



**A guide to the
safe transportation
of
formwork and falsework
equipment**

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A guide to the safe transportation of formwork and falsework equipment

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1 Introduction

General

Formwork and falsework products are used by the construction industry. They are either sold or hired to the user who utilises them primarily to assist in the formation of structures. This publication is intended to provide a source of practical guidance and reference to assist those involved in risk management in the storage and handling of formwork or falsework products. It gives general guidance on the most common storage and handling systems where additional risks may arise if, for example, products are heavily oiled and/or bundled.

Definitions

Falsework is defined¹ as any temporary structure used to support a permanent structure while it is not self-supporting. Equipment used consists of vertical and horizontal components generally manufactured in steel or aluminum.

Formwork is defined¹ as temporary works used to give the required shape and support to poured concrete. It consists primarily of sheathing material (e.g. wood, plywood, metal sheet or plastic sheet) in direct contact with the concrete, and joists or stringers that directly support the sheathing.

Who should read this guidance?

The guidance is directed at all involved with the storage and handling of formwork and falsework products, including:

- Employers/self-employed/managers and supervisors/employees/safety representatives - in formwork/falsework organisations
- Hauliers who transport stock
- Anyone on a construction site handling formwork or falsework
- Trainers of staff

Relevant law

A legal framework for the management of construction transport risks is contained mainly in the following legislation (summarised in Appendix 1):

- Health & Safety at Work etc Act 1974²
- Management of Health & Safety at Work Regulations 1999³
- Lifting Operations & Lifting Equipment Regulations 1998⁴
- Provision and Use of Work Equipment Regulations 1998⁵
- Manual Handling Operations Regulations 1992⁶
- The Construction (Design and Management) Regulations 1994⁷

Further guidance on these relevant statutory provisions can be found in the references indicated in Appendix 1 and the summary in Appendix 2.

This guide has been prepared following an assessment of industry practices taking into account the current arrangements and technology. It does not cover the design of formwork and falsework products and consequently has not dealt with elimination of many risks at source. It should not be seen as a bar on progress and in particular combating the risks at source. This will be a continual process over the forthcoming years and many of the problems now encountered should be fed into the design process for new equipment. Primarily this guide should be used to assist those involved in the formwork and falsework industries and those who use it to identify the main causes of accidents and explain how to eliminate hazards and control risks.

This booklet is divided into three main sections:

- Formwork and falsework storage
- Formwork and falsework handling
- Instruction, supervision, information and training

Much of the occupational health and safety law is qualified by the terms 'so far as is reasonably practicable'; the same qualification applies to most of this guide. The precautions required in a specific situation will depend on the extent of the particular risks involved. High-risk situations require higher standards of precautions than lower risk situations. This guide has been written in the context of industry practices and some of the control measures given may, with further work, result in hazard elimination.

The majority of accidents that occur in the handling of formwork and falsework products are usually attributable to one or more of the hazards and often involve:

- being **struck by vehicles** during collection or delivery - often during vehicle reversing operations
- being **struck by falling materials** due to unsafe storage, loading, unloading or when transportation straps are removed
- being **struck by a load** during mechanical handling of the formwork and falsework products (e.g. when loads are being moved using cranes or forklift trucks, this can often lead to persons falling, being struck or being crushed by a load)
- **falls on and from vehicles or formwork and falsework products** including falls (such falls can be greater than 2 metres) when climbing on and climbing/jumping off
- **musculo-skeletal injury** arising out of unsafe manual handling operations (e.g. when trying to manually move a load that is too heavy, or is of awkward proportions or when the load is being moved under difficult conditions)
- being **struck by falling or inadvertently moving items**, e.g. stock (when a stack collapses or formwork and falsework products become unstable)
- **cuts** during handling of materials with sharp or uneven edges
- **crush injuries** when individual stock items are being manipulated/moved

Like most accidents the majority of those outlined above are foreseeable and preventable. They can usually be avoided by careful planning and by controlling loading and unloading of formwork and falsework products. Inadequate planning and control are the root cause of many accidents. Such failures can result in:

