IPRO 338
Web Site to Support Electrical Contractors for LEED Projects

Mission Statement

To create a website that would provide ECA contractors with consolidated product descriptions of the most efficient and least expensive resources available to obtain the various levels of LEED certification.

LEED CERTIFICATION

- Leadership in Energy and Environmental Design
- 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

HVAC LEED Points Example

- Energy and Atmosphere
  - Certified 26-32 points
  - Silver 33-38 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 (1 point)
  - Thermal comfort
    - Meet ASHRAE standard 55-2004 (1 point)
    - Permanent monitoring system and process for corrective action (1 point)

Project Problems

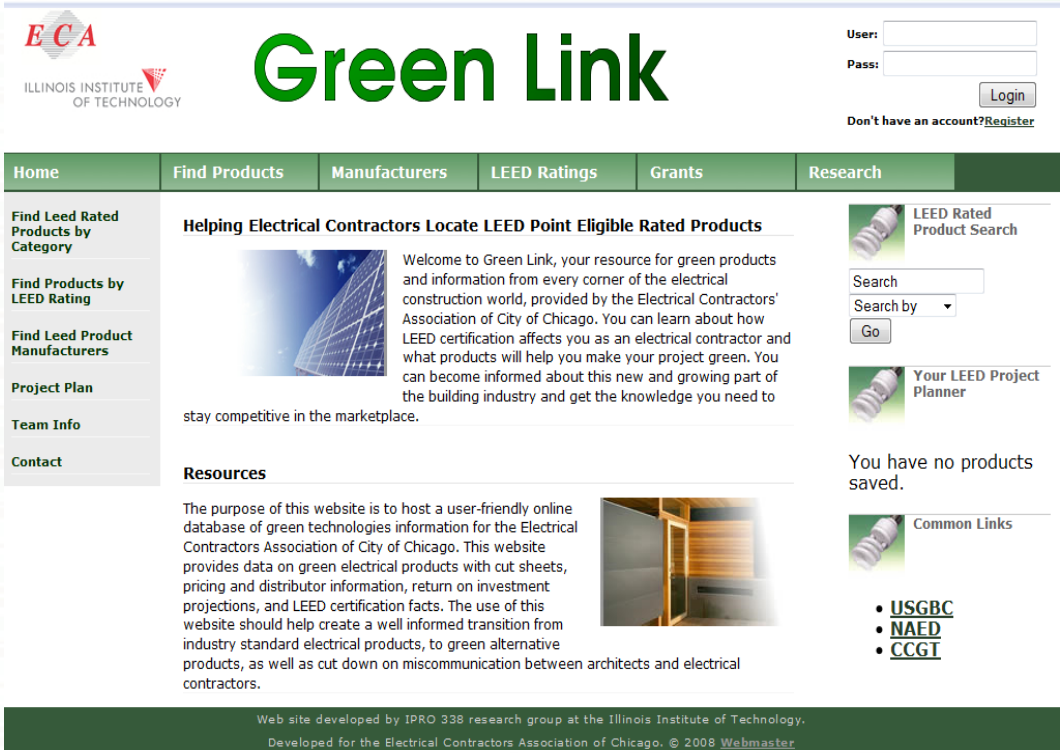
- The U.S. government wants more buildings certified as green technology.
- Developers cannot find all the viable resources in one searchable location.
- Developers unable to compare various resource pricing creating disincentive to pursuit Green Certification.

Our Goals

- To create a user-friendly website
- Provide data on green electrical products with LEED certification facts.
- Complete an industry resource list with current contact information.
- Pass on a fully operational website to ECA for utilization of its members.
- Launch NECA student organization to have a communication link between IIT and the ECA

Methodology

- Establish timetable
- Establish goals
- Organize teams
- Survey ECA
- Compile information
- Update website
- Transfer control of website to ECA



