



SUSTAINABILITY AT THE  
MUSEUM OF ART

# WHAT IS SUSTAINABILITY?

“Sustainable development is development that meets the needs of the present without compromising the ability of the future generations to meet their own needs.”

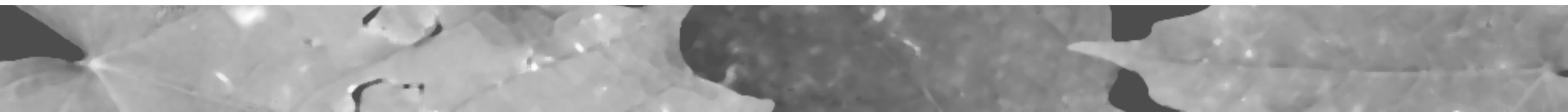
-World Commission on Environment and Sustainability (Brundtland Commission, 1987)

“Sustainability is equity over time. As a value, it refers to giving equal weight in your decisions to the future as well as the present. You might think of it as extending the Golden Rule through time, so that you do unto future generations, [and] your present fellow beings, as you would have them do unto you.”

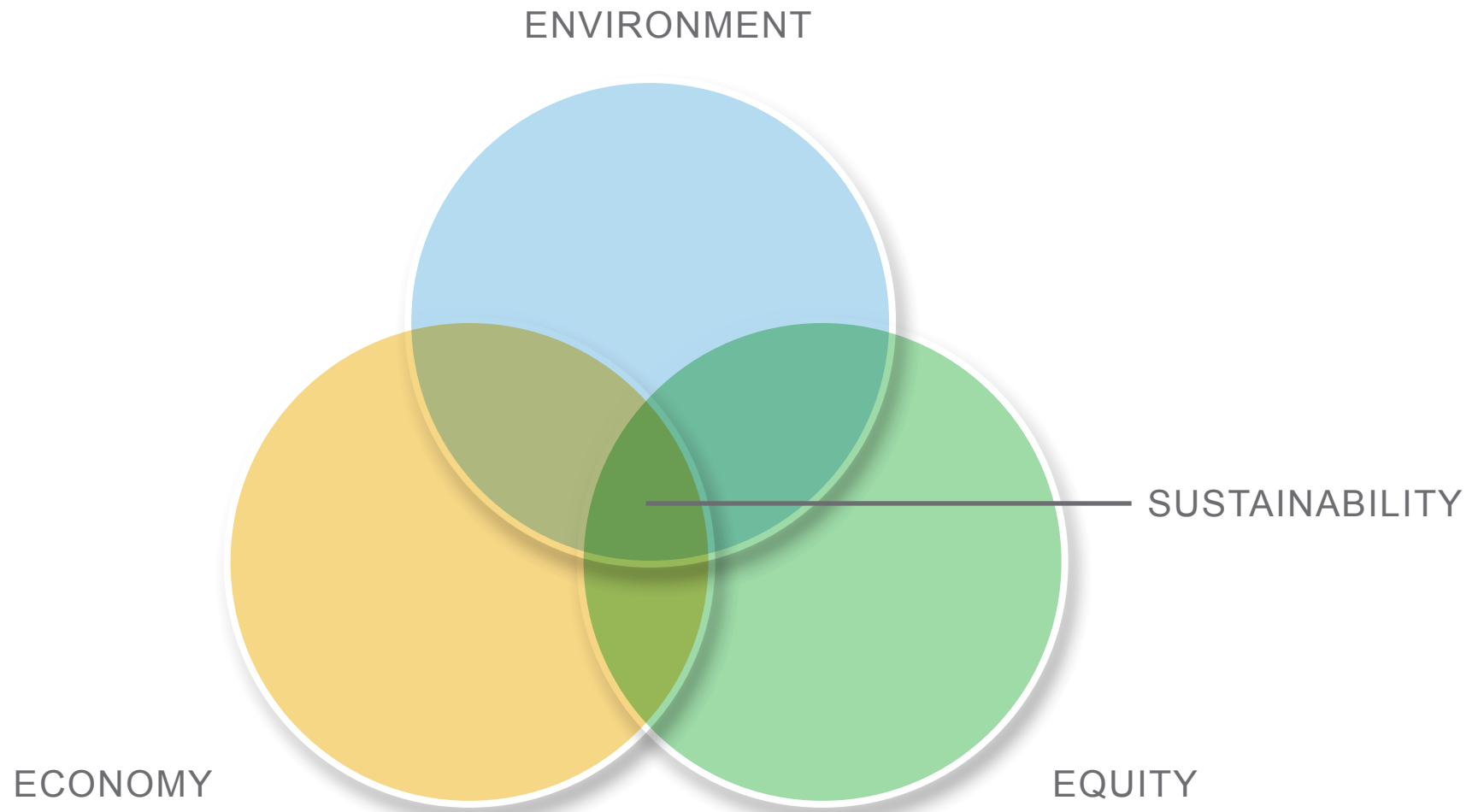
-Robert Gilman, Director, Context Institute

