

The ABC's of Going Green

Science Centers as Agents of Environmental Change
5th Science Centre World Congress 2008
Toronto, Canada

Presenters:

John Jacobsen, The White Oak Institute, Marblehead, MA, USA; **Jennifer Martin**, TELUS-World of Science/Creative Kids Museum, Calgary, AB, Canada; **Paul Pearson**, Brooklyn Children's Museum, Brooklyn, NY, USA; **Joaquin Fargas**, Centro Cientifico Tecnologico Interactivo Exploratorio, Buenos Aires, Argentina

Institutional Overview :

John Jacobsen

Co-Chair, AAM's PIC-Green Committee

Principal Investigator, The White Oak Institute

President, White Oak Associates, Inc.

Museum Planners & Producers

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Madison Children's Museum, Madison, WI

Source: greenexhibits.org

Defining Green

“Meeting the needs of the present without compromising the ability of future generations to meet their needs.”


“A commitment to see the world as interconnected, to understand the impacts our actions have on others and our environment.”

“Sustainability is equity over time. You might think of it as extending the Golden Rule through time, so that you do unto future generations (as well as your present fellow beings) as you would have them do unto you.”

Robert Gilman, Director Context Institute

Green as a Museum Movement

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By Level			By Category	
LEED	Platinum	3	Art Museums	13
	Gold	4	Botanic Gardens	4
	Silver	12	Children's Museums	18
	Registered or Certified	50	History Museums	18
Other/TBD		21	Natural History Museums	13
Green Museum Initiatives in Sample		90	Science Museums	8
			Zoos / Aquariums	5
			Interdisciplinary/Other	11
			Green Museum Initiatives in Sample	
			90	

Boston Children's Museum, Boston, MA
 Cambridge Seven Architects
 Bostonkids.org

90+ Green Museum Projects in White Oak's Database
 (North America only; does not claim to be comprehensive)

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Albert Vecerka/Esto

Pittsburgh Children's Museum

AN INSTITUTIONAL OVERVIEW GREEN AS A MUSEUM MOVEMENT

Distinguishing Features

Source <http://www.greenexhibit.org>

100% of power from renewable sources

Owns a 3kWh photo voltaic system

Systems are monitored and controlled

Control of pollutants being tracked through facility

Reused building materials

High quantities of recycled materials, locally manufactured and/or locally harvested

Indoor air quality

White roof

Commit to the LEED process early and don't waiver

The LEED manager should report to the leadership of the institution directly

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Distinguishing Features

Source: <http://www.inhabitat.com/2008/04/30/hemet-water-and-life-museums/>

LEED Platinum

Water + Life Museum, Hemet, California

AN INSTITUTIONAL OVERVIEW GREEN AS A MUSEUM MOVEMENT

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Distinguishing Features

Source: <http://www.inhabitat.com/2008/04/30/hemet-water-and-life-museums/>

LEED Gold

Museum of Contemporary Art, Denver, Colorado

AN INSTITUTIONAL OVERVIEW GREEN AS A MUSEUM MOVEMENT

The Vision: Museums as Environmental Activists

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Museums as Environmental Activists

Levels of Impact: The Vision

By Example: Walking the walk
Partnerships for sustainable practice
Citizen stewardship programs
Mission central for caring for our only home

Marketing for Social Change
Alan Andreasen

Comprehensive, integrated
campaigns for social change

Customer-focused; Outcome-driven

Customer research to
understand customer's situation
and interests

Targeted niche marketing

On-going evaluation and
improvement

Behavioral Stages of Change

Pre-contemplation

Contemplation

Change

Maintenance

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Oberlin College monitors its resource use per dormitory, per person, in real time

By Example (Level 1)

AN INSTITUTIONAL OVERVIEW MUSEUMS AS ENVIRONMENTAL ACTIVISTS

Incremental Actions
in Existing Building

Mechanical System
Upgrades

Space Consolidation

Envelope Enhancements

Operating Policies

- Green Suppliers
- Hybrid Vehicle
Perks
- Bicycle
Racks/Changing
Rooms
- Delta Exhibit
Approaches for
Change

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Co-Signers of a Sustainable Practice Partnership Charter

