

## Guide on Manual Handling Risk Management in **Transport and Storage**



## Our vision:

A country where worker safety, health and welfare and the safe management of chemicals are central to successful enterprise



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## INTRODUCTION

This guide gives practical information on actions that can be taken to manage the potential hazard of manual handling in transport and storage. It underlines the importance of taking an in-depth look at current work practices to identify potentially hazardous manual handling and, in consultation with staff, developing improved systems of work which will reduce unsafe manual handling. It is specifically focused on those work activities in transport and storage which involve loading and unloading of materials to and from vehicles. Below are some examples of vehicles used to transport materials:

- **Vans:** Deliveries of materials are typically offloaded from trucks and placed in temporary hold areas in depots for cross docking. Drivers transfer goods and materials into their vans. Typically these are individual items of various sizes and not on pallets. They are transferred to the van by hand [hand balling] or using a hand truck.
- **Rigid Trucks:** Typically used for delivering and collecting goods on pallets or in roll cages. They include, for example, delivery of goods to hospitality sector, retailers, hospitals or storage facilities.
- **Articulated heavy goods vehicles [HGV's]:** Typically used to transport goods on a larger scale. Such as full pallets of goods to large warehouses, storage or distribution centres. Goods are often loaded or unloaded using pallet trucks on a tail lift or by forklift.

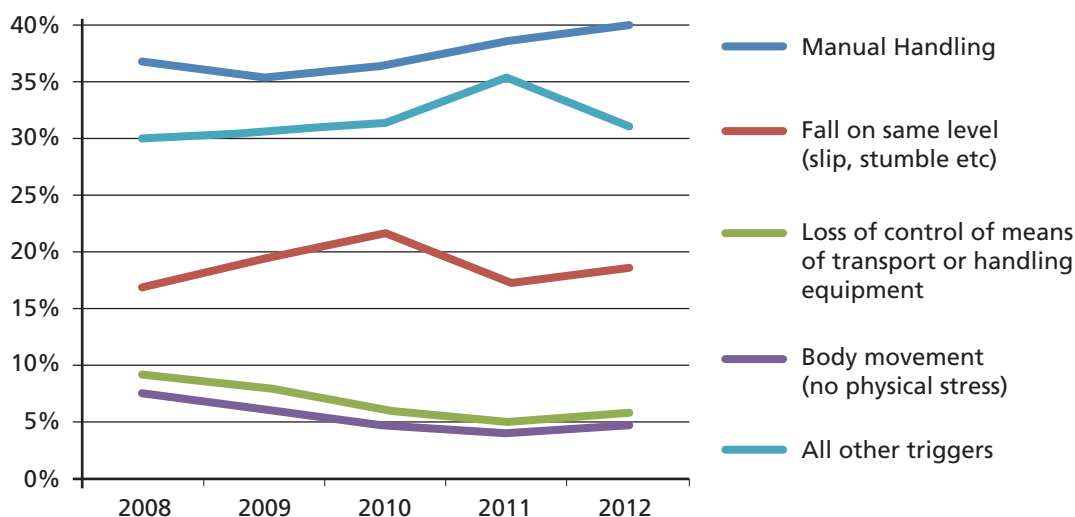
Below is an example of a typical mechanical handling activity, where a pallet is being unloaded from a truck using a tail lift.

The type of vehicles used in transport operations range from small vans to rigid trucks (> 3.5 tonnes) to articulated heavy goods vehicles (>7.5 tonnes).

In 2010 there were 95,800 people working in the transport and storage sector in Ireland (HSA Annual Statistics Report 2011). Recent figures produced by the Health and Safety Authority underline the prevalence of injury in the sector due to ineffective management of the hazard of manual handling. The table below indicates that, in 2012, injuries related to manual handling accounted for 40% of all reported injuries at work in this sector.



### Non-fatal injuries by accident trigger [as percentage of total] reported to the HSA from Transport and Storage Sector



Examples of the issues that contribute to ineffective management of the hazard of manual handling include the lack of safe systems of work for handling of very heavy loads, no labelling of weight information on product, the lack of planning for delivery of loads to clients, the unavailability of handling aids and the lack of instruction and training.

