AN EAST END
STUDIO SPACE SPECULATION
2018-2019
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Space Speculation is a research by design studio linked to the Laboratory of Urbanism, Infrastructure, and Ecologies (LoUIsE). The studio starts from two convictions: (I) the capacity of cities to help us understand our present state; (ii) their socio-economic and ecological transition as the premise for a sustainable future.

To be able to accompany such transition, the studio invites spatial designers to move beyond the object-centered legacy of urbanism and towards a systemic understanding of cities, seizing upon flows, actors, and places for their proposals of urban transformation.

The studio looks indeed at cities as complex and interactive ecosystems. Cities are woven into material and energy flows and stocks, and depend upon specific technical and socio-economic processes of production and consumption (1). The turbulent and unstable times we inhabit, with the Earth system being pushed into the Anthropocene, are an invitation to go beyond the inventory of those flows and stocks, and to wonder how we can partake in those processes as spatial designers: How to incorporate the unsteady assemblages they trigger (or are the result of) into the design of physical places? And how can we render them more sustainable, more resilient, eventually more ‘circular’ (2)? Can circularity indeed become the next normative framework for the way we systematically ‘redesign’ those processes happening within cities?

These and yet more questions for all those who are willing to join us at the studio to explore the operative potential of systemic urban design, contributing to make cities regenerative and facilitating their adaptation to emerging challenges.

Nadia Casabella + Philippe De Clerck
From linear to circular urban systems (own diagram based on Novotny, 2013).
“By this time, the 1660s, almost every acre of the North Sea had been mapped and named, its secrets disinterred. Cats, colliers, pinks and every other kind of vessel traipsed between Newcastle and the Thames, to Kiel, Crail, Amsterdam, Bergen, Lerwick, Ipswich, Hamburg, Edinburgh and Esbjerg. The riches of northern Europe, its timbers, furs and cloths, lured in traders from the south who sailed up from Mediterranean and Barbary Coast ports in exotically lateened caravels.” Blass, Tom. The Naked Shore (p. 11).

This semester, we will dive into the Port of Ostend, located at the North Sea and at the mouth of the canal linking it to Brugge and beyond, to an essential economic and logistical network of players. Once the point of arrival and trading of Belgian fisheries, serving an important market and processing industry stretching over the whole North-Western European region (from Amsterdam to Koln to Luxembourg), the port has seen this activity mostly substituted by the assembling of the wind turbines that populate the offshore wind park. As many port areas, part of its old industrial waterfront has been redeveloped for housing (e.g., Baelskaai at Oosteroever), which means that any future project will have to meet the conflicting demands (housing and working areas, and recreation and nature development) of these mixed-use districts.

The current port of Ostend was created following the man-made piercing of the dunes with a gully (Oostegeul) in the third quarter of the 15th century. This gully was built as part of a military strategy to prevent guns and canons from being positioned on those dunes and oriented towards the walled city. The result was an artificial inundation of the area, of a scale that was entirely unexpected, caused by the violent tidal activity of the sea during part of the 14th and 16th centuries. The eastern side of the city became a landscape of creeks - with the Keignaard creek later becoming the new bed for the construction of the canal to Bruges. From the
end of the 16th century on, Ostend became a closed fortified town and got its first reinforcements: a bastioned ring wall with gates. After the gradual reclamation of the gully’s flooding area, the Ostend polders were created, used formerly as sluice polders for the port until the first quarter of the 19th century. All those works forcing nature into an engineered corset always had a military and strategic role, and the expansion of the city was forever paired with these military purposes. This trend was only reversed with the declaration of independence in 1830. Only then could Ostend grow into a unique place as a trading and fishing city. From the construction of the Bruges-Ostend rail link (1838), it developed into a fashionable seaside resort and a royal residence of Leopold I. On 20 March in 1865, by decree, the city was allowed to demolish its walls.

