



ILO, MARITIME LABOUR CONVENTION AND ITF GUIDANCE ABOUT THE HEALTH AND SAFETY ON BOARD SHIPS

This guidance is made of the relevant general requirements of the *ILO Code of Accident Prevention on Board Ships at Sea and in Port* and incorporating the provisions on health and safety as explained in Section 4.3 of the Maritime Labour Convention as well other relevant publications.





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1. General provisions

1.1. Objective

The objective of this document is to provide practical guidance to the ITF seafarers' affiliates, their shop stewards, shipboard representatives and members, as well ITF inspectors on safety and health in shipboard work with a view to:

- (a) preventing accidents, diseases and other harmful effects on the health of seafarers arising from employment on board ship at sea and in port;
- (b) ensuring that the responsibility for safety and health is understood and remains a priority for all concerned with maritime transport, including governments, shipowners and seafarers and their representatives;
- (c) promoting consultation and cooperation with governments and shipowners' organizations at national, local and company level in the improvement of safety and health on board ship.; and
- (d) securing proper representation of the crew in improving safety and health on board.



2. General duties of the competent authority of flag States

2.1 The competent authority of the flag State shall ensure that seafarers on ships that fly its flag are provided with occupational health protection and live, work and train on board ship in a safe and hygienic environment.

2.2 The competent authority shall develop and promulgate national guidelines for the management of occupational safety and health on board ships that fly its flag, after consultation with representative shipowners' and seafarers' organizations.

2.3 The competent authority shall adopt laws and regulations and other measures addressing occupational safety and health and set standards for occupational safety and health protection and accident prevention on ships that fly its flag, which:

- (a) take account of the relevant instruments dealing with occupational safety and health protection, and address all matters relevant to the prevention of occupational accidents, injuries and diseases that may be applicable to the work of seafarers;
- (b) clearly specify the obligation of shipowners, seafarers and others concerned to comply with the applicable standards and with the ship's occupational safety and health policy and programme;
- (c) specify the duties of the master or a person designated by the master, or both, to take specific responsibility for the implementation of and compliance with the ship's occupational safety and health policy and programme; and
- (d) specify the authority of the seafarers appointed by their unions or elected as safety representatives to participate in the work of national, local, company or ship's safety committee. Such a committee shall be established on board a ship on which there are five or more seafarers.

2.4 The laws, regulations and other measures shall be regularly reviewed in consultation with the shipowners' and seafarers' organizations to facilitate continuous improvement in occupational safety and health policies and programmes and to provide a safe occupational environment for seafarers on ships that fly their flag.

2.5 The competent authority shall ensure that:

- (a) occupational accidents, injuries and diseases are adequately reported;
- (b) comprehensive statistics of such accidents and diseases are kept, analysed and published; and
- (c) occupational accidents are investigated.

2.6 Reporting and investigation of occupational safety and health matters shall be designed to ensure the protection of seafarers' personal data.

2.7. The competent authority shall cooperate with shipowners' and seafarers' organizations to take measures to bring to the attention of all seafarers information concerning particular hazards on board ships.



3. General duties and responsibilities of shipowners

3.1 The shipowner is primarily responsible for the safety and health of all seafarers on board ship. However, the day-to-day responsibility generally lies with the master.

3.2. The development of safety consciousness and of high standards of safety depends on foresight, good organization and the support of management and of all seafarers. Therefore, shipowners should always consult with seafarers and their organizations on the safety and health policy.

3.3. Shipowners should provide:

- (a) adequate means and organization and establish a suitable policy on the safety and health of seafarers consistent with international and national laws and regulations;
- (b) and maintain ships, equipment, tools, operating manuals, etc., and organize all operations so that there is no risk of accident or injury to seafarers, so that:
 - (i) dangers likely to arise on board ship are prevented;*
 - (ii) excessively or unnecessarily strenuous work positions and movements are avoided;*
 - (iii) organization of all work takes into account the safety and health of seafarers;*
 - (iv) materials and products are used safely and pose no danger to seafarers' health; and*
 - (v) working methods used protect seafarers against the harmful effects of chemical, physical and biological agents.*
- (c) appropriate medical equipment and trained personnel in accordance with national laws and regulations. The International medical guide for ships, or a national equivalent, should be carried on board;
- (d) each ship with the necessary equipment, manuals and other information to ensure that all operations are carried out in such a manner as to reduce to a minimum any adverse effects on seafarers' safety and health;
- (e) proper information to the seafarers regarding safety and health hazards and measures related to the work processes, which should be presented in a easily understand form and language.

