HSA

An tÚdarás Sláinte agus Sábháilteachta
Health and Safety Authority

# Code of Practice:
# Safe Use of Industrial Trucks

# Our Vision: Healthy, safe and productive lives and enterprises

# Code of Practice: Safe Use of Industrial Trucks

## Contents

# Foreword

The Health and Safety Authority (the Authority), with the consent of Alan Dillon, Minister of State for Employment, Small Business and Retail, Department of Enterprise, Tourism and Employment, and following a public consultation, publishes this *Code of Practice: Safe Use of Industrial Trucks* in accordance with Section 60 of the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005).

This Code of Practice provides practical guidance as to the observance of the provisions of the Safety, Health and Welfare at Work Act 2005 with regard to the use of industrial trucks in workplaces. It sets out the basic roles and responsibilities of those who have duties in relation to ensuring the safe operation of industrial trucks and the training of industrial truck operators. It supersedes and replaces the 2001 Code of Practice, *Code of Practice: Rider-operated lift trucks*: operator training, published under the Safety, Health and Welfare at Work Act, 1989.

This Code of Practice comes into operation on **12 September 2025.**

Notice of the publication of this Code of Practice was published in *Iris Oifigiúil* on **12 September 2025.**

On the use of codes of practice in criminal proceedings, Section 61 of the Safety, Health and Welfare at Work Act 2005 provides as follows:

**61. (1)** Where in proceedings for an offence under this Act relating to an alleged contravention of any requirement or prohibition imposed by or under a relevant statutory provision being a provision for which a code of practice had been published or approved by the Authority under Section 60 at the time of the alleged contravention, subsection (2) shall have effect with respect to that code of practice in relation to those proceedings.

**(2) (a)** Where a code of practice referred to in subsection (1) appears to the court to give practical guidance as to the observance of the requirement or prohibition alleged to have been contravened, the code of practice shall be admissible in evidence.

**(b)** Where it is proved that any act or omission of the defendant alleged to constitute the contravention—

**(i)** is a failure to observe a code of practice referred to in subsection (1), or

**(ii)** is a compliance with that code of practice, then such failure or compliance is admissible in evidence.

**(3)** A document bearing the seal of the Authority and purporting to be a code of practice or part of a code of practice published or approved of by the Authority under this section shall be admissible as evidence in any proceedings under this Act.

**Dr. Marie Dalton**
**Secretary to the Board**
**Health and Safety Authority**
**12 September 2025**

# 1. Introduction

Industrial trucks are powered mobile plant designed to move goods, materials or equipment. They are equipped with an elevating load carriage and, usually, a load-holding attachment. Forklift trucks are the most commonly used type of industrial lift truck. However, the variety of industrial trucks is continuously increasing and now includes ride-on forklifts, pedestrian-operated trucks, straddle carriers, and reach trucks, as well as several pieces of plant that have been designed and customised to meet individual employer needs.

Industrial trucks are among the most hazardous vehicle types in the workplace, and the dangers associated with their use in the workplace are often underestimated. Employees working with or around them often become complacent because industrial trucks may be quiet, in frequent use and part of the work environment. However, incidents involving industrial trucks are usually serious and often fatal. Industrial trucks are very heavy, even when unloaded, and there is little protection for pedestrians.

In the 10-year period from 2010 to 2019, there were 490 reported work-related deaths in the Republic of Ireland. Of these, 217 (44%) involved vehicles, of which loaders/telehandlers accounted for 20 (9%) and forklifts accounted for 13 (6%).[1]

An analysis of 11,510 fatal and non-fatal incidents that were reported to the Health and Safety Authority between 2013 and 2022 and that involved a vehicle or means of transport or handling equipment shows that 17.64% were associated with mobile handling devices, - handling trucks, barrows, pallet trucks.

The most common types of incidents involving industrial trucks are:

- a person being struck by a moving truck;
- a person being struck by a load falling from a truck;
- overturn of a truck;
- a fall from a height;
- a person/operator being trapped between the mast and overhead guard;
- a fire or explosion during refuelling/ recharging; and
- structural damage caused by industrial trucks to warehouse racking.

Industrial trucks most commonly cause crush injuries to operators or pedestrians moving or working nearby. An adverse incident not involving personal injury may result in costly damage to trucks, structures, fittings and goods, thus having an adverse impact on the employer's business.

[1] Health and Safety Authority (2021) *A Review of Work-Related Deaths Involving Vehicles in Ireland 2010–2019.*

## 1.1 Scope of this Code of Practice

Employers, employees and other duty-holders have obligations under the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) and the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended, and associated Regulations. This Code of Practice is aimed at providing practical guidelines, based on a risk management framework and a Safe System Approach, in order to help duty-holders identify, assess and control the risks specific to the operation of rider-operated industrial trucks.

Its objectives are to:

- Set out the basic roles and responsibilities of those who have duties in relation to ensuring the safe operation of industrial trucks.
- Give practical guidance on how the safe operation of industrial trucks at workplaces can be achieved, in accordance with the various legislative requirements.
- Increase the awareness of the hazards associated with the operation of industrial trucks.
- Help in the assessment of risk arising from the operation of industrial trucks and the identification of appropriate control measures.
- Encourage the consistent application of safe practices.
- Provide a basis on which safety training programmes can be developed and implemented.

For the purposes of this Code of Practice, the definition for industrial trucks from the International Organization for Standardization (ISO) standard, *ISO 5053-1:2020, Industrial trucks — Vocabulary — Part 1: Types of industrial trucks,* is adopted:

> Industrial trucks are wheeled vehicles having at least three wheels with a powered or non-powered driving mechanism — except those running on rails — which are designed either to carry, tow, push, lift, stack or tier in racks any kind of load, and which are controlled either by an operator or by driverless automation.[2]

Descriptions of rider-operated industrial truck types, extracted from this ISO standard, are included in Annex I.

This Code of Practice is intended to be used by the following stakeholders:

- operators of industrial trucks;
- supervisors, managers and those in control of places of work where rider-operated industrial trucks are used;
- organisations providing training for operators of industrial trucks;
- businesses that hire or lease industrial trucks to others;
- safety representatives and trade union representatives; and
- employers assessing competency and training needs when employing industrial truck operators.

You should be familiar with and use this Code of Practice if you own, hire, lease, handle, operate, store, transport, maintain or manage the use of a rider-operated industrial lift truck in the workplace.

[2] International Organization for Standardization (2020) *ISO 5053-1:2020, Industrial trucks — Vocabulary — Part 1: Types of industrial trucks,* p1.


## 1.2 What the law requires

The Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) applies to employers and employees in all employments and to the self-employed. The Act contains provisions for securing and improving the safety, health and welfare of all workers and those who may be affected by work activities. It sets out the requirements for the management of safety and health at work and the systems of work necessary to achieve this. It covers the responsibilities and roles of employers, the self-employed, employees and others.

The general duties of the employer laid down in Section 8 of the Safety, Health and Welfare at Work Act 2005 cover:

- the management and conduct of work activities;
- the design, provision and maintenance of:
    - **(i)** safe workplaces,
    - **(ii)** safe means of access to and egress from the workplace, and
    - **(iii)** safe plant and machinery;
- the provision of safe systems of work;
- the provision of adequate instruction, training and supervision and any necessary information; and
- the preparation of risk assessments and safety statements.

Under the Safety, Health and Welfare at Work Act 2005, a vehicle is a place of work. This means that industrial trucks being used for work must be fit for purpose, maintained in safe condition, and used safely. Employers must make sure that operators are familiar with the industrial truck they are driving and that they have been given appropriate instruction, information and training to use the vehicle in the correct and safe manner, and in accordance with the manufacturer's instructions. Employees should never be required to operate under conditions that are unsafe or that do not comply with the law. Employees also have legal duties to use work equipment in a safe manner in line with procedures developed by their employer.

The Safety, Health and Welfare at Work (General Application) Regulations 2007 apply to all workplaces, and set out more specific provisions relating to the use of work equipment in the workplace.

### 1.2.1 Risk assessment for industrial truck operations

Under Sections 19 and 20 of the Safety, Health and Welfare at Work Act 2005, an employer is required to have a safety statement and a written risk assessment for all hazards in the place of work under the employer's control. The risk assessment should be available for inspection at the workplace while work is being conducted and should be brought to the attention of employees and other persons who may be exposed to the risks in a manner and language that is likely to be understood.

As the use of industrial trucks in the workplace involves serious risk to safety, a risk assessment is required specifically for this activity. An employer shall take all reasonable steps to implement the most recent risk assessment at a place of work and to implement any improvements considered necessary to ensure the safety, health and welfare at work of employees and others who may be affected by the work activity. An employer should review the risk assessment when there are significant changes, such as those referred to in sub-paragraph 2.7.8 of this Code of Practice.

The risk assessment for the use of industrial trucks in the workplace should contain, at a minimum, the following information:

- a description of all work activities that involve the use of industrial trucks;
- a description of all industrial trucks used in the workplace;
- identification of risks associated with these activities;
- identification of additional risks associated with the use of an attachment;
- identification of those who could be harmed and how;
- an assessment of the degree of harm that might occur;
- protective and preventive measures to control the risks;
- arrangements for the selection and training of operators;
- arrangements for the selection, maintenance and certification of industrial trucks;
- arrangements for segregating industrial trucks from pedestrians;
- arrangements for the supervision of industrial truck operations;
- plans and procedures to be taken in the event of an emergency or serious/imminent danger;
- the name and job title of each person responsible for operating industrial trucks at the workplace, the activities they can perform and the specific industrial truck they are authorised to operate;
- the names and job titles of those responsible for the supervision of industrial truck operation; and
- the names and job titles of those responsible for implementing the risk assessment.

### 1.2.2 Accident reporting

Employers and self-employed individuals are required to report certain workplace accidents and dangerous occurrences to the Health and Safety Authority:

- Accidents where an employee or self-employed person is injured at a place of work and cannot perform their normal work for more than 3 consecutive days, not including the day of the accident, are reportable.
- Road traffic accidents involving employees and self-employed individuals are reportable if the person was injured while driving or riding in a vehicle in the course of their work and cannot perform their normal work for more than 3 consecutive days, not including the day of the accident.
- Accidents related to a place of work or a work activity where a member of the public requires treatment from a medical practitioner are reportable.
- Road traffic accidents involving members of the public are only notifiable if they relate to vehicle loads or to the construction or maintenance of roads or structures adjacent to roads.
- In the case of an accident involving an employee at work, the employer is responsible for reporting the accident. If the injured person is self-employed or a member of the public, the person responsible for reporting the accident is the person having control of the place of work at which the accident occurred, including persons providing training (in the case of death or injury of a person receiving training for employment). If a self-employed person is fatally injured, the person who is the owner or tenant in the place of work is responsible for reporting the accident. If the fatally injured person is the tenant or owner of the place of work, the next of kin has responsibility for reporting the accident.

In the event of a road traffic accident where a person is injured, An Garda Síochána should be notified.

## 1.3 The Safe System Approach (in the context of rider-operated industrial truck operations)

The Safe System Approach emphasises the need to focus on all elements of industrial truck operations in order to successfully improve safety. The Safe System Approach recognises that safety education and training alone cannot eliminate adverse incidents in the use of industrial trucks, and focus must also be placed on the safety arrangements and the behaviour of all persons in the workplace.

The four areas of intervention of the Safe System Approach are:

1. **safe operators,**
2. **safe vehicles,**
3. **safe workplaces, and**
4. **safe operations.**

# 2. Safe industrial truck drivers/operators

There is more to operating an industrial truck than just driving it. Some tasks or activities, such as order picking, lifting, loading, unloading, and working with specialist attachments, require additional specialist skills.

Employers must ensure that industrial trucks are only operated by operators who are appropriately trained and competent to operate industrial trucks within a workplace in a safe manner. This includes:

- controlling access to industrial trucks,
- appropriate operator selection and authorisation,
- the provision of instruction, information and training, and
- adequate supervision.

**Under Regulation 51 of the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended, people under 18 years of age are not permitted to operate lifting equipment or give signals to the operator of such equipment.**

The operator of an industrial truck has a legal duty, while at work, to take reasonable care to protect their safety, health and welfare and the safety, health and welfare of any other person who may be affected by their acts or omissions at work. Operators of industrial trucks should operate the vehicles in the manner in which they have been trained. Failure to do so may result in an adverse incident occurring.

## 2.1 Operator selection

Employers **must satisfy** themselves that an operator is **competent** to operate an industrial truck before allowing them to do so, taking account of the work to be done, the loads to be lifted and the work environment. Employers must have a system for assessing the operator's competence and recording this assessment process.

An operator selection and vetting system should be in place in order to check that operators have the relevant knowledge, skills, qualifications and experience to operate an industrial truck. Experience should include experience in a similar role or conducting tasks similar to the intended tasks. There are specific training requirements for counterbalance and reach industrial trucks (see Paragraph 2.8 of this Code of Practice). Independent checks should be carried out in order to verify that the information provided by potential industrial truck operators is valid. Verification checks may include careful review of certificates and other documents as well as reference to licensing authorities, training providers, accreditation bodies, and/or previous employers.

If an employer is in any doubt about the competence of the person they are asking to operate an industrial truck, they should default to a safe approach of providing comprehensive training before the person is asked to operate the truck.

## 2.2 Authorisation of operators

Only authorised operators with the relevant training (see Paragraphs 2.7 and 2.8 of this Code of Practice) should be allowed to drive and operate industrial trucks in the workplace. **Operators should be authorised in writing by the employer**. Authorisation should be specific and limited to those industrial trucks that the operator has been trained to use. Authorisation should also be site specific.

## 2.3 Reliable and responsible operators

Operators must have a mature and responsible attitude towards performing assigned tasks safely and meeting their responsibilities. Supervisory procedures should be in place in order to ensure that operators continue to carry out their tasks in a safe manner. Any deviations from safe industrial truck operation should be addressed and eliminated.

## 2.4 Medical fitness

Medical fitness should be considered for each individual operator. If an employee has a medical condition that may affect their ability to operate a forklift truck or a lift truck safely, an occupational health assessment is recommended. This should be undertaken by an occupational medical practitioner in order to establish if the person is medically fit, unfit, or requires any restrictions.

## 2.5 Medication and intoxication

Managers and supervisors should never allow anyone who is unfit – whether through the use of alcohol, prescribed drugs, or other substances – to operate an industrial truck.

An employee should report to their employer if they are taking medication, either prescribed or over the counter, that may affect their ability to drive an industrial truck and could pose a risk to the safety of any person at work. The employee should inform their employer of this risk, as they may not be permitted to operate the industrial truck while taking the medication and/or while experiencing any side-effects.

While at work, an employee must ensure that they are not under the influence of an intoxicant which could endanger their own safety, health or welfare at work or that of any other person present.

If an employer suspects that an employee is under the influence of an intoxicant at work, they should refer to their Intoxicants at Work policy. An employer must ensure that the workplace Intoxicants at Work policy is reviewed, up to date and communicated to employees who use industrial trucks at the workplace.

