IPRO 338
The Effects of Green Technology on Electrical Contractors

Mission Statement

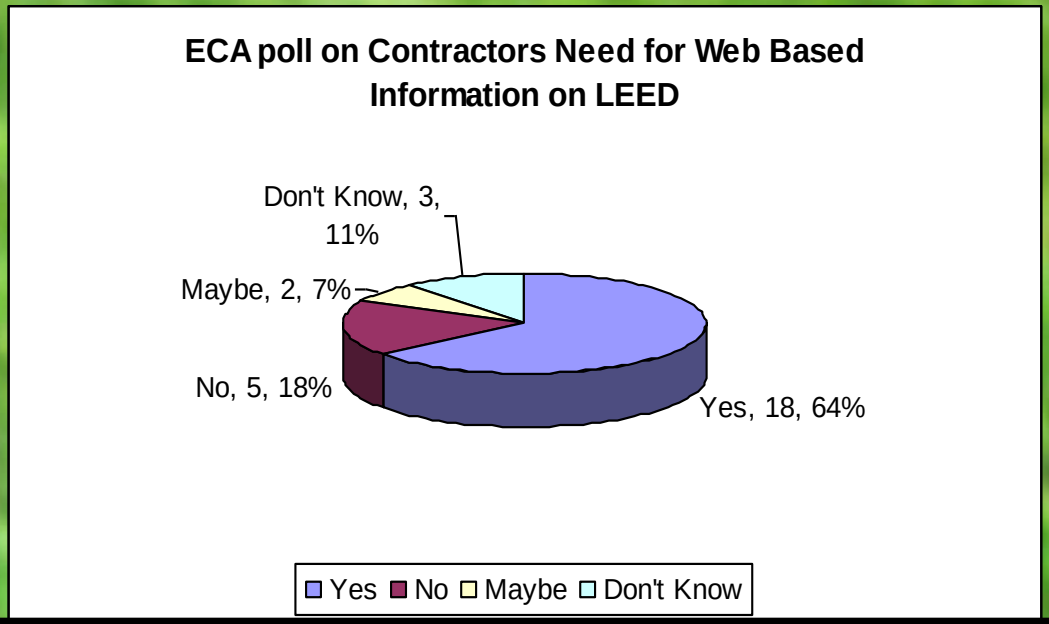
To provide a resource in helping Chicago land electrical contractors meet Leadership in Energy and Environmental Design (LEED) and United States Green Building Council (USGBC) standards.

Problem Background

- Green technology has become a major aspect of the design of buildings
- More developers demand these products and building techniques be used in construction.
- Information on these products is often confusing and incomplete.

More on Problem Background

- There is high demand for a tool that can help assist in bringing about a well informed transition from industry standard building practices and products, to green alternatives, as well as cut down on miscommunication between architects and contractors



Our Goals

- Develop a website to host a user-friendly online database of green technology information for the Electrical Contractors' Association (ECA) of the City of Chicago.
- Provide data on green electrical products with cut sheets, pricing, distributor information and Leadership in Energy and Environmental Design (LEED) certification facts.
- Set the ground work in research and industry contacts to facilitate future expansion.

Methodology

- Establish Timetable
- Establish Goals
- Organize Teams
- Compile Information
- Develop Website

LEED CERTIFICATION

What is LEED?

- United States Green Building Council
- Non Profit organization working to make green buildings accessible to everyone
- Leadership in Energy and Environmental Design
- Encourage adoption of sustainable green building development practices
- Different Levels of certification based on points earned through various building practices
  - Certified 26-32 points
  - Silver 33-38 points
  - Gold 39-51 points
  - Platinum 52-69 points

Facts and Figures

- **High levels of certification can be achieved at little additional cost**
- **US buildings account for 136 million tons of annual construction and demolition waste**
- **US buildings use 65% of total electricity consumption**
- **LEED and USGBC work to greatly reduce these numbers by every certified building**

Benefits

- **Improve the health and productivity of occupants**
- **Reduce life-cycle energy and operating costs**
- **Set example in community**
- **Eligible for government grants**

Lighting

-Adaptive lighting controls

-Task Lights

-Alternatives to Incandescent

-Daylight dimming

Power Distribution

Example Products and How they Help

- APOGEE Unit Conditioner Controller, this improves building rating by having efficiency maximization
- APOGEE Insight Report Scheduling Option, Insight Base Software; aids in the organization of materials which ultimately lead to more efficiency

Water Efficiency

- Solar powered restroom products
  - Motion sensor faucet
- Solar powered water heater
- Solar powered water pump

HVAC Requirements

The systems used must meet the standards as established by the ASHRAE/IESNA Standards 90.1-2004 or the local energy code, which ever is more stringent

Refrigerant must not be CFC based

Indoor air quality (IAQ) must meet standards set by ASHRAE Standard 62-2004

HVAC LEED points

- Energy and Atmosphere
  - 15% more efficient ASHRAE 90.1-2004 (1 point)
  - 30% more efficient (2 points)
- Indoor Environmental Quality
  - IAQ 30% higher ventilation rates than those set by ASHRAE 62.1-2004 (1 points)
  - IAQ management plan
    - during construction (1 point)
    - Before occupancy (1 point)
  - High level of thermal and ventilation control (point 1)
  - Thermal comfort
    - Meet ASHRAE standard 55-2004 (1 point)
    - Permanent monitoring system and process for corrective action (1 point)