3.4. Shipowners should ensure that:

- (a) design of their ships takes account of ergonomic principles and conforms to relevant international and national laws, regulations, standards or codes of practice;
- (b) all seafarers perform their work with due regard to their safety and health. Shipowners should direct the master and the master should instruct the officers that the work of all on board will be organized as to avoid unnecessary risks to safety and health. Shipowners should make masters and seafarers fully aware of all activities on board that could affect their safety and health;
- (c) all seafarers are suitably instructed in advance in the hazards connected with their work and the shipboard environment and trained in the precautions which must be taken to avoid accidents and injury to health. The training should address day-to-day shipboard operations as well as contingency planning and emergency preparedness. A training manual containing information and instructions on lifesaving appliances and survival methods should be kept in each mess room and recreation room or in each cabin. The manual should be written in easily understood terms and illustrated wherever possible.



3.5. Shipowners should:

(a) observe the appropriate laws when deciding manning levels, and take into account the necessary standards of fitness, health, experience, competence and language skills to ensure the safety and health of seafarers. In doing so they should:

- (i) take account of the links between shipboard safety and decent working and living conditions, including working hours, rest periods, accommodation and nutrition;*
- (ii) verify that the seafarer holds appropriate medical and competency certificates and endeavour to confirm their validity;*
- (iii) recognize fatigue as a potential hazard to safety and health, therefore operations on ships should be planned to take into account the expected period of work and the prevailing conditions on board in order to minimize fatigue;*
- (iv) where circumstances do not allow adequate rest periods for seafarers, either the crew complement should be supplemented or the vessel's work programme should be reassigned; and*
- (v) take account of reports and recommendations made by the master or safety committee regarding adequacy of numbers of seafarers, their degree of competence and skills required for accident-free operation of the ship.*

(b) establish safety and health committees on board ships or make other suitable arrangements for the participation of seafarers in the establishment of safe working conditions, in consultation with the relevant seafarers' organizations;

(c) arrange for regular safety inspections of all parts of their ships by competent persons. The inspection should also include tools, equipment and machinery on which the safety of the seafarers may depend;

(d) take all practicable steps in advance to ensure that seafarers are made aware of the relevant legislation or regulations related to the prevention of accidents and injuries to health. The linguistic abilities of the seafarers should be taken into account.

3.6. Shipowners should arrange for a designated person from shoreside operations, at the highest possible level within the management structure, to:

- (a) consult closely with the master and crew on all matters concerning safety and health;
- (b) review the reports of ship's safety and health committees and consider any suggested improvements and other information received from the ship; and
- (c) monitor the performance of equipment and personnel.

3.7. Shipowners should:

(a) report occupational accidents, diseases, dangerous occurrences and other injuries resulting in incapacity, to the competent authority. In addition, all accidents to seafarers resulting in loss of life or serious injury should be investigated.

(b) investigate all accidents and near accidents, analyse their causes and convey what is learned throughout the company as appropriate. Shipowners should also consider establishing a near-accident reporting system.

(c) encourage seafarers to report all unsafe and unhealthy conditions or operations.



4. General duties and responsibilities of the master

4.1. The master should implement the shipowner's safety and health policy and programme on board the ship, which should be clearly communicated to all crew.

4.2 The master should ensure that:

- (a) work is carried out in such a way as to avoid the possibility of accidents and the exposure of seafarers to conditions which may lead to injury or damage to their health;
- (b) any work requiring several seafarers to work together and which poses special hazards is supervised by a competent person;
- (c) seafarers are assigned only to work to which they are suited by age, state of health and skills.
- (d) no young person is assigned to inappropriate duties.
- (e) appropriate notices and instructions are issued in a clear and easily understood manner, in a language or languages understood by the entire crew and verify that such instructions have been understood.
- (f) in compliance with national laws and regulations, as well as collective agreements, that all crew on board have:
 - (i) *a tolerable workload;*
 - (ii) *reasonable hours of work;*
 - (iii) *reasonable rest periods during working hours, having special regard to work which is strenuous, hazardous or monotonous; and*
 - (iv) *rest days at reasonable intervals.*
- (g) safety equipment, including all emergency and protective equipment, is maintained in good order and stowed properly;
- (h) all statutory drills and musters are carried out realistically, effectively and conscientiously at the required intervals and in compliance with any applicable rules and regulations;
- (i) practice and training are given in emergency procedures. The use of any special emergency equipment should be demonstrated to the crew at regular intervals;
- (j) operating manuals, vessel plans, national laws and regulations, safety procedures, etc. are available to those seafarers who need such information to conduct their work safely, which are also to be posted in prominent and suitable places.

4.4. The master should investigate all accidents or near accidents and record and report them in compliance with national laws and regulations and the shipowner's procedures.

4.5. Where shipboard safety and health committees are established, the master should hold regular meetings of the committee, at intervals of 4-6 weeks, and ensure that the reports of the committee are given due consideration.

4.6. Unless contrary to national law or practice, the master should ensure that one or more designated persons are assigned to serve as safety officer.

4.7. The master should institute the "permit-to-work" system on board ship



5. General duties and responsibilities of seafarers

5.1. Seafarers should participate in ensuring safe working conditions and should be encouraged to express views on working procedures adopted as they may affect safety and health, without fear of dismissal or other prejudicial measures.