## 2.6 Contractor management

Measures should be taken to ensure that industrial truck operators who are contractors carry out their duties responsibly and safely. Procedures are required to ensure that contracted operators are vetted, trained and authorised, and are made aware of rules regarding industrial truck operation on the premises.

## 2.7 Training of operators

Employers have a duty under occupational safety and health legislation to provide training to operators of all types of industrial trucks and the attachments they need for the jobs they do. Under the Safety, Health and Welfare at Work Act 2005, employers are required to provide information, instruction and supervision to employees in a form and language that is likely to be understood by each employee.

This Code of Practice **advises on** the training of industrial truck operators. In order to comply with their duties under the Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (General Application) Regulations 2007, as amended, employers must ensure that all operators they employ (both new and existing) are adequately trained, and they must, when necessary, provide for additional or refresher assessment and training. Supervisors must also receive appropriate training.

Generally, the legislation requires that a person shall not work, nor be required to work, on, at or with any kind of work equipment unless they have been fully instructed as to the dangers arising in connection with that work and the precautions to be observed, and have received sufficient training in using the equipment.

Training should be provided, at a minimum, on:

- recruitment,
- transferring an employee to new tasks,
- the introduction of new work equipment or changes in the system of work, and
- the introduction of new technology.

Training in the use of industrial trucks is particularly important because of the high risk of serious incidents. Specific requirements for the training of operators of certain (traditional) types of industrial trucks, (rider-operated counterbalance and reach industrial trucks), are covered in Paragraph 2.8 of this Code of Practice. However, an equivalent model of training in terms of content and structure, duration, and trainee:instructor:truck ratios should be provided for operators of all types of industrial trucks.

In general, training for any type of industrial truck operator should include information and/or instruction on:

- the reasons for training and the risks associated with industrial truck usage;
- the details of roles and responsibilities;
- vehicle familiarisation training, including the operating principles and controls of the industrial truck;
- the use of any handling attachments to be used in the workplace;
- the specific work to be undertaken at the trainee's own or other workplaces (for example, loading and unloading particular kinds of vehicles, or handling loads and materials of the kind normally found at that workplace, including assessment of weight and loading and unloading onto racking systems);
- the use of the truck in conditions that the operator may routinely meet at work, including gangways, loading bays and platforms, mezzanine areas, racking, lifts, automatic doors, slopes, and rough terrain;
- workplace site rules (for example, site layout, industrial truck operating zones, one-way systems, and speed limits);
- safe work practices and safe systems of work, which should include safekeeping arrangements in order to ensure that keys/electronic fobs are never left in unattended trucks;
- particular hazards, including high-risk work activities such as working near excavations or overhead lines, or use of the truck in bad weather conditions;
- industrial truck stability;
- routine inspection and maintenance in accordance with the manufacturer's handbook;
- pre-use checks;
- the use of operator restraint systems;
- the operators' responsibilities to themselves and others, including taking care of their own health and safety, co-operating with employers, and other legal duties;
- the use of protective clothing, and eye and ear protection;
- the details of how and to whom defects or hazards are to be reported;
- the details of the procedure for reporting accidents and near misses; and
- general emergency procedures.

### 2.7.1 Legislation specific to the training of operators

Section 8 of the Safety, Health and Welfare at Work Act 2005 includes the following provision:

**8(1)** Every employer shall ensure, so far as is reasonably practicable, the safety, health and welfare at work of his or her employees.

The matters to which the duty in Section 8(1) extends include, in particular:

**8(2)(g)** providing the information, instruction, training and supervision necessary to ensure, so far as is reasonably practicable, the safety, health, and welfare at work of his or her employees.

Attention must also be given to the requirements for instruction, training and supervision in Section 10 of the Safety, Health and Welfare at Work Act 2005 and Regulations 28 and 29 of the Safety, Health and Welfare at Work (General Application) Regulations 2007. In particular, Section 10(4) of the Safety, Health and Welfare at Work Act 2005 requires an employer to provide for the release of employees, during working hours, where appropriate, and without loss of remuneration, for the purpose of attending training.

### 2.7.2 General aspects of training

For the purposes of this Code of Practice, an operator is anyone who operates an industrial truck, even as a secondary or occasional part of their job, and is not limited to people specifically designated as industrial truck operators.

Employers are responsible for ensuring that adequate training is provided for their employees. Employers should satisfy themselves that any training given covers all aspects of the work to be undertaken and takes full account of this Code of Practice.

Under occupational safety and health legislation, the employer's duty to provide training extends to operators of all types of industrial trucks. **The advice given in Paragraph 2.8 of this Code of Practice can be used as the benchmark for training to be provided for all types of industrial truck operators.** This can be of help not only to employers, but also to organisations offering training for industrial truck operators and instructors, as well as to industrial truck suppliers.

Safety representatives selected or appointed in accordance with Section 25 of the Safety, Health and Welfare at Work Act 2005 may be consulted about the training arrangements for industrial truck operators. If there are no appointed safety representatives, employers will need to consult with all their employees, either through a safety committee or directly, in accordance with Sections 25 or 26 of the Safety, Health and Welfare at Work Act 2005. Safety representatives and employees can play an important role in encouraging the safe operation of industrial trucks.

Employees also have responsibilities regarding training. Section 13 of the Safety, Health and Welfare at Work Act 2005 requires employees to take reasonable care to protect their own health and safety and that of other people who may be affected by their acts or omissions at work. Employees must co-operate with their employer to assist their employer in complying with their statutory duties, and must attend training and undergo such assessment as may reasonably be required by their employer. Once trained, they should apply their increased knowledge and competence to ensure that they always operate their industrial truck in a safe manner.

### 2.7.3 Training for self-employed operators

Self-employed industrial truck operators have responsibilities under Section 7 of the Safety, Health and Welfare at Work Act 2005 to ensure that they undergo the same type of training and achieve the same level of competence as employers are required to provide for their employees.

### 2.7.4 Selection of people for training

Employers should select potential industrial truck operators carefully. Those selected for training need to have the ability to do the job in a responsible manner and the potential to become competent operators. They should have the necessary level of physical and mental fitness and learning ability for the task. Regulation 51(b) of the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007) requires an employer to ensure that no person under 18 years of age is employed to give signals to the operator of lifting equipment driven by mechanical power, or to operate any such equipment.

Where a potential employee presents themselves as already having training and sufficient operating experience, employers should satisfy themselves that this is the case. They should look for documentary evidence of the training award and satisfy themselves that the training, experience and ability are sufficient for the industrial truck and handling attachments to be operated safely in the working environment.

Where evidence of prior training is not available or reliable, employers will need to provide training before allowing the employee to operate an industrial truck.

### 2.7.5 Key elements of training programmes

The principles set out in the learning outcomes of the counterbalance and reach industrial truck operator training programmes in Appendix 2 should be adapted and applied in training programmes for other types of industrial trucks. In some cases (for instance, with rider-operated pallet trucks), the training programme may follow a similar approach. In other cases (for example, with straddle carriers or order-picking trucks), a very different training programme will be needed.

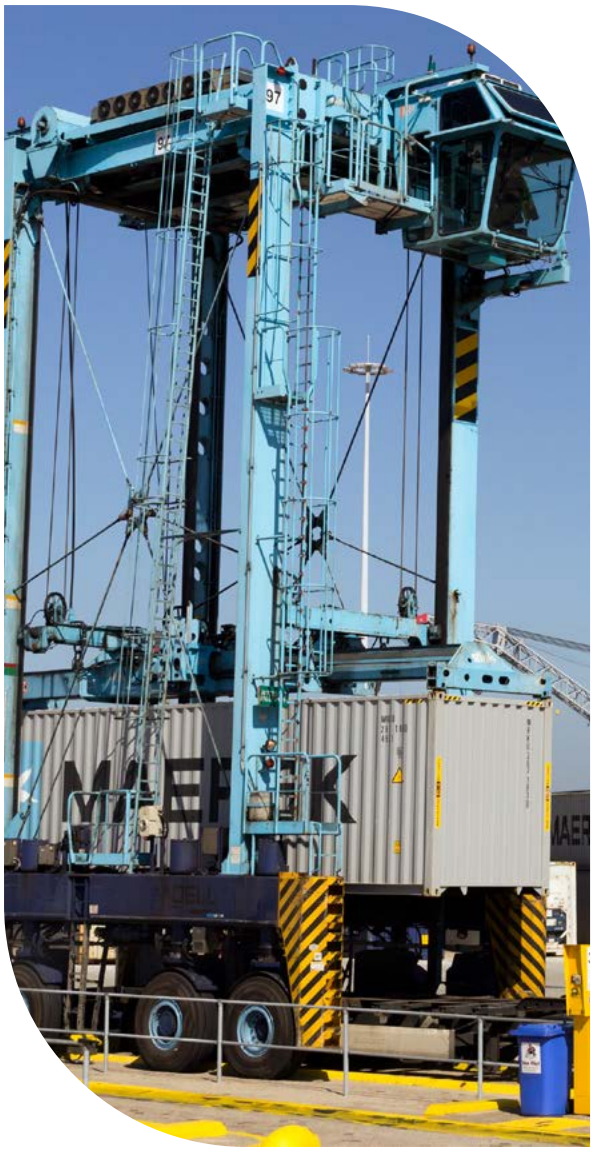
There are specific legislative requirements for the training of telescopic handler operators in the construction and quarrying sectors under the Construction Skills Certification Scheme (CSCS) and the Quarry Skills Certification Scheme (QSCS), respectively. The training requirements for carrying out telescopic handler operations on construction sites are governed by the requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013 and the Safety, Health and Welfare at Work Act 2005. Similarly, the training requirements for carrying out telescopic handler operations on quarry sites are governed by the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations 2008 and 2013 and the Safety Health and Welfare at Work Act 2005. An operator who is in possession of a registration card for a telescopic handler under the CSCS or QSCS satisfies the requirements for basic training and function-specific job training for this type of industrial truck. The courses under the CSCS and QSCS can be adapted for the training of operators of telescopic handler industrial trucks in workplaces other than in the construction or quarrying sectors.

Training organisations involved in industrial truck training, as well as the equipment manufacturer, should be able to advise on suitable training. However, employers have the ultimate responsibility for ensuring that industrial truck operators are adequately trained. Employers should take account of the advice on instructor selection contained sub-paragraphs 2.7.11 and 2.8.6 in this Code of Practice when choosing a training course and provider in order to ensure that the provider has the relevant competence and experience and that the course content and duration are sufficient to achieve the desired learning outcomes.

Training programmes should include training for all work activities that an operator will be required to perform in the course of their work and for reasonably foreseeable situations that may arise in the workplace. In order to achieve this, training programmes should consist of all three stages of training, namely basic training, function-specific job training, and training on the job under supervision.

The directions that are set out under sub-paragraph 2.8.7 (on training areas and facilities) for the training of operators of counterbalance and reach trucks should be adapted and applied in training programmes for other types of industrial trucks.

The duration of training may vary depending on the objectives to be covered, the trainee: instructor ratio, and the trainees' ability and previous experience. **The normal duration of a course for novice operators is 32.5 hours over 5 days** (based on an assumption of 6.5 contact hours per working day). In certain circumstances, the duration of a training course may be reduced to 3 or 4 days. In such circumstances, the reduction should be justified in writing by the training provider, in consultation with the employer. The justification to reduce a training course must take account of the operator's previous experience and their current level of skill in operating the industrial truck for loading and lifting operations in the workplace. In all cases, the time devoted to training needs to be sufficient to ensure that the basic training objectives and assessments of operator skills and learning outcomes can be achieved.



The ratio of trainees to instructors and to trucks should enable the instructor to demonstrate each part of the practical training and each trainee to obtain adequate hands-on experience while also having an opportunity to learn from the performance of other trainees who may be in attendance. There should be adequate time for each trainee to practise operating the truck under close supervision and to prepare for the practical assessments of the learning outcomes. **The desirable trainee:instructor:truck ratio is 3:1:1,** but in any case, the ratio should not exceed 4:1:1 except for lecture or theory sessions.

Operators with some experience of industrial trucks may need less extensive training than those with no experience with industrial trucks. However, the value of such experience should not be overestimated. The ability to drive private cars, agricultural machinery or other conventional road vehicles should not result in any reduction of the training time nor in any minimisation of the need for proper assessment on industrial trucks, as these have very different stability and handling characteristics as well as different controls than industrial trucks.

An operator with training on one type of industrial truck or handling attachment cannot safely operate others for which they have not been trained without additional conversion training.

Once fully trained, operators should also be given the opportunity to put the skills and knowledge learned during training into practice at their workplace in order to support that training. Newly acquired skills can quickly be lost if not used.

Best practice is to train an operator on one industrial truck model and allow them to develop competence and practical experience in operating this industrial truck before providing training on another model. The standard 32.5 hour course referred to above is required for training on one model of industrial truck.

It may be necessary to test the trainee on-site in the workplace in order to verify learning.

### 2.7.6 Monitoring the performance of operators

The provision of training does not remove the employer's responsibility to ensure that operators are fully competent to operate industrial trucks within their specific workplace or the requirement to have adequate supervision in place to ensure that the operator is operating safely and in accordance with workplace protocols and systems of work.

There is no specific requirement to provide refresher training after a set period of time, but even trained and experienced industrial truck operators need to be reassessed from time to time to ensure that they continue to operate industrial trucks safely. This assessment of the need for refresher training should form part of an employer's normal monitoring procedures and be formally scheduled in order to ensure that it is done at reasonable intervals. This will provide evidence and indicate whether any further training is needed. The person carrying out this assessment should be competent to do so.

In addition to routine safety monitoring, refresher training might be appropriate where operators:

- have not used industrial trucks for some time,
- return to work after an extended absence,
- are occasional users of industrial trucks,
- appear to have developed unsafe working practices,
- have had an accident or near miss, or
- experience a change in their working practices or environment.

Employers may find it useful to record reassessment and refresher training in their safety monitoring records. Employers can decide that automatic refresher training after a set time period is the best way of making sure that employees are operating safely, but, where this approach is adopted, it will still be necessary to monitor performance in case retraining is required before the set period ends. The guiding principle is that the possession of a training certificate alone does not ensure the safe operation of industrial trucks, and employers need to maintain the competence of the operator through a documented, formal process of monitoring and assessment.

Training alone will not ensure the competence of individuals; this will develop with experience and should be monitored. Continued supervision will be necessary to ensure that good standards of operation are maintained.

### 2.7.7 Refresher and conversion training

#### 2.7.7.1 Refresher training

The Safety, Health and Welfare at Work Act 2005 requires that training shall be adapted to take account of new or changed risks to safety, health and welfare at work and shall, as appropriate, be repeated periodically. Refresher training is necessary for a number of reasons. People lose skills if they do not use them regularly, and it is important to maintain good operating habits. Refresher training facilitates the appraisal of an operator's skills, and new skills can be learned during training. The frequency of assessing the need for refresher training should be considered as part of an employer's safety management system, and this should be recorded in a schedule.

