

Alert!



You'll get used to it...

Crew habitability

What you need to know

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Less noise and vibration

Working environment

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As he got out of the taxi on the quayside Rakesh's first impression was that this voyage was going to be different. His previous ship, the only ship he had sailed on, had been new, an 8,000 gt chemical tanker straight out of the builders yard; smart, clean well-equipped and well-run. This bulk carrier was larger, much larger, and old. He noticed her oil-stained and frayed mooring lines as he trailed his bags over the rough coal-strewn concrete. A rat guard hung from its rope tail, high up near to a rusty fairlead, ineffectually swaying in the breeze. Despite the unseasonal sunshine his heart sank.

The accommodation ladder was almost horizontal, the rope guardrails looped uselessly either side and the steps were tricky to negotiate. A grubby, t-shirted seaman pointed him in the direction of the Bosun who, with two or three other seamen, was busy closing No.4 hatch. He was told to leave his luggage in the ordinary seaman's cabin, to grab a boiler suit from the laundry room and turn-to on deck, "they'd sort out some more work clothes for him later".

The cabin was dimly lit by a single dangling bulb: it was dirty, a full ash tray sat in the centre of a stained and scratched circular table, the day-bed cover was torn and a thin layer of greasy dust lay on every surface. Yes, this was indeed going to be different, very different.

What was that smell? His inquisitive nose led him nervously towards the bathroom where the unpleasant chemical taint was stronger. He was slightly relieved that there was no obvious visible cause; it seemed to be coming from a small curved air vent behind the seat-less wc.

As he walked back to go out on deck he realized that the same smell was present elsewhere on the ship. He supposed he would get used to it. He'd have to; to jump ship on his second voyage would signal the end of his much prized and envied career. He thought momentarily about his proud

mother and their very small but immaculately kept bungalow surrounded by jasmine and bougainvillea. He was in a sombre mood as he approached the working party.

The crew members were all Indian nationals. They were a stoic bunch, uncomplaining but

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worried and unhappy to a man. Time on board had conditioned them to get on with the job as best they could and say nothing. The master, a good man by all accounts, tried tirelessly to get spares, tools and materials to improve conditions but each request was met with a blank refusal. The food, Rakesh discovered, was just about adequate; the cook worked miracles with meager supplies.

And the smell? "That smell? Oh, you'll get used to it". "Keep your bathroom door closed". Everyone knew the sewage plant needed maintenance but it was unlikely to happen soon.

Before bed on that first night, Rakesh set-to to clean his room with a bucket of warm water, some soap he had brought from home, a molting scrubbing brush and a tattered cloth which he had found under the wash basin. It took him two hours and the results were not perfect but he felt much better. He tried to open his window to get some fresh air circulating but the dogs were jammed – that was a job for tomorrow. As his leaden eyelids closed for the last time, his nose twitched as he consciously tried to ignore the smell.

It was the bosun who found Rakesh's body the following day. He hardly noticed the familiar smell of Hydrogen Sulphide gas as he pulled the bed cover over Rakesh's face.

Introduction

David Squire, FNI FCMI



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Alert!

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First impressions can have a lasting effect on anyone when joining a ship; our front page story tells of a seafarer who's first impressions of the ship that he was about to join was of one that was not well looked after both externally and internally. The accommodation and sanitary facilities were simply not acceptable, as was the ventilation, which ultimately led to the untimely death of this seafarer.

In this issue of **Alert!** we are focusing on **Habitability**.

The purpose of Regulation 3.1 of Title 3 of the Maritime Labour Convention 2006 (MLC 2006) - Accommodation, Recreational Facilities, Food and Catering - is to ensure that any accommodation for seafarers, working or living on board, or both, is safe and decent (www.ilo.org/global/standards/maritime-labour-convention).

In Issue No. 11 of **Alert!** we define Habitability as: *Comfortable, clean (and cleanable) and convivial accommodation, washing & toilet facilities, mess rooms, group meeting and exercise areas.*

In the Centrespread of Issue No. 18 of **Alert!** we offer the *Good guide to seafarer health, safety and wellbeing*, in which we highlight the importance of providing adequate and comfortable accommodation, galleys, mess rooms and recreational spaces, having due regard for the variations in the size, shape and gender of the seafarer, and for the various environmental stressors such as noise, heat and vibration.

