

GREEN DESIGN

DOWNTOWN INSTITUTE 2010

MAINE DEVELOPMENT FOUNDATION/MAINE DOWNTOWN CENTER

APRIL 9, 2010



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Green Rehab ▶ Overview



"Appropriate treatment of buildings makes them sustainable."

Margaret Gaertner, Barba + Wheelock

"The biggest footprint on this planet is buildings. If you want to be an environmentalist you work on buildings or you work on cars."

David Gottfried, Founder USGBC

Green Rehab ▶ Overview



It takes energy to construct a new building.
It saves energy to preserve an old one.
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Overview ▶ A Common Timeline: A Common Good

Historic Preservation Conservation Movement

Mt. Vernon's Ladies Association: 1853	1848: Olmsted plan for Central Park, NY
Colonial Williamsburg restoration begins: 1926	1872: Yellowstone National Park
Charleston, SC: First Historic District in U.S.: 1931	1885: Adirondacks declared "Forever Wild"
McKim, Mead & White's Penn Station Demolished : 1964	1916: National Park Service established
First Historic Preservation Degree Program established: 1964	1962: Rachel Carson wrote <i>Silent Spring</i>
National Historic Preservation Act of 1966 enacted: 1966	
Grand Central Terminal court battle 1968-1978 (HP as valid as zoning)	1972: Arbor Day enacted
First <i>Preservation Briefs</i> published: 1975	
National Historic Tax Credits: 1976	
State tax credit programs abound: Ongoing	
City of Portland, Maine enacts Historic Preservation Ordinance: 1990	1993: USGBC formed, LEED Certification developed
	2002: <i>Cradle to Cradle</i> , McDonough and Braungart
	2005: Energy Credits?
	2006: <i>An Inconvenient Truth</i> , Gore
Maine State Tax Credit Adopted: 2008	2008: Energy Credits updated

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Overview ▶ Why is this Important?

	Building Reuse/Preservation	Greening/Conservation
<i>Cultural + Social Equity</i>	Saving Places, Communities	Preserving Green Space Healthy Working Environment
<i>Ecology + Environmental</i>	Reducing Landfills	Smaller Carbon Footprint
<i>Economics</i>	Tax Credits Higher Property Values Longterm Investment	Lower Operating Costs Tax Credits Grants

Triple Bottom Line: (USGBC)
People, Planet, Profit

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Overview ▶ Turning Around Downtown

The lure of the suburbs

- LAWNS
- OPEN SPACE
- FREEDOM TO TRAVEL BY CAR

- Christopher Leinberger, *The Brookings Institute*



Overview ▶ Turning Around Downtown

PARADOX of adding more activity to the suburbs

GEOMETRIC INCREASE IN AUTO TRIPS

MORE CONGESTION

POLLUTION

INCONVENIENCE

DESTRUCTION OF THE VERY FEATURES
THAT ENTICED ONE TO THE SUBURBS

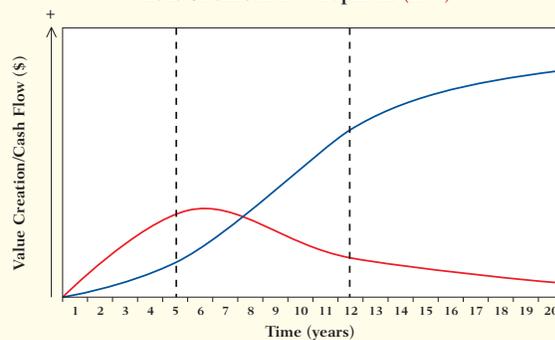
- Christopher Leinberger, *The Brookings Institute*



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Overview ▶ Turning Around Downtown

Figure 1. Financial Characteristics of Downtowns with Critical Mass (Blue) versus Suburban Development (Red)



Source: Christopher B. Leinberger, Arcadia Land Co. and Robert Charles Lesser & Co.

