Professor Blake Davis, ARCHITECT
Professor Michael Glynn, ARCHITECT
Matthew Abbott, B. ARCH
Ryan Bloom, B. ARCH
Aaron Davis, BS. MECH. ENG.
Vlada Gasina, BS. MECH ENG
James Hwangbo, B. ARCH
Andrew Kungis, B. ARCH

Timothy Phillips, B. ARCH
Cassandra Specht, B. ARCH
Oluwasesan Aduroja, B. ARCH
Veronika Bocanova, B. ARCH
Young Hong Ip, BS. MECH ENG
Timothy LaBuda, B. ARCH
Alejandro Ramirez, BS. ELEC ENG
Patrick Tarpey, B. INTM

Patrick Tarpey, B. INTM
Cherish Anderson, BS. ELEC ENG
Eliza Broekere, B. ARCH
Tasha Farris, B. ARCH
Gergana Horozova Nalls, B. ARCH
Joel Jacobson, B. ARCH
Jannette Ochoa, B. ARCH
Caroline Slota, B. ARCH
Mike Zhang, B. COMPUTER SCIENCE
THE HISTORY OF SHIPPING CONTAINERS

1900  Closed boxes used to transport goods between road and rail

1954  American Malcolm McLean, invented standardized shipping containers

1970  Present-day dimensions were set

2008  16-22 million containers in circulation
       1 million new units introduced yearly
       700,000 units being retired yearly
$77.85 per sq ft Container Construction

vs

$200 per sq ft Conventional Construction

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost/SF</th>
<th>Total Cost/Ft (1,800 Av A)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPRO 339 - Olympic Housing Proposal</td>
<td>$65.36</td>
<td>$117,003.60</td>
</tr>
<tr>
<td>Hotel, 4-7 Stories in Chicago - (2000 RS Means)</td>
<td>$150.99</td>
<td>$301,980.00</td>
</tr>
<tr>
<td>Hotel, 8-24 Stories in Chicago - (2000 RS Means)</td>
<td>$194.54</td>
<td>$393,076.00</td>
</tr>
<tr>
<td>Motel, 2-3 Stories in Chicago - (2000 RS Means)</td>
<td>$179.40</td>
<td>$358,780.00</td>
</tr>
<tr>
<td>Apartment Bldg., 4-7 Stories in Chicago - (2000 Rs Means)</td>
<td>$183.21</td>
<td>$356,442.00</td>
</tr>
<tr>
<td>IPRO 339 - Permanent Housing Proposal</td>
<td>$77.85</td>
<td>$139,650.00</td>
</tr>
<tr>
<td>New Residential, XXX Material in Chicago - (2000 Rs Means)</td>
<td>xxx</td>
<td>xxx</td>
</tr>
<tr>
<td>New Residential, XXX Material in Chicago - (2000 Rs Means)</td>
<td>xxx</td>
<td>xxx</td>
</tr>
<tr>
<td>New Residential, XXX Material in Chicago - (2000 Rs Means)</td>
<td>xxx</td>
<td>xxx</td>
</tr>
</tbody>
</table>

Subtotal: $397,579.26

Gross Square Foot (Per 2 Bedroom Unit): 640

Total Cost of 2 Bdrm Units (400 Total Units): $15,657,975.00

Bedroom Unit

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost/SF</th>
<th>Total Cost/Ft (1,800 Av A)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Contractor OH&amp;F</td>
<td>$11,071.95</td>
<td>$20,139.90</td>
</tr>
<tr>
<td>Architect</td>
<td>$7,381.30</td>
<td>$13,463.60</td>
</tr>
<tr>
<td><strong>Conventional Total Estimated Construction Cost</strong></td>
<td>$99,647.53</td>
<td>$189,305.00</td>
</tr>
<tr>
<td>Cost per Sq Ft (1,800 Av SF)</td>
<td>$55.15</td>
<td>$100,272.00</td>
</tr>
</tbody>
</table>

Subtotal: $30,702.36

Gross Square Foot (Per 4 Bedroom Unit): 640

Total Cost of 4 Bedroom Units (4050 Total Units): $160,796,507.00

Total Olympic Construction Cost

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost/SF</th>
<th>Total Cost/Ft (1,800 Av A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cost of 2 Bdrm Units</td>
<td>$6,702,009.00</td>
<td>$13,463.60</td>
</tr>
<tr>
<td>Total Cost of 4 Bdrm Units</td>
<td>$16,662,075.00</td>
<td>$33,325.12</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$186,156,883.00</td>
<td>$37,315.30</td>
</tr>
</tbody>
</table>

