

Program Document **Mission**

To design a facility equipped with machinery and services intended to facilitate innovative creation of micro-housing by University of Idaho students.

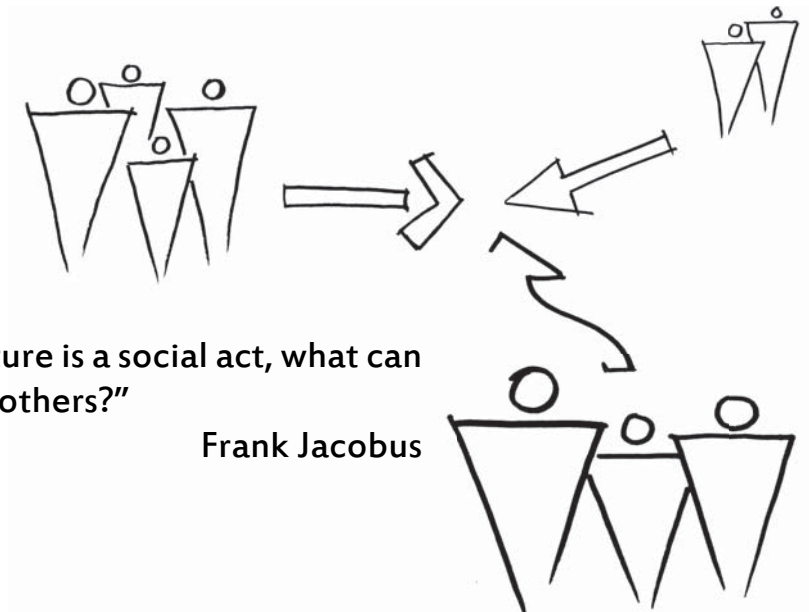


# Program Document **Values**

The City of Sandpoint, ID is a community built on recreation. The proposed site will provide the recreational factor. A facility is to be developed on the site to provide means for University of Idaho students, and perhaps the community, with a way to develop micro-housing. The fabrication facility will have the appropriate equipment for the production of the micro-housing.

The long-term goal, is for some of the micro-housing designs to gain favorability, that will eventually become a marketable and profitable venture for the manufacturing facility.

Human	Environmental	Cultural	Technological	Temporal	Economic	Aesthetic	Safety
<b>Functional</b> Social Physical Physiological Psychological Circulation	<b>Site</b> Climate Context Resources <b>Waste</b>	Historical <b>Institutional</b> Political Legal	<b>Materials</b> <b>Systems</b> <b>Processes</b>	<b>Growth</b> Change Permanence	<b>Finance</b> <b>Construction</b> <b>Operations</b> Maintenance <b>Energy</b>	Form <b>Space</b> Color Meaning	<b>Structural</b> Fire Chemical Personal Criminal



# Program Document **Context**

## Social

Who is this project for?:

Initially, it is for students. It may also be for facility workers. If the micro-housing is successful, they may become marketable to the public for purchase as low-footprint option housing. An additional hope is for the students to potentially use the micro-housing they design to become their own living quarters while at school. And for the use of on-site living conditions for students and faculty.

Who will be impacted by its development:

- Manufactured home makers
- Local architects
- Housing development firms
- The immediate surrounding neighborhood
- Local businesses
- Train transportation
- Local traffic
- Tax payers

How will it benefit the public:

By providing some additional jobs to the community. This facility will providing low-footprint housing to the current community who have land looking to develop housing on it, or wish to construct on land that they purchase.

## Geographic

Particularities of locale:

- Accessible site (relatively flat area)
- Many beautiful views of surrounding mountains
- Located near city center
- Severe winter conditions, pleasant summers

## Political/Economic Factors:

How is it funded:

Some money from the city, some from the University of Idaho, the students who use the facility during operation, and through the sale and production of micro-housing units.

Who's in charge:

The University of Idaho, and the management staff at the facility.





# Program Document **Site & Recreation Precedents**

Each of these projects was selected for their specific uses. Intended to be combined using their program spaces as a guide in selecting appropriate functionality, efficiency, low-footprint designs, flexibility, and feasibility.

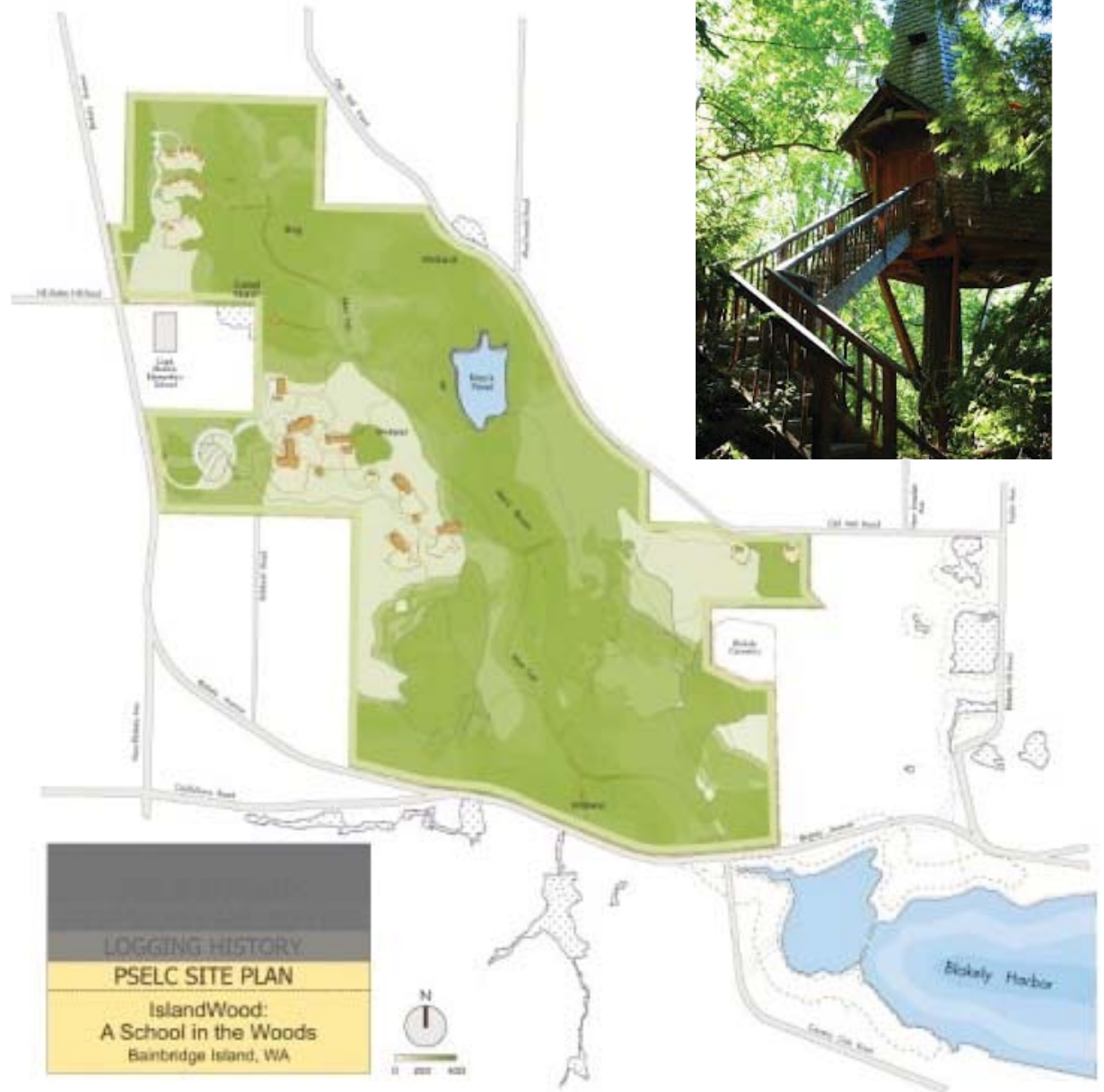
## Precedent **Islandwood**

### Facts

- 255 acre outdoor learning center
- Five miles of trails
- Five ecosystems
- Native plants/wildlife
- Less than 3% building footprints to site.
- "To provide exceptional learning and experiences and inspire lifelong environmental and community stewardship."
- LEED gold certified
- Uses the environment as a classroom
- Engages diverse learning styles with integrating science, technology, and the arts.

