

GRAM

Grand Rapids
Art Museum

SEEKING A FINE BALANCE BETWEEN ART & ENVIRONMENT



Photo ©2007 Steve Hall, Hedrich Blessing

A PLACE FOR OUR TIME

Case Study presented to
The United States Green Building Council
Seeking LEED® - NC Version 2.1 Gold Certification
for the newly constructed museum

WHY

Design+

ROCKFORD
PEPPER

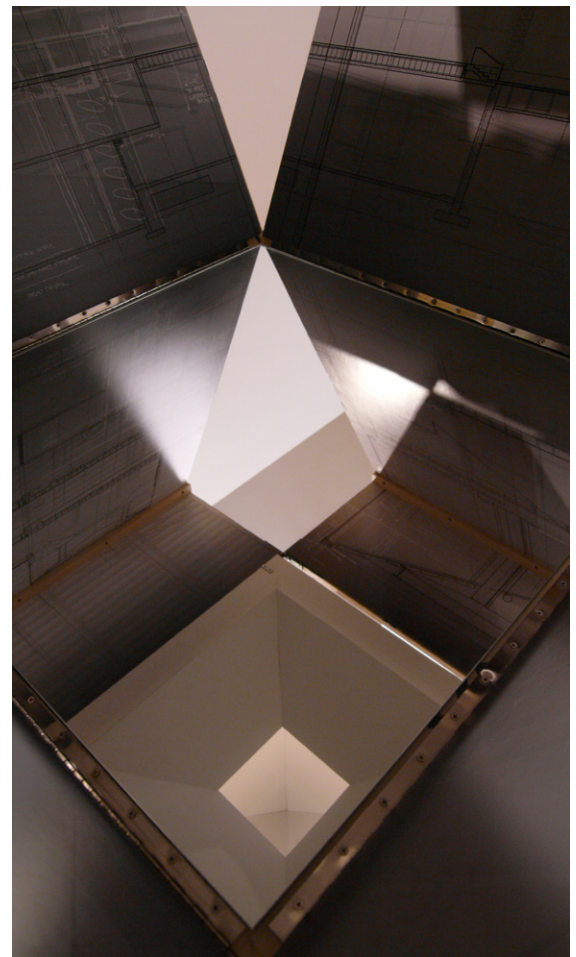
RISE

Building Details

OWNER	Grand Rapids Art Museum
LOCATION	101 Monroe Center, Grand Rapids, Michigan 49503
BUILDING TYPE	Fine Art Museum
BUILDING PROGRAM	<i>Indoor:</i> Lobby, Circulation, Art Galleries, 285-seat Auditorium, Library, Dining Room, Kitchen, Book & Gift Shop, Art Storage, Offices, Conference Rooms, Restrooms, Other <i>Outdoor:</i> Education, Garden, Loading Dock, Other
SCOPE	125,000 sf
COST	\$75 million
SETTING	Re-developed downtown city block (148,00sf) bounded by Monroe Avenue, Monroe Center, Ottawa Avenue and Louis Street, adjacent to Rosa Parks Circle
CONSTRUCTION	2004 - 2007
DEDICATION	October 5, 2007
AWARDS TO DATE	<i>Newsweek's Six Most Important Buildings of 2007</i>
SEEKING LEED® RATING	Gold

TABLE OF CONTENTS

3	Overview
4	New Building Team
5	Vision & Financing
6	Land Use & Site Sustainability
7	Water Efficiency
8	Energy & Atmosphere
10	Recycled Materials
11	Local Materials
12	Indoor Environment Quality
13	Innovation & Design Process
14	Trustees & Capital Committees
15	Lessons Learned



FOUR SALVAGED BOXES Exhibit currently at GRAM
Photo ©2007 Kulapat Yantrasast



MUSEUM LOBBY

Photo ©2007 Scott McDonald, Hedrich Blessing

Dedicated and opened in October 2007, the new Grand Rapids Art Museum (GRAM) is seeking LEED® Certification at the Gold Level. This culminates a quest by the Museum donors, trustees and staff, and the design and construction team, to create a place which is both a beautiful, commodious environment in which to contemplate art, and a neighborly institution in downtown Grand Rapids, exemplifying great sensitivity to how it impacts our environment.