“Economy, Environment, Equity”

-Triple Bottom Line by John Elkington, SustainAbility



# SUSTAINABLE BALANCE

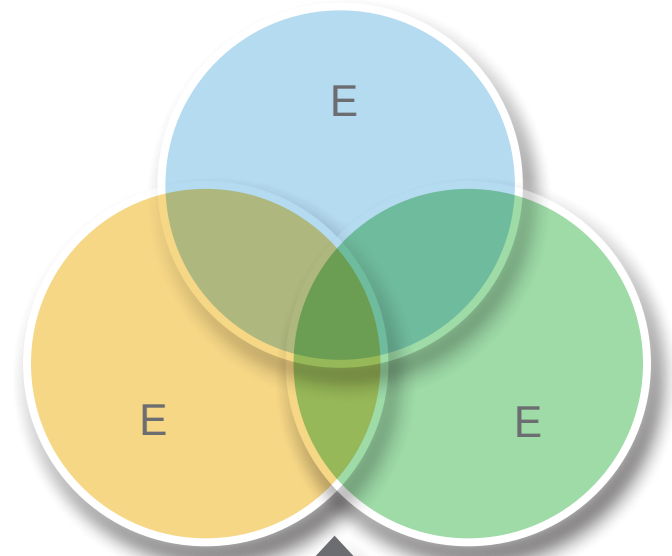


WHAT IS SUSTAINABILITY?

ORGANIZATIONAL GOALS

SUSTAINABILITY

PERFORMANCE CRITERIA



TOOLS AND STRATEGIES

...HOLISTIC THINKING...

...INTEGRATED DESIGN PROCESS...

WHAT IS SUSTAINABILITY?

# TOOLS / STRATEGIES

Insulated Glazing  
Staff/Visitor Education  
Insulated Glazing  
Alternative Transportation  
Cool Roof Technology  
Efficient Building Envelope  
Green Roof  
Indoor Air Quality  
Advanced Control Systems  
Environmental Pollution Control

Daylighting  
Recycling Waste  
Recycled Materials  
Wind Energy  
Bioswales  
Solar Hot Water  
Locally Sourced Food  
Energy Star Appliances  
Low Flow Fixtures

Efficient Artificial Lighting  
Energy Efficiency  
Bicycle Racks  
Photovoltaics  
Bicycle Racks  
Pervious Pavement  
Efficient Mechanical Systems  
Building Commissioning

WHAT IS SUSTAINABILITY?

# UNIQUE ASPECTS OF MUSEUMS

“We have climate controls to maintain!”

- Museum Director Interviewed for PND Article

“A museum, especially an art museum, is a very unforgiving type of building, because the air inside the building has to always be very consistent ... It can sway about five percent, but if it swings more than that, the artwork will suffer. Conventional art museums spend a lot of energy maintaining that condition.”

