

## IPRO 339 PROJECT PLAN – FALL 2009

# Designing Affordable Housing and Olympic Village out of Shipping Containers for Chicago

**IPRO Faculty Advisors**

Michael Glynn

Blake Davis

**IPRO Team Members**

Abbott, Matthew

Aduroja, Oluwasesan

Anderson, Cherish

Bloom, Ryan

Bocanova, Veronika

Broekere, Eliza

Davis, Aaron

Farris, Tasha

Gaisina, Vlada

Horozova Nalls, Gergana

Hwangbo, Sungkyum (James)

Ip, Young

Jacobson, Joel

Kungis, Andrew

LaBuda, Timothy

Ochoa, Jannette

Phillips, Timothy

Ramirez, Alejandro

Slota, Caroline

Specht, Cassandra

Tarpey, Patrick

Zhang, Mike

## I. TEAM CHARTER

### 1. TEAM INFORMATION

#### A. Team member roster

1. Abbott, Matthew
  - [mabbott1@iit.edu](mailto:mabbott1@iit.edu)
  - [REDACTED]
  - NEW KNOWLEDGE/ SKILLS TO DEVELOP: Design work and construction, as well as soliciting donations and sponsorship.
  - EXPECTATIONS: To complete the physical model to a great extent, or in its entirety.
2. Aduroja, Oluwasesan
  - [oaduroja@iit.edu](mailto:oaduroja@iit.edu)
  - NEW KNOWLEDGE/ SKILLS TO DEVELOP: Working well within a group.
  - EXPECTATIONS: To win on IPRO Day.
3. Anderson, Cherish
  - [canders5@iit.edu](mailto:canders5@iit.edu)
  - [REDACTED]
  - STRENGTHS: Basic circuit design and a good perspective on the use of energy.
4. Bloom, Ryan
  - [rbloom@iit.edu](mailto:rbloom@iit.edu)
  - [REDACTED]
  - STRENGTHS: New design ideas and good modeling skills, as well as energy and enthusiasm to push the project forward.
  - NEW KNOWLEDGE/ SKILLS TO DEVELOP: Gaining a better understanding of affordable housing, its costs and implementation, as well as developing construction skills and better organizational skills.
  - EXPECTATIONS: To learn more and help spread the word about affordable housing in Chicago.
5. Bocanova, Veronika
  - [vbocanov@iit.edu](mailto:vbocanov@iit.edu)
  - [REDACTED]
  - STRENGTHS: Knowledge of sustainable issues, writing and presentation skills, preparing permit and construction documents and 2+ years of experience in an architecture firm.
  - NEW KNOWLEDGE/SKILLS TO DEVELOP: Learn about different kinds of marketing strategies and how to implement them effectively.
  - EXPECTATIONS: To educate the IIT community and Chicago with our IPRO design.

6. Broekere, Eliza
  - [ebroeker@iit.edu](mailto:ebroeker@iit.edu)
  - [REDACTED]
  - STRENGTHS: CAD, design, renderings, animation, marketing, networking, contacts with people who could be helpful to the project.
  - NEW KNOWLEDGE/SKILLS TO DEVELOP: The step-by-step process of project plan realization in a professional manner with emphasis on cost estimation!
  - EXPECTATIONS: Obtaining construction permit documents and necessary financial support for project development. To build the full-scale mock-up model.
7. Davis, Aaron
  - [adavis13@iit.edu](mailto:adavis13@iit.edu)
  - [REDACTED]
  - STRENGTHS: Rendering, design and 3D-modeling, constructing models of the buildings, calculating expenses and basic structural work.
  - NEW KNOWLEDGE/SKILLS TO DEVELOP: Gaining insight on converting cargo containers into another useful form and applying it to the Olympic housing project.
  - EXPECTATIONS: To solidify the designs of converting temporary Olympic housing units into permanent housing.
8. Farris, Tasha
  - [tfarris1@iit.edu](mailto:tfarris1@iit.edu)
  - [REDACTED]
  - STRENGTHS: Model making and presentation skills; business and marketing knowledge.
9. Gaisina, Vlada
  - [vgaysina@iit.edu](mailto:vgaysina@iit.edu)
  - [REDACTED]
  - STRENGTHS: A practical perspective, easy to work with, copy editing and journalism experience, potentially useful connections in local communities.
  - NEW KNOWLEDGE/SKILLS TO DEVELOP: To learn more about the design of a building and practice working with people in other specializations.
  - EXPECTATIONS: Raising awareness of shipping container housing, its benefits, and its uses as affordable entry-level housing.
10. Horozova Nalls, Gergana
  - [ghorozov@iit.edu](mailto:ghorozov@iit.edu)
  - [REDACTED]
  - STRENGTHS: Landscape design, planning, sales and marketing.
11. Hwangbo, James