Facts and Figures

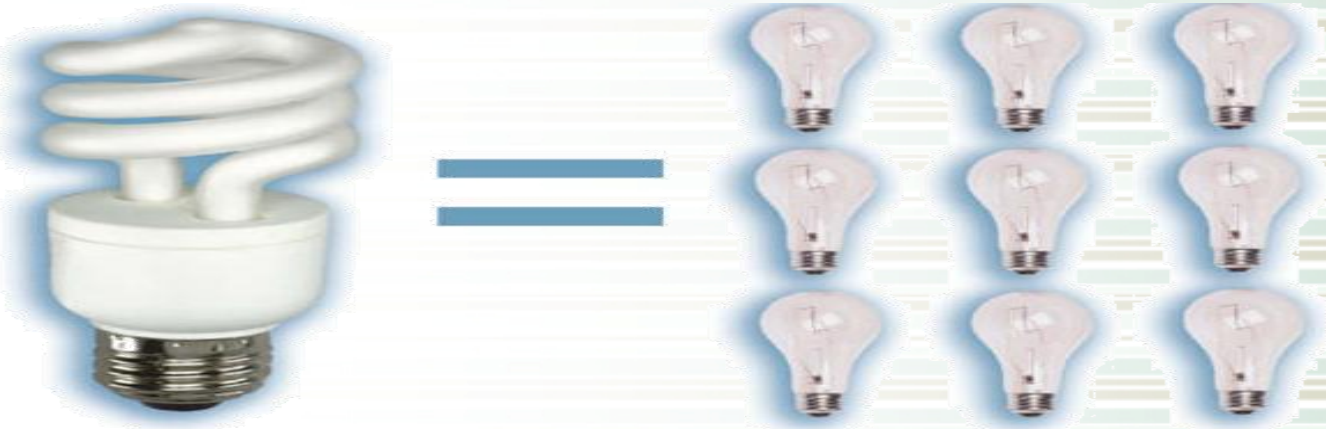
- Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that affect climate change.
- LEED and USGBC work to greatly reduce the consumption percentage by each green certified building
- The overall green building market is likely to more than double from today's $36-49 billion to $96-140 billion by 2013 (Source: McGraw Hill Construction (2009)
- The green building products market is projected to be worth $30-$40 billion annually by 2010 (Source: Green Building Alliance (2006).
- Every business day, $464 million worth of construction registers with LEED.

Benefits

- Improve the health and productivity of occupants
- Reduce life-cycle energy and operating costs
- Set example for world community of environmentally friendly construction.
- Reduce contribution to overall pollution
- Eligible for government grants

Lighting

- Adaptive Lighting Controls
- Task Lights
- Alternatives to Incandescent



- Daylight Dimming
- Reduction of Light Pollution

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 leads to more efficiency

Water Efficiency

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

HVAC Requirements

"Heating, Ventilating, and Air Conditioning"

The systems used in green technology 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

Obstacles

- Determining scope of work
- Pricing and ROI
- IPRO deliverables vs. project progress
- Communication with product suppliers

Ethics

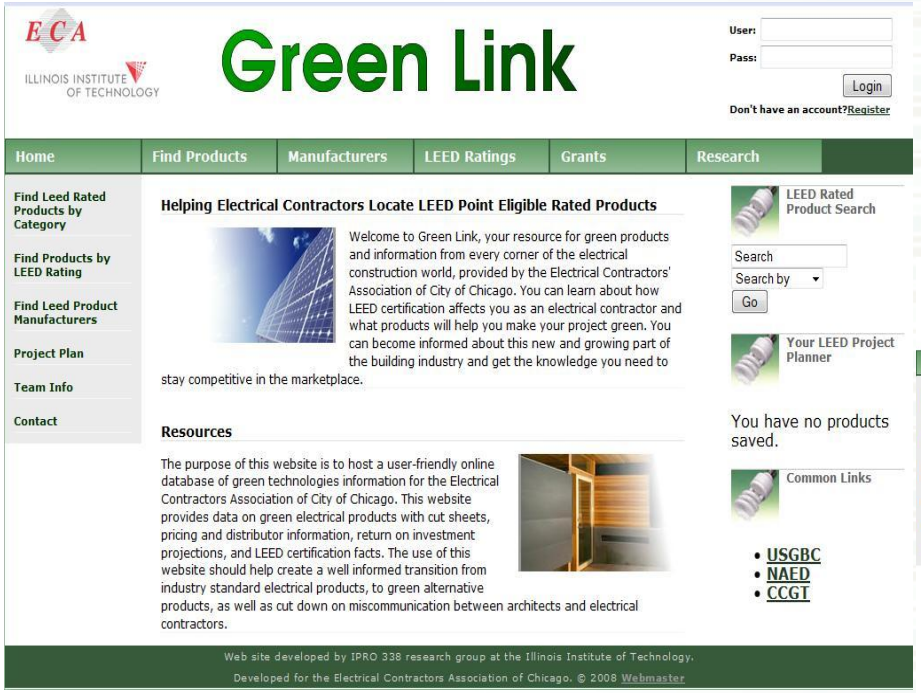
To facilitate environmental stewardship by providing a resource to help the members of ECA (Electrical Contractors Association) meet LEED (Leadership in Energy and Environmental Design) and USGBC(United States Green Building Council) standards.

