International Conference

Design & Operation of Passenger Ships

1st May 2019

RINA, HQ, London, UK

www.rina.org.uk/Passenger_Ships_2019

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Ship evacuation and emergency response trends

Fotios Stefanidis, University of Strathclyde, UK

The last decade, a rapid growth in demand of cruises has led to an increase of the average cruise ship size by 30%. This was driven mainly by the effort to exploit the profit opportunities that come with economies of scale while trying to meet the market demand which continuously exceeded supply. This increase in passenger and crew capacity brings safety related issues to the spotlight of technical challenges that have to be addressed. Based on its criticality and timebound nature, ship evacuation and its corresponding procedures, modelling techniques and regulations should be reviewed and updated.

Ship evacuation analysis can no longer be a static plan, independent of the state of emergency (fire, flooding or security concerns). The authors argue that in an era of ‘smart’ devices, IoT, augmented reality and Large Date, the evacuation analysis should be transformed into a ‘live’ tool, able to address the dynamic, constantly changing situation aboard. Integrated in an overarching risk based decision support system. The paper aims to address on the pros and cons of the past and current trends in evacuation modelling, procedures and emergency response, identifying the gaps and the areas for improvement of the existing risk models and explore the potential use of new ‘smart’ technologies. Thus, it will set the foundation for a disruptive change in the evacuation analysis based on the type of emergency state and calculation of the associated risk, taking into account not only the musterling and embarkation phase, but also the search and rescue possibilities and risks.

10:40 - 11:15 Assessment of the Minimum Speed Requirement in Safe Return to Port

Robin Grin, Rien de Meij, Stephane Rapuc, MARIN, the Netherlands

Cruise ship and RoPax ferry, which are typically twin-screw ships, have to comply with the requirement for Safe Return to Port as detailed in SOLAS Ch. II-2/21.4.1 - Propulsion. Part of this requirement is the necessity to be able to maintain a minimum sustained speed of 6 knots in light weather conditions for the worst single compartment damage case. This worst damage case is typically failure of one shaft line or engine room.

Over the years, at MARIN we have gathered experience on how to address this problem by means of calculation work, model tests and a combination of both. The present paper discusses these methodologies, some of the pitfalls to avoid and present the study case of a 120m expedition type cruise vessel.

This invention introduces Y-HULL which relates to the generation of reduced wave by the hull of the ship and results in low resistance while moving forward, compared to Mono-hull and Multi-hull type vessels. The Y-HULL configuration results in higher efficiency which reduces fuel cost. This combined hull shape is called Y-HULL as the hull buttock line has a shape of Engle letter Y at the centre keel position. The Y-Hull ship significantly reduces accidents of small country boats caused by heavy waves induced by ship's hull and also reduces river bank erosion.
The rapid growth of passenger ships over the last twenty years in the travel and tourism industry prompted cruising lines and ferries operators to build ever more innovative ships to cater for the diverse needs of a growing number of passengers. This has including ever increasing size of vessels to benefit from the economy of scale, small vessels specialising in more niche markets, vessels catering specifically for the growing Asia cruise market and vessels capable of itineraries to a greater range of destinations including environmentally sensitive areas.

The need to balance economic and environmental efficiency with increased passengers expectations of comfort and on-board amenities, along with improved passenger and crew safety, brings new challenges for those involved in the design, construction and operation of today’s passenger vessels.

Topics include:
- All aspects of design - hydrodynamics, structures, layout
- Interior design, leisure, entertainment and hotel features
- Smart ship technology to enhance the passenger experience
- Operation (on-board noise and vibration to be kept to a minimum…)
- Current & future regulation & classification
- Managing environmental impact
- Innovative powering & propulsion solutions
- Emergency response, LSA and ME5
International Conference

DESIGN & OPERATION OF PASSENGER SHIPS

1st May 2019, RINA HQ, London, UK

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*VAT: VAT will be charged on any registration fee issued irrespective of the country the delegate resides in.

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