

IPRO 339-A

CREATING AFFORDABLE HOUSING USING SHIPPING CONTAINERS

CHICAGO, ILLINOIS

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OUR SOLUTION

- Design
Typical floor plans
- 53 foot: This typical 53' container incorporates 3 bedrooms with accessible bathroom, kitchen a larger living room space, a utility room and a small dining space.
- Kitchen

Every single container will be provided with a typical kitchen that has a stove, a sink, wall cabinets, a refrigerator and counter space. The idea is to have the kitchen open to the living space or dining space in the unit.

- Bedroom
- Every single bedroom will have a window that provides enough sunlight to offset energy costs.
- Living room

The living room has a typical Chicago bay window with the purpose of bringing in enough sunlight to illuminate the corridor.

Energy
-A regular gas generator could be used to provide electricity for the entire building
-For a unit by unit basis a hybrid engine (similar to a car engine) could be used.

-Alternative energy from the gas generator or hybrid engine was most suitable
-The heating load value for Chicago reflected the necessity of effective insulation which would retain heat and energy -A passive water heating system could be feasibly implemented only by accounting for infrastructure effects to roof -LEED certification would require very detailed building planning, but is a realistic goal

CONCLUSION

The goal of IPRO Chicago is to design affordable housing for Chicago using shipping containers. Shipping containers are abundant, can be purchased cheaply, and can provide a solid core for a home. As our groups thought through the solutions to the problems facing our project, we discovered that collectively we were able to come up with solid design ideas, that can in time be used to build homes for Chicago residents. With safe housing stock our neighborhoods flourish. And, when our neighborhoods are healthy, so is the cultural and economic life of our home, Chicago.

THE PROBLEM

The Southside of Chicago is undergoing a real estate renaissance. Neighborhoods all around IIT are being redeveloped. New housing is being built and older housing is being renovated. Many of the residents who have lived in these neighborhoods their entire lives are being forced out by the increasing costs for renting or purchasing housing.

GOALS AND OBJECTIVES

To produce affordable, vernacular housing for these residents. Containers provide good, cheap structure for a building, but are generally not attractive and are difficult to heat and cool. The appearance problems have "stigmatized" container structures as post-modern warehouses for the poor, or as "artsy" housing for non-conformists.

Utilize the structure inherent in the containers, while mimicking the layout and appearance of "traditional" Chicago buildings.

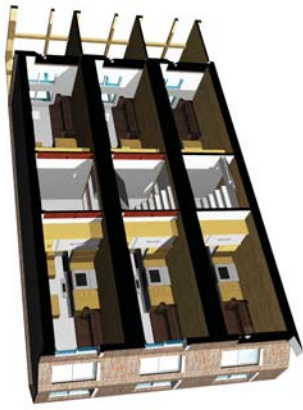
Provide low-cost, off site, interior finishing, including the resources of the RV/Mobile Home industry in Indiana, as a way to speed up the construction of the buildings, and reduce on site construction costs.

To construct housing so that containers are visible for as short a time as possible before they become Chicago buildings, therefore minimizing the stigma of being container housing and avoiding controversy about them.

METHODOLOGY

Members of IPRO 339 were first divided into research sub-groups: energy, exterior envelope, design, and infrastructure. These groups were responsible for researching and recommending solutions for the housing design.

In addition to these research groups, the whole IPRO was then divided between team A (Chicago) and team B (Juarez). To achieve our design objectives, each Chicago group member gathered information pertaining to their sub-group. Each team then worked with their counterparts in IPRO Juarez, to solve a list of specific challenges.