Methodology

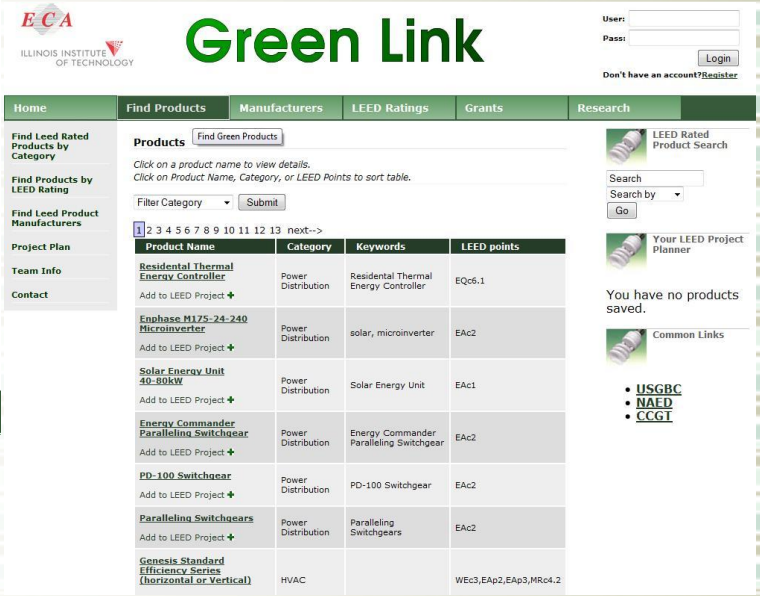
- LEED research
- Product Research
- Vendor Contact
- Industry Contacts
- Working Website and Database
- NECA Student Chapter

NECA
NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

Website Walkthrough



Home Page



Products Page

Walkthrough Cont.

ECA
ILLINOIS INSTITUTE OF TECHNOLOGY

Green Link

User:
Pass:
Login
Don't have an account?Register

Home | Find Products | Manufacturers | LEED Ratings | Grants | Research

- Find Leed Rated Products by Category
- Find Products by LEED Rating
- Find Leed Product Manufacturers
- Project Plan
- Team Info
- Contact

Products

Click on a product name to view details.
Click on Product Name, Category, or LEED Points to sort table.

Filter Category | Submit

Filter Category
HVAC
Lighting
Power Distribution
Water Efficiency

	Category	Keywords	LEED points
T8 Universal Start Fluorescent -COOPER LIGHTING Add to LEED Project	Lighting	Fluorescent	EAp3
U-Bent Rapid Start Fluorescent-Cooper Lighting Add to LEED Project	Lighting	Fluorescent	EAp3
T12 High Output Fluorescent-PHILIPS LAMPS Add to LEED Project	Lighting	Fluorescent	EAp3
T12 Slimline Instant Start Fluorescent-PHILIPS LAMPS Add to LEED Project	Lighting	Fluorescent	EAp3
T8 Rapid Start Fluorescent-PHILIPS LAMPS Add to LEED Project	Lighting	Fluorescent	EAp3
T8 Preheat Fluorescent-GE LAMPS Add to LEED Project	Lighting	Fluorescent	EAp3
T8 Preheat Fluorescent-ANGELO BROTHERS Add to LEED Project	Lighting	Fluorescent	EAp3

LEED Rated Product Search
Search
Search by
Go

Your LEED Project Planner

You have no products saved.

Common Links

- USGBC
- NAED
- CCGT

Select Products

Product Details

Name		LEED Credit	
T8 Rapid Start Fluorescent-SHAT-R-SHIELD		EAp3	
Category	**Model#**	**Cost**	**%Recycled**
Lighting	46536	14.31	
Description			
Straight Lamps: Lamp Type - Rapid Start Fluorescent; Watts - 32; Lamp Size - T8; Base - Medium Bipin; Lamp Style - TL 80; Color Temperature - 3500K; Length (in) - 48; Avg Life (hrs) - 20000; Initial Lumens - 2950; CRI - 86; Package Quantity - 25; Manufacturer Series - ALTO (REG TM)			
Manufacturer		**Power Usage**	
SHAT-R-SHIELD		32 W Calculate RoI	
Notes			
Misc		**Files**	
http://www.shattershield.com/index.html 116 Ryan Patrick Drive | Salisbury, NC 28147 | tel: US - (704) 633-2100, (800) 223-0853			

Photo: Graph:

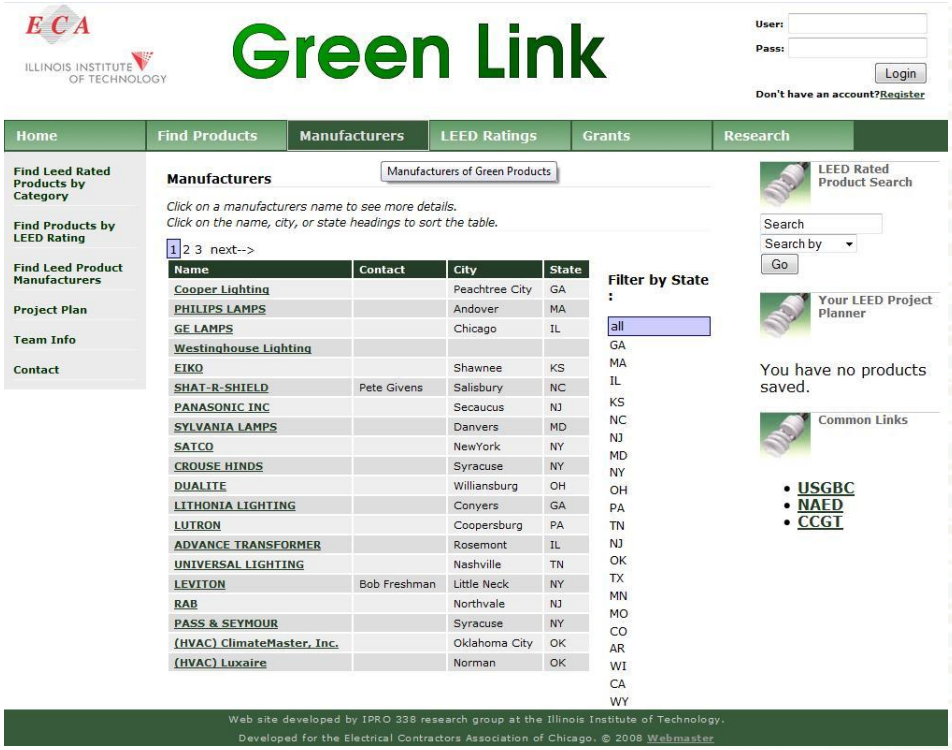
Lighting Example

Your LEED Project Planner

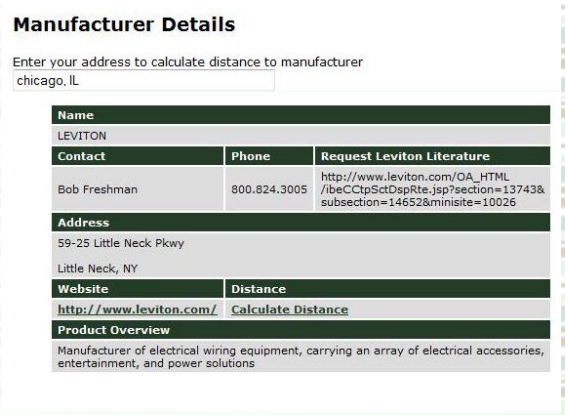
Product Name :
T8 Rapid Start Fluorescent-PHILIPS LAMPS

