

LEED – NC USGBC

Leadership in Energy and
Environmental Design
an
Overview



INTERESTING FACTS

- Over the last 20 years the average family size has decreased while the average home size has increased
- Human health – green buildings reduce absenteeism by 15 – 47%
- The average household annually produces about 3,500 lbs of garbage, 450,000 gallons of waste water, and 25,000 lbs of CO₂
- Approximately 25% of landfill waste originates from construction sites



The Built Environment

- ❖ The built environment has a real impact on natural environment
- ❖ USGBC developed LEED as a tool to enable industry to design, build and operate buildings at a higher level of performance thus reducing the environmental impact

Why Build a Green Building?

- Market Attractiveness – Today's Trends
- Employee Productivity/Health
- Building Operation Costs: Example cost of heating
- Environmental Stewardship
- Material Shortages/Escalation

LEED

Is a rating system that enables the user to measure actions that substantially reduce or eliminate negative environmental impacts originating from a building. Ratings are based on a set of performance standards specific to various categories of the building.

LEED

- LEED-NC: For new construction
- LEED-EB: For existing buildings
- LEED-CI: For commercial interiors
- LEED-CS: For core and shell
- LEED-Homes: For residential homes
- LEED-ND: For neighborhood development

LEED CRITERIA SECTIONS

- Sustainable Site
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovative Design

Sustainable Site

- Ecology of site
- Least impact from building footprint – building placement – working with natural topography, geology and hydrology
- Work with natural topography – natural values of site
- Reduce heat islands
- Control runoff
- Solar orientation
- Proximity to transportation – public

Water Efficiency

- Water use reduction - Example: low water use appliances and fixtures
- Water reuse – Example: grey water systems
- Water efficient landscaping - Example: low water demand landscaping
- Innovative wastewater technology

Energy and Atmosphere

- Minimum energy performance
- Refrigerant management
- On-site renewable energy
- Enhanced commissioning and building management
- Measurement and verification



Materials and Resources

- Storage and collection of recyclables
- Building reuse goals
- Reclaimed woods and other materials
- Materials available locally – reduce transportation impact/costs
- Construction waste management
- Rapidly renewable material sources

Indoor Environmental Quality

- Outdoor air delivery monitoring
- Indoor air quality management plan during construction and before occupancy
- Low emitting materials
- Controllability of systems lighting and thermal
- Daylight and views

Innovative Design

- Extra points for design innovations
- Breaking new ground – emerging technologies

Other Considerations

Long life loose fit = Future ease to upgrade
and/or retrofit.

