VISION ZERO

Vision Zero in Trade and Goods Logistics

Part 2: Practical Guide to Prevent Fatal and Serious Occupational Accidents

VISION ZERO
Safety.Health.Wellbeing.

developed by issa

Content

Introduction

At the operational level, fatal and serious occupational accidents in trade and goods logistics occur rarely, so most companies fortunately lack concrete operational experience. In order to identify hazards with a high risk potential for fatal and serious injuries at an early stage, companies and the managers responsible therefore need help and support.

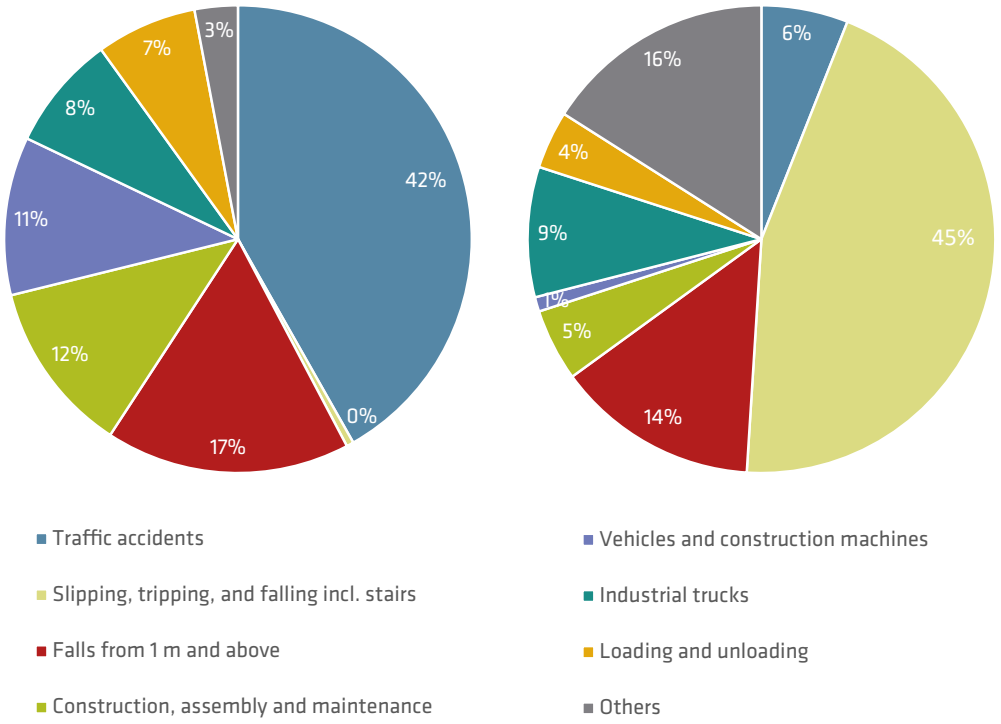
Based on a meta-analysis of accident events from the years 2012 to 2019 of the statutory accident insurance for trade and goods logistics in Germany (*Berufsgenossenschaft Handel und Warenlogistik* – BGHW), reliable data on fatal and serious occupational accidents in these sectors is now available for Germany, and should be used to eliminate critical risks. Since the basic work processes and procedures are largely identical internationally, it can be assumed that the findings and recommendations can also be used in other countries.

In summary, 97 per cent of the fatal occupational accidents and 84 per cent of the serious occupational accidents can be assigned to just seven main areas. These focal points include specific accident scenarios, from which the most significant sources of danger for working conditions can be derived. The seven focal points are summarized in Table 1 and shown graphically in Figure 1.

Table 1. Ratio of fatalities in trade and goods logistics to persons employed in Germany

	Fatal accidents	Serious accidents
Traffic accidents	42%	6%
Slipping, tripping, and falling, including falling down stairs	–	45%
Falls from 1 metre and above	17%	14%
Construction, assembly, maintenance	12%	5%
Vehicles and construction machines	11%	1%
Industrial trucks	8%	9%
Loading and unloading	7%	4%

Figure 1. Distribution of fatal occupational accidents (left pie chart) and serious occupational accidents (right pie chart) in trade and goods logistics



Based on this knowledge and the Seven Golden Rules of Vision Zero, company leaders have a tool at hand to manage the health, safety, and well-being of their employees, and in particular to prevent fatal and severe accidents.

The practical findings on fatal and serious accidents are presented in this publication. As a first step, you can use the questions to check whether you have identified the main hazards in your company. A brief explanation helps to understand the main problems.

In addition, some suggestions are provided for operational training for employees.

We wish you great success!

7 Golden Rules of Vision Zero

	1. Take leadership – Demonstrate committment
	2. Identify hazards – Control Risks
	3. Define targets – Develop Programmes
	4. Ensure a safe and healthy system
	5. Ensure safety and health in machines, equipment and workplaces
	6. Improve qualifications
	7. Invest in people

1 Traffic accidents

Traffic accidents are the most common among fatal and serious accidents, causing 42 per cent of fatal and 6 per cent of serious accidents.

The three main causes for traffic accidents are distraction, tailgating and inappropriate speed. There are various causes that ultimately lead to these accidents.

The following questions and training aids can help to identify and to avoid respective hazards in your company.

1.1. Distraction

It is estimated that one in three traffic accidents is caused by distraction. Anyone who writes or reads text messages while driving increases their accident risk many times over.

Therefore, drivers should refrain from making and taking phone calls while driving, or at least use hands-free devices with a well-functioning voice control system. Furthermore, companies should put in place regulations to ensure that no secondary activities are required and permitted while driving.

Technique	YES	NO
Are hands-free systems used with voice control?	☐	☐
Are emergency brake assists used to automatically bring the vehicle to a halt in case of an emergency?	☐	☐
Are distance control systems used to ensure a sufficient distance to the vehicle in front?	☐	☐
Are warning systems used to warn the driver or automatically bring the vehicle back into the lane if the driver is distracted and moves out of the lane?	☐	☐
Are traffic sign recognition systems used to inform the driver about speed limits or overtaking restrictions?	☐	☐

Organization	YES	NO
Are regulations in place in your company to ensure no secondary activities are to be carried out while driving?	☐	☐
Do you have clear instructions on how to communicate with the driver during his journey?	☐	☐
Is there a policy on using phones while driving?	☐	☐
Do drivers have the opportunity to participate in driver safety trainings?	☐	☐

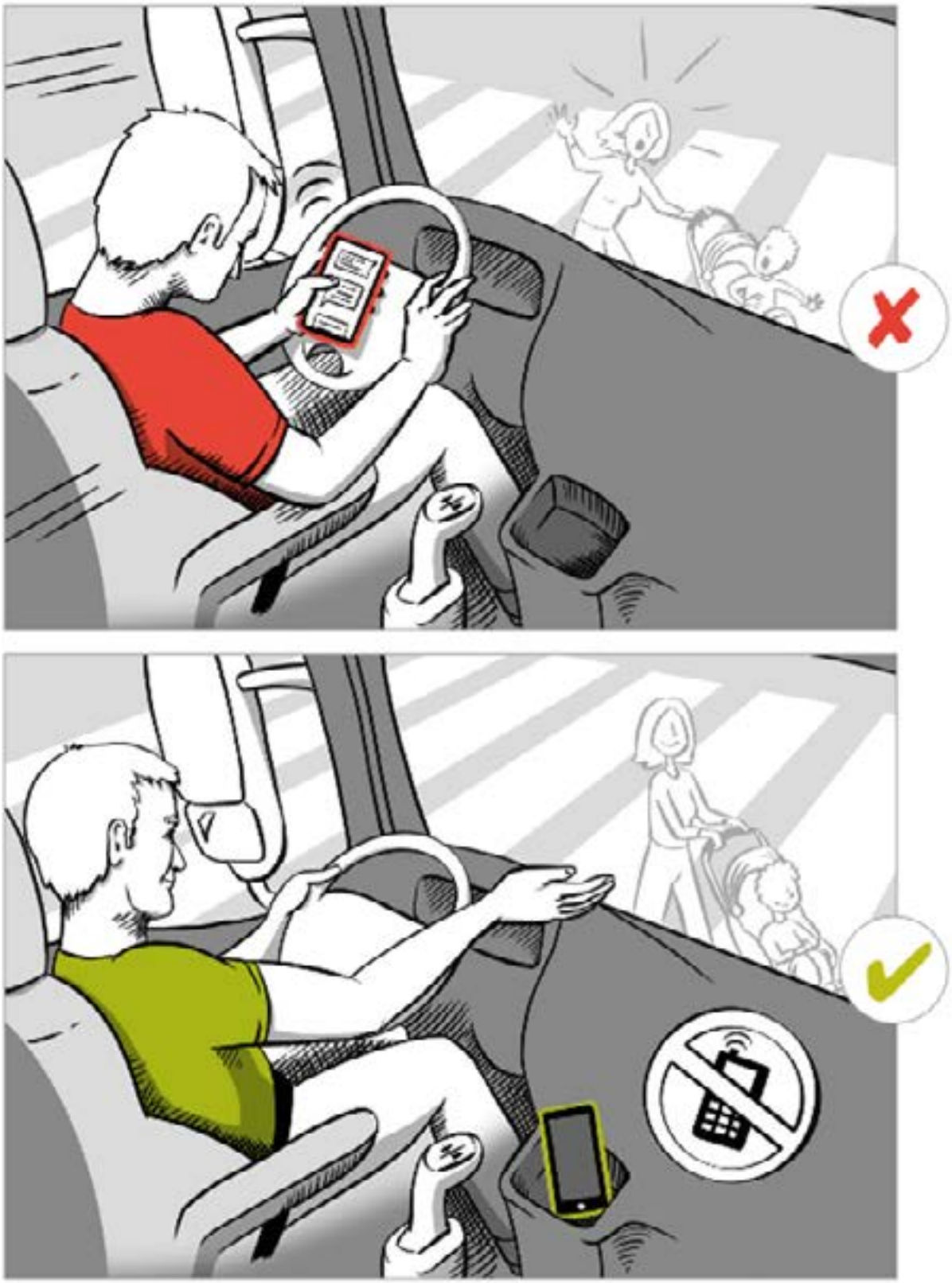
People	YES	NO
Are drivers informed about the dangers of driving, especially about distractions?	☐	☐
Are drivers trained in how to operate the assistance systems?	☐	☐
Have the drivers learned how to use the assistance systems?	☐	☐

Learning from accidents

A 37-year-old electronics store delivery driver was on his way to the next customer. On a country road, he looked at his smart phone to check his new messages. He then went off the road and crashed into a tree. He died from his injuries in hospital two days later, leaving behind a wife and two children, aged 5 and 8.