This guide will provide employers involved in transport and logistics with a risk assessment tool to manage the hazard of manual handling in order to prevent manual handling injuries at work and to reduce exposure to business costs associated with manual handling injuries.

The objectives of this guide are:

- To raise awareness of the business case for managing the hazard of manual handling
- To explain why the hazard of manual handling needs to be managed in the workplace
- To help employers understand and recognise what the potential risk factors are in relation to manual handling in their workplace
- To give direction on manual handling risk assessment and how it can be used to highlight potential hazards and create opportunities for developing better ways of working, including use of handling aids, improved housekeeping or better organisation of work processes, resulting in reduced handling of stock and reduced risk of musculoskeletal injury
- To explain the manual handling risk assessment process through illustrated case studies
- To give direction on developing a safe system of work for a manual handling activity

## THE BUSINESS CASE FOR MANAGING MANUAL HANDLING IN THE TRANSPORT AND STORAGE SECTOR

The 2012 Health and Safety Authority figures for non-fatal injuries in the transport and storage sector show that over 40% of all non-fatal injuries were sprain/strain due to physical strain on the musculoskeletal system, resulting from unsafe systems of work for handling loads. Further analysis of this data shows that the total lost work days due to sprain/strain injuries was 11,504 or thirty one lost work years.

According to a report produced by the European Agency for Health and Safety at Work there are some common risk factors that can increase the likelihood of musculoskeletal injury when carrying out manual handling activities in the transport and storage sector. These include:

- Lack of planned systems of work for the handling of heavy loads during the loading and unloading of vehicles, e.g. lack of access within a van when unloading, or poor housekeeping.
- Mechanical handling aids not being made available in the workplace, every delivery vehicle should be supplied with an appropriate handling aid, e.g. a stair climber, sack truck or hand pallet truck
- Lack of planning for delivery of loads which are unwieldy and difficult to handle
- Lack of arrangements with clients to ensure safe delivery of loads on site, e.g. when a driver arrives on site and has to transfer loads over a long distance due to the lack of parking close to the intended delivery point
- Increased worker fatigue due to a number of factors, including longer shifts, more frequent deliveries and poor layout of loads in the vehicle
- Lack of opportunity for dynamic movement during the work shift, i.e. sitting for long periods of time with little opportunity for variation of movement

These risk factors can be addressed. There is an opportunity for employers to develop appropriate solutions in consultation with staff to address these issues, reduce the risk of musculoskeletal injury and reduce the costs to business.

The economic costs of musculoskeletal injury to the transport and storage sector include the following:

- The cost of absence from work: according to data supplied by the Department of Social Protection, the average length of absence for a back injury at work is forty-nine days, or almost 10 weeks, a significant financial burden for a typical transport and storage business.
- The cost of reduced productivity: although this may be more difficult to measure, it is a cost – an injury on-site will result in delays in meeting client requirements which can impact on quality performance and goodwill.
- Cost of accident investigation by the company itself, insurance bodies or statutory agencies such as the Health and Safety Authority.
- The cost of compensation claims, whether through the courts or the Injuries board.



Below are some examples of compensation claims that were awarded to workers in the transport and storage sector due to ineffective management of the hazard of manual handling.

Issue	Outcome
A worker was injured while lifting a heavy mattress up a stairwell	A settlement was made for €27,000
Employee was injured while lifting a trailer into place	A settlement was made for €39,000
Employee injured his back while delivering a fridge	A settlement was made for €31,000

Musculoskeletal injuries in the transport and storage sector are a massive drain on the resources of an employer. They can incur costs such as sick pay and legal and injury benefit, and can lead to lost productivity and the need for retraining, which can be time-consuming and costly. They represent a substantial opportunity for cost reduction, since they can be managed through the implementation of an effective manual handling risk management process

### WHY IS THERE IS A NEED TO MANAGE THE HAZARD OF MANUAL HANDLING IN THE WORKPLACE?

In the transport and storage sector manual handling forms a significant part of work activities.

