

Only the Danish version is authentic.

Chapter A VI A
1 July 2004

Technical regulation on
occupational health in ships

CHAPTER VI

Technical aids (machines, scaffolding etc.)

Part A	Use of work equipment on board ships.....	2
Regulation 1	Application.....	2
Regulation 2	Definitions.....	2
Regulation 3	General provisions	2
Regulation 4	Arrangements	3
Regulation 5	User instructions	4
Regulation 6	Use, etc.....	4
Regulation 7	Instruction and training	5
Regulation 8	Inspection and maintenance	5
Regulation 9	Damage and defects to technical aids	5
Regulation 10	Special provisions	6
Annex 1	The construction, etc. of machines and technical aids, cf. regulation 3(5).....	7
Annex 2	Detailed rules; Tools used for lifting loads	10
Annex 3	Detailed rules; Temporary work at a height.....	14

CHAPTER VI

Technical aids (machines, scaffolding etc.)

Part A Use of work equipment on board ships

Regulation 1 Application

- 1 The provisions of this part cover the use of technical aids when carrying out work or working processes on board ships.
- 2 The provisions have been drafted on the basis of Council Directive 89/655/EEC, as amended by Directive 95/63/EC and Directive 2001/45/EC.

Regulation 2 Definitions

- 1 Technical aids shall mean:
 - .1 Machines, containers, apparatuses, tools and any other similar arrangement that
 - .1 is used for processing a product,
 - .2 is used for bringing forward a work result, including for the local transportation and storage, or
 - .3 is used for carrying out a technical process.
 - .2 Parts of such devices, pre-fabricated structures and any other manufactured item intended to form part of a final unit together with other items.
 - .3 Work equipment used for temporary work at a height.
- 2 Use shall mean:

Any use of technical aids and all working functions associated herewith, such as the taking into use, the taking out of use, the operation and surveillance, maintenance, adjustment, repairs, cleaning and other ways of looking after technical aids.
- 3 A competent person shall mean:

The supplier or a person with similar knowledge about the technical aid in question. According to Danish practice, the ship's master, chief mate and chief engineer shall normally be considered competent persons.

Regulation 3 General provisions

- 1 Technical aids shall be used in a way that is in every respect reasonable from a health and safety perspective.
- 2 A technical aid that is used to carry out a task shall be suitable for or have been adjusted to this purpose so that the use is in every respect reasonable from a health and safety perspective. The choice of technical aid shall be made in consideration of the conditions under which it shall be used as well as of the risks that may arise when using the aid in question.

- 3 When observing the current requirements for the use of a technical aid, full consideration shall be taken of the workplace in question and of the work posture during its use as well as of other ergonomic conditions.
- 4 If, in spite hereof, the use of a technical aid involves a risk to health and safety, this risk shall be encountered by suitable means, such as shielding, extraction and special safety equipment or other measures of a safety-technical nature ensuring that the work is carried out in a way that is in every respect reasonable from a health and safety perspective.
- 5 Machines and safety components that are taken into use from 1 January 2003 shall comply with the health and safety requirements that apply to CE-marked machines and safety components. They shall be designed and arranged so that they are in accordance with the provisions in force on machines procured within the European Union.¹

Machines and safety components taken into use after 1 January 2003 by ships outside the European Union shall be of a similar nature.

Machines and safety components that have been taken into use before 1 January 2003 shall comply with the requirements of annex 1 on the design, manufacture, equipment and user instructions of machines and other technical aids.

Other technical aids shall also comply with the requirements of annex 1.
- 6 A technical aid shall be installed, arranged and used in such a way that the risk of harm to health and safety is minimized. Hereby it shall be ensured that there is, among other things, sufficient room between the moving parts of the technical aid and fixed or moving parts close by and that any kind of energy, substances and materials that are used or produced can be supplied and taken out in a safe way.

Regulation 4 Arrangements

- 1 The arrangement of a technical aid shall be reasonable in every respect from a health and safety perspective. It shall, for example, be ensured
 - .1 that the foundation, supports, fastening and stability are sound and secure considering the weight, form and use of the aid,
 - .2 that noise, vibrations or other oscillations emanating from the aid have been counteracted as effectively as possible by erection on a dampening foundation, shielding or other measures,
 - .3 that hazards and any inconvenience from heat, dust, smoke, fumes, gases, etc. led away from the aid and any other risk elements in relation hereto have been effectively counteracted,
 - .4 that the placing and way of arranging the aid is sound and secure considering the surrounding conditions,

¹ The provisions of Directive 98/37/EC on the approximation of the laws of the Member States relating to machinery (the machinery directive) have been implemented by the Order issued by the Danish Working Environment Authority on the arrangement of technical aids.

- .5 that the placing and way of arranging the aid does not prevent the operation of and other work being carried out on the aid in a way that is in every respect reasonable from a health and safety perspective.
- 2 The erection, taking down and dismantling of a technical aid shall take place in a safe way, and it is particularly important that any instructions given by the manufacturer are followed.

Regulation 5 User instructions

- 1 To the extent that it is of importance to health and safety in connection with the use of a technical aid, user instructions shall be made containing exhaustive information about how to use, transport, erect and keep the aid in statutory order. The supplier's user instructions meet this requirement, cf. regulation 3(5).
- 2 If break-downs, failure of the automatic control devices or other extraordinary situations related to a technical aid may cause dangerous situations, the user instructions shall contain a warning hereof and instructions about what safety measures to take in the situations in question.
- 3 The user instructions shall be up-dated on an on-going basis, among others on the basis of the experience gained with the use of the aid.
- 4 The user instructions shall be available in Danish and shall be easy to understand for the users concerned. Special rules or considerations of safety may, however, require that the user instructions are also available in another language.

The user instructions shall be readily available and, to the extent that it is possible, be printed directly on the technical aid.

Regulation 6 Use, etc.

- 1 A technical aid may be used only for the working functions and under the conditions for which it is suited so that limitations that are a consequence of its use are not exceeded and thus lead to a risk to health or safety.
- 2 Safety devices or other protective equipment shall be used as intended, and prescribed safety measures shall be observed.
- 3 The aid may not be used under conditions that represent a special hazard unless effective safety measures have been taken against this. If necessary, appropriate measures shall have been taken to protect against lightning strokes.
- 4 The aid shall be started and stopped in accordance with the guidelines and instructions given, which shall also apply in case of a change of the operation of the aid or any other intervention. This may take place only when it has been ensured that it may take place without any risk.
- 5 When a technical aid is being cleaned, repaired, maintained and the like, it shall, insofar as practicable considering the work in question, be stopped and secured against being started in an effective way. If this is not possible, other measures shall be taken to effectively ensure that the work may be carried out in a way that is in every respect reasonable from a health and safety perspective.
- 6 If, during special working operations with a technical aid, there might be a risk that persons get in contact with dangerous parts

or substances or materials or in any other way are exposed to harmful effects, this shall have been counteracted in an effective way.

Regulation 7 Instruction and training

- 1 Employees shall be instructed in and, to the extent necessary, trained in the use of the technical aids they are to use during their work so that the use may be made in a way that is in every respect reasonable from a health and safety perspective.
- 2 Employees shall be made aware of relevant risks in connection with technical aids in their immediate working surroundings as well as of relevant changes that affect technical aids in their immediate working surroundings even though they do not directly use them.
- 3 The instruction and training shall, as a minimum, include the issues mentioned in regulation 4 and regulation 6.
- 4 If the use of a technical aid presents a special risk to the person who uses it or other persons, the employer shall ensure that it is only used by persons who have been especially appointed to use it and who have received the necessary instruction and training in relation hereto.

Regulation 8 Inspection and maintenance

- 1 It shall be ensured, by means of appropriate inspections and maintenance carried out by a competent person, that technical aids are constantly in proper order and comply with the requirements of regulation 3(5). This involves an appropriate inspection before the aid is used the first time and before it is re-used after each re-mounting and re-arrangement. The supplier's instructions shall be observed unless otherwise prescribed by special rules or required by the Danish Maritime Authority.
- 2 A technical aid that is exposed to effects that may cause damage that may again lead to dangerous situations shall be inspected as stipulated in the following to ensure that the requirements that apply to the arrangement and use of the aid may be met and that the damage may be discovered and remedied in time:
 - .1 A technical aid shall be inspected regularly and, if necessary, tested by a competent person.
 - .2 A technical aid shall be subject to special inspection by a competent person whenever it has been subject to special conditions that may have led to its use not being reasonable in every respect from a health and safety perspective, such as changes, accidents, natural phenomena or a standstill for a longer period of time.
- 3 The results of the inspection of a technical aid as mentioned in subparagraph (2) shall be registered and kept for as long as the aid is used on board and they shall be accessible to the Danish Maritime Authority.
- 4 Signs, posters and other marking on the technical aid containing information about its data, operation, etc. and any risks shall be kept visible and easily legible.

Regulation 9 Damage and defects to technical aids

- 1 Should defects or damage be made to a technical aid that may involve a risk to health or of accidents, or should circumstances arise that may mean that the operational, surveillance or control organs on which the safety of the technical aid depends do not function as intended, the aid shall be taken out of operation in a sound and secure way, considering the conditions, until the defects have been remedied.
- 2 If the use of a technical aid is connected with danger to health or safety because of defects of the aid or other special circumstances, proper measures shall be taken for as long as such danger exists against it being used. This may involve removal, dismantling or the like of the aid from the workplace.

Regulation 10 Special provisions

- 1 As regards the use of tools for lifting loads, lifting and hoisting gear, transport gear mobile tools and work equipment made available for temporary work at a height, the detailed regulations laid down in annex 2 and 3² shall apply in addition to regulations 2-9.

² Other provisions on the use of technical aids are found in, for example, technical regulation on lifting appliances and loose gear on ships and Notices from the Danish Maritime Authority B, E and F.

ANNEX 1

The construction, etc. of machines and technical aids, cf. regulation 3(5)

- 1 The provisions of this annex shall apply to the construction, manufacture, equipment and user instructions of machines and other technical aids taken into use before 1 January 2003.

Construction

- 2 A technical aid shall be constructed and made in a sound and secure way of suitable materials in consideration of the effects to which it may be expected to be exposed so that it has the necessary strength and durability in terms of health and safety.
- .1 A technical aid in which pressure, temperatures, material tensions or other effects may arise that can cause hazardous situations shall be designed and constructed such or be fitted with such equipment for limiting the effects that the sound and possibly determined limits hereof are not exceeded. If necessary, the aid shall be fitted with alarm devices that function automatically if these limits are exceeded.
- 3 The design of a technical aid shall include securing against dangers associated with the aid. This means, for example, that it shall be ensured
- .1 that persons cannot get into contact with dangerous machinery parts or substances,
- .2 that tools, elements or parts hereof, splashes and the like cannot be ejected and hence constitute a danger to health and safety, and
- .3 that heat, cold, radiation, noise, vibrations, dust, humidity, smoke, fumes, gases or other things that are generated when using the aid are not liberated in such a way that it constitutes a danger to health and safety.
- 4 If the necessary security cannot be achieved through the design, it shall be achieved in a safe way through shielding, extraction, other safety equipment or other measures of a safety-technical nature.
- 5 Equipment for the supply of energy shall be designed, constructed and fitted so that it does not present a danger to health or safety.
- 6 A technical aid shall be designed, constructed and fitted so that it is possible to operate it without any danger to health or safety and without others being exposed to danger.
- .1 As regards any other work related to the aid, regulation 3 shall apply by analogy to the extent that it is possible considering the nature of the aid.
- 7 The way in which energy is coupled to, operated and cut off from a technical aid or other kinds of effects on the functions or working processes of it shall, insofar as possible, ensure that no danger to health or safety arises. In this connection, it shall be ensured that the aid may be operated under the best possible surveillance and control conditions, and, if necessary, the aid shall be fitted with equipment that automatically sounds an alarm prior to it being started, stopped or affected in other ways.

- .1 It shall be possible to stop functions or working processes quickly from appropriate places on or at the aid unless such stopping may present a danger. Where safety reasons call for it, it shall be possible to stop the aid automatically. If necessary, the stopping shall be combined with braking.
 - .2 If not normal conditions of operation, including variations in or stopping of the supply of energy to a technical aid, may involve danger, the aid shall be effectively secured against this. If necessary, the aid shall be fitted with an automatic and appropriately functioning alarm device.
- 8 Lighting built into or fitted on a technical aid shall be appropriately designed, including non-dazzling.
- 9 Operating devices and steering systems shall be designed, constructed and made so that any risk of inadvertent or incorrect release, change or stop of functions that may cause danger have been prevented or counteracted.
- .1 Operating devices shall be easily accessible, be located and designed ergonomically appropriately and be well lit.

Special equipment

- 10 Automatically driven, operated or surveyed technical aids shall, to the extent that it may be of safety related importance, be fitted with devices for adjusting the processes, disconnecting the automatic operation and with equipment for manual operation as well as any emergency stop.
- .1 Such an aid shall, furthermore, be provided with instructions, diagrams, plans or similar material that may in case of failure of the automatics or in other extra-ordinary situations form the basis of an extensive assessment of the safety-related importance hereof and of the carrying out of the measures or interventions that may be necessary to avert any danger to health or safety.
 - .2 The text of the material and the instructions that are associated herewith shall be in Danish unless otherwise stipulated in special regulations or decided by the Danish Maritime Authority in each individual case.
 - .3 The material shall be fitted on the aid or adjacent hereto in a way that is appropriate for its use.
- 11 Technical aids the safety of which depends on the operating condition shall, to the extent necessary, be fitted with equipment for surveillance, control and command hereof.
- .1 Surveillance and control organs shall be designed and made in a sound and secure way by suitable materials so that they work reliably in a way that is in every respect reasonable from a health and safety perspective.
 - .2 Surveillance and control organs shall be designed and arranged so that their adjustment cannot be disrupted inadvertently. Their display shall be correct, clear and well lit. It shall be possible to read and adjust them from an easily accessible place, and it shall be possible to carry out the necessary adjustments or replacements.
- 12 Where it is necessary to move about or stay on a technical aid for operation, maintenance, inspection or other purposes, means of access and passageways as well as working platforms shall be arranged to the extent necessary. They shall be designed and

arranged, secured and lit so that it is in every respect sound and secure in terms of health and safety to use them.

Design

- 13 Where the form or colour of a technical aid or parts hereof may be of importance in terms of health or safety, consideration shall be paid to this to the widest extent possible.
- 14 Marking colours and symbols shall be clear and durable, and because of the visual experience an appropriate form and colouring of the aid shall be sought.
- 15 To the extent that its use under the requirement permits, accessible parts of the aid shall be designed so that sharp corners, edges, rough surfaces and the like that may cause personal injury are not found.
 - .1 The design shall, insofar as possible, ensure that the aid is easy to clean and that it is possible now and then to clean it without any danger to health or safety.
- 16 A technical aid that may be foreseen to be removed, transported, erected and mounted shall be designed in consideration of this and, if necessary, be fitted with devices so that the removal, etc. can take place in a way that is in every respect reasonable from a health and safety perspective.

User instructions

- 17 When a technical aid is being supplied, it shall be accompanied by such user instructions as are necessary to use, transport and erect the aid in a way that is in every respect reasonable from a health and safety perspective as well as to keep it in the order prescribed. This includes the necessary instructions, plans, diagrams and the like for the arrangement and functioning of the aid, information about any dangers or other special conditions related to the aid, including limitations in its use, that may be of importance to health and safety in the working environment and that are not generally known. In addition, such instructions shall contain information about any special safety measures that it is necessary to take in connection with the use, transport, erection and maintenance of the aid. If personal protective equipment is needed, the user instructions shall provide information about its nature and use in accordance with the rules that may have been laid down hereon.
- 18 User instructions shall be exhaustive and easy to understand for those who may be foreseen to use them. They shall be in Danish unless otherwise stipulated in special rules.
- 19 To the extent that it may be of importance to health or safety, the user instructions, important parts hereof or references hereto shall be given directly on the aid or on signs, posters or the like adjacent to it.

ANNEX 2

Detailed rules
Tools used for lifting loads**General**

- 1 A tool that can be dismantled or is mobile which is used for lifting loads shall be used so that it is ensured that the tool is stable when in use under all foreseeable conditions considering the nature of the foundation.
- 2 Persons may be lifted only by means of tools and associated equipment intended for this purpose.