This study documents the analyses and design decision-making process we undertook in pursuing a LEED® Gold certification. It also contains an accounting of the individual LEED® points we sought, and identifies specific systems, products, and methods we deployed to reach these goals.

From the seven years we've spent realizing this new museum, we've also outlined insights our team gained. It is our hope that these lessons learned, and shared, will embolden other institutions with exacting building requirements to integrate into their building programs the highest possible standards of LEED® certification.

New Building Team

Most members of the GRAM building team were new to the stringent design requirements for a fine art museum. Some had prior experience in design problem-solving with LEED® requirements for other building types. Four team members (* below) are LEED® Accredited Professionals.

OWNER

Grand Rapids Art Museum
101 Monroe Center
Grand Rapids, MI 49503
Michael Ellis, President of the Board
Celeste Adams, Museum Director
Randy van Antwerp, Finance Director

OWNER'S REPRESENTATIVE & PROJECT MANAGER

The Rise Group, LLC, Chicago
David Crowell
Peter M. Van Dyk
Thomas Calmeau

DESIGN ARCHITECT

wHY Architecture, Los Angeles
Kulapat Yantrasast
Yo Hakomori
Aaron Loewenson

ARCHITECT OF RECORD

Design+, Inc., Grand Rapids
Dave Mester
Douglas P. Smith
Ryan Garone, LEED AP*

GENERAL CONTRACTORS

Rockford / Pepper Construction, Grand Rapids
Shane Napper
Debra Sypien, LEED AP*

COST ESTIMATOR

Morgan Construction, Barrington, IL

COMMISSIONING AGENT

Carter & Burgess, Inc., Chicago
Stephen R Koenig, LEED AP*

STRUCTURAL ENGINEER

Dewhurst Macfarlane and Partners, New York



CONCRETE POUR

Photo ©2007 Kulapat Yantrasast

ENVIRONMENTAL ENGINEER

Atelier Ten, London

MECHANICAL, ELECTRICAL & PLUMBING ENGINEERS

Design+, Inc., Grand Rapids
Jim Wedeven
Marty Morgan
Lynn Surdock

LIGHTING CONSULTANT

Isometrix Lighting + Design, London
Filip Vermeiren

CIVIL ENGINEER

Moore & Bruggink, Grand Rapids

LANDSCAPE ARCHITECT

Design+, Inc., Grand Rapids
Matt Heidloff, RLA, LEED AP*

CURTAIN WALL CONSULTANT

W.J. Higgins & Associates, Wausau, WI

CONCRETE CONSULTANT

Reginald Hough, Larchmont, NY

INITIAL CONCEPT DESIGNER

Munkenbeck+Marshall LLC, London

CONCRETE CONTRACTOR

Grand River Construction, Grand Rapids

Vision & Financing

VISION

The early – and enduring – vision for this new building manifested when the museum's Board of Trustees approved an expansion program in 2000. Soon thereafter, Grand Rapids philanthropist and long-time environmentalist Peter Wege pledged \$20 million to the capital campaign, with the stipulation that the new museum building pursue LEED® Certification.

Mr. Wege believes that viewing art can and should engender a profound educational experience. He challenged GRAM to create a museum to showcase a growing art collection, and to be environmentally sensitive, for the greater good of Grand Rapids. Through the expression of his ideals and his financial generosity, he inspired the design team to aim for a LEED® certification. Ultimately the design team reasoned internally that it was feasible for the museum to pursue LEED® Gold.

It is no surprise that the initial impetus for a new art museum to seek LEED® Gold occurred in Grand Rapids. The area already has a rich concentration of over 30 LEED® registered projects, which qualifies it as one of the most LEED-conscious regions in the country. Western Michigan is home to world-renown furniture companies including Steelcase, Herman Miller, Knoll, and Haworth, all pioneer thought leaders in and practitioners of environmentally sensitive manufacturing, recycling, and consumer education. Michigan has more waterfront than any other state, and especially in Western Michigan, conservationists have long been proactive in protecting the waterfront in particular and the environment in general. Locally, there is a strong cultural reinforcement of the importance of stewardship of natural resources.

"We are delighted to be a symbol of culture and community pride at the heart of Grand Rapids. With our central location, we seek to energize residents about both art and the environment," notes Museum Director Celeste Adams.