The work activity may involve lifting very heavy loads or require repetitive bending during a lifting activity. If the hazard of manual handling is not addressed, these activities could result in injuries including disc damage or ligament damage in the back.

The Safety, Health and Welfare at Work (General Application) Regulations 2007 (SI No. 299 of 2007), Chapter 4 of Part 2, outlines the requirements that employers must adhere to in relation to manual handling.



Manual handling is defined in Regulation 68 of the Safety, Health and Welfare at Work (General Application) Regulations 2007:

*Manual Handling involves any transporting or supporting of a load by one or more employees, and includes lifting, putting down, pushing, pulling, carrying or moving a load, **which by reason of its characteristics or unfavourable ergonomic conditions, involves risk, particularly of back injury, to employees.***

The Regulation applies only to those manual handling operations which involve risk of injury to employees. The definition of manual handling clarifies that not all manual handling involves a risk of injury, only handling with particular load characteristics or unfavourable ergonomic conditions. The regulation refers to a schedule of risk factors (see Appendices) which details these load characteristics or unfavourable ergonomic conditions. This schedule is an important reference point when carrying out task-specific manual handling risk assessments.





An example of a load characteristic which would be a potential risk factor would be a large unit weighing 40 kg, which would be too heavy and too large and unwieldy to lift safely.

An example of an unfavourable ergonomic condition would be having to lift heavy loads repeatedly from above shoulder height, as this would not allow the load to be lifted close to the body.



The basic principle of the regulation is that where manual handling activities in the workplace involve a risk of injury (particularly to the back), the employer must take measures to avoid or reduce that risk. In other words, the employer needs to manage the hazard of manual handling through the completion of manual handling risk assessments for relevant work activities and then implement any required improvements.







These improvements may include:

- provision of handling aids
- labelling products with weight information, particularly heavier products (i.e. >15 kg)
- safe storage of loads on vans to allow safe access and to reduce the need for repetitive or awkward handling activities
- reorganisation of a work activity to allow loads to be handled at a safe height
- provision of instruction to workers on how to use handling aids or tail lifts
- development of a maintenance schedule for curtain rails on the side of trucks to allow for improved handling of curtains when preparing to unload a delivery (See illustration above)

The next section of the guide will outline the approach that should be taken in preparation for completion of manual handling risk assessments for relevant work activities so that satisfactory improvements can be agreed and implemented.


## THE MANUAL HANDLING RISK ASSESSMENT PROCESS

In preparation for completing manual handling risk assessments, consultation should take place in order to identify activities where manual handling is a significant part of the work and to get an understanding of the potential risk factors. It should then be possible to prioritise those work activities where manual handling risk assessments will be required. These tasks may include one or more of the following risk factors:


Risk factor (unfavourable ergonomic condition)	Figure	Sector-specific example
Loads have to be lifted in a way that requires repeated manipulation of the load at a distance from the trunk		An employee has to reach to the top of a pallet to lift a heavy load and transfer the load to a pallet being prepared for shipment
Loads have to be lifted in a way that requires repeated bending of the trunk		A courier has to retrieve heavy loads from the back of truck where they are stored at floor level
The load is very large and difficult to grasp		A drum has to be placed on a pallet in preparation for shipment and is lifted manually onto the pallet without the use of an appropriate handling aid
The handling repeatedly takes place at floor level or above shoulder height		Cages are stacked top-heavy with heavy loads which are stored above shoulder height on the cage
The physical effort can only be achieved by a twisting of the trunk		Due to poor storage of materials in a van, there is very little space for movement and lack of good access to obtain materials, resulting in loads being handled in a confined space and necessitating twisting of the trunk
Loads are carried over a long distance and there is poor housekeeping and/or unsafe access at the point of delivery		A courier has to make a delivery to a plant room in a hospital, but there is no safe access and no handling aids are available

Below is a summary of a five-step risk assessment process which can be used to assess individual manual handling tasks. It is a means of looking at work activities in more detail to determine how they are carried out and what type of manual handling is required. Relevant risk factors can then be identified and necessary actions or improvements can be agreed upon.

