**GSAPP COLUMBIA UNIVERSITY**
ADVANCED DESIGN STUDIO V
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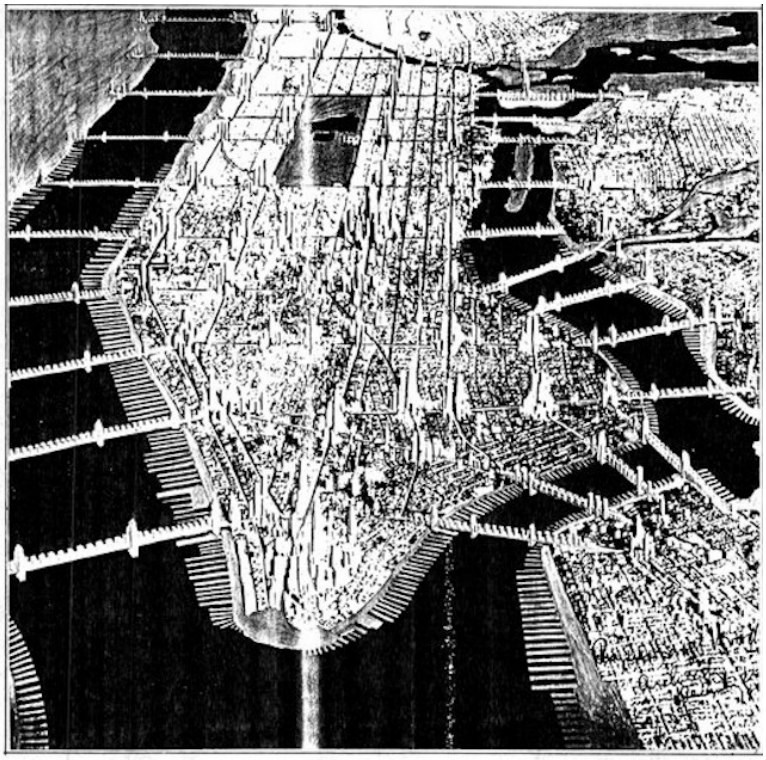
# THE ARCHITECTURE OF LIQUID CITIES
## Hard + Soft Infrastructure



*Proposal for Manhattan in the year 1950*
*Raymond Hood 1929*

**Studio Proposal**
Viewed with the long lens of the history of cities the decoupling of infrastructure and architecture can be considered to be a fairly recent occurrence.

Following on the heels of the Enlightenment, the privileging of mobility and efficiency since the beginning of the twentieth century has served to almost completely extricate architecture from within infrastructural systems.

As cities continue to evolve in the 21st century what are the new possibilities, or perhaps imperatives, for creating new types of urban architectural/infrastructural assemblies? And within these how can new technological, political, social, economic and environmental prerogatives be addressed?

**Assumptions:**
- the trajectory of development in major urban centers will follow the arc of hyper-densification
- the hyperdense city will require investment in urban infrastructure to support densification

**Premise:**
In the not too distant future due to hyper-densification cities become victims of their own success. Transferrable air rights in desirable locations are depleted or have become stratospherically expensive. Waterfront development, once highly desirable, is abandoned due to potentially catastrophic risks as a result of climate change. An ensuing space race for developable air rights urgently requires urban expansion into new untapped territory.

In order for supply to meet demand the space ABOVE the rivers and waterways that meander through or around the city is recouped as the site for new urban development, either public, private or both.

The City benefits from leasing air rights to private entities and/or the City can use the new development for public amenities for which there is no longer any urban site available. Uses can range from 'undesirable' behemoth structures such as convention centers and stadia, to new buildings that will support economic development or satisfy various social, cultural, or educational needs.

**Proposal**
In this studio we will create and invent new habitable structures to span across waterways and colonize this new airspace. Neither conventional bridges nor mega buildings - these interventions are intended to be a 'somewhere' between a 'here' and a there', to connect rather than separate, to be places of production and occupancy as well as spaces of mobility.

What might be the outcome of an infrastructural condition that is entwined with a rich assortment of programs, functions and public amenities? Can technologies and characteristics associated with infrastructure such as the integration of sensors, robotics and automation, redundancies, modularity, flexibility and adaptability be used to create an architecture of pliability and resilience? What is the potential here in terms of energy and sustainability?

**Sites**
The studio will use selected river locations in dense urban settings as 'test sites' for prototype designs and that could be potentially be adapted for anywhere. Locations tentatively include as Istanbul, Budapest, Seoul, Mumbai, New York, London and other global sites. We will explore the opportunities latent in the generic air space above the water while identifying issues that are both unique or common to the various urban settings.

**Programs**
The specific programs will be the result of a reconciliation and integration, through the architecture, of **HARD** and ***soft*** infrastructure.

HARD infrastructure is here understood as being comprised of network and nodes, that enable movement - the transmission, delivery or conveyance of people, information, fluids, commodities, energy, vehicles, ships and trains among others. Hard infrastructure includes bridges, roads, waterways, pedestrian walkways, bicycle paths, mass transit system, ports, airports and stations, power plants and generating equipment, power distribution networks, water supply and sewer system etc as well as the systems that they are controlled, operated and monitored by.

*Soft* infrastructure also includes both physical assets such as highly specialized buildings and equipment, as well as non-physical assets such as systems of organizations, standards, rules and regulations but in contrast to the above Soft Infrastructure frequently involves enabling the delivery of what can broadly be called 'services'.

We will use architecture as the means through which the convergence of **HARD** and ***soft*** infrastructure is negotiated and mediated. Students will each be assigned to derive specific programs from one (or more) of following 6 typologies of Soft Infrastructure:

- Business travel and tourism infrastructure: (eg. Entertainment venues, tourist attractions, hotels, convention centers)
- Educational and research infrastructure: (eg. educational facilities and systems, incubators, laboratories...)
- Cultural infrastructure (eg. concert hall, museums, libraries, theaters)
- Social infrastructure: (eg. health and welfare related systems and facilities),)
- Economic infrastructure (eg special economic zones, factories, business parks, warehouses, financial system and institutions)
- Sports and recreational infrastructure: (eg. sports facilities such as arenas, velodromes, stadia, courts, ball fields, pools, rinks, parks and attendant amenities)

**Studio Process**
The studio will take place M-W-F 2-6pm

The studio will undertake an initial phase of research/conceptual investigation. Working in teams or individually, students will concurrently investigate test sites, develop programs and strategies towards defining their final architectural proposal. Working in teams is not mandatory but highly encouraged.

The studio will rely heavily on a process of iterative of digital 3D modeling to enable the exploration of concepts of modularity, adaptability, flexibility and change. Ongoing use of 3D printing and digital output will further enable continual testing and review and of the evolving states of the projects.