REGENERATIVE DESIGN
Redesigning and Rebuilding Cities, Towns, Neighborhoods, Streets, Buildings and Gardens, Destroyed by War, Terrorism, Natural Disaster, and Human Failure

Illustration 1: Tsunami Disaster in Japan

“When disaster strikes, we are all aware of it immediately, as the media is quick to convey human suffering and chaos. But after initial attention subsides, the arduous efforts by people from and beyond the region through years of recovery go less noticed during a time, when people are still vulnerable to public health and societal risk that can have permanent and transformative consequences. Architects and builders are part of the wave of second responders, workers who help communities re-establish and heal their internal social, economic, infrastructural and political structures after crisis.”

Symposium on Housing and Disaster Resilience, ACSA Fall 2011

1. Introduction of Project Topic
The idea for this advanced architecture studio or thesis design studio is to help re-establish neighborhoods and urban districts, buildings and streets, plazas and parks, that have been destroyed by war, terrorism, natural disaster, and human failure. Examples of the last two decades in the United States include the terrorist attack in New York on the World trade Center and the rebuilding at Ground Zero, as well as the homegrown terrorist bombing of the Oklahoma City Hall. It also includes the last earthquake of 1989 in San Francisco with the current rebuilding of the Bay Bridge. It includes the current tornados in the South of the US,
and the flooding of the Mississippi. And it includes the unforgettable destruction of one of the most beautiful cities in the US, New Orleans by the monstrous Hurricane Katrina followed by a disastrous oil spill along the Gulf Coast in the Gulf of Mexico.

Illustration 2: Reconstruction at Ground Zero New York

When we look outside the US, other recent natural catastrophes include the earthquakes in Haiti, Chile and China as well as the devastating earthquake and tsunami in Sri Lanka and Indonesia. And most importantly it includes the triple disaster in Japan’s Tohoku region with first an earthquake, second, a tsunami and third a nuclear meltdown of unknown proportions. It is also noticeable that outside the US a large part of disasters and destruction of cities are man-made, happening through war and terrorism, including the wars in the Balkans and Iraq, Pakistan, and the uprising and democratic revolts in Egypt, Tunisia, Libya and most recently in Syria Libya. And it also includes the civil war in Lebanon with the complete rebuilding of the inner city Beirut and other cities such as Saida. In addition, the remnants of older wars in Europe still have a sizable number of locations where rebuilding is needed such as in the inner city of Berlin with the Reichstags-Gebaeude, as a prominent example, but also including the rebuilding of Budapest in Hungary and other Eastern countries.

Projects that arise from everyday human failure can include crime, drugs, destruction of the environment through pollution. It also includes poverty, homelessness, joblessness, and how we treat the poor and not so lucky part of our population, especially children and the older population. The Occupy Wall Street Movement asks serious questions with regard to financial human failures and drastic financial inequality in the US. How do we treat the other 99% of the population and the world is a current phrase that makes the point about very rich and poor.

The main purpose of the studio then is to contribute to the reestablishment, redesign, and rebuilding of disaster areas and urban buildings, buildings in their natural habitat and in their different contexts of urban districts, urban neighborhoods, communities and most of all people. Projects that emphasize improvement of (everyday) human failure are welcome.
2. Urban Architecture Portland
The Urban Architecture Program in Portland focuses on urban architecture and urban sustainability in Portland and other cities in the US and abroad. This is a thesis studio with the general topical focus, and the overall project selected by the instructor. The design studio is preceded by a mandatory fall term thesis preparation research seminar 407/507 with the studios in the winter quarter 2013 and spring quarter 2013. Also a few preparatory exercises in the summer of 2012 are requested. The emphasis of the studio is to design in and for a devastated area and to develop a comprehensive urban architectural project within this context backed by rigorous research efforts, theoretical explorations, and creative work. Students will select a problem and disaster area, study it, and redesign all or part of it. There are two components to this design. The first part is an urban design exercise that can be done either in groups collectively or individually. The second component deals with the design of an individual building project within the destruction zone that needs to be fully designed by the individual student.

