



SWEDISH
WORK
ENVIRONMENT
AUTHORITY

AFS 2001:9

Dock Work

Provisions of the Swedish Work Environment Authority on Dock Work, together with
General Recommendations on the implementation of the Provisions

Translation

In the event of disagreement concerning the interpretation and content of this text, the printed Swedish version shall have priority

The Work Environment Authority's Statute Book

The Swedish Work Environment Authority was formed through a merger of the Swedish National Board of Occupational Safety and Health and the Labour Inspectorate, on 1st January 2001.

Provisions adopted by the Swedish Work Environment Authority are published in the Statute Book of the Swedish Work Environment Authority. Provisions earlier published in the Statute Book of the Swedish National Board of Occupational Safety and Health simultaneously still apply. Both Statute Books' names are abbreviated AFS.

Please note that references to statutes always give the original number of the document concerned, regardless of any subsequent amendments and reprints.

Concerning amendments to and reprints of Provisions of the Swedish National Board of Occupational Safety and Health and of the Swedish Work Environment Authority, reference is made to the latest Statute Book Register (in Swedish). A list of Ordinances, General Recommendations, Directions and Notices is also published in English.

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Provisions of the Swedish Work Environment Authority on Dock Work

Adopted 13th December 2001

The following Provisions are issued by the Swedish Work Environment Authority pursuant to Section 18 of the Work Environment Ordinance (SFS 1977:1166) and in consultation with the Swedish Maritime Administration.

Scope

Section 1

These Provisions apply to

- loading, unloading, mooring, casting off and bunkering of ships,
- cargo handling or other terminal work directly connected with the foregoing, and
- handling of ships' stores and equipment.

These Provisions apply solely within dock areas, shipping lanes or the equivalent.

General

Section 2

In connection with work on board ship, an on-shore employer shall co-operate with a representative of the ship in order to achieve co-ordination of the work of shipboard and on-shore employees.

Section 3

Prior to work on board ship, the party conducting dock work shall transmit written instructions to the ship's representative. The instructions shall describe the rules of safety applying to the harbour visit.

Section 4

Communication between representatives of a ship's crew and representatives of on-shore employees shall as far as possible be conducted in a common language.

The party conducting dock work shall see to it that communication is possible in a safe and readily intelligible manner.

Section 5

Before work begins, both regular and outsourced workers shall have received the instructions which are necessary in order for the work to be done safely.

Section 6

Prior to the commencement of loading or unloading work on board a ship, the workplace and the technical devices shall be in such condition that the work can be done safely.

The technical devices on board which are to be used during the work shall be checked to ensure that they are in working order.

Before technical devices on a ship are used, steps shall be taken to ensure that they can be operated safely.

Section 7

An employee discovering a fault, damage, wear or anything else capable of jeopardising safety shall report the matter to the supervisory personnel without delay.

Requirements on the workplace**Section 8**

At the pedestrian and vehicle entrances to a dock area, the safety rules applying within the dock area shall be indicated by means of signage or in a suchlike manner.

Section 9

Workplaces and access routes shall have sufficient space for work to be done safely.

Different types of traffic shall, when necessary, be separated within the dock area.

Section 10

On ramps to ships where vehicle traffic occurs, the maximum speed at which vehicles may be driven shall be clearly indicated. The maximum load for the ramp shall also be clearly indicated. If the ramp belongs to the ship and the maximum load is not clearly indicated, the party conducting the dock work shall instead ascertain the maximum load and inform the personnel concerned.

Section 11

Only suitable and safe communication routes may be used for access to a ship and to a hold or suchlike space. These shall be correctly attached and secured.

A safety net preventing falls between the side of the ship and the quay shall be provided at the lower end of communication routes leading to ships except where manifestly unnecessary.

Organisation

Section 12

A signalman shall be provided for every lifting device where a person is present within the working area of the lifting device, unless the working area can be kept under surveillance nevertheless. For these purposes, linked booms are counted as one lifting device.

There shall if necessary be two or more signalmen for one lifting device.

Section 13

There shall be a hoist operator for every hoist or group of hoists operated from the same operating point and on every deck served by the hoist, unless the corresponding safety is achieved otherwise.

Section 14

There shall be a traffic guard wherever there is a need to direct vehicles or to give warning of the movement of road vehicles or railway trucks.

Section 15

Signalmen, hoist operators and traffic guards shall supervise safety within their work areas and verify that their instructions are complied with. They may not have larger work areas than they are able to keep under surveillance. They shall be provided with and shall use the special equipment needed in order for the work to be done safely.

Section 16

During hoist and vehicle movements for which signalmen and traffic guards, and, where relevant, hoist operators, are needed, these persons shall command such a view that the movements can take place without risk. Contact between drivers and between signalmen and traffic guards shall be sustainable throughout the movement. If the driver loses this contact, the movement shall be stopped immediately.