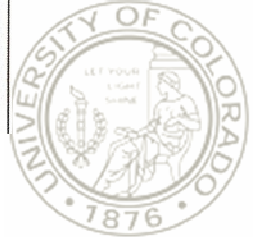
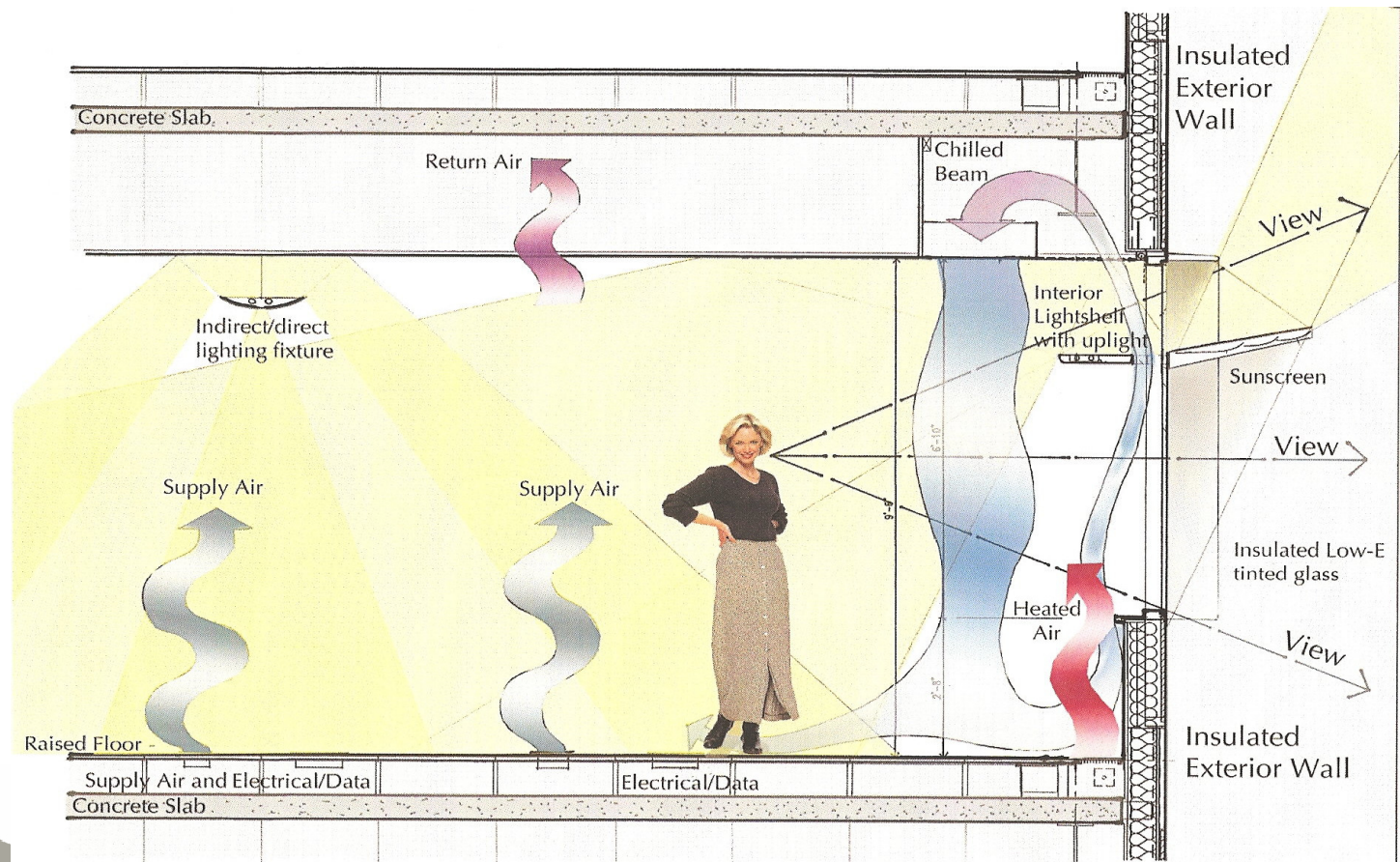
One of our challenges today is not so much
designing green for new construction, this only
requires a commitment, but how do we retrofit
existing buildings/houses across the planet?