### Observations

- Great example of an outdoor recreational laboratory that incorporates the community and the students from Washington State University.
  - The program for the site in Sandpoint could vary from strictly natural ecosystems to incorporating the agricultural aspect of the site.
  - The Sandpoint site is smaller than the Islandwood site and adjustments could be made to the experiences to make them similarly educational.
- Buffers to other aspects of the site may need to be added to protect and make the site more enjoyable for students and faculty.



# Precedent **CDA City Park**

## Program Spaces

- Open Turf Area
- Bandshell
- Ball Courts
- Beach
- .5 mi Walking Path
- Playground
- Wading Stream
- Garden
- Restrooms
- Drinking Fountains
- Public art
- Group Picnic Areas
- Large Shade Trees

## Facts

- 16.5 acres total
- Established in 1904
- Built on the site of the Fort Sherman military reservation
- Bandshell built in 1992
- Fort Sherman Playground built in 1997

## Observations

- Extremely close proximity to NIC campus.
- Also close proximity to McEuen Park and Memorial Field, sites for larger scale recreation.
- Wide range of recreation for all age groups and abilities.
- Open format, entrances on all sides.
- Surrounded by traffic but secluded .
- Draws in users from the college after or between classes.
- A good transition between campus and the rest of the town.





# Precedent **Rope Course**

## Program Spaces

- Half day or full day low, high, or combination programs.
- Low Course
  - ~ Sequence of games challenges and trust building activities
- Tree Course
  - ~ Safety is utmost with all the necessary harnesses, carabiners, helmets and ropes
- Pole Course
  - ~ Four separate, independent elements many similar to the tree course.
- Rock Climbing
- Kayaking
- Backpacking
- Day Hiking

## Facts

- 20 acre wooded site
- 10 minute walk from student union
- Programs ran at the facility are divided between Challenge Course Programs and Expedition Programs.
- Expedition Programs consist of things like rock climbing, kayaking, backpacking and day hikes.

## Observations

- Facility requires supervision by trained staff, connected with the University.
- Programs ran in the facility can be used by students (some for class credit) and by groups within the community.





# Program Document **Facility Precedents**

Each of these projects was selected for their specific uses. Intended to be combined using their program spaces as a guide in selecting appropriate functionality, efficiency, low-footprint designs, flexibility, and feasibility.

## Precedent **WeeBee - Small**

### Program Spaces

- Kitchen
- Main Room
- Porch
- Water Closet
- Closet
- Bedroom/Loft

### Facts

- Footprint: 15'x8'
- Road Height: 13'-5"
- Bathroom: 4'x2'
- Ceiling Height: 6'-3"
- Loft Height: 3'-8"
- Dry Weight: ~4900 lbs.
- Total Square Feet: 102

### Observations

- Multi-use sink for both kitchenette, and restroom.
- Designed for one person, or a couple (max).
- A trailer / mobile home.
- Choice of materials could be of higher quality.
- Interior uses every surface efficiently, good storage.
- Even has a dishwasher!



# Precedent Cedar Canyon

## Program Spaces

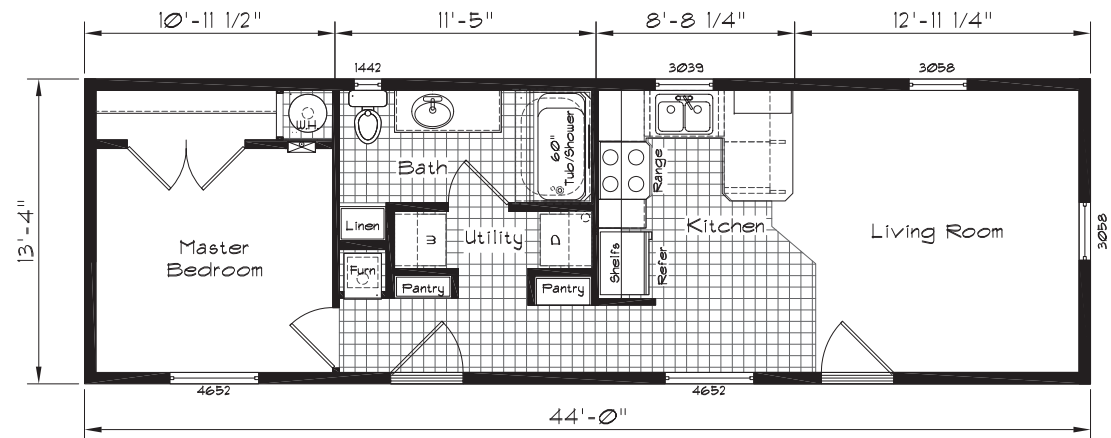
- Master Bedroom
- Main Room
- Kitchen
- Pantry
- Utility
- Furnace Closet
- Bathroom

## Facts

- Footprint: 13'-4" x 44'-0"
- Bathroom: 11'-5" x 5'-0"
- Living Room: 13' x 13'-4"
- Total Square Feet: 583

## Observations

- May need to be reduced in size (smaller square footage), depending on user.
- Lots of storage opportunities.
- Water heater should be put in different place, rather than bed room closet.
- In this particular plan, the kitchen may benefit as a larger space.
- Exterior possesses a homey feeling.
- More appealing than a trailer.
- Wood light frame construction. Using more durable materials may be advantageous.
- Porch makes for a nice optional addition. May be exchangeable with living room space.





# Precedent **Zero House**

## Program Spaces

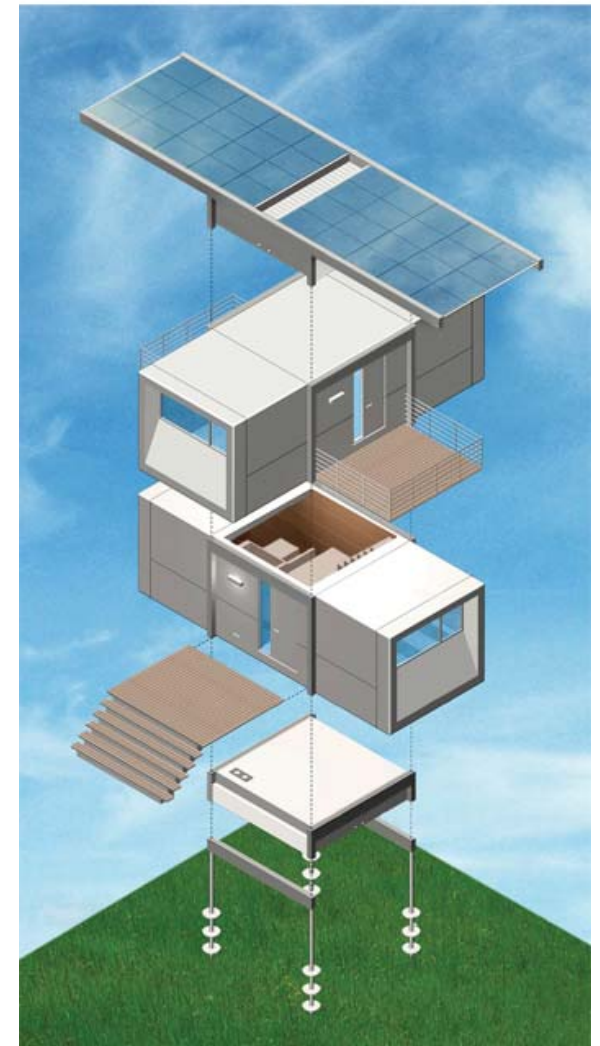
- Master Bedroom
- Living Room
- Kitchen/Dining
- Pantry
- Utility
- Decks
- Bathroom
- Entry

