Technical ✓ Specification

dhf Raising Standards Advancing Safety

Legislation changes affecting the Installation & Maintenance of Industrial Doors, Domestic Garage Doors, Powered Gates & Traffic Barriers post 31st December 2020

DHF TS 011 & 012:2019 SUPPLEMENT

Contents

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DHF TS 011:2016	First edition	Feb 2016
DHF TS 011:2018 v2	Second edition	Feb 2018
DHF TS 012:2018	First edition	Feb 2018
DHF TS 011:2019 v3	Third edition, reflecting publication of EN 12453/12604:2017	Apr 2019
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Foreword

This is a supplement to sections 4 and 5 of DHF TS 011:2019 and TS 012:2019. It has been issued to reflect recent changes to the meaning or effect of legislation caused by the UK exit from the European Union.

It also reflects the 2016 change to the scope of BS EN 13241 that has resulted in the need for fire resisting industrial doors to comply with the Construction Products Regulations 2013 since November 2019.

DHF TS 011:2019 and DHF TS 012:2019 will shortly be completely revised because, in addition to the changes outlined above, it is expected that BS EN 12453:2017 and BS EN 12604:2017 will shortly be replaced by revised versions.

In the meantime, this document should be used in place of the current sections 4 and 5 of the 2019 COP documents.

Scope

This supplement contains a detailed explanation of the legislation applicable to the installation, modification, repair and maintenance of industrial doors, domestic garage doors, powered gates & traffic barriers intended primarily for vehicles, but which could also be accessed by persons. Vertically acting doors in retail premises are also within scope but all other pedestrian doors and gates are not.

This supplement excludes the following:

i. lock or dock gates (for boats)
ii. lift doors
iii. doors in vehicles
iv. armoured doors (eg safe or strong room doors)
v. doors or gates mainly for the retention of animals
vi. theatre textile curtains
vii. doors, gates or barriers used exclusively for pedestrians (see BS EN 16005)
viii. railway crossing traffic barriers (contact Network Rail)

References

The supply of Machinery (Safety) Regulations 2008: https://www.legislation.gov.uk/uksi/2008/1597/contents/made

- The Electrical Equipment (Safety) Regulations 2016: https://www.legislation.gov.uk/uksi/2016/1101/contents
- The Electro Magnetic Compatibility Regulations 2016: https://www.legislation.gov.uk/uksi/2016/1091/contents
- The Radio Equipment Regulations 2017: https://www.legislation.gov.uk/uksi/2017/1206/contents/made
- Machinery Directive 2006/42/EC: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:157:0024:0086:EN:PDF

The Construction Products Regulations 2013: https://www.legislation.gov.uk/uksi/2013/1387/contents/made

- EU Construction products Regulation 305/2011: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0305&from=EN

UKCA marking: https://www.gov.uk/guidance/using-the-ukca-mark-from-1-january-2021

UKNI marking: https://www.gov.uk/guidance/using-the-ukni-marking-from-1-january-2021

The Health and Safety at Work Act 1974: https://www.legislation.gov.uk/ukpga/1974/37/contents

- The Health and Safety at Work Order 1978: https://www.legislation.gov.uk/nisi/1978/1039
- The Safety, Health and Welfare Regulations 2005: http://www.irishstatutebook.ie/eli/2005/act/10/enacted/en/print

The Electricity at Work Regulations 1989: https://www.legislation.gov.uk/uksi/1989/635/contents/made

- The Electricity at Work Regulations (NI) 1991: https://www.legislation.gov.uk/nisr/1991/13/contents/made
- Safety, Health and Welfare at Work (General Application) Regulations 2007: http://www.irishstatutebook.ie/eli/2007/si/299/made/en/print#

The Workplace (Health, Safety & Welfare) Regulations 1992: https://www.legislation.gov.uk/uksi/1992/3004/contents/made

- The Workplace (Health, Safety & Welfare) Regulations (NI) 1993: https://www.legislation.gov.uk/nisr/1993/37/contents/made
- Safety, Health and Welfare at Work (General Application) Regulations 2007: http://www.irishstatutebook.ie/eli/2007/si/299/made/en/print#

Building Regulations guidance:

- Approved document B England: https://www.gov.uk/government/publications/fire-safety-approved-document-b
- Approved document B Wales: https://gov.wales/building-regulations-guidance-part-b-fire-safety
- Scottish Building Standards Technical Handbook Section 2: https://www.gov.scot/publications/building-standards-technical-handbook-2020-non-domestic/
- Northern Ireland Building Regulations Technical Booklet E: https://www.finance-ni.gov.uk/publications/technical-booklet-e

The Regulatory Reform (Fire Safety) Order 2005: http://www.legislation.gov.uk/uksi/2005/1541/pdfs/uksi_20051541_en.pdf

- Workplace Fire Safety: https://www.gov.uk/workplace-fire-safety-your-responsibilities/fire-risk-assessments
- Fire Scotland Act 2005: http://www.legislation.gov.uk/asp/2005/5/pdfs/asp_20050005_en.pdf
- Fire Safety Scotland Regulations 2006: http://www.legislation.gov.uk/ssi/2006/456/pdfs/ssi_20060456_en.pdf
- Fire Safety Scotland Your Duties: http://www.firescotland.gov.uk/your-safety/for-businesses/your-duties.aspx
- Fire and Rescue Services (NI) Order 2006 Fire Safety Regulations (NI) 2010: http://www.legislation.gov.uk/nisi/2006/1254/data.pdf

DHF/BRE fire door training: https://www.dhfonline.org.uk/training/fire-doors-and-shutters-training/17.htm

Definitions

Client

Company or person contracting installation or maintenance work, who may not necessarily be the system owner or manager.

Installation company

Company or person responsible for installation (including the self-employed).

Manufacturer

Company or person responsible for the manufacture (including the self-employed).

Maintenance company

Company or person responsible for maintenance, modification or repair (including the self-employed).

System

Any industrial door, domestic garage door (powered or manual), powered gate or traffic barrier within the scope of this supplement.

System manager

Company or person owning, or in control of, or with legal responsibility for managing a system in service. The system manager has legal responsibilities for users or others who may encounter the system in use.

System safety unknown notice

A notice issued to a client or system manager informing them that, due to a lack of safe access, the safety of the system in question cannot be ascertained and, hence, it is not known if it is safe to use or not.

Unsafe system notice

A notice issued to a client or system manager informing them that the system in question has been assessed as being unsafe and non-compliant with the applicable standards.

User

Anybody operating, using or passing by a system who may be affected by it.

1. UKCA, CE and CE + UKNI marking legislation

Companies that place new systems on the market have legal responsibilities under a range of product safety criminal legislation. The product safety legislation in this section has its origins in European CE marking legislation. As the corresponding UK regulations were enacted to implement the EU directives and regulations, currently the effect and meaning of the UK and EU documents are the same.

As the UK has now left the EU, this section will concentrate on the UK legislation and the UKCA marking that must be used, at the latest by 31st December 2021 in Great Britain. Section 1.3 explains how to proceed when exporting to the EU 27 and Northern Ireland, and how to proceed when sending goods to Great Britain from Northern Ireland.

1.1. Supply of Machinery (Safety) Regulations 2008 (SMSR)

Compliance with the SMSR is mandatory for the company or person who places on the market, or brings into service for the first time, a powered door, gate or barrier. Previous versions of the 2008 regulations have been in force since 1995 without significant change to the essential health and safety requirements.

The SMSR apply in GB and Northern Ireland; in the republic of Ireland, the European Communities Machinery Safety Regulations 2008 apply and enforce the European Machinery Directive. Historically, the UK regulations were based on the EU Machinery Directive and were originally enacted to bring the directive into UK law.

The Republic regulations and the UK regulations are identical in meaning and effect but not necessarily worded in the same way. For simplicity, this guidance uses references from the UK 2008 regulations. Section 1.3 sets out the main differences.

1.1.1. Responsibility for compliance

The 2008 regulations use the term “responsible person” – this does not necessarily mean an individual, more accurately it refers to the ‘company or person’ who bears the responsibility for compliance. As the regulations only apply to ‘machinery’, it will be the company that first places a ‘powered’ system on the market (eg the manufacturer), or who first brings the drive and moving leaf together for the first time (eg an installation company who has created the ‘machine’). Powered fire resisting doors have always been within the scope of the regulations.

The ‘machine’ can be supplied complete or in kit form; this has no bearing on responsibility for compliance. The manufacturer has produced the machine but supplied it in kit form for an installation company to assemble on site. When this occurs, the manufacturer is responsible for compliance with the regulations, not the installation company.

The manufacturer of a manual door or gate has no responsibilities under the regulations. However, the company that elects to add a drive unit to a manual system creates a ‘new machine’ and then bears responsibility for assessing the suitability of the manual part as a component of their ‘machine’, even though they did not manufacture it.

The following activities create a responsibility for compliance with the regulations:

i. importing a complete powered system, not already UKCA marked by the manufacturer, into the UK from outside the UK
ii. manufacturing a complete powered system within the UK
iii. adding a drive unit to an existing manual door/gate in the UK
iv. modifying a complete powered system prior to or during installation in a way not permitted in the manufacturer’s instructions in the UK
v. making an extensive modification to an existing powered system that alters the way it operates, eg:
    - changing from chain drive to direct drive
    - changing from ram operated to underground drive
    - changing from a spring balanced to unbalanced
    - changing door/gate/barrier leaves in a non like-for-like manner
vi. assembling components from more than one manufacturer to make a complete powered system:
    - construct a door/gate and add a 3rd party supplied drive unit
    - source a door/gate from one manufacturer and a drive unit from another
    - buy a collection of individual components from a supplier not certified by them as a complete system

1.1.2. Essential Health and Safety Requirements and the minimum level of safety

All new powered systems must conform to the Essential Health and Safety Requirements (EH&SR) set out in Annex 1 of the 2008 regulations. The EH&SRs are not definitive; there is no mention of safe edge, light grid, safe forces (eg 400N) nor any safety distance. They do however set the performance criteria, they dictate the hierarchy of hazard control and that the machine should not collapse, break up in service, suffer uncontrolled movements, allow moving parts to cause injury, fail to a dangerous state or electrocute etc. They also specify the requirements for installation, user and maintenance instructions (see 1.1.13).

In conforming to the EHSRs, the 'responsible company' must ensure that the system is safe. Safe is defined in the regulations as *"A machine that does not endanger the health of, or result in the death or injury to any person, when it is properly installed and maintained and used for the purpose for which it is intended, or under conditions which can be reasonably be foreseen."*

The regulations provide a further indication of what is deemed 'safe' by stating that, in meeting the EH&SRs, the responsible company must achieve the degree of safety described by the current state-of-the-art and that machinery manufactured in full conformity with the appropriate designated (see 1.1.3) standard, confers a presumption of conformity.

This means 'machines' that do not achieve state-of-the-art levels of safety, as described in the appropriate designated standard, are not considered safe enough to confer conformity; a point demonstrated by the legal precedent set in past automated access industry prosecutions. Whist it is not explicitly necessary to use the appropriate designated standard, it is essential that an equal level of safety is achieved. The simplest route to compliance is in fact to apply the appropriate designated standard.

1.1.3. Designated standards

A designated (harmonised) standard is a British standard (BS) which is recognised as conferring a presumption of conformity with legislation. At the time of writing, there is no fully designated standard for industrial doors, domestic garage doors, vehicle gates or traffic barriers. Designated standards are described as 'harmonised' standards in the European versions of the legislation.

In 2011, the UK Health & Safety Executive lodged a formal objection to the package of standards covering industrial doors, domestic garage doors, vehicle gates or traffic barriers, in place at that time. After consultation and consideration, in July 2015, the European Commission issued a warning that the then harmonised standard (EN 13241-1:2003+A1:2011) did not, by reference to the other standards in the package (primarily EN 12453:2000), achieve a level of safety that could confer a presumption of conformity with the Machinery Directive (SMSR 2008 in the UK). Those who were relying on EN 12453:2000 and BS EN 12604:2000, by reference from EN 13241, were advised to review their risk assessment to ensure that their product did in fact meet the required level of safety for legal compliance.

BS EN 12453:2017 was published in the UK as an update to the original 2001 version in 2018. Sadly, the European Commission decided that it still did not achieve the level of safety required to confer conformity with the Machinery Directive, despite the presence of an Annex ZA that claims to confer compliance. BS EN 12453:2017 (the UK version) contained a foreword, warning users not to rely on the standard (or by reference BS EN 12604:2017) for compliance with the Machinery Directive; UK HSE also issued a warning and explanation of its position on its website. EN 12453 has now been rerevised and is fully expected to achieve designated (harmonised) status in the near future.

1.1.4. Compliance assessment (risk assessment)

Key to conformity is hazard identification and control; the EH&SRs require the following steps:

i. the nature of the system, its environment and its intended use must be assessed
ii. all potential hazards must be identified
iii. an attempt must then be made to eliminate as many of the identified hazards as possible by making design modifications to eliminate or reduce the hazard wherever possible
iv. any hazard that cannot be eliminated, or adequately reduced by design changes, must be controlled to safe levels by applying systems or devices to achieve safety
v. minor residual hazards must then be identified
vi. residual hazard controls must then be put in place based on the likelihood of occurrence, frequency of exposure (duty cycle), the needs of vulnerable users (*continues over page)*

vii. detailed installation, operation and maintenance instructions must then be compiled to explain the residual hazards, how to use the system and the steps needed to maintain it.

1.1.5. Partly completed machine (PCM)

The 2008 regulations define a partly complete machine (PCM) as 'drive systems and other assemblies' which:

i. are almost machinery but cannot in themselves perform a specific application, and

ii. are only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery.

Components in this category include drive unit & control panel combinations and powered door headgear assemblies.

The manufacturer of partly complete machinery must supply it with a declaration of incorporation (DOI) and comprehensive instructions. The instructions must be detailed enough that the manufacturer/assembler incorporating the PCM into a finished 'machine' can achieve overall compliance with the EH&SRs and applicable standards to meet the state-of the-art and enable them to produce an adequate operation and maintenance manual for the finished door.

It is not possible to supply a complete machine minus safety components under a declaration of incorporation to avoid full compliance; such a machine would in fact be a complete machine without adequate safety.

Manufacturers and installation companies using 3rd party supplied PCMs should ensure that they are receiving a DOI under the regulations and that they follow the installation manual.

1.1.6. Safety component (device)

The 2008 regulations define safety components as:

i. components that are independently placed on the market, and

ii. serve to fulfil a safety function, and

iii. the failure or malfunction of which endangers the safety of persons, and

iv. are not necessary for the machinery to function, or for which other components may be substituted in order for the machinery to function (albeit less safely).

Components in this category are safe edges & non-contact presence detection devices, fall-back protection devices, wicket door stop switches, limit switches and hold-to-run control devices.

The manufacturer of a safety component must UKCA mark the device under the regulations and ensure that it is in full conformity with all applicable EH&SRs. They must supply it with a declaration of conformity (DOC) and ensure that it is in full conformity with all other applicable UK product safety regulations, eg electromagnetic compatibility and radio equipment safety regulations.

As sensitive components for the detection of people are listed in Annex iv of the regulations, they must either be manufactured in full conformity with the relevant type 'C' designated standard (BS EN 12978) or be subject to type testing by an approved body.

The manufacturer of the safety component must supply it with comprehensive instructions. The instructions must be detailed enough that the manufacturer/assembler incorporating the safety component into a finished 'machine' can achieve overall compliance with applicable standards and enable them to produce an adequate operation and maintenance manual for the finished system.

Manufacturers and installation companies using 3rd party supplied safety components should ensure that they are being supplied with a DOC and that they follow the installation manual.

1.1.7. Certification

The 2008 regulations cover a wide range of machinery. Some products within scope require certification via an approved body. Certification bodies are approved by the Secretary of State on the advice of UKAS. In this industry, machinery certification is rare but there is one component that might require certification. Logic units that control a safety function are listed in Annex iv of SMSR and, where they are placed on the market independently, not part of a partly complete machine, they are subject to certification. Most control panels however reach the market as part of a partly complete machine (panel and drive unit combination) and are covered by a DOI.

1.1.8. Installation manual

Where it is intended that others (eg an installation company) will install the system, the responsible company must provide detailed installation instructions that include:

i. where necessary, information explaining safe transport, handling, and storage
ii. drawings & diagrams as required
iii. the specification for any foundation or other supporting structure and fixings necessary
iv. assembly, installation, and electrical connection details
v. instructions for the putting into service (commissioning)
vi. information about the residual risks that remain or could remain (acknowledging that the installation company will need to assess the residual risks (as installed) on site).

1.1.9. Operation and maintenance manual (O & M)

The responsible company must provide an operation and maintenance manual for the system; it must include:

i. an explanation of the residual hazards and how to safely use the door and what user training is required
ii. what to do in the event of power failure, how to electrically isolate and use any manual release/controls
iii. how to identify when a safety system (including fall-back protection) has activated, what to do and when professional technical support is required.

The maintenance section of the manual must describe in detail the steps necessary to keep the system in a safe condition:

iv. inspections, cleaning & lubrication
v. adjustments & parts replacements
vi. safety testing (eg force or non-contact presence detection testing).

The maintenance instructions must specify the qualifications, skills and experience needed to execute the various maintenance tasks and set out the required service or time interval for each element.

1.1.10. Technical file

The responsible company must compile a technical file to document the entire compliance process and retain it unchanged for at least 10 years. The file must be assembled and provided, upon reasoned request from the relevant national authorities (such as HSE, Trading Standards, Environmental Health, or the Police). There is no requirement to share the technical file with the client.

The technical file must contain at least:

i. technical drawings and specifications for the structure, foundations and safety critical elements such as hinges, guides, wheels, barrel, end plates, stops, fixings and calculations for loadings
ii. the risk assessment, including the seven steps described in 1.1.4
iii. a copy of the declaration of incorporation for any partly complete machine components used
iv. a copy of the declaration of conformity for any safety components used
v. a copy of the installation manuals for all 3rd party supplied components used
vi. a copy of the installation instructions (where applicable)
vii. force test report or non-contact presence detection test report (as applicable)
viii. a copy of electrical test certificates or reports
ix. a copy of the operation & maintenance instructions (O & M)
x. a copy of the declaration of conformity

1.1.11. Declaration of conformity (DOC)

The client must be supplied with a declaration of conformity (DOC) that declares conformity with the Supply of Machinery (Safety) Regulations and all other relevant UK product safety regulations (example below).

Declaration of Conformity *(example)*

Company name: *Powered gate manufacturer*

Company address: *Powered gate manufacturer address*

Type/serial: *Powered gate serial number*

The company above declares under its own authority that the system above is in full compliance with:

- Supply of Machinery (Safety) Regulations 2008

The company additionally declares under its own authority that the system is also in full compliance with the following regulations:

- Electromagnetic Compatibility Regulations 2016
- Radio Equipment Directive Regulations 2017

Date of declaration

Name & signature of the responsible person

Whoever signs the DOC should be the person responsible for overall compliance, including ensuring that the technical file has been assembled.

1.1.12. SMSR UKCA mark

The system must bear a UKCA plate, mounted visibly, legibly, and indelibly containing:

i. the responsible company's name and address
ii. a product designation or serial number
iii. SMSR 2008
iv. the year of manufacture.

Company name	*Company address*
UK CA SMSR 2008	*Year of manufacture*
	Description
	Type/serial

New doors will require additional information to satisfy the requirements of the Construction Products Regulation, see section 2.2.

1.1.13. EH&SRs applicable to doors, gates and barriers

The applicable EH&SRs from Annex 1 of the regulations, together with likely control measures are set out below:

1. Foreseeable misuse
Must be considered and provided for in the risk assessment.

1.1.2. Principles of safety integration
The system must be designed in the following order: safe design used wherever possible to eliminate hazards; safety systems/devices must be applied for hazards that cannot be designed out; warnings must be provided for the residual hazards.

1.1.3. Materials & products
All materials must be suitable for use and environment, oils and other hazardous substances must be properly contained.

1.1.5. Design of machinery to facilitate handling
Manufacturers of 'supply only' systems must indicate safe lifting points where necessary to avoid damage.

1.2.1. Safety & reliability of control systems
Use appropriate control systems, as per BS EN 12453, supplied with a DOI and follow the installation manual. (DHF guidance does not cover design and manufacture of control systems.)

1.2.2. Control devices
Must be safely placed and activate a safe response.

1.2.3. Starting
Dealt with by the manufacturer or control system manufacturer and covered by their DOC or DOI as appropriate.

1.2.4. Stopping
Dealt with by the manufacturer or control system manufacturer and covered by their DOC or DOI as appropriate.

1.2.5. Mode selection
Dealt with by the manufacturer or control system manufacturer and covered by their DOC or DOI as appropriate.

1.2.6. Failure of power supply
Dealt with by the manufacturer or control system manufacturer and covered by their DOC or DOI as appropriate.

1.3.1. Stability of foundations
Foundations, supporting structures, fixings, leaves, guides, rollers, tracks, stops, hinges, plates, shafts, barrels etc should be designed as per BS EN 12604.

1.3.2. Risks of break up during operation
Foundations, supporting structures, fixings, leaves, guides, rollers, tracks, stops, hinges, plates, shafts, barrels etc should be designed as per BS EN 12604.

1.3.4. Risks due to surfaces, edges or angles
All sharp edges and hooking hazards should be removed or protected.

3.5. Risks related to combined machinery
Control system integrity must be maintained when combining systems (eg doors & dock leveller systems) from differing manufacturers.

1.3.6. Risks related to variations in operating conditions
Systems must be able to withstand their expected wind load, as per BS EN 12604.

1.3.7. Risks related to moving parts
All moving parts hazards identified in the risk assessment.

1.3.8. Choice of protection against moving parts hazards
All hazards identified 1.3.7. must be controlled in line with the state-of-the-art – BS EN 12453.

1.3.9. Risks of uncontrolled movements
Fall-back protection provided as per BS EN 12453/12604.

1.4.1. General requirements of guards
Mesh size and horizontal clearances should be appropriate, securely fixed and made anti-climb as per BS EN 12453.

1.4.2.1. Special requirements for fixed guards
Only removable by key or tool, fixings must be retained on the guard when it is removable for maintenance.

1.4.3. Special requirements for protective devices
Use appropriate safety components supplied with a DOC and follow the installation manual. Sensitive devices compliant with BS EN 12978 & achieving category 2/3 as installed.

1.5.1. Electricity supply
The supply should be provided, tested and certified to national standards (BS 7671 in the UK). All other cabling & wiring and earthing should be provided and tested in accordance with the control/drive system manufacturer's installation manual/BS EN 12453.

1.5.4. Errors of installation
Instruction manuals should be followed by competent, trained, skilled fitters.

1.5.14. Risk of being trapped
Manual release should be provided as appropriate.

1.5.15. Risk of slipping, tripping or falling
Should be identified and controlled; residual hazards must be highlighted and explained in the user warnings.

1.6.1. Machinery maintenance
Detailed maintenance instructions must be specified in the planned preventative maintenance instructions, including the required maintenance frequency.

1.6.2. Access to operation position & servicing points
Access for maintenance in safety must be possible.

1.6.3. Isolation of energy sources
An electrical isolator must be provided within sight of the door or made lockable on the off position. Isolators must be "all pole" design switching line and neutral conductors.

1.7.1. Information and warnings
Warning signs & markings must be provided as appropriate to the residual risk.

1.7.1.2. Warning devices
Flashing lights, traffic lights and sounders, etc should be provided as appropriate to the residual risk.

1.7.2. Warning of residual risks
Must be explained in the user instructions and warnings.

1.7.3. Marking of machinery
The system must be CE/UKCA marked visibly, legibly and indelibly.

1.7.4. Instructions
Instructions and warnings must be carefully compiled and passed to the client along with the required user training.

1.2. Construction Products Regulations 2013 (CPR) – TS 012:2019

The UK Construction Products Regulations 2013 (CPR) apply in GB and Northern Ireland and enforce the European Construction Products Regulation 305/2011.

The CPR cover a very wide range of construction products, from sand and cement through things like lintels, joists, windows doors, plasterboard to entire steel frames, to name but a few. According to the CPR, the definition of a construction product is *"Any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof, the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works."* Doors in buildings are, without doubt, construction products.

The CPR require that the manufacturer of any construction product, covered by a designated (harmonised) standard, must draw up a declaration of performance and UKCA mark the product accordingly. The requirements for compliance are set out in Annex ZA of the relevant designated standard(s):

i. BS EN 13241 covers the main essential characteristics applicable to all industrial and garage doors

ii. BS EN 16034 covers the fire and smoke resisting essential characteristics of a wider range of doors, including industrial doors.

From July 2013, CPR compliance and the associated marking became mandatory for all doors within scope of BS EN 13241:3003 +A1;2011. Doors with fire and smoke resisting characteristics were excluded from the scope at this time. This had the effect of excluding them from the need for CPR compliance and associated marking; the CPR only apply, where all relevant essential characteristics are covered by a designated standard. Although industrial doors were in scope of BS EN 16034, the lack of coverage (by BS EN 13241) for their main essential characteristics of fire/smoke resisting doors prevented CPR compliance.

In 2016, the scope of BS EN 13241 was amended to include doors with fire and smoke resisting characteristics. At this point, a voluntary co-existence period began, whereby CPR compliance and CE marking was possible but not mandatory. In November 2019, the coexistence period expired; CPR compliance and the associated CE marking became mandatory for all doors within the scope of BS EN 13241:2003 +A2:2016.

The scope of BS EN 13241:2003 + A2:2016 is:

"The safety and performance requirements, except resistance to fire and smoke control characteristics, for industrial, commercial, garage doors and gates and barriers, intended for installation in areas in the reach of persons, and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial or residential premises. Fire resisting and/or smoke control characteristics for industrial, commercial, garage doors and gates are covered by EN 16034.

This European Standard also covers commercial doors such as rolling shutters and rolling grilles used in retail premises which are mainly provided for the access of persons rather than vehicles or goods. These doors can include pass doors incorporated in the door leaf which are also covered by this European Standard. These devices can be manually operated or powered.

Doors that are not covered are: lock gates and dock gates, doors on lifts, doors on vehicles, armoured doors, doors mainly for the retention of animals, theatre textile curtains, horizontally moving power operated doors mainly intended for pedestrian use in accordance with EN 16005 and revolving doors of any size."

Fabric doors are within scope, whether fire resisting or not. This means that fire curtains used over doorways are subject to CPR compliance, but room divider curtains are not, because they are not 'doors'.

Note: CE marking under the SMSR has been required since 1995 for all powered doors, regardless of whether or not they are fire/smoke resisting.

1.2.1. Exceptions to compliance (Article 5)

There are some situations where it is not necessary to apply the CPR to doors within scope of BS EN 13241, or provide a declaration of performance or UKCA mark (under the CPR):

i. Where the door is individually manufactured or custom-made in a non-series process, in response to a specific order, and installed in a single identified construction work.

ii. Where the door is manufactured in a traditional manner or in a manner appropriate to heritage conservation and in a non-industrial process. For adequately renovating construction works officially protected as part of a designated environment or because of their special architectural or historic merit, in compliance with the applicable national building rules.

These exceptions would not apply where the door in question is simply made to a specific size, eg made to measure rolling shutter; it must be a one-off design or type. Manufacturers should be aware however that other legislations does still apply: SMSR 2008 for powered doors (see 1.1), Section 6 of HSWA 1974 (see 2.2), Building Regulations and the Workplace Regulations (see 2.4) to name but a few; the door must still be safe and the standards are still significant. The exceptions simply relax the need for compliance with the CPR; all other applicable legislation applies in full.

See also 1.2.29 where, for particular reasons (eg client request), the manufacturer may wish to issue a declaration of performance and UKCA mark the door; there may be other applicable relaxations of CPR requirements.

1.2.2. Responsibility for compliance

The company responsible for conformity is the one who first "manufactures" the door or who places it on the UK market.

The following activities create a legal responsibility for compliance with the CPR:

i. manufacture a complete door and place it on the market

ii. assemble components from more than one manufacturer to make a complete door, either on site or in your own workshop, for example if you:
   - fabricate a door and install a drive unit from a 3rd party supplier
   - install a door supplied by one manufacturer with a drive unit supplied by another
   - buy a collection of individual components from a supplier not certified by them as a complete door
   - buy components from multiple sources which you assemble

iii. modifying a complete door prior to or during installation in a way not permitted in the manufacturer's instructions

iv. importing a door from outside the UK into the UK

v. distributing a door:
   - made for a distributor based in GB under the distributor's own brand
   - created by distributor in the GB using components from various suppliers.

A door can be a complete finished door or a kit of parts, provided it is complete.

Distributors of doors also have responsibilities, primarily to ensure the products they handle are legally supplied.

1.2.3. Main essential characteristics (all doors fire& non-fire)

Central to CPR compliance are the essential characteristics that must be assessed for performance and verified for constancy of performance. The characteristics that must be subject to assessment and verification, and how this must be done, is specified by the appropriate designated standard. This process is termed AVCP, assessment and verification of constancy of performance.

Only the safety characteristics need to have a performance declared, other characteristics can be declared to have no performance determined – NPD.

Main Essential Characteristics Requirements (all doors in scope of BS EN 13241)	Clause from BS EN13241	Classification	AVCP System
Mechanical resistance and stability	4.2.3	Pass/fail	4
Definition of geometry of glass components	4.2.5	Pass/fail	4
Safe opening for vertically moving doors	4.2.8	Pass/fail	3
Resistance to wind load	4.4.3	Class	3
Operating forces for power powered doors	4.3.3	Pass/fail	3
Release of dangerous substances	4.2.9	None/details	3
Watertightness	4.4.1	Class or NPD	3
Air permeability	4.4.6	Class or NPD	3
Thermal resistance	4.4.5	U-value or NPD	3
Durability of watertightness, thermal resistance and air permeability against degradation	4.4.7	Values or NPD where NPD is clamed for the characteristics	3

1.2.4. AVCP system 3

Assessment and Verification of Constancy Performance system 3 requires that the characteristics concerned are tested by an approved test laboratory. The laboratory will issue a test report. The factory production control is left to the manufacturer (see 1.2.26).

1.2.5. AVCP system 4

Assessment and Verification of Constancy Performance system 4 allows the manufacturer to do the type testing and factory production control themselves; there is no need for approved body involvement.

1.2.6. Approved test laboratory

Approved test laboratories are appointed by the Secretary of State on the advice of UKAS. They can conduct type testing of characteristics that they hold UKAS approval for. They will issue a type test report.

1.2.7. Mechanical resistance and stability

The structural strength of the door as per BS EN 12604:2000.

1.2.8. Definition of geometry of glazing

The safety of glazing materials, their fixing and visibility as per BS EN 12604:2000.

1.2.9. Safe opening

Fall-back protection for vertically acting doors as per BS EN 12604:2000. For horizontally moving doors, this characteristic will be NPD.

1.2.10. Resistance to wind load

Resistance to wind load in positive and negative directions, measured in Pascals (not wind speed), as per BS EN 12604:2000.

Note: This has no bearing on actual wind speed. The required wind class should be specified by the project principal designer, eg the client's architect. The door supplier should then supply a door that can resist the specified number of Pascals. Where the client is not providing a wind class (in Pascals) in the specification, the door supplier should be cautious, the client possibly expecting that they are the principal designer.

An abbreviated method for calculating the wind pressure on buildings is explained on BS 6375-1, or a more accurate method is explained in BS EN 1991-1-4.

1.2.11. Operating force

Control of operating force by hold-to-run, force limitation or non-contact presence detection as per BS EN 12453:2001. For manual doors, this characteristic will be NPD.

1.2.12. Release of dangerous substances

Assessment of the presence and control of hazardous substances as per BS EN 13241.

1.2.13. Watertightness

The ability of the door to prevent the ingress of water, classified as per BS EN 12425. Can be NPD.

1.2.14. Air permeability

The ability of the door to control air flow, classified as per BS EN 12426. Can be NPD.

1.2.15. Thermal resistance

The thermal efficiency of the door measured or calculated to provide a U value as per BS EN 12428. Can be NPD.

1.2.16. Durability of watertightness, air permeability and thermal resistance

Given as the number of cycles that the door can operate for whilst maintaining the stated performances. Will be NPD where the relevant characteristics are NPD.

1.2.17. Fire and smoke related characteristics (fire & smoke doors only)

Main Essential Characteristics Requirements (fire or smoke resisting doors)	Clause from BS EN 16034	Classification	AVCP System
Resistance to fire	4.1	Class	1
Smoke control	4.2	Class or NPD	1
Ability to release	4.3	Released or NPD	1
Self-closing	4.4	C or NPD	1
Durability of self-closing against: – degradation, and – corrosion	4.5.2.1 4.5.2.2	Number of cycles Class	1
Durability of ability to release	4.5.1	Released or NPD	1

1.2.18. AVCP system 1 (certification)

Assessment and Verification of Constancy Performance system 1 requires that, for the characteristics concerned, type testing, extended application assessment, classification and factory production control must all be subject to certification by a CPR approved product certification body. The certification body will issue the manufacturer with a certificate of constancy of performance; they will have an ongoing relationship with the manufacturer to maintain the certification.

1.2.19. Approved product certification body

Approved product certification bodies are appointed by the Secretary of State on the advice of UKAS. They can only certify products and characteristics that they hold UKAS approval for. They will issue a certificate of constancy of performance and have an ongoing relationship with the manufacturer to maintain certification.

1.2.20. Resistance to fire

The resistance to fire characteristic is the ability of the door to resist fire, as tested in accordance with BS EN 1634-1, measured in minutes. Resistance to fire is split into four sub sections:

i. E: integrity – mandatory for fire resisting doors
ii. I_1: insulation – time 180° at any point – can be NPD for doors without insulation properties
iii. I_2: insulation – time to 360° at any point on the frame - can be NPD for doors without insulation properties
iv. W: radiation – can be NPD for doors without radiation protection properties

1.2.21. Smoke control

The ability of the door to resist smoke, as tested in accordance with EN 1634-3. This can be NPD for doors without smoke resisting properties.

1.2.22. Ability to release

The ability of the door to begin closing from the held open position, as tested in accordance with EN 1634-1. Can be NPD for doors that are not held open.

1.2.23. Self-closing

The ability of the door to close fully, as tested in accordance with EN 1634-1. Can be NPD for doors that are not held open.

1.2.24. Durability of self-closing against degradation and ageing

The ability of the door to self-close for a declared number of cycles, as tested in accordance with EN 1634-1. Can be NPD for doors that are not held open.

1.2.25. Durability of ability to release

The ability of the door hold-open system to release and allow the door to close due to stored energy (spring) or gravity (direct or via counterweight system) in accordance with EN 14637 for all door types, or EN 1155 for swing doors.

Continued over page.

The intention is to ensure that a held open door will close in response to the fire detection system, when there is a lack of power or where there is a fault in the hold open system that could prevent closing when required.

This characteristic can be NPD for doors that are not held open or do not need to close when subject to power failure, or under fault conditions.

Note: In certain situations, a heavy shutter closing without warning at power cut or fault could be hazardous for building occupants and may not be desirable.

1.2.26. Factory production control (FPC)

Production of doors must be controlled by a documented factory production control system to ensure that actual production remains relevant to the essential characteristic type tests that are completed.

The factory production control process for system 3 characteristics does not need to be certified and independently audited but must be detailed and thorough such that any changes in supply of components, materials or production methods ensure constancy of the declared performance.

If significant changes in materials, manufacture or components significantly change the essential characteristics, testing will need to be repeated (by the notified test laboratory as appropriate) to verify the change.

For system 1 characteristics, initial assessment and ongoing management of the factory production control system is assessed and audited by the approved product certification body.

1.2.27. Cascaded type test evidence (Article 36)

To avoid the need for repeated testing of components, Article 36 of the CPR allows the manufacturer of a component to have the component tested by an approved test laboratory and then provide their clients with authority to use their test evidence.

There is no legal obligation on a component manufacturer to type test their product or offer their clients authority to use cascaded test evidence. Where they do, it will offer a commercial advantage to their clients and reduce the need for repeated testing of commonly used components.

Any manufacturer wishing to make use of cascaded evidence for compliance of their product, must gain written authority and details of the limitations of the evidence that apply (height, width, weight, speed, type of safe edge, etc) from the component manufacturer and file it in their technical file.

Cascaded type test evidence can be used for the following product groups:

i. lath/panel, guide and seal assemblies for resistance to wind load, air permeability and watertightness characteristics

ii. drive unit, control panel, hold-to-run device, safe edge, light grid or laser scanner device combinations for the operating force characteristic (powered doors)

iii. fall-back protection device for the safe opening characteristic (vertically acting doors).

Testing of components will mostly need to be done on simulations or ‘worst case scenario’ doors. The test laboratory will issue a test report. It is up to the component manufacturer to interpret the test report and design their authority document. Where they do cascade type test evidence, they will be bearing a degree of responsibility for the compliance of the completed doors in question.

If cascaded type test evidence is used, reference to the authority document concerned must be included on the declaration of performance under the heading ‘appropriate technical documentation’. The test laboratory reference number must also be included in the section on authorised bodies.

1.2.28. Micro-enterprises (Article 37)

Micro-enterprise manufacturers, defined as a company with fewer than 10 employees and less than 2m turnover per annum by the regulations, may treat a system 3 characteristic as if it were a system 4 characteristic. They can do their own type tests, provided they can demonstrate that they have conducted the required testing. This could prove difficult in some circumstances as complex test rigs are needed for some of the testing; it may prove advantageous to purchase components that come supplied with cascaded type test evidence instead.

For system 1 characteristics, the decision to allow or disallow cascaded test evidence will have to be decided by the approved product certification body.

1.2.29. Bespoke doors (Article 38)

Where a door is individually manufactured or custom-made, in a non-series process, in response to a specific order, and is installed in a single identified construction work, the manufacturer may treat a system 3 characteristic as if it were a system 4 characteristic. They can do their own type tests, provided they can demonstrate that they have conducted the required testing in full. This could prove difficult in some circumstances as complex test rigs are needed for some of the testing; it may prove advantageous to purchase components that come supplied with cascaded type test evidence instead.

1.2.30. Technical file (Construction Products Regulation)

The company or person responsible for compliance must retain a technical file that contains at least:

i. type test reports from notified test laboratories
ii. test reports detailing type testing done by the manufacturer
iii. written authority to use cascaded test evidence from component suppliers (where used)
iv. the original declaration of performance, installation manual and user manual from the manual door manufacturer (where a manual door has been powered)
v. the risk assessment for powering a manual door (see also SMSR 2008).
vi. a copy of the declaration of performance.

Some items in this list could be shared by numbered reference, with documents in the SMSR 2008 technical file for a powered door.

1.2.31. Declaration of performance (DOP)

The company or person responsible for compliance must draw up a Declaration of Performance and make it available to the client. It must include the following details:

i. manufacturer's name and address
ii. a product designation or serial number
iii. the essential characteristics and performances, including those declared NPD
iv. the designated standards used
v. the AVCP systems used
vi. the approved bodies used and their reference numbers
vii. any appropriate technical documentation used (cascaded test evidence)
viii. the intended use

Example declarations are shown over the page.

Declaration of Performance *(example)*
Construction Products Regulations 2013

Company name: *Garage door manufacturer*

Company address: *Garage door manufacturer address*

1. Unique identification code of the product type: *SM-RSD-01*
2. Intended use: *Domestic garage door*
3. System/s of AVCP: *Systems 3 and 4*
4. Harmonised standard: *BS EN 13241-1:2003 + A2:2016*
5. Approved test laboratory reference number: *1234*
6. Declared performances:

Essential Characteristic	Declared Performance	AVCP System	Harmonised Standard
Water tightness	*NPD*	**3**	**BS EN 13241: 2003 + A2:2016**
Dangerous substances	*NONE*	**3**	
Resistance to wind load	*CLASS 4*	**3**	
Thermal resistance	*NPD*	**3**	
Air permeability	*NPD*	**3**	
Safe opening	*PASS*	**3**	
Definition of geometry of glass components	*NONE*	**4**	
Mechanical resistance and stability	*PASS*	**4**	
Operating forces	*PASS*	**3**	
Durability of water tightness, thermal resistance and air permeability against degradation	*NPD*	**3**	

6. Appropriate Technical Documentation

Cascaded evidence authority document references (where used)

The performance of the product identified above is in conformity with the declared performances. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.

Name, date & signature of responsible person

Declaration of Performance *(example)*
Construction Products Regulations 2013

Company name: *Shutter manufacturer*

Company address: *Shutter manufacturer address*

1. Unique identification code of the product type: *FRS RSD-02*
2. Intended use: *Fire resisting shutter*
3. System/s of AVCP: *Systems 1, 3 and 4*
4. Harmonised standard: *BS EN 13241-1:2003 + A2:2016 & BS EN 16034:2014*
5. Approved product certification body: *5678*
6. Declared performances:

Essential Characteristics	Declared Performance	AVCP System	Harmonised Standards
Water tightness	*NPD*	3	BS EN 13241: 2003 + A2:2016
Dangerous substances	*NONE*	3	
Resistance to wind load	*CLASS 4*	3	
Thermal resistance	*NPD*	3	
Air permeability	*NPD*	3	
Safe opening	*PASS*	3	
Definition of geometry of glass components	*NONE*	4	
Mechanical resistance and stability	*PASS*	4	
Operating forces	*PASS*	3	
Durability of water tightness, thermal resistance and air permeability against degradation	*NPD*	3	
Resistance to fire	E *240* I_1 *NPD* I_2 *NPD* W *NPD*	1	BS EN 16034:2014
Smoke control	*NPD*	1	
Ability to release	*RELEASED*	1	
Self-closing	*C*	1	
Durability of ability to release	*NPD*	1	
Durability of self-closing against: degradation and ageing	*5,000*	1	

6. Appropriate Technical Documentation

Cascaded evidence authority document references (where used)

The performance of the product identified above is in conformity with the declared performances. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.

Name, date & signature of responsible person

1.2.32. CPR UKCA mark

The company or person responsible for compliance must apply a UKCA marking plate or label mounted visibly, legibly and indelibly to the door that includes at least the following:

i. the UKCA mark and the applicable legislation
ii. manufacturer's name and address.
iii. a product designation or serial number
iv. the year of manufacture and intended use
v. the essential characteristics and performances
vi. the designated standard(s) used
vii. the approved test laboratory reference number
viii. the intended use of the door

Examples of UKCA marking plates are shown below.

Company name		*Company address*	
UKCA	CPR 2013 & SMSR 2008	*Year of manufacture*	
		Type or serial	
Essential Characteristic		**Declared Performance**	**Designated Standard**
Dangerous substances		*NONE*	**BS EN 13241: 2003 + A2:2016**
Resistance to wind load		*Class 3*	
Safe opening		*PASS*	
Mechanical resistance		*PASS*	
Operating forces		*PASS*	
Approved test laboratory reference number			
Domestic garage door			

Company name		*Company address*	
UKCA	CPR 2013 & SMSR 2008	*Year of manufacture*	
		Type or serial	
Essential Characteristics		**Declared Performance**	**Harmonised Standards**
Dangerous substances		*NONE*	**BS EN 13241: 2003 + A2:2016**
Resistance to wind load		*Class 4*	
Safe opening		*PASS*	
Mechanical resistance		*PASS*	
Operating forces		*PASS*	
Resistance to fire		*E240*	**EN 16034:2014**
Ability to release		*Released*	
Self-closing		*C*	
Approved product certification body reference number			
Fire resisting rolling shutter door			

The essential characteristic and approved body information must match that on the declaration of performance.

Powered doors should not bear individual UKCA plates for CPR 2013 and SMSR 2008; information relevant to both pieces of legislation should be included on a single plate.

Note: Where a new manual door is combined with a 3rd party power unit at the point of installation, the UKCA marking for the manual door must be removed and replaced by a new UKCA plate by the company or person responsible for powering the door.

1.3. Differences where CE marking is required or permitted (EU 27, NI & GB from NI)

UKCA marking is only valid in Great Britain (England, Scotland and Wales). CE marked goods will not be accepted in GB after 31st December 2021, unless they are coming from Northern Ireland (see 1.3.3 below).

1.3.1. Goods manufactured in GB

When being exported to the EU 27, CE marking must be used after 31st December 2020, UKCA marking will not be recognised:

i. The declaration and CE mark must use references to EU directives, not UK regulations.

ii. The manufacturer will need to appoint an EU 27 based importer, the documentation/product will need to bear the name and address of the importer and they will need access to the DOC/DOI and technical file should the EU 27 authorities request it.

iii. If the product is subject to certification, see 1.1.7 & 1.2.20, that certification must come from an EU 27 certification body (which could be the EU 27 subsidiary of a UK certification body).

1.3.2. Goods manufactured in the EU 27

When being imported to GB, UKCA marking must be used after 31st December 2021 at the latest:

i. The declaration of conformity and UKCA mark must use references to UK regulations, not EU directives.

ii. The manufacturer will need to appoint a UK based importer, the documentation/product will need to bear the name and address of the importer and they will need access to the DOC/DOI and technical file should the UK authorities request it.

iii. If the product is subject to certification, see 1.1.7 & 1.2.20, that certification must come from a UK certification body (which could be the GB subsidiary of an EU 27 certification body).

1.3.3. The Northern Ireland Protocol

This treats Northern Ireland as if it were a member of the EU 27 (to avoid a hard border) and allows businesses unfettered access to the GB market:

i. Where GB manufactured goods are being exported to NI, CE marking must be used (as per 1.3.1) and a NI or an EU 27 importer must be appointed (in a similar manner to 1.3.1 point ii).

ii. Where NI manufactured or distributed goods are being exported to GB, CE marking should be used, there is no need to appoint a GB importer.

iii. If the product is subject to certification, see 1.1.7 & 1.2.20, and being sent from GB to NI or NI to GB, where the certification body is based in the EU 27 (this could be the EU 27 subsidiary of a UK body), the product must be CE marked, or if the certification body is based in the UK, the product must bear the CE + UKNI mark.

1.3.4. UKCA to CE marking document references

UKCA marking documentation references	CE marking documentation references
Supply of Machinery (Safety) Regulations 2008	Machinery Directive 2006/42/EC
Responsible person	Manufacturer
Designated standard	Harmonised standard
SMSR Approved certification body	MD Notified certification body
CPR Approved product certification body	CPR Notified product certification body
UKCA mark	CE mark, or CE+UKNI when certified by a UK body (NI Protocol only)
Electro Magnetic Compatibility Regulations 2016	Electro Magnetic Compatibility Directive 2014/30/EU
Radio Equipment Regulations 2017	Radio Equipment Directive 2014/53/EU
BS EN 12453, BS EN 12604 & BS EN 12978	EN 12453, EN 12604 & EN 12978

2. National health and safety legislation

This section explains the various pieces of general health and safety legislation that affect the installation and maintenance of systems covered in this supplement. Although the effect is in general the same in all countries covered, there are subtle differences in some jurisdictions. To avoid repetition, we will explain the situation in GB and then point out any differences in Northern Ireland and the Republic of Ireland.

2.1. All areas of UK and Ireland

Any person or company may be subject to civil claims for negligence if something they do, or fail to do, results in personal injury or damage to the property of a 3rd party, including private domestic owners.

It must be understood that, in the event of an incident with a system, the ensuing investigation will assess the input and actions of all parties associated and no guarantee of the outcome can be given. The investigation will ask who did what, what did those involved know about the condition of the offending system and, then, what action could they have reasonably taken, or did they take to prevent the occurrence?

Most investigations follow the following order:

i. What happened?

ii. Could it have been avoided (eg what do applicable standards require)?

iii. Who had a responsibility to take the avoiding action?

iv. What legislation applies?

The following criminal legislation sections are not exhaustive. Other civil law or criminal legislation may well apply at any given location dependent on the precise details of the system and its location.

2.2. Health and Safety at Work Act 1974 (HSWA)

The Health and Safety at Work Act 1974 places a criminal responsibility on all persons carrying out their work to take "reasonable and practicable" precautions to ensure the health and safety of affected persons. What constitutes 'reasonable and practicable' relies heavily on the contents of product specific standards where they exist. There is robust legal precedent in this industry to show that investigating officers and prosecuting authorities commonly conclude that it would be both reasonable and practicable to apply the appropriate standard.

The most significant sections of HSWA 1974 are outlined below:

i. Section 2 places a responsibility on employers to provide for the safety of their employees. This would affect owners and managers of workplaces, manufacturers, installation companies and maintenance companies.

ii. Section 3 places a responsibility on employers and the self-employed to ensure that persons not in their employ are not harmed as a result of work they do. This would apply to owners and managers of workplaces, landlords and managing agents, installation and maintenance companies. Systems in their care or that they install or maintain must be safe, or left in a safe condition following maintenance.

iii. Section 6 places a responsibility on manufacturers of products for use at work to ensure they are safe.

iv. Section 7 places a responsibility on employees to ensure that they and others who may be affected are not harmed as a result of their work.

The Act does not apply to private domestic owners; they are not doing work.

Note: This is the legislation most commonly used to prosecute owners, managers, installation and maintenance companies and even employees in this industry.

In Northern Ireland, the Health and Safety at Work Order 1978 fulfils a very similar role to the GB HSWA 1974. In the Republic of Ireland, there is the Safety, Health and Welfare at Work Act 2005 that makes broadly similar provisions.

Additionally, in the Republic of Ireland, a charge of reckless endangerment under the Non-Fatal Offences Against the Person Act 1997 could be considered where someone is injured as a result of the actions of others.

2.3. The Electricity at Work Regulations 1989 (EAWR)

The Electricity at Work Regulations 1989 place a criminal responsibility on any person carrying out their work to ensure electrical systems are installed and maintained to prevent electric shock and fire due to electrical faults. Installation and maintenance companies must make sure the work they do is electrically safe. Owners (but not private domestic owners) and managers must ensure that the fixed wiring supply to doors, gates and barriers is safe and periodically inspected.

Live working must be avoided wherever possible, safe isolation principles must be implemented. This will mean that, at the very least, systems are electrically isolated for basic electrical inspections before work begins and that any work that must be done live must be conducted with the upmost care and planning, using the appropriate equipment.

The regulations also dictate that electrical work is only conducted by persons who possess the knowledge or experience or are working under such degree of supervision as may be appropriate, to prevent harm.

There are two routes commonly used to achieve this:

i. qualified electricians are essentially electrically skilled persons, or

ii. site operatives following advice or guidance (from an electrically skilled source) can be electrically skilled enough to fulfil a specific task or operation:

- product specific training, either in-house or from product manufacturers
- installation and maintenance manuals for the products in question
- on site or other direct supervision.

In Northern Ireland, the Electricity at Work Regulations (Northern Ireland) 1991 and, in the Republic of Ireland, the Safety, Health and Welfare at Work (General Applications) Regulations 2007 make broadly similar requirements.

2.4. The Workplace (Health, Safety and Welfare) Regulations 1992 (WHSWR)

The Workplace (Health, Safety and Welfare) Regulations 1992 place a responsibility on owners and managers of workplaces to ensure they are safe. For the purposes of this guidance, these regulations are included in order to explain the client's legal position in regard to their doors, gates and traffic barriers.

i. The regulations only apply at premises that are workplaces:

- this includes factories, shops & offices, schools & colleges, pubs, hotels & restaurants and places of entertainment, hospitals & nursing homes
- the term 'workplace' also includes the common parts of shared buildings, private roads and paths on industrial estates and business parks, and temporary worksites, but not workplaces involving construction work on construction sites
- 'work' is defined as work as an employee or self-employed person and premises means any place including an outdoor place.

The regulations do not apply to private domestic owners and exclude homeworkers.

ii. Regulation 5 requires that workplace systems (including doors, gates and barriers) are subject to a suitable and sufficient system of maintenance, but the regulations do not specify a minimum maintenance interval, this level of detail is left to the system manufacturer's O&M manual, site experience, environment and history, etc.

iii. Regulation 18 requires that workplace systems (including doors, gates and barriers) are safe, specific requirements include:

- doors and gates must be protected against derailment and collapse
- vertically acting doors must be protected against falling-back
- powered systems must be prevented from crushing people

Note 1: Regulation 5 requires suitable and sufficient maintenance without specifying a maintenance interval. If an incident occurs that an investigating officer believes to be caused by a lack of maintenance, it could easily be argued that the system in place was neither suitable or sufficient!

Note 2: DHF advises that, where a maintenance company believes that the maintenance frequency or content in place is sub-standard, they should inform the client using an unsafe system notice rating the deficiency as 'requiring improvement'.

The Health and Safety at Work (NI) Order 1978 in Northern Ireland and the Safety, Health and Welfare (General Applications) Regulations 2007 in the Republic of Ireland make broadly similar requirements. In the Republic of Ireland, landlords of rented houses have duties under the Housing (Standards for Rented Houses) Regulations 2008.

2.5. Fire safety (new systems)

For new buildings and renovations of existing buildings, local Building Regulations dictate what is acceptable in terms of fire safety. The guidance differs widely depending on the nature of the building, its use, and the local jurisdiction.

Below are a few of the main points to be aware of:

i. In England and Wales Approved Document B:
   - has a whole section on the requirements for escape route doors that will limit the viability of many powered systems on escape routes, and
   - fire shutters over escape routes should only be operated by a heat sensor at the door (eg fusible link), the theory being that the shutter will only close when the temperature at the door has reached a level where all possibility of life has been lost. The shutter is however permitted to close partially for the control of smoke.

ii. In Scotland, Technical Handbook section 2 advises that shutters are not permitted on escape routes unless they are a security shutter over a shop front and do not close automatically in the event of fire.

iii. In Northern Ireland, (Technical Booklet E) does not mention shutters on escape routes specifically but does place limitations on the use of automatic doors and turnstiles.

Where there is any doubt, specifiers are advised to check with the appropriate guidance (see references section).

2.6. Fire safety (existing buildings)

Virtually all buildings, places, and structures other than individual private dwellings, are covered by fire safety law. To comply, the responsible person will need to carry out and implement the findings of a fire safety risk assessment and also maintain the premises in a safe condition. This responsibility clearly includes regular maintenance of fire and escape doors. In most premises, enforcement is the responsibility of local fire and rescue authorities.

In England and Wales, Regulatory Reform (Fire safety) Order 2005 requires that any person who has some level of control in a premises (other than a private domestic householders) must take reasonable steps to reduce the risk from fire and make sure people can safely escape if there is a fire:

i. Regulation 3 defines the “responsible person” as:
   a. the employer in a workplace, if the workplace is to any extent under their control, or
   b. in relation to any premises not falling within (a) above:
      - the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or
      - the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

ii. Regulation 17 requires that facilities and equipment provided for fire safety are subject to a suitable system of maintenance and maintained in an efficient state.

More detailed advice on application of the RRFO is available from HM government (see the references section). Some important points are listed below in regard to vertically acting doors:

iii. Doors on escape routes should open in the direction of escape and ideally be fitted with a vision panel. This is particularly important where more than 60 people will use them or if they provide an exit from an area of high fire risk (eg a kitchen).

iv. Loading or goods delivery doors, rolling, folding, sliding or up and over, are not normally suitable as a final exit. However, they may be suitable for escape from areas of normal risk by small numbers of staff as long as they are not likely to be obstructed and can easily and immediately be opened manually, even if the door is normally power-operated, and the staff are familiar with the escape route.

v. Whilst a building is not occupied, vertically acting doors can be used as a final security measure, providing building management procedures are in place to ensure they are never closed until the building is empty.

vi. It may be possible to reduce the number of exit routes available when the building has reduced occupancy (eg security staff or during opening up and closing) providing all staff that are present are safe and fully aware of the restrictions in place and their effect on emergency egress during these times.

In Scotland, the Fire (Scotland) Act 2005, Fire Safety (Scotland) Regulations 2006 and, in Northern Ireland, the Fire and Rescue Services (NI) Order 2006, Fire Safety Regulations (NI) 2010 make broadly similar requirements.

In the republic of Ireland, the Safety, Health and Welfare at Work (General Application) Regulations 2007 deal with fire safety in workplaces.

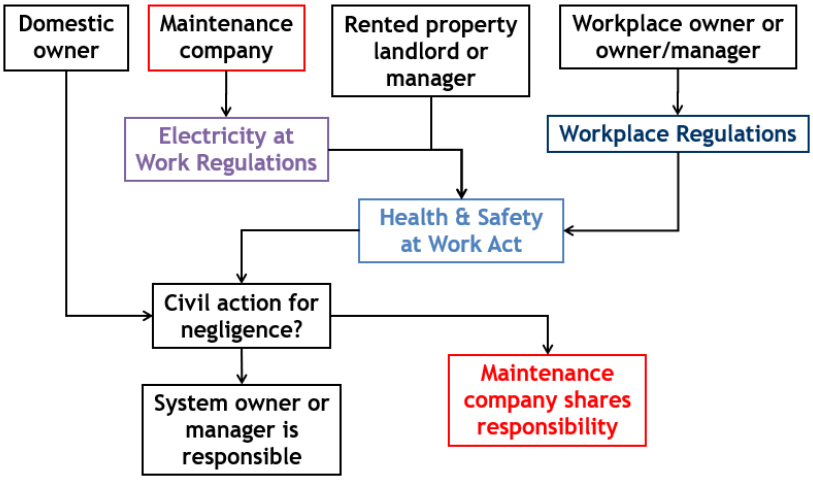
The specifying of suitable systems for control of fire risks is a specialist task for qualified professionals. Door companies should be careful not to take on this role unless they are qualified and experienced in fire risk assessments. In general, the door industry should be providing the equipment specified by the responsible person (or their fire safety contractor), rather than setting the specification for a given premises.

Where there is any doubt, maintenance companies are advised to check with the appropriate local guidance (see references section on page 3).

3. The management of maintenance process

For the purposes of this section, the term 'maintenance' covers all work on an existing system, repair, planned maintenance and all modifications and upgrades that fall short of creating a new system (see section 1.1).

The maintenance company and the client have a range of legal obligations, depending on the environment and local jurisdiction (see section 2).



Flow diagram indicating the responsibilities of duty holders in GB

A system under maintenance is of course the client's property, responsibility, and legal liability. They may also have other legal responsibilities regarding security, building safety and safeguarding, etc to take into account. The maintenance company can however be held criminally responsible where they leave an unsafe system in service following maintenance work.

The respective legal obligations can present a conflict of interest between client and maintenance company. DHF has, in consultation with UK HSE, developed a system for managing the maintenance process that respects the interests of both parties and allows each to manage their own legal obligations. The overriding principle being that neither party will ask the other to act in a manner that could lead the other to breach health and safety legislation.

As with all other scenarios, compliance and safety are mainly defined by the applicable standard, but it is also understood that some non-compliances are more dangerous than others. In acknowledgement of this fact, the system we have developed uses a traffic light system:

- **Safety critical** - leave in a safe condition
- **Requiring improvement** - leave in service but only on the advice of the client
- **Safe and compliant** - leave in service

Requiring improvement is neither safe nor compliant! It is not immediately lethal but there is still a degree of risk for the client and potentially users. Therefore, the client must instruct the maintenance company if they want the system to remain in service in a requiring improvement condition.

3.1. Four step process

The process for managing maintenance is comprised four stages, all must be applied carefully.

Step 1 – Pre-inform the client

Before going to site, the maintenance company should explain to the client that:

i. as a duty of care to themselves, the system will need to be taken out of service for initial electrical and structural safety checks prior to the actual work or assessment process

ii. if during maintenance or assessment work the system proves to have safety critical defects, it will not be able put back into service in that condition.

Step 2 – Assess the work

Once on site, the maintenance company should assess the system for safety before starting work, insofar as is possible in its current condition. They should also assess the extent of work requested to be done by the client in terms of its likely impact on the safety of the system:

i. if assessment is not possible in safety due to lack of safe access, a 'System Safety Unknown Notice' should be issued.

ii. if assessment is not possible due to lack of function, many systems cannot be fully assessed until they are working, the maintenance company should decide what additional diagnostic work is required eg replacement of faulty or damaged components.

The maintenance company should then request clearance to complete the work, any diagnostic work or safety upgrade work necessary.

Step 3 – Complete the work as directed

If no safety defects are found, or the client agrees in full to all necessary works, the work can of course continue as planned. However, if the client requests only the contracted or diagnostic work is completed, the maintenance company should:

i. complete the extent of the work requested by the client

ii. leave the system in a safe condition if it is safety critical

iii. where possible on site, explain the safety issues and how the system has been made safe, eg explain where it has been switched off, etc

iv. consider placing a warning signs or label on the system and taking photographs.

The maintenance company should then inform the client of the hazards present and of the potential consequences in writing, using an 'Unsafe System Notice' (safety critical and/or requiring improvement) by traceable means, eg email or recorded post.

Step 4 – Subsequent visits

If, on a subsequent visit, the maintenance company finds the system is still in service in a safety critical condition, the process should be repeated and the client reinformed of the hazards present and of the potential consequences, using the unsafe system notice. The maintenance company should not put the system back into service with safety critical defects at any stage.

Maintenance companies should review such systems with the client regularly. If a maintenance company continues to arrive at a site repeatedly to find that a system is still in use with safety critical defects, at some point, it could begin to look as if the client and the maintenance company are colluding to maintain an unsafe condition. In order to avoid this, and in the overall pursuit of safe systems, DHF would advise that if, at the third or fourth visit to the site, the client is still resisting safety improvements, then the maintenance company might have to consider in greater detail the risks involved in their continued involvement.

DHF advises that the maintenance company request a formal meeting with the client to discuss their ongoing intentions for safety of the system and to explore the possibility of staged improvements or other hazard mitigation strategies. This meeting and its outcome should be recorded and filed in the relevant maintenance file.

Ultimately, if a client is clearly refusing to have a system made safe, the maintenance company may decide to end the relationship. Should this happen, the relevant authorities (eg HSE or Local Authority Environmental Health Department) should be informed.

3.2. Leaving in a safe condition

Leaving in a safe condition can include, depending on system and the defect:

i. hold-to-run – where the rules allow

ii. left in manual – where the defects are not structural

iii. left closed – manual & powered doors without fall-back protection

iv. left open and switched off – some powered doors without fall-back protection

v. left in service with a warning sign (some fire resisting doors)

vi. secured against collapse – where the problem is structural

vii. switched off

Note 1: Electrically isolated is of no use where the system is in danger of structural failure.

Note 2: In some cases, it may be possible to provide high level pin locks where a shutter does not have fall-back protection. This would only constitute a 'safer' system of work for the client who would also need to apply staff/user training. The shutter would still be non-compliant (requiring improvement); an unsafe system notice would still be required.

Note 3: It can be hard to describe left in a safe condition for fire resisting doors with defects, left closed can block egress, left isolated may prevent closure in the event of fire. Each situation must be assessed on its particular merit.

3.3. Conclusion of the 4-step process

By following the four-step plan, it should be that the only reason a system under maintenance remains in service in a safety critical condition, is that the client/owner/manager has elected to put the system back into service, against the advice of a competent specialist, at their own liability and sole responsibility.

3.4. Lists of 'safety critical' and 'requiring improvement' hazards

• **Safety Critical** **Should not be returned to service**
Structural failure imminent
Structural failure due to wind load probable
Sliding leaf without adequate travel stop
Suspension element of vertically moving door terminally worn or damaged (chain, rope or strap)
Vertically acting door without fall-back protection (except manual drop bar type fire shutters or with high level pin locks – see over)
Fire resisting door with defects that would affect its ability to resist fire
Vertically acting door with lifting potential but no protection
Crush, shear, draw-in or impact hazard not protected below 2.3m above permanent access level
Safety fence or guard provided but easily defeatable
Safe edge at draw-in hazard fails test piece test and is more than 140mm from sliding leaf
Force or time limits over maximum: – Crush/shear/draw-in hazard over 500N – Impact hazard over 1750N – 150N exceeded for over 1s – 25N exceeded for over 10s
Hold-to-run in use, some hazards not visible
Hold-to-run with overtravel over 125mm
Main edge crush hazard protected solely by horizontal low level photo beams.
Wicket door/gate without stop circuit
Class 1 electrical equipment not earthed
Exposed live conductors
Damaged cabling – safety or power circuit

The lists are not exhaustive; where hazards are not listed, a similar ethos must be applied.

• **Requires Improvement** **Could be left in service with client agreement**
Minor structural improvement necessary
Hinged door/gate without travel stops
Hinged door/gate with 2 inverted pin hinges, appears sound but is without protection
Vertically moving door with fall-back protection but further use not prevented
Vertically moving door without fall-back protection but fitted with pin locks at fully open + additional user training/management
Vertically acting, pre-July 2013, un-powered, spring balanced, permanently held open (only closes at fire signal) fire door, without fall-back protection (eg drop bar fire shutter).
Safety brake, cable or spring break device not wired to stop circuit as per installation manual
Crush, shear, draw-in or impact hazard not protected but between 2.3m and 2.5m above permanent access level
Safety fence mesh size/clearance incorrect but only defeatable by extreme action
Safe edge at draw-in hazard fails test piece test but less than 140mm from sliding leaf
Force or time limits over maximum: – Crush/shear/draw-in up to 500N – Impact hazard up to 1750N – 150N exceeded up to 1s – 25N exceeded up to 10s
Safe edge/non-contact presence detection, performance correct but not category 2 or 3 as installed
Hold-to-run by radio fob
Hold-to-run with overtravel up to 125mm
Insufficient supplementary beams
Danger of vehicle impact or impact to vehicle
Insufficient residual hazard controls
Insufficient maintenance
RCD required but not fitted
Unprotected cable in good condition
IP rating incorrect but appears safe currently

In general, safety critical is applied where the system is immediately dangerous, and the degree of harm potential is high. Requires improvement is applied where the system does not have sufficient fault protection (it will become dangerous when a fault occurs) or where the degree of harm potential is lower.

3.5. Maintenance records

Differing from, and not to be confused with, a technical file, the maintenance records are a documented service history. They could be kept by the client or the maintenance company by agreement, but both parties will need to have access to them upon request.

The records should include the following:

i. a copy of the maintenance contract or service agreement
ii. a copy of the O & M manual or manufacturer's maintenance instructions
iii. the risk assessment for initial take-over or subsequent alteration
iv. DOI, DOC and installation instructions associated with component changes
v. a copy of all unsafe system notices issued
vi. a copy of the certificate of compliance issued

3.6. Maintenance frequency and content

Maintenance frequency and content should in the first instance be specified by the manufacturer (responsible company) of the system. In the absence of a specified frequency and content, or if the manufacturer's schedule of maintenance proves inadequate, the maintenance company should design a maintenance schedule that is judged suitable to keep the system in a safe condition. If the client disputes or refuses a revised schedule, this should be treated as a "requires improvement" hazard and notified using an unsafe system notice.

Hold-to-run, force limitation and non-contact presence detection should be performance tested at least annually but need not be tested at every maintenance visit throughout the year (providing that function is checked), unless changes are made that might alter performance, eg:

i. when safety devices are replaced with a different type or size
ii. when a drive unit or control panel that has torque or speed adjustment is replaced
iii. when non-contact presence detection device is replaced
iv. when changes are made that could affect performance or alignment

The maintenance of fire resisting doors is a specialist field that requires suitable training and experience. Primarily, the required maintenance for a fire resisting door should be provided by the manufacturer's operation and maintenance manual. Specialist fire door training is provided jointly by DHF and BRE. Details can be found on the DHF or BRE websites.

3.7. Certificate of compliance

A certificate of compliance is a DHF-inspired document designed to inform the client that the system is safe in situations where a declaration of conformity and UKCA mark are not appropriate, primarily where the maintenance company have made an existing system safe, but not created a new system.

When repair, modification or maintenance is complete, and the system is deemed to be safe and compliant, a certificate of compliance should be issued to the client.

An example of certificate can be found over the page.

Note: DHF provides members with differing certificate templates for doors or gates & barriers.

Certificate of Compliance (industrial door version)

Job reference:

Site address:

Postcode:

Reason for issue:

☐ Maintenance ☐ Repair ☐ Modification

Assessment conducted by:

Structural integrity

☐ Foundations, supports, barrels, shafts, bearings, welding and fixings are provided secure and resilient

☐ Guides, tracks, rollers and hinges are secure, aligned and resilient

☐ Steel wire ropes properly aligned, correct specification and undamaged

☐ Travel stops secure, properly aligned and resilient

☐ Fall-back protection provided (vertically moving doors)

☐ Resistance to wind load correct for environment

☐ Safety distances to prevent crush hazards correct

☐ Guards are secure and have the correct safety clearances

Electrical safety

☐ Earth connections correct and secure

☐ Wire terminations correct and secure

☐ Enclosures and cable entries sealed

☐ Supply conforms to BS 7671/ET 101

☐ Isolation is functional

☐ Safety devices achieve category 2 or 3 as installed

☐ Cabling is secure and protected mechanically

☐ Cable sizes and specifications correct

☐ Dangerous voltage labels in place

☐ Conductive metalwork continuity to earth is tested

☐ Electrical tests completed

Functional tests and settings

☐ Limit switch/system properly set

☐ Safety device function and system response correct

☐ Operating logic correct for safety in use

☐ Photo beam function and response correct

☐ Fall-back protection devices issue a stop command on deployment (as per device instructions)

☐ Wicket door switches operate the stop function

☐ Loop detectors operate the correct command

☐ Intercoms, keypads, key switches, buttons, transmitters etc operate the correct command

☐ The door operates as designed

Safety performance tests

☐ Hold-to-run overtravel measured

☐ Light grid or laser scanner etc tested

☐ Force limitation tested

☐ Force test results assessed and indicate safe force at all hazards protected by force limitation

Warning devices, signage, and markings

☐ Warning devices, signage and markings provided as per the risk assessment

☐ Warning lamps function correctly

☐ Audible warning devices function correctly

☐ Road markings in place and visible

☐ Warning signs in place, visible and comprehensible

☐ Pedestrian railings in place and secure

☐ Pedestrian routes marked and visible

Risk assessment

☐ All hazards identified

☐ All hazards correctly controlled

☐ Residual hazards correctly identified

☐ User warnings explain residual hazards

☐ Safe use instructions reflect the residual hazards

Maintenance

☐ Maintenance instructions adequate

☐ Maintenance interval adequate

☐ Maintenance tasks completed

Maintenance interval months *(insert)*

User information

☐ User training completed

☐ User warnings provided and explained

☐ User instructions provided and explained

☐ Maintenance instructions provided and explained

☐ Maintenance log provided (new systems)

☐ Maintenance log updated (existing systems)

☐ Declaration of Conformity provided (new powered systems)

☐ CE label fitted (new powered systems)

On the date indicated, this system is safe to use and at that time satisfied the legal obligations of both the owner and the maintaining company.

Name: **Signature:** **Date:**

Contact us for more information

Email: info@**dhf**online.org.uk

Telephone: (0)1827 52337

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