“Soft Urban Waterfronts”

Re-Imagining Urban Waterfronts in the context of climate change, rising oceans and storm events.

Introduction

This is a design thesis studio of self-defined projects within the topical framework of “Soft Urban Waterfronts”. The studio is a series design investigations that focus on a strong theoretical foundation, creative design explorations, and a high level of architectural refinement through tectonic studies that integrate urban and architectural design, urban infrastructure and building systems. The emphasis of the research seminar and studio is development of a comprehensive architectural project backed by a strong research effort.
Soft Resilient Urban Waterfronts

Climate Change and Its Impact on World Cities

The impacts of climate change are particularly critical to the future of waterfront cities throughout the world. Nearly half of the world’s population lives within 60 miles of the sea, and hundreds of millions more live along major rivers. Fifteen of the world’s largest cities have major in flood zones. The prospect of losing vital districts of New York, San Francisco, London, Barcelona, Amsterdam, Tokyo, Shanghai and Mumbai is unthinkable. However alarming, there is nearly unanimous consensus among climate scientists that ocean levels are rising at an increasing rate, and that the changes may be irreversible. Two important studies released very recently (May 2014) concluded that a large section of the Antarctic Ice Sheet has begun to fall apart, and that a sea level rise of ten feet due to this one phenomenon may be unavoidable during the next few centuries.

In an address to the Metropolitan Waterfront Alliance of New York-New Jersey which I attended in May 2012, Cynthia Rosenzweig, Senior Research Scientist and Climate Impacts Group Leader of the NASA Goddard Institute for Space Studies reported on the research and predictive models of climate change, projecting that catastrophic climate events will dramatically increase in frequency during the next century.

The two most catastrophic natural disasters in recorded American history occurred in the short time frame of only the past nine years. Hurricane Katrina devastated New Orleans in 2005 with
the loss of 1,833 lives and $ 80 billion property damage. The New York-New Jersey metropolitan area, the country’s most densely-populated urban region, suffered the brute force of Hurricane Sandy only seven years later in October 2012.

Although not a seafront city, Portland is affected by climate change and storm events in similar fashion as coastal cities. The Willamette River floods of 1996 came within inches of spilling over the Downtown Portland seawall and inundating Downtown Portland with a surge of water. What will happen when the 100-year floods arrive?


Willamette River Floods. 1996.

The Studio: Re-Imagining Urban Waterfronts

Land and Water as One Organism

If we are optimistic enough to believe that governments, private industry, communities and individuals will eventually take actions to reduce greenhouse gas emissions and that climate
change will stabilize several decades in the future (an optimistic wish), we must still address the issues of how land (and cities) meet the water.

“Like residents of many other great cities, New Yorkers live by the sea but hardly know it’s there until, during a disaster, its presence cannot be ignored. A friend once called the city “one of the most astonishing meetings of land and water on earth”. But this is now only evident from above. We have reconfigured and hardened the coast, building sea walls and filling wetlands, drawing a hard line between the water and ourselves. Despite our best efforts, the city and water remain one organism. As the sea rises and storms intensify, the water will break down the boundary again and again. The question is whether we should build harder and faster to keep it out, or find a way to gently merge ourselves with the water once again, transforming the hard boundary into a continuum, a smooth transition, a co-mingling rather than a battle zone.”

Michael Oppenheimer, Professor of Geosciences and International Affairs, Princeton University.

The Studio Proposition

This studio is not based on the threat of gloom and doom or disaster. Although we need to prepare for the possibilities ahead, the problems of climate events present opportunities. Most urban waterfronts were developed during the past 150 years of the industrial era with different economic conditions, technologies and public sensibilities as compared to today. We inherit a legacy of exploited physical conditions and widespread destruction of natural waterfronts.

Existing conditions of abandonment, contamination and loss of economic value, combined with the threats imposed by climate change and rising waters, offer opportunity to re-think and
reconfigure urban waterfronts for the next century. Events like Hurricane Katrina and Sandy captured the attention of the public and are working to motivate change. We can use the critical need to develop storm resilience as an opportunity to de-design and re-naturalize urban waterfronts. This may take 50, 100 or more years, but the results of initial efforts are already taking place in urban design, landscape and architectural projects around the world.

