LEED

Leadership in Energy and Environmental Design

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"The low cost, effective solution"

What's a Green Building?

Environmental Impacts of Buildings

Various environmental impacts of buildings:

- Energy consumption: heat, cool, light, power up systems;
- Chemicals: cleaning, systems maintenance, pesticides;
- Water consumption: potable, irrigation;
- Waste generation: sewage, stormwater, solid, hazmat, C&D;
- Nuisance pollution: noise, light;
- Use of natural resources: land, building materials, furnishings;
- Transport of personnel and materials to/from building;
- Health of occupants, workers;
- Etc.

Environmental Impact of Buildings

- Recognition of the environmental consequences of business-as-usual in the building industry:
  - 38% of total Canadian secondary energy use;
  - 30% of total Canadian GhG emissions.
  - Globally consume 40% of raw materials.
  - Staggering cost of employee absenteeism and turnover.
  - School days lost annually to asthma/IAQ. (10 million USA)
  - Urban sprawl consuming arable land.
  - Loss of habitat and biodiversity.

Green Building Concerns

- Recognition of environmental consequences of business-as-usual in the building industry.
- Desire from all sectors to do things better.
- Provide a measurable standard to define “green”
- Prevent “greenwashing” (exaggerated claims).

“Sustainable/Green Buildings”

- Often used terms, but no universal definition.
- Search the Internet for the terms….
- Many builders and organizations offer answers:
  - BREEAM
  - US EPA *Federal Guide for Green Construction Specifications*
  - SPiRiT
  - R2000
  - Energy Star, Energuide,
  - EcoLogo
  - Energy 2000
  - Commercial Building Incentive Program (CBIP)
  - Model National Energy Code for Buildings 1997 (MNECB).
  - LEED

“Sustainable/Green Buildings”

- In short, sustainable buildings can be a combination of the following factors:
  - Healthier;
  - More economical;
  - More productive;
  - Less environmental impact.

What's This to CEAA Members?

- We examine environmental impacts of organizations.
- Many environmental impacts are related to the built infrastructure.
- Green building requirements provide 'a' baseline of impacts against which to audit.
- Green buildings are an indication of the environmental ethic/ responsibility of the organization.

LEED Overview

- Developed in 1995 in USA to define Green Buildings.
- Broad support of governments, building industry, users.
- Based on existing Codes, Standards, Guidelines.
- Standards for:
  - Commercial and institutional buildings;
  - Existing buildings;
  - Commercial Interiors;
  - Core and Shell;
  - Homes.

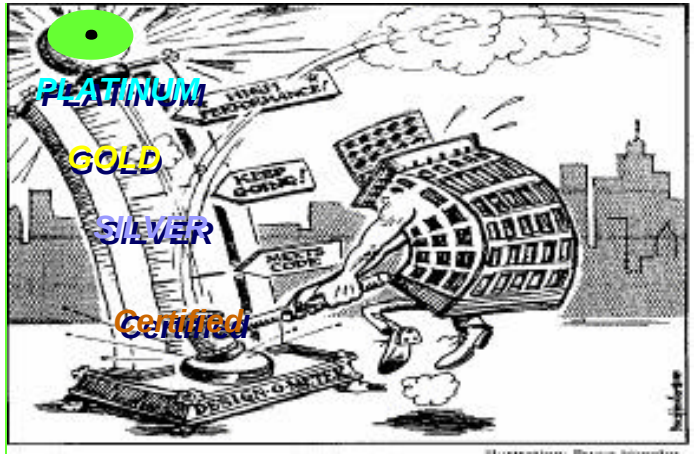
Basis of the LEED Program

- LEED sets environmental performance criteria for a broad range of environmental impacts relating to buildings.
- Apply proven strategies and technologies.
- LEED use is on a voluntary basis.
- Based on self-evaluation, self-documentation.
- Third party certification (solely by the CaGBC).

LEED Certification System

Certification based on:

- Baseline of 7 Prerequisites, and
- Range of 70 Points for one of 4 performance levels:
  - "Certified" = 26 or more points
  - "Silver" = 33 or more points
  - "Gold" = 39 or more points
  - "Platinum" = 52 or more points



LEED's Green Building Focus

- Sustainable site planning.
- Safeguarding water and water efficiency.
- Energy efficiency and renewable energy.
- Conservation of materials and resources.
- Indoor environmental quality.
- Design excellence.

LEED Prerequisites

- Erosion and sedimentation control.
- Commissioning of building systems.
- Minimum energy performance.
- Reduction of CFCs and Halons.
- Storage and collection of recyclables.
- Minimum IAQ performance.
- Environmental tobacco smoke control.

Sample of LEED Credits

- Parking capacity.
  - Reduce pollution and land use from single occupant car use.
  - Parking space = minimum zoning & provide carpool spaces for 10%.
- Stormwater rate and quantity.
  - Manage runoff to limit disruption and pollution of natural waters.
  - If site > 50% impervious (roads, walks, plazas, etc), reduce runoff 25%
- Reduce Heat Island Effect.
  - Minimize microclimate and habitat effects.
  - High reflective roof for 75%, or green roof for 50%.

Format of LEED Credits

- Intent;
- Specific requirements;
- Submittal requirements; and
- Recommended technologies and strategies.

Credits are go/no go, not the subjective multi-level.

Can decide early in project if credits are cost-effective.

Other LEED Features

- Integrated design process for the whole-building.
- Not overly prescriptive.
- Can be modified for local climate and Codes.
- Formal commissioning of completed facility.
- Benefits beyond buildings themselves – placement of structures, travel, sense of community.
- Cost benefits during design, approvals, construction, and operating life of the building and site.

Green Building Councils

For More Information

- Canada Green Building Council

www.cagbc.org