- Architect of Grand Rapids Art Museum

“Pursuing LEED is unusual for a museum ... we have very specific temperature and humidity criteria to protect the artwork. So to achieve the silver certification is quite a feat.”

- Art Institute of Chicago Spokesperson

WHAT IS SUSTAINABILITY?

# UNIQUE ASPECTS OF MUSEUMS

Strict Environmental Conditions for Art

Mixed Use

Specific Storage Requirements

Restaurant

Sculpture Garden

Specialized Lighting Design

Store

Offices / Meeting Space

Hours of Operation

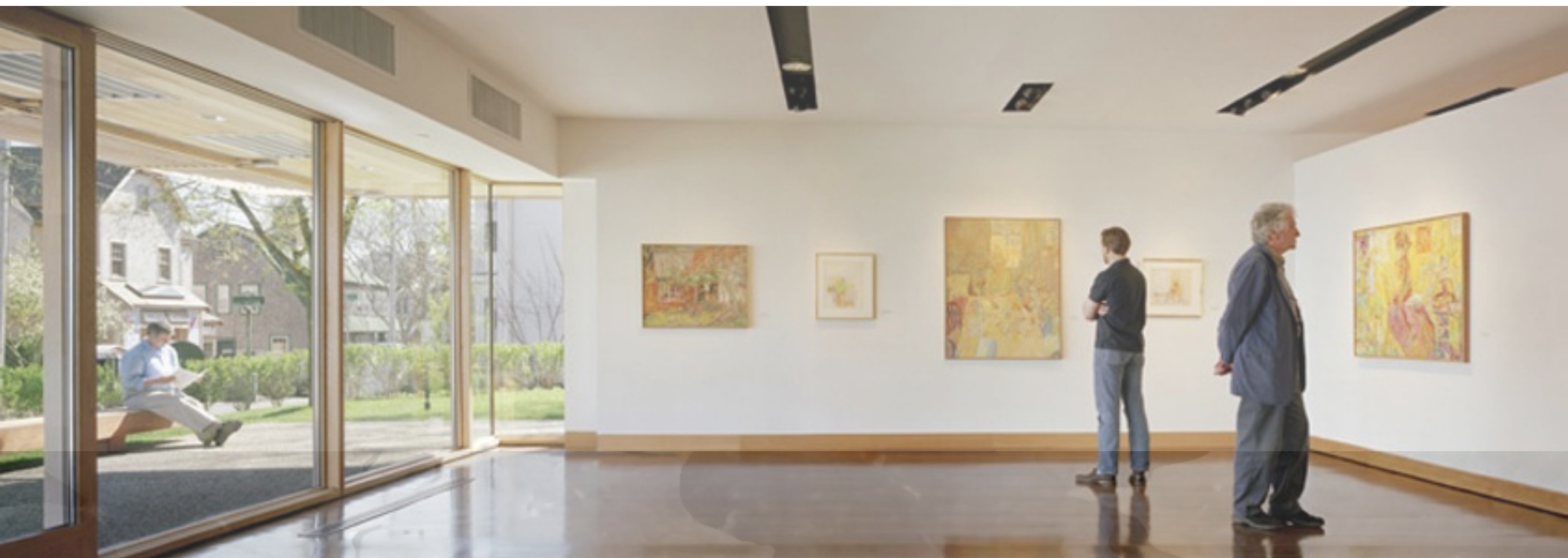
Auxiliary Spaces

The required temperature and humidity ranges mean that ENERGY is the number one issue for most museums.

WHAT IS SUSTAINABILITY?



# PROVINCETOWN ART ASSOCIATION AND MUSEUM MASSACHUSETTS





# MUSEUM MISSION

“To help sustain and nurture an artistic culture in the beautiful yet fragile ecology of Cape Cod through exhibitions, classes, public lectures, and social events.”