**Soft Infrastructure**

As we re-imagine waterfront districts, choices will need to be made between fortifying urban waterfronts with expensive seawalls, dikes, barriers and “hard” infrastructure, or “re-naturalizing” waterfronts with a “soft infrastructure” of restored wetlands and marshes, re-built barrier islands, environmentally-responsible architecture, and greater social equity in access, safety and the right to live in a healthy environment. The threats brought about by climate change and the powerful storms will require cities and communities to act. This is already starting to happen in projects such as the new Riverfront Park on the Passaic River in Newark, New Jersey, one of the most contaminated waterways in the country.
Urban Waterfronts in the Industrial Era

Beginning in the early nineteenth century, natural waterfronts in cities of all sizes were transformed by industrial infrastructure, water-borne transportation and disposal of industrial waste. Industrial regions in the Great Lakes, edges of major rivers in North America, and the notorious “black cities” of Great Britain were developed with values of industrial production. With few exceptions such as Daniel Burnham’s historic park system along the Lake Michigan shoreline in Chicago, urban waterfronts were locked into industrial development patterns that have endured to the present day.

Gowanus Canal. Brooklyn. Considered the most polluted waterway in the USA. EPA Superfund Site. Adjacent to contaminated industrial sites and low income housing in the Carroll Gardens and Red Hook neighborhoods.

From the late 1940’s through the 1960’s in North America, waterfronts became favorite locations for highways and freeways as planners sought the “paths of least resistance”. Cities turned their backs on rivers, bays, oceans and lakefronts.

In the 1970s Portland removed a waterfront expressway to create Governor Tom McCall Riverfront Park. However, over 95% of the Willamette River edge between the city’s south boundary to the River’s confluence with the Columbia River is hardened with industrial and Port development, abandoned industrial sites, toxic deposits, concrete barriers, seawalls and riprap. Tom McCall Riverfront Park presents a hardened edge to the river with its concrete seawall.
The Post Industrial Waterfront

Inner Harbor. Baltimore. San Francisco. Ferry Building and The Embarcadero

The awakening of the environmental movement, grass-roots citizen activism and the US Clean Water Act of 1972 began to reverse earlier patterns. Major waterfronts in North American and western Europe became the focus of urban design projects which provided public access and sites for urban development. Downtown Baltimore was transformed with the revitalization of its Inner Harbor. Portland removed a riverfront expressway to create Governor Tom McCall Waterfront Park. Later, San Francisco removed the Embarcadero Freeway to re-connect its downtown to the Bay and revitalize the historic Ferry Building.

Most of the successful waterfront regenerations of the past forty years, as impressive as they have been, are not models of environmental restoration or the kind of land-water “co-mingling” suggested by Michael Oppenheimer. We need to think more creatively about the continuum of land and water, architecture and landscape, buildings and water.

Project and Site Selection

Two choices of project sites will be offered: A Portland location and an “Open” Category which may be any site in the world. From my past experience, some students want to focus on Portland sites, others are interested in working outside Oregon. We will accommodate both sets of interests. The “Soft Waterfront” topic holds the studio together and offers opportunity for comparative studies.
Potomac Riveredge Regeneration. Public space and architecture in a “soft waterfront”. Washington DC

**Portland**

The Portland project will focus on one district of the Willamette Riverfront, working with partner organizations active in river issues:

- The City of Portland Bureau of Environmental Services
- The River Network (a national organization based in Portland)
- The Willamette Partnership

For those choosing Portland, at the beginning of the Fall Thesis Prep Seminar we will discuss student individual project interests and visit neighborhoods and sites together during the first weekend of the term. Then, by consensus, we will select one waterfront district or neighborhood for primary focus. The Portland group will work together for the urban design portion of the project, accompanied by individual work on buildings.

The advantage of a Portland site is that one can gain valuable contact and interaction with public officials, interest groups citizens and other stakeholders. We will do research and confer with city and organization representatives regarding project opportunities in the various districts.

Recent studios have had participation from city officials including the Mayor of Portland, and an exhibit in the rotunda of City Hall.
“Open” Category

The Norwegian National Opera and Ballet. Snohetta Architects.

For those who wish to work outside Portland the project may be anywhere in the world with two conditions:

First, you must have visited the city (not necessarily the site) at some time in the past or intend to visit the city before design studies begin in January.