#### 2.7.7.2 Conversion training

Conversion training to allow operators to extend the range of industrial trucks they are qualified to operate is widely available and should be provided when an operator is required to operate a different type of industrial truck than what they have previously been trained on. For example:

- There may be significant variations in the configuration or application of controls, even in the same truck types.
- An operator may be required to operate a significantly larger or more powerful industrial truck.

- An operator may be required to operate a completely different type of truck, such as a narrow aisle man-up stacking truck or a side-loading truck.
- An operator may be required to operate on a different site or in a different environment.

Refresher and conversion training should be approached with the same attention to detail as basic training in order to ensure that all gaps in existing skills and knowledge are identified and covered during training.

### 2.7.8 Training for new risks

If new risks arise in relation to the operation of an industrial truck, safety training should be provided before an operator is exposed to those risks. These risks include:

- changes to work processes,
- a new model of industrial truck being introduced to the workplace,
- modifications to a vehicle,
- the use of new attachments,
- the introduction of new products that need to be handled,
- abnormal or awkward loads, or
- alterations to the working environment/site.

### 2.7.9 Training records

Training records should be kept for each employee. For industrial truck training, these records should include:

- the dates and duration (in hours) of each training course, the course content, the training schedule and the training ratio;
- trainer and assessor details;
- details on the elements of the training course (that is, basic training, function-specific job training, and training on the job under supervision);
- records of operator assessment;
- details of the industrial truck on which the training was completed;
- details of further planned/required training; and
- details of refresher or conversion training completed.

An example of an employee training record template is provided in Appendix 1. This template may be adapted into other formats to suit the specific course requirements.

### 2.7.10 Management of training for off-site locations and shared workplaces

Employers should ensure that employees who use industrial trucks in other employers' workplaces are fully trained to do so. Suitable arrangements should be in place to enable the persons in control of such workplaces to satisfy themselves of an operator's competence before allowing them to operate an industrial truck in that workplace. Such visitors might be delivery drivers or maintenance or inspection personnel.

Section 21 of the Safety, Health and Welfare at Work Act 2005 requires employers who share a place of work to co-operate in complying with and implementing health and safety provisions. They must co-ordinate their preventive activities and keep each other and their respective employees, as well as safety representatives (if any), informed about the risks to safety, health and welfare arising from the work, including the exchange of safety statements/risk assessments or relevant extracts from them relating to hazards and risks to employees. Suitable arrangements could include the provision of documentation on an individual basis or written assurance that all their employees who will visit the site and be expected to operate industrial trucks are trained and competent to do so. Visiting personnel will also need site-specific information, which should be provided using clear signage, induction or third-party rules in order to enable them to work safely. A useful precaution might be to clearly limit access to areas where people who are not familiar with the premises can operate. Operators with their own industrial trucks or regular contractors' operators who frequently visit the same sites may be satisfactorily trained and have sufficient site knowledge to operate safely.

Employers who do not control the workplaces where their employees may operate industrial trucks need to co-operate with the persons who do control them to ensure that only people trained as described in this Code of Practice are allowed to operate industrial trucks. Such co-operation is particularly important on multi-occupant sites, such as business parks and markets, where industrial trucks may be shared. The responsibility of those who control work sites to ensure that the workplace is safe does not lessen the employer's duty to ensure that their own employees are adequately trained and authorised.

### 2.7.11 Trainer selection

The training of operators should be provided by suitably competent individuals or organisations. When choosing a training provider, careful consideration should be given to the qualifications, knowledge, skills and experience of the instructor(s), and their ability to demonstrate these. Training providers can demonstrate their competence, the quality of the courses they deliver and the maintenance of their training standards by being accredited by a relevant industry body.

Consideration should also be given to the duration of the course, the learning outcomes covered, the time spent on practical activities, the coverage of the work activities that the operator will be required to perform in the workplace, etc

## 2.8 Specific requirements for the training of operators of rider-operated counterbalance and reach industrial trucks

### 2.8.1 Scope of Paragraph 2.8 of the Code of Practice

The specific requirements in Paragraph 2.8 of the Code of Practice **cover the training requirements for operators of rider-operated counterbalance and reach industrial trucks,** including articulated steering truck types. 'Rider-operated' means any industrial truck capable of carrying an operator and includes trucks controlled from both seated and stand-on positions, which may be fixed or foldaway. These specific requirements have arisen because recognised courses have been developed previously for these traditional types of industrial trucks.

Appendix 2 outlines the minimum requirements and learning outcomes for counterbalance and reach forklift truck training skills programmes, based on a national Quality and Qualifications Ireland (QQI) standard. Trainers must be able to demonstrate that they have delivered a course which meets these requirements. This does not prevent trainers from using training frameworks and documentation developed under other accreditation schemes, provided the trainers can show that they fulfil all the requirements and learning outcomes included in Appendix 2.

The requirements in Paragraph 2.8 of the Code of Practice **do not apply directly** to the training of operators of other types of industrial trucks, but **should be used as a benchmark** for such training.

### 2.8.2 Obligation to provide training

Employers should never allow anyone to operate industrial trucks that are within the scope of Paragraph 2.8 of the Code of Practice unless they have satisfactorily completed training and assessment as described in this paragraph except for those undergoing such on-the-job training under adequate supervision.

The training of counterbalance and reach industrial truck operators can be broken down into three stages:

1. **basic training,** which covers the basic skills and knowledge required for safe industrial truck operation;
2. **function-specific job training,** which covers knowledge of workplace operations and any special requirements and handling attachments; and
3. **training on the job under supervision,** which covers industrial truck operation on the job under close supervision.

These stages can be completed separately or they may be combined or integrated, particularly where training is carried out on an employer's premises. In either case, it is essential that each stage be covered fully, with due consideration given to the experience, if any, of the trainee(s) and the type (or types) of industrial truck which they will be expected to operate. The first two stages can be combined or integrated, but need to be carried out off the job (that is, sheltered from production and other pressures) and in advance of the third stage. The third stage needs to be carried out on the job, but under close supervision. In the case of basic training, this must be at least to the standard set out in Appendix 2 of this Code of Practice.

### 2.8.3 Basic training

Basic training needs to cover the skills and knowledge required for the safe operation of the type of industrial truck and handling attachment(s) (if any) that the trainee will be required to operate, including the risks arising from industrial truck operation. Such risks would include not only those directly related to the operation of industrial trucks, but also associated tasks, such as pre-use checks or the fire hazard created by the possible production of hydrogen when recharging batteries. Appendix 2 lists learning outcomes for basic training.

The duration of training may vary depending on the objectives to be covered, the trainee:instructor ratio, and the trainees' ability and previous experience. **The normal duration of a course for novice operators is 32.5 hours over 5 days.** In all cases, the time devoted to training needs to be sufficient to ensure that the basic training objectives and assessments of operator skills and learning outcomes can be achieved.

Operators who have some experience with industrial trucks may need less extensive training than those with no such experience. However, the value of this experience should not be overestimated. The ability to drive private cars, agricultural machinery or other conventional road vehicles should not result in any reduction of the training time nor in any minimisation of the need for proper assessment on industrial trucks, as these have very different controls, stability and handling characteristics than industrial trucks. An operator with training on one type of industrial truck or handling attachment cannot safely operate others for which they have not been trained without additional conversion training.

In certain circumstances, the duration of a training course may be reduced to 3 or 4 days. In such circumstances, the reduction should be justified in writing by the training provider, in consultation with the employer. The justification to reduce a training course must take account of the operator's previous experience and their current level of skill in operating the industrial truck for loading and lifting operations in the workplace. In all cases, the time devoted to training needs to be sufficient to ensure that the basic training objectives and assessments of operator skills and learning outcomes can be achieved.

Given the wide range of industrial trucks, operator experience and company requirements, some training organisations will arrange for a course to be tailored to meet a client's requirements. The course described in Appendix 2 can be adapted for this purpose, provided always that the appropriate training objectives and learning outcomes are achieved. A trainer should not deliver a reduced course based on the operator's prior experience unless they are fully satisfied of the operator's experience and can justify this in writing. Where a course is adapted to meet company or operator requirements, the written record of training and the employee's training record should accurately reflect the actual content of the training delivered, the learning outcomes achieved and any restrictions which apply because of the modification of the course. Appendix 2 lists learning outcomes for basic training which need to be assessed.

The ratio of trainees:instructor:truck should enable the instructor to demonstrate each part of the practical training and each trainee to obtain adequate hands-on experience while also having an opportunity to learn from the performance of other trainees who may be in attendance. There should be adequate time for each trainee to practise operating the truck under close supervision and to prepare for the practical assessments of the learning outcomes. **The desirable trainee:instructor:truck ratio is 3:1:1,** but in any case, the ratio should not exceed 4:1:1 except for lecture or theory sessions.

It is essential that newly trained operators be given function-specific job training as well as training on the job under supervision, as described in sub-paragraphs 2.8.4 and 2.8.5 of this Code of Practice. Once fully trained, operators should also be given the opportunity to put the skills and knowledge learned during training into practice at their workplace in order to support that training. Newly acquired skills can quickly be lost if not used.

### 2.8.4 Function-specific job training

Function-specific job training is an essential element of training and will normally be carried out by the same trainer who provided the basic training. It will normally follow the completion of basic training, but may be combined or integrated with it. The trainee:instructor:truck ratio for basic training also applies to function-specific job training.

This training will be tailored to the employer's specified needs and include, where appropriate:

**a)** instruction on the operating principles and controls of the industrial truck to be used in the workplace, including handling attachments;

**b)** instruction on the routine inspection, pre-use checks and servicing of the industrial truck, in keeping with the operator's handbook or instructions issued by the manufacturer, in so far as they may reasonably be carried out by the operator;

**c)** instruction on the use of the industrial truck in conditions that the operator will routinely meet at work (for example, gangways or ramps, loading bays, loading platforms, racking, lifts, automatic doors, confined areas, cold stores, slopes, rough terrain, and bad weather conditions);

**d)** instruction on site rules (for example, site layout; industrial truck operating zones; one-way systems; speed limits; general emergency procedures; use of protective clothing and devices, including operator restraints and eye and hearing protection; and working near excavations, overhead lines and other hazards);

**e)** training in the specific work to be undertaken at the trainee's own or other workplaces (for example, loading particular kinds of vehicles and handling loads and materials of the kind normally found at that workplace, including assessment of weight); and

**f)** instruction on safe systems of work to ensure that the use of trucks by unauthorised operators is prevented; this should include arrangements to ensure that keys/electronic fobs are never left in unattended trucks or in a place where they are freely available, and personal identification numbers (PINs), where relevant, are suitably protected.

**Training on (a) and (b) should be repeated whenever the design of the industrial truck is changed.**

### 2.8.5 Training on the job under supervision

This is the third element of training. It needs to be carried out on the job and under close supervision by someone with appropriate knowledge, possibly the trainee's usual supervisor. It should cover the application, under normal working conditions, of the skills already learned and include familiarisation with the assigned industrial truck and its controls, the site layout, local emergency procedures, and any other feature of the work that is not practicable to teach off the job. In very exceptional circumstances – such as the use of industrial trucks by emergency services at the scene of an accident or fire, where it is clearly not feasible to train on-site – realistic simulated training may be provided.

New employees or employees operating at a new site who are already the holders of a certificate of training should satisfactorily complete this element of training before being allowed to operate an industrial truck unsupervised.

The employer should record the satisfactory completion of this element of training in the employee's training record, such as the example provided in Appendix 1.

### 2.8.6 Selection of instructors

When arranging for training, employers should satisfy themselves that the training is in accordance with this Code of Practice. Operator training should only be carried out by instructors who have themselves undergone appropriate training in instructional techniques and skills assessment. Instructors should hold a QQI National Framework of Qualifications (NFQ) Level 6 Special Purpose Specification for Training and Development (QQI code 6S3372). The component specifications for this award are detailed in Appendix 3. This QQI-accredited 'train the trainer' award consists of two main modules: Training Needs Identification and Design, and Training Delivery and Evaluation. It aims to develop an understanding of the methodologies and processes available to approach training delivery and evaluation. An instructor who has earned this award is equipped with the knowledge, skills and competencies required to design, develop and deliver effective training sessions and apply best practice in assessment.

Successful training depends on the competence of instructors. Instructors should give instruction only on the types of industrial trucks and attachments for which they themselves have been trained and successfully assessed as operators. They also need sufficient industrial experience to enable them to put their instruction in context and an adequate knowledge of the working environment in which the trainee will be expected to operate.

**When arranging training, an employer must be satisfied that the instructors delivering the course are competent to do so. They should be asked to supply evidence of their training and post-training experience on the type of industrial truck to be used, both as an instructor and operator, and their knowledge of and familiarity with conditions in the industry in which the trainees will work**. This will include expertise in any requirements particular to the operation of the truck(s) and in the work the trainees will be expected to undertake.

Since training is largely accomplished through demonstration followed by supervised practice, it is essential that each demonstration by the instructor is a model free from technical errors and misjudgements. Instructors must also be able to make effective use of instructional techniques in both the working and classroom environments.

**Good instructors should:**

- hold a QQI National Framework of Qualifications (NFQ) Level 6 award for Training and Development;
- be able to demonstrate competence to operate the truck they are training on;
- be able to identify the needs of different trainees and adapt their approach to suit;
- be able to communicate effectively; and
- keep their own training and experience as instructors up to date, especially if they are not training regularly.

**Instructors should have their skills reassessed periodically as appropriate.**

### 2.8.7 Training area and facilities

Basic training may be given at a suitable training centre or venue, or on an employer's premises. Where practicable, training areas should be sheltered from adverse weather conditions.

Basic training needs to be carried out off the job. Even when conducted on an employer's premises, this means that the instructor and trainees, together with the industrial truck and loads they are training on, should be wholly concerned with training, kept away from normal commercial

operations, and not be diverted to other activities while training is in progress. In order to maintain a safe environment, the training area must have its access restricted to the instructor and trainees. Warning signs should be prominently displayed at each access point. An industrial truck used for training must be in good mechanical condition, be properly maintained (taking into account the manufacturer's recommendations), conform to all legal requirements and be suitable for the particular uses to which it will be put. The industrial truck must have a valid report of thorough examination in accordance with Regulation 53 of the Safety, Health and Welfare at Work (General Application) Regulations 2007.

A suitable manoeuvring area should be provided and appropriately marked. While training is in progress, access to this area should be restricted to the instructor and trainees. The area will need to include facilities for simulating the manoeuvring space likely to be encountered in the workplace, including slopes. For rough-terrain trucks, an appropriate surface and obstacles representative of the conditions for which training is being provided are necessary.

A supply of loads appropriate to the training being given, such as loaded and unloaded pallets, bags, sacks, bales, drums, bulk materials and freight containers, is necessary in order to make training realistic. Similarly, there should be appropriate facilities for simulating loading and unloading from racking at various heights, as well as the loading and unloading of road vehicles. Where industrial storage racking is to be used, it should have been erected, maintained and inspected to be in good condition in accordance with the manufacturer's recommendations and best industrial practice.

