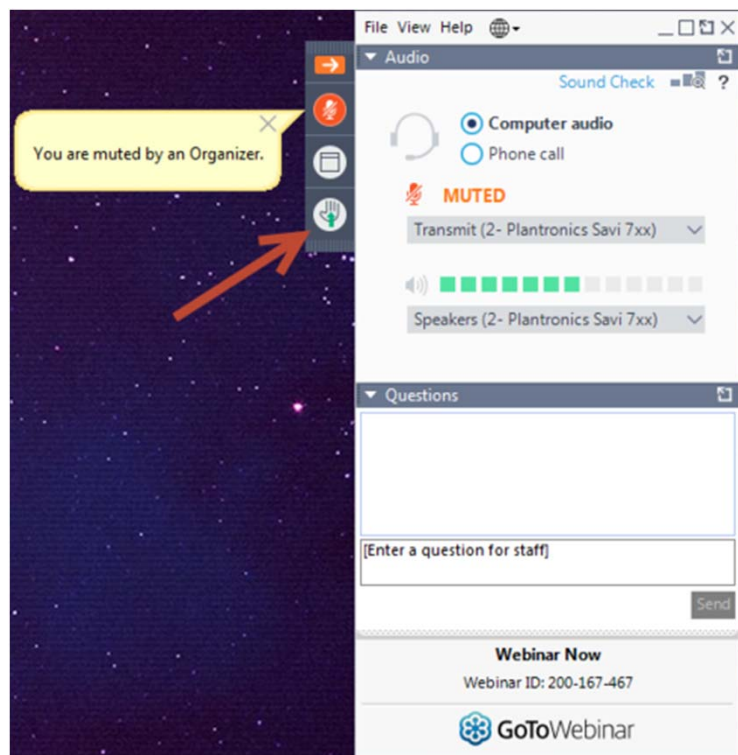


Identifying, Valuing, and Financing Climate Resilience in Multifamily Affordable Housing

SAHLLN Lender Exchange Series
June 30, 2020

How to participate



Your controls are on the GoToWebinar control panel.

All attendees are muted on entry:

- To request to be unmuted, raise your hand
- Then, an organizer will un-mute you, and then you will have to un-mute yourself by clicking on the mute button

And/or submit questions and comments via the Questions box

Note: Today's presentation is being recorded and will be posted in the SAHLLN Resource Hub

Sustainability in Affordable Housing Lender Learning Network – EEFA's lender network

- Mission: Leverage the collective expertise and relationships in our network to support a multifamily housing financing market where lenders value environmental sustainability as a means to support economic sustainability
- Access our resources at <https://sahlln.energyefficiencyforall.org/>
 - Resource Hub, including case studies and webinar recordings
 - Databases: Efficiency Lending Products and Programs + Closed Deals
- Advisory Group:



The Climate Resilience Finance Working Group

- Alliance for National & Community Resilience
- Bodaken and Associates
- Center for Neighborhood Technology
- Community Investment Corporation
- Community Preservation Corporation
- DNV-GL
- Enterprise Community Partners
- Local Initiatives Support Corporation
- National Institute of Building Sciences
- National Housing Trust
- NRDC (Natural Resources Defense Council)
- New Ecology, Inc.
- Precoverly Labs
- Reinvestment Fund
- Self-Help Credit Union
- SPA Risk LLC
- StopWaste
- D.C. Department of Energy & Environment

Among the most pressing concerns are that much of the existing stock neither suited to an aging population nor able to withstand the impacts of climate change.

