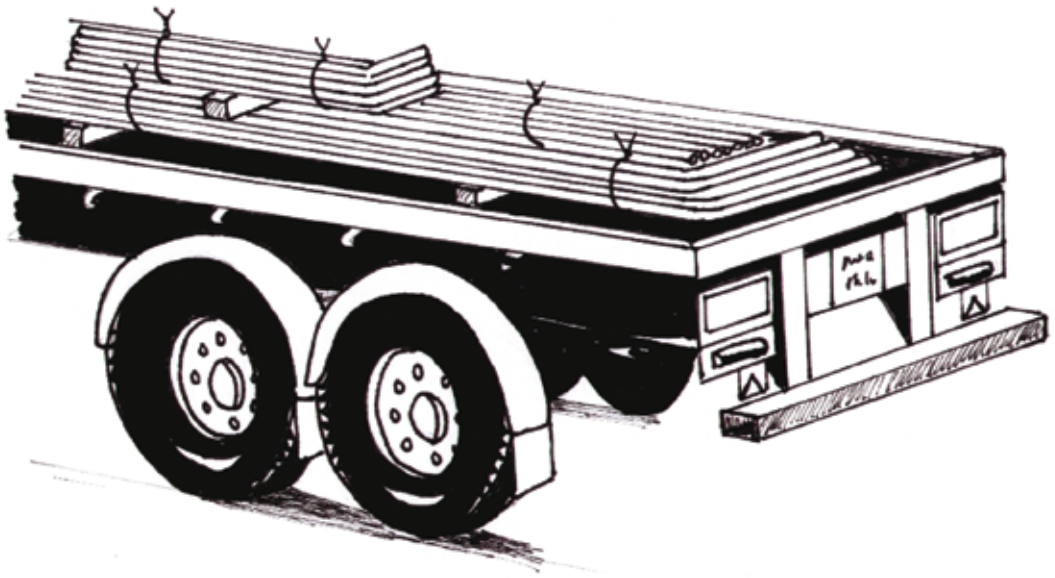
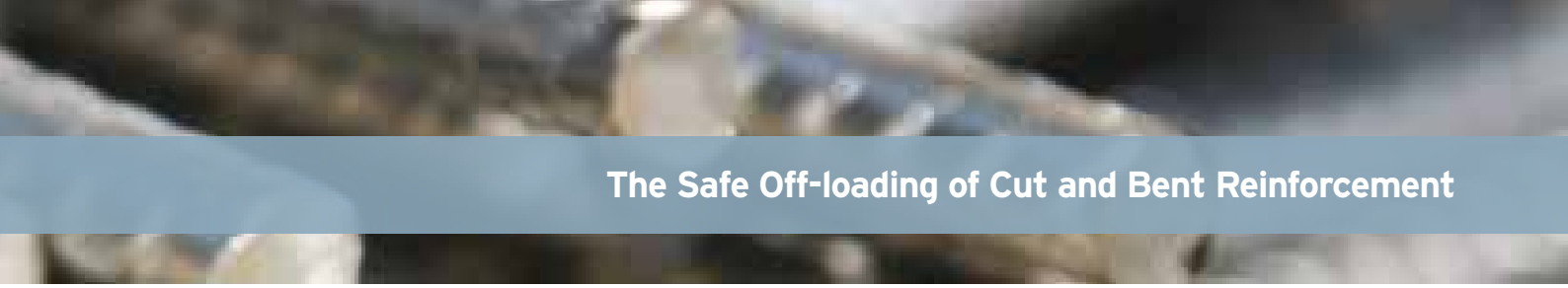
The Safe Off-loading of Cut and Bent Reinforcement

A CODE OF PRACTICE FOR USERS, HAULIERS AND SUPPLIERS

BAR
BRITISH ASSOCIATION OF REINFORCEMENT

Index





Introduction

This document is intended for the use of Suppliers, Hauliers (and drivers), and Customers (Stockists and Construction sites) in order to ensure that those involved in the off-loading of cut and bent reinforcement from delivery vehicles are aware of the safe working practices.

The primary objective of this Code of Practice is to provide information and guidance that should ensure the safe removal of bundles of cut and bent reinforcement from delivery vehicles.

To achieve this objective, information is provided about:-

- Planning for safe off-loading – the delivery plan.
- The preparation of the load for off-loading.

Due to the potential risks involved, the movement of cut and bent reinforcement should be the subject of Risk Assessment and a Safe System of Work. This document should assist duty holders in fulfilling that obligation – it is not a substitute for assessment as many important factors will vary between off-loading locations.

The information contained in this Code of Practice has been compiled by representatives of the BAR Health and Safety committee drawn from BAR Members list on the back of this document and in consultation with the Health and Safety Executive and the UK Certification Authority for Reinforcing Steels (CARES).

