Going GREEN without going in the RED

Durrant | DeWitt Ross & Stevens S.C.

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Going GREEN without going in the RED

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Wisconsin Green Building Alliance

Going Green Without Going in the Red

The *Wisconsin Green Building Alliance's (WGBA)* mission is to facilitate and promote the development and use of ecologically sustainable materials and practices within Wisconsin's built environment.

Triple Bottom Line Filter to all we do:

- Economics
- Environment
- Ethics

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Durrant and DeWitt Ross & Stevens are proud members of the Wisconsin Green Building Alliance!

Myths of Sustainable Design

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Beware of What You Know!

Sustainable Design Myths

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- "*It Costs more to do Sustainable Design!*"
- *"People don't understand Sustainable Design!"*
- *"We won't do LEED, because all you get is a plaque!"*
- *"You have to use X (you name it) to get LEED!"*
- *"Sustainable Design and LEED are the same thing!"*
- *"Sustainable Design is leading or bleeding edge!"*
- *"It's an all or nothing proposition!"*

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Sustainable Design Myths

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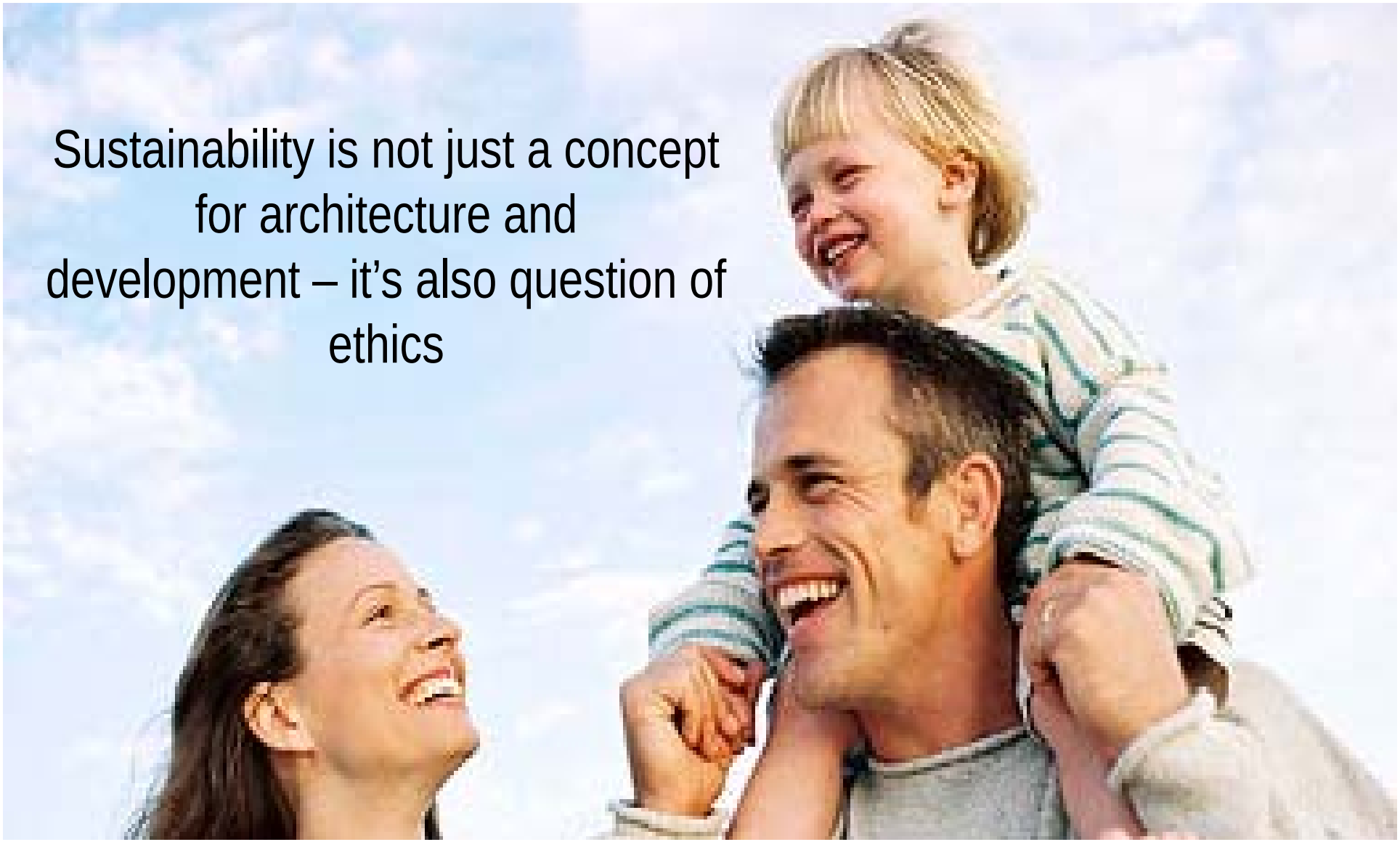


