

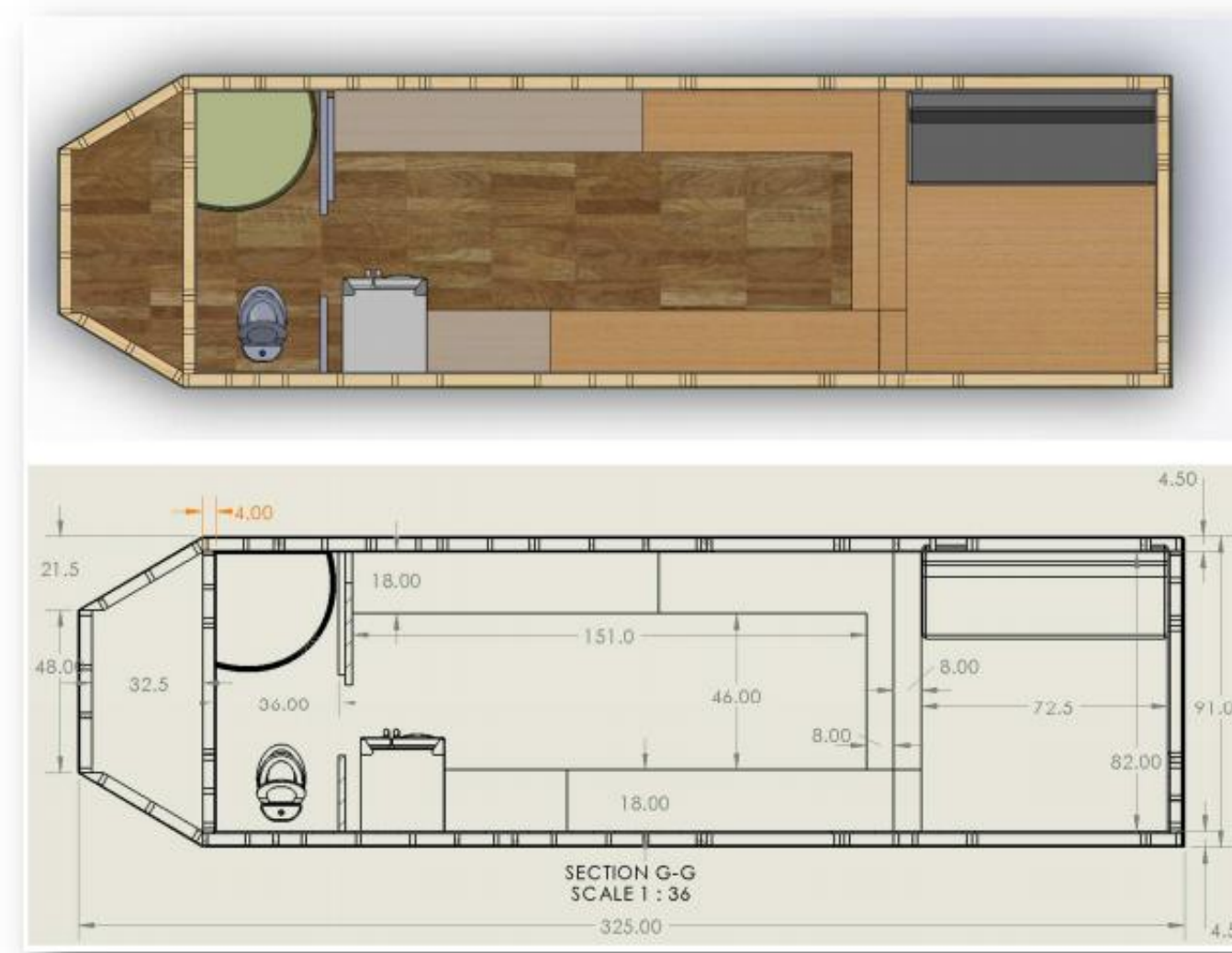
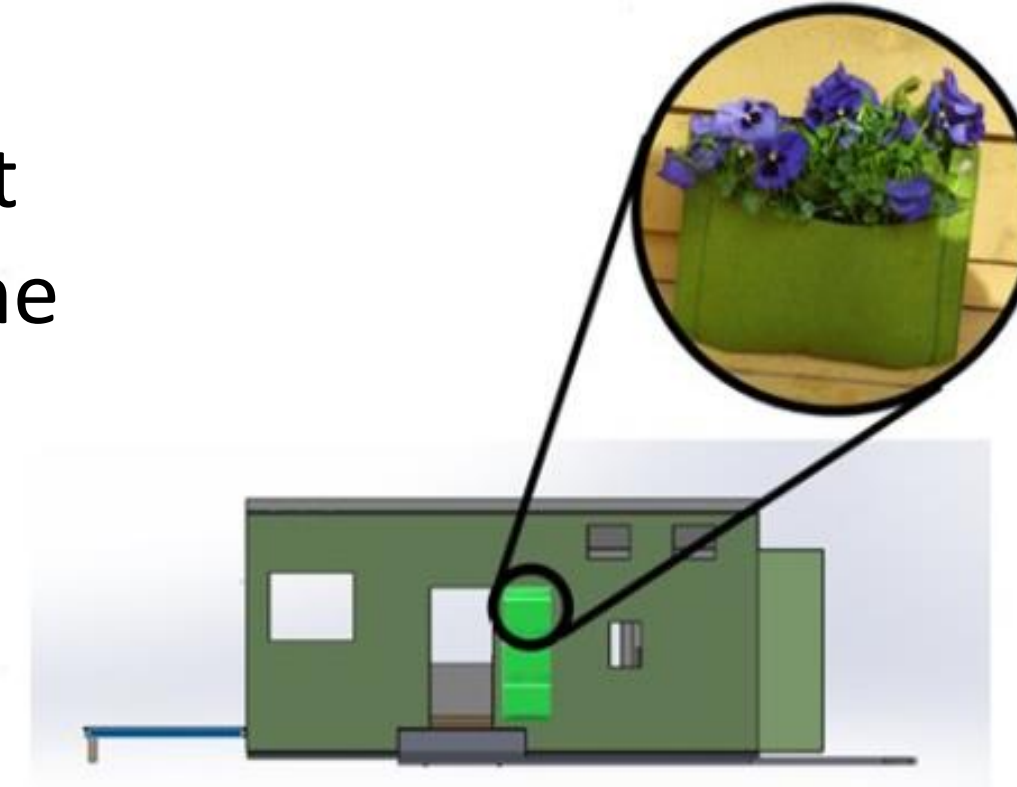
# The Tiny House Project

