



Ultra-Low Cost Model
for Homeless Housing



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Urban Camp Overview

Urban Camp is designed as ultra-low cost housing for the homeless. A housing unit is designed as the minimum size and characteristics that will comply with building codes. That is 70 SF of habitable space with environmental control and provisions for sleeping, bathing, and cooking. The units are designed as personal control space meaning it is a secure and single person or couple occupies and cares for the unit.

Units are designed for clusters of 10 units with groupings of clusters to accommodate 50-200 homes. Each cluster of 10 units has a utility house with connection to grid utilities.

Most low cost housing projects are designed for low income people who are able to pay at least some portion of the rent. This leaves the no-income homeless left out of most low cost housing programs.

Here is how Urban Camp Housing is different from most low cost housing:

- 1 Units are relatively low density at 1 story typically, and in some instances 2 story.
- 2 Units are relatively open to the street so they are built to be secure and vandal resistant.
- 3 Units are primarily occupied by single males to reflect most tent camp populations.
- 4 Units may be occupied by persons with behavioral issues that require simple and damage resistant interior features, with special highly cleanable surface.
- 5 Units are designed with utility systems in a secure space accessible only from the exterior by authorized service people. This allows servicing without entry to the personal living space.
- 6 Units are designed with minimal floor space, so building envelope costs per floor space area is higher than standard.
- 7 Units are designed for modular construction with minimal customization to reduce cost of construction and installation.
- 8 Units are designed for a 30 year life.



Individual Home Cost

| DESCRIPTION | COST |
|---|---------------|
| Structural Frame | 3,000 |
| Insulated Wall Floor and Ceiling Panels | 10,000 |
| Doors and Windows | 4,000 |
| Bath Fixtures | 4,000 |
| Kitchen Fixtures | 2,000 |
| Interior Finishes | 3,000 |
| Exterior Finishes | 8,000 |
| Interior Casework | 4,000 |
| Heating, Cooling, Ventilation Systems | 5,000 |
| Light and Power Systems | 3,000 |
| Plumbing Systems | 2,000 |
| Monitoring and Control | 2,000 |
| Fire Protection | 3,000 |
| Solar Panels and Parts | 3,000 |
| Other Items | 4,000 |
| Total | 60,000 |

Utility Building Costs per Cluster

Homes are designed to be installed in clusters of 10 homes. This is primarily to have a human scale and potential for supportive community. However it is also a good grouping to minimize utility costs with a group utility building. The utility building is the same size and construction as a standard housing module. The function of the utility building is:

- 1 A node for power distribution and monitoring.
- 2 A node for solar power management.
- 3 A node for water distribution, monitoring, control, and treatment if necessary.
- 4 A node for wastewater monitoring and collect and pump as necessary.
- 5 A node for HVAC monitoring.
- 6 A node for exterior security monitoring.
- 7 A node for internet connectivity and wi-fi.
- 8 Storage for site maintenance tools and supplies.
- 9 Solid waste collection point.
- 10 Common area laundry appliances

Here is an estimate of the utility building cost, again with variations expected for location and market pricing:

| DESCRIPTION | COST |
|---|---------------|
| Structural Frame | 3,000 |
| Insulated Wall Floor and Ceiling Panels | 10,000 |
| Doors and Windows | 4,000 |
| Power Distribution and Monitoring | 3,000 |
| Solar Power Management | 10,000 |
| Water Systems | 3,000 |
| Wastewater Systems | 4,000 |
| HVAC Monitoring | 2,000 |
| Security Systems | 2,000 |
| Internet Systems | 1,000 |
| Fire Protection | 10,000 |
| Laundry Appliances | 2,000 |
| Other Items | 6,000 |
| Total | 60,000 |

Site Improvements and Utilities

For the sake of analysis, we will look at the cost of site improvements and Utilities based on a single cluster of 10 homes. Initial site conditions will vary a lot. The site could be clean but unpaved or paved as a parking lot. The site will likely be unimproved meaning no buildings or utilities. We will assume that utilities are available in the adjacent roadway.

The required site improvements are:

- 1 Removal of debris and rough grading to near level ground with sloping for general drainage.
- 2 Installation of light foundation for buildings such as shallow piers or slab on grade.
- 3 Trenching and installation of underground utilities for water, wastewater, power, control, fire protection
- 4 Installation of gravel or other surfacing for roadway for emergency access and walkways for people.
- 5 Connection of utilities to grid utilities in street.
- 6 Common area fixtures
- 7 Landscaping
- 8 Setting of House and Utility Modules
- 9 Connection of Housing and Utility Modules



Here is the estimate for a 10 home cluster:

| DESCRIPTION | COST |
|-------------------------------|----------------|
| Site Cleanup and Grading | 10,000 |
| Building Foundations – 11 | 20,000 |
| Underground Utilities | 30,000 |
| Roadway and Walkway Surfacing | 30,000 |
| Connection of Grid Utilities | 20,000 |
| Common Area Fixtures | 10,000 |
| Landscaping | 15,000 |
| Setting of Modules | 15,000 |
| Connection of Modules | 30,000 |
| Other Items | 20,000 |
| Total | 200,000 |



Total Capital Cost

The urban Camp cost model is based on the land being provided at a no cost lease. This could be accomplished by use of public land, or the use of private land with tax incentive.

