

Temple Community Garden's Tiny House

1/31/2015

Group 7

Jeffrey Karmazin

Pete Usilton

Nick Fontana

Meghan Higgins

Andrew Staehle

Narrative

The approach we are taking to our design involves utilizing simplicity mixed with innovation. Our tiny house will consist of a simple geometry thus making the creation process more simple and open to students with a lesser knowledge of construction. Additionally, we plan to use as much reclaimed materials as we can. The ideal plan would involve using solely recycled or reclaimed materials, besides our foundation blocks. We will make use of “Handi blocks” for our foundation to level our building.



The main door will be constructed in the southeast corner of the house. The roof will be a slanted roof made half out of shingled roof, featuring solar panels, and half out of plexiglass to provide natural light. At the runoff of the roof we will attach a rainwater collection system to lead into a rain barrel, ready for use for gardening needs. Solar panels will also be placed on the roof, facing south, to be used for any simple energy needs.

We want our greenhouse to stand out and promote sustainability and other eco-friendly practices. For this reason, we plan to create a vertical bio-wall outside on the south side of our tiny house, with the enclosure being created from used plastic bottles sandwiched in plexiglass. Our idea is to create a double layered window pain with plastic bottles in between the layers, using recycled or reclaimed plexiglass windows of course. With this we will be able to provide a unique greenhouse

for seedlings, without taking up room inside the house. On the outside we will have a functional greenhouse that will catch peoples' attention and provide as a great example of how to reuse what others would see as trash. To access the insides of the greenhouse we will construct a simple hinged window that can be opened.

We plan to carry this design technique as part of our meeting space concept. Our idea is to implement a large door, made out of the same materials as our greenhouse, that will convert into a roof. The idea is to be able to pull the door up to provide space inside for flow, while providing a shaded space for outside seating, or activities. There will be two legs on each bottom corner of the door that fold down and hold the door, or now roof, securely in place. This concept will open up towards the north, so students can work efficiently and have a good flow between the house and the storage shed. From here, we would like to provide a simple walkway, made out of bricks, stones, etc, that leads from the house to the shed. Surrounding this area could be any natural outside seating.

The seating we will construct will be a simple corner bench inside the house at the southwest corner, so that the seating can face outside when the door-roof is opened up. We anticipate that this inside seating will provide for approximately 10 people. With space saving in mind, we also plan to have a fold down work desk to sit on top of the bench for when seating is not needed, but this workbench will only take up the south side wall, with the west side wall containing a plain bench. However, underneath these benches, we plan to make different storage cubbies for personal belongings. We also plan to provide more storage above the west side bench by creating a little loft area with a simple ladder attached to reach the area.

We decided on a simple DIY composting toilet for our design concept. In the northeast corner of our house, we will construct a wooden frame for the toilet. The composting toilet itself will be very basic, consisting of a large plastic bucket with an attachable toilet seat, a side bucket of peat moss or sawdust to sprinkle in or on after each use. We plan to build two small walls around the composting toilet for privacy. We plan to move the TCG current compost site behind our house, towards the northeast corner, so that we can keep it out of the public eye.

