

ARCHITECTURE OF CONSEQUENCE

DUTCH DESIGNS
ON THE FUTURE

"A RESCUE OPERATION..."
- OLE BOUMAN, NAI

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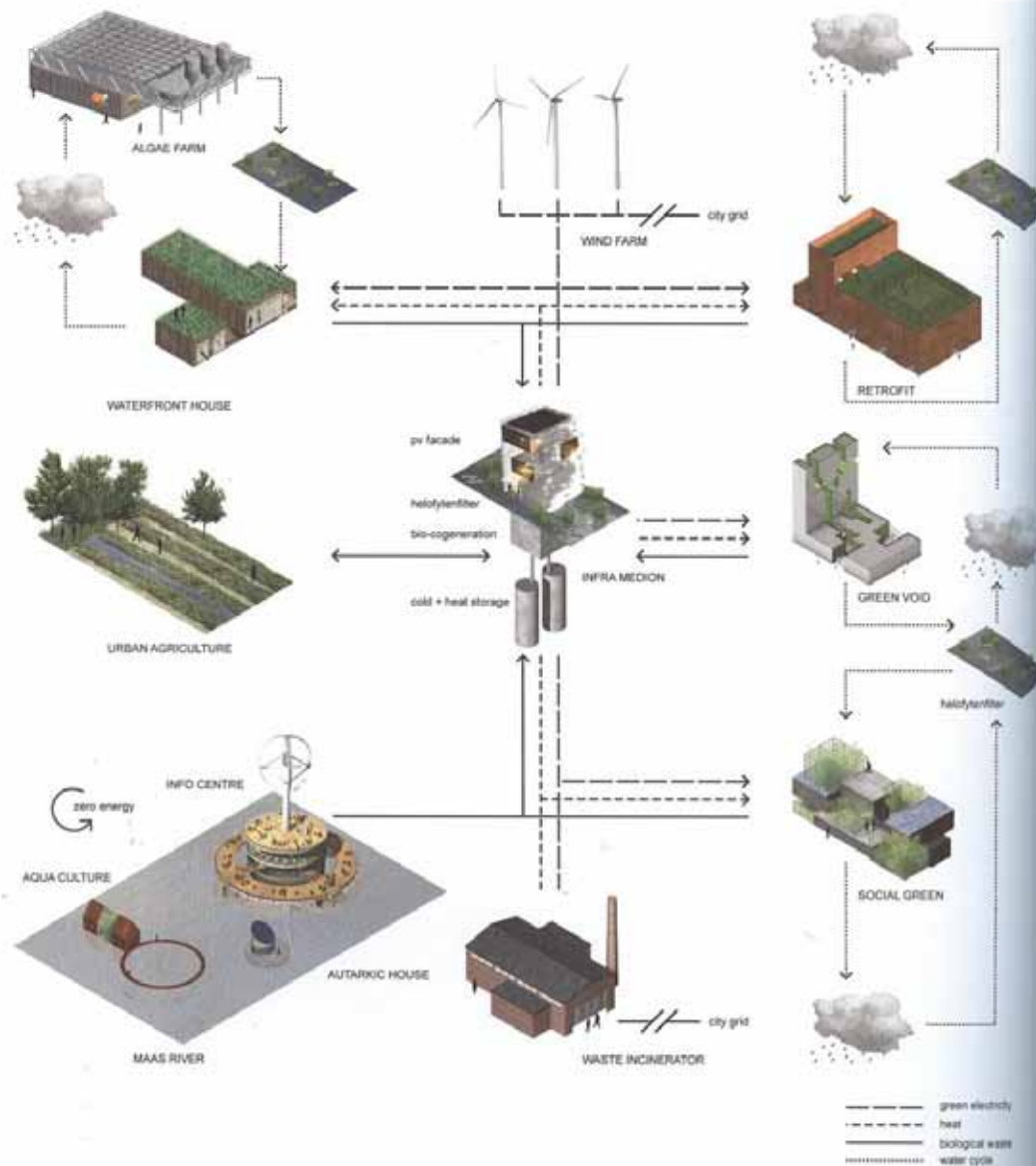
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ADAPT OR DIE

Doepel Strijkers Architects anticipates the effects of climate change by **closing various cycles at the building level**. The upscaling of this strategy to the level of cities and even countries is the next step. The logic of flows, paying attention to social, cultural and practical aspects ensures a balanced final result.

