

I PRO 357 PROJECT PLAN

Green Building Design Concept & Integration

I PRO Faculty Advisors

Steve Beck

Mark Snyder

Jeffrey Budiman

I PRO Team Members

Andrew Bossemeyer

Ryan Bouck

Jorge Chavez

Guadalupe Cortes

Brett McQuillan

Robert Mcluckie

Beth Nielson

Alex Ong

Isaac Plumb

Timothy Rantilla

Aneta Ustupka

Michael Warnes

I. TEAM CHARTER

1. TEAM INFORMATION

A. Team member roster

Name	Major	Skills	Knowledge to develop	Expectation of iPro
Andrew Bossemeyer	ARCH	Sketching, Conceptual Design, Physical Modeling, Computer Modeling/Rendering, Construction Systems	Andy is looking to develop ability to collaborate with team members	Andy expects this IPRO to be an accumulation of knowledge from multiple fields in order to obtain the end result of well functioning zero energy building.
Ryan Bouck	ARCH	AutoCad, 3d Studio, Photoshop, Time managemen	Ryan would like to develop his cost estimation skills, along with his general knowledge of the development process.	Ryan hopes to have an overall experience of learning new skills while learning the basics of working in a team.
Jorge Chavez	ARCH	AutoCad, Revit, 3d Max, Illustrator, Photoshop	Jorge would like to learn more about cost estimation, construction scheduling, and sustainable design.	Jorge expects this IPRO to show us all how to work in a group of people with different disciplines as well as how to take a building from the design phase into the construction phase.
Guadalupe Cortes	ArchE	AutoCAD, Revit, costworks (cost estimation), (HVAC, plumbing, lighting, acoustics, building enclosure) design	Lupe would like to become more familiar with the complete construction and design process. Also within that process, Lupe would like to take note of her best and worst areas of contribution for future reference.	Lupe's overall expectation for the ipro is that we can all gain useful knowledge and experience of what to expect in the industry when it comes to design and construction. Also, Lupe hopes that we can provide a final design that fully satisfies our client's needs.
Brett McQuillan	ArchE	HVAC Design, Energy Modeling(HAPS), AutoCAD, Revit, Cost Estimation, Acoustics, Circuit Design	Brett will like to learn more about residential design applications	Brett's goals are to put together a design that encourages the owner to build on his property and that uses innovative methods and systems
Robert Mcluckie	ARCH	AutoCAD, Sketch up, Photoshop, Passive and heating design	Robert's will like to acquire skills in team work and development of a successful conventional business plan	Robert's goal is to produce a design that is accommodating to the client and also modifiable to accommodate other potential uses

Beth Nielsen	ArchE	Plumbing, HVAC, Construction Cost Estimation, Soil Mechanics, Fundamental Electrical Engineering	Beth will hope to learn more about business management and presentation through this project	Beth hopes to see this team working efficiently together to achieve our goals.
Alex Ong	CivilE	AutoCAD, SAP 2000, MathCAD, Steel Design, Concrete Design, Foundation Design, Wind & Earthquake Engineering	Alex will like to learn more about the sustainability and energy saving in a green building.	Alex hopes that the team will be able to come up with a building design that is sustainable, economical and most importantly satisfying our client
Isaac Plumb	ARCH	AutoCAD, Rhino, 3ds, Max, Maya, Revit	Isaac will like to acquire skills in team work and learn more about construction cost estimation.	Isaac expects to work in a collaborative environment that meets the goals of a client.
Timothy Ranttila	ElecE	Electrical design, Computer system, Organization skill	Tim will like to learn more about cost estimation and architecture design of a green building.	Tim expects our team to work efficiently to come out with a design that satisfy our client
Aneta Ustupka	ArchE	Management and organization skills, previous marketing experience, AutoCAD, MathCAD; Revit experience	Aneta hopes to develop better understanding of the construction and planning process, as well as gain the ability to productively work in a diverse team	Aneta expects to be an asset to the group, and also gaining knowledge about Green Buildings and the business side of construction.
Michael Warnes	ARCH	Autocad, 3dsmax, Photoshop, project management	Michael hopes to learn the business approach to a project from start to finish	Michael expects to strengthen his group working skills

B. TEAM IDENTITY

**Zero CommunIITY
radPRO**

2. TEAM PURPOSE AND OBJECTIVES

A. Team Purpose

Our purpose is to seek the best solution to designing a sustainable mixed use building for our client in Oak Park. A model of which can also be applied to other sites in the area. The design will focus on a solution that minimizes energy consumption and environmental impact by incorporating available sustainable technologies, sustainable design strategies, and analysis of economic viability.