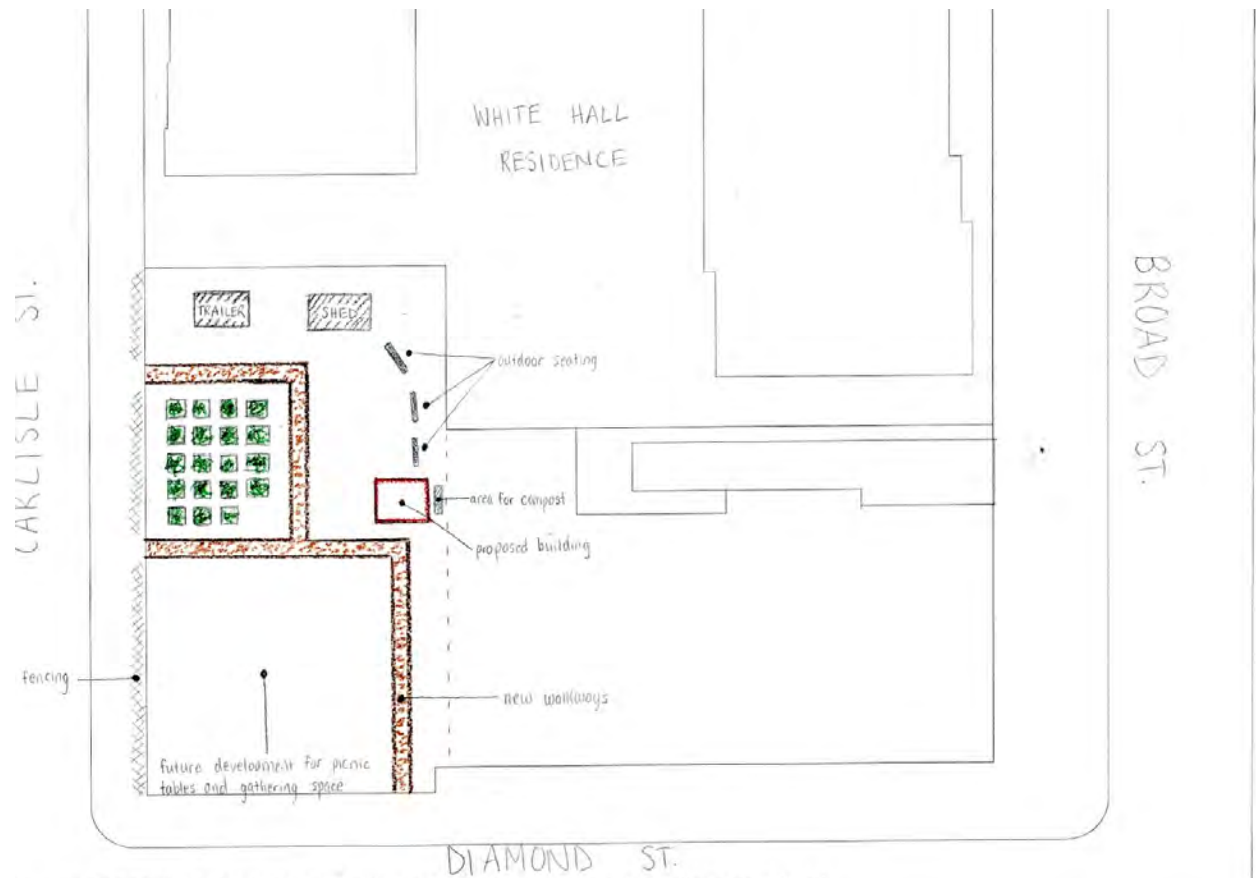
The south wall we leave reserved for students, or community artists, to paint a mural and add some color and liveliness to our house. An additional visual promotional idea we have in mind comes along with our plastic water bottle window technique. We would like to create the Temple “T” within our placement of these bottles. Not only is this an easy, fun way to promote the garden, but also sustainability at Temple, and in general.

Site Relocation

At this point in time, we feel it is unnecessary to move the shed and trailer in order to fit our house. The location we would put our house will allow for the northeast corner of the property to be a central working, or presenting area. If in the future, the vacant property gets developed, and blocks the sun for our solar panels, we have a plan to move the house to the southwest corner by simply using jacks to lift the house so that we can fit rollers underneath to move into place. Once in the new desired area, we will use our jacks again to get the supports back into place.