DOWNTOWN DEVELOPMENT

Higher development costs =
Financial returns less in early years

Build downtown for a
mid- to long-term return

Suburban model peaks in
5 to 7 years = less sustainable

- Christopher Leinberger, *The Brookings Institute*

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Overview ▶ Pre-1800 - 1945: First Period to WWII

■ Heating Individual Rooms

■ Natural Cooling

Cross Ventilation

Monitors/Stack Effect

■ Climate Responsive Elements

Shutters

Deciduous Trees / Street Trees

Porches

■ Walkable Communities



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Overview ▶ 1946-1973: Post WWII to Pre-Oil Embargo

■ Mechanical Ventilation

■ Electrical Lighting

High energy consumers

Limited natural climate responsive elements

Car dependent





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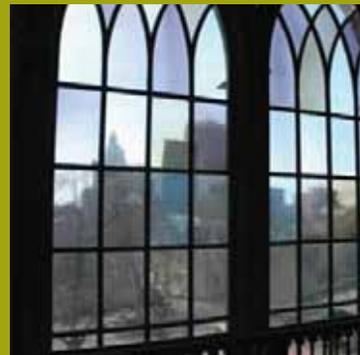
What to Do? ▶ Philosophies

Preservation Philosophy

- Repair
- Rehabilitate
- Replace

Green Philosophy

- Reduce
- Reuse
- Recycle



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What to Do? ▶ Think Local

- Reduce material needs, transport, etc.
- Labor intensive as opposed to material intensive
- Economic Sustainability



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What to Do? ▶ Follow LEED Process



NC - New Construction

Major renovation if replace the mechanical system or alter/add more than 50% of total building floor area

EB - Existing Buildings

Existing buildings and facility alterations and additions for commercial, institutional or high-rise residential buildings

IC - Innovative Credits

LEED-NC: Innovation in Design

Design or Exemplary Performance

LEED-EB: O&M: Innovative in Operations

Exemplary performance or upgrade not covered in EB:O&M

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What to Do? ▶ Do Your Homework and Plan Ahead

Conditions Report

Energy Audit

Energy Modelling

Maintenance Plan

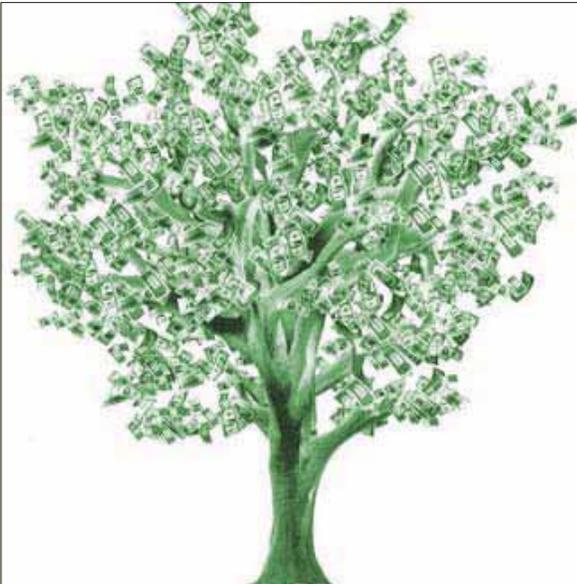


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Green Rehab ▶ How to Fund It

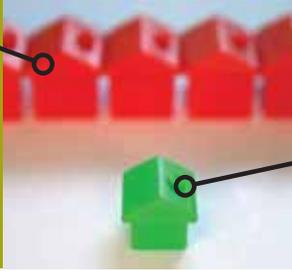


"It's always about money."
David Gottfried, Founder USGBC

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How To Fund It ▶ First Cost vs. Payback

- Green materials are more affordable
- Preservation is all about retaining original durable materials with long life spans
- Plan ahead / Early design decision
- Case by case analysis
 - Changing economic and political climate creating shorter payback times through rebates and incentives