- **unsafe systems of work**
- **unsafe storage** of unstable heavy items (e.g. lifting attachments, formwork and falsework products)
- use of **inappropriate or poorly maintained lifting and handling equipment**
- **incompatible storage and handling systems**
- **inadequate training** of personnel
- **inadequate supervision** and coordination of formwork and falsework product handling
- a **poor working environment** and/or **poor housekeeping** (e.g. poor roadways, poor visibility, inadequate traffic routes, inadequate working space, obstacles to free vehicle movement)
- **inadequate segregation** of vehicles and pedestrians
- **overstocking storage systems** beyond their design capacity

2 Formwork and falsework product storage

This section provides guidance on the safe storage of formwork and falsework products primarily within the suppliers' yard. However, construction site operatives can also use this information to assist them in the process of storage of this equipment.

Types of formwork and falsework products

The main types of products are:

- Soldier
- Panels
- Beams
- Aluminium systems
- Access systems
- Accessories



Figure 1. An example of internal storage of panels

Types of storage system

There are three main types of system whose application will depend on the type of product being stored:

- **Free-standing** - products can be stored in stable stacks on the floor without any supports or racks
- **Floor storage on supports** – products stored on pallets, timber chocks or similar
- **Racking** - products need to be restrained or supported by racks or other permanent or semi-permanent storage equipment, i.e. individual frames or stillages

The choice of storage system will depend on a risk assessment that takes into account:

- Type of product
- The handling system to be used
- Anticipated product quantities
- The product's inherent stability



Figure 2. An example of pallet/stillage type storage

Remember:

- Formwork and falsework products should be **stored and stacked** so that they are **not likely to fall or move** and cause injury
- Any storage equipment used must be of **adequate strength and stability**, having regard to the loads placed on it and its vulnerability to damage (for example by vehicles); it must be **properly installed, maintained and used**

The physical characteristics of product types determine their inherent stability; some product shapes lend themselves to safe storage by freestanding. If there is any doubt about a product's inherent stability then stacks should be restrained and adequately supported within a properly designed storage system.



Figure 3. Long, narrow products banded on timbers

Broad long products (columns and beams) are most stable when stored on supports on the ground. In some cases bundling may improve inherent stability and improve ease of handling and storage. Handling is best suited to rider-operated fork-lift-trucks (FLT)⁸.



Figure 4. Irregular products banded in pallets

Further types of storage include pallets⁹. These are normally reusable and made of wood or, to a lesser extent, plastic and metal. They are usually constructed to allow easy access of the forks of FLT. They can be stored on the ground or on conventional pallet racks, subject always to the load capacities. Products can be loosely stacked on pallets for storage and if necessary banded to pallets for safe handling. Pallets should be:

- Robust
- Capable of safely bearing the load placed on them
- Of an appropriate size such that loads do not overhang the sides
- Be maintained in a suitable condition for safe use (e.g. timbers of wooden pallets must not be split or damaged)

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If pallets are used then:

- Appropriate lifting and handling equipment should be used to manoeuvre them
- The ground where they are used must be level and capable of taking the weight
- Only tidy, evenly-banded pallets should be stacked (so as to ensure stability) and safe height limits should be clearly defined
- If pallets are stacked, those stacks should be neat, vertical, level and stable
- They must be properly maintained - reusable pallets should be regularly inspected and, if necessary, repaired before re-use

Box pallets are essentially self-contained storage units comprising a base and support frame. Also, specifically designed storage racks are suitable for many formwork and falsework products including panels.

Many freestanding stacks use battens for support and separation. They create a gap between bundles to allow easy access for lifting equipment. To ensure stability of stacks, it is important that battens are made from a standardised square section of metal, hardwood or other suitable material capable of withstanding the loading. Wooden battens containing knots should be avoided wherever possible. The correct positioning of battens is essential and they should be placed directly above one another in a stack.



Figure 5. Safe storage with clear access

Safe access should be provided to where the formwork and falsework products are stored. People working in between, or close to, stored equipment can be seriously injured, or killed, if a stack collapses or product inadvertently moves or falls. Systems must always be designed and operated to:

- Allow employees to work from a safe position and at a safe distance from danger
- Minimise the amount of time that personnel spend in storage areas

For example:

- Safe, clearly-defined access routes/aisles should be provided through storage areas
- Pedestrians should be separated from vehicles
- Effective containment of stored equipment is essential.