For the attention of the directors/managers responsible for health and safety

These procedures have been drawn up by the British Association of Reinforcement (BAR) in consultation with representatives from the Health and Safety Executive (HSE).

This has been done with the knowledge that in recent years, whilst off-loading at construction sites there have been accidents and near misses. The procedures cover off-loading using a range of equipment known to be in regular use.

As the person with responsibility for health and safety within your company, we trust that you will find this guidance helpful in meeting your obligations to complete risk assessments and provide safe working conditions at your sites. Copies of this booklet have been distributed among hauliers and fabricators to draw attention to the dangers associated with off-loading cut and bent reinforcement and to encourage safe working practices.

This guidance covers lifting equipment only. Other statutory safety requirements will also apply, i.e. never lift over persons, wear suitable PPE, safety boots, gloves, helmet etc.

Please note that the safe procedures as described in this guidance prohibit the use of bundling wire for lifting.

If bundles of cut and bent reinforcement are to be moved from the original delivery point, placing dunnage between the bundles as they are stacked will facilitate the fitting of chains / slings for subsequent lifts.

Hazards

The handling of cut and bent reinforcement carries the risk of serious injury if safe working practices are not adopted. Key hazards are persons falling from vehicles while preparing loads for lifting, i.e. attaching lifting slings.

Also loads falling due to:

1 Loss of bundle integrity i.e. settling of bars during transportation.

2 Unsafe lifting equipment i.e. crane of insufficient lifting capacity, lift truck with inadequate fork span or length.

3 Defective slings etc.

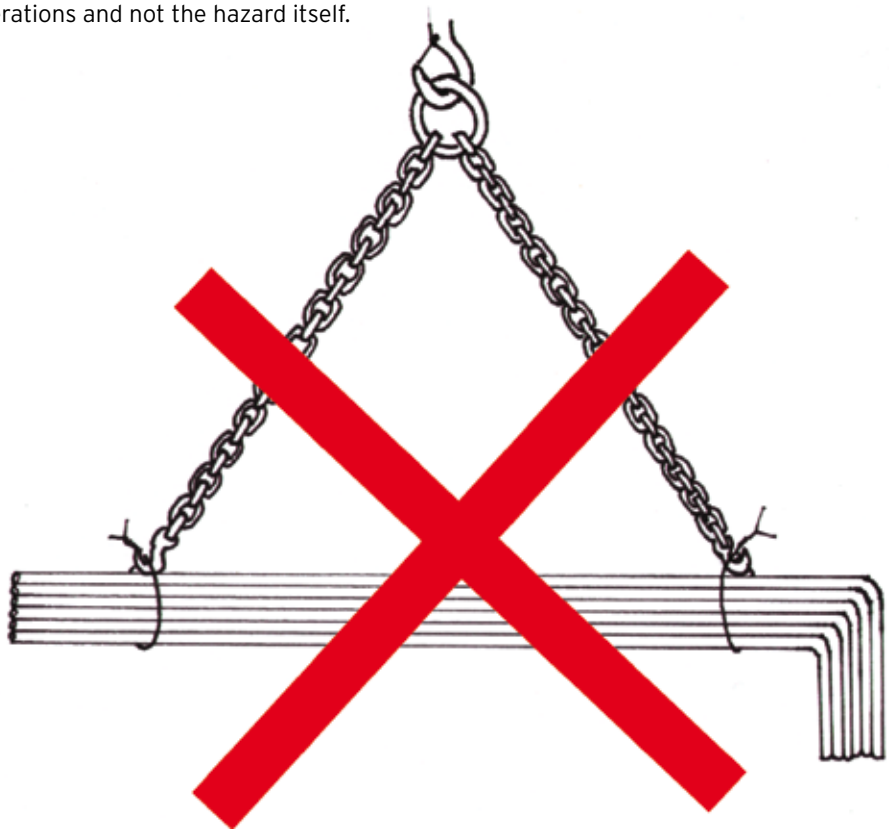
4 Unsafe lifting methods.

5 Being struck by a swinging load, site transport / lift truck etc.

Other potential hazards could be :

Puncture wounds from bundle wire ends.

The examples detailed above are hazards but the underlying cause of accidents often lies with inadequate training and poorly planned lifting operations and not the hazard itself.