## Facts

- Water Supply: Tanks in roof for UV and reverse osmosis processing.
- 2700 gallon cistern.
- Photovoltaic Array: 7000 peak watts.
- Complete with battery power storage.
- Waste Processor: Auto-composter. Service once every six months.
- Steel structure.
- Pier foundation.
- Vacuum sealed envelope.
- May be put into "hibernation mode" when away for long periods of time.
- \$350,000
- Living Room: 13' x 13'-4"
- Footprint Square Footage: 250
- Total Square Feet: 650

## Observations

- Very high tech.
- May be placed above water!
- Nearly maintenance free.
- Suitable for practically any site.
- Solar panels are a good option.
- Good connection between interior/ exterior.
- Modern aesthetic and materials.



# Precedent Warehouse

## Program Spaces

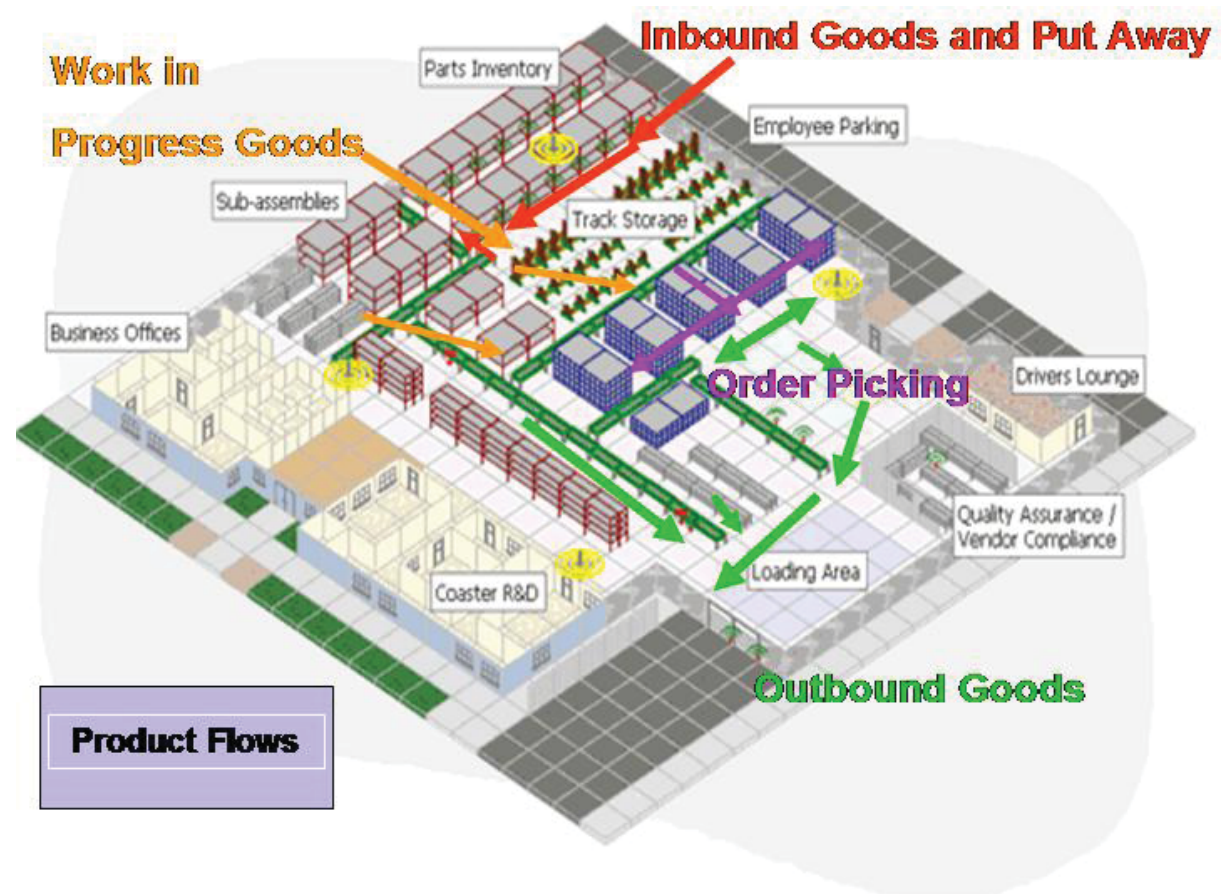
- |                  |                   |
|------------------|-------------------|
| Parts Inventory  | Employee Parking  |
| Sub-Assemblies   | Quality Assurance |
| Business Offices | Loading Area      |
| Track Storage    | Coaster R&D       |

## Facts

- Variable square footage.
- Steel frame.
- Durable construction.
- Open floor plan.

## Observations

- Suggested method of design, to work from the inside out to realize required square footage.
- Flow of operations is very important for high efficiency.
- Spaces arranged in a highly organized format.
- May be designed for future add-on spaces.
- Facility will generate lots of runoff, methods of dealing with this must be evaluated.
- Versatility of operational needs, flexible work spaces and floor plan.





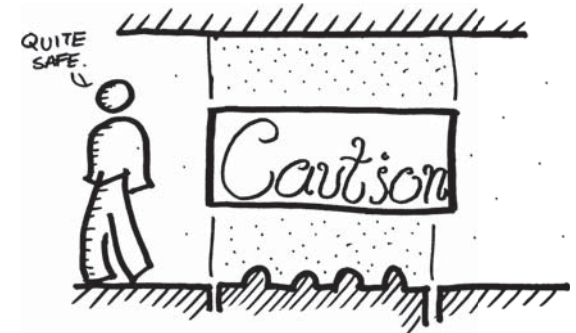
## Goals

- Clear floor plan cohesion.
- Careful detailing of surfaces.
- Care to vehicular and pedestrian traffic movement.

## Performance Reqs.

- There should be clear visibility between circulation spaces. Avoid extraneous material usage to prevent confusion for the sight impaired.
- Implementation of visual and tactile experiences for the users (walls, floor, ceiling, etc.) textured appropriately to minimize hazards and maintenance.
- In designing parking accommodations, create pathways that are clear of delivery traffic, employee parking, and student users. It will be important to clearly separate pedestrians from traffic.