FINANCING

The museum's capital campaign raised \$76+ million in pledges from 38 foundations, 75 corporations, and 1100 individuals, and \$10 million in Series B bonds. The GRAM received \$100,000 from the The Kresge Foundation through its Green Building Initiative.



MUSEUM RECEPTION & STAIR

Photo ©2007 Kulapat Yantrasast

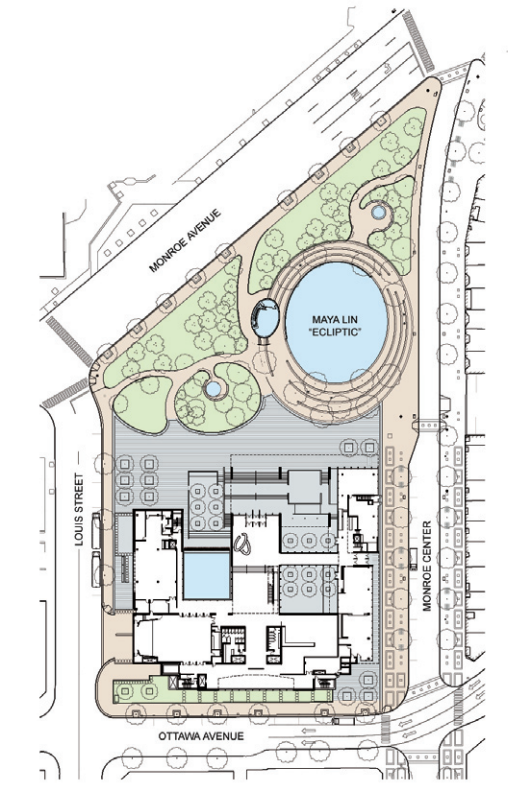
Land Use & Site Sustainability

The new museum stands adjacent to Rosa Parks Circle, and completes the renewal of this 148,000sf block in downtown Grand Rapids, where it replaced a surface parking lot. The site was the distinct first choice (of six sites considered) for the new building, prized for the opportunities it presented to transform the city center, and capitalize on the proximity of the park, which offers an ice skating rink in winter. Under the building's north portico, museum and park fuse to provide an outdoor space for environmental education programs, festivals, and other activities in every season.

GRAM is readily accessible via city bus, at the center of the downtown business district within a four-block walk of most major office buildings. The museum accommodates storage racks for ten bicycles, and changing rooms for employees. Five parking structures exist within a one block vicinity, so no additional public parking was built. The museum installed snowmelt coils beneath sidewalks along streets bounding the site to promote walking. Since the museum's opening, Louis Street to the south has been re-energized and sees substantially increased foot traffic.

Trees and plantings were chosen for their native or adaptive qualities, and are zoned to take on the character of the season. Irrigation is timed and can be monitored and adjusted to reflect spot conditions. Stormwater runoff is collected and stored in cisterns which form the core of the museum's grey water system.

Very early in the design process, a green roof was deemed incompatible with building requirements; however, the museum achieves other heat island reductions through the use of a white roof and the selection of light colored exterior paving materials. Since all parking is achieved underground and off site, the museum achieves heat reduction credit 7.1.



SITE PLAN

Drawing ©2007 wHY Architecture

LEED-NC VERSION 2.1: SUSTAINABLE SITES

PT CREDIT NAME & NUMBER

- Y** Erosion & Sedimentation Control (Prerequisite)
- 1** Site Selection (Credit 1)
- 1** Development Density (Credit 2)
- 1** Alternative Transportation - Public Transport Access (Credit 4.1)
- 1** Alternative Transportation (Bicycle Storage/Changing Rooms) (Credit 4.2)
- 1** Alternative Transportation (Credit 4.4) (Parking Capacity/Carpooling)
- 1** Stormwater Management (Credit 5.1) (Rate and Quantity)
- 1** Landscape & Exterior Design to Reduce Heat Islands, Non-Roof (Credit 7.1)
- 1** Landscape & Exterior Design to Reduce Heat Islands, Roof (Credit 7.2)