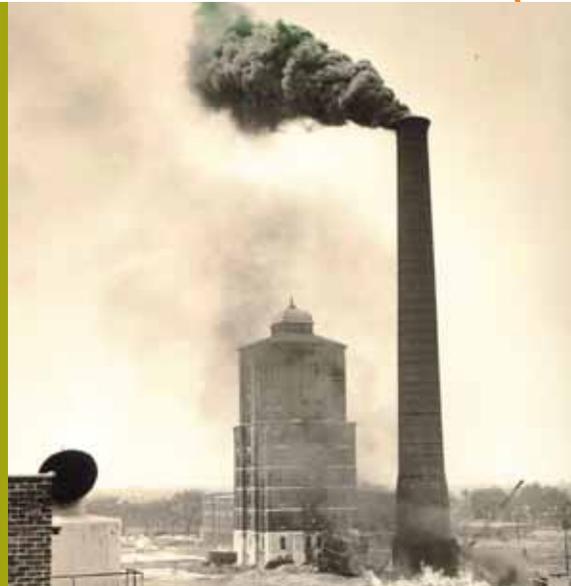
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How to Fund It ▶ Environmental Cost

Consider That:

- Creating electricity uses Nuclear, Coal, Oil
- Total Carbon Footprint includes upstream impacts
- Cost to the Environment
- Reducing use is almost always an option



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How to Fund It ▶ Funding Sources



Tax Credits for Historic Preservation
Certified

Tax Incremental Financing (TIF)

New Market Tax Credits

Local Initiatives
Facade grants
Collective utilities

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How to Fund It ▶ Trends in Funding and Regulation

"Follow the Green Wave of the Future..."

- More Green Tax Credits
- More Green Grants
- Maine State Tax Credits Until 2013
- City of Portland - all new municipal-owned property needs to follow LEED standards for new construction



Historic Preservation

Money 20% Federal Certified or
20% State of Maine
10% Housing Project
Historic Preservation Grants
Facade Grants

Review Maine Historic Preservation
Commission
National Park Service

Fame Certified Tax Credit Project
Marketing/Cache

Other Press
Local and State Awards

Green

Grants (partial to 100%)
Low interest/No Down Payment Loans
Tax Credits/Incentives
Cash Rebates - Efficiency Maine

