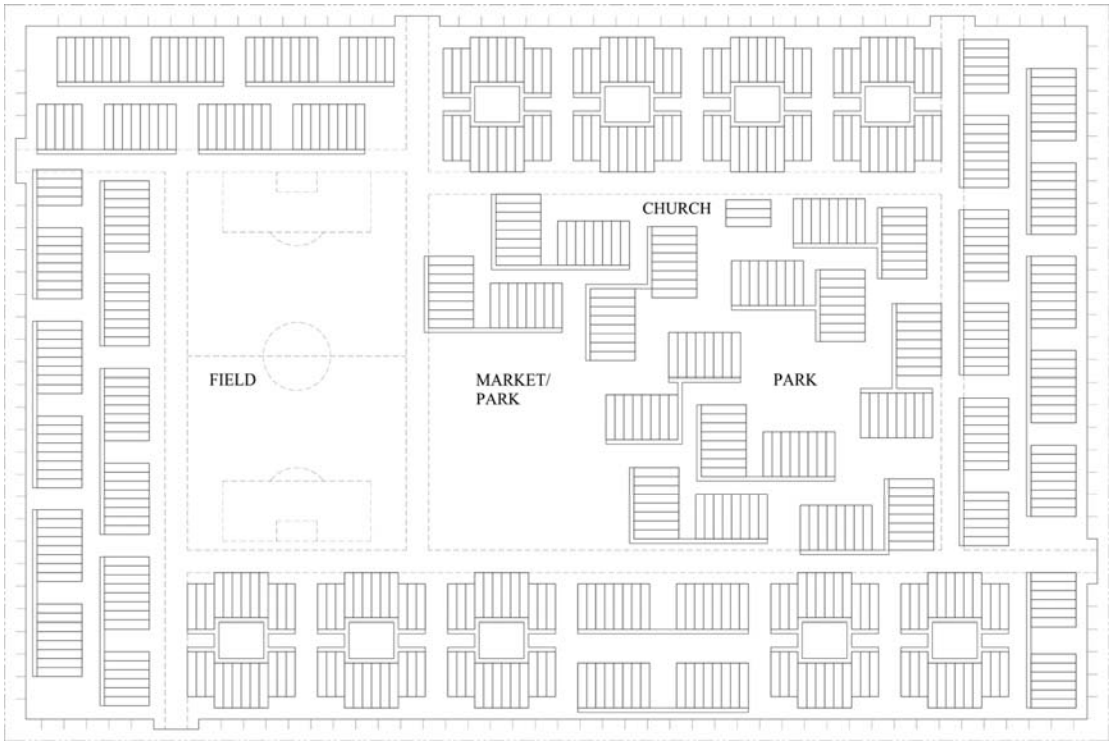
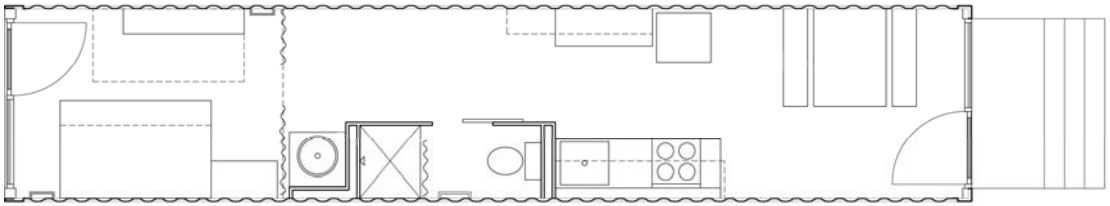
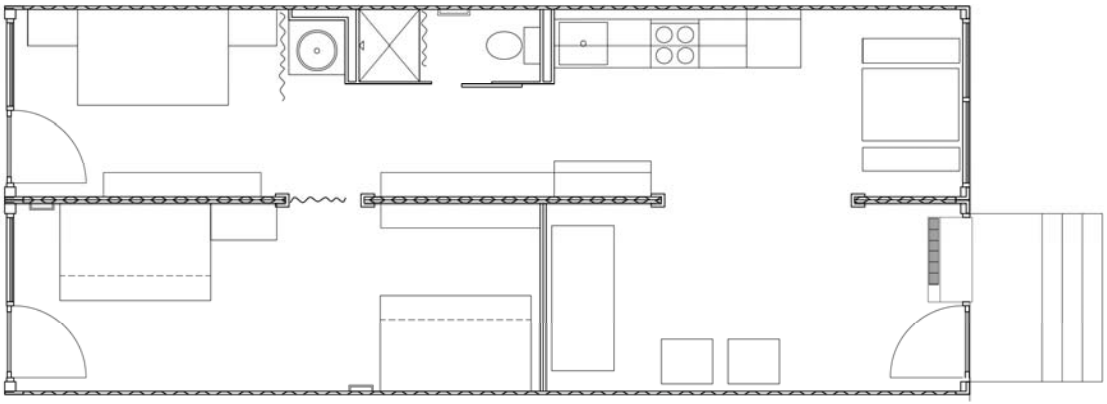


