# Tiny House Charrette

# Group 5

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|------------------|--------------------------------|
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### PROJECT NARRATIVE: INNOVATION IN SUSTAINABILITY.....

The Clever Box is a human-scale space composed for comfort and ease of use, integrating living systems and a holistically inclusive design to better serve individuals of the community as well as students utilizing the garden site.

### The Interior: Design of Spaces and Systems

The basic interior design reflects accessibility, the french doors opening into the garden and mixing spaces into a flexible whole. The majority of the floor space is dedicated to this multi-purpose meeting and living area, but within it exist several private spaces simultaneously allowing a degree of separation; bookshelves and a small bench for reading, a prep / kitchen area, a bathroom, and numerous nooks of shelves, closets, and storage cabinets. The most prominent interior feature that overshadows these other elements is the upper storage space and greenhouse area: an elongated shelf beneath the roof glazing that provides a brightly lit surface for plant growing. Supplemented by hanging plants from the apex of the roof deck, this upper portion enlivens the vertical space; plants flow into the space and interact with you.

As a modular living system, the plant species occupying the trays on the greenhouse shelves and hanging from the ceiling are integrated into the Clever Box's thermal envelope. In tandem with water stored in vessels above, they help to regulate the temperature of the space, cooling it in warm weather, and warming it cold weather. This unique component blurs the line between a building and a living system; the structure breathes, and regulates its interior, responding to the surrounding environment.

The Clever Box is also passively designed, its clerestory overhang allowing lowangled winter sunlight in, while preventing the sharply angled rays of summer sun from overheating the space. Its continuous rigid insulation supplements the mineral wool-filled stud cavities, providing for a minimum of thermal breaks. With proper silicone sealing between every contact point of the wood components, the elements collectively provide for an extremely tight and efficient house.

### The Exterior: Design of Landscaping and Potential Interactions

Located on the Southeast corner of the site, the house entrance faces inward to the garden, while the majority of its glazing faces south to Diamond Street. This allows for those in the garden to be closely connected with the space, and those across the street to observe the site and interact with its spaces visually.

The exterior spaces that interact with the structure expand the communal space and overall flexibility of the structure. A series of movable rounded benches allow for programming ranging from simple meetings and dinner parties to musical performances and larger creative gatherings. The composting restroom and prep space allow for a wider variety of programming and business opportunities, opening the site to larger and more diverse groups and purposes.

Local Artists and community members will be invited to participate in a mural project to enliven the exterior of the structure, aiding in seamlessly integrating the structure with surrounding works like the Sonia Sanchez flower garden whilst providing a welcome change to the impervious surface and brick elements.

## BUILDING COST ESTIMATE.....

Structural cost:

| 2'x4' for 54 pieces          | \$68    |
|------------------------------|---------|
| 2'x8' for 10 pieces          | \$ 15   |
| Steel Roofing 136.5 sf       | \$ 273  |
| 1/4" Plywood 775sf           | \$3,100 |
| Fasteners about 1,000 pieces | \$ 250  |
| 1⁄2" OSB                     | \$600   |
| Silicone caulk               | \$50    |
| 1/2" thick wood planks       | \$3,549 |

Insulation Cost:

| House Wrap   | \$ 3,875 |
|--------------|----------|
| Tar Wrap     | \$1,550  |
| Mineral Wool | \$ 3,100 |
| Blue Board   | \$200    |

\*\*The house wrap, Tar paper and the Mineral Wool were calculated from 775sf. of exterior wall and cavity spaces. The blue board is based on 500sf of interior wall and floor spaces

Electrical System Cost:

| PV system                    | \$3,500 |
|------------------------------|---------|
| 3 conductor wire             | \$40    |
| Electrical wiring components | \$ 10   |
| 4 LED Light Bulbs            | \$80    |

Other:

| Composting Toilet | \$1,500  |
|-------------------|----------|
| Round Benches     | \$ 300   |
| Glazing (windows) | \$ 2,000 |

The Grand total is approximately \$22,605

\*\*Note this cost included redundancy and all new materials. In reality, recycled materials, found objects, and volunteer labor for educational purposes would make for a lower cost in the range of \$15,000.

Tiny House Charrette\_The Clever Box Exterior Render

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Philadelphia

Tiny House Charrette\_The Clever Box Ground Level Plan 1/4" = 1'-0"



Tiny House Charrette\_The Clever Box Wall Section 1/4" = 1'-0"



Tiny House Charrette\_The Clever Box Wall Section 1/4" = 1'-0"



North Elevation

South Elevation



West Elevation



East Elevation