The risk assessment is explained through an illustrated case study of the work activity of unloading a van during a delivery to a client. A further example of a completed manual handling risk assessment is detailed in the Appendices.

<b>Step 1</b>	Task description	Collect information on how the task is carried out.	<p>The driver has to reach into the back of the van to access a load.</p> <p>There is no allocated storage location for the loads within the van.</p> <p>In some cases the driver has to take out a number of loads in order to get to the load he needs.</p> 
<b>Step 2</b>	Collect technical information	Gather information on the weight of the load, its physical measurements, postures observed during the handling activity, the amount of space available, housekeeping, the duration of the task, the number of handling activities and the employee's knowledge of a task.	<p>The loads vary in weight but there are no labels on the loads to indicate their weights.</p> <p>The driver has to reach into the back of the van to access some of the loads.</p> <p>The driver has to move some loads to get access to the loads required.</p> <p>The driver has no handling aid and has to carry a number of loads to the client's premises.</p> <p>There is no safe access within the van as the loads are not stored appropriately.</p>

<p><b>Step 3</b></p>	<p>Identify the risk factors</p>	<p>Examples of risk factors include:</p> <ul style="list-style-type: none"> <li>• Load is too heavy</li> <li>• Employee is prevented from handling a load at a safe height</li> <li>• Handling is done with the body in an unstable posture</li> </ul> <p>Each risk factor identified must be supported by evidence. A list of risk factors or unfavourable ergonomic conditions and load characteristics is detailed in the Appendices.</p>	<p>There are a number of risk factors in this work activity:</p> <p>Some loads are manipulated at a distance from the trunk when reaching into back of van.</p> <p>The lack of a handling aid means that there is excessive lifting and carrying distance.</p> <p>Due to poor storage of loads in the van there is the possibility of sudden movement of the loads when they are being handled as loads may become dislodged and fall due to poor storage</p>
<p><b>Step 4</b></p>	<p>Identify the improvements to be put in place</p>	<p>This requires consultation with staff and an objective review of the information collected. The improvements put in place should avoid or reduce the risk of injury, and may be a combination of the following:</p> <ul style="list-style-type: none"> <li>• Use of mechanical aids for all or part of the activity</li> <li>• Reorganisation of work area or materials</li> <li>• Development of a safe system of work plan</li> <li>• Communication of improvements to staff</li> </ul>	<p>There may be a number of different ways to address risk factors. Below is a summary of some changes that may be considered:</p> <p>It may be feasible to install racking systems within the van to allow safe storage of heavy loads.</p> <p>Where racking systems are used efforts should be made to store lighter items on the top racks and heavier items on the racking at waist level.</p> <p>Where racking systems cannot be used it is important that the driver plans in advance how he is going to fill the van before leaving his premises. He needs to load the van to allow for a 'last in first out' protocol. He needs to provide access routes within the van and maintain good housekeeping.</p> <p>The driver should be provided with a suitable handling aid which needs to be stored safely when not in use.</p>

			It may be useful to develop a short safe system of work plan (SSWP) to outline the improvements that are put in place and the instructions to be followed in implementing the new system of work. Further information on SSWPs is detailed in the next section of the guide.
<b>Step 5</b>	Review the effectiveness of the improvements	This could involve simple checks or supervision to ensure that appropriate handling aids are being used. Risk assessment should be seen as a continuous process and regular reviews are important to ensure that procedures are kept up to date and revised if necessary.	Below is an example of changes that may be put in place, including the provision of a handling aid, improved housekeeping and a racking system within the van. 