USGBC
Efficiency Maine
LEED Certified
Platinum, Gold, Silver, Certified

Marketing/Cache

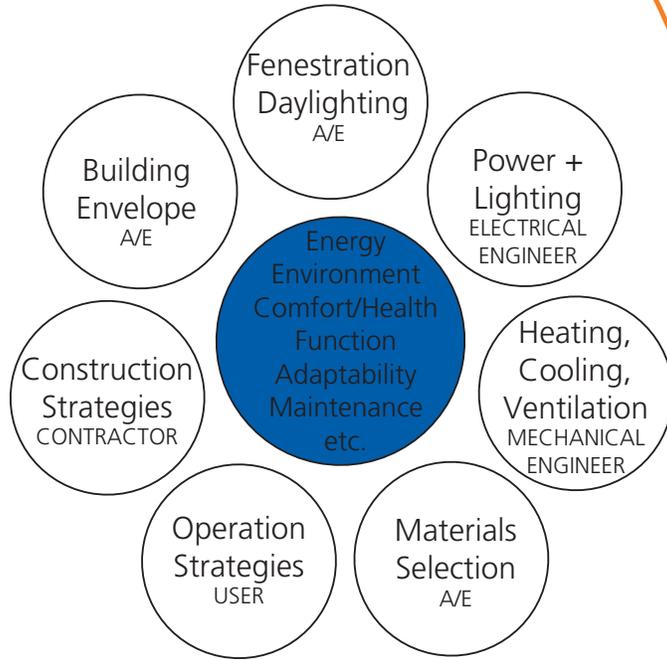
Press
Maine Chapter USGBC Awards

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Green Rehab



How To Do It ▶ Integrated Design

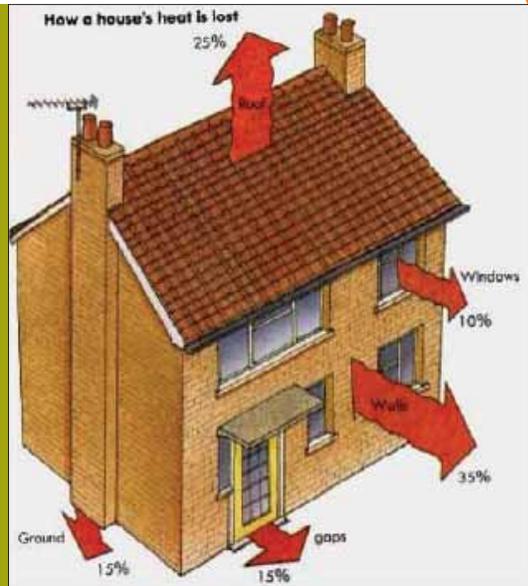


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How To Do It ▶ Data Collection/Baseline

- Measured Drawings
- Energy Audit/Thermal Imaging
- Survey of Thermal Envelope
 - Non-Destructive Testing
 - Selective Removals
- Identify Character Defining Elements and Preservation of Sense of Place
- Energy modelling



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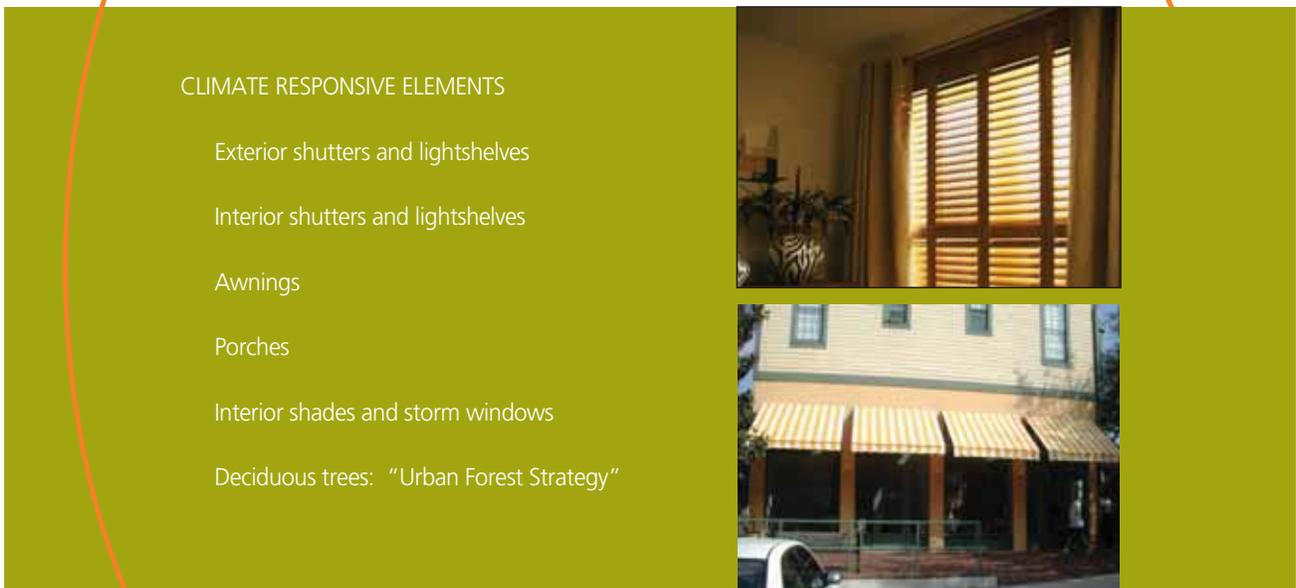
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How To Do It ▶ Preservation and Green Rationale Opportunities



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How To Do It ▶ Preservation and Green Rationale Opportunities



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How To Do It ▶ Final Recommendations



Develop a strategy for Green and Rehab

Use report to approach funding sources

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Conclusion ▶ Contact Us



ARCHITECTURE, PRESERVATION + DESIGN

New Construction, Existing Buildings

Historic Preservation and Sustainable Design

PORTLAND, MAINE

207-772-2722

WWW.BARBAWHEELLOCK.COM

BARBA_CENTRAL@BARBAWHEELLOCK.COM

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