U.S. BUILDINGS IMPACTS ON RESOURCES

39% of total energy consumption
(2006 US DOE Buildings Energy Datebook)

71% of electricity consumption
(2006 US DOE Buildings Energy Databook)

39% CO_2 emissions
(EIA, Emissions of Greenhouse Gases in the U.S.)

36% of all greenhouse gas emissions
(EIA, Emissions of Greenhouse Gases in the U.S.)

...and nearly half of what will be the built environment in 2030, doesn't even exist right now!

WORLDWIDE, BUILDINGS ACCOUNT FOR...

17% fresh water withdrawals

25% wood harvest

33% CO_2 emissions

40% material and energy use

45% in china

THE NEXT GENERATION'S PERSPECTIVE WILL INCREASE GREEN BUILDING

89% choose brands aligned with social cause

74% listen to brands aligned with social cause

69% shop for brands aligned with social cause

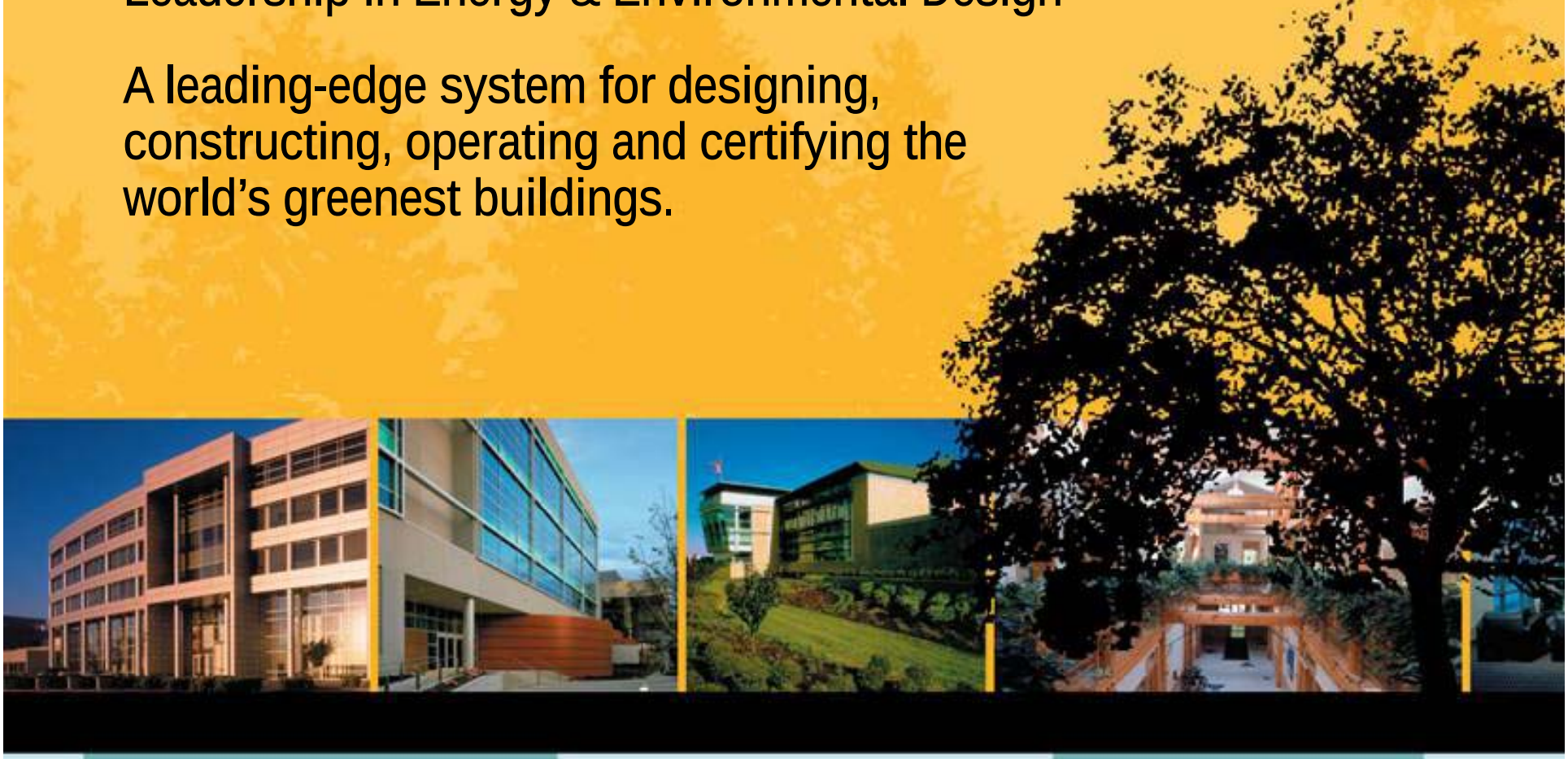
66% recommend brands aligned with social cause