The solutions in the case study above are not exhaustive, and it may be feasible to develop an alternative solution for the specific needs of the business which does not impact negatively on the health of the staff involved in the handling activity. The handling aid illustrated in the case study is an example of the type of handling equipment available on the market. Many handling aids are cost effective, as they provide a solution to a potential manual handling hazard and can improve efficiency and reduce exposure to compensation claims. It is good practice to:

- consult with relevant staff when sourcing equipment,
- provide appropriate training in the safe use of the equipment and
- ensure appropriate maintenance of the equipment.

### SAFE SYSTEM OF WORK PLAN (SSWP)

The outcomes of each manual handling risk assessment are the improvements that have been identified in the risk assessment process. A simple way to communicate the improvements or control measures is to develop a safe system of work plan. The purpose of a SSWP is to give instructions on the new way of carrying out a particular work activity which avoids or reduces manual handling and therefore reduces the risk of injury. An example of a SSWP for the unloading of a van during a delivery to a client is detailed below. All relevant staff should be given instruction and training in the safe system of work plans.



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## SSWP for transfer of goods from van to client premises

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### Title:

This safe system of work plan summarises the instructions to be followed in order to transfer loads from the van to the client's premises

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### Key Requirements:

- Staff have received appropriate training and instruction on how to load the van appropriately prior to delivery.
  - A racking system has been put in place in the van.
  - Loads are assigned to locations to ensure, where possible, that lighter products are stored at higher levels and heavier loads are stored on the racking at waist height.
  - A pre-delivery risk assessment has been carried out in conjunction with the client to ensure that the driver has safe access when he arrives on site. (Refer to the Appendices for an example of a pre-delivery risk assessment template.)
- 

### Instructions:

- The driver parks the van in a safe location when he arrives on-site.
- The driver retrieves the handling aid and places it on the ground outside the van.
- The driver steps into the van using the handle provided for support, picks up the load and places it near the back door of the van where it can be easily accessed while standing at ground level outside the vehicle.
- The driver steps out of the van and then lifts the load and transfers it to the handling aid.
- The driver then transfers the load to the client's goods inwards area using the handling aid provided.

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**July 2013**

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## Conclusion

Manual handling is a core part of work activities carried out by those who work in transport and storage, particularly those who are involved in the loading and unloading of materials into and out of vehicles. In some situations manual handling can be a potential hazard and these activities need to be examined and assessed. Through consultation with staff, improvements can be put in place to avoid or reduce the risk of injury due to manual handling.

The manual handling risk assessment process has been outlined in this guide: it is a five-step process which directs the person who conducts the assessment to collect the relevant information needed to determine whether or not manual handling in a work activity poses a risk of injury. The key outcome of a risk assessment is the agreement on improvements or control measures which will help to avoid or reduce the risk of injury. These improvements can be documented in a Safe System of Work plan (SSWP) and communicated to staff.

The need to give useful information to staff or drivers cannot be understated. Some tips on creating an awareness of the need for drivers to protect themselves from the risk of injury due to manual handling is detailed in the Appendices.



## APPENDIX 1: MANUAL HANDLING RISK ASSESSMENT WORKSHEET (COMPLETED)

### STAGE 1: TASK DESCRIPTION:

#### TRANSFER OF ITEMS TO A PALLET IN PREPARATION FOR SHIPMENT

The employee goes to a pallet full of product and reaches up above shoulder height to access item. He grabs the item and transfers it from the top of pallet to another pallet on ground level. He repeats this a number of times.

### STAGE 2 – COLLECT ALL TECHNICAL DETAILS

- Each item weighs 17 kg
- The pallet is positioned at ground level
- The items on the full pallet are stored above shoulder height
- There is no handling aid available