## Concepts



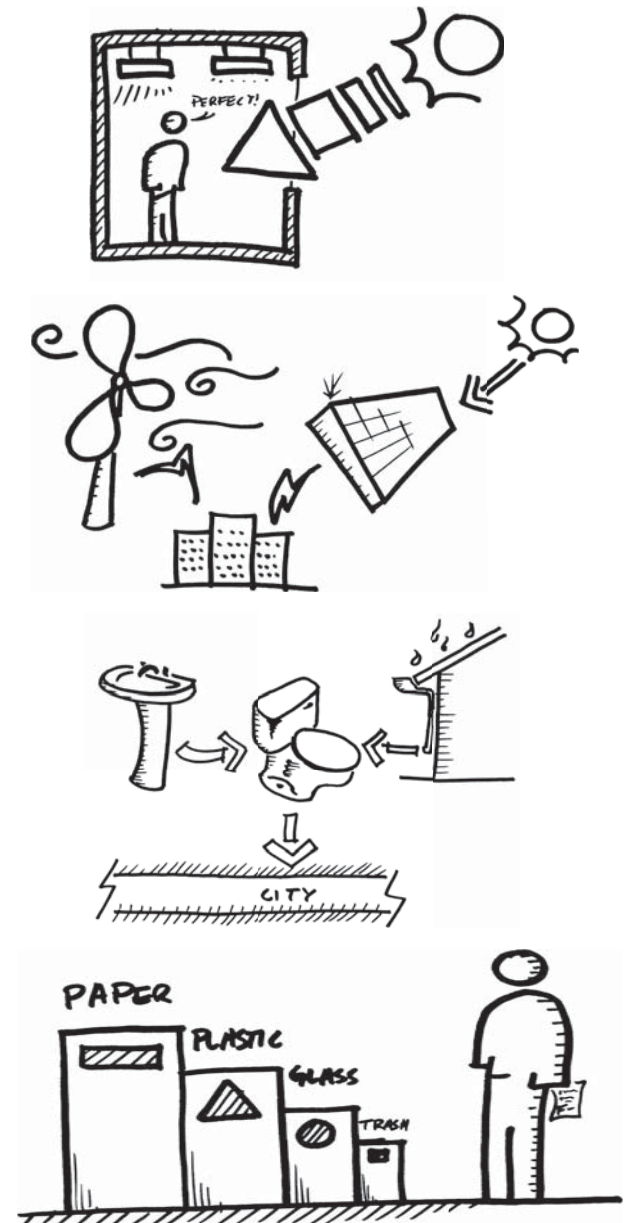
## Goals

- Automated systems.
- Sustainable practices and materials.
- Reallocation of water in various ways.
- Celebrated waste recycling strategies.

## Performance Reqs.

- The post construction cost of this facility will be reduced with properly programmed lighting, HVAC, and other electric systems.
- Use of energy saving products, and passive systems. Incorporate 'green energy' strategies when possible, as well as materials that occupants may conceive as environmentally responsible choices.
- Visually celebrate the reuse of greywater and/or stormwater collection. Provide an education component for the users as well.
- This facility should take advantage of reusing and/or processing of its own waste in as many ways as possible. On the user level there will need to be easily discernible differences for proper disposal of waste.

## Concepts





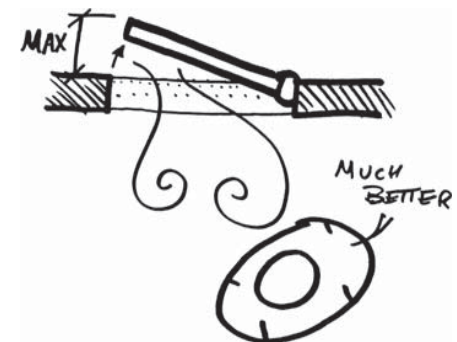
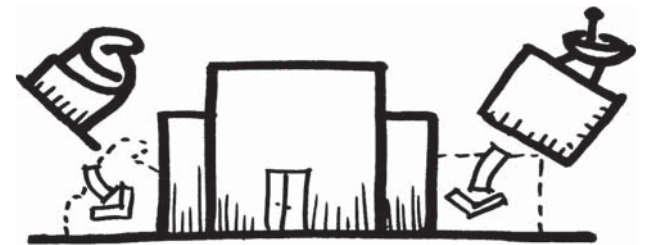
## Goals

- Movable/flexible spaces.
- Able to expand structure upon need.
- Occupant controllable systems.

## Performance Reqs.

- Easily movable space elements by any user.
- In the anticipation of further development requirements, expansion of the facility should be a priority during the schematic design phase. This may be achieved by vertical, horizontal, or other directional means.
- Operable apertures, ways to adjust both artificial and natural lighting, and control of occupiable relaxation space elements.

## Concepts



## Program Document **Conclusion**

### Summary of Design Concept

- Students should approach the design process of these micro-houses with the intent of low-impact and sustainable designs. Material choice is critical! It is preferred to use local materials, that of which are highly reusable (to reduce excessive waste). Space planning becomes a critical factor in the design of both the micro-housing and the manufacturing facility. Attention should be paid to the users of the facility, and those who will use the micro-housing.

- Selective recreational activities on the chosen site would prove advantageous, either in variety, or similarity. It will be important not to over-load the site with too many different activities, as this will create undesirable congestion. The investigations in this program document have proven to be useful guides for how to approach the problems that need to be solved for the Sandpoint site.

## Program Document **Programmers**

### Team 3:

Megan Hoover

Kathryn Cooper

Cody Williams

Steve Hofhine

Richard H. Wilson

LARC/ARCH 453 - A. Marshall & G. Austin