LEED

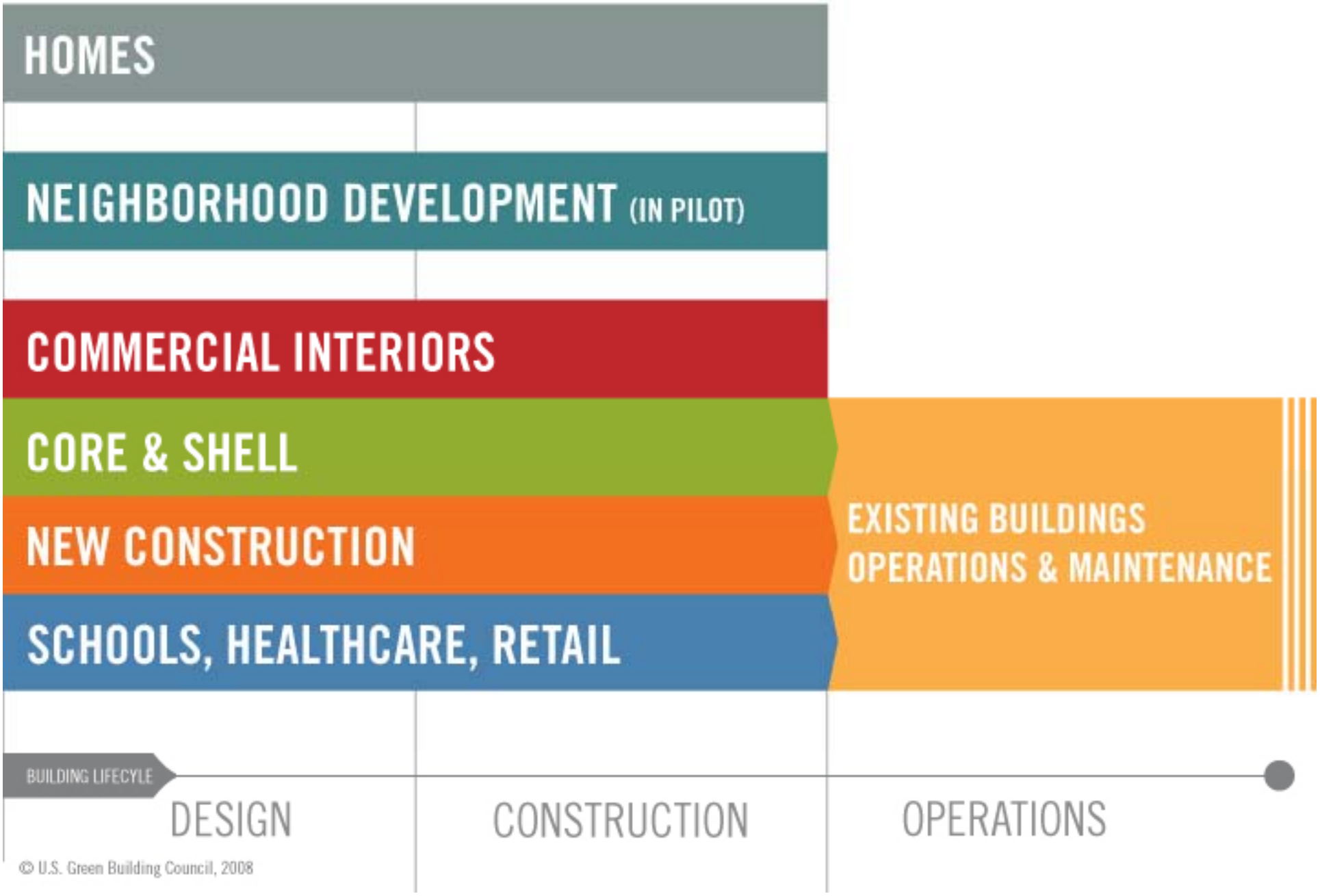
GREEN BUILDING RATING SYSTEM

Leadership in Energy & Environmental Design®

A leading-edge system for designing, constructing, operating and certifying the world's greenest buildings.



LEED address the complete lifecycle of buildings:



USGBC LEED Certified Projects

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15,000+

LEED NC, EB, CI, CS, Schools, Homes

Increase in LEED Project Sq. Ftg.

2002 - 80 Million Sq. Ft.

2007 – 1.5 Billion Sq. Ft.

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Benefits of Green Schools

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Health

- 25% reduction in asthma
- 15% reduction in colds and flu

Operational

- Reduced Teacher Sick Days
- Higher Staff Morale
