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Climate Risk Assessments: Evaluating Buildings Sites for Portfolio Resilience

February 2, 2021

3:00 – 4:00 pm EDT



Hannah Debelius

U.S. Department of Energy's Building Technologies Office

Climate Risk Assessments

Purpose

- To assess properties at risk from the impacts of climate change and develop a strategy to mitigate these risks

Process

- Identify risks which may impact the property
- Analyze potential future scenarios
- Evaluate future impacts or benefits to identify priorities

Outcome

- Protection of occupants, interior systems and equipment, and the physical asset

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Today's Presenters

LBA Realty



Allison Pumphrey



Michelle German

CBRE



Rielle Green



Zach Brown



Allison
Pumphrey



Michelle
German

LBA REALTY

Climate Risk & Resiliency

LBA Realty is a full-service real estate investment and management company with a diverse portfolio consisting of predominantly industrial assets spanning the country in major logistics markets and office assets located in all major Western U.S. markets.

Sensible Sustainability Strategy

LBA's ESG program is based around executing first and foremost on the business case for sustainability within our real estate portfolio. The business case for sustainability requires taking a strategic view - considering costs weighed against benefits in the context of improved financial performance, enhanced operating efficiency, employee recruitment and retention, risk mitigation, corporate identity, brand and leadership.

