 2008 she set out to build her own residence in New Haven. The staff conducted this interview in April 2009.

What is your background? Did you have any relationship with the field of architecture before you started this project?

I studied Environmental Policy and Natural Resource Economics as an undergraduate at Colby College in Waterville, ME. I spent a little time in our Green Building student group, but didn't really make the connection between the built environment and sustainability until after I graduated. I loved my undergraduate experience but felt frustrated by how problematized the coursework was. Most of our time was spent considering environmental and human health problems. When we studied solutions, they were in a vacuum; there was rarely a sense that we were also potential solutions providers. After graduation, I worked for a design/build firm in Massachusetts as their sustainability coordinator. There, I worked to design a sustainability strategy to "green" the firm and their projects. Many things clicked in this role. For the first time, I saw myself as a designer.

Why did you decide to design your Tiny House?

I was accepted into the Yale School of Forestry and Environmental Studies

and wanted to see how lightly I could tread as a student there. I was also looking frankly at my bank account and recognizing that rent was going to dissolve much of my savings.

The initial inspiration for the Tiny House Project came while attending a two week design/build course at the Yestermorrow School in Warren, VT. I enrolled in the course to get skills that I would need for a job as the sustainability coordinator for a residential building company. I was hired to 'green the built environment;' but first, I needed to learn how the built environment worked. Over the drafting table, I mentioned to my classmate that I was intrigued by the role of good design in making small spaces feel bigger than they were. She responded, "Have you heard of the Tumbleweed Tiny Houses?"

I checked their website and saw a series of tiny, gingerbread houses on wheels designed by Jay Schafer in California. I was smitten by them and wanted a somewhat similar, green version for myself. Over the next several weeks, I discovered a whole network of tiny house enthusiasts and began to design my own portable small living space.

What was the design process, and what were you thinking about when you designed your house?

Three main questions underpinned the design process:

1. How much space does a person need to live well?

2. How lightly can this space tread on the earth?
3. Can it be built for about the same as two years of rent in New Haven?

These were supported by a list of goals:

- Make it beautiful and lovely to inhabit.
- Source reclaimed and recycled materials.
- Celebrate a small budget: sustainability and economy are sisters.
- Insulate well with natural materials.
- Share the design/build process, detail my budget, and inspire others to explore low-budget, low-impact structures.
- Build without VOCs, formaldehyde or toxic materials.
- Minimize my fossil fuel use.
- Incorporate energy-efficient LED lights and minimal appliances.
- Weigh less than 10,000 lbs.

Returning home from Vermont, I began my work with the building company. I spent my days studying the environmental impact of building projects and exploring alternative materials and techniques. Over time, I built a partnership with a construction waste recycler, explored healthier paints and tailored a green consulting service around the needs of our clients. However, most of my clients were wealthy, with thousands of square feet per occupant. Though they genuinely wanted the health and energy benefits of green building, the homes they built did not reflect that. I began to see that scale is central in sustainable design and building. In the evenings after work, I sketched tiny houses. Tailoring their design to my own body, I wondered how functional I could make a house feel. As a 6' tall

woman, I designed the countertops to rise to 40" instead of the standard 36". The sleeping loft is 6'1" above the study space – I now sacrifice doing homework in heels for more headroom, but it's a fine tradeoff.

When I was accepted to the Yale School of Forestry and Environmental Studies, thoughts turned to New Haven, CT. How much space will I need to live well? If I could build it, what materials would I use? How 'green' could it be? If I built a Tiny House, could I bring it with me to Yale?

Have you received any notable support or opposition to your project? Could you describe what that has been like?

I was very lucky to receive generous donations of both time and materials over the course of the project. The aluminum roof, FSC-certified red oak flooring, the Biobase soyfoam insulation and the faux-painted interior were all donated by companies that wanted to support the project. In addition, I received smaller donations—windows, a door, and curtains, for example, from other folks. The house was, in a sense, a community project. Finally, the house was built on the campus of my former high school, the Governor's Academy, in Byfield, MA. They allowed me to use tools and space to build. That said, the zoning and planning boards in some of my potential sites were not nearly as supportive. Lacking a precedent, some of the less creative boards rejected it wholesale. It took a full three months to secure approval for my eventual site. Tiny Houses operate in an interesting

legal grey zone. On wheels, they are not governed by building code, but as residences, they are not under the jurisdiction of the DOT. This lack of governance allows for real design creativity and freedom. It also provides challenges when it comes time to interface with governments and insurance companies. It took a lot of faith and phone calls to secure all the permission to park.

Did you consult with any design professional or anyone else in the building trade?