B. Objectives

- Research economically viable sustainable methods for fulfilling the energy needs of a mixed use building in Oak Park.
- Develop a financial plan that summarizes cost analysis and building Performance.
- Test our solution by comparing its energy consumption/costs with the average home of today.
- Present our solution clearly and truthfully as a catalyst for change in design and implementation of mixed use buildings.

3. BACKGROUND

A. Sponsor

IPRO 357 Green Building Design Concept and Integration is sponsored by Peter Nowicki. Mr. Nowicki currently owns a vacant property on Madison Street in Oak Park. He is considering constructing a mixed use building to house his company and family. He is currently leasing space for his company and owns a home in nearby Oak Park. Peter Nowicki is married with 5 children and owns a trading company. The Nowicki's have been considering building a mixed use building on this property for several years.

B. User Problems

The Nowicki's have tried building on this property before. Our goal is to help the Nowicki's decide if it will be economical to build and what will be the most beneficial and profitable design. The mixed use nature of the project creates unique challenges of integrating residential design with commercial. Additionally we must seek to resolve any issues the village of Oak Park may have with the Nowicki's developing their property. Oak Park is in the process of executing a business plan for the Madison Street Corridor. We must find a common ground between Oak Park's goals and the Nowicki's.

C. Science and Technology

Our group plans to use innovative technologies and strategies in our design. We will use high performance materials, equipment, and systems to achieve a high performance design. As a group we are investigating, UPS power, passive and active solar design including photovoltaics, passive and active heating, cooling, condition and ventilating systems and efficient structural systems.

D. Historical Precedents

Live-Work spaces have been used throughout history but have become uncommon in the US today. The most frequently seen live-work examples in Chicago are small storefronts with small apartments above them. Mixed use buildings are most commonly used to consolidate time and resources. We seek to take advantages of the successes of live-work building of the past while avoiding the mistakes that have been made.

E. Ethical Issues

The unconventional mixed use plan for our client's building creates a number of ethical issues. Our group must reconcile conflicts between Peter Nowicki's desires and the desires Oak Park has for the Madison corridor. We are obliged to look critically at these conflicts and the reasoning behind them and carefully choose what standards we wish to challenge and which to concede to in order to best serve all the parties involved in the project.

F. Business and Societal Costs

We must carefully evaluate the costs to Nowicki's business and finances as well as the impact to the surrounding community by building on this site. As part of this evaluation we are investigating what sort of leasable space if any should be included in the construction if Mr. Nowicki chooses to proceed. We must diligently examine our design to reduce waste and create a high performance design that benefits the entire community around it.

G. Implementation

We will present our analysis results and our eventual design to both the Village of Oak Park and to Peter Nowicki. If our design proves to be favorable to all the parties involved we will aid Peter Nowicki in proceeding to implement and build the design.

4. TEAM VALUES STATEMENT

The team members of IPRO 357 will be committed to the following set of principles: communication, collaboration, dedication, honesty, quality, and client satisfaction.

Communication: All team members are expected to convey any ideas or information with the entire group. In order for the entire group to be in accordance, team members will use the iGroups website to make all information public. All team members are also expected to contribute to group discussions both inside and outside of class. Constructive criticism is valued, and all team members are expected to speak openly and freely at every team meeting.

Collaboration: All team members are expected to work together. Although some individual assignments will be given out, most of the work will be done as a group. Team members are not only expected to collaborate with each other, but also with professors, the client, and outside organizations.

Dedication: All team members are expected to be dedicated to the entirety of the project. Individual tasks are expected to be completed on time and each group member will be held accountable for their share of work.

Honesty: All team members are expected to be honest while performing individual tasks as well as presenting any information. Group members will be expected to site sources and give due credit to any organizations used throughout the semester.

Quality: All team members are expected to produce quality work. Both individual and group work is expected to be clear and coherent so that it can be easily understood by fellow group members, professors, and the client.

Client Satisfaction: All team members' primary goal will be to keep the client happy. The purpose of our work is to design a project that utilizes sustainable technology that is relevant to the client's needs and lifestyle. All design choices will be made with the client in mind in order to produce an overall design that the client will feel best suits him.

II. PROJECT METHODOLOGY

1. WORK BREAKDOWN STRUCTURE

A. Problem Solving

- Meet with the Madison Property stakeholder to discuss the project, deliverables, expected results, etc.
- Begin research by studying existing sustainable mix use buildings and applying methods and technologies that have been proven successful. This will serve as a guideline for our own research and an example for available strategies.
- A data pool will be collected about the average Oak Park household and business based on demographic information. This pool will establish the baseline from which we will determine where improvements can be made. We intend to determine and catalogue the needs of an average household and business, not only in resources and energy, but also space and comfort.
- A site visit will be done to confirm the baseline data pool and to obtain new observations and possible questions.
- Using the confirmed baseline data pool we will research technologies and methods to reduce the consumption of resources without infringing on the needs of future inhabitants. (i.e. How much energy can be saved on heating bills/natural gas consumed by using a better insulation?).
- The owner will be consulted for any missing information or opinions.
- After gathering information on effective technologies and methods we will determine which technologies are most effective and affordable by analyzing things such as the cost of the product, its life-span, the expected payback period (money saved over time), etc. This information will be catalogued and the best materials, methods, and technologies will be selected.
- These chosen materials, methods, and technologies will be recommended to the corresponding Planning sub-group for implementation.