The investigation revealed that it was common practice at the company to receive new orders or route changes during the route via text message or email and that drivers should pay attention to them.

How is route planning regulated in your company? What do you do to avoid such situations?



1.2. Tailgating

Another key cause of accidents is tailgating. Therefore, distance control systems, lane keeping assist systems, collision warning systems and emergency brake assist systems can help to prevent such accidents. They warn the drivers or take over the vehicle and automatically initiate full breaking.

Furthermore, route planning must be designed in such a way that the drivers have sufficient time to complete their tasks. Time pressure leads to risky driving. This has to be taken into account when planning routes.

Technique	YES	NO
Are distance control systems used to ensure a sufficient distance to the vehicle in front?	☐	☐
Are emergency brake assists used to automatically bring the vehicle to a halt in case of an emergency?	☐	☐
Are warning systems used to warn the driver or automatically bring the vehicle back into the lane if the driver is distracted and moves out of the lane?	☐	☐
Are traffic sign recognition systems used to inform the driver about speed limits or overtaking restrictions?	☐	☐

Organization	YES	NO
Is the route planning realistic?	☐	☐
Do drivers have enough time to complete their tasks during normal working hours?	☐	☐
Do drivers have the opportunity to participate in driver safety trainings?	☐	☐
Is there a policy on using phones while driving?	☐	☐

People	YES	NO
Are drivers informed about the dangers of driving, especially about tailgating?	☐	☐
Are drivers trained in how to operate the assistance systems?	☐	☐
Have the drivers learned how to use the assistance systems?	☐	☐

Learning from accidents

In the afternoon, a 45-year-old grocery store delivery driver delivered goods to customers that had been ordered that morning. At the entrance to the town, he crashed into the vehicle in front when it braked. The employee suffered serious injuries to his legs in this accident and spent several weeks in hospital.

Due to the severity of his injuries, he was unable to resume his work in the delivery department.

During the investigation, colleagues told the police that it was common practice at the company to accept more orders than could be delivered during normal working hours. Unpaid overtime was common practice.

How is route planning regulated in your company? What do you do to avoid such situations?

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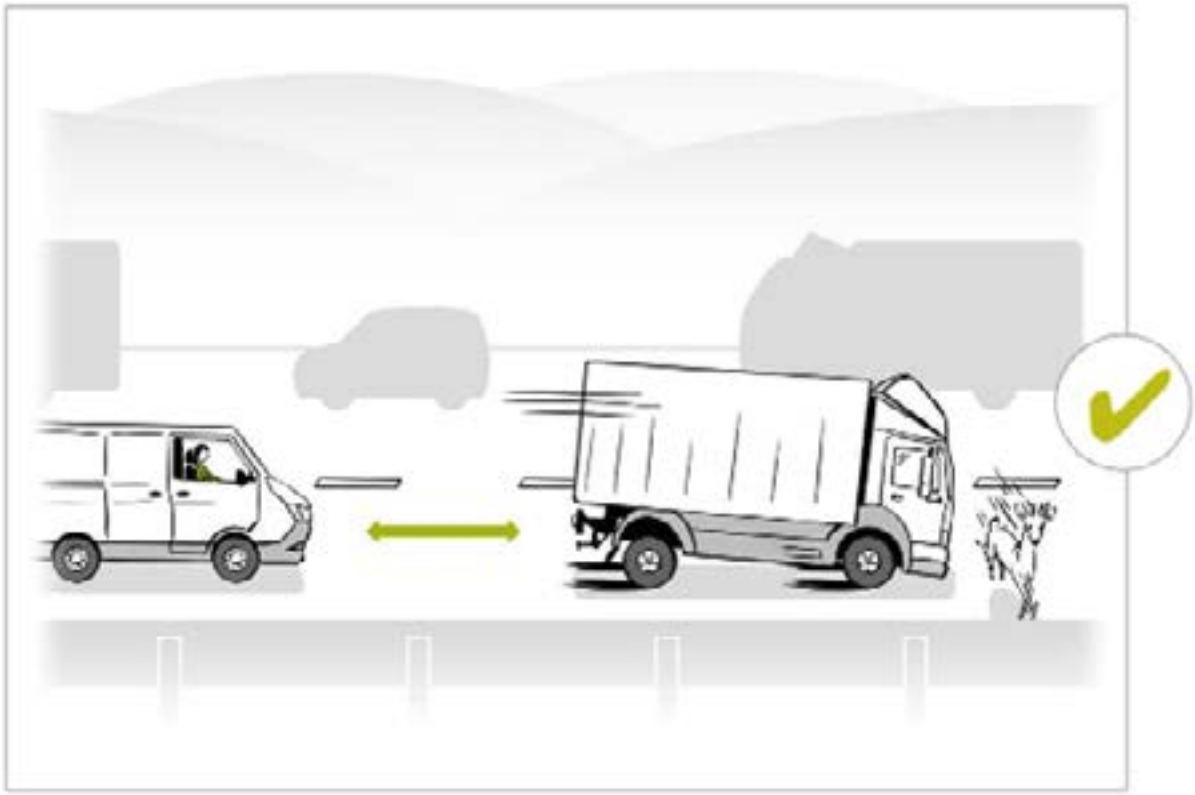

1.3. Inappropriate speed

Inappropriate speed is another cause of fatal and serious traffic accidents. Therefore, distance control, lane keeping assist, collision warning and emergency brake assist systems can help to prevent such accidents. They warn the drivers or automatically take over the vehicle and initiate full braking.

Furthermore, the routes must be planned in such a way that the drivers have sufficient time to complete their tasks. Time pressure leads to risky driving, and especially to driving at increased speed. This has to be taken into account when planning the routes.

Technique	YES	NO
Are distance control systems used to ensure a sufficient distance to the vehicle in front?	☐	☐
Are emergency brake assists used to automatically bring the vehicle to a halt in case of an emergency?	☐	☐
Are warning systems used to warn the driver or automatically bring the vehicle back into the lane if the driver is distracted and moves out of the lane?	☐	☐
Are traffic sign recognition systems used to inform the driver about speed limits or overtaking restrictions?	☐	☐

Organization	YES	NO
Is the route planning realistic?	☐	☐
Do drivers have enough time to complete their tasks during normal working hours?	☐	☐
Do drivers have the opportunity to participate in driver safety trainings?	☐	☐
Is there a policy on using phones while driving?	☐	☐

People	YES	NO
Are drivers informed about the dangers of driving, especially about the dangers of inappropriate speed?	☐	☐
Are drivers instructed on how to operate the assistance systems?	☐	☐
Have the drivers learned how to use the assistance systems?	☐	☐

Learning from accidents

On Friday afternoon, a 39-year-old delivery driver drove goods to customers who had ordered them online during the week. For the evening, he had tickets for a football match that he wanted to attend with friends. Due to excessive speed, he went off the road into a ditch and overturned. He died at the scene of the accident.

Colleagues told the police that the manager expected all customers to receive their goods on Friday. Due to the increasing order volume and traffic, the goods could often only be delivered late in the evening. Unpaid overtime was common practice.

How is route planning regulated in your company? What do you do to avoid such situations?