8 TOTAL POINTS (OF POSSIBLE 14)

Water Efficiency



SOUTH COURTYARD REFLECTING POOL SUPPLIED BY SITE-COLLECTED GREY WATER

Photo ©2007 Steve Hall, Hedrich Blessing

LEED-NC VERSION 2.1: WATER EFFICIENCY

PT CREDIT NAME & NUMBER

- 1 Water Efficient Landscaping - Reduce by 50% (Credit 1.1)
- 1 Water Efficient Landscaping - (No Potable Use or No Irrigation) (Credit 1.2)
- 1 Innovative Wastewater Technologies (Credit 2)
- 1 Water Use Reduction (Credit 3.1) (Reduce by 50%)
- 1 Water Use Reduction (Credit 3.2) (Reduce by 30%)

5 TOTAL POINTS (OF POSSIBLE 5)

GRAM relies on a grey water collection and storage system. Cistern tanks are sized to store runoff water equivalent to a 'one hundred year' storm.

Water is captured from the roof and stored in cisterns. Located in the garage, the cisterns are 15' tall each, with a combined capacity of 19,000 gallons. The grey water is used by the reflecting pool and water wall in the pocket park next to the entrance, to irrigate plants and trees on the site, and for toilet flushing.

By reusing collected rainwater in this way, GRAM estimates it will reduce its demand for city-treated water by 20%. City water enters the system only when there is not enough rainwater stored. Together, these measures also afforded the GRAM a LEED® water use reduction credit of 40%.

**HEATING, VENTILATION &
AIR CONDITIONING**

Given the delicate nature of fine art, and the imperative to keep museum temperature and humidity tightly controlled (the optimum relative humidity is 50%, and the temperature setpoint is 72°F), one early concern was how to meet indoor air quality standards and reduce energy consumption. Several concepts for gaining heating and ventilation and cooling efficiencies were vetted and abandoned, generally out of aesthetic or cost concerns. These included an underground heat sink labyrinth system for pre-tempering outside air, solar walls, and photovoltaic cells embedded in a glass canopy.

The chosen system of displacement ventilation meets ASHRAE 55 standards, in accordance with LEED® guidelines. In the lobby and galleries, air is discharged at low velocities from the floor, so supply air does not need to be as cold (generally, 65° v. 55° F) as with other systems, and supply fans consume less energy. Most cooling occurs just above the floor, where the people are. Evaporative cooling lowers the air temperature of the outdoor air to make it more effective for use as condenser air, removing the heat from the refrigerant cooling cycle, there by averting the need for a rooftop cooling tower. Secondary spaces (storage, toilets, etc.) are exhausted to the outdoors through heat recovery units which pre-heat outdoor air used for ventilation, per the building code.

Energy recovery wheels preheat and precool outside / fresh air using exhaust air. It is more effective than fixed exchangers which are also used in air handling units at the GRAM which do not use outside air. Energy recovery wheels get more cost effective as they get bigger. Fixed exchangers mostly transfer sensible heat (they work mostly in the winter) while wheel exchangers transfer both sensible and latent heat (they take humidity out of the air during the summer).

LIGHTING

A second imperative in housing and displaying fine art is to control the quantity of natural light to which art pieces are exposed. Too much natural light is as hazardous to art as are too much heat or humidity. The challenge for the design team became how to capitalize on the building's footprint and massing (which maximized exterior walls) and the site's openness (facing a park) to harness natural

**MAIN GALLERIES**

Photo ©2007 Scott McDonald, Hedrich Blessing

**LEED-NC VERSION 2.1:
ENERGY & ATMOSPHERE****PT CREDIT NAME & NUMBER**

- Y** Fundamental Building Systems Commissioning (Prerequisite 1)
- Y** Minimum Energy Performance (Prerequisite 2)
- Y** CFC Reduction in HVAC&R Equipment (Prerequisite 3)
- 1** Optimize Energy Performance (Credit 1)
- 1** Additional Commissioning (Credit 3)
- 1** Ozone Depletion (Credit 4)
- 1** Measurement & Verification (Credit 5)

9 TOTAL POINTS (OF POSSIBLE 17)

light, which is generally the most pleasant to be in, while not creating conditions that are inherently harmful to displaying art.

Relying on the building's sections to discover how best to harmonize the requirements for art display, aesthetics, and LEED® Gold, the team determined two principal means for admitting daylight: 'lanterns' atop the three main gallery spaces, and triple glazing shaded by louvers in the lobby and circulation spaces.