**Conventional Total Estimated Construction Cost:** $251,311,792.05

**Total Cost per Sq Ft:** $65.36
SUSTAINABILITY

- Re-use of existing material
- Modular construction
- Utilizing low-cost energy-efficient lighting and plumbing fixtures
MODULARITY

Ease of assembly

STACKING CONTAINERS / STACKING PLUMBING

PLUMBING QUICK-CONNECT DRAWING
DESIGN & PROJECT DEVELOPMENT

- OLYMPIC VILLAGE
- IIT GRADUATE STUDENT HOUSING
- AFFORDABLE HOUSING
OLYMPIC VILLAGE

- Urban Design
- Landscape
- Graphics
- Budget
OLYMPIC VILLAGE DESIGN: HOUSING UNIT

OLYMPIC HOUSING FLOOR PLAN

APARTMENT UNIT
GRADUATE STUDENT HOUSING: HOUSING UNIT

IIT GRADUATE HOUSING MODULE

Keetwonen Student Housing, Amsterdam, The Netherlands
AFFORDABLE HOUSING: SHIPPING CONTAINER LAYOUT

Chicago Zoning
Setback Requirement

STANDARD CHICAGO LOT

20’

125’

25’
FULL SCALE MODEL

- PLANNING PROCESS
- CHALLENGES
- PROGRESS TO DATE
Progress

- Foundations
- Containers/Donations
- Interest/Enthusiasm
MAJOR OBSTACLES & RESOLUTIONS

- We did not get the 2016 Olympic bid - project restarted in October
- Finding containers for the full scale model
- Communication between groups and donors
- Acquisition of materials
- Rebranded logo and slogan
- Published articles to raise awareness
- Cultivated involvement within the IIT community
- Website (http://www.iit.edu/~ipro339f09/)
- Created Facebook page to keep supporters updated
- Sought out and brought in donations

Olympic Village 2016

43 fans to date!

“Redefining Chicago Housing”
About

Why shipping containers? Since the United States is an importing rather than exporting country, there is a big overstock of shipping containers. So the problem is that these large solid steel boxes are cluttering up shipping yards, and it makes no economical sense to ship them back empty. The price of making new containers is cheaper than the fuel cost.

So what can we do about these roughly 700,000 abandoned containers? Make them habitable. These containers are made out of solid, marine-grade steel, and are well-suited to withstand harsh environments. It would be a perfect housing material; better yet - it comes in almost the right shape already.

Their thick steel walls are good for insulation. The sturdy body can support a lot of weight. The rectangular shape allows for superb versatility in design. And most importantly, using these containers as the frame significantly reduces the cost of construction.
I PRO 339 - Innovative Container Design

Housing

Buying a home is exciting; especially one that’s affordable, so that brand new big-screen TV you’ve dreamed about can be a reality. By saving on the real estate cost, you now have the budget to plan where to put that piano, talk to the car dealer about that nice ride, or reserve your rare wine collection.

See, a container house can really bring some happiness to you and your family. A nice, warm and cozy place of your own, along with all the other dreams you’ve had, can come true without the heavy financial pressure. That’s what we call “home.”

Plus, your new home would be extra sturdy against the dynamic weather, more environmentally friendly (since it’s made from a reused resource), and cutting-edge!

Start exploring your new home now. Check out some of the great features offered using the navigation panel on the left.
IPRO 339 - Innovative Container Design
IPRO 339 - Innovative Container Design

IPRO 339 Innovative Housing Using Shipping Containers
Dear developers and helpers,

We are always looking for some help from the professional community, be it an idea, a donation, or a connection. As a matter of fact, we have a list of things that we need to start up our model; if you can donate or provide a source for donations, we will greatly appreciate your assistance.

Please use the contact us link on the left to send us a message. We thank you in advance.

IPRO Team 339

Please take a look at our Brochure and Donation letter

IPRO 339 Innovative Housing Using Shipping Containers
Contact

We are always happy to hear what you have to say. If you have any ideas or comments for us, just use the message us button on the left. If you would like to check out what IPRO is all about, click on the IPRO link on the left. If you would like to know more about Illinois Institute of Technology, hit the IIT link on the left.

Check out our facebook page, become a fan.

IPRO 339 Innovative Housing Using Shipping Containers
- Experiment with cladding materials
- Complete the full scale model
- Exploring other opportunities with container construction
  - Suburban homes
  - Emergency housing
  - Student Housing
THANK YOU!!!