

FREQUENTLY ASKED QUESTIONS

Q What is this project?

A We are planning for the current and future housing needs for Delta Tau Delta Fraternity here on campus. We are focusing on how to bring our housing style to one that is environmentally conscious for the standards of the coming years.

Q Why are you doing this?

A We think it is important to not merely move forward passively, but to do so with purpose and intention. The student driven format of the I Pro has given a ground up approach to planning the future of a piece of campus in a way that has educational merit.

Q So What's the approach?

A We started thinking big, but wanted to end with a realistic and tangible project. Our thinking as a group is tiered to give us long-term and short-term solutions.

Q What has the group learned through the project?

A All the teammates learned something a little different because of how we broke up the project. We are all more grounded about issues that pertain to housing and sustainability. We ended up working with many professionals that were able to share their expertise with us. The firsthand interaction gave insight into the real world that many of us as architects and engineers are going to have to work in.

IPRO 311

Team Members

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I-Pro 311

Renovating, Rethinking, and
Greening the future of
Greek housing at IIT

Current Building Information



Year Built: 1959 – 1961
Materials: Masonry and Steel Construction
Planned Occupancy: 40
Square Feet: 14,044 (two floors and basement)
Architectural style: Modern

Energy Consumption

Natural gas usage: (avg. 2007 2008 year)
Heating load: 8,663 therms
Base Load: 4,487 therms
Total: 13,151 therms
Equivalent Co2 Emissions: 70 tons

Electricity usage: (avg. 2007 2008 year)
Total: 119,770 KWH
Equivalent Co2 Emissions: 83 tons

Contributing Factors to Excessive Energy Use

Total Envelope R-Value 3.45
Air Leaks
Uninsulated Pipes and Water storage tanks
Occupancy Habits
Atmospheric Boiler Designed for 80% Efficacy
Many Appliances / Personal Electronics
Mechanical Control System

Other Building Analysis

Ventilation Strategies
Livability and Comfort
Programmatic Change for Today's Use

Proposed Building Solution

The tiered solutions allows us to prioritize and organize by cost, time, importance and progression

Tier one

Air sealing
Insulating
Insulating blinds
Occupant sensors for lights
Replace inefficient light fixtures
Apply reflective roof coating
Occupancy habits

Retrofit Calculations for Insulating

By insulating the roof to R-38 and insulating 250' of currently uninsulated pipe, the house will save an estimated 31% on yearly natural gas consumption. This will cost \$8,830 and have a payback of about 2 years. The quick payback and low cost of insulating the pipe is because we will do the job ourselves.

Tracking Savings

We are following our energy usage to see what improvement we will make. We are able to compare our savings year to year because we normalized the data with actual weather information from our region.

Tier Two

Reorganize space
New boiler controls
Green roof
Replace windows
Insulate ext. walls
Computerized energy monitoring
Solar thermal water heating
Photovoltaic panels



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Tier Three

Reorganize space for interior atrium and third floor.