➤ [shwangbo@iit.edu](mailto:shwangbo@iit.edu)

➤ [REDACTED]

➤ STRENGTHS: Model making skills, concept design and researching, bilingual abilities.

➤ NEW KNOWLEDGE/ SKILLS TO DEVELOP: To learn more about leadership and marketing, and develop better presentation skills.

➤ EXPECTATIONS: Efficient group work along with creative architecture on a minimal budget.

12. Ip, Young Hong

➤ [yip@iit.edu](mailto:yip@iit.edu)

➤ [REDACTED]

➤ STRENGTHS: Making calculations, transportation, building things.

➤ NEW KNOWLEDGE/ SKILLS TO DEVELOP: Teamwork skills and networking skills; learn to work with tools and technology required to build a house.

➤ EXPECTATIONS: To have the containers prepped for furniture and fixtures, and develop a solid pitch for potential donors, community leaders, etc..

13. Jacobson, Joel

➤ [jjacobs5@iit.edu](mailto:jjacobs5@iit.edu)

➤ [REDACTED]

➤ STRENGTHS: Construction experience, strong organizational skills, proficiency at working with design software (Revit, AutoCAD, Adobe).

➤ NEW KNOWLEDGE/ SKILLS TO DEVELOP: How to work cohesively as a team, as well as the detailing of the project.

➤ EXPECTATIONS: To build a 1 to 1 scale model on campus.

14. Kungis, Andrew

➤ [akungis@iit.edu](mailto:akungis@iit.edu)

➤ [REDACTED]

➤ STRENGTHS: Designing and planning communities, leadership qualities, and ability to meet deadlines.

➤ NEW KNOWLEDGE/ SKILLS TO DEVELOP: To be able to work in a group to achieve a common goal.

➤ EXPECTATIONS: To form a well-organized presentation that would get attention from CHA and/or the Olympic committee.

15. LaBuda, Tim

➤ [tlabuda@iit.edu](mailto:tlabuda@iit.edu)

➤ [REDACTED]

➤ STRENGTHS: Urban design and architecture, graphics, 3D, 5+ years of experience in an architecture firm.

16. Ochoa, Jannette

➤ [jochoa1@iit.edu](mailto:jochoa1@iit.edu)

➤ [REDACTED]

- STRENGTHS: Meeting deadlines, working with CAD, making models. In addition, 7 years of experience in a trucking company and a direct connection to construction managers and carpenters.

17. Phillips, Tim

- [tphilli4@iit.edu](mailto:tphilli4@iit.edu)
- [REDACTED]
- STRENGTHS: Knowledge of the Michael Reese site and the demands of the Olympics, working well with a team.

18. Ramirez, Alejandro

- [aramire4@iit.edu](mailto:aramire4@iit.edu)
- [REDACTED]
- STRENGTHS: Lighting set up, welding and repair work experience.
- NEW KNOWLEDGE/SKILLS TO DEVELOP: To gain experience working in an interdisciplinary environment and improve communication skills, as well as work with steel in general.
- EXPECTATIONS: Finishing a full size model before IPRO day presentations.