Nowadays, the port is compartmented into a tidal port, where the sea enters freely, and a non-tidal port, which is closed by locks. The tidal port comprises the whole area westwards of the locks Visserij (Fisheries), Sas-Slijkens, and Demey. The non-tidal port is located after those locks. The port is partly owned by the State, and partly by the City of Ostend. In 2000, the total area of the port area was around 475 ha. The average low water is TAW + 0.39 m, the high water is TAW + 4.28 m, a tidal difference which explains the construction of a locks and docks complex. The total water surface is approximately 115 ha, and the whole bank length 11,000 m. The industrial area is about 300 ha big and accommodates port-related industry (stevedores, transshipment companies), logistics, chemical industry, fishing-related companies, the navy and, since recently, the REBO (Renewable Energy Base Ostend, for the offshore platforms). There is a large Spuikom to the south-east of the harbor.
Assembling turbines @ REBO - Ostend
The east end is a space of mediation between the sea and the land, and between the dunes and the polder. It all started with the creation of new land out of marsh and sea between the 10th and the 12th century: the systematic embankment and the erection of permanent dikes allowed settlements to move from higher grounds to the coastal floodplain. Because of the extremely dynamic nature of the North Sea coastal system, this first urbanization of the seashore was put permanently under thread, witnessing several episodes of radical change since the initial reclamation in the High Middle Ages. Above all, the sometimes catastrophic storm surges helped to demonstrate the degree of fragility that characterized these man-made landscapes, at least up to the 18th century, when new hydraulic inventions were implemented.

The east end is physically located at the seashore, a limit between the land and the sea, and discursively situated at the limits of our planet, in the sense that this planet has become too small to metabolize human activity and come out untouched from it. The idea that humans could fundamentally alter the earth is new, let alone that humankind would induce a new geological era called the Anthropocene (Paul Crutzen and Eugene Stoermer, 2000). As the climate warms and CO₂ concentration increases, climate...
departs significantly from expected behavior, and we start feeling the consequences: accelerated melting of the Greenland and West Antarctic ice sheets; sea level rise; an increase in mortality in coral reefs; tropics expanding; the ocean turning acid; and a loss of biodiversity. We are at a critical juncture.

After centuries of urbanization shaping the sea, we feel that our challenge now is to understand how water will shape the city: What can we learn from the seashore that can find a useful application in the economies and ecologies of the future? What kind of new relationships between energy, new residence typologies, water management, waste streams, freight cargo, marine biodiversity, maritime crafts, and pre-industrial live-work modes can make the port evolve into a genuinely prolific, circular zone? What does it mean to practice design in the Anthropocene Age? How to grapple the complex interconnections between design and the environment? Is change actually in our hands?
Exhibition of the BREAKWATERS project, showing what lies underneath the Staten Island Ferry route (SCAPE, 2018)
They say that climate shift will raise the sea level and increase the frequency of big storms. But climate change is already happening. At the same time, caused partly by the exhaustion of oil, and partly because of the urgency to reduce CO2 emissions and stop the plastic soup in which our oceans are being currently transformed, we will be entering a Post-Petrol era. This new era necessitates alternative sources of energy and materials (for building, for eating, for manufacturing, for moving around...), and a regenerative approach to landscapes that starts from a deeper understanding of how nature works.

With this scenario as a backcloth, students might decide to follow some of the indications below as if they were buoys at sea marking safe channels for sailing craft:
- to work on the energy transition challenge;
- to work on the question of seawater as matter;
- to work on issues related to coastal defense, through grey or green infrastructure strategies;
- to work on the developmental city approach deployed by the local government, artificially and speculatively raising the land value within its territory.

The site of our explorations: a lax understanding of the place the Ostend Port occupies (defined by a circle of about 1,000 m radii, centered on the REBO pier).

ENERGY TRANSITION: Phasing out fossil fuels to reduce emissions and ‘decarbonize’ the energy system will require a timely implementation of other energy sources, like renewable ones, fed by a vast diversity of sources and devices. On this regard, the territory of the port and its link both to the offshore wind park and the industrial-port lend themselves to some innovation, not only by cause of the presence of many energy agents, but also
Growing Seaweed (Aquaculture)

Tidal Energy

Wind Turbines

Solar

Biodigester

Energy Switch: Electrical Storage and Distribution

Energy Switch: Thermal Storage and Distribution

Commercial Distributed Generation and Storage

Electric Vehicles as Storage

Residential Distributed Generation and Storage

Residual Heat

Microgrid Heat Exchange

Cold Water for Cooling (>18°C)

Warm Water for Heating (>40°C)

IABR Atelier Rotterdam: M4H Energy potential (1010au, 2018)
as test sites for experimenting tomorrow’s modes of production and energy consumption. Water will undoubtedly play an essential role in it, as regards both energy generation and storage (tidal and waves, algae cultivation, extracting energy from wastewater). Biogas could be locally generated from biomass digestion, and the considerable share of warehouses already in the port could be fitted with solar panels. In addition, this energy challenge is closely linked to the management of other resources, some of which also pass through the ports, including ores. At what scale should energy actually be managed? And what could be its impact on the industrial ecosystem that is connected to ports, on the management of waste and eventual valuable secondary resources?