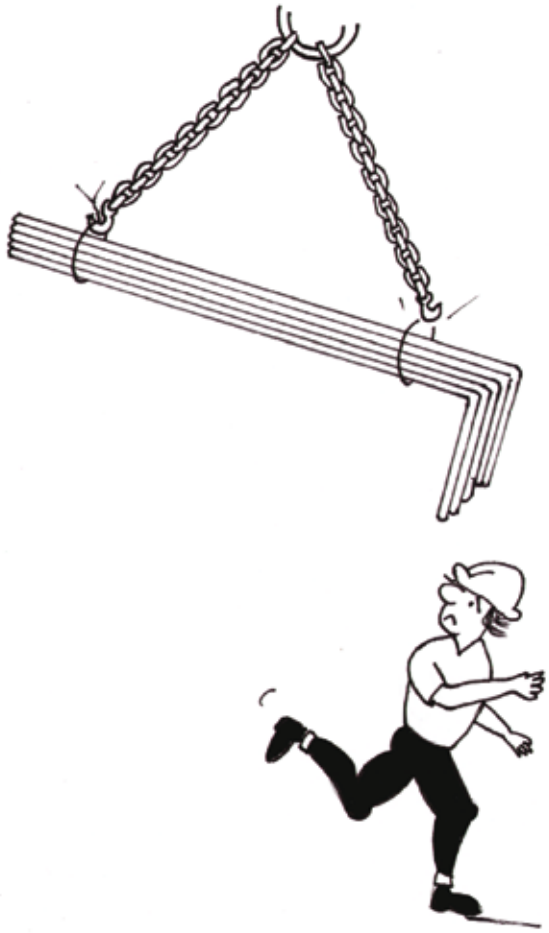


DO NOT LIFT CUT AND BENT BUNDLES USING THE BUNDLE TIES THEY ARE NOT TESTED AS LIFTING EQUIPMENT AND ARE THEREFORE UNSAFE FOR LIFTING PURPOSES. A CODE OF PRACTICE FOR USERS, HAULIERS AND SUPPLIERS

Accidents

There have been serious accidents including fatalities during the off-loading and storage of bundles of cut and bent reinforcement, typical accidents have included:-

- Vehicle movement accidents – people struck by a lorry or lifting equipment – prevent by cordoning off the work area: page 6 4.
- Falls from load / lorry – often using unsafe methods of access – prevent by avoiding work at height where possible: page 6 1.
- Sharp edges – puncture wounds from bar and wire ends – prevent by wearing appropriate PPE i.e. gloves, safety glasses etc.
- Lifting on bundle ties – prevent by adhering to instructions on labelling.
- Poor planning of lift / inadequate supervision – no risk assessment, safe system of work or clear plan of action.
- Bad practices – persons under load, unstable ground, poor environmental conditions.
- Lack of training – leading to incorrect use of lifting equipment and / or any of the above errors.
- Accidents are preventable if safe working procedures are adhered to, suitable PPE is issued, suitable training and adequate supervision is provided. Combined with an attitude of 'THINK SAFETY', the number of accidents can be substantially reduced.



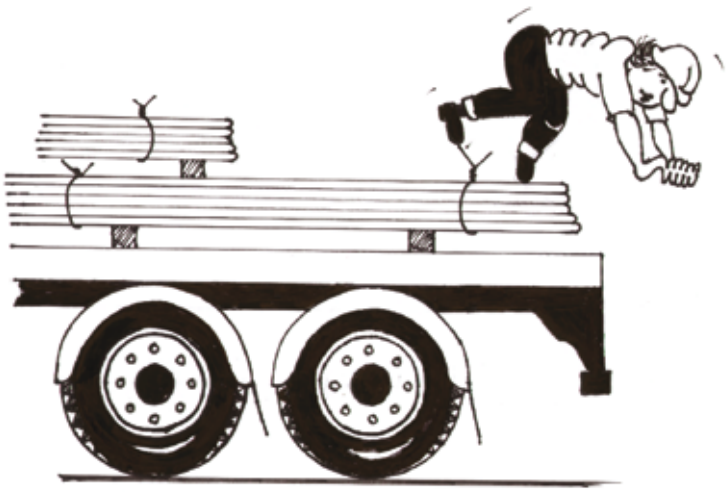
Working at height

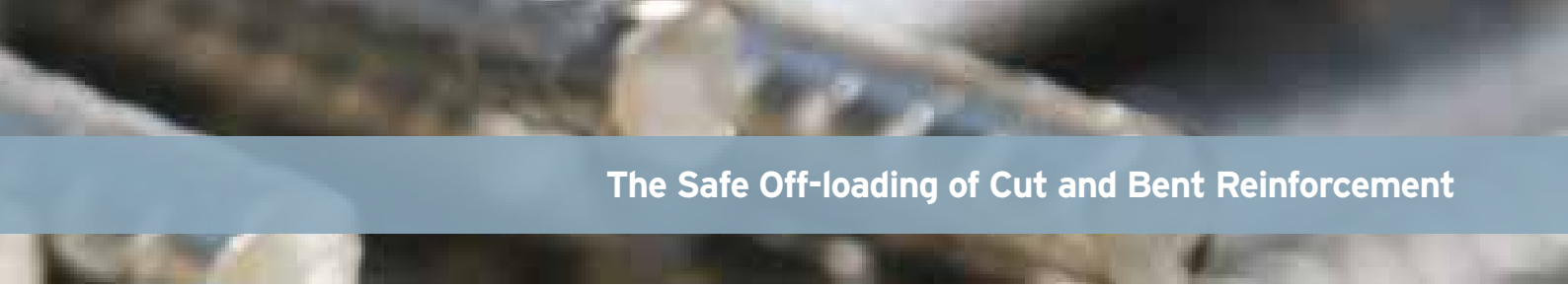
Working at height means work in a place at or above ground level where if measures are not taken a person could fall a distance liable to cause personal injury.