But it is also important that working spaces should be comfortable, clean (and cleanable) and convivial, because it is the whole ship environment that affects the way in which crew members work, rest and play. To this end, the ship must be designed with the seafarer in mind and it is incumbent upon the ship operator to provide acceptable standards for the workplace and for habitability.

Standard A3.1.18 of MLC 2006 is of vital importance:

The competent authority shall require frequent inspections to be carried out on board ships, by or under the authority of the master, to ensure that seafarer accommodation is clean, decently habitable and maintained in a good state of repair. The results of each such inspection shall be recorded and be available for review.

The key to ensuring the highest standards are maintained onboard is through regular inspections by the Master, but he must also take early follow-up action to rectify any defects or deficiencies.

Perhaps if this had been done on Rakesh's ship then he might still be alive today...

Issue No. 11 of **Alert!** and its associated centrespread and video can be downloaded from: <http://www.he-alert.org/index.cfm/bulletin/Integration>

Issue No. 18 of **Alert!** and its associated centrespread and video can be downloaded from: <http://www.he-alert.org/index.cfm/bulletin/Health-and-wellbeing>

Reports & Studies

A multi-factorial analysis of human performance during a 9-day sea trial

P Valk, M Grech and J Bos

The report of a multi-national sea trial on the effects of ship motions on human performance which was performed aboard the Canadian Forces Auxiliary Vessel Quest in February and March of 2007. The primary goal of these experiments was to obtain subjective and objective measures for human task performance, possibly affected by real ship motion.

Downloadable from: www.he-alert.org/docs/published/he01220.pdf

Seafarer Accommodation on Contemporary Cargo Ships

N Ellis, H Sampson, I Acejo, L Tang, N Turgo, Z Zhao
The Lloyd's Register Educational Trust Research Unit, Seafarers International Research Centre (SIRC)

This study was funded by The Lloyd's Register Educational Trust (The LRET) – now known as The Lloyd's Register Foundation. It was designed to ascertain the levels of satisfaction seafarers experience in relation to the accommodation design of the vessels they work aboard. As such this report outlines the findings from a questionnaire completed by serving seafarers about their most recent sea-going experience.

Downloadable from: <http://www.sirc.cf.ac.uk/Uploads/Publications/Publications%202012/Seafarer%20Accommodation.pdf>

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Crew Habitability: What you need to know

Dr. Kevin McSweeney, Manager – Safety & Human Factors Group, ABS Corporate Technology – www.eagle.org

What is crew habitability? There are many different possible answers but key components of any definition will likely include the acceptability of the conditions of a vessel in terms of ambient environmental qualities (noise, whole-body vibration, indoor climate, and lighting) and the physical, spatial, and outfitting characteristics of the accommodations provided to the crew.

The main goals of designing for habitability are to provide a design that will enhance human performance, mental alertness, the quality of life for seafarers, and quite possibly crew recruiting and retention. Designing to habitability goals allows for improvement of productivity, morale, safety, and comfort as well decreasing the potential for fatigue and human error. Looking at habitability from a human factors perspective, designing for appropriate levels of ambient environmental factors are crucial to work task performance, whether that task is communicating on the bridge, viewing displays in a control room, or resting and trying to sleep in your cabin. Here are some reasons why:

- **Noise.**

Inappropriate levels of noise can degrade vigilance during watchkeeping tasks, interfere with complex mental tasks, delay the onset of sleep or awaken one from sleep, and generally interfere with rest.

- **Whole-body Vibration.**

Controlling levels of whole-body vibration can establish a safe environment with respect to human response to excessive vibration, including; motion sickness, vibration induced injury/illness and motion induce instabilities and interruptions. Vibration can also alter worker perception (e.g., reading text and instruments, depth perception) and influence control movements (e.g., tactile sense, head/hand movements, manual tracking).

- **Indoor Climatic Qualities.**

The objective here is to provide conditions that are suitable to facilitate human performance with regard to factors such as increases in energy expenditure, decreases in work capacity, reduced hand/arm control manipulation capability, and a decreased capacity for cognitive functioning.