Section 17

A winch operator or crane operator may not operate more than one winch or crane unless the controls are specially intended therefor and the operation can be performed without risk in any other respect.

For combined lifting operations involving two or more winch operators or crane operators, there shall be a hoist leader.

Technical devices

Section 18

Attachments for lifting gear on mobile machinery, other vehicles, movable ramps and suchlike to be used during loading and unloading work on board ship and intended to be hoisted shall be checked in connection with day-to-day supervision.

Section 19

When a remote-controlled device is not in use, the main contactor on the receiver of the remote control device shall be turned off. Transmitters shall be kept out of reach of unauthorised persons.

Section 20

Remote-controlled devices shall be operable from a position where the operator commands a view of the movement. If the operator is not in a position to supervise the movement, a signaller or traffic guard shall be used.

Conduct of work

General

Section 21

A cargo consisting of mobile machines or other vehicles which are to be driven in the course of loading or unloading shall be inspected with regard to control functions before it is loaded or unloaded. Before loading or unloading it shall be ensured that mobile machines etc. can be operated safely.

Section 22

Prior to the performance of hoisting and conveyor movements, ice, stone and suchlike shall be removed to prevent injuries being caused by falling objects. Alternatively, the corresponding safety shall be established by organising work in such a way that no persons will be present in the risk zone.

Deposition of goods etc. on a quayside, dockside and suchlike

Section 23

Goods and suchlike may not be deposited in such a way as to prevent or impede access to a ship or the handling of a ship's moorings. Nor may they be deposited in such a way as to obstruct the quayside. The following clearances at least shall be maintained between goods or suchlike and the devices mentioned below:

- Edge of quayside and jetty: 1.5 metres.
- Railway rail: 2.2 metres.

- Trackbound crane: 0.9 metre from the widest part of the crane and up to a height of 2.5 metres above ground or the equivalent.

Goods and suchlike may, however, be deposited less than 1.5 metres from the edge of a quayside or jetty if they are deposited so near the edge as to preclude passage on the outside.

Hatches etc.

Section 24

Work with patent hatches, gates, ramps, suspension decks and suchlike powered ship's equipment shall have been done by a responsible person from the ship or under the supervision of such a person. Such equipment shall be secured with a mechanical retaining device when in the open or suspended position.

Section 25

Hatches and other such ship's equipment shall when removed be firmly stacked and adequately secured. They may not encroach on the space which a signalman needs. Nor may they obstruct necessary movement on board.

Section 26

When ramps, hatches and other such ship's equipment are being handled, and when a derrick or suchlike is being re-rigged or additionally rigged, no other work may proceed in the hold beneath the hatch opening. The same applies elsewhere within the risk zone as regards objects liable to fall or vehicles which inadvertently be set in motion. When ramps, hatches and suchlike are being operated, care shall be taken to ensure that no person is present on them or in the danger zone for injury by crushing.

Hatches and other such ship's equipment which are not firmly stacked and adequately secured shall be removed before work is done in cargo hatches.

Work with vehicles, railway trucks etc.

Section 27

Electrically powered vehicles shall whenever possible be used in a confined space. Vehicles with internal combustion engines may be used only if adequate measures are taken to ensure sufficient air change. Unnecessary idling may not occur. If a vehicle is left unsupervised, the engine shall be turned off.

Vehicles with internal combustion engines shall when used in a confined space be so maintained and equipped and be driven with such fuel as to minimise the quantity of hazardous and troublesome exhaust fumes.

Section 28

During the stationing or coupling of vehicles or railway trucks, measures shall be taken to ensure that they cannot be inadvertently set in motion.

When trailers and other such pulled vehicles with braking and lighting systems are in motion, the said systems shall be connected unless adequate safety with regard to braking capacity and visibility can be otherwise achieved.

Stowing, stacking, section loading, handling of containers and bulk, oil and chemical cargoes etc.

Section 29

The trim or list of the vessel may not exceed 2° during loading and unloading. Exceptions apply to individual, closely controlled lifting operations, to damage work and to special operations where the working method demands a trim or list in excess of 2°.

Section 30

Safe evacuation routes and other suitable arrangements shall be provided for the protection of persons during the handling of bulk cargoes. Particular attention shall be paid to the possibility of going to the assistance of a person in distress in the event of material collapsing.

Section 31

Preventive measures shall be taken in connection with work on load carriers or goods involving a special risk of injury from falls to a lower level. Retention devices shall be used where necessary.

Work involving more than one team in the same hatch opening or cargo hold

Section 32

If two or more teams are working simultaneously and independently of each other in the same hatch opening or cargo hold, the space between the teams shall be sufficient for the work to proceed safely.

The clearance for each team shall be large enough for

- persons to reach safety quickly in the event of danger, and
- the handling of long or bulky goods not to encroach on another team's working space.

