Better Buildings®
U.S. DEPARTMENT OF ENERGY

Adaptive Reuse: Reimagining Existing Buildings

Better Buildings Summit

May 27-29, 2015

U.S. DEPARTMENT OF ENERGY

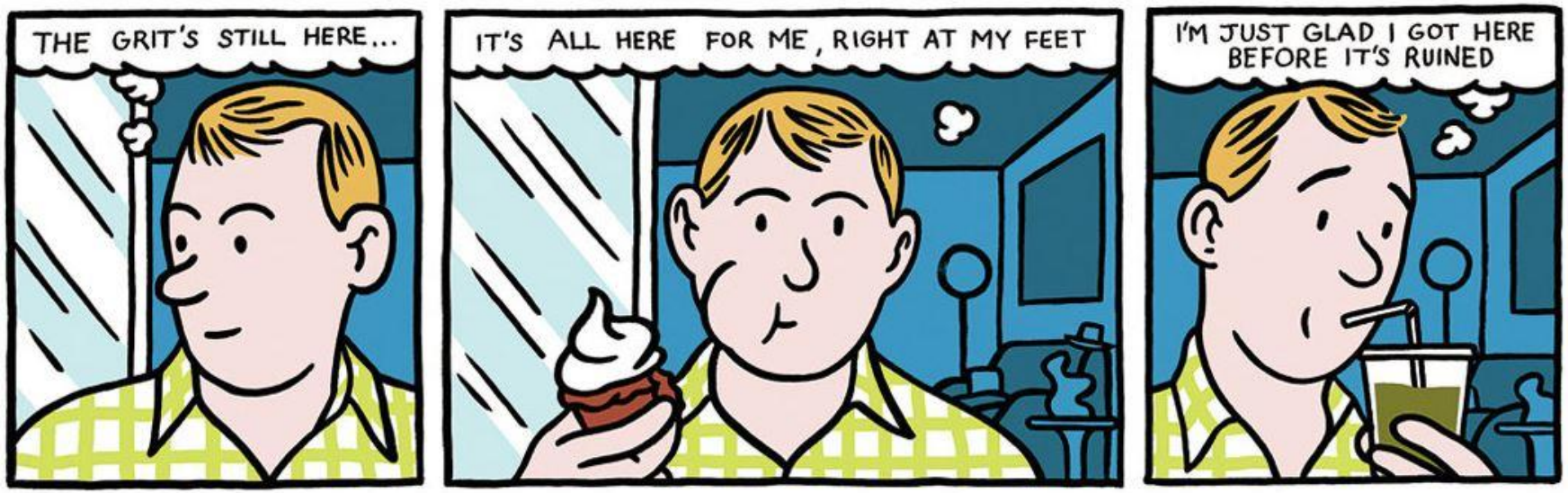
NH&RA | NATIONAL HOUSING & REHABILITATION ASSOCIATION

Sustaining Our Future By Preserving Our Past

Adaptive Reuse of Historic Properties

Peter Bell
President & CEO of NH&RA

New York Times Magazine "His New 'Old New York' Neighborhood" By Pete Gamlen



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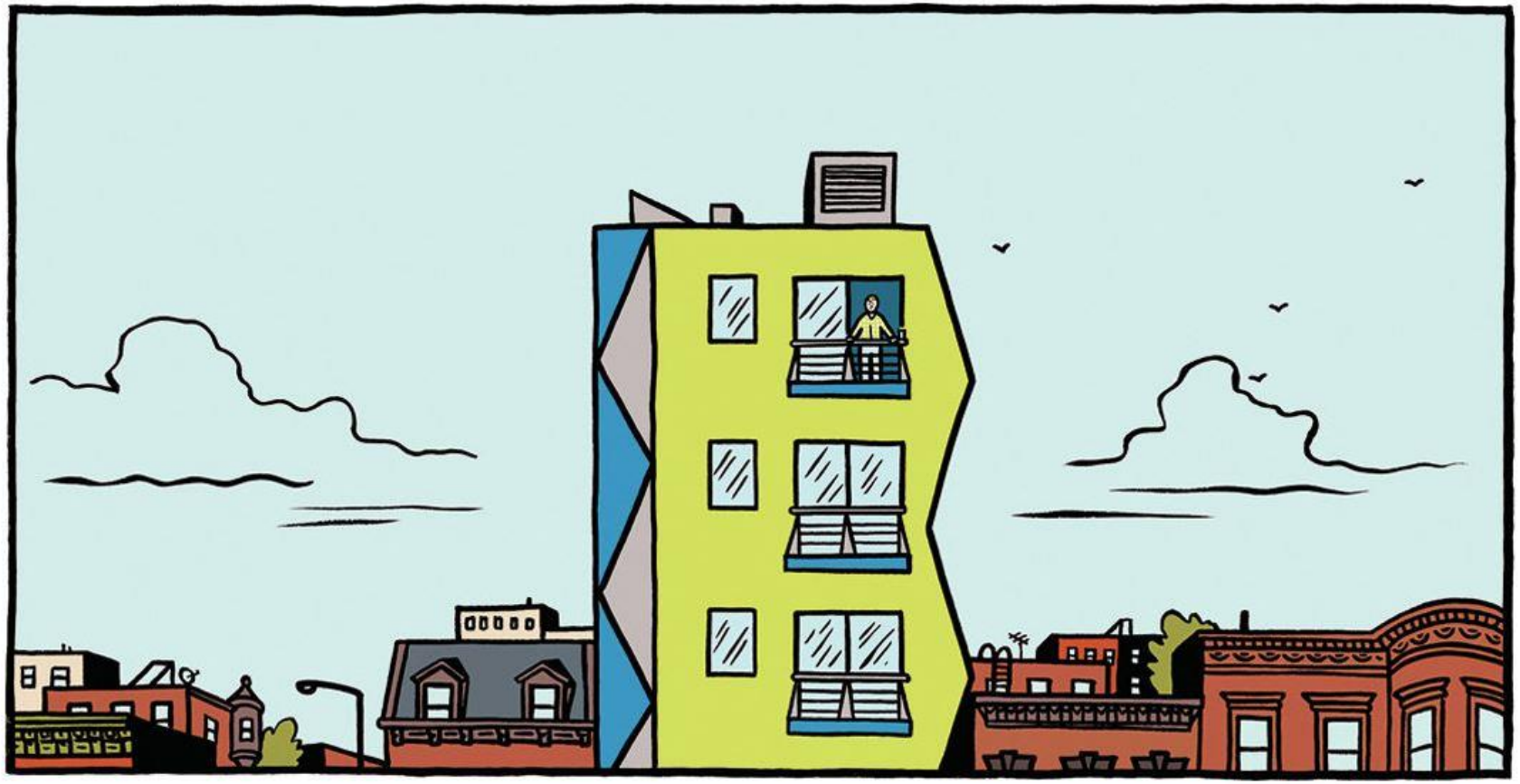