4.25%

ENERGY REDUCTION

2.42%

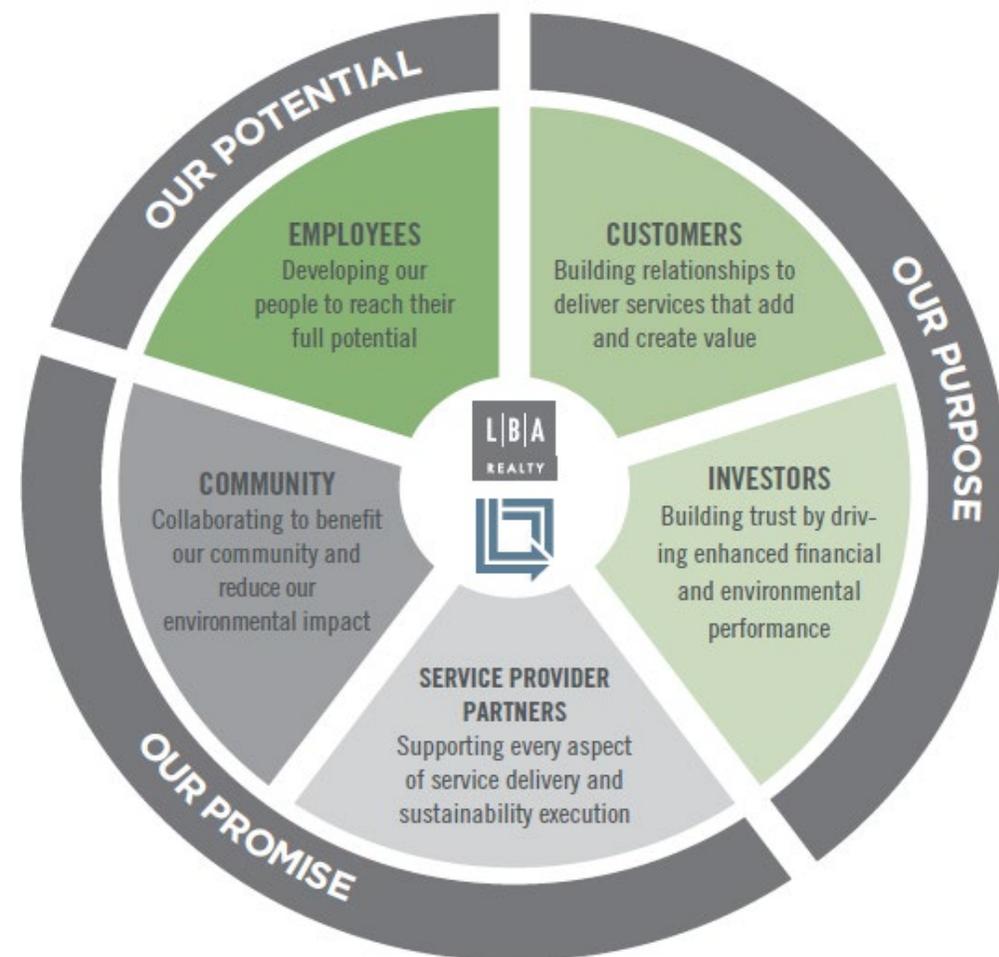
WATER REDUCTION

6.3%

WASTE DIVERSION
RATE DECREASE

81.4

ENERGY STAR
AVERAGE
PORTFOLIO RATING



LBA's Commitment to Climate Risk

We will consider physical liability and transition risks associated with climate change and the potential impacts to current and future investments.

LBA's Climate Risk Strategy

What was our motivation?

- To own and operate a more resilient portfolio against the threats of climate risk
- Risk mitigation
- Important to investors

Who are the stakeholders?

- ESG Team/Sustainability Consultant
- LBA Executives
- Due Diligence - Internal Team & External Consultants
- Risk Management
- Property Management

How did we embed into our ESG program?

- Executive support
- In-depth road map and budget
- Creation of process
- Follow through
- A lot of perseverance

Phase 1 Due Diligence - Consultant Assessment

- ✓ Generate Climate Risk Assessment Report and send to PCA consultant
- ✓ Consultant validates medium to high climate risks (flagged on assessment report) during their on-site physical condition assessment
- ✓ Findings summarized by consultant on Sustainability Checklist Report

No Risk Not exposed	Low Risk Not significantly exposed to historical or projected risks	Medium Risk Exposed to some historical and/or projected risks	High Risk Exposed today and exposure level is increasing	Red Flag Highly exposed to historical and/or projected risks, indicating high potential for negative impacts
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Climate Hazard	Risk Level	Site Score	Country Benchmark
Floods	Red Flag	76	20
Heat Stress	Medium	33	45
Hurricanes & Typhoons	None	0	23
Sea Level Rise	None	0	6
Water Stress	High	58	46
Wildfire	Medium	68	64

E. Plumbing				
1. Low-flow fixtures	X			
2. Reclaimed water			X	
F. Waste Management				
1. Recycling	X			
2. Paper/Cardboard	X			
3. Battery			X	
4. Food Waste			X	

427 Climate Risk Assessment
The Four Twenty Seven Physical Climate Risk Assessment indicates that there is a red flag flood risk for this property. According to available FEMA information, the subject property is located in Flood Zone X. Flood Zone X represents areas of minimal flood hazard. 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. The Community and Panel number for this information is 32031C3010G and has an effective date of March 16, 2009. The assessment also lists a high risk level of water stress; the current tenant's operations in the building do not involve water use beyond normal employee needs.

Sustainability
The majority of the building was designed to meet the current sustainability standards, no additional improvements are needed at this time.



Phase 2

Operational Strategy

- ✓ Climate Risk Assessment Memo completed to define climate risk implications, providing operational recommendations and determining if there is insurance available to mitigate risk
- ✓ For major concerns, issues memo created and distributed to the Investment Committee

Section 3 - General Operational Recommendations & Opportunities for Mitigating Hazard Risk	
Responsibility: Corporate Sustainability Strategies	
Climate Hazard	Recommendations
General Recommendations	
Floods	
Heat Stress	
Water Stress	
Wildfires	
Section 4 - Insurance Recommendations for Mitigating Hazard Risk	
Responsibility: Risk Management	
Climate Hazard	Additional Insurance Requirements
Floods	
Heat Stress	
Hurricanes & Typhoons	
Sea Level Rise	
Water Stress	
Wildfires	