Handling of load carriers

Section 33

Containers, semi-trailers, swap bodies and other load carriers may only be lifted in lifting devices having a dependable load indication device or a dependable crane scale connected to the load hook. This does not apply, however, if the weight of the load carrier is otherwise evidence or verifiable by means of weighing before the lift or if the load carrier has been found to be empty.

Section 34

An overloaded or unevenly loaded load carrier may not be hoisted. An overloaded or unevenly loaded load carrier may, however, be hoisted from a ship, vehicle or railway wagon to a quay, a flatbed truck or suchlike if special safety precautions are taken. The load carrier may not be used thereafter without having been emptied of its excess load or the load distribution redressed. It shall then also have been established that there are no visible defects which can affect the safety of the continued handling. An overloaded or unevenly loaded load carrier shall be reported to the consignor.

Section 35

If a load carrier is hoisted with more than one lifting device at once, the lifting devices shall be coupled to the hoisting gear by means of a lifting/gripping frame or suchlike.

Personal protective equipment etc.

Section 36

A safety helmet, high-visibility warning clothing and safety shoes shall be used unless judged to be manifestly unnecessary. A written assessment shall be prepared, showing the type of work for which and the area in which the use of certain personal protective equipment is unnecessary.

A suitable life jacket shall be used for mooring work and other work involving a particular risk of falling into the water.

Other personal protective equipment shall be used where necessary.

First-aid material, ambulance transport, life-saving equipment etc.

Section 37

Personnel and equipment shall be readily available for rescuing persons in danger and for transporting the injured.

Section 38

During work on board ship or in another workplace having no direct connection with land, a suitable boat for taking an injured person ashore shall be kept available for as long as work is in progress, together with life-saving and first-aid equipment.

Provisions applying to harbour owners

Section 39

A harbour owner shall see to it that harbour areas and access routes to the same, as well as access routes to ships, afford adequate space and in other respects are of such a kind that work can proceed safely. Particular care shall be taken to

ensure that the ground is free from subsidence and irregularities capable of affecting work environment conditions. The ground shall have adequate drainage. Traffic accident risks shall be considered.

Section 40

A harbour owner shall see to it that quays, jetties, piers, ramps, storage areas and suchlike places, together with access routes to the same being designed for dock work, have sufficient and suitable lighting where work is in progress. Such lighting shall also be provided in the part of the area constituting an access route to a ship.

The colour reproduction from light sources shall be appropriate to the task in hand. Lighting shall be designed in such a way that warning signs, emergency stop devices and suchlike are readily perceptible.

Lighting shall be suitably distributed and directed. Dazzling shall be avoided as far as possible.

Illuminance where dock work is intended normally to occur shall be at least 20 lux in open spaces unobstructed by such objects as railway wagons, containers, goods or suchlike. Illuminance may, however, decline to 5 lux within 5 metres of the edge of the quayside if necessary in order to avoid dazzling of seafarers. In such a case, the reduction from 20 lux shall take place within a length of not more than 25 metres from the edge of the quayside.

Section 41

A harbour owner shall see to it that suitable protection is provided to prevent vehicles falling off quays, jetties, piers, ramps or suchlike places where powered vehicles other than mopeds are used. This does not apply, however, where manifestly unnecessary. Safety barriers shall always be provided at the ends of quays where powered vehicles may be present.

A quayside safety barrier shall be of a height appropriate to the type of vehicle normally used. Barriers shall, however, never be less than 0.3 metre in height. Barriers shall carry warning markings and shall be constructed so as to prevent powered vehicles inadvertently driven or sliding into them from falling over the edge.

In harbours or harbour sections primarily intended for fishing vessels whose catches are unloaded manually, the following applies. Safety barriers may be less than 0.3 metre in height if an acceptable safeguard against vehicles falling over the edge is obtained nevertheless. They shall, however, be at least 0.1 metre high.

Section 42

A harbour owner shall see to it that the following are provided throughout the length of a quay, jetty, pier or suchlike where dock work is done:

- suitable life-saving equipment at intervals of not more than 200 metres, and
- fixed quayside ladders, or a similar facility for a person in distress to climb out of the water, at intervals or approximately 50 metres.

Fixed quayside ladders or suchlike shall, at all water levels normally occurring in the harbour, always extend at least 1 metre below the surface of the water.

A life raft or life-saving boat shall be provided at suitable points in different harbour sections.

Section 43

A harbour owner shall see to it that anchorages for gangway safety nets are provided at suitable intervals along quays, jetties, piers or suchlike where there is access to ships. The anchorages shall be positioned so as to eliminate as far as possible the risk of tripping.

Entry into force

These Provisions enter into force on 1st January 2003. The Ordinance of the National Board of Occupational Safety and Health (AFS 1986:18) containing Provisions on Dock Work and the Board's Directions on Safety Precautions in Connection with the Loading and Unloading of Ships and during Terminal Work in Harbours (Directions Booklet No. 1, Dock Work) are repealed with effect from the same date.