New York Times Magazine "His New 'Old New York' Neighborhood" By Pete Gamlen

J. Timothy Anderson

- Pioneer of adaptive reuse
- Transformed Boston's waterfront
- First school-to-residential conversion
- Professor at Boston University

The Timmy Awards

- Awards for Excellence in Historic Rehabilitation
- 5 categories
  - Best Commercial/Retail/Non-Residential Project
  - Best Historic Rehab Utilizing LIHTCs – Small
  - Best Historic Rehab Utilizing LIHTCs – Large
  - Best Historic Rehab Utilizing New Markets Tax Credits
  - Best Market-Rate or Mixed-Income Residential
- 4 judges' awards

- Judged based on:
  - Overall design and quality
  - Interpretation and respect of historic elements
  - Market/financial success
  - Innovative approach to construction and use of building materials
  - Community impact
  - Sustainability
- 11th Annual Awards
- Submissions due July 31

Central Grammar Apartments

Central Grammar Apartments

- Constructed in 1889 as high school
- Became grammar school in 1940
- Abandoned in 1971
- Tim Anderson designed 1975 adaptive reuse
- $1,800,000 to convert school into 80 units for elderly

Central Grammar Apartments

- $7 million renovation in 2012
- 80 affordable units for elderly residents
- Updated mechanical systems, windows, roofing, skylights, site drainage, bathrooms, kitchens, and hallways

First Ward School Apartments

First Ward School Apartments

- Elkins, WV
- Constructed in 1908
- 70 years as school
- 30 years as storage for county school board

Before

Before

After

After

After

First Ward School Apartments

- $3.7 million
- 16 affordable units
- Funding sources:
  - LIHTC
  - Federal and state historic tax credits
  - General partner equity
- 2013 Timmy Award for Best Historic Rehab Utilizing LIHTCs

Lafayette Place Lofts

Before

Lafayette Place Lofts

- Pontiac, MI
- Constructed in 1928/1929
- Sears, Roebuck & Company department store
- Sat empty for decades
- $19.2 million historic rehab project
- Won 2013 Timmy Judges Award for Achievement in Sustainability

Before

Before

After

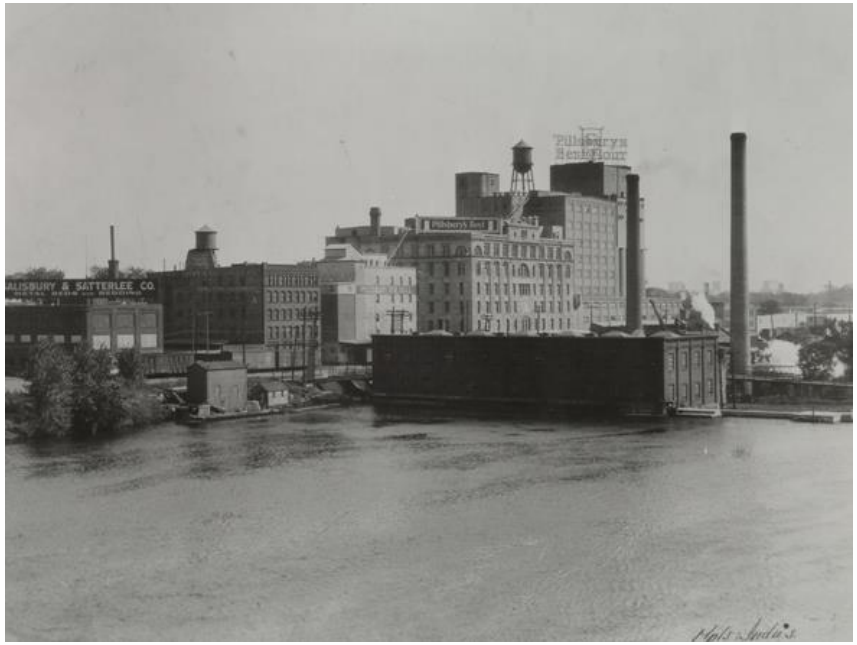
Lafayette Place Lofts

- 30 affordable, 16 market-rate units
- First fresh market and fitness center for area in 40+ years
- LEED Platinum-certified