Phase 3

Transition to Operations & Resiliency Plan

- ✓ At transition, Property Management team to:
 - ✓ Create Resiliency Plan
 - ✓ Integrate into Standard Operating Procedure (SOP)
 - ✓ Review annually and adjust as needed

Section 5 - Property Management Response to Operational Recommendations & Opportunities (see section 3 above for guidance)
 Responsibility: Property Management/Operations

Climate Hazard	Action Items to Address Concerns
Floods	
Heat Stress	
Water Stress	
Wildfires	
General Recommendations	



TABLE OF CONTENTS

Standard Operating Procedure Manual

PROPERTY NAME – MRI CODE

BUILDING INFORMATION

Section 1: Management Office Operations
 1a. Holiday Schedule
 1b. Emergency Contact List

Section 2: Engineering Operations
 2a. Emergency Equipment Shut-Off and Site Plan
 2b. Engineering Operations Manual
 2c. Equipment Summary, including PM Frequency (from Angus)

Section 3: Tenant Handbook (if applicable)

Section 4: Floor Plans / Stacking Plans / Site Plans

Section 5: Climate Risk Resiliency Plan



Best Practices & Tips

- Executive support is key
- Leveraging your network
- Stakeholder engagement
- Creating a comprehensive process



Rielle Green
CBRE



Zachary Brown
CBRE

CBRE

CLIMATE RISK ASSESSMENTS: EVALUATING BUILDINGS SITES FOR PORTFOLIO RESILIENCE

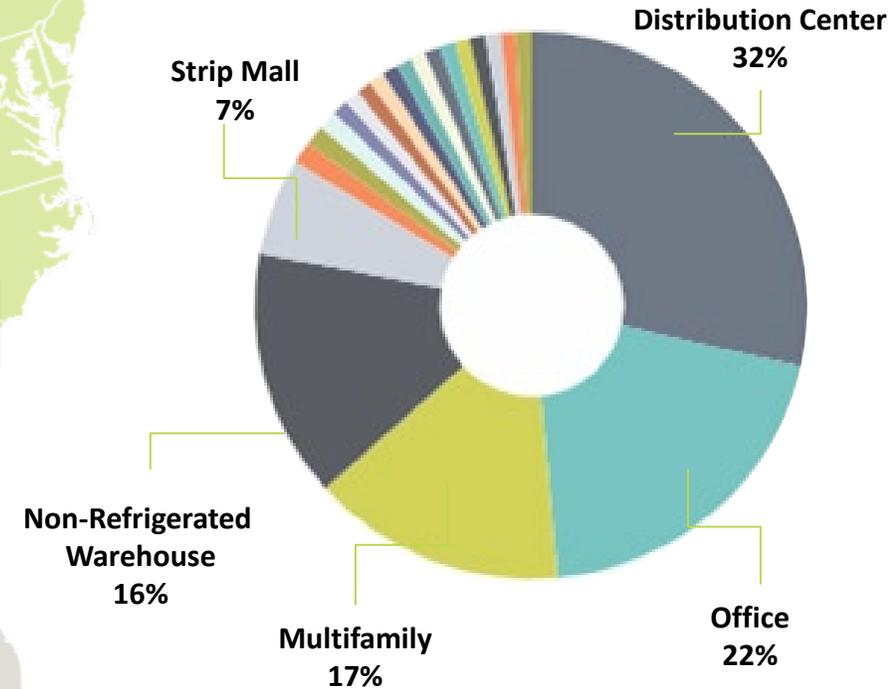
FEBRUARY 2ND, 2021

CBRE

Industry-leading management platform
Over 2.7 billion Sq Ft worldwide

Investment management client

Platform-wide ESG strategy
Over 87 million Sq Ft in U.S.