# PROJECT DETAILS

Location: Provincetown, Massachusetts

Type: Interpretive Center

Description: 72% New / 28% Renovation

Size: 19,500 sq. feet

Cost: \$5 million

Certification: LEED Silver

Completion: February 2006



PROVINCETOWN ART ASSOCIATION AND MUSEUM

# SUSTAINABLE FEATURES

## Site

- Access to Public Transportation
- Bicycle changing rooms
- Employee only parking

## Water

- Waterless urinals
- Porous pavement
- Use Indigenous Vegetation
- Low Flow Toilets and Fixtures

## Energy

- Efficient Building Envelope
- Daylighting / High Performance Lights
- Photovoltaics
- Energy Recovery Ventilation System
- Advanced Control System
- Efficient HVAC

## Materials

- Reuse of Existing Structure
- Durable Low Maintenance Materials
- Invest in Recycling Infrastructure
- Renewable Materials

## Indoor Environment

- Visual Comfort
- Low VOC Materials





PROVINCETOWN ART ASSOCIATION AND MUSEUM



GRAND RAPIDS ART MUSEUM  
MICHIGAN



# DONOR MISSION

“PETER M. WEGE, a leading philanthropist in western Michigan, is not an art collector. But he is an environmentalist ... Mr. Wege pledged \$20 million to the project, stipulating that the new building be ‘green.’”

# PROJECT DETAILS

Location: Grand Rapids, Michigan

Type: Art Museum

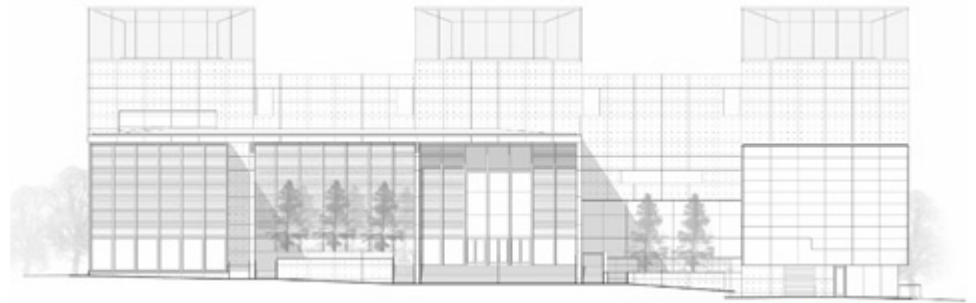
Description: Expansion - 3x former exhibit

Size: 125,000 sq. feet / 18,000 exhibit

Cost: \$60 million

Certification: LEED Gold

Completion: Fall 2007



GRAND RAPIDS ART MUSEUM



# SUSTAINABLE FEATURES

## Site

Encourage Alternative Transportation

Reduced Light Pollution

Protected Open Space

Bicycle Racks and Parking

Low Albedo Roofing/Paving

70% of Spaces use Daylight

Photovoltaic System

Heat Recovery Ventilation System

Advanced Control Systems

Efficient HVAC

Advanced Commissioning of Systems

## Water

Landscape with Indigenous Species

Grey Water Used for Irrigation

Low Flow Toilets and Fixtures

Waterless Urinals

## Materials

Reuse of Existing Structure

Durable Low Maintenance Materials

Invest in Recycling Infrastructure

Renewable Materials

## Energy

Innovative Energy Recovery Wheel

Efficient Building Envelope

Daylighting / High Performance Lights

## Indoor Environment

Visual Comfort

Low VOC Materials

Air Quality / Acoustic Quality



GRAND RAPIDS ART MUSEUM

# ART INSTITUTE OF CHICAGO ILLINOIS





## DONOR MISSION

“The top floor will have a series of skylights ... Sunlight will shine through the flying carpet, through the skylights, and then be further filtered by a vellum fabric screen system in the galleries. The combination of these systems will effectively filter sunlight down to 1% natural light when it reaches the gallery space on the top level. The Art Institute, as with most old museums, was built essentially as a giant limestone box ... Light is a danger to art, and therefore all the light used is artificial light. But the new wing will have natural light, which will be very exciting for viewing the art.”