- America's Rental Housing 2020, Harvard Joint Center for Housing Studies

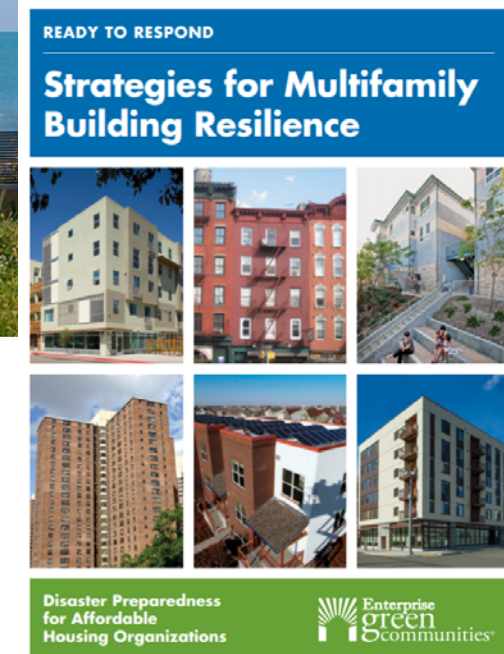
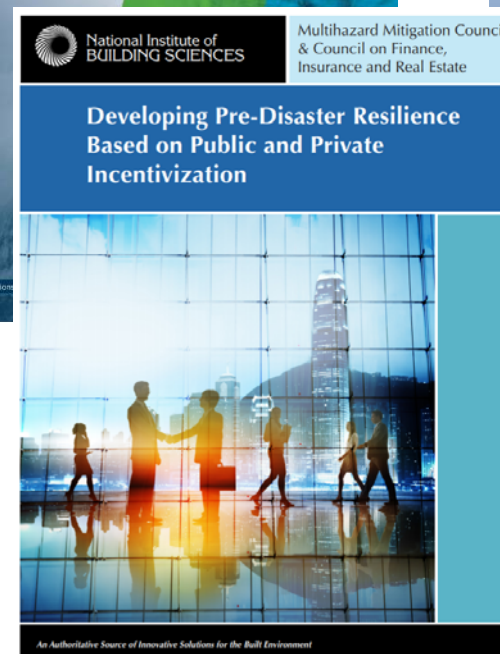
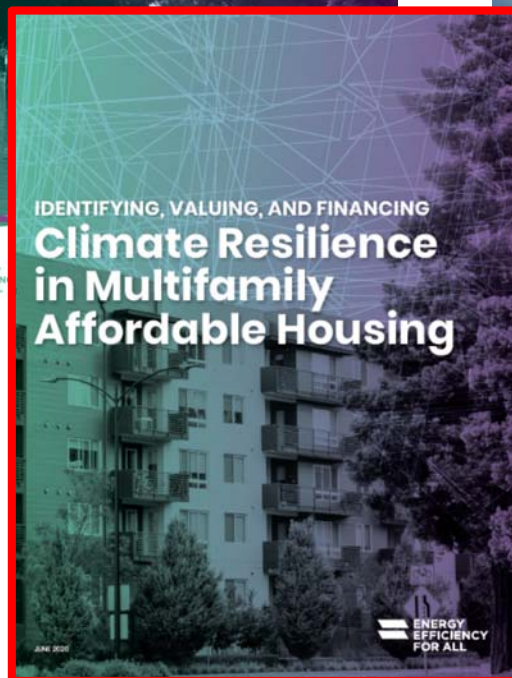
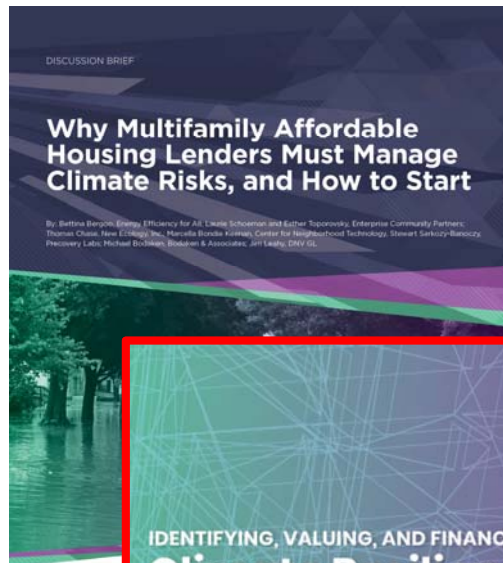
Working group representatives presenting today