19. Slota, Caroline

- [cslota@iit.edu](mailto:cslota@iit.edu)
- [REDACTED]
- NEW KNOWLEDGE/SKILLS TO DEVELOP: Marketing strategies.
- EXPECTATIONS: Developing a relationship with many different companies and organizations, and finalizing the scheme.

20. Specht, Cassandra

- [cspecht@iit.edu](mailto:cspecht@iit.edu)
- [REDACTED]
- STRENGTHS: Knowledge of sustainable building practices, space planning, landscape design, electrical schematics, and MEP coordination, leadership abilities, and experience with interior design work.
- NEW KNOWLEDGE/SKILLS TO DEVELOP: To learn more about construction documents, rendering, leading a team.
- EXPECTATIONS: to begin a full scale model and create awareness in Chicago about this project.

21. Tarpey, Patrick

- [tarppat@iit.edu](mailto:tarppat@iit.edu)
- [REDACTED]
- STRENGTHS: any kind of manual work, machining, fabricating, metal-working.

22. Zhang, Mike

- [czhang16@iit.edu](mailto:czhang16@iit.edu)

**B. Team Identity**

1. Name: "Housing in a Tin" IPRO 339
2. Logo:



3. Motto: "Do not go where the path may lead, go instead where there is no path and leave a trail".

**2. TEAM PURPOSE AND OBJECTIVES****A. Team Purpose**

As the deadline for determining which city will host the 2016 Olympics draws near, Chicago, along with Madrid, Rio de Janeiro and Tokyo is trying to prove that it should be selected as the Host City. If on October 2<sup>nd</sup> Chicago is chosen as the Host City for the 2016 Olympics, it will face the enormous task of providing temporary housing for all Olympics and Paralympics participants, including athletes, coaches, organizers and media reporters. Building upon the previous two semesters, our IPRO is proposing an economical and environmentally friendly solution to this challenge. We propose to utilize thousands of old shipping containers that are cluttering up shipping yards all over the Chicago-land area and convert them into a more cost effective alternative to traditional housing units. Since Chicago's motto for the 2016 Olympics is "the Blue Green Olympics," which references the way Chicago prides itself in creating sustainable

solutions, our proposal would only enhance our chances of being selected as the Host City in addition to being a city that thinks “outside of the box.”

The shipping containers will be modified to serve as the Olympians’ temporary quarters, equipped with all amenities, including electrical, plumbing and HVAC installations. Not only will it be as aesthetically appealing, functional, and sustainable as previous Olympic villages, but it will do so in a cost efficient way. Following the completion of the Olympic and Paralympic games, these housing containers could be easily disassembled and relocated, creating affordable permanent housing in areas of Chicago that need it the most. This would allow local residents that would have otherwise been victims of displacement the opportunity to benefit from higher quality affordable housing. Since the housing accommodations in Chicago during the Olympics will be highly priced, most of the construction cost can be covered in this manner.

The focus of our IPRO is to finalize the design of our aesthetically appealing, practical and cost efficient permanent housing out of materials that can be recycled twice: first from the shipping containers and second from the Olympic Housing. Thus all avenues will be researched and considered when it comes to properly designing the Olympic and permanent housing, so that all necessary systems are incorporated, structural integrity is maintained in accordance with the rules and regulations established by the City of Chicago Department of Buildings, and affordability is always met with a strong focus on sustainability.

To see this vision come to fruition, our mission is to not only design, but to actually construct a life size model of our design that can be interactive, educating and raising awareness about alternative, cost efficient ways of designing temporary and permanent housing. Marketing will also be a key element in promoting this idea and will allow us to reach a much larger audience than ever before.

## **B. Objectives**

- Research previous uses of shipping containers for purpose of building housing units.
- Build upon previous semester’s IPRO proposal to develop the dual-purpose housing concept of providing temporary and subsequent permanent housing.
- Determine the most efficient way to convert the units from temporary housing used for Olympic Games to permanent affordable housing for local residents.
- Explore possible technical solutions for structure of façade and ensure successful implementation into Chicago’s urban environment.