3. (Re)Generative Design: Seminar Arch 407/507 (Fall 2012 required)
The seminar will focus on the theoretical and conceptual issues of the studio. The overall theme is to explore (re)generative processes and their potential application in planning, design and building processes in destroyed cities, urban districts and buildings. All thesis students will participate in the seminar by investigating particular aspects of generative and regenerative urban design and responsive urban architecture in different experiments, tests, and simulations of design processes following particular principles, set rules, criteria and parameters. Each student will study one particular case and present it in the seminar. A Thesis Statement and a Program Document are produced as part of a Research Report.
Generative or Regenerative Design, an applied form of generative science, tries to understand and conceptualize the world and its complex structure as a generative or regenerative process. Generative Design attempts to formulate limited parameters, principles, and rules that interact with each other to create richness of life and behavior, and endless variation of form, shape and place.

Generative design explores the design process also as an (re)emergent process at several levels, including but not limited to physical, artistic, and social cultural factors. This also means that communal or community generative processes are of specific interest here. These kinds of processes might be more and more important in solving our world processes in the future.

Illustration 4: The Berlin Reichstag during WWII and as recently redesigned by Foster Associates

Illustration 5: The Cupola of the Berlin Reichstag as designed and built by Foster Associates

4. Schedule: Summer 2012 Over the summer students will start to investigate the topic of ‘Regenerative Design after War, Terrorism, Natural Disaster, and Human Failure’ in relation to their own possible project. In this context students will consider and select their thesis design project by specific topic, type and site. For example a student might select one of the devastated earthquake areas in San Francisco/Oakland from 1989. By the beginning of fall each student will have a 3-5 pages description of an urban architecture project within the studio topic (due at the end of summer, beginning of fall).

Fall 2012: Arch 407/507: Advanced Architecture Design Seminar - Thesis Preparation. During this seminar students will address relevant urban design aspects of the core thesis topic and how it relates to one’s own particular topic and building design.
• Explore the topic of ‘Regenerative Design after War, Terrorism and Natural Disaster, and Human Failure.’
• Find a city and site and possibly a group of people (client, agency) as a resource group that you want to work with. (NGO’s and other organizations)
• Develop a program (project language) for your individual project based on The Programming Class Arch 4/508 and the thesis seminar.
• Deliver a project book (thesis statement) at the end of the fall quarter that includes your research and initial design.

Books to read over the summer:
• Expanding Architecture: Design as Activism
• Beyond Shelter: Architecture and Human Dignity
• Design Like you Give a Damn
• Studio at Large

**Winter 2013:** Arch 485/585: Advanced Architecture Studio Projects
In the winter quarter students will start to develop their individual building designs and demonstrate how their urban design responds to the general topic of ‘Regenerative Design after War, Terrorism, Natural Disaster, and Human Failure’ with particular project challenges of site, city and group of people (client). Demonstrate how your project will regenerate the city, district or neighborhood and make the place whole again. By the end of winter quarter the project design needs to be complete in essence and substance. Students will spend half of the quarter on exciting new generative urban design concepts, methods and projects. During the second half of the quarter students will focus on their individual design project, and develop rigorous design studies that include supporting building systems for this project such construction systems, tectonic structures and models.

**Spring 2013:** Arch 486/586: Advanced Architecture Studio Projects
In the spring quarter, students will fully develop their design to completion, including detailed sets of drawings, models, and presentation boards. Students will come back to the urban design work and integrate urban design and the architecture project in a coherent fashion demonstrating aspects of the generative design process. Students will continue to work on their architectural individual building projects by focusing on specialized aspects such as urban landscape and building system aspects. Most importantly, students will focus in the last month of their work on comprehensive project presentation including presentation panels, models and a project booklet as monograph.

**Hans Joachim (Hajo) Neis, Ph.D.** Associate Professor, Director of Portland Urban Architecture Research Lab PUARL. Professor Neis teaches urban architecture and urban theory with emphasis on city building and the art of building. He has previously taught at the University of California, Frankfurt University, the Prince of Wales Urban UDTF, the Technical University of Dresden, the University of Duisburg-Essen, and Meiji University in Tokyo. His main interest in research and design include, the question of quality and value in architecture and urban structure and the question of process and processes which create quality in buildings and the urban fabric.

As a practicing and licensed architect and planner for over 30 years, he has designed more than 300 buildings and built 100 buildings. He works together with CES ad also heads his own architecture office Hajo Neis Atelier (HNA) in Berkeley, and Germany with projects in the US, Japan, and Germany. Dr. Neis has published

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Professor Dr. Hajo Neis, May 2012