- Documented Energy Cost Reductions of 20% - 40%
- Higher Test Scores

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CASE STUDY

30 Schools Studied

33.4%
Average direct energy savings

50%
Average indirect energy savings

32.1%
Average water savings

The Willow School
Phase 1

25% energy savings

34% water savings

84% waste diverted

Willow School
Gladstone, NJ

"**Green home building** is at a tipping point among the builder population"

As of 2006, **50% of builders** "are focusing their attention on green building issues"

March 20, 2006

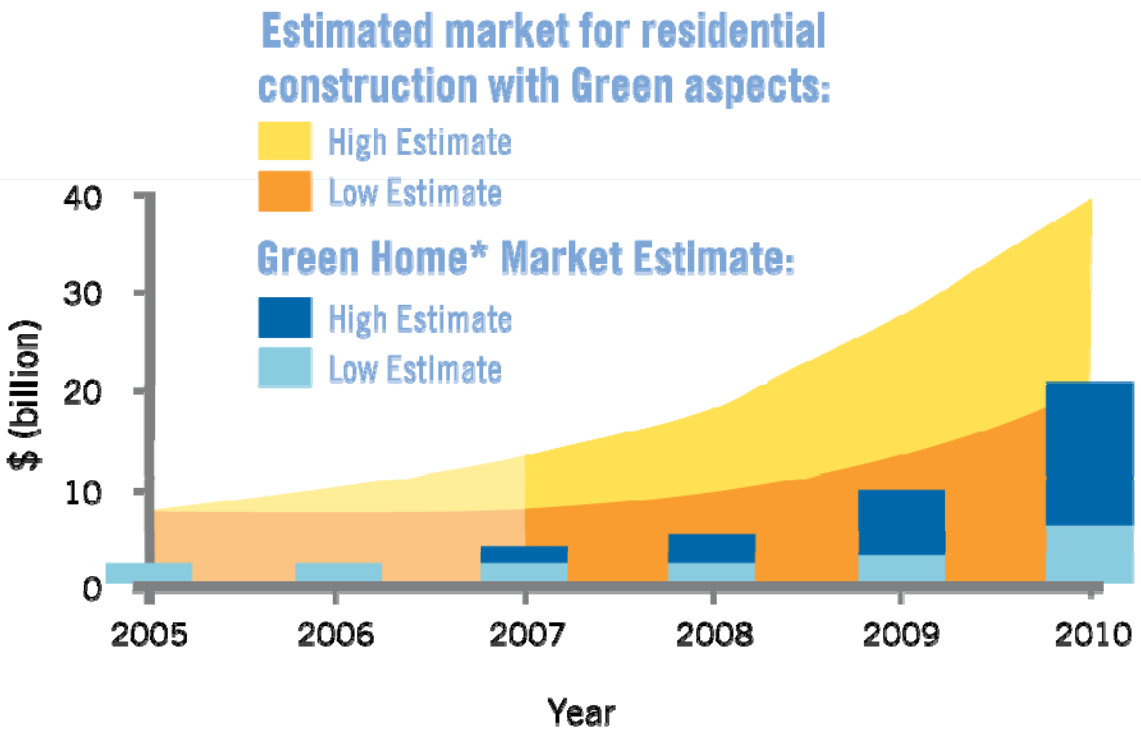
NAHB
National Association of Home Builders

Green Home Building Market Expected to Increase

Current Green Home Market = $1.8 billion; 0.3% of all homes in U.S.