- Ensure civic and handicap accessibility in temporary and permanent housing solutions.
- Research the most cost efficient and sustainable ways of incorporating plumbing, HVAC, and electricity into these units.
- Explore possibilities aimed to increase energy efficiency of the housing in cost efficient ways.
- Compile an itemized list of required materials and components.
- Compile an estimated amount of labor hours that will be required by out of house sources (such as union workers).
- Create a budget.
- Implement a Marketing Plan.
- Increase publicity for the IPRO by creating a web page, and using other social networking devices, such as Facebook or Twitter.
- Create awareness about our IPRO project in the IIT community and in the entire Chicago-land area.
- Write and publish articles about our IPRO in the IIT Tech News, Tribune and Sun Times.
- Promote our IPRO design on public radio and TV.
- Interact with prospective home buyers to get their personal views of what is accepted vernacular for a new home.
- Gain the support of the Aldermen involved, and the Chicago Housing Authority.
- Create a presentation to present to city officials including 3-D rendered models which will be integrated into our marketing plan.
- Create relations with potential sponsors and funding options to build our life-size model.
- Verify and receive final permission for construction on site by IIT.
- Acquire all materials needed for construction of model.
- Build a life-size prototype of our design.
- Use our prototype to promote the implementation of our solution on a global scale.

### **3. BACKGROUND**

- A. Although this project does not have a sponsor yet, one of our main goals in the next few weeks is to obtain several sponsors, at least to be able to construct our prototype unit. In a sense though, our customer is ultimately the City of Chicago and the Chicago 2016 Olympic Committee for whom the housing will be developed initially, as well as a non-profit housing organization for which the housing will be adapted for permanent use.



- B. We plan to use shipping containers to create housing for two different types of residents (temporary and permanent) and therefore we may be faced with issues arising from the different needs and expectations of two socio-economic groups. The visitors that will occupy these housing units during the Olympic Games must be satisfied with proximity of the housing to the Olympic events, accessibility to public transportation and overall comfort. On the other hand, the permanent residents that will occupy these units following the completion of Olympic Games must find them affordable, functional and aesthetically appealing. Therefore, the housing must be designed to meet the needs of all. The City of Chicago and its officials have failed to develop permanent housing for people in need, time and time again, resulting in many that were left homeless. The paucity of affordable housing solutions available for the residents of the City of Chicago has forced numerous people to either relocate or to move to the streets. In order to ensure that our attempt to develop affordable social housing doesn't face the same fate as numerous other projects have in the past, we must take extra care in making sure that our housing objects fit into the typical Chicago lot and that they resemble the architecture and character of neighboring homes.
- C. Previous attempts to design public housing had limited success and it resulted in various social problems that led to an increase in crime incidences, segregation from the rest of the community and dependency of many on the government for income. The Robert Taylor Homes (demolition finished 2007) and Cabrini-Green (demolition nearly complete) are the most notorious examples of failed housing projects that we can find in the City of Chicago. Many problems are the prodigy of socio-economic isolation that residents of the housing projects face. To avoid previous mistakes in the future, we must integrate these individuals into communities that are already well functional and provide the new residents with housing solutions in a wide range of affordability. The city of Chicago offers a good environment for our project because of its close proximity of advance communities and socially and economically isolated neighborhoods that are in need of better quality housing. We also face numerous other challenges that we need to circumvent in order for this project to be a success. We need to develop the means to (i) easily and affordably transform the temporary Olympic housing into permanent housing structures, (ii) maintain the minimum of 7'6" clearance when container inside dimensions are only 7'10", and (iii) to make the project appealing to the groups that it targets.
- D. Even today, many of the shipping container housing projects are made of single or only few units. In addition to that, there are numerous examples of utility or special purpose objects. Affordable housing is in high demand all over the world but examples of large scale shipping container structures are fairly rare. One exception is Keetwonen, the student housing project in Amsterdam, Netherlands, which is made up of 1000 units and is a great example of large scale