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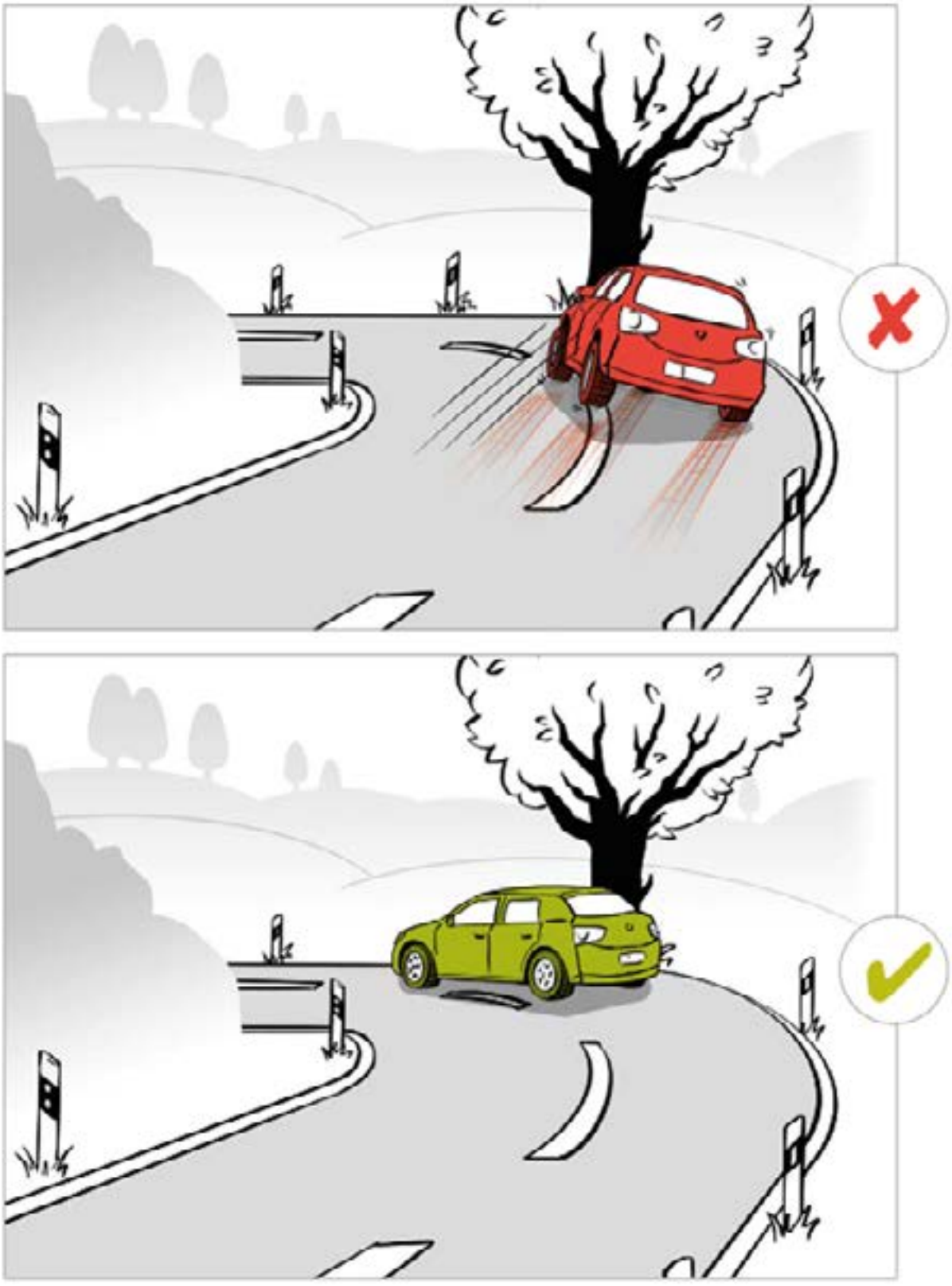

2 Slipping, tripping, and falling, including falling down stairs

Serious accidents are dominated by slipping, tripping, and falling. These accidents are responsible for 45 per cent of serious accidents and are based on:

- falls on traffic routes and flat surfaces, mostly caused by slipping, tripping, and false steps;
- falls on stairs and from a height of less than 1 metre.

A significant proportion of slip, trip and fall accidents are caused by objects lying around and by polluted floors. Keeping traffic routes and movement areas clear and clean is helpful to avoid such accidents.
Another risk is being distracted by looking at the smart phone, especially while climbing or descending stairs.

Following questions and training aids may help to identify and to avoid respective hazards in your company.

2.1. Falls due to objects lying around

Technique	YES	NO
Are the traffic routes and sidewalks clean, tidy, and free from holes or issues?	☐	☐
Are the stairs equipped with handrails?	☐	☐

Organization	YES	NO
Are regulations in place to ensure objects lying around are cleared away?	☐	☐
Are regulations in place to ensure holes and issues are repaired?	☐	☐
Are regulations in place to ensure floors are cleaned regularly, especially if oils, grease or similar substances are used?	☐	☐
Are stairs freely accessible or are goods or other things placed on them?	☐	☐

People	YES	NO
Is it clearly communicated that everybody can and should inform the foreman or a person in charge about objects lying around?	☐	☐
Are employees informed about the risks of falls and the main causes?	☐	☐

Learning from accidents

An employee of a food wholesaler walked from his picker to the shelf to pick goods. In the process, he got caught on a strap lying on the floor and fell. His left leg and ankle were broken. He stayed in hospital for several weeks.

The injuries and permanent damage were so severe that he had to give up his job as a picker

How is cleaning organized in your company? What do you do to avoid such situations?

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2.2. Falls due to contaminated floors

Technique	YES	NO
Are the traffic routes and sidewalks clean, tidy, and free from holes or issues?	☐	☐
Are the stairs equipped with handrails?	☐	☐

Organization	YES	NO
Are regulations in place to ensure holes and issues are repaired?	☐	☐
Are regulations in place to ensure floors are cleaned regularly, especially if oils, grease or similar substances are used?	☐	☐

People	YES	NO
Is it clearly communicated that everybody can and should inform the foreman or a person in charge about contaminated or wet floors?	☐	☐
Are employees informed about the risks of falls and the main causes?	☐	☐

Learning from accidents

An employee of a building materials store slipped on an oil stain in the warehouse. He fell on the back of his head and suffered a severe traumatic brain injury. Because of this he was hospitalized for more than two months.

Due to the resulting permanent physical and mental restrictions, he was unable to resume his work after his stay in hospital.

Incidentally, the oil stain was caused by a defective oil canister and had been there and identified for days. However, no one was

assigned to clean up the oil stain. The store manager also noticed the oil stain but ignored the situation.

How is cleaning organized in your company? What do you do to avoid such situations?

2.3. Falls due to distraction

Technique	YES	NO
Are the traffic routes and sidewalks clean, tidy, and free from holes or issues?	☐	☐
Are the stairs equipped with handrails?	☐	☐

Organization	YES	NO
Are regulations in place to ensure that objects lying around are cleared away?	☐	☐
Are regulations in place to ensure holes and issues are repaired?	☐	☐
Are regulations in place to ensure floors are cleaned regularly, especially if oils, grease or similar substances are used?	☐	☐
Are stairs freely accessible or are goods or other things placed on them?	☐	☐

People	YES	NO
Is it clearly communicated that while walking, especially on stairs, smart phones must not be used?	☐	☐
Is it clearly communicated that everybody can and should inform the foreman or a person in charge about objects lying around?	☐	☐
Are employees informed about the risks of falls and the main causes?	☐	☐

Learning from accidents

On her way to lunch, an employee read messages on her smart phone. She fell down the stairs, twisted her lower leg and suffered a broken leg. The fracture was very complicated and she had to stay in hospital for several weeks.

Before the accident, she used to play volleyball several times a week in her spare time. Due to the severity of the consequences of the accident, this was no longer possible.

What do you do to avoid such situations? Are the employees informed about the described risks?

3 Falls from one metre and above

Falls from ladders, higher workplaces and roofs are common in trade and goods logistics, resulting in about 17 per cent of fatal and 14 per cent of serious accidents.

Accident statistics show that one third of all fatal falls occur from ladders. The causes of accidents are always the same: employees slip off rungs or steps, or they fall because the ladder tips over or slips away. A ladder is a dangerous piece of work equipment, yet nevertheless, is often underestimated.

Employees who carry out installation, maintenance or inspection work on roofs are also exposed to a high risk of falling. In this case, there is a risk of falling through the roof, especially when stepping on non-load-bearing components such as asbestos cement panels, skylight domes, arcade rooflights or light panels. The comparatively high number of such accidents shows that many employers, managers, and also employees are apparently not sufficiently aware of this danger.

The following questions and training aids may help to identify and to avoid respective hazards in your company.

3.1. Falling from ladders

Technique	YES	NO
Can working platforms or other technical equipment be used instead of ladders?	☐	☐
Are the ladders in use suitable for the work?	☐	☐
Are the ladders in good condition?	☐	☐

Organization	YES	NO
Is there an employee in charge of periodic ladder inspections?	☐	☐
Are the ladders checked for visible damage prior to use?	☐	☐
Are regulations in place to ensure that no work is carried out on a ladder that requires the employee to bend to the side?	☐	☐

People	YES	NO
Are employees trained in how to position the ladder correctly (at 60–70 degrees)?	☐	☐
Are employees informed about the risks of using ladders and about the option of using other options, such as working platforms?	☐	☐
Are employees informed about the risks of falls from ladders and the main causes?	☐	☐

Learning from accidents

A retail employee handled goods on a higher shelf at a height of around 4 metres. To do this, he leaned an extension ladder against the shelf and climbed up. While he was working at height, the ladder slipped away. The employee fell and suffered fatal head injuries.

The accident was caused by a defective plastic foot on the ladder, plus the setting angle was too small.

The employees explained to the police that they had not previously been informed about the correct use and specific risks of ladders. Nobody was in charge of looking after the ladders and of checking their functionality.

What do you do to avoid such situations? Do you have organized, periodic ladder inspections? Are employees informed about the described risks and the correct behaviour?