The capital cost of the initial development is summarized as follows:

| DESCRIPTION | COST |
|-------------------------------------|----------------|
| 10 Housing Modules at \$60,000 each | 600,000 |
| 1 Utility Building at \$60,000 | 60,000 |
| Site Improvements and Utilities | 200,000 |
| Total | 860,000 |
| Cost per Housing Module | 86,000 |



Cost for Development Site

We have calculated the cost of individual units and the basic 10 unit cluster of units that is our building block for larger groupings of homes. Lets calculate how many homes we can put on a lot, and the total cost for that lot development.

The 10 unit cluster fits comfortably on a 50 feet x 150 feet lot, equal to 7500 SF. Allowing 15% for common areas, it would be 8500 SF, or 850 SF per unit. With an acre equal to 43,560 SF, that would be 50 homes per acre.

Lets calculate the costs for 1, 2, 3 and 4 acre sites:

| DESCRIPTION | 1 ACRE 43,560 SF | 2 ACRE 87,120 SF | 3 ACRE 130,680 SF | 4 ACRE 174,240 SF |
|--|---------------------|---------------------|----------------------|----------------------|
| Housing Units at 850 SF each | 50 Units | 100 Units | 150 Units | 200 Units |
| Capital Cost at \$86,000 per Unit | 4,300,000 | 8,600,000 | 12,900,000 | 17,200,000 |
| Annualized Capital Costs | 277,200 | 554,500 | 831,600 | 1,109,000 |
| Annual Maintenance Cost at 5% | 215,000 | 430,000 | 645,000 | 860,000 |
| Annual Utility Costs at \$180 per month per Unit | 108,000 | 216,000 | 324,000 | 432,000 |
| Total Annual Cost | 600,200 | 1,200,400 | 1,800,600 | 2,400,800 |
| Annual Cost per Housing Unit | 12,000 | 12,000 | 12,000 | 12,000 |

Estimated Monthly Rent Calculation

The estimated monthly and annual cost per unit would be calculated as follows. At \$1000 per month, this seems on target given the conditions. The amount is within the range of expected HUD Fair Market Rent which is the basis for Section 8 vouchers.

| DESCRIPTION | COST |
|---|----------------------|
| Cost per Housing Module per above | \$ 86,000 |
| 86,000 Capital Cost Monthly Cost Amortized over 30 Years at 5% Interest | \$ 462/month |
| Maintenance Cost \$86,000 x 5% Annual / 12 months | \$ 358/month |
| Utilities | \$ 180/month |
| Total | \$ 1000/month |
| Meets Range of HUD Fair Market Rent | 1000-1500/month |
| x 12 Months for Annual Cost per Unit | 12,000/year |

Economics for the Formerly Homeless Person Living Independently

How does a formerly homeless person afford to live in a urban camp home, and live independently. The key is engaging the social safety net benefits that are available.

Following is a summary:

| CATEGORY | DESCRIPTION | VALUE MONTH | VALUE ANNUAL |
|----------|---|----------------|------------------|
| Housing | HUD Section 8 Housing Voucher is essential. Payment of Fair Market Rent of \$1000 to \$1500 | \$ 1,000 | \$ 12,000 |
| General | SSI Supplementary Security Income | \$ 795 | \$ 9,540 |
| Food | SNAP | \$ 155 | \$ 1,860 |
| Medical | Medicaid | \$ 450 | \$ 5,400 |
| Cell | Lifeline Assist Cell Phone | \$ 100 | \$ 1,200 |
| | Total | \$ 2500 | \$ 30,000 |

Economics for the Local Community

Urban Camp is designed to be financed by rent like any low cost housing development, with the rent payments subsidized by Public Funds, and possibly with some private charitable contributions. The design of the homes and utility systems is toward ultra-low cost.

One of the common complaints of community efforts to solve homelessness is the high cost of the proposed solutions. The key to minimizing these costs is to enable the homeless person to continue living independently. In a shelter environment or a transitional housing site, the community takes an expensive full charge of supporting the individual including food, medical, and security usually with dedicated personnel.

Here is how Urban Camp avoids most of those high costs:

Long Term Housing: Urban Camp can be a home permanently or for several years while the person heals and then moves up to a standard apartment or home. Shelters and transition / processing facilities are expensive to build and operate.

Code Compliant Homes: The homes are safe and comply with building codes, so there is no special supervision of less safe / non-compliant tents or containers.

Open to Surrounding Community: Each home is secured against theft and the buildings exterior materials, doors, and windows are built for a tough urban environment. The expense of fenced facilities and full time security personnel is avoided.

An Environment for Healing: The architecture of Urban Camp is designed for personal self-healing. Of course specialized medical and social work is required. But it should be greatly reduced compared to a communal facility.

Access for Emergency Services: The Urban Camp site allows for access by police, fire, and emergency medical personnel and vehicles. The existing resources of the community are used, and no special full time personnel are required for these functions.

Self-Care Environment: The Urban Camp Home is designed to be occupied and cleaned by the occupant. The units have full bath and kitchen functions. The expense of facility cleaning and operating a kitchen is avoided. Also self-care is a healing process.

It would be unrealistic to say that there is no cost to the community which includes Urban Camp. The idea is to avoid specialized dedicated and expensive services for the homeless. The goal is to have the community provide services routinely and cost effectively as they would for any other resident.