\

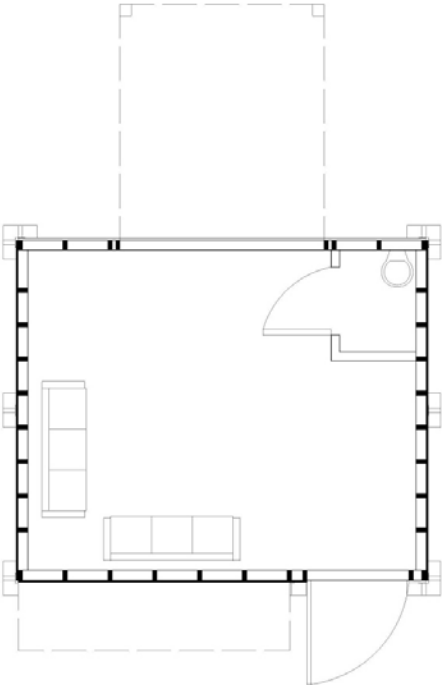
Site Plan



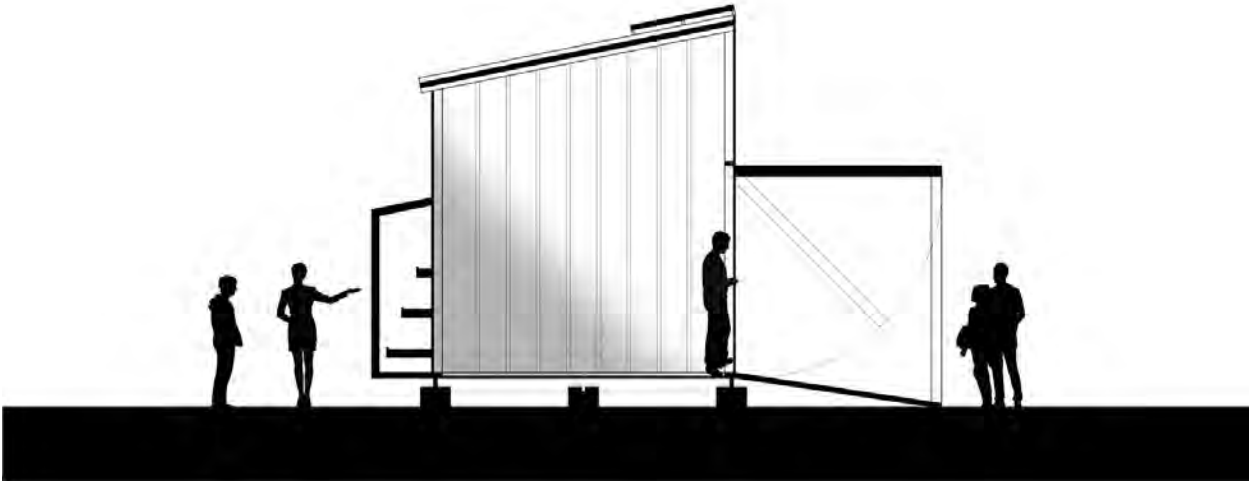
Site Rendering



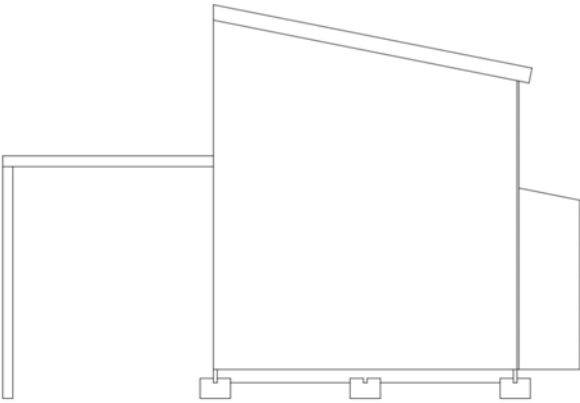
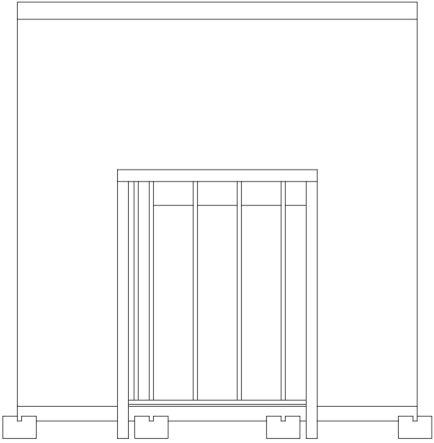
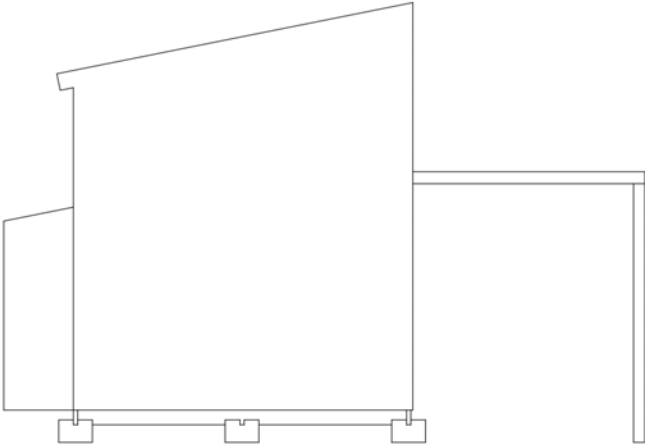
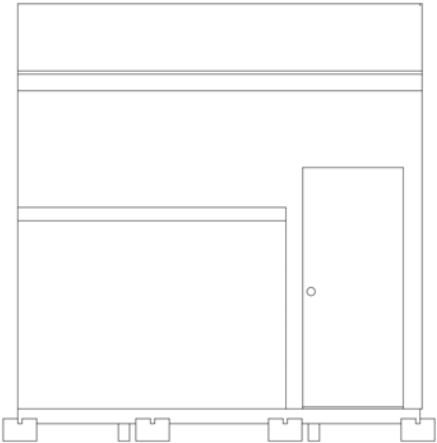
Floor Plan



