

GDECA questions – answers FOR: a Vessel for Change

Moored at Rijnhaven port in Rotterdam, Floating Office Rotterdam is the largest floating office in the world. It is a building for a new age. Off grid and carbon-neutral, it floats – rather than floods – if water levels rise due to climate change. Fun as well as functional, it also forms a key element in a newly redeveloped port environment by providing public waterside space – and even a swimming pool. The anchor tenant is the Global Centre on Adaptation (United Nations' sustainability department). Its mission is to develop and share knowledge on climate change.

The heat pump with surface water heat exchange is one of the innovations that showcases the building's mission for sustainability, climate change and circularity. The heat and cold generation is supplied by two heat pumps, which are placed in the floating building's pontoon. The pontoon consists of 15 similar prefab concrete floating boxes. In the bottom plate of 13 of these boxes a heat generating network of tubes is poured in the concrete, which extracts heat or cold from the surface water. Thus, the pontoon functions as the heat exchanger between the river water and the building, by feeding the gained heat/cold feeds to the climate ceilings on the office floors. All the electricity for the heat pumps is delivered by the solar PV-panels on the roof of the building, making it a net zero installation.

This type of heat pump with surface water heat exchange is the first in its kind. It is remarkable because it uses the architecture of the floating office (a building on a float) to gain energy with low maintenance costs and minimal impact on the water environment. Therefore, the floating office is not only an example of sustainability from an aesthetical viewpoint, but also from a technical/functional.

The development and exploitation of the energy system is the product of a unique collaboration between RED Company (real estate developer), Eteck (operator) and Roodenburg Installatiebedrijf (installer).