Church Energy Efficiency Program
Introductions
The Problem

- Many churches within Bronzeville area
  - Energy inefficient older buildings
  - Lacking in resources to correct the problems

- Impact
  - Financial burden
  - Environmental impact
Our Mission

- Develop a program to improve energy efficiency in local churches
- Establish a volunteer service organization to implement improvements
- Offer an interactive website to unite churches and volunteers
Selection and Analysis

- Screen candidates and select sites
- Perform energy audit
- Plan tasks for service day work
- Analyze results
Site Selection

- Mount Carmel Baptist Church
- Morningstar Baptist Church of Chicago
Energy Audits

- Identify problem areas

- Catalogue lamp type, wattage, and count for all fixtures

- Determine solutions for service day work

- Identify larger problems
  - assisted by Vince Cushing of Clean Urban Energy
Energy Audits

Deteriorating window sill allows air infiltration

Unnecessary 300 Watt incandescent lamps
Service Days

- Many simple fixes done at each site
  - Caulking of windows
  - Changing incandescent lamps to compact fluorescents
  - Adding insulation to pipes and windows
  - Weatherstripping
  - Redirection of heat vents
  - Replacement of air filters
Service Days

Installation of window film

Weatherstripping operable window

Changing out light fixtures

Insulating hole in steeple
### Results and Analysis

<table>
<thead>
<tr>
<th></th>
<th>Morningstar Church</th>
<th>Mt. Carmel Church</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of bulbs</strong></td>
<td>88</td>
<td>69</td>
</tr>
<tr>
<td><strong>Initial wattage</strong></td>
<td>9399</td>
<td>4674</td>
</tr>
<tr>
<td><strong>New Wattage</strong></td>
<td>1232</td>
<td>966</td>
</tr>
<tr>
<td><strong>Watts Saved</strong></td>
<td>8168</td>
<td>3708</td>
</tr>
<tr>
<td><strong>Dollars Saved</strong></td>
<td>$1020/year</td>
<td>$1200/year</td>
</tr>
<tr>
<td><strong>Cost of Materials</strong></td>
<td>$500</td>
<td>$300</td>
</tr>
<tr>
<td><strong>Estimated Cost of Labor</strong></td>
<td>$750</td>
<td>$810</td>
</tr>
<tr>
<td><strong>Net Savings</strong></td>
<td>$1250</td>
<td>$1700</td>
</tr>
</tbody>
</table>

Based on 1000 hours per year

Based on 2500 hours per year
Energy Corps Development

- Recruit students to join Corps
- Team with Service Learning
- Provide training to volunteers
- Prepare organization for the future
Recruiting

- Members of the energy corps subteam set out to recruit members for service days
  - Member’s friends
  - Greek organizations
  - IIT Service Learning
- Interested students were then contacted with what they were comfortable doing and which service days they could attend
Energy Corps from Mt. Carmel service day
Training

• Training session conducted with potential volunteer students at Farr Hall.
• Students educated on basics of work to be done and practiced sample work
  • Caulking joints
  • Insulating pipes
  • Weather stripping doors
Training

Practicing caulking

Teaching to caulk
Positioning the Organization

• Team presented at a recent Wanger Institute for Sustainable Energy Research meeting to generate interest from WISER board

• Met with Kent Law student to discuss legal aspects of moving toward either an official organization through IIT or a non-profit organization through the State of Illinois.
Website

- Previous website needed improvement
  - Too specific to previous work
  - Lacked interaction among users
- Redesigned to reflect current Energy Corps vision
Website as HQ for Energy Corps

• See past work
  • Information on the Energy Corps and its mission
  • Projects that have been accomplished

• Sign up as a volunteer
  • Receive notifications on upcoming events
  • Talk to other volunteers and energy-conscious individuals
Website – Calendar

- Details on upcoming events
  - Training Days
  - Audits
  - Other outreach events
Website – Church Pages

- View list of involved churches
- Detailed church information
  - Testimonials
  - Money saved
- Information and pictures about the audit process
Website – Tips & Videos

- Easy money-saving tips
- Changing light bulbs
- Sealing windows
- How-to videos
Conclusions

• A Learning Experience
  • We learned from many fields at IIT involved with the building field
  • About 50% of volunteers showed up
  • Mt. Carmel hands off, Morningstar hands on
• How we would do things differently
  • How can we get church members involved?
  • More time between audit and service days
  • Additional promotional avenues for recruitment
The Future of IPRO 328

- Consider forming a Not-For-Profit Organization or an IIT student organization
- Track energy use at churches where work was completed
- Assist interested churches in pursuing large scale projects
- Reorganize and promote volunteer program through multiple avenues
Testimonials

• “Hi! Just a short note to thank you and your crew not only for your labor and expenses but, for the beautiful attitude evidenced by all. I speak for Pastor Hardaway and the entire church body when I say ‘thank you’ with profound sincerity. Also, I will continue to be your point of contact person as we pursue Com-Ed to upgrade the ceiling lights in the second floor main dining hall. Again, thank you and God bless you, the young people and your program.”

• Deacon Charles Posey, Morningstar Baptist Church
Acknowledgements

• Prof. James Braband
• Prof. Nancy Hamill-Governale
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• Patrick Warton – Kent Law student
• Fabio Buffa and Lory Mishra – IIT Service Learning (Office of Student Life)
• Pastor Dr. Robert C. Jones, Jr. – Mt. Carmel Baptist Church
• Pastor Gregory Sean Hardaway, Chester Mitchell – Morning Star Baptist Church