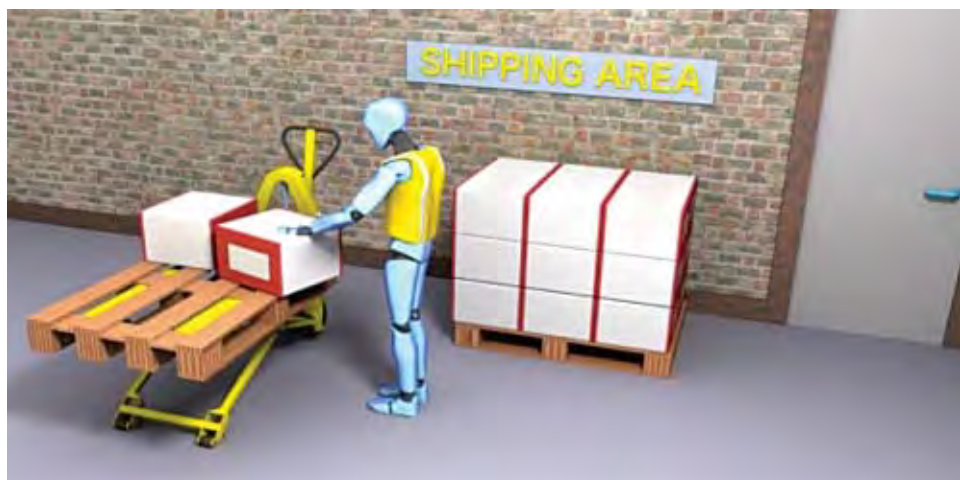
### STAGE 3: IDENTIFY THE RISK FACTORS

- The item at the top of the full pallet is positioned in a manner that requires the employee to manipulate it at a distance from the trunk
- The physical effort of lifting the item from above shoulder height is made with the body in an unstable posture
- The item is too heavy to be lifted above shoulder height
- The location of the pallet on the ground requires the employee to bend or twist the trunk when transferring the item from the full pallet to the pallet on the ground

### STAGE 4: IDENTIFY THE IMPROVEMENTS TO BE PUT IN PLACE

- The pallets should be stacked to a lower height to avoid the handling of items above shoulder height
- A high lift or variable height pallet truck should be used and adjusted to optimum height as the items are being transferred to the pallet
- Employees should be trained in the correct use of the pallet truck, including the benefits of setting the equipment to optimum height

