Safety in Ports Guidance

SiP 004: Timber Handling

PORT SKILLS & SAFETY

IMPROVING STANDARDS THROUGH COLLABORATION

unite theUNION

Produced in conjunction with the Health and Safety Executive.

Published: June 2025

PORT SKILLS & SAFETY
IMPROVING STANDARDS THROUGH COLLABORATION

Contents

Version control

First published	September 2018
This version (2.0)	June 2025

1. Disclaimer

This publication has been made available under the public sector information license and may be used by third parties. It may not be altered in anyway or used outside the terms of the Open Government Licence. www.nationalarchives.gov.uk.

External links are provided to enhance information, but Port Skills and Safety Ltd (PSS) does not guarantee the accuracy of any external links.

Regulations in this document are referred to by title but not year, as they may have been amended post publication. The reader should always seek the current version.

Following this guidance is not a legal requirement, however, by following the guidance, users may ordinarily expect to be doing enough to comply with the law. HSE and other government-appointed inspectors who seek to secure compliance with the law and may refer to this guidance in their investigations.

This document provides guidance only and due care and attention must be given to any operation being conducted.

The Safety in Ports Guidance is made available to all interested parties for the general improvement of safety in ports. However, members of PSS will find supplementary resources in the members section of the website.

2. Introduction

This guidance covers the specific handling of timber cargo and should be used in conjunction with SiP000 Regulatory Framework and Guidance and SiP 002 General Cargo. The Safety in Ports guidance suite is available from the PSS website: www.portskillsandsafety.co.uk.

The guidance provided here is specific to the handling of timber products, and whilst it makes reference to legislative requirements and general operations (e.g., lifting operations and work equipment practices) the overall application details of such legislative expectations are provided within SiP000.

Particular reference to SiP000 should be made for the purposes of:

- Risk Assessment.
- Consultation, Cooperation and Coordination.
- Vessel Access and Egress.
- Confined and Enclosed Spaces.
- Hazardous Atmospheres.
- Lifting Operations.
- Dangerous Goods.
- Planning for Safe Loading and Discharge.
- Work at Height.

Users may also find it useful to read SiP002: General Cargo for the purposes of these related activities:

- Vessel loading and discharge plan.
- Access to cargo.
- Slings (multiple trip and single use).

Guidance relating to the handling of wood pellets can be found in SiP022 Biomass wood pellet and chip.

The Safety in Ports Guidance is made available to all interested parties for the general improvement of safety in ports. However, members of PSS will find additional recourses (including video demonstrations, easy reference guides and additional best practice examples) on the members section of the website.

3. Timber, plywood and board materials

Timber cargo may be packaged or loose. Packages may vary in length, weight and size. Packs do not always contain uniform lengths. Timber products include:

- Roundwood (logs and poles).
- Sawn and planed lumber.
- Engineered or re-manufactured wood products.
- Wood-based panels and boards.
- Wood chips and wood pellets.
- Pulpwood and shortwood.
- Treated timber products.
- Wood residues and bark.
- Specialty or high-value timber.

Sets of timber can include pallet wood, plywood and board.

Truck bundles or tail packs consist of sawn timber of varying lengths. It is normal practice to square off one end to give a flush face and the other end will be irregular where the differing lengths protrude.

Flush packs are usually pre-slung with either endless or closed loop slings which are spliced together.

4. Hazards

Hazards associated with the loading and unloading of timber cargo include but are not limited to:

- Oxygen deficiency in the ships hold (see chapter 10).
- Poor strop and rope conditions on pre-slung cargo.
- Incorrect or outdated sling certificates (see chapter five).
- Being struck by work equipment involved in the operation such as lifting equipment, moving cargo, or moving vehicles.
- Being struck by falling objects such as dunnage or the cargo itself, especially loose boards or boards that have broken on voyage.
- Airborne particles such as sawdust or splinters blowing from boards.
- Slips, trips or falls while working on surfaces which may be uneven, unstable or slippery due to the presence of substances such as cargo residue, oils, ice, water, or protective wrapping and lashings.
- Gaps in the cargo where the cargo is not flush to the side of the vessel.
- Polyethene or thin timber coverings over voids creating a ‘fake’ walking surface.
- Falls from height where gaps occur between timber stacks.
- Being crushed against a fixed object such as a ship’s bulkhead, a deck support pillar or the cargo stow itself caused by shifting or falling cargo.
- Access and egress, to and from deck and hold cargo.
- The risk assessed use of a personnel cage as opposed to direct access to cargo.
- Changes in elevation – where timber is layered within the hold and creates an uneven work surface.
- Moveable bulkheads can shift as cargo is underloaded if not locked in place.
- Pollution from timber and plastic covers that may enter the water.
- Some timbers (green heart) can be toxic if they enter the skin from eg., splinters.
- Wash from other vessels passing creating shift.
- Trim of the vessel which effects load stability.
- Insects.
- Fiber boards which can fall apart when damp and create dust which requires breathing apparatus to be used.