3.2. Falling from roofs

Technique	YES	NO
Can working platforms be used for roof work so that the roof does not have to be walked on?	☐	☐
Are there safe traffic routes on the roof, for example walkways with side protection on both sides?	☐	☐
Are light panels covered with walkable, load-bearing elements, such as wooden planks and wooden panels?	☐	☐
Are light panels equipped with drop nets?	☐	☐

Organization	YES	NO
Prior to walking on a roof, does someone check whether it has sufficient load-bearing capacity and is walkable?	☐	☐
Are fall protection systems organized and available?	☐	☐

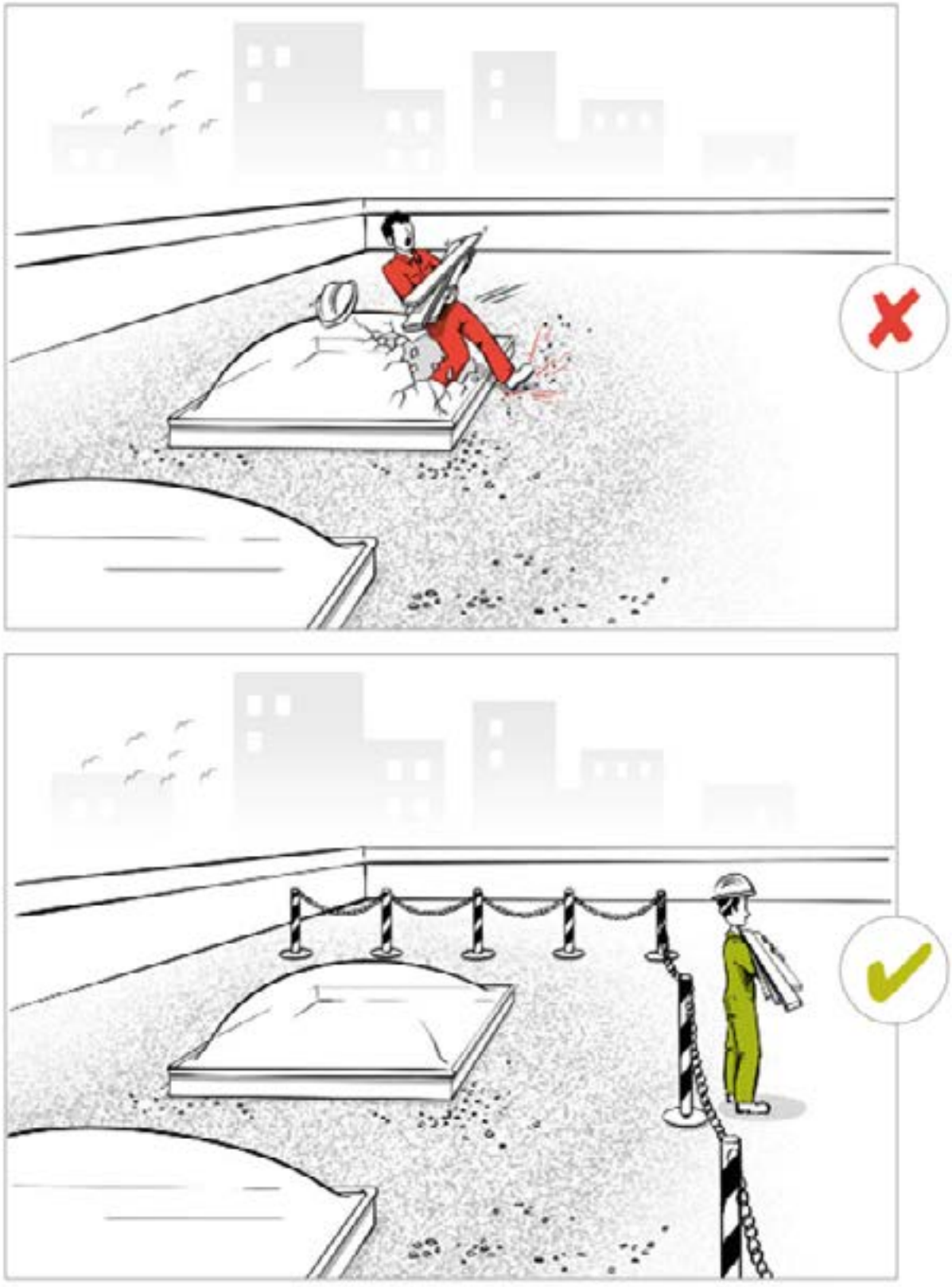
People	YES	NO
Are employees informed about the correct behaviour when working on roofs?	☐	☐
Are employees informed about the option of using other equipment, such as platforms?	☐	☐
Are employees informed about the risks of falls from roofs and the main causes?	☐	☐
If fall protection systems are available, are employees trained in how to use these systems correctly?	☐	☐

Learning from accidents

The employee of a trading company for photovoltaic systems had the task of cleaning a photovoltaic system on the flat roof of an animal feed storage hall together with a colleague.

While his colleague on the ground was busy with preparations, he climbed onto the roof without any fall protection measures to start the cleaning equipment. In doing so, he stepped on an unsupportable light panel. The panel broke under his weight, and he fell almost 9 metres. The accident was fatal.

What do you do to avoid such situations? Are employees informed about the described risks and the correct behaviour?



4 Industrial trucks

Industrial trucks are widely used in trade and goods logistics. About 8 per cent of fatal accidents and 9 per cent of serious accidents occur while using industrial trucks.

In many cases, forklifts tipping sideways result in serious and fatal injuries to the operators. In most cases, the operator attempts to exit the tipping vehicle and is crushed by the overhead guard or mast. The comparatively high number of such accidents shows that many employers, managers, and also employees are apparently not sufficiently aware of this danger.

Collisions with people are also common accidents when operating industrial trucks. Due to the mast and load, forklift operators have limited visibility when driving forward. When reversing, the rearward view is severely restricted by their own limited mobility when turning on the seat. About two-thirds of accidents occur while reversing.

Every year, fatal accidents occur while lifting people with forklifts. In almost all cases, no suitable working platform was used, but a substitute in the form of a mesh box, a pallet or something similar. This substitute does not attach to the forks and is prone to slipping while in motion, causing workers to fall and suffer serious or fatal accidents.

The following questions and training aids may help to identify and to avoid respective hazards in your company.

4.1. Tipping over

Technique	YES	NO
Is the speed of the industrial trucks limited?	☐	☐
Are forklifts equipped with driver assistance systems that prevent unstable driving situations?	☐	☐
Are forklifts equipped with a bracket system or a full cab so that the operator can remain on the forklift in the event of it tipping over?	☐	☐
Are traffic routes for pedestrians and forklifts separated as much as possible?	☐	☐

Organization	YES	NO
Are there organized training courses for forklift operators?	☐	☐
Are forklift operators trained prior to working with the forklift?	☐	☐
Are forklift operators regularly instructed and trained in how to use the restraint systems (lap belt, bracket system and cab door)?	☐	☐

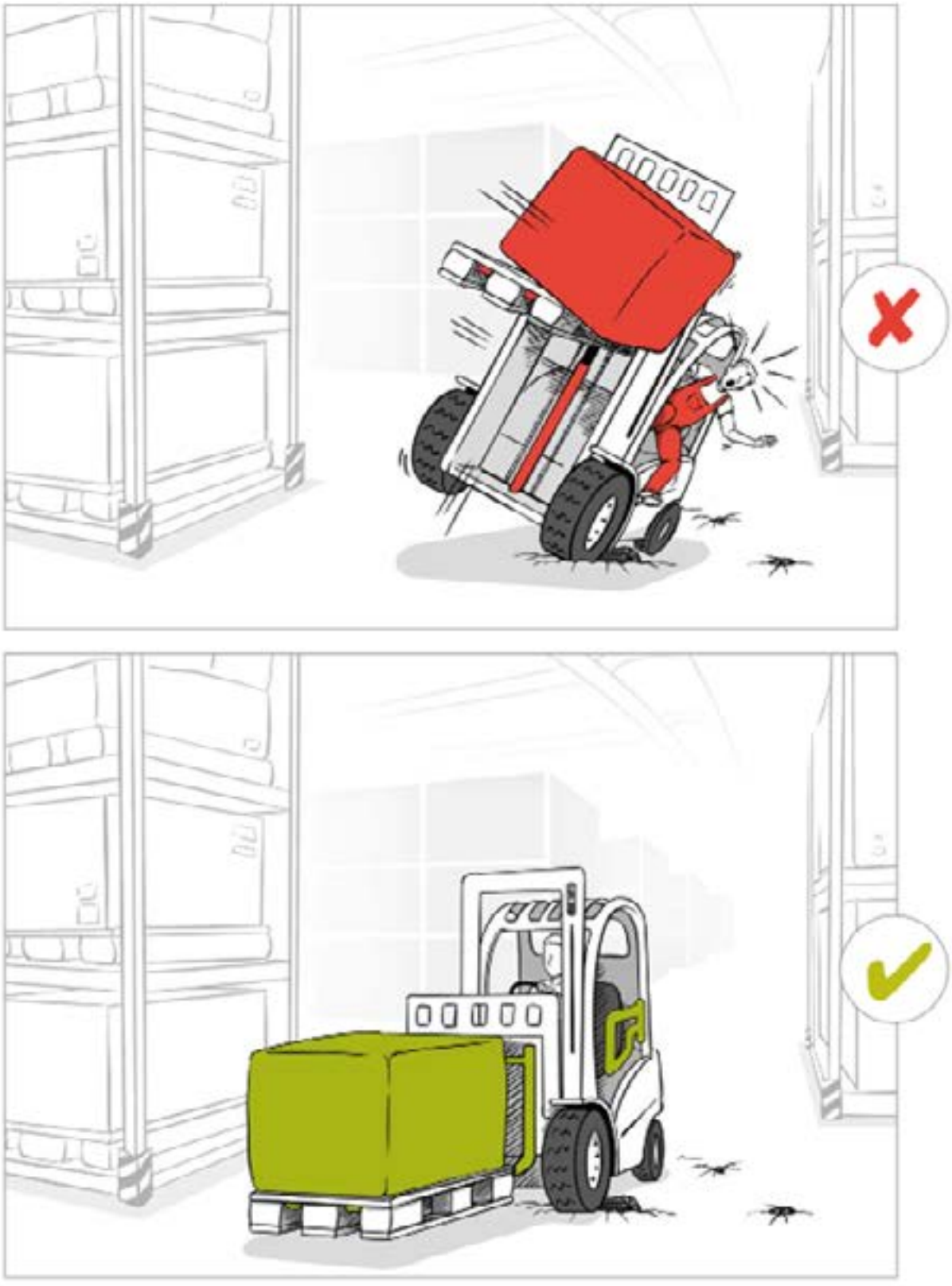
People	YES	NO
Are all employees informed about the dangers of forklift traffic?	☐	☐
Are all forklift drivers informed about the danger of forklifts tipping over?	☐	☐
Do the foremen regularly check on the correct use of restraint systems?	☐	☐

Learning from accidents

A 51-year-old forklift driver removes a pallet from an upper shelf and drives away with the load lifted. In the next bend, the forklift tips over. The driver was not using the safety belt and instinctively jumped off the tipping forklift. He was so seriously injured by the tipping forklift that he died in hospital.