There is a hierarchy of control measures for determining how to work at height safely in the Work at Height Regulations 2005. The hierarchy has to be followed systematically and only when one level is not reasonably practicable may the next level be considered, HSG 150 (Health and Safety in Construction) offers practicable advice on the measures that should be followed.

Those in control of the work must;

- Avoid working at height if possible. If the load can be unloaded without climbing onto the lorry, then do so.
- Use work equipment to prevent falls where work at height cannot be avoided.
- Where the risk of a fall cannot be eliminated, use work equipment to minimise the distance and the consequences of a fall should one occur.
- Cordon off the work area and erect appropriate warning signs.
- If, for example, a MEWP is to be used, consider the space that the vehicle will require and the ground conditions that it is being used on.
- Always consider collective measures that protect all those at risk i.e. nets, gantries, scaffolds etc before considering measures that only protect the individual i.e. harnesses which are personal.
- Ensure work is carried out only when the weather conditions do not jeopardise the health and safety of the workers.
- Ensure that workers are trained and are competent in the jobs that they have to do.
- Have emergency and rescue procedures in place should someone fall and require aid.
- Ladders are at the bottom of the hierarchy because they do not prevent or mitigate a fall. If ladders are the final and only method you have, you should refer to the advise given in the HSE documents INDG402, INDG403 and INDG405.
- Always inspect ladders before use. Ensure that the workers have suitable footwear.





Planning for a safe delivery

Safe delivery is the joint responsibility of the customer, haulier and supplier. There should be agreement between all parties in advance of the delivery as to the safe system of work, equipment needed, who will supply this and management arrangements. This should form the basis of a delivery plan where responsibilities are clear to all parties and site specific issues and solutions are identified.

For an example of a delivery plan please see APPENDIX 1.

Key responsibilities are:

The **Supplier** should:

- Provide information and instruction on safe handling procedures (for example this booklet)
- Ensure that each bundle is securely tied and well presented.
- Ensure that each bundle has sufficient product information labels attached which details the bundle weight.

The **Haulier** should:

- Ensure the safe planning, positioning and securing of the load for transit to site.
- Prepare the load on site for safe off-loading by undertaking an inspection from ground level to ensure the load is stable and then removing all ratchet straps to release the load – again from ground level. There should be no need to access the vehicle bed at this time.
- Ensuring that the vehicle / trailer is in a good state of repair – access to bed of vehicle – are access ladders with suitable hand holds fitted, no broken floor boards, damaged or loose steps, no slippery surfaces i.e. are all surfaces clean from mud, earth, oil etc.
- Ensuring the vehicle has all the necessary safety devices fitted as per site requirements – audible warning systems, flashing beacons, reversing alarms etc.
- Ensure the driver of the vehicle has adequate equipment / training to fulfil their duties in terms of – PPE, Lorry Loader licence, certificates for all lifting equipment carried by the vehicle.

The **Customer** should:

- Carry out risk assessments for the Off-loading operations and communicate any significant findings to the supplier / haulier in the form of a **DELIVERY PLAN** (APPENDIX 1) before the first delivery.
- Prepare a basic lifting plan in accordance with BS7121 – Series(Codes of Practice for Safe Use of Cranes) that will ensure safe Off-loading on site.

Planning for a safe delivery

This will include:

- Ensuring availability of suitable off-loading equipment.
- Ensuring safe access to the site is available.
- Identifying a suitable location for depositing the load.
- Ensuring the availability of appropriately trained personnel to unload the vehicle.
- Provide safe access to the load for the fitting of chains / slings.
- Provide adequate training for personnel who will plan and undertake lifting operations.
- Emergency rescue procedures where necessary i.e. if harnesses are in use.
- Any special requirements with regard to how the cut and bent reinforcement should arrive on site. i.e. bulk bags (Appendix 3), pallets, slings, stillages.