The means of carrying on a machine used for lifting or moving persons shall be checked every working day if, for example because of the workplace or the difference of height, a risk occurs that a cabin, basket or the like may fall down and it is not possible to avoid such a risk by means of suitable devices.
- 3 Measures shall be taken to ensure that persons do not move about below suspended loads unless this is necessary to carry out the work in an appropriate way.

Loads may not be carried over working areas where persons usually move about if these areas are not protected.

Should this, however, be necessary to carry out the work in an appropriate way, suitable procedures shall be laid down and used, for example on the basis of a workplace assessment/risk assessment.
- 4 Hoisting and lifting accessories shall be chosen so that it is suitable for the loads that are to be handled, for the gripping points, for suspension gear and for the weather conditions and considering how the suspension in straps works and is used. Aggregates covering different lifting accessories shall be clearly marked if it is not dismantled after having been used so that the user gets information about the technical properties.
- 5 Hoisting and lifting accessories shall be stored in a way ensuring that it is not damaged or ruined.

Lifting gear

- 6 These detailed rules shall apply to mechanically driven lifting gear where the load lifted is supported by a part of the lifting gear. However, lifts, etc. and lifting gear for use by physically handicapped persons shall be exempted from these provisions.
- 7 Lifting gear may be mounted and dismantled only by persons who are competent for this work or under the supervision of a competent person. Such mounting and dismantling shall be carried out in a way that is sound and secure in accordance with the supplier's instructions.
- 8 Lifting gear arranged for lifting persons shall be subject to a static load test before being taken into use after
 - .1 considerable restructuring or repairs,
 - .2 exchange of the means of lifting,
 - .3 every main survey, and
 - .4 any new mounting, except for a new mounting for the same owner of moveable lifting gear.

- 9 The person carrying out the load test shall certify that the test has been carried out. Such certification may be made in the ship's survey book.
- 10 Load tests shall be carried out so that
 - .1 the load-bearing parts are exposed to unfavourable loads, and
 - .2 the stability is tested in unfavourable positions.
- 11 Tools arranged for lifting persons shall be load tested with 50%, however at least 100 kg, above the greatest permissible workload unless special conditions prevail.
- 12 Lifting gear may not be used for transporting persons unless they have been designed for this.
- 13 Lifting gear that is not under surveillance may not be left with the engine running. When the gear is left without being surveyed, the gear and any associated equipment shall be put in a secure position. The engine shall be secured against being started by unauthorized persons.
- 14 Only persons with tasks on the lifting gear may move about on or stay on it, and this may take place only by means of the access ways and working platforms intended for this purpose unless the person in question has been secured in another sound way. Nobody may enter a lifting gear until the master has been notified.
- 15 At least every 12 months, the supplier or another competent person shall carry out a main inspection.

Hoisting gear

- 16 These detailed rules shall apply to hoisting gear. If two or more items of hoisting gear used for lifting non-controlled loads are installed or mounted at a workplace in such a way that their field of work overlap, suitable measures shall be taken to avoid that different loads and different parts of the working equipment bump into each other.
- 17 Hoisting gear shall be prevented from tipping or falling over as well as, if relevant, from shifting or sliding. It shall be checked that such measures work as intended.
- 18 If the operator of a hoisting gear is not capable of observing the entire line of motion of the load, either directly or by means of auxiliary devices giving him the information needed, he shall be assisted by a signal-giving person, and the work shall be arranged so that collisions that may endanger the persons are avoided.
- 19 The work shall be arranged so that a person may fasten or loosen a load manually in a way that is in every respect safe, while the person in question shall primarily keep direct or indirect control of the operation.
- 20 All hoisting operations shall be planned in a correct way, surveyed in a proper way and be carried out with a view to protecting the employees' safety.

Especially if a load is to be lifted simultaneously by two or more items of hoisting gear, a working procedure shall be determined and used so that suitable coordination between the operators is ensured.
- 21 If a hoisting gear is not capable of holding these loads in case of partial or total failure of the power supply, appropriate measures shall be taken to prevent persons from being exposed to risks as a consequence hereof.

Suspended loads shall be kept under constant surveillance unless the access way to the dangerous area has been blocked and the load has been suspended and fastened in a fully secure way.