Additional risk assessments may be required during discharge to take into account hazards such as damaged or moved cargo, changes in the quality of lifting strops or any other previously unseen conditions. Changes to, or further control measures, may then be required.

Particular reference should also be made to SiP002 General Cargo for information on general risks associated with accessing cargo and SiP000 Guidance Framework for general guidance on working from height and other risks.

5. Pre-slung timber

Timber products are typically pre-slung, refer to SiP002 General Cargo for general recommendations around pre-slung cargo. It is important to remember that these single use slings should be destroyed after use. Where vessels ask for them to be returned, every effort must be made to confirm that they will not be re-used.

Prior to using slings on pre-slung cargoes confirm they are safe to use before unloading commences. Check the following:

- Testing certificates for the slings exist, are genuine, and relate to the slings in use. A letter from the ship's Captain is **not sufficient**.
- Certificates verifying the thorough examination of slings are in accordance with LOLER are in date (within six months).
- Slings are in good condition.
- The cargo is slung properly and is safe to lift.
- Slings have a CE mark.
- Sling batch numbers match the batch numbers on the certificates.
- Any loose slings which may have become caught on the vessel.
- Any slings which may have become snagged on ship's lashing points, ring bolts, or hatch cover securing bolts.

Slings used on pre-slung loads can become frayed during transit so always undertake a test lift and check the load before commencing discharge. The quality of certificates can vary widely, so consider re-slinging the cargo or undertaking dynamic risk assessments if there are any concerns over the load or the validity of certification.

Where slings have parted, certification is not of sufficient quality, or there is a high loss rate, consider passing on feedback to the shipping company and agents.

Where there are concerns around pre-slung cargo or the certification provided, a dynamic risk assessment should be used to ensure that it is safe to discharge. In extreme cases, cargo may need to be re-slung.

Due to the nature of the journey, slings may deteriorate in transport, check with the master of the vessel for the copies of certificates, loading plan and any information on the cargo and journey.

Stevedores should undertake a pre-use visual inspection of the sling. Bear in mind that parts of the sling will not be able to be visually assed before underloading commences so ongoing visual checks and a test lift should take place.

The slings for the timber on the bottom of the load can become compressed by the load on top and will require further checking to ensure they are safe to continue unloading.

Ships with their own cranes for discharging timber are subject to testing and certification which should be verified by the port.

6. Colour coded slings

The colour coding of slings on vessel indicates the safe working load (SWL) of the sling. This helps operators to quickly identify the slings' intended use. Always check the colour coding matches the required weight before use. Note that the colour of the sling may not match the international standardised colour coding standard, especially where a single colour is in use, so aways check the individual certificates before commencing unloading.

Under EN1492-1 the rated capacity (straight lift) for each colour is:

- Purple – 1 tonne
- Green – 2 tonnes
- Yellow – 3 tonnes
- Grey – 4 tonnes
- Red – 5 tonnes
- Brown – 6 tonnes
- Blue – 8 tonnes
- Orange – 10 tonnes
- Slings of more than 10 tonnes – orange is used but these slings are not formally standardised in EN 1492-1

7. Typical timber slings

Webbing slings

Webbing slings are made from woven synthetic fibres, typically high-tenacity polyester but occasionally nylon or polypropylene. The fibres are woven into flat, wide webbing, which can be manufactured into two main types:

- **Endless slings** are a continuous loop of lifting material with no fixed eyes or ends. They are the preferred sling type for timber as they prevent the need to lean or climb over the load to find the eye.
- **Open ended slings** have two separate ends rather than forming a continuous loop. Each end is normally finished to create an eye — a reinforced loop through which a hook can be attached.

Rope Slings

Rope slings are made from synthetic fibre ropes, typically polyester or nylon. They offer high strength and flexibility, making them suitable for a range of lifting tasks where the load shape or lifting angles vary. Rope slings can be constructed as laid (twisted strands) or braided ropes. While less common than webbing slings in timber handling, they are used in specialised lifting operations requiring greater abrasion resistance or flexibility.