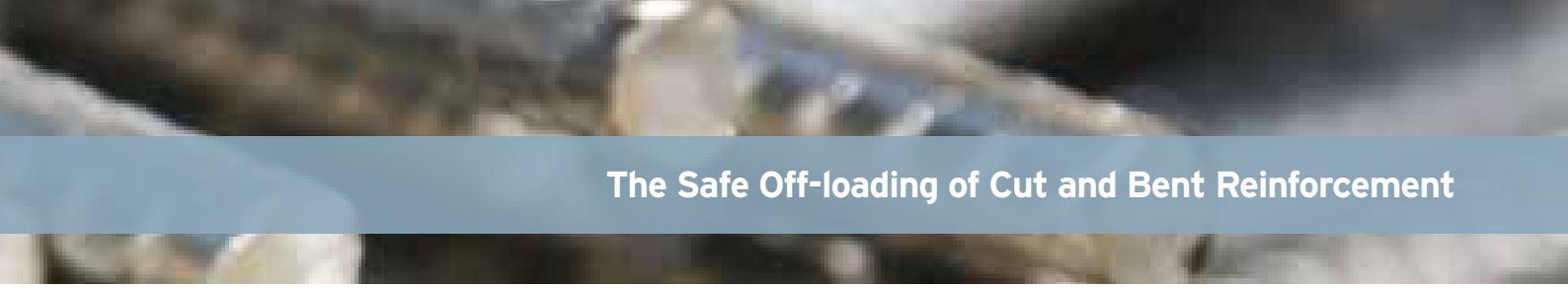
Note – the driver should not be involved in the lifting operations related to the off-loading other than when a lorry loader is to be used or when preparing the load for off-loading e.g. removing the load securing straps. Drivers should then be located in a safe area away from the off-loading operations – in a rest room, a canteen or other specifically designated safe place.

Further Movement

If cut and bent bundles are to be moved around the site after delivery then the customer should note the following advice:-

- Store bundles on dunnage to facilitate the attachment of chains / slings.
- Plan the lifts before moving bundles i.e. risk assessments, correct equipment and personnel.
- Before moving bundles – ensure integrity of bundle in case bundles have been split.

DO NOT USE BUNDLE TIES TO LIFT FULL OR SPLIT BUNDLES.



Recommended safe off-loading procedures

It is the responsibility of the customer to ensure that their method statement for the safe off-loading of cut and bent reinforcement is strictly followed.

The details in the **DELIVERY PLAN** must be communicated to the driver before he / she arrives on site so that he or she is aware of any special delivery instructions given at the time of the order.

Upon arrival

The off-loading operation should only be carried out under the supervision of a site appointed competent person who is aware of the hazards present on site and the necessary precautions to be taken to negate these hazards. This person should be appointed by the customer and be responsible for managing and supervising the off-loading operation – the delivery driver should not be left to make key decisions e.g. where the cut and bent reinforcement is offloaded.

If a situation arises that has not been anticipated in the original delivery plan – this shall be resolved before off-loading commences - if the situation cannot be resolved, it may be necessary to delay delivery until a safe means of off-loading can be provided.

Lone working restriction

- At least one competent site representative must be present on site or the load will not be offloaded.

Site conditions

The area where material is to be offloaded must be suitable for this to be done safely and must be checked by the site competent person and driver before delivery commences:

Hazards to look for include;-

- The suitability of the ground for the vehicle and load stability.
- Obstructions in the off-loading area – parked cars / vehicles / plant.
- Pedestrian movements – authorised / unauthorised.
- Vehicle access- reversing to be avoided where possible **or only undertaken with the assistance of a trained banksman with appropriate vehicle warning systems displayed.**
- Poorly lit off-loading areas.
- Overhead cables / power lines.
- Weather conditions – wind, rain, electrical storms, etc.

Access onto the vehicle

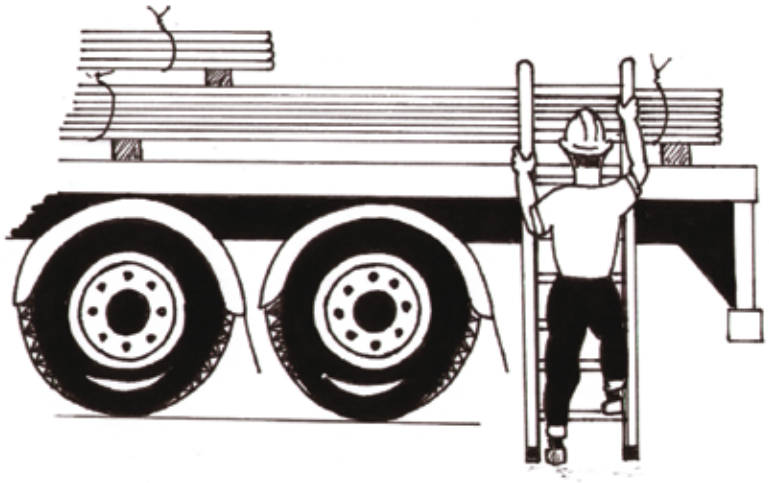
To comply with the requirements of the Work at Height (WAH) Regulations 2005 the following hierarchy must be complied with:

1. Avoid any need to access the vehicle – suggested means are:

- Demountable vehicle beds or cradles.
- Preslinging of some loads – remember that slings will need to be visually inspected prior to the lift to ensure they have not been damaged in transit which may mean there is still a need to access the vehicle bed.
- Increased use of prefabricated steel which can be easily pre-slung or supplied in cradles.