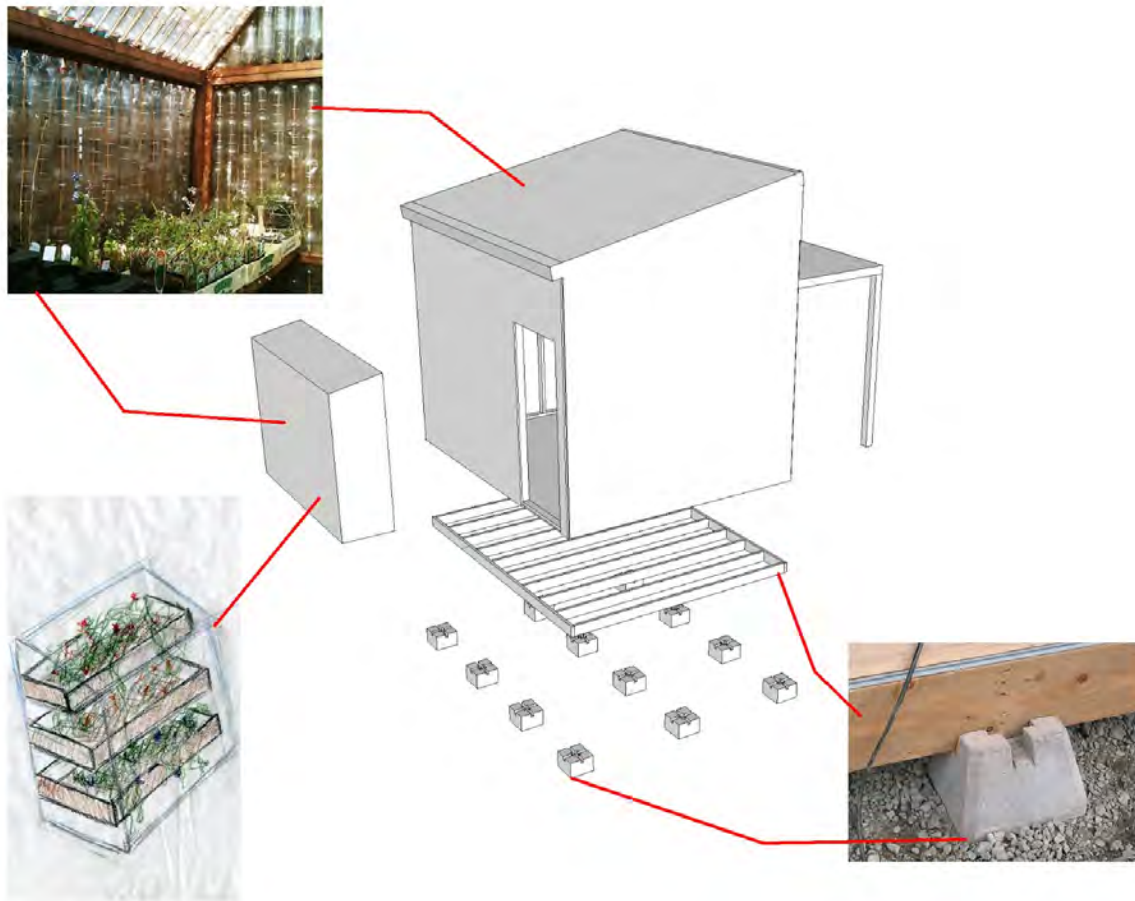
Wall Section



Elevations



Diagram



Sustainable building components

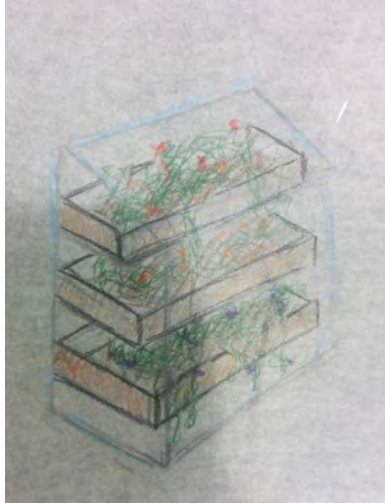
Typical American household uses about 900 kWh per month. With this in mind, we anticipate that the amount of power needed for the tiny house will be drastically less. Considering that the power usage will be for charging electronics (computers, phones, etc.) and potential tools such as drills or weedwackers as well as powering the projector during any movie night events, we will need no more than 25 kWh per month. A 200 Watt solar array creates 11.43 amps of charging

power, and a typical 18v drill uses 2.4 amps to be fully charged. Between this and charging cell phones and laptops, we believe this is a very realistic estimate.