In the museum's main windows (Figure 1, page 9), daylight enters the building through a series of fixed aluminum louvers. Between layers of glass, Argon gas refracts a portion of light waves from the building interior.

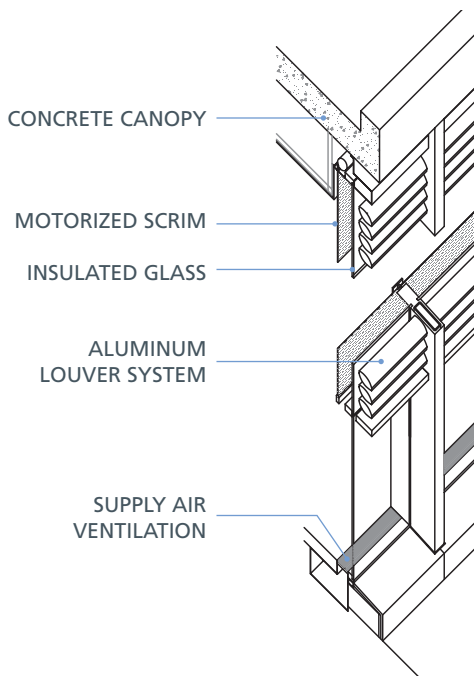


FIGURE 1: SECTION AT CURTAIN WALL GLAZING
Diagram ©2008 wHY Architecture

Atop the galleries (Figure 2, at right) light enters the three lanterns on all sides, through louvers between sheets of glazing. Inside the building, operable blinds enable further control over the admission of daylight.

Although museum lighting is exempt under ASHRAE, GRAM lighting design conforms to control and energy consumption standards of ASHRAE 90.1. Indirectly, the lighting load was reduced to suit the indirect heating system.

While not the most energy efficient, spotlights are tungsten source, due to their good colour

rendering and dimming capability. In areas where high light levels were required, lighting was supplemented with more efficient metal halide or fluorescent lamps.

Although the fittings could take 250W PAR lamps, through mock-ups the team discovered that museum requirements could be met with PAR halogen lamps ranging from 75 to 100W. This enabled specifying the precise wattage needed, as opposed to a more common practice of specifying more wattage than needed and scrimming down light levels to achieve the desired effect.

Together, the HVAC and lighting systems and efficiency measures are designed to yield a 34% cost savings (and 30% less energy consumed) when compared with a baseline building. All fittings are 'local' US products.

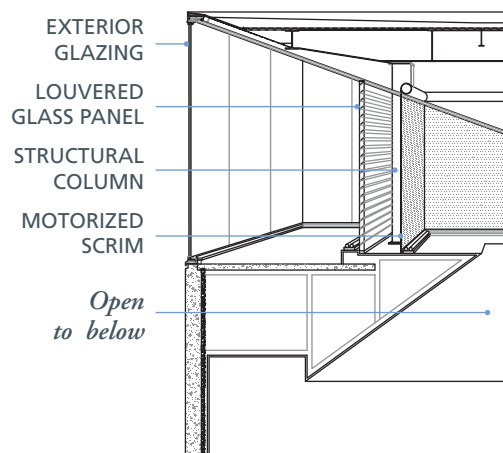


FIGURE 2: SECTION AT LANTERN GLAZING
Diagram ©2008 wHY Architecture



GRAM AT NIGHT
Photo ©2007 Alexander Paschka

Materials & Resources



CONCRETE POUR

Photo ©2007 Kulapat Yantrasast

The design team aggressively pursued using as many recycled and locally produced materials in the building as were aesthetically and economically feasible.

RECYCLED MATERIALS

GRAM earned a 20% credit for recycled building materials used in this project (see table below). Many of the materials can be recycled again.

Although The City of Grand Rapids already has progressive trash collection and recycling policies which make it relatively convenient for institutions and citizens to participate, throughout the construction on this project, the contractor practiced careful sorting, disposal and materials management.

LOCAL MATERIALS

A key driver of energy consumption and equipment emission in nearly any construction project is the transport of building materials to the site. The design team identified significant materials options that were sourced and produced within 500 miles of the site. GRAM earned a 'local materials' credit for over 58% of materials from appropriate sources.