Slips, trips and falls¹⁰

The **surfaces of stored metal products** may be slippery, unstable and uneven, which may increase the risk of slips. Employees should not be required to climb on to, or stand on, stored metal products. **Floor surfaces** of walkways and work areas should be kept free of obstructions and hazards.

3 Formwork and falsework product handling

Product handling falls into the following categories:

- Product movement around branch yard
- Loading and unloading of delivery vehicles at branch yard
- Safe transportation
- Unloading of delivery vehicles at construction site
- Loading of delivery vehicles with used product at construction site

Product movement around branch yard

Product movement around branch yards is generally undertaken using FLT. Handling systems are work equipment subject to the requirements of the Provision and Use of Work Equipment Regulations (PUWER)⁵ and Lifting Operations and Lifting Equipment Regulations (LOLER)¹¹. FLT operatives must receive recognised training and be assessed as competent to undertake the work safely.

Loading and unloading of vehicles at branch yard

All loading and unloading operations of vehicles at the branch yard must be:

- Properly planned by a competent person
- Appropriately supervised and
- Carried out in a safe manner

The planning will need to address the risks identified by the risk assessment and the procedures to be followed and those with responsibility so that the lifting operations are carried out safely. Factors to consider during planning should include:

- Information on products to be handled, e.g. weight, shape and centre of gravity of material components/bundles of material
- Selection of most appropriate vehicle
- Availability of any related information
- Method of loading/unloading, e.g. where the vehicle will be loaded, how it will be loaded
- Provision of spacing
- Loading sequence to consider safe unloading
- Details of safe loading procedures specific to that branch yard
- Yard restrictions, e.g. speed limits, reversing constraints, danger areas
- Duties of driver in respect of the process e.g. de-sheeting, strapping, checking, etc.
- Inspection of loads to check stability after transportation to yard from site
- Hazards for the yard operatives driver and slingers
- Arrangements for safe access to the vehicle
- Any manual handling requirements

Each supplier will usually have information on his or her products contained in product data manuals. It is important that any written information should be in a form that can be readily assimilated and understood by the driver and the loading operative.

Selection of the most appropriate vehicle will be based upon the quantity and type of products to be transported. It is important that the vehicle is not overloaded. When selecting the vehicle consideration must also be given to whether or not products will be stacked on top of each other.

Products will normally be placed on the vehicle in order of weight, i.e. heaviest first. If it has been necessary to stack items on top of each other, it is very important that consideration is given to how the load will be unloaded.



Figure 6. Example of a securely banded, spaced and strapped safe load

Depending on load quantities, it may be necessary for bundles of products to be ‘broken’ into smaller quantities for delivery. Bundles should not be split at height or when stored in a normal storage rack. Splitting should only be done in a safe place, such as at ground level, or in a restraint/cradle/rack designed for the purpose. Part bundles will be re-banded to ensure stability. Special consideration needs to be given to part bundles, particularly if they form an irregular shape. It is important that all bundles are adequately banded before loading onto a delivery vehicle.

Safe transportation

The driver of the vehicle is responsible for the load during transportation. Any other role the driver plays, particularly during loading and unloading must be carefully considered. Each driver must be given suitable instruction and information on what his or her role is.

The driver should check his or her load prior to applying or removing the transportation straps. The load should have been loaded in accordance with safe loading practices for which the driver should also have received appropriate training. On arrival at a construction site, a driver must initially check that transportation strapping can be removed without the load becoming unstable or falling from the vehicle. If he has any doubts, he or she must speak to the competent person on site in charge of planning lifting operations. The competent person, and not the driver, must make decisions regarding the method of removal.

Safe unloading and loading of vehicles at construction site

All equipment must be returned in a condition as to enable safe handling in suppliers’ yards.

Loading vehicles on construction sites is the responsibility of the competent person appointed to properly plan lifting operation on that site. **The formwork supplier will make available, on request, a guidance leaflet to assist in the safe return of equipment from site.**

Drivers must be **adequately informed** and **instructed** as to the requirements for safe loading, transportation and unloading through a driver instruction document. In particular they must be provided with instructions to be followed upon arrival at customer’s premises. The vehicle driver is not permitted to assist with the unloading/loading of the vehicle. The driver’s responsibility is to ensure the safe transportation of the vehicle and its load on the public highway to the construction site. The driver must adhere to site safety instructions.