Additionally we want to install a compost toilet. Now, the average composting toilet costs anywhere from \$800-1800. We do not believe this type of toilet is realistic, mainly for budgetary reasons. Also transporting the house with a traditional composting toilet poses a logistical challenge, since a new hole must be dug on site and the old hole filled in. This is all ridiculous. Instead, we propose creating the much cheaper DIY composting toilet, called the “Luggable Loo.” We will use either sawdust, recycled coconut coir, or ground corn cob for absorbing/deflecting the smell. The other plus side of this is that the compost is not going into the ground--it can be used in the garden’s compost. This may not seem glamorous, but it is much more sustainable, cost-effective, and useful than an entire composting toilet system. It also requires no water or solar power, as does a traditional composting toilet system (such as the Clivus Multrum, Biolet, et al).

Stormwater collection management will be simple as well. Using a mesh screen above the gutters to prevent debris pollution, our gutters will run the rainwater from the roof into a 50 gallon rainwater collection bin. The bin will feature a spigot and an overflow valve as well as a diversionary hose to a second barrel when the first one begins getting full.

For our greenhouse/vertical garden, we envision a south-facing garden house made from recycled plastic bottles.



Building Cost estimate

Material	Number	Cost	Total
Handi Block Foundation block	10	\$3.19	31.9
2x6x10 pressure treated lumber	9	\$7.67	69.03
2x6x12 Pressure Treated	2	\$8.37	16.74
2x4x10 Wall studs	50	\$4.93	246.5
7/16x4x8 OBS	18	\$8.75	157.5
4x8x1/4 acrylic sheet	2	\$97.96	195.92
4x8 Foam board	20	\$11.68	233.6
House Wrap	1	\$200.00	200
Stainless nails (1 lb box)	5	\$20.00	100
Wood Siding 4x8	16	\$19.48	311.68
DIY Composting toilet	1	\$50	50
200 Watt solar kit	1	\$690	690
12v battery	1	\$200.00	200
Shingle roof	1	\$500.00	500
		Total	3002.87

Cost

Assuming material
overages ~ +20%

Real Cost 3603.444

The building cost are estimated using typical prices of readily available materials from big box retailers. Ideally salvaged and repurposed materials would replace most of these in a final design (e.g. using palettes to build our benches), but obtaining a baseline budget goal makes the project more feasible to plan and implement.

Marketing Plan

Similar to the City of Philadelphia's Bike Share program, our Marketing Plan will involve provocative images and easy-to-read pamphlets. Specifically, we will introduce the tiny house idea--why it is popular, sensible, as well as success stories. The where, when, and why of our project



will be outlined. We will feature pictures from the Fall Feast and Potluck for a Purpose as well as other TCG events, TCG members, and students working the garden.

We'd also like to get a picture with Neil Theobald with our winning team to show that the University is behind the investment. The pictures we will feature in the brochure will be supplemented by facts about Temple, TCG, and tiny houses, as well as our sustainable design components. Sustainable design and reuse of materials will be a big focus of our marketing campaign, since Philadelphia and Temple in particular are becoming a hub for sustainability. Small

bullet-points with easy-to-understand facts that highlight the importance of sustainable design will help to court potential investors, as well as show anyone who picks up a pamphlet what the tiny house design is all about.



Additionally, the mural will help to beautify the community, and will be an important image for our long-term marketing. The mural, combined with the “Temple “T”” logo we want to build into the plastic-bottle greenhouse, will help highlight our image.

We believe the simplest, visually appealing marketing materials will be the most effective for teaching students, faculty, and Philadelphia about our TCG tiny house. We look forward to marketing our design!

Programming Plan

The large door-roof will open up to an ideal outside teaching environment between the house and shed. This open space can be used to teach students, working garden members, or even community members for future demonstrations. When the weather is right, we would love for teachers to be able to host outside classes, or even to take classes to the site to demonstrate and present some sustainable practices. Additionally, we plan to reserve the southwest portion of the

property as open space, with picnic tables, to possibly rent out or host community events in the future.

Innovation component credit

While the tiny house itself will be a beautiful representation of functional form and design, we also believe the aesthetic of having both a) a mural facing Carlisle street, adjacent to the garden beds and b) a small greenhouse and open door made of recycled plastic bottles with a “Temple ‘T’” inside it will add an aesthetic to the community and give added security to the house.



EXIT

REAL BEACH
Café

REAL BEACH
Café

REAL BEACH
Café

REAL BEACH
Café

REAL BEACH
Café