Indicators of Growth:

- High green home owner satisfaction
- High recommendation rate
  - Most green home owners learned about green homes through word of mouth
- Rapid rate of increase in builders constructing green homes
- Rising energy costs



* Green homes define more narrowly as homes that contain elements in three of five environmental building categories

Sustainable Community Programs

- 92 U.S. municipalities have some formal green building initiative
- Local, rather than national government bodies are taking the lead with green
- 79% of green building programs apply to government buildings
- 49% of programs apply to commercial buildings
- 39% of programs apply to single-family residences
- 38% of programs apply to multifamily construction

Source: Local Leaders in Sustainability: A Study of Green Building Programs In our Nation's Communities

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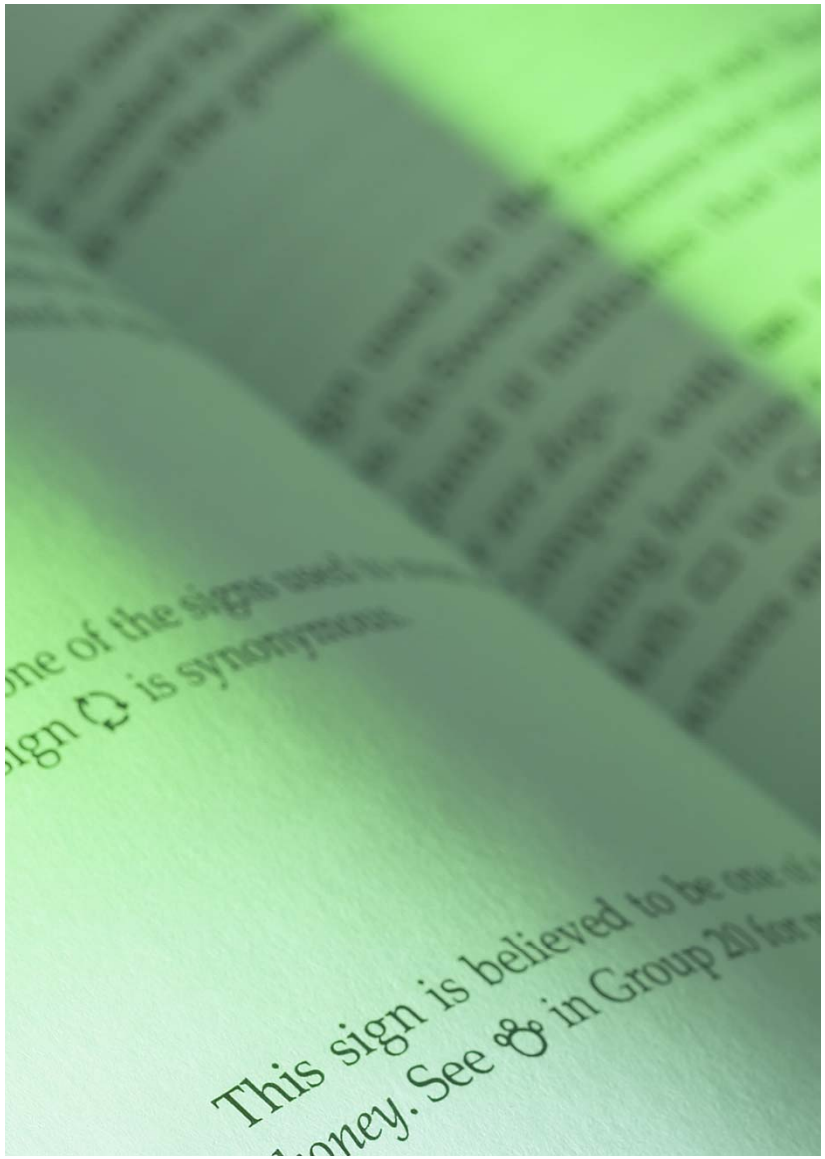

Growth in Sustainable Community Programs

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The number of U.S. cities with green building programs has increased by 418% since 2003 from 22 to 92.