All loading and unloading operations of delivery vehicles at construction site must be:

- Properly planned by a competent person
- Appropriately supervised
- Carried out in a safe manner

Loading and unloading vehicles on construction sites is the responsibility of the competent person appointed to properly plan lifting operation on that site. There is some degree of overlap between the role of this competent person and the competent person who loaded the delivery vehicle at the branch yard. Therefore, close liaison between suppliers and customers is essential if formwork and falsework products are to be delivered safely. Unlike the person responsible for lifting operations in the branch yard, this competent person will normally have a range of lifting operations to consider.

However, the same principles as above will apply and adequate planning of a lifting operation will need to address the risk identified by the risk assessment. Therefore, the factors identified above are applicable to construction site lifting operations. However, due to the nature of construction sites, there will be some notable additions. These would include:

- Inspection of loads to check stability before removing straps
- The environment in which the lifting equipment will be used
- If crane is used, how to fit the sling to the load
- The anticipated path of the load from its present position to where it will be positioned after the lifting operation
- Proximity of hazards

BS 7121¹² contains recommendations for the safe use of cranes, including planning of lifting operations. The principles contained in this standard can be applied to the use of other types of lifting equipment.

Loading/unloading by crane and FLT are the most popular, whilst by hand is only used if the other two are not available or some difficulties are encountered on site. The crane and FLT are under the control of construction site management.

Key questions for construction site

Have you:

- Appointed a competent person to plan for safe loading/unloading and delivery of loads
- Ensured that suitable lifting and handling equipment is available for safe loading/unloading of vehicles and that this is checked before use
- Assessed the requirements for vehicle access and provided safe means of access
- Ensured that vehicle loading/unloading is properly supervised and takes place in designated areas and in a safe environment
- Ensured that materials are subject to the minimal amount of handling
- Ensured that there is negligible risk of anyone falling and being injured during loading/unloading of vehicles
- Ensured that there is negligible risk of anyone being injured by material or handling equipment during vehicle loading or unloading
- Ensured that drivers follow the driver instructions
- Made suitable monitoring arrangements to ensure that proper load planning occurs and safe systems of work and procedures are followed at all times

Banding of products

All material must be banded using a recognised banding system that has a breaking strain in excess of the guidance given by the formwork supplier. Banding products is primarily intended to keep the pack intact. Handling packs by their banding is likely to result in damage to the banding with significant risk of its failure and collapse of the pack.

Remember:

- The sharp edges of banding can be a hazard with a significant risk of injury from cuts/laceration injury
- Tension in the banding may cause it to spring back suddenly when cut, posing an additional risk of injury in the event of unexpected breakage or during splitting of bundles
- The hands/arms and face may be at particular risk and, where necessary, appropriate PPE should be provided
- Waste banding materials should be removed as soon as possible after breakage/cutting and transferred to a safe place (e.g. a suitable waste bin)



Figure 7. Products banded in pallets

Driver's responsibilities

The vehicle driver is not permitted to assist with the loading of the vehicle. The driver's responsibility is to ensure the safe transportation of the vehicle and its load on the public highway and the construction site. The driver must adhere to site safety instructions.



Figure 8. Vehicle unsafe to unload



Figure 9. Equipment becomes unstable when strapping is released

4 Information, instruction, training and supervision

Employee safety is largely dependent on proper information, instruction, training and supervision. Staff must be:

- **Informed and trained**, so that they understand the nature of any risks to their health or safety, or that of others, from the work they do and the measures necessary to adequately control them
- **Instructed** as to the safe systems of work they must follow
- **Supervised** to ensure that they follow the instructions and training given to them
- **Involved** in the health and safety management system and decision-making process

Many accidents occur in formwork and falsework product handling when employees, particularly those who are young or inexperienced, use machines and equipment, or handle heavy and awkward materials in hazardous circumstances and without proper training. Storage and handling systems should not be used by anyone who is not properly trained. In law 'use' means "*any activity (involving work equipment) and includes starting, stopping, programming, setting, transporting, repairing, modifying, maintaining, servicing and cleaning*".

