

Ergonomics and the work environment

Manual valve operation, access, location and orientation

- Guidance Notes for the Application of Ergonomics to Marine Systems, Section 9 - ABS (2013)

Stairs, vertical ladders, ramps, walkways and work platforms

- Guidelines for the Design of the Means of Access for Inspection, Maintenance and Operation of Commercial Ships - Bureau Veritas (2008)
- Human element recommendations for structural design of lighting, ventilation, vibration, noise, access and egress arrangements – IACS Rec. No. 132 Section 4.6 - Access and Egress Design
- Guidance Notes for the Application of Ergonomics to Marine Systems, Section 7 - ABS (2013)

Inspection and maintenance

- Guidance Notes for the Application of Ergonomics to Marine Systems, Section 10 - ABS (2013)
- A guide to managing maintenance in accordance with the requirements of the ISM Code – IACS Rec. No. 74

Working environment

- Code on noise levels on board ships – IMO Resolution MSC.337(91)
- Ships and marine technology -- Ship's bridge layout and associated equipment - Requirements and guidelines - ISO 8468:2007
- Guidelines for engine-room layout, design and arrangement - IMO MSC/Circ.834
- Guidelines on ergonomic criteria for bridge equipment and layout – IMO MSC/Circ.982
- Guidelines on the application of SOLAS Regulation V/15 to INS, IBS and bridge design – IMO SN.1/ Circ.265
- Human element recommendations for structural design of lighting, ventilation, vibration, noise, access and egress arrangements – IACS Rec. No. 132
- Recommendation for the application of SOLAS Regulation V/15 bridge design, equipment arrangement and procedures – IACS Rec. No.95
- Provisions on occupational accidents, injuries and diseases – ILO MLC Guideline B4.3.1

The application of ergonomics to design

- Ergonomic principles in the design of work systems - ISO 6385:2004
- Guidance Notes for the Application of Ergonomics to Marine Systems, Appendix 2 - ABS (2013)
- The Human-Centred Approach - A Best Practice Guide for Ship Designers and Builders – Lloyd's Register (2013)

Human-centred Design best practice

1. Understand and specify context of use

- Establish, clarify and communicate the characteristics of the users, their tasks and the technical, organisational and physical environment in which the system will operate
- Document the characteristics of the intended users and their tasks, including user interaction with other users and other systems
- Describe the real operational environment of the system, including the factors that affect the performance of users

2. Specify the user requirements

- Establish, clarify and communicate the requirements of the users of the system
- Identify and analyse relevant groups of users, and their task needs
- Define the requirements of the users of the system
- State the user criteria for the performance of the system of work against operational and functional objectives
- Address user requirements in the system design

3. Produce design solutions

- Allow the design options for the product system of work to take account of the human element
- Consider human element issues in the trade-off between design options
- Trade-off usability against other design criteria
- Design all user aspects of the system, e.g. jobs, roles, documentation & staffing
- Incorporate user input direct and/or as feedback from evaluations in the design

4. Evaluate

- Provide design information, new risks and issues, i.e. feedback on how to improve the system
- Demonstrate the fulfilment of user requirements, i.e. inform decisions on whether the system is adequate
- Inform the organisation's decisions regarding one or more human element issues
- Test the design with real users

Habitability

- ILO MLC 2006, Title 3 - Accommodation, recreational facilities, food and catering
- Alert! Issue No. 34, January 2014 centrespread and page 8

Fatigue mitigation

- IMO MSC/Circ.1014 - Guidance on fatigue mitigation and management: Module 7 - Shipboard fatigue and the naval architect/ship designer

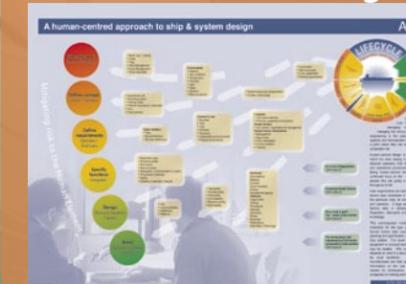
Issue No.3 - An A to Z of ergonomics



Issue No.17 - Mitigating slip, trip and fall hazards



Issue No.7 - Human-centred design



Issue No.15 - Automation