5.2. Seafarers should have the right to remove themselves from dangerous situations or operations when they have good reason to believe that there is an imminent and serious danger to their safety and health. In such circumstances, the competent officer should be informed of the danger forthwith and seafarers should be protected from undue consequences, in accordance with national conditions and practice.

5.3. Notwithstanding the abovementioned, seafarers should only abandon ship on the express order of the master or, in his absence, the competent person next in command.

5.4. Seafarers should:

- (a) cooperate as closely as possible with the shipowner in the application of the prescribed safety and health measures;
- (b) take care of their own safety and health and of other persons who may be affected by their acts or omissions at work;
- (c) properly use and take care of personal protective equipment and clothing at their disposal;
- (d) report forthwith to their immediate supervisor any situation which they believe could pose a hazard and which they cannot properly deal with themselves;
- (e) comply with the prescribed safety and health measures; and
- (f) participate in safety and health meetings.

5.5. Except in an emergency, seafarers, unless duly authorized, should not interfere with, remove, or displace any safety device or other equipment and appliances furnished for their protection or the protection of others, or interfere with any method or process adopted with a view to preventing accidents and injury to health.

5.6. Seafarers should not operate or interfere with equipment which they have not been duly authorized to operate, maintain or use.

5.7. A seafarer who gives an order or otherwise instructs another seafarer should be certain that the order or instructions are understood.

5.8. If a seafarer does not fully understand an order, instruction or any other communication from another seafarer, clarification should be sought.

5.9. Seafarers have a duty to be particularly diligent during fire, lifeboat and other drills and emergency training.

5.10. The crew should implement the shipowner's safety and health policy and programme as delegated to them in a professional manner, demonstrate their full support for shipboard safety and do everything in their power to maintain their own health and safety as well as the health and safety of other crew and persons on board.



6. General duties and responsibilities of the shipboard safety and health committee

6.1. A safety and health committee should assist in the implementation of the shipowner's safety and health policy and programme and provide seafarers with a forum to influence safety and health matters.

6.2. The safety and health committee should as a minimum consist of officers and ratings who should be appointed or elected as appropriate, bearing in mind the importance of balanced representation by shipboard departments and functions.

6.3. All members of the safety and health committee should be given adequate information on safety and health matters.

6.4. The duties and responsibilities of the safety and health committee include but are not limited to:

- (a) ensuring that the competent authority's and the shipowner's safety and health requirements are complied with;
- (b) making representations and recommendations on behalf of the crew through the master to the shipowner;
- (c) discussing and taking appropriate action in respect of any safety and health matters affecting the crew, and the evaluation of adequate protective and safety equipment, including lifesaving equipment; and
- (d) studying accident reports.

6.5. A record should be kept of all committee meetings and copies be posted for viewing by the entire crew as also be sent to the designated person as responsible for ship safety.

6.6. Committee members should not be subject to dismissal or other prejudicial measures for carrying out functions assigned to this role.

6.7. The safety and health committee should be consulted during the planning or alteration of shipboard work processes which may affect safety and health.

6.8. The safety and health committee should have access to information on hazards or potential hazards on board which are known to the shipowner and master. The committee members should have access to the International Maritime Dangerous Goods Code and other relevant IMO publications.

6.9. Committee members should be given reasonable time within working hours to exercise their safety functions, including attendance at safety and health committee meetings.



7. General duties and responsibilities of the safety officer

7.1. The safety officer should implement the shipowner's safety and health policy and programme and carry out the instructions of the master to:

- (a) improve the crew's safety awareness;
- (b) investigate any safety complaints brought to his or her attention and report the same to the safety and health committee and to the individual, where necessary;
- (c) investigate accidents and make the appropriate recommendations to prevent the recurrence of such accidents;
- (d) carry out safety and health inspections; and
- (e) monitor and carry out the on-board safety training of seafarers.

7.2. The safety officer should seek the cooperation of the safety and health committee and the safety representative(s) and others in carrying out these duties.

Further useful guidance could be found in the *MCA Code of Safe Working Practices for Merchant Seamen*.

Appointment of Safety Officers

7.3.1 *On every sea-going ship on which more than five workers are employed, the Company should be required to appoint a safety officer.*

7.3.2 The safety officer is the safety adviser aboard the ship and can provide valuable assistance to the Company and to seafarers in meeting the statutory responsibilities for health and safety. He should have attended a suitable Safety Officer's training course and should be familiar with the principles and practice of risk assessment.

7.3.3 The appointment of the master as the safety officer is not generally advisable. If possible, the Company should also avoid appointing as safety officer anyone to whom the master has delegated the task of giving medical treatment. This is because one of the duties of the safety officer is to investigate incidents, and he would not be able to give proper attention to this function while providing medical treatment for any casualties.



8. General duties and responsibilities of the safety representative(s)

8.1. The safety representative(s) should represent the crew on matters affecting their safety and health.

8.2. The shipowner should make appropriate arrangements for the election of safety representatives and shall not have the rights to disqualify any particular seafarer.