RECYCLED MATERIALS

MATERIAL	COST
Rebar	\$ 873,089.00
Structural Steel	\$ 508,133.10
Concrete	\$ 342,911.00
Insulation	\$ 229,312.18
Gypsum Drywall	\$ 226,180.00
Metal Panels	\$ 197,175.00
Acoustical Ceiling	\$ 196,827.26
Raised Flooring	\$ 113,414.00
Hardware	\$ 92,585.00
Toilet Partitions	\$ 59,857.00
Masonry	\$ 57,334.00
Metal Doors & Frames	\$ 42,741.00
Landscaping	\$ 36,429.14
Roofing	\$ 31,297.00
Overhead Doors	\$ 27,452.19
Wood Doors	\$ 22,834.00
Fireproofing	\$ 18,802.00
Millwork & Custom Casework	\$ 16,889.88
Carpet & Resilient Flooring	\$ 16,875.00
Bath Accessories	\$ 15,035.00
Ceramic Tile	\$ 12,697.00
Windows	\$ 11,800.00
Tackboards	\$ 8,600.00

RECYCLED MATERIALS, VALUE	\$3,130,537.75	20.56% RECYCLED
ALL MATERIALS, TOTAL VALUE	\$ 8,057,140.99	

LEED-NC VERSION 2.1: MATERIALS & RESOURCES

PT CREDIT NAME & NUMBER

- Y** Storage & Collection of Recyclables (Prerequisite 1)
- 1** Construction Waste Management Divert 50% (Credit 2.1)
- 1** Construction Waste Management Divert 75% (Credit 2.2)
- 2** Recycled Content - Specify 5% & 10% Post-consumer & Post-industrial (Credit 4)
- 2** Local / Regional Materials - of 20% above, 50% harvested locally (Credit 5)

6 TOTAL POINTS (OF POSSIBLE 13)



ENTRANCE TO BOOK & GIFT SHOP

Photo ©2007 Chris Barrett, Hedrich Blessing

REGIONAL MATERIALS

MATERIAL	COST
Concrete	\$ 1,147,638.00
Rebar	\$ 779,273.00
Structural Steel	\$ 506,488.10
Glass & Glazing	\$ 398,667.00
Insulation	\$ 337,742.00
Wood Flooring	\$ 272,397.00
Gypsum Drywall	\$ 237,606.00
Metal Panels	\$ 197,175.00
Fluid Applied Flooring	\$ 160,582.00
Acoustic Tile	\$ 156,457.26
Raised Flooring	\$ 113,414.00
Landscaping	\$ 80,012.53
Masonry	\$ 75,234.00
Doors & Frames (Metal)	\$ 42,741.00
Toilet Partitions	\$ 32,125.00
Loading Dock Equipment	\$ 29,264.85
Overhead Doors	\$ 27,452.19
Roofing	\$ 26,274.00
Hardware	\$ 24,289.00
Doors & Frames (Wood)	\$ 22,834.00
Fireproofing	\$ 19,872.00
Painting	\$ 17,600.00
Windows	\$ 11,800.00
Tackboards	\$ 8,600.00
Stains, Lacquers and Sealers	\$ 6,431.00
Sealants and Caulking	\$ 3,000.00
Finish Carpentry	\$ 1,524.00
Trash Receptacles	\$ 1,245.50

LOCAL / REGIONAL MATERIALS, **VALUE**

\$ 4,737,738.43

58.8% REGIONAL

ALL MATERIALS, **TOTAL VALUE**

\$ 8,057,140.99

Indoor Environmental Quality

Although museum-specific HVAC and lighting requirements are stringent and somewhat challenging to reconcile with LEED® standards using conventional means, indoor air and environmental quality standards for museums dovetail very well with LEED® requirements. Both standards strictly preclude smoking in all areas of the building.

The museum's ventilation system incorporates carbon dioxide (CO₂) controls to track continuously the levels of CO₂ present in the building, and trigger the ventilation system to admit more new outside air as needed.

The museum makes extensive use of materials certified as 'Low-Emitting,' including 29 adhesives, 6 paints, 3 types of carpeting, and 4 types of wood and agrifiber products. The overall levels of volatile organic compounds (VOC g/l) actually specified are less than one-quarter the allowable levels under LEED® certification standards.