- Today's Facility Manager Magazine

## PROJECT DETAILS

Location: Chicago, Illinois

Type: Art Museum

Description: Expansion

Size: 260,000 sq. feet / 63,000 exhibit /  
18,000 education

Cost: \$258 million

Certification: LEED Silver

Completion: Summer 2009



# SUSTAINABLE FEATURES

## Site

- Encourage Alternative Transportation
- Reduced Light Pollution
- Protected Open Space
- Bicycle Racks and Parking
- Low Albedo Roofing/Paving

## Water

- Landscape with Indigenous Species
- Grey Water Used for Irrigation
- Low Flow Toilets and Fixtures
- Waterless Urinals

## Energy

- Efficient Building Envelope
- Daylighting / High Performance Lights
- 'Flying Carpet' Daylight Screen

## Water Side Economizer Cycle

- Heat Recovery Ventilation System
- Advanced Control Systems
- Efficient HVAC
- Advanced Commissioning of Systems

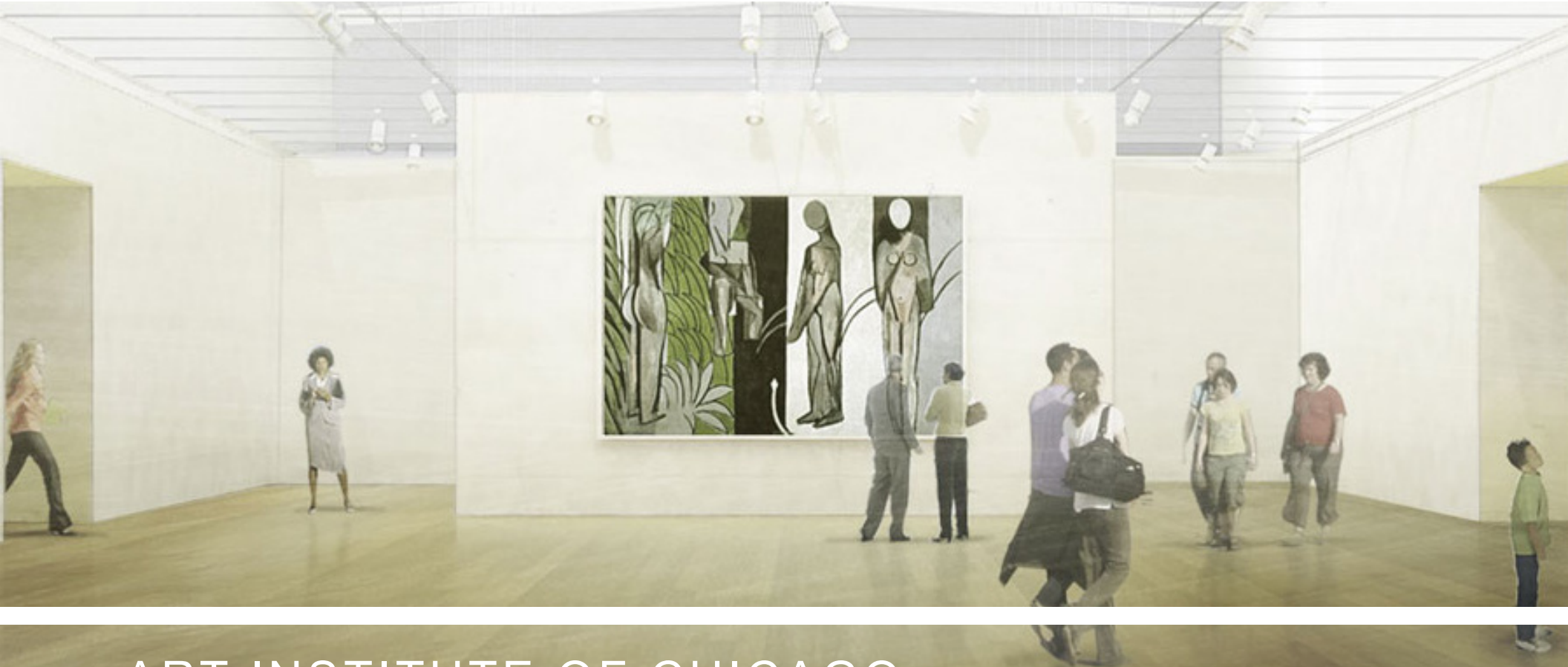
## Materials

- Reuse of Existing Structure
- Durable Low Maintenance Materials
- Invest in Recycling Infrastructure
- Renewable Materials