SIGNATURE CENTER - LEED PLATINIUM WINNER DESIGN-BUILD-OWN BY AAREDEX



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Audubon Energy Strategies

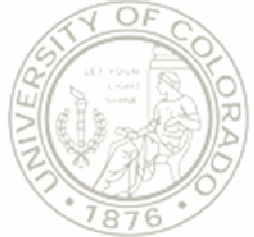
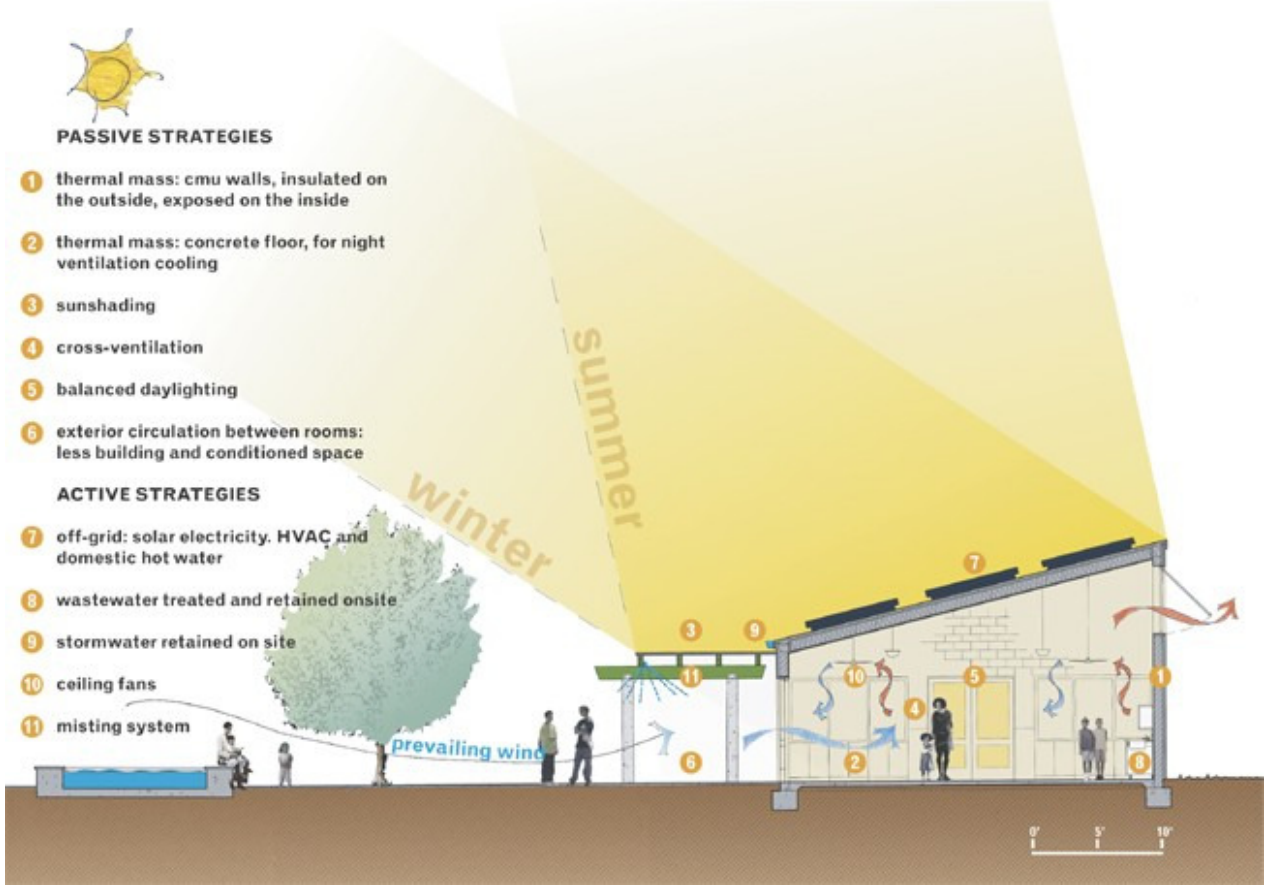


PASSIVE STRATEGIES

- 1 thermal mass: cmu walls, insulated on the outside, exposed on the inside
- 2 thermal mass: concrete floor, for night ventilation cooling
- 3 sunshading
- 4 cross-ventilation
- 5 balanced daylighting
- 6 exterior circulation between rooms: less building and conditioned space

ACTIVE STRATEGIES

- 7 off-grid: solar electricity. HVAC and domestic hot water
- 8 wastewater treated and retained onsite
- 9 stormwater retained on site
- 10 ceiling fans
- 11 misting system



Concordia Elevated Walkways St John Island



Residential PV Roof Mount



Residential Wind



Residential Ground Mount PV



Smarter Residential Driveways