LEED-NC VERSION 2.1: INDOOR ENVIRONMENTAL QUALITY

PT CREDIT NAME & NUMBER

- Y** Minimum IAQ Performance (Prerequisite)
- Y** Environmental Tobacco Smoke Control (Prerequisite)
- 1** Carbon Dioxide (CO₂) Monitoring (Credit 1)
- 1** Construction IAQ Management Plan During Construction (Credit 3.1)
- 1** Low-Emitting Materials, Adhesives & Sealants (Credit 4.1)
- 1** Low-Emitting Materials, Paints (Credit 4.2)
- 1** Low-Emitting Materials, Carpet (Credit 4.3)
- 1** Low-Emitting Materials, Composite Wood & Agrifiber (Credit 4.4)
- 1** Indoor Chemical & Pollutant Source Control (Credit 5)
- 1** Thermal Comfort, Comply with ASHRAE 55-1992 (Credit 7.1)
- 1** Thermal Comfort, Permanent Monitoring System (Credit 7.2)

9 TOTAL POINTS (OF POSSIBLE 15)



AUDITORIUM

Photo ©2007 Steve Hall, Hedrich Blessing

Innovation & Design Process



FOUR SALVAGED BOXES Exhibit currently at GRAM
Photo ©2007 Kulapat Yantrasast

GRAM is deeply committed to leading by example in Grand Rapids, and among museums everywhere. In preparation for the museum's opening, GRAM officials spoke extensively in the community, emphasizing aspects of the museum which focus on its sensitivity to the environment, and the process of seeking LEED® Gold Certification. Currently on view at the museum is 'Four Salvaged Boxes,' an exhibit showcasing the approach and process of designing a new art museum with the added challenges of being most energy efficient and friendly to the environment.

The design of the open portico reaching into the year-round park affords an excellent venue for educational activities for adults and children. Saturday morning programs and guided tours are available to groups and individuals by request.

The museum created an entire branding campaign, "eARTh friendly," which showcases the interconnectivity between the earth and art. This message is applied extensively in publications and merchandise in the museum book and gift shop.

LEED® Accredited professionals on the project covered many disciplines. They included: Ryan Garone and Matt Heidloff of Design+, Debra Syplen of Rockford / Pepper Construction, and Steve Koenig of Jacobs Carter Burgess.

GRAM policies for maintenance and housekeeping are highly commensurate with 'green' housekeeping principles. Paper products used for cleaning are recycled. Cleaning chemicals have the green seal of approval, and dispersal systems to eliminate waste. Hardware used by cleaning personnel is optimized to protect air quality, and minimize water consumption and noise levels.

LEED-NC VERSION 2.1: INNOVATION & DESIGN PROCESS

PT CREDIT NAME & NUMBER

- 1** Innovation in Design
Exemplary Performance WEc3
(Credit 1.1)
- 1** Innovation in Design
Exemplary Performance
(Credit 1.2)
- 1** Innovation in Design
Educational Programs
(Credit 1.3)
- 1** Innovation in Design
Green Housekeeping
(Credit 1.4)
- 1** LEED Accredited Professional
(Credit 2)