8.3. The number of safety representatives who should be elected will vary according to the size of the crew. The following ratios are recommended:

- 6-15 crew - 1 elected by officers and ratings together;
- «16 + - 1 elected by the officers and one by ratings
- 30 + - 1 elected by the officers and 3 by the ratings (on cruise ships in addition appropriate number of representatives of the hotel catering crew should be elected)

8.4. In carrying out the role of safety representative, access to information, assistance and advice should be provided by the safety committee, the shipowner and seafarers' organization.

8.5. The safety representative(s):

- (a) should be elected or appointed by, in consultation with the seafarer's organization, from the crew and should participate in meetings of the safety and health committee;
- (b) should be allowed sufficient time off their main shipboard duties without loss of pay to enable them to fulfill their functions of receive training.
- (c) should not be subject to dismissal or other prejudicial measures for carrying out functions assigned to this role.

8.6. The safety representative(s) should:

- (a) have access to all parts of the ship;
- (b) participate in the investigation of accidents and near-accidents;
- (c) have access to all the necessary documentation, including investigation reports.;
- (d) have unrestricted rights to communicate directly with the relevant competent authorities and seafarers organizations; and
- (e) receive appropriate training.

9. Provisions on occupational accidents, injuries and diseases

9.1. The provisions should take into account the ILO code of practice entitled Accident prevention on board ship at sea and in port, and other related standards and guidelines and codes of practice regarding occupational safety and health protection.

9.2. The competent authority should ensure that the national guidelines for the management of occupational safety and health address the following matters:

- (a) general and basic provisions;
- (b) structural features of the ship, including means of access and asbestos-related risks;
- (c) machinery;
- (d) the effects of the extremely low or high temperature on the seafarers;
- (e) the effects of noise in the workplace and in shipboard accommodation;
- (f) the effects of vibration in the workplace and in shipboard accommodation;
- (g) the effects of other ambient factors in the workplace and in ship' accommodation;
- (h) special safety measures on and below deck;
- (i) loading and unloading equipment;
- (j) fire prevention and fire-fighting;
- (k) anchors, chains and lines;
- (l) dangerous cargo and ballast;
- (m) personal protective equipment for seafarers;
- (n) work in enclosed spaces;
- (o) physical and mental effects of fatigue;
- (p) the effects of drug and alcohol dependency;
- (q) HIV/AIDS protection and prevention; and
- (r) emergency and accident response.

9.3. The assessment of risks and reduction of exposure on the matters should take account of the physical occupational health effects, including manual handling of loads, noise and vibration, the chemical and biological occupational health effects, the mental occupational health effects, the physical and mental health effects of fatigue, and occupational accidents. The necessary measures should take due account of the preventive principle according to which, combating risk at the source, adapting work to the individual, especially as regards the design of workplaces, and replacing the dangerous by the nondangerous or the less dangerous, have precedence over personal protective equipment for seafarers.

9.4. In addition, the competent authority should ensure that the implications for health and safety are taken into account, particularly in the following areas:

- (a) emergency and accident response;
- (b) the effects of drug and alcohol dependency; and
- (c) HIV/AIDS protection and prevention.



10. Reporting of accidents, collection of statistics and investigations

10.1.1. The principal purpose of accident investigation, reporting and analysis should be to minimize the potential for a recurrence of such accidents.

10.1.2. The cause or causes of all accidents or near accidents should be investigated by the ship's safety officer.

10.1.3. A full report of any incident should be made to the safety and health committee and to the appropriate persons ashore. Shipowners should report occupation accidents and diseases to the competent authority.

10.1.4. Reports of accidents and near accidents should be discussed at safety and health committee meetings and steps should be taken to minimize the possibility of recurrences.

10.2. All occupational accidents and occupational injuries and diseases should be reported so that they can be investigated and comprehensive statistics be kept, analysed and published, taking account of protection of the personal data of the seafarers concerned. Reports should not be limited to fatalities or to accidents involving the ship.

10.3. The statistics should record the numbers, nature, causes and effects of occupational accidents and occupational injuries and diseases.

10.4. The competent authority should undertake investigations into the causes and circumstances of all occupational accidents and occupational injuries and diseases resulting in loss of life or serious personal injury.

10.5. Consideration should be given to including the following as subjects of investigation:

- (a) working environment, such as working surfaces, layout of machinery, means of access, lighting and methods of work;
- (b) incidence in different age groups of occupational accidents and occupational injuries and diseases;
- (c) physiological or psychological problems created by the shipboard environment;
- (d) problems arising from physical stress on board a ship, in particular as a consequence of increased workload;
- (e) problems arising from and effects of technical developments and their influence on the composition of crews; and
- (f) problems arising from any human failures.





11. National protection and prevention programmes

11.1. In order to provide a sound basis for measures to promote occupational safety and health protection and prevention of accidents, injuries and diseases which are due to hazards of maritime employment, research should be undertaken into trends and hazards as are revealed by statistics.

11.2. The implementation of protection and prevention programmes for the promotion of occupational safety and health should be so organized that the competent authority, shipowners and seafarers' representatives may play an active role. In particular, national local joint or company occupational safety and health protection and accident prevention committees or ad hoc working parties, on which shipowners' and seafarers' organizations are represented, should be established.

11.3. Where such activity takes place at company level, the representation of seafarers on any safety committee on board that shipowner's ships should be secured.

12. Content of protection and prevention programmes

12.1. Consideration should be given to including the following in the functions of the safety committees and other bodies;

- (a) the preparation of national guidelines and policies for occupational safety and health management systems and for accident prevention provisions, rules and manuals;
- (b) the organization of occupational safety and health protection and accident prevention training and programmes;
- (c) the organization of publicity on occupational safety and health protection and accident prevention, including films, posters, notices and brochures; and
- (d) the distribution of literature and information on occupational safety and health protection and accident prevention so that it reaches seafarers on board ships.

12.2. Relevant provisions or recommendations adopted by the appropriate national authorities or organizations or international organizations should be taken into account by those preparing texts of occupational safety and health protection and accident prevention measures or recommended practices.



13. Instruction in occupational safety and health protection and the prevention of occupational accidents

13.1. The curriculum for the training should be reviewed periodically and brought up to date in the light of development in types and sizes of ships and in their equipment, as well as changes in manning practices, nationality, language and the organization of work on board ships.

13.2. There should be continuous occupational safety and health protection and accident prevention publicity. Such publicity might take the following forms:

- (a) educational audiovisual material, such as films, for use in vocational training centres for seafarers and where possible shown on board ships;
- (b) display of posters on board ships;
- (c) inclusion in periodicals read by seafarers of articles on the hazards of maritime employment and on occupational safety and health protection and accident prevention measures; and
- (d) special campaigns using various publicity media to instruct seafarers, including campaigns on safe working practices.

13.3. The publicity referred to in above paragraph should take account of the different nationalities, languages and cultures of seafarers on board ships.

14. Exposure to noise

14.1. The competent authority, in conjunction with the representatives of shipowners' and seafarers' organizations concerned, should review on an ongoing basis the problem of noise on board ships with the objective of improving the protection of seafarers, in so far as practicable, from the adverse effects of exposure to noise.

14.2. The review should take account of the adverse effects of exposure to excessive noise on the hearing, health and comfort of seafarers and the measures to be prescribed or recommended to reduce shipboard noise to protect seafarers. The measures to be considered should include the following:

- (a) instruction of seafarers in the dangers to hearing and health of prolonged exposure to high noise levels and in the proper use of noise protection devices and equipment;
- (b) provision of approved hearing protection equipment to seafarers if necessary; and
- (c) assessment of risk and reduction of exposure levels to noise in all accommodation, recreational and catering facilities, as well as engine rooms and other machinery spaces.

14.3. Guidance on noise levels can be found in the IMO Resolution A.468(XII) (1981): Code on noise levels on board ships and incorporated in the : *ABS Guide for Compliance with the ILO Maritime Labour Convention, 2006 Title 3 Requirements*. This Code was designed to provide standards to prevent the occurrence of potentially hazardous noise levels on board ships and to provide standards for an acceptable environment for seafarers. The Code's intent is to limit noise levels and to reduce exposure to noise, in order to:

- i) Provide for safe working conditions by giving consideration to the need for speech communication and for hearing audible alarms
- ii) Provide an environment where clear-headed decisions can be made in control stations, navigation and radio spaces and manned machinery spaces
- iii) Protect the seafarer from excessive noise levels which may give rise to a noise-induced hearing loss
- iv) Provide the seafarer with an acceptable degree of comfort in rest, recreation and other spaces and also provide conditions for recuperation from the effects of exposure to high noise levels

Noise Criteria*	
Space	Noise Limit dB(A) Maximum
Accommodation Spaces	
Cabins and hospitals	60
Mess rooms	65
Recreation room	65
Open recreation areas	75
Offices	65
Service Spaces	
Galleys, without food processing	75
Equipment operating	
Serveries and pantries	75

* In any manned space with noise levels above 85 dB(A), hearing protection should be worn in accordance with appropriate IMO regulations.



15. Exposure to vibration

15.1 Background

Working and/or living aboard vessels can impose a series of low- and high-frequency mechanical vibrations as well as single-impulse shock loads on the human body.

Low-frequency vibrations (i.e., oscillations) are generally imposed by vessel motions, which are produced by the various sea states in conjunction with vessel speed. Oscillation may result in motion sickness, body instability, fatigue, and increased health risk aggravated by shock loads induced by vessel slamming. Vessel slamming may be caused by dynamic impact loads being exerted on the vessel's bottom or bow flare because of vessel size, speed, and wave conditions.

High-frequency vibration is often associated with high-speed rotating machinery. The imposition of higher frequency vibrations induces corresponding motions and forces within the human body, creating discomfort and possibly resulting in degraded performance and health.