Municipalities

- Political Support
- Financial Support
- Community-Wide Environmental Programs

Vendors & Suppliers

- Green Materials
- Local Production
- Fair Labor
- Purchasing Policies

Content & Program Partners

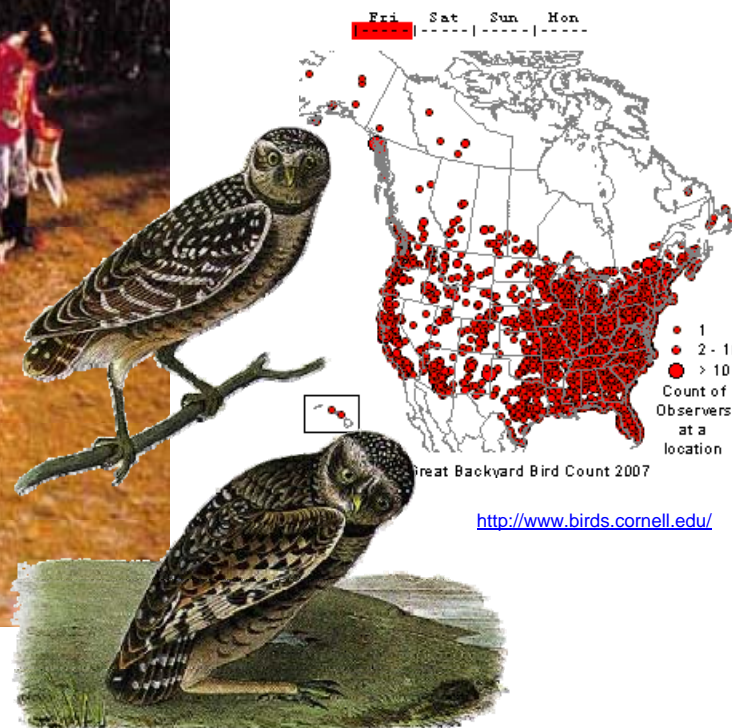
- School System
- Advisory Boards
- Health Organizations
- Social Agencies

Promotional & Sponsorship Partners

Partnerships for Sustainable Practice (Level 2)

AN INSTITUTIONAL OVERVIEW MUSEUMS AS ENVIRONMENTAL ACTIVISTS

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Burrowing Owl



Citizen Stewardship Programs (Level 3)

Involving Families and Adults in Monitoring and Caring Programs with Real-World Results

Cornell Ornithology Bird Count
Scout Badges

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Photo: Tim Ernst

Mission Central for Caring for “Our Only Home” (Level 4)



New LEED science, technology & nature center, in development

Active citizen science program

Adjacent to environmental research organization

Mission is to engage citizens as stewards and curators of their Ozark environment and community

Benefits & the Case for Investment

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Thinking Ahead: Peoria Riverfront Museum in development

“Upfront investment of about two percent typically yields life cycle savings of over ten times the investment.”

“Research demonstrates significant and causal correlation between improvements in building comfort and control measures, and worker health and productivity.”

Greening the Bottom Line Economic Benefits

AN INSTITUTIONAL OVERVIEW BENEFITS & THE CASE FOR INVESTMENT

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Pittsburgh Children's Museum, Pittsburgh, PA