Colleagues said that before this accident no one used the safety belts because they had to get on and off the forklift many times a day. The employer and the foremen were aware of the situation but neither commented nor introduced other systems to prevent such accidents.

What do you do to prevent such accidents? Are employees informed about the risks? Do you check on the behaviour of employees?



4.2. Colliding with pedestrians

Technique	YES	NO
Is the speed of the industrial trucks limited?	☐	☐
Are forklifts equipped with camera and monitor systems that provide a good view of the operator in the driving direction?	☐	☐
Are forklifts equipped with systems such as “blue spots” so that they are recognized early by other employees?	☐	☐
Are traffic routes for pedestrians and forklifts separated as much as possible?	☐	☐

Organization	YES	NO
Are there organized training courses for forklift operators?	☐	☐
Are forklift operators trained prior to working with the forklift?	☐	☐

People	YES	NO
Are all employees informed about the dangers of forklift traffic?	☐	☐
Are the forklift operators informed about correct behaviour when reversing?	☐	☐
Do the foremen regularly check on the correct behaviour of drivers and other employees?	☐	☐

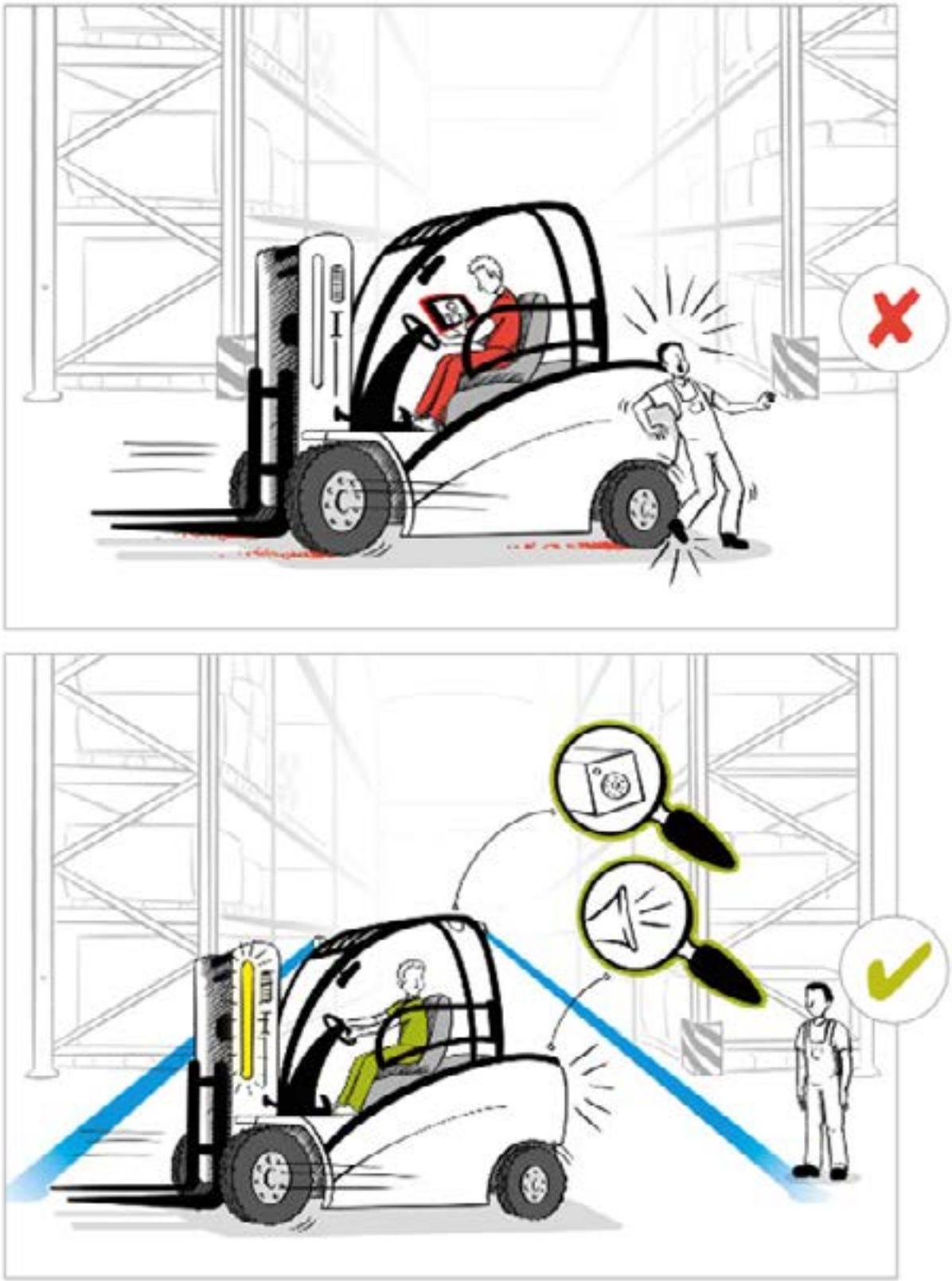
Learning from accidents

To change a light fixture, an employee on a pallet was lifted 5 meters with a forklift. While changing the light fixture, the employee lost his balance, the pallet tilted and fell to the ground along with the employee. The employee died on the scene A 35-year-old employee was overlooked by a forklift operator while crossing an internal traffic route. The pedestrian who was hit was looking at his smart

phone and the forklift operator backed up without looking. The pedestrian was injured so severely that he lost a leg.

Colleagues told the labour inspector that employees crossed the internal traffic route many times a day on their way from the office to a meeting room. There was no separation between forklift traffic and pedestrians. The foremen and the employer were well aware of this situation. Such an accident could have been predicted.

Does your company have such areas where pedestrians have to cross traffic routes? What do you do to prevent such accidents?



4.3. Lifting people

Technique	YES	NO
Can separate working platforms be used for working at height?	☐	☐
Are working platforms for forklifts available in the company?	☐	☐

Organization	YES	NO
Are there organized training courses for forklift operators?	☐	☐
Are forklift operators trained prior to working with the forklift?	☐	☐
Are forklift operators regularly instructed and trained in how to use the working platforms?	☐	☐
Are there company-related descriptions for the use of the working platforms on the forklifts and are employees trained accordingly?	☐	☐
Are there operating instructions for using such platforms?	☐	☐
Are the platforms easy and quick to reach and to assemble?	☐	☐

People	YES	NO
Are all employees informed about the dangers of falling from forklifts when lifted?	☐	☐
Are all forklift drivers and employees informed about the use of working platforms?	☐	☐
Do the foremen regularly check on the correct use of working platforms?	☐	☐

Learning from accidents

To change a light fixture, an employee on a pallet was lifted 5 metres with a forklift. While changing the light fixture, the employee lost his balance, and the pallet tilted and fell to the ground along with the employee. The employee died on the scene.

Colleagues said to the police that the use of pallets to lift employees was common practice. Working platforms were available somewhere, but nobody knew exactly where. The foremen informed them on an annual basis to use the platforms, but the use of pallets was also accepted. Neither the foreman nor the employer made a comment when they witnessed employees being lifted on pallets.

Does your company have such areas where pedestrians have to cross traffic routes? What do you do to prevent such accidents?

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5 Construction, assembly, maintenance

These activities arise in many companies and are usually done on the side. They are very heterogeneous, but cause 12 per cent of fatal accidents and 5 per cent of serious accidents. However, it is very difficult to describe specific risks in this type of work.

The following general questions may help to identify and avoid respective hazards in your company.

Technique	YES	NO
Is the machine switched off and secured against being switched on unintentionally?	☐	☐
Are safety devices working properly or are they being manipulated?	☐	☐

Organization	YES	NO
Are there operating instructions available for construction, assembly, or maintenance work?	☐	☐

People	YES	NO
Are employees sufficiently trained and are they aware of the dangers?	☐	☐

Learning from accidents

A locksmith had worked in a recycling company for years and was very familiar with continuous conveyors. She had the task of eliminating faults on a conveyor belt. In the process, her right arm got caught between the deflection pulley and the moving conveyor belt. She was hurt so seriously that she later died as a result of her injuries.

6 Vehicles and construction machines

When vehicles and pedestrians share internal traffic routes, collisions are likely. 11 per cent of fatal accidents and 1 per cent of serious accidents occur in this context. Therefore, safety arrangements are essential.

For example, workers are hit, crushed, or rolled over by trucks, excavators, or loaders, especially while backing up.

Another scenario is that vehicles and equipment move by themselves because they have not been secured against rolling away, and they roll over or crush employees.

Hydraulically lifted vehicle and construction machine parts lower quickly or abruptly, and often seriously or fatally injure the workers.

The following questions and training aids may help to identify and avoid respective hazards in your company.

6.1. Reversing truck

Technique	YES	NO
Are internal traffic routes for pedestrians and vehicles separated by clearly visible markings or physical separation?	☐	☐
Are reversing cameras or optical or acoustic warning signals used on vehicles and construction machinery when reversing?	☐	☐
Are transponders used for visual or audible warnings should minimum distances between machines and people not be maintained?	☐	☐

Organization	YES	NO
Are regulations in place to ensure pedestrians wear reflective clothing?	☐	☐
Are regulations in place to involve a banksman in case of insufficient rear view?	☐	☐

People	YES	NO
Are employees informed about the dangers of internal traffic routes?	☐	☐
Are employees informed about how to avoid hazardous situations?	☐	☐
Are employees informed about the traffic regulations on your company premises?	☐	☐

Learning from accidents

A 59-year-old employee was ordered to clean the floor in front of the ramps after some goods had fallen off a ramp a few minutes before. During the cleaning work, a truck backed up to the unloading bay. The employee did not hear the truck due to loud noises from a construction site nearby. The truck hit the employee and crushed him to death on the ramp.

Other employees told the police that critical situations were common in the ramp area. Reversing trucks were never assisted by banksmen. Employees often had to jump out of the way. The foremen and the employer merely urged them to be careful. Other preventive measures were considered to be too expensive and impractical.

What do you do to prevent such accidents? How do you organize the traffic in the ramp area?

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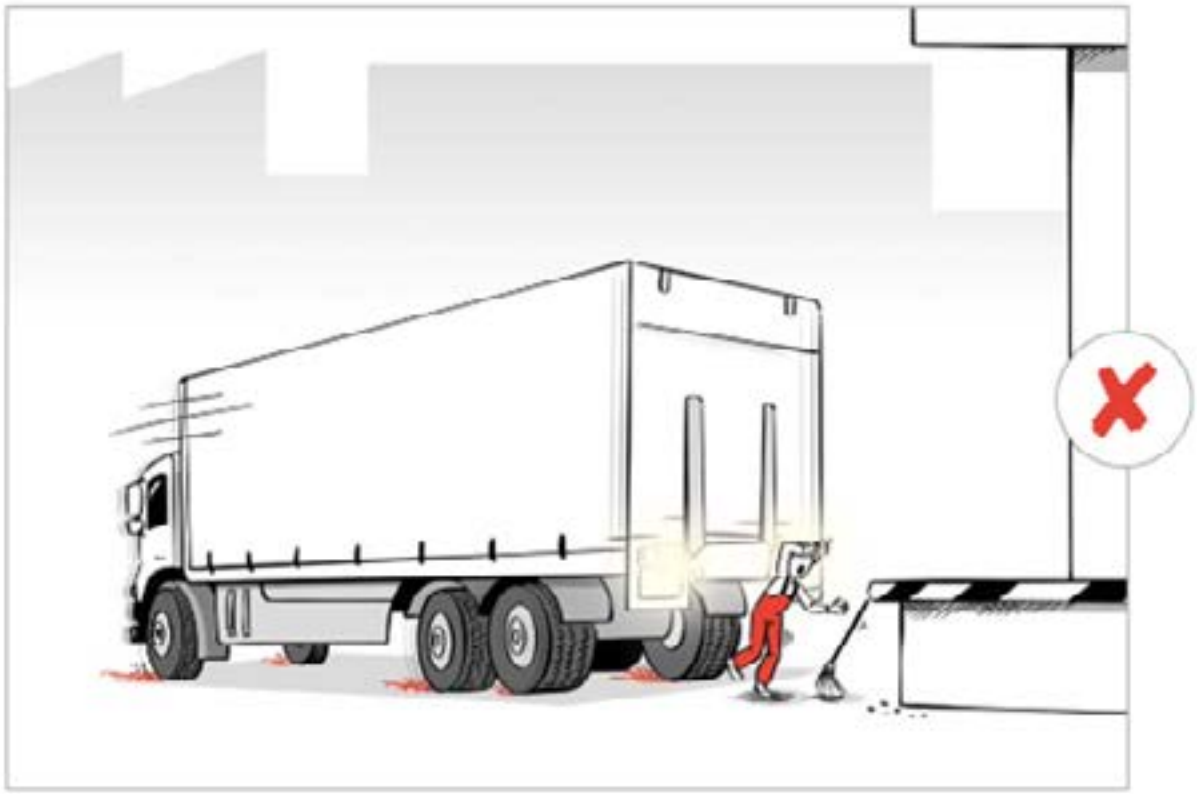
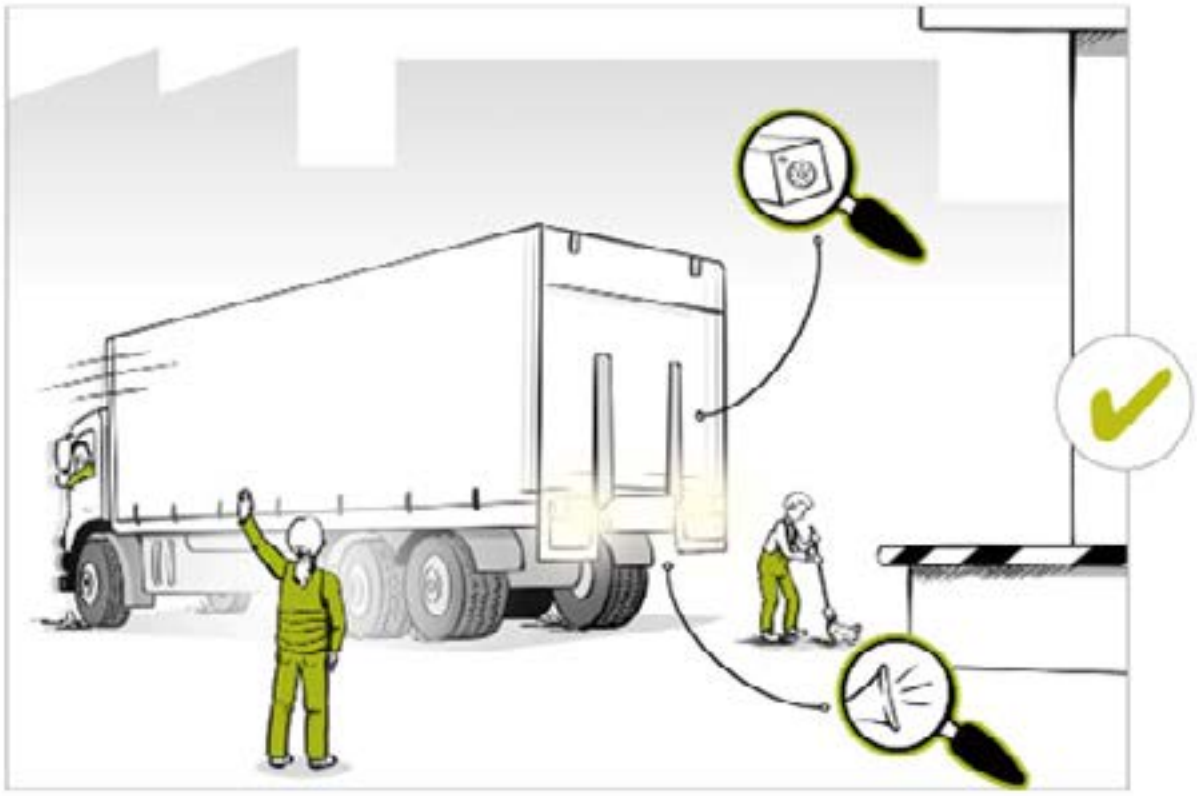




6.2. Rolling vehicles

Technique	YES	NO
Are internal traffic routes for pedestrians and vehicles separated by clearly visible markings or physical separation?	☐	☐
Are transponders used for visual or audible warnings should minimum distances between machines and people not be maintained?	☐	☐
Are the vehicles equipped with automatic parking brakes?	☐	☐

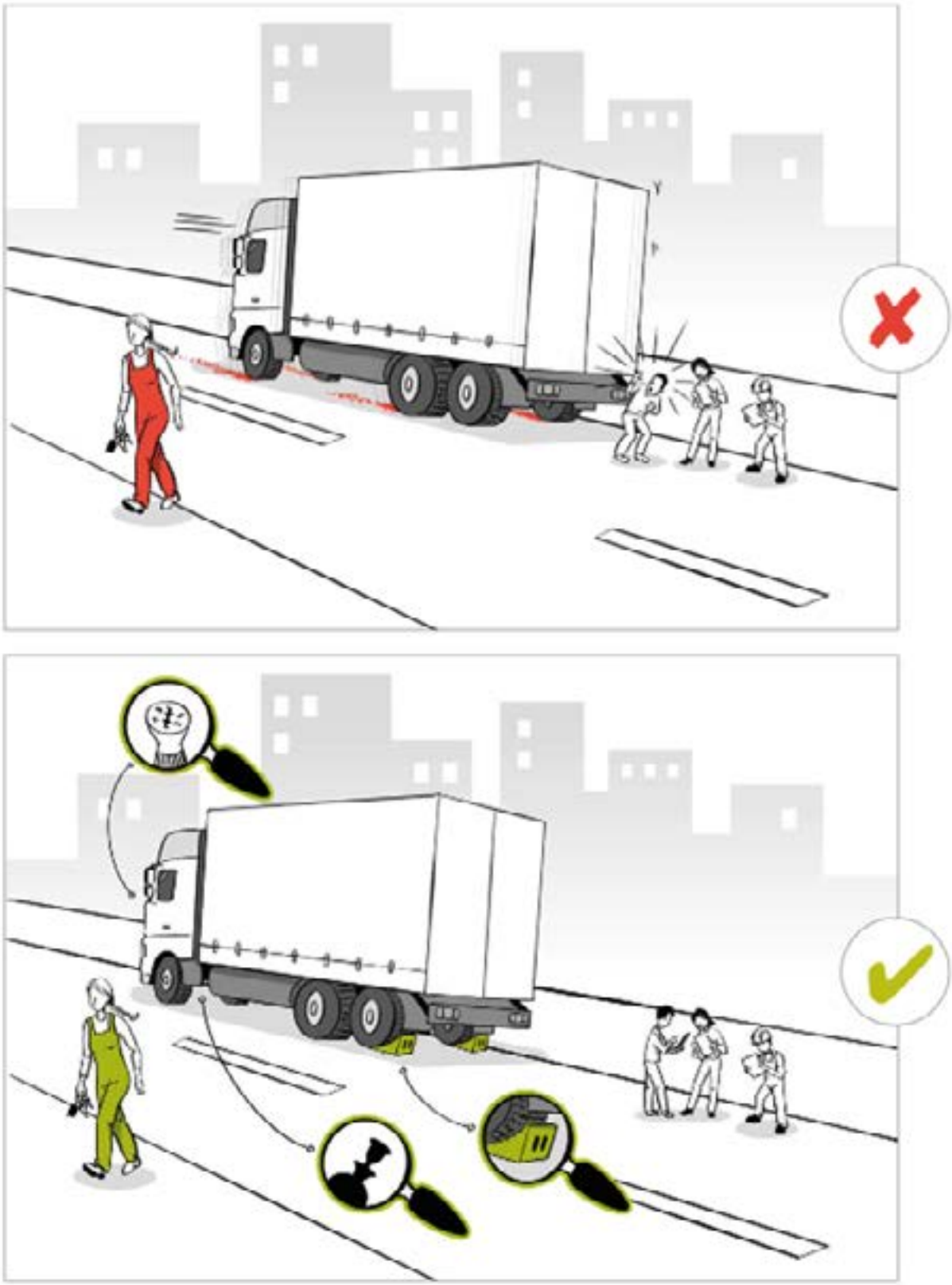
Organization	YES	NO
Are drivers instructed to always apply the parking brake when parking the vehicles?	☐	☐
Are drivers instructed to always use wheel chocks when parking the vehicles on uneven ground, on slopes and before driving forklifts into the loading area?	☐	☐