Second, projects outside Portland must pursue urban design studies as a team of at least two people. For example, if you wish to work on an Amsterdam site, at least two people must work together in the Amsterdam district and select individual project sites within your chosen district. This is intended to promote collaboration and prevent “one here, one there” spread of projects. Teams have more impact. In this year’s studio, for example, teams of two-student teams are working together in highly-successful projects in Red Hook, Brooklyn and St. John’s Newfoundland.

Previous sites in my thesis studios have been located in Portland (approximately half), Seattle, San Francisco, Los Angeles, New York, Denver, Minneapolis, Milwaukee, Cleveland, Detroit, Vancouver B.C.; and overseas in Berlin, Amsterdam, Rome, Spain, Cyprus, China, Vietnam, Korea and many other locations.

Potential project and building types (examples):

Urban Landscapes and Public Space
- Downtown riverfront public and mixed use,
- Transportation and infrastructure,
- Education and recreation, with special relationships to water edge locations,
- Multi-family and group dwellings
Notes on a self-selected project.

From past experience, most students who completed a self-selected project thought they benefited greatly from the opportunity to select and define their own project. Most of the best architecture schools in the country have a student-selected design “thesis”, “capstone” or final comprehensive project of some kind. I strongly believe a self-defined project is an extremely valuable professional experience that best prepares students for the professional world, encouraging research, creativity and resourcefulness.

Preparation During Summer

Studio participants should arrive at the beginning of Fall term with a statement of their project interests: educational and design interests, city location, potential building types. Specific sites and projects will be selected during Fall term as research develops. I will work with each student individually to finalize project and site selection.

Thesis Preparation Seminar: Fall Term

All students in the studio are required to enroll in the Arch 407/507 Thesis Prep Seminar (3 units) scheduled for Fall term. The seminar will focus on the theoretical and conceptual issues of the studio, and provide an opportunity for the preparatory research. Additional credits may be earned for project-related research by enrolling in independent studies.

• A Program document is prepared as a product of the Fall seminar. This is a highly professional document that contains a thesis statement, district and site analysis, and building space program.

The Human Context and Architectural Programming course offered by Yosa Huggins is highly recommended as a support course if you do not have previous program preparation experience.

Studio Structure. Winter + Spring Terms

• The process starts with developing “big picture” conceptual urban design studies for the region, city and district/neighborhood of the site through a charrette process.

• When the studio begins Winter term, regular design studies with pin-ups take place every week to ten days during the term.

• Media selection is generally up to the student, with study guidelines issued for each phase of work. In addition to the use of traditional and digital media, physical study models at different scales, including tectonic models, are emphasized throughout the design process. Study models will serve as important design tools for the studio.

Project Book / Monograph

A project monograph / portfolio presentation is prepared as a final product at the end of Spring term, in addition to the traditional gallery review. These have been highly-successful
publications that exceed the quality of some of the best professional offices. Examples may be viewed on my current Course Folder (open folder). See “Monograph Examples”.

In addition, a class publication is anticipated with grant support. This will be a scholarly and graphically-imaginative monograph that documents the work of the studio as a whole.

Information / Questions
You are encouraged to contact me with any questions you may have or if you want to discuss your interests before studio preferencing or during the summer. It would be helpful for me to know student interests in advance as potential projects are considered.

Gerry Gast

geraldgast@gmail.com

Gerry Gast is an architect and urban designer, a member of the University of Oregon Portland Architecture faculty. For several years he served as Visiting Associate Professor in the Program on Urban Studies at Stanford University, where he taught the core course in urban design. He is a founding principal of Gast-Hillmer Urban Design in the San Francisco Bay area. Recent projects include design of the new Stryiskyi Park campus for the Ukrainian Catholic University in Lviv, Ukraine, and the Urban Design Component of the General Plan in Redwood City, California.

Research interests focus on recent seminal and urban design work, including a comparative study of projects in Vancouver BC, Baltimore, Berlin, the German Ruhr, Barcelona and Curitiba, Brazil. Recent professional work on water edge design includes the Master Plan for the San Diego County Government Center, the Oregon Science and Technology Park (OSTP) in Gresham –Troutdale, OR, citywide and district urban design studies for San Clemente, Dana Point and San Diego, CA.