European Water News

GOVERNANCE

Consequences of Climate Change and Flood Protection

Building in and by the water inspires the imagination of architects, but at the same time it faces them with great challenges. acqua alta highlights innovative concepts and examples of successful interaction of modern architecture with water, while giving due consideration to climate change and safety aspects. These examples include presentations by eminent international architects such as Hadi Teherani and Koen Olthuis at Acqua alta, from 10th to 12th November. It includes a forum dedicated under the title of "Architecture and water".

Acqua alta has a section on "Maritime visions and projects", where star architect Hadi Teherani will present his "Living Bridge" project, a bridge with housing and shops on it. A Living Bridge is to be created in Hamburg, about 700 metres long and 60 metres wide, linking the inner city and the urban districts to the south of the Elbe. "This concept for cities by the water creates an intensive urban relationship between old districts and new, with all the charm of a waterfront location and views of both the old and new skylines," explains Teherani.

The Living Bridge is the equivalent of an urban district with 1000 dwelling units. "That gives the city additional housing in a prime location, without using up building land. The bridge will be a hybrid, multi-dimensional structure," says the architect, "a new model of ways to interlink a wide range of functions. It includes housing, industry, streets and parking spaces, and it is also a promenade and a tourist attraction." Other fascinating waterside projects mentioned by Teherani are the Crane Houses in Cologne's Rheinau port, Hamburg's Dockland and a pedestrian and cyclist bridge comprising a link across the water between two tower buildings in Copenhagen - "All of these illustrate the tremendous appeal of urban expansion in the water and at the waterfront."

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The Dutch architect Koen Olthuis builds his structures directly on the water. He will make a presentation at acqua alta on "Climate change as a challenge for architects and urban planners" and present the project "The New Water", a floating housing estate. That is a response by the Netherlands to the rise in water level. Some 1200 floating dwelling units are being built to the north-west of Rotterdam in Naaldwijk, on the North Sea. The site for this project is a drained area that was formerly a polder, with a length of 2500 and width 500 metres, which will be flooded after completion of the work.

Alongside these specific projects, the forum at acqua alta also covers new approaches to flood defences for buildings near the water. For example Prof. Erik Pasche, Head of the Hydrology Department of the Hamburg University of Technology, examines the opportunities and feasibility of integrating cultural and landscape aspects in flood defences. Up to now, engineering works for flood defence have always been designed purely in terms of function and safety, while also considering the needs of the natural environment. "Now it is time to take account of the cultural aspects and the needs of people as well," says Prof. Pasche. He uses examples to explain how the use of mobile flood defence barriers can maintain the aesthetic appeal of a town or city.

One way of doing that is flood defence systems made of glass, which have been integrated into the landscape at Timmendorf Beach at the Baltic Sea coast, to avoid obstructing views out to sea. "'Cultural protection' is a challenge to engineers and urban planners," says Prof. Pasche, "and sometimes it can lead to heated debates." For example the plans for Lauenburg by the Elbe to build flood defences with a view to aesthetic considerations met with some resistance because of their impact on privately owned land. Prof. Pasche also presents innovative ideas applied in Hamburg's HafenCity.

HafenCity is also the subject of Prof. Jörn Walter, Senior Construction Engineer of the City of Hamburg, at the "Land use conflicts" forum. He will use the example in Hamburg to present urban land use and settlement structures in river areas. Hamburg is faced with particular challenges for flood protection in HafenCity. One of the responses to that is the Mound Concept, where the buildings are constructed on raised plots of land.