People	YES	NO
Are employees informed about the dangers of internal traffic routes?	☐	☐
Are employees informed about how to avoid hazardous situations?	☐	☐
Are employees informed about the traffic regulations on your company premises?	☐	☐

Learning from accidents

A food delivery driver was on the road with his truck. He stopped and got out in front of a bottleneck that he could not navigate easily. He wanted to talk to the truck driver who had caused the bottleneck. As he passed between the two trucks, his truck began to roll forward on the slightly sloping road. The driver was trapped between the vehicles and fatally injured. He had not applied the parking brake before getting out of his truck.

What do you do to prevent such accidents?



6.3. Uncontrolled lowering of vehicle parts

Technique	YES	NO
Are lifted vehicles or their parts secured against unintentional lowering prior to repair and maintenance work, for example by means of suitable supports, trestles or hoists?	☐	☐

Organization	YES	NO
Are employees trained periodically to secure vehicles or their parts against unintentional lowering prior to repair and maintenance work?	☐	☐
Are there operating instructions available for such work?	☐	☐

People	YES	NO
Are employees informed about the special hazards and safety measures prior to working under lifted vehicles or vehicle parts?	☐	☐

Learning from accidents

An employee of a recycling company replaced the grease lines on his roll-off dump truck and topped up the hydraulic oil but did not bleed the hydraulic system afterwards. After completing this work, he heard a faint hissing sound coming from a presumably leaking compressed air line. He then climbed onto the vehicle's tilt frame to locate the air leak. Suddenly, the hydraulically raised pick-up device for the roll-off containers dropped, hitting and fatally injuring the employee.

What do you do to prevent such accidents? How do you organize the maintenance work?

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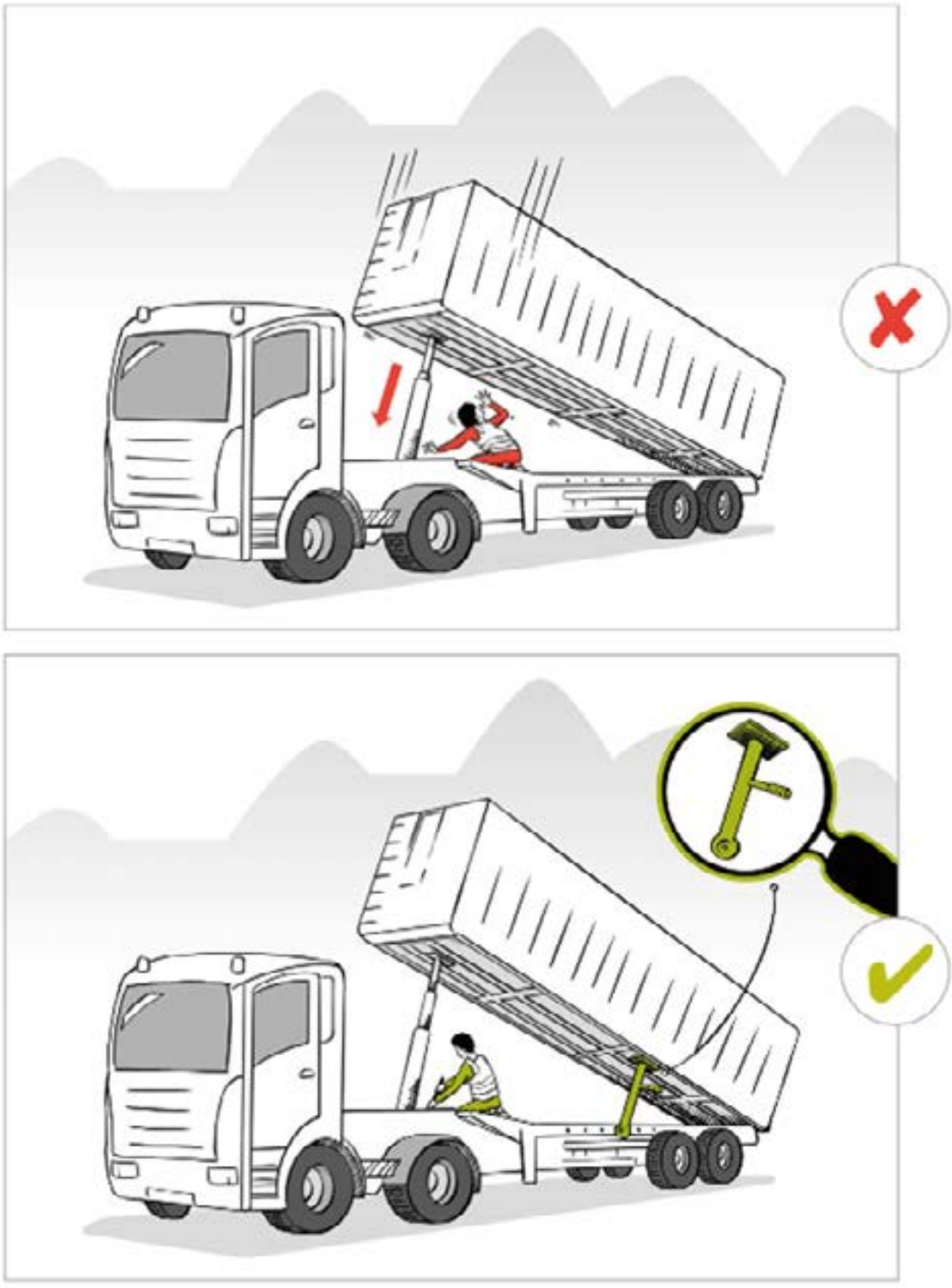

7 Loading and unloading

The loading and unloading process, for example for vehicles or racks, is omnipresent in trade and goods logistics, and responsible for 7 per cent of fatal accidents and 4 per cent of serious accidents.

For the loading and unloading of machine parts with hoists, information on weight, centres of gravity and attachment points is often missing. Due to the lack of attachment points, planks and rods are often used to move and transport machine parts. If the machine's centre of gravity is not centric, the planks or rods will be misaligned during lifting, the lifting straps will slip and the goods will fall.

When unloading on uneven ground, loads with a high centre of gravity or goods that are stacked high can fall down after the release of tension belts and other lashing devices.

When loading and unloading trucks employees often have to climb onto the loading area to secure the load with lashing straps or to remove the load securing device. This can cause them to fall off the load or the truck bed.

The following questions and training aids may help to identify and avoid respective hazards in your company.

7.1. Incorrect lashing of loads

Technique	YES	NO
Can the goods be transported in other ways, for example on pallets, racks, or other transport containers?	☐	☐
Is it ensured that goods are secured prior to releasing the tension belts, for example by a crane?	☐	☐

Organization	YES	NO
Are the attachment points clearly defined?	☐	☐
Are suitable slings available?	☐	☐
Are regulations in place to ensure employees are not allowed to stay in the danger zone?	☐	☐
Are employees sufficiently trained and informed about the dangers?	☐	☐
Is personal protective equipment available, such as safety shoes, helmets, etc.?	☐	☐

People	YES	NO
Are employees aware of the dangers of loading and unloading?	☐	☐
Are employees informed about and trained in how to use personal protective equipment?	☐	☐

Learning from accidents

The employee of a wholesale company was assigned to unload a machine part from a truck using the overhead crane. After the truck driver had removed the tension belts, the employee prepared the machine part for lashing on the overhead crane. To do this, he stuck two iron rods through the machine part. An overhead crane with two trolleys was used for lifting. Two lifting straps were attached to each crane hook, and the trolleys were set to run synchronously.

During lifting, the employee stood on the loading area directly next to the machine part. Due to the large sling angle and the uneven distribution of mass, a misalignment of the iron bars occurred, causing the lifting straps to slip off the bars during lifting. The machine part fell down and buried the employee underneath.

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What do you do to prevent such accidents? How do you organise such work?