8. Discharging timber cargo

The way in which timber cargo is stowed and secured greatly affects the loading and discharging method and the safety of operatives, especially when deck cargoes of timber tend to be very high and extend across the full width of the deck.

Where possible a visual check of all lifting equipment and accessories to be used should be carried out by a competent person prior to use, as slings may rub during transit and become worn. Test lifts should be undertaken prior to undertaking the full lift. It may not be possible to test or inspect all slings as they can be trapped underneath loads, and portions of slings, and not all timber packs may not visible until unloading has progressed. Where this is the case appropriate measures must be taken to cover this risk including additional inspections and test lifts.

Unless a suitable spreader is used, packs of timber should be lifted side-by-side and not end on, as this can result in one pack swinging around with some force to lie alongside the other, causing a trapping hazard. The exception to this is palleted wood packs which are square when looked at from above. Packs of timber should always be lifted away from the on-vessel stevedores.

It is important to understand how the vessel has been loaded, as the method of loading can impact the discharge process. See SiP0002 General Cargo for more information on discharge planning.

Best practice methods for discharging timber packs are:

- U-shape discharge - utilising the external packs as a physical barrier creating safe by position.
- Side to side discharge – where each lift is taken only far enough to clear the hatch, then slewed horizontally and landed on the berth alongside the vessel — rather than being carried to a separate stacking area.
- Side pack discharge - putting each pack on its side before removing.
- Inertia wheel - a specialised inertia wheel system facilitates unloading through the principles of inertia (essentially harnessing momentum and rotation) to assist in discharging materials that may be difficult to move using traditional methods.

The discharge methodology should be discussed with local team at a toolbox talk prior to each operation. There should be clear roles and responsibilities assigned to all those involved in the operation.

Damaged packs should be segregated and a separate plan be made for re-slinging and discharging as appropriate.

9. Personnel cage

A personnel cage can be used to lift port operatives into the cargo hold. This can be classed as complex lift and therefore covered by LOLER. Each lift must comply with the Safe Working Load (SWL) person limit specified for the cage. A personnel cage also be used for emergency recovery where it is large enough to incorporate a stretcher inside. An emergency recovery plan should be drafted and tested for using a cage to aid recovery in an emergency.

10. Oxygen Depletion

Whilst timber is not classified as dangerous goods under the International Maritime Dangerous Goods (IMDG) code there are some important health considerations in relation to the chemicals used to treat the timber, and the moisture content.

Timber cargo can cause an oxygen deficiency. Untreated timber cargo can cause oxygen depletion through the decomposition process and organisms living in the wood. The chemicals used for treated timber can also cause oxygen depletion by promoting anaerobic conditions.

Before accessing the hold, information relating to oxygen depletion and carbon dioxide levels should be obtained from the vessel. It is recommended to undertake independent atmospheric testing prior to accessing the hold and allowing sufficient time for natural ventilation. Monitoring of atmospheric levels and testing should be repeated during the operation.

If the hold is deemed an enclosed space an additional team may be required and a risk assessment should be undertaken to define the risk level. Particular reference should also be made to SiP015 Confined spaces in ports.

11. Shoring the cargo

The type and quantity of dunnage required for the stow will vary according to the type of cargo and handling equipment. For example, if all cargo is pre-slung then dunnage may not be required. However, in most cases some dunnage will be required, and the following should be considered:

- The ability of the dunnage material to support the weight of heavy or dense loads.
- Sufficient packing or spacers to prevent cargo damage and to cover or fill gaps in the cargo stows.
- Safe and secure stowage in non-box shaped holds.
- Safe withdrawal of lifting equipment.
- Maintenance of safe access routes, taking into account any shoring and chocking that may be required to leave access to hold ladders and other egress points.

Any activities involving the cutting or shaping of dunnage (e.g., use of chainsaws, circular saws etc.) should be undertaken safely following an assessment of the task. Additional advice from the Health and Safety Executive: see also: Working with chainsaws and health and safety in sawmilling.

Shoreham Port has developed a specialist tool to allow for easy placing of dunnage; PSS members can find more information about this in the members section of the website.

12. Stacking timber

Timber stacks should be limited to three high outside and four high inside, with a height to base ration of 3:1 on the outside and 4:1 on the inside.

HSE provides an information sheet on Safe stacking of logs, sawn timber and board material. This includes the following advice:

- Locating log storage areas well away from pedestrian and vehicle routes.
- The use of a loader with grab attachments.
- The maximum stacking angles should be 45 degrees or less than 35 where it is not possible to separate personnel from stacks.