A training room or other suitable accommodation, together with appropriate training aids and adequate seating and writing surfaces, should be made available in order to enable the instructor to cover and assess, under reasonable conditions, the principles of industrial truck operation.

### 2.8.8 Training structure and content

Training should be of sufficient duration, as outlined in sub-paragraph 2.8.3, to enable trainees to acquire the basic skills and knowledge required for the safe operation of industrial trucks, including knowledge of the risks arising from industrial truck operations. It should not be altered to suit immediate operational or production needs. Appropriate assessments must be undertaken to ensure that the trainee industrial truck operator has achieved the skills required to safely operate the industrial truck.

Training should follow a carefully devised programme which ensures that each stage is introduced in an appropriate sequence, building on what has come before, and allowing adequate time for learning and practice before moving on to the next stage. The easier driving skills should be covered before progressing to more difficult operations, such as pallet or other load handling. At each stage, the instructor will need to explain and demonstrate safe truck operation, which should then be practised by the trainees under direct supervision.

Basic training should be given on all applicable types of industrial trucks and attachments that operators will or could be required to use in their work. If the operator is subsequently required to operate another type of industrial truck, or there is a change of handling attachment, additional conversion training will be required. Employers should also consider the need for conversion training where the truck type does not change, but the nature, size and/or weight of the load differs significantly.

The course content will depend on the industrial truck operations the trainee will be expected to carry out. Component specifications for counterbalance and reach forklift truck skills courses are detailed in Appendix 2 and form the basis of every training course. Some elements of training may need to be tailored to include all the industrial truck operations to be undertaken by the operator.

### 2.8.9 Operator assessment

The instructor should assess a trainee's progress continuously in order to ensure that the required standards are achieved at each stage of training. Practical skills should be assessed during the function-specific job training component of the training. Additionally, trainees are required to pass one or more assessments, both practical and theoretical, of the learning outcomes and the skills and knowledge needed for the safe operation of industrial trucks. Trainers should assure themselves that each trainee is fully ready for the assessment stage before they complete it. The course component specifications in Appendix 2 indicate the learning outcomes that need to be assessed.

On successful completion of the necessary assessments of the basic training and the function-specific job training, the instructor should issue a certificate of training to the trainee. This certificate should contain details as set out in the example of an employee training record in Appendix 1.

### 2.8.10 Records

Employers need to keep a record for each employee who has satisfactorily completed any stage of industrial truck training and assessment in accordance with this Code of Practice.

The record will need to include sufficient information to identify the employee and the nature of the training completed. An example of an employee training record is given in Appendix 1. The record should include a copy (or details) of any certificate that is issued.

The employee will need a certificate as evidence of training on a change of employment.

The training provider should maintain independent records of persons trained and be able to verify the provision of training.

### 2.8.11 Authorisation

Following satisfactory completion of training, the employer should provide the employee with written authorisation to operate the type(s) of industrial truck(s) for which all three elements of training have been successfully completed.

Authorisations may be issued on an individual basis and/or recorded centrally by the employer. Authorisations should state the operator's name, the date of authorisation, the truck(s) to which they relate, and any special conditions, such as area limitations. Employers should not allow personnel to operate industrial trucks on any premises without authorisation (except in the case of a trainee under close supervision).

### 2.8.12 Transitional arrangements

Where an operator has been trained and can demonstrate evidence of that training under the 2001 Code of Practice, *Code of Practice: Rider-operated lift trucks: operator training,* such training will continue to be recognised when this new Code of Practice comes into operation.

Training providers operating under the terms of the 2001 Code of Practice can, if required, continue to operate under the requirements of that Code for a period of 18 months from the date this Code of Practice comes into operation, after which time all operator training should be in accordance with the requirements of this Code of Practice.

# 3. Safe vehicles

**It is vitally important that industrial trucks are safe and suitable for the tasks for which they are used and the environment in which they operate. There are many considerations relating to keeping industrial trucks safe and fit for purpose for use in the workplace, both indoors and outdoors, including any particular specialised uses, such as in explosive or dusty atmospheres.**

## 3.1 Industrial truck selection

Industrial trucks should be selected based on their suitability for the intended tasks in the work environment. Safety should be a key priority when choosing an industrial truck.

**When selecting industrial trucks, workplace characteristics should be considered, including:**

- the space available for vehicle movements,
- the storage arrangements and layout in terms of vehicle capacity, height, aisle widths, etc., and
- the handling performance of the industrial truck.

**It may also be necessary to consider the need to work in challenging work environments or weather conditions, including:**

- extremes of temperature,
- other weather conditions,
- dirt,
- dust,
- fumes,
- excessive noise or vibration, and
- an explosive atmosphere.

## 3.2 Industrial truck purpose

Industrial trucks and attachments must be used only for the tasks that they are designed for. The manufacturer's manual should be consulted for information in this regard.

## 3.3 Seat belts and restraints

Each industrial truck is manufactured with a protective/restraint system that has been custom-designed by the manufacturer to provide protection to the operator. No element of this protective/restraint system (for example, cab doors) should ever be removed or tampered with, and the components of the system should be carefully maintained.

An operator restraint system is a device or system that is permanently installed to keep the operator within the protective structure of the truck. The protective structure of the truck will usually incorporate protection for the operator from falling objects and longitudinal and lateral tip-over protection.

Seat belts and other restraint systems should be used when they are provided, unless a risk assessment indicates that it is not safe to do so and other risk controls that provide the same level

of protection or higher are implemented. Seat belts keep the operator in the protective enclosure during collisions or a tip-over and prevent them from being thrown from their seat or being crushed by parts of an overturned truck.

The operator should be trained in the correct use of the operator restraint system in accordance with the manufacturer's recommendations. Adequate supervision should be in place in order to eliminate the overriding/misuse of restraint system alarms and interlocks (for example, by engaging the seat belt behind the operator's back).

### 3.4 Protection from falling objects

Adequate protection must be in place to protect the operator from falling objects. Where weather protection is necessary, only manufacturer-approved weather protection covers should be used/fitted.

### 3.5 Tip-over protection

Adequate tip-over protection must be provided on industrial trucks to protect the driver against injury from vehicle overturn.

### 3.6 Safety guards

Guards provided on moving or dangerous parts of industrial trucks should be kept in position in accordance with the manufacturer's recommendations. If damaged or removed for maintenance purposes, they should be replaced before the industrial truck is returned to service.

### 3.7 Auxiliary vision aids and warning systems

Additional visibility aids and audible warning systems may need to be fitted, depending on task-specific and site-specific risk assessments. Devices such as extra mirrors, reversing cameras, proximity sensors and parking sensors may help reduce blind spots. Warning devices such as horns, rotating beacons, light-emitting diode (LED) safety lights and reversing alarms will warn pedestrians of industrial truck movement. However, employers should not be overly dependent on warning devices as a means of control as, in busy workplaces, employees may become desensitised to these over time.

Visibility aids or warning systems that are incorporated into the industrial truck by the manufacturer to allow the safe use of the industrial truck should never be removed or modified and should be maintained as part of routine maintenance. The employer's procedures should require the operator to use such safety devices, and the operator, supervisors and managers should ensure that they are functional at all times.

### 3.8 Safe entry and exit

There must be a safe way of getting into and out of the industrial truck.

### 3.9 Service and parking brakes

Service brakes and parking brakes must be in good working order. A preventative maintenance system must be in place to ensure regular checking and maintenance and to ensure that timely corrective measures are taken when brakes are not working effectively. An industrial truck with faulty brakes must never be used.

## 3.10 Industrial truck authorisation and ignition control procedure

A vehicle authorisation and ignition control procedure must be in place for all industrial trucks to ensure that only appropriately trained, authorised drivers have access to the industrial trucks for which they have been specifically trained. This should include arrangements to ensure that keys/electronic fobs are never left in unattended trucks or in a place where they are freely available, and PINs, where relevant, should be suitably protected.

## 3.11 Industrial truck specifications and safety features

Operators must be made aware of the specifications and safety features particular to each industrial truck, as well as how and when to use them. Information in the manufacturer's manual, instruction handbook, or technical specifications should be used for this purpose.

## 3.12 Visibility

Windshields to the rear and front of industrial trucks, where fitted, should be kept clean so that the operator always has clear visibility. Similarly, glass on doors, where fitted, should also be kept clean so that the operator has clear visibility to the left and the right of the truck. Some overhead guards have see-through material on them and are required to be maintained in a clean condition. This is especially important when industrial lift trucks are conducting stacking/destacking operations, or when they are operating in dusty environments.

## 3.13 Basic industrial truck pre-use safety checks and defect management

There should be a system for operators to carry out and record pre-use basic safety checks on industrial trucks. The operator should carry out a pre-use check of both the industrial truck and any attachments before they operate it at the beginning of each shift. Only operators who have been fully trained and appropriately authorised should carry out such pre-use checks. A system should be in place so that the pre-use check is recorded and any defects observed can be reported. Any safety-critical defects noted should be corrected before the industrial truck is used.

### 3.13.1 Safety-critical features of the industrial truck

The following is a non-exhaustive list of safety-critical components of an industrial truck that should be checked as part of the pre-use check system (other components may be added depending on the particulars of an individual truck):

- Forks
- Carriage
- Mast
- Lifting chains
- Wheels and tyres
- Brakes
- Lights
- Back-rest extension/load guard

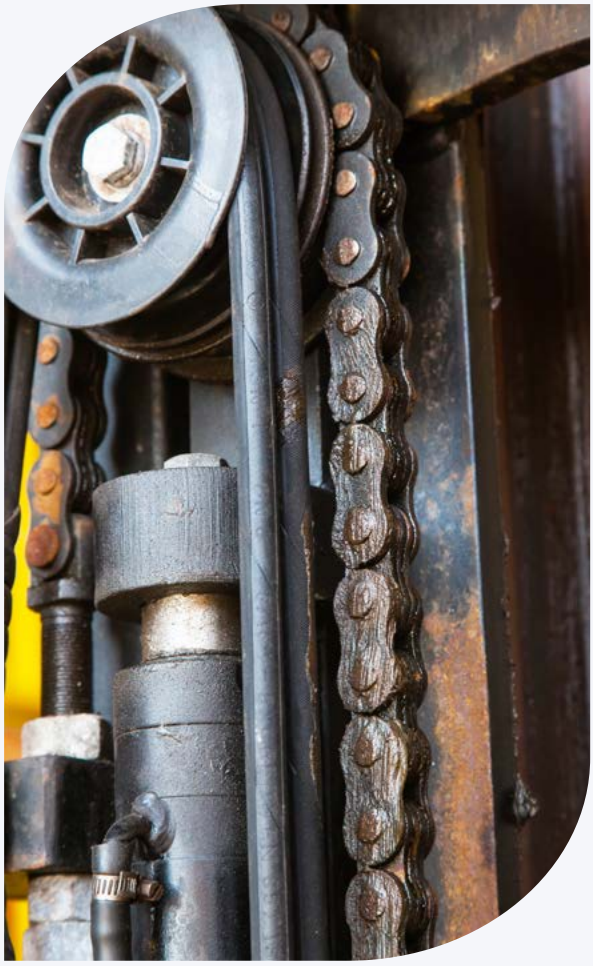
- Overhead guard/tip-over protection frame
- Seat design, safety belt, and vibration considerations
- Visibility
- Energy source
- Hydraulics
- Operator's compartment:
  - Access
  - Lights, windscreen and mirrors
  - Fire extinguisher
  - Ignition and electrical system
  - Reversing alarm and horn
  - Warning lights
  - Hydraulic controls

A defect reporting system is required in order to identify and record vehicle defects. Operators, employees and contractors must be made aware of the steps to take when damage or defects are noticed.

The management system in place should ensure that where safety-critical defects arise, the industrial truck is clearly identifiable and withdrawn from use until the defect has been rectified and the vehicle is safe to use.

### 3.14 Preventive maintenance programme

A regular preventive maintenance programme must be in place for each industrial truck that meets, at a minimum, the recommendations in the manufacturer's instructions. A risk assessment should consider increasing the frequency of preventive maintenance where the truck is operating in arduous conditions or environments. A safety management system must be in place in order to ensure that checks, servicing and repairs are carried out on industrial trucks as required. The system must include a written record of these activities.



### 3.15 Industrial truck repairs

Repairs should be done promptly by authorised and qualified people only.

### 3.16 Inspection and testing of lifting equipment

An inspection and testing programme must be in place for industrial trucks that lift people or materials. This programme should include a thorough examination, by a competent person, of the lifting equipment itself and all lifting

accessories, in accordance with Regulation 52 of the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007). Lifting accessories are any item placed between lifting equipment and the load, and include attachments fitted to the industrial truck. The Safety, Health and Welfare at Work (General Application) Regulations 2007 also set out the requirements for reports by competent persons and the employer's duty to keep records and registers of lifting equipment. In the case where industrial trucks are hired or leased, both the hire company and the users hiring a lift truck have a duty to ensure that it is safe to use and is thoroughly examined at the appropriate intervals. The user must agree with the hire company and confirm who will carry out safety-related maintenance and thorough examinations. The user will need to ensure that the required examinations are carried out and that defects are reported and remedied as necessary. A copy of the current report of thorough examination must accompany the industrial truck and be available for inspection by a Health and Safety Authority inspector at the location where the industrial truck is in use.

In general, these statutory examinations must be carried out every 12 months for lifting equipment that lifts materials and every 6 months for lifting equipment that lifts persons, but full details are laid out in Schedule 1, Part B of the Safety, Health and Welfare at Work (General Application) Regulations 2007, as amended.

## 3.17 Industrial truck power sources: Refuelling and recharging

The two main power sources for powered industrial trucks are:

1. **internal combustion,** which uses a traditional engine that runs on liquefied petroleum gas (LPG), compressed natural gas (CNG), gasoline, diesel, or other fuel; and
2. **electricity,** which uses an on-board battery.

Other power sources may become more widespread in the future.

There are risks associated with each, particularly when it comes to refuelling (combustion) or recharging (electricity), so proper control measures must be in place.

### 3.17.1 Internal combustion-powered industrial trucks

Refuelling of industrial trucks powered by internal combustion engines should be conducted outside in a designated area, as there is a risk of fire and explosion. The designated area should be well ventilated in order to reduce the possibility of a build-up of flammable vapours if there is a spillage or leakage of fuel, and away from drains, pits, gulleys, etc. Smoking, naked flames or other ignition sources (including mobile phones) should be prohibited in this area. The transport, storage and use of gas cylinders and the use of bulk LPG should only be carried out according to information and instructions obtained from the gas supplier.

### 3.17.2 Electrically powered industrial trucks

Battery-powered or electric industrial trucks produce zero emissions and run more quietly, so they may be more suitable for use indoors. They are powered by large lead-acid or lithium-ion batteries, which must be routinely charged, and the hazards associated with the use and maintenance of batteries must be controlled. Changing and charging batteries are hazardous activities and must be carried out in a designated area, as charging can give off an explosive gas. Other risks (such as thermal runaway of lithium-ion batteries due to overcharging or overheating) can occur, resulting in fire and the release of chemical gas. Emergency plans for evacuation, firefighting, first aid, etc. must be in place. The risk of electrolyte spilling must be considered, and safety data sheets (SDS) may be required. There is also a potential risk of electrocution.