15.2. The 2006 MLC has regulations relating to whole-body vibration levels aboard vessels. They are contained in the following list:

i) Standard A3.1.6 (h) states: "accommodation and recreational and catering facilities shall meet the requirements in Regulation 4.3, and the related provisions in the Code, on health and safety protection and accident prevention, with respect to preventing the risk of exposure to hazardous levels of noise and vibration and other ambient factors and chemicals on board ships, and to provide an acceptable occupational and on-board living environment for seafarers. "

ii) MLC Standard A3.1.6 (h) calls out Regulation 4.3. Below is listed the physical design and arrangement related aspects of Regulation 4.3 include:

- A4.3.1(b) "reasonable precautions to prevent occupational accidents, injuries and diseases on board ship, including measures to reduce and prevent the risk of exposure to harmful levels of ambient factors and chemicals as well as the risk of injury or disease that may arise from the use of equipment and machinery on board ships;"
- A4.3.2(a) "take account of relevant international instruments dealing with occupational safety and health protection in general and with specific risks, and address all matters relevant to the prevention of occupational accidents, injuries and diseases that may be applicable to the work of seafarers and particularly those which are specific to maritime employment;" and
- A4.3.4 "Compliance with the requirements of applicable international instruments on the acceptable levels of exposure to workplace hazards on board ships and on the development and implementation of ships' occupational safety and health policies and programmes shall be considered as meeting the requirements of this Convention."

15.3. The competent authority, in conjunction with the shipowners' and seafarers' organizations concerned, and taking into account relevant standards, should review on an ongoing basis the problem of vibration on board ships with the objective of improving the protection of seafarers from the adverse effects of vibration.





15.4. The review should cover the effect of exposure to excessive vibration on the health and comfort of seafarers and the measures to be prescribed or recommended to reduce shipboard vibration to protect seafarers. The measures should include the following:

- (a) instruction of seafarers in the dangers to their health of prolonged exposure to vibration;
- (b) provision of approved personal protective equipment to seafarers if necessary; and
- (c) assessment of risks and reduction of exposure to vibration in all accommodation, recreational and catering facilities by adopting measures in accordance with the guidance provided by the ILO code of practice entitled Ambient factors in the workplace, taking account of the difference between exposure in those areas and in the workplace.



16. Permit-to-work systems

16.1. The permit-to-work system is a method whereby safety procedures are specified in writing on a form issued to seafarers who are entrusted with a task which may involve work of a hazardous nature. Permits should only be used for the more hazardous tasks and the system should not become over-complicated.

16.2. The form should describe the work to be carried out and the necessary safety precautions. All foreseeable hazards should be considered, a predetermined safe procedure should be adopted and the appropriate precautions should be written down in a correct sequence.

16.3. The permit should contain a carefully planned checklist to identify, control or eliminate hazards and should state the emergency procedure in the event of an accident.

16.4. A permit should be issued only by an officer with experience in the work operation. The officer should ensure that the checks have been properly carried out and, together with the person in charge, sign the permit only when satisfied that it is safe for the work to proceed. The master should countersign any such permits.

16.5. Procedures for locking off at points of isolation and signing for, and the subsequent cancellation of, permits and “making live” should be covered.



17. Safety and health education of young seafarers

17.1. Safety and health regulations should refer to any general provisions on medical examinations before and during employment and on the prevention of accidents and the protection of health in employment, which may be applicable to the work of seafarers. Such regulations should specify measures which will minimize occupational dangers to young seafarers in the course of their duties.

17.2. Except where a young seafarer is recognized as fully qualified in a pertinent skill, the regulations should specify restrictions on young seafarers undertaking, without appropriate supervision, certain types of work presenting special risk of accident or of detrimental effect on their health or physical development, or requiring a particular degree of maturity, experience or skill. In determining the types of work to be restricted by the regulations, the competent authority might consider in particular work involving:

- (a) the lifting, moving or carrying of heavy loads or objects;
- (b) entry into boilers, tanks and cofferdams;
- (c) exposure to harmful noise and vibration levels;
- (d) operating hoisting and other power machinery and tools, or acting as signalers to operators of such equipment;
- (e) handling mooring or tow lines or anchoring equipment;
- (f) rigging;
- (g) work aloft or on deck in heavy weather;
- (h) nightwatch duties;
- (i) servicing of electrical equipment;
- (j) exposure to potentially harmful materials, or harmful physical agents such as dangerous or toxic substances and ionizing radiations;
- (k) the cleaning of catering machinery; and
- (l) the handling or taking charge of ships' boats.

17.3. Practical measures should be taken by the competent authority to bring to the attention of young seafarers information concerning the prevention of accidents and the protection of their health on board ships. Such measures could include adequate instruction in courses, official accident prevention publicity intended for young persons and professional instruction and supervision of young seafarers.