CASE STUDY – SITE ASSESSMENT



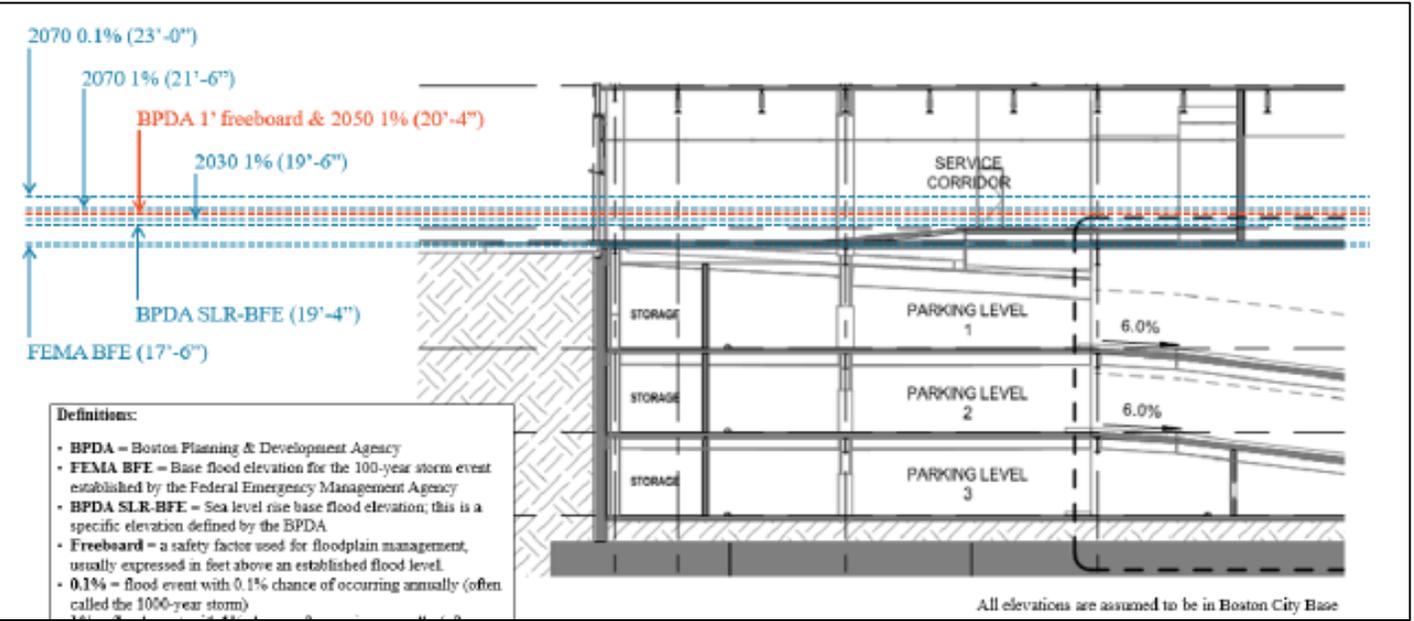
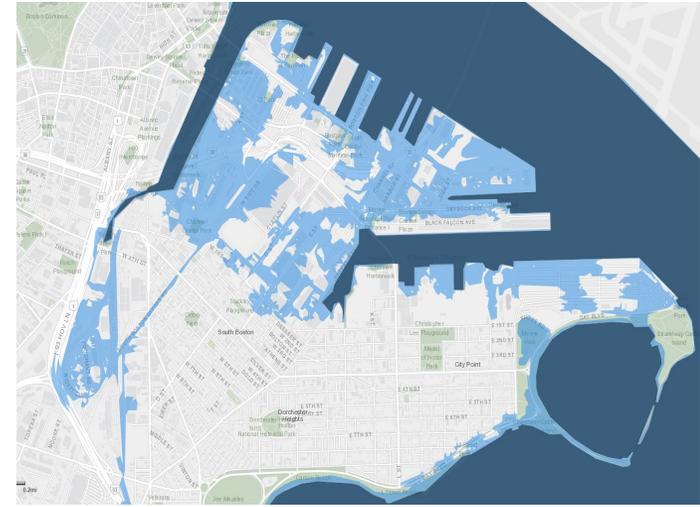
2030

10% Annual Flooding¹



2050

10% Annual Flooding¹



CASE STUDY – PORTFOLIO SCREENING

Hotspot Screening

- Heat Stress
- Wildfires
- Extreme precipitation
- Hurricanes & Typhoons
- Sea level rise
- Water Stress



Deep Dive (select sites only)

- Local risk maps and city adaptive capacity
- Quantify financial impact on asset



Primary Type

Office

Risk Category

Sea Level Rise

Risk Level

- No Risk
- Low Risk
- Medium Risk
- High Risk
- Red Flag

CASE STUDY – PORTFOLIO SCREENING



Office | 514,738 ft²

- Earthquakes Low Risk - 0
- Floods Low Risk - 8
- Heat Stress Medium Risk - 36
- Hurricanes & Typhoons Medium Risk - 40
- **Sea Level Rise Red Flag - 80**
- Water Stress Medium Risk - 35
- Wildfires Medium Risk - 52

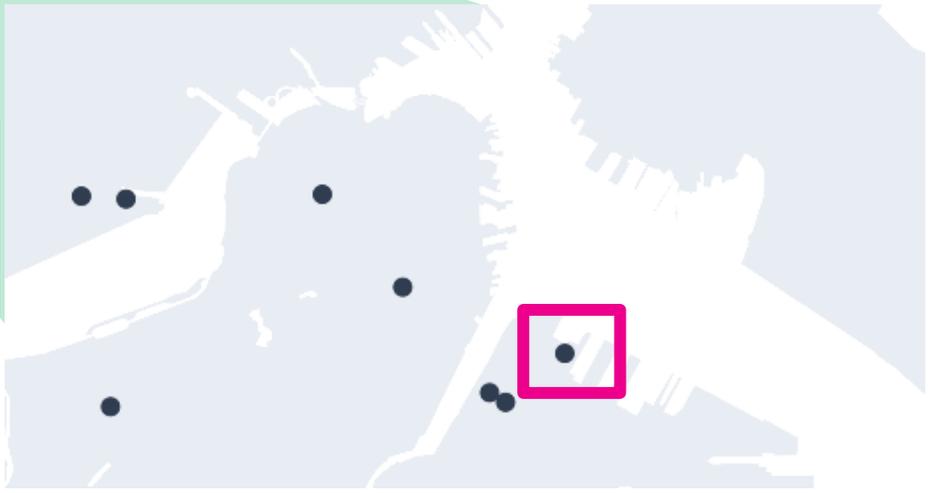
80
Red Flag

Sea Level Rise

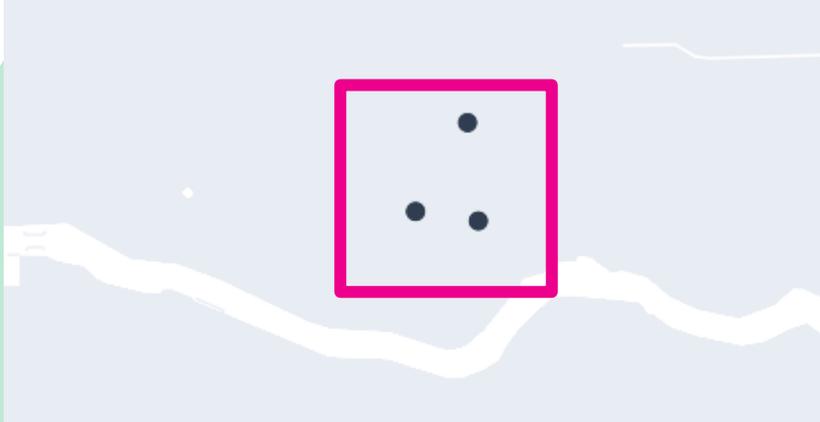
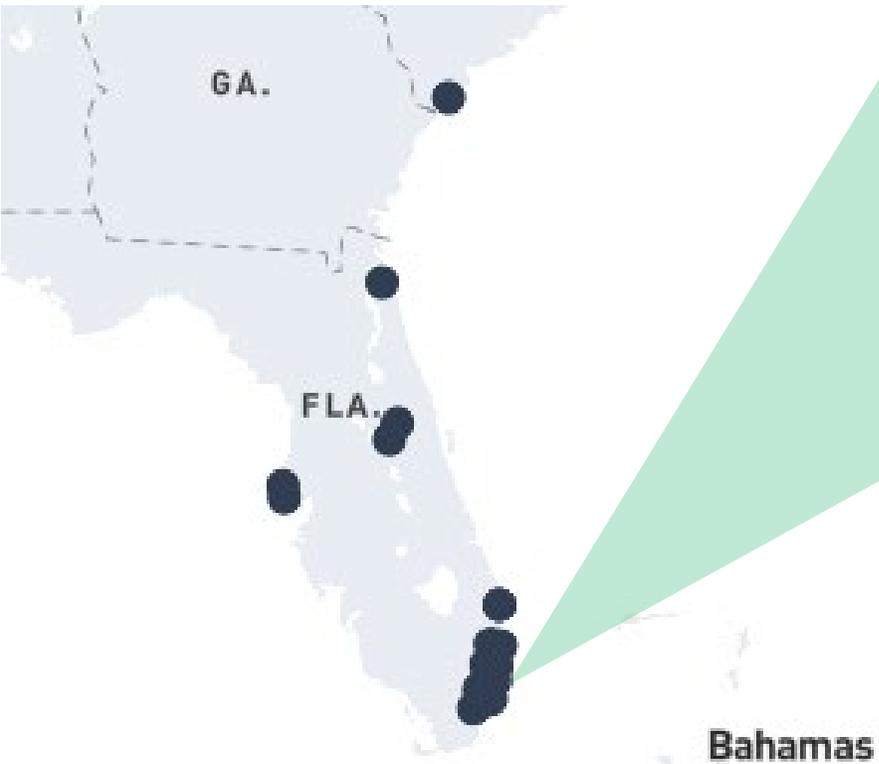
Highly exposed to historical and/or projected risks, indicating high potential for negative impacts

×

Elements	Unit	Measure	Score
Absolute Coastal Flood Frequency	Return Period of Inundation	100	100
Relative Coastal Flood Frequency	Factor of Change	60	60



CASE STUDY – PORTFOLIO SCREENING



Office | 750,888 ft²

- Earthquakes Low Risk - 0
- Floods Medium Risk - 46
- Heat Stress Medium Risk - 63
- Hurricanes & Typhoons Medium Risk - 57
- **Sea Level Rise Red Flag - 76**
- Water Stress Medium Risk - 47
- Wildfires High Risk - 67

Bahamas

Office | 259,069 ft²

- Earthquakes Low Risk - 0
- Floods Low Risk - 5
- Heat Stress Medium Risk - 63
- Hurricanes & Typhoons Medium Risk - 57
- **Sea Level Rise Low Risk - 40**
- Water Stress Medium Risk - 47
- Wildfires High Risk - 67



CBRE

THANK YOU

FEBRUARY 2ND, 2021

Q & A

Submit Questions
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Additional Resources

- CBRE Client: [Site Level Climate Risk and Resiliency Checklist Pilot](#)
- LBA: [Climate Risk Assessment Report and Resiliency Plan](#)
- Finance & Resilience [Toolkit](#)
- Principal Real Estate Investors [Climate Risk Assessment](#)

MAY
17-20
2021



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Learn more: betterbuildingsolutioncenter.energy.gov/summit

U.S. DEPARTMENT OF
ENERGY

2020-2021 Better Buildings Webinar Series



BUILDING RESILIENT COMMUNITIES: STATE AND LOCAL PERSPECTIVES

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Tue, Jan 12, 2021 | 11:00 AM - 12:00 PM ET

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Tue, Mar 16, 2021 | 3:00 - 4:00 PM ET

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Tue, Feb 2, 2021 | 3:00 - 4:00 PM ET