After

A-Mill Artist Lofts

A-Mill Artist Lofts

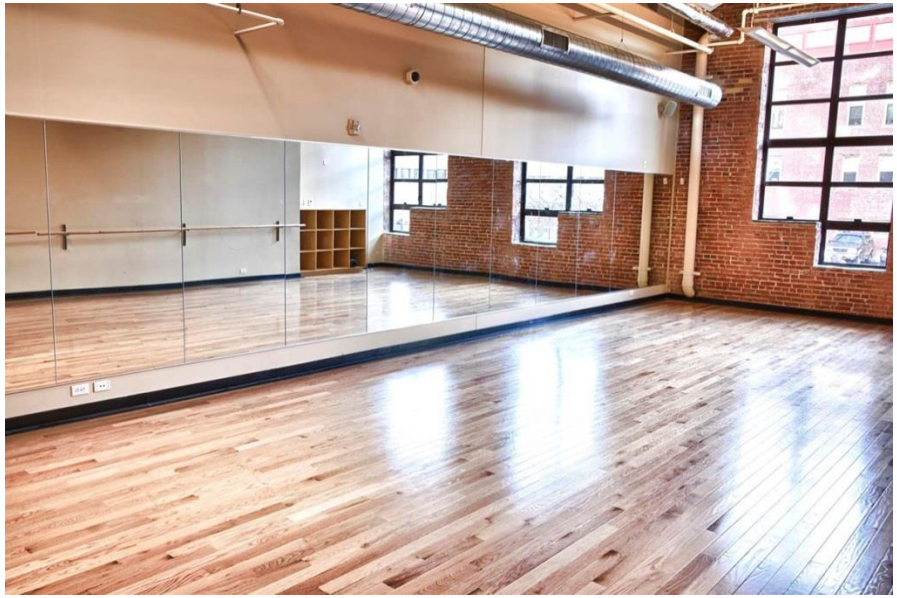


- Pillsbury A-Mill served as the largest flourmill in the world for 40 years
- Hydropower in the area since the mid-1800's
- A-Mill utilized water rights 1856-1956
- Shuttered in 2003

Before

Before

Pillsbury A-Mill Complex



- $156 million
- 251 affordable artist apartments
- 70% of building energy met by hydroelectric power
- Galleries, artist studios, culinary kitchen, dance studio, performance center
- Fitness center, yoga studio

After

After

Oliver Lofts

- Boston, MA
- 1892: Constructed as brewery bottling and storage facility
- R and S Pickle factory
- 2 historic interconnected mill buildings

Oliver Lofts

After

Before

After

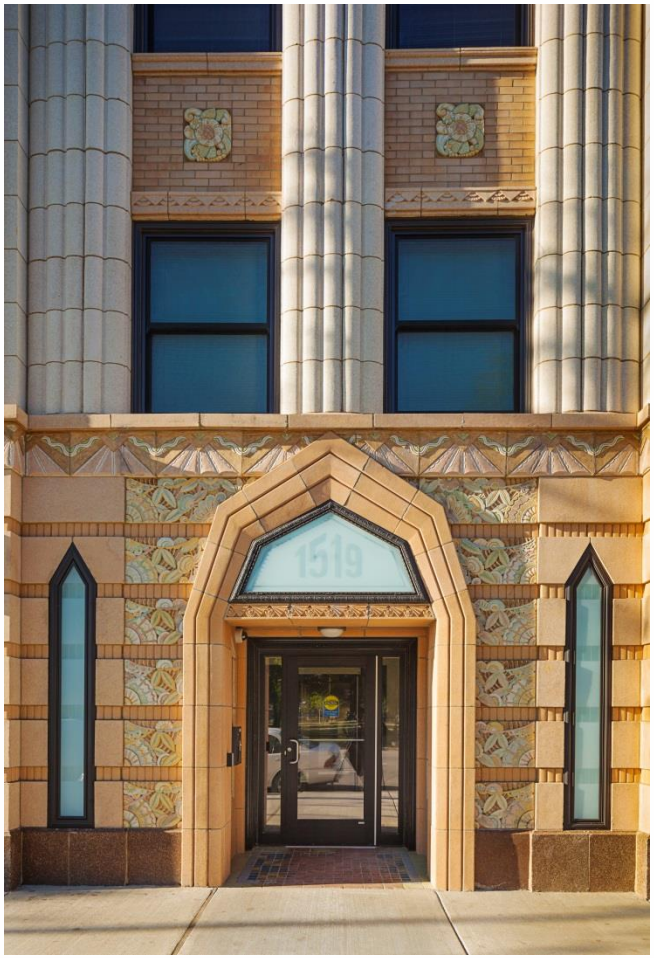
Oliver Lofts

- $24.8 million
- 62 affordable and market-rate apartments
- LEED Platinum
- 2012 Timmy Judges Award for Achievement in Sustainability

Harvest Commons Apartments

historic photograph c. 1933

Harvest Commons Apartments



- Built 1929 as Union Park Hotel
- Converted to SRO
- Fell into disrepair and closed
- City sold to Heartland Housing in 2011 for $1

Before

Before

After

After

Harvest Commons Apartments

- Placed in service 2013
- 89 affordable units
- Urban farm
- Training kitchen
- Rooftop solar
- Geothermal heating and cooling
- Solar-thermal domestic hot water system

Challenges of Adaptive Reuse

- Reconciling historic preservation and sustainable design
  - Windows
  - Rooftop solar
  - Materials
  - Emergency egress
  - Interior details