- project. It was initially meant to last only 5 years before being relocated, but it is expected that repositioning will be postponed until 2016. Regardless of initial skepticism, the quality of the project is outstanding and offers a variety of amenities that often fail in other student dormitories. Temporary Housing, the company behind this project, is also working on 4 star hotel in Nigeria (still under construction) and similar student housing projects in Diemen, Netherlands (still under construction) which is composed of 250 containers. We are also familiar with the U.S. Army's use of shipping containers to quickly construct barracks and other buildings in military complexes in Afghanistan. However, the Army's units are constructed no more than three stories high, whereas our units must be eight stories high to meet Olympic Committee specifications.
- E. A new dimension to the problem being addressed this term is the lack of funding and support from the community as well as the lack of marketing. Local aldermen are concerned about the appearance of shipping container housing in their neighborhoods, and we have yet to pitch the idea formally to the Chicago 2016 Olympic Committee. To facilitate the proposal process, we will build a full-scale mock-up of a single unit, using real shipping containers. The problem we are facing in achieving this goal is that the current level of funds is insufficient and inhibits operations. Our goal is to market our design to the IIT and Chicago community as much as possible. This will assist us in making relations with potential sponsors. Once we conduct fundraising, hopefully we will be able to obtain enough materials to complete our mock-up.

#### **4. TEAM VALUES STATEMENT**

##### **A. Desired behaviors**

- Give 100% effort
- Work as a team to achieve shared goals
- Be on time to all the meetings
- Communicate clearly and effectively
- Respect all team members and their ideas
- Resolve issues in an effective manner
- Perform assigned tasks
- Ask for help if needed
- Meet deadlines
- Use resources wisely

##### **B. How to address problems**

- The following steps will be taken when issues arise:

1. Attempt to resolve the problem within the subgroup
  2. When necessary ask other IPRO group members for advice
  3. As a last resort, contact IPRO instructors
- 
- No-shows/ incomplete tasks need to be recorded and addressed personally. If not resolved, then issue will be reported to the instructor in order to avoid any delays in the project
  - Resolve problems with time conflicts within individual subgroups on personal basis
  - Promptly report time conflicts with weekly meeting to the instructor

## **II. PROJECT METHODOLOGY**

### **1. WORK BREAKDOWN STRUCTURE**

#### **A. Design, create, and market affordable and sustainable housing for the city of Chicago by employing recycled shipping containers, while resembling Chicago's local styles and tastes.**

- Research the most cost efficient and sustainable ways of incorporating plumbing, HVAC, and electricity into the homes.
- Develop additional site plans, floor plans, and sections as different solutions and options to the previous semester's work by developing design solutions to the problems of solar gain minimization, water collection, optimizing site orientation, and enhancing thermal zones.
- Using our research and previous designs to continue to develop multiple solutions to satisfy the needs of the potential client.
- Using our prototypes to implement and focus our solution for both Olympic housing and the transition to an affordable Chicago multi-unit structure.
- Research a viable and cost effective energy solution.
- Make the housing compliant with Chicago fire code guidelines and investigate the ethical responsibilities of further fire protection.
- Ensure civic and handicap accessibility for the housing.
- Incorporate the climatic needs of the Chicago region into the site design.
- Ensure both housing projects are going to be structurally sound.
- Ensure the MEP and HVAC systems are going to be able to be implemented without issue.
- Calculations will be made to test the structural integrity of the Olympic housing against wind loads as well as force-modeling to get

an accurate picture of what will be happening, and the necessary limitations will be given to the architecture subgroup.