Themes





It is no longer sufficient to focus purely on architecture and strategies for preventing climate change. It is essential that we develop cities that can adapt to the effects of global warming, especially in low-lying areas like the Netherlands and in the developing countries which will be hardest hit. The time has come. Climate change and the global economic crisis have created the conditions for a renewables revolution. The coming decades will see a shift from an economy driven by fossil fuel to one based on renewable energy, a transition that will be accompanied by innovative architectural typologies and urban forms, derived from a new logic, the logic of energy flows and decentralized production.

Nature works in cycles. We can mimic this in the built environment, thereby optimizing the use of energy, water and natural resources. This principle is applied in REAP (Rotterdam Energy Approach and Planning), a methodology developed for CO₂-neutral city design.¹ The first step is to reduce the amount of energy a building consumes. Considering that 98 per cent of the built environment is existing stock, there are huge gains to be had by *retrofitting*. Smart design of new structures based on simple, age-old principles such as orientation to the sun and wind, compact volumes and good insulation can immediately reduce the energy demand by up to 40 per cent.

The second step is to balance energy demand and supply on the building scale. Strategies include harvesting heat from waste streams and energy exchange between functions. If a balance cannot be created at the level of the building, we upscale to the cluster or district level. By harvesting available energy and putting it back into the system or utilizing it at a higher level, we can eliminate waste altogether. Energy, water and materials stay in either the biological or the technical cycle. The final step in this approach is the generation of renewable energy at both the building and district levels. It is already technically possible to create buildings and districts that generate more energy than they consume, making the step towards decentralized production a reality.

This methodology results in urban configurations and buildings with an inherent logic based on flows. Form is not preconceived or image-driven. It is a logical response to climatic parameters, available technologies, local materials and energy flows. But the design of a building or the transformation of a district is not

just about energy, water and waste. The process itself needs to be given form if it is to have an added value for the community and local economy. There is little point in an energy-neutral building or district if you are not concerned with its social function, cultural significance or long-term use. This is the element that closes the circle.² – Duzan Doepel and Eline Strijkers

Stadshavens Rotterdam 1600 ha
The Rotterdam Climate Campus was launched in November 2006 to transform the Stadshavens Rotterdam 1600 ha (City Ports Rotterdam 1600 ha) from a fossil-based to a renewable economy.³ The ultimate ambition is to achieve a sustainable harbour intrinsically connected with the surrounding city and characterised by a high in ecological, social and sustainable quality of life. A sustainability standard calculated from ten qualitative and quantitative indicators forms the basic set of criteria for all developments in the region.⁴ The synergy between innovation and district development will make the Rotterdam Climate Campus, CityPorts Rotterdam and the Delft Rotterdam region the focus of innovation and knowledge generation in north-western Europe.⁵



¹ REAP (Rotterdam Energy Approach and Planning) developed in collaboration with Delft University of Technology, JA, and the Municipality of Rotterdam, commissioned by the Rotterdam Climate Initiative and CityPorts Rotterdam.



² The Dutch Clean Tech Delta is a public-private partnership between the Municipality of Rotterdam, the Port of Rotterdam, the business sector and knowledge institutes.

³ Sustainability Standard CityPorts Rotterdam 1600 ha. Developed in collaboration with Nico Tillie (Delft University of Technology) and Professor Jan Rotmans (Drift, Erasmus University).

⁴ Based on the Rotterdam Climate Campus conceptual business case 'From Climate Campus to Clean Tech Delta'.