Better Building Challenge

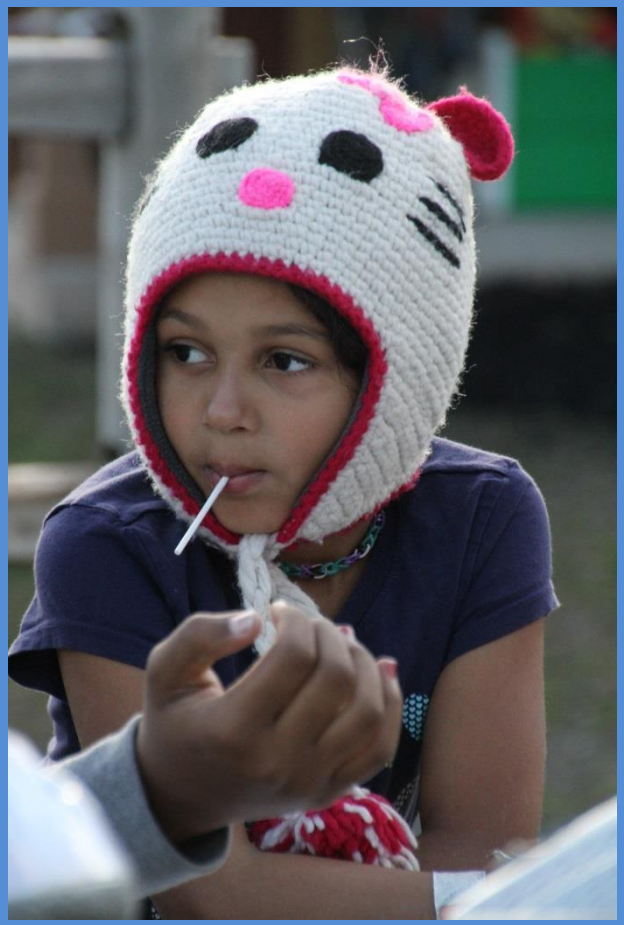
An Adaptive Reuse

Reimagining the Lace Mill as Creative Placemaking

Kevin O'Connor

May 28, 2015

Strengthening Homes, Communities and Lives

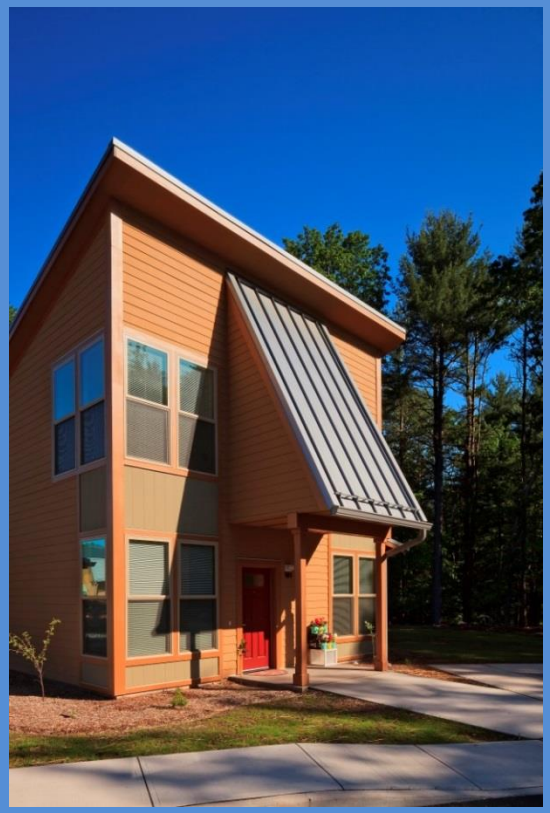


Our mission is to create homes, support people and improve communities.

Our vision is for strong, vibrant communities with opportunity and a home for everyone.

Strengthening Homes, Communities and Lives

Real Estate Development leads the way



Strengthening Homes, Communities and Lives

In 2007, RUPCO joins
US Green Building Council

Strengthening Homes, Communities and Lives

In 2012, RUPCO achieved its Green NeighborWorks designation

Strengthening Homes, Communities and Lives

In 2013, RUPCO was one of only 24 organizations nationwide to first achieve HUD's Sustainable Performance Institute accreditation

Strengthening Homes, Communities and Lives

RUPCO

Also in 2013, RUPCO signed onto the Better Building Challenge as multi-family residential partner

RUPCO

The Lace Mill
An Adaptive Reuse

Strengthening Homes, Communities and Lives

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Strengthening Homes, Communities and Lives

RUPCO

Strengthening Homes, Communities and Lives

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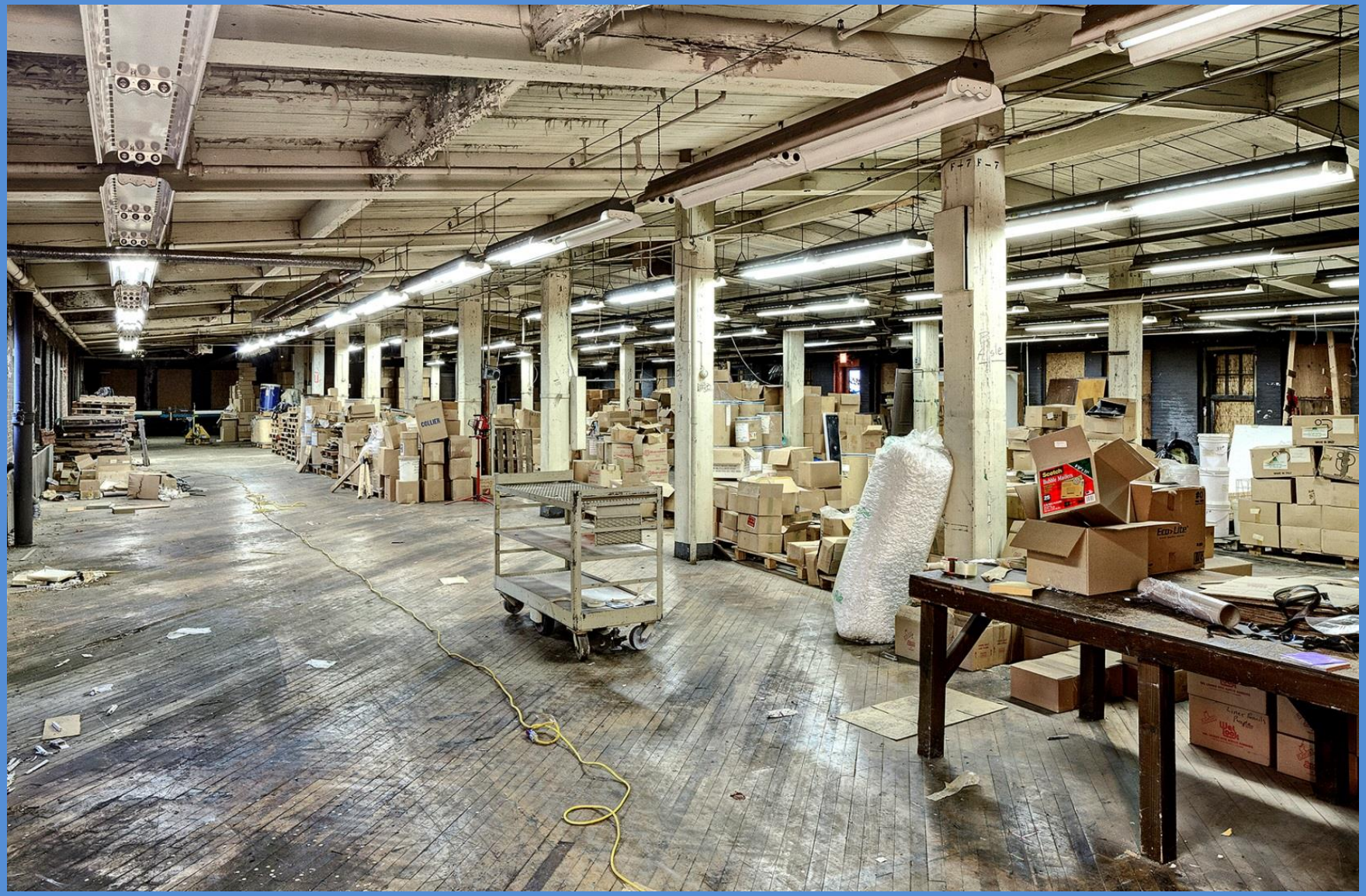

Strengthening Homes, Communities and Lives

Creative Placemaking

- Artplace defines creative placemaking as strengthening the social, physical and economic fabric of a community through arts and culture.

