

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

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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



Tier Three

Reorganize space for interior atrium and third floor.