**Operators who charge or work with batteries must be trained and instructed to:**

- carry out general low-level battery care and maintenance according to the manufacturer's instructions;
- use a designated, well-ventilated area where smoking, naked flames or other ignition sources (including mobile phones) are prohibited; and
- wear the appropriate personal protective equipment (PPE); for example, an acid-proof apron, protective gloves and suitable eye protection.

Refuelling areas should be equipped with an eyewash station, appropriate fire extinguishers and spill kits.

## 3.18 Industrial truck load capacity

### 3.18.1 Lift truck capacity

The rated capacity plate must be attached to the truck, and must be legible and clearly visible to the operator. The capacity of an industrial truck should be considered before it is selected to do the work it will be required to do. This means considering the size and shape of the loads, the route to be travelled and the height to be reached. One of the major causes of industrial truck incidents is the incorrect use of industrial trucks with respect to their load limit and capacity. All industrial trucks are rated to a certain safe lifting capacity and safe lifting height by their manufacturer. The size and weight of the load, its position (height and reach) on the forks and relative to the truck itself, and the load's weight distribution affect the truck's true maximum capacity. The actual capacity (safe working load) is the maximum load that can be carried at a set distance from the heels of the forks to a specified height. This is calculated with the truck on level ground with the mast vertical. This should be stated on the capacity plate or capacity chart. It is vital that the operator understands these rated capacities. Industrial trucks should be operated according to the manufacturer's instructions and within the manufacturer's design parameters. An industrial truck should never be loaded beyond its actual capacity.

### 3.18.2 Attachments

It is common to use suitable attachments on an industrial truck so that some loads can be handled more efficiently and safely. Examples of such attachments are fork extensions, booms, rotating heads, drum clamps, paper roll clamps, bale clamps, load stabilisers, concrete skips, etc. Attachments should only be fitted by a person who is trained to do so. Attachments should be securely fastened to the industrial truck and no part of the attachment or securing device should interfere with any part of the mast structure during the raising or lowering of the attachment. Attachments or loads should not reduce visibility for the driver.

Adding an attachment to an industrial truck reduces its lifting capacity due to the additional weight of the attachment itself and because an attachment typically extends the truck's load centre. The instruction handbook for the truck should be consulted, or advice should be sought from the supplier or manufacturer, before fitting and using any attachments. Fitting an attachment to an industrial truck will reduce the truck's rated capacity (known as 'derating') and change how the truck behaves. Derating should only be done by a person with the appropriate knowledge and experience. A new rating plate specifically relating to the attachment and truck in combination must be secured to the truck to indicate this reduction in capacity before it is used with the attachment. It will also be necessary to provide additional training for the operator on the use of the truck and attachment combination. The report of thorough examination should take into account any attachments used on the industrial truck.

Working platforms on industrial trucks, such as "non-integrated baskets", are attachments, but they should not be used for the purpose of lifting persons other than in exceptional circumstances and subject to the conditions laid down in Regulation 48 of the Safety, Health and Welfare at Work (General Application) Regulations 2007, as amended.

# 4. Safe workplaces

**The employer has responsibility for safety in the workplace and must ensure that risks associated with industrial trucks in the workplace – including those affecting staff, customers, suppliers, contractors, delivery personnel and visitors – are assessed and controlled effectively. Having and keeping a safe workplace requires a well-designed and maintained premises that enables safe operation and interplay between industrial trucks, other vehicles and equipment, people, and structures.**

## 4.1 Pedestrian and industrial truck segregation

Pedestrians and vehicles should be segregated from each other to the greatest extent and, where possible, pedestrians should be prohibited from entering areas where industrial trucks are operating. Well-designed traffic routes for both industrial trucks and pedestrians, combined with good signage, will help to separate pedestrian activity from areas where industrial trucks are operating.

## 4.2 Pedestrian routes

Pedestrian routes and industrial truck routes should be clearly defined and marked, and separated completely from each other where possible.

### 4.2.1 Physical barriers

Physical barriers to protect pedestrians should be provided wherever possible in order to separate pedestrian activities from areas where industrial trucks are operating (for example, at building entry and exit points and crossover points).

### 4.2.2 Pedestrian crossings

Where pedestrian and industrial truck routes cannot be completely separated, pedestrian crossing points on industrial truck routes should be defined, designated and clearly marked. Clear and unambiguous warning signs should be provided to inform people that industrial trucks operate in the premises or area.


### 4.2.3 Visibility and hazard warning

It is essential that both drivers and pedestrians have a clear view of their surroundings, and that pedestrians can be seen by drivers as they move around the workplace. Sharp bends and blind spots should be avoided so that pedestrians have clear sight of industrial trucks moving towards their path. Where bends cannot be eliminated, visibility aids (for example, convex mirrors or closed-circuit television (CCTV) displays) may be of use. Particular care should be taken where industrial trucks are required to drive or reverse through doorways.

Where at all possible, hazards should be removed at source. Where hazards cannot be removed, they should be clearly marked (for example, with black and yellow diagonal stripes). Features of the building or operating area, such as overhead obstructions, support columns, racking, pipework or other plant, should be clearly marked and provided with protection against accidental damage. Edges of loading bays and ramps are a particular hazard and should be clearly marked (for example, with black and yellow diagonal stripes). Where practicable, barriers should be installed around edges.

## 4.3 Industrial truck routes

### 4.3.1 Direction of industrial truck routes

A one-way system should be used for industrial truck routes, where the workplace layout can accommodate it. A one-way traffic system also helps pedestrian safety.

### 4.3.2 Suitable routes

Traffic routes must be suitable for the type, size and quantity of industrial trucks. Slopes should be eliminated or reduced to the greatest extent possible. Industrial trucks should never be driven up or down slopes that exceed the maximum gradient specified by the truck manufacturer or authorised supplier, and travelling or turning across a slope should never be allowed.

Speed humps are unsuitable for most industrial trucks, so if they are used to reduce the speed of other types of vehicles, bypasses should be provided for industrial trucks. However, industrial truck operators should clearly understand, through signage and instruction, that the speed restriction still applies to industrial trucks.

### 4.3.3 Suitable surfaces

Unless all the industrial trucks in use at a workplace are designed to operate on rough or uneven surfaces, all surfaces should be firm and even.

### 4.3.4 Maintenance

Traffic routes should be well maintained. Any damage to surfaces or structures should be promptly reported and repairs carried out without delay.

### 4.3.5 Sufficient space

Traffic routes should be high enough and wide enough for the largest industrial trucks and loads, and should take account of the space required to manoeuvre safely, allowing some margin for driver error. If a one-way system cannot be implemented, there should be sufficient space for vehicles to pass each other.

### 4.3.6 Height clearance

Height clearance must be taken into account, giving consideration to all possible types of industrial trucks and other vehicles that may be used. Overhead obstructions should be clearly marked. Industrial trucks should not routinely operate in areas with height restrictions, but if this is necessary extra control measures may be required.

### 4.3.7 Adequate lighting

Traffic routes should be provided with adequate lighting. Particular attention should be paid to areas where lighting conditions change (for example, when moving from natural light into artificial light or unlit spaces).

### 4.3.8 Obstruction-free routes

Traffic routes should be maintained free from obstructions and other hazards.

## 4.4 Signage and safety features


Good signage is a key component of a safe workplace. All vehicle and pedestrian traffic routes should be clearly marked using regulation signboards.[3] Routes must be well signed and marked for both daytime and night-time use. This may involve the use of retroreflective strips, markings and features for use outside of daytime hours or when visibility is poor due to weather or light conditions.

## 4.5 Vision aids

Features such as fixed mirrors or camera systems can be used to provide greater vision at locations where lines of vision are restricted, such as sharp bends and blind spots.

## 4.6 Ventilation

In workplaces where lift trucks are powered by internal combustion engines, it is important that there is adequate ventilation to remove exhaust fumes and that the engines are properly maintained. Filter systems or catalytic converters may be used to reduce the risk from fumes emitted, but these systems are not a substitute for providing adequate workplace ventilation. Where such filters or catalytic converters are used, they must be checked regularly in order to maintain their effectiveness. Systems to monitor for the presence of gases such as carbon monoxide could be helpful, either to establish if there is a problem or to make sure that the ventilation control measures are adequate. If the build-up of fumes from combustion engines is an issue due to several industrial trucks operating indoors, replacing them with lower-emission trucks would be the top preference in the hierarchy of controls. 'In-cab' filtration (which only protects the operator) or powered ventilation systems could also be considered. The Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 to 2021 and the Safety, Health and Welfare at Work (Carcinogens) Regulations 2001 to 2019 should be consulted in this regard.

## 4.7 Industrial trucks on loading platforms, bridges and trailers

Protocols should be put in place for loading and unloading of light goods vehicles (LGV) and heavy goods vehicles (HGV) to manage the lorry driver/industrial truck operator interface to ensure that a drive-away situation is prevented.

### 4.7.1 Loading platforms

Loading platforms should be constructed so that they can safely carry the maximum foreseeable load (that is, the weight of the industrial truck and the maximum load it will be required to carry). The rated capacity of the loading platform must be clearly displayed. Similarly, if a structure is being used to bridge the gap between a loading platform and a trailer, it also must be capable of carrying the maximum required load. The side of any such structure should have protection to prevent the industrial truck from running off.


[3] Regulation 160 of the Safety, Health and Welfare at Work (General Application) Regulations 2007.

### 4.7.2 Trailers

Sometimes, it may be necessary to drive an industrial truck onto a trailer for loading or unloading. The trailer deck must be strong enough to support both the industrial truck and the load. All trailers should always be braked and chocked when parked. Chocking means placing wedges of sturdy material closely against a vehicle's wheels to prevent accidental movement.

Trailers of articulated lorries are less stable when they have been disconnected from their towing units. In such circumstances, the landing legs at the front of the trailer must be able to support the additional weight of an industrial truck. It might be the case that the balance of the trailer is compromised by the lift truck travelling past the location of the landing legs, causing an upending issue. In all situations where industrial trucks are required to travel onto uncoupled semi-trailers, a specific risk assessment and loading/unloading plan is required. This risk assessment should consider the use of extra support for the landing legs, such as by means of a 'trestle'.

Any bridge plates used must be strong enough to support the industrial truck and its load and be securely fixed in place. The rated capacity of the bridge plate should be clearly displayed.

Where ramps are used to provide access into to the rear of trailers, they must be properly secured to the rear of the trailer so that one cannot move relative to the other. The ramps should be marked with the maximum load they are designed to carry, and they should be regularly inspected. In planning the system of work, an operator should not be required to drive an industrial truck onto a ramp without ensuring that the ramp is designed to carry the overall load (the weight of both the industrial truck and its load) and is wide enough to allow the industrial truck to be safely driven onto the trailer. The sides of any such ramp should have protection to prevent the industrial truck from running off.

Driving onto trailers with no edge protection (such as flatbeds or curtainsiders) should only take place in very exceptional circumstances. Where this cannot be avoided, a task-specific risk assessment should be carried out to determine a safe system of work with adequate controls to prevent persons from being injured. This should be communicated to the industrial truck operator and all other persons involved in the activity.

An exclusion zone for pedestrians, including the driver of the truck and other employees, should be put in place while this type of activity is being conducted.

## 4.8 Using industrial trucks on a public road

There may be some circumstances where industrial trucks have to be used outside the workplace; for example, to load or unload lorries which cannot enter the workplace and are parked on public roads. An additional risk assessment should be carried out that includes extra hazards that are not part of the typical work activity, such as the movement of road vehicles and pedestrians.

An industrial truck being operated on a public road must comply with the appropriate road traffic legislation.

# 5. Safe industrial truck operations

**Industrial truck operations need to be carefully planned in order to minimise the possibility of accidents.**

## 5.1 Parking

An industrial truck should be unloaded and parked safely on level ground with the parking brake applied, the forks or attachment fully lowered, the engine switched off, and the keys/electronic fobs returned to the responsible person or the keypad de-energised at the end of each use. An industrial truck should never be left unattended with the keys in the ignition or the keypad energised.

## 5.2 Lifting loads

When suspending or lifting a load, the operator should ensure, so far as is reasonably practicable, that the load is lifted such that the operator is in full control during the activity.

Operators should be able to determine whether loads of varying shapes and masses can be safely lifted by an industrial lift truck to ensure that they do not exceed the capacity of the machine. If they have any doubt, the operator should be enabled to seek competent advice.

Loads should be firmly placed against the carriage or back-rest with the mast tilted back enough to stop the load from slipping, falling or rolling off the fork arms. Loads that have the potential to slip, fall or roll off the fork arms or pallet should be restrained with straps or similar equipment.

Loads should always be carried as near to the ground as is reasonably practicable. Operators should never drive an industrial lift truck with a raised load, except when placing a load into or removing it from a racking system or stack. They should never turn with a raised load.

Loads should not be lifted or suspended over a person. Persons, including signallers, should not be permitted in or adjacent to the path of travel. Where appropriate, and only during raising/depositing, load tag lines may be used for guiding the load, but should be tied off to the truck during travel.

**When handling a suspended load, the operator should:**

- be trained and experienced in lifting suspended loads;
- secure the load across both fork arms for balance, using a suitable attachment designed to be used on the industrial lift truck;
- not exceed the derated capacity of the industrial lift truck or the rated capacity of the attachment (whichever has the lowest capacity);
- only lift the load vertically (straight up), with no dragging or off-vertical lifts;
- move slowly and cautiously (never in excess of 6 kilometres per hour) when the load is raised;
- travel with the load as low as is reasonably practicable (ideally, the bottom of the load should be no more than 300 millimetres from the floor);
- check that the travel route is clear of any hazards, including overhead obstructions;
- only carry a single load at one time; and
- in the event of a load oscillation (swinging of the load), smoothly cease travel and lower the load to the ground.

If bulk bags (such as flexible intermediate bulk containers or similar loads) are suspended from the forks of an industrial lift truck, the lifting capacity should be reduced by a safety factor of at least 20% in order to allow for the dynamic forces introduced as a result of sudden stops, starts or turns causing the load to swing.

## 5.3 Instability

A common risk for an industrial lift truck is to tip over by rolling or overturning sideways, or by pitching forward when the back wheels lift off the ground. A loss of stability creates a risk of serious injury or harm to the operator and pedestrians.

Industrial lift trucks can tip over if the operator:

- drives with a raised load with the fork arms too high;
- turns too fast (either laden or unladen);
- travels over unsuitable (soft or uneven) ground;
- carries an unevenly balanced load;
- speeds up too quickly in reverse;
- brakes too quickly, especially when driving a loaded industrial lift truck;
- brakes or speeds up while cornering or driving down a slope;
- collides with another vehicle;
- drives across slopes or uneven ground;
- strikes low doors or overhead structures; or
- uses the truck to tow, push or pull something when it is not designed for this.