- **Lighting.**

Vision is essential to information transfer, as well as general safety. Inappropriate lighting levels can result in visual task difficulty, distraction, perceptual confusion (such as

misreading a display) and failure to detect visual targets. Improperly designed lighting systems can also contribute to eye fatigue, human error, unsafe conditions, and increases in reaction/response times.

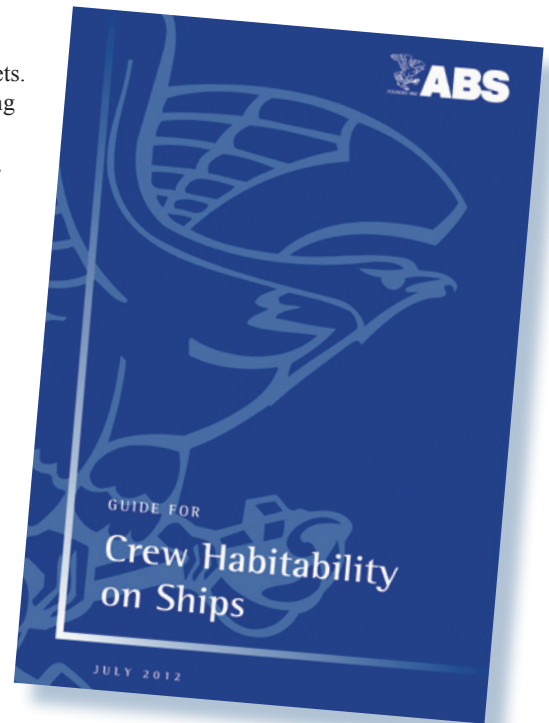
The intent of good habitability design is to apply appropriate criteria or limits that will provide the best overall shipboard or structure conditions for the crew, given design constraints and budget. Additionally, it is crucial that all habitability design characteristics be considered concurrently and early in the design to help meet potential resource constraints.

Until recently, little comprehensive statutory (or regulatory) guidance has been offered related to habitability. Although a few class societies have been quite active in this area, compliance with their guidance is optional. Now we have the International Labour Organization's Maritime Labour Convention (MLC). The MLC covers owner/operator related management systems and the vessel's accommodations design. The MLC, as it relates to habitability, institutes minimum standards of living through the provision of crew accommodation areas that:

1. are free from hazardous levels of noise and vibration;
2. provide appropriate levels of lighting and indoor climatic qualities;
3. offers improved crew accommodation's design.

The MLC establishes a new (and improved) baseline related to crew accommodation requirements, while replacing requirements that date back to the 1940s and 1970s. The crew will have for example fewer or no cabin-mates, a larger cabin floor area (almost double previous ILO Crew Accommodation Convention requirements), and more convenient access to showers, water closets, and lavatories.

Even though the MLC is basically a health and safety conservation standard, it is a definite step forward for seafarers.



Accommodation areas:

Access and egress, crew cabins, sanitary spaces, offices, food services, recreation areas, laundry, medical spaces

Whole-body vibration:

Low frequency mechanical vibration (vessel motions), high frequency vibration (rotating machinery)

Noise: Speech

communication, hearing loss, sleep, concentration, 'annoyance' factor

Indoor climate: Heating,

ventilation, air conditioning

Lighting: Illuminance,

task duration, visual fatigue, task criticality, veiling reflections

Habitability A rough guide to MLC 2006 Regulation 3

Standard A3.1 – Accommodation and recreational facilities

A3.1.6 Accommodation spaces

- Adequate headroom
- Adequate insulation
- Sleeping rooms situated above the load line amidships or aft
- No direct openings into sleeping rooms from cargo and machinery spaces, galleys, storerooms, drying rooms or communal sanitary areas
- Internal bulkheads, panelling and sheeting, floors and joinings suitable for purpose and conducive to ensuring healthy environment
- Proper lighting
- Sufficient drainage
- Acceptable occupational and onboard living environment for seafarers

A3.1.7 Ventilation & heating

- Adequate ventilation
- Air conditioning
- Independent ventilation to open air for sanitary spaces
- Adequate heat

