

CLIMATE-ADAPTIVE DESIGN

Using design to inspire Hudson Riverfront communities

The Climate-adaptive Design (CaD) Studio links Cornell students in landscape architecture with flood-risk Hudson Riverfront communities to explore design alternatives for more climate resilient and connected waterfront areas. Community stakeholders are engaged throughout the studio to help inform the design process and support more usable results for the partner municipality.

The CaD Studio process

The four-month design process begins with student design teams studying the community's watershed setting, climate change projections, ecosystem context, and precedents for designing more climate-adaptive spaces, like floodable parks and wet flood-proofed buildings. Each community presents new design challenges and opportunities for design innovation. Students infuse their designs with knowledge, opportunities, and challenges specific to each community that they uncover during site visits and interviews with local stakeholders.



"Thank you so much for coming... the work that I saw has completely changed the way I think about waterfront development"

Mayor Hamilton, City of Hudson, NY

Design principles



Design a Waterfront

Maximize the value of what a waterfront can be



Design for Flooding

Working with water may be better than working against it



Design for Community

Waterfronts should be universally accessible and decidedly memorable



Design with Nature

A healthy Hudson is good for us and the greater ecology



Design for Change

Build value into waterfronts as they change over time

Climate-adaptive Design Goals

- Inspire and educate communities to adapt their waterfront through visual design and innovative stakeholder engagement
- Generate new knowledge on social engagement and physical adaptation
- Educate the next generation of designers to bring resilient solutions to the world
- Coordinate with state programs to encourage long-term implementation of CAD principles
- Promote the culture of adaptation and adaptive thinking



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Hudson River Estuary Program

A Program of the New York State Department of Environmental Conservation



New York State
Water Resources Institute
Cornell University

Trends in our climate

After historic flooding from Hurricanes Irene and Lee in 2011, and Superstorm Sandy in 2012, the Estuary Program and partners began working on innovative ways to adapt to climate change in the Hudson Valley.



Extreme Precipitation

71% increase in intense precipitation in the northeast since 1958



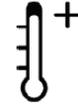
Storm-Based Flooding

Up to **58 inches** of sea-level rise on the Hudson River by 2080



Sea Level Rise

Up to **6x more** frequency of the 1% ("100-year") flood by year 2080



Changing Temperature

19 to 40 more days over 90 degrees by year 2050

"These new creative thinkers... opening the door to helping Piermont not only see the future, but to lead us into the future"

Vincent O'Brien, former village trustee, Piermont, NY

Envisioned community outcomes

- New conversations about opportunity and change on the waterfront
- Knowledgeable and inspired community members
- Shared ideas for how to access funding and resources to adapt the waterfront
- Increased awareness and capacity to apply resilient concepts and principles in projects, planning and decision making
- Alternative design concepts in-hand to enhance public awareness and support for adaptation and resiliency



Student design: 'CATWALK' by J. Romualdez and X. Tang proposed green infrastructure in alleyways in Catskill, NY

Apply to the Climate-adaptive Design studio! tinyurl.com/CornellCaD2019

For more information

- Climate-Adaptive Design tinyurl.com/CornellCaD
- Video: "Adapt: the key to climate resilience" tinyurl.com/CSCvideoCaD
- NYS DEC Hudson River Estuary Program www.dec.ny.gov/lands/39786.html
- Resources for Resilience tinyurl.com/resilienceres
- Contact Libby.Zemaitis@dec.ny.gov

Partners

- Cornell University Department of Landscape Architecture Professor Joshua Cerra
- NYS DEC Hudson River Estuary Program
- New York State Water Resources Institute
- Scenic Hudson
- New York Department of State
- Sustainable Shorelines, NYS DEC
- Cornell Cooperative Extension



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