



6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the
Affiliated Conferences, AHFE 2015

Selected human factors in marina design

Maciej Bilski*

Poznan University of Technology, Pl. Marii Skłodowskiej-Curie 5, 60-965 Poznan, Poland

Abstract

The architecture of marinas needs to meet human factors and sustainable infrastructure in a special way. The entire structure is influenced by direct human-related aspects as well as buildings, equipment and elements related to the port. 1. Unit construction – characteristic parameters resulting from users' needs. Designing a yacht port specified by appropriate functional solutions needs to be preceded by an in-depth analysis of units, which will be using this port. Such an assessment will provide more information on all key aspects of designing individual elements of the marina. At the same time, a particular division of units is adopted for the purposes of the design, which allows for different design and realization conditions for each unit. 2. Marina location and layout – appropriate location of the object depending on natural, social and economic conditions. Considering that a yacht port needs to ensure the appropriate level of services, such a port is a complex of water areas, hydrotechnical port buildings, land buildings and technical equipment which ensure a safe docking and servicing of yachts as well as other recreational and tourist units and floating objects. To fulfill its tasks, a yacht port needs appropriately shaped port water areas as well as port land areas (port territory) of an appropriate size, which allow, thanks to proper equipping, for servicing of sailors and other users of the yacht port. A marina is a yacht port which also features complementary residential, retail and service, club and port buildings as well as hotel spaces, stores, bars, cafes and restaurants plus any other functions required by temporary or permanent residents. 3. Object equipment – additional elements dependent on human and environmental factors. Elements linked directly to human factors usually raise the most controversy among the future users and thus should be given extra attention during the design. The most important of them are the form and layout of jetties, accessibility of potable water accompanied by sustainable waste and wastewater management, media accessibility, unloading systems and additional port buildings.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of AHFE Conference

Keywords: Human factors; Marina design; Sustainable architecture

* Corresponding author. Tel.: +48-609-559-021
E-mail address: maciejbilski@gmail.com

1. Floating object construction - specific parameters resulting from the users' needs

Marinas architecture must respond to human factors and sustainable infrastructure in specific way. The entire investment is influenced by direct human-related aspects as well as development, equipment and other elements forming a part of the marina.

Designing of the yacht port featuring proper functional solutions should be preceded with thorough analysis of the potential floating objects (crafts), which will use such port. Each floating object is designed considering analysis of the human factor, demands of which it should meet. The term 'floating object' was used purposefully, since the word 'yacht' fails to describe the full range of the users and is limited to certain definitions provided below:

- Yacht – floating object (ship) used (regardless of size) to perform non-profit sports, tourists and recreational activity or used for representation purposes; the chartered yachts are not deprived of its status, provided that these continue to be used in line with its purpose [1],
- Yacht - sailing sports or tourist ship of various construction and types of rigging, including twin-hulled yachts and three-hulled yachts (trimarans), may be manufactured of steel, wood, plastics, concrete with Ferro cement, with pipe frame, etc. larger crafts are equipped with donkey engines [2],
- Yacht - watercraft (usually small sized) intended for sports and tourist purposes; depending on type of engine, yachts are classified as sailing yachts and motor yachts [3].

To simplify further analysis, the users were divided into four groups using the marines and adjoining facilities:

- tourist yachts,
- cruising yachts,
- motor yachts
- windsurfing, kitesurfing and scooters [4].

The specific nature of each floating object makes the ergonomic, design and development conditions deferent for each craft. Tourist yachts are the crafts of differentiated type of rig - from catboat to schooner (Figure 1) and dimensions exceeding even 100 m. For such diversification, type of users and floating objects for a given marine should be specified at the design stage. Aquatorium layout should be adjusted accordingly [6].

Cruising yachts are usually catboat and sloop-type floating objects of dimensions from the AZ and BZ group. Their mode of operation in the ports differs significantly from the tourist crafts, therefore these should be treated as entirely different group of port users [7].

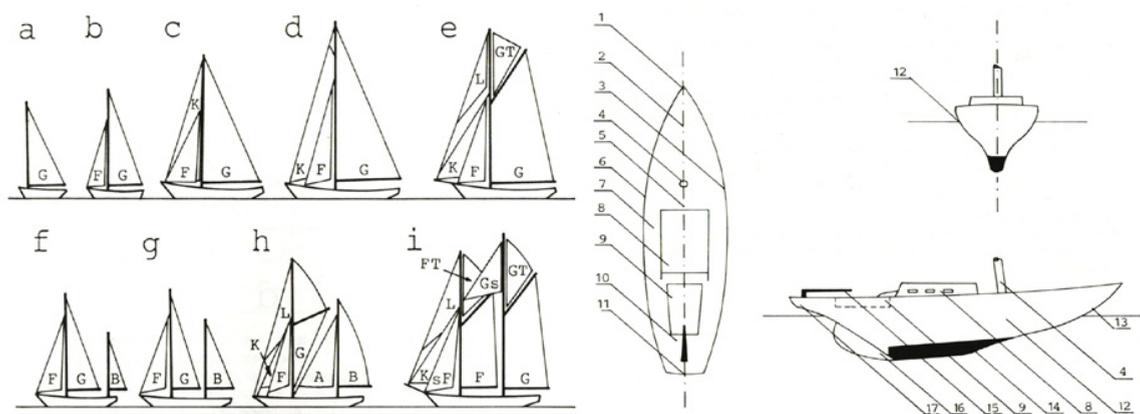


Fig. 1. Types of rig: a – catboat, b – sloop, c – slooter, d – Bermuda cutter, e – gaff cutter, f – yawl, g – ketch, h – stailsaylketch, i – gaff schooner; G – mainsail, F – foresail, L – flying jib, K – jib, GT – topsail, B – spanker, A – apsel, sF – headstay, FT – fore topsail, Gs – main staysail; Yacht construction: Yacht elements 1 – bow, 2 – deck, 3 – right board, 4 – mast, 5 – amidships, 6 – left board, 7 – half deck, 8 – quarter-deck, 9 – cockpit, 10 – after deck, 11 – stern, 12 – bilge, 13 – brow fore, 14 – ballast, 15 – tiller, 16 – blade, 17 – brow pooping [5].

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات