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Code of practice for the safe use of construction hoists

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 74, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 January 2016. It was prepared by Technical Committee MHE/6, *Builder's Hoists*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 7212:2006, which is withdrawn.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

1) new recommendations with regard to the role of hoist supervisor;
2) new recommendations for dealing with temporary works;
3) new recommendations for transporting of scaffolding materials in hoists; and
4) new recommendations for driverless hoists.

This British Standard was drawn up with the participation of HSE representatives and it will be referred to in the relevant HSE publications.

This British Standard calls for the use of procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the following specific regulations:

a) Health and Safety at Work etc. Act 1974 [1];
b) Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) [2];
c) Provision and Use of Work Equipment Regulations 1998 (PUWER) [3];
d) Supply of Machinery (Safety) Regulations 2008 (as amended) [4];
e) Work at Height Regulations 2005 (as amended) [5];
f) Construction Design and Management Regulations 2015 [6].

Details of the Lifting Operations and Lifting Equipment Regulations 1998 [2] and the Provision and Use of Work Equipment Regulations 1998 [3], together with an HSE Approved Code of Practice and HSE Guidance, are given in HSE publications Safe use of lifting equipment [7] and Safe use of work equipment [8].

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1 Scope

This British Standard gives recommendations for the installation, maintenance, examination and operation of construction hoists, including hoistway protection, and on the management of these activities. It provides recommendations for the selection, planning, siting, erection, alteration and dismantling of hoists. It also sets out the responsibilities of the various parties involved in all these activities.

This British Standard is applicable to temporarily installed, powered construction hoists, having a carrier, the movement of which is restricted or guided by one or more masts.

NOTE Such hoists are used to transfer persons and/or goods between defined landing levels on sites of engineering and construction. They are not intended for use as temporary working places giving variable height access to specific areas.

This British Standard is not applicable to:

a) rope driven passenger/goods hoists;

b) hoists with platforms without sides providing protection conforming to BS EN 12158-1;

c) inclined and vertical furniture hoists;

d) concrete skip hoists;

e) permanently installed lifts and hoists;

f) mast climbing work platforms;

g) mobile elevating work platforms;

h) gin wheels;

i) chain hoists and unguided wire rope hoists/winches;

j) runway beams;

k) suspended cradles;

l) building maintenance units;

m) wind turbine and tower crane access lifts;

n) belt and chain conveyors;

o) capstan winches;

p) hoists powered by direct drive internal combustion engines;

q) formwork hoist and climbing support system.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 5975:2008+A1:2011, *Code of practice for temporary works procedures and the permissible stress design of falsework*

BS 7671, *Requirements for electrical installations – IET Wiring Regulations 17th edition*

BS EN 12158-1, *Builders' hoists for goods – Part 1: Hoists with accessible platforms*

BS EN 12158-2, *Builders' hoists for goods – Part 2: Inclined hoists with non-accessible load carrying devices*

BS EN 12159, *Builders hoists for persons and materials with vertically guided cages*

prEN 16719:2014, *Transport platforms* [1)]

3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

3.1 appointed person: supplier
competent person appointed by the hoist supplier, who is responsible for supplying the hoist

3.2 appointed person: user
competent person appointed by the management of the user organization, who is responsible for liaising with the appointed person (supplier) and the safe use of the hoist

3.3 base frame
part of a hoist that provides support for the mast and elevating assembly

3.4 buffer
resilient stop at the end of the travel of a hoist, comprising a means of arresting the movement of the hoist

NOTE Buffers usually operate by means of fluid dampers or springs.

3.5 competent person
person who has such training, practical skills and theoretical knowledge and such experience of the construction hoist and its equipment as are necessary to carry out specific duties and responsibilities

3.6 demonstrator
competent person trained, and authorized by the appointed person (supplier), to demonstrate the controls and functions of the hoist to trained operators

3.7 driverless hoists
adapted hoist that can be used by multiple operators in a similar way to permanently installed passenger and goods lifts

NOTE 1 The terminology driverless is also known as collective control or a multiple driven hoist and includes a number of additional safety enhancements to a standard hoist.

NOTE 2 Not all types of hoist can be converted to a driverless hoist or even manufactured with this technology.

3.8 drop test
test in which a hoist cage or platform is allowed to free fall in order to check the correct functioning of the overspeed safety device

3.9 erection
installation and alteration of the hoist

3.10 erection load
maximum load permitted on the cage or platform of the hoist during the erection process

[1)] This Standard is in preparation with an expected publication date of January 2017.

NOTE 1 The erection load is specified by the hoist manufacturer and is not normally the same as the rated load.

NOTE 2 As specified by the hoist manufacturer. This is normally less than the rated load for the hoist.

3.11 erection supervisor
competent person, authorized by the appointed person (supplier), who is responsible for the erection, modification and dismantling of hoists and who is on site at all times that such work is taking place

NOTE Also known in the industry as an installation supervisor, a first man or lead erector.

3.12 erector
competent person, authorized by the appointed person (supplier), who carries out the erection, modification and dismantling of hoists under the direction of the erection supervisor

NOTE Also known in the industry as an installer.

3.13 final ultimate limit device/switch (also known as ultimate limit device)
emergency device/switch arranged to stop the hoist automatically, in the event of the cage or platform travelling a predetermined distance beyond a terminal landing

3.14 guides
parts of the mast which provide guiding for the hoist cage or platform

3.15 hoist
guided temporary lifting machine serving landing levels on sites of engineering and construction with a platform, cage or other load carrying device

3.16 hoistway
total space which is travelled by a hoist cage or platform and the load

3.17 in-service
condition of a hoist in which the cage or platform (laden or unladen) is in a position other than at the lowest landing level, or in which the cage or platform is at the lowest landing level and laden

3.18 landing
area in a building or construction intended for loading and unloading the cage or platform of a hoist and to and from which persons can enter and leave the hoist

3.19 load
goods, materials, containers and/or passengers transported by the hoist within the confines of the cage/platform

NOTE The load includes the operator of the hoist.

3.20 mast
structure that supports and guides the hoist cage or platform (and the counterweight when provided) outside the mast structure

3.21 mast tie
anchorage system used to provide lateral restraint to the mast, anchored to the building or other structure

3.22 operator
competent person, authorized by the appointed person (user), who operates the hoist controls for its intended use

NOTE The hoist is operated by a dedicated authorized operator (see Annex A, Table A.1).

3.23 out of service
condition of a hoist in which the cage or platform is at the lowest landing level and unladen with the platform positioned at a designated landing level where it has the most shelter from the wind

NOTE 1 This is normally, but not necessarily, ground level.

NOTE 2 The platform is unladen and isolated to prevent unauthorized use.

3.24 oversail
unsupported portion of the mast above the top tie

3.25 overspeeding
travelling at a speed above the rated speed

3.26 overspeed safety device
mechanical device for stopping, and holding stationary on the guides, the hoist cage or platform in the case of overspeeding

3.27 passenger
person transported by a hoist

NOTE This includes the operator of the hoist.

3.28 rated load
maximum uniformly distributed load a hoist cage or platform has been designed to carry in normal operation

3.29 rated speed
maximum travel speed of the cage or platform at which the hoist has been designed to run for the specified duty

3.30 standoff distance
horizontal distance between the landing side of the gate or barrier and any travelling part of the hoist in normal operation

NOTE This is referred to as safety distance in BS EN 12158-1, BS EN 12159 and prEN 16719:2014 [2)]*.*

3.31 temporary scaffolding transportation system (TSTS)
construction hoist that has been specifically adapted by the hoist supplier for transporting scaffolding materials during scaffolding operations

3.32 terminal stopping device/switch
device/switch, or combination of devices/switches, arranged to bring the hoist cage or platform to rest automatically at or near a terminal landing, independently of the functioning of the operating control device

3.33 user organization
body that procures a hoist and is responsible for its safe use, including operation, checks, inspections, maintenance and thorough examination

[2)] This Standard is in preparation with an expected publication date of January 2017.

4 Hoist types

Hoists conforming to BS EN 12158-1, BS EN 12158-2 or BS EN 12159, and transport platforms conforming to prEN 16719:2014[2)] should be used, as applicable.

NOTE For types of hoists, see Annex B.

5 Hazards associated with the use of hoists

*COMMENTARY ON Clause **5***

*The hazards listed in **5.2** and **5.3** are examples only of the hazards that need to be taken into account. There might be other hazards associated with a particular site or hoist configuration that also need to be taken into account.*

5.1 Risk assessments

Risk assessments should be carried out to identify the hazards associated with all aspects of hoist erection, modification and dismantling, operation and maintenance (see **5.2** and **5.3**).

NOTE Attention is drawn to the Management of Health and Safety at Work Regulations 1999 [9].

When carrying out a risk assessment, account should be taken of hazards addressed in the appropriate standard to which a hoist has been produced (see Clause **4** and Annex B).

5.2 Erection, alteration and dismantling

When erecting, altering or dismantling hoists, the following should be assessed:

a) persons carrying out work without the necessary competence;

b) work at height including rescue;

c) mechanical handling and lifting;

d) falling objects, e.g. materials and tools;

e) failure of supporting structure, e.g. ground, slab, grillage, scaffolding;

f) instability of the mast due to failure to bolt up the mast sections correctly or due to failure to secure the mast ties correctly to the supporting structure;

g) loss of stability of the hoist following the removal of the last ties during dismantling;

h) use of the platform for material storage/transportation;

i) deterioration of the hoist and associated parts;

j) unauthorized alterations;

k) mixing of components from different models of hoist and manufacturers without manufacturers approval;

l) manual handling of heavy items;

m) loss of stability of the hoist following failure of the mast, mast ties or fixings;

n) movement of the drive mechanism and movement of the hoist, which could result in a person becoming trapped;

o) exposed live electrical conductors;

p) uncontrolled movement of the carrier due to overloading;

q) hazards arising from the drilling of mast tie anchorages, e.g. noise, dust, foreign objects, hand/arm vibration;

r) uncontrolled ascent or descent of the carrier;

s) unexpected movement of the carrier;

t) wet and/or uneven surfaces which can cause persons to slip or trip;

u) environmental hazards such as low lighting levels, extremes of temperature, rain and wind;

v) hazards arising from failure to follow the manufacturer's instructions.

5.3 Operation and maintenance

The following should be checked to reduce the likelihood of hazards associated with the operation and maintenance of hoists:

a) persons carrying out work or operating the hoist without the necessary competence;

b) hazards arising from unauthorized or inappropriate use, or from misuse, of the hoist including use prior to thorough examination and handover;

c) hazards arising from unauthorized modifications, alterations or additions to the hoist;

d) hazards arising from overloading of the carrier;

e) hazards arising from inappropriate loading of the carrier, e.g. eccentric loading, unsecured loading, point loading, loads protruding outside the confines of the carrier;

f) tools, materials, etc. falling from, or on to, the platform;

g) moving parts of the hoist which could strike a person or in which they could become trapped or entangled;

h) moving parts of the hoist which could trap a person between the hoist and a fixed obstruction such as the building or a piece of scaffolding;

i) the carrier being stuck in a raised position due, e.g. to a power or control circuit failure, which could result in a person being stranded on it;

j) uncontrolled ascent or descent of the carrier;

k) exposed live electrical conductors;

l) hazards arising from failure to operate, maintain or inspect the hoist in accordance with the manufacturer's instructions;

m) environmental hazards such as low lighting levels, extremes of temperature, rain and wind;

n) passengers of a hoist and persons carrying out maintenance are at risk of slipping, tripping or falling when on the carrier or at the landings, of falling from a landing on to the hoistway and of falling from the platform during the loading or unloading of goods.

5.4 Hazards associated with the operation of driverless hoists

The operation of driverless hoists should conform to the recommendations in Annex C.

*NOTE 1 The use of driverless hoists might give rise to additional hazards to those identified in **5.2** and **5.3**.*

NOTE 2 Some of the hazards associated with driverless hoists could be addressed by use of a hoist which has been specifically supplied or adapted for use as a driverless hoist as detailed in Annex C.

6 Management of the hoist installation

6.1 General

NOTE The hoist installation comprises all parts of the hoist including the hoist platform or cage, drive mechanisms, safety mechanisms, mast and tie arrangements, landing gates, access to the landings, including hoistway protection at landing interfaces and at levels where there are no landings, and the base enclosure.

The erection, modification and dismantling, thorough examination, operation and maintenance of a hoist installation should be carried out in accordance with Clause **10,** Clause **11** and Clause **12**.

The hoist installation planning process (see Clause **9**) should identify potential hazards (see Clause **5**) and set out measures to eliminate or reduce the likelihood of their occurrence.

6.2 Organizational arrangements

*COMMENTARY ON **6.2***

*The user organization, which is the body that procures the hoist for use on the site (see **3.33**), has primary responsibility for the management of the erection, modification and dismantling, and for the thorough examination, operation and maintenance, of the hoist.*

NOTE 1 The user organization could be the principal contractor on a construction site, the management on an industrial site, or a sub-contractor. Persons not employed by the user organization might also be authorized to use the hoist.

The safe erection, modification and dismantling of hoists should be planned and carried out in co-ordination with a specialist hoist supplier, using their knowledge and experience, alongside the user organization's knowledge of the site and intended use of the hoist.

The two parties should each appoint, in writing, one person, the appointed person (user) and the appointed person (supplier), respectively, who have the responsibilities defined in **3.1** and **3.2**.

NOTE 2 It is recognized that the appointed person (user) might need to draw upon the experience, expertise and knowledge of the appointed person (supplier) to assist them in the fulfilment of their responsibilities.

Regular liaison should be maintained between the appointed person (supplier) and the appointed person (user) throughout the project, and especially during the selection and planning of the hoist installation, when detailed site-specific information and preparation of the site is needed. In cases where the hoist is hired through a third party (e.g. a scaffolder) this liaison should be maintained throughout the project.

Records of liaison between the two appointed persons should be made and retained.

NOTE 3 The appointed persons could delegate tasks to other persons where considered appropriate, taking into account the ability, competence and authority of the person concerned.

The appointed persons should check that any tasks delegated to other persons are completed.

To ensure a correct installation of the hoist the user organization should carry out the following:

a) nomination of the appointed person (user) (see **6.3**);

b) identification of the user organization's requirements including hoist type,

rated load, height of travel, number of landings, types of load, length of time for which the installation is required and frequency of use (see Clause **8**);

c) identification of temporary works requirements (see **8.14**), any necessary approvals and monitoring of completion;

d) identification of the methods and equipment to be used for loading and unloading the goods/passengers (see **11.3**);

e) identification of the hoist location (see **9.5**);

f) specification of the appropriate hoist and selection of a suitable hoist supplier (see Clause **8**);

g) identification of the organizations using the hoist (see **8.7**);

h) identification of the persons who are operating the hoist (see Clause **7**);

i) identification of the training needs of the operators and provision of any necessary training (see Clause **7**);

j) nomination of the appointed person (supplier) (see **6.4**);

k) site surveys (see **9.4**);

l) planning of the installation including pre-erection activities (see Clause **9**);

m) erection of the hoist (see Clause **10**);

n) thorough examination of the hoist (including testing as appropriate) before it is put into use for the first time (see **12.1**);

o) hand-over of the hoist to the user organization, familiarization of the trained operator(s) and supply of information for safe use of the hoist (see **11.2**);

p) day-to-day management of the hoist operation including pre-use checks and emergency procedures (see **11.3**);

q) maintenance, inspection and in-service thorough examinations (see **11.9** and **12.3**);

r) record keeping and retention (see **12.7**);

s) possible modifications to the installation, or changes of use (see **10.3**);

t) planning for dismantling and removal (see **10.4**);

u) review of the dismantling and removal planning procedures (see **10.4**);

v) dismantling of the hoist and removal from site (see **10.4**);

w) arrange for investigation and communication of any dangerous occurrences or accidents during use.

These activities should form the basis of the responsibilities of the appointed persons as described in **6.3** and **6.4**.

Safe systems of work should be established and followed in accordance with **6.5**.

6.3 Responsibilities of the appointed person (user)

The appointed person (user) should act on behalf of the user organization and should be responsible for the management of the operation of the hoist or hoists.

NOTE 1 This appointment does not remove any legal responsibility from the management of the user organization but enables them to use this person's expertize to better fulfil their responsibilities.

The appointed person (user) could have other duties and need not be an employee of the user organization but should have training, theoretical knowledge and experience in accordance with Table A.1.

The appointed person (user) should, as a minimum, carry out the following:

a) identify the user organization's requirements, including hoist type, rated load, height of travel, number of landings, types of load, length of time for which the installation is required and frequency of use;

b) identification of temporary works requirements (see **8.14**), any necessary approvals and monitoring of completion;

c) identify how the hoist is to be operated, i.e. dedicated operator or driverless;

NOTE 2 Additional requirements for driverless operation are given in Annex C.

d) identify the methods to be used for loading and unloading the goods/passengers, including any temporary storage at landings;

e) identify the hoist location;

f) ensure that site surveys are carried out;

g) specify the appropriate hoist and select a suitable hoist supplier;

h) ensure that the supplier nominates the appointed person (supplier);

i) in collaboration with the appointed person (supplier), draw up a safe system of work for the operation, inspection, thorough examination and maintenance of the hoist (see **6.5**);

j) understand the safe systems of work, method statements and lift plans, and be responsible for making sure that these are implemented (see **6.5**);

k) identify the organizations using the hoist;

l) identify the persons operating the hoist;

m) identify the training needs of the operators and arrange for the provision of any necessary training;

n) plan the hoist installation including pre-erection activities; ensure that planning is carried out for delivery, erection, modification and dismantling of the hoist and its removal from the site;

o) ensure that pre-erection activities are undertaken in a timely manner (including base preparation, delivery and unloading of the hoist, provision of power, provision of safe access and any necessary exclusion zones);

p) arrange for thorough examination (including testing as appropriate) to be carried out before the hoist is put into use for the first time on that site and after any subsequent alterations, selecting a competent organization/person to undertake this task;

q) ensure that the hand-over to the user organization, demonstration to the trained operator(s) and supply of information for safe use is carried out by the supplier (see **11.2**);

r) carry out day-to-day management of the hoist operation including pre-use checks and emergency procedures;

s) arrange for maintenance, inspection and in-service thorough examinations of the hoist installation and ensure the competence of those undertaking these tasks;

t) arrange for reporting and rectification of defects;

u) manage any modifications of the hoist installation or changes of use;

v) review the dismantling and removal plan with the appointed person (supplier).

Regular liaison should be maintained between the appointed person (user) and the appointed person (supplier) throughout the project, and especially during the selection and planning of the hoist installation, when detailed site-specific information and preparation of the site is needed. In cases where the hoist is hired through a third party (e.g. a scaffolder), this liaison should be maintained throughout the project.

Records of liaison between the two appointed persons should be made and retained.

6.4 Responsibilities of the appointed person (supplier)

The appointed person (supplier) should act on behalf of the hoist supplier and should be responsible for the hoist specification (as agreed with the user), the planning and execution of the delivery, erection, modification, dismantling, removal and maintenance of the hoist.

NOTE 1 This appointment does not remove legal responsibility from the management of the hoist supplier but enables them to use this person's expertise to better fulfil their responsibilities.

The appointed person could have other duties and need not be an employee of the hoist supplier but should have such training, theoretical knowledge and experience in accordance with Table A.1.

The appointed person (supplier) should, as a minimum, carry out the following, in consultation with the appointed person (user):

a) identify the user organization's requirements including hoist type, rated load, height of travel, number of landings, types of load, length of time for which the installation is required, frequency of use;

b) identification of temporary works requirements (see **8.14**), any necessary approvals and monitoring of completion;

c) identify how the hoist is to be operated, i.e. dedicated operator or driverless;

NOTE 2 Additional requirements for driverless operation are given in Annex C.

d) identify the methods to be used for loading and unloading the goods/passengers (see **11.5**);

e) identify the hoist location;

f) specify the appropriate hoist;

g) identify the organizations using the hoist;

h) identify the persons operating the hoist;

i) discuss with the appointed person (user) the training needs of the operators and arrange training as requested;

j) carry out site surveys;

k) supply all necessary technical information to the appointed person (user), e.g. tie forces, foundation loads, power requirements;

l) plan the installation of the hoist including pre-erection activities;

m) plan the delivery, erection, modification and dismantling of the hoist and its removal from the site;

n) in collaboration with the appointed person (user), draw up a safe system of work for the delivery, erection, modification, dismantling and removal of the hoist (see **6.5**);

o) work with the appointed person (user) to ensure that the pre-erection activities are undertaken in a timely manner (including base preparation, delivery and unloading of the hoist, provision of power, safe access and any necessary exclusion zones are in place);

p) establish from the appointed person (user) who is to conduct the thorough examination (including testing as appropriate) before the hoist is put into use for the first time;

q) ensure that the hand-over to the user organization is carried out, including the supply of information for safe use, including inspection and maintenance requirements, and that demonstration to trained operator(s) is made available;

r) supply information to the appointed person (user) on emergency procedures, including manual lowering of passenger hoists to the next available landing;

s) inform the appointed person (user) of their duty to ensure that maintenance, inspection and in-service thorough examination of the hoist installation is carried out (see Clause **11** and Clause **12**);

t) establish from the appointed person (user) who is to carry out maintenance, inspection and in-service thorough examination of the hoist installation;

u) establish from the appointed person (user) the requirements for any modifications of the hoist installation or changes of use of the hoist;

v) review the plans for dismantling and removal, and conduct a site survey before the start of dismantling.

Regular liaison should be maintained between the appointed person (supplier) and the appointed person (user) at all times, and especially during the selection and planning of the hoist installation, when detailed site-specific information and preparation of the site is needed. Even in cases where the hoist is hired through a third party (e.g. a scaffolder) this liaison should be maintained throughout the project.

Records of liaison between the two appointed persons should be made and retained.

6.5 Safe systems of work and method statements

Both the appointed person (user) and the appointed person (supplier) should co-operate in the establishment of the safe systems of work to be followed in the erection.

NOTE 1 Attention is drawn to the Health and Safety at Work etc. Act 1974 [1], with regard to the establishment of a safe system of work.

NOTE 2 Safe systems of work can be established for an individual hoist or for a group of hoists. The safe systems of work could also include contributions from interested parties, including the providers of scaffolding, lifting equipment, means of access, foundations and power.

Any contributions from interested parties should be collated by the appointed person (supplier) and the appointed person (user) to produce the safe systems of work, and should be recorded in a series of documented method statements and in-service lift plans.

The following should be documented in the safe systems of work, as applicable:

a) method statements for the delivery, unloading, erection, modification, dismantling, loading and collection, and operation and maintenance, of the hoist installation;

b) procedures for ensuring that the supporting structure can accommodate the tie and foundation loads;

c) procedures for ensuring that the landing interfaces and hoistway protection are suitably designed, constructed and maintained;

d) procedures for ensuring that the hoist erectors have been trained and assessed for competence;

e) procedures for ensuring that the hoist is serviceable;

f) procedures for ensuring that the hoist operators have been assessed for competence, and provided with familiarization or training as appropriate for the hoist type supplied, including emergency lowering;

g) a schedule of loads that might be transported in the hoist and any special control measures required;

h) plans for loading and unloading goods/passengers to and from the hoist, including any additional material handling equipment required;

i) plans for temporary storage of goods adjacent to landings and at ground level;

j) plans for the security of loads during transportation;

k) procedures for rescuing persons trapped in the hoist at height;

l) procedures for the inspection and maintenance of the hoist or hoists in accordance with the supplier's instructions;

m) procedures for provision of adequate supervision of the hoist delivery, unloading, erection, modification, operation, dismantling, loading and removal by properly trained, competent and authorized personnel;

n) procedures to prevent unauthorized operation of hoists at all times;

o) procedures for ensuring the safety of all persons not involved in hoist operation;

p) arrangements for the monitoring of wind speed, placing the hoist cage/platform in the designated out-of-service position and ensuring that the hoist is correctly isolated;

q) procedures for ensuring that appropriate information is communicated to all parties concerned;

r) procedures for ensuring that a thorough examination of the hoist is carried out before first use and after any subsequent alterations;

s) procedures for ensuring that all necessary instructions, manuals, thorough examination reports, other relevant documents, and warning and information signs are provided;

t) procedures for hand-over of the hoist to the appointed person (user);

u) procedures for ensuring that all personnel involved have been made aware of their statutory duties;

v) procedures for ensuring that third parties are excluded from the working area, and for reducing the likelihood of falling objects;

w) procedures for ensuring that personnel involved in any way with the hoist are not under the influence of alcohol or drugs;

x) procedures for ensuring that personnel involved in any way with the hoist are able to understand the information provided.

NOTE 3 This might require information to be supplied in more than one language.

NOTE 4 These procedures could form part of the principal contractor's site health and safety plan. Attention is drawn to the Construction (Design and Management) Regulations 2015 [6].

7 Personnel and training

7.1 General

Persons associated with the erection, alteration and dismantling, and the operation, inspection, thorough examination and maintenance of hoists should include:

a) appointed person (user);

b) appointed person (supplier);

c) hoist supervisor;

d) erection supervisor;

e) erector;

f) demonstrator;

g) operator (dedicated);

h) operator (driverless hoist);

i) maintenance personnel;

j) competent person carrying out thorough examination.

7.2 Selection of personnel

All persons who are selected to carry out the erection, alteration and dismantling, and the operation, inspection, thorough examination and maintenance of hoists should be trained and competent to carry out all their duties and responsibilities in accordance with Table A.1.

Records of their training and experience should be consulted to assist in this selection, see also **7.3**.

Persons responsible for selection should ensure that all personnel are aware of their duties.

*NOTE 1 One person could carry out multiple job functions, with the exception of combining the roles of the two appointed persons, and the erection supervisor carrying out a thorough examination of a hoist they have erected/ altered/ dismantled (see Clause **11**).*

NOTE 2 Attention is drawn to the Management of Health and Safety at Work Regulations 1999 [9].

7.3 Training and competence

All persons associated with the provision and use of hoists should be trained and competent to carry out their duties and responsibilities (see Table A.1).

NOTE 1 The training of personnel can be formal or informal depending on circumstances. Formal training is a structured approach involving a teaching body, informal training is on-the-job training, learning from a mentor as in an apprenticeship.

NOTE 2 Some competencies can be demonstrated by either National Vocational Qualification (NVQ) [or Scottish Vocational Qualification (SVQ)] assessments or, in the case of hoist operators, by the Construction Plant Competence Scheme (CPCS) run by the Construction Industry Training Board and endorsed by the HSE. Other formal training and assessment schemes can also be used. In-company training and assessment may be carried out when there are no alternative external assessments available.

Training should be followed by supervised, on-the-job practice in specific roles and responsibilities.

Once attained, competencies should be reviewed and further training and assessment provided, where necessary, to reflect changes in practices and products.

The individual employer should be responsible for determining the training needs of persons, and for making the necessary arrangements for training and supervised practice.

NOTE 3 In the case of self-employed persons, the responsibility rests with themselves.

Training and supervised practice should be recorded by the employer. If a training provider issues a certificate stating competencies achieved by a trainee, their employer should retain a copy.

All installation personnel working on site should undertake asbestos awareness training.

7.4 Person carrying out daily or pre-use checks

Only a competent, trained person, authorized by the appointed person (user) to inspect the hoist should carry out daily or pre-use checks (see **11.6**).

NOTE A hoist operator could perform this task provided that they meet these criteria.

7.5 Person carrying out weekly inspections

Only a competent, trained person, authorized by the appointed person (user) to inspect the hoist should carry out weekly inspections (see **11.7**).

NOTE A hoist operator could perform this task but would require additional training over and above that required for pre-use checks.

7.6 Maintenance personnel

Maintenance inspections and activities should only be carried out by those who possess knowledge and expertize of the particular hoist and have been assessed as competent to carry out the work (see Table A.1).

NOTE Maintenance is usually carried out by a service engineer employed by the owner of the hoist.

7.7 Person carrying out thorough examinations

A competent person should carry out thorough examinations (see Table A.1).

The competent person should be sufficiently independent and impartial to allow objective decisions to be made.

NOTE The competent person does not have to be from an external source. If the hoist supplier or the user organization have the necessary competence within their own organization they are permitted to use it.

However, if the competent person is appointed from within, the user organization should ensure that the competent person has the authority and independence to ensure that examinations are carried out correctly and that the recommendations arising from them are carried out.

All competent persons should be assessed on appointment, again within their first 12 months, and at regular intervals (not exceeding four years) thereafter.

Assessment should form part of any training.

8 Selection of hoists and related site considerations

8.1 General recommendations

Selection of the hoist is a central part of the planning process (see Clause **9**) and should take account of the entirety of the planned hoist usage.

Speed, capacity, size and the number of hoists needed should be determined in the selection process.

NOTE The choice of an inappropriate hoist could provide significant delays to the construction programme.

The appointed person (user) should select the hoist in co-operation with potential hoist suppliers who should be consulted for guidance (see **6.3**).

When selecting the hoist the following should be determined:

a) hoist type: passenger/goods, goods only or transport platform (see Clause **4** and Annex B);

b) mode of operating: dedicated operator or driverless;

c) mode of use: change of mode during period on site, including the specialized transportation of scaffolding materials (see **8.16**);

d) duration: the length of time that the hoist is on site (see **8.3**);

e) drive type: rack and pinion or rope (see **8.4**);

f) power supply requirements: to run the hoist and to supply peak starting currents, and the availability of a suitable power supply (see **8.5**);

g) capacity: the maximum number of passengers and/or mass and size of load to be carried on the hoist at any one time (see **8.6**);

h) duty: the quantity of goods and/or persons to be moved and the required cycle times (see **8.7**);

i) configuration: both the configuration of the hoist itself and its intended site position and orientation (see **8.7**);

j) travel: top landing height and speed of travel (see **8.8**);

k) access to the hoist at the base: the required access positions to and from the hoist at ground level (see **8.9**);

l) landing levels: the required entry points on to the scaffold or structure (see **8.10**);

m) ties: the number and location of the ties required to restrain the mast(s), the loads imposed and the ability of the structure to support them (see **8.11**);

n) site constraints: restrictions imposed on the type of hoist selected by site constraints, including location, available area for erection, modification and dismantling, size and type of payload, available tie positions and suitability of the supporting structure (see **8.12**);

o) siting of the hoist (see **8.13**);

p) temporary works: any requirements (see **8.14**);

q) work programme: time required for all activities (see **8.15**);

r) hoist type.

NOTE Descriptions of hoist types are given in Annex B.

8.2 Mode of operating

For driverless/dedicated operator, see Annex C.

8.3 Duration

The length of time that the hoist is on site should be determined when deciding upon the correct hoist.

NOTE If a hoist is going to be in place for a long time it might be worthwhile putting in a high capacity unit that can move passengers or materials significantly faster than a smaller hoist which would be more economical to install but would have a restricted carrying capacity and operating speed.

Potential changes of use for the hoist during the time on site should also be taken into account.

8.4 Drive type

Passenger/goods hoists and transport platforms should have rack and pinion drives.

NOTE Goods-only hoists can be rack and pinion or rope drives. Rope drives are typically used for smaller goods-only hoists.

8.5 Power supply requirements and electrical installation

Hoists should have a stable power supply.

NOTE 1 For a hoist to operate correctly the power supply required at start-up could be significantly larger than that required once the hoist is travelling.

Generators can be used in place of the mains supply, but should be capable of supplying the potentially high starting current of the hoist.

NOTE 2 An unsuitable power supply could result in problems operating the hoist, with potential power problems on other parts of the site.

NOTE 3 Small hoists usually require a single phase supply and larger hoists a 3-phase supply.

To avoid problems with voltage drop, the distance between the isolator and the hoist should be determined when selecting the conductor size of the connecting power cable.

NOTE 4 Attention is drawn to BS 7671.

NOTE 5 The provision of the power supply is the responsibility of the user organization.

The user organization should confirm that the electrical supply conforms to the required specification. Once the selected hoist has been installed and connected to the site power supply, the insulation resistance and continuity of the protective bonding circuit of the supply should be tested (see **12.5.13.2**).

8.6 Capacity

The capacity of the hoist should be based upon the weights and geometry of the loads to be lifted.

A hoist should be selected such that the combined mass of the intended payload, any mechanical handling equipment, e.g. pallet trucks, passengers and the persons involved in loading or unloading the cage or platform, does not exceed the overall rated load or permissible point loads.

If a hoist is required to take heavy point loads, or loads that cannot be evenly distributed, the hoist supplier should be consulted.

NOTE 1 The rated load quoted for a hoist is for an evenly distributed load.

NOTE 2 A large area platform which is sized to carry bulky but light goods could be overloaded if there is a possibility that it might be filled entirely with passengers or with a combination of passengers and goods.

An overload limiting and indicating device should be fitted to all hoists to reduce the likelihood of overloading the hoist.

NOTE 3 Overloading of low capacity swivel hoists could occur when a fully laden platform is being loaded/unloaded at height, due to the weight of the person(s) moving onto the platform.

If the hoist is to be used to transport items that cannot be fitted within the confines of the cage or platform, e.g. scaffold tubes, this should be determined when selecting the hoist and should be agreed with the hoist supplier who might be able to make suitable suggestions/alternatives. A safe system of work should be developed in these circumstances.

NOTE 4 For further information on the transportation of scaffold material see CPA publication – Good Practice Guide on Transporting Scaffolding in Construction Hoists (Including Transport Platforms) *CHIG 0501 [11].*

8.7 Configuration and duty

The organization(s) using the hoist should be identified during the planning process.

The size and weight of the goods and number of passengers that are to be moved and the space available within the cage and on platforms should be determined when deciding how many hoists need to be installed and whether they should be single, twin or multiple units.

The position and orientation of the cage or platform should be determined on the basis of the site layout, taking account of any changes envisaged during the time the hoist is on site.

8.8 Travel

NOTE 1 In some instances it might not be possible to erect a hoist to the final top landing height when it is first installed. Most hoists can be extended later in the construction programme.

If a hoist requires extension during the construction programme, the number of extensions needed and the oversail to be left after each extension should be determined when the hoist is selected. Each installation stage should then be checked for stability and loadings.

NOTE 2 The combined effect of travel speed, number of stops and height can influence the productivity of the hoist.

8.9 Access to the hoist at the base

When selecting a hoist the following should be determined:

a) whether means of access and egress is needed at both ends of the cage or platform, at the sides of the cage or platform, or both;

b) whether mechanical handling equipment is to be used;

c) whether a ramp or pit should be provided for access to the cage or platform;

d) whether there is a sufficient loading and unloading area adjacent to the cage or platform;

e) whether there are adjacent hoists;

f) whether there is segregation of pedestrian, vehicle and working areas.

8.10 Landing levels

There should be sufficient space on each landing to load and unload items to and from the hoist cage or platform.

NOTE 1 This is particularly important when long and/or bulky materials are to be transported.

The hoist and type of landing gate should be chosen for their suitability for the scaffold or other landing interface provided and the type of materials to be transported.

NOTE 2 This is particularly important when loose materials are being transported.

The thresholds and landings should be able to withstand the loads imposed on them.

NOTE 3 This is particularly important where a pallet truck or other mechanical handling equipment is used, as significant point loads can be transferred to the landing.

Where a landing transfers load on to the hoist structure, the weight of the load should be restricted to avoid overloading.

The likelihood of falling materials, overloading and congestion on landings should be determined when storing materials on landings.

8.11 Ties

When selecting a hoist the requirements for tying to the supporting structure should be determined in accordance with the manufacturer's instructions.

NOTE 1 Supporting structures differ in the tie spacing and tie loads that they can accommodate.

NOTE 2 The magnitude of the tie loads is dependent on the hoist type and on the configuration of the ties, i.e. the vertical distance between the ties, and the way in which they are offset from, and connected to, the supporting structure.

8.12 Site constraints

The following site constraints should be taken into account when selecting a hoist:

a) any limitations on the area available for the hoist, in terms of both ground area and tie locations, e.g. interface with cladding, facade shape;

b) any limitation of access to the site and to the intended location of the hoist, e.g. if the hoist is to be placed in a lift well or in a courtyard where crane access is difficult;

c) any limitation of access to the site for hoist removal;

NOTE Failure to consider this point might increase the difficulty and time required to remove the hoist.

d) any limitations on the size and weight of component parts;

e) any ground conditions that could limit the foundation load;

f) location of hazards such as power lines and railway tracks;

g) changes to the site during progress of the work;

h) other work which might take place during the period when the hoist installation is on site;

i) the need to protect members of the public;

j) limitations on working hours and noise levels;

k) environmental factors, including wind, rain, ice, snow and light levels.

8.13 Siting of the hoist

The siting of the hoist should be determined at the earliest opportunity in the planning stages of the work to allow integration of the hoist into the logistics plan for the overall site work programme (see **8.15**) and should allow for:

a) access routes to be provided for both personnel and materials (see Clause **9**); and

b) temporary works, plant or equipment in the vicinity of the hoist to ensure safe running clearances.

8.14 Temporary works

Where necessary, temporary works should be carried out to enable a hoist to be installed.

NOTE Temporary works could include:

a) support for the hoist base;

b) access for delivery of the hoist to its intended location;

c) tie connection points to the supporting structure;

d) access to the tie connection points;

e) landings, run-offs and hoistway protection.

8.15 Work programme

The work programme should allow time to carry out the following:

a) procurement, configuration and preparation of the hoist by the supplier;

b) preparation and review of documentation including risk assessment, method statements, installation/removal and in-service lift plans that document the safe system of work to be followed;

c) base preparation and completion to accept design loads;

d) site specific inductions;

e) erection of the hoist;

f) completion of hoistway protection, run-offs, landings, edge protection and any base ramp, which should be completed before the hoist installation is offered for thorough examination;

g) thorough examinations and testing;

h) operator training;

i) hand-over including demonstration;

j) daily pre-use checks;

k) weekly inspections;

l) maintenance;

m) any modifications;

n) dismantling of the hoist and removal from the site.

8.16 Transportation of scaffolding

NOTE 1 Transport platforms and hoists used for transporting scaffolding materials during the erection and dismantling of scaffolding are referred to as a temporary scaffolding transportation system (TSTS) to differentiate them from hoists used conventionally. The term TSTS includes all forms of construction hoist, including transport platforms, used for this purpose.

The hoist supplier, scaffolding contractor and site management should work together when planning, operating and supervising the use of a TSTS for transporting scaffold materials.

To eliminate the likelihood of hazards, the TSTS selected should be properly equipped, a safe system of work put in place, and personnel trained, familiarized, assessed as competent and supervised. It should be the responsibility of the user organization to carry out risk assessments.

In undertaking the risk assessments, the user organization should consult with the hoist supplier and scaffolding contractor. The user organization should then prepare a method statement to document the safe system of work to be followed.

NOTE 2 When a transport platform or hoist is delivered to a site and erected adjacent to scaffolding, it is common practice for the scaffolding contractors to use the machine to carry scaffold materials as the scaffolding is extended to the higher levels.

Both hoist erectors and scaffolders should be trained and competent to work at heights when installing equipment.

NOTE 3 Scaffolders work in situations where scaffold guard rails and platforms have yet to be installed. They can therefore take on the extra responsibilities of operating hoists for transporting scaffolding materials when gates and hoistway protection have yet to be installed.

Scaffolders should undertake training in the specific skills of operating the TSTS if they are to operate hoists for transporting scaffolding materials when gates and hoistway protection have not been installed.

During the time that a hoist is specially adapted as a TSTS for use by scaffolding contractors, it should not be operated by any other person on the site and should not be used for any other purpose.

Once all gates and hoistway protection are in place, the whole hoist installation should be thoroughly examined before it is handed over to the main contractor for use as a construction hoist.

NOTE 4 Detailed guidance on the planning and safe use of TSTSs, including procedures before handing over the TSTS to scaffolders is given in the CPA publication, Good Practice Guide on Transporting Scaffolding in Construction Hoists (Including Transport Platforms) *[11].*

9 Planning and siting of the hoist installation

*COMMENTARY ON CLAUSE **9***

Before a construction hoist is delivered to site, prior to each erection or alteration, it is essential that it is inspected thoroughly to identify any worn or faulty components and that these are replaced and the results of the inspection recorded. This record might be required by the competent person carrying out thorough examination of the hoist.

Pre-delivery maintenance provides a good opportunity for the completion of supplementary tests before the hoist is erected. The construction hoist's drive and control systems needs to be powered up and checked for correct functioning during pre-delivery maintenance.

It is easier and less costly to replace components and carry out lubrication and adjustments in a depot, than when the hoist has been erected on site. Work on an erected construction hoist always involves work at height and presents difficulty in handling heavy components.

The direct transfer of hoists between sites is to be approached with extreme caution as it often leads to delays in erection and time lost through the correction of faults. Best practice guidance is for direct transfers not to be undertaken and for hoists to be taken back to a depot for full pre-delivery maintenance before the next erection takes place.

9.1 General

The appointed person (supplier) should be responsible for planning or modifying a hoist installation.

The hoist installation plan should be reviewed and updated to take account of changes in site conditions.

Liaison should be maintained between the appointed person (user) and the appointed person (supplier) throughout the project, and especially during the planning and siting of the hoist installation.

NOTE The effective preparation of the site cannot be achieved without the exchange and understanding of detailed knowledge of the selected hoist and site-specific information.

Where the hoist is hired through a third party (e.g. a scaffolder), liaison between parties should be maintained throughout the project.

Planning of a hoist installation should take account of the requirements for dismantling the hoist (see Clause **10**) and should be reviewed during the time that the hoist is on site.

No changes should be made to access, building height, availability of cranes, etc. that impedes the dismantling of the hoist.

Hoist installations should include, where necessary, the design of bases and ties, and the assessment of structures to ensure that loads imposed by the hoist can be safely carried. These activities should be carried out by a competent engineer.

9.2 The planning process

The planning process should include the following steps:

a) selection of the hoist;

b) a site survey;

c) siting of the hoist;

d) a risk assessment (see **5.1**);

e) preparation of method statements (see **6.5**);

f) preparation of an action plan.

The planning process should include review until the action plan has been agreed.

NOTE The planning process might need some of the steps to be carried out more than once.

9.3 Programme of works

At the conclusion of the planning process (see **9.2**), the appointed person (user) should produce a programme of works detailing the actions to be undertaken by all parties, and the time scales. This should allow time for machine preparation, maintenance, inspection and thorough examination (see Clause **11** and Clause **12**).

The appointed person (user) should ensure that the actions are carried out within the agreed time scales.

NOTE In order to correctly install a hoist in accordance with the programme of works, the appointed person (supplier) is reliant on the timely completion of the agreed actions, e.g. the provision of the power supply, completion of the base, provision of safe access to the site for the hoist and availability of scaffolders.

9.4 Site survey

The site survey is be carried out to determine what type of hoist is required and should include the following:

a) confirmation that a hoist is needed, what it is going to carry and how frequently;

b) required rated load of the hoist;

c) top landing height;

d) number and location of landings;

e) method to be used for loading and unloading;

f) routes for access and egress of personnel and goods;

g) proximity of areas accessible to the public;

h) intended location and orientation of the hoist or hoists (see **9.5**);

i) ground or supporting base conditions (levels and load bearing capacity);

j) tying arrangements;

k) the presence of any overhead obstructions including power lines and crane jibs;

l) the presence of any obstructions in the hoistway e.g. scaffolding, or windows opening into the hoistway;

m) the need for hoistway protection;

n) provision of landing interfaces including suitability of gate type selected;

o) the need to avoid obstruction of fire escape routes;

p) power supply requirements and connection arrangements needed;

q) access for the delivery and collection of the hoist to and from the site;

r) lifting requirements for the erection, modification and dismantling of the hoist;

s) the provision of task lighting, where required;

t) access to tie positions;

u) any environmental constraints placed on the site by the local authority or other body, e.g. a requirement by the local authority to limit noise to certain hours of the day;

v) any requirements to obtain permits to work;

w) client requirements for working at height;

x) client requirements for personnel qualifications and inductions;

y) the presence of asbestos as identified by the principle contractor's survey.

The site survey should be part of the planning process (see **9.2**) and should be carried out by the appointed person (user) and the appointed person (supplier) using the information obtained when selecting the hoist.

The appointed person (supplier) should record the details of the site survey, including any necessary sketches, drawings and photographs.

9.5 Siting of hoists

The siting of the hoist should be based on the site survey report (see **9.4**), however the following should also be taken into account:

a) the need to position the hoist as close as is practical to the goods storage location;

b) the need to position the hoist away from any activities that could adversely affect its safe operation;

c) the need to position the hoist where there is safe access for persons and goods at all levels;

d) the need for ramps, where required, to access the hoist;

e) the need for a hoist base foundation constructed below ground level to allow level access for loading;

f) the need for base drainage;

g) the need for provision of suitable foundations, for which the following should be taken into account:

   1) vertical and horizontal loads and overturning moments;

   2) base foundation load capacity;

   3) where the base is supported by a gantry or other structure;

   4) the high impact loads on the foundations that could occur when a hoist makes contact with its buffers (manufacturer's information should be referred to);

   5) information given by the manufacturer for design of the foundations taking into account the geographical zone of the United Kingdom in which the hoist is to operate (a European storm wind map is given in BS EN 12158-1:2000, Annex A, BS EN 12159:2000, Annex A and prEN 16719:2014 [3)], Annex A);

h) the provision for soft ground, underground services and excavations;

i) the need for provision of suitable ties (see **9.6**);

j) the need for provision of hoistway protection to prevent injury to persons, including members of the public, and

k) the need to modify the hoistway protection as the site is altered.

9.6 Tying

Provision for tying the hoist to a supporting structure should be made by the appointed person (user) and should take into account the ability of the building and/or the scaffolding to accommodate the loads imposed by the ties.

[3)] This Standard is in preparation with an expected publication date of January 2017.

Access should be provided at each proposed tie position for erection, dismantling, maintenance, inspection and thorough examination.

The manufacturer's guidance on the tying requirements for the hoist should be obtained from the appointed person (supplier) and the following factors should be taken into account when determining the type of ties to be used:

a) the required vertical distance between the ties as given by the hoist manufacturer;

b) the required horizontal spread between the tie legs as given by the hoist manufacturer;

c) the distance of the hoist from the fixing point on the building or scaffolding;

d) base conditions;

e) length of oversail;

f) in-service loads;

g) out-of-service wind loading.

NOTE 1 The above factors contribute to the magnitude of the tie fixing loads and the loads imposed on the tie components. The magnitude of the tie loads determines the type of hoist tie required.

The tie loads imposed on ties assembled from standard scaffold components should be calculated to ensure that the tie loads imposed do not cause the failure of any single component of the scaffold.

NOTE 2 Specially designed ties might be required.

The user organization should confirm to the hoist supplier the area of the United Kingdom in which the hoist is to be operated to ensure that the tie loads can be accurately calculated.

NOTE 3 Out-of-service wind loading is particularly important because wind speeds in the UK are, on average, higher than in continental Europe where the majority of hoists are manufactured.

NOTE 4 It is the responsibility of the appointed person (user) to make arrangements for the monitoring of wind speed.

Ties should not be removed or altered without the written permission of the appointed person (supplier).

NOTE 5 If this permission is given and ties are removed, then additional measures, such as the use of temporary ties or a crane, might be required when dismantling the hoist.

Any removal of and/or changes to the ties should be determined in the planning stage, and should be detailed by the appointed person (supplier) in the method statement covering dismantling (see **10.4**).

Ties and foundations are temporary works (see **8.14**) and should be checked to at least BS 5975:2008+A1:2011, Category 2 of Table 1.

9.7 Siting agreement

Following the selection of the hoist (see Clause **8**), the site survey (see **9.4**) and planning for the siting of the hoist (see **9.5**), details of the planned siting of the hoist should be agreed between the appointed person (user) and the appointed person (supplier) and should be recorded in a documented siting agreement.

9.8 Risk assessment

Details obtained during the site survey (see **9.4**) should form part of the risk assessments, the outcome of which forms the basis of the safe systems of work as set out in the method statements (see **6.5**).

NOTE Attention is drawn to the Management of Health and Safety at Work Regulations 1999 [9] and the Work at Height Regulations 2005 [5].

9.9 Method statements

Method statements (see **6.5**) should be prepared as part of the planning process (see **9.2**). Once the method statements have been prepared, they should be agreed with the appointed person (user) before issue at the erection briefing (see **10.1**) to all persons involved in the work.

The information contained in the method statements should be incorporated into the site health and safety plan.

NOTE Attention is drawn to the Construction (Design and Management) Regulations 2015 [6] with regard to the information contained in the method statements and their relation to the site health and safety plan.

9.10 Loading the hoist

9.10.1 General

The hoist operator should have ultimate responsibility for the loading of the hoist and should only load items listed in the in-service lift plan, using appropriate control measures (see **6.5**).

The appointed person (user) should prepare an in-service lift plan, which should include a schedule of the loads permitted to be transported in the hoist.

This schedule should include for each type of item:

a) dimensions, including packaging or stillage;

b) weight of material including packaging or stillage;

c) maximum number of items to be carried in platform at any one time;

d) orientation during loading, transport and unloading;

e) method of loading and unloading, including point loads;

f) mechanical handling equipment required;

g) method of securing within the confines of the platform if required;

h) method of transporting loose materials e.g. bricks;

i) maximum permissible wind speed.

The hoist operator should be familiarized with the contents of the lift plan and provided with a copy for reference.

9.10.2 Loading

Any load transported in the hoist should be secure so that it remains within the confines of the platform or cage.

Where necessary, the load should be secured to anchorage points on the platform or cage, or should be contained by means of, e.g. bins, banding or shrink wrapping, to prevent movement during travel.

For loads with a large surface area, e.g. sheeting, plasterboard, plywood or cladding, the effect of wind speed on the load should be taken into account, with the hoist supplier consulted regarding safe operating wind speeds.

NOTE 1 It is the responsibility of the appointed person (user) to make arrangements for the monitoring of wind speed.

If mechanical handling equipment is used to load the hoist, the choice and use of such equipment should be assessed as part of the relevant safe system of work (see **6.5**).

The following precautions should be taken when using mechanical handling equipment.

a) When loading the hoist, the mechanical handling equipment should not collide with the hoist as this could damage the structure.

b) Loads should not be slid across the floor of the platform or cage as excessive loads might be imposed on the hoist and could cause damage.

c) When lowering loads on to the floor of a platform or cage, excessive loads should not be imposed on the hoist, as these could cause damage.

d) If a pallet handling device is used for moving loads on to the platform, the appointed person (supplier) should be consulted.

NOTE 2 Loads carried onto the platform or cage with pallet handling devices could impose extremely high point loads which might not be uniformly distributed and could cause damage to the floor structure of the hoist or its entrance ramps.

Where passengers are being carried in a hoist, the maximum number of persons specified by the manufacturer should not be exceeded.

9.11 Transportation of loads which are not confined within the platform or cage

Hazards associated with the carriage of materials which protrude outside the confines of the cage/platform (see **9.10**), vertically or horizontally e.g. scaffold poles, scaffold boards or ducting, should be determined (see Clause **5**) in the planning process (see **9.2**).

*NOTE 1 There are more appropriate methods of carrying scaffolding in bespoke hoist systems (see **8.16**).*

The hoist should not be used or modified for this purpose unless the appointed person (supplier) has given written permission to the appointed person (user).

NOTE 2 Hoists are available with a range of platform sizes and allow the selection of an appropriate hoist for the task to be undertaken without items extending outside the platform.

Before a hoist is used to lift such a load the appointed person (user) should consult the appointed person (supplier) as additional specialist equipment might be needed for the hoist (see also **8.6** and **9.5**).

A risk assessment should to be undertaken (see **5.1**) to identify the hazards involved during loading, unloading and travel, and the necessary control measures should be identified.

*NOTE 3 Certain loads may not be readily contained and stabilized within the confines of the hoist platform or cage, e.g. long scaffold tubes or boards carried vertically (see **8.16**).*

9.12 Retention of planning documents

All planning documents, including calculations and drawings, should be retained on site for the whole of the time that the hoist is operation, together with all records of daily checks, weekly inspection, maintenance, inspection and thorough examination (see **12.7**). A set of records should also be retained by the hoist supplier.

10 Erection, alteration and dismantling and provision of hoistway protection and landings

*COMMENTARY ON CLAUSE **10***

During the erection, alteration and dismantling of the hoist, lifting equipment and accessories, in addition to the hoist itself, might be required. Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2]. Approved Code of Practice, Safe use of lifting equipment 2014 [12] is available containing detailed information on the requirements of LOLER 1998.

10.1 Erection

Personnel erecting the hoist should:

a) obtain an erection method statement produced by the appointed person (supplier) before they commence work;

b) attend a briefing to confirm the tasks to be carried out and should raise areas of concern or lack of clarity with the appointed person (supplier);

c) ensure they have the required information, tools and equipment.

The erection supervisor should carry out the following tasks:

1) ensure that after the briefing each person signs a copy of the method statement to confirm that they have attended the briefing and understand what tasks are to be carried out, in accordance with the safe systems of work (see **6.5**). The signed copy should be retained;

2) any safety measures highlighted in the method statement, such as exclusion zones above, below and around the work area and personal protective equipment (PPE), have been put in place, or supplied to the erectors;

3) check the site to ensure that it is as stated in the planning documents and that no additional hazards have been introduced. This should include a check that any temporary works (such as bases and tie points) have been completed;

4) check the proposed hoistway for the presence of overhead obstructions such as scaffold projections, power lines or crane jibs.

The erection supervisor should know the rated erection load capacity of the hoist and should ensure, during all stages of erection, that the number of persons, mast sections, ties and other equipment in the cage or on the platform at any one time does not exceed the rated erection load of the hoist.

If guarding is removed during erection, a safe system of work should be adopted which takes into account the particular hazards created by the removal of the guards.

If asbestos is found on site it should be confirmed by the appointed person (user) and appropriate measures taken.

The rated load should not be exceeded in any circumstances other than for testing, as part of thorough examination, under the supervision of a competent person.

Wind speeds should be monitored and the erection supervisor should cease works before the wind speed exceeds the maximum values specified in the erection method statement.

NOTE 1 It is the responsibility of the appointed person (user) to make arrangements for the monitoring of wind speed.

If at any stage during the erection process, the erection supervisor encounters problems with any aspect of the erection method statement, they should consult the appointed person (supplier) before proceeding further.

No significant change to the planned method described in the erection method statement should be made unless it has been agreed by the appointed person (supplier) and appointed person (user). Any change to the method statement should be recorded.

The mast sections on the mast assembly should be bolted (or otherwise fixed) in place at the end of each period of work or before any further work is carried out.

NOTE 2 A number of accidents have occurred in the past where mast sections have been left unsecured and the hoist subsequently has been driven onto the unsecured mast section with disastrous consequences.

After the hoist has been erected, and before the hoist installation is thoroughly examined by a competent person, the erection supervisor should ensure that:

a) the hoist cage or platform is complete and installed in accordance with the manufacturer's instructions;

b) all tasks detailed in the method statement have been completed;

c) the cage or platform is not fouling the structure;

d) all mast sections are secure;

e) all relevant mast ties are secure and in accordance with the installation drawing;

f) all landing gates are fitted;

g) all safety interlocks, including limit devices/switches, are securely fitted and working correctly;

h) the hoist is responding correctly to the controls;

i) the correct rated load for the configuration is clearly and durably marked on the hoist;

j) all guards are installed correctly;

k) all electrical control panels are closed and locked;

l) the electrical supply to the hoist is isolated to prevent unauthorized use;

m) all safety signs are in place;

n) the hoistway protection, run offs, landings, edge protection and any base ramps are completed.

10.2 Hoistway protection and landings

*COMMENTARY ON **10.2***

The ultimate responsibility for the provision and management of hoistway protection rests with the user organization, which might be the principal contractor.

The planning, design and structural integrity of the hoistway protection and the landing interfaces should be the responsibility of the user organization.

NOTE 1 Construction hoists are modular machines made up from a series of parts to suit individual sites and structures.

The provision of landing gates, landings and hoistway protection should be included in the installation process. Where the risk assessment (see **5.1**) highlights the risk of falling objects, the gates should be in-filled to prevent materials falling through.

NOTE 2 Landing gates, landings and hoistway protection serve a threefold purpose, as follows:

a) prevention of persons and/or materials falling from a height;

b) provision of safe access for materials and persons to and from the hoist platform or cage;

c) prevention of persons being struck by any part of the moving hoist.

Hoistway protection should be provided over the full height of travel of the platform or cage and the thresholds between the platform or cage and the landings should be in-filled to prevent persons or materials from falling through (see Figure 1).

10.3 Alterations to the hoist installation

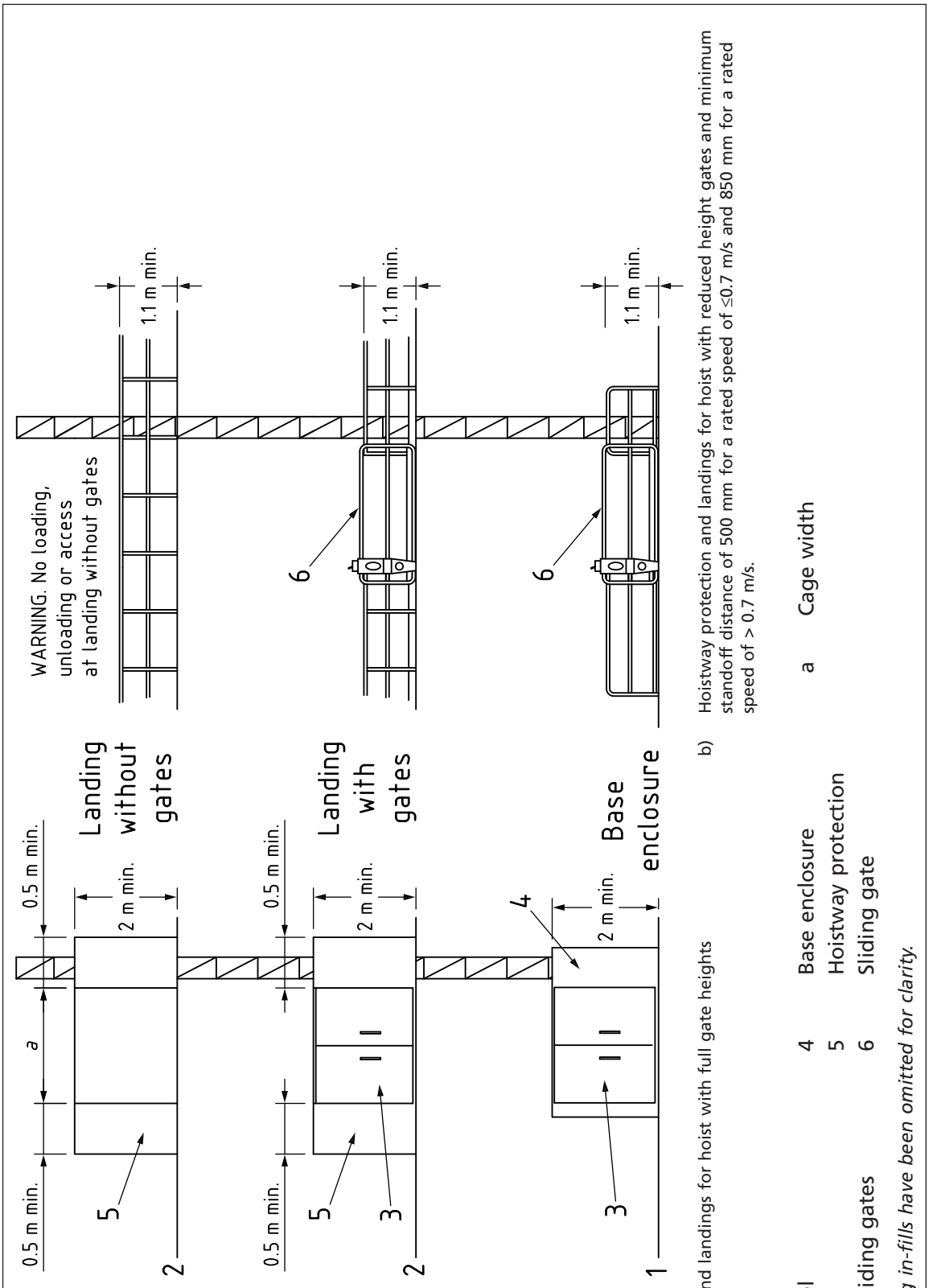
Once the initial hoist installation has been completed in accordance with the method statement, no alterations to the installation should be carried out without a re-assessment by the appointed person (supplier) or a nominated person.

The re-assessment should include an assessment of the proposed alterations and their implications for safety during the remainder of the planned use of the hoist and its subsequent dismantling. A method statement for the alterations should then be prepared.

Before undertaking alterations to the hoist installation, the erection supervisor should be in possession of written authorization from the appointed person (supplier) making the re-assessment and a copy of the method statement for the alterations.

*NOTE These alterations may also be subject to further thorough examination (see **12.3**).*

Figure 1 **Hoistway protection and landings**



a) Hoistway protection and landings for hoist with full gate heights

b) Hoistway protection and landings for hoist with reduced height gates and minimum standoff distance of 500 mm for a rated speed of ≤0.7 m/s and 850 mm for a rated speed of > 0.7 m/s.

Key

1	Ground level	4	Base enclosure	a	Cage width
2	Landing	5	Hoistway protection		
3	Hinged or sliding gates	6	Sliding gate		

NOTE Gate and landing in-fills have been omitted for clarity.

10.4 Dismantling and removal from site

The dismantling and removal of the hoist from the site should be carried out in accordance with **10.1**.

Before dismantling a hoist, the persons carrying out the dismantling operation should ensure, by reference to the erection method statement, that:

a) there have been no changes from the original installation that might adversely affect the safety of the dismantling operation (e.g. missing or loose mast ties or fixing bolts, missing hoistway protection, removal of landings);

b) there are no visible signs of stress or weakness in the hoist or ties which might affect the safety of the dismantling operation;

c) arrangements are in place to ensure that any temporary ties used during erection are replaced as required during the dismantling;

d) the base frame can be relied upon to provide sufficient stability, in all directions, when the last mast tie has been released;

e) the maximum number of mast sections and ancillary equipment that can be carried by the hoist, and their required distribution such as not to exceed the manufacturer's specified erection load, is known by all those taking part in the dismantling;

f) a drop test is carried out, where appropriate, prior to dismantling (see **12.5.12**);

NOTE This may be with or without a load.

g) a functional test of the hoist motor brake is carried out, with a load, prior to dismantling.

If any of the above provisions are not met, the dismantling operation should not proceed and the appointed person (supplier) should be contacted for instructions.

10.5 Personnel

Personnel should not be permitted to erect, alter or dismantle a hoist unless they are trained, competent and authorized to do so, in accordance with Clause **7**, or are undergoing formal training under supervision.

The user organization should ensure that all personnel carrying out the erection, alteration or dismantling of hoists are physically and mentally fit to undertake the work, in accordance with Table A.1.

The user organization, together with the employers of personnel carrying out the work should ensure that all personnel understand the potential hazards associated with erection, alteration and dismantling of the hoist, including means of access/egress at height and stability of the structure.

NOTE 1 Attention is drawn to The Work at Height Regulations 2005 [5].

The user organization, together with the employers of personnel carrying out the work, should ensure that all personnel are trained and competent in the use of personal fall protection, work restraint, work positioning, fall arrest or rescue systems prior to starting works.

The personal fall protection equipment supplied should be fit for use, inspected and records kept. Defective equipment should be removed from service immediately.

The appointed person (supplier) should consult the appointed person (user) to ensure planning for rescue at height, which may involve the emergency services, is contained within the total site rescue planning process.

NOTE 2 The emergency services might need to be involved in rescue at height. Further guidance and information can be obtained from CPA Best Practice Guide Work at Height on Construction Hoists *CHIG 0901 [13].*

11 Hand-over, operation and use, maintenance and in-service inspection of hoists

11.1 General

The appointed person (user) is responsible for the operation and use, maintenance and in-service inspection of the hoist and should follow the safe systems of work for these activities (see **6.5**).

The appointed person (user) should ensure that the hoist supervisor and hoist operator(s) understand the safe systems of work, and that records are kept regarding hand-over, operation, maintenance and inspection of the hoist (see **12.7**).

Where more than one sub-contractor is authorized to use the hoist to access a building or other structure, the appointed person (user) should co-ordinate the use of the hoist.

The appointed person (user) should also arrange the thorough examination of the hoist (see Clause **12**).

The operation and use of driverless hoists should be carried out in accordance with **11.13** and Annex C.

11.2 Hand-over of the hoist

Once the thorough examination, following installation of the hoist (see Clause **12**), has been completed, the appointed person (supplier) should arrange hand-over of the control of the hoist to the appointed person (user).

The appointed person (supplier) should ensure that a demonstrator has familiarized the hoist operator(s) with the controls and functions for day-to-day use and for use in emergency situations, together with the daily pre-use checks and weekly inspections for the particular hoist they are to operate. This demonstration should be recorded in the hoist hand-over report and a copy of this report handed to the appointed person (user).

This familiarization should not be considered as part of the training.

NOTE 1 Familiarization is the term commonly used for the process in which the demonstrator employed by the hoist supplier shows the controls and functions of the hoist to the operator(s) employed by the user organization. This is normally done when the supplier hands over the hoist to the user after it has been installed on site.

The appointed person (user) should make sure that the hoist operator(s) who have been trained to operate the hoist attend the hand-over of the hoist.

NOTE 2 For a typical hoist hand-over report form, see Table F.1.

11.3 Operation and use of the hoist – general

The day-to-day operation and use of the hoist should be controlled by the hoist supervisor.

The appointed person (user) should ensure that only operators who have undergone training and familiarization with the particular hoist should be authorized to operate that hoist.

Hoist operators should have the training and experience to perform their duties and responsibilities in accordance with Table A.1.

11.4 Emergency communication

If a hoist cage containing passengers becomes stranded at height, the appointed person (user) should ensure that communication or signalling is available to those passengers so that the rescue plan can be put into action (see **10.5**).

11.5 Loading of the hoist

The hoist operator should have responsibility for the loading of the hoist and should only load items listed in the in-service lift plan, prepared by the appointed person (user) (see **9.10**).

Loads which project beyond the confines of the cage should not be carried unless authorized by the appointed person (user) (see **9.11**).

If the hoist operator is asked to carry items which are not listed in the in-service lift plan they should refer to the appointed person (user) before proceeding.

11.6 Pre-use checks

At the beginning of each working day or shift the hoist operator should carry out a daily pre-use check in accordance with the hoist supplier's instructions. The results of the check should be recorded and any defects reported to the appointed person (user).

If any defects are found these should be rectified before the hoist is used.

Arrangements for carrying out the checks should be agreed between the appointed person (user) and appointed person (supplier).

NOTE An example of a checklist for a rack and pinion or rope driven hoist is given in Annex D and an example of a report form is given in Table F.2.

11.7 Weekly inspections

In addition to the pre-use checks, during periods that the hoist is in use, weekly inspections should be carried out in accordance with the hoist manufacturer's instructions. The results of the inspection should be recorded and any defects reported to the appointed person (user).

If any defects are found these should be rectified before the hoist is used.

Arrangements for carrying out the inspections should be agreed between the appointed person (user) and appointed person (supplier).

NOTE An example of a weekly inspection checklist for a rack and pinion or rope driven hoist is given in Annex E and an example of a report form is given in Table F.3.

11.8 Inspection and testing prior to dismantling of the hoist

Prior to dismantling of the hoist, all parts of the hoist should be inspected in accordance with **10.4**.

The inspection should confirm that all components are in place, secured and serviceable and that all structural ties and mast bolts are present and secure [see **10.4** c)], in accordance with the erection method statement.

As part of the pre-dismantling inspection the following tests should be carried out:

a) a drop test, with or without a load (see **12.5.12**);

b) a functional test of the hoist motor brake while carrying a load (see **12.5.9**).

The results of this inspection should be recorded and if any defects are found these should be rectified before the hoist is used or dismantled.

11.9 Maintenance of hoists

Hoists should be maintained in accordance with the manufacturer's instructions to prevent deterioration of the installation.

Hoists should be serviced and inspected, with any defects rectified, prior to erection.

NOTE 1 It is generally more appropriate to carry out major maintenance on hoists while they are not erected or in use.

Maintenance intervals should be set to take into account such factors as the intensity of use, the operating environment and the consequences of hoist malfunction or failure occurring in a high risk location.

Sufficient time should be allowed in the site work programme (see **8.15**) for maintenance to be carried out, ideally during normal working hours.

The appointed person (user) should ensure that maintenance is carried out on the hoist.

Maintenance is generally carried out by the hoist supplier and the appointed person (supplier) should ensure that maintenance is carried out by competent persons who have knowledge of the specific hoist or who are in the process of gaining experience and are working under supervision (see **7.6** and Table A.1).

NOTE 2 The hoist operator could be trained and authorized to carry out certain maintenance activities.

NOTE 3 For further information on maintenance see CPA publication, Good Practice Guide on Maintenance, Inspection and Thorough Examination of Construction Hoists *[14].*

11.10 Maintenance records

*COMMENTARY ON **11.10***

Comprehensive maintenance records are essential to the safe, efficient and economical operation of construction hoists.

Maintenance records provide complete cradle to grave history of the individual hoist, and should provide the following information:

a) proof of adequate maintenance as part of the management system;

b) establishing breakdown trends over time and informing the review of maintenance frequency;

c) identification of component failure trends for feedback to the manufacturer;

d) proof of adequate maintenance to the enforcing authorities in the event of an incident;

e) enabling the performance of the hoist to be reviewed over time to inform future purchases.

After maintenance has been carried out on site, a copy of the maintenance record should be left with the site manager.

11.11 Maintenance record format

NOTE Maintenance records can be kept in either paper or electronic format. Paper records are often easier to update as the input is often in paper format such as inspection reports or work sheets. Electronic records are, however, more secure against loss and damage, and the data is more readily analyzed.

The user organization should ensure that maintenance record software packages are robust enough to accommodate changes in types of input and output.

11.12 Machine history files

Each construction hoist should have its own machine history file, in either paper or electronic format, in which all records of maintenance are kept by the construction hoist owner. These should include (where applicable):

a) EC Declaration of Conformity;

b) pre-delivery inspections;

c) service reports and worksheets;

d) breakdown reports and worksheets;

e) daily and weekly inspection reports;

f) records of component replacement;

g) records of major overhaul;

h) erection, alteration and dismantle records;

i) test reports;

j) wire rope test certificates;

k) thorough examination reports;

l) records of defect rectification;

m) data logger records;

n) records of supplementary tests;

o) record of modifications and upgrades;

p) safety alerts from manufacturers;

q) records of extraordinary events.

A site-specific machine history file should be kept on site by the appointed person (user) to record all maintenance activities carried out on the hoist whilst it is erected on that site. This file should include (where applicable):

1) service reports and worksheets;

2) breakdown reports and worksheets including records of defect rectification, component replacement and work completed following extraordinary events;

3) daily and weekly inspection reports;

4) erection, and alteration records including records of modifications and upgrades; and

5) thorough examination reports and records of supplementary tests.

NOTE 1 Attention is drawn to the Provision and Use of Work Equipment Regulations (PUWER)1998, reg 5 [3].

NOTE 2 The records in the site machine file are less comprehensive than those in the owner's file as they only refer to the period during which the hoist was on that particular site.

Records from the site file should be duplicated in the construction hoist owner's history file to ensure that this contains a complete cradle to grave record of the specific hoist.

NOTE 3 As construction hoists are essentially modular structures made up of interchangeable components such as mast sections, platform/cage sections, ties, bases and gates, it is often difficult to identify what actually makes up an individual hoist with an individual serial number. Common practice in the industry is to take a hoist with a given serial number as being made up of the base frame, drive frame and platform/cage. All other components are added to the hoist as required, to make up a construction hoist of a particular configuration for erection on a specific site.

As the machine history file refers to only those components that make up the hoist a further supplementary list of all the components which make up the hoist installation should also be maintained.

11.13 Additional recommendations for driverless hoists

NOTE Driverless hoists can be used by multiple operators in a similar way to a permanently installed passenger goods lift.

The appointed person (user) should ensure that driverless hoists operating on site are installed with additional safety measures in accordance with Annex C.

12 Thorough examination and testing of hoists

*COMMENTARY ON CLAUSE **12***

LOLER 1998, Regulation 9 [2], specifies thorough examination and inspection. In LOLER 1998 the term thorough examination also includes testing.

Thorough examination has three purposes:

a) to determine whether the hoist has been installed correctly and is safe to operate;

b) to detect any deterioration of the hoist after it has been installed by the scrutiny of its condition and to assess the significance of any deterioration for the continuing safe operation of the hoist;

c) to determine whether any alteration or major repair to the hoist has been carried out correctly and that the hoist is safe to operate.

LOLER 1998 requires that construction hoists be thoroughly examined:

*1) following installation at a new site and before the hoist is handed over to the customer and put into service (see **12.1**);*

*2) following reconfiguration on site and before the hoist is handed over to the customer and put back into service (see **12.2**);*

*3) periodically to detect any deterioration that might have occurred during use (see **12.3**);*

*4) following occurrence of exceptional circumstances (see **12.4**).*

NOTE 1 A summary of the examination and testing necessary in each of these situations is given in Table 1.

NOTE 2 Responsibility lies with the user organization to select the competent person/ organization to carry out a thorough examination.

Table 1 **Summary of examinations and testing and documentation**

Type of examination		Examinations (12.5.1 to 12.5.8)	Functional tests (including emergency lowering) (12.5.9)	Load control device/ overload sensing tests (12.5.10 to 12.5.11)	Load test[A), B)] (12.5.11)	Drop test[A), C)] (12.5.12)	Non-destructive testing (NDT) (12.5.14)	LOLER Schedule 1 report required (12.7.1)
Thorough examination on completion of hoist installation (**12.1**)		+	+	+	+(125%)	+(100%)	D	+
Periodic thorough examination (**12.3**)		+	+	+	+(100%)	+(100%)	D	+
Thorough examination following occurrence of exceptional circumstances (**12.4**)		+	D	D	D	D	D	+
Thorough examination following reconfiguration on site (**12.2**)	Mast height increased	+	D	–	+(125%)	–	D	+
	Mast height reduced, no ties removed	+	D	–	–	–	D	+
	Mast height reduced, ties removed	+	D	–	+(125%)	–	D	+
	Gate(s) added	+	D	–	–	–	–	+
	Gate(s) removed	+	D	–	–	–	–	+
	Ties added	+	D	–	+(125%)	–	D	+
	Ties removed	+	D	–	+(125%)	–	D	+

+ Neccessary.
– Not necessary.
D At the discretion of the competent person.
A) Values in parenthesis are percentages of the rated load of the hoist.
B) Hoists fitted with an overload detection device should be proof load tested in accordance with the manufacturer's instructions.
C) This load could be reduced if the manufacturer's instructions recommend use of a smaller load for testing.

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12.1 Thorough examination following hoist installation

*COMMENTARY ON **12.1***

LOLER 1998 [2] specifies that the nature and extent of the thorough examination are to be decided by the competent person carrying out the thorough examination.

Thorough examination of the hoist following installation should determine whether the hoist has been installed correctly, i.e. has strength and stability and is safe to operate.

Thorough examination following hoist installation should be carried out irrespective of any previous periodic thorough examinations (see **12.3**).

Whilst the competent person carrying out the thorough examination has to decide what testing, if any, is required as part of a thorough examination, it should include the following:

a) examinations in accordance with **12.5.1** to **12.5.8**;

b) functional tests in accordance with **12.5.9**;

c) load control device tests in accordance with **12.5.10**;

d) a load test in accordance with **12.5.11**;

e) a drop test in accordance with **12.5.12**; and

f) an examination of the electrical installation in accordance with **12.5.13**.

The competent person carrying out the thorough examination should decide what testing is required as part of a thorough examination.

NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2].

12.2 Thorough examination following reconfiguration on site

*COMMENTARY ON **12.2***

If the configuration of the hoist is changed while it is on site and safety might be affected, LOLER 1998 [2] requires that the hoist undergoes a further thorough examination before being put back into use.

The scope and nature of the thorough examination following reconfiguration on site should be decided by the competent person and should take into account the service history of the hoist and any previous thorough examination reports.

The thorough examination should, as a minimum, include those parts of the hoist installation that have been changed during reconfiguration.

For certain re-configurations of the hoist installation, a load test in accordance with **12.5.11** should be carried out (see Table 1).

If the scope of the thorough examination does not cover all the elements listed in **12.1**, the existing date of the next periodic thorough examination should remain unchanged (see **12.3**).

Thorough examination of the hoist following reconfiguration on site should be carried out irrespective of any previous periodic thorough examinations (see **12.3**).

NOTE Attention is drawn to LOLER 1998 [2].

12.3 Periodic thorough examinations

12.3.1 General

The scope and nature of each periodic thorough examination should be decided by the competent person.

The competent person should identify any changes in site conditions that might affect safety and any defects or deterioration in the hoist installation which are, or could become, a hazard.

The periodic thorough examination should be carried out in accordance with **12.1**.

NOTE 1 Attention is drawn to the Lifting Operations and LOLER 1998 [2] which provide the option for the user organization to have either a specified period or an examination scheme approach to thorough examination. Whichever approach is adopted, there is a requirement to take into account the pre-use checks (Regulation 8) and weekly inspections [Regulation 9(3)(b)].

NOTE 2 It is unlikely that an examination scheme approach is suitable for construction hoists owing to their modular construction. Not every component (e.g. mast sections) is used on each installation and the stresses imposed on each component varies from installation to installation depending on where it is positioned.

12.3.2 Intervals between periodic thorough examinations

12.3.2.1 General

The competent person should impose shorter intervals between thorough examinations after taking account of such factors as:

a) high levels of usage;

b) harsh environmental conditions;

c) severe deterioration observed during maintenance; and/or

d) recorded recurring problems.

*NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2] with regard to maximum intervals between periodic thorough examinations (see **12.3.2.2** and **12.3.2.3**).*

12.3.2.2 Six-monthly thorough examinations

Hoists used to lift passengers should undergo a thorough examination by a competent person at least once every six months unless the competent person has imposed a shorter interval (see **12.3.2.1**).

NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2] with regard to maximum intervals between periodic thorough examinations.

12.3.2.3 Twelve-monthly thorough examinations

Goods-only hoists should undergo a thorough examination by a competent person at least once every twelve months. After each examination, the competent person is required to confirm when the next thorough examination is to be carried out, which can be less, but cannot be more, than twelve months.

NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2] with regard to maximum intervals between periodic thorough examinations.

12.4 Thorough examination following occurrence of exceptional circumstances

The competent person should decide on the scope and nature of the thorough examination to account for the exceptional circumstances that have occurred, taking into account the service history of the hoist and the results of the previous thorough examinations (see Table 1).

NOTE Exceptional circumstances necessitating a thorough examination include:

a) modification and/or significant repairs to the hoist including the replacement of load bearing parts;

b) occurrence of an overload during use;

c) occurrence of structural damage;

d) an accident or dangerous occurrence.

12.5 Scope and nature of the thorough examination

12.5.1 Structural examination

The load bearing parts of the hoist, including the mast, mast bolts, ties, fixing anchors, load carrying device (cage or platform) and base support should be examined for cracking, permanent deformation and loosening of, or damage to, connections.

A visual examination should be supplemented by NDT if the competent person considers this to be necessary (see **12.5.14**).

12.5.2 Examination of mechanical drives

Racks and pinions, drive drums, pulleys, gear boxes, transmissions, motors, brakes, guide rollers, counter rollers, drive shafts and the emergency lowering system should be examined for undue wear and malfunction.

12.5.3 Examination of safety components

Safety components, including the overspeed safety device, load control device, manual lowering device, alarm systems, intercoms, ultimate limit switches, terminal stopping switches, retaining hooks, buffers, handrails, escape ladders and guards should be examined for correct functioning and evidence of deterioration.

12.5.4 Examination of wire ropes and associated components

Wire ropes, if fitted, should be examined for broken wires, surface wear, excessive stretching, unequal rope tensions, variations in diameter, kinks, localized crushing, bird caging due to mis-spooling and surface rust and corrosion.

Associated components, including pulleys and sheaves, wire rope terminations, the slack rope device, the drum spooling device, and counterweights and their guides, should also be examined.

The thorough examination should determine if wire rope that is over two years old needs to be replaced.

NOTE A useful reference for wire rope discard criteria is BS ISO 4309.

12.5.5 Examination of cage and platform gates, ramps and flaps

The gates, ramps and flaps, and side protection should be examined to ensure they are working correctly and show no signs of mechanical deterioration.

The following components should be examined:

a) hinges;

b) electrical and mechanical interlocks;

c) actuating devices;

d) latches;

e) restraining mechanisms;

f) guides; and

g) rollers.

12.5.6 Examination of landing gates and base enclosure gates and their interlocks

Landing and base enclosure gates should be examined to ensure they are working correctly and show no signs of mechanical deterioration.

The following components should be examined:

a) the security of fixings;

b) presence and condition of the in-fill mesh;

c) hinges;

d) electrical and mechanical interlocks;

e) latches;

f) restraining devices;

g) guides; and

h) rollers.

12.5.7 Examination of hoistway protection

The base enclosure, landing gates, in-fills and any fixed guards at landings should be examined for mechanical integrity and security of fixings.

12.5.8 Checking of signs and legends

The hoist installation should be checked to determine whether the signs giving the rated load and maximum number of passengers, operating instructions, safety information and warnings are in place and legible.

The legends on the operating controls should also be checked for legibility.

12.5.9 Functional tests

The competent person should test the following components for correct operation:

a) residual current device (RCD) and the machine isolator switch;

b) electrical control and safety circuits of the cage or platform including the emergency stop controls, alarms, operating controls and erection controls;

c) any other controls, such as those at landing call stations;

d) all trailing cable restraint and storage systems;

e) terminal stopping switches and their activating devices;

f) ultimate stopping switches or devices and their activating devices;

g) mechanical and electrical activating devices for landing and cage gates;

h) the brakes.

Where appropriate, the tests should be carried out with the cage or platform near ground level.

12.5.10 Load control device tests

Load control devices should be tested in accordance with the manufacturer's instructions.

12.5.11 Load test

*COMMENTARY ON **12.5.11***

The load test assesses the structural integrity of the mast sections, ties and fixings, and of the cage or platform. It is also used to assess the correct operation of the braking systems.

12.5.11.1 When tested in accordance with **12.5.11.2** to **12.5.11.5**, the hoist should show no signs of damage or deterioration.

12.5.11.2 The load test should be carried out after the examinations detailed in **12.5.1** to **12.5.8** and the functional tests listed in **12.5.9** have been completed.

12.5.11.3 After erection or alteration of the hoist, 100% of the rated load should be lifted through the full range of normal operated travel.

12.5.11.4 The test should then be repeated with an overload as given in the manufacturer's instructions.

12.5.11.5 For in-service periodic thorough examinations, or thorough examinations due to occurrence of exceptional circumstances, 100% of the rated load should be lifted through the full range of normal operated travel (see Table 1).

12.5.12 Drop test

The method of drop testing and the acceptance criteria should be in accordance with the manufacturer's instructions.

When tested in accordance with the recommended drop test, the overspeed safety device should be operating correctly.

If the hoist fails the drop test, the manufacturer of the hoist should be consulted. Under no circumstances should the governor tripping speed be altered.

The intervals at which drop testing is carried out should be based on the manufacturer's recommendations and take into account the working environment and how heavily the hoist is being used.

As a minimum, all types of hoists should be subjected to a drop test with no load every three months.

Goods hoists should be subjected to an additional drop test with a 100% rated load every six months.

NOTE It is good practice as part of the inspection regime to carry out additional drop tests every six months on goods hoists.

12.5.13 Examination of the electrical installation

12.5.13.1 Pre-delivery examination

The hoist electrical system should be checked by visual inspection and, where the functional integrity of those parts of the control circuit cannot be visually examined, they should be checked in accordance with the following tests:

a) continuity test of the protective bonding circuit;

b) insulation resistance test (at a minimum of twice rated operating voltage) to assess the integrity of electrical insulation;

c) functional test of each safety related control system from sensor through to final actuator, to determine whether the whole system is working satisfactorily (see **12.5.9**).

The following checks should also be carried out:

1) that the ratings of the fuses and miniature circuit breakers installed are as stated in the hoist manufacturer's instruction manual;

2) visual examination of the condition of solenoids and contactors, if the competent person has concerns about the integrity of the electrical control circuit.

NOTE It is often more convenient to carry out these tests at the supplier's workshops, immediately prior to delivery, rather than on site.

12.5.13.2 Examination following installation

Once the hoist has been installed and connected to the site power supply, the insulation resistance and the continuity of the protective bonding circuit should be tested.

NOTE 1 Guidance on the requirements for the site supply is given in the HSE publication, Electrical safety on construction sites *HS(G) 141 [10].*

The thorough examination following installation should include the functional tests listed in **12.5.9**.

Examinations of the external condition of the following parts should be performed, supplemented by continuity, earth resistance and insulation resistance tests in order to establish the integrity of the components.

a) *Machine control panels*. A visual examination should be performed on the exterior of the control panel to determine whether dust or moisture can enter the panels.

NOTE 2 This could cause defects such as short-circuiting of devices or prevent operation of control gear.

b) *Cabling, wiring, conduits, junction boxes and glands*. A visual examination should be performed to assess the integrity of insulation and seals.

c) *Motor and drive assemblies*. These should be examined for undue noise, vibration and overheating.

d) *Lamps, indicators and displays*. These should be visually examined to assess whether they are working correctly and provide their designated information.

Following installation, the condition of the cabling to newly installed parts of the electrical circuit such as the gate interlocks, landing call stations, and top travel limits should be visually inspected for signs of damage, e.g. cuts and lacerations.

Upon completion of the thorough examination of the electrical system, the competent person should ensure that all covers and panels are properly fitted and any shorting links used during tests have been removed.

12.5.13.3 Periodic examination

Periodic examination should be carried out in accordance with the inspections and tests in **12.5.13.2**.

12.5.14 Non-destructive testing (NDT)

NOTE 1 During thorough examination of a hoist's structure and mechanism, it might be appropriate to use certain NDT techniques to assess the integrity of components. These techniques can assist in the detection of cracks or wear that might grow in service and ultimately lead to failure of the hoist.

NDT should only be carried out by competent persons who should be briefed on the purpose and extent of the NDT examination required, e.g. the typical locations and type of defect anticipated.

NOTE 2 Guidance on the qualifications and certification of persons undertaking NDT is given in BS EN ISO 9712.

NOTE 3 The three most common types of NDT used for in-service inspections of hoists are as follows:

a) ultrasonic examination;

b) dye penetrant testing;

c) magnetic particle examination.

12.5.15 Thorough examination of the hoistway and hoistway protection

Once the complete hoistway comprising machinery, mast and ties, and hoistway protection including gates, and protection of landings (including run-offs) has been completed, and before the hoist is taken into service, a thorough examination of the whole installation should be carried out by a competent person (see **12.1**).

The user organization should ensure that the thorough examination is carried out and any defects are rectified.

The competent person should ensure that all elements of the hoistway protection have been installed and there are no defects.

NOTE 1 The competent person is often an employee or representative of the hoist supplier.

NOTE 2 It is not the responsibility of the competent person carrying out the examination to verify the structural integrity of the hoistway protection.

NOTE 3 Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2].

*NOTE 4 It is essential that the threshold and landings are able to withstand the rated load of the hoist. This is particularly important if pallet trucks are to be used to unload the platform as significant point loads can be transferred to the hoist floor, ramps, run-offs and landings (see **10.2**).*

The design of hoistway protection can be different for every installation and the competent person should have a full knowledge of the different possible configurations.

Hoistway protection is specified in BS EN 12158-1, BS EN 12158-2, BS EN 12159 and prEN 16719 and the user organization should ensure that the competent person understands these standards and is aware of any supplementary requirements identified in the risk assessments (see **5.1**).

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12.6 Reporting and rectification of defects found during thorough examination

12.6.1 General

The competent person who carries out the thorough examination should produce a written report of the state of the equipment at the time of the thorough examination and supply copies of this to the user of the hoist and to the hoist supplier (if the hoist is hired).

NOTE 1 Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998, reg 10 and schedule 1 [2].

NOTE 2 A sample report form is given in Annex F, Table F.4, together with an example of a checklist to be used during the examination, see Table F.5.

Any repairs required as a result of the thorough examination should be recorded on the service record and kept with the report of thorough examination.

The competent person should inform the appointed person (user) of any hazards found in the course of the thorough examination.

NOTE 3 Attention is drawn to the Health and Safety at Work etc. Act 1974, section 3 [1].

12.6.2 Reporting of defects posing imminent risk of serious personal injury

If a defect poses imminent risk of serious personal injury, requiring the hoist to be immediately taken out of service, the competent person should notify the Health and Safety Executive, the user organization and the hoist supplier.

NOTE 1 Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998, reg 10(1)(a) [2].

NOTE 2 This applies even if the defect has been immediately remedied, otherwise a potentially dangerous situation could be disguised.

The user organization, having received such a report, should ensure that the hoist is not used until the defect has been rectified. A record of the remedial work should be attached to the report of the thorough examination.

NOTE 3 Defects that could pose a likelihood of serious personal injury include:

a) faulty interlocks on cage or landing gates;

b) failure of a safety device;

c) missing or incomplete enclosures or gates;

d) exposed electrical conductors;

e) significant wear or misalignment of components;

f) excessive corrosion or damage to structural items;

g) missing hoistway, or landing interface, protection.

12.6.3 Defects that need rectification within a specified period of time

When a defect needs to be rectified within a specified period of time, as stated by the competent person on the report of the thorough examination, the user organization and the hoist supplier should be informed.

NOTE This applies even if the defect was repaired during the thorough examination.

12.6.4 Other observations

The report of the thorough examination should also record any other conditions that could lead to the equipment deteriorating over time, e.g. wear in a component which has not yet reached the stage of becoming a defect and requiring repair or replacement, but might do so at some time in the future.

NOTE This is to assist the competent person who carries out the next thorough examination.

12.6.5 Responsibility for rectification of defects

*COMMENTARY ON **12.6.5***

Where the competent person identifies defects affecting the continued safe use of the hoist, the user organization is responsible for rectifying these defects. This is normally carried out on their behalf by the hoist supplier.

The user organization is required to arrange for defects to be rectified if:

a) they own the hoist; or

b) the hoist has been hired under a bare lease agreement.

NOTE 1 See Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and Guidance, paragraphs 38 to 43, *HSE booklet L113 [7].*

NOTE 2 On a construction site where hoists are often hired in, any rectification of defects is normally carried out by the hoist supplier.

The appointed person (user) should ensure that, before a hoist is used, all the defects recorded in the report of the thorough examination have been rectified.

If the hoist has been cross-hired, the parties involved should agree who is responsible for the work, prior to hiring the hoist.

12.7 Record retention

12.7.1 General

Records should be kept for the life of the hoist as they can assist in identifying repeated defects or indicating trends of wear or damage.

Periodic review of this information should be part of the management arrangements for controlling the hoist and part of the hoist owner's responsibility of supply.

NOTE Attention is drawn to the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998, reg 11 [2].

12.7.2 Retention period for records of inspections and thorough examinations

*COMMENTARY ON **12.7.2***

LOLER 1998, reg 11 [2] requires records of inspections and thorough examinations to be retained.

The retention period should depend on the circumstances in which the relevant inspection or thorough examination was conducted, as follows:

a) thorough examination of the hoist before it is first put into service: until the hoist is taken out of use;

b) subsequent thorough examinations of the hoist: until the next report is made, or two years, whichever is longer;

c) inspections at intervals between thorough examinations: until the next report is made;

d) thorough examination of the hoist after assembly and before use on a new site: until the hoist is no longer used on that site.

Records should be kept in writing or in electronic form provided they are secure and can be reproduced as necessary (see **11.11**).

Annex A (normative) Minimum attributes of personnel

The duties and responsibilities of every person involved with the supply, installation and use of hoists and the minimum attributes recommended to carry out their duties are listed in Table A.1.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
Appointed person (user)	See **6.3**	Minimum two years relevant experience. Basic mechanical and electrical awareness. Ability to read drawings and understand construction methods. Ability to develop and document safe systems of work, including undertaking risk assessments. Working knowledge of the principles and practice of health and safety legislation. Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Awareness of all other activities on the site. Ability to exercise the authority given to them to fulfil his responsibilities. Thorough knowledge of the specific site conditions. Familiar with BS 7212 and supporting guidance.
Appointed person (supplier)	See **6.4**	Minimum two years relevant experience. Physically fit to undertake site survey. Basic mechanical and electrical awareness. Ability to read drawings and understand construction methods. Ability to develop and document safe systems of work, including undertaking risk assessments. Working knowledge of the principles and practice of health and safety legislation. Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Ability to exercise the authority given to him to fulfil his responsibilities. Knowledge of the hoist and the hoist manufacturer's manual. Understanding of basic mechanical and electrical parameters of the hoist installation. Familiar with BS 7212 and supporting guidance.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
Hoist supervisor (driverless hoists and dedicated operator hoists)	To be responsible to the appointed person (user).	Minimum two years relevant experience.
	To be familiar with the lift plan and ensure that only items on the lift plan are transported.	Basic mechanical and electrical awareness.
	To ensure that any additional items to be transported are brought to the attention of the appointed person (user).	Ability to read drawings and understand construction methods.
	To ensure that daily pre-use checks and weekly inspections are carried out and that any reported defects are rectified before hoists continue in use.	Ability to develop and document safe systems of work, including undertaking risk assessments.
	To ensure that only trained operators (driverless hoists) operate driverless hoists.	Working knowledge of the principles and practice of health and safety legislation.
	To ensure they are monitor all other activities on the site that may affect the use of the hoist.	Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others.
	To ensure that hoist time is allocated.	Ability to exercise the authority given to them to fulfil his responsibilities.
	To ensure that hoists are maintained and that records are kept.	Thorough knowledge of the specific site conditions.
	To ensure that the hoist is taken out of service and isolated at the end of the working period or in adverse weather conditions.	Familiar with BS 7212 and supporting guidance.
Erection supervisor	To communicate with both the appointed person (supplier) and the appointed person (user) before and during the task to be carried out.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances.
	To supervise the erectors.	Ability to lift hoist components and materials safely.
	To understand the manufacturer and model specific hoist configuration parameters.	Ability to operate the hoist safely.
	To become familiar with the site and the task to be carried out using the method statement provided by the appointed person (supplier).	Ability to supervise the erectors.
	To erect and to dismantle the hoist or hoists according to the manufacturer's instructions and the site specific method statement.	Basic mechanical and electrical awareness.
	To install and test ties and anchors according to the manufacturer's instructions (where required).	Awareness of basic health and safety practice.
	To operate the hoist safely.	Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
		Ability to work at heights using appropriate fall protection equipment and other PPE. Ability to establish weights. Knowledge of slinging and signalling and the selection and safe use of the appropriate lifting gear. Knowledge and practical experience of the erection, alteration and dismantling of the particular hoist and the setting and testing of all safety devices. Thorough knowledge of all emergency and safety systems on the hoist.
Erector	To work under the direction of the erection supervisor. To understand the manufacturer and model specific hoist configuration parameters. To become familiar with the site and the task to be carried out using the method statement provided by the appointed person (supplier). To erect and to dismantle the hoist or hoists according to the manufacturer's instructions and the site specific method statement as directed by the erection supervisor. To operate the hoist safely.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances. Ability to operate the hoist safely. Basic mechanical and electrical awareness. Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Awareness of basic health and safety practice. Ability to work confidently and safely at heights. Ability to convey information in a comprehensible manner. Knowledge of the hoist and of the hoist manufacturer's instruction manual. Practical experience of the normal and emergency operation of the hoist types being demonstrated and safety systems on the hoist.
Demonstrator	To communicate with both the appointed person (supplier) and the appointed person (user) before and after the task to be carried out. To demonstrate, to trained operators only, the following: • the controls and functions of the hoist; • the emergency release procedures for passenger/goods hoists.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances. Ability to operate the hoist safely.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
	To explain all the safety and emergency systems on the hoist.	Basic mechanical and electrical awareness.
	To provide information and/or explanation on the daily pre-use checks and weekly inspections to the competent persons nominated to carry them out.	Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Awareness of basic health and safety practice. Ability to work confidently and safely at heights. Ability to convey information in a comprehensible manner. Knowledge of the hoist and of the hoist manufacturer's instruction manual. Practical experience of the normal and emergency operation of the hoist types being demonstrated.
Operator (dedicated)	To communicate with both the appointed person (supplier) and the appointed person (user) before and during the task to be carried out. To operate the hoist correctly in accordance with the manufacturer's instructions, the demonstration provided, the site conditions, and to only transport goods/passengers in accordance with the lift plan. To carry out and record daily pre-use checks and report any defects to their supervisor.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances. Ability to operate the hoist safely. Awareness of basic health and safety practice. Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Ability to work confidently and safely at heights. Trained in the operation of the type of hoist being operated and have a working knowledge of the use of the emergency release procedures for passenger carrying hoists. Knowledge of the hoist and its safety systems.
Operator (driverless hoist)	To communicate with the appointed person (user) before and during the task to be carried out.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
	To operate the hoist correctly in accordance with the manufacturer's instructions, the demonstration provided, the site conditions, and to only transport goods/passengers in accordance with the lift plan.	Ability to read and understand instructions relating to the safe operation of the driverless hoist.
	To establish that daily pre-use checks have been carried out and recorded before operating the hoist.	Ability to operate the driverless hoist safely.
	To report any faults that may develop during the operation of the hoist.	Awareness of basic health and safety practice.
		Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others.
		Ability to work confidently and safely at heights.
		Trained in the operation of the type of hoist being operated and have a working knowledge of the use of the emergency release procedures for passenger carrying hoists.
		Knowledge of the driverless hoist and its safety systems.
Maintenance personnel	To communicate with both the appointed person (supplier) and the appointed person (user) before and during the task to be carried out.	Physically fit, particularly with regard to eyesight, hearing and reflexes, and ability to accurately judge distances, heights and clearances.
	To maintain the hoist in accordance with the manufacturer's instructions.	Ability to lift hoist components and materials safely.
	To carry out maintenance in accordance with safe systems of work and any permit to work.	Ability to understand information required to carry out maintenance.
	To record all maintenance work carried out.	Ability to operate the hoist safely.
		Awareness of basic health and safety practice.
		Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others.
		Ability to work confidently and safely at heights using appropriate fall protection equipment and other personal protection equipment.
		Knowledge of slinging and signalling and the selection and safe use of the appropriate lifting gear.

Table A.1 **Minimum attributes of personnel**

Job function/title	Duties and responsibilities	Attributes
		Knowledge of the mechanical and electrical machinery they are required to maintain. Practical experience of mechanical and electrical maintenance relevant to the hoist type. Knowledge of the maintenance requirements of the particular hoist installation and setting and testing of all safety devices. Ability to keep accurate records of all maintenance work carried out.
Competent person carrying out thorough examination	To communicate with both the appointed person (supplier) and the appointed person (user) before and during the task to be carried out. To carry out a thorough examination of the complete hoist installation. To report verbally and in writing on the findings of the thorough examination including whether or not the hoist installation is safe to use.	Physically fit, particularly with regard to hearing and eyesight. Working knowledge of the principles and practice of health and safety legislation. Awareness of personal responsibilities under the law (civil and criminal), for their own safety and that of others. Practical experience of working on sites. Ability to work confidently and safely at heights using appropriate fall protection equipment and other PPE. Knowledge of the principles and practice of carrying out thorough examinations (including testing) within a defined scope of examination. *NOTE Attention is drawn to Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2].* Theoretical knowledge and practical experience of the specific hoist to detect defects or weaknesses and to assess their importance in relation to the safety of the hoist and its fitness for continued use. Ability to produce accurate written reports.

NOTE The following ages indicate the minimum at which a person can be expected to have gained the experience, maturity and competence to carry out their duties and responsibilities:

a) *appointed person (user): 25 years old;*
b) *appointed person (supplier): 25 years old;*
c) *hoist supervisor: 22 years old;*
d) *erection supervisor: 25 years old;*
e) *erector: 22 years old (unless undergoing supervised training);*
f) *demonstrator: 22 years old;*
g) *operator: 18 years old (except when under the direct supervision of a competent person for the purpose of training);*
h) *competent person carrying out thorough examination: 25 years old.*

Annex B (informative) Hoist types

B.1 Rack and pinion driven hoists

B.1.1 General

Rack and pinion driven hoists and transport platforms consist of a carrier (cage or platform), raised and lowered by means of one or more rotating pinions meshing with a continuous rack fixed to, and parallel with, one or more supporting structural masts.

The supporting mast or masts act as the guide for the carrier and can be free-standing up to a limited height, above which ties anchored at regular intervals to the building or structure are required to support them.

NOTE 1 These hoists are sometimes equipped with wire rope-suspended counterweights.

NOTE 2 For freestanding heights, if applicable, refer to the manufacturer's instruction manual.

B.1.2 Rack and pinion passenger/goods hoists

Rack and pinion passenger/goods hoists have a fully enclosed cage to protect passengers (see Figure B.1).

Cage gates and landing gates are required to be interlocked.

Goods and passengers, can be transported in the cage provided that the rated load is not exceeded.

The hoist can be controlled from the cage, or from one or more landing control stations.

NOTE See BS EN 12159.

B.1.3 Rack and pinion goods hoists

Rack and pinion goods hoists have a platform fitted with sides to retain the load on the platform (see Figure B.2).

Passengers are not allowed to travel on the platform when the hoist is in normal use.

NOTE 1 Depending on the design, and provided that suitable edge protection is provided, persons may be permitted to walk onto the platform while it is stationary for purposes of loading and unloading only.

When in-service, it is not possible to control the hoist from the platform and controls should be external to the platform. It should only be possible for the hoist to be operated from one position at any one time.

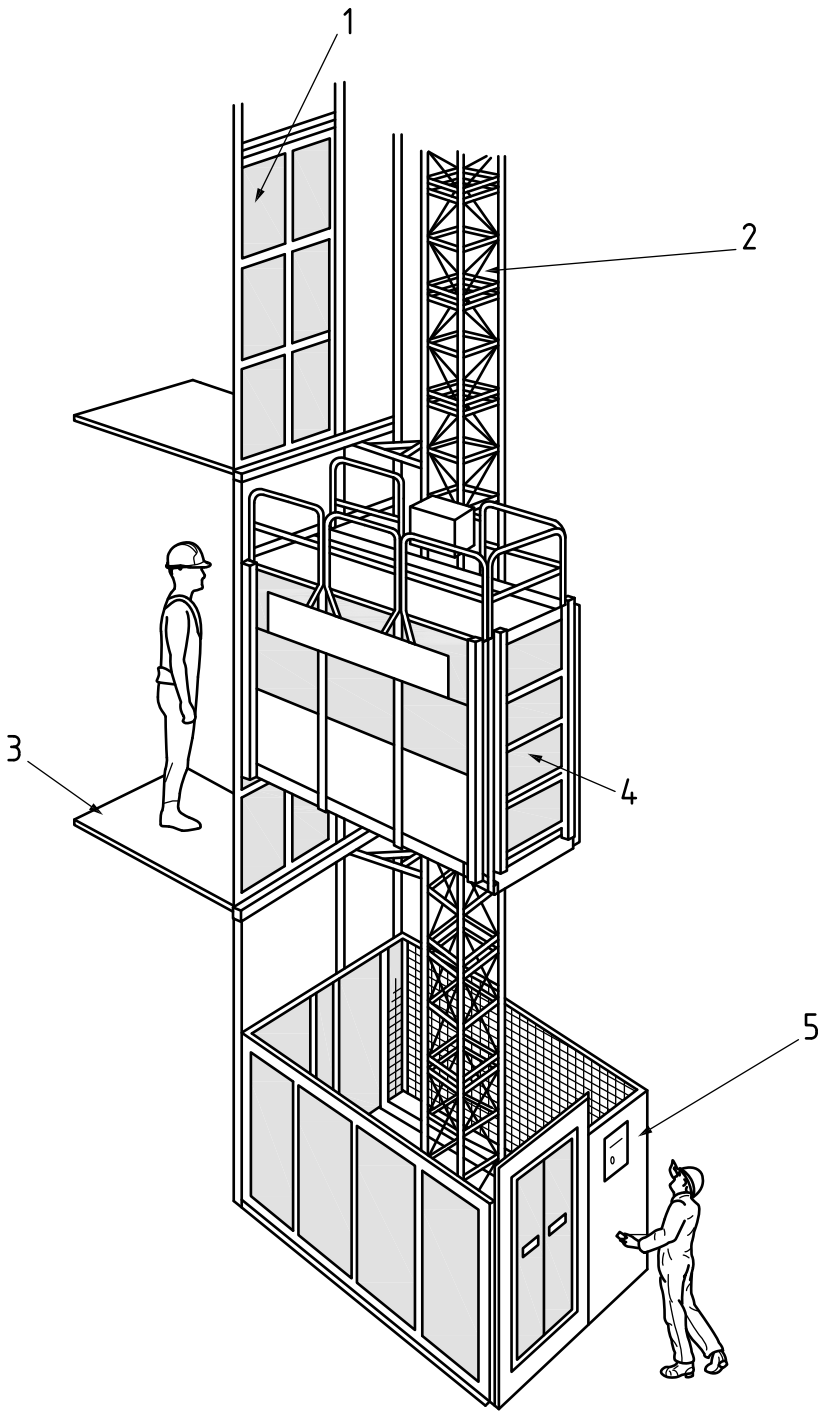
NOTE 2 This control position is normally provided at base level, however, it can be at another position(s) or level(s) which also afford(s) good visibility over the entire range of travel.

Platform gates and landing gates are required to be interlocked.

Rack and pinion goods hoists can be adapted for specific applications such as Table lifting systems.

NOTE 3 See BS EN 12158-1.

Figure B.1 **Rack and pinion passenger/goods hoist**

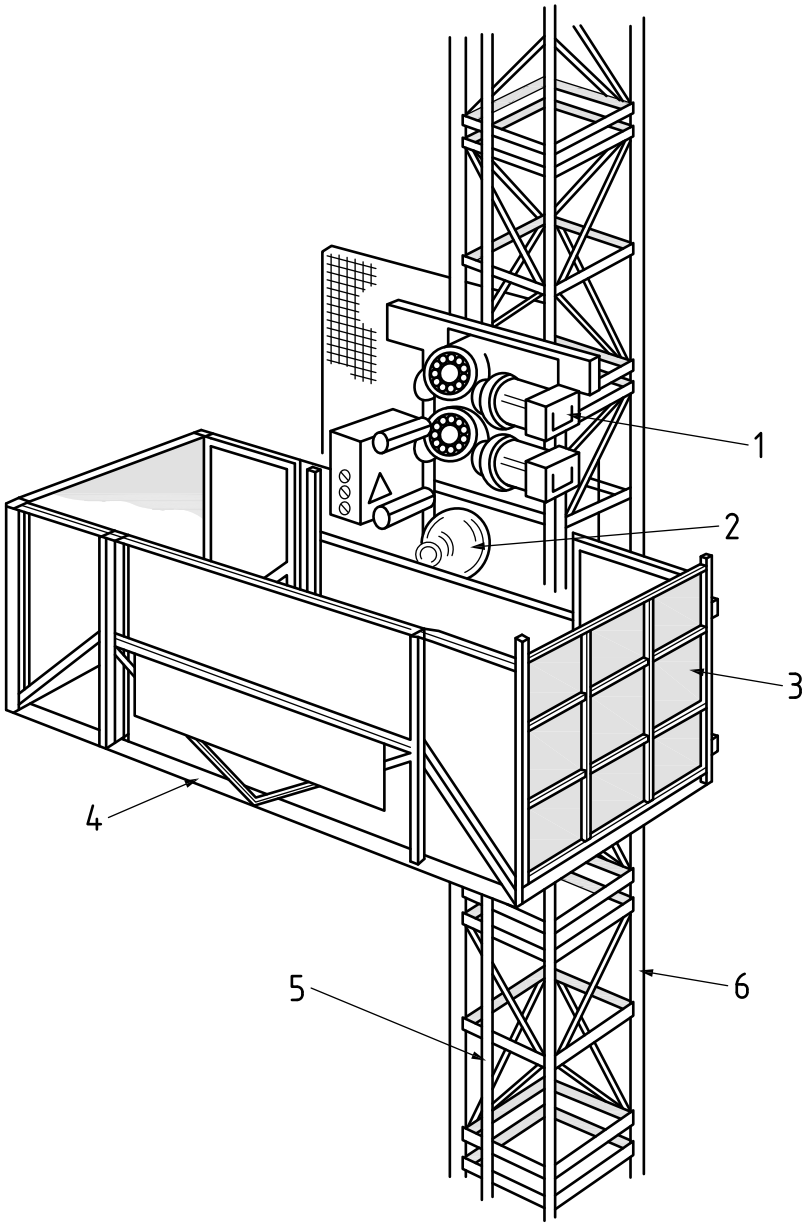


Key

1 Landing gate
2 Mast
3 Landing
4 Enclosed gate
5 Base enclosure

NOTE Hoistway protection has been omitted for clarity. The drawing shows the main parts of the hoist structure for illustrative purposes only.

Figure B.2 **Rack and pinion goods hoist**



Key

1	Motor	4	Cage
2	Overspeed safety device	5	Rack
3	Gate/ramp	6	Mast

NOTE Hoistway protection and landing have been omitted for clarity.

B.1.4 Rack and pinion transport platforms

Transport platforms are rack and pinion type hoists for the transportation of a restricted number of persons and/or bulky goods (see Figure B.3).

The transport platform is not fully enclosed and is provided with reduced height gates and loading/unloading ramps. Protection is provided against falling objects from above for persons on the platform.

Platform gates and landing gates are required to be interlocked.

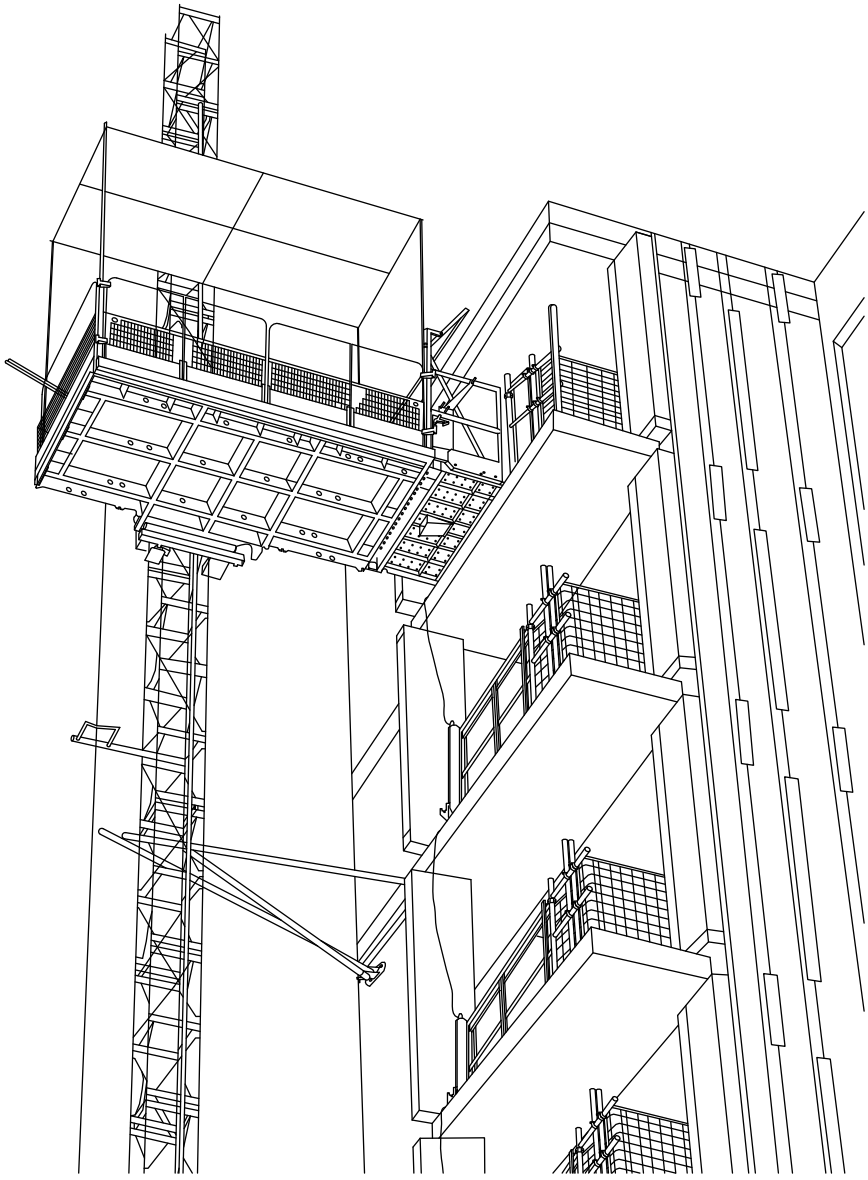
Since the platform is not fully enclosed, it runs at a restricted maximum speed of 12 m/min, with a minimum running clearance of 500 mm from the structure. The only controls are hold-to-run type located on the platform.

With these limitations, transport platforms do not provide the same capabilities of fast moving building hoists for the carriage of persons and goods described in **B.1.2** and **B.1.3**.

NOTE 1 See prEN 16719:2014 [4].

NOTE 2 Hoists can be supplied which could be configured as either a transport platform or a goods-only hoist. It is essential that such dual purpose machines are in accordance with the specific requirements for their designated use.

Figure B.3 **Transport platform**



NOTE Hoistway protection and landing has been omitted for clarity.

[4] This Standard is in preparation with an expected publication date of January 2017.

B.2 Rope driven goods- only hoists

Rope driven goods-only hoists consist of a carrier raised and lowered by means of a steel wire rope or ropes (see Figure B.4).

The most common drive mechanism is a wire rope winding drum, without a counterweight.

The supporting mast, or masts, act as the guide for the carrier and can be freestanding up to a limited height, above which ties anchored at regular intervals to the building or structure, are required to support them.

NOTE 1 It is essential that rope driven goods-only hoists are in accordance with the requirements for overload protection, landing gates and interlocks (see ***12.5.6****).*

NOTE 2 When first supplied, such hoists might not have had some of the safety features fitted. For further information, see Safeguarding Requirements for Landing Gates on Goods-only Hoists *CPA 0401 [15].*

Rope driven goods-only hoists have a platform fitted with sides conforming to BS EN 12158-1 in order to retain the load on the platform.

Persons are not allowed to travel on the platform when the hoist is in normal use.

Depending on the design and rated load, persons might be permitted to walk onto the platform while it is stationary for the purposes of loading and unloading only.

Where persons are not permitted on the platform this is indicated by, as a minimum, a sign adjacent to each landing.

The platform is suspended by one steel wire rope and is raised and lowered by a winch, typically situated at ground level.

The winch drum is, typically, positively driven in both directions.

When in service, the hoist is to be operated from only one control position at any one time.

NOTE 3 This control position is normally at base level. However it can be at another position or level which affords good visibility over the entire range of travel.

Platform gates and landing gates are required to be interlocked.

NOTE 4 See BS EN 12158-1.

B.3 Inclined goods hoists

Inclined goods hoists are designed to lift on an incline rather than vertically (see Figure B.5).

NOTE 1 Examples of inclined goods hoists are roof tile carriers and ladder hoists.

Inclined goods hoists have one upper landing or a defined work area.

They have a guided platform or special carrier which travels on an inclined mast. The mast could be either fixed or telescopic. The hoists could be either wire rope or rack and pinion type.

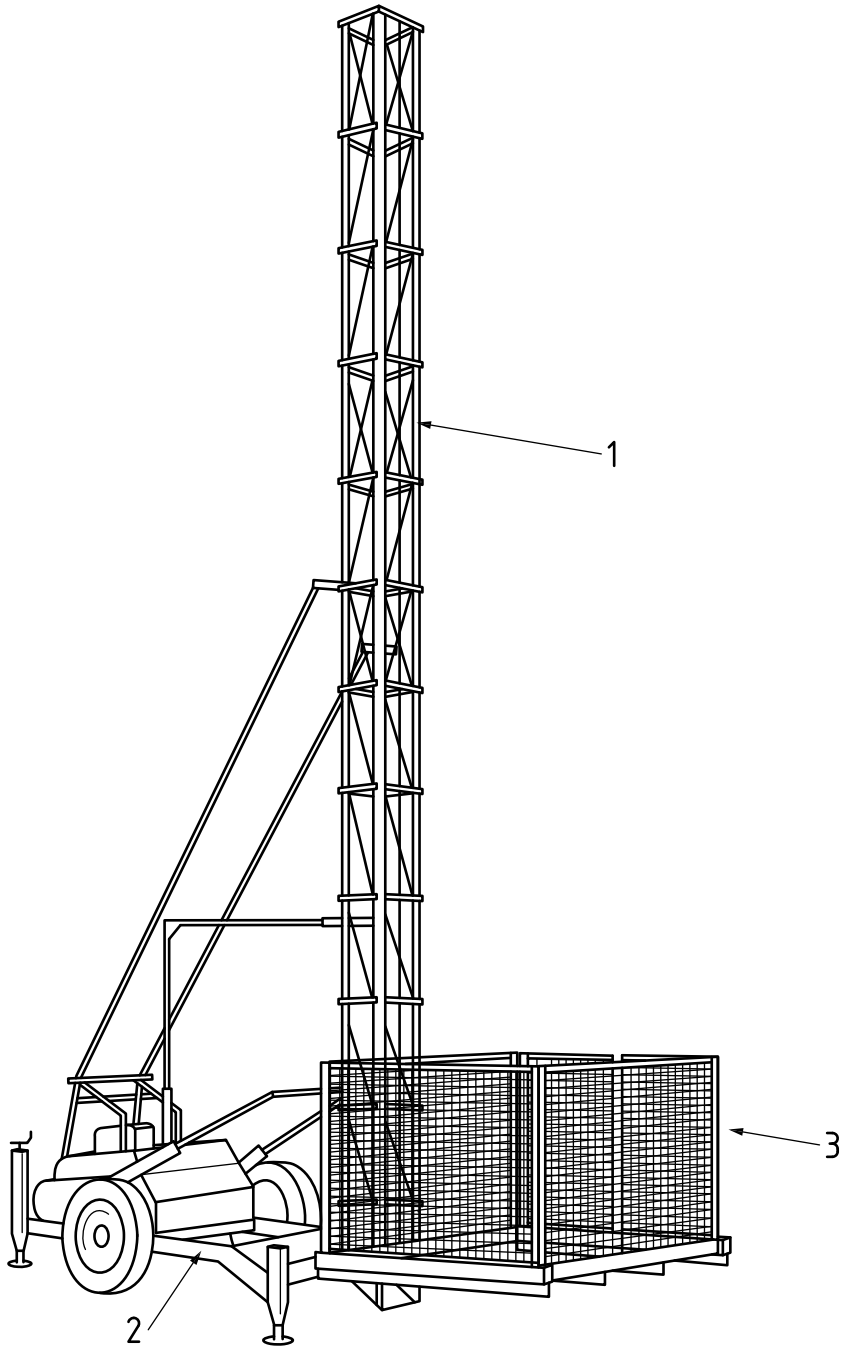
When in-service, the hoist should only be operated from one control position at any one time.

NOTE 2 This control position is normally at base level. However, it can be at another position or level which affords good visibility over the entire range of travel.

Inclined hoists do not typically require landing gates but do require suitable landing edge protection.

NOTE 3 See BS EN 12158-2.

Figure B.4 **Rope driven goods-only hoist**



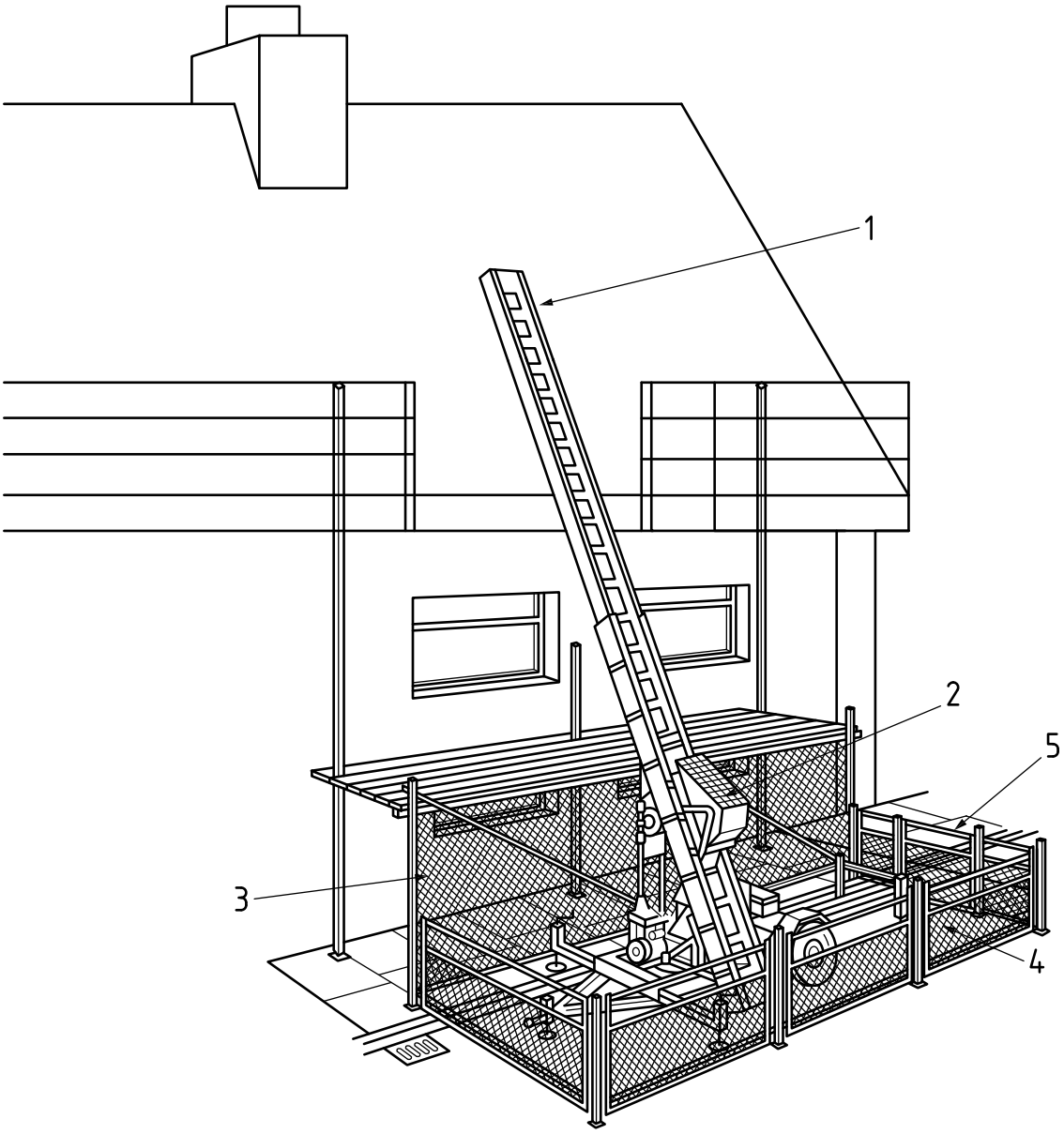
Key
1 Mast
2 Base frame
3 Cage

NOTE 1 The drawing shows the main parts of the hoist structure for illustrative purposes only.

NOTE 2 Base enclosure not shown for clarity.

NOTE 3 Hoistway protection and landing has been omitted for clarity.

Figure B.5 **Inclined goods hoist**



Key

1	Mast	4	Base enclosure
2	Carrier	5	Gate
3	Pedestrian protection		

NOTE 1 The drawing shows the main parts of the hoist structure for illustrative purposes only.

NOTE 2 This example shows a ladder hoist.

B.4 Swivel hoists

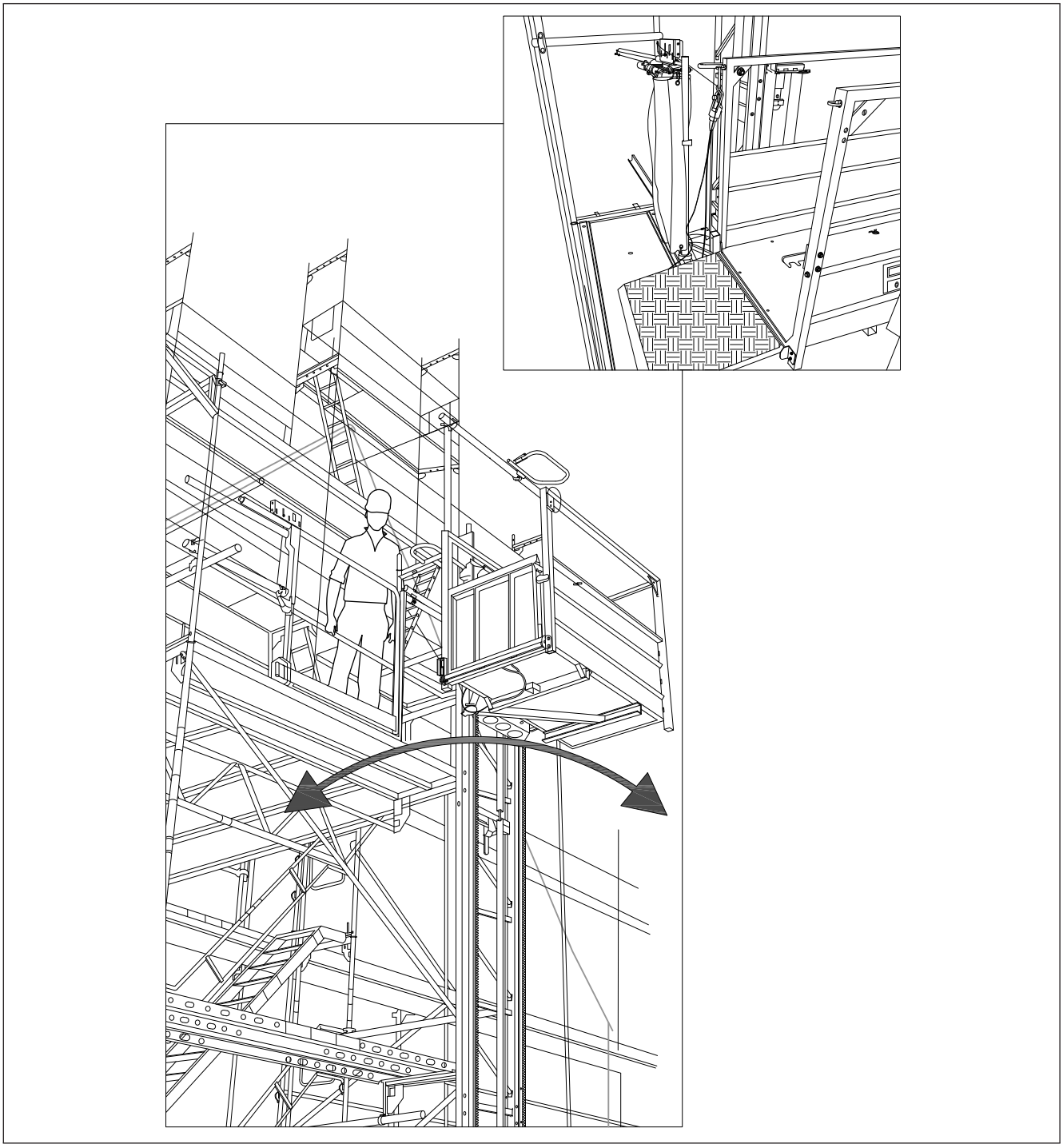
Swivel hoists are similar to rack and pinion goods hoists and rope driven goods hoists (see **B.1**, **B.2** and **B.3**), but have a platform which swivels (usually through 90°) between the travelling position and the load transfer positions at the landing levels (see Figure B.6).

Swivel hoists operate in a vertical configuration and are subject to the same interlocking requirements as other types of goods hoist have interlocking platform and landing gates.

Overloading of low capacity swivel hoists might occur when a fully laden platform is being loaded/unloaded at height, due to the weight of the person(s) moving onto the platform. To reduce the risk of overloading, persons are not permitted to access the fully laden platform when elevated.

NOTE 1 See BS EN 12158-1.

Figure B.6 **Swivel hoist**



Annex C (normative) Additional requirements for driverless hoists

NOTE 1 Table C.1 includes examples of the major hazards involved with the implementation of driverless hoists. The list is not exhaustive.

The terminology driverless is also known as collective control or a multiple driven hoist and includes a number of safety enhancements to a standard hoist.

NOTE 2 Not all types of hoists can be converted to driverless or even manufactured with this technology.

The removal of hoist supervision is not a successful hoist strategy.

Hoists without drivers require more effective management to ensure that they are used efficiently – passengers and or goods being managed so that personnel can get to work and that materials are also received and moved vertically in a timely manner.

Driverless hoists also require their daily checks, weekly inspections, maintenance and thorough examinations.

It is essential that all personnel, irrespective of nationality, understand the safety instructions and that training is given in the operation of the hoist.

Table C.1 **Hazards associated with driverless hoists**

Hazard	Hazard mitigation
Overloading/unsuitable loading of the cage/platform.	The dedicated hoist operator would normally decide if the hoist is about to be overloaded and so would normally prevent the hoist from ever being in that position. It is essential that a driverless hoist is fitted with an overload sensing device. *NOTE This does not prevent someone from first overloading the machine in a static mode.*
Lowering the cage in the event of a power failure, where the cage becomes stranded between landings – ability of the user to self lower.	Passengers require training to the extent that they understand how to open and close the doors/gates, how to make the hoist move, and how to rescue themselves and others should they become trapped.
Lowering the cage in the event of a power failure, where the cage becomes stranded between landings – access to the roof to release the brakes to effect emergency lowering.	*NOTE 1 It is foreseeable for a construction hoist to lose power. In the event of this the hoist stops by virtue of the electro-magnetic brake fitted to each of the motors.* Stranded passengers would normally be rescued by the dedicated operator within the hoist. *NOTE 2 It is noted here that when stranded within the cage, passengers within are not subject to risk of injury and remain unharmed so long as they remain within the cage, unless there is a fire. A form of in-cage lowering lever will be required.* Training for passengers is provided via site induction/tool box talks and trains the passengers to first call for help.

Table C.1 **Hazards associated with driverless hoists**

	Subsequently, and if deemed appropriate by site management, the passengers can then use the emergency lowering procedure outlined in the cage. A method of locking the cage roof is required to keep passengers in the cage, but if hoist fitters require access to the cage in the event of a rescue, it is essential that the roof hatch is accessible. A sign is displayed in the cage indicating that no one is to attempt to use the roof as a means of escape and the mast is never to be climbed. The only safe means of exit is via the cage doors and landing gates, after an emergency lowering. Ensure that the handrails are kept fitted to the roof and in a state of good repair should the fitter be on the roof.
Lowering the car in the event of a power failure, where the car becomes stranded between landings – user forgetting to lower the car slowly and the over speed device engaging and locking the car between landings.	The hoist is be lowered slowly by pulling the emergency lowering lever (fitted within the cage). The speed of descent is controlled by how hard the lever is pulled and also by a centrifugal brake that should prevent over-speeding. The max speed of descent is in accordance with BS EN 12159, at 1 m/s maximum. If the centrifugal brake fails, the safety device is be activated. The hoist is then be immobilised until a hoist fitter can arrive to mechanically release it. Access is achieved by using the adjacent car or by climbing the mast using a double lanyard system. *NOTE 1 Provided that the operatives only lower to the next available landing, then the risk of entrapment is very low.* *NOTE 2 The centrifugal brake only operates in the event of a power failure and the emergency lowering is activated. It therefore is not subject to any wear.* Personnel are not be permitted on the roof during the lowering operation.
Damage/failure of the hoist due to lack of supervision, daily, weekly inspections, maintenance intervals.	The dedicated hoist operator normally monitors the condition of the hoist to the extent that he does not use a tool to open panels. The dedicated hoist operator carries out daily checks, supervises the use of the hoist, plus general housekeeping. *NOTE Without regular checking and supervision, damage can be overlooked. There is also a presumption that someone else has reported defects, so a robust reporting and checking regime is required.*

Table C.1 **Hazards associated with driverless hoists**

	A reporting and checking procedure should be in place to ensure that defects are not ignored or go unreported. It is essential that management of the hand-over of hoists to contractors/ subcontractors for their dedicated use on a project ensures fair use of the hoist and that any damage is reported before hand-over in order to ensure the safety of the hoist. The dedicated hoist operator would also normally monitor the build-up of materials around the hoist, especially on scaffold or proprietary access towers, in order to maintain good access and avoid overloading. It is essential that suitable alternative supervision is put in place.
Environmental factors affecting the hoist.	A competent person assesses and monitors wind conditions to ensure the safe operation of the hoist. Weather forecasts are to be obtained for the period of the operation. If prevailing conditions be such that the Hoist Supervisor considers it is unacceptable to continue, the operation is to be halted and personnel, machines, loads and equipment made safe until such time as it is safe to proceed. The Hoist Supervisor makes the final decision.
Maintenance interval monitoring.	The dedicated hoist operator is required to advise if the hoist is in need of any urgent or period maintenance. An alternative individual is required to be nominated for this role. This involves more than just checking the operational hours of the hoist.

Although the dedicated operator of the hoist has been removed by the introduction of the driverless hoist, the following procedures are required:

a) The use of the hoist is planned and that hoist time is allocated to trade and sub-contractors as required.

b) The use of the hoist monitored to ensure planning has been carried out correctly.

c) A daily coordination meeting is held to share information on the required use of the hoist for passenger/material movement on a day-to-day basis.

d) All breakdowns and reported defects are monitored to identify those associated with use by multiple operators operating the hoist, with appropriate action taken to eliminate such issues.

e) The hoist is taken out of service if there is a defect that warrants such action.

f) There is a robust reporting procedure for the hoist users to alert the hoist supervisor that there is or could be an issue with the hoist.

g) A competent person is tasked with carrying out pre-use checks (see **7.4** and **11.6**) and weekly checks (see **7.5** and **11.7**).

h) All persons authorized to operate the hoist are competent to operate the hoist safely (see Clause **7** and Table A.1).

i) A rescue plan is in place for passenger-carrying hoists.

j) The hoist isolated correctly when out of service, as specified in the hoist manufacturer's instructions.

k) Daily checks and weekly inspections are carried out, along with the weekly and periodic maintenance as well as thorough examinations.

l) The daily check is undertaken before first use at the beginning of the shift.

m) The appointed person (user) or hoist supervisor is available to answer any queries about the hoist installation during use.

It is only after undertaking a full risk assessment and applying measures to mitigate issues raised, that the user should consider utilizing a driverless hoist.

Annex D (informative)

Checklist for pre-use checks of rack and pinion hoists and rope driven hoists

The following is an example of a checklist for pre-use checks of the hoist (see **11.6**).

NOTE These are primarily visual and functional checks and do not require the use of tools.

a) Check that all ropes are correctly positioned on their sheaves.

b) Check for the correct operation of all flaps, gates and interlocks on the cage.

c) Check for the correct operation of all flaps, gates and interlocks at the landings.

d) Check correct operation of the roof trap door and interlocks (on passenger hoists).

e) Check correct operation of the base enclosure landing gates and interlocks.

f) Check that the hoistway is clear of obstructions.

g) Check that the mast ties are secure (with no undue movement).

h) Check all operational controls for correct function.

i) Check emergency controls (with the exception of the safety brake) for correct operation.

j) Check the condition and operation of the mains isolator switch.

k) Run the hoist empty through its operational cycle to check the correct operation of the upper and lower limit devices/switches.

l) Check the satisfactory operation of the trailing cable storage system.

m) Check that the guide springs are intact.

n) Check to ensure that the brake is operating normally.

o) Check for any unusual noises from motors, gearboxes etc.

p) Check that all information, instruction, operating and warning notices are clear and legible.

q) Check that there is no leakage from any fuel system.

r) Check the condition of any fuel container and that any fuel cap is secure.

s) Check any audible or visual warning alarms for correct operation.

t) Check that any communication system fitted between cage and ground level is in good working order.

u) Check for excessive debris in the base enclosure and on the cage roof.

Annex E (informative)

Checklist for weekly inspections of rack and pinion hoists and rope driven hoists

The following is an example of a checklist for weekly inspections of the hoist (see **11.7**).

NOTE These are primarily visual and functional checks and do not require the use of tools.

a) Inspect the structure for damage e.g. bent mast bracings or ties, indentations on mast guides, cracked welds, loose bolts and other fasteners.

b) Check that there are no obvious signs of damage, excessive wear or corrosion of any hoisting rope.

c) Check that wire rope terminations, pins and retaining devices are undamaged, in their correct positions and secure.

d) Check that sheaves, pulleys and drums are not damaged and that bushes are not worn or seized.

e) Check engagement of any rack and pinion and that there is no undue wear or damage and sufficient lubrication exists.

f) Check the gearbox for leaks.

g) Check that all tie bolts are secure with no undue movement.

h) Check that all foundation bolts, rack retaining bolts and other fixing bolts are fitted and secure.

i) Check that guide rollers are correctly positioned and operational.

j) Check that brake and clutch friction linings and drum paths have no undue wear and the brakes operate correctly.

k) Check that all hoistway protection and machinery guards and their fasteners are in place and secure.

l) Check that electric cables are not damaged and that bare wires are not visible.

m) Check that any plug or socket is in good condition, the casing free from cracks, the pins not bent and the socket not blocked with debris or dirt.

n) Check that there are no taped or other non-standard joints in any cable.

o) Check that any cable covering has not been pulled out of the grips at the plug or equipment. (The coloured insulation of the internal wires should not be visible.)

p) Check the outer casing of electrical equipment for damage and for loose or missing parts or screws.

q) Visually check that no electrical equipment is exposed to contamination by oil, grease, water or dirt.

r) Check to ensure that there are no overheating or burn marks on any plug, cable or other equipment.

s) Check the operation of any RCD power breaker by operating the test button.

t) Visually check the overspeed safety device.

Annex F (informative)

Examples of checklist and report forms

This Annex includes examples of the following checklist and report forms:

a) hoist hand-over report;

b) daily pre-use checklist and report;

c) weekly inspection checklist and report;

d) thorough examination and maintenance checklist;

e) report of thorough examination.

NOTE The thorough examination and maintenance checklist (Table F.4) is not a thorough examination report or a maintenance program but is intended only to serve as a guide to areas needing attention.

Table F.1 **Hoist hand-over report**

Client:			
Project:			
Hoist type:		**Hoist Plant No:**	
Issued By (Name):		**Hand-over Date:**	

Documents Attached

Safety Instructions:	Yes/No	Weekly Inspection Checklist:	Yes/No
Daily Pre-use Checklist:	Yes/No	Thorough Examination Report:	Yes/No

Hoist Hand-over to Appointed Person (User) or his Nominee

I, the undersigned, acknowledge that I have received, and that I understand, the information in the above documentation. I also confirm that the operation of the hoist, the controls, all safety devices and emergency procedures have been demonstrated to me. I accept that the demonstration does not constitute operator training since no assessment of my competence as an operator was made by the demonstrator. I further agree that only trained and competent hoist operators will use the hoist and that the daily pre-use checks and weekly inspections will be carried out in full.

Name: (Print)	
Signature:	
Position:	

Demonstration(s) Given to Hoist Operators

I, the undersigned, acknowledge that I have received, and that I understand, the information in the above documentation. I also confirm that the operation of the hoist, the controls and all safety devices have been demonstrated to me. I accept that the demonstration does not constitute operator training since no assessment of my competence as an operator was made by the demonstrator.

Name (Print)	**Signature**	**Date**

Table F.2 **Construction hoist – daily pre-use checklist and report**

Week commencing	**Company**	**Site**
Hoist Type	**Serial No.**	**Plant No.**

✓ = in good order	✘ = defect	N/A = not applicable

Item/Check	**Mon**	**Tues**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
Ropes correctly positioned on sheaves							
Correct operation of cage flaps, gates and interlocks							
Correct operation of landing flaps, gates and interlocks							
Correct operation of roof trapdoor and interlocks (on passenger hoists)							
Correct operation of base enclosure gates and interlocks							
Hoistway clear of obstructions							
Mast ties are secure (no undue movement)							
Correct function of operational controls							
Correct operation of emergency controls (except safety brake)							
Mains isolator switch in good condition and operating correctly							
Correct operation of upper and lower limit switches							
Satisfactory operation of trailing cable storage system							
Guide springs are intact							
Brake operates normally							
No unusual noises from motors, gearboxes, etc.							
Information, instruction, operating and warning notices clear and legible							
No leakage from any fuel system							
Fuel container in good condition and fuel cap secure							
Correct operation of audible or visual warning alarms							
Communication system from cage to ground level in working order							
No debris in base enclosure or on cage roof							
Initials of person carrying out checks							
Details of defects found and repairs – Inform appointed person							

Name of Appointed Person	**Signature**	**Company**

Table F.3 **Construction hoist – weekly inspection checklist and report**

Date	**Company**	**Site**
Hoist Type	**Serial No.**	**Plant No.**

All daily checks to be carried out prior to weekly inspection

✓ = in good order R = repaired fault ✘ = defect

Item/Check	**✓, R or ✘**
Inspect structure for damage, e.g. bent mast bracings or ties, indentations on mast guides, cracked welds, loose bolts and other fasteners	
Check hoisting ropes for obvious signs of damage, excessive wear or corrosion	
Check that wire rope terminations, pins and retaining devices are undamaged, in their correct positions and secure	
Check that sheaves, pulleys and drums are not damaged and that bushes are not worn or seized	
Check that any rack and pinion is correctly engaged, with no undue wear or damage and with sufficient lubrication	
Inspect gearbox for leaks	
Check that tie bolts are secure with no undue movement	
Check that foundation bolts, rack retaining bolts and other fixing bolts are fitted and secure	
Check that guide rollers are correctly positioned and operational	
Check that brake and clutch friction linings and drum paths have no undue wear and that brakes are effective	
Check that hoistway protection and machinery guards and their fasteners are in place and secure	
Check electric cables for damage and bare wires	
Check that plugs and sockets are in good condition, the casing free from cracks, the pins not bent and no debris or dirt in sockets	
Check cables for taped or non-standard joints	
Check that cable covering has not been pulled out of plug or equipment grips	
Check casing of electrical equipment for damage and for loose or missing parts or screws	
Check electrical equipment for contamination by oil, grease, water or dirt	
Check cables, plugs and other equipment for overheating or burn marks	
Check any RCD power breaker by operating test button	
Visually check overspeed safety device	

Details of defects found and repairs – Inform appointed person

Contacted hoist supplier	**Yes**	**No**	
Carried out by	**Signature**		**Company**

Table F.4 **Construction hoist – thorough examination and maintenance checklist**

Company		**Site**		
Date	**Hoist Type**	**Serial No.**	**Hour Clock**	**O/S No.**

Key: A – in good order; B – requires early attention; C – requires immediate action; D – not applicable

	A	B	C	D
Enclosure				
1. Side-panels				
2. Cable basket(s) and trailing cable(s)				
3. Electrical panel				
4. Ultimate limit switch ramp				
5. Isolators				
6. Gate				
7. Foundation fixing				
8. Buffer springs				
9.				
Platform/Cage				
10. Gate, entrance				
11. Gate, exit				
12. Side panels, roof and floor				
13. Ladder and fixing				
14. Limit switches for gates				
15. Limit switch for trap door				
16. Ultimate limit switch				
17. Up limit switch				
18. Down limit switch				
19. Control switch/buttons				
20. Electrical equipment				
21. Counterweight, rope anchorage				
22. Safety notices/signs				
23. Lighting				
24. Gate counterweight and ropes				
25.				
Machinery				
26. Guide roller, hook assemblies				
27. Guide roller adjustment				
28. Guide roller wear				
29. Safety device unit				
30. Safety device resetting tool				
31. Drive motors				
32. Brakes				
33. Brake adjustment				
34. Gearboxes				
35. Gearbox oil levels				
36. Drive pinions				
37. Drive pinion wear				
38. Drive pinion adjustment				
39. Safety pinion				
40. Safety pinion wear				
41. Safety pinion adjustments				
42. Centrifugal weights				
43.				

	A	B	C	D
Structure				
44. Mast sections				
45. Mast bolts and nuts				
46. Mast racks and bolts				
47. Rack lubrication				
48. Cable guides standard				
49. Cable guide device and trolley				
50. Landing beams				
51. Pipe supports				
52. Wall ties and fixings				
53. Vertical pipes				
54. Limit cams top				
55. Limit cams bottom				
56. Cable anchorages				
57. Erection crane and accessories				
58.				
Gates				
60. Landing gates				
61. Mechanical interlocks				
62. Gate cam and switch assembly				
63. Hoistway protection				
64.				
Counterweights				
65. Counterweight assembly				
66. Rope anchorages				
67. Cathead sheaves				
68. Guide rollers				
69. Buffer springs				
70. Support ropes				
71.				
Special equipment				
72. External call system				
73. Emergency stop control				
74. Alarm system				
75. Stop next landing				
76. Load sensing				
77. H frame clips				
78. Emergency lowering				
79. No undue noises				
80. Guards replaced and secure				
81.				
Other items to be recorded				
82. Load control device test				
84. Load test				
85. Drop test				
86. Site register signature				
87. Report of thorough examination				
88.				

Notes		
Name	**Company**	**Signature**

Table F.5 **Construction hoist – report of thorough examination**

Date of thorough examination:	Date of report:	Report No.	Date of last thorough examination:	
Name and address of hirer/user:		Name and address of owner:		
Description of equipment:			Maker's name:	
Date of manufacture:	Owner's No. and Serial No.		Location of equipment:	
Mast height:	Number of landing gates:		Number of ties:	
Safe Working Load:	Test load applied:	Drop test carried out with:	Rated number of persons:	Safety device serial No.
Examination after installation/assembly at a new location: **Yes / No** Periodic examination 6-monthly: **Yes / No** Periodic examination 12-monthly: **Yes / No** Examination following alteration/repair Or exceptional circumstances: **Yes / No**			State if any parts were inaccessible: Particulars of other tests carried out during this thorough examination:	
Is the equipment installed correctly: **NA / Yes / No**			Is the equipment safe to operate: **Yes / No**	
Particulars of any defects for which repair, renewal or alteration is required, which are, or could become, a danger to persons:			Date (time) the defect must be rectified:	
I hereby declare that the equipment described in this report was thoroughly examined and was found to be free from any defect likely to affect safety, (unless otherwise stated above) and that the particulars are correct.				
Name of competent person:	Signature:		Job title/qualification:	
Name of authenticating person:	Signature:		Job title:	
Address of competent person or his employer:				
The next thorough examination will be due on or before:				

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