From Naval to Civil Architecture. An Attempt at the Design Typology of the Aquatic Structures

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Abstract

The design and construction of the aquatic structures - water-related built forms of architectural relevance is a wide field of action for many creative and engineering professions like architecture, hydraulic, offshore and naval, to name the main ones. Due to a substantial growth of the aquatic sector, these specialists more often start to work together on the new interdisciplinary projects and bring their own jargons and classifications into their design teams. This cooperation results in not only new forms of hybrid aquastructures, but also shows that definitions and typologies of different origins do not blend smoothly into one clear image of aquatecture. The aim of this paper is to propose the new common interdisciplinary typology by organizing existing types used in architectural, offshore and marine design. Using the buoyancy, foundation type and mobility as the basic organizing factors, the following array of aquatic structures was defined: (1) non-buoyant ground-based: inundatable and overwater; (2) buoyant hybrid: can-float, gravity-based and self-elevating; (3) buoyant water-based: floaters, conveyors and vessels. Where suitable, different examples for land, inland waters and offshore applications were given. In conclusion, the central position of amphibious architecture as a fusion between naval and civil design is discussed as well as the problem of distinguishing between the ships' mobility and the floaters' redeployability. This new approach covering structures of different environments, functions and sizes ranging from a terp-house to a single-handed live-aboard sailboat, from a boathouse to a lightship and from a stilt pension to a cruise ship may be useful not only for interdisciplinary research and design but also for adequating the existing legislation.

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