- Esther Toporovsky, Senior Program Director of Green Communities at Enterprise Community Partners
- Michael Bodaken, President of Bodaken & Associates and President Emeritus of National Housing Trust
- Bettina Bergoo, Green Finance Fellow in NRDC's Green Finance Center

*Learn more and join the Sustainability in Affordable Housing
Lender Learning Network at*

<https://sahln.energyefficiencyforall.org/>

Building our knowledge base



Affordable housing must be central to climate resilience

- Climate change impacts low income renters, who are disproportionately Black, Indigenous, and Latinx, the worst. They are more burdened by impacts and take longer to recover.
- This is not on accident, and it is not separate from other injustices.
- Climate vulnerability is in large part due to racist historic (e.g., redlining) and current (e.g., disaster recovery) policies.
- Climate resilience efforts must be intentionally anti-displacement.



When we say climate resilience...

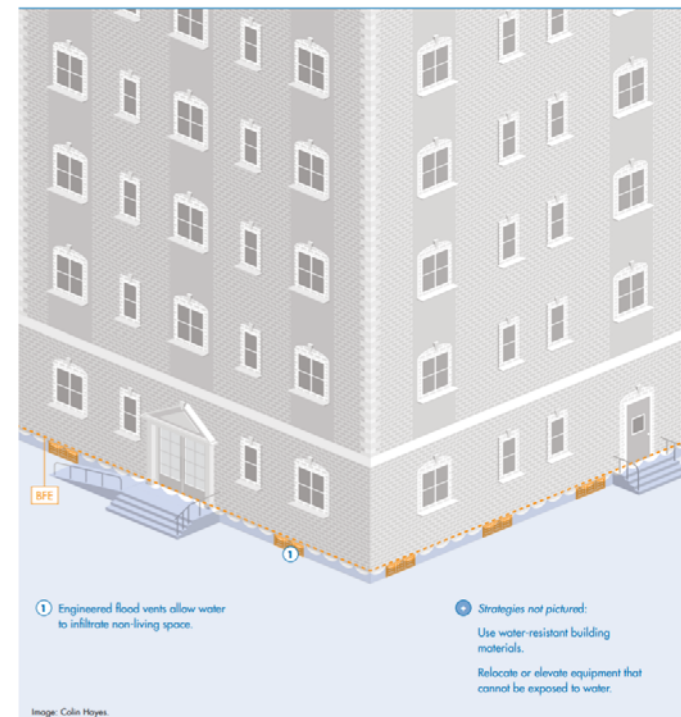
✓ Determine your resilience strategies.



Protection				
1 Wet Floodproofing	●	●	●	●
2 Dry Floodproofing	●	●	●	●
3 Site Perimeter Floodproofing	○	●	●	●
4 Resilient Elevators	●	○	●	●
5 Backwater Valves	●	●	●	●
6 Sump Pumps	●	●	●	●
Adaptation				
7 Envelope Efficiency	●	●	●	●
8 Elevated Equipment	●	●	●	●
9 Elevated Living Space	●	●	●	●
10 Surface Stormwater Management	●	●	●	●
11 Window Shading	●	●	●	●
12 Distributed Heating and Cooling	●	●	●	○
Backup				
13 Maintaining Backup Power to Critical Systems	●	●	●	●
14 Emergency Lighting	●	●	●	●
15 Access to Potable Water	●	●	●	●
Community				
16 Building Community Ties	●	●	●	●
17 Creating Community Resilience Spaces	●	●	●	●
18 Developing an Emergency Management Manual	●	●	●	●
19 Organization for Community Resilience	●	●	●	●

1 Wet Floodproofing

Aligns with Enterprise Green Communities Criteria: 5.8a Resilient Energy Systems: Floodproofing.