5 Appendices

APPENDIX 1: References

1. British Standards Institution. BS 5975. *Code of practice for formwork*. BSI, London, 1996.
2. *A guide to the Health and Safety at Work, Etc. Act 1974* L1 (Fifth Edition) HSE Books 1993 ISBN 0 7176 0441 1.
3. *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and Guidance* L21 (Second Edition) HSE Books 2000 ISBN 0 7176 2488 9.
4. *Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance* L113 HSE Books 1998 ISBN 0 7176 1628 2.
5. *1998 Provision and Use of Work Equipment regulations 1998: Open Learning Guide (Training Guide S)* HSE Books 1999 ISBN 0 7176 2459 5.
6. *Manual handling. Manual Handling Operations Regulations 1992. Guidance on Regulations* L23 (Second Edition) HSE Books 2000 ISBN 0 7176 2415 3.
7. *Managing health and safety in construction: Construction (Design and Management) Regulations 1994. Approved Code of Practice and guidance* HSG224 HSE Books 2001 ISBN 0 7176 2139 1.
8. *Rider-operated lift trucks. Operator training. Approved Code of Practice and guidance* L117 HSE Books 1999 ISBN 0 7176 2455 2.
9. *Safety in the use of timber pallets* PM15 HSE Books 1993 ISBN 0 7176 0714 3.
10. *Slips and trips: Guidance for employers on identifying hazards and controlling risks* HSG 155 HSE Books 1996 ISBN 0 7176 1145 0.
11. *1998 Lifting Operations and Lifting Equipment regulations 1998: Open Learning Guide (Training Guide S)* HSE Books 1999 ISBN 0 7176 2464 1.
12. British Standards Institution. BS 7121. *Code of practice for safe use of lorries*. Various parts. BSI, London.
13. *Directors' responsibilities for health and safety* INDG 343 HSE Books 2002.
14. *Five steps to risk assessment* INDG 163 (rev1) HSE Books 1998 ISBN 0-7176-1565-0.

For further information or updates to the above documents refer to HSE website: www.hse.gov.uk.

APPENDIX 2: Principle legal requirements

Health & Safety at Work, Etc. Act 1974²

This Act requires employers and self-employed workers to:

- Ensure they provide and maintain workplaces, equipment and systems of work that are, so far as is reasonably practicable the health, safe workers and the public
- Designers and suppliers to ensure their products may be used safely
- Employees must take care of their own and others' health and safety and co-operate with management in meeting their obligations
- Any director¹³, manager, secretary or similar officer by their consent, connivance or neglect of duty can be held personally liable

Management of Health & Safety at Work Regulations 1999³

These regulations require employers and self-employed workers to:

- Identify the measures they need to take by carrying out risk assessments
- Institute safety management systems
- Appoint competent persons to assist in health and safety
- Ensure co-ordination and co-operation
- Formulate emergency procedures
- Provide information and relevant training to employees

Lifting Operations & Lifting Equipment Regulations 1998⁴

These Regulations require employers to ensure safe lifting operation and in relation to handling of formwork and falsework they must ensure, among other things, that:

Every lifting operation is:

- Properly planned by a competent person
- Appropriately supervised
- Carried out in a safe manner

Lifting equipment is:

- Suitable for the job and clearly marked with its Safe Working Load (SWL)
- Used for each job
- Thoroughly examined and inspected by a competent person at prescribed regular intervals and/or in accordance with a scheme of examination
- Properly maintained

Those undertaking lifting operations:

- Are properly informed, instructed and trained
- Are properly supervised
- Are competent
- Follow the planned safe systems of work

Provision and Use of Work Equipment Regulations 1998⁵

These Regulations require employers to ensure safe work equipment, including vehicles is suitable and fit for purpose, properly maintained and that those using or supervising such equipment have received adequate information, instruction and training.

Manual Handling Operations Regulations 1992⁶

These Regulations require employers to ensure that all lifting operations are properly assessed and, if manual handling is required, that adequate training is provided.

