

Mission Statement: Our team is committed to raising awareness and educating the residents of Oak Park about energy usage while providing guidance for reducing their carbon footprint.

PROBLEMS AND OBJECTIVES

The Problem

The Village of Oak Park desires an energy efficient community while retaining the historic integrity of the buildings. Unfortunately, the residents are not yet aware of long-term benefits and savings from retro-fitting their homes and businesses.

The Objectives

In order to educate Oak Park on energy efficiency and awareness, our team assessed the Village's current energy use, distributed surveys and gathered information through case studies. We now offer a comprehensive sustainability plan that will reduce the carbon footprint of Oak Park.



Oak Park Village is a historic community with a great variety in homes and businesses. We hope to help educate residents of Oak Park on energy use!

TEAM BREAKDOWN

Deliverables Team

In charge of creating deliverables for IPRO and Oak Park Village, our sub-team kept the whole team on track and assisted in research and analysis.

Sustainability Research Team

In charge of researching the different options in passive, active, and community-wide retrofit options, this team studied the possible short term and long term gains from improvements and their possible impact on homes and businesses.

GIS Analysis Team

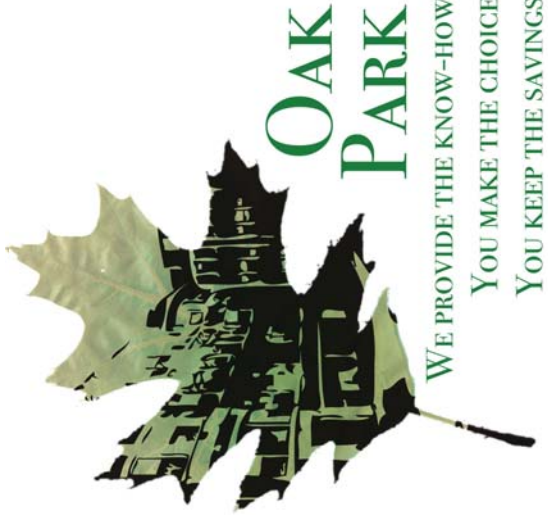
In charge of taking data about Oak Park using the Geographic Information System, this sub-team created maps conveying the square footage of the roofs of homes and commercial buildings to ascertain the benefits of installing green roofs and rain barrels.

CHALLENGES

Several challenges were identified as our team began to study Oak Park, its homes, and its inhabitants. We needed to effectively and efficiently gather information on Oak Park given the short amount of time we had. After gathering the information, we needed to build sensible graphs from the analysis done.

CONCLUSION

Oak Park Village is a community entirely capable of becoming more sustainable! As residents become more aware of energy-saving options and the benefits, our team hopes to see progress in the future.



TEAM ROSTER

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FACULTY ADVISOR

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POULOS HOUSE CASE STUDY



HOME PROFILE

Age: 92 years old (build in 1918)
Use: Single-Family
Residence Type: Two-Story
Land Square Footage: 9,250
Building Square Footage: 1,794
Interior/Exterior Construction: Stucco
Concrete Foundation
Original windows & un-insulated plaster walls
Remodeled several times
16 YR old boiler (~1994)
19 YR old central air-conditioning systems (~1991)

AIR LEAKAGE CHECKLIST AND RECOMMENDED CORRECTIONS			
Leak Severity is ranked High (1), Medium (2), Low (3), or None (N). Priority Action Levels A, B, or C			
Client: K.C Poulos			
AIR LEAKAGE TYPES	Severity	Location(s)	Correction
Attic/Floor			
Drop-down stair	1	SW bedroom	Pre-fab insul'd cover @ Insulated-covers.com, or fabricate foam box
Eave Vents	1	Main Attic- If CHOOSE roof insuln strategy	Add blocking to prevent "wind washing" at exposed insuln.
Roof Fan		Attic	DISABLE IT!
Framing and Chases-- Open to Attic, Basement, or other areas			
Vent or Chimney Chase	1	Attic Floor	Seal at attic floor w/ fire rated materials, eg. metal & foam.
Chases (plumbing, electric, HVAC)	1	Attic Floor	Cut/fit foam board & seal edges or spray foam. Many acceptable seal methods & materials.
Floor Cavity @ Exterior -- Rim Joist or other type	1	Basement, Crawl -- include with wall insuln at exterior; seal edges with spray foam	
Cabinets & Counters	2	NW corner of kitchen	Seal gaps w/ caulk -- see blue tape
Pocket Doors	1	2nd Fl Bathroom	Difficult to correct. Try attic floor.
Finishes			
Floor-Wall Junction	1	Throughout 1st and 2nd floors.	Dense packing walls may solve this! Or Caulk with clear silicone, or remove quarter-round, seal behind, & replace.
Wood trim	2	Various windows--Lv Rim	Caulk -- see Blue tape
Recessed Features	1	Kitchen	Seal behind cover at drywall cut AND add air tight baffle insects.
Recessed Features -- "eyeball" type	1	Dr Rim, Lv Rim	We know of no correction for eyeball or 4 inch types, except replacing with track lighting! Hopefully dense pack cellulose in the walls will eliminate this leak.
Fixture Base: Electrical Box	1	Powder Rim wall light	Caulk, or polyiso foam behind & into box. Check w/ electrician
HVAC Distribution			
Accessible Ducts	3	1st Fl Living & Dining Rooms	Remove vinyl "duct" tape. Run furnace fan & mark leaks. Seal w/ mastic or UL listed alum tape.
Insulated ducts	1	2nd Fl Supply and Returns at ceiling	Run fan & mark leaks. Seal w/ mastic or UL listed alum tape.