The Australia Forest Products Association also provides specific guidance on the sacking of timber: it notes that:

- Timber stacks should be square or rectangular in configuration with the centres of gravity directly in line with the bottom pack.
- There should be no ‘staggered’ or ‘offset’ timber between vertically stacked stacks.
- Timber stacks comprising of variable lengths should be configured so that longer stacks are always below shorter stacks and aligned with a common flush edge on one side.

Bearers should be used for supporting timber stacked and consideration should be given to the following:

- Bearers should be timber, concrete, or steel and able to withstand the weight of the stack.
- Bearers should be sufficient in number and proportionally placed along the timber stack to prevent deformation that may lead to stack instability.
- Bearers should be inspected regularly and maintained.

For more information see: Safe stacking of timber guidance.

13. Loading to hauliers

Hauliers should be provided with designated sheeting, loading and unloading areas. Ensure drivers are in a safe position during loading. If the cargo consists of logs which extend of over the length of the cab and are heavy, then it is recommended that the driver stays out of the cab during loading.

The driver is responsible for ensuring the load is secured before driving away. However, be aware of the timber being pushed by hauliers as they could knock timber stacks off their dunnage and fall.

All drivers must wear the correct PPE when leaving their cab and always adhere to port rules and these should include:

- Not having engines running when the vehicle is stationary.
- Drivers should stay in the cab until invited to leave.
- When out of the cab the keys must be out of the ignition.
- Drivers must stay in a designated safe place when outside the cab (except when securing the load).
- Avoid working on top of the cargo.

When the sheet has to be held back it is recommended to use a hook rather than the driver holding it. Bearers should be used to secure the cargo.

PORT SKILLS & SAFETY
IMPROVING STANDARDS THROUGH COLLABORATION

Appendix 1: Safety in Ports guidance

SiP000 Guidance framework

SiP001 Workplace transport – planning & terminals

SiP002 General cargo

SiP003 Container handling

SiP004 Timber handling

SiP005 Mooring operations

SiP006 Transfer of bulk liquids & gases

SiP007 Loading & unloading of dry bulk cargo

SiP008 Storage of dry bulk cargo

SiP009 Lighting

SiP010 Workplace transport – StoRo & RoRo operations

SiP011 Sources of occupational health information

SiP012 Ro-Ro passenger and cruise operations

SiP013 Management of non-permanent employees

SiP014 Safe access and egress

SiP015 Confined spaces in ports

SiP016 Emergency planning in ports

SiP017 Guidance on fitness for work and health surveillance

SiP018 Safety induction and training

SiP020 Water safety

SiP021 Access to small craft

SiP022 Biomass

Appendix 2: Other links referred to in this documents

These links are provided in one place for ease of reference. Port Skills and Safety has no control over the content of external websites and the documents referred to may move or no longer be available from those organisations. Every effort has been made to ensure links are accurate and lead to general landing pages. Links are accurate at the time of publication.

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER):
https://www.hse.gov.uk/work-equipment-machinery/loler.htm

The CE Marking Authority:
https://www.cemarkingauthority.com/ce-directives/lifting-accessories

International Maritime Dangerous Goods (IMDG) Code:
https://www.imo.org/en/OurWork/Safety/Pages/DangerousGoods.

HSE guidance on working with chainsaws:
https://www.hse.gov.uk/treework/safety-topics/chainsaw-operator.htm

HSE guidance on health and safety in sawmilling:
https://www.hse.gov.uk/pubns/books/hsg172.htm

HSE information sheet: Stacking round timber, sawn timber and board Materials:
https://www.hse.gov.uk/pubns/wis2.htm

Australian Forest Products Association: Safe stacking of timber guidance.
https://ausfpa.com.au/wp-content/uploads/2021/08/Final-Timber-Stacking-Guideline.pdf

Shoreham Port dunnage placement tool (PSS members only)

Appendix 3: Further information and guidance

These links are provided to enable members to find further information and are correct at the time of publication. Port Skills and Safety has no control over the content of external websites and the documents referred to may move or no longer be available from those organisations.

SiP004 version with photographs, videos of timber handling operations and SiP compliance checklist (PSS members only).

Confined Spaces Regulations:
https://www.hse.gov.uk/confinedspace/introduction.htm

Control of Substances Hazardous to Health Regulations (COSHH)
https://www.hse.gov.uk/coshh/

HSE Docks / Ports page:
https://www.hse.gov.uk/pubns/dockindx.htm