## Abstract

- 200 square foot off grid home sitting atop a 24-foot trailer
- Square footage is 180 sq. ft. discounting wall width and the sleeping space in the loft
- Multidisciplinary
- 29 Alfred University students, one Alfred State liaison and countless building trades class students
- Timeline: Two Years
  - One year for design and one year for prep and build
- Overall budget: **\$41,000**

## Green Wall

- Mobile garden that can travel with home
- Installation after siding is secured on home



## Water Filtration/ Collection

3 Mesh Filters:

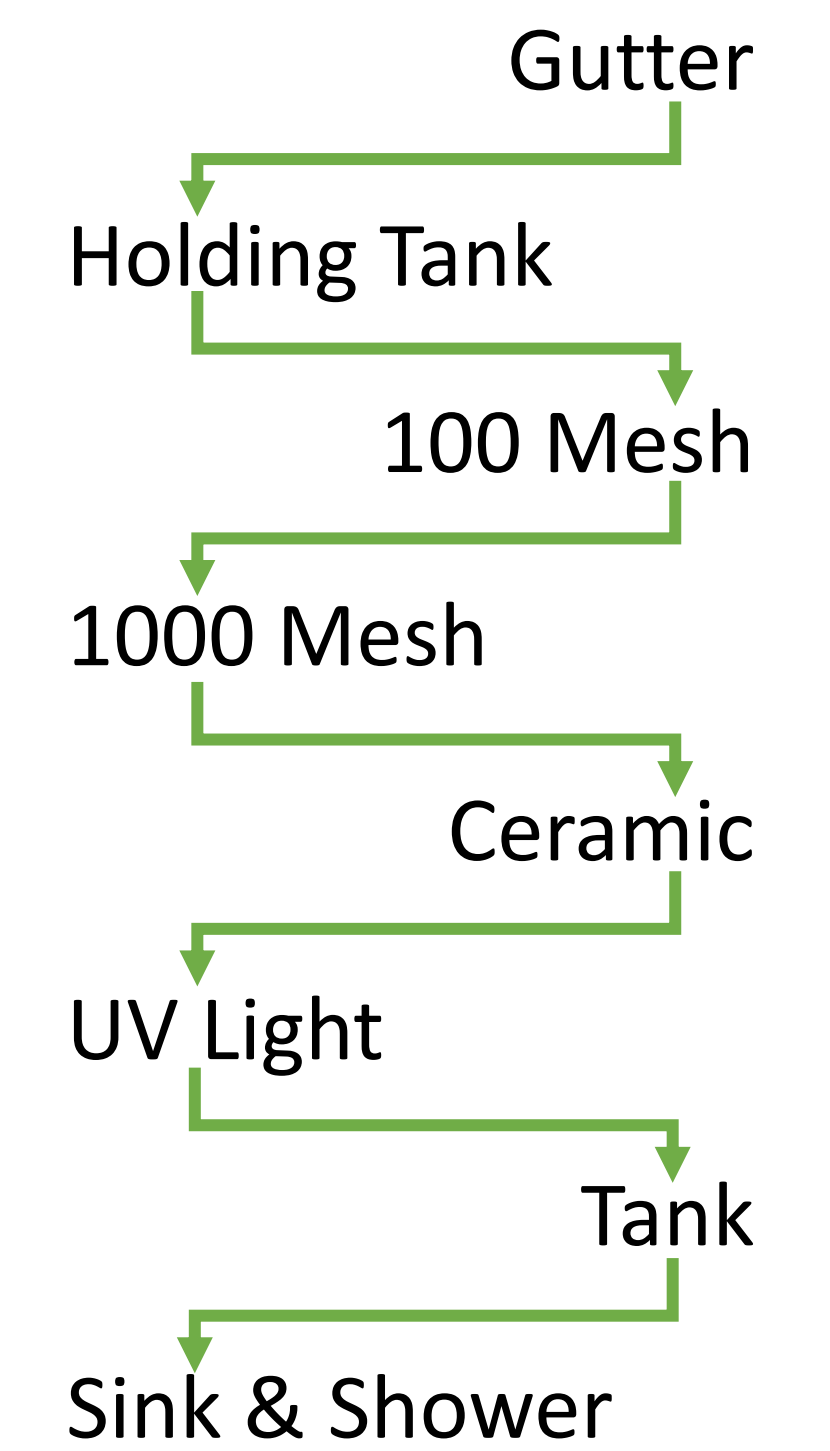
- 100 Mesh
- 500 Mesh
- 1000 Mesh

Ceramic Filter:

- 6 filters
- 0.5-0.9 micron
- 5 gpm

UV Filter

- 1 yr bulb life
- 99.9% bacteria
- 6 gpm



## Electricity Load

	watts	hrs per day	watt hrs per day
tankless water heater	1800	1	1800
kitchen appliances	500	2	1000
laundry	400	1	400
entertainment	200	1	200
fridge/freezer	115	15	1725
lighting	75	6	450
heat	6480	4.5	29160
electric winch	746	0.1	74.6
water pump 1	55	2.8	154
water pump 2	362	2.8	1013.6
<b>total kilowatt hrs per day</b>			<b>34.9636</b>