Source: Local Leaders in Sustainability: A Study of Green Building Programs In our Nation's Communities

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The Scottsdale Green Building Program

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Incentive Plans & Process

- Expedited permitting
- Utility rebates
- Tax exemptions
- Dedicated Program Director to help Owners navigate the process
- Voluntary program, but treated as a code once you enter the program
- Special green building permit and final inspection for compliance

SCOTTSDALE GREEN BUILDING PROGRAM

Source: Local Leaders in Sustainability: A Study of Green Building Programs In our Nation's Communities

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EarthCraft Communities Program
Atlanta, GA

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Guidelines for Builders & Developers

- Walkability
- Environmental site plan development
- Integrated planning approach to facility design
- Most LEED-rated buildings per capita in 2006

Source: Local Leaders in Sustainability: A Study of Green Building Programs In our Nation's Communities

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How to Do This

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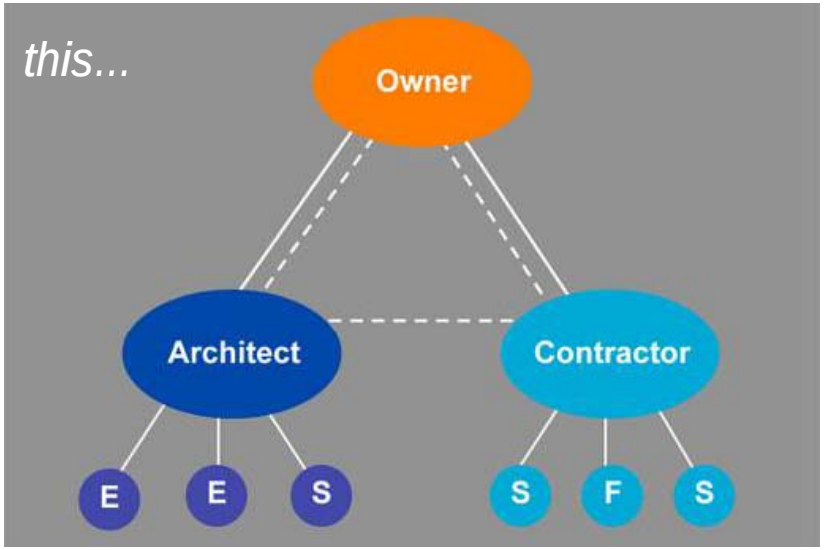
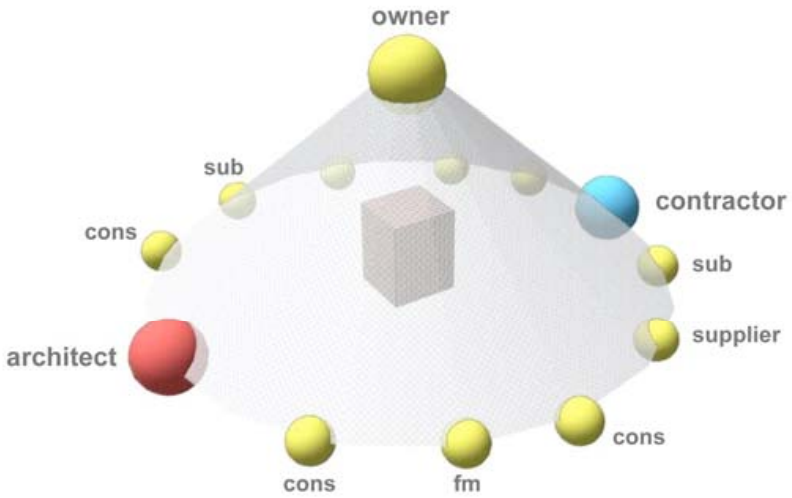
Eliminate Silos

this...



becomes this...?