SEAWATER AS MATTER: The seawater is one of Earth’s most valuable natural resources. It provides food in the form of fish, shellfish, and seaweed. It is the habitat of increasingly important organisms with enormous potential for fighting disease. It is mined for minerals (chloride, sodium, magnesium, sulfur, calcium, ...). Sometimes it is desalinated and used as potable water. Changes on the sea bottom, like sand extraction or regular dredging inside ports, have an adverse impact by disrupting the biochemical balance of the seawater. Other negative impacts of human activity include overfishing, excess nutrients, rising atmospheric carbon dioxide, and pollution. Shipping, while mostly having a low impact on the environment, can be the source of serious problems, such as oil spills, or the release on a regular basis of air pollutants in the form of sulfur dioxide, nitrogen oxides, carbon dioxide, hydrocarbons, and carbon monoxide. Which kind of project would trigger the ecological regeneration of the shore? And how could this become a source
of renewed marine resources and economies while assuring the recovery of the coastal habitat?

COASTAL DEFENCE: The Belgian coast is part of a dynamic, sandy coastal system. That coast is continually changing, driven by the varying rising speeds of the sea level over the past thousands of years. In order to curb the risks for the urbanized areas of storm and spring tide and land loss due to coastal erosion, a series of beachheads and sea dikes has been installed. To complement this defense system, and to combat the combined danger of rising water level and the extra wave height during storms, sand replenishment coupled with dike reinforcement have been realized, changing the Belgian coast drastically, by distancing the sea dike further from the sea by widening and raising the beach zone. On the port, canal, and estuaries, quays are being reinforced, walls kept at sufficient height and tidal surge barriers erected. These solutions are known as ‘hard’ or ‘grey’ infrastructure, which performs right in the case of emergencies but ruins the shore ecosystem. How to design resilient coastal landscapes able to break storm surges and to consolidate green infrastructure solutions (aka. building-with-nature solutions) to protect from the effects of sea-level rise?

DEVELOPMENTAL CITY: Governments in developmental cities invest and mobilize the majority of capital and assets they hold into specific sectors in anticipation of profitable returns (in the form of direct revenues for the city, spillover effects or the creation of an appealing image for the public a city might target). In the case of Ostend, the two economic sectors that have proven to be the most profitable are tourism and land (re)development. Recent land (re)development projects on the outskirts of the consolidated city,
Kadelint Oostende (POSAD, 2018)
propped up by inflated real estate markets, keep on begetting radically unsustainable solutions. On the other hand, the city is compelled to maintain the actual coastline and beach because of tourism, while the 1000-year-old ancient polder landscape lies several meters below high tide level, and suffers from drought and soil subsidence. Do we understand the mechanisms at play? And what kind be the alternative: buy in or die?

Restauring fishing nets @ Ooster-oever - Ostend East Bank, and the fish market @ Visserskaai - Ostend (around the turn of the 19th to the 20th century)
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<tr>
<th>Week</th>
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<tr>
<td>W1</td>
<td>11/02</td>
<td>FRAMING</td>
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<td>W2</td>
<td>18/02</td>
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<td>W3</td>
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<td>W6</td>
<td>18/03</td>
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<td>W7</td>
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<td>W10</td>
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<td>W11</td>
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<td>THE WAY 2 GET THERE</td>
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<td>W12</td>
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<td>W14</td>
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<td>W15</td>
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The planning of the design studio is organized in a series of deadlines. Compliance with these deadlines is key to a relaxed evolution of the semester. It also assures a correct sharing of findings among the studio participants. Below follows a complete description of these deadlines.

FRAMING: Students choose a topic or area and formulate their first hypothesis/research question by exposing it to the rest. The format is free, but the presentation should contain all elements necessary to a correct understanding of the students’ choice and its underpinning reasons. Students are encouraged to showcase the information they gather, be it in the form of a quote, a picture, an audio recording... A compelling, and critical research question is the best guarantee of entering into a positive, creative direction.