The Construction (Design and Management) Regulations 1994⁷

These Regulations apply to all stages of a construction project and places duties upon clients, designers and contractors. The Regulations aim to ensure:

- Selection of competent appointees and provision of adequate resources
- Reduction of risks at the design and planning stages of a project
- Effective management of health and safety throughout the project

APPENDIX 3: Risk assessment

Risk assessment

The first important step in the management of the health and safety risks associated with formwork and falsework handling and storage is the completion of a 'suitable and sufficient' assessment of the risk. This should be based on an examination of the operation to determine how people could be harmed and to enable a decision to be made as to whether sufficient precautions are being taken to prevent that harm from being realised.

Suitable and sufficient assessment

The assessment must be carried out by someone who has the required competence to do it. The 'competent person' will be someone who 'possesses the necessary practical, theoretical and legal knowledge to enable them to identify the hazards, adequately assess the risk, know the minimum standards of compliance required by law and be able to advise as to how they are best achieved.'

This definition of competence will apply throughout this publication.

Five steps to risk assessment⁵:

1. **Look for the hazards.** A hazard is "anything that may cause harm". Examples of hazards associated with stock storage and handling operations are given in Paragraphs 5 of the HSE leaflet.
2. **Decide who might be harmed and how**
 - **Who?** This *could* include yard operatives; construction site operatives; forklift-truck drivers; delivery vehicle drivers; maintenance staff; visitors; young workers; trainees; those who do a particular job only infrequently; agency workers and members of the public.
 - **How?** This will require a thorough knowledge of the nature of the hazards themselves and the work processes involved but could include:
 - Striking/crushing of the body by moving/heavy material or moving equipment/vehicles
 - Striking/crushing of the body by falling materials or loads
 - A person tripping over material on the floor
 - A person receiving manual handling injuries by lifting heavy or awkward loads
 - A person being cut by sharp material
3. **Evaluate the risk and decide whether existing precautions are adequate or more should be done.** A risk is likelihood of potential harm from a hazard being realised. The extent of the risk will depend on:
 - The likelihood of that harm occurring
 - The potential severity of that harm, i.e. of any resultant injury or adverse health effect
 - The population which might be affected by the hazard, i.e. the number of people who might be exposed
 - Is the risk high or low? If it is high, then what needs to be done to reduce it?
4. **Record your findings.**
5. **Review your assessment and revise it if necessary** (e.g. if the type of equipment changes or handling/processing equipment is to be changed).

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It is important to understand that underlying risk assessment are the general principles of prevention, often referred to as the hierarchy of controls. These are:

- Avoiding risks
- Evaluating the risks that cannot be avoided
- Combating the risks at source
- Adapting the work to the individual, especially with regard to design of workplaces, the choice of work equipment and production methods, with a view, in particular to all alleviating monotonous work and work at a predetermined work-rate and reducing their effect on health
- Adapting to technical progress
- Replacing the dangerous by the non-dangerous or the less dangerous
- Developing an overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the work environments
- Giving collective protective measures priority over individual protective measures
- Giving appropriate instruction to employees

An example of the risk assessment process

Activity	Storage in supplier's yard
Key hazards identified	<ul style="list-style-type: none">• Moving vehicles• Falling materials• Slips, trips and falls• Manual handling• Sharp edges
Significant risks and who may be harmed	<ul style="list-style-type: none">• Vehicles striking pedestrians, other vehicles or materials• Materials striking pedestrians or vehicles• Workers injury as a result of slipping tripping and falling• Workers with bending or twisting injuries, both immediate and cumulative• Workers with cuts and lacerations
Elimination and control measures determined	<ul style="list-style-type: none">• Establish segregated vehicle and pedestrian routes around the yard• Safe storage techniques• Good house keeping• Mechanical lifting
Record findings	<ul style="list-style-type: none">• Include findings in yard safety plan
Monitor review and revise as necessary	<ul style="list-style-type: none">• Audit measures, review effectiveness, make improvements

APPENDIX 4: Further reading

Management

You Can Do It: What, Why and How of Improving Health and Safety - A Self-help Guide (Open Learning Course) HSE books 1994 ISBN 0 7176 0726 7.

Successful health and safety management HSG 65 HSE Books 1997 ISBN 0 7176 1276 7.

Managing Health and Safety: Your Role: Open Learning Workbook for Managers and Trainers HSE Books 1997 ISBN 0 7176 1153 1.