- Each research related sub-group will act as an expert 'consultant' to the corresponding Planning sub-group aiding in the implementation of specific information. This will be an ongoing and ever evolving process requiring constant critique, research, re-analyzing, and re-designing.
- Potential solutions should be analyzed and tested for viability in regards to the stakeholder, budget, environmental impact, marketability, and legality (or conformation to codes and regulations).
- A minute-keeper will document all items of discussion throughout the project so we can look back and study the exact path of logic.

B. Team Structure

- The team will have two group leaders who are responsible for coordinating the efforts of the sub-groups.
 - Group Leaders: Aneta Ustupska,
Andrew Bossemeyer
- There shall be nine initial sub-groups, which may change as the project warrants. Each sub-group will be focused to a specific area of research and development. The nine initial sub-groups and their leaders are as follows.
 - 1. Zoning analysis – Andy
 - 2. Energy options – Tim and Aneta
 - 3. Financial market study – Isaac, Brett, and Ryan
 - 4. Site analysis/ demographics/ current conditions – Jorge and Alex
 - 5. Design/ fabrication/ construction techniques – Andy, Ryan, and Alex
 - 6. Costs – Beth, Ryan, and Lupe
 - 7. Convenience/ promotional/ concerns – Lupe and Beth
 - 8. Program/ market – Mike, Tim, and Rob
 - 9. Liaison between team and owner - Mike

C. Work Breakdown

- The research of various topics will be the responsibility of the corresponding sub-group. Each sub-group will be responsible for overseeing and advising in the implementation of their findings by the Planning sub-group.

- A master list will be composed including all baseline data regarding the average household and business that is to be improved. All technologies, methods, and materials will be included in this master list as well as their benefits, costs, etc. These technologies, methods, and materials will be chosen for their merits and the influence on the 'baseline' statistics will be catalogued for comparison purposes.
- Each planning sub-group will implement the research done into a mix use building design for the Madison Street lot.

2. EXPECTED RESULTS

- A) Expected Activities:** The team is expected to do extensive research in to green technologies, market analysis of potential buyers of prototype, visit the site and manufacturers of pre-cast elements, work collaboratively to combine knowledge from all fields.
- B) Data Collected:** The team will create a chart showing sources and uses of energy balancing to zero, chart the costs of building maintenance compared to maintenance of typical building, gather research showing performance of "green" technologies implemented.
- C) Products:** The end goal is to have a working set of drawings and a business plan for a live-work building that has no requirement for energy from outside sources.
- D) Task Output:** The team leaders will successfully delegate work and compile individuals research and deliverables.
- E) Deliverables:** The team will produce a full set of working drawings (architectural dwgs, electrical diagrams, plumbing diagrams, etc.) for a prototype work-live building, a physical model and 3d renderings to show massing/use of spaces, a business plan showing the benefits for investors, and research backing the "zero energy" building.
- F) Challenges:** Fourteen individuals collaboratively working together will prove challenging. Working within the city of Oak Park zoning during this time of great change along Madison St. will be difficult, it will also be hard to find technologies

that save energy but don't break the budget (i.e. photovoltaic cells save energy but the costs out way the benefits).

- G) Proposed Solution:** All of the deliverables combined will create a clear and rational solution to the design problem of work-live building.

3. PROJECT BUDGET

category	estimated quantity	estimated cost per unit	estimated subtotal
Research			
Site visit	2	\$ -	\$ -
Manufacture plant visit	2	\$ 75.00	\$ 150.00
(Naperville and Aurora Locations, carpooling)			
Independent Research	-	-	0
Model Materials	1	\$ 40.00	\$ 40.00
I PRO DAY			
Poster	1	\$ 100.00	\$ 100.00
Tri-fold Brochures	40	\$ 1.00	\$ 40.00
Business Plan	5	\$ 10.00	\$ 50.00
(Printing and Binding)			
Estimated TOTAL			\$ 340.00

1. DESIGNATION OF ROLES

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

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

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

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

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

Team Alpha is an eleven student team divided among seven sub-groups. The team voted unanimously to have Andrew Bossemeyer and Aneta Ustupka as team leaders. Beth Nielsen was also designated as the note taker.