- Foundation calculations will be made and will be correlated with the soil information to see if the soil can handle the dead load.
- Design of the structures will be checked against any necessary implementation of MEP and HVAC systems to prevent conflicts during construction.
- Wind load testing will be done with force-modeling.
- Results of testing and calculations will all be documented with the calculations and a small conclusion.
- Interact with prospective home buyers to get their personal views of what is acceptable vernacular for a new home.
- Present our design to the alderman, Chicago Housing Authority, and the Chicago Olympic Committee to gain support.
- Market the design in as many forms as possible (website, facebook, newspaper articles, public radio, and television).
- Acquire a site on the Illinois Institute of Technology campus suitable for building at full scale.
- Acquisition of materials and labor for construction.
- Proper site maintenance and aesthetics before, during, and after construction.
- Construct a full scale mock-up of shipping container housing.
- Create an overall awareness and understanding of our vision within the entire IIT community and Chicago.

To go about solving the above subtasks of the overall problem, our team will be divided into groups to work on individual tasks. The individual tasks will be categorized, and one category given to each subgroup. All design goals should be completed within the given timeframe, but the ultimate construction of the housing unit will require additional time and resources.

- Potential solutions will be tested using computer-aided design software, and mathematical computation, to be performed by the appropriate subgroup.
- All findings will be transparently posted using the IGroups system, to be reviewed by other members of the subgroup, as well as the overall design team.

- Results will be subjected to professional review by outside sources, such as licensed professionals and government officials. These third-party individuals will be contacted by members of the subgroups before the finalization of the design to ensure all project requirements have been met.
- One or more representatives of each subgroup will meet with the lead instructors to complete each deliverable in the required timeframe. They will meet outside the regular class period, and will be responsible with the task of organizing pertinent information and structuring the deliverable file per its requirements.

## B. TEAM STRUCTURE

- Team Leader(s): It is the responsibility of the group leaders to steer the subgroups toward the given IPRO objectives and to assure that said goals will be accomplished within the semester timeline. Team members in this group have demonstrated strong communication skills as well as leadership fundamentals. The team leaders of the IPRO will be Cassandra Specht and Veronika Bocanova and will each be responsible for two sub-groups.
- Olympic Village: This sub-team will focus on finalizing the master site plan and developing all necessary housing plans. It will also improve the aesthetic appeal of the facades, incorporate landscaping and sustainable elements, consider alternative amenity configurations, address transportation issues and security issues, engaging the lakefront into the program, create a realistic project budget, create 3D renderings and create a separate Olympic Logo for Marketing Purposes. This subgroup will be supervised by Veronika Bocanova but lead by Tim LaBuda.
- Affordable Housing: This sub-team will focus on creating permanent housing that incorporates green building technologies, finalizing the designs, electrical schematics, HVAC design implementation, plumbing design, construction details and documentation, material research, budget/cost estimates and 3D renderings. This subgroup will be lead by Cassandra Specht.
- Full-Scale Model: This sub-team will focus on constructing a full scale mock-up of the shipping container housing. They will acquire a site on the IIT campus, create a contact list of willing contributors, acquire materials and labor for construction and then construct an affordable mock-up house in an exceptional, presentable manor as to create an educational place for people to learn about the possibilities of

shipping container construction. This subgroup will be supervised by Cassandra Specht but lead by Ryan Bloom.

- Marketing/Presentation: This sub-team will focus on creating a tiered marketing strategy. This meaning starting out by publishing articles in the IIT Tech News then moving on to getting publicity in the Sun Times, Tribune, Local radio stations and television. Also they will create a website, create a social network on Facebook and Twitter, establishing positive relations with aldermen, the Olympic Committee, and the Chicago Housing Authority, find sponsors for the project and work on presentations that would be given to potential sponsors or city officials. This subgroup will be lead by Veronika Bocanova with assistance from Tasha Farris.