Strengthening Homes, Communities and Lives

Creative Placemaking

- Creating a place where people want to be…where people want to linger.

Strengthening Homes, Communities and Lives

Strengthening Homes, Communities and Lives

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Strengthening Homes, Communities and Lives

Adaptive Reuse Challenges

Involved disciplines:

- Affordable Housing
- Historic Preservation
- Energy Efficiency
- Health, Safety & Comfort
- Building Science

Adaptive Reuse Challenges

Program:

- 55 rental units
- All preferenced for artists
- Community space
- Common gallery & studio space
- BEAHIVE

Adaptive Reuse Challenges

Building Conditions

- Never insulated
- 40-50 year disrepair condition
- Spalling brick, mortar joint erosion
- Bricks exhausted 50% of useful life
- Missing window fabric

Adaptive Reuse Challenges

Historic and Energy

Leave exposed brick because the factory never had interior walls

Energy code exempts historic buildings

NYSERDA creates Energy Smart designation for adaptive reuse

Building Science says:

Evaluate proper amount of insulation to install

More insulation – less heat to brick exterior wall

Adaptive Reuse Challenges

Water Management

Gutters, leaders, cracks

Minimize moisture impact, etc.

Wall Insulation

Optimum: ½” closed cell spray foam

Installed : Rigid foam board

More labor & cost

Achieved R-10 per Building Science recommendation

Policy Consideration: Reconsider reversibility

Adaptive Reuse Challenges

Wall Insulation

Alternative: Parging over brick and installing insulation on outside

Possible to Achieve R-60

R-10: 60-75% better than doing nothing at all

R-10 with Energy Star Windows (R-3)

Results: Not great, very good

Adaptive Reuse Challenges

Tighten Building Envelope, Shell

Greatest energy loss is through air loss
Penetrations to brick sealed

Roof Insulation

On top, limited by parapet wall height
Achieved R-42 - Code is R-49

Under New Slab Insulation

Spray foam
Achieved R-12

Adaptive Reuse Challenges

Ventilation

Heat Recovery Ventilation (ERV)
Achieved 65% more efficiency

HVAC

Water Source Heat Pumps (70 units)
Tempered water loop by HE gas boiler & cooling tower
Premium water pumps
Electric Storage Water Heaters (EF 0.93)

Adaptive Reuse Challenges

Solar

On-roof installation – 160k rated capacity
Estimated power generation: 182,715 kWhr/Yr
Expected to cover 70% of common load

Lighting

More than 60% LED lighting

Appliances

Energy Star

Adaptive Reuse Challenges

Safety

Compartmentalize each living unit through air sealing

Sound

Detenuation from other units, halls common space & exterior including CSX Railroad Line

Permanent Sources of Funding

HFA first mortgage	$ 1,640,000	
LIHTC (4% bond, HFA)	$ 5,437,295	
Federal Historic TC	$ 2,870,508	
NYS Historic TC	$ 1,794,067	
HFA second mortgage	$ 4,368,000	
RUPCO sponsor loan	$ 1,142,787	
$150k Urban Initiatives (HCR)		
$75k Central Hudson Utility		
$100k TD Charitable Foundation		
$200k NeighborWorks		
$16.5k Ulster Savings Bank		
City of Kingston CDBG	$ 100,000	
Deferred Dev. Fee		$ 971,215
GP Capital Fund Reserves		$ 266,888
RUPCO LOC	$ 300,000	
Total:	$18,890,760	

Uses of Funds

Acquisition	$ 1,400,000
Construction	$10,019,500
Contingency	$ 1,520,000
Environ. Remediation	$ 185,000
Developer's Fee	$ 2,240,000
Soft Costs	$ 3,165,249
Cap. Reserves	$ 361,011
Total:	**$18,890,760**