A3.1.8 Lighting

- Sleeping rooms and mess rooms lit by natural light plus adequate artificial light

A3.1.9 Sleeping accommodation

- Individual sleeping room for each seafarer
- Separate sleeping rooms for men and for women
- Adequate size and properly equipped to ensure reasonable comfort and to facilitate tidiness
- Separate berth for each seafarer
- Minimum inside dimensions of a berth
- Minimum floor areas
- Adjoining sitting room, day room or equivalent additional space for master, chief engineer and chief navigating officer
- Lockable clothes locker of ample space fitted with shelf
- Drawer or equivalent
- Table/desk
- Comfortable seating accommodation

A3.1.10 Mess Rooms

- Apart from sleeping rooms, as close as practicable to galley
- Adequate size and comfort
- Properly furnished and equipped (including ongoing facilities for refreshment)

A3.1.11 Sanitary facilities

- Convenient access
- Meeting minimum standards of health and hygiene
- Reasonable standards of comfort
- Separate facilities for men and for women
- Within easy access of the navigating bridge, machinery space or near engine room control centre
- Minimum of one toilet, one wash basin and one tub or shower or both for every six persons or less who do not have personal at a convenient location
- Washbasin, hot and cold running fresh water in each sleeping room
- Hot and cold running fresh water in all wash places

A3.1.12 Hospital accommodation

- For ships carrying 15 or more seafarers and engaged in a voyage of more than three days' duration
- Used exclusively for medical purposes

A3.1.13 Laundry facilities

- Appropriately situated and furnished laundry facilities

A3.1.14 Spaces on open deck

- For seafarers when off duty
- Of adequate area

A3.1.15 Offices

- Separate offices/common ship's office for use by deck and engine departments

A3.1.17 Recreational facilities, amenities and services

- To meet the special needs and for the benefit of all seafarers onboard

B.1 Accommodation and recreational facilities

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Guideline B3.1 – Accommodation and recreational facilities

B3.1.1 Design and construction

- External bulkheads of sleeping rooms and mess rooms - insulation
- Machinery casings, boundary bulkheads of galleys & other spaces in which heat is produced - insulation
- Protection from heat effects of steam and/or hot-water service pipes
- Sleeping rooms, mess rooms, recreation rooms & accommodation space alleyways - insulation to prevent condensation/overheating
- Bulkhead surfaces & deckheads - easy clean material
- Bulkhead surfaces & deckheads - construction likely to harbour vermin
- Material & construction for decks
- Non-slip surfaces
- Composite flooring

B3.1.2 Ventilation

- Control of ventilation
- Air-conditioning systems
- Availability of power

B3.1.3 Heating

- Operation
- Means of heating
- Radiators and other heating apparatus

B3.1.4 Lighting

- Provision of electric light
- Sleeping rooms - electric reading lamp
- Standards of natural and artificial lighting

B3.1.5 Sleeping rooms

- Adequacy & comfort of berth arrangements
- Bathroom & toilet
- Sleeping room sharing - watchkeepers.
- Sleeping room sharing – petty officers
- Adjoining sitting room, day room - second engineer
- Space occupied by berths & lockers, chests of drawers seats
- Small or irregularly shaped spaces
- Arrangement of berths - tiers
- Arrangement of berths – along ship's side
- Height of berth
- Framework & lee-board of berth - approved material
- Tubular frames (of berths)
- Comfort of mattresses
- Mattress and cushioning material/stuffing
- One berth placed over another - dust-proof bottom
- Furniture material
- Curtains
- Mirror, small cabinets for toilet requisites, book rack & coat hooks

B3.1.6 Mess rooms

- Mess room facilities
- Separate mess room
- Mess rooms – floor area
- Tables & seats
- Refrigerator, hot beverages & cool water facilities
- Lockers for mess utensils & facilities for washing utensils
- Table tops & seats - damp-resistant material

B3.1.7 Sanitary accommodation

- Washbasins and tub baths
- Toilets
- Sanitary accommodation intended for the use of more than one person
- Laundry facilities