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General Recommendations of the Work Environment Authority on the implementation of the Provisions on Dock Work

The following Recommendations are issued by the Work Environment Authority on the implementation of its Provisions (AFS 2001:9) on Dock Work.

General Recommendations have a different legal status from Provisions. They are not mandatory. Instead they serve to elucidate the meaning of the Provisions (e.g. by explaining suitable ways of meeting the requirements, instancing practical solutions and procedures) and to provide recommendations, background information and references.

Background

Directions on Dock Work have previously been issued by the National Board of Occupational and Safety Health, under powers conferred by the Workers' Protection Act. Provisions and General Recommendations on Dock Work were subsequently issued pursuant to the Work Environment Act. The Provisions now issued, also by authority of the Work Environment Act, are a revision of the Directions and Provisions issued previously. Parts of the Directions and Provisions which have now been repealed are covered by the Provisions of the National Board of Occupational Safety and Health on Use of Work Equipment. The new Provisions, unlike their predecessors, do not deal with chemical and biological hazards. These are now addressed, for example, in the Provisions of the National Board of Occupational safety and Health on Chemical Hazards in the Working Environment, Work in Confined Spaces and Work Involving Infection Risks.

The Work Environment Act applies to the loading and unloading of ships, i.e. to dock work. On the other hand it does not apply to ship work other than work on warships (Chap. 1, Section 4). Ship work is defined in the Maritime Safety Act (1988:49) as "work on the ship's behalf, done on board the ship or elsewhere by a person accompanying the ship". The Maritime Safety Act deals with questions concerning, for example, seaworthiness, the loading of ships (stability and freeboard), the manning of ships and safety and health conditions on board. The Swedish Maritime Administration is responsible for the supervision of ships (warships included) and issues implementing provisions for the Maritime Safety Act.

Guidance on certain sections

Guidance on Section 1

The term "harbour" also includes industrial ports, fishing ports and suchlike. The Provisions also apply to dock work in the Armed Forces.

Guidance on Section 2

Provisions on the co-ordination of safety precautions on board Swedish ships are contained in the Maritime Safety Act (1988:49), which among other things lays down that: "In the case of a ship in a Swedish port, responsibility for such co-ordination of safety precautions as is occasioned by the ship being in the process of being loaded or unloaded devolves on the employer who is responsible for this work. The responsibility can be transferred to the ship owner."

It is important for the tasks of the ship's crew and the on-shore employees to be co-ordinated in such a way that no new accident risks occur. For example, in an area where there is a risk of falling objects, collisions with vehicles or such like, cleaning and other work not constituting loading or unloading work should not begin until loading or unloading work has been concluded.

Guidance on Section 3

It is appropriate for the document to be transmitted to the ship before it enters harbour and for the ship's captain to sign the document if all requirements are satisfied. Ships frequently calling at the same harbour can have fixed routines for putting in there. It may be appropriate for instructions to be provided in more than one language.

Guidance on Section 4

When direct speech communication or cautionary signalling is not possible, communication radio, mobile phone or suchlike may be a suitable aid.

Guidance on Section 5

Written instructions on how the work is to proceed facilitate the introduction of newly hired and outsourced personnel. Verbal introduction should also be provided.

Guidance on Section 6

Technical devices on board which must be checked before work begins include, for example, access routes, companion ways, safety rails, evacuation routes, ventilation and lighting. It is appropriate for the check to be made together with the ship's officers.

It is important to carry out a lifting test before a crane is used for loading or unloading. Before using a ship's hoist, it is important to have checked that the safety catches for the hoist are activated on all landings.

It is appropriate that the person who is to use the device should test its control properties before loading or unloading begins.

Guidance on Section 7

It is important that work should be suspended, safety considerations permitting, pending rectification.

Because dock work often involves working on different ships, it is important for on-shore personnel to be observant regarding the state of the ship's devices. Analysis

of incident reports can furnish a useful basis for the improvement of safety and health conditions.

Guidance on Section 8

Safety rules are rules concerning notification, authorised traffic, traffic regulations, co-ordinating responsibility etc. It should be made clear who has issued the rules and who can answer questions about them. It is also appropriate for the harbour area to be enclosed and to have controlled access.

Guidance on Section 9

Cargo handling can pose a serious risk of traffic accidents. Safety precautions include, for example

- keeping sufficiently wide vehicle routes open,
- arranging separate pedestrian and vehicular routes and marking them for different kinds of traffic,
- having a one-way traffic system,
- erecting necessary cordons, traffic mirrors and warning signs, and
- posting a traffic guard where necessary.

The maintenance of open traffic routes is important, for example, to enable an ambulance or other emergency service vehicle to reach a workplace and access routes to ships.

