Using design to inspire Hudson Riverfront communities

The Climate-adaptive Design (CaD) studio is a collaboration between Cornell University Landscape Architecture Professor Josh Cerra and the NYS DEC Hudson River Estuary Program. The semester-long studio links students in landscape architecture with Hudson Riverfront communities to explore design alternatives for thriving, climate-resilient waterfront areas. Community stakeholders take part throughout the studio semester to help inform the design process and support practical results. To date, the CaD studio has visited eight waterfront sites in six municipalities. This partnership aims to support municipalities in NYS resilience programs, including Climate Smart Communities and Local Waterfront Revitalization programs.

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.

Design principles

- **Design a Destination**
  - Maximize the value of a waterfront by encouraging water-dependent & water-enhanced uses, like marinas, beaches & restaurants.

- **Design for Flooding**
  - Work with water instead of working against it by pursuing strategies such as adaptation, reinforcement & relocation.

- **Design with Nature**
  - Preserve & enhance natural areas on the waterfront & use nature-based techniques for erosion control & stormwater management.

- **Design with Community**
  - Waterfronts that are universally accessible and deliberately memorable can contribute to the well-being and prosperity of the entire community.

- **Design for Change**
  - Create places that continually provide value under changing conditions. Phase projects over time in ways that are both practical & visionary.

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
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

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
- Student design concepts that can be used to enhance public awareness and support for adaptation and resiliency

For more information

- Climate-Adaptive Design studio [tinyurl.com/CornellCaD](http://tinyurl.com/CornellCaD)
- Video: “Adapt: the key to climate resilience” [tinyurl.com/CSCvideoCaD](http://tinyurl.com/CSCvideoCaD)
- Resources for Resilience [tinyurl.com/resilience](http://tinyurl.com/resilience)
- Contact Lyndsey.Cooper@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
- Resilience Communications & Consulting, LLC
- Scenic Hudson
- New York Department of State
- Sustainable Shorelines, NYS DEC
- Cornell Cooperative Extension

Student design Kingston, NY: ‘TUNING UP’ by X. Wan and L. Li