In general, when carrying a load on a slope greater than 10%, the forks should face uphill when travelling up or down the slope. When travelling without a load, the forks should face downhill when travelling up or down the slope. However, braking systems can vary on different industrial trucks, and the manufacturer should be consulted regarding the appropriate direction of travel (laden and unladen) when travelling up or down a slope.

Rapid tail swing can cause an industrial lift truck to tip over. The speed of rear end swing will be up to three times that of the industrial lift truck's forward speed. In order to avoid rapid tail swing, operators should reduce speed when turning. They should be aware that the tail swing causes exaggerated movement of the tail and fork tips.

In order to avoid tip-over, operators should:

- centre loads: this means having their centre of gravity on the industrial lift truck's longitudinal centre line;
- correctly secure the load on the pallet;
- carry loads as close as is reasonably practicable to the ground or other supporting surfaces;
- make sure that inflatable tyres are correctly inflated, as under-inflated tyres can reduce stability;
- not travel across a slope greater than that recommended by the manufacturer; and
- slow down when driving across a sloping, uneven or wet surface.


## 5.4 Operating with attachments

An industrial truck should only be equipped with lifting attachments that are appropriate for the load that is to be lifted or moved. The attachment should be securely fastened to the industrial truck, either mounted on the forks or directly onto the carriage, as recommended by the manufacturer and in such a way as to not interfere with any part of the mast structure during raising or lowering of the attachment.

An attachment must not be used without taking account of advice from the supplier or manufacturer. Modifying an industrial truck by adding an attachment must be agreed by the manufacturer to ensure it is covered by the original CE marking and compliance process. Should this not be the case, the original CE marking becomes invalid. The modifier is then considered as the manufacturer and must fulfil all the obligations set out in Part 2 of the European Communities (Machinery) Regulations 2008 (S.I. No. 407 of 2008), as amended, (transposed from Article 5 (1) of the Machinery Directive (2006/42/EC)). Information about the attachment (from the manufacturer of the attachment) should be available in order to calculate the safe working capacity of the ensemble. A risk assessment should be carried out for the use of any attachments for the industrial truck, and operators should be suitably trained in the dangers and uses of such attachments.

## 5.5 Operating using a banksman/signaller/assistant

There may be circumstances where the use of a banksman/signaller to assist the operator of an industrial truck may be an appropriate risk reduction measure. Banksmen/signallers are operatives trained to direct vehicle movement on or around the site. Only trained and authorised persons should be used for this purpose. The hierarchy of control places the segregation of people and vehicles as the top priority, and banksmen/signallers should only be used in circumstances where other control measures are not possible. They should operate from a location where they can be seen by the industrial truck operator but where they cannot be struck by the industrial truck, its attachments or the load being carried.

Under no circumstances should a person be expected or allowed to hold a load in position.

## 5.6 Passengers

Passengers should never be carried unless the industrial truck is designed for this and has a designated passenger seat and seat belt.

## 5.7 Operating around other pedestrian activity


Pedestrians should be prohibited, to the greatest extent possible, from entering areas where industrial trucks are operating. If this is not completely possible, procedures must be put in place to warn pedestrians of the industrial truck activities. Notices should be displayed that instruct operators to sound horns at appropriate locations, such as blind corners and intersections. If additional visibility aids and audible warning systems are fitted to the vehicle, they should be used. Devices such as extra mirrors, reversing cameras, or presence-sensing equipment that sounds a warning or stops the truck when an object or person is detected may help reduce risk. Warning devices such as horns, rotating or flashing beacons, LED safety lights or reversing alarms can be used to warn pedestrians of industrial truck movement.

## 5.8 Personal protective clothing

As is the case with all PPE, the employer must make an assessment of the hazards in the workplace (that is, a risk assessment) in order to identify the correct type of PPE to be provided and to ensure that PPE is appropriate to the risk. This risk assessment may determine that the work activity requires PPE such as safety footwear, head protection, eye protection, ear protection, etc. Any form of PPE provided for use should be CE marked and comply with the requirements of the European Union (Personal Protective Equipment) Regulations 2018 and 2022.

### 5.8.1 High-visibility clothing

Pedestrians in the vicinity of operating industrial trucks should be provided with high-visibility clothing, as determined by a risk assessment, which should be correctly worn as an additional measure to lower the risks to their safety. Employers should ensure that high-visibility clothing, as determined by the risk assessment, is correctly worn by operators at all times during activities where they have reason to leave the operating position.

### 5.8.2 Clothing for challenging conditions

It may also be necessary to provide operators with PPE that protects them from challenging work conditions, such as adverse weather conditions, extremes of cold, etc. A risk assessment should be carried out to determine the appropriate PPE required.

## 5.9 Managing distraction risks

Employers should implement clear policies and rules with regard to the risk of operator distraction.

Operators must not make or receive calls or physically interact with mobile phones or smartphones or other portable devices when operating an industrial lift truck. The use of headphones and earphones should be risk-assessed to ensure that operators can hear sounds that are vital to driving safely.

## 5.10 Training for supervisors

The Safety, Health and Welfare at Work Act 2005 requires employers to provide supervision necessary to ensure the safety, health, and welfare at work of their employees. It is essential that supervisors have enough training and knowledge to recognise safe and unsafe practices in the operation of industrial trucks. They need to understand the risks involved, and how to avoid or prevent them. Employers must be satisfied that supervisors are competent to carry out effective observation and recognise unsafe practices and behaviour in both operators and other persons in the vicinity of industrial trucks. In order to facilitate this, it may be necessary to offer appropriate training to supervisors and managers of work activities involving industrial truck operations. This does not necessarily mean that supervisors must have received full operator training, although this would be beneficial.

## 5.11 Instruction and training for people working in the vicinity of industrial trucks

Every effort should be made to keep pedestrians segregated from areas where industrial trucks are operating. If this is not possible and it is necessary for persons to work where industrial trucks are operating, they must be made aware of the risks associated with being in those areas. They must be given clear instruction to stay away from operating industrial trucks to the greatest extent possible. If proximity to industrial trucks is necessary, people should be trained in procedures for when they are in such areas (for example, the procedures for approaching the operator of an industrial truck safely).

## 5.12 Controlling access for visitors and visiting drivers

Visiting drivers and pedestrians should be directed to report at the workplace entrance, or reception, for instructions before entering a workplace where industrial trucks are operating.

Access must be controlled with regard to the movements of:

- employees,
- customers,
- delivery personnel,
- visitors, and
- the general public.

## 5.13 Use in accordance with procedures and rules

Supervisors and managers must monitor industrial truck activities to ensure that industrial trucks are used in accordance with the procedures and rules laid down in the employer's safety management system.

# Appendix 1: Example of an employee training record

| | |
|---|---|
| Company name: | |
| Company address: | |
| Employee's full name: | |
| Department: | |
| Employee number: | |
| Personal Public Service Number (PPSN): | |

| **Basic training** | |
|---|---|
| Industrial truck type(s) used for training: | |
| Model/capacity: | |
| Attachments: | |
| Organisation carrying out training: | |
| Course description, content delivered, training materials used, and location: | Hours per day: Number of days:<br>from _____ to _____ |
| Duration and dates of course: | |
| Name of instructor: | |
| Reference number: | |
| Date(s) of assessment(s): | |
| Name(s) of assessor(s): | |
| Reference number: | |

| Function-specific job training | |
|---|---|
| Industrial truck(s) used for training: | |
| Model/number: | |
| Operating height: | |
| Attachment type: | |
| Load types: | |
| Instructed by: | |
| Duration of training (hours): | |
| Date of training: | |

| Training on the job under supervision | |
|---|---|
| Industrial truck(s) used for training: | |
| Model/number: | |
| Site location: | |
| Activities supervised/competencies achieved: | |
| Supervised by: | |
| Duration of training (hours): | |
| Date of training: | |

# Appendix 2: Component specifications for counterbalance forklift truck skills and reach forklift truck skills

Dearbhú Cáilíochta agus Cáiliochtaí Éireann
Quality and Qualifications Ireland

**Component Specification**

**Counterbalance Forklift Truck Skills**

**NFQ Level 5**

**5N5831**

**1. Component Details**

| | |
|---|---|
| **Title** | Counterbalance Forklift Truck Skills |
| **Teideal as Gaeilge** | Scileanna Frithchothromú Forc-ardaitheoir |
| **Award Class** | Minor |
| **Code** | 5N5831 |
| **Level** | 5 |
| **Credit Value** | 5 |
| **Purpose** | The purpose of this award is to equip the learner with the knowledge, skill and competence to operate a counterbalance forklift truck safely and efficiently in line with the manufacturer's guidelines and current health and safety regulations and guidelines |
| **Learning Outcomes** | Learners will be able to: |

1 Explain the importance of having adequate training in operating a counterbalance lift truck safely, correctly and efficiently and the rules and regulations applicable to its safe operation

2 Describe the features and components of a counterbalance forklift truck

3 Summarise the duties and responsibilities of employees and employers in the work place as detailed in current health and safety legislation

4 Comment on the role of the Health and Safety Authority in maintaining standards for counterbalance forklift truck operation

5 Identify the fulcrum point of a counterbalance forklift truck

6 Explain the hydraulic principles applied in the operation of a forklift truck

7 Identity the hazards associated with forklift trucks and the safety precautions to be taken including:

- preventing collisions with pedestrians

- forklift truck tip-over

- recharging electric lift trucks

- refuelling diesel and liquid petroleum gas (LPG) lift trucks

8 Investigate the purpose of safety devices and the procedures for their use to include stabilizers, level indicators and load indicators

9 Determine the weight and load centre of various loads and their most appropriate stacking and de-stacking procedures

10 Utilise a load capacity chart to determine if a given load is within the rated capacity of a forklift truck

11 Explain the factors which affect forklift truck stability including the stability triangle and the use of handling attachments

12 Comment on the importance of having vehicle key custody arrangements in place

13 Demonstrate how to correctly mount and dismount a counterbalance forklift truck to include adjusting the seat to a suitable working position and correct use of the instruments and controls

14 Use the correct procedure for connecting and disconnecting lift truck batteries to and from a charger

15 Determine the safety, soundness and rating of structures designed to receive loads from a counterbalance forklift truck

16 Perform the daily ‘start up’ maintenance check on a counterbalance forklift truck in accordance with manufacturer’s guidelines

17 Carry out pre-shift inspections on the counterbalance forklift truck in accordance with manufacturer’s guidelines, including the completion of the forklift driver’s ‘Inspection Report’ to record and report on any defects found

18 Drive a laden and un-laden counterbalance forklift truck with the forks in the correct travel positions including:

- on inclining and level ground

- in a forward and reverse direction

- manoeuvring around obstacles

- through chicanes

19 Operate a counterbalance forklift truck to stack and de-stack loads at various locations, including ground level, eye level, high level and vertical face

20 Operate a counterbalance forklift truck to stack and de-stack loaded and unloaded pallets, racks, corner post pallets, freestanding loads and vertical face loads, while correctly inserting and withdrawing the forks on loaded and unloaded pallets

**Assessment**

**General Information**

Details of FET assessment requirements are set out in Assessment Guidelines for Providers.

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme

validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

**Assessment Techniques**

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

| | |
|---|---|
| Examination - Practical | 70% |
| Examination - Theory | 30% |

**Description**

**Examination - Practical**

*An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.*

*A practical examination assesses specified practical skills demonstrated in a set period of time under restricted conditions.*

**Examination - Theory**

*An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.*

*A theory-based examination assesses the ability to recall, apply and understand specific theory and knowledge.*

| | |
|---|---|
| **Recognition of Prior Learning (RPL)** | Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details. |
| **Grading** | Pass 50% - 64%<br>Merit 65% - 79%<br>Distinction 80% - 100% |
| **Specific Validation Requirements** | The provider must have all of the following in place to offer this award:<br>Training area with access to counterbalance and reach forklift trucks |
| **Supporting Documentation** | 1. The Health, Safety and Welfare at Work Act, 2005<br>2. The Safety, Health and Welfare at Work [General Application] Regulations 2007. Provisions in respect of the Workplace and Work Equipment |
| **Access** | To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience. |
| **Transfer** | Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement. |

## 2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

| AWARD CLASS | STANDARDS | AWARDS |
|---|---|---|
| Major Award | Certificate Specification | Certificate (Levels 1 to 5)<br>Advanced Certificate (Level 6) |
| Supplemental Award | Supplemental Specification | Supplemental Certificate<br>(Level 3 to 6) |
| Special Purpose | Specific Purpose Specification | Specific Purpose Certificate<br>(Levels 3 to 6) |
| Minor Award | Component Specification | Component Certificate<br>(Levels 1 to 6) |

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

### 3. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

| NFQ Level | Major Awards Credit Values | Default Credit Values Minor Awards | Other Permitted Minor Award Credit Values | Special Purpose and Supplemental Award Credit Value Ranges |
|---|---|---|---|---|
| 1 | 20 | 5 | 10 | |
| 2 | 30 | 5 | 10 | |
| 3 | 60 | 10 | 5,20 | >5 and<60 |
| 4 | 90 | 10 | 5,15,20 | >5 and<90 |
| 5 | 120 | 15 | 5,10,30 | >5 and <120 |
| 6 | 120 | 15 | 5,10,30 | >5 and <120 |

### Guide to Level

Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

| Strand | Sub-strand | Nature of learning |
|---|---|---|
| Knowledge | Breadth | Broad range of knowledge |
| | Kind | Some theoretical concepts and abstract thinking, with significant depth in some areas. |
| Know How & Skill | Range | Demonstrate a broad range of specialised skills and tools |
| | Selectivity | Evaluate and use information to plan and develop investigative strategies and to determine solutions to varied unfamiliar problems |
| Competence | Context | Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts |
| | Role | Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups |
| | Learning to Learn | Learn to take responsibility for own learning within a managed environment |
| | Insight | Assume full responsibility for consistency of self- understanding and behaviour |

*Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI*

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Quality and Qualifications Ireland

## Component Specification

## Reach Forklift Truck Skills

## NFQ Level 5

## 5N5832

### 1. Component Details

| | |
|---|---|
| **Title** | Reach Forklift Truck Skills |
| **Teideal as Gaeilge** | Scileanna Forc-ardaitheoir Rochtana |
| **Award Class** | Minor |
| **Code** | 5N5832 |
| **Level** | 5 |
| **Credit Value** | 5 |
| **Purpose** | The purpose of this award is to equip the learner with the knowledge, skill and competence to operate a reach forklift truck safely and efficiently in line with the manufacturer's guidelines and current health and safety guidelines and regulations |
| **Learning Outcomes** | Learners will be able to: |
| | 1 Explain the importance of having adequate training in operating a reach lift truck safely, correctly and efficiently and the rules and regulations applicable to its safe operation |
| | 2 Describe the features and components of a reach forklift truck |
| | 3 Summarise the duties and responsibilities of employees and employers in the work place as detailed in in current health and safety legislation |
| | 4 Comment on the role of the Health and Safety Authority in maintaining standards for forklift truck operation |

5 Identify the fulcrum point of a reach forklift truck

6 Explain the hydraulic principles applied in the operation of a reach forklift truck

7 Identity the hazards associated with forklift trucks and the safety precautions to be taken including:

- preventing collisions with pedestrians

- forklift truck tip-over

- recharging electric lift trucks

- refuelling diesel and liquid petroleum gas (LPG) lift trucks

8 Investigate the purpose of safety devices and the procedures for their use to include stabilizers, level indicators and load indicators

9 Determine the weight and load centre of various loads and their most appropriate stacking and de-stacking procedures

10 Utilise a load capacity chart to determine if a given load is within the rated capacity of a forklift truck

11 Explain the factors which affect forklift truck stability including the stability triangle and the use of handling attachments

12 Comment on the importance of having vehicle key custody arrangements in place

13 Demonstrate how to correctly mount and dismount a reach forklift truck to include adjusting the seat to a suitable working position and correct use of the instruments and controls

14 Use the correct procedure for connecting and disconnecting lift truck batteries to and from a charger

15 Determine the safety, soundness and rating of structures designed to receive loads from a reach forklift truck

16 Perform the daily ‘start up’ maintenance check on a reach forklift truck in accordance with manufacturer’s guidelines

17 Carry out pre-shift inspections on the reach forklift truck in accordance with manufacturer’s guidelines, including the completion of the forklift driver’s ‘Inspection Report’ to record and report on any defects found

18 Drive a laden and un-laden reach forklift truck:

- on inclining and level ground

- in a forward and reverse direction

- manoeuvring around obstacles

- through chicanes

19 Operate a reach forklift truck to stack and de-stack loads at various locations, including ground level, eye level, high level and vertical face

20 Operate a reach forklift truck to stack and de-stack loaded and unloaded pallets, racks, corner post pallets, freestanding loads and vertical face loads, while correctly inserting and withdrawing the forks on loaded and unloaded pallets

**Assessment**

**General Information**

Details of FET assessment requirements are set out in Assessment Guidelines for Providers.