## Indoor Environment

- Visual Comfort
- Low VOC Materials
- Air Quality
- Acoustic Quality



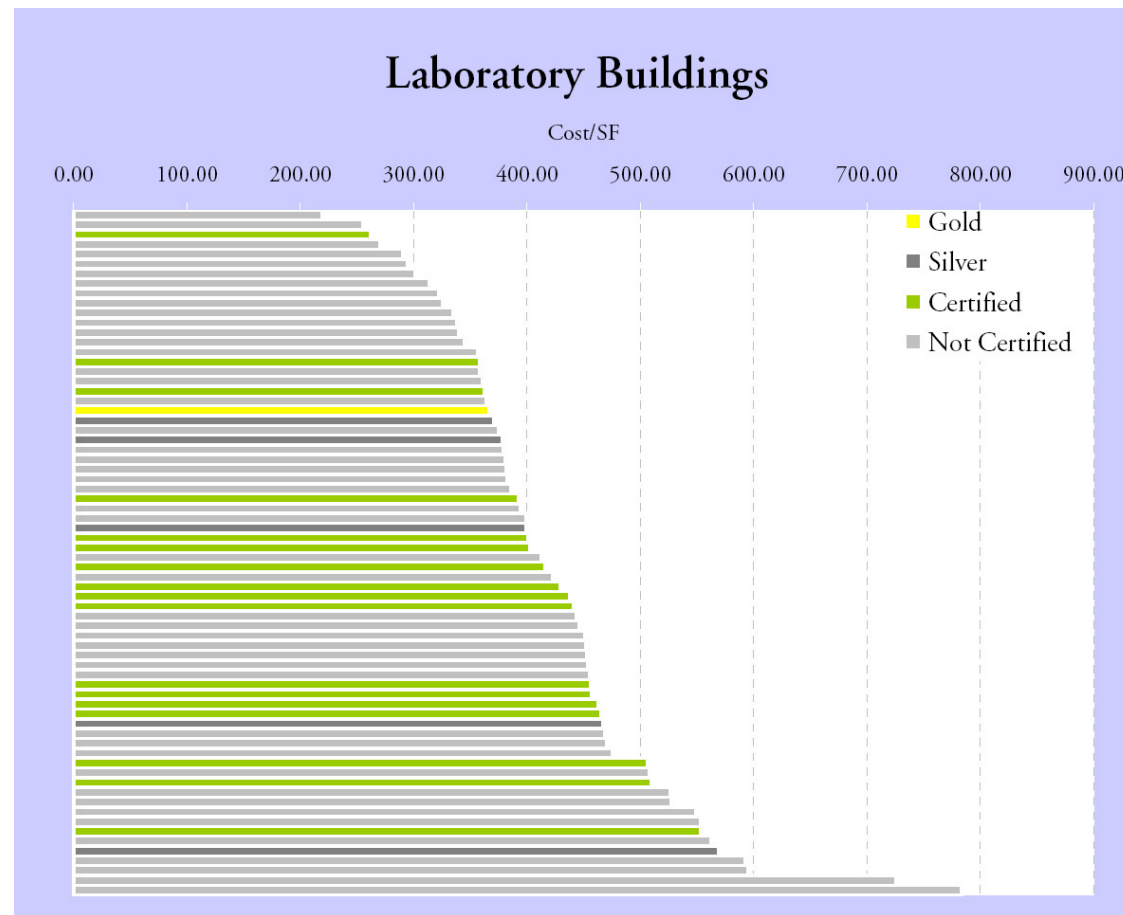


ART INSTITUTE OF CHICAGO

# ACCOUNTING FOR SUSTAINABILITY

Laboratory Buildings have similar high energy requirements to museums. The graph below compares the cost/sf of LEED certified and non-certified projects.