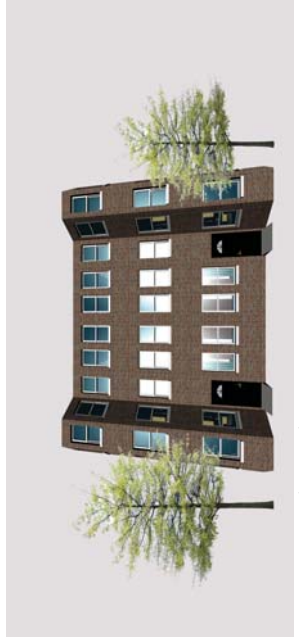
SECTION PERSPECTIVE



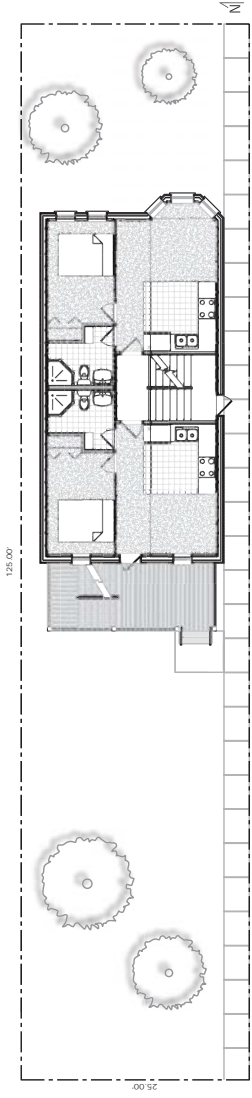
INTERIOR RENDERING 1



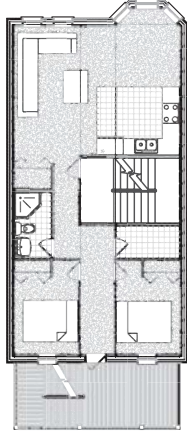
INTERIOR RENDERING 2



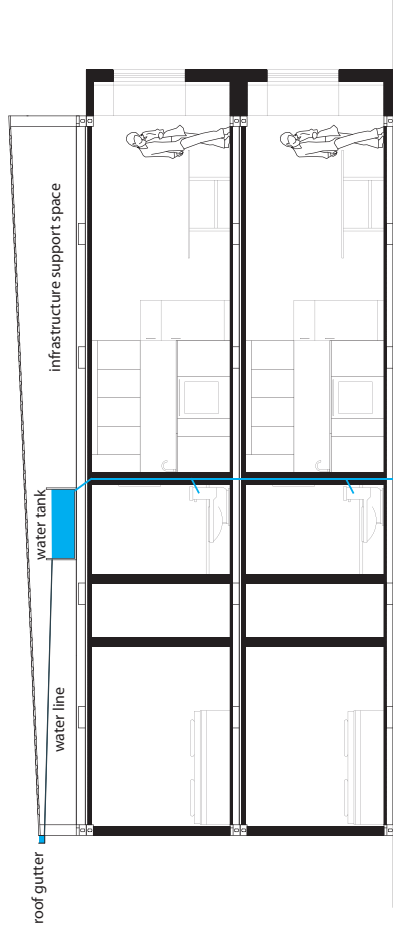
EXTERIOR RENDERING



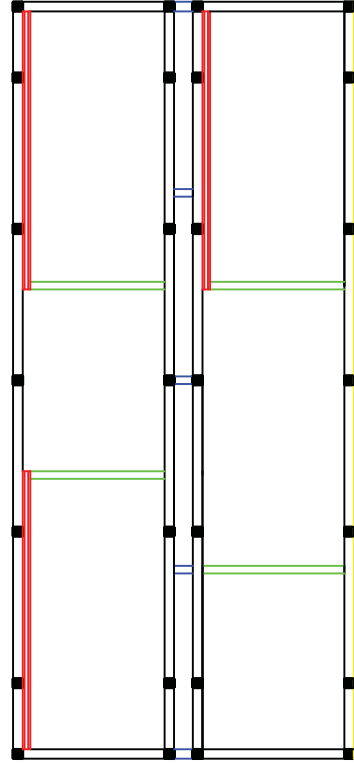
SITE PLAN & TYPICAL 1ST FLOOR PLAN



TYPICAL 2ND FLOOR



BUILDING SECTION



STRUCTURAL SECTION

- Concrete Frame
- VIB49
- HSS 4x4x5
- HSS 6x6x8.5
- VIBx48
- HSS 4x4x3