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

**Assessment Techniques**

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

| | |
|---|---|
| Examination - Practical | 70% |
| Examination - Theory | 30% |

**Description**

**Examination - Practical**

*An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.*

*A practical examination assesses specified practical skills demonstrated in a set period of time under restricted conditions.*

**Examination - Theory**

*An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.*

*A theory-based examination assesses the ability to recall, apply and understand specific theory and knowledge.*

| | |
|---|---|
| **Recognition of Prior Learning (RPL)** | Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details. |
| **Grading** | Pass 50% - 64%<br>Merit 65% - 79%<br>Distinction 80% - 100% |
| **Specific Validation Requirements** | The provider must have all of the following in place to offer this award:<br>Training area and Reach Forklift truck(s) |
| **Supporting Documentation** | 1. The Health, Safety and Welfare at Work Act, 2005<br>2. The Safety, Health and Welfare at Work [General Application ] Regulations 2007. Provisions in respect of the Workplace and Work Equipment in particular |
| **Access** | To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience. |
| **Transfer** | Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement. |

## 2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

| AWARD CLASS | STANDARDS | AWARDS |
|---|---|---|

| | | |
|---|---|---|
| Major Award | Certificate Specification | Certificate (Levels 1 to 5)<br>Advanced Certificate (Level 6) |
| Supplemental Award | Supplemental Specification | Supplemental Certificate<br>(Level 3 to 6) |
| Special Purpose | Specific Purpose Specification | Specific Purpose Certificate<br>(Levels 3 to 6) |
| Minor Award | Component Specification | Component Certificate<br>(Levels 1 to 6) |

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

**3. FET Credit**

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

| NFQ Level | Major Awards Credit Values | Default Credit Values Minor Awards | Other Permitted Minor Award Credit Values | Special Purpose and Supplemental Award Credit Value Ranges |
|---|---|---|---|---|
| 1 | 20 | 5 | 10 | |
| 2 | 30 | 5 | 10 | |
| 3 | 60 | 10 | 5,20 | >5 and<60 |
| 4 | 90 | 10 | 5,15,20 | >5 and<90 |
| 5 | 120 | 15 | 5,10,30 | >5 and <120 |
| 6 | 120 | 15 | 5,10,30 | >5 and <120 |

**Guide to Level**

Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

| **Strand** | **Sub-strand** | **Nature of learning** |
|---|---|---|
| Knowledge | Breadth | Broad range of knowledge |

# Appendix 3: Component specifications for QQI NFQ level 6 special purpose specification for training and development

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Quality and Qualifications Ireland

**Special Purpose Specification NFQ Level 6**

**Training and Development 6S3372**

**1. Certificate Details**

| | |
|---|---|
| **Title** | Training and Development |
| **Teideal as Gaeilge** | Oiliúint agus Forbairt |
| **Award Class** | Special Purpose |
| **Code** | 6S3372 |
| **Level** | 6 |
| **Credit Value** | 30 |
| **Purpose** | The purpose of this award is to enable the learner to acquire the knowledge, skill and competence to identify training and development needs and to deliver and evaluate a training intervention within a range of training and development contexts. |
| **Statements of Knowledge, Skill and Competence** | Learners will be able to: |
| **Knowledge** | |
| *Breadth* | Demonstrate a broad range of knowledge of training and development practice and the role of training and development across a range of organisations. |
| *Kind* | Demonstrate an understanding of key principles and theoretical concepts underpinning training and development within a range of contexts. |
| **Know How & Skill** | |
| *Range* | Apply a comprehensive range of specialised skills and tools to develop strategies required for training and development needs identification, delivery and evaluation in a range of contexts. |
| *Selectivity* | Select from appropriate tools and techniques to identify training and development needs, deliver and evaluate a training intervention. |
| **Competence** | |

| | |
|---|---|
| *Context* | Apply training and development concepts, technical skills and creative thinking to a range of contexts. |
| *Role* | Implement a training and development plan to include the identification of training and development needs within an organisation and delivery and evaluation of training interventions. |
| *Learning to Learn* | Evaluate own learning and assist others to identify their learning styles and needs within a training and development context. |
| *Insight* | Reflect on personal and professional practice, evaluating the impact on others within a training and development context. |
| | The learning outcomes associated with this award are outlined in the associated Component Specifications. |
| **Access** | To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience. |
| **Transfer** | Achievement of this award will enable the learner to transfer to other appropriate programmes leading to awards at the same level of the National Framework of Qualifications. |
| **Progression** | Achievement of this award will enable the learner to progress to other appropriate programmes leading to awards at the next or higher levels of the National Framework of Qualifications. |
| **Progression Awards** | Learners who successfully complete this award may progress to a range of different awards. |
| **Grading** | Pass<br>Merit<br>Distinction<br>The grade achieved will be determined by the grades achieved on the components |

**2. Certificate Requirements**

**The total credit value required for this certificate is 30. This will be achieved by completing:**

| Award Code | Title | Level | Credit Value |
|---|---|---|---|
| **All of the following component(s)** | | | |
| 6N3326 | Training Delivery and Evaluation | 6 | 15 |
| 6N3325 | Training Needs Identification and Design | 6 | 15 |

### 3. Supporting Documentation

1. None.

### 4. Specific Validation Requirements

There are no specific validation requirements.

### 6. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for QQI awards are contained within the associated specifications:

| AWARD CLASS | STANDARDS | AWARDS |
|---|---|---|
| Major Award | Certificate Specification | Certificate (Levels 1 to 5)<br>Advanced Certificate (Level 6) |
| Supplemental Award | Supplemental Specification | Supplemental Certificate (Level 3 to 6) |
| Special Purpose | Specific Purpose Specification | Specific Purpose Certificate (Levels 3 to 6) |
| Minor Award | Component Specification | Component Certificate (Levels 1 to 6) |

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

### 7. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

| NFQ Level | Major Awards Credit Values | Default Credit Values Minor Awards | Other Permitted Minor Award Credit Values | Special Purpose and Supplemental Award Credit Value Ranges |
|---|---|---|---|---|
| 1 | 20 | 5 | 10 | |
| 2 | 30 | 5 | 10 | |
| 3 | 60 | 10 | 5,20 | >5 and<60 |
| 4 | 90 | 10 | 5,15,20 | >5 and<90 |
| 5 | 120 | 15 | 5,10,30 | >5 and <120 |
| 6 | 120 | 15 | 5,10,30 | >5 and <120 |

**Guide to Level**

Learning outcomes at this level include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

| **Strand** | **Sub-strand** | **Nature of learning** |
|---|---|---|
| Knowledge | Breadth | Specialised knowledge of a broad area |
| | Kind | Some theoretical concepts and abstract thinking, with significant underpinning theory |
| Know How & Skill | Range | Demonstrate a comprehensive range of specialised skills and tools |
| | Selectivity | Formulate responses to well defined abstract problems |
| Competence | Context | Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts |
| | Role | Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form and function within, multiple and complex heterogeneous groups. |
| | Learning to Learn | Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs |
| | Insight | Express an internalised, personal world view, reflecting engagement with others. |

*Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI*

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Quality and Qualifications Ireland

# Component Specification

## Training Delivery and Evaluation

## NFQ Level 6

## 6N3326

### 1. Component Details

| | |
|---|---|
| **Title** | Training Delivery and Evaluation |
| **Teideal as Gaeilge** | Seachadadh Oiliúna agus Meastóireacht |
| **Award Class** | Minor |
| **Code** | 6N3326 |
| **Level** | 6 |
| **Credit Value** | 15 |
| **Purpose** | The purpose of this award is to equip the learner with the knowledge, skill and competence to deliver, assess and evaluate a training and development intervention. |
| **Learning Outcomes** | Learners will be able to: |

1 Outline the concepts and theories underlying the delivery and evaluation of training interventions

2 Explore the elements which impact on the effectiveness of a training session to include, the learning environment, the trainer, learning methodologies and the group dynamics of participants

3 Demonstrate an awareness of a range of issues to include equality, diversity and disability in the context of current legislation with regard to training provision

4 Appraise a range of evaluation models, approaches, tools and techniques used in the evaluation and monitoring of a training and development intervention

5 Deliver appropriate training content and materials using a range of training aids

6 Formulate appropriate evaluation tools, techniques and approaches for a training session to determine whether or not training needs were met and objectives fulfilled

7 Provide constructive feedback to participants in relation to training intervention

8 Apply a comprehensive range of specialised training delivery and evaluation skills in the delivery of an appropriate training intervention

9 Devise a training evaluation process to include the identification of key stakeholders, feedback from the trainee, challenges within the process and the conduct or methodology of the evaluation

10 Select from a range of evaluation tools, techniques and approaches for a training session to determine whether or not training needs were met and objectives fulfilled

11 Report on a training and development evaluation to include the identification of areas of success and of improvement opportunities.

**Assessment**

**General Information**

Details of FET assessment requirements are set out in Assessment Guidelines for Providers.

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans

will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

**Assessment Techniques**

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

| | |
|---|---|
| Project | 40% |
| Skills Demonstration | 40% |
| Learner Record | 20% |

**Description**

**Project**

*A project is a response to a brief devised by the assessor. A project is usually carried out over an extended period of time. Projects may involve research, require investigation of a topic, issue or problem or may involve process such as a design task, a performance or practical activity or production of an artefact or event.*

**Skills Demonstration**

*A skills demonstration is used to assess a wide range of practical based learning outcomes including practical skills and knowledge. A skills demonstration will require the learner to complete a task or series of tasks that demonstrate a range of skills.*

**Learner Record**

*A learner record is the learner's self-reported and self-reflective record in which he/she describes specific learning experiences, activities, responses and skills acquired.*

| | |
|---|---|
| **Recognition of Prior Learning (RPL)** | Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details. |
| **Grading** | Pass 50% - 64%<br>Merit 65% - 79%<br>Distinction 80% - 100% |
| **Specific Validation Requirements** | There are no specific validation requirements |
| **Supporting Documentation** | None |
| **Access** | To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience. |
| **Transfer** | Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement. |

## 2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

| AWARD CLASS | STANDARDS | AWARDS |
|---|---|---|
| Major Award | Certificate Specification | Certificate (Levels 1 to 5)<br>Advanced Certificate (Level 6) |

| | | |
|---|---|---|
| Supplemental Award | Supplemental Specification | Supplemental Certificate (Level 3 to 6) |
| Special Purpose | Specific Purpose Specification | Specific Purpose Certificate (Levels 3 to 6) |
| Minor Award | Component Specification | Component Certificate (Levels 1 to 6) |

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

**3. FET Credit**

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

| NFQ Level | Major Awards Credit Values | Default Credit Values Minor Awards | Other Permitted Minor Award Credit Values | Special Purpose and Supplemental Award Credit Value Ranges |
|---|---|---|---|---|
| 1 | 20 | 5 | 10 | |
| 2 | 30 | 5 | 10 | |
| 3 | 60 | 10 | 5,20 | >5 and<60 |
| 4 | 90 | 10 | 5,15,20 | >5 and<90 |
| 5 | 120 | 15 | 5,10,30 | >5 and <120 |
| 6 | 120 | 15 | 5,10,30 | >5 and <120 |

**Guide to Level**

Learning outcomes at this level include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

| **Strand** | **Sub-strand** | **Nature of learning** |
|---|---|---|
| Knowledge | Breadth | Specialised knowledge of a broad area |

| | | |
|---|---|---|
| | Kind | Some theoretical concepts and abstract thinking, with significant underpinning theory |
| Know How & Skill | Range | Demonstrate a comprehensive range of specialised skills and tools |
| | Selectivity | Formulate responses to well defined abstract problems |
| Competence | Context | Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts |
| | Role | Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form and function within, multiple and complex heterogeneous groups. |
| | Learning to Learn | Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs |
| | Insight | Express an internalised, personal world view, reflecting engagement with others. |

*Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI*

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Quality and Qualifications Ireland

# Component Specification

## Training Needs Identification and Design

## NFQ Level 6

## 6N3325

### 1. Component Details

| | |
|---|---|
| **Title** | Training Needs Identification and Design |
| **Teideal as Gaeilge** | Oiliúint Riachtanais a Aithint agus Dearadh |
| **Award Class** | Minor |
| **Code** | 6N3325 |
| **Level** | 6 |
| **Credit Value** | 15 |
| **Purpose** | The purpose of this award is to equip the learner with the knowledge, skill and competence to identify training and development needs at an organisation and or individual level, to devise a training plan and to explore the scope of training and development design to meet those needs. |
| **Learning Outcomes** | Learners will be able to: |

1 Examine the internal and external environmental factors influencing training and development requirements

2 Differentiate between the concepts of learning, training, development and education

3 Examine the impact of organisation strategy, policy, vision and mission on training and development

4 Examine the purpose of training and development in an organisational and or individual setting

5 Outline the benefits of training needs analysis at an organisation and or individual level

6 Assess a range of approaches and techniques to conduct a training needs analysis

7 Outline the stages in conducting a training needs analysis

8 Assess a range of Instructional System Design (ISD) models

9 Apply a comprehensive range of specialised skills and tools in identifying the barriers to training and attitudes to training in an organisation

10 Devise a training plan based on prioritised training needs to include a cost benefit analysis

11 Design a training intervention, that incorporates a range of design factors to include trainees, adult learning theories, motivation theories, objectives, exercises, training methods, learning aids, location and facilities

12 Develop appropriate training content and materials using a range of learning aids to include web based facilities, software, flipcharts and handouts

13 Evaluate a range of performance management approaches in the context of identifying training and development needs

14 Conduct a Training Needs Analysis(TNA) to identify training and development needs for an organisation and or individual

15 Identify TNA outcomes in terms of gaps in knowledge, skills and attitudes.

**Assessment**

**General Information**

Details of FET assessment requirements are set out in Assessment Guidelines for Providers.