17.4. Education and training of young seafarers both ashore and on board ships should include guidance on the detrimental effects on their health and well-being of the abuse of alcohol and drugs and other potentially harmful substances, and the risk and concerns relating to HIV/AIDS and of other health risk related activities.

18. Indoor Climate

18.1. Background

Thermal comfort is defined as “...that condition of mind which expresses satisfaction with the thermal environment”. The sensation of thermal comfort is therefore largely subjective and will vary from person to person. Due to differences in metabolism and expectations, there are distinct individual differences among people’s perception of comfort as a function of temperature, humidity, and other atmospheric characteristics. Acclimatization, habits, and expectations affect perceived comfort. These individual differences render it difficult to specify a single thermal environment that will be satisfactory to everyone. A thermal environment is therefore typically defined to be acceptable to at least eighty (80) per cent of the occupants of an interior space.

The thermal control or Heating, Ventilation, and Air Conditioning (HVAC) systems on a vessel shall be designed to effectively control the indoor thermal environmental parameters to within acceptable limits to facilitate the thermal comfort of the occupants.

As there are not specific figures further guidance might be sought in RO documents like *ABS Guide for Compliance with the ILO Maritime Labour Convention, 2006 Title 3 Requirements*.

18.2. Scope

The 2006 MLC has Regulations relating to indoor climatic variables levels aboard vessels. They are contained in the following list:

- i) Standard A3.1.6(b) states: “the accommodations shall be adequately insulated”
- ii) Standard A3.1.6(h) states: “accommodation and recreational and catering facilities shall meet the requirements in Regulation 4.3, and the related provisions in the Code, on health and safety protection and accident prevention, with respect to preventing the risk of exposure to hazardous levels of noise and vibration and other **ambient factors** and chemicals on board ships, and to provide an acceptable occupational and on-board living environment for seafarers.”
- iii) MLC Standard A3.1.6 (h) calls out Regulation 4.3. Below is listed the physical design and arrangement related aspects of Regulation 4.3 include:
 - 4.3.1(b) “reasonable precautions to prevent occupational accidents, injuries and diseases on board ship, including measures to reduce and prevent the risk of exposure to **harmful levels of ambient factors** and chemicals as well as the risk of injury or disease that may arise from the use of equipment and machinery on board ships;”
 - 4.3.2(a) “take account of relevant international instruments dealing with occupational safety and health protection in general and with specific risks, and address all matters relevant to the prevention of occupational accidents, injuries and diseases that may be applicable to the work of seafarers and particularly those which are specific to maritime employment;” and
 - 4.3.4 “Compliance with the requirements of applicable international instruments on the acceptable levels of exposure to workplace hazards on board ships and on the development and implementation of ships’ occupational safety and health policies and programmes shall be considered as meeting the requirements of this Convention.”
- iv) Standard A3.1.7 (a) states: “Sleeping rooms and mess rooms shall be adequately ventilated”
- v) Standard A3.1.7 (b) states: “Ships, except those regularly engaged in trade where temperate climatic conditions do not require this, shall be equipped with air conditioning for seafarer accommodation, for any separate radio room and for any centralized machinery control room.”
- vi) Standard A3.1.7 (d) states: “adequate heat through an appropriate heating system shall be provided, except in ships exclusively on voyages in tropical climates”

vii) Guideline B3.1.2.2 (a) states: “Air-conditioning systems, whether of a centralized or individual unit type, should be designed to maintain the air at a satisfactory temperature and relative humidity as compared to outside air conditions, ensure a sufficiency of air changes in all air conditioned spaces, take account of the particular characteristics of operations at sea and not produce excessive noise or vibrations.”

viii) Guideline B3.1.8.2 states: “The arrangement of the entrance, berths, lighting, ventilation, heating and water supply should be designed to ensure the comfort and facilitate the treatment of the occupants.”

18.3. Air Temperature

The HVAC system shall be capable of providing return air temperatures as noted in table below “Summary of Indoor Climate Requirements”. This temperature shall be maintained by a temperature controller. Each zone shall have a thermostat for reheat and dehumidification purposes.

18.4. Relative Humidity

The HVAC system shall be capable of providing and maintaining a relative humidity within a range from thirty (30) percent minimum to seventy (70) percent maximum.

18.5. Air Exchange Rate

The rate of air change for enclosed spaces shall be at least six (6) complete changes-per-hour.

18.6. Summary

A summary of the indoor climate requirements is presented in the table below “Summary of Indoor Climate Requirements”.

Summary of Indoor Climate Requirements	
Item	Requirement or Criterion
Air Temperature	Non-adjustable air temperature between Winter or Summer: 22 or 25C (71.5 or 77F)
Relative Humidity	A range from 30% minimum to 70% maximum
Air Exchange Rate	The rate of air change for enclosed spaces shall be at least six (6) complete changes-per-hour.