- 22 Outdoor use of hoisting gear shall be interrupted immediately if the meteorological conditions get so bad that it affects the reliability and persons are hence exposed to risks. Appropriate protective measures shall be taken to secure technical aids against tipping to prevent persons from being exposed to risks.

Transport gear

- 23 These detailed rules shall apply to mechanically driven transport gear. The transport may be carried out horizontally, vertically or diagonally. However, lifts, etc. and transport gear for use by physically handicapped persons shall be exempted from these rules.
- 24 Transport gear may be mounted and dismounted only by persons who are competent at this or under the directions of a competent person. Such gear shall be mounted and dismounted in a sound and secure way in accordance with the supplier's instructions.
- 25 Transport gear may not be used for transporting persons unless they have been designed for this.
- 26 Transport gear that is not under surveillance may not be left with the engine running. When the gear is left without being surveyed, the gear and any associated equipment shall be put in a secure position. The engine shall be secured against being started by unauthorized persons.
- 27 Only persons with tasks on the transport gear may move about on or stay on it, and this may take place only by means of the access ways and working platforms intended for this purpose unless the person in question has been secured in another sound way. Nobody may enter a transport gear until the master has been notified.
- 28 At least every 12 months, the supplier or another competent person shall carry out a main inspection.
- 29 Used transport gear shall be subject to a main inspection before a new owner takes the gear into operation. Transport gear that has been laid up shall be subject to a main inspection before the gear is taken into use.

Mobile work tools

- 30 Automotive work tools may be operated only by persons who have received proper training in the safe operation of such tools.
- 31 If a work tool is moving about in a working area, appropriate traffic regulations shall be drawn up and they shall be observed.
- 32 Measures shall be taken in connection with the arrangement of the work so that it is avoided that pedestrians move about in the same area as automotive work tools.
- 33 If it is necessary in order to carry out the work in an appropriate way that pedestrians are present, suitable measures shall be taken to prevent them from being injured.
- 34 Persons may be transported by a mechanically driven mobile work tool only if they are situated in places that are safe and designed for such transport. If work is to be carried out when the tool is in motion, the speed shall be adjusted to this, if necessary.
- 35 A mobile work tool with a combustion engine may be used only in work areas if it has been ensured that sufficient ventilation is provided.

ANNEX 3

Detailed rules
Temporary work at a height**General provisions**

- 1 If, pursuant to Section 3 of this technical regulation, temporary work at a height cannot be carried out safely and under appropriate ergonomic conditions from a suitable surface, the work equipment most suitable to ensure and maintain safe working conditions must be selected.
 - .1 Collective protection measures must be given priority over personal protection measures.
 - .2 The dimensions of the work equipment must be appropriate to the nature of the work to be performed and to the foreseeable stresses and allow passage without danger.
 - .3 The most appropriate means of access to temporary workplaces at a height must be selected according to the frequency of passage, the height to be negotiated and the duration of use. The choice made must permit evacuation in the event of imminent danger. Passage in either direction between a means of access and platforms, decks or gangways must not give rise to any additional risks of falling.
- 2 Ladders may be used as work stations for work at a height only under circumstances in which, given point 4.1.1, the use of other, safer work equipment is not justified because of the low level of risk and either the short duration of use or existing features on site that the employer cannot alter.
- 3 Rope access and positioning techniques may be used only under circumstances where the risk assessment indicates that the work can be performed safely and where the use of other, safer work equipment is not justified. Taking the risk assessment into account and depending in particular on the duration of the job and the ergonomic constraints, provision must be made for a seat with appropriate accessories.
- 4 Depending on the type of work equipment selected on the basis of the foregoing, the appropriate measures for minimising the risks to workers inherent in this type of equipment must be determined. If necessary, provision must be made for the installation of safeguards to prevent falls. These must be of suitable configuration and sufficient strength to prevent or arrest falls from a height and, as far as possible, to preclude injury to workers. Collective safeguards to prevent falls may be interrupted only at points of ladder or stairway access.
- 5 When the performance of a particular task requires a collective safeguard to prevent falls to be temporarily removed, effective compensatory safety measures must be taken. The task may not be performed until such measures have been taken. Once the particular task has been finished, either definitively or temporarily, the collective safeguards to prevent falls must be reinstalled.