RUPCO

Strengthening Homes, Communities and Lives

The LACE Mill

Architect:
Scott Dutton Associates

Construction Manager:
Affordable Housing Concepts

Energy Consultant:
Integral Building & Design

Historical Consultant:
Heritage Consulting

Syndicator:
National Equity Fund

Lender:
CHASE Bank

Special thanks to:
Mayor Shayne Gallo

Home Matters

Strengthening Homes, Communities and Lives

Bringing Green Home

Kevin O'Connor
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RUPCO

EQUAL HOUSING OPPORTUNITY

Home Matters

NeighborWorks® AMERICA

Find us on Facebook

Strengthening Homes, Communities and Lives

The University of Virginia: Where History and Sustainability Cohabit

Kristine Vey, LEED AP ID+C

Senior Project Manager at the University of Virginia

Agenda

UVA Then & Now

- Historic Context
- Current Stats
- Framework Plan

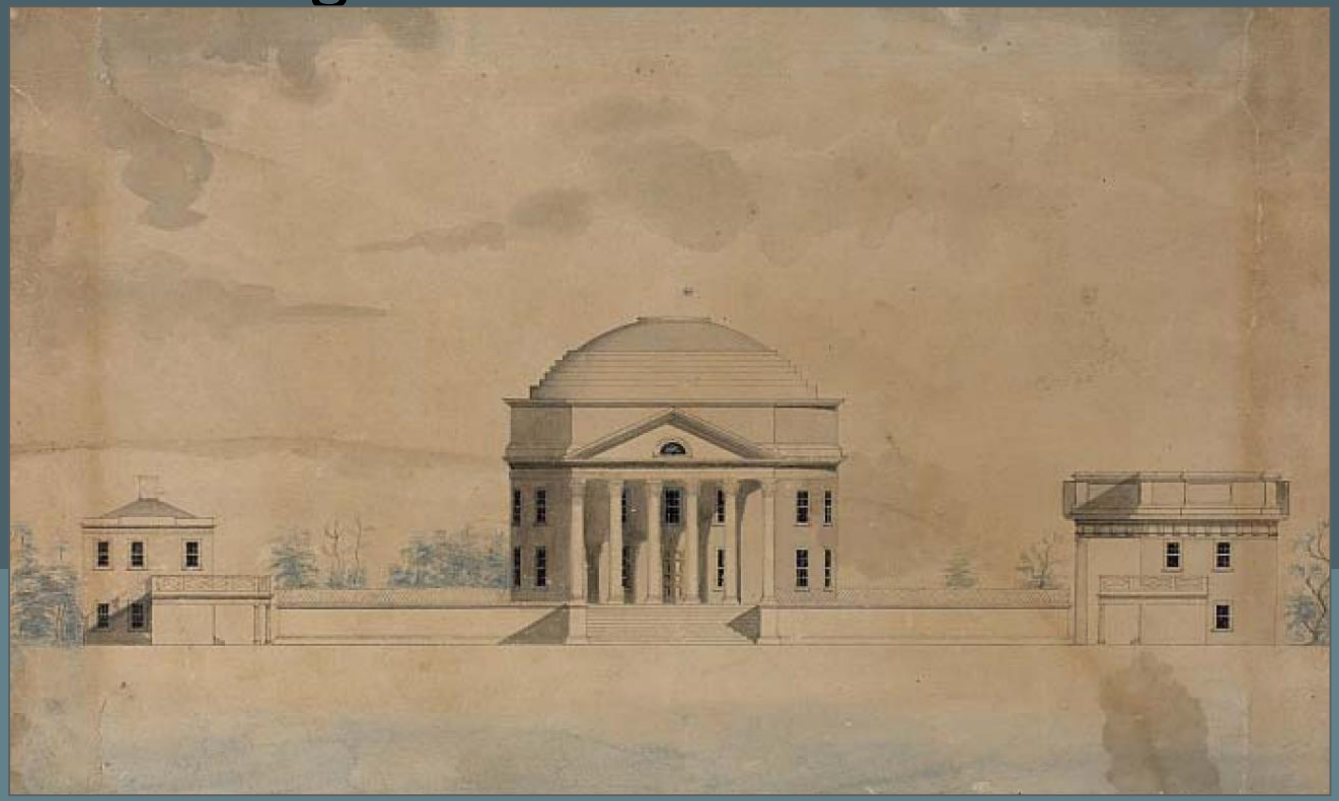
Sustainability at UVA

- Timeline
- Where are we now?