Proposed Site Plan - 200m x 300m
1,942 single units + 100 double units



Proposed Single Unit Plan A
shell: 8 ft. x 40 ft. modified shipping container



Proposed Double Unit Plan
shell: 2 - 8 ft. x 40 ft. modified shipping container

IPRO 339

Designing Affordable Housing out of Shipping Containers for Ciudad Juarez, Mexico

IPRO 339 Team

Professors:
Michael Glynn, Blake Davis

Students:
Amy Bourquard, Carl Hart, Chandani Joshi, Joshua Lebak, Man Leung, Michael Lynn, Luke McGuire, Gustavo Mendoza, Brett Monroe, Patrick Park, Jacqueline Schaefer, Yihan Su, Jaquelin Tijerina, Maciej Tusz, Theresa Zappala

Challenge

IPRO 339 is focused on providing a safe and affordable housing option for the working poor in Juarez, Mexico.

Background

This IPRO is an extension of a project created by Brian McCarthy, founder and president of Por Fin Nuestra Casa Global Communities. The mission of this New Mexico based company is to develop affordable housing communities for developing countries by recycling relatively inexpensive and structural sound shipping containers into homes.

Project Focus

Transition, Sustainability, Safety
Opportunity, Neighborhood, Integrity
Inspiration, Innovation, Humanity
Function, Durability, Culture
Community, Affordability, Flexibility, Ethics

Objectives

The goal of IPRO 339 was to develop both a prototype site plan and dwelling plans for a housing development in Ciudad Juarez, Mexico. Our goals for this project were to create housing communities that are safe and economical, but that also create a feeling of community and allowed the culture of the citizens to remain.

To accomplish these goals, we looked at the social, economical, and physical elements of Ciudad Juarez, and of the *maquiladoras* where they work. We researched the most cost effective ways of incorporating plumbing, HVAC, and electricity into the units and the best way to construct our buildings using the structural elements of a shipping container. We used our site plan to promote our key goals and create a welcoming community where the citizens would feel at home.

Method

IPRO 339 first split into preliminary research sub-groups, in order to learn more about the culture and lifestyle of Ciudad Juarez, the best building methods for the area, and the most effective way to plan the site and units. We then reorganized into two larger sub-groups in order to do two small (100 meters by 100 meters) site studies, which allowed us to better examine how our ideas would influence the physical and cultural elements of the site. Our groups then combined best elements from each study into a single larger, more detailed site.

Solution

Our solution is a preliminary 200 meter by 300 meter site. In addition to almost 2,000 units on the site, we also incorporated a regulation-size soccer field, a large space for a park and market place, and a church. These elements are arranged on the site in such a way that they break up the housing units into separate 'neighborhoods' to create smaller communities within the larger space. The arrangement of the public amenities is distributed throughout the site to promote usage of the site by everyone, so as not to alienate any one area from the rest, while maintaining efficiency. Roads wide enough for emergency vehicles run through the site in the North/South and East/West direction.

The individual units are constructed out of 40 foot shipping containers; each one has a small kitchen area and a small bathroom with a toilet and shower. The units also comfortably sleep three to six people. Both ends of the units are constructed of full-height glazing to allow natural lighting. None of the buildings are more than four units tall, to minimize the number of stairs to each apartment. The walkways provide shading for the units, while the buildings exterior will be covered with cob; a cost effective and attractive thermal insulation.

Results

IPRO 339 produced schematic drawings for our site plan and units, including plans, section, and elevations. We also have done materials and structural research for the project, and a cost analysis including soft and hard costs.