Yes. I peppered people with questions and stayed up late reading about framing, house design and construction. I also spent some time at the Yestermorrow in March, 2008. This one-of-a-kind institution sits squarely at the junction of design, building, and sustainability. I learned to frame a house, consider the sun and create a building program - basic skills that were essential to the success of the project. In addition, a great architect from Massachusetts, Andrew Siford, reached out and helped me with the design and validated many of my decisions. Finally, my colleagues at O'Neil Fine Builders were very helpful with the practical aspects, answering questions like, "How do I plan for framing windows?"

How important was the Internet in allowing you to carry out your project, in comparison to other forms of social networking?

The Internet was handy for sharing

the project, but the real vehicle for publicity has been the Newburyport Daily News and the Hartford Courant. These two papers wrote about the project and created an article that zipped around the world on the AP wire. I have received questions and support from people from Hawaii to Austria to China. Over the summer, I created a little blog about the project www.turnbulltinyhouse.blogspot.com. It has been a good resource for others who are considering this kind of project.

What has the construction process been like?

I decided to host building parties or "Tinyraisings." Once the articles began to run in the Newburyport Daily News, the story was picked up by local papers across the greater Boston area. I had a steady stream of volunteers, donations and interested people cycling through the building site. This helped us tremendously in getting the house done on schedule.

Working until late into the nights with family and friends, I framed the walls and prepared a trailer to be a foundation for the Tiny House. Then, on a hot Saturday morning in June, I opened the gates to the Savage Buildings & Grounds facility. The Newburyport Daily News had been documenting and syndicating the story, effectively sending an invitation to people across the North Shore to join the project. Soon, I was welcoming people I'd never met; and on the first weekend, we raised the walls. For the next four weekends,



family, friends, GDA folks and people from the community came to check out the progress, tour the site and lend a hand. During the weekday evenings, I worked alone or with friends.

The newspaper articles caught the attention of some innovative companies and before long, the project was blessed by some great donations, including: FSC-certified hardwood floors from Wood Flooring Design in Salisbury, MA; an aluminum roof from ATAS International; soy-based spray foam from The Green Cocoon in Newburyport, MA; and beautiful faux painted walls by Julie King and her all-female painting crew, Samarra, in Newburyport, MA.

My siblings Doug and Caroline lent considerable sweat and ingenuity. Caroline painted and gave invaluable design advice. Doug wired lights, hung shelves and sought every opportunity to use pneumatic nail-guns, sawzalls and heavy duty power tools. My parents, Suzie and David, spent weekends painting, screwing, organizing, cooking and providing

essential moral support.

There is always an environmental impact to every human activity. I weighed my priorities and chose the best approach based on reputation, cost, durability and strength, in addition to environmental factors. The house had to withstand an I-95 wind load, after all. I burned countless tanks of gas driving to and from school and picked up power tools when I could have been planting trees.

The project has since been picked up by the Associated Press and covered in newspapers across the country, filling my email inbox with comments, congratulations and critique. A reader of the Miami Herald wrote to say, "Did you ever stop to consider that the business of construction itself is inherently an environmentally impactful activity?" "Yes, I did," I wrote back. I could have rented a little apartment in New Haven, kept the heat low and been done with it, and I would have had more time to focus on Yale schoolwork, human relationships and my job. But I wouldn't have learned nearly as much about how buildings work, nor the deep potential for appropriately scaled spaces to make a positive impact on the human environment. Furthermore, because the house is 144 square feet, I often only needed a little bit of something. Scale is central. Where possible, I used leftover materials from others' projects, leaving funds available for environmentally preferable items. Painting the exterior, I could afford \$40 per gallon for an environmentally responsible paint because I only needed 4 gallons for the whole house. I also explicitly avoided

buying virgin vinyl or PVC, as well as items with formaldehyde and Volatile Organic Compounds (VOCs). In cases where these were present in recycled or salvaged materials like windows, I considered their use carefully.

A 200-watt solar array powers the lights, a laptop and cell phone. I chose halogen, CFL and LED bulbs. These lights were more expensive than conventional incandescent bulbs, but allowed me to use my finite power supply wisely. Because I have a small space to light, I chose each bulb for a specific purpose. I specified an efficient propane stove and oven to heat and cook inside.

Eventually, there will be a composting toilet as well as a greywater management system to handle the shower and dishwasher. For now, the house is dry – water use will be handled through the existing plumbing of a host facility. I made this decision to expedite the siting process in New Haven and allow time to perfect the design before it is installed.

Have you considered how your ability to design and build your own home could affect how architects work?

I believe in the design/build approach to construction. I was talking to a recent graduate of an east-coast architecture program and was floored to learn that he had never framed a wall. He could calculate structural load and make lovely designs, but he was impoverished in actual building experience. It is both fun and immensely challenging to build a structure. Architects that deprive themselves of building experience miss out on this rush and lose credibility among the builders with whom they contract.

What have you learned?

We are all designers. We are all powerfully equipped to re-envision our environments. All we need are our heads and our hands.