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

**Assessment Techniques**

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

| | |
|---|---|
| Assignment | 40% |
| Project | 60% |

**Description**

**Assignment**

*An assignment is an exercise carried out in response to a brief with specific guidelines as to what should be included. An assignment is usually of short duration and may be carried out over a specified period of time.*

The assessor will devise two assignment with a weighting of 20% each.

**Project**

*A project is a response to a brief devised by the assessor. A project is usually carried out over an extended period of time. Projects may involve research, require investigation of a topic, issue or problem or may involve process such as a design task, a performance or practical activity or production of an artefact or event.*

| | |
|---|---|
| **Recognition of Prior Learning (RPL)** | Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details. |
| **Grading** | Pass 50% - 64%<br>Merit 65% - 79%<br>Distinction 80% - 100% |
| **Specific Validation Requirements** | There are no specific validation requirements |
| **Supporting Documentation** | None |
| **Access** | To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience. |
| **Transfer** | Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement. |

## 2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

| AWARD CLASS | STANDARDS | AWARDS |
|---|---|---|
| Major Award | Certificate Specification | Certificate (Levels 1 to 5)<br>Advanced Certificate (Level 6) |

| | | |
|---|---|---|
| Supplemental Award | Supplemental Specification | Supplemental Certificate (Level 3 to 6) |
| Special Purpose | Specific Purpose Specification | Specific Purpose Certificate (Levels 3 to 6) |
| Minor Award | Component Specification | Component Certificate (Levels 1 to 6) |

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

**3. FET Credit**

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

| NFQ Level | Major Awards Credit Values | Default Credit Values Minor Awards | Other Permitted Minor Award Credit Values | Special Purpose and Supplemental Award Credit Value Ranges |
|---|---|---|---|---|
| 1 | 20 | 5 | 10 | |
| 2 | 30 | 5 | 10 | |
| 3 | 60 | 10 | 5,20 | >5 and<60 |
| 4 | 90 | 10 | 5,15,20 | >5 and<90 |
| 5 | 120 | 15 | 5,10,30 | >5 and <120 |
| 6 | 120 | 15 | 5,10,30 | >5 and <120 |

**Guide to Level**

Learning outcomes at this level include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

| **Strand** | **Sub-strand** | **Nature of learning** |
|---|---|---|
| Knowledge | Breadth | Specialised knowledge of a broad area |

| | | |
|---|---|---|
| | Kind | Some theoretical concepts and abstract thinking, with significant underpinning theory |
| Know How & Skill | Range | Demonstrate a comprehensive range of specialised skills and tools |
| | Selectivity | Formulate responses to well defined abstract problems |
| Competence | Context | Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts |
| | Role | Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form and function within, multiple and complex heterogeneous groups. |
| | Learning to Learn | Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs |
| | Insight | Express an internalised, personal world view, reflecting engagement with others. |

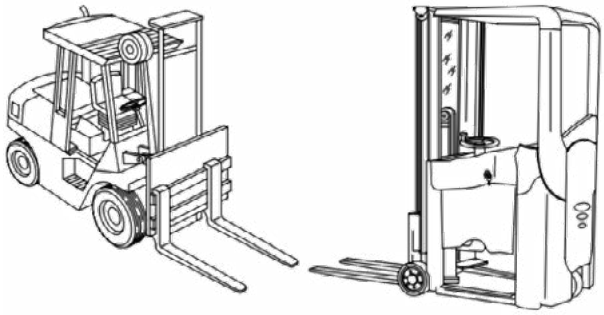
*Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI*

# Annex I: Types of rider-operated industrial trucks (non-exhaustive list)

**Extract from:**
**ISO 5053-1:2020, Industrial trucks – Vocabulary — Part 1: Types of industrial trucks**

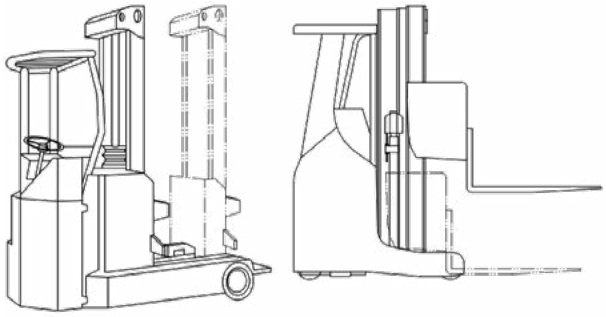
### counterbalance lift truck

stacking lift truck fitted with fork arms (or with the fork arms replaced by another device) on which the load, either palletized or not, is put in a cantilever position in relation to the front wheels and balanced by the mass of the truck



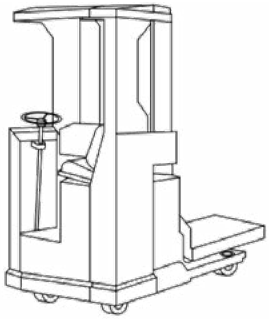
### reach truck [with retractable mast] [with fork arm carriage]

stacking lift truck with outriggers where the load can be repositioned by moving the [retractable mast) [fork arm carriage]



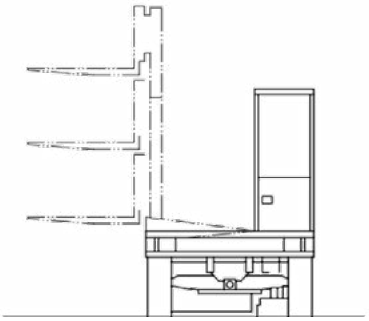
### platform truck

stacking lift truck with a load platform extending over the frame structure



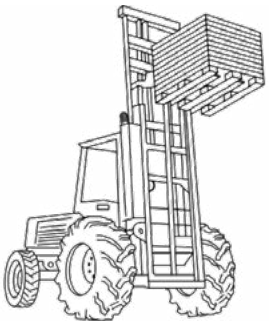
### side-loading truck

‹one side only› lift truck with mast structure or fork arm carriage which can be extended and retracted between the axles and perpendicular to the longitudinal axis of the truck, allowing it to pick up and raise a load in a counterbalanced position in relation to one side of the truck and stack or unstack alongside the truck



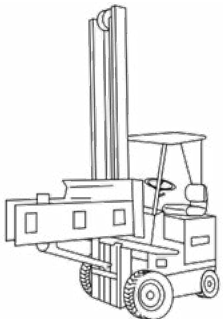
### rough-terrain truck

wheeled counterbalanced truck, intended primarily for operation on unimproved natural terrain and on the disturbed terrain of, for example, construction sites



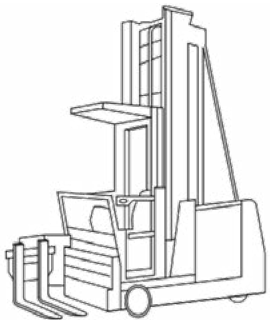
### lateral-stacking truck

<both sides> high-lift stacking truck capable of stacking and retrieving loads on both sides of the direction of travel



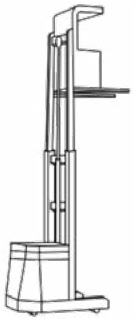
### lateral- and front-stacking truck turret truck

‹three sides› high-lift stacking truck capable of stacking and retrieving loads ahead and on either or both sides



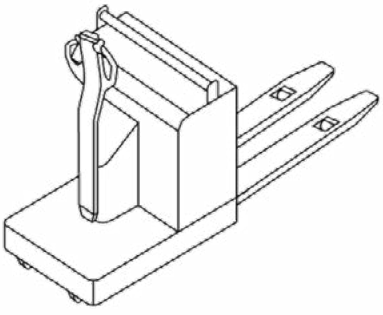
### order-picking truck

lift truck fitted with an operator's platform which can be raised with the platform or fork arms, allowing the operator to load or unload goods from racking to the load-carrying attachment



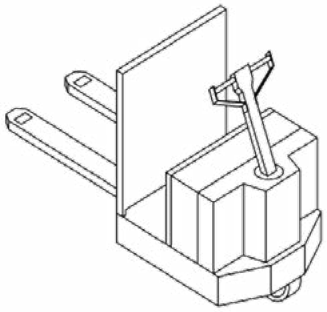
### end-controlled pallet truck

rider-controlled truck, non-stacking fitted with forks, with the operator located at the end opposite the load end of the truck and facing at a right angle to the path of travel



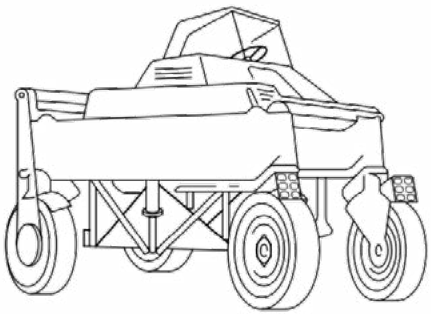
### centre-controlled order-picking truck pallet truck

rider-controlled, non-stacking lift truck fitted with forks



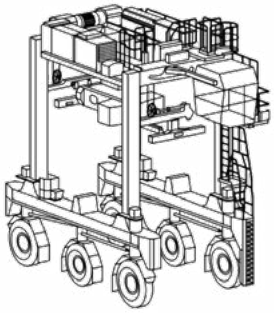
### non-stacking low-lift straddle carrier

lift truck where the frame and lift unit straddle the load to raise and move it



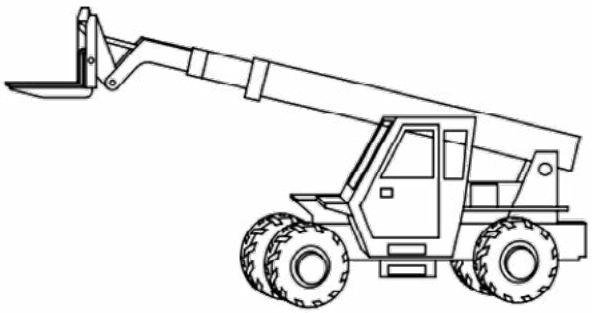
### stacking high-lift straddle carrier

lift truck where the frame and lift unit straddle the load to raise, move and stack it



### variable-reach truck telescopic handler tele-handler

lift truck fitted with one or more articulated arms, telescopic or not, non-slewing or having a slewing movement of not more than 5° either side of the longitudinal axis of the truck used for stacking loads

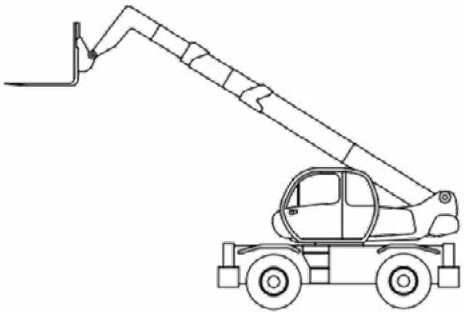


### rough-terrain variable-reach truck telescopic handler tele-handler

variable-reach truck intended primarily for operation on unimproved natural terrain and on the disturbed terrain of, for example, construction sites

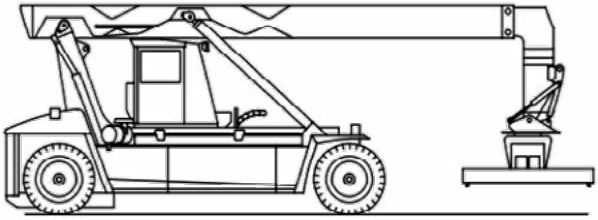
### slewing rough-terrain variable-reach truck rotating telescopic handler rotating tele-handler

rough-terrain variable-reach truck with an upper structure which can rotate around a vertical axis of the chassis in a circular motion greater than 5° either side of the longitudinal axis of the truck



### variable-reach container handler reach stacker

lift truck fitted with one or more articulated arms, telescopic or not, non-slewing used for stacking containers (empty or laden)

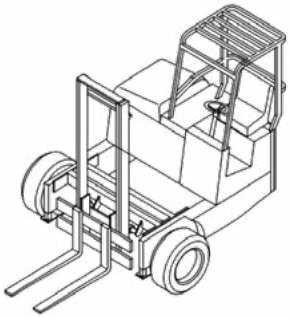


### counterbalance container handler

lift truck fitted with a spreader used for stacking containers (empty or laden)

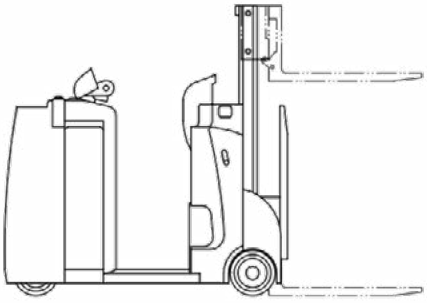
### lorry-[truck-] [trailer-] mounted truck

wheeled, operator-controlled truck with a powered driving mechanism, designed either to carry, stack or tier in racks any kind of load, and capable of self-loading to, and self-unloading from, a carrier vehicle using its load-lifting means



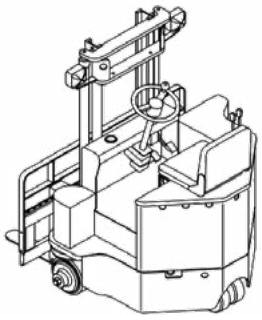
### towing and stacking tractor

truck which combines towing of trailers and stacking or moving goods



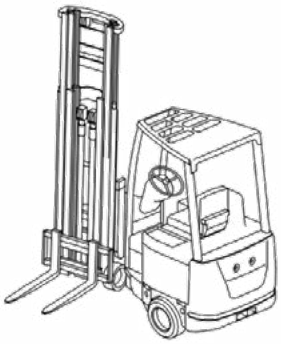
### multi-directional lift truck

truck which can travel and turn in forward, backward, left, and right directions with load handling and stacking functions



### articulated counterbalance lift truck

stacking lift truck, either pedestrian-controlled or ride-on-controlled, fitted with fork arms (or other device), on which the load, palletized or not, is put into a cantilever position in relation to the front wheels; and where the front wheels, load and mast are rotated to substantially 90°in relation to the rear of the truck, thus allowing operation in narrow aisles while maintaining the general purpose ability of a counterbalance lift truck.



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