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Project Sustainable Audit

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- Pre-design performance criteria
- Design process documentation
- Commissioning involvement as schematic design
- Owner check at contract documents
- Construction waste management and energy savings tactics

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Energy Savings

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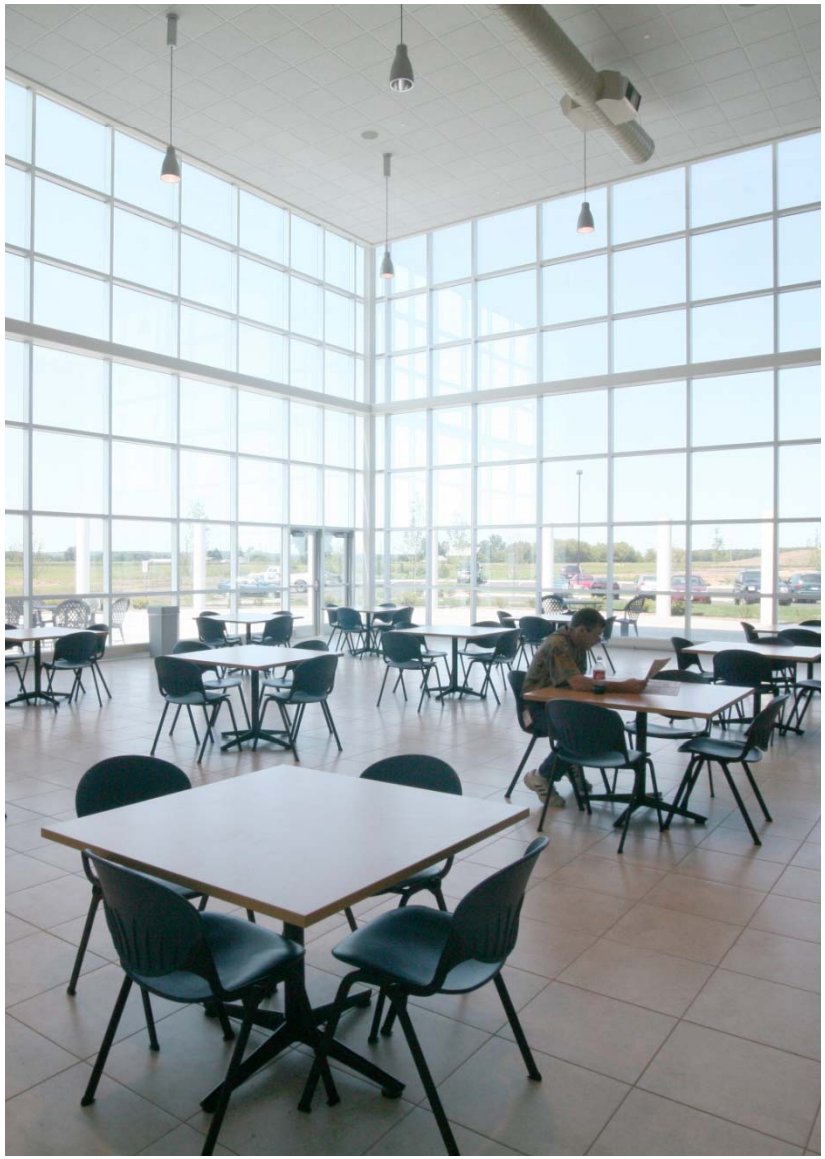
- Set performance standards early in project
- Set initial cost savings target
- Energy model every project – design tool
- Use day lighting as a design strategy
- Building skin design
- Use cost trading strategies
- Use utility rebates and incentives

Energy savings of 20% - 50% percent can be reliably delivered



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Managing Water Resources

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- No permanent irrigation system
- Hand wash fountains
- Reduce flow lavatories
- Dual-flush water closets
- Pressure regulated tankless toilets
- Waterless urinals
- Reduced flow showers

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Make Buildings Work as Intended