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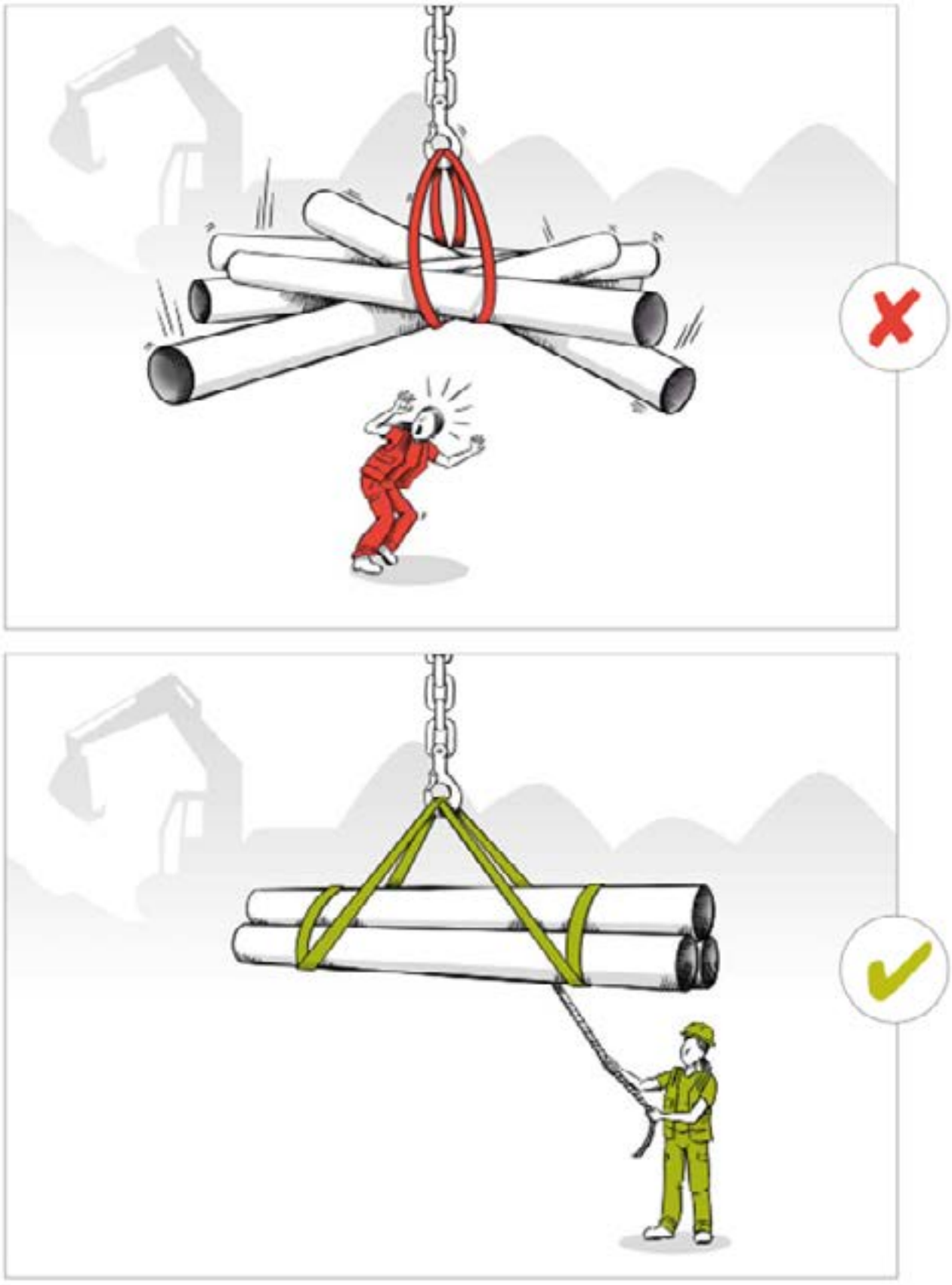


7.2. Uncontrolled movement of the load

Technique	YES	NO
Can the goods be transported in other ways, for example on pallets, racks, or other transport containers?	☐	☐
Can the vehicles be accessed via mobile working platforms?	☐	☐
Are the goods are secured prior to the release of the tension straps, for example by a crane?	☐	☐

Organization	YES	NO
Are the attachment points clearly defined?	☐	☐
Are suitable slings available?	☐	☐
Are employees informed about and trained in handling mobile platforms?	☐	☐
Are regulations in place to ensure employees are not allowed to stay in the danger zone?	☐	☐
Are employees sufficiently trained and aware of the dangers?	☐	☐
Is personal protective equipment available, such as safety shoes, helmets, etc.?	☐	☐

People	YES	NO
Are employees aware of the dangers of loading and unloading?	☐	☐
Are employees trained in how to use the personal protective equipment?	☐	☐
Are employees trained in handling the mobile platforms?	☐	☐

Learning from accidents

Two employees of a logistics company were unloading a truck and were on both sides of the vehicle. The employee on the driver's side released the lashing straps, causing a box placed on the edge to fall uncontrollably from the loading area and onto his colleague on the passenger side. The employee died from his injuries.

What do you do to prevent such accidents? How do you organize such work?

7.3. Falling from the truck

Technique	YES	NO
Can the goods be transported in other ways, for example on pallets, racks, or other transport containers?	☐	☐
Can the vehicles be accessed via mobile working platforms?	☐	☐
Are the goods are secured prior to releasing the tension straps, for example by a crane?	☐	☐

Organization	YES	NO
Are employees informed about and trained in handling mobile platforms?	☐	☐
Are regulations in place to ensure employees are not allowed to stay in the danger zone?	☐	☐
Are employees sufficiently trained and aware of the dangers?	☐	☐
Is personal protective equipment available, such as safety shoes, helmets, etc.?	☐	☐

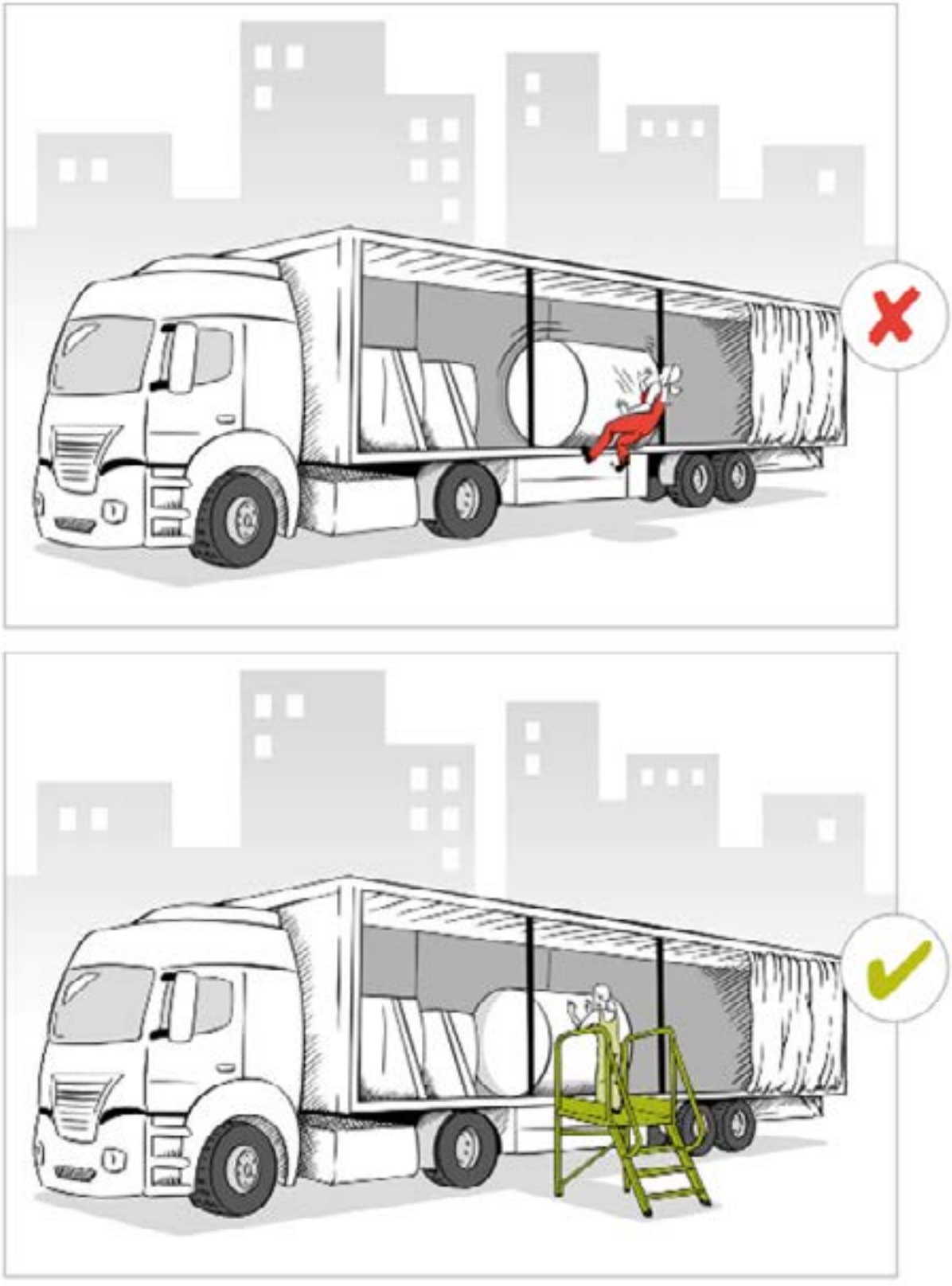
People	YES	NO
Are employees aware of the dangers of loading and unloading?	☐	☐
Are employees trained in how to use the personal protective equipment?	☐	☐
Are employees trained in handling the mobile platforms?	☐	☐

Learning from accidents

Employees of a building materials store had the task of unloading rolls from a semi-trailer. The rolls were secured with retaining straps. An employee started the unloading work and removed the straps. He stood on the trailer next to the rolls, when suddenly one of the rolls moved, and he fell from the trailer.

He suffered multiple fractures and was hospitalized for a several weeks.

What do you do to prevent such accidents? How do you organize such work?



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Version published in 2023.

ISBN 978-92-843-9143-1