General rules on workplace design are contained in the Provisions on Design of the Workplace issued by the National Board of Occupational Safety and Health.

Guidance on Section 10

Speed should be adapted to conditions on the site. It is often advisable to limit the number of vehicles allowed on the ramp at any one time. When indicating the maximum load for a ramp it is important to allow for the load and the dynamic additional loads occurring with movable or fixed ramps resting on one another.

Guidance on Section 11

Rules concerning access routes to ships and holds are contained in the Statute Book of the Swedish Maritime Administration. They indicate that the provisions of "Safety and health in Dock Work", published by the International Labour Organisation (ILO 1977), are to apply to foreign ships in Swedish waters.

It is important that suitable measures should be taken to ensure safe boarding, transport and disembarking. It is appropriate that a safety net for a communication route leading to a ship should extend about two metres in both directions along the quayside.

If an access route to a ship is provided by a stevedoring company or suchlike, it is appropriate that the devices should satisfy the stipulations of the Swedish Maritime Administration for corresponding devices.

It is important that a permanent communication route to a cargo hold or suchlike should not be blocked but should be kept as open as possible.

On board ships carrying dangerous goods it is normally appropriate for a communication route to a cargo hold to be provided to such an extent that the walking distance to the nearest communication route does not exceed about 10 metres.

Carriage of personnel in hoist cages should be resorted to in exceptional cases only. In such cases it is important for the combination of crane and cage to be intended for carrying personnel. When carrying personnel in a hoist cage, it is appropriate to appoint a hoist foreman.

Guidance on Section 12

A signalman can be dispensed with in certain cases, e.g. if the work is organised in such a way that the operator of the lifting device can maintain adequate surveillance of the risk zone, e.g. with the aid of remote control or by using a camera and monitor at the same time as measures are taken to ensure that nobody is present in the risk zone. More than one signalman may be needed, for example, if the operator of a lifting device is unable to see the place where goods are landed or conveyed on the quay.

Guidance on Section 13

A hoist operator can be replaced in certain cases, e.g. by a traffic guard being detailed for his duties or by using a camera and monitor for surveillance.

Guidance on Section 14

Vehicles may need to be directed when vehicle drivers do not command a full view of the worksite and are unable to drive the vehicle safely without assistance. This may be the case, for example, in connection with reversing or when the view is obscured by the load on the vehicle or by something else, e.g.. on or- or ramps, on board ship, on congested piers, inside warehouses and in places with intersecting or two-way traffic, or again on a quay or in a storage area where the view is limited.

Guidance on Section 15

Safety surveillance normally includes a signalman, for example

- keeping a close watch on the cargo handling in progress and giving warning well in advance of a suspended load,
- taking up a position
 - where he can be clearly seen by the operator of a lifting device,
 - where he will be safe in the event of a load falling and
 - where he is able to observe as much as possible of the full work cycle,
- directing the operator of a lifting device in a safe, agreed manner,
- exercising special attention with regard to the slinging of goods and to load conditions affecting lines, straps, slings, derricks and suchlike, and

- making sure that everyone employed in the stevedoring operation has left the ship after work is concluded.

Safety surveillance by a hoist operator normally includes, for example, continuously ensuring

- that safety barriers, cordons and other safety devices for the hoist are in working order,
- that no unauthorised persons are present within the worksite during cargo handling,
- that the load is positioned on the hoist platform in such a way that the latter is not unevenly loaded and the load does not project beyond the load profile of the hoist platform, and
- that personnel do not ride on the hoist if it is not approved for the carriage of personnel.

Safety surveillance by a traffic guard normally includes, for example,

- keeping a close watch on the traffic and cargo handling concerned,
- taking up a position where he is clearly visible to vehicle drivers and thus in no danger of being run over, and
- directing vehicle drivers in a safe, agreed manner.

The requisite equipment may be equipment for signal transmission, signalling of warnings and communication, e.g. communication radio or a mobile phone.

Guidance on Section 16

Organisational measures combined with the use of operational assistive devices, such as a camera and monitor, may possibly be substituted for a signalman/traffic guard and, where relevant, a hoist operator.

In an emergency situation it is important that personnel should be able to reach safety by means of a communication route.

Guidance on Section 19

It is important to avoid confusion between transmitters, e.g. during breaks.

Guidance on Section 22

One way of making possible the removal of stones and ice from load carriers and vehicles is by establishing a workstation where vehicles can stop and the driver has an opportunity of checking the roof of the load carrier and vehicle and of taking appropriate action safely.

Guidance on Section 23

It is important that access by emergency service vehicles and for rescue work should not be obstructed. Marker lines on the ground facilitate the stacking of goods by crane operators and truck drivers.

Guidance on Section 24

It is important that patent hatches, ramps, flaps and suspended decks should not be operated if anyone is present on them.