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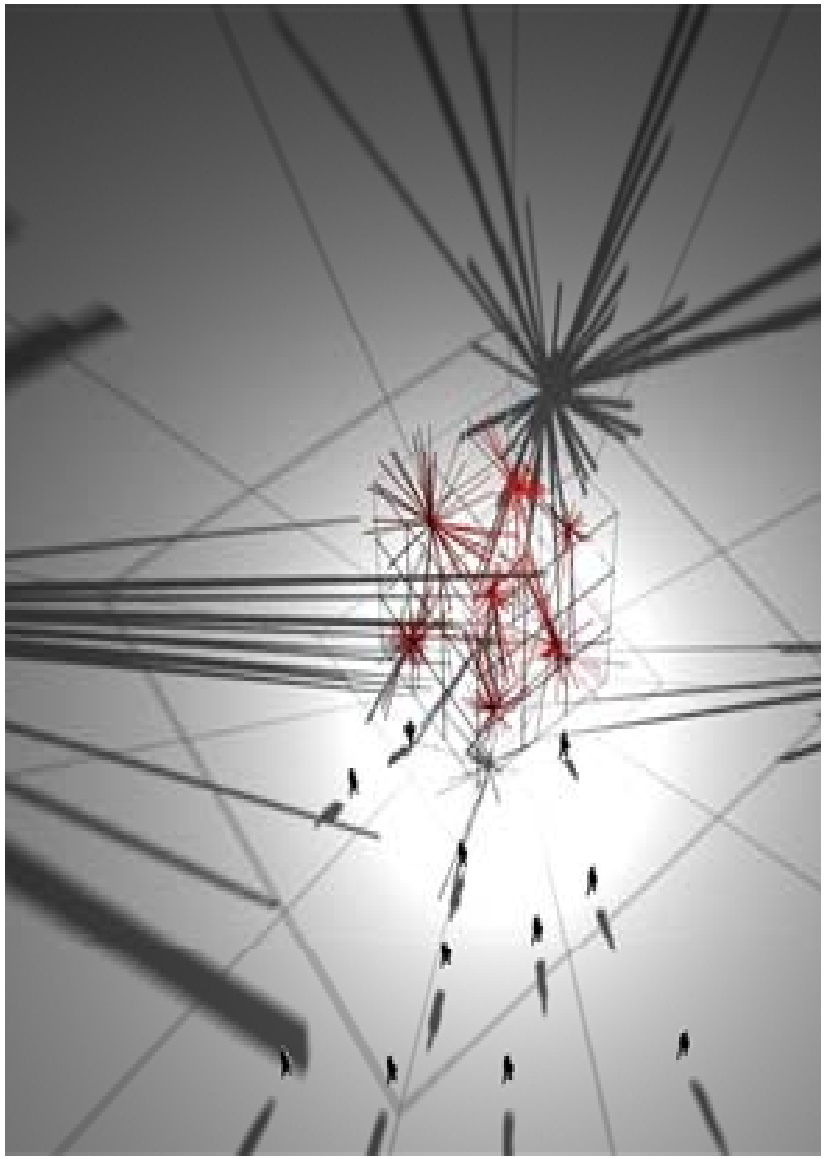
Follow a Practical Commissioning Process

- Establish design intent and sequence of operations
- Track energy use on a daily and monthly basis
- Do functional testing
- Early months of building energy use are typically higher facility learning curve



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Post Occupancy Measurement & Verification

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- Beyond commissioning
- Value-added, additional fee
- 1st year energy use and costs

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Value Proposition

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Sustainable Design can be realiably delivered at no or low added cost to the project.

- Better Cost Control
- Contingency Management
- Risk Management
- Lower Cost per Sq. Ft.
- Higher Client Satisfaction
- Lower Energy Costs

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Durrant Corporate Headquarters

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- 17,600 sf in Dubuque, IA
- 35% energy cost savings
- Revitalization of manufacturing facility
- Geothermal heating and cooling
- Low emissivity roof
- Daylight harvesting system
- Thermal solar, photovoltaic panels
- Bio-swail to filter parking lot drainage
- Irrigation system utilizes grey water from geothermal heating and cooling wells

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Northland Pines High School

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- 260,000 sf high school in Eagle River, WI
- Project cost: $116/sf
- VAV and constant volume HVAC with energy recovery
- Lighting power density: 0.9 W/sf
- Chiller capacity: 625 sf/ton
- 43% documented energy cost savings
- Documented annual energy cost: $0.87/sf
- LEED Gold Certified; first gold public high school in the nation

*Work done prior to or in conjunction with current staff at Durrant.

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Alberici Headquarters Office

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- 108,000 sf office building in St. Louis, MO
- Project cost: $149/sf (incl. wind, solar, demo)

  White Box Cost
- Under floor displacement system
- Lighting power density: 0.64 W/sf
- Chiller capacity: 509 sf/ton
- 60% energy cost savings (with on-site wind)
- Documented annual energy cost: 0.81/sf
- LEED Platinum at 60 points

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The Green Tsunami

Where Do We Go From Here?

Q & A

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