Benefits

Improved testing and reading scores with natural light

Reduced absenteeism from reduced toxicity

- Asthma
- Allergies

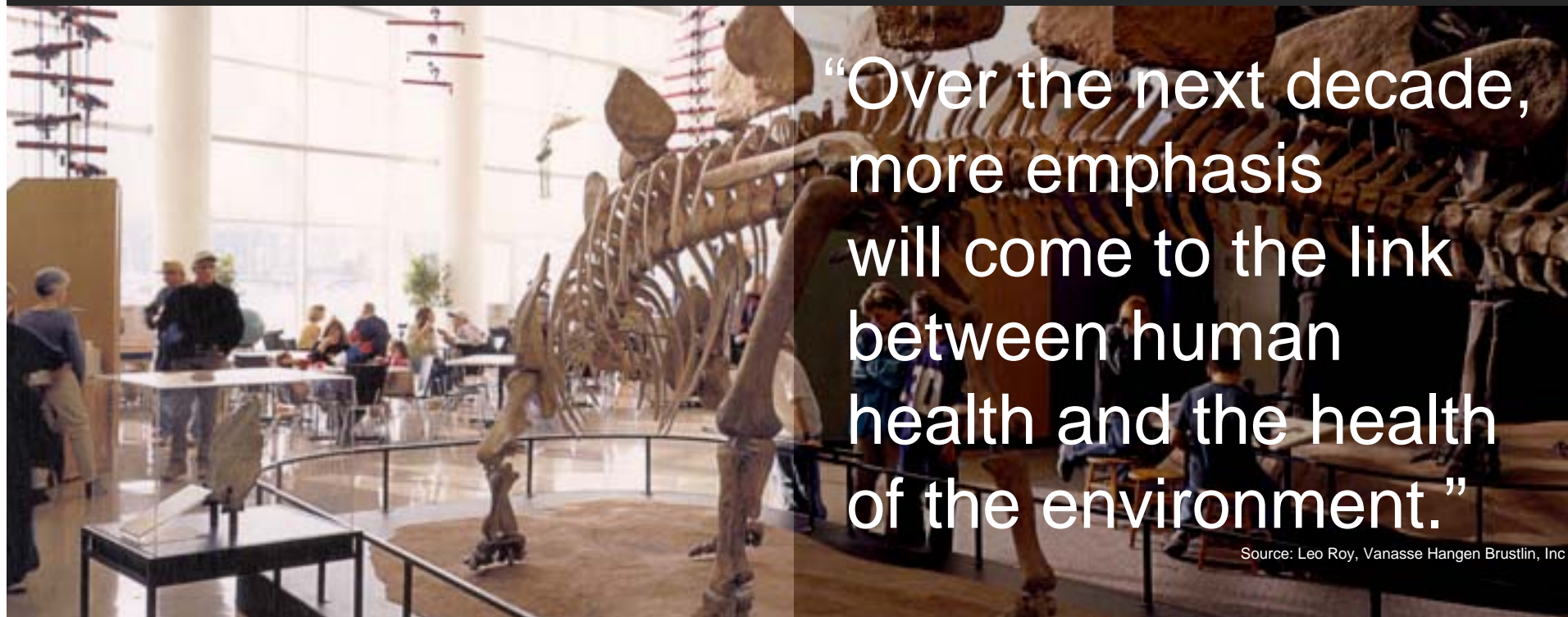
Teachers believe temperature comfort affects teaching quality and student achievement

Individual controls

Healthful Places for Learning and Working

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Source: Leo Roy, Vanasse Hangen Brustlin, Inc

Science Museum of Minnesota

Workplace Findings Benefits

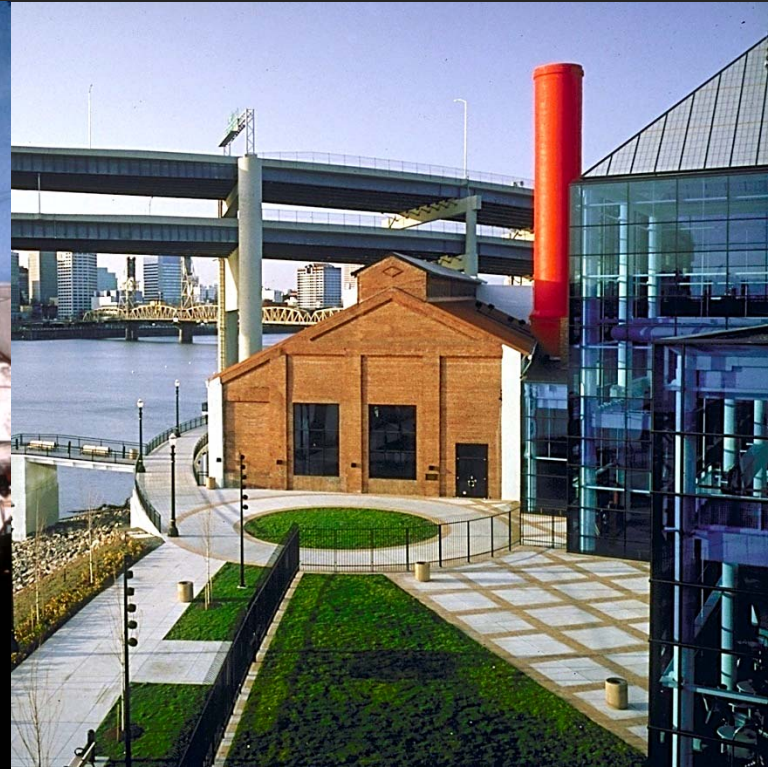
- Natural lighting improves math & reading
- Healthier air reduces sick days
- Reduced insurance risk & incidents
- Green creates local jobs
- Carnegie Mellon studies show increased well-being and productivity