Transport

Workplace transport safety. Guidance for Employers HSG 136 HSE Books 1995 ISBN 0-7176-0935-9.

Safe unloading of steel stock INDG 313 HSE Books 2000 ISBN 0 7176 1765 3.

British Standards Institution. BS 5744:1979 *Safe Use of Cranes. Code of Practice: Part 1 – General; Part 4 – Lorry Loaders*. BSI, London.

Safe Working with Overhead Travelling Cranes - PM55 HSE Books ISBN 0-11-8836395-9.

Safety in working with lift trucks HSG6 (Third edition) HSE Books 2000 ISBN 0 7176 1781 5.

Workplace

Workplace Health, Safety and Welfare: Workplace (Health, Safety and Welfare) Regulations 1992 - Approved Code of Practice and guidance L24 HSE Books 2004 ISBN 0 7176 0413 6.

Personal protective equipment at Work. Personal Protective Equipment at Work Regulations 1992. Guidance on Regulations L25 HSE Books 1992 ISBN 0-7176-0415-2.

A guide to the Health & Safety (Consultation with Employees) Regulations 1996 L95 HSE Books ISBN 0 7176 1234 1.

Manual Handling. Solutions you can handle. HSG 115 HSE Books 1994 ISBN 0 7176 0693 7.

Getting to grips with manual handling: A short guide for employers INDG 143 (rev1) HSE Books 2000 ISBN 0-7176-1754-8.

Work at Height Regulations 2005 SI 2005/735 The Stationery Office 2005.

Responsibilities of suppliers, designers, manufacturers, installers, importers, etc.

Supplying new machinery HSE Leaflet: IND (G) 270 HSE books ISBN 0-7176-1560-X.

Buying new machinery INDG 271 HSE Books ISBN 07176 1559 6.

APPENDIX 5: Driver training outline

General

- Packing quantities and weights
- Load security
- Specific product hazards
- Handling and transportation

Loading for deliveries

- PPE requirements – information to drivers
- Information relating to specific hazards
- Reporting procedure and point of contact
- Involvement during loading
- Acceptance of load

Unloading at the site

- Point of contact
- Site regulations and required PPE
- Driver involvement during unloading

Loading at the site

- Point of contact
- Site regulations and required PPE
- Assessment of materials to be loaded
- Positioning of materials on vehicles
- Rejection of insecure bundles
- Considerations for unloading
- Involvement during loading
- Acceptance of load

Unloading at the supplier's depot

- PPE requirements – information to drivers
- Reporting procedure and point of contact
- Involvement during unloading

A guide to the safe transportation of formwork and falsework equipment

Formwork and falsework products are used by the construction industry. They are either sold or hired to the user who utilises them primarily to assist in the formation of structures. This publication is intended to provide a source of practical guidance and reference to assist those involved in risk management in the storage and handling of formwork or falsework products. It gives general guidance on the most common storage and handling systems where additional risks may arise if, for example, products are heavily oiled and/or bundled.

Falsework is defined as any temporary structure used to support a permanent structure while it is not self-supporting. Equipment used consists of vertical and horizontal components generally manufactured in steel or aluminum.

Formwork is defined as temporary works used to give the required shape and support to poured concrete. It consists primarily of sheathing material (e.g. wood, plywood, metal sheet or plastic sheet) in direct contact with the concrete, and joists or stringers that directly support the sheathing.

The guidance is directed at all involved with the storage and handling of formwork and falsework products, including:

- Employers/self-employed/managers and supervisors/employees/safety representatives - in formwork/falsework organisations
- Hauliers who transport stock
- Anyone on a construction site handling formwork or falsework
- Trainers of staff

This guide has been prepared following an assessment of industry practices taking into account the current arrangements and technology. It does not cover the design of formwork and falsework products and consequently has not dealt with elimination of many risks at source. It should not be seen as a bar on progress and in particular combating the risks at source. This will be a continual process over the forthcoming years and many of the problems now encountered should be fed into the design process for new equipment. Primarily this guide should be used to assist those involved in the formwork and falsework industries and those who use it to identify the main causes of accidents and explain how to eliminate hazards and control risks.

This booklet is divided into three main sections:

- Formwork and falsework storage
- Formwork and falsework handling
- Instruction, supervision, information and training

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