Sustainability & Preservation

- Where are we now?
- How did we do it?
- Strategies & Projects
- Tips

An Academical Village



Cornerstone laid October 6, 1817

Classes start March 7, 1825

8 faculty

68 students

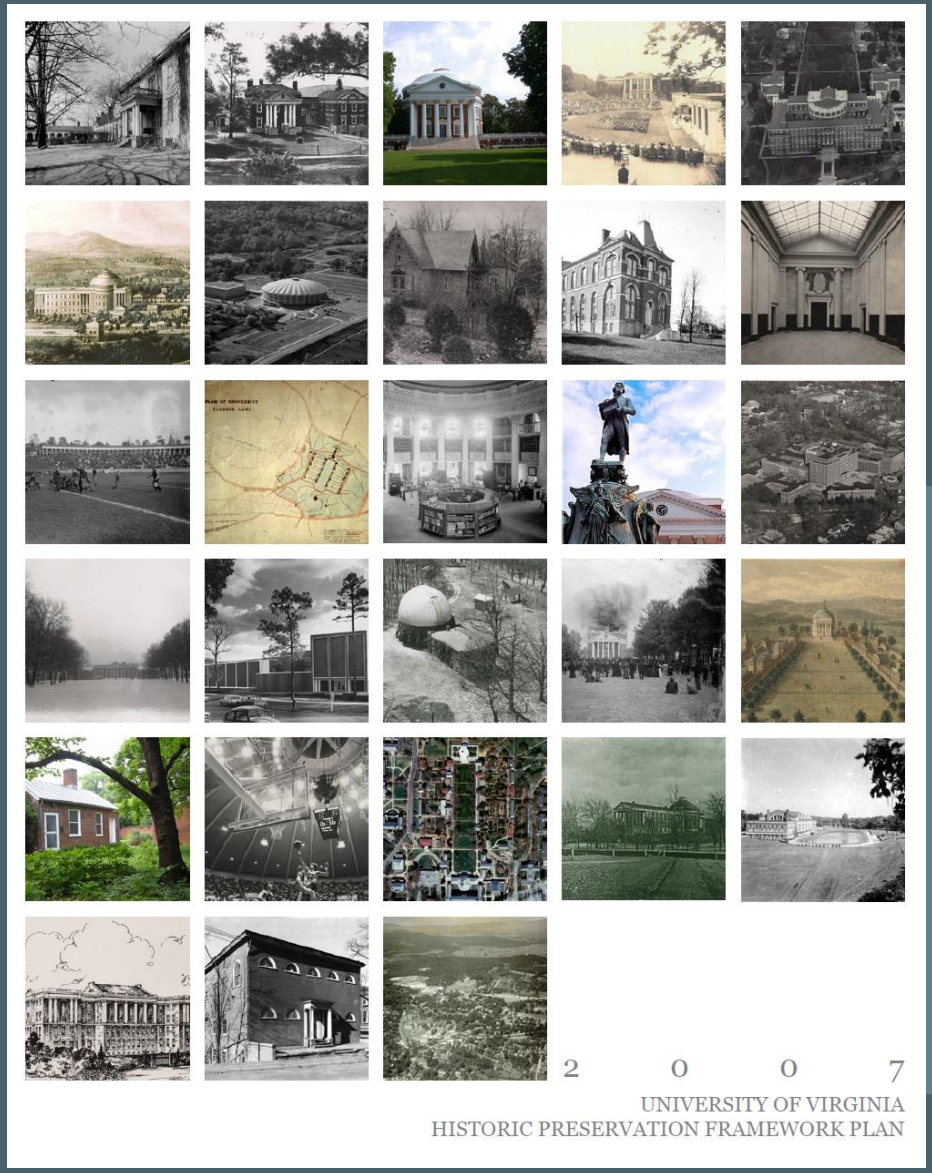
100 +/- staff and enslaved workers

Along with Monticello, designated a UNESCO world Heritage site in 1987

A Large and Growing Academic and Medical Community

- Nearly 21,000 Students
- 13,500+ Staff and Faculty
- 642,777 Outpatient Visits
- 176,614 Patient Days
- Over 15,000,000 GSF built space

Historic Buildings Framework Plan 2007



160 Buildings Identified as Historic:

- Fundamental (Jefferson Era)
- Essential
- Important
- Contributing

http://www.officearchitect.virginia.edu/pdfs/HistoricPreservationFrameworkPlan.pdf

UVA Sustainability Timeline

2006

2007

Presidential Committee on Sustainability

2009

GHG Reduction Goals Established

2011

Office For Sustainability Established

2013

SUSTAINABILITY · UVA
From the Grounds Up

Overview | Topics | Academics & Research | Resources | I Want To...

Sustainability at the University of Virginia calls for collaboration and ingenuity to promote the well-being of the community, solve local and global challenges through scholarship and practice, educate ethical leaders and steward this special place.

-U.Va. Sustainability Statement

Green Workplace Program

The Green Workplace Program engages U.Va. employees and workplaces in actions that conserve energy, save money, and advance sustainability. Learn more...

U.Va. Sustainability Plan

Make your voice a part of the five year U.Va. sustainability plan to steward this special place. The Plan will compile new and existing ideas while building upon U.Va.'s current initiatives and accomplishments. Add your voice...

Chuck It For Charity

Chuck It For Charity is an annual collection drive to enable students to donate their unwanted furniture, appliances, non-perishable food and clothing to local charities. Drop-off at the SAC from Thursday, April 30, through Tuesday, May 12. Learn more...

From the Grounds Up Blog

Follow the latest sustainability initiatives happening on Grounds and beyond with the recently launched U.Va. Sustainability blog.

Earth Week 2015

Earth Week is a celebration of sustainability, aiming to bring together students, faculty, and staff for a week of events that build awareness, inspire creativity, and foster stewardship of our world and ourselves. All events are free and welcoming to all. Learn more...

Explore Our Research

The University of Virginia supports research and embraces innovation to address current and future needs.

stars | aashe | EVENTS 15

April 2015

41
LEED Projects/ Buildings Certified to Date

LEED Platinum

1

LEED Gold

8

1 Historic Building





LEED Silver

19

LEED Certified

13

4 Historic Buildings

Project:
New Cabell Hall

"Contributing" in the Historic Buildings Framework Plan

Six Stories

150,000 GSF

Targeting Gold

New Cabell Hall – Landscape and Daylight

New Cabell Hall – Transformed Environment

New Cabell Hall – Making It Work

Project:

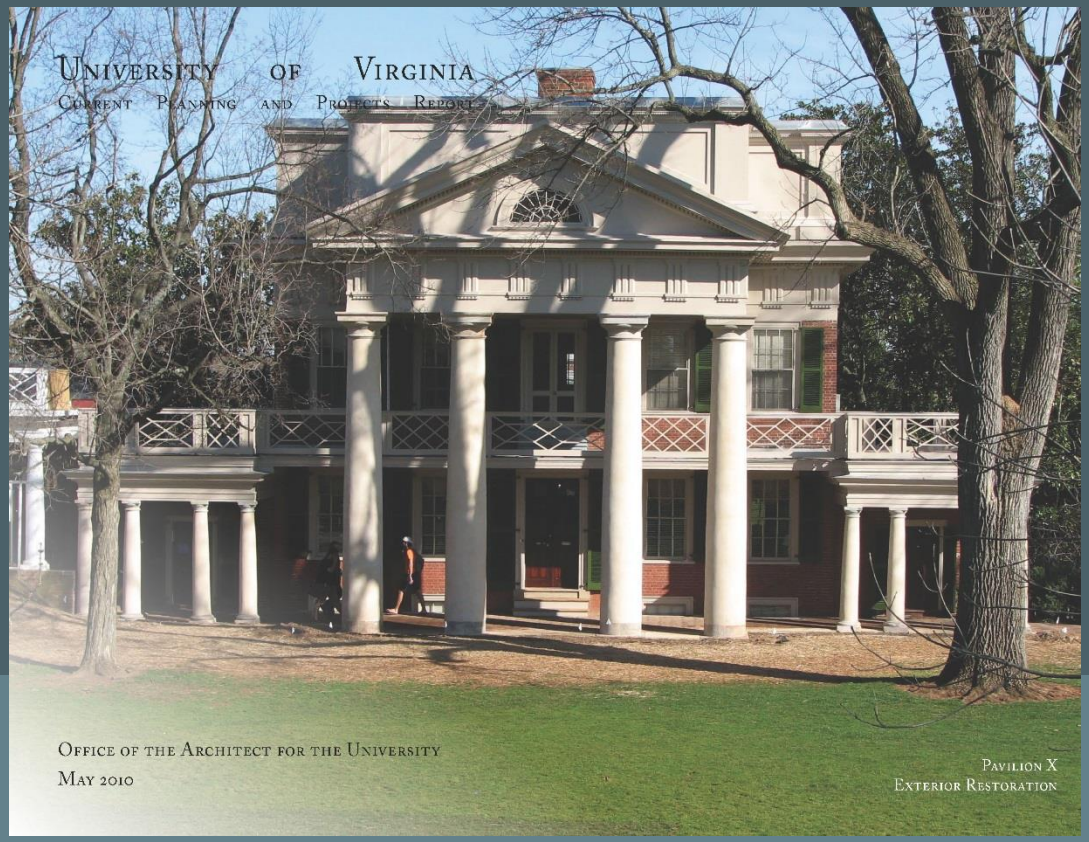
Garrett Hall
LEED 2.2

"Essential" in the Historic Buildings Framework Plan

Garrett Hall - Unseen Improvements

Garrett Hall - Some Old Ideas Still Work

Pavilion X

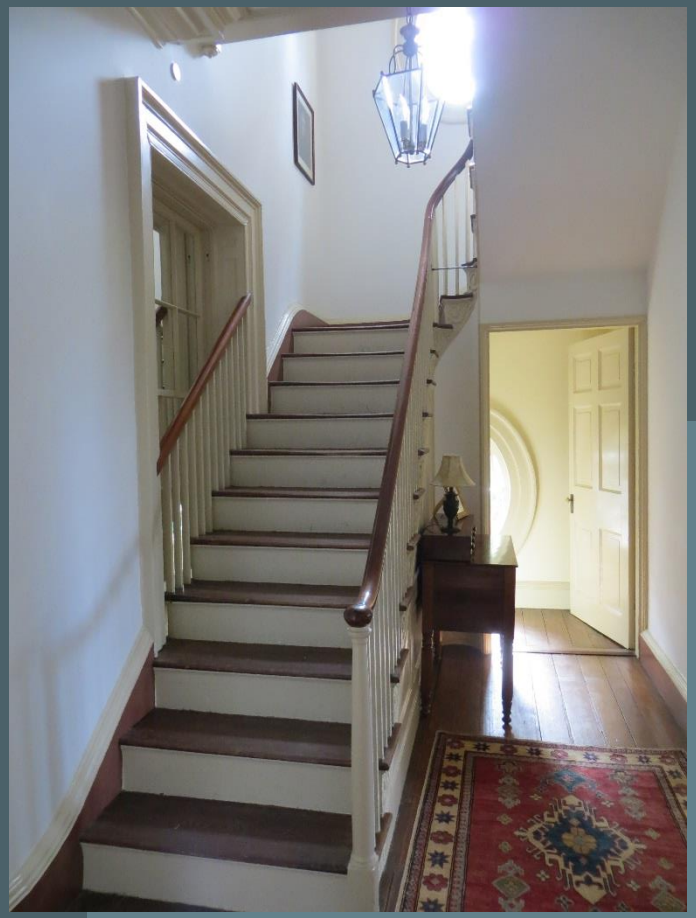


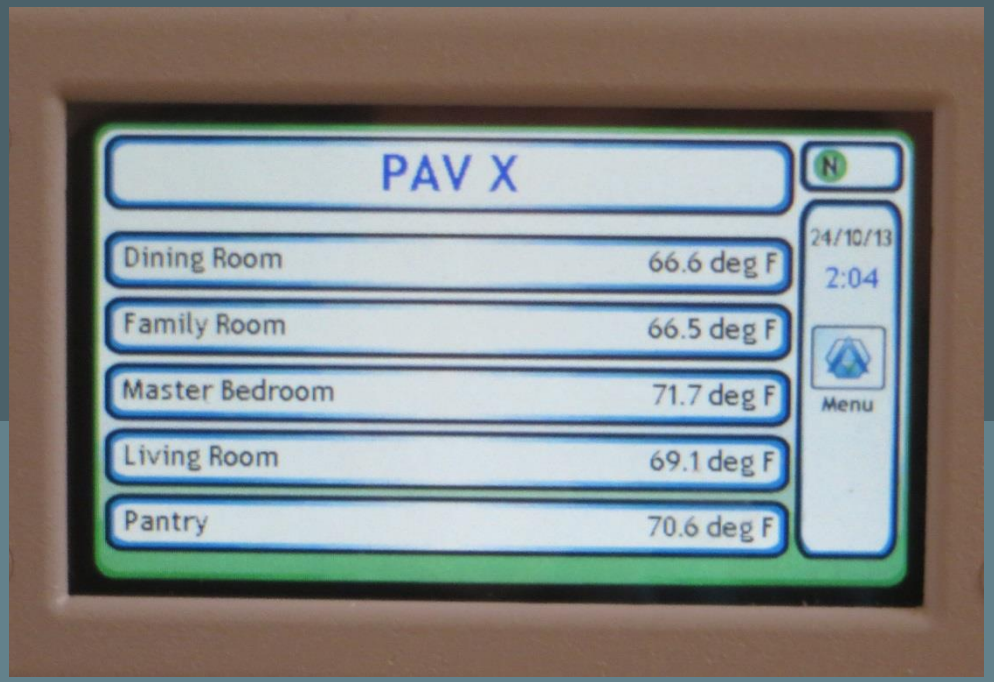
LEED 2009
Certified

Pavilion X – Blending the 19th and 21st Centuries

Pavilion X – Making It All Work

Pavilion X – Blending the 19th and 21st Centuries





Pavilion IX

LEED 2009
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What We Didn’t Do – Replace Doors

What We Didn’t Do – Replace Windows

Materials And Finishes

Easy Choices

Reclaimed heart pine for repairs and new floors

Linoleum for bathrooms

FSC wood for the new cabinets

Low VOC caulks, paint and sealants

Water-based polyurethane for wood floors in kitchens and bathrooms

Hard Choices - Floor finishes

Turpentine and mineral spirit cleaners are customary for removing wax.

Shellac, historically used as sealant, is diluted with ethyl alcohol at high concentrations.

Up Next

Tips:

Use district generated chilled and hot water to save energy

Develop relationships with skilled crafts people

Learn the Buildings – reuse as much as possible

Consider basement/attic space for Mechanical Systems equipment

Special Thanks to:

Connie Warnock, Assistant University Architect, Office of the University Architect

Brian Hogg, Senior Preservation Planner, Office of the University Architect

James Zehmer, Project Manager, Facilities Planning and Construction

Jesse Warren, Sustainability Program Manager, Office for Sustainability

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