2. If access cannot be avoided then protect the group not the individual.

- Specifically designed edge protection systems that allow for the safe access and egress onto the trailer bed.
- Provide docking stations – a u-shaped platform accommodating the length of the vehicle with suitable access points such as steps or ramps with double handrail and kickboard, which are maintained in good condition. This can be a drive through docking station with a moveable short section, which locks back into position around the trailer.
- Demountable edge protection systems with double handrail and kickboards – these can be fitted on site using clamping systems and proprietary hand railing – again suitable access points must be provided – there are vehicle mounted systems available (see HSG150). The system needs to be height adjustable or may need to have more than the double handrail to accommodate the height of the load above the vehicle bed. The advantage of fitting this on site is that they are not damaged in transit nor do they turn a normal trailer into a wide load.
- Fall arrest systems such as nets or air bags can also be used to protect the group if a fall cannot be prevented then the system will provide a means of preventing impact with the ground. It is important to be aware that injury can still occur using these systems either due to entanglement in the nets or by bouncing off the air bags or the air bags not being properly inflated.



NO ONE SHOULD EVER JUMP ONTO OR OFF A VEHICLE

3. If it is not possible to provide group protection then individual protection systems must be used.
Individual arrest systems usually involve a harness and inertia reel system, which is fixed to a suitable fixing point i.e. the rail of the goal post system.

The inertia reel must operate before the individual hits ground level, which can lead to restricted movement – please refer to the HSE research document on the use of fall arrest systems.

When using any of the above systems consideration must always be given to the weather conditions as the presence of ice or water will make the steel slippery and could contribute to a fall. High winds may make the use of post and rail systems hazardous.

Inspection, suitability and training.

All of the above systems must be inspected by a competent person as required by regulation 8 and schedules 2 to 6 of the Work at Height Regulations 2005. And especially after any exceptional circumstances – high winds or collision.
The equipment must be suitable and fit for purpose taking into account loadings, working environment and the needs of the group and the individuals within the group.

Anyone using any of the systems detailed above must be trained in their safe use and be given adequate information as to the risks associated with their use and the work activity.

Only authorised trained personnel should be allowed access onto the back of a vehicle if there is no other workable alternative.

Think safety

The 'Safe Off-loading of Cut and Bent Reinforcement' booklet describes the methods that may be followed for the safe off-loading of bundles of cut and bent reinforcement.

You should find and follow the method of handling for the equipment that you will be using.

In addition to following your chosen method, continue to observe routine safety precautions for:-

Working at height.

Working with cranes and lifting equipment. i.e.

- Stand clear of the lift.
- Do not lift over people.
- Wear the appropriate PPE.
- Do not exceed the Safe Working Load of your equipment.

Handling steel. Construction site work.

Legislation

Several areas of Health and Safety legislation, Codes of Practice and Guidance Notes are applicable to the problems of Off-loading cut and bent reinforcement including:-

Health and Safety at Work Act 1974.

Section 2 - The provision of safe plant and safe systems of work. Also, information, instruction, training and supervision.

Management of Health and Safety at Work Regulations 1999.

Regulation 3 – Risk assessments.

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

Regulation 4 – The suitability of lifting equipment.
Regulation 8 – The organisation of lifting operations.

Provision and Use of Work Equipment Regulations 1998 (PUWER)

Regulation 2 – 62e – Provision of suitable ancillary equipment e.g. ladders which are maintained in an efficient state of repair (Reg.5-1)

The Work at Height Regulations 2005.

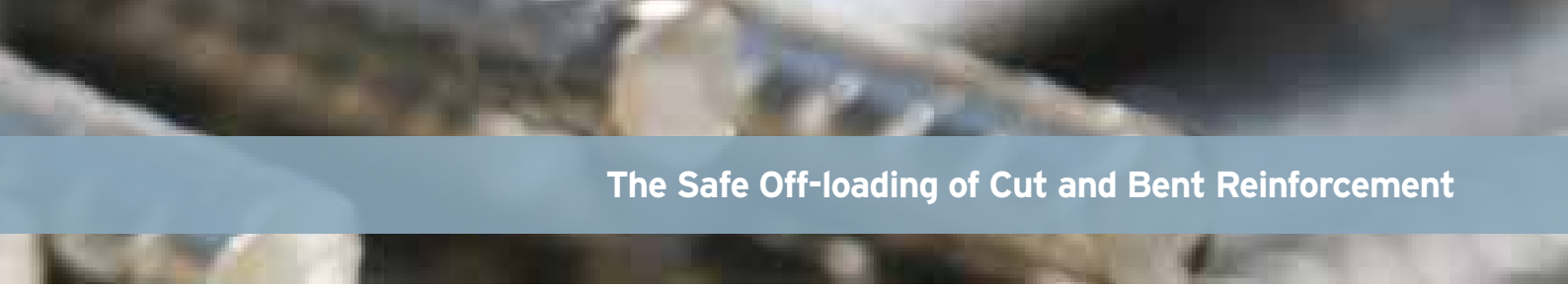
Regulation 3 - These regulations apply where there is a risk of fall liable to cause personal injury.