**C. SCHEDULE OF TASKS AND MILESTONE EVENTS**

		<b>Start</b>	<b>End</b>
1.	IPRO Deliverables	8/24/09	12/5/09
2.	Project Plan	8/24/09	9/11/09
3.	Midterm Presentation Preparation	8/24/09	10/15/09
4.	Midterm Presentations	10/05/09	10/15/09
5.	Ethic Reflective Report	8/24/09	11/11/09
6.	Final Project Report ( 1 <sup>st</sup> Draft)	8/24/09	11/20/09
7.	Exhibit/Poster	8/24/09	11/30/09
8.	Abstract/Brochure	8/24/09	11/30/09
9.	Final Presentation	8/24/09	12/2/09
10.	Final Report (Final Version)	8/24/09	12/4/09
11.	Teamwork Product	8/24/09	12/5/09
12.	IKnow Updates	8/24/09	12/5/09
13.	IPRO Day Preparation	8/24/09	12/5/09
14.	IPRO Day	12/5/09	12/5/09

	<b>Start</b>	<b>End</b>
<b>1)Olympic Housing</b>	<b>8/24/09</b>	12/5/09
1.1) Research Phase	8/24/09	12/5/09
1.2) Prototype-Cost estimate	8/24/09	12/5/09
1.3) Search for funding	8/24/09	12/5/09
1.4) Finalize costs and financing	8/24/09	12/5/09
1.5) MEP design and implementation	8/24/09	12/5/09
<b>2)Permanent Affordable Housing</b>	<b>8/24/09</b>	<b>12/5/09</b>
2.1) Research Phase	8/24/09	12/5/09
2.2) Develop Prototype	8/24/09	12/5/09
2.3) MEP design and implementation	8/24/09	12/5/09

2.4) Construction details & documents	8/24/09	12/5/09
<b>4) Marketing</b>	<b>8/24/09</b>	<b>12/5/09</b>
4.1) Research Phase	8/24/09	9/4/09
4.2) Develop marketing schemes	8/24/09	9/4/09
4.3) Finalize marketable product	8/24/09	9/12/09
4.4) Submit 1 <sup>st</sup> article to IIT Tech News	8/24/09	9/15/09
4.5) Write and publish several articles	8/24/09	12/5/09
4.6) Create a website	8/24/09	12/5/09
<b>5) Full Scale Model</b>		
5.1) Determine Foundation ideas & site design	8/24/09	9/19/09
5.2) Shipping Container acquisition & installation	8/24/09	9/31/09
5.3) Material Donations	8/24/09	12/5/09
5.4) Determination of Olympic or Permanent Model	10/3/09	10/3/09
5.5) Exterior façade completion	8/24/09	11/15/09
5.6) Interior Build out	8/24/09	11/25/09
5.7) Wrap up loose ends, finish work	11/25/09	12/4/09
5.8) Present model at IPRO Day	12/5/09	12/5/09

## 2. EXPECTED RESULTS

Level 1: Affordable Shipping Container Housing

Level 2:

- 1.1-1. Construction Costs / Project Financing
- 1.1-2. Container Fabrication / Construction
- 1.1-3. Land Acquisition / Zoning / Permits
- 1.1-4. Marketing / Aesthetics
- 1.1-5. Olympic Model
- 1.1-6. Testing

Level 3:

- 1.1- Construction Costs / Project Financing
  - 1.10- Itemize material costs
  - 1.11- Estimate construction labor costs
  - 1.12- Estimate permitting costs
  - 1.13- Estimate rezoning and land acquisition costs
  - 1.14- Anticipate other related expenses

- 1.15- Develop a project financing plan
- 1.16- Research sources of financing, both private and corporate
- 1.17- Secure financing
  
- 1.2- Container Fabrication / Construction
  - 1.20- Finalize energy model
  - 1.21- Research and finalize HVAC system
  - 1.22- Modular equipment and visit RV installation plant
  - 1.23- Finalize unit floor plan and site layout
  
  - 1.24- Research radiant flooring system
  - 1.25- Further investigate passive systems
  