19. References and other sources of information

ILO Conventions and Recommendations on occupational safety and health and working conditions

- Labour Inspection Convention (No. 81) and Recommendation (No. 81), 1947
- Protocol of 1995 to the Labour Inspection Convention (NoP81), 1947 (Entry into force: 09 Jun 1998)
- Radiation Protection Convention (No. 115) and Recommendation (No. 114), 1960 - Convention concerning the Protection of Workers against Ionising Radiations (Entry into force: 17 Jun 1962)
- Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963 - (Entry into force: 21 Apr 1965)
- Employment Injury Benefits Convention (No. 121) and Recommendation (No. 121), 1964 (Entry into force: 28 Jul 1967)
- Maximum Weight Convention (No. 127) and Recommendation (No. 128), 1967 - Convention concerning the Maximum Permissible Weight to Be Carried by One Worker (Entry into force: 10 Mar 1970)
- Workers' Representatives Convention (No. 135) and Recommendation (No. 143), 1971 - Convention concerning Protection and Facilities to be Afforded to Workers' Representatives in the Undertaking (Entry into force: 30 Jun 1973);
- Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977 - Convention concerning the Protection of Workers against Occupational Hazards in the Working Environment Due to Air Pollution, Noise and Vibration (Entry into force: 11 Jul 1979)
- Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152)- Convention concerning Occupational Safety and Health in Dock Work (Entry into force: 05 Dec 1981)
- Occupational Safety and Health Convention, 1981 (No. 155) and Recommendation (No. 164), 1981 - Convention concerning Occupational Safety and Health and the Working Environment (Entry into force: 11 Aug 1983)
- Protocol of 2002 (recording and notification of occupational accidents and diseases) to the Occupational Safety and Health Convention, 1981 (No. 155) (Entry into force: 09 Feb 2005)
- Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985 - (Entry into force: 17 Feb 1988)
- C162 - Asbestos Convention, 1986 (No. 162) -Convention concerning Safety in the Use of Asbestos (Entry into force: 16 Jun 1989)
- Chemicals Convention (No. 170) and Recommendation (No. 177), 1990 - Convention concerning Safety in the use of Chemicals at Work (Entry into force: 04 Nov 1993)
- Promotional Framework for Occupational Safety and Health Convention (No. 187) and Recommendation (No. 197), 2006
- List of Occupational Diseases Recommendation, 2002 (No. 194) (updated in 2010)

Texts of ILO conventions can be found at <http://www.ilo.org/global/standards/lang--en/index.htm> .



Selected ILO codes of practice with provisions which are relevant and applicable to health and safety

ILO Codes of Practice set out practical guidelines for public authorities, employers, workers, enterprises, and specialized occupational safety and health protection bodies. They are not legally binding instruments and are not intended to replace the provisions of national laws or regulations, or accepted standards. Codes of Practice provide guidance on safety and health at work in certain economic sectors and on certain safety and health measures.

<http://www.ilo.org/safework/info/standards-and-instruments/codes/lang—en/index.htm>

- Code of practice Accident prevention on board ship and at sea, 1996
- Code of practice Health and safety in ports, 2003
- Code of practice Safety in the use of chemicals at work, 1993
- Code of practice Recording and notification of occupational accidents and diseases, 1996
- Code of practice Ambient factors in the workplace, 2001 - *This code provides guidance on the role and obligations of competent authorities and the responsibilities, duties and rights of employers, workers and all other parties involved, with regard to hazardous ambient factors.*
- Code of practice on HIV/AIDS and the world of work, 2001
- Guidelines on occupational safety and health management systems, 2001

Additional useful materials

- ILO IMO Medical Examinations Guidelines – English, French and Spanish;
<http://www.ilo.org/global/industries-and-sectors/shipping-ports-fisheries-inland-waterways/lang—en/index.htm>
These Guidelines are intended to provide maritime administrations with an internationally recognized set of criteria for use by competent authorities either directly or as the basis for framing national medical examination standards that will be compatible with international requirements.
- UNCDP/ILO Drug and Alcohol Abuse Programmes in Maritime Industry Manual;
www.imo.org/OurWork/HumanElement/.../Documents/drugalco.pdf
- WHO Guide to Ship Sanitation 2011;
whqlibdoc.who.int/publications/2011/9789241546690_eng.pdf
The WHO Guide to ship sanitation has become the official WHO global reference on health requirements for ship construction and operation. Its original purpose was to standardize the sanitary measures taken in ships, to safeguard the health of travellers and workers and to prevent the spread of infection from one country to another.
- WHO/ ILO/IMO International Medical Guide for Ships 3rd Edition 2007
- ABS Guide for compliance with MLC;
http://www.eagle.org/eagleExternalPortalWEB/appmanager/absEagle/absEagleDesktop?_nfpb=true&_pageLabel=abs_eagle_portal_rules_guides_book
- ABS Guide for crew habitability on ships, 2012;
http://www.eagle.org/eagleExternalPortalWEB/appmanager/absEagle/absEagleDesktop?_nfpb=true&_pageLabel=abs_eagle_portal_rules_guides_book