B3.1.8 Hospital accommodation

- Design
- Arrangement of entrance, berths, lighting, ventilation, heating & water supply
- Number of hospital berths
- Sanitary accommodation

B3.1.9 Other facilities

- Separate facilities for engine department personnel to change their clothes

B3.1.10 Bedding, mess utensils and miscellaneous provisions

- Supply of clean bedding & mess utensils
- Quality of bedding
- Plates, cups and other mess utensils - easily cleaned
- Supply of towels, soap & toilet paper

B3.1.11 Recreational facilities, mail and ship visit arrangements

- Review of recreational facilities and services
- Furnishings for recreational facilities
- Facilities at no cost to the seafarer
- Forwarding of seafarers' mail
- Partners, relatives & friends as visitors on board when in port
- Partners accompany seafarers on occasional voyages

B3.1.12 Prevention of noise and vibration

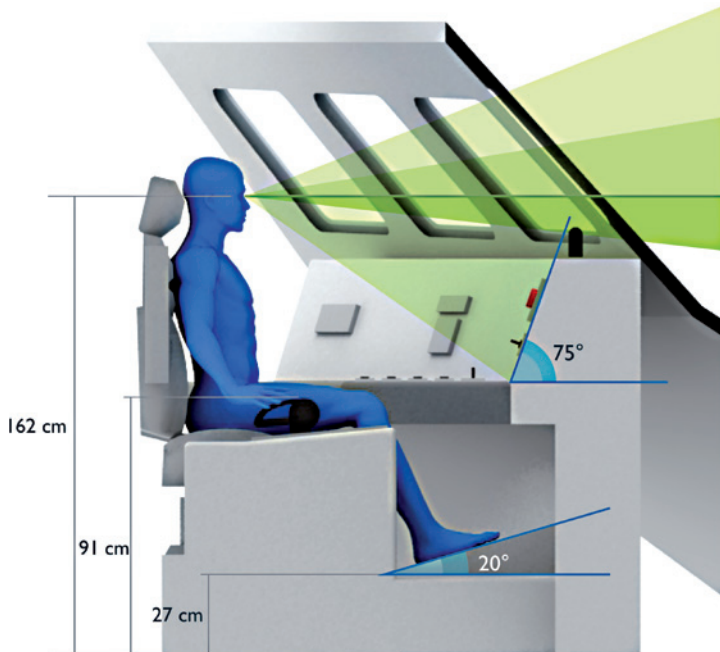
- Location of accommodation and recreational and catering facilities
- Acoustic insulation
- Soundproofing of centralized control rooms for engine-room personnel
- Insulation of working spaces
- Limits for noise levels for working and living spaces
- Accommodation/recreational /catering facilities – exposure to excessive vibration

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with links scan the QR code



Improving Habitability on Board

Angela Liliana Lossa Chamorro, Head of Accommodations, Shipbuilding Business Unit,
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The end user
is the most
important
element when
designing
and his/her
anthropometry
is the key
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the design
process

Designing the interior spaces of any vessel is a challenging task. There are important considerations to keep in mind regarding the adequate use of the space. The end user is the most important element when designing and his/her anthropometry is the key factor during the design process.

In 2009, COTECMAR (The Science and Technology Corporation for the Development of the Naval, Maritime and Riverine Industry in Colombia) initiated a research program in *Human Centered Ship Design* to improve ship design practices, specifically operability, maintainability, and habitability in new vessels. This program was initiated taking into consideration the need to include ergonomics and human factors engineering (HFE) considerations to affect in a positive way the performance of the crew.

Since the purpose was to optimize habitability, ergonomic risk was defined as the measure of merit for minimization. The ergonomic risk takes into account the analysis of: 1) physical environment, 2) physical workload, and 3) mental workload. Improvements in all these areas will help to reduce crew fatigue and increase overall safety, as well as quality of life. The program included the application of the latest norms pertaining to human factors engineering and ergonomics on board ships, including those by ABS, ASTM, IMO, ISO, and RINA, where the criteria for accepting or rejecting a condition were found.