1. Did you follow any of the suggestions on your Energy Audit results given by EZING? If so, which ones and why?

We have not yet, but we will work on following them soon. We had the audit done in January.

2. Do you feel like the money you spent on the Energy Audit was worth it?

YES. I would definitely recommend families to have energy audits done since knowledge of how their house (energy-consumption-wise) is important for minimizing costs. It is great to have the information accessible.

3. Why did you decide to get an energy audit? Were there any negatives?

Mostly economical reasons. Everyone likes saving money whenever possible. This was a good way to solve short-term and long-term issues with the home. The only bad thing that has come of the audit is that it has made me sad to know how poor in condition my home is.

4. How long did your Energy Audit take? (hours/days?)

It was very short, only four hours!

5. Has the experience of the Energy Audit changed the way you think and act? Your family?

Yes, absolutely! We are a lot more aware of the energy we use and the way that our home functions throughout the day.

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Client: K.C Poulos			
AIR LEAKAGE TYPES	Severity	Location(s)	Correction
Insulated ducts	1	2nd Fl Supply and Returns at ceiling	Run fan & mark leaks. Seal w/ mastic or UL listed alum tape.
Duct Boots and Registers	1	2nd Fl. Ceiling	Caulk or foam seal betw/ boot & floor/ceiling/wall. Access by removing grill or from attic floor.
Vent Connection at Chimney/Chase	N	Good seal in bsmt.	Air seal w/ fire rated sealant, eg. refractory cement or caulk
Fireplace Damper	1	Living Room	Damper is not well sealed. Fabricate temporary blocking w/ foam board or repair damper.
Windows/Doors/Skylights			
Window	1	SW Bedroom - casements w/ inter wood storms that leak!	Repair wood storms so they fit tightly in opening. Plane down wood; add plastic V-strip
Parting Rail (Lock Stile)	1	Powder Rim, Dining, Living, W. kitchen, others that are loose	V-strip betw/ parting (locking) rails; also repair all latches that do not work or do not tighten sashes.
Pulley Seal	1	Throughout 1st and 2nd floors.	"Pulley seal" fits over pulley opening; allows proper function.
"Chain Run"--lower sash	1	Throughout 1st and 2nd floors.	Add backer rod to gap in winter and where never open window
Sliding Glass Doors	1,2	S. Porch (1) at vertical parting rail; (2) at bottom track & floor junction	Caulk junction at floor and bottom track. Be creative at parting rails.
Door(s)	1	Entry at threshold; French Doors at S porch & at entry	V-strip at top and sides and add door sweep (& missing handle)
Direct Penetrations to Outdoors			
Kitchen Fan		Need to add fan here.	Caulk at interior or exterior, as appropriate. Evaluate damper.
Mail Slot	1	Entry Door	Explore magnetic closures or replace with new, insulated door.
Air-Conditioning Entrance	1	Basement at plywood window	Spray foam sealant at interior. Caulk at exterior to weatherproof.

Date:	12/11/2009
Outside Temp:	15 degrees F
Indoor Temp:	66 degrees F
Wind Speed:	0 - 5
House P (Pa)	Fan P
Fan P	Ring O
or ABC	Flow
or ABC	(CFM)
Q20	33.8
Q30	0
Q40	2607
Q50	3260
Q60	0
Q70	0
Q80	0
Q90	0
Q100	0
Q110	0
Q120	0
Q130	0
Q140	0
Q150	0
Q160	0
Q170	0
Q180	0
Q190	0
Q200	0
Q210	0
Q220	0
Q230	0
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