Challenges to enhancing resilience

- Capacity, e.g.: Limited knowledge of which measures to pursue or how to fund them
- Capital, e.g.: Compared to efficiency and solar, payback to a particular building owner has been unclear



Identifying resilience opportunities in buildings

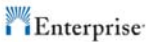
- Washington, D.C.'s Resilience Assessment Tool
- DNV GL's B-READY
- Maps from the Natural Hazard Mitigation Saves 2019 Report
- FEMA benefit-cost analysis tool
- Now: how to make use of these tools mainstream?

Sample Mitigation Measure Ranking for a Multifamily Building in a Northeast Flood Zone

Hazard	Likelihood	Consequence	Sensitivity	Adaptive Capacity	Mitigation Measure	Measure Cost	Measure Rank
Flood	Moderate	High	High	Low	Elevate mechanicals	\$200,000	High
Earthquake	Extremely low	Extremely high	Moderate	Extremely low	Seismic retrofit	\$10M+	Very low

Source: New Ecology, Inc., https://aceee.org/files/proceedings/2016/data/papers/11_812.pdf

Just launched: Portfolio Protect



[Financing & Development](#)
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[Blog](#)

PORTFOLIO PROTECT

Home > Solutions & Innovation > Disaster Recovery & Rebuilding > Portfolio Protect

Millions of households and communities are exposed to natural hazards and related climate risks across the nation. Some households are considering economic realities and preparedness of their homes and community infrastructure. It is critical that owners and operators of exposure so they can determine their highest risk properties and protect the households living in their buildings from the range of risks.

The Enterprise Portfolio Protect™ Tool will help owners, operators and developers of affordable housing understand which properties are earthquakes and other natural hazards. This tool offers users the ability to identify highest risk properties and offers recommendations a potential harm to your property or properties and keep residents' homes safe.

Are your affordable housing properties at risk from natural hazards events?

Find out with Enterprise Portfolio Protect

Look up an address by entering it [here](#)

Or enter multiple addresses by clicking [here](#)

Risk score definitions:

Hazard Risk Score
Each hazard was assigned a risk score based on internal categories found in each hazard's data source. The lower the number, the lower the risk. A score of zero or N/A means that hazard does not exist or there was no data available.

How to Use the Portfolio Protect tool:

1. Look up an address and get instant feedback on local risks across the US.
2. Or, click the link to enter or paste multiple addresses, and get instant feedback on local risks across the US.

Action	Address	Risk Score	Range for USA
<input type="checkbox"/>	HIDE RESULTS 1152 15th St NW, Washington, DC 20005, USA	14	0 - 96

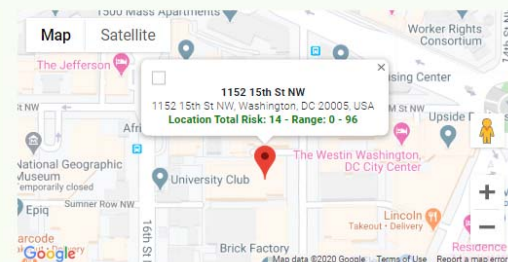
1152 15th St NW, Washington, DC 20005, USA

Total Risk

Total Risk Score: 14

We have calculated your risk score by multiplying your Social Vulnerability risk level by all your hazards.

- Risk score range for USA is 0 - 96



Social Vulnerability Index

Social Vulnerability (SVI) Risk Level: 2

Hazards

Hazard	Risk Level
Earthquake Risk Level:	1
Flooding Risk Level:	1
Landslide Risk Level:	3
Sea Level Rise Risk Level:	N/A
Tornado Risk Level:	2
Tsunami Risk Level:	N/A
Wildfire Risk Level:	0

Existing sources of funding for resilience

- Many public and private funding options for building envelope efficiency and solar plus energy storage
- Funding for resilience measures beyond these are overwhelmingly public:
 - FEMA programs, including Building Resilient Infrastructure and Communities (BRIC)
 - HUD Community Development Block Grant—Mitigation
 - Subnational grant programs to mitigate local hazards, e.g. flooding, wildfires, earthquakes

Given the scale and speed of investment needed, it is imperative to increase private investment in the full suite of pre-disaster climate resilience measures.