Health and Safety in Road Haulage – INDG379.

Avoiding falls from vehicles – INDG395.

The Safe Off-loading of Reinforcement Fabric C.O.P.

(All of the above are current at the time of publication)



Appendix 1 – The delivery plan

DELIVERY PLAN

TO ENSURE THAT DELIVERIES CAN BE COMPLETED SAFELY THE FOLLOWING DETAILS MUST BE AGREED BEFORE DELIVERIES COMMENCE

FULL SITE ADDRESS

SITE / CONTACT NAME

TEL NO

NO.	INFORMATION REQUIRED	DETAILS
1.	What lifting equipment is available on site – cranes, chains, forklifts etc.	
2	Capacity of lifting equipment available on site – maximum bundle size / tonnage.	
3.	Access / egress / height restrictions – maximum size of vehicle – are artics acceptable – overhead cables etc.	
4.	Will vehicles have to reverse onto site or whilst onsite – availability of banks men?	
5.	Unloading on site – area suitable for vehicles to off-load – means of access – W.A.H.R.- loading platform etc.	
6.	Delivery times – earliest, latest - are there any prohibited times?	
7.	Name of persons on site to report to.	
8.	If lorry loader is used – will a competent person be available to help off-load the vehicle safely?	
9.	What safe area is available for drivers to use whilst Off-loading is taking place? **(Drivers are not to remain in cab or standing alongside their vehicles whilst Off-loading is taking place.)**	
10.	Personal protective equipment required by drivers whilst on site – hard hat, hi-viz, safety boots, gloves, safety glasses/goggles etc.	

SPECIAL DELIVERY REQUIREMENT DETAILS

PLEASE SEND COPY OF COMPLETED FORM TO THE RELEVANT DELIVERY DEPOT / DEPOTS.

NAME POSITION DATE

Appendix 2 - Lorry loaders and lifting plans

Vehicle Mounted Cranes (Lorry Loaders)

There are various bodies such as those listed below that provide training courses for vehicle mounted crane operators.

- R.T.I.T.B - ROAD TRANSPORT INDUSTRY TRAINING BOARD
- C.I.T.B - CONSTRUCTION INDUSTRY TRAINING BOARD
- A.L.L.M.I - ASSOCIATION OF LORRY LOADER MANUFACTURERS AND INSTALLERS

All such operators should be capable of completing a job specific lifting plan as detailed below.
LIFTING PLAN: - to be completed before off-loading starts.

Example:

Name of operator.	
Date and time.	
Name and address of site.	
Name of site representative / Banksman.	
Material type to be off-loaded.	
Weight of each bundle.	
Date of test of vehicle mounted crane.	
Test date for chain / sling.	
Weather conditions.	
Ground conditions.	
Obstacles / items to be aware of.	
Overhead cables / power lines.	
Any other comments / observations.	

Appendix 3 - Bulk bags

These provide a safe means of loading a vehicle where there is a mix of small or large links and straights bars. Stillages, which are sometimes requested are unstable when placed on steel bundles and have an increased potential to fall from the vehicle in transit.

If customers require the use of stillages then the following should be considered:

1. A dedicated vehicle carrying only stillages that are loaded directly onto the bed of the lorry / trailer.
2. Stillages held on site and bulk bags placed directly in them for movement around site.

There is some confusion with bulk bags as to their use as they are labelled "single trip" this does not mean they can only be lifted once – this means that they can only be filled and emptied once and when this has been completed they must be disposed of - refer to ICHA International Ltd document on Safe Use of Bulk Bags.

All bulk bags within the European Union are tested to EN ISO 21898 – if they are made outside of the EU then the label will say the bag complies with FIBCA Single Trip so has been tested to the equivalent of EN ISO 21898. Each bag has a safety factor of 5:1. Currently no bag carries a CE Mark though it is anticipated this will change in 2009.

All bags should be lifted off the wagon in accordance with the information shown on the bag label and the handles should never be gathered together.