- DavisLangdon, The Cost of LEED Revisited



# ACCOUNTING FOR SUSTAINABILITY

“Buildings built to LEED NC guidelines save on average 30% on energy over the traditional constructed buildings. And the higher your LEED rating the better the energy performance.”

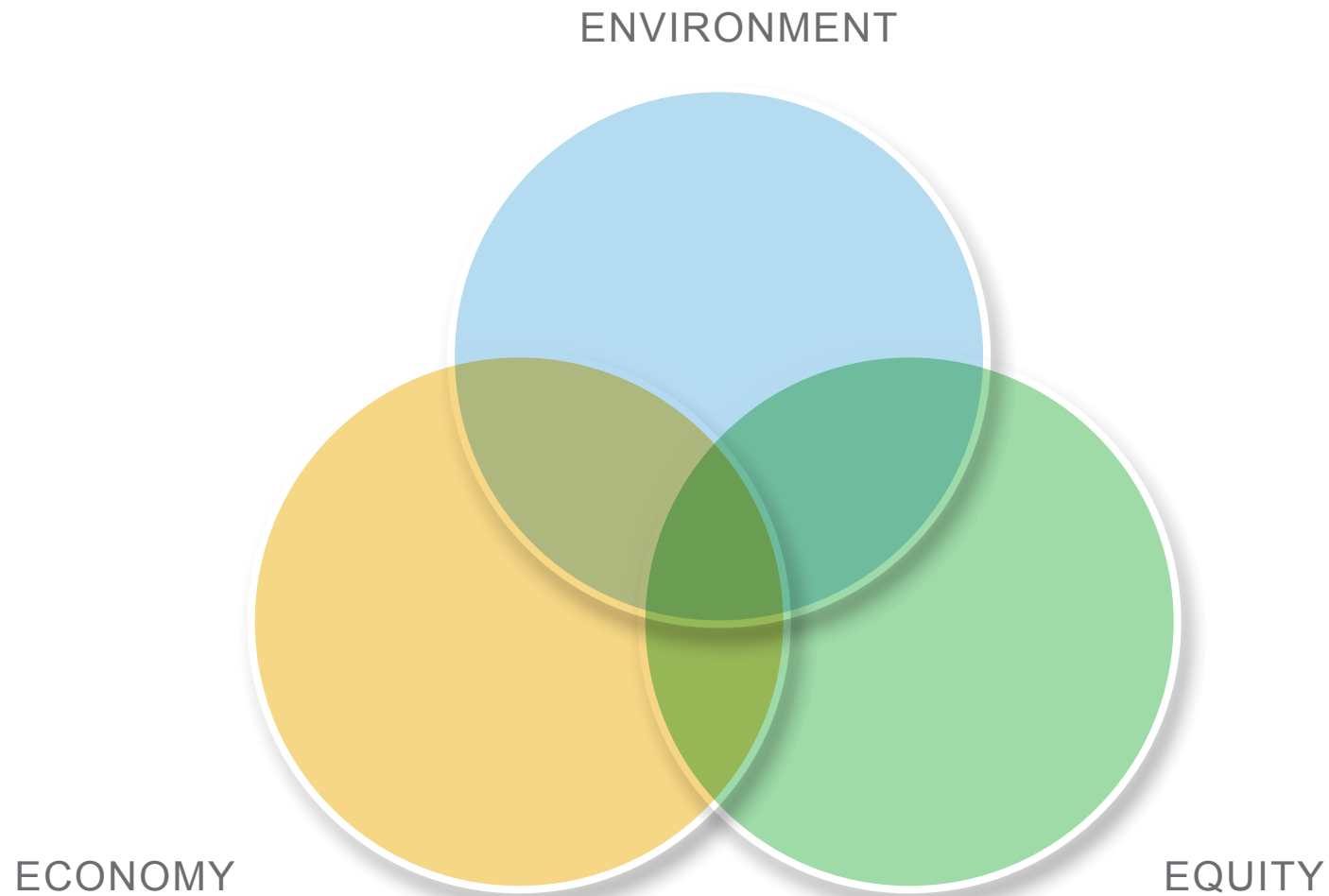
- Rick Fedrizzi, Founding Chairman USGBC