<b>peak value (kWh)</b>	<b>1.037</b>		
<b>total kilowatt hrs per year</b>			<b>12761.714</b>
<b>total kwh/yr w/o heat</b>			<b>2118.314</b>

## Home Automation

- Control devices in your home from your smartphone
- Ability to design "phases" into your home's schedule for energy efficiency and convenience
- Motion sensors programmed to turn your choice of devices off after periods of inactivity

## Heating & Insulation

- Mitsubishi split system heat pump
- Bottom of the Trailer insulated using spray foam
- Walls insulated with Owens Corning BIBE R19 UF 23x93 8/PBAG-4



## Aerodynamics

Designed to protect solar panels

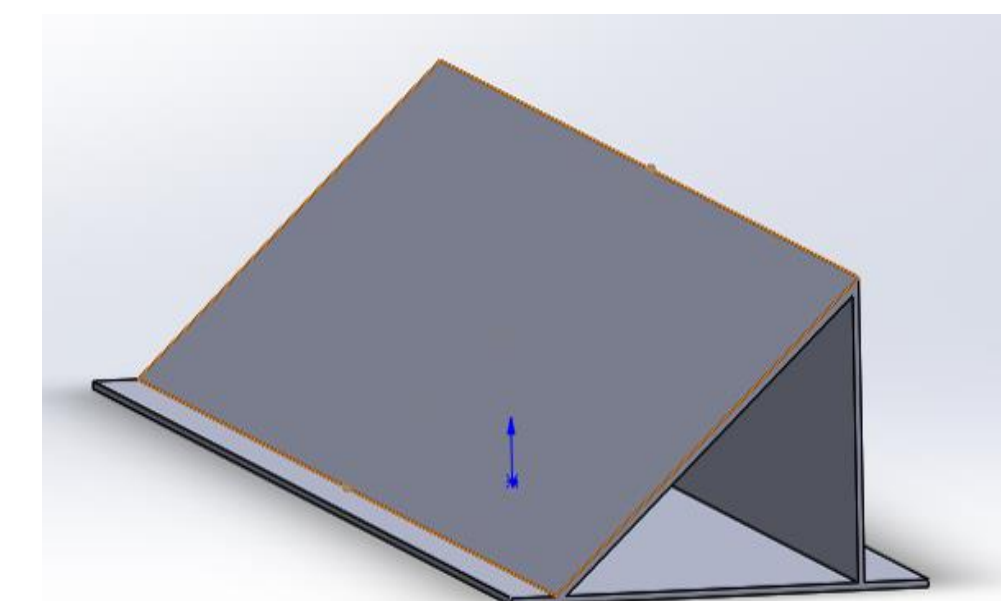
Material: Rigid PVC

Wind Speed (mph)      Deformation (m)

70MPH      6.88E-5m

35MPH      1.72E-5m

These deformations are very minimal and would not affect the integrity of the airfoil



## Solar PV

- 2,461 kWh produced
- 2,100 kWh load *without* heating can be supported in Alfred
- Heating to be supported by outside PV system not associated with the tiny house



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