5 TOTAL POINTS (OF POSSIBLE 5)

TOTAL POINTS SOUGHT ACROSS SIX LEED® CATEGORIES = 42



LANTERN GLASS INSTALLATION

Photo ©2007 Thomas Calmeau

Trustees & Capital Committees

BOARD OF TRUSTEES

PRESIDENT

Michael Ellis

VICE PRESIDENT

Scott Wierda

SECRETARY / TREASURER

Charles Stehouwer

Mimi Amash

Doris Anderson

Kenyatta Brame

Marilyn Crawford

Judith A. DeLapa

Pamella DeVos

Marilyn Q. Drake

Mary Nelson

Carl Oosterhouse

Douglas Padnos

Bette Sebastian

James Stokes

Daniel Terpsma

Mark J. Wassink

FOUNDATION TRUSTEES

PRESIDENT

John Canepa

SECRETARY / TREASURER

Charles Stehouwer

Samuel Cummings

John Drake

Michael Ellis

Barbara Jackoboice

Lauretta Murphy

Peter M. Wege, II

Sean P. Welsh

MUSEUM DIRECTOR

Celeste Adams

Ex-Officio

HONORARY LIFE TRUSTEES

Margaret Bradshaw

Anita Carter

Peter C. Cook

David G. Frey

Mary Ann Keeler

Luci King

Sylvia Krissoff

Mary Loupee

Fred Meijer

Peter Wege

Kate Pew Wolters

CAPITAL CAMPAIGN COMMITTEE

MANAGING CO-CHAIR

Kate Pew Wolters

CO-CHAIRS

Sam Cummings

Pamella DeVos

Hank Meijer

Lewis Chamberlin III

Marilyn Crawford

Michael Ellis

Twink Frey

David Haynes

Barbara Jackoboice

Michael Jandernoa

Fred Keller, Jr.

Jon R. Muth

Douglas B. Padnos

Ellen Satterlee

Charles Stehouwer

William A. Stevenson

Tim Wondergem

CAPITAL CAMPAIGN HONORARY COMMITTEE

HONORARY CO-CHAIRS

Peter M. Wege

Richard DeVos

Lena Meijer

Bert Bleke

Edith I. Blodgett

John & Marie Canepa

Peter C. & Pat Cook

Peter & Gay Cummings

John & Marilyn Drake

Bob & Judy Hooker

David & Marilyn Hunting

Clare & Grace Jarecki

Mary Ann Keeler

Fred & Bernedine Keller

Sam & Jane Kravitz

David & Paula LaClaire

Jack H. Miller

Charles & Stella Royce

Leslie Tassell

Dr. Luis Tomatis & Gretchen Minnhaar

Jay & Betty VanAndel

Lessons Learned



**AERIAL VIEW
MUSEUM + ROSA PARKS CIRCLE**
Photo ©2007 Alexander Paschka

START FROM WHAT IS IMPORTANT.

This new museum began with a deep-seated belief in the profound influence of art, a finely developed conscience toward the environment, and a vision for unifying the two. Despite extraordinarily challenging project conditions – including a complete turnover in design, construction and project management personnel, and budget shortfalls – the overarching vision was kept intact and viable by the team. As the building took form, so did the environmental impact goal evolve, from general (a ‘green building’) to specific (the first museum seeking LEED® Gold certification).

WORK AGAINST THE MYTH.

The prevailing thinking is that the museum building type is anything *but* ‘green,’ given that it is imperative for museums to maintain constant humidity and temperature levels, and admit ‘new’ air all the time. These indoor air quality requirements virtually assure that a museum cannot rely on natural ventilation to the extent that LEED® Certified buildings generally do. Without reaping significant gains in energy system efficiency, the design team esteemed it would be difficult if not impossible to attain a high level of LEED® certification.

To address this need, the GRAM deployed large energy recovery wheels to admit fresh air to the museum. Although not uncommon in other building types, energy recovery wheels were untested in fine art museums, and proved a good fit for this application.

TYPICAL ‘GREEN’ SOLUTIONS ARE OFTEN NOT BEST.

An openness to working ‘against the myth’ often reveals unexpected options. Questioning the appropriateness of prevailing ‘green’ solutions requires a design team to understand a building’s particular requirements deeply, and early on. One possible outcome is that a building does not have to ‘look’ green to ‘be’ green.

An exhaustive investigation of locally available building resources revealed systems and materials options for the GRAM which *do* meet art museum-level aesthetic and performance requirements, and were economical to implement. Our ‘leaving no stone unturned’ increased the level of LEED® Certification which the GRAM could pursue, and best of all, enabled us to further refine our vision for the project.

GRAM

GRAND RAPIDS ART MUSEUM:
SEEKING A FINE BALANCE
BETWEEN
ART & ENVIRONMENT



ENTRY CANOPY (Top)

Photo ©2007 Chris Barrett, Hedrich Blessing

POCKET PARK (Above)

Photo ©2007 Steve Hall, Hedrich Blessing

EAST STAIR (Right)

Photo ©2007 Scott McDonald, Hedrich Blessing



CASE STUDY © 2008 GRAND RAPIDS ART MUSEUM
ALL RIGHTS RESERVED.

GRAND RAPIDS ART MUSEUM
101 MONROE CENTER
GRAND RAPIDS, MICHIGAN 49503
WWW.GRAMONLINE.ORG

CASE STUDY:
DAYNA KIRK, FRONT ROW STUDIO