### STAGE 5: REVIEW EFFECTIVENESS OF THE SOLUTION



## APPENDIX 2: MANUAL HANDLING RISK ASSESSMENT WORKSHEET (BLANK)

**Step 1: Task description: how is the task carried out?**



**Step 2: Collect all technical details.**



**Step 3: Identify the risk factors (refer to Schedule 3 in S.I. 299 of 2007):**



**Step 4: Identify the improvements to be put in place.**



**Step 5: Review the effectiveness of the solution.**





## APPENDIX 3: PRE-DELIVERY RISK ASSESSMENT WORKSHEET

### PRE-DELIVERY PREMISES INSPECTION FORM

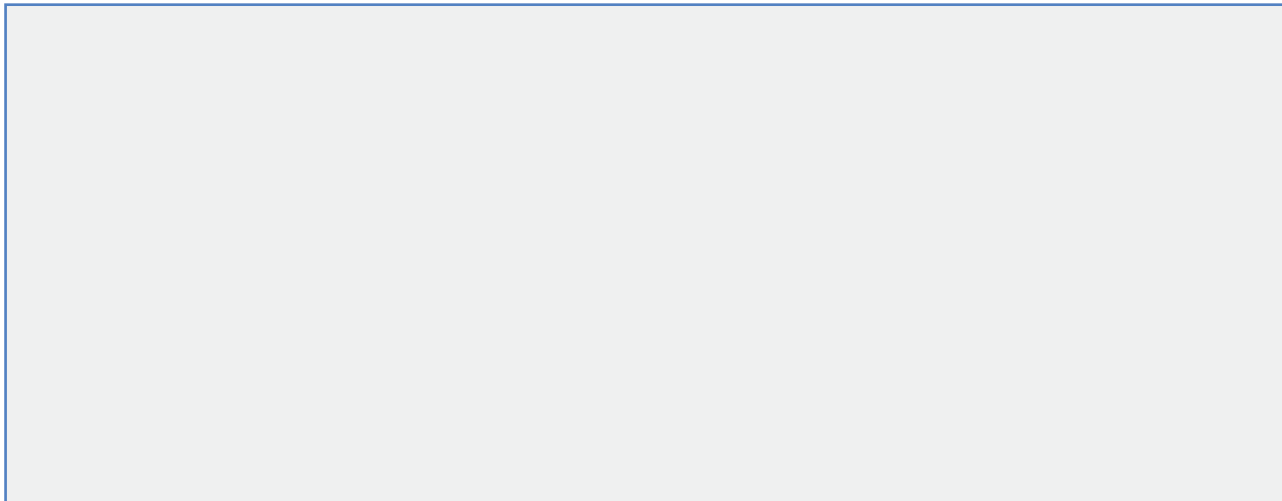
#### General Information

DATE:	
ASSESSMENT COMPLETED BY:	
CLIENT NAME:	
CLIENT PREMISES CONTACT:	
PREMISES OPERATING HOURS:	

#### Description of client's premises (goods inwards area):

#### Description of work activities to be conducted at client's premises:

**Drawing of the area:**



**KEY CHECKS:**

QUESTION	YES	NO	ACTION REQUIRED
Is there a safe location for vehicle to park?			
Is it close to the area where the load has to be dropped off?			
Are there specific rules that need to be followed?			
Is there a safe access route from the parking area to the goods inwards area?			
Does delivery involve climbing steps or stairs?			
Are there any overhead hazards?			
Is the parking area in close proximity to the point of delivery			
Is there an agreed drop-off point for deliveries?			
Is there an agreed time for delivery to be made?			
Is there a need to complete a task-specific manual handling risk assessment for the work activity at this premises			

**Prepared by:**

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## APPENDIX 4: EXAMPLES OF RISK FACTORS FOR MANUAL HANDLING OF GOODS

As part of the five-step manual handling risk assessment process, it will be necessary to identify the risk factors which are relevant to a particular task. This checklist is a useful aide-memoire to identify risk factors as part of the risk assessment process. The information collected can then be used to identify what improvements can be put in place to avoid or reduce manual handling in a task.

RISK FACTORS	YES	NO	COMMENT
Is the load too heavy?			
Is the load too large?			
Is the load unwieldy or difficult to grasp?			
Is the load manipulated at a distance from the trunk?			
Is the load positioned in a manner requiring bending or twisting of the trunk?			
Is the physical effort too strenuous?			
Is the physical effort only achieved by a twisting movement of the trunk?			
Is the physical effort required likely to result in a sudden movement of the load?			
Is the physical effort made with the body in an unstable posture?			
Is there enough room, particularly vertically, to carry out the activity?			
Does the place of work prevent handling of the load at safe height or with good posture?			
Are there variations in the level of the floor?			
Is the floor or footrest unstable?			
Does the activity involve over- frequent or over-prolonged physical effort?			
Are there excessive lifting, lowering or carrying distances?			

Note: The guide titled Management of Manual Handling in the Workplace at [www.hsa.ie](http://www.hsa.ie) gives more detail on the risk factors above.

## APPENDIX 5: SAFETY AND MANUAL HANDLING TIPS FOR DRIVERS

# SAFETY TIPS FOR TRANSPORT DRIVERS



### GENERAL

- ✓ High visibility clothing and safety footwear must be worn.
- ✓ Report to security before entering and leaving any premises.
- ✓ Observe due care while driving on the premises.
- ✓ Use reverse alarm when reversing.
- ✓ Only load and unload in specified areas.
- ✓ Obey all safety signs.
- ✓ Report all accidents and incidents, including spills and leaks.
- ✓ Never obstruct an emergency exit or route.
- ✓ No smoking at any time.



### MANUAL HANDLING

- ✓ Make sure to use handling aids such as a sack truck or hand pallet truck.
- ✓ Plan loading of van e.g. last goods in, first goods out.
- ✓ Make sure good housekeeping within van / truck.
- ✓ Allow for safe access routes during loading and unloading.
- ✓ Only one pallet at a time on tail-lift.
- ✓ Always / where possible stand sideways on the tail-lift.

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