Guidance on Section 25

It is important that hatches and other such ship's equipment should not impede necessary access on deck. The provisions of "Safety and Health in Dock Work", published by the International Labour Organisation (ILO 1977), stipulate a clearance of at least 1 metre between stacked hatches or suchlike and the hatch opening wherever possible. If hatches etc. cannot be placed this far away from the hatch coaming, they may need to be deposited ashore. Sometimes a rail or lifeline may need to be put up as fall protection.

Guidance on Section 26

It is important to note that a dropped boom does not always fall straight down but may, like the hawsers and guy ropes belonging to it, sweep across a larger area, possibly due, for example, to the ship listing or to the guy ropes steering the dropped boom. An adjoining quay may also constitute a risk zone.

The area beneath a ramp may also be a risk zone, if for example a vehicle on the ramp is inadvertently set in motion or if goods are dropped from a vehicle.

Guidance on Section 27

A confined space can, for example, be a cargo hold, between-decks, a closed ro-ro space, a deep tank, a warehouse, stores, a container, a closed railway car or suchlike.

Measures referred to can, for example, include:

- changing the organisation or methods of work,
- opening hatch covers,
- keeping the ventilation devices for the space concerned in operation and properly adjusted,
- if the devices are inadequate, supplementing or replacing them with a special ventilation device, e.g.. a mobile blowing fan with hose, and
- evacuating the exhaust fumes directly, e.g. through a hose.

If combustion engine-powered vehicles are used on board ship and in other confined spaces, they ought preferably to be run on a type of fuel emitting as little pollution as possible. Diesel vehicles should be provided with catalytic converters and particle traps.

Measures needing to be taken in connection with vehicle maintenance include, for example, trimming and maintaining the engine, catalytic converter and particle trap so as to make combustion as complete and efficient as possible.

When choosing a truck, it is important to consider the noise aspect both for the driver and for workers in the vicinity of the truck.

Guidance on Section 28

Vehicles and railway trucks very often have to be both braked and their wheels chocked, or secured in some other way, to ensure that they will not be inadvertently set in motion.

It is important to make sure that braking pressure has been built up before a vehicle is set in motion.

Persons affected by vehicle movements may need to be warned. Often a specially detailed person, a traffic guard, may be needed for this purpose.

Further information on the shunting of trackbound railway rolling stock is contained in the Provisions of the National Board of Occupational Safety and Health on Shunting Work.

Guidance on Section 29

Trim is defined as the difference in draught between bow and stern.

Some lifting operations, using the ship's own lifting devices, and certain handling operations can cause the ship to move in such a way that other work on board has to be suspended or other safety precautions taken.

The risk of falling objects can be augmented, for example, by the simultaneous use of several lifting devices or when depositing cargo round a tween-decks hatch opening with a truck working from below. In this connection, it is normally advisable for thwartships stowage to be done first, so as to load the ship down and make it as stable as possible before stowing fore and aft, and also for the unit whenever possible to be placed with its longest side athwartships.

Measures needing to be taken may for example include checking the ship's stability, suspending other work and cordoning off dangerous areas. It is particularly important to keep a continuous check on stability during unloading and loading of side-door ships. A space surrounding the ship's moorings may also be a dangerous area.

A list may be due to poor stability. A risk of falling objects may exist even with a list of less than 2°, e.g. when stacking timber packs. If measures are needed to correct a list, they should normally be taken in consultation with the ship's officer in charge.

During loading or unloading it is important that the supervisory personnel should keep themselves as well informed as possible concerning measures taken by the crew and capable of affecting the risk of goods collapsing and the trim, stability of stress criteria of the ship, e.g. redistribution of ballast or some other change in the ship's weight distribution.

General rules on precautions against falling objects are contained in the Provisions of the National Board of Occupational Safety and Health on Protection against Injuries Due to Falling Objects. Rules on chemical hazards of the work environment

are contained in the Board's Provisions on Chemical Hazards in the Working Environment .

Guidance on Section 30

It is important that bulk cargoes should be unloaded in such a way that there will be no risk of dangerous sliding angles.

Certain cargoes, e.g. scrap iron, chips, pulpwood and fine-particled carbon, may cause oxygen deficiency.

Guidance on Section 31

It is appropriate for work with lashing equipment for stacked containers to be done in such a way as to minimise workers' exposure to the risk of falling. If the shipper uses semi-automatic or automatic twistlocks, most of the work can be done from the landward side. On occasions when the shipper uses manual twistlocks, it is appropriate for work on container roofs to be done from a work platform attached to the container hook of the dockside crane. Work on a container roof should not be done without using personal fall protection equipment.

During section loading or the equivalent, fall protection can very well take the form of a safety net or suchlike, secured at the bottom for the prevention of falls between net and stowage.