Source: usgbc.org

AN INSTITUTIONAL OVERVIEW BENEFITS & THE CASE FOR INVESTMENT

Strategies To Get There

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The Greenest Building is an Existing Building

LEED for existing buildings rating system
LEED-EB

- Operations and maintenance
- Improved efficiency

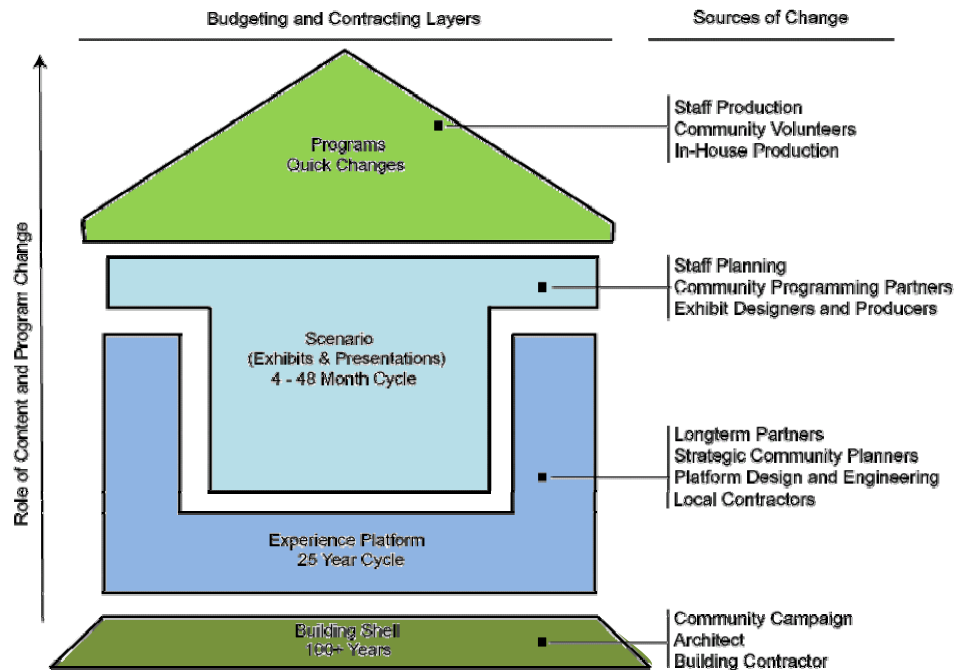
Carbon footprint calculator

Provide thermal comfort in the eight feet
where people are

Energy savings performance contract

- HVAC systems improvements

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Layers of Delta in a Learning Stage

The Delta Museum

- “An institution built for change”
- Modeled on theaters, retail stores, libraries and sports arenas
- Program change is routine
- Community trained to expect change
- A focus on change and flexibility at all levels
- Separate hardware (long-term) from software (easily changeable)
- Interchangeable inventory of parts among galleries and theaters

Investment Rationale

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	
Traditional	100					100					100	300
High Experience Platform	90											
Low Scenario	30					30					30	180

AN INSTITUTIONAL OVERVIEW STRATEGIES TO GET THERE

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It is hard to raise funds for building HVAC and other infrastructure, but easier to raise funds for a LEED public demonstration project with better returns than an endowment.

Financing Strategies

Tax credits, in combination

- Historic preservation

- New market

- Energy-related tax credits

Foundation Support

Public Agencies

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