INQUIRING: We see design as an informed process of inquiry, more often than not collectively driven. We invite students at this stage to a double inquiry: on the one hand, gather material (all kinds, from pictures to interviews to observation to reference projects to quantitative data...) in order to carry on their first hypothesis and eventually to refine their research questions; on the other, explore the spatial potencies of the research question (dimensions, relationship to public space, physical access, visibility and aesthetics...). A series of activities (watching a film, visiting a museum or reading a text) will be organized to accompany and feed students in their quest. A short paper or simplified diagram reflecting on the activity should be submitted as part of the student evaluation.

About one month after the start of the design studio, students will share the insights they gained during the inquiry phase with the rest of the participants. The format is free, but the material displayed should suffice to state the type of architectural project students will develop in the following 10 weeks.
(3 of which are deprived of studio tutorials). We all should be aware that the more we know about our specific question or hypothesis at this point, the easier will be to orient further progress. By way of example, the research delivered by students in previous years covered issues such as: FLOWS and ACTORS involved in the treatment of e-waste in Brussels; reference projects for the commercialization of recuperated goods and materials; the future use of cars in the city (sharing, uber, integrated in real estate developments...); the strategies developed by the big car manufacturers in order to keep ownership of the valuable, reusable materials cars are made of and mine them once cars’ lifetime is over; industrial installations of (an)aerobic treatment of organic waste inside cities; soil remediation techniques; sustainable water management; aquaponics using residual energy and water; etc.

REFINING: Students review and revise the initial hypothesis/research question and define the project they will develop till the end of the semester. The thicker the inquiry process will have been, the richer the design solutions will be (also at an architectural level). Format: conventional architectural material (scaled plans, models, collages, 3D renders...) that can still be assembled casually or projected in the classroom.

DISPLAYING: Students collect and organize the work so far developed within the design studio in a dossier (format DINA 4) and submit it for feedback at the start of the week. Parallel to this, BA3 and MA2 students will be given an individual task to be completed and submitted by the end of the same week. This individual task is thought as an alternative solution for the BA3 and MA2 students’ duty to submit an individual project at the end. Our past experience demonstrates to which extent the split of teams half-way the semester has been counterproductive to both the studio learning...
After the Spring Break, a jury will be organized during which a group of guests will react to (1) the dossier compiling the research-by-design group-work of the first 6 weeks; and (2) a short oral presentation of 10-15 minutes by group in the morning. In the afternoon, the same guests will react to the BA3 and MA2 individual projects. The graphic quality and the textual exactness of the contents will be strongly valued, and considered as a bias for a precise and engaged design research process.

THE WAY TO GET THERE: Spatial design should always incorporate a reflection on the process to achieve our goals (e.g., ACTORS to approach, budget, societal or technological transitions and/or disruptions, the scale of the physical change, and the FLOWS therein involved). Students should continue working on their architectural documents while incorporating the first ideas related to the ACTORS and the FLOWS to involve, which they deem needed in the realization of their project.

DEMONSTRATION: Students present their projects by way of architectural documents and isolate the architectural and technological innovations that would be needed to realize their project. A group of experts will react to their proposals and provide prompt feedback.

GREEN LIGHT: Students present the entire work elaborated throughout the semester, and an external jury will assess the consistency of the story and of the approach before the FINAL JURY. This in-between moment is intended as the first test with externals, with the aim of identifying possible flaws or betterments in the students' work.

END OF JUNE: FINAL JURY: Planned during the week of June 24th-28th (please, do not book your eventual flights before confirmation of the jury date!).
UPCOMING EVENTS

08/02 + 12/02 Presentations @ULB Flagey
Stefan DEVOLDERE, Bert GELLYNCK, Elbert ARENS, Nik NAUDTS, Maxime PEETERS

15/02 Ostend: site visit

26/02 Lecture @ULB Flagey
Tim SOENS
“Building with Nature and History: Ostend, the Flemish Coast and the Sea in historical perspective”

05/03 Seminar 1: film @ULB Flagey

22/03 Seminar 2: text @ULB Flagey
METHODOLOGY

Students can choose to work individually or in a group (up to 4 participants), until the end of the semester. Groups will be formed during the first design tutorial based on shared research interests.