Increasing private financing by recognizing resilience dividends

TABLE 3: Sources of Resilience Dividends from Resilience Measures

Resilience Measure	Resilience Dividends				
	Lower utility bill costs	Lower ongoing operation and maintenance costs	Lower costs of post-disaster recovery	Lower insurance premiums	Higher occupant satisfaction and lower vacancy
Wet floodproofing	-	-	✓	✓	✓
Dry floodproofing	-	-	✓	✓	✓
Site perimeter floodproofing	-	-	✓	✓	✓
Resilient elevators	-	-	✓	✓	✓
Backflow prevention valves	-	-	✓	✓	✓
Sump pumps	-	-	✓	✓	✓
Envelope efficiency	✓	✓	✓	✓	✓
Elevated equipment	-	-	✓	✓	✓
Elevated living space	-	-	✓	✓	✓
Surface stormwater management	-	✓	✓	✓	✓
Window shading	✓	✓	✓	✓	✓
Distributed heating and cooling	✓	✓	✓	✓	✓
Maintaining backup power to critical systems	-	-	✓	✓	✓
Emergency lighting	-	-	✓	✓	✓
Access to potable water	-	-	✓	✓	✓
Building community ties	-	-	✓	✓	✓
Creating community resilience spaces	-	-	✓	✓	✓
Developing an emergency management manual	-	-	✓	✓	✓
Organizing for community resilience	-	-	✓	✓	✓

- How could we *actually* value benefits, i.e. “resilience dividends”?
- Which measures could unlock value from:
 - Lower utility bills + O&M costs?
 - Lower post-disaster recovery costs?
 - Lower insurance premiums?
 - Lower vacancy, higher occupant satisfaction?
- There is opportunity, but more research to support quantifying
- Bundling is key
- Benefits accrue to owners, but resilience also benefits other stakeholders...

Incentivizing resilience

- Finance-based
 - Resilience measures can be incorporated into traditional housing finance products (Fannie/Freddie, CDFIs) and specialized clean energy finance products
- Insurance-based
 - Premium reduction
 - Grant
- Tax-based
 - Primarily Low Income Housing Tax Credit
 - Also Historic Rehabilitation Tax Credit and New Markets Tax Credit
- All of these funding streams must be streamlined for owners



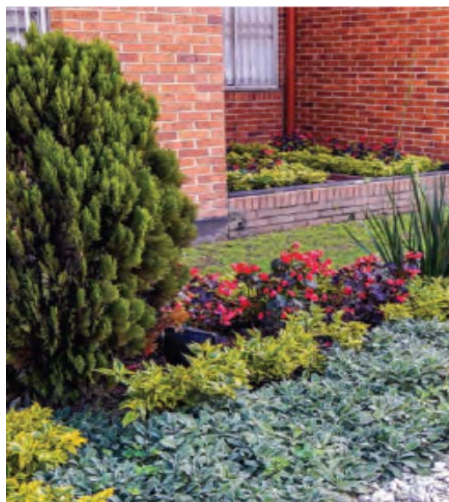
Importance of codes, certifications, disclosure

- Building codes drive change
- Certifications help motivated owners go further
 - Enterprise Green Communities 2020
 - Others include FORTIFIED, RELi, USRC Building Rating System, REDi
- Disclosure of climate risk
 - By housing property owners
 - By housing lenders



What's next?

- ✓ Many questions to explore through future research and demonstration projects led by Enterprise, CNT, Alliance for Neighborhood and Community Resilience, NIBS' Multihazard Mitigation Council, Global Resilient Cities Network... and more
- ✓ Join the dialogue by joining the Lender Learning Network!



Reach out to:

- Esther Toporovsky,
etoporovsky@enterprisecommunity.org
- Michael Bodaken, housingpreservation@gmail.com

Slides and recording will be posted at
<https://sahln.energyefficiencyforall.org/sahln/sahln-resources/>