**LEED Certified 25%**

**LEED Silver 35%**

**LEED Gold and Platinum over 45%+**

# SUSTAINABILITY AT THE BALTIMORE MUSEUM OF ART



DISCUSSION

# ADDITIONAL CASE STUDIES

Mashantucket Pequot Museum, Connecticut

Harley-Davidson Museum, Milwaukee

Clinton Presidential Library, Little Rock, Ark.

Blanton Museum of Art, Austin, Texas

Contemporary Art Museum of St. Louis

Crystal Bridges Museum of American Art

Grand Rapids Art Museum, Grand Rapids, Mich.

Provincetown Art Association and Museum,

Provincetown, Mass.

University of Michigan Art Museum, Ann Arbor

National Aquarium, Baltimore

Saint Louis Zoo

The Lion House at the Bronx Zoo, Bronx, N.Y.

Tucson Zoological Society, Tucson, Ariz.

Museum of Science, Boston

North Carolina State Museum of Natural History

Santa Cruz Museum of Natural History

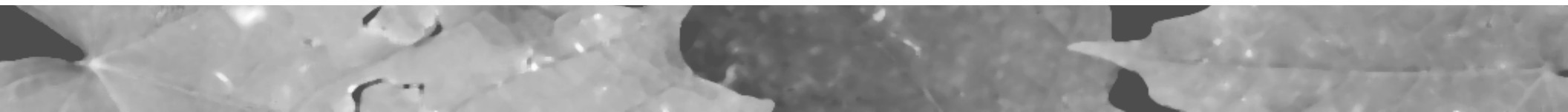
Bell Museum of Natural History, Minneapolis

Boston Children's Museum

Children's Museum of Naples, Florida.

Children's Museum, Pittsburgh

Children's Museum of Durango, Colo.





# RESOURCES

## Museum Related:

American Association of Museums (AAM) - [www.aam-us.org/](http://www.aam-us.org/)

Green Exhibits - [www.greenexhibits.org/](http://www.greenexhibits.org/)

Green Restaurant Association - [www.dinegreen.com/](http://www.dinegreen.com/)

## Sustainability:

Environmental Protection Agency - [www.epa.gov](http://www.epa.gov)

US Green Building Council (USGBC) - [www.usgbc.org](http://www.usgbc.org)

Green Roundtable - [www.greenroundtable.org](http://www.greenroundtable.org)

Green-e - [www.green-e.org/](http://www.green-e.org/)

Chesapeake Bay Foundation - [www.cbf.org/](http://www.cbf.org/)

Natural Capital Institute - [www.naturalcapital.org/](http://www.naturalcapital.org/)

Rocky Mountain Institute - [www.rmi.org/](http://www.rmi.org/)

## For more information:

EMO Energy Solutions – [www.emoenergy.com/](http://www.emoenergy.com/)

ZigerSnead – [www.zigersnead.com](http://www.zigersnead.com) / [www.greenlineblog.com](http://www.greenlineblog.com)