This research program also included a final phase of HFE and ergonomic improvements for the

interior spaces of the Riverine Patrol & Supply Vessel (RPSV). This vessel was chosen to be the case study because it has been completely designed and built by COTECMAR. The RPSV, in its 3rd generation, represents a product of several years of innovation since 1998 that now includes human element design considerations.

Among several standards for habitability the ABS guide 2001, was selected as criteria for the analysis of the physical environment. Noise, lighting and indoor climate were assessed following the procedure for data acquisition and analysis. After collecting all the measurements on board in different sailing conditions, a thorough analysis was made to determine the most critical problems and the specific areas of ergonomic intervention.

In the case of physical workload the team worked with the ABS *Guidance for the application of ergonomics to marine Systems 2003*, ISO 11228 *Ergonomics* and ISO 11226 *Evaluation of Static Working Postures*; at this point only the activities directly related to the vessel's operation, especially those with repeated postures or those that cause some level of discomfort, were assessed. These postures were then evaluated using the REBA (Rapid Entire Body Assessment) method. After applying this method it was easy to determine the real levels of risk and the type of intervention needed to improve the conditions on board. Crossing all the gathered information, it was concluded that the most important spaces for HFE interventions were the Bridge and the Tactical Information Center (TIC) due to high crew workloads (physical and cognitive).

Improvements to the Bridge design focused on the redesign of the main console. The goal was to assure an easy reach access of the vessel controls and appropriate placement of displays within the crew member's primary field of view. Another important element was the helmsman's console seat design, to include height and fore and aft, and adjusting mechanisms to accommodate the anthropometric differences of different users, for example, women as they are now serving aboard these and other vessels of the Colombian Navy.

The TIC was improved by modifying the arrangement of communications equipment to improve posture, and the arrangement of the furniture to improve the flow of the crew and therefore the evacuation.

Good Habitability always comes from a good design process that acknowledges the importance of the human being in the safe and effective operation of the vessel.

Less noise and vibration is good for the working environment

Carsten Gydaahl-Jensen, Occupational Health Consultant
SEAHEALTH - www.seahealth.dk

High levels of noise can ruin your hearing if you are exposed to it for a long time. Constant low level noise and vibration can also have a major impact on your working life because it means poorer quality sleep, lack of rest and stress. For example, if a fire door bangs or the hinges creak every time it is opened and your cabin is right alongside, it affects your periods of rest.

Noise and vibration require special attention on a ship because the crew are on board every day around the clock and are surrounded by noisy machinery and metal which transmits noise well. There are mandatory requirements for noise reduction on ships, and Danish flagged vessels have to comply with maximum limits for individuals (EU legislation) and special values for different locations in the ship (International Maritime Organisation legislation). This is to protect crew from long-term work-related impacts that in the worst case can lead to reduced ability to work and poor health.

On a ship, crew are to a greater or lesser extent exposed to vibration and noise practically all the time. The ship is their

workplace and unlike workplaces ashore, they cannot leave the ship and have peace and quiet at night without noise and vibration.

This is why it is extra important for shipowners to prevent noise and vibration. Ships are made of steel and so there will always be noise and vibration on board so noise reduction is essential. Noise reduction is good but noise prevention is even better.

In this article, we meet a Danish shipowner, ESVAGT. In their latest newbuilding, they significantly reduced noise already in the design phase of the ship.

ESVAGT AURORA – effective prevention

Built in August 2012, the ESVAGT AURORA is Danish shipowner ESVAGT's (www.esvagt.com) newest vessel. She has a special bow designed by Ulstein Design & Solutions, Norway, and was built by Zamakona Shipyard in Bilbao (Spain). She is specially designed for sea rescue operations in hard weather conditions and is on 24/7 stand-by by drilling rigs, typically in Arctic waters.

The most important reason for preventing noise on the ESVAGT AURORA was to reduce the impact of noise and vibration on the crew's working environment. ESVAGT decided to reduce noise and vibration, by especially minimising structural noise. ESVAGT wanted to build as good a ship as possible which would also be a really good workplace for their shipmates at sea. A good workplace is a reflection of many things but one of the most important is a good working environment. That is why already in the design stage, ESVAGT focused on noise and vibration and maintained this focus throughout the whole construction phase until the ship was completed.

