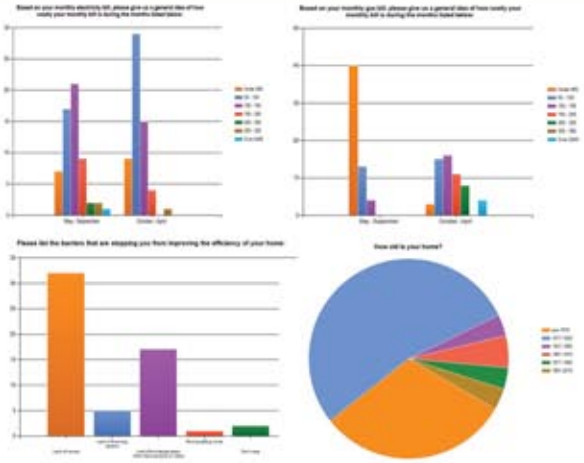
Online Survey



Through development of the database and case studies, an online survey was able to be implemented with the help of the Village of Oak Park. Residents were notified of an opportunity to complete a survey regarding energy their homes and energy consumption. IPRO 329 was able to analyze this information and better understand the residents needs. Information from this survey can be linked to the various home types shown on the database. As a result, better energy saving techniques can be de veloped and presented to residents.

Technology Research

Research was done to determine various new technological advances that could benefit Oak Park residents. Home energy monitoring, geothermal, and insulating/sealing homes appear to the the most realistic.

Future IPROs

The future IPROs will benefit from work done developing the database. The database has been perfected and will allow valuable information to be drawn. Future IPROs will need to conduct a number of home audits. The names of auditors and residents who wish to have their homes audited have been acquired. The Village would like future IPROs to develop packages of energy efficient upgrades and indicated energy savings.

The information gathering stage is almost complete and work towards integration should be able to take place within the next few semesters of this IPRO.

Sponsors

IPRO 329 would not be able to take place without the help and funding by Oak Park and the Galvin Electricity Initiative The Village of Oak Park provided clear direction and a link between residents and IPRO 329.

GALVIN ELECTRICITY INITIATIVE
Sponsored by The Galvin Project, Inc.

Oak Park

IPRO 329

oak park energy efficiency

+

carbon reduction

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IPRO Day
12.03.10

IPRO It takes a team!

ILLINOIS INSTITUTE OF TECHNOLOGY

Problem Statement

IPRO 329 was requested by the Village of Oak Park to analyze the potential for energy reduction in the Village's homes.

Many homes in Oak Park are relatively inefficient and the homeowners are unaware of the potential cost and environmental impact.

The Village of Oak Park would like to become more energy efficient and reduce their overall impact.

IPRO 329 is a continuing IPRO and began to address these concerns and work towards possible resolutions and alternatives.

Background Information

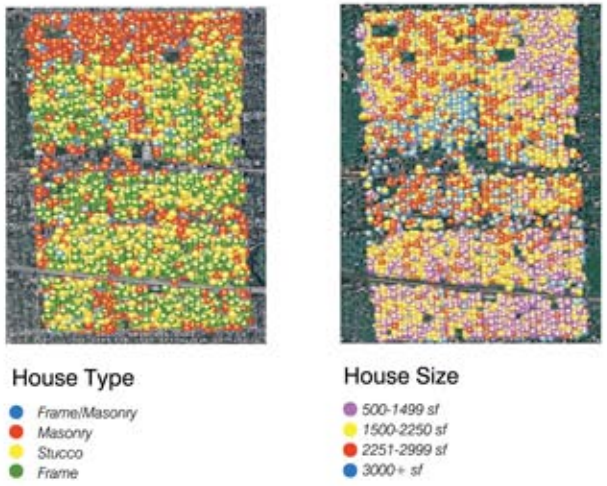
Currently over 80% of the Village of Oak Park's homes are over 95 years old. Many of these homes have not been updated recently or at all. Oak Park, along with IPRO 329, seeks to provide residents with affordable options to improve their home's efficiency. The Village also hopes to provide education and funding options for residents in order to reduce their energy consumption and carbon emissions by 20%.

Semester Goals

1. Evaluate Oak Park's building typology.
2. Create a comprehensive database representative of total building count and relevant data.
3. Perform energy audits on several homes and provide suggestions for energy improvement.

Database Development

The Village of Oak Park requested a database be developed, which showed all of the buildings in the Village limits. In order to improve the database, Multi-family units, building age, typology, and size were included in the database. The database allows for implementation of the addresses into a GIS program. The Village of Oak Park can then visually see the database information. The database was developed for continued use by future IPROs.



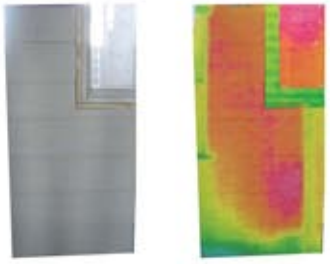
Case Studies Research

Based on the database information, case studies were conducted per building typology. The information from these case studies can provide general energy improvement strategies based on general building typology.

Website for Oak Park

IPRO 329 was asked to begin to develop a web site for the Village of Oak Park. This web site would be linked to the Oak Park home page. The goal of the site is to provide residents with information regarding simple home improvements and financing options. Videos of simple do-it-yourself improvements could appear on the web site along with the Village's goal for energy reduction. This web site is still a work in progress, but the foundation has been laid and can be built upon.

Wall Sections



OLD CONSTRUCTION

NEW CONSTRUCTION

Full-scale wall section mockups were built, showing new construction materials compared to old construction materials. A heat source was placed behind the wall sections and heat loss was analyzed with a thermal imaging gun. The new wall section had a much lower amount of heat loss through the wall. The old wall section had a large amount of heat loss, in particular through the window.