Herewith follows a series of methodological recommendations to guide your work:

- informed thinking: every hypothesis should be backed up by evidence of some sort;

- iteration between analysis and design based on data interpretation instead of data inventory and replication, i.e., we prefer reasoning instead of displaying, argumentation instead of information, fabricating instead of recollecting, intentions instead of regulations...;

- collaborative approach: we encourage co-creation inside the design studio, joint ownership, and collaboration throughout all stages of the design, and teamwork;

- design research: use urban design as a probing tool to understand the underlying reasons of the city’s form and dynamics, making sense of the world, as well as an instrument to imaginatively act and modify reality;

- clear and innovative communication: we encourage students to rethink the communication tools they have at their disposal, and to escape the abstraction and comprehensiveness of the plan that reigns in the urban design world in order to explore alternative ways of making our work available to others (e.g. scripts, animated images, axonometric perspectives, soundscapes, collages, models...);

- ambitious, beautiful products: many times your work will be judged based on the promise you show on a piece of paper, and in the case of urban design, the stretched time between conception and realization can make actors and stakeholders forget what the intentions of your proposal were in the first place... both the end and intermediary products (deliverables) of your design proposals, and the process sustaining them should be shown in the most beautiful and intriguing bundle possible, making them ‘memorable’ in a broad sense of the word.
BIBLIOGRAPHY

Ostend

1010au, Oostende Kustlint (research by design commissioned by the Stadstalier), 2017


BUUR, Oostende Baelskaai Masterplan, 2015


*H+N+S & Deltares, Metropolitaan


POSAD, Kadelint (research by design commissioned by the Stadstalier), 2018


Ports and the North-Sea


Kokot, Waltraud et al. (ed.). Port Cities as Areas of Transition: Ethnographic Perspectives. Transcript Verlag, 2008

*Hein, Carola. Port Cities: Dynamic Landscapes and Global Networks, Routledge, 2011


Urban Eco(nomic)systems

*Chansigaud, Valerie. Les combats pour la nature. De la protection de la nature au progres social. Buchet/Chastel, 2018


Kennedy, C., Pincetl, S., Bunje, P. “The study of urban metabolism and its applications to urban planning and design,” Environmental Pollution:1-9, 2010


Macfarlane, Robert. “Generation
Anthropocene: How humans have altered the planet for ever”, The Guardian, Fri 1 Apr 2016. Retrievable from https://www.theguardian.com/books/2016/apr/01/generation-anthropocene-altered-planet-for-ever


Pye, Michael. The Edge of the World: How the North Sea Made Us Who We Are. XXXX

Raworth, Kate. Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. Random House, 2017


TED talks

*George, Rose. “Inside the secret shipping industry,” 2013: https://www.ted.com/talks/rose_george_inside_the_secret_shipping_industry


*Oreskes, Naomi. “Why we should trust scientists,” 2014: https://www.ted.com/talks/naomi_oreskes_why_we_should_believe_in_science

*Sonneveld, Astrid. “The Good Shipping Programme,” 2017:
https://www.youtube.com/watch?v=l7S79oWmbal

Other Media


*Cyclifier, https://www.cyclifier.org/

*Drivers of change, ARUP app available for IOS and Android


*LDE Centre for Metropolis and Mainport, http://www.metropolisandmainport.nl/home

*Natuurpunt. Policy dossiers over coastal defense / Beleidsdossier Kustbescherming (containing many relevant documents, among them the Kappa Plan), https://www.natuurpunt.be/node/2657


*Port City Futures, http://portcityfutures.org/

NB: all documents lacking the symbol (*) in front of their name are available in the dedicated drive of the Design Unit SPACE SPECULATION.
Notes on Page 3:

(2) A Circular Economy (CE) “is regenerative and waste-free by design, where materials are indefinitely cycled at high quality, all energy is derived from renewable or otherwise sustainable sources, and natural and human capital are structurally supported rather than degraded through economic activities” (webpage of the Ellen MacArthur Foundation).

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Page 19, Oostende Beeldbank, “Netten breien op de Visserskaai”, https://www.beeldbankkusterfgoed.be/m/d6518d1dd86640c1bc3a76679a1cbb65d50a348f5424a4a93a719ef5d0b257cdd
Page 20, “Staketsel en maalboot die de haven verlaat”, https://www.beeldbankkusterfgoed.be/m/9cc2db71638d4ae389393918291e83fb71b30413bc01472ea9bb8f6b68da0aa
Pages 24-25, “Boot verlaat de haven”, https://www.beeldbankkusterfgoed.be/m/ffa5280a08924ff8bf1b759b456e2b1018456d7142804b06b353eff13815af3f

Text by Nadia Casabella
Cover picture by Jonathan Ortegat, Ostend port view with the Lange Nelle lighthouse