When loading and unloading timber packs, the aim should be to minimise workers' exposure to the risk of falling. If work has to be done on top of timber packs, a safety net is advisable. Chap. 3, Section 10 of the Work Environment Act lays down, for example, that: " Any person delivering or making available a packaged product shall ensure that the packaging does not entail any risk of ill-health or accidents." It is important, for example, for timber packs to be covered over in such a way as to prevent slipping and for cavities to be marked on the covering.

Guidance on Section 32

Different types of cargo and different ship designs can entail a greater or lesser element of risk, e.g. in the event of a sling dropping its load. It is therefore important for work to be planned so that different teams will be far enough apart. Sometimes, for reasons of space, it may be necessary to limit the number of teams working in the same hatch opening or cargo hold.

If work is being done on different levels, there may be a risk of goods or other objects falling down to the lower level unless secured.

Guidance on Section 33

Weighing can already take place when the container or other load carrier arrives at the port.

If the operator of the lifting device cannot read a crane scale from the operating point, someone may have to be specially detailed to read of the weight when lighening and to inform the operator accordingly.

Load indicators and scales can normally be considered sufficiently accurate if the weight reading does not deviate more than $\pm 5\%$ from the true weight.

Guidance on Section 34

The special safety precautions referred to may, for example, comprise

- partly emptying the load carrier
- transferring to a flatbed trailer or suchlike with sufficient carrying capacity,
- cordoning off the risk zone or suspending other work in the vicinity, and
- complying with special directions, e.g. from a fire safety authority or suchlike, if the load carrier contains dangerous goods.

The above safety precautions are also to be considered in the event of a load carrier being unevenly loaded or its load shifting.

If the load carrier is partly emptied, care must be taken not to cause uneven load distribution in the process.

It is important to note that excess load on a load carrier may necessitate a change of lifting device or lifting gear so as not to exceed the maximum load.

Guidance on Section 36

Examples of suitable personal protective equipment for dock work are shown in App. 1.

The term “equivalent sound level” as used in the Appendix refers to the equivalent steady noise level which in a stated period of time would contain the same noise energy as the time-varying noise during the same time period.

Guidance on Section 37

It is important that an injured person can be moved from a worksite to an ambulance or the equivalent without any risk of aggravating the injury.

More detailed rules are to be found in the Provisions of the National Board of Occupational Safety and Health on First Aid and Crisis Support.

Guidance on Section 38

“Suitable life-saving equipment” means, for example, a life buoy with line and life-hook.

Guidance on Sections 39-43

These provisions deal with duties directly incumbent on a harbour owner controlling the harbour and providing a harbour area for work. The harbour owner is normally taken to be the proprietor of the harbour or whoever controls the harbour in the proprietor’s stead. It is the duty of an employer conducting dock work to see to it that supplementary safety precautions are taken if work is done in a place which does not meet the requirements. If this is not possible, the work may be suspended instead.

General rules on workplace design are contained in the Provisions of the National Board of Occupational Safety and Health on Design of the Workplace.

Guidance on Section 39

Measures to make harbour areas and access routes to them safe include, for example

- appropriately and conspicuously marking obstacles which are irremovable and constitute a danger, and illuminating them if necessary,
- ensuring that areas used for traffic or for the handling and deposition of goods or suchlike are suitable and are kept in good repair, and
- cordoning off, to the extent necessary, any areas which for various reasons are hazardous.

A harbour area is taken to include a quay, jetty, pier, ramp, storage area and suchlike place.

General rules on the load-bearing capacity of the ground are contained in the Provisions of the National Board of Occupational Safety and Health on Protection against Injuries Due to Falling Objects.

Devices on the quay which can provide safer access to ships – gangway towers, for example – may be appropriate

- where great differences in height exist or are liable to occur between ship's deck and quayside, and
- where, for some other reason, use of the ship's normal communication route is unsuitable.

Guidance on Section 40

Experience has shown that stronger lighting, often exceeding 100 lux, is needed for ramps and suchlike adjoining a ferry terminal, ro-ro terminal or suchlike, especially where pedestrian and vehicular traffic intermingle.

If lighting is scaled down towards the quayside edge to avoid dazzling seafarers, it is appropriate for the light fittings to be shaded above 90° from the vertical.

The direction and height of the light source and the type of light have an important bearing on the risk of dazzling.

When working with motorised implements, these may need to be fitted with special lighting if the normal lighting is partly obscured by objects. Special lighting may also be needed for work inside a container, a closed railway car and a cargo hold.

Guidance on Section 41

A safety barrier should be designed and positioned so as not to impede access to a ship, quayside work and runoff from the quay. It may be movable.

Acceptable safety can be achieved, for example, by increasing the distance between safety barrier and edge of quay when the safety barrier is lowered. For

smaller-wheeled vehicles a depth of 1 metre, for example, may be appropriate if the safety barrier is 0.1 metre high.

Crane tracks of suitable height and the appropriate diversion of traffic can make safety barriers unnecessary.