- 6 Temporary work at a height may be carried out only when the movement of the sea and weather conditions do not jeopardise the safety and health of workers.

Specific provisions regarding the use of ladders

- 7 Ladders must be positioned and frapped to ensure their stability during use. Portable ladders must rest on a stable, strong, suitably-sized, immobile footing so that the rungs remain horizontal. Suspended ladders must be attached in a secure manner and, with the exception of rope ladders, so that they cannot be displaced and so that swinging is prevented.
- 8 The feet of portable ladders must be prevented from slipping during use by securing the stiles at or near their upper or lower ends, by any anti-slip device or by any other arrangement of equivalent effectiveness.
- 9 Ladders used for access must be long enough to protrude sufficiently beyond the access platform, unless other measures have been taken to ensure a firm handhold.
- 10 Interlocking ladders and extension ladders must be used so that the different sections are prevented from moving relative to one another. Mobile ladders must be prevented from moving before they are stepped on.
- 11 Ladders must be used in such a way that a secure handhold and secure support are available to workers at all times. In particular, if a load has to be carried by hand on a ladder, it must not preclude the maintenance of a safe handhold.

Specific provisions regarding the use of scaffolding

- 12 When a note of the calculations for the scaffolding selected is not available or the note does not cover the structural arrangements contemplated, strength and stability calculations must be carried out unless the scaffolding is assembled in conformity with a generally recognised standard configuration.
- 13 Depending on the complexity of the scaffolding chosen, an assembly, use and dismantling plan must be drawn up by a competent person. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.
- 14 The bearing components of scaffolding must be prevented from slipping, whether by attachment to the bearing surface, provision of an anti-slip device or any other means of equivalent effectiveness, and the load-bearing surface must have a sufficient capacity.
- 15 It must be ensured that the scaffolding is stable.
- 16 Wheeled scaffolding must be prevented by appropriate devices from moving accidentally during work at a height. Wheeled scaffolding must only be used in port.

- 17 The dimensions, form and layout of scaffolding decks must be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety. Scaffolding decks must be assembled in such a way that their components cannot move in normal use. There must be no dangerous gap between the deck components and the vertical collective safeguards to prevent falls.
- 18 When parts of a scaffolding are not ready for use, for example during assembly, dismantling or alteration, they must be marked with general warning signs in accordance with chapter VIII and be suitably delimited by physical means preventing access to the danger zone.
- 19 Scaffolding may be assembled, dismantled or significantly altered only under the supervision of a competent person and by workers who must have received appropriate and specific training in the operations envisaged, addressing specific risks in accordance with Regulation 7, and more particularly in:
- .1 understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;
 - .2 safety during the assembly, dismantling or alteration of the scaffolding concerned;
 - .3 measures to prevent the risk of persons or objects falling;
 - .4 safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;
 - .5 permissible loads;
 - .6 any other risks which the abovementioned assembly, dismantling or alteration operations may entail.

The person supervising and the workers concerned must have available the assembly and dismantling plan referred to in Section 13 of this Annex, including any instructions it may contain.

Specific provisions regarding the use of rope access and positioning techniques

- 20 The use of rope access and positioning techniques must comply with the following conditions:
- .1 the system must comprise at least two separately anchored ropes, one as a means of access, descent and support (work rope) and the other as backup (security rope);
 - .2 workers must be provided with and use an appropriate harness and be connected by it to the security rope;
 - .3 the work rope must be equipped with safe means of ascent and descent and have a self-locking system to prevent the user falling should he lose control of his movements. The security rope must be equipped with a mobile fall prevention system which follows the movements of the worker;
 - .4 the tools and other accessories to be used by a worker must be secured to the worker's harness or seat or by some other appropriate means;
 - .5 the work must be properly planned and supervised, so that a worker can be rescued immediately in an emergency;

- .6 in accordance with Regulation 7, the workers concerned must receive adequate training specific to the operations envisaged, in particular rescue procedures.
- 21 In exceptional circumstances where, in view of the assessment of risks, the use of a second rope would make the work more dangerous, the use of a single rope may be permitted, provided that appropriate measures have been taken to ensure safety in accordance with national legislation and/or practice.