  - 1.26- Finalize solar orientation on site
  - 1.27- Develop and finalize construction documents
  - 1.28- fully design the structural aspect of the Olympic housing
  - 1.29- fully design the structural aspect of the permanent housing
  
- 1.3- Land Acquisition / Zoning / Permits
  - 1.30- Determine necessary type of lot zoning
  - 1.31- Investigate rezoning process, if necessary
  - 1.32- Ensure design complies with zoning ordinances
  - 1.33- Research City of Chicago fast track green permitting
  - 1.34- Acquire appropriate building permit for construction
  - 1.35- Ensure availability of proposed housing location and secure site for construction
  - 1.36- Make appropriate design considerations to obtain LEED gold certification
  - 1.37- Contact Alderman for assistance with permitting and land acquisition
  
- 1.4- Marketing / Aesthetics
  - 1.40- Create a course of action to promote the project to the community, government officials, and financial institutions
  - 1.41- Define a positive, identifiable image for the project
  - 1.42- Devise incentives in terms of salability
  - 1.43- Devise incentives in terms of sustainability
  - 1.44- Research methods of incorporating the vernacular
  - 1.45- Research and finalize a building façade
  - 1.46- We will be coordinating business meetings with Chicago based companies.
  - 1.47- Gathering materials and fund raising in order to accomplish our goals.



## 1.5- Olympic Model

1.51- Once we complete construction, we will have a life size model that we can walk the Olympic Officials through.

1.52- The goal of these tasks is raise funding and completion of life size mock up.

1.53- If the project is successful and we raise that expected amount of funding, we will have a simulated mock-up that will be shown to clientele.

1.54- The challenges we face are related to fundraising. People and corporations do not want to part with money.

1.55- We need to obtain proper supervision during construction so that no injuries occur.

1.56- If results are successful, then we will use the building models to sell the idea to the Olympic Committee as well as the Chicago district Aldermen.

## 1.6- Testing

1.61- Calculations will be made to test the structural integrity of the Olympic housing against wind loads as well as force-modeling to get an accurate picture of what will be happening, and the necessary limitations will be given to the architecture subgroup.

1.62- Foundation calculations will be made and will be correlated with the soil information to see if the soil can handle the dead load.

1.63- Design of the structures will be checked against any necessary implementation of MEP and HVAC systems to prevent conflicts during construction.

1.64- Wind load testing will be done with force-modeling.

1.65- Results of testing and calculations will all be documented with the calculations and a small conclusion.

1.66- Analysis of the test results is simply seeing what type of connections will be required inside the building and how much of the outside walls will have to be contiguous, untouched wall.

### 3. PROJECT BUDGET

Item	Price	QTY	Price	Purpose
Models	\$25.00	2	\$50.00	Developing prototypes of our designs for review and further study.
Printing	\$5.00	10	\$50.00	Printing of renderings, floor plans, site plans for in class presentations
Travel Expenses	\$250.00	1	\$250.00	Travel for teams of 3
Labor Supervision and Construction	\$3000-5000	1	\$3000-5000	Necessary for building life size model
<b>Total:</b>			<b>\$5350.00</b>	

### 4. DESIGNATION OF ROLES

**Minute Taker:** records decisions made during meetings, including task assignments or changes under consideration.

- Cassandra Specht

• **Agenda Maker:** creates an agenda for each team meeting, which provides structure to the meetings and offers a productive environment.

- Veronika Bocanova

• **Time Keeper:** is responsible for making sure meetings go according to the agenda.

- Gergana Horozova Nalls

• **Weekly timesheet collector/summarizer:** responsible for collecting weekly timesheets from each member of the team and updating everyone with a summary report.

- Eliza Broekere

• **Master schedule maker:** responsible for collecting schedules from all the team members and developing a master schedule, this tells the team when members are available and how to contact them.

-Vladilena Gaisina

• **iGroups:** responsible for organizing the team's iGroups account and ensuring that it is used properly.

- Tim LaBuda