

# BUS SHELTER DESIGN COMPETITION

WE WILL BUILD IT THIS SPRING!



TYPICAL NYIT OLD WESTBURY CAMPUS BUS SHELTER [EXISTING]

## DESCRIPTION

The Home<sub>2</sub>O construction system allows post-consumer plastic bottles to become shelter using minimal tools and labor. The plastic shipping pallet delaminates into linear brackets that hold crushed, PET water bottles as roof cladding. The system arrays and interlocks layers of bottles to create a breathable, weather-resistant, membrane. More info at <http://home2o.org/>

Students are asked to use the Home<sub>2</sub>O roof construction system in the design of a new bus shelter for temporary [and possibly permanent] use on a designated site at NYIT's Old Westbury campus. **This design competition will explore a range of possible bus shelters designs and ideally result in a student design we build this Spring. Winners get a cash prize of \$300. First, second and third place teams will also receive a paid spot on the construction team + IDP credit towards licensure.**

The structure's main feature will be that of its roof, but students are encouraged to use the pallets in non-roofing capacity as well – for walls, floors, and other functional surfaces in an integrated manner. This prototype structure will be subject to environmental and functional testing [uplift, rainwater drainage, temperature, humidity, light penetration] in various weather conditions.

## PROGRAM

As a piece of “campus street furniture,” this outdoor bus station will act as shelter and social space. It may be a place to wait for the campus shuttle or other transportation or to simply hang out and have lunch. It could also be a place to check out the Home<sub>2</sub>O system, learn more about it, and imagine creative applications of this system in disaster-relief areas around the world.

The bus station should house standard sized recycling receptacles for paper, bottles, cans, and waste, and integrate seating for a minimum of 2 people. A bike “rack” for at least 2 bikes is optional. An area should also be designated for NYIT signage/campus event postings and info about the Home<sub>2</sub>O system.

## DATES

**October 17, 2013 @12:45 PM:**

Info Meeting

[Ed Hall Cafeteria + 1855 Bway, 11th Fl]

**October 25, 2013 @6:00 PM:**

Team Registration Deadline. Email [fgandhi@nyit.edu](mailto:fgandhi@nyit.edu) with team names.

**November 8, 2013 @6:00 PM:**

Submission Deadline

**November 18, 2013 @6:00 PM**

Winner and Runner ups Announced

## KICKSTARTER

The Home<sub>2</sub>O team received a limited grant from NYIT to build the shelter. A Kickstarter campaign in concert with this competition will raise additional funds for construction.

Student submissions will be featured in the Kickstarter campaign as a way to draw attention to the invention, the fundraising and the designs. The campaign may also feature public voting for a favorite student design. The team reserves the right to use submitted images to invite backers to express their choice. This winning team of the public vote will receive the “Public's Choice Award” and bragging rights within NYIT and also in the world at large.

# COMPETITION RULES



**SOME RULES ARE MADE TO BE BROKEN...  
BUT PROBABLY NOT THESE.**

## **BUILDING ASSEMBLY SYSTEM**

Be sure to download a construction manual at <http://home2o.org/>

### **[1] Pallets**

Each pallet yields roughly 50 SF of roof and depending on your roof size and extents, you will use at least 1 – 2 pallets. The use of additional pallets [max. total of 5 inclusive of the roof] is optional, but can be used to clad simply constructed wood structures [infill panels, slats, or other] for selective wall, bench, and floor surfaces as needed. The roof surface must be made from the Home<sub>2</sub>O system exclusively. Use of other materials will disqualify your entry.

### **[2] Bottles**

Approx. 700 plastic bottles [16.9 oz] are needed as roofing tiles for a 100 SF shelter. The Home<sub>2</sub>O system uses crushed concave bottles that interlock like Spanish tile. The constructed bus shelter aims to test solar gain and daylight filtration through different crushed bottle profiles, fill materials [sand, earth, liquid], and/or the introduction of algae/grasses within bottles. You are encouraged to consider a balance between aesthetic intentions and environmental performance.

### **[3] Other Materials**

All designs must feature footings, walls, structure, and roof. Each pallet costs roughly \$500 and bottles are free. Designs must use no more than \$3,500 worth of materials. Competition entries must be submitted with a complete list of all materials used, with enumerated prices. The team must plan for every dime.

## **KEY DESIGN FEATURES**

- Single-level shelter of max. 120 SF.
- Low cost and economy of materials.
- Simple construction and ease of replication for various sites and program needs.
- Designs must be structurally sound. They are expected to resist gravity and lateral [wind] loads as required.
- Safe for NYIT student use and meeting all temporary outdoor structure requirements as cited by NYC code.
- Ease of assembly + disassembly. Ideally, this bus shelter will be disassembled and re-constructed in locations where it can be seen by thousands. The Home2O team will solicit museums, transit centers, and other public venues for the right to exhibit the shelter.

## **SUBMISSION REQUIREMENTS:** Two 24" x 36" presentation boards

[1] Perspective rendering, [4] Elevations, [1] Plan, [1] Roof Plan, [1] Exploded Axonometric, [1] Wall Section, [1] Material/cost

Submitting more than 1 rendering will disqualify teams. Drawings must be composed of black, grey, and colored lines - hatches are acceptable, but no fills. Design intentions, constructability, and assembly should be clearly communicated.