Before undertaking any lift the bags should be examined by the slinger / signaller to ensure that the integrity of the bag is still intact.

re:view

BAR MEMBERS

BAR members are focused on delivering innovative and cost effective solutions that fully support the demands of quality, customer service, health and safety and sustainability. All BAR members are CARES approved.

Arcelor Mittal Steel Kent Wire
Chatham Dock
Chatham
Kent ME4 4SW
Tel: 01634 830964
Fax: 01634 830967
Email: sales@mswk.co.uk
Web: www.kwil.co.uk

BRC Reinforcement
15 Shottery Brook
Timothy's Bridge Road
Stratford upon Avon
Warwickshire
Tel: 01789 403090
Fax: 01789 403099
Email: enquiries@brc.ltd.uk
Web: www.bre-reinforcement.co.uk

Cannon Steels Ltd
7 Walcot Road
Brimsdown
Enfield
Middlessex
EN3 7NF
Tel: 0208 805 6987
Email: enquries@cannonsteelsltd.co.uk
Web: www.cannonsteelsltd.co.uk

Celsa Steel (UK) Limited
Building 58
East Moors Road
Cardiff CF24 5nn
Tel: 029 2035 1800
Fax: 029 2035 1801
Email: general@celsauk.com
Web: www.celsauk.com

Collins Reinforcements Limited
Unit 5
Dobson Park Industrial Estate
Dobson Park Way
Ince
Wigan WN2 2DY
Tel: 01942 322210
Fax: 01942 820380
Email: Collins@rebar.uk.com

Express Reinforcements Ltd
Eaglebush Works
Milland Road
Neath
Wales SA11 1NJ
Tel: 01639 645555
Fax: 01639 645558
Email: commercial@expressreinforcements.co.uk
Web: www.expressreinforcements.co.uk

Fixing Centre Ltd
Units B&C
Burntcommon
London Road
Send
Woking
Surrey GU23 7LN
Tel: 01483 226420
Fax: 01483 226421
Email: fixingcentre@btconnect.com

HY-TEN Ltd
12 The Green
Richmond
Surrey TW9 1PX
Tel: 020 8940 7578
Fax: 020 8332 1757
Email: admin@hy-ten.co.uk
Web: www.hy-ten.co.uk

Kierbeck Limited
Kierbeck Wharf
River Road
Barking
Essex IG11 0DG
Tel: 0870 428 7677
Fax: 0870 428 7681
Email: info@kierbeck.com
Web: www.kierbeck.com

Lemon Groundwork Supplies
Russel Gardens
Wickford
Essex SS1 8BL
Tel: 01268 571571
Fax: 01268 571555
Email: sales@lemon-gs.co.uk
Web: www.lemon-gs.co.uk

L M Products
Unit 10 Union Road
Oldbury
West Midlands B69 3EX
Tel: 0121 552 8622
Fax: 0121 544 4571
Email: sales@lmproducts.co.uk
Web: www.lmproducts.co.uk

Midland Steel Reinforcement Supplies Ltd
Unit 33
Flemington Industrial Park
Motherwell
Scotland ML1 2NT
Tel: 01698 265959
Fax: 01698 265936
Email: lee@midlandsteeluk.com
Web: www.midlandsteelsupplied.ie

ROE Group
1 Fenlake Business Centre
Fengate
Peterborough
Cambridgeshire PE1 5BQ
Tel: 01733 358821
Fax: 01733 898348
Email: accounts@theroegroup.com
Web: www.theroegroup.com

ROM Limited
Eastern Avenue
Trent Valley
Lichfield
Staffordshire WS13 6RN
Tel: 0870 011 3601
Fax: 01543 421657
Email: sales@rom.co.uk
Web: www.rom.co.uk

RSJ Steels
Lincoln Industrial Park
Sadler Road
Lincoln
Lincolnshire LN6 3RS
Tel: 01522 500400
Fax: 01522 500401
Email: sales@rsj-steels.co.uk
Web: www.rsj-steels.co.uk

Stainless UK Limited
Newhall Road Works
Sheffield S9 2QL
Tel: 0114 244 1444
Fax: 0114 244 1444
Web: stainless-uk-co.uk

Thamesteel Limited
Wellmarsh
Breille Way
Sheerness
Kent ME12 1TH
Tel: 01795 663333
Fax: 01795 580406
Email: enquiries@thamesteel.co.uk
Web: www.thamesteel.co.uk

British Association of Reinforcement
Riverside House,
4 Meadows Business Park
Station Approach
Camberley
Surrey GU17 9AB
www.uk-bar.org

BAR
BRITISH
ASSOCIATION OF
REINFORCEMENT

British Association of Reinforcement
Riverside House, 4 Meadows Business Park, Station Approach, Camberley, Surrey GU17 9AB **www.uk-bar.org**