Obstacles

- Determining Scope of Work
- Pricing and ROI
- IPRO Deliverables vs. Project Progress

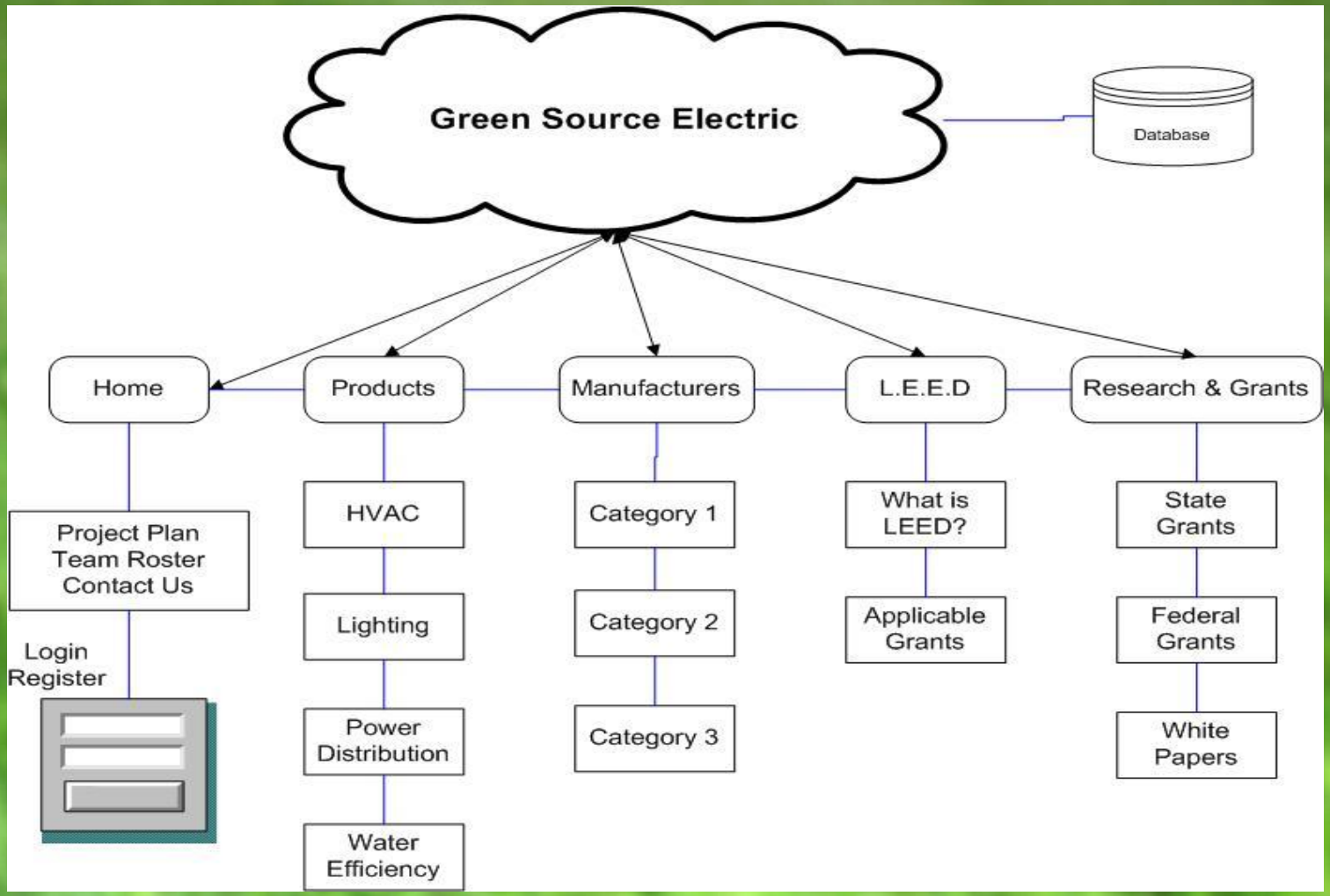
Ethics

- To facilitate environmental stewardship by providing a resource to help Chicagoland electrical contractors meet Leadership in Energy and Environmental Design (LEED) and United States Green Building Council (USGBC) standards.

- Seven Ethical Layers were estimated under Academic and Corporate Training.

Results

- LEED research
- Product Research
- Vendor Contact
- Industry contacts
- Working website and database


Green Source Electric
Database
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Category 1
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Category 3
What is LEED?
Applicable Grants
State Grants
Federal Grants
White Papers

Demonstration

Recommendations for Future Work

- Give admin control to manufacturers and allow them to upload product information on their own.
- Expand list of vendors, manufacturers and products
- Update website to account for the upcoming region specific change in LEED standards

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Thank you & Questions