Guidance on Section 42

Suitable life-saving equipment can be instanced with a ladder with hooks and a life-hook long enough to reach at least 1 metre below the surface of the water, and a life buoy with about 25 metres of line. Life-saving equipment should be strategically positioned at mooring points. It is important that life-saving equipment and a life raft or life boat should be positioned so that rapid use and launching are not impeded, for example, by stationary railway trucks.

If the quay behind a fixed ladder is painted a different colour, this will make it easier for a person in distress to find the ladder. Fluorescent paint makes a ladder more visible in darkness. The delimitation of the space between quayside edge and ship which can result from the use of fenders may necessitate quay steps in the space thus limited. It is appropriate for the condition of the quay steps to be checked after every winter.

Guidance on Section 43

About 2 metres is a suitable interval for gangway netting anchorages in most cases.

Appendix 1

Examples of personal protective equipment

Risk	Risk situation	Suitable personal protective equipment
Head injury	Falling objects, crushing	Industrial safety helmet, tested as per SS-EN 397 and marked "LD" (improved side impact resistance), "440Vac" (electrical insulation) "-20°/-30° (severe cold).
Foot injury. Crushing of feet. Slipping. Chilling of feet.	Falling objects. Slippery surface. Cold climate.	Safety footwear with toe cap (standards SE-EN 344 and 345) and marked "SBII" (basic requirement), "S1-S5" (supplementary requirement), "CI" (cold insulation).
Eye injury.	Splashing of chemical products, flying particles and dust.	Eye protectors. Face mask or protective goggles.
Hearing injury.	Noise where the equivalent sound level during an 8-hour working day exceeds 85 dB(A). Specially sensitive persons may also be in danger of hearing impairment at levels down to 75 dB(A).	Ear muffs or ear plugs tested as per SS-EN 352-1 and SS-EN 352-2 respectively. Suitable protection is chosen according to the noise level, frequency content and the need to apprehend speech and warning signals.
Fall to a lower level.	Permanent protective devices lacking. Work of a temporary nature.	Fall arrest system as per SS-EN 363. Equipment for work positioning and prevention of falls from a height as per SS-EN 358.
Oxygen deficiency.	Bulk cargo work.	Respiratory protective equipment in the form of compressed air equipment.
Injuries to the respiratory organs.	Handling of health-endangering and infectious substances, e.g. when handling bulk cargo or due to damaged packaging.	Respiratory protective equipment in the form of a full or half mask with relevant filters. The equipment can also consist of a filter protection device fitted with a fan. Compressed air equipment.
Injures to the hands.	Sharp objects, chemicals, cold.	Protective gloves according to the risks involved. Mechanical risks SS-EN 388, chemical risks SS-EN 374 and cold SS-EN 511.
Vehicle impact.	Vehicular traffic and other cargo handling.	High-visibility warning clothing as per SS-EN 471.
Hypothermia.	Work in cold, wet and windy conditions.	Protective clothing as per SS—ENV 342 (protection against cold) or SS-ENV 343 (protection against foul weather)
Drowning.	Mooring and suchlike quayside work.	Lifejacket as per standard SS-EN 399-275N, SS-EN 396-150N or SS-EN 395-100N.

Information published by the Work Environment Authority

Rules in force

The Swedish Statute Book (SFS)

The Work Environment Act (SFS 1977:1160)

The Work Environment Ordinance (SFS 1977:1166)

The Maritime Safety Act (SFS 1988:49)

The Maritime Safety Ordinance (1988:594)

Statute Book of the National Board of Occupational Safety and Health

AFS 1981:5 Dust Explosions

AFS 1981:14 Protection against Injuries Due to Falls

AFS 1981:15 Protection against Injuries Due to Falling Objects

AFS 1982:3 Solitary Work

AFS 1983:5 Hoisting of Persons by Cranes and Other Lifting devices

AFS 1986:24 Trucks

AFS 1991:2 Work Involving Infection Risks

AFS 1992:10 Noise

AFS 1993:3 Work in Confined Spaces

AFS 1997:11 Safety Signs and Warning Signals at Workplaces

AFS 1998:1 Ergonomics for the Prevention of Musculoskeletal Disorders

AFS 1998:4 Use of Work Equipment

AFS 1999:7 First Aid and Crisis Support

AFS 1999:10 Ladders and Trestles

AFS 2000:3 Occupational Exposure Limit Values and Measures against Air Contaminants

AFS 2000:4 Chemical Hazards in the Working Environment

AFS 2000:42 Design of the Workplace

Statute Book of the Work Environment Authority

AFS 2001:1 Systematic Work Environment Management

AFS 2001:3 Use of Personal Protective Equipment

AFS 2001:6 Inspection of Lifting Gear and Certain Other Technical Devices

Other publications

Safety and Health in Dock Work (ILO 1977)