Delete this product

Walkthrough Cont. 2

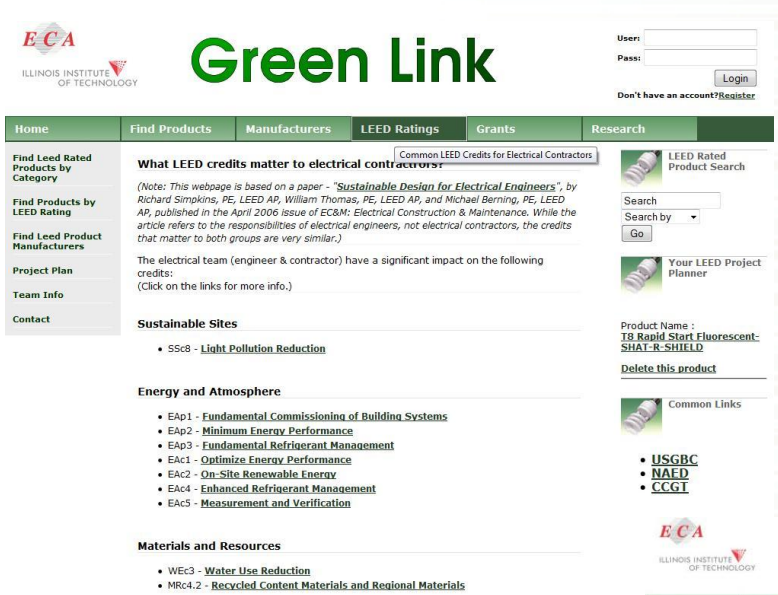


Manufacturers

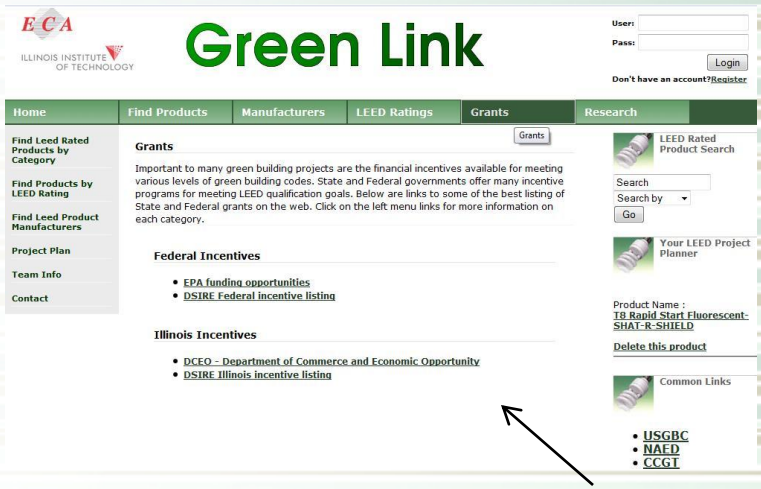


Manufacturer Example

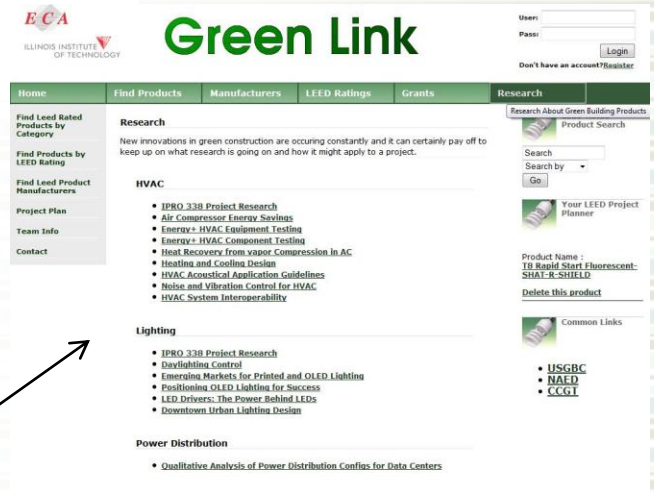
Walkthrough Cont. 3



LEED Categories



Grants



Research

Recommendations for Future Work

- Give administrative control of website to ECA and allow them to upload product information
- Expand list of vendors, manufacturers and products
- Update website to account for the upcoming regional specific change in LEED standards
- Add project plans as a resource for other contractors

Acknowledgements

- The Electrical Contractors' Association of the City of Chicago. Specifically Mr. Tim Taylor who was a tremendous help throughout the semester.
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Questions?