ESVAGT made a conscious choice to do something extra for the working environment. They identified and calculated potential sources of noise in the design stage with experts from the classification company DNV and designers from Ulstein Design & Solutions and on the basis of being Danish flagged and the higher legislative requirements this entails, the level of noise and vibration on the ESVAGT AURORA was reduced by:

- Extra special insulation on all steel cladding, bulkheads and decking associated with the bow and retractable azimuth thrusters in the bow
- Extra special insulation in the accommodation and steel cladding on all decks
- Noise absorbent flooring solutions arranged as special cassettes consisting of 'boxes' of noise-absorbent material covered by a flexible compound layer
- Large diameter propellers for the propulsion azimuth thrusters to minimize propeller noise
- Bow and retractable azimuth thrusters fitted with converters and adjustable pitch to make it possible to adjust pitch and revolutions simultaneously. The reduction in revolutions has a major significance for noise from these units
- Special shock absorbers installed under all diesel engines to minimize noise and vibration
- Rubber suspension exhaust systems fitted with noise reducers



The results have been good. The noise is minimal and reports from seagoing crew say: "One of the best ships in the fleet to serve on." The full article by Carsten Gydaahl-Jensen, on the impacts of noise and vibration, effective prevention and risk assessments can be downloaded from: www.health-alert.org/docs/published/he01225.pdf

The Maritime Labour Convention 2006

... as it applies to habitability

The Maritime Labour Convention 2006 (MLC 2006) has been described as the 'fourth pillar' of maritime regulation covering international shipping (www.ilo.org/global/standards/maritime-labour-convention). It sets out seafarers' rights to decent working conditions, covering almost every aspect of their work and life on board.

Title 3 of the associated Code addresses accommodation, recreational facilities and food and catering. In terms of habitability, Minimum standards are established on board vessels constructed after the date that the Convention enters into force for a particular flag state to ensure that any accommodation for seafarers, working or living on board, or both, is safe and decent and are inspected to ensure initial and ongoing compliance. This relates to:

- The size of rooms and other accommodation spaces
- Heating and ventilation
- Noise and vibration and other ambient factors
- Sanitary facilities
- Lighting and
- Hospital accommodation

There are a number of tools available for ensuring compliance with the MLC. In particular, the International Chamber of Shipping's (ICS) web-based information portal helps to answer many of the questions that employers still have with respect to MLC implementation; it serves as a 'one stop shop', in combination with guidance that the ICS has already produced and that of individual flag states. It also links directly to the ILO MLC portal to ensure up to date and accurate information is provided. Information includes relevant publications and how to access them, information on the ISF Watchkeeper programme for work and rest hour compliance and access to all the ILO guidelines which have been produced following the introduction of the MLC 2006.

The web resource also contains responses to Frequently Asked Questions (FAQs), the differing ratification status of flag states, and free guidance on Port State Control.

This resource can be found at: www.ics-shipping.org/Are-You-Ready-for-the-ILO-MLC

Specific FAQs relating to accommodation and recreational facilities are:

- Do Title 3 accommodation requirements apply to existing ships?
- Can sleeping rooms be below a ship's load line?
- What are special purpose ships?
- Do seafarers require individual sleeping rooms?
- Does the MLC, 2006 require cadets to have a single cabin?
- Must seafarers have sleeping rooms on board ships performing day trips?
- Must each seafarer have private sanitary facilities?
- Can floor area of adjacent private or semi-private sanitary facilities be calculated in the minimum floor area of sleeping rooms?
- Can less space be provided in sleeping accommodation in return for greater comfort?
- Why are frequent ship accommodation inspections required and who should conduct them?
- Is flexibility provided for accommodation and recreational facility requirements?

To access the answers go to:

www.he-alert.org/docs/published/ilo-mlc_faq.pdf

Or scan the QR Code

Are you ready
for the ILO MLC?

There are other FAQs relating to:

- General questions relating to the MLC
- Minimum requirements for seafarers to work on a ship
- Conditions of employment
- Food and catering
- Health protection, medical care, welfare and social security protection
- Compliance and enforcement

Alert!

The International Maritime Human Element Bulletin

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