Are You The Weakest Link?

Resilient Design 101

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BUILDINGENERGY
BOSTON

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Conference + Trade Show of the Northeast Sustainable Energy Association (NESEA)
Wilson Architects

- 50-Person Design Firm
- Committed to advancing energy efficiency and reducing the impact of climate change
- Established in 1995
- Design Focus on Higher Education Teaching & Research Environments
Course Description

Codes focus on safe evacuation in an emergency, not on keeping buildings occupiable through a disaster. Buildings are often expendable.

With climate change, displacement due to damage from extreme weather events like Superstorm Sandy is more common. Is building to code minimums really enough?

This workshop will take you through the process of planning for Resilient Design, using the LEED pilot credits on Resilient Design IPC98, 99, and 100.
Learning Objectives

At the end of this course, participants will be able to:

• Explain the need for resilient design based on the expected service life and function of a building.

• Evaluate project vulnerability to hazards by region for LEED IPpc98: Assessment and Planning for Resilience.

• Select methods for mitigating hazards for LEED IPpc99: Design for Enhanced Resilience.

• Describe design approaches for LEED IPpc100 Passive Survivability and Functionality during Emergencies.
Why Resilient Design?
Why Resilient Design?
Why Resilient Design?
Why Resilient Design?

THE STORM IS COMING
Embrace the Changes that are taking place?

Nick Anastasia rode his tall bike during the King Tide, Nov. 15, 2016.

Lane Turner / Boston Globe Staff
Build a WALL to Protect us?

Area with significant landfill vulnerable to flooding

Inner Harbor

Outer Harbor

Restricted Tidal Flow

Unrestricted tidal flow

The Sapphire Necklace
LEED Pilot Credits on Resilient Design

A schematic showing the basic structure of the three pilot credits. Graphic: Jessie Woodcock, ZGF
### LEED Pilot Credits on Resilient Design

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**Thermal Resilience**

**Back up Power**

**Potable Water**

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NESEA BuildingEnergy BOSTON
Sample Projects

University Hall, Boston, MA

MIT.nano, Cambridge, MA

IRYS School of Technology & Trades New Structure, Newport, RI
Sample Projects

University Hall, University of Massachusetts Boston
*Columbia Point, Boston, MA*
Sample Projects

MIT.nano, Massachusetts Institute of Technology

Cambridge, MA
Sample Projects

New Structure for Marine Systems & Composites Programs, IYRS
*Spring Wharf, Newport, RI*
LEED Pilot Credits on Resilient Design

Assess Hazards

Choose 1

Climate Change Assessment

Emergency Planning

Choose 2

Design for Top 3 Hazards

Thermal Resilience

Back-Up Power

Access to Potable Water

Credit 1
Assessment & Planning for Resilience (1 Point)

Credit 2
Design for Enhanced Resilience (1 Point)

Credit 3
Design for Passive Survivability (1 Point)

A schematic showing the basic structure of the three pilot credits. Graphic: Jessie Woodcock, ZGF
### Prerequisite Hazard Assessment
- Flooding
- Hurricane
- Tornado/high wind
- Earthquake
- Tsunami
- Wildfire
- Drought
- Landslide/unstable soils

### Option 1: Climate Change
- Seas Level Rise and Storm Surge
- River Flooding Projects
- Winter Storms
- Temperature, Precipitation Changes and Storm Intensity

### Option 2: Emergency Planning
- Evaluate readiness
- Continual Assessment