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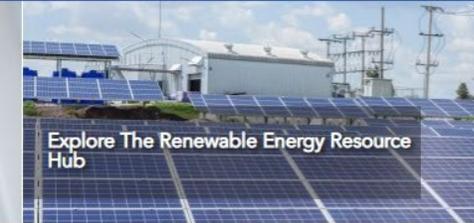
PERSPECTIVES ON RESILIENCE:

INSURANCE AND CREDIT UNDERWRITING

Tue, Feb 9, 2021 | 3:00 - 4:00 PM ET

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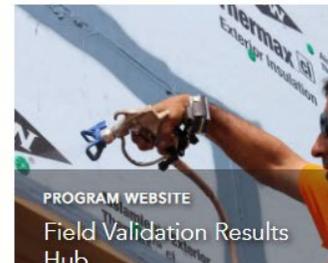
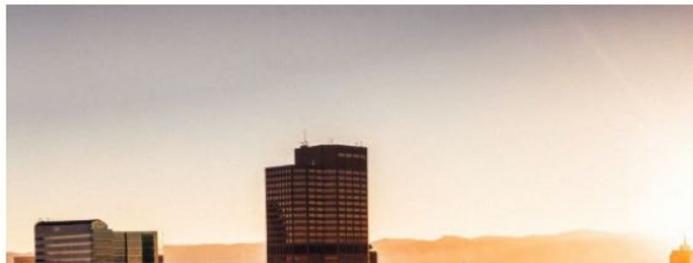
This webinar will examine how climate and resilience risk are impacting organizations through insurance, credit underwriting, and credit ratings. Attendees will get insights from industry practitioners on how they interpret risk and uncertainty around building resilience, as well as what building owners can do to improve performance.



BETTER BUILDINGS

Better Buildings is an initiative of the U.S. Department of Energy (DOE) designed to improve the lives of the American people by driving leadership in energy innovation. Through Better Buildings, DOE partners with leaders in the public and private sectors to make the nation's homes, commercial buildings and industrial plants more energy efficient by accelerating investment and sharing of successful best practices.

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ON-DEMAND BETTER BUILDINGS WEBINARS



Through Better Buildings webinars, experts discuss a variety of topics from Air Management to Zero Energy. These webinars are helpful resources on key subject areas in energy efficiency, water efficiency, resilience, and more. Below are webinars we have held over previous years. For each webinar, you can watch the video recording and follow along with the slide deck. To sign up for an upcoming live webinar, [click here](#).

EXPLORE BY TOPIC

[Building Envelope](#) | [Communications & Engagement](#) | [Data Centers](#) | [Energy Data Management](#) | [Financing](#) | [Green Leasing](#) | [Health & Wellness](#) | [Industrial](#) | [K-12 Schools](#) | [Lighting](#) | [Multifamily](#) | [Plug & Process Loads](#) | [Refrigeration](#) | [Renewables Integration](#) | [Resilience](#) | [Smart Labs](#) | [Space Conditioning](#) | [Treasure Hunts](#) | [Waste Reduction](#) | [Water & Wastewater](#) | [Workforce Development](#) | [Working with National Labs](#) | [Zero Energy Buildings](#)

■ Indicates the session was a part of the 2020 Virtual Summit. To view a full list of the Summit Sessions, [click here](#).

BUILDING ENVELOPE

A building's envelope (walls, windows, roof, and foundation) accounts for approximately 30% of the primary energy consumed in residential and commercial buildings. Explore all previously recorded webinars on this topic by pressing MORE.



- [Unsealed: The Building Envelope Campaign](#) (2020) ■
- [Sneak Peek of the Building Envelope Campaign](#) (2020)
- [Addressing the Envelope: Recognizing Building Enclosure Improvements](#) (2020)
- [Innovative Wall Technologies for Commercial Buildings](#) (2019)
- [Energy